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MANKO | GOLD | KATCHER | FOX LLP

AN ENVIRONMENTAL AND ENERGY LAW PRACTICE

Jonathan E. Rinde
484-430-2325
jrinde@mankogold.com

Admitted in PA and NJ

401 CITY AVENUE, SUITE 901
BALA CYNWYD, PA 19004
TEL: 484-430-5700
FAX: 484-430-5711
WWW.MANKOGOLD.COM

November 13, 2017

Via Electronic Mail

Chairman George D. Bedwick
Pennsylvania Independent Regulatory Review Commission
333 Market St, 14th Floor
Harrisburg, PA 17101
irrc@irrc.state.pa.us

*CHERRY HILL, NJ
**HONOLULU, HI
PHILADELPHIA, PA
WILLIAMSPORT, PA
by appointment only

*Partner responsible - Bruce S. Katcher
**Partner responsible - Brenda H. Gotanda

Re: Environmental Quality Board Regulation #7-535 (IRRC #3150)
Stream Redesignation - Swiftwater Creek

2017 NOV 13 P
RECEIVED
IRRC

Dear Chairman Bedwick:

Pocono Manor Investors, LP ("Pocono Manor"), through its counsel, submits the following additional comments on Environmental Quality Board ("EQB") Regulation #7-535 (IRRC #3150), which would reclassify the Designated Use of Swiftwater Creek to Exceptional Value ("EV"). This is Pocono Manor's third set of comments submitted to the Independent Regulatory Review Commission ("IRRC") on Regulation #7-535. Pocono Manor previously submitted comments on Regulation #7-535 to IRRC on November 3, 2017 and November 9, 2017, wherein Pocono Manor identified, among other issues, serious technical and legal deficiencies with the Pennsylvania Department of Environmental Protection's ("PADEP") Stream Redesignation Evaluation Report (the "Report"), which the EQB has relied upon as its underlying basis for Regulation #7-535.

In our prior comments, we identified that PADEP failed to sample an adequate number of sample stations in accordance with its regulations and its Water Quality Antidegradation Implementation Guidance ("Guidance"), and PADEP's sampling stations did not account for various features along Swiftwater Creek in accordance with its Guidance, including a golf course and a dam and impoundment. Recently, Pocono Manor retained a consultant, Normandeau Associations, Inc. ("Normandeau"), to review PADEP's Report and to conduct further sampling, in accordance with PADEP's approved sampling procedures, along Swiftwater Creek and its tributary, Indian Run, to determine the proper classification of Swiftwater Creek. The results of Normandeau's sampling efforts are enclosed. In the areas of the stream where PADEP had sampled two stations, Normandeau sampled seven stations. The biological scores at the recently sampled stations ranged from 50 to 82.5. This result is significant, because none of the stations qualified for an Exceptional Value ("EV") classification, which requires a score of at least 92 under PADEP's regulations at 25 Pa. Code § 93.4b. In fact, none of the stations even qualified

Chairman George D. Bedwick
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for a High Quality ("HQ") classification, which requires a score of at least 83 under PADEP's regulations at 25 Pa. Code § 93.4b.

Normandeau's findings confirm that PADEP's Report is technically and legally deficient. As a result, Regulation #7-535 is not in the public interest in accordance with Section 5.2 of the Regulatory Review Act, 71 P.S. § 745.5b, because it is not consistent with PADEP's and the EQB's statutory authority and is not supported by acceptable data. 71 P.S. §§ 745.5b(a), (b)(7). We therefore request that IRRC disapprove Regulation #7-535.

Given the additional deficiencies identified by Pocono Manor and Normandeau, by copy of this letter we are again requesting that the Pennsylvania Senate Environmental Resources and Energy Committee and the House of Representatives Environment Resource and Energy Committee submit comments to IRRC to similarly disapprove Regulation #7-535.

Pocono Manor intends to appear at the November 16, 2017 public meeting to testify in opposition to Environmental Quality Board Regulation #7-535 (IRRC #3150). Thank you for your consideration of these comments.

Respectfully submitted,



Jonathan E. Rinde

For MANKO, GOLD, KATCHER & FOX, I.L.P.

Enclosure

cc: Patrick McDonnell, PADEP Secretary
The Honorable Senator Gene Yaw, Chair, PA Senate Environmental Resources and Energy Committee
The Honorable Senator John Yudichak, Minority Chair, PA Senate Environmental Resources and Energy Committee
The Honorable Representative John Maher, Chair, PA House of Representatives Environment Resource and Energy Committee
The Honorable Representative Mike Carroll, Minority Chair, PA House of Representatives Environment Resource and Energy Committee
Annie Lamberton, Supervisor, Tobyhanna Township
George Ewald, Supervisor, Tunkhannock Township
William Pipolo Jr., Supervisor, Barrett Township
Steve Pine, Director of Development, Kalahari Resort and Conference Center
David W. Moyer, President, Papillon & Moyer
Karl M. Weiler, Chairman, Weiler Corp.
Nick Igdalsky, CEO, Pocono Raceway

Macroinvertebrate Survey in Swiftwater Creek and Indian Run, Monroe County, PA

Presented To:
Pocono Manor Investors, LP
(through their counsel Manko, Gold, Katcher & Fox, LLP)

Submitted On:
13 November 2017

Submitted By:
Normandeau Associates, Inc.

Normandeau Project No. 24111.000

www.normandeau.com

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INTRODUCTION

Normandeau Associates, Inc. (Normandeau) was contracted by Pocono Manor Investors, LP, through their counsel Manko, Gold, Katcher & Fox, LLP, to conduct a macroinvertebrate survey in Swiftwater Creek and Indian Run in Monroe County, Pennsylvania. Indian Run is a tributary to Swiftwater Creek. The objective was to perform an investigation in accordance with the regulations and guidance of the Pennsylvania Department of Environmental Protection (PADEP) to determine the correct classifications of these waterbodies. This effort is described in this report.

SAMPLE STATIONS

Normandeau reviewed PADEP's Water Quality Antidegradation Implementation Guidance (2003) to determine the proper number and locations of sample stations. Benthic macroinvertebrate samples were collected at five stations in Swiftwater Creek – Stations NSC-1 through NSC-5 as shown in Figure 1. Benthic macroinvertebrate samples also were collected at two stations in Indian Run – NIR-1 and NIR-2 as shown in Figure 1. In addition, water quality measurements were made at a sixth station (NSC-PChem6) in Swiftwater Creek and at stations (NIR-PChem1 and NIR-PChem2) in two unnamed tributaries to Indian Run as shown in Figure 1. Latitude and longitude for these stations and a reference station (see below) are as follows:

<u>Station ID</u>	<u>Latitude</u>	<u>Longitude</u>
NSC-1	41.101006	-75.345885
NSC-2	41.098722	-75.352300
NSC-3	41.095656	-75.355694
NSC-4	41.096084	-75.365967
NSC-5	41.095737	-75.380235
NIR-1	41.102124	-75.346081
NIR-2	41.10329	-75.368893
NDMB	41.349203	-74.836151
NSC-PChem6	41.095692	-75.395808
NIR-PChem1	41.104773	-75.355328
NIR-PChem2	41.102462	-75.367364

On 1-2 May 2008, PADEP sampled benthic macroinvertebrates at two stations in Swiftwater Creek and at one station in Indian Run as part of a stream redesignation effort reported in PADEP (2016).

One of the two PADEP sample stations in Swiftwater Creek (1SC) was located at Normandeau Station NSC-4. PADEP's station in Indian Run (2IR) was located at Normandeau's Station NIR-2.

Dimmick Meadow Brook, a PADEP reference stream, which was part of PADEP's 2008 sampling effort (PADEP 2016), was also sampled in Normandeau's present effort. PADEP established Station DMB 50 meters upstream of Schocopee Road in northern Pike County at Latitude 41°20'57.81"N and -74°50'9.42"W. Normandeau's Station NDMB was established at the same location. This location is shown on Figure 2.

METHODOLOGY

The benthic macroinvertebrate samples were collected on 6-7 November 2017, during the optimal months for such sampling (mid-October through April), according to PADEP's Water Quality Antidegradation Implementation Guidance (2003). In addition, the samples were collected within 24 hours during a period of normal streamflow as recommended by PADEP's Guidance.

The macroinvertebrate samples were collected at the eight stations using a D-frame dipnet with a 500 μ mesh net attached. The samples were collected using the methodology identified in PADEP's regulations at 25 Pa. Code § 93.4b(a)(2)(i)(A), referred to as *Rapid Bioassessment Protocols for Use in Streams and Rivers: Benthic Macroinvertebrates and Fish*, Plafkin, et al., (EPA/444/4-89-001), which was the same sampling collection method PADEP used in 2008 (PADEP 2016). In addition, water temperature, dissolved oxygen, pH, and specific conductance were measured using a field instrument at the eight stations and at Stations NSC-PChem6, NIR-PChem1 and NIR-PChem2. Lastly, instream habitat was assessed at the eight macroinvertebrate stations using PADEP methodology.

The macroinvertebrate samples were preserved in the field and transported to Normandeau's Biological Laboratory where they were processed following the same methodology PADEP described in their 2016 Report. In short, a 200-specimen subsample was sorted from each sample. These macroinvertebrate subsamples were identified to genus in most cases using a dissection microscope.

The resultant macroinvertebrate data were used to compute five metrics required in PADEP's Rapid Bioassessment Protocol methodology. The metrics for each Swiftwater Creek and Indian Run station (the candidate stations) were compared to the metrics computed for the reference station in order to determine percent of reference. These percent of reference values then were used to score the metrics for each candidate station (1 to 8, where 8 is the best). The scores for the metrics at each station were summed and divided by 40 (the perfect score awarded to the reference station) to compute percent of reference. As set forth in PADEP's regulations, a percent of reference of at least 83% qualifies a waterbody as High Quality (HQ), and a percent of reference of at least 92% qualifies a waterbody as Exceptional Value (EV). 25 Pa. Code § 93.4b.

RESULTS AND DISCUSSION

The water quality measurements are shown in Table 1. Water temperature was near 8°C, the water was well oxygenated (8.82 to 11.17 mg/l), specific conductance was low (109 to 294 μ siemens/cm), and pH was acidic at all of the Swiftwater Creek and Indian Run stations. Water temperature was

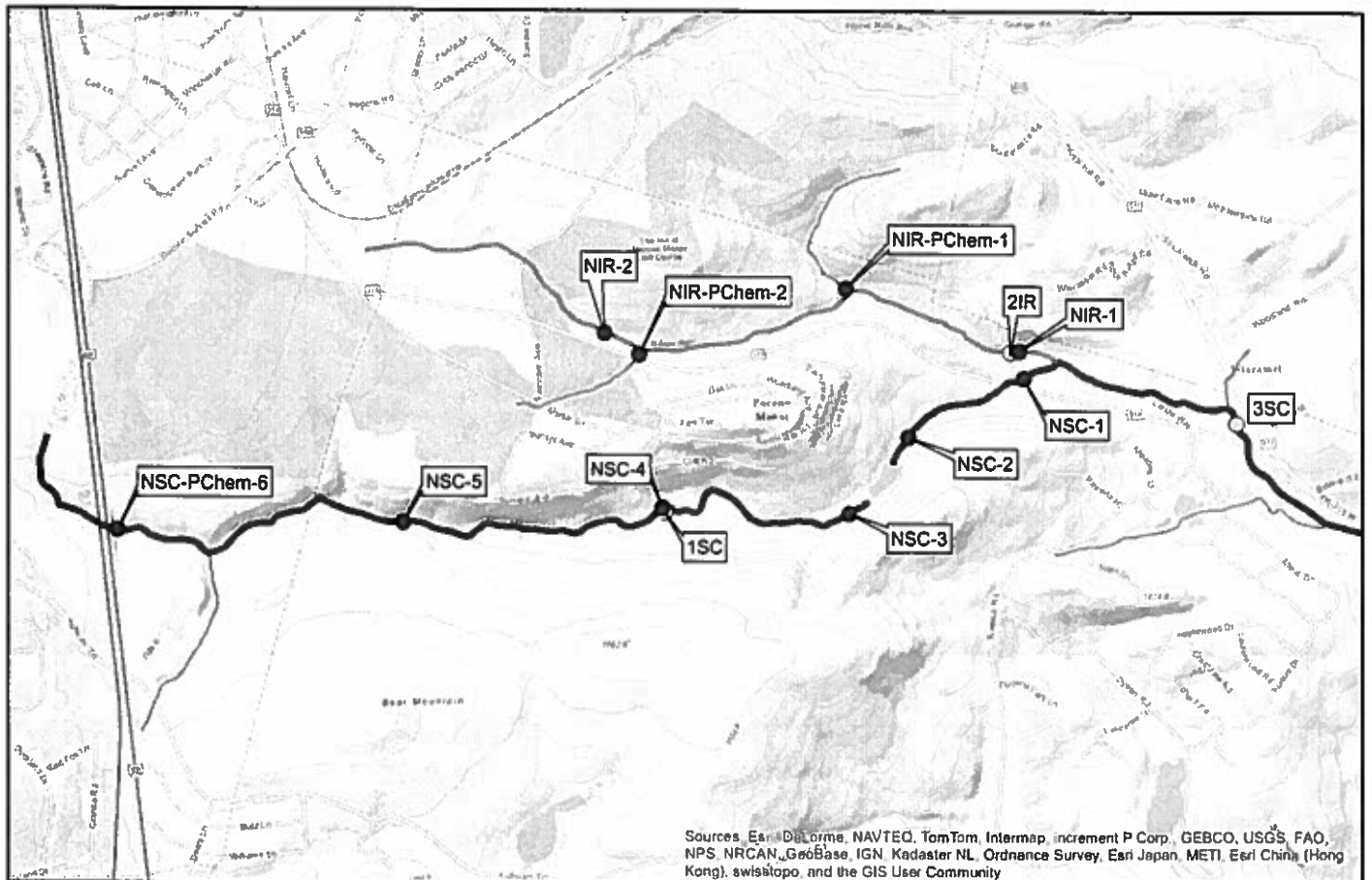
somewhat higher (11.4°C) and specific conductance was lower (31 µsiemens/cm) at the Dimmick Meadow Brook station (NDMB), compared to the other stations.

Habitat assessment results are shown in Table 2. The scores for all stations were similar (208 to 226), and resulted in an Optimum rating for each station.

The results of the benthic macroinvertebrate sample laboratory analysis are shown in Table 3. In general, each sample contained a mix of aquatic insect taxa, including the mayflies, stoneflies, and caddisflies that generally are considered intolerant of water pollution and other stressors. The results of the metrics data analysis are shown in Table 4. The percent of reference scores ranged from 50 to 82.5. As a result, none of the stations qualified for an HQ classification (83) or an EV classification (92) in accordance with PADEP's regulations at 25 Pa. Code § 93.4b.

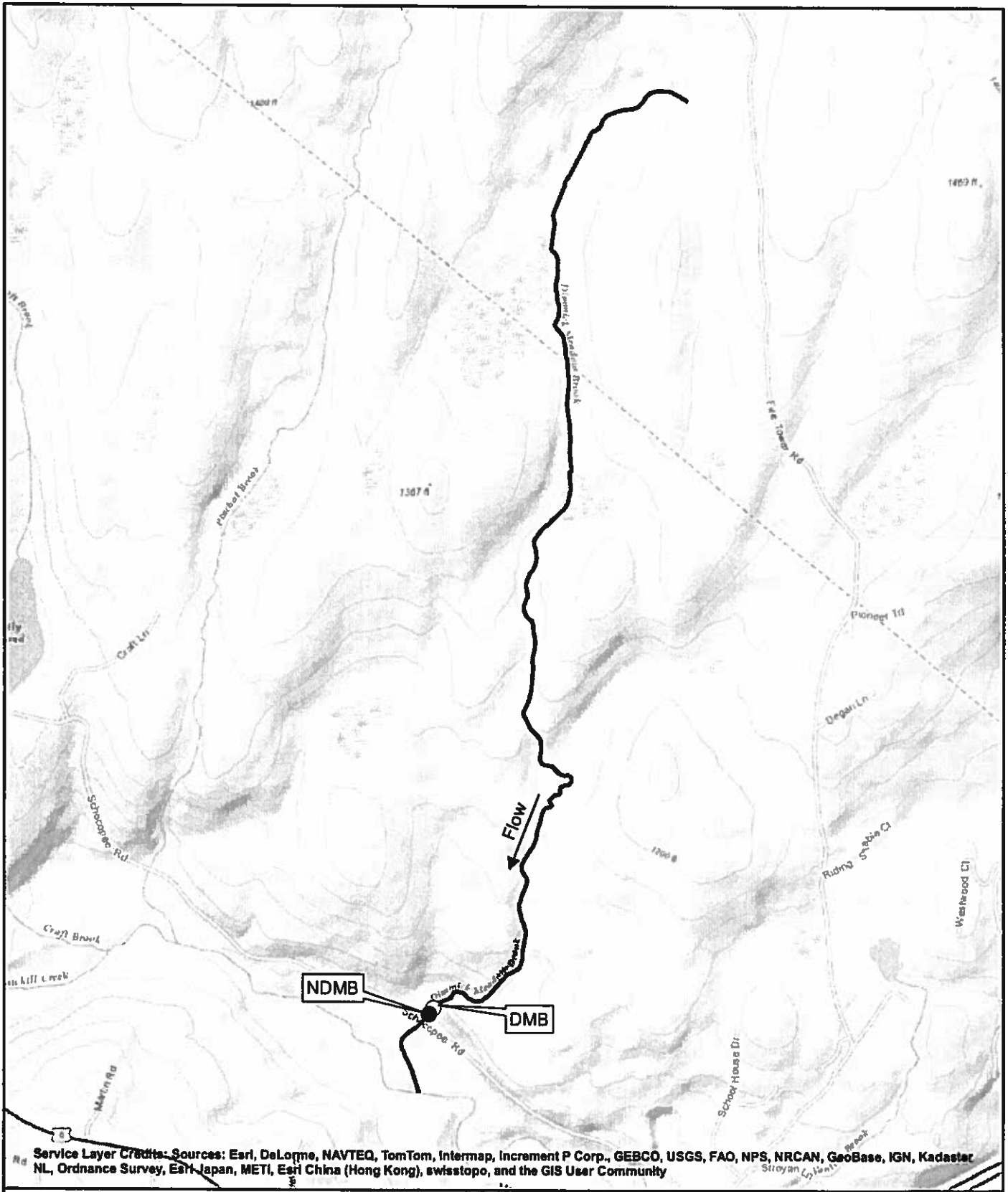
REFERENCES

- PADEP. 2003. Water Quality Antidegradation Implementation Guidance. Document No. 391-0300-002. Effective Date: 29 November 2003.
- PADEP. 2016. Swiftwater Creek, Monroe County. Water Quality Standards Review, Stream Redesignation Evaluation Report. Segment: Basin, Source to Unnamed Tributary (UNT) 04960, Stream Code: 04954, Drainage List: C.



Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, Geobase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, and the GIS User Community

	<ul style="list-style-type: none"> ● Normandeau Sample Stations ○ PADEP Sample Stations — Swiftwater Creek — Indian Run — Unnamed Tributaries 	<p>0 750 1,500 3,000 Feet</p>	<p>NORMANDEAU ASSOCIATES Environmental Consultants</p>	<p>Figure 1. Normandeau and PADEP Sample Stations on Swiftwater Creek and Indian Run</p>	
	<p>Date: 11/10/2011</p>			<p>Revised: 400 Old Reading Pike Bldg A Suite 101 Stowe, PA 19464 PREPARED FOR: WSE PROJECT: 24111.000 PREPARED BY: SAS</p>	



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- Normandeau Sample Stations
 - PADEP Sample Stations
- 0 625 1,250 2,500 Feet



Figure 2.
Normandeau and PADEP
Sample Stations
on Dimmick Meadow Brook

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Table 1. Water quality measurements made in Swiftwater Creek, Indian Run, two tributaries to Indian Run, and Dimmick Meadow Brook on 6-7 November 2017.

Station	Date	Time	Temperature (°C)	Dissolved Oxygen (mg/l)	pH	Specific Conductance (µsiemens/cm)
<i>Swiftwater Creek</i>						
NSC-1	11/7/2017	8:00 AM	7.80	11.15	6.10	136
NSC-2	11/7/2017	9:35 AM	7.75	11.17	6.46	131
NSC-3	11/7/2017	10:20 AM	7.56	10.87	6.64	134
NSC-4	11/7/2017	11:00 AM	7.53	10.98	6.67	153
NSC-5	11/7/2017	12:00 PM	7.93	10.73	6.61	168
NSC-PChem-6	11/7/2017	12:40 PM	7.12	10.68	6.60	215
<i>Indian Run</i>						
NIR-1	11/7/2017	8:30 AM	8.24	9.87	6.50	242
NIR-2	11/7/2017	2:00 PM	7.59	11.05	6.45	294
<i>Unnamed Tributaries to Indian Run</i>						
NIR-Pchem-1	11/7/2017	3:10 PM	8.89	9.06	6.69	109
NIR-Pchem-2	11/7/2017	2:40 PM	7.89	8.82	6.17	243
<i>Dimmick Meadow Brook</i>						
NDMB	11/6/2017	4:20 PM	11.4	8.99	N/A	31

Table 2. Habitat assessment scoring in Swiftwater Creek, Indian Run, and Dimmick Meadow Brook on 6-7 November 2017.

Parameter	Swiftwater Creek Stations					Indian Run Stations		Dimmick Meadow Brook Station NDMB
	NSC-1	NSC-2	NSC-3	NSC-4	NSC-5	NIR-1	NIR-2	
1. Instream Cover (Fish)	19	19	19	19	19	19	19	19
2. Epifaunal Substrate	15	15	17	15	16	15	15	10
3. Embeddedness	19	19	19	19	19	19	19	19
4. Velocity/Depth Regimes	19	19	17	19	19	19	19	19
5. Channel Alteration	20	19	19	19	19	20	19	20
6. Sediment Deposition	19	19	19	19	19	17	15	19
7. Frequency of Riffles	19	19	19	19	19	19	18	19
8. Channel Flow Status	20	16	16	19	19	16	18	19
9. Condition of Banks	19	19	18	19	19	14	12	20
10. Bank Vegetative Protection	16	18	18	18	18	16	16	19
11. Grazing or Other Disruptive Pressure	20	20	20	20	20	20	20	19
12. Riparian Vegetative Zone Width	15	18	19	18	20	20	18	20
Total Score	220	220	220	223	226	214	208	222
Rating¹	OPT	OPT	OPT	OPT	OPT	OPT	OPT	OPT

¹ OPT = Optimal (≥ 192); SUB = Suboptimal (132-192)

Table 3. Macroinvertebrate data collected in Swiftwater Creek, Indian Run, and Dimmick Meadow Brook on 6-7 November 2017.

Taxon	Tolerance Value ²	Swiftwater Creek Stations									
		NSC-1		NSC-2		NSC-3		NSC-4		NSC-5	
		No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent
Branchiobdellida	6							1	0.5		
Coleoptera (beetles)											
<i>Ectopria</i>	5										
<i>Oulimnius</i>	5	5	2.9	14	7.2	6	3.2	1	0.5	1	0.5
<i>Promoresia</i>	2	5	2.9			9	4.9	4	1.8	2	1.0
<i>Psephenus</i>	4										
Decapoda (crayfish)											
<i>Cambarus</i>	6										
Diptera (true flies)											
<i>Antocha</i>	3	2	1.2	3	1.5	2	1.1	3	1.4	6	3.0
<i>Atherix</i>	2							1	0.5		
<i>Bezzia</i>	6	1	0.6	1	0.5					1	0.5
<i>Chelifera</i>	6					3	1.6			1	0.5
Chironomidae	6	87	50.3	41	21.0	103	55.7	104	47.9	124	62.9
<i>Dicranota</i>	3			1	0.5						
<i>Hexatoma</i>	2	1	0.6			1	0.5				
<i>Prosimulium</i>	2	1	0.6							1	0.5
<i>Simulium</i>	6			1	0.5						
Ephemeroptera (mayflies)											
<i>Baetis</i>	6	3	1.7	27	13.8	3	1.6			6	3.0
<i>Dipheter</i>	6			4	2.1	6	3.2	7	3.2		
<i>Epeorus</i>	0			11	5.6	5	2.7	27	12.4	4	2.0
<i>Ephemerella</i>	1	15	8.7	8	4.1	6	3.2	8	3.7	6	3.0
<i>Eurylophella</i>	4									1	0.5
<i>Leucrocuta</i>	1										
<i>Maccaffertium</i>	3			2	1.0	1	0.5	5	2.3		
<i>Paraleptophlebia</i>	1			2	1.0	6	3.2	7	3.2	1	0.5
<i>Plauditus</i>	4							3	1.4		
<i>Stenacron</i>	4							1	0.5		
Hydracarina	7			1	0.5			2	0.9	2	1.0
Mollusca											
<i>Physa/Physella</i>	8	1	0.6								
<i>Pisidium</i>	8	2	1.2	1	0.5			1	0.5	4	2.0

Table 3. Continued.

Taxon	Tolerance Value ²	Swiftwater Creek Stations									
		NSC-1		NSC-2		NSC-3		NSC-4		NSC-5	
		No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent
Nematoda	9	2	1.2	1	0.5	1	0.5			1	0.5
Odonata (dragonflies)											
<i>Boyeria</i>	2										
<i>Lanthus</i>	5			1	0.5	1	0.5				
Oligochaeta (worms)	10	8	4.6					1	0.5	1	0.5
Plecoptera (stoneflies)											
<i>Acroneuria</i>	0			2	1.0						
<i>Agnatina</i>	2			1	0.5						
<i>Amphinemura</i>	3					2	1.1	2	0.9	2	1.0
<i>Isoperla</i>	2	7	4.0	5	2.6	7	3.8	2	0.9		
<i>Leuctra</i>	0	2	1.2	4	2.1	2	1.1	9	4.1	8	4.1
<i>Malirekus</i>	2							1	0.5		
<i>Paracapnia</i>	1			4	2.1	1	0.5	2	0.9		
<i>Pteronarcys</i>	0	2	1.2	1	0.5			1	0.5		
<i>Sweltsa</i>	0	1	0.6			3	1.6	7	3.2	1	0.5
<i>Taeniopteryx</i>	2			2	1.0			1	0.5		
<i>Tallaperla</i>	0	1	0.6	2	1.0	1	0.5				
Trichoptera (caddisflies)											
<i>Agapetus</i>	0	1	0.6	1	0.5	3	1.6				
<i>Apatania</i>	3	1	0.6	1	0.5			1	0.5		
<i>Brachycentrus</i>	1	1	0.6	2	1.0	2	1.1				
<i>Cheumatopsyche</i>	6	8	4.6			2	1.1				
<i>Diplectrona</i>	0	2	1.2	1	0.5			1	0.5		
<i>Dolophilodes</i>	0			5	2.6			1	0.5	2	1.0
<i>Glossosoma</i>	0			1	0.5						
<i>Hydropsyche</i>	5	12	6.9	15	7.7	5	2.7	3	1.4		
<i>Lepidostoma</i>	1			1	0.5			3	1.4	8	4.1
<i>Micrasema</i>	2									4	2.0
<i>Neophylax</i>	3			3	1.5						
<i>Nyctiophylax</i>	5	1	0.6								
<i>Parapsyche</i>	0									2	1.0
<i>Polycentropus</i>	6							2	0.9		
<i>Rhyacophila</i>	1	1	0.6	25	12.8	4	2.2	5	2.3	3	1.5
Tricladida (flat worms)	9									5	2.5
Total		173	100.0	195	100.0	185	100.0	217	100.0	197	100.0

Table 3. Continued.

Taxon	Tolerance Value ²	Swiftwater Creek Stations									
		NSC-1		NSC-2		NSC-3		NSC-4		NSC-5	
		No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent
Metrics³											
Taxa Richness		26		34		25		31		25	
Modified EPT Index		11		21		13		19		12	
Modified Hilsenhoff Index		5.0		3.6		4.5		3.8		4.9	
Percent Dominant Taxon		50.3		21.0		55.7		47.9		62.9	
Percent Modified Mayflies		8.7		11.8		9.7		23.5		6.1	

¹ 200-specimen subsample

² Modified Hilsenhoff Index tolerance values (PADEP)

³ Source: PADEP's Water Quality Antidegradation Implementation Guidance (29 November 2003)

Table 3. Continued.

Taxon	Tolerance Value ²	Indian Run Stations				Dimmick Meadow Brook Reference Station	
		NIR-1		NIR-2		No.	Percent
		No.	Percent	No.	Percent	No.	Percent
Branchiobdellida	6						
Coleoptera (beetles)							
<i>Ectopria</i>	5					1	0.4
<i>Oulimnius</i>	5	2	0.8	6	2.9		
<i>Promoresia</i>	2					2	0.9
<i>Psephenus</i>	4					4	1.7
Decapoda (crayfish)							
<i>Cambarus</i>	6					1	0.4
Diptera (true flies)							
<i>Antocha</i>	3	7	3.0	13	6.2	2	0.9
<i>Atherix</i>	2						
<i>Bezzia</i>	6	3	1.3	7	3.3		
<i>Chelifera</i>	6	4	1.7	1	0.5	1	0.4
Chironomidae	6	103	43.5	98	46.7	68	28.9
<i>Dicranota</i>	3						
<i>Hexatoma</i>	2	1	0.4	2	1.0		
<i>Prosimulium</i>	2						
<i>Simulium</i>	6						
Ephemeroptera (mayflies)							
<i>Baetis</i>	6	5	2.1	10	4.8	1	0.4
<i>Dipheter</i>	6	8	3.4			7	3.0
<i>Epeorus</i>	0	14	5.9	7	3.3	38	16.2
<i>Ephemerella</i>	1	12	5.1	13	6.2	12	5.1
<i>Eurylophella</i>	4						
<i>Leucrocota</i>	1					14	6.0
<i>Maccaffertium</i>	3					1	0.4
<i>Paraleptophlebia</i>	1	1	0.4			12	5.1
<i>Plauditus</i>	4	13	5.5			1	0.4
<i>Stenacron</i>	4						
Hydracarina	7	3	1.3	2	1.0		
Mollusca							
<i>Physa/Physella</i>	8					1	0.4
<i>Pisidium</i>	8						

Table 3. Continued.

Taxon	Tolerance Value ²	Indian Run Stations				Dimmick Meadow Brook Reference Station	
		NIR-1		NIR-2		No.	Percent
		No.	Percent	No.	Percent	No.	Percent
Nematoda	9	1	0.4	1	0.5		
Odonata (dragonflies)							
<i>Boyeria</i>	2					1	0.4
<i>Lanthus</i>	5			1	0.5	1	0.4
Oligochaeta (worms)	10	13	5.5	2	1.0		
Plecoptera (stoneflies)							
<i>Acroneuria</i>	0					2	0.9
<i>Aqnetina</i>	2						
<i>Amphinemura</i>	3						
<i>Isoperla</i>	2	9	3.8	15	7.1	1	0.4
<i>Leuctra</i>	0	3	1.3	2	1.0	6	2.6
<i>Malirekus</i>	2	1	0.4				
<i>Paracapnia</i>	1					4	1.7
<i>Pteronarcys</i>	0			2	1.0		
<i>Sweltsa</i>	0	6	2.5	3	1.4	3	1.3
<i>Taeniopteryx</i>	2	2	0.8				
<i>Tallaperla</i>	0	1	0.4				
Trichoptera (caddisflies)							
<i>Agapetus</i>	0						
<i>Apatania</i>	3	6	2.5	5	2.4		
<i>Brachycentrus</i>	1						
<i>Cheumatopsyche</i>	6			3	1.4	3	1.3
<i>Diplectrona</i>	0					27	11.5
<i>Dolophilodes</i>	0			2	1.0		
<i>Glossasoma</i>	0						
<i>Hydropsyche</i>	5	3	1.3	5	2.4	1	0.4
<i>Lepidostoma</i>	1			1	0.5	10	4.3
<i>Micrasema</i>	2						
<i>Neophylax</i>	3	2	0.8				
<i>Nyctiophylax</i>	5						
<i>Parapsyche</i>	0						
<i>Polycentropus</i>	6			1	0.5		
<i>Rhyacophila</i>	1	14	5.9	8	3.8	10	4.3
Tricladida (flat worms)	9						
Total		237	100.0	210	100.0	235	100.0



Table 3. Continued.

Taxon	Tolerance Value ²	Indian Run Stations				Dimmick Meadow Brook Reference Station	
		NIR-1		NIR-2		No.	Percent
		No.	Percent	No.	Percent	No.	Percent
Metrics³							
Taxa Richness		25		24		28	
Modified EPT Index		13		10		14	
Modified Hilsenhoff Index		4.5		4.4		2.6	
Percent Dominant Taxon		43.5		46.7		28.9	
Percent Modified Mayflies		16.9		9.5		33.2	

¹ 200-specimen subsample

² Modified Hilsenhoff Index tolerance values (PADEP)

³ Source: PADEP's Water Quality Antidegradation Implementation Guidance (29 November 2003)

Table 4. Metric Scoring: seven candidate stations in Swiftwater Creek and Indian Run versus one reference station in Dimmick Meadow Brook (macroinvertebrate samples collected 6-7 November 2017).

Metric	Candidate Station	Reference Station	Comparison	Candidate Station Score
<i>a. Candidate Station: NSC-1 versus NDMB</i>				
Taxa Richness	26	28	92.9	8
Modified EPT Index	11	14	78.6	7
Modified Hilsenhoff Index	5.0	2.6	2.4	0
Percent Dominant Taxon	50.3	28.9	21.4	1
Percent Modified Mayflies	8.7	33.2	24.5	4
Total Score				20
Percent of Reference				50.0
Qualification as an EV Stream				No
<i>b. Candidate Station: NSC-2 versus NDMB</i>				
Taxa Richness	34	28	121.4	8
Modified EPT Index	21	14	150.0	8
Modified Hilsenhoff Index	3.6	2.6	1.0	4
Percent Dominant Taxon	21.0	28.9	-7.9	8
Percent Modified Mayflies	11.8	33.2	21.4	5
Total Score				33
Percent of Reference				82.5
Qualification as an EV Stream				No
<i>c. Candidate Station: NSC-3 versus NDMB</i>				
Taxa Richness	25	28	89.3	8
Modified EPT Index	13	14	92.9	8
Modified Hilsenhoff Index	4.5	2.6	1.9	0
Percent Dominant Taxon	55.7	28.9	26.8	0
Percent Modified Mayflies	9.7	33.2	23.5	5
Total Score				21
Percent of Reference				52.5
Qualification as an EV Stream				No

Table 4. Continued

Metric	Candidate Station	Reference Station	Comparison	Candidate Station Score
<i>d. Candidate Station: NSC-4 versus NDMB</i>				
Taxa Richness	31	28	110.7	8
Modified EPT Index	19	14	135.7	8
Modified Hilsenhoff Index	3.8	2.6	1.2	2
Percent Dominant Taxon	47.9	28.9	19.0	2
Percent Modified Mayflies	23.5	33.2	9.7	8
Total Score				28
Percent of Reference				70.0
Qualification as an EV Stream				No
<i>e. Candidate Station: NSC-5 versus NDMB</i>				
Taxa Richness	25	28	89.3	8
Modified EPT Index	12	14	85.7	8
Modified Hilsenhoff Index	4.9	2.6	2.3	0
Percent Dominant Taxon	62.9	28.9	34.0	0
Percent Modified Mayflies	6.1	33.2	27.1	4
Total Score				20
Percent of Reference				50.0
Qualification as an EV Stream				No
<i>f. Candidate Station: NIR-1 versus NDMB</i>				
Taxa Richness	25	28	89.3	8
Modified EPT Index	13	14	92.9	8
Modified Hilsenhoff Index	4.5	2.6	1.9	0
Percent Dominant Taxon	43.5	28.9	14.6	5
Percent Modified Mayflies	16.9	33.2	16.3	6
Total Score				27
Percent of Reference				67.5
Qualification as an EV Stream				No

Table 4. Continued

Metric	Candidate Station	Reference Station	Comparison	Candidate Station Score
<i>g. Candidate Station: NIR-2 versus NDMB</i>				
Taxa Richness	24	28	85.7	8
Modified EPT Index	10	14	71.4	5
Modified Hilsenhoff Index	4.4	2.6	1.8	0
Percent Dominant Taxon	46.7	28.9	17.8	3
Percent Modified Mayflies	9.5	33.2	23.7	5
Total Score				21
Percent of Reference				52.5
Qualification as an EV Stream				No