

Technical Memorandum – TM002
Gowanus Canal Combined Sewer Overflow (CSO) Facilities Project
CEQR No. 17DEP040K
December 23, 2022

INTRODUCTION

On February 1, 2018, the New York City (City) Department of Environmental Protection (DEP), as lead agency, issued a Notice of Completion for the *Gowanus Canal Combined Sewer Overflow (CSO) Facilities Final Environmental Impact Statement (FEIS)*. The FEIS considered the Gowanus Canal CSO Facilities Project, which would construct two CSO facilities along the Canal. The FEIS included a detailed analysis of construction noise. The FEIS construction analysis assumed a 10-hour construction work day (i.e., 7AM to 5PM) either on weekdays only or, under the Alternative Construction Schedule Scenario, seven days per week. The FEIS concluded that construction of the Project would result in elevated noise levels at several of the analyzed receptors, which represent the residences, hotels, and publicly accessible open spaces.

A bidder for the second construction phase, i.e., CP-2, proposes to extend the Support of Excavation (SOE) construction at the Head End Site in such a manner that specific SOE construction tasks would occur over the course of a 16-hour work day (i.e., 6AM to 10PM) on weekdays only. During the 7AM to 5PM hours (i.e., the construction work hours considered in the FEIS construction noise analysis), construction activity would be comparable to that contemplated for CP-2 SOE construction in the FEIS construction noise analysis. However, during the period from 6AM to 7AM and from 5PM to 10PM, specific SOE construction equipment would continue to operate. The extended work hours would occur over the course of approximately seven months. The potential for the proposed change in construction work hours to alter any of the FEIS construction noise analysis conclusions has been evaluated, including potential effects on the area, intensity, and duration of predicted construction noise effects.

EXTENDED HOURS CONSTRUCTION NOISE EVALUATION

AREA OF CONSTRUCTION NOISE EFFECTS

Since the proposed extended work hours would apply only at the Head End site, only receptors proximate to that work area would potentially be affected by the proposed change in work hours. Consequently, the results of the FEIS construction noise analysis would remain valid for receptors 12-15, 18, 19, 27-29, 32, 39, 44-48, 52-56, 60, and 62. These receptors are not discussed further.

Additionally, receptor sites 57, 58, and 59 were included in the FEIS construction noise analysis as potentially representing future development pending rezoning of the area. While these sites have been rezoned and were considered potential development sites as part of the rezoning, there is not currently completed and occupied development on these sites and it is not expected that development on these sites would be completed and occupied during the proposed extended work hours. No other noise-sensitive land uses have been completed and occupied adjacent to the Head End site since 2018. Consequently, these sites would not constitute noise receptors and are not discussed further.

INTENSITY OF CONSTRUCTION NOISE

The intensity of noise effects resulting from Project construction is evaluated based on the predicted noise level increment resulting from construction. The noise level increment depends

on the level of noise generated by construction of the Project as well as the baseline existing noise levels at receptors.

The FEIS construction noise analysis considered existing noise levels between the hours of 7AM and 5PM, since those were the expected hours of construction activity for that analysis. In the vicinity of the Head End site, the temporal distribution of existing noise levels throughout the day was determined based on a 24-hour measurement at receptor site 10, Nevins Street between Douglass Street and Degraw Street. The full 24-hour noise level measurement results are shown in Appendix 20-2 of the FEIS. The minimum measured L_{eq} noise level during the weekday 7AM to 5PM period was 61.2 dBA (see FEIS Table 20-33). The minimum measured L_{eq} noise level during the proposed 6AM to 10PM work hours was 60.7 dBA, a difference of only 0.5 dBA. This is well within the natural variability of ambient noise levels from hour to hour or day to day, so the existing condition noise levels used for receptors proximate to the Head End site in the FEIS construction noise analysis would be representative for the proposed extended work hours as well.

The predicted noise levels associated with CP-2 in the FEIS construction noise analysis include contributions from construction of the SOE, site excavation, and construction of the below-grade structures. Equipment assumed to be operating during this period in the FEIS construction analysis consisted of excavators (clamshell and hydromills), a slurry plant (i.e., “desander”), dewatering pumps, cranes, and various concrete and delivery trucks. The equipment to be used during the proposed extended work hours (i.e., 6AM to 7AM and 5PM to 10PM) would be a subset of these, comprising only the clamshell and hydromill excavators, slurry desander, and generators (comparable to the pumps). Since the construction during the proposed extended work hours would comprise only a subset of the equipment used for noise level predictions associated with CP-2 in the FEIS analysis, the predicted construction noise levels for CP-2 in the FEIS constitute a conservative representation of the levels of noise that would occur during the extended construction work hours.

As discussed above, the weekday baseline noise levels used in the FEIS construction noise analysis for CP-2 are comparable to the baseline noise levels during the proposed extended work hours, and the predicted construction noise levels from the FEIS analysis conservatively represent those that would occur during the proposed extended work hours. Consequently, the predicted noise level increments in the FEIS for weekday construction during CP-2 (see FEIS Table 20-35) serve as a conservative representation of the noise level increments, and thus the magnitude of potential construction noise impacts, that would occur during the proposed extended work hours.

At receptors other than those excluded above or receptors 35-37 and 50, the maximum noise level increment during CP-2 predicted in the FEIS construction noise analysis, which conservatively represents the noise level increment expected to occur during the proposed extended work hours, was less than 10 dBA. Noise level increments of this range may be perceptible at times, but would not, over the course of a limited duration of approximately seven months, rise to the level of a significant adverse impact. Consequently, these sites are not discussed further for impact consideration.

DURATION OF CONSTRUCTION NOISE

As described previously, the FEIS construction noise analysis was based on the assumption of construction occurring between 7AM and 5PM, i.e., 10 hours per day, whereas the proposed extended work hours would extend from 6AM to 10PM, i.e., 16 hours per day. However, the FEIS construction noise analysis assumed a 13-month overall duration for SOE construction, whereas the overall duration of SOE construction would be approximately 7 months with the proposed extended work hours. While the overall duration would be reduced, since the daily duration of construction would be extended, the potential effects on predicted construction noise duration are discussed below. The discussion is limited to receptors 35-37 and 50, as other

receptors were addressed previously and determined not to experience any change in conclusions from the FEIS construction noise analysis.

Receptors 36 and 37—Residential Receptors at 282 and 285 Nevins Street

According to the FEIS construction noise analysis, construction of the Project during SOE construction associated with CP-2 was predicted to produce noise level increases at the residential receptors at 282 and 285 Nevins Street—Receptors 36 and 37—of up to approximately 20 dBA. The maximum construction noise levels predicted at these receptors were predicted to occur over the course of approximately 10 months, for up to approximately 10 hours per day, 5 days per week or 6 days per week under the Alternative Construction Schedule Scenario. With the proposed extended work hours, CP-2 SOE construction, and noise levels potentially up to that magnitude, would occur over the course of approximately 7 months, for up to approximately 16 hours per day, 5 days per week. While the per-day and per-week duration of construction noise at these receptors would be increased under the proposed extended work hours, the overall duration would decrease. Outside of CP-2, noise levels associated with construction of the Project would remain in the “acceptable” range at these receptors based on *CEQR Technical Manual* noise exposure criteria and would therefore not rise to the level of significant adverse impact.

As described in the FEIS, the existing residential buildings at 282 and 285 Nevins Street appear, based on field observations, to be constructed with standard building façade construction including insulated glass windows along with an alternate means of ventilation (i.e., window air conditioners) allowing for the maintenance of a closed-window condition. This construction would be expected to provide approximately 25 dBA window/wall attenuation¹. With such measures, the residences at 282 and 285 Nevins Street would be subject to interior noise levels during construction in the mid 40s dBA, up to approximately 2 dBA higher than the 45 dBA threshold recommended for residential use according to the *CEQR Technical Manual* noise exposure guidelines.

Based on the limited per-day and per-week increase in duration of construction noise and overall decrease in construction noise associated with CP-2 SOE construction, as well as the limited exceedance of the threshold recommended for residential use according to the *CEQR Technical Manual* noise exposure guidelines at these receptors, the FEIS conclusion, i.e., the identification of a temporary significant adverse construction noise impact for which there would be no feasible or practical mitigation measures to reduce or avoid the impact, would not change as a result of the proposed extended work hours.

Receptor 35—Thomas Greene Playground

According to the FEIS construction noise analysis, construction of the Project during SOE construction associated with CP-2 was predicted to produce noise level increases throughout most of the Playground (i.e., the portion of the Playground other than the handball courts along Nevins Street) of up to approximately 5 dBA; however, at the handball courts at the westernmost portion of the Playground, which are immediately across Nevins Street from the Head End Site, construction of CP-2 was predicted to result in noise level increases of up to approximately 10 dBA. The maximum construction noise levels predicted at these receptors were predicted to occur over the course of approximately 10 months, for up to approximately 10 hours per day, 5 days per week or 6 days per week under the Alternative Construction Schedule Scenario. Since the playground’s operating hours do not extend past 9 PM, with the proposed extended work hours, noise levels potentially up to those magnitudes, would occur over the course of approximately 7 months, for up to approximately 15 hours per day, 5 days per week. While the per-day and per-week duration of construction noise at these receptors would be increased under the proposed

¹ Interior noise levels would be 25 dBA less than exterior noise levels. Standard façade construction using insulated glass windows typically provides approximately 25-30 dBA window/wall attenuation.

extended work hours, the overall duration would decrease. Further, the handball courts are of limited sensitivity to construction noise due to their active recreational use, and the remainder of the playground would experience noise level increments up to approximately 5 dBA, which would not be expected to interfere with use of the passive recreational areas.

Based on the limited per-day and per-week increase in duration of construction noise and overall decrease in construction noise associated with CP-2 SOE construction, as well as the limited noise-sensitivity of the playground area that would experience substantial increases in noise level due to construction, the FEIS conclusion, i.e., noise produced by construction of the Project would not rise to the level of a significant adverse impact at the Thomas Greene Playground, would not change as a result of the proposed extended work hours.

Receptor 50— Hotel Receptor across Butler Street from the Head End Site

According to the FEIS construction noise analysis, construction of the Project during SOE construction associated with CP-2 was predicted to produce noise level increases at the hotel receptor located at 255 Butler Street—Receptor 50—of up to approximately 14 dBA. The maximum construction noise levels predicted at this receptor were predicted to occur over the course of approximately 10 months, for up to approximately 10 hours per day, 5 days per week or 6 days per week under the Alternative Construction Schedule Scenario. With the proposed extended work hours, CP-2 SOE construction, and noise levels potentially up to that magnitude, would occur over the course of approximately 7 months, for up to approximately 16 hours per day, 5 days per week. While the per-day and per-week duration of construction noise at this receptor would be increased under the proposed extended work hours, the overall duration would decrease. Outside of CP-2 and four months of in-street sewer work, noise levels associated with construction of the Project would remain in the “acceptable” range at this receptor based on *CEQR Technical Manual* noise exposure criteria and would therefore not rise to the level of significant adverse impact.

As described in the FEIS, the newly renovated façade at this hotel building, including insulated glass windows along with an alternate means of ventilation (i.e., window air conditioners) allowing for the maintenance of a closed-window condition, would be expected to provide approximately 30 dBA window/wall attenuation². With such measures, interior noise levels at this residential receptor during construction would be below the 45 dBA threshold recommended for hotel guestroom use according to the *CEQR Technical Manual* noise exposure guidelines. Furthermore, the renovation work at this building has been suspended, and it may not be completed while CP-2 SOE construction is underway, in which case the hotel would be unoccupied and not sensitive to noise from construction.

Based on the limited per-day and per-week increase in duration of construction noise and overall decrease in construction noise associated with CP-2 SOE construction, as well as the prediction of “acceptable” interior noise levels for hotel guestroom use according to the *CEQR Technical Manual* noise exposure guidelines at this receptor, the FEIS conclusion, i.e., noise produced by construction of the Project would not rise to the level of a significant adverse impact at the hotel receptor at 255 Butler Street, would not change as a result of the proposed extended work hours.

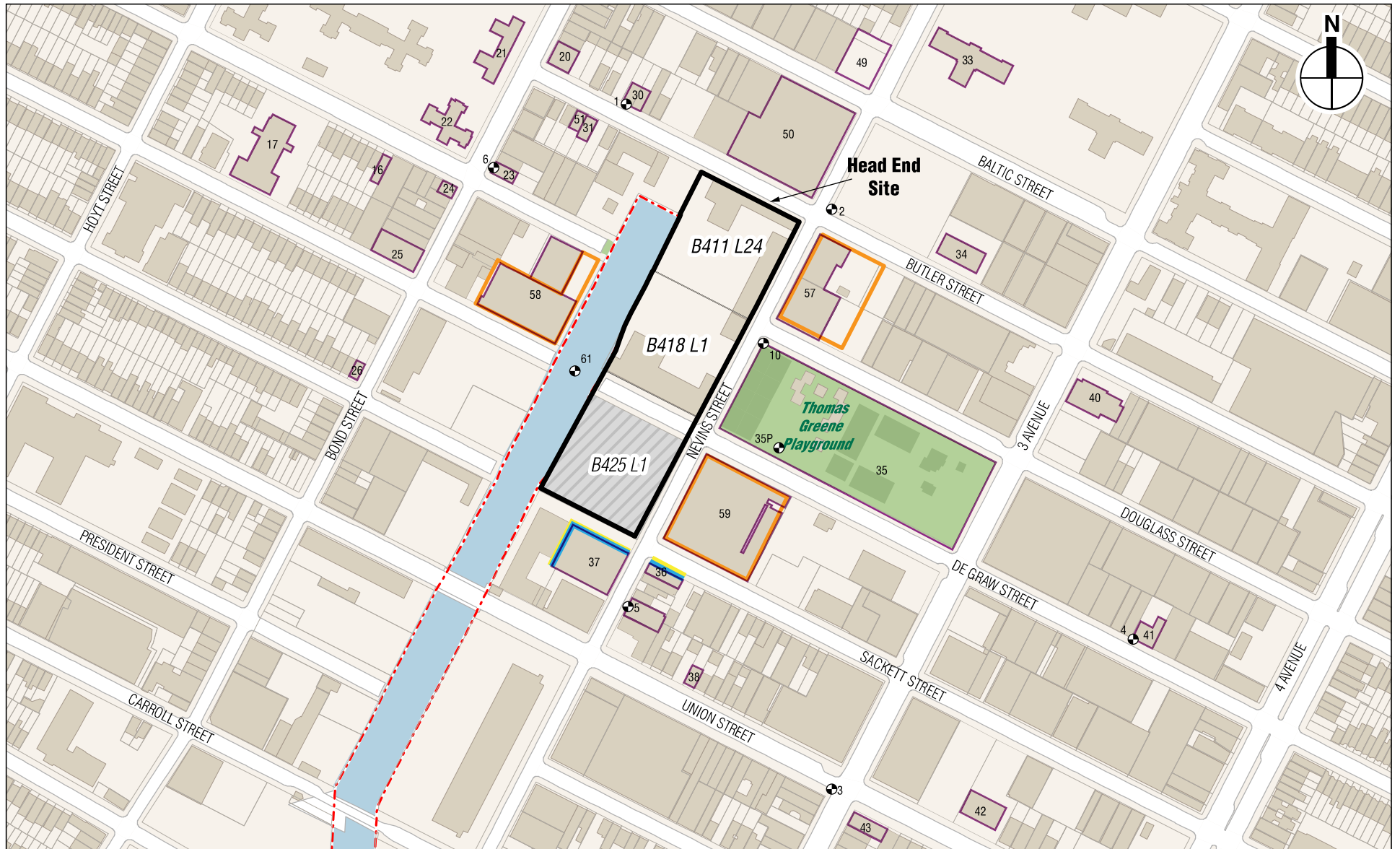
CONCLUSIONS

The proposed extended work hours would not result in noise level increases beyond those described in the FEIS construction noise analysis at any receptors, although the duration of construction noise exposure would change at some receptors proximate to the Head End Site. Specifically, CP-2 SOE construction, which was predicted in the FEIS to produce noise over the

² Interior noise levels would be 30 dBA less than exterior noise levels. New façade construction using insulated glass windows typically provides approximately 30 dBA window/wall attenuation.

course of approximately 10 months, for up to approximately 10 hours per day, 5 days per week or 6 days per week under the Alternative Construction Schedule Scenario, would instead occur over the course of approximately 7 months, for up to approximately 16 hours per day, 5 days per week. As described above, the predicted magnitude of construction noise levels with the expected change in duration would not change the conclusions of the FEIS construction noise analysis for any analysis receptors. As such, construction of the Project under the proposed extended work hours would not result in any new or increased significant adverse construction noise impacts.

The following pages are extracted from the Gowanus Canal CSO Facilities Final Environmental Impact Statement CEQR No. 17DEP040K. They show the receptor locations near the Head End Site and the predicted construction noise impacts.



Gowanus Canal CSO Facilities

Head End Site - Noise Receptor Locations
Figure 20-20

Table 20-35
Construction Noise Analysis Results in dBA

Receptor Site	Existing L _{eq} in dBA		Total L _{eq} in dBA						Change in L _{eq} in dBA ¹					
			CP1		CP2		CP3		CP1		CP2		CP3	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
1	57.0	57.0	57.1	57.1	57.2	57.3	58.2	58.2	0.1	0.1	0.2	0.3	1.2	1.2
2	67.1	67.1	68.5	68.5	68.8	71.3	71.5	71.5	1.4	1.4	1.7	4.2	4.4	4.4
3	69.4	69.4	69.5	69.5	69.6	70.0	69.8	69.8	0.1	0.1	0.2	0.7	0.4	0.4
4	62.0	62.0	62.0	62.0	62.0	62.1	62.1	62.1	0.0	0.0	0.0	0.1	0.1	0.1
5	60.1	60.1	63.0	63.0	63.6	68.4	65.8	65.8	2.9	2.9	3.5	8.3	5.7	5.7
6	71.7	71.7	71.7	71.7	71.7	71.8	71.7	71.7	0.0	0.0	0.0	0.1	0.0	0.0
7	52.0	52.0	52.7	52.7	53.0	54.6	53.2	53.2	0.7	0.7	1.0	2.6	1.2	1.2
8	73.8	73.8	73.9	73.9	74.0	74.4	74.1	74.1	0.1	0.1	0.2	0.6	0.3	0.3
9	61.5	61.5	61.5	61.5	61.5	61.6	61.5	61.5	0.0	0.0	0.0	0.1	0.0	0.0
10	61.2	61.2	64.9	64.9	65.0	69.8	68.1	68.1	3.7	3.7	3.8	8.6	6.9	6.9
11	55.0	55.0	56.1	56.1	55.8	59.4	55.8	55.8	1.1	1.1	0.8	4.4	0.8	0.8
12	52.0	54.2	52.0	54.4	52.0	55.0	52.1	54.5	0.0	0.2	0.0	0.8	0.1	0.3
13	52.0	54.4	52.1	54.4	52.0	54.5	52.1	54.4	0.0	0.3	0.0	0.9	0.0	0.5
14	52.0	54.9	52.1	54.9	52.0	55.2	52.1	55.0	0.0	0.2	0.0	0.9	0.1	0.3
15	53.6	55.2	54.6	55.4	54.5	57.1	54.6	55.6	0.0	1.7	0.0	3.5	0.0	1.9
16	52.0	57.9	52.1	58.1	52.1	59.0	52.1	58.2	0.0	0.4	0.0	1.1	0.0	0.5
17	52.0	62.5	52.0	62.6	52.0	63.0	52.1	62.6	0.0	1.7	0.0	4.8	0.1	2.3
18	52.0	52.0	52.1	52.1	52.0	52.3	52.1	52.1	0.1	0.1	0.0	0.3	0.1	0.1
19	52.0	55.9	52.1	56.0	52.0	56.1	52.1	56.0	0.1	0.1	0.0	0.4	0.1	0.2
20	52.0	55.0	52.3	56.0	52.5	56.4	52.5	56.7	0.0	2.4	0.0	3.9	0.1	2.2
21	52.0	53.2	52.1	55.3	52.1	57.2	52.1	56.3	0.1	2.6	0.1	5.2	0.1	3.4
22	52.0	63.1	52.1	63.2	52.1	64.8	52.1	63.4	0.0	0.9	0.0	3.2	0.0	1.2
23	62.1	66.8	62.3	66.8	62.2	67.4	62.3	66.9	0.0	0.7	0.0	2.0	0.0	1.0
24	62.5	66.1	62.5	66.1	62.6	66.3	62.6	66.1	0.0	0.1	0.0	1.3	0.0	0.2
25	63.6	65.2	63.7	65.2	63.6	65.6	63.7	65.3	0.0	0.2	0.0	0.9	0.0	0.3
26	57.3	63.4	57.4	63.8	57.4	64.4	57.5	63.8	0.0	1.0	0.0	1.9	0.0	1.1
27	52.0	52.0	52.0	53.5	52.0	55.9	52.1	54.7	0.0	1.5	0.0	3.9	0.1	2.7
28	52.0	52.3	52.0	54.1	52.0	58.7	52.1	54.8	0.0	2.1	0.0	6.7	0.1	2.8
29	52.0	52.0	52.1	52.2	52.0	52.9	52.1	52.4	0.1	0.2	0.0	0.9	0.1	0.4
30	52.0	54.7	52.1	58.8	52.2	63.3	52.4	60.8	0.1	4.9	0.2	9.4	0.4	6.9
31	52.0	54.0	52.4	56.4	52.2	60.9	52.5	57.1	0.1	4.4	0.2	8.9	0.5	3.8
32	56.5	69.7	56.7	69.8	56.7	70.2	57.0	70.0	0.1	0.2	0.2	0.7	0.3	0.5
33	52.0	56.5	52.1	57.6	52.1	62.5	52.2	60.1	0.1	3.3	0.1	9.3	0.2	5.5
34	52.0	58.5	52.2	60.0	52.3	63.1	52.6	61.6	0.2	2.3	0.3	5.8	0.6	4.0
35	56.2	66.1	56.7	66.3	57.5	68.9	57.4	68.9	0.2	5.2	0.2	10.4	0.4	10.4
35P	66.1	66.1	66.3	66.3	66.4	67.2	66.9	66.9	0.2	0.2	0.2	1.1	0.8	0.8
36	52.0	55.2	59.2	63.4	56.6	71.2	60.0	65.3	6.2	9.3	4.2	17.4	8.0	10.4
37	52.0	55.0	52.4	66.3	52.2	71.8	52.7	65.8	0.4	14.3	0.2	19.8	0.7	13.8
38	52.0	59.0	52.2	59.0	52.1	59.3	52.3	59.1	0.0	3.8	0.1	6.4	0.1	4.2
39	53.4	56.5	54.0	57.6	54.2	61.7	54.2	57.2	0.6	1.1	0.7	5.2	0.7	0.8
40	52.0	65.7	52.1	65.9	52.2	66.7	52.4	66.3	0.1	0.9	0.2	3.4	0.4	1.7
41	52.0	58.8	52.0	58.4	52.0	58.6	52.1	58.5	0.0	0.1	0.0	0.4	0.1	0.2
42	52.0	58.2	52.5	60.3	52.8	60.6	53.3	60.4	0.0	2.3	0.0	5.5	0.1	3.7
43	60.2	64.3	60.3	64.5	60.3	65.5	60.4	65.0	0.1	0.4	0.1	1.4	0.3	0.8
44	56.5	65.7	56.7	65.8	56.8	66.5	57.3	66.2	0.2	0.4	0.3	1.7	0.5	1.2
45	53.6	71.8	53.6	71.8	53.6	71.8	53.9	71.8	0.0	0.5	0.0	1.2	0.0	0.9
46	56.9	71.9	56.9	71.9	56.9	72.1	57.0	72.0	0.0	0.0	0.0	0.2	0.1	0.1
47	58.5	72.4	69.9	72.5	69.9	72.7	70.0	72.6	0.1	0.1	0.1	0.4	0.2	0.3

Table 20-35 (cont'd)
Construction Noise Analysis Results in dBA

Receptor Site	Existing L _{eq} in dBA		Total L _{eq} in dBA						Change in L _{eq} in dBA					
			CP1		CP2		CP3		CP1		CP2		CP3	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
48	52.0	70.9	52.1	61.2	52.0	61.2	52.2	61.2	0.0	0.6	0.0	1.5	0.0	0.9
49	52.0	59.3	52.1	60.4	52.1	63.1	52.3	62.2	0.1	1.1	0.1	3.8	0.3	3.4
50	52.0	60.2	52.5	66.3	52.6	72.1	53.7	73.3	0.1	7.4	0.1	14.0	0.3	14.6
51	52.0	54.2	53.9	54.4	54.0	54.6	55.7	56.9	0.1	0.2	0.2	0.6	1.6	3.0
52	52.0	57.5	52.6	58.8	52.4	61.2	52.7	60.6	0.6	4.8	0.1	9.2	0.7	7.5
53	52.0	57.2	53.8	58.3	54.8	57.8	54.2	57.7	0.1	1.8	0.0	5.2	0.1	2.2
54	52.0	58.8	55.8	58.8	55.8	58.9	55.8	58.8	0.0	0.1	0.0	0.2	0.0	0.1
55	52.0	65.6	53.1	65.6	52.2	67.6	52.5	65.6	0.0	10.4	0.0	15.6	0.0	5.5
56	52.0	52.0	52.9	55.0	52.7	61.5	53.1	55.7	0.9	3.0	0.7	9.5	1.1	3.7
57	52.0	59.6	54.5	66.4	54.6	73.3	55.2	73.1	0.3	10.2	0.4	17.4	1.0	17.2
58	52.0	67.6	53.5	67.7	53.6	70.6	53.7	67.8	0.1	11.9	0.0	18.6	0.2	12.0
59	52.0	66.2	52.5	67.8	52.6	76.2	53.5	75.6	0.5	7.7	0.6	16.1	1.5	15.5
60	52.0	55.6	55.0	59.6	54.6	65.1	55.0	57.9	0.1	7.6	0.0	13.1	0.1	5.9
61	56.3	56.3	61.0	61.0	59.3	64.9	60.4	60.4	4.7	4.7	3.0	8.6	4.1	4.1
62	52.0	52.0	58.7	58.7	55.2	61.9	53.8	53.8	6.7	6.7	3.2	9.9	1.8	1.8

Notes: * This table has been updated for the FEIS.
For receptors representing buildings, the change in L_{eq} was calculated by subtracting the existing L_{eq} from the total L_{eq} during each construction period individually at each floor of each façade; the minimum and maximum for each receptor and each period are the values shown above.