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## Geotechnical/ Stormwater Management

**Customer:** Carroll County  
**Location:** Carroll County, MD



### Description:

Hydro-Terra Group (HTG) was selected to support the conceptual design process for stormwater management facilities by providing accurate geotechnical data for sites in the Westminster area using our in-house cone penetrometer testing (CPT) equipment. Carroll County Bureau of Resource Management (CCBRM) plans various new and retrofitted stormwater management facilities as well as karst mitigation strategies in Carroll County. An added impetus has been the Watershed Implementation Plan to address total Maximum Daily Loads (TMDLs) in the Chesapeake Bay watershed and new Municipal Separate Storm Sewer System (MS4) permit requirements.

HTG's CPT provided a rapid and cost-effective method of collecting continuous geotechnical data including soil type, depth-to-rock, depth of saturation – perched zones and groundwater table, standard penetration tests, and permeability estimates. HTG used Macro-coring to obtain continuous soil cores that were later used to verify the CPT data with visual and physical observations. Additionally, HTG provided rapid, quantitative grain size analyses of selected cores. CPT provided an estimated four times more daily data than conventional soil borings.

### Project Highlights:

- ✓ Coordinate legal and physical site access and utility clearances.
- ✓ Rapidly mobilize to local sites in Carroll County and provide brush cutting and minor grading where necessary.
- ✓ Conduct on-site CPT under CCBRM direction, completing 3 to 15 soundings per day.
- ✓ Provide interpretive CPT logs showing tip and sleeve resistance, water/ pore pressure, soil types and standard penetration values.
- ✓ Use Macro-cores to verify CPT soil typing and complete grain size analyses of selected soil core zones.



*CPT On-Site*



*HTG Real-time Data*