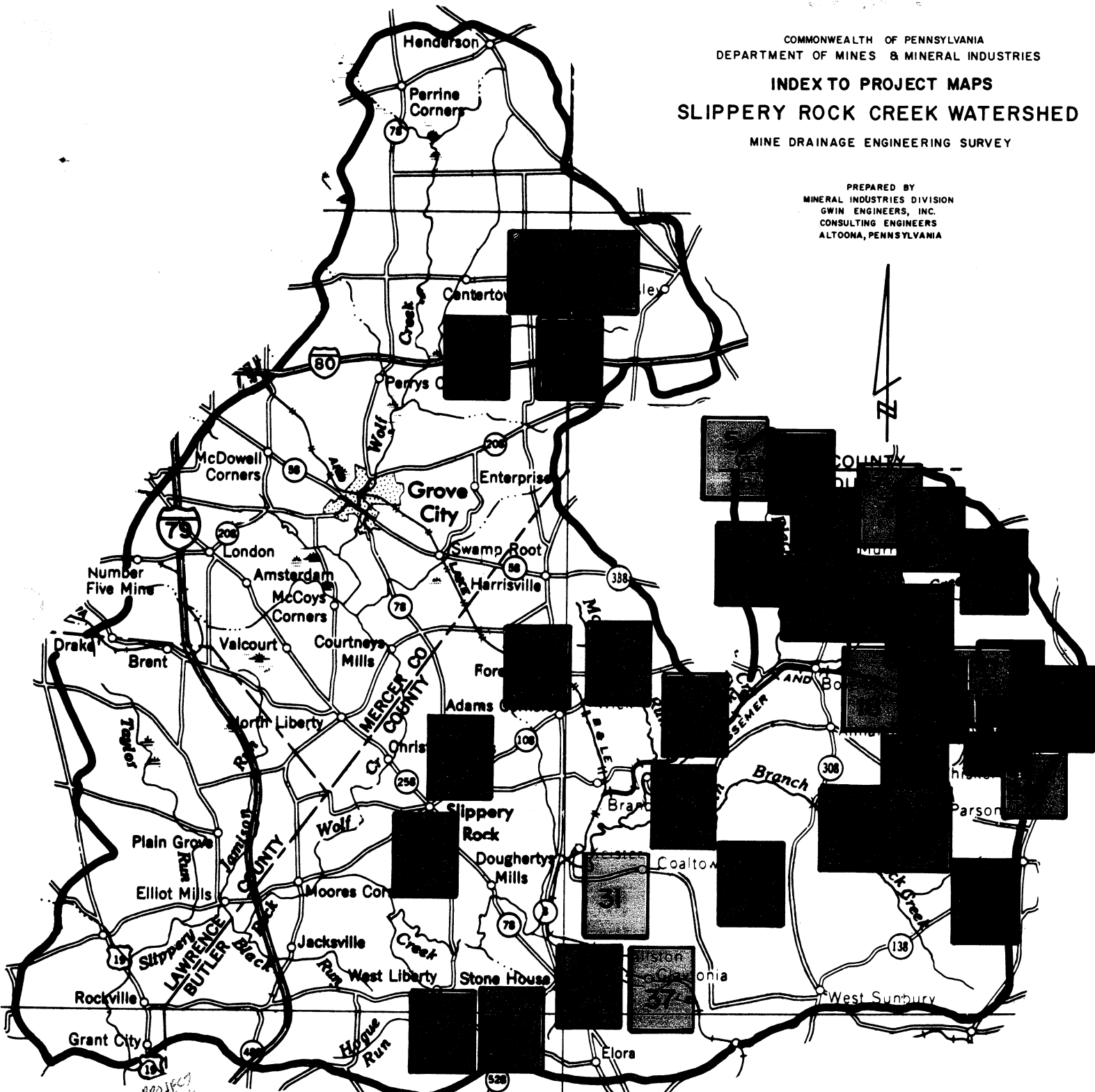


SL 100-2

SL 110-4

COMMONWEALTH OF PENNSYLVANIA
 DEPARTMENT OF MINES & MINERAL INDUSTRIES
INDEX TO PROJECT MAPS
SLIPPERY ROCK CREEK WATERSHED
 MINE DRAINAGE ENGINEERING SURVEY

PREPARED BY
 MINERAL INDUSTRIES DIVISION
 GWIN ENGINEERS, INC.
 CONSULTING ENGINEERS
 ALTOONA, PENNSYLVANIA



PROJECT CODE

- 1st PRIORITY PROJECTS
 1, 2, 3, 8, 12, 13, 14, 17, 18, 20, 21, 22, 23, 25, 26, 27, 28, 29
- 2nd PRIORITY PROJECTS
 5, 7, 9, 10, 11, 15, 16, 17, 22, 23, 25, 26, 27, 28, 29
- 3rd PRIORITY PROJECTS
 4, 6, 9, 10, 11, 15, 16, 17, 22, 23, 25, 26, 27, 28, 29

SLIPPERY ROCK CREEK WATERSHED

PROPOSED

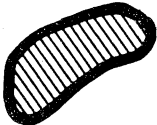
MINE DRAINAGE POLLUTION ABATEMENT

PROJECT AREA DESCRIPTION & MAPS

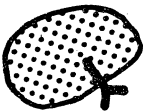
LEGEND FOR PROJECT MAPS 1-37



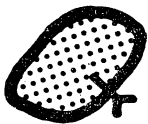
Strip Mine Areas - No Reclamation Recommended



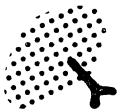
Strip Mine Areas - Reclamation Recommended



Deep Mine Areas - No Sealing Recommended - Approx. Mined Out Area



Deep Mine Areas - Sealing Recommended - Approx. Mined Out Area



Deep Mine Areas - No Sealing Recommended - Mined Out Area Unknown



Deep Mine Areas - Sealing Recommended - Mined Out Area Unknown



Refuse Piles - Reclamation Recommended



Weir Locations

Map Scale: 1" = 1000'

Project Area No. 1

Location Nutts Corners

Township Wolf Creek

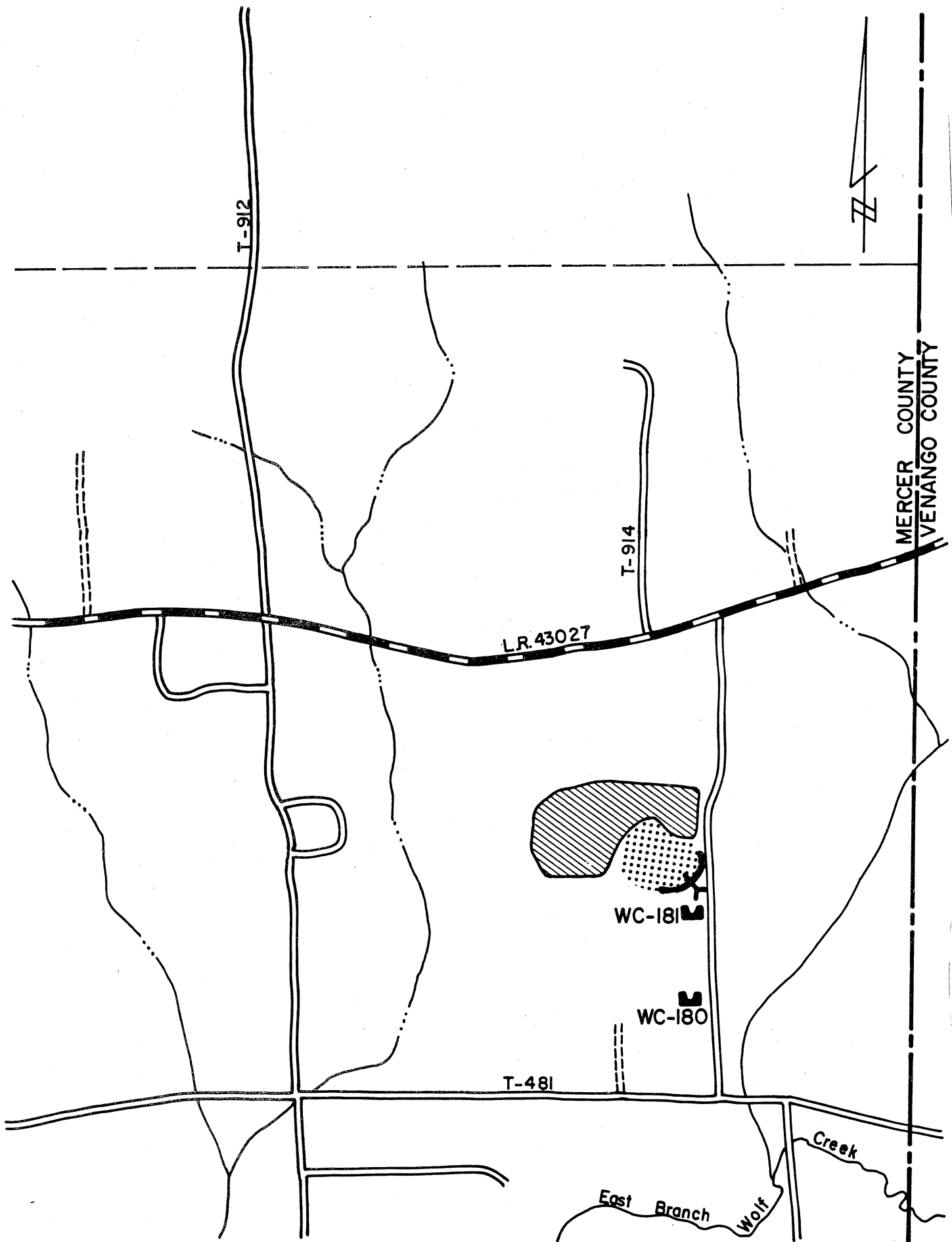
County Mercer

Priority Rating 1

This area has a small deep mine in the Clarion seam with a discharge at Weir WC 181 flowing into a tributary of Wolf Creek. During 1969, this discharge had an average acid production of 128 pounds per day and a maximum acid production in the range of 440 pounds per day. Associated with the deep mine is a strip mine which has been backfilled and planted. The proposed abatement work consists of hydraulic sealing of 2 to 3 deep mine entries and the installation of a grout curtain along the highwall in the applicable area.

The following are the estimated costs for the recommended abatement measures in the project area:

Deep Mine Hydraulic Seals	\$35,000
Grout Curtain Installation	5,000
Design, Supervision and Inspection	<u>4,000</u>
Estimated Reclamation Costs	\$44,000



PROJECT MAP NO. 1
DEEP MINE NEAR NUTTS CORNERS

Project Area No. 2

Location Interstate 80

Township Irwin

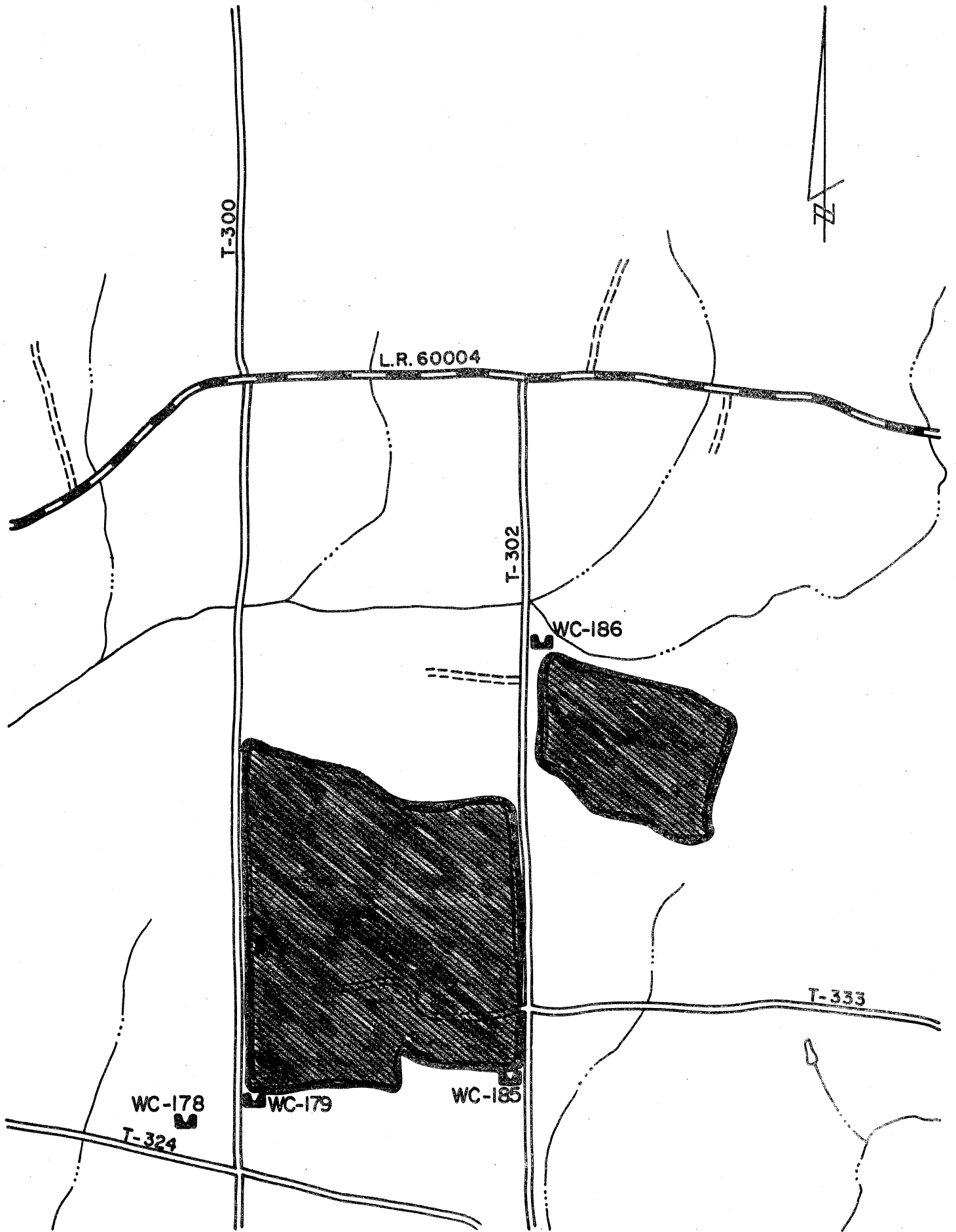
County Venango

Priority Rating 1

This area comprises 160 acres of the Clarion seam and has been strip mined and partially backfilled. Very little vegetation is growing on the porous sandstone spoil. The numerous depressions and lack of diversion ditches allow the precipitation to percolate down through the spoil and emerge as discharges through Weirs WC 178, WC 179, WC 185 and WC 186 into the East Branch of Wolf Creek. These discharges have an average acid production of 373 pounds per day and a maximum acid production of 660 pounds per day. The proposed abatement work consists of an estimated 30 to 40 acres of strip mine restoration with diversion ditch construction, and spoil pile neutralization via lime injection on an estimated 120 acres of strip mined area.

The following are the estimated costs for the recommended abatement measures in the project area:

Strip Mine Reclamation	\$ 40,000
Lime Injection	200,000
Design, Supervision and Inspection	<u>25,000</u>
Estimated Reclamation Costs	\$265,000



PROJECT MAP NO. 2
STRIP MINE NORTH OF I-80

Project Area No. 3

Location Highland Fuel

Township Wolf Creek

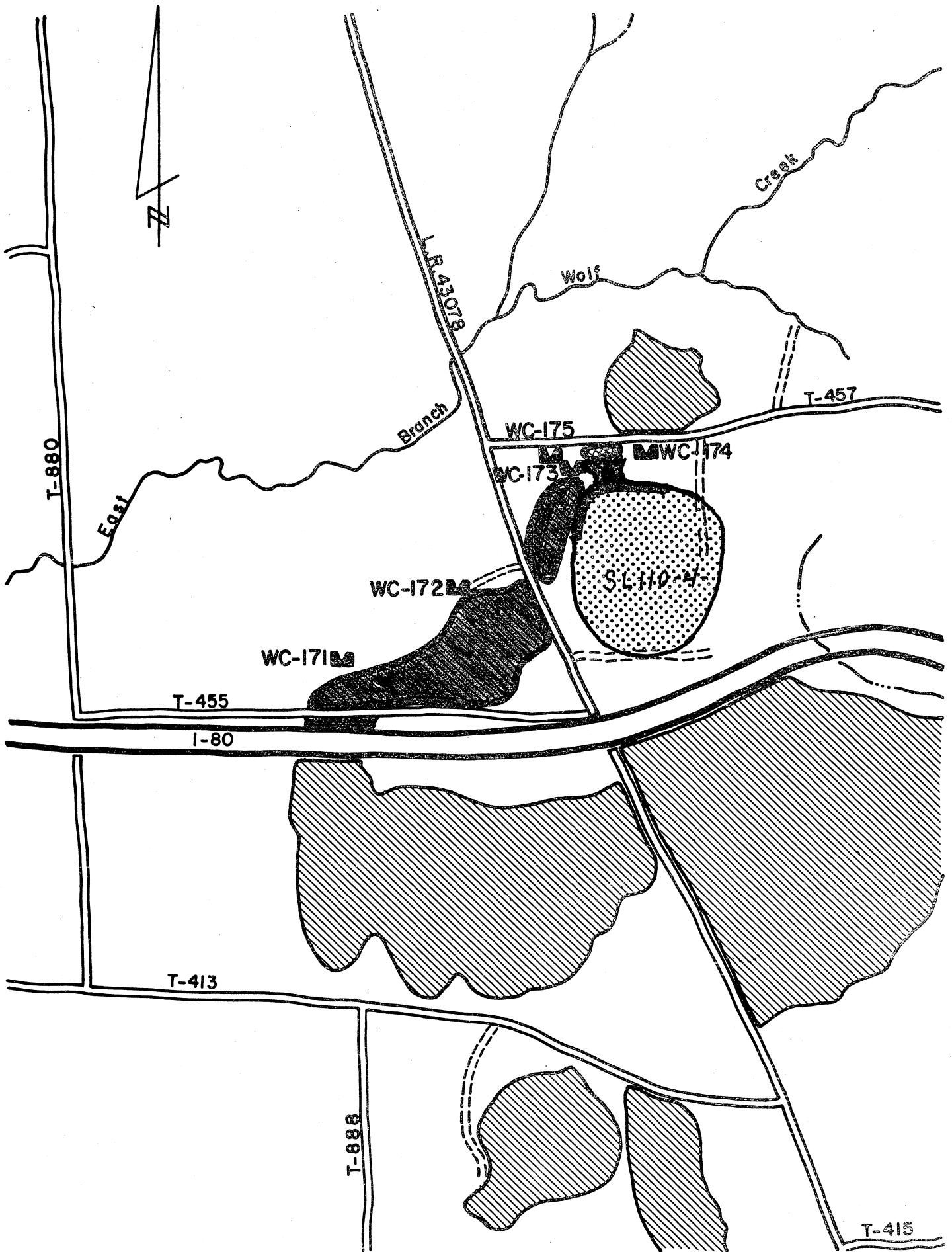
County Mercer

Priority Rating 1

This area consists of the Highland Fuel deep mine, refuse pile and strip mines in the Clarion seam of coal. The mine drainage discharge flows mainly through Weir WC 173 into the East Branch of Wolf Creek. This occurs immediately above a proposed Soil Conservation Service dam site. In 1969, this area produced an average of 659 pounds of acid per day and a maximum of 1240 pounds of acid per day. The proposed abatement plans consists of hydraulic sealing of 2 to 3 deep mine entries, several hundred lineal feet of grout curtains along the applicable highwall and outcrop areas, an estimated 30 acres of strip mine restoration and an estimated 5,000 cubic yards of refuse pile reclamation.

The following are the estimated costs for the recommended abatement measures in the project area:

Deep Mine Hydraulic Seals	\$ 50,000
Grout Curtain Installation	100,000
Strip Mine Reclamation	30,000
Refuse Pile Reclamation	10,000
Design, Supervision and Inspection	<u>20,000</u>
Estimated Reclamation Costs	\$210,000



PROJECT MAP NO. 3
HIGHLAND FUEL AREA NO. 1

Project Area No. 4

Location Interstate 80

Township Wolf Creek

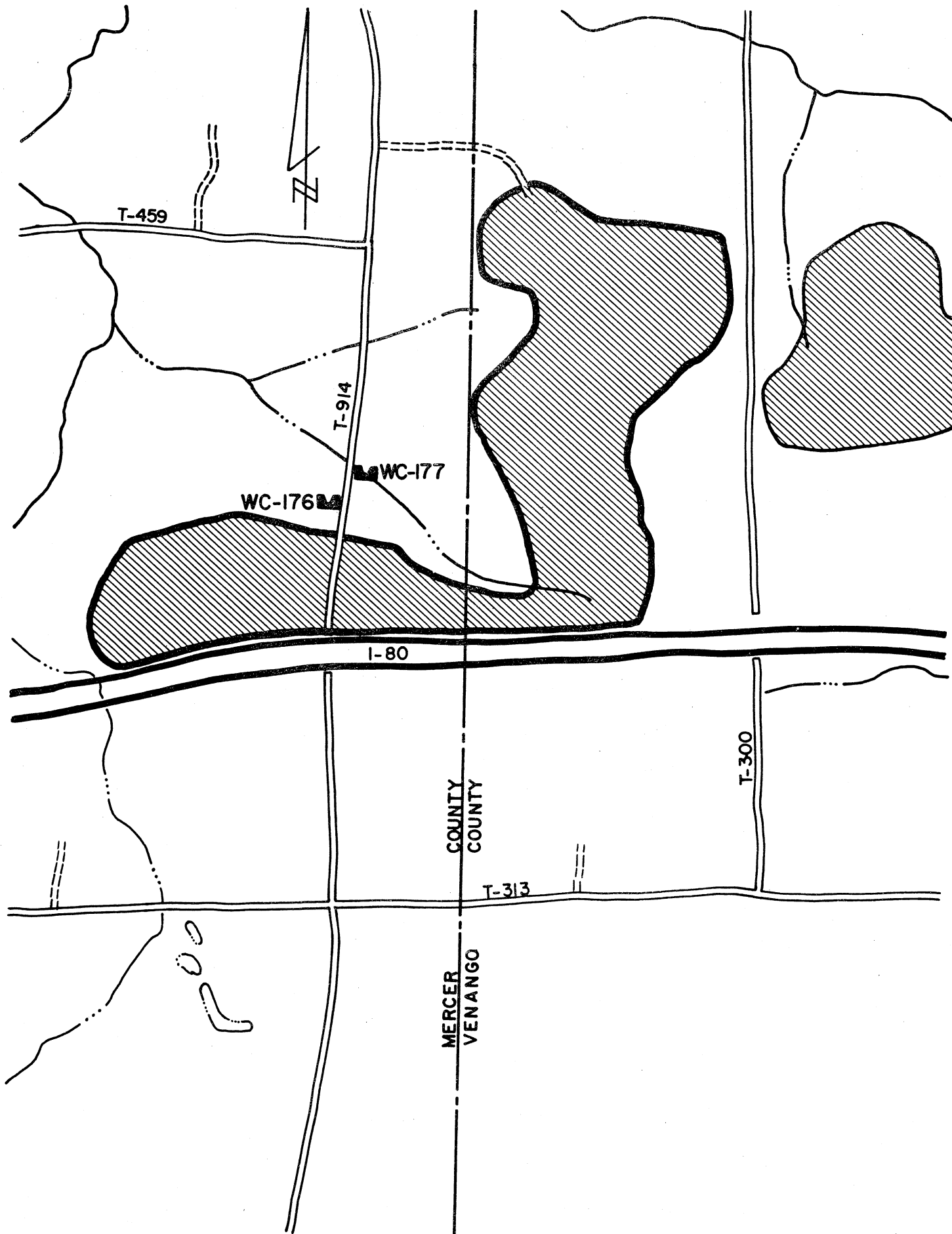
County Mercer

Priority Rating 3

This area consists of a strip mine of 170 acres in the Clarion seam of coal. The discharge flows through Weirs WC 176 and WC 177 into the East Branch of Wolf Creek above the proposed Soil Conservation Service dam site. The spoil is primarily sandstone and should be further backfilled to eliminate depressions, neutralized and planted. During 1969, the discharge produced an average acid load of 31 pounds per day with a maximum acid load in the range of 100 pounds per day. The proposed abatement plans consists of additional backfilling work for an estimated 75 acres and spoil neutralizations with lime injection in selected locations on the 170 acres.

The following are the estimated costs for the recommended abatement measures in the project area:

Strip Mine Reclamation	75,000
Lime Injection	100,000
Design, Supervision and Inspection	<u>15,000</u>
Estimated Reclamation Costs	\$190,000



PROJECT MAP NO. 4
STRIP MINE NORTH OF I-80