

SUB-WATERSHED 8R  
(UN-NAMED)

Sub-watershed 8R (unnamed)

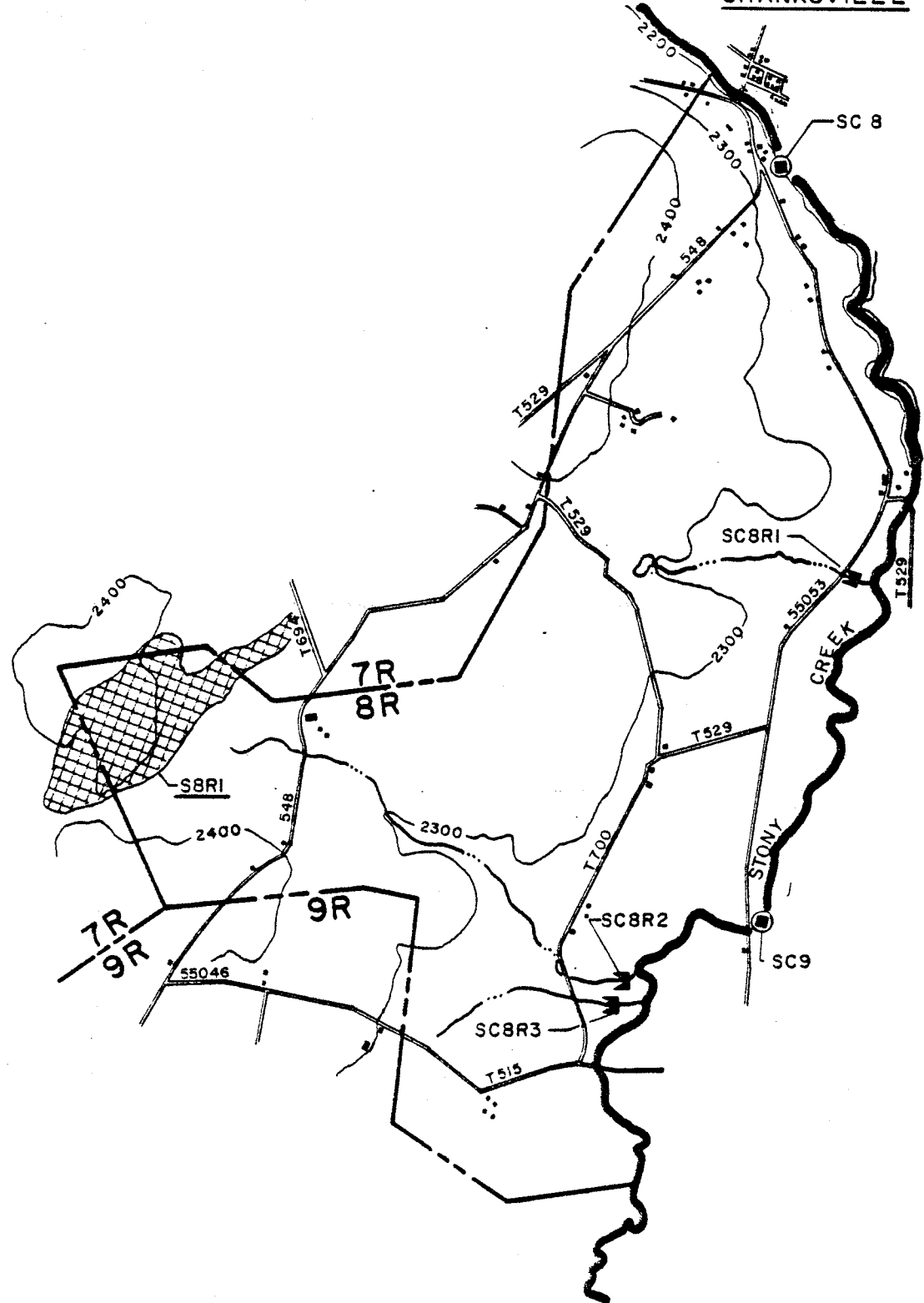
General Discussion

This sub-watershed encompasses 2 square miles or 1,308 acres of land area which is approximately 1.47% of the total study area. It is drained by 2.1 miles of tributaries (.89% of the total of all watershed tributaries) and has .9 of an acre in lakes and ponds (.07% of sub-watershed area). Commonwealth records indicate no mining activity at all in this sub-watershed. Our field investigations find only one surface mine, which is flowing.

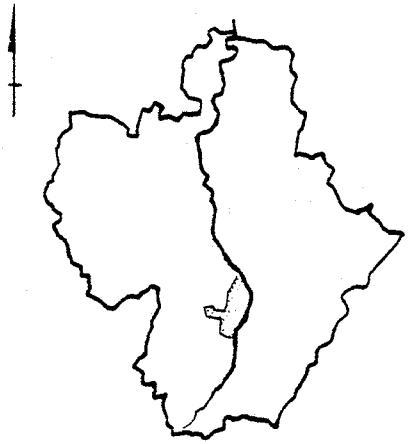
The following is a summation of the flows from the three sampling stations, SC8R1, SC8R2 and SC8R3, located at the mouth of the three major unnamed tributaries draining the sub-watershed and shown on drawing 7119-6. The percentage that these stations contribute in pollution load and flow to the total pollution load and flow as measured at Monitoring Station SC1 on Stony Creek is also included.

	<u>Averages</u>	<u>Percent of Total Watershed</u>
pH	6.3	
Net Cold Acidity	185.05 PPD	.59%
Net Hot Acidity	0 PPD	0 %
Ferrous Iron	3.56 PPD	.46%
Total Iron	8.56 PPD	.19%
Sulfate	1,514.12 PPD	.79%
Hardness	2,308.15 PPD	1.12%
Flow	2,286,720 GPD	1.43%

The following plate shows the location of all deep mine openings and strip mines where they exist within this sub-watershed as well as the location of all sampling stations.



KEY PLAN



# MAP OF SUB-WATERSHED 8.

(UN-NAMED)  
SCALE: 1" = 2000'

## Strip Mines

The Commonwealth records indicate that there are no strip mines in this sub-watershed. Our field investigations locate one surface mine which is flowing. Table 29 lists the abandoned strip mine that is within the sub-watershed with the following information: the name of the mine or operator if known, the area and seam mined, the designation we give the mine, whether or not there is a flow, and whether it connects with a deep mine.

The total acreage of abandoned surface mines in sub-watershed 8R is 66.10 acres (5.05% of the sub-watershed area).

Table 30 gives the averages of the abandoned surface mine flows. Directly under the averages are the percentages of flows and pollution load that each mine contributes to the pollution load of the sub-watershed as measured at sampling stations SC8R1, SC8R2, and SC8R3.

Where a single surface mine has more than one flow, the averages of the flows are added together.

Following Table 30 is the description of the flowing strip mine along with abatement recommendations.

TABLE 29

Abandoned Surface Mine

Sub-watershed 8R

Mine Number	Name of Mine or Operator	Area	Seam	Flowing	Connection w/Deep Mine
		Mined (Acres)	Mined		
S8R1	Unknown	66.10	E	Yes	No

TABLE 30

Abandoned Surface Mine Average Water Quality Data  
Sub-watershed, 8R

Mine No.	pH	Net Cold Acid ppd	Net Hot Acid ppd	Ferrous Iron ppd	Total Iron ppd	Sulfate ppd	Hardness ppd	Flow gpd
S8R1	3.2	150.84	681.53	13.45	36.80	965.65	1,460	86,400
		81.5%	-	377.8%	429.9%	63.8%	63.3%	3.8%

Strip Mine: S8R1

Area: 66.10 acres

Location: South of intersection of Rts. T 548 and T 529

Status: Reclaimed

Owned by: Unknown

Seam mined: E

Connection with deep mine: None

Flowing: Three leaching areas

General Description:

Mostly flat well vegetated land exists here.

Recommendation:

Diversion ditches would direct and control the runoff.

Cost:

Ditches	\$2,000
---------	---------

Recommendations

Table 31 gives the recommended abatement procedures with cost beneficiation for all polluting deep and surface mines. Table 32 lists the sources abated, the amount of beneficiation and the costs associated with each recommendation.

An estimated effectiveness of 60% reduction of the pollution load is assigned for each recommendation.

The distance between SC8R2 and the next polluting tributary downstream is approximately one mile. This is the minimum distance on Stony Creek that would benefit from work being done in this sub-watershed.

TABLE 31

Recommended Abatement Procedures - Cost Benefication

Sub-watershed 8R

RANK	Number	Recommended Abatement		Total Costs		Cost \$/Pound Acid Removal		Total Acid	Total Iron	Percent of Total Sub-watershed	
		Known Sources	Poten- tial Sources	Known Sources	Poten- tial Sources	Known Sources	Poten- tial Sources	Abate- ment ppd	Abate- ment ppd	Acid	Iron
1	S8R1	66.10		\$,2,000	\$2,000	\$22.10	\$22.10	90.50	22.08	48.91%	257.94
		acres of									
		strip									
		mine									

TABLE 32

Benefication - Recommended Plans

Sub-watershed 8R

Plan	Above Sources Abated	Acid		Iron		Total Construction Costs	
		ppd	% of Total Sub-water- shed	ppd	% of Total Sub-water- shed	Flowing Sources	Potential Sources
A	1	90.50	48.91%	22.08	257.94	\$2,000	\$2,000

It is recommended that Plan A be initiated for this sub-watershed.

SUB-WATERSHED 11L  
(GLADE CHURCH RUN)



Sub-watershed 11L (Glade Church Run)

General Discussion

This sub-watershed consists of 3.9 square miles or 2,490 acres which equal 2.8% of the total study area. It is drained by 7.8 miles of tributaries (3.32% of the total length of all watershed tributaries) and has 8.7 acres of lakes and ponds (.35% of sub-watershed land area). State records indicate 2 surface mines and no deep mines. Our field investigations find no deep mines, but 6 strip mines 3 of which have flows.

The following is a summation of the flows from the two major tributaries in this sub-watershed, Glade Church Run (SC11L2) and an unnamed tributary (SC11L1) located on drawing 7119-6. The percentage that these stations contribute in pollution load and flow to the total pollution load and flow as measured at Monitoring Station SC1 on Stony Creek is also included.

	<u>Averages</u>	<u>Percent of Total Watershed</u>
pH	6.0	
Net Cold Acidity	172.89 PPD	.55%
Net Hot Acidity	149.92 PPD	.14%
Ferrous Iron	36.70 PPD	4.78%
Total Iron	270.05 PPD	6.04%
Sulfate	4,912.70 PPD	2.55%
Hardness	18,260.11 PPD	8.87%
Flow	4,698,720 GPD	2.94%

The following plate shows the location of all deep mine openings and strip mines where they exist within this sub-watershed, as well as the location of all sampling stations.

## Strip Mines

The Commonwealth records indicate that there are 2 strip mines in this sub-watershed. Our field investigations locate 6 surface mines with 3 flowing. Table 33 lists the abandoned strip mines within the sub-watershed with the following information: The name of the mine or operator if known, the area and seam mined, the designation we give the mine, whether or not there is a flow, and whether it connects with a deep mine.

The total acreage of abandoned surface mines in subwatershed 11L is 212.98 acres (8.55% of the sub-watershed area).

Table 34 gives the averages of the abandoned surface mine flows. Directly under the averages are the percentages of flows and pollution load that each mine contributes to the pollution load of this sub-watershed as measured at SC11L1 and SC11L2, Glade Church Run.

Where a single surface mine has more than one flow, the averages of the flows are added together.

Following Table 34 are the descriptions of the flowing strip mines along with abatement recommendations.

TABLE 33

### Abandoned Surface Mines

#### Sub-watershed 11L

Mine Number	Name of Mine or Operator	Area Mined (Acres)	Seam Mined	Flowing	Connection w/Deep Mine
S11L1	Unknown	50.49	-	Yes	No
S11L2	Lestor W. Penrod	68.85	Upper Bakers-town	No	No
S11L3	Robert H. Glessner, Jr.	28.46	Brush Creek	No	No
S11L4	Unknown	28.46	-	No	No
S11L6	Unknown	29.38	-	Yes	No
S11L7	Unknown	7.34	-	Yes	No

# MAP OF SUB-WATERSHED IIL (GLADE CHURCH RUN)

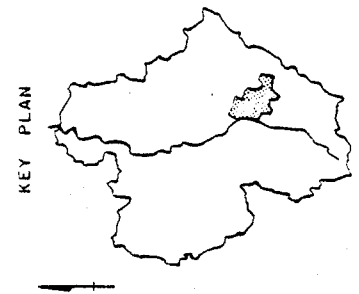
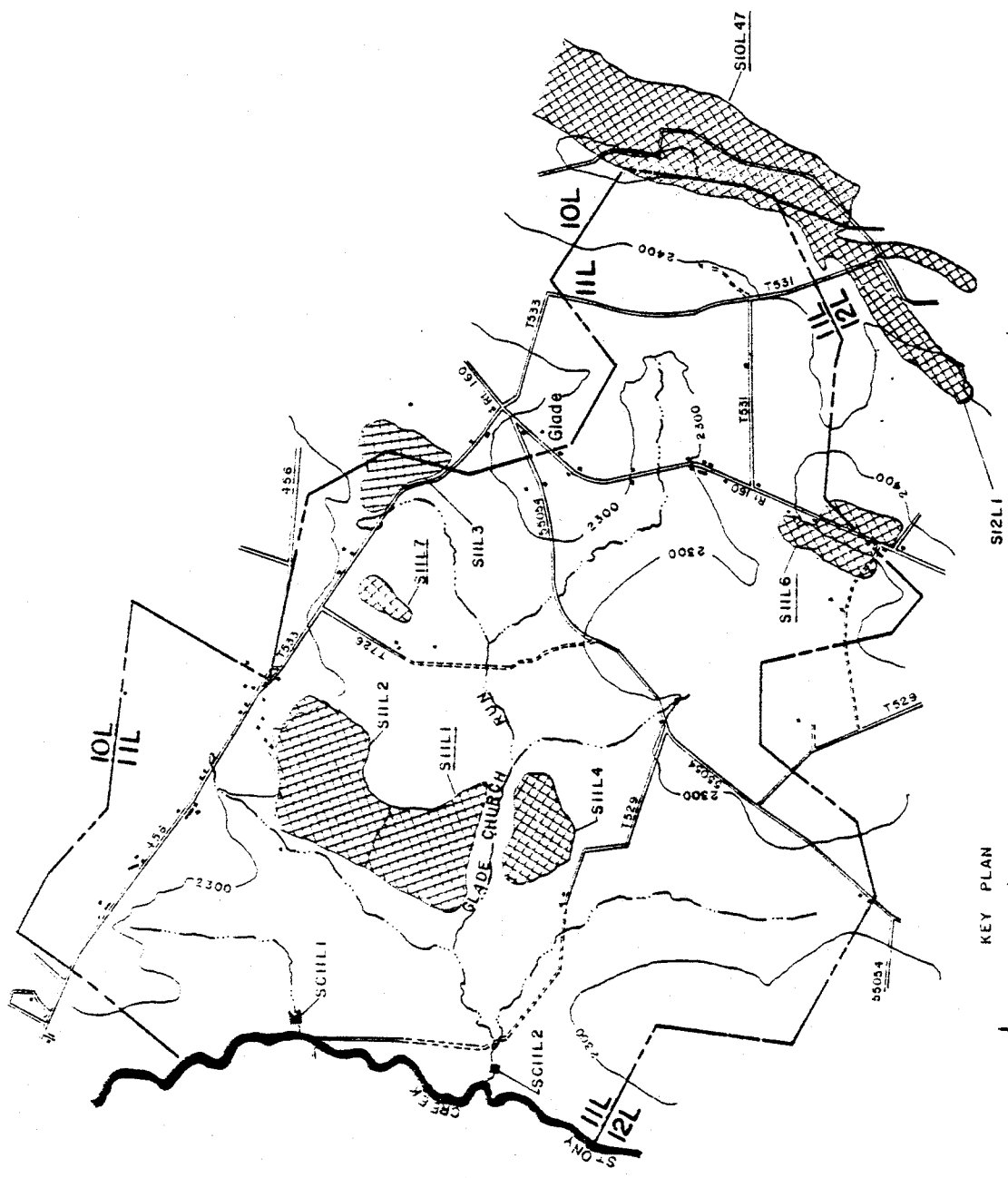
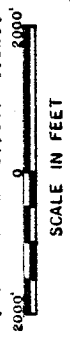


TABLE 34

Abandoned Surface Mine Average Water Quality Data  
Sub-watershed 11L

Mine No.	pH	Net Cold Acid ppd	Net Hot Acid ppd	Ferrous Iron ppd	Total Iron ppd	Sulfate ppd	Hardness ppd	Flow gpd
S11L1	7.2	0	*	1.04	1.18	117.30	*	106,560
		-		2.8%	4%	2.4%		2.3%
S11L6	4.8	137.88	600.46	11.16	30.29	1,508.12	3,307.9	139,680
		79.8%	400.5%	30.4%	11.2%	30.7%	18.1	3%
S11L7	5.6	.15	*	.01	.02	.70	*	7,200
		.1%		-	-	-		.2%

\* Not analyzed.

Strip Mine: S11L1

Area: 50.49 acres  
Location: North of Rt. T 529  
Status: Reclaimed  
Owned by: Unknown  
Seam mined: Unknown  
Connection with deep mine: None  
Flowing: Two leaching areas

General Description:

This swampy strip is revegetated with both trees and grasses. There is surface flow onto the strip creating erosion ditches.

Recommendation:

The water is of such quality that it creates no pollution threat. Therefore there are no recommendations for this mine.

Strip Mine: S11L6

Area: 29.38 acres  
Location: Adjacent to and west of Rt. 160  
Status: Approximately 75% reclaimed  
Owned by: Unknown  
Seam mined: Unknown  
Connection with deep mine: None  
Flowing: Three leaching areas

General Description:

Although there are pines on approximately 75% of the area, erosion of the mine exists. The strip is graded with a settling pond at the north end, with a soda ash treatment that at the time of investigation was not in operation.

Recommendation:

A network of ditches leading to the ponds and then to the tributary should be built to direct the flow of the water and remove it from the mined area as quickly as possible.

Revegetation with grass can prevent the erosion.

Cost:

Ditches	5000'	\$ 5,000
Revegetation		<u>18,000</u>
	Total	\$23,000

Strip Mine : S11L7

Area: 7.34 acres

Location: S. E. of intersection of Rts. T 726 and T 533

Status: Reclaimed

Owned by: Unknown

Seam mined: Unknown

Connection with deep mine: None

Flowing: One leaching area.

General Description:

This is a grass covered smooth sloped strip except for ponds at the southern end where leaching occurs.

Recommendation:

A ditch between the ponds is necessary to eliminate leaching. It should then be continued to follow the natural drainage to a nearby tributary.

Cost:

Ditch	1000'	\$1,000
Clearing and grubbing		<u>1,200</u>
	Total	\$2,200

Recommendations

Table 35 gives recommendations for the polluting surface mine accompanied with estimated costs.

An estimated effectiveness of 60% reduction of the pollution load is assigned for this recommendation.

Table 36 lists the source abated, the amount of beneficiation and the cost associated with each plan.

The distance from station SC11L2 to the next polluting tributary downstream, SC10L1, is 1.46 miles. This is the minimum distance on Stony Creek that would benefit from Glade Church Run becoming a clean stream.

TABLE 35

Recommended Abatement Procedures - Cost Benefication

Sub-watershed 11L

RANK	Number	Recommended Abatement		Total Costs		Cost \$/Pound Acid Removal		Total Acid	Total Iron	Percent of Total Sub-watershed	
		Known Sources	Poten- tial Sources	Known Sources	Poten- tial Sources	Known Sources	Poten- tial Sources	Abate- ment ppd	Abate- ment ppd	Acid	Iron
1	S11L6	29.38 Acres - Strip Mine Reclamation		\$23,000	\$23,000	\$278.01	\$278.01	82.73	18.17	47.85	49.52
2	S11L7	7.34 Acres - Strip Mine Reclamation		\$ 2,200	\$ 2,200	\$2,200	\$2,200	1	1	.58	.37

Note: The potential costs above include known costs.

TABLE 36

Benefication - Recommended Plans  
Sub-watershed 11L

Plan	Above Sources Abated	Acid		Iron		Total Construction Costs	
		ppd	% of Total Sub-water- shed	ppd	% of Total Sub-water- shed	Flowing Sources	Potential Sources
A	1 & 2	83.73	48.54	19.17	7.10	\$25,200	\$25,200
B	1	82.73	47.85	18.17	49.52	23,000	\$23,000

It is recommended that Plan "B" be initiated.