July 2017 Water Quality Summary Report

One Sydney Harbour – Remediation Works

Licence Number: 13336

Licensee: Barangaroo Delivery Authority

Licensee Address: Level 21, 201 Kent Street, Sydney

Sampling period: 1 to 31 July 2017

Date provided to Licensee: 18 August 2017

Date published: 18 August 2017

July 2017 Water Quality Summary Report

Barangaroo South – Remediation Works

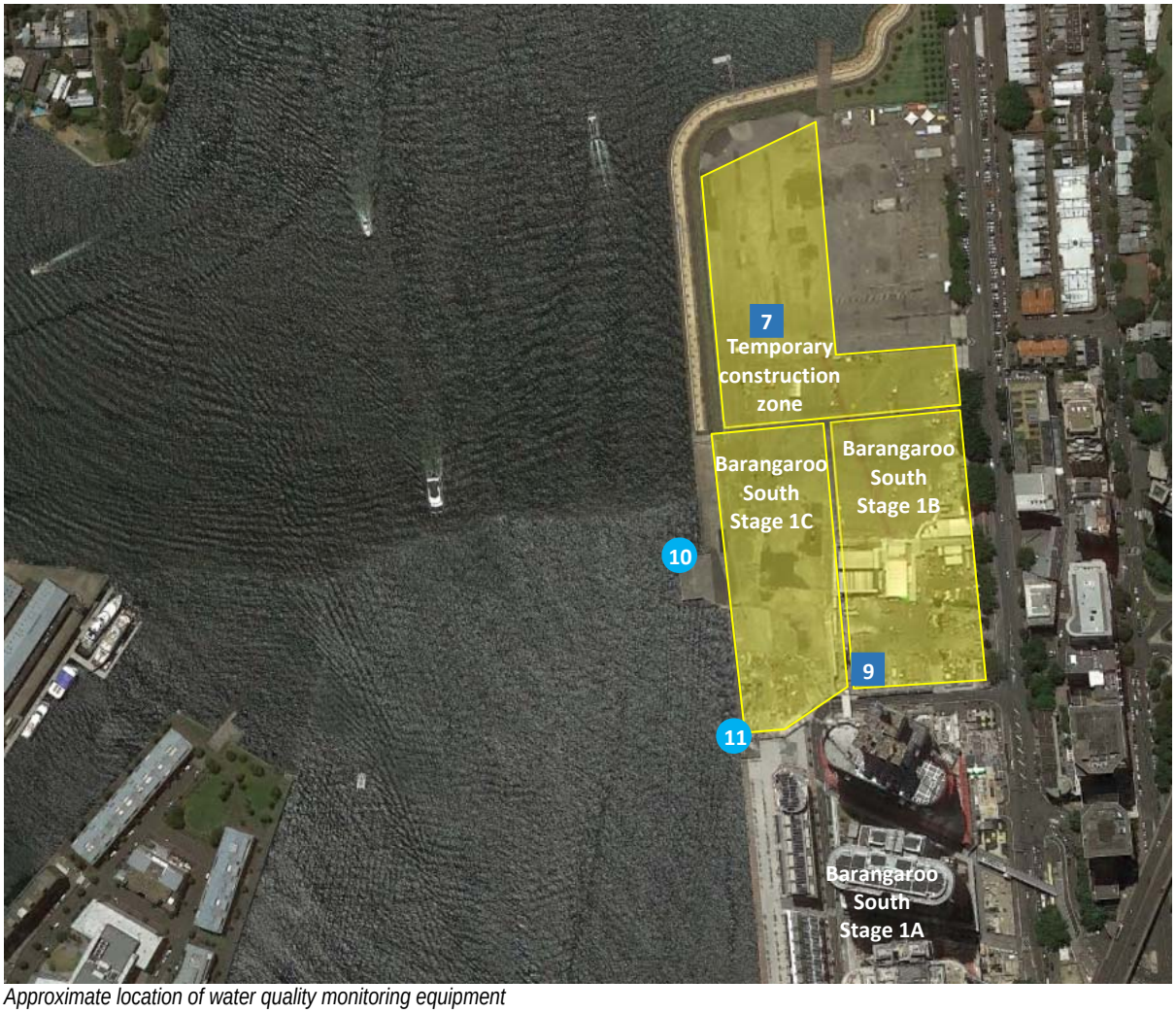
This report has been compiled to summarise results of water quality monitoring at Barangaroo South in July 2017 in accordance with EPL number 13336. This data is for samples taken from 1 to 31 July 2017. The data was provided to the Barangaroo Delivery Authority (the Licencee) on 18 August 2017.

Lend Lease conducts water quality monitoring at Barangaroo South to measure water quality and assist the construction team implement appropriate environmental controls on site.

Water quality monitoring is carried out in accordance with all relevant authority and statutory requirements. Ambient monitoring in Darling Harbour measures conductivity, pH, temperature and turbidity.

Water quality monitoring locations

Water quality monitoring locations are located as shown below:



Approximate location of water quality monitoring equipment

Legend

- Ambient Water Quality Monitoring Location
- WTP Water Discharge Point
- X EPL point number

EPL Point 10 is the Nearfield 1 (NF1) location, and EPL Point 11 is the Nearfield 2 (NF2) location. EPL Point 9 is the discharge point for the Perimeter Retention Wall (PRW) water treatment plant (WTP). EPL Point 7 is the discharge point for the Crown Development WTP.

Monitoring results

WTP Discharge

There was only a single small (41kL) discharge from the Water Treatment Plant to EPL Point 9 during the month. The majority of captured stormwater was treated and reused on site.

EPL Point 9

Pollutant	Units of measure	Monitoring frequency required by licence	Limit		Min. Value	Max. Value	Exceedence (yes/no)	No. of Samples:	
			100th %ile	50th %ile				Required	Completed
Volume	kL	Daily	260	-	41	41	No	1	1
Ammonia(N)	µg/L	Varies*	1700	910	65	65	No	1	1
Conductivity	uS/cm	Varies*	N/A	N/A	740	740	N/A	1	1
Cyanide (total)	µg/L	Varies*	14	4	ND	ND	No	1	1
Dissolved Oxygen	mg/L	Varies*	N/A	N/A	8.3	8.3	N/A	1	1
Oil & Grease	mg/L	Varies*	10	-	ND	ND	No	1	1
pH	pH	Varies*	6.5 - 8.5	-	6.8	6.8	No	1	1
Suspended Solids	mg/L	Varies*	50	-	ND	ND	No	1	1
Turbidity (NTU)	NTU	Varies*	N/A	N/A	1	1	N/A	1	1
Benzene	µg/L	Varies*	500	-	ND	ND	No	1	1
Toluene	µg/L	Varies*	180	-	ND	ND	No	1	1
Ethylbenzene	µg/L	Varies*	80	-	ND	ND	No	1	1
Total m+p-Xylenes	µg/L	Varies*	75	-	ND	ND	No	1	1
o-Xylene	µg/L	Varies*	350	-	ND	ND	No	1	1
Arsenic (filtered)	µg/L	Varies*	23.2	2.3	ND	ND	No	1	1
Cadmium (filtered)	µg/L	Varies*	0.7	-	ND	ND	No	1	1
Copper (filtered)	µg/L	Varies*	4.8	1.3	ND	ND	No	1	1
Lead (filtered)	µg/L	Varies*	12	4.4	ND	ND	No	1	1
Mercury (filtered)	µg/L	Varies*	0.1	-	ND	ND	No	1	1
Nickel (filtered)	µg/L	Varies*	7	-	1	1	No	1	1
Zinc (filtered)	µg/L	Varies*	43	15	10	10	No	1	1
Chromium (trivalent)	µg/L	Varies*	27	-	ND	ND	No	1	1
Chromium (hexavalent)	µg/L	Varies*	4.4	-	2	2	No	1	1
Acenaphthene	µg/L	Varies*	2	-	ND	ND	No	1	1
Acenapthylene	µg/L	Varies*	2	-	ND	ND	No	1	1
Anthracene	µg/L	Varies*	2	-	ND	ND	No	1	1
Benz(a)anthracene	µg/L	Varies*	2	-	ND	ND	No	1	1
Benzo(a)pyrene	µg/L	Varies*	2	-	ND	ND	No	1	1
Benzo(b)fluoranthene	µg/L	Varies*	2	-	ND	ND	No	1	1
Benzo(g.h.i)perylene	µg/L	Varies*	2	-	ND	ND	No	1	1
Benzo(k)fluoranthene	µg/L	Varies*	2	-	ND	ND	No	1	1
Chrysene	µg/L	Varies*	2	-	ND	ND	No	1	1
Dibenz(a.h)anthracene	µg/L	Varies*	2	-	ND	ND	No	1	1
Fluoranthene	µg/L	Varies*	2	-	ND	ND	No	1	1
Fluorene	µg/L	Varies*	2	-	ND	ND	No	1	1
Indeno(1.2.3-cd)pyrene	µg/L	Varies*	2	-	ND	ND	No	1	1
Naphthalene	µg/L	Varies*	50	-	ND	ND	No	1	1
Phenanthrene	µg/L	Varies*	2	-	ND	ND	No	1	1
Pyrene	µg/L	Varies*	2	-	ND	ND	No	1	1
Total PCB	µg/L	Varies*	N/A	N/A	ND	ND	N/A	1	1
Phenol	µg/L	Varies*	400	-	ND	ND	No	1	1
TRH C6-C9	µg/L	Varies*	20	-	ND	ND	No	1	1
TRH C10-C14	µg/L	Varies*	50	-	ND	ND	No	1	1
TRH C15-C28	µg/L	Varies*	100	-	ND	ND	No	1	1
TRH C29-C36	µg/L	Varies*	50	-	ND	ND	No	1	1

N/A – no licence limit, monitoring requirement only ND – not detected

* Once prior to discharge during batch operation; or Once prior to discharge for fourteen consecutive batch sampling events that meet the discharge limits, then weekly (where there has been a discharge). Currently undertaken weekly.

Environment Protection Licence number: 13336

Licencee: Barangaroo Delivery Authority, Level 21, AON/Maritime Trade Towers, 201 Kent Street, Sydney, 2000

These results have been made available in accordance with Environment Protection Authority requirements for publishing pollution monitoring data

There were no exceedances of turbidity criteria for ambient water quality monitoring in Darling Harbour during the month.

Turbidity

Monitoring Parameter	EPL Point 10 (NTU)	EPL Point 11 (NTU)
Minimum	1.5	0.5
Maximum	8.6	7.6
Mean	3.0	2.7
Limit	63	63

Conductivity

Monitoring Parameter	EPL Point 10 (mS/cm)	EPL Point 11 (mS/cm)
Minimum	52.0	52.4
Maximum	53.2	53.2
Mean	52.9	52.8
Limit	No licence limit, monitoring requirement only	

pH

Monitoring Parameter	EPL Point 10	EPL Point 11
Minimum	7.92	7.84
Maximum	8.30	8.11
Mean	8.22	7.88
Limit	No licence limit, monitoring requirement only	

Temperature

Monitoring Parameter	EPL Point 10 (°C)	EPL Point 11 (°C)
Minimum	14.88	15.00
Maximum	17.12	17.16
Mean	15.77	15.81
Limit	No licence limit, monitoring requirement only	

Frequency

Monitoring Parameter	EPL Point 10 (NF1)	EPL Point 11 (NF2)
Monitoring frequency required by licence	Every 15 minutes	
NTU Samples Collected & Analysed	99.6%	96.9%
pH Samples Collected & Analysed	99.6%	99.9%
Conductivity Samples Collected & Analysed	99.6%	99.9%
Temperature Samples Collected & Analysed	99.6%	99.9%