



pennsylvania

DEPARTMENT OF ENVIRONMENTAL PROTECTION



Bureau of Waterways Engineering and Wetlands

Implementation of Act 162 of 2014 Riparian Buffer or Riparian Forest Buffer Equivalency Demonstration

March 11, 2015

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Tom Wolf, Governor

John Quigley, Acting Secretary

Agenda

1. Overview of Act 162
2. Impact and scope of Act 162
3. When is equivalency necessary?
4. Application Requirements
5. Demonstrating buffer equivalence
6. Implementation Schedule

What is Act 162 of 2014?

- Introduced as HB 1565
- Amended Pennsylvania Clean Streams Law (CSL)
 - New Section 402(c)
 - NPDES stormwater construction permit applicants may choose either to implement riparian buffers or riparian forest buffers OR to implement equivalent best management practices (BMPs) in certain cases
 - Requires offsetting buffers in certain cases
- Does not eliminate use of riparian buffers as a BMP

Scope of Act 162

- Proposed individual NPDES projects located within 150 feet of certain High Quality or Exceptional Value waters
- Does not apply to, nor change process in 25 Pa. Code § 102.14, for non-NPDES permits
 - ESCGP permits for oil and gas activities or
 - ESC permits for road maintenance and timber harvesting
- Does not affect voluntary riparian buffer programs; example CREP

Impacts on NPDES Permitting

- New § 402(c)(1) of CSL provides an alternative to mandatory riparian buffers or riparian forest buffers
- New § 402(c)(2) of CSL provides that when a buffer is not used and if earth disturbance is conducted within 100 feet of a surface water, offsetting is required

Equivalency Demonstration

- New § 402(c)(1)(ii)
- Applicants choosing not to implement the riparian buffer or riparian forest buffer, must make a demonstration that the BMPs that they will implement will be equivalent to the type of buffer required in 102.14(a)(1) and (2)
- Demonstration is both quantitative and qualitative in nature

Offsetting Policy

- New § 402(c)(2) triggered when applicant proceeds under § 402(c)(1)(ii)
- New § 402(c)(2) requires offsetting if a riparian buffer is not used as BMP and earth disturbance will occur within 100 feet of surface waters
- See Riparian Buffer or Riparian Forest Buffer Offsetting(Technical Guidance Document #310-2135-003)

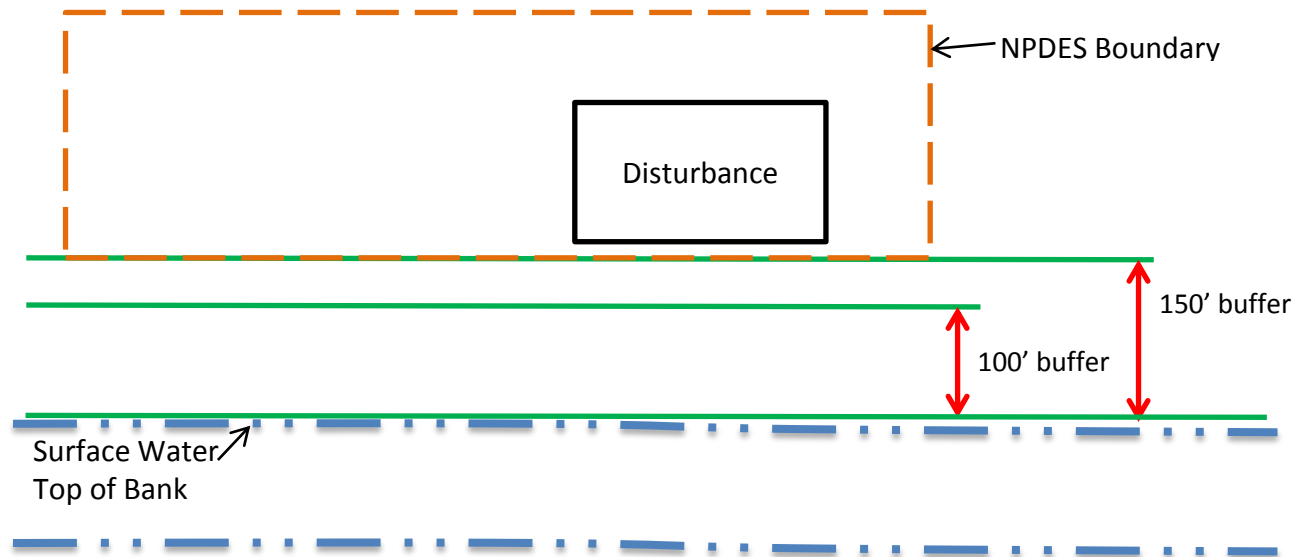
Coordination of Policies

- Policy documents are independent but related
 - Riparian Buffer or Riparian Forest Buffer Equivalency Demonstration (310-2135-002)
 - Riparian Buffer or Riparian Forest Buffer Offsetting (310-2135-003)
- Equivalency may be required when offsetting is not
- Offsets apply to any earth disturbance activities within 100' of surface waters

Applicability – Figure 1

Figure 1. Equivalency demonstration and offsetting not required

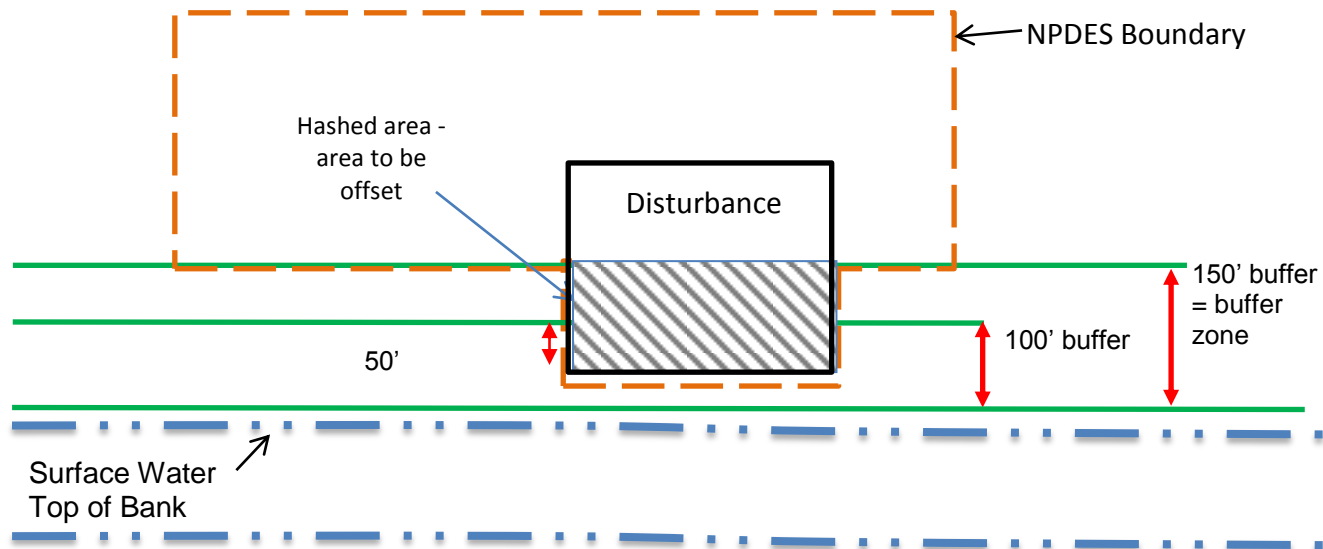
- The project involves one acre or more of earth disturbance and requires an NPDES stormwater construction permit.
- All earth disturbance activities are outside the buffer area.



Applicability- Figure 2

Figure 2. Both equivalency demonstration and offsetting required

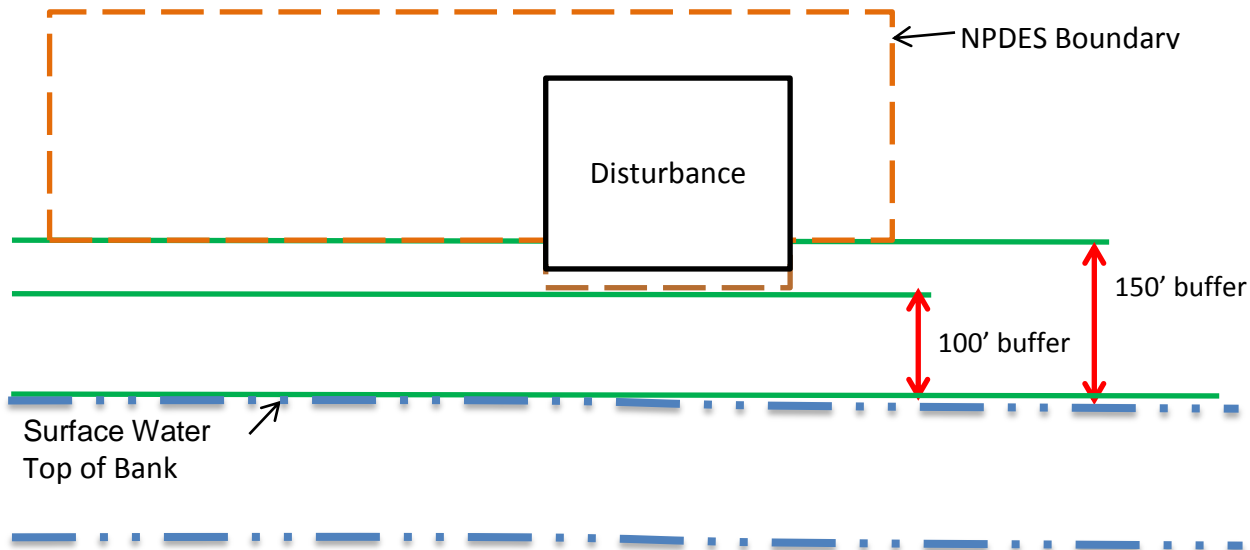
- The project involves a one acre or more of earth disturbance and requires an NPDES stormwater construction permit.
- Earth disturbance activities extend 50 feet into the 100 feet buffer area.
- Per Section 402(c)(2) of Act 162, offsetting is required and the replacement buffer is to be installed at a ratio of 1 to 1, with the minimum replacement buffer width being 100 feet.



Applicability- Figure 3

Figure 3. Equivalency demonstration required but offsetting not required

- The project involves one acre or more of earth disturbance and requires an NPDES stormwater construction permit.
- All earth disturbance activities are between 100 feet and 150 feet from the surface waters.



Application Requirements

- Pre-application meeting
- Complete & Technically Adequate Application
- Demonstration of Equivalency
 - Inclusion of worksheets 12,13,14,15
- Narrative on Buffer Function

Demonstration of Equivalency

- Step 1- Estimate pollutant load from disturbed areas of the site using Worksheet 12.
- Step 2- Calculate the pollutant load reductions for the site area with the proposed structural BMPs using Worksheet 13.
- Step 3- Estimate the increased pollutant load for the disturbed area within the riparian buffer or riparian forest buffer using Worksheet 14.

Demonstration (cont.)

- Step 4- Calculate the pollutant load reductions with the proposed structural BMPs using Worksheet 15.
- Step 5- Complete the narrative to show that BMPs used in the equivalency demonstration will be functionally equivalent to those of a riparian buffer or riparian forest buffer

Demonstration

	Riparian Buffer	Riparian Forest Buffer
Filtration of pollutants in runoff	<input type="checkbox"/>	<input type="checkbox"/>
Infiltration and maintenance of streamflow	<input type="checkbox"/>	<input type="checkbox"/>
Water quality maintenance	<input type="checkbox"/>	<input type="checkbox"/>
Habitat for wildlife and vegetation	<input type="checkbox"/>	<input type="checkbox"/>
Flood attenuation	<input type="checkbox"/>	<input type="checkbox"/>
Light control and water temperature moderation	<input type="checkbox"/>	<input type="checkbox"/>
Travel corridors for migration and dispersal	<input type="checkbox"/>	<input type="checkbox"/>
Ice damage control	<input type="checkbox"/>	<input type="checkbox"/>
Stream width	<input type="checkbox"/>	<input type="checkbox"/>
Food supply		<input type="checkbox"/>
Wood debris input		<input type="checkbox"/>
Support of aquatic food chains and webs as they relate to terrestrial food webs		<input type="checkbox"/>
Channel and shoreline stability/decrease in erosion		<input type="checkbox"/>
Reduced effects of storm events		<input type="checkbox"/>
Instream pollutant processing		<input type="checkbox"/>

Example

Worksheet 14 – Water Quality Analysis of Pollutant Loading from Disturbance in Buffer Area

Total Disturbed Area (AC)	2
Disturbed Area Controlled by BMPs (AC)	2

Existing Condition

Land Cover Classification	Pollutant			Cover (Acres)	Runoff Volume (AF)	Pollutant Load		
	TSS EMC (mg/l)	TP EMC (mg/l)	Nitrate-Nitrite EMC (mg/l as N)			TSS** (LBS)	TP** (LBS)	NO ₃ (LBS)
Forest	39	0.15	0.17	2	0.1574	16.58	0.07	0.07
Meadow	47	0.19	0.3					
TOTAL LOAD						16.58	0.07	0.07

Post-Development

Land Cover Classification	Pollutant			Cover (Acres)	Runoff Volume (AF)	Pollutant Load		
	TSS EMC (mg/l)	TP EMC (mg/l)	Nitrate-Nitrite EMC (mg/l as N)			TSS** (LBS)	TP** (LBS)	NO ₃ (LBS)
Pervious Surfaces	Forest	39	0.15	0.17				
	Meadow	47	0.19	0.3				
	Fertilized Planting Area	55	1.34	0.73				
	Native Planting Area	55	0.40	0.33				
	Lawn, Low-Input	180	0.40	0.44				
	Lawn, High-Input	180	2.22	1.46				
	Golf Course Fairway/Green	305	1.07	1.84				
	Grassed Athletic Field	200	1.07	1.01				
Impervious Surfaces	Rooftop	21	0.13	0.32				
	High Traffic Street/Highway	261	0.40	0.83				
	Medium Traffic Street	113	0.33	0.58				
	Low Traffic/Residential Street	86	0.36	0.47				
	Res. Driveway, Play Courts, etc.	60	0.46	0.47				
	High Traffic Parking Lot	120	0.39	0.60				
	Low Traffic Parking Lot	58	0.15	0.39	2	0.48	75.89	0.20
TOTAL LOAD						75.89	0.20	0.51
Pollutant Load increase (LBS) =						59.31	0.13	0.44

Pollutant Load increase (LBS) = Post development load – Pre-development load

*Pollutant Load = [EMC, mg/l] X [Volume, AF] X [2.7, Unit Conversion]

Example

Worksheet 15 – Pollutant Reduction Through BMP Applications*

*Fill this worksheet out for each BMP type with different pollutant removal efficiencies. Sum pollutant reduction achieved for all BMP types on final sheet.

BMP Type: Capture & Reuse

Disturbed Area Controlled by this BMPs (AC)	2
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Disturbed Area Controlled by this BMPs:

	Land Cover Classification	Pollutant			Cover (Acres)	Runoff Volume (AF)	Pollutant Load**		
		TSS EMC (mg/l)	TP EMC (mg/l)	Nitrate-Nitrite EMC (mg/l as N)			TSS** (LBS)	TP** (LBS)	NO ₃ (LBS)
Pervious Surfaces	Forest	39	0.15	0.17					
	Meadow	47	0.19	0.3					
	Fertilized Planting Area	55	1.34	0.73					
	Native Planting Area	55	0.40	0.33					
	Lawn, Low-Input	180	0.40	0.44					
	Lawn, High-Input	180	2.22	1.46					
	Golf Course Fairway/Green	305	1.07	1.84					
	Grassed Athletic Field	200	1.07	1.01					
Impervious Surfaces	Rooftop	21	0.13	0.32					
	High Traffic Street/Highway	261	0.40	0.83					
	Medium Traffic Street	113	0.33	0.58					
	Low Traffic/Residential Street	86	0.36	0.47					
	Res. Driveway, Play Courts, etc.	60	0.46	0.47					
	High Traffic Parking Lot	120	0.39	0.60					
	Low Traffic Parking Lot	58	0.15	0.39	2	0.48	75.89	0.20	0.51
	TOTAL LOAD TO THIS BMP TYPE							75.89	0.20
POLLUTANT REMOVAL EFFICIENCIES FROM APPENDIX A. STORMWATER MANUAL (%)							100	100	100
POLLUTANT REDUCTION ACHIEVED BY THIS BMP TYPE (LBS)							75.89	0.20	0.51
POLLUTANT REDUCTION ACHIEVED BY ALL BMP TYPES (LBS)							75.89	0.20	0.51
REQUIRED REDUCTION from WS 14 (LBS)							59.31	0.13	0.44

*Pollutant Load = [EMC, mg/l] X [Volume, AF] X [2.7, Unit Conversion]

▶ Monitoring, Inspection and Reporting

- All requirements of Chapter 102 remain
 - Erosion and sedimentation control, post construction stormwater management, deeding restrictions, inspections
- Special conditions, if necessary, will be inserted into the permit in Part C

Monitoring, Inspection and Reporting

Project Contact Person: _____	
Organization: _____	
Email: _____	Phone #: _____
PROJECT IDENTIFICATIONS	
Project Start Date: _____	
Project Name: _____	
Project Address: _____	
County: _____	
Stream Name: _____	
Center of Site	
104 Watershed Code: _____	Latitude: _____ Longitude: _____
Water Body: Stream	Wetland River Lake Pond Dam
TMDL/Impairment Status of Waterbody: _____	
Water Use Designation: http://www.pacode.com/secure/data/025/chapter93/chap93toc.html	
BUFFER POTENTIAL TO BECOME A MATURE FOREST	
Reason for Buffer: _____	Buffer Permanently Protected: Yes No
Riparian Forest Buffer Protection Agreement: Yes No	Protection Status: _____
Condition of Stream Bank: Laid Back Undercut Bare Forested Needs Work Other	
Health of Buffer: Poor Average Good Excellent	
State After Project Completion: New Enhancement Existing	
% Canopy Cover (Total Ground Area Shaded by Woody Vegetation): _____	
% of Ground Cover in Buffer – Total Area Covered by Non-Woody Vegetation: _____	
BUFFER CHARACTERISTICS	
Adjacent Land Use: Herbaceous/Shrubs Farm Development Forest	
Buffer Type: Forest Tree/Shrubs Grasses Fencing Only Fencing and Trees	
Buffer Length 1 st Side (Facing Downstream): _____	Buffer Width 1 st Side: _____
Buffer Length 2 nd Side (Facing Downstream): _____	Buffer Width 2 nd Side: _____
Funding Source: _____	

Implementation

- Published as Interim Final in *PA Bulletin*
 - *Publication March 21st 2015*
- Department's website: www.dep.state.pa.us
 - “Public Participation Center” → Public Comments
→ Technical Guidance”
- *60-day public comment period*
 - *Opens March 21st 2015*
 - *Closes May 20th 2015*
- Potential Future Rulemaking



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Questions?

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