Policy

Darby Creek Valley Association

August 5, 2016

Secretary
Pennsylvania Department of Environmental Protection
Rachel Carson State Office Building
Post Office Box 2063
Harrisburg, PA 17105-2063

RE: Petition to Reclassify Unnamed Tributary to Whetstone Run

Dear Mr. Secretary,

Enclosed is a petition to request that the Environmental Quality Board reclassify an unnamed tributary to Whetstone Run. Whetstone Run is located entirely within Marple Township, Delaware County, PA, and is a tributary to Darby Creek, which in turn is a tributary to Delaware River. This petition is being submitted by Darby Creek Valley Association, Inc. (DCVA) and requests that Whetstone Run's southern tributary be upgraded from Warm Water Fishery(WWF)/Migratory Fishery to High Quality (HQ)/Migratory Fishery as we have found that it has water quality functions more in line with an HQ water than a WWF water, DCVA is of the opinion that if this tributary remains classified as a WWF water that the protections afforded under WWF classification are inadequate to protect its current water quality and it will be degraded should the land use within its watershed change.

Letters of support for this petition from concerned landowners and interested parties will follow under separate cover.

Sincerely,

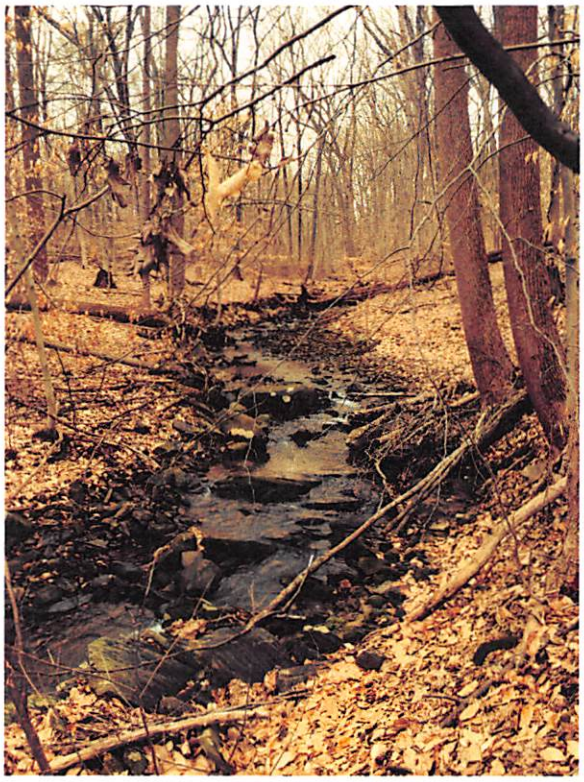
Derron L. LaBrake, PWS, CED
2nd Vice President
Darby Creek Valley Association, Inc.
e-mail-2ndvp@DCVA.org

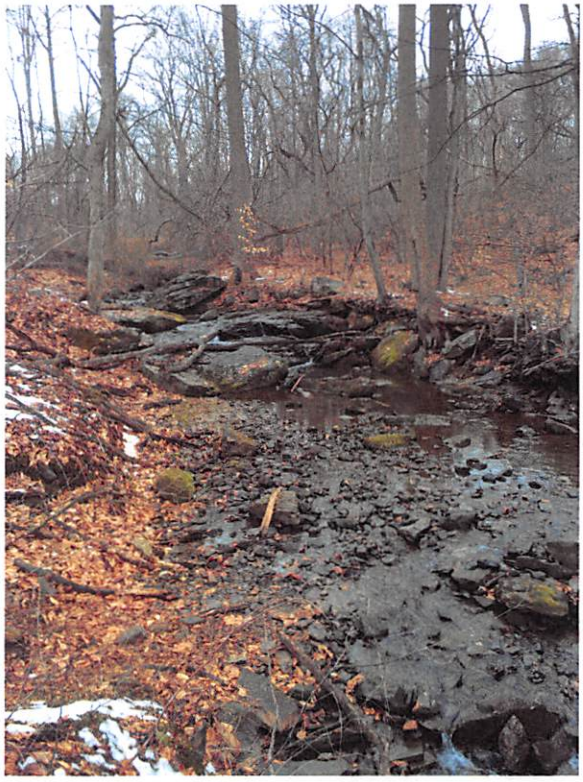
SECRETARY'S OFFICE

AUG - 8 2016

DEPARTMENT OF
ENVIRONMENTAL PROTECTION

Commonwealth of Pennsylvania, Environmental Quality Board
Completed Petition form for the upgrade of the southern tributary to Whetstone Run, Marple Township, Delaware County, PA





Darby Creek Valley Association
P.O. Box 732, Drexel Hill, PA 19026

Commonwealth of Pennsylvania
Environmental Quality Board
Petition Form

Petitioner Information
Darby Creek Valley Association
P.O. Box 732 Drexel Hill, PA 19026
484-222-2502 - Jacyln Rhodes, President

Date:
August, 5th 2016

Petition Information

A. **The petitioner requests the environmental Quality Board to:**
   ____ Adopt a regulation
   __X_ Amend a regulation (Citation: 25 PA. Code 93.9c PADEP Chapter 93 Designation for Whetstone Run to High Quality (HQ))
   ___ Repeal a regulation

B. **Why is the petitioner requesting this action from the Board? (Describe problems encountered under current regulations and the changes being recommended to address the problems. State factual and legal contentions and include supporting documentation that a clear justification for the requested action.)**

Darby Creek Valley Association, Inc. (DCVA) requests the reclassification of one of Whetstone Run's two unnamed tributaries to high quality waters (HQ) designation from its current designation as Warm Water Fishery (WWF)/Migratory Fishery based on the information presented herein. DCVA believes that the existing water quality within the southern tributary is better than the designated criteria that have been applied to the whole of Whetstone Run. The current water quality designation is inadequate for protecting the current water quality functions of the southern unnamed tributary to Whetstone Run. The protections afforded to this water under a WWF classification will not properly protect its current water quality from future impairment that would result should the current land use of the property change from forested to some type of development that involves the creation of impervious surfaces (roadways, building roofs, etc.). The WWF water quality designation is insufficient to protect and preserve its current functional water quality because it only requires the management of stormwater runoff volume from storms of frequent recurrence, up to and including the 2-year, 24-hour storm event. Stormwater runoff volume from larger less frequent storm events is not required to be managed, other than to control the rate at which the increased runoff volume is released from new impervious surfaces. The only way to protect and preserve its current HQ functional water quality is to change its designation from WWF to HQ.

Attachment A contains a more detailed description of the Whetstone Run watershed, surrounding land uses and documentation that supports our statement that the current functioning water quality is much more closely aligned with an HQ designation than its current WWF designation.

C. Describe the types of persons, businesses and organizations likely to be impacted by this proposal.

The whole watershed of the southern unnamed tributary to Whetstone Run lies completely within land owned by the Archdioceses of Philadelphia. The only potential impact to the Archdioceses by its redesignation would be to change the amount of stormwater management required should the land use change. The required additional stormwater management would not be significant and should not have any negative effect on the value of the property. The redesignation would also raise the wetlands adjacent to the southern tributary to exceptional value and afford those wetlands an extra level of protection from alteration. Should the Archdioceses choose to sell the property or change its current land use the required extra protections will preserve the existing water quality for future generations.

If the southern tributary is redesignated then the Archdioceses if it were to undertake changing the current land use from predominantly forested land to some other land-use that would entail new impervious surfaces the cost of that development would be somewhat higher due to requirements of the Anti-Degradation Policy enforced by Pennsylvania Department of Environmental Protection (PADEP). The Anti-Degradation Policy is in place so that the water quality within the southern tributary would be preserved in its current condition. Should the Archdioceses decide to sell the land to an entity that would undertake a change in its current land-use then that entity would also be held to a higher standard of stormwater management to preserve the current water quality within the southern tributary.

A recent agreement of sale for the property was abandoned by a developer that wanted to create over 100 acres of new impervious surfaces on the approximately 213 acre property. The proposed development and in our view, due to its current WWF water quality designation, inadequate stormwater management would have severely degraded the current ecological function of the southern tributary of Whetstone Run. The potential exists for another entity to propose similarly ill-conceived development of the property and without the re-designation of the southern tributary this valuable resource will be lost forever because of the minimal protections afforded to a WWF designated stream.

There are many individuals, organizations and ecosystems that would reap positive benefits of an HQ designation for Whetstone Run's southern tributary. All of the communities located farther downstream that are regularly flooded by even summer thunderstorms would be afforded the extra protections of an HQ designation because that designation requires management of the volume from all stormwater runoff from all new impervious surfaces, whereas, the WWF designation only requires the management of the volume from the 2-year 24-hour storm event and leaves local ordinances to manage storms of more infrequent occurrence. Should the southern tributary receive an HQ designation those downstream communities can be guaranteed no additional flooding should the land use be changed. Under the current WWF water quality designation, Whetstone Run, which is currently designated as an impaired waterbody, except for the southern tributary, will remain impaired for the foreseeable future due to the way its watershed was developed. DCVA is certain that if the southern tributary is only afforded the WWF protections and its watershed is developed, it will soon be moved back on to the impaired waterbodies list.

By designating the southern tributary with HQ water quality status its current water quality functions will be preserved for future generations. The protections afforded by the WWF designation are insufficient to maintain the tributary at its current level of functional water quality. While not specifically listed as an entity of concern under this section, DCVA believes that the aquatic insects in the southern tributary also need to be considered as they will be directly affected by the Board's decision. By designating the southern tributary HQ, it will continue to function as a refuge for aquatic insects that are almost completely absent from every other water body within the Darby Creek watershed. DCVA has sampled many of the streams within the Darby Creek watershed and has found them to be completely devoid of almost any but the most pollutant tolerant aquatic insects. DCVA is unaware of another tributary within the Darby Creek watershed that has water quality functions as high as the southern tributary of Whetstone Run. Since aquatic insects form the base of the food-chain in Pennsylvania streams, the streams in the Darby Creek watershed will never support substantial fish populations because they have such depauperate aquatic insect communities. It is DCVA's belief that the southern tributary of Whetstone Run provides a refuge for many aquatic insects that are unable to survive in most of the rest of Darby Creek and definitely cannot survive in any of Darby Creek's watershed east and south of Whetstone Run. Darby Creek needs this small tributary to be protected from an ecological standpoint.

There is significant momentum over the past two decades to improve the water quality in the impaired waterbodies in southeastern Pennsylvania through better stormwater management in hopes of reestablishing the fisheries that were lost due to the ignorance of society as we developed the area. Should we be successful in our endeavor to restore what we have ruined, in the vicinity of Whetstone Run, farther to the east, and south of Whetstone Run, we will need a source of sensitive insects, like those in the southern tributary to repopulate the watershed. The southern tributary represents a very important ecological resource within Darby Creek's watershed. The southern tributary currently provides a refuge for sensitive aquatic insects to live and reproduce, and as water quality is improved those sensitive insects can begin to move out from this refuge and repopulate the streams we are restoring. If we do not protect this important resource there will not be a source of sensitive insects to begin repopulating the streams that are restored in the Darby Creek watershed. Without a source for sensitive insects in the watershed the potential for reestablishment of those organisms will be greatly reduce. The sensitive insects would have to find a way to get into the Darby Creek watershed from an adjacent watershed, like Crum Creek. These insects generally cannot move across the physical barriers we have created between adjoining watersheds so the likelihood of them moving naturally into and adjoining watershed is remote at best.

D. Does the action requested in the petition concern a matter currently in litigation?

Action requested in the petition does not concern any matter currently in litigation to the best of the petitioner's knowledge

E. For stream redesignation petitions, the following information must be included for the petition to be considered complete. Attach supporting material as necessary.

1. A clear delineation of the watershed or stream segment to be designated, both in narrative form and on a map.

The southern unnamed tributary to Whetstone Run's watershed is located on USGS 7.5 minute Quadrangle for Landsdowne and the watershed lies completely within Marple Township (See Figure 1, Attachment A).

Whetstone Run has a watershed that encompasses approximately 666 acres (See Figure 2, Attachment A), its northern tributary has a watershed that encompasses approximately 221 acres, and the southern tributary has a drainage area of approximately 172 acres (See Figure 3, Attachment A). Whetstone Run is a tributary to Darby Creek, which is tributary to the Delaware River Watershed, Drainage List G.

The main stem of Whetstone Run upstream from its confluence with the northern tributary is enclosed completely within a pipe and was turned into the stormwater management system for that portion of the watershed. The northern tributary originates on the northwest side of Sproul Road where it discharges from a piped portion of the tributary. The northern tributary then flows through a very large emergent wetland (10s of acres) and unfortunately somewhere near that wetland the stormwater outfall from the old shopping center on the north side of Reed Road discharges into the northern tributary. There is no volume of flow control on the discharge from the shopping center so the northern tributary is degraded. The southern tributary originates in a degraded (*Phragmites* filled) wetland on the northwest side of Sproul Road, then it flows past Cardinal O'Hara High School, which discharges its stromwater runoff unabated into the southern tributary. There are emergent wetlands along the southern tributary downstream from the High School that appear to be sufficient for abating the deleterious effects of those stormwater flows so that it is able to sustain HQ water quality all the way to its confluence with the main stem of Whetstone Run. The southern tributary's watershed contains a small old 1920s-1950s dump that was covered with soil. Based on DCVA's observations it does not appear to be causing any detrimental effects within the southern tributary. That may be because of the relatively iniquitous materials that would have been disposed of during its operational time. DCVA has not observed any obvious landfill leachate discharges from the old dump flowing into the southern tributary at the downgradient end of the old dump area where they would be expected to occur.

2. The current designated use(s) of the watershed or segment.

Whetstone Run's watershed, including its two unnamed tributaries (northern and southern) currently designated as a Warm Water Fishery/Migratory Fishery and all but the southern tributary is on the 303d impaired waters list. The southern tributary was removed from the 303d list by PADEP in 2015.

3. **The requested designated use(s) of the watershed or segment.**

   DCVA is requesting the redesignation for the southern tributary of Whetstone Run from WWF to High Quality. An HQ designation will protect the existing HQ water quality function, which is important to the human environment, local and regional economy and ecology of the Darby Creek watershed.

4. **Available technical data on instream conditions for the following: water chemistry, the aquatic community (benthic macroinvertebrates and/or fishes), or instream habitat. IF such data are not included, provide a description of the data sources investigated.**

   Attachment B contains three sequential years of macroinvertebrate data that were collected by DCVA from six locations within the Whetstone Run watershed, and a single round of data collected from the closest EV stream to Whetstone Run. A long list of metrics have been calculated from the data set. A brief narrative precedes the table of macroinvertebrate data that summarizes the methods utilized and provides other general notes regarding activities observed within the watershed during the periods between the individual sampling events.

5. **A description of existing and proposed point and nonpoint source discharges and their impact on water quality and/or the aquatic community. The names, locations, and permit numbers of point source discharges and a description of the types and locations of nonpoint source discharges should be listed.**

   There are no known existing or proposed point source discharges to the southern tributary. The known potential non-point source discharges are described in E-1.

6. **Information regarding any of the qualifiers for designation as high quality waters (HQ) or exceptional value waters (EV) in 93.4b (relating to qualifying as High Quality or Exceptional Value waters) used as basis for the requested designation.**

   <u>Biological assessment qualifier</u>

   The metrics (measurements) derived from the data collected and analyzed by DCVA indicates that the southern tributary is predominantly functioning within 83% of the same functions as the closest Exceptional Value (EV) stream (Hotland Run). While that is based on a single sampling event from Hotland Run we believe that similar results would have been found had Hotland Run been sampled during the previous years as well. The southern tributary is high functioning due to the existence of pollution intolerant mayflies, caddisflies and stoneflies similar to the closest EV designated stream. The petitioners selected this stream for comparison because it experiences similar weather condition and has similar underlying geologic conditions so it is the most appropriate water for comparison purposes.

DCVA's sampling of aquatic fauna indicate HQ water quality within the southern tributary of Whetstone Run. Benthic macroinvertebrate surveys in the segment of Whetstone Run proposed for HQ designation have documented diverse, well balanced benthic communities consisting composed of predominantly of pollution sensitive taxa similar to those found in nearby Hotland Run. Attachment B contains a summary data sheet and further discussion for how DCVA arrived at this decision.

Surface water of exceptional ecological significance

The petitioners believe Whetstone Run's southern tributary qualifies for HQ protection because it is a surface water of very high ecological significance within the Darby Creek watershed. It provides a refuge for many sensitive aquatic insects that are important for sustaining a viable aquatic fishery. While we clearly understand that the tributary is much too small to sustain a trout population, should there be significant success in improving water quality in Darby Creek's watershed it will prove to be a very important resource for repopulating the creeks as they improve.

A "surface water of exceptional ecological significance" is defined "as a surface water which is important, unique or sensitive ecologically, but whose water quality as measured by traditional parameters (for example chemical, physical or biological) may not be particularly high, or whose character cannot be adequately described by these parameters." The petitioners are of the opinion that the southern tributary of Whetstone Run falls within the definition of a surface water of exceptional ecological significance, given its location and the quality of its water based on the aquatic life that is present.

7. **A general description of land use and development patterns in the watershed. Examples include the amount or percentage of public lands (including ownership) and the amount or percentage of various land use types (such as residential, commercial, industrial, agricultural and the like).**

   The property that encompasses the both unnamed tributaries to Whetstone Run is one of the last remaining large parcels of undeveloped land within the watershed and Marple Township. It is completely surrounded by schools, residential, and commercial properties.

8. **The names of all municipalities through which the watershed or segment flows, including an official contact name and address.**

   Anthony Hamaday
   Township Manager
   Marple Township
   610-356-4040 ext. 503
   ahamaday@marpletwp.com

   Joseph Romano
   Director of Code Enforcement
   Marple Township
   610-356-4040 ext. 511
   jromano@marpletwp.com

9. Locational information relevant to items 4-8 (except for contact names and addresses) displayed on a map or maps, if possible.

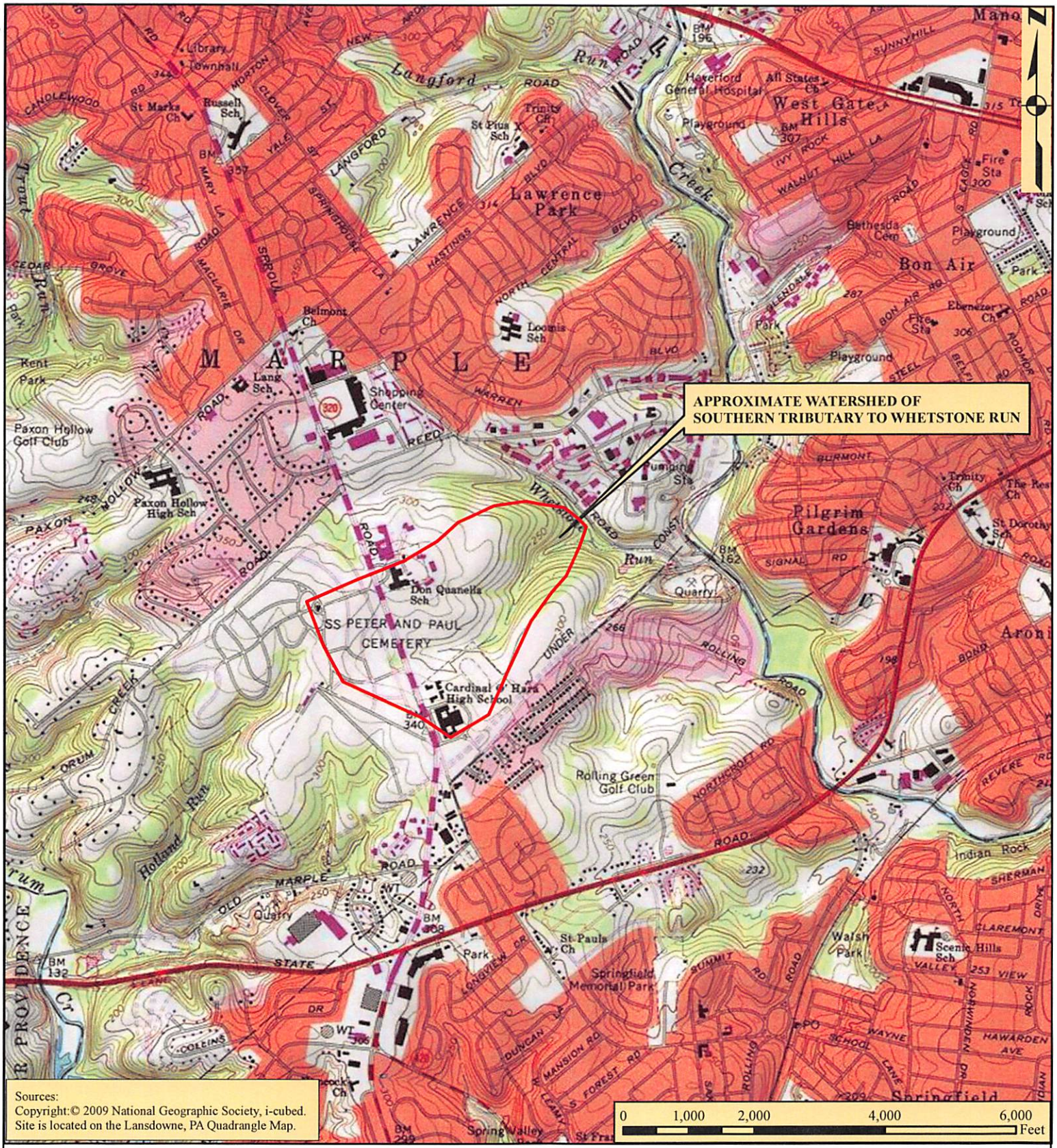
Most of the southern tributary's watershed is wooded and privately owned by the Archdioceses of Philadelphia. Mature trees line and shade the stream and the very steep slopes on both sides of the stream. Some patches of trees within the watershed are in excess of 100 year old based on DCVA's review of historical aerial photography for the property. The same cannot be said of the watersheds of the northern tributary and the main stem.

Attachment A

Darby Creek Valley Association

Whetstone Run lies completely within Marple Township and flows into the Darby Creek (designated Trout Stocked Fishery and Migratory Fishery), which is tributary to the Delaware River. Whetstone Run's two unnamed tributaries (northern and southern) are almost wholly on one of the largest parcels of open space in eastern Delaware County (approximately 213 acres). This track of land has been privately owned by the Archdiocese of Philadelphia since some time before 1929 (a 1929 historical map is the earliest one found which identifies the Archdiocese as the owner). The Archdioceses has generally allowed the property to remain untouched other than construction a school (O'Hara High School) and a home for handicapped men (Don Guanella Home). This undeveloped parcel of land is well forested and the southern tributary has very high water quality as a result. The Archdioceses, also owns nearly all of Hotland Run's watershed, the only Exceptional Value (EV) waters in eastern Delaware County. We are certain that Hotland Run has been able to remain an EV water because the Archdiocese did not develop its watershed with large areas of impervious surfaces, like the remainder of eastern Delaware County. The same can be said for the portions of the Whetstone Run that are owned by the Archdioceses. The same cannot be said for Whetstone Run's main stem, which was not part of the Archdioceses land, so the whole of that portion of Whetstone Run's watershed was developed with a high density residential and commercial development (40-50% impervious). DCVA is convinced that this is why Whetstone Run is currently designated a WWF and is on the 303d impaired waters list. DCVA is also of the opinion that too broad of a brush was applied to Whetstone Run and the southern tributary was incorrectly designated WWF. DCVA only recently discovered that the southern tributary is functioning at the level of an HQ stream and is; therefore, petitioning the Environmental Quality Board to re-designate the tributary.

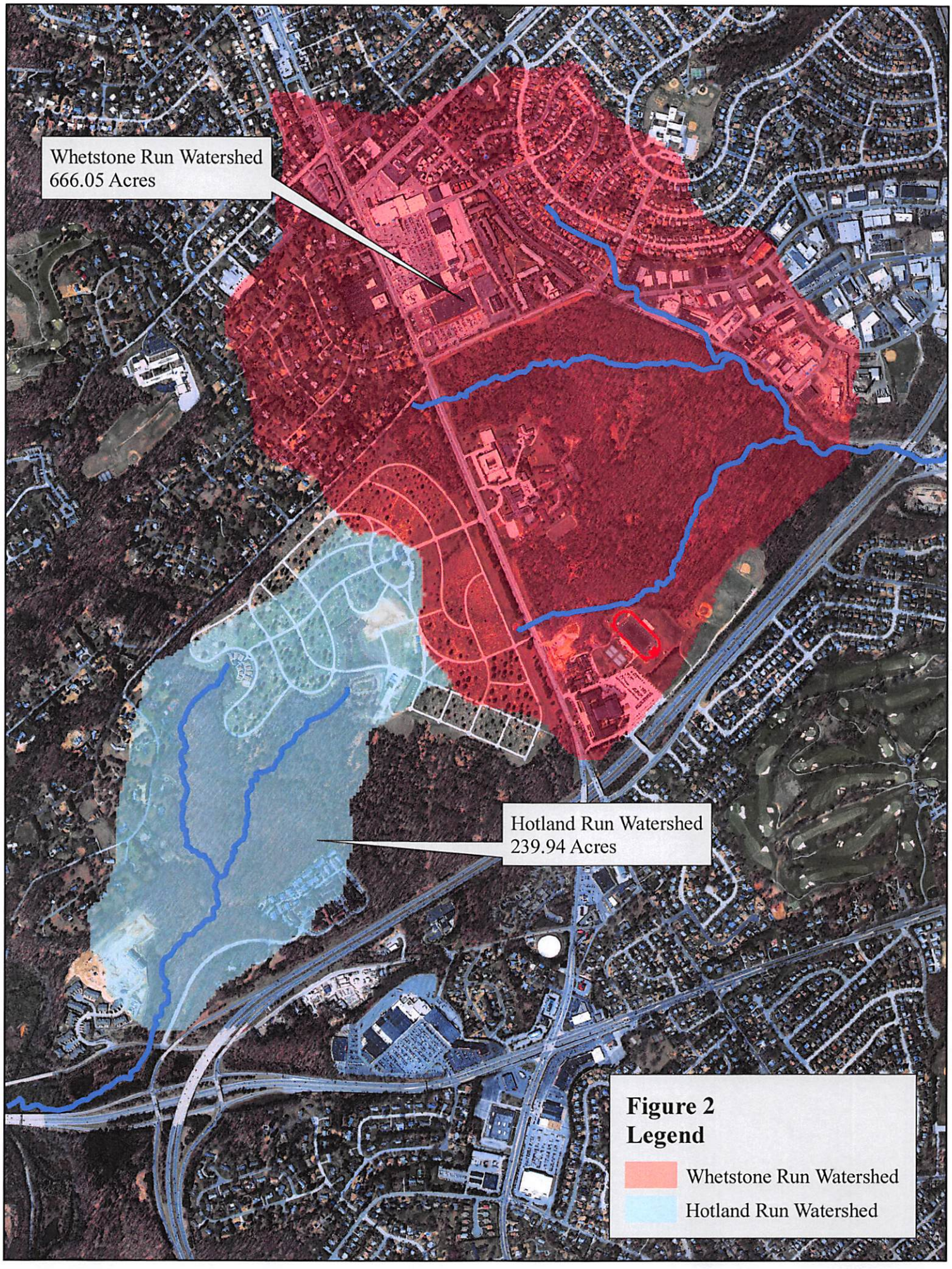
Whetstone Run's two unnamed tributaries originate in degraded wetlands on the Archdioceses' cemetery property; flow under Sproul Road (Rte 320) and toward the southeast across the forested Archdiocese property and join the main stem near the edge of the property along Reed Road. The Delaware County Planning Department's 2010 Greenway Plan for the Darby Creek Watershed identified this Archdiocese property of one of only 3 regional conservation hubs in the watershed within Delaware County.

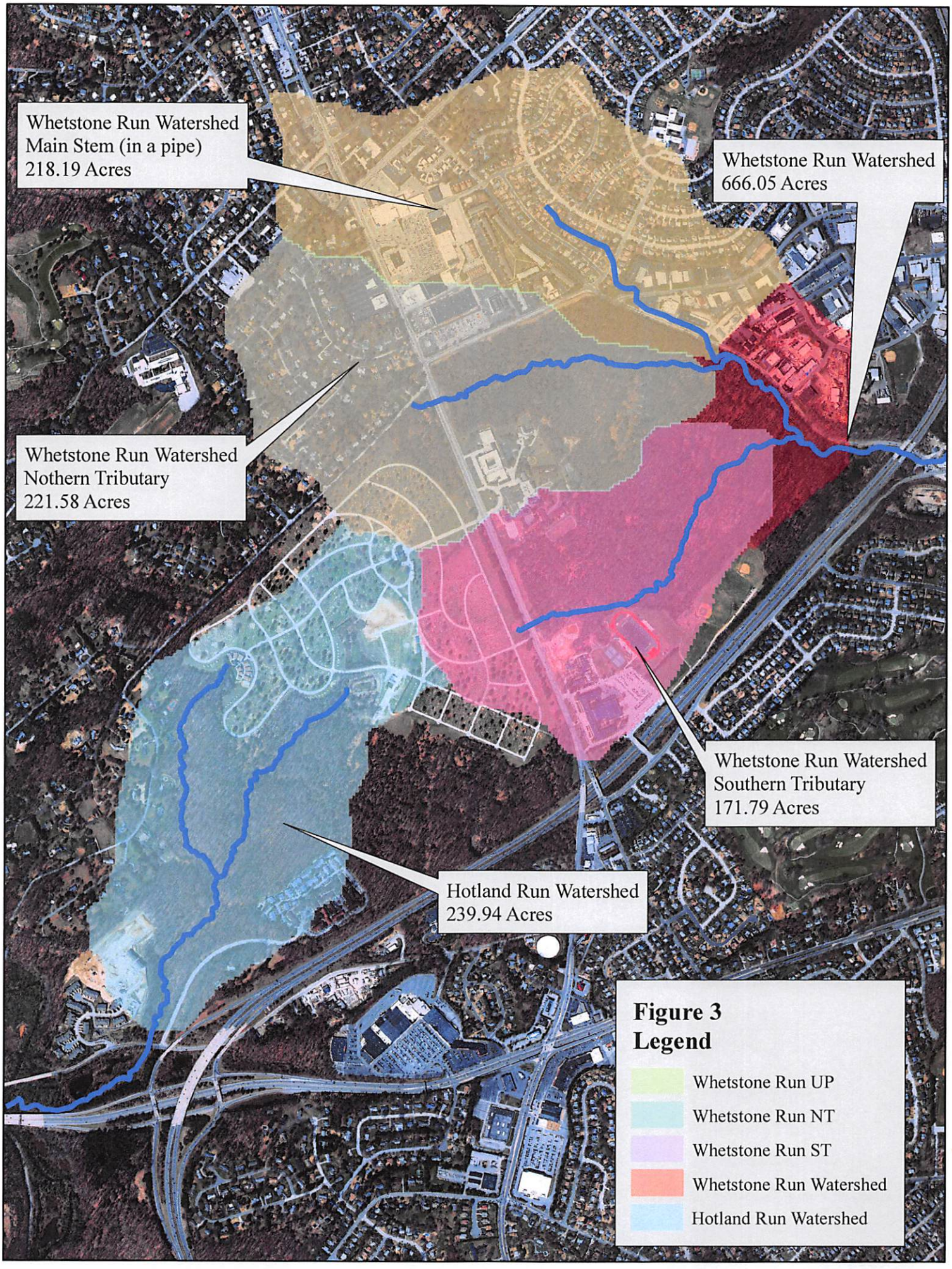


USGS TOPOGRAPHIC SITE LOCATION MAP

SOUTHERN TRIBUTARY TO WHETSTONE RUN
MARPLE TOWNSHIP, DELAWARE COUNTY, PA

SCALE: 1:24,000	DATE:	JOB NO.:	DRAWN BY:	FIGURE NO.:
1 inch = 2,000 feet	AUGUST 2016	N/A	DLL	1


Whetstone Run Watershed
666.05 Acres
Hotland Run Watershed
239.94 Acres
Figure 2
Legend
Whetstone Run Watershed
Hotland Run Watershed


Whetstone Run Watershed
Main Stem (in a pipe)
218.19 Acres
Whetstone Run Watershed
666.05 Acres
Whetstone Run Watershed
Nothern Tributary
221.58 Acres
Whetstone Run Watershed
Southern Tributary
171.79 Acres
Hotland Run Watershed
239.94 Acres
Figure 3
Legend
Whetstone Run UP
Whetstone Run NT
Whetstone Run ST
Whetstone Run Watershed
Hotland Run Watershed

Attachment B

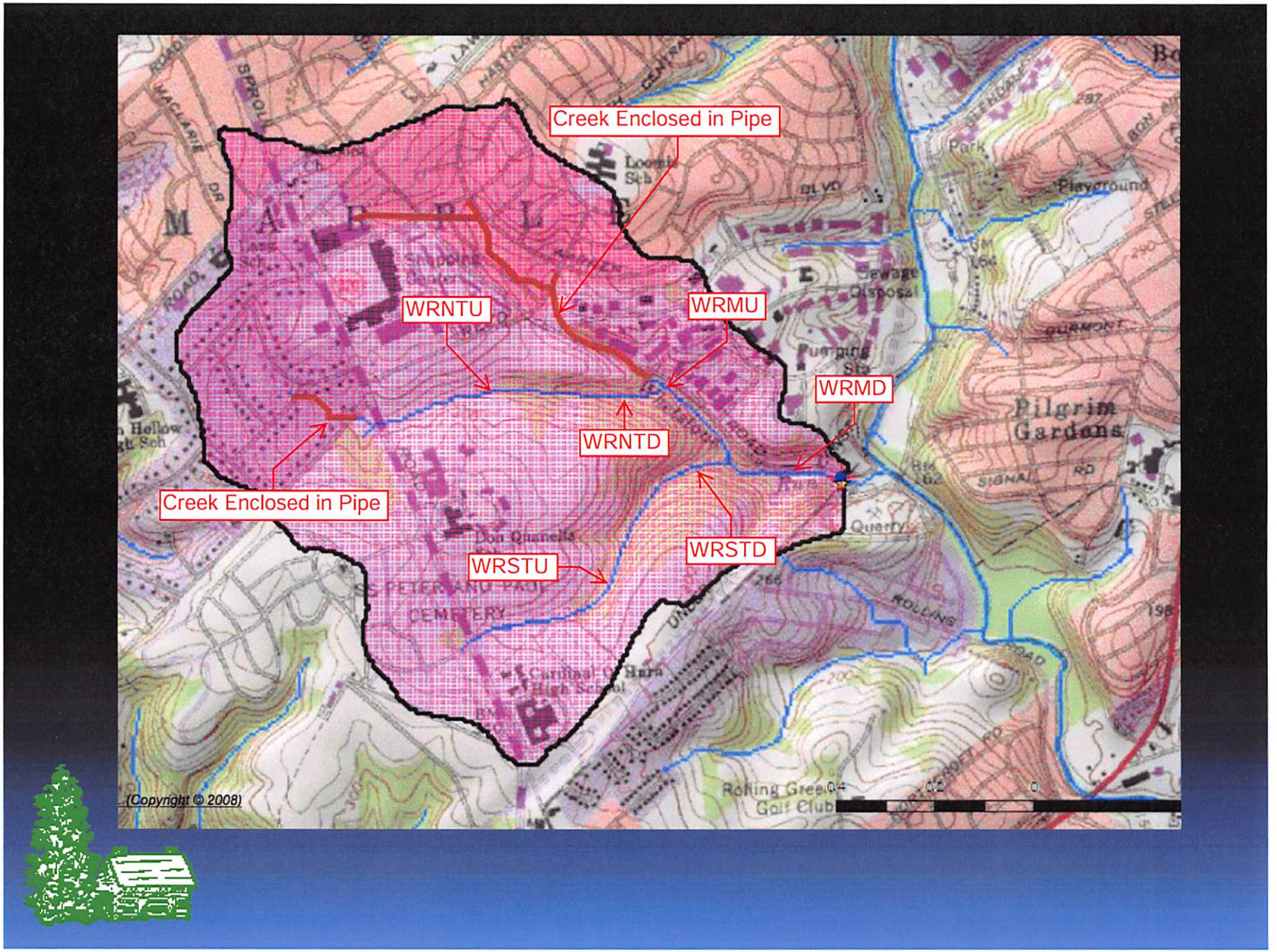
Darby Creek Valley Association

Six locations were sampled within the Whetstone Run watershed. Two samples each (upstream and downstream) on the northern tributary, southern tributary and the main stem. The figure following the text shows those locations. The sampling was conducted by a skilled ecologist with extensive experience sampling macroinvertebrate communities. The samples consist of four individual samples collected utilizing a Surber sampler which were consolidated in a bucket and then split into quarters using a splitter. A quarter sample (one Surber volume) was then transported to Symbiosis for picking, sorting and enumeration. The raw data from Symbiosis is presented in the Raw Data table that follows this text. Symbiosis used a computer program to analyze the raw data using a variety of metrics. The Summary Statistics from those metrics are included in the Summary Statistics Table that follows the Raw Data table.

DCVA only had the ability to sample a nearby Exceptional Value (EV) stream in 2016 so that is the only year that we can use for comparison purposes. There were a number of events that may have affected the data collected by DCVA. In the fall of 2013, the Archdioceses of Philadelphia removed all of the trees from about an acre of the land immediately adjacent to the southern tributary next to Sproul Road and did not erect any sediment control measures (silt fence), thus the winter storms of 2013/2014, prior to our sampling performed in mid April 2014 may have affected the macroinvertebrate community in the stream due to sedimentation. This appears to be the case and it seems to have taken two years for the upstream sample location to recover. During the summer of 2014 a prospective purchaser of the Archdioceses property excavated many soil test pits throughout the property and tracked their backhoe across the streams at numerous locations. They also excavated a large number of test pits in and around the former dump. None of the test pit areas were regarded and seeded so soil eroded from those test pits. Further, the test pits disturbed waste in the former dump area and may have resulted in increased leachate production and runoff transport of pollutants. This appears to be the case in the southern tributary's downstream sample and it may need another year or two to recover from that activity.

In 2015, DCVA requested that Pennsylvania Department of Environmental Protection (PADEP) take a look at the southern tributary as we thought it was high functioning and should have a higher water quality designation. PADEP assessed the southern tributary and determined that is should be removed from the impaired waters list but was not of sufficient quality to raise its designation to High Quality (HQ). PADEP made this determination based upon a comparison to a reference stream in Chester County, many miles removed from the southern tributary. This is why DCVA sampled Hotland Run for comparison purposes in 2016 since is it in close proximity, would experience similar weather conditions and has very similar underlying geologic conditions.

DCVA compared the metrics from a single Hotland Run sample collected in 2016 to the sampling data from Whetstone Run from 2014, 2015 and 2016. We found based on that comparison that many of the metrics utilized for comparative purposes were within 90% similarity to Hotland Run and even more were within 83% similarity. According to PADEP's biological criteria for changing the water quality designation of a stream, to change a designation to the same as the reference stream an EV stream in this case it needs to be 90% similar to that reference stream and to change the designation to HQ the stream must achieve 83% similarity to the reference stream. DCVA believes this to be the case for the southern tributary of Whetstone Run.


Creek Enclosed in Pipe
WRNTU
WRMU
WRMD
WRNTD
Creek Enclosed in Pipe
WRSTU
WRSTD
(Copyright © 2008)

Raw Data for Whetstone Run Sampling
2014 - 2015 - 2016

					Hilsenhoff	WRMU			WRMD			WRNTU			WRNTD			WRSTU			WRSTD			HLR
Class	Order	Family	Genus	Functional	Rating	2014	2015	2016	2014	2015	2016	2014	2015	2016	2014	2015	2016	2014	2015	2016	2014	2015	2016	2016
Insecta	Ephemeropte	Baetidae	*Acerpenna*	shredder	4				3	5		3			4	14			2		2	15		
			Baetis	collector-gatherer	6						22			4			12			3		3	9	5
		Heptageniidae	*Stenonema*	scraper	4				3							1	2	1	6	9	3	5	7	5
		Ephemerellidae	*Eurylophella*	scraper	4																1			1
	Plecoptera	Nemouridae	*Amphinemura*	shredder	2				3									1			8			
			Shipsa	shredder	2																			22
		Perlodidae	*Isoperla*	predator	2														4			2		
			Cliperla	predator	2															5			1	
		Chloroperlidae	*Haploperla*	predator	0																			1
		Perlidae	*Eccoptura*	predator	2																			3
		Leuctridae	*Zealeuctra*	shredder	0														4			1		
		Capniidae	*Allocapnia*	shredder	3															1			7	
	Trichoptera	Philopotamidae	*Dolophilodes*	collector-gatherer	1				4						7		2		1	2	4		1	5
			Chimarra	filterer-collector	4						1									1				
		Hydroosychidae	*Diplectrona*	filterer-collector	0				1	1					7	9	32	4	21	25	29	34	18	26
			Hydropsyche	filterer-collector	4			7	2	4	15	50	7	8	10	1	3	1	12	11	3	10	4	3
			Cheumatopsyche	filterer-collector	5						9	10	5	5	10	16			24	3	1	4	13	16
		Glossosomatidae	*Glossosoma*	scraper	0					5	7		6	4	1		2		5	8		11	1	2
		Polycentropodidae	*Polycentropus*	predator	5														1			6		
			Neureclipsis	filterer-collector	7															1			2	3
		Rhyacophilidae	*Rhyacophila*	predator	1															1				3
		Uenoidae	*Neophylax*	scraper	3																		1	
	Diptera	Chironomidae		collector-gatherer	6	24	4	9	38	106	33	51	169	47	65	502	33	4	565	33	16	178	17	12
		Tipulidae	*Tipula*	shredder	4		1							2	2				2	2		1	2	4
			Antocha	collector-gatherer	3					7	7	2	3	1		3	1		4	1	4	6	1	
			Dicranota	predator	3														3	1		3	2	
		Empididae	*Clinocera*	predator	6					1									11					
			Chelifera	collector-gatherer	6								1											
		Dolichopodidae		predator	4																1	1		
		Scathophagidae		unknown																	1			
		Ceratopogonidae	*Ceratopogon*	predator	6														2					
		Dixidae	*Dixa*	collector-gatherer	1																			1
		Simuliidae	*Simulium*	filterer-collector	6						1													
			Prosimulium	filterer-collector	2																			4
	Coleoptera	Elmidae	*Stenelmis*	scraper	5				3						3		1	1			1			1
			Optioservus	scraper	4											1	1	2	8	5	3	6	4	4
		Psephenidae	*Ectopria*	scraper	5														6	4	1	1	1	
Crustacea	Amphipoda	Crangonyctidae	*Stygonectes*	collector-gatherer	8		1																	
	Isopoda	Asellidae	*Caecidotea*	collector-gatherer	6					1	4	1					1							
	Decapoda	Cambaridae	*Cambarus*	collector-gatherer	6										1				1			1		
Mollusca	Gastropoda	Physidae		scraper	8							1	1											3
Oligochaeta				collector-gatherer	5	2		1	3	3	9	3		1	7	16	2		1		1	11	1	10
Platyhelminthes	Tricladida	Planariidae		omnivore	1															2				
				Total Organisms		26	6	17	60	133	108	121	192	72	117	563	92	14	683	118	79	299	92	134

Summary Statistics for Whetstone Run Sampling
2014 - 2015 - 2016

	WRMU			WRMD			WRNTU			WRNTD			WRSTU			WRSTD			HLR
Year Sampled	2014	2015	2016	2014	2015	2016	2014	2015	2016	2014	2015	2016	2014	2015	2016	2014	2015	2016	2016
Total Number of Organisms	26	6	17	60	133	108	121	192	72	117	563	92	14	683	118	79	299	92	134
Number of Taxa Present	2	3	3	9	9	10	8	7	8	11	9	12	7	20	19	16	19	18	21
Scrapers Feeding Group	0	0	0	6	5	7	1	7	4	4	2	6	4	25	26	9	23	14	15
Filter-Gather Feeding Group	0	0	7	3	5	26	60	12	13	27	26	35	5	57	41	33	48	37	52
Predator Feeding Group	0	0	0	0	1	0	0	0	0	0	0	0	0	21	7	1	12	3	7
EPT Abundance	0	0	7	16	15	54	63	18	21	39	41	53	7	80	70	51	91	64	95
Chironomidae Abundance	24	4	9	38	106	33	51	169	47	65	502	33	4	565	33	16	178	17	12
EPT:Chironomidae	0.00	0.00	0.78	0.42	0.14	1.64	1.24	0.11	0.45	0.60	0.08	1.61	1.75	0.14	2.12	3.19	0.51	3.76	7.92
Intolerant Taxa Richness (HBI 0-4)	0	1	0	7	5	3	3	3	3	7	6	6	6	13	13	12	13	11	13
% Contribution Dominant Taxa	92.31	66.67	52.94	63.33	79.70	30.56	42.15	88.02	65.28	55.56	89.17	35.87	28.57	82.72	27.97	36.71	59.53	19.57	19.40
EPT Index	0	0	1	6	4	5	3	3	4	6	5	6	4	10	12	8	10	11	13
H' Diversity	0.27	0.87	0.87	1.40	0.88	1.94	1.27	0.56	1.25	1.61	0.52	1.64	1.75	0.88	2.24	2.08	1.65	2.39	2.60
Hilsenhoff's Biotic Index	5.9	6.0	5.8	5.0	5.4	5.6	5.0	5.7	5.5	4.8	5.8	3.6	3.4	5.5	3.4	2.5	4.6	4.0	3.6
Taxa Richness	2	3	3	9	9	10	8	7	8	11	9	12	7	20	19	16	19	18	21
Modified EPT	0	0	0	6	4	2	2	2	1	5	4	4	4	8	8	7	7	7	9
Beck's Version 3	0	0	0	4	6	3	0	3	3	7	3	9	3	10	14	4	9	10	21
Shannon's	0.27	0.87	0.87	1.40	0.88	1.94	1.27	0.56	1.25	1.61	0.52	1.64	1.75	0.88	2.24	2.08	1.65	2.39	2.60
Hilsenhoff	5.9	6.0	5.8	5.0	5.4	5.6	5.0	5.7	5.5	4.8	5.8	3.6	3.4	5.5	3.4	2.5	4.6	4.0	3.6
% Sensitive Organisms	0.00	0.00	0.00	13.33	9.77	12.96	1.65	4.69	6.94	12.82	2.13	40.22	35.71	6.15	38.98	56.96	19.06	34.78	50.75
IBI Score	10.97	14.79	15.16	32.63	27.19	31.03	23.81	19.65	24.09	35.53	21.54	44.17	39.24	37.03	56.95	54.67	44.06	52.71	66.06
Aquatic Life for June Sampling Period	Impaired	Impaired	Impaired	Impaired	Impaired	Impaired	Impaired	Impaired	Impaired	Impaired	Impaired	Marginal	Impaired	Impaired	Attaining	Attaining	Marginal	Attaining	Attaining
Number of Metrics within 90%	0	1	1	0	0	0	1	0	0	0	0	2	3	7	9	4	7	5	
Number of Metrics within 83%	0	1	1	0	0	0	1	0	0	0	0	2	3	8	11	5	7	10	

Notes:
WRMU - Whetstone Run Main Stem, Upstream
WRMD - Whetstone Run Main Stem, Downstream
WRNTU - Whetstone Run Northern Tributary, Upstream
WRNTD - Whetstone Run Northern Tributary, Downstream
WRSTU - Whetstone Run Southern Tributary, Upstream
WRSTD - Whetstone Run Southern Tributary, Downstream
HLR - Hotland Run
Within 90% of the value for Hotland Run
Within 83% of the value for Hotland Run