



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- STORMW ATER 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: 88012

DATE VERIFIED: December 8, 2021

QUALITY ASSURANCE TECHNICIAN: Charles E. Lovett II

Charles E. Lovett II

LOCATION: WILLIAMSBURG, VIRGINIA

NOTES: CERTIFY & UPLOAD

1. Maintenance Agreement

2. Deeds/Easements/ Agreements/Property Records

3. Construction Certificate

SEP 30 2014



Stormwater Management/BMP Facilities Record Drawing and Construction Certification Forms

RECEIVED

(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: White Hall Section 3Structure/BMP Name: Storm sewer systemsProject Location: Within existing White Hall development (intersection of Rochambeau Dr and Richmond Rd)BMP Location: N/ACounty Plan No.: S-0005-2013

Project Type: ☒ Residential ☐ Business Tax Map/Parcel No.: 1220100014A
☐ Commercial ☐ Office BMP ID Code (if known): N/A
☐ Institutional ☐ Industrial Zoning District: R2-Cluster
☐ Public ☐ Roadway Land Use: Single family residential
☐ Other Site Area (sf or acres): 11.51 acres

Brief Description of Stormwater Management/BMP Facility: _____

Storm sewer systems within White Hall Section 3 that tie into existing storm structures from previously approved sections of the development.

Nearest Visible Landmark to SWM/BMP Facility: White Hall clubhouse site (existing farm houses)

Nearest Vertical Ground Control (if known):

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

Station Number or Name: _____

Datum or Reference Elevation: _____

Control Description: _____

Control Location from Subject Facility: _____

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Section 2 - Stormwater Management/BMP Facility Construction Information:

Pre-Construction Meeting Held for Construction of SWM/BMP Facility: ☒ Yes ☐ No ☐ Unknown

Approx. Construction Start Date for SWM/BMP Facility: November 2013

Facility Monitored by County Representative during Construction: ☒ Yes ☐ No ☐ Unknown

Name of Site Work Contractor Who Constructed Facility: George Nice & Sons, Inc.

Name of Professional Firm Who Routinely Monitored Construction: GET Solutions, Inc.

Date of Completion for SWM/BMP Facility: March 2014

Date of Record Drawing/Construction Certification Submittal: 9/30/14

(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 Engineering and Resource Protection 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: HHHunt Communities

Mailing Address: 11237 Nuckols Road

Glen Allen, VA 23059

Business Phone: (804) 762-4800

Fax: (804) 762-9769

Contact Person: Hans Klinger

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: T. Ryan Stephenson, P.E.

Title: Project Manager

Plan Name: White Hall Section 3

Firm's Project No. 9048-19

Plan Date: January 17, 2013

Sheet No.'s Applicable to SWM/BMP Facility: 1 / 8 / 9 / /

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

Firm Name: George Nice & Sons, Inc.

Mailing Address: 129 Industrial Blvd.

Toano, VA 23168

Business Phone: (757) 565-2885

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Fax: (757) 565-1526

Contact Person: Bob Nice

Site Foreman/Supervisor:

Specialty Subcontractors and Purpose (for BMP Construction Only):

GET Solutions, Inc. for geotechnical work

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: T. Ryan Stephenson, P.E.

Title: Project Manager

Signature: 

Date: 9/29/14

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 to the provisions of the approved design plan, specifications, design, and stormwater management plan, except as specifically noted.


(Seal)

Virginia Registered Professional Engineer or Certified
Land Surveyor

Construction Certification

Firm Name: GET Solutions, Inc.

Mailing Address: 1592 Penniman Road, Suite E
Williamsburg, VA 23185

Business Phone: (757) 564-6452

Fax: (757) 564-6453

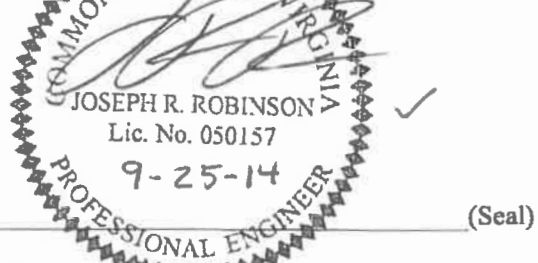
Name: Joseph R. Robinson, P.E.

Title: Project Engineer

Signature: 

Date: 9-25-2014

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 plan, specifications, and stormwater management plan, except as specifically noted.


(Seal)

Virginia Registered Professional Engineer

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

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

it is requested that the record drawings also be submitted to the Engineering and Resource Protection 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 Engineering and Resource Protection Division staff at the time of final submission.

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

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

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

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

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

- XX 1. All requirements of Section I (Methods and Presentation) apply to this section.
- XX 2. Plan Views: Show general location, arrangement and dimensions. Location and alignment shall generally match approved design plans.
- N/A 3. Profile or elevations along top or berm of the facility. At a minimum, elevations are required at each end, at intervals not to exceed 50 feet and where low spots may be present. Top of embankment or berm elevations must be no less than design elevation plus any settlement allowances.
- N/A 4. Top widths, berm widths, and embankment side slopes.
- N/A 5. Show length, width and depth of facility or grading, contours or spot elevations as required to verify permanent pool and design storage volumes were met or were reasonably close to the approved design. Evaluation of as-built grading, contours, spot elevations, or cross-sections, may be necessary by the professional to ensure approved design configurations, depths and volumes were closely maintained. If grading or elevations are significantly different from the approved plan, the Engineering and Resource Protection 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.

Stormwater Management/BMP Facilities
Record Drawing and Construction Certification Forms

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- N/A 6. Cross-section of the embankment through the principal spillway or outlet barrel. Must extend at least 100 ft. downstream of the pipe outlet or to recorded site property line, whichever is closer. Proper correlation is required between principal spillway (control structure) crest, emergency spillway crest, orifice, and weirs and the top of the dam or facility. All elevations and dimensions must reasonably match the design plan or be sequentially relative to each other and the facility must reflect the required design storage volume(s) and/or design depth.
- N/A 7. Profile or elevations along the entire centerline of the emergency spillway. Emergency spillway may be steeper, but no flatter or narrower than design.
- N/A 8. Elevation of the principal spillway crest or outlet crest of the structure.
- N/A 9. Primary control structure (riser) diameter or dimensions, height, type of material and base size. Indicate provisions for access that are present such as steps, ladders, etc.
- N/A 10. Dimensions, locations and elevations of outlet orifices, weirs, slots and drains.
- N/A 11. Type and size of anti-vortex and trash rack device. Height, diameter, dimensions, bar spacings (if applicable) and elevations relative to the principal spillway crest. Indicate if lockable hatch is present or not.
- N/A 12. Type, location, size, and number of anti-seep collars or documentation of other methods utilized for seepage control. **May need to obtain this information during construction.**
- N/A 13. Top of impervious core embankment, core trench limits and elevation of cut-off trench bottom. **May need to obtain this information during construction.**
- N/A 14. Elevation of the principal spillway barrel (outlet pipe) inlet and outlet invert.
- N/A 15. Outlet barrel diameter, length, slope, type, and thickness class of material and type of flared end sections, headwall or endwall.
- N/A 16. Outfall protection dimension, type and depth of rock and if underlain filter fabric is present.
- N/A 17. BMP interior and periphery landscaping zones conform with arrangements and requirements of the approved design plan.
- N/A 18. Maintenance plan taken from approved design plan transposed onto record drawing set.
- N/A 19. Fencing location and type, if applicable to facility.
- N/A 20. BMP vicinity properly cleaned of stockpiles and construction debris.
- N/A 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 3. 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 (1/2) 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
AS-BUILT PLAN CHECKLIST

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

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

- N/A E1. All requirements of Section II, Minimum Standards, apply to Group E facilities as applicable.
- 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 surfaces 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)*

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

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

STORMWATER MANAGEMENT/BMP FACILITIES
RECORD DRAWING CHECKLIST

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

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

- 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 ensure 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).

STORMWATER MANAGEMENT/BMP FACILITIES
RECORD DRAWING CHECKLIST

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

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

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

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

XI. 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 Engineering and Resource Protection Division specific to the proposed SWM/BMP facility.

STORMWATER MANAGEMENT/BMP FACILITIES
RECORD DRAWING CHECKLIST

XII. **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.

4. Record Drawings (As Builts)

LEGEND

EXISTING		PROPOSED
EX. W	WATER	
EX. S	SANITARY SEWER	
EX. FM	STORM SEWER	
	FORCE MAIN	F.M.
	MANHOLE	
	CURB DROP INLET	
	YARD DROP INLET	
	FLARED END SECTION	
	VALVE	
	FIRE HYDRANT ASSEMBLY	
	BLOW-OFF VALVE	
	AIR RELEASE ASSEMBLY	
	CLEAN OUT	
	WATER METER	
	STREETLIGHT	
	CENTERLINE/BASELINE	
	RIGHT OF WAY	
	PROPERTY LINE	
	Q DITCH/SWALE	
	CONCRETE LINED DITCH	
	EC-3 LINED DITCH	
	EXISTING TREELINE	
	LIMITS OF CLEARING	
	SILT FENCE	
	INLET PROTECTION	
	CHECK DAM	
	STRAW BALE BARRIER	
	RIP RAP	
	ROLL TOP GUTTER	
	REVERSE ROLL TOP GUTTER	
	GROUND ELEVATION	
	PROPOSED TOP OF CURB ELEV.	
	GRADING LINE TIE-IN	
	EXISTING CONTOUR ELEV.	
	PROPOSED CONTOUR ELEV.	
	PROPOSED CONTOURS (BY OTHERS)	

INDEX OF SHEETS

Sheet Number	Sheet Title
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16	LANDSCAPE NOTES AND DETAILS
17	LIGHTING PLAN

SITE DATA
TAX MAP PARCEL ID: 1220100014A
ADDRESS: 3401 ROCHAMBEAU DRIVE
ZONING: R2-CLUSTER
PROJECT AREA: 11.51 AC
DISTURBED AREA: 10.96 AC
TOTAL LOTS: 30 (300-329)
PROPOSED IMPERVIOUS AREA: 3.89 AC
FLOOD HAZARD MAP: FEMA PANEL NUMBER # 51095C0045C DATED 09/28/2007 - ZONE X
WATERSHED INFORMATION: AREA DETERMINED TO BE OUTSIDE THE 500-YEAR FLOOD PLAIN.
HYDROLOGIC UNIT CODE: JAMES CITY COUNTY WARE CREEK WATERSHED Y062

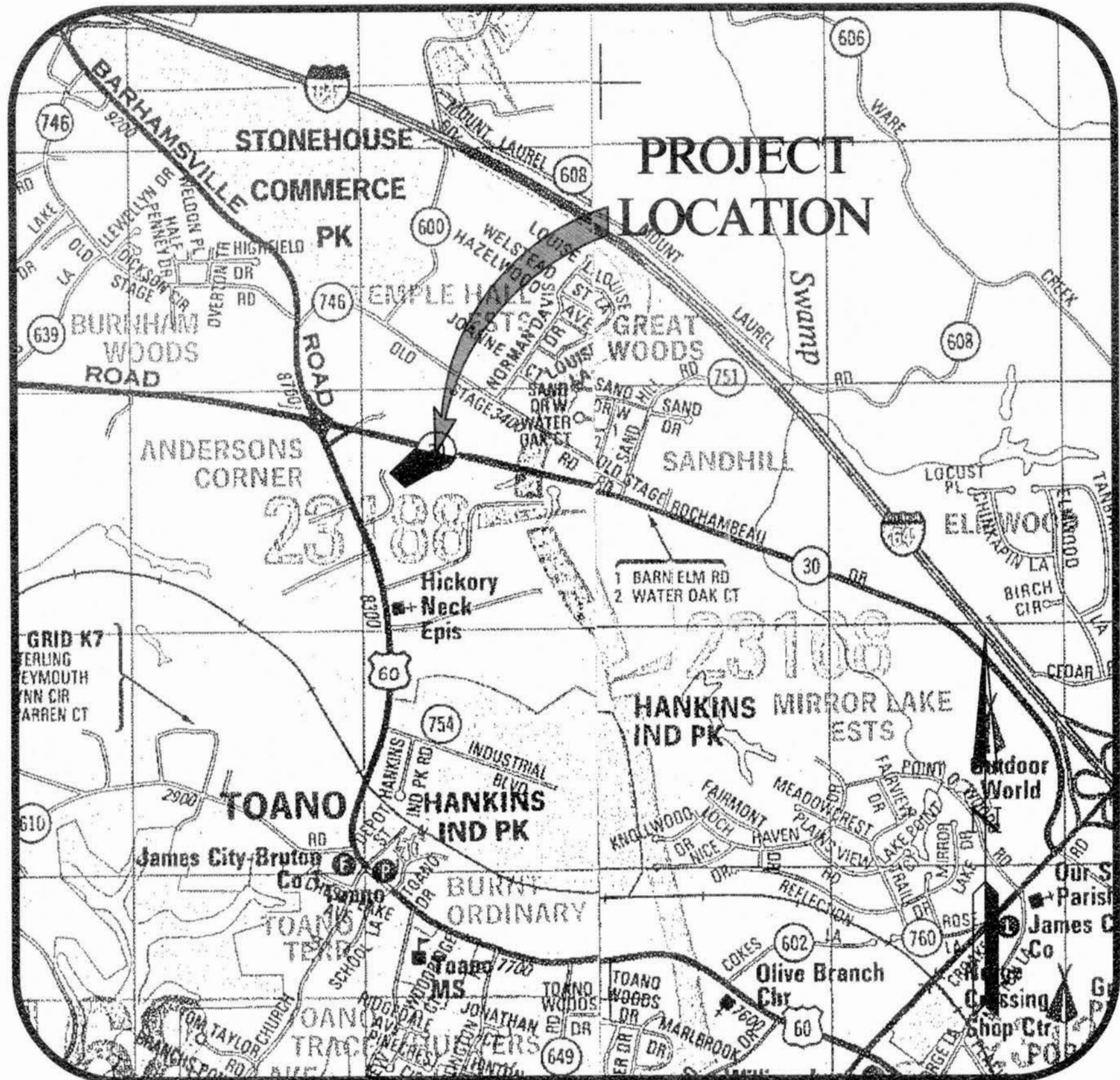
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THOMAS C. SUBLETT, L.S. #1886

5/7/14

DATE

AS-BUILT
INFORMATION SHOWN
IN BOLD BOX



VICINITY MAP
(APPROX. SCALE 1"=2000')

JANUARY 17, 2013
AES PROJECT NO.: 9048-19
COUNTY PROJECT NO.: JCC-S-0005-2013

White Hall
JAMES CITY COUNTY
SECTION 3
HHHUNT
Another HHHunt Community.
STONEHOUSE DISTRICT
JAMES CITY COUNTY, VIRGINIA

GENERAL NOTES

1. ZONING IS R2, RESIDENTIAL DISTRICT, CLUSTER OVERLAY WITH PROFFERS. CASE # Z-11-05/SUP-18-05/MP-08-05 APPROVED SEPTEMBER 13, 2005.
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21. THE ABSENCE OF THE DEVELOPER OR THE ENGINEER AT THE JOB SITE DOES NOT, IN ANY WAY, RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY TO PERFORM THE WORK IN ACCORDANCE WITH THE DRAWINGS, CONTRACT DOCUMENTS, ADDENDA, AND WRITTEN AUTHORIZED PLAN REVISIONS.
22. THE CONTRACTOR SHALL INSTALL PIPE, FITTINGS, AND MANHOLES IN DRY TRENCH CONDITIONS AND IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATION. THE CONTRACTOR SHALL PROVIDE ALL DEWATERING, WELL POINTING, SHEETING, TRENCH BOXES, AND TRENCH STABILIZATION AS REQUIRED AT NO ADDITIONAL COST TO THE DEVELOPER.
23. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE LAWS, ORDINANCES, RULES, REGULATIONS, AND ORDERS OF ANY BODY HAVING JURISDICTION. THE CONTRACTOR SHALL ERECT AND MAINTAIN, AS REQUIRED BY THE CONDITIONS AND PROGRESS OF THE WORK, ALL NECESSARY SAFEGUARDS FOR SAFETY AND PROTECTION.
24. CONTOUR INTERVAL IS 1 FOOT.
25. STORM STRUCTURES, SEWER AND BEDDING SHALL CONFORM TO THE VDOT ROAD AND BRIDGE STANDARDS AND VDOT SPECIFICATIONS. ALL PIPE BEDDING SHALL BE IN ACCORDANCE WITH PB-1 AND MANUFACTURER SPECS. AND GUIDELINES, AND STORM SEWER MANHOLES DEEPER THAN 4 FEET SHALL HAVE STEPS (ST-1). ALL REINFORCED CONCRETE PIPE (RCP) SHALL BE CLASS III UNLESS OTHERWISE NOTED.
26. DEVELOPER: HHHUNT COMMUNITIES
11237 NUCKOLS ROAD
GLEN ALLEN, VA 23059
CONTACT: HANS KLINGER
PHONE NO.: 804.762.4800
FAX NO.: 804.762.9769
27. THE PROFESSIONAL WHOSE SEAL IS AFFIXED HEREON SHALL ACT AS THE "RESPONSIBLE LAND DISTURBER" FOR PURPOSES OF PLAN APPROVAL ONLY. PRIOR TO ISSUANCE OF THE LAND DISTURBING PERMIT, THE CONTRACTOR OR DEVELOPER SHALL PROVIDE THE NAME OF A "RESPONSIBLE LAND DISTURBER" WHO SHALL ASSUME RESPONSIBILITY AS THE "RESPONSIBLE LAND DISTURBER" FOR THE CONSTRUCTION PHASE OF THE PROJECT. THE CONTRACTOR OR DEVELOPER SHALL PROVIDE WRITTEN NOTIFICATION SHOULD THE "RESPONSIBLE LAND DISTURBER" CHANGE DURING CONSTRUCTION.
28. CONTRACTOR SHALL BE REQUIRED TO REGISTER FOR A VIRGINIA STORMWATER MANAGEMENT PROGRAM (VSMP) PERMIT.
29. HORIZONTAL DATUM - NAD83 (1192) VIRGINIA STATE PLAIN COORDINATE SYSTEM SOUTH ZONE
VERTICAL DATUM - NGVD29 VIRGINIA STATE PLAIN COORDINATE SYSTEM SOUTH ZONE.
JAMES CITY COUNTY MONUMENTS USED - 302, 303, 305, 340
30. STORM WATER MANAGEMENT FOR THIS PROJECT IS TO BE IN COMPLIANCE WITH APPROVED MASTER STORM WATER MANAGEMENT PLAN COUNTY ID SWM-002-06/C-096-06. SPECIFICALLY, RUNOFF FROM THIS SITE DRAINS TO BMP # 1.1 CONSTRUCTED WITH THE WHITE HALL SECTION 2 PLAN OF DEVELOPMENT (S-098-06/SP-144-06).
31. NEW MONUMENTS SHALL BE SET IN ACCORDANCE WITH SECTIONS 19-34 THRU 19-36 OF THE JAMES CITY COUNTY SUBDIVISION ORDINANCE.
32. THE PRIVATE RIGHT OF WAY SHALL NOT BE MAINTAINED BY VDOT.
33. ALL PRIVATE ENTRANCES SHALL BE INSTALLED IN ACCORDANCE WITH THE CURRENT VDOT STANDARDS AND SPECIFICATIONS. IT IS THE DEVELOPER'S RESPONSIBILITY TO INSURE THAT BUILDERS HAVE PROPERLY INSTALLED ALL CONCRETE ENTRANCES AND ENTRANCE CULVERTS.
34. ALL STREET SIGNS FOR PRIVATE STREETS SHALL BE APPROVED BY THE SUBDIVISION AGENT AND MEET VDOT SIGNAGE REQUIREMENTS.
35. SIDEWALKS ARE TO BE MAINTAINED BY THE WHITE HALL HOME OWNERS ASSOCIATION.

Revised By	Revised Date	Description
BMC	5/8/2013	Revisions per JCC Comments
BMC	11/5/2013	Revisions per JCC Comments

5208 Old Towne Road, Suite 1
Williamsburg, Virginia 23188
Phone: (757) 263-0040
Fax: (757) 220-8894
www.aes.com

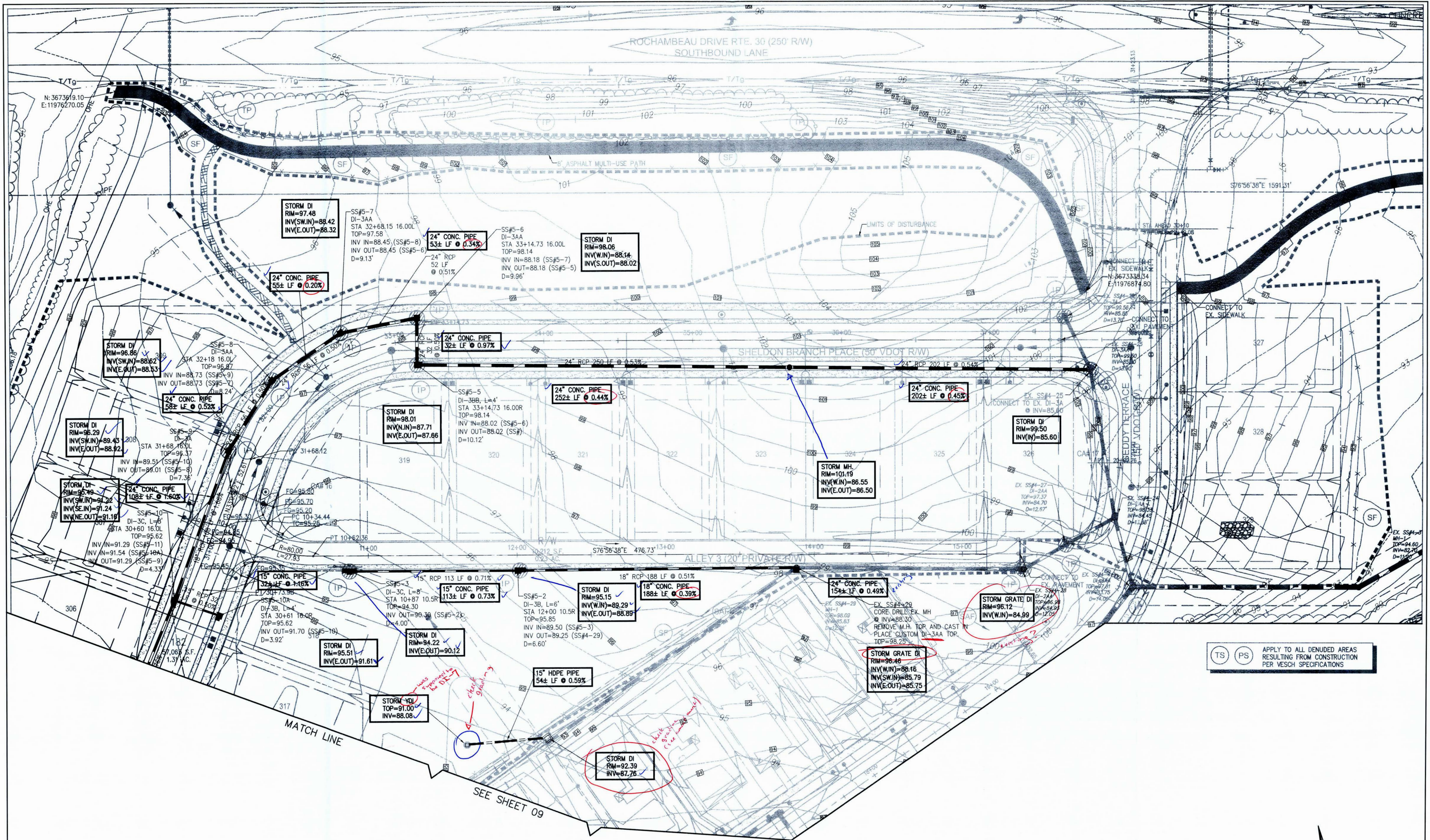
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SECTION 3
STORM SEWER RECORD DRAWINGS
WHITE HALL
DEVELOPER: HHHUNT COMMUNITIES

STONEHOUSE DISTRICT | JAMES CITY COUNTY | VIRGINIA

Project Contacts: BMC	
Project Number: 9048-19	
Scale: NTS	Date: 1/17/13
Sheet Title: COVER	
Sheet Number: 1	
AS-BUILT SHEET 1 OF 3	1



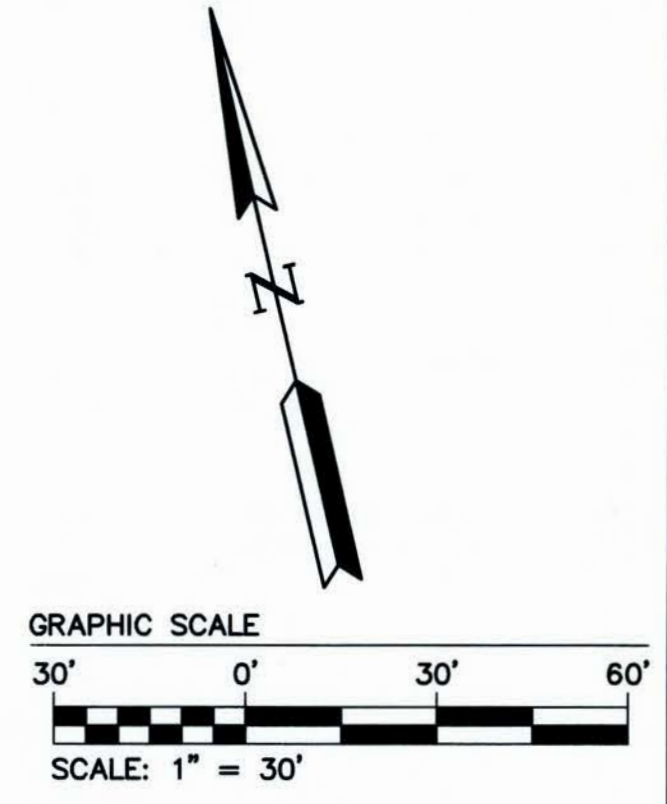
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Thomas C. Sublett
THOMAS C. SUBLETT, L.S. #1886

5/7/14
DATE

5/7/2014
LAND SURVEY TOP

(TS) (PS) APPLY TO ALL DEDUDED AREAS RESULTING FROM CONSTRUCTION PER VESCH SPECIFICATIONS



Rev	Date	Description
2	5/8/2013	Revisions per JCC Comments
1	4/5/2013	Revisions per JCC Comments

AES
CONSULTING ENGINEERS

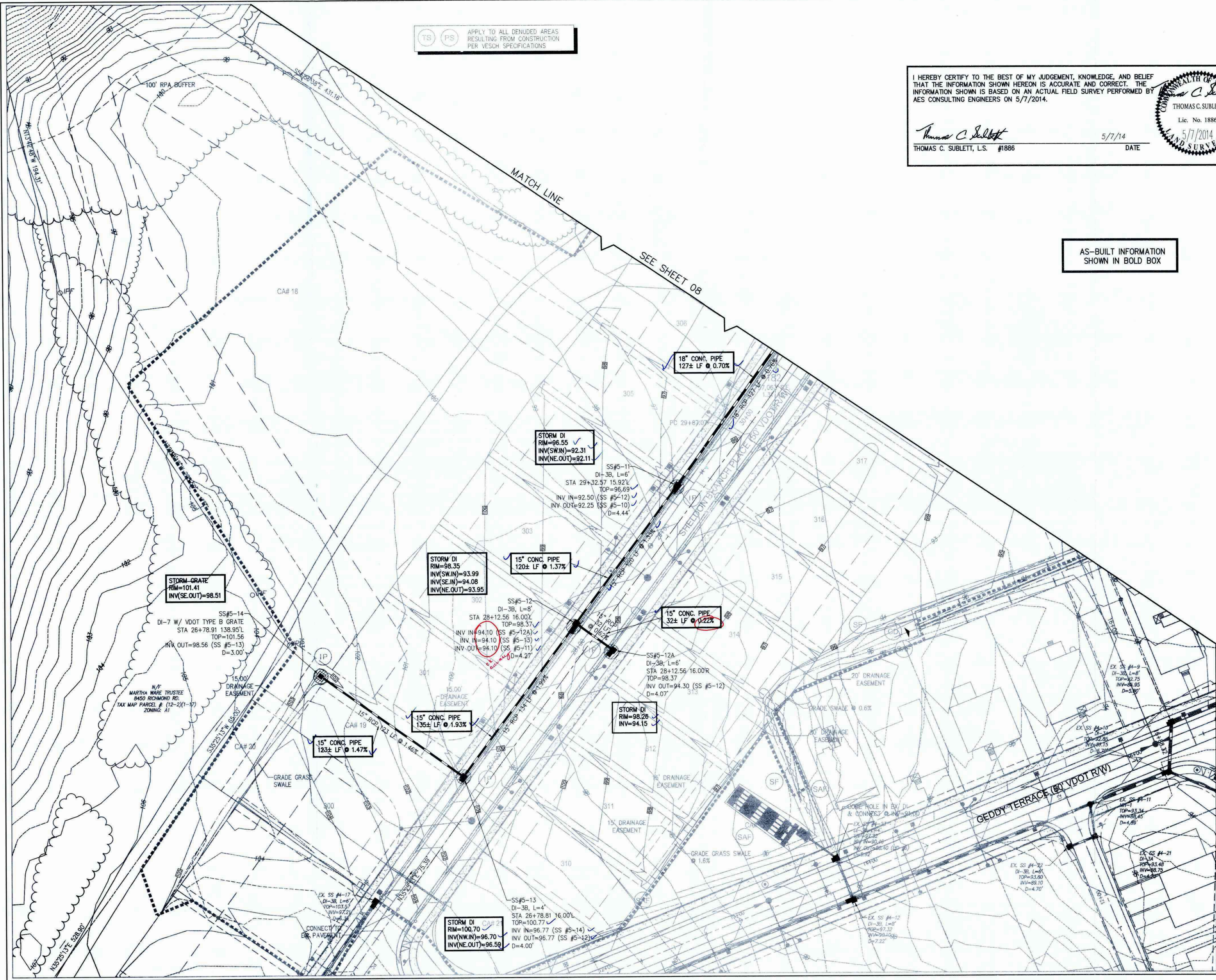
5248 Old Town Road, Suite 1
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www.aesva.com

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WHITE HALL
DEVELOPER: HHUNT COMMUNITIES

STONEHOUSE DISTRICT JAMES CITY COUNTY VIRGINIA

Project Contacts:	BMC
Project Number:	9048-19
Scale:	1"=30'
Date:	1/17/13
Sheet Title:	GRADING PLAN
Sheet Number:	08
AS-BUILT SHEET 2 OF 3	



TS PS APPLY TO ALL DENUDED AREAS
RESULTING FROM CONSTRUCTION
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THOMAS C. SUBLETT, L.S. #1886

5/7/14
DATE

COMMONWEALTH OF VIRGINIA
THOMAS C. SUBLETT
Lic. No. 1886
5/7/2014
LAND SURVEYOR

AS-BUILT INFORMATION
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Rev.	Date	Description
2	5/6/2013	Revisions per JCC Comments
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Scale: 1"=30' Date: 1/17/13
Sheet Title: GRADING PLAN
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AS-BUILT
SHEET 3 OF 3

5. Construction Drawings

EXISTING		PROPOSED
— EX. W —	WATER	_____
— EX. S —	SANITARY SEWER	_____
=====	STORM SEWER	=====
— EX. FM —	FORCE MAIN	_____ F.M. _____
— ○ —	MANHOLE	— ● —
— □ —	CURB DROP INLET	— □ —
— □ —	YARD DROP INLET	— □ —
— ▴ —	FLARED END SECTION	— ▴ —
— ▴ ▴ —	VALVE	— ▴ ▴ —
— ▴ ▴ —	FIRE HYDRANT ASSEMBLY	— ▴ ▴ —
— ⊗ —	BLOW-OFF VALVE	— ⊗ —
	AIR RELEASE ASSEMBLY	— ⊗ —
	CLEAN OUT	— ● —
	WATER METER	— ▴ —
— ⊙ —	STREETLIGHT	— ⊙ —
— — — — —	CENTERLINE/BASELINE	— — — — —
— — — — —	RIGHT OF WAY	— — — — —
— — — — —	PROPERTY LINE	— — — — —
— — — — —	℄ DITCH/SWALE	— — — — —
— — — — —	CONCRETE LINED DITCH	— — — — —
— — — — —	EC-3 LINED DITCH	— — — — —
— — — — —	EXISTING TREELINE	— — — — —
— — — — —	LIMITS OF CLEARING	— — — — —
— — — — —	SILT FENCE	— × — × —
— — — — —	INLET PROTECTION	— (hatched circle) —
— — — — —	CHECK DAM	— (3 rectangles) —
— — — — —	STRAW BALE BARRIER	— (row of bales) —
— — — — —	RIP RAP	— (row of stones) —
— — — — —	ROLL TOP GUTTER	— (row of triangles) —
— — — — —	REVERSE ROLL TOP GUTTER	— (row of inverted triangles) —
— — — — —	GROUND ELEVATION	— FG25.1 —
— — — — —	PROPOSED TOP OF CURB ELEV.	— TC25.1 —
— — — — —	GRADING LINE TIE-IN	— (T) —
— — — — —	EXISTING CONTOUR ELEV.	— 60 —
— — — — —	PROPOSED CONTOUR ELEV.	— 80 —
— — — — —	PROPOSED CONTOURS (BY OTHERS)	— 80 —

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White Hall
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HHHUNT
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19. THE CONTRACTOR IS REQUIRED TO COMPLY WITH THE VIRGINIA OVERHEAD HIGH VOLTAGE LINE SAFETY ACT (SECTIONS 59.1-406 THROUGH 59.1-414, CODE OF VIRGINIA, 1950, AS AMENDED). THE CONTRACTOR IS REQUIRED TO VISIT THE SITE AND NOTE THE POSITION OF OVERHEAD CABLES PRIOR TO CONSTRUCTION.
20. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING AND MAINTAINING EROSION AND SEDIMENT CONTROL MEASURES AS SHOWN ON THE DRAWINGS AND FOR EXCAVATION STOCKPILES, STAGING AREAS, MOBILIZATION SITES, BEDDING/BACKFILL STOCKPILES AND OTHER LAND DISTURBANCES NOT SPECIFICALLY ADDRESSED IN THE DRAWINGS OR CONTRACT DOCUMENTS. EROSION AND SEDIMENT CONTROL MEASURES SHALL MEET OR EXCEED THE MINIMUM STANDARDS OF THE "VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK" (LATEST PUBLICATION) AND THE REQUIREMENTS OF THE LOCAL GOVERNING AUTHORITY.
21. THE ABSENCE OF THE DEVELOPER OR THE ENGINEER AT THE JOB SITE DOES NOT, IN ANY WAY, RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY TO PERFORM THE WORK IN ACCORDANCE WITH THE DRAWINGS, CONTRACT DOCUMENTS, ADDENDA, AND WRITTEN AUTHORIZED PLAN REVISIONS.
22. THE CONTRACTOR SHALL INSTALL PIPE, FITTINGS, AND MANHOLES IN DRY TRENCH CONDITIONS AND IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATION. THE CONTRACTOR SHALL PROVIDE ALL DEWATERING, WELL POINTING, SHEETING, TRENCH BOXES, AND TRENCH STABILIZATION AS REQUIRED AT NO ADDITIONAL COST TO THE DEVELOPER.
23. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE LAWS, ORDINANCES, RULES, REGULATIONS, AND ORDERS OF ANY BODY HAVING JURISDICTION. THE CONTRACTOR SHALL ERECT AND MAINTAIN, AS REQUIRED BY THE CONDITIONS AND PROGRESS OF THE WORK, ALL NECESSARY SAFEGUARDS FOR SAFETY AND PROTECTION.
24. CONTOUR INTERVAL IS 1 FOOT.
25. STORM STRUCTURES, SEWER AND BEDDING SHALL CONFORM TO THE VDOT ROAD AND BRIDGE STANDARDS AND VDOT SPECIFICATIONS. ALL PIPE BEDDING SHALL BE IN ACCORDANCE WITH PB-1 AND MANUFACTURER SPECS. AND GUIDELINES, AND STORM SEWER MANHOLES DEEPER THAN 4 FEET SHALL HAVE STEPS (ST-1). ALL REINFORCED CONCRETE PIPE (RCP) SHALL BE CLASS III UNLESS OTHERWISE NOTED.
26. DEVELOPER: HHHUNT COMMUNITIES
11237 NUCKOLS ROAD
GLEN ALLEN, VA 23059
CONTACT: HANS KLINGER
PHONE NO.: 804.762.4800
FAX NO.: 804.762.9769
27. THE PROFESSIONAL WHOSE SEAL IS AFFIXED HEREON SHALL ACT AS THE "RESPONSIBLE LAND DISTURBER" FOR PURPOSES OF PLAN APPROVAL ONLY. PRIOR TO ISSUANCE OF THE LAND DISTURBING PERMIT, THE CONTRACTOR OR DEVELOPER SHALL PROVIDE THE NAME OF A "RESPONSIBLE LAND DISTURBER" WHO SHALL ASSUME RESPONSIBILITY AS THE "RESPONSIBLE LAND DISTURBER" FOR THE CONSTRUCTION PHASE OF THE PROJECT. THE CONTRACTOR OR DEVELOPER SHALL PROVIDE WRITTEN NOTIFICATION SHOULD THE "RESPONSIBLE LAND DISTURBER" CHANGE DURING CONSTRUCTION.
28. CONTRACTOR SHALL BE REQUIRED TO REGISTER FOR A VIRGINIA STORMWATER MANAGEMENT PROGRAM (VSMMP) PERMIT.
29. HORIZONTAL DATUM - NAD83 (1192) VIRGINIA STATE PLAIN COORDINATE SYSTEM SOUTH ZONE
VERTICAL DATUM - NGVD29 VIRGINIA STATE PLAIN COORDINATE SYSTEM SOUTH ZONE.
JAMES CITY COUNTY MONUMENTS USED - 302, 303, 305, 340
30. STORM WATER MANAGEMENT FOR THIS PROJECT IS TO BE IN COMPLIANCE WITH APPROVED MASTER STORM WATER MANAGEMENT PLAN COUNTY ID SWM-002-06/C-096-06. SPECIFICALLY, RUNOFF FROM THIS SITE DRAINS TO BMP # 1.1 CONSTRUCTED WITH THE WHITE HALL SECTION 2 PLAN OF DEVELOPMENT (S-098-06/SP-144-06).
31. NEW MONUMENTS SHALL BE SET IN ACCORDANCE WITH SECTIONS 19-34 THRU 19-36 OF THE JAMES CITY COUNTY SUBDIVISION ORDINANCE.
32. THE PRIVATE RIGHT OF WAY SHALL NOT BE MAINTAINED BY VDOT.
33. ALL PRIVATE ENTRANCES SHALL BE INSTALLED IN ACCORDANCE WITH THE CURRENT VDOT STANDARDS AND SPECIFICATIONS. IT IS THE DEVELOPER'S RESPONSIBILITY TO INSURE THAT BUILDERS HAVE PROPERLY INSTALLED ALL CONCRETE ENTRANCES AND ENTRANCE CULVERTS.
34. ALL STREET SIGNS FOR PRIVATE STREETS SHALL BE APPROVED BY THE SUBDIVISION AGENT AND MEET VDOT SIGNAGE REQUIREMENTS.
35. SIDEWALKS ARE TO BE MAINTAINED BY THE WHITE HALL HOME OWNERS ASSOCIATION.

PLANNING DIVISION
MAY 10 2013
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Row	Date	Description	Revised By
2	5/9/2013	Revisions per JCC Comments	BMC
1	4/5/2013	Revisions per JCC Comments	BMC



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SECTION 3

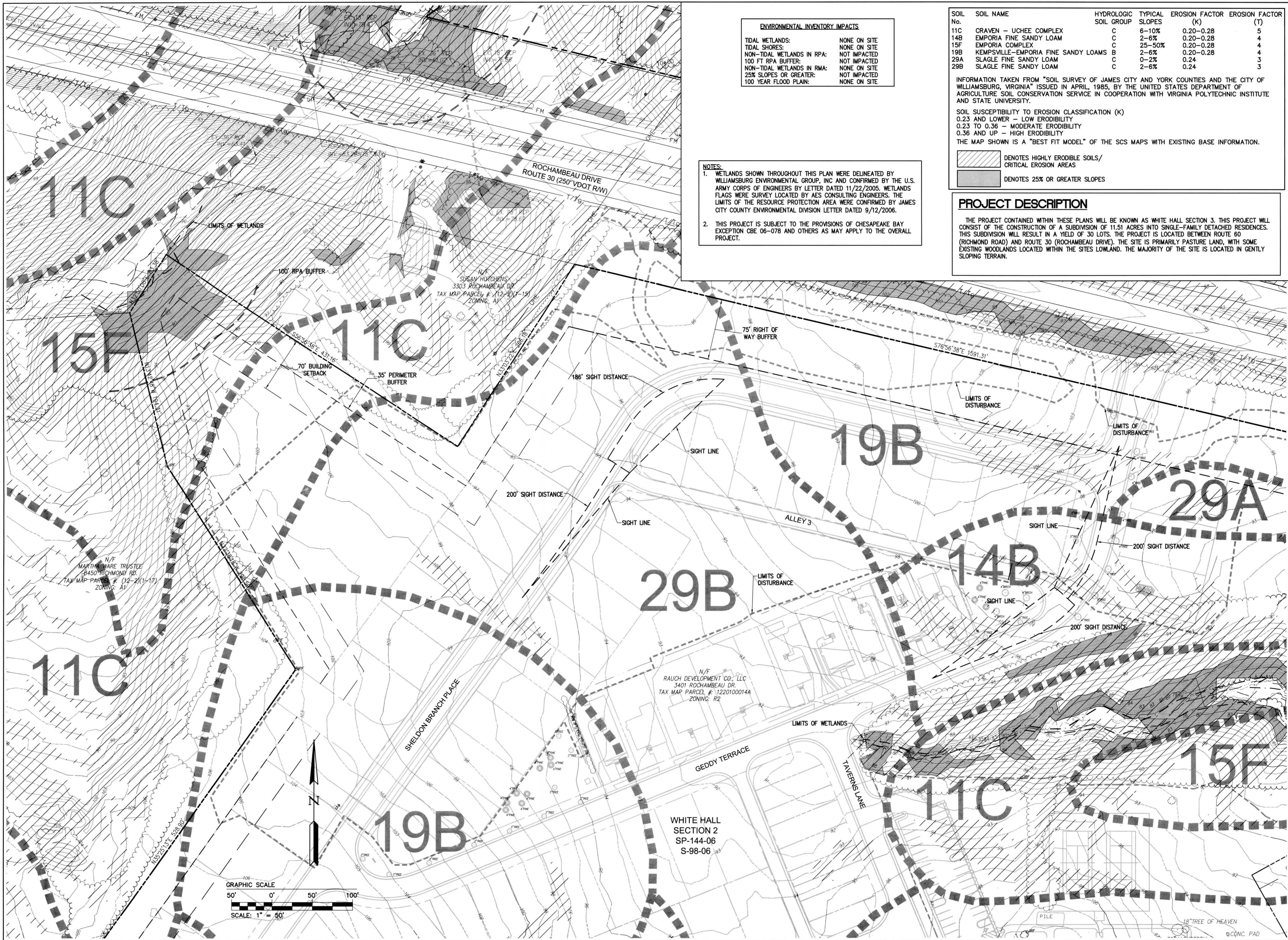
WHITE HALL

DEVELOPER: HHHUNT COMMUNITIES

ONEHOUSE DISTRICT JAMES CITY COUNTY VIRGINIA

Project Contacts:		BMC
Project Number:		9048-19
Scale:	Date:	
NTS	1/17/13	
Sheet Title:		
COVER		

Sheet Number
1



ENVIRONMENTAL INVENTORY IMPACTS	
TIDAL WETLANDS:	NONE ON SITE
TIDAL SHORES:	NONE ON SITE
NON-TIDAL WETLANDS IN RPA:	NOT IMPACTED
100 FT RPA BUFFER:	NOT IMPACTED
NON-TIDAL WETLANDS IN RMA:	NONE ON SITE
25% SLOPES OR GREATER:	NOT IMPACTED
100 YEAR FLOOD PLAIN:	NONE ON SITE

- NOTES:
- WETLANDS SHOWN THROUGHOUT THIS PLAN WERE DELINEATED BY WILLIAMSBURG ENVIRONMENTAL GROUP, INC AND CONFIRMED BY THE U.S. ARMY CORPS OF ENGINEERS BY LETTER DATED 11/22/2005. WETLANDS FLAGS WERE SURVEY LOCATED BY AES CONSULTING ENGINEERS. THE LIMITS OF THE RESOURCE PROTECTION AREA WERE CONFIRMED BY JAMES CITY COUNTY ENVIRONMENTAL DIVISION LETTER DATED 9/12/2006.
 - THIS PROJECT IS SUBJECT TO THE PROVISIONS OF CHESAPEAKE BAY EXCEPTION CBE 06-078 AND OTHERS AS MAY APPLY TO THE OVERALL PROJECT.

SOIL No.	SOIL NAME	HYDROLOGIC SOIL GROUP	TYPICAL SLOPES	EROSION FACTOR (K)	EROSION FACTOR (T)
11C	CRAVEN - UCHEE COMPLEX	C	6-10%	0.20-0.28	5
14B	EMPORIA FINE SANDY LOAM	C	2-6%	0.20-0.28	4
15F	EMPORIA COMPLEX	C	25-50%	0.20-0.28	4
19B	KEMPVILLE-EMPORIA FINE SANDY LOAMS	B	2-6%	0.20-0.28	4
29A	SLAGLE FINE SANDY LOAM	C	0-2%	0.24	3
29B	SLAGLE FINE SANDY LOAM	C	2-6%	0.24	3

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.

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 HIGHLY ERODIBLE SOILS/ CRITICAL EROSION AREAS
■ DENOTES 25% OR GREATER SLOPES

PROJECT DESCRIPTION

THE PROJECT CONTAINED WITHIN THESE PLANS WILL BE KNOWN AS WHITE HALL SECTION 3. THIS PROJECT WILL CONSIST OF THE CONSTRUCTION OF A SUBDIVISION OF 11.51 ACRES INTO SINGLE-FAMILY DETACHED RESIDENCES. THIS SUBDIVISION WILL RESULT IN A YIELD OF 30 LOTS. THE PROJECT IS LOCATED BETWEEN ROUTE 60 (RICHMOND ROAD) AND ROUTE 30 (ROCHAMBEAU DRIVE). THE SITE IS PRIMARILY PASTURE LAND, WITH SOME EXISTING WOODLANDS LOCATED WITHIN THE SITES LOWLAND. THE MAJORITY OF THE SITE IS LOCATED IN GENTLY SLOPING TERRAIN.

Revised	Date	By	Description
1	4/20/13		Revisions per JCC Comments
2	5/8/2013		Revisions per JCC Comments



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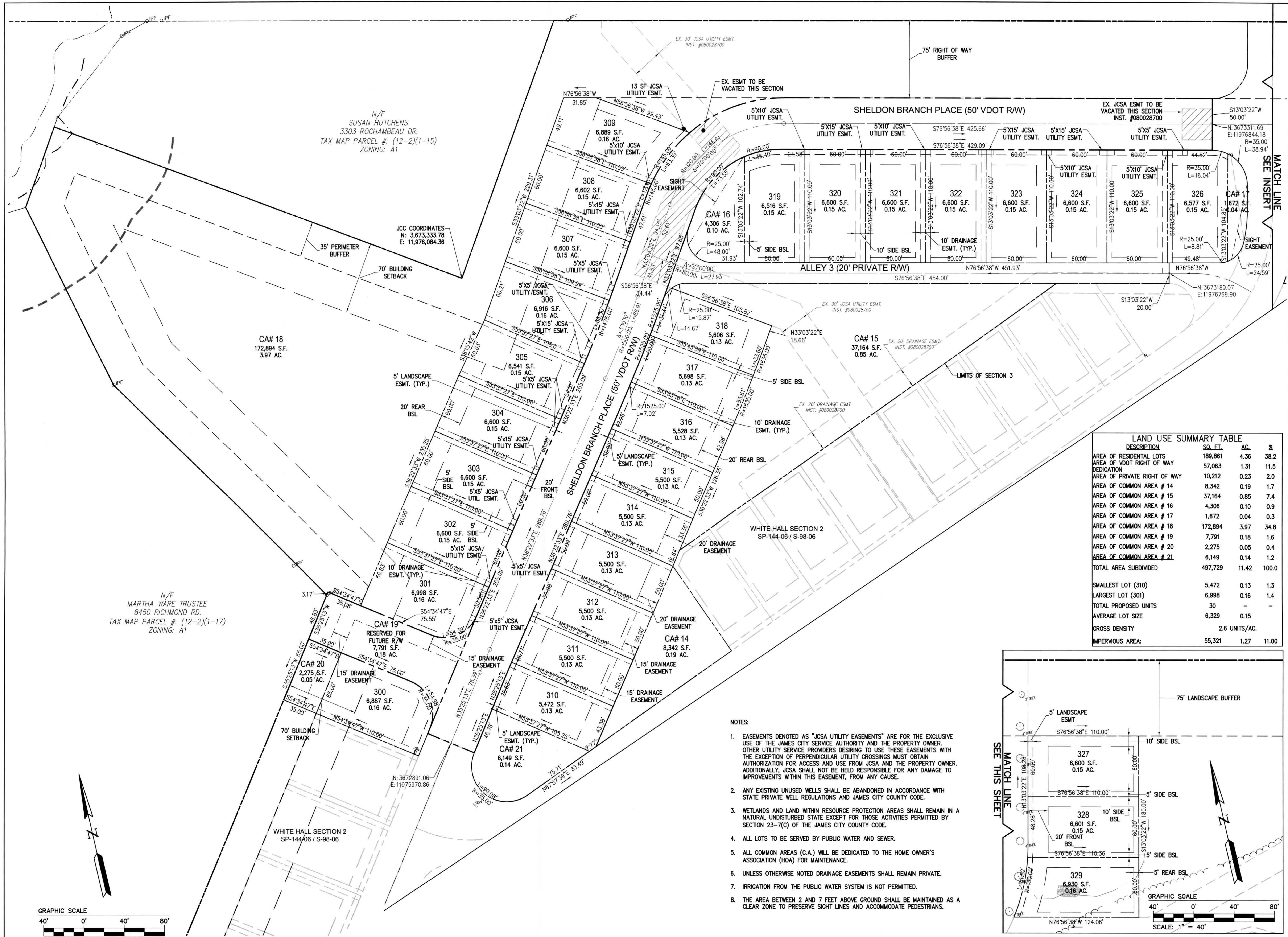
SECTION 3
WHITE HALL
DEVELOPER: HHHUNT COMMUNITIES

STONEHOUSE DISTRICT JAMES CITY COUNTY VIRGINIA

Project Contacts: BMC
Project Number: 9048-19
Scale: 1"=50'
Date: 1/17/13

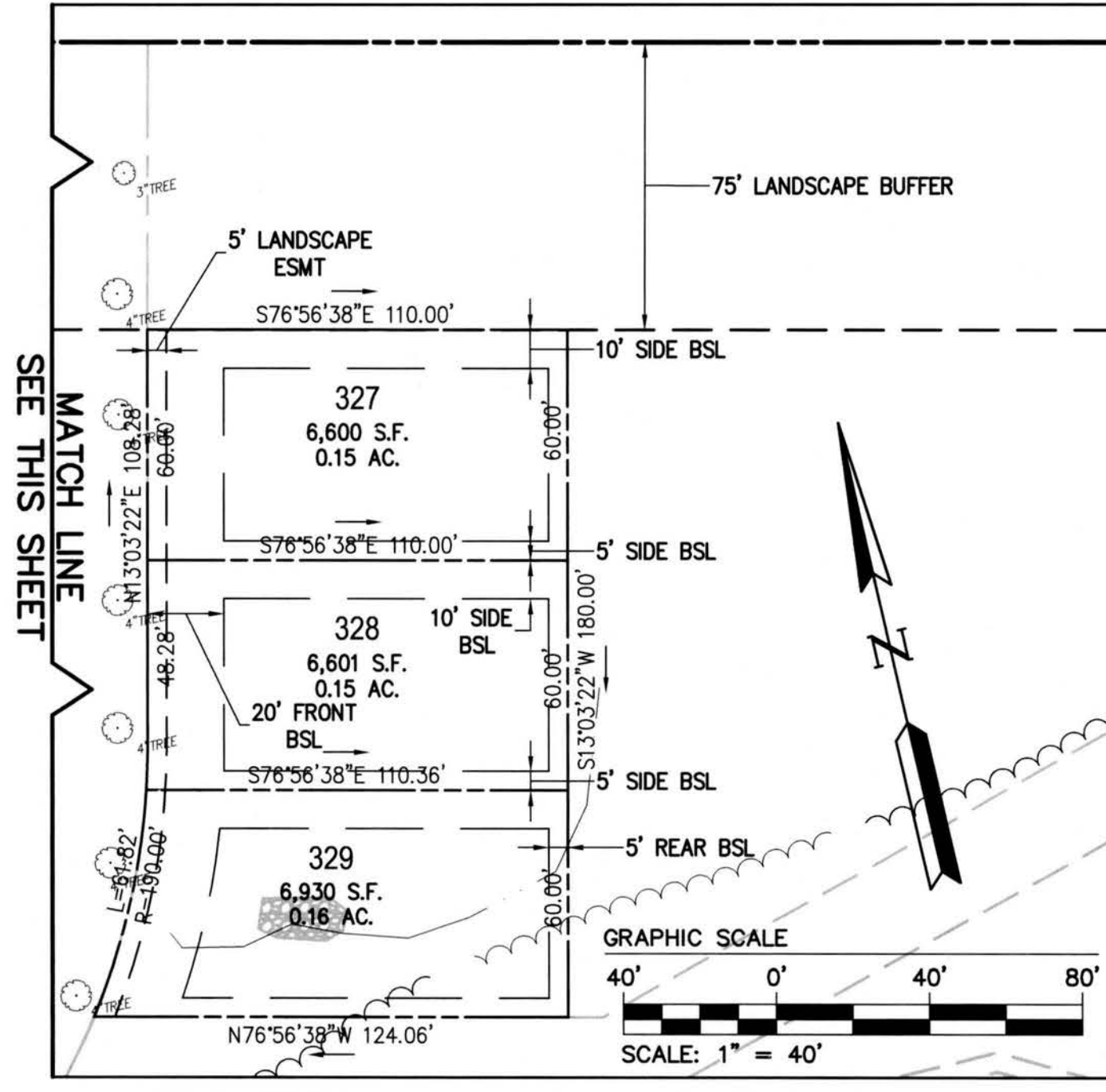
Sheet Title:
ENVIRONMENTAL
INVENTORY

Sheet Number
03



LAND USE SUMMARY TABLE			
DESCRIPTION	SQ. FT.	AC.	%
AREA OF RESIDENTIAL LOTS	189,861	4.36	38.2
AREA OF VDOT RIGHT OF WAY DEDICATION	57,063	1.31	11.5
AREA OF PRIVATE RIGHT OF WAY	10,212	0.23	2.0
AREA OF COMMON AREA # 14	8,342	0.19	1.7
AREA OF COMMON AREA # 15	37,164	0.85	7.4
AREA OF COMMON AREA # 16	4,306	0.10	0.9
AREA OF COMMON AREA # 17	1,672	0.04	0.3
AREA OF COMMON AREA # 18	172,894	3.97	34.8
AREA OF COMMON AREA # 19	7,791	0.18	1.6
AREA OF COMMON AREA # 20	2,275	0.05	0.4
AREA OF COMMON AREA # 21	6,149	0.14	1.2
TOTAL AREA SUBDIVIDED	497,729	11.42	100.0
SMALLEST LOT (310)	5,472	0.13	1.3
LARGEST LOT (301)	6,998	0.16	1.4
TOTAL PROPOSED UNITS	30	-	-
AVERAGE LOT SIZE	6,329	0.15	-
GROSS DENSITY		2.6 UNITS/AC.	-
IMPERVIOUS AREA:	55,321	1.27	11.00

- NOTES:
- EASEMENTS DENOTED AS "JCSA UTILITY EASEMENTS" ARE FOR THE EXCLUSIVE USE OF THE JAMES CITY SERVICE AUTHORITY AND THE PROPERTY OWNER. OTHER UTILITY SERVICE PROVIDERS DESIRING TO USE THESE EASEMENTS WITH THE EXCEPTION OF PERPENDICULAR UTILITY CROSSINGS MUST OBTAIN AUTHORIZATION FOR ACCESS AND USE FROM JCSA AND THE PROPERTY OWNER. ADDITIONALLY, JCSA SHALL NOT BE HELD RESPONSIBLE FOR ANY DAMAGE TO IMPROVEMENTS WITHIN THIS EASEMENT, FROM ANY CAUSE.
 - ANY EXISTING UNUSED WELLS SHALL BE ABANDONED IN ACCORDANCE WITH STATE PRIVATE WELL REGULATIONS AND JAMES CITY COUNTY CODE.
 - WETLANDS AND LAND WITHIN RESOURCE PROTECTION AREAS SHALL REMAIN IN A NATURAL UNDISTURBED STATE EXCEPT FOR THOSE ACTIVITIES PERMITTED BY SECTION 23-7(C) OF THE JAMES CITY COUNTY CODE.
 - ALL LOTS TO BE SERVED BY PUBLIC WATER AND SEWER.
 - ALL COMMON AREAS (C.A.) WILL BE DEDICATED TO THE HOME OWNER'S ASSOCIATION (HOA) FOR MAINTENANCE.
 - UNLESS OTHERWISE NOTED DRAINAGE EASEMENTS SHALL REMAIN PRIVATE.
 - IRRIGATION FROM THE PUBLIC WATER SYSTEM IS NOT PERMITTED.
 - THE AREA BETWEEN 2 AND 7 FEET ABOVE GROUND SHALL BE MAINTAINED AS A CLEAR ZONE TO PRESERVE SIGHT LINES AND ACCOMMODATE PEDESTRIANS.



Rev.	Date	By	Description
2	9/6/2013	BMC	Revisions per JCC Comments
1	4/5/2013	BMC	Revisions per JCC Comments



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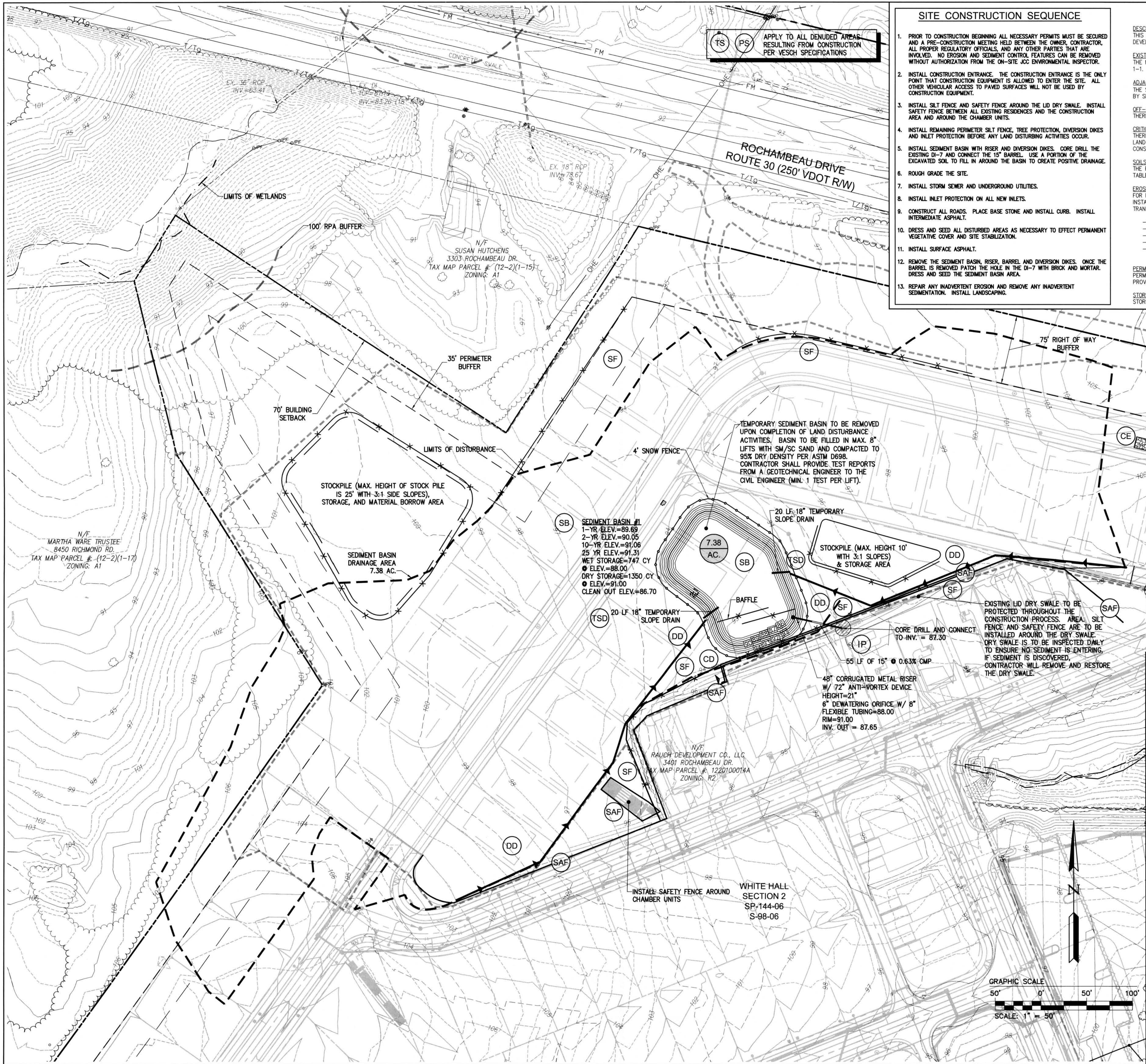
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SECTION 3
WHITE HALL
DEVELOPER: HHUNT COMMUNITIES

STONEHOUSE DISTRICT JAMES CITY COUNTY VIRGINIA

Project Contacts: BMC
Project Number: 9048-19
Scale: 1"=40'
Date: 1/17/13
Sheet Title: PRELIMINARY PLAT
Sheet Number: 04



SITE CONSTRUCTION SEQUENCE

1. PRIOR TO CONSTRUCTION BEGINNING ALL NECESSARY PERMITS MUST BE SECURED AND A PRE-CONSTRUCTION MEETING HELD BETWEEN THE OWNER, CONTRACTOR, ALL PROPER REGULATORY OFFICIALS, AND ANY OTHER PARTIES THAT ARE INVOLVED. NO EROSION AND SEDIMENT CONTROL FEATURES CAN BE REMOVED WITHOUT AUTHORIZATION FROM THE ON-SITE JCC ENVIRONMENTAL INSPECTOR.
2. INSTALL CONSTRUCTION ENTRANCE. THE CONSTRUCTION ENTRANCE IS THE ONLY POINT THAT CONSTRUCTION EQUIPMENT IS ALLOWED TO ENTER THE SITE. ALL OTHER VEHICULAR ACCESS TO PAVED SURFACES WILL NOT BE USED BY CONSTRUCTION EQUIPMENT.
3. INSTALL SILT FENCE AND SAFETY FENCE AROUND THE LID DRY SWALE. INSTALL SAFETY FENCE BETWEEN ALL EXISTING RESIDENCES AND THE CONSTRUCTION AREA AND AROUND THE CHAMBER UNITS.
4. INSTALL REMAINING PERIMETER SILT FENCE, TREE PROTECTION, DIVERSION DIKES AND INLET PROTECTION BEFORE ANY LAND DISTURBING ACTIVITIES OCCUR.
5. INSTALL SEDIMENT BASIN WITH RISER AND DIVERSION DIKES. CORE DRILL THE EXISTING DI-7 AND CONNECT THE 15" BARREL. USE A PORTION OF THE EXCAVATED SOIL TO FILL IN AROUND THE BASIN TO CREATE POSITIVE DRAINAGE.
6. ROUGH GRADE THE SITE.
7. INSTALL STORM SEWER AND UNDERGROUND UTILITIES.
8. INSTALL INLET PROTECTION ON ALL NEW INLETS.
9. CONSTRUCT ALL ROADS. PLACE BASE STONE AND INSTALL CURB. INSTALL INTERMEDIATE ASPHALT.
10. DRESS AND SEED ALL DISTURBED AREAS AS NECESSARY TO EFFECT PERMANENT VEGETATIVE COVER AND SITE STABILIZATION.
11. INSTALL SURFACE ASPHALT.
12. REMOVE THE SEDIMENT BASIN, RISER, BARREL AND DIVERSION DIKES. ONCE THE BARREL IS REMOVED PATCH THE HOLE IN THE DI-7 WITH BRICK AND MORTAR. DRESS AND SEED THE SEDIMENT BASIN AREA.
13. REPAIR ANY INADVERTENT EROSION AND REMOVE ANY INADVERTENT SEDIMENTATION. INSTALL LANDSCAPING.

EROSION & SEDIMENT CONTROL NARRATIVE

DESCRIPTION:
THIS PROJECT IS PART OF THE OVERALL DEVELOPMENT PLAN FOR WHITE HALL. THIS PORTION OF THE SITE DEVELOPMENT IS FOR THE CONSTRUCTION OF 30 SINGLE FAMILY HOMES AS PART OF SECTION 3.

EXISTING SITE CONDITIONS:
THE MAJORITY OF THE SITE IS FORMER FARM LAND. STORMWATER IS CURRENTLY CONVEYED BY SHEET FLOW TO POND 1-1.

ADJACENT AREAS:
THE SITE IS BORDERED TO THE NORTH BY ROCHAMBEAU DRIVE (ROUTE 30), TO THE EAST BY POND 1.1, TO THE SOUTH BY SECTION 2 OF WHITE HALL AND TO THE WEST BY SINGLE FAMILY RESIDENCE AND WOODLAND.

OFF-SITE AREAS:
THERE ARE NO OFF-SITE LAND DISTURBANCES PROPOSED WITH THIS PROJECT.

CRITICAL AREAS:
THERE ARE NO IMPACTS TO SLOPES GREATER THAN 25%, WETLANDS OR RPA BUFFERS ON THE SITE. ALL LAND-DISTURBING ACTIVITIES WILL BE CONTAINED WITHIN THE EROSION AND SEDIMENT MEASURES SHOWN ON THE CONSTRUCTION PLANS.

SOILS:
THE PROJECT AREA IS COMPRISED OF VARIOUS SOIL TYPES. SHEET 03 CONTAINS A SOIL TYPE DELINEATION MAP AND TABLE OF ASSOCIATED SOIL CHARACTERISTICS FOR THE SOILS TYPICALLY ENCOUNTERED ON THE SITE.

EROSION AND SEDIMENT CONTROL MEASURES:
FOR MAXIMUM EROSION AND SEDIMENT CONTROL PROTECTION, THE FOLLOWING MEASURES WILL BE UTILIZED AND INSTALLED IN ACCORDANCE WITH THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK TO MINIMIZE THE TRANSPORTATION OF SEDIMENT:

- STONE CONSTRUCTION ENTRANCE
- TREE PROTECTION
- DUST CONTROL
- TEMPORARY SEEDING
- DIVERSION DIKE
- SILT FENCE
- INLET PROTECTION
- SAFETY FENCE
- PERMANENT SEEDING
- SEDIMENT BASIN

PERMANENT STABILIZATION:
PERMANENT SEEDING WILL BE USED TO STABILIZE THE SITE AFTER CONSTRUCTION IS COMPLETE. A SCHEDULE HAS BEEN PROVIDED.

STORMWATER RUNOFF CONSIDERATIONS:
STORMWATER GENERATED FROM THE PROJECT SITE WILL BE TREATED BY POND 1-1.

THE STOCKPILE(S) SHALL BE OPERATED IN ACCORDANCE WITH SECTION 24-46 OF THE ZONING ORDINANCE AND SHALL BE LIMITED TO A MAXIMUM 2-YEAR TERM OF USE. CONTRACTOR SHALL SUBMIT AN OPERATIONS PLAN IN ACCORDANCE WITH THE ORDINANCE WITH THE APPLICATION FOR LAND DISTURBING.

CONTRACTOR SHALL MONITOR THE EXISTING DOWNSIDE BMP 1.1 FOR SIGNS OF SEDIMENTATION DURING CONSTRUCTION. IF SEDIMENT IS FOUND IN THE DOWNSIDE BMP AND/OR THE STORM DRAINAGE SYSTEM THE CONTRACTOR SHALL COORDINATE WITH THE ENGINEER AND THE COUNTY CLEANING AND SEDIMENT REMOVAL WITHIN THE BASIN AND CONNECTING PIPE SYSTEM AND ADDITIONAL E&S CONTROLS TO PREVENT THE DEGRADATION OF THE BMP.

CONTRACTOR SHALL PROVIDE ADEQUATE DUST CONTROL MEASURES IN ACCORDANCE WITH MINIMUM STANDARD 3.39 OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK DUE TO THE PROXIMITY OF WORK ALONG ROCHAMBEAU DRIVE, SHELDON BRANCH PLACE, & GEDDY TERRACE TO ENSURE TRAFFIC AND PEDESTRIAN SAFETY.

EROSION AND SEDIMENTATION CONTROL LEGEND

- CE CONSTRUCTION ENTRANCE (SPEC. 3.02)
- SF SILT FENCE (SPEC. 3.05)
- IP INLET PROTECTION (SPEC. 3.07)
- DD TEMPORARY DIVERSION DIKE (SPEC. 3.09)
- SB TEMPORARY SEDIMENT BASIN (SPEC. 3.14)
- PS PERMANENT SEEDING (SPEC. 3.32)
- TS TEMPORARY SEEDING (SPEC. 3.31)
- TP TREE PROTECTION (SPEC. 3.38)
- SAF SAFETY FENCE (SPEC. 3.01)
- CD ROCK CHECK DAM (SPEC. 3.20)

NOTE:
SEE VIRGINIA EROSION & SEDIMENT CONTROL HANDBOOK FOR EROSION CONTROL SPECIFICATIONS (SPEC.) AND DETAILS.

Rev.	Date	Revisions per JCC Comments	BMC	Revised By
2	5/8/2013		BMC	
1	4/5/2013		BMC	



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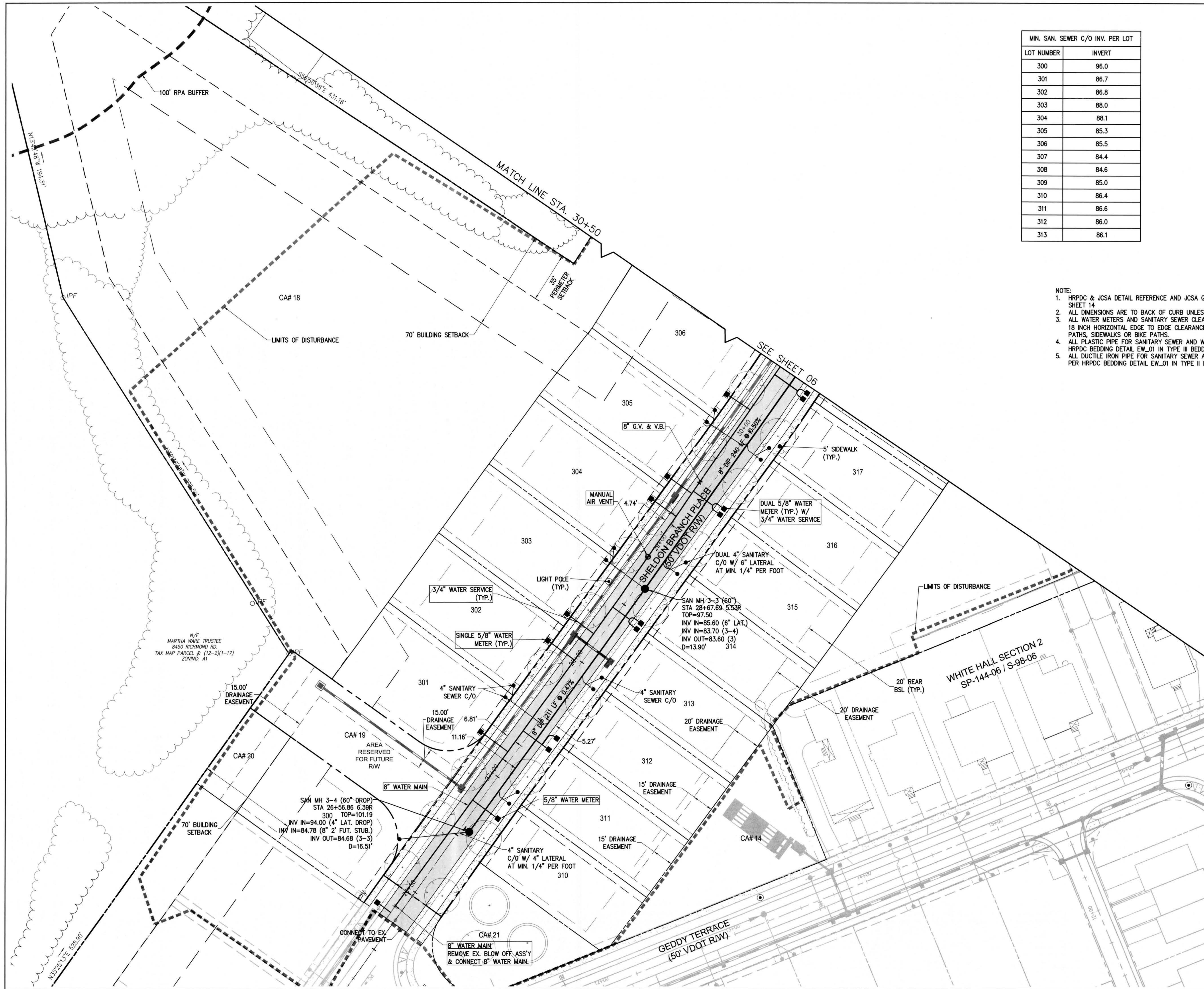
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SECTION 3
WHITE HALL
DEVELOPER: HHHUNT COMMUNITIES

STONEHOUSE DISTRICT | JAMES CITY COUNTY | VIRGINIA

Project Contacts:	BMC
Project Number:	9048-19
Scale:	1"=50'
Date:	1/17/13
Sheet Title:	EROSION AND SEDIMENT CONTROL PLAN
Sheet Number:	05



MIN. SAN. SEWER C/O INV. PER LOT	
LOT NUMBER	INVERT
300	96.0
301	86.7
302	86.8
303	88.0
304	88.1
305	85.3
306	85.5
307	84.4
308	84.6
309	85.0
310	86.4
311	86.6
312	86.0
313	86.1

MIN. SAN. SEWER C/O INV. PER LOT	
LOT NUMBER	INVERT
314	85.4
315	85.6
316	85.1
317	85.2
318	84.2
319	86.4
320	92.3
321	92.1
322	91.9
323	91.5
324	91.3
325	91.2
326	90.5

- NOTE:
1. HRPDC & JCSA DETAIL REFERENCE AND JCSA GENERAL NOTES CAN BE FOUND ON SHEET 14
 2. ALL DIMENSIONS ARE TO BACK OF CURB UNLESS OTHERWISE NOTED.
 3. ALL WATER METERS AND SANITARY SEWER CLEAN OUTS SHALL MAINTAIN A MINIMUM 18 INCH HORIZONTAL EDGE TO EDGE CLEARANCE FROM DRIVEWAYS AND/OR DRIVE PATHS, SIDEWALKS OR BIKE PATHS.
 4. ALL PLASTIC PIPE FOR SANITARY SEWER AND WATER MAINS IS TO BE BEDDED PER HRPDC BEDDING DETAIL EW_01 IN TYPE III BEDDING.
 5. ALL DUCTILE IRON PIPE FOR SANITARY SEWER AND WATER MAINS IS TO BE BEDDED PER HRPDC BEDDING DETAIL EW_01 IN TYPE II BEDDING.



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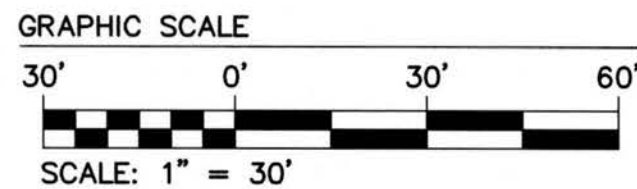
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WHITE HALL
DEVELOPER: HHHUNT COMMUNITIES

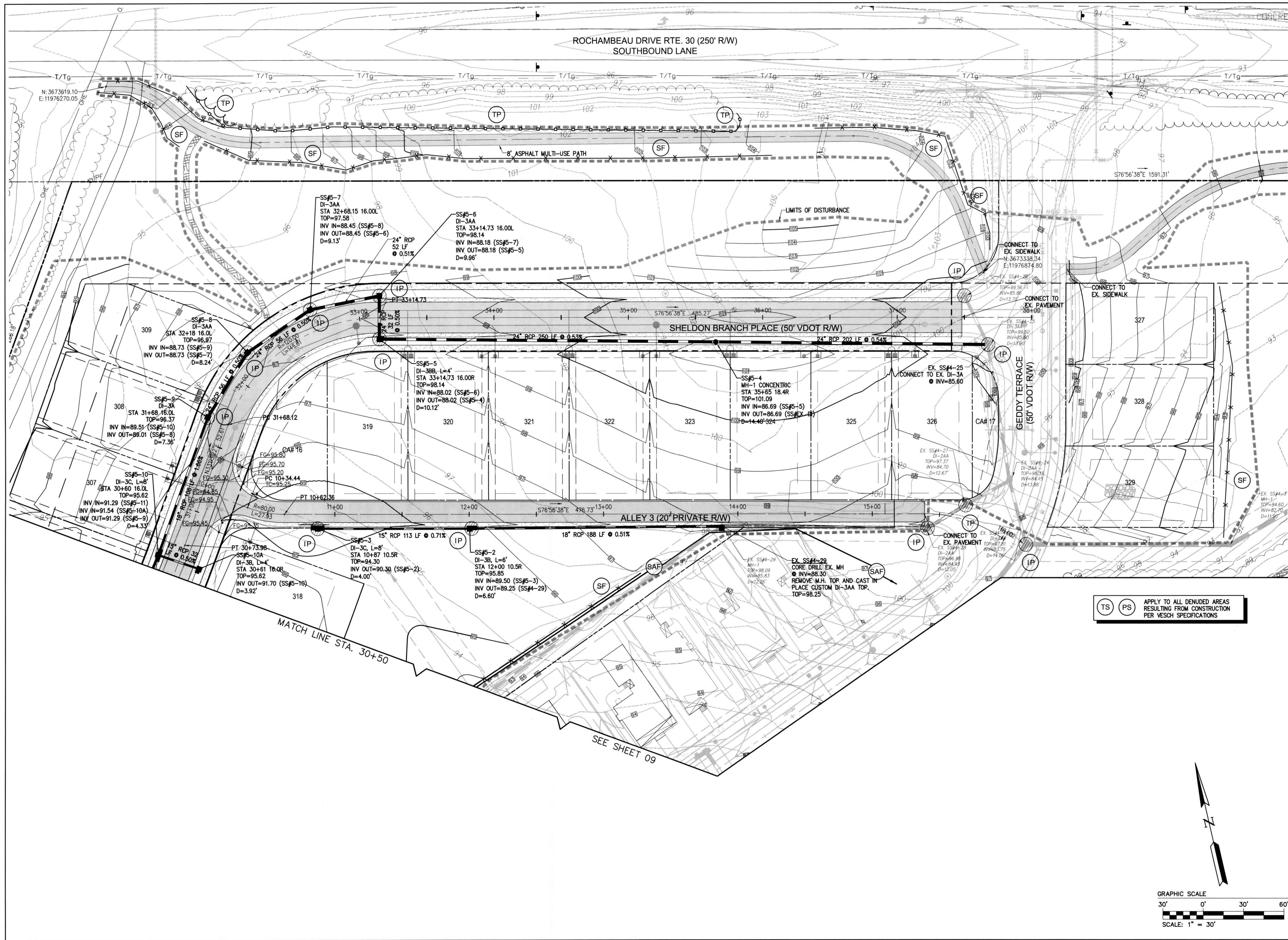
STONEHOUSE DISTRICT JAMES CITY COUNTY VIRGINIA

Project Contacts: BMC
Project Number: 9048-19
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Date: 1/17/13

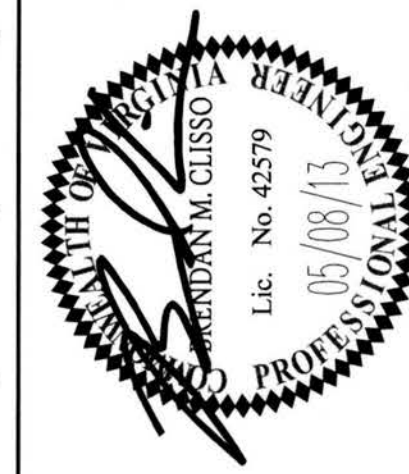
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SITE & UTILITY
PLAN

Sheet Number
07





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1	4/20/13	Revisions per JCC Comments
2	5/8/2013	Revisions per JCC Comments



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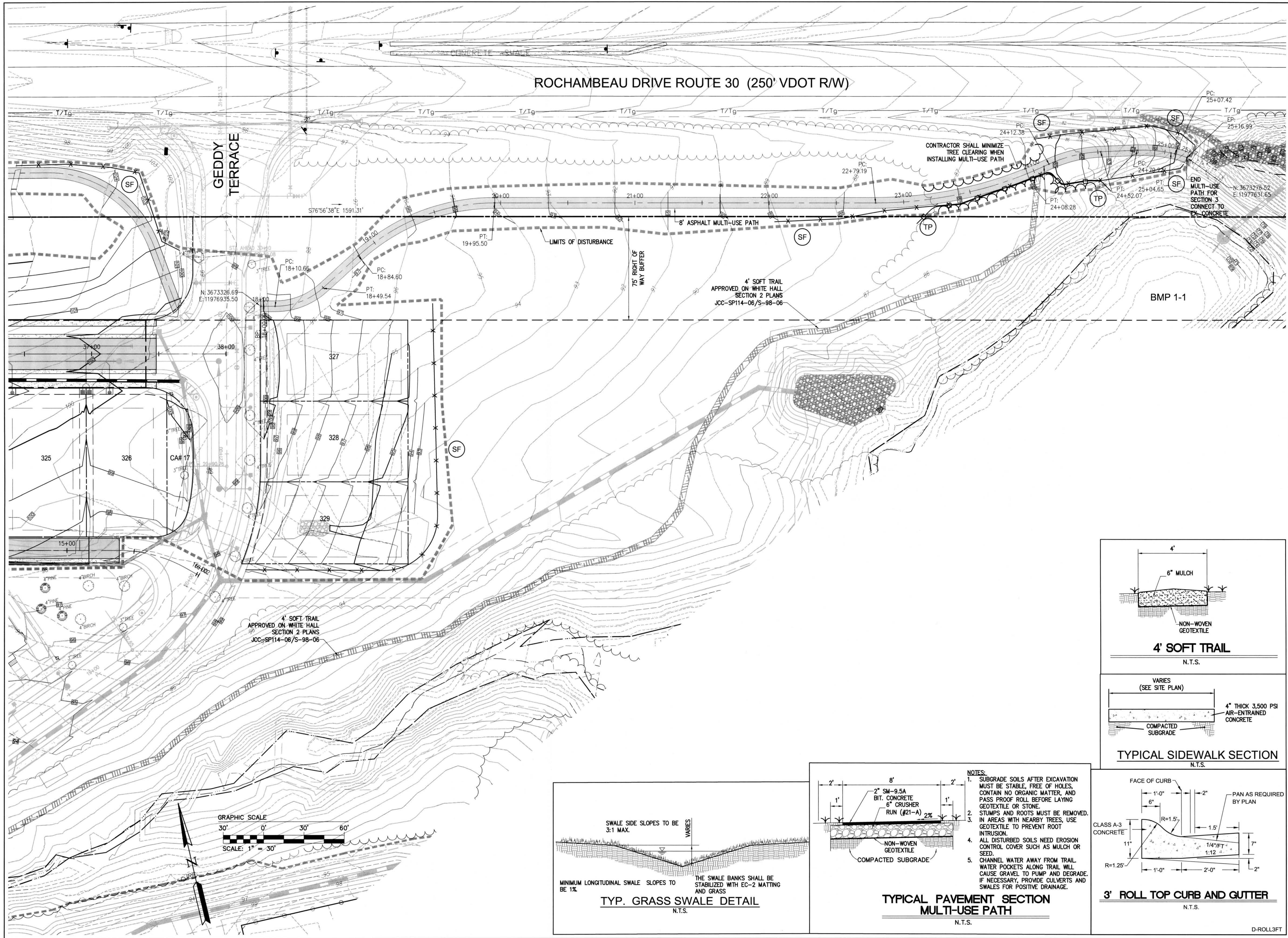
SECTION 3

WHITE HALL

DEVELOPER: HHUNT COMMUNITIES

STONEHOUSE DISTRICT | JAMES CITY COUNTY | VIRGINIA

Project Contacts:	BMC
Project Number:	9048-19
Scale:	1"=30'
Date:	1/17/13
Sheet Title:	GRADING PLAN
Sheet Number:	08



Rev.	Date	Description
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1	4/20/13	Revisions per JCC Comments



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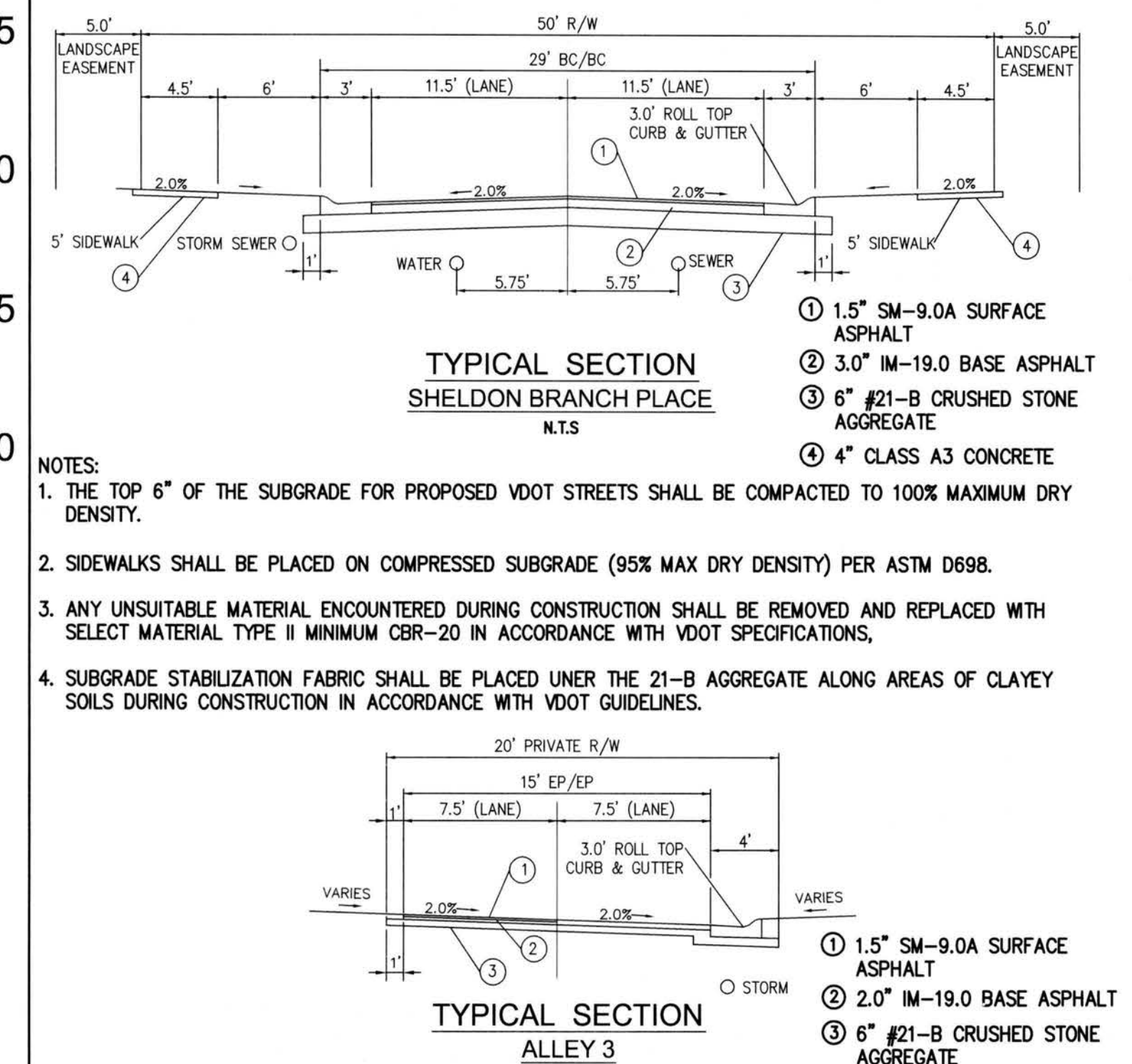
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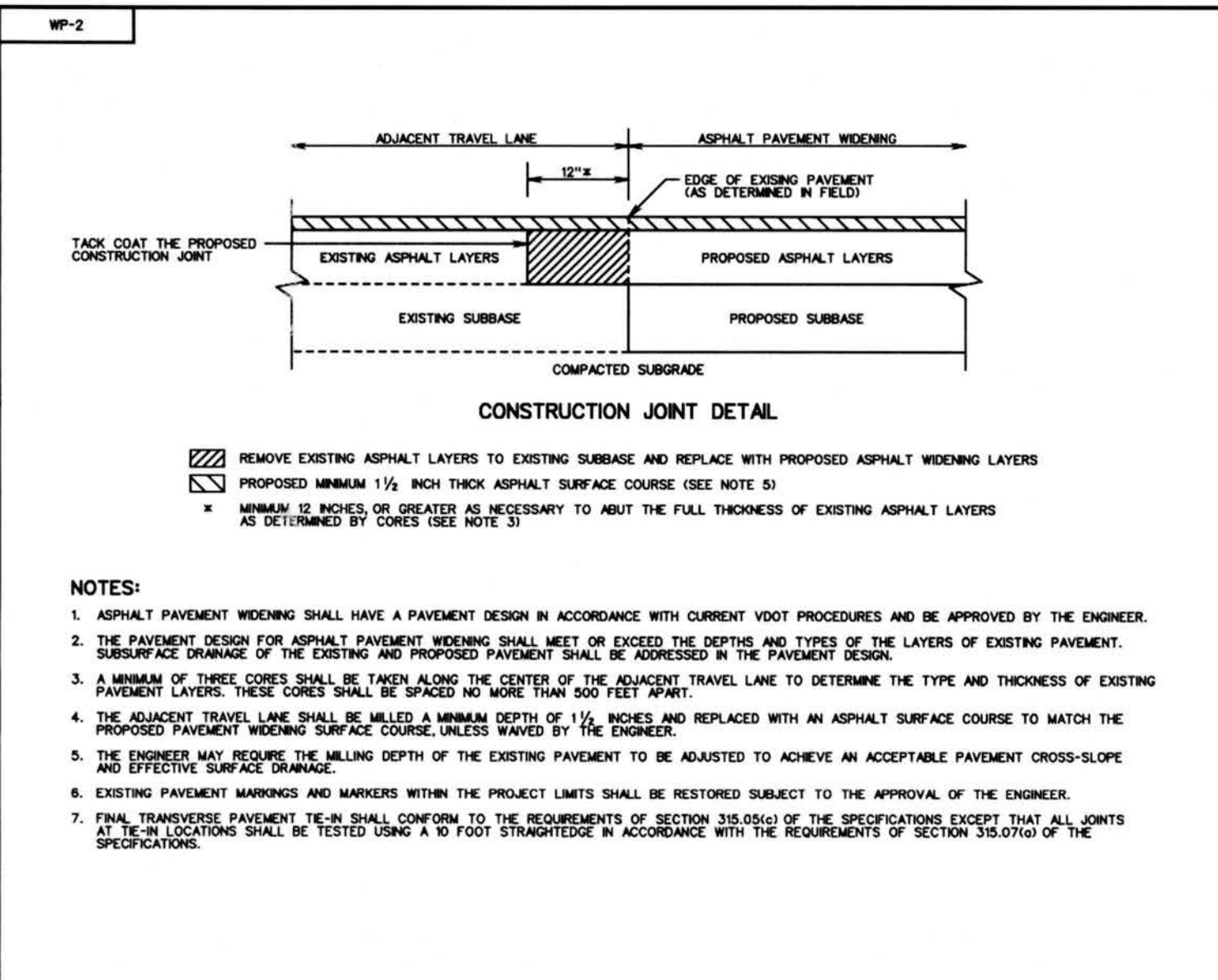
SECTION 3
WHITE HALL
DEVELOPER: HHHUNT COMMUNITIES

STONEMOUSE DISTRICT | JAMES CITY COUNTY | VIRGINIA

Project Contacts:	BMC
Project Number:	9048-19
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1"=30'	1/17/13
Sheet Title:	
GRADING PLAN	
Sheet Number	
10	



	Date	Description	BMC Revised
2	5/8/2013	Revisions per JCC Comments	BMC
1	4/5/2013	Revisions per JCC Comments	BMC

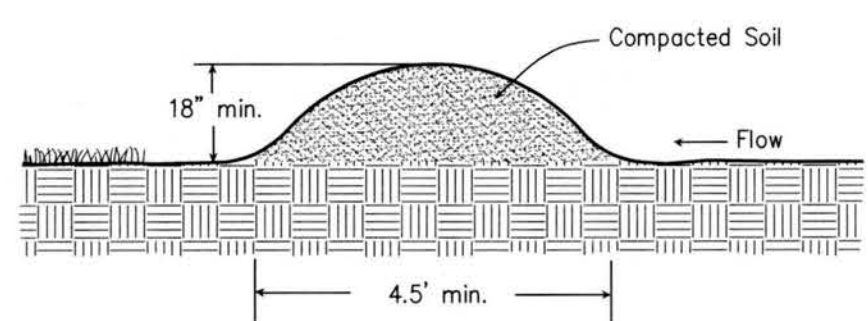
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JAMES CITY COUNTY ENVIRONMENTAL DIVISION
STANDARD EROSION AND SEDIMENT CONTROL NOTES
REVISED OCTOBER 1, 2009

THE FOLLOWING STANDARD EROSION AND SEDIMENT CONTROL (E&SC) NOTES SHALL BECOME PART OF APPROVED EROSION AND SEDIMENT CONTROL PLANS FOR ALL PLAN OF DEVELOPMENT PROJECTS IN JAMES CITY COUNTY, VIRGINIA.

- ALL THE PROVISIONS OF VIRGINIA EROSION AND SEDIMENT CONTROL LAW AND REGULATIONS, MINIMUM STANDARDS, HANDBOOKS, AND TECHNICAL BULLETINS AS PUBLISHED BY THE VIRGINIA SOIL & WATER CONSERVATION BOARD AND/OR THE VIRGINIA DEPARTMENT OF CONSERVATION AND RECREATION, DIVISION OF SOIL & WATER CONSERVATION SHALL APPLY TO THE PROJECT.
- MINIMUM STANDARDS # 1 THROUGH # 19 OF THE VIRGINIA EROSION AND SEDIMENT CONTROL REGULATIONS (4VAC50-30-40) SHALL APPLY TO THE PROJECT.
- THE OWNER OR APPLICANT SHALL BE RESPONSIBLE TO REGISTER FOR COVERAGE UNDER THE GENERAL PERMIT FOR DISCHARGE OF STORMWATER FROM CONSTRUCTION ACTIVITIES, IN ACCORDANCE WITH CURRENT REQUIREMENTS OF THE VIRGINIA STORMWATER MANAGEMENT PROGRAM (VSMP) AND THE VIRGINIA DEPARTMENT OF CONSERVATION AND RECREATION.
- THE OWNER OR APPLICANT SHALL PROVIDE THE NAME OF AN INDIVIDUAL HOLDING A VALID RESPONSIBLE LAND DISTURBER (RLD) CERTIFICATE OF COMPETENCE WHO WILL BE RESPONSIBLE FOR THE LAND-DISTURBING ACTIVITY PRIOR TO ENGAGING IN THE LAND-DISTURBING ACTIVITY. THIS WILL BE NECESSARY PRIOR TO ISSUANCE OF A LAND-DISTURBING PERMIT FOR THE PROJECT. THE RLD IS REQUIRED TO ATTEND THE PRECONSTRUCTION CONFERENCE FOR THE PROJECT.
- THE CONTRACTOR IS RESPONSIBLE TO CONTACT MISS UTILITY (DIAL 811 IN VA OR 1-800-552-7001) PRIOR TO ANY UTILITY OR SITE WORK EXCAVATIONS.
- ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE PLANNED, DESIGNED, IMPLEMENTED, INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE PROVISIONS OF THE LATEST EDITION OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK (VESCH). THE CONTRACTOR SHALL MAINTAIN, INSPECT AND REPAIR ALL EROSION AND SEDIMENT CONTROL MEASURES AS NEEDED THROUGHOUT THE LIFE OF THE PROJECT TO ENSURE CONTINUED ACCEPTABLE PERFORMANCE.
- A PRECONSTRUCTION CONFERENCE (MEETING) SHALL BE HELD ON SITE BETWEEN THE COUNTY ENVIRONMENTAL DIVISION, THE OWNER-APPLICANT, THE RESPONSIBLE LAND-DISTURBER (RLD), THE CONTRACTOR AND OTHER RESPONSIBLE AGENCIES, AS APPLICABLE, PRIOR TO ISSUANCE OF A LAND-DISTURBING PERMIT. THE OWNER OR APPLICANT IS REQUIRED TO COORDINATE SCHEDULING OF THE PRECONSTRUCTION CONFERENCE BETWEEN ALL APPLICABLE PARTIES. THE CONTRACTOR SHALL SUBMIT A SEQUENCE OF CONSTRUCTION TO THE COUNTY ENVIRONMENTAL DIVISION FOR REVIEW AND APPROVAL PRIOR TO THE PRECONSTRUCTION MEETING.
- ALL PERIMETER EROSION AND SEDIMENT CONTROL MEASURES SHALL BE CONSTRUCTED AS A FIRST STEP IN ANY LAND-DISTURBING ACTIVITY AND SHALL BE MADE FUNCTIONAL BEFORE UPSLOPE LAND DISTURBANCE TAKES PLACE.
- ADDITIONAL SAFETY FENCE OR DUST CONTROL MEASURES, IN ACCORDANCE WITH THE PROVISIONS OF MINIMUM STANDARDS & SPECS. 3.01 AND 3.39 OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK (VESCH), MAY BE REQUIRED TO BE IMPLEMENTED IN ADDITION TO THAT SHOWN ON THE APPROVED PLAN IN ORDER TO ENSURE ADEQUATE PROTECTION OF THE HEALTH, SAFETY AND WELFARE OF THE PUBLIC OR IF SITE CONDITIONS CHANGE, BECOME APPARENT OR ALTER SIGNIFICANTLY FOLLOWING THE DATE OF PLAN APPROVAL.
- EROSION AND SEDIMENT CONTROL MEASURES MAY REQUIRE MINOR FIELD ADJUSTMENTS AT OR FOLLOWING TIME OF CONSTRUCTION TO ENSURE THEIR INTENDED PURPOSE IS ACCOMPLISHED, TO ENSURE ADEQUATE PROTECTION OF THE HEALTH, SAFETY AND WELFARE OF THE PUBLIC, OR IF SITE CONDITIONS CHANGE, BECOME APPARENT OR ALTER SIGNIFICANTLY FOLLOWING THE DATE OF PLAN APPROVAL. COUNTY ENVIRONMENTAL DIVISION APPROVAL SHALL BE REQUIRED FOR ANY DEVIATION OF EROSION AND SEDIMENT CONTROL MEASURES FROM THE APPROVED PLAN.
- OFF-SITE WASTE OR BORROW AREAS SHALL BE APPROVED BY THE COUNTY ENVIRONMENTAL DIVISION PRIOR TO THE IMPORT OF ANY BORROW OR EXPORT OF ANY WASTE TO OR FROM THE PROJECT SITE.
- CULVERT AND STORM DRAIN INLET PROTECTIONS, IN ACCORDANCE WITH THE PROVISIONS OF MINIMUM STANDARDS & SPECS. 3.07 & 3.08 OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK (VESCH), MAY BE REMOVED AT THE DISCRETION OF THE ASSIGNED COUNTY ENVIRONMENTAL DIVISION INSPECTOR SHOULD PLACEMENT OF THE MEASURE RESULT IN EXCESSIVE ROAD FLOODING OR TRAFFIC HAZARD OR RESULT IN THE REDIRECTION OF DRAINAGE ONTO OR TOWARD EXISTING LOTS, DRIVEWAYS OR STRUCTURES. DECISIONS SHALL BE MADE ON A CASE-BY-CASE BASIS BASED ON FIELD SITUATIONS ENCOUNTERED.
- DRAINAGE FACILITIES SHALL BE INSTALLED AND FUNCTIONAL WITHIN 30 DAYS FOLLOWING COMPLETION OF ROUGH GRADING AT ANY POINT WITHIN THE PROJECT.
- NO MORE THAN 300 FEET OF TRENCH MAY BE OPEN AT ONE TIME FOR UNDERGROUND UTILITY LINES, INCLUDING STORM WATER CONVEYANCES. ALL OTHER PROVISIONS OF MINIMUM STANDARD # 16 OF THE VIRGINIA EROSION AND SEDIMENT CONTROL REGULATIONS APPLY.
- IF DISTURBED AREA STABILIZATION IS TO BE ACCOMPLISHED DURING THE MONTHS OF DECEMBER, JANUARY OR FEBRUARY, STABILIZATION SHALL CONSIST OF MULCHING IN ACCORDANCE WITH MINIMUM STANDARD & SPEC. 3.35 OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK (VESCH). SEEDING WILL THEN TAKE PLACE AS SOON AS THE SEASON PERMITS.
- THE TERM SEEDING, FINAL VEGETATIVE COVER OR STABILIZATION ON THE APPROVED PLAN SHALL MEAN THE SUCCESSFUL GERMINATION AND ESTABLISHMENT OF A STABLE GRASS COVER FROM A PROPERLY PREPARED SEEDBED, IN ACCORDANCE WITH MINIMUM STANDARDS & SPECS. 3.29 THROUGH 3.37 OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK (VESCH), AS APPLICABLE. IRRIGATION, IF NECESSARY, SHALL COMPLY WITH ALL APPLICABLE OUTDOOR WATER USE RESTRICTIONS OF THE JAMES CITY SERVICE AUTHORITY.
- TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL NOT BE REMOVED UNTIL ALL DISTURBED AREAS ARE STABILIZED. REMOVAL SHALL NOT OCCUR WITHOUT AUTHORIZATION BY THE COUNTY ENVIRONMENTAL DIVISION. DISTURBANCES ASSOCIATED WITH THE REMOVAL OF TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE PROPERLY STABILIZED.
- NO SEDIMENT TRAP OR SEDIMENT BASIN SHALL BE REMOVED UNTIL A) AT LEAST 75 PERCENT OF THE SINGLE-FAMILY LOTS WITHIN THE DRAINAGE AREA TO THE TRAP OR BASIN HAVE BEEN SOLD TO A THIRD PARTY FOR THE CONSTRUCTION OF HOMES (UNRELATED TO THE DEVELOPER); AND/OR, B) 60 PERCENT OF THE SINGLE-FAMILY LOTS WITHIN THE DRAINAGE AREA TO THE TRAP OR BASIN ARE COMPLETED AND 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 AUTHORIZATION OF THE COUNTY ENVIRONMENTAL DIVISION.
- APPLICABLE PROVISIONS OF THE COUNTY BMP MANUAL (JAMES CITY COUNTY GUIDELINES FOR DESIGN AND CONSTRUCTION OF STORMWATER MANAGEMENT BMPs) AND THE VIRGINIA STORMWATER MANAGEMENT HANDBOOK (VSMH) APPLY TO THE PROJECT.
- DESIGN AND CONSTRUCTION OF PRIVATE-TYPE STORM DRAINAGE SYSTEMS, OUTSIDE VDOT RIGHT-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.
- RECORD DRAWINGS (ASBUILTS) AND CONSTRUCTION CERTIFICATIONS ARE REQUIRED FOR ALL STORMWATER FACILITIES INCLUDING STORMWATER MANAGEMENT/BMP FACILITIES AND STORM DRAINAGE CONVEYANCE SYSTEMS. RECORD DRAWINGS AND CONSTRUCTION CERTIFICATIONS MUST MEET ESTABLISHED PROGRAM REQUIREMENTS OF BOTH THE COUNTY ENVIRONMENTAL AND STORMWATER DIVISIONS.
- ALL STORMWATER FACILITIES INCLUDING BMPs, STORM DRAINAGE PIPES, STORMWATER CONVEYANCES, INLETS, MANHOLES, OUTFALLS AND ROADSIDE AND OTHER OPEN CHANNELS SHALL BE INSPECTED BY THE COUNTY STORMWATER DIVISION AND GEOTECHNICAL ENGINEER IN ACCORDANCE WITH ESTABLISHED COUNTY STORMWATER DIVISION PROGRAM REQUIREMENTS.

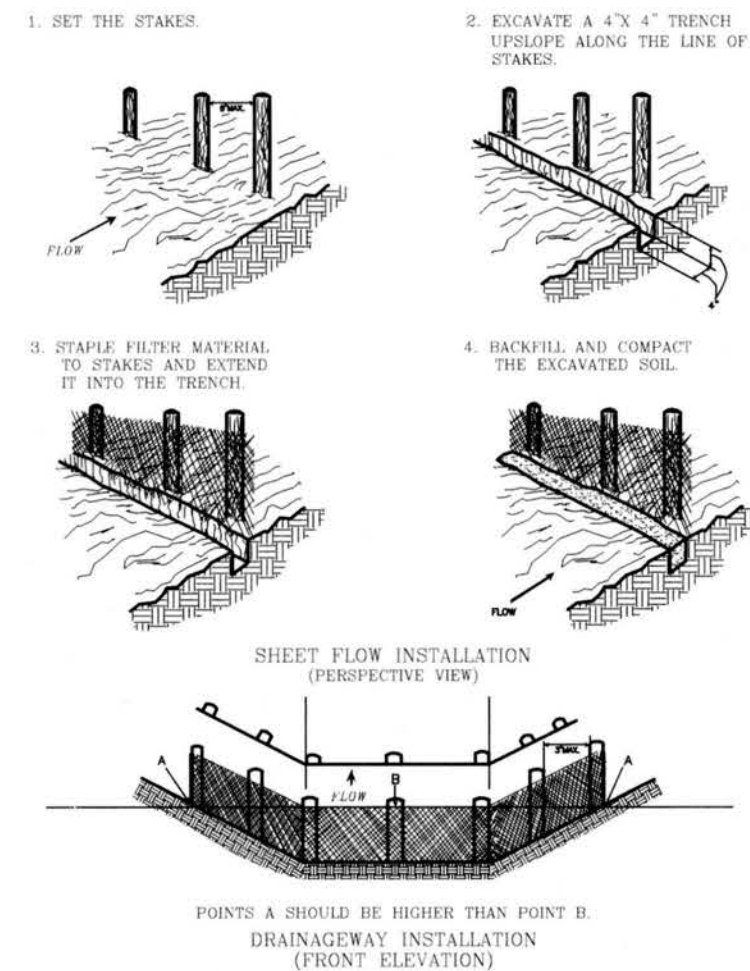
TEMPORARY DIVERSION DIKE



DD

Plate 3.09-1

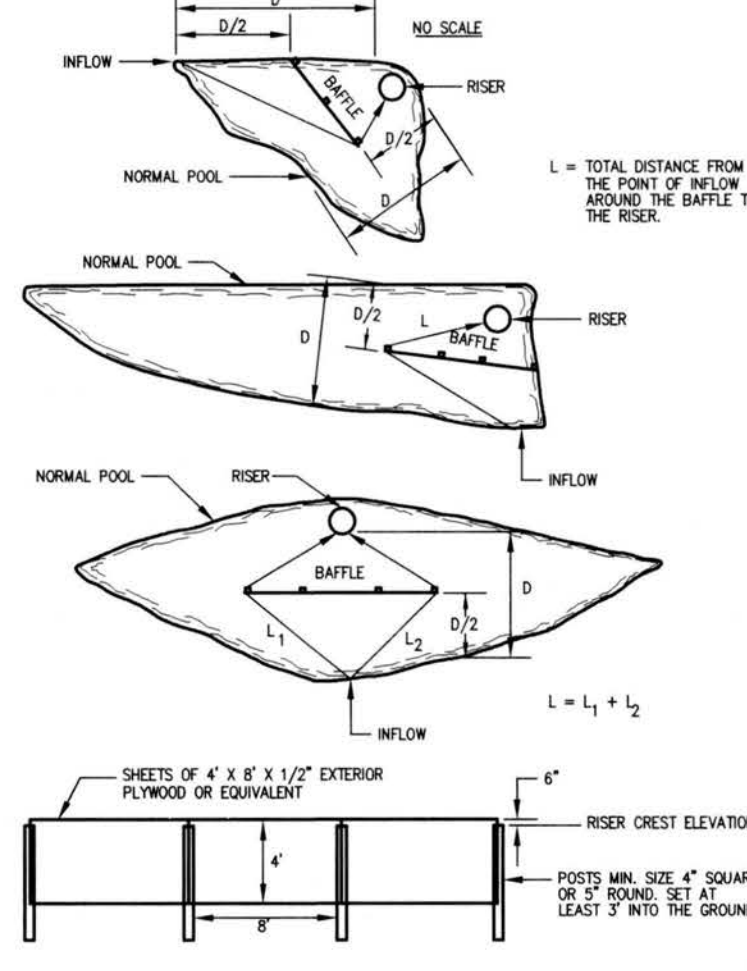
CONSTRUCTION OF A SILT FENCE
(WITHOUT WIRE SUPPORT)



SB

Plate 3.05-2

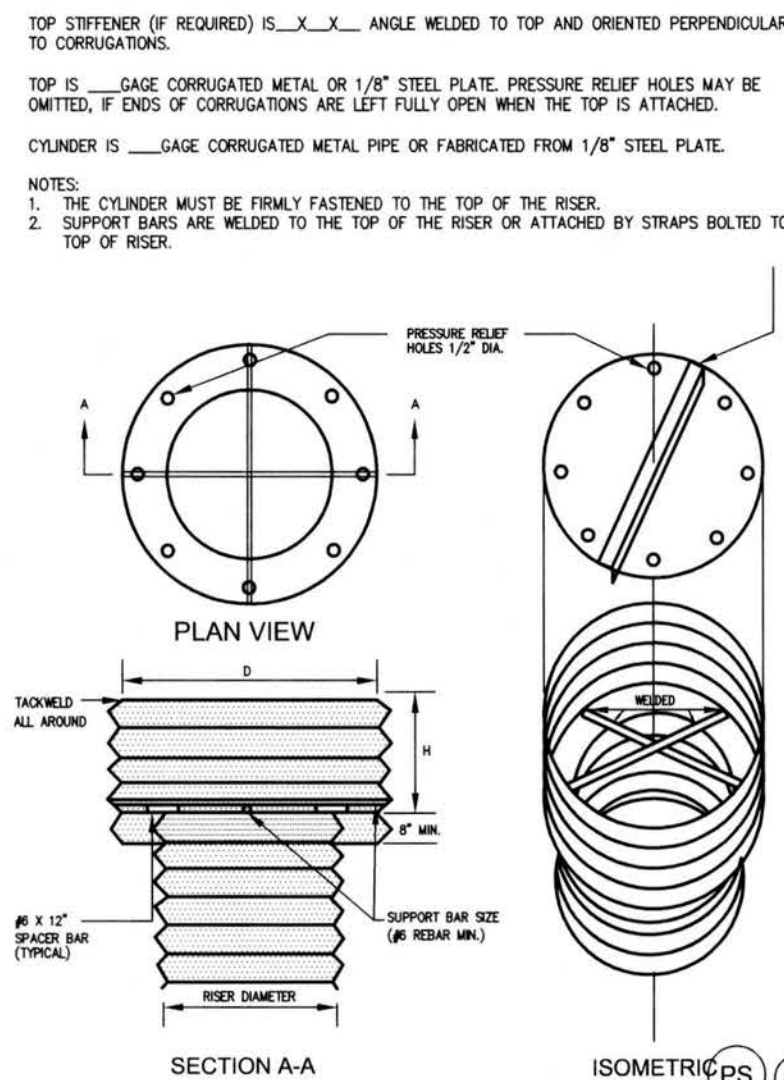
EXAMPLE PLAN VIEWS OF
BAFFLE LOCATIONS IN
SEDIMENT BASINS



SB

Plate 3.14-6

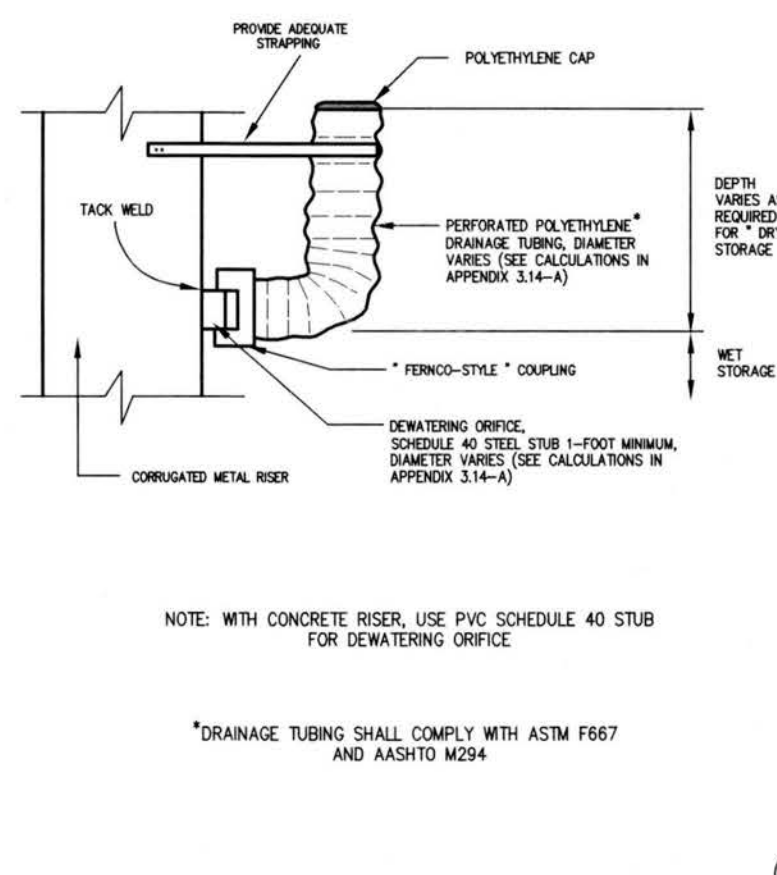
ANTI-VORTEX DEVICE DESIGN



SB

Plate 3.14-10

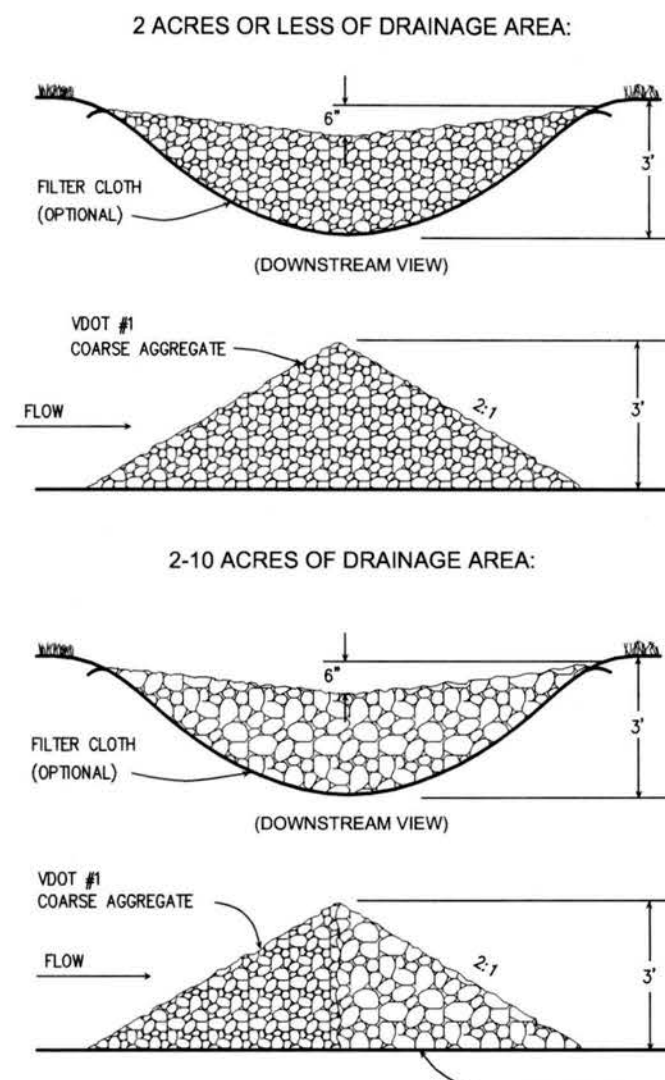
RECOMMENDED DEWATERING
SYSTEM FOR SEDIMENT
BASINS



SB

Plate 3.14-15

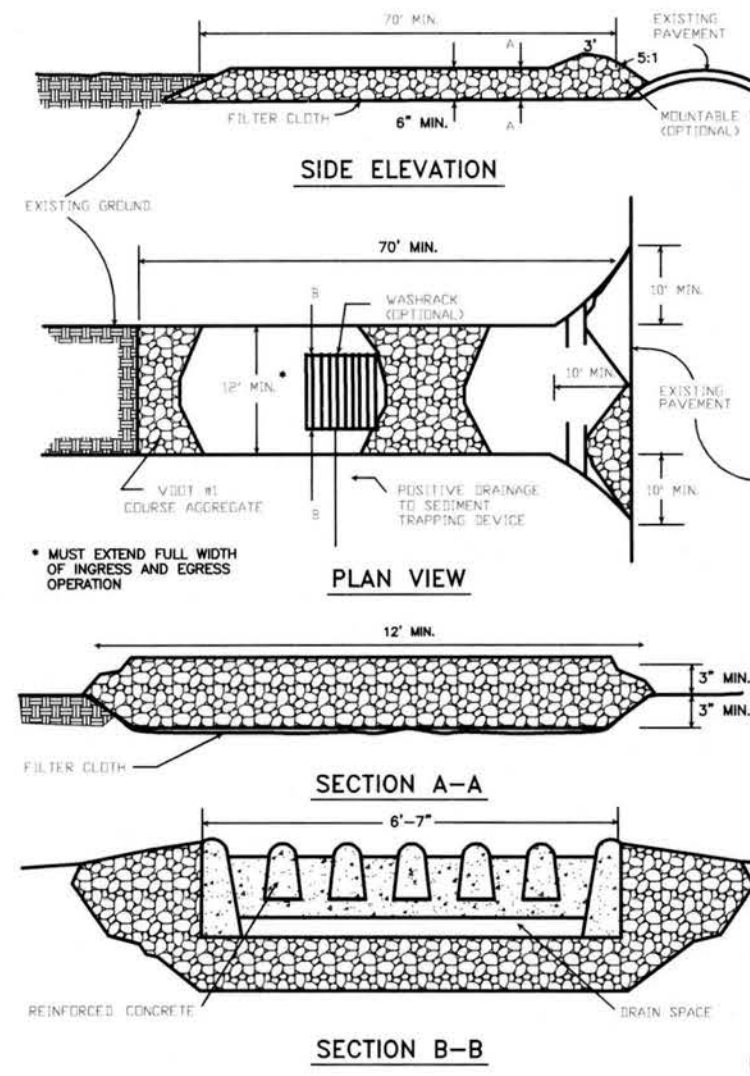
ROCK CHECK DAM



CD

Plate 3.20-1

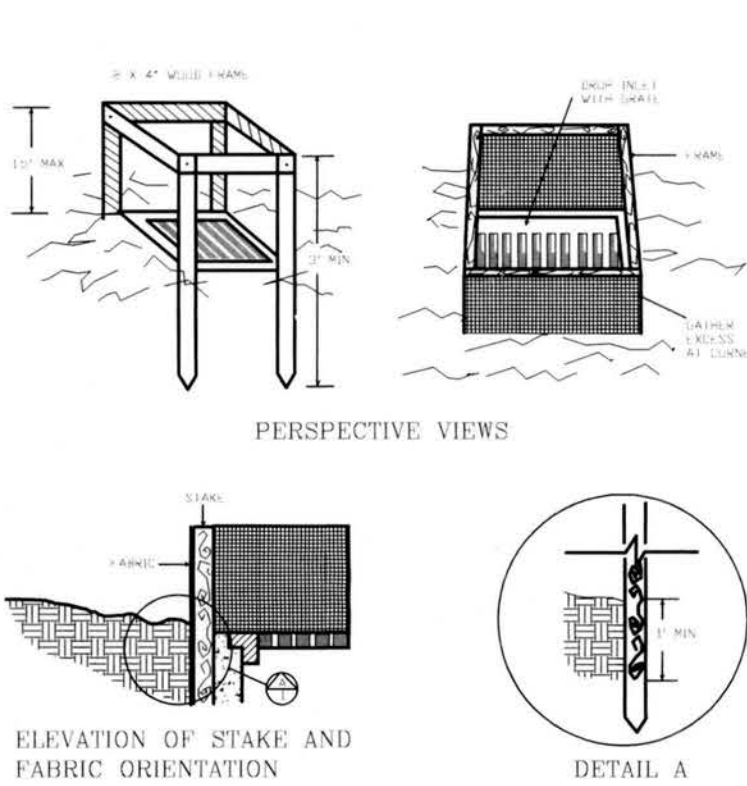
STONE CONSTRUCTION ENTRANCE



CE

Plate 3.02-1

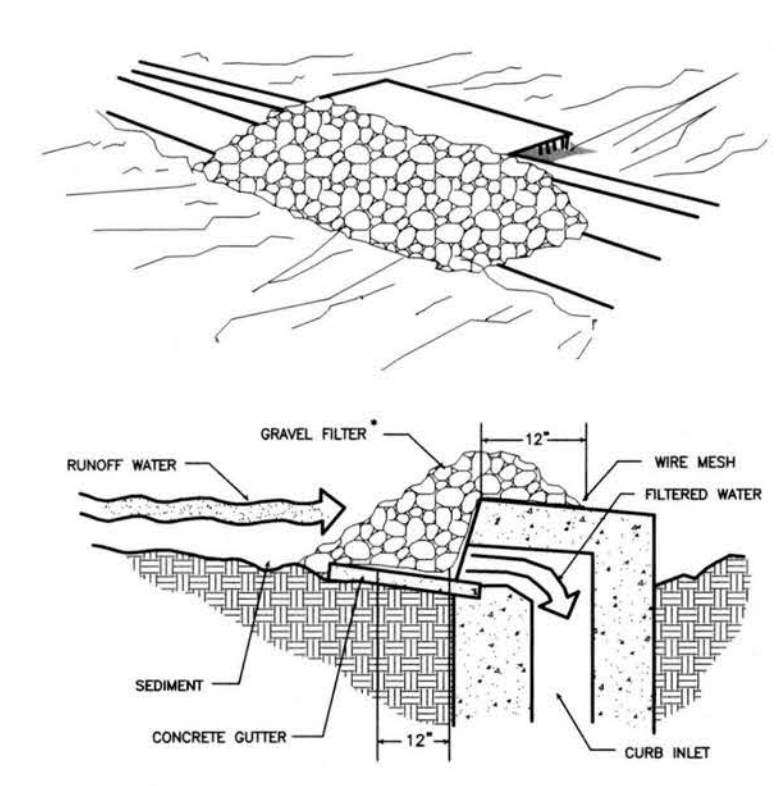
SILT FENCE DROP INLET
PROTECTION



IP

Plate 3.07-1

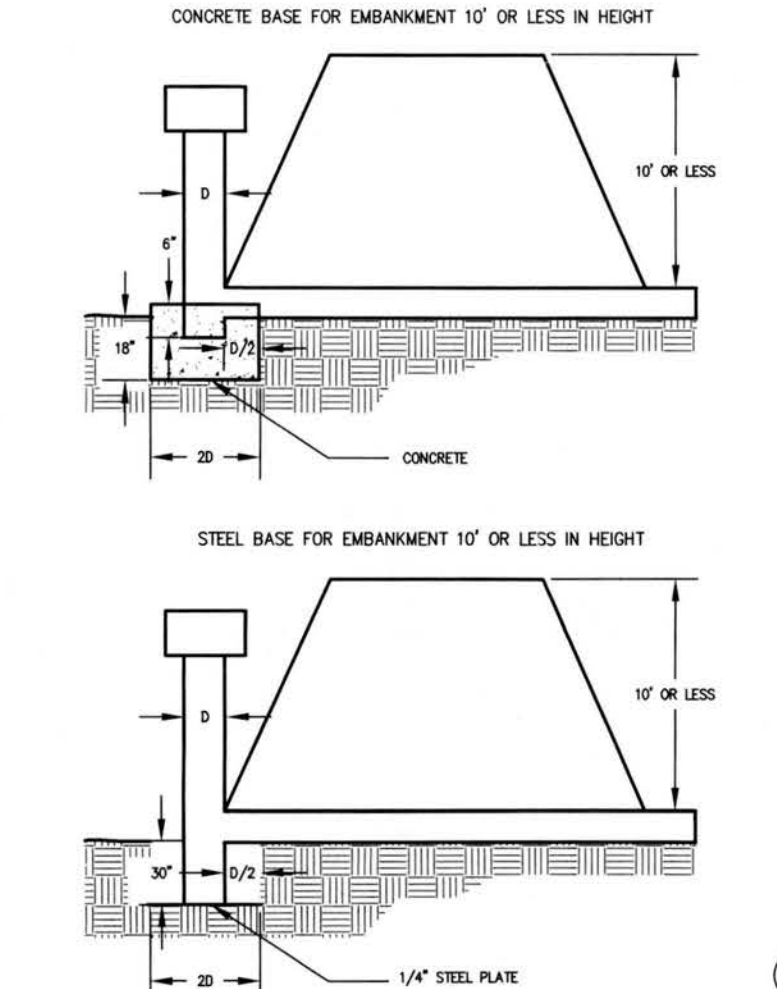
GRAVEL CURB INLET SEDIMENT
FILTER



IP

Plate 3.07-6

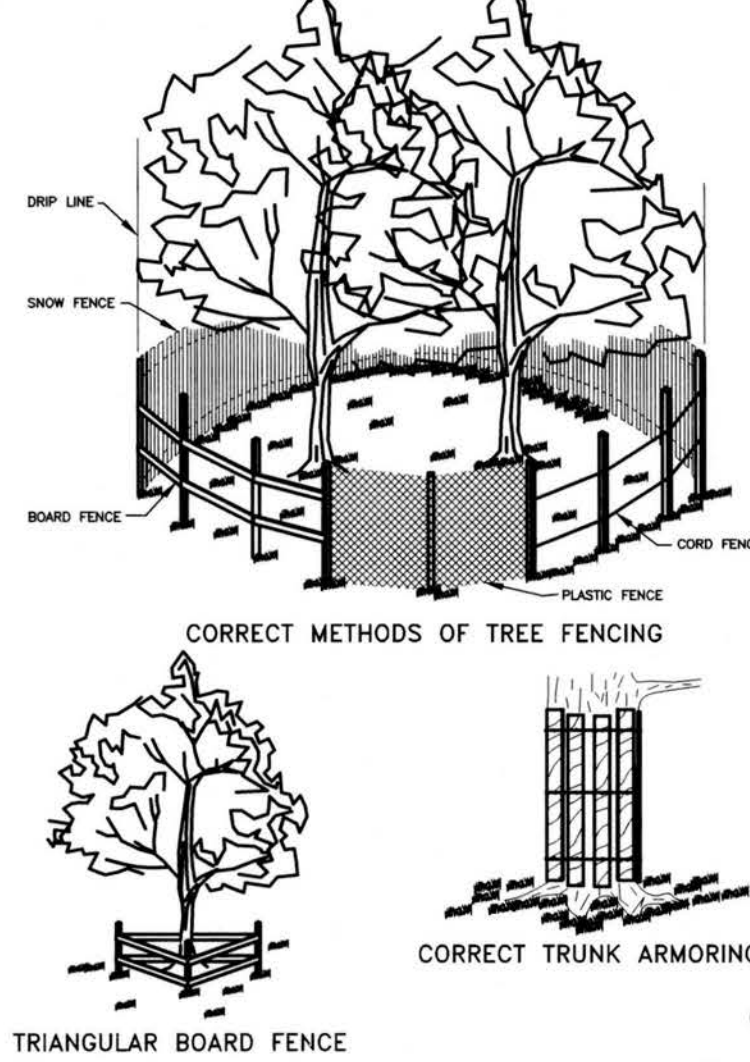
RISER PIPE BASE CONDITIONS
FOR EMBANKMENTS LESS
THAN 10' HIGH



SB

Plate 3.14-14

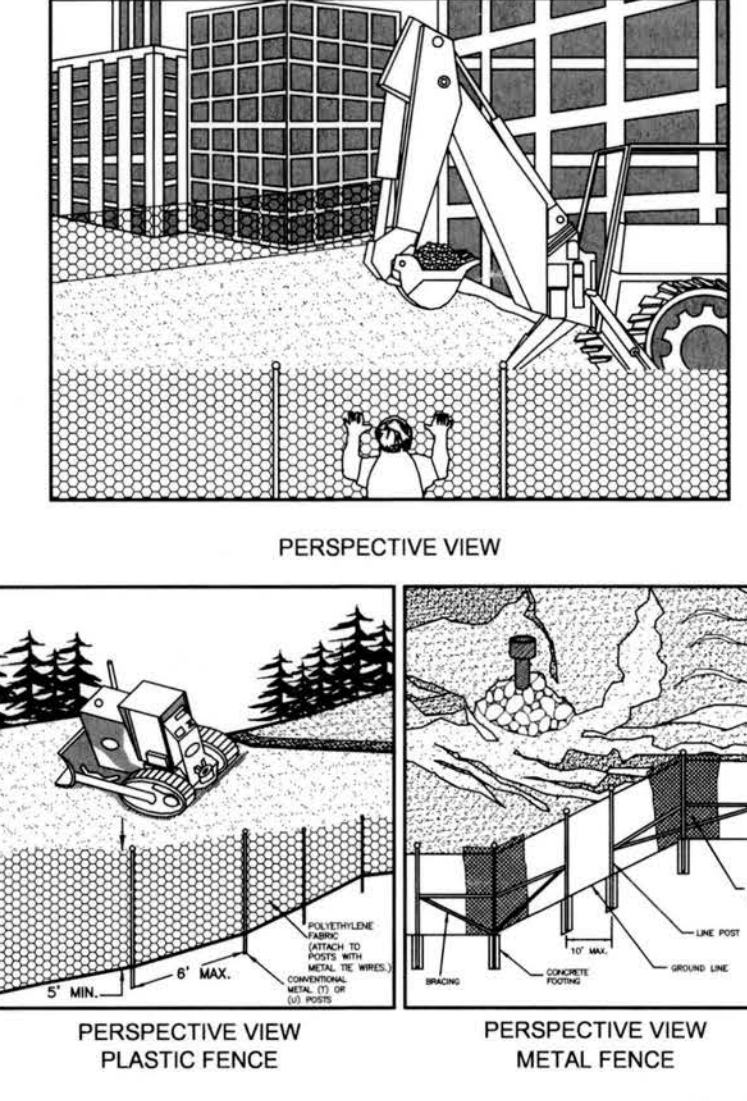
FENCING AND ARMORING
(TREE PROTECTION)



TP

Plate 3.38-2

SAFETY FENCE



SAP

Plate 3.01-1

SITE SPECIFIC SEEDING MIXTURES
FOR COASTAL PLAIN AREA

MINIMUM CARE LAWN COMMERCIAL OR RESIDENTIAL KENTUCKY 31 OR TURF-TYPE TALL FESCUE OR COMMON BERMAUDA GRASS **	TOTAL LBS PER ACRE
	175-200 LBS.
	75 LBS.
HIGH-MAINTENANCE LAWN KENTUCKY 31 OR TURF-TYPE TALL FESCUE OR HYBRID BERMAUDAGRASS (SEED)**	200-250 LBS.
	40 LBS. (UNHALLED)
OR HYBRID BERMAUDAGRASS (BY OTHER VEGETATIVE ESTABLISHMENT METHOD, SEE STD. & SPEC. 3.34)	30 LBS. (HALLED)
GENERAL SLOPE (3:1 OR LESS) KENTUCKY 31 FESCUE RED TOP GRASS SEASONAL NURSE CROP *	128 LBS. 2 LBS. 20 LBS. 150 LBS.
LOW MAINTENANCE SLOPE (STEEPER THAN 3:1) KENTUCKY 31 TALL FESCUE COMMON BERMAUDAGRASS ** RED TOP GRASS SEASONAL NURSE CROP * SERICEA LESPEDEZA **	93-108 LBS. 0-15 LBS. 2 LBS. 20 LBS. 150 LBS.

* USE SEASON CROP IN ACCORDANCE WITH SEEDING DATES AS STATED BELOW
FEBRUARY, MARCH THROUGH APRIL ANNUAL RYE
MAY THROUGH AUGUST FALLOW
SEPTEMBER THROUGH NOVEMBER 15TH. FALLOW
NOVEMBER 16TH THROUGH ANNUAL WINTER RYE

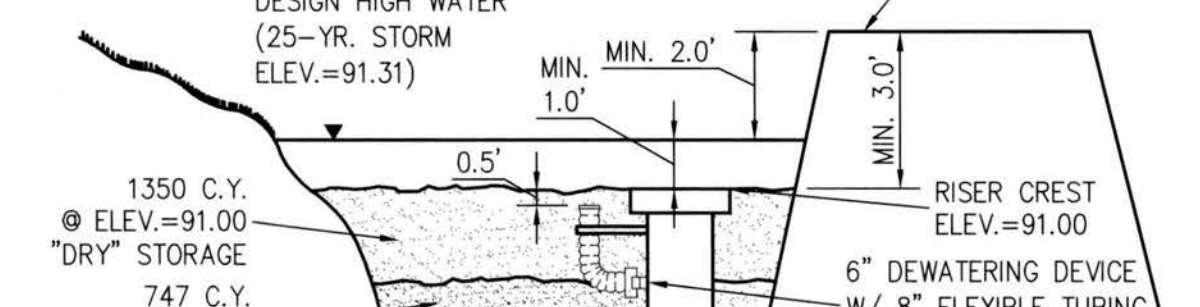
** MAY, THROUGH OCTOBER, USE HALLED SEED. ALL OTHER SEEDING PERIODS, USE UNHALLED SEED. MIXING LOWERSSEED MAY BE ADDED TO ANY SLOPE OR LOW MAINTENANCE SLOPE DURING WINTER SEEDING PERIOD. ADD 10-20 LBS./ACRE IN MIXES.

* USE SEASONAL CROP IN ACCORDANCE WITH SEEDING DATES AS STATED BELOW:
FEBRUARY, MARCH THROUGH APRIL.....ANNUAL RYE
MAY 1ST THROUGH AUGUST.....FORAGE MULET
SEPTEMBER, OCTOBER THROUGH NOVEMBER 15TH.....ANNUAL RYE
NOVEMBER 16TH THROUGH JANUARY.....WINTER RYE
** MAY THROUGH OCTOBER, USE HALLED SEED. ALL OTHER SEEDING PERIODS, USE
UNHALLED SEED. WEEPING LOVERGRASS MAY BE ADDED TO ANY SLOPE OR
LOW-MAINTENANCE MIX DURING WARMER SEEDING PERIODS; ADD 10-20
LBS./ACRE IN MIXES.

TABLE 3.32-D

SPECIES	SEEDING RATE				PLANT CHARACTERISTICS
	ACRE	1000 FT SQ.	2/15 TO 4/30	5/1 TO 9/1	
OATS (AVENA SATIVA)	3 lbs. (up to 100 lbs. not less than 50 lbs.)	2 lbs.	X	-	Use spring varieties (e.g., Noble).
RYE (SECALE CEREALE)	2 lbs. (up to 110 lbs. not less than 50 lbs.)	2.5 lbs.	X	-	Use for late fall seedings, winter cover. Tolerates cold and low moisture.
GERMAN MULLET (SETARIA ITALICA)	50 lbs.	approx. 1 lb.	-	X	Warm-season annual. Dies at first frost. May be added to summer mixes.
ANNUAL RYEGRASS (LOLIUM MULTI-FLORUM)	60 lbs.	1-1/2 lbs.	X	-	May be added in mixes. Will mow out of most stands.
WEEPING LOVERGRASS (ERAGrostis CURVULA)	15 lbs.	5-1/2 ozs.	-	X	Warm-season perennial. May bunch. Tolerates hot, dry slopes and acid, infertile soils. May be added to mixes.
KOREAN LESPEDeza (LESPEDeza STIPULACEA)	25 lbs.	approx. 1-1/2 lbs.	X	X	Warm-season annual legume. Tolerates acid soils. May be added to mixes.

b. SOUTHERN PIEDMONT AND COASTAL PLAIN.
c. MAY BE USED AS A COVER CROP WITH SPRING SEEDING.
d. MAY BE USED AS A COVER CROP WITH FALL SEEDING.
e. MAY BE PLANTED BETWEEN THESE DATES.
f. MAY NOT BE PLANTED BETWEEN THESE DATES.



SEDIMENT BASIN
SCHEMATIC ELEVATIONS
N.T.S.

Revision	By	Date	Description
1	BMC	4/5/2013	Revisions per JCC Comments
2	BMC	5/8/2013	Revisions per JCC Comments



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SECTION 3
WHITE HALL
DEVELOPER: HHUNT COMMUNITIES

STONEHOUSE DISTRICT JAMES CITY COUNTY VIRGINIA

Project Contacts:	BMC
Project Number:	9048-19
Scale:	NTS
Date:	1/17/13
Sheet Title:	NOTES & DETAILS
Sheet Number	13

JCSA GENERAL NOTES FOR WATER DISTRIBUTION AND SANITARY SEWER SYSTEMS: (revised May 2011)

A. ALL COMPONENTS OF THE WATER DISTRIBUTION AND SANITARY SEWER SYSTEM SHALL BE INSTALLED AND TESTED IN ACCORDANCE WITH THE LATEST EDITION OF THE JCSA DESIGN AND ACCEPTANCE CRITERIA FOR WATER DISTRIBUTION AND SANITARY SEWER SYSTEMS, THE HRPDC REGIONAL CONSTRUCTION STANDARDS (5TH EDITION) WITH AMENDMENTS DATED DECEMBER 2010, AND THE COMMONWEALTH OF VIRGINIA DEPARTMENT OF HEALTH WATERWORKS AND SANITARY SEWERAGE REGULATIONS. THE CONTRACTOR SHALL USE ONLY NEW MATERIALS, PARTS, AND PRODUCTS ON ALL PROJECTS. ALL MATERIALS SHALL BE STORED SO AS TO ASSURE THE PRESERVATION OF THEIR QUALITY AND FITNESS FOR THE WORK. A COPY OF THE JCSA DESIGN AND ACCEPTANCE CRITERIA AND HRPDC REGIONAL CONSTRUCTION STANDARDS MUST BE KEPT ON-SITE BY THE CONTRACTOR DURING TIME OF INSTALLING, TESTING, AND COMPLETING FACILITIES TO JCSA.

B. THE CONTRACTOR/DEVELOPER SHALL ACQUIRE A CERTIFICATE TO CONSTRUCT WATER AND SANITARY SEWER FACILITIES PRIOR TO COMMENCEMENT OF CONSTRUCTION OF ANY WATER OR SANITARY SEWER FACILITIES.

C. A PRECONSTRUCTION MEETING SHALL BE HELD BETWEEN JCSA, THE DEVELOPER, THE CONTRACTOR INCLUDING RELEVANT SUBCONTRACTOR(S), AND THE PROJECT ENGINEER PRIOR TO ISSUANCE OF A JCSA CERTIFICATE TO CONSTRUCT. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO SCHEDULE THIS MEETING WITH JCSA AND COORDINATE WITH THE OTHER ATTENDEES.

D. THE DEVELOPER'S REPRESENTATIVE SHALL SUBMIT SHOP DRAWINGS FOR ALL MATERIALS AND RECEIVE JCSA APPROVAL PRIOR TO COMMENCEMENT OF CONSTRUCTION. ALL MATERIALS ORDERED AND INSTALLED PRIOR TO JCSA'S REVIEW AND ACCEPTANCE WILL BE AT THE CONTRACTOR'S/DEVELOPER'S RISK.

E. PIPE LINES AND SERVICES SHALL BE INSTALLED AFTER GRADING TO WITHIN 6-INCHES OF FINAL GRADE AND PRIOR TO PLACEMENT OF BASE MATERIAL.

F. ALL WATER MAINS SHALL BE FULLY FLUSHED, PRESSURE TESTED, AND DISINFECTED AND SATISFACTORY BACTERIOLOGICAL SAMPLES OBTAINED, IN ACCORDANCE WITH JCSA DESIGN AND ACCEPTANCE CRITERIA. FLUSHING OF WATER MAINS SHALL BE SCHEDULED WITH THE JCSA INSPECTOR MINIMUM 3 BUSINESS DAYS PRIOR TO THE FLUSHING. CONTRACTOR SHALL PROVIDE THE REQUIRED DURATION AND VOLUME TO THE INSPECTOR. FLUSHING WILL BE SCHEDULED ONLY ON MONDAYS, UNLESS AUTHORIZED OTHERWISE BY JCSA, AND WILL BE ON A FIRST COME-FIRST SERVE BASIS.

G. ROUTINE PERIODIC INSPECTIONS DURING CONSTRUCTION WILL BE PROVIDED BY JCSA. THESE INSPECTIONS DO NOT RELIEVE THE DEVELOPER/CONTRACTOR/OWNER FROM HIS OBLIGATION AND RESPONSIBILITY FOR CONSTRUCTING A WATER DISTRIBUTION AND SANITARY SEWER SYSTEM IN STRICT ACCORDANCE WITH THE JCSA DESIGN AND ACCEPTANCE CRITERIA.

H. ANY FIELD MODIFICATIONS OR CHANGES TO THE APPROVED PLANS SHALL BE VERIFIED AND CHECKED BY THE ENGINEER OF RECORD AND APPROVED BY JCSA PRIOR TO ANY FIELD MODIFICATIONS OR CHANGES. ALL APPROVED CHANGES AND FIELD MODIFICATIONS SHALL BE ACCURATELY INDICATED ON THE RECORD DRAWINGS.

I. ALL LOTS SHALL BE PROVIDED WITH WATER SERVICE AND SANITARY SEWER CONNECTIONS. THE CONNECTIONS SHALL BE EXTENDED FROM THE MAIN TO THE PROPERTY LINE OR EASEMENT LINE, AND SHALL TERMINATE WITH A YOE IN A METER BOX, OR AT THE CLEAN OUT, SET AT FINAL FINISHED GRADE. METERS FOR ALL LOTS (UNITS) SHALL BE PAID FOR BY THE DEVELOPER OR BUILDER AND INSTALLED BY JCSA.

J. ANY REQUIRED EASEMENTS, PERMITS AND APPROVALS SHALL BE ACQUIRED BY THE DEVELOPER PRIOR TO COMMENCEMENT OF WATER MAIN AND/OR SANITARY SEWER CONSTRUCTION.

K. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE LAWS, ORDINANCES, RULES, REGULATIONS AND ORDERS OF ANY PUBLIC BODY HAVING JURISDICTION. THE CONTRACTOR SHALL ERECT AND MAINTAIN, AS REQUIRED BY THE CONDITIONS AND PROGRESS OF THE WORK, ALL NECESSARY SAFEGUARDS FOR SAFETY AND PROTECTION. THE CONTRACTOR SHALL ALSO NOTIFY "MISS UTILITY" AT 1-800-552-7001 OR 811 PRIOR TO PERFORMING ANY UNDERGROUND EXCAVATION.

L. WATER METER BOX INSTALLATION SHALL MAINTAIN A MINIMUM 18-INCH HORIZONTAL EDGE-TO-EDGE CLEARANCE FROM DRIVEWAYS AND/OR DRIVE PATHS, SIDEWALKS, BIKE PATHS, CURBS AND ADJACENT WATER METER BOXES.

M. ONLY JCSA PERSONNEL ARE AUTHORIZED TO OPERATE VALVES ON EXISTING JCSA WATER MAINS AND SANITARY FORCE MAINS. ONCE A SYSTEM HAS BEEN HYDRAULICALLY ENERGIZED, JCSA WILL BE RESPONSIBLE FOR OPERATING THE VALVES. THE CONTRACTOR SHALL CONTACT JCSA OPERATIONS AT 757-229-7421 IF THERE IS AN EMERGENCY OR NEED TO OPEN/CLOSE A VALVE.

N. ANY EXISTING UNUSED WELL(S) SHALL BE ABANDONED IN ACCORDANCE WITH STATE PRIVATE WELL REGULATIONS AND JAMES CITY COUNTY CODE.

O. BEDDING OF JCSA UTILITIES SHALL BE IN ACCORDANCE WITH HRPDC DETAIL EW_01, TYPE III FOR RIGID PIPE AND TYPE IV FOR PVC PIPE.

P. NO TREES, SHRUBS, STRUCTURES, FENCES, IRRIGATION MAINS, INVISIBLE PET FENCES OR OTHER OBSTACLES SHALL BE PLACED WITHIN AN EASEMENT WHICH WOULD RENDER THE EASEMENT INACCESSIBLE BY EQUIPMENT. SHRUBS SHALL BE A MINIMUM OF 5 FEET, AND TREES A MINIMUM OF 10 FEET, FROM THE CENTER OF WATER AND SANITARY SEWER PIPELINES.

Q. JOINT RESTRAINT SHALL BE PROVIDED IN ACCORDANCE WITH MINIMUM REQUIREMENTS OF JCSA DETAIL JR_1, UNLESS SHOWN OTHERWISE ON THE PLANS. ALL PRESSURE PIPELINES SHALL HAVE JOINT RESTRAINT. FIRE HYDRANTS SHALL BE RESTRAINED AT LEAST ONE FULL JOINT OF PIPE IN EACH DIRECTION ON THE MAINLINE.

R. PROPOSED WATER AND SANITARY SEWER SYSTEMS SHALL MAINTAIN A MINIMUM HORIZONTAL SEPARATION OF 5- FEET FROM OTHER UTILITIES AND STRUCTURES, INCLUDING BUT NOT LIMITED TO STORM SEWERS, STREET LIGHTS, ETC. WATER AND SANITARY SEWER FACILITIES SHALL HAVE A MINIMUM 10-FOOT HORIZONTAL EDGE-TO-EDGE SEPARATION.

S. ANY PROPOSED BACKFLOW PREVENTION DEVICE AND/OR GREASE TRAP MUST BE INSPECTED BY THE JCSA UTILITY SPECIAL PROJECTS COORDINATOR AT (757) 259-4138.

T. THE CONTRACTOR/DEVELOPER SHALL ACQUIRE A CERTIFICATE TO CONSTRUCT WATER AND SANITARY SEWER FACILITIES PRIOR TO COMMENCEMENT OF CONSTRUCTION OF ANY WATER OR SANITARY SEWER FACILITIES. PLUMBING INSIDE OF PROPOSED BUILDINGS MUST BE INSPECTED BY JCSA'S UTILITY SPECIAL PROJECTS COORDINATOR AT (757) 259-4138, FOR POTENTIAL CROSS CONNECTIONS. ANY CROSS CONNECTIONS MUST BE PROTECTED BY THE APPROPRIATE BACKFLOW PREVENTION DEVICE(S).

U. EASEMENTS DENOTED AS "JCSA UTILITY EASEMENTS" ARE FOR THE EXCLUSIVE USE OF THE JAMES CITY SERVICE AUTHORITY AND THE PROPERTY OWNER. OTHER UTILITY SERVICE PROVIDERS DESIRING TO USE THESE EASEMENTS WITH THE EXCEPTION OF PERPENDICULAR UTILITY CROSSINGS MUST OBTAIN AUTHORIZATION FOR ACCESS AND USE FROM JCSA AND THE PROPERTY OWNER. ADDITIONALLY, JCSA SHALL NOT BE HELD RESPONSIBLE FOR ANY DAMAGE TO IMPROVEMENTS WITHIN THIS EASEMENT, FROM ANY CAUSE.

V. JCSA SHALL NOT BE HELD RESPONSIBLE FOR ANY PAVEMENT SETTLEMENT DUE TO PIPE BEDDING, BACKFILLING, BACKFILL MATERIALS OR COMPACTION FOR WATER OR SANITARY SEWER FACILITIES FOR THIS PROJECT.

W. FIRE HYDRANTS TO BE INSTALLED WITHIN EXISTING OR PROPOSED VDOT RIGHT-OF-WAYS SHALL BE LOCATED IN ACCORDANCE WITH VDOT REQUIREMENTS.

X. PRIVATELY OWNED UTILITIES (E.G., WATER AND SEWER LINES AND PRIVATE FIRE SERVICE MAINS), SHOWN ON THIS PLAN ARE REGULATED BY THE VIRGINIA UNIFORM STATEMENT BUILDING CODE, AND ENFORCED BY THE JAMES CITY COUNTY BUILDING SAFETY AND PERMITS DIVISION. THESE PRIVATELY OWNED UTILITIES MUST COMPLY FULLY WITH THE INTERNATIONAL PLUMBING CODE, THE NATIONAL FIRE PROTECTION ASSOCIATION STANDARD 24, AND THE VIRGINIA STATE FIRE PREVENTION CODE. CONTRACTORS WORKING FROM THIS SITE PLAN ARE CAUTIONED NOT TO INSTALL OR CONCEAL PRIVATELY OWNED SITE UTILITIES WITHOUT FIRST OBTAINING THE REQUIRED PERMITS AND INSPECTIONS.

Y. SANITARY SEWER LATERALS SHALL NOT CONNECT TO THE MAINLINE WITHIN 5- FEET OF A MANHOLE. LATERALS UPSTREAM AND WITHIN 5- FEET OF THE MANHOLE SHALL CONNECT DIRECTLY INTO THE MANHOLE WHERE NECESSARY.

Z. ALL PRIVATE UNDERGROUND FUEL STORAGE TANKS SHALL HAVE LEAK MONITORS AND SECONDARY CONTAINMENT IN ACCORDANCE WITH VIRGINIA STATE DEPARTMENT OF ENVIRONMENTAL QUALITY REQUIREMENTS.

VDOT STANDARD NOTES
HAMPTON ROADS DISTRICT
REVISED 10/2011

1. GENERAL INFORMATION

1.1 THESE PLANS WERE PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF (SELECT ONE):
VDOT SUBDIVISION STREET REQUIREMENTS (SSR)
VDOT SUBDIVISION STREET ACCEPTANCE REQUIREMENTS (SSAR)

1.2 VDOT APPROVED EXCEPTIONS (SELECT ONE):
ACCESS MANAGEMENT
SSAR
OTHER: ☐ NA
DATE OF APPROVAL

1.3 TRIP GENERATION DATA:
30 LOTS x 9.57 TRIPS PER LOT = 287 TRIPS

1.4 A LAND USE PERMIT MUST BE OBTAINED FROM VDOT BEFORE ANY CONSTRUCTION IS STARTED WITHIN STATE MAINTAINED RIGHT OF WAY LIMITS. CONTACT THE VDOT DISTRICT OFFICE AT (757) 925-2800 FOR THE PERMIT FEE AND BOND AMOUNT. ALL LAND USE PERMIT APPLICATIONS MUST HAVE ONE (1) SET OF APPROVED PLANS, A COPY OF THE PLAN APPROVAL LETTER, A CHECK FOR THE PROCESSING FEE MADE PAYABLE TO TREASURER OF VIRGINIA, AND SURETY OR BOND IN THE REQUIRED AMOUNT.

1.5 THE VDOT DISTRICT OFFICE IS TO RECEIVE WRITTEN NOTIFICATION 48 HOURS PRIOR TO THE START OF ANY WORK WITHIN STATE MAINTAINED RIGHT OF WAY. A PRE-CONSTRUCTION MEETING SHOULD BE HELD AT LEAST ONE WEEK PRIOR TO ANY LAND DISTURBANCE OR WHEN CONSTRUCTION ACTIVITIES WILL AFFECT TRAFFIC OPERATIONS OF ANY ARTERIAL CORRIDOR.

1.6 ALL CONSTRUCTION METHODS AND MATERIALS WITHIN STATE MAINTAINED RIGHT OF WAY SHALL COMPLY WITH THE CURRENT STANDARDS AND SPECIFICATIONS OF THE VIRGINIA DEPARTMENT OF TRANSPORTATION.

1.7 THE CONTRACTOR SHALL HAVE AVAILABLE A COPY OF THE LAND USE PERMITS(S), FINAL APPROVED PLANS, ANY APPROVED REVISIONS, AND A COPY OF THE APPROVAL LETTER ON SITE.

1.8 ANY ERRORS, CONFLICTS, OR DISCREPANCIES FOUND ON THE APPROVED PLANS SHALL BE REPORTED TO THE DEVELOPER'S ENGINEER. THE VDOT DISTRICT OFFICE SHOULD BE NOTIFIED FOR RESOLUTION BEFORE PROCEEDING FURTHER WITH THE WORK IF THE STATE MAINTAINED RIGHT OF WAY IS AFFECTED.

1.9 THE DEVELOPER IS RESPONSIBLE FOR ANY DAMAGE TO EXISTING ROADS, UTILITIES, AND ANY OTHER INSTALLATIONS ALREADY IN PLACE WHICH OCCUR AS A RESULT OF PROJECT CONSTRUCTION WITHIN OR CONTIGUOUS TO STATE RIGHT OF WAY LIMITS.

1.10 THE COMMONWEALTH TRANSPORTATION BOARD MEMBERS OF THE BOARD, THE COMMONWEALTH AND ALL COMMONWEALTH EMPLOYEES, AGENTS, AND OFFICERS, SHALL BE ABSOLVED FROM ALL RESPONSIBILITIES, DAMAGES AND LIABILITIES AS A RESULT OF WORK ARISING FROM THE EXERCISE OF THE PRIVILEGES GRANTED BY AN ORDER PERMIT APPLICATION.

2. DRAINAGE & EROSION CONTROL

2.1 VDOT SHALL NOT BE RESPONSIBLE FOR THE MAINTENANCE OF ANY STORMWATER MANAGEMENT FACILITY OR OUTFALL STRUCTURE LOCATED OUTSIDE OF STATE MAINTAINED RIGHT OF WAY LIMITS AND SHALL BE ABSOLVED FROM ALL RESPONSIBILITIES, DAMAGES AND LIABILITIES AS A RESULT OF SUCH.

2.2 ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR IN ACCORDANCE WITH THE VIRGINIA EROSION & SEDIMENT CONTROL HANDBOOK AND VIRGINIA STORMWATER MANAGEMENT PROGRAM. AN INDIVIDUAL CERTIFIED BY THE VIRGINIA DEPARTMENT OF CONSERVATION AND RECREATION, HOLDING A RESPONSIBLE LAND DISTURBER CERTIFICATION, IS TO BE IN CHARGE OF THE LAND DISTURBING ACTIVITY AND ON THE WORK SITE AT ALL TIMES.

2.3 TEMPORARY DRAINAGE MEASURES SHALL BE INSTALLED DURING CONSTRUCTION TO PREVENT PONDING AND DIVERGENT SEDIMENT LADEN WATER.

2.4 ALL NECESSARY PRECAUTIONS SHALL BE TAKEN TO ENSURE AGAINST SLTATION OF ADJACENT PROPERTIES, DITCHES, STREAMS, ETC. ADDITIONAL DITCH LOGS OR SILTATION AND EROSION CONTROL MEASURES SHALL BE PROVIDED AS DETERMINED NECESSARY BY VDOT AND/OR THE COUNTY/TOWN DURING FIELD REVIEW. ALL COSTS SHALL BE ASSUMED BY THE DEVELOPER.

2.5 ALL DISTURBED AREAS SHALL BE STABILIZED IMMEDIATELY UPON THE END OF EACH DAY'S WORK AND RESEDED IN ACCORDANCE WITH VDOT ROAD AND BRIDGE SPECIFICATIONS.

3. MATERIALS

3.1 WHEN UNSUITABLE MATERIALS ARE ENCOUNTERED DURING CONSTRUCTION SUCH MATERIALS SHALL BE UNDERCUT AND BACKFILLED WITH VDOT TYPE I SELECT MATERIAL, MINIMUM CBR 20 ACCORDING TO VDOT SPECIFICATIONS.

3.2 PAVEMENT DESIGN SHALL BE PROVIDED IN ACCORDANCE WITH THE PAVEMENT DESIGN GUIDE FOR SUBDIVISION AND SECONDARY ROADS IN VIRGINIA. FOR PRIMARY ROADS AND INTERSTATE HIGHWAYS WHERE TRUCK TRAFFIC EXCEEDS 5%, PAVEMENT DESIGN SHALL BE PROVIDED IN ACCORDANCE WITH AASHTO GUIDELINES. TYPICAL PAVEMENT SECTIONS SHALL DEPICT THE 6" OF THE SUBGRADE IMMEDIATELY UNDER THE PAVEMENT STRUCTURE COMPACTED TO 100% OF THE THEORETICAL MAXIMUM DRY DENSITY.

3.3 ASPHALT PAVEMENT WIDENINGS SHALL CONFORM TO VDOT STANDARD WP-2.

3.4 INSTALLATION OF PIPE CULVERTS AND STORM SEWERS SHALL CONFORM TO VDOT STANDARD PB-1.

3.5 THE DEPARTMENT USUALLY PROHIBITS THE OPEN-CUTTING OF HARD-SURFACED ROADS EXCEPT IN EXTENUATING CIRCUMSTANCES. THEREFORE, ALL UNDERGROUND UTILITIES WITHIN STATE MAINTAINED RIGHT OF WAY, AS DETERMINED NECESSARY BY GOOD ENGINEERING PRACTICE TO SERVE THE COMPLETE DEVELOPMENT OF ADJACENT PROPERTIES, SHALL BE INSTALLED DURING THE STREETS WITHIN CONSTRUCTION AND PRIOR TO THE APPLICATION OF ITS FINAL PAVEMENT SURFACE COURSE. THIS SHALL INCLUDE EXTENSIONS OF ALL NECESSARY CROSS-STREET CONNECTIONS OR SERVICE LINES TO AN APPROPRIATE LOCATION BEYOND THE ROADWAY AND PREFERABLY THE RIGHT OF WAY LINE. IN THE EVENT IT IS NECESSARY TO OPEN THE STREET PAVEMENT TO WORK ON UTILITIES AFTER THE SURFACE HAS BEEN PLACED, ADDITIONAL COMPACTION TESTS AND PAVING AS NECESSARY TO RESTORE THE INTEGRITY AND APPEARANCE OF THE ROADWAY MAY BE REQUIRED.

4. RIGHT OF WAY & UTILITIES

4.1 ALL FIXED OBJECTS SUCH AS UTILITY CABINETS, PEDESTALS, AND STREETLIGHTS SHALL BE LOCATED IN ACCORDANCE WITH CLEAR ZONE REQUIREMENTS, AS NOTED IN THE ROAD DESIGN MANUAL OR AASHTO ROADSIDE DESIGN GUIDE. THESE SHALL NOT BE ANY CABINETS, PEDESTALS, OR FIRE HYDRANTS LOCATED ON THE SHOULDER.

4.2 FLOWERS, SHRUBS, AND TREES SHALL NOT BE PLACED WITHIN STATE MAINTAINED RIGHT OF WAY LIMITS WITHOUT AN APPROVED SET OF PLANS AND AN APPROVED PLANTING AGREEMENT. NO IRRIGATION (SPRINKLER) SYSTEMS, BRICK COLUMNS, ENDWALLS, AND/OR BRICK MAILBOXES WILL BE CONSTRUCTED OR INSTALLED WITHIN STATE MAINTAINED RIGHT OF WAY LIMITS WITHOUT A PERMIT. ANY OF THE ABOVE ITEMS FOUND IN THE RIGHT OF WAY WITHOUT A PERMIT WILL BE REMOVED, AND ALL COSTS OF THE REMOVAL WILL BE BORNE BY THE OWNER AND/OR DEVELOPER.

4.3 THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND PROTECTING ALL UNDERGROUND AND OVERHEAD UTILITIES, WHETHER OR NOT THEY ARE SHOWN ON THE PLANS, PRIOR TO CONSTRUCTION. THE CONTRACTOR WILL BE RESPONSIBLE FOR REPAIRS AT HIS OWN EXPENSE OF ANY UTILITIES DAMAGED BY HIS CONSTRUCTION METHODS. MISS UTILITY MUST BE CONTACTED AT 811 AT LEAST 72 HOURS PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.

4.4 AUTHORIZED UNDERGROUND UTILITY INSTALLATIONS SHALL MAINTAIN A MINIMUM OF 36 INCHES OF COVER.

4.5 OVERHEAD UTILITY INSTALLATIONS WITHIN LIMITED ACCESS AND NON LIMITED ACCESS RIGHT OF WAY SHALL BE INSTALLED IN ACCORDANCE WITH VDOT LAND USE PERMIT REGULATIONS.

4.6 ALL ROADWAY LIGHTING SHALL BE DESIGNED IN ACCORDANCE WITH IESNA LIGHTING CRITERIA AND INSTALLED IN ACCORDANCE WITH VDOT ROAD AND BRIDGE SPECIFICATIONS. ALL ROADWAY LIGHTING SHALL ADHERE TO THE VIRGINIA LIGHTING LAW.

5. TRAFFIC

5.1 CONTACT TRAFFIC ENGINEERING OPERATIONS AT (757) 925-1659 OR (757) 925-1663 A MINIMUM OF 48 HOURS IN ADVANCE WHENEVER EXCAVATION IS WITHIN 500 FEET OF A TRAFFIC SIGNAL, SO THE LINES CAN BE MARKED. FAILURE TO DO SO COULD BE A COSTLY REPAIR FOR THE DEVELOPER.

5.2 CONTACT ROADWAY LIGHTING OPERATIONS AT (757) 484-9015 OR (757) 484-9840 A MINIMUM OF 48 HOURS IN ADVANCE WHENEVER PLANNED CONSTRUCTION ACTIVITIES ARE LOCATED WITHIN LIMITED ACCESS HIGHWAYS. FAILURE TO DO SO COULD BE A COSTLY REPAIR FOR THE DEVELOPER.

5.3 CONTACT TRAFFIC OPERATIONS CENTER MAINTENANCE MANAGER AT (757) 434-9603 A MINIMUM OF 48 HOURS IN ADVANCE OF ALL CONSTRUCTION ACTIVITIES LOCATED WITHIN LIMITED ACCESS HIGHWAYS. FAILURE TO DO SO COULD BE A COSTLY REPAIR FOR THE DEVELOPER.

5.4 SIGHT DISTANCES AT ENTRANCES AND INTERSECTIONS SHALL BE MAINTAINED AT ALL TIMES DURING AND AFTER CONSTRUCTION. ANY OBJECT OR LANDSCAPING THAT OBSTRUCTS DRIVER VIEW SHALL BE RELOCATED AT THE DEVELOPER'S EXPENSE OR THE ENTRANCE MAY BE CLOSED AT VDOT'S DISCRETION.

5.5 DURING CONSTRUCTION, THE MAINTENANCE OF TRAFFIC SHALL CONFORM TO THE REQUIREMENTS IN THE MOST RECENT VERSION OF THE VIRGINIA WORK AREA PROTECTION MANUAL AND THE MUTCD.

6. ENVIRONMENTAL

6.1 THE PERMITTEE IS RESPONSIBLE FOR PURSUING AND OBTAINING ANY AND ALL ENVIRONMENTAL CLEARANCES AND/OR PERMITS, INCLUDING, BUT NOT LIMITED TO, WATER QUALITY, THREATENED AND ENDANGERED SPECIES, HAZARDOUS MATERIALS, AND CULTURAL RESOURCES, REQUIRED TO PURSUE THE PROPOSED ACTIVITY BEFORE ANY CONSTRUCTION IS STARTED WITHIN STATE MAINTAINED RIGHT OF WAY LIMITS. DOCUMENTS RELATED TO THESE ACTIVITIES SHALL BE SUBMITTED WITH THE LAND USE PERMIT APPLICATION.

HRPDC DETAIL REFERENCES

EARTHWORK (EW)

EW_01 PIPE BEDDING DETAILS

WATER DISTRIBUTION SYSTEMS (WD)

- WD_01 SINGLE & DUAL SERVICE CONNECTIONS
- WD_05 BLOW-OFF-ASSEMBLY
- WD_06 FIRE HYDRANT SETTING (TYPE I) *
- WD_09 TEMPORARY MANHOLE FOR TEST & CHLORINATION

SANITARY SYSTEMS (SS)

- SS_01 STANDARD PRECAST CONCRETE MANHOLE W/ EXTENDED MONOLITHIC BASE
- SS_04 SANITARY SEWER INTERIOR DROP MANHOLE
- SS_07 SANITARY SEWER MANHOLE INVERT SHAPING
- SS_08 CONNECTION INTO EXISTING MANHOLES
- SS_09 SANITARY SEWER MANHOLE CASTING (24")
- SS_10 SANITARY SEWER MANHOLE COVER (24")
- SS_11 SANITARY SEWER LATERAL CLEAN OUT FRAME AND COVER
- SS_12 SANITARY SERVICE LATERAL CLEAN OUT FRAME AND COVER FOR HEAVY LOADS
- SS_14 SANITARY SEWER SERVICE CONNECTION *
- SS_15 DUAL SANITARY SEWER SERVICE CONNECTIONS

WATER & SANITARY SYSTEMS (WS)

- WS_01 STANDARD VALVE BOX FRAME AND COVER
- WS_02 VALVE SETTING DETAIL
- WS_03 MANUAL AIR VENT ASSEMBLY
- WS_05 STANDARD THRUST BLOCKS

JCSA DETAILS

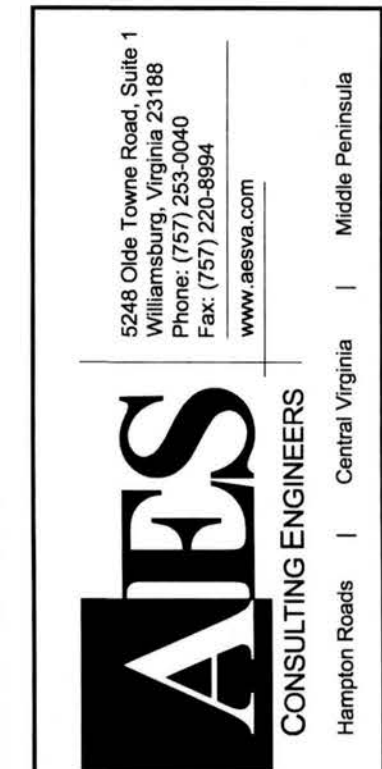
- JR_1 JOINT RESTRAINT TABLE
- WI_0.0 TYPICAL WATER METER INSTALLATION
- WI_0.0 5/8"x3/4" THRU 1" RESIDENTIAL METER SETTING

* REFER TO SPECIAL PROVISIONS TO THE HRPDC REGIONAL CONSTRUCTION STANDARDS (5TH EDITION) FOUND IN APPENDIX A OF THE JCSA DESIGN AND ACCEPTANCE CRITERIA FOR WATER DISTRIBUTION AND SANITARY SEWER SYSTEMS

ADMINISTRATIVE GUIDELINES FOR CERTIFICATION OF PRIVATE STREET CONSTRUCTION

- ALL PRIVATE ROADS SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH VIRGINIA DEPARTMENT OF TRANSPORTATION STANDARDS AND SPECIFICATIONS. THIS DOES NOT INCLUDE STREET GEOMETRIC CRITERIA.
- ALL ROADS MUST BE DESIGNED BASED ON FIELD OBTAINED SOILS TESTING INFORMATION. THE DEVELOPER WILL EMPLOY A GEOTECHNICAL TESTING FIRM TO OBTAIN REPRESENTATIVE CBR (CALIFORNIA BEARING RATIO) SAMPLES. THE LOCATION AND NUMBER OF THE CBR SAMPLES ARE TO BE DETERMINED BY THE GEOTECHNICAL ENGINEER. THE GEOTECHNICAL ENGINEER WILL THEN PREPARE A REPORT WHICH SHALL INCLUDE:
 - NUMBER AND LOCATION (INCLUDING MAP) OF CBR SAMPLES AND TEST RESULTS OF THE SAMPLES,
 - SOILS ANALYSIS, AND,
 - EITHER A FINAL PAVEMENT DESIGN OR CONCURRENCE WITH A PAVEMENT DESIGN DEVELOPED BY THE PROJECT'S CIVIL ENGINEER. A COPY OF THE GEOTECHNICAL REPORT SHALL BE SUBMITTED TO THE COUNTY ENGINEER FOR APPROVAL PRIOR TO THE ISSUANCE OF THE PROJECT'S LAND DISTURBING PERMIT.
- ALL BACKFILL OF PIPES AND RELATED STRUCTURES UNDER THE PAVEMENT SHALL BE INSPECTED AND TESTED BY THE GEOTECHNICAL ENGINEER. EACH SOIL LIFT IS TO BE A MAXIMUM OF 6 INCHES THICK (LOOSE MEASUREMENT) AND COMPACTED TO A MINIMUM OF 95% STANDARD PROCTOR DENSITY. EVERY LIFT SHALL BE TESTED AT A FREQUENCY OF ONE DENSITY TEST EVERY 100 FEET AND COMPACTION RESULTS WILL BE CERTIFIED TO THE COUNTY.
- PRIOR TO PLACEMENT OF ANY FILL MATERIAL, THE SUBGRADE SHALL BE PROOF-ROLLED TO IDENTIFY UNSUITABLE MATERIALS. FOLLOWING CERTIFICATION OF THE SUBGRADE BY THE GEOTECHNICAL ENGINEER, ROADWAY FILL CAN BE INSTALLED. ALL FILL SECTIONS SHALL BE CONSTRUCTED WITH A MAXIMUM LIFT OF 6 INCHES, COMPACTED TO 95% DENSITY AND TESTED BY THE GEOTECHNICAL ENGINEER AT INTERVALS NOT TO EXCEED 200 LINEAR FEET.
- ONCE THE ROAD IS TO GRADE, ALL SUBGRADE SURFACES SHALL BE PROOF-ROLLED TO REFUSAL PRIOR TO PLACEMENT OF ANY OF THE PAVEMENT AGGREGATE OR ASPHALT. INSPECTION AND CERTIFICATION OF THE ACCEPTABILITY OF THE SUBGRADE FOR PAVING SHALL BE PROVIDED BY THE GEOTECHNICAL ENGINEER.
- ALL AGGREGATE BASE MATERIAL QUALITY, THICKNESS, AND COMPACTION SHALL BE TESTED AND CERTIFIED BY THE GEOTECHNICAL ENGINEER. THE STONE IN ALL ROADWAYS SHALL ACHIEVE 100% COMPACTION. STONE DEPTH SHALL BE MEASURED EVERY 100 FEET ON BOTH SIDES OF THE ROADWAY.
- PRIOR TO PLACEMENT OF ANY ASPHALT, THE STONE SHALL BE PROOF-ROLLED AND INSPECTED BY THE GEOTECHNICAL ENGINEER FOR ACCEPTABILITY FOR PAVING. FOLLOWING APPROVAL OF THE STONE BASE, ANY REQUIRED TACK COAT SHALL BE APPLIED AND DOCUMENTED BY THE GEOTECHNICAL ENGINEER. THE ASPHALT SHALL BE PLACED UTILIZING THE VDOT ROLLER PATTERN AND CONTROL STRIP PROCEDURE. ALL ASPHALT SURFACES SHALL ACHIEVE AT LEAST 98% COMPACTION TESTED EVERY 100 FEET ON ALTERNATING SIDES.
- GEOTECHNICAL DOCUMENTATION SHALL BE PROVIDED TO THE COUNTY ENGINEER THROUGHOUT THE CONSTRUCTION PROCESS. PRIOR TO THE RELEASE OF ANY AMOUNT OF PERFORMANCE SURETY, CERTIFICATION MUST BE PROVIDED TO THE COUNTY ENGINEER TO SUBSTANTIATE THE RELEASE BEING REQUESTED. APPLICATION FOR FINAL RELEASE OF THE SURETY SHALL BE ACCOMPANIED BY GEOTECHNICAL ENGINEERING STATEMENTS AND CERTIFICATION THE SUBJECT PRIVATE STREETS HAVE BEEN CONSTRUCTED IN ACCORDANCE WITH THE APPROVED PLANS AND APPLICABLE VDOT STANDARDS.

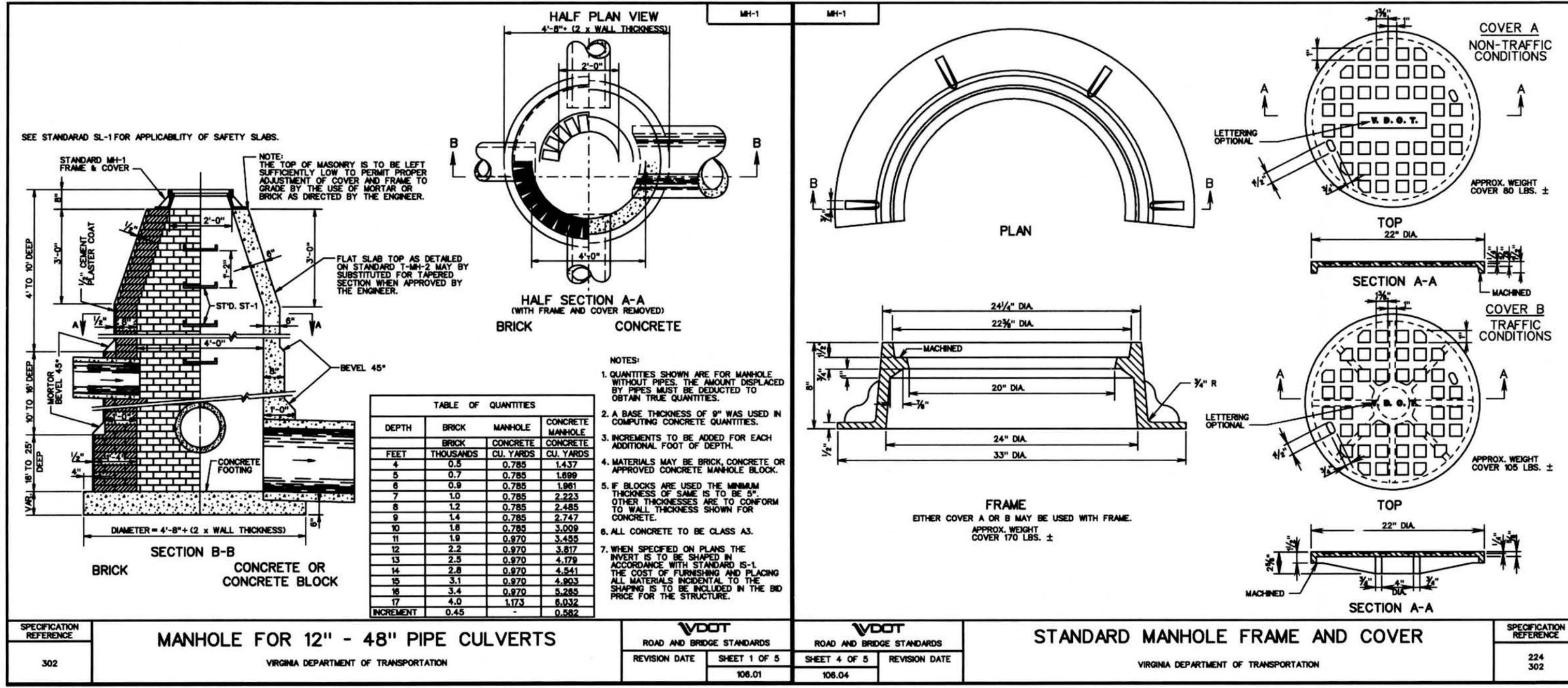
Rev.	Date	Description
1	4/20/13	Revisions per JCC Comments
2	5/6/2013	Revisions per JCC Comments
BMC		
BMC		
Revised by		



Project Contacts: BMC
Project Number: 9048-19
Scale: NTS
Date: 1/17/13

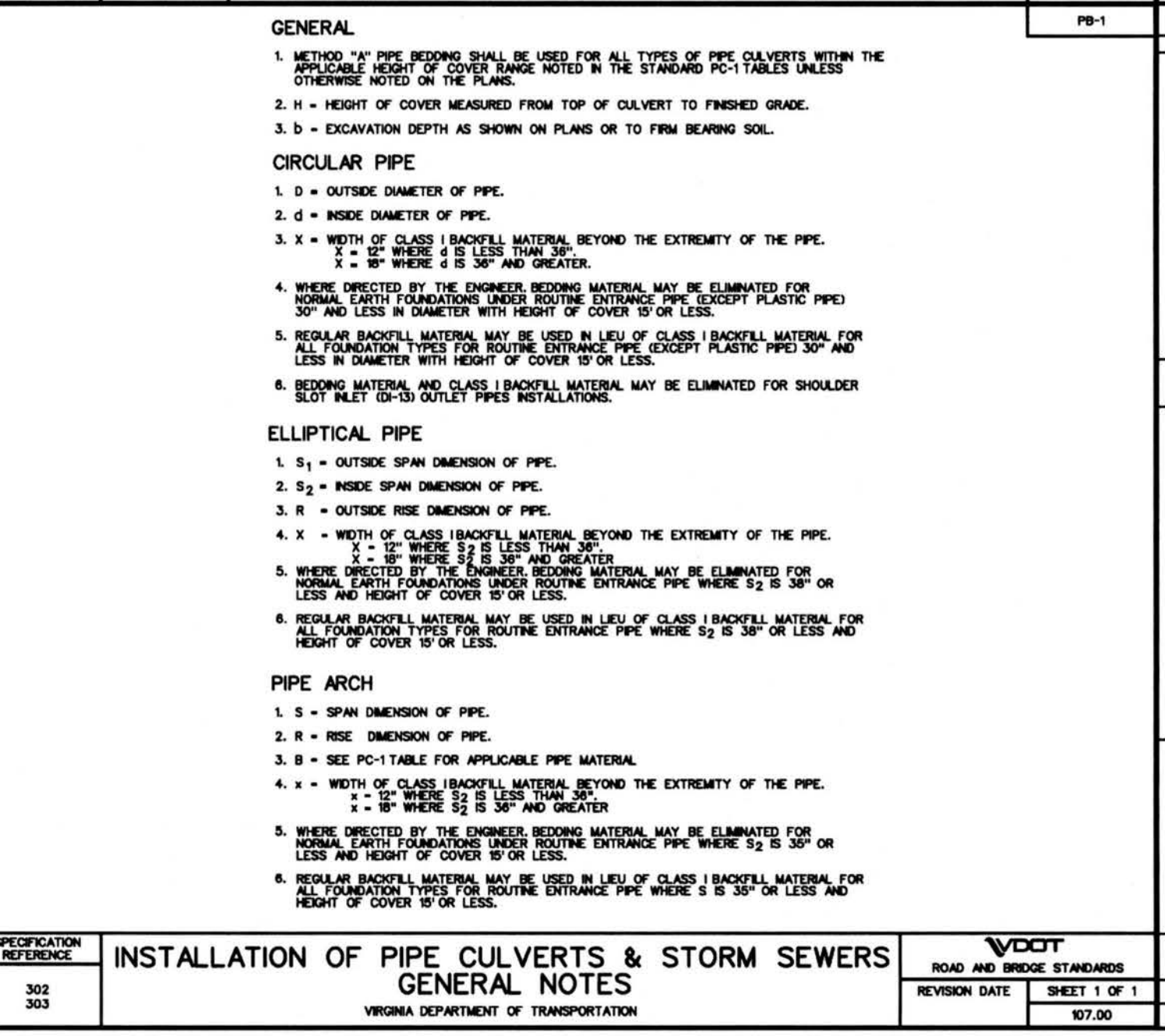
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Sheet Number: 14

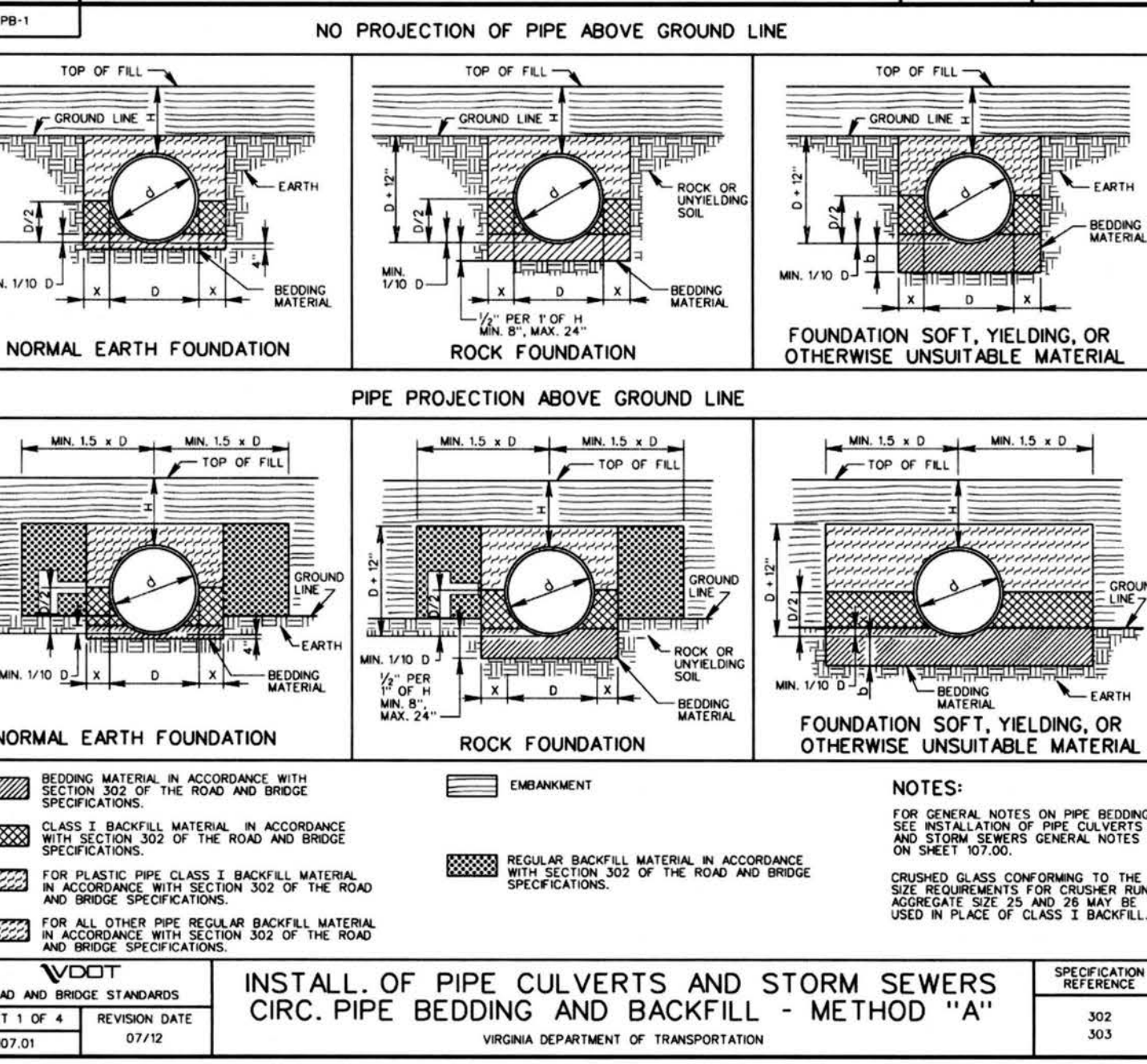


Specification Reference	302
Revision Date	10/08/04

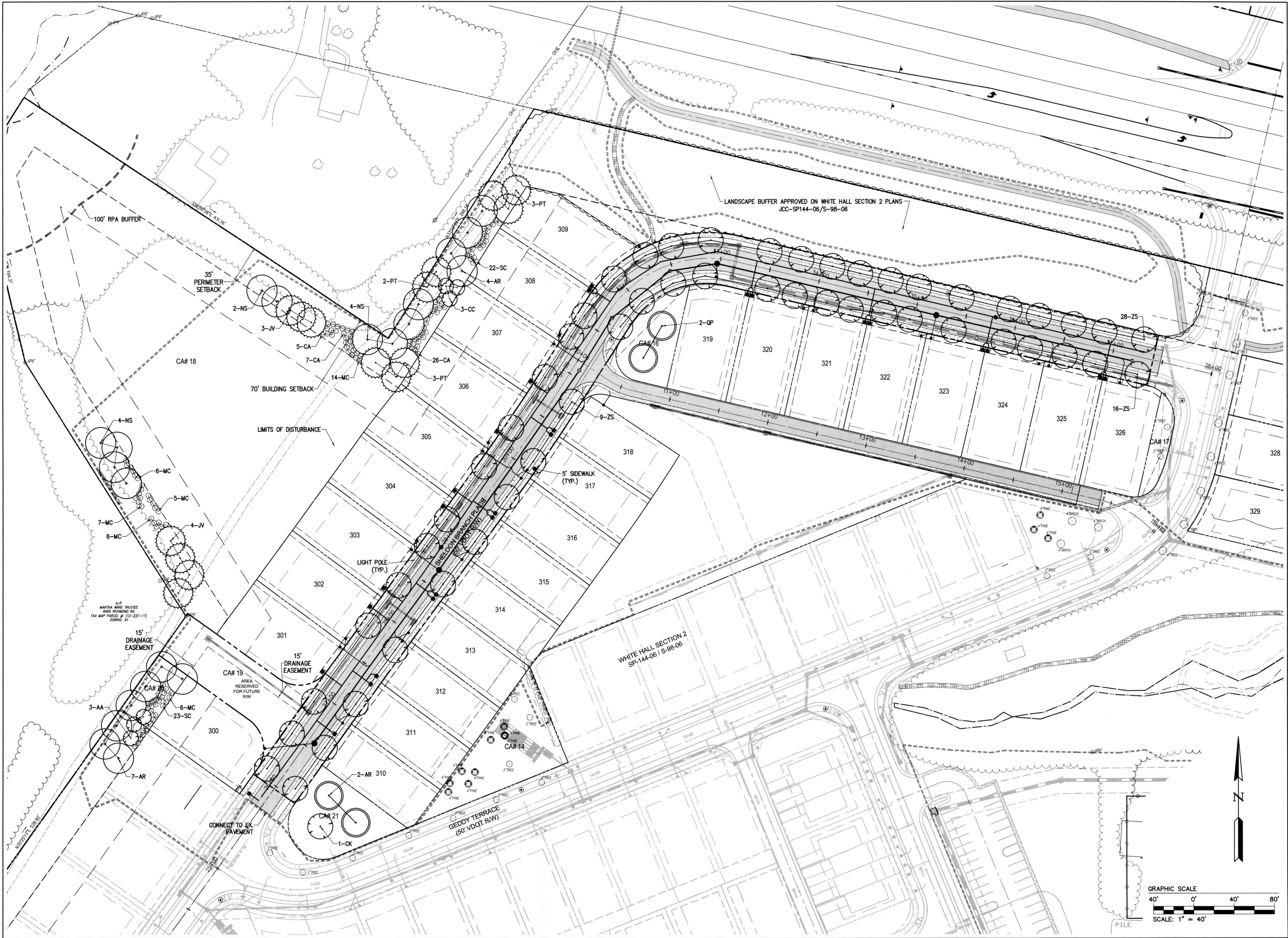
Specification Reference	302
Revision Date	10/08/04



Specification Reference	302
Revision Date	10/08/04



Specification Reference	302
Revision Date	10/08/04



Rev.	Date	Description	Revised By
1	4/20/13	Revisions per JCC Comments	BMC
2	5/8/2013	Revisions per JCC Comments	BMC

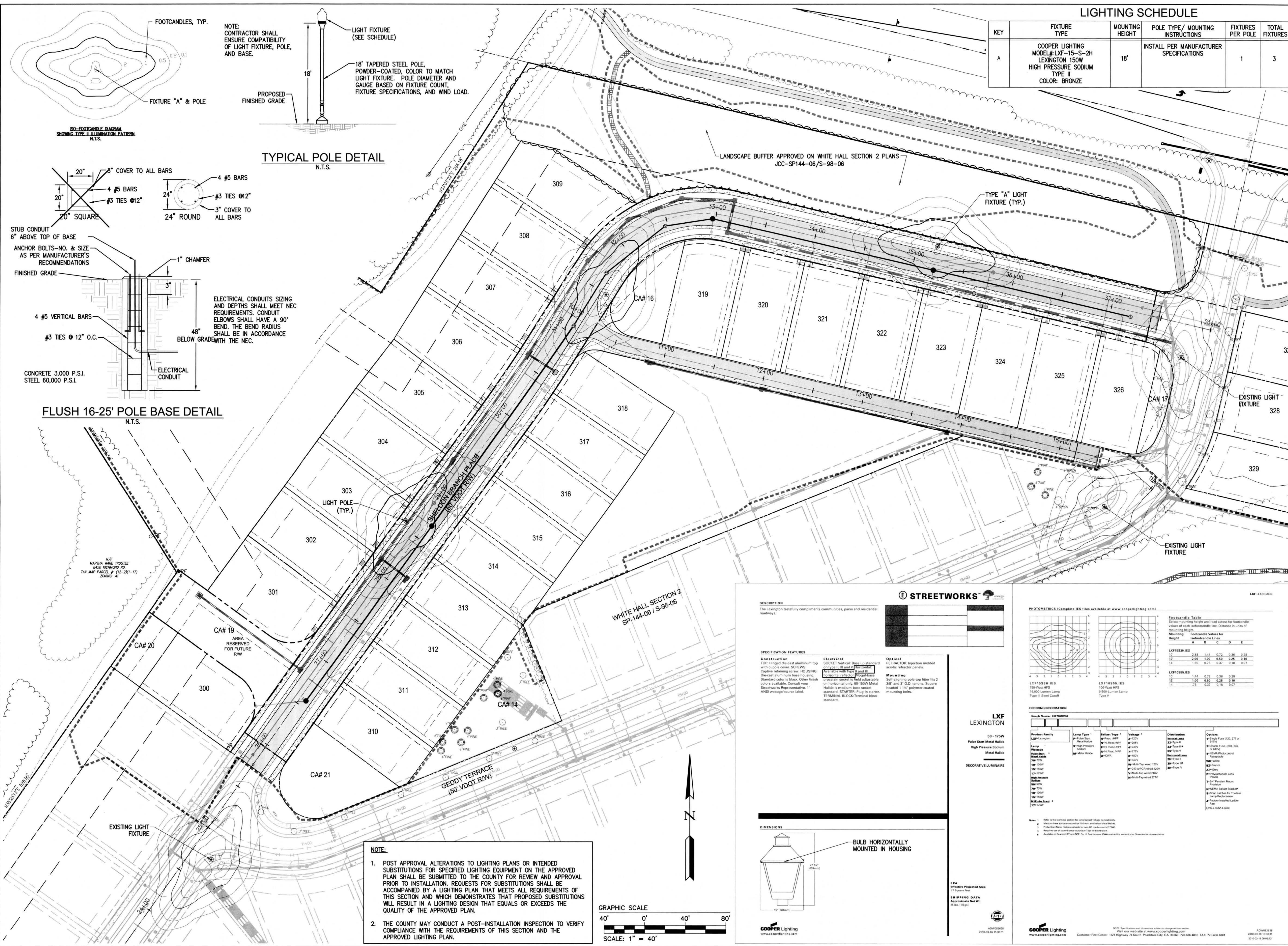


ARS
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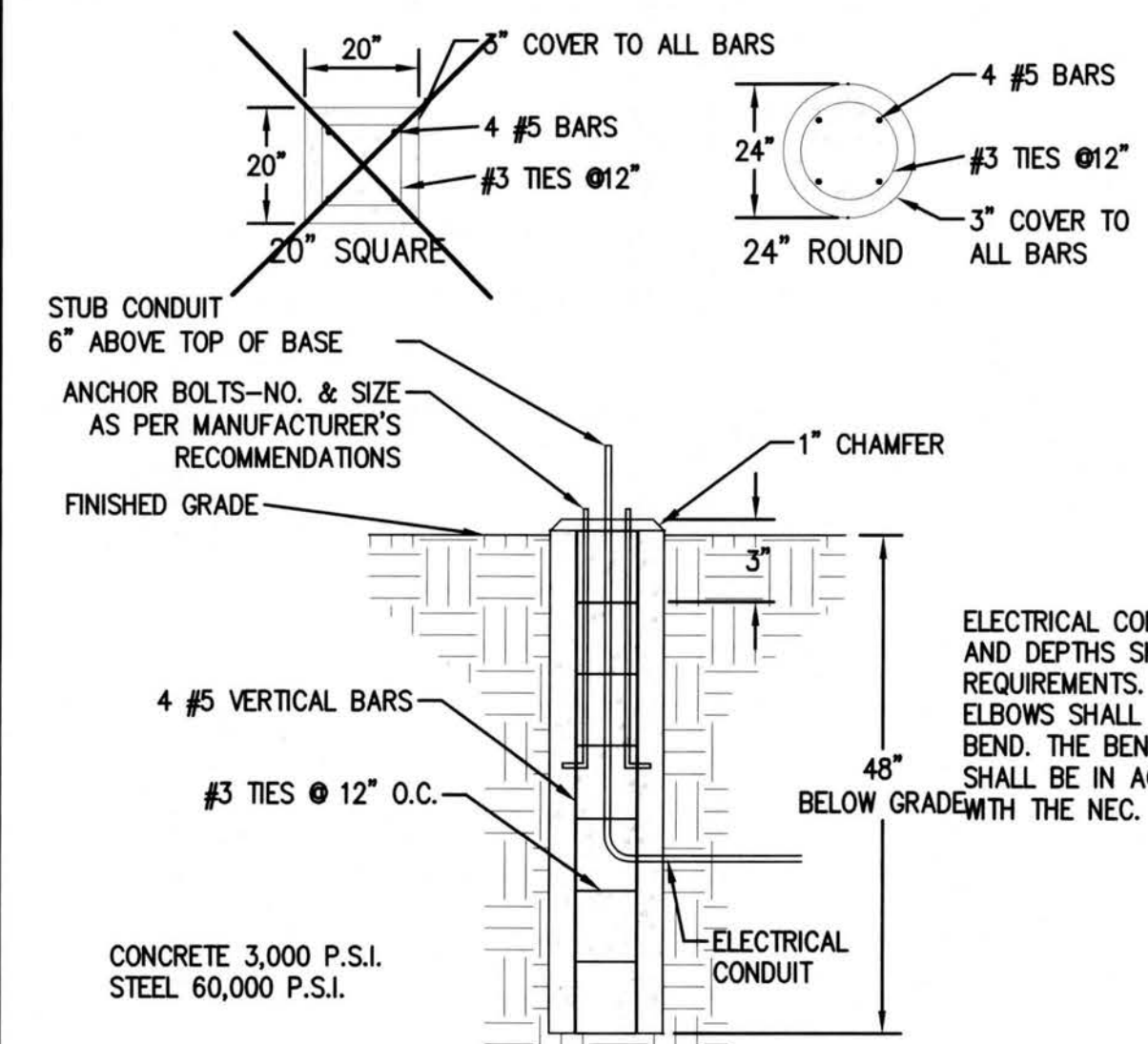
SECTION 3
WHITE HALL
DEVELOPER: HHHUNT COMMUNITIES
STONEHOUSE DISTRICT | JAMES CITY COUNTY | VIRGINIA

Project Contacts: BMC
Project Number: 9048-19
Scale: 1"=40'
Date: 1/17/13
Sheet Title: LANDSCAPE PLAN
Sheet Number: 15

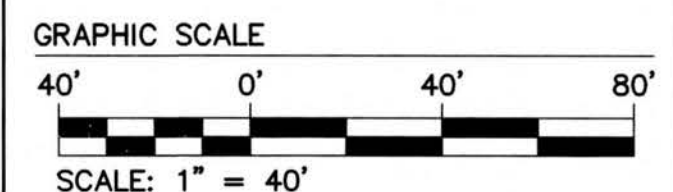


LIGHTING SCHEDULE					
KEY	FIXTURE TYPE	MOUNTING HEIGHT	POLE TYPE / MOUNTING INSTRUCTIONS	FIXTURES PER POLE	TOTAL FIXTURES
A	COOPER LIGHTING MODEL: LXF-15-S-2H LEXINGTON 150W HIGH PRESSURE SODIUM TYPE II COLOR: BRONZE	18'	INSTALL PER MANUFACTURER SPECIFICATIONS	1	3

TYPICAL POLE DETAIL
N.T.S.



- NOTE:
- POST APPROVAL ALTERATIONS TO LIGHTING PLANS OR INTENDED SUBSTITUTIONS FOR SPECIFIED LIGHTING EQUIPMENT ON THE APPROVED PLAN SHALL BE SUBMITTED TO THE COUNTY FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION. REQUESTS FOR SUBSTITUTIONS SHALL BE ACCOMPANIED BY A LIGHTING PLAN THAT MEETS ALL REQUIREMENTS OF THIS SECTION AND WHICH DEMONSTRATES THAT PROPOSED SUBSTITUTIONS WILL RESULT IN A LIGHTING DESIGN THAT EQUALS OR EXCEEDS THE QUALITY OF THE APPROVED PLAN.
 - THE COUNTY MAY CONDUCT A POST-INSTALLATION INSPECTION TO VERIFY COMPLIANCE WITH THE REQUIREMENTS OF THIS SECTION AND THE APPROVED LIGHTING PLAN.



DESCRIPTION
The Lexington carefully compliments communities, parks and residential roadways.

STREETWORKS

COOPER LIGHTING
LXF LEXINGTON
50 - 175W
Pulse Start Metal Halide
High Pressure Sodium
Metal Halide
DECORATIVE LUMINAIRE

PHOTOMETRICS (Complete IES files available at www.cooperlighting.com)

Product Family: LXF Lexington
Lamp Type: Metal Halide
Wattage: 50-175W
Base: E27
Beam Spread: 120°
Color Temp: 4000K
Life: 10,000 hrs

Options:
1) Single Pole Mount
2) Double Pole Mount
3) 4" x 4" x 1/2" Pole Mount
4) 4" x 4" x 1/2" Pole Mount
5) 4" x 4" x 1/2" Pole Mount
6) 4" x 4" x 1/2" Pole Mount
7) 4" x 4" x 1/2" Pole Mount
8) 4" x 4" x 1/2" Pole Mount
9) 4" x 4" x 1/2" Pole Mount
10) 4" x 4" x 1/2" Pole Mount

Dimensions:
27 1/2" (700mm)
12" (305mm)

BULB HORIZONTALLY MOUNTED IN HOUSING

COOPER LIGHTING
1211 Highway 74 South, Peachtree City, GA 30092
770-486-4800 FAX 770-486-4801
www.cooperlighting.com

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1211 Highway 74 South, Peachtree City, GA 30092
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SECTION 3
WHITE HALL
DEVELOPER: HHUNT COMMUNITIES
STONEHOUSE DISTRICT JAMES CITY COUNTY VIRGINIA

Project Contacts: BMC
Project Number: 9048-19
Scale: 1"=40'
Date: 1/17/13
Sheet Title: LIGHTING PLAN
Sheet Number: 17

REVISIONS

Rev.	Date	By	Description
1	05/08/13	JAMES PETERS	Revisions per JCC Comments
2	05/08/13	JAMES PETERS	Revisions per JCC Comments

Stamp: JAMES PETERS, Landscape Architect, No. 393, 05/08/13

6. Design Calculations



Project: **White Hall Section 3**
 Project No.: **9048-19**
 Subject: **Pavement Design**
 Date: **1/17/2013**
 Calculated By: **BMC**

Appendix IV

Flexible Pavement Design Worksheet for New Subdivision Streets

This sheet is intended for use and submission in conjunction with VDOT's Subdivision Street Requirements

County	James City County	Date:	1/17/2013
Subdivision	White Hall		
Street Name	Alley 3		
Developer	HH Hunt Communities	Phone:	804-762-4800

ADT Projected traffic for the street segment considered, as defined in the Subdivision Street Requirements.
 CBR_D Design CBR = Average of CBR_T x 2/3 and modified only as discussed in the Pavement Design Guide.
 CBR_T CBR value of the subgrade sample, taken and tested as specified in the Pavement Design Guide.
 DME VDOT District Materials Engineer
 EPT Equivalent projected traffic
 HCV Number of Heavy Commercial Vehicles (e.g. trucks, buses, etc., with 2 or more axles and 6 or more tires).
 %HCV Percentage of the total traffic volume composed of Heavy Commercial Vehicles.
 RF Resiliency Factor = Relative value of the subgrade soil's ability to withstand repeated loading.
 SSV Soil support value of subgrade (SSV = CBR_D x RF)
 D_P Thickness index of proposed pavement design computed by the Conventional Pavement Design Method
 D_R Thickness index required, based on Design ADT and SSV, determined by Appendix II.

Environmental Division

JAN 23 2013

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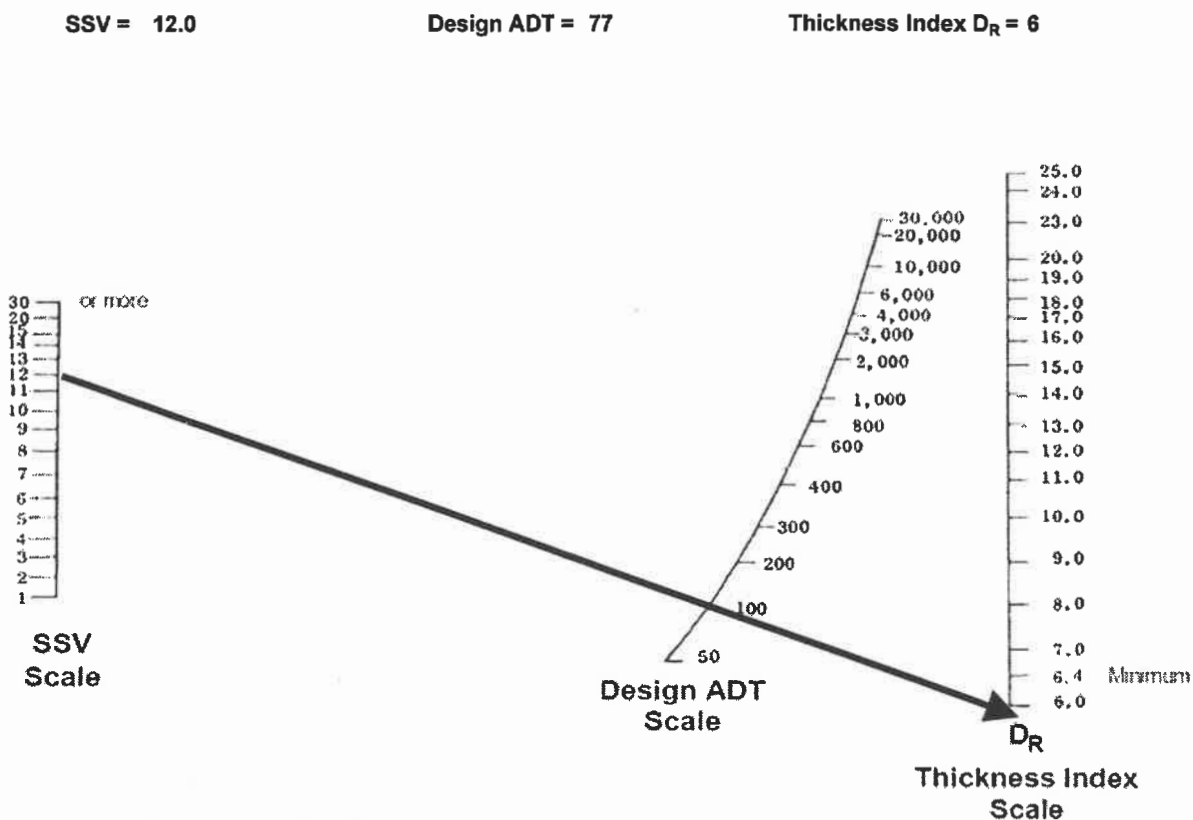
Step 1: Determine Design ADT		Step 2: Determine Design Values CBR, RF, and SSV			
ADT	77	Sample	CBR _T	Resiliency Factor (RF)	
%HCV = 100 x HCV x ADT or 20 X HCV Note: for %HCV ≤ 5%, use ADT	77 Note: For %HCV > 5% EPT > ADT	# 1		Source	Value
		# 2		Table I	
		# 3		Appendix I	3.00
		#		DME approved RF	
		#		For preliminary designs, use the lowest RF value in the equation	
Design ADT greater of ADT or EPT	Use 77	CBR _D	x	RF	= SSV
		(4.0)	x	(3.00)	= 12.0
Step 3: Pavement Design (Check appropriate box and show proposed pavement design below.)					
<input type="checkbox"/> (A) Limited to Design ADT ≤ 400 - Show pavement material notations and thickness from Appendix IV Tables A and B.					
<input checked="" type="checkbox"/> (B) Show pavement section as developed in the Pavement Design Guide. (See Appendix III for material notations and thickness equivalency values (a)).					
<div style="text-align: right;">D_R = 6 from Appendix II</div>					
Description of Proposed Pavement Section					
	Material Notation	Thickness, h	a	(a x h)	
Surface	SM-9.5A Surface Asphalt	2	1.67	3.34	
Base	#21-B Crushed Stone Aggregate	6	0.6	3.60	
Subbase					
D _P must equal or exceed the value of D _R . D_P = Σ(a x h) = 6.94					

Appendix II Nomograph for Determining Required Pavement Thickness Index D_R

(Note: An enlarged version of this nomograph is provided on the last page of this reference.)

Final pavement design must be based on the results of appropriate soil tests.

Preliminary designs may be based on values established in Appendix I.



To determine D_R , project a line from the value for SSV through the value for the Design ADT.

The nomograph depicted correlates the soil support value of the subgrade ($SSV = \text{Design CBR} \times RF$), the traffic volume (Design ADT), and the minimum required pavement design thickness index (D_R) for subdivision streets and secondary road pavement, based on AASHO design equations. This nomograph assumes the following:

1. Use of Design ADT for two way traffic, equally distributed, thereby deriving the thickness index (D_R) required for any portion of the pavement to support one-half of the design ADT.
2. For D_R greater than 20, staged construction providing an initial stage D_R value of 20 may be permitted.
3. The District Materials Engineer may consider reducing the minimum D_R value of 6.4 for secondary system facilities having a Design ADT < 50.

Environmental Division

JAN 23 2013

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SUBMITTAL DOCUMENTS

FOR

White Hall Section 3

PLANNING DIVISION

JAN 22 2013

RECEIVED

SUBMITTED TO:

**James City County
Engineering and Resource Protection**

Prepared By:

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

January 17, 2012
Revised:

AES Project No. 9048-19

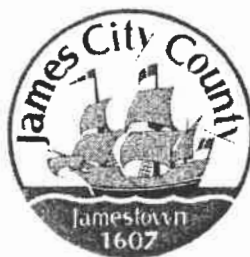


9048-19-EnvDiv-Cover.doc



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James City County, Virginia
Environmental Division

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

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GENERAL INFORMATION

Project Name: White Hall Section 3

Owner / Applicant: HHHunt Communities

Plan Preparer: Brendan Clisso Email: bclisso@aesva.com

Project Location: 3401 Rochambeau Drive

Tax Map / Parcel: (12-2)(1-14A)

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

☒ ☐ ☐

FAMILIARITY 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).

☐ ☐ ☒

WAIVER OR EXCEPTION 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.

☐ ☐ ☒

VARIANCE REQUEST 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.

☒ ☐ ☐

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

☐ ☐ ☒

WORKSHEET FOR BMP POINT SYSTEM 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)

☐ ☐ ☒

PROPOSED CONSERVATION EASEMENT AREAS for any natural open space points claimed in the BMP worksheet.

☐ ☐ ☒

INSPECTION/MAINTENANCE AGREEMENT is required to be prepared and executed with the County for the project.

☒ ☐ ☐

FEMA FIRM PANEL reference with designated special flood hazard areas or zone designations associated with the site, as applicable.

☒ ☐ ☐

DRAINAGE AREA MAP 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.

Yes No N/A

☒ ☐ ☐

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

☒ ☐ ☐

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

☒ ☐ ☐

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

☐ ☐ ☒

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

☒ ☐ ☐

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

☒ ☐ ☐

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

☒ ☐ ☐

North arrow and plan legend.

☒ ☐ ☐

Property lines.

☒ ☐ ☐

Adjacent property information.

☒ ☐ ☐

Existing site features and existing impervious cover areas.

☒ ☐ ☐

Impervious cover tabulations.

☒ ☐ ☐

Existing drainage facilities (natural or manmade)

☒ ☐ ☐

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

☒ ☐ ☐

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

☒ ☐ ☐

Existing and proposed easement locations.

Yes No N/A

☒ ☐ ☐

Proposed site improvements and proposed impervious cover areas.

☒ ☐ ☐

Proposed stormwater conveyance, drainage and management facilities with appropriate labeled construction data and information.

☒ ☐ ☐

Proposed landscaping and seeding plans (disturbed areas, pond interior, etc.)

☒ ☐ ☐

Proposed slope stabilization areas (riprap, blankets, matings, walls, etc.)

☒ ☐ ☐

Delineation of permanent pools and the 1-, 2-, 10- and 100-year Design Water Surface Elevations.

☒ ☐ ☐

Delineation of ponding, headwater, surcharge or backwater areas which may affect adjacent existing or proposed buildings, structures or upstream adjacent properties.

☐ ☒ ☐

Test boring locations with reference surface elevations (if known).

☒ ☐ ☐

Risers, barrels, underdrains, overflows and outlet protections.

☐ ☐ ☒

Emergency spillway level section and outlet channel.

☒ ☐ ☐

Existing and proposed site utilities and protection measures.

☒ ☐ ☐

Erosion and sediment control measures (for site or BMP).

☐ ☐ ☒

Maintenance or access corridors to permanent stormwater management, BMP or drainage facilities.

II. STORMWATER CONVEYANCE SYSTEMS:

Yes No N/A

☒ ☐ ☐

PLAN VIEWS

☒ ☐ ☐

Storm drain lengths, sizes, types, classes and slopes for all segments. Label directly on plan or use structure/pipe schedule.

☒ ☐ ☐

Access structure (inlets, manholes, junctions, etc.) rim elevations, inverts, type and required grate or top unit and lengths labeled.

☒ ☐ ☐

All structure numbers labeled.

☒ ☐ ☐

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

☒ ☐ ☐

Typical storm drain bedding details or reference note.

☒ ☐ ☐

Standard details or reference note for all proposed access structure types (inlets, manholes, junctions, etc.).

☒ ☐ ☐

Inlet shaping detail or applicable reference note.

☒ ☐ ☐

Step detail or applicable reference note (if depth 4 ft. or more).

☐ ☐ ☒

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.

☐ ☐ ☒

Outlet protections at all pipe outfalls.

Yes No N/A

☒ ☐ ☐

STORMWATER CONVEYANCE SYSTEM COMPUTATIONS

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

III. STORMWATER MANAGEMENT/BMP FACILITIES:

Yes No N/A

☒ ☐ ☐

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

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

☐ ☐ ☒

FACILITY CONFIGURATION and MINIMUM SEPARATIONS

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

Yes No N/A
☒ ☐ ☐

HYDRAULIC COMPUTATIONS

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

☒ ☐ ☐

POND or RESERVOIR ROUTING

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

☒ ☐ ☐

MISCELLANEOUS COMPUTATIONS

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

Yes No N/A

☐ ☐ ☒

GEOTECHNICAL REQUIREMENTS

☐ ☐ ☐

Geotechnical Report with recommendations specific to BMP facility type selected. Report prepared by a registered professional engineer. Requires submission, review and approval prior to issuance of Land Disturbance Permit.

☐ ☐ ☐

Initial Feasibility Testing requirements satisfied as per Appendix E of the James City County Guidelines for Design and Construction of Stormwater Management BMPs manual. (Infiltration, Bioretention and Filtering System BMP types only).

☐ ☐ ☐

Concept Design Testing requirements satisfied as per Appendix E of the James City County Guidelines for Design and Construction of Stormwater Management BMPs manual. (Infiltration, Bioretention and Filtering System BMP types only).

☐ ☐ ☐

Minimum Boring locations: borrow area, pool area, principal control structure, top of facility near one abutment and emergency spillway if provided.

☐ ☐ ☐

Boring logs with Unified Soil Classification (ASTM D2487), soils descriptions and depths to bedrock and the seasonal water table indicated.

☐ ☐ ☐

Standard County Record Drawing/Construction Certification note provided on plan. *Note: It is understood that preparation of record drawings and construction certifications as required for project facilities may not necessarily be performed by the plan preparer. These components may be performed by others.*

☐ ☐ ☒

PRINCIPAL SPILLWAY PROFILE AND ASSOCIATED DETAILS

☐ ☐ ☐

EXISTING GROUND AND PROPOSED GRADE

☐ ☐ ☒

Embankment or excavation side slopes labeled (3H:1V maximum).

☐ ☐ ☒

Minimum top width labeled (per VESCH or VSMH requirements).

☐ ☐ ☒

Removal of unsuitable material under proposed facility (per Geotechnical Report requirements).

Yes No N/A

☐ ☐ ☒

CORE TRENCH

☐ ☐ ☐

Material (per plan or Geotechnical Report).

☐ ☐ ☐

Bottom width (4' minimum or greater as dictated by Geotechnical Report recommendations).

☐ ☐ ☐

Side slopes (1:1 maximum steepness)

☐ ☐ ☐

Depth (4' minimum or greater as dictated by Geotechnical Report).

☐ ☐ ☒

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

☐ ☐ ☐

Durable, watertight, resistant material (concrete preferred).

☐ ☐ ☐

Riser diameter is at least 1.25 times larger than barrel diameter.

☐ ☐ ☐

All pertinent dimensions and elevations shown.

☐ ☐ ☐

Control orifice or weir dimensions and elevations shown.

☐ ☐ ☐

Trash rack – removable – for each release.

☐ ☐ ☐

Anti-vortex device, baffle or plate.

☐ ☐ ☐

Riser base structure with dimensions and embedment specifications (concrete preferred).

☒ ☐ ☐

Interior access (steps, ladders, etc.) for maintenance for structures over 4 feet in height. Excessively high risers may need some form of exterior access on top portion.

☐ ☐ ☐

Low flow orifice with trash rack device.

☐ ☐ ☒

PRINCIPAL CONTROL STRUCTURE OUTLET BARREL

☐ ☐ ☐

Material (ASTM C-361 reinforced concrete pipe) with watertight joints. Prior approval required for all other pipe material (other RCP types, CMP, CPP, PVC, etc.).

☐ ☐ ☐

Support and bedding requirements for barrel – concrete cradles, etc. or as recommended by the Geotechnical Report.

☐ ☐ ☐

Pipe inverts, length, size, class and slope shown.

☐ ☐ ☐

Flared end section or endwall provided on barrel outlet.

☐ ☐ ☒

SEEPAGE CONTROL

☐ ☐ ☐

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

☐ ☐ ☐

ANTI-SEEP COLLARS

☐ ☐ ☐

Anti-seep collar, concrete preferred.

☐ ☐ ☐

Size – 15 percent increase in length of saturation using outside pipe diameter.

☐ ☐ ☐

Spacing and location on barrel (located at least 2 feet from a pipe joint).

☐ ☐ ☐

FILTER DIAPHRAGMS

☐ ☐ ☐

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

Yes No N/A

☐ ☐ ☒

ELEVATION AND DIMENSIONAL DESIGN DATA

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

☐ ☐ ☒

CROSS SECTION THROUGH FACILITY

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

☐ ☐ ☒

EMERGENCY SPILLWAY PROFILE

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

☐ ☐ ☒

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

Yes No N/A

☒ ☐ ☐

CONSTRUCTION SPECIFICATIONS and NOTES

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

☐ ☐ ☒

MAINTENANCE PROVISIONS

- | | | | |
|--------------------------|--------------------------|--------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Entity responsible for maintenance identified. |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Maintenance Plan which outlines the long-term schedule for inspection/maintenance of the facility and forebays. |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Maintenance access from public right-of-way or publicly traveled road. |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Maintenance easement provided encompassing high water pool and buffer, principal and emergency spillways, outlet structures, forebays, embankment area and possible sediment-removal stockpile areas. |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 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"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Sized for maximum design release (generally 10-year storm).

Flared end section or endwall.

Dimensions.

Rock or riprap size, quantity and placement thickness.

Slope at 0 percent (Level Grade).

Geotextiles (nonwoven).

Special energy dissipators are required for design discharge velocities that exceed eighteen (18) feet per second; or if use of standard outlet protection would result in velocities exceeding permissible channel velocities; or if space restricts or limits their use.

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

Plan Preparer: BMC

Date: 1/17/13

Copy of JCC: SWMProg/BMP/Checklist/ChkList

TEMPORARY SEDIMENT BASIN DESIGN DATA SHEET

(with or without an emergency spillway)

Project White Hall Section 3Basin # 1 Location Rochambeau DriveTotal area draining to basin 7.38 acres.Basin Volume Design**Wet Storage:**

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

$$67 \text{ cu. yds.} \times \underline{7.38} \text{ acres} = \underline{494.5} \text{ cu. yds.}$$

2. Available basin volume =
- 747
- cu. yds. at elevation
- 88
- . (From storage - elevation curve)

3. Excavate
- 3500
- cu. yds. to obtain required volume*.

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

4. Available volume before cleanout required.

$$33 \text{ cu. yds.} \times \underline{7.38} \text{ acres} = \underline{243.5} \text{ cu. yds.}$$

5. Elevation corresponding to cleanout level =
- 86.7
- .

(From Storage - Elevation Curve)

6. Distance from invert of the dewatering orifice to cleanout level =
- 1.3
- ft.
-
- (Min. = 1.0 ft.)

Dry Storage:

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

$$67 \text{ cu. yds.} \times \underline{7.38} \text{ acres} = \underline{494.5} \text{ cu. yds.}$$

8. Total available basin volume at crest of riser* = 2,097 cu. yds. at elevation 91. (From Storage - Elevation Curve)
- *Minimum = 134 cu. yds./acre of total drainage area.
9. Diameter of dewatering orifice = 6 in.
10. Diameter of flexible tubing = 8 in. (diameter of dewatering orifice plus 2 inches).

Preliminary Design Elevations

11. Crest of Riser = 91
 Top of Dam = 94
 Design High Water = 91.3
 Upstream Toe of Dam = 86

Basin Shape

12. $\frac{\text{Length of Flow}}{\text{Effective Width}} = \frac{L}{W_e} = \underline{\hspace{2cm}}$
- If > 2 , baffles are not required
- If < 2 , baffles are required ✓

Runoff

13. $Q_2 = \underline{9.83}$ cfs (From Chapter 5)
14. $Q_{25} = \underline{10.15}$ cfs (From Chapter 5)

Principal Spillway Design

15. With emergency spillway, required spillway capacity $Q_p = Q_2 = \underline{9.83}$ cfs. (riser and barrel)
- Without emergency spillway, required spillway capacity $Q_p = Q_{25} = \underline{10.15}$ cfs. (riser and barrel)

16. With emergency spillway:

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

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

Without emergency spillway:

Assumed available head (h) = 0.3 ft. (Using Q_{25})

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

17. Riser diameter (D_r) = 48 in. Actual head (h) = 0.4 ft.

(From Plate 3.14-8.)

Note: Avoid orifice flow conditions.

18. Barrel length (l) = 55 ft.

Head (H) on barrel through embankment = 4.05 ft.

(From Plate 3.14-7.)

19. Barrel diameter = 15 in.

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

20. Trash rack and anti-vortex device

Diameter = 72 inches.

Height = 21 inches.

(From Table 3.14-D).

Emergency Spillway Design

21. Required spillway capacity $Q_e = Q_{25} - Q_p =$ 0.32 cfs.

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

(From Table 3.14-C)

Anti-Seep Collar Design

23. Depth of water at principal spillway crest (Y) = NA 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 = NA dimensions = NA

(From Plate 3.14-12).

Final Design Elevations

25. Top of Dam = 94
 Design High Water = 91.3
 Emergency Spillway Crest = NA
 Principal Spillway Crest = 91
 Dewatering Orifice Invert = 88
 Cleanout Elevation = 86.7
 Elevation of Upstream Toe of Dam
 or Excavated Bottom of "Wet Storage
 Area" (if excavation was performed) = 86

Elevation of Normal Pool	=	<u>88.00</u>	feet
Elevation of Dry Storage Volume	=	<u>91.00</u>	feet
Average Head on Orifice	=	<u>1.50</u>	feet
Size of Orifice	=	<u>6.00</u>	inches
Average Flow (from Orifice Eq.)	=	<u>1.06</u>	cfs
Average Drawdown Time	=	<u>9.58</u>	hrs
			>6 HRS, OK

Hydraflow Table of Contents

9048-19 Sediment Basin 2012-01-09.gpw

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2012 by Autodesk, Inc. v9

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Watershed Model Schematic

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Hydrograph Summary Report

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Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	Rational	4.210	1	20	5,052	----	----	----	Pre-development
2	Mod. Rational	7.576	1	20	20,002	----	----	----	During Construction
3	Reservoir	0.476	1	63	3,842	2	89.69	39,795	Routed Sediment Basin
9048-19 Sediment Basin 2012-01-09.gpw					Return Period: 1 Year			Wednesday, 00 16, 2013	

Hydrograph Report

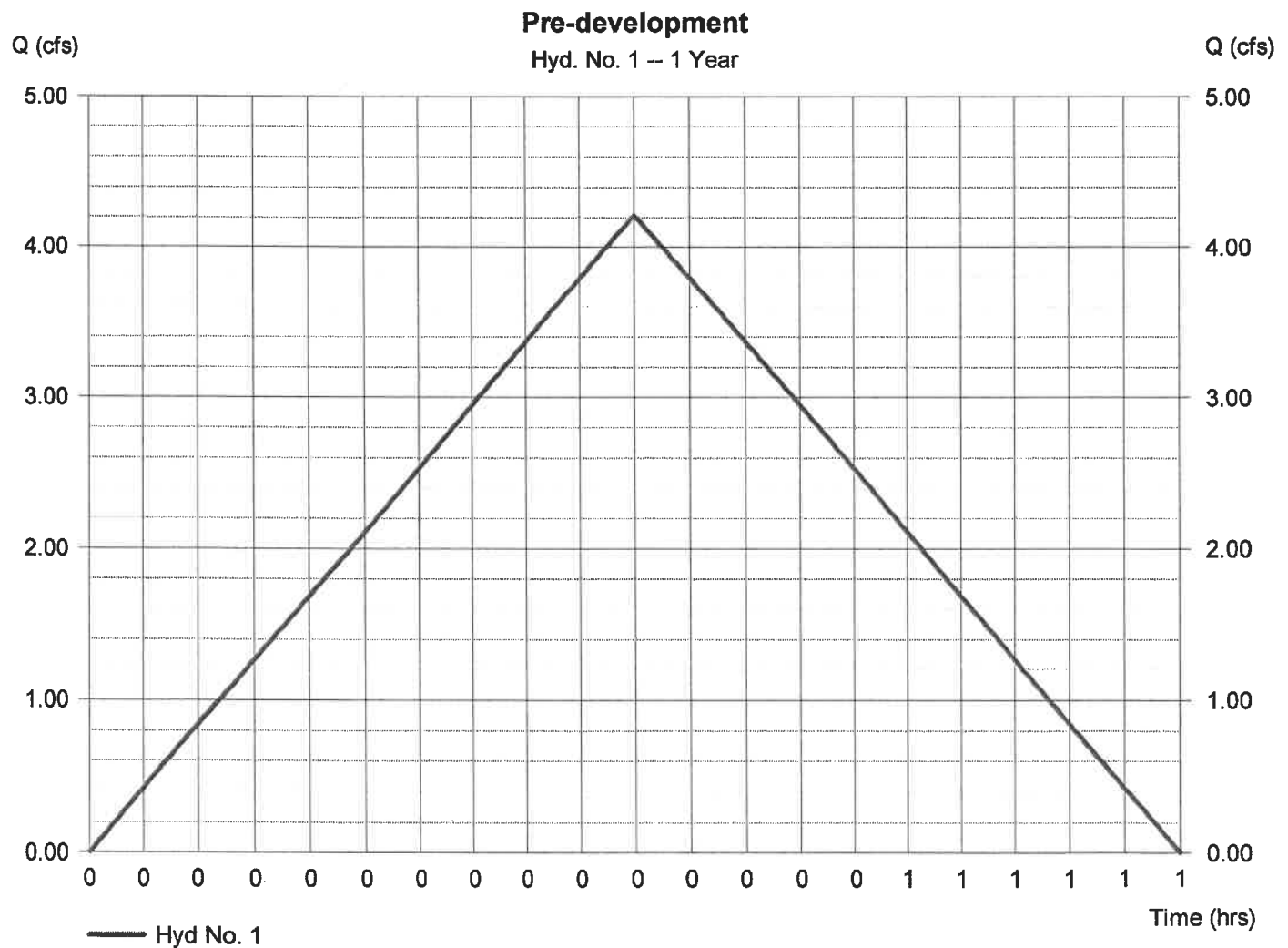
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Wednesday, 00 16, 2013

Hyd. No. 1

Pre-development

Hydrograph type	= Rational	Peak discharge	= 4.210 cfs
Storm frequency	= 1 yrs	Time to peak	= 0.33 hrs
Time interval	= 1 min	Hyd. volume	= 5,052 cuft
Drainage area	= 7.380 ac	Runoff coeff.	= 0.2
Intensity	= 2.852 in/hr	Tc by User	= 20.00 min
IDF Curve	= JamesCity-NW-14.IDF	Asc/Rec limb fact	= 1/1



Hydrograph Report

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Wednesday, 00 16, 2013

Hyd. No. 2

During Construction

Hydrograph type	= Mod. Rational	Peak discharge	= 7.576 cfs
Storm frequency	= 1 yrs	Time to peak	= 0.33 hrs
Time interval	= 1 min	Hyd. volume	= 20,002 cuft
Drainage area	= 7.380 ac	Runoff coeff.	= 0.6
Intensity	= 1.711 in/hr	Tc by User	= 20.00 min
IDF Curve	= JamesCity-NW-14.IDF	Storm duration	= 2.2 x Tc
Target Q	=4.310 cfs	Est. Req'd Storage	=11,649 cuft



Hydrograph Report

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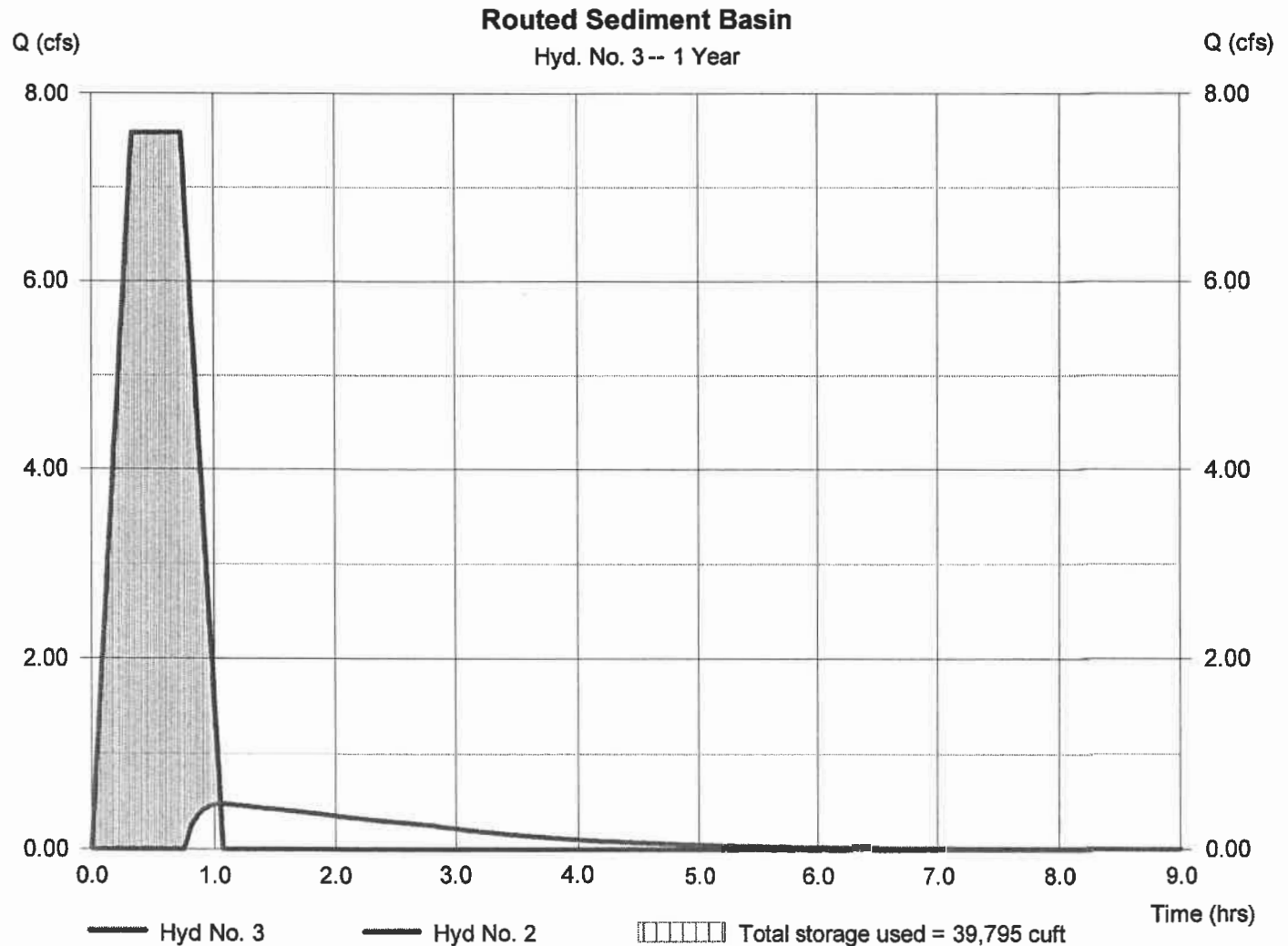
Wednesday, 00 16, 2013

Hyd. No. 3

Routed Sediment Basin

Hydrograph type	= Reservoir	Peak discharge	= 0.476 cfs
Storm frequency	= 1 yrs	Time to peak	= 1.05 hrs
Time interval	= 1 min	Hyd. volume	= 3,842 cuft
Inflow hyd. No.	= 2 - During Construction	Max. Elevation	= 89.69 ft
Reservoir name	= Sediment Basin 1	Max. Storage	= 39,795 cuft

Storage Indication method used. Wet pond routing start elevation = 88.00 ft.



Pond Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2012 by Autodesk, Inc. v9

Wednesday, 00 16, 2013

Pond No. 1 - Sediment Basin 1

Pond Data

Contours -User-defined contour areas. Average end area method used for volume calculation. Beginning Elevation = 86.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	86.00	9,306	0	0
1.00	87.00	10,082	9,694	9,694
2.00	88.00	10,885	10,484	20,178
3.00	89.00	11,713	11,299	31,477
4.00	90.00	12,565	12,139	43,616
5.00	91.00	13,443	13,004	56,620
6.00	92.00	14,346	13,895	70,514
7.00	93.00	15,274	14,810	85,324
8.00	94.00	16,226	15,750	101,074

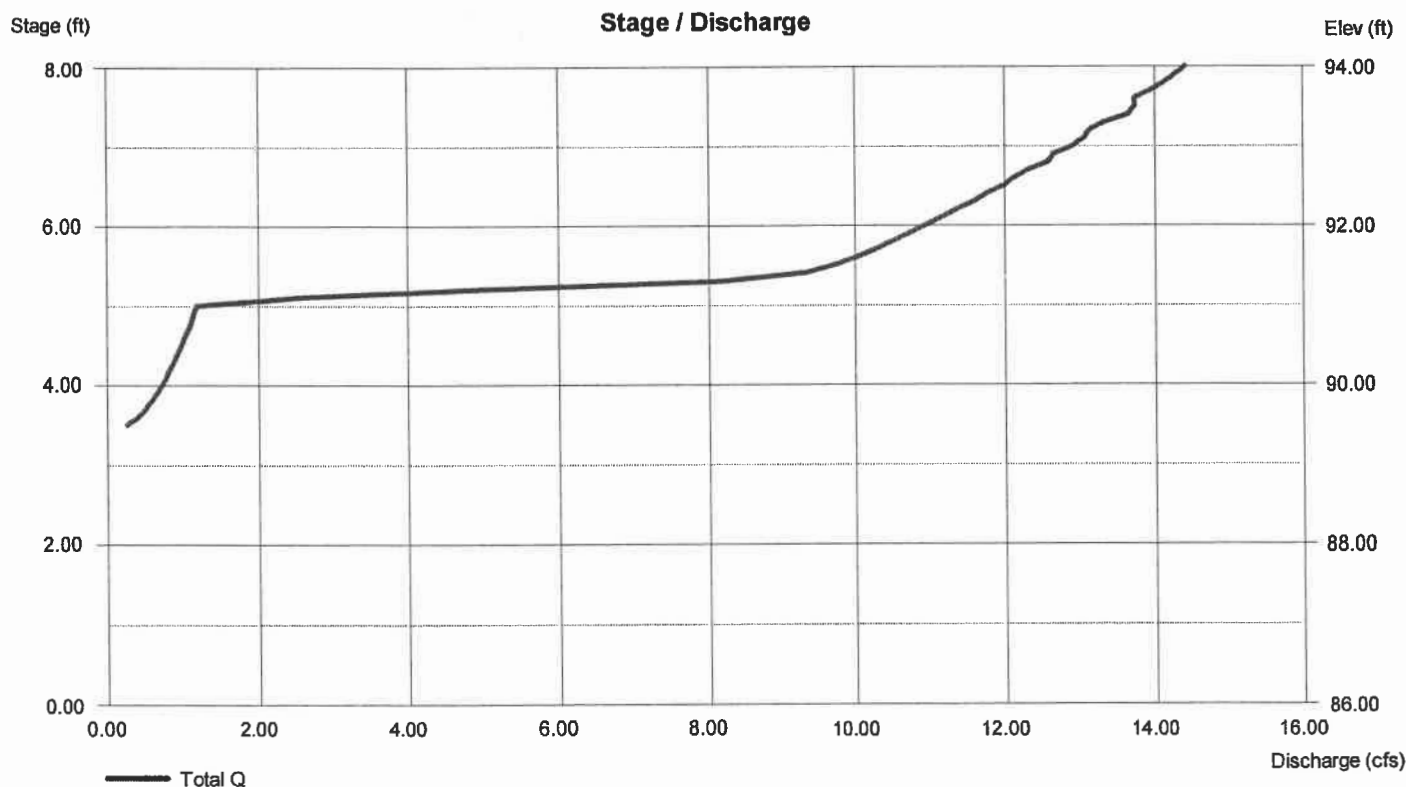
Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 15.00	6.00	0.00	0.00
Span (in)	= 15.00	6.00	0.00	0.00
No. Barrels	= 1	1	0	0
Invert El. (ft)	= 87.65	88.00	0.00	0.00
Length (ft)	= 55.00	0.00	0.00	0.00
Slope (%)	= 0.63	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	No	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 12.56	0.00	0.00	0.00
Crest El. (ft)	= 91.00	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= 1	—	—	—
Multi-Stage	= Yes	No	No	No
Exfil.(in/hr)	= 0.000 (by Contour)			
TW Elev. (ft)	= 89.43			

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).



Hydrograph Summary Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2012 by Autodesk, Inc. v9

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	Rational	5.010	1	20	6,012	----	----	----	Pre-development
2	Mod. Rational	9.040	1	20	24,950	----	----	----	During Construction
3	Reservoir	0.743	1	64	8,790	2	90.05	44,259	Routed Sediment Basin
9048-19 Sediment Basin 2012-01-09.gpw					Return Period: 2 Year			Wednesday, 00 16, 2013	

Hydrograph Report

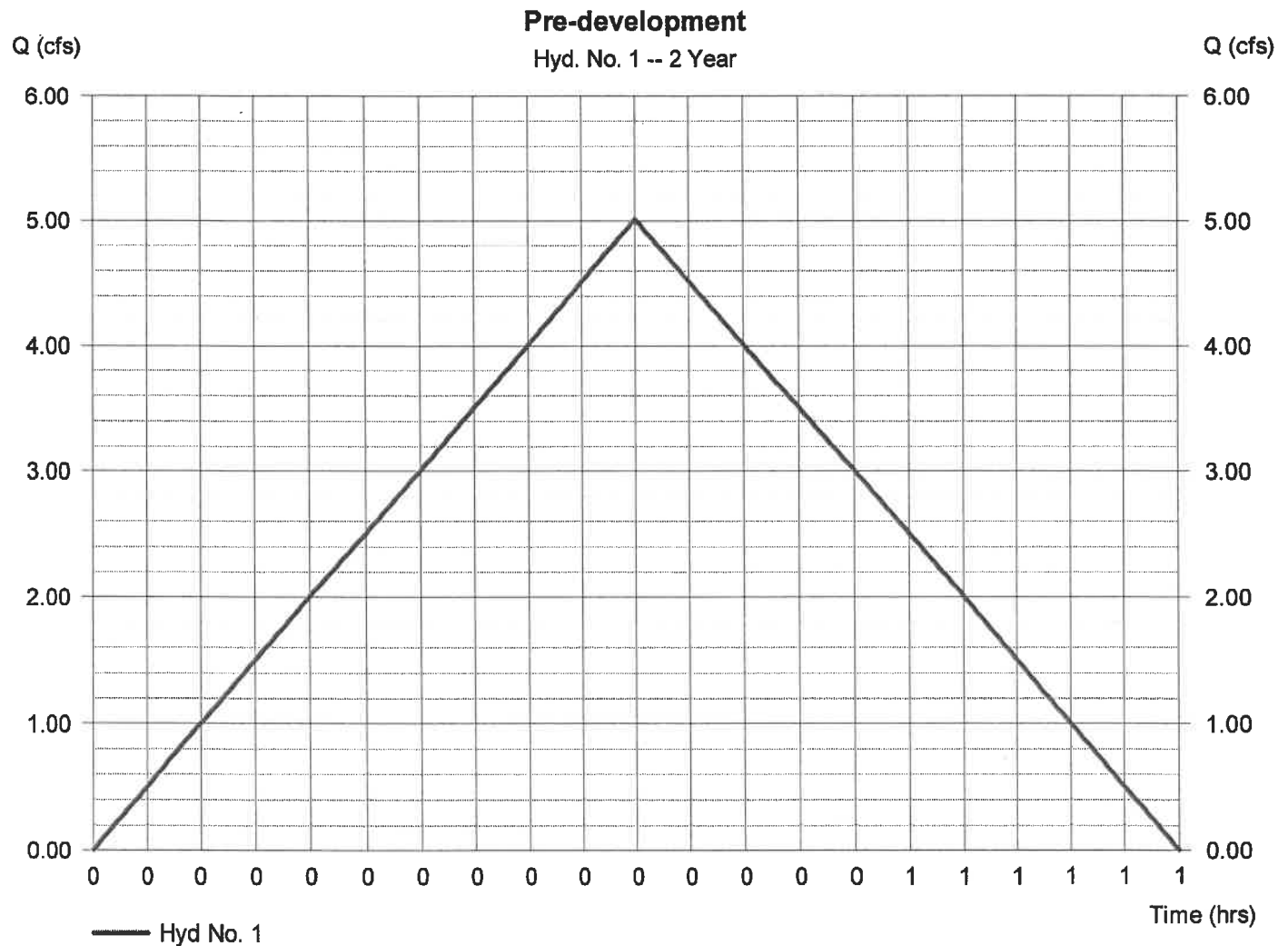
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Wednesday, 00 16, 2013

Hyd. No. 1

Pre-development

Hydrograph type	= Rational	Peak discharge	= 5.010 cfs
Storm frequency	= 2 yrs	Time to peak	= 0.33 hrs
Time interval	= 1 min	Hyd. volume	= 6,012 cuft
Drainage area	= 7.380 ac	Runoff coeff.	= 0.2
Intensity	= 3.394 in/hr	Tc by User	= 20.00 min
IDF Curve	= JamesCity-NW-14.IDF	Asc/Rec limb fact	= 1/1



Hydrograph Report

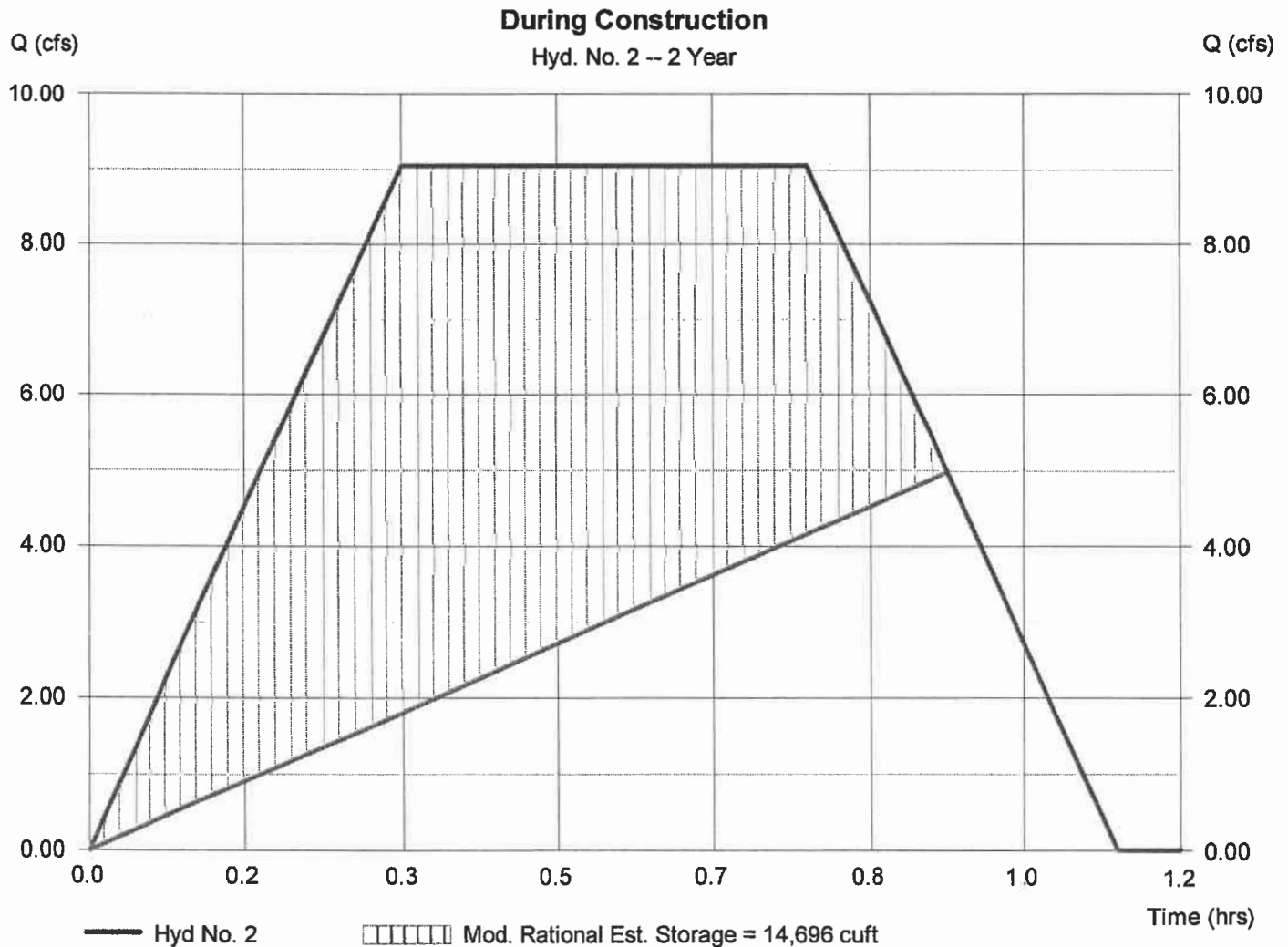
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2012 by Autodesk, Inc. v9

Wednesday, 00 16, 2013

Hyd. No. 2

During Construction

Hydrograph type	= Mod. Rational	Peak discharge	= 9.040 cfs
Storm frequency	= 2 yrs	Time to peak	= 0.33 hrs
Time interval	= 1 min	Hyd. volume	= 24,950 cuft
Drainage area	= 7.380 ac	Runoff coeff.	= 0.6
Intensity	= 2.042 in/hr	Tc by User	= 20.00 min
IDF Curve	= JamesCity-NW-14.IDF	Storm duration	= 2.3 x Tc
Target Q	= 5.130 cfs	Est. Req'd Storage	= 14,696 cuft



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2012 by Autodesk, Inc. v9

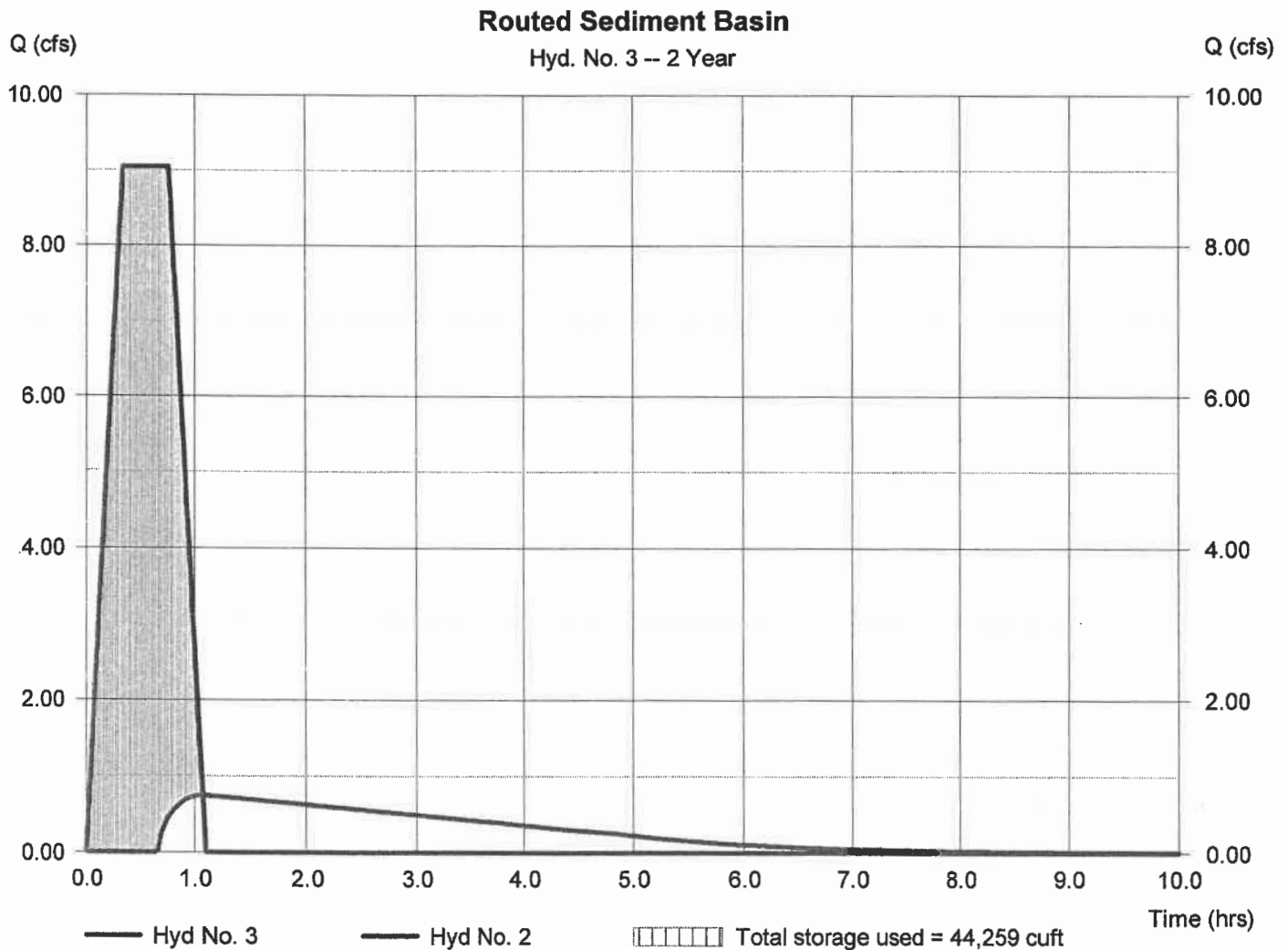
Wednesday, 00 16, 2013

Hyd. No. 3

Routed Sediment Basin

Hydrograph type	= Reservoir	Peak discharge	= 0.743 cfs
Storm frequency	= 2 yrs	Time to peak	= 1.07 hrs
Time interval	= 1 min	Hyd. volume	= 8,790 cuft
Inflow hyd. No.	= 2 - During Construction	Max. Elevation	= 90.05 ft
Reservoir name	= Sediment Basin 1	Max. Storage	= 44,259 cuft

Storage Indication method used. Wet pond routing start elevation = 88.00 ft.



Hydrograph Summary Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2012 by Autodesk, Inc. v9

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	Rational	6.625	1	20	7,950	-----	-----	-----	Pre-development
2	Mod. Rational	9.444	1	20	40,796	-----	-----	-----	During Construction
3	Reservoir	1.972	1	87	24,070	2	91.06	57,424	Routed Sediment Basin
9048-19 Sediment Basin 2012-01-09.gpw					Return Period: 10 Year			Wednesday, 00 16, 2013	

Hydrograph Report

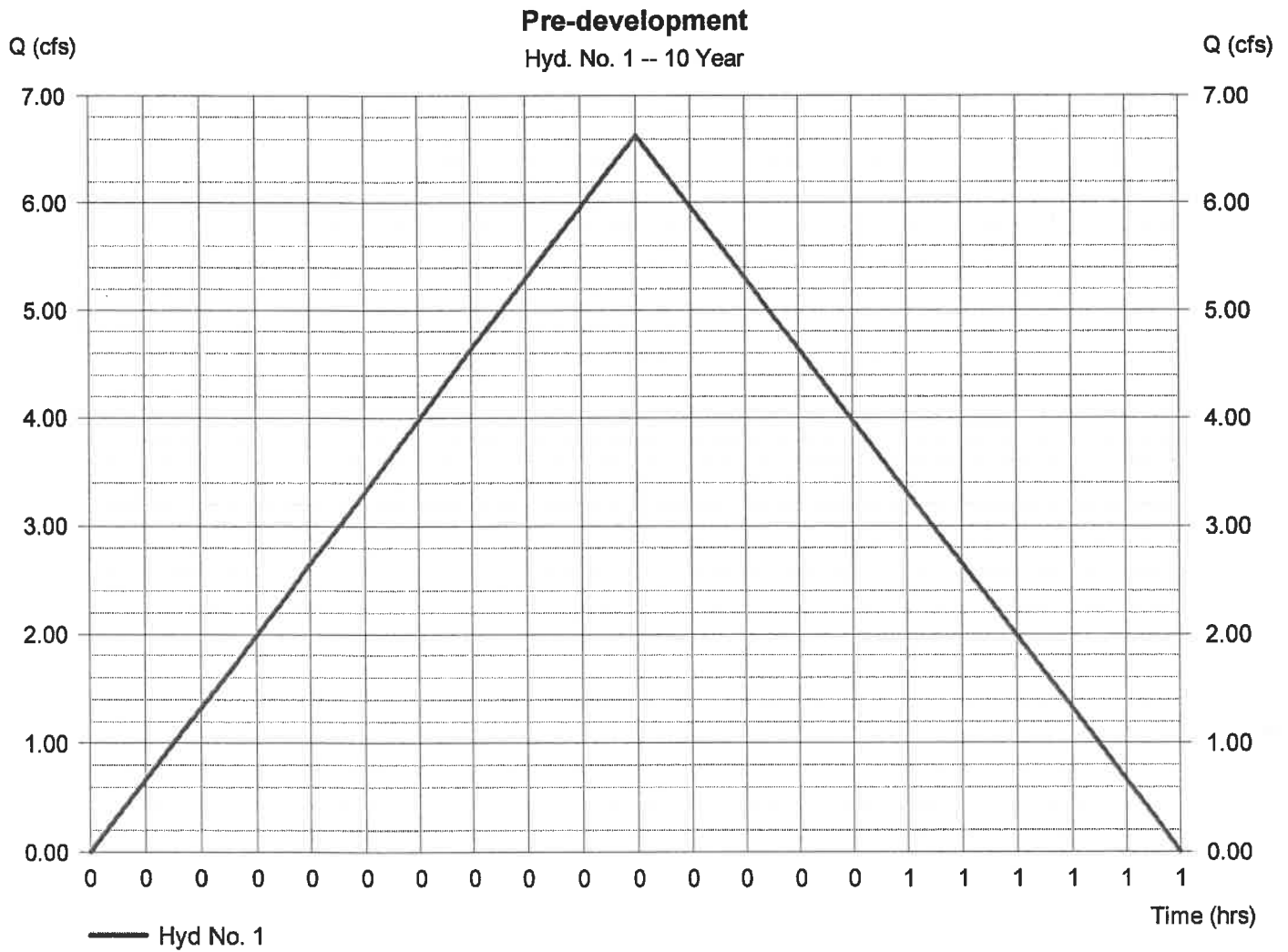
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2012 by Autodesk, Inc. v9

Wednesday, 00 16, 2013

Hyd. No. 1

Pre-development

Hydrograph type	= Rational	Peak discharge	= 6.625 cfs
Storm frequency	= 10 yrs	Time to peak	= 0.33 hrs
Time interval	= 1 min	Hyd. volume	= 7,950 cuft
Drainage area	= 7.380 ac	Runoff coeff.	= 0.2
Intensity	= 4.488 in/hr	Tc by User	= 20.00 min
IDF Curve	= JamesCity-NW-14.IDF	Asc/Rec limb fact	= 1/1



Hydrograph Report

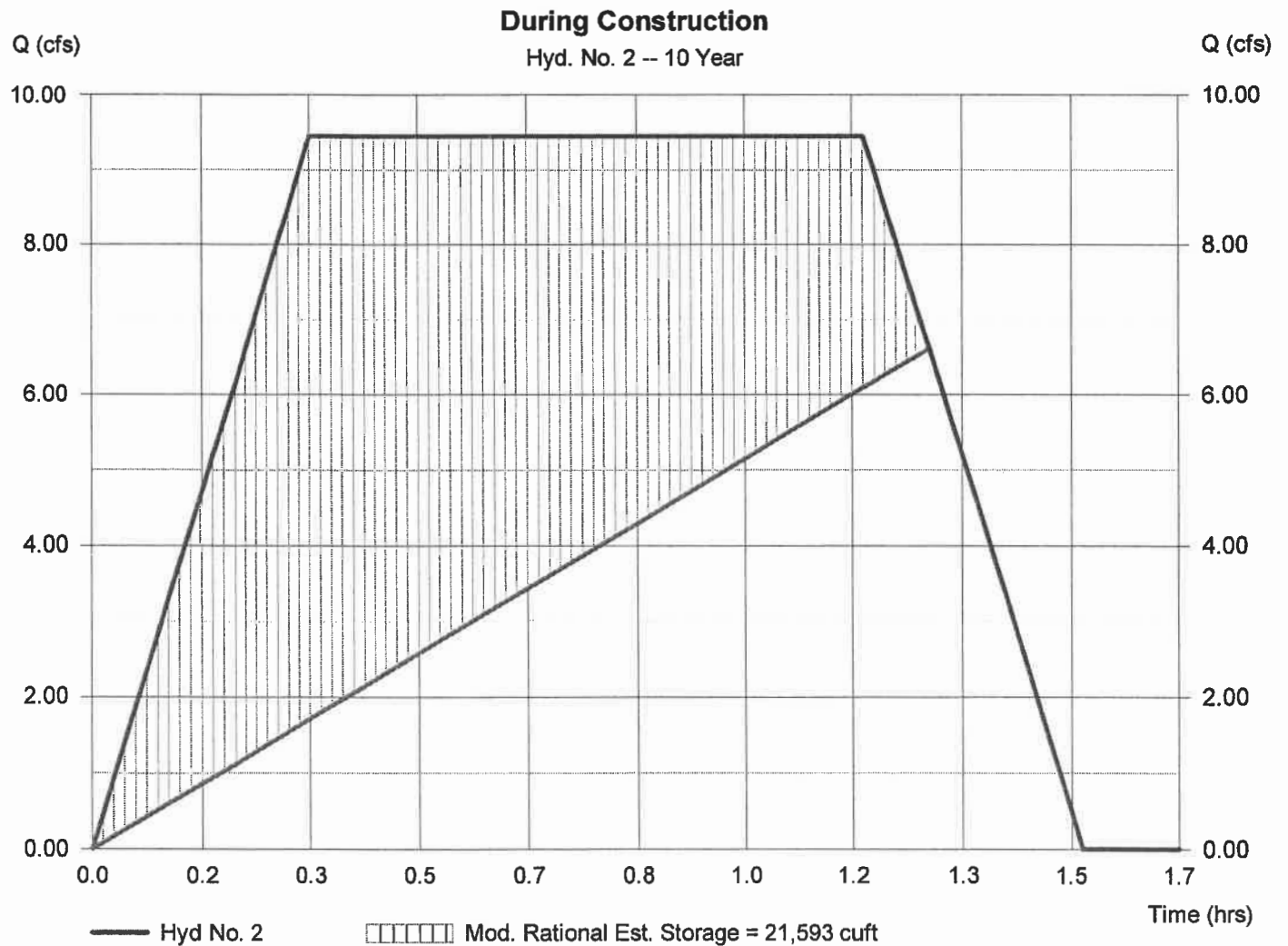
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2012 by Autodesk, Inc. v9

Wednesday, 00 16, 2013

Hyd. No. 2

During Construction

Hydrograph type	= Mod. Rational	Peak discharge	= 9.444 cfs
Storm frequency	= 10 yrs	Time to peak	= 0.33 hrs
Time interval	= 1 min	Hyd. volume	= 40,796 cuft
Drainage area	= 7.380 ac	Runoff coeff.	= 0.6
Intensity	= 2.133 in/hr	Tc by User	= 20.00 min
IDF Curve	= JamesCity-NW-14.IDF	Storm duration	= 3.6 x Tc
Target Q	= 6.780 cfs	Est. Req'd Storage	= 21,593 cuft



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2012 by Autodesk, Inc. v9

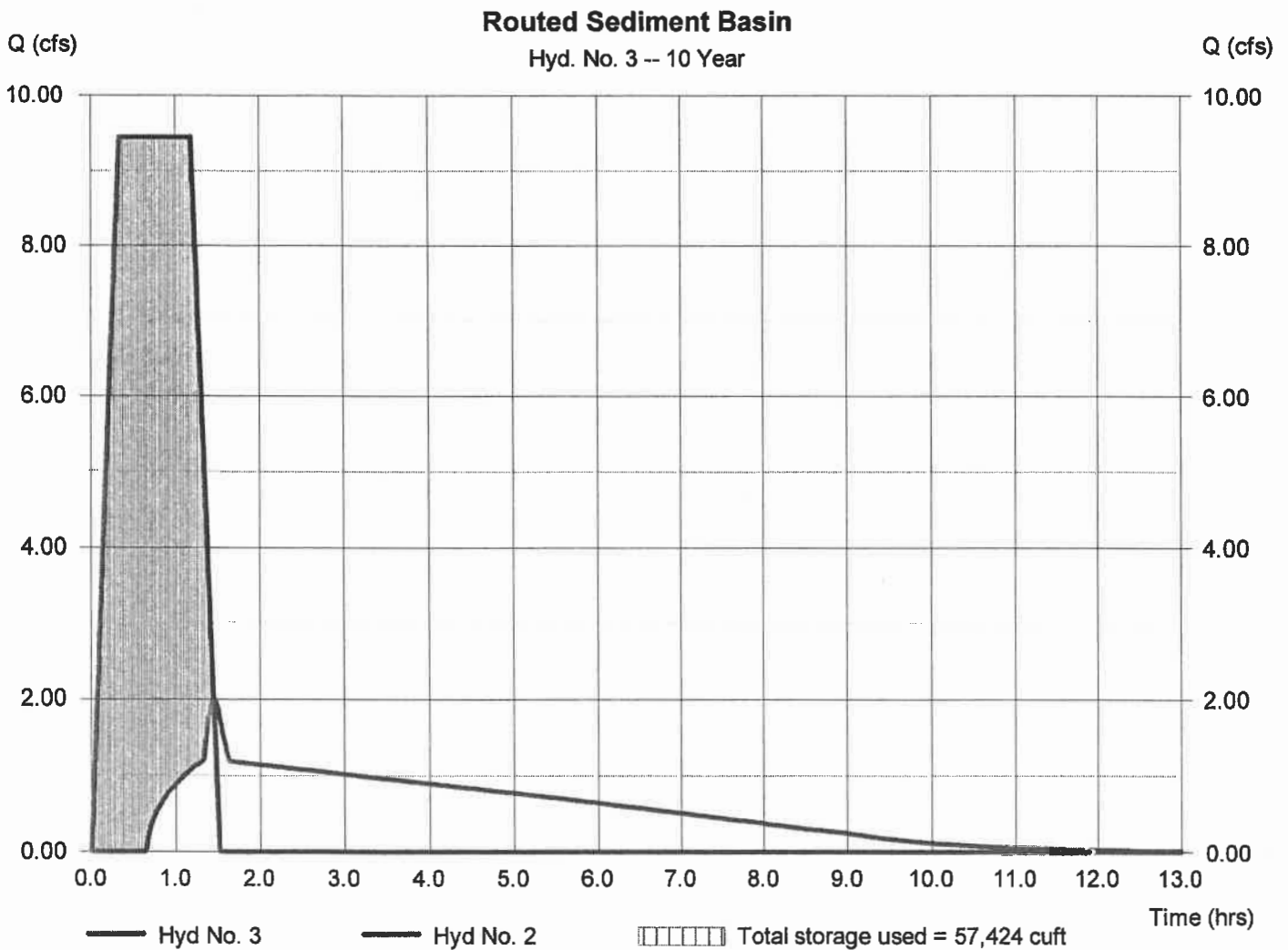
Wednesday, 00 16, 2013

Hyd. No. 3

Routed Sediment Basin

Hydrograph type	= Reservoir	Peak discharge	= 1.972 cfs
Storm frequency	= 10 yrs	Time to peak	= 1.45 hrs
Time interval	= 1 min	Hyd. volume	= 24,070 cuft
Inflow hyd. No.	= 2 - During Construction	Max. Elevation	= 91.06 ft
Reservoir name	= Sediment Basin 1	Max. Storage	= 57,424 cuft

Storage Indication method used. Wet pond routing start elevation = 88.00 ft.



Hydrograph Summary Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2012 by Autodesk, Inc. v9

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time Interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	Rational	7.593	1	20	9,112	-----	-----	-----	Pre-development
2	Mod. Rational	10.06	1	20	53,126	-----	-----	-----	During Construction
3	Reservoir	8.323	1	90	36,363	2	91.31	60,979	Routed Sediment Basin

Hydrograph Report

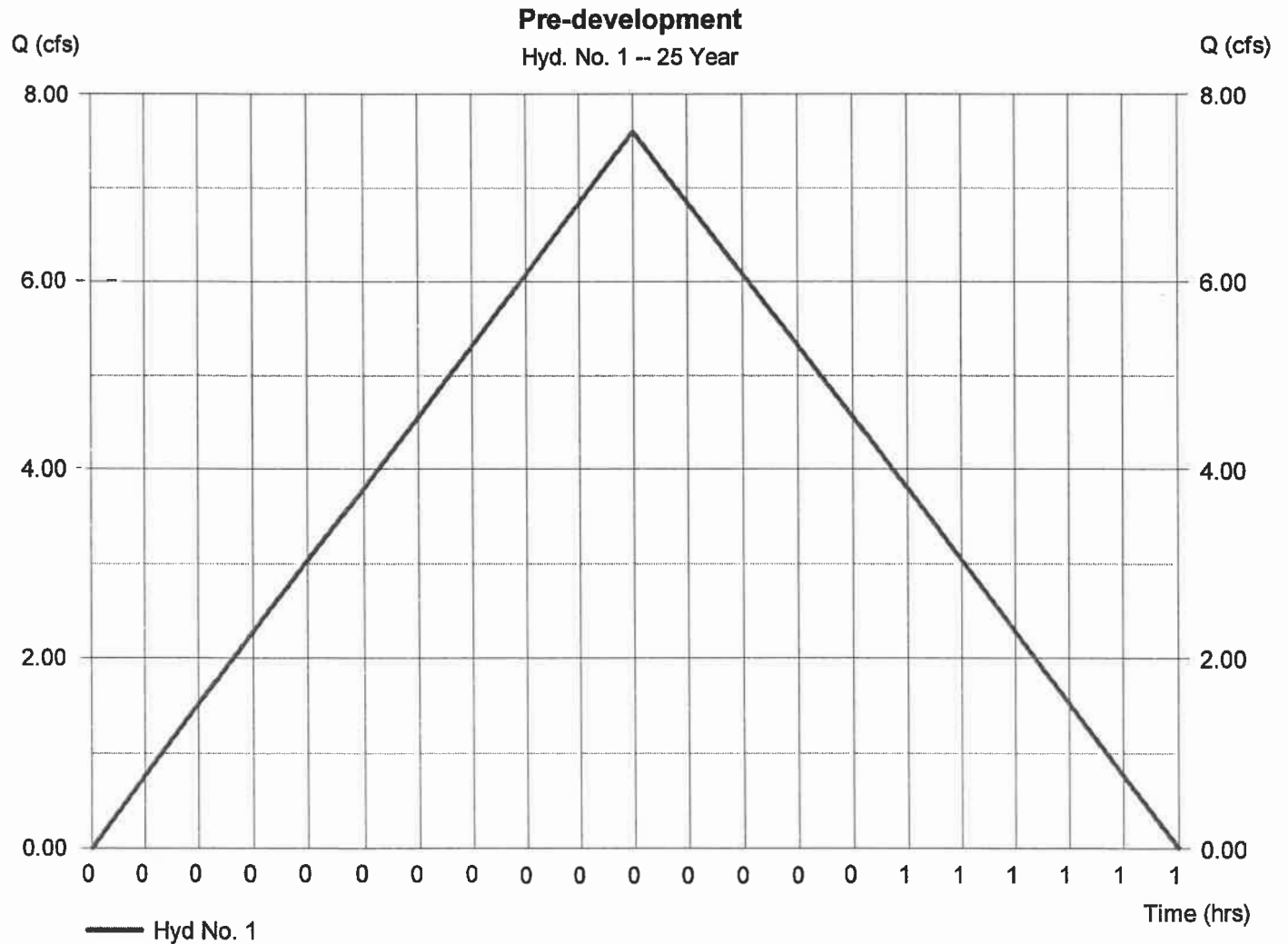
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2012 by Autodesk, Inc. v9

Wednesday, 00 16, 2013

Hyd. No. 1

Pre-development

Hydrograph type	= Rational	Peak discharge	= 7.593 cfs
Storm frequency	= 25 yrs	Time to peak	= 0.33 hrs
Time interval	= 1 min	Hyd. volume	= 9,112 cuft
Drainage area	= 7.380 ac	Runoff coeff.	= 0.2
Intensity	= 5.145 in/hr	Tc by User	= 20.00 min
IDF Curve	= JamesCity-NW-14.IDF	Asc/Rec limb fact	= 1/1



Hydrograph Report

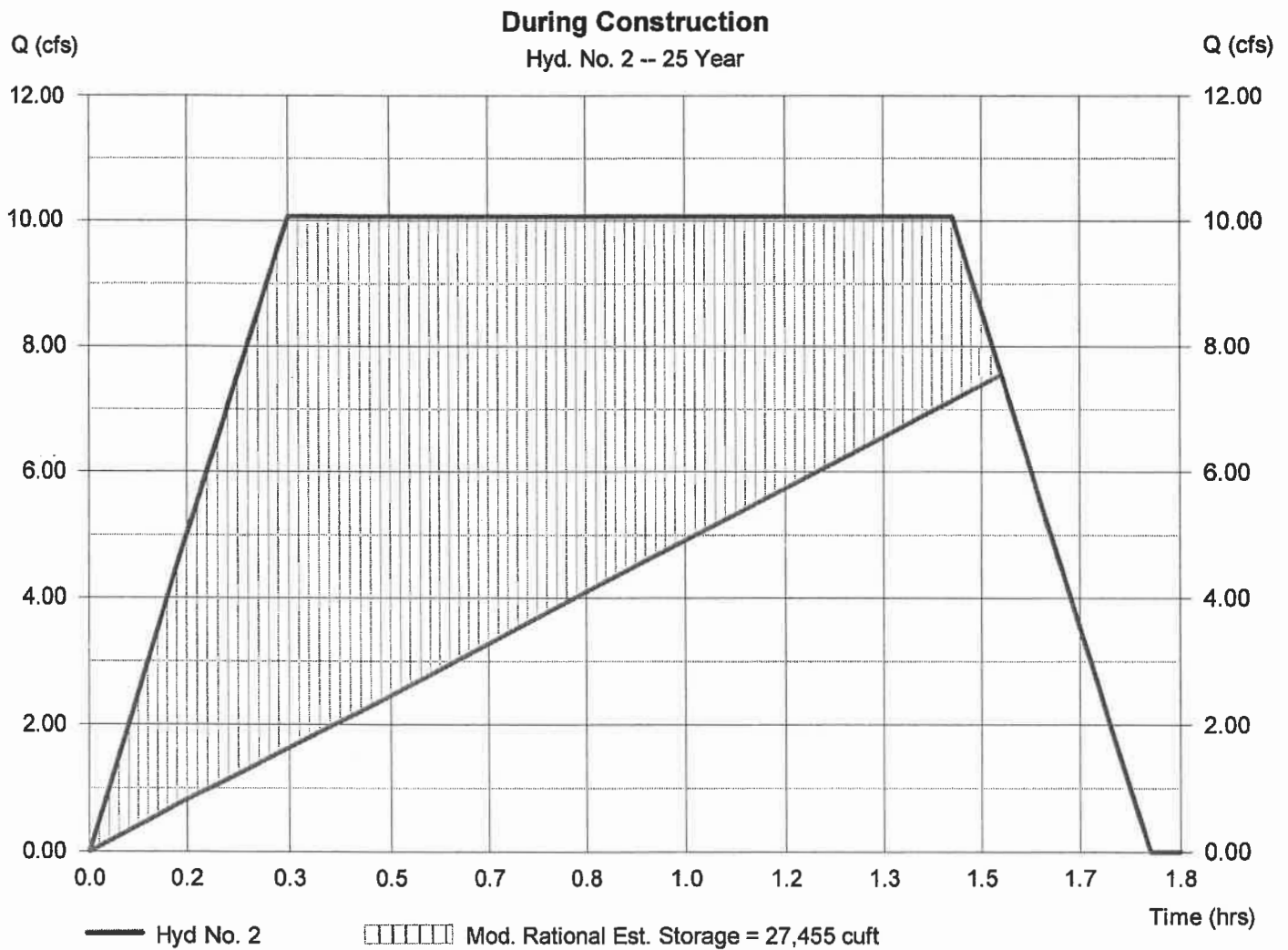
Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2012 by Autodesk, Inc. v9

Wednesday, 00 16, 2013

Hyd. No. 2

During Construction

Hydrograph type	= Mod. Rational	Peak discharge	= 10.06 cfs
Storm frequency	= 25 yrs	Time to peak	= 0.33 hrs
Time interval	= 1 min	Hyd. volume	= 53,126 cuft
Drainage area	= 7.380 ac	Runoff coeff.	= 0.6
Intensity	= 2.272 in/hr	Tc by User	= 20.00 min
IDF Curve	= JamesCity-NW-14.IDF	Storm duration	= 4.4 x Tc
Target Q	=7.770 cfs	Est. Req'd Storage	=27,455 cuft



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2012 by Autodesk, Inc. v9

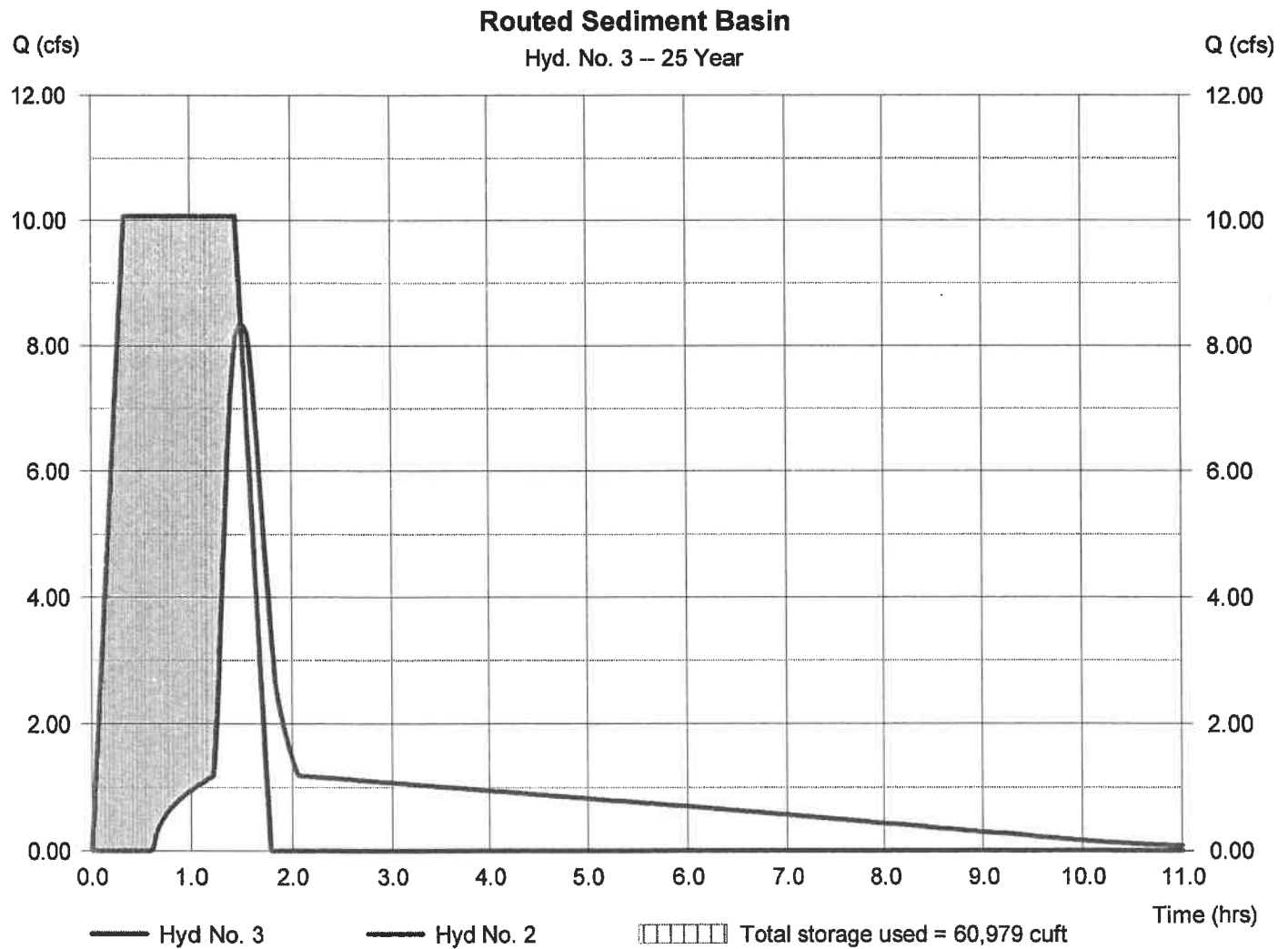
Wednesday, 00 16, 2013

Hyd. No. 3

Routed Sediment Basin

Hydrograph type	= Reservoir	Peak discharge	= 8.323 cfs
Storm frequency	= 25 yrs	Time to peak	= 1.50 hrs
Time interval	= 1 min	Hyd. volume	= 36,363 cuft
Inflow hyd. No.	= 2 - During Construction	Max. Elevation	= 91.31 ft
Reservoir name	= Sediment Basin 1	Max. Storage	= 60,979 cuft

Storage Indication method used. Wet pond routing start elevation = 88.00 ft.



White Hall Section 3

TIME OF CONCENTRATION

Job. No.: 9048-19
 Date: 1/17/2013
 Revised:
 By: Brendan Clisso, P.E.

A. Pre-Development Time of Concentration Calculations

- 1) Overland Flow (maximum 300 feet)
 Surface description (table 5-7)
 Manning's roughness coefficient, n (table 5-7)
 Length of overland flow, L
 2-year 24-hour rainfall, P2
 Average slope of overland flow, s
 Travel time, $T_t = (0.007 \cdot (n \cdot L)^{0.8}) / (P2^{0.5} \cdot s^{0.4})$

06 Dense grasses
0.24
150 feet
3.6 inches
0.02 feet per foot
18.6 minutes

- 2) Shallow concentrated flow
 Surface description, paved or unpaved
 Length of shallow concentrated flow, L
 Average slope of shallow concentrated flow, s
 Average velocity, v
 Travel time, $T_t = L / (60 \cdot v)$

Unpaved
250 feet
0.026 feet per foot
2.66 feet per second
1.6 minutes

- 3) Channel or Pipe Flow
 Length of channel flow, L
 Average velocity of channel flow, v
 Travel time, $T_t = L / (3600 \cdot v)$

Feet
feet per second
0.0 minutes

Total Time of Concentration =

20.2 minutes
0.34 hours

B. Post-Development Time of Concentration Calculations

- 1) Overland Flow (maximum 300 feet)
 Surface description (table 5-7)
 Manning's roughness coefficient, n (table 5-7)
 Length of overland flow, L
 2-year 24-hour rainfall, P2
 Average slope of overland flow, s
 Travel time, $T_t = (0.007 \cdot (n \cdot L)^{0.8}) / (P2^{0.5} \cdot s^{0.4})$

06 Dense grasses
0.24
150 feet
3.6 inches
0.02 feet per foot
18.6 minutes

- 2) Shallow concentrated flow
 Surface description, paved or unpaved
 Length of shallow concentrated flow, L
 Average slope of shallow concentrated flow, s
 Average velocity, v
 Travel time, $T_t = L / (60 \cdot v)$

Unpaved
250 feet
0.026 feet per foot
2.66 feet per second
1.6 minutes

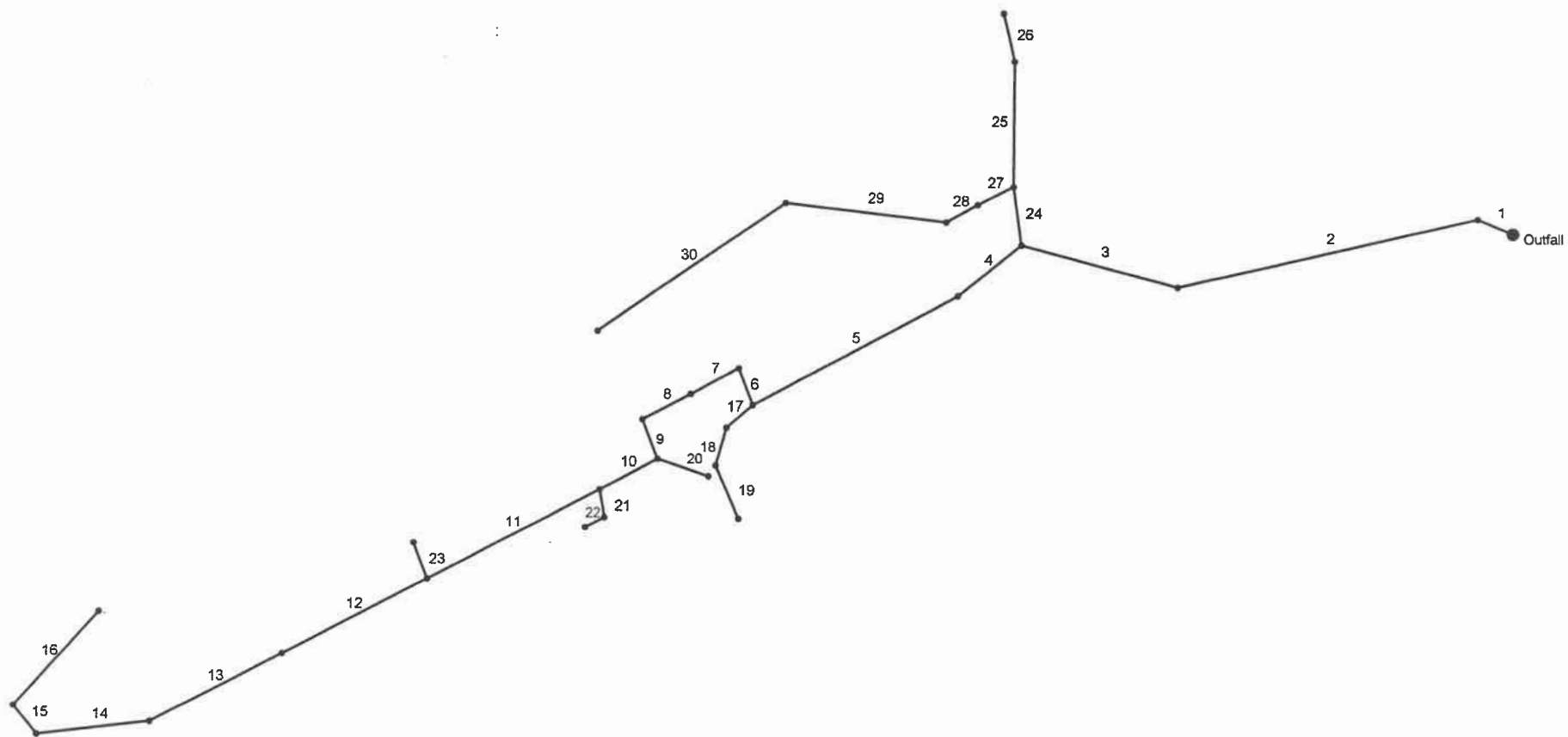
- 3) Channel or Pipe Flow
 Length of channel flow, L
 Average velocity of channel flow, v
 Travel time, $T_t = L / (3600 \cdot v)$

Feet
feet per second
0.0 minutes

Total Time of Concentration =

20.2 minutes
0.34 hours

Hydraflow Storm Sewers Extension for AutoCAD® Civil 3D® 2012 Plan



Project File: 9048-19 Storm Sewer During Construction 2013-01-16.stm

Number of lines: 30

Date: 1/15/2013

Storm Sewer Tabulation

Station		Len (ft)	Drng Area		Rnoff coeff (C)	Area x C		Tc		Rain (l)	Total flow (cfs)	Cap full (cfs)	Vel (ft/s)	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line		Incr (ac)	Total (ac)		Incr	Total	Inlet (min)	Syst (min)					Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
1	End	35.000	0.00	7.04	0.00	0.00	3.39	0.0	18.2	4.7	17.86	84.90	5.14	30	4.29	76.50	78.00	78.62	79.41	79.00	87.50	SS4-2--->SS4-1
2	1	287.000	0.00	7.04	0.00	0.00	3.39	0.0	17.1	4.8	18.35	52.48	5.58	30	1.64	78.00	82.70	79.80	84.13	87.50	94.60	SS4-3--->SS4-2
3	2	152.000	0.16	7.04	0.70	0.11	3.39	5.0	16.5	4.9	18.62	34.09	5.60	30	0.69	82.70	83.75	84.53	85.19	94.60	97.77	SS4-4--->SS4-3
4	3	73.000	0.06	5.65	0.70	0.04	2.79	5.0	16.1	5.0	13.85	35.60	4.30	30	0.75	83.75	84.30	85.69	85.63	97.77	96.48	SS4-5--->SS4-4
5	4	213.000	0.16	5.59	0.70	0.11	2.74	5.0	15.1	5.1	14.06	29.47	5.49	30	0.52	84.80	85.90	86.14	87.15	96.48	92.84	SS4-6--->SS4-5
6	5	32.000	0.65	5.14	0.50	0.33	2.43	5.0	14.9	5.2	12.51	29.00	3.83	30	0.50	85.90	86.06	87.56	87.57	92.84	92.90	SS4-7--->SS4-6
7	6	50.000	0.38	4.49	0.45	0.17	2.10	5.0	14.7	5.2	10.91	17.52	3.74	24	0.60	86.06	86.36	87.95	88.01	92.90	92.62	SS4-8--->SS4-7
8	7	50.000	0.75	4.11	0.45	0.34	1.93	5.0	14.5	5.2	10.09	24.57	4.36	24	1.18	86.36	86.95	88.21	88.10	92.62	92.75	SS4-9--->SS4-8
9	8	35.000	0.06	3.36	0.70	0.04	1.60	5.0	14.3	5.2	8.37	17.10	2.67	24	0.57	86.95	87.15	89.11	89.15	92.75	92.85	SS4-10--->SS4-9
10	9	60.000	0.00	2.92	0.00	0.00	1.38	0.0	13.9	5.3	7.34	33.29	3.63	24	2.17	87.15	88.45	89.38	89.41	92.85	93.34	SS4-11--->SS4-10
11	10	179.000	0.50	2.07	0.45	0.23	1.00	5.0	13.1	5.4	5.44	10.08	4.30	18	0.92	88.45	90.10	89.64	90.99	93.34	97.32	SS4-12--->SS4-11
12	11	150.000	0.76	1.34	0.45	0.34	0.60	5.0	12.4	5.6	3.36	10.41	3.66	15	2.60	90.10	94.00	91.26	94.73	97.32	100.54	SS4-13--->SS4-11
13	12	136.000	0.00	0.58	0.00	0.00	0.26	0.0	10.9	5.9	1.53	6.71	2.41	15	1.08	94.00	95.47	95.02	95.97	100.54	103.44	SS4-14--->SS4-13
14	13	107.000	0.18	0.58	0.45	0.08	0.26	5.0	9.7	6.1	1.60	4.54	2.96	15	0.50	95.47	96.00	96.12	96.51	103.44	106.59	SS4-15--->SS4-14
15	14	32.000	0.24	0.40	0.45	0.11	0.18	5.0	9.2	6.2	1.12	4.57	1.97	15	0.50	96.00	96.16	96.68	96.69	106.59	106.59	SS4-16--->SS4-15
16	15	111.000	0.16	0.16	0.45	0.07	0.07	5.0	5.0	7.5	0.54	6.28	1.59	15	0.95	96.16	97.21	96.89	97.50	106.59	103.57	SS4-17--->SS4-16
17	5	31.000	0.00	0.29	0.00	0.00	0.20	0.0	6.3	7.0	1.43	5.19	1.16	15	0.65	85.90	86.10	87.64	87.65	92.84	92.50	SS4-18--->SS4-6
18	17	32.000	0.08	0.29	0.70	0.06	0.20	5.0	5.9	7.2	1.46	5.11	1.19	15	0.63	86.10	86.30	87.67	87.68	92.50	91.86	SS4-19--->SS4-18
19	18	48.000	0.21	0.21	0.70	0.15	0.15	5.0	5.0	7.5	1.10	7.80	1.20	15	1.46	86.30	87.00	87.72	87.72	91.86	0.00	SS4-19A>SS4-19
20	9	50.000	0.38	0.38	0.45	0.17	0.17	5.0	5.0	7.5	1.28	7.91	1.04	15	1.50	87.15	87.90	89.44	89.46	92.85	91.86	SS4-20--->SS4-10
21	10	23.000	0.34	0.85	0.45	0.15	0.38	5.0	5.2	7.4	2.83	7.37	2.73	15	1.30	88.45	88.75	89.63	89.62	93.34	93.48	SS4-21--->SS4-11

Project File: 9048-19 Storm Sewer During Construction 2013-01-16.stm

Number of lines: 30

Run Date: 1/15/2013

NOTES: Intensity = 55.61 / (Inlet time + 10.00) ^ 0.74; Return period = Yrs. 10 ; c = cir e = ellip b = box

Storm Sewer Tabulation

Station		Len (ft)	Drng Area		Rnoff coeff (C)	Area x C		Tc		Rain (l)	Total flow (cfs)	Cap full (cfs)	Vel (ft/s)	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line		Incr (ac)	Total (ac)		Incr	Total	Inlet (min)	Syst (min)					Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
22	21	20.000	0.51	0.51	0.45	0.23	0.23	5.0	5.0	7.5	1.72	8.54	1.75	15	1.75	88.75	89.10	89.92	89.90	93.48	93.80	SS4-22-->SS4-21
23	11	32.000	0.23	0.23	0.75	0.17	0.17	5.0	5.0	7.5	1.29	6.25	1.18	15	0.94	90.10	90.40	91.34	91.35	97.32	97.32	SS4-23-->SS4-12
24	3	48.000	0.07	1.23	0.70	0.05	0.49	5.0	10.8	5.9	4.84	49.53	1.52	30	1.46	83.75	84.45	85.76	85.74	97.77	98.35	SS4-24-->SS4-4
25	24	102.000	0.14	0.40	0.70	0.10	0.20	5.0	6.0	7.1	1.44	24.02	1.78	24	1.13	84.45	85.60	85.88	86.03	98.35	99.30	SS4-25-->SS4-24
26	25	40.000	0.26	0.26	0.40	0.10	0.10	5.0	5.0	7.5	0.78	5.21	2.09	15	0.65	85.60	85.86	86.15	86.22	99.30	99.63	SS4-26-->SS4-25
27	24	37.000	0.08	0.76	0.50	0.04	0.24	5.0	10.2	6.0	3.39	18.59	1.67	24	0.68	84.45	84.70	85.82	85.82	98.35	97.23	SS4-27-->SS4-24
28	27	33.000	0.24	0.68	0.45	0.11	0.20	5.0	9.7	6.1	3.17	18.88	2.00	24	0.70	84.70	84.93	85.85	85.84	97.23	97.13	SS4-28-->SS4-27
29	28	153.000	0.00	0.44	0.00	0.00	0.09	5.0	6.6	7.0	2.58	17.35	2.53	24	0.59	84.93	85.83	85.98	86.40	97.13	97.90	SS4-29-->SS4-28
30	29	206.000	0.44	0.44	0.20	0.09	0.09	5.0	5.0	7.5	2.63	5.58	3.94	15	0.75	85.83	87.37	86.52	88.02	97.90	92.50	SS4-30-->SS4-29

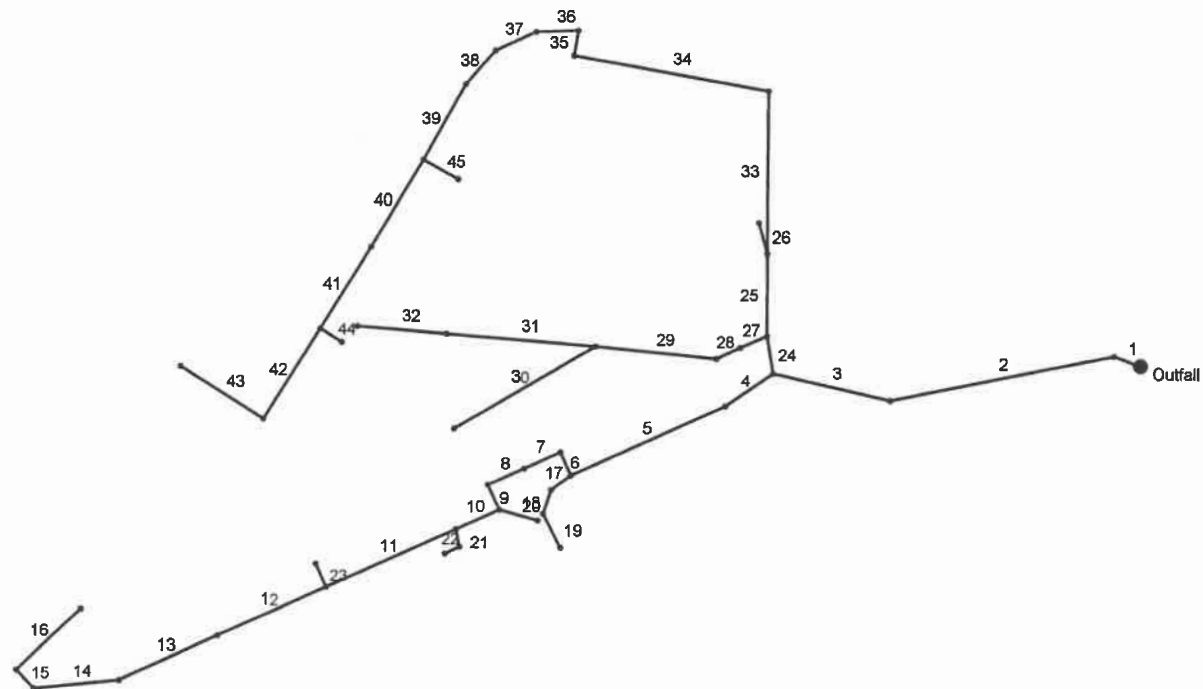
Project File: 9048-19 Storm Sewer During Construction 2013-01-16.stm

Number of lines: 30

Run Date: 1/15/2013

NOTES: Intensity = 55.61 / (Inlet time + 10.00) ^ 0.74; Return period = Yrs. 10 ; c = cir e = ellip b = box

Hydraflow Storm Sewers Extension for AutoCAD® Civil 3D® 2012 Plan



Project File: 9048-19 Storm Sewer System 2013-01-16.stm

Number of lines: 45

Date: 1/17/2013

Storm Sewer Tabulation

Station		Len (ft)	Drng Area		Rnoff coeff (C)	Area x C		Tc		Rain (l) (in/hr)	Total flow (cfs)	Cap full (cfs)	Vel (ft/s)	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line		Incr (ac)	Total (ac)		Incr	Total	Inlet (min)	Syst (min)					Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
1	End	35.000	0.00	14.10	0.00	0.00	6.83	0.0	18.7	4.6	31.72	84.90	7.57	30	4.29	76.50	78.00	78.62	79.88	79.00	87.50	SS4-2--->SS4-1
2	1	287.000	0.00	14.10	0.00	0.00	6.83	0.0	17.9	4.7	32.34	52.48	7.57	30	1.64	78.00	82.70	80.20	84.60	87.50	94.60	SS4-3--->SS4-2
3	2	152.000	0.16	14.10	0.70	0.11	6.83	5.0	17.5	4.8	32.68	34.09	7.59	30	0.69	82.70	83.75	84.93	85.67	94.60	97.81	SS4-4--->SS4-3
4	3	73.000	0.06	5.55	0.70	0.04	2.74	5.0	16.2	5.0	13.61	35.60	2.77	30	0.75	83.75	84.30	88.00	88.08	97.81	96.48	SS4-5--->SS4-4
5	4	213.000	0.16	5.49	0.70	0.11	2.70	5.0	15.1	5.1	13.83	29.47	2.82	30	0.52	84.80	85.90	88.14	88.37	96.48	92.84	SS4-6--->SS4-5
6	5	32.000	0.65	5.04	0.50	0.33	2.38	5.0	14.9	5.1	12.28	29.00	2.50	30	0.50	85.90	86.06	88.64	88.67	92.84	92.90	SS4-7--->SS4-6
7	6	50.000	0.32	4.39	0.45	0.14	2.06	5.0	14.7	5.2	10.67	17.52	3.40	24	0.60	86.06	86.36	88.82	88.93	92.90	92.62	SS4-8--->SS4-7
8	7	50.000	0.70	4.07	0.45	0.32	1.92	5.0	14.5	5.2	9.99	24.57	3.18	24	1.18	86.36	86.95	89.04	89.14	92.62	92.75	SS4-9--->SS4-8
9	8	35.000	0.06	3.37	0.70	0.04	1.60	5.0	14.3	5.2	8.40	17.10	2.67	24	0.57	86.95	87.15	89.42	89.47	92.75	92.85	SS4-10-->SS4-9
10	9	60.000	0.00	2.92	0.00	0.00	1.38	0.0	13.9	5.3	7.34	33.29	2.99	24	2.17	87.15	88.45	89.70	89.67	92.85	93.34	SS4-11-->SS4-10
11	10	179.000	0.50	2.07	0.45	0.23	1.00	5.0	13.1	5.4	5.44	10.08	4.03	18	0.92	88.45	90.10	89.93	90.99	93.34	97.32	SS4-12-->SS4-11
12	11	150.000	0.76	1.34	0.45	0.34	0.60	5.0	12.4	5.6	3.36	10.41	3.66	15	2.60	90.10	94.00	91.26	94.73	97.32	100.54	SS4-13-->SS4-11
13	12	136.000	0.00	0.58	0.00	0.00	0.26	0.0	10.9	5.9	1.53	6.71	2.41	15	1.08	94.00	95.47	95.02	95.97	100.54	103.44	SS4-14-->SS4-13
14	13	107.000	0.18	0.58	0.45	0.08	0.26	5.0	9.7	6.1	1.60	4.54	2.96	15	0.50	95.47	96.00	96.12	96.51	103.44	106.59	SS4-15-->SS4-14
15	14	32.000	0.24	0.40	0.45	0.11	0.18	5.0	9.2	6.2	1.12	4.57	1.97	15	0.50	96.00	96.16	96.68	96.69	106.59	106.59	SS4-16-->SS4-15
16	15	111.000	0.16	0.16	0.45	0.07	0.07	5.0	5.0	7.5	0.54	6.28	1.59	15	0.95	96.16	97.21	96.89	97.50	106.59	103.57	SS4-17-->SS4-16
17	5	31.000	0.00	0.29	0.00	0.00	0.20	0.0	6.3	7.0	1.43	5.19	1.16	15	0.65	85.90	86.10	88.72	88.74	92.84	92.50	SS4-18--->SS4-6
18	17	32.000	0.08	0.29	0.70	0.06	0.20	5.0	5.9	7.2	1.46	5.11	1.19	15	0.63	86.10	86.30	88.75	88.76	92.50	91.86	SS4-19-->SS4-18
19	18	48.000	0.21	0.21	0.70	0.15	0.15	5.0	5.0	7.5	1.10	7.80	0.90	15	1.46	86.30	87.00	88.80	88.81	91.86	0.00	SS4-19A>SS4-19
20	9	50.000	0.39	0.39	0.45	0.18	0.18	5.0	5.0	7.5	1.32	7.91	1.07	15	1.50	87.15	87.90	89.76	89.78	92.85	91.86	SS4-20-->SS4-10
21	10	23.000	0.34	0.85	0.45	0.15	0.38	5.0	5.2	7.4	2.83	7.37	2.31	15	1.30	88.45	88.75	90.00	90.00	93.34	93.48	SS4-21-->SS4-11
Project File: 9048-19 Storm Sewer System 2013-01-16.stm																Number of lines: 45				Run Date: 1/17/2013		
NOTES:Intensity = 55.61 / (Inlet time + 10.00) ^ 0.74; Return period =Yrs. 10 ; c = cir e = ellip b = box																						

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (l)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
22	21	20.000	0.51	0.51	0.45	0.23	0.23	5.0	5.0	7.5	1.72	8.54	1.46	15	1.75	88.75	89.10	90.17	90.18	93.48	93.80	SS4-22-->SS4-21
23	11	32.000	0.23	0.23	0.75	0.17	0.17	5.0	5.0	7.5	1.29	6.25	1.18	15	0.94	90.10	90.40	91.34	91.35	97.32	97.32	SS4-23-->SS4-12
24	3	48.000	0.07	8.39	0.70	0.05	3.98	5.0	17.3	4.8	19.14	49.53	3.90	30	1.46	83.75	84.45	87.89	87.99	97.81	98.33	SS4-24-->SS4-4
25	24	102.000	0.14	4.65	0.70	0.10	2.31	5.0	16.8	4.9	11.24	24.02	3.58	24	1.13	84.45	85.60	88.38	88.63	98.33	99.50	SS4-25-->SS4-24
26	25	40.000	0.26	0.26	0.40	0.10	0.10	5.0	5.0	7.5	0.78	5.21	0.64	15	0.65	85.60	85.86	88.93	88.93	99.50	99.56	SS4-26-->SS4-25
27	24	37.000	0.08	3.67	0.50	0.04	1.62	5.0	7.9	6.6	10.67	18.59	3.40	24	0.68	84.45	84.70	88.40	88.48	98.33	97.37	SS4-27-->SS4-24
28	27	33.000	0.24	3.59	0.45	0.11	1.58	5.0	7.7	6.6	10.48	18.88	3.34	24	0.70	84.70	84.93	88.58	88.65	97.37	96.98	SS4-28-->SS4-27
29	28	153.000	0.00	3.35	0.00	0.00	1.48	5.0	7.0	6.8	10.10	17.35	3.21	24	0.59	84.93	85.83	88.81	89.12	96.98	98.25	SS4-29-->SS4-28
30	29	206.000	2.00	2.00	0.40	0.80	0.80	5.0	5.0	7.5	6.00	5.58	4.89	15	0.75	85.83	87.37	89.22	91.00	98.25	92.50	SS4-30-->SS4-29
31	29	188.000	0.61	1.35	0.50	0.31	0.68	5.0	5.8	7.2	4.86	7.46	4.40	18	0.51	88.30	89.25	89.26	90.10	98.25	95.85	SS5-2-->SS4-29
32	31	113.000	0.74	0.74	0.50	0.37	0.37	5.0	5.0	7.5	2.77	5.43	3.36	15	0.71	89.50	90.30	90.54	90.97	95.85	94.30	SS5-3-->SS5-2
33	25	202.000	0.00	4.25	0.00	0.00	2.10	5.0	15.8	5.0	10.55	16.61	3.36	24	0.54	85.60	86.69	88.76	89.20	99.50	101.09	SS5-4-->SS4-25
34	33	250.000	0.17	4.25	0.70	0.12	2.10	5.0	14.6	5.2	10.92	16.50	3.52	24	0.53	86.69	88.02	89.37	89.90	101.09	98.14	SS5-5-->SS5-4
35	34	32.000	0.39	4.08	0.40	0.16	1.99	5.0	14.5	5.2	10.36	15.99	3.30	24	0.50	88.02	88.18	90.23	90.30	98.14	98.14	SS5-6-->SS5-5
36	35	53.000	0.03	3.69	0.75	0.02	1.83	5.0	14.2	5.3	9.63	16.14	3.06	24	0.51	88.18	88.45	90.57	90.67	98.14	97.58	SS5-7-->SS5-6
37	36	56.000	0.04	3.66	0.75	0.03	1.81	5.0	13.9	5.3	9.60	15.99	3.06	24	0.50	88.45	88.73	90.77	90.87	97.58	96.97	SS5-8-->SS5-7
38	37	56.000	0.11	3.62	0.50	0.06	1.78	5.0	13.6	5.4	9.53	15.99	3.03	24	0.50	88.73	89.01	90.97	91.07	96.97	96.37	SS5-9-->SS5-8
39	38	108.000	0.53	3.51	0.50	0.27	1.72	5.0	13.3	5.4	9.33	13.48	5.81	18	1.65	89.51	91.29	91.14	92.46	96.37	95.62	SS5-10-->SS5-9
40	39	127.000	0.44	2.57	0.50	0.22	1.25	5.0	12.7	5.5	6.90	9.13	4.52	18	0.76	91.29	92.25	92.84	93.32	95.62	96.69	SS5-11-->SS5-10
41	40	120.000	0.92	2.13	0.45	0.41	1.03	10.0	12.3	5.6	5.77	7.46	5.39	15	1.33	92.50	94.10	93.59	95.06	96.69	98.37	SS5-12-->SS5-11
42	41	134.000	0.33	1.02	0.50	0.17	0.48	5.0	11.3	5.8	2.75	9.12	3.20	15	1.99	94.10	96.77	95.49	97.43	98.37	100.77	SS5-13-->SS5-12

Project File: 9048-19 Storm Sewer System 2013-01-16.stm

Number of lines: 45

Run Date: 1/17/2013

NOTES: Intensity = 55.61 / (Inlet time + 10.00) ^ 0.74; Return period = Yrs. 10 ; c = cir e = ellip b = box

Storm Sewer Tabulation

Station		Len (ft)	Drng Area		Rnoff coeff (C)	Area x C		Tc		Rain (l) (in/hr)	Total flow (cfs)	Cap full (cfs)	Vel (ft/s)	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line		Incr (ac)	Total (ac)		Incr	Total	Inlet (min)	Syst (min)					Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
43	42	123.000	0.69	0.69	0.45	0.31	0.31	10.0	10.0	6.1	1.88	7.79	2.81	15	1.46	96.77	98.56	97.66	99.11	100.77	101.56	SS5-14->SS5-13
44	41	32.000	0.19	0.19	0.75	0.14	0.14	5.0	5.0	7.5	1.07	5.11	0.87	15	0.63	94.10	94.30	95.54	95.55	98.37	98.37	SS5-12A->SS5-1
45	39	50.000	0.41	0.41	0.50	0.21	0.21	5.0	5.0	7.5	1.54	3.65	1.25	15	0.32	91.54	91.70	93.05	93.08	95.62	95.62	SS5-10A->SS5-1
Project File: 9048-19 Storm Sewer System 2013-01-16.stm																Number of lines: 45				Run Date: 1/17/2013		
NOTES: Intensity = 55.61 / (Inlet time + 10.00) ^ 0.74; Return period =Yrs. 10 ; c = cir e = ellip b = box																						

Printed: 9:21 AM 8/27/2008



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PROJECT
PROJECT NO.
SUBJECT
DATE
BY

White Hall Section 3
9048-19
Roadway Curb Drop Inlet Spread Calculations
August 29, 2008
BMC

STORMWATER INLET COMPUTATIONS (ROLL CURB STREETS)

INLET			Station	Drainage Area (Ac)	C	CA	$\Sigma u/L$ CA	L in/hr	Q-Inter (CFS)	Q Carry-Over (CFS)	Q1 Gutter Flow	S Gutter Slope (ft/ft)	Sx Cross Slope (ft/ft)	T (Spread)	W (ft)	W/T	Sw (ft/ft)	Sw/Sx	Eo (#10)	n	Local Dep.	a	Sw = a/(12W)	Se (ft/ft) = Sx + SwEo	Lt (ft) 15 P Effect L	L/Lt d (ft)	E (#16) h (ft)	Q Int CFS d/h	Q Carryover or Sump Spread	Remark
Number	Type	Length																												
Alley 3																														
Lane Width			15.0 ft																											
T allow = 15/2 + 2.5' = 10.0'																														
SS#5-3 RECEIVES CARRY OVER FROM SS#5-5																														
SUMP				0.31	0.50	0.155	0.155	4	0.62	0.03	0.65	0.001	0.02	7.9	Flow Approaching From Up Station															
SS#5-3	3C	8	10+87	0.43	0.50	0.215	0.215	4	0.86	0.08	1.59	0.00	0.02	2	Flow Approaching From Down Station									11.6	0.138	0.42	0.329	6.62		OK in Gutter OK in Sump OK in Gutter
SS#5-2	3B	6	12+50	0.61	0.50	0.305	0.305	4	1.22	0.00	1.22	0.015	0.02	5.6	2	0.357	0.08	4	0.767	0.015	2	3.5	0.146	0.133	7.646	0.785	0.937	1.143	0.08	OK
High Point																													0.00	
SUMP				0.35	0.50	0.175	0.175	4	0.70	0.00	0.70	0.001	0.02	8.2	Flow Approaching From Up Station															
SS#4-28	3A	2.5	15+41	0.07	0.50	0.035	0.035	4	0.14	0.00	0.84	0.00	0.02	2	Flow Approaching From Down Station									6.1	0.136	0.42	0.324	6.53		OK in Gutter OK in Sump OK in Gutter



Channel Analysis of Proposed Earth Swale

White Hall Section 3

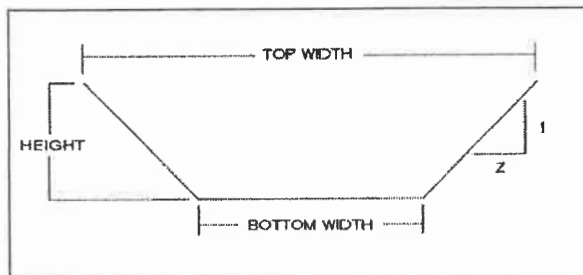
Project No. 9048-19

1/17/2013

Calculated By: BMC

CHANNEL GEOMETRY

TOP WIDTH = 9 FT
 BOTTOM WIDTH = 0.01 FT
 HEIGHT = 1.5 FT
 Z = 3.0 FT
 SLOPE (S) = 0.01 FT/FT
 MANNING'S N = 0.035



Calculation of Channel Capacity and Velocity

MANNING'S EQUATION

$$V = 1.49 / N * R^{2/3} * S^{1/2}$$

WHERE:

V = AVERAGE VELOCITY
 N = MANNING'S ROUGHNESS COEF.
 R = HYDRAULIC RADIUS = A / WP
 S = SLOPE OF CHANNEL
 A = AREA OF CROSS SECTION
 WP = WETTED PERIMETER

Soil Type

SANDY LOAM

MAX. PERMISSIBLE VELOCITY =

2.5 FT/SEC

2-Year Storm Event

TIME OF CONCENTRATION = 10 MIN.
 RAINFALL INTENSITY = 4.7 IN/HR
 RUNOFF COEF. = 0.5
 POST-DEV. DRAINAGE AREA = 0.88 AC.

PEAK FLOW RATE = 2.07 CFS

PEAK VELOCITY = 1.87 FT/SEC

DEPTH = 0.61 FT

Note: The Virginia Stormwater Management Handbook requires 0.5' of free board to the top of bank. The depth of this dry swale is 1.5', the 10 year storm event depth is 0.67', leaving 0.83' for freeboard.

10-Year Storm Event

TIME OF CONCENTRATION = 10 MIN.
 RAINFALL INTENSITY = 6 IN/HR
 RUNOFF COEF. = 0.5
 POST-DEV. DRAINAGE AREA = 0.88 AC.

PEAK FLOW RATE = 2.64 CFS

PEAK VELOCITY = 1.99 FT/SEC

DEPTH = 0.67 FT

Incremental Depth	Area	WP	Hydraulic Radius	Velocity	Flow
(FT)	(SQ FT)	(FT)	(FT)	(FT/SEC)	(CFS)
0.00	0.00	0.01	0.00	0.00	0.00
0.10	0.03	0.64	0.05	0.56	0.02
0.20	0.12	1.27	0.10	0.89	0.11
0.30	0.27	1.91	0.14	1.16	0.32
0.40	0.48	2.53	0.19	1.41	0.67
0.50	0.76	3.17	0.24	1.63	1.23
0.60	1.09	3.80	0.29	1.85	2.00
0.61	1.12	3.87	0.29	1.87	2.09
0.67	1.35	4.25	0.32	1.99	2.69
0.70	1.48	4.44	0.33	2.04	3.02



March 29, 2016

TO: **H H Hunt Homes**
11237 Nuckols Road
Glen Allen, VA 23059

Attn: Mr. Craig Shelton

RE: Certification Letter for Pavement Areas
Whitehall – Section 3
James City County, Virginia
G E T Project No: WM13-188T

Dear Mr. Shelton:

As requested, **GET Solutions, Inc.** has prepared this certification letter in regards to the testing services performed within the pavement areas associated with Section 3 of this development. We have prepared a brief summary of our testing services that were performed during the construction of this project.

Utility Installation:

The utilities that were located within future pavement areas were tested for compaction of backfill in general accordance with VDOT standards (generally 1 test every 100 linear feet per lift), which included sanitary sewer, storm sewer, water, and electrical conduits. The compaction tests results indicated that the backfill materials at the locations and elevations tested were compacted to at least 95% of the Standard Proctor maximum dry density (ASTM D698).

Pavement Area Compaction Testing:

Compaction testing was performed on all fill materials that were placed within future pavement areas in general accordance with VDOT standards. The compaction test results indicated that the fill materials at the locations and elevations tested were compacted to at least 95% of the Standard Proctor maximum dry density (ASTM D698). As an exception, the upper 6 inches of the finish subgrade along the roadway alignments was compacted to at least 100% of the Standard Proctor maximum dry density (ASTM D698), while those areas that did not meet the 100% requirement were undercut and replaced with additional aggregate base material and/or lined with geotextile fabric prior to aggregate base placement.

March 29, 2016

Proofrolling:

The subgrade soils along all roadway alignments for Section 3 were proofrolled prior to aggregate base placement. In addition, the aggregate base material within all future pavement areas was proofrolled prior to asphalt placement. Where unstable areas were encountered either within the subgrade or aggregate base, appropriate repair recommendations were provided and implemented by the contractor. All areas were observed and approved by **GET Solutions, Inc.** prior to asphalt paving activities. ✓

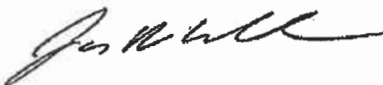
Aggregate Base Compaction Testing:

Compaction testing was performed on the aggregate base material within all roadway alignments of Section 3 in general accordance with VDOT standards. The compaction test results indicated that the aggregate base materials at the locations and elevations tested were compacted to at least 100% of the Standard Proctor maximum dry density (ASTM D698). ✓

Conclusion:

All of the geotechnical related inspections and materials testing that were performed by **GET Solutions, Inc.** as outlined in this report were in general accordance with VDOT standards. These inspection reports have been attached to this letter for your review and reference. We appreciate the opportunity to offer our services to you, and trust that you will call this office with any questions that you may have. ✓

Respectfully Submitted,
GET Solutions, Inc.



James R. Wheeler
Senior Project Geologist



D. Mark Scholefield, P.E.
Principal Engineer
VA Lic. # 033932



APPENDIX: Compaction Test Reports & Daily Field Reports

COMPACTION TEST REPORTS

GET

Solutions, Inc.

Geotechnical • Environmental • Testing

G E T Solutions, Inc.
 1592-E Penniman Road
 Williamsburg, Virginia 23185
 Tel: (757) 564-6452
 Fax: (757) 564-6453

COMPACTION TEST REPORT - Sheet 1 of 2

Project: White Hall Section 3 Date: 11/11/13
 Project Location: James City County, Virginia Technician: A. Dudley
 Client: HH Hunt Communities, Inc. Job Number: WM13-188T
 General Contractor: HH Hunt Communities, Inc. Weather: Sunny Temp. (°F) 50's
 Grading Contractor: George Nice and Sons General Test Location: Sheldon Branch Place

Test Number	Moisture (%)	Dry Density (pcf)	Wet Density (pcf)	Proctor Number	% Proctor		Pass	Fail	Test Elevation*	Test Location (Grid, Coordinates, Roadway Station, etc.)
					Spec	Actual				
1	12.1	107.6	120.6	1	95	101	X		9' BSG	Sheldon Branch Place - Station 36+60
2	11.7	108.0	120.8	1	95	102	X		7' BSG	Sheldon Branch Place - Station 37+00
3	11.0	103.9	115.3	1	95	98	X		2' BSG	Sheldon Branch Place - Station 37+25
4	10.7	107.0	118.4	1	95	101	X		8' BSG	Sheldon Branch Place - Station 36+60
5	10.3	108.6	119.8	1	95	102	X		6' BSG	Sheldon Branch Place - Station 37+00
6	10.7	109.0	120.7	1	95	103	X		3' BSG	Sheldon Branch Place - Station 37+15
7	12.8	109.6	123.7	1	95	103	X		7' BSG	Sheldon Branch Place - Station 36+60
8	11.2	107.3	119.3	1	95	101	X		5' BSG	Sheldon Branch Place - Station 37+00

Compaction Equipment Used: Smooth Drum Roller
 Field Testing Procedure: ASTM D698
 Testing Depth: 12 inches
 Test Conducted on: Backfill over Storm Sewer

Proctor Number: 1
 Proctor Type: ASTM D698
 Material Description: SILTY SAND (SM)
 Max. Dry Density (pcf): 106.2
 Optimum Moisture (%): 14.1%

Remarks: _____

Test locations and test elevations are approximate and are established in the field by the GET Solutions, Inc. technician.

* Note: BFF = Below Finish Floor, BFG = Below Finish Grade, FG = Finished Grade, BSG = Below Subgrade

Reviewed By:



J. Wheeler

G E T Solutions, Inc.



Geotechnical • Environmental • Testing

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Fax: (757) 564-6453

COMPACTION TEST REPORT - Sheet 2 of 2

Project:	White Hall Section 3	Date:	11/11/13
Project Location:	James City County, Virginia	Technician:	A. Dudley
Client:	HH Hunt Communities, Inc.	Job Number:	WM13-188T
General Contractor:	HH Hunt Communities, Inc.	Weather:	Sunny Temp. (°F) 50's
Grading Contractor:	George Nice and Sons	General Test Location:	Sheldon Branch Place

Test Number	Moisture (%)	Dry Density (pcf)	Wet Density (pcf)	Proctor Number	% Proctor		Pass	Fail	Test Elevation*	Test Location (Grid, Coordinates, Roadway Station, etc.)
					Spec	Actual				
9	11.0	112.4	124.8	3	95	97	X		9' BSG	Sheldon Branch Place - Station 36+30
10	11.3	114.2	127.1	3	95	98	X		7' BSG	Sheldon Branch Place - Station 36+50
11	12.3	110.4	123.9	3	95	95	X		5' BSG	Sheldon Branch Place - Station 36+50
12	10.6	116.6	128.9	3	95	100	X		8' BSG	Sheldon Branch Place - Station 36+30
13	12.2	112.5	126.2	3	95	97	X		6' BSG	Sheldon Branch Place - Station 36+50
14	13.0	111.3	125.8	3	95	96	X		4' BSG	Sheldon Branch Place - Station 36+60
15	10.9	113.1	125.4	3	95	97	X		2' BSG	Sheldon Branch Place - Station 36+75
16	10.6	117.4	129.8	3	95	101	X		Subgrade	Sheldon Branch Place - Station 37+15

Compaction Equipment Used: Smooth Drum Roller
Field Testing Procedure: ASTM D698
Testing Depth: 12 inches
Test Conducted on: Backfill over Storm Sewer

Proctor Number: 3
Proctor Type: ASTM D698
Material Description: SILTY SAND (SM)
Max. Dry Density (pcf): 116.2
Optimum Moisture (%): 13.0%

Remarks: _____

Test locations and test elevations are approximate and are established in the field by the GET Solutions, Inc. technician.

* Note: BFF = Below Finish Floor, BFG = Below Finish Grade, FG = Finished Grade, BSG = Below Subgrade

Reviewed By:

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COMPACTION TEST REPORT - Sheet 1 of 1

Project:	White Hall Section 3	Date:	11/13/13
Project Location:	James City County, Virginia	Technician:	E. Batalon
Client:	HH Hunt Communities, Inc.	Job Number:	WM13-188T
General Contractor:	HH Hunt Communities, Inc.	Weather:	Clear Temp. (°F) 50's
Grading Contractor:	George Nice and Sons	General Test Location:	Sheldon Branch Place (Existing SS to SS#5-4)

Test Number	Moisture (%)	Dry Density (pcf)	Wet Density (pcf)	Proctor Number	% Proctor		Pass	Fail	Test Elevation*	Test Location (Grid, Coordinates, Roadway Station, etc.)
					Spec	Actual				
1	9.3	103.0	112.6	3	95	97	X		3' BSG	Sheldon Branch Place - Station 35+65 (around structure)
2	10.1	115.7	127.5	3	95	100	X		3' BSG	Sheldon Branch Place - Station 36+00
3	9.8	114.6	125.8	3	95	99	X		1' BSG	Sheldon Branch Place - Station 35+65 (around structure)
4	11.5	115.6	128.8	3	95	99	X		1' BSG	Sheldon Branch Place - Station 36+00
5	10.6	101.9	111.9	3	95	96	X		Subgrade	Sheldon Branch Place - Station 35+65 (around structure)
6	11.4	109.8	122.3	3	95	103	X		Subgrade	Sheldon Branch Place - Station 35+65

Compaction Equipment Used: Smooth Drum Roller
 Field Testing Procedure: ASTM D698
 Testing Depth: 12 inches
 Test Conducted on: Backfill over Storm Sewer and around Structure

Proctor Number:	1	3
Proctor Type:	ASTM D698	
Material Description:	SILTY SAND (SM)	
Max. Dry Density (pcf):	106.2	116.2
Optimum Moisture (%):	14.1%	13.0%

Remarks: _____

Test locations and test elevations are approximate and are established in the field by the GET Solutions, Inc. technician.

* Note: BFF = Below Finish Floor, BFG = Below Finish Grade, FG = Finished Grade, BSG = Below Subgrade

Reviewed By:

J. Wheeler
G E T Solutions, Inc.

GET

Solutions, Inc.

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COMPACTION TEST REPORT - Sheet 1 of 1

Project: White Hall Section 3 Date: 11/14/13
 Project Location: James City County, Virginia Technician: E. Batalon
 Client: HH Hunt Communities, Inc. Job Number: WM13-188T
 General Contractor: HH Hunt Communities, Inc. Weather: Clear Temp. (°F) 50's
 Grading Contractor: George Nice and Sons General Test Location: Sheldon Branch Place (SS#5-4 to SS#5-5)

Test Number	Moisture (%)	Dry Density (pcf)	Wet Density (pcf)	Proctor Number	% Proctor		Pass	Fail	Test Elevation*	Test Location (Grid, Coordinates, Roadway Station, etc.)
					Spec	Actual				
1	13.2	115.8	131.0	2	95	96	X		Subgrade	Sheldon Branch Place - Station 35+00
2	11.9	116.5	130.3	2	95	97	X		1.5' BSG	Sheldon Branch Place - Station 34+50
3	10.5	115.5	127.6	2	95	96	X		1.5' BSG	Sheldon Branch Place - Station 34+00
4	9.0	117.3	127.8	2	95	98	X		Subgrade	Sheldon Branch Place - Station 35+00
5	11.7	114.2	127.5	2	95	95	X		1' BSG	Sheldon Branch Place - Station 34+00

Compaction Equipment Used: Smooth Drum Roller
 Field Testing Procedure: ASTM D698
 Testing Depth: 8 inches
 Test Conducted on: Backfill over Storm Sewer

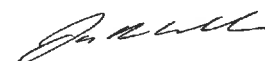
Proctor Number: 2
 Proctor Type: ASTM D698
 Material Description: SAND (SM)
 Max. Dry Density (pcf): 120.1
 Optimum Moisture (%): 11.2%

Remarks: _____

Test locations and test elevations are approximate and are established in the field by the GET Solutions, Inc. technician.

* Note: BFF = Below Finish Floor, BFG = Below Finish Grade, FG = Finished Grade, BSG = Below Subgrade

Reviewed By:



J. Wheeler
G E T Solutions, Inc.

GET

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COMPACTION TEST REPORT - Sheet 1 of 1

Project: White Hall Section 3 Date: 11/15/13
 Project Location: James City County, Virginia Technician: E. Batalon
 Client: HH Hunt Communities, Inc. Job Number: WM13-188T
 General Contractor: HH Hunt Communities, Inc. Weather: Clear Temp. (°F) 60's
 Grading Contractor: George Nice and Sons General Test Location: Sheldon Branch Place (Around Structure SS#5-5)

Test Number	Moisture (%)	Dry Density (pcf)	Wet Density (pcf)	Proctor Number	% Proctor		Pass	Fail	Test Elevation*	Test Location (Grid, Coordinates, Roadway Station, etc.)
					Spec	Actual				
1	10.6	115.3	127.5	2	95	96	X		1' BSG	See Attached Sketch, Page 2 of 2, Figure 1
2	10.2	117.5	129.4	2	95	98	X		1' BSG	See Attached Sketch, Page 2 of 2, Figure 1
3	11.1	115.8	128.6	2	95	96	X		Subgrade	See Attached Sketch, Page 2 of 2, Figure 1
4	10.8	116.3	128.8	2	95	97	X		Subgrade	See Attached Sketch, Page 2 of 2, Figure 1

Compaction Equipment Used: Smooth Drum Roller
 Field Testing Procedure: ASTM D698
 Testing Depth: 8 inches
 Test Conducted on: Backfill around Storm Sewer Structure

Proctor Number: 2
 Proctor Type: ASTM D698
 Material Description: SAND (SM)
 Max. Dry Density (pcf): 120.1
 Optimum Moisture (%): 11.2%

Remarks: _____

Test locations and test elevations are approximate and are established in the field by the GET Solutions, Inc. technician.

* Note: BFF = Below Finish Floor, BFG = Below Finish Grade, FG = Finished Grade, BSG = Below Subgrade

Reviewed By:



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G E T Solutions, Inc.



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COMPACTION TEST REPORT - Sheet 1 of 1

Project: White Hall Section 3 Date: 11/16/13
Project Location: James City County, Virginia Technician: E. Batalon
Client: HH Hunt Communities, Inc. Job Number: WM13-188T
General Contractor: HH Hunt Communities, Inc. Weather: Overcast Temp. (°F) 60's
Grading Contractor: George Nice and Sons General Test Location: Alley 3 (Between SS#4-29 to #5-2)

Test Number	Moisture (%)	Dry Density (pcf)	Wet Density (pcf)	Proctor Number	% Proctor		Pass	Fail	Test Elevation*	Test Location (Grid, Coordinates, Roadway Station, etc.)
					Spec	Actual				
1	13.0	115.1	130.1	3	95	99	X		1' BSG	Alley 3 - Station 13+50
2	12.6	116.3	130.9	3	95	100	X		Subgrade	Alley 3 - Station 13+50
3	10.5	115.5	127.6	3	95	99	X		1' BSG	Alley 3 - Station 12+50
4	11.6	115.4	128.7	3	95	99	X		Subgrade	Alley 3 - Station 12+50

Compaction Equipment Used: Smooth Drum Roller
Field Testing Procedure: ASTM D698
Testing Depth: 6 inches
Test Conducted on: Backfill over Storm Sewer

Proctor Number: 3
Proctor Type: ASTM D698
Material Description: SAND (SM)
Max. Dry Density (pcf): 116.2
Optimum Moisture (%): 13.0%

Remarks: _____

Test locations and test elevations are approximate and are established in the field by the GET Solutions, Inc. technician.

* Note: BFF = Below Finish Floor, BFG = Below Finish Grade, FG = Finished Grade, BSG = Below Subgrade

Reviewed By:

J. Wheeler
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Williamsburg, Virginia 23185

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COMPACTION TEST REPORT - Sheet 1 of 1

Project: White Hall Section 3 Date: 11/20/13
 Project Location: James City County, Virginia Technician: E. Batalon
 Client: HH Hunt Communities, Inc. Job Number: WM13-188T
 General Contractor: HH Hunt Communities, Inc. Weather: Overcast Temp. (°F) 50's
 Grading Contractor: George Nice and Sons General Test Location: Sheldon Branch Place (Exist. MH#42 to MH#3-2)

Test Number	Moisture (%)	Dry Density (pcf)	Wet Density (pcf)	Proctor Number	% Proctor		Pass	Fail	Test Elevation*	Test Location (Grid, Coordinates, Roadway Station, etc.)
					Spec	Actual				
1	12.0	112.0	125.4	3	95	96	X		3' BSG	Sheldon Branch Place - Station 36+50
2	13.7	111.8	127.1	3	95	96	X		3' BSG	Sheldon Branch Place - Station 37+00
3	12.6	112.7	126.9	3	95	97	X		2' BSG	Sheldon Branch Place - Station 36+50
4	10.6	112.5	124.4	3	95	97	X		2' BSG	Sheldon Branch Place - Station 37+00
5	14.3	113.6	129.0	3	95	98	X		1' BSG	Sheldon Branch Place - Station 36+50
6	13.2	112.8	127.6	3	95	97	X		Subgrade	Sheldon Branch Place - Station 37+00

Compaction Equipment Used: Smooth Drum Roller
 Field Testing Procedure: ASTM D698
 Testing Depth: 6 inches
 Test Conducted on: Backfill over Sanitary Sewer

Proctor Number: 3
 Proctor Type: ASTM D698
 Material Description: SAND (SM)
 Max. Dry Density (pcf): 116.2
 Optimum Moisture (%): 13.0%

Remarks: _____

Test locations and test elevations are approximate and are established in the field by the GET Solutions, Inc. technician.

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COMPACTION TEST REPORT - Sheet 1 of 1

Project:	White Hall Section 3	Date:	11/21/13
Project Location:	James City County, Virginia	Technician:	T. Sabbah
Client:	HH Hunt Communities, Inc.	Job Number:	WM13-188T
General Contractor:	HH Hunt Communities, Inc.	Weather:	Cloudy Temp. (°F) 40-50's
Grading Contractor:	George Nice and Sons	General Test Location:	Sheldon Branch Place (Exist. MH#42 to MH#3-2)

Test Number	Moisture (%)	Dry Density (pcf)	Wet Density (pcf)	Proctor Number	% Proctor		Pass	Fail	Test Elevation*	Test Location (Grid, Coordinates, Roadway Station, etc.)
					Spec	Actual				
1	11.0	113.8	126.3	3	95	98	X		Subgrade	Sheldon Branch Place - Station 36+50
2	10.9	112.9	125.2	3	95	97	X		Subgrade	Sheldon Branch Place - Station 36+75
3	12.1	113.9	127.6	3	95	98	X		2' BSG	Sheldon Branch Place - Station 36+00
4	11.6	114.0	127.2	3	95	98	X		3' BSG	Sheldon Branch Place - Station 35+50
5	12.2	114.0	127.9	3	95	98	X		2' BSG	Sheldon Branch Place - Station 35+50
6	12.3	115.3	129.4	3	95	99	X		1' BSG	Sheldon Branch Place - Station 36+00
7	12.5	113.8	128.0	3	95	98	X		Subgrade	Sheldon Branch Place - Station 35+50
8	12.2	113.6	127.4	3	95	98	X		Subgrade	Sheldon Branch Place - Station 36+00

Compaction Equipment Used: Smooth Drum Roller

Field Testing Procedure: ASTM D698

Testing Depth: 12 inches

Test Conducted on: Backfill over Sanitary Sewer

Proctor Number: 3

Proctor Type: ASTM D698

Material Description: SAND (SM)

Max. Dry Density (pcf): 116.2

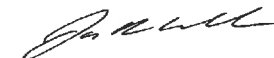
Optimum Moisture (%): 13.0%

Remarks: _____

Test locations and test elevations are approximate and are established in the field by the GET Solutions, Inc. technician.

* Note: BFF = Below Finish Floor, BFG = Below Finish Grade, FG = Finished Grade, BSG = Below Subgrade

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COMPACTION TEST REPORT - Sheet 1 of 1

Project:	White Hall Section 3	Date:	11/23/13
Project Location:	James City County, Virginia	Technician:	E. Batalon
Client:	HH Hunt Communities, Inc.	Job Number:	WM13-188T
General Contractor:	HH Hunt Communities, Inc.	Weather:	Overcast Temp. (°F) 50's
Grading Contractor:	George Nice and Sons	General Test Location:	Sheldon Branch Place (Exist. MH#3-1 to MH#3-2)

Test Number	Moisture (%)	Dry Density (pcf)	Wet Density (pcf)	Proctor Number	% Proctor		Pass	Fail	Test Elevation*	Test Location (Grid, Coordinates, Roadway Station, etc.)
					Spec	Actual				
1	11.6	113.6	126.7	3	95	98	X		2' BSG	See Attached Sketch, Page 2 of 2, Figure 1
2	12.5	112.8	126.9	3	95	97	X		1' BSG	See Attached Sketch, Page 2 of 2, Figure 1
3	13.2	113.0	127.9	3	95	97	X		Subgrade	See Attached Sketch, Page 2 of 2, Figure 1

Compaction Equipment Used: Smooth Drum Roller

Field Testing Procedure: ASTM D698

Testing Depth: 8 inches

Test Conducted on: Backfill over Sanitary Sewer

Proctor Number: 3

Proctor Type: ASTM D698

Material Description: SAND (SM)

Max. Dry Density (pcf): 116.2

Optimum Moisture (%): 13.0%

Remarks:

Test locations and test elevations are approximate and are established in the field by the GET Solutions, Inc. technician.

* Note: BFF = Below Finish Floor, BFG = Below Finish Grade, FG = Finished Grade, BSG = Below Subgrade

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COMPACTION TEST REPORT - Sheet 1 of 1

Project:	White Hall Section 3	Date:	12/13/13
Project Location:	Toano, Virginia	Technician:	E. Batalon
Client:	HH Hunt Communities, Inc.	Job Number:	WM13-188T
General Contractor:	HH Hunt Communities, Inc.	Weather:	Clear Temp. (°F) 50's
Grading Contractor:	George Nice and Sons	General Test Location:	Sheldon Branch Place (Between SS 5-5 & 5-6)

Test Number	Moisture (%)	Dry Density (pcf)	Wet Density (pcf)	Proctor Number	% Proctor		Pass	Fail	Test Elevation*	Test Location (Grid, Coordinates, Roadway Station, etc.)
					Spec	Actual				
1	13.6	106.5	120.9	1	95	100	X		3' BSG	Sheldon Brance Place - Station 33+15
2	12.8	104.8	118.2	1	95	99	X		3' BSG	Sheldon Brance Place - Station 33+15

Compaction Equipment Used: Plate Tamper

Field Testing Procedure: ASTM D698

Testing Depth: 6 inches

Test Conducted on: Backfill over Storm Sewer

Proctor Number: 1

Proctor Type: ASTM D698

Material Description: SAND (SM)

Max. Dry Density (pcf): 106.2

Optimum Moisture (%): 14.1%

Remarks: _____

Test locations and test elevations are approximate and are established in the field by the GET Solutions, Inc. technician.

* Note: BFF = Below Finish Floor, BFG = Below Finish Grade, FG = Finished Grade, BSG = Below Subgrade

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COMPACTION TEST REPORT - Sheet 1 of 1

Project: White Hall Section 3 Date: 12/18/13
Project Location: Toano, Virginia Technician: E. Batalon
Client: HH Hunt Communities, Inc. Job Number: WM13-188T
General Contractor: HH Hunt Communities, Inc. Weather: Clear Temp. (°F) 60's
Grading Contractor: George Nice and Sons General Test Location: Sheldon Branch Place (Between SS 5-7 & 5-8)

Test Number	Moisture (%)	Dry Density (pcf)	Wet Density (pcf)	Proctor Number	% Proctor		Pass	Fail	Test Elevation*	Test Location (Grid, Coordinates, Roadway Station, etc.)
					Spec	Actual				
1	10.6	106.5	117.7	1	95	100	X		2' BSG	Sheldon Brance Place - Station 32+20
2	9.5	108.8	119.1	1	95	102	X		2' BSG	Sheldon Brance Place - Station 32+60
3	12.5	105.3	118.4	1	95	99	X		6" BSG	Sheldon Brance Place - Station 32+20
4	11.7	106.2	118.6	1	95	100	X		6" BSG	Sheldon Brance Place - Station 32+60

Compaction Equipment Used: Plate Tamper
Field Testing Procedure: ASTM D698
Testing Depth: 8 inches
Test Conducted on: Backfill over Storm Sewer and around Structures

Proctor Number: 1
Proctor Type: ASTM D698
Material Description: SAND (SM)
Max. Dry Density (pcf): 106.2
Optimum Moisture (%): 14.1%

Remarks:

Test locations and test elevations are approximate and are established in the field by the GET Solutions, Inc. technician.

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COMPACTION TEST REPORT - Sheet 1 of 1

Project:	White Hall Section 3	Date:	12/19/13
Project Location:	Toano, Virginia	Technician:	E. Batalon
Client:	HH Hunt Communities, Inc.	Job Number:	WM13-188T
General Contractor:	HH Hunt Communities, Inc.	Weather:	Clear Temp. (°F) 60's
Grading Contractor:	George Nice and Sons	General Test Location:	Sheldon Branch Place (Between SS 5.8 & 5.9)

Test Number	Moisture (%)	Dry Density (pcf)	Wet Density (pcf)	Proctor Number	% Proctor		Pass	Fail	Test Elevation*	Test Location (Grid, Coordinates, Roadway Station, etc.)
					Spec	Actual				
1	12.2	107.3	120.3	1	95	101	X		2' BSG	Sheldon Brance Place - Station 32+00
2	10.0	106.7	117.4	1	95	100	X		1' BSG	Sheldon Brance Place - Station 32+00

Compaction Equipment Used: Plate Tamper

Field Testing Procedure: ASTM D698

Testing Depth: 8 inches

Test Conducted on: Backfill over Storm Sewer

Proctor Number: 1

Proctor Type: ASTM D698

Material Description: SAND (SM)

Max. Dry Density (pcf): 106.2

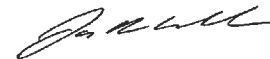
Optimum Moisture (%): 14.1%

Remarks: _____

Test locations and test elevations are approximate and are established in the field by the GET Solutions, Inc. technician.

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Reviewed By:



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COMPACTION TEST REPORT - Sheet 1 of 2

Project:	White Hall Section 3	Date:	12/20/13
Project Location:	Toano, Virginia	Technician:	T. Sabbah
Client:	HH Hunt Communities, Inc.	Job Number:	WM13-188T
General Contractor:	HH Hunt Communities, Inc.	Weather:	Clear Temp. (°F) 70's
Grading Contractor:	George Nice and Sons	General Test Location:	Sheldon Branch Place - Sanitary Sewer

Test Number	Moisture (%)	Dry Density (pcf)	Wet Density (pcf)	Proctor Number	% Proctor		Pass	Fail	Test Elevation*	Test Location (Grid, Coordinates, Roadway Station, etc.)
					Spec	Actual				
1	9.8	117.7	129.2	2	95	98	X		7' BFG	Between Existing Structure 2-3 to 3-3 (See Attached Sketch)
2	9.5	118.4	129.6	2	95	99	X		6' BFG	Between Existing Structure 2-3 to 3-3 (See Attached Sketch)
3	10.0	119.5	131.4	2	95	100	X		5' BFG	Between Existing Structure 2-3 to 3-3 (See Attached Sketch)
4	10.1	119.3	131.3	2	95	99	X		4' BFG	Between Existing Structure 2-3 to 3-3 (See Attached Sketch)
5	9.9	118.7	130.4	2	95	99	X		3' BFG	Between Existing Structure 2-3 to 3-3 (See Attached Sketch)
6	9.9	118.8	130.5	2	95	99	X		2' BFG	Between Existing Structure 2-3 to 3-3 (See Attached Sketch)
7	10.2	120.0	132.2	2	95	100	X		1' BFG	Between Existing Structure 2-3 to 3-3 (See Attached Sketch)

Compaction Equipment Used: Vibratory Roller
 Field Testing Procedure: ASTM D698
 Testing Depth: 12 inches
 Test Conducted on: Backfill over 8" Ductile Iron Sewer Main

Proctor Number: 2
 Proctor Type: ASTM D698
 Material Description: SAND (SM)
 Max. Dry Density (pcf): 120.1
 Optimum Moisture (%): 11.2%

Remarks: _____

Test locations and test elevations are approximate and are established in the field by the GET Solutions, Inc. technician.

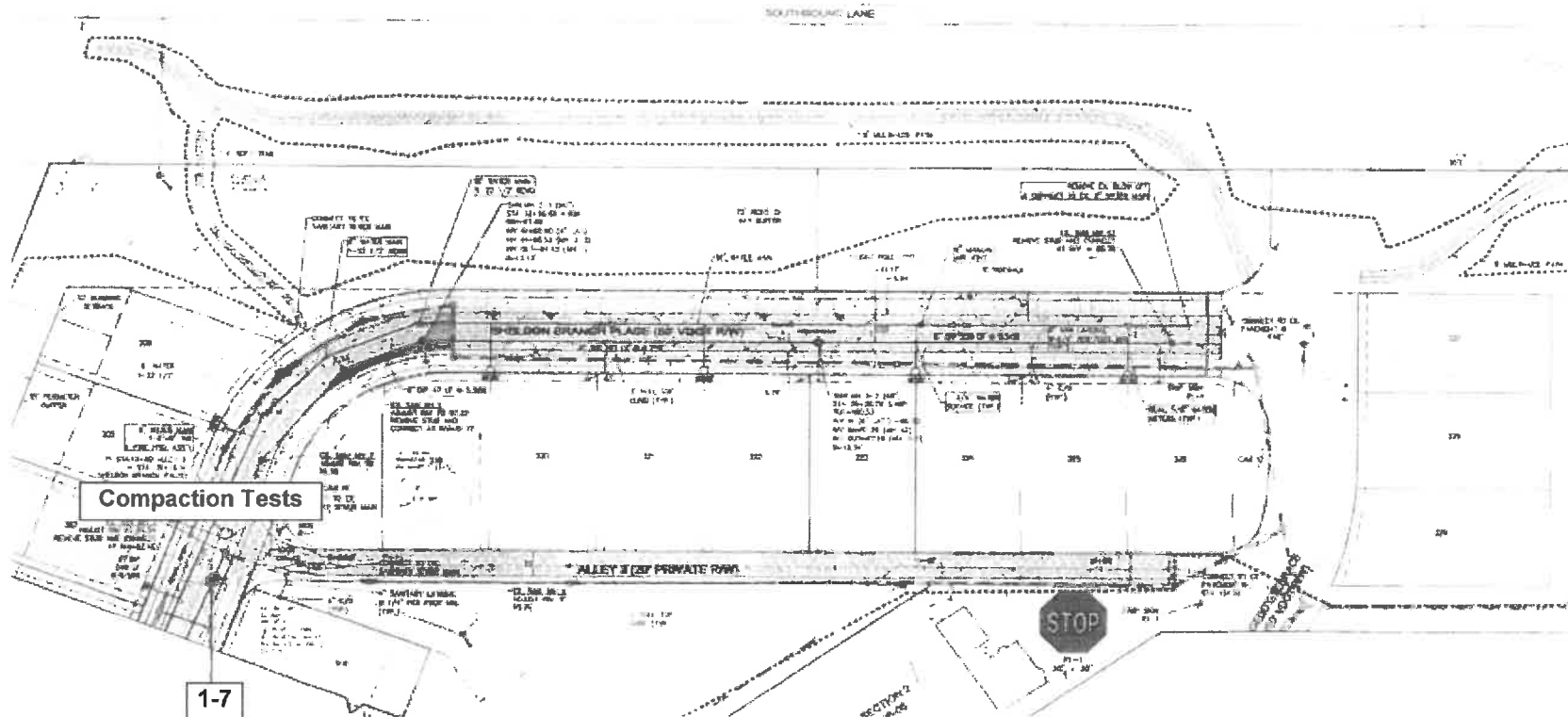
* Note: BFF = Below Finish Floor, BFG = Below Finish Grade, FG = Finished Grade, BSG = Below Subgrade

Reviewed By:

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G E T Solutions, Inc.

COMPACTION TEST REPORT - Sheet 2 of 2

Figure 1



Locations are approximate

LOCATION SKETCH

PROJECT: White Hall Section 3
James City County, Virginia
PROJECT NO: WM13-188T
CLIENT: HH Hunt Communities, Inc.

SCALE: NTS
DATE: 12/20/2013
PLOT BY: TS

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COMPACTION TEST REPORT - Sheet 1 of 2

Project:	White Hall Section 3	Date:	12/21/13
Project Location:	Toano, Virginia	Technician:	T. Sabbah
Client:	HH Hunt Communities, Inc.	Job Number:	WM13-188T
General Contractor:	HH Hunt Communities, Inc.	Weather:	Clear Temp. (°F) 60's
Grading Contractor:	George Nice and Sons	General Test Location:	Sheldon Branch Place - Sanitary Sewer

Test Number	Moisture (%)	Dry Density (pcf)	Wet Density (pcf)	Proctor Number	% Proctor		Pass	Fail	Test Elevation*	Test Location (Grid, Coordinates, Roadway Station, etc.)
					Spec	Actual				
1	10.0	115.4	126.9	2	95	96	X		7' BFG	Between Existing Structure 2-3 to 3-3 (See Attached Sketch)
2	9.4	116.0	126.9	2	95	97	X		5' BFG	Between Existing Structure 2-3 to 3-3 (See Attached Sketch)
3	11.1	118.7	131.8	2	95	99	X		3' BFG	Between Existing Structure 2-3 to 3-3 (See Attached Sketch)
4	11.0	120.0	133.2	2	95	100	X		1' BFG	Between Existing Structure 2-3 to 3-3 (See Attached Sketch)

Compaction Equipment Used:	Smooth Drum Roller	Proctor Number:	2
Field Testing Procedure:	ASTM D698	Proctor Type:	ASTM D698
Testing Depth:	12 inches	Material Description:	SAND (SM)
Test Conducted on:	Backfill over 8" Ductile Iron Sewer Main	Max. Dry Density (pcf):	120.1
		Optimum Moisture (%):	11.2%

Remarks: _____

Test locations and test elevations are approximate and are established in the field by the GET Solutions, Inc. technician.

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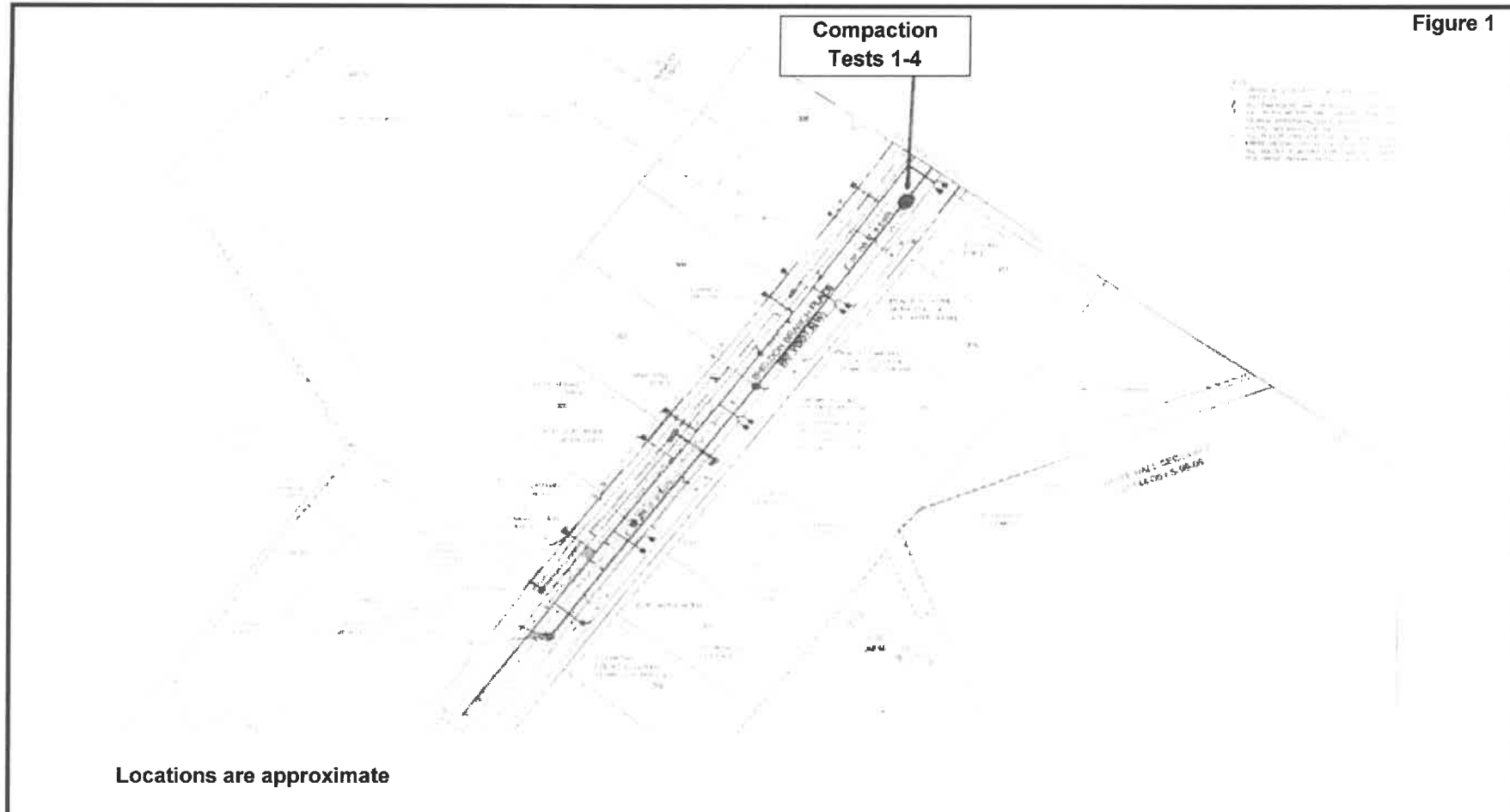
Reviewed By:



J. Wheeler

G E T Solutions, Inc.

COMPACTION TEST REPORT - Sheet 2 of 2



LOCATION SKETCH

PROJECT: White Hall Section 3
James City County, Virginia
PROJECT NO: WM13-188T
CLIENT: HH Hunt Communities, Inc.

SCALE: NTS
DATE: 12/21/2013
PLOT BY: TS



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COMPACTION TEST REPORT - Sheet 1 of 1

Project:	White Hall Section 3	Date:	12/27/13
Project Location:	Toano, Virginia	Technician:	E. Batalon
Client:	HH Hunt Communities, Inc.	Job Number:	WM13-188T
General Contractor:	HH Hunt Communities, Inc.	Weather:	Clear Temp. (°F) 50's
Grading Contractor:	George Nice and Sons	General Test Location:	Sheldon Branch Place (Betw. Exist. MH 3 & 3-3)

Test Number	Moisture (%)	Dry Density (pcf)	Wet Density (pcf)	Proctor Number	% Proctor		Pass	Fail	Test Elevation*	Test Location (Grid, Coordinates, Roadway Station, etc.)
					Spec	Actual				
1	13.6	110.0	124.9	3	95	95	X		1' BSG	Sheldon Branch Place - Station 31+00
2	12.8	109.7	123.7	1	95	100+	X		3' BSG	Sheldon Branch Place - Station 30+00
3	12.6	107.5	121.0	1	95	100+	X		Subgrade	Sheldon Branch Place - Station 29+00
4	13.3	108.8	123.3	1	95	100	X		Subgrade	Sheldon Branch Place - Station 30+50

Compaction Equipment Used: Smooth Drum Roller

Field Testing Procedure: ASTM D698

Testing Depth: 6 inches

Test Conducted on: Backfill over Sanitary Sewer

Proctor Number:	1	3
Proctor Type:	ASTM D698	
Material Description:	SAND (SM)	SAND (SM)
Max. Dry Density (pcf):	106.2	116.2
Optimum Moisture (%):	14.1%	13.0%

Remarks:

Test locations and test elevations are approximate and are established in the field by the GET Solutions, Inc. technician.

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COMPACTION TEST REPORT - Sheet 1 of 1

Project:	White Hall Section 3	Date:	12/30/13
Project Location:	Toano, Virginia	Technician:	A. Libby
Client:	HH Hunt Communities, Inc.	Job Number:	WM13-188T
General Contractor:	HH Hunt Communities, Inc.	Weather:	Cloudy Temp. (°F) 40's
Grading Contractor:	George Nice and Sons	General Test Location:	Sheldon Branch Place (Betw. SS 3-3 and 3-4)

Test Number	Moisture (%)	Dry Density (pcf)	Wet Density (pcf)	Proctor Number	% Proctor		Pass	Fail	Test Elevation*	Test Location (Grid, Coordinates, Roadway Station, etc.)
					Spec	Actual				
1	13.2	112.0	126.7	3	95	96	X		4' BSG	Sheldon Branch Place - Station 27+50
2	10.6	114.4	126.6	3	95	98	X		3' BSG	Sheldon Branch Place - Station 27+50
3	10.4	116.7	128.9	3	95	100	X		2' BSG	Sheldon Branch Place - Station 27+50
4	11.2	112.1	124.6	3	95	96	X		1' BSG	Sheldon Branch Place - Station 27+50
5	9.8	112.7	123.8	3	95	97	X		12' BSG	Sheldon Branch Place - Station 27+50
6	10.5	110.3	122.3	3	95	95	X		11' BSG	Sheldon Branch Place - Station 27+50
7	11.5	110.5	122.0	3	95	95	X		10' BSG	Sheldon Branch Place - Station 27+50

Compaction Equipment Used: Smooth Drum Roller

Field Testing Procedure: ASTM D698

Testing Depth: 12 inches

Test Conducted on: Backfill over Sanitary Sewer

Proctor Number: 3

Proctor Type: ASTM D698

Material Description: SAND (SM)

Max. Dry Density (pcf): 116.2

Optimum Moisture (%): 13.0%

Remarks: _____

Test locations and test elevations are approximate and are established in the field by the GET Solutions, Inc. technician.

* Note: BFF = Below Finish Floor, BFG = Below Finish Grade, FG = Finished Grade, BSG = Below Subgrade

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COMPACTION TEST REPORT - Sheet 1 of 1

Project:	White Hall Section 3	Date:	12/31/13
Project Location:	Toano, Virginia	Technician:	A. Libby
Client:	HH Hunt Communities, Inc.	Job Number:	WM13-188T
General Contractor:	HH Hunt Communities, Inc.	Weather:	Sunny Temp. (°F) 40's
Grading Contractor:	George Nice and Sons	General Test Location:	Sheldon Branch Place (Betw. SS 3-3 and 3-4)

Test Number	Moisture (%)	Dry Density (pcf)	Wet Density (pcf)	Proctor Number	% Proctor		Pass	Fail	Test Elevation*	Test Location (Grid, Coordinates, Roadway Station, etc.)
					Spec	Actual				
1	13.9	110.5	125.4	3	95	95	X		9' BSG	Sheldon Branch Place - Station 26+70
2	11.7	110.4	123.3	3	95	95	X		8' BSG	Sheldon Branch Place - Station 26+70
3	10.2	110.5	121.7	3	95	95	X		7' BSG	Sheldon Branch Place - Station 26+70
4	9.7	112.7	123.5	3	95	97	X		6' BSG	Sheldon Branch Place - Station 26+70
5	11.2	112.3	124.9	3	95	97	X		5' BSG	Sheldon Branch Place - Station 26+70
6	10.0	112.6	123.9	3	95	97	X		4' BSG	Sheldon Branch Place - Station 26+70

Compaction Equipment Used: Smooth Drum Roller

Field Testing Procedure: ASTM D698

Testing Depth: 12 inches

Test Conducted on: Backfill over Sanitary Sewer

Proctor Number: 3

Proctor Type: ASTM D698

Material Description: SAND (SM)

Max. Dry Density (pcf): 116.2

Optimum Moisture (%): 13.0%

Remarks: _____

Test locations and test elevations are approximate and are established in the field by the GET Solutions, Inc. technician.

* Note: BFF = Below Finish Floor, BFG = Below Finish Grade, FG = Finished Grade, BSG = Below Subgrade

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COMPACTION TEST REPORT - Sheet 1 of 1

Project:	White Hall Section 3	Date:	1/2/14
Project Location:	Toano, Virginia	Technician:	E. Batalon
Client:	HH Hunt Communities, Inc.	Job Number:	WM13-188T
General Contractor:	HH Hunt Communities, Inc.	Weather:	Overcast Temp. (°F) 40's
Grading Contractor:	George Nice and Sons	General Test Location:	Sheldon Branch Place (Between SS#3-3 & #3-4)

Test Number	Moisture (%)	Dry Density (pcf)	Wet Density (pcf)	Proctor Number	% Proctor		Pass	Fail	Test Elevation*	Test Location (Grid, Coordinates, Roadway Station, etc.)
					Spec	Actual				
1	10.6	108.3	119.7	1	95	102	X		Subgrade	Sheldon Branch Place - Station 27+00
2	12.4	109.9	123.5	1	95	103	X		Subgrade	Sheldon Branch Place - Station 27+50
3	11.7	108.6	121.3	1	95	102	X		Subgrade	Sheldon Branch Place - Station 28+00

Compaction Equipment Used: Smooth Drum Roller

Field Testing Procedure: ASTM D698

Testing Depth: 12 inches

Test Conducted on: Backfill over Sanitary Sewer

Proctor Number: 1

Proctor Type: ASTM D698

Material Description: SILTY SAND (SM)

Max. Dry Density (pcf): 106.2

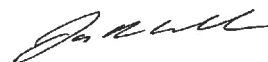
Optimum Moisture (%): 14.1%

Remarks: _____

Test locations and test elevations are approximate and are established in the field by the GET Solutions, Inc. technician.

* Note: BFF = Below Finish Floor, BFG = Below Finish Grade, FG = Finished Grade, BSG = Below Subgrade

Reviewed By:



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COMPACTION TEST REPORT - Sheet 1 of 1

Project: White Hall Section 3 Date: 1/3/14
Project Location: Toano, Virginia Technician: E. Batalon
Client: HH Hunt Communities, Inc. Job Number: WM13-188T
General Contractor: HH Hunt Communities, Inc. Weather: Clear Temp. (°F) 30's
Grading Contractor: George Nice and Sons General Test Location: Sheldon Branch Place - Waterline

Test Number	Moisture (%)	Dry Density (pcf)	Wet Density (pcf)	Proctor Number	% Proctor		Pass	Fail	Test Elevation*	Test Location (Grid, Coordinates, Roadway Station, etc.)
					Spec	Actual				
1	11.4	110.5	123.0	3	95	95	X		Subgrade	Sheldon Branch Place - Station 34+50
2	12.1	110.7	124.1	3	95	95	X		Subgrade	Sheldon Branch Place - Station 35+00

Compaction Equipment Used: Plate Tamper
Field Testing Procedure: ASTM D698
Testing Depth: 6 inches
Test Conducted on: Backfill over 8" Waterline

Proctor Number: 3
Proctor Type: ASTM D698
Material Description: SILTY SAND (SM)
Max. Dry Density (pcf): 116.2
Optimum Moisture (%): 13.0%

Remarks: _____

Test locations and test elevations are approximate and are established in the field by the GET Solutions, Inc. technician.

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COMPACTION TEST REPORT - Sheet 1 of 1

Project:	White Hall Section 3	Date:	1/3/14
Project Location:	Toano, Virginia	Technician:	T. Sabbah
Client:	HH Hunt Communities, Inc.	Job Number:	WM13-188T
General Contractor:	HH Hunt Communities, Inc.	Weather:	Clear Temp. (°F) 20's
Grading Contractor:	George Nice and Sons	General Test Location:	Sheldon Branch Place - Waterline

Test Number	Moisture (%)	Dry Density (pcf)	Wet Density (pcf)	Proctor Number	% Proctor		Pass	Fail	Test Elevation*	Test Location (Grid, Coordinates, Roadway Station, etc.)
					Spec	Actual				
1	11.5	111.7	124.5	3	95	96	X		Subgrade	Sheldon Branch Place - Station 36+00
2	11.0	111.4	123.6	3	95	96	X		Subgrade	Sheldon Branch Place - Station 36+50
3	12.0	112.0	125.4	3	95	96	X		Subgrade	Sheldon Branch Place - Station 37+00

Compaction Equipment Used:	Plate Compactor	Proctor Number:	3
Field Testing Procedure:	ASTM D698	Proctor Type:	ASTM D698
Testing Depth:	12 inches	Material Description:	SILTY SAND (SM)
Test Conducted on:	Backfill over 8" Water Line	Max. Dry Density (pcf):	116.2
		Optimum Moisture (%):	13.0%

Remarks: _____

Test locations and test elevations are approximate and are established in the field by the GET Solutions, Inc. technician.

* Note: BFF = Below Finish Floor, BFG = Below Finish Grade, FG = Finished Grade, BSG = Below Subgrade

Reviewed By:

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COMPACTION TEST REPORT - Sheet 1 of 1

Project: White Hall Section 3 Date: 1/4/14
Project Location: Toano, Virginia Technician: E. Batalon
Client: HH Hunt Communities, Inc. Job Number: WM13-188T
General Contractor: HH Hunt Communities, Inc. Weather: Clear Temp. (°F) 20's
Grading Contractor: George Nice and Sons General Test Location: Sheldon Branch Place (Between DI 5-11 & 5-12)

Test Number	Moisture (%)	Dry Density (pcf)	Wet Density (pcf)	Proctor Number	% Proctor		Pass	Fail	Test Elevation*	Test Location (Grid, Coordinates, Roadway Station, etc.)
					Spec	Actual				
1	10.8	110.6	122.5	3	95	95	X		Subgrade	Sheldon Branch Place - Station 28+25
2	11.0	109.9	121.9	3	95	95	X		Subgrade	Sheldon Branch Place - Station 29+00

Compaction Equipment Used: Smooth Drum Roller
Field Testing Procedure: ASTM D698
Testing Depth: 6 inches
Test Conducted on: Backfill over Storm Sewer

Proctor Number: 3
Proctor Type: ASTM D698
Material Description: SILTY SAND (SM)
Max. Dry Density (pcf): 116.2
Optimum Moisture (%): 13.0%

Remarks: _____

Test locations and test elevations are approximate and are established in the field by the GET Solutions, Inc. technician.

* Note: BFF = Below Finish Floor, BFG = Below Finish Grade, FG = Finished Grade, BSG = Below Subgrade

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COMPACTION TEST REPORT - Sheet 1 of 1

Project:	White Hall Section 3	Date:	1/7/14
Project Location:	Toano, Virginia	Technician:	E. Batalon
Client:	HH Hunt Communities, Inc.	Job Number:	WM13-188T
General Contractor:	HH Hunt Communities, Inc.	Weather:	Clear Temp. (°F) 12°
Grading Contractor:	George Nice and Sons	General Test Location:	Sheldon Branch Place

Test Number	Moisture (%)	Dry Density (pcf)	Wet Density (pcf)	Proctor Number	% Proctor		Pass	Fail	Test Elevation*	Test Location (Grid, Coordinates, Roadway Station, etc.)
					Spec	Actual				
1	12.6	107.5	121.0	3	95	101	X		Subgrade	Waterline - Station 32+75
2	12.1	108.0	121.1	3	95	102	X		Subgrade	Waterline - Station 32+50
3	13.6	106.9	121.4	3	95	101	X		Subgrade	Waterline - Station 32+25
4	11.8	106.5	119.1	3	95	100	X		Subgrade	Waterline - Station 32+00
5	12.0	107.7	120.6	3	95	101	X		Subgrade	Storm Sewer next to SS #5-13 - Station 27+20
6	11.5	107.0	119.3	3	95	101	X		Subgrade	Storm Sewer next to SS #5-13 - Station 27+20

Compaction Equipment Used: Plate Tamper

Field Testing Procedure: ASTM D698

Testing Depth: 6 inches

Test Conducted on: Backfill over Waterline and Storm Sewer

Proctor Number: 1

Proctor Type: ASTM D698

Material Description: SAND (SM)

Max. Dry Density (pcf): 106.2

Optimum Moisture (%): 14.1%

Remarks: _____

Test locations and test elevations are approximate and are established in the field by the GET Solutions, Inc. technician.

* Note: BFF = Below Finish Floor, BFG = Below Finish Grade, FG = Finished Grade, BSG = Below Subgrade

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COMPACTION TEST REPORT - Sheet 1 of 1

Project:	White Hall Section 3	Date:	1/8/14
Project Location:	Toano, Virginia	Technician:	J. Wagner
Client:	HH Hunt Communities, Inc.	Job Number:	WM13-188T
General Contractor:	HH Hunt Communities, Inc.	Weather:	Sunny Temp. (°F) 20-30's
Grading Contractor:	George Nice and Sons	General Test Location:	Sheldon Branch Place

Test Number	Moisture (%)	Dry Density (pcf)	Wet Density (pcf)	Proctor Number	% Proctor		Pass	Fail	Test Elevation*	Test Location (Grid, Coordinates, Roadway Station, etc.)
					Spec	Actual				
1	10.0	107.7	118.4	1	95	101	X		Subgrade	Waterline - Sheldon Branch Place - Station 31+25
2	9.1	105.1	114.7	1	95	99	X		Subgrade	Waterline - Sheldon Branch Place - Station 30+00
3	10.9	107.1	118.7	1	95	101	X		Subgrade	Waterline - Sheldon Branch Place - Station 29+00
4	14.6	107.9	123.7	1	95	102	X		2' BSG	Waterline - Sheldon Branch Place - Station 28+50
5	17.4	108.7	127.6	1	95	102	X		1' BSG	Waterline - Sheldon Branch Place - Station 28+25
6	13.2	111.0	125.7	3	95	96	X		Subgrade	Waterline - Sheldon Branch Place - Station 28+00
7	10.5	106.8	118.0	1	95	101	X		Subgrade	Storm Sewer - Sheldon Branch Place - Station 30+60

Compaction Equipment Used: Pneumatic Compactor
 Field Testing Procedure: ASTM D698
 Testing Depth: 12 inches
 Test Conducted on: Backfill over Waterline and Storm Sewer

Proctor Number:	1	3
Proctor Type:	ASTM D698	
Material Description:	SAND (SM)	SAND (SM)
Max. Dry Density (pcf):	106.2	116.2
Optimum Moisture (%):	14.1%	13.0%

Remarks: _____

Test locations and test elevations are approximate and are established in the field by the GET Solutions, Inc. technician.

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COMPACTION TEST REPORT - Sheet 1 of 1

Project: White Hall Section 3 Date: 1/13/14
Project Location: Toano, Virginia Technician: E. Batalon
Client: HH Hunt Communities, Inc. Job Number: WM13-188T
General Contractor: HH Hunt Communities, Inc. Weather: Clear Temp. (°F) 50's
Grading Contractor: George Nice and Sons General Test Location: Sheldon Branch Place

Test Number	Moisture (%)	Dry Density (pcf)	Wet Density (pcf)	Proctor Number	% Proctor		Pass	Fail	Test Elevation*	Test Location (Grid, Coordinates, Roadway Station, etc.)
					Spec	Actual				
1	12.8	108.3	122.2	3	95	102	X		Subgrade	Electric Conduit Crossing - Station 27+50
2	13.7	107.0	121.7	3	95	101	X		Subgrade	Water Service - Station 26+75

Compaction Equipment Used: Smooth Drum Roller
Field Testing Procedure: ASTM D698
Testing Depth: 6 inches
Test Conducted on: Backfill over Various Utilities

Proctor Number: 1
Proctor Type: ASTM D698
Material Description: SAND (SM)
Max. Dry Density (pcf): 106.2
Optimum Moisture (%): 14.1%

Remarks: _____

Test locations and test elevations are approximate and are established in the field by the GET Solutions, Inc. technician.

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COMPACTION TEST REPORT - Sheet 1 of 1

Project: White Hall Section 3 Date: 1/20/14
Project Location: Toano, Virginia Technician: E. Batalon
Client: HH Hunt Communities, Inc. Job Number: WM13-188T
General Contractor: HH Hunt Communities, Inc. Weather: Clear Temp. (°F) 50's
Grading Contractor: George Nice and Sons General Test Location: Sheldon Branch Place

Test Number	Moisture (%)	Dry Density (pcf)	Wet Density (pcf)	Proctor Number	% Proctor		Pass	Fail	Test Elevation*	Test Location (Grid, Coordinates, Roadway Station, etc.)
					Spec	Actual				
1	10.9	104.8	116.2	3	95	99	X		Subgrade	Waterline - Station 33+75
2	11.4	104.5	116.4	3	95	98	X		Subgrade	Waterline - Station 34+75
3	12.6	106.2	119.6	3	95	100	X		Subgrade	Waterline - Station 35+75
4	9.5	107.6	117.8	3	95	101	X		Subgrade	Waterline - Station 36+75

Compaction Equipment Used: Smooth Drum Roller
Field Testing Procedure: ASTM D698
Testing Depth: 8 inches
Test Conducted on: Backfill over Waterline

Proctor Number: 1
Proctor Type: ASTM D698
Material Description: SAND (SM)
Max. Dry Density (pcf): 106.2
Optimum Moisture (%): 14.1%

Remarks: _____

Test locations and test elevations are approximate and are established in the field by the GET Solutions, Inc. technician.

* Note: BFF = Below Finish Floor, BFG = Below Finish Grade, FG = Finished Grade, BSG = Below Subgrade

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COMPACTION TEST REPORT - Sheet 1 of 1

Project:	White Hall Section 3	Date:	2/25/14
Project Location:	Toano, Virginia	Technician:	S. Freeman
Client:	HH Hunt Communities, Inc.	Job Number:	WM13-188T
General Contractor:	HH Hunt Communities, Inc.	Weather:	Sunny Temp. (°F) 50's
Grading Contractor:	George Nice and Sons	General Test Location:	Sheldon Branch Road

Test Number	Moisture (%)	Dry Density (pcf)	Wet Density (pcf)	Proctor Number	% Proctor		Pass	Fail	Test Elevation*	Test Location (Grid, Coordinates, Roadway Station, etc.)
					Spec	Actual				
1	8.8	115.7	125.9	2	100	96		X	Subgrade	Sheldon Branch Road - Station 26+00
2	9.3	116.2	127.0	2	100	97		X	Subgrade	Sheldon Branch Road - Station 27+00
3	9.6	118.9	130.3	2	100	99		X	Subgrade	Sheldon Branch Road - Station 28+00
4	12.3	120.6	135.4	2	100	100	X		Subgrade	Sheldon Branch Road - Station 29+00
5	9.1	121.0	132.0	2	100	101	X		Subgrade	Sheldon Branch Road - Station 30+00
6	9.4	117.4	128.4	2	100	98		X	Subgrade	Sheldon Branch Road - Station 31+00
7	11.2	117.9	131.1	2	100	98		X	Subgrade	Sheldon Branch Road - Station 32+00
8	10.4	115.8	127.8	2	100	96		X	Subgrade	Sheldon Branch Road - Station 33+00

Compaction Equipment Used: Smooth Drum Roller
Field Testing Procedure: ASTM D698
Testing Depth: 12 inches
Test Conducted on: Roadway Subgrade

Proctor Number: 2
Proctor Type: ASTM D698
Material Description: SAND (SM)
Max. Dry Density (pcf): 120.1
Optimum Moisture (%): 11.2%

Remarks: It should be noted that due to instabilities observed during the proofroll the previous day the areas not achieving 100% compaction were undercut and/or lined with geotextile fabric prior to aggregate base placement.

Test locations and test elevations are approximate and are established in the field by the GET Solutions, Inc. technician.

* Note: BFF = Below Finish Floor, BFG = Below Finish Grade, FG = Finished Grade, BSG = Below Subgrade

Reviewed By:

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COMPACTION TEST REPORT - Sheet 1 of 1

Project:	White Hall Section 3	Date:	2/26/14
Project Location:	Toano, Virginia	Technician:	S. Freeman
Client:	HH Hunt Communities, Inc.	Job Number:	WM13-188T
General Contractor:	HH Hunt Communities, Inc.	Weather:	Sunny Temp. (°F) 50's
Grading Contractor:	George Nice and Sons	General Test Location:	Sheldon Branch Road

Test Number	Moisture (%)	Dry Density (pcf)	Wet Density (pcf)	Proctor Number	% Proctor		Pass	Fail	Test Elevation*	Test Location (Grid, Coordinates, Roadway Station, etc.)
					Spec	Actual				
1	12.5	111.8	125.8	2	100	93		X	Subgrade	Sheldon Branch Road - Station 33+50
2	11.3	115.8	128.9	2	100	96		X	Subgrade	Sheldon Branch Road - Station 34+50
3	10.8	114.9	127.3	2	100	96		X	Subgrade	Sheldon Branch Road - Station 35+50
4	10.6	119.5	132.2	2	100	100	X		Subgrade	Sheldon Branch Road - Station 36+50
5	11.6	117.6	131.2	2	100	98		X	Subgrade	Sheldon Branch Road - Station 37+50

Compaction Equipment Used: Smooth Drum Roller

Field Testing Procedure: ASTM D698

Testing Depth: 12 inches

Test Conducted on: Roadway Subgrade

Proctor Number: 2

Proctor Type: ASTM D698

Material Description: SAND (SM)

Max. Dry Density (pcf): 120.1

Optimum Moisture (%): 11.2%

Remarks: It should be noted that due to instabilities observed during the proofroll the areas not achieving 100% compaction were undercut and/or lined with geotextile fabric prior to aggregate base placement.

Test locations and test elevations are approximate and are established in the field by the GET Solutions, Inc. technician.

* Note: BFF = Below Finish Floor, BFG = Below Finish Grade, FG = Finished Grade, BSG = Below Subgrade

Reviewed By:



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COMPACTION TEST REPORT - Sheet 1 of 2

Project:	White Hall Section 3	Date:	5/23/14
Project Location:	Toano, Virginia	Technician:	B. Sampe
Client:	HH Hunt Communities, Inc.	Job Number:	WM13-188T
General Contractor:	HH Hunt Communities, Inc.	Weather:	Sunny Temp. (°F) 80's
Grading Contractor:	George Nice and Sons	General Test Location:	Sheldon Branch Place

Test Number	Moisture (%)	Dry Density (pcf)	Wet Density (pcf)	Proctor Number	% Proctor		Pass	Fail	Test Elevation*	Test Location (Grid, Coordinates, Roadway Station, etc.)
					Spec	Actual				
1	3.8	136.3	141.5	11	100	100	X		4.5" BFG	Sheldon Branch Place - Station 26+00
2	3.9	136.7	142.0	11	100	100	X		4.5" BFG	Sheldon Branch Place - Station 27+00
3	4.2	136.1	141.8	11	100	100	X		4.5" BFG	Sheldon Branch Place - Station 28+00
4	3.7	135.7	140.7	11	100	100	X		4.5" BFG	Sheldon Branch Place - Station 29+00
5	3.2	137.6	142.0	11	100	101	X		4.5" BFG	Sheldon Branch Place - Station 30+00
6	4.8	136.0	142.5	11	100	100	X		4.5" BFG	Sheldon Branch Place - Station 31+00
7	4.6	136.3	142.6	11	100	100	X		4.5" BFG	Sheldon Branch Place - Station 32+00
8	3.0	137.7	141.8	11	100	101	X		4.5" BFG	Sheldon Branch Place - Station 33+00

Compaction Equipment Used: Vibratory Roller
 Field Testing Procedure: ASTM D698
 Testing Depth: 4 inches
 Test Conducted on: Roadway Aggregate Base

Proctor Number: 11 (WM08-130T)
 Proctor Type: ASTM D698
 Material Description: Crushed Stone Aggregate
 Max. Dry Density (pcf): 136.1
 Optimum Moisture (%): 6.7%

Remarks: _____

Test locations and test elevations are approximate and are established in the field by the
 GET Solutions, Inc. technician.

* Note: BFF = Below Finish Floor, BFG = Below Finish Grade, FG = Finished Grade, BSG = Below Subgrade

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COMPACTION TEST REPORT - Sheet 2 of 2

Project:	White Hall Section 3	Date:	5/23/14
Project Location:	Toano, Virginia	Technician:	B. Sampe
Client:	HH Hunt Communities, Inc.	Job Number:	WM13-188T
General Contractor:	HH Hunt Communities, Inc.	Weather:	Sunny Temp. (°F) 80's
Grading Contractor:	George Nice and Sons	General Test Location:	Sheldon Branch Place & Alley 3

Test Number	Moisture (%)	Dry Density (pcf)	Wet Density (pcf)	Proctor Number	% Proctor		Pass	Fail	Test Elevation*	Test Location (Grid, Coordinates, Roadway Station, etc.)
					Spec	Actual				
9	3.0	138.0	142.1	8	100	101	X		4.5" BFG	Sheldon Branch Place - Station 34+00
10	3.1	135.9	140.1	8	100	100	X		4.5" BFG	Sheldon Branch Place - Station 35+00
11	4.0	138.6	144.1	8	100	102	X		4.5" BFG	Sheldon Branch Place - Station 36+00
12	3.8	138.1	143.3	8	100	101	X		4.5" BFG	Sheldon Branch Place - Station 37+00
13	4.4	138.1	144.2	8	100	101	X		3.5" BFG	Alley 3 - Station 11+00
14	4.9	136.1	142.8	8	100	100	X		3.5" BFG	Alley 3 - Station 12+00
15	4.2	137.2	143.0	8	100	101	X		3.5" BFG	Alley 3 - Station 13+00
16	4.4	137.5	143.6	8	100	101	X		3.5" BFG	Alley 3 - Station 14+00

Compaction Equipment Used:	Vibratory Roller	Proctor Number:	11 (WM08-130T)
Field Testing Procedure:	ASTM D698	Proctor Type:	ASTM D698
Testing Depth:	4 inches	Material Description:	Crushed Stone Aggregate
Test Conducted on:	Roadway Aggregate Base	Max. Dry Density (pcf):	136.1
		Optimum Moisture (%):	6.7%

Remarks: _____

Test locations and test elevations are approximate and are established in the field by the GET Solutions, Inc. technician.

* Note: BFF = Below Finish Floor, BFG = Below Finish Grade, FG = Finished Grade, BSG = Below Subgrade

Reviewed By:

J. Wheeler
GET Solutions, Inc.

DAILY FIELD REPORTS



Daily Field Report Subgrade Evaluation

Project Name: Whitehall Section 3
Project Location: James City County, Virginia
Project No: WM13-188T
Geo-Report No: N/A

Date: 2/24/14
Bldg. Permit #: N/A
Client: H H Hunt Communities, Inc.
Contractor: George Nice and Sons, Inc.

Project Drawings: Date: 5-8-13 DWG #'s: 08 & 09 Details: N/A

General Location: Sheldon Branch Road – Station 25+75 to 33+15
Specific Location: See Attached Sketches

According to the contractor the observed area is:

☒ At grade elevation ☐ At grade elevation with _____ of fill required to reach design grade

Proofroll equipment used: ☐ Smooth drum roller
☐ Loaded tandem dump truck
☐ Loaded off-road dump truck
☒ Other (specify) Motor Grader

Deflections observed beneath the applied wheel loads:

☒ More than 1 Inches ☒ Rutting ☒ Pumping Test pits: How many? N/A
☒ Less than 6 Inches ☐ Other ☒ Sponging Depth? _____

Visual Classification of Soils: Silty SAND (SM)

Are the recovered soils consistent with the geotechnical report?

☐ Yes ☐ No (see remarks) ☒ Geotechnical Report Not Available

Remarks/Recommendations:

- ☐ Area(s) observed appeared to be suitable for the next phase of construction
☒ Deficiency/Discrepancy(s) noted (see remarks)
☒ General Contractor Notified

Remarks: The proofroll operation revealed mainly slightly unstable subgrade conditions under the applied wheel loads. Based on our field observations, it was recommended to line the entire observed roadway alignment with geotextile fabric with the exception of one stable area (Station 29+60 to Station 30+60). In addition and prior to fabric placement, it was recommended to undercut three (3) isolated unstable areas 6 inches that were exhibiting more instability. Once the undercuts have been excavated and the subgrade lined with geotextile fabric (where recommended), the contractor can proceed with backfilling the undercut excavations with additional aggregate base placement and then proceed with installation of the aggregate base course per the design.

Unstable/Undercut Areas

- #1 28' x 9' x 0.5' (Station 28+20 – Station 28+48)
#2 32' x 31' x 0.5' (Station 28+48 – Station 28+80)
#3 137' x 31' x 0.5' (Station 31+78 – Station 33+15)

Copy of Report left on site: ☒ Yes ☐ GC not available on site

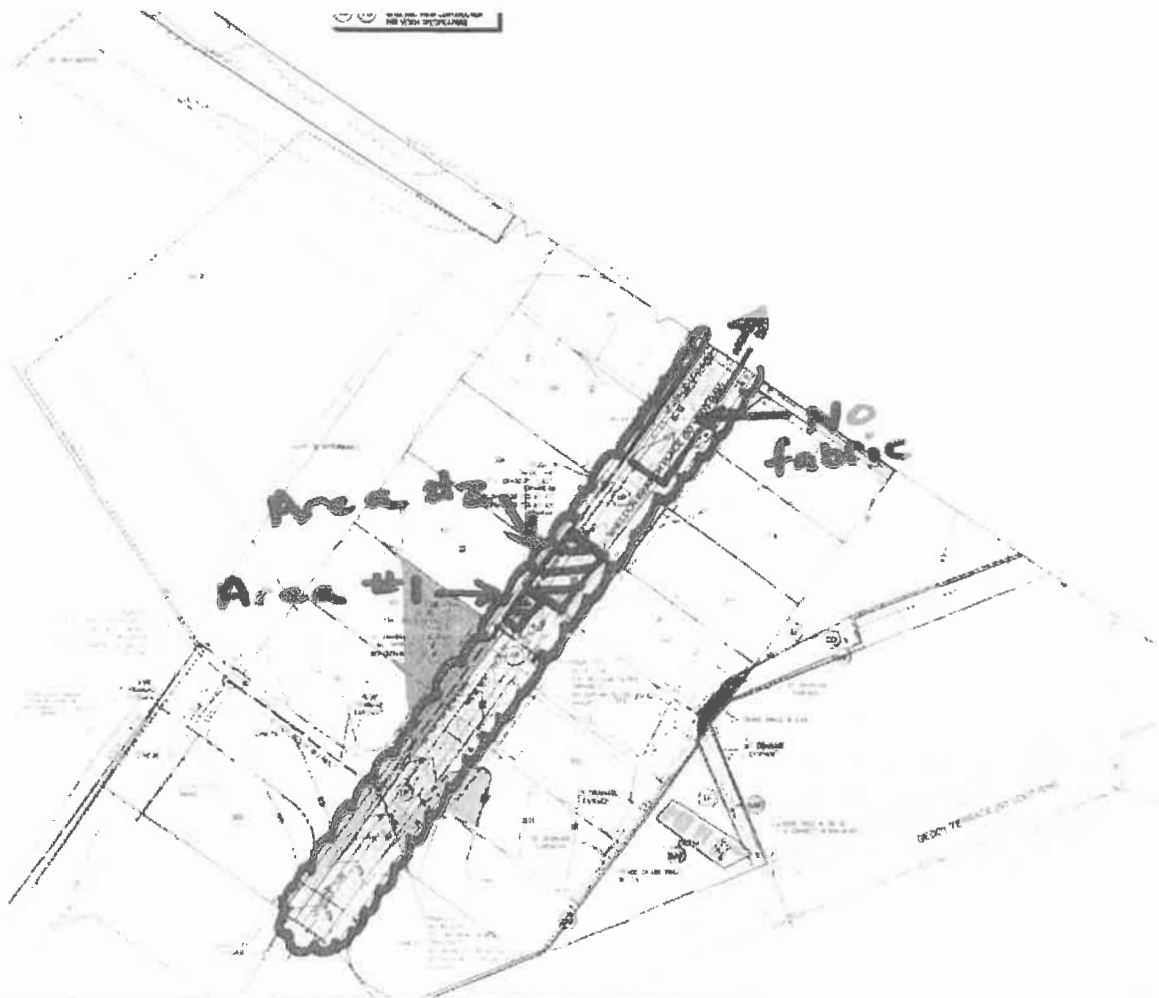
GET Solutions, Inc. Representative:

Copy Given to (Name): Steve Johnson Sign: On-file

Contracting Company: George Nice & Sons, Inc. Print: James Wheeler

Daily Field Report Subgrade Evaluation

Figure 1



Locations are approximate

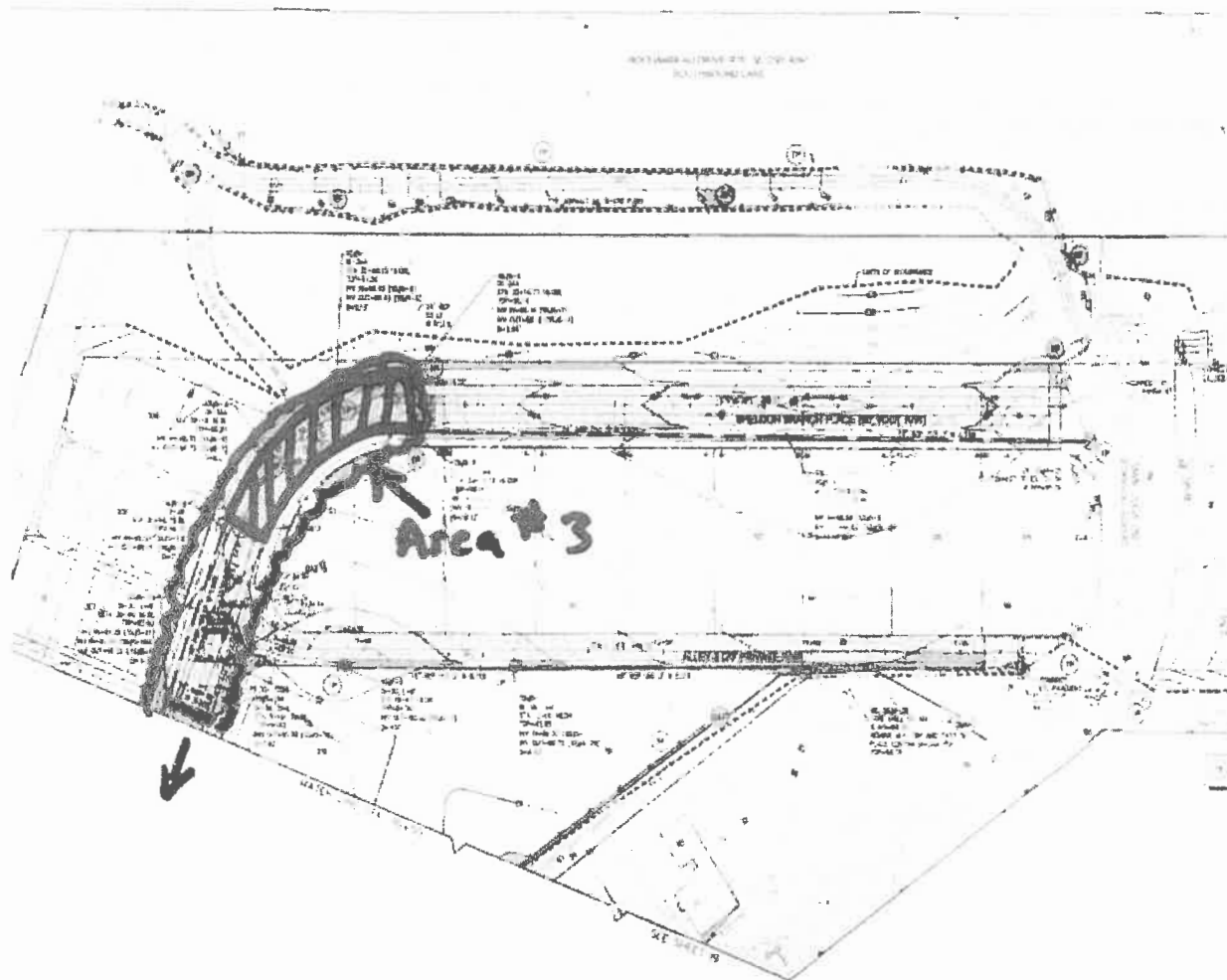
LOCATION SKETCH

PROJECT: Whitehall Section 3
James City County, Virginia
PROJECT NO: WM13-188T
Client: H H Hunt Communities, Inc.

SCALE: NTS
DATE: 2/24/14
PLOT BY: JW

Daily Field Report Subgrade Evaluation

Figure 2



Locations are approximate

LOCATION SKETCH

PROJECT: Whitehall Section 3
James City County, Virginia
PROJECT NO: WM13-188T
Client: H H Hunt Communities, Inc.

SCALE: NTS
DATE: 2/24/14
PLOT BY: JW



Daily Field Report Subgrade Evaluation

Project Name: Whitehall Section 3
Project Location: James City County, Virginia
Project No: WM13-188T
Geo-Report No: N/A

Date: 2/26/14
Bldg. Permit #: N/A
Client: H H Hunt Communities, Inc.
Contractor: George Nice and Sons, Inc.

Project Drawings: Date: 5-8-13 DWG #'s: 8 Details: N/A

General Location: Sheldon Branch Road – Station 33+15 to 37+50 and Alley 3
Specific Location: See Attached Sketch

According to the contractor the observed area is:

☒ At grade elevation ☐ At grade elevation with _____ of fill required to reach design grade

Proofroll equipment used: ☐ Smooth drum roller
☐ Loaded tandem dump truck
☐ Loaded off-road dump truck
☒ Other (specify) Motor Grader

Deflections observed beneath the applied wheel loads:

☒ More than $\frac{1}{2}$ Inches ☒ Rutting ☒ Pumping Test pits: How many? N/A
☒ Less than 4 Inches ☐ Other ☒ Sponging Depth? _____

Visual Classification of Soils: Silty and Clayey SAND (SM and SC) and Sandy Lean CLAY (CL)

Are the recovered soils consistent with the geotechnical report?

☐ Yes ☐ No (see remarks) ☒ Geotechnical Report Not Available

Remarks/Recommendations:

- ☐ Area(s) observed appeared to be suitable for the next phase of construction
- ☒ Deficiency/Discrepancy(s) noted (see remarks)
- ☒ General Contractor Notified

Remarks: The proofroll operation revealed slightly unstable subgrade conditions under the applied wheel loads, with two areas exhibiting more severe instabilities. Based on our field observations, it was recommended to undercut two isolated unstable areas 6 inches, line all observed subgrade with geotextile fabric and backfill the undercut excavations with additional aggregate base material.

Undercut Areas

#1 130' x 31' x 0.5'

#2 61' x 16' x 0.5'

Copy of Report left on site: ☒ Yes ☐ GC not available on site

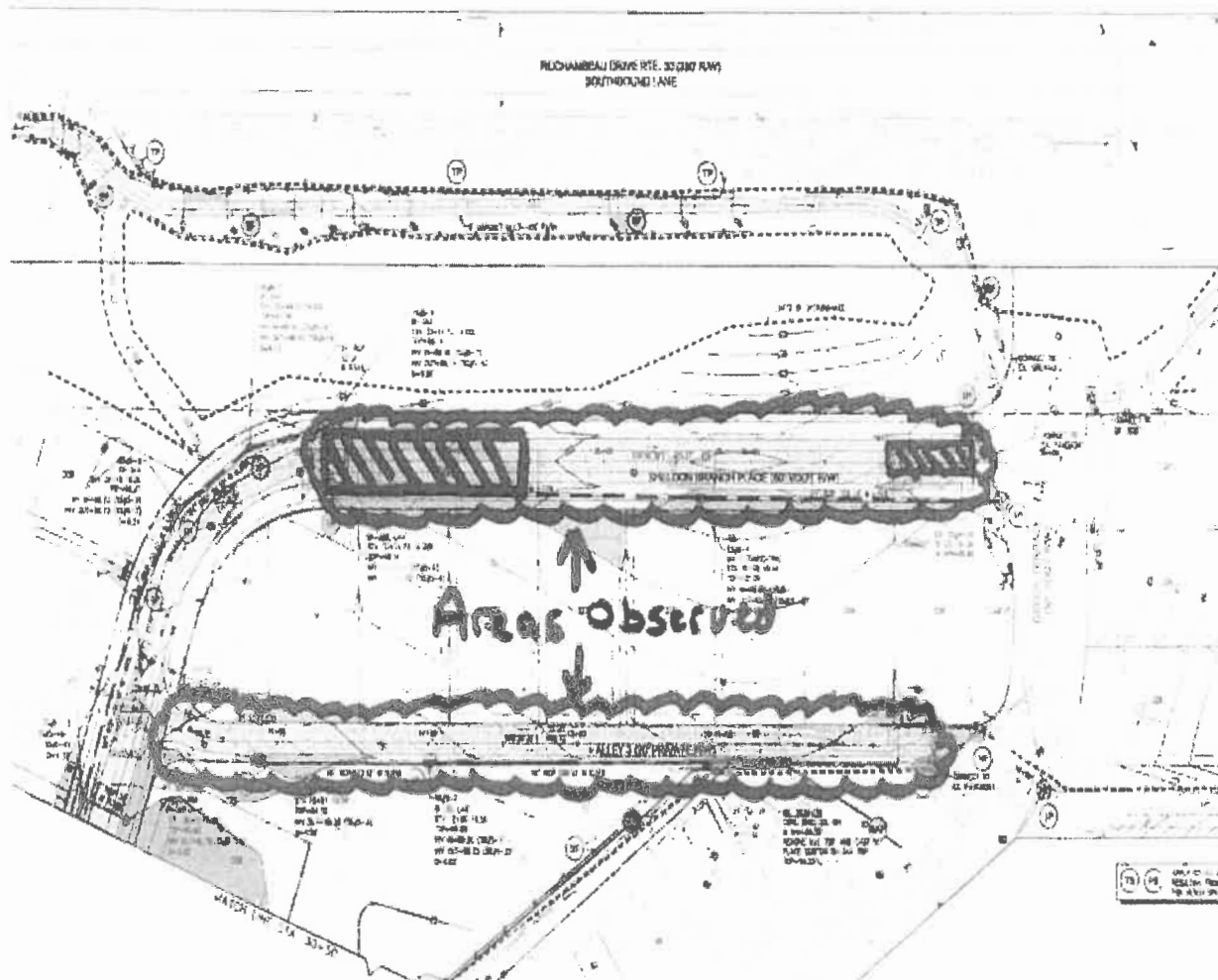
GET Solutions, Inc. Representative:

Copy Given to (Name): Steve Johnson Sign: On-file

Contracting Company: George Nice & Sons, Inc. Print: James Wheeler

Daily Field Report Subgrade Evaluation

Figure 1



Locations are approximate

LOCATION SKETCH

PROJECT: Whitehall Section 3
James City County, Virginia
PROJECT NO: WM13-188T
Client: H H Hunt Communities, Inc.

SCALE: NTS
DATE: 2/26/14
PLOT BY: JW



Daily Field Report Aggregate Base Evaluation

Project Name: Whitehall Section 3
Project Location: James City County, Virginia
Project No: WM13-188T
Geo-Report No: N/A

Date: 5/23/14
Bldg. Permit #: N/A
Client: H H Hunt Communities, Inc.
Contractor: George Nice and Sons, Inc.

Project Drawings: Date: 5-8-13 DWG #'s: 6 & 7 Details: N/A

General Location: Phase 3 Roadways
Specific Location: Sheldon Branch Place – Station 25+75-37-50 & Alley 3 – Station 10+00-15+50

According to the contractor the observed area is:

☒ At grade elevation ☐ At grade elevation with _____ of fill required to reach design grade

Proofroll equipment used: ☐ Smooth drum roller
☐ Loaded tandem dump truck
☐ Loaded off-road dump truck
☒ Other (specify): Full Water Truck

Deflections observed beneath the applied wheel loads:

☐ More than _____ Inches ☐ Rutting ☐ Pumping Test pits: How many? _____
☐ Less than _____ Inches ☐ Other ☐ Sponging Depth? _____

Visual Classification of Soils: Aggregate Base Material

Are the recovered soils consistent with the geotechnical report?

☐ Yes ☐ No (see remarks) ☒ Geotechnical Report Not Available

Remarks/Recommendations:

- ☒ Area(s) observed appeared to be suitable for the next phase of construction
- ☐ Deficiency/Discrepancy(s) noted (see remarks)
- ☒ General Contractor Notified

Remarks: As requested, a **GET** representative visited the project site in order to observe a proofroll on the aggregate base material prior to asphalt placement for all the roadways associated with Phase 3. The proofroll operation revealed firm and stable conditions. The observed roadways were considered suitable for asphalt placement.

Copy of Report left on site: ☐ Yes ☐ GC not available on site

GET Solutions, Inc. Representative:

Copy Given to (Name): N/A Sign: On-file
Contracting Company: George Nice & Sons, Inc. Print: James Wheeler

7. Reports

8. Correspondence

**Development Management**

101-A Mounts Bay Road

P.O. Box 8784

Williamsburg, VA 23187-8784

P: 757-253-6671

F: 757-253-6822

Development.management@jamescitycountyva.gov

jamescitycountyva.gov**Building Safety and Permits**

757-253-6620

Engineering and Resource Protection

757-253-6670

Planning

757-253-6685

Zoning Enforcement

757-253-6671

December 23, 2013

Mr. Ryan Stephenson
AES Consulting Engineers
5248 Olde Towne Road
Williamsburg, Virginia 23188

RE: CASE NO. S-0005-2013, White Hall Section 3 (plat)

Dear Mr. Stephenson:

This is to confirm that the above referenced subdivision plat has received final approval effective December 23, 2013. Attached are two signed copies of the plat and the signed Mylar.

The Subdivision Ordinance allows you 180 days from the time of approval to record this plat; otherwise, the plat will have to be resubmitted and another application fee paid. You will also receive a copy of the final addressed plat in the coming months for inclusion in your files. Please ensure that the supplemental homeowner's association declarations are recorded with this plat.

Please note that the validity of your construction drawing approval is governed by Section 19-26 of the Subdivision Ordinance which states that "the developer shall have the right to record the remaining sections shown on the preliminary plan for a period of five years from the date of the latest recorded plat of subdivision for the property. The five-year period of validity shall extend from the date of the latest recorded plat." **Please note that it is the applicant's responsibility to keep track of this date.**

If you have any questions, please do not hesitate to contact the Planning Division at (757) 253-6685.

Sincerely,

Paul Holt
Planning Director

9. Inspections

10. Permitting

11. Miscellaneous

(ex. photos)

12. Project Development Documents