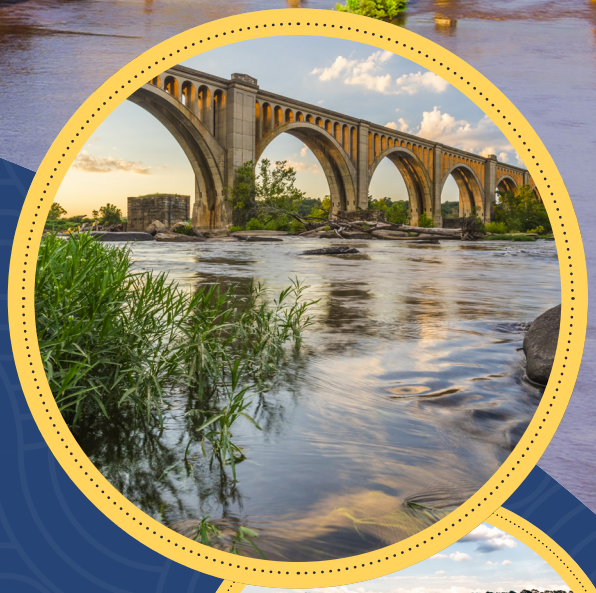

CITY OF RICHMOND, VIRGINIA

DEPARTMENT OF PUBLIC UTILITIES ENGINEERING

SERVICES DIVISION - WATER RESOURCES

# Water Resources Guidance Manual

July 2025

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# Glossary

## ACRONYMS

| Acronym | Meaning |
|---|---|
| AILP/ALSWP | Agreement In Lieu of Plan (ESC and/or SWM plan) |
| BFE | Base Flood Elevation |
| BLDC | Building Permit (Commercial) |
| BLDR | Building Permit (Residential) |
| BMP | Best Management Practices |
| CBPA | Chesapeake Bay Preservation Act |
| CE | Construction Entrance |
| CIP | Capital Improvement Plan |
| CO | Certificate of Occupancy |
| COR | City of Richmond |
| CSS | Combined Sewer System |
| DA | Developer's Agreement |
| DEQ | Department of Environmental Quality |
| DEVR | Development Review Plan |
| DHS | Department of Homeland Security |
| DPU | Department of Public Utilities |
| EPA | Environmental Protection Agency |
| ESC | Erosion and Sediment Control |
| FEMA | Federal Emergency Management Agency |
| FIRM | Flood Insurance Rate Maps |
| FIS | Flood Insurance Study |
| GIS | Geographical Information System |
| CGP | Construction General Permit |
| H/H | Heavy Highway |
| IDA | Intensely Developed Areas |
| IF | Improvement Factor |
| LOD | Limit of Disturbance |
| MS4 | Municipal Separate Storm Sewer Systems |
| NFHL | National Flood Hazard Layer |
| NFIP | National Flood Insurance Program |

| Acronym | Meaning |
|---|---|
| NPS | Nonpoint Source Pollution |
| NRC | No Rise Certification |
| PCB | Polychlorinated Biphenyl |
| PDR | Planning And Development Review's |
| POD | Plan of Development |
| PPP | Pollution Prevention Plan |
| RLD | Regulated Land Disturbances |
| RMA | Resource Management Area |
| RPA | Resource Protection Area |
| RESMP | Richmond Erosion and Stormwater Management Program |
| SD | Substantial Damage |
| SF | Silt Fence |
| SFD | Single-Family Dwelling |
| SI | Substantial Improvement |
| SPCC | Spill, Prevention, Control, and Countermeasure Plan |
| SUMA | Stormwater Utility Maintenance Agreement |
| SWM | Stormwater Management |
| SWPPP | Stormwater Pollution Prevention Plan |
| TMDL | Total Maximum Daily Loads |
| USACE | United States Army Corps of Engineers |
| VDEQ | Virginia Department of Environmental Quality |
| VESMP | Virginia Erosion and Stormwater Management Program |
| VMRC | Virginia Marine Resources Commission |
| VPDES | Virginia Pollution Discharge & Elimination Permit |
| VSMH | Virginia Stormwater Management Handbook |
| WFP | Water Filtration Plant |
| WQIA | Water Quality Impact Assessment |
| WSEL | Water Surface Elevation |
| WWTP | Wastewater Treatment Plant |
| | |

# Glossary

## DEFINITIONS

**100-year flood or base flood:** flood that has a one percent chance of being equaled or exceeded in any given year.

**Accessory structure:** a building that is secondary to another building located on the same property, and it must not exceed an area of 200 square feet.

**Addition:** improvement that increases the square footage of a structure. However, if a building is attached to another through a covered breezeway or similar connection, it is a separate building not an addition.

**Agreement in lieu:** a legal agreement between the owner of a property and City of Richmond. This agreement specifies the measures that must be taken to protect the environment during the construction of a single-family residence that is separate from other buildings.

**Applicant:** anyone who submits a plan or requests a permit for land-disturbing activities.

**Base flood elevation:** the height that the Federal Emergency Management Agency (FEMA) has calculated as the projected height floodwater is expected to reach during a base flood as indicated on the flood insurance rate map (FIRM) of the City.

**Basement:** any area of the building having its floor sub-grade (below ground level) on all sides.

**Best management practices (BMPs):** a range of practices, techniques, and measures that are used to prevent or control the pollution of surface water and groundwater from land-disturbing activities.

**Buffer area:** an area that contains natural or established vegetation that is managed to protect other components of a resource protection area and state waters from significant degradation due to land disturbances.

**Clearing:** any activity that involves the removal of vegetation or other ground cover, including the removal of root mats or topsoil, and is typically associated with land-disturbing activities.

**Development:** any land disturbance and the resulting landform associated with the construction of various types of facilities or structures, as well as the clearing of land for non-agricultural or non-silvicultural purposes.

**Excavating:** any process of digging, scooping, or otherwise removing earth materials from a site.

**Filling:** the act of putting or storing earth materials in a specific location.

**Flood or flooding:** a temporary situation where normally dry areas of land become partially or completely covered with water, which can occur in a few different ways:

1. Water overflowing from rivers, lakes, or oceans.
2. A mudflow or mudslide
3. A sudden accumulation of surface water due to heavy rainfall or melting snow.

**Floodplain:** an area of land near a river or stream that can be partially or completely covered by water during a 100-year flood.

**Freeboard:** an additional height requirement above the base flood elevation (BFE) that provides a margin of safety against extraordinary or unknown risks, expressed in feet.

**Grading:** any activity that involves digging, moving or adding soil or other earth materials to a piece of land, which changes the land's original shape or contour.

**Highly erodible soils:** soils not including vegetation with an erodibility index equal to or greater than eight (8)

*The erodibility index is calculated using the RKLS/T formula, where K is the soil erodibility factor, R is the rainfall and runoff factor, LS is the slope length and steepness factor, and T is the soil loss tolerance factor.*

# Glossary

**Highly permeable soils:** soils that have a high potential to allow water to move through them, identified as any soil with a permeability equal to or greater than six (6) inches of water movement per hour in any part of the soil profile to a depth of 72 inches as found in the National Soil Survey Handbook of November 1996, in the "Field Office Technical Guide" of the United States Department of Agriculture Natural Resources Conservation Service.

**Historic structure:** any building that meets one or more of the following criteria:

1. It has been certified or preliminarily determined by the Secretary of the Interior to contribute to the historical significance of a registered historic district, or a district that has been preliminarily determined by the Secretary to qualify as a registered historic district.
2. It is listed in the Virginia Landmarks Register.
3. It is listed on a local inventory of historic places that has been certified by the Virginia Landmarks Register.
4. It is listed on the National Register of Historic Places, which is a list maintained by the US Department of the Interior or has been preliminarily determined by the Secretary of the Interior to meet the criteria for listing on the National Register as an individual property.

**Hydrologic and hydraulic modeling:** a type of analysis conducted by a licensed professional engineer, using established engineering methods that are recognized by the Virginia Department of Conservation and Recreation and the Federal Emergency Management Agency. This analysis is used to determine important information related to flooding, such as the base flood level, flood frequency, flood elevations, floodway boundaries, and flood profiles.

**Infill:** the development of unused or vacant land within already-developed areas.

**Land-disturbing activity:** any type of activity that alters the natural state of the land, such as clearing, grading, excavating, filling, or other construction work that changes the land's natural vegetation or contours. These activities can lead to soil erosion caused by wind or water and can cause sediments to be carried into both public and private storm drainage facilities.

**Large construction activity:** any activity including clearing, grading and excavation that results in a land disturbance greater than five acres.

**Lowest Floor:** the lowest floor of the lowest enclosed area (including basement).

**Market Value:** In terms of determining substantial improvement/damage, market value is the value of the structure reflecting its original quality, subsequent improvements, physical age of building components and current condition.

**Mudflow:** when liquid mud flows on the surface of land that is usually dry, usually because it's being carried by a current of water. It's important to note that a mudflow is different from other types of earth movements, such as landslides, slope failures, or a soil mass that moves down a slope due to saturation.

**Peak flow rate:** the maximum instantaneous flow from a given storm condition at a particular location.

**Reconstruction:** cases where an entire structure is destroyed, damaged, purposefully demolished or razed, and a new structure is built on the old foundation or slab, as well as when an existing structure is moved to a new site.

**Redevelopment:** the developing of land that has already been or is currently developed involving the improvement or transformation of existing structures or land.

**Rehabilitation:** an improvement made to an existing structure which does not affect the external dimensions of the structure.

**Responsible land disturber:** a person who is responsible for carrying out a land-disturbing activity, and who meets one of the following criteria:

1. is licensed as a professional engineer, architect, certified landscape architect, or land surveyor in Virginia.
2. holds a certificate of competence from the Department of Environmental Quality, or
3. holds a certificate of competence from the State Water Control Board

# Glossary

**Runoff volume:** the amount of water that flows off the surface of a land development project during a specific storm event.

**Single-family residence:** a housing unit that is not attached to any other primary building and consists of only one dwelling unit.

**Small construction activity:** activities that result in land disturbance equal to or greater than one acre but less than five acres.

**Stabilized:** that an area has been treated or designed in a way that prevents or minimizes erosion, such that the soil or other materials in the area will not be displaced or carried away by wind, water, or other natural forces.

**State waters:** all waters, on the surface and underground, wholly, or partially within, or forming a part of, the boundaries of the Commonwealth or its jurisdiction.

**Stormwater management system:** a system of structures and facilities designed to manage the flow of stormwater runoff, minimize the negative impacts on water quality and quantity in natural water systems, and promote recharge from precipitation events.

**Storm drainage facility:** any kind of natural or man-made structure, such as a sewer, ditch, creek, river, lake, swale, or any other facility that stormwater or runoff may flow through in a concentrated manner, either regularly or sporadically.

**Structure:** a type of building that has walls and a roof and is primarily above ground. This includes things like gas or liquid storage tanks, as well as manufactured homes.

**Substantial Damage (SD):** damage of any origin (flood, fire, earthquake, wind, rain, or other natural or human-induced hazard) sustained by a structure whereby the cost of restoring the structure to its "before-damaged" condition would equal or exceed 50 percent of the market value of the structure before the damage occurred; flood-related damage sustained by a structure on two separate occasions during a 10-year period for which the cost of repairs at the time of each such flood even, on the average, equals or exceeds 25 percent of the market value of the structure before the damage occurred.

**Substantial Improvement (SI):** any reconstruction, rehabilitation, addition, or other improvement of a structure, the cost (cost of improvement project) of which equals or exceeds 50 percent of the market value of the structure before the "start of construction" of the improvement.

**Use:** any activity that takes place on land, excluding development including, but not limited to, agricultural, horticultural, and silvicultural practices.

**Water quality volume:** the volume of stormwater runoff that needs to be treated for pollutants before it is discharged into receiving waters.

**Watercourse:** any kind of channel, river, lake, stream, or other natural or man-made feature, over or through which water flows, at least periodically. This term includes specifically designated areas where there is a high risk of damage from flooding but is not limited to such areas.

# 1.0 General Information

## 1.1 INTRODUCTION

Uncontrolled stormwater has many cumulative impacts on the environment including flooding and damage to public and private property. In the City of Richmond (City), stormwater can carry many constituents such as nutrients and other contaminants that contribute to erode stream banks, and impair our waterways, particularly the James River. To manage stormwater, the City has two kinds of systems; a Combined Sewer System (CSS) and a Municipal Separate Storm Sewer System (MS4). A CSS carries stormwater and wastewater to a treatment facility prior to discharging into the river while an MS4 carries stormwater runoff from streets and neighborhoods untreated to the nearest waterway. Unmanaged stormwater and excessive sediment can adversely impact the downstream environment which is why permitting is in place to protect habitat degradation, avoid surface and groundwater pollution, and prevent channel erosion.

In 2014, the City adopted a new Virginia Stormwater Management Program (VSMP) General Permit for their MS4. This program grants authority to the City to review and approve all stormwater management permits in compliance with Virginia Department of Environmental Quality (DEQ) regulations. This Water Resources Guidance Manual provides technical guidance on preparing and submitting required documents to the City to ensure all land disturbing activities follow these regulations.

## 1.2 BACKGROUND AND PURPOSE

Water resources are protected under federal and state regulations, which all land disturbing projects must follow. The Environmental Protection Agency (EPA) issued the Clean Water Act in 1948 to regulate discharges of pollutants into the waters of the United States. The Virginia DEQ is a state level jurisdiction that provides additional guidelines to follow. There are three (3) Virginia codes that Virginia DEQ requires (9VAC25-875) and these requirements are referenced throughout Richmond, Virginia Code of Ordinances, Chapter 14 – Floodplain Management, Erosions and Sediment Control, and Drainage.

- **Chesapeake Bay Preservation Act (CBPA):** The CBPA (9VAC25-830 et seq.) requires local governments to implement ordinances designed to protect and restore the quality of perennial streams and their associated tidal and/or non-tidal wetlands, as the conditions in these environments have been determined to directly affect the condition of the Chesapeake Bay.
- **Virginia Erosion and Stormwater Management Program (VESMP):** This locally implemented program is required by the Erosion and Sediment Control Law (§ 62.1-44.15:51 et seq. of the Code of Virginia) and must comply with requirements and minimum standards of the Erosion and Sediment Control Regulations (9VAC25-875-20 et seq.) and the Virginia Stormwater Management Handbook published by the Virginia Department of Conservation and Recreation.
- **Virginia Stormwater Management Program (VSMP):** The VSMP, administered by the Virginia Department of Environmental Quality (DEQ) is required by the Virginia Stormwater Management Program Regulations (§ 62.1-44.15:25 et seq. and § 62.1-44.15:25 et seq. of the Code of Virginia) for issuing, modifying, revoking, reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing requirements pursuant to the federal Clean Water Act, the Virginia Stormwater Management Act, and associated regulations and guidance documents.
- **Richmond Erosion and Stormwater Management Program (RESMP):** The RESMP is the Richmond program that issues erosion and stormwater permits and Construction General Permit (CGP) coverage under the VPDES permit. This program was adopted to ensure compliance with MS4 regulations.



*The goal for these programs is to ensure general health, safety, and welfare of citizens of the Commonwealth of Virginia, and to protect the quality and quantity of state waters form the potential harm on unmanaged stormwater.*

# 2.0 Permit Determination

## 2.1 LAND DISTURBING ACTIVITIES

As a VSMP and VESCP Authority, the City of Richmond's Department of Public Utilities, Engineering Services Division - Water Resources is required to monitor all land-disturbing construction activities for all new and redevelopment projects to ensure erosion and sediment control, stormwater management, and Chesapeake Bay water quality requirements are met. Land disturbing activities can be any land change which may result in soil erosion from water, wind, or the movement of sediments into State waters or onto lands in the Commonwealth.

Types of Land Disturbing Activities:

### CLEARING
Removing all or part of existing vegetation or trees

### GRADING
Ensuring a level base or one with a specified slope

### EXCAVATING
Forming a cavity in the land by cutting, digging, or scooping

### TRANSPORTING AND FILLING OF LAND
Adding or removing dirt

### PAVING OF EXISTING PERVIOUS AREAS
Areas penetrable by water

### CREATING NEW IMPERVIOUS AREAS
Surface material significantly obstructing or preventing natural infiltration of water into the soil

**All permits are determined by the type of land and amount of land being disturbed. Some disturbances may be further regulated based on their locations. Regulated land disturbances are specified as land disturbing activities within one of the following environmentally safe areas:**

- **Chesapeake Bay Preservation Areas**
- **100-year Floodplain and Floodway**
- **Municipal Separate Storm Sewer System (MS4)**

### 2.1.1 Chesapeake Bay Preservation Areas

The Chesapeake Bay Preservation Area is issued under Article IV of the City's Code of Ordinance. It is comprised of three (3) different designations, Resource Protection Area (RPA), Resource Management Area (RMA) and Intensely Developed Areas (IDAs):

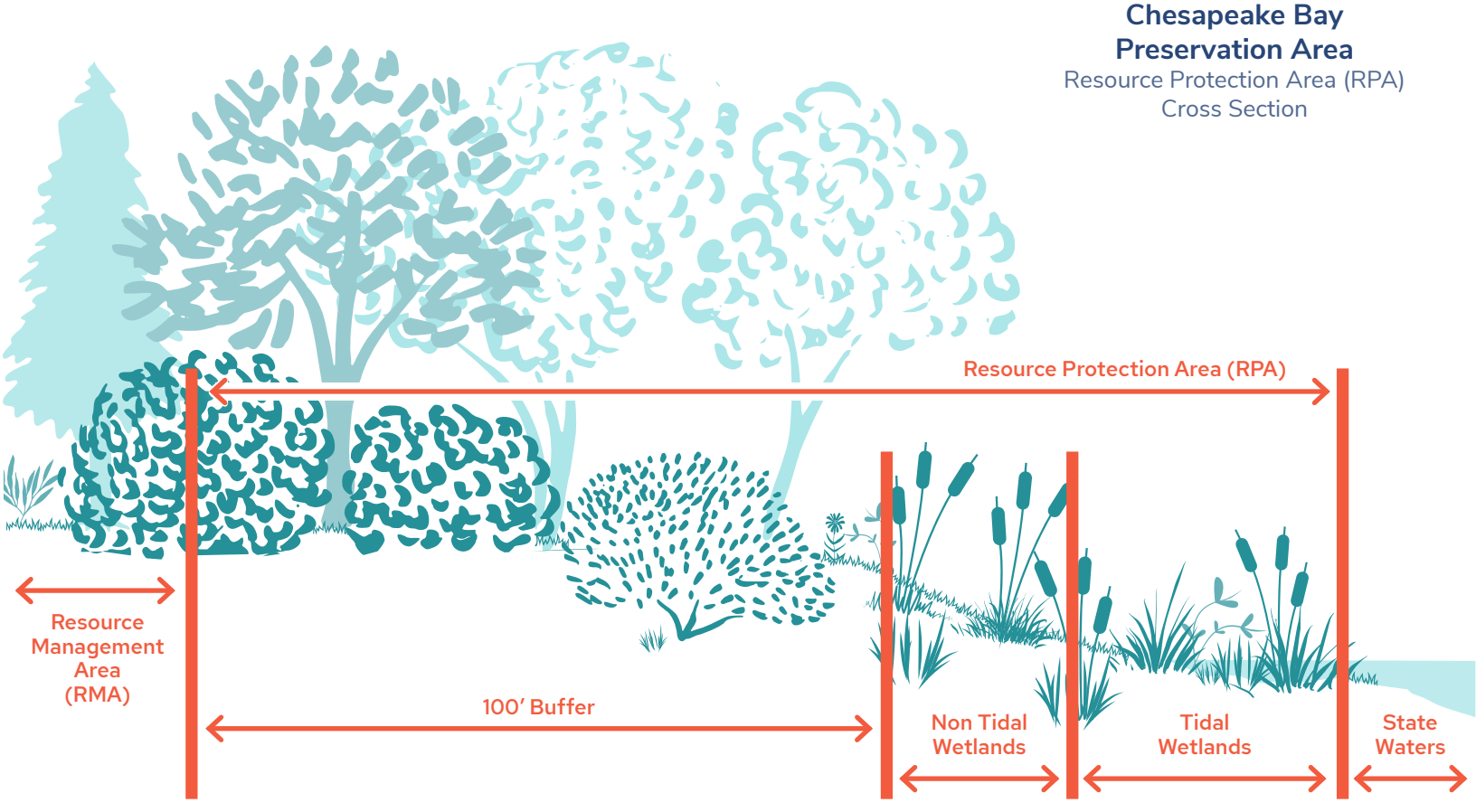
**Resource Protection Area (RPA)**

RPAs are regulated corridors of environmentally sensitive land that lies alongside or near the shorelines of streams, rivers, and other waterways, **Figure 2 1**. In their natural condition, RPAs protect water quality, filter pollutants out of stormwater runoff, reduce the volume of stormwater runoff, prevent erosion, and perform other important biological and ecological functions. RPAs consist of the following:

- Tidal Wetlands
- Nontidal wetlands connected by surface flow and contiguous to tidal wetlands or water bodies with perennial flow
- Tidal Shores
- A buffer area not less than 100 feet in width located adjacent to and landward of tidal wetlands, nontidal wetlands, or tidal shores, see **Figure 2-1**.

An ArcGIS layer of previous determinations for RPA's can be found in the City's GeoHub using the following link: *https://richmond-geo-hub-cor.hub.arcgis.com/*.

**Figure 2-1:** RPA Cross Section



# Permit Determination

**Resource Management Area (RMA)**

RMAs include land types that, if improperly used or developed, have potential to cause significant water quality degradation and/or diminish the functional value of the RPA. RMAs must be provided contiguous to the entire inland boundary of the RPAs. Where mapping indicates the presence of the following land types contiguous to RPAs, the following will be classified as an RMA:

a. 100-year floodplains;

b. Highly erodible soils, including steep slopes;

c. Highly permeable soils;

d. Nontidal wetlands not included in RPAs; and

e. Such other lands considered by the City to meet the provisions of subsection (a) of Section 14-232 of the City of Richmond code and to be necessary to protect the quality of State waters and lands delineated on the CBPA's Map.

f. 500-foot buffers (protect RPAs and those other areas listed)

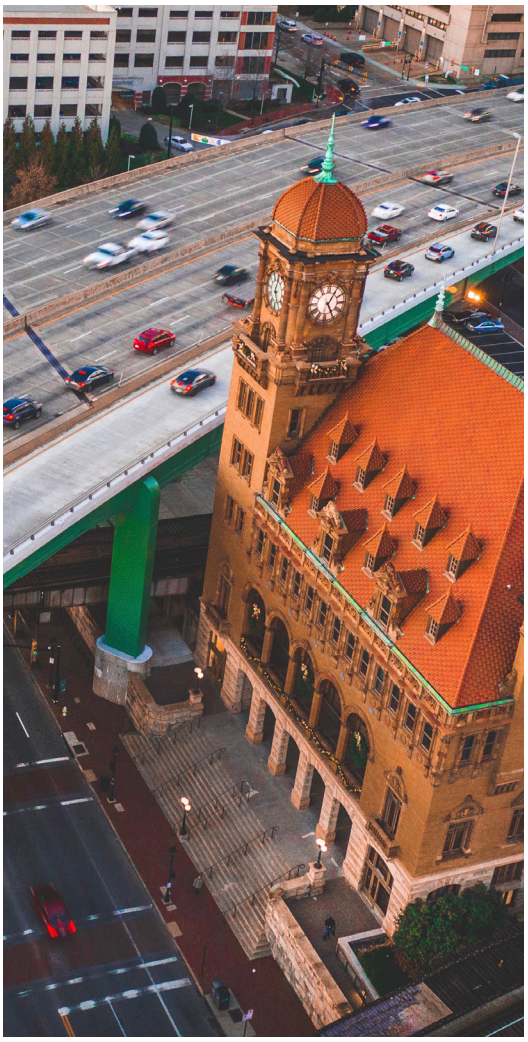
g. 600-foot buffers outward from the center of the stream in areas where the RMA has no site-specific evaluation.

In lieu of delineating the individual RMA features, the applicant may designate the portion of the site that is outside of the RPA as RMA. An ArcGIS layer of previous determinations for RMAs can be found in the City's GeoHub using the following link: *https://richmond-geo-hub-cor.hub.arcgis.com/*.

**Intensively Developed Area (IDA)**

IDAs are an overlay to an RPA and are defined as areas of existing development and infill sites where little of the natural environment remains. IDA designated areas need to comply with the performance criteria for redevelopment in Section 14-262 et seq. of the City's code. Development in an IDA is treated as redevelopment, in which case the performance requirement is for a 10% percent reduction in nonpoint source pollution where runoff is not already treated by a BMP.

The City has examined areas of existing development within the CBPAs and has determined small areas within the Downtown Richmond and the Port of Richmond as the only IDAs where further non-water dependent waterfront development should occur. An ArcGIS layer of the determination of IDA's can be found in the City's GeoHub using the following link: *https://richmond-geo-hub-cor.hub.arcgis.com/.*



### 2.1.2 Floodplains

A floodplain is an area, including a watercourse, that is at risk of being partially or completely flooded during a 100-year flood event. These floodplains have been designated throughout the City of Richmond by FEMA. To determine if the planned land disturbing activity is within a flood plain, use the following website: https://msc.fema.gov/portal/home.

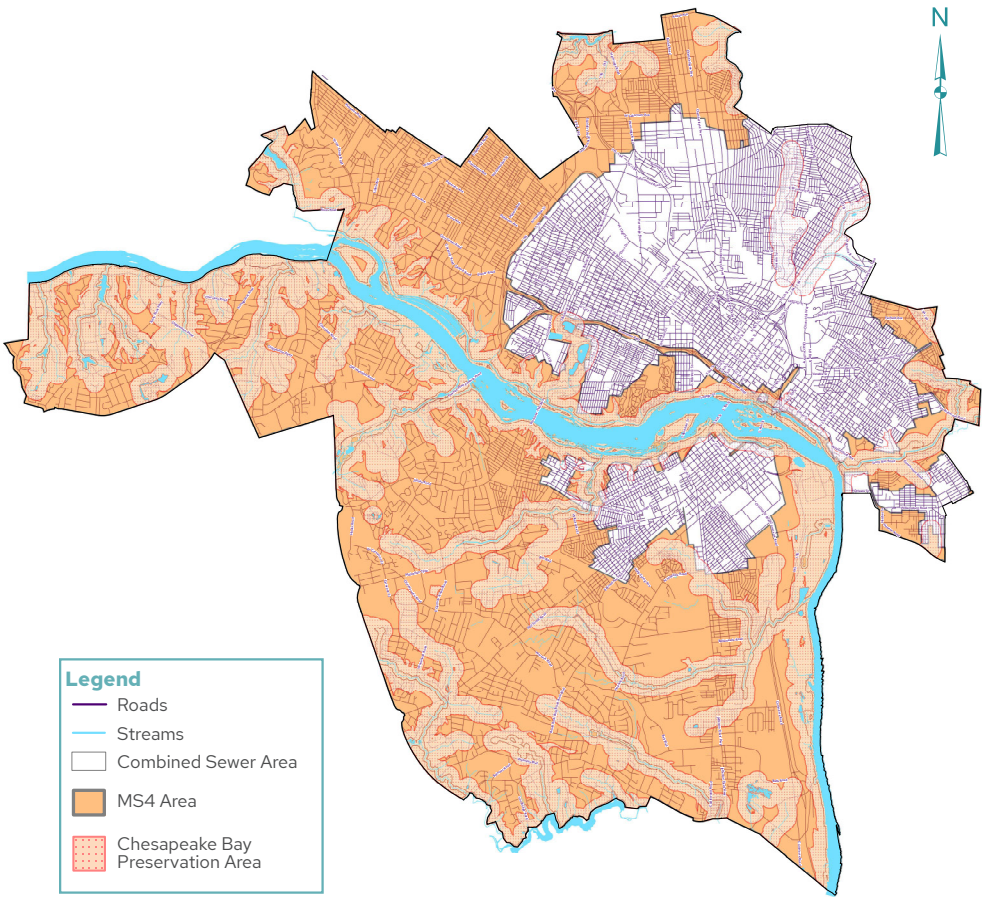
Please refer to **Section 6** for further details if project is within a floodplain.

### 2.1.3 MS4 and CSS

The City of Richmond has two types of systems for stormwater management: MS4 and CSS. MS4 area's are where stormwater runoff discharges directly to a body of water without being treated and CSS area's collect stormwater runoff within the existing sanitary sewer system and convey it to a treatment facility prior to discharge.

**Figure 2-2** shows the MS4 drainage area within the City.

**Figure 2-2:** MS4 and CSS Designated Areas




**The City of Richmond is designated as a Phase II MS4 by the Environmental Protection Agency (EPA) and the Virginia DEQ.**

Being designated as Phase II requires specific activities within MS4 areas required to obtain a general permit and discharge stormwater from the designated outfall. The City is required under its VPDES permit to implement and enforce six (6) minimum control measures and special conditions for any planning in MS4 areas to reduce stormwater pollution to the maximum extent practicable. This includes approval of Total Maximum Daily Loads (TMDL) for both the Chesapeake Bay Area (CBA) TMDL and non-CBA TMDLs to minimize pollution to the James River.

The six minimum control measures are:

1. Public Education and Outreach
2. Public Involvement/ Participation
3. Illicit Discharge Detection and Elimination
4. Construction Site Stormwater Runoff Control
5. Post-construction Stormwater Management
6. Pollution Prevention/Good Housekeeping for Municipal Operations

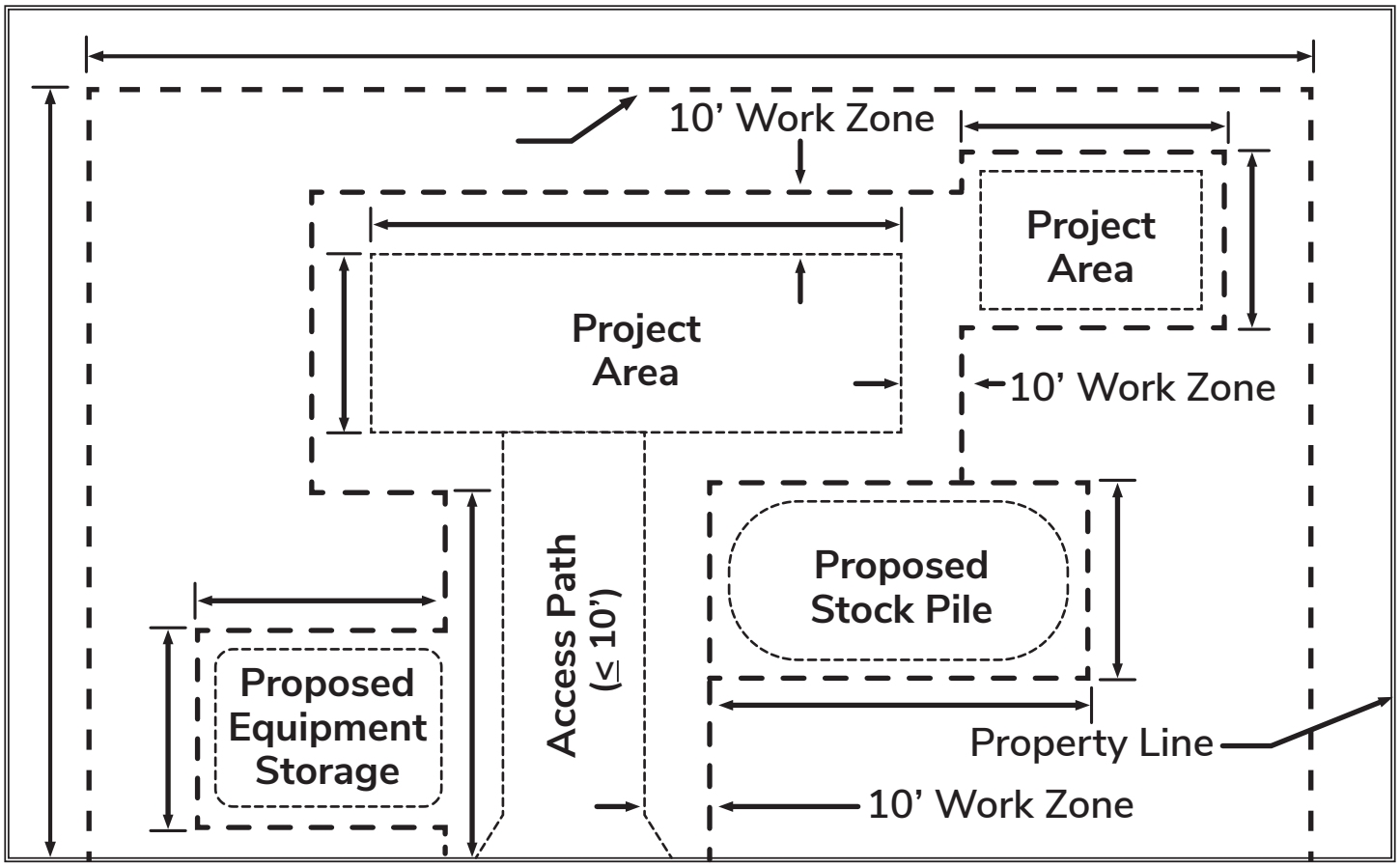
## 2.2 CALCULATING LAND DISTURBING ACTIVITIES

Land disturbing activity is defined by the total limits of disturbance (LOD) for a project in square feet ($ft^2$). To calculate the LOD for a project, consider and include the following, see **Figure 2-3** for example:

- Required access paths to the work area from the public right of way
- Areas to be graded
- Tool/material laydown areas
- All erosion control measures
- Areas used for stockpiling material
- Area over which excavated soil is to be spread that is not included in any of the above areas
- Remaining footprint of proposed work
- A 5' buffer around the entire project area in which work will take place

The LOD should be determined by summing the total area of disturbance both off site and on site of a project. The City of Richmond Department of Public Utilities Water Resources Division reserves the right to determine the LOD on a case-by-case basis for items not included in the list above.

**Figure 2-3:** Land Disturbing Activity Calculation Example




*(not to scale)*

# 3.0 Permit Application Process, Fees and Inspections

*Starting July 1, 2025, any project disturbing greater than 2,500 square feet will be required go through the Site Plan Approval process through the city's Department of Planning and Development Review. Once the plans have been approved, follow the steps for obtaining a permit below.*

Preparing a site for land disturbing requires a permit separate from a building permit. The Department of Public Utilities, Water Resources is required to monitor all land disturbing construction activities, erosion and sediment control, stormwater construction and Chesapeake Bay water quality requirements for all new and redevelopment projects. Any owner or authorized agent who intends to conduct land disturbing activity within the City of Richmond of which is regulated by City code shall first make an application online to obtain the required permit(s).

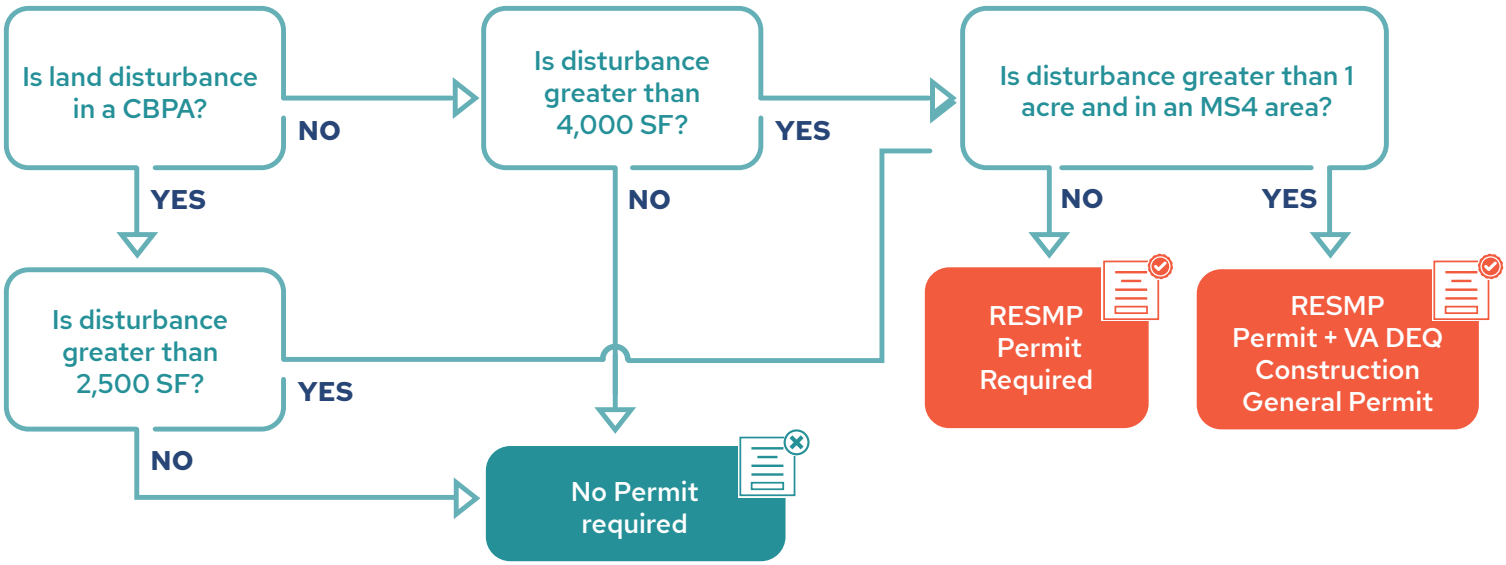
**If you have questions about the permit application intake process, please call (804) 646-7586 or email waterresource@rva.gov**

## 3.1 OBTAINING A LAND DISTURBANCE PERMIT

### When do I need a permit?

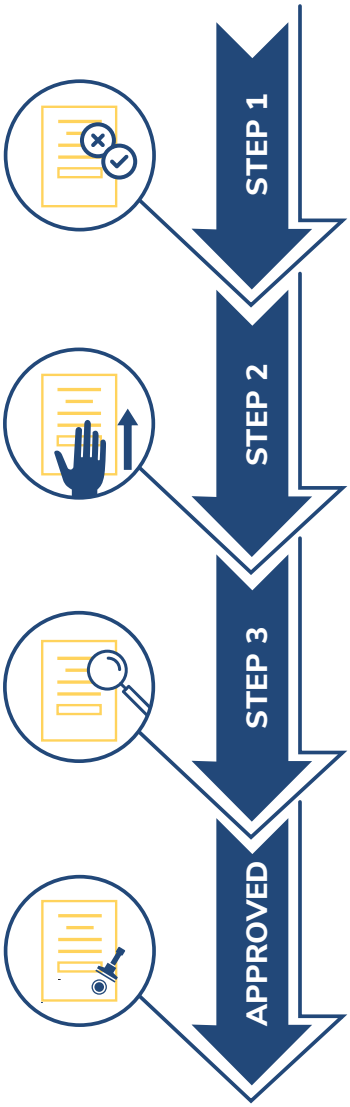
Any land disturbance equal or greater than 4,000 square feet or equal to or greater than 2,500 square feet in a Chesapeake Bay Protection Area (CBPA) must obtain a separate Richmond Erosion & Stormwater Management Program permit (RESMP.) This permit is for residential and commercial development and includes but is not limited to demolition of structures, new buildings and accessory structures,houses, roads, additions, grading/clearing & grubbing, foundations, changing/redesign of existing onsite storm drainage. Single family dwellings an agreement in lieu of plan.

**Figure 3-1:** DPU Water Resources Permit Decision Flow Chart




*This flowchart provided for planning purposes only and is not to be considered a replacement for VSMP regulations or City Code. Consult the DPU Water Resources Division at 804-646-4646 for final determination.*

# Permit Application Process, Fees and Inspections




## What is required to submit a Permit?

**Step 1: Prepare Plans**

To best prepare your plans for plan review, use the appropriate checklist to ensure all the required information is complete.

- *Water Resources Environmental Plan Review Checklist*
- A completed Responsible Land Disturber Form with a copy of the certification
- An **approved** civil set of drawings containing an E & S plan, Stormwater plan, SWPPP plan (if applicable), Chesapeake Bay site plan (if applicable) and all supporting computations. (*The Stormwater Management Design and Construction Standards Manual* and the *VA Stormwater Handbook* can assist with all storm drainage design and specifications for proposed projects.) An electronic plan set is required with every application.

## Where do I submit the RESMP application?

**Step 2: Submit Application**

The City has an *Online Permit Portal* for uploading applications, documents, paying fees and checking on application status. In addition to having all of the documents listed above, you should know the following information before you submit your application:

- Property owner name, address, phone number and email
- Contractor's name, address, phone number and email
- Design Engineering Firm name, contact person name, address, phone number and email.
- Payee Information: Know the designated person who will receive the invoice to pay the permit.

**What if I'm building one detached single family house?**

All Single Family Dwellings (SFD) disturbing 4,000 square feet of land (or 2,500 square feet in a CBPA area) or more are required to submit a separate RESMP permit for all single family dwellings in or out of a common plan of development (subdivision). A building permit does not grant permission to construct a house. Single Family dwellings may be eligible for an *Agreement In Lieu of Plan (AILP)* in place of submitting a complete set of civil engineering plans. A small site plan along with a bond is required for those SFDs that are eligible for the AILP.

Use the Online Permit Portal to submit the application. Follow the steps under "Where Do I submit the VESMP Application?"

The following documents are required to be submitted for all SFDs:

- A completed Responsible Land Disturber Form with a copy of the certification
- A small site plan (Example of small site plan here.) showing the following information:
  - The proposed dwelling
  - The adjacent street(s)
  - The adjacent parcel(s)
  - The limits of disturbance (LOD)
  - Silt fence protecting the site (SF)
  - A construction entrance (CE)

**What if I'm building multiple houses at one time?**

Building multiple structures on different but adjoining lots over a period of time is considered a Common Plan of Development and requires the submission of a RESMP permit. Follow the instructions for "Where do I submit".

## What is the final step?

**Step 3: Administrator Review**

The administrator shall first determine the completeness of each stormwater management plan and shall notify the applicant in writing of the completeness determination within 15 calendar days of receipt.

If the plan is deemed incomplete, written notification shall be given to explain the reasons the Administrator has deemed the plan incomplete. Where available to the applicant, electronic communication shall be considered communication in writing. Once a plan is deemed complete, the Administrator shall have an additional 60 calendar days from the date of communication that the plan is complete to the applicant to review the stormwater management plan.

During the review period, the plan shall be approved or rejected, and the decision communicated in writing to the applicant or their designated agent. If the plan is not approved, the reasons for not approving the plan shall be provided in writing, as well. If a plan meeting all requirements is submitted and no action is taken within the time frame above, the plan shall be deemed approved. If the stormwater management plan is rejected, the Administrator shall review the revised plan within 45 calendar days of the resubmission.

Prior to any RESMP permit approval the following information must be submitted:

- An unsigned Stormwater Utility Maintenance Agreement (SUMA) and plat
- E & S Bond package to include:
  - The Bond payment. (A performance surety is required for every land disturbing project except City of Richmond Capital Improvement Projects (CIP).)
  - *A signed E&S Developers Agreement*
  - The E & S Control Measures spreadsheet (Applicants are responsible for calculating the bond amount using the measures listed on the plans.)

## Additional Information:

- Bond amounts are determined by the amount of E & S measures required on the plans. Should you not complete your project, your surety will be utilized towards stabilizing the site and you will be billed for the remaining amount.
- The bond can be paid with a surety bond, check, or an irrevocable letter of credit. Sureties are submitted directly to: DPU Water Resources at 1801 Commerce Road. The E & S Developer's Agreement (DA) must be signed and E & S Control Measures Worksheet must be submitted along with the surety.
- The DA must be signed by the director (this can take up to a week).
- Written verification of the final inspection from the City of Richmond Erosion and Sediment Control Inspector is required before any portion of the surety is released. It is the owner's responsibility to request an inspection to obtain a surety release. The final inspection shall not be completed prior to 75% of living perennial vegetation being established. See *Virginia Department of Environmental Quality C-SSM-10 Permanent Seeding Section 3.0 Planning and Considerations*.
- Surety will be released once 75% vegetation has been established at the final inspection. Bonds should be release in 30 days.
- SUMAs must be submitted when non-structural and structural best management practices (BMP) are proposed.
- The SUMA should be completed **but not signed or notarized**. It will be reviewed for correctness and returned for signature and notarizing.
- The final SUMA must be submitted to the City of Richmond's City Attorney's Office via the instructions listed here.

## 3.2 PERMIT FEES

Each fee below covers the costs payable to the City of Richmond Department of Public Utilities and all other reasonable third-party costs and expenses incurred in connection with the application for and issuance of each applicable permit.

**Table 3-1:** Permit Fees

| Fee to Cover Cost Associated Under a RESMP Authority Permit | |
|---|---|
| Chesapeake Bay Preservation Act Land-Disturbing Activity (Not subject to general permit coverage; sites within the City with land disturbance acreage equal to or greater than 2,500 square feet and less than one acre) ($0.00 paid to the Virginia Department of Environmental Quality) | $290.00 |
| General/Stormwater Management - Small Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land disturbance equal to or greater than one acre and less than five acres) ($756.00 paid to the Virginia Department of Environmental Quality, based upon 28 percent of total fee paid) | $2,700.00 |
| Stormwater Management - Large Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land disturbance acreage equal to or greater than five acres and less than ten acres) ($952.00 paid to the Virginia Department of Environmental Quality, based upon 28 percent of total fee paid) | $3,400.00 |
| General/Stormwater Management - Small Construction Activity/Land Clearing (For single-family detached residential structures within or outside of a common plan of development of sale with land disturbance acreage less than five acres) ($0.00 paid to the Virginia Department of Environmental Quality) | $209.00 |
| General/Stormwater Management - Small Construction Activity/Land Clearing (Areas within common plans of development or sale with land disturbance acreage less than one acre, except for single-family detached residential structures) ($81.00 paid to the Virginia Department of Environmental Quality based upon 28 percent of total fee paid) | $290.00 |
| General/Stormwater Management - Large Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land disturbance acreage equal to or greater than ten acres and less than 50 acres) ($1,260.00 paid to the Virginia Department of Environmental Quality, based upon 28 percent of total fee paid) | $4,500.00 |
| General/Stormwater Management - Large Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land disturbance acreage equal to or greater than 50 acres and less than 100 acres) ($1,708.00 paid to the Virginia Department of Environmental Quality, based upon 28 percent of total fee paid) | $6,100.00 |
| General/Stormwater Management - Large Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land disturbance acreage equal to or greater than 100 acres) ($2,688.00 paid to the Virginia Department of Environmental Quality, based upon 28 percent of total fee paid) | $9,600.00 |

### 3.2.1 Fee Variances

The Administrator may waive or modify any of the requirements that are deemed to be too restrictive for site conditions by granting a variance. A variance may be granted when all of the following conditions are satisfied:

1. At the time of plan submission, an applicant may request a variance to become part of the approved erosion and sediment control plan. The applicant shall explain the reasons for any requested variance in writing. The Administrator shall document any granted variances in the plan.
2. During construction, the person responsible for implementing the approved plan may request a variance in writing from the Administrator. The Administrator shall respond in writing either approving or disapproving such a request. If the Administrator does not approve a variance within ten days of receipt of the request, the request shall be considered to be disapproved. Following disapproval, the applicant may resubmit a variance request with additional documentation.

Once the Administrator has approved a plan, the permittee shall modify the plan only under the following terms:

1. After review and written approval by the Administrator. The Administrator shall have 60 calendar days to respond in writing either approving or disapproving such request.
2. When required by the Administrator, and within a time prescribed by the Administrator, to address any deficiencies noted during inspection.
3. The permittee shall submit a construction record drawing for permanent stormwater management facilities, unless waived by the Administrator pursuant to law.

## 3.3 PERMIT INSPECTIONS

The Administrator will conduct inspections to monitor compliance with the VESMP, CBPA, and ESC requirements. If the inspection results show noncompliance, the administrator has authority to pursue enforcement methods. Pre-construction meetings must be scheduled with the Water Resources inspector prior to any land disturbing. All other inspections can be scheduled through the *Online Permit Portal*.

## 3.4 STORMWATER UTILITY MAINTENANCE AGREEMENT (SUMA) AND EXHIBIT

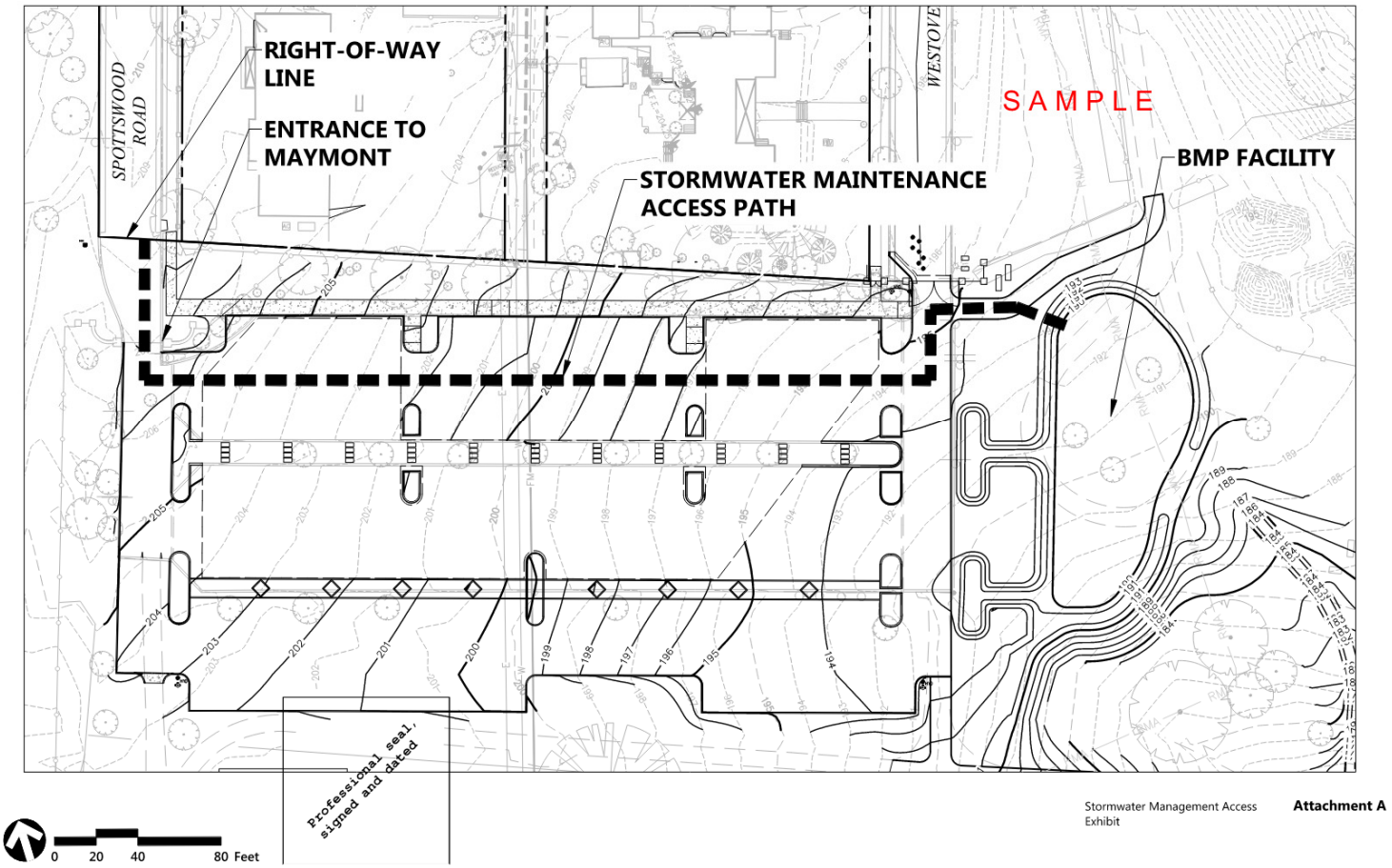
A Stormwater Utility Maintenance Agreement (SUMA) is required to be submitted for any permanent private BMPs being proposed. The SUMA shall include an access plat that provides a path between the public right-of-way and the proposed BMPs, see **Figure 3.2**. Additionally, proof of authorized representative in lieu of Owner's signature is required to be submitted with SUMA Agreement and Exhibit when an authorized representative signs in lieu of the Owner.

To ensure a timely review, please confirm the following items prior to submitting the SUMA application:

- ☑ Correct property owner's name
- ☑ Instrument number and/or book and page references are correct
- ☑ Appropriate plat title
- ☑ Preparer and date are consistent between the plat and the SUMA
- ☑ The plat is a size acceptable to the Richmond Circuit Court Clerk, typically 16" x 24", for recording.

When all appropriate documentation is gathered, a SUMA template must be filled out and sent to waterresources@rva.gov for review. Water Resources and the City's Attorney's office will review these documents and may request corrections. Once the applicant has received notification that the SUMA and access plat are approved, they should deliver the original, notarized copies of the signed SUMA and access plat to the City Attorney's office (900 East Broad Street, Suite 400, Richmond VA 23219). The final, signed, and notarized copies of the SUMA and access plat must be submitted for City approval before Water Resources can approve permits. Do not record the SUMA and access plat yourself.

**Figure 3-2:** SUMA Plat Example




## 3.5 STREAMLINE REVIEW PROCESS

Certain projects may be eligible for the Streamline Review process. Upon submission of the required third-party review documentation, these projects may be exempt from the standard review procedure. Refer to the **Appendix D: Streamline Review Process Checklist** for more information. For further details, please contact *Water Resources*.

## 3.6 CHESAPEAKE BAY BUFFER AREAS (CBPA)

Under the Chesapeake Bay Act framework, the City of Richmond is responsible for implementing its Bay Act program. The City of Richmond has adopted ordinance provisions that incorporate the performance criteria required by the Bay Act. Those provisions include City of Richmond, VA Municipal Code, Chapter 14, Article IV: Land Use and Development Performance Criteria

The CBPA are special areas of the city that are designated as having an impacting on or draining to the Chesapeake Bay. These areas are divided into area buffer areas, the Resource Management Area (RMA), the Resource Protection Area (RPA) and the Intensely Developed Area (IDA). Development within the RPA and the 50 foot buffer land ward of a perennial water body, is restricted and requires mitigation of the impacts to the area beyond water quality. The Chesapeake Bay Information Manual provides guidance to the public on the Chesapeake Bay and its requirements. The Riparian Buffer Manual provides guidance on the RPA.

Locally designated CBPA have been depicted on adopted Bay Act maps for the City of Richmond. These maps are to be used as a guide for applicants and local staff as to the general location of RPAs and RMAs on lots and parcels and should be used for planning purposes only. Once a project is proposed, a site-specific location of the RPA and the RMA must be determined. The locally adopted CMA can be found here: *Interactive Chesapeake Bay Map*.

The VA DEQ has enacted Stormwater regulations that require development in these areas to meet new water quality standards. Using specific data regarding impervious areas, the amount Water quality treatment for each site is determined using the Runoff Reduction Spreadsheet.

Using specific data regarding impervious areas, the amount of phosphorus to be removed from the water will be determined. Land development of one (1) acre or greater in non CBPA will also be required to provide water quality treatment as part of the REMSP permit approval.

For development criteria for RPA, refer to City of Richmond, VA Municipal Code Sec. 14-264. Applicants must submit an *Application for Relief from Requirements of the Chesapeake Bay Preservation Program*.

### Document Library

- Water Resources Environmental Check List
- E & S Developers Agreement
- Responsible Land Disturber Form
- Stormwater Utility Maintenance Agreement (SUMA) Instructions
- Stormwater Utility Maintenance Agreement (SUMA)

### Useful Links

- Virginia Stormwater Management Handbook
- City of Richmond Code Chapter 14 - Floodplain Management, Erosion and Sediment Control, and Drainage (Municode)
- Department of Environmental Quality (DEQ)
- Runoff Reduction Method
- Interactive Chesapeake Bay Map
- Stormwater Management Design and Construction Standards Manual
- FEMA Floodplain Map Service Center
- VA Flood Risk Information
- NFWF Wetlands Inventory
- Planning & Development Review
- Richmond City GIS Mapper
- Richmond GeoHub

# 4.0 Permit Details

To protect Richmond's natural resources and create a healthier environment, the Water Resources Division (WRD) issues permits to businesses and local, state, and federal facilities. This section explains the details of the RESMP permit, including stipulations, exemptions, or limitations.

## 4.1 RICHMOND EROSION AND STORMWATER MANAGEMENT PROGRAM (RESMP)

The Virginia Erosion and Stormwater Management Regulations require that the City of Richmond adopt a local program to administer the requirements. The City of Richmond has adopted the Richmond Stormwater Management Program (RESMP) to integrate the City's stormwater management, floodplain management, erosion and sediment control, and Chesapeake Bay Preservation Area requirements into a unified City program intended to meet VSMP requirements.

### 4.1.1 Permit Coverage and Requirements

A RESMP is the City's local program that adheres to Virginia DEQ General Permit requirements, including all erosion and sediment control, storm drainage installation for pipes, inlets, outfalls, and structural and non-structural best management practices, Chesapeake Bay Plans, and floodplain regulatory requirements. A RESMP permit is required when land disturbance meets any of the following criteria:

- Greater than or equal to 2,500 square feet in a Chesapeake Bay area
- Greater than or equal to 4,000 square feet in other areas

An RESMP permit will not be issued until the following information has been submitted to the City:

- ☑ RLD Designation form and certificate
- ☑ WRD Environmental Plan Review Checklist
- ☑ Contractor License & COR Business license
- ☑ ESC Plan, **Section 5.1**
- ☑ Chesapeake Bay Site Plan, **Section 5.2**
- ☑ Stormwater Management Plan, **Section 5.3**
- ☑ ESC bond and agreement
- ☑ SUMA agreement and exhibit (if applicable)
- ☑ General registration statement, SWPPP book, and PPP drawing sheet in plan set (if applicable)

In addition, the details provided in **Appendix J** must be included in site plans when a new sewer is being connected to the CSS. Construction of new combined sewers is strictly prohibited by the City. Calculations should be provided to prove available capacity within the existing combined sewer system.

The City of Richmond has developed a set of requirements to provide adequate drainage in land-disturbing activities which should be capable of handling stormwater peak flows based on the anticipated site conditions. The requirements for stormwater infrastructure standards can be found in the City of Richmond Public Utilities Stormwater Management Design and Construction Manual available online at: *https://www.rva.gov/sites/default/files/2021-06/Stormwater_Management_Design_and_Construction_Standards_Manual.pdf*.

In addition to the general permit, all support activities must obtain all necessary local, state, and federal approvals. In the event an SWPPP is required, discharges from support activities must be included in plan development and implementation.

### 4.1.2 Exemptions

The following exemptions apply to the RESMP Permit requirements outlined in subsection (a) of Section 14-324 of the City of Richmond Code:

1. Permitted surface or deep mining operations and projects, or oil and gas operations and projects conducted under the provisions Code of Virginia, Title 45.1 (Code of Virginia, § 45.1-161.1 et seq.)
2. Clearing of lands specifically for agricultural purposes and the management, tilling, planting, or harvesting of agricultural, horticultural, or forest crops, livestock feedlot operations, or as additionally set forth in State regulations, including engineering operations as follows: construction of terraces, terrace outlets, check dams, desilting basins, dikes, ponds, ditches, strip cropping, lister furrowing, contour cultivating, contour furrowing, land drainage, and land irrigation; however, this exception shall not apply to harvesting of forest crops, unless the area on which harvesting occurs is reforested artificially or naturally in accordance with the provisions of Code of Virginia, Title 10.1, Ch. 11 (Code of Virginia, § 10.1-1100 et seq.), or is converted to bona fide agricultural or improved pasture use as described in Code of Virginia, § 10.1-1163(B)
3. Single-family residences separately built, and additions or modifications to such existing single-family residential structures, disturbing less than one acre, or less than 2,500 square feet if located in an area delineated by the City as a Chesapeake Bay Preservation Area, and not part of a larger common plan of development or sale
4. Land-disturbing activities that disturb less than one acre, or less than 2,500 square feet if located in an area delineated by the City as a Chesapeake Bay Preservation Area, and not part of a larger common plan of development or sale
5. Activities under a State or Federal reclamation program to return an abandoned property to agricultural or open land use
6. Land-disturbing activities in response to a public emergency where the related work requires immediate authorization to avoid imminent endangerment to human health or the environment shall be advised of the disturbance to the Administrator within seven (7) days following commencement of the land-disturbing activity and compliance with the administrative requirements of this chapter will be required within 30 days of commencing the land-disturbing activity
7. Discharges to a sanitary sewer or a combined sewer system that are not from land-disturbing activity.

The following activities are required to comply with the soil erosion control requirements but are not required to comply with the water quantity and water quality technical criteria, unless otherwise required by federal law

8. Activities under a State or Federal reclamation program to return an abandoned property to agricultural or open land use
9. Routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original construction of the project including the paving of an existing road with a compacted or impervious surface and reestablishment of existing associated ditches and shoulders if performed in accordance with this subsection
10. Discharges from a land-disturbing activity to a sanitary sewer or a combined sewer system

## 4.2 SINGLE-FAMILY DWELLING (SFD) PERMIT

In lieu of submitting an Erosion and Sediment Control Plan for the construction of a single-family dwelling, the City of Richmond allows developers to agree to meet the requirements determined by the Erosion and Sediment Control Program. These requirements are based on the conservation standards contained in the City of Richmond Erosion and Sediment Control Ordinance (Article V, Chapter 14, Code of the City of Richmond, Erosion and Stormwater Management Program and represent the minimum practices necessary to provide adequate erosion and sediment control measures during construction.

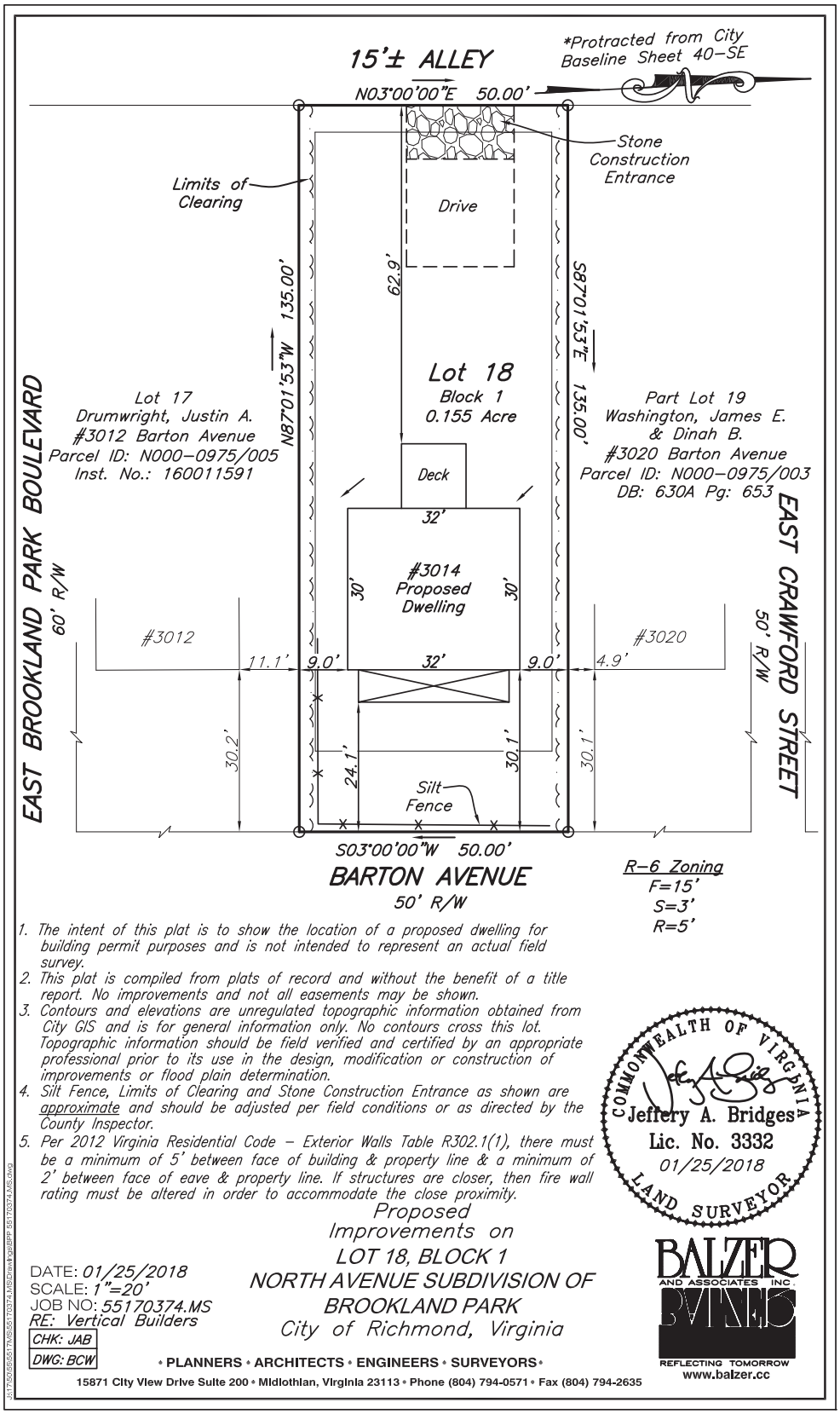
### 4.2.1 Permit Coverage and Requirements

For all SFDs permits for development projects under one (1) acre and over 2,500 square feet, an Agreement in Lieu of Plan (AILP) can be applied for in place of a complete set of civil engineering ESC and SWM drawings. If individual lots or sections in a residential development are being developed by different property owners, all land-disturbing activities related to the building construction shall be covered by an erosion and sediment control plan or an "Agreement in Lieu of a Plan" signed by the property owner. For eligible projects, a site plan, designation of RLD, and bond are required. The site plan must include:

- ☑ The proposed dwelling
- ☑ The adjacent street(s)
- ☑ The adjacent parcel(s)
- ☑ The limits of disturbance (LOD)
- ☑ Any silt fence protecting the site
- ☑ Location of the construction entrance

An example site plan is shown in **Figure 4-1.** Additionally, the AILO/AILP forms for both ESC and SWM plans can be found in **Appendix A**.

**Figure 4-1:** Single-Family Dwelling Unit Small Site Plan




1. The intent of this plat is to show the location of a proposed dwelling for building permit purposes and is not intended to represent an actual field survey.
2. This plat is compiled from plats of record and without the benefit of a title report. No improvements and not all easements may be shown.
3. Contours and elevations are unregulated topographic information obtained from City GIS and is for general information only. No contours cross this lot. Topographic information should be field verified and certified by an appropriate professional prior to its use in the design, modification or construction of improvements or flood plain determination.
4. Silt Fence, Limits of Clearing and Stone Construction Entrance as shown are approximate and should be adjusted per field conditions or as directed by the County Inspector.
5. Per 2012 Virginia Residential Code – Exterior Walls Table R302.1(1), there must be a minimum of 5' between face of building & property line & a minimum of 2' between face of eave & property line. If structures are closer, then fire wall rating must be altered in order to accommodate the close proximity.

COMMONWEALTH OF VIRGINIA
Jeffery A. Bridges
Lic. No. 3332
01/25/2018
LAND SURVEYOR

Proposed Improvements on
LOT 18, BLOCK 1
NORTH AVENUE SUBDIVISION OF
BROOKLAND PARK
City of Richmond, Virginia

DATE: 01/25/2018
SCALE: 1"=20'
JOB NO: 55170374.MS
RE: Vertical Builders
CHK: JAB
DWG: BCW

BALZER AND ASSOCIATES INC
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## 4.3 ADDITIONAL APPROVALS

In addition to the permits authorized by the Water Resources Division, applicants are required to meet all other jurisdictional permitting regulations not specified in this document. It is on the permittee to obtain any additional permits and approval necessary from outside agencies. Some of the most common permits required for approval prior to submitting Water Resource Division can be found in the following subsections, **Section 4.2.1** and **Section 4.2.2**.

### 4.3.1 Wetland Delineation

Wetlands are lands consisting of marshes, swamps, and areas where water covers the soil, or is present at or near the surface of the soil all year around. Wetland delineation by the United States Army Corps of Engineers is required if the project is encroaching on areas that are identified via desktop by the National Wetland Inventory. If the project is within wetlands, a Joint Permit Application may be required *https://ris.dls.virginia.gov/uploads/9VAC25/forms/33ff-b005797~5t.pdf*. The National Wetlands Inventory can be used to preliminarily determine if wetlands are present on-site (*https://fwsprimary.wim.usgs.gov/wetlands/apps/wetlands-mapper/*).

**Note:** NWI wetland delineations are not acceptable in lieu of a USACE-approved wetland delineation.

### 4.3.2 Working in a Waterbody

Development and redevelopment within the floodplain are discouraged in the City. There are strict guidelines before land-disturbing activities can occur in the floodplain. All areas of the City have flood elevation protection requirements. Alterations to existing development require floodproofing to protect from property damage during flooding events. Residential and commercial properties within the Special Flood Hazard area (SFHA) that hold a federally backed mortgage will be required to carry flood insurance. For more information, please contact the city's Floodplain Administrator.

To find more details about building in a floodplain or floodway please refer to **Section 6.**

# 5.0 Individual Plan Requirements

*All submittals require signed and sealed drawings by a licensed professional engineer in the Commonwealth of Virginia. Drawings and plans shall include accurate and up-to-date supporting documentation, as required.*

## 5.1 EROSION AND SEDIMENT CONTROL (ESC) PLAN

ESC plans are to prevent degradation of properties, stream channels, waters, and other natural resources of the City. It is required of individuals responsible for land disturbing activities to take the proper steps for erosion and sediment control by implementing requirements per the Erosion and Sediment Control Law (§ 62.1-44.15:51 et seq. of the Code of Virginia). All ESC plans shall comply with the following requirements and minimum standards of the Erosion and Sediment Control Regulations (9VAC25-875-20 et seq.) and the VSMH published by the VA DEQ.

**The plan shall identify control practices to minimize soil erosion on site by:**

- **Controlling volume and velocity of stormwater runoff**
- **Controlling peak flow rates and total stormwater volume at outlets**
- **Minimizing soil exposure**
- **Reducing slope disturbances**
- **Minimizing sediment discharges**
- **Providing and maintaining natural buffers around surface waters and maximizing stormwater infiltration**
- **Minimizing soil compaction and preserving topsoil**
- **Initiating stabilization activities, as defined under 9VAC25-880-1**

The following subsections provide additional details to meet each of the above minimum requirements for an ESC plan.

### 5.1.1 Drawing Plan Submission Requirements

All drawing plans shall follow the requirements and practices in the VSMH which is available using the following link: *https://online.encodeplus.com/regs/deq-va/doc-viewer.aspx#secid-5*. When developing the ESC plan it is recommended to always use the most recent version of the VSMH.

Individuals submitting plans shall provide a completed ESC plan checklist, see **Appendix B**. The checklist is a guide to help ensure all documentation is included in the ESC plans for plan approval. Without a complete checklist, the application is deemed incomplete.

### 5.1.2 Responsible Land Disturber

All plans must identify and submit the Designation of Responsible Land Disturber form with the name of an individual holding a certificate of competence that satisfies Virginia DEQ's Responsible Land Disturber (RLD) requirements, see **Appendix C.** A RLD is a person who is responsible for implementing and enforcing the requirements listed on the ESC plans for land disturbing activities as per Section 14-153 of the City of Richmond Code of Ordinance. Information on how one can obtain a RLD certificate can be found by going to this link: *https://www.deq.virginia.gov/our-programs/training-certification/responsible-land-disturber*.

### 5.1.3 ESC Bond and Agreement

In addition to the plans and checklist, a performance bond is required for every land disturbing project, excluding developments by government agencies. To determine a bond amount, a complete Erosion and Sediment Control Table correctly listing all quantities of ESC measures on the plan will be required. Therefore, the bond amount will not necessarily be determined upon first review of application. ESC bond sheets will not be provided for POD and DEVR, unless an LDIS or RESMP permit has been applied for. Part of the bond agreement includes a Developer's Agreement that ensures the developers will uphold their ESC plans and provides the City authority to inspect and maintain as needed, see sample agreement in **Appendix D**. The bond and developer agreement must be submitted together for approval. Bonds can be paid by check, surety bond, or an irrevocable letter of credit. Bonds are returned at the end of the project once the site has established 80% vegetation (not at CO). In the event you do not complete your project, your bond can be called and used towards stabilizing the site.

## 5.2 CHESAPEAKE BAY SITE PLAN

The submission of a Chesapeake Bay Site Plan is required by Ordinance Section 14-263(10) for approval of any development or land disturbing activity in an RMA or RPA. The Chesapeake Bay Site Plan is the only document that best enables the Program Administrator to evaluate the conditions on site recommended for development and determine if the requirements of the program are being met. Please note, that a Chesapeake Bay Site Plan incorporates much of what is required by the other land permitting processes and can be utilized for such.

The following summarizes the main requirements to submit for a Chesapeake Bay Site Plan, if the land disturbing activity is not exempt:

- **Chesapeake Bay Site Plan**
  The City has prepared the Chesapeake Bay Public Information Manual that serves as a guide to all that require a Chesapeake Bay Site Plan. Please refer to Section II – Submission and Review Process in the Chesapeake Bay Public Information Manual. A complete checklist is required as part of the site plan submission, see **Appendix B**.

- **Copies of Wetlands Permits**
  Wetlands permits issued by the Army Corps of Engineers, Virginia Marine Resource Commission, and DEQ are required for a host of activities affecting wetlands, shore-lines and navigable waters, see **Section 2.1** for additional information.

  If wetland permits are not required evidence of a determination that wetlands are not present or impacted is required.

- **Water Quality Impact Assessment (WQIA)**
  Assessment must demonstrate the absence of significant adverse impacts of nonpoint source pollution (NPS) on topography, soils, environmentally sensitive areas, hydrology and the quality of State waters and mitigation of any unavoidable adverse impacts. Requirements for a WQIA are listed in **Appendix B**.

- **Landscape Plan**
  Landscape plan including major landscaping features, including existing vegetation, to be retained, clear delineation of all trees proposed for removal, description of plant species to be disturbed or removed, treatment of the RPA buffer, indicating proposed landscaping and vegetation to be retained by type and quantity, replanting schedule for trees and other significant vegetation removed for construction, including list of trees and plants to be used, 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, and demonstration that indigenous plants are to be used to the greatest extent possible.

### 5.2.1 CBPA Exemptions

An exemption to CBPA may be granted if the lot or parcel located within a CBPA would unreasonably restrict the utilization of the property under its current zoning. Exemptions must be approved prior to any activity or use in the RPA that is not already permitted by the CBPA ordinance.

Activities for exemption approval include:


GRADING


BUILDING


REMOVAL OF VEGETATION


FILLING


PAVING


ANY OTHER DISTURBANCES

For more information see **Appendix E** with the exemption form.

### 5.2.2 Stream Study

Additionally, if a project is encroaching on a stream that was a previously designated as a Perennial Stream, which would categorize it as an RPA, and is no longer acting as a Perennial Stream, then a stream study may be performed to prove the area shall no longer be designated as an RPA. The study shall only be performed by an individual with stream classification certifications. To submit for reclassification, a Stream Determination Evaluation Form found in **Appendix F** along with the RPA exemption form in **Appendix E**, and a technical memorandum with the findings shall be submitted to the permitting department.

## 5.3 STORMWATER MANAGEMENT PLAN (SWM)

Stormwater management plan consists of appropriate storm drainage design and stormwater management facility design as stated under Section 14-327 of the City of Richmond Code of Ordinances. The plan must include information on the type, location, and features of stormwater discharges as well as pre and post development drainage areas. If any of the requirements are intended to be met off site, then a letter from the off-site provides must be included within the plan. The City has prepared a *Stormwater Management Design and Construction Manual* that shall be used to prepare stormwater design drawings and calculations capable of handling stormwater peak flows based on the anticipated site condition. The manual is available online at *https://www.rva.gov/sites/default/files/2021-06/Stormwater_Management_Design_and_Construction_Standards_Manual.pdf*.

Additionally, stormwater management plans are to demonstrate how developments meet applicable stormwater quantity (9VAC25-875-600) and quality (9VAC25-875-580) regulations.

### 5.3.1 Stormwater Management Facilities (SWMFs)

Additionally, if structural or permanent stormwater management facilities (SWMFs) are required to minimize surface runoffs and nonpoint source pollution to meet total phosphorus water quality requirements the facility design shall follow the Virginia Stormwater BMP Clearinghouse which can be found in the following website: *https://www.deq.virginia.gov/our-programs/water/stormwater/stormwater-construction/bmp-clearinghouse*. The Virginia Stormwater BMP Clearinghouse is jointly administered by Virginia DEQ and the Virginia Water Resource Research Center which will provide the most recent and up to date requirements.

**Contractor's Heavy Highway or Plumbing License**

When any Contractor is installing permanent storm drainage or SWMFs, they must provide a copy of their heavy highway or plumbing license prior to commencing work with the stormwater management plan. The applicant must also verify the location of the parcel or parcels where the land disturbing activity is planned.

## 5.4 RESMP REQUIREMENTS

A RESMP will cover all erosion and sediment control, storm drainage installation for pipes, inlets, outfalls, and structural and non-structural best management practices, Chesapeake Bay and floodplain regulatory requirements. Therefore, the following items are required of each.

### 5.4.1 Registration Statement

A registration statement is only required if more than 1 acre of land disturbance occurs in a MS4 area. Registration statement form for General Permit can be found at the following link: *https://www.deq.virginia.gov/permits-regulations/permits/water/stormwater-ms4*.

### 5.4.2 Stormwater Pollution Prevention Plan (SWPPP)

Stormwater Pollution Prevention Plan (SWPPP) is required if a general registration statement is required. SWPPPs are meant to identify potential sources of pollutants which may affect the quality of stormwater discharges and develop mitigation procedures that will minimize the affect these pollutants have on discharges from construction activities. An SWPPP must be developed before submission of a registration statement. Failure to submit a completed SWPPP will result in rejection of permit coverage.

Each SWPPP should include the following:

- ☑ **General Information**
  - » Site plan
    - – Direction of stormwater and anticipated slopes
    - – Limits of land disturbance
    - – Locations of major control measures (structural and nonstructural)
    - – Locations of surface waters
    - – Discharge locations
    - – Locations of on and off site support activities
    - – Inspection related equipment
  - » Copy of the Notice of Coverage Letter (Once received)
  - » Signed registration statement
- ☑ **Erosion and Sediment Control Plan**
- ☑ **Stormwater Management Control Plan**
- ☑ **Pollution Prevention Plan for any non-stormwater discharges**
- ☑ **Measures to address discharges to locally impaired waters, exceptional waters or surface waters with a TMDL**

The requirement for an SWPPP or any of its required components may be met by referencing another plan, such as a spill prevention control and countermeasure (SPCC). If incorporated by reference, such plans will become enforceable under the granted permit. If a construction activity is a part of a larger common plan of development, and disturbs less than one acre, a template provided by DEQ may be utilized, so long as a SWPPP has been developed and implemented for the development at large.

Once approved, the SWPPP should be maintained and updated onsite for as long as land-disturbing activities are occurring in the site. If the location is unavailable, the operator should post the SWPPP near the main entrance to the site. The SWPPP is required to be available for public review, either electronically or in hard copy.

# Individual Plan Requirements

**Pollution Prevention Plan (PPP)**
A pollution prevention plan (PPP) is required to be included in all SWPPPs for projects greater than 1 acre in an MS4 area.

The PPP addresses the following:

1. Wastewater from washout of concrete
2. Washout and cleanout of stucco, paint, form release oils, curing compounds, and other construction materials
3. Fuels, oils, or other pollutants used in vehicle and equipment operation and maintenance
4. Soaps or solvents used in vehicle and equipment washing

Be sure to identify any pollutant-generating activities likely to be present at the project site to implement the appropriate pollution prevention practices. If an unlisted pollutant-generating activity is likely to be present at the project site: describe the activity, identify the associated pollutant(s), and provide the corresponding pollution prevention practice(s) to be implemented and maintained.

**Additional Measures for Impaired Waters**
Additional measures must be written into the SWPPP in the event stormwater is projected to be discharged to impaired or exceptional waters. These additional measures for pollutant minimization must also incorporate a more rigorous inspection schedule. Note that while inspection criteria are the same for all impaired waters, the definition of each type and impairment specific requirements have been detailed below.

*TMDL Impaired Waters*
The 305(b)/303(d) process is an integral part of Virginia's water quality management program, for which requirements are set forth in federal regulations (40 CFR 130). Any discharges to waters identified in 2022 § 305(b)/303(d) Water Quality Assessment Integrated Report or to waters with an applicable TMDL waste load allocation is defined as discharges to TMDL impaired waters and must be identified in a SWPPP. Additionally, for the Chesapeake Bay TMDL, DEQ has issued the Guidance Memo No. 20-2003 Chesapeake Bay TMDL Special Condition to help individuals submit the proper information and can be found at the following link: *https://www.deq.virginia.gov/permits-regulations/permits/water/stormwater-ms4*.

As such, the SWPPP must also provide clear direction as to the permanent or temporary stabilization of soil and the application of nutrients to part or all of the site within seven days of reaching final grade and must provide an inspection schedule in accordance with 9VAC25-880-70 Part II G 2 a.

For additional resources, the EPA has developed guidance materials and templates that can be used for preparation of a plan: *https://www.epa.gov/chesapeake-bay-tmdl*.

*PCB Impaired Waters*
Polychlorinated biphenyl (PCB) is a pollutant of major concern. Discharges from construction activities which include the demolition of any structure built or renovated prior to January 1, 1980 with at least 10,000 square feet of floor space to PCB impaired waters must be identified in the SWPPP. These discharges must be central to the development of the erosion and sediment control plan. Additionally, the methods for disposal of waste materials must also be detailed in the provided SWPPP to ensure compliance with all applicable federal state and local requirements.

All sites where stormwater is discharged to PCB impaired waters must be inspected either once every 4 business days or once every 5 business days AND no later than 24 hours following a measurable storm event.

# 6.0 Floodplain Management Requirements

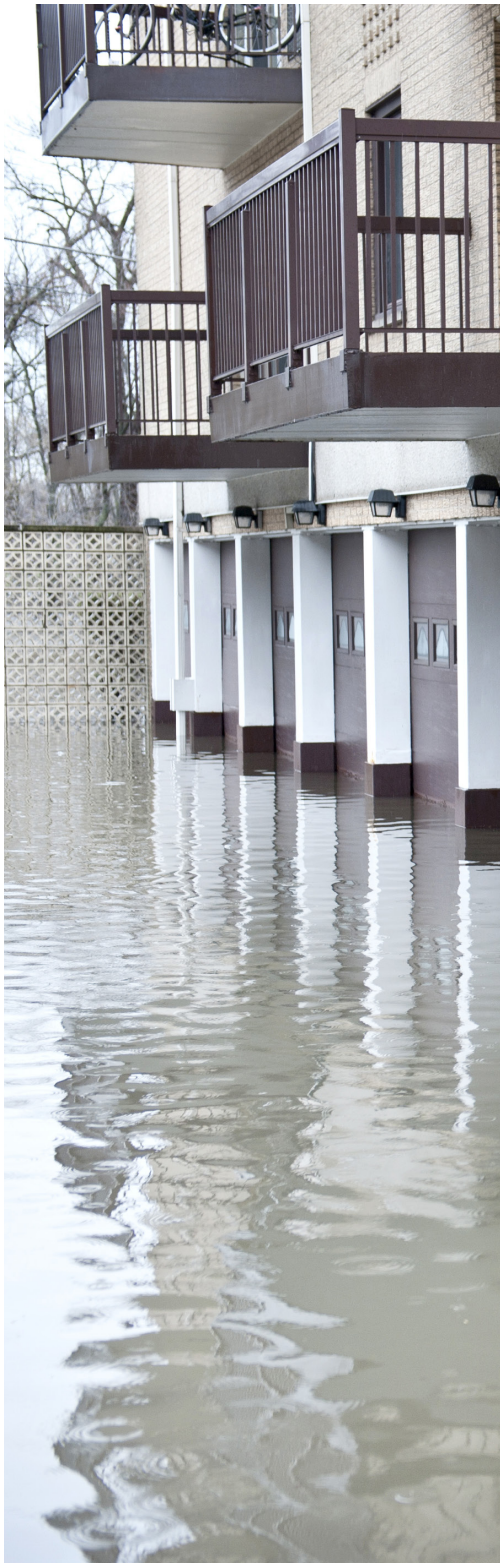
## 6.1 INTRODUCTION

Development, redevelopment or land-disturbing activity within the floodplain, floodway, flood fringe and approximate floodplain are subject to Chapter 14, Article II, City of Richmond Code of Ordinances. Floodplain management is a public safety program at a local level that helps people minimize flood risk by modifying human susceptibility to flood damage, the impact of flooding, flooding itself, and preserving and restoring natural resources. By participating in the National Flood Insurance Program (NFIP), the City of Richmond is voluntarily agreeing to adopt and enforce floodplain management ordinances that meet minimum NFIP requirements in exchange for flood insurance. The NFIP is a component of the Department of Homeland Security (DHS), and its goal is to reduce future flood damages by identifying flood risks (maps), regulating floodplain development, providing insurance in participating communities, and mitigating flood risks.

To determine a community's risk to flood hazards, the Federal Emergency Management Agency (FEMA) performs engineering studies called Flood Insurance Studies (FIS). The studies contain detailed flood elevation data in flood profiles and data tables valuable for assessing flood risk within a community or jurisdiction. As a subset to the FIS, Flood Insurance Rate Maps (FIRM) are prepared to illustrate the boundaries of designated flood zones. The FIS tables and the FIRM are used in unison to determine floodplain permit requirements.

The City of Richmond has designated floodplain districts, including floodway districts, flood fringe districts and approximate floodplain districts, as those areas in the City subject to partial or complete inundation by a 100-year flood. The basis for the delineation of these districts are the City's FIS and the FIRM for the City prepared by the Federal Insurance Administration of FEMA. Additionally, the City may identify and regulate local flood hazard or ponding areas that are not delineated on the FIRMs. Such areas may be delineated on a local flood hazard map using the best available topographic data and locally derived information, such as flood of record, historic high water marks or approximate study methodologies.

Periodically, the FIS and FIRM are revised and updated with information from a more recent engineering study completed for the NFIP and published as a preliminary. When this occurs, the use of preliminary flood hazard data is required where the preliminary base flood elevations or floodway areas exceed the base flood elevations or designated floodway widths in existing flood hazard data provided by FEMA.



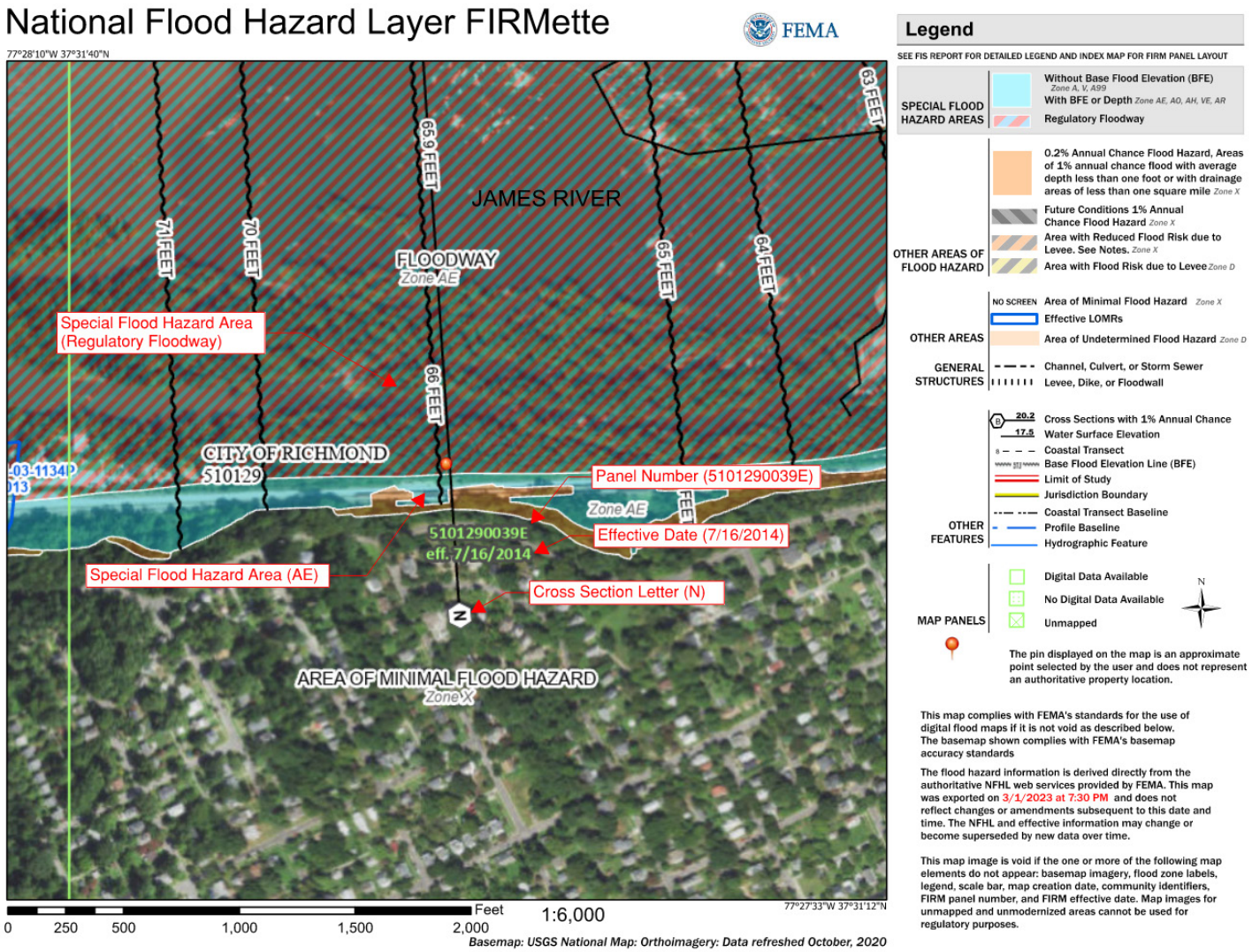
## 6.2 DEVELOPMENT IN THE FLOODPLAIN

### 6.2.1 Floodplain Determination

A floodplain determination is required as part of the permitting process. To complete this step, the applicant must submit a FIRMette illustrating flood risk at the project location. A FIRMette is an official copy of a portion of the effective FIRM, and the document can be obtained from FEMA's Flood Map Service Center (https://msc.fema.gov/portal/home). To create a FIRMette, the applicant must first input the address where the land-disturbing activity will take place and then click on "Dynamic Map" to generate an output pdf file of the FIRMette. Additionally, by clicking on "Show ALL Products", the applicant may have access to all applicable effective and preliminary FIRM and FIS data for the project area.

The Panel Number, Effective Date, FIRM Zone Designation are to be included in the permitting documents submitted to the Water Resources Department may be obtained from the FIRMette. Refer to **Figure 6-1** for an example of a FIRMette and the data to be obtained.

**Figure 6-1:** Single-Flood Insurance Regulatory Map – FIRMette



### 6.2.2 Base Flood Elevation Determination

As part of the floodplain determination process, the applicant must also determine the 100-year flood elevation or Base Flood Elevation (BFE) at the project site. The City of Richmond has adopted the "With Floodway" condition as the BFE. The increase in base flood elevation from the "no floodway" to "with floodway" condition is called the surcharge and typically ranges between 0 and 1.0 foot.

To obtain the "with floodway" BFE, the applicant must use the FIRM in conjunction with the Floodway Data Tables. After identifying the Flooding Source and Cross Section Letter from the FIRM, the "with floodway" BFE, is obtained from the FIS Floodway Data Table. Refer to **Figure 6-2** for an illustration on how to obtain the "with floodway" BFE value for the project location shown in **Figure 6-1**.

For locations located between Cross Sections, the higher "with floodway" BFE value is to be used. For locations that lack Floodway Data Tables, the "with floodway" BFE is to be determined by adding one foot to the Water Surface Elevation (WSE) at the project site. Lastly, where the BFE cannot be determined from FIRM or FIS data, the applicant must determine the "width floodway" BFE through hydrologic and hydraulic analysis performed in accordance with standard engineering practice.

**Figure 6-2:** Flood Insurance Study – Floodway Data Table

| FLOODING SOURCE | | FLOODWAY | | | BASE FLOOD WATER SURFACE ELEVATION (FEET NAVD) | | | |
|---|---|---|---|---|---|---|---|---|
| CROSS SECTION | DISTANCE | WIDTH (FT.) | SECTION AREA (SQ. FT.) | MEAN VELOCITY (F.P.S.) | REGULATORY | WITHOUT FLOODWAY | WITH FLOODWAY | INCREASE |
| James River (continued) | | | | | | | | |
| N | 106.39[1] | 2,110 | 20,729 | 14.0 | 65.9 | 65.9 | 65.9 | 0.0 |
| O | 106.83[1] | 1,932 | 33,700 | 8.6 | 78.8 | 78.8 | 78.8 | 0.0 |
| P | 108.58[1] | 1,541 | 26,501 | 10 | | 101.8 | 102.0 | 0.2 |
| Q | 108.76[1] | 2,313 | 37,678 | 7 | | 104.9 | 105.0 | 0.1 |
| R | 109.40[1] | 2,336 | 39,447 | 8.8 | 108.5 | 108.5 | 108.6 | 0.1 |
| S | 110.33[1] | 2,566 | 32,971 | 8.7 | 113.7 | 113.7 | 113.9 | 0.2 |
| T | 110.59[1] | 2,049 | 31,328 | 5.5 | 118.6 | 118.6 | 118.7 | 0.1 |
| U | 110.99[1] | 1,635[2] | 29,792 | 9.7 | 120.4 | 120.4 | 120.6 | 0.2 |
| V | 111.73[1] | 2,320[2] | 41,877 | 6.9 | 125.4 | 125.4 | 126.4 | 1.0 |
| W | 113.35[1] | 2,200[2] | 48,212 | 6.4 | 134.0 | 134.0 | 134.9 | 0.9 |
| Pittway Creek | | | | | | | | |
| A | 530[3] | 44 | 140 | 5.9 | 137.0 | 130.5[4] | 130.9 | 0.4 |
| B | 1,310[3] | 38 | 101 | 8.2 | 144.2 | 144.2 | 144.2 | 0.0 |
| C | 1,540[3] | 58 | 255 | 3.3 | 147.4 | 147.4 | 148.1 | 0.7 |
| D | 3,265[3] | 77 | 118 | 5.1 | 173.0 | 173.0 | 173.1 | 0.1 |
| E | 3,760[3] | 65 | 180 | 3.3 | 181.6 | 181.6 | 181.7 | 0.1 |
| F | 4,220[3] | 44 | 104 | 5.8 | 188.5 | 188.5 | 188.5 | 0.0 |

Base Flood Elevation

[1] Miles above mouth, based on historical milepost stationing
[2] This width extends beyond corporate limits
[3] Feet above confluence with James River
[4] Elevation computed without consideration of backwater effects from James River

TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY
**CITY OF RICHMOND, VA**
**(INDEPENDENT CITY)**

**FLOODWAY DATA**

**JAMES RIVER - PITTAWAY CREEK**

### 6.2.3 Elevation Requirements

The City of Richmond requires the lowest floor of a building to be elevated above the "with floodway" BFE plus a freeboard of one foot. Unfinished or flood resistant enclosures, used solely for parking vehicles, building access or storage in an area other than a basement will not be considered a building's lowest floor, provided that such an enclosure is not build so as to render the structure in violation of the applicable non-elevation design requirements. When floodwaters are intended to enter these enclosures, flood resistant building materials must use, and appropriately sized openings must be provided to allow floodwaters to enter and leave.

The City of Richmond requires that an Elevation Certificate be submitted for buildings constructed in the floodplain. The purpose of the certificate is to show both compliance with the City of Richmond floodplain management requirements and FEMA National Flood Insurance policy. The Elevation Certificate is to be signed by a Professional Land Surveyor or Professional Engineer licensed in the state of Virginia. Elevation Certificate forms and instructions may be downloaded from FEMA at *https://www.fema.gov/glossary/elevation-certificate*.

### 6.2.4 Floodway Modifications

No encroachments, including infill, new construction, substantial improvements, or other development is permitted in the floodway, unless the party requesting the encroachment has demonstrated through hydrologic and hydraulic analysis performed in accordance with standard engineering practice that the proposed encroachment will not result in any increase in flood levels within the community during the occurrence of the 100-year flood discharge.

When development in the floodway will cause an increase in flood stage, it may be possible to compensate for the rise by physically modifying the floodway to replace the flood conveyance that would be lost as a result of the development.

Typical ways that this is done include:

1. Modifying the channel or overbank areas of the cross section or channel improvements to compensate for the loss of conveyance.
2. Removal of an existing comparable obstruction such as a building or bridge.
3. Changing permanently the land use such as replacing a floodplain forest with a ball field or parking lot can also be used to compensate for loss of conveyance.
4. Expanding the floodway to replace the conveyance lost due to the obstruction.

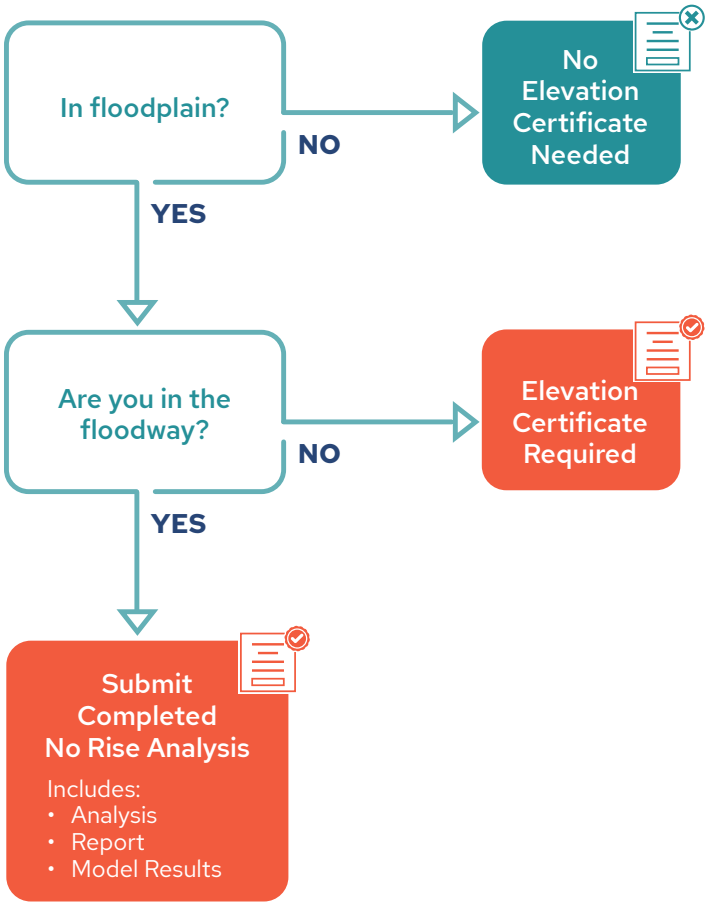
Note that modifications to the floodway will require approval from FEMA via the conditional flood insurance map and floodway revision (CLOMR) process. Other permits that might be required include the wetland permits under Section 404 of the Clean Water Act of 1972 and incidental take permits under Section 10 of the Endangered Species Act of 1972.

The City of Richmond requires that a No Rise Certificate (NRC) and a No Rise Analysis report be submitted for every project located in the floodway, see **Appendix G**. The purpose of these documents is to certify that the proposed activity will result in no rise in flood heights at the project site and upstream and downstream areas.

# Floodplain Management Requirements

In support of determining the necessary steps that needed to be completed for the Water Resources Division, **Figure 6-3**, DPU Water Resources Floodplain Management Requirements Decision Flow Chart, provides a guide for determining which, if not all, requirements necessary.

**Figure 6-3:** DPU Water Resources Floodplain Management Requirements Decision Flow Chart



## 6.3 NO RISE ANALYSIS

### 6.3.1 Hydrologic and Hydraulic Modeling

The City of Richmond requires applicants to obtain a copy of the most recent version of the effective model by contacting Water Resources Division at (804) 646-7586. The following modeling conditions must accompany the permit application:

1. **Duplicate Condition:** Obtain the model used to develop the effective /preliminary flood insurance study from FEMA and duplicates the results.
2. **Existing Condition:** Make corrections to the Duplicate Condition Model based on field surveys of the project's site and/or available topographic data that more accurately portrays the existing site conditions.
3. **Proposed Condition:** Modify the Existing Condition Model to represent the changes being proposed by the project.

The City of Richmond will compare the results of the Proposed Condition Model to the Existing Conditions Model to determine if there will be an increase in elevation of the base flood or floodway elevations at any existing or new cross section or evaluation line. No activity will be permitted in the floodway that adversely affects the capacity of any floodway or watercourse. Under certain conditions, activities which increase the base flood elevation may be allowed provided that the applicant first applies, with the City's endorsement, for a CLOMR and receives approval from FEMA.

The City of Richmond specifies the roughness coefficients to be used for modeling purposes. See Reference **Table 6-3** for prescribed values.

**Table 6-1:** Roughness Coefficients for the City of Richmond Flooding Sources

| Flooding Source | Channel "n" | Overbank "n" |
|---|---|---|
| All flooding sources mapped as Zone A on the FIRM | 0.045-0.055 | 0.045-0.120 |
| Bacons Quarter Branch | 0.025-0.030 | 0.040-0.060 |
| Broad Rock Creek | 0.040-0.045 | 0.040-0.100 |
| Broad Rock Creek (Overland Flow) | 0.025-0.030 | 0.040-0.060 |
| Cannon Creek Branch | 0.025-0.030 | 0.040-0.060 |
| Cherokee Creek | 0.045 | 0.065-0.100 |
| Falling Creek | 0.045 | 0.040-0.080 |
| Gillies Creek | 0.025-0.045 | 0.045-0.120 |
| Goodes Creek | 0.025-0.037 | 0.055-0.100 |
| Grindall Creek | 0.030-0.048 | 0.045-0.080 |
| James River | 0.038-0.050 | 0.040-0.100 |
| Jordans Branch | 0.020-0.050 | 0.060-0.140 |
| Pittaway Creek | 0.030-0.045 | 0.050-0.100 |
| Pocosham Creek | 0.045 | 0.045-0.080 |
| Pocoshock Creek | 0.040-0.048 | 0.030-0.090 |
| Powhite Creek | 0.040-0.048 | 0.040-0.082 |
| Rattlesnake Creek | 0.045 | 0.045-0.080 |
| Reedy Creek | 0.030-0.048 | 0.048-0.090 |
| Shockoe Creek | 0.025-0.030 | 0.040-0.060 |
| Shockoe Creek Split Flow | 0.025-0.030 | 0.040-0.060 |
| Stony Point Creek | 0.045-0.050 | 0.065-0.100 |
| Stony Run | 0.040-0.048 | 0.040-0.080 |
| Unnamed Tributary to Bacons Quarter Branch | 0.025-0.030 | 0.040-0.060 |
| Upham Brook | 0.055-0.140 | 0.050-0.150 |

### 6.3.2 Minimum Content of Report

The flood study report should contain the following sections at minimum:

**Section 1. Introduction (include project vicinity map)**

1.1. Project Summary

1.2. Available Information

**Section 2. Hydrology**

2.1. 100-Year Flood Discharge information

**Section 3. Hydraulics (explain and list model progressions of the provided model to facilitate the flood study)**

3.1. Provide table summarizing the plan files. See table below for template.

| | Name | File | Description |
|---|---|---|---|
| **Project** | James_River | James_River.prj | James River HEC-RAS Data in Richmond, VA |
| **Plan** | James_River_MP | James_River.p03 | James River Multiple profiles for return storms and historical storms |
| **Geometry** | James_River_withLevee | James_River.g03 | Includes the three levee systems for Richmond |
| **Steady Flow** | JR_Multipleprofile | James_River.f01 | Steady flow files |

3.2. Duplicate Preliminary Floodway Model

3.2.1. This is only downloading the existing model, no modifications

3.3. Corrected Preliminary Floodway Model

3.3.1. Takes Duplicative Preliminary Floodway Model and corrects technical errors in the preliminary modeling or the inclusion of any floodplain changes that occurred prior to the date of the preliminary model. If there are none, this step is not necessary.

3.4. Existing Conditions Model

3.4.1. To the Corrected Preliminary Floodway Model or the Duplicate Preliminary Floodway Model if there were no corrections, the Engineer adds the appropriate cross-sections for the work in the floodway including ones upstream and downstream of the project site

3.4.2. After addition of the cross-sections modify such that results match the initial FEMA modeling data.

3.4.3. Document that additional cross sections and modifications to align

3.4.4. Minimum of two cross sections upstream and downstream of the project site spaced at 100-FT intervals is required, if existing cross sections are within this distance they may count towards the minimum number of cross sections required

3.5. Proposed Conditions Model

3.5.1. Take the Existing Conditions Model and modify to add proposed work and obstructions.

3.5.2. Provide itemized log of the changes made to reflect proposed conditions

3.5.2.1. i.e. The obstruction of X width and Y height was added to cross XX,XXX from Stations 100 to 136 feet

3.5.2.2. Or stations 100, 110, and 120 were raised 2 feet to reflect proposed grading conditions

3.5.2.3. Or the Manning's roughness coefficient was changed from 0.06 to 0.04 from stations 175 to 250

3.6. Summary of Model Results (include a table comparing 100-yr water surface elevation (WSEL)) for all model progressions for cross sections within the project area and 1,000 feet upstream and downstream of the project area

3.6.1. Shown for both the baseline conditions and for the 'with floodway' condition

## Section 4. Conclusions

## Appendices

**Appendix A Firm Map**

**Appendix B Floodplain Study Figures**
(Include figures showing the project area with existing contours, FIS cross sections, floodway and floodplain boundaries and hydraulic modeling results at minimum)

- Figure for Duplicate Preliminary and Corrected Effective Preliminary Conditions
- Figure for Existing Conditions
- Figure for Proposed Conditions (with revised contours)

**Appendix C Detailed Model Output**

- For all below only show the model output table and cross sections for the project area and the cross sections 1,000 feet upstream and downstream of the project area. Label all cross sections with the Station Number.
- Detailed model output table and cross-sections (two per sheet) showing 100-yr WSEL for Duplicate Preliminary Model
- Detailed model output table and cross-sections (two per sheet) showing 100-yr WSEL for Corrected Effective Preliminary Model (Only if this model was required)
- Detailed model output table comparing both Existing Conditions and Proposed Conditions Models for only the 100-yr flood
  - Show the same cross section for the Existing Conditions and Proposed Conditions on the same sheet (two per sheet) showing 100-yr WSE.

**Appendix D No-Rise Certification**

**Appendix E Digital copy of the model(s) (for review)**

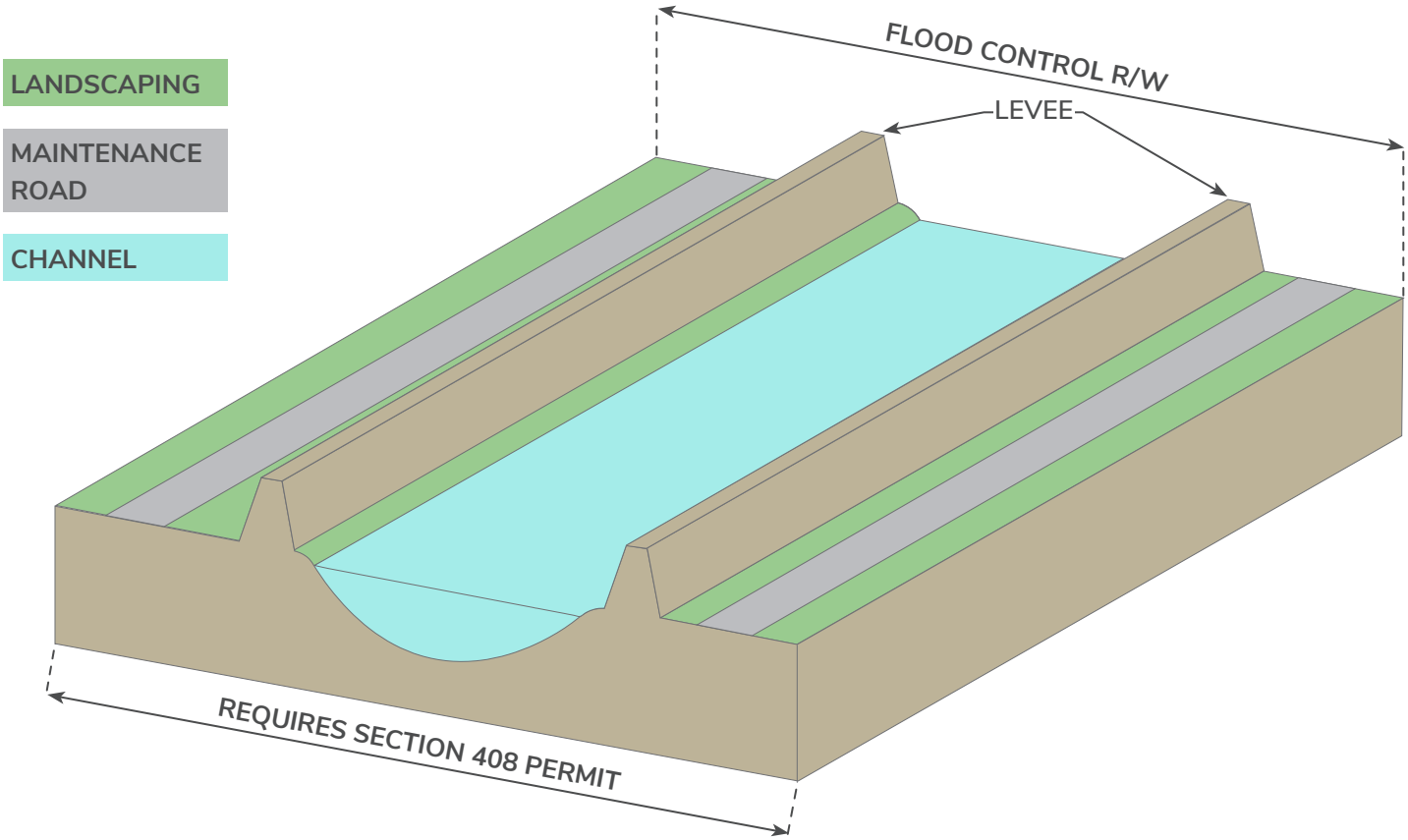
## 6.4 LEVEE FLOOD CONTROL RIGHT OF WAY (R/W)

A flood wall system currently protects the Shockoe Creek watershed on the north side of the James River and the large industrial area near the Wastewater Treatment Plant (WWTP) on the south side of the James River from flooding. The Water Filtration Plant (WFP) is also protected with a floodwall.

The City of Richmond requires approval by the US Army Corps of Engineers (USACE) under Section 408 for any construction activity near the levee system. Documentation of approval for must be submitted to the City of Richmond Water Resources Division.

**Figure 6-4** illustrates the areas surrounding a levee system that require a Section 408 permit. Typically, if a project is located within 50 feet of any of the levee systems within the City of Richmond, a USACE Section 408 permit will be required to start construction activities. If it is located within 100-1,000 feet, a permit might be needed. To confirm that a project located near a levee system needs a Section 408 permit, please submit an inquiry to the USACE at *https://www.spl.usace.army.mil/Missions/Section-408-Permits/*.

**Figure 6-4:** Areas Requiring USACE Section 408 Permit



## 6.5 SUBSTANTIAL DAMAGE AND IMPROVEMENTS

To mitigate repetitive flood losses, the City of Richmond requires that any structure located in the floodplain be brought into compliance with NFIP requirements if substantial improvements or repair of substantial damage (referred to as SI/SD determination) is proposed.

### 6.5.1 Substantial Damage Assessments

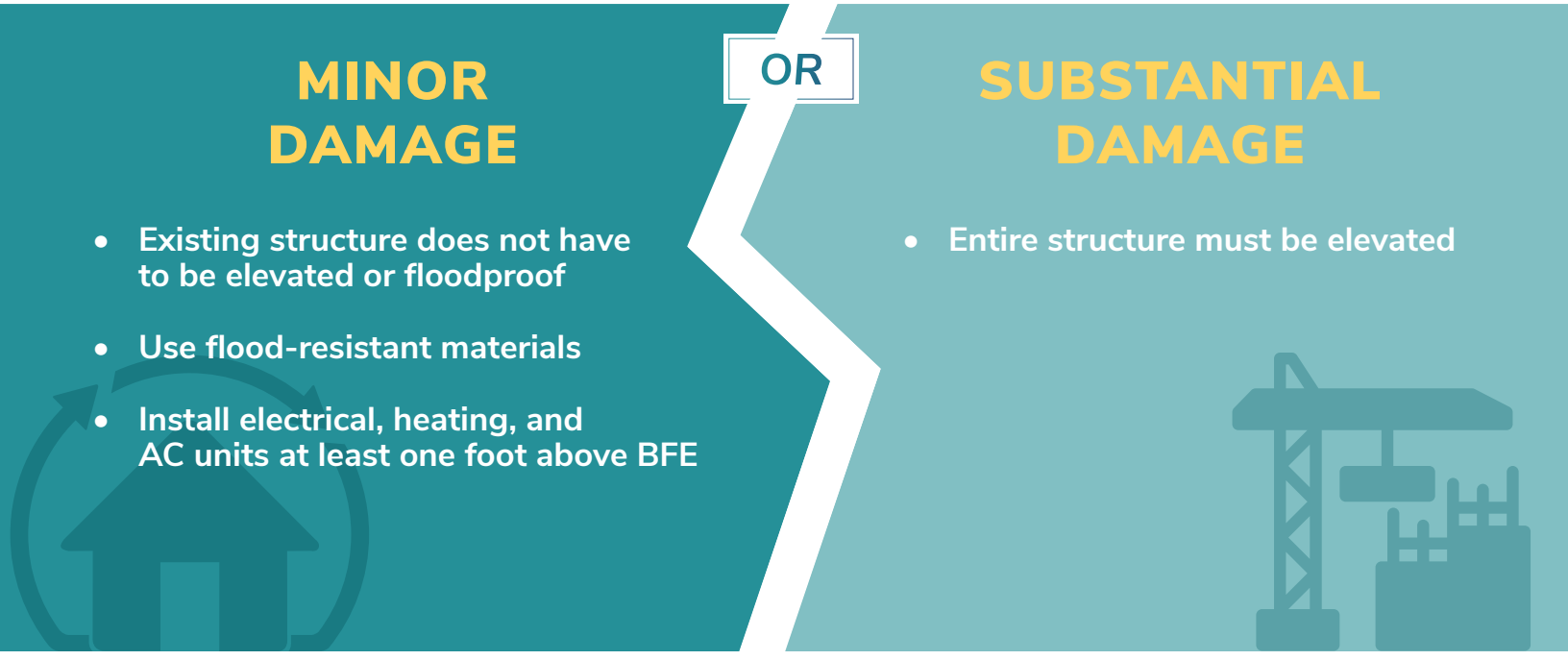
A structure is deemed to have sustained substantial damage under the following conditions:

- When the cost of restoring the damage of any origin (flood, fire, earthquake, wind, rain, or other natural or human-induced hazard) would equal or exceed 50 percent of the market value of the structure before the damage occurred.
- When the cost of repair for flood-related damage sustained by a structure on two separate occasions during a 10-year period averages, equals or exceeds 25 percent of the market value of the structure before the damage occurred.

To determine whether a structure is substantially damaged, the City of Richmond uses the ratio between the cost of repairs and the market value of the structure pre-damage.

The cost of repair for the structure must be calculated for full value of repair necessary to restore the building to its pre-damage condition plus any other improvements include in the repair project. This includes the value of all repairs, even if the owner opts not to pay for all the items needed by doing some of the work voluntarily, obtaining free materials, designating work to volunteers, and/or disregarding some repairs. Please see **Figure 6-5** for NFIP requirements for the repair of damaged structures.

**Figure 6-5:** Repair of Damage

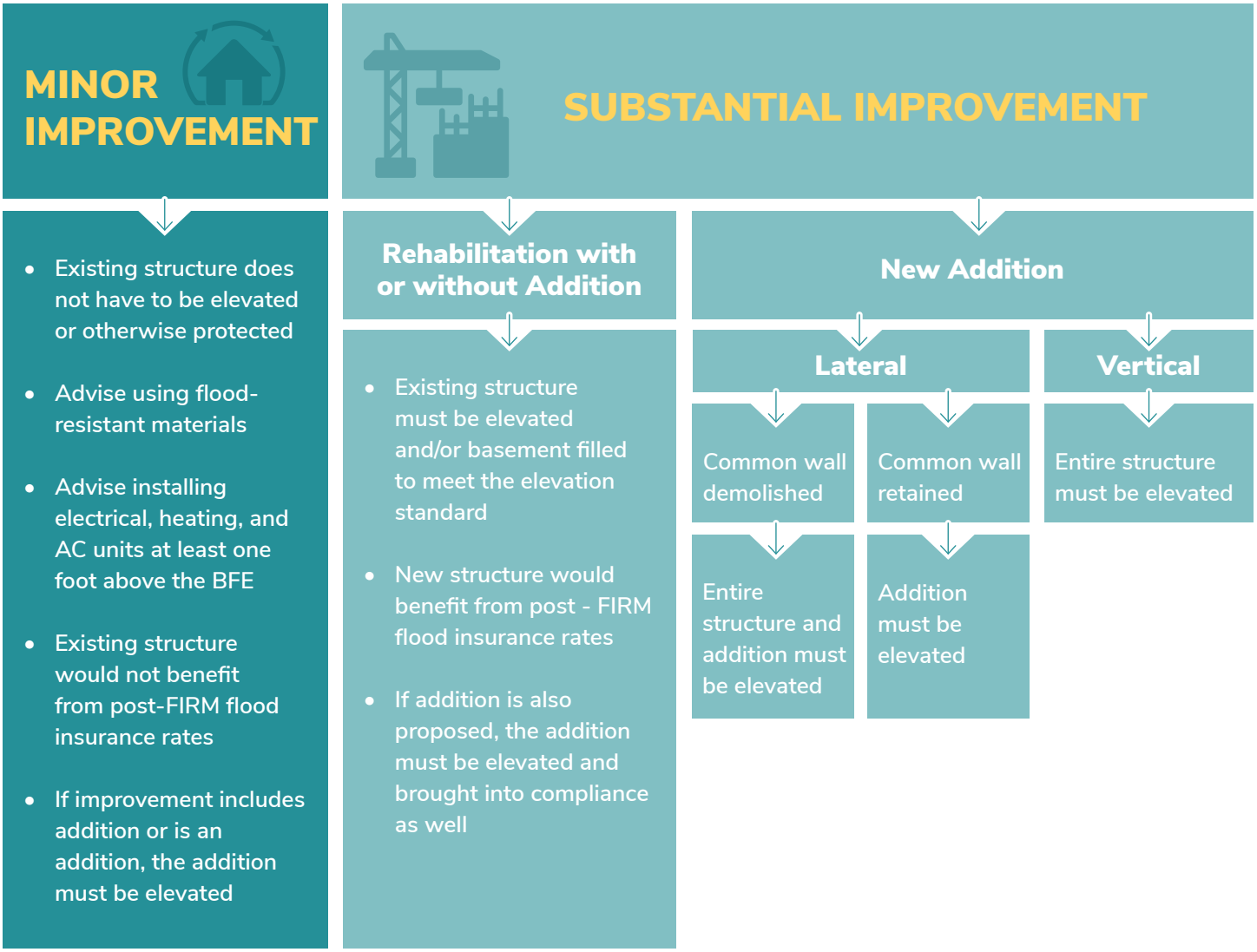


### 6.5.2 Substantial Improvement Requirements

This section relates to any improvements performed to a structure located in floodplain. Substantial Improvement is considered to be any reconstruction, rehabilitation, addition, or other improvement of a structure, the cost of which equals or exceeds 50 percent of the market value of the structure before the improvement.

For this purpose, the City of Richmond evaluates the ratio between the cost of improvements and market value of the existing structure. If the cost of improvements exceeds 50 percent of the market value, the improvement is considered substantial, and the structure must be brought into compliance with NFIP requirements. Reference below for requirements under various improvement scenarios.

**Figure 6-6:** Improvement of Structures



### 6.5.3 Exceptions

The substantial improvement and substantial damage requirements effect all buildings regardless of reason for improvement or cause of damage. However, there are three exceptions:

1. Costs exempt from improvement/repair project cost calculation:
   - Plans and specifications
   - Surveying costs
   - Permit fees
   - Demolition or emergency repairs made for health or safety reasons or to prevent further damage to the building
   - Improvements or repairs to items outside the building, such as the driveway, fencing, landscaping, and detached structures.

2. Historic structures exempt from substantial improvement requirements under the following criteria:
   - The building must be a bona fide "historic structure"
   - The project must maintain the historic status of the structure
   - Take all possible flood damage reduction measures

3. Existing safety violation correction projects exempt from substantial improvement requirements must be:
   - Involuntary improvements or violations that existed before the improvement permit was applied for or before the damage occurred
   - Items specifically required by code – only what is minimally required by current local and state health and safety codes costs are exempt

# SINGLE FAMILY DWELLING UNIT AGREEMENT IN LIEU

Department of Public Utilities Engineering
Services Division - Water Resources
1801 Commerce Road
Richmond, Virginia 23224
804 646-7586

# AGREEMENT IN LIEU OF AN EROSION AND SEDIMENT CONTROL PLAN

## -SINGLE FAMILY RESIDENCE -

Address_____ Permit Number_____

In lieu of submitting an Erosion and Sediment Control Plan for the construction of this single family dwelling, I agree to comply with the requirements as determined by the Erosion and Sediment Control Program Administrator, "Program Administrator" or designated agent. These requirements shall be based on the conservation standards contained in the City of Richmond Erosion and Sediment Control Ordinance (Article III, Chapter 14, Code of the City of Richmond, Erosion and Sediment Ordinance and shall represent the minimum practices necessary to provide adequate erosion and sediment control measures. **I further understand that failure to comply with such requirements within three (3) working days following notice by the Program Administrator could result in citation for violation of the E&S Ordinance**.

MEASURES SPECIFIED BY THE PROGRAM ADMINISTRATOR:

- The Erosion & Sediment Control Inspector shall be contacted at least two (2) working days before the commencement of the site clearing to schedule a pre- construction meeting. Please call your inspector to set up the site meeting.
- Show clearly the limits of clearing and grading for the proposed development.
- Install appropriate E&S control measures to prevent sediment from leaving the site. The E&S measures shall be in accordance with Virginia Stormwater Handbook 5.3.1. The E&S control measures shall be maintained until the site is stabilized
- Provide temporary construction entrance as in accordance with VESCH, 1992, Plate 3.02-1. The minimum standard #17- must be implemented in order to minimize the transport of sediment by vehicular traffic onto a paved surface.
- Provide tree protection to all saved trees within the disturbed area. See VESCH, 1992, Plate 3.38.
- Grade the site to provide positive surface drain away from the building. Surface drain should not pond on site or to adversely impact adjacent properties.
- At the end of each work day, E&S Control measures shall be properly reinstalled for areas that have been used to access the site.
- After final grading, the site shall be stabilized within seven (7) days with permanent vegetation or a protective ground cover suitable for the time of year prior to the issuance of a Certificate of Occupancy permit.
- Other E&S Control measures may be required as the site condition permits.

PERFORMANCE BOND

Section 14-152 of the Code of the City of Richmond requires that a Performance Guarantee be posted in the amount determined by the Program Administrator. The bond amount will be based on the estimated quantity of E&S Control measures, the unit price from the VESCH, 1992 and twenty (20) percent of the total estimated E&S Control measures cost. Such Performance Guarantee shall be conditioned to conform to any work of approved standards and specifications as specified in this approved Agreement.

Final inspection of the project shall be made by the Program Administrator or designee. The release of the Performance Guarantee is contingent upon the findings of such inspection. Release of the Performance Guarantee shall occur 80% vegetation of the project site is deemed adequately stabilized by the Program Administrator.

SUBMITTED:

_____ _____
Applicant signature & address Date

APPROVED:

_____ _____
Program Administrator Date

_____ _____
Responsible Land Disturber Date

# PRELIMINARY PLAN REVIEW CHECKLISTS AND FULL CHECKLISTS

CITY OF RICHMOND, DPU WATER RESOURCES DIVISION

# ENVIRONMENTAL PLAN REVIEW CHECKLIST

Department of Public Utilities, Water Resources Division
1801 Commerce Road
Richmond, VA 23219

**THIS FORM MUST BE COMPLETED BY THE ENGINEER OF RECORD FOR EVERY RESMP PERMIT SUBMITTAL. INCOMPLETE APPLICATIONS WILL BE REJECTED.**

*All items must be fully addressed and indicated so by checking the box for that item. Identify plan sheet(s) addressing specific requirements to help facilitate plan review under SHEET # box on the form.*

## 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 | |
|---|---|---|---|---|---|
| ☐ | ☐ | Perennial Stream | ☐ | ☐ | Common Plan of Development |
| ☐ | ☐ | Wetland | ☐ | ☐ | Subdivision (3+ parcels) |
| ☐ | ☐ | 100 Year Floodplain | ☐ | ☐ | Combined Sewer Service Area |
| ☐ | ☐ | Floodway | ☐ | ☐ | Municipal Separate Storm Sewer System (MS4) |
| ☐ | ☐ | Chesapeake Bay Preservation Area | | | |

Check which areas apply and complete indicated checklist section:

| CHECKLIST SECTION | | REGULATION/GUIDANCE |
|---|---|---|
| **Section 2** | ☐ | Erosion and Sediment Control *[Chapter 14, Article V]* |
| **Section 3** | ☐ | Chesapeake Bay Plan *[Chapter 14, Article IV]* |
| **Section 4** | ☐ | Storm Drain System *[COR Stormwater Management Design and Construction Standards Manual]* |
| **Section 5** | ☐ | Stormwater Management Facilities *[Sec. 14-327]* |
| **Section 6** | ☐ | Floodplain *[Chapter, 14, Article II]* |

CITY OF RICHMOND, DPU WATER RESOURCES DIVISION

# ENVIRONMENTAL PLAN REVIEW CHECKLIST

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

| YES | NA | |
|---|---|---|
| ☐ | ☐ | Stream determination and wetland delineation study with maps and supporting documentation. Approved map and DEQ/VMRC approved wetland permit(s). |
| ☐ | ☐ | City confirmation letter of stream perenniality study (include on appropriate plan sheet). |
| ☐ | ☐ | Nutrient Credit information (include DEQ approval of Bank and recorded approval of sale on appropriate plan sheet) |
| ☐ | ☐ | General permit coverage registration statement and SWPPP. |
| ☐ | ☐ | A copy of all Federal permits |
| ☐ | ☐ | A copy of all State permits |

## SECTION 1 – GENERAL INFORMATION

*Instructions: All plans require this General Information.*

| YES | SHEET # | REQUIREMENT | NA |
|---|---|---|---|
| ☐ | | 1) Cover Sheet | ☐ |
| ☐ | | a. Project name | ☐ |
| ☐ | | b. Owner/developer name, address, phone number, and contact person | ☐ |
| ☐ | | c. Vicinity map with project outlined | ☐ |
| ☐ | | d. List all required permits | ☐ |
| ☐ | | e. Sheet index | ☐ |
| ☐ | | f. Plan date/revision dates | ☐ |
| ☐ | | g. List ESC quantities | ☐ |
| ☐ | | h. List storm drainage quantities | ☐ |
| ☐ | | i. Provide BMP summary table (example Excel file available for download) | ☐ |
| ☐ | | 2) Plan Sheets | ☐ |
| ☐ | | a. Engineer's, Architect's, Land Surveyor's, or Landscape Architect's stamp signed and dated on all plan sheets | ☐ |
| ☐ | | b. All drawings must be to scale | ☐ |
| ☐ | | c. Provide a north arrow on every plan sheet | ☐ |
| ☐ | | d. Show all existing and proposed contours (2' intervals maximum) | ☐ |
| ☐ | | e. Show property lines with metes and bounds and owner information. Include legal description for adjacent properties | ☐ |
| ☐ | | f. Provide detail schematic for plans that cover two or more sheets | ☐ |
| ☐ | | g. Complete title block | ☐ |
| ☐ | | h. Show and label extents of buildable area (setbacks, floodplain limits, RPA, etc.) | ☐ |
| ☐ | | i. Show limits of construction, limits of disturbance, and limits of grading | ☐ |
| ☐ | | 3) Existing Conditions; show the following features, were applicable: | ☐ |
| ☐ | | a. All 100-year flood plain limits (No land disturbance or structures shall be permitted in the floodplain limits without prior City Approval) | ☐ |
| ☐ | | 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) | ☐ |
| ☐ | | c. Any Chesapeake Bay Preservation Area (RMA and/or RPA) buffer zones | ☐ |
| ☐ | | d. Existing/proposed right of way (including improved and unimproved) | ☐ |
| ☐ | | e. All existing easements (utilities, streets) | ☐ |

| YES | SHEET # | REQUIREMENT | NA |
|---|---|---|---|
| ☐ | | 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 | ☐ |
| ☐ | | g. Existing utilities including storm sewer, curb and gutter, sewer (including septic drain fields), water, electrical, and gas | ☐ |
| ☐ | | h. Existing streams, ponds, culverts, ditches, and other water bodies; including field located perennial streams | ☐ |
| ☐ | | i. Soil types | ☐ |
| ☐ | | j. Forest cover and other vegetative areas | ☐ |

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

CITY OF RICHMOND, DPU WATER RESOURCES DIVISION

**PLAN REVIEW CHECKLIST**

## SECTION 2 – EROSION AND SEDIMENT CONTROL PLAN

*Instructions: All plans require an Erosion and Sediment Control Plan. Single-family homes covered by an Agreement in Lieu of for Erosion Control are exempt from submitting a full Erosion and Sediment Control Plan but are required to show the locations of the silt fence and construction entrance (VSMH Section 4.3.2.6.1).*

| YES | SHEET # | REQUIREMENT | NA |
|---|---|---|---|
| ☐ | | 1) ESC Narrative per DEQ Virginia Stormwater Management Handbook (VSMH) Section 4.3.2.6.1 | ☐ |
| ☐ | | a. Project Description – Describe purpose and scope of land disturbing activity and area (acres) to be disturbed | ☐ |
| ☐ | | b. Existing Site Conditions – Describe existing topography, vegetation, drainage, etc. | ☐ |
| ☐ | | c. Adjacent Site – Describe neighboring areas, streams, lakes, residential areas, roads, parks, etc., which may be affected by the land disturbance | ☐ |
| ☐ | | d. Off-Site areas – Describe any offsite land disturbing activities (borrow/disposal, stockpiles, grading, etc.) associated with the project. | ☐ |
| ☐ | | e. Soils – Provide brief description including, name, mapping unit, erodibility, permeability, depth, texture, and soil structure | ☐ |
| ☐ | | f. Critical areas – Describe critical areas with potential erosion problems (long/steep slopes, water bodies, wetlands, etc.) | ☐ |
| ☐ | | g. Erosion & Sediment Control measures – Describe methods and measures used | ☐ |
| ☐ | | h. Permanent stabilization – Describe how the site will be stabilized after construction is complete | ☐ |
| ☐ | | i. Maintenance – Designate responsible party for maintaining ESC measures | ☐ |
| ☐ | | j. Maintenance, continued – Provide a description and schedule of regular inspection and repair of ESC measures | ☐ |
| ☐ | | k. Stormwater run-off considerations – Will site cause increase in peak run off rates? | ☐ |
| ☐ | | l. Calculations – All temporary and permanent channels, basins, diversions, pre- and post-development run-off, MS-19, etc. | ☐ |
| ☐ | | 2) Show limits of disturbance outlined and labeled (all ESC measures must be within the limits of disturbance) | ☐ |
| ☐ | | 3) Show existing vegetation with any tree protection | ☐ |
| ☐ | | 4) Show limits of clearing and any undisturbed areas | ☐ |
| ☐ | | 5) Provide a soils map | ☐ |
| ☐ | | 6) Provide ESC measures during demolition of the site (this should be stated in the sequence of construction under the first phase) | ☐ |
| ☐ | | 7) Provide adequate access, staging, and stockpiling areas with appropriate ESC measures | ☐ |
| ☐ | | 8) List key of ESC measures with quantities | ☐ |
| ☐ | | 9) Show and label all ESC measures on plan sheet | ☐ |
| ☐ | | 10) List construction sequence/schedule specific to project and all phases, including any site demolition and removal of ESC measures | ☐ |
| ☐ | | 11) All detention/retention ESC measures within 20' of a building's foundations must be evaluated | ☐ |
| ☐ | | 12) Show existing and proposed drainage patterns with flow arrows, time of concentration flow paths, and c- factors (or curve numbers) | ☐ |
| ☐ | | 13) Notate any off-site drainage areas (in acres) entering site | ☐ |
| ☐ | | 14) Sediment traps (Disturbed area with contributing drainage area of < 3 acres): | ☐ |
| ☐ | | a. Provide inlet protection and outlet location | ☐ |
| ☐ | | b. Maximize flow length from inlet to outlet | ☐ |
| ☐ | | c. Provide existing drainage area, proposed drainage area, storage capacity, and all supporting calculations per VSMH Chapter 7.4 C-SCM-11 | ☐ |

CITY OF RICHMOND, DPU WATER RESOURCES DIVISION

**PLAN REVIEW CHECKLIST**

| YES | SHEET # | REQUIREMENT | NA |
|---|---|---|---|
| ☐ | | 15) Sediment basins (Disturbed area with contributing drainage area of > 3 acres): | ☐ |
| ☐ | | a. Provide inlet and outlet protection | ☐ |
| ☐ | | b. Maximize flow length from inlet to outlet (add baffles as needed) | ☐ |
| ☐ | | 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. | ☐ |
| ☐ | | d. Show separate dewatering device for pipe outlet traps | ☐ |
| ☐ | | e. Provide all supporting calculations per **VSMH Chapter 7.4 C-SCM-12** | ☐ |
| ☐ | | 16) Temporary storm drain diversions | ☐ |
| ☐ | | a. Show profile | ☐ |
| ☐ | | b. Give invert elevations of temporary pipe into trap on plan view | ☐ |
| ☐ | | c. Provide details | ☐ |
| ☐ | | 17) Required notes on plans | ☐ |
| ☐ | | a. General ESC Notes 1-9 (**VAESCH Chapter 6**, Table 6-1, pg. VI-15) | ☐ |
| ☐ | | b. City of Richmond Standard ESC notes | ☐ |
| ☐ | | c. City of Richmond Standard ESC measure maintenance items | ☐ |
| ☐ | | d. All 19 Minimum standards (9VAC25-875-560, **VSMH Chapter 5.3.1**) | ☐ |
| ☐ | | 18) Provide details for all erosion & sediment control measures proposed per **VSMH Chapter 7** | ☐ |
| ☐ | | 19) Provide temporary seeding schedule per **VSMH Chapter 7**. | ☐ |
| ☐ | | 20) Provide permanent seeding schedule per **VSMH Chapter 7**. | ☐ |
| ☐ | | 21) Off-site grading requires written documentation of permission from adjoining owner. Otherwise, include on current permit or separate land disturbing plan. | ☐ |
| ☐ | | 22) Subdivision | ☐ |
| ☐ | | 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. | ☐ |
| ☐ | | 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. | ☐ |
| ☐ | | 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. | ☐ |

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

## SECTION 3 – CHESAPEAKE BAY PLAN

*Instructions: If the site or a portion of the site is located within the Chesapeake Bay Preservation Act (CBPA) Resource Protection Area (RPA) or Resource Management Area (RMA), a Chesapeake Bay Plan must be provided. 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, USACE wetland delineation approval, etc.*

| YES | SHEET # | REQUIREMENT | NA |
|---|---|---|---|
| ☐ | | 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 | ☐ |
| ☐ | | 2) All existing conditions, as specified in Section 1 of this checklist | ☐ |
| ☐ | | 3) 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 | ☐ |
| ☐ | | 4) Areas of proposed impervious surface, including: | ☐ |
| ☐ | | a. Streets, alleys, sidewalks, curbs and gutters, driveways, and access, loading and other paved areas | ☐ |
| ☐ | | b. Structures, including building footprint, dimensions, and use | ☐ |
| ☐ | | 5) The location of any sewage disposal system or reserve drain fields | ☐ |
| ☐ | | 6) Preliminary grading plan and/or cross-section drawings (if necessary to evaluate site drainage and conservation of natural features) | ☐ |
| ☐ | | 7) If structural Best Management Practice (BMP)/stormwater management facilities are proposed, complete Section 5 of this checklist | ☐ |
| ☐ | | 8) Additional supporting information shown in a table format | ☐ |
| ☐ | | a. Total site area | ☐ |
| ☐ | | b. Total ChesBay area | ☐ |
| ☐ | | c. Amount of impervious area | ☐ |
| ☐ | | d. Amount of impervious area in ChesBay | ☐ |
| ☐ | | e. Amount of open/forested space on site | ☐ |
| ☐ | | f. Amount of open/forested space in ChesBay | ☐ |
| ☐ | | g. Percentage of impervious area for existing and proposed conditions | ☐ |
| ☐ | | 9) 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 | ☐ |
| ☐ | | 10) Landscape plan | ☐ |
| ☐ | | a. Major landscaping features, including existing vegetation, to be retained | ☐ |
| ☐ | | b. Clear delineation of all trees proposed for removal | ☐ |
| ☐ | | c. Description of plant species to be disturbed or removed | ☐ |
| ☐ | | d. Treatment of the RPA buffer, indicating proposed landscaping and vegetation to be retained by type and quantity | ☐ |
| ☐ | | e. Replanting schedule for trees and other significant vegetation removed for construction, including list of trees and plants to be used | ☐ |
| ☐ | | 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 | ☐ |
| ☐ | | 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 | ☐ |
| ☐ | | 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 | ☐ |

| YES | SHEET # | REQUIREMENT | NA |
|---|---|---|---|
| ☐ | | 11) 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: | ☐ |
| ☐ | | a. Describe existing topography, soils, hydrology and geology of the site and immediately adjacent lands | ☐ |
| ☐ | | b. Describe impacts of the proposed development on topography, soils, hydrology and geology on site and adjacent lands | ☐ |
| ☐ | | c. Quantify disturbance/destruction of wetlands and provide justification | ☐ |
| ☐ | | d. Describe disruption/reduction in supply of water to wetlands, streams, lakes, rivers or other water bodies | ☐ |
| ☐ | | e. Describe disruption to existing hydrology, including wetland and stream circulation patterns | ☐ |
| ☐ | | f. Provide source, location and description of proposed fill material | ☐ |
| ☐ | | g. Characterize dredge material and provide location of dumping area for material | ☐ |
| ☐ | | h. Locate and describe impacts on shellfish beds, submerged aquatic vegetation, and fish spawning areas | ☐ |
| ☐ | | i. Describe any creation of wetlands to replace those lost | ☐ |
| ☐ | | j. Describe efforts to minimize cut and fill | ☐ |
| ☐ | | 12) An RPA encroachment application with the Landscape Mitigation Plan that is done per the Riparian Buffer Mitigation Manual with replanting plan and encroachment layout. | ☐ |
| ☐ | | 13) Septic System & Drain Fields | ☐ |
| ☐ | | a. Show any existing septic tank and drain field location | ☐ |
| ☐ | | b. Include calculations and locations of anticipated changes which affect existing septic drain field or wastewater irrigation areas | ☐ |
| ☐ | | c. Provide justification for sewer line locations in environmentally sensitive areas and describe construction techniques and standards | ☐ |
| ☐ | | d. New septic tanks are not allowed | ☐ |

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

## SECTION 4 – STORM DRAIN SYSTEM

*Instructions: If a site contains a storm drain system, including underground piping or open channels, this section should be filled out. 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 |
|---|---|---|---|
| ☐ | | 1) Hydrology | ☐ |
| ☐ | | 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 | ☐ |
| ☐ | | b. Clearly define any sub-drainage areas and drainage divide lines | ☐ |
| ☐ | | c. Show all existing and proposed hydrology computations | ☐ |
| ☐ | | 2) Hydraulics | ☐ |
| ☐ | | a. Show and label all existing and proposed drainage structures on plan | ☐ |
| ☐ | | 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 | ☐ |
| ☐ | | c. Any storm drainage within a building footprint shall comply with Chapter 7 in the latest edition of the International Plumbing Code. | ☐ |
| ☐ | | d. Storm drainage design requirements: | ☐ |
| ☐ | | i. Show all storm drain hydraulic computations on plans | ☐ |
| ☐ | | ii. Demonstrate the 10-year design flow less than pipe capacity | ☐ |
| ☐ | | iii. Storm sewer slopes meet minimum criteria (0.3%) | ☐ |
| ☐ | | iv. All calculations shall be submitted on standard VDOT forms or other acceptable documentation | ☐ |
| ☐ | | v. Manhole steps required in structures 4-feet and greater in depth | ☐ |
| ☐ | | 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 | ☐ |
| ☐ | | vii. Provide storm drain load protection where necessary such as cradle and encasement (provide pipe loading table on plan) | ☐ |
| ☐ | | viii. Show and analyze the outfall of the storm drain profile. Submit storm drain computations to support all drainage outfalls | ☐ |
| ☐ | | ix. Specify/show on plan/profile a dimensioned outfall channel section with 10-year lining depth, side slopes, bottom width | ☐ |
| ☐ | | e. Open channel design requirements: | ☐ |
| ☐ | | 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. | ☐ |
| ☐ | | ii. Open channel depth of flow less than 3', otherwise flow path shall be piped | ☐ |
| ☐ | | iii. Maximum permissible flow velocity of 3.5 fps for grass ditches | ☐ |
| ☐ | | iv. Open channel longitudinal slope > minimum slope (0.2%) | ☐ |
| ☐ | | v. Show rip-rap channel(s) meet design criteria:<br>>100 ft from front of single-family dwellings, unless otherwise approved;<br>>75 ft from rear of single-family dwellings | ☐ |
| ☐ | | vi. Rip-rap lining thickness meets minimum criteria of 24-inch thickness with geotextile fabric underlayment | ☐ |
| ☐ | | vii. Specify paved channels when open channel slopes < 0.75% | ☐ |

| YES | SHEET # | REQUIREMENT | NA |
|---|---|---|---|
| ☐ | | viii. Where paved channels are steeper than 15%, anchor lugs are required every 10-feet on center | ☐ |
| ☐ | | ix. 9-inch freeboard (vertical wall) is required along outside radius of paved ditches | ☐ |
| ☐ | | f. Storm drain/open channel profile requirements: | ☐ |
| ☐ | | i. Show existing and proposed storm drain profiles, where applicable | ☐ |
| ☐ | | ii. Show existing ground and proposed grade surface elevations along the centerline of the system | ☐ |
| ☐ | | iii. Label the percent grade (slope) and length | ☐ |
| ☐ | | iv. Label the size and type of material | ☐ |
| ☐ | | v. Show and label all existing and proposed storm drain structures to include rim elevations, inverts in and out, etc. | ☐ |
| ☐ | | vi. Show the hydraulic grade line on storm drain profile (all hydraulic grade lines must be supported with computations shown on plan) | ☐ |
| ☐ | | vii. Show and label all existing and proposed utilities that cross the proposed storm drain/open channel and label clearances (minimum clearance is required) | ☐ |
| ☐ | | viii. Show all storm drain crossings with the appropriate clearances | ☐ |

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

## SECTION 5 – STORMWATER MANAGEMENT FACILITIES

*Instructions: If a site contains a stormwater management facility this section should be filled out, Complete the following checklist to document technical criteria and BMP requirements.*

| YES | SHEET # | REQUIREMENT | NA |
|---|---|---|---|
| ☐ | | 1) Stormwater management plan requirements **(9VAC25-875-510)** | ☐ |
| ☐ | | 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; | ☐ |
| ☐ | | b. Documentation and summary of calculations verifying compliance with the water quality and quantity requirements (**9VAC25-875-580** and **9VAC25-875-600**, respectively); or | ☐ |
| ☐ | | 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; | ☐ |
| ☐ | | d. A map or maps of the site includes: | ☐ |
| ☐ | | i. Existing conditions, as defined in Section 1 | ☐ |
| ☐ | | ii. All contributing drainage areas; existing and proposed land use/land cover with tabulation of percentages of surface area for various uses (if not already included with Section 3); | ☐ |
| ☐ | | iii. Sufficient information on adjoining parcels to assess the impacts of stormwater from the site on these parcels; | ☐ |
| ☐ | | iv. Proposed stormwater management facilities and associated existing and proposed drainage patterns; | ☐ |
| ☐ | | e. Stormwater management facility/BMP design calculation summary. (See **VA Stormwater Management Handbook Chapter 8**. Refer to Item 3 for additional calculation requirements | ☐ |
| ☐ | | 2) Profile requirements | ☐ |
| ☐ | | a. Storm drainage system entering device (refer to Section 4 of this checklist) | ☐ |
| ☐ | | b. Low flow channel in basins (Pilot channel) | ☐ |
| ☐ | | c. Profiles of all structures | ☐ |
| ☐ | | d. Existing ground | ☐ |
| ☐ | | e. Proposed grade | ☐ |
| ☐ | | f. Pipes and other utilities | ☐ |
| ☐ | | g. Water Surface Elevation of 2, 10 and 100-year design storms and Normal Pool | ☐ |
| ☐ | | h. Emergency spillway elevation | ☐ |
| ☐ | | i. Sub-surface details, if required (i.e., cutoff trench, clay core, clay liner, etc.) | ☐ |
| ☐ | | 3) Additional Stormwater BMP information | ☐ |
| ☐ | | a. All BMPs | ☐ |
| ☐ | | i. Construction and material specifications | ☐ |
| ☐ | | ii. Details and notes | ☐ |
| ☐ | | iii. All permanent material to be equal to standard inlet and structure quality and materials | ☐ |
| ☐ | | iv. Grades 15% max | ☐ |
| ☐ | | v. Side slopes 2:1 max | ☐ |
| ☐ | | vi. Maintenance access provisions (fence and gate details with location, height, materials, and specifications, if applicable) | ☐ |
| ☐ | | b. Infiltration BMPs | ☐ |
| ☐ | | i. Soil investigation data | ☐ |
| ☐ | | ii. Soil borings locations | ☐ |
| ☐ | | iii. Soil classification | ☐ |

CITY OF RICHMOND, DPU WATER RESOURCES DIVISION

# ENVIRONMENTAL PLAN REVIEW CHECKLIST

| YES | SHEET # | REQUIREMENT | NA |
|---|---|---|---|
| ☐ | | iv. Strata profile | ☐ |
| ☐ | | v. Water table elevation | ☐ |
| ☐ | | vi. Elevations of strata | ☐ |
| ☐ | | vii. Location and easements | ☐ |
| ☐ | | viii. Phreatic line | ☐ |
| ☐ | | c. Attenuation BMPs | ☐ |
| ☐ | | i. Design flow inundation areas | ☐ |
| ☐ | | 4) Design Report | ☐ |
| ☐ | | a. Narrative | ☐ |
| ☐ | | i. Explanation of method used | ☐ |
| ☐ | | ii. Findings of existing conditions | ☐ |
| ☐ | | iii. Proposed development | ☐ |
| ☐ | | iv. Best management investigation | ☐ |
| ☐ | | v. Alternatives considered | ☐ |
| ☐ | | vi. Why chosen or abandoned | ☐ |
| ☐ | | vii. Water quality benefits of design | ☐ |
| ☐ | | viii. Peak management benefits of design | ☐ |
| ☐ | | b. Design data | ☐ |
| ☐ | | i. Formulas and source of information | ☐ |
| ☐ | | ii. HEC-2 or HEC-RAS, or other appropriate computer modeling input/output | ☐ |
| ☐ | | iii. Details, nomographs, formulas | ☐ |
| ☐ | | 1. Existing peak flows for 2- and 10-year storms | ☐ |
| ☐ | | 2. Proposed peak flows for 2- and 10-year storms | ☐ |
| ☐ | | 3. Performance curve of device (elevation vs. discharge) | ☐ |
| ☐ | | 4. Hydrograph plot for proposed conditions 2- and 10-year storms | ☐ |
| ☐ | | 5. Water quality computations | ☐ |
| ☐ | | iv. Clearances – vertical and horizontal | ☐ |
| ☐ | | c. Outfall study | ☐ |
| ☐ | | i. Existing conditions recommendations and hydraulic analysis | ☐ |
| ☐ | | ii. Proposed conditions | ☐ |
| ☐ | | 1. Statement | ☐ |
| ☐ | | 2. Proposed flows | ☐ |
| ☐ | | 5) Maintenance Requirements | ☐ |
| ☐ | | a. Provide inspection and maintenance schedules/frequencies on plans | ☐ |
| ☐ | | b. Stormwater Utility Maintenance Agreement (SUMA) completed by owner and notarized | ☐ |
| ☐ | | c. Stormwater Management Access Exhibit (Attachment A) provided | ☐ |
| ☐ | | 6) For projects with Limits of Disturbance > 1 acre: | ☐ |
| ☐ | | a. Pollution Prevention Plan (PPP, Standard plan sheet available for download), that addresses the following: | ☐ |
| ☐ | | i. Wastewater from washout of concrete | ☐ |
| ☐ | | ii. Washout and cleanout of stucco, paint, form release oils, curing compounds, and other construction materials | ☐ |
| ☐ | | iii. Fuels, oils, or other pollutants used in vehicle and equipment operation and maintenance | ☐ |

| YES | SHEET # | REQUIREMENT | NA |
|---|---|---|---|
| ☐ | | iv. Soaps or solvents used in vehicle and equipment washing | ☐ |
| ☐ | | b. Stormwater Pollution Prevention Plan (SWPPP) | ☐ |
| ☐ | | 1. Designation forms | ☐ |
| ☐ | | 2. See template for a list of requirements | ☐ |

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

CITY OF RICHMOND, DPU WATER RESOURCES DIVISION

**ENVIRONMENTAL PLAN REVIEW CHECKLIST**

## SECTION 6 – FLOODPLAIN

*Instructions: If a site is located within the Floodplain this section should be filled out. 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 |
|---|---|
| ☐ New Structure | ☐ Residential (1-4 family) |
| ☐ Addition | ☐ Residential (>4 family) |
| ☐ Alteration | ☐ Non-residential (Floodproofing? ☐ Yes ☐ No) |
| ☐ Relocation | ☐ Mixed Use (Residential & Commercial) |
| ☐ Demolition | ☐ Manufactured (Mobile) Home (In Manufactured Home Park? ☐ Yes ☐ No) |
| ☐ Replacement | |

Nearest intersection: _____

Estimated Cost of Project: $ 0.00

### OTHER DEVELOPMENT ACTIVITIES

☐ Clearing ☐ Fill ☐ Mining ☐ Drilling ☐ Grading

☐ Excavation (except for structural development checked above)

☐ Watercourse Alteration (including dredging and channel modifications)

☐ Drainage Improvements (including culvert works)

☐ Road, Street or Bridge Construction

☐ Subdivision (☐ New or ☐ Expansion)

☐ Individual Water or Sewer System

☐ Other:

### FLOODPLAIN DETERMINATION

The proposed development is located on: FIRM Panel #: _____ Effective Date: _____

The proposed development is:

| Yes | No | |
|---|---|---|
| ☐ | ☐ | Partially located in the SFHA, but building/development is NOT |
| ☐ | ☐ | Located in a Special Flood Hazard Area |
| | | FIRM Zone designation is: _____ |
| | | 100-year flood elevation at the site is _____ ft. NAV88 (MSL) or ☐ Unavailable |
| ☐ | ☐ | Located in the floodway |
| ☐ | ☐ | 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)

CITY OF RICHMOND, DPU WATER RESOURCES DIVISION

# ENVIRONMENTAL PLAN REVIEW CHECKLIST

| YES | SHEET # | REQUIREMENT | NA |
|---|---|---|---|
| ☐ | | 1) Show ultimate condition (as zoned) for the 100-year storm | ☐ |
| ☐ | | 2) Show existing natural channel grade: | ☐ |
| ☐ | | a. Profile along natural line boundary to boundary | ☐ |
| ☐ | | b. b) Average grade line | ☐ |
| ☐ | | 3) Show required plan information | ☐ |
| ☐ | | a. Base Flood Elevation (BFE) at the property limits and work area | ☐ |
| ☐ | | b. Limits of Special Flood Hazard Area (SFHA) including floodway where applicable | ☐ |
| ☐ | | 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 | ☐ |
| ☐ | | d. The extent of watercourse relocation and/or landform alterations | ☐ |
| ☐ | | e. Compaction requirements for fill areas | ☐ |
| ☐ | | f. Locations of existing and proposed underground utilities | ☐ |
| ☐ | | 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) | ☐ |
| ☐ | | 4) Show information required if buildings are to be constructed, enlarged, or altered within the floodplain | ☐ |
| ☐ | | a. Anchorage of proposed structures, including details for anchoring structures | ☐ |
| ☐ | | b. Residential: Basement or lowest floor at least 1 foot above BFE | ☐ |
| ☐ | | c. Non-Residential: Lowest floor or flood proofing 1 foot above BFE | ☐ |
| ☐ | | d. For floodproofed structures, applicant must attach certification from registered engineer or architect | ☐ |
| ☐ | | e. Show types of water-resistant materials used below the first floor | ☐ |
| ☐ | | f. Provide details of floodproofing of utilities located below the first floor | ☐ |
| ☐ | | g. Provide details of enclosures below the first floor | ☐ |
| ☐ | | h. Show venting of enclosed areas for pressure equalization | ☐ |
| ☐ | | 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) | ☐ |
| ☐ | | j. Show on-site waste disposal systems located to avoid impairment or contamination | ☐ |

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

# DESIGNATION OF REGULATED LAND DISTURBER

Department of Public Utilities
Water Resources Division
1801 Commerce Road
Richmond VA 23224
Tel. 804.646.7586

# Designation of "Responsible Land Disturber"

**For project located at _____ under Permit # _____**

All applicants for permits involving Land Disturbing activities in the City of Richmond, Virginia, must provide the name of a "Responsible Land Disturber" ("RLD") prior to the permit being issued (Code of the City of Richmond – Section 14-150).

*The RLD must be based within a reasonable travel distance of the project in order to effectively monitor it and to promptly carry out any corrective action.*

I, (signature of "RLD")_____, hold a certificate of competency*, as provided for by Code of Virginia §62.1-44.15:55, and will be in charge of and responsible for carrying out all activities related to the land disturbing activity regulated by the above noted permit.

I will advise the E&S Administrator immediately and in writing upon my termination as "RLD".

*** The holder of a valid Virginia Professional Engineer, Land Surveyor, Landscape Architect or Architect License who is also involved in site design and land disturbance, or possession of any of the other DCR certifications are acceptable alternative certifications for this purpose. Submit a copy of your license or certificate with this form.**

## "Responsible Land Disturber" information

*(Please print clearly)*

| Name | | Date signed |
|---|---|---|
| License # or Certificate of Competency # | License or certificate type (PE, RLD, etc.) | Expiration date of license or certificate |
| Telephone number | Fax number | E-mail address |
| Mailing address | | |
| | | |
| | | |

Sec. 14-147. of the Code of the City of Richmond defines Land Disturbing activity, in part, as "*…any land change which may result in soil erosion from water or wind and the movement of sediments into state waters or onto lands in the Commonwealth, including, but not limited to, clearing, grading, excavating, transporting and filling of land…*"

# STREAMLINE REVIEW PROCESS CHECKLIST

# WATER RESOURCES DIVISION
# STREAMLINE PLAN REVIEW
# SUBMISSION CHECKLIST

**This checklist must be completed in its entirety and included on the Cover Sheet of all plans submitted to the Water Resources Division.** Your submission will be considered incomplete if you do not provide an answer (or indicate "NA" or "not applicable") for all fields on the checklist. Projects that are greater than 2 acres of disturbance, within the Special Flood Hazard Area (SFHA) or greater than 2,500 sq. ft. in the Chesapeake Bay Protection Area (CBPA) are not eligible for the streamline process.

**A. APPLICANT INFORMATION**

☐ Initial Submission
☐ Resubmission (based on comments) - Plan #:_____
☐ Revision - Permit #:
☐ Part of a Larger Common Plan of Development? ☐ Yes ☐ No
☐ Offsite Improvements Proposed? ☐ Yes ☐ No

| | |
|---|---|
| **Design Engineering Firm Name** | **Contact Name:** |
| Mailing Address: | City, State, Zip Code: |
| Phone: | Email: |
| **Contractor Name** | **Contact Name:** |
| Mailing Address: | City, State, Zip Code: |
| Phone: | Email: |
| **Design Engineer Name** | **Contact Name:** |
| Mailing Address: | City, State, Zip Code: |
| Phone: | Email: |
| **Project Name** | **Address** |
| City, Sate, Zip Code: | |
| Phone: | Email: |
| GPIN: | |
| Latitude, Longitude | |
| Total Area of Land Development | Total Area to be Disturbed |

**B. ESC & SWM PLAN INFORMATION** [provide the plan sheet number where information is located]

| Pre-development Site Information | Plan Sheet No. |
|---|---|
| 1. Narrative of pre-development site conditions | |
| 2. Existing property boundaries (inc. lease boundaries) | |
| 3. Existing topography (existing contours) | |
| 4. Existing streams, ponds, ditches, wetlands & other water bodies | |
| 5. Existing karst features | |
| 6. Existing 100-year FEMA floodplain | |
| 7. Resource Protection Areas | |
| 13. Existing Improvements (inc. buildings, roads, parking & utilities) | |
| 14. Existing vegetative areas (inc. forest cover, open space & turf) | |
| 15. Existing land cover / use tabulation | Sec. H, checklist |
| 16. Existing easements (inc. Deed Book/Page ref. or Instrument #) | |

| | |
|---|---|
| 17. Pre-development drainage areas (inc. acreage, divides and flow paths) | |

| **General Plan Information** | **Plan Sheet No.** |
|---|---|
| 1. Vicinity map | |
| 2. North arrow | |
| 3. Plan legend | |
| 4. Plan scale | |
| 5. Plan sheet index | |
| Post-development Site Information | Plan Sheet No. |
| 18. Narrative of post-development site conditions | |
| 19. Proposed property boundaries | |
| 20. Proposed limits of land disturbance (limits of clearing & grading) | |
| 21. Proposed grading | |
| 22. Proposed 100-year FEMA floodplain | |
| 23. Proposed improvements (inc. buildings, roads, parking & utilities) | |
| 24. Proposed vegetative areas (inc. forest cover, open space & turf) | |
| 25. Proposed land cover /use tabulation | Sec. H, checklist |
| 26. Proposed easements | |
| 27. Post-development drainage areas (inc. acreage, divides and flow paths) | |
| Erosion & Sediment Control Information | Plan Sheet No. |
| 28. Narrative of proposed erosion & sediment controls | |
| 29. Minimum standards (9VAC25-840-40) | |
| 30. Critical erosion areas (see VESCH, Chapter 6) | |
| 31. Proposed erosion & sediment controls (see VESCH, Chapter 3) | |
| 32. Erosion & sediment control detail drawings | |
| 33. Hydrologic & hydraulic computations (inc. runoff characteristics) | |
| 34. Inspection, operation & maintenance requirements | |
| Post-development Water Quantity & Water Quality Control Information | Plan Sheet No. |
| 35. Narrative of proposed stormwater management facilities / practices | |
| 36. Proposed stormwater management facilities / practices | Sec. L, checklist |
| 37. Hydrologic & hydraulic computations (inc. runoff characteristics)* | |
| 38. Long-term inspection, operation & maintenance requirements | |
| 39. Outfall summary table with pre, post, and allowable discharge rates used for quantity assessment; identify the type of conveyance system at each point of discharge | |
| 40. Storm drainage design computations | |
| 41. Storm sewer pipe longitudinal profiles | |
| 42. Hydraulic grade lines elevations | |
| 43. Cross-section for open manmade channel (1, 2 and 10yr wse) | |
| Stormwater & Water Quantity Control Information | Plan Sheet No. |
| 35. Narrative of proposed stormwater management facilities / practices | |
| 36. Proposed stormwater management facilities / practices | Sec. L, checklist |
| 37. Hydrologic & hydraulic computations (inc. runoff characteristics)* | |
| 38. Long-term inspection, operation & maintenance requirements | |
| 39. Outfall summary table with pre, post, and allowable discharge rates used for quantity assessment; identify the type of conveyance system at each point of discharge | |

All Storm drainage must follow the City's Storm Drainage Construction Standards Manual

| Soils & Geotechnical Information | Plan Sheet No. |
|---|---|
| 40. Soils map (inc. NRCS soil types) | |
| 41. Soils tabulation | Sec. I, checklist |
| 42. Geotechnical investigation / report (inc. acid forming soils, karst, impoundments & site preparation) | |
| **Other Supporting Information** | **Plan Sheet No.** |
| 43. Boundary survey (see 18VAC10-20-370) | |
| 44. Physical improvement survey (see 18VAC10-20-380) | |
| 45. Topographic survey (see 18VAC10-20-382) | |

**C. LAND COVER TABULATION** [acreages reported to 1/100th of an acre]

| Existing Land Cover / Use | Acres |
|---|---|
| 1. Impervious Cover | |
| Impervious Cover (percentage of total land area of development) | % |
| 2. Managed Turf | |
| 3. Open Space | |
| 4. Forest Cover | |
| 5. Prime Farmland (per NRCS Farmland Classification) | |
| **Proposed Land Cover / Use (per "Site" tab of VRRM spreadsheet)** | **Acres** |
| 1. Impervious Cover | |
| Impervious Cover (percentage of total land area of development) | % |
| 2. Managed Turf | |
| 3. Open Space | |
| 4. Forest Cover | |

**D. SOILS TABULATION** [acreages reported to 1/100th of an acre]

| Map Unit Symbol | Map Unit Name | HSG[1] | K factor[2] | Erodibility[3] | LOD | % of LOD |
|---|---|---|---|---|---|---|
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

[1] HSG means Hydrologic Soil Group.
[2] K factor indicates the susceptibility of soil to the forces of erosion
[3] Erodibility (Low, Moderate or High).
[4] LOD" means Limits of Land Disturbance (limits of clearing & grading).

**E. STORMWATER MANAGEMENT**

Completed Stormwater Management Utility Agreement

**F. STORMWATER MANAGEMENT FACILITIES / PRACTICES** [latitude and longitude reported to 6 digits, decimal degrees format; acreages reported to 1/100th of an acre]

| Address | Facility No. | Facility Type | Lat. | Long. | Rec. Water | Tot. Acres Treated | Imp. Acres Treated | Plan Sheet No. | Public or Private |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |

**G. OWNER / DEVELOPER CERTIFICATION**

*I hereby certify that coverage under the General VPDES Permit for Discharges of Stormwater from Construction Activities will be obtained, if required, prior to commencing land-disturbing activities.*

*I hereby certify that all wetlands permits required by law will be obtained, if required, prior to commencing land disturbing activities.*

*I hereby certify that permission to construct any offsite improvements, if proposed, will be obtained prior to commencing land disturbing activities.*

*I hereby certify that all offsite nonpoint source nutrient credits will be obtained, if proposed, prior to commencing land disturbing activities.*

*I hereby certify that construction record drawings (as-built drawings) for all permanent stormwater management facilities/practices will be prepared and submitted to DEQ prior to project closeout. The construction record drawings will be appropriately sealed and by a professional registered in the Commonwealth of Virginia, certifying that the stormwater management facilities/practices have been constructed in accordance with the approved plan(s).*

*I hereby certify that a long-term maintenance agreement(s) for all permanent stormwater management facilities/practices and other techniques specified to manage the quality and quantity of runoff will be submitted to DEQ, if required, prior to project closeout. The long-term maintenance agreement(s) will be recorded in the local land records prior to termination of coverage under the General VPDES Permit for Discharges of Stormwater from Construction Activities.*

Owner / Developer Name:_____

Owner / Developer Title:_____

Signature:_____

Date:_____

**H. DESIGN PROFESSIONAL CERTIFICATION**

*I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.*

*I hereby certify that the plans and hydrologic & hydraulic computations herein are in compliance with the Stormwater Management Act and attendant regulations, the Erosion and Sediment Control Law and attendant regulations, and applicable DEQ guidance.*

Design Professional Name:_____

License No.: _____

Signature: _____

Date: _____

## I. DUAL COMBINED ADMINISTRATOR (DCA) CERTIFICATION

*I hereby certify that I have reviewed the plans and hydrologic & hydraulic computations herein for compliance with the Stormwater Management Act and attendant regulations, the Erosion and Sediment Control Law and attendant regulations, and applicable DEQ guidance, and recommend the plans and computations for DEQ approval.*

DCA Name: _____

DCA Certification No.: _____

Signature: _____

Date: _____

# EROSION AND SEDIMENT CONTROL BOND AGREEMENT AND SURETY

**CITY OF RICHMOND, VIRGINIA**
**DEPARTMENT OF PUBLIC UTILITIES**
**Erosion and Sediment (E&S) Control Agreement**
**Instructions**

Follow these instructions carefully to avoid delays in processing times.

The following documents ***must be submitted together***:

A. E&S Developer's Agreement
B. E&S Surety Calculation Sheet
C. E&S Performance Surety (Bond, Check, or Letter of Credit)

**Instructions for Attachment A**: The City/Developer E&S Control Agreement must be **signed by the Landowner of Record or their Agent** on which the land disturbing activity is taking place. Please complete all highlighted fields of the document. NOTE: Do **not** fill out the date in the first line, it will be added once signed by the Director.

**Instructions for Attachment B**: The E&S Surety Calculation will be approved by the Water Resources Division during their review process. It will be emailed to the applicant's contact person once the plans are approved/issued. Once completed, print a copy of the calculation sheet to submit along with the other documentation for your E&S Agreement.

**A Performance Surety** for the estimated cost of the agreement is required. Surety may be by bond, check, or irrevocable letter of credit. Checks can be made payable to: **City of Richmond**

Water Resources can be contacted at (804)646-7586.

**Completed documents must be hand-delivered (Monday through Wednesday from 9:00 am-12:00 pm) to:**

Collection Systems & Regulatory Affairs Facility
Water Resources
1801 Commerce Road
Richmond, Virginia 23224
804-646-7586

***A receipt will be given upon submission of documents. You are then required to send a copy to Water Resources for proper processing.**

**Request release of surety at the end of a project with Water Resources:**
Written verification from the City of Richmond Erosion & Sediment Control Inspector is required before any portion of the surety is released. It is the owner's responsibility to request an inspection to obtain a surety release. The final inspection **shall not** be completed **prior to 75%** of living perennial vegetation being established. See Virginia Department of Environmental Quality C-SSM-10 Permanent Seeding Section 3.0 Planning and Considerations.

# CITY OF RICHMOND, VIRGINIA
# CITY/DEVELOPER EROSION & SEDIMENT CONTROL AGREEMENT

This Agreement, made on _____ by and between _____
ADD OWNER NAME HERE
, hereafter called **"AGENT or OWNER"** and the City of Richmond, Virginia, hereafter called **"CITY."**

WHEREAS, the OWNER desires approval of plans for the proposed Erosion and Sediment control measures at _____ Richmond, VA; and
ADD SITE ADDRESS AND PROJECT NAME/PHASE HERE,

WHEREAS, the Director of Public Utilities has been authorized to act on behalf of the City under Article III, Chapter 14, Richmond City Code (2020) as amended:

**WITNESSETH:**

1. That the OWNER has deposited with the City a performance bond with corporate surety in a form approved by the City Attorney, a cash escrow or securities acceptable to the Director of Finance in the amount of _____ as determined by the City to install and maintain
$ADD SURETY AMOUNT HERE
the erosion and sediment controls set forth in the Virginia Erosion and Sediment Control handbook.

2. That no OWNER shall construe the posting of the cash escrow, performance bond or securities as alleviating the OWNER's responsibility for planning, placement and maintenance of adequate erosion and sediment controls.

3. That in the event measures for the control of erosion and sediment as provided for on the plans referred to herein, or on any approved revision thereof, are not constructed at or prior to the occurrence of any rainstorm or other phenomena actually causing any erosion and sediment, the City shall have the right to enter the OWNER's property and construct such measures or do such other work as may be necessary to prevent further erosion or sediment, provided that the City shall first give notice in writing to the OWNER of its intent to do so.

4. That in the event the City performs or programs work of any nature, including labor, use of equipment, and materials, under the provisions of paragraph three (3) above, either by force account or contract, the City shall be reimbursed by the OWNER for all necessary corrective action taken under the provisions of Article III, Chapter 14, Richmond City Code (2020) as amended.

5. That within sixty (60) days of the achievement of adequate stabilization of the land disturbing activity, as determined by the City, and after written notice from the poster of the bond and the completion of the land disturbing activity, the performance bond, cash escrow, securities or unexpended portion thereof, shall be refunded to the applicant or terminated as the case may be.

6. That during the performance of this agreement, the OWNER for itself, its assignees and successors in interest, affirms that it agrees to comply with Article III, Chapter 14, Richmond City Code (2020) as amended.

**OWNER/Agent**

_____ _____
*(signature)* Date

_____
*(printed)*

**CITY OF RICHMOND**

_____ _____
Deputy Director of Public Utilities Date

_____ _____
Director of Public Utilities Date

DPU Contract # _____

Revised 4/2025

Project Address: 1801 Commerce Rd. Project Name: SFR

Plan Number: RSMP-145960-2025 Date Prepared: 4.8.2025 Prepared By: Susie Mcdonald

## Bond Estimate for Erosion and Sediment Control Measures

| Item | Description | Units | Rate | Quantity | Cost | Remark |
|---|---|---|---|---|---|---|
| 1 | Construction entrance | each | $ 1,122.00 | 1.00 | $ 1,122.00 | standard CE =187yd$^2$ |
| 2 | Silt Fence | linear ft | $ 6.00 | 350.00 | $ 2,100.00 | |
| 3 | Temporary Seeding | acre (0-5) | $ 2,500.00 | | $ - | minimum 1 ac |
| 4 | Permanent Seeding & Mulching | acre (0-5) | $ 2,500.00 | | $ - | minimum 1 ac |
| 5 | Permanent Seeding & Mulching | acre (5-10) | $ 2,500.00 | | $ - | |
| 6 | Rip rap | square yard | $ 20.00 | | $ - | |
| 7 | Check Dams | square yard | $ 20.00 | | $ - | |
| 8 | Inlet protection | each | $ 200.00 | | $ - | |
| 9 | Outlet protection | each | $ 200.00 | | $ - | |
| 10 | Tree protection | linear ft | $ 6.00 | | $ - | |
| 11 | Diversion dike | linear ft | $ 4.00 | | $ - | |
| 12 | Safety Fence | linear ft | $ 5.00 | | $ - | |
| 13 | Super silt fence | linear ft | $ 9.00 | | $ - | |
| 14 | Straw bale barriers | each | $ 2.00 | | $ - | length = 3 ft |
| 15 | Excavation | cubic yard | $ 30.00 | | $ - | |
| 16 | Sediment Trap | each | $ 700.00 | | $ - | |
| 17 | Sediment Basin | each | $ 2,000.00 | | $ - | |
| 18 | Blanket Matting | acre | $ 2,200.00 | | $ - | |
| | Subtotal | | | | $ 3,222.00 | |
| | Contingency (20%) | | | | $ 644.40 | |
| | **Total** | | | | **$ 3,866.40** | $ 3,866.40 |



Return Contact Information:


**NAME** Susie Mcdonald
**ADDRESS** 730 E Broad St.
**CITY/ST/ZIP** Richmond, VA 23220
**PHONE** 804.646.7586
**E-MAIL** Susie.Mcdonald@aol.com

# CBPA EXEMPTIONS AND RPA ENCROACHMENT

# CHESAPEAKE BAY PRESERVATION PROGRAM
# Application Instructions
## EXCEPTIONS, WAIVERS, EXEMPTIONS AND BUFFER ENCROACHMENTS

**PURPOSE**

The Chesapeake Bay Preservation Program as defined in city code Chapter 14, Article IV, implements the requirements of the Virginia Chesapeake Bay Preservation Act and the Chesapeake Bay Preservation Area Designation and Management Regulations. As an element of the program, there are four opportunities for property owners to seek partial relief from specific requirements of the requirements. Some of this relief can be provided administratively by the City's Program Administrator; other relief can only be granted by the City Planning Commission, following public notice and a pubic hearing. Property owners requesting relief from requirements of the program must complete the application form for "Relief from Requirements of the Chesapeake Bay Preservation Program." In consultation with the program Administrator, the most appropriate avenue of relief can be determined.

**EXCEPTIONS TO THE PROGRAM REQUIREMENTS**

When the application of the Chesapeake Bay Preservation Area Ordinance to a lot or parcel located within a Chesapeake Bay Preservation Area would unreasonably restrict the utilization of the property under its current zoning, a CBPA **Exception** can be requested. Submission of the Exception Application is required for approval of any activity or use in the Resource Protection Area not specifically permitted by ordinance. Activities include grading, filling, building, paving, removal of vegetation, and any other disturbances.

**Exceptions** to the program requirements can only be granted by the City Planning Commission. There are no specific deadlines for the filing of an application for an exception. In general, however, the staff review and public notice period mandated by the City Code combine to result in an approval process of approximately 30 to 60 days. The City Planning Commission considers approval of Chesapeake Bay Program Exceptions at its regular meetings on the first and third Monday of each month. Incomplete submissions or major changes to the plans during the review process may cause delays in this schedule.

**WAIVERS FOR NONCONFORMING USES**

Under specific circumstances, for structures that existed prior to November 11, 1991, the City's Chesapeake Bay Program Administrator may waive the requirements of the ordinance. There is no fee to request a waiver, nor are there specific deadlines for the application or review process.

**EXEMPTIONS TO PROGRAM REQUIREMENTS**

Specific uses and development processes are identified in the Ordinance as exempt from the requirements of the program. Property owners should complete the "Relief from Requirements of the Chesapeake Bay Preservation Program" form in order to provide documentation of the necessity of the uses in the locations identified on the submitted plans. Exemptions are granted by the Program Administrator and do not require additional approval or review.

**ENROACHMENTS**

Encroachments into the Resource Protection Area buffer may be approved by the Program Administrator, for lots recorded prior to the effective date of the program, provided they meet the conditions described in Section 14-264(4) of the Richmond City Code

**FILING**

Applications for all forms of relief are filed with the:

Department of Public Utilities
Water Resources Division
730 East Broad Street, 8th Floor
Richmond, Virginia 23219
Phone: (804) 646-7586 Fax: (804) 646-2870
Attn: Chesapeake Bay Program Administrator

Requests for Exceptions will be forwarded to the Secretary to the City Planning Commission to schedule a hearing and provide public notice.

**DEADLINES**

There are no specific deadlines for the filing of an application. Applications for **Exceptions** must be approved by the City Planning Commission, which requires public notice, generally resulting in an approval process of approximately 30 to 60 days. All other requested forms of relief are generally responded to within 15 days upon receipt of a completed application.

**PRE-APPLICATION CONFERENCE**

Applicants **must** schedule a pre-application conference with the Program Administrator or his/her designee prior to submittal to review the request and other permitting issues that may be involved. **Staff may reject any request without a pre-application conference.** Staff will review submitted applications to ensure all required materials and information are provided. If the application is not acceptable, the required information must be provided prior to formal staff review.

**SUBMITTAL REQUIREMENTS**

Applications must include the following elements: **1**) completed request form; **2**) Chesapeake Bay Site Plan; **3**) Chesapeake Bay Water Quality Impact assessment.

Applications for **Exceptions** will be forwarded to the City Planning Commission for their consideration and available for public review.

1) **Application Form:**
   The application form for relief from the Requirements of the Chesapeake Bay Preservation Program is available in the Bureau of Permits and Inspections and from the City's web site at www.richmondgov.com. It must be signed by all the owners of the property. If a legal representative signs for a property owner, a copy of the executed power of attorney is required.

2) **Chesapeake Bay Site Plan**
   Applicants should submit four (4) copies of a Chesapeake Bay Site Plan with all required elements as described in the *City of Richmond Chesapeake Bay Preservation Program Public Information Manual* and any additional information required by the Program Administrator. Depending on the type of relief requested, additional documentation as described in the Public Information Manual may also be required.

3) **Chesapeake Bay Water Quality Impact Assessment**
   As part of the Chesapeake Bay Site Plan, the submission of a Water Quality Impact Assessment is required. The submission requirements are described in the *City of Richmond Chesapeake Bay Preservation Program Public Information Manual* which may be supplemented by any other information determined necessary by the Program Administrator for evaluation of the Application.

**CITY PLANNING COMMISSION APPROVAL PROCESS for requests for exceptions**

Exceptions to the Chesapeake Bay Program requirements can only be approved by the City Planning Commission. Scheduling of the hearing by the Planning Commission will be undertaken by the Planning Commission Secretary. Prior to consideration by the Planning Commission, notice of the hearing is posted on the property and is advertised in a daily newspaper, and mailed to nearby property owners. The Planning Commission will receive a report from the staff and conduct a public- hearing prior to considering and voting on the request. The decision of the City Planning Commission is final.

# APPLICATION
## FOR RELIEF FROM REQUIREMENTS OF THE CHESPEAKE BAY PRESERVATION PROGRAM
## EXCEPTIONS, WAIVERS, EXEMPTIONS AND BUFFER ENCROACHMENTS

To:

Department of Public Utilities
Water Resources Division
730 East Broad Street, 8th Floor
Richmond, Virginia 23219
Phone (804) 646-7586 Fax (804) 646-2870

Date:_____

Type of Relief Requested (check one)

☐ Exception ☐ Waiver ☐ Encroachment ☐ Exemption

Please attach required documents.

Property Address(es):_____

Tax Parcel No(s):_____

Brief Description of Exception: _____

_____

_____

**Applicant/Contact Person:**_____

Mailing Address:_____

_____Telephone: (_____)_____Fax: (_____)_____

Email address: _____

**Property Owner:**_____

Mailing Address:_____

_____Telephone: (_____)_____Fax: (_____)_____

**Property Owner's Signature:**_____

**The signatures of all owners of the property are required. Please attach additional sheets as required. If a legal representative signs for a property owner, please attach an executed power of attorney.**

**Project Information** (check appropriate boxes)

**Current Use of Property** (check one)–

- ☐ Vacant Land to be developed
- ☐ Single Family Residential
- ☐ Other: _____
- ☐ Commercial/Office/Industrial
- ☐ Parking or other paved surface
- ☐ Multi-family residential

**Subdivision Name, Lot and Section Number:** _____

**Lot was last recorded:**

- ☐ Prior to October 1989
- ☐ Between October 1989 and February 2002
- ☐ After February 2002

**Area of Property (square footage)**

Within RPA: _____ Outside RPA: _____ Total: _____

**Activity requiring relief is located in** (check all that apply)

- ☐ Resource Protection Area Buffer land ward 50 feet
- ☐ Resource Protection Area Buffer seaward 50 feet
- ☐ Slopes greater than ___ percent
- ☐ Wetlands
- ☐ Resource Management Area

**Activity requiring relief involves** (check all that apply)

- ☐ Construction of New principal structure
- ☐ Accessory (detached) structure
- ☐ Addition to principal structure
- ☐ Parking area, or driveway, or roadway
- ☐ Paved pathways
- ☐ Tree/vegetation removal
- ☐ Utilities
- ☐ Other: _____

**Total square footage of RPA impacted**: _____

Are there any additional approvals or permits from local, state, or federal agencies required for any portion of this project (zoning variances, wetland permits, etc)?

- ☐ No
- ☐ Yes, Please describe: _____

**Description of the Activity and reason for the request:**

For **Exceptions**, Please complete the following

**APPLICANT'S JUSTIFICATION FOR THE REQUESTED EXCEPTION**

In accordance with Section 14-292(c) (1) of the Richmond City code, an exception cannot be granted unless specific findings are made. Please describe how the particular CBPA exception request would meet these six findings:

1. The requested exception to the criteria is the minimum necessary to afford relief;
2. Granting the exception will not confer upon the applicant any special privileges that are denied by the ordinance to other property owners who are subject to its provisions and who are similarly situated;
3. The exception request is in harmony with the purpose and intent of the Ordinance and is not of substantial detriment to water quality;
4. The exception request is not based upon conditions or circumstances that are self-created or self-imposed;
5. Reasonable and appropriate conditions are imposed, as warranted, to prevent the proposed activity from causing degradation of water quality;
6. Other findings and conditions, required by the City have been met.

For **EXCEPTIONS** and **ENROACHMENTS**, please complete the following.

Describe all mitigation measures, including BMPs and vegetation enhancement*,

_____

_____

_____

_____

_____

_____

_____

_____

- Note: all vegetation enhancement should be in accordance with the Riparian Buffers Modification and Mitigation Manual available at http://www.deq.virginia.gov/Portals/0/DEQ/Water/Publications/RiparianBufferManual.pdf

---

Do not mark below this line

Approvals

Program Administrator_____ Date_____

City Planning Commission_____ Date_____

Comments:_____
_____
_____
_____
_____

## Appendix C:

List of Plants Recommended for Riparian Buffers
and Vegetative Replacement Standards

**Reprinted from**
***Riparian Buffers Modification and Mitigation Guidance Manual,***
Chesapeake Bay Local Assistance Department,
September 2003.

*Recommended Plant List for Bioretention Facilities*
Fairfax County, Virginia

**Reprinted from**
***Recommended Plant List for Bioretention Facilities,***
Fairfax County Public Works and Environmental Services,
February 2007.

## PLANT LISTS

These lists are suggestions for recommended plants and are not to be construed as exclusive lists. There are many other suitable plants for riparian buffer planting. These lists are a place to start.

| MEDIUM TO LARGE DECIDUOUS CANOPY TREES | SMALL CANOPY/UNDERSTORY TREES |
|---|---|
| Red maple - Acer rubrum<br>Acer saccharum - Silver maple<br>Betula lenta - Black birch<br>River birch - Betula nigm<br>Shagbark hickory - Carya ovata<br>Mockernut hickory - Caiya tomentosa<br>Hackberry - Celtis occidentalis<br>Washington hawthorn - Craetagus phaenopynitm<br>Persimmon - Diospyros virginiana<br>American Beech - Fagus grandifoha<br>White ash - Fraxinus americana<br>Green ash - Fraxinus pennsylvanica<br>Water locust - Gleditsia aquatica<br>Black walnut - Juglans nigm<br>Sweetgum - Liquidamber sfracitlua<br>Tulip poplar - Liriodendron tulipifera<br>Water tupelo – Nyssa aquatica<br>Black gum - Nyssa sylvatica<br>Sourwood - Oxydendron arboreum<br>Sycamore - Platanus occidentalis<br>Cottonwood poplar – Populus deltoids<br>Swamp cottonwood - Populus heterophylla<br>Black cheny - Prunis serotina<br>Swamp white oak - Quercus bicolor<br>Shingle oak - Quercus imbricata<br>Laurel oak - Quercus laurifolia<br>Overcup oak - Quercus lyrata<br>Swamp chestnut oak - Quercus michauxii<br>Water oak - Quercus nigra<br>Pin oak - Quercus palustris<br>Willow oak - Quercus phellos<br>Shumard oak - Quercus shumardii<br>Swamp willow, Black willow - Salix nigra<br>Weeping willow - Salix babylonica<br>American basswood - Tilia Americana | Red buckeye - Aesculus pavia<br>Smooth alder - Alnus serrulata<br>Serviceberry - Amelanchier canadensis<br>Devil's walkingstick - Aralia spinosa<br>Pawpaw - Asimia triloba<br>American hornbeam- Carpinus caroliniana<br>Sugar hackbeny - Celtis laevigata<br>Redbud, Judas tree - Cercis canadensis<br>Fringetree - Chionanthus virginicus<br>Dogwood - Cornus florida<br>Cockspur hawthorn - Crataegus crus-galli<br>Green hawthorn - Cmtaegus viridis<br>Parsley hawthorne - Crataegus marshalli<br>Swamp cyrilla - Cyrilla racemosa<br>Two-winged Silverbell - Halesia diptera<br>American holly flex opaca<br>Possumhaw - Ilex deciduas<br>Spicebush - Lindera benzom<br>Sweetbay Magnolia - Magnolia virginiana<br>Eastern hophornbeam - Ostrya virginiana<br>Sourwood - Oxydendron arboreum<br>Elderberry - Sambucus canadensisSassafras - Sassafras albidum<br>Sparkleberry - Vaccinium arboreum<br>Nannyberry - Viburnum lentago |

**EVERGREEN TREES**

American holly – llex opaca
Eastern red cedar – Juniperus virginiana
Southern magnolia – Magnolia gmndiflom
Shortleaf pine – Pinus echinata
Pitch pine – Pinus rigida
Eastern white pine – Pinus strobus
Loblolly pine – Pinus taeda
Virginia pine - Pinus virginiana
Darlington oak Quercus laurifolia Darlingtonia
Live oak – Quercus virginiana

**EVERGREEN SHRUBS**

Inkberry holly - hex glabra
Common juniper Juniperus communis
Shore juniper - Juniperus conferta
Southern wax myrtle – Myrica cerifera
Bayberry – Myrica pennsylvanica
Swamp azalea – Rhododendrona viscosum
Farklebeny – Vaccinium arboreum

**LARGE SHRUBS**

Alder - Alnus sernilata
False indigo - Amorpha fruiticosa
Red chokeberry – Aroma arbutifolia
American beautybeny – Calicarpa americana
Eastern sweetshmb – Calycanthus floridus
Buttonbush – Cephalanthus occidentalis
Silky dogwood - Cornus amonum
Greystem dogwood – Cornus racemosa
Red twig dogwood Cornus stolomfera
Witch hazel - Harnmamelis virginiana
Wild hydrangea - Hydrangea arborescens
Oakleaf hydrangea – Hydrangea quercifolia
Winterberry holly – flex verticilata
Yaupon holly – flex vomitoria
Virginia sweetspire Itea virginica
Fetterbush/Sweetbells Leucothoe racemosa
Fetterbush – Lyonia lucida
Male-berry - Lyonia ligustrina
Southern wax myrtle Myrica cerifera
Bayberry – Myrica pennsylvanica
Common ninebark – Physocarpus opulifolius
Choke cherry - Pmnus virigniana
Swamp azalea – Rhododendrona viscosum
Smooth sumac – Rhus glabra
Allegheny blackberry – Rubus allegheniensis
Pussy willow – Salix discolor
Silky willow – Salix sericea
Elderberry – Sambucus canadensms
American snowbeil – Styrax atnerieanus
Highbush blueberry - Vaccinium corybosum
Arrowwood viburnum – Viburnum dentatum
Swamphaw Viburnum - Viburnum nudum
Blackhaw viburnum - Vibtumim pmnifolium

**SMALL SHRUBS**

Obovate serviceberry - Amelanchier obovalis
Black chokecherry - Aroma melanocarpa
Sweet pepperbush - Clethra alnifolia
Sweet fern - Comptonia peregrina
Strawberry bush - Euonymus americanus
Fothergilla - Fothergilla gardenii
Black huckleberry - Gaylussacia baccata
Dangleberry - Gaylussacia frondosa
Wild hydrangea - Hydrangea arborescens
Oakleaf hydrangea - Hydrangea quercifolia
Mountain laurel - Kiiimia latifolia
Staggerbush - Lyonia mariana
Scrubby cinquefoil - Potentilla fruticosa
Beach plum - Prunus maritime
Sand blackberry - Rubus cuneifolius
Bankers willow - Salix cottettii
White meadowsweet - Spiraea alba
Meadowsweet - Spiraea latifolia
Steeplebush - Spiraea tomentosa
Common snowbeny -
Coralberry - Symphocarpos orbiculatus
Lowbush blueberry - Vaccinium angustifolium
Maple-leaved viburnum - Vaccimum acerifolium
Adam's needle - Yucca fllamentosa

**NATIVE GRASSES**

Big Bluestem – Andropogon gerardi
Broomsedge – Andropogon virglnicus
lindian woodoats Chasmanthmum latifolium
Coastal panic grass – Panicum amarum
Switch grass – Panicum virgatum
Little bluestem – Schizachyrium scoparium
Indian grass – Sorghastrum nutans
Easternn gama grass – Tripsacum dactyloides

**HERBACEOUS PLANTS**

Black-eyed Susan – Rudbeckia fimlgida
Cardinal Flower – Lobelia cardinalis
Coralbells – Heuchera Americana
Creeping Phlox – Phlox stolonifera
Crested Iris – Iris cristata
Foamflower – Tiarella cordifolia

Goldenrod – Solidago Canadensis
Great Blue Lobelia – Lobelia siphilitica
Green and Gold - Crysogonum virginianum
Ironweed – Vernonia noveboracensis
Jack-in-the-Pulpit - Arisaema triphyllum
Joe-Pye Weed – Eupatorium purpureum
Mayapple – Podophyllurn peltatum
Mistflower – Eupatorium coelestinum
Mouse-ear Coreopsis – Coreopsis auriculata
New York Aster - Aster novi-belgii
Pink Turtlehead – Chelone lyonii
Purple Coneflower – Echinacea purpurea
Small Solomon's Seal – Polygonatum biflorum
Swamp Milkweed - Asclepias incarnata
Sweet Flag - Acorns americanus
Tall Gayfeather – Liatris scanos
Three-toothed Cinquefoil – Potentilla tridentata
Tickseed – Coreopsis grandiflora
Virginia Bluebells – Metensia virginica
Virginia Blue flag - his virginica
Wild Columbine - Aquilegia Canadensts
Woodland Phlox - Phlox divaricata

| **SHADE TOLERANT PLANTS** | **PART SUN** (semi-shade intolerant) |
|---|---|
| **Trees** | **Trees** |
| Red maple | Silver maple |
| Sugar maple | Sweet birch |
| Serviceberry, Shadbush | Bitternut hickory |
| Pawpaw | Shagbark hickory |
| Yellow birch | Hackberry |
| Hornbeam | Tulip poplar |
| American beech | Easter white pine |
| White ash | Sycamore |
| Sweetbay magnolia | White oak |
| Hop hornbeam | Swamp white oak |
| American basswood | Chestnut oak |
| Canada hemlock | Willow oak |
| | Northern red oak |
| | Slippery elm |
| **Small Trees & Shrubs** | **Small Trees & Shrubs** |
| Dogwood | Red chokeberry |
| Redbud | Black choke berry |
| Fringetree | Black huckleberry |
| Sweet pepperbush | Winterberry |
| Gray dogwood | Swamp azalea |
| American hazelnut | Meadowsweet |
| Witchhazel | Nannyberry |
| Inkberry | Smooth alder |
| Mountain laurel | Pinxterbloom azalea |
| Spicebush | |
| Staghorn sumac | |
| Elderberry | |
| Highbush blueberry | |
| Witherod | |
| Southern arrowwood | |
| Highbush cranberry | |
| Virginia sweetspire | |

## **FULL SUN** (Shade intolerant)

**Trees**
Persimmon
Black ash
Red ash
Honey-locust
Kentucky coffee-tree
Black walnut
Sweet gum
Black gum
Eastern cottonwood
Black cherry
Pin oak
Black willow
Sassafras

**Small Trees & Shrubs**
Groundsel bush
Buttonbush
Silky dogwood
Red-osier dogwood
Bayberry
Wax myrtle
Ninebark
Rosebay rhododendron
Blackhaw viburnum

## **FLOOD TOLERANT**

**Trees**
Red maple
Shadbush
Yellow birch
Black Ash
Red ash
Sweet gum
Sweetbay magnolia
Eastern cottonwood
Swamp white oak
Willow oak
Black willow
Slippery elm

**Small Trees & Shrubs**
Smooth alder
Red chokeberry
Black chokeberry
Groundsel bush
Buttonbush
Silky Dogwood
Red-osier dogwood
Inkberry
Winterberry
Bayberry
Ninebark
Rosebay rhododendron
Swamp azalea
Swamp rose
Meadowsweet
Highbush blueberry
Witherod
Southern arrowwood
Northern arrowwood
Highbush cranberry

## SEMI-FLOOD TOLERANT
(good for wet sites)

**Trees**
Atlantic white cedar
Allegheny servicebeny
Bald cypress
Black gum
Bitternut hickory
Eldebeny
Grey birch
Green ash
Hackberry
Persimmon
White ash
Honey-locust
Kentucky coffee-tree
Black walnut
Tulip poplar
Black gum
Sycamore
Northern red oak
River birch

**Shrubs**
Serviceberry
Fringe tree
American hazelnut
Black huckleberry
Grey dogwood
Spicebush
Witchhazel
Mountain laurel
Staghorn sumac
Nannybeny viburnum
Blackhaw viburnum

## SALT TOLERANT SPECIES

**Trees**
Serviceberry, Shadblow
Groundsel tree
Hackberry
American holly
Eastern red cedar
Sweetbay magnolia
Black gum
Pitch pine
Elderberry

**Shrubs**
Bearberry
Red cokeberry
Black chokeberry
Buttonbush
Sweet pepperbush
Inkberry
Spicebush
Southern wax myrtle
Bayberry
High tide bush
Beach plum
Winged sumac
Smooth sumac
Staghorn sumac
Rugosa rose
Arrowwood viburnum
Blackhaw viburnum
Highbush bluebeny

# STREAM DETERMINATION EVALUATION FORM

## North Carolina Division of Water Quality – Stream Identification Form; Version 3.1

| Date: | Project: | Latitude: |
|---|---|---|
| Evaluator: | Site: | Longitude: |
| **Total Points:** *Stream is at least intermittent if ≥ 19 or perennial if ≥ 30* | County: | Other *e.g. Quad Name*: |

| A. Geomorphology (Subtotal = _____) | Absent | Weak | Moderate | Strong |
|---|---|---|---|---|
| 1[a]. Continuous bed and bank | 0 | 1 | 2 | 3 |
| 2. Sinuosity | 0 | 1 | 2 | 3 |
| 3. In-channel structure: riffle-pool sequence | 0 | 1 | 2 | 3 |
| 4. Soil texture or stream substrate sorting | 0 | 1 | 2 | 3 |
| 5. Active/relic floodplain | 0 | 1 | 2 | 3 |
| 6. Depositional bars or benches | 0 | 1 | 2 | 3 |
| 7. Braided channel | 0 | 1 | 2 | 3 |
| 8. Recent alluvial deposits | 0 | 1 | 2 | 3 |
| 9[a] Natural levees | 0 | 1 | 2 | 3 |
| 10. Headcuts | 0 | 1 | 2 | 3 |
| 11. Grade controls | 0 | 0.5 | 1 | 1.5 |
| 12. Natural valley or drainageway | 0 | 0.5 | 1 | 1.5 |
| 13. Second or greater order channel on existing USGS or NRCS map or other documented evidence. | No = 0 | | Yes = 3 | |

[a] Man-made ditches are not rated; see discussions in manual

| B. Hydrology (Subtotal = _____) | | | | |
|---|---|---|---|---|
| 14. Groundwater flow/discharge | 0 | 1 | 2 | 3 |
| 15. Water in channel and > 48 hrs since rain, **or** Water in channel -- dry or growing season | 0 | 1 | 2 | 3 |
| 16. Leaflitter | 1.5 | 1 | 0.5 | 0 |
| 17. Sediment on plants or debris | 0 | 0.5 | 1 | 1.5 |
| 18. Organic debris lines or piles (Wrack lines) | 0 | 0.5 | 1 | 1.5 |
| 19. Hydric soils (redoximorphic features) present? | No = 0 | | Yes = 1.5 | |

| C. Biology (Subtotal = _____) | | | | |
|---|---|---|---|---|
| 20[b]. Fibrous roots in channel | 3 | 2 | 1 | 0 |
| 21[b]. Rooted plants in channel | 3 | 2 | 1 | 0 |
| 22. Crayfish | 0 | 0.5 | 1 | 1.5 |
| 23. Bivalves | 0 | 1 | 2 | 3 |
| 24. Fish | 0 | 0.5 | 1 | 1.5 |
| 25. Amphibians | 0 | 0.5 | 1 | 1.5 |
| 26. Macrobenthos (note diversity and abundance) | 0 | 0.5 | 1 | 1.5 |
| 27. Filamentous algae; periphyton | 0 | 1 | 2 | 3 |
| 28. Iron oxidizing bacteria/fungus. | 0 | 0.5 | 1 | 1.5 |
| 29[b]. Wetland plants in streambed | FAC = 0.5; FACW = 0.75; OBL = 1.5 SAV = 2.0; Other = 0 | | | |

[b] Items 20 and 21 focus on the presence of upland plants, Item 29 focuses on the presence of aquatic or wetland plants.

Notes: (use back side of this form for additional notes.)

Sketch:

# NO RISE CERTIFICATE

**NO RISE CERTIFICATION**

This is to certify that I am a duly qualified, registered professional engineer licensed to practice in the Commonwealth of Virginia.

It is to further certify that the attached technical data supports the fact that the proposed _____ will not impact the 100-year flood elevations, floodway elevations, or floodway widths on _____ as presented on the current preliminary/effective Floodplain Maps in the vicinity of the proposed development.

Attached are the documents and technical data that support my findings:

- ☐ No Impact Statement
- ☐ Compensatory Storage
- ☐ Flood Study
- ☐ Other: _____

**Submitted By:**

*Date:* _____

*Name:* _____

*Title:* _____

***[Insert PE Seal & Signature]***

# RESMP PERMIT APPLICATION FORM

CITY OF RICHMOND

# RESMP PERMIT APPLICATION

Department of Public Utilities, Water Resources Division
1801 Commerce Road
Richmond, VA 23219

*Note: Fee Schedule on back*
*(section 14-336, Code of the City of Richmond, VA, 2024)*

| | | |
|---|---|---|
| **PROJECT SITE STREET ADDRESS:** | | **DISTURBED AREA IN ACRES/SQUARE FEET:** 0.00 |
| **CONTACT/APPLICANT NAME:** | **CONTACT/APPLICANT EMAIL:** | **CONTACT/APPLICANT PHONE NUMBER:** |
| **BILLING CONTACT:** ☐ **OWNER** ☐ **ENGINEER** ☐ **CONTRACTOR** | | |
| **OWNER NAME:** City of Richmond | | **OWNER OFFICE PHONE #:** (804) 646-6584 |
| **OWNER STREET ADDRESS:** 900 E Broad street | | **OWNER MOBILE PHONE #:** (804) 332-4117 |
| **CITY/STATE/ZIP CODE:** Richmond, VA, 23219 | | **OWNER EMAIL:** adel.edward@rva.gov |
| **ENGINEER NAME:** Rodney Hayzlett | | **ENGINEER OFFICE PHONE #:** (804) 267-1269 |
| **ENGINEER STREET ADDRESS:** 9201 Arboretum Pkwy # 310 | | **ENGINEER MOBILE PHONE #:** (804) 754-5212 |
| **CITY/STATE/ZIP CODE:** Richmond, VA, 23236 | | **ENGINEER EMAIL:** rhayzlett@jmt.com |
| **CONTRACTOR NAME:** Caton Construction | | **CONTRACTOR PHONE #:** (434) 400-9277 |
| **CONTRACTOR STREET ADDRESS:** 158 Industrial way, Ste 203 | | **CONTRACTOR STATE LICENSE #:** 54-1424689 |
| **CITY/STATE/ZIP CODE:** Troy, VA, 22974 | | **CONTRACTOR EMAIL:** sclark@ccg-builds.com |

**PROJECT DESCRIPTION** (projects with stormwater system are also required to fill the storm drainage form: RICHMOND EROSION AND STORMWATER MANAGEMENT PERMIT – STORMWATER SYSTEM SECTION)

**IF THE PROJECT INCLUDES STORMWATER SYSTEM, DESCRIBE THE STORM SYSTEM:**

**As the landowner, by signing this RESMP application I hereby:**

- All projects shall conform to Chapter 14, Article V of the Code of the City of Richmond unless the Permit Issuing Authority has granted a variance in writing.
- Acknowledge that all demolition, clearing, grading, excavating, or construction shall not begin until all Erosion & Sediment controls have been installed **and a pre-construction meeting held.**
- Agree to notify the City at least **two business days in advance** when work commences any demolition, land clearing grading, excavating, or construction.
- **Agree the RESMP permit and the approved plans must be kept on the worksite and shown when requested. Substantial changes, as determined by the Permit Issuing Authority, shall not be made to plans except upon submission of supporting documentation by the applicant and approval by the Permit Issuing Authority.**
- Agree that I am held responsible for any and all damages to other installations already in place as a result of work covered by this permit.
- Acknowledge that this permit may be revoked whenever, in the opinion of the Director of Public Utilities or their designee, construction adversely affects or presents imminent or substantial danger of causing erosion of lands, sediment deposition within waters of the watershed of the Commonwealth or impacts to water quality, use, safety, or maintenance of the property.
- Acknowledge that upon failure to comply with the permit conditions, notice shall be served by written, electronic, and/or verbal methods per Chapter 14 Article V (Section 14-335) and may result in stop work orders, civil penalties, and/or civil prosecution.

Name: _____ Date: _____

| Fee to cover cost associated with VESMP implementation.<br>Fee for any operator seeking coverage under a RESMP Authority Permit | |
|---|---|
| General/Stormwater Management - Small Construction Activity/Land Clearing (For single-family detached residential structures within or outside of a common plan of development of sale with land-disturbance acreage less than five (5) acres) ($0.00 paid to the Virginia Department of Environmental Quality) | $209.00 |
| General/Stormwater Management - Small Construction Activity/Land Clearing (Areas within common plans of development or sale with land-disturbance acreage less than one (1) acre, except for single-family detached residential structures) ($81.00 paid to the Virginia Department of Environmental Quality based upon 28 percent of total fee paid) | $290.00 |
| Chesapeake Bay Preservation Act Land-Disturbing Activity (Not subject to general permit coverage; sites within the City with land-disturbance acreage equal to or greater than 2,500 square feet and less than one (1) acre) ($0.00 paid to the Virginia Department of Environmental Quality) | $290.00 |
| General/Stormwater Management - Small Construction Activity/Land Clearing Site or areas within common plans of development or sale with land-disturbance equal to or greater than one (1) acre and less than five (5) acres) ($756.00 paid to the Virginia Department of Environmental Quality based upon 28 percent of total fee paid) | $2,700.00 |
| Stormwater Management - Large Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land-disturbance acreage equal to or greater than five (5) acres and less than ten (10) acres) ($952.00 paid to the Virginia Department of Environmental Quality based upon 28 percent of total fee paid) | $3,400.00 |
| General/Stormwater Management - Large Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land-disturbance acreage equal to or greater than ten (10) acres and less than 50 acres) ($1,260.00 paid to the Virginia Department of Environmental Quality based upon 28 percent of total fee paid) | $4,500.00 |
| General/Stormwater Management - Large Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land-disturbance acreage equal to or greater than 50 acres and less than 100 acres) ($1,708.00 paid to the Virginia Department of Environmental Quality based upon 28 percent of total fee paid) | $6,100.00 |
| General/Stormwater Management – Large Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land-disturbance acreage equal to or greater than 100 acres) ($2,688.00 paid to the Virginia Department of Environmental Quality, based upon 28 percent of total fee paid) | $9,600.00 |

| Fee for modification or transfer of individual permits or of registration statements for the General Permit for Discharges of Stormwater from Construction Activities issued by the State Water Control Board. If the State permit modifications result in changes to stormwater management plans that require additional review by the City, such reviews shall be subject to the fees set out in this section. The fee assessed shall be based on the total disturbed acreage of the site. In addition to the State permit modification fee, modifications resulting in an increase in total disturbed acreage shall pay the difference in the initial State permit fee paid and the State permit fee that would have applied for the total disturbed acreage as stated above for initial coverage. | |
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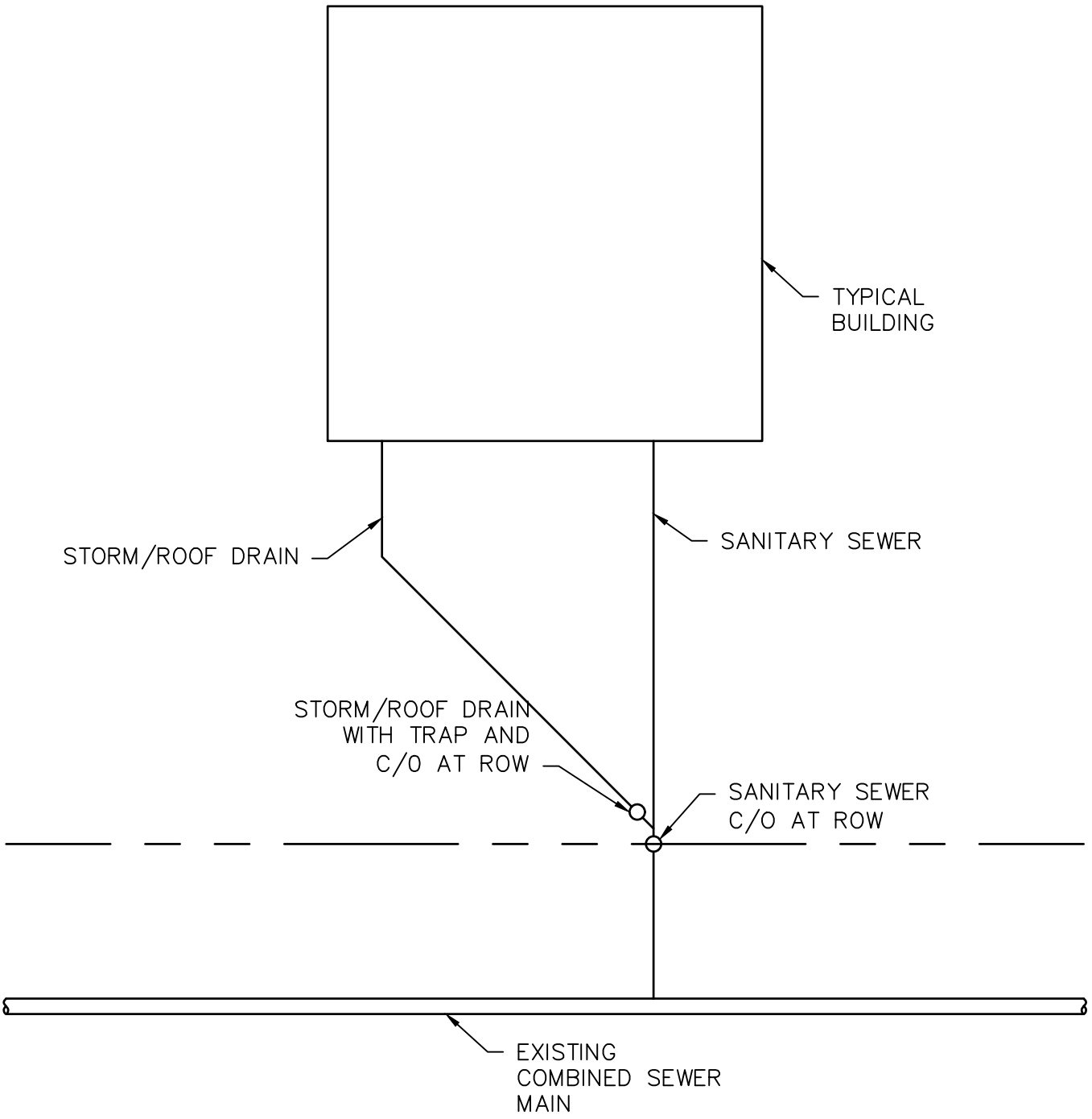
| General/Stormwater Management - Small Construction Activity/Land Clearing (Areas within common plans of development or sale with land disturbance acreage less than one acre) | $20.00 |
| General/Stormwater Management - Small Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land disturbance acreage equal to or greater than one acre and less than five acres) | $200.00 |
| General/Stormwater Management - Large Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land disturbance acreage equal to or greater than five acres and less than ten acres) | $250.00 |
| General/Stormwater Management - Large Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land disturbance acreage equal to or greater than ten acres and less than 50 acres) | $300.00 |
| General/Stormwater Management - Large Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land disturbance acreage equal to or greater than 50 acres and less than 100 acres) | $450.00 |
| General/Stormwater Management - Large Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land disturbance acreage equal to or greater than 100 acres) | $700.00 |
| Individual Permit for Discharges of Stormwater from Construction Activities | $5,000.00 |

| Annual Fee For Permit Maintenance | |
|---|---|
| Chesapeake Bay Preservation Act Land-Disturbing Activity (Not subject to General Permit coverage; sites within designated areas of Chesapeake Bay Preservation Act localities with land disturbance acreage equal to or greater than 2,500 square feet and less than one acre) | $50.00 |
| General/Stormwater Management - Small Construction Activity/Land Clearing (Areas within common plans of development or sale with land disturbance acreage less than one acre) | $50.00 |
| General/Stormwater Management - Small Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land disturbance equal to or greater than one acre and less than five acres) | $400.00 |
| General/Stormwater Management - Large Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land disturbance acreage equal to or greater than five acres and less than ten acres) | $500.00 |
| General/Stormwater Management - Large Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land disturbance acreage equal to or greater than ten acres and less than 50 acres) | $650.00 |
| General/Stormwater Management - Large Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land disturbance acreage equal to or greater than 50 acres and less than 100 acres) | $900.00 |
| General/Stormwater Management - Large Construction Activity/Land Clearing (Sites or areas within common plans of development or sale with land disturbance acreage equal to or greater than 100 acres) | $1,400.00 |

**The permit application fee will be invoiced to the billing contact listed on this application and registered with the City's Online Permit Portal.**

*See the payment instructions on the invoice.*

# CONNECTION TO EXISTING COMBINED SEWER DETAIL




NOTES:

1. CONSTRUCTION OF NEW COMBINED SEWERS IS PROHIBITED.
2. IF A COMBINED SEWER IS USED, THE CONNECTION POINT SHALL BE OUTSIDE
3. TRAPS SHALL BE UTILIZED AT ALL CONNECTIONS OF STORM OR ROOF DRAINS TO SEWER LINES.

| DEPARTMENT OF PUBLIC UTILITIES | CITY OF RICHMOND, VIRGINIA<br>CONNECTION TO EXISTING COMBINED SEWER<br>NOT TO SCALE | REV. 04/17<br>P-12 |
|---|---|---|

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804.646.4646

rva.gov/public-utilities