Residential Development in Abandoned Mine Areas

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Typical Mining Techniques

Taken from Archaeological Data Recovery Investigation prepared by Cultural Resources, Inc.
Typical Site Features

• **Pits**
  - 160 Pits
  - Diameters = 3’ to 56’ (Typically 20’)
  - Cones 1’ to 16’ deep

• **Prospecting Trenches**
  - 2 Trenches
  - Length 450’ & 750’
  - 10’ to 20’ deep

• **Subsidence Area**
  - 300’ Long
  - 20’ to 25’ Below Ground Surface
Prospecting Trenches
Subsidence Area
The Investigation

• **Geotechnical Borings**
  – House Locations
  – 50 feet deep
  – 4 borings each lot

• **Air Track Borings**
  – 63 features
  – Bottom of features
  – 5 to 8 borings each
The Investigation

- Resistivity Surveys
  - Across Features
  - Across Borings
  - 9 Lines; 8,500 feet
  - Depth 80-100 feet
The Investigation
The Investigation

Air Track Boring

Resistivity Line

Geotechnical Boring

290
10.5'RAD

291
10'RAD

11.5'RAD

16.5'RAD

PIT SITE 7A

250.5x

252.8

X Resistiv
Investigation

- **Geotechnical**
  - 228 Borings Drilled
  - 4 Borings per Lot
  - 50 to 75 Feet Deep

- **Mine Features**
  - 344 Air Track Borings
  - 5 to 9 Borings per Feature
  - 70 to 125 Feet Deep

- **Resistivity Surveys**
  - 9 Lines
  - 80 to 114 Feet Deep
Findings

• Geotechnical
  – 228 Borings Drilled
  – 4 Borings per Lot
  – 50 to 75 Feet Deep

• Mine Features
  – 344 Air Track Borings
  – 5 to 9 Borings per Feature
  – 70 to 125 Feet Deep

• Resistivity Surveys
  – 9 Lines
  – 80 to 114 Feet Deep

• Pits
  – 61 Pits Drilled
  – 11 Pits with Voids

• Mines
  – 4 Horizontal Shafts
    • 20 to 70 feet deep
    • 6 to 8 feet high
    • Up to 300 feet long
    • North - South Alignment
Findings

Horizontal Shaft 27.5 - 33.0 feet
Findings

• Geotechnical Borings
  – 228 Borings Drilled
  – Tunnels at 2 House Locations
  – Depth of Borings Restrictive
  – Clear Definition of Coal Depth

• Air Track Borings
  – 344 Air Track Borings
  – Tunnels at 2 Locations
  – Lack of Clear Strata Definition
  – High Productivity

• Resistivity Surveys
  – 8,500 Feet of Survey
  – Tunnel at 1 Location
  – Good Correlation with Mine Features
  – Expanded Coverage Over Borings
Remediation

• Considerations
  – Safety
  – Structural
  – Aesthetics
  – Value

• Options
  – Filling
    • Grout
    • Stone
  – Capping
  – Compaction