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Locating Subsurface Gravel with Thermal Imagery

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This paper discusses a method for using 6 band thermal imagery to locate subsurface gravel deposits in vegetated areas. Geologic history is reviewed to select potential areas of study. An overflight is made using a thermal scanner. The data is processed with a computerized system to delineate areas showing a quartz signature radiated by a gravel deposit.

The method was developed during a search for gravel on National Forest land in Louisiana. Processed data from thermal imagery was compared with known gravel deposits and exploratory drill hole logs. A high correlation was noted for a wide range of deposits, from commercial pits to trace deposits only a foot thick. Overburden at these sites varied from zero to sixty feet, near the maximum annual penetration by the thermal wave. It was concluded that the method can be used to locate buried gravel deposits and that more time and effort are needed to verify the usefulness for developing gravel pits adjacent to proposed construction sites.