

**GOWANUS CANAL SUPERFUND SITE
RTA1 REMEDIAL CONSTRUCTION
Water Quality Monitoring Weekly Data Summary**

PERIOD: NOVEMBER 23 TO NOVEMBER 25, 2020

Date of Report: December 02, 2020

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Prepared by

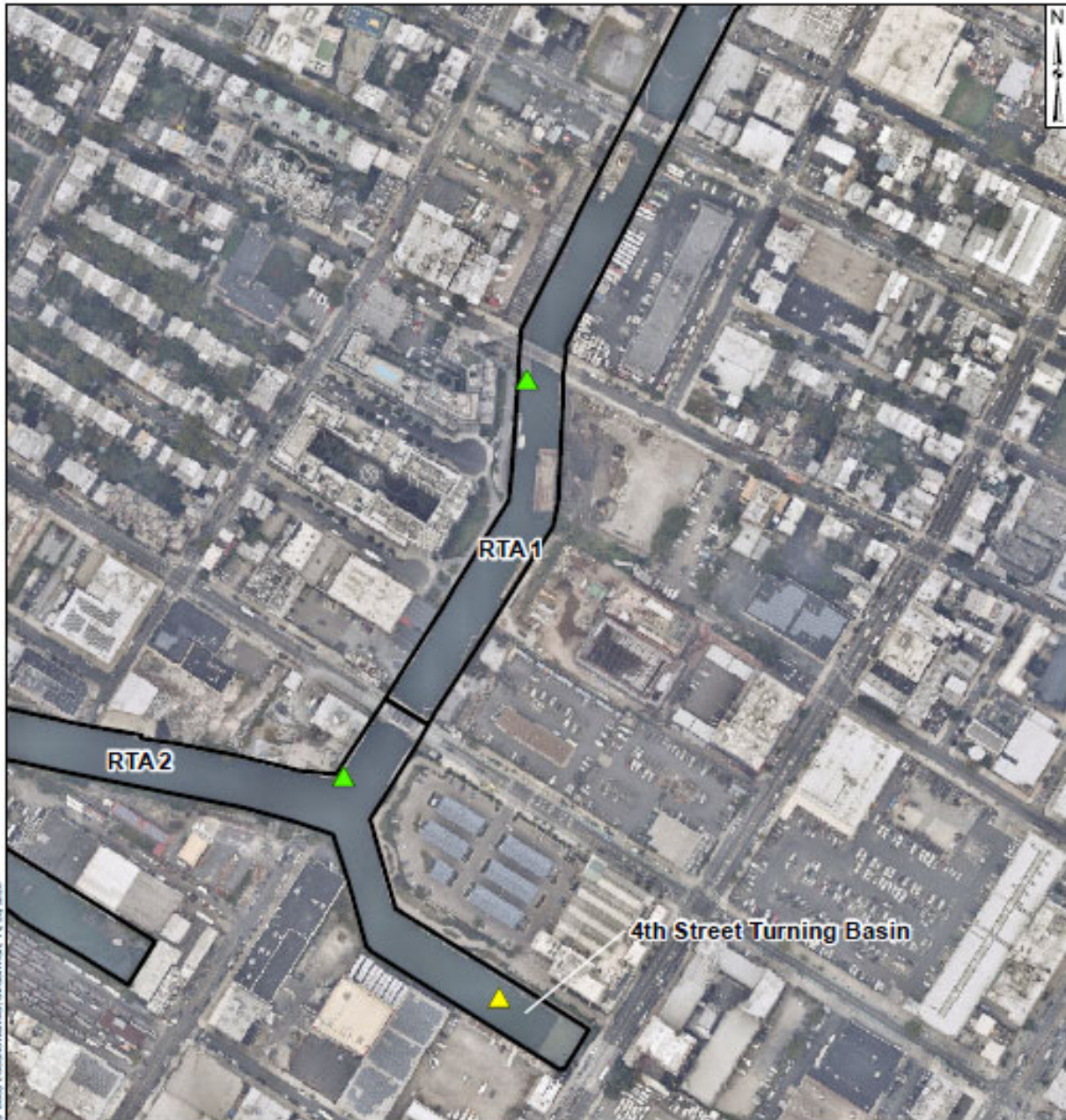
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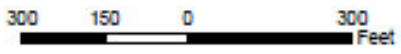
1. SCOPE OF MONITORING

The following report summarizes water quality monitoring data collected during the week of November 23rd, 2020. In accordance with the Water Quality Monitoring Plan for In-waterway Construction Activities (WQMP) three turbidity buoys were deployed to monitor turbidity at the start of dredging between Carroll Street Bridge and 3rd Street Bridge. One turbidity buoy was deployed just south of the 3rd Street Bridge outside of the air curtain and traditional turbidity curtain. This buoy is referred to as the 3rd Street Sentinel Buoy. A second turbidity buoy was deployed just south of the Carroll Street Bridge and is referred to as the Carroll Street Sentinel Buoy. The third turbidity buoy was deployed in the Fourth Street Turning Basin in order to monitor background turbidity unaffected by in-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 EXO3 water quality meter with optical turbidity sensor. The buoys were field calibrated and programmed such that readings were collected every 15 minutes. After each measurement, the turbidity data were transmitted to a File Transfer Portal (FTP) site via telemetry. This report presents a summary of turbidity data collected from the ambient and sentinel buoys between 7 AM and 6 PM each day during the week of November 23rd (NOTE – the week of November 23rd was a reduced work week due to the holiday schedule. This report contains data for the working days of November 23, 24, and 25). Daily turbidity data tables are provided in **Appendix A**. 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.



\\B&B\eng\Gowanus_PPT\03_C&B.mxd\Canal\Map\3\4\4\4\Buoys\Locations\map\of\airframe_11/22/2020

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



Turbidity Buoy Locations
Gowanus Canal, Brooklyn, NY

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Kennesaw, GA

November 2020

Figure
1

2. REPORT OF EXCEEDANCES

On November 25th, 2020 an exceedance of the numerical trigger level criterion was detected from 10:00 AM to 10:45 AM. Further information is provided in Section 2.1. No exceedances of the action level criteria were met during the reporting period. Refer to the WQMP 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 relevant 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 and in-waterway construction activities cannot be immediately excluded as the source following consultation with EPA; or
 - Either an oil sheen or a turbidity plume is visually observed at the relevant sentinel buoy and in-waterway construction activities are readily identified as the source.
- **Action criterion** – Any of the following:
 - The rolling average of the turbidity measurements of the sentinel buoy outside of RTA1 over a one-hour period exceeds the rolling average of the ambient buoy turbidity measurements by 40 NTU excluding any eliminated outlier measurements and in-waterway construction activities cannot be immediately excluded as the source following consultation with EPA; or
 - Either an oil sheen or a turbidity plume is visually observed outside of RTA1 and any deployed engineering controls and in-waterway construction activities are readily identified as the source.

An outlier is defined as a reading that is outside the range of 50 to 200 percent of the average of the three previous readings. In addition, to be considered an outlier, the subsequent reading must return to a range of 75 to 133 percent of the average of the three readings preceding the outlier.

2.1 Response to Criteria Exceedances

A detailed description of responses to exceedances of the trigger and action level criteria is provided in Section 4.2 of the WQMP. The trigger level criterion serves to provide early notification to the contractor of construction activities that may lead to an exceedance of the action level criterion. In the event of an exceedance to the trigger criterion, the contractor will not be stopped and the contractor will be directed to investigate the source of the exceedance and evaluate Best Management Practices (BMPs). In the event of an exceedance to the action level criterion, in-waterway construction activities may be slowed or temporarily suspended as necessary while the contractor investigates the source of the exceedance and appropriate mitigation and corrective measures are determined.

On November 25th, 2020 an exceedance of the numerical trigger level criterion was detected from 10:00 AM to 10:45 AM. The contractor and Owner's Representative were notified of this exceedance immediately. The exceedance was a result of a mini hopper changeout that occurred at low tide which resulted in enough sediment resuspension from prop wash (resuspension of sediment from water being pushed over the sediment bed by the propeller) in the vicinity of the 3rd Street Turbidity Buoy to cause an exceedance of the numerical trigger level criterion. No dredging was occurring at the time of the exceedance. Turbidity readings at the 3rd Street Turbidity Buoy quickly decreased immediately following the mini hopper changeout. As a result, no immediate management response actions were implemented. To avoid future exceedances of the numerical trigger criterion care will be taken to limit push boat acceleration and speed when transporting mini hoppers from RTA1 to the Staging Site.

3. TURBIDITY BUOY DATA

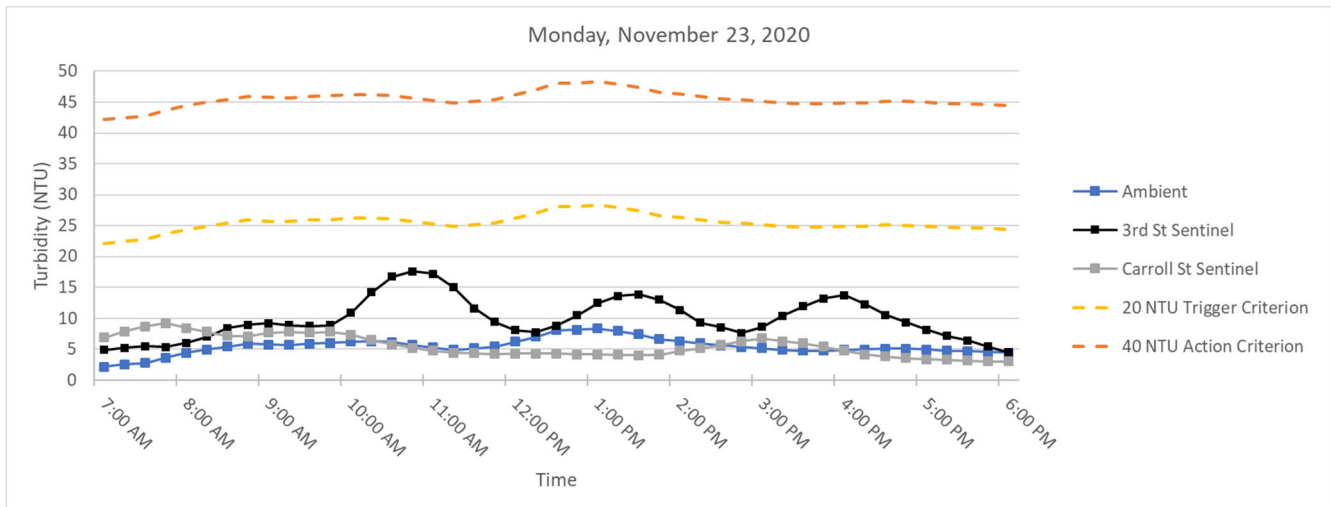
The following section provides turbidity data for the sentinel and ambient turbidity buoys from 7 AM to 6 PM from November 23rd to November 25th, 2020. An exceedance of the numerical trigger level criterion was detected on November 25th from 10:00 AM to 10:45 AM. Section 2.1 contains further information on the exceedance. No exceedance to the numerical rolling average action criterion were observed during the reporting period. **Table 1** below provides a summary of the turbidity data for the reporting period.

Table 1. Daily average and maximum differences between the rolling average turbidity readings from RTA1 sentinel buoys and the ambient buoy between 7 AM and 6 PM

Date	Average Rolling Average Difference (NTU)		Maximum Rolling Average Difference (NTU)	
	3rd St - Ambient	Carroll St - Ambient	3rd St - Ambient	Carroll St - Ambient
Monday November 23, 2020	4.45	0.05	11.91	5.98
Tuesday November 24, 2020	7.74	3.85	16.58	14.58
Wednesday November 25, 2020	9.68	1.67	27.36	3.17

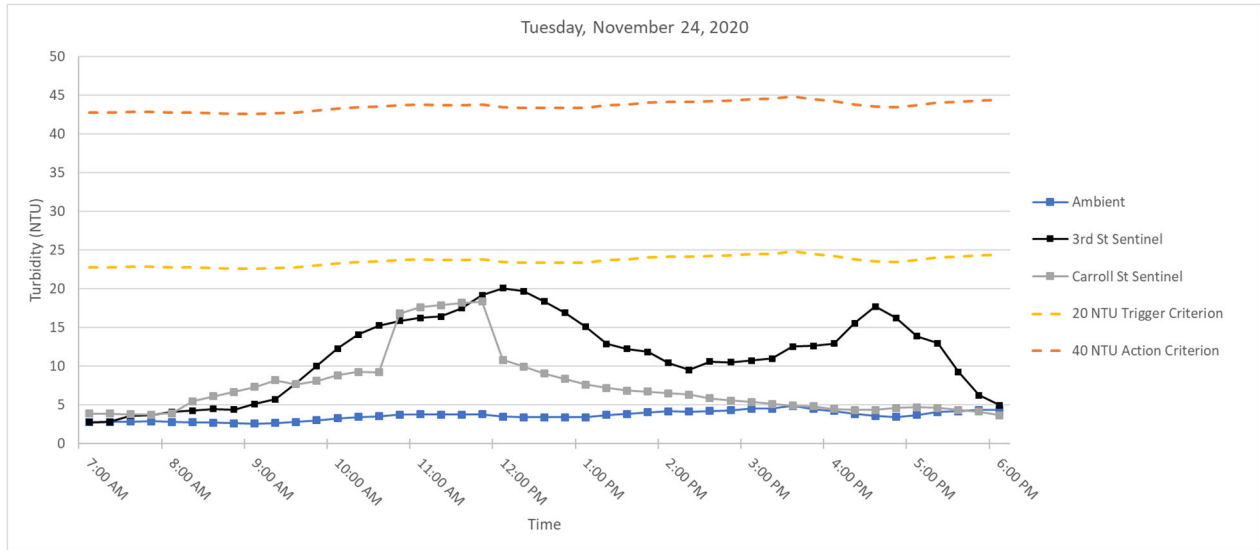
3.1 Monday, November 23rd, 2020

Figure 2. Hourly rolling average turbidity readings on Monday, November 23, 2020 from 7 AM to 6 PM.



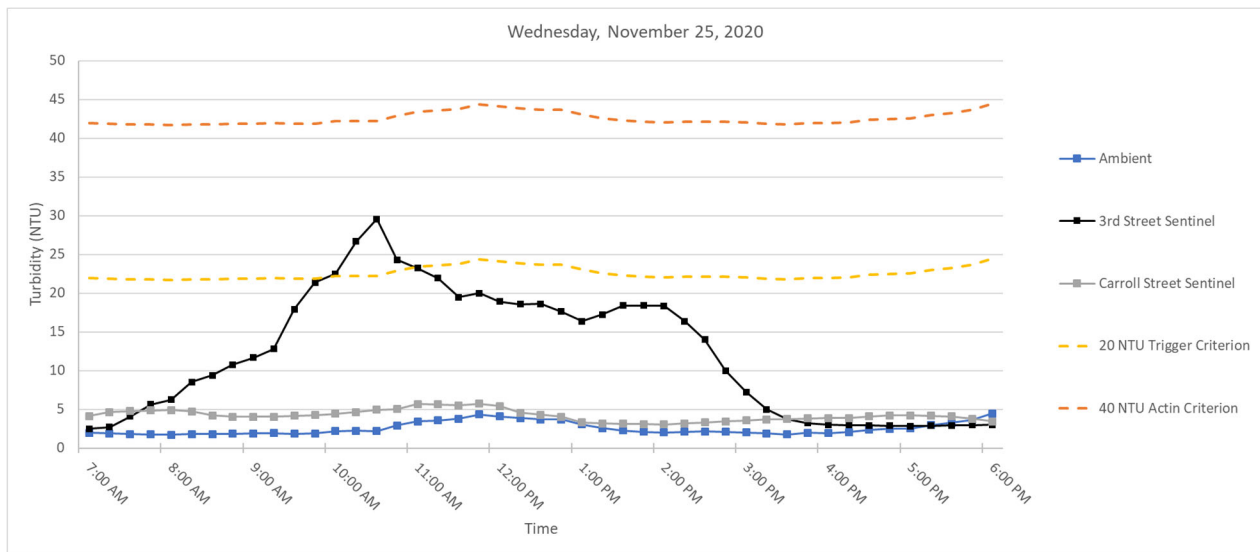
3.2 Tuesday, November 24th, 2020

Figure 3. Hourly rolling average turbidity readings on Tuesday, November 24, 2020 from 7 AM to 6 PM.



3.3 Wednesday, November 25th, 2020

Figure 4. Hourly rolling average turbidity readings on Wednesday, November 25, 2020 from 7 AM to 6 PM.



Notes:

1. On November 25th, 2020 at 10:00 AM a spike in turbidity at the 3rd Street Sentinel Buoy of 69.24 NTU was eliminated as an outlier in accordance with the outlier analysis defined in Section 2 and the WQMP.

4. SUMMARY OF VISUAL OBSERVATIONS

During the Phase I dredging with the environmental clamshell bucket some sheen was observed during dredging. This sheen was localized in the area of dredging and did not migrate outside of RTA1.

APPENDIX A
Turbidity Data Tables

Monday, November 23, 2020

Time	Turbidity (NTU)			Rolling Average Turbidity (NTU)			Difference (NTU)	
	Ambient	3rd Street	Carroll Street	Ambient	3rd Street	Carroll Street	3rd St - Ambient	Carroll St - Ambient
7:00:00	3.18	4.02	10.62	2.14	4.85	6.86	2.71	4.72
7:15:00	3.43	6.41	9.08	2.51	5.24	7.86	2.72	5.34
7:30:00	2.95	6.85	8.22	2.72	5.45	8.70	2.72	5.98
7:45:00	6.31	6.05	6.45	3.63	5.33	9.21	1.71	5.59
8:00:00	6.13	6.55	7.58	4.40	5.98	8.39	1.58	3.99
8:15:00	5.93	9.1	7.65	4.95	6.99	7.80	2.04	2.85
8:30:00	5.55	13.37	5.86	5.37	8.38	7.15	3.01	1.78
8:45:00	5.58	9.6	7.94	5.90	8.93	7.10	3.03	1.20
9:00:00	5.49	7.51	9.32	5.74	9.23	7.67	3.49	1.93
9:15:00	5.94	4.88	8.22	5.70	8.89	7.80	3.19	2.10
9:30:00	6.91	8.2	6.96	5.89	8.71	7.66	2.82	1.77
9:45:00	6.15	14.24	6.49	6.01	8.89	7.79	2.87	1.77
10:00:00	6.63	19.46	5.57	6.22	10.86	7.31	4.63	1.09
10:15:00	5.59	24.3	5.01	6.24	14.22	6.45	7.97	0.21
10:30:00	5.27	17.35	4.67	6.11	16.71	5.74	10.60	-0.37
10:45:00	4.65	12.48	4.34	5.66	17.57	5.22	11.91	-0.44
11:00:00	4.37	12.3	4.1	5.30	17.18	4.74	11.88	-0.56
11:15:00	4.35	8.42	3.92	4.85	14.97	4.41	10.12	-0.44
11:30:00	7.07	7.6	4.78	5.14	11.63	4.36	6.49	-0.78
11:45:00	6.65	6.26	3.99	5.42	9.41	4.23	3.99	-1.19
12:00:00	8.71	5.75	4.48	6.23	8.07	4.25	1.84	-1.98
12:15:00	8.29	10.68	4.16	7.01	7.74	4.27	0.73	-2.75
12:30:00	9.68	13.7	4	8.08	8.80	4.28	0.72	-3.80
12:45:00	7.22	15.93	4.02	8.11	10.46	4.13	2.35	-3.98
13:00:00	7.8	16.15	4.12	8.34	12.44	4.16	4.10	-4.18
13:15:00	6.84	11.52	3.93	7.97	13.60	4.05	5.63	-3.92
13:30:00	5.57	12	3.8	7.42	13.86	3.97	6.44	-3.45
13:45:00	5.74	9.32	4.57	6.63	12.98	4.09	6.35	-2.55
14:00:00	5.57	7.75	7.29	6.30	11.35	4.74	5.04	-1.56
14:15:00	5.93	5.91	6.11	5.93	9.30	5.14	3.37	-0.79
14:30:00	5.09	7.83	6.66	5.58	8.56	5.69	2.98	0.11
14:45:00	4.48	7.25	6.73	5.36	7.61	6.27	2.25	0.91
15:00:00	4.55	14.42	6.77	5.12	8.63	6.71	3.51	1.59
15:15:00	4.33	16.59	4.97	4.88	10.40	6.25	5.52	1.37
15:30:00	5.2	13.6	4.62	4.73	11.94	5.95	7.21	1.22
15:45:00	4.99	14.02	4.04	4.71	13.18	5.43	8.47	0.72
16:00:00	5.23	10.14	3.31	4.86	13.75	4.74	8.89	-0.12
16:15:00	4.88	7	3.78	4.93	12.27	4.14	7.34	-0.78
16:30:00	5.16	8	3.4	5.09	10.55	3.83	5.46	-1.26
16:45:00	5.15	7.39	3.14	5.08	9.31	3.53	4.23	-1.55
17:00:00	4.29	8.12	3.08	4.94	8.13	3.34	3.19	-1.60
17:15:00	4.33	5.12	3.11	4.76	7.13	3.30	2.36	-1.46
17:30:00	4.45	3.52	2.92	4.68	6.43	3.13	1.75	-1.55
17:45:00	4.57	2.9	2.92	4.56	5.41	3.03	0.85	-1.52
18:00:00	4.39	2.55	3	4.41	4.44	3.01	0.04	-1.40

Tuesday, November 24, 2020

Time	Turbidity (NTU)			Rolling Average Turbidity (NTU)			Difference (NTU)	
	Ambient	3rd Street	Carroll Street	Ambient	3rd Street	Carroll Street	3rd St - Ambient	Carroll St - Ambient
7:00:00	2.82	2.99	3.91	2.79	2.75	3.91	-0.04	1.12
7:15:00	2.82	2.89	3.71	2.82	2.80	3.87	-0.02	1.05
7:30:00	2.9	6.7	3.61	2.87	3.64	3.80	0.77	0.93
7:45:00	2.86	3.16	3.68	2.88	3.70	3.75	0.83	0.87
8:00:00	2.57	4.84	4.82	2.79	4.12	3.95	1.32	1.15
8:15:00	2.65	3.72	11.68	2.76	4.26	5.50	1.50	2.74
8:30:00	2.67	4.02	6.87	2.73	4.49	6.13	1.76	3.40
8:45:00	2.5	6.31	6.33	2.65	4.41	6.68	1.76	4.03
9:00:00	2.52	6.83	7.07	2.58	5.14	7.35	2.56	4.77
9:15:00	2.98	7.91	9.04	2.66	5.76	8.20	3.09	5.53
9:30:00	3.41	14.05	9.04	2.82	7.82	7.67	5.01	4.85
9:45:00	3.63	15.09	8.99	3.01	10.04	8.09	7.03	5.09
10:00:00	3.89	17.69	10.13	3.29	12.31	8.85	9.03	5.57
10:15:00	3.47	15.83	9.1	3.48	14.11	9.26	10.64	5.78
10:30:00	3.35	13.59	8.86	3.55	15.25	9.22	11.70	5.67
10:45:00	4.54	17.19	47.03	3.78	15.88	16.82	12.10	13.05
11:00:00	3.81	16.95	13.14	3.81	16.25	17.65	12.44	13.84
11:15:00	3.63	18.53	11.45	3.76	16.42	17.92	12.66	14.16
11:30:00	3.56	21.27	10.45	3.78	17.51	18.19	13.73	14.41
11:45:00	3.49	21.99	9.85	3.81	19.19	18.38	15.38	14.58
12:00:00	3.09	21.76	9.27	3.52	20.10	10.83	16.58	7.32
12:15:00	3.34	15	8.79	3.42	19.71	9.96	16.29	6.54
12:30:00	3.62	11.84	7.02	3.42	18.37	9.08	14.95	5.66
12:45:00	3.53	13.89	6.99	3.41	16.90	8.38	13.48	4.97
13:00:00	3.56	12.94	6.16	3.43	15.09	7.65	11.66	4.22
13:15:00	4.59	10.84	7.05	3.73	12.90	7.20	9.17	3.47
13:30:00	3.86	11.77	7.12	3.83	12.26	6.87	8.42	3.04
13:45:00	4.75	9.78	6.24	4.06	11.84	6.71	7.79	2.65
14:00:00	4.11	6.86	6.12	4.17	10.44	6.54	6.26	2.36
14:15:00	3.4	8.42	5.3	4.14	9.53	6.37	5.39	2.22
14:30:00	5.05	16.14	4.67	4.23	10.59	5.89	6.36	1.66
14:45:00	4.39	11.34	5.53	4.34	10.51	5.57	6.17	1.23
15:00:00	5.62	10.95	5.43	4.51	10.74	5.41	6.23	0.90
15:15:00	4.32	8.17	4.68	4.56	11.00	5.12	6.45	0.57
15:30:00	5.01	16.24	4.21	4.88	12.57	4.90	7.69	0.03
15:45:00	3.04	16.48	4.26	4.48	12.64	4.82	8.16	0.35
16:00:00	3.18	12.76	3.91	4.23	12.92	4.50	8.69	0.26
16:15:00	3.65	24.11	4.75	3.84	15.55	4.36	11.71	0.52
16:30:00	3.15	19	4.62	3.61	17.72	4.35	14.11	0.74
16:45:00	4.29	9.01	5.58	3.46	16.27	4.62	12.81	1.16
17:00:00	4.28	4.52	4.59	3.71	13.88	4.69	10.17	0.98
17:15:00	5.08	8.35	3.57	4.09	13.00	4.62	8.91	0.53
17:30:00		5.48	3.54	4.20	9.27	4.38	5.07	0.18
17:45:00	4.21	3.94	3.39	4.37	6.26	4.13	1.89	-0.24
18:00:00	4.01	2.6	3.35	4.40	4.98	3.69	0.58	-0.71

Wednesday, November 25, 2020

Time	Turbidity (NTU)			Rolling Average Turbidity (NTU)			Difference (NTU)	
	Ambient	3rd Street	Carroll Street	Ambient	3rd Street	Carroll Street	3rd St - Ambient	Carroll St - Ambient
7:00:00	1.84	2.53	5.04	1.98	2.49	4.14	0.51	2.16
7:15:00	1.71	2.9	6.62	1.89	2.71	4.64	0.83	2.75
7:30:00	1.59	9.72	4.62	1.81	4.10	4.77	2.29	2.96
7:45:00	1.66	10.51	4.13	1.77	5.65	4.86	3.88	3.10
8:00:00	1.89	5.55	4.13	1.74	6.24	4.91	4.50	3.17
8:15:00	2.18	14.01	4.09	1.81	8.54	4.72	6.73	2.91
8:30:00	1.64	7.1	4.03	1.79	9.38	4.20	7.59	2.41
8:45:00	1.91	16.73	3.87	1.86	10.78	4.05	8.92	2.19
9:00:00	1.81	15.01	4.11	1.89	11.68	4.05	9.79	2.16
9:15:00	2.21	11.19	4.22	1.95	12.81	4.06	10.86	2.11
9:30:00	1.72	39.71	4.58	1.86	17.95	4.16	16.09	2.30
9:45:00	1.87	24.14	4.48	1.90	21.36	4.25	19.45	2.35
10:00:00	3.35	--	4.81	2.19	22.51	4.44	20.32	2.25
10:15:00	2	31.68	5.26	2.23	26.68	4.67	24.45	2.44
10:30:00	2.07	22.73	5.62	2.20	29.57	4.95	27.36	2.75
10:45:00	5.32	18.6	5.04	2.92	24.29	5.04	21.37	2.12
11:00:00	4.54	19.84	7.69	3.46	23.21	5.68	19.76	2.23
11:15:00	4.04	16.88	4.67	3.59	21.95	5.66	18.35	2.06
11:30:00	2.89	19.31	4.5	3.77	19.47	5.50	15.70	1.73
11:45:00	5.05	25.32	6.7	4.37	19.99	5.72	15.62	1.35
12:00:00	4.02	13.28	3.5	4.11	18.93	5.41	14.82	1.30
12:15:00	3.37	18.13	3.36	3.87	18.58	4.55	14.71	0.67
12:30:00	3.09	17.12	3.37	3.68	18.63	4.29	14.95	0.60
12:45:00	2.98	14.36	3.3	3.70	17.64	4.05	13.94	0.34
13:00:00	1.78	18.92	2.98	3.05	16.36	3.30	13.31	0.25
13:15:00	1.67	17.65	2.83	2.58	17.24	3.17	14.66	0.59
13:30:00	1.87	23.85	3.22	2.28	18.38	3.14	16.10	0.86
13:45:00	2.17	17.18	3.2	2.09	18.39	3.11	16.30	1.01
14:00:00	2.6	14.16	3.11	2.02	18.35	3.07	16.33	1.05
14:15:00	2.24	9.11	3.58	2.11	16.39	3.19	14.28	1.08
14:30:00	1.8	5.7	3.55	2.14	14.00	3.33	11.86	1.20
14:45:00	1.75	3.8	3.76	2.11	9.99	3.44	7.88	1.33
15:00:00	1.81	3.4	3.85	2.04	7.23	3.57	5.19	1.53
15:15:00	1.78	2.88	3.77	1.88	4.98	3.70	3.10	1.83
15:30:00	1.74	2.84	3.9	1.78	3.72	3.77	1.95	1.99
15:45:00	2.78	3.13	3.84	1.97	3.21	3.82	1.24	1.85
16:00:00	1.49	2.87	3.94	1.92	3.02	3.86	1.10	1.94
16:15:00	2.43	3.11	3.9	2.04	2.97	3.87	0.92	1.83
16:30:00	3.43	2.77	4.79	2.37	2.94	4.07	0.57	1.70
16:45:00	2.31	2.48	4.69	2.49	2.87	4.23	0.38	1.74
17:00:00	3.13	2.99	3.88	2.56	2.84	4.24	0.29	1.68
17:15:00	3.59	2.99	3.73	2.98	2.87	4.20	-0.11	1.22
17:30:00	3.94	3.37	3.44	3.28	2.92	4.11	-0.36	0.83
17:45:00	5.41	3.01	3.12	3.68	2.97	3.77	-0.71	0.10
18:00:00	6.41	2.77	2.98	4.50	3.03	3.43	-1.47	-1.07