RECOMMENDATIONS FOR IMPROVING THE APPLICATION OF THE PREVENTED SEDIMENT PROTOCOL

WQGIT – DECEMBER 9, 2019

REVISITING STREAM RESTORATION

The USWG formed 4 groups to revisit the stream restoration EPR:

- Group 1: Verifying Stream Restoration Practices
- Group 2: Outfall and Gully Stabilization Practices
- Group 3: Establishing Standards for Applying Protocol 1
- Group 4: Adjusting Protocol 2/3 to Capture Floodplain Restoration

BACKGROUND – NEED FOR GROUP 3

- One of the fastest growing BMPs – hundreds of miles in the pipeline
- Several key concerns based on past 5 years of implementation experience:
  - Over-reliance on default rates
  - Need for a clear "bank armoring" definition
  - Need for guidance on monitoring and modeling methods to improve consistency across practitioner community

BACKGROUND - HISTORY

- Group was recommended at June 2018 joint meeting between USWG and SHWG
- Charge and Membership approved by USWG in Fall 2018
- Group 3 met six times between November and August
- Full Group consensus on recommendations

Table 1. Membership for Group 3	
Name	Affiliation
Drew Altland	RKK
Lisa Fraley-McNeal	Center for Watershed Protection
Joe Berg	Biohabitats
Rich Starr	Ecosystem Planning and Restoration
Josh Running	Stantec
Matt Meyers	Fairfax County, VA DPWES
Bill Brown	PADEP
Jeff White	MDE
Josh Burch	DOEE
Reid Cook	RES Consultants
Aaron Blair	EPA
Tess Thompson	Virginia Tech
Joe Sweeney	Water Science Institute

THE RECOMMENDATIONS

- Clear definition of bank armoring
- Emphasis on site-specific data collection
- Clear guidance for monitoring and modeling approaches
- Recommended ways of "calibrating" BANCS assessments

A FEW REMINDERS

- These are Bay guidelines… final authority on any and all regulatory/permitting issues remains with the appropriate local/state/federal agency
- Grandfathering Clause: Any new recommendations would not need to be in place until July 2021
  - This aligns with CBPO model "lock-down" period and prevents disruption of projects already under contract.

BANK ARMORING

Original EPR

- "Projects primarily designed to protect public infrastructure by bank armoring or rip rap do not qualify for a credit."

Group 3 Memo

- Reinforces EP statement on armoring for the sole purpose of infrastructure protection
- Narrative Definition of Bank Armoring
- Armoring techniques categories as Non-Creditable, Creditable with Limits, and Creditable
- Specific guidance on pollutant load discounts and calculation examples for each category
- Existing Qualifying Conditions still apply

NON-CREDITABLE

Non-Creditable	
Definition: Hard, permanent structures used to protect critical infrastructure and stabilize banks. Techniques are not consistent with long-term, comprehensive restoration approaches.	• Concrete Retaining Wall • Sheet Piling/ Planking • Gabion • Engineered Block Walls • A-Jacks • Dumped Rip Rap

- May not be used unless required for critical infrastructure protection
- Any length of banks using these techniques must be subtracted from total restored length
- May require mitigation to replace lost function

CREDITABLE WITH LIMITS

Creditable w/ Limits **Definition:** Large rock or boulder structures that harden a limited portion of a bank or bank toe in a localized area.	• Localized toe protection • Boulder Revetments • Non-biodegradable soil stabilization mats • Imbricated Rip Rap

- May be used on up to 30% of total bank length
- Any use over 30% is subtracted from final load reductions
- Should only be used in areas of high shear stress (outer bends, etc.)

CREDITABLE

Creditable **Definition:** Structures that mimic naturally occurring streambank materials, features that provide aquatic habitat function, and limited in-stream grade control.	• Root wad Revetments • Live stakes/coir logs • Soil lifts (if used with "soft" toe protection) • Riffle-weir series (including cobble in appropriate physiographic regions) • Berm-pool cascades • J-hooks and cross-veins

- No limitations on use
- Full credit provided

DEALING WITH THE DEFAULTS

Original EPR

- Nutrient Concentration Default Rates
- Bulk Density Example Being Used as Default
- Over-Use of Default Nutrient and Sediment Reductions

Group 3 Memo

- Site Specific Monitoring for Bulk-Density and Nutrient Concentration
- Recommended Field and Lab Methods
- Stronger language on need to use the Protocols
- Separate section on recommendations for planning level estimates

MONITORING GUIDANCE

Original EPR

- Allows for use of "alternative monitoring and modeling approaches" to estimate sediment loss along a proposed reach
- Allows monitoring to be used to demonstrate better pollutant removal than 50% efficiency

Group 3 Memo

- Describes Bank Pin Monitoring, Permanent Cross Sections and Bank Profile Methods
- Describes DEM Differencing Methods
- Provides guidance on monitoring necessary to demonstrate efficiencies higher than 50%

"CALIBRATING" BANCS

- Assessments should be performed by teams of two
- Focus on most sensitive parameters (bank height, root depth, bank angle)
- Develop BANCS manual, QAQC procedures and training program for the Chesapeake Bay
- BEHI, NBS and Bulk Density guidance docs included in appendices

TRACKING/REPORTING/VERIFICATION

- No changes to initial reporting requirements to CBPO
- Follows key visual indicators for prevented sediment outlined by Group 1

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	• 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%)	

RESPONSES TO COMMENTS

- Full partnership open comment period in September/October
- Comments Received from 5 Stakeholders, including EPA and WV DEP
- USWG Approved the Responses to Comments on October 15th
- WV Comment Regarding section on default rates will be resolved by WTWG/AgWG

DEFAULT RATES HISTORY

"At its January 25, 2012 research workshop, the Panel concluded that there was no scientific support to justify the use of a single rate for all stream restoration projects (i.e., the lb/ft/yr rates shown in Tables 2 and 3). Sediment and nutrient load reductions will always differ, given the inherent differences in stream order, channel geometry, landscape position, sediment dynamics, restoration objectives, design philosophy, and quality of installation among individual stream restoration projects." (SR EPR 2013)

- WTWG made decision to add default rates for "historic and non-conforming practices"

"The Panel recommends that the urban protocols can be applied to nonurban stream restoration projects, if they are designed using the NCD, LSR, RSC or other approaches, and also meet the relevant qualifying conditions, environmental considerations and verification requirements.

At the same time, the Panel agreed that certain classes of non-urban stream restoration projects would not qualify for the removal credit. These include:

- Enhancement projects where the stream is in fair to good condition, but habitat features are added to increase fish production (e.g., trout stream habitat, brook trout restoration, removal of fish barriers, etc.)
- Projects that seek to restore streams damaged by acid mine drainage
- Riparian fencing projects to keep livestock out of streams"

DEFAULT RATES MOVING FORWARD

- Recommendations would take effect July 1, 2021
- Group will stand by its recommendations regarding the use of default rates
- WTWG may choose to overrule and continue with or revise the default rate
- AgWG will tackle how to handle NRCS projects that do not meet the EPR and Group 3 qualifying conditions

QUESTIONS?

Alger Park Restoration
Courtesy: DOEE