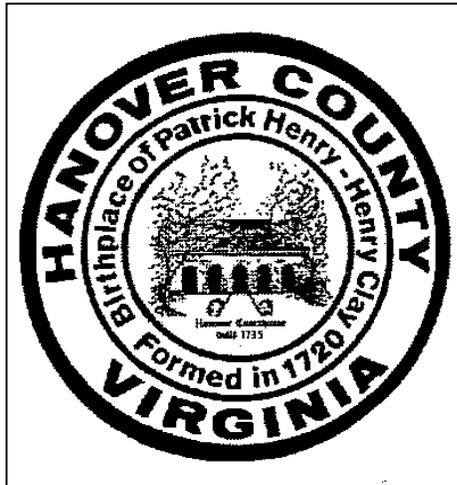


Application and Procedures for Construction Plan Review for Public Improvement Subdivisions

**For Fee Submittal Procedures, see Page 5



County of Hanover Department of Planning
7516 County Complex Road
P.O. Box 470
Hanover, VA 23069
(804) 365-6171(p) (804) 365-6540(f)
www.hanovercounty.gov

TABLE OF CONTENTS

1.	Approval Process	3
2.	Application Form	4
3.	Acknowledgement of Application Fee Payment Procedure Form	5
4.	General Information Checklist	6
5.	Department of Public Works Checklist	8
-	Project Information and Tracking Sheet	12
-	Water Quality Impact Assessment Form Link	13
-	Seeding Mixtures, Rates, and Dates	14
-	Standard Erosion and Sediment Control & Pollution Prevention Plan Notes	15
-	Land Disturbance Permit Application	17
6.	Department of Public Utilities Checklist	18
-	Utility Master Plan Checklist	24
-	Construction Record	25
7.	Virginia Department of Transportation Checklist	28
-	Required General Notes	33
8.	Construction Plan Resubmittal Form	36

Approval Process for Subdivision Construction Plan Applications

Submit Application for Approval

- Preliminary plat must be previously stamped and approved prior to construction plan submittal
- Submit application, checklists, and 9 sets (public) or 6 sets (private) of construction plans (1 sheet should include overall layout of the subdivision). The fee of \$500 + \$40/lot should be submitted within fourteen (14) days of the date of notification of acceptance. (See Page 4)
- Timeframe: Application must be complete to process; otherwise the application will be returned or held up to 5 days to complete
- Upon acceptance, plans are routed to Planning, DPW, DPU (if applicable), VDOT and Fire within 3 days

Agency Review for Compliance

- Plan revisions will be provided in writing and sent to applicant and engineer directly from each department
- Staff comments provided within approximately one week prior to the construction plan review meeting with applicant (comments will be sent within 60 calendar days of the date of acceptance)

Construction Plan Review Meeting with Applicant

- Date of meeting is determined by the date of submittal (see schedule)

Resubmittal of Revised Plans by Applicant

- Including resubmittal form, 6 sets of plans, written responses to comments, and marked-up set of plans
- Four (4) Draft Subdivision Plats and checklist shall also be submitted at this time
- Resubmitted plans and draft plats are routed to review departments

Staff Review for Compliance

- Additional requested revisions will be listed in writing and sent to applicant and engineer or applicant is notified that plans are approvable
- Timeframe: Comments shall be provided in a timely manner, but in no case shall the review time exceed 45 calendar days

Revisions Still Required

Approvable Construction Plans

Revised Plans Submitted

- \$100 resubmittal fee, resubmittal form, 6 sets of plans, and written responses to comments

Staff Review for Compliance

- Comment Letter sent or applicant is notified that plans are approvable
- Timeframe: Comments shall be provided in a timely manner, but in no case shall the review time exceed 45 calendar days.

Construction Plan Approval

- Resubmit 4 additional sets of plans for public improvement subdivisions (10 total) or 1 additional set of plans for private improvement subdivisions (5 total) which are routed for signature to various review departments (within 5 working days); Final approval typically received within 10 working days
- Approval letter and 2 sets of Plans sent to applicant
- Typically, the next step is to submit an application for Final Plat Approval

**Hanover County Planning Department
Application for Public Improvement Subdivision Review**

Request for CONSTRUCTION PLAN APPROVAL

NAME OF SUBDIVISION:	_____
-----------------------------	-------

SUBDIVISION INFORMATION & REQUEST

<p>Total Area in Section (acres): _____</p> <p>Lots in Section: _____</p> <p>Current Zoning: _____</p> <p>Magisterial District: _____</p> <p>Is the subject property located in a Dam Break Inundation Zone? <input type="checkbox"/> Yes <input type="checkbox"/> No (Please contact the Department of Public Works or Planning for assistance in addressing this question.)</p>	<p>GPIN(s): _____</p> <p>_____</p> <p>_____</p> <p>Water: <input type="checkbox"/> Public <input type="checkbox"/> Private (Well) <input type="checkbox"/> Private (Central)</p> <p>Sewer: <input type="checkbox"/> Public <input type="checkbox"/> Private (Septic) <input type="checkbox"/> Private (Central)</p> <p>Rezoning Case No. (if applicable): _____</p> <p>Date of Preliminary Plat Approval: _____</p>
---	---

APPLICANT INFORMATION

<p>Owner/Developer: _____</p> <p>Contact Name: _____</p> <p>Address: _____</p> <p>_____</p>	<p>Telephone No. _____</p> <p>Fax No. _____</p> <p>Email Address _____</p> <p>_____</p>
<p>Surveyor/Engineer: _____</p> <p>Contact Name: _____</p> <p>Address: _____</p> <p>_____</p>	<p>Telephone No. _____</p> <p>Fax No. _____</p> <p>Email Address _____</p> <p>_____</p>

PLEASE DIRECT CORRESPONDENCE/ QUESTIONS TO: Owner [] Developer [] Surveyor/Engineer []

As owner/developer/surveyor/engineer of this property, I hereby certify that this application is complete and accurate to the best of my knowledge.

Signature: _____ Date: _____

ATTACHMENTS - For ALL REQUESTS you must submit the following:

<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<p>a) A completed copy of Request for Construction Plan Approval</p> <p>b) Acknowledgement of Application Fee Payment Procedure (Page 4)</p> <p>c) Completed Public Improvement Construction Plan Checklists</p> <p>d) Nine (9) copies of Construction Plans, folded; a layout of the subdivision should be included within each set of plans</p>
--	---

ACKNOWLEDGEMENT OF APPLICATION FEE PAYMENT PROCEDURE

I hereby acknowledge that this application is not complete until the payment for all applicable application fees has been received by the Hanover County Planning Department. The Hanover County Planning Department shall notify me by mail (at the address listed below) of the applicable fee(s) at such time that they determine that the application is complete and acceptable. I acknowledge that I am responsible for ensuring that such fees are received by the Hanover County Planning Department within fourteen (14) days of the date of the notification letter. Non-payment of the fee will result in disapproval of the plan. No further submittals of plans will be accepted, and no plans will be approved until the fee is paid.

Should my application be accepted, my fee payment will be due by _____. (To be filled in by a Planning Staff member.)

Signature of applicant/authorized agent _____ Date _____
Print Name _____

Signature of applicant/authorized agent _____ Date _____
Print Name _____

Address to which notification letter is to be sent:

FEES

- Residential - \$500 + \$40/lot
- Commercial \$500
- Revision to Approved Plan: \$250

FOR STAFF USE ONLY:

Fees: Base Fee _____
 Lot Fee _____
 TOTAL _____

Accepted by: _____
 HTE#: _____

CONSTRUCTION PLAN CHECKLIST – GENERAL INFORMATION

Use this checklist to prepare the required construction plans. Please note that the following checklists are not all-inclusive. These are intended to guide the preparation of the construction plans and are subject to change as necessary for clarification and update according to current code and agency requirements.

Yes No		Staff:	Yes No
	<ol style="list-style-type: none"> 1. Project title and title for all sheets. Provide numbering of all sheets, and include an index of sheets. 2. Engineers/surveyors/landscape architect's name, address, telephone number, and registration seal with signature. 3. Owners and/or developers name, addresses, and telephone number. 4. Vicinity map: maximum scale of 1" = 2000'. USGS and County tax maps are acceptable. Map must be large enough to show the subject property and intersections (referenced to 0.01 mile to nearest intersection) of two state roads with route numbers. Show North arrow and scale for the vicinity map. 5. North arrow on each sheet of the plans. 6. Original plan dates and all revision dates with a brief description of the items revised. 7. Zoning of project. Zoning Case Number and Proffers, if applicable, listed and shown on plans. 8. Zoning, tax parcel number (GPIN) and owner of <u>adjacent</u> properties. If an adjacent parcel is located in a subdivision, label the subdivision and its zoning and then label the individual GPIN(s). 9. Existing state route numbers and street names. 10. Approved or proposed street names shown. The road name(s) will require approval from the Richmond Regional Planning District Commission (RRPDC: (804) 358-3684). 11. Location, width, and recordation information for all existing easements (public and private; on-site and off-site). <u>All required off-site easements must be recorded and referenced on the construction plans prior to final approval of the construction plans.</u> 12. Location and width of all existing road rights-of-way. 13. Right-of-way dedication in accordance with the Major Thoroughfare Plan. 14. Location of all existing utilities, underground and overhead. 15. Location of all existing drainage structures, pipes, and streams. 16. Proper labeling of subdivision (lot lines and number shown, street names, subdivision/property boundaries with bearings and distances, etc....) 17. Provide topography of the parcel(s) and surrounding vicinity, showing existing and proposed contour intervals of two (2) feet or less. Reference source and date of all topography. Provide datum of all topography and profiles. 18. Show the approximate limits of the 100-year floodplain and provide FIRM Community-Panel Number. 19. A legend for <u>all</u> symbols and abbreviations used, including all utilities and structures, existing and proposed ground and pavement profile. (Profile information must be shown on profile sheet.) 20. Location of existing houses, buildings, fences, wells and other structures are shown on plans. 		

CONSTRUCTION PLAN CHECKLIST – GENERAL INFORMATION (continued)		
Yes No	Staff:	Yes No
	<p>21. Distances from all proposed road connections to an existing road from the nearest existing intersection.</p> <p>22. Date of Preliminary Subdivision Approval granted by Planning Commission. Note that the construction plans are to be consistent with the Preliminary Plan approved with conditions.</p> <p>23. Show location(s) of any known or suspected historic resources on both the subject and adjacent parcels, including cemeteries, trenches, and archeological features as reflected in available County records (located in the Planning Department).</p> <p>24. Provide the E-911 street sign detail. (Available in the Planning Department)</p> <p>25. For subdivisions located within the Suburban Service Area, show a 50' landscaped buffer including a 4' pedestrian path along all existing public roads and major thoroughfares.</p> <p>26. Landscape plans showing proposed or required landscaping (including buffer areas) shall be prepared by a Certified Landscape Architect.</p> <p>27. Provide construction details and cost estimates for all proffered and required amenities (including pedestrian paths and landscaping).</p> <p>28. If necessary, provide draft restrictive covenants for review by the County Attorney's Office.</p>	

PUBLIC IMPROVEMENT CONSTRUCTION PLAN CHECKLIST

DEPARTMENT OF PUBLIC WORKS CHECKLIST

Please direct questions about the following checklist to the Department of Public Works at (804)365-6181.

Yes No		Staff: Yes No
	<p>GENERAL INFORMATION:</p> <ol style="list-style-type: none"> 1. Show the location, width, and recordation information for all existing drainage easements. Proposed easements need to be a minimum of 20 feet. 2. Provide all information required for compliance with Chapter 10, Article II, Chesapeake Bay Preservation, and Code of Hanover. 3. Provide the location and description of all existing and proposed drainage structures, pipes, roof drains, swales, ditches, curbs and channels and the direction of flow in each. 4. Provide an erosion and sediment control plan in accordance with the Virginia Erosion and Sediment Control Law, Title 10, Chapter 5, Article 4 of the Code of Virginia, VR 625-02-00, Virginia's Erosion and Sediment Control Regulations; and the Sediment Control Ordinance of the Code of Hanover) <u>and</u> a Water Quality Impact Assessment (WQIA). 5. Show the limits of all land disturbance associated with the proposed project. 6. If wetlands or hydric soils per the Hanover County Soil Survey are present, provide a wetlands delineation and verification of the delineation from the Corps of Engineers. 7. Provide a drainage plan and analysis in accordance with the Hanover County Drainage Design Handbook, Chapter 12 of the Code of Hanover (Floodplain and Drainage Control), VDOT Drainage Manual, and the Erosion and Sediment Control Regulations. 8. Lot grading plans will be required on residential lots during review of the subdivision construction plans and the building permits. 9. Complete attached project information and plan tracking sheet. <p>DRAINAGE PLAN AND ANALYSIS CHECKLIST:</p> <ol style="list-style-type: none"> 1. Provide the drainage area in acres (supported by an outlined contour map). Show the flow path and time of concentration calculations for all drainage areas. 2. Provide runoff coefficients for the pre-developed and post-developed drainage areas. They must reflect the conditions of ultimate development. 3. Provide supporting calculations for the computation of Q₂, Q₁₀, and Q₁₀₀, both pre-developed and post-developed where required. 4. Provide details of all special design structures (flumes, basin outlets, energy dissipaters, etc.) 5. Provide the 100-yr storm elevation for all drainageways, ponds and lakes. Label this area as "limits of 100-yr. Storm" 	

PUBLIC IMPROVEMENT CONSTRUCTION PLAN CHECKLIST

DEPARTMENT OF PUBLIC WORKS CHECKLIST - continued

Yes No	Staff:	Yes No
DRAINAGE PLAN AND ANALYSIS CHECKLIST (continued)		
	<p>6. Provide supporting calculations for all channels, existing and proposed, natural and man-made, including the following:</p> <ul style="list-style-type: none"> a) Depth b) Type of Lining c) Mannings "n" Value d) Typical Channel Cross Section e) Side Slope Ratios f) Q_2, Q_{10}, Q_{100}, V_2, D_{10} g) Longitudinal Slope h) Linings Described by Stations i) Contributing Drainage Areas j) Flow arrows <p>k) Provide additional information as required on VDOT Standard Form attached</p> <p>7. Provide for all detention/retention basins the following:</p> <ul style="list-style-type: none"> a) Construction details for the basin and outlet devises b) Storm routing for the 2,10, and 100 Year Storms. Show the 2, 10, and 100 year water surface elevation on the embankment profile and plan view. c) All basins must have a maintenance agreement. (See attached) This agreement must be approved by DPW and then executed. Before the plans will be approved the deed book and page number must be referenced on the plan. <p>8. Provide for all culverts the following:</p> <ul style="list-style-type: none"> a) Inverts b) Length c) Type d) RCP class or Bit. Coated CMP (RCP class III or greater only in County easements) e) Headwater depth f) Discharge protection g) Outlet velocity h) Diameter i) Design cover j) Provide additional information as required on VDOT Standard Form attached 	

PUBLIC IMPROVEMENT CONSTRUCTION PLAN CHECKLIST

DEPARTMENT OF PUBLIC WORKS CHECKLIST - continued

Yes No	Staff:	Yes No
DRAINAGE PLAN AND ANALYSIS CHECKLIST (continued)		
<p>9. Provide for all curb and gutter/storm sewer systems the following:</p> <ul style="list-style-type: none"> a) Depth and spread in gutter b) Length of throats and placements of inlets c) Type of material d) Diameter (minimum of 15 inches) e) Velocity (minimum allowable of 3 FPS maintained) f) Capacity (based on 10 Year Storm event) g) Hydraulic grade line computation, noting elevation at key points (drop inlets, manholes, etc.) Throat elevation should be used as the rim elevation for HGL calculations. h) Concrete flume transition details from curb to ditch i) Details of VDOT Standard Structures (drop inlets, curb/gutter, etc.) j) Profile for the storm sewer in conjunction with any road profiles or other utilities k) Details if CG-12 curb ramps for subdivision streets l) Provide additional information as required on VDOT Standard Form attached 		
Erosion and Sediment Control Plan Checklist:		
<p>1. Mark the appropriate box:</p> <p style="padding-left: 40px;">Any subdivision within a Chesapeake Bay Preservation Act Area (CBPA) that has over 2500 sq. ft. of land disturbance will require an Erosion and Sediment (E & S) Control Plan and a Water Quality Impact Assessment (WQIA). <u>OR</u></p> <p style="padding-left: 40px;">Any subdivision that lies outside of a CBPA, with land disturbance over 10,000 sq. ft. will require an E&S Plan.</p>		

PUBLIC IMPROVEMENT CONSTRUCTION PLAN CHECKLIST

DEPARTMENT OF PUBLIC WORKS CHECKLIST – continued

Yes No	Staff:	Yes No
Erosion and Sediment Control Plan Checklist: (continued)		
	<p>2. Provide a narrative report which includes the following:</p> <ul style="list-style-type: none"> a) Brief project description of the nature and purpose of the land disturbing activity and the amount of grading involved. b) Description of the existing topography, vegetation, and drainage. c) Description of neighboring areas such as streams, lakes, residential areas, roads, etc., which might be affected by the land disturbance. d) Brief description of the soils on the site giving such information as soil name, mapping unit, erodibility, permeability, depth, texture, and soil structure. e) Description of the methods which will be used to control erosion and sedimentation on the site. f) Description of the areas on the site which have potentially serious erosion problems. g) Brief description, including specifications, of how the site will be stabilized after construction is completed. h) Brief summary of stormwater management consideration of downstream receiving channels and their condition and adequacy. i) A schedule of regular inspection and repair of erosion and sediment control structures should be set forth j) Any calculations for the design of such items as sediment traps, sediment basins, diversions, etc. <p>3. Provide a vicinity map on the plan.</p> <p>4. Provide the existing topography of the site in the plan</p> <p>5. Show the existing tree lines, grassy areas or unique vegetation.</p> <p>6. Show the boundaries of different soils types.</p> <p>7. Provide a North Arrow.</p> <p>8. Show the areas with potentially serious erosion problems on the plan</p> <p>9. Provide the drainage breaks and the direction of flow within the drainage areas.</p> <p>10. Provide the proposed topographical changes.</p> <p>11. Delineate the limits of clearing and grubbing associated with the proposed project.</p> <p>12. Show the locations of the erosion and sediment control measures to be used on the site</p> <p>13. Provide detail drawing of structural practices used to control erosion and sedimentation.</p> <p>14. Provide a seeding schedule on the plans (see attached).</p> <p>15. Provide Hanover County Standard Erosion and sediment Control Notes on the plans (see attached approved DPW notes).</p>	

Hanover County Department of Public Works Project Information and Tracking Sheet Project Information

1. Name of Project: _____
2. Site Plan #: _____
3. GPIN #'s: _____
4. Total Area (acres): _____
5. Total Amount of Disturbed Area (acres): _____
6. Total Amount of Existing Impervious Area (ft²): _____
7. Total Amount of Proposed Impervious Area (ft²): _____
8. Total Amount of Impervious Area on site (ft²): _____
9. % Imperviousness of site: _____
10. Hydrologic Unit Code: _____
11. Is Area within a Chesapeake Bay Act Area (RMA)? Yes No
12. Does project contain Resource Protection Area? Yes No
 - If yes, is there any encroachment in this buffer? Yes No
 - If yes, what is the amount of area (ft²)? _____
13. Does project contain wetlands? Yes No
 - If yes, will there be any wetlands impacts? Yes No
 - If yes, what is the amount of impact (ft²)? _____
14. Does the project currently contain ponds or stormwater basins? Yes No
 - If yes, provide the Deed Book/Page # of Maintenance Agreement: Deed Book _____ Page # _____
 - If yes, what type of pond/basin is it? Regional Private
 - If Regional, what is the Basin ID? _____
15. Will this project require a basin? Yes No
 - If yes, what kind of basin will it be? Regional Private
 - If the basin is Regional, what is its Basin ID? _____
 - If private, the basin will need to have a Maintenance Agreement recorded prior to plan approval

Owner/Developer/Engineer Information

Owner's Name and Address: _____

Phone #: _____ Fax #: _____

Email address: _____

Engineer's Name and Address: _____

Phone #: _____ Fax #: _____

Email address: _____

Developer's Name and Address: _____

Phone#: _____ Fax #: _____

Email address: _____

Please go to the following links to find forms to be completed and submitted with this application:

<http://www.extranet.vdot.state.va.us/locdes/electronic%20pubs/2002%20Drainage%20Manual/pdf/drain-manual-chapter-07.pdf>

see Page 3

<http://www.extranet.vdot.state.va.us/locdes/electronic%20pubs/2002%20Drainage%20Manual/pdf/drain-manual-app-08.pdf>

see page 5, Appendix A

<http://www.extranet.vdot.state.va.us/locdes/electronic%20pubs/2002%20Drainage%20Manual/pdf/drain-manual-chapter-09.pdf>

see Appendix 9B-1, 2, and 3

You may also call the Hanover County Planning Department (804-365-6171) or Public Works Department (804-365-6181) to obtain copies of these forms.

The following is a link to the Hanover County Department of Public Works Water Quality impact Assessment (WQIA) form:

http://www.hanovercounty.gov/PW/Water_Quality_Impact_Assessment_Form.pdf

The following is a link to a map of Virginia's 6th Order NWBD Hydrologic Units (VAHU6) for Hanover:

http://192.206.31.46/webill/NWBD_HU95.pdf

SEEDING MIXTURES, RATES, AND DATES: SOUTHERN PIEDMONT AND COASTAL PLAIN

SITE CONDITIONS	SEEDING MIXTURES	RATES		DATES		
		PER ACRE	PER 1000 ft ²	3/1 to 4/15	4/15 to 8/1	8/1 to 10/15
High Maintenance Lawns	1. Tall fescue - 90% Kentucky bluegrass - 10%	250 lbs	6 lbs	X	no	X
Low Maintenance General Use	2. Tall fescue - 50% Ladino clover - 10% Red clover - 10% Korean lespedeza - 15% Annual ryegrass - 15%	80 lbs	2 lbs	X	(a,b) X	X
	3. Tall fescue - 50% Sericea lespedeza - 30% Annual ryegrass - 20%	70 lbs	1 ½ lbs	X	(a) X	X
Droughty Areas, Sandy Soils	4. Tall fescue - 50% Sericea lespedeza - 20% Korean lespedeza - 15% Annual ryegrass - 15%	80 lbs	2 lbs	X	(a,b) X	X
Poorly Drained Areas	5. Tall fescue - 65% Korean lespedeza - 20% Annual ryegrass - 10% Redtop - 5%	80 lbs	2 lbs	X	(a,b) X	X
a) After May 1, use 10 lb/A german millet or 2 lb/A weeping lovegrass in place of annual ryegrass. b) After May 1, Korean lespedeza will not reseed itself. You may increase the amount of other legumes accordingly.						

Source: VA SWCC

Department of Public Works

Standard Erosion and Sediment Control & Pollution Prevention Plan Notes

1. Prior to commencement of any land disturbance activities, a land disturbance permit must be issued by the Department of Public Works. An approved Erosion and Sediment Control Plan and bonding of the erosion and sediment control measures is required for permit issuance.
2. A separate land disturbance permit or an ESC plan amendment to this plan must be submitted to, and approved by Hanover County DPW prior to any off-site land disturbance (borrow / filling / disposal activities) associated with this project. If the off-site portion of the project is located within Hanover County, additional E&S inspection fees will be required.
3. Contact the Department of Public Works' Environmental Compliance Manager, 365-6181, a minimum of 48 hours prior to commencement of land disturbance activities. A pre-construction meeting is required unless it is waived by the Environmental Compliance Manager.
4. No work may occur outside the limits of disturbance shown on the approved plans. Working outside of the limits of disturbance shown on the approved plans will result in a Stop Work Order being issued with the potential for fines being levied.
5. Permanent or temporary soil stabilization shall be applied to denuded areas within seven (7) days after final grade is reached on any portion of the site.
6. Temporary soil stabilization shall be applied within seven (7) days to denuded areas that may not be at final grade but will remain dormant for longer than thirty (30) days.
7. During construction of the project, soil stock piles shall be stabilized or protected with sediment trapping measures.
8. Stabilization measures shall be applied to earthen structures such as dams, dikes, and diversions immediately after installation.
9. Erosion and sediment control measures shall be constructed and installed as a first step in any land-disturbing activity and shall be made functional before upslope land disturbance takes place. Initial clearing must be the minimum required to install erosion and sediment control measures and devices. Should either the Erosion and Sediment Control Narrative or Sequence of Construction conflict with this requirement, the conflicting portions of either will be determined to be invalid.
10. A permanent vegetative cover shall be established on denuded areas not otherwise permanently stabilized. Permanent vegetation shall not be considered established until a ground cover is achieved that, in the opinion of the County Engineer or his designated agent, is uniform mature enough to survive and will inhibit erosion.
11. Underground utility lines shall be installed in accordance with the following standards in addition to other applicable criteria:
 - a. No more than 500 linear feet of trench may be opened at one time
 - b. Excavated material shall be placed on the uphill side of trenches
 - c. Effluent from dewatering operations shall be trapping device, or both, and discharged in a manner that does not adversely affect flowing streams or off-site property.
 - d. Restabilization shall be in accordance with the above Notes.

12. All applicable federal, state, and local regulations pertaining to working in or crossing live watercourses shall be met.
13. Where construction vehicle access routes intersect paved public roads, provisions shall be made to minimize the transport of sediment by tracking onto the paved surface. Where sediment is transported onto a public road surface, the road shall be cleaned thoroughly at the end of each day. Sediment shall be removed from the roads by shoveling or sweeping and transported to a disposal area.
14. It shall be the owner's responsibility to inspect erosion control devices periodically and after every erodible rainfall. Any necessary repairs or clean up to maintain the effectiveness of the erosion control devices shall be made immediately.
15. Additional erosion and sediment control measures and devices may be required by the Director of Public Works or his designated agent if deemed necessary.
16. The owner shall install additional erosion and sediment control devices and measures if the Registered Land Disturber determines that such additional devices and measures are necessary.
17. All erosion control devices shall be in place and functional at all times and if removed for construction progress, shall be replaced by the close of each workday.
18. Final removal of erosion control devices shall not occur until the Director of Public Works or his designated agent deems the site stabilized.
19. Permanent seeding is to be in accordance with the accompanying seeding schedule.
20. Construction site operators are required to control waste such as discarded building materials, concrete truck washout, chemicals, litter, and sanitary waste at the construction site that may cause adverse impacts to water quality.
21. Construction site operators are required to control the transport of dust and other wind born contaminants as a result of land-disturbing, demolition and construction activities. The operator shall prevent the surface and air movement of airborne substances in accordance with STD and SPEC 3.39 of the Virginia Erosion and Sediment Control Handbook or as approved by the Director of Public Works or his designated agent.

APPLICATION FOR LAND DISTURBANCE PERMIT

Filing of this application and approved plans with the Department of Public Works is necessary to constitute an application for a Land Disturbance Permit. The landowner will be notified of approval within 45 calendar days of receipt of an application.

To be completed by the Applicant.

Date of Application _____ Zoning _____ Acreage of Land Disturbance _____

Contact Person _____ Phone _____ Fax _____
(First Name) (M.I.) (Last Name)

Address _____
(Street and/or P.O. Box) (City) (State) (Zip)

Landowner _____ Phone _____ Fax # _____

Address _____
(Street and/or P.O. Box) (City) (State) (Zip)

PROJECT TITLE _____

GPIN _____

I, _____, hereby certify that I am responsible for complying with the (Signature of landowner or owner's agent*) provisions of the Hanover County Erosion and Sediment Control Ordinance Program and that I accept responsibility for carrying out the Erosion and Sediment Control Plan for the above-referenced project as approved by the County.

I, _____, hereby certify that I am the Responsible Land Disturber.

Certificate # _____

Address _____

Phone # _____ Fax # _____

I further grant the right-of-entry onto this property, as described above, to Hanover County, its employees or agents for the purpose of inspecting and/or completing erosion and sediment control measures in compliance with Section 21.89 of the Virginia Erosion and Sediment Control Statute.

I further understand that I must request a final inspection by the Department of Public Works, and that released bonds and sureties is contingent upon the findings of such inspections. Release shall occur within 60 days after disturbed areas are deemed permanently stabilized by the inspector.

To be completed by the Department of Public Works.

Project Title _____ Plan Prepared By _____

Plan Date _____ Revision Date(s) _____ Plan Approval Date _____

Bond Type _____ Bond Amount _____ Bond Expires _____

Approved By _____ Date _____
(Director of Public Works or Designee)

*If signed by landowners' agent, attach written authorization to act for owner.

*If owner is a corporation/partnership, attach authorization to act for corporation/partnership.

THIS PERMIT MUST BE KEPT ON THE WORK SITE AND SHOWN WHEN REQUESTED.

PUBLIC IMPROVEMENT CONSTRUCTION PLAN CHECKLIST

DEPARTMENT OF PUBLIC UTILITIES CHECKLIST

Please direct questions about the following checklist to the Department of Public Utilities at (804)365-6024.

Yes No	Staff:	Yes No
	<p>ENGINEERS CHECKLIST FOR WATER AND SEWER PLANS:</p> <p>OVERALL:</p> <ol style="list-style-type: none"> 1. DPU: Utility Master Plan required prior to approval of construction plans, if applicable. If a phased development, then concurrent review of the Utility Master Plan and first section of the development is acceptable. <p>TITLE PAGE:</p> <ol style="list-style-type: none"> 1. Refer to Checklist Page 8. 2. Table of Estimated Quantities (including breakdown of type of pipe). <p>GENERAL:</p> <ol style="list-style-type: none"> 1. The plan includes an overall plan of the water and sewer layout, including any phasing of development. 2. A subdivision plat indexed to sheet numbers. 3. Engineer and/or Surveyor has notified all property owners prior to performing any offsite design and/or surveying work. <p>STANDARDS:</p> <ol style="list-style-type: none"> 1. Water and Sewer Notes (as a minimum, reference has been made to County Standard specifications and details). 2. Vertical scale is 1" = 5' or 1" = 10'; and horizontal scale is no greater than 1" = 50', unless otherwise approved by the Department of Public Utilities. A "bar" scale is shown on each sheet. 3. All water and sewer designs conform to the latest County, State and Federal regulations or standards. 4. Plan and Profile sheets are on 24" x 36" paper unless otherwise approved by the County. 5. Scale drawings are accurate to within +/- 2% for vertical and horizontal scales. 6. All water, sewer, road and drainage structures are shown on one (1) plan sheet. <p>UTILITY PLANS:</p> <ol style="list-style-type: none"> a) Existing water and/or sewer lines are properly labeled with size and with horizontal and vertical distances reference on plan. b) At least two (2) benchmarks are shown on the site plan. c) Horizontal and vertical scale shown on each sheet (scale should be same on plan and profile). d) All existing easements are shown accurately and proposed utility easements are shown on plans. The existing easements reflect accurate recordation information. e) All existing and proposed storm sewer lines, gas, telephone, power and other utility lines, which cross or run parallel to the sewer or water lines, are shown with horizontal and vertical separations given, where applicable. f) Adjacent road and drainage projects are shown as required. 	

PUBLIC IMPROVEMENT CONSTRUCTION PLAN CHECKLIST

DEPARTMENT OF PUBLIC UTILITIES CHECKLIST - Continued

Yes No	Staff:	Yes No
	<p>ENGINEERS CHECKLIST FOR WATER AND SEWER PLANS - Continued:</p> <p><u>UTILITY PLANS - Continued:</u></p> <ul style="list-style-type: none"> g) Consideration has been given to areas where roads and drainage structures may be lowered in the future. h) Road names, state route numbers, and right-of-way widths are shown. i) Plan and profile are drawn in the same direction. Stations shall ascend from left to right. j) Proposed water and/or sewer lines are shown with reference to distances from right-of-way, boundary, buildings, other utility lines, etc. k) Adjacent property owner name(s) and all property lines and property markers (stones, rods, pins, pipes, monuments, etc.) are shown. l) Location of existing houses, buildings, fences, wells and other structures are shown on the plans. In lawn or kept areas, trees and shrubs in the easements are shown (size and type). m) All designs conform to the latest County and State erosion control and sedimentation rules, regulations, and ordinances. An erosion control and sedimentation plan must be approved by the County Department of Public Works. n) The engineer understands that he/she is responsible for coordinating the utility design and construction work with other engineers where their projects connect are affected by other projects. o) Locations of special features (con. Encasement, rip-rap stabilization at creek crossings, clay dams, etc.) are shown on the plans. Details have been provided as appropriate. p) Detail drawings of all stream crossings and storm sewer outlets, with elevations of the stream bed and high (100 year flood elevation) and normal elevations. q) All fill and cut areas are shown within the area of the existing and proposed sewer and/or water lines. r) Necessary easement plats onsite and/or offsite have been recorded. Deed book and page where easement is recorded is shown for each easement. s) Pavement replacement detail, boring detail, etc. are shown on all plans. t) Location and dimensions of all water and sewer service connections are shown. u) Proposed, existing and original ground elevations are shown. v) Municipal, subdivision, and/or drainage area boundaries are shown. w) Miss Utility notation is shown. 	

PUBLIC IMPROVEMENT CONSTRUCTION PLAN CHECKLIST

DEPARTMENT OF PUBLIC UTILITIES CHECKLIST - Continued

Yes No	Staff:	Yes No
	<p>ENGINEERS CHECKLIST FOR WATER AND SEWER PLANS - Continued:</p> <p>UTILITY PLANS - Continued:</p> <ul style="list-style-type: none"> x) Engineer understands that any changes made to the road, drainage, water and/or sewer design will require a submittal to the Utilities Department for review and approval of the revised water and sewer plans reflecting those changes. y) Plans have been submitted to State Health Department for review and approval where applicable. Attach a copy of the transmittal letter to the checklist. z) If horizontal bore is required, bore location, length of bore, pit location (average 10' x 40') are shown on plans as well as shown in relation to all existing and/or proposed utilities on plan and profile. aa) Clay dams or other acceptable designs are shown at the appropriate locations to avoid water from creek and/or lake being diverted along pipe bedding. bb) Utility plans reflect those conditions as approved by the Planning Commission/Board of Supervisors. <p>3. SANITARY SEWER PLANS:</p> <ul style="list-style-type: none"> a) All sanitary sewer plans are labeled with size, grade, length, direction of flow, and type & class of pipes (with backup calculations on the type & class pipe needed, where applicable.) b) Manholes are labeled with top and invert elevations; coordinates; and locations, size and inverts of drop stacks when a vertical drop exceeds two (2) feet. c) Deflection angels at all manholes or bearings of all lines are shown on the plans. d) All minimum finished floor elevations and basement elevations are to be shown on plans, where applicable. If gravity service cannot be provided to a lot it should be noted on the plans. e) A sewerage drainage area map with hydraulic analysis is included in plans. f) The engineer has field verified the inverts of the existing manhole(s). g) All manholes are designed to an elevation above the 100-year flood plain elevation as set forth in the design standards, unless otherwise approved by the Utilities Department. h) Ground coverage over sewer pipe meets minimum criteria. i) Engineer has put a notation that a backwater valve is to be used where the building with a finished floor elevation of the building is below the top elevation of the nearest upgrade manhole from the building connection. j) All “%” slopes are divisible by four (4) to the nearest hundredth, where possible. k) All pipe between manholes are of like material and class. l) All temporary and/or permanent silt basins or BMP facilities are shown and the sewer lines and manholes have been designed around these structures. 	

PUBLIC IMPROVEMENT CONSTRUCTION PLAN CHECKLIST

DEPARTMENT OF PUBLIC UTILITIES CHECKLIST - Continued

Yes No	Staff:	Yes No
	<p>ENGINEERS CHECKLIST FOR WATER AND SEWER PLANS - Continued:</p> <p>SANITARY SEWER PLANS - Continued:</p> <ul style="list-style-type: none"> m) All existing sewer laterals are shown on the plans, with station, length and depth, as depicted on the as-built plans. n) All sewer lines are designed with the entry into the manhole by the proposed sewer lines at an angle of 90 ° or greater to the downstream line, unless an exception is given. o) Whenever connecting sewer lateral to an existing sewer line, engineer has put on the plans the proper notation that “the Contractor must use a mechanical hole cutter when tapping the existing sewer line and that an approved saddle or Insert-Tee shall be used” and the appropriate lots affected by this have been identified in the note. p) Where manholes are proposed over existing lines, distance from the new manhole to the two existing manholes is shown; inverts of the manhole and each existing manhole are shown; slope of existing line from new manhole to upstream and downstream existing manholes is shown. q) Where future extensions are necessary, these lines are reflected on the plan. r) Monitoring manholes are required for new facilities currently regulated by local or federal industrial waste pretreatment laws. Example of these commercial facilities include restaurants, car washes, auto repair shops, and laundromats to name a few. A private monitoring manhole shall be provided to facilitate random 24-hour composite sampling. <p>4. WATER PLANS:</p> <ul style="list-style-type: none"> a) Plans show all fittings, fire hydrants, and valves including sizes. Each appurtenance is properly labeled in plan and profile. b) All conflicts with storm sewers and other utility lines are shown with appropriate design changes shown. c) A minimum of eighteen (18) inches of vertical clearance has been designed and obtained at all crossings of other utilities, or as specified by other utility agencies, or otherwise approved by the Utilities Department. d) All water lines have a minimum of 3.5 feet cover. e) Fire hydrants and air relief valves are shown on plans and profile. f) Hydrants or blow-off valves are designed at major low places in the line where possible and air release valves are designed at the high points. g) Flushing hydrants or hydrants are designed at the end of all lines in cul-de-sacs. 	

PUBLIC IMPROVEMENT CONSTRUCTION PLAN CHECKLIST

DEPARTMENT OF PUBLIC UTILITIES CHECKLIST - Continued

Yes No	Staff:	Yes No
	<p>ENGINEERS CHECKLIST FOR WATER AND SEWER PLANS - Continued:</p> <p>WATER PLANS - Continued:</p> <ul style="list-style-type: none">h) All water services are shown in accordance with the design standards.i) Plans show all connections to the existing subdivision mains, etc.j) Engineer has designed water system in accordance with available pressure and has provided fire flow and pressure calculations.k) Pipe size noted on plans.l) Ditch lines are shown on the plan and depth of ditch(s) are shown on the profile at the fire hydrant locations and service lines, where necessary.m) Water line stubs for future extensions are designed to be installed beyond the edge of pavement.n) Location of water meter boxes are shown outside of non-vehicular travel areas. Where it is not possible to locate the boxes out of the driveways, and/or vehicular traveled area, a cast iron box is specified.o) For water line tie-ins, the engineer has shown the valve to be used for cut off during tie-in. Where tapping the main line verses cuttings in a tee applicable, the engineer has evaluated which method will be used as outlined in the County's Design Standards.p) Knockdown meter box shall not be located within any travel areas.	

PUBLIC IMPROVEMENT CONSTRUCTION PLAN CHECKLIST

DEPARTMENT OF PUBLIC UTILITIES CHECKLIST - Continued

Yes No	Staff:	Yes No
	<p>ENGINEERS CHECKLIST FOR WATER AND SEWER PLANS - Continued:</p> <p>DEVELOPERS CHECKLIST FOR UTILITY PROJECTS (For issuance of Construction Permit)</p> <p>The following steps must be completed before the County will permit the Utilities Contractor to start construction.</p> <ol style="list-style-type: none"> 1. All off-site and on-site easements, not included in a subdivision plat for the project, have been dedicated to the County. The deed book and page for all utility easements not included in a subdivision plat must be noted on the construction drawings prior to approval of the project. 2. The Department of Public Utilities has reviewed and approved the plan. 3. The project plan had been approved by all appropriate agencies (i.e. Public Works; Virginia Department of Transportation; Virginia Department of Health and Department of Environmental Quality, Planning). 4. The developer has entered into a Utilities Agreement with the County. The Board of Supervisors must approve all Utility Agreements. Two to three weeks should be allowed for processing the agreement once the agreement, executed by the developer in a form acceptable to the County, has been submitted to the Department of Public Utilities. A Utilities Agreement can be prepared once the plans are close to being ready for approval. Typically it is appropriate to submit the agreement shortly after revised plans have been submitted for review and approval. Contact the Department of Public Utilities Utility Agent to obtain a copy of the County's current standard Utilities Agreement. 5. All review and inspection fees have been paid. All bonds have been posted. 6. Erosion control measures have been installed and approved by the County Department of Public Works. 7. A preconstruction conference between the Contractor and the Department of Public Utilities has occurred. This meeting must be requested at least 48 hours prior to it occurring. The construction permit will be given to the Contractor at this meeting. 	

Utility Master Plan Checklist

Project Title _____

Yes - No - N/A

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

1. Plan scale is either 1" = 200', 1" = 100' or 1" = 50'.
2. Plan sheet is on 24" x 36" paper.
3. Project vicinity map is provided.
4. Owner/Developer and Consultant names and addresses are shown on plan.
5. Water system is designed to provide adequate domestic service and fire protection.
 - a. Average Domestic Design Flow _____
 - b. Maximum Day Design Flow _____
 - c. Fire Flow _____
 - d. Peak Hour Design Flow _____
 - e. Design Flow _____
 - f. Residual Pressure at Design Flow _____

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------

6. Sanitary sewer service area map with topography is submitted with plan. Sanitary sewer analysis is shown on sewer shed map.
 - a. Average Design Flow _____
 - b. Equivalent Residential Units _____

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------

7. Any and all existing connections to property are shown on plan.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------

8. Proposed water and sewer lines connect to existing facilities which have been previously accepted by the County for operations and maintenance.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------

9. Off-site easements necessary for the completion of project identified.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------

10. Existing easements and road rights-of-way identified.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------

11. Proposed construction and permanent utility easements and widths.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------

12. North arrow is shown.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------

13. Sanitary sewer system layout complete with pipe sizes, invert elevations, and manholes.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------

14. Provisions to serve adjoining undeveloped properties made.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------

15. Hydraulic computations for interceptor sewers which will extend through the project to serve off-site areas.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------

16. Estimated construction sequence by subdivision section.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------

17. Approximate location of service laterals and water meters shown.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------

18. Water distribution system layout complete with pipe sizes and valves.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------

19. Fire hydrants.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------

20. Flushing hydrant appurtenances.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------

21. Water quality monitoring stations.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------

22. Provisions for connection to adjoining developed properties.

CONSTRUCTION RECORD

Water & Wastewater Construction Record – Page 1

Project: _____

	Water	Sewer
Developer		
Submit plans for review	_____	_____
Public Utilities		
Review plans	_____	_____
Forward comment letter to project contact	_____	_____
Developer		
Submit revised plans	_____	_____
Submit off-site easement deeds/plats	_____	_____
Record off-site deeds/plats of easement	_____	_____
Pay plan review fee		
Virginia State Department of Health approval (if necessary)	_____	_____
Department of Environmental Quality approval (if necessary)	_____	_____
Public Utilities		
*APPROVE PLANS	_____	_____
Developer		
Post performance surety	_____	_____
Pay inspection fee	_____	_____
Submit executed agreement	_____	_____
Record agreement after County executes	_____	_____
Submit VDOT Land Use Permit	_____	_____
Submit construction permit request	_____	_____
Schedule pre-construction conference	_____	_____

Water & Wastewater Construction Record – Page 2

Water Sewer

Public Utilities

Conduct pre-construction conference

***ISSUE CONSTRUCTION PERMIT**

Developer

Provide documentation that all work covered
by VDOT Land Use Permit is complete

Submit on-site easement deeds/plats

Record on-site deeds/plats of easement

Bring roads and ditches to final grade

Request tentative acceptance in writing

Submit capital cost data

Public Utilities

Inspect for tentative acceptance

Developer

Provide as-builts and shop drawings

Correct operational deficiencies

Disinfect completed system, flush &
submit bacteriological samples when
authorized by Inspector

Remove jumper when authorized
by Inspector

Public Utilities

Send as-built drawings to DPU

Utility location contractor

***GRANT TENTATIVE ACCEPTANCE**

Public Utilities/Planning Department

Reduce performance bond

Water & Wastewater Construction Record – Page 3

	Water	Sewer
Developer		
Pave roads & adjust valves & manholes		
Correct remaining deficiencies		
Submit construction completion certificate to VDH (if necessary)		
Submit letter stating system is paid for in full for in full		
Request final acceptance in writing		
 Public Utilities		
TV Sewer Lines		
Inspect system for deficiencies		
 Developer		
Correct any deficiencies in the system		
Post 10% Defect Bond		
 Public Utilities		
*GRANT FINAL ACCEPTANCE		
Release performance bond		
Inspect for defects after 9 months		
 Developer		
Correct any defects		
 Public Utilities		
Close record after expiration of defect bond		

PUBLIC IMPROVEMENT CONSTRUCTION PLAN CHECKLIST

VIRGINIA DEPARTMENT OF TRANSPORTATION CHECKLIST

Please direct questions about the following checklist to VDOT at (804)752-5511.

Yes No	Staff:	Yes No
	<p>PLANS GENERAL:</p> <ol style="list-style-type: none"> 1. Centerline shown 2. Curve data 3. Stations shown 4. R/W lines including dimensions (radius for radial lines) shown 5. Slope easements for fill slopes where slopes exceed proposed right-of-way limits shown 6. Subdivision limits shown 7. Destination of routes and streets shown 8. General notes satisfactory 9. Location of paved ditches by station shown 10. Entrance pipe size shown for each lot 11. Standard entrance design shown and/or noted on plans 12. Proposed drainage layout and description shown 13. Erosion control stone and type shown 14. Channel change and outlet ditches and easements shown 15. Projected traffic count for each street between intersection shown 16. Traffic control devices (stop/yield, etc.) must be shown 17. Information block shown on cover sheet as below: <ul style="list-style-type: none"> Subdivision _____ Section _____ Magisterial District: _____ Tax Parcel: _____ County and State: _____ Owner: _____ Developer: _____ Engineer: _____ Zoning: _____ Total Acres: _____ Number of Lots: _____ Average Lot Size: _____ Water Consumption: _____ Sewer Production: _____ 	

PUBLIC IMPROVEMENT CONSTRUCTION PLAN CHECKLIST

VIRGINIA DEPARTMENT OF TRANSPORTATION CHECKLIST - Continued

Yes No	Staff:	Yes No
	<p>PROFILE AND GRADE:</p> <ol style="list-style-type: none"> 1. Existing ground line shown 2. Grade line (mainline and connections) shown 3. Percent (%) grade, centerline grade, VC and VSD shown 4. Finished grade elevations (50') on tangent 5. Station on profile agrees with plan stations 6. Name of street(s) shown 7. Invert elevations on proposed drainage structures shown 8. Profile and grade for outfall ditches shown 9. Grades for special channels and ditches shown 10. Profile for proposed storm line to be included where applicable 11. Sight distance at intersections and entrance satisfactory <p style="text-align: center;">GRADING PLAN</p> <ol style="list-style-type: none"> 1. Existing contours shown 2. Proposed grading contours shown 3. Contour of computed headwater shown 4. Foundation elevations of existing dwellings shown, if questionable 5. Design layout for drainage system shown 	

PUBLIC IMPROVEMENT CONSTRUCTION PLAN CHECKLIST

VIRGINIA DEPARTMENT OF TRANSPORTATION CHECKLIST - Continued

Yes No	Staff:	Yes No
	<p>TYPICAL SECTION:</p> <ol style="list-style-type: none"> 1. Geometrics shall be governed by traffic volume 2. Projected traffic count shown for each street between intersections 3. Centerline shown 4. Point of finished grade noted <p style="text-align: center;"><u>SURFACE</u></p> <ol style="list-style-type: none"> 1. Width 2. Cross Slope 3. Type 4. Depth 5. Note showing rates for surface treatment (see attached sheet 2A) 6. Note showing prime coat with asphalt surface (see attached sheet 2A) <p style="text-align: center;"><u>BASE</u></p> <ol style="list-style-type: none"> 1. Width 2. Cross Slope 3. Type 4. Depth <p style="text-align: center;"><u>SUBBASE</u></p> <ol style="list-style-type: none"> 1. Width 2. Cross Slope 3. Type 4. Depth <p style="text-align: center;"><u>SHOULDERS</u></p> <ol style="list-style-type: none"> 1. Cut 2. Fill 3. Slope Ratio <p style="text-align: center;"><u>DITCHES</u></p> <ol style="list-style-type: none"> 1. Width 2. Depth 3. Slope Ratio <p style="text-align: center;"><u>SLOPES</u></p> <ol style="list-style-type: none"> 1. Ratio noted 2. Rounding 3. Seeding 4. Same as above for each different road typical section required 5. Channel changes, outlet and inlet ditches shown 6. Bottom width 7. Side slopes 8. Depth 9. Length 10. If lined, show depth and type of lining 11. Special design typical section included 12. Stations to which typical section apply shown under typical section 	

PUBLIC IMPROVEMENT CONSTRUCTION PLAN CHECKLIST

VIRGINIA DEPARTMENT OF TRANSPORTATION CHECKLIST - Continued

Yes No	Staff:	Yes No
	<p>DRAINAGE GENERAL:</p> <ol style="list-style-type: none"> 1. Existing or proposed drainage easements shown to a natural water course 2. Direction of flow by arrows for pipes and ditches shown 3. Drainage area in acres (supported by outlined contour map) 4. Pipe sizes to be in accordance with VDOT standard sizes 5. Items not VDOT standard to be detailed 6. Type of pipe to be installed (on and of right-of-way notes) 7. Design cover shown 8. Design computations computed according to current VDOT criteria included 9. Bearing, profiles, and cross sections of all drainage easements shown <p>DRAINAGE OUTFALLS:</p> <ol style="list-style-type: none"> 1. Has been field checked for location and found satisfactory 2. Is length of easement shown satisfactory? 3. Is width of easement shown satisfactory? 4. Is easement shown on plat? 5. Is erosion a problem? 6. Will this development cause problems? 7. Are there obstructions in or downstream maintained by the Department? 8. Are there existing problems? 9. Will this development cause problem? 10. Is there any drainage being diverted to this outfall? 11. Are there other development (future or proposed) which effect the outfalls? 12. Are there any proposed Road projects which could adversely affect or be affected by this proposed development? <p>DRAINAGE CRITERIA:</p> <ol style="list-style-type: none"> 1. Are spans, culverts, storm sewers, and channel capacity being computed on a minimum 10 Year Storm frequency? 2. Are the size of curb drop inlets slots being computed on a minimum of a 2 Year Storm frequency utilizing a TC = 15'? 3. Is the following policy being followed in computing and proposing paved ditches? <ol style="list-style-type: none"> a) Ditches shall be paved where computed velocities exceed 2.5 FPS unless supporting soil analysis indicates greater velocities can be tolerated. b) Ditches with computed velocities of 2.5 FPS or less shall be paved when conditions and unusual situations are enchanted and/or directed by the Highway Engineer in writing. c) Additional paved ditches shall be provided when necessary to meet field conditions to prevent erosion as directed by the Engineer in writing. d) Paved ditches may be deleted as deemed necessary when directed by the Engineer in writing. 	

PUBLIC IMPROVEMENT CONSTRUCTION PLAN CHECKLIST

VIRGINIA DEPARTMENT OF TRANSPORTATION CHECKLIST - Continued

Yes No	Staff:	Yes No
	<p>DRAINAGE DESIGN:</p> <p><u>HYDROLOGIC BREAKDOWN</u></p> <ol style="list-style-type: none"> 1. Reference to material used if not FHWA or VDOT shown rational method: $Q = CIA$ 2. "C" Breakdown of planned development and related areas shown 3. "I" – <ol style="list-style-type: none"> a) Overland flow (slope, type cover included) b) Channel flow (typical section lining, slope and velocity included) 4. "A" – DA in acres (supported by factors used in computation of "Q") 5. Other methods (supported by factors used in computation of "Q") 6. Hydraulic breakdown 7. Other channels (capacity) 8. Depth 9. Type of lining 10. Velocity of flow 11. Open channels (erosion control) 12. Computations supporting lined ditches include curb and gutter (computation to support the following). 13. Depth and spread of water in gutter. 14. Length of slots and placements of inlets 15. Type of inlet proposed 16. Termini of all drainage easements are required to meet standard CG-7 of the Virginia Erosion Control Handbook 17. Ditch lining (jute, paved, etc.) are required to be shown Station to Station <p><u>STORM SEWER (COMPUTATIONS TO SUPPORT THE FOLLOWING)</u></p> <ol style="list-style-type: none"> 1. Velocity of flow 2. Minimum design of 3 FPS maintained 3. Elevation of the hydraulic grad line at key points (drop inlets, manholes, etc.) noted 4. Size of pipe <p><u>SPECIAL DESIGN STRUCTURES (COMPUTATIONS TO SUPPORT THE FOLLOWING INCLUDE:)</u></p> <ol style="list-style-type: none"> 1. Special design of entrance for culverts 2. Flumes (Q-DN, VN, Freeboard) 3. Energy dissipaters 4. Special channels (curve, mitered, channel confluences, etc.) <p><u>CULVERTS</u></p> <ol style="list-style-type: none"> 1. Invert 2. Length 3. Type 4. Headwater depth 5. End treatment 6. Outlet velocity 7. Erosion control and type (where outlet velocity exceed 6 FPS) 8. Size <p><u>FLOOD CONTROL STRUCTURES</u></p> <ol style="list-style-type: none"> 1. When proposed, consult District Drainage Engineer 	

REQUIRED GENERAL NOTES

GRADING

1. The latest edition of the Road & Bridge Specifications and the Road & Bridge Standards of the Virginia Department of Transportation shall govern the material and construction methods of this project.
2. Where unsuitable material is encountered in the roadway, it shall be removed from the entire road right of way width and replaced where necessary with suitable material to the satisfaction of the engineer.
3. Where cut or fill slopes extend beyond the normal right of way, a slope easement will be required. At all road intersections the cut slopes shall be graded back to provide the required sight distances.
4. All growth of trees and vegetation shall be cleared and grubbed for the entire right of way. Other trees and vegetation which obstruct sight distances at road intersections shall be removed.
5. All vegetation and overburden to be removed from shoulder to shoulder prior to the construction of the subgrade.

DRAINAGE

1. All pipe culverts, except private entrances, shown hereon are to be concrete or corrugated metal (fully bituminous coated) with a minimum cover of one (1) foot.
2. Standard underdrains (CD-1 or CD-2 or UD-4's) to be provided as indicated on the plans, or where field conditions indicate.
3. All private entrance pipes shall be a minimum of twenty (20) feet in length and have a minimum diameter of fifteen (15) inches and shall be placed in accordance with the Virginia Department of Transportation Specifications unless otherwise noted on plans.
4. Temporary drainage easements and outlet ditches shall be provided at the end of all streets where puddling of water will occur due to stage of construction. Such easements to be abandoned at the time the road is extended.
5. All drainage easement shall be cleared and graded to the satisfaction of the engineer. Drainage easements shall extend to a point deemed as natural water course.
6. All road ditches shown as paved on plans are to be paved in accordance with the standard typical section or special section as shown on plans to a minimum depth of eight (8) inches unless otherwise directed by the Residential Engineer in writing. Any additional paving of the ditches, other than those shown on the road plans, will be determined prior to acceptance of the roads in the Virginia Department of Transportation Secondary Road System.
7. All jute lining must be installed in accordance with Page 114.02 of the 1993 Road and Bridge Standards.
8. All EC-3 (enkamat or equal) shall be installed in accordance with Page 114.03 of the Roads & Bridge Standards.

PAVEMENT

1. Pavement and base material design for each road shall be in accordance with the 1996 Pavement Design Guide for Subdivision and Secondary Roads in Virginia.
2. An actual copy of the CBR report is to be submitted prior to the placement of the aggregate base material. If the SSV values are less than 10, the developer will be required to submit for Virginia Department of Transportation's approval the proposed method of correction.
3. Subgrade must be approved by the Virginia Department of Transportation for grade, template, and compaction before base is placed.
4. Test reports on select materials must be submitted showing the material meets the required gradation for Type I, II, or III prior to placing aggregate base.
5. The requirement to pugmill aggregate base will be waived in the event that the surface course is applied after a minimum 60 days waiting period beginning at the completion of the installation of the aggregate base. In the event that the surface course is applied prior to 60 days, the pugmill requirement will apply.
6. The use of an aggregate spreader is required when placing aggregate base.
7. Base must be approved by Virginia Department of Transportation of depth, template, and compaction before surface treatment is applied.
8. Prime and double seal of surface treatment is to be applied in accordance with the latest Virginia Department of Transportation Road & Bridge Specifications.
9. Prime coat must be applied to base material prior to placement of asphalt (Prime coat RC-250 2 0.3 Gal./Sq. Yd.).
10. Bituminous surface to be applied in accordance with current Virginia Department of Transportation Specifications.
11. Encroachment: posts, walls, signs, or similar ornamental structures that do not enhance a roadways capacity or traffic safety, shall not be permitted within the right of way of a subdivision street. Only those structures specifically authorized by permit issued by Virginia Department of Transportation may be located within the streets right of way.
12. Surface treatment must be approved by the Resident Engineer of Virginia Department of Transportation.

MISCELLANEOUS

1. All intersections to have a minimum radii of 35 feet.
2. Entrance to state primary or secondary roads must be covered by CE7P Permit prior to construction.
3. All utilities located in right of ways must be placed under permit at the time that the state assigns the road number.
4. The Virginia Department of Transportation's approval of these plans expires 5 years from date of approval.

5. Street names signs shall be installed at all intersections by the subdivider prior to acceptance of the streets into the state system.
6. All roadside ditches, drainage easement ditches, and disturbed areas shall be seeded within 15 days after the road cut. Temporary seeding may be used, but a permanent stand of vegetation shall be required prior to final road acceptance.
7. All traffic control signs (stop, yield, etc.) shall be fabricated using encapsulated lens sheeting.
8. All construction methods and materials must be in accordance with the latest Virginia Department of Transportation Standards and Specifications.
9. The Virginia Department of Transportation's approval of these plans does not preclude the right to add additional facilities, such as seeding, paving, protective lining for roadside ditches, etc., as may be deemed necessary by the Department prior to the acceptance of such roads in order to limit siltation and pollution of nearby lakes, ponds and adjacent property.
10. No entrance culverts are to be installed within 5 feet of the property corner.
11. All private entrances shall be constructed to Virginia Department of Transportation's standards, PE-1, CG-9D, etc.
12. All commercial entrances to be constructed to standard CG-11.

ADD NOTE FOR PRIME AND DOUBLE SEAL:

Prime shall be RC-250 @ .33 gal. S.Y.

Cover material #68 stone @ 25 lbs. S.Y.

1st seal shall be CRS-2 @ .35 gal. S.Y.

Cover material #78 stone @ 25 lbs S.Y.

2nd seal shall be CRS-2 @ .30 gal S.Y.

Cover material #8 stone @ 25 lbs S.Y.

ADD NOTE WHEN ASPHALT IS USED FOR SURFACE:

"Agreement base material must be primed in accordance with Section 311-315 of the Road and Bridge Specifications prior to placing asphalt.

SUBDIVISION PLAT CHECKLIST

Use this checklist to prepare the required Plat.

Yes	No		Staff:	Yes	No
		<ol style="list-style-type: none"> 1. Title Block to be located consistently on all sheets, and to include the following information: <ol style="list-style-type: none"> a) Name of Subdivision. b) Magisterial District, County and State. c) Name(s) of owner(s) and developer. d) Name of surveyor or engineer who prepared the plat. e) Scale of plat (no larger than 1" = 200', unless previously approved by the agent). f) Date of completion of the plat and any subsequent revisions. g) Number of sheets and match lines. 2. Information block, to include the following information: <ol style="list-style-type: none"> a) Total area in subdivision. b) Total area in lots. c) Total area in road right-of-way. d) Total area in common area. e) Total number of lots. f) Parcel numbers -- GPIN No(s). -- (from County tax maps). (Note: if subdivision comprises more than one (1) parcel, the parcel number and area of each should be shown.) g) Zoning of parcel(s) 3. Approval Block: three (3) by five (5) inches. 4. True North arrow. 5. Vicinity sketch, at a scale of 1" = 2000'. 6. Boundary survey, showing bearings and distances. 7. Zoning boundaries and districts on site. 8. Traffic Zone 9. The accurate location and dimensions, in feet and decimals of a foot to the nearest one-hundredth of a foot, and bearings in degrees, minutes, and seconds to the nearest ten (10) seconds for the following: <ol style="list-style-type: none"> a) Lot layout, lot numbers, block letters, and dimensions of lots. b) Area and frontage of lots. c) Location, width, and names (numbers) of all existing or platted streets and public ways adjoining the subdivision. Location, width, and purpose of other rights-of-way and easements. Provide the deed book and page number for all existing and off-site easements. d) Location of existing physical features, including buildings, and all streams, washes, or ditches, including direction of flood, water level elevations, and floodplains. e) Location of the subdivision as part of some larger subdivision (or tract of land) and by reference to permanent survey monuments with a tie to the section corner. f) Show existing overhead lines in subdivisions zoned other than A-1, AR-6, M-2, or M-3. Except for subdivisions in these zoning districts listed, add a notation that all utilities shall be installed underground. These overhead lines must be removed or bonded for removal prior to final approval of this subdivision. 			

10. The data of all curves along the road frontages shall be shown in detail at the curve or in a curve data table containing the following: Delta, radius, degree, arc length, tangent length, chord length, and chord bearings. If the subdivision contains more than 2 lots, then access must meet VDOT sight distance requirement (752-5511).
11. Topography, at intervals of two (2) feet, unless waived or requested at a greater interval by the director. (Note: Topographic lines must later be removed for final approval)
12. Right-of-way dedication in accordance with the Major Thoroughfare Plan.
13. Owner's Statement (Subdivision Certificate).
14. Surveyor's/Engineer's Certificate.
15. Source of Title.
16. Provide the owner's names, GPINs, and zoning for all adjacent properties. If the parcel is located in a subdivision, provide the name of the subdivision and its zoning and simply provide the GPINs for the individual lots.
17. The 50' right-of-way used to access a subdivision located within A-1 or AR-6 Zoning District must meet the horizontal alignment with a minimum radius of one hundred (110) feet.
18. Please respond to the items below that apply to your subdivision making sure that the appropriate information is shown on the subdivision plat:
 - a) For subdivisions with septic systems, submit an application for septic drainfield approval with this subdivision application. Contact the Health Department (752-4313) about the necessary submittals required to obtain approval. A private soils consultant (AOSE) will be required to identify drainfield locations. Provide evidence of approval of lots with existing drainfields. When approval is obtained, add a notation to the subdivision plat that a plat showing the approved locations for the drainfields is on file with the Hanover County Health Department.
 - b) Show location of existing utilities (public water and sewer), if applicable, to serve the proposed subdivision. Plans showing location of utilities are on file at the Department of Public Utilities (537-6019).
 - c) For those subdivisions with public utilities, please add the following statement: Utility easements shown are dedicated to the County of Hanover (County) for the purpose of constructing, maintaining, and accessing water system improvements and sanitary sewer system improvements both above and below ground that are owned and operated by the County. Drainage easements shown are dedicated to the County for the purpose of constructing, maintaining, and accessing drainage system improvements both above and below ground owned and operated by the County. The County shall have the right at any time and from time to time, to construct, maintain, inspect, operate, protect, replace, repair, change the size of, remove, relocate, and improve all such improvements. The County and its agents shall have full and free use of all easements and shall have the rights and privileges reasonably necessary for the utilization of the easements. These rights and privileges include, but are not limited to, the right of ingress to and egress from any easement including the use of private roads and driveways that may now or hereafter exist on the property being subdivided. The County shall have the right of ingress and egress over all property adjacent to the easement on the property being subdivided if reasonably necessary, in the County's sole opinion, for access to any easement. The County shall have the right to trim, cut and remove any trees, shrubbery, fences, structures, or other obstructions or facilities within any easement deemed by the County to interfere with the proper and efficient use of the easements for purposes stated.

19. Please respond to the items below that apply to your subdivision making sure that the appropriate information is shown on the subdivision plat:
 - a) Notation on the plat stating that all septic systems located within the Chesapeake Bay Preservation Area will need to be pumped out every five (5) years.
 - b) Provide all information required for compliance with Chapter 10, Article II, Hanover County Code: Chesapeake Bay Preservation (Certification by Applicant or Water Quality Impact Assessment and fee from the Department of Public Works at 537-6181). Provide the following statement: *Part/All of this site lies within a RMA. The limits of any RPA located on this site have been shown on the plat.*
 - c) With the exception of lots in A-1 or AR-6, provide the lot area inside and outside the 100-year floodplain.
20. If applicable, provide the zoning case number and a list of all proffers.
21. For new roads serving 3 or 4 lots, the road name will need to be approved by Richmond Regional Planning Commission (RRPDC) at (804) 358-3684. The following statement should also be added to the plat: *The roads in this subdivision are private in nature and shall not be maintained by the Virginia Department of Transportation or other public road agency and that the maintenance and improvement thereof shall be the mutual obligation of the landowners in the subdivision.*
22. Estimated total number of gallons per day of water system requirements where a distribution system is proposed.
23. Estimated total number of gallons per day to be treated where a central sewage facility is proposed.
24. Location, size, and types of existing and proposed utilities, including sanitary sewers, storm drains, water mains, manholes, and underground conduits.
25. Maximum size of plat for recordation is 18" x 24".
26. Show location(s) of any known or suspected historic resources on both the subject and adjacent parcels, including cemeteries, trenches, and archeological features on this site as reflected in available County records.
27. For a subdivisions located within the Suburban Service Area, provide a fifty (50) foot landscaped buffer including a four (4) foot wide pedestrian path along existing roads and roads designated as major thoroughfares.
28. Denote at least four horizontal control points (using x and y coordinate values) in the Virginia State Plane Coordinate System (south zone) per North American Datum (NAD) 1983.