MOORES RUN
REACH 07 – FIELD DATA

MATCH LINE
bar w/ lots of cobble/boulder size deposition-
material made up of natural rocks & concrete.
cut off channel
w/ bedrock bed
1" = 50'
Reach 8
Reach 7 (Fm B)
Reach 6
Moores Run Drive
BK#23 (con't)
BK#24 (con't)
BK#25
BK#26
BC XS14
MATCH LINE
40 0 40 80 120 160 Feet
1" = 50'

2

2

MOORES RUN - REACH 07

Width (ft)	Cross-Sectional Area (Sq.ft)	Mean Depth (ft)	Maximum Depth (ft)	Wetted Perimeter (ft)	Hydraulic Radius (ft)
45.00	107.95	2.40	4.68	47.55	2.27
8.80	3.42	0.39	0.64	8.95	0.38

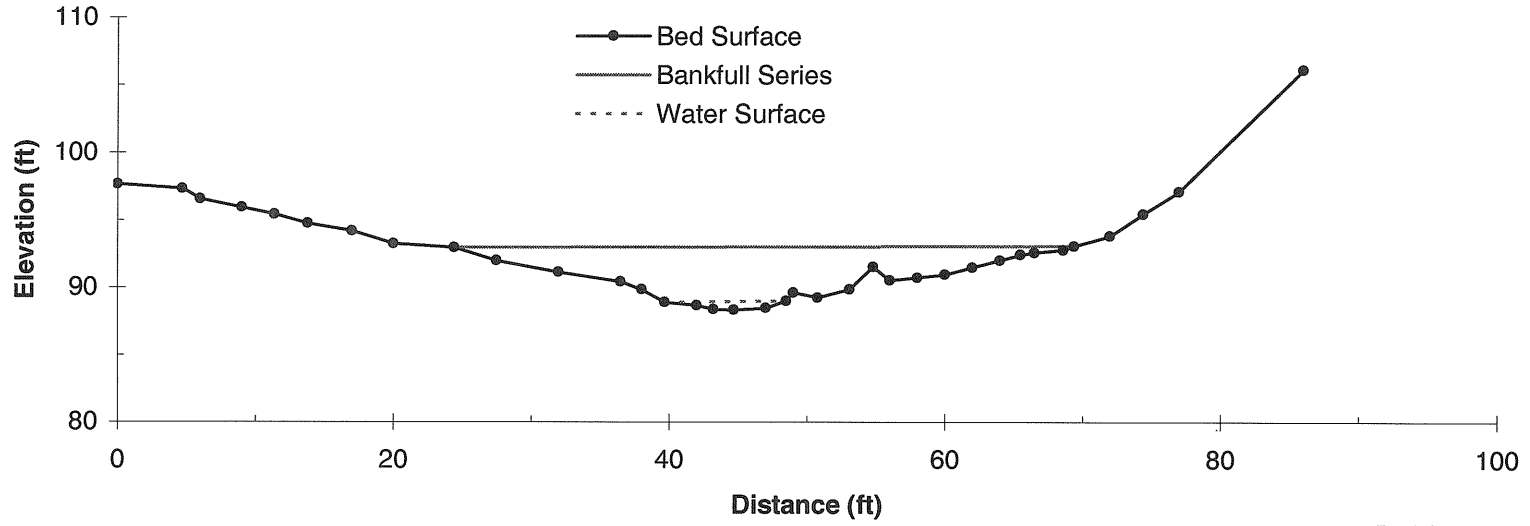
STREAM: Moores Run CREW: FWS (RRS, KDR)
REACH & XS: Reach 07 - USFWS XS E (Riffle) DATA: SLD
DATE: 10/07/03 QA/QC: KR

Bankfull
Water Surface

CROSS SECTION IS NOT MONUMENTED, AND WAS SURVEYED FOR CLASSIFICATION PURPOSES. ELEVATIONS ARE RELATIVE.

Identifier	Distance (ft)	Elevation (ft)	Identifier	Distance (ft)	Elevation (ft)
GS	0.0	97.66	CS	43.2	88.36
GS	4.7	97.34	CS	44.7	88.32
GS	6.0	96.57	CS	47.0	88.46
GS	9.0	95.93	REW	48.5	89.01
GS	11.4	95.42	CS	49.0	89.62
GS	13.8	94.73	CS	50.8	89.25
GS	17.0	94.18	CS	53.1	89.87
GS	20.0	93.24	CS	54.8	91.54
LBF	24.4	92.96	CS	56.0	90.51
SL BRK	27.5	91.99	CS	58.0	90.73
SL BRK	32.0	91.13	CS	60.0	90.94
SL BRK	36.5	90.42	CS	62.0	91.49
CS	38.0	89.84	SL BRK	64.0	92.01
LEW	39.7	88.89	SL BRK	65.5	92.40
CS	42.0	88.68	GS	66.5	92.58

Identifier	Distance (ft)	Elevation (ft)
GS	68.6	92.77
RBF	69.4	93.05
SL BRK	72.0	93.79
GS	74.4	95.43
GS	77.0	97.09
TOP TERR	86.0	106.09



U.S. Fish and Wildlife Service
Chesapeake Bay Field Office

Path:\Moores Run\Data\Cross Sections
File: Reach 07 - USFWS XS E (Not Monumented)
01/29/04

Moores Run
Reach 07
USFWS Cross Section E
(Stream Feature: Riffle)

Cross-Section Monument Map

CROSS SECTION NOT MONUMENTED

MOORES RUN - REACH 07

BANK PROFILE AND BANK EROSION HAZARD INDEX FOR MONUMENTED CROSS SECTION

Stream:	MOORES RUN, BALTIMORE, MD	**Observer(s):**	CE	**Data:**	SLD	**QA/QC:**	CE	**Total Score:**	**#DIV/0!**
Reach:	07	**Comments:**	GPS Coordinates:						**Low**
Location:	USFWS XS E							**Notes:**	RIGHT BANK
Date:	1/21/04								LOW erosion potential b/c large boulders on bank

Erodibility Variables					
Bank Height / Bankfull Height Ratio					
Bank Height	Bankfull Height	Value	Index	Bank Erosion Potental	Notes
		#DIV/0!	#DIV/0!	#DIV/0!	
Root Depth / Bank Height Ratio					
Root Depth	Bank Height	Value	Index	Bank Erosion Potental	Notes
	0.00	#DIV/0!	#DIV/0!	#DIV/0!	
Weighted Root Density					
Root Density (%)	Root Depth / Bank Height	Value	Index	Bank Erosion Potental	Notes
	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	
Bank Angle					
Bank Angle (°)			Index	Bank Erosion Potental	Notes
			1.00	Very Low	
Surface Protection					
Surface Protection (%)			Index	Bank Erosion Potental	Notes
			10.00	Extreme	
			Adjustment		Notes
Bank Materials					
			Adjustment		Notes
Bank Stratification					
		TOTAL SCORE	**#DIV/0!**		

Bank Erosion Potential

		Very Low	Low	Moderate	High	Very High	Extreme
Erodibility Variables							
Bank Height / Bankfull Height	Value	1.00-1.10	1.11-1.19	1.20-1.50	1.60-2.00	2.10-2.80	>2.80
	Index	1.0-1.9	2.0-3.9	4.0-5.9	6.0-7.9	8.0-9.0	10
Root Depth / Bank Height	Value	1.00-0.90	0.89-0.50	0.49-0.30	0.29-0.15	0.14-0.05	<0.05
	Index	1.0-1.9	2.0-3.9	4.0-5.9	6.0-7.9	8.0-9.0	10
Weighted Root Density	Value	100-80	79-55	54-30	29-15	14-5	<5
	Index	1.0-1.9	2.0-3.9	4.0-5.9	6.0-7.9	8.0-9.0	10
Bank Angle	Value	0-20	21-60	61-80	81-90	91-119	>119
	Index	1.0-1.9	2.0-3.9	4.0-5.9	6.0-7.9	8.0-9.0	10
Surface Protection	Value	100-80	79-55	54-30	29-15	14-10	<10
	Index	1.0-1.9	2.0-3.9	4.0-5.9	6.0-7.9	8.0-9.0	10

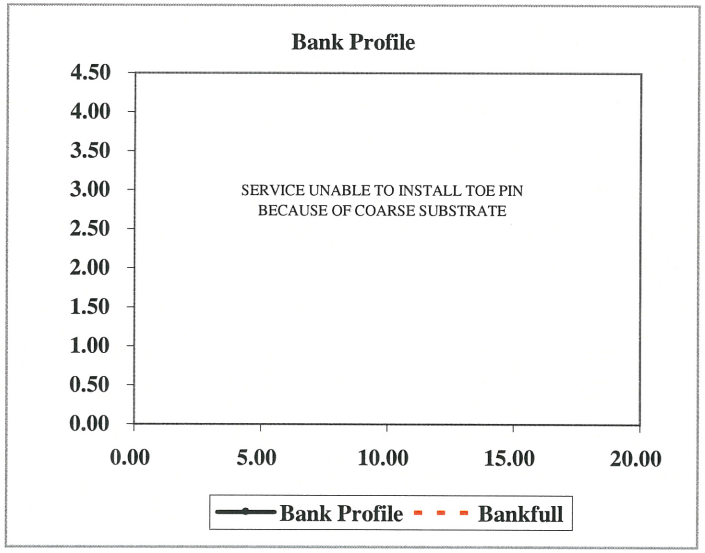
Adjustments

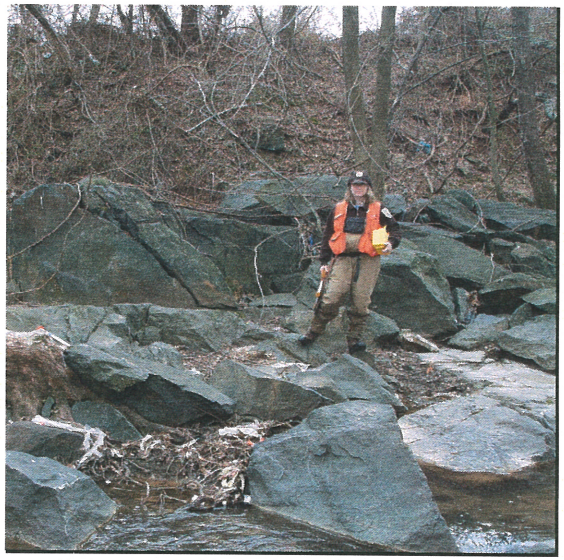
Bank Material	
Bedrock	Bedrock banks have a very low erosion potential.
Boulders	Boulder banks have a low erosion potential.
Cobble	Substract 10 points. No adjustment if sand/gravel compose greater than 50% of bank.
Sand/Silt/Clay Loam	Add 5 points.
Gravel	Add 5-10 points depending on percentage of bank material composed of sand.
Sand	Add 10 points.
Silt / Clay	No adjustment.

Stratification

Add 5-10 points depending on position of unstable layers in relation to bankfull stage.

Bank Profile		
Horizontal Distance	**Vertical Height**	**Notes**
SERVICE UNABLE TO INSTALL TOE PIN BECAUSE OF COARSE SUBSTRATE		
Bankfull		
Horizontal Distance	**Vertical Height**	**Notes**





Path: CD Drive:\Moores Run\Data\BEHI and Bank Profile
File:Reach 07 - USFWS XS E (RB)
01/29/04

MOORES RUN - REACH 07

MODIFIED PFANKUCH STREAM REACH INVENTORY AND CHANNEL STABILITY EVALUATION

Stream:	Moores Run	**Observer(s):**	TLM	**Ex. Stream Type:**	B **Ref. Stream Type:** B3
Reach:	7	**Comments:**		**Grand Total:**	69.00
Location:	Baltimore City, MD			**Stability Rating:**	Fair
Date:	10/8/03			**Notes:**	

Location	Key	Category	Excellent			Good			Fair			Poor		
			Description	Rating	Score	Description	Rating	Score	Description	Rating	Score	Description	Rating	Score
Upper Banks	1	Landform Slope	Bank slope gradient < 30%.	2		Bank slope gradient 30-40%.	4		Bank slope gradient 40-60%.	6		Bank slope gradient > 60%.	8	8
	2	Mass Wasting	No evidence of past or furture mass wasting.	3		Infrequent. Mostly healed over. Low future potential.	6	7	Frequent or large, causing sediment nearly year long.	9		Frequent or large, causing sediment nearly year long OR imminent danger of same.	12	
	3	Debris Jam Potential	Essentially absent from immediate channel area.	2	2	Present, but mostly small twigs and limbs.	4		Moderate to heavy amounts, mostly larger sizes.	6		Moderate to heavy amounts, predominantly larger sizes.	8	
	4	Vegetative Bank Protection	> 90% plant density. Vigor and variety suggest a deep, dense soil binding root mass.	3		70-90% density. Fewer species or less vigor suggest less dense or deep root mass.	6		50-70% density. Lower vigor and fewer species from shallow, discontinuous root mass.	9	9	< 50% density plus fewer species and less vigor indicating poor, discontinuous, and shallow root mass.	12	
Lower Banks	5	Channel Capacity	Ratio of w/d ratio to reference w/d ratio between 1.0-1.2.	1	1	Ratio of w/d ratio to reference w/d ratio between 1.2-1.4.	2		Ratio of w/d ratio to reference w/d ratio between 1.4-1.6.	3		Ratio of w/d ratio to reference w/d ratio between 1.6-1.8.	4	
			For incising channels, ratio of w/d ratio to reference w/d ratio between 0.8-1.0.	1		**For incising channels**, ratio of w/d ratio to reference w/d ratio between 0.6-0.8.	2		**For incising channels**, ratio of w/d ratio to reference w/d ratio between 0.4-0.6.	3		**For incising channels**, ratio of w/d ratio to reference w/d ratio between 0.2-0.4.	4	
	6	Bank Rock Content	> 65% with large angular boulders. > 12" common.	2		40-65%. Mostly boulders and small cobbles 6-12".	4	4	20-40% with most in the 3-6" diameter class.	6		< 20% rock fragments of gravel sizes, 1-3" or less.	8	
	7	Obstructions to Flow	Rocks and logs firmly imbedded. Flow pattern without cutting or deposition. Stable bed.	2	2	Some present causing erosive cross currents and minor pool filling. Obstructions fewer and less firm.	4		Moderately frequent, unstable obstructions move with high flows causing bank cutting and pool filling.	6		Frequent obstruction and deflectors cause bank erosion year long. Sediment traps full, channel migration occurring.	9	
	8	Cutting	Little or none. Infrequent raw banks < 6".	4		Some, intermittently at outcurves and constrictions. Raw banks may be up to 12".	6	5	Significant. Cuts 12-24" high. Root mat overhangs and sloughing evident.	12		Almost continuous cuts, some over 24" high. Failure of overhangs frequent.	16	
	9	Deposition	Little or no enlargement of channel or point bars.	4	4	Some new bar increase, mostly from coarse gravel.	8		Moderate deposition of new gravel and coarse sand on old and some new bars.	12		Extensive deposit of predominantly fine particles. Accelerated bar development.	16	
Channel Bottom	10	Rock Angularity	Sharp edges and corners. Plane surfaces rough.	1		Rounded corners and edges, surfaces smooth, flat.	2	2	Corners and edges well rounded in 2 dimensions.	3		Well rounded in all dimensions, surfaces smooth.	4	
	11	Brightness	Surfaces dull, dark or stained. Generally not bright.	1		Mostly dull, but may have < 35% bright surfaces.	2	2	Mixture dull and bright, *ie* . 35-65% mixture range.	3		Predominantly bright, > 65% exposed or scoured surfaces.	4	
	12	Cosolidation of Particles	Assorted sizes tightly packed or overlapping.	2		Moderately packed with some overlapping.	4	4	Mostly loose assortment with no apparent overlap.	6		No packing evident. Loose assortment easily moved.	8	
	13	Bottom Size Distribution	No size change evident. Stable material 80-100%.	4	4	Distribution shift light. Stable material 50-80%.	8		Moderate change in sizes. Stable materials 20-50%.	12		Marked distribution change. Stable materials 0-20%. Sand deposition.	16	
	14	Scouring and Deposition	< 5% of bottom affected by scour or deposition.	6		5-30% affected. Scour at constrictions and where grades steepen. Some deposition in pools.	12	12	30-50% affected. Deposits and scour at obstructions, constriction and bends. Some filling of pools.	18		> 50% of the bottom in a state of flux or change nearly year long.	24	
	15	Aquatic Vegetation	Abundant growth moss-like, dark green perennial. In swift water, too.	1		Common. Algae forms in low velocity and pool areas. Moss here, too.	2		Present but spotty, mostly in backwater. Seasonal algae growth makes rocks slick.	3	3	Perennial types scarce or absent. Yellow-green, short term bloom may be present.	4	
				Excellent Total	**13**		**Good Total**	**36**		**Fair Total**	**12**		**Poor Total**	**8**

Stream Type	A1	A2	A3	A4	A5	A6	B1	B2	B3	B4	B5	B6	C1	C2	C3	C4	C5	C6	D3	D4	D5
Good (Stable)	38-43	38-43	54-90	60-95	60-95	50-80	38-45	38-45	40-60	40-64	48-68	40-60	38-50	38-50	60-85	70-90	70-90	60-85	85-107	85-107	85-107
Fair (Moderately Unstable)	44-47	44-47	91-129	96-132	96-142	81-110	46-58	46-58	61-78	65-84	69-88	61-78	51-61	51-61	86-105	91-110	91-110	86-105	108-132	108-132	108-132
Poor (Unstable)	48+	48+	130+	133+	143+	111+	59+	59+	79+	85+	89+	79+	62+	62+	106+	111+	111+	106+	133+	133+	133+
Stream Type	**D6**	**DA3**	**DA4**	**DA5**	**DA6**	**E3**	**E4**	**E5**	**E6**	**F1**	**F2**	**F3**	**F4**	**F5**	**F6**	**G1**	**G2**	**G3**	**G4**	**G5**	**G6**
Good (Stable)	67-98	40-63	40-63	40-63	40-63	40-63	50-75	50-75	40-63	60-85	60-85	85-110	85-110	90-115	80-95	40-60	40-60	85-107	85-107	90-112	85-107
Fair (Moderately Unstable)	99-125	64-86	64-86	64-86	64-86	64-86	76-96	76-96	64-86	86-105	86-105	111-125	111-125	116-130	96-110	61-78	61-78	108-120	108-120	113-126	108-120
Poor (Unstable)	126+	87+	87+	87+	87+	87+	97+	97+	87+	106+	106+	126+	126+	111+	111+	79+	79+	121+	121+	126+	121+

MOORES RUN
REACH 08 – FIELD DATA

MATCH LINE
bar w/ lots of cobble/boulder size deposition-
material made up of natural rocks & concrete.
cut off channel
w/ bedrock bed
1" = 50'
Reach 8
Reach 7 (Fm B)
Reach 6
BK#23 (con't)
52
BK#25
Low BEHI
BK#24 (con't)
MATCH LINE
B
B'
MOORES Run Drive
40
0
40
80
120
160 Feet
1" = 50'

2

2

Monuments.shp
Benchmarks.shp
Cross sections.shp
triple cell box culvert
Reach 9
Reach 8
Mowed Grass
Concrete
Gabbions failing
Gabbions
localized erosion from back eddie
TODD AVE
BKW28
60
BKW27
59
A
A'
MATCH LINE
1" = 50'
40
120
160 Feet
= 50'
1

MOORES RUN - REACH 08

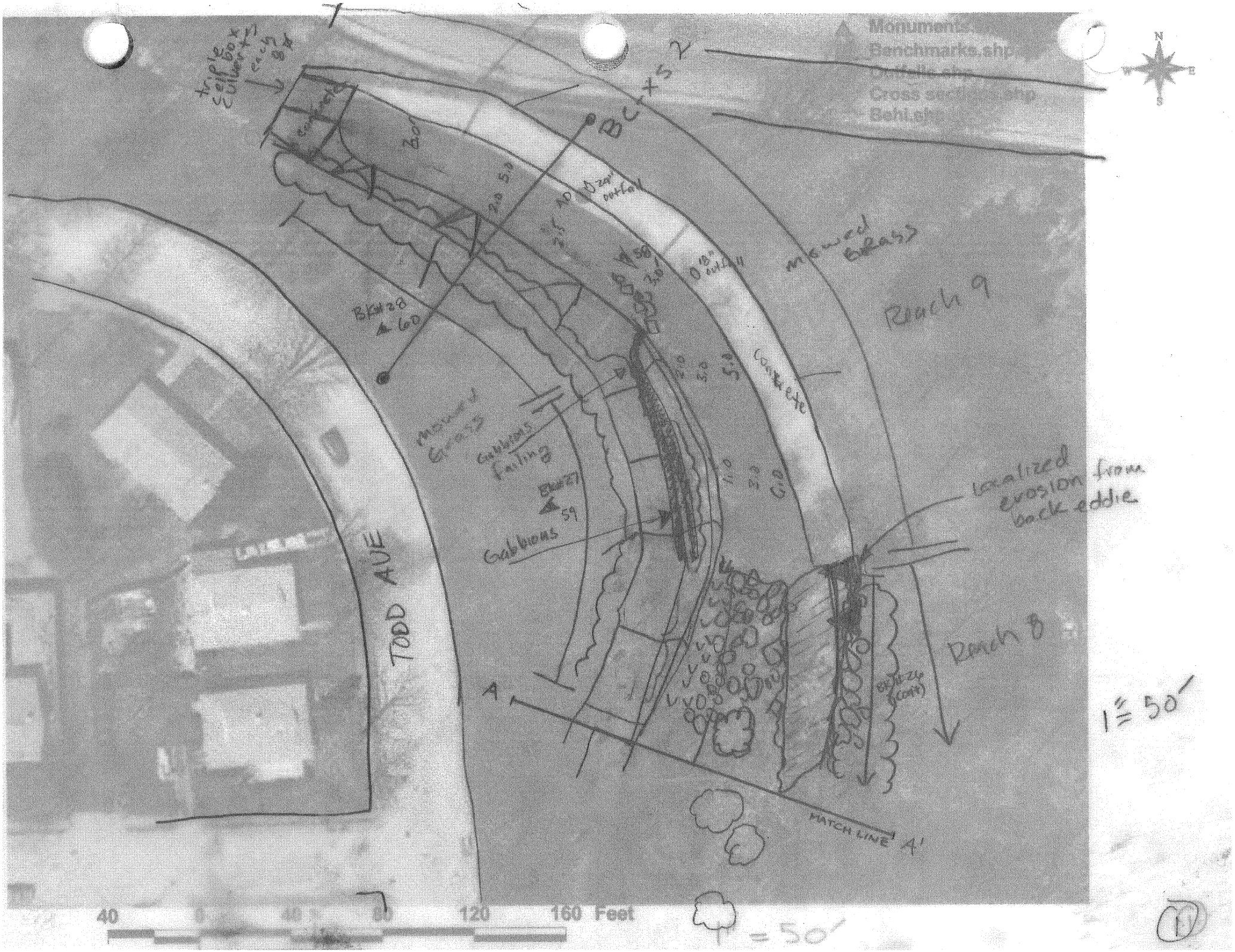
MODIFIED PFANKUCH STREAM REACH INVENTORY AND CHANNEL STABILITY EVALUATION

Stream:	Moores Run	**Observer(s):**	TLM	**Ex. Stream Type:**	D **Ref. Stream Type:** B3
Reach:	8	**Comments:**		**Grand Total:**	76.00
Location:	Baltimore City, MD			**Stability Rating:**	Fair
Date:	10/8/03			**Notes:**	

Location	Key	Category	Excellent			Good			Fair			Poor		
			Description	Rating	Score	Description	Rating	Score	Description	Rating	Score	Description	Rating	Score
Upper Banks	1	Landform Slope	Bank slope gradient < 30%.	2		Bank slope gradient 30-40%.	4	3	Bank slope gradient 40-60%.	6		Bank slope gradient > 60%.	8	
	2	Mass Wasting	No evidence of past or furture mass wasting.	3		Infrequent. Mostly healed over. Low future potential.	6	6	Frequent or large, causing sediment nearly year long.	9		Frequent or large, causing sediment nearly year long OR imminent danger of same.	12	
	3	Debris Jam Potential	Essentially absent from immediate channel area.	2		Present, but mostly small twigs and limbs.	4	4	Moderate to heavy amounts, mostly larger sizes.	6		Moderate to heavy amounts, predominantly larger sizes.	8	
	4	Vegetative Bank Protection	> 90% plant density. Vigor and variety suggest a deep, dense soil binding root mass.	3		70-90% density. Fewer species or less vigor suggest less dense or deep root mass.	6		50-70% density. Lower vigor and fewer species from shallow, discontinuous root mass.	9	9	< 50% density plus fewer species and less vigor indicating poor, discontinuous, and shallow root mass.	12	
Lower Banks	5	Channel Capacity	Ratio of w/d ratio to reference w/d ratio between 1.0-1.2.	1	1	Ratio of w/d ratio to reference w/d ratio between 1.2-1.4.	2		Ratio of w/d ratio to reference w/d ratio between 1.4-1.6.	3		Ratio of w/d ratio to reference w/d ratio between 1.6-1.8.	4	
			For incising channels, ratio of w/d ratio to reference w/d ratio between 0.8-1.0.	1		**For incising channels**, ratio of w/d ratio to reference w/d ratio between 0.6-0.8.	2		**For incising channels**, ratio of w/d ratio to reference w/d ratio between 0.4-0.6.	3		**For incising channels**, ratio of w/d ratio to reference w/d ratio between 0.2-0.4.	4	
	6	Bank Rock Content	> 65% with large angular boulders. > 12" common.	2		40-65%. Mostly boulders and small cobbles 6-12".	4	3	20-40% with most in the 3-6" diameter class.	6		< 20% rock fragments of gravel sizes, 1-3" or less.	8	
	7	Obstructions to Flow	Rocks and logs firmly imbedded. Flow pattern without cutting or deposition. Stable bed.	2	2	Some present causing erosive cross currents and minor pool filling. Obstructions fewer and less firm.	4		Moderately frequent, unstable obstructions move with high flows causing bank cutting and pool filling.	6		Frequent obstruction and deflectors cause bank erosion year long. Sediment traps full, channel migration occurring.	9	
	8	Cutting	Little or none. Infrequent raw banks < 6".	4		Some, intermittently at outcurves and constrictions. Raw banks may be up to 12".	6		Significant. Cuts 12-24" high. Root mat overhangs and sloughing evident.	12	12	Almost continuous cuts, some over 24" high. Failure of overhangs frequent.	16	
	9	Deposition	Little or no enlargement of channel or point bars.	4		Some new bar increase, mostly from coarse gravel.	8	10	Moderate deposition of new gravel and coarse sand on old and some new bars.	12		Extensive deposit of predominantly fine particles. Accelerated bar development.	16	
Channel Bottom	10	Rock Angularity	Sharp edges and corners. Plane surfaces rough.	1	1	Rounded corners and edges, surfaces smooth, flat.	2		Corners and edges well rounded in 2 dimensions.	3		Well rounded in all dimensions, surfaces smooth.	4	
	11	Brightness	Surfaces dull, dark or stained. Generally not bright.	1		Mostly dull, but may have < 35% bright surfaces.	2		Mixture dull and bright, *ie*. 35-65% mixture range.	3	3	Predominantly bright, > 65% exposed or scoured surfaces.	4	
	12	Cosolidation of Particles	Assorted sizes tightly packed or overlapping.	2		Moderately packed with some overlapping.	4	4	Mostly loose assortment with no apparent overlap.	6		No packing evident. Loose assortment easily moved.	8	
	13	Bottom Size Distribution	No size change evident. Stable material 80-100%.	4		Distribution shift light. Stable material 50-80%.	8	8	Moderate change in sizes. Stable materials 20-50%.	12		Marked distribution change. Stable materials 0-20%. Sand deposition.	16	
	14	Scouring and Deposition	< 5% of bottom affected by scour or deposition.	6	6	5-30% affected. Scour at constrictions and where grades steepen. Some deposition in pools.	12		30-50% affected. Deposits and scour at obstructions, constriction and bends. Some filling of pools.	18		> 50% of the bottom in a state of flux or change nearly year long.	24	
	15	Aquatic Vegetation	Abundant growth moss-like, dark green perennial. In swift water, too.	1		Common. Algae forms in low velocity and pool areas. Moss here, too.	2		Present but spotty, mostly in backwater. Seasonal algae growth makes rocks slick.	3		Perennial types scarce or absent. Yellow-green, short term bloom may be present.	4	4
				Excellent Total	**10**		**Good Total**	**38**		**Fair Total**	**24**		**Poor Total**	**4**

Stream Type	A1	A2	A3	A4	A5	A6	B1	B2	B3	B4	B5	B6	C1	C2	C3	C4	C5	C6	D3	D4	D5
Good (Stable)	38-43	38-43	54-90	60-95	60-95	50-80	38-45	38-45	40-60	40-64	48-68	40-60	38-50	38-50	60-85	70-90	70-90	60-85	85-107	85-107	85-107
Fair (Moderately Unstable)	44-47	44-47	91-129	96-132	96-142	81-110	46-58	46-58	61-78	65-84	69-88	61-78	51-61	51-61	86-105	91-110	91-110	86-105	108-132	108-132	108-132
Poor (Unstable)	48+	48+	130+	133+	143+	111+	59+	59+	79+	85+	89+	79+	62+	62+	106+	111+	111+	106+	133+	133+	133+
Stream Type	**D6**	**DA3**	**DA4**	**DA5**	**DA6**	**E3**	**E4**	**E5**	**E6**	**F1**	**F2**	**F3**	**F4**	**F5**	**F6**	**G1**	**G2**	**G3**	**G4**	**G5**	**G6**
Good (Stable)	67-98	40-63	40-63	40-63	40-63	40-63	50-75	50-75	40-63	60-85	60-85	85-110	85-110	90-115	80-95	40-60	40-60	85-107	85-107	90-112	85-107
Fair (Moderately Unstable)	99-125	64-86	64-86	64-86	64-86	64-86	76-96	76-96	64-86	86-105	86-105	111-125	111-125	116-130	96-110	61-78	61-78	108-120	108-120	113-126	108-120
Poor (Unstable)	126+	87+	87+	87+	87+	87+	97+	97+	87+	106+	106+	126+	126+	111+	111+	79+	79+	121+	121+	126+	121+

MOORES RUN
REACH 09 – FIELD DATA



Monuments.shp
Benchmarks.shp
Cross sections.shp
Behi.shp
triple cell box culverts each 8'
BC-XS 2
Mowed Grass
Reach 9
Concrete
BK#28 60
Gabbions failing
BK#27 59
Gabbions
localized erosion from back eddie
TODD AVE
Reach 8
A
MATCH LINE A'
1" = 50'
40 0 40 80 120 160 Feet
1" = 50'

MOORES RUN - REACH 09

Width (ft)	Cross-Sectional Area (Sq.ft)	Mean Depth (ft)	Maximum Depth (ft)	Wetted Perimeter (ft)	Hydraulic Radius (ft)
59.84	289.64	4.84	5.95	63.90	4.53
54.96	194.74	3.54	4.30	57.57	3.38

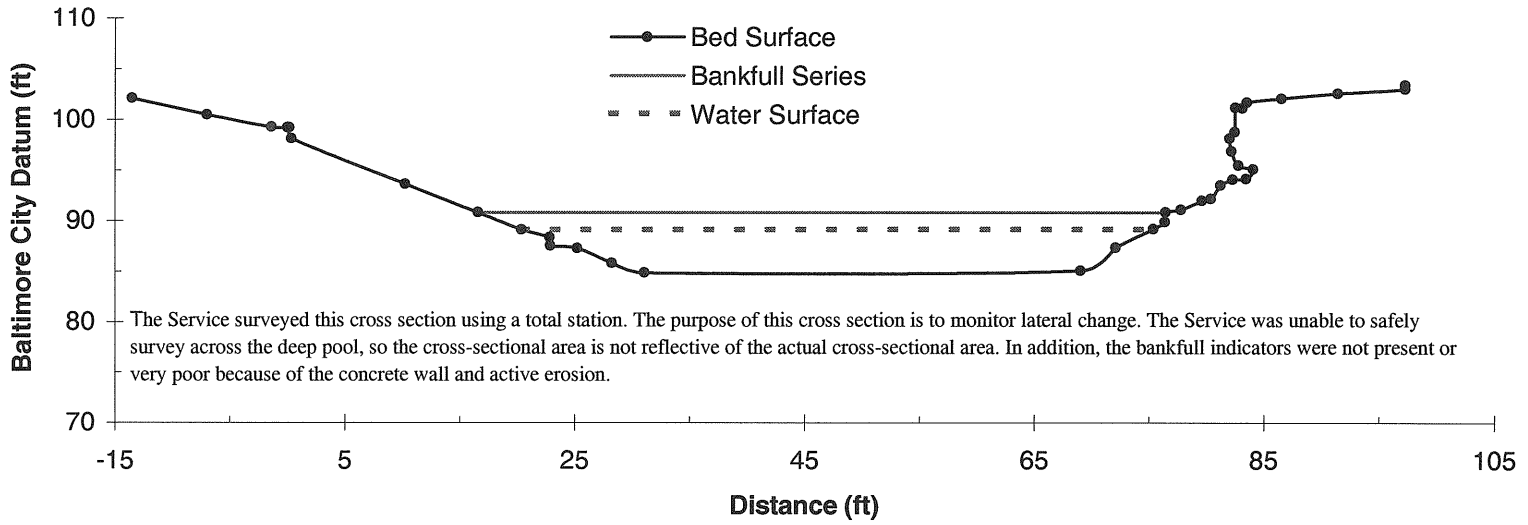
STREAM: Moores Run
REACH & XS: Reach 09 - Balt. XS 02 (Pool)
DATE: 10/17/03
CREW: FWS (RRS/SD)
DATA: KR
QA/QC: SLD

Bankfull
Water Surface

MON. COORD.: LTMON: N: 39° 20' 11.9" W: 76° 32' 20.7" (+/- 25 ft)
RTMON: N: 39° 20' 11.3" W: 76° 32' 21.2" (+/- 15 ft)

Identifier	Distance (ft)	Elevation (ft)	Identifier	Distance (ft)	Elevation (ft)
GS	-13.5	102.07	CS	72.1	87.34
GS	-7.0	100.47	REW	75.4	89.15
WALL	-1.4	99.23	CS	76.4	89.86
LTMON	0.0	99.19	RBF	76.4	90.78
WALL	0.2	99.19	CS	77.8	91.09
WALL	0.4	98.13	CS	79.7	91.95
WALL	10.2	93.61	GS	80.4	92.17
LBF	16.6	90.78	GS	81.3	93.45
LEW	20.4	89.12	GS	82.3	94.07
WALL	22.8	88.31	GS	83.5	94.11
CS	22.9	87.49	GS	84.1	95.03
CS	25.2	87.29	GS	82.8	95.42
CS	28.3	85.82	GS	82.2	96.84
CS	31.1	84.83	GS	82.0	98.10
CS	69.1	85.06	GS	82.5	98.73

Identifier	Distance (ft)	Elevation (ft)
GS	82.6	101.15
GS	83.2	101.05
GS	83.5	101.67
GS/FL	86.5	102.04
GS	91.4	102.55
RBMON	97.3	102.96
RTMON	97.3	103.36



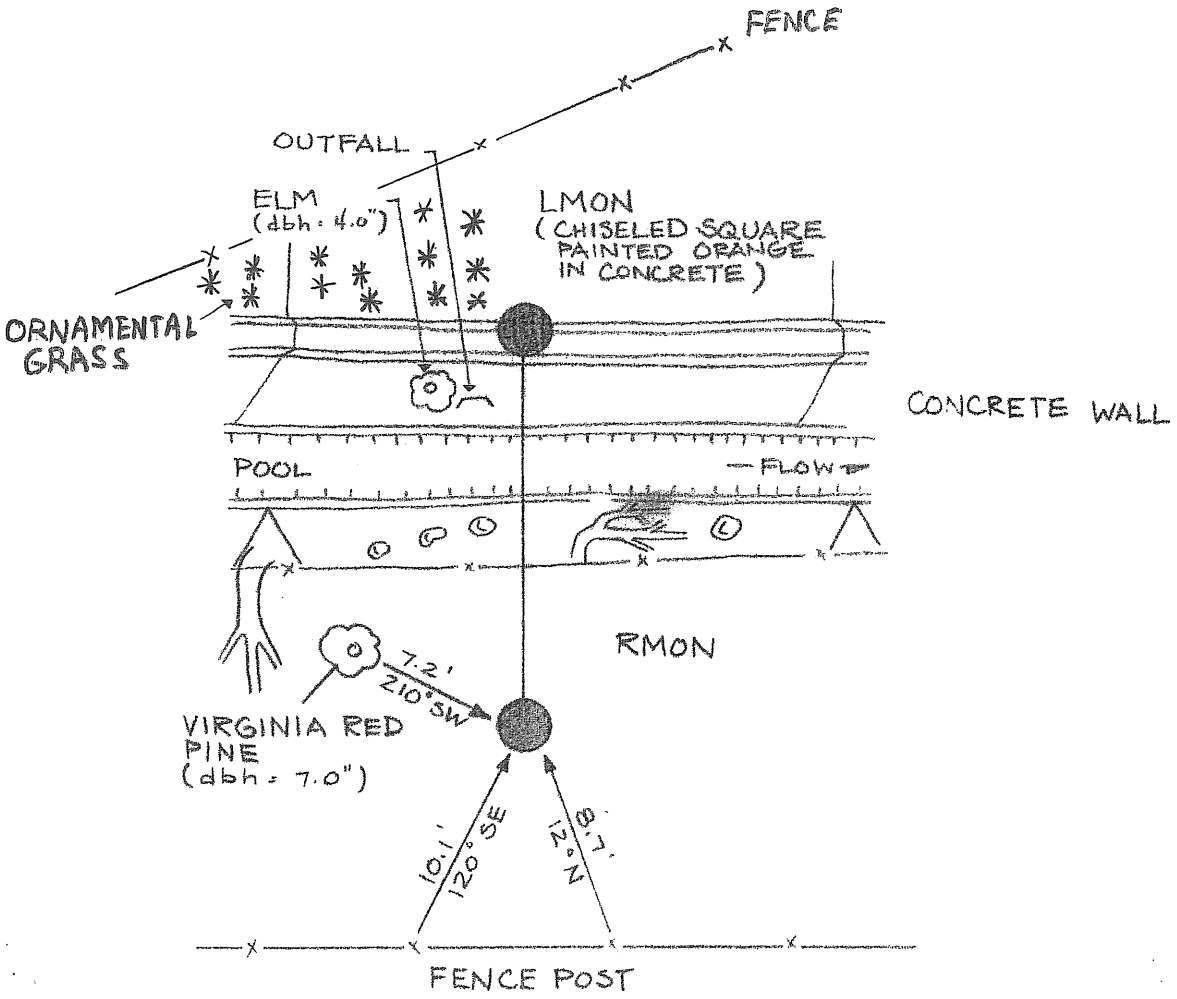
The Service surveyed this cross section using a total station. The purpose of this cross section is to monitor lateral change. The Service was unable to safely survey across the deep pool, so the cross-sectional area is not reflective of the actual cross-sectional area. In addition, the bankfull indicators were not present or very poor because of the concrete wall and active erosion.

U.S. Fish and Wildlife Service
Chesapeake Bay Field Office

Path: CD Drive:\Moores Run\Data\Cross Sections
File: Reach 09 - BALT XS 02 Balt. City Datum
01/29/04

Moores Run
Reach 09
Baltimore Cross Section 02
(Stream Feature: Pool)

Cross Section Monument Map



• RMON = 2" CAPPED STEEL PIPE

MOORES RUN - REACH 09

BANK PROFILE AND BANK EROSION HAZARD INDEX FOR MONUMENTED CROSS SECTION

Stream:	MOORES RUN, BALTIMORE, MD	**Observer(s):**	RRS	**Data:**	SLD	QA/QC:		**Total Score:**	**42.68**
Reach:	09	**Comments:**	GPS Coordinates:						**Very High**
Location:	BALT XS 02		LMON: N: 39° 20' 11.9" W: 76° 32' 20.7" (+/- 25 feet)					**Notes:**	RIGHT BANK
Date:	10/8/03		RMON: N: 39° 20' 11.3" W: 76° 32' 21.2" (+/- 15 feet)						

Erodibility Variables

Bank Height / Bankfull Height Ratio					
Bank Height	Bankfull Height	Value	Index	Bank Erosion Potental	Notes
16.09	4.70	3.42	10.00	Extreme	
Root Depth / Bank Height Ratio					
Root Depth	Bank Height	Value	Index	Bank Erosion Potental	Notes
0.75	16.09	0.05	10.00	Extreme	
Weighted Root Density					
Root Density (%)	Root Depth / Bank Height	Value	Index	Bank Erosion Potental	Notes
60.00	0.05	2.80	10.00	Extreme	
Bank Angle					
Bank Angle (°)			Index	Bank Erosion Potental	Notes
35.00			2.68	Low	
Surface Protection					
Surface Protection (%)			Index	Bank Erosion Potental	Notes
5.00			10.00	Extreme	
			Adjustment		Notes
Bank Materials			0.00		
			Adjustment		Notes
Bank Stratification			0.00		
		TOTAL SCORE	**42.68**		

Bank Erosion Potential

		Very Low	Low	Moderate	High	Very High	Extreme
Erodibility Variables							
Bank Height / Bankfull Height	Value	1.00-1.10	1.11-1.19	1.20-1.50	1.60-2.00	2.10-2.80	>2.80
	Index	1.0-1.9	2.0-3.9	4.0-5.9	6.0-7.9	8.0-9.0	10
Root Depth / Bank Height	Value	1.00-0.90	0.89-0.50	0.49-0.30	0.29-0.15	0.14-0.05	<0.05
	Index	1.0-1.9	2.0-3.9	4.0-5.9	6.0-7.9	8.0-9.0	10
Weighted Root Density	Value	100-80	79-55	54-30	29-15	14-5	<5
	Index	1.0-1.9	2.0-3.9	4.0-5.9	6.0-7.9	8.0-9.0	10
Bank Angle	Value	0-20	21-60	61-80	81-90	91-119	>119
	Index	1.0-1.9	2.0-3.9	4.0-5.9	6.0-7.9	8.0-9.0	10
Surface Protection	Value	100-80	79-55	54-30	29-15	14-10	<10
	Index	1.0-1.9	2.0-3.9	4.0-5.9	6.0-7.9	8.0-9.0	10

Adjustments

Bank Material	
Bedrock	Bedrock banks have a very low erosion potential.
Boulders	Boulder banks have a low erosion potential.
Cobble	Substract 10 points. No adjustment if sand/gravel compose greater than 50% of bank.
Sand/Silt/Clay Loam	Add 5 points.
Gravel	Add 5-10 points depending on percentage of bank material composed of sand.
Sand	Add 10 points.
Silt / Clay	No adjustment.

Stratification

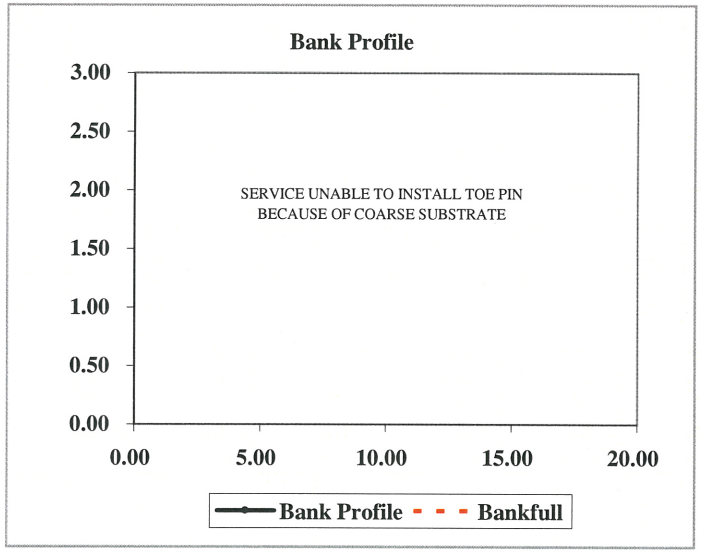
Add 5-10 points depending on position of unstable layers in relation to bankfull stage.

Bank Profile

Horizontal Distance	Vertical Height	Notes
SERVICE UNABLE TO INSTALL TOE PIN BECAUSE OF COARSE SUBSTRATE		

Bankfull

Horizontal Distance	Vertical Height	Notes



MOORES RUN - REACH 09

MODIFIED PFANKUCH STREAM REACH INVENTORY AND CHANNEL STABILITY EVALUATION

Stream:	Moores Run	**Observer(s):**	TLM	**Ex. Stream Type:**	F **Ref. Stream Type:** B3
Reach:	9	**Comments:**	Pool with Concrete Wall	**Grand Total:**	76.00
Location:	Baltimore City, MD			**Stability Rating:**	Fair
Date:	10/8/03			**Notes:**	

Location	Key	Category	Excellent			Good			Fair			Poor		
			Description	Rating	Score	Description	Rating	Score	Description	Rating	Score	Description	Rating	Score
Upper Banks	1	Landform Slope	Bank slope gradient < 30%.	2		Bank slope gradient 30-40%.	4		Bank slope gradient 40-60%.	6		Bank slope gradient > 60%.	8	8
	2	Mass Wasting	No evidence of past or furture mass wasting.	3		Infrequent. Mostly healed over. Low future potential.	6		Frequent or large, causing sediment nearly year long.	9	9	Frequent or large, causing sediment nearly year long OR imminent danger of same.	12	
	3	Debris Jam Potential	Essentially absent from immediate channel area.	2	2	Present, but mostly small twigs and limbs.	4		Moderate to heavy amounts, mostly larger sizes.	6		Moderate to heavy amounts, predominantly larger sizes.	8	
	4	Vegetative Bank Protection	> 90% plant density. Vigor and variety suggest a deep, dense soil binding root mass.	3		70-90% density. Fewer species or less vigor suggest less dense or deep root mass.	6		50-70% density. Lower vigor and fewer species from shallow, discontinuous root mass.	9		< 50% density plus fewer species and less vigor indicating poor, discontinuous, and shallow root mass.	12	12
Lower Banks	5	Channel Capacity	Ratio of w/d ratio to reference w/d ratio between 1.0-1.2.	1	1	Ratio of w/d ratio to reference w/d ratio between 1.2-1.4.	2		Ratio of w/d ratio to reference w/d ratio between 1.4-1.6.	3		Ratio of w/d ratio to reference w/d ratio between 1.6-1.8.	4	
			For incising channels, ratio of w/d ratio to reference w/d ratio between 0.8-1.0.	1		**For incising channels**, ratio of w/d ratio to reference w/d ratio between 0.6-0.8.	2		**For incising channels**, ratio of w/d ratio to reference w/d ratio between 0.4-0.6.	3		**For incising channels**, ratio of w/d ratio to reference w/d ratio between 0.2-0.4.	4	
	6	Bank Rock Content	> 65% with large angular boulders. > 12" common.	2		40-65%. Mostly boulders and small cobbles 6-12".	4	4	20-40% with most in the 3-6" diameter class.	6		< 20% rock fragments of gravel sizes, 1-3" or less.	8	
	7	Obstructions to Flow	Rocks and logs firmly imbedded. Flow pattern without cutting or deposition. Stable bed.	2	2	Some present causing erosive cross currents and minor pool filling. Obstructions fewer and less firm.	4		Moderately frequent, unstable obstructions move with high flows causing bank cutting and pool filling.	6		Frequent obstruction and deflectors cause bank erosion year long. Sediment reaps full, channel migration occurring.	9	
	8	Cutting	Little or none. Infrequent raw banks < 6".	4		Some, intermittently at outcurves and constrictions. Raw banks may be up to 12".	6		Significant. Cuts 12-24" high. Root mat overhangs and sloughing evident.	12		Almost continuous cuts, some over 24" high. Failure of overhangs frequent.	16	16
	9	Deposition	Little or no enlargement of channel or point bars.	4	4	Some new bar increase, mostly from coarse gravel.	8		Moderate deposition of new gravel and coarse sand on old and some new bars.	12		Extensive deposit of predominantly fine particles. Accelerated bar development.	16	
Channel Bottom	10	Rock Angularity	Sharp edges and corners. Plane surfaces rough.	1	1	Rounded corners and edges, surfaces smooth, flat.	2		Corners and edges well rounded in 2 dimensions.	3		Well rounded in all dimensions, surfaces smooth.	4	
	11	Brightness	Surfaces dull, dark or stained. Generally not bright.	1	1	Mostly dull, but may have < 35% bright surfaces.	2		Mixture dull and bright, *ie*. 35-65% mixture range.	3		Predominantly bright, > 65% exposed or scoured surfaces.	4	
	12	Cosolidation of Particles	Assorted sizes tightly packed or overlapping.	2	2	Moderately packed with some overlapping.	4		Mostly loose assortment with no apparent overlap.	6		No packing evident. Loose assortment easily moved.	8	
	13	Bottom Size Distribution	No size change evident. Stable material 80-100%.	4	4	Distribution shift light. Stable material 50-80%.	8		Moderate change in sizes. Stable materials 20-50%.	12		Marked distribution change. Stable materials 0-20%. Sand deposition.	16	
	14	Scouring and Deposition	< 5% of bottom affected by scour or deposition.	6	6	5-30% affected. Scour at constrictions and where grades steepen. Some deposition in pools.	12		30-50% affected. Deposits and scour at obstructions, constriction and bends. Some filling of pools.	18		> 50% of the bottom in a state of flux or change nearly year long.	24	
	15	Aquatic Vegetation	Abundant growth moss-like, dark green perennial. In swift water, too.	1		Common. Algae forms in low velocity and pool areas. Moss here, too.	2		Present but spotty, mostly in backwater. Seasonal algae growth makes rocks slick.	3		Perennial types scarce or absent. Yellow-green, short term bloom may be present.	4	4
				Excellent Total	**23**		**Good Total**	**4**		**Fair Total**	**9**		**Poor Total**	**40**

Stream Type	A1	A2	A3	A4	A5	A6	B1	B2	B3	B4	B5	B6	C1	C2	C3	C4	C5	C6	D3	D4	D5
Good (Stable)	38-43	38-43	54-90	60-95	60-95	50-80	38-45	38-45	40-60	40-64	48-68	40-60	38-50	38-50	60-85	70-90	70-90	60-85	85-107	85-107	85-107
Fair (Moderately Unstable)	44-47	44-47	91-129	96-132	96-142	81-110	46-58	46-58	61-78	65-84	69-88	61-78	51-61	51-61	86-105	91-110	91-110	86-105	108-132	108-132	108-132
Poor (Unstable)	48+	48+	130+	133+	143+	111+	59+	59+	79+	85+	89+	79+	62+	62+	106+	111+	111+	106+	133+	133+	133+
Stream Type	**D6**	**DA3**	**DA4**	**DA5**	**DA6**	**E3**	**E4**	**E5**	**E6**	**F1**	**F2**	**F3**	**F4**	**F5**	**F6**	**G1**	**G2**	**G3**	**G4**	**G5**	**G6**
Good (Stable)	67-98	40-63	40-63	40-63	40-63	40-63	50-75	50-75	40-63	60-85	60-85	85-110	85-110	90-115	80-95	40-60	40-60	85-107	85-107	90-112	85-107
Fair (Moderately Unstable)	99-125	64-86	64-86	64-86	64-86	64-86	76-96	76-96	64-86	86-105	86-105	111-125	111-125	116-130	96-110	61-78	61-78	108-120	108-120	113-126	108-120
Poor (Unstable)	126+	87+	87+	87+	87+	87+	97+	97+	87+	106+	106+	126+	126+	111+	111+	79+	79+	121+	121+	126+	121+