Overview of the Savannah District's Stream Credit Generation Methodology

Justin Hammonds

Mitigation Liaison, Regulatory Division

Savannah District

March 28, 2014

US Army Corps of Engineers
BUILDING STRONG™

Agenda

- 2008 Mitigation Rule's Discussion of "Credits"
- Background on the Savannah District's Stream Mitigation Bank Program
- Overview of the Savannah's 2004 SOP for Stream Credit Generation
- Case example – East Swift Creek Mitigation Bank

Definition of a “Credit”

- A **credit** means a unit of measure *(e.g.,* a functional or areal measure or other suitable metric) representing the accrual or attainment of aquatic functions at a compensatory mitigation site. The measure of aquatic functions is based on the resources restored, established, enhanced, or preserved. **(§ 332.2)**

- The principal units for credits and debits are **acres, linear feet, functional assessment units, or other suitable metrics** of particular resource types. Functional assessment units or other suitable metrics may be linked to acres or linear feet. **(§ 332.8(o)(1))**

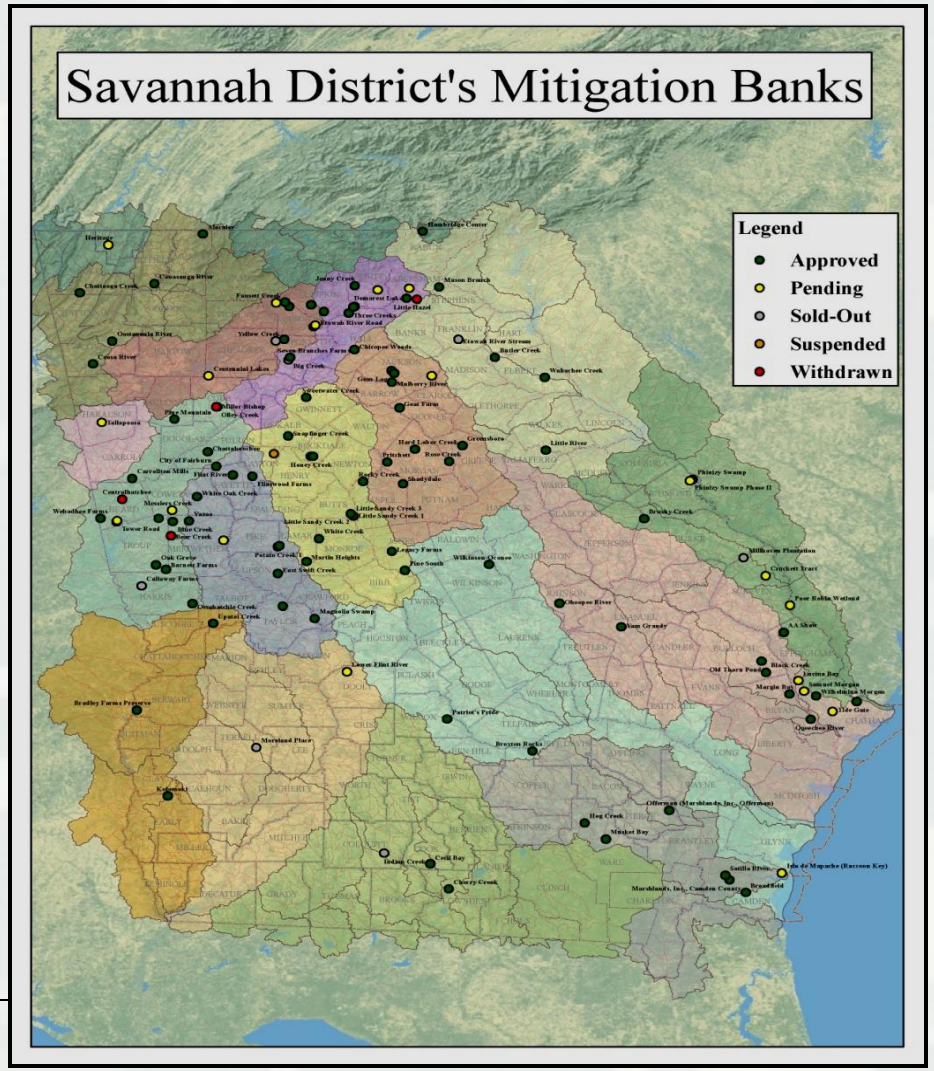
How should a “Credit” be calculated?

- Where practicable, an **appropriate assessment method** (e.g., hydrogeomorphic approach to wetlands functional assessment, index of biological integrity) **or other suitable metric** must be used to assess and describe the aquatic resource types that will be restored, established, enhanced and/or preserved by the mitigation bank or in-lieu fee project. **(§ 332.8(o)(2))**

- The number of credits must **reflect the difference between pre- and post-compensatory mitigation project site conditions**, as determined by a functional or condition assessment or other suitable metric. **(§ 332.8(o)(3))**

Background on Savannah District's Stream Mitigation Banking Program

- Stream mitigation banking first originated in 2000 in Georgia.
- Currently, we have 75 stream mitigation banks servicing our 17 primary service areas.
- Over 90% of these banks have generated stream credits based upon on our 2004 stream credit calculation.



2004 SOP - Stream Credit Generation

- Comprised of two worksheet modules.
  - In-Channel Credit
  - Riparian Buffer Credit

- Both equations are algebraic in form, with linear feet being the driving coefficient.

- Credit can be generated for Restoration, Enhancement, and Preservation of both the Channel and Riparian Buffer.

- Stream credits in Savannah District are generic, as we do not differentiate stream type/class.

In-Channel Credit – First Step Demonstrate Impairment

Rocky Branch, Clarksville, Georgia

Unnamed trib. to Noonday Creek, Kennesaw, Georgia

In-Channel Credit – Second Step Type of Treatment

Worksheet for Credit Generation – Channel Restoration

Factors	Options				
Net Benefit	All proposals must include at least a 25' riparian buffer on both banks Buffers ≥50' +2'/%slope also may generate riparian credit (use see buffer worksheet)				
	Streambank Stabilization	Structure Removal	Stream Channel Restoration and Stream Relocation		
	2.0	4.0 to 8.0	Priority 4 1.0	Priority 3 4.0	Priority 1 or 2 8.0
Monitoring/ Contingency	Minimal (Required) 0	Moderate 0.3	Substantial 0.4	Excellent 1.0	
Priority Area	Tertiary 0.05	Secondary 0.2	Primary 1.0		
Control	RC on restored channel and 25' buffer (Required) 0.1	Required RC + CE or GPP 0.3	Required RC + CE + GPP 0.5		
Mitigation Timing	Schedule 3 0	Schedule 2 (Use for all banks) 0.1	Schedule 1 0.5		

Riparian Buffer Credit – Replanting

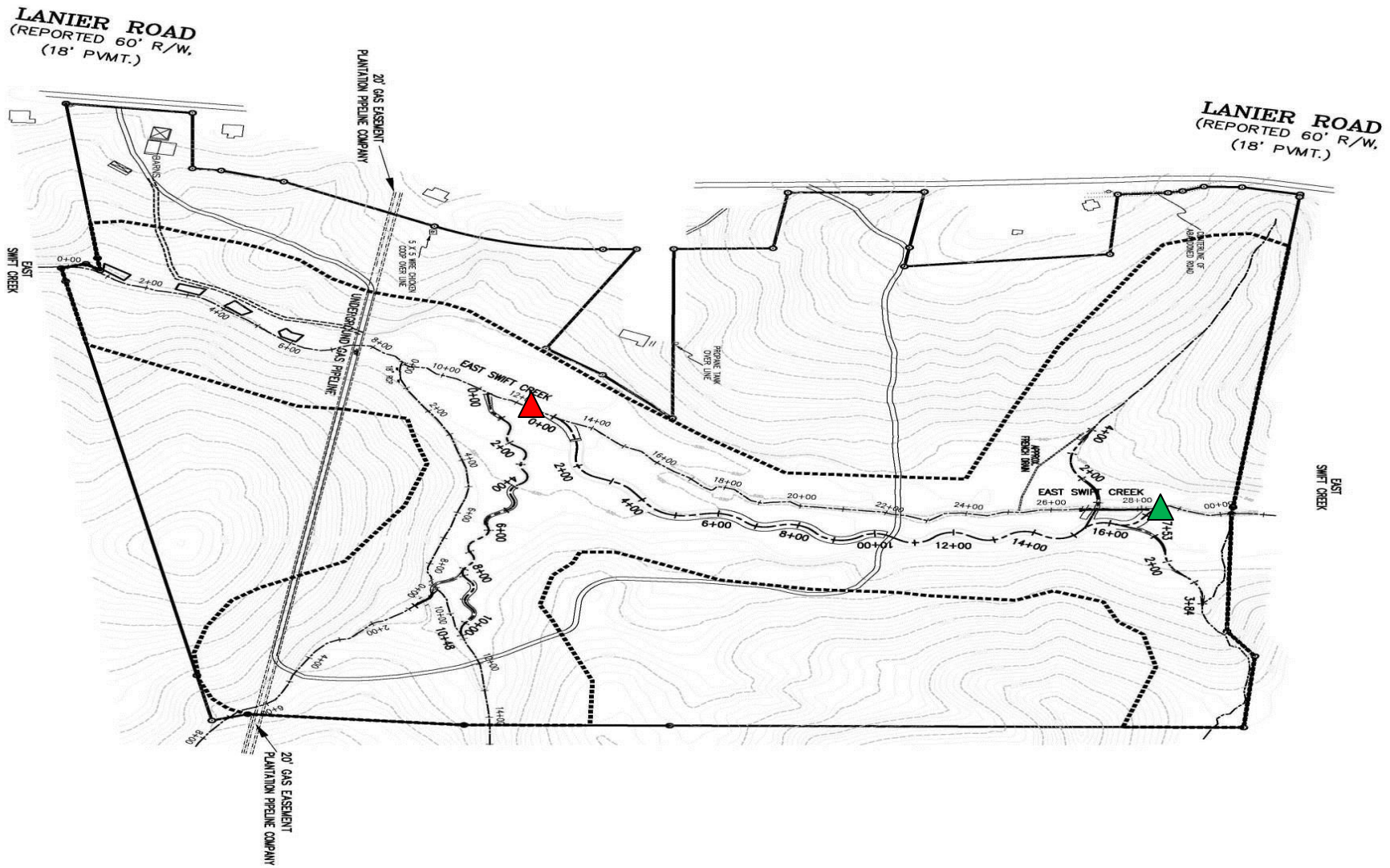
Riparian Buffer Credit – How Much Planting?

	Width of Buffer	71-100% of Proposed Buffer will be Planted (Extensive Restoration)	41-70% of Proposed Buffer will be Planted (Substantial Restoration)	10-40% of Proposed Buffer will be Planted (Moderate Restoration)	Riparian Habitat Improvement	The buffer does not Require Planting (Preservation)
Minimum Buffer Width on One Side of Stream) (MBW = 50' + 2'/% slope)	4X MBW	2.0	1.6	0.8	0.4	0.3
	3X MBW	1.5	1.2	0.6	0.3	0.2
	2X MBW	1.0	0.8	0.4	0.2	0.1
	1X MBW	0.3	0.2	0.1	0	0

Worksheet for Credit Generation - Riparian Restoration/Preservation

Factors	Options			
Net Benefit - select value for each stream side	**Riparian Restoration/Habitat Improvement/Preservation Factors – MBW = Minimum Buffer Width = 50'+2'/% slope Select Values from Table 1**			
System Credit Condition 1	**Condition 1: MWB restored or protected on both streambanks To Calculate Value: Average of the Net Benefit values for Stream Side A and Stream Side B**			
System Credit Condition 2	**RC Placed on Channel 0.05**		**RC and CE Placed on Channel 0.1**	
M&C - select value for each stream side	**Mimimal (Required) 0**	**Moderate 0.2**	**Substantial 0.25**	**Excellent 0.3**
Priority Area	**Tertiary 0.05**	**Secondary 0.2**	**Primary 0.7**	
Control	**RC on restored channel and 25' buffer (Required) 0.1**	**Required RC + CE or GPP 0.3**	**Required RC + CE + GPP 0.5**	
Mitigation Timing - select value for each stream side	**Schedule 3 0**	**Schedule 2 (Use for all banks) 0.05**	**Schedule 1 0.15**	

East Swift Creek MB - Example



East Swift Creek MB
Channel Restoration Credit Generation

Factors	East Swift Creek	Reach 2	Reach 3	Reach 4
Net Benefit	8.00			
Monitoring/Contingency (at least minimal M&C required)	1.00			
Priority Area	0.05			
Control (at least a RC required)	0.10			
Mitigation Timing	0.10			
Sum of Factors M =	9.25			
Feet Stream in Reach (do not count each bank separately) LF =	1,752			
M X LF =	16,206			

Total Channel Restoration Credits Generated = 16,215.26

East Swift Creek MB
Riparian Restoration Credit Generation

Factors		East Swift Cr.	Reach 2	Reach 3	Reach 4
Net Benefit	Stream Side A	2.00			
	Stream Side B	1.60			
System Credit: Condition 1 Met		1.80			
System Credit: Condition 2 met (applicable only if Condition 1 met)		0.05			
M&C (at least minimal M&C required)	Stream Side A	0.30			
	Stream Side B	0.30			
Priority Area		0.05			
*Control (at least a RC required)		0.10			
*Mitigation Timing (none for riparian preservation)	Stream Side A	0.05			
	Stream Side B	0.05			
Sum of Factors M =		6.30			
Linear Feet of Stream Buffered (do not count each bank separately) LF =		1,752			
M X LF =		11,037.60			

Total Riparian Restoration Credits Generated = 11,037.60

Total Credits Generated = 27,252.86

BUILDING STRONG®

Questions?

Contact Information:
Email – justin.a.hammonds@usace.army.mil
Phone – (770) 904-2365