



DPU Water Resources Division
Plan Review Checklist

To be completed by WRD	
Plan Number:	_____
Reviewer:	_____
Previously Reviewed:	_____

Instructions: This checklist is to be completed during the design or during quality control check by the plan preparer and submitted with the permit application package. All items must be fully addressed and indicated so by checking the box for that item or providing rationale as to why the item has not been addressed. Where applicable, identify plan sheet(s) addressing specific requirements to help facilitate plan review.

Project Information

Project Address:	Project Name:
Total Disturbed Acres:	
Plan Prepared By:	Email:
Date Checklist Prepared:	Phone:
Parcel Owner:	Email
	Phone:

Check features applicable to this plan:

- | | | | | | |
|--------------------------|--------------------------|----------------------------------|--------------------------|--------------------------|---|
| Yes | No | | Yes | No | |
| <input type="checkbox"/> | <input type="checkbox"/> | Perennial Stream | <input type="checkbox"/> | <input type="checkbox"/> | Common Plan of Development |
| <input type="checkbox"/> | <input type="checkbox"/> | Wetland | <input type="checkbox"/> | <input type="checkbox"/> | Subdivision (3+ parcels) |
| <input type="checkbox"/> | <input type="checkbox"/> | 100 Year Floodplain | <input type="checkbox"/> | <input type="checkbox"/> | Combined Sewer Service Area |
| <input type="checkbox"/> | <input type="checkbox"/> | Chesapeake Bay Preservation Area | <input type="checkbox"/> | <input type="checkbox"/> | Municipal Separate Storm Sewer System (MS4) |

Check which areas apply and complete indicated checklist section:

Checklist Section		Regulation/Guidance	Checklist Section		Regulation/Guidance
Section 2	<input type="checkbox"/>	Erosion and Sediment Control [Chapter 14, Article III]	Section 5	<input type="checkbox"/>	Stormwater Management Facilities [Sec. 14-327]
Section 3	<input type="checkbox"/>	Chesapeake Bay Plan [Chapter 14, Article IV]	Section 6	<input type="checkbox"/>	Floodplain [Chapter, 14, Article II]
Section 4	<input type="checkbox"/>	Storm Drain System [Richmond Stormwater Manual]			

Check if additional permits or supporting documentation may apply and are included with application:

YES	NA	
<input type="checkbox"/>	<input type="checkbox"/>	USACE wetland delineation approval/permit
<input type="checkbox"/>	<input type="checkbox"/>	Stream perenniality study with all supporting documentation
<input type="checkbox"/>	<input type="checkbox"/>	City confirmation letter of stream perenniality study (include on appropriate plan sheet)
<input type="checkbox"/>	<input type="checkbox"/>	Nutrient Credit information (include DEQ approval of Bank and recorded approval of sale on appropriate plan sheet)
<input type="checkbox"/>	<input type="checkbox"/>	General permit coverage registration statement
<input type="checkbox"/>	<input type="checkbox"/>	A copy of all Federal permits
<input type="checkbox"/>	<input type="checkbox"/>	A copy of all State permits

DPU Water Resources Division

Plan Review Checklist

Section 1 – General Information

YES	SHEET #	REQUIREMENT	NA
<input type="checkbox"/>		1) Cover Sheet	<input type="checkbox"/>
<input type="checkbox"/>		a) Project name	<input type="checkbox"/>
<input type="checkbox"/>		b) Owner/developer name, address, phone number, and contact person	<input type="checkbox"/>
<input type="checkbox"/>		c) Vicinity map with project outlined	<input type="checkbox"/>
<input type="checkbox"/>		d) List all required permits	<input type="checkbox"/>
<input type="checkbox"/>		e) Sheet index	<input type="checkbox"/>
<input type="checkbox"/>		f) Plan date/revision dates	<input type="checkbox"/>
<input type="checkbox"/>		g) List ESC quantities	<input type="checkbox"/>
<input type="checkbox"/>		h) List storm drainage quantities	<input type="checkbox"/>
<input type="checkbox"/>		i) Provide BMP summary table (example Excel file available for download)	<input type="checkbox"/>
<input type="checkbox"/>		2) Plan Sheets	<input type="checkbox"/>
<input type="checkbox"/>		a) Engineer's, Architect's, Land Surveyor's, or Landscape Architect's stamp signed and dated on all plan sheets	<input type="checkbox"/>
<input type="checkbox"/>		b) All drawings must be to scale	<input type="checkbox"/>
<input type="checkbox"/>		c) Provide a north arrow on every plan sheet	<input type="checkbox"/>
<input type="checkbox"/>		d) Show all existing and proposed contours (2' intervals maximum)	<input type="checkbox"/>
<input type="checkbox"/>		e) Show property lines with metes and bounds and owner information. Include legal description for adjacent properties	<input type="checkbox"/>
<input type="checkbox"/>		f) Provide detail schematic for plans that cover two or more sheets	<input type="checkbox"/>
<input type="checkbox"/>		g) Complete title block	<input type="checkbox"/>
<input type="checkbox"/>		h) Show and label extents of buildable area (setbacks, floodplain limits, RPA, etc.)	<input type="checkbox"/>
<input type="checkbox"/>		i) Show limits of construction, limits of disturbance, and limits of grading	<input type="checkbox"/>
<input type="checkbox"/>		3) Existing Conditions; show the following features, were applicable:	<input type="checkbox"/>
<input type="checkbox"/>		a) All 100-year flood plain limits (No land disturbance or structures shall be permitted in the floodplain limits without prior City Approval)	<input type="checkbox"/>
<input type="checkbox"/>		b) Location and boundaries of tidal and non-tidal wetlands, as delineated on the National Wetland Inventory (NWI) Maps prepared by the U.S. Department of the Interior (available from the Program Administrator)	<input type="checkbox"/>
<input type="checkbox"/>		c) Any Chesapeake Bay Preservation Area (RMA and/or RPA) buffer zones	<input type="checkbox"/>
<input type="checkbox"/>		d) Existing/proposed right of way (including improved and unimproved)	<input type="checkbox"/>
<input type="checkbox"/>		e) All existing easements (utilities, streets)	<input type="checkbox"/>
<input type="checkbox"/>		f) Physical features, including streets, alleys, parking areas and existing site improvements to remain, such as structures and their use, parking areas, driveways and all areas of impervious cover	<input type="checkbox"/>
<input type="checkbox"/>		g) Existing utilities including storm sewer, curb and gutter, sewer (including septic drain fields), water, electrical, and gas	<input type="checkbox"/>
<input type="checkbox"/>		h) Existing streams, ponds, culverts, ditches, and other water bodies; including field located perennial streams	<input type="checkbox"/>
<input type="checkbox"/>		i) Soil types	<input type="checkbox"/>
<input type="checkbox"/>		j) Forest cover and other vegetative areas	<input type="checkbox"/>
Provide reasoning for above NA responses in the space below. Attach additional pages if necessary.			

DPU Water Resources Division

Plan Review Checklist

Section 2 – Erosion and Sediment Control Plan

YES	SHEET #	REQUIREMENT	NA
<input type="checkbox"/>		1) ESC Narrative per VAESCH	<input type="checkbox"/>
<input type="checkbox"/>		a) <i>Project Description</i> – Describe purpose and scope of land disturbing activity and area (acres) to be disturbed	<input type="checkbox"/>
<input type="checkbox"/>		b) <i>Existing Site Conditions</i> – Describe existing topography, vegetation, drainage, etc.	<input type="checkbox"/>
<input type="checkbox"/>		c) <i>Adjacent Site</i> – Describe neighboring areas, streams, lakes, residential areas, roads, parks, etc., which may be affected by the land disturbance	<input type="checkbox"/>
<input type="checkbox"/>		d) <i>Off-Site areas</i> – Describe if off-site soil borrow/disposal or off-site grading is planned	<input type="checkbox"/>
<input type="checkbox"/>		e) <i>Soils</i> – Provide brief description including, name, mapping unit, erodibility, permeability, depth, texture, and soil structure	<input type="checkbox"/>
<input type="checkbox"/>		f) <i>Critical areas</i> – Describe critical areas with potential erosion problems (long/steep slopes, water bodies, wetlands, etc.)	<input type="checkbox"/>
<input type="checkbox"/>		g) <i>Erosion & Sediment Control measures</i> – Describe methods and measures used	<input type="checkbox"/>
<input type="checkbox"/>		h) <i>Permanent stabilization</i> – Describe how the site will be stabilized after construction is complete	<input type="checkbox"/>
<input type="checkbox"/>		i) <i>Maintenance</i> – Designate responsible party for maintaining ESC measures	<input type="checkbox"/>
<input type="checkbox"/>		j) <i>Maintenance, continued</i> – Provide a description and schedule of regular inspection and repair of ESC measures	<input type="checkbox"/>
<input type="checkbox"/>		k) <i>Stormwater run-off considerations</i> – Will site cause increase in peak run off rates?	<input type="checkbox"/>
<input type="checkbox"/>		l) <i>Calculations</i> – All channels, basins, diversions, pre- and post-development run-off, MS-19, etc.	<input type="checkbox"/>
<input type="checkbox"/>		2) Show limits of disturbance outlined and labeled (all ESC measures must be within the limits of disturbance)	<input type="checkbox"/>
<input type="checkbox"/>		3) Show existing vegetation with any tree protection	<input type="checkbox"/>
<input type="checkbox"/>		4) Show limits of clearing and any undisturbed areas	<input type="checkbox"/>
<input type="checkbox"/>		5) Provide a soils map	<input type="checkbox"/>
<input type="checkbox"/>		6) Provide ESC measures during demolition of the site (this should be stated in the sequence of construction under the first phase)	<input type="checkbox"/>
<input type="checkbox"/>		7) Provide adequate access, staging, and stockpiling areas with appropriate ESC measures	<input type="checkbox"/>
<input type="checkbox"/>		8) List key of ESC measures with quantities	<input type="checkbox"/>
<input type="checkbox"/>		9) Show and label all ESC measures on plan sheet	<input type="checkbox"/>
<input type="checkbox"/>		10) List construction sequence/schedule specific to project and all phases, including any site demolition and removal of ESC measures	<input type="checkbox"/>
<input type="checkbox"/>		11) All detention/retention ESC measures within 20' of a building's foundations must be evaluated	<input type="checkbox"/>
<input type="checkbox"/>		12) Show existing and proposed drainage patterns with flow arrows, time of concentration flow paths, and c- factors (or curve numbers)	<input type="checkbox"/>
<input type="checkbox"/>		13) Notate any off-site drainage areas (in acres) entering site	<input type="checkbox"/>
<input type="checkbox"/>		14) Sediment traps (Disturbed area with contributing drainage area of < 3 acres):	<input type="checkbox"/>
<input type="checkbox"/>		a) Provide inlet protection and outlet location	<input type="checkbox"/>
<input type="checkbox"/>		b) Maximize flow length from inlet to outlet	<input type="checkbox"/>

DPU Water Resources Division

Plan Review Checklist

YES	SHEET #	REQUIREMENT	NA
<input type="checkbox"/>		c) Provide existing drainage area, proposed drainage area, storage capacity, and all supporting calculations per VAESCH Chapter 3.13	<input type="checkbox"/>
<input type="checkbox"/>		15) Sediment basins (Disturbed area with contributing drainage area of > 3 acres):	<input type="checkbox"/>
<input type="checkbox"/>		a) Provide inlet and outlet protection	<input type="checkbox"/>
<input type="checkbox"/>		b) Maximize flow length from inlet to outlet (add baffles as needed)	<input type="checkbox"/>
<input type="checkbox"/>		c) Provide basin data as follows: Basin type, existing drainage areas, proposed drainage area, storage required, storage provided, weir crest elevation, storage depth, bottom dimensions, cleanout elevation, channel depth of flow, maximum side slopes (specify cut or fill), bottom elevation, embankment elevation, riser dimensions, barrel dimensions. Include Temporary Sediment Basin Design Data Sheet.	<input type="checkbox"/>
<input type="checkbox"/>		d) Show separate dewatering device for pipe outlet traps	<input type="checkbox"/>
<input type="checkbox"/>		e) Provide all supporting calculations per VAESCH Chapter 3.14	<input type="checkbox"/>
<input type="checkbox"/>		16) Temporary storm drain diversions	<input type="checkbox"/>
<input type="checkbox"/>		a) Show profile	<input type="checkbox"/>
<input type="checkbox"/>		b) Give invert elevations of temporary pipe into trap on plan view	<input type="checkbox"/>
<input type="checkbox"/>		c) Provide details	<input type="checkbox"/>
<input type="checkbox"/>		17) Required notes on plans	<input type="checkbox"/>
<input type="checkbox"/>		a) General ESC Notes 1-9 (VAESCH Chapter 6 , Table 6-1, pg. VI-15)	<input type="checkbox"/>
<input type="checkbox"/>		b) City of Richmond Standard ESC notes	<input type="checkbox"/>
<input type="checkbox"/>		c) City of Richmond Standard ESC measure maintenance items	<input type="checkbox"/>
<input type="checkbox"/>		d) All 19 Minimum standards (9VAC25-840-40)	<input type="checkbox"/>
<input type="checkbox"/>		18) Provide details for all erosion & sediment control measures proposed per VAESCH Chapter 3	<input type="checkbox"/>
<input type="checkbox"/>		19) Provide temporary seeding schedule per ESC Technical Bulletin #4 .	<input type="checkbox"/>
<input type="checkbox"/>		20) Provide permanent seeding schedule per ESC Technical Bulletin #4 (use Table 3.32-D for west of I-95 and Tabled 3.32-E for east of I-95).	<input type="checkbox"/>
<input type="checkbox"/>		21) Off-site grading requires written documentation of permission from adjoining owner. Otherwise, include on current permit or separate land disturbing plan.	<input type="checkbox"/>
<input type="checkbox"/>		22) Subdivision	<input type="checkbox"/>
<input type="checkbox"/>		a) For the MS-19 requirements, an analysis of the outfall of the proposed development shall be done so that the natural channel is extended to the receiving stream.	<input type="checkbox"/>
<input type="checkbox"/>		b) If the drainage analysis fails to meet MS-19, stormwater management shall be required at the road construction plan stage of submission for a central facility.	<input type="checkbox"/>
<input type="checkbox"/>		c) Any lots submitted for a building permit that are part of a subdivision development shall not be considered as separate project, rather the subdivision development, shall be considered as a single project. Therefore, the central stormwater management facility and the overall site grading plan shall govern.	<input type="checkbox"/>

Provide reasoning for above NA responses in the space below. Attach additional pages if necessary.

DPU Water Resources Division

Plan Review Checklist

Section 3 – Chesapeake Bay Plan

Instructions: Applicable requirements of a Chesapeake Bay Plan include: Physical site characteristics, proposed improvements, grading plan, BMPs, landscape plan, narrative, WQIA, hydrology, impacts, wastewater, stream perennial flow determination, USACOE wetland delineation approval, etc.

YES	SHEET #	REQUIREMENT	NA
<input type="checkbox"/>		1) The City of Richmond Chesapeake Bay Preservation Program Public Information Manual has been reviewed by the plan preparer and submitted plan(s) meet all requirements	<input type="checkbox"/>
<input type="checkbox"/>		2) All existing conditions, as specified in Section 1 of this checklist	<input type="checkbox"/>
<input type="checkbox"/>		4) Location of all significant plant material, including all trees on site six inches or greater in diameter at breast height; groupings of trees or significant vegetation may be outlined	<input type="checkbox"/>
<input type="checkbox"/>		5) Areas of proposed impervious surface, including:	<input type="checkbox"/>
<input type="checkbox"/>		a) Streets, alleys, sidewalks, curbs and gutters, driveways, and access, loading and other paved areas	<input type="checkbox"/>
<input type="checkbox"/>		b) Structures, including building footprint, dimensions, and use	<input type="checkbox"/>
<input type="checkbox"/>		6) The location of any sewage disposal system or reserve drain fields	<input type="checkbox"/>
<input type="checkbox"/>		7) Preliminary grading plan and/or cross-section drawings (if necessary to evaluate site drainage and conservation of natural features)	<input type="checkbox"/>
<input type="checkbox"/>		8) If structural Best Management Practice (BMP)/stormwater management facilities are proposed, complete Section 5 of this checklist	<input type="checkbox"/>
<input type="checkbox"/>		9) Additional supporting information shown in a table format	<input type="checkbox"/>
<input type="checkbox"/>		a) Total site area	<input type="checkbox"/>
<input type="checkbox"/>		b) Total ChesBay area	<input type="checkbox"/>
<input type="checkbox"/>		c) Amount of impervious area	<input type="checkbox"/>
<input type="checkbox"/>		d) Amount of impervious area in ChesBay	<input type="checkbox"/>
<input type="checkbox"/>		e) Amount of open/forested space on site	<input type="checkbox"/>
<input type="checkbox"/>		f) Amount of open/forested space in ChesBay	<input type="checkbox"/>
<input type="checkbox"/>		g) Percentage of impervious area for existing and proposed conditions	<input type="checkbox"/>
<input type="checkbox"/>		10) An Erosion and Sediment Control Plan that meets (at a minimum) the requirements in Section 2 of this checklist, and specifically addresses stream crossings, wetland disturbances, and shoreline conditions	<input type="checkbox"/>
<input type="checkbox"/>		11) Landscape plan	<input type="checkbox"/>
<input type="checkbox"/>		a) Major landscaping features, including existing vegetation, to be retained	<input type="checkbox"/>
<input type="checkbox"/>		b) Clear delineation of all trees proposed for removal	<input type="checkbox"/>
<input type="checkbox"/>		c) Description of plant species to be disturbed or removed	<input type="checkbox"/>
<input type="checkbox"/>		d) Treatment of the RPA buffer, indicating proposed landscaping and vegetation to be retained by type and quantity	<input type="checkbox"/>
<input type="checkbox"/>		e) Replanting schedule for trees and other significant vegetation removed for construction, including list of trees and plants to be used	<input type="checkbox"/>
<input type="checkbox"/>		f) Demonstration that the design will preserve, to the greatest extent possible, any significant trees and vegetation on site and provide maximum erosion control and overland flow benefits; provide description in narrative	<input type="checkbox"/>

DPU Water Resources Division

Plan Review Checklist

YES	SHEET #	REQUIREMENT	NA
<input type="checkbox"/>		g) Demonstration that indigenous plants (see the City of Richmond Chesapeake Bay Preservation Program Public Information Manual Plant List, Appendix C) are to be used to the greatest extent possible	<input type="checkbox"/>
<input type="checkbox"/>		h) At the discretion of the Program Administrator, the applicant may be required to provide additional information, particularly in support of significant mitigation requirements for a project that disturbs more than 50,000 square feet of area	<input type="checkbox"/>
<input type="checkbox"/>		12) A Water Quality Impact Assessment (WQIA) is required for all development proposed in an RPA or any other area warranted as determined by the Program Administrator. The WQIA consists of the following elements:	<input type="checkbox"/>
<input type="checkbox"/>		a) Describe existing topography, soils, hydrology and geology of the site and immediately adjacent lands	<input type="checkbox"/>
<input type="checkbox"/>		b) Describe impacts of the proposed development on topography, soils, hydrology and geology on site and adjacent lands	<input type="checkbox"/>
<input type="checkbox"/>		c) Quantify disturbance/destruction of wetlands and provide justification	<input type="checkbox"/>
<input type="checkbox"/>		d) Describe disruption/reduction in supply of water to wetlands, streams, lakes, rivers or other water bodies	<input type="checkbox"/>
<input type="checkbox"/>		e) Describe disruption to existing hydrology, including wetland and stream circulation patterns	<input type="checkbox"/>
<input type="checkbox"/>		f) Provide source, location and description of proposed fill material	<input type="checkbox"/>
<input type="checkbox"/>		g) Characterize dredge material and provide location of dumping area for material	<input type="checkbox"/>
<input type="checkbox"/>		h) Locate and describe impacts on shellfish beds, submerged aquatic vegetation, and fish spawning areas	<input type="checkbox"/>
<input type="checkbox"/>		i) Describe any creation of wetlands to replace those lost	<input type="checkbox"/>
<input type="checkbox"/>		j) Describe efforts to minimize cut and fill	<input type="checkbox"/>
<input type="checkbox"/>		12.a) A Landscape Mitigation Plan is per the Riparian Buffer Mitigation Manual for all RPA encroachments	<input type="checkbox"/>
<input type="checkbox"/>		13) Septic System & Drain Fields	<input type="checkbox"/>
<input type="checkbox"/>		a) Show any existing septic tank and drain field location	<input type="checkbox"/>
<input type="checkbox"/>		b) Include calculations and locations of anticipated changes which affect existing septic drain field or wastewater irrigation areas	<input type="checkbox"/>
<input type="checkbox"/>		c) Provide justification for sewer line locations in environmentally sensitive areas and describe construction techniques and standards	<input type="checkbox"/>
<input type="checkbox"/>		d) New septic tanks are not allowed	<input type="checkbox"/>

Provide reasoning for above NA responses in the space below. Attach additional pages if necessary.

DPU Water Resources Division

Plan Review Checklist

Section 4 – Storm Drain System

Instructions: All storm drain systems shall be designed according to the [COR Stormwater Management Design and Construction Standards Manual](#). In General, components required for review of a storm drain system include: *existing hydrology, proposed hydrology, hydraulics (culvert, storm drain, open channel), profiles, calculation/modeling report with narrative/data/results, etc.*

YES	SHEET #	REQUIREMENT	NA
<input type="checkbox"/>		1) Hydrology	<input type="checkbox"/>
<input type="checkbox"/>		a) Identification of each stormwater outfall, including existing and proposed drainage areas: show size of drainage area, time of concentration flow path, composite break down of the runoff coefficient, and arrows indicating flow directions	<input type="checkbox"/>
<input type="checkbox"/>		b) Clearly define any sub-drainage areas and drainage divide lines	<input type="checkbox"/>
<input type="checkbox"/>		c) Show all existing and proposed hydrology computations	<input type="checkbox"/>
<input type="checkbox"/>		2) Hydraulics	<input type="checkbox"/>
<input type="checkbox"/>		a) Show and label all existing and proposed drainage structures on plan	<input type="checkbox"/>
<input type="checkbox"/>		b) Existing and proposed storm drain pipes should show the length of the pipe, the size of the pipe, and the type of the pipe in plan and profile	<input type="checkbox"/>
<input type="checkbox"/>		c) Any storm drainage within a building footprint shall comply with Chapter 7 in the latest edition of the International Plumbing Code.	<input type="checkbox"/>
<input type="checkbox"/>		d) Storm drainage design requirements:	<input type="checkbox"/>
<input type="checkbox"/>		i. Show all storm drain hydraulic computations on plans	<input type="checkbox"/>
<input type="checkbox"/>		ii. Demonstrate the 10-year design flow less than pipe capacity	<input type="checkbox"/>
<input type="checkbox"/>		iii. Storm sewer slopes meet minimum criteria (0.3%)	<input type="checkbox"/>
<input type="checkbox"/>		iv. All calculations shall be submitted on standard VDOT forms or other acceptable documentation	<input type="checkbox"/>
<input type="checkbox"/>		v. Manhole steps required in structures 4-feet and greater in depth	<input type="checkbox"/>
<input type="checkbox"/>		vi. Provide a minimum cover of 3.5-feet for all storm drain structures, OR, provide protective fill for all storm drainage with less than two feet of cover	<input type="checkbox"/>
<input type="checkbox"/>		vii. Provide storm drain load protection where necessary such as cradle and encasement (provide pipe loading table on plan)	<input type="checkbox"/>
<input type="checkbox"/>		viii. Show and analyze the outfall of the storm drain profile. Submit storm drain computations to support all drainage outfalls	<input type="checkbox"/>
<input type="checkbox"/>		ix. Specify/show on plan/profile a dimensioned outfall channel section with 10-year lining depth, side slopes, bottom width	<input type="checkbox"/>
<input type="checkbox"/>		e) Open channel design requirements:	<input type="checkbox"/>
<input type="checkbox"/>		i. Provide cross-section details for open channel section. Show and label the location of the section on plan. Show the section's depth of flow, velocity, discharge and channel lining 'n' value, etc.	<input type="checkbox"/>
<input type="checkbox"/>		ii. Open channel depth of flow less than 3', otherwise flow path shall be piped	<input type="checkbox"/>
<input type="checkbox"/>		iii. Maximum permissible flow velocity of 3.5 fps for grass ditches	<input type="checkbox"/>
<input type="checkbox"/>		iv. Open channel longitudinal slope > minimum slope (0.2%)	<input type="checkbox"/>
<input type="checkbox"/>		v. Show rip-rap channel(s) meet design criteria: >100 ft from front of single family dwellings, unless otherwise approved; >75 ft from rear of single family dwellings	<input type="checkbox"/>

DPU Water Resources Division

Plan Review Checklist

YES	SHEET #	REQUIREMENT	NA
<input type="checkbox"/>		vi. Rip-rap lining thickness meets minimum criteria of 24-inch thickness with geotextile fabric underlayment	<input type="checkbox"/>
<input type="checkbox"/>		vii. Specify paved channels when open channel slopes < 0.75%	<input type="checkbox"/>
<input type="checkbox"/>		viii. Where paved channels are steeper than 15%, anchor lugs are required every 10-feet on center	<input type="checkbox"/>
<input type="checkbox"/>		ix. 9-inch freeboard (vertical wall) is required along outside radius of paved ditches	<input type="checkbox"/>
<input type="checkbox"/>		f) Storm drain/open channel profile requirements:	<input type="checkbox"/>
<input type="checkbox"/>		i. Show existing and proposed storm drain profiles, where applicable	<input type="checkbox"/>
<input type="checkbox"/>		ii. Show existing ground and proposed grade surface elevations along the centerline of the system	<input type="checkbox"/>
<input type="checkbox"/>		iii. Label the percent grade (slope) and length	<input type="checkbox"/>
<input type="checkbox"/>		iv. Label the size and type of material	<input type="checkbox"/>
<input type="checkbox"/>		v. Show and label all existing and proposed storm drain structures to include rim elevations, inverts in and out, <i>etc.</i>	<input type="checkbox"/>
<input type="checkbox"/>		vi. Show the hydraulic grade line on storm drain profile (all hydraulic grade lines must be supported with computations shown on plan)	<input type="checkbox"/>
<input type="checkbox"/>		vii. Show and label all existing and proposed utilities that cross the proposed storm drain/open channel and label clearances (minimum clearance is required)	<input type="checkbox"/>
<input type="checkbox"/>		viii. Show all storm drain crossings with the appropriate clearances	<input type="checkbox"/>
Provide reasoning for above NA responses in the space below. Attach additional pages if necessary.			

DPU Water Resources Division

Plan Review Checklist

Section 5 – Stormwater Management Facilities

Instructions: Complete the following checklist to document RSMP, technical criteria, and BMP requirements.

YES	SHEET #	REQUIREMENT	NA
<input type="checkbox"/>		1) Stormwater management plan requirements (9VAC25-870-55)	<input type="checkbox"/>
<input type="checkbox"/>		a) A general description of the proposed stormwater management facilities and the mechanism through which the facilities will be operated and maintained after construction is complete;	<input type="checkbox"/>
<input type="checkbox"/>		b) Documentation and summary of calculations verifying compliance with the water quality and quantity requirements (9VAC25-870-63 and 9VAC25-870-66 , respectively); or	<input type="checkbox"/>
<input type="checkbox"/>		c) If an operator intends to meet the quality and quantity requirements using off-site compliance options, where applicable, then a letter of availability from the off-site provider must be included, as well as documentation of the applicant's acquisition of nutrient credits;	<input type="checkbox"/>
<input type="checkbox"/>		d) A map or maps of the site includes:	<input type="checkbox"/>
		i. Existing conditions, as defined in Section 1	
<input type="checkbox"/>		ii. Existing and proposed land use/land cover with tabulation of percentages of surface area for various uses (if not already included with Section 3);	<input type="checkbox"/>
<input type="checkbox"/>		iii. Sufficient information on adjoining parcels to assess the impacts of stormwater from the site on these parcels;	<input type="checkbox"/>
<input type="checkbox"/>		iv. Proposed stormwater management facilities and associated existing and proposed drainage patterns;	<input type="checkbox"/>
<input type="checkbox"/>		e) Stormwater management facility/BMP design calculation summary. (See VA Stormwater Management Handbook or Virginia Stormwater BMP Clearinghouse standards and specifications , as appropriate.) Refer to Item 4 for additional calculation requirements	<input type="checkbox"/>
<input type="checkbox"/>		2) Profile requirements	<input type="checkbox"/>
<input type="checkbox"/>		a) Storm drainage system entering device (refer to Section 4 of this checklist)	<input type="checkbox"/>
<input type="checkbox"/>		b) Low flow channel in basins (Pilot channel)	<input type="checkbox"/>
<input type="checkbox"/>		c) Profiles of all structures	<input type="checkbox"/>
<input type="checkbox"/>		d) Existing ground	<input type="checkbox"/>
<input type="checkbox"/>		e) Proposed grade	<input type="checkbox"/>
<input type="checkbox"/>		f) Pipes and other utilities	<input type="checkbox"/>
<input type="checkbox"/>		g) Water Surface Elevation of 2, 10 and 100-year design storms and Normal Pool	<input type="checkbox"/>
<input type="checkbox"/>		h) Emergency spillway elevation	<input type="checkbox"/>
<input type="checkbox"/>		i) Sub-surface details, if required (i.e., cutoff trench, clay core, clay liner, etc.)	<input type="checkbox"/>
<input type="checkbox"/>		3) Additional Stormwater BMP information	<input type="checkbox"/>
<input type="checkbox"/>		a) All BMPs	<input type="checkbox"/>
<input type="checkbox"/>		i. Construction and material specifications	<input type="checkbox"/>
<input type="checkbox"/>		ii. Details and notes	<input type="checkbox"/>
<input type="checkbox"/>		iii. All permanent material to be equal to standard inlet and structure quality and materials	<input type="checkbox"/>
<input type="checkbox"/>		iv. Grades 15% max	<input type="checkbox"/>
<input type="checkbox"/>		v. Side slopes 2:1 max	<input type="checkbox"/>

DPU Water Resources Division

Plan Review Checklist

<input type="checkbox"/>		vi. maintenance access provisions (fence and gate details with location, height, materials, and specifications, if applicable)	<input type="checkbox"/>
<input type="checkbox"/>		b) Infiltration BMPs	<input type="checkbox"/>
<input type="checkbox"/>		i. Soil investigation data	<input type="checkbox"/>
<input type="checkbox"/>		ii. Soil borings locations	<input type="checkbox"/>
<input type="checkbox"/>		iii. Soil classification	<input type="checkbox"/>
<input type="checkbox"/>		iv. Strata profile	<input type="checkbox"/>
<input type="checkbox"/>		v. Water table elevation	<input type="checkbox"/>
<input type="checkbox"/>		vi. Elevations of strata	<input type="checkbox"/>
<input type="checkbox"/>		vii. Location and easements	<input type="checkbox"/>
<input type="checkbox"/>		viii. Phreatic line	<input type="checkbox"/>
<input type="checkbox"/>		c) Attenuation BMPs	<input type="checkbox"/>
<input type="checkbox"/>		i. Design flow inundation areas	<input type="checkbox"/>
<input type="checkbox"/>		4) Design Report	<input type="checkbox"/>
<input type="checkbox"/>		a) Narrative	<input type="checkbox"/>
<input type="checkbox"/>		i. Explanation of method used	<input type="checkbox"/>
<input type="checkbox"/>		ii. Findings of existing conditions	<input type="checkbox"/>
<input type="checkbox"/>		iii. Proposed development	<input type="checkbox"/>
<input type="checkbox"/>		iv. Best management investigation	<input type="checkbox"/>
<input type="checkbox"/>		v. Alternatives considered	<input type="checkbox"/>
<input type="checkbox"/>		vi. Why chosen or abandoned	<input type="checkbox"/>
<input type="checkbox"/>		vii. Water quality benefits of design	<input type="checkbox"/>
<input type="checkbox"/>		viii. Peak management benefits of design	<input type="checkbox"/>
<input type="checkbox"/>		b) Design data	<input type="checkbox"/>
<input type="checkbox"/>		i. Formulas and source of information	<input type="checkbox"/>
<input type="checkbox"/>		ii. HEC-2 or HEC-RAS, or other appropriate computer modeling input/output	<input type="checkbox"/>
<input type="checkbox"/>		iii. Details, nomographs, formulas	<input type="checkbox"/>
<input type="checkbox"/>		1. Existing peak flows for 2- and 10-year storms	<input type="checkbox"/>
<input type="checkbox"/>		2. Proposed peak flows for 2- and 10-year storms	<input type="checkbox"/>
<input type="checkbox"/>		3. Performance curve of device (elevation vs. discharge)	<input type="checkbox"/>
<input type="checkbox"/>		4. Hydrograph plot for proposed conditions 2- and 10-year storms	<input type="checkbox"/>
<input type="checkbox"/>		5. Water quality computations	<input type="checkbox"/>
<input type="checkbox"/>		iv. Clearances – vertical and horizontal	<input type="checkbox"/>
<input type="checkbox"/>		c) Outfall study	<input type="checkbox"/>
<input type="checkbox"/>		i. Existing conditions recommendations and hydraulic analysis	<input type="checkbox"/>
<input type="checkbox"/>		ii. Proposed conditions	<input type="checkbox"/>
<input type="checkbox"/>		1. Statement	<input type="checkbox"/>
<input type="checkbox"/>		2. Proposed flows	<input type="checkbox"/>
<input type="checkbox"/>		5) Maintenance Requirements	<input type="checkbox"/>
<input type="checkbox"/>		a) Provide inspection and maintenance schedules/frequencies on plans	<input type="checkbox"/>
<input type="checkbox"/>		b) Stormwater Utility Maintenance Agreement (SUMA) completed by owner and notarized	<input type="checkbox"/>
<input type="checkbox"/>		c) Stormwater Management Access Exhibit (Attachment A) provided	<input type="checkbox"/>

DPU Water Resources Division

Plan Review Checklist

<input type="checkbox"/>		6) For projects with Limits of Disturbance > 1 acre:	<input type="checkbox"/>
<input type="checkbox"/>		a) Pollution Prevention Plan (PPP, Standard plan sheet available for download), that addresses the following:	<input type="checkbox"/>
<input type="checkbox"/>		i. Wastewater from washout of concrete	<input type="checkbox"/>
<input type="checkbox"/>		ii. Washout and cleanout of stucco, paint, form release oils, curing compounds, and other construction materials	<input type="checkbox"/>
<input type="checkbox"/>		iii. Fuels, oils, or other pollutants used in vehicle and equipment operation and maintenance	<input type="checkbox"/>
<input type="checkbox"/>		iv. Soaps or solvents used in vehicle and equipment washing	<input type="checkbox"/>
<input type="checkbox"/>		b) Stormwater Pollution Prevention Plan (SWPPP)	<input type="checkbox"/>
<input type="checkbox"/>		i. Designation forms	<input type="checkbox"/>
<input type="checkbox"/>		ii. See template for a list of requirements	<input type="checkbox"/>
<p>Provide reasoning for above NA responses in the space below. Attach additional pages if necessary.</p>			

DPU Water Resources Division

Plan Review Checklist

Section 6 – Floodplain

Instructions: For Floodplain management review, provide the following: a description of work, other development activities, floodplain determination, building alterations, etc.

Description of work

Activity	Structure Type
<input type="checkbox"/> New Structure	<input type="checkbox"/> Residential (1-4 family)
<input type="checkbox"/> Addition	<input type="checkbox"/> Residential (>4 family)
<input type="checkbox"/> Alteration	<input type="checkbox"/> Non-residential (Floodproofing? <input type="checkbox"/> Yes <input type="checkbox"/> No)
<input type="checkbox"/> Relocation	<input type="checkbox"/> Mixed Use (Residential & Commercial)
<input type="checkbox"/> Demolition	<input type="checkbox"/> Manufactured (Mobile) Home (In Manufactured Home Park? <input type="checkbox"/> Yes <input type="checkbox"/> No)
<input type="checkbox"/> Replacement	

Nearest intersection: _____

Estimated Cost of Project: \$ _____

Other Development Activities	
<input type="checkbox"/> Clearing	<input type="checkbox"/> Fill <input type="checkbox"/> Mining <input type="checkbox"/> Drilling <input type="checkbox"/> Grading
<input type="checkbox"/> Excavation (except for structural development checked above)	
<input type="checkbox"/> Watercourse Alteration (including dredging and channel modifications)	
<input type="checkbox"/> Drainage Improvements (including culvert works)	
<input type="checkbox"/> Road, Street or Bridge Construction	
<input type="checkbox"/> Subdivision (<input type="checkbox"/> New or <input type="checkbox"/> Expansion)	
<input type="checkbox"/> Individual Water or Sewer System	
<input type="checkbox"/> Other:	

Floodplain Determination

The proposed development is located on:		FIRM Panel #:	Effective Date:
The proposed development is:			
Yes	No		
<input type="checkbox"/>	<input type="checkbox"/>	Partially located in the SFHA, but building/development is NOT	
<input type="checkbox"/>	<input type="checkbox"/>	Located in a Special Flood Hazard Area	
		FIRM Zone designation is: _____	
		100-year flood elevation at the site is _____ ft. NAV88 (MSL) or <input type="checkbox"/> Unavailable	
<input type="checkbox"/>	<input type="checkbox"/>	Located in the floodway	
<input type="checkbox"/>	<input type="checkbox"/>	Located in the flood fringe	

Additional Information	
Change in water elevation ____ ft., meets floodplain ordinance limits.	
Top of new compacted fill elevation: _____ ft. NAVD 88 (MSL)	
Floodproofing protection level (non-residential): _____ ft. NAVD 88 (MSL)	

DPU Water Resources Division

Plan Review Checklist

YES	SHEET #	Requirement	NA
<input type="checkbox"/>		1) Show ultimate condition (as zoned) for the 100-year storm	<input type="checkbox"/>
<input type="checkbox"/>		2) Show existing natural channel grade:	<input type="checkbox"/>
<input type="checkbox"/>		a) Profile along natural line boundary to boundary	<input type="checkbox"/>
<input type="checkbox"/>		b) Average grade line	<input type="checkbox"/>
<input type="checkbox"/>		3) Show required plan information	<input type="checkbox"/>
<input type="checkbox"/>		a) Base Flood Elevation (BFE) at the property limits and work area	<input type="checkbox"/>
<input type="checkbox"/>		b) Limits of Special Flood Hazard Area (SFHA) including floodway where applicable	<input type="checkbox"/>
<input type="checkbox"/>		c) Location and elevation of existing and proposed construction in the SFHA, including, but not limited to: streets, pavement, retaining walls, accessory buildings, swimming pools, parking lots, driveways, trash enclosures, storage tanks, and other onsite features	<input type="checkbox"/>
<input type="checkbox"/>		d) The extent of watercourse relocation and/or landform alterations	<input type="checkbox"/>
<input type="checkbox"/>		e) Compaction requirements for fill areas	<input type="checkbox"/>
<input type="checkbox"/>		f) Locations of existing and proposed underground utilities	<input type="checkbox"/>
<input type="checkbox"/>		g) "100-year" flood elevations, if they are not otherwise available, for subdivision or other development plans (Required if the subdivision or other development exceeds 50 lots or 5 Acres, whichever is the lesser)	<input type="checkbox"/>
<input type="checkbox"/>		4) Show information required if buildings are to be constructed, enlarged, or altered within the floodplain	<input type="checkbox"/>
<input type="checkbox"/>		a) Anchorage of proposed structures, including details for anchoring structures	<input type="checkbox"/>
<input type="checkbox"/>		b) Residential: Basement or lowest floor at least 1 foot above BFE	<input type="checkbox"/>
<input type="checkbox"/>		c) Non-Residential: Lowest floor or flood proofing 1 foot above BFE	<input type="checkbox"/>
<input type="checkbox"/>		d) For floodproofed structures, applicant must attach certification from registered engineer or architect	<input type="checkbox"/>
<input type="checkbox"/>		e) Show types of water-resistant materials used below the first floor	<input type="checkbox"/>
<input type="checkbox"/>		f) Provide details of floodproofing of utilities located below the first floor	<input type="checkbox"/>
<input type="checkbox"/>		g) Provide details of enclosures below the first floor	
<input type="checkbox"/>		h) Show venting of enclosed areas for pressure equalization	<input type="checkbox"/>
<input type="checkbox"/>		i) Demonstrate that electrical, heating, ventilation, plumbing, air-conditioning, and other service equipment is designed or located to prevent water from entering or accumulating within the components during flooding (above BFE)	<input type="checkbox"/>
<input type="checkbox"/>		j) Show on-site waste disposal systems located to avoid impairment or contamination	<input type="checkbox"/>

Provide reasoning for above NA responses in the space below. Attach additional pages if necessary.