



Glossary of Commonly Used Construction Terms

Adit A horizontal or nearly horizontal entrance to a tunnel or mine (as opposed to a vertical shaft).

Anchors/Rock Anchors Rock anchors resist forces by means of corrosion protected steel bars embedded into bedrock. Geotechnical structures need anchors to counteract the uplift and other forces acting on foundations.

Ancillary building Buildings used for equipment storage or support machinery.

Backfill The dirt and sand used to fill in a street around underground utilities and below the concrete base.

Building line The edge of a building, excluding the sidewalk.

Bulkhead A fixed structure used to divide two compartments. These structures can be found in ventilation tunnels or within the head of a TBM to separate the working chamber or cutting head from the rest of the machine.

Bump out Location where a sidewalk is widened into a street's parking lane.

Catch basin An underground receptacle with a surface grating for street drainage that connects to the sewer system.

Concrete segmental lining Pre-cast concrete segments that line the tunnel walls.

Controlled blasting A specialized construction technique used to excavate rock. Numerous small holes are drilled into the rock and small explosive charges are placed into the holes. The charges are detonated in a delayed sequence that precisely

breaks the rock and minimizes unwanted vibration and noise effects.

Conveyor A continuously traveling belt used in tunneling to remove excavated material from the shaft.

Core drilling A cylindrical sample of earth mineral or rock extracted from the ground by means of a coring device so that the strata are undisturbed in the sample.

Crawler crane A self-propelled crane mounted on two endless tracks that revolve around wheels.

Cut and cover tunnel A method of tunnel construction involving excavating a trench, installing the structure and covering it over, as opposed to a mined tunnel.

Cutterhead The head at the front of a tunnel boring machine used for cutting through rock.

Dewatering The removal of groundwater by pumping so as to artificially depress the water table and avoid the difficulties associated with construction below the water table.

Duct A small pipe through which electrical, telecommunications, and other smaller underground utility lines run; also known as a "conduit."

Drill and blast The excavation of a tunnel, shaft, or cavern in rock using explosive charges placed in holes drilled into the face.

Dust Boss A moveable, high-pressured misting system used to suppress dust inside the mining cavern and on the surface level.





Easement The legal right to use a portion of another owner's property. For example, an underground tunnel easement would give the permanent right for a subway tunnel to pass below private property.

ECS Empire City Subway Company is a wholly owned subsidiary of Verizon that specializes in subsurface engineering and construction services.

EIS Environmental Impact Statement.

Formwork The term given to either temporary or permanent molds into which concrete or similar materials are poured.

Grade Surface elevation; e.g., the subway is below grade.

Groundwater The water contained beneath the surface in soils and rock.

Guide walls Concrete guide walls are constructed in a shallow trench so that the deep vertical trenches for larger wall structures/foundations may be excavated. After the formwork for the guide walls has been erected and the concrete placed, the cavities outside the guide walls are filled with earth and timber shores are wedged between the walls.

Hog house A facility located at a construction site where workers can shower and wash.

Jersey barrier A solid-concrete, freestanding barricade; typically ten feet.

Jet grout A soil stabilization technique that involves drilling pilot holes, and then injecting under pressure a mixture of cement, water, and air into the soil via injection rods inserted into the pilot holes. As the rods are withdrawn, they are rotated, resulting in a series of columns consisting of a soil and cement grout mixture hardened to a strength suitable to stabilize the soil, thereby allowing construction to occur underneath.

Launch Box An excavated cavern providing access for the TBM to mine the future tunnels of the subway.

Mined excavation A method of constructing tunnels or other underground spaces from below the surface. Unlike cut-and-cover construction, the ground surface is not disturbed with this technique. The mining may be accomplished in a number of ways including drilling with controlled blasting, tunnel boring machines, and other methods of rock/soil excavation.

Mobile source Vehicular sources of air pollution, such as automobiles, trucks, and buses.

Mode The form of travel (e.g., walking, automobile, bus, train).

Maintenance and Protection of Traffic (MPT) Plan A plan for the various signs, markings, devices, and detours that are required to allow traffic, both vehicular and pedestrian, through a construction site.

Peak hour The hour during the morning and evening when the greatest number of people travel to work. The morning peak hour in Manhattan is typically 8 to 9AM and the evening peak hour is 5 to 6 PM.

Pile A heavy beam of timber, concrete, or steel, driven into the earth as a foundation.

Plate A sheet of steel used to cover construction trenches and pits to allow traffic to flow when construction is not happening.

Ponding The collection of water at a low point of a paved surface.

Receptor site A location chosen for analysis of air quality or noise. A receptor site is near, but not at, the source of air pollution or noise being analyzed.

Rebar Refers to steel rods, which are put in footings and grade beams in a concrete foundation.

Right-of-way A corridor of land acquired by reservation, dedication, prescription, or condemnation, and intended to be utilized as a road, rail line, utility service, buffer, or similar use.

Rock bolt A long bolt for stabilizing rock excavations by transferring loads from the exterior into the stronger, interior rock mass. Often used with mesh and shotcrete.

Secant pile wall A method of constructing a concrete wall in weak soil by means of a continuous row of concrete-filled boreholes.

Sidewalk shed A structure built over the sidewalk and around the exterior of a building, while work is occurring on the building, to protect pedestrians from falling debris; also called a “sidewalk bridge”.

Shoring A general term used in construction to describe the process of supporting a structure in order to prevent collapse so that construction can proceed. The phrase can also be used as a noun to refer to the materials used in the process.

Shotcrete A commonly used term for concrete sprayed through a hose and projected at high velocity to cover a surface.

Slurry A clay-like semi-solid pumped into a trench to form a slurry wall. The slurry is then displaced by concrete pumped into the trench. Slurry permits only minimal transmission of water and is used to isolate an area from the surrounding groundwater regime and reduce the rate of pumping required during dewatering.

Slurry wall Retaining wall constructed by excavating a wall area and then filling it with a bentonite (clay-type) material to hold the ground in place and prevent water infiltration until final concrete is pumped into the trench to replace the bentonite and create the final retaining wall.

TBM (Tunnel Boring Machine) A machine for excavating circular tunnels through a variety of soil and rock strata. A rotating cutting head breaks the

ground, which passes through slots in the cutting wheel for removal.

Staging area An area from which certain construction activities (such as storage, delivery of materials, layover of equipment) occurs.

Traffic enforcement agent (TEA) A uniformed member of the NYPD who directs vehicular traffic, or engages in summons enforcement.

Test pit Ground area opened to inspect for utilities and/or to identify potential conflicts between existing and proposed structures.

Tiebacks A horizontal wire used to reinforce retaining walls for stability.

Trench A long cut in the ground, used commonly for water-main replacement and installation in place of capital street reconstructions.

Tunnel lining Permanent or temporary cover to the rock or soil surface at the periphery of a tunnel excavation.

Underpinning A construction technique that involves placing new foundations under an existing building to allow construction to occur in the area of the original foundations.

Vault An open space beneath a sidewalk or street and usually attached to a building’s basement, sometimes used for utilities or storage space.

Ventilation Vital to tunnel design, both to ensure the health of workers during construction and passenger comfort in rail tunnels during their operation.

Water table The level of groundwater beneath which the ground is wholly saturated with water.

Waterproof membrane An additional layer, or skin, provided between the tunnel’s primary and secondary linings to improve the water tightness of concrete.

