

## IV. BUILDING SITES

# SIMS MUNICIPAL RECYCLING MATERIALS RECOVERY FACILITY BROOKLYN, NY

***“We always planned to take into account sea level rise and storm surges into the design in order to safeguard our investment over the long-term. It just makes good business sense.” – Tom Outerbridge, Sims Metal Management***

### Summary

The construction site of the future Sims Municipal Recycling Materials Recovery Facility (MRF) in Sunset Park, Brooklyn incurred minimal damage from Sandy due to the development team’s decision to significantly increase the elevation of critical portions of the site. While site plans include various measures to make the MRF more environmentally friendly, the decision to increase the elevation was a business one: Sims Municipal Recycling (Sims), a division of global recycler Sims Metal Management, wanted to protect its long-term investment from rising sea levels and intensifying storms. Sims also proved that being prepared for extreme events like Sandy does not have to be expensive. The company’s use of fill made of recycled material allowed the site to be elevated effectively and relatively cheaply.

### Background

The Sims MRF will serve as the principal processing facility for all of New York City’s curbside metal, glass, and plastic recyclables as part of a long-term contract (up to 40 years) with the NYC De-

partment of Sanitation (DSNY). The site is located on the waterfront on a former police impoundment parking lot in Sunset Park, Brooklyn. With this location, the Sims MRF will leverage barge and rail transport, which will help to minimize the amount of truck traffic through the city’s neighborhoods, thereby reducing related truck pollution. In addition to supporting the city’s improved waste management and air quality goals, Sims aims to create a state-of-the-art high-performance, sustainable facility, which includes measures to protect its \$44 million investment from rising sea levels and future storm intensification. This protection was important to the development team, given the fact that the original pier, surrounded by the Gowanus Bay on three sides and constructed on historic fill, did not have adequate elevation to protect it from flooding in the event of sea level rise and intensified storm surges.

### Design Details

Early on in the life of the project, Sims committed to follow high-performance green design guidelines in developing

the site. As part of this commitment to sustainability, the project team and its architect, Selldorf Architects, integrated renewable energy generation, on-site stormwater treatment capability, and native landscaping into the site master plan. Along with these features, the design focused on elevation and grading, varying waterfront edges to make the site more resilient to rising sea levels and future storm intensification.

In designing these features, the development team agreed that it could not base its plan on existing flood zone maps on the basis that they would soon (within 40 years) be out-of-date due to predicted rising sea levels. Accordingly, the design called for raising the elevation of those portions of the site allocated to buildings and recycling equipment by approximately four feet above the standard high-tide mark.

Sims took advantage of the fact that they were elevating portions of the site to create a grading scheme that resulted in a gravity-based stormwater management system. The grading plan had to account

for rail and street connections and access to the site. To meet fill and grading requirements, Sims used an infill mixture consisting of crushed glass from the City recycling program and crushed stone or “mole rock” from tunneling operations associated with the Second Avenue Subway and East Side Access Tunneling Projects.

The landscaping plan was designed to support stormwater management and make the site more attractive for the surrounding community. Given the waterfront location of the site, the development team selected salt-tolerant vegetation, capable of surviving salt air and the occasional dousing of salt water and requiring little to no maintenance over time.

To support a marine-based operation with the necessary water depth for barge and tug operations, it was necessary to build a wharf and dredge the area along the south side of the pier. As part of the permitting process for approval to dredge, the New York City Economic Development Corporation (NYCEDC) developed a mitigation plan to replace the intertidal habitat existing in the rip rap that would be removed. With approval from the NYS Department of Environmental Conservation, NYC EDC constructed three artificial reefs out of stone from the Arthur Kill Channel deepening project off of the west side of the pier. In addition to fulfilling permit requirements, the reefs would provide for some wave attenuation to protect the pier.

At the time of Superstorm Sandy, construction was approximately 50 percent complete (Sims’ plans called for the facility to open during Summer 2013). All of the site work (grading, dynamic compaction, etc.) in the area of the buildings was finished, as well as dock construction and dredging. The large recycling buildings were erected, closed in, and ready for interior fit outs and exterior trim work. Most of the remaining work involved recycling equipment installation, underground utility work, paving, erection of an administration building and education center, and landscaping.

### Impact of Sandy

The areas of the pier where the buildings were under construction had an elevation of 11 feet above Mean High Water (MHW) level, the standard unit of measurement for waterfront elevation, and did not incur any flooding. In contrast, the lower lying areas of the pier were flooded by as much as 2.5 feet of water. In anticipation of the storm, all major processing and construction equipment had been stored on the higher ground, preventing costly damage and project delays.

There was some minor damage to building siding and trim work, as well as to temporary construction and electrical equipment. However, the impact was not significant enough to meet the project’s insurance deductible, and after two days of clean-up, construction was able to resume.

### Lessons Learned

The storm confirmed the importance of elevating critical and expensive infrastructure. Since the storm, Sims has altered the plans for certain elements of the remaining construction to include additional elevation. The three electrical substations on site will now be elevated up to a total elevation of 13 feet MHW. The guard booth at the site’s entryway was also elevated an additional two feet above the original plan.

Sims is currently evaluating design plans for its other waterfront locations around the region, including a new building planned for its facility located on Newtown Creek in Long Island City, Queens.



Source: Sims Metal Management

Artificial reefs at west side of pier



Source: Sims Metal Management

Barge unloading dock



*side of the pier*



*during construction*