



RANGE RESOURCES®

September 19, 2017

Pennsylvania Department of Environmental Protection
Southwest Regional Office
Bureau of Oil & Gas Management
400 Waterfront Drive
Pittsburgh, PA 15222

RE: SASSO LEONARD UNIT 11H

To Whom It May Concern:

Maps using data posted on PASDA (mineable coal seams >28" digitized from PA Geological Survey Publication – Mineral Resource Report #68 & #93) have been reviewed for the presence or absence of workable coal seams.

The well location has been plotted on a section of each Plate with results listed below. Upon examination of these plotted maps, the well was determined to fall outside the workable coal seam area.

MAP	COAL SEAM	SEAM STATUS
Plate 1	Upper Mercer	Inferred
Plate 2	Brookville	Inferred
Plate 3	Clarion	Inferred
Plate 4	Lower Kittanning	Inferred
Plate 5	Middle Kittanning	Inferred
Plate 6	Upper Kittanning	Inferred
Plate 7	Lower Freeport	Inferred
Plate 8	Upper Freeport	Inferred
Plate 9	Pittsburgh	Mined Out(Strip)
Plate 10	Redstone	Inferred
Plate 11	Sewickley	Absent
Plate 12	Waynesburg	Absent
Plate 13	Washington	Absent

If you have any questions, please contact me at 724-873-3226.

Sincerely,
Range Resources-Appalachia, LLC
Southern Marcellus Shale Division

Yvonne Plute

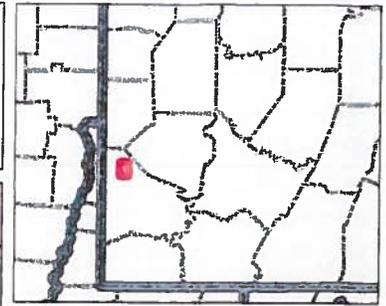
Regulatory Compliance Technician II
Enclosure



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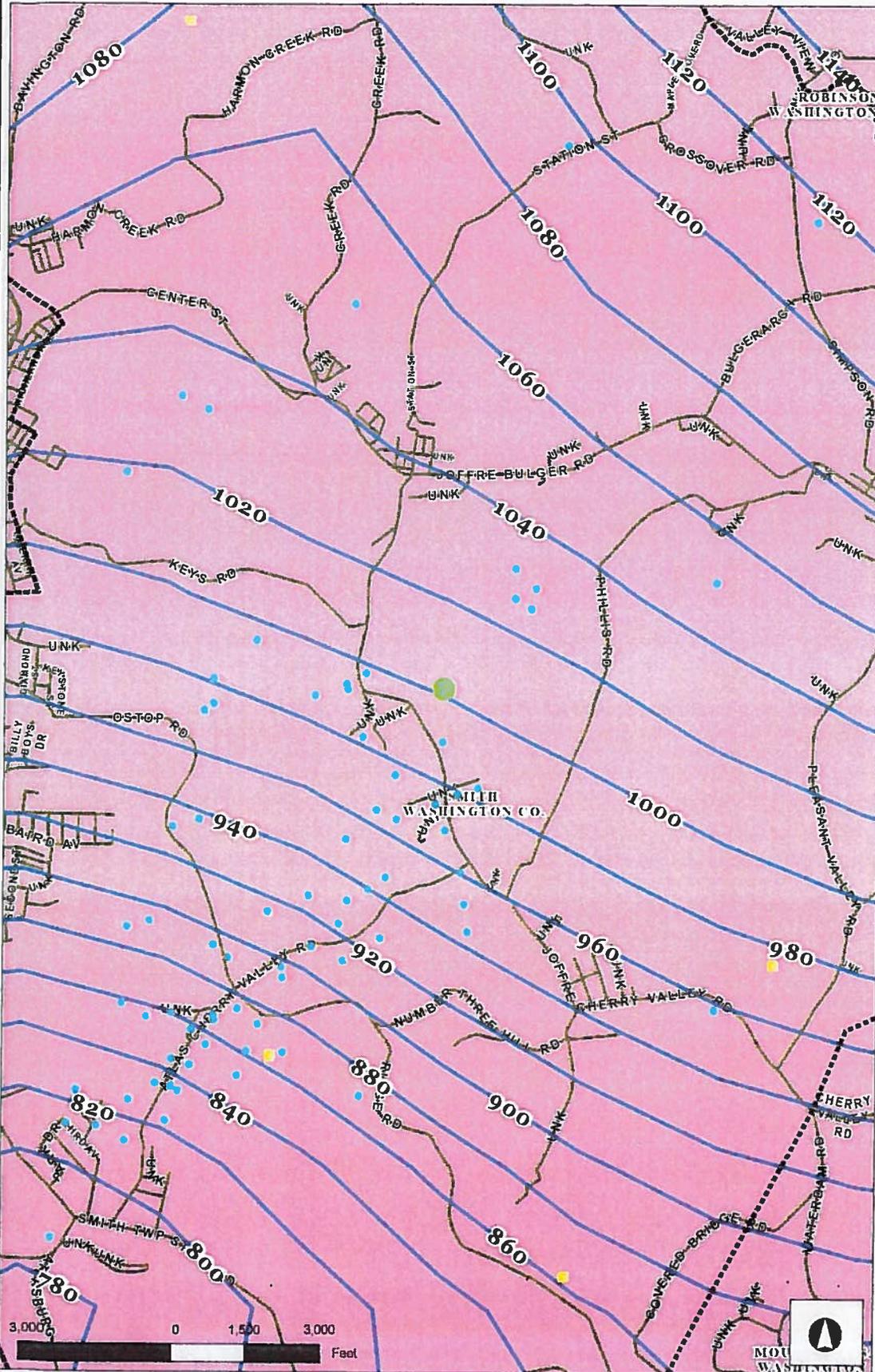
9/19/2017

Plate 1 - Upper Mercer Coal



Pad Name
SASSO,
LEONARD UNIT

- Legend**
- Well Location
 - Horizontal Surface
 - Vertical Wells
 - States
 - Counties
 - Townships
 - PGH Coal Contours
 - Roads
 - Active Coal Permit Boundary
 - DEP Mined Out Areas
 - Pink - Inferred
 - Light Red - Less than 28"
 - Dark Red - Greater than 28"
 - Black - Coal Seam Mined Out



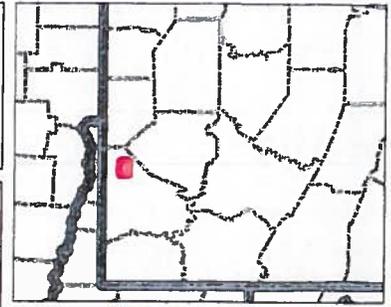
NOTE: This map compares the location of the proposed well or wells versus existing and active oil & gas wells and mined out areas per the Pennsylvania DEP (data as posted on PASDA). Mineable coal seams > 28" thick were digitized from Pennsylvania Geological Survey Publication - Mineral Resource Report #68



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Plate 3 - Clarion Coal

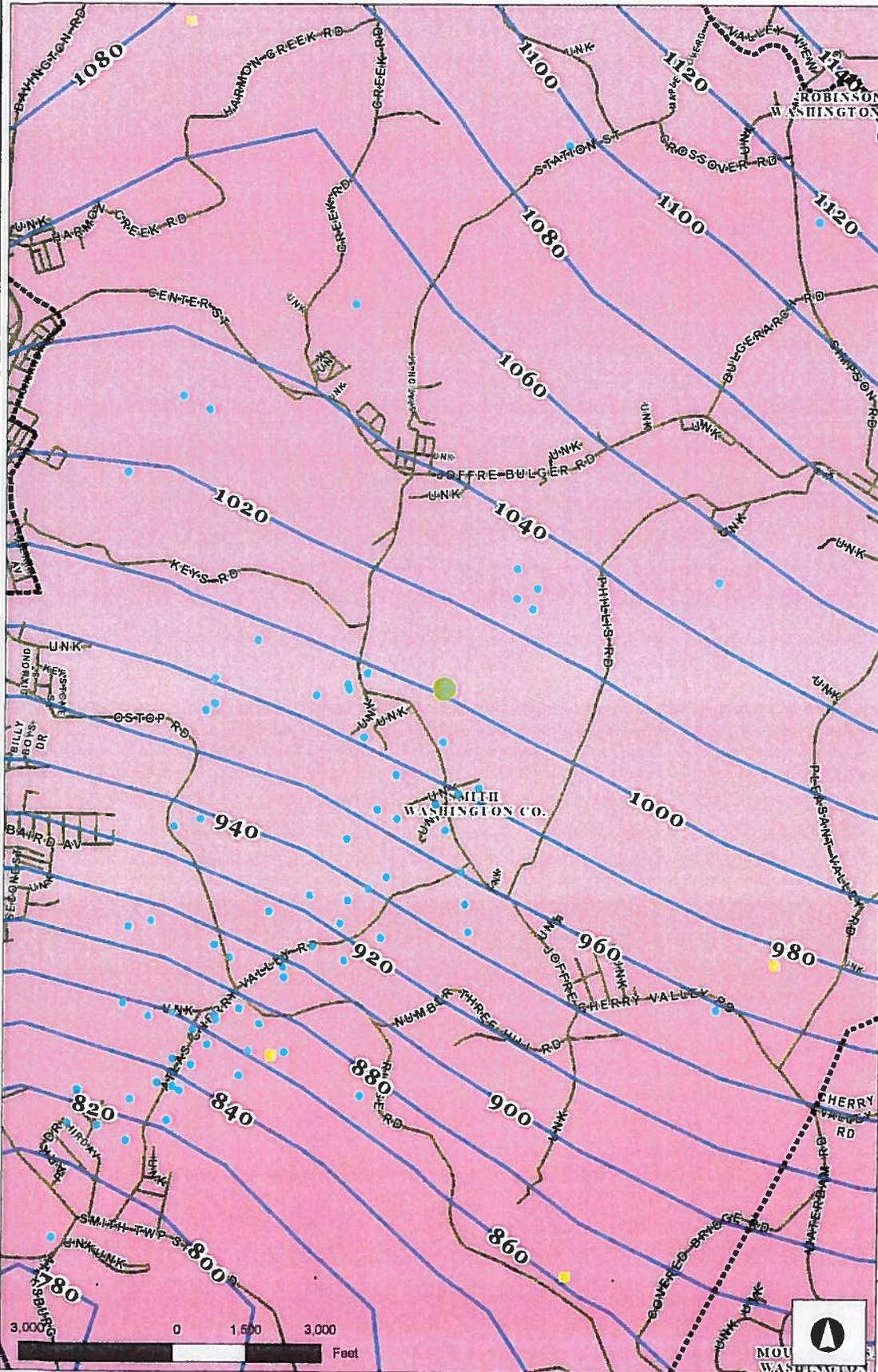


Pad Name

**SASSO,
LEONARD UNIT**

Legend

- Well Location
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- Vertical Wells
- States
- Counties
- Townships
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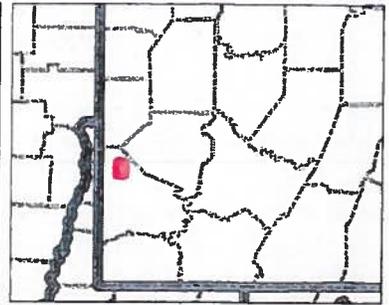
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Plate 4 - Lower Kittanning Coal

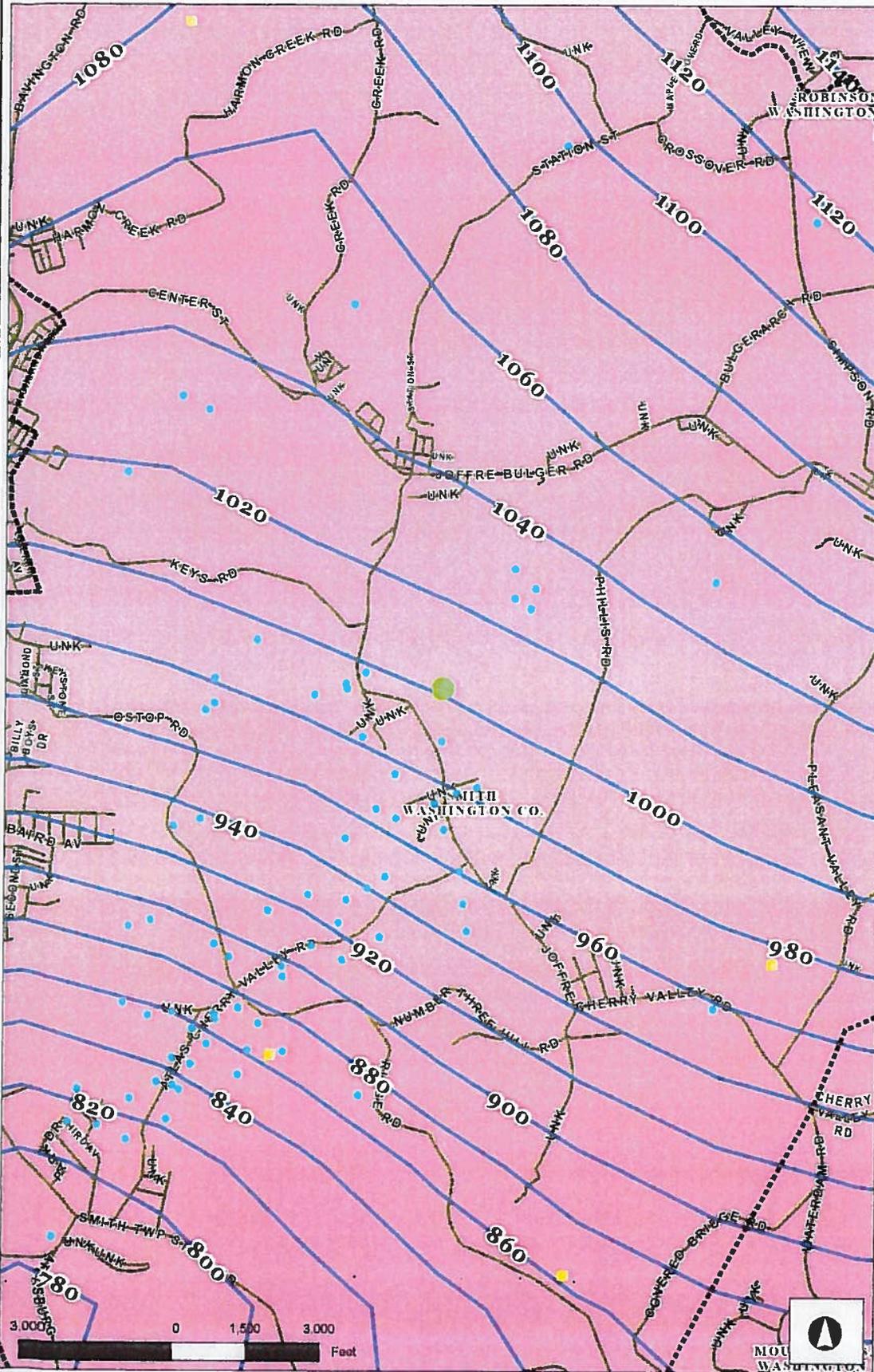


Pad Name

**SASSO,
LEONARD UNIT**

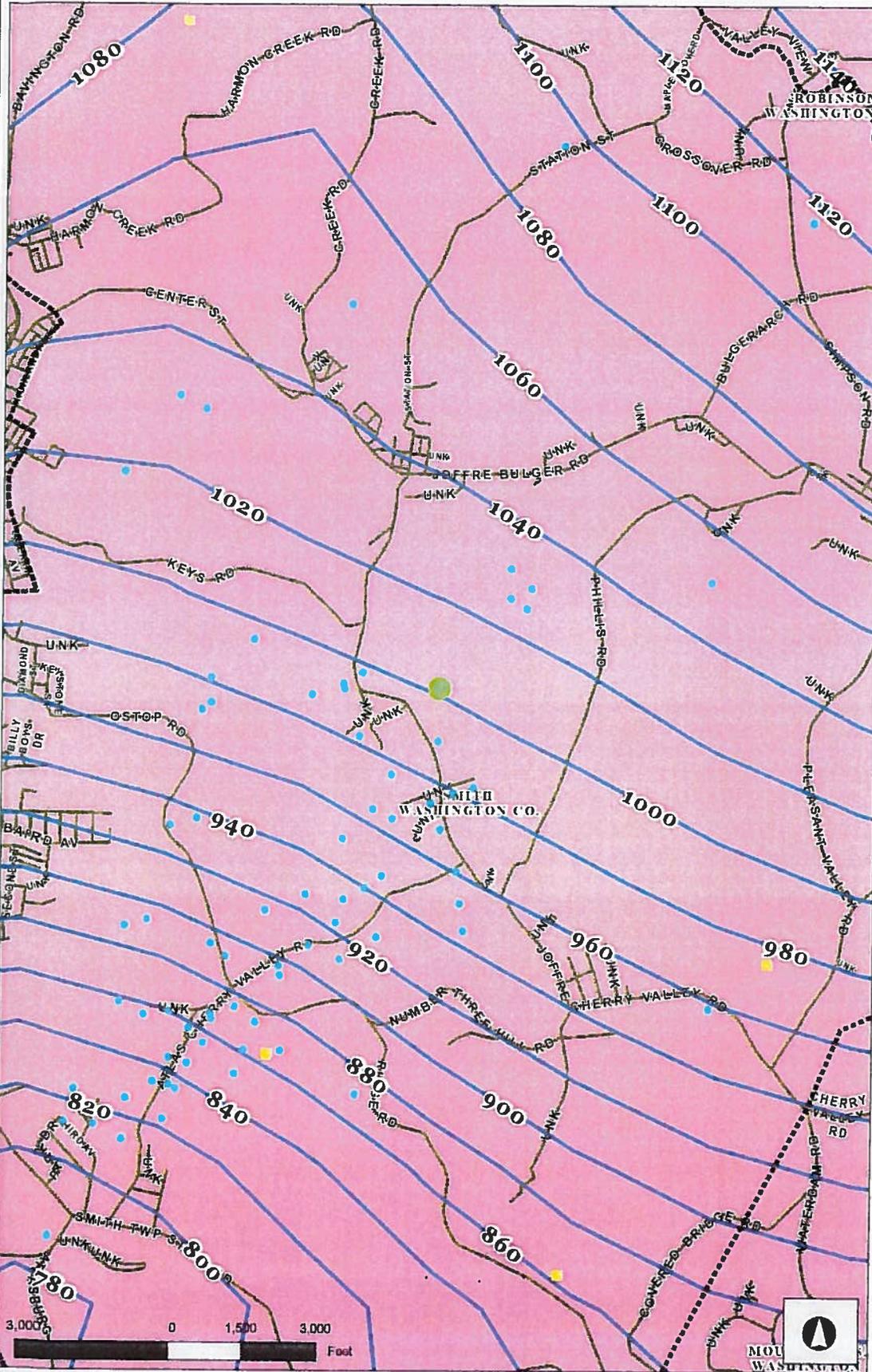
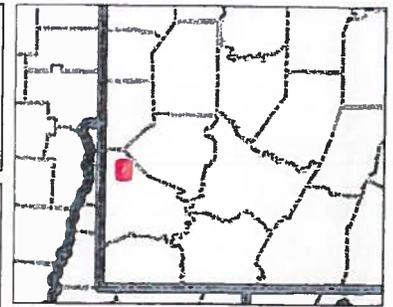
Legend

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Plate 5 - Middle Kittanning Coal



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 -  Black - Coal Seam Mined Out

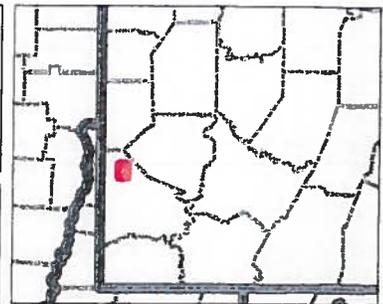
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Plate 6 - Upper Kittanning Coal

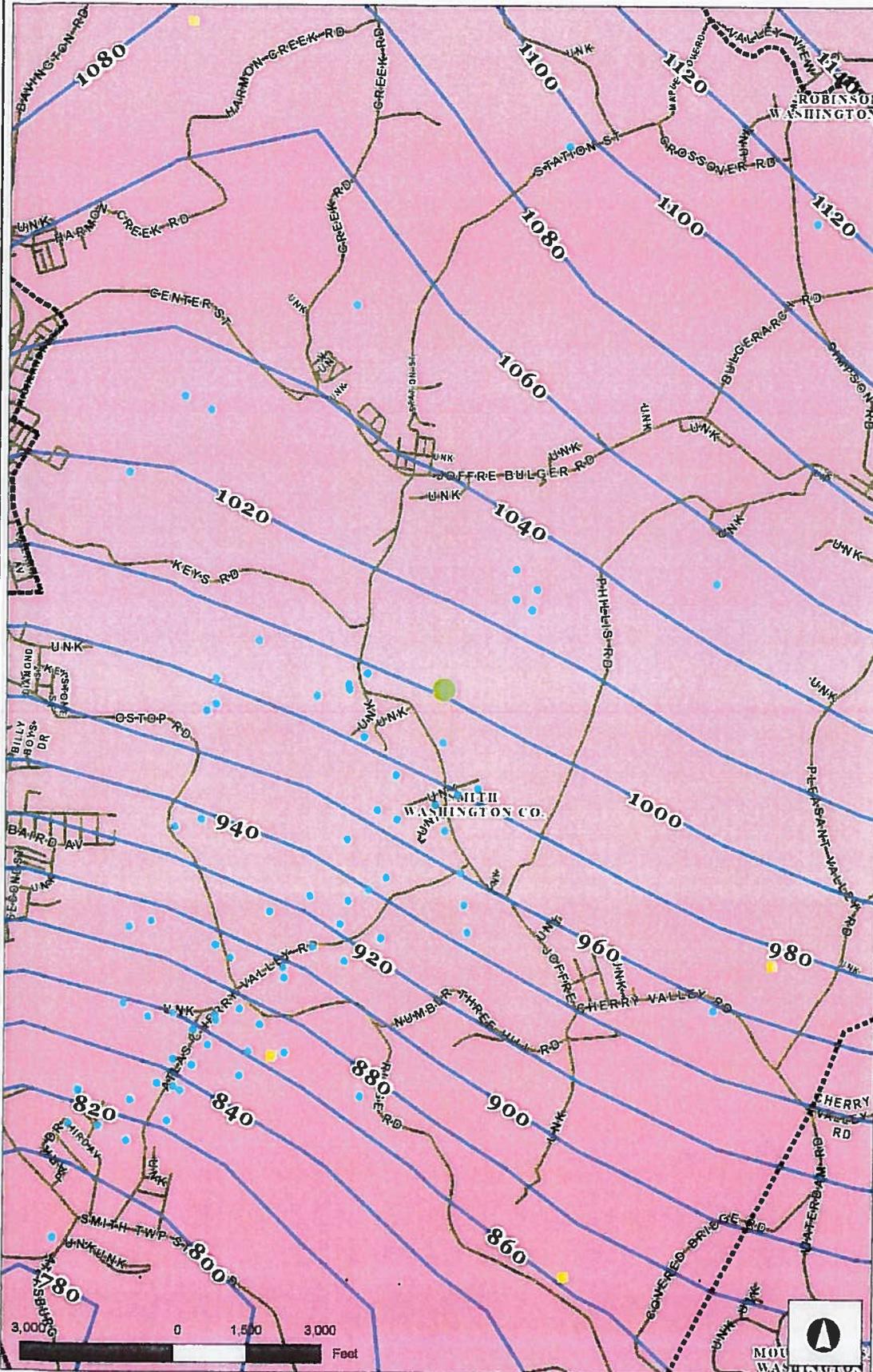


Pad Name

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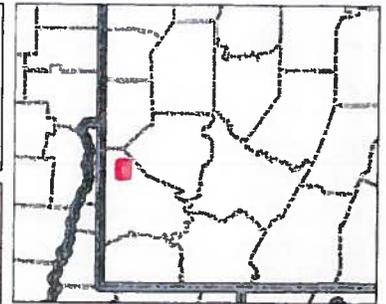
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Plate 7 - Lower Freeport Coal

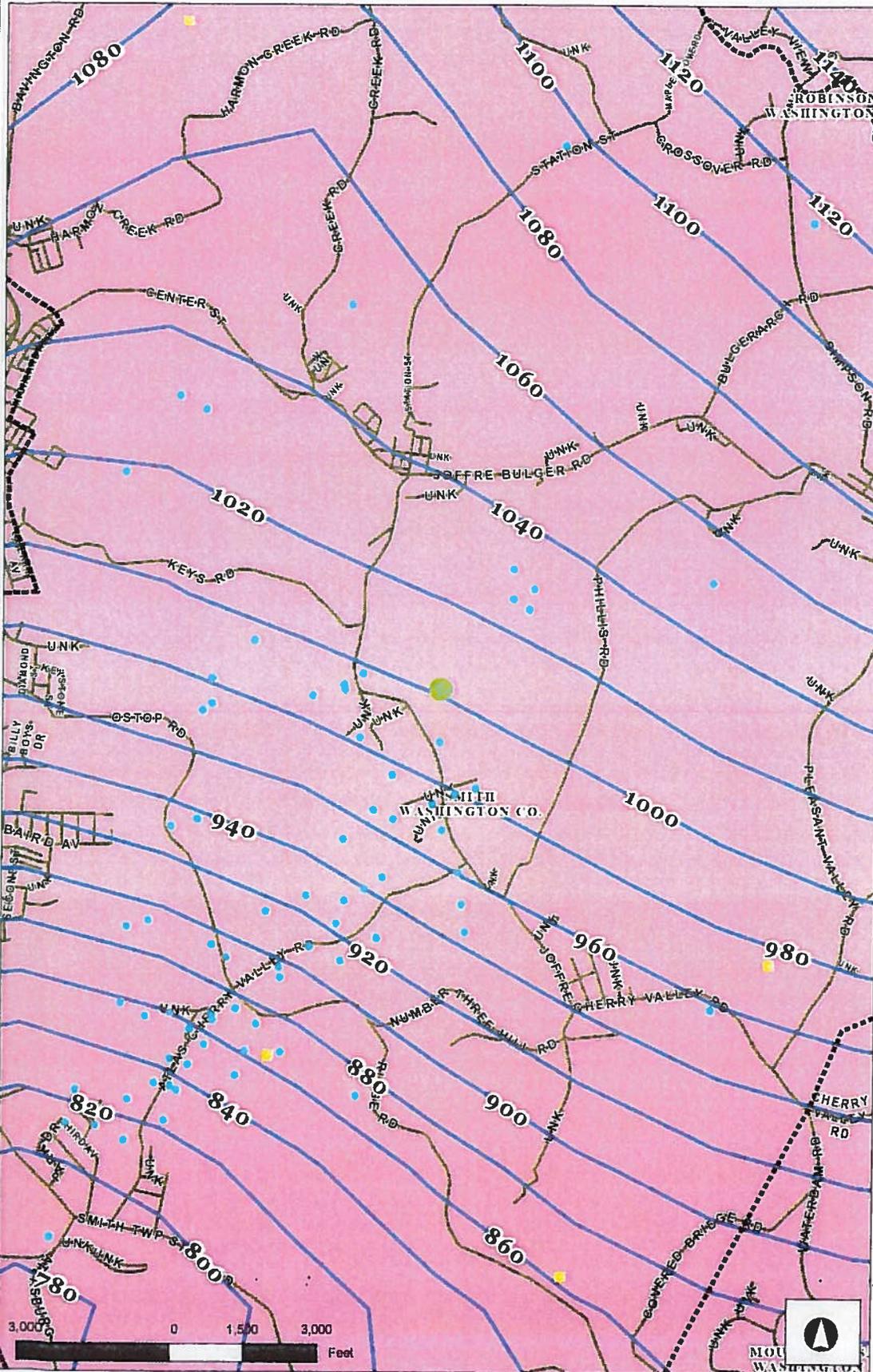


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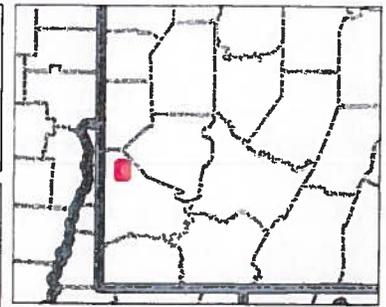
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Plate 8 - Upper Freeport Coal

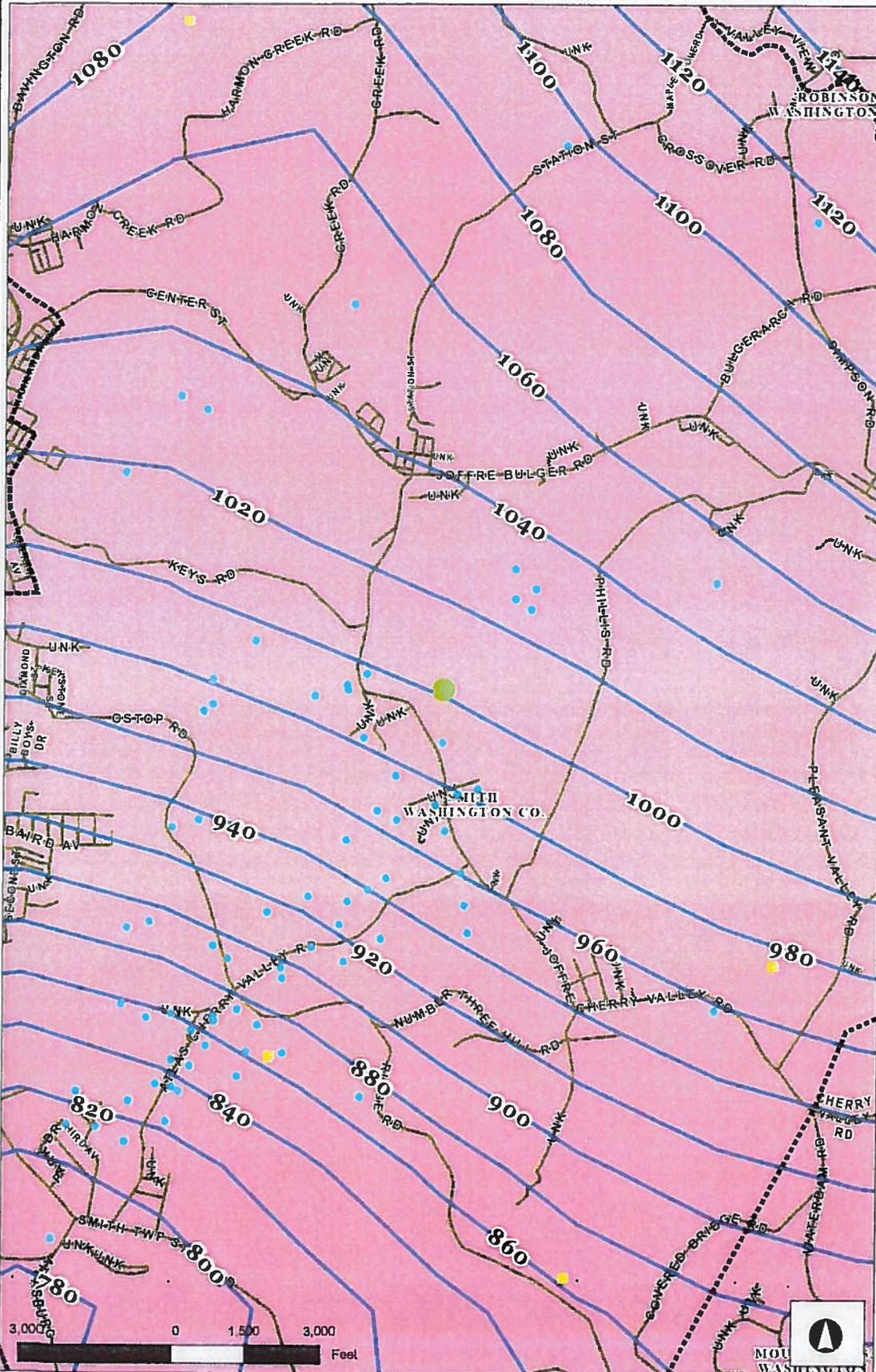


Pad Name

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LEONARD UNIT**

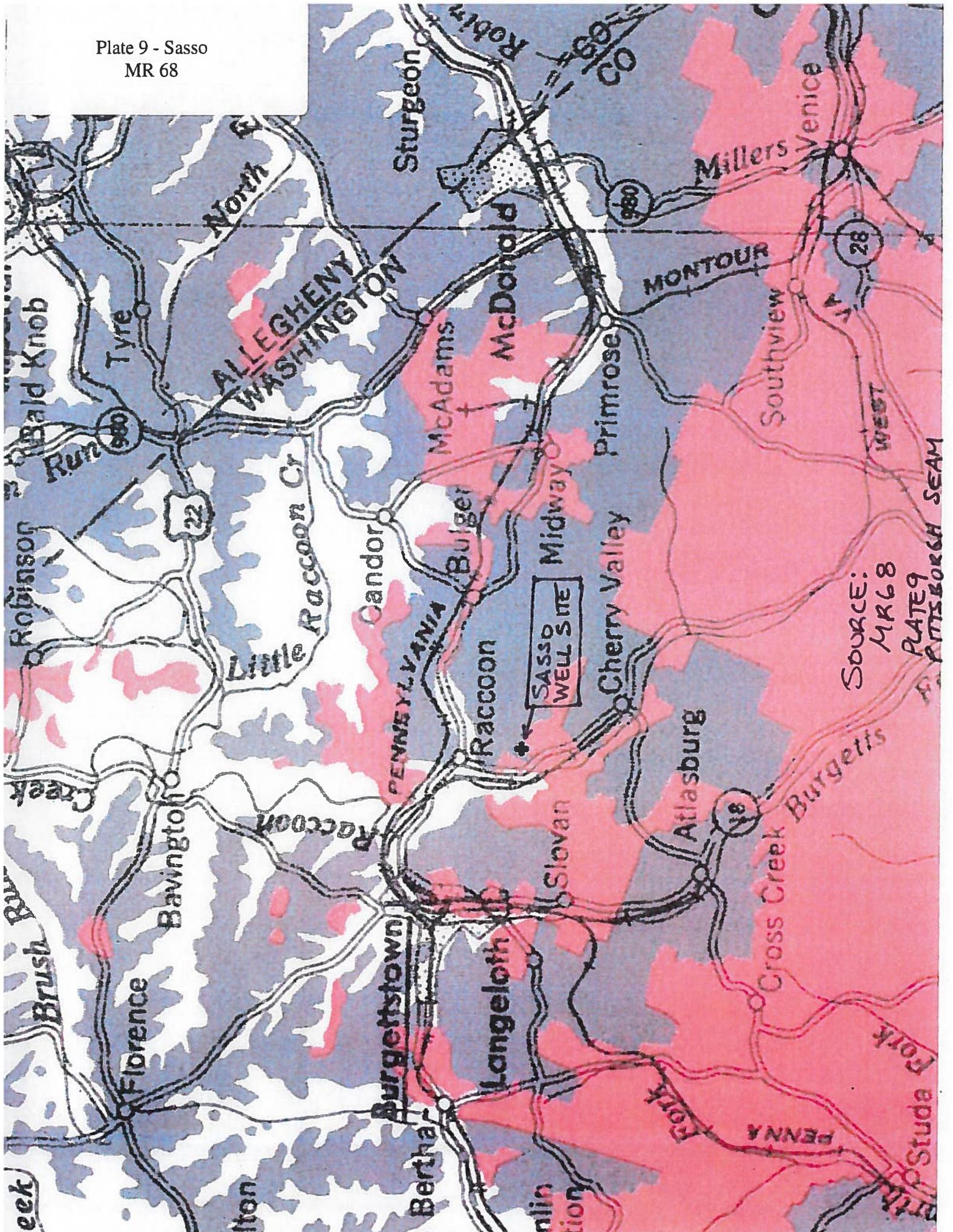
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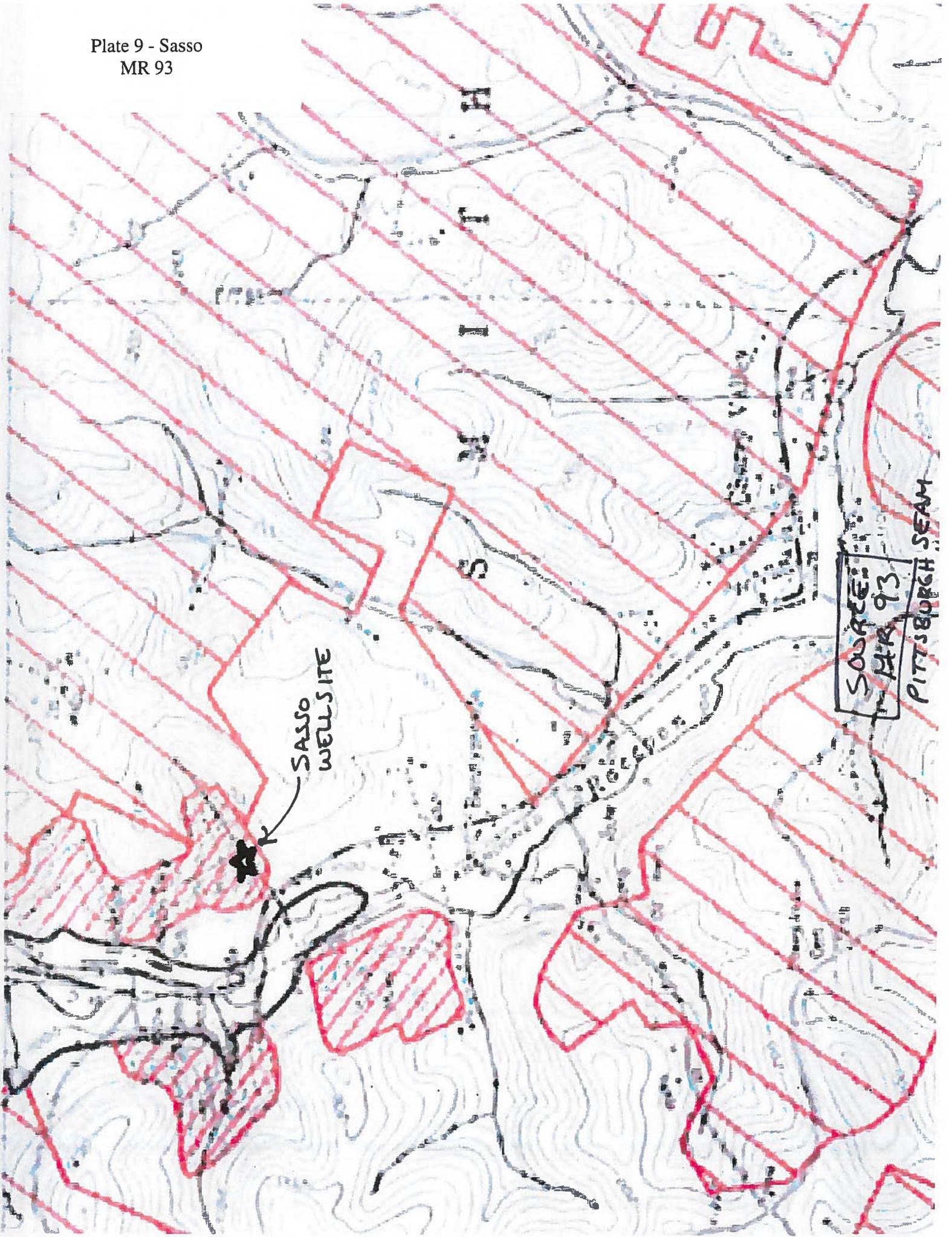
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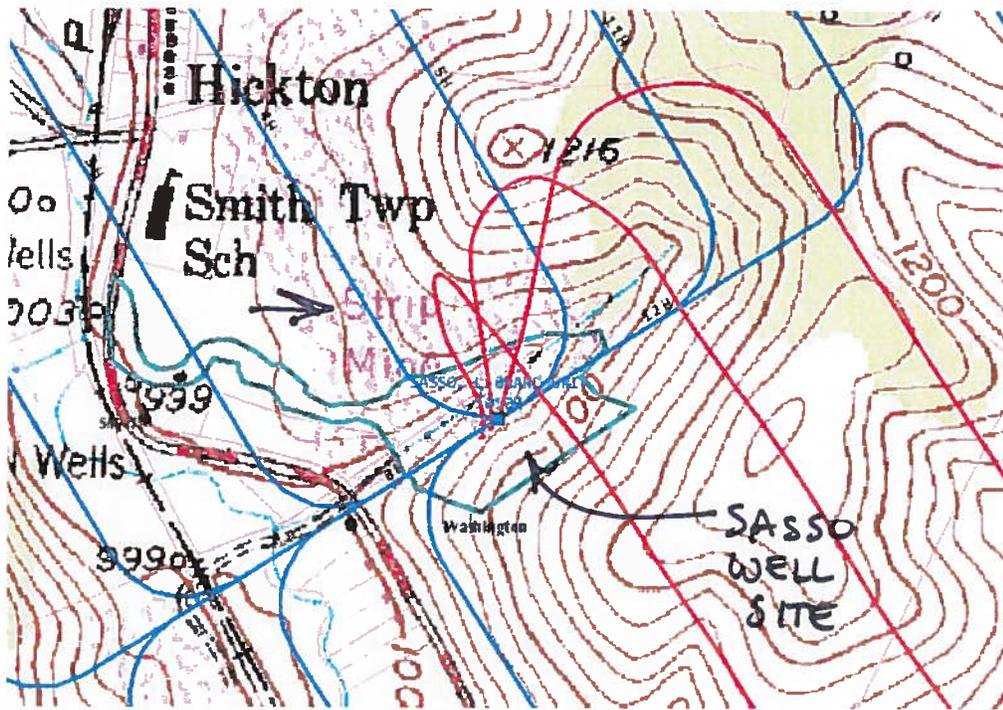
Plate 9 - Sasso
MR 68



SOURCE:
MR 68
PLATE 9
PITTSBURGH SEAM

Plate 9 - Sasso
MR 93





USGS MIDWAY QUAD

NOT TO SCALE

PITTSBURGH SEAM MINED OUT
STRIP MINE

COAL/NON-COAL DETERMINATION

ID No. 989 112 Permit Number 125-27089
 Location 2613 'S of 40 32 30
6850 'W of 80 20 00
 7.5 Topo Midway County Washington
 Surface Elevation 1066

Approved as:
 Coal Non-Coal

Geologist _____
 Date _____

COAL SEAM

- Washington Absent
- Waynesburg _____
- Sewickley _____
- Redstone _____
- Pittsburgh 603
- Upper Freeport Internal
- Lower Freeport _____
- Upper Kittanning _____
- Middle Kittanning _____
- Lower Kittanning _____
- Clarion _____
- Brookville _____
- Mercer _____
- Other _____

Comments: _____

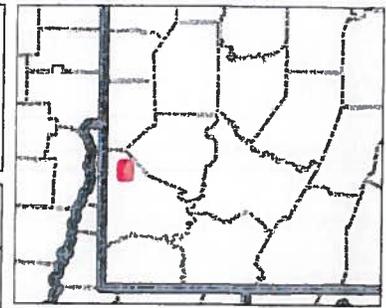
References: MR. 128



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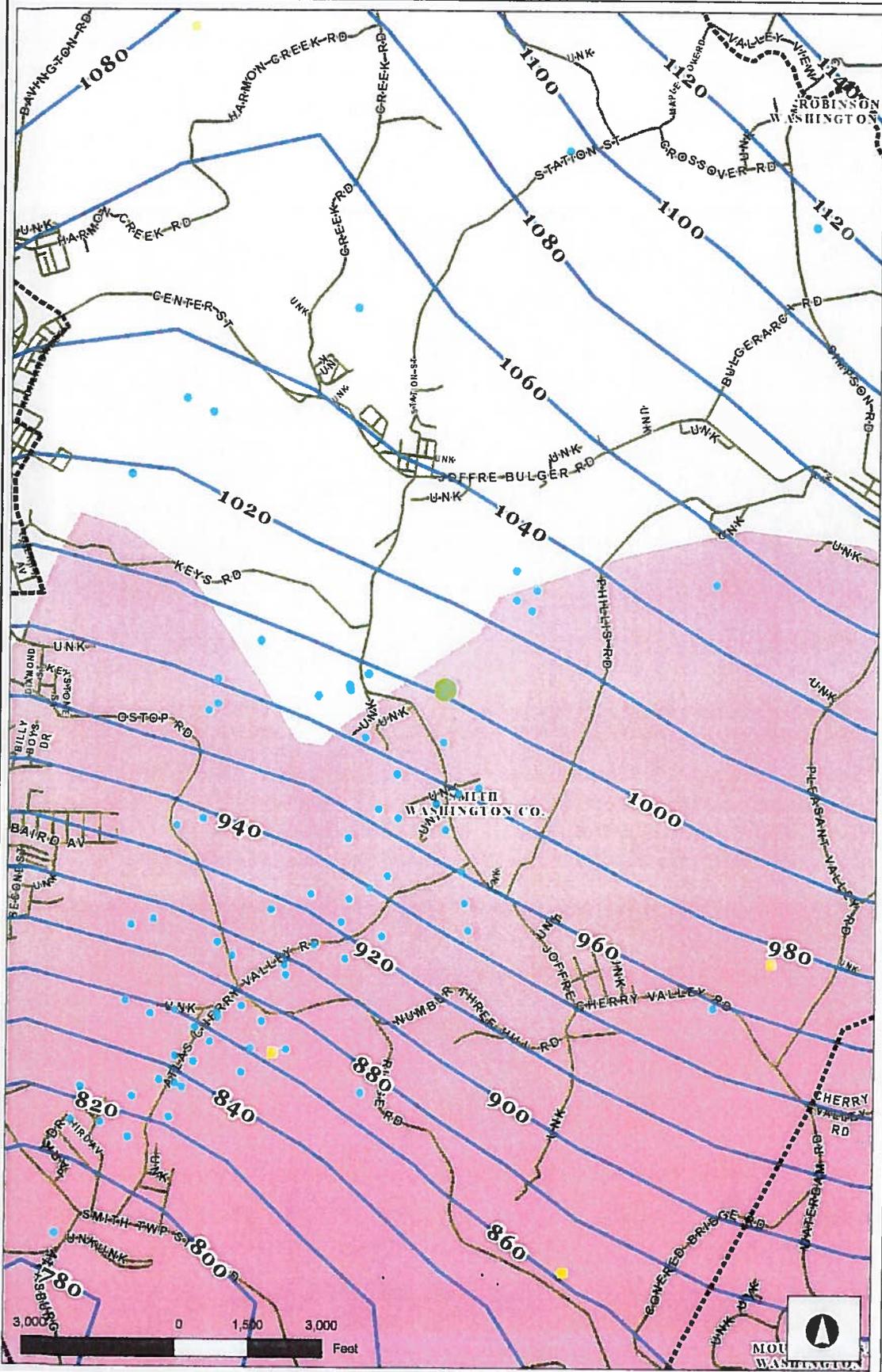
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Plate 10 - Redstone Coal



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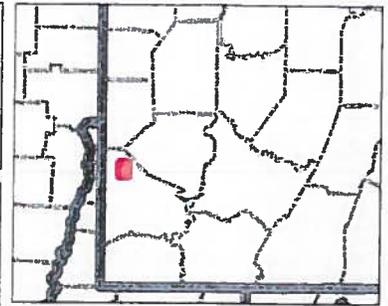
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Plate 11 - Sewickley Coal

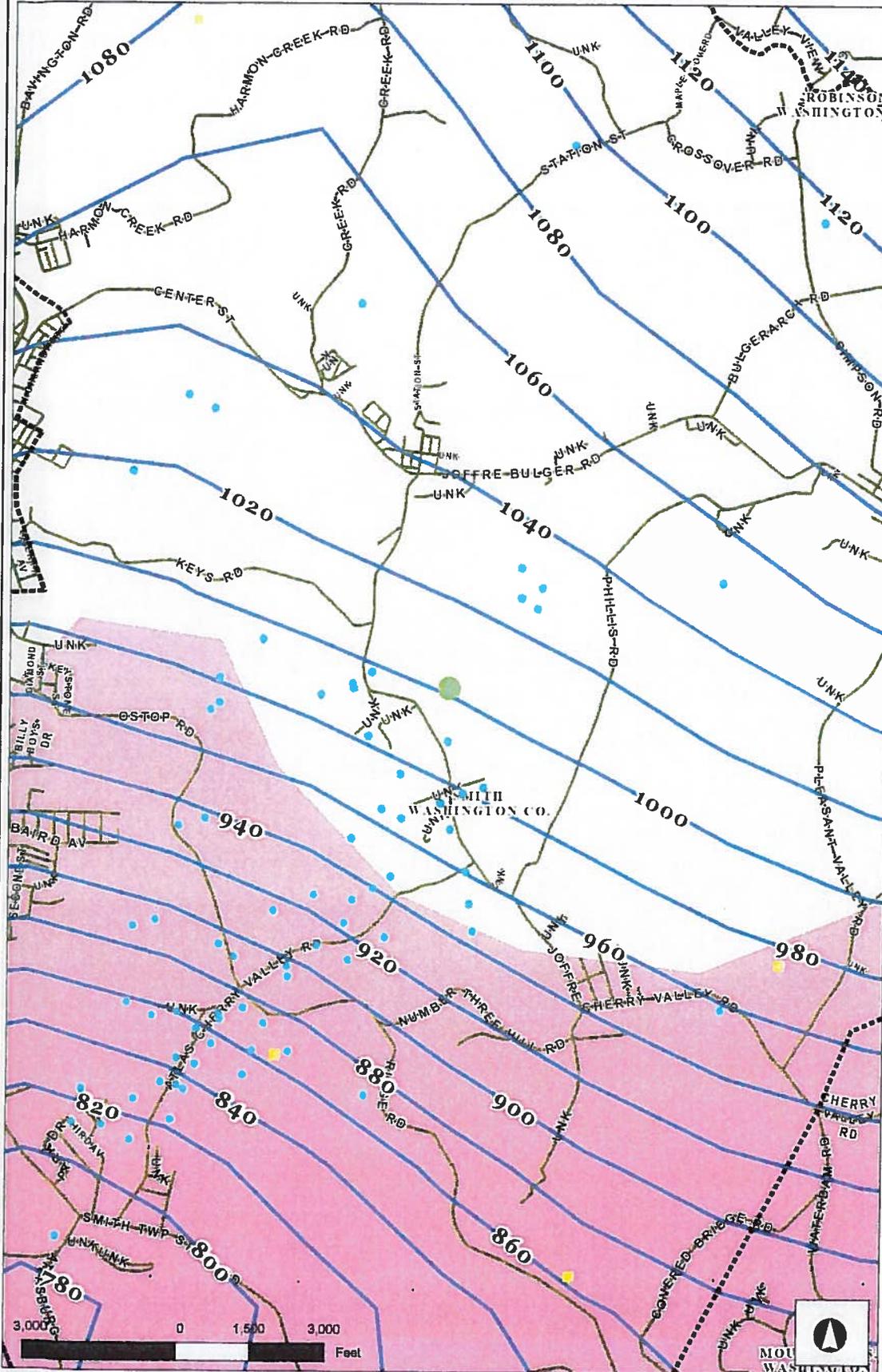


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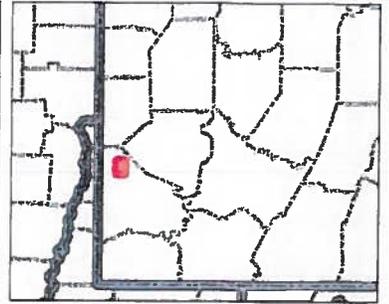
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Plate 12 - Waynesburg Coal

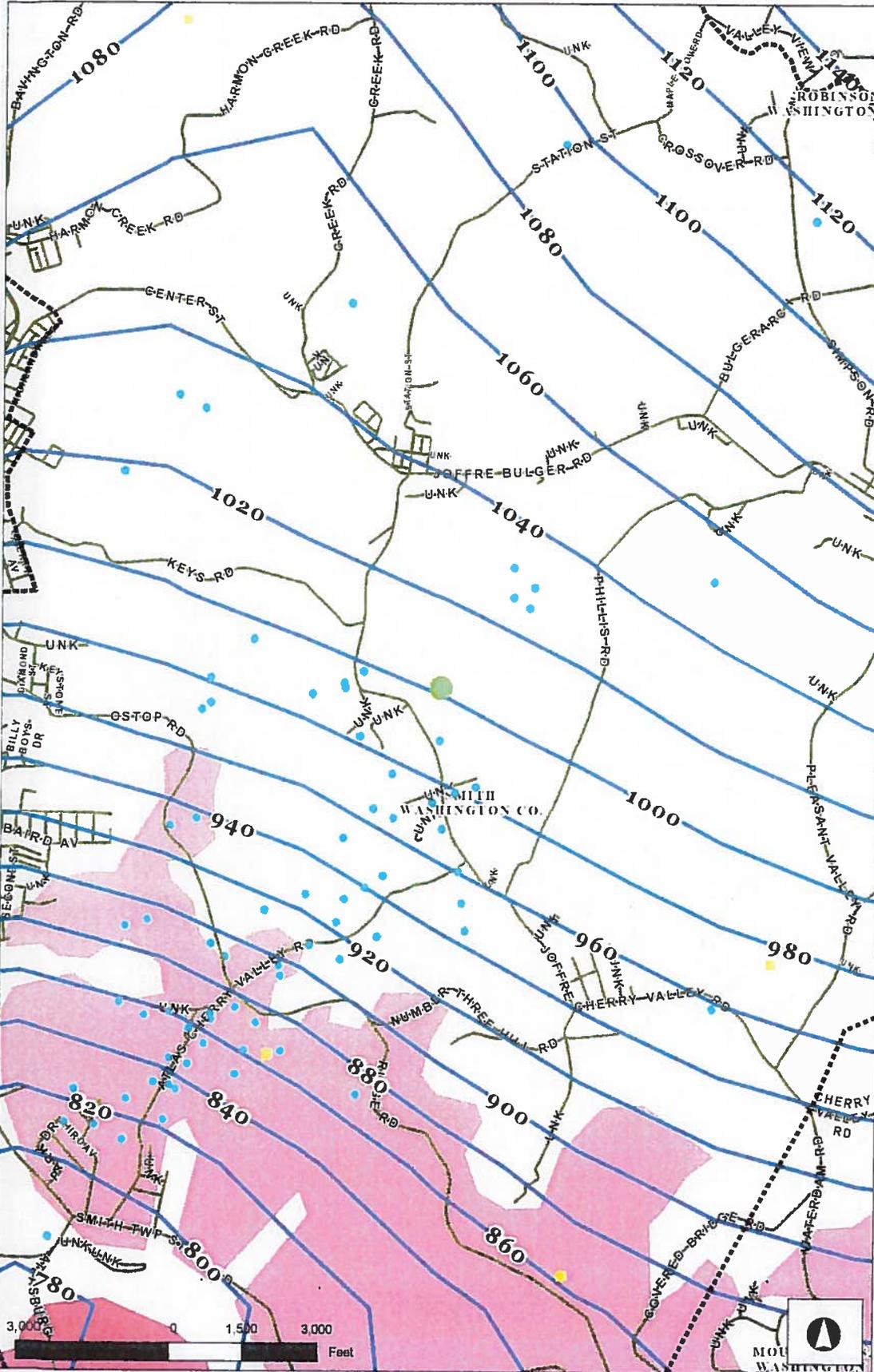


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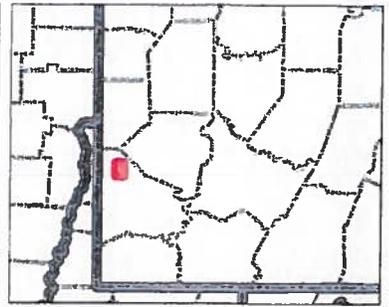
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Plate 13 - Washington Coal

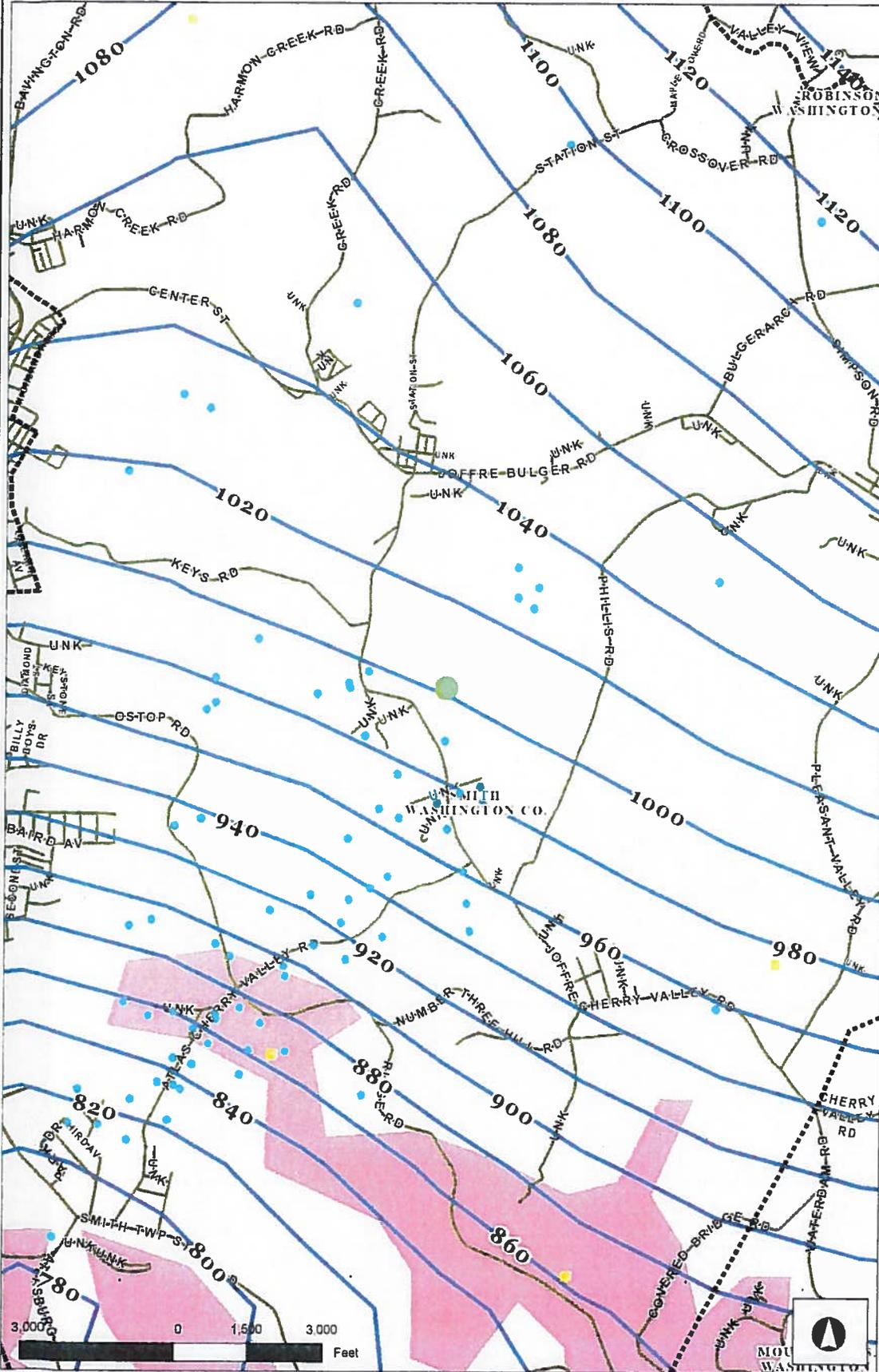


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