

PROJECT PROFILE

FOUNDATION STUDY FOR SCHOOL LOCATED OVER ABANDONED COAL MINE

D'Appolonia was retained by the Burgettstown Area School District to perform a geotechnical exploration for the design and construction of a major addition to the Burgettstown Middle School/High School building. Our exploration program and preliminary evaluations included review of documents related to previous backfilling of abandoned coal mine workings located 60 to 70 feet below the site; review of construction plans for the existing building; surficial reconnaissance of the site; exploratory drilling and laboratory testing of soil, rock and ground water samples collected; and analysis/evaluation of the collected records and data. The location of the mine workings relative to the existing and planned new building construction are shown below.

Although available records suggested that the mine workings beneath the site were completely backfilled in the mid-1980s, D'Appolonia's test borings indi-

cated that mine workings were only partially filled and that the material used for backfilling provided little or no support to the mine roof.

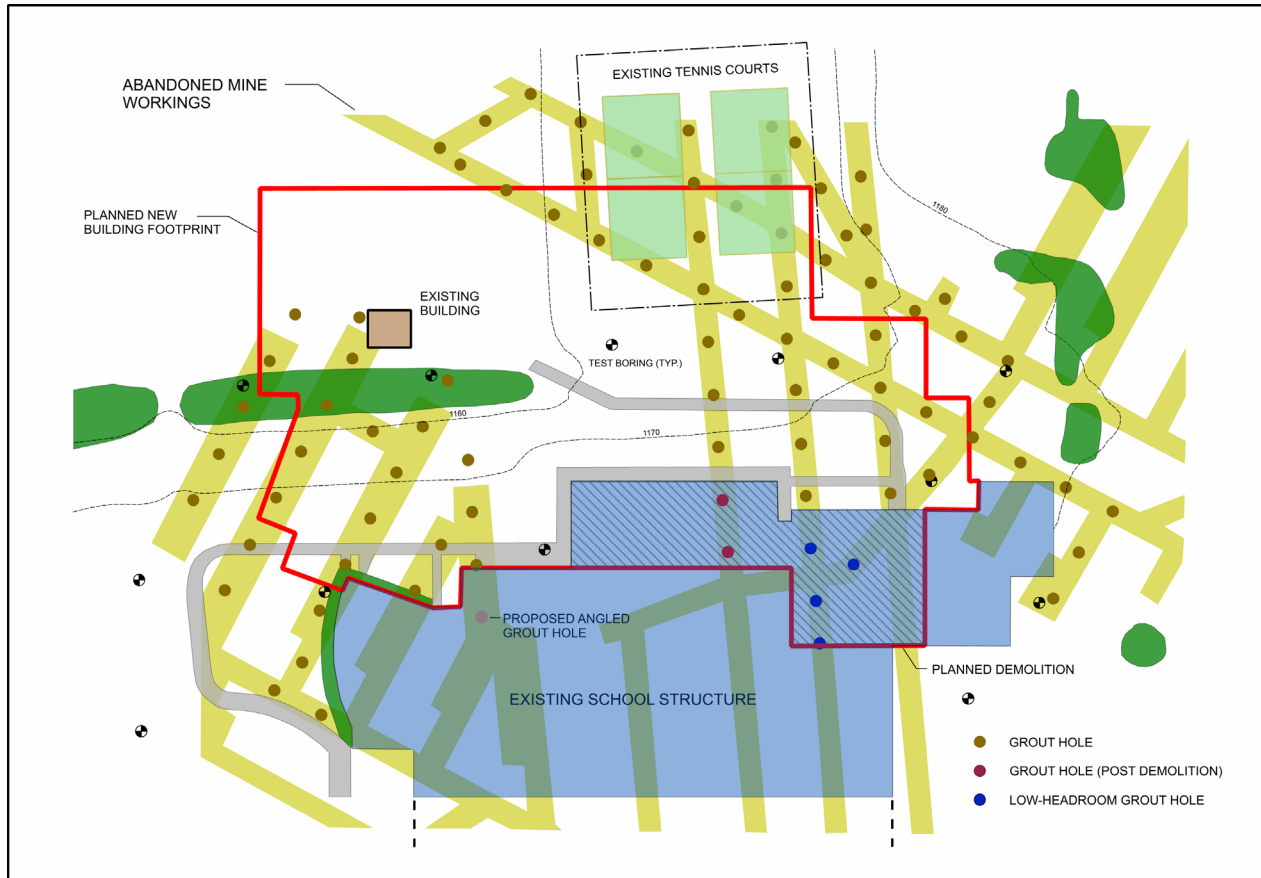
Options considered included: (1) mine void grouting to improve support of the mine roof and (2) deep foundations extended through the mine workings to isolate the structure from subsidence-related rock movements.

Construction of deep foundations at the site would have entailed support of the new structure on grade beams and extensive use of structural floor slabs,



Burgettstown Middle/High School prior to new construction.

which would have resulted in a substantial increase in construction cost over grouting of the mine voids and construction on shallow foundations. For this reason, grouting of the mine workings in the area of planned construction was recommended.



D'Appolonia subsequently prepared plans and specifications for construction of low-mobility grout columns in the mine (as shown) to permit building construction on shallow foundations. We also provided construction monitoring and management services during implementation of the grouting program, as well as during site grading and foundation construction.

Plan view of school site showing location of mine shafts with respect to planned addition.