



Restoring the Headwaters

Schuylkill Headwaters Association



Our mission is “to promote the environmental integrity of the Schuylkill River, its tributaries, and the watershed that lies within the boundaries of Schuylkill County.”

Watershed Assessments

- 2000 – Upper Schuylkill River Assessment Report
by L Robert Kimball & Associates

Approximately 127 square miles of the Main Branch and West Branch of the Upper Schuylkill

Collected all available data from regulatory agencies, coal operators, and local citizens

Identified 109 discharge / recharge locations

Selected 8 priority sites based on data using

Average Contaminate Concentrations

Average Contaminant Loading

Watershed Assessments

- 2001 – Little Schuylkill River Assessment Report
by L Robert Kimball & Associates

Approximately 137 square miles of the Little Schuylkill River and its' tributaries

Collected all available data from regulatory agencies, coal operators, and local citizens

Identified 62 discharge / recharge locations

Selected 9 priority sites based on data using

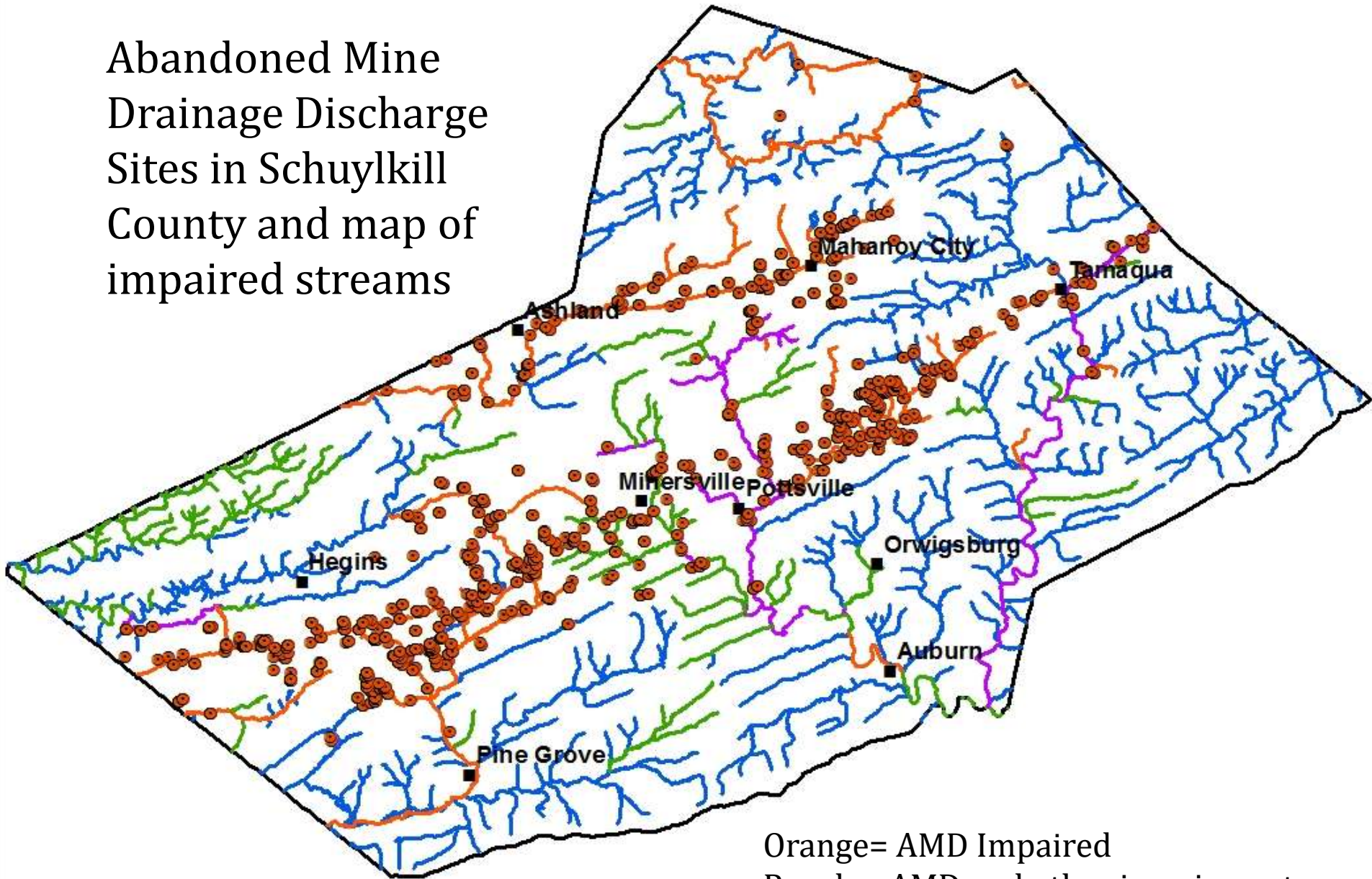
Average Contaminate Concentrations

Average Contaminant Loading

Over 160 abandoned mine sites in Schuylkill River Watershed!



Abandoned Mine
Drainage Discharge
Sites in Schuylkill
County and map of
impaired streams



Orange= AMD Impaired
Purple= AMD and other impairment
Green=Other impairment
Blue= Clean streams

UPPER SCHUYLKILL RIVER TMDL WATERSHED IMPLEMENTATION PLAN (WIP)

May 2005

Prepared by:

Schuykill Conservation District

Schuykill Headwaters Association, Inc.

RETTEW Associates, Inc.

For submission to:

Pennsylvania Department of Environmental
Protection

and

United States Environmental Protection Agency

WIP
**IDENTIFICATION AND SUMMARY OF PROBLEM AND
POLLUTION SOURCES**

- Abandoned Mine Drainage (AMD)
- Sediment Runoff and Abandoned Mine Drainage from Refuse Piles
- Uncontrolled Stormwater Runoff
- Sewage
- Agriculture Related Impairment (Nutrient and Sediment)
- U. S. EPA Superfund Sites

Upper Schuylkill WIP Main Stem Completed Remediation Projects

High Priority:

- Silver Creek Mine
- Bell Colliery
- Mary D East (Overflow)
- Mary D Mine Borehole

Upper Schuylkill WIP Main Stem

Priority list:

- Big Creek (acid deposition)
- Randolph Discharge
- Kaska Silt Dam (sedimentation)
- Kaska Mine Outfall
- Eagle Hill
- Brockton Discharge
- Middleport Mine Discharge

Upper Schuylkill WIP other projects completed

High Priority:

- Otto Colliery Airshaft Discharge
- Reevesdale No. 2 Outflow
- Pine Forest Mine
- Newkirk Tunnel - North Dip (BAMR project)
- Sharp Mountain Mine Subsidence Reclamation (Pottsville / PA DEP)



Tuscarora Springs

Tuscarora

Big Creek

Maryd

Mary D Overflow

Mary D Borehole

Big Creek

Bell Colliery

Kaska Mine Outfall

Kaska

Kaska Silt Dam

Silver Creek Discharge

Silver Creek

Middleport

New Philadelphia New Philadelphia

Cumbola

Randolph Discharge

Port Carbon

Zenne

West Per

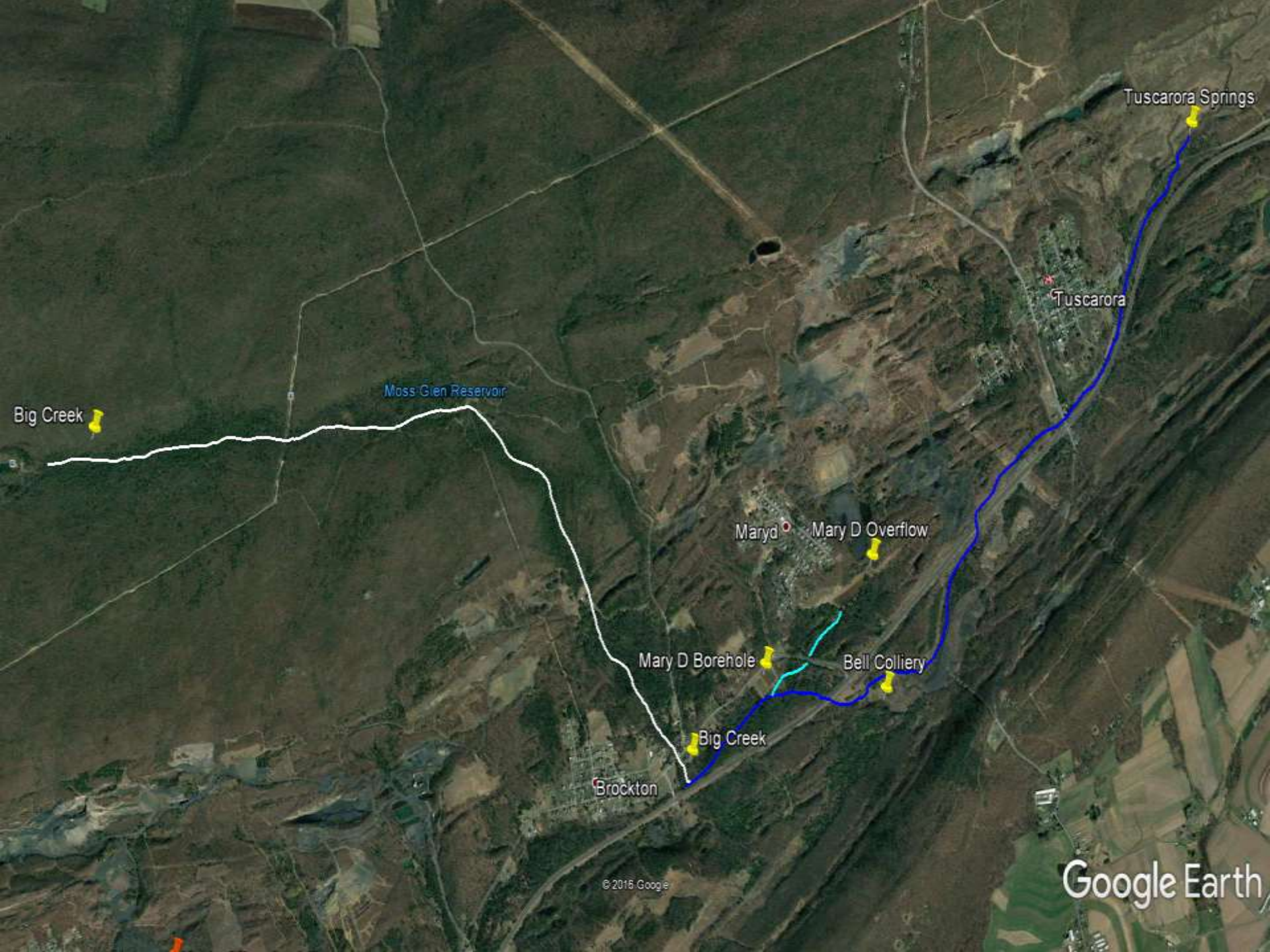
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Google Earth



Tuscarora Springs

Tuscarora

Moss Glen Reservoir

Big Creek

Maryd

Mary D Overflow

Mary D Borehole

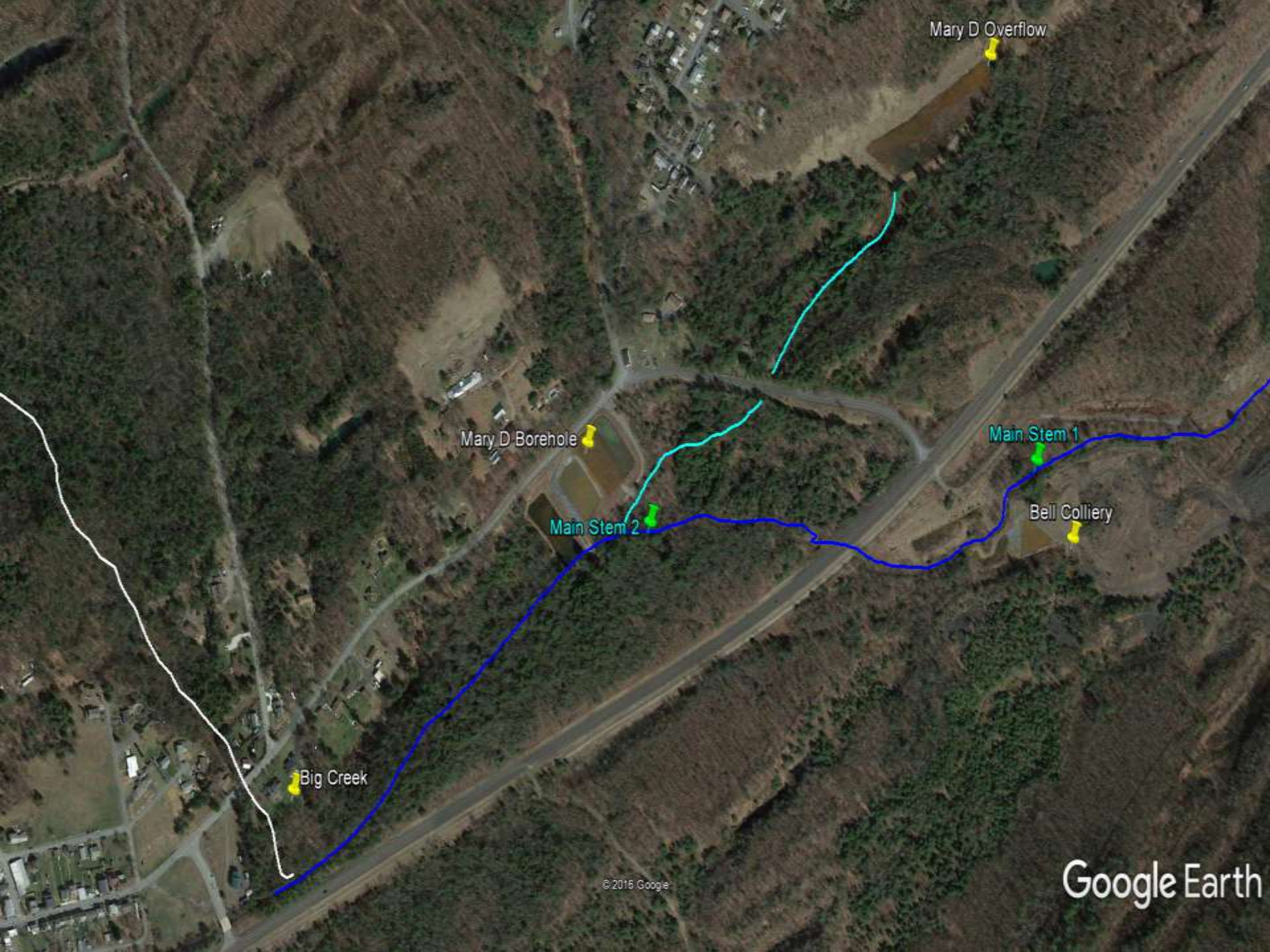
Bell Colliery

Big Creek

Brockton

© 2015 Google

Google Earth



Mary D Overflow

Mary D Borehole

Main Stem 1

Main Stem 2

Bell Colliery

Big Creek

WIP Goals

- First goal –
 - Reduction of iron concentration to less than 1.5 mg/l
 - Reduction of aluminum concentration to less than .75 mg/l
 - Reduction of manganese concentration to the extent practical
 - pH levels with the range of 6.0 – 9.0
 - Alkalinity exceeding acidity

Bell Colliery Monitoring data

- Avg. flow:
- 281 gpm
- Raw water:
- Fe – 2.99 ppm
- pH -- 4.3
- Treated water:
- Fe – 1.08 ppm
- pH – 7.0
- Iron removal:
- 9.7 lbs. / day -- 3540 yr.



Mary D Borehole Monitoring Data



- Avg. flow:
- 689 gpm
- Raw water:
- Fe – 7.2 ppm
- pH – 5.5
- Treated water:
- Fe – 1.0 ppm
- pH – 7.5
- Iron removal:
- 30.5 lbs./day -- 11,130 yr.

Big Creek Watershed Coldwater Conservation Plan



PREPARED FOR:
SCHUYLKILL HEADWATERS
ASSOCIATION, INC.

WITH FUNDING BY:
COLDWATER HERITAGE
PARTNERSHIP

PREPARED BY:
RETTEW ASSOCIATES, INC.
950 EAST MAIN STREET, SUITE 220
SCHUYLKILL HAVEN, PA 17972
(570) 385-2270

Big Creek Watershed

- Drainage area encompasses 3.67 square miles
- Includes approx. 8.46 miles of streams
- Water quality designation of CWF, MF
- Not a naturally reproducing trout stream (PFBC)
- Historic land use includes anthracite coal mining and timber harvesting
- Currently used as a municipal water source and for outdoor recreation

Water Quality Data

Table 1. Summary of Water Quality Data

Sample Point	Acidity (mg/L)	Alkalinity (mg/L)	Iron (mg/L)	pH	Conductivity (μS/cm)
1	17.1	20.0	0.0	5.0 – 5.5	-
2	17.1	20.0	0.0	5.0	-
3	17.1	20.0	0.8	5.0	-
4	17.1	20.0	1.0	5.5	-
5	34.2	20.0	0.0	5.0	-
6	-	-	-	5.5 – 6.0	-
7	-	-	-	6.80	157.5
8	-	-	-	4.89	365.0
9	-	-	-	3.0	212.0

Macroinvertebrate Data

Table 2. Summary of Macroinvertebrate Data

Sample Point	Modified Becks Index	EPT Taxa Richness	Total Taxa Richness	Shannon Diversity Index	HBI Index	Percent Intolerant Individuals (TV 5 or less)	IBI Value
1	0	2	3	0.672	17.50	15.00	10.14
2	1	4	6	1.426	35.56	72.22	29.53
4	1	2	5	1.076	23.89	38.89	18.66

- Total number of individuals was multiplied by 5
- Macroinvertebrate impairment is based on the *Index of Biological Integrity (IBI) for Wadeable, Freestone Streams in Pennsylvania*
 - Non-impaired streams = 63
 - EV, HQ streams = 80
- Pollution sensitive stoneflies were found at each sample point

Electrofishing Data

- One small brook trout at Sample Point #1
- Very poor due to low pH and lack of reliable food source
- Few crayfish, frogs, and salamanders observed

Limestone Sanding

project completed 10/4/2016

		Flow	pH	Iron	Alum	Manganese	
Capparell							
11/16/2016			5.0	<0.020	0.439	0.282	
2/16/2017		320	5.3	<0.020	0.477	0.312	
Moss Glen							
11/16/2016			7.0	0.046	<.200	0.011	
2/16/2017		1002	6.6	0.033	<.200	0.086	
Sch. River							
11/16/2016			6.6	0.056	0.209	0.310	
2/16/2017		1462	6.0	0.034	0.306	0.127	

WIP Goals

- Second goal –
 - increase public awareness of environmental issues and help to
 - restore a sense of pride and community partnership within the watershed

Outreach & Education



Why it's important to share what we do...



Exposing the public
to our work in the
headwaters



Last fall alone, over 125 students visited the Silver Creek AMD Treatment System for tours and environmental programming.



Students mouths always drop when we tell them that the Silver Creek AMD System removes between 250 to 550 pounds of iron oxide every day!





Local Cub Scout Packs have built blue bird nest boxes to improve wildlife habitat.



WIP Goals

- Third goal –
 - establish a recreation corridor along the various waterways to take advantage of the improving environmental conditions in the streams

New Philadelphia Habitat Project













New Philadelphia Walking Trail

Contract No: C000063855

COMMONWEALTH OF PENNSYLVANIA
COMMONWEALTH FINANCING AUTHORITY

RECEIVED

OCT 12 2016

GREENWAYS, TRAILS, AND RECREATION PROGRAM GRANT AGREEMENT

This Contract, entered into by and between the Commonwealth of Pennsylvania (the "Commonwealth"), acting through the Commonwealth Financing Authority (the "Grantor" or "Authority"), and

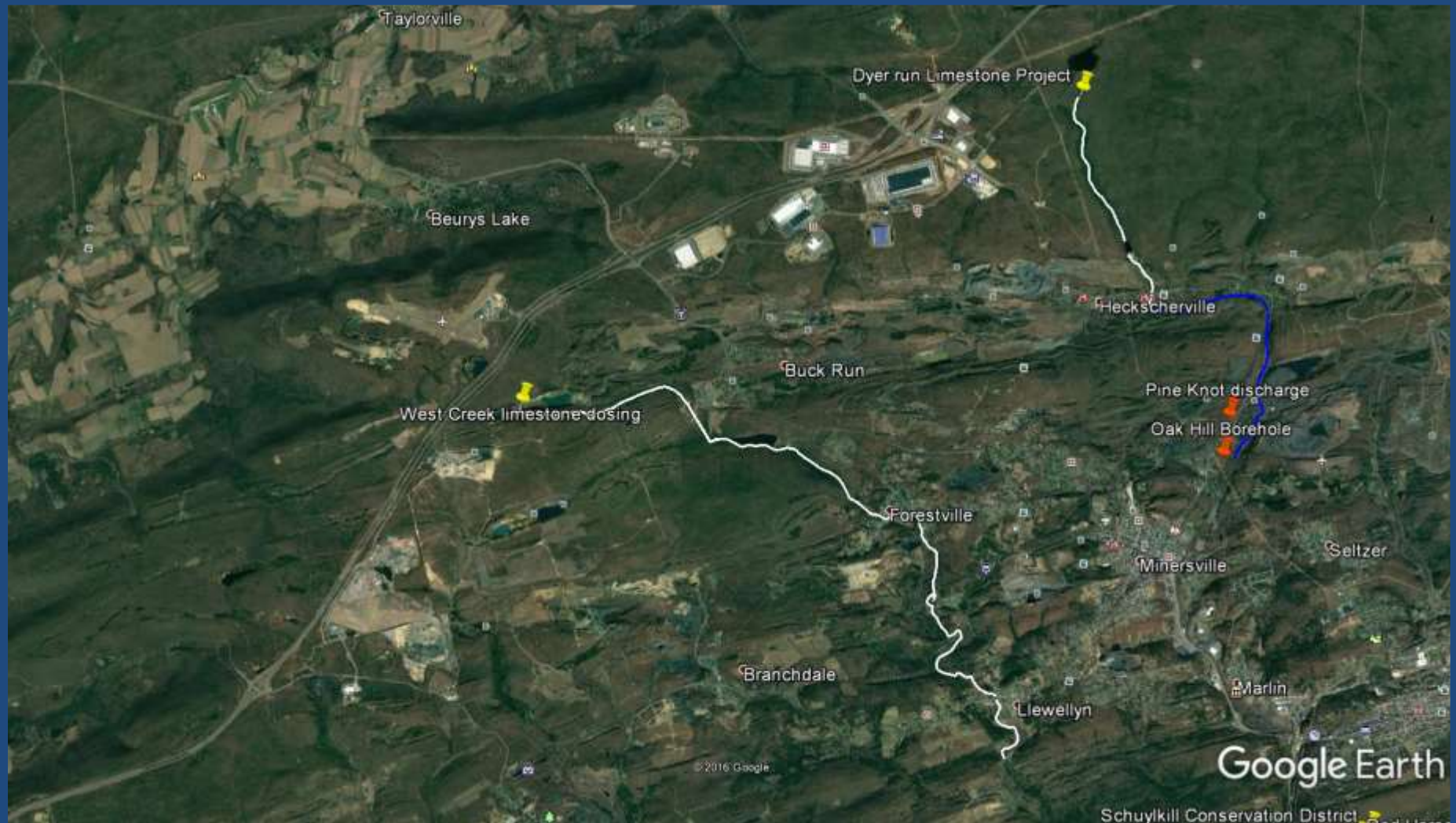
SCHUYLKILL HEADWATERS ASSOCIATION INC.

P.O. Box 1385
Pottsville PA 17901

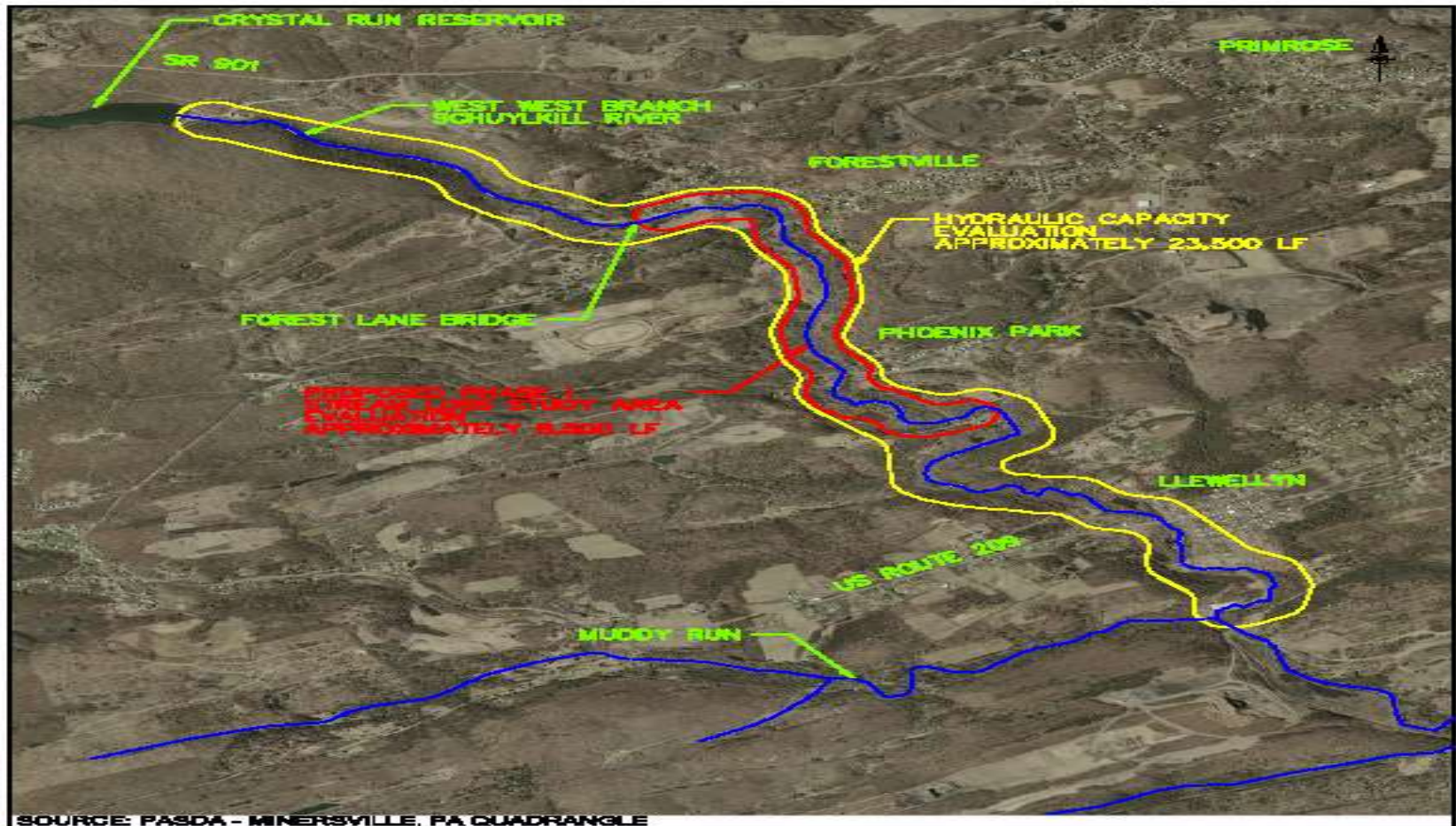
(the "Grantee").

BACKGROUND:

Dyer Run / West Creek limestone dosing



West Creek



LOCATION MAP
GROWING GREENER PLUS GRANT
SCHUYLKILL COUNTY CONSERVATION DISTRICT
CASE TOWNSHIP
SCHUYLKILL COUNTY, PENNSYLVANIA



benesch
engineering • architecture • planning

Adfed Research & Company
480 One Kensington Place
Pittsford, Pennsylvania 17051
(717) 852-4000

Ende
09/10/2013

III

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Change Dates

LOCATION MAP

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