

2.15-1 INTRODUCTION

Construction of Project 1, Shaft and Bypass Tunnel Construction would necessitate the disposal of excavated materials. This section of Chapter 2 estimates the amount of excavated materials that would be removed at the west and east connection sites during Project 1 construction and describes how these materials would be disposed. This section also estimates the amount of worker-generated solid waste.

This section is organized as follows:

- Section 2.15-2, “Methodology,” describes the methodology used in the solid waste assessment.
- Sections 2.15-3, “West of Hudson,” and 2.14-4, “East of Hudson,” describe the disposal of excavated materials and worker-generated solid waste.
- Section 2.15-5, “Conclusions,” presents the conclusion of the analysis.

2.15-2 METHODOLOGY

During Project 1, Shaft and Bypass Tunnel Construction, the dominant source of solid waste during construction would be related to excavation. Specifically, the greatest amount of total solid waste generated during Project 1 would result from shaft and tunnel construction activities, while the site preparation phases may also involve the removal of additional amounts of excavated material. A nominal amount of solid waste would also be generated by construction worker activities west and east of the Hudson River and would include food or paper trash, cardboard, aluminum, plastic, etc.

The total amount of excavated material from shaft and tunnel construction described in this section was estimated based on the tunnel alignment and excavated diameters and areas for the shaft and tunnel and the construction duration (see Section 2.1, “Description of Project 1 Construction Program,” for further discussion of construction activities).

The amount of construction worker-generated solid waste was estimated for the project site(s) connection sites by applying the appropriate solid waste generation rate to the number of workers, based on the rates recommended in the *CEQR Technical Manual* (January 2012). The

CEQR Technical Manual does not specify a solid waste generation rate for construction worker-generated solid waste. Therefore, the estimate for commercial office employees was used as a conservative solid waste generation rate for the construction workers (13 pounds of solid waste per week per individual). To determine the number of workers that would be on the site per day, the maximum number of day shift, afternoon shift, and night shift workers were added to get a maximum cumulative daily total. It should be noted that the maximum cumulative daily total was used to provide a conservative estimate of the worker-generated solid waste and would actually occur infrequently for very brief periods of time during the total construction period. It is likely that the average daily construction worker-generated solid waste would be significantly lower as is evidenced by preliminary solid waste estimates on other projects.¹

2.15-3 WEST OF HUDSON

2.15-3.1 EXCAVATED MATERIALS

Project 1, Shaft and Bypass Tunnel Construction would necessitate the disposal of excavated materials. The estimated amount of excavated material that would be removed during construction of the shaft and the bypass tunnel at the west connection site is 510,000 cubic yards.

All excavated rock, soil, and fill materials requiring off-site disposal would be handled and disposed of in accordance with applicable regulatory requirements. The contractor may make arrangements with numerous disposal sites for the final destination of the excavated material. As stated in Chapter 1, "Program Description," DEP would require the contractor to identify disposal locations, routes to/from these locations, document material disposed, and document acceptance from the disposal locations. In addition, DEP would require the contractor to demonstrate that the selected disposal locations would have approved SWPPPs and stormwater permits and/or otherwise demonstrate compliance with federal, state, and local stormwater regulations prior to disposal of excavated material. The excavated materials would be transported off-site by a private hauler, and the amount of material would not represent a significant increase in local or regional solid waste streams.

If contaminated soil and/or petroleum tanks are encountered during excavation activities on the west connection site, applicable regulatory requirements (e.g., those relating to spill reporting and tank registration) would be followed to address removal of the tanks and any associated soil or groundwater contamination (see Section 2.9, "Hazardous Materials," for related details).

¹ To estimate construction worker waste generation rates for a recent Hatch-Mott MacDonald construction project in Abu Dhabi (the Masdar Project), a rate of 1.1 pounds/person/day (90 percent organics and recyclables and 10 percent non-recyclables) was used.

2.15-3.2 CONSTRUCTION WORKER-GENERATED SOLID WASTE

The estimated maximum number of construction employees that would be on the west connection site in a 24-hour period would be 228. This number is a cumulative total which includes the day shift, afternoon shift, and night shift. Using the *CEQR Technical Manual* solid waste generation rates for a commercial office use, each worker would generate approximately 13 pounds/week of solid waste, the maximum total amount of solid waste generated would be 2,964 pounds/week (228 x 13 pounds/week) or approximately 29 to 37 cubic yards of waste per week. This nominal volume of solid waste would be collected and transported off-site by a private hauler and would represent a small fraction of the total solid waste generated on the site.

2.15-4 EAST OF HUDSON

2.15-4.1 EXCAVATED MATERIALS

The estimated amount of excavated material that would be removed during construction of the shaft and the bypass tunnel at the east connection site is 99,000 cubic yards.

All excavated rock, soil, and fill materials requiring off-site disposal would be handled and disposed of in accordance with applicable regulatory requirements. The contractor may make arrangements with numerous disposal sites for the final destination of the excavated material. As stated in Chapter 1, "Program Description," DEP would require the contractor to identify disposal locations, routes to/from these locations, document material disposed, and document acceptance from the disposal locations. In addition, DEP would require the contractor to demonstrate that the selected disposal locations would have approved SWPPPs and stormwater permits and/or otherwise demonstrate compliance with federal, state, and local stormwater regulations prior to disposal of excavated material. The excavated materials would be transported off-site by a private hauler, and the amount of material would not represent a significant increase in local or regional solid waste streams.

If contaminated soil is encountered during excavation activities on the east connection site, applicable regulatory requirements (e.g., those relating to spill reporting) would be followed to address such contamination (see Section 2.9, "Hazardous Materials," for related details).

2.15-4.2 WORKER-GENERATED SOLID WASTE

The estimated maximum number of construction employees that would be on the east connection site in a 24-hour period would be 116. This number is a cumulative total which includes the day shift and afternoon shift. Using the *CEQR Technical Manual* solid waste generation rates for a commercial office use, each worker would generate approximately 13 pounds/week of solid waste, the maximum total amount of solid waste generated would be 1,508 pounds/week (116 x 13 pounds/week) or approximately 15 to 19 cubic yards of waste per week. This nominal volume of solid waste would be collected and transported off-site by a private hauler and would represent a small fraction of the total solid waste generated on the site.

2.15-5 CONCLUSIONS

Most solid waste generated during Project 1, Shaft and Bypass Tunnel Construction on the west and east connection sites would be related to excavation from shaft and tunnel construction.

2.15-5.1 WEST OF HUDSON

An estimated 510,000 cubic yards of rock, soil, and fill would be excavated during construction of the shaft on the west connection site and the bypass tunnel and an additional 2,964 pounds/week of construction worker-generated solid waste would be produced. This solid waste would be transported off-site by a private hauler. All excavated materials requiring off-site disposal would be handled and disposed of in accordance with applicable regulatory requirements. Therefore, no significant adverse impacts on the solid waste system would occur as a result of the solid waste generated during Project 1 construction activities on the west connection site.

2.15-5.2 EAST OF HUDSON

An estimated 99,000 cubic yards of rock, soil, and fill would be excavated during construction of the shaft on the east connection site and an additional 1,508 pounds/week of construction worker-generated solid waste would be produced. This solid waste would be transported off-site by a private hauler. All excavated materials requiring off-site disposal would be handled and disposed of in accordance with applicable regulatory requirements. Therefore, no significant adverse impacts on the solid waste system would occur as a result of the solid waste generated during Project 1 construction activities on the east connection site. *