

WEEKLY PROGRESS REPORT – TRC SOLUTIONS

**Gowanus Canal Turning Basin 4 Dredging and Capping Pilot Study
Brooklyn, New York**

Project number: 283126

Period: September 24 to 28, 2018

Date of Report: October 3, 2018

Rev: 0

Prepared For: Gowanus Environmental Remediation Trust



On-Site Activities Conducted During Week:

Sevenson Environmental Services (SES)

Water Treatment and Monitoring

- Discharged 18,564 gallons of treated water on 09/27/18.
- No exceedances of continuous monitoring.

Turbidity Monitoring

- Exceedance of the visual action criterion on September 24 due to observation of sand capping material outside of TB4. Further details provided in attached report.

Capping Activities

- Complete hydraulic placement of sand isolation and filter layer. Collect cores and retrieve catch pans to measure thickness of sand isolation and filter layer placed.
- Mobilize crane and articulated concrete block mats for installation.
- Commence placement of articulated concrete block mats in southeast corner of Turning Basin 4. Total of 34 mats of required 255 placed via crane and divers during period.

Citizens Site Activities

- Continue decontaminating and demobilizing equipment.

Quality Assurance and Control – Geosyntec

- DWTS discharge sampling conducted on 09/27/18.
- Exceedance of the visual action criterion on September 24 due to observation of sand capping material outside of TB4. Further details provided in attached report.
- Measurements for 9/24/18:
 - Daily average for ambient buoy – 3.5 NTU
 - Daily average for sentinel buoy – 10.8 NTU
 - Greatest difference between ambient and sentinel buoy during 15-minute interval with sentinel buoy exceeding ambient buoy – 28.7 NTU at 1200.
- Measurements for 9/25/18:
 - Daily average for ambient buoy – 5.0 NTU
 - Daily average for sentinel buoy – 5.3 NTU
 - Greatest difference between ambient and sentinel buoy during 15-minute interval with sentinel buoy exceeding ambient buoy – 22.0 NTU at 0830.
- Measurements for 9/26/18:
 - Daily average for ambient buoy – 3.8 NTU
 - Daily average for sentinel buoy – 2.4 NTU
 - Greatest difference between ambient and sentinel buoy during 15-minute interval with sentinel buoy exceeding ambient buoy – 4.0 NTU at 0730.
- Measurements for 9/27/18:
 - Daily average for ambient buoy – 4.0 NTU
 - Daily average for sentinel buoy – 2.7 NTU
 - Greatest difference between ambient and sentinel buoy during 15-minute interval with sentinel buoy exceeding ambient buoy – 1.6 NTU at 1415.



- Measurements for 9/28/18:
 - Daily average for ambient buoy – 4.8 NTU
 - Daily average for sentinel buoy – 5.4 NTU
 - Greatest difference between ambient and sentinel buoy during 15-minute interval with sentinel buoy exceeding ambient buoy – 3.2 NTU at 1015.

Community Air Monitoring Program – TRC CAMP

- Operated and maintained two (2) air monitoring stations at the upland staging area and five (5) monitoring station at the 4th Street Turning Basin Area.
- No exceedances of particulate matter of 10 microns in diameter or smaller (PM₁₀) or total volatile organic compounds (TVOC) of the action level of 150 micrograms per cubic meter or 1,000 parts per billion, respectively.
- Maximum weekly measurements of PM₁₀ in µg/m³
 - Station 1 – 24 µg/m³ recorded on 09/26/18
 - Station 2 – 18 µg/m³ recorded on 09/24/18
 - Station 3 – 56 µg/m³ recorded on 09/25/18
 - Station 4 – 22 µg/m³ recorded on 09/25/18
 - Station 5 – 33 µg/m³ recorded on 09/25/18
 - Station 6 – 30 µg/m³ recorded on 09/25/18
 - Station 7 – <1 µg/m³ recorded throughout the week
- Maximum weekly measurements of TVOC in ppb
 - Station 1 – 31 ppb recorded on 09/26/18
 - Station 2 – <1 ppb recorded throughout the week
 - Station 3 – 42 ppb recorded on 09/26/18
 - Station 4 – 130 ppb recorded on 09/24/18
 - Station 5 – 147 ppb recorded on 09/24/18
 - Station 6 – 102 ppb recorded on 09/26/18
 - Station 7 – <1 ppb recorded throughout the week
- 23-hour samples collected at ST-2 collected on 09/24 through 09/25 and ST-3 collected on 09/26 through 09/27. Laboratory turnaround time is 10 business days.
- Tabulated laboratory analytical results for 23-hour sample collected at ST-3 on 09/04 through 09/06 and ST-4 on 09/06 through 09/07 presented in weekly CAMP report.

Noise and Vibration Monitoring – Wilson Ihrig

- Operated and maintained two (2) noise monitors: NM-1 (north side of canal on Whole Foods promenade) and NM-2 (south side of canal on southeast corner of 386 3rd Avenue).
- Exceedances at southern monitor of the hourly Leq noise limit of 80 dBA on 09/24/18 associated with work conducted in parking lot at 386 3rd Avenue.
- Greatest hourly Leq noise measurements
 - Northern monitor (NM-1) – 71.7 dBA during 0800-0900 on 09/25/18
 - Southern monitor (NM-2) – 95.7 dBA during 1300-1400 on 09/24/18

Cultural Natural Resource Monitoring – Archeology and Historic Resource Services (AHRS)

- No activities conducted during week.



Two-Week Look Ahead:

Sevenson:

- Treatment and discharge of water accumulated during decontamination operations.
- Perform optical monitoring of bulkheads and surrounding structures with autonomous total survey stations. Along with weekly optical surveys conducted by subcontractor.
- Continue placement of articulated concrete block mats.
- Cleaning of rip rap adjacent to Whole Foods pending EPA approval.

Geosyntec – Perform construction quality assurance responsibilities, including collection of water samples from dredge water treatment system.

TRC CAMP Monitoring – Perform community air monitoring.

Wilson Ihrig – Perform noise monitoring,

AHRS – Finalize inventory and final report for EPA review.

Key Milestones

- Complete placement of sand isolation and filter layer on 09/24/18.

Attachments:

1. Geosyntec In-Canal Water Quality Monitoring Weekly Data Summary
2. TRC Weekly CAMP Report
3. Wilson Ihrig Weekly Noise and Vibration Monitoring Report
4. AHRS Weekly Report (no activities during week)
5. Water Treatment System Monitoring Analytical Laboratory Data (no activities during week)
6. Cumulative Dredged Material Chart (no activities during week)



Client Name: Gowanus ERT	Site Location: TB-4 Pilot Study	Project No.: 283126.0000.0001
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Photo No. 001	Date 09-24-2018
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Description
Loading sand hopper with rubber tired loader.



Photo No. 002	Date 09-24-2018
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Description
Crane placing equipment onto barge for use in the diving operations, including placement of concrete mats.



Client Name: Gowanus ERT	Site Location: TB-4 Pilot Study	Project No.: 283126.0000.0001
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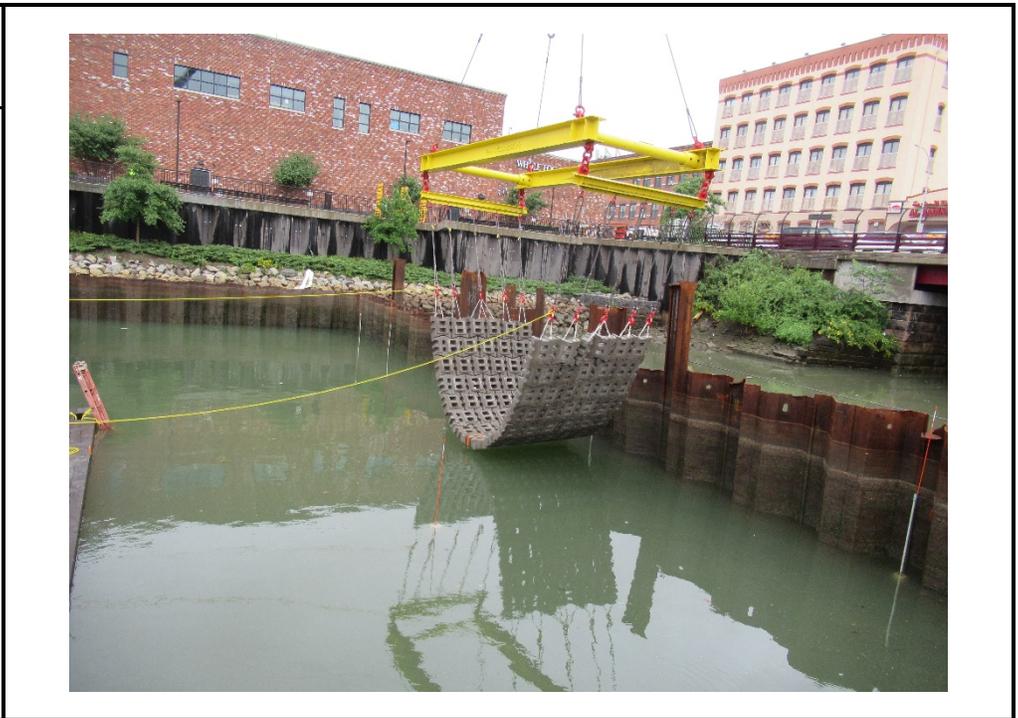
Photo No. 003	Date 09-25-2018
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Description
Tugboat Foxy 5 pushing the crane barge into TB-4 for placement of the ACB mats.



Photo No. 004	Date 09-25-2018
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Description
ACB mats being lowered by crane for placement in southeast corner of TB-4.



Client Name: Gowanus ERT	Site Location: TB-4 Pilot Study	Project No.: 283126.0000.0001
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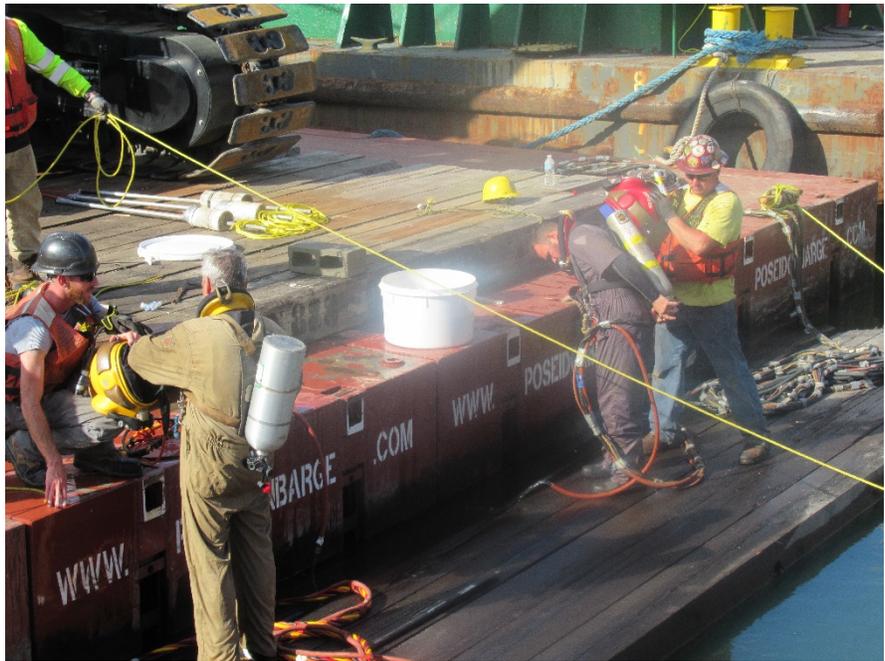
Photo No. 005	Date 09-26-2018
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Description
Two mats being lifted for placement in TB-4.



Photo No. 006	Date 09-26-2018
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Description
Divers preparing to enter the water.



Client Name: Gowanus ERT	Site Location: TB-4 Pilot Study	Project No.: 283126.0000.0001
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Photo No. 007	Date 09-27-2018
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Description
Diver entering the water for placement of ACB mats.



Photo No. 008	Date 09-27-2018
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Description
Lowering ACB mats into position.



Client Name: Gowanus ERT	Site Location: TB-4 Pilot Study	Project No.: 283126.0000.0001
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Photo No. 009	Date 09-28-2018
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Description
Diver exiting the water.



Photo No. 010	Date 09-28-2018
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Description
Diver entering the water.



GEOSYNTEC IN-CANAL WATER QUALITY MONITORING WEEKLY DATA SUMMARY



GOWANUS CANAL SUPERFUND SITE DREDGING AND CAPPING PILOT STUDY Water Quality Monitoring Weekly Data Summary

Week of September 24th, 2018

Report Contents

- Scope of Monitoring
- Turbidity Buoy Data
- Handheld Measurements
- Summary of Visual Observations
 - Report of Exceedances

Prepared by

Geosyntec  **Beech and Bonaparte** 
consultants engineering p.c.

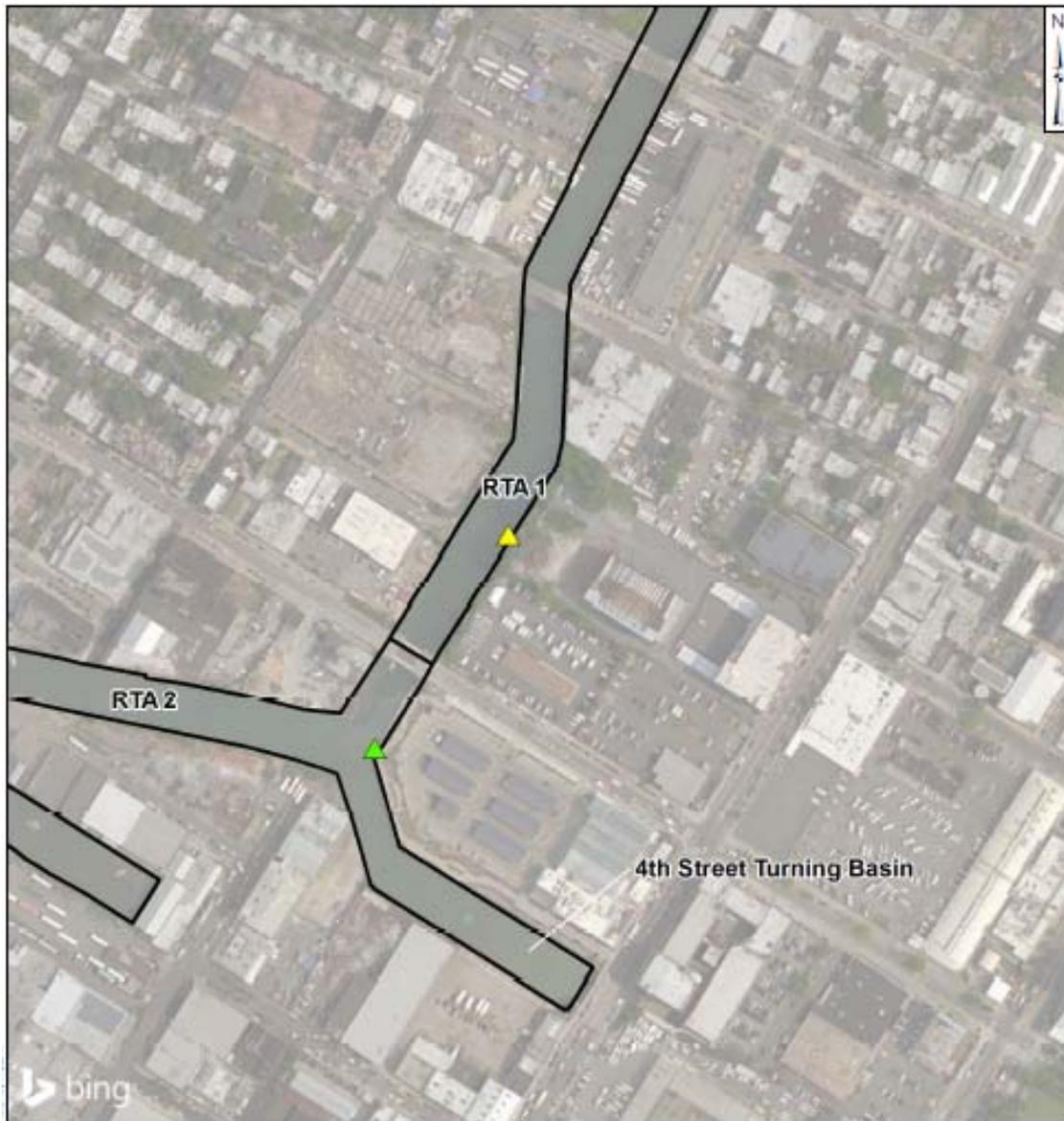
engineers | scientists | innovators

an affiliate of Geosyntec Consultants

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Project Number HPH106A (52)

1. SCOPE OF MONITORING

The following report summarizes water quality monitoring data collected during the week of September 24th, 2018. Two turbidity buoys were deployed to monitor turbidity during the pilot study. One turbidity buoy was deployed just outside of the 4th Street Turning Basin and is referred to as the sentinel buoy. A second turbidity buoy was deployed further upstream in RTA1 in order to monitor background turbidity unaffected by on-water construction activities. This turbidity buoy is referred to as the ambient buoy. A map indicating the approximate locations of the turbidity buoys is provided in Figure 1. Each turbidity buoy was equipped with a YSI 600 OMS water quality meter with optical turbidity sensor. The buoys were programmed such that readings were collected every 15 minutes. After each measurement, the turbidity data were transmitted to a FTP site via telemetry. This report provides the turbidity data collected every 15 minutes from both the ambient and sentinel buoys during each day between 7 AM and 5 PM during the week of September 24th. Average and maximum turbidity are also presented. No handheld measurements were collected during this reporting period. Visual observations of turbidity and sheen are summarized in Section 4. The data provided in this summary report have not yet been validated and should be considered preliminary. An exceedance of the visual action criterion occurred on the morning of September 24 as a result of suspended capping material escaping the turning basin. Further detail regarding this exceedance is provided in Section 4 and Section 5.



- Legend**
-  Ambient Buoy
 -  Sentinel Buoy
 -  RTA Boundary

300 150 0 300 Feet

Turbidity Buoy Locations

Gowanus Canal, Brooklyn, NY

Gowanus Canal Remedial Design Group Geosyntec consultants Beech and Bospage engineering, p.c.

Ewing, NJ

October 2017

Figure

1

2. TURBIDITY BUOY DATA

The following section provides turbidity data for the sentinel and ambient turbidity buoys from 7 AM to 5 PM from September 24th to September 28th, 2018. Background data prior to the start of dredging is provided in Appendix A. No exceedances to the numerical rolling average threshold criteria were observed during the reporting period. Two spikes in turbidity were observed at the sentinel buoy on September 24th at 12:00 (during the exceedance to the visual action criterion) and at 14:00 and on September 25th at 08:30. Routine maintenance of the turbidity buoys was performed on the afternoon of September 28th. During this time, data was not recorded at the turbidity buoys. On-waterway construction activities at this time consisted of ACB mat placement.

2.1 Monday, September 24th, 2018

Time (Local)	Ambient Turbidity (NTU)	Sentinel Turbidity (NTU)	Sentinel >Ambient (Y/N)	Time (Local)	Ambient Turbidity (NTU)	Sentinel Turbidity (NTU)	Sentinel >Ambient (Y/N)
9/24/2018 7:00	1.7	10.7	Y	9/24/2018 12:15	2.8	8.1	Y
9/24/2018 7:15	1.9	1.3	N	9/24/2018 12:30	3.3	12.7	Y
9/24/2018 7:30	2.3	2.1	N	9/24/2018 12:45	2.7	5.4	Y
9/24/2018 7:45	2.2	1.0	N	9/24/2018 13:00	3.5	5.2	Y
9/24/2018 8:00	2.1	1.2	N	9/24/2018 13:15	2.3	5.7	Y
9/24/2018 8:15	1.6	0.6	N	9/24/2018 13:30	3.2	18.4	Y
9/24/2018 8:30	2.2	1.3	N	9/24/2018 13:45	3.7	23.5	Y
9/24/2018 8:45	2.1	1.2	N	9/24/2018 14:00	2.4	28.1	Y
9/24/2018 9:00	2.2	1.9	N	9/24/2018 14:15	2.9	21.5	Y
9/24/2018 9:15	2.5	3.9	Y	9/24/2018 14:30	3.0	18.5	Y
9/24/2018 9:30	3.6	7.2	Y	9/24/2018 14:45	3.7	22.6	Y
9/24/2018 9:45	4.4	5.6	Y	9/24/2018 15:00	3.8	16.0	Y
9/24/2018 10:00	6.3	4.2	N	9/24/2018 15:15	4.5	16.1	Y
9/24/2018 10:15	8.0	9.1	Y	9/24/2018 15:30	3.9	11.3	Y
9/24/2018 10:30	6.0	12.1	Y	9/24/2018 15:45	3.6	16.1	Y
9/24/2018 10:45	5.2	10.6	Y	9/24/2018 16:00	4.2	6.5	Y
9/24/2018 11:00	4.7	20.7	Y	9/24/2018 16:15	4.1	4.4	Y
9/24/2018 11:15	4.6	21.2	Y	9/24/2018 16:30	4.1	8.5	Y
9/24/2018 11:30	3.9	20.1	Y	9/24/2018 16:45	3.2	5.5	Y
9/24/2018 11:45	3.2	16.1	Y	9/24/2018 17:00	3.3	5.2	Y
9/24/2018 12:00	3.0	31.7	Y				
Average	3.5	10.8	Y				
Maximum	8.0	31.7	Y				

Notes:

No exceedance to rolling average threshold criteria during reporting period

Values highlighted in green are greater than 20 NTU above the ambient buoy reading

Values highlighted in blue are greater than 40 NTU above the ambient buoy reading

2.2 Tuesday, September 25th, 2018

Time (Local)	Ambient Turbidity (NTU)	Sentinel Turbidity (NTU)	Sentinel >Ambient (Y/N)	Time (Local)	Ambient Turbidity (NTU)	Sentinel Turbidity (NTU)	Sentinel >Ambient (Y/N)
9/25/2018 7:00	1.4	2.3	Y	9/25/2018 12:15	4.7	4.6	N
9/25/2018 7:15	1.5	3.2	Y	9/25/2018 12:30	5.5	3.1	N
9/25/2018 7:30	1.6	2.7	Y	9/25/2018 12:45	4.3	4.3	N
9/25/2018 7:45	1.9	3.3	Y	9/25/2018 13:00	4.3	4.4	Y
9/25/2018 8:00	2.5	3.3	Y	9/25/2018 13:15	3.9	3.3	N
9/25/2018 8:15	2.2	5.1	Y	9/25/2018 13:30	3.9	3.6	N
9/25/2018 8:30	2.4	24.4	Y	9/25/2018 13:45	4.3	3.0	N
9/25/2018 8:45	3.3	13.0	Y	9/25/2018 14:00	5.6	2.1	N
9/25/2018 9:00	3.0	17.1	Y	9/25/2018 14:15	5.5	3.5	N
9/25/2018 9:15	5.4	9.2	Y	9/25/2018 14:30	7.8	2.4	N
9/25/2018 9:30	5.1	7.3	Y	9/25/2018 14:45	7.9	5.5	N
9/25/2018 9:45	4.8	5.8	Y	9/25/2018 15:00	6.3	4.7	N
9/25/2018 10:00	9.3	5.3	N	9/25/2018 15:15	7.2	5.6	N
9/25/2018 10:15	9.2	4.7	N	9/25/2018 15:30	6.1	4.8	N
9/25/2018 10:30	8.0	4.9	N	9/25/2018 15:45	4.6	4.4	N
9/25/2018 10:45	7.6	3.5	N	9/25/2018 16:00	5.3	5.9	Y
9/25/2018 11:00	7.5	4.4	N	9/25/2018 16:15	5.7	2.9	N
9/25/2018 11:15	5.8	6.2	Y	9/25/2018 16:30	4.2	3.7	N
9/25/2018 11:30	5.5	5.0	N	9/25/2018 16:45	5.9	3.0	N
9/25/2018 11:45	5.7	3.3	N	9/25/2018 17:00	4.0	2.8	N
9/25/2018 12:00	5.2	4.1	N				

Average	5.0	5.3	Y
Maximum	9.3	24.4	Y

Notes:

No exceedance to rolling average threshold criteria during reporting period

Values highlighted in green are greater than 20 NTU above the ambient buoy reading

Values highlighted in blue are greater than 40 NTU above the ambient buoy reading

2.3 Wednesday, September 26th, 2018

Time (Local)	Ambient Turbidity (NTU)	Sentinel Turbidity (NTU)	Sentinel >Ambient (Y/N)	Time (Local)	Ambient Turbidity (NTU)	Sentinel Turbidity (NTU)	Sentinel >Ambient (Y/N)
9/26/2018 7:00	2.0	3.9	Y	9/26/2018 12:15	4.5	3.0	N
9/26/2018 7:15	2.6	0.7	N	9/26/2018 12:30	4.1	1.4	N
9/26/2018 7:30	1.6	5.6	Y	9/26/2018 12:45	3.9	2.3	N
9/26/2018 7:45	2.4	2.1	N	9/26/2018 13:00	4.3	2.4	N
9/26/2018 8:00	2.2	0.4	N	9/26/2018 13:15	3.9	2.2	N
9/26/2018 8:15	2.4	1.8	N	9/26/2018 13:30	4.0	2.1	N
9/26/2018 8:30	2.7	1.8	N	9/26/2018 13:45	4.6	2.5	N
9/26/2018 8:45	2.6	4.2	Y	9/26/2018 14:00	3.0	2.5	N
9/26/2018 9:00	2.9	1.9	N	9/26/2018 14:15	2.8	1.8	N
9/26/2018 9:15	3.5	3.6	Y	9/26/2018 14:30	3.2	2.2	N
9/26/2018 9:30	2.6	3.2	Y	9/26/2018 14:45	3.8	1.3	N
9/26/2018 9:45	2.2	1.5	N	9/26/2018 15:00	5.6	1.8	N
9/26/2018 10:00	5.1	2.9	N	9/26/2018 15:15	4.2	1.8	N
9/26/2018 10:15	3.8	2.0	N	9/26/2018 15:30	3.9	1.9	N
9/26/2018 10:30	3.9	1.8	N	9/26/2018 15:45	4.6	1.8	N
9/26/2018 10:45	4.6	1.5	N	9/26/2018 16:00	5.2	2.0	N
9/26/2018 11:00	5.4	2.2	N	9/26/2018 16:15	4.3	3.5	N
9/26/2018 11:15	3.7	3.4	N	9/26/2018 16:30	5.2	1.3	N
9/26/2018 11:30	6.3	3.5	N	9/26/2018 16:45	4.4	2.7	N
9/26/2018 11:45	5.2	3.4	N	9/26/2018 17:00	4.0	3.3	N
9/26/2018 12:00	4.2	3.6	N				
Average	3.8	2.4	N				
Maximum	6.3	5.6	N				

Notes:

No exceedance to rolling average threshold criteria during reporting period

Values highlighted in green are greater than 20 NTU above the ambient buoy reading

Values highlighted in blue are greater than 40 NTU above the ambient buoy reading

2.5 Friday, September 28th, 2018

Time (Local)	Ambient Turbidity (NTU)	Sentinel Turbidity (NTU)	Sentinel >Ambient (Y/N)	Time (Local)	Ambient Turbidity (NTU)	Sentinel Turbidity (NTU)	Sentinel >Ambient (Y/N)
9/28/2018 7:00	10.7	10.9	Y	9/28/2018 12:15	3.4	2.8	N
9/28/2018 7:15	11.0	9.8	N	9/28/2018 12:30	4.7	4.2	N
9/28/2018 7:30	8.3	9.2	Y	9/28/2018 12:45	3.3	4.5	Y
9/28/2018 7:45	6.9	9.7	Y	9/28/2018 13:00	2.9	3.5	Y
9/28/2018 8:00	6.7	7.5	Y	9/28/2018 13:15	3.0	2.4	N
9/28/2018 8:15	5.0	7.9	Y	9/28/2018 13:30	3.4	3.1	N
9/28/2018 8:30	5.6	5.0	N	9/28/2018 13:45	3.6	3.1	N
9/28/2018 8:45	6.4	6.8	Y	9/28/2018 14:00	3.2	2.0	N
9/28/2018 9:00	5.6	5.1	N	9/28/2018 14:15	3.5	--	Y
9/28/2018 9:15	5.7	5.0	N	9/28/2018 14:30	--	--	N
9/28/2018 9:30	4.5	5.1	Y	9/28/2018 14:45	--	--	N
9/28/2018 9:45	4.1	4.4	Y	9/28/2018 15:00	--	--	N
9/28/2018 10:00	4.6	5.1	Y	9/28/2018 15:15	--	--	N
9/28/2018 10:15	4.3	7.5	Y	9/28/2018 15:30	--	--	N
9/28/2018 10:30	4.0	5.1	Y	9/28/2018 15:45	--	--	N
9/28/2018 10:45	3.9	4.7	Y	9/28/2018 16:00	--	--	N
9/28/2018 11:00	3.6	4.4	Y	9/28/2018 16:15	--	--	N
9/28/2018 11:15	3.4	3.3	N	9/28/2018 16:30	--	--	N
9/28/2018 11:30	3.6	3.8	Y	9/28/2018 16:45	--	--	N
9/28/2018 11:45	3.5	4.6	Y	9/28/2018 17:00	--	--	N
9/28/2018 12:00	2.9	4.8	Y				

Average	4.8	5.4	Y
Maximum	11.0	10.9	N

Notes:

No exceedance to rolling average threshold criteria during reporting period

Values highlighted in green are greater than 20 NTU above the ambient buoy reading

Values highlighted in blue are greater than 40 NTU above the ambient buoy reading

3. HANDHELD MEASUREMENTS

No handheld measurements were collected during this reporting period.

4. SUMMARY OF VISUAL OBSERVATIONS

At 12:00 on September 24 water quality monitoring staff observed suspended capping material migrating from TB4 into the main channel of the Canal. This occurred during hydraulic capping with sand. Based on visual observations the suspended capping material migrated upstream approximately 30 feet beyond the sentinel turbidity buoy toward the 3rd Street Bridge and as far downstream as Canal station MC2500. This observation resulted in an exceedance to the visual action level criterion.

5. REPORT OF EXCEEDANCES

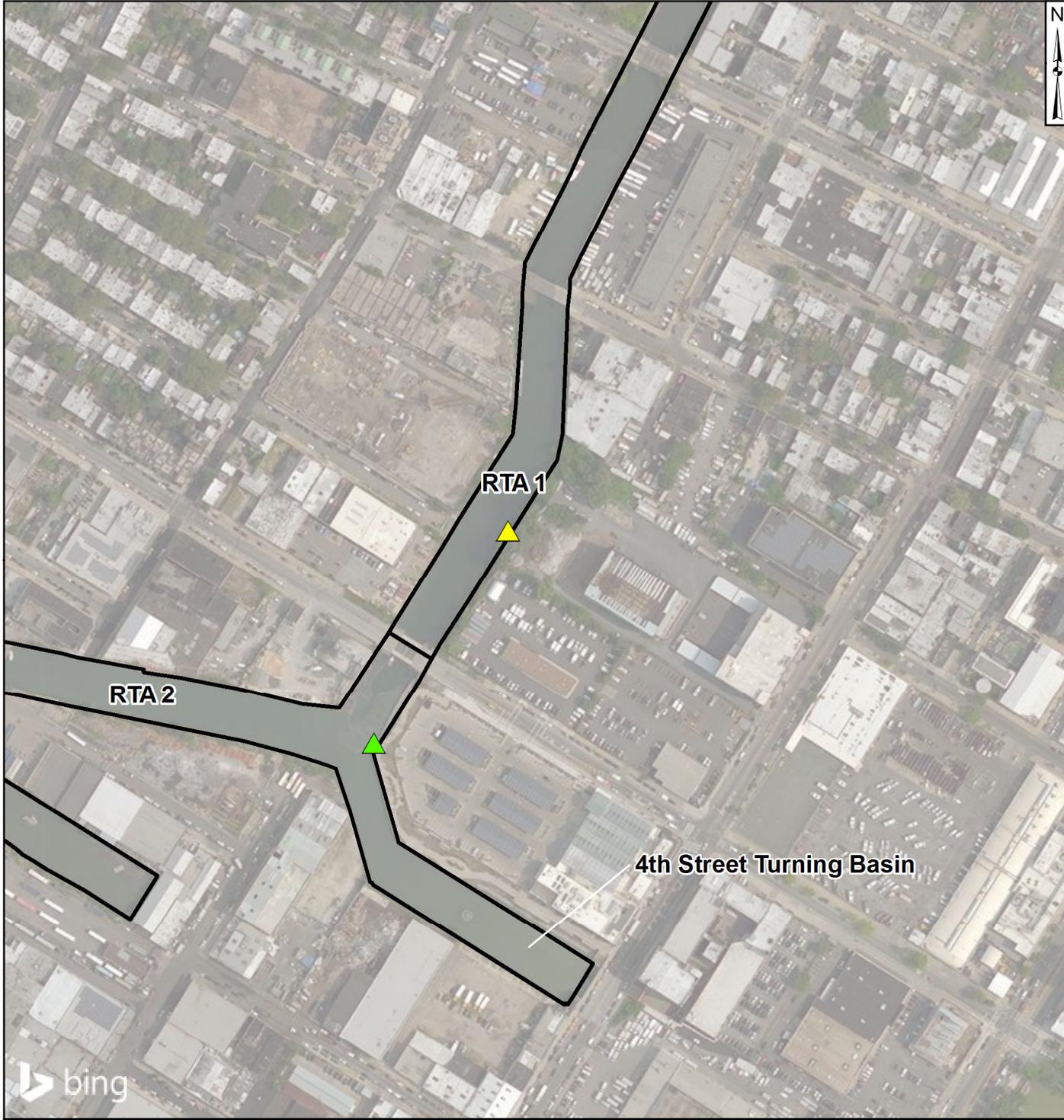
An exceedance of the action level criterion occurred midday on September 24 due to visual observation of suspended capping material escaping the turning basin. The suspended sand capping material was also detected by the sentinel turbidity buoy with a spike in turbidity of 31.70 NTU at 12:00 compared to a turbidity recorded by the ambient buoy of 3.00 NTU. There was no precipitation within a 24-hr period of the observations. The tide was ebbing from TB4 to the main channel of the Canal. Construction activities occurring during the exceedance consisted of hydraulic placement of sand along the southern extent of the turning basin. Both the air curtain and turbidity curtain were in use when the exceedance occurred. However, suspended sand capping material was bypassing the turbidity curtain in gaps between the turbidity curtain and the northern and southern boundary of TB4. The Contractor reported that the turbidity curtain was closed when the tide was flooding earlier in the morning. The change in tide from flood to ebb caused a shift in the turbidity curtain and resulted in the formation of small gaps at the ends of the curtain. The Contractor was notified of the escaping material immediately. In response, the Contractor tightened the turbidity curtain and closed the gaps. Moving forward the Contractor will check the curtain after changes in tide conditions to ensure that no gaps form.

Refer to the Water Quality Monitoring Plan for In-waterway Construction Activities (Geosyntec 2017) for further information regarding the Trigger and Action Criteria. Threshold criteria are summarized as follows:

- **Trigger criterion** – Any of the following:
 - The rolling average of the sentinel buoy turbidity measurements over a one-hour period exceeds the rolling average of the ambient buoy turbidity measurements by 20 NTU excluding any eliminated outlier measurements; or
 - Either an oil sheen or a turbidity plume is visually observed outside of engineering controls and in-waterway construction activities cannot be immediately excluded as the source.
- **Action criterion** – Any of the following:

- The rolling average of the sentinel buoy turbidity measurements over a one-hour period exceeds the rolling average of the ambient buoy turbidity measurements by 40 NTU excluding any eliminated outlier measurements; or
- Either an oil sheen or a turbidity plume is visually observed outside of engineering controls and in-waterway construction activities are readily identified as the source.

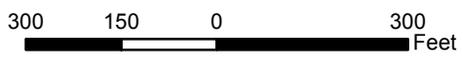
FIGURES



X:\03_GIS\mxd\Canal_Wide_Turbidity_Buoy_Locations.mxd; acarnes; 10/19/2017

Legend

-  Ambient Buoy
-  Sentinel Buoy
-  RTA Boundary



Turbidity Buoy Locations

Gowanus Canal, Brooklyn, NY

Gowanus Canal Remedial Design Group Geosyntec consultants Beech and Bonaparte engineering p.c. an affiliate of Geosyntec Consultants

Ewing, NJ

October 2017

Figure

1

APPENDIX A
PRE-DREDGE TURBIDITY BUOY DATA

Time (Local)	Ambient Turbidity (NTU)	Sentinel Turbidity (NTU)	Sentinel> Ambient (Y/N)	Time (Local)	Ambient Turbidity (NTU)	Sentinel Turbidity (NTU)	Sentinel> Ambient (Y/N)	Time (Local)	Ambient Turbidity (NTU)	Sentinel Turbidity (NTU)	Sentinel> Ambient (Y/N)
10/3/2017 15:00	7.4	2.7	N	10/4/2017 4:30	4.8	7.1	Y	10/4/2017 18:00	6.9	2.7	N
10/3/2017 15:15	6.6	2.4	N	10/4/2017 4:45	5	6.3	Y	10/4/2017 18:15	7.2	2.7	N
10/3/2017 15:30	6.4	2.7	N	10/4/2017 5:00	4.7	6	Y	10/4/2017 18:30	7.8	3.4	N
10/3/2017 15:45	6.9	2	N	10/4/2017 5:15	5.1	6.4	Y	10/4/2017 18:45	8.2	4.4	N
10/3/2017 16:00	6.3	2.1	N	10/4/2017 5:30	5	7.3	Y	10/4/2017 19:00	7.5	3.1	N
10/3/2017 16:15	6.5	2.4	N	10/4/2017 5:45	5.4	7.8	Y	10/4/2017 19:15	8.7	3.6	N
10/3/2017 16:30	7.1	2.9	N	10/4/2017 6:00	5.5	8.3	Y	10/4/2017 19:30	8.7	4.5	N
10/3/2017 16:45	6.1	2.8	N	10/4/2017 6:15	5.2	9	Y	10/4/2017 19:45	9.4	4.1	N
10/3/2017 17:00	7	2.8	N	10/4/2017 6:30	5.8	7.2	Y	10/4/2017 20:00	8.4	4	N
10/3/2017 17:15	7	4.4	N	10/4/2017 6:45	5.4	8.8	Y	10/4/2017 20:15	8.2	4	N
10/3/2017 17:30	7	4.7	N	10/4/2017 7:00	5.5	8	Y	10/4/2017 20:30	9	3.6	N
10/3/2017 17:45	6.3	4	N	10/4/2017 7:15	5.6	7.5	Y	10/4/2017 20:45	8.4	3.5	N
10/3/2017 18:00	6.5	6.9	Y	10/4/2017 7:30	6.9	7.2	Y	10/4/2017 21:00	9.5	4.7	N
10/3/2017 18:15	7.8	6.7	Y	10/4/2017 7:45	6.8	6.1	N	10/4/2017 21:15	10.2	3.9	N
10/3/2017 18:30	7.9	6.5	N	10/4/2017 8:00	6.7	7.4	Y	10/4/2017 21:30	9.5	3.5	N
10/3/2017 18:45	8.5	5.9	N	10/4/2017 8:15	7.3	6.1	N	10/4/2017 21:45	8.9	3.6	N
10/3/2017 19:00	7.9	6	N	10/4/2017 8:30	7.2	4.6	N	10/4/2017 22:00	8.6	2.9	N
10/3/2017 19:15	7.4	6.3	N	10/4/2017 8:45	6.6	9	Y	10/4/2017 22:15	8.7	3.6	N
10/3/2017 19:30	7.4	4.3	N	10/4/2017 9:00	9.2	14.1	Y	10/4/2017 22:30	8.4	6.3	N
10/3/2017 19:45	8.3	4.6	N	10/4/2017 9:15	7.9	4.8	N	10/4/2017 22:45	7.3	3.3	N
10/3/2017 20:00	8.9	5.2	N	10/4/2017 9:30	9.3	4.6	N	10/4/2017 23:00	7.4	3.8	N
10/3/2017 20:15	8.6	4.5	N	10/4/2017 9:45	7.6	5.1	N	10/4/2017 23:15	7.1	4.5	N
10/3/2017 20:30	8	4.9	N	10/4/2017 10:00	8.1	3.9	N	10/4/2017 23:30	7	3.8	N
10/3/2017 20:45	10.6	4.3	N	10/4/2017 10:15	7.8	3.1	N	10/4/2017 23:45	8.3	5.3	N
10/3/2017 21:00	11.1	4.6	N	10/4/2017 10:30	7.3	4.5	N	10/5/2017 0:00	7.7	6.2	N
10/3/2017 21:15	9.8	4.7	N	10/4/2017 10:45	7.5	3.9	N	10/5/2017 0:15	7.8	5.1	N
10/3/2017 21:30	8.8	4.6	N	10/4/2017 11:00	7.6	9	Y	10/5/2017 0:30	7.2	5.7	N
10/3/2017 21:45	9	4.7	N	10/4/2017 11:15	6.5	16.7	Y	10/5/2017 0:45	7	5.4	N
10/3/2017 22:00	8.3	4.8	N	10/4/2017 11:30	7.4	6	N	10/5/2017 1:00	7.5	4.9	N
10/3/2017 22:15	7.3	6.1	N	10/4/2017 11:45	6.8	5.3	N	10/5/2017 1:15	7	8.2	Y
10/3/2017 22:30	7	4.7	N	10/4/2017 12:00	7.7	5.1	N	10/5/2017 1:30	8.1	4.9	N
10/3/2017 22:45	6.6	5.3	N	10/4/2017 12:15	6.6	6.1	N	10/5/2017 1:45	9.1	6.5	N
10/3/2017 23:00	7.1	6.1	N	10/4/2017 12:30	7.6	4	N	10/5/2017 2:00	9.2	5.2	N
10/3/2017 23:15	6.5	6	N	10/4/2017 12:45	7.7	3.9	N	10/5/2017 2:15	8.5	3.7	N
10/3/2017 23:30	6.6	6.9	Y	10/4/2017 13:00	8.3	4.8	N	10/5/2017 2:30	10.2	5.2	N
10/3/2017 23:45	7.2	5.2	N	10/4/2017 13:15	8.5	3.9	N	10/5/2017 2:45	10.1	4.2	N
10/4/2017 0:00	6.8	6.3	N	10/4/2017 13:30	9.2	5.5	N	10/5/2017 3:00	10.3	4.9	N
10/4/2017 0:15	7.2	5.6	N	10/4/2017 13:45	9.4	4.5	N	10/5/2017 3:15	9	6.3	N
10/4/2017 0:30	7.4	6.4	N	10/4/2017 14:00	11.1	3.1	N	10/5/2017 3:30	9.2	4.5	N
10/4/2017 0:45	7.1	5	N	10/4/2017 14:15	10	2.5	N	10/5/2017 3:45	8.4	4.1	N
10/4/2017 1:00	7.1	4.3	N	10/4/2017 14:30	9.8	2	N	10/5/2017 4:00	7.4	4.4	N
10/4/2017 1:15	8.3	4.6	N	10/4/2017 14:45	9.7	2.1	N	10/5/2017 4:15	7.3	4.4	N
10/4/2017 1:30	9	5.1	N	10/4/2017 15:00	9.3	2.4	N	10/5/2017 4:30	6.4	4.6	N
10/4/2017 1:45	7.9	4.5	N	10/4/2017 15:15	8.5	2.1	N	10/5/2017 4:45	6.2	5.1	N
10/4/2017 2:00	9.1	4	N	10/4/2017 15:30	8.5	1.8	N	10/5/2017 5:00	5.3	5.2	N
10/4/2017 2:15	7	5.3	N	10/4/2017 15:45	7.2	1.8	N	10/5/2017 5:15	5.3	5.3	N
10/4/2017 2:30	7.2	5.5	N	10/4/2017 16:00	7.3	1.6	N	10/5/2017 5:30	4.8	5	Y
10/4/2017 2:45	6.6	4.8	N	10/4/2017 16:15	6.4	1.8	N	10/5/2017 5:45	5.7	5	N
10/4/2017 3:00	6.6	5.7	N	10/4/2017 16:30	7	1.6	N	10/5/2017 6:00	5.6	4.8	N
10/4/2017 3:15	6.2	5.1	N	10/4/2017 16:45	7.5	2.6	N	10/5/2017 6:15	5.4	4.9	N
10/4/2017 3:30	5.9	4.7	N	10/4/2017 17:00	6.4	2.7	N	10/5/2017 6:30	6.1	5.7	N
10/4/2017 3:45	5.5	5.9	N	10/4/2017 17:15	6.5	2	N	10/5/2017 6:45	5.9	6.4	Y
10/4/2017 4:00	4.9	6.4	Y	10/4/2017 17:30	6.7	2.3	N	10/5/2017 7:00	6.1	7.8	Y
10/4/2017 4:15	5.1	7	Y	10/4/2017 17:45	6.6	2.1	N				
Average	7.5	6.0	N								
Maximum	11.1	16.7	Y								

TRC WEEKLY COMMUNITY AIR MONITORING PROJECT REPORT





**Gowanus Canal Superfund Site
TB-4 Dredging and Capping Pilot Study
Brooklyn, New York
Weekly Report
(TRC Project No.274286-0000-00000)**

**Community Air Monitoring Project
51st Weekly Monitoring Period
Summary Report:**

September 24th, through September 28th, 2018

Report Contents

- Executive Summary
- Daily Data Summary Report – PM₁₀/TVOC
 - Daily Meteorological Summary Report
 - Periodic Monitoring Results
- Volatile Organic Compounds (USEPA Method TO-15)

Gowanus Canal Superfund Site TB-4 Dredging and Capping Pilot Study Brooklyn, New York

Executive Summary – Week 51 Monitoring Period September 24th through September 28th, 2018

The following report summarizes site air monitoring activities for the Week 51 monitoring period from September 24th through September 28th, 2018. The start and stop times associated with each daily monitoring period are listed on the respective daily reports.

TRC continued to operate two (2) air monitoring stations on the Citizen Property or Staging Area, and five (5) air monitoring stations in the 4th St Turning Basin Area using the equipment specified previously in the *Gowanus Canal TB-4 Dredging and Pilot Study Executive Summary – Background Monitoring Period Report*. During the Week 51 monitoring period there were no PM₁₀ or TVOC exceedances of the action level of 150 ug/m³ or 1,000 ppb respectively as defined in the *Community Air Monitoring Plan for the Gowanus Canal TB-4 Dredging and Pilot Study Project Brooklyn, NY, August 2017*.

Figure 1 depicts Total Volatile Organics (TVOC) daily averages and maximums. Figure 2 depicts particulate monitoring (PM₁₀) daily averages and maximums. Figure 3 depicts the station locations along the Gowanus Canal.

Additional monitoring for hydrogen sulfide, ammonia, and formaldehyde took place at all stations throughout the Week 51 monitoring period twice daily. The results of these measurements are shown in Table 1.

During the Week 51 monitoring period of September 24th through September 28th, 2018 TRC conducted Volatile Organic Compounds (USEPA Method TO-15) sampling at Stations 2 and 3. The ST-2 sample was collected on September 24th through September 25th, 2018 and the ST-3 sample was collected on September 26th through September 27th, 2018. Both samples were collected over a 23-hour period and shipped to Con-Test

Analytical Laboratory for analyses. The results of the summa canister sampling are pending lab analyses.

Table 2 presents the analytical results for 23-hour samples collected at Station 3 and 4 during Week 48. The ST-3 sample was collected on September 4th through 5th, 2018 and the ST-4 sample was collected on September 6th through 7th, 2018. Sampling results were either not detected above the laboratory detection limit or consistent with concentrations detected during background monitoring conducted between August 28th and 31st, 2017.

Site activities which were conducted at the Citizen Property during September 24th through September 28th, 2018 included the following:

- Material and equipment deliveries on Citizen Property
- General vehicular traffic site-wide throughout the monitoring period
- Maintenance of the barges and equipment
- Continue decontaminating and demobilizing equipment

Site activities which were conducted at the 4th St Turning Basin Area of the Canal during September 24th through September 28th, 2018 included the following:

- Complete hydraulic placement of sand isolation and filter layer
- Collect cores and retrieve catch pans to measure thickness of sand isolation and filter layer placed
- Mobilize crane and articulated concrete block mats for installation
- Commence placement of articulated concrete block mats in southeast corner of 4th St Turning Basin.
- Total of 34 mats of required 255 placed via crane and divers during period

Gowanus Canal Superfund Site
TB-4 Dredging and Capping Pilot Study
Brooklyn, New York
Daily Station Report – TVOC/PM₁₀
(TRC Project No.274286-0000-00000)
09/24/2018 06:30 AM - 09/24/2018 23:45 PM

Station 1 (Citizen Property near Construction Trailers)

TVOC			PM ₁₀		
Max.	<1	ppb	Max.	9	ug/m ³
Avg.	<1	ppb	Avg.	6	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 2 (Citizen Property near Pad Area)

TVOC			PM ₁₀		
Max.	<1	ppb	Max.	18	ug/m ³
Avg.	<1	ppb	Avg.	9	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 3 (Whole Foods Property NW Riverwalk Location)

TVOC			PM ₁₀		
Max.	30	ppb	Max.	26	ug/m ³
Avg.	26	ppb	Avg.	16	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 4 (Whole Foods Property Central Riverwalk Location)

TVOC			PM ₁₀		
Max.	130	ppb	Max.	12	ug/m ³
Avg.	42	ppb	Avg.	8	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 5 (Whole Foods Property near 3rd Avenue Bridge)

TVOC			PM ₁₀		
Max.	147	ppb	Max.	12	ug/m ³
Avg.	56	ppb	Avg.	8	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 6 (Maritime Estates Property along Canal Fencing)

TVOC			PM ₁₀		
Max.	56	ppb	Max.	14	ug/m ³
Avg.	14	ppb	Avg.	7	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 7 (386 3rd Avenue along Canal Fencing)

TVOC			PM ₁₀		
Max.	<1	ppb	Max.	<1	ug/m ³
Avg.	<1	ppb	Avg.	<1	ug/m ³
Exc.	0	total	Exc.	0	Total

TVOC – Total Volatile Organic Compounds

PM₁₀ – Particulates as PM₁₀

Max. – Maximum daily average (15 min. avg. – TVOC / 15 min. avg. – PM₁₀)

Avg. – Daily average (15 min. avg. – TVOC / 15 min. avg. – PM₁₀)

Exc. – Total # of averages which exceed the action level (≥1 ppm - TVOC / ≥150 ug/m³ - PM₁₀)

Gowanus Canal Superfund Site
TB-4 Dredging and Capping Pilot Study
Brooklyn, New York
Daily Station Report – TVOC/PM₁₀
(TRC Project No.274286-0000-00000)
09/25/2018 00:00 AM - 09/25/2018 23:45 PM

Station 1 (Citizen Property near Construction Trailers)

TVOC			PM ₁₀		
Max.	6	ppb	Max.	17	ug/m ³
Avg.	2	ppb	Avg.	10	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 2 (Citizen Property near Pad Area)

TVOC			PM ₁₀		
Max.	<1	ppb	Max.	15	ug/m ³
Avg.	<1	ppb	Avg.	12	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 3 (Whole Foods Property NW Riverwalk Location)

TVOC			PM ₁₀		
Max.	1	ppb	Max.	56	ug/m ³
Avg.	<1	ppb	Avg.	10	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 4 (Whole Foods Property Central Riverwalk Location)

TVOC			PM ₁₀		
Max.	<1	ppb	Max.	22	ug/m ³
Avg.	<1	ppb	Avg.	9	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 5 (Whole Foods Property near 3rd Avenue Bridge)

TVOC			PM ₁₀		
Max.	125	ppb	Max.	33	ug/m ³
Avg.	21	ppb	Avg.	13	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 6 (Maritime Estates Property along Canal Fencing)

TVOC			PM ₁₀		
Max.	23	ppb	Max.	30	ug/m ³
Avg.	9	ppb	Avg.	5	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 7 (386 3rd Avenue along Canal Fencing)

TVOC			PM ₁₀		
Max.	<1	ppb	Max.	<1	ug/m ³
Avg.	<1	ppb	Avg.	<1	ug/m ³
Exc.	0	total	Exc.	0	Total

TVOC – Total Volatile Organic Compounds

PM₁₀ – Particulates as PM₁₀

Max. – Maximum daily average (15 min. avg. – TVOC / 15 min. avg. – PM₁₀)

Avg. – Daily average (15 min. avg. – TVOC / 15 min. avg. – PM₁₀)

Exc. – Total # of averages which exceed the action level (≥1 ppm - TVOC / ≥150 ug/m³ - PM₁₀)

Gowanus Canal Superfund Site
TB-4 Dredging and Capping Pilot Study
Brooklyn, New York
Daily Station Report – TVOC/PM₁₀
(TRC Project No.274286-0000-00000)
09/26/2018 00:00 AM - 09/26/2018 23:45 PM

Station 1 (Citizen Property near Construction Trailers)

TVOC			PM ₁₀		
Max.	31	ppb	Max.	24	ug/m ³
Avg.	6	ppb	Avg.	10	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 2 (Citizen Property near Pad Area)

TVOC			PM ₁₀		
Max.	<1	ppb	Max.	15	ug/m ³
Avg.	<1	ppb	Avg.	10	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 3 (Whole Foods Property NW Riverwalk Location)

TVOC			PM ₁₀		
Max.	42	ppb	Max.	<1	ug/m ³
Avg.	32	ppb	Avg.	<1	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 4 (Whole Foods Property Central Riverwalk Location)

TVOC			PM ₁₀		
Max.	<1	ppb	Max.	<1	ug/m ³
Avg.	<1	ppb	Avg.	<1	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 5 (Whole Foods Property near 3rd Avenue Bridge)

TVOC			PM ₁₀		
Max.	<1	ppb	Max.	<1	ug/m ³
Avg.	<1	ppb	Avg.	<1	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 6 (Maritime Estates Property along Canal Fencing)

TVOC			PM ₁₀		
Max.	102	ppb	Max.	18	ug/m ³
Avg.	32	ppb	Avg.	7	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 7 (386 3rd Avenue along Canal Fencing)

TVOC			PM ₁₀		
Max.	<1	ppb	Max.	<1	ug/m ³
Avg.	<1	ppb	Avg.	<1	ug/m ³
Exc.	0	total	Exc.	0	Total

TVOC – Total Volatile Organic Compounds

PM₁₀ – Particulates as PM₁₀

Max. – Maximum daily average (15 min. avg. – TVOC / 15 min. avg. – PM₁₀)

Avg. – Daily average (15 min. avg. – TVOC / 15 min. avg. – PM₁₀)

Exc. – Total # of averages which exceed the action level (≥1 ppm - TVOC / ≥150 ug/m³ - PM₁₀)

Gowanus Canal Superfund Site
TB-4 Dredging and Capping Pilot Study
Brooklyn, New York
Daily Station Report – TVOC/PM₁₀
(TRC Project No.274286-0000-00000)
09/27/2018 00:00 AM - 09/27/2018 23:45 PM

Station 1 (Citizen Property near Construction Trailers)

TVOC			PM ₁₀		
Max.	3	ppb	Max.	6	ug/m ³
Avg.	<1	ppb	Avg.	2	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 2 (Citizen Property near Pad Area)

TVOC			PM ₁₀		
Max.	<1	ppb	Max.	9	ug/m ³
Avg.	<1	ppb	Avg.	5	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 3 (Whole Foods Property NW Riverwalk Location)

TVOC			PM ₁₀		
Max.	37	ppb	Max.	<1	ug/m ³
Avg.	27	ppb	Avg.	<1	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 4 (Whole Foods Property Central Riverwalk Location)

TVOC			PM ₁₀		
Max.	<1	ppb	Max.	10	ug/m ³
Avg.	<1	ppb	Avg.	2	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 5 (Whole Foods Property near 3rd Avenue Bridge)

TVOC			PM ₁₀		
Max.	77	ppb	Max.	11	ug/m ³
Avg.	22	ppb	Avg.	2	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 6 (Maritime Estates Property along Canal Fencing)

TVOC			PM ₁₀		
Max.	52	ppb	Max.	10	ug/m ³
Avg.	9	ppb	Avg.	4	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 7 (386 3rd Avenue along Canal Fencing)

TVOC			PM ₁₀		
Max.	<1	ppb	Max.	<1	ug/m ³
Avg.	<1	ppb	Avg.	<1	ug/m ³
Exc.	0	total	Exc.	0	Total

TVOC – Total Volatile Organic Compounds

PM₁₀ – Particulates as PM₁₀

Max. – Maximum daily average (15 min. avg. – TVOC / 15 min. avg. – PM₁₀)

Avg. – Daily average (15 min. avg. – TVOC / 15 min. avg. – PM₁₀)

Exc. – Total # of averages which exceed the action level (≥1 ppm - TVOC / ≥150 ug/m³ - PM₁₀)

Gowanus Canal Superfund Site
TB-4 Dredging and Capping Pilot Study
Brooklyn, New York
Daily Station Report – TVOC/PM₁₀
(TRC Project No.274286-0000-00000)
09/28/2018 00:00 AM - 09/28/2018 19:00 PM

Station 1 (Citizen Property near Construction Trailers)

TVOC			PM ₁₀		
Max.	<1	ppb	Max.	6	ug/m ³
Avg.	<1	ppb	Avg.	4	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 2 (Citizen Property near Pad Area)

TVOC			PM ₁₀		
Max.	<1	ppb	Max.	9	ug/m ³
Avg.	<1	ppb	Avg.	7	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 3 (Whole Foods Property NW Riverwalk Location)

TVOC			PM ₁₀		
Max.	<1	ppb	Max.	<1	ug/m ³
Avg.	<1	ppb	Avg.	<1	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 4 (Whole Foods Property Central Riverwalk Location)

TVOC			PM ₁₀		
Max.	<1	ppb	Max.	9	ug/m ³
Avg.	<1	ppb	Avg.	1	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 5 (Whole Foods Property near 3rd Avenue Bridge)

TVOC			PM ₁₀		
Max.	79	ppb	Max.	14	ug/m ³
Avg.	12	ppb	Avg.	9	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 6 (Maritime Estates Property along Canal Fencing)

TVOC			PM ₁₀		
Max.	22	ppb	Max.	10	ug/m ³
Avg.	4	ppb	Avg.	8	ug/m ³
Exc.	0	total	Exc.	0	Total

Station 7 (386 3rd Avenue along Canal Fencing)

TVOC			PM ₁₀		
Max.	<1	ppb	Max.	<1	ug/m ³
Avg.	<1	ppb	Avg.	<1	ug/m ³
Exc.	0	total	Exc.	0	Total

TVOC – Total Volatile Organic Compounds

PM₁₀ – Particulates as PM₁₀

Max. – Maximum daily average (15 min. avg. – TVOC / 15 min. avg. – PM₁₀)

Avg. – Daily average (15 min. avg. – TVOC / 15 min. avg. – PM₁₀)

Exc. – Total # of averages which exceed the action level (≥1 ppm - TVOC / ≥150 ug/m³ - PM₁₀)

Figure 1
Gowanus Canal Superfund Site -TB4 Dredging and Capping Pilot Program
TVOC Monitoring Data - Week 51

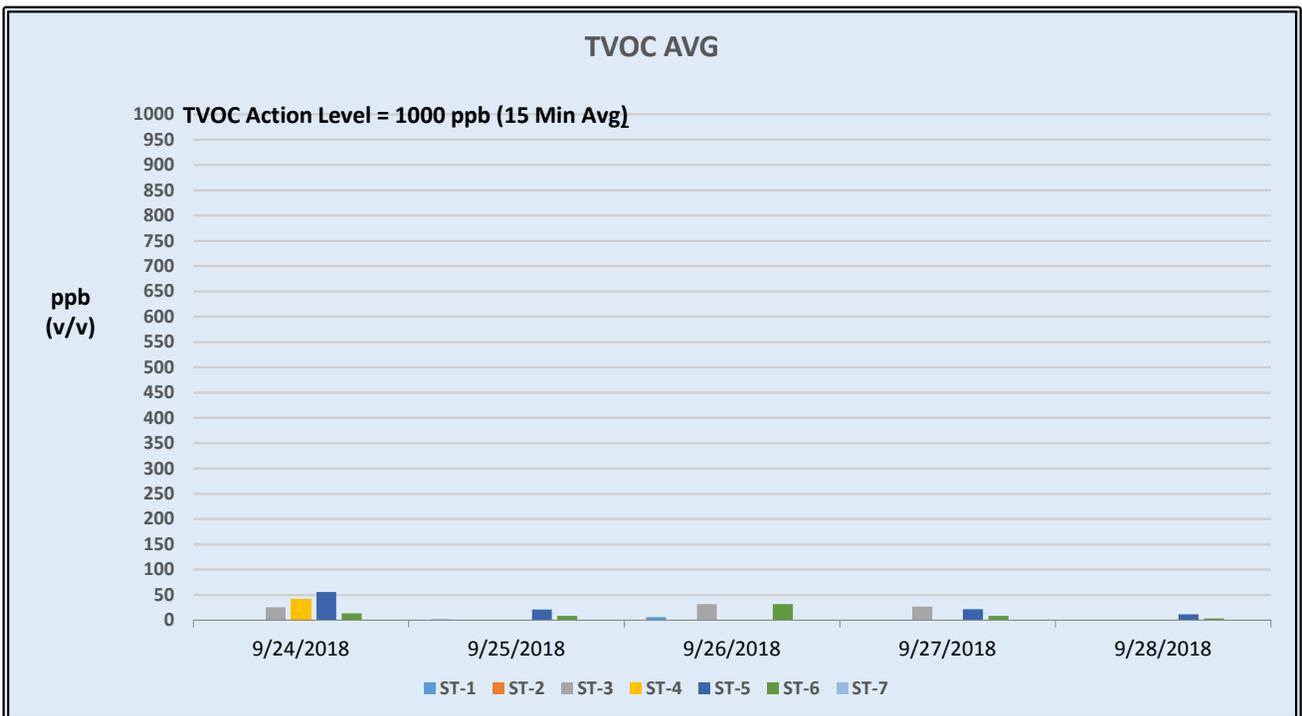
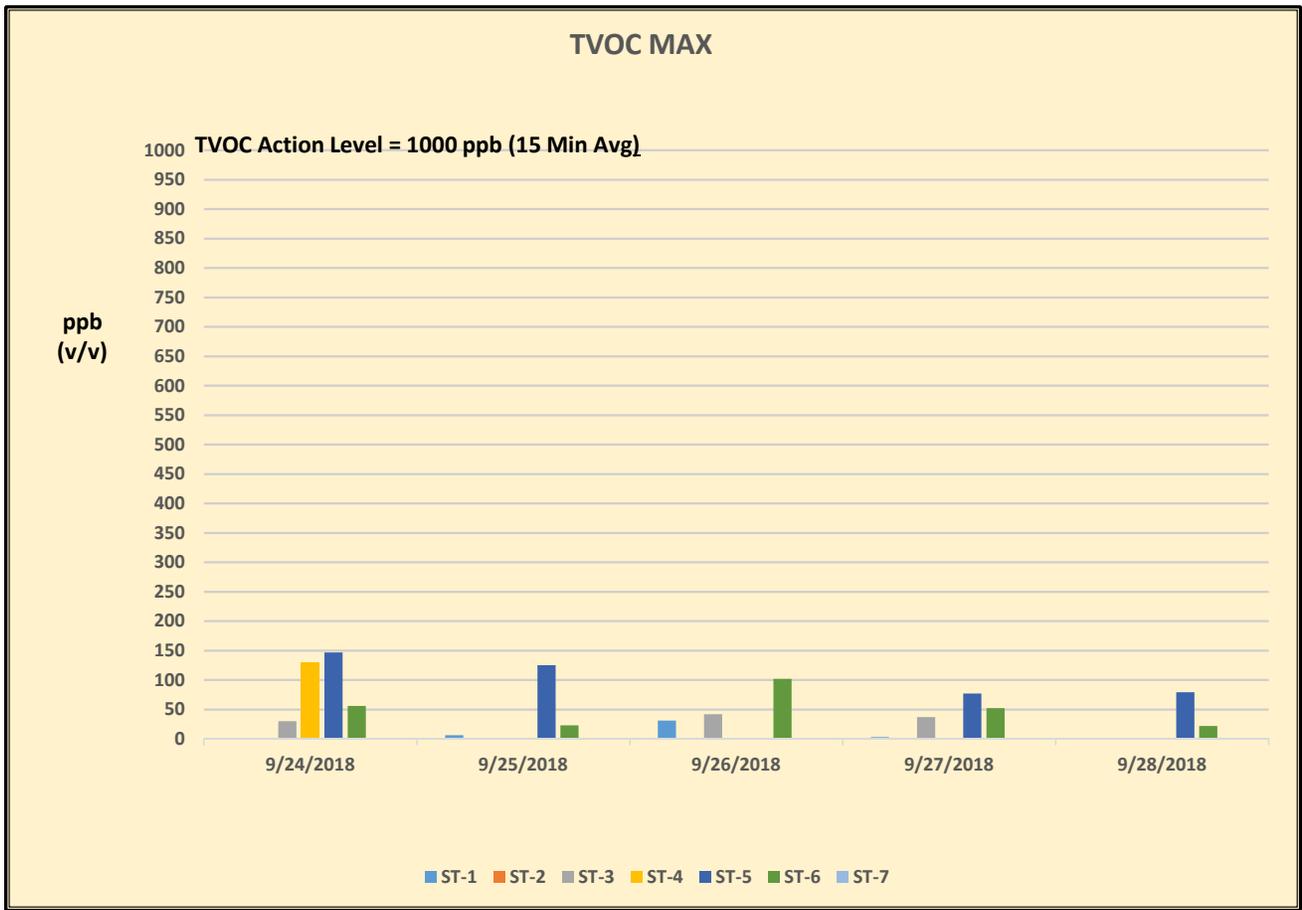
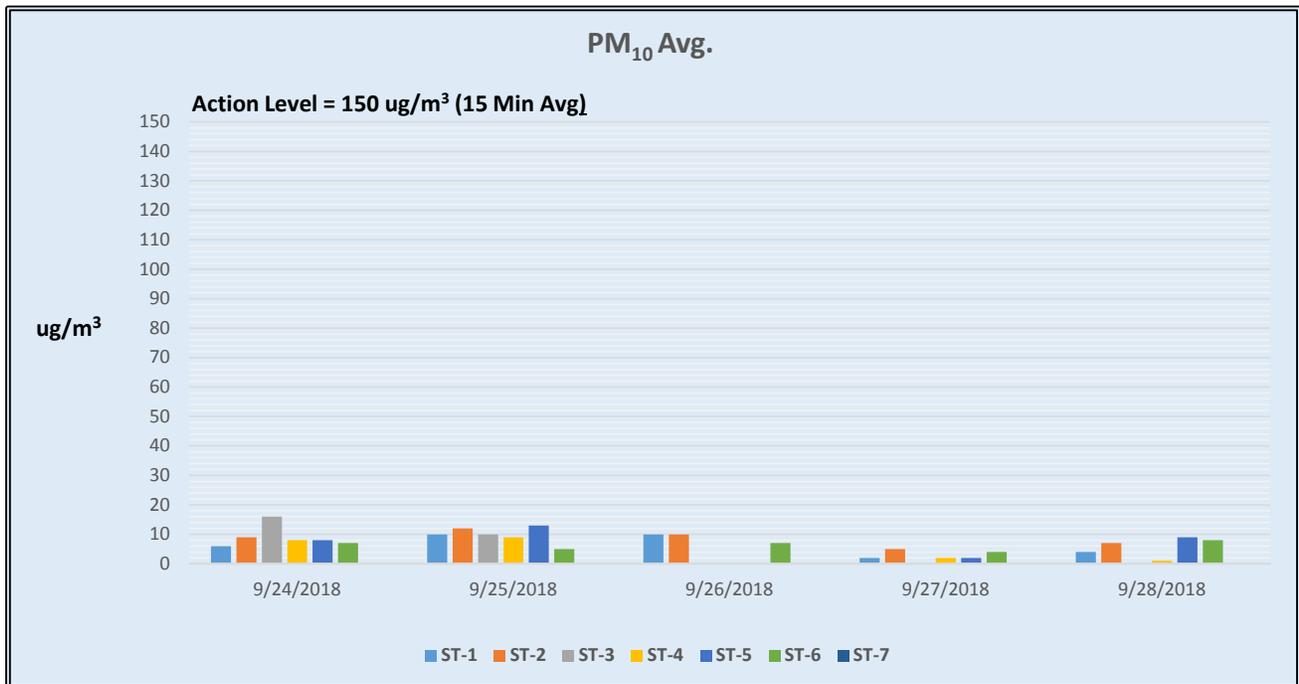
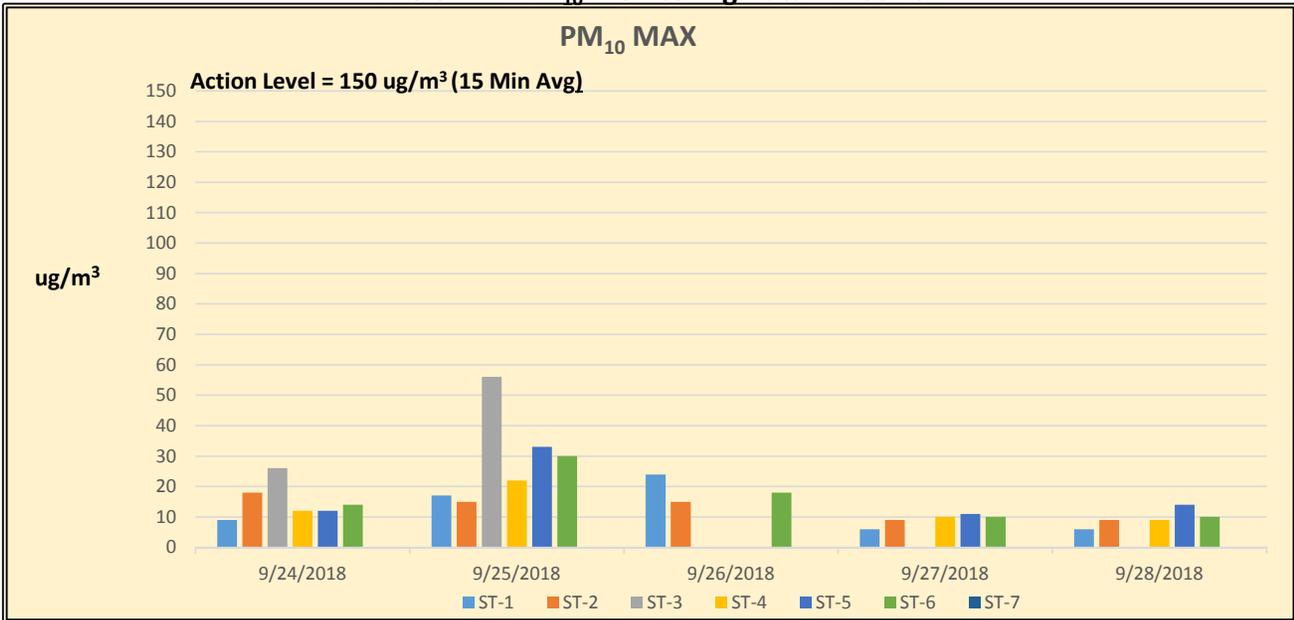


Figure 2
Gowanus Canal Superfund Site - TB4 Dredging and Capping Pilot Program
TRC CAMP PM₁₀ Monitoring Data - Week 51



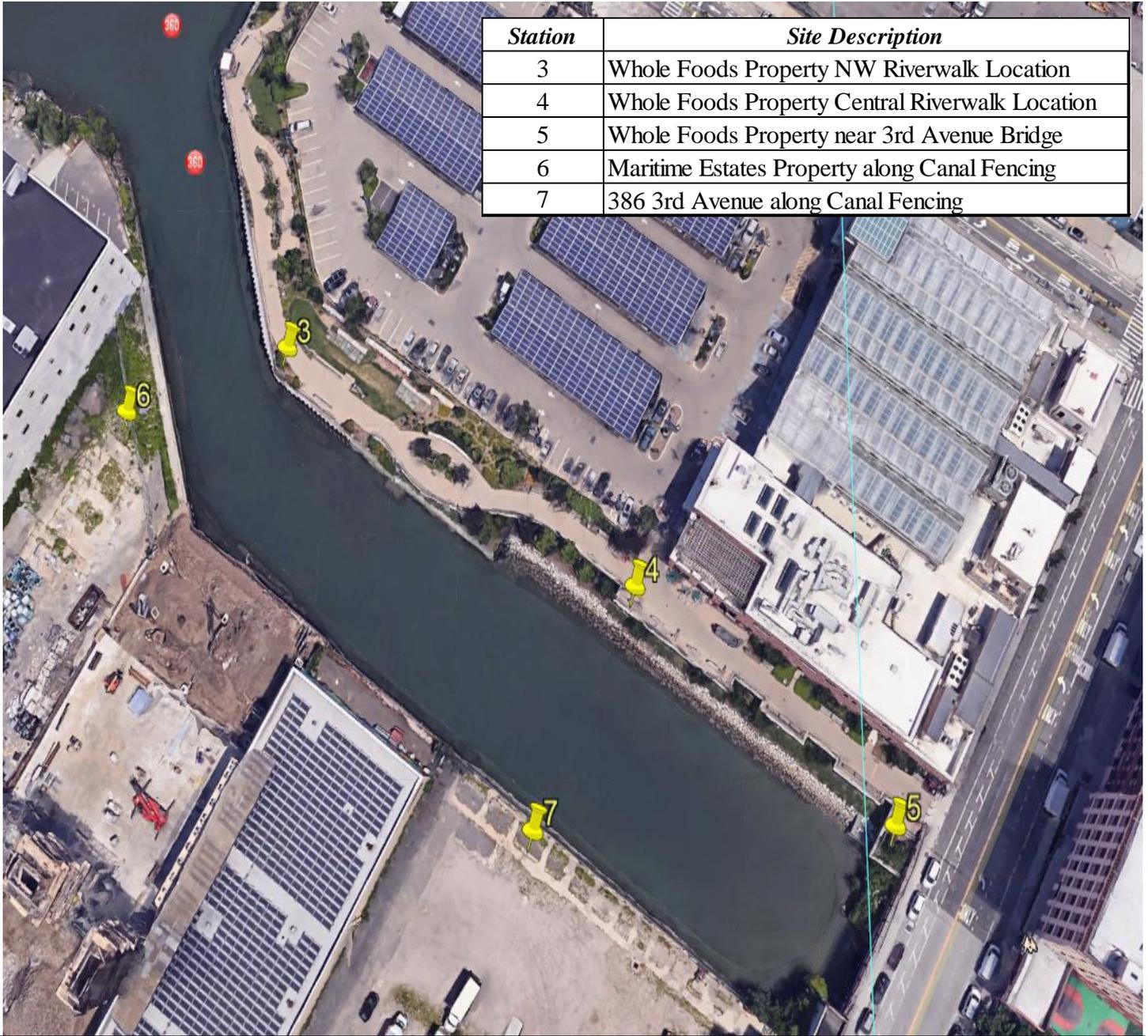


FIGURE 3
Gowanus Canal Superfund Site-TB4
Dredging and Capping Pilot Program

Table 1

Week 51

Summary of Additional Periodic (Daily) Monitoring Data

September 24 th , 2018				
Station Id	Time	Formaldehyde (CHO) (ppb)*	Hydrogen Sulfide (H ₂ S) (ppb)*	Ammonia (NH ₃) (ppm)**
ST-1	9:00	<50	<3	<1.0
	14:00	<50	<3	<1.0
ST-2	9:10	<50	<3	<1.0
	14:05	<50	<3	<1.0
ST-3	9:30	<50	<3	<1.0
	14:30	<50	<3	<1.0
ST-4	9:40	<50	<3	<1.0
	14:35	<50	<3	<1.0
ST-5	9:50	<50	<3	<1.0
	14:40	<50	<3	<1.0
ST-6	10:00	<50	<3	<1.0
	15:00	<50	<3	<1.0
ST-7	10:20	<50	<3	<1.0
	15:20	<50	<3	<1.0

September 25 th , 2018				
Station Id	Time	Formaldehyde (CHO) (ppb)*	Hydrogen Sulfide (H ₂ S) (ppb)*	Ammonia (NH ₃) (ppm)**
ST-1	7:30	<50	<3	<1.0
	13:00	<50	<3	<1.0
ST-2	7:40	<50	<3	<1.0
	13:05	<50	<3	<1.0
ST-3	8:00	<50	<3	<1.0
	13:30	<50	<3	<1.0
ST-4	8:10	<50	<3	<1.0
	13:40	<50	<3	<1.0
ST-5	8:20	<50	<3	<1.0
	13:50	<50	<3	<1.0
ST-6	8:40	<50	<3	<1.0
	14:50	<50	<3	<1.0
ST-7	9:00	<50	<3	<1.0
	14:20	<50	<3	<1.0

Table 1**Week 51****Summary of Additional Periodic (Daily) Monitoring Data**

September 26 th , 2018				
Station Id	Time	Formaldehyde (CHO) (ppb)*	Hydrogen Sulfide (H ₂ S) (ppb)*	Ammonia (NH ₃) (ppm)**
ST-1	8:00	<50	<3	<1.0
	14:00	<50	<3	<1.0
ST-2	8:10	<50	<3	<1.0
	14:10	<50	<3	<1.0
ST-3	8:30	<50	<3	<1.0
	15:00	<50	<3	<1.0
ST-4	8:40	<50	<3	<1.0
	15:10	<50	<3	<1.0
ST-5	8:50	<50	<3	<1.0
	15:20	<50	<3	<1.0
ST-6	9:15	<50	<3	<1.0
	15:45	<50	<3	<1.0
ST-7	9:25	<50	<3	<1.0
	16:00	<50	<3	<1.0
September 27 th , 2018				
Station Id	Time	Formaldehyde (CHO) (ppb)*	Hydrogen Sulfide (H ₂ S) (ppb)*	Ammonia (NH ₃) (ppm)**
ST-1	8:00	<50	<3	<1.0
	15:00	<50	<3	<1.0
ST-2	8:10	<50	<3	<1.0
	15:15	<50	<3	<1.0
ST-3	8:30	<50	<3	<1.0
	15:30	<50	<3	<1.0
ST-4	8:40	<50	<3	<1.0
	15:35	<50	<3	<1.0
ST-5	9:00	<50	<3	<1.0
	15:45	<50	<3	<1.0
ST-6	9:20	<50	<3	<1.0
	15:55	<50	<3	<1.0
ST-7	9:40	<50	<3	<1.0
	16:20	<50	<3	<1.0

Table 1

Week 51

Summary of Additional Periodic (Daily) Monitoring Data

September 28 th , 2018				
Station Id	Time	Formaldehyde (CHO) (ppb)*	Hydrogen Sulfide (H ₂ S) (ppb)*	Ammonia (NH ₃) (ppm)**
ST-1	8:00	<50	<3	<1.0
	14:15	<50	<3	<1.0
ST-2	8:10	<50	<3	<1.0
	14:20	<50	<3	<1.0
ST-3	8:30	<50	<3	<1.0
	14:35	<50	<3	<1.0
ST-4	8:40	<50	<3	<1.0
	14:45	<50	<3	<1.0
ST-5	8:50	<50	<3	<1.0
	15:00	<50	<3	<1.0
ST-6	9:15	<50	<3	<1.0
	15:10	<50	<3	<1.0
ST-7	9:30	<50	<3	<1.0
	15:20	<50	<3	<1.0

* (ppb) Indicates results reported in parts per billion

** (ppm) Indicates results reported in parts per million

Table 2:
Gowanus Canal Superfund Site - TB4 Dredging and Capping Pilot Program
Week 48 VOCs Results: September 4th through 5th and September 6th through 7th

Sample ID	ST-3-VOC-090418		ST-4-VOC-090618	
Laboratory ID	18I0491-01		18I0491-02	
Date Sampled	9/4/18 13:00 - 9/5/18 12:00		9/6/18 09:00 - 9/7/18 08:00	
Location	Station 3		Station 4	
VOCs - TO-15	ppbV	ug/m3	ppbV	ug/m3
Acetone	5.3	1.6	3.9	9.4
Benzene	0.24	0.77	0.31	0.98
Benzyl chloride	<0.040	<0.21	<0.040	<0.21
Bromodichloromethane	<0.040	<0.27	<0.040	<0.27
Bromoform	<0.040	<0.41	<0.040	<0.41
Bromomethane	<0.040	<0.16	<0.040	<0.16
1,3-Butadiene	<0.040	<0.088	<0.040	<0.088
2-Butanone (MEK)	<1.6	<4.7	<1.6	<4.7
Carbon Disulfide	<0.40	<1.2	<0.40	<1.2
Carbon Tetrachloride	0.072	0.45	0.075	0.47
Chlorobenzene	<0.040	<0.18	<0.040	<0.18
Chloroethane	<0.040	<0.11	<0.040	<0.11
Chloroform	0.041	0.2	0.043	0.21
Chloromethane	0.44	0.9	0.45	0.93
Cyclohexane	<0.040	<0.14	<0.040	<0.14
Dibromochloromethane	<0.040	<0.34	<0.040	<0.34
1,2-Dibromoethane (EDB)	<0.040	<0.31	<0.040	<0.31
1,2-Dichlorobenzene	<0.040	<0.24	<0.040	<0.24
1,3-Dichlorobenzene	<0.040	<0.24	<0.040	<0.24
1,4-Dichlorobenzene	<0.040	<0.24	<0.040	<0.24
Dichlorodifluoromethane (Freon 12)	0.28	1.4	0.31	1.6
1,1-Dichloroethane	<0.040	<0.16	<0.040	<0.16
1,2-Dichloroethane	<0.040	<0.16	<0.040	<0.16
1,1-Dichloroethylene	<0.040	<0.16	<0.040	<0.16
cis-1,2-Dichloroethylene	<0.040	<0.16	<0.040	<0.16
trans-1,2-Dichloroethylene	<0.040	<0.16	<0.040	<0.16
1,2-Dichloropropane	<0.040	<0.18	<0.040	<0.18
cis-1,3-Dichloropropene	<0.040	<0.18	<0.040	<0.18
trans-1,3-Dichloropropene	<0.040	<0.18	<0.040	<0.18
1,2-Dichloro-1,1,2,2-tetrafluoroethane (Freon 114)	<0.040	<0.28	<0.040	<0.28
1,4-Dioxane	<0.40	<1.4	<0.40	<1.4
Ethanol	4.9	9.2	6	11
Ethyl Acetate	0.3	1.1	0.22	0.78
Ethylbenzene	0.075	0.33	0.079	0.34
4-Ethyltoluene	<0.040	<0.20	<0.040	<0.20
Heptane	0.12	0.51	0.15	0.62
Hexachlorobutadiene	<0.040	<0.43	<0.040	<0.43
Hexane	<1.6	<5.6	<1.6	<5.6
2-Hexanone (MBK)	<0.040	<0.16	<0.040	<0.16
Isopropanol	<1.6	<3.9	<1.6	<3.9
Methyl tert-Butyl Ether (MTBE)	<0.040	<0.14	<0.040	<0.14
Methylene Chloride	<0.40	<1.4	<0.40	<1.4
4-Methyl-2-pentanone (MIBK)	0.097	0.4	<0.040	<0.16
Naphthalene	0.045	0.23	<0.040	<0.21
Propene	<1.6	<2.8	<1.6	<2.8
Styrene	<0.040	<0.17	<0.040	<0.17
1,1,1,2-Tetrachloroethane	<0.040	<0.27	<0.040	<0.27
Tetrachloroethylene	0.16	1.1	0.15	1
Tetrahydrofuran	<0.040	<0.12	<0.040	<0.12
Toluene	0.8	3	0.82	3.1
1,2,4-Trichlorobenzene	<0.040	<0.30	<0.040	<0.30
1,1,1-Trichloroethane	<0.040	<0.22	<0.040	<0.22
1,1,2-Trichloroethane	<0.040	<0.22	<0.040	<0.22
Trichloroethylene	<0.040	<0.21	<0.040	<0.21
Trichlorofluoromethane (Freon 11)	0.23	1.3	0.23	1.3
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	<0.16	<1.2	<0.16	<1.2
1,2,4-Trimethylbenzene	0.076	0.37	0.086	0.42
1,3,5-Trimethylbenzene	<0.040	<0.20	<0.040	<0.20
Vinyl Acetate	<0.80	<2.8	<0.80	<2.8
Vinyl Chloride	<0.040	<0.10	<0.040	<0.10
m&p-Xylene	0.25	1.1	0.27	1.2
o-Xylene	0.086	0.38	0.097	0.42

Notes:

Values in **bold** indicate detected concentrations

J-: The reported results for ethanol are estimated and may be biased low.

Results for the following compounds may be influenced by laboratory derived contamination:

acetone, ethanol, methylene chloride and isopropanol



Gowanus Canal Superfund Site TB-4 Dredging and Capping Pilot Study Brooklyn, New York

Meteorological Summary

September 24th through September 28th, 2018

September 24 th , 2018 *		
Wind Direction (°)	Wind Speed (mph)	Temperature (°F)
NE	8.89	65.0

September 25 th , 2018 **		
Wind Direction (°)	Wind Speed (mph)	Temperature (°F)
ESE	6.63	64.5

September 26 th , 2018 **		
Wind Direction (°)	Wind Speed (mph)	Temperature (°F)
ESE	5.79	64.3

September 27 th , 2018 **		
Wind Direction (°)	Wind Speed (mph)	Temperature (°F)
SE	5.63	64.0

September 28 th , 2018 ***		
Wind Direction (°)	Wind Speed (mph)	Temperature (°F)
ESE	5.71	63.0

* Monday's meteorological data represents an average for the time period of 06:30 to 23:45.

** Tuesday's, Wednesday's, and Thursday's meteorological data represents averages for the time period of 00:00 to 23:45.

*** Friday's meteorological data represents an average for the time period of 00:00 to 19:00.

WILSON IHRIG WEEKLY NOISE AND VIBRATION MONITORING REPORT





WI #15-081

MEMORANDUM

October 1, 2018

To: William Lee/ de maximis, inc.
Kirsten Meyers / TRC

From: Silas Bensing, Ani Toncheva / Wilson Ihrig

Subject: Gowanus Canal 4th Street Turning Basin Dredging and Capping Pilot Study, Weekly Noise Monitoring Report, 24 September – 28 September, 2018

Noise Monitoring Locations

Figure 1 shows the noise monitoring locations. NM-1 is installed at a light pole on the north side of TB4 and is approximately 25 feet from the north edge of the canal. NM-2 is installed at the existing guard rail on the south side of TB4, approximately 4 feet from the south edge of the canal. Photos 1 and 2 show the recent field conditions at the monitors.

Noise Monitoring Results

Figures 2 through 11 present the hourly Leq noise levels compared with the noise thresholds discussed in the noise monitoring plan¹. Commercial and Industrial land uses are assigned an hourly Leq noise limit of 80 dBA for Daytime and Evening time periods. The average baseline noise measured in the project area in 2015 are also shown for reference².

¹ Wilson Ihrig. *Gowanus Canal 4th Street Turning Basin Dredging and Capping Pilot Study Noise and Vibration Monitoring Plan*. California: prepared for Gowanus Canal Remedial Design Group, DRAFT May 2017

² Wilson Ihrig. *Gowanus Canal Remedial Design Project RTA-1 Noise and Vibration Baseline Report*. California: prepared for Geosyntec Consultants Inc., October 2015.

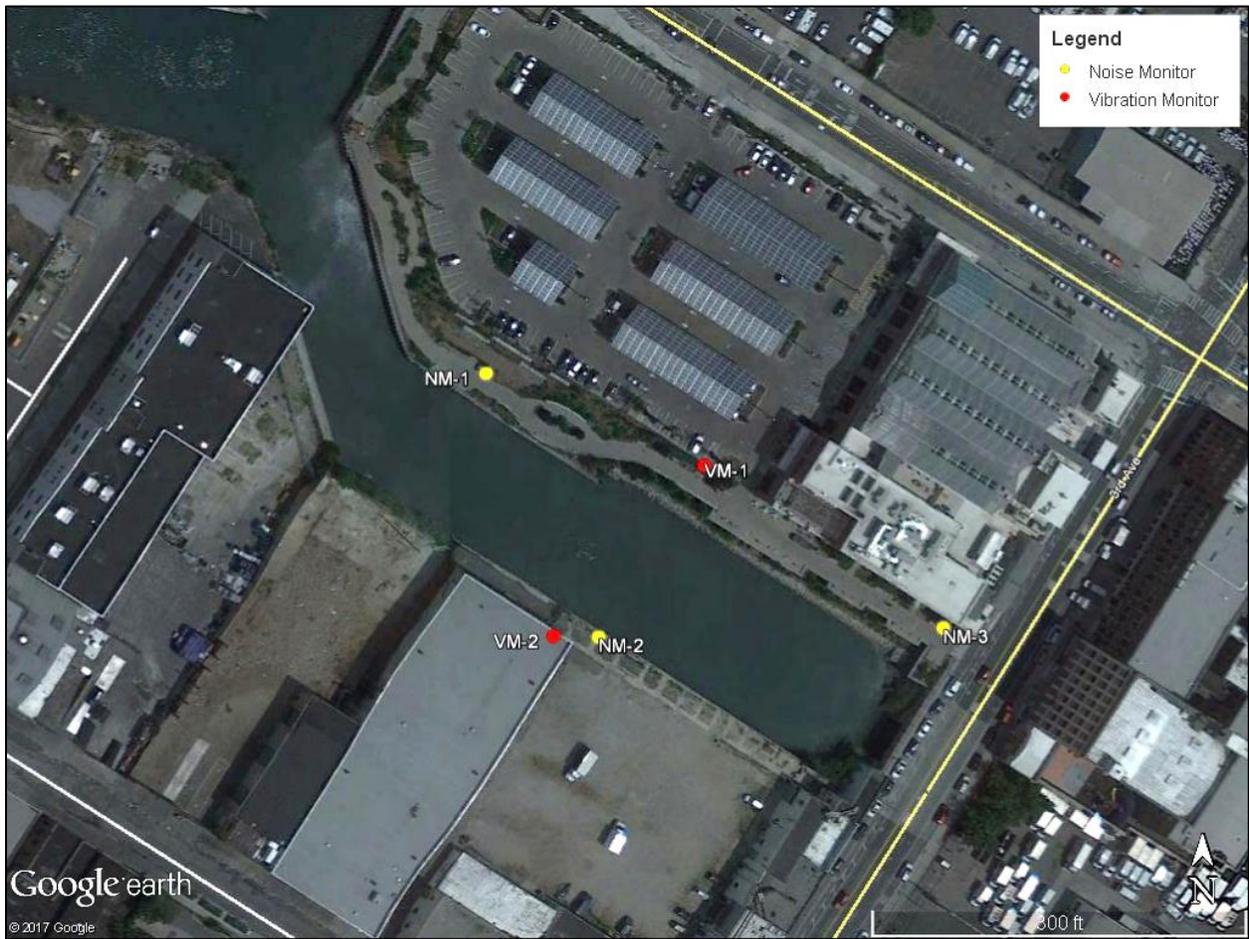


Figure 1: Long-term Noise and Vibration Monitoring Locations for Gowanus TB4 Dredging and Capping Pilot Study



**Photo 1: Noise Monitoring Location NM-1
(26 September 2017)**



**Photo 2: Noise Monitoring Location NM-2
(25 September 2017)**

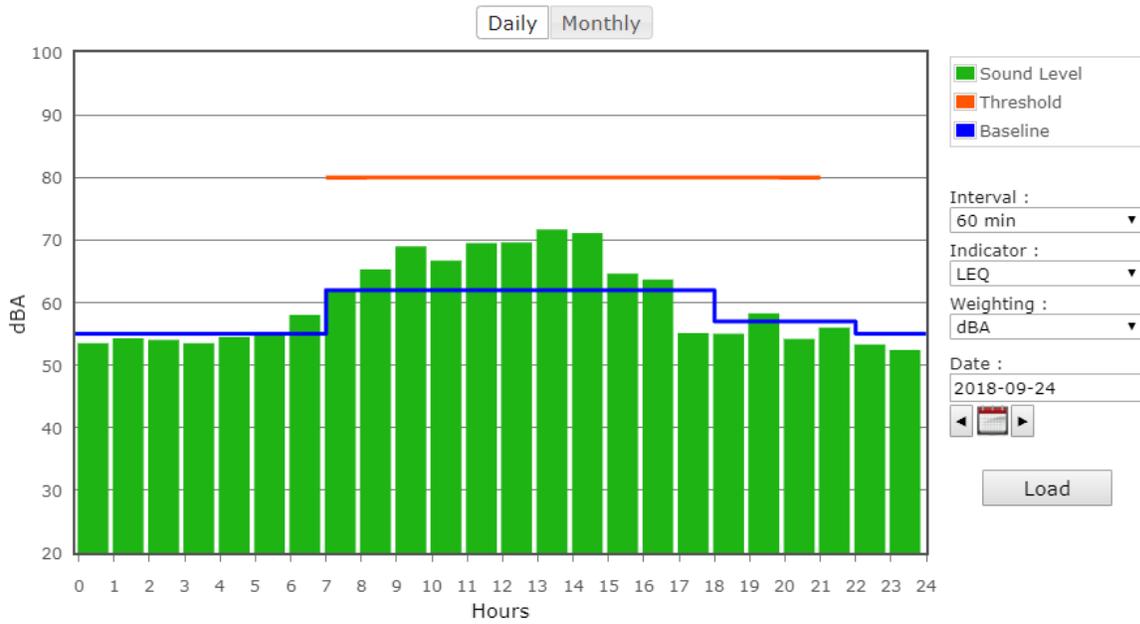


Figure 2: North Monitor NM-1 on Monday

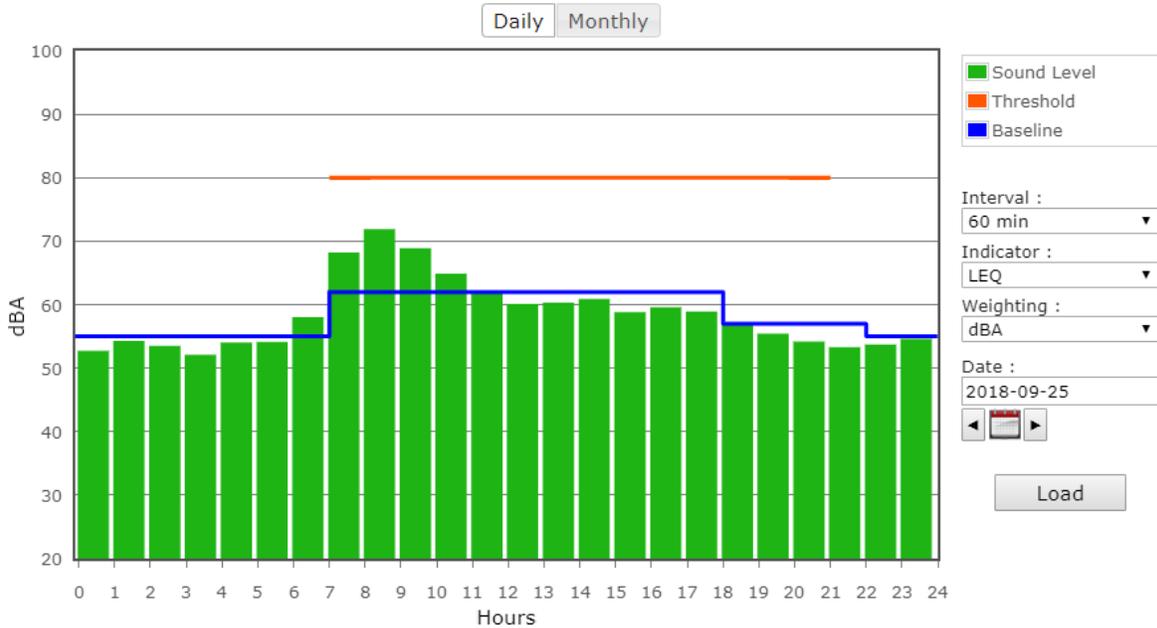


Figure 3: North Monitor NM-1 on Tuesday

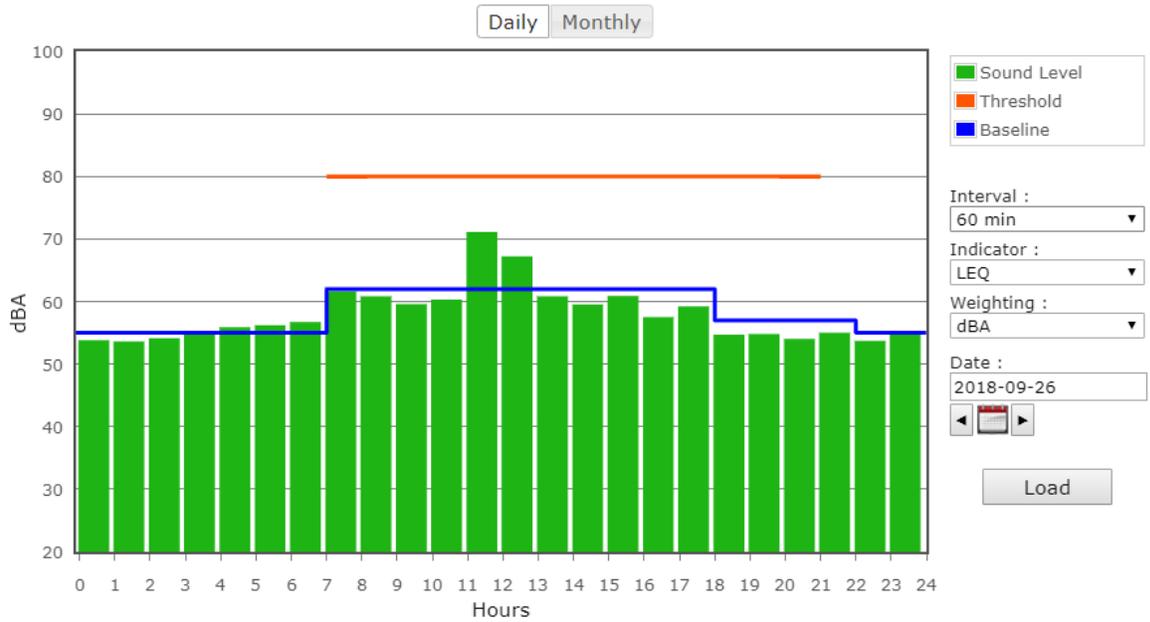


Figure 4: North Monitor NM-1 on Wednesday

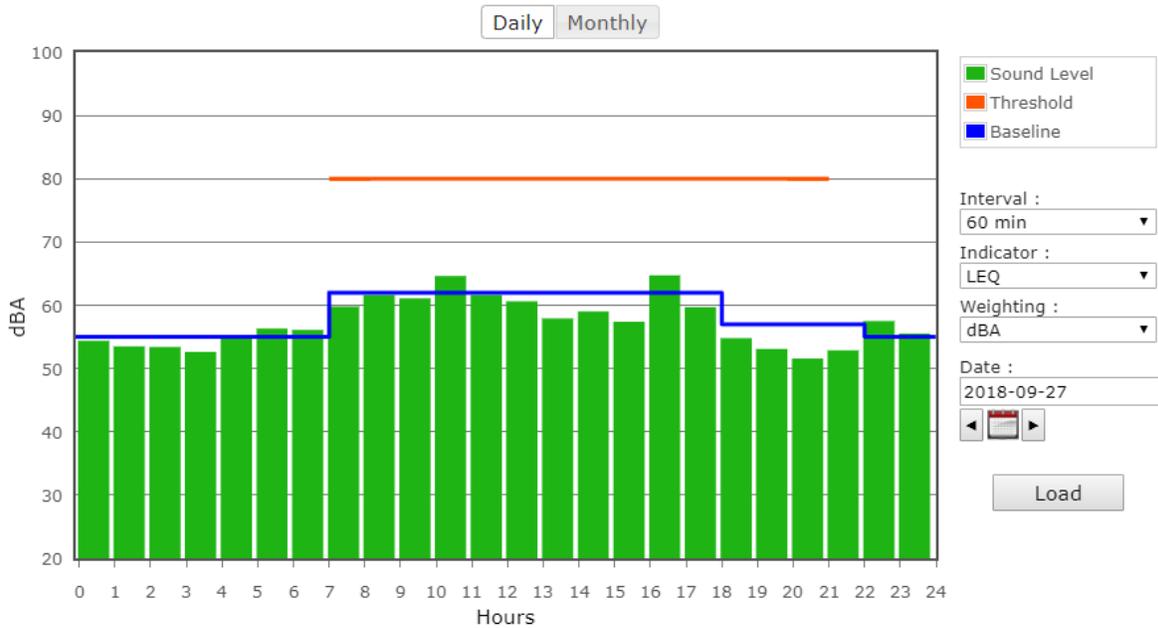


Figure 5: North Monitor NM-1 on Thursday

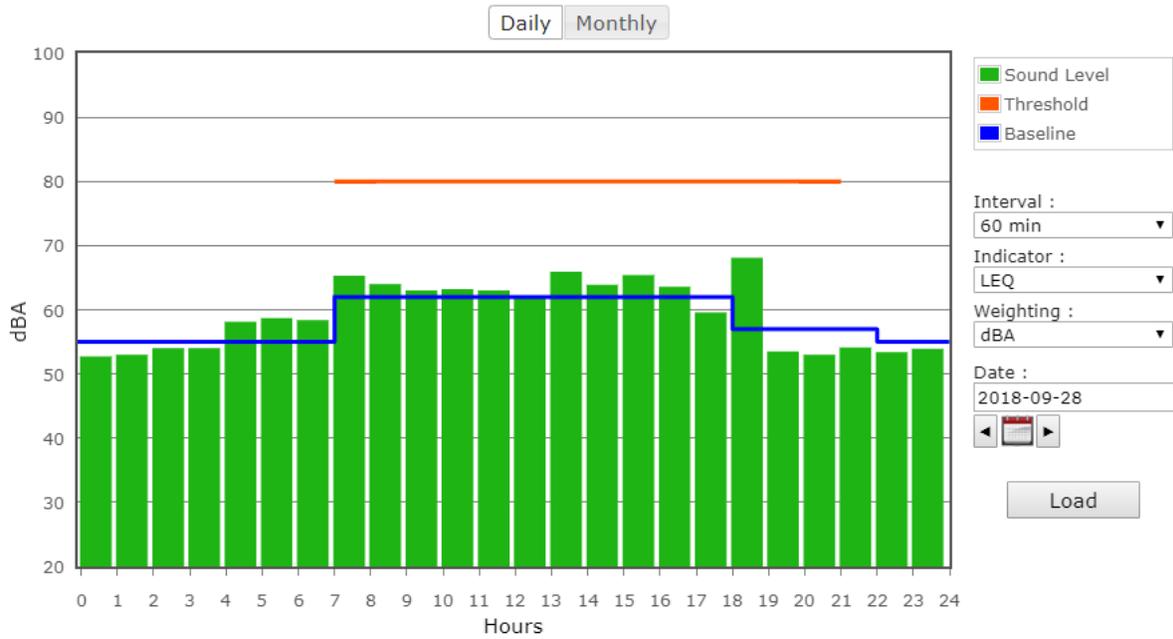


Figure 6: North Monitor NM-1 on Friday

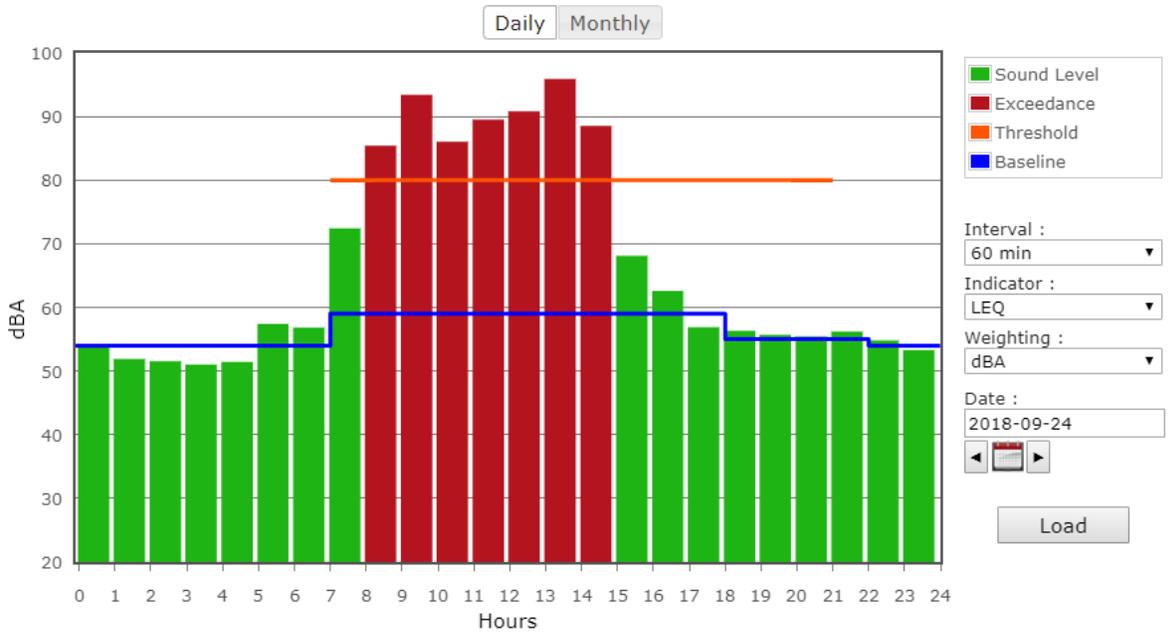


Figure 7: South Monitor NM-2 on Monday

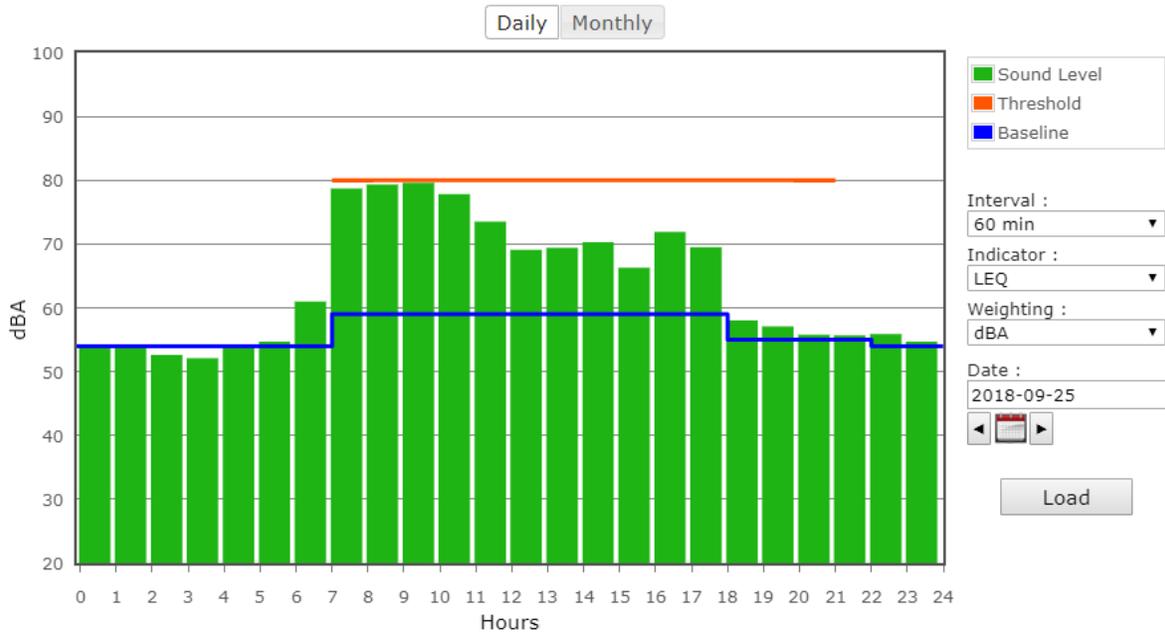


Figure 8: South Monitor NM-2 on Tuesday

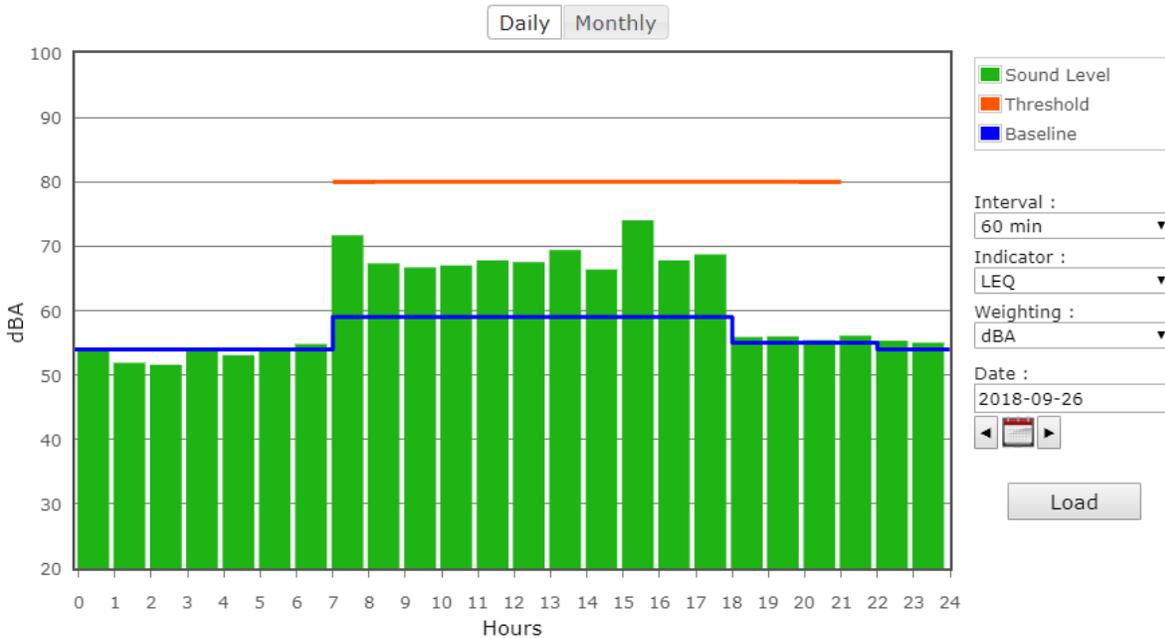


Figure 9: South Monitor NM-2 on Wednesday

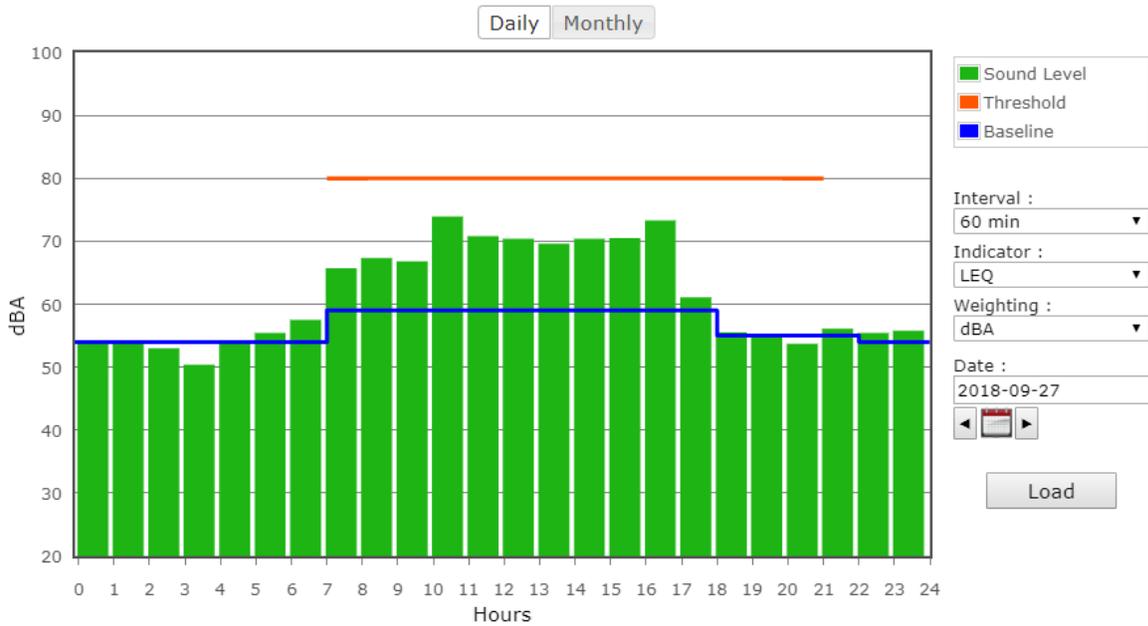


Figure 10: South Monitor NM-2 on Thursday

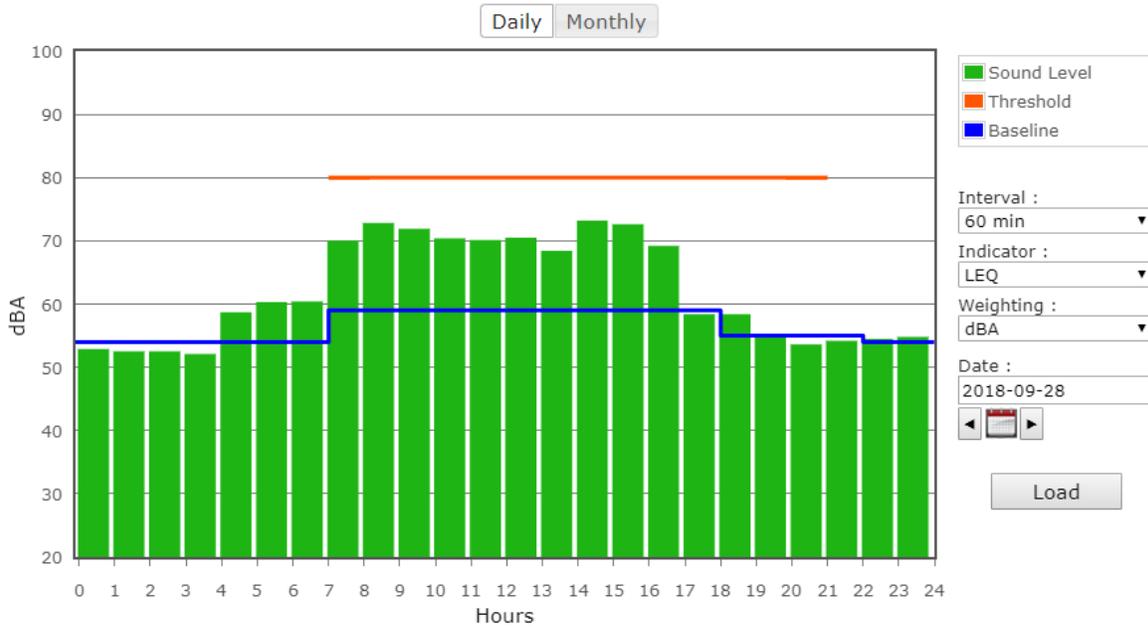


Figure 11: South Monitor NM-2 on Friday

AHRS WEEKLY REPORT
(NO ACTIVITIES DURING WEEK)



**WATER TREATMENT SYSTEM MONITORING LABORATORY ANALYTICAL DATA
(NO ACTIVITIES DURING WEEK)**



**CUMULATIVE DREDGED MATERIAL CHART
(NO ACTIVITIES DURING WEEK)**

