**Henrico County**

**Compensatory Storage Report Template and Instructions**

*(to support a No-Rise Certification)*

A No-Rise Certification is required for all development in Henrico County floodplains. No-Rise Certifications must be supported by technical data. Compensatory Storage may be used to support a No-Rise Certificate by providing computations that compare existing and proposed topography. When development is confirmed to result in net cut within the floodplain, this indicates there is an overall increase in flood storage which would maintain or lower water surface elevations. If compensatory storage is used, a Compensatory Storage Report must be provided with the No-Rise Certificate.

**Compensatory Storage Report Template**

A Compensatory Storage Reporttemplate is included at the end of this section for consideration and use by the certifying engineer for a development project.

**Compensatory Storage Report Template Directions**

* The Compensatory Storage Reporttemplate includes all sections that must be included in a report for review. This template can be incorporated into a different format that uses your company name, logo, design, etc., but the headings and general layout should remain the same.
* Some sections, such as Compensatory Storage Requirements, may not be applicable to all project types. These items have been labeled with “if applicable” and should be removed from the report if they are not applicable to the project.
* The Table of Contents for the template is linked to the headings. This table must be updated when the report is complete, so the table accurately reflects the final headings and page numbers.
* Appendix titles have been included in the template report. Several of the appendices will be large documents from other programs. These do not need to be added to the Word document. Instead, they should be added to the final PDF version of the report.

**Supporting Documents and Technical Data**

Certifying engineers should review the Henrico County Floodplain Technical Guidance Manual, specifically Section 5, for additional information on Compensatory Storage requirements.

**THIS PAGE SHOULD BE DELETED PRIOR TO SUBMISSION**

**Compensatory Storage Report for:**

**[Project Name]**

[Stream Name(s)]

Henrico County, VA

[Report Date]

[Report Revision Date (if applicable)]

Prepared By:

[Engineer(s)’s Name]

[Engineer(s)’s Email Address]

[Engineer(s)’s Phone Number]

[Company Name]

[Company Address]

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

Table of Contents

[1. Project Description 1](#_Toc170827661)

[1.1. Narrative Statement 1](#_Toc170827662)

[1.2. Determination of Floodplains 1](#_Toc170827663)

[1.3. No Rise / Project Impact Statement 1](#_Toc170827664)

[2. Supporting Documentation 1](#_Toc170827665)

[2.1. Plan Sheets 1](#_Toc170827666)

[2.2. Volumetric Cut/Fill Calculations 1](#_Toc170827667)

[2.3. Peak Flow Calculations (if applicable) 2](#_Toc170827668)

[2.3.1. Existing and Proposed Drainage Area Maps (if applicable) 2](#_Toc170827669)

[2.3.2. Existing and Proposed Land Use Maps (if applicable) 2](#_Toc170827670)

[2.3.3. Hydrologic Model Output (if applicable) 2](#_Toc170827671)

[2.4. Detail or Cross-Section Drawings (if applicable) 2](#_Toc170827672)

[Appendix 1. Plan Sheets i](#_Toc170827673)

[Appendix 2. Volumetric Cut/Fill Calculations i](#_Toc170827674)

[Appendix 3. Peak Flow Calculations (if applicable) i](#_Toc170827675)

[Appendix 4. Existing Drainage Area Map (if applicable) i](#_Toc170827676)

[Appendix 5. Proposed Drainage Area Map (if applicable) i](#_Toc170827677)

[Appendix 6. Existing Land Use/Cover Map (if applicable) i](#_Toc170827678)

[Appendix 7. Proposed Land Use/Cover Map (if applicable) i](#_Toc170827679)

[Appendix 8. Hydrology Model Outputs (if applicable) i](#_Toc170827680)

[Appendix 9. Detail or Cross-Section Drawings (if applicable) i](#_Toc170827681)

# Project Description

[**INSERT** - The project description provides a brief overview of the project scope with supporting information to help easily reference the extent and location of the project.]

## Narrative Statement

[**INSERT** - This section expands on the project description by providing detailed information, project design, and the impacts to the floodplain. If additional design requirements are including as part of the project to meet county floodplain requirements, these should be commented on in this section. This section should reference any relevant certified topographic maps, grading plans, and construction drawings. The grading plans must provide existing and proposed contours. The supporting drawings must include relevant waterway data including the stream centerline and thalweg location. Planimetric features must also be identified including; roads, buildings, ponds, etc.]

## Determination of Floodplains

[**INSERT** - This section provides detailed information about any existing or adjacent floodplains that are in proximity to the proposed project. This must include the name of the associated stream, the associated floodplain classifications (Zone A or AE), and identify if it is a community SFHA or FEMA SFHA. A map from the [Henrico County Flood Zone and Dam Safety Information viewer](https://henrico.maps.arcgis.com/apps/webappviewer/index.html?id=e940e72a32244bf3ae9a8098766f2bdd) displaying the floodplain must be provided. If a FEMA SFHA, a FIRMette map may also be included.]

## No Rise / Project Impact Statement

[**INSERT** - This section should plainly state how a project has no impact on the floodplain. This section should summarize supporting information found in the supporting calculations sections and how they support these statements. This section must be provided and contain a summary of the cut and fill (development) volumes between the existing and proposed topography. The method used to compute cut and fill (development) volumes should be explained, and procedures and software used to derive these volumes.]

# Supporting Documentation

[**INSERT** - This section provides an overview of documentation and calculations to be provided to support the narrative that the project has no adverse impact on the floodplains.]

## Plan Sheets

[**INSERT** - Plan sheets showing the proposed project location and extent in relation to the regulatory floodplain. The plan sheets should include the regulatory floodplain limit as found on the [county GIS viewer](https://henrico.maps.arcgis.com/apps/webappviewer/index.html?id=e940e72a32244bf3ae9a8098766f2bdd). This is required to confirm statements in the narrative and verify project extents. To support the volumetric calculations, the area within the floodplain where the calculations were executed should be denoted with a hatched polygon to verify that cut and fill (development) volumes are computed only for development within the floodplain.]

## Volumetric Cut/Fill Calculations

[**INSERT** - A summary of the resultant net cut must be provided here and supported with output from the designer choice of software. A detailed report from the software should be provided in the appendix and referenced in this section. Any assumptions and parameters used to complete this calculation must be elaborated on in this section. If the average end area method is used, the plan sheets should also include a callout to the location of the cross-sections used. If the grid method is used, the plan sheets must include the gridded spot shots on an existing or separate sheet to identify changes in elevation.]

## Peak Flow Calculations (if applicable)

[**INSERT** - Peak flow values for the existing and proposed conditions must be provided if changes are expected as part of the development. Typically, projects that involve alterations to the existing drainage patterns, whether natural or manmade, will require more supporting documentation. The goal of the program ensures additional stormwater runoff, through land use change or outfall routing, is considered before being released into the floodplain.]

### Existing and Proposed Drainage Area Maps (if applicable)

[**INSERT** Include copies of the existing and proposed drainage area maps, as well as an explanation of any changes or unique circumstances that may relate to the drainage area(s).]

### Existing and Proposed Land Use Maps (if applicable)

[**INSERT** Include copies of the existing and proposed land use maps, as well as an explanation of any changes or unique circumstances that may relate to the land use changes proposed.]

### Hydrologic Model Output (if applicable)

[**INSERT** This section should include a copy of the from hydrologic model output used in estimating peak flows, as well as a summary explaining the methodology used and results.]

## Detail or Cross-Section Drawings (if applicable)

[**INSERT** - Details or cross-section drawings may be required in conjunction with plan sheets to identify the exact location of development in the floodplain. These drawings should show elevation spots for the floodplain and relevant development. The floodplain elevation must be determined using the methods outlined in the Floodplain Technical Guidance Manual.]

1. Plan Sheets
2. Volumetric Cut/Fill Calculations
3. Peak Flow Calculations (if applicable)
4. Existing Drainage Area Map (if applicable)
5. Proposed Drainage Area Map (if applicable)
6. Existing Land Use/Cover Map (if applicable)
7. Proposed Land Use/Cover Map (if applicable)
8. Hydrology Model Outputs (if applicable)
9. Detail or Cross-Section Drawings (if applicable)