

Commissioner's Corner

Yesterday, DEP and the New York City Economic Development Corporation (EDC) announced that a tunnel boring machine has completed the excavation of a new, \$250 million water tunnel connecting Brooklyn to Staten Island. The new, deeper tunnel—called a siphon—will convey drinking water under New York Harbor from Brooklyn to Staten Island. Once the new tunnel is activated, two existing, nearly century old water mains that are located at a much shallower depth will be removed and the work to dredge and deepen the Anchorage Channel can be completed. The harbor deepening initiative is critical to accommodating



the new generation of larger, more environmentally friendly cargo vessels in New York Harbor and retaining the nearly 300,000 jobs and \$12 billion in annual wages

the Port of New York and New Jersey provides to the region. The project is being funded jointly by DEP and the Port Authority of New York and New Jersey, and is being managed by EDC.

All of New York City's high-quality drinking water is collected in protected reservoirs located up to 125 miles north of the city. From there it travels south through aqueducts to Hillview Reservoir in Yonkers where it enters City Water Tunnels Nos. 1, 2 and 3. These tunnels are located roughly 500 feet beneath street level and travel through the boroughs of the Bronx, Manhattan, Queens and Brooklyn. Two siphons were built approximately 50 feet beneath New York Harbor to connect Staten Island to Brooklyn, and the City's upstate water supply, in 1917 and 1925 respectively. As Staten Island's population, and its demand for water grew, in 1970 the 10-foot diameter Richmond Tunnel was built deep in the bedrock beneath New York harbor and became the primary water conduit to the Island. The original siphons have since been kept in service as a back-up connection to ensure a reliable supply of drinking water for the nearly 500,000 residents on Staten Island who consume approximately 50 million gallons of water each day.

The new, 72-inch siphon is being excavated at a depth of 100 feet and will replace the two, nearly century old, existing water connections that run from Bay Ridge in Brooklyn to Stapleton and Tompkinsville on Staten Island. These two connections will

ultimately be removed when the harbor dredging continues. The new siphon, which will serve as the back-up water feed for Staten Island, will convey approximately 5 million gallons of water each day. If needed, it has the capacity to carry up to 150 million gallons per day.

Work on the project began in August 2011 and included the construction of access shafts in Brooklyn and Staten Island. A 300 foot-long, 110 ton Tunnel Boring Machine (TBM) was lowered into the Staten Island shaft in July 2012 and had progressed approximately 1,600 feet towards Brooklyn when operations were suspended on the evening of October 28, 2012 in advance of the approaching Hurricane Sandy. The historic storm surge associated with Sandy flooded the Staten Island shaft and the excavated tunnel with sea water and severely damaged the TBM. After the tunnel and shafts were dewatered and damage assessments were completed, months of repairs and testing of the TBM followed. On April 14, 2014, the TBM resumed work and excavation of the tunnel was completed in February 2015.

The tunnel and TBM are only susceptible to flooding from a storm surge during construction, while the shafts are open. During the 18 month shutdown, resiliency measures were put into place that allowed crews to cover the shaft sites and close a flood gate to protect them from a potential storm surge during the final stages of construction. In addition, plans have been redrawn to raise

Spotlight on Safety

National Safety Month – Ergonomics

June 1st marked the start of National Safety Month (NSM) 2015—"What I Live For". This week in observance of NSM, we are focusing on the topic of ergonomics.

According to the Bureau of Labor Statistics, musculoskeletal disorder (MSD) cases accounted for 33% of all workplace injuries and illnesses cases in 2013. Overexertion is also the third leading cause of unintentional injuries in the U.S. It is important to remember that these injuries are preventable.

Ergonomics is the science of designing a safe and efficient job environment to work in, whether an employee is typing at a computer or lifting boxes in a warehouse. A major component of ergonomics is assessing work-related factors that may pose a risk of musculoskeletal disorders to reduce stress and

eliminate injuries and disorders associated with the overuse of muscles, bad posture, and repeated tasks. Common examples of ergonomic risk factors are found in jobs requiring repetitive, forceful, or prolonged exertions of the hands; frequent or heavy lifting, pushing, pulling, or carrying of heavy objects; and prolonged awkward postures.

The development of guidelines to reduce stress and eliminate injuries and disorders is essential to preventing workplace musculoskeletal disorders. The DEP Ergonomics Policy was developed to address such workplace ergonomic hazards. For a more comprehensive look at the policy and associated responsibilities see the [NYCDEP Ergonomics Policy](#). Also, visit [Pipeline](#) for useful tips on proper ergonomics.

At DEP, everyone is responsible for safety. If you or anyone on your team is concerned about your working conditions, it's okay to ask your supervisor or your bureau's EHS liaison how they can help. If you've still got questions, you can call the EHS Employee Concerns Hotline. It's DEP's responsibility to acknowledge and fix unsafe situations, procedures, and practices. With your help, we'll not only get the job done, we'll make it safer for ourselves, our coworkers, our families, and our city. CALL (800) 897-9677 OR SEND A MESSAGE THROUGH [PIPELINE](#). HELP IS ON THE WAY.





the permanent infrastructure that will remain on the Staten Island side of the project above the new 100-year flood plain.

The Earth Pressure Balance TBM, being used for the first time in New York City as it is made specifically for use in soft ground as opposed to bedrock, excavates and simultaneously installs four foot-wide concrete pre-cast segment rings to line the tunnel wall. Prior to Hurricane Sandy, 389 segment rings had been put in place, and in total the TBM installed 2,349 rings. While the TBM was building the tunnel, work crews were constantly building tracks that allow trains to transport workers, equipment, and the excavated material to and from the shaft sites.

In addition to building the tunnel, the project includes the installation of water control equipment and other related infrastructure improvements to connect the new tunnel to the existing water distribution networks in both boroughs, including 6,545 feet of new water mains in Staten Island and 1,710 feet of new water mains in Brooklyn. In Staten Island, the new water mains will run along Van Duzer Street, Victory Boulevard, Front Street and Murray Hulbert Avenue. In Brooklyn, the improvement to the existing water mains will occur near 79th Street and Shore Road and along Shore Road between 83rd and 86th Streets. The project will also include the restoration of street landscaping, tree protection and a new pavement walkway around Shore Road Park.

The Port of New York and New Jersey is the largest on the East Coast, handling nearly 33 percent of the East Coast shipping

trade, and is the third-largest port in the country. Recent years have seen record cargo volumes at port facilities and, with future cargo volumes expected to double over the next decade, the Anchorage Channel must be deepened in order to accommodate the new generation of larger cargo vessels and better position the region to benefit from growth in global trade. These larger, next-generation 'post-Panamax' vessels also bring environmental benefits by carrying more cargo in fewer ships with cleaner fuel technology. The New York and New Jersey Harbor Deepening Project is being managed by the U.S. Army Corps of Engineers with the Port Authority acting as the local sponsor and providing half of the funding for the \$2 billion program. The project is expected to be completed in 2015.

As part of the ongoing New York and New Jersey Harbor Deepening Project, the channel is being dredged to approximately 50 feet deep in the seabed to accommodate ships with drafts that exceed 45 feet, the present depth of the Anchorage Channel. Ocean shipping of goods remains the most economical and environmentally friendly way to move cargo around the globe, and the Anchorage Channel is one of the most heavily-used shipping channels in the world with over five thousand ships passing through it every year. With the arrival of larger ships calling on New York area ports in recent years, the Harbor Deepening Project and the Port Authority's raising of the Bayonne Bridge will facilitate the arrival of the new generation of container ships and keep the region's marine terminals competitive.

I Fish NY



DEP will host a youth fishing day at Lake Gleneida in Carmel on Saturday, June 6. The event is being co-sponsored by the New York State Department of Environmental Conservation (DEC), which will supply fishing poles and bait to those who do not have their own. As part of the "[I Fish NY Program](#)," the New York State fishing license requirement is waived for adults who want to fish during this event. A free DEP access permit will be required for participants over the age of 16. If adults do not have a free DEP access permit, applications and guest

permits will be available on the day of the event, or a permit can be obtained online anytime by going to the [DEP website](#).

The 168-acre Lake Gleneida is home to many species of fish, including lake trout, brown trout, bass and panfish. DEP and DEC staff will be available to teach participants how to fish and assist with fishing equipment. The event will take place from 10 a.m. to 2 p.m. Parking will be located along the lake on Route 6. For more information about the event, call DEP at (800) 575-LAND.

Out of the Archives



Out of the Archives: Workers reinforce a trench dug for the Williamsburg Conduit along Jackson Avenue in Long Island City, Queens. Visible in the background is the public school building currently housing MoMA PS1, and the elevated tracks of the 7 subway line! August 19, 1925.

We welcome your feedback! To submit an announcement or suggestion, please email us at: newsletter@dep.nyc.gov.