APPENDIX C WATER QUALITY NETWORK HABITAT ASSESSMENT FORMS



WATERBODY NAME _	Little Buch Tui	1	STR CODE/RM	63802
STATION NUMBER			See attache	1 mass
DATE 11/29/17	7		15	
AQUATIC ECOREGION		COUNTY_	Chester	
INVESTIGATORS	ASC, BS			
FORM COMPLETED B			RIFFLE	RUN PREVALENCE
Habitat		Categ		
Parameter	Optimal	Suboptimal	Marginal	Poor
Instream Cover (Fish)	Greater than 50% mix of boulder, cobble, sub-merged logs, undercut banks, or other stable habitat.	30-50% mix of boulder, cobble, or other stable habitat; adequate habitat.	10-30% mix of boulder, cobble, or other stable habitat; habitat availability less than desirable.	Less than 10% mix of boulder, cobble, or other stable habitat; lack of habitat is obvious.
SCORE	20 19 18 (17) 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1
2. Epifaunal Substrate	Well developed riffle and run, riffle is as wide as stream and length extends two times the width of stream; abundance of cobble.	Riffle is as wide as stream but length is less than two times width; abundance of cobble; boulders and gravel common.	Run area may be lack- ing; riffle not as wide as stream and its length is less than two times the stream width; gravel or large boulders and bed- rock prevalent; some cobble present.	Riffles or run virtually nonexistent; large boulders and bedrock prevalent; cobble lacking.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1
3. Embeddedness	Gravel, cobble, and boulder particles are 0-25% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 25-50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50-75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are more than 75% surrounded by fine sediment.
SCORE 16	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1
Velocity/Depth Regimes	All four velocity/depth regimes present (slow-deep, slow-shallow, fast-deep, fast-shallow).	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast-shallow or slow-shallow are missing, score lower than if missing other regimes).	Dominated by 1 velocity/depth regime (usually slow- deep).
SCORE 10	20 19 (18) 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1
5. Channel Alteration	No channelization or dredging present.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	New embankments present on both banks; and 40-80% of stream reach channelized and disrupted.	Banks shored gabion or cement; over 80% of the stream reach channelized and disrupted.
Total Side 1 86	20 19 18 17 (16)	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1
Total Side 1 06				

7. Frequency of Riffles Occurrence of riffles relatively frequent; distance between riffles divided by the width of the stream equals 5 to 7; variety of habitat. SCORE 20 19 18 17 16 Water reaches base of both lower banks and minimal amount of channel substrate is exposed. SCORE 20 19 18 17 16 Moderately stable; infrequent; distance between riffles divided by the width of the stream is between riffles divided by the width of the stream equals 7 to 15. Water reaches base of both lower banks and minimal amount of channel substrate is exposed. SCORE Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between riffles divided by the width	
Deposition of islands or point bars and less than 5% of the bottom affected by sediment deposition. SCORE	Annual Control of the
7. Frequency of Riffles Occurrence of riffles relatively frequent; distance between riffles divided by the width of the stream equals 5 to 7; variety of habitat. SCORE 20 19 18 17 16 Water reaches base of both lower banks and minimal amount of channel substrate is exposed. SCORE 20 19 18 17 16 Mater reaches base of both lower banks and minimal amount of channel substrate is exposed. SCORE 20 19 18 17 16 Moderately stable; infrequent; distance between riffles divided by the width of the stream equals 7 to 15. Water fills > 75% of the available channel; or <25% of channel substrates are mostly exposed. SCORE Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 15 to 25. Water fills > 75% of the available channel and/or riffle substrates are mostly exposed. Water fills 25-75% of the available channel and/or riffle substrates are mostly exposed. Moderately stable; up to 60% of banks in reach have areas of erosion. Moderately stable; up to 60% of banks in reach have areas of erosion.	creased oment; 50% of the nging pools ent due to
distance between riffles divided by the width of the stream equals 5 to 7; variety of habitat. SCORE	all flat water
8. Channel Flow Status Water reaches base of both lower banks and minimal amount of channel substrate is exposed. SCORE	tance fles divided h of the
Status both lower banks and minimal amount of channel substrate is exposed. SCORE	3 2 1
9. Condition of Banks Banks stable; no evidence of erosion or bank failure. Moderately stable; mo to 60% of banks in reach have areas of erosion. Straight section over. Moderately stable; to 60% of banks in reach have areas of erosion. Straight section over.	d mostly
evidence of erosion or bank failure. infrequent, small areas of erosion mostly healed over. to 60% of banks in reach have areas of erosion. over. to 60% of banks in reach have areas of erosion. straight section bends; on significant areas of erosion.	3 2 1
SCORE 10 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4	as; "raw" uent along ctions and side slopes, f bank has
10. Bank Vegetative More than 90% of the 70-90% of the stream- 50-70% of the stream- Less than 5	
Protection streambank surface covered by vegetation. Total Note than 30% of the stream and surface covered by vegetation. Total Note than 30% of the stream and surface covered by vegetation. Total Note than 30% of the stream and surfaces covered by vegetation. Total Note than 30% of the stream and surfaces covered by vegetation. Total Note than 30% of the stream and surfaces covered by vegetation. Total Note than 30% of the stream and surfaces covered by vegetation. Total Note than 30% of the stream and surfaces covered by vegetation. Total Note than 30% of the stream and surfaces covered by vegetation. Total Note than 30% of the stream and surfaces covered by vegetation. Total Note than 30% of the stream and surfaces covered by vegetation. Total Note than 30% of the stream and surfaces covered by vegetation. Total Note than 30% of the stream and surfaces covered by vegetation. Total Note than 30% of the stream and surfaces covered by vegetation. Total Note than 30% of the stream and surfaces covered by vegetation. Total Note than 30% of the stream and surfaces covered by vegetation. Total Note than 30% of the stream and surfaces covered by vegetation. Total Note than 30% of the stream and surfaces covered by vegetation. Total Note than 30% of the stream and surfaces covered by vegetation. Total Note than 30% of the stream and surfaces covered by vegetation. Total Note than 30% of the stream and surfaces covered by vegetation. Total Note than 30% of the stream and surfaces covered by vegetation. Total Note than 30% of the stream and surfaces covered by vegetation. Total Note than 30% of the stream and surfaces covered by vegetation. Total Note than 30% of the stream and surfaces covered by vegetation. Total Note than 30% of the stream and surfaces covered by vegetation. Total Note than 30% of the stream and surfaces covered by vegetation. Total Note than 30% of the stream and surfaces covered by vegetation. Total Note than 30% of the stream and surfaces c	k surface
SCORE 12 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4	3 2 1
Vegetative disruption, through grazing or mowing, minimal or not evident; almost all plants allowed to grow naturally. Vegetative disruption, through grazing or mowing, minimal or not evident; almost all plants allowed to grow naturally. Disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining. Disruption evident but not affecting full plant growth potential to any great extent; more than plant stubble height remaining. Disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	is very ation has ved to less in
SCORE	3 2 1
12. Riparian Vegetative Zone Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone. Width of riparian zone 12-18 meters; human activities have impacted zone only minimally. Width of riparian zone 6-12 meters; human activities have impacted zone a great deal. Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.	little or no getation
SCORE 20 19 18 17 16 (15) 14 13 12 11 10 9 8 7 6 5 4	3 2 1
Total Side 2 <u>105</u>	
Total Score	



WATERBODY NAME _	Little Buch Bus	7	STR CODE/RM	185
STATION NUMBER	2	LOCATION	See attached	
DATE 11/29/	17	TIME _/C	735	
AQUATIC ECOREGION	v_2	COUNTY_	Chester	
INVESTIGATORS	ASC, BS			
FORM COMPLETED B	Y ASC		RIFFLE	RUN PREVALENCE
Habitat		Categ		
Parameter	Optimal	Suboptimal	Marginal	Poor
Instream Cover (Fish)	Greater than 50% mix of boulder, cobble, sub- merged logs, undercut banks, or other stable habitat.	30-50% mix of boulder, cobble, or other stable habitat; adequate habitat.	10-30% mix of boulder, cobble, or other stable habitat; habitat availability less than desirable.	Less than 10% mix of boulder, cobble, or other stable habitat; lack of habitat is obvious.
SCORE 15	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1
2. Epifaunal Substrate	Well developed riffle and run, riffle is as wide as stream and length extends two times the width of stream; abundance of cobble.	Riffle is as wide as stream but length is less than two times width; abundance of cobble; boulders and gravel common.	Run area may be lack- ing; riffle not as wide as stream and its length is less than two times the stream width; gravel or large boulders and bed- rock prevalent; some cobble present.	Riffles or run virtually nonexistent; large boulders and bedrock prevalent; cobble lacking.
SCORE /8	20 19 (18) 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1
3. Embeddedness	Gravel, cobble, and boulder particles are 0-25% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 25-50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50-75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are more than 75% surrounded by fine sediment.
SCORE 19	20 19 18 17 16	15 (14) 13 12 11	10 9 8 7 6	5 4 3 2 1
4. Velocity/Depth Regimes	All four velocity/depth regimes present (slow-deep, slow-shallow, fast-deep, fast-shallow).	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast-shallow or slow-shallow are missing, score lower than if missing other regimes).	Dominated by 1 velocity/depth regime (usually slow- deep).
score	20 (19/ 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1
5. Channel Alteration	No channelization or dredging present.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	New embankments present on both banks; and 40-80% of stream reach channelized and disrupted.	Banks shored gabion or cement; over 80% of the stream reach channelized and disrupted.
SCORE 18	20 19 (18) 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1
Total Side 1 D9				

Habitat		Categ		
Parameter	Optimal	Suboptimal	Marginal	Poor
6. Sediment Deposition	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from coarse gravel; 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, coarse sand on old and new bars; 30-50% of the bottom affected; sediment deposits at obstruction, constriction, and bends; moderate deposition of pools prevalent. 10 9 8 7 6	Heavy deposits of fine material, increased bar development; more than 50% of the bottom changing frequently; pools almost absent due to substantial sediment deposition.
7. Frequency of Riffles	Occurrence of riffles relatively frequent; distance between riffles divided by the width of the stream equals 5 to 7; variety of habitat.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream equals 7 to 15.	Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water or shallow riffles; poor habitat; distance between riffles divided by the width of the stream is between ratio >25.
SCORE 15	20 19 18 17 16	15) 14 13 12 11	10 9 8 7 6	5 4 3 2 1
8. Channel Flow Status	Water reaches base of both lower banks and minimal amount of channel substrate is exposed.	Water fills > 75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
SCORE 20	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1
9. Condition of Banks SCORE 19	Banks stable; no evidence of erosion or bank failure.	Moderately stable; infrequent, small areas of erosion mostly healed over.	Moderately unstable; up to 60% of banks in reach have areas of erosion.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; on side slopes, 60-100% of bank has erosional scars. 5 4 3 2 1
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Bank Vegetative Protection	More than 90% of the streambank surface covered by vegetation.	70-90% of the stream- bank surface covered by vegetation.	50-70% of the stream- bank surfaces covered by vegetation.	Less than 50% of the streambank surface covered by vegetation.
SCORE _/9	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1
11. Grazing or Other Disruptive Pressure	Vegetative disruption, through grazing or mowing, minimal or not evident; almost all plants allowed to grow naturally.	Disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	Disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Disruption of vegetation is very high; vegetation has been removed to 2 inches or less in average stubble height.
12. Riparian Vegetative	Width of riparian zone	Width of riparian zone	Width of riparian zone	Width of riparian zone
Zone Width	>18 meters; human activities (i.e., parking lots, roadbeds, clearcuts, lawns, or crops) have not impacted zone. 20 19 18 17 16	12-18 meters; human activities have impacted zone only minimally.	6-12 meters; human activities have impacted zone a great deal.	<6 meters; little or no riparian vegetation due to human activities.
Total Side 2 1/2				
Total Score				



WATERBODY NAME _	Little Buch Bo	un	STR CODE/RM	186
STATION NUMBER	1BR#3		See attached.	
DATE 11/29/	17		TIME /015	
AQUATIC ECOREGION	N_2	COUNTY_	Chester	
INVESTIGATORS				
FORM COMPLETED B	Y ASC		RIFFLE	RUN PREVALENCE
Habitat		Categ		D
1. Instream Cover (Fish)	Optimal Greater than 50% mix of boulder, cobble, submerged logs, undercut banks, or other stable habitat.	Suboptimal 30-50% mix of boulder, cobble, or other stable habitat; adequate habitat.	Marginal 10-30% mix of boulder, cobble, or other stable habitat; habitat availability less than desirable.	Poor Less than 10% mix of boulder, cobble, or other stable habitat; lack of habitat is obvious.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1
2. Epifaunal Substrate	Well developed riffle and run, riffle is as wide as stream and length extends two times the width of stream; abundance of cobble.	Riffle is as wide as stream but length is less than two times width; abundance of cobble; boulders and gravel common.	Run area may be lack- ing; riffle not as wide as stream and its length is less than two times the stream width; gravel or large boulders and bed- rock prevalent; some cobble present.	Riffles or run virtually nonexistent; large boulders and bedrock prevalent; cobble lacking.
SCORE 8	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1
3. Embeddedness	Gravel, cobble, and boulder particles are 0-25% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 25-50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50-75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are more than 75% surrounded by fine sediment.
SCORE //	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1
4. Velocity/Depth Regimes	All four velocity/depth regimes present (slow-deep, slow-shallow, fast-deep, fast-shallow).	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast-shallow or slow-shallow are missing, score lower than if missing other regimes).	Dominated by 1 velocity/depth regime (usually slow- deep).
	20 19 (18) 17 16		10 9 8 7 6	5 4 3 2 1
5. Channel Alteration	No channelization or dredging present.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	New embankments present on both banks; and 40-80% of stream reach channelized and disrupted.	Banks shored gabion or cement; over 80% of the stream reach channelized and disrupted.
	20 19 18 17 /16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1
Total Side 1 <u>84</u>				

Habitat		Categ	ory	DATREVALENCE
Parameter	Optimal	Suboptimal	Marginal	Poor
6. Sediment Deposition	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from coarse gravel; 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, coarse sand on old and new bars; 30-50% of the bottom affected; sediment deposits at obstruction, constriction, and bends; moderate deposition of pools prevalent. 10 9 8 7 6	Heavy deposits of fine material, increased bar development; more than 50% of the bottom changing frequently; pools almost absent due to substantial sediment deposition.
7. Frequency of Riffles	Occurrence of riffles relatively frequent; distance between riffles divided by the width of the stream equals 5 to 7; variety of habitat.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream equals 7 to 15.	Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water or shallow riffles; poor habitat; distance between riffles divided by the width of the stream is between ratio >25.
SCORE 16	20 19 18 17 (16)	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1
8. Channel Flow Status	Water reaches base of both lower banks and minimal amount of channel substrate is exposed.	Water fills > 75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
SCORE / O	20 19 (18) 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1
9. Condition of Banks SCORE 14	Banks stable; no evidence of erosion or bank failure.	Moderately stable; infrequent, small areas of erosion mostly healed over.	Moderately unstable; up to 60% of banks in reach have areas of erosion.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; on side slopes, 60-100% of bank has erosional scars.
	20 19 18 17 16	15 (14) 13 12 11	10 9 8 7 6	5 4 3 2 1
10. Bank Vegetative Protection	More than 90% of the streambank surface covered by vegetation.	70-90% of the stream- bank surface covered by vegetation.	50-70% of the stream- bank surfaces covered by vegetation.	Less than 50% of the streambank surface covered by vegetation.
SCORE 17	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1
11. Grazing or Other Disruptive Pressure	Vegetative disruption, through grazing or mowing, minimal or not evident; almost all plants allowed to grow naturally. 20 19 18 17 16	Disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining. 15 14 13 12 11	Disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Disruption of vegetation is very high; vegetation has been removed to 2 inches or less in average stubble height.
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12. Riparian Vegetative Zone Width	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear- cuts, lawns, or crops) have not impacted zone. 20 19 18 17 16	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally. 15 14 13 12 11	Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters; little or no riparian vegetation due to human activities. 5 4 3 2 1
Total Side 2 109				
Total Score <u>193</u>		#		



WATERBODY NAME _	Little Buck 1	Sun	STR CODE/RM	1_185
STATION NUMBER	4	LOCATION	See attached 1	nap
DATE 11/29/	17	TIME	830	,
AQUATIC ECOREGION	1_2	COUNTY_	Chester	
INVESTIGATORS	ASC, RS			
FORM COMPLETED B	4 *		RIFFLE	RUN PREVALENCE
Habitat		Categ	ory	4
Parameter	Optimal	Suboptimal	Marginal	Poor
Instream Cover (Fish)	Greater than 50% mix of boulder, cobble, sub- merged logs, undercut banks, or other stable habitat.	30-50% mix of boulder, cobble, or other stable habitat; adequate habitat.	10-30% mix of boulder, cobble, or other stable habitat; habitat availability less than desirable.	Less than 10% mix of boulder, cobble, or other stable habitat; lack of habitat is obvious.
SCORE 16	20 19 18 17 (16)	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1
2. Epifaunal Substrate	Well developed riffle and run, riffle is as wide as stream and length extends two times the width of stream; abundance of cobble.	Riffle is as wide as stream but length is less than two times width; abundance of cobble; boulders and gravel common.	Run area may be lack- ing; riffle not as wide as stream and its length is less than two times the stream width; gravel or large boulders and bed- rock prevalent; some cobble present.	Riffles or run virtually nonexistent; large boulders and bedrock prevalent; cobble lacking.
SCORE / 6	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1
3. Embeddedness	Gravel, cobble, and boulder particles are 0-25% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 25-50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50-75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are more than 75% surrounded by fine sediment.
SCORE 17	20 19 18 17 16	15 (14) 13 12 11	10 9 8 7 6	5 4 3 2 1
Velocity/Depth Regimes	All four velocity/depth regimes present (slow-deep, slow-shallow, fast-deep, fast-shallow).	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast-shallow or slow-shallow are missing, score lower than if missing other regimes).	Dominated by 1 velocity/depth regime (usually slow- deep).
SCORE 20	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1
5. Channel Alteration	No channelization or dredging present.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	New embankments present on both banks; and 40-80% of stream reach channelized and disrupted.	Banks shored gabion or cement; over 80% of the stream reach channelized and disrupted.
SCORE	20 19 18/ 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1
Total Side 1 <u>84</u>				

4

Habitat		Categ	The second secon	UN PREVALENCE
Parameter	Optimal	Suboptimal	Marginal	Poor
6. Sediment Deposition	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from coarse gravel; 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, coarse sand on old and new bars; 30-50% of the bottom affected; sediment deposits at obstruction, constriction, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 50% of the bottom changing frequently; pools almost absent due to substantial sediment deposition.
	COLONIA DE CASA DE CAS			
7. Frequency of Riffles	Occurrence of riffles relatively frequent; distance between riffles divided by the width of the stream equals 5 to 7; variety of habitat.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream equals 7 to 15.	Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water or shallow riffles; poor habitat; distance between riffles divided by the width of the stream is between ratio >25.
SCORE 18	20 19 (18) 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1
8. Channel Flow Status	Water reaches base of both lower banks and minimal amount of channel substrate is exposed.	Water fills > 75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
SCORE 20	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1
9. Condition of Banks	Banks stable; no evidence of erosion or bank failure.	Moderately stable; infrequent, small areas of erosion mostly healed over.	Moderately unstable; up to 60% of banks in reach have areas of erosion.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; on side slopes, 60-100% of bank has erosional scars.
SCORE 20	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1
10. Bank Vegetative Protection	More than 90% of the streambank surface covered by vegetation.	70-90% of the streambank surface covered by vegetation.	50-70% of the streambank surfaces covered by vegetation.	Less than 50% of the streambank surface covered by vegetation.
SCORE 20	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1
11. Grazing or Other Disruptive Pressure	Vegetative disruption, through grazing or mowing, minimal or not evident; almost all plants allowed to grow naturally.	Disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	Disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Disruption of vegetation is very high; vegetation has been removed to 2 inches or less in average stubble height.
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12. Riparian Vegetative Zone Width	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear- cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters; little or no riparian vegetation due to human activities.
JONE	20 19 18 17 16	15 14 (13/12 11	10 9 8 7 6	5 4 3 2 1
Total Side 2 120				
Total Score <u>209</u>				



WATERBODY NAME _	Little Buch B	un	STR CODE/RM	18/
STATION NUMBER	#5	LOCATION	Seeattached	map
DATE _/// 29//	フ	TIME	50	
AQUATIC ECOREGION		COUNTY_	Chester	
INVESTIGATORS	45C, BS			
FORM COMPLETED B	1//		RIFFLE	RUN PREVALENCE
Habitat Parameter	Optimal	Categ Suboptimal	ory Marginal	Poor
Instream Cover (Fish)	Greater than 50% mix of boulder, cobble, submerged logs, undercut banks, or other stable habitat.	30-50% mix of boulder, cobble, or other stable habitat; adequate habitat.	10-30% mix of boulder, cobble, or other stable habitat; habitat availability less than desirable.	Less than 10% mix of boulder, cobble, or other stable habitat; lack of habitat is obvious.
SCORE	20 19 18 (17) 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1
2. Epifaunal Substrate	Well developed riffle and run, riffle is as wide as stream and length extends two times the width of stream; abundance of cobble.	Riffle is as wide as stream but length is less than two times width; abundance of cobble; boulders and gravel common.	Run area may be lack- ing; riffle not as wide as stream and its length is less than two times the stream width; gravel or large boulders and bed- rock prevalent; some cobble present.	Riffles or run virtually nonexistent; large boulders and bedrock prevalent; cobble lacking.
SCORE 19	20 (19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1
3. Embeddedness	Gravel, cobble, and boulder particles are 0-25% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 25-50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50-75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are more than 75% surrounded by fine sediment.
SCORE 15	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1
4. Velocity/Depth Regimes	All four velocity/depth regimes present (slow-deep, slow-shallow, fast-deep, fast-shallow).	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast-shallow or slow-shallow are missing, score lower than if missing other regimes).	Dominated by 1 velocity/depth regime (usually slow- deep).
SCORE 1/	20 19 18 (17/ 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1
5. Channel Alteration	No channelization or dredging present.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	New embankments present on both banks; and 40-80% of stream reach channelized and disrupted.	Banks shored gabion or cement; over 80% of the stream reach channelized and disrupted.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1
Total Side 1 88			5	

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Habitat		Categ	ory	
Parameter	Optimal	Suboptimal	Marginal	Poor
6. Sediment Deposition	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from coarse gravel; 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, coarse sand on old and new bars; 30-50% of the bottom affected; sediment deposits at obstruction, constriction, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 50% of the bottom changing frequently; pools almost absent due to substantial sediment deposition.
7. Frequency of	Occurrence of riffles	Occurrence of riffles	Occasional riffle or	Generally all flat water
Riffles	relatively frequent; distance between riffles divided by the width of the stream equals 5 to 7; variety of habitat.	infrequent; distance between riffles divided by the width of the stream equals 7 to 15.	bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.	or shallow riffles; poor habitat; distance between riffles divided by the width of the stream is between ratio >25.
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1
Channel Flow Status	Water reaches base of both lower banks and minimal amount of channel substrate is exposed.	Water fills > 75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
SCORE 20	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1
9. Condition of Banks SCORE 20	Banks stable; no evidence of erosion or bank failure.	Moderately stable; infrequent, small areas of erosion mostly healed over.	Moderately unstable; up to 60% of banks in reach have areas of erosion.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; on side slopes, 60-100% of bank has erosional scars. 5 4 3 2 1
10. Bank Vegetative	More than 90% of the	70-90% of the stream-	50-70% of the stream-	Less than 50% of the
Protection	streambank surface covered by vegetation.	bank surface covered by vegetation.	bank surfaces covered by vegetation.	streambank surface covered by vegetation.
SCORE 20	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1
11. Grazing or Other Disruptive Pressure	Vegetative disruption, through grazing or mowing, minimal or not evident; almost all plants allowed to grow naturally.	Disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	Disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Disruption of vegetation is very high; vegetation has been removed to 2 inches or less in average stubble height.
SCORE 18	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1
12. Riparian Vegetative Zone Width	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear- cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters; little or no riparian vegetation due to human activities.
SCORE 13	20 19 18 17 16	15 14 (13) 12 11	10 9 8 7 6	5 4 3 2 1
Total Side 2 125				
Total Score 213				



WATERBODY NAME _	Little Buch	Bun	STR CODE/RM	ı_ <i>185</i>
STATION NUMBER #	t 6	LOCATION	See attache	ed map
DATE 11/29/	17	TIME	700	,
AQUATIC ECOREGION	1_2	COUNTY_	Chester	
INVESTIGATORS A	gron S. Claus	er, Robert S	Struble	
FORM COMPLETED B	1			RUN PREVALENCE
Habitat Category				
Parameter	Optimal	Suboptimal	Marginal	Poor
Instream Cover (Fish)	Greater than 50% mix of boulder, cobble, sub- merged logs, undercut banks, or other stable habitat.	30-50% mix of boulder, cobble, or other stable habitat; adequate habitat.	10-30% mix of boulder, cobble, or other stable habitat; habitat availability less than desirable.	Less than 10% mix of boulder, cobble, or other stable habitat; lack of habitat is obvious.
score <u>14</u>	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1
2. Epifaunal Substrate	Well developed riffle and run, riffle is as wide as stream and length extends two times the width of stream; abundance of cobble.	Riffle is as wide as stream but length is less than two times width; abundance of cobble; boulders and gravel common.	Run area may be lack- ing; riffle not as wide as stream and its length is less than two times the stream width; gravel or large boulders and bed- rock prevalent; some cobble present.	Riffles or run virtually nonexistent; large boulders and bedrock prevalent; cobble lacking.
SCORE /	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1
3. Embeddedness	Gravel, cobble, and boulder particles are 0-25% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 25-50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50-75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are more than 75% surrounded by fine sediment.
SCORE 14	20 19 18 17 16	15 (14) 13 12 11	10 9 8 7 6	5 4 3 2 1
4. Velocity/Depth Regimes	All four velocity/depth regimes present (slow-deep, slow-shallow, fast-deep, fast-shallow).	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast-shallow or slow-shallow are missing, score lower than if missing other regimes).	Dominated by 1 velocity/depth regime (usually slow- deep).
SCORE _/B_	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1
5. Channel Alteration	No channelization or dredging present.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	New embankments present on both banks; and 40-80% of stream reach channelized and disrupted.	Banks shored gabion or cement; over 80% of the stream reach channelized and disrupted.
SCORE 13	20 19 18 17 16	15 14 (13/ 12 11	10 9 8 7 6	5 4 3 2 1
Total Side 1				

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Habitat		Categ	THE RESERVE OF THE PERSON NAMED IN	UN PREVALENCE
Parameter	Optimal	Suboptimal	Marginal	Poor
6. Sediment Deposition	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from coarse gravel; 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, coarse sand on old and new bars; 30-50% of the bottom affected; sediment deposits at obstruction, constriction, and bends; moderate deposition of pools prevalent. 10 9 8 7 6	Heavy deposits of fine material, increased bar development; more than 50% of the bottom changing frequently; pools almost absent due to substantial sediment deposition.
7. Frequency of Riffles	Occurrence of riffles relatively frequent; distance between riffles divided by the width of the stream equals 5 to 7; variety of habitat.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream equals 7 to 15.	Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water or shallow riffles; poor habitat; distance between riffles divided by the width of the stream is between ratio >25.
SCORE 18	20 19 (18/ 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1
8. Channel Flow Status	Water reaches base of both lower banks and minimal amount of channel substrate is exposed.	Water fills > 75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
SCORE 18	20 19 (18 / 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1
9. Condition of Banks	Banks stable, no evidence of erosion or bank failure.	Moderately stable; infrequent, small areas of erosion mostly healed over.	Moderately unstable; up to 60% of banks in reach have areas of erosion.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; on side slopes, 60-100% of bank has erosional scars.
SCORE <u>13</u>	20 19 18 17 16	15 14 (13) 12 11	10 9 8 7 6	5 4 3 2 1
10. Bank Vegetative Protection	More than 90% of the streambank surface covered by vegetation.	70-90% of the stream- bank surface covered by vegetation.	50-70% of the streambank surfaces covered by vegetation.	Less than 50% of the streambank surface covered by vegetation.
SCORE 16	20 19 18 17 (16)	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1
11. Grazing or Other Disruptive Pressure	Vegetative disruption, through grazing or mowing, minimal or not evident; almost all plants allowed to grow naturally. 20 19 18 17 16	Disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	Disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Disruption of vegetation is very high; vegetation has been removed to 2 inches or less in average stubble height.
12. Riparian Vegetative Zone Width	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear- cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters; little or no riparian vegetation due to human activities.
SCORE <u>8</u>	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1
Total Side 2 <u>97</u>				
Total Score				



WATERBODY NAME _	Little Buch 1	Bun	STR CODE/RMI <u>185</u>					
STATION NUMBER	7	LOCATION	LOCATION See attached map					
DATE 11/29/17	7							
AQUATIC ECOREGION		COUNTY_	Chester					
INVESTIGATORS	1SC, RS							
FORM COMPLETED B			RIFFLE	RUN PREVALENCE				
Habitat		Categ						
Parameter	Optimal	Suboptimal	Marginal	Poor				
Instream Cover (Fish)	Greater than 50% mix of boulder, cobble, sub- merged logs, undercut banks, or other stable habitat.	30-50% mix of boulder, cobble, or other stable habitat; adequate habitat.	10-30% mix of boulder, cobble, or other stable habitat; habitat availability less than desirable.	Less than 10% mix of boulder, cobble, or other stable habitat; lack of habitat is obvious.				
SCORE 14	20 19 18 17 16	15 (14) 13 12 11	10 9 8 7 6	5 4 3 2 1				
Epifaunal Substrate	Well developed riffle and run, riffle is as wide as stream and length extends two times the width of stream; abundance of cobble.	Riffle is as wide as stream but length is less than two times width; abundance of cobble; boulders and gravel common.	Run area may be lack- ing; riffle not as wide as stream and its length is less than two times the stream width; gravel or large boulders and bed- rock prevalent; some	Riffles or run virtually nonexistent; large boulders and bedrock prevalent; cobble lacking.				
SCORE /7	20 19 18 17 16	15 14 13 12 11						
3. Embeddedness	Gravel, cobble, and boulder particles are 0-25% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 25-50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50-75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are more than 75% surrounded by fine sediment.				
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1				
Velocity/Depth Regimes	All four velocity/depth regimes present (slow-deep, slow-shallow, fast-deep, fast-shallow).	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast-shallow or slow-shallow are missing, score lower than if missing other regimes).	Dominated by 1 velocity/depth regime (usually slow- deep).				
SCORE 16	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1				
5. Channel Alteration	No channelization or dredging present.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	New embankments present on both banks; and 40-80% of stream reach channelized and disrupted.	Banks shored gabion or cement; over 80% of the stream reach channelized and disrupted.				
SCORE 17	20 19 18 17 16	15 (14) 13 12 11	10 9 8 7 6	5 4 3 2 1				
Total Side 1								

Habitat		Categ	AND THE RESERVE AND THE PERSON NAMED IN	UN PREVALENCE		
Parameter	Optimal	Suboptimal	Marginal	Poor		
6. Sediment Deposition	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from coarse gravel; 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, coarse sand on old and new bars; 30-50% of the bottom affected; sediment deposits at obstruction, constriction, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 50% of the bottom changing frequently; pools almost absent due to substantial sediment deposition.		
7. Frequency of Riffles	Occurrence of riffles relatively frequent; distance between riffles divided by the width of the stream equals 5 to 7; variety of habitat.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream equals 7 to 15.	Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water or shallow riffles; poor habitat; distance between riffles divided by the width of the stream is between ratio >25.		
SCORE <u>18</u>	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1		
8. Channel Flow Status	Water reaches base of both lower banks and minimal amount of channel substrate is exposed.	Water fills > 75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.		
SCORE 14	20 19 18 17 16	15 (14 13 12 11	10 9 8 7 6	5 4 3 2 1		
9. Condition of Banks	Banks stable; no evidence of erosion or bank failure.	Moderately stable; infrequent, small areas of erosion mostly healed over.	Moderately unstable; up to 60% of banks in reach have areas of erosion.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; on side slopes, 60-100% of bank has erosional scars. 5 4 3 2 1		
10. Bank Vegetative	More than 90% of the	70-90% of the stream-	50-70% of the stream-	Less than 50% of the		
Protection	streambank surface covered by vegetation.	bank surface covered by vegetation.	bank surfaces covered by vegetation.	streambank surface covered by vegetation.		
score	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1		
11. Grazing or Other Disruptive Pressure	Vegetative disruption, through grazing or mowing, minimal or not evident; almost all plants allowed to grow naturally.	Disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	Disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Disruption of vegetation is very high; vegetation has been removed to 2 inches or less in average stubble height.		
THE STATE OF THE S	20 19 (18) 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1		
12. Riparian Vegetative Zone Width	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear- cuts, lawns, or crops) have not impacted zone. 20 19 18 17 16	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters; little or no riparian vegetation due to human activities. 5 4 3 2 1		
Total Side 2 97						
Total Score						





WATERBODY NAME _	ATERBODY NAME Little Buctifium STR CODE/RMI 185										
STATION NUMBER	8		See attached								
DATE 11/29	117		10000								
AQUATIC ECOREGION	12		COUNTY Chester								
INVESTIGATORS		September State Control of the Contr									
	ORM COMPLETED BY ASC RIFFLE/RUN PREVALENCE										
Habitat		Categ	orv								
Parameter	Optimal	Suboptimal	Marginal	Poor							
Instream Cover (Fish)	Greater than 50% mix of boulder, cobble, sub- merged logs, undercut banks, or other stable habitat.	30-50% mix of boulder, cobble, or other stable habitat; adequate habitat.	10-30% mix of boulder, cobble, or other stable habitat; habitat availability less than desirable.	Less than 10% mix of boulder, cobble, or other stable habitat; lack of habitat is obvious.							
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1							
2. Epifaunal Substrate	Well developed riffle and run, riffle is as wide as stream and length extends two times the width of stream; abundance of cobble.	Riffle is as wide as stream but length is less than two times width; abundance of cobble; boulders and gravel common.	Run area may be lack- ing; riffle not as wide as stream and its length is less than two times the stream width; gravel or large boulders and bed- rock prevalent; some cobble present.	Riffles or run virtually nonexistent; large boulders and bedrock prevalent; cobble lacking.							
SCORE 16	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1							
3. Embeddedness	Gravel, cobble, and boulder particles are 0-25% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 25-50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50-75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are more than 75% surrounded by fine sediment.							
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1							
Velocity/Depth Regimes SCORE	All four velocity/depth regimes present (slow-deep, slow-shallow, fast-deep, fast-shallow).	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast-shallow or slow-shallow are missing, score lower than if missing other regimes).	Dominated by 1 velocity/depth regime (usually slow- deep).							
	20 19 18 17 (16)	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1							
5. Channel Alteration	No channelization or dredging present.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	nt, usually in areas ge abutments; and 40-80% of stream reach channelized and disrupted. or cement; of the stream channelized and disrupted. or cement; of the stream channelized and disrupted.								
SCORE 12	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1							
Total Side 1 65											

Habitat	Category								
Parameter	Optimal	Suboptimal	Marginal	Poor					
6. Sediment Deposition	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from coarse gravel; 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, coarse sand on old and new bars; 30-50% of the bottom affected; sediment deposits at obstruction, constriction, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 50% of the bottom changing frequently; pools almost absent due to substantial sediment deposition.					
7. Frequency of Riffles	Occurrence of riffles relatively frequent; distance between riffles divided by the width of the stream equals 5 to 7; variety of habitat.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream equals 7 to 15.	Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water or shallow riffles; poor habitat; distance between riffles divided by the width of the stream is between ratio >25.					
SCORE 16	20 19 18 17 (16)	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1					
8. Channel Flow Status	Water reaches base of both lower banks and minimal amount of channel substrate is exposed.	Water fills > 75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.					
SCORE <u>15</u>	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1					
9. Condition of Banks SCORE /2	Banks stable; no evidence of erosion or bank failure.	Moderately stable; infrequent, small areas of erosion mostly healed over.	Moderately unstable; up to 60% of banks in reach have areas of erosion.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; on side slopes, 60-100% of bank has erosional scars. 5 4 3 2 1					
	NATIONAL STREET SAFETY MOTERN	The second second							
10. Bank Vegetative Protection	More than 90% of the streambank surface covered by vegetation.	70-90% of the stream- bank surface covered by vegetation.	50-70% of the stream- bank surfaces covered by vegetation.	Less than 50% of the streambank surface covered by vegetation.					
SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1					
11. Grazing or Other Disruptive Pressure	Vegetative disruption, through grazing or mowing, minimal or not evident; almost all plants allowed to grow naturally.	Disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining. 15 14 13 12 11	Disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining. 10 9 8 7 6	Disruption of vegetation is very high; vegetation has been removed to 2 inches or less in average stubble height.					
12. Riparian Vegetative	Width of riparian zone	Width of riparian zone	Width of riparian zone	Width of riparian zone					
Zone Width	>18 meters; human activities (i.e., parking lots, roadbeds, clearcuts, lawns, or crops) have not impacted zone. 20 19 18 17 16	12-18 meters; human activities have impacted zone only minimally.	6-12 meters; human activities have impacted zone a great deal.	<6 meters; little or no riparian vegetation due to human activities.					
Total Side 2 101			-						
Total Score 166									

APPENDIX D FLOWING WATER BODY FIELD DATA FORMS



FLOWING WATERBODY FIELD DATA FORM

0212-0312-XYZ		71129	11117	ASC		tershed Code (HUC)	Stream	Code	Cn. 9	3 Use
0212-0012-X12	Date	074	Time	Initials	02	040205	18	35	TSF,	MF
lary Station ID	LBF.	3 #	= /		Sun	veyed by:	ASC, R	5		
YYYYMMDD, tir		66 76	nitials uni	quely identify t	he stream read	ch.	SWP Wate	ershed	(23H
				Survey '	Гуре	L				711
n Survey, (2) Cau adation [Special I	use / Effect, (3) Protection], (8)	Fish Tissue, (Toxics, (10) Us	(4) Instre se Attaina	am Comprehe ability, (11) WC	nsive Evaluation	on [ICE], (5) Point- one, (13) Low-grad	of-First-Use, i	(6) SERA, bitat]	(7)	4
				Locati	on					
y: Cheste	~	Municipal	ity:	Highlan	d	Topo Quad:	Parkes	burg	, PA	1
	l map									
			ALESSE STORY	Land U	Jse				1111	
ntial:	LEADING BY		%	Industrial:			%	Pasture		%
	% Old Fiel	ds:	%	Forest:		% Other:	%			
Collector-			eter Re	adings:						
sequence #	Temp (°C)	(mg/l)	рН	(µS/cm)	mg/l	indicate)	tais interec	13.		
	6.6	14.58	8129	7	0.2					
		11121		4310	PAT					
Appearance/	Odor Comn	nents: (* se	e botto			descriptors)				
	lovesiand		Investo				D .	a al ata		
red:	biology?		habita	t?	loca	lized?	desig	nated use	e?	
					mpaired" oi	"Impaired" de	ecision; rea	ich loca	tions	for use
					/					
	YYYYMMDD, tin Survey, (2) Catadation [Special Is y: Cheste n Description: attaches ntial: ning: see Comments: y cover: open Collector- sequence # Appearance/	YYYYMMDD, time as military times and adation [Special Protection], (8) adation [Specia	YYYYMMDD, time as military time, and your in Survey, (2) Cause / Effect, (3) Fish Tissue, adation [Special Protection], (8) Toxics, (10) Using: Chester Municipal Municipal	YYYYMMDD, time as military time, and your initials unit and source, (2) Cause / Effect, (3) Fish Tissue, (4) Instreadation [Special Protection], (8) Toxics, (10) Use Attainated by: Chester Municipality:	YYYYMMDD, time as military time, and your initials uniquely identify to Survey. Survey. (2) Cause / Effect. (3) Fish Tissue, (4) Instream Comprehe adation [Special Protection], (8) Toxics, (10) Use Attainability, (11) WC Location. Location Description: Attached Manage Land Land Land Land Land Land Land Land	YYYYMMDD, time as military time, and your initials uniquely identify the stream read Survey Type In Survey, (2) Cause / Effect, (3) Fish Tissue, (4) Instream Comprehensive Evaluation addition (Special Protection), (8) Toxics, (10) Use Attainability, (11) WQN, (12) Limest Location In Description: In Descripti	YYYYMMDD, time as military time, and your initials uniquely identify the stream reach. Survey Type In Survey, (2) Cause / Effect, (3) Fish Tissue, (4) Instream Comprehensive Evaluation [ICE], (5) Point-adation [Special Protection], (8) Toxics, (10) Use Attainability, (11) WQN, (12) Limestone, (13) Low-graded Location W. Chester Municipality: High land Topo Quad: In Description: Attached Image In Description: W. Industrial: % Cropland: ning: % Old Fields: % Forest: % Other: See Comments: Water Quality Field Meter Readings: Bottle Notes (Note: Note: Not	YYYYMMDD, time as military time, and your initials uniquely identify the stream reach. Survey Type a Survey, (2) Cause / Effect, (3) Fish Tissue, (4) Instream Comprehensive Evaluation [ICE], (5) Point-of-First-Use, addition [Special Protection], (8) Toxics, (10) Use Attainability, (11) WON, (12) Limestone, (13) Low-gradient [Multihat Location Y: Chester Municipality: High and Topo Quad: Partices In Description: Attached Partices In Description: William William William In Description: William William William In Description: William William In Description: William William In Description: Willia	YYYYMMDD, time as military time, and your initials uniquely identify the stream reach. Survey Type 1 Survey. (2) Cause / Effect. (3) Fish Tissue. (4) Instream Comprehensive Evaluation [ICE]. (5) Point-of-First-Use. (6) SERA, adation (Special Protection), (8) Toxics, (10) Use Attainability, (11) WQN, (12) Limestone, (13) Low-gradient [Multihabitat] Location Y: Chester Municipality: High land Topo Quad: Bartlesburg. In Description: Attail: % Commercial: % Industrial: % Cropland: % Pasture ning: % Old Fields: % Forest: % Other: % Water Quality Field Meter Readings: Collector-sequence # Temp (C) DO pH (us/cm) mg/limpaired, (us/cm) mg/limpaired, (us/cm) mg/limpaired indicate) Appearance/Odor Comments: (* see bottom of back for common descriptors) Findings Impaired Impaired Is impact Gesignated use on comments. Describe the rationale for your "Not Impaired" or "Impaired" decision; reach local atton reevaluations; special condition comments; etc.:	YYYYMMDD, time as military time, and your initials uniquely identify the stream reach. Survey Type 1 Survey, (2) Cause / Effect, (3) Fish Tissue, (4) Instream Comprehensive Evaluation [ICE], (5) Point-of-First-Use, (6) SERA, (7) adation (Special Protection), (8) Toxics, (10) Use Attainability, (11) WON, (12) Limestone, (13) Low-gradient [Multihabitat] Location W: Chester Municipality: High and Topo Quad: Perfecsburgs Phinability: Pesture: Inline: % Commercial: % Industrial: % Cropland: % Pasture: Inline: % Other: % Other: % Other: % See Comments: Water Quality Field Meter Readings: Bottle Notes (N-normal, MNF-metals non filtered, MF-metals filtered, B-bac't, Othe indicate) Collector- Sequence # Temp (°C) (mg/l) pH (µS/cm) mg/l Gollector- Sequence # Temp (°C) (mg/l) pH (µS/cm) mg/l Findings Findings Impaired Impaired Impaired Is impact Reevaluate R

LBB#

Macroinvertebrate sampling	
Sampling method: Std. kick screen: D-frame: Surber: Other: method?:	
Comments/Abundance Notes:	
	Part of the state
Habitat Impairment Thresholds	Metric Score
#3 Riff/Run: embeddedness <u>or</u> #3 Glide/Pool: substrate character + #6 Sediment Deposition = 24 or less (20 or less for warm water, low gradient streams)	3/
#9 Condition of Banks + #10 Bank Vegetation = 24 or less (20 or less for warm water, low gradient streams	22
Total habitat score 140 or less for forested, cold water, high gradient streams (120 or less for warm water, low gradient streams)	191
Habitat Comments:	, , ,
Special Condition	
Use this block to describe conditions that justify attainment/impairment of stations with IBI sco	re <63 and >53.
*Common descriptors: Water Odors - none normal sewage petroleum chemical other, Water Surface Oils - none slici	sheen globs flecks:
Turbidity - clear clight turbid onague: NDS pollution no evidence come notantial obvious: Sediment Oders none not	
Turbidity - clear slight turbid opaque; NPS Pollution - no evidence some potential obvious; Sediment Odors - none nor chemical anaerobic; Sediment Oils - absent slight moderate profuse; Deposits - none sludge sawdust paper fiber sand Are the undersides of stones deeply embedded black?	mal sewage petroleum



FLOWING WATERBODY FIELD DATA FORM

	e-Time-Initial Example		2017	1129	103	5	ASC	Wa	tershed (HUC)	Code	Stream	Code	Ch.	93 Use
2004	40212-0312-X	Z	Date		Time		Initials	02	0402	25	18	5	TSF	MF
Secon	dary Station I	2	#2	LBF	3			Surv	veyed by:	A	SCIBS			
*Date a	s YYYYMMDD, t	ime as	military tin	ne, and yo	ur initials ur	iquely id	dentify the	stream read	h.		SWP Wat		1111	034
						Su	rvey Ty	ре		-				
(1) Bas Antideg	(1) Basin Survey, (2) Cause / Effect, (3) Fish Tissue, (4) Instream Comprehensive Evaluation [ICE], (5) Point-of-First-Use, (6) SERA, (7) Antidegradation [Special Protection], (8) Toxics, (10) Use Attainability, (11) WQN, (12) Limestone, (13) Low-gradient [Multihabitat]													
	Location													
Count	ty: Chest	er		Munici	pality:	Sad	sbur	V	Topo Qu	ad:	Part	esbur	016	24
Location	on Description:	ed i	map				,							
						L	and Use	,						
Reside	STATE OF THE PARTY	%	Comme	STATE OF THE PARTY	%	Indust			% Cropl		%	Pastur	e:	%
Abd. N	lining: Jse Comments	%	Old Field	ds:	%	Fores	t.		% Other		%			
1. 2.	Collector- sequence #	Te	emp (°C)	Field DO (mg/l	6 7.8	eadings Co (µS	ond. A /cm)	lity lkalinity mg/l 6.2 alinity		MF-me	-normal, N tals filtered			
3.				, ,			-	PPT						
Water	Appearance	e/Odo	or Comm	nents: (*	see botto	om of b	ack for o	common	descripto	rs)				
		_				The Real Property lies	indings	7						
Impa		74100	npaired iology?		Impair habita			100000000000000000000000000000000000000	npact lized?			evaluate nated us		
	on comment	s. D	escribe t		nale for	your "				ed" de	cision; rea	ch loc	ations	for use
IBI Sc	ore: 59	0	Tot	al Habit	at Score	: 19	16							-
								© (a)						

LBR#Z

Macroinvertebrate sampling	
Sampling method: Std. kick screen: □ D-frame: ☑ Surber: □ Other: □ method?:	
Comments/Abundance Notes:	
Habitat Impairment Thresholds	Metric Score
#3 Riff/Run: embeddedness <u>or</u> #3 Glide/Pool: substrate character + #6 Sediment Deposition = 24 or less (20 or less for warm water, low gradient streams)	27
#9 Condition of Banks + #10 Bank Vegetation = 24 or less (20 or less for warm water, low gradient streams	38
Total habitat score 140 or less for forested, cold water, high gradient streams (120 or less for warm water, low gradient streams)	196
Habitat Comments:	
Special Condition	
*Common descriptors: Water Odors - none normal sewage petroleum chemical other, Water Surface Oils - none slic Turbidity - clear slight turbid opaque; NPS Pollution - no evidence some potential obvious; Sediment Odors - none normal	k sheen globs flecks;
chemical anaerobic; Sediment Oils - absent slight moderate profuse; Deposits - none sludge sawdust paper fiber sand Are the undersides of stones deeply embedded black?	relict shells other.



FLOWING WATERBODY FIELD DATA FORM

Date-Time-Initials	2	20171129	-1019	ASC	Wat	tershed Code (HUC)	Stream Co	de Ch	. 93 Use		
20040212-0312-XYZ		Date	Time	Initial	The second secon	040205	186	TSI	5,MF		
Secondary Station ID		LB	BF	3	Surv	reyed by:	ISC, BS				
*Date as YYYYMMDD, time as military time, and your initials uniquely identify the stream reach. SWP Watershed 03H											
				Survey	Туре						
(1) Basin Survey, (2) Cau Antidegradation [Special F	(1) Basin Survey, (2) Cause / Effect, (3) Fish Tissue, (4) Instream Comprehensive Evaluation [ICE], (5) Point-of-First-Use, (6) SERA, (7) Antidegradation [Special Protection], (8) Toxics, (10) Use Attainability, (11) WQN, (12) Limestone, (13) Low-gradient [Multihabitat]										
Location											
County: Chest	County: Chester Municipality: Sadsbury Topo Quad: Partiesburg, PA										
Location Description: See Arrac	Location Description: See Attached Map										
				Land l	Jse						
Residential:	95	Commercial:	%	Industrial:	100 (100 pt)	% Cropland:	3333	asture:	%		
Abd. Mining: Land Use Comments:	% (Old Fields:	%	Forest:		% Other:	%				
Canopy cover: open	(parti		tly shaded	Water Q	uality	Pattle Nates (N normal MNE	motolo n			
Collector- sequence #	Tem	ip (°C) (mg		Cond. (µS/cm)	-Alkalinity		N-normal, MNF etals filtered, B				
1. 2.	6,	1 /2,4	13 7,4	11465	O. Salinity	e					
3.		,,,,	′′	22112	Pet						
Water Appearance/	Odor	Comments:	(* see botto	om of back fo	or common (descriptors)					
				Findir	ngs						
Not Impaired:	biol	aired ogy?	Impair habita	it?	loca	npact lized?	Reeva designat	ed use?			
Decision comments. designation reevaluat					mpaired" or	"Impaired" d	ecision; reach	location	s for use		
IBI Score: 75,			itat Score								

3800-FM-WSFR0	086 R	ev. 12	2008

LBB#3

Sampling method: Std. kick screen: □ D-frame: ☑ Other: □ method?: □ Comments/Abundance Notes:	
Comments/Abundance Notes:	
Habitat Impairment Thresholds Me	etric Score
#3 Riff/Run: embeddedness <u>or</u> #3 Glide/Pool: substrate character + #6 Sediment Deposition = 24 or less (20 or less for warm water, low gradient streams)	0
#9 Condition of Banks + #10 Bank Vegetation = 24 or less (20 or less for warm water, low gradient streams	/
Total habitat score 140 or less for forested, cold water, high gradient streams (120 or less for warm water, low gradient streams)	3
Habitat Comments:	
Special Condition	
*Common descriptors: Water Odors - none normal sewage petroleum chemical other, Water Surface Oils - none slick sheet Turbidity - clear slight turbid opaque; NPS Pollution - no evidence some potential obvious; Sediment Odors - none normal second chemical anaerobic; Sediment Oils - absent slight moderate profuse; Deposits - none sludge sawdust paper fiber sand relicts	en globs flecks;



FLOWING WATERBODY FIELD DATA FORM

	e-Time-l Examp	le	2017	1129 -	2830	o AS	C		rshed Code (HUC)	Stream	Code	Ch. 9	3 Use
200	40212-03	12-XYZ	Date		Time	Initial	s	020	140205	185		TSF	MF
Secon	dary Sta	tion ID	4	LA	3R			Surve	yed by: A	SCIRS			
*Date a	as YYYYMI	MDD, time a	s military time	e, and your i	nitials uni	quely identify	the strea	m reach.		SWP Wate	and the second		03H
Survey Type													
(1) Bas Antideç	(1) Basin Survey, (2) Cause / Effect, (3) Fish Tissue, (4) Instream Comprehensive Evaluation [ICE], (5) Point-of-First-Use, (6) SERA, (7) Antidegradation [Special Protection], (8) Toxics, (10) Use Attainability, (11) WQN, (12) Limestone, (13) Low-gradient [Multihabitat]												
Location													
Coun	County: Chester Municipality: Partiesburg Topo Quad: Partiesburg, PA												
Location Description: See attached map													
						Land I	Jse						
Reside		%	Commerc	7247	%	Industrial:		%	Cropland:	%	Pasture	э:	%
CANADA CONTRACTOR	Mining: Use Comr	. %	Old Field:	3:	%	Forest:		%	Other:	%			
Cano	py cover:	open pa	artly shaded		haded f	Water Q	uality	E	Bottle Notes (I	N-normal, M	NF-met	als non	ı -
	Collec		emp (⁰ C)	DO (mg/l)	рН	Cond. (µS/cm)	Alkali	Section 1997	iltered, MF-me ndicate)	etals filtered	I, B-bac	't, Othe	ers:
1.		_	617	11.00	745	3861	Salin	600					
3.				1017		3 17	PPI						
Wate	r Appea	rance/Od	or Comme	ents: (* se	ee botto	m of back f	or com	mon de	escriptors)				
						Findi	ngs						
Impa	lot aired:		mpaired biology?		Impaire habitat	1?	1000	Is imp	ted?	desig	evaluate nated us	e?	
			Describe thes; special				mpaire	d" or '	'Impaired" de	ecision; rea	ch loc	ations	for use
IBI S	core:	34.65	Tota	l Habitat	Score:	204	1						

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Macroinvertebrate sampling		
Sampling method: Std. kick screen: □ D-frame: ☑ Surber: □ Other: □ method?:		
Comments/Abundance Notes:		
Habitat Impairment Thresholds	Metric Score	
#3 Riff/Run: embeddedness <u>or</u> #3 Glide/Pool: substrate character + #6 Sediment Deposition = 24 or less (20 or less for warm water, low gradient streams)	28	
#9 Condition of Banks + #10 Bank Vegetation = 24 or less (20 or less for warm water, low gradient streams	40	
Total habitat score 140 or less for forested, cold water, high gradient streams (120 or less for warm water, low gradient streams)	204	
Habitat Comments:		
Special Condition		
Use this block to describe conditions that justify attainment/impairment of stations with IBI score		
*Common descriptors: Water Odors - none normal sewage petroleum chemical other, Water Surface Oils - none slick Turbidity - clear slight turbid opaque; NPS Pollution - no evidence some potential obvious; Sediment Odors - none nor chemical anaerobic; Sediment Oils - absent slight moderate profuse; Deposits - none sludge sawdust paper fiber sand Are the undersides of stones deeply embedded black?	mal sewage petroleum	

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COMMONWEALTH OF PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION BUREAU OF POINT AND NON-POINT SOURCE MANAGEMENT

FLOWING WATERBODY FIELD DATA FORM

	te-Time-Initia Example		20171	1/29	750	- AS	CW		shed Code HUC)	Stream	Code	Ch. 9	3 Use
200)40212-0312-X	YZ	Date		Time	Initial	s 02		0205	187		TSF	MF
Seco	ndary Station I	D	5	1	-BR		Su	rvey	ed by: A	SC, RS		-	
*Date	as YYYYMMDD,	time as	military time	e, and your	initials uni	quely identify	the stream re	ach.		SWP Wate	ershed	0	13H
	Survey Type												
(1) Ba Antide	(1) Basin Survey, (2) Cause / Effect, (3) Fish Tissue, (4) Instream Comprehensive Evaluation [ICE], (5) Point-of-First-Use, (6) SERA, (7) Antidegradation [Special Protection], (8) Toxics, (10) Use Attainability, (11) WQN, (12) Limestone, (13) Low-gradient [Multihabitat]												
	Location												
Cour		ter		Municipa	ality:	Parties	burg	То	po Quad:	Parkes	burg	PA	
Locati	Location Description: See attached map												
						Land l	Jse						
(CONTRACTOR)	ential:	%	Commerc		%	Industrial:		%	Cropland:	%	Pasture	э:	%
	Mining: Use Comments	%	Old Field	S:	%	Forest:		%	Other:	%			
				Field I	Meter Re	Water Q	uality	B	ottle Notes (N	I-normal M	NF-met	als non	
	Collector- sequence #	Te	emp (°C)	DO (mg/l)	рН	Cond. (µS/cm)	Alkalinity mg/l	fil	tered, MF-me dicate)				
1.		4	1.8	93,6	73	1 2 2 2 4	0.1						
3.				7516	26	287,7	Salinity	-					
Wate	Water Appearance/Odor Comments: (* see bottom of back for common descriptors)												
						Findir							
100	Not aired:		npaired ology?	Ø	Impaire habita			impa			evaluate nated us		
Decision comments. Describe the rationale for your "Not Impaired" or "Impaired" decision; reach locations for use designation reevaluations; special condition comments; etc.:													
IBI Score: 46,3/ Total Habitat Score: 2/3													

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LBR#5

	Macroinverte	brate sampling		
Sampling method: Std. kick screen:	D-frame: 🛛 Surbe	r: Other:	method?:	
Comments/Abundance Notes:				
Habi	tat Impairment Thre	sholds		Metric Score
#3 Riff/Run: embeddedness <u>or</u> #3 Glide (20 or less for warm water, low gradient		cter + #6 Sediment	Deposition = 24 or less	30
#9 Condition of Banks + #10 Bank Veget streams	ation = 24 or less (20 o	or less for warm wa	ter, low gradient	40
Total habitat score 140 or less for forest water, low gradient streams)	ed, cold water, high gr	radient streams <i>(12</i>	0 or less for warm	213
Habitat Comments:				
	Special	Condition		
Use this block to describe condition	s that justify attainn	nent/impairment o	of stations with IBI sco	re <63 and >53.
*Common descriptors: Water Odors - none	ormal sewage petroleum	n chemical other: W	ater Surface Oils - none slice	k sheen globs flecks:
Turbidity - clear slight turbid opaque; NPS in chemical anaerobic; Sediment Oils - absent s	collution - no evidence so light moderate profuse; D	ome potential obvious	Sediment Odors - none no	rmal sewage petroleum
Are the undersides of stones deeply embedo	ed black?			



FLOWING WATERBODY FIELD DATA FORM

Dat	te-Time-Initials Example	5 *	2017/	129 - 1	1700) - ASO	\mathcal{C}	15.500000000000000000000000000000000000	rshed Code	Stream	Code	Ch. 93 Use
200	040212-0312-XY	z	Date	. (Time	Initials	5		(HUC)	185		TSEME
Seco	ndary Station ID		Listle	Buch	Run	#6			yed by:	1 SC, F	35	121 //111
*Date	as YYYYMMDD, ti	me as	(8092 W/SS	145	A Lightly III	NO AS ARREST DESIRE OF	he strea	ım reach.		SWP Wat	STATE OF THE PARTY OF	03H
						Survey 1	Гуре		-			
(1) Ba Antide	(1) Basin Survey, (2) Cause / Effect, (3) Fish Tissue, (4) Instream Comprehensive Evaluation [ICE], (5) Point-of-First-Use, (6) SERA, (7) Antidegradation [Special Protection], (8) Toxics, (10) Use Attainability, (11) WQN, (12) Limestone, (13) Low-gradient [Multihabitat]											
	Location											
Cour	ity: Che	ste	r	Municipa	lity:	Parkesk	ura	To	po Quad:	Parke	Spura	PA
Locati	ion Description:	See	att	ached,	nap							8
	316					Land U	lse					
Direction of	ential:	%	Commer	052000	%	Industrial:		%	Cropland:	%	Pasture	: %
	Mining: Use Comments:	%	Old Field	ls:	%	Forest:		%	Other:	%		
Cano	py cover: open	ра	rtly shaded			fully shaded Water Que adings:	uality	l P	ottle Notes (N	N-normal M	NF-meta	ls non-
	Collector-	-		DO		Cond.	Alkal	inity fi	Itered, MF-me			
1.	sequence #	_	mp (°C)	(mg/l)	7/9	(μS/cm)	-mg		ndicate)			
2.				86,8%		457,2	sali					
3.	. Annoquono	104	- Camm	anta. /* a		un of book fo	PPT					
wate	Water Appearance/Odor Comments: (* see bottom of back for common descriptors)											
Findings												
Not Impaired Impaired Impaired Impaired Indication Ind												
Decision comments. Describe the rationale for your "Not Impaired" or "Impaired" decision; reach locations for use designation reevaluations; special condition comments; etc.:												
IBI Score: 29,17 Total Habitat Score: 173												
	29,17 Total Habitat Scole. 1/3											

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LBB#6

Macroinvertebrate sampling	
Sampling method: Std. kick screen: D-frame: Surber: Other: method?:	
Comments/Abundance Notes:	
Habitat Impairment Thresholds	Metric Score
#3 Riff/Run: embeddedness <u>or</u> #3 Glide/Pool: substrate character + #6 Sediment Deposition = 24 or less (20 or less for warm water, low gradient streams)	23
#9 Condition of Banks + #10 Bank Vegetation = 24 or less (20 or less for warm water, low gradient streams	29
Total habitat score 140 or less for forested, cold water, high gradient streams (120 or less for warm water, low gradient streams)	173
Habitat Comments:	
Special Condition	
Use this block to describe conditions that justify attainment/impairment of stations with IBI sco	re <63 and >53.
,,,	
*Common descriptors: Water Odors - none normal sewage petroleum chemical other; Water Surface Oils - none slici	· sheer state Orates
Turbidity - clear slight turbid opaque; NPS Pollution - no evidence some potential obvious; Sediment Odors - none no chemical anaerobic; Sediment Oils - absent slight moderate profuse; Deposits - none sludge sawdust paper fiber sand	mal sewage petroleum



FLOWING WATERBODY FIELD DATA FORM

Date-Time-Initials* Example	2017	1129 -	093	O ASO	Wa	tershed Code (HUC)	Stream	Code	Ch. 93 Use	
20040212-0312-XYZ	Date		Time	Initial	s 02	040205	185		TSFMF	
Secondary Station ID	7	4	BR		Sur	veyed by:	45C, F	35		
*Date as YYYYMMDD, time	as military tin	ne, and your	initials uni	quely identify	the stream rea	ch.	SWP Wat		034	
				Survey	Туре					
(1) Basin Survey, (2) Cause / Effect, (3) Fish Tissue, (4) Instream Comprehensive Evaluation [ICE], (5) Point-of-First-Use, (6) SERA, (7) Antidegradation [Special Protection], (8) Toxics, (10) Use Attainability, (11) WQN, (12) Limestone, (13) Low-gradient [Multihabitat]										
				Locat						
County: Chest	er	Municipa	ality:	Partiese	burg	Topo Quad:	Parke	shui	g,PA	
Location Description: See at the	Location Description: See attached map									
				Land l	Jse					
Charles and American Control of the	% Commer		%	Industrial:		% Cropland:	%	Pasture	: %	
Abd. Mining: Land Use Comments:	% Old Field	ds:	%	Forest:		% Other:	%			
		Field I	Meter Rea	Water Q	uality	Bottle Notes (I	N-normal M	INE-meta	le non-	
Collector- sequence #	Temp (°C)	DO (mg/l)	рН	Cond. (µS/cm)	Alkalinity mg/l	filtered, MF-me				
1.	5.8	93.89	7.27	3945	Solinity					
3.		1 3.0 /	5	39-10	Salinky					
Water Appearance/Odor Comments: (* see bottom of back for common descriptors)										
Findings Not										
Impaired:	Impaired biology?	M	Impaire habitat	?	loca	mpact	desig	evaluate nated use		
Decision comments. Describe the rationale for your "Not Impaired" or "Impaired" decision; reach locations for use designation reevaluations; special condition comments; etc.:										
IBI Score: 38,6 Total Habitat Score: 7										
					•					

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LBR#7

Macroinvertebrate sampling	
Sampling method: Std. kick screen: D-frame: Surber: Other: method?:	
Comments/Abundance Notes:	
Habitat Impairment Thresholds	Metric Score
#3 Riff/Run: embeddedness <u>or</u> #3 Glide/Pool: substrate character + #6 Sediment Deposition = 24 or less (20 or less for warm water, low gradient streams)	22
#9 Condition of Banks + #10 Bank Vegetation = 24 or less (20 or less for warm water, low gradient streams	23
Total habitat score 140 or less for forested, cold water, high gradient streams (120 or less for warm water, low gradient streams)	17/
Habitat Comments:	
Special Condition	
*Common descriptors: Water Odors - none normal sewage petroleum chemical other; Water Surface Oils - none slict Turbidity - clear slight turbid opaque; NPS Pollution - no evidence some potential obvious; Sediment Odors - none nor chemical anaerobic; Sediment Oils - absent slight moderate profuse; Deposits - none sludge sawdust paper fiber sand	k sheen globs flecks; mal sewage petroleum



FLOWING WATERBODY FIELD DATA FORM

Date	e-Time-In		2017	1129 -	0853	3 - A	SC	Wate	rshed Code	Stream	Code	Ch. 93 Use
200	Example 40212-031		Date		Time		ials	02/	(HUC)	185		TSF, MF
Secon	dary Stati	on ID	9	/	-BB		iidio	100 500 000		SC, RS	_	1-1 /////
1244	11000 2000	e e	s military time			igualy idan	if, the et		/ /			19711
Date	IS I I I I I I I I I I I I I I I I I I	DD, time a	S ITHIII CATY LITTE	e, and you	ii ii ii ii iais ui		ey Type		į	SWP Wat	ersnea	034
(1) Bas	in Survey ((2) Cause	/ Effect (3) F	ish Tissu	e (4) Instra				[ICE], (5) Point-	of Firet I lea	(6) SEDA	(7) / #
Antideo	radation [S	pecial Prot	ection], (8) To	oxics, (10)	Use Attain	ability, (11)	WQN, (1	2) Limestor	ie, (13) Low-grad	dient [Multihat	oitat]	(1) 4
		,					ation					
Coun	ty:	hegte	r 1	Municip	ality:	Parties	burg	T	opo Quad:	Portes	buras	PA
Location	on Descrip	tion: See a	rttache	ed K								
						Lan	d Use					
Reside	THE RESERVE OF THE PARTY OF THE	%	Commerc	100000	%	Industria	l:	%	Cropland:	%	Pasture	: %
Abd. N	Ining: Use Comm	%	Old Field	s:	%	Forest:		%	Other:	%		
Canor	y cover:		artly shaded	Field	shaded (Water	Qualit		Bottle Notes (f			
	Collecto		emp (°C)	DO (mg/l)	рН	Cond (µS/cr			iltered, MF-me ndicate)	etals filtered	d, B-bac't	, Others:
1.			513	1017	7 7.4	7 223	3,9 0	7,2				
2. 3.				87.	48	247	5 Sal	inity				
Water Appearance/Odor Comments: (* see bottom of back for common descriptors)												
Findings												
	ot aired:		mpaired piology?	⊠.	Impair habita			Is implication		Re desig	evaluate nated use	?
Decision comments. Describe the rationale for your "Not Impaired" or "Impaired" decision; reach locations for use designation reevaluations; special condition comments; etc.:												
IBI Score: 36.85 Total Habitat Score: 166												
			·									

LBR#8

Macroinvertebrate sampling							
Sampling method: Std. kick screen: D-frame: Surber: Other: method?:							
Comments/Abundance Notes:							
Habitat Impairment Thresholds	Metric Score						
#3 Riff/Run: embeddedness <u>or</u> #3 Glide/Pool: substrate character + #6 Sediment Deposition = 24 or less (20 or less for warm water, low gradient streams)	19						
#9 Condition of Banks + #10 Bank Vegetation = 24 or less (20 or less for warm water, low gradient streams	27						
Total habitat score 140 or less for forested, cold water, high gradient streams (120 or less for warm water, low gradient streams)	166						
Habitat Comments:							
Special Condition							
*Common descriptors: Water Odors - none normal sewage petroleum chemical other, Water Surface Oils - none slick Turbidity - clear slight turbid opaque; NPS Pollution - no evidence some potential obvious; Sediment Odors - none norm chemical anaerobic; Sediment Oils - absent slight moderate profuse; Deposits - none sludge sawdust paper fiber sand	s sheen globs flecks;						

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APPENDIX E PROFESSIONAL QUALIFICATIONS

Aaron S. Clauser, PhD, CPESC -

At Clauser Environmental, LLC, he serves as the technical/production lead on scientific projects. Dr. Clauser has his bachelor's degree in Biology and Environmental Studies from East Stroudsburg University of Pennsylvania and a doctorate in Environmental Science from Lehigh University. Dr. Clauser is a Certified Professional in Erosion and Sediment Control. He has experience as an environmental regulator with the Berks and Schuvlkill Conservation Districts where he has served at both the technician and managerial levels. Dr. Clauser began consulting as a Senior Environmental Scientist and Project Manager for RETTEW Associates, Inc. He has given oral presentations at conferences held by the Ecological Society of America, American Society of Limnology and Oceanography, Coldwater Heritage Partnership, Partnership for the Delaware Estuary, Delaware Riverkeeper, Pocono Comparative Lakes Program and Schuvlkill and Berks Conservation Districts and has collaborated on an article published about Pacific Northwest amphibians in a peer-reviewed journal. Dr. Clauser has completed numerous training courses including DEP sponsored NPDES, Chapter 102 and 105 technical seminars, Applied Fluvial Geomorphology for Engineers (FGE) by Wildland Hydrology, Inc., and Environmentally Sensitive Maintenance of Dirt and Gravel Roads Training. Dr. Clauser served in the PA Air National Guard where he attained the rank of Staff Sergeant. His doctoral dissertation entitled "Zooplankton to Amphibians: Sensitivity to UVR in Temporary Pools" includes quantitative optical and organismal level models that are extended to landscape level variations in pool optical properties and population level sensitivity to Ultraviolet Radiation.

Krista S. Clauser -

As the President of Clauser Environmental, LLC, she is responsible for overall client satisfaction, quality assurance, educational outreach programs, and project management. Ms. Clauser has her bachelor's degree in Special Education and Elementary Education from Kutztown University of Pennsylvania and graduate level coursework in Education from Kutztown University of Pennsylvania and Indiana Wesleyan University. She has experience as a Special Education Teacher at Schuylkill Intermediate Unit and a homeschool educator at the elementary and secondary levels. Ms. Clauser has expertise in integrating environmental/outdoor curricula into a diversity of subjects and educational settings.