



Stream Restoration

Virginia Water Protection (VWP) Permit Program

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Virginia Department of Environmental Quality
June 18, 2024

Overview

- Stream Restoration in Virginia
- Successful Project Criteria
- Current Topics of Interest



Virginia Water Protection (VWP) Permit Program

- Clean Water Act Section 404/401
- 2000 - Virginia General Assembly passed non-tidal wetland law independent of CWA
- Regulates all waters (surface & ground)
- [DEQ's Section 401 Water Quality Certification \(virginia.gov\)](#)

DEQ Website

https://www.deq.virginia.gov/permits/water/wetlands-streams-vwp

DEQ
VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

Permits Laws & Regulations Our Programs Topics of Interest Get Involved

Wetlands & Streams - VWP

- + Surface Waters - VPDES
- + WASTE
- + RENEWABLE ENERGY
- + PUBLIC NOTICES
- LOCAL GOVERNMENT GUIDANCE
- VIRGINIA PERMIT TRANSPARENCY AND PERMITTING ENHANCEMENT AND EVALUATION PLATFORM

disturbing a wetland or stream by clearing, filling, excavating, draining or ditching. Applications are made through the Joint Permit Application process, which covers both federal and state review.

- Program News** +
- Activities that Need a VWP Permit** +
- Activities that do not Need a VWP Permit** +
- Types of VWP Permits** +
- Related Permits** +
- Surface Water Delineations** +
- How to Apply for a VWP Permit** +
- Laws and Regulations** +

[Compensation Required](#)

- [VWP Checklist 3 - IP](#)
- [VWP Checklist 4 - SPGP](#)
- [VWP Checklist 5 - GP 45-Day Auto Coverage](#)
- [VWP Checklist 6 - Open Water Exclusion](#)
- [VWP Checklist 7 - Open Water No Compensation Required](#)

Resources

- [VWP Program](#)
- [Surface Water Withdrawal](#)
- [Stormwater and E&S](#)
- [Chesapeake Bay Program](#)
- [WetCAT](#)

United States Army Corp of Engineers

The [U.S Army Corps of Engineers](#) (USACE) issues Nationwide Permits (NWP) and Regional Permits (RPs) to authorize certain activities that require Department of the Army permits under Section 404 of the Clean Water Act and/or Section 10 of the River and Harbor Act of 1899. Section 404(e) of the Clean Water Act states that NWPs and other general permits authorize activities that "will cause only minimal adverse environmental effects when performed separately and will have only minimal cumulative adverse effects on the environment." NWPs and RPs can be issued for a maximum five-year period and must be renewed prior to expiration.

The USACE has general permits called Nationwide Permits for projects with minimal impacts. The Norfolk District of the USACE also has Regional Permits for types of projects specific to their district with minimal impacts. When projects do not qualify for a USACE General Permit, a USACE Individual Permit can be requested. For additional information about USACE Permits, visit the website for the [Norfolk District Regulatory](#) program.

As the certifying authority, DEQ provides a Section 401 Water Quality Certification (WQC) decision for USACE Nationwide permits, and Regional permits. DEQ can also provide a WQC decision by issuing a VWP permit (§ 62.1-44.15:20.D).

- [DEQ's Final Section 401 WQC for Regional Permit RP-15](#)
- [DEQ's Final Section 401 WQC for Regional Permit RP-01](#)
- [DEQ's Final Section 401 WQC for Regional Permit RP-11](#)
- [DEQ's Final Section 401 WQC for Regional Permit RP-22](#)
- [DEQ's Final Section 401 WQC for 2021 and 2022 Nationwide Permits](#) (December 21, 2020)
- [Clean Water Act \(CWA\) Section 401 Certification Compliance worksheet](#) (April 1, 2022)

Nationwide Permit 27: Aquatic Habitat Restoration

DEQ 401 WQ Certification

1. Compensatory mitigation sites – Compensation required for surface water impacts shall be debited from the bank's or in-lieu fee program's mitigation credits.
2. Natural stream channel design methods required
 - a) Other approaches are currently accepted / under review (ie. Beaver Dam Analog)
3. Requires monitoring for performance of stream work
 - a) As-Built Report
 - b) Monitoring Reports (years 1,2,3,5,7 and 10 - default)

DEQ 401 WQ Certification – General Conditions



Nationwide Permits (NWP) Effective February 25, 2022
 Clean Water Act (CWA) Section 401 Certification Compliance
 (INITIAL ALL THAT APPLY)

_____ I am applying for written verification from the USACE of one or more of the following Nationwide Permits (NWP): 1, 2, 9, 10, 24, and 32. As the VDEQ waived §401 Water Quality Certification for these NWPs, no further action needed.

_____ I am applying for written verification from the USACE of NWP 17. As the DEQ denied General §401 Certification for this NWP, I understand that I must apply to the VDEQ for an Individual §401 Water Quality Certification decision.

_____ I am applying for written verification of one or more of the following NWPs: 4, 5, 6, 7, 8, 11, 15, 19, 20, 23, 25, 28, 30, 31, 34, 35, 37, 38, 41, 45, 46, 49, 53, and 54. PLEASE SELECT ONE OF THE FOLLOWING.

_____ I attest that my project complies/will comply with all of the VDEQ's General §401 Water Quality Certification Conditions (A.1-A.12) listed in Appendix A.

OR

_____ I am applying to the VDEQ for a VWP Permit or Coverage decision and/or an Individual §401 Water Quality Certification decision.

_____ I am applying for written verification of one or more of the following NWPs: 3, 13, 14, 16, 18, 22, 27, 33, 36, 59. PLEASE SELECT ONE OF THE FOLLOWING.

_____ I attest that my project complies/will comply with all of the NWP-specific, General §401 Water Quality Certification Conditions (A.1-A.12) listed in Appendix A., and impact thresholds.

OR

_____ I am applying to the VDEQ for a VWP Permit or Coverage decision and/or an Individual §401 Water Quality Certification decision.

 Applicant/Agent Signature and Date

 Project Name

_____ I am applying for written verification of one or more of the following NWPs: 3, 13, 14, 16, 18, 22, 27, 33, 36, 59. PLEASE SELECT ONE OF THE FOLLOWING.

_____ I attest that my project complies/will comply with all of the NWP-specific, General §401 Water Quality Certification Conditions (A.1-A.12) listed in Appendix A.), and impact thresholds.

OR

_____ I am applying to the VDEQ for a VWP Permit or Coverage decision and/or an Individual §401 Water Quality Certification decision.

 Applicant/Agent Signature and Date

 Project Name

DEQ 401 WQ Certification – General Conditions

1. All waters are subject to federal permitting
2. No work under recorded site protection for compensatory mitigation
3. No significant impairment of state fish and wildlife resources
4. No invasive species used for replanting
5. No stormwater management constructed in a stream
6. Provide compensation for unavoidable impacts greater than 1/10 acre or 300 LF
7. Proof of nationwide permit coverage
8. Prevent spills of fuels and lubricants in to state waters & report fish kills
9. Minimize impacts on instream beneficial uses
10. Fill material free and clean of contaminants
11. Restore temporary disturbances to preexisting conditions
12. Stream grading work will be conducted in the dry

Success Criteria



Performance standards for Stream Restoration

- 401 Monitoring Requirements – General (site specific basis)

27-3. Performance monitoring shall be conducted for projects authorized by NATIONWIDE PERMIT 27.

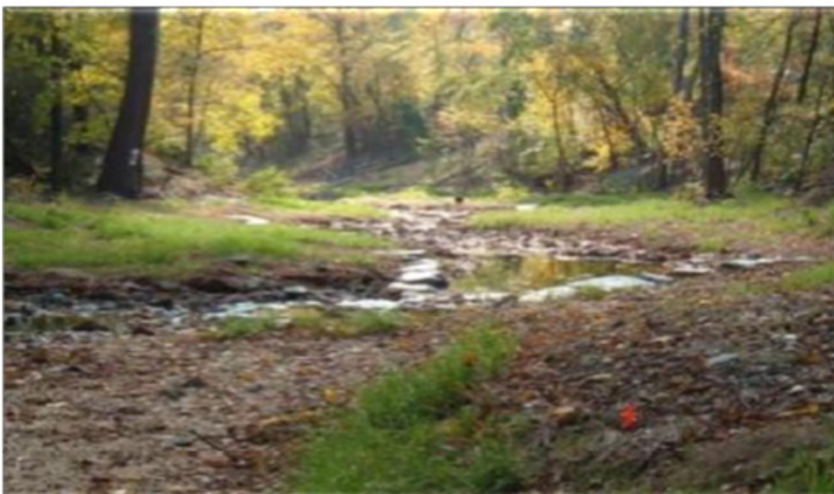
a. Reports shall be submitted with the as-built during post-construction monitoring years, at a frequency and duration adequate to observe performance according to project objectives. If there is no monitoring schedule otherwise specified, then an as-built and a minimum of five years of annual post-construction monitoring will be required.

b. The as-built report may include final grade topographic surveys (plan, profile, and cross sections, as appropriate, and approved by DEQ), final location of all planted riparian buffer vegetation (as appropriate and approved by DEQ), site photographs, and a discussion of project design versus as-built conditions.

c. As approved by the Department of Environmental Quality, each post-construction monitoring report may include comparison of as-built to monitoring year surveys (plan, profile, and cross sections, as appropriate), vegetation surveys (as appropriate), site photographs/ and a discussion of project performance.

CBP APPROVED MEMO

**Recommended Methods to Verify Stream Restoration
Practices Built for Pollutant Crediting
in the Chesapeake Bay Watershed**



**Submitted By:
Stream Restoration Group 1: Verification**

**Josh Burch, Scott Cox, Sandra Davis,
Meghan Fellows, Kathy Hoverman, Neely Law,
Kip Mumaw, Jennifer Rauhofer, Tim Schueler and Rich Starr**

**Approved by the Urban Stormwater Work Group
of the Chesapeake Bay Program**

Date: June 18, 2019

Table 4 Defining Loss of Pollutant Reduction Function for Protocol 1 (Prevented Sediment)

Criteria for Loss	Key Visual Indicators
Evidence of bank or bed instability such that the project delivers more sediment downstream than designed, as defined by exposed soils/fresh rootlets	<ul style="list-style-type: none"> • Bank erosion (e.g., exposed bare earth or undercutting bank) • Departure of more than 20% from average post-construction design bank height ¹ • Incised channel, as indicated by loss of defined pools and riffles and/or presence of an active head cut • Flanking or scour of in-channel structures • Failure or collapse of allowable bank protection practices • Less than 80% ground or canopy cover in the restoration zone ²

¹ as measured at riffles from the project as-built drawing, preferably from pre-designated control sections established at its most vulnerable locations
² depending on the long-term vegetative community objectives established for the project, may be expressed as a measure of exposed surface soil (>20%) or canopy cover (<80%)



Recommended Methods to Verify Stream Restoration Practices Built for Pollutant Crediting in the Chesapeake Bay Watershed June 18, 2019.

Table 5 Defining Loss of Nitrogen Reduction Function for Protocol 2
(Denitrification in the Hyporheic Box)

Criteria for Loss	Key Visual Indicators
Evidence that the reach is no longer fully meeting the design assumptions for expanding the hyporheic box (such as when channel incision reduces access to hyporheic zone)	<ul style="list-style-type: none"> • Departure of more than 20% from average post-construction design bank height ¹ • Observable aggradation in streambed (as measured by embeddedness, loss of riffles or bed heterogeneity or excessive deposition, such as lateral and mid-channel bars) • Less than 80% ground or canopy cover ² found in the project's designed hyporheic zone ³ • Stream de-watering (lack of any observable baseflow in the stream channel)

¹ as measured at riffles from the project as-built drawing, preferably from pre-designated control sections established at its most vulnerable locations
² depending on the long-term vegetative community objectives established for the project, may be expressed as a measure of exposed surface soil (>20%) or canopy cover (<80%)
³ usually a short distance from the edge of the stream to the top of bank (and occasionally extending into the floodplain). The location of the transects are typically shown on the as-built or project monitoring plan

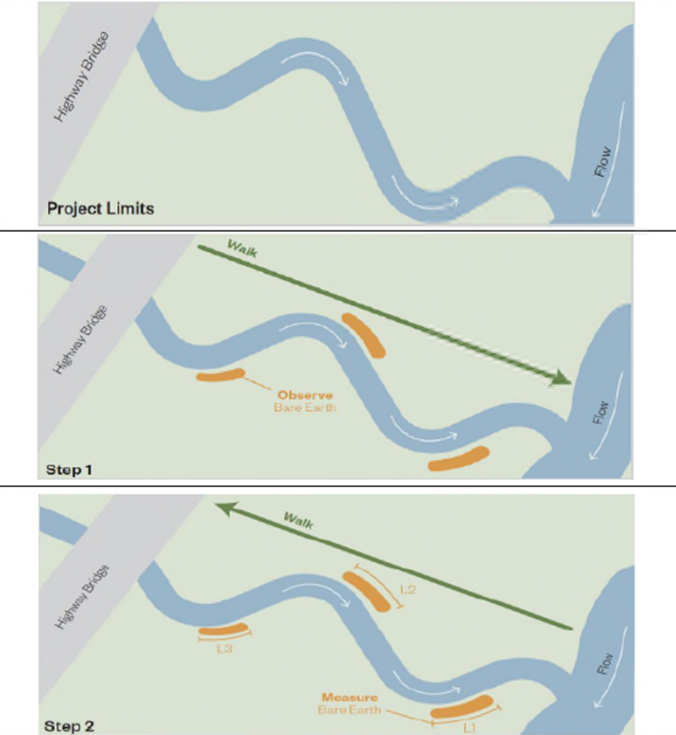


Recommended Methods to Verify Stream Restoration Practices Built for Pollutant Crediting in the Chesapeake Bay Watershed June 18, 2019.

Table 6 Defining Loss of Pollutant Reduction Function Loss for Protocol 3 (Floodplain Reconnection)	
Criteria for Loss	Key Visual Indicators
Channel incision or floodplain sediment deposition increases effective bank height, thereby reducing intended annual stream flow volume diverted to floodplain	<ul style="list-style-type: none"> • Departure of more than 20% from average post-construction design bank height ¹ or presence of active head cuts • Features used to divert flows to or from floodplain are obstructed and no longer work • No evidence of floodplain retention, as signified by a lack of sediment deposition, terraces, wrack-lines or leaf clumps in floodplain • Unable to meet intended wetland or tree canopy cover targets with the project floodplain ²
<p>¹ as measured at riffles from the project as-built drawing, preferably from pre-designated control sections established at its most vulnerable locations.</p> <p>² measured from the edge of the stream across the reconnected portion of the floodplain, as shown in the as-built drawing or project monitoring plan. Cover is expressed as the fraction of exposed surface soil in the designed habitat area, and if the designed vegetative community allows for it, tree canopy cover.</p>	

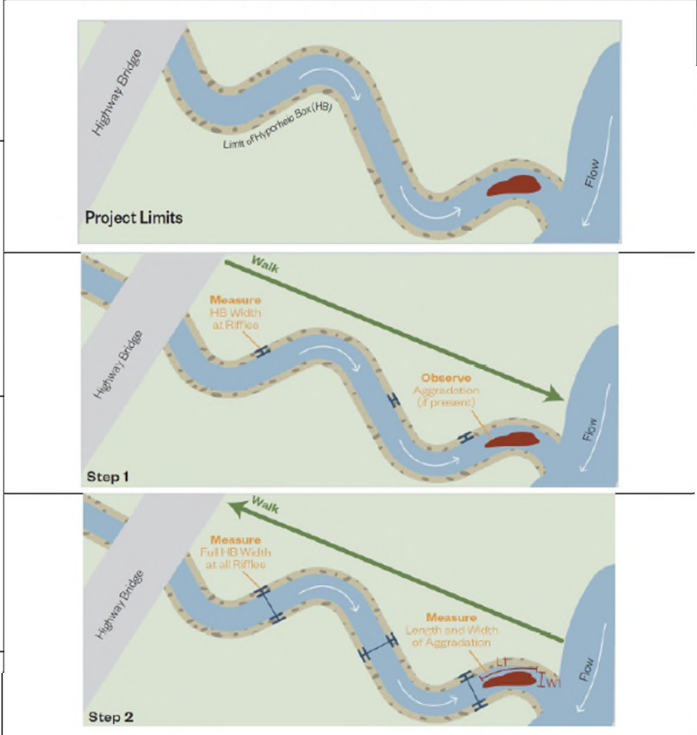


Figure 2:
Fieldwork for Inspecting Projects to Verify Protocol 1 Performance



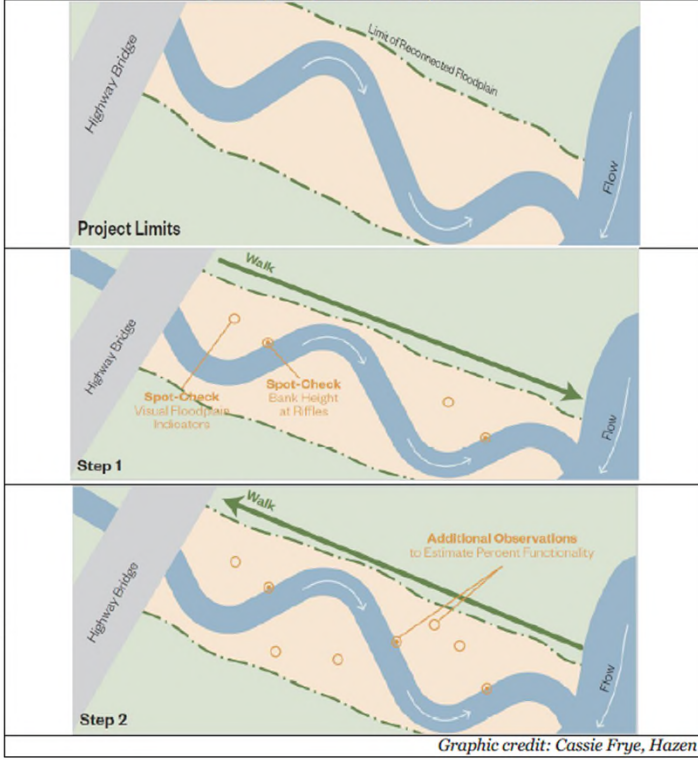
Graphic credit: Cassie Frye, Hazen

Figure 3:
Fieldwork for Inspecting Projects to Verify Protocol 2 Performance



Graphic credit: Cassie Frye, Hazen

Figure 4:
Fieldwork for Inspecting Projects to Verify Protocol 3 Performance



Graphic credit: Cassie Frye, Hazen

Section 6: Thresholds for Defining Management Actions

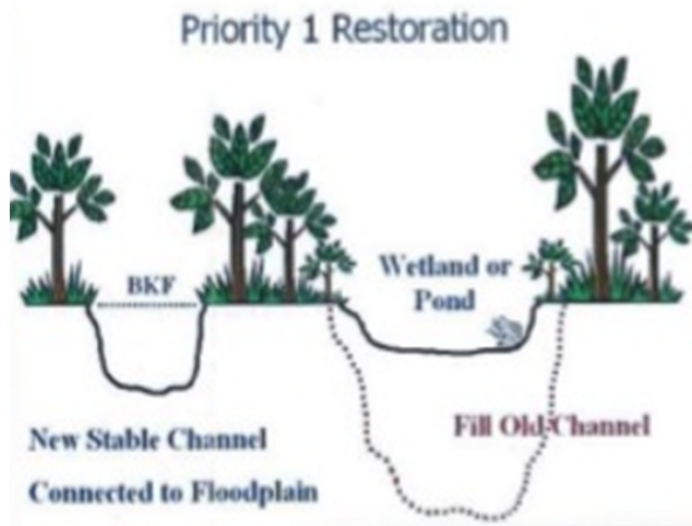
The project is analyzed to determine if the degree of change, relative to the original design, is severe enough to warrant management action (Table 7). All stream restoration projects fall into one of three possible categories:

1. Functioning (Pass)
2. Showing Major Compromise (Action Needed)
3. Project Failure (Fail)

Table 7: Framework for Relating Reach Conditions to Management Decisions			
<i>Status</i>	<i>% of Failing Project Reach</i>	<i>Inspections</i>	<i>Management Actions</i>
<i>Functioning or Showing Minor Compromise</i>	0 to 10%	Re-inspect in 5 years	None Needed Credit Renewed for 5 Years
<i>Showing Major Compromise</i>	20 to 40%	Conduct immediate forensic investigation to identify cause(s)	Do project maintenance and repairs, as warranted
<i>Project Failure</i>	50% or more	Lose credit and abandon the project or reconstruct a new stable channel	

Current issues in Virginia Stream Restoration permitting

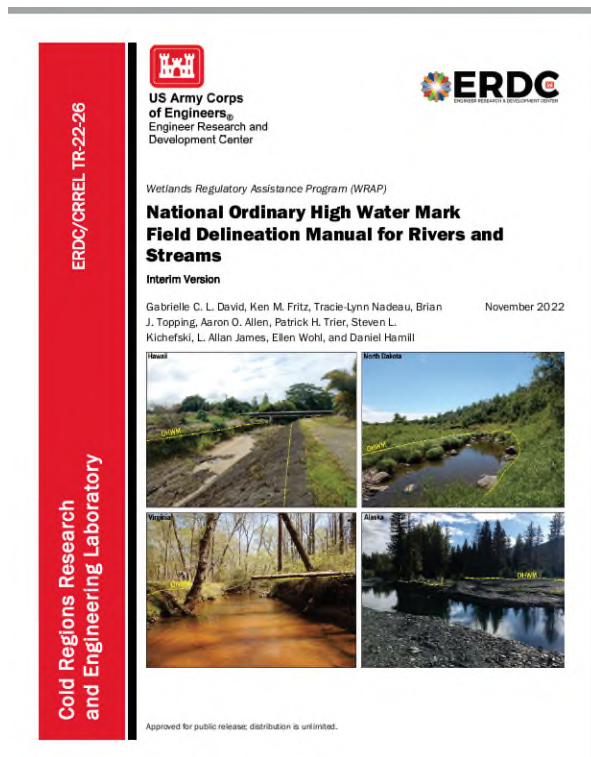
1. FEMA No Rise restrictions driving Priority 2 designs
 - Increase in avoidable loss of mature trees



Current issues in Virginia Stream Restoration permitting

1. Natural Channel Design use stated in Virginia's 401 NW 27-2
2. Currently other options in review.
 - Beaver Dam Analogs
 - Stage 0
 - Legacy Sediment
 - Combination of appropriate measures valid within appropriate valley type

Current issues in Virginia Stream Restoration permitting



- Jurisdictional determinations
 - If not covered by Nation Wide permit your site may require VWP...

[ERDC Knowledge Core: National Ordinary High Water Mark Field Delineation Manual for Rivers and Streams : Interim Version \(dren.mil\)](https://www.dren.mil/ERDC-Knowledge-Core/National-Ordinary-High-Water-Mark-Field-Delineation-Manual-for-Rivers-and-Streams-Interim-Version)

Questions?



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