



# *St. Michael AMD Water Treatment Project*

*Department of Environmental Protection and Rosebud Mining Company*





The confluence of the Stonycreek and Little Conemaugh Rivers form the Conemaugh River at the Johnstown Point. The private-public partnership between the Commonwealth of Pennsylvania, PADEP, Rosebud Mining Company, EPA and the environmental community will dramatically improve the Little Conemaugh River Watershed for generations of Pennsylvania citizens. Significantly improved water quality on the Little Conemaugh will be immediate once pumping and water treatment commences in Spring 2013.

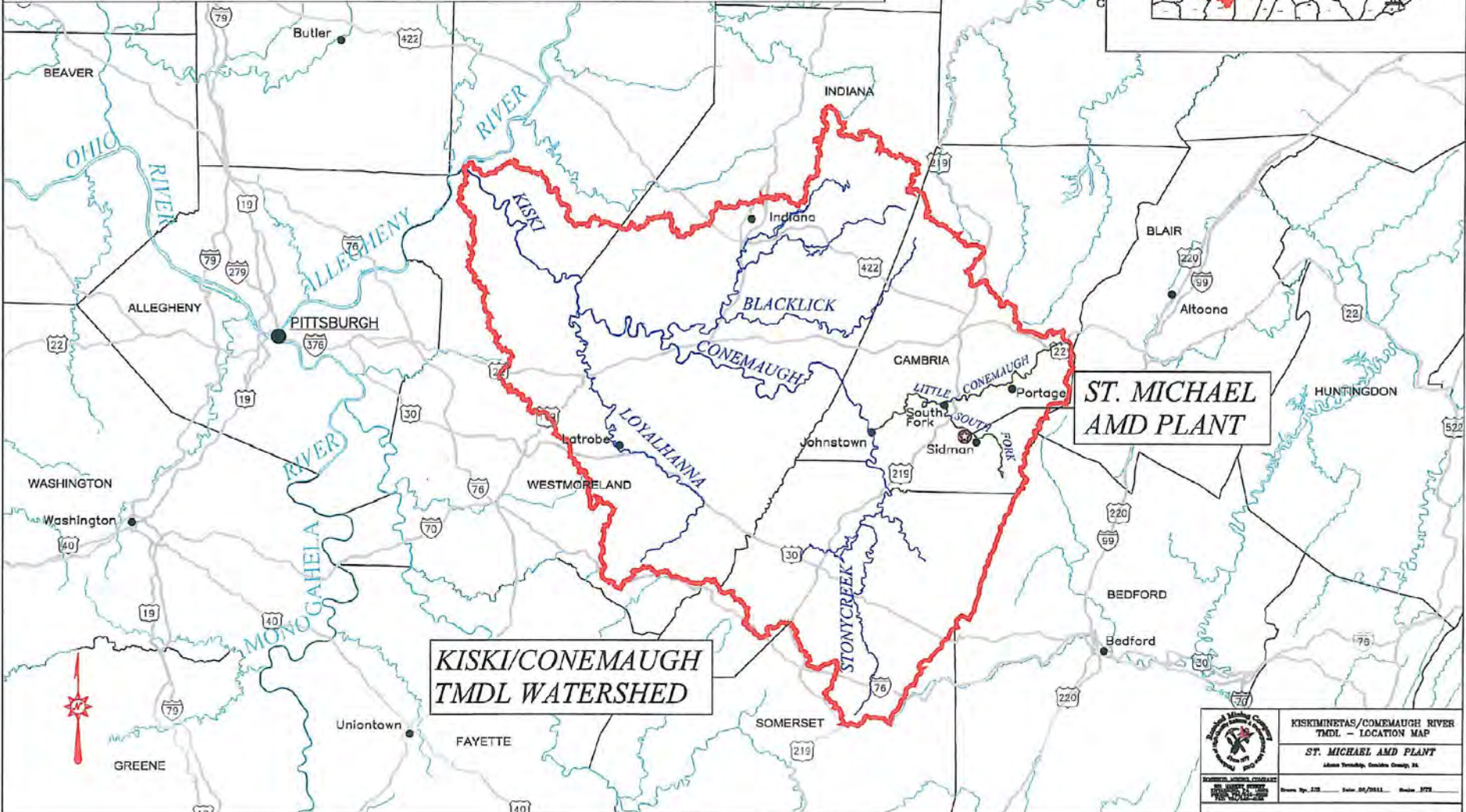
# Little Conemaugh River Watershed Facts

- The watershed covers approximately 190 mi<sup>2</sup> and covers 32 municipalities including Ebensburg, the county seat, the city of Johnstown, and parts of Bedford, Blair, and Somerset Counties
- The main stem of the Little Conemaugh River is 29.1 miles long and has an average slope of 53 feet per mile
- The headwaters begin in the Cresson area and continue on until reaching the Point Stadium area in Johnstown





The Kiskiminetas-Conemaugh TMDL watershed is located in the western Pennsylvania counties of Cambria, Somerset, Indiana and Westmoreland. It encompasses six major watersheds of the Beaver Run, Blacklick Creek, Conemaugh River, Loyalhanna Creek, Kiskiminetas River and Stonycreek River. The St. Michael Discharge is located near the headwaters of the South Fork of the Little Conemaugh River which drains into the Conemaugh River after its confluence with the Stonycreek River in Johnstown.



**KISKI/CONEMAUGH  
TMDL WATERSHED**

**ST. MICHAEL  
AMD PLANT**

	<b>KISKIMINETAS/CONEMAUGH RIVER TMDL - LOCATION MAP</b>
	<b>ST. MICHAEL AMD PLANT</b> <small>Altoona Township, Cambria County, PA</small>
<small>Scale: 1" = 10 Miles          Date: 05/2011          Sheet: 1/12</small>	



# Existing AMD Discharge

36" Diameter pipe near the top of the abandoned Maryland No. 1 Mine shaft collar discharging Acid Mine Drainage (AMD) since December 1963 will be eliminated.

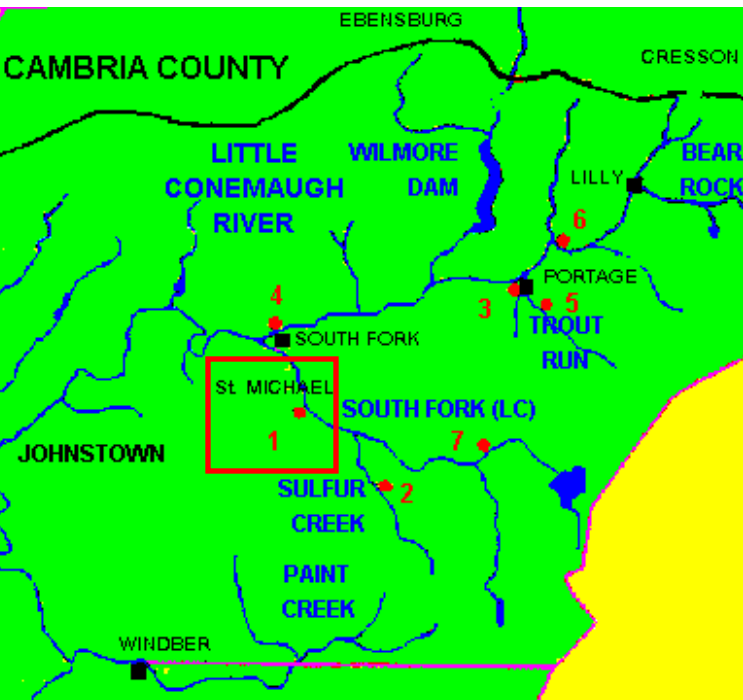


Average Flow Rate 2,067 gallons per minute to 3,656 gallons per minute of AMD. Draw down pump capacity at the St. Michael Water Treatment Plant is up to 10,000 gallons/minute.



# Little Conemaugh River

## Ranking of Acid Mine Discharges by Load



Rank	Site	Load(#/day)	% of Total
1	St. Michael	31,141	29.2%
2	Sulfur Creek	11,418	10.71%
3	Trout Run	14,301	13.41%
4	Ehrenfeld	12,742	11.94%
5	Sonman	10,370	9.72%
6	Hughes Borehole	8,318	7.79%
7	Beaverdale	6,755	6.33%



# Johnstown National Flood Memorial



South Fork of the Little Conemaugh River flows directly through the Federal Johnstown National Flood Memorial. The St. Michael AMD discharges contribute 3,700 tons of AMD per year to the Little Conemaugh River.

This is the largest single source of AMD Pollution on the Little Conemaugh and equates to approximately 30% of the total AMD on the river. The St. Michael AMD Water Treatment Project will provide the resources to rectify the environmental issues caused by the AMD in the watershed.



Johnstown National Flood Memorial North Slope is approximately ½ mile downstream from the St. Michael discharge.



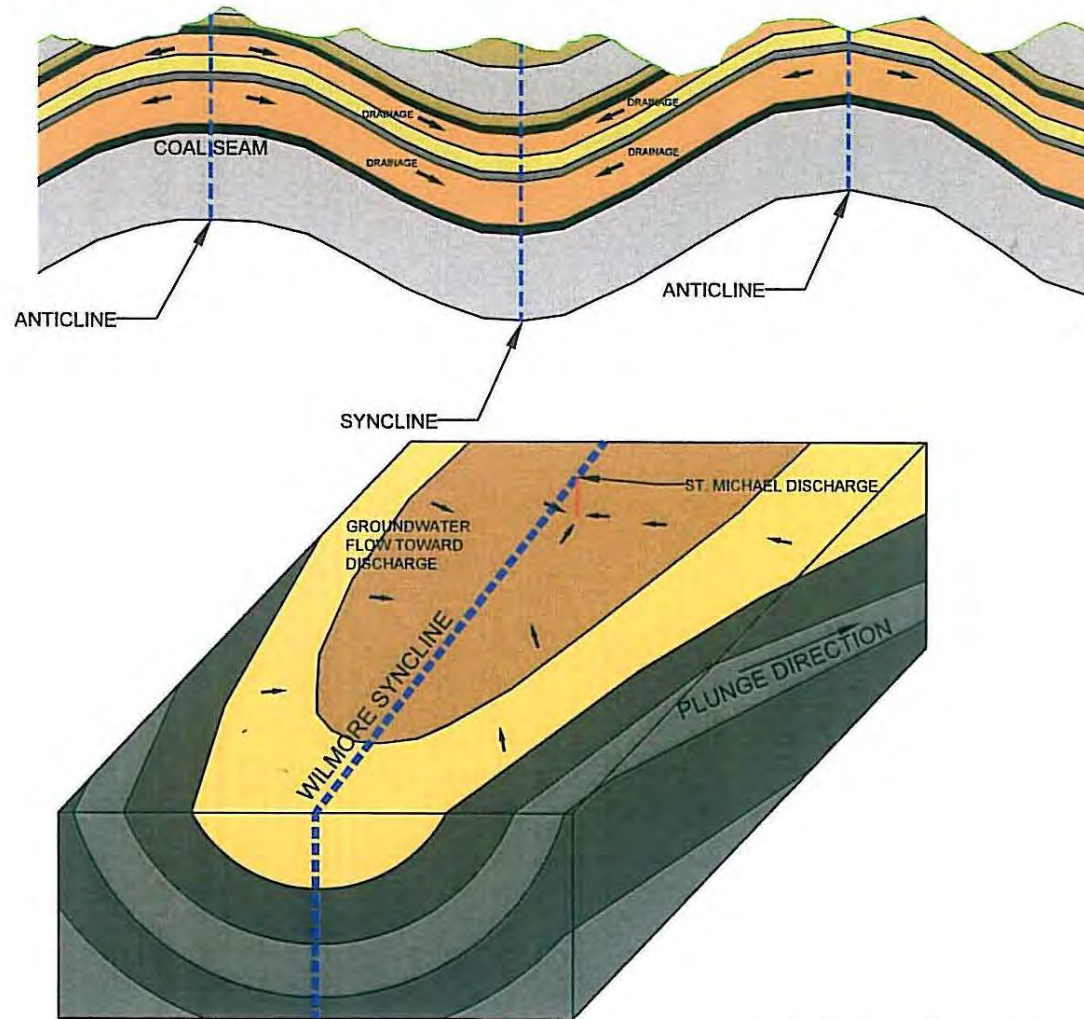
# Topper Run



Residual discharges in addition to the main flow at areas along the stream banks of Topper Run will be eliminated. Thus, improving the water quality significantly.

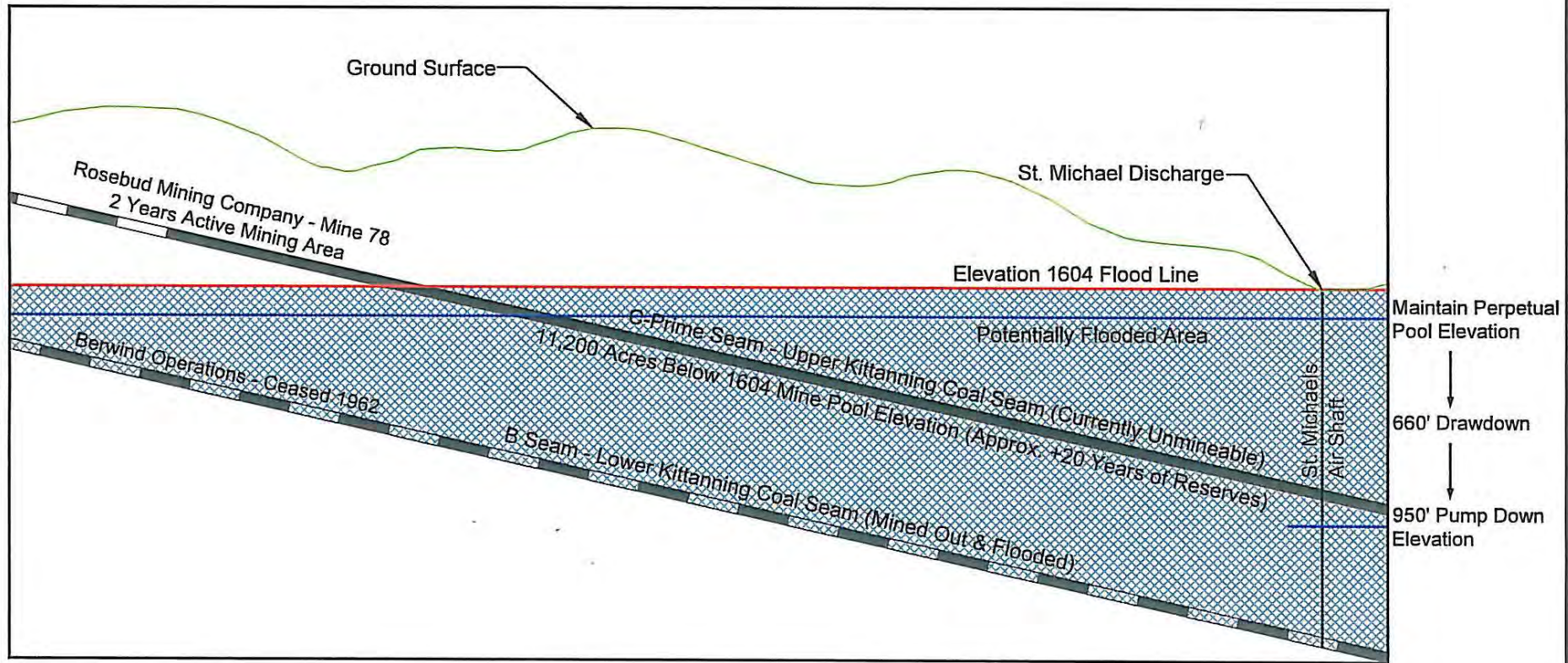


## Figure: ANTICLINE AND SYNCLINE FOLDS



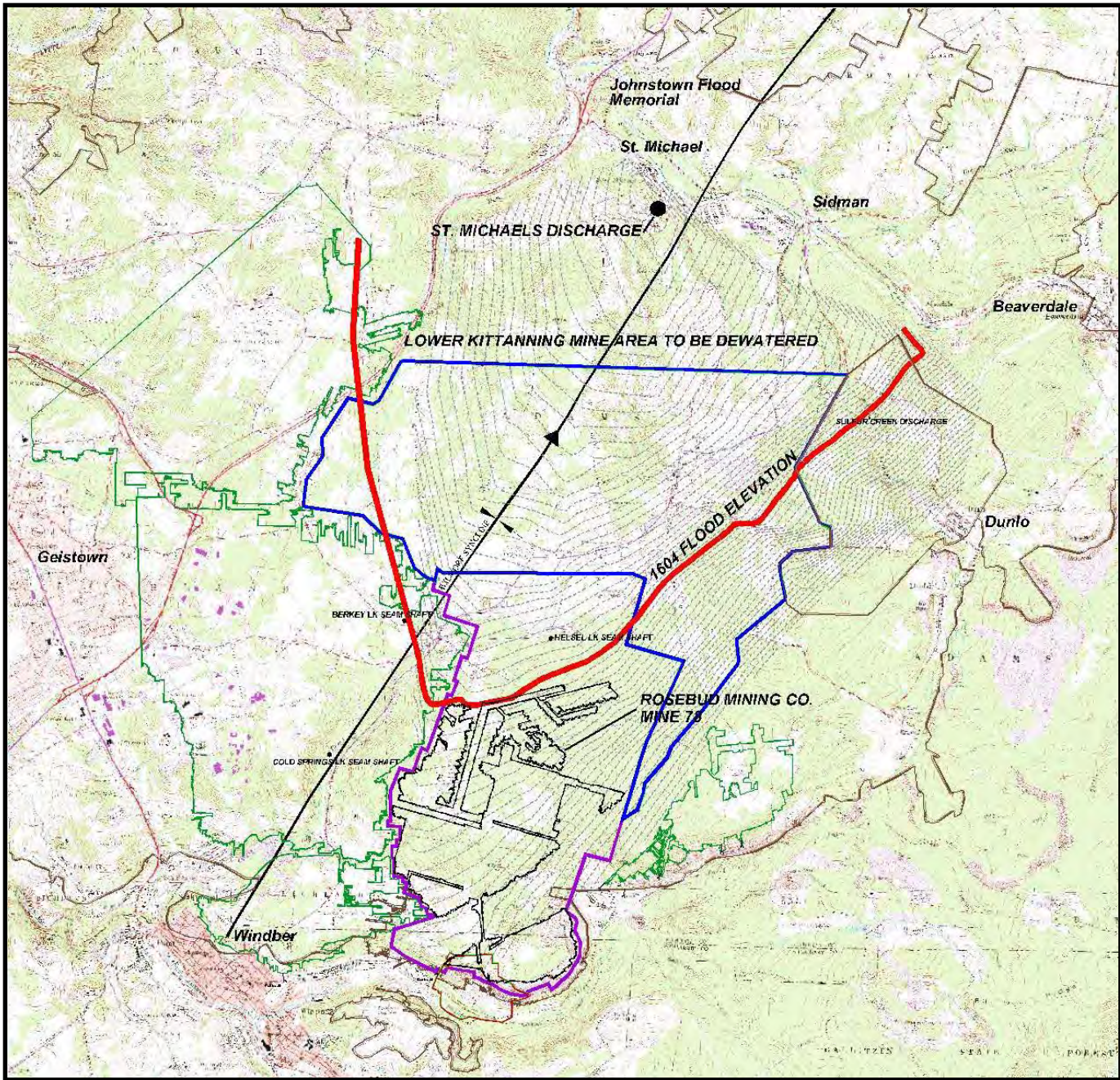
- Water enters the subsurface near stratigraphic high areas known as anticlines. Groundwater then travels down gradient toward the axis of stratigraphic lows known as synclines. The Wilmore Syncline plunges toward the St. Michael Shaft where the groundwater fills a bowl like structure to form the Berwind Mine Pool. St. Michael Shaft is the discharge point of the mine pool.

# Figure - GENERALIZED PROFILE OF PROJECT AREA



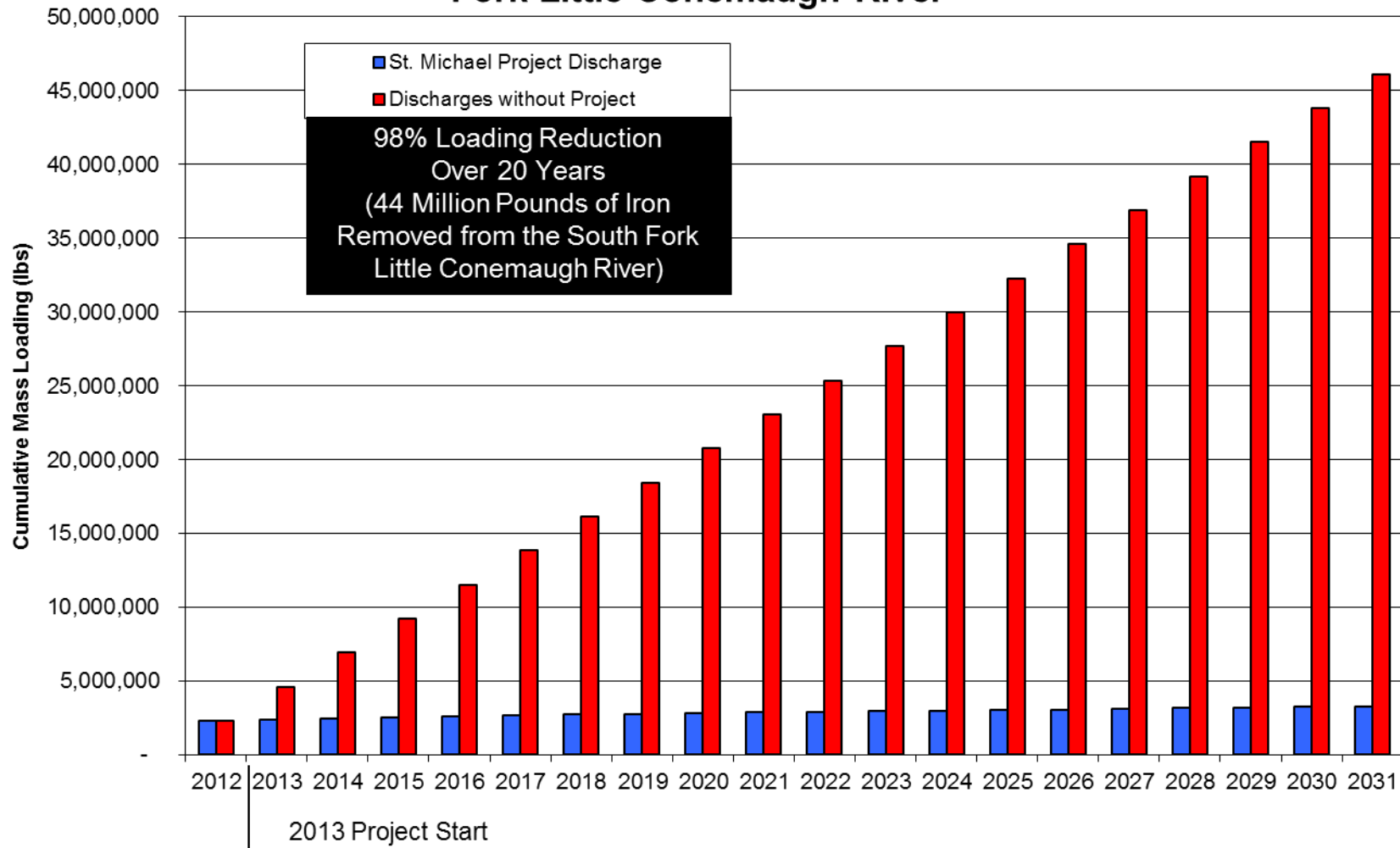
- The Upper Kittanning coal seam (seam being extracted by Mine 78) is approximately 100 feet above the Lower Kittanning coal seam (seam extracted in the early 20th century) and they are hydraulically connected. No mining can be conducted at Mine 78 below an elevation of 1604' msl until the area is dewatered by pumping the Berwind mine pool at the St. Michael Shaft. The pumping and treatment facilities will allow 20 plus years of additional mining and eliminate 30% of the AMD loading on the Little Conemaugh Watershed. Upon completion of the mining activities at Mine 78, the mine pool will be allowed to rise but be maintained below and current discharge elevation.



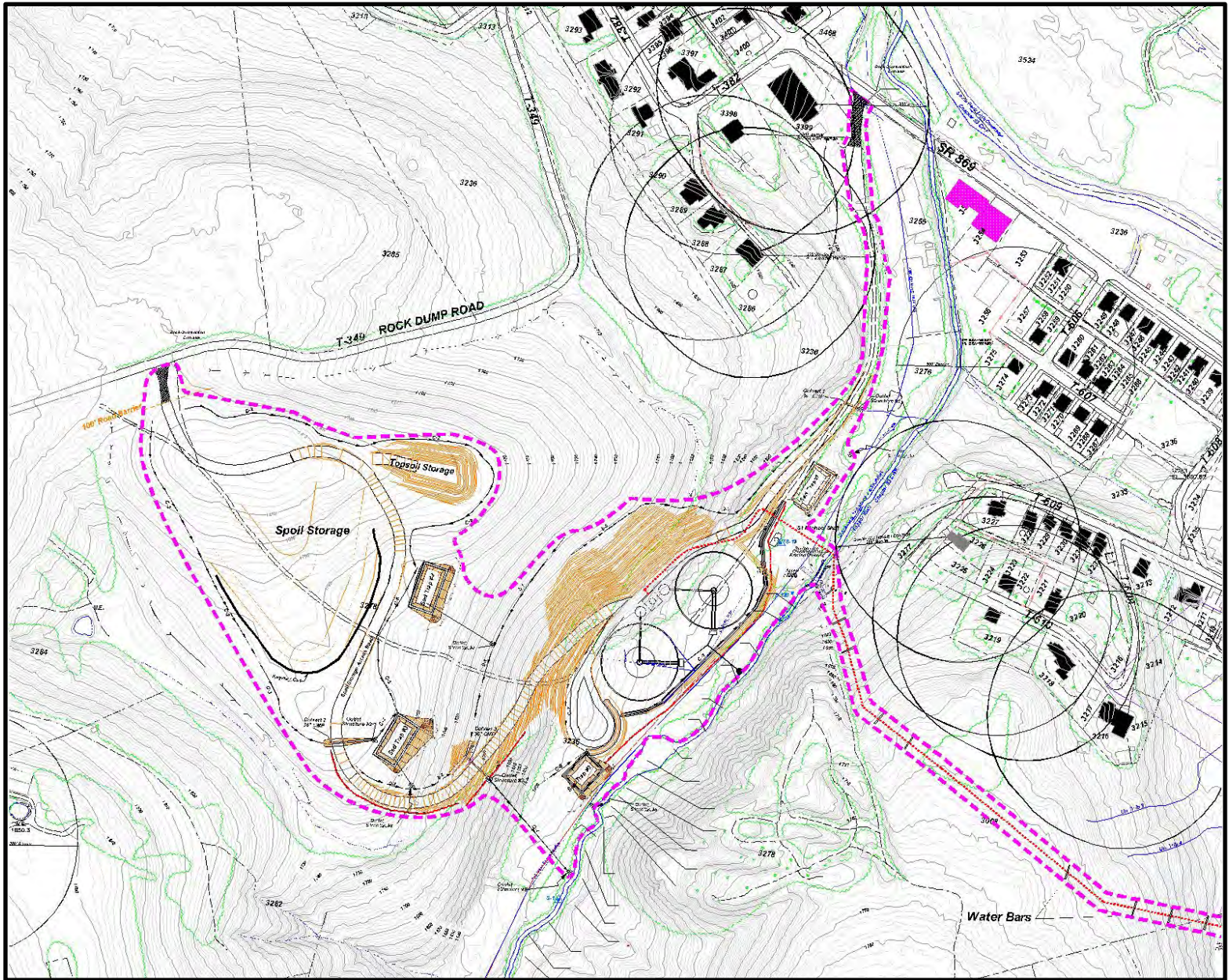


1604' Flood Elevation is the current surface elevation at the St. Michael Shaft discharge

# St. Michael Treatment Plant Project 20-Year Comparison of Cumulative Iron Mass Loadings to the South Fork Little Conemaugh River









# Construction of the St. Michael AMD Treatment Plant

