

COAL REFUSE REMOVAL/RIPARIAN RESTORATION

Goff Station Restoration Area, Venango Township, Butler County, PA

Slippery Rock Watershed Coalition
July 2000

SLIPPERY ROCK WATERSHED COALITION
c/o STREAM RESTORATION INCORPORATED
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July 28, 2000

Pennsylvania Department of Environmental Protection
Bureau of Watershed Conservation
Watershed Support Division
Rachel Carson State Office Building
P.O. Box 8555
Harrisburg, PA 17105

Attn: Kevin Kelly, Aquatic Biologist

Re: Final Report for ME#358987
Watershed Restoration and Assistance Program
Coal Refuse/Riparian Restoration
Goff Station Restoration Area
Venango Township, Butler County, PA

Enclosed is the final report for the above noted project.

This report represents only a small portion of the "success stories" made possible by this grant. The timeliness of this funding allowed the project to be incorporated with other restoration activities occurring in the area. In addition, it has also "paved the way" for future reclamation to be accomplished inexpensively and efficiently. The Coal Refuse/ Riparian Restoration project was truly an integral part of the total restoration of the Goff Station Restoration Area.

Please review and comment. The submission of a good-quality work product is very important to all of us.

Your patience and assistance has been very much appreciated. If there are any questions or comments, please do not hesitate to contact any of the participants.

Very truly yours,
Stream Restoration Incorporated

Margaret H. Dunn, PG

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Slippery Rock Watershed Coalition

FINAL REPORT: ABANDONED MINE LAND RESTORATION

COAL REFUSE REMOVAL/ RIPARIAN RESTORATION Goff Station Restoration Area, Venango Township, Butler County, PA

Submitted to:

**Pennsylvania Department of Environmental Protection
Bureau of Watershed Conservation**

Brief Description of Project Work Conducted Through grant

Constructed haulage road and temporary stream crossing over Murrin Run. This allowed access to coal refuse piles located at the Goff Station Restoration Area from the existing Tiche Abandoned Mine Reclamation Project. Removed approximately four times the amount of coal refuse(78,000 cy) originally proposed. Following the removal of the coal refuse, restored the affected stream bank. Prepared the removal site for the establishment of an emergent and forested wetland.

Contract Amount: \$50,000

**Grant Program: Watershed Restoration and Assistance Program (WRAP) Grant:
1998**

**Administered by: Stream Restoration Incorporated
Margaret H. Dunn, RPG; President
Timothy P. Danehy, EPI; Secretary/Treasurer**

July 2000

Cover photograph: (Clockwise from top) M. Dunn in front of refuse pile during removal; Portion of 63,600 cubic yard refuse pile at the Goff Station Restoration Area; Front end loader used by Quality Aggregates Inc., to remove refuse.

PUBLIC-PRIVATE PARTNERSHIP

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Final Report

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Surveying/Stream Crossing

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SLIPPERY ROCK WATERSHED COALITION

FINAL REPORT: ABANDONED MINE LAND RESTORATION

COAL REFUSE REMOVAL/RIPARIAN RESTORATION

Goff Station Restoration Area, Venango Township, Butler County, PA

Submitted to

**Pennsylvania Department of Environmental Protection
Bureau of Watershed Conservation**

EXECUTIVE SUMMARY

On January 12, 1999, the Slippery Rock Watershed Coalition received a Watershed Restoration and Assistance Program (WRAP) grant through the Department of Environmental Protection (PA DEP), Bureau of Watershed Conservation. The project goals as stated in the proposal were (1) to restore the land, water, and wildlife resources to an area of the Slippery Rock Creek headwaters known as Seaton Creek which has been impacted by abandoned coal refuse, (2) to seize an opportunity to economically restore this site by coordinating with another reclamation project nearby, (3) to continue to work with the local government to address the impacts of abandoned mines, (4) to develop informational posters and videos to be presented at township meetings and Slippery Watershed Coalition events including the annual neighborhood "Get-Together", (5) to continue to work with the PA Department of Environmental Protection as part of the Comprehensive Mine Reclamation Strategy to restore the headwaters, and (6) to provide continued opportunities to college students and volunteers to monitor and contribute to the restoration of the watershed and to acknowledge their efforts at Slippery Rock Watershed Coalition events and in the monthly newsletter. This final report documents that through the combined efforts of all participants, not only were these goals achieved, they were exceeded (See selected highlights).

A haulage road was constructed to connect the Tiche Abandoned Mine Reclamation Project to the Goff Station Restoration Area. Construction of this road included the placement of a stream crossing that consisted of a 7 foot diameter smooth steel pipe, in Murrin Run, a tributary to Seaton Creek.

Roughly 78,000 cubic yards of coal refuse that extended into Murrin Run has been removed, neutralized with alkaline, circulating, fluidized bed, coal ash from the Scrubgrass Generating Plant, and placed in the abandoned Brookville pit as part of that reclamation effort.

The truly unique aspect of this project was how it was an important piece in a series of events that will eventually lead to the complete restoration of the Goff station area.

SELECTED HIGHLIGHTS

Several unexpected positive outcomes resulted from the work carried out by this project. This seems to be a common occurrence when the Slippery Rock Watershed Coalition takes on a project. Participants from such diverse backgrounds are bound to incorporate innovative ideas that ultimately benefit the project and the watershed. Additionally, such strong in-kind support allows unanticipated obstacles to be easily and economically overcome.

Timeliness

- ◇ A unique window of opportunity allowed equipment and man-power used at a neighboring active coal mine to be “shared” in order to complete the access road needed for this project and two other restoration projects. This significantly reduced the cost of all related projects and increased efficiency.

Site Access

- ◇ As with most reclamation projects, access to the reclamation site had to be constructed. The resulting haulage road and stream crossing were not only essential to this project but to future projects in this area as well. The timeliness of this project in relation to the release of Growing Greener funds has allowed additional restoration activities to occur at the Goff Station Restoration Area with significantly less cost to the Commonwealth.
- ◇ Ultimately the haulage road and stream crossing will allow the treatment of approximately 400 gpm of acid mine drainage, the addition of over four acres of wetlands, and the construction of an experimental bat hibernacula made from recycled materials.

Coal Refuse Removal

- ◇ Based upon rough estimates provided by the Pa Department of Environmental Protection’s Comprehensive Mine Reclamation Strategy (PA DEP CMRS)(See appendix), this project was to remove 20,000 cubic yards of coal refuse. As the project got under way, it quickly became apparent that approximately four times the estimated amount of refuse (78,000 cy) was present. This would have posed an immense problem had it not been for the strong partnerships and in-kind contributions associated with all Slippery Rock Watershed Coalition projects. In-kind contributions from Quality Aggregates Inc. had already allowed this project to be done for \$10,000 less than originally estimated by PA DEP’s 1998 CMRS report. Due to the proximity of the refuse disposal site, the Tiche Abandoned Mine Reclamation Project less than 1000 feet away,

work simply continued and was completed in an efficient and timely fashion rather than filing a change order and delaying project completion.

- ◇ An additional unforeseen complication was that the coal refuse extended 1' 9" below the adjacent stream channel. Water would inundate the work site if excavation continued below the level of this channel. The Coalition's partnership with AquaScape and Quality Aggregates Inc. has allowed this problem to be solved with no additional cost to the Commonwealth. A "plug", or barrier, will be inserted between Murrin Run and the remaining refuse. The barrier will consist of partially buried Claymax® which is made of sodium bentonite encapsulated with geotextile. The Claymax® that is not buried will be folded on top of the remaining refuse. The remaining refuse will then be sealed with a clay cap.

Incorporation of Coal Refuse into Existing Reclamation Project

- ◇ The strategic coordination of this project with the existing Tiche Abandoned Mine Reclamation Project provided both an environmental and economic benefit and complimented both restoration activities.
 - The coal refuse removed from the Goff Station Restoration Area only had to be transported a short distance (less than 1000 feet).
 - The coal refuse that was removed was not simply disposed of; it was neutralized (mixed with alkaline, circulating, fluidized-bed, coal ash from the Scrubgrass Generating Plant) and placed in the abandoned Brookville pit.

Wetland Design

- ◇ The removal of the coal refuse provides an area topographically suitable for a wetland system. When constructed, this wetland will serve as a polishing pond for future pre-treated upland discharges. It will be designed for maximum wildlife habitat potential.

Community Outreach

- ◇ The Goff Station Restoration area was a field visit destination during the Slippery Rock Watershed Coalition's annual Symposium in April 2000.
- ◇ Butler County Commissioners visited the Goff Station Restoration Area on June 30, 2000 during a tour of Slippery Rock Watershed restoration activities.

- ◇ Displays and poster developed to describe restoration activities at the Goff Station Restoration Site. This poster was presented at the Slippery Rock Watershed Coalition's annual Get-Together on April 12, 2000.

Education

- ◇ Slippery Rock Watershed Coalition partner Grove City College, will conduct ongoing monitoring of Murrin Run and Seaton Creek to provide water quality data on the effect of the refuse removal and future restoration activities.

Project Timeline

DATE	DESCRIPTION	PERFORMED BY
09/29/1998	<ul style="list-style-type: none"> Water samples 	SRI
10/02/1998	<ul style="list-style-type: none"> Meeting to discuss Master Plan 	SRI, BMI, QAI,AS
10/06/1998	<ul style="list-style-type: none"> Water samples 	SRI
10/28/1998	<ul style="list-style-type: none"> Wrap proposal submitted 	SRI
01/12/1999	<ul style="list-style-type: none"> Wrap proposal accepted 	PA DEP
01/22/1999	<ul style="list-style-type: none"> Overburden analysis of coal refuse 	BMI
02/12/1999	<ul style="list-style-type: none"> Site Surveyed 	Fike Associates, Inc.
02/17/1999	<ul style="list-style-type: none"> Review of potential impacts to state threatened and endangered species 	PA GC
02/24/1999	<ul style="list-style-type: none"> Project Review Meeting 	AS, QAI
02/24/1999	<ul style="list-style-type: none"> PA Natural Diversity Inventory (PNDI) review of potential impacts to state threatened and endangered species 	PA DCNR
03/02/1999	<ul style="list-style-type: none"> Field visit to review site 	AS
03/03/1999	<ul style="list-style-type: none"> Review of potential impacts to federal threatened and endangered species 	US FWS
03/08/1999	<ul style="list-style-type: none"> Review of potential impacts on both historic and archeological resources 	PA HMC
03/09/1999	<ul style="list-style-type: none"> Review of potential impacts to state threatened and endangered species 	PA FBC
05/21/1999	<ul style="list-style-type: none"> Site visit to identify adjacent vegetation 	AS
05/24/1999	<ul style="list-style-type: none"> Site visit to identify adjacent vegetation 	AS
06/04/1999	<ul style="list-style-type: none"> Erosion and Sediment Pollution Control Plan submitted to Butler County Conservation District 	BMI
06/04/1999	<ul style="list-style-type: none"> B. D. W. M. GP-8, Temporary Road Crossing, Single Culvert permit submitted to Butler County Conservation District 	BMI, Fike Associates, Inc.
06/04/1999	<ul style="list-style-type: none"> Letter to Butler County Commissioners to notify of permit request for stream crossing 	SRI
06/04/1999	<ul style="list-style-type: none"> Notification to use Temporary road crossing to PA DEP 	QAI
06/04/1999	<ul style="list-style-type: none"> Letter to Venango Township Supervisors to notify of permit request for stream crossing 	BMI
06/14/1999	<ul style="list-style-type: none"> Environmental Assessment Form sent to Steve Brumigan, PA DEP 	BMI

06/14/1999	• Revisions to application as requested	SRI
06/21/1999	• Requested program extension	SRI
06/30/1999	• Grant amended to change termination date to June 30, 2000	PA DEP
07/27/1999	• Revisions to application requested	PA DEP
08/03/1999	• Waiver of stream encroachment permit requirements for stream crossing	PA DEP
08/10/1999	• Revisions to application as requested	SRI
12/01/1999	• Erosion and Sediment Pollution Control Measures implemented.	QAI
12/09/1999	• Site visit/ photographs	SRI
01/27/2000	• Haul road construction began	QAI
03/20/2000	• Construction of stream crossing began	QAI
03/23/2000	• Stream crossing completed	QAI
04/19/2000	• Site visit with Cal Butchkowski, PA GC, to investigate potential installation of bat hibernacula.	PA DCNR; SRI; AS; PA GC
04/20/2000	• Refuse removal began	QAI
04/21/2000	• Goff Station Restoration update prepared	SRI
04/28/2000	• Site visit/ photographs	SRI
05/05/2000	• Site visit to review progress	SRI
05/12/2000	• Site visit/ photographs	SRI
06/02/2000	• Goff Station Restoration update prepared	SRI
06/05/2000	• Field Meeting to discuss project progress	QAI; AS
06/05/2000	• Test pits excavated to determine depth of remaining refuse	QAI; AS
06/05/2000	• Elevations taken using laser transit	QAI; AS
06/12/2000	• Site visit/ photographs	SRI
06/30/2000	• Site tour for Butler County Commissioners	SRI/ PA DEP/ AS
07/07/2000	• Took elevations for wetland	AS
07/13/2000	• Elevation taken to determine location and size of wetland system	AS

Abbreviations:

Stream Restoration Incorporated(**SRI**); BioMost Incorporated(**BMI**); Quality Aggregates Incorporated (**QAI**); Pennsylvania Department of Environmental Protection(**PA DEP**); AquaScope(**AS**); Pennsylvania Department of Conservation and Natural Resources(**PA DCNR**); United States Fish and Wildlife Service(**US FWS**); Pennsylvania Historical and Museum Commission(**PA HMC**); Pennsylvania Game Commission(**PA GC**); Pennsylvania Fish and Boat Commission(**PA FBC**);

Slippery Rock Watershed Coalition Final Report: Coal Refuse Removal/Riparian Restoration

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Introduction

Much of the Slippery Rock Creek Watershed is underlain by coal deposits. Extensive commercial mining of these deposits began in the late 1800's. By 1969 over 25 million tons of coal were deep mined with an additional 50 million tons taken using surface mining techniques. In order to restore the watershed in relation to the degradation caused by these abandoned minelands, the Slippery Rock Watershed Coalition has been focusing on the most heavily impacted area --- the headwaters. The Goff Station Restoration Area is one of several sites inventoried by the Department of Environmental Protection's Comprehensive Mine Reclamation Strategy (**see appendix, pg. 11**) Carrying out the PA DEP Knox District Mining Office's recommendations for the Goff Station area provides the opportunity to restore one of the most heavily impacted tributaries of the Slippery Rock Creek.

Site Location

The Goff Station Restoration Area is located near the small community of Goff Station, Venango Township, Butler county. The site lies south of State Route 58 off township road T-504, North Erico Road.(**see site map: Figure 1, pg. 2**)

Brief Site History

The community of Goff Station was historically a mining town and railroad stop. The coal refuse removed from the Goff Station Restoration Area is what remains of one of these abandoned underground mines that operated during the early 1900's. This particular mine was a drift mine located on the Brookville coalbed.(**see Scarlift map: Figure 2, pg. 3**)

Pre-Construction Site Description

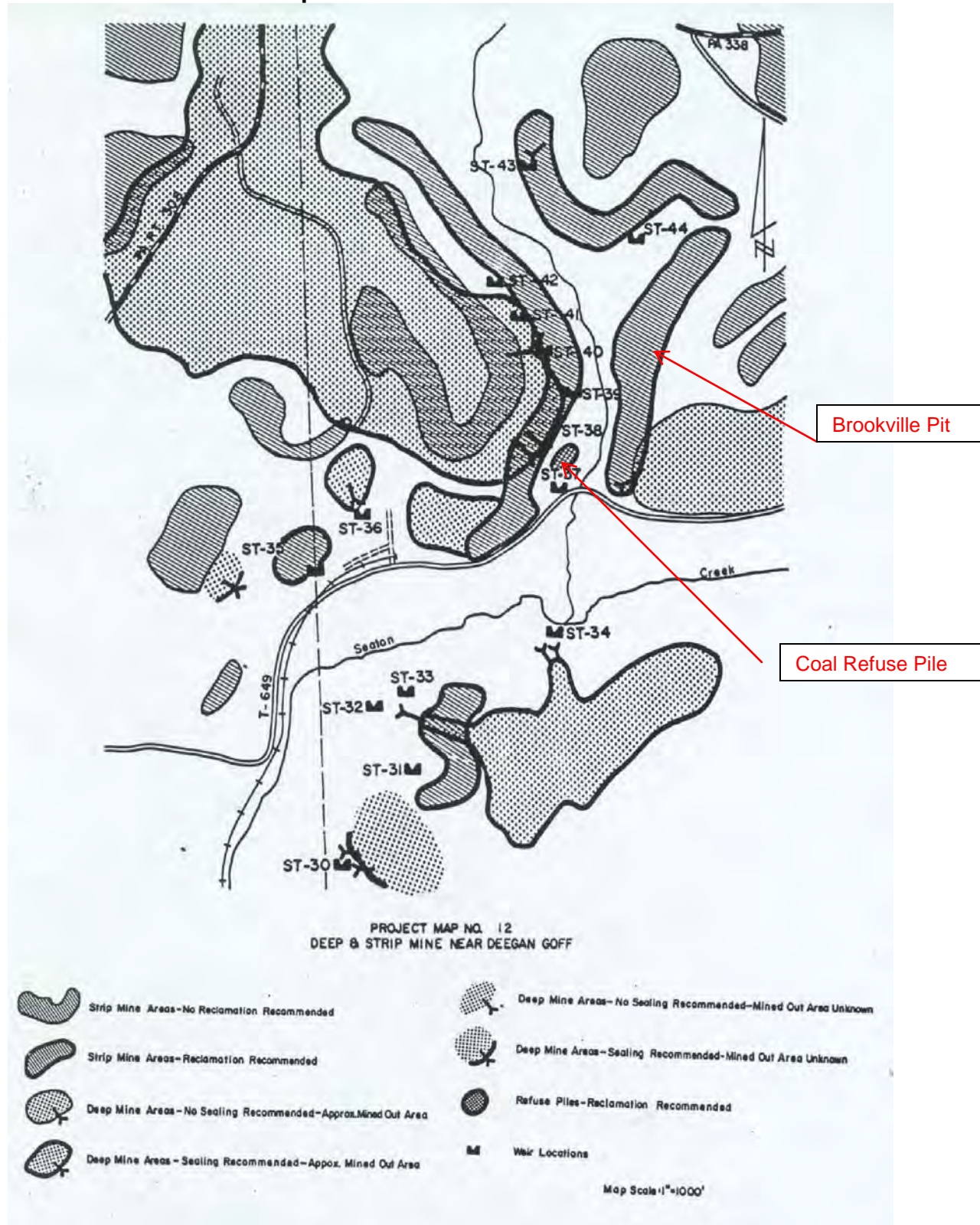
Prior to restoration activities, the site was predominately wooded with the exception of one large pile of coal refuse and several smaller piles of miscellaneous coal waste. Little to no vegetation occurred on these piles and evidence of significant erosion was apparent. (**see photo log pg. 2**) These piles of coal refuse actually extended into Murrin Run, a tributary of Seaton Creek and eventually Slippery Rock Creek. The piles contained acid producing materials and sat well below the water table of the neighboring stream bed. (**see Table 1, pg. 4; photo log pg. 1**)

The refuse located below the water table remained inundated with water throughout most of the year. Exploratory excavation revealed that the historic stream bed lay beneath the pile. It can be presumed from these soil samples that the refuse was placed in Murrin Run during active mining. This diverted the flow of Murrin Run from its original course.

Figure 1

Site Map

Figure 2 Map from Operation Scarlift Report
PA Department of Mines and Mineral Industries 1970



**Table 1: Overburden Analysis
Goff Station Restoration Area Coal Refuse
January 22, 1999**

Sample Point	pH	Total % Sulfur	Max. Potential Acidity (from % Sulfur)
Spoil - 1	6.50	0.43	13.44
Spoil - 2	6.50	0.59	18.44
Spoil - 3	4.70	0.70	21.88
Gob - 1	4.60	0.83	25.94
Gob - 2	4.60	1.98	61.88

Stream Characteristics

Murrin Run is the stream directly impacted by the coal refuse piles. This tributary of Seaton Creek, the most degraded stream in the Slippery Rock Creek headwaters, is also affected by numerous acidic discharges (**see tables 2 & 3**). These discharges account for approximately 37% of the total acid load in the Slippery Rock headwaters. Coal refuse neighboring and within the stream likely increases the turbidity and sedimentation of the stream significantly due to erosion during storm events.

**Table 2: Water Quality of Murrin Run
Above Coal Refuse**

Sample Date	pH	Suspended Solids	Sulfate	Iron	Manganese	Aluminum	Hot Acidity	Alkalinity
01/30/98	6.1	14.0	415.3	1.1	9.01	3.69	6.0	32.0
07/28/98	6.6	4	669.3	1.2	1.49	<2	0	60

* results are total concentrations expressed in mg/l

**Table 3: Water Quality of Murrin Run
Below Coal Refuse**

Sample Date	pH	Suspended Solids	Sulfate	Iron	Manganese	Aluminum	Hot Acidity	Alkalinity
01/30/98	6.0	12.0	405.2	1.24	8.05	3.21	6.6	24.0
07/28/98	6.5	<2	683.9	6.50	10.9	2.56	0	46

* results are total concentrations expressed in mg/l

Site Preparation

Access and Haulage Road

To gain access to the coal refuse piles and future reclamation project sites in the Goff Station Restoration Area, a road was constructed. In addition to site access, this road connected an active surface coal mine operated by Quality Aggregates Inc., the Tiche Abandoned Mine Reclamation Project and the Goff Station Restoration Area.

The Tiche Abandoned Mine Reclamation Project involves filling a 8,922,500 cubic foot abandoned pit and highwall that remains from past surface mining of the Brookville coalbed. Approximately 330,000 cubic yards of material is needed to achieve the proposed final grade of the open pit. Quality Aggregates Incorporated was on-line to conduct the reclamation work due to the close proximity of their active mining operation. Equipment used at the mine, located a few hundred feet away, could be "shared" among projects, reducing the overall cost of reclamation work considerably. A unique "window of opportunity" had presented itself. Less than 1000 feet away from the open pit was the Goff Station Restoration Area and an estimated 20,000 cy of material. Physically linking the sites with the road has linked the three projects together, so all work may be achieved cheaply and efficiently.

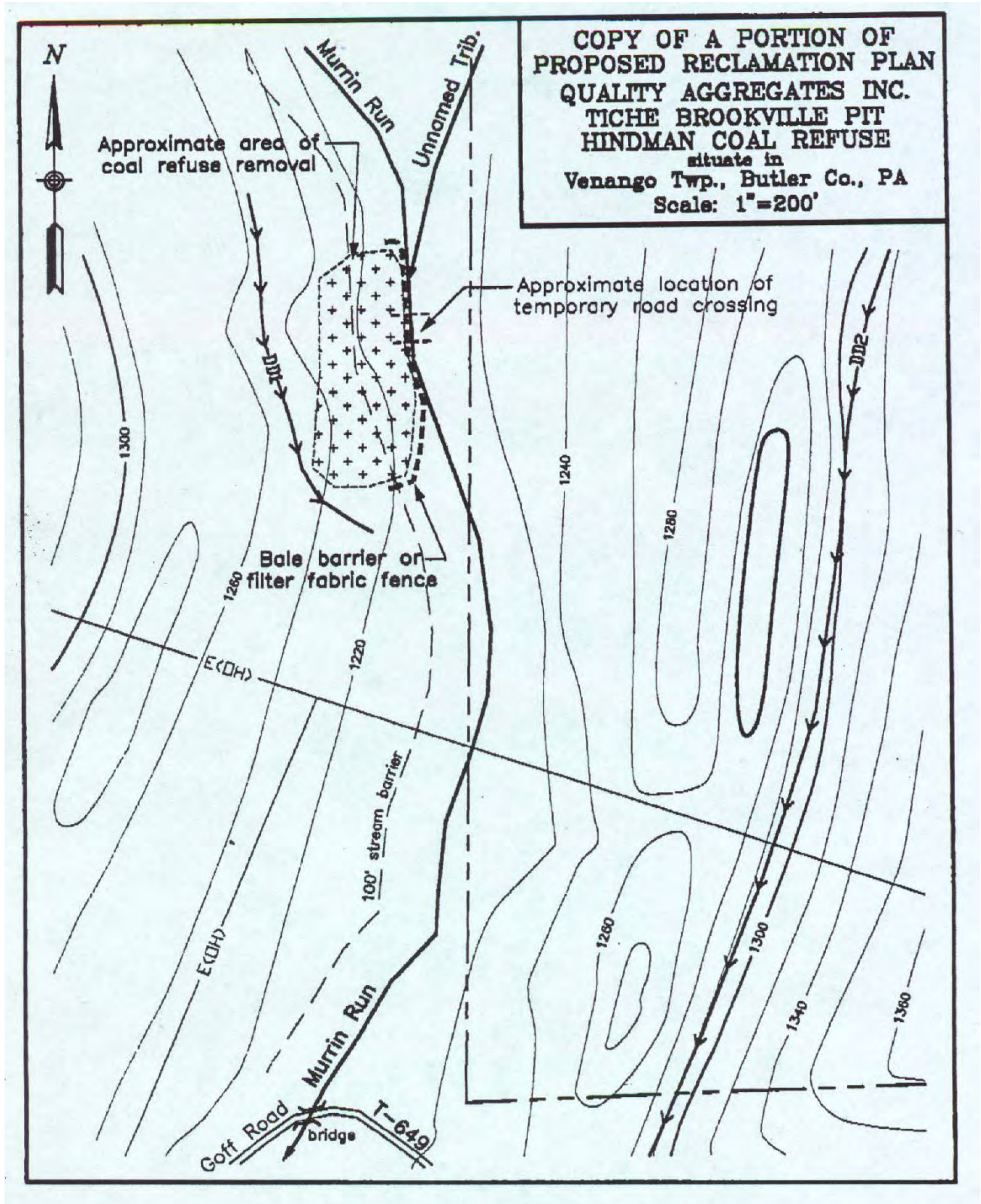
This road will also be used for future reclamation opportunities at the Goff Station Restoration Area. Most notably the treatment of over 400 gallons per minute of acidic mine discharge, the establishment of over four acres of wetlands, and the establishment of an experimental bat hibernacula, all recently funded through the PA Growing Greener program.

Stream Crossing

In order to reach the coal refuse the access/haulage road had to cross Murrin Run. After securing a Stream Encroachment Permit, an approved Erosion and Sediment Pollution Control Plan, and installing appropriate erosion and sediment prevention measures, 80 feet of pipe, seven feet in diameter, was placed in the stream channel. The pipe was buried with clean, rock fill. The temporary stream crossing was completed on March 23, 2000.

(see Figure 3, pg. 6, photo log pg. 6)

Figure 3 Erosion and Sediment Pollution Control Map



Refuse Removal

In late April of 2000, removal of the coal refuse began. An excavator equipped with a 4 cy bucket loaded refuse into a 40 ton rock truck. Approximately 24 cy of refuse per load were taken to the abandoned Brookville pit. Once delivered to the pit, the refuse was dumped on a prepared pad of one, to one and one-half feet of alkaline, circulating, fluidized-bed coal ash from Scrubgrass Generating Plant (Kennerdell, PA). The alkaline coal ash has the ability to neutralize acid producing materials found in the refuse. Previous samples identified the Goff Station refuse contained 1 to 2% total sulfur. The ratio of refuse and coal ash was approximately one ton of ash to one cy of refuse. This combination of refuse and coal ash was then pushed, to encourage mixing, into the abandoned pit. Care was taken to backfill the pit to an elevation above the post reclamation water table, approximately ten feet, with non-acid producing materials, before introducing potentially acid producing refuse to the pit. A ten foot setback from the existing highwall was maintained by again, backfilling with coal ash and non-acid producing materials.

Soon into the removal project it became apparent that original volume estimates were grossly underestimated. When the final grade of the removal area was reached in late May, over 63,600 cy of refuse from the original 550 foot by 167 foot main pile had been removed, with an additional 14,400 cubic yards of miscellaneous refuse also encountered and removed. **This brought the total refuse removed, incorporated with alkaline coal ash, and placed in the abandoned Brookville pit, to over 78,000 cy , approximately four times the amount originally estimated.** This is an overwhelming achievement based on the fact that all cost estimates were based on the original estimate of 20,000 cy. This could not have been accomplished if were not for the timeliness of this, and other corresponding reclamation and mining efforts and the in-kind contributions of all project participants.

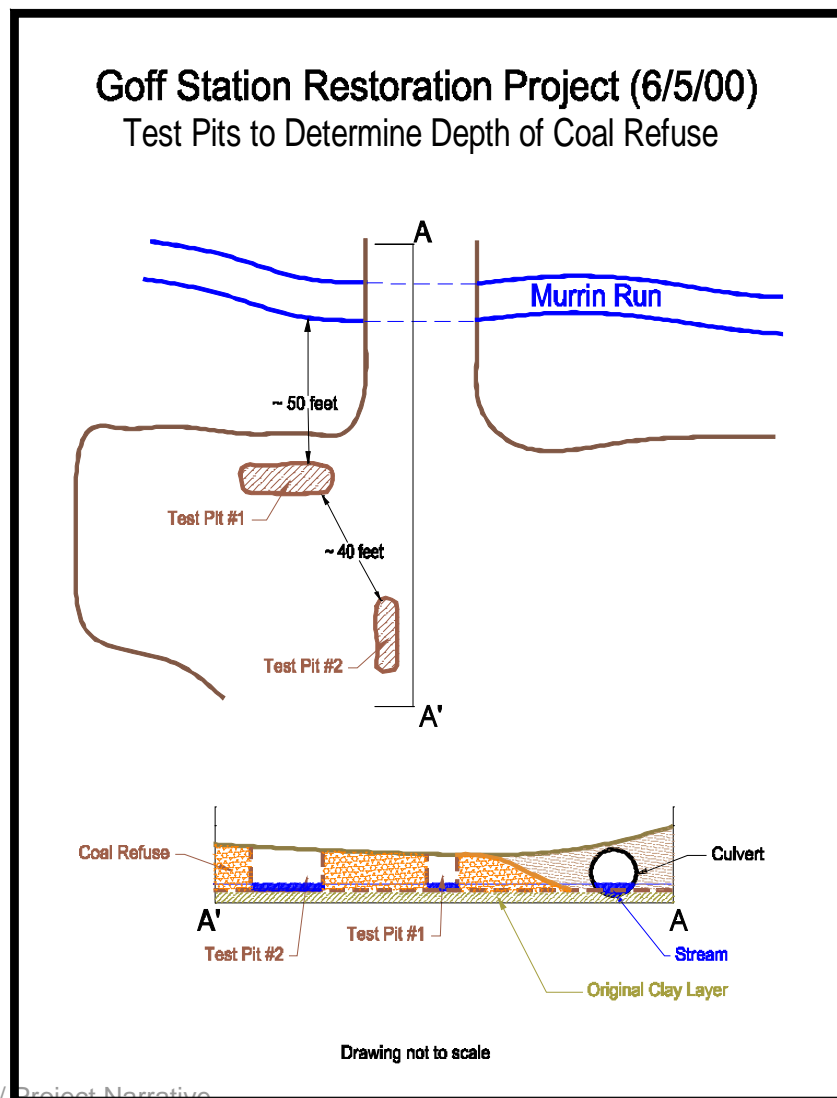
When final grade of the removal area was reached, test pits excavated in early June revealed approximately two feet of refuse remained. This could not be removed because of its proximity below the neighboring stream channel. Any attempts to remove it would have caused Murrin Run to overflow into the construction area. The remaining refuse still afforded the opportunity for water contacting the sulfur bearing material to move laterally beneath the water table and mix with Murrin Run. In addition, a refuse substrate was not acceptable for the proposed wetland to be constructed on the site. An innovative solution was proposed, and with additional in-kind contributions this situation shall be overcome. A “plug” will be installed along the western bank of Murrin Run which borders the remaining refuse. It will extend the entire length of the removal site. This “plug” consists of a ditch lined with Claymax® material. Claymax® is geotextile encapsulated sodium bentonite and is often used as an impermeable barrier by landfill companies. This impermeable barrier will be buried with clay. The remaining refuse substrate will be “capped” with clay before receiving an organic topping suitable for the wetland substrate.

WETLAND DESIGN

By:
Bob Beran
Jeff Reidenbaugh

The final polishing wetland will receive circumneutral, net alkaline, low metal discharge from the upper treatment systems, including the aerobic wetlands. The polishing wetland and adjacent riparian area will be approximately two acres. It has been designed to provide wetland/riparian habitat opportunities for native and transient wildlife species and to provide a final means of water treatment before discharge by maximizing retention time and promoting a diverse plant community of species known to facilitate pollutant removal. The final design incorporates recommendations originating from a thorough literature review and knowledge gained from extensive field experience.

The “footprint” is approximately 2 acres for the final polishing wetland and riparian area, and is defined by the extent of the removal of approximately 40,000 cu/yds of mine refuse. The refuse piles extended into Murrin Run and its flood plain. During the removal operation, test pits were dug to reveal the lower extent of the refuse (Figure 1).



The refuse was buried below the stream surface elevation, and the decision was made to terminate excavation at a depth that would avoid the possibility of a channel breach, thus ensuring that stream channel integrity is maintained. This resulted in approximately 24" of refuse remaining unexcavated. A plan was devised to effectively isolate the refuse from the stream's hydrologic influence and encapsulate the remaining refuse to prevent additional stream contamination. This remedial measure has been integrated into the final construction plan for the polishing wetland.

To effectively prevent contamination from the remaining refuse and to create a basin that will retain water, the wetland construction area will be sealed. A plug, or key, will be excavated adjacent to the stream and to a depth below the original clay floor. Bentafix, a geotextile composite matting containing powdered bentonite, will be placed in the excavated key on the east (stream) side to provide an impermeable liner (Figure 2). A clay cap will be placed over the entire wetland construction site utilizing available material from the adjacent upland to the west. Additional clay will be transported from the adjacent work area as needed to provide a cap approximately 12" deep. This clay will be placed in the excavated ditch and compacted to form the plug. Additionally, the clay will be placed up to the stream bank resulting in a complete cap to prevent both surface infiltration and lateral flow from the stream.

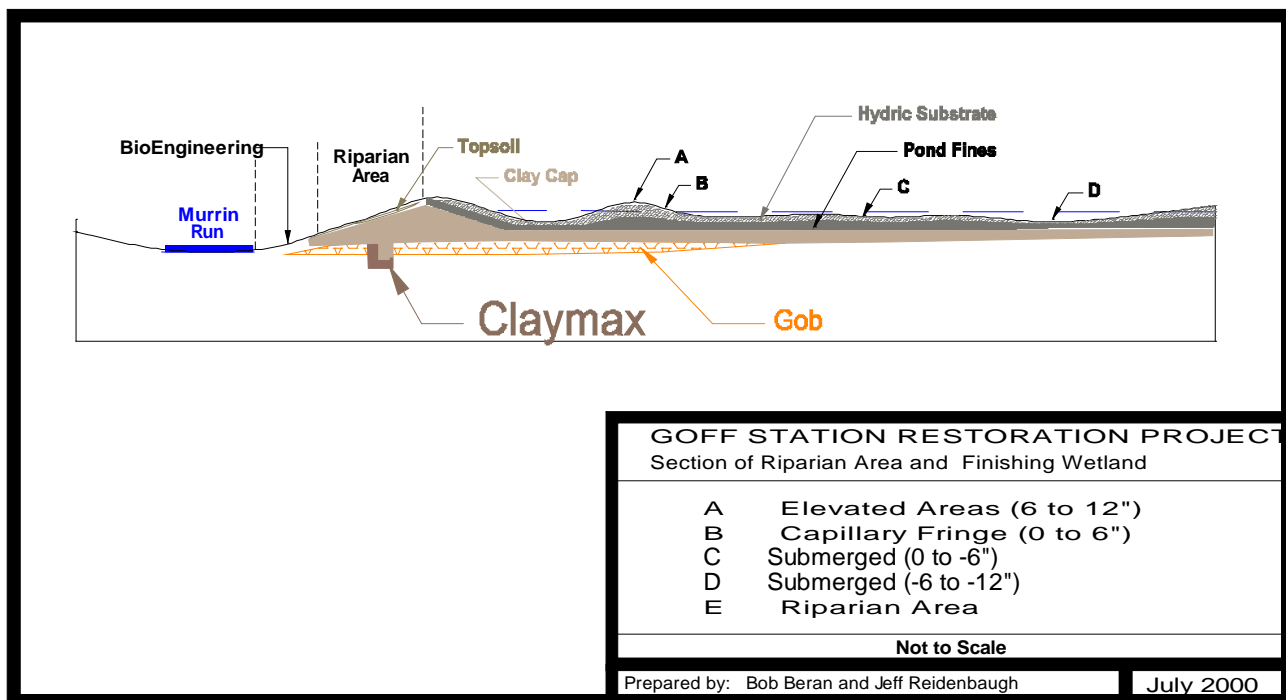


Figure 2

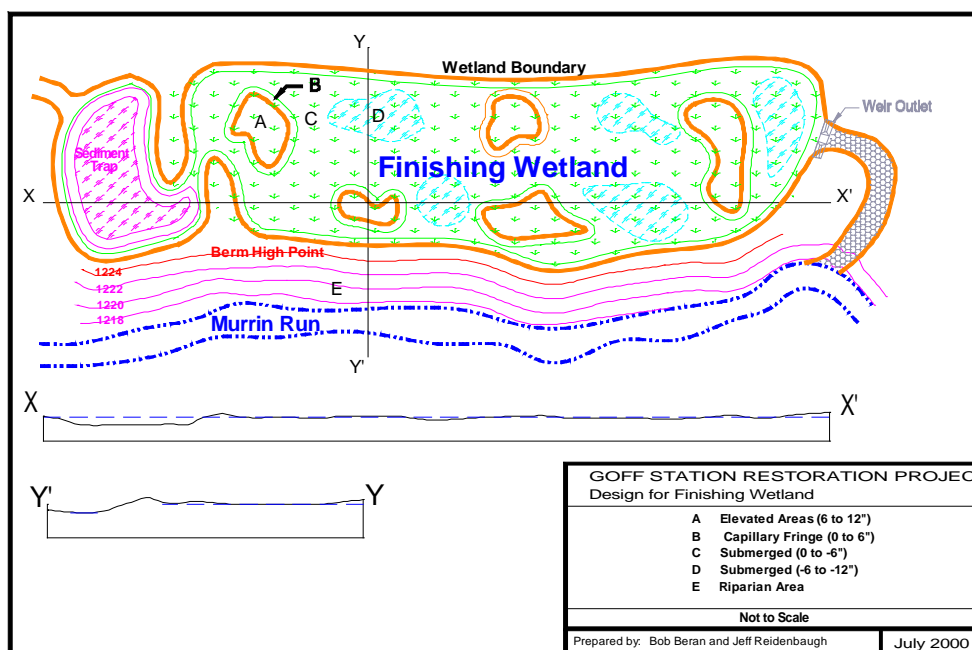
As described above, clay will be placed over the entire wetland basin area. This clay surface will serve as the foundation for pond fines from a nearby limestone quarry which will be used to attain the final elevation and grade for construction of the wetland. Pond fines are a slightly alkaline material that has a high compaction potential and is readily available as an environmentally benign byproduct.

The wetland basin will be covered with approximately 6" of high quality hydric substrate salvaged from a mitigated wetland. This substrate will be configured to provide areas of microrelief within a level basin and will serve as an excellent seed source, provide desirable soil characteristics for the establishment of planted vegetation, and provide water quality modification potential. Once the final configuration of the wetland basin has been completed, woody debris (logs, stumps, etc.) salvaged during the initial construction process will be placed throughout the CW. Large sandstone/limestone boulders will be placed at strategic locations to facilitate the meander of flows within the basin and to armor areas subject to potentially degrading flows. In addition to providing water quality function, these structures will provide increased aquatic habitat opportunities.

The riparian area has been designed to provide a gentle slope (approximately 5:1) to facilitate the establishment of vegetation and inhibit erosion. Following the placement of the sub-grade material, topsoil will be spread over the riparian area to a depth of approximately 6". Bioengineering techniques will be incorporated in this area to facilitate bank stabilization and vegetation establishment through natural methods. After application of a cover crop to provide initial stabilization, dormant willow stakes and willow wattles will be placed at appropriate locations. Root mats and boulders will be incorporated to provide additional stabilization and habitat opportunities. Plant have been selected by conducting plant inventories of undisturbed reference sites in the area to determine appropriateness and for their ability to provide enhanced habitat opportunities by complementing the adjacent wetland.

The wetland basin has been designed to provide a natural sediment trap in the southern portion of the constructed wetland (CW) where flows enter (Figure 3). This provides a final opportunity for sediments to drop before entering the CW. Two peninsulas will be constructed adjacent to the inlet to reduce flow velocities, thereby increasing increase retention time within the CW. These natural landforms will function similar to skirted silt booms commonly used in sediment pond construction.

Figure 3



Throughout construction, flows will be diverted from the CW into the stream through approved sedimentation and erosion control structures. The outlet structure, which has been designed to allow accurate flow measurements to be obtained, will be built during basin construction in the northern berm. A similar structure will be incorporated at the inlet to enable accurate measurement of flow into the wetland.

The vegetative component of the CW will be a combination of transplanted vegetation from surrounding wetlands with similar water chemistry, plant/seed source in the hydric substrate, and selected plants from commercial sources. The geomorphic design features of the wetland and predictable flows (approximate average of 400 gpm.) will facilitate the establishment of a diverse plant community that will ultimately be determined by hydrologic regime. (See zones identified in Figure 3.) Wetland planting will be conducted following inundation.

A monitoring plan has been prepared that is consistent with methodology as detailed in the PADEP Guidance Document, Design Criteria – Wetlands Replacement/Monitoring (363-0300-001). In addition to the standard monitoring criteria outlined in the above referenced document, biomonitoring will be conducted as detailed in the New England Freshwater Wetlands Invertebrate Biomonitoring Protocol (Anna L. Hicks, June 1997).

Figure 4 Wetland Design



BEFORE RECLAMATION



View of coal refuse pile looking downstream (south). Note toe of refuse extending into Murrin Run

BEFORE RECLAMATION



Atop 63,600 cy coal refuse pile at the Goff Station Restoration Area. (Pictured: T. Danehy)



A portion of the 63,600 cy of coal refuse at the Goff Station Restoration Area. Fallen Leaves identify erosion gullies.

ACCESS ROAD



Portion of haul road constructed to transport coal refuse and coal ash to the Brookville pit.

COMPLIMENTARY RECLAMATION



Abandoned Brookville pit and existing highwall. Coal refuse from the Goff Station Restoration Area is incorporated with alkaline, circulating, fluidized-bed coal ash from Scrubgrass Generating Plant (Kennerdell, PA) and placed into pit. **(Pictured: M. Dunn, D. Peart)**

STREAM CROSSING



Two forty foot sections of pipe, seven feet in diameter, used for stream crossing. **(Pictured: D. Peart)**



Margaret Dunn atop pipe after it had been placed for stream crossing.

STREAM CROSSING



Completed stream crossing.

REFUSE REMOVAL



An excavator equipped with a 4 cy bucket loads approximately 24 cy of coal refuse per 40 ton rock truck.

REFUSE REMOVAL



Cross-sections of refuse pile as seen during removal

REFUSE REMOVAL



Bulldozer removing refuse at the Goff Station Restoration Area

REFUSE REMOVAL COMPLETE



Project area after coal refuse has been removed. Future site of forested and emergent wetland.

BioMost, Inc.

Geologists and Environmental Scientists
338 Glen Eden Road
Rochester, PA 15074
PH: 724-774-2813
FX: 724-774-1219

June 14, 1999

PA Department of Environmental Protection
Soils and Waterways Section
230 Chestnut Street
Meadville, PA 16335

Attn: Steve Brumagin, Water Pollution Biologist

Re: Reclamation/Remediation Plan, Slippery Rock Creek headwaters - Seaton Creek Watershed
Goff Station & Erico Bridge: PA DEP High Priority(303d list); Priority 9 & 6(CMRS)
Slippery Rock Watershed Coalition Partnership Effort
Aquascape; CDS Assoc., Inc.; Quality Aggregates; Grove City College; Scrubgrass
Generating; PA DEP BAMR and Knox DMO; BioMost, Inc.; Stream Restoration Inc.;
Volunteers
Venango Township, Butler County, PA
BMI100302\brumagin

Dear Mr. Brumagin:

Enclosed is a completed Environmental Assessment Form along with supporting documentation.

A public-private partnership has been created among active participants of the Slippery Rock Watershed Coalition to address the removal of an abandoned coal refuse pile which extends into Murrin Run. Upon removal of the coal refuse pile, Robert Beran, Aquascape, will be restoring the forested riparian buffer previously lost due to the abandoned minelands.

Murrin Run is the most heavily impacted tributary in the Seaton Creek Watershed in the Slippery Rock Creek headwaters. The Seaton Creek Watershed is listed on the 1998 PA DEP 303(d) list as high priority for restoration due to impacts from abandoned minelands. The PADEP, DMO(Knox), 1998, Comprehensive Mine Reclamation Strategy for the Slippery Rock Creek Headwaters, reports that Murrin Run contributes on average 1055 lbs/day of acidity, 56 lbs/day of iron, and 87 lbs/day of aluminum to Seaton Creek. Ofttimes, the stream is milky in color due to the aluminum. A stream crossing for Murrin Run has been approved.

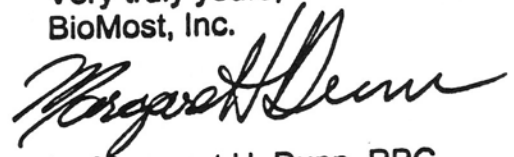
The Knox District Mining Office is involved and is knowledgeable regarding this restoration effort. In addition, the Bureau of Abandoned Mine Reclamation is supporting our effort by supplying not only aerial photography but also topographic mapping with two-foot contour intervals.

As per our conversation of today, you are already in possession of Module 14 with E & S plan, Location Map(same as Exhibit B), and site plan.

Our fax submission includes an executed E. A. Form and the GP 081000607 Acknowledgment. Our mail submission includes the aforementioned information plus a copy of our WRAP proposal.

If there are any questions or comments, please do not hesitate to contact us.

Very truly yours,
BioMost, Inc.



by Margaret H. Dunn, RPG

Express Mail EJ882826738US

3630-PM-WQ0017 3/97

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
and



U.S. ARMY CORPS OF ENGINEERS
ENVIRONMENTAL ASSESSMENT FORM (E.A. Form)

PART 1 - RESOURCE IDENTIFICATION

1. Indicate water resources which exist on the project site.

Name of stream(s) and/or body of water (including wetlands) _____

MURRIN RUN TRIBUTARY TO SEATON CREEK

SLIPPERY ROCK CREEK WATERSHED HEADWATERS

Size of the body of water (in acres) _____

Wetland - If wetlands are present at the project site, provide the following information relative to the person(s) or organization performing the wetland identification, delineation and related work:

ABANDONED MINELANDS - NO JURISDICTIONAL WETLANDS

Name

Organization/Company

Address

Telephone

Telephone

Qualifications

If wetlands are present, attach a copy of the wetland delineation report identified and labeled as Enclosure A. Include all field data sheets, denote the size (in acres) of the wetland. If this information details any physical information or features not shown in the "site plan" please attach additional plans which illustrate these features.

Enclosure A

PART 1 - RESOURCE IDENTIFICATION (continued)		ENCLOSURE Description of Aquatic Habitat
B. Water Quantity and Streamflow		
(1) Natural drainage patterns		
(2) Flushing characteristics		
(3) Current patterns		
(4) Groundwater discharge for baseflow		
(5) Natural recharge area for ground and surface waters		
(6) Storm and floodwater storage and control		
C. Water Quality		
(1) Preventing Pollution		
(2) Sedimentation control and patterns		
(3) Salinity distribution		
(4) Natural water filtration		
D. Recreation		
(1) Game Species		
(2) Non Game Species		
(3) Fishing		
(4) Hiking		
(5) Observation (plant / wildlife)		
(6) Other		
E. Upstream and Downstream Property		
F. Other Environmental Factors Determined by Site Investigation		
PART 2 - PROJECT DESCRIPTION		ENCLOSURE D
9. Project Impacts		
For impacts to regulated waters of the Commonwealth, answer fully, completely and in detail the following questions; attach and label as <u>Enclosure D</u> .		
A. Discuss the impacts on:		
(1) National, state or local park, forest or recreation area		
(2) Natural, wild, or wilderness area		
(3) National, state, or local historic site		
(4) National natural landmark		
(5) National wildlife refuge		
(6) Cultural or archaeological landmarks		
(7) State Game Lands		

PART 2 - PROJECT DESCRIPTION (continued)		E N C L O S U R E D Project Impacts
(8) Federal, state, local or private plant or wildlife sanctuaries		
(9) Areas identified as prime farmland		
B. Discuss the environmental impacts on:		
(1) Aquatic habitats including:		
a. Food chain production		
b. General habitat		
(1) Nesting	(5) Migration	
(2) Spawning	(6) Feeding	
(3) Rearing	(7) Escape Cover	
(4) Resting	(8) Other	
c. Habitat for threatened and endangered plant and animal species		
d. Environmental Study Areas		
(1) Sanctuaries		
(2) Refuges		
(2) Water Quantity and Streamflow		
a. Natural drainage patterns		
b. Flushing characteristics		
c. Current patterns		
d. Groundwater discharge for baseflow		
e. Natural recharge area for ground and surface waters		
f. Storm and floodwater storage and control		
(3) Water Quality		
a. Preventing Pollution		
b. Sedimentation control and patterns		
c. Salinity distribution		
d. Natural water filtration		
(4) Recreation		
a. Game Species		
b. Non Game Species		
c. Fishing		
d. Hiking		
e. Observation (wildlife)		
f. Other		
(5) Upstream and downstream property		
(6) Other Environmental Factors		

PART 2 - PROJECT DESCRIPTION (continued)

- C. Identify all environmental impacts on other adjacent land and water resources associated with the construction, modification or operation of the dam, reservoir, water obstruction, or encroachment in the area of the project.
- D. Identify and evaluate the potential cumulative environmental impacts of this project and other potential or existing projects like it, and the impacts that may result through numerous piecemeal changes to the resource.
- E. Identify and describe all other dams, water obstructions or encroachments which may or will be needed, in addition to those described in this Application, to fulfill the purpose of the current project.

E
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D

PART 3 - CERTIFICATION

I certify that the above statements, attachments including those labeled and identified as Enclosures, and all conclusions are true, correct, and based upon current environmental principles and science, to the best of my knowledge and belief.

Margaret H. Dunn PG
Signature of Person Completing
the Environmental Assessment Form

6/14/99
Date

MARGARET H. DUNN, PG

The Department may waive a specific information requirement in writing, at the request of the Applicant, during the pre-application review process if the Department determines that specific information is not necessary to review the application.



PENNSYLVANIA GAME COMMISSION

2001 ELMERTON AVENUE
HARRISBURG, PA 17110-9797

ADMINISTRATIVE BUREAUS:	
ADMINISTRATION .. July 2000	717-787-5670
AUTOMOTIVE AND	
PROCUREMENT DIVISION	717-787-6594
LICENSE DIVISION	717-787-2084
PERSONNEL DIVISION	717-787-7836
WILDLIFE MANAGEMENT	717-787-5529
INFORMATION & EDUCATION	717-787-6286
LAW ENFORCEMENT	717-787-5740
LAND MANAGEMENT	717-787-6818
REAL ESTATE DIVISION	717-787-6568
MANAGEMENT INFORMATION	
SYSTEMS	717-787-4076

February 17, 1999

Mr. Bob Beran
Aqua Scape
Wetland Environmental Services
114 Deer Road
Boyers, PA 16020

In re: Mine refuse removal
Venango Township
Butler County, PA

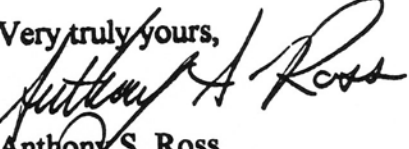
Dear Mr. Beran:

This is in response to your letter of February 4, 1999, requesting our review for potential impacts to state endangered or threatened species of birds or mammals, and State Game Lands.

Our office review shows that no state listed endangered or threatened species of birds or mammals are known to occur within the proposed project area. Also, no State Game Lands are expected to be impacted by the proposed project. Should project plans extend beyond the present study area, or if additional information becomes available on endangered or threatened species of birds or mammals or State Game Lands, this review may be reconsidered.

This reply relates only to endangered and threatened species of birds or mammals and State Game Lands, but does not address other concerns of the Pennsylvania Game Commission. If an on-site field investigation determines the project may impact critical and unique wildlife habitat such as wetlands, you may be requested to conduct additional surveys.

If you have any questions, please contact me directly at (717) 783-5957.

Very truly yours,

Anthony S. Ross
Wildlife Impact Review Coordinator
Division of Environmental
Planning and Habitat Protection
Bureau of Land Management

ASR/pfb

Environmental Assessment



Coal Refuse Removal/Riparian Restoration - Gott Station Restoration Area
Slippery Rock Watershed Coalition

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Pennsylvania Field Office
315 South Allen Street, Suite 322
State College, Pennsylvania 16801-4850



March 3, 1999

Mr. Bob Beran
Aquascape
Wetland-Environmental Services
114 Deer Road
Boyers, PA 16020

Dear Mr. Beran:

This responds to your letter of February 4, 1999, requesting information about natural resource areas of special concern, and federally listed and proposed species in the vicinity of a proposed mine reclamation project located in Venango Township, Butler County, Pennsylvania. The following comments are provided pursuant to the Fish and Wildlife Coordination Act (48 Stat. 401, 16 U.S.C. 661 *et seq.*) and the Endangered Species Act of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*).

Except for occasional transient species, no federally listed or proposed threatened or endangered species under our jurisdiction are known to occur within the project impact area. Therefore, no biological assessment or further Section 7 consultation under the Endangered Species Act will be required with the Fish and Wildlife Service. Should project plans change, or if additional information on listed or proposed species becomes available, this determination may be reconsidered. A compilation of certain federal status species in Pennsylvania is enclosed for your information.

Based on our office review of project information provided and map reconnaissance (i.e., County Soils maps and/or National Wetland Inventory maps), wetlands may occur within the boundaries of the proposed project. Work in wetlands requires permits from the Pennsylvania Department of Environmental Protection (DEP) and/or the Army Corps of Engineers (Corps). We suggest you contact the DEP and the Corps at the addresses listed below for information on permit requirements.

Pennsylvania Department of
Environmental Protection
Division of Rivers and
Wetlands Conservation
P.O. Box 8554
Harrisburg, PA 17105-8554

District Engineer, Pittsburgh District
U.S. Army Corps of Engineers
Federal Building, 1000 Liberty Avenue
Pittsburgh, PA 15222

By copy of this letter, we are informing these agencies of the proposed project.

Environmental Assessment

This response relates only to endangered and threatened species under our jurisdiction and a preliminary review for wetlands, based on an office review of the proposed project's location. No field inspection of the project area has been conducted by this office. Therefore, we suggest contacting a qualified consultant to evaluate your site for potential wetland impacts.

For information regarding State resources of special concern, including State-listed endangered and threatened species, please contact the Pennsylvania Game Commission (birds and mammals; State Game Lands), the Pennsylvania Fish and Boat Commission (fish, reptiles, amphibians and aquatic invertebrates; trout streams), the Pennsylvania Department of Conservation and Natural Resources (PNDI; plants and plant sanctuaries; State Forests; State Parks; Natural Areas; State Wild and Scenic Rivers) and the Department of Environmental Protection (Special Protection Watersheds; Wetlands).

If we can be of further assistance, please contact Michael McCarthy of this office at 814-234-4090.

Sincerely,

Edward Perry
for David Densmore
Supervisor

Enclosure

BUREAU OF FISHERIES

Delano R. Graff, Director
(814) 359-5154
X: (814) 359-5153



COMMONWEALTH OF PENNSYLVANIA
PENNSYLVANIA FISH & BOAT COMMISSION
450 Robinson Lane
Bellefonte, PA 16823-9620

DIVISION OF FISHERIES MANAGEMENT
July 2000

Richard A. Snyder, Chief
(814) 359-5110
FAX: (814) 359-5153

IN REPLY REFER TO
PNDI# 3301

March 9, 1999

AQUA SCAPE
Bob Beran
114 Deer Road
Boyers, PA 16020

Dear Mr. Beran:

**RE: Environmental Assessment
Mine Refuse Removal Project
Venango Township, Butler County, Pennsylvania**

I have examined the map accompanying your recent correspondence which shows the location for the proposed above referenced project.

Presently, none of the fishes, amphibians or reptiles we list as endangered or threatened are known to occur at or in the immediate vicinity of this study area.

To allow faster processing of PNDI reviews in the future, we are requesting that the attached form be completed and returned to this office together with other relevant project information. Please make copies of this form and use them whenever the need arises. Please note that the PFBC conducts PNDI reviews only for reptiles, amphibians, fishes, and aquatic invertebrates. Reviews concerning other natural resources must be submitted to other appropriate agencies. Thank you in advance for your cooperation.

Sincerely,

Andrew L. Shiels
Nongame and Endangered Species Unit

kjd

Encl. (1)

Environmental Assessment

**Pennsylvania Department of Conservation and Natural Resources****Rachel Carson State Office Building****P.O. Box 8552****Harrisburg, PA 17105-8552****February 24, 1999****Bureau of Forestry**

717-787-3444

**Bob Beran
Aquascape
114 Deer Road
Boyers, PA 16020****Re: Pennsylvania Natural Diversity Inventory Review of Mine Refuse Removal Project, Butler
County, PA. PER number: 007292****Dear Mr. Beran:**

In response to your request on February 4, 1999 to review the above mentioned project, we have reviewed the area using the Pennsylvania Natural Diversity Inventory (PNDI) information system. PNDI records indicate no occurrences of species of special concern within the project area, therefore we do not anticipate any impact on endangered, threatened, or rare species at this location.

PNDI is a site specific information system that describes significant natural resources of Pennsylvania. This system includes data descriptive of plant and animal species of special concern, exemplary natural communities and unique geological features. PNDI is a cooperative project of the Department of Conservation and Natural Resources, The Nature Conservancy and the Western Pennsylvania Conservancy. This response represents the most up-to-date summary of the PNDI data files and is good for one year. An absence of recorded information does not necessarily imply actual conditions on-site. A field survey of any site may reveal previously unreported populations.

Feel free to phone our office if you have questions concerning this response or the PNDI system, and please refer to the P.E.R. Reference Number at the top of the letter in future correspondence concerning this project.

Sincerely,

**Jeanne Brennan
Environmental Review Specialist
Pennsylvania Natural Diversity Inventory**



Commonwealth of Pennsylvania
Pennsylvania Historical and Museum Commission
Bureau for Historic Preservation
Post Office Box 1026
Harrisburg, Pennsylvania 17108-1026

March 8, 1999

Bob Beran
Aquascape Wetland and Environmental Services
114 Deer Road
Boyers, PA 16020

Re: File No. ER 99-0959-121-A
COAL, Slippery Rock Watershed Coalition
Stream Crossing-PADEP "Wrap" Grant
Goff Station Reclamation Project, Venango
Twp., Venango Co.

Dear Mr. Beran:

The Bureau for Historic Preservation has reviewed the above named project under the authority of the Environmental Rights amendment, Article 1, Section 27 of the Pennsylvania Constitution and the Pennsylvania History Code, 37 Pa. Cons. Stat. Section 500 *et seq.* (1988), and in accordance with relevant Federal legislation. This legislation includes Section 106 of the National Historic Preservation Act of 1966, as amended in 1980 and 1992, the regulations (36 CFR Part 800) of the Advisory Council on Historic Preservation, the Surface Mining Control and Reclamation Act, and OSM's regulations. This review includes comments on the project's potential effect on both historic and archaeological resources.

Based on a recent field visit by Mark McConaughy of our staff, it has been determined that the above referenced permit area has low archaeological potential. Consequently, this project should have no effect upon significant archaeological resources. Should you become aware, from any source, that historic or archaeological properties are located at or near the project site, please contact the Bureau for Historic Preservation at (717) 783-8946. If you need a status only of the reviewed project please call Tina Webber at (717) 705-4036.

Sincerely,

A handwritten signature in black ink, appearing to read "Kurt W. Carr".

Kurt W. Carr, Chief
Division of Archaeology &
Protection

Cc: Slippery Rock Watershed Coalition, 338 Glen Eden Road, Rochester, PA 15074
DEP, Knox District Mining Office

KWC/tmw



230 Chestnut Street
Meadville, PA 16335-3481
August 3, 1999

Northwest Regional Office

814-332-6942
Fax: 814-332-6121

Margaret H. Dunn, P.G.
BioMost Incorporated
338 Glen Eden Road
Rochester, PA 15074

RE: Waiver of Permit Requirements
DEP File No. WL 1099601
Goff Station Gob Pile Removal Project
Venango Township, Butler County

Dear Ms. Dunn:

This letter is in reference to your request for authorization to remove approximately 20,000 cubic yards of mine refuse/gob which was placed adjacent to a tributary to Seaton Run, locally known as Murrin Run, within the flood way of this tributary to Seaton Run, and to revegetate the riparian area along this stream. This project is located approximately 4000 feet southwest of the intersection of S.R. 308 and Erico Road. (Eau Claire Quadrangle N: 1.2 inches; W: 16.8 inches) in Venango Township, Butler County.

In accordance with the provisions of Section 4 of the Dam Safety and Encroachments Act, the Act of November 26, 1978, P.L. 1375, No. 325 (as amended by Act 70). the proposed structures and/or activity is regulated by this Act.

However, the requirements for a permit are waived for this type of structure or activity in accordance with Section 7(a) of the Dam Safety and Encroachments Act and the provisions of Section 105.12, of Chapter 105 Rules and Regulations, Dam Safety and Waterway Management as amended on October 12, 1991.

Specifically, restoration activities are waived pursuant to Chapter 105.12(a)(16) of the Departments Rules & Regulations once the requirement for an environmental assessment approved by the Department has been satisfied. Please be advised that environmental assessment #EA10-011NW has been reviewed and deemed adequate. This is based upon an understanding that this restoration plan will abate a significant threat to human health, safety, or the environment. In addition, since the environmental assessment for this project has been approved, your project is eligible for Federal Authorization under the Pennsylvania State Programmatic General Permit. This permit grants Federal Authorization as required under Section 404 of the Clean Water Act.

Appendix



Margaret H. Dunn, P.G.

-2-

The waiver of permit requirements does not give any property rights, either in real estate or material, nor any exclusive privileges, nor shall it be construed to grant or confer any right, title, easement, or interest in, to or over any land belonging to the Commonwealth of Pennsylvania; neither does it authorize any injury to private property or invasion of private rights.

It is required that you secure all other approvals that may be necessary under other federal, state or local regulations and meet the construction, operation, maintenance or other requirements of Chapter 105.

Proper erosion and sedimentation control measures are required during and after construction and the adequacy of these measures can be determined by contacting your local County Conservation District.

It is recommended that you contact the Pennsylvania Fish and Boat Commission prior to starting the work and that the work be performed in such a manner so as to protect fish and other aquatic life.

Sincerely,



Stephen A. Brumagin
Water Pollution Biologist
Water Management

SAB:pb

cc: PA Fish Boat Commission, Bellefonte Office
Butler County Conservation District
COE, Pittsburgh
S. Taylor
R. Thompson
S. Brumagin
Roger Bowman
File (w/correspondence)

PENNSYLVANIA STATE PROGRAMMATIC GENERAL PERMIT
PASPGP-1
DECEMBER 1995

TO WHOM IT MAY CONCERN:

Upon the recommendation of the Chief of Engineers, and under the provisions of Section 404 of the CWA, as amended, and Section 10 of the River and Harbor Act of 1899 (33 U.S.C. 403), the Secretary of the Army hereby authorizes the discharge of dredged, excavated, or fill material or structures into waters of the United States, including wetlands. These discharges and structures must comply with all the terms and conditions identified in this SPGP.

It has been determined that the project as authorized by the PA Department of Environmental Protection (PADEP) Authorization WL 1099601 qualifies for the PA SPGP-1. Accordingly, you are authorized to undertake the activity pursuant to:

1. Section 10 of the River and Harbor Act of 1899 (33 U.S.C. 403).
2. Section 404 of the Clean Water Act (33 U.S.C. 1344).

You are authorized to perform work in accordance with the terms and conditions specified below.

For an activity involving a structure or discharge of dredged, excavated, or fill materials into waters of the United States to be authorized by this SPGP, it must meet the following requirements and conditions:

1. Proper maintenance. Any fill or work authorized shall be properly maintained, including maintenance to ensure public safety.
2. Erosion and siltation controls. Appropriate erosion and siltation controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills must be permanently stabilized at the earliest practicable date.
3. Aquatic life movements. No activity may substantially disrupt the movement of those species of aquatic life indigenous to the waterbody, including those species which normally migrate through the area, unless the activity's primary purpose is to impound water.
4. Equipment. Heavy equipment working in wetlands must be placed on mats or other measures must be taken to minimize soil disturbance, including avoiding the use of such equipment, if possible.
5. National Wild and Scenic Rivers. Activities which occur in a component of the National Wild and Scenic River System; or in a river officially designated by Congress as a "study river" for possible inclusion in the system are not authorized by this SPGP. These designated rivers include:

(a) The Upper Delaware Scenic and Recreational River beginning at Hancock, New York, and continuing 73.4 river miles to Mill Rift, Pennsylvania.

(b) The Middle Delaware Scenic and Recreational River as it flows through the Delaware Water Gap National Recreation Area.

The Study Rivers include:

(a) The Lower Delaware River beginning seven river miles north of Belvidere, New Jersey, continuing to Washington Crossing, Pennsylvania, including Cooks Creek, Tinicum Creek and Tohickon Creek.

(b) The White Clay Creek watershed including all of its tributaries.

6. Tribal rights. No activity or its operation may impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing and hunting rights.
7. Endangered Species. If the proposed activity may affect a Federal listed species or a species proposed for listing or their critical habitat, a District Engineer must initiate consultation with FWS or NMFS in accordance with the Federal Endangered Species Act (ESA) prior to authorization of the activity under the PASPGP-1. No activity is authorized under the PASPGP-1 which is likely to, individually or cumulatively, jeopardize the continued existence of a threatened or endangered

applied to single and complete projects. All components of a single project shall be treated together as constituting one single and complete project. All planned phases of multi-phased projects shall be treated together as constituting one single and complete project. For purposes of this condition, all previously authorized phases of multi-phased projects will remain authorized, unless expired, and any additional planned phases will be evaluated for authorization, cumulatively with the previously authorized phases as a single and complete project. This general permit shall not be used for any activity that is part of an overall project for which an individual permit is required.

20. False and Incomplete information. If any of the information contained in the Pennsylvania/Corps Joint Permit Application, PADEP General Permit registration, PADEP Environmental Assessment and/or plans is found to be in error, falsified, and/or incomplete, the PASPGP-1 authorization may be subject to modification, suspension, or revocation in accordance with 33 CFR 325.7.

21. Section 404(b)(1) Guidelines. No activity may be permitted under the PASPGP-1 that is not in full conformity with the Section 404(b)(1) Guidelines. The Corps is responsible for insuring compliance with the Guidelines.

22. Agricultural activities. For Pennsylvania waivers 7 or 8 to qualify for the PASPGP-1, the activities must be part of an established (i.e., on-going) farming, silviculture, or ranching operation. Activities on areas lying fallow as part of a conventional rotational cycle are part of an established operation. Activities which bring an area into farming, silviculture or ranching use are not part of an established operation. An operation ceases to be established when the area on which it was conducted has been converted to another use or has lain idle so long that modifications to the hydrological regime are necessary to resume operations. Plowing does not include the redistribution of soil, rock, sand, or other surficial materials in a manner which changes any area of the waters of the United States to dry land.

23. Expiration Date. This authorization is valid for the same period as the project specific PADEP authorization, not to exceed three years; and shall not exceed three years for PADEP General Permits.

By Authority of the Secretary of the Army:

Colonel Randall R. Inouye, P.E.
Baltimore District Engineer

Lieutenant Colonel Robert P. Magnifico
Philadelphia District Engineer

Colonel Stephen B. Massey
Pittsburgh District Engineer



EXHIBIT C

NOTIFICATION TO USE
BDWM-GP-8
Temporary Road Crossings

ACKNOWLEDGED:
DATE 6/4/99
GP 081000607

I/We, Quality Aggregates, Inc.
(owner name(s))

hereby notify the Department of Environmental Protection of our intent to install
a temporary road crossing consisting of one 7 foot smooth steel pipe
(description of temporary road crossing)

in accordance with the drawings and conditions of this General Permit at a point
located approximately 1400 feet north of Township Road 649 (Goff Road)
(describe location)

across Murrin Run
(name of stream, body of water, or wetland)

in Venango Township Butler County
(municipality) (county)

I/We have attached a LOCATION MAP similar to that shown on Drawing No. 1 indicating where the temporary road crossings will be installed.

I/We certify that a copy of this notification was sent this day 6/4/1999 to
(date)
Venango Township and Butler County
(municipality) (county)

where the work will be performed.

Signed: Jeffery J. Ankrom
(owner or authorized representative)

Jeffery J. Ankrom
(typed or printed signature)

200 Neville Road
(owner address)

Neville Island, PA 15225

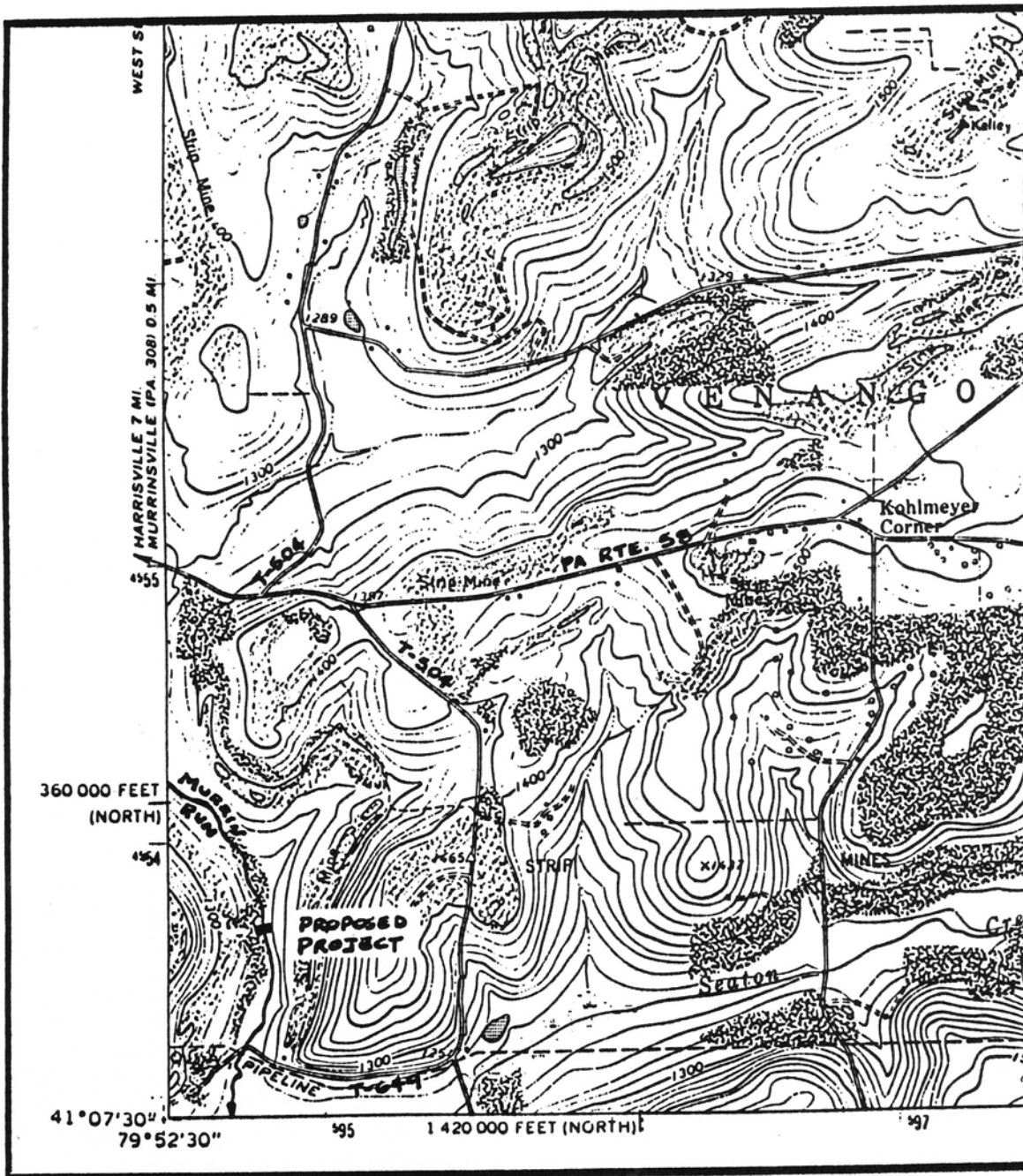
(412) 777-6703
(owner telephone number)

Send to one of the addresses on "Exhibit B" or the "County Conservation Districts" list.

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TEMPORARY ROAD CROSSING

LOCATION MAP



EAU CLAIRE, PA 7 1/2 MINUTE QUADRANGLE

Appendix

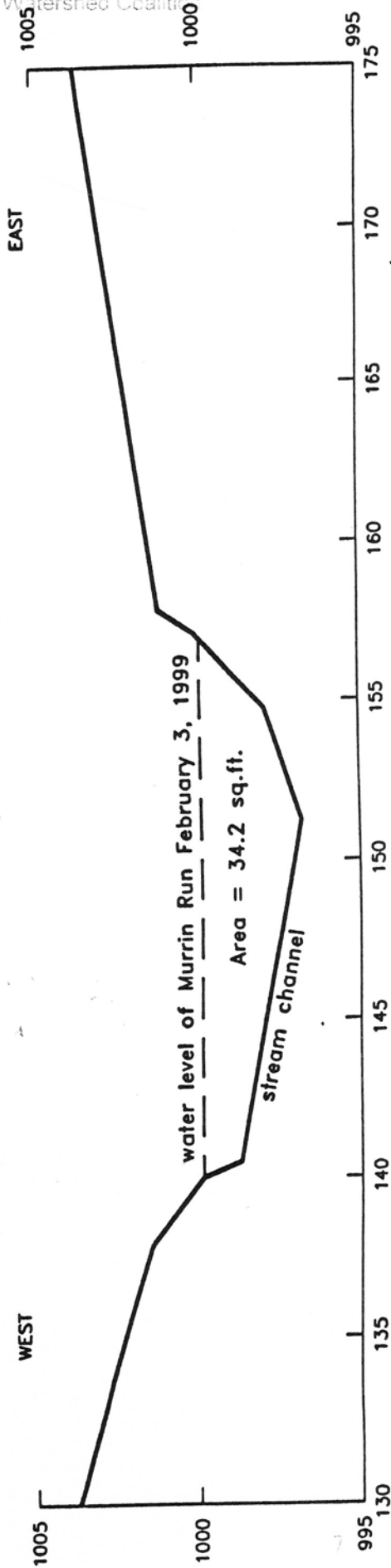
SCALE: 1" = 2000'

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TEMPORARY ROAD CROSSING STREAM CROSS SECTIONS

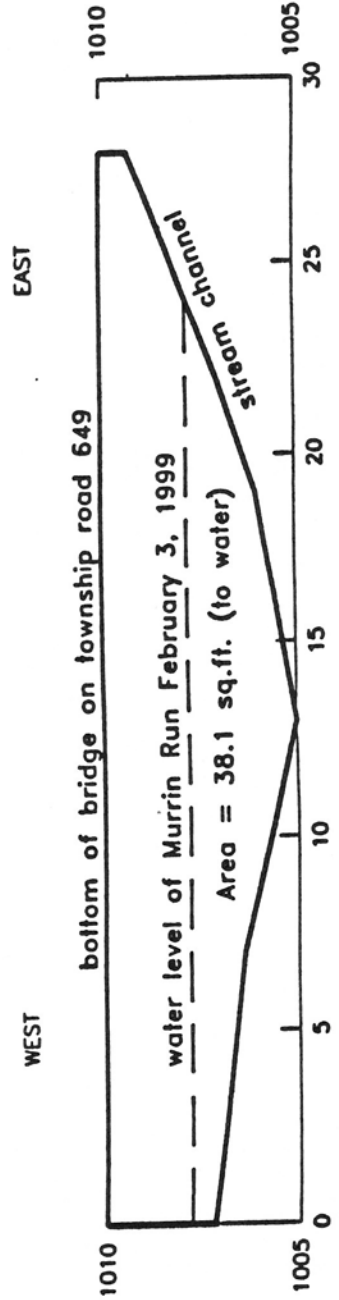
Appendix

CROSS SECTION AT PROPOSED ROAD CROSSING



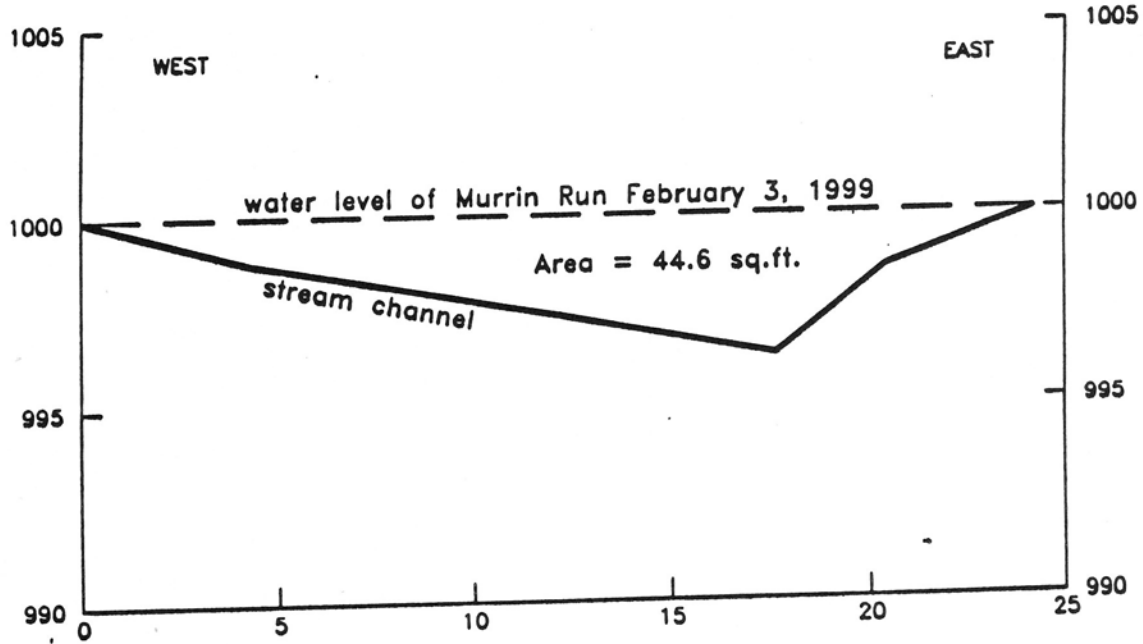
Scale: Hor 1" = 5'
Ver 1" = 5'

CROSS SECTION AT BRIDGE ON TOWNSHIP ROAD 649



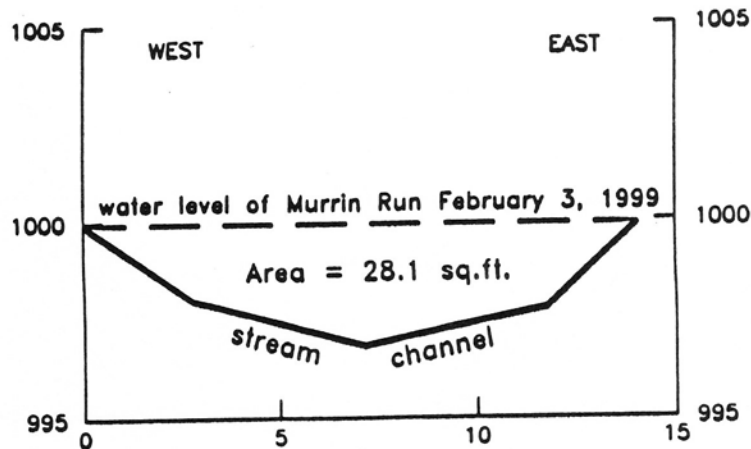
TEMPORARY ROAD CROSSING STREAM CROSS SECTIONS

CROSS SECTION UPSTREAM OF PROPOSED CROSSING



Scale: Hor 1"=5'
Ver 1"=5'

CROSS SECTION DOWNSTREAM OF PROPOSED CROSSING



TEMPORARY ROAD CROSSINGS

Coal Refuse Removal/Riparian Restoration - Gun Station Restoration Area
Slippery Rock Watershed Coalition

July 2000

Dwg. No. 3

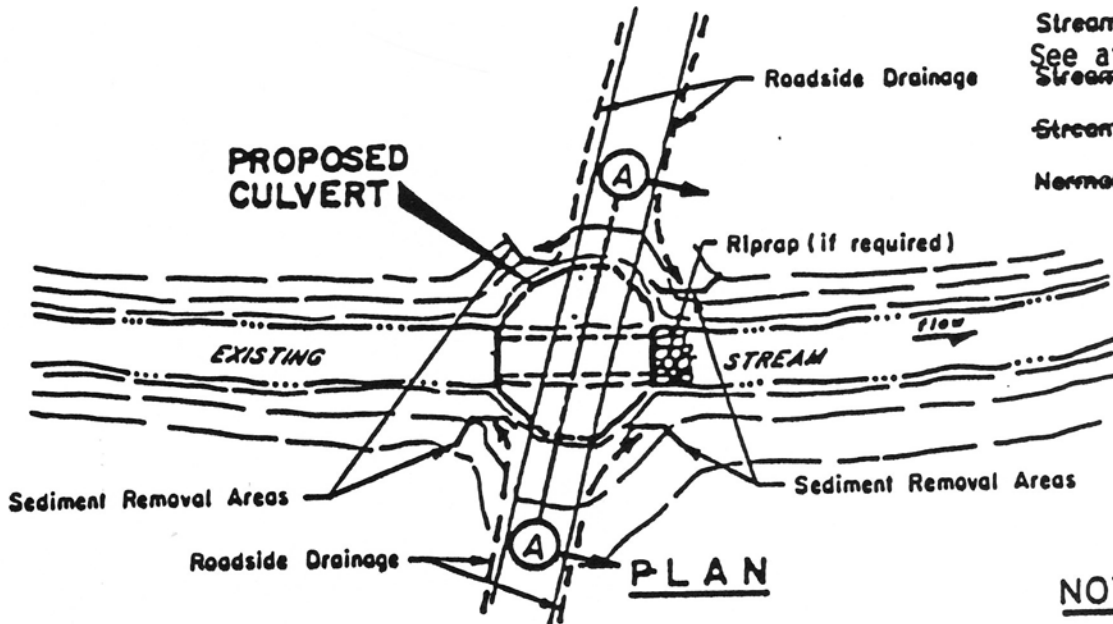
SINGLE CULVERT

Upstream Drainage Area 2,684 acre

Stream Channel
See attached cross sections
Stream-width -----feet

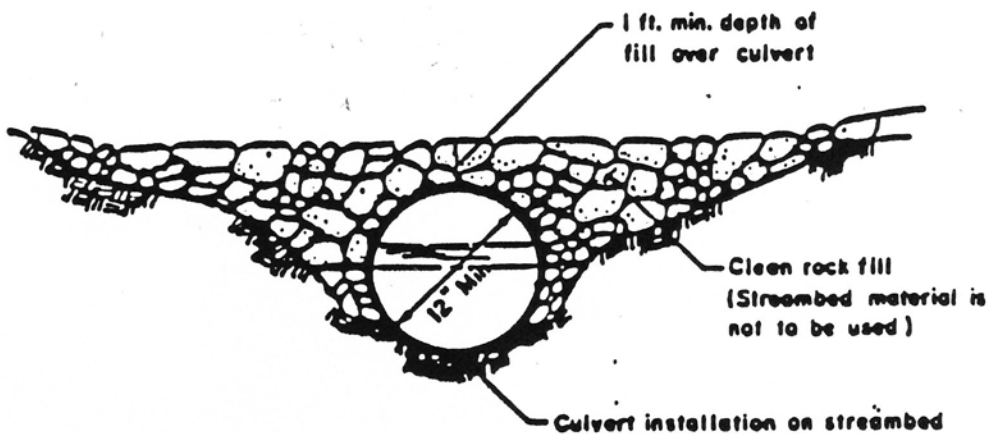
Stream-bank-height -----feet

Normal-flow depth -----feet



NOTES:

1. Pipe should extend beyond toe of roadway.
2. Roadway could be depressed over culvert to allow for overflow within the stream channel.
3. Clean rock fill shall be used to guard against erosion and sedimentation. Streambed material is not to be used.
4. Minimum size diameter culvert to be installed is 12 inches.
5. Approaches to crossings are not to exceed a depth of 6 inches above original grade unless approved on a case-by-case basis by the Department.
6. Proper erosion and sedimentation control measures must be installed, refer to Item 10.
7. Refer to Item 11, Conditions.



SECTION (A)

EROSION AND SEDIMENTATION CONTROL PLAN

The proposed temporary road crossing will consist of the placement of one 7' smooth steel culvert in Murrin Run located approximately 1,400' north of the bridge on township road 649 (Goff Road) which carries Murrin Run beneath the township road.

The proposed culvert will discharge the normal flow of the stream as observed by the attached surveyed cross sections, and will be of adequate length to extend beyond the toe of the clean rock fill. The average cross sectional area of water observed on February 3, 1999 at the four cross sections was 36.3 square feet. The cross sectional area of the proposed 7' smooth steel culvert is 38.5 square feet.

The culvert will be installed by providing a depressed roadway embankment as shown on typical drawing No. 3 in such a manner that overtopping of the roadway will occur within the stream channel. Temporary road embankments shall consist of only clean rock material to prevent stream channel sedimentation during placement, removal and periods of overtopping. Road approaches should be designed to eliminate excessive runoff, sedimentation and erosion. Roadside drainage will be collected by a series of ditches constructed along the sides of the proposed roadway, and will convey the runoff to sediment removal areas.

If possible, the temporary road crossing will be constructed during a period of low stream flow. During construction of the temporary road crossing, the only activities in the stream channel itself will be only those activities absolutely necessary.

Immediately upon completion of construction work, and as weather permits, the area will be revegetated and mulched according to the following rates:

Hay Mulch at a rate of	2½ tons/acre
Lime	4 tons/acre
Fertilizer (10-20-20)	½ ton/acre
Birdsfoot Trefoil	6 lbs./acre
Kentucky 31 Fescue	15 lbs./acre
Red Top	2 lbs./acre
Annual Rye grass	4 lbs./acre

Planting will be accomplished during state approved planting dates. If weather conditions permit, construction and revegetation of the proposed temporary road crossing will take approximately one week.

The temporary road crossing shall be dismantled, removed, and the site reclaimed and restored to original topography and stabilized when the general permit expires, or when required by the Department. Should any of the areas around the proposed crossing need revegetated, the rates described above will be utilized.

PRIORITY AREA 9: GOFF STATION (cont.)

Approximately 180 acres (72.90 hectares) of unreclaimed surface mines were documented to exist within Project Area 12 of the Operation Scarlift Report which will be included in Priority Area 9 - Goff Station. An estimated cost of \$540,000 would be needed to reclaim these areas at \$3,000 per acre.

As a result of the reconnaissance effort performed by the Knox DMO inspection staff, an estimated 20,000 yd³ of abandoned gob/refuse piles exist in proximity to Priority Area 9. (See Table 33) An estimated cost of \$60,000 would be needed to reclaim these areas at \$3.00 per yd³.

TABLE 33: PRIORITY AREA 1 - GOB/REFUSE PILES

SITE LOCATION	LANDOWNER	ESTIMATED VOLUME (yd ³)
Goff Station Piles	E. L. Hindman	20,000
TOTAL:		20,000

- ◆ Based on this evaluation, an estimated total cost of \$1,075,000 would be needed to address the remediation/reclamation of Priority Area 9 - Goff Station.
- ♣ It should be noted that abatement measures were proposed for Project Area 12 of the Scarlift Report but were not implemented. Based on the limited amount of construction area and rather steep terrain in the vicinity of some of the discharges, use of deep mine seals and grout curtain may be an option as a last alternative.