



City of Suffolk, Virginia

Department of Planning

Chesapeake Bay Preservation Act Exception / Encroachment

This application should be used when submitting a request for an exception or encroachment to the requirements of the Chesapeake Bay Preservation Area (CB) Overlay District Ordinance. The intent of the Overlay District is to provide special regulatory protection for land and water resources located within the designated Chesapeake Preservation Area within the City of Suffolk. The application shall identify the impacts of the development proposal on water quality and on lands within the Resource Protection Area through the performance of a water quality impact assessment in accordance with the provisions of Appendix B, B-13. The following application requirements are consistent with the review procedures set forth in Section 31-415.

Application: EX - _____	Submission Date: _____
Application: EN - _____	Legal Ad Dates: _____
Reviewing Authority: _____	Public Hearing Date: _____
Decision: <input type="checkbox"/> Approved <input type="checkbox"/> Denied	
Signature: _____ Date: _____	Tax Query: <input type="checkbox"/> Current <input type="checkbox"/> Delinquent
Conditions/Comments: _____	

Office Use Only

1. APPLICATION FOR:

CBPA Encroachment –

Construction of a principal structure on an undeveloped lot or the construction of an addition on the principal structure (on a lot created prior to March 1, 2002) with an encroachment of no more than 50' into the 100' RPA Buffer.

CBPA Exception –

Construction of a principal structure on an undeveloped lot (lot created March 1, 2002 or after) with an encroachment, any encroachment of less than 50' or any encroachment of an accessory structure into the 100' RPA Buffer.

Proposed Use or Activity: _____

2. PROPERTY DESCRIPTION:

Property Address (if any): _____

Name of Subdivision (if applicable): _____

Section: _____ Block: _____ Lot: _____

Zoning District: _____

Tax Assessor's Map and Parcel # _____

Tax Account Number: _____

3. ENGINEER / SURVEYOR INFORMATION:

Name: _____

Company: _____

Address: _____

Telephone Number: _____ Fax Number: _____

4. AUTHORITY FOR APPLICATION

This application must be signed by the owner(s) of the subject property or must have attached to it written evidence of the owner’s consent, which may be in the form of a binding contract of sale with the owner’s signature or a letter signed by the owner(s) authorizing the applicant to act as his or her agent. Signing this application shall constitute the granting of authority of the City to enter onto the property for the purpose of conducting site analyses.

PROPERTY OWNER(S):

Name(s): _____

Address: _____

Telephone Number: _____ Fax Number: _____

Property Owner Signature *Date* *Property Owner Signature* *Date*

Name(s): _____

Address: _____

Telephone Number: _____ Fax Number: _____

Property Owner Signature *Date* *Property Owner Signature* *Date*

APPLICANT(S): (Complete if different from property owner)

Name(s): _____

Company: _____

Address of Applicants(s): _____

Telephone Number: _____ Fax Number: _____

Applicant’s Signature *Date* *Applicant’s Signature* *Date*

Applicant’s Status (check appropriate box):

Property Owner Property Owner’s Agent Contract Purchaser

NOTICE: ALL APPLICATIONS ARE ACCEPTED ON A CONDITIONAL BASIS. IF, UPON REVIEW, THE APPLICATION IS DEEMED INCOMPLETE, IT WILL BE RETURNED TO THE APPLICANT.

Remit a completed application with the appropriate fee to:
City of Suffolk Planning Department, P.O. Box 1858, Suffolk, VA 23434



CHESAPEAKE BAY PRESERVATION ACT **EXCEPTION / ENCROACHMENT**

IN ACCORDANCE WITH SECTION 31-415 AND APPENDIX B, SECTION B-13, APPLICATIONS FOR CHESAPEAKE BAY PRESERVATION ACT EXCEPTION OR ENCROACHMENT MUST INCLUDE THE FOLLOWING INFORMATION:

1. A site plan prepared in accordance with the requirements of Section 31-307 of the Zoning Ordinance; or a subdivision plat prepared in accordance with the requirements of Article 5 of this Subdivision Ordinance.
2. A Water Quality Impact Assessment (WQIA) and an environmental site assessment consistent with Appendix B, § B-13.
3. A stormwater management plan consistent with Appendix B, § B-12).
4. Identification of an area on the lot or parcel, equal to the area of encroachment into the buffer, which will be revegetated.
5. Installation and Bonding Requirements.
 - A. Where buffer areas, landscaping, stormwater management facilities or other specifications of an approved plan are required, no certificate of occupancy shall be issued until the installation of required plan materials and/or facilities is completed, in accordance with the approved site plan.
 - B. When the occupancy of a structure is desired prior to the completion of the required landscaping, stormwater management facilities, or other specifications of an approved plan, a certificate of occupancy may be issued only if the applicant provides to the City a form of surety satisfactory to the City in an amount equal to the cost associated with completing the required landscaping or stormwater management facilities and/or maintenance costs for any required stormwater management facilities during the construction period.
 - C. After all required actions of the approved site plan have been completed, the applicant must submit a written request to the City of Suffolk for a final inspection. If the requirements of the approved plan have been completed to the satisfaction of the City of Suffolk such unexpended or unobligated portion of the surety held shall be refunded to the applicant or terminated within sixty (60) days following the receipt of the applicant's written request for final inspection.



City of Suffolk, Virginia

Department of Planning

Non-Point Source Pollution Load Guidance Calculation Procedures

Step 1: Compile Site Specific Data (Note: unless otherwise noted, round to nearest 3rd decimal place.) (Note: One (1) acre equals 43,560 square feet.)

1. Area of Lot (excluding wetlands or water) = A

$$\frac{\text{Area of Lot (in square feet)}}{43,560} = A$$

$$\underline{\hspace{2cm}} \div 43,560 = A$$

$$A = \underline{\hspace{2cm}} \text{ acres}$$

CBPA Determination:			
<input type="checkbox"/>	RPA	<input type="checkbox"/>	RMA
<input type="checkbox"/>	IDA	<input type="checkbox"/>	None

2. Current Impervious Area = **I_a** ***(Skip this Equation if the Property Is Currently Undeveloped)***
 Impervious area includes all surfaces covered by roofs, concrete, or gravel (including sidewalks and driveways). This includes all structures regardless of whether they are set on a permanent foundation (including sheds, swimming pools, and gazebos). Do not include wooden open deck structures in the total.

- structures square feet
- parking square feet
- sidewalks square feet
- roadway square feet
- other square feet
- additions square feet
- accessory square feet

$$\text{Total: } \underline{\hspace{2cm}} \text{ (square feet)} \div 43,560 = \mathbf{I_a}$$

$$\mathbf{I_a} = \underline{\hspace{2cm}} \text{ acres}$$

3. Proposed Impervious Area (after proposed construction) = **I_b**

- structures square feet
- parking square feet
- sidewalks square feet
- roadway square feet
- other square feet
- additions square feet
- accessory square feet

$$\text{Total: } \underline{\hspace{2cm}} \text{ (square feet)} \div 43,560 = \mathbf{I_b}$$

$$\mathbf{I_b} = \underline{\hspace{2cm}} \text{ acres}$$

Enter these equations from the previous page:

$$\begin{aligned} \mathbf{A} &= \underline{\hspace{2cm}} \text{ acres} \\ \mathbf{I_a} &= \underline{\hspace{2cm}} \text{ acres} \\ \mathbf{I_b} &= \underline{\hspace{2cm}} \text{ acres} \end{aligned}$$

3. Percent of site covered by impervious surfaces before development (Current) =

I_{site a}

*** (Skip this Equation if the Property Is Currently Undeveloped) ***

$$(\text{Total } \mathbf{I_a} \div \mathbf{A}) \times 100 = \mathbf{I_{site a}}$$

$$(\underline{\hspace{2cm}} \div \underline{\hspace{2cm}}) \times 100 = \mathbf{I_{site a}}$$

$$\underline{\hspace{2cm}} = \mathbf{I_{site a}}$$

$$\mathbf{I_{site a}} = \underline{\hspace{2cm}} \% \text{ (Note: Round to nearest whole number)}$$

4. Percent of site covered by impervious surfaces after development (Proposed) = **I_{site b}**

$$(\text{Total } \mathbf{I_b} / \mathbf{A}) \times 100 = \mathbf{I_{site b}}$$

$$(\underline{\hspace{2cm}} \div \underline{\hspace{2cm}}) \times 100 = \mathbf{I_{site b}}$$

$$\underline{\hspace{2cm}} = \mathbf{I_{site b}}$$

$$\mathbf{I_{site b}} = \underline{\hspace{2cm}} \% \text{ (Note: Round to nearest whole number)}$$

Step 2: Determine the need to continue.

16% = **I_{watershed}** (Chesapeake Bay Watershed Default Impervious Area).

If **I_{site b}** is less than or equal to **16%**, STOP and submit analysis to this point.

If **I_{site b}** is greater than **16%**, CONTINUE ANALYSIS and go to Step 3.

Step 3: Use Part A for new development on an unimproved (vacant) parcel or use Part B for development proposed on a improved parcel (additions to an existing dwelling or accessory structure) to calculate L_{pre}.

Part A Calculate Pre-Development Pollution Load = L_{pre}

***** Use only for new development on an unimproved (vacant) parcel *****

$$40.5 \times [0.05 + (0.009 \times \mathbf{I_{watershed}})] \times 0.26 \times \mathbf{A} \times 2.72 \div 12 = \mathbf{L_{pre}}$$

$$2.043 \times \underline{\hspace{2cm}} \times 2.72 \div 12 =$$

$$\mathbf{L_{pre}} = \underline{\hspace{2cm}} \text{ pounds per year of pollutants}$$

Part B Calculate Pre-Development Pollution Load = L_{pre}

***** Use only for development proposed on a improved parcel (additions to an existing dwelling or accessory structure) *****

$$40.5 \times [0.05 + (0.009 \times I_{site \ a})] \times 0.26 \times A \times 2.72 \div 12 = L_{pre}$$

$$40.5 \times [0.05 + (0.009 \times \underline{\hspace{2cm}})] \times 0.26 \times \underline{\hspace{2cm}} \times 2.72 \div 12 =$$

$$40.5 \times [0.05 + \underline{\hspace{2cm}}] \times 0.26 \times \underline{\hspace{2cm}} \times 2.72 \div 12 =$$

$$40.5 \times [\underline{\hspace{2cm}}] \times 0.26 \times \underline{\hspace{2cm}} \times 2.72 \div 12 =$$

$$L_{pre} = \underline{\hspace{2cm}} \text{ pounds per year of pollutants}$$

Step 4: Calculate Post-Development Pollutant Load (L_{post}) = L_{post}

$$40.5 \times [0.05 + (0.009 \times I_{site \ b})] \times 0.26 \times A \times 2.72 \div 12 =$$

$$40.5 \times [0.05 + (0.009 \times \underline{\hspace{2cm}})] \times 0.26 \times \underline{\hspace{2cm}} \times 2.72 \div 12 =$$

$$40.5 \times [0.05 + \underline{\hspace{2cm}}] \times 0.26 \times \underline{\hspace{2cm}} \times 2.72 \div 12 =$$

$$40.5 \times [\underline{\hspace{2cm}}] \times 0.26 \times \underline{\hspace{2cm}} \times 2.72 \div 12 =$$

$$L_{post} = \underline{\hspace{2cm}} \text{ pounds per year of pollutants.}$$

Step 5: Calculate Pollutant Removal Requirement = RR

$$L_{post} - L_{pre} \text{ [from Steps 3 (Part A or Part B) and 4 above]} =$$

$$(\underline{\hspace{2cm}} - \underline{\hspace{2cm}}) =$$

$$RR = \underline{\hspace{2cm}} \text{ pounds per year}$$

To determine the overall **BMP efficiency required (%RR)** when selecting BMP options:

$$RR \div L_{post} \times 100 \text{ (from steps 4 and 5 above)} =$$

$$(\underline{\hspace{2cm}} \div \underline{\hspace{2cm}}) \times 100 =$$

$$\underline{\hspace{2cm}} \times 100 = \underline{\hspace{2cm}} = \%RR$$

$$\%RR = \underline{\hspace{2cm}} \% \text{ (Note: Round to nearest whole number)}$$

Step 6: Worksheet C: Compliance

Select BMP option from the list provided and list them below. Then calculate the pollutant load removed from each option. **DO NOT LIST BMPs IN SERIES HERE.**

***** Note: If the proposed site impervious area (I_{site}) is 20% or under vegetated BMPs may be used. If the proposed site impervious area (I_{site}) over 20% engineered BMPs should be used.*****

Selected Option	Removal Efficiency (% ÷ 100) (expressed in decimal form)	x	Fraction of CBPA Drainage Area Served (*) (expressed in decimal form)	x	Lpost (lbs/yr)	=	Pollutant Load Removed (lbs/yr)
_____	_____	X	_____	X	_____	=	_____
_____	_____	X	_____	X	_____	=	_____
_____	_____	X	_____	X	_____	=	_____

** The Fraction of CBPA Drainage Area Served is found by dividing the area draining to the proposed BMP by the total lot area. Both numbers used in the equation must be in the same format (either square feet or acres).*

If the Load Removed (lbs/yr) is greater than or equal to **RR** (Pollutant removal requirement from step 5), then the selected BMP option is adequate to serve the proposed new development.

Step 7: Worksheet D: BMP Design

Calculate the proper size of BMP to determine storage volume based on type and required efficiency (typically BMPs are designed to accommodate the first half (1/2) inch of rainfall for the proposed impervious area. If using engineered BMPs be sure to account for void area created by the use of aggregate material (gravel, etc.).

Provide plot plan identifying the location of existing and proposed structures and the proposed BMPs. Additionally, provide all calculations and a cross section identifying the dimensions and materials of the proposed BMPs.

BMPs and Phosphorous Removal Efficiencies

Water Quality BMP	Target Phosphorous Removal Efficiency
Vegetated Practices	
Vegetated Filter Strip - Min Std. 3.14	10%
Grass Swale (with check dams) - Min Std. 3.13	15%
Water Quality Swale - Min Std. 3.13	35%
Detention Practices and Wetlands	
Extended Detention (30-hr draw down of 2 x WQV) - Min Std. 3.07	35%
Enhanced Extended Detention (30-hr draw down of 1 x WQV, and 1x WQV shallow marsh) - Min Std. 3.07	50%
Constructed Wetlands (2x WQV) - Min Std. 3.09	30%
Retention Practices	
Retention Basin I (3 x WQV) - Min Std. 3.06	40%
Retention Basin II (4 x WQV) - Min Std. 3.06	50%
Retention Basin III (4 x WQV, aquatic bench) - Min Std. 3.06	65%
Infiltration Practices	
Infiltration Facility (storage volume= ½” runoff from impervious areas) – Min Std. 3.10	50%
Infiltration Facility (storage volume = 1” runoff from impervious areas) – Min Std. 3.10	65%
Bioretention / Biofiltration Practices - Min Std. 3.11, 3.11a, 3.11 b	
Bioretention Basin (capture/treatment volume = ½” runoff from impervious areas)	50%
Bioretention Basin (capture/treatment volume =1” runoff from impervious areas)	65%
Bioretention Filter (capture/treatment volume = ½” runoff from impervious areas)	50%
Bioretention Filter (capture/treatment volume =1” runoff from impervious areas)	65%
Green Alleys (capture/treatment volume = ½” runoff from impervious areas)	50%
Green Alleys (capture/treatment volume = 1” runoff from impervious areas)	65%
Sand Filters	
Intermittent Sand Filter (treating ½” runoff from impervious areas) - Min Std. 3.12	65%
Manufactured BMPs - Min Std. 3.15	
Hydrodynamic Structures (<i>Stormceptor, Vortechs, Downstream Defender, BaySaver</i>)	15-20%
Filtering Structures (<i>StormFilter, StormTreat System</i>)	50%

Notes:

WQV= Water quality volume (first ½” of runoff from the impervious surfaces)

The 30-hour draw down time of water quality volume pertains to the brim draw down time, beginning at the time of peak storage of the water quality volume. Brim draw down time means the time required for the entire calculated volume to drain out of the basin. See Virginia Stormwater Management Handbook Section 5-6.2 for methods to verify the draw down time and design performance.

Design Standards and Specifications for the BMPs referenced in the table above can be found in the Virginia Stormwater Management Handbook.

Buffer Equivalency

Assume nutrients means phosphorous.

Step 1: Determine the pollutant load (L) generated by the drainage area of the buffer.

$$L = 0.000047 \text{ (lbs/in-ft)} \times \text{annual rainfall (in)} \times \text{lot width (ft)}$$

This equation is derived by the following method:

Assume a maximum of 200 feet of overload sheet flow can be handled by the buffer. [The 200-foot maximum is established by the new state Erosion and Sediment Control regulations (VR 625-02-00), and is suggested as policy by both VDOT and ASCS-SCS.] Multiply the average lot width (see attached graphic) in feet by the 200-foot overland sheet flow factor and divide by 43,560 (sqft/ac) to determine the “drainage area” in acres. Let the average land cover condition be 16 percent impervious and use the Simple Method to calculate the load generated by the drainage area. Since the drainage area always includes dividing 200 by 43,560 and other constants from the Simple Method, the only variables are the lot width and annual rainfall. Therefore, this procedure can be reduced to the above equation, where L is in pounds.

Step 2: Determine the maximum load (R_{\max}) capable of being removed by the full buffer.

$$R_{\max} = L \times 0.4$$

Multiply the load generated (from Step 1) by 0.40 (the removal rate dictated by the Regulations for a full 100-foot buffer).

Step 3: Determine the actual load removed (R_{act}) by the remaining, undisturbed buffer.

$$R_{\text{act}} = L \times \text{EFF}$$

Multiply the load generated (from Step 1) by the appropriate removal efficiency shown on the next page.

Buffer Equivalency

Number 3

<u>Total Buffer Width (BW)</u>	<u>Removal Efficiency (EFF)</u>
100 (no encroachment)	.40
90 (10' encroachment)	.37
80 (20' encroachment)	.35
70 (30' encroachment)	.32
60 (40' encroachment)	.30
50 (max. encroachment)	.25

Step 4: Determine the load removal requirement (RR) of an “equivalent” BMP.

$$RR = R_{\max} - R_{\text{act}}$$

The load removal requirement is the difference between the maximum load removal (from Step 2) and the load removal provided by the remaining buffer (from Step 3).

Step 5: Determine available BMP options.

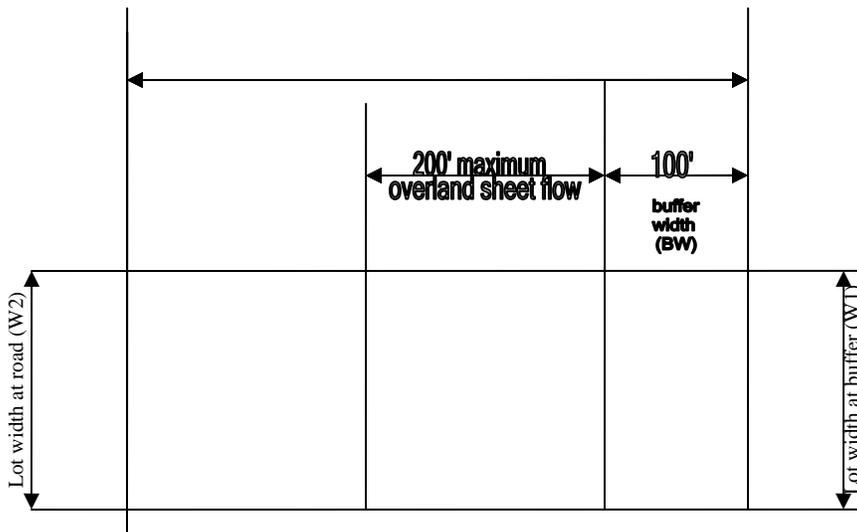
Refer to Table 2 in Appendix C of the Local Assistance Manual for pollutant removal efficiencies of BMPs. Sometimes an additional (relocated) buffer width may be appropriate.

Step 6: Provide adequate BMP selection and design.

Site conditions may determine ultimate selection. Refer to Controlling Urban Runoff: A Practical Manual for Planning and Designing Urban BMPs by Thomas Schuler. (Washington, D.C.: Metropolitan Washington Council of Governments, 1987)

Buffer Equivalency Procedure Graphic

Total lot length



Note – if lot widths at road (W2) and buffer (W1) greatly differ,
Average lot width may be used: $[(W1) + (W2) / 2 = (W_{avg})]$