

South Hartford Conveyance and Storage Tunnel

Client:

AECOM

Location:

Hartford, CT

Services Provided:

Soil and rock testing.

Value Provided:

- Quick turnaround testing as each phase of the field boring program was completed
- Complete capabilities therefore all testing performed in one laboratory

Background & Project Challenges

The South Hartford Conveyance Tunnel is one of North America's largest wastewater storage and conveyance projects. The South Hartford tunnel will include construction of an 18-ft finished (lined) diameter tunnel 21,800-ft in length in deep rock. Currently nearly half of Hartford's 217 miles of sewer pipes are combined sewers. During storm events the system is overwhelmed and spills occur and sewage is released to the environment. The South Hartford Conveyance Tunnel is being designed to reduce or eliminate combined sewer overflows (CSOs) to local water bodies.



GeoTesting Role & Accomplishments

GTX provided expert soil and rock testing for the design phase of the tunnel. Careful handling was required in the preparation of test specimens to prevent breakage of fragile bedded rock. GTX transported Shelby tube samples from the client's core shed directly to our lab to minimize soil disturbance.

Soil tests performed:

- ASTM D2216 Moisture Content
- ASTM D2435 Incremental Consolidation
- ASTM D2850 UU Triaxial
- ASTM D422 Grain Size Analysis
- ASTM D4318 Atterberg Limits
- ASTM D4452 X-Ray of Shelby Tubes - Digital Imaging
- ASTM D854 Specific Gravity
- ASTM D4648 Laboratory Vane Shear
- ASTM D4767 CU Triaxial Shear with Pore Pressure Measurements
- ASTM D7181 CD Triaxial

Rock tests performed:

- ASTM D3967 - Splitting Tensile Test (Brazilian)
- ASTM D4644 - Slake Durability
- ASTM D5607 - Sliding Friction of Rock by Direct Shear
- ASTM D7012C- Uniaxial Compressive Strength of Rock
- ASTM D7012D- Elastic Moduli of Rock in Uniaxial Compression
- ASTM D7625 -CERCHAR Abrasivity Index (CAI)
- ISRM - Unit Weight, Porosity and Specific Gravity of Rock
- NTNU 13A-98 - Drillability Test Suite [Drilling Rate Index, Bit Wear Index, Cutter Wear Index, Brittleness Value (S20), Sievers' J-Value (SJ)]
- Abrasion Value (AV), Abrasion Value Cutter Steel (AVS)
- Moh's Hardness
- Punch Penetration of Rock (Handwith method)

For More Information Contact:

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