

**SOIL AND WATER ASSESSMENT
PREPARED FOR
ENVIRO WASTE SERVICES GROUP PTY LTD
14 -16 KIORA CRESCENT, YENNORA NSW 2161**

Prepared for: Enviro Waste Services Group Pty Ltd

Prepared by: Damien Thomas, Environmental Scientist
Matthew Taylor, Environmental Scientist
Kate Barker, Environmental Scientist
R T Benbow, Principal Consultant

Report No: 191251_SoilWater_Rep_Rev5
November 2020
(Released: 3 November 2020)



Benbow
ENVIRONMENTAL

Engineering a Sustainable Future for Our Environment

Head Office: 25-27 Sherwood Street, Northmead NSW 2152 AUSTRALIA
Tel: 61 2 9896 0399 Fax: 61 2 9896 0544
Email: admin@benbowenviro.com.au
Visit our website: www.benbowenviro.com.au

COPYRIGHT PERMISSION

The copyright for this report and accompanying notes is held by Benbow Environmental. Where relevant, the reader shall give acknowledgement of the source in reference to the material contained therein, and shall not reproduce, modify or supply (by sale or otherwise) any portion of this report without specific written permission. Any use made of such material without the prior written permission of Benbow Environmental will constitute an infringement of the rights of Benbow Environmental which reserves all legal rights and remedies in respect of any such infringement.

Benbow Environmental reserves all legal rights and remedies in relation to any infringement of its rights in respect of its confidential information.

Benbow Environmental will permit this document to be copied in its entirety, or part thereof, for the sole use of the management and staff of Enviro Waste Services Group Pty Ltd.

DOCUMENT CONTROL

Prepared by:	Position:	Signature:	Date:
--------------	-----------	------------	-------

Damien Thomas	Environmental Scientist		03 November 2020
---------------	-------------------------	--	------------------

Matthew Taylor	Environmental Scientist		03 November 2020
----------------	-------------------------	--	------------------

Kate Barker	Environmental Scientist		03 November 2020
-------------	-------------------------	--	------------------

Reviewed by:	Position:	Signature:	Date:
--------------	-----------	------------	-------

Emma Hansma	Senior Engineer		03 November 2020
-------------	-----------------	---	------------------

Approved by:	Position:	Signature:	Date:
--------------	-----------	------------	-------

R T Benbow	Principal Consultant		03 November 2020
------------	----------------------	--	------------------

DOCUMENT REVISION RECORD

Revision	Date	Description	Checked	Approved
1	19-6-2020	Rev1	E Hansma	R T Benbow
2	26-6-2020	Rev2	E Hansma	R T Benbow
3	8-9-2020	Rev3	E Hansma	R T Benbow
4	30-10-2020	Rev4	E Hansma	R T Benbow
5	3-11-2020	Rev5	E Hansma	R T Benbow

DOCUMENT DISTRIBUTION

Revision	Issue Date	Issued To	Issued By
1	19-6-2020	Enviro Waste Services Group Pty Ltd	Benbow Environmental
2	26-6-2020	Enviro Waste Services Group Pty Ltd	Benbow Environmental
3	8-9-2020	Enviro Waste Services Group Pty Ltd	Benbow Environmental
4	30-10-2020	Enviro Waste Services Group Pty Ltd	Benbow Environmental
5	3-11-2020	Enviro Waste Services Group Pty Ltd	Benbow Environmental



Benbow

ENVIRONMENTAL

A.B.N. 17 160 013 641

Head Office:

25-27 Sherwood Street Northmead NSW 2152 Australia
P.O. Box 687 Parramatta NSW 2124 Australia
Telephone: +61 2 9896 0399 Facsimile: +61 2 9896 0544
E-mail: admin@benbowenviro.com.au

Visit our Website at www.benbowenviro.com.au

Contents	Page
1. INTRODUCTION	1
1.1 Requirements	1
1.2 Scope of Works	10
2. SITE DETAILS AND PROPOSED DEVELOPMENT	11
2.1 Site Location	11
2.2 Description of the Proposal	11
2.2.1 Discharge Points	15
2.3 Description of the Site and Surrounding Area	15
2.4 Nearest Waterways and Riparian Lands	16
2.3.1 Water Quality and River Flow Objectives	19
2.3.2 Catchment Management Plan	20
2.4 Rainfall	21
2.5 Safeguards	22
3. WATER ASSESSMENT	23
3.1 Water Legislation	23
3.1.1 Water Act 1912	23
3.1.2 Water Management Act 2000	23
3.1.3 Protection of the Environment Operations Act 1997	23
3.1.4 Water Sharing Plans	23
3.2 Water Usage & Supply	24
3.2.1 Site Water Balance	24
3.2.2 Wastewater	26
3.2.3 Blind Sump Pits	26
3.2.4 Stormwater	26
3.3 Stormwater Characterisation	27
3.4 Overflow Events	27
3.5 Potential Impacts on Water	28
3.5.1 Potential Pollutants	28
3.5.1.1 Relevant Trigger Values	29
3.5.2 Surface Water and Ground Water	30
3.5.3 Flooding	33
3.5.4 Climate Change	38
4. SOIL ASSESSMENT	39
4.1 Existing Soil Conditions	39
4.1.1 Topography, Drainage and Landscapes	39
4.1.2 Acid Sulfate Soil	40
4.1.3 Saline Soil	41
4.1.4 Existing Contamination	43
4.2 Potential Impacts on Soil	44
4.2.1 Potential Pollutants	44
4.2.2 Risk of contamination	44
5. CONCLUDING REMARKS	46

6. LIMITATIONS	47
7. REFERENCES	48

Tables	Page
Table 1-1: Requirements	1
Table 2-1: Relevant Water Quality Objectives (WQOs)	20
Table 2-2: Relevant River Flow Objectives (RFOs)	20
Table 2-3: Annual Exceedance Probability (AEP)	21
Table 3-1: Relevant Trigger Levels	29
Table 3-2: Potential Pollutants, Sources and Mitigation Measures	32

Figures	Page
Figure 2-1: Process diagram	14
Figure 2-2: Aerial Photograph of the Site and Surrounding Area	16
Figure 2-3: Nearest Waterways	17
Figure 2-4: Georges River Catchment	18
Figure 2-5: Riparian Lands and Watercourses Map	19
Figure 3-1: Flow Chart Depicting the Site Water Balance – Proposed Development	25
Figure 3-2: Highest Daily Rainfall 2015-2019 Bankstown AWS	28
Figure 3-3: Provisional Flood Hazard Categories Map (July 2013)	34
Figure 3-4: Flood Control Lots Map	35
Figure 3-5: Flood Hydraulic Categories Map (July 2013)	36
Figure 3-6: Flood Extent Map (July 2013)	37
Figure 3-7: Flood Risk Precincts Map (July 2013)	38
Figure 4-1: Local Topography with Vertical Exaggeration of 10	40
Figure 4-2: Acid Sulfate Soil Map	41
Figure 4-3: Salinity Soil Map	42
Figure 4-4: Site Layout Plans For 14-16 Kiora Crescent	43

Attachments

- Attachment 1: *Consent to Discharge Industrial Trade Wastewater Agreement*
- Attachment 2: Flood Advice Letter from Cumberland Council
- Attachment 3: Certificate of Analysis





1. INTRODUCTION

Benbow Environmental has been engaged by Enviro Waste Services Group Pty Ltd to undertake a Soil and Water assessment to support an Environmental Impact Statement (EIS) for the proposed increase in production at the existing liquid waste facility located at 14-16 Kiora Crescent, Yennora NSW 2161. The assessment is a qualitative study that addresses the potential impacts to soil and water from the proposed operations in accordance with the Secretary's Environmental Assessment Requirements (SEARs No. 10407).

1.1 REQUIREMENTS

Water and soil requirements are listed in the Secretary's Environmental Assessment Requirements (SEAR 10407) dated 04/06/2020 as a key issue and the following table provides the details of requirements addressed in this report. This table also includes agency advice regarding soil and water from the EPA and the Energy, Environment and Science Group (EES).

Table 1-1: Requirements

Requirement	Comment
General SEARS requirements	
An assessment of potential surface and groundwater impacts associated with the development, including potential impacts on watercourses, riparian areas, groundwater, and groundwater-dependent communities nearby	See Section 3.5.2 and Section 2.4
A detailed site water balance including a description of the water demands and breakdown of water supplies, and any water licensing requirements	See Section 3.2.1 and 3.1
Details of stormwater/wastewater management system including the capacity of onsite detention system(s), onsite sewage management and measures to treat, reuse or dispose of water	See Section 3.2.4
Description of the measures to minimise water use	See Section 3.2.1
Detailed flooding assessment	See Section 3.5.3
Description of the proposed erosion and sediment controls during construction	See Section 4
Characterisation of water quality at the point of discharge to surface and/or groundwater against the relevant water quality criteria (including details of the contaminants of concern that may leach from the waste into the wastewater and proposed mitigation measures to manage any impacts to receiving waters and monitoring activities and methodologies)	See Section 2.5, Section 3.5.2 and Section 2.4
Characterisation of the nature and extent of any contamination on the site and surrounding area	See Section 4.1.4

Table 1-1: Requirements

Requirement	Comment
EPA requirements	
Provide details of the project that are essential for predicting and assessing impacts to waters including: <ul style="list-style-type: none"> a) the quantity and physio-chemical properties of all potential water pollutants and the risks they pose to the environment and human health, including the risks they pose to Water Quality Objectives in the ambient waters using technical criteria derived from the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZG, 2018). b) the management of discharges with potential for water impact c) drainage works and associated infrastructure; land-forming and excavations; working capacity of structures; and water resource requirements of the proposal 	See section 3.5
Outline site layout, demonstrating efforts to avoid proximity to water resources (especially for activities with significant potential impacts e.g. effluent ponds) and showing potential areas of modification of contours, drainage etc.	See Section 2.1 and Section 2.4
Outline how total water cycle considerations are to be addressed showing total water balances for the development (with the objective of minimising demands and impacts on water resources). Include water requirements (quantity, quality and source(s)) and proposed storm and wastewater disposal, including type, volumes, proposed treatment and management methods and re-use options.	See Section 3.2.1 and Section 3.2.2
Describe the catchment including proximity of the development to any waterways and provide an assessment of their sensitivity/significance from a public health, ecological and/or economic perspective.	See Section 2.3.1
Provide details of site history – if earthworks are proposed, this needs to be considered with regard to possible soil contamination, for example if the site was previously a landfill site or if irrigation of effluent has occurred.	Site history is provided in the EIS. No excavations are proposed.
Describe existing surface and groundwater quality – an assessment needs to be undertaken for any water resource likely to be affected by the proposal and for all conditions (e.g. a wet weather sampling program is needed if runoff events may cause impacts). Note: Methods of sampling and analysis need to conform to an accepted standard (e.g. Approved Methods for the Sampling and Analysis of Water Pollutants in NSW (DEC 2004) or be approved and analyses undertaken by accredited laboratories).	See Section 3.5.2
Provide site drainage details and surface runoff yield.	See Section 3.2.3 and Section 3.2.4

Table 1-1: Requirements

Requirement	Comment
State the ambient Water Quality and River Flow Objectives for the receiving waters. These refer to the community's agreed environmental values and human uses endorsed by the Government as goals for the ambient waters. These environmental values are published on the website: http://www.environment.nsw.gov.au/ieo/index.htm . The EIS should state the environmental values listed for the catchment and waterway type relevant to your proposal. NB: A consolidated and approved list of environmental values is not available for groundwater resources. Where groundwater may be affected the EIS should identify appropriate groundwater environmental values and justify the choice.	See Section 2.3.1
State the indicators and associated trigger values or criteria for the identified environmental values. This information should be sourced from the Australian and New Zealand Guidelines for Fresh and Marine Water (ANZG, 2018).	See Section 3.5.1.1
State any locally specific objectives, criteria or targets, which have been endorsed by the government e.g. the Healthy Rivers Commission Inquiries or the NSW Salinity Strategy (DLWC, 2000) (http://www.environment.nsw.gov.au/salinity/government/nswstrategy.htm).	See Section 2.3.1
Where site specific studies are proposed to revise the trigger values supporting the ambient Water Quality and River Flow Objectives, and the results are to be used for regulatory purposes (e.g. to assess whether a licensed discharge impacts on water quality objectives), then prior agreement from the EPA on the approach and study design must be obtained.	See Section 3.5
Describe the state of the receiving waters and relate this to the relevant Water Quality and River Flow Objectives (i.e. are Water Quality and River Flow Objectives being achieved?). Proponents are generally only expected to source available data and information. However, proponents of large or high risk developments may be required to collect some ambient water quality / river flow / groundwater data to enable a suitable level of impact assessment. Issues to include in the description of the receiving waters could include: a) lake or estuary flushing characteristics b) specific human uses (e.g. exact location of drinking water offtake) c) sensitive ecosystems or species conservation values d) a description of the condition of the local catchment e.g. erosion levels, soils, vegetation cover, etc e) an outline of baseline groundwater information, including, but not restricted to, depth to watertable, flow direction and gradient, groundwater quality, reliance on groundwater by surrounding users and by the environment f) historic river flow data where available for the catchment.	See Section 2.3.1
No proposal should breach clause 120 of the Protection of the Environment Operations Act 1997 (i.e. pollution of waters is prohibited unless undertaken in accordance with relevant regulations).	See Section 3.1.3
Identify and estimate the quantity of all pollutants that may be introduced into the water cycle by source and discharge point including residual discharges after mitigation measures are implemented.	See Section 3.5.1

Table 1-1: Requirements

Requirement	Comment
Include a rationale, along with relevant calculations, supporting the prediction of the discharges.	See Section 3.5.1
Describe the effects and significance of any pollutant loads on the receiving environment. This should include impacts of residual discharges through modelling, monitoring or both, depending on the scale of the proposal. Determine changes to hydrology (including drainage patterns, surface runoff yield, flow regimes, wetland hydrologic regimes and groundwater).	See section 3.5
Describe water quality impacts resulting from changes to hydrologic flow regimes (such as nutrient enrichment or turbidity resulting from changes in frequency and magnitude of stream flow).	See section 3.5
Identify any potential impacts on quality or quantity of groundwater describing their source.	See Section 3.5.2
Identify potential impacts associated with geomorphological activities with potential to increase surface water and sediment runoff or to reduce surface runoff and sediment transport. Also consider possible impacts such as bed lowering, bank lowering, instream siltation, floodplain erosion and floodplain siltation.	Not relevant
Identify impacts associated with the disturbance of acid sulfate soils and potential acid sulfate soils.	See Section 4.1.2
Containment of spills and leaks shall be in accordance with EPA's guidelines section 'Bunding and Spill Management' at http://www.epa.nsw.gov.au/mao/bundingspill.htm and the most recent versions of the Australian Standards referred to in the Guidelines. Containment should be designed for no-discharge.	See Section 4.2.1
The significance of the impacts listed above should be predicted. When doing this it is important to predict the ambient water quality and river flow outcomes associated with the proposal and to demonstrate whether these are acceptable in terms of achieving protection of the Water Quality and River Flow Objectives. In particular the following questions should be answered: a) will the proposal protect Water Quality and River Flow Objectives where they are currently achieved in the ambient waters; and b) will the proposal contribute towards the achievement of Water Quality and River Flow Objectives over time, where they are not currently achieved in the ambient waters.	See Section 2.4 and Section 3.5
Consult with the EPA as soon as possible if a mixing zone is proposed (a mixing zone could exist where effluent is discharged into a receiving water body, where the quality of the water being discharged does not immediately meet water quality objectives. The mixing zone could result in dilution, assimilation and decay of the effluent to allow water quality objectives to be met further downstream, at the edge of the mixing zone). The EPA will advise the proponent under what conditions a mixing zone will and will not be acceptable, as well as the information and modelling requirements for assessment. Note: The assessment of water quality impacts needs to be undertaken in a total catchment management context to provide a wide perspective on development impacts, in particular cumulative impacts.	N/A no mixing zone proposed



Table 1-1: Requirements

Requirement	Comment
Where a licensed discharge is proposed, provide the rationale as to why it cannot be avoided through application of a reasonable level of performance, using available technology, management practice and industry guidelines.	Licensed discharge is not proposed.
Where a licensed discharge is proposed, provide the rationale as to why it represents the best environmental outcome and what measures can be taken to reduce its environmental impact.	Licensed discharge is not proposed.
Reference should be made to Australian and New Zealand Guidelines for Fresh hand Marine Water Quality (ANZG, 2018), and Managing Urban Stormwater: Soils and Construction (Landcom, 2004).	N/A – No construction works
Outline stormwater management to control pollutants at the source and contain them within the site. Also describe measures for maintaining and monitoring any stormwater controls.	See section 3.2.4
Outline erosion and sediment control measures directed at minimising disturbance of land, minimising water flow through the site and filtering, trapping or detaining sediment. Also include measures to maintain and monitor controls as well as rehabilitation strategies.	See Section 4
Describe waste water treatment measures that are appropriate to the type and volume of waste water and are based on a hierarchy of avoiding generation of waste water; capturing all contaminated water (including stormwater) on the site; reusing/recycling waste water; and treating any unavoidable discharge from the site to meet specified water quality requirements.	See Section 3.5.2
Outline pollution control measures relating to storage of materials, possibility of accidental spills (e.g. preparation of contingency plans), appropriate disposal methods, and generation of leachate.	See Section 2.5
Describe hydrological impact mitigation measures including: a) site selection (avoiding sites prone to flooding and waterlogging, actively eroding or affected by deposition) b) minimising runoff c) minimising reductions or modifications to flow regimes d) avoiding modifications to groundwater.	See Section 2.5 and Section 3.5.2
Describe groundwater impact mitigation measures including: a) site selection b) retention of native vegetation and revegetation c) artificial recharge d) providing surface storages with impervious linings e) monitoring program.	See Section 2.5 and Section 3.5.2
Describe geomorphological impact mitigation measures including: a) site selection b) erosion and sediment controls c) minimising instream works d) treating existing accelerated erosion and deposition e) monitoring program.	See Section 2.5 and Section 3.5.2
Any proposed monitoring should be undertaken in accordance with the Approved Methods for the Sampling and Analysis of Water Pollutants in NSW (DEC 2004).	N/A no monitoring required



Table 1-1: Requirements

Requirement	Comment
Provide any details (in addition to those provided in the location description - Section C) that are needed to describe the existing situation in terms of soil types and properties and soil contamination.	See Section 4
Identify any likely impacts resulting from the construction or operation of the proposal, including the likelihood of: a) disturbing any existing contaminated soil b) contamination of soil by operation of the activity c) subsidence or instability d) soil erosion e) disturbing acid sulfate or potential acid sulfate soils.	See Section 4 and Section 4.1.2
Reference should be made to Guidelines of the Duty to Report Contamination under the Contaminated Land Management Act 1997 (EPA, 2015).	See Section 4
Describe and assess the effectiveness or adequacy of any soil management and mitigation measures during construction and operation of the proposal including: a) erosion and sediment control measures b) proposals for site remediation – see Managing Land Contamination, Planning Guidelines SEPP 55 – Remediation of Land (Department of Urban Affairs and Planning and Environment Protection Authority, 1998) c) proposals for the management of these soils – see Acid Sulfate Soil Manual (Acid Sulfate Soil Advisory Committee 1998) and Acid Sulfate Soils Assessment Guidelines (Acid Sulfate Soil Advisory Committee 1998).	See Section 2.5, Section 4 and Section 4.1.2
EES requirements (ref: DOC20/385024)	
9. The EIS must map the following features relevant to water and soils including: a. Acid sulfate soils (Class 1, 2, 3 or 4 on the Acid Sulfate Soil Planning Map). b. Rivers, streams, wetlands, estuaries (as described in s4.2 of the Biodiversity Assessment Method). c. Wetlands as described in s4.2 of the Biodiversity Assessment Method. d. Groundwater. e. Groundwater dependent ecosystems f. Proposed intake and discharge locations	See Section 2.4 Section 3.5.2 Section 4 Section 4.1.2



Table 1-1: Requirements

Requirement	Comment
<p>10. The EIS must describe background conditions for any water resource likely to be affected by the development, including:</p> <p>a. Existing surface and groundwater. b. Hydrology, including volume, frequency and quality of discharges at proposed intake and discharge locations.</p> <p>c. Water Quality Objectives (as endorsed by the NSW Government http://www.environment.nsw.gov.au/ieo/index.htm) including groundwater as appropriate that represent the community's uses and values for the receiving waters.</p> <p>d. Indicators and trigger values/criteria for the environmental values identified at (c) in accordance with the ANZECC (2000) Guidelines for Fresh and Marine Water Quality and/or local objectives, criteria or targets endorsed by the NSW Government.</p> <p>e. Risk-based Framework for Considering Waterway Health Outcomes in Strategic Land-use Planning Decisions http://www.environment.nsw.gov.au/research-andpublications/publications-search/risk-based-framework-for-considering-waterwayhealth-outcomes-in-strategic-land-use-planning</p>	See Section 2.4
<p>11. The EIS must assess the impacts of the development on water quality, including:</p> <p>a. The nature and degree of impact on receiving waters for both surface and groundwater, demonstrating how the development protects the Water Quality Objectives where they are currently being achieved, and contributes towards achievement of the Water Quality Objectives over time where they are currently not being achieved. This should include an assessment of the mitigating effects of proposed stormwater and wastewater management during and after construction.</p> <p>b. Identification of proposed monitoring of water quality.</p> <p>c. Consistency with any relevant certified Coastal Management Program (or Coastal Zone Management Plan).</p>	<p>N/A</p> <p>no construction works –</p> <p>See Section 4</p>

Table 1-1: Requirements

Requirement	Comment
<p>12. The EIS must assess the impact of the development on hydrology, including:</p> <ul style="list-style-type: none"> a. Water balance including quantity, quality and source. b. Effects to downstream rivers, wetlands, estuaries, marine waters and floodplain areas. c. Effects to downstream water-dependent fauna and flora including groundwater dependent ecosystems. d. Impacts to natural processes and functions within rivers, wetlands, estuaries and floodplains that affect river system and landscape health such as nutrient flow, aquatic connectivity and access to habitat for spawning and refuge (e.g. river benches). e. Changes to environmental water availability, both regulated/licensed and unregulated/rules-based sources of such water. f. Mitigating effects of proposed stormwater and wastewater management during and after construction on hydrological attributes such as volumes, flow rates, management methods and re-use options. g. Identification of proposed monitoring of hydrological attributes. 	<p>N/A no construction works – See Section 4</p>
<p>13. The EIS must map the following features relevant to flooding as described in the Floodplain Development Manual 2005 (NSW Government 2005) including:</p> <ul style="list-style-type: none"> a. Flood prone land. b. Flood planning area, the area below the flood planning level. c. Hydraulic categorisation (floodways and flood storage areas) d. Flood Hazard. 	<p>See Section 3.5.3</p>
<p>14. The EIS must describe flood assessment and modelling undertaken in determining the design flood levels for events, including a minimum of the 5% Annual Exceedance Probability (AEP), 1% AEP, flood levels and the probable maximum flood, or an equivalent extreme event.</p>	<p>See Section 3.5.3</p>
<p>15. The EIS must model the effect of the proposed development (including fill) on the flood behaviour under the following scenarios:</p> <ul style="list-style-type: none"> a. Current flood behaviour for a range of design events as identified in 14 above. This includes the 0.5% and 0.2% AEP year flood events as proxies for assessing sensitivity to an increase in rainfall intensity of flood producing rainfall events due to climate change. 	<p>See Section 3.5.3</p>
<p>16. Modelling in the EIS must consider and document:</p> <ul style="list-style-type: none"> a. Existing council flood studies in the area and examine consistency to the flood behaviour documented in these studies. b. The impact on existing flood behaviour for a full range of flood events including up to the probable maximum flood, or an equivalent extreme flood. c. Impacts of the development on flood behaviour resulting in detrimental changes in potential flood affection of other developments or land. This may include redirection of flow, flow velocities, flood levels, hazard categories and hydraulic categories d. Relevant provisions of the NSW Floodplain Development Manual 2005. 	<p>See Section 3.5.3</p>

Table 1-1: Requirements

Requirement	Comment
<p>17. The EIS must assess the impacts on the proposed development on flood behaviour, including:</p> <ul style="list-style-type: none"> a. Whether there will be detrimental increases in the potential flood affectation of other properties, assets and infrastructure. b. Consistency with Council floodplain risk management plans. c. Consistency with any Rural Floodplain Management Plans. d. Compatibility with the flood hazard of the land. e. Compatibility with the hydraulic functions of flow conveyance in floodways and storage in flood storage areas of the land. f. Whether there will be adverse effect to beneficial inundation of the floodplain environment, on, adjacent to or downstream of the site. g. Whether there will be direct or indirect increase in erosion, siltation, destruction of riparian vegetation or a reduction in the stability of river banks or watercourses. h. Any impacts the development may have upon existing community emergency management arrangements for flooding. These matters are to be discussed with the NSW SES and Council. i. Whether the proposal incorporates specific measures to manage risk to life from flood. These matters are to be discussed with the NSW SES and Council. j. Emergency management, evacuation and access, and contingency measures for the development considering the full range of flood risk (based upon the probable maximum flood or an equivalent extreme flood event). These matters are to be discussed with and have the support of Council and the NSW SES. k. Any impacts the development may have on the social and economic costs to the community as consequence of flooding. 	<p>See Section 3.5.3</p>

1.2 SCOPE OF WORKS

The assessment is qualitative and the scope of works includes the following:

- Review of relevant plans and documentation relating to the site and proposed development;
- Addressing the key issues for “soil and water” identified in the Secretary’s Environmental Assessment Requirements (SEARs) reference: SEAR 10407, dated 4/06/20 including:
 - ▶ A description of local soils, topography, drainage and landscapes;
 - ▶ The details of stormwater, leachate and wastewater management;
 - ▶ The details of sediment and erosion controls;
 - ▶ A detailed site water balance;
 - ▶ The details of water usage including water supply and licenses;
 - ▶ An assessment of impacts to surface and groundwater resources, flooding impacts and impacts to groundwater dependent ecosystems;
 - ▶ Identification of the probability of the occurrence of acid sulfate soils at the site and determination of whether an acid sulfate soil management plan in accordance with ASSMAC guidelines is required; and
 - ▶ A description and appraisal of impact mitigation and monitoring measures.

The report has been prepared based on the information provided by the client. No soil or water sampling or analysis work was undertaken as part of this assessment except for stormwater sampling taken for the water characterisation assessment. Recommendations for further studies to support the findings of this report are provided where considered necessary.

2. SITE DETAILS AND PROPOSED DEVELOPMENT

This section provides a description of the site, surroundings and proposed development.

2.1 SITE LOCATION

The site is located at 14 Kiora Crescent (lot 49, DP 18211) and 16 Kiora Crescent (lot 50, DP18211), Yennora NSW 2161, within the Local Government Area of Cumberland Council.

Figure 2-2 shows the location within its local setting.

2.2 DESCRIPTION OF THE PROPOSAL

Enviro Waste Services Group Pty Ltd currently has consent and holds an environment protection licence for the processing and disposal of waste cooking oil and other liquid wastes. The proposed development involves increasing processing quantities at the existing liquid waste recycling facility located at 14 Kiora Crescent, and use of the neighbouring site at 16 Kiora Crescent for out-of-date liquid product/food waste destruction, improved vehicle access, truck manoeuvring and car parking.

The proposed development seeks approval to increase its current processing quantities from 900 tonnes per annum to 110,000 tonnes per annum, and increase the maximum quantity to be stored at any one time from 110 tonnes to 477 tonnes. These increases in handling capacity will be divided between properties at 14 and 16 Kiora Crescent. Waste processing streams and proposed quantities per location are listed below:

14 Kiora Crescent (existing facility – industrial waste treatment/disposal, liquid waste material, sewage sludge, grease trap waste etc)

Processing capacity per annum: 100,000 tonnes.

Maximum storage at any one time: 377 tonnes.

16 Kiora Crescent (additional facility - out-of-date liquid product/food waste destruction)

Processing capacity per annum: 10,000 tonnes.

Maximum storage at any one time: 100 tonnes.

The proposed site activities and site use are described for the two properties below.

14 Kiora Crescent

The facility would receive an increased quantity of liquid wastes of a type that it is already licenced to receive including:

- Residues from industrial waste treatment/disposal operations – landfill leachates (N205);
- Liquid waste material in glass, plastic or aluminium containers;
- Surface active agents (surfactants) containing principally organic constituents and which may contain metals and inorganic materials (M250);
- Waste oil/hydrocarbons mixtures/emulsions in water (J120);



- Sewage sludge & residues (K130); and
- Grease trap waste (K110).

The operation of the facility involves the following activities to be undertaken on site:

- Unloading and loading of liquid waste from tanker trucks;
- Filtration of solid debris;
- Separation of solids;
- Separation of oils and sludge; and
- Separation of oil and water;

The increased processing quantities would utilise the existing equipment onsite. Minor modifications to tank sizes would be required to achieve a maximum storage at any one time: 377 tonnes.

16 Kiora Crescent

The facility at 16 Kiora Crescent would receive up to 10,000 tonnes per annum of waste including out-of-date liquid product/food waste for destruction. The total waste storage at any one time is limited to 100 tonnes. Additionally, the site at 16 Kiora Crescent would provide office space, access for trucks and car parking.

Annual tonnage of incoming and outgoing waste from the out-of-date liquid product destruction process is detailed below.

Incoming waste type (tonnes per annum)

- Out-of-date liquids (food waste): 6,700
- Shampoo/liquid soaps: 1,600
- Shoes: 200
- Clothes: 250
- Makeup: 1,250
- Total: 10,000 tonnes**

Outgoing waste type (tonnes per annum)

- Plastic: 950
- Cardboard: 950
- Aluminium: 950
- Liquid food waste: 4,600
- Liquid waste (other – for processing at 14 Kiora Crescent): 1,100
- Steel: 450
- Timber: 250
- Glass: 450
- Cloth: 200
- General solid waste: 100
- Total: 10,000 tonnes**

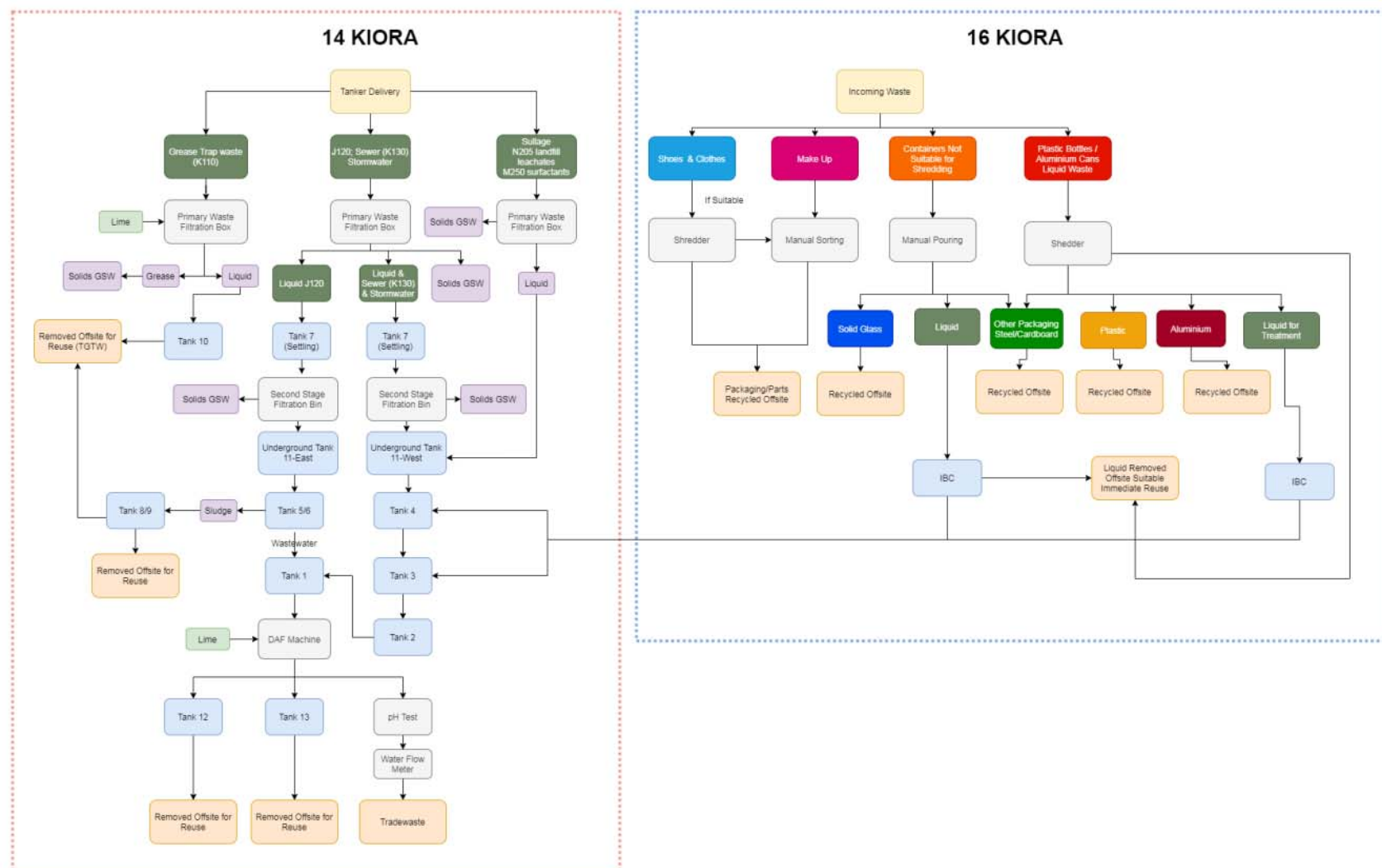


The destruction and disposal of out-of-date liquid products/food wastes would involve the following:

- Out-of-date, expired or perishable liquid food waste (such as fruit juices, soft drinks, shampoos and soaps) are divided by waste stream (food waste/liquid soaps etc) and fed into a shredder to separate liquids from packaging.
- Shredded packaging containers (cardboard, plastics, aluminium) are collected and recycled.
- Liquid food wastes are collected into intermediate bulk containers (IBCs) and stored at 16 Kiora Crescent.
- Liquid soap wastes are collected and sent to 14 Kiora Crescent for further processing.
- IBCs containing food waste are transported off site to be used in irrigation practices for agricultural properties/farmlands. The contents of the IBCs would comply with the relevant resource recovery exemptions/orders and/or NSW Department of Environment and Conservation "Use of Effluent by Irrigation" (2004) and ANZECC & ARMCANZ "Guidelines for Fresh and Marine Water Quality" Volume 3, Primary Industries — Rationale and Background Information (Irrigation and general water uses, stock drinking water, aquaculture and human consumers of aquatic foods) (2000).

Figure 2-1 shows the process diagram for the facility.

Figure 2-1: Process diagram





The operation maintains its own vehicle fleet and also allows access to private vehicles utilising the facility for liquid waste disposal services. There is minor chemical use (e.g. sodium hydroxide NaOH) and storage (also banded). The site operates one (1) LPG forklift and keep a small cage of LPG cylinders.

2.2.1 Discharge Points

There are no discharge points to natural waterways.

The product destruction process at 16 Kiora Cres results in separation of material into recyclable materials which are sent on for further recycling, and liquid food wastes that are sent for either irrigation under a resource recovery exemption or to 14 Kiora Cres for further processing.

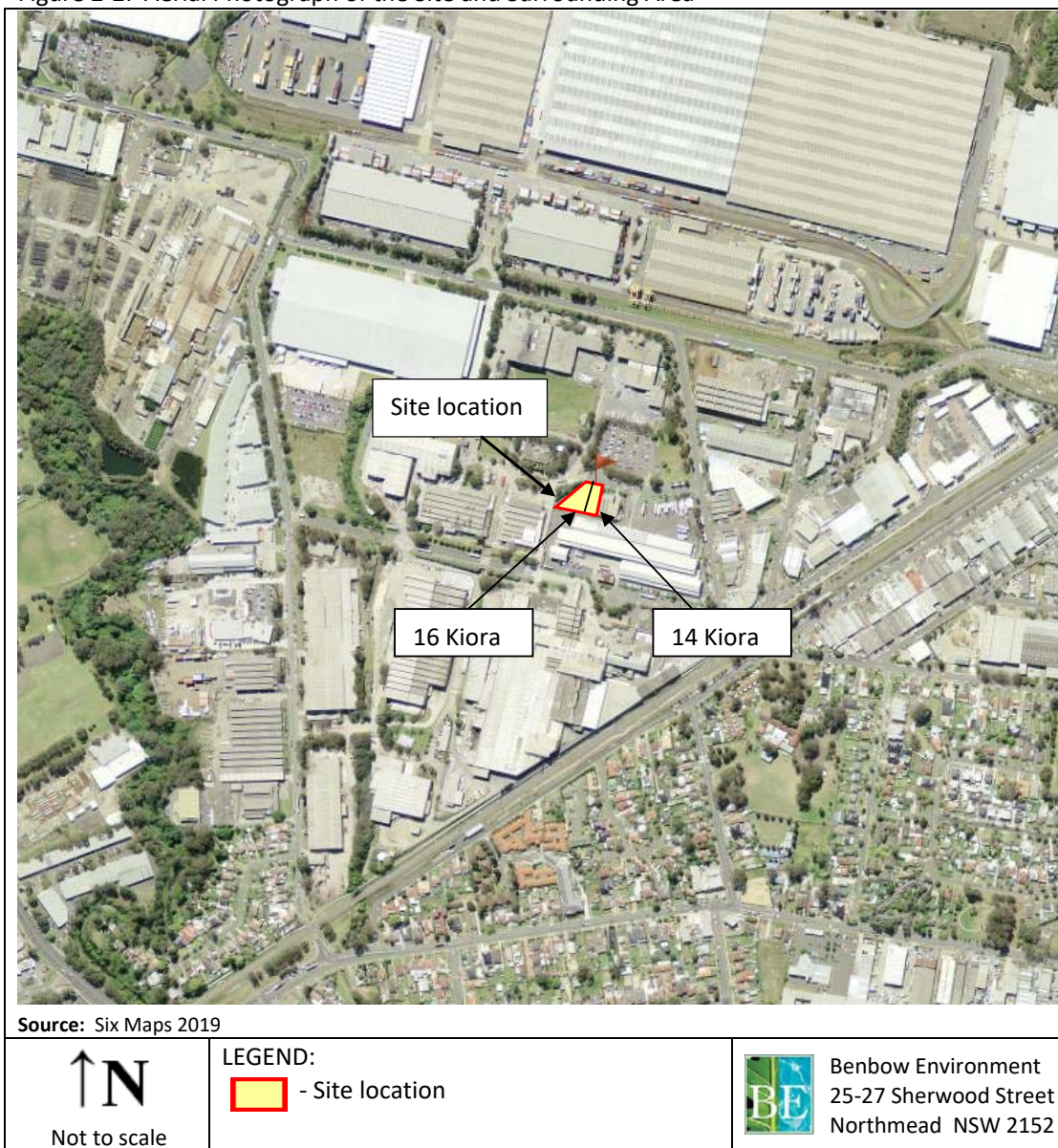
The process at 14 Kiora Cres results in three final components – solid filter cake that is sent to a licensed landfill, oil and sludge that is sent on for further treatment and wastewater that is sent to tradewaste under an agreement with Sydney Water.

2.3 DESCRIPTION OF THE SITE AND SURROUNDING AREA

The site is located on land zoned as General Industrial (IN1) under the Holroyd LEP 2013. It is surrounded by other industrial premises. The industrial zone is shaped roughly like an upside-down triangle with its south-east edge bordered by the T5 Leppington railway line (running south to east). To the Zone's north lies Low Density Residential (R2), and Public Recreation (RE1). The Zone's western boundary borders Prospect Creek (Environmental Conservation zone E2). A small pocket of Low Density Residential (R2) is situated in the Zone's southern corner which is in turn bordered by Prospect Creek (due West) and the Leppington rail line due Southeast. The closest residential area to the site is 330 m southeast, it lies just beyond the Leppington Railway line.

Horsley Drive, a major arterial road, is located 1.02 km southwest to the site. Prospect Creek is located approximately 640 m west of the site.

Figure 2-2: Aerial Photograph of the Site and Surrounding Area



2.4 NEAREST WATERWAYS AND RIPARIAN LANDS

There are no waterbodies located onsite with the nearest offsite source, Prospect Creek, situated approximately 640 m due west from the site (Figure 2-3). Prospect Creek is within the Georges River Catchment (Figure 2-4) and rises beneath Prospect Reservoir, 7.1 km north-west of the site. The creek flows for 26 km in a generally south-easterly direction through the local government areas of Cumberland, Liverpool and Bankstown, before reaching its confluence with the Georges River in Dhurawal Bay, Georges Hall almost 5 km directly south of the site. Georges River flows into Botany Bay, being the Bay's main tributary. The Georges River catchment spans an area of 930.9 km².

Riparian vegetation lines both banks of Prospect Creek along its entire length. It is identified on the Holroyd LEP 2013 Riparian Lands and Watercourses Map (Figure 2-5).

Figure 2-3: Nearest Waterways

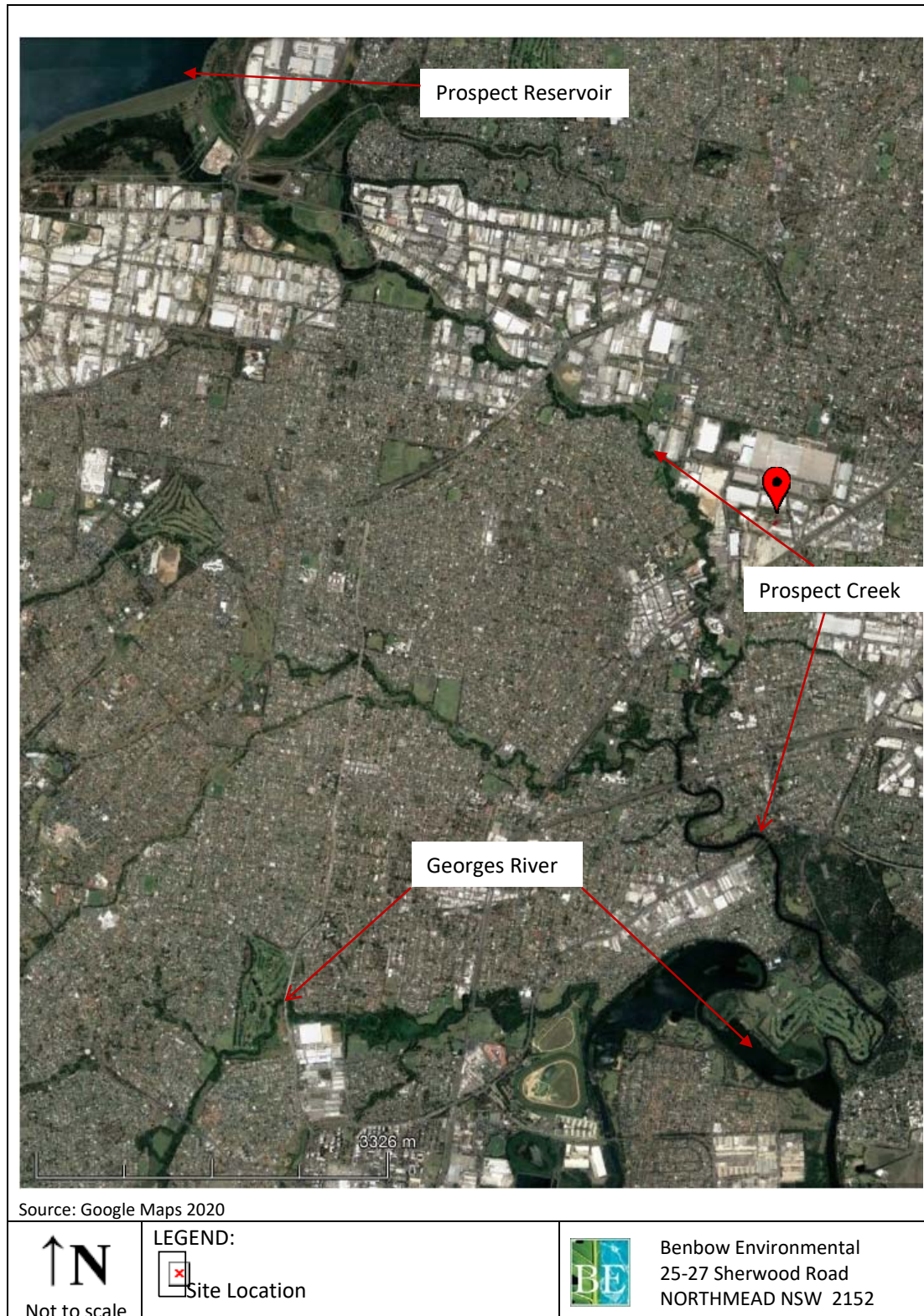
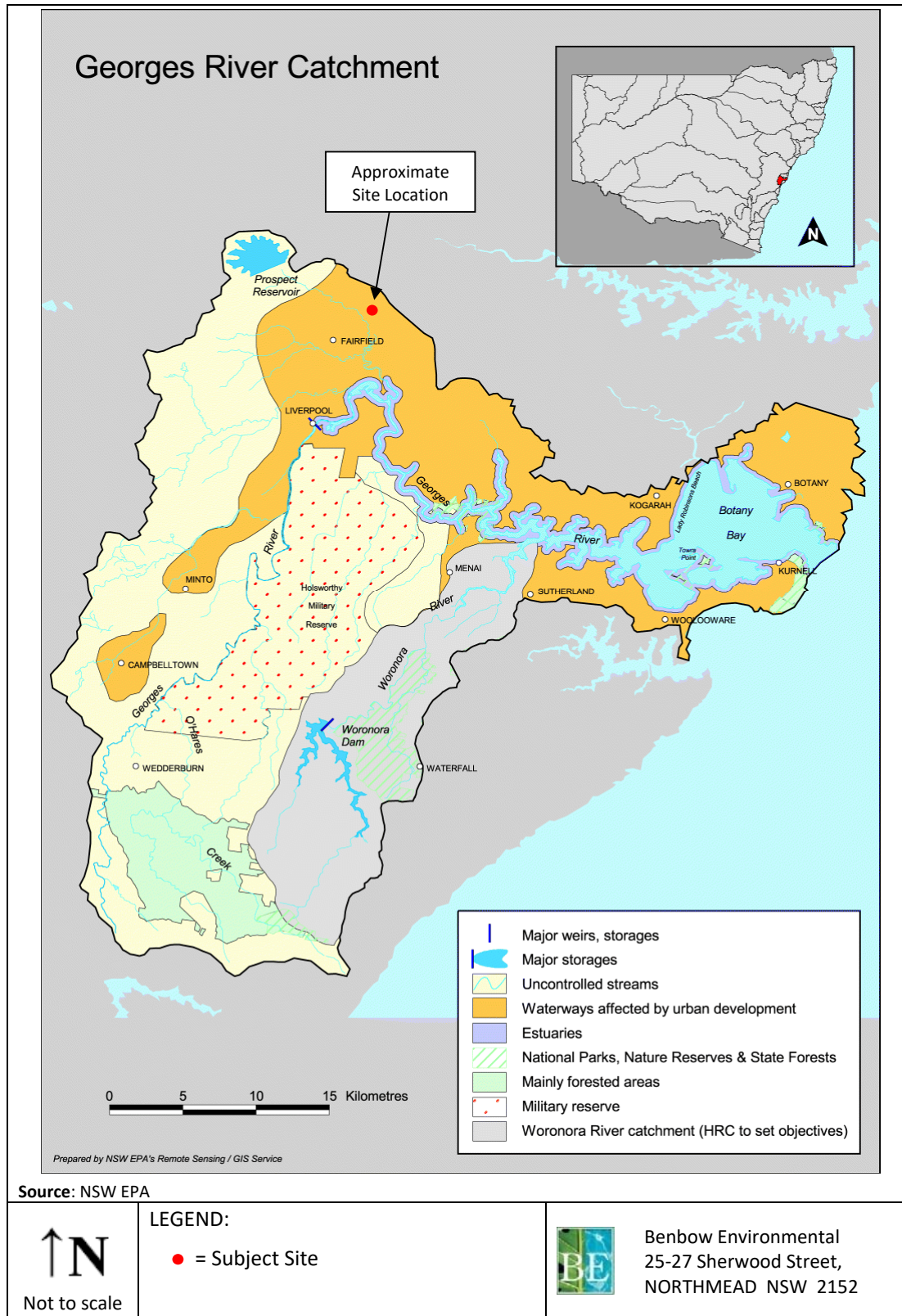


Figure 2-4: Georges River Catchment




Source: Holroyd LEP 2013 Riparian Lands and Watercourses Map – Sheet WCL_007

↑ N
Not to scale

LEGEND:

- Site Location

- Riparian land

 Benbow Environmental
25-27 Sherwood Street,
NORTHMEAD NSW 2152

This section provides the Water Quality Objectives (WQOs) and the River Flow Objectives (RFOs) for the Georges River catchment, which should be used to develop plans and actions affecting water quality and river health. There are no discharges to waterways associated with the proposed development; nevertheless, WQOs and RFOs are provided for completeness of information on the potentially receiving waters.

Ref: 191251_SOILWATER_REP_REV5
November 2020

Table 2-1: Relevant Water Quality Objectives (WQOs)

WQO	Objective
Aquatic Ecosystems	<i>Maintaining or improving the ecological condition of waterbodies and their riparian zones over the long term</i>
Visual Amenity	<i>Aesthetic qualities of waters</i>
Secondary Contact Recreation	<i>Maintaining or improving water quality for activities such as boating and wading, where there is a low probability of water being swallowed</i>
Primary Contact Recreation	<i>Maintaining or improving water quality for activities such as swimming in which there is a high probability of water being swallowed</i>

Table 2-2: Relevant River Flow Objectives (RFOs)

RFO	Objective
Maintain wetland and floodplain inundation	<i>Maintain or restore the natural inundation patterns and distribution of floodwaters supporting natural wetland and floodplain ecosystems</i>
Maintain Natural Flow Variability	<i>Maintain or mimic natural flow variability in all streams</i>
Maintain Natural Rates of Change in Water Levels	<i>Maintain rates of rise and fall of river heights within natural bounds</i>
Minimise Effects of Weirs and Other Structures	<i>Minimise the impact of instream structures</i>

2.3.2 Catchment Management Plan

Georges Riverkeeper Strategic Plan 2018-2022 is a four-year plan produced by Georges Riverkeeper, a catchment management body. Georges Riverkeeper facilitates proactive waterway management that is adaptive and integrated across other areas of member councils, rather than being reactive and piecemeal. There are five focus areas in the Strategic Plan which are:

- Catchment Actions Program, previously the Riverkeeper Program
- River Health Monitoring Program
- Stormwater Program
- Research Program
- Education and Capacity Building Program

2.4 RAINFALL

The BoM IFD Design Rainfall Depth (mm) for the site area is provided in Table 2-3 below, based on the 2016 Rainfall IFD Data System.

Table 2-3: Annual Exceedance Probability (AEP)

Duration	63.2%	50%	20%	10%	5%	2%	1%
1 min	2.09	2.31	3.02	3.51	3.97	4.59	5.07
2 min	3.43	3.72	4.68	5.37	6.07	6.97	7.69
3 min	4.76	5.20	6.60	7.59	8.58	9.88	10.9
4 min	5.98	6.57	8.43	9.72	11.0	12.7	14.0
5 min	7.09	7.81	10.1	11.7	13.2	15.3	16.9
10 min	11.2	12.5	16.5	19.1	21.7	25.1	27.7
15 min	14.0	15.6	20.6	23.9	27.2	31.4	34.6
20 min	16.1	17.9	23.5	27.3	31.0	35.8	39.4
25 min	17.7	19.7	25.8	29.9	33.8	39.1	43.1
30 min	19.0	21.1	27.5	31.9	36.1	41.7	46.0
45 min	22.1	24.4	31.5	36.4	41.2	47.6	52.4
1 hour	24.4	26.8	34.4	39.7	44.9	51.9	57.3
1.5 hour	27.9	30.5	38.9	44.9	50.8	58.8	65.2
2 hours	30.7	33.5	42.7	49.2	55.8	64.8	72.0
3 hours	35.3	38.6	49.2	56.9	64.7	75.6	84.3
4.5 hour	40.9	44.8	57.8	67.1	76.7	90.2	101
6 hours	45.6	50.2	65.4	76.4	87.7	104	117
9 hours	53.4	59.4	78.9	93.1	108	128	145
12 hours	59.9	67.1	90.8	108	126	150	170
18 hours	70.4	79.7	111	133	157	188	213
24 hours	78.6	89.7	127	154	182	219	248
30 hours	85.4	97.9	140	171	203	245	277
36 hours	91.0	105	151	185	221	266	301
48 hours	99.8	115	168	207	249	299	337
72 hours	112	129	190	235	283	338	380
96 hours	119	138	202	250	300	357	400
120 hours	124	144	209	258	309	366	410
144 hours	128	148	213	261	312	369	413
168 hours	131	151	215	263	312	369	414

2.5 SAFEGUARDS

The majority of soil and water controls are already in place at the site and are considered appropriate for the proposed development.

Surface and storm waters run off the roof into a downpipes and then either into the stormwater system, rainwater tanks or onto the hardstand. All stormwater falling on the site is either directed into blind sumps or isolated (with bungs) stormwater pits/gutters, these are shown in the drainage plans which accompany the suite of architectural plans. The stormwater collected is captured and processed, as liquid stormwater, within the facility.

A summary of the soil and water environmental safeguards are provided as follows:

- Transfer of waste from truck to storage tanks is a fully enclosed process;
- All work and process areas involving liquid wastes are within an enclosed building that is fully bunded;
- Sealed blind sump pits are located within bunded areas;
- Blind sump pits and storage tanks are checked for leaks/blockages regularly;
- The site is located on a fully sealed surface;
- Procedures, signage and training in appropriate methods of how to avoid spills and what to do should they occur is provided; and
- Minor quantities of hazardous chemicals stored on site are fully enclosed and bunded in accordance with relevant standards.

All liquids stored on site will be bunded in accordance with the requirements of AS 1940:2017 'The storage and handling of flammable and combustible liquids', outlined below.

5.8.2 Bunding Capacity

The net capacity of a compound shall be at least 110% of the capacity of the largest tank or 25% of the total capacity of all tanks within the bund whichever is the greater. If two or more tanks are operated as a single unit, then the capacity of all such tanks shall be used when calculating the capacity of the compound.

NOTE: For Category 6 tanks, the capacity can be taken as the tank rated capacity.

4.4.3 Spillage containment

(d) The capacity of the spillage containment compound shall be at least 100% of the volume of the largest package plus 25% of the storage capacity up to 10 000 L, together with 10% of the storage capacity between 10 000 L and 100 000 L, and 5% above 100 000 L.

3. WATER ASSESSMENT

This section provides the water assessment for the proposed development.

3.1 WATER LEGISLATION

The key pieces of legislation applicable for the management of water in NSW are listed below.

3.1.1 Water Act 1912

Licences for water conservation, irrigation, water supply or drainage as well as changing the course of a river can be applied for under the *Water Act 1912*.

The proposed development does not involve works for water conservation, irrigation, water supply or drainage and does not involve works that would change the course of a river; therefore, the *Water Act 1912* does not apply.

3.1.2 Water Management Act 2000

The *Water Management Act 2000* (WMA Act) provides requirements for the extraction of water, water use, floodplain and drainage management, the construction of works such as dams and weirs, and undertaking activities on or near water sources in NSW. Approvals for the extraction and use of water and for the construction of works relating to water use can be obtained under the Act.

The development does not require approval under this act.

3.1.3 Protection of the Environment Operations Act 1997

Clause 120 of the *Protection of the Environment Operations Act 1997* states the following:

120 Prohibition of pollution of waters

(1) A person who pollutes any waters is guilty of an offence.

Note. An offence against subsection (1) committed by a corporation is an offence attracting special executive liability for a director or other person involved in the management of the corporation—see section 169.

(2) In this section:

pollute waters includes cause or permit any waters to be polluted.

The proposed development will not breach the above clause with regard given to the proposed mitigation measures and safeguards to be implemented as described throughout this report.

3.1.4 Water Sharing Plans

Two water sharing plans apply to the area where the subject site is located. These are:

- Water Sharing Plan for the Greater Metropolitan Region Unregulated River Sources; and
- Water Sharing Plan for the Greater Metropolitan Region Groundwater Sources.

These do not apply to the proposed development.

3.2 WATER USAGE & SUPPLY

All site water requirements are currently obtained from mains supply. The proposal includes on-site reuse of collected rainwater for certain onsite procedures such as for surface cleaning.

Water is used on site predominantly in the wastewater filter systems to flush out contaminants in storage tanks. It is also used to wash external surfaces of vehicles, filters and storage containers in the operational area. Excess water from these activities is collected in blind sump pits which is processed through the treatment facility into settling tanks 1-4 before going into the DAF, the wastewater from the DAF is discharged as tradewaste and the DAF sludge is transferred to tanks 12/13 to be collected by a licence waste contractor for removal offsite.

No water would be discharged to waterways.

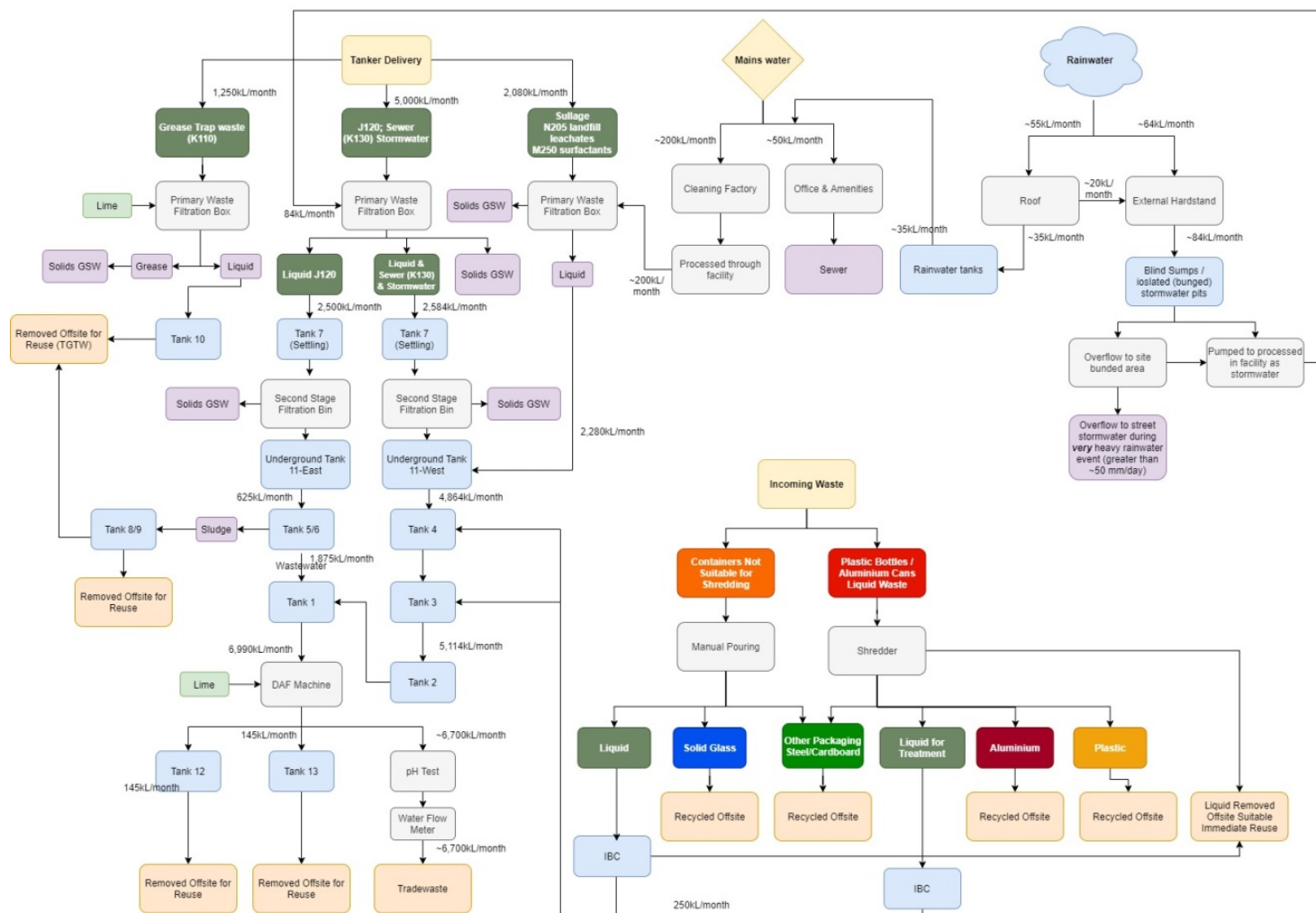
Groundwater is not proposed to be extracted nor used for the proposed development.

3.2.1 Site Water Balance

The following figure shows the site's water balance.

The water usage from the site is based off water utility bills of the current operations. The rainwater is based on the surface areas of the site and the mean rainfall from BOM Bankstown AWS climate statistics data. A flow chart depicting the site water balance is shown in Figure 3-1.

Figure 3-1: Flow Chart Depicting the Site Water Balance – Proposed Development



3.2.2 Wastewater

As the core nature of the business involves the treatment and storage of liquid wastes, wastewater is both collected and produced through a number of onsite processes. These include:

- Filtering, storage and treatment of wastewaters;
- Washing down and cleaning vehicles and hardstand operational areas;
- General wastewater from office amenities.

Wastewater is treated and processed before being discharged into the tradewaste system, as per Enviro Waste's current trade waste licence agreement from Sydney Water (*Consent to Discharge Industrial Trade Wastewater Agreement* see Attachment 1). Wastewater from all office amenities is piped directly into the mains sewer.

3.2.3 Blind Sump Pits

There are sealed and grated blind sump pits throughout the facility where liquid waste processing occurs. Details of the pits within each building are provided below.

14 Kiora Crescent Building

The facility contains five internal bunded areas with drains in each area leading to a blind sump pit. Three areas house the storage tanks, one area is for operational procedures the last is the receiving / dispatch area for tanker trucks. Incoming waste is pumped directly from the trucks into a receiving tank. Any wastewater runoff or spillage is captured within the bunded area and directed via a drain/s to the sump where it is pumped into a tank. Sump pits are checked and cleared regularly to ensure efficiency and excess wastewater is collected for treatment.

16 Kiora Crescent Building

The facility contains two internal bunded areas with each area graded to a blind sump pit. One area contains the shredder the other contains the IBC storage. Any wastewater runoff or spillage is captured within the bunded area and directed to the sump where it is pumped into an IBC, the spill liquids will be removed offsite or processed at 14 Kiora according to the waste type. Sump pits are checked and cleared regularly to ensure efficiency and excess wastewater is collected for treatment.

3.2.4 Stormwater

The land parcel 14-16 Kiora Crescent is elevated above Kiora Crescent itself, thus the roadside verge in front of both properties, slopes down towards the road. All stormwater falling on the site is either directed into blind sumps or isolated (with bungs) stormwater pits/gutters, these are shown in the drainage plans which accompany the suite of architectural plans.

The combined building footprint of both facilities (14 and 16 Kiora Cres.) covers approx. 43% of the total land surface. Stormwater falling onto roofs is directed into downpipes that empty onto the hardstand surface. Water is then corralled by guttering at the property line into blind sumps or isolated stormwater pits/gutters to be processed in the facility. The proposal includes the installation of slim-line water tanks to store rainwater captured from the roofs. This would be used for general onsite activities including office and amenities and washing down within the facility.

External surface areas are all bunded into sections with each section containing blind sumps or isolated stormwater drains. These are isolated if a spill occurs. The bunded area directly in front of the tanker truck receiving dock is directed into a sump pit and prevented from leaving the site. This is pumped into a storage tank to be treated before its disposal as trade waste.

Strict operational procedures are followed for the collection, treatment and disposal of wastewater and stormwater within the site operational areas. The combination of physical controls and proper management minimise the risk of contaminant release into the environment.

3.3 STORMWATER CHARACTERISATION

Stormwater sample collection and analysis for the purposes of characterisation of water quality was undertaken on 28 July 2020 (Attachment 3). Chemicals and parameters selected for analysis included those associated with industrial activities such as heavy metals, VOCs/SVOCs, PAH, BTEXN and TRH. Samples were collected from two (2) on site stormwater pits at the commencement of an independent rain event; one sample from 14 Kiora and one sample from 16 Kiora.

Results of analysis were reviewed against the criteria (see section 3.5.1.1) outlined in the Australian and New Zealand Guidelines for Fresh and Marine Water (ANZG, 2018) or the Australian and New Zealand Environment and Conservation Council (ANZECC) *Australian and New Zealand Guidelines for Fresh and Marine Water Quality Guidelines* (2000) where trigger levels are not provided by the 2018 guidelines. The criteria parameters relevant to the site are “slightly–moderately disturbed systems” and the conservative 80% protection value for freshwater was selected. All analysis was undertaken at NATA accredited facility, ALS Environmental.

Results of stormwater characterisation showed samples below LOR or within the adopted and selected ANZECC criteria.

3.4 OVERFLOW EVENTS

External surface areas are all bunded into sections with each section containing blind sumps or isolated stormwater drains. Water collected during rain events is pumped out of the isolated pits and processed through the facility as liquid stormwater. It is anticipated that overflow events will only occur during very heavy rainfall events greater than 50mm of rain in 24 hours where the stormwater would overflow the bunded site area onto the street and into the streets stormwater system.

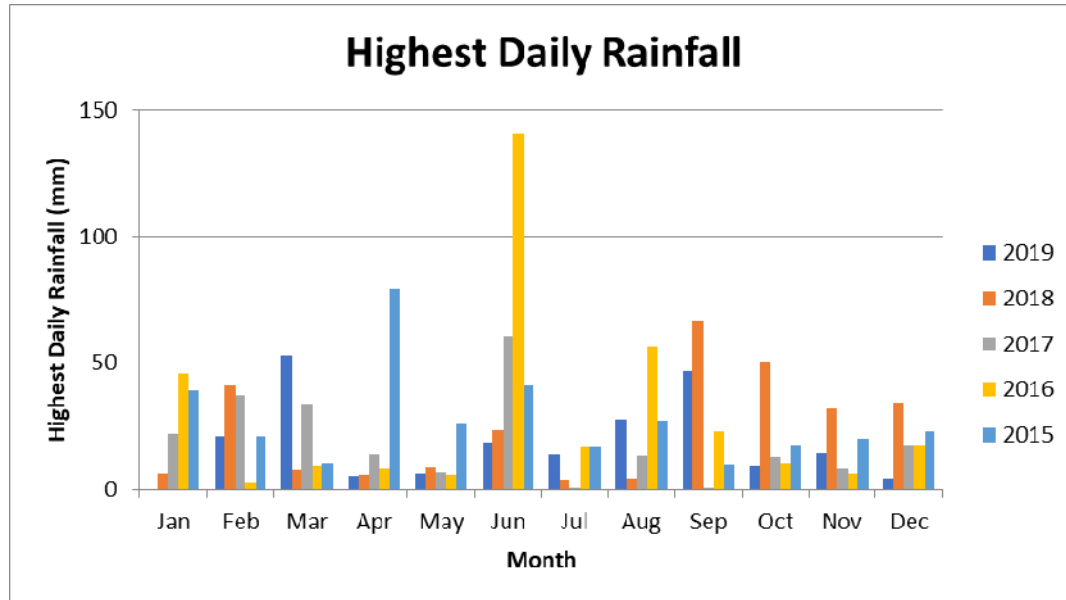
The Bankstown AWS shows that the mean number of days that exceed 25mm of rainfall is 8.5 per year and Figure 3-2 shows the highest daily rainfall events per month from the last 5 years showing rainfall events >50mm are rare.

Furthermore it is noted that the stormwater characterisation in the section above shows that the stormwater samples were below limit of reporting or within the adopted and selected ANZECC criteria.

Therefore the current mitigation measure of processing the stormwater from the isolated external stormwater pits is more than adequate as:

- There is no discharge from the site unless during very heavy rain events;
- The stormwater on site complies with the ANZECC criteria, so no discharge waters will cause pollution to waters; and
- There are no sources of pollution from operational activities other than standard use of truck movements, typical of most industrial facilities.

Figure 3-2: Highest Daily Rainfall 2015-2019 Bankstown AWS



3.5 POTENTIAL IMPACTS ON WATER

Assessment of potential impacts of the proposed operations to surface and groundwater resources are presented in this section.

3.5.1 Potential Pollutants

The facility accepts liquid waste for processing. The potential exists for contamination to be released onsite through spills or leaks from operational activities such as, filtering, transfer or storage procedures. These pollutants include:

- Heavy metals (iron, copper, zinc, lead, nickel, chromium);
- Inorganic compounds (ammonium, nitrates, phosphorus, phosphates);
- Potentially toxic gases (hydrogen sulphide, methane, carbon dioxide);
- Acids;
- Pesticides;
- Volatile Organic Compounds;
- Hydrocarbons;
- BETXN;
- Polycyclic Aromatic Hydrocarbons; and
- Perfluorocarbons.

These may be contained in:

- Grease trap waste;
- Septic waste;
- Sewage sludge;
- Surfactants; and
- Oily water.

3.5.1.1 Relevant Trigger Values

The relevant trigger levels are provided in the following table based on Australian and New Zealand Guidelines for Fresh and Marine Water (ANZG, 2018) or the Australian and New Zealand Environment and Conservation Council (ANZECC) *Australian and New Zealand Guidelines for Fresh and Marine Water Quality Guidelines* (2000) where trigger levels are not provided by the 2018 guidelines.

Table 3-1: Relevant Trigger Levels

Analytes	Trigger Value	Test Method /Reference	Analytical Limit
Metals			
Arsenic	24 (as III), 13 $\mu\text{g L}^{-1}$ (as V)	ICP-MS	0.001 mg/L
Copper	1.4 $\mu\text{g L}^{-1}$	ICP-MS	0.001 mg/L
Chromium	1.0 $\mu\text{g L}^{-1}$ (as CrVI)	ICP-MS	0.001 mg/L
Zinc	8 $\mu\text{g L}^{-1}$	ICP-MS	0.005 mg/L
Lead	3.4 $\mu\text{g L}^{-1}$	ICP-MS	0.001 mg/L
Aluminium	55 $\mu\text{g L}^{-1}$ (pH>6.5)	ICP-MS	0.01 mg/L
Nickel	11 $\mu\text{g L}^{-1}$	ICP-MS	0.001 mg/L
Cadmium	0.02 $\mu\text{g L}^{-1}$	ICP-MS	0.0001 mg/L
Mercury (Inorganic)	0.06 $\mu\text{g L}^{-1}$	ICP/MS	0.0001 mg/L
Nutrients			
Oxides of Nitrogen	40 $\mu\text{g L}^{-1}$	APHA 4500	0.002 mg/L
Filterable Reactive Phosphorus	20 $\mu\text{g L}^{-1}$	APHA 4500	0.01 mg/L
Total Ammonia	900 $\mu\text{g L}^{-1}$ (at pH 8)	APHA 4500	0.01mg/L
Physical			
pH	6.5-8 (Lower-Upper Limit)	APHA 4500 or in situ	0.01 (pH units)
Electrical Conductivity	200-300 μScm^{-1}	APHA 2510 or in situ	1 $\mu\text{S/cm}$
Sulfate	⁽¹⁾	APHA 4500	1 mg/L
Total Suspended Solids	50 mg/L ⁽²⁾	APHA 2540	1 mg/L
Polycyclic Aromatic Hydrocarbons			
Napthalene	16 $\mu\text{g L}^{-1}$	EP075B Sim	1 $\mu\text{g/L}$
BTEX			
Benzene	950 $\mu\text{g L}^{-1}$	EP080	1 $\mu\text{g/L}$
Toluene	⁽³⁾	EP080	2 $\mu\text{g/L}$
Ethylbenzene	⁽³⁾	EP080	2 $\mu\text{g/L}$
O-Xylene	350 $\mu\text{g L}^{-1}$	EP080	2 $\mu\text{g/L}$

Table 3-1: Relevant Trigger Levels

Analytes	Trigger Value	Test Method /Reference	Analytical Limit
Total Recoverable Hydrocarbons			
TRH (C6-C40)	⁽³⁾	EP071,80	20-100 µg/L
Organochlorine Pesticides			
Chlordane	0.03 µg L ⁻¹	EP068A	0.5 µg/L
Endosulfan	0.003 µg L ⁻¹	EP068A	0.5 µg/L
Endrin	0.01 µg L ⁻¹	EP068A	0.5 µg/L
Heptachlor	0.01 µg L ⁻¹	EP068A	0.5 µg/L
Organophosphorus Pesticides			
Azinphos methyl	0.01 µg L ⁻¹	EP068B	0.5 µg/L
Chlorpyrifos	0.01 µg L ⁻¹	EP068B	0.5 µg/L
Diazinon	0.01 µg L ⁻¹	EP068B	0.5 µg/L
Malathion	0.05 µg L ⁻¹	EP068B	0.5 µg/L
Parathion	0.004 µg L ⁻¹	EP068B	2 µg/L
Herbicides and Fungicides			
2,4-D	280 µg L ⁻¹	EP202	10 µg/L
2,4,5-T	36 µg L ⁻¹	EP202	10 µg/L

3.5.2 Surface Water and Ground Water

The proposal does not require discharge into surface waters or groundwater. Stormwater on site is isolated. Stormwater captured in the pits are processed through the facility pumping the liquid through a box filter then into settling tanks 1-4 and then the DAF where waste water is discharged to tradewaste and sludge is collected into separate tanks (12 and 13) for removal offsite by a licenced contractor.

Current site operations do not access groundwater, nor does the proposal require the use of groundwater. No earthworks are required that may facilitate a pathway to soil or groundwater beneath the site. All activities that involve the transfer, treatment or discharge of liquid waste from tanker trucks, occurs internally and within concrete bunded areas within the facility's main building.

The site contains no natural or artificial surface water. Storm events can produce surface water that flows across the site. Potentially, such water can collect surface pollutants deposited from site operations. If such contaminated surface water enters the stormwater system, it has the potential to pollute nearby waterways and groundwater.

However, this potential is very low due to the controls and operational procedures currently in place that are described in the following:

- Isolated storm water system, captured water processed through the facility;
- No excavation or earth disturbing construction activities are taking place;
- Transfer of waste from truck to storage tanks occurs within a fully enclosed area;
- All work and process areas involving liquid wastes are fully bunded;



- Sealed blind sump pits are located within bunded areas;
- Blind sump pits and storage tanks are checked for leaks/blockages regularly;
- The site is covered by concrete hardstand;
- Procedures, signage and training in appropriate methods of spill avoidance and response protocols are implemented; and
- Only low levels of hazardous chemicals are stored on site, all are fully enclosed and bunded in accordance with the relevant Australian standards.

With these processes and safeguards in place, there is minimal potential for the contamination of surface or ground waters to occur as a result of onsite operations.

A conceptual site model (CSM) has been prepared in accordance with the National Environment Protection (Assessment of Site Contamination) Measure as amended in 2013 (Table 3-2).

The CSM is a representation of site-related information regarding contamination sources, contaminants of concern, exposure pathways and the implemented safeguards in place.

Table 3-2: Potential Pollutants, Sources and Mitigation Measures

Known Potential Contaminates	Primary Release Mechanism	Contaminants of Potential Concern	Exposure Pathways	Risk Level	Safeguards and Mitigation Measures
Grease trap waste Sewage sludge Surfactants Oily water	Transfer from trucks to tanks Treatment, storage and disposal Accidents or spills	Heavy metals (iron, copper, zinc, lead, nickel, chromium) Inorganic compounds (ammonium, nitrates, phosphorus, phosphates) Toxic gases (hydrogen sulphide, methane, carbon dioxide) Acids OC/OP PFC PAH TRH VOC	Surface water runoff Stormwater pit Discharge point to sewer	Low	Concrete hardstand across whole site Waste transfer is a fully enclosed process Fully bunded process and operation areas Blind sump pits within all bunded areas Clearing and maintaining blind sump pits regularly
Diesel fuel and oils	Vehicle Movements	Petroleum hydrocarbons BTEXN PAH		Low	Storage areas are checked for leaks/blockages Isolated stormwater (all captured and processed within the facility)

OC/OP: Organochlorides and organophosphates, **PFC:** Perfluorocarbons, **VOC:** Volatile Organic Compound, **BTEXN:** Benzene, Toluene, Ethylbenzene, Xylenes and Naphthalene, **PAH:** Polycyclic Aromatic Hydrocarbons

3.5.3 Flooding

Flood maps obtained from Cumberland Council show the site is not subject to:

- A high hazard flood area; (see Figure 3-3)
- A flood control lot; (see Figure 3-4)
- A flood storage or a floodway area; (Figure 3-5).
- A flood flow path; (see Figure 3-6).
- A high-risk flood area; (see Figure 3-7).

However, the road of Kiora crescent is yet to be mapped and categorised completely.

Advice was received from Cumberland Council regarding the site's flood risk for 14 Kiora crescent (Attachment 2). Council writes;

"[T]he property is not affected by the 1% Annual Exceedance Probability (AEP) flood. However, it is located within the floor level control area in which the floor levels of the new buildings are required to be set with sufficient freeboard above the adjacent flood level"

Survey of the site shows that 16 Kiora crescent is also at 15.4 mAHD and therefore is also not affected by the 1% Annual Exceedance Probability (AEP) flood.

As the proposal does not include the erection of a new building on the site, no further investigation or action is required.

Figure 3-3: Provisional Flood Hazard Categories Map (July 2013)

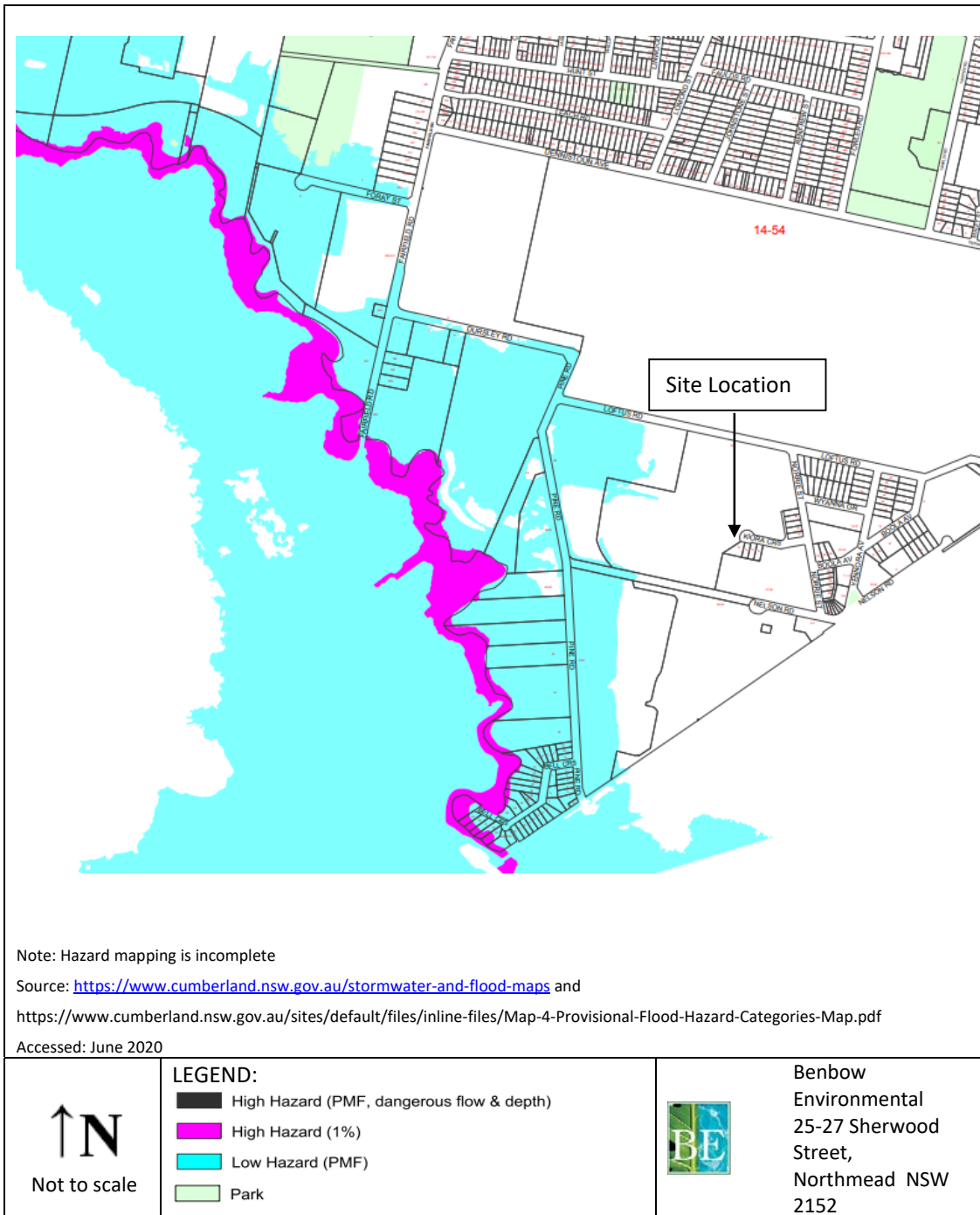


Figure 3-4: Flood Control Lots Map

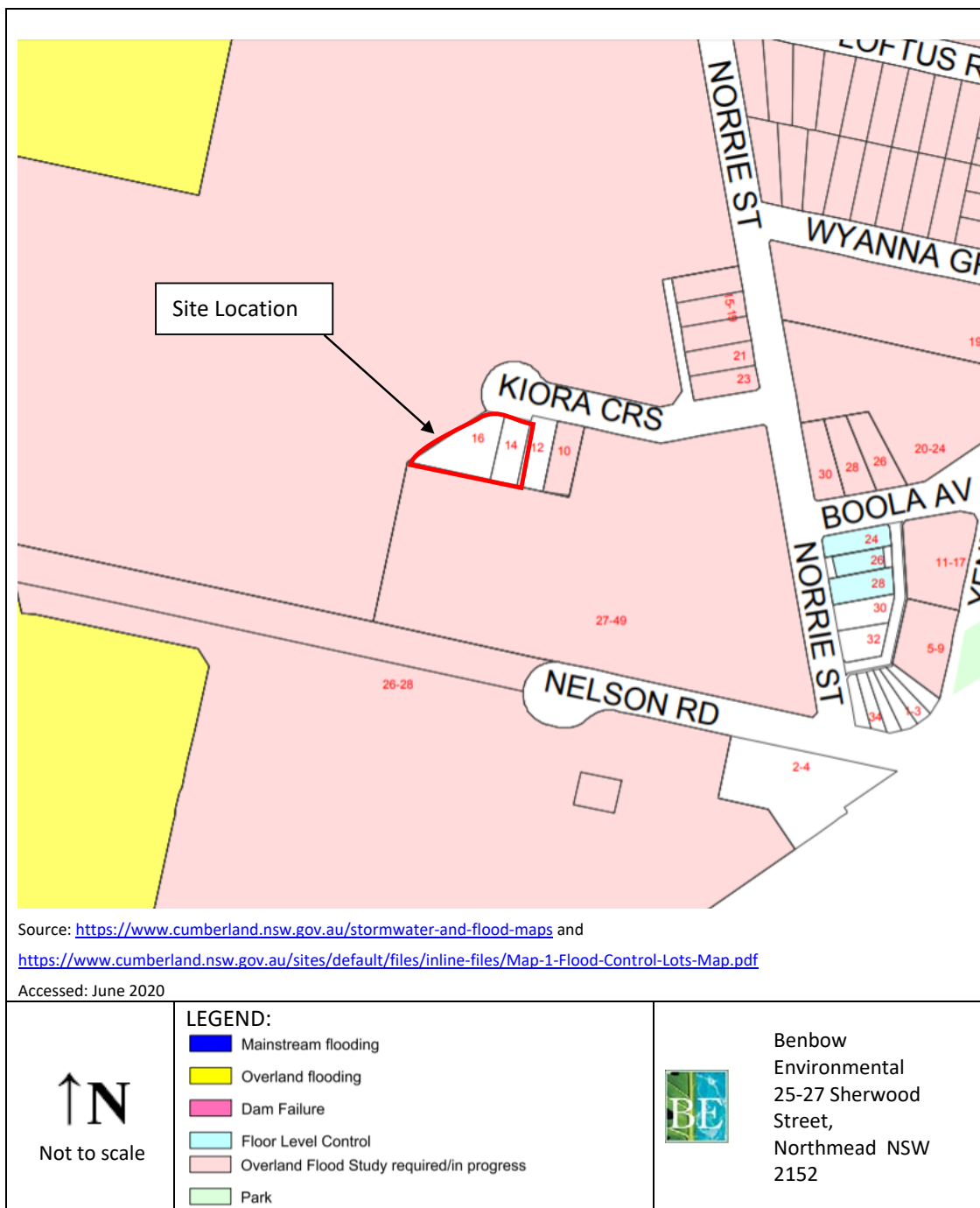


Figure 3-5: Flood Hydraulic Categories Map (July 2013)

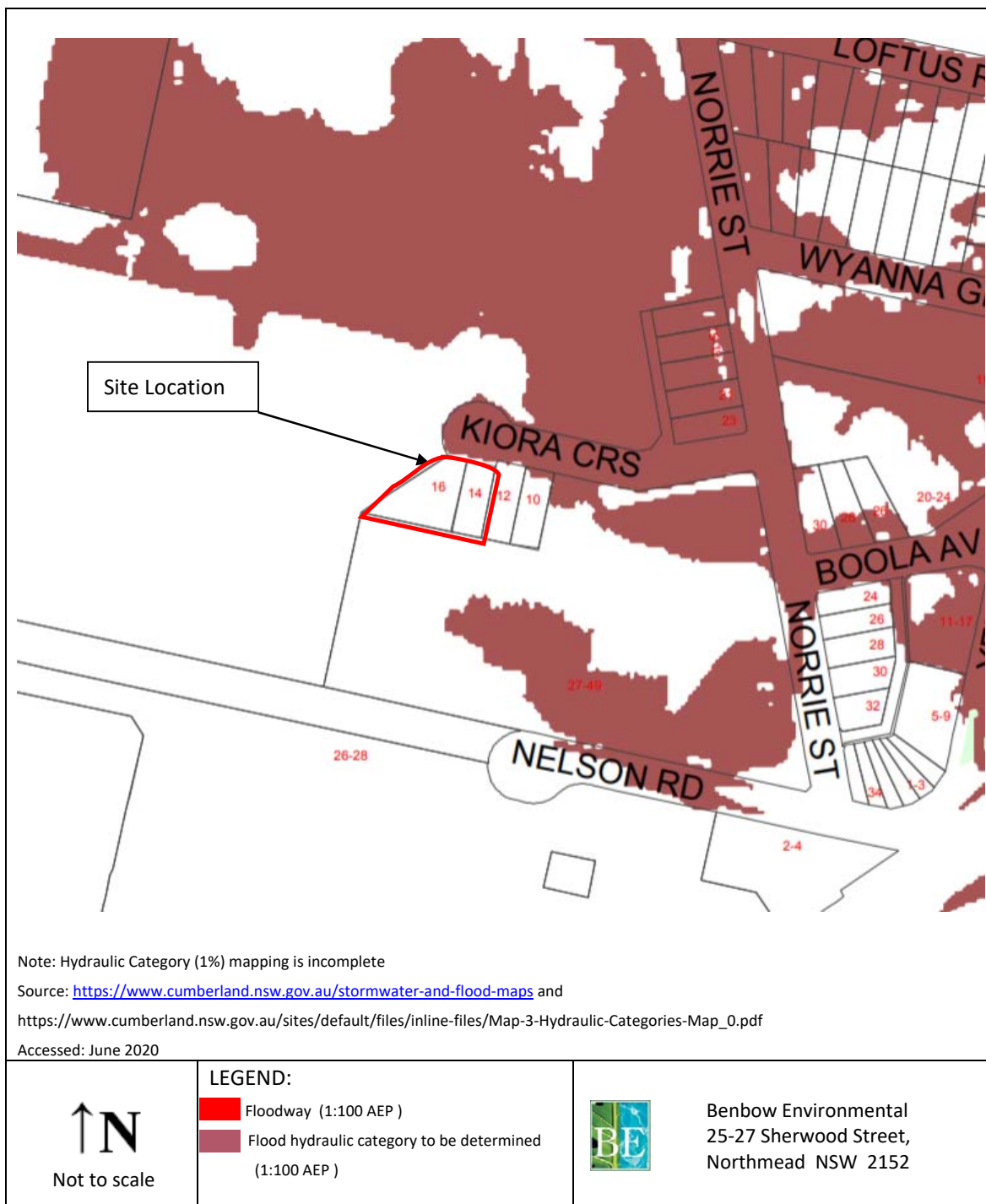


Figure 3-6: Flood Extent Map (July 2013)

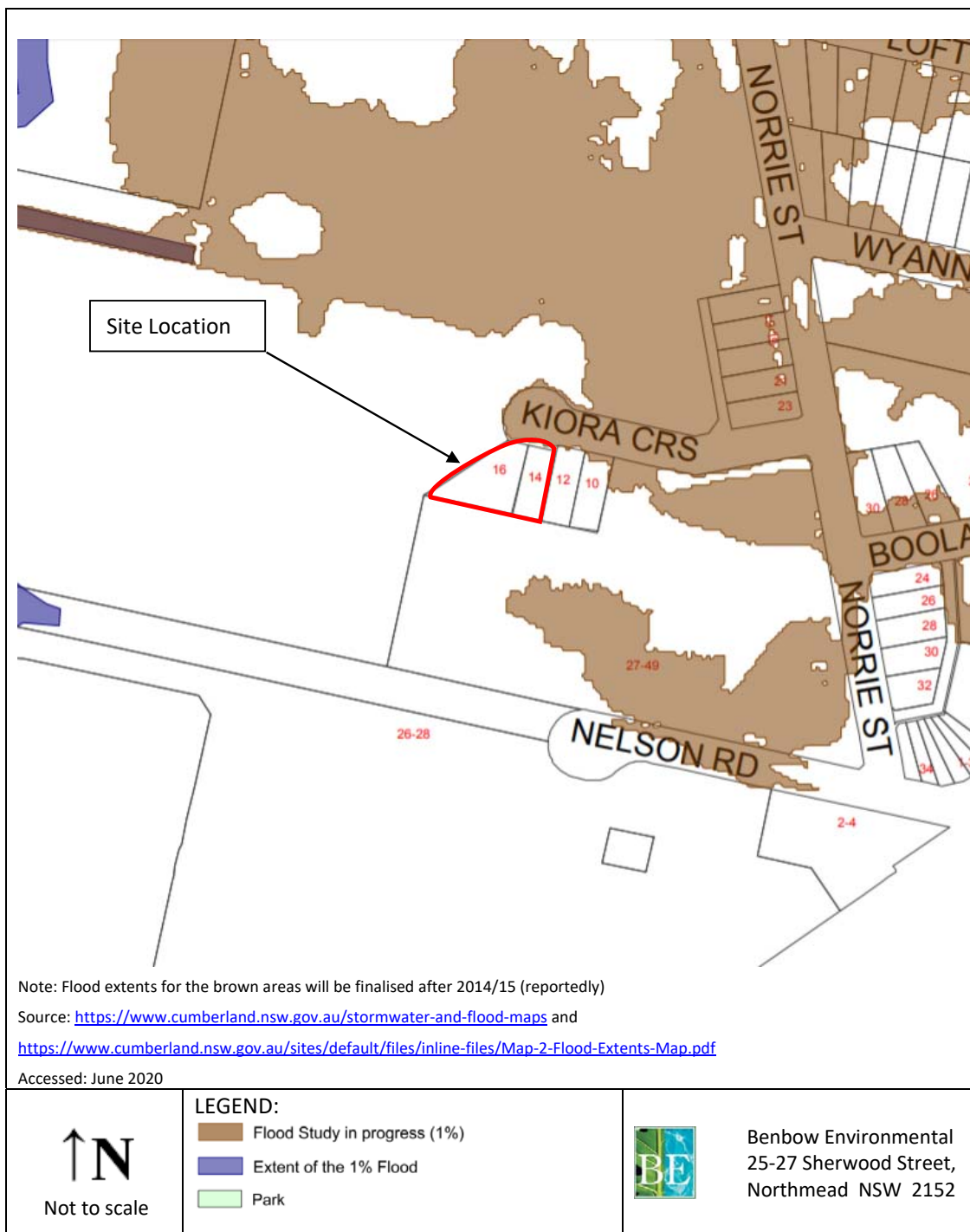
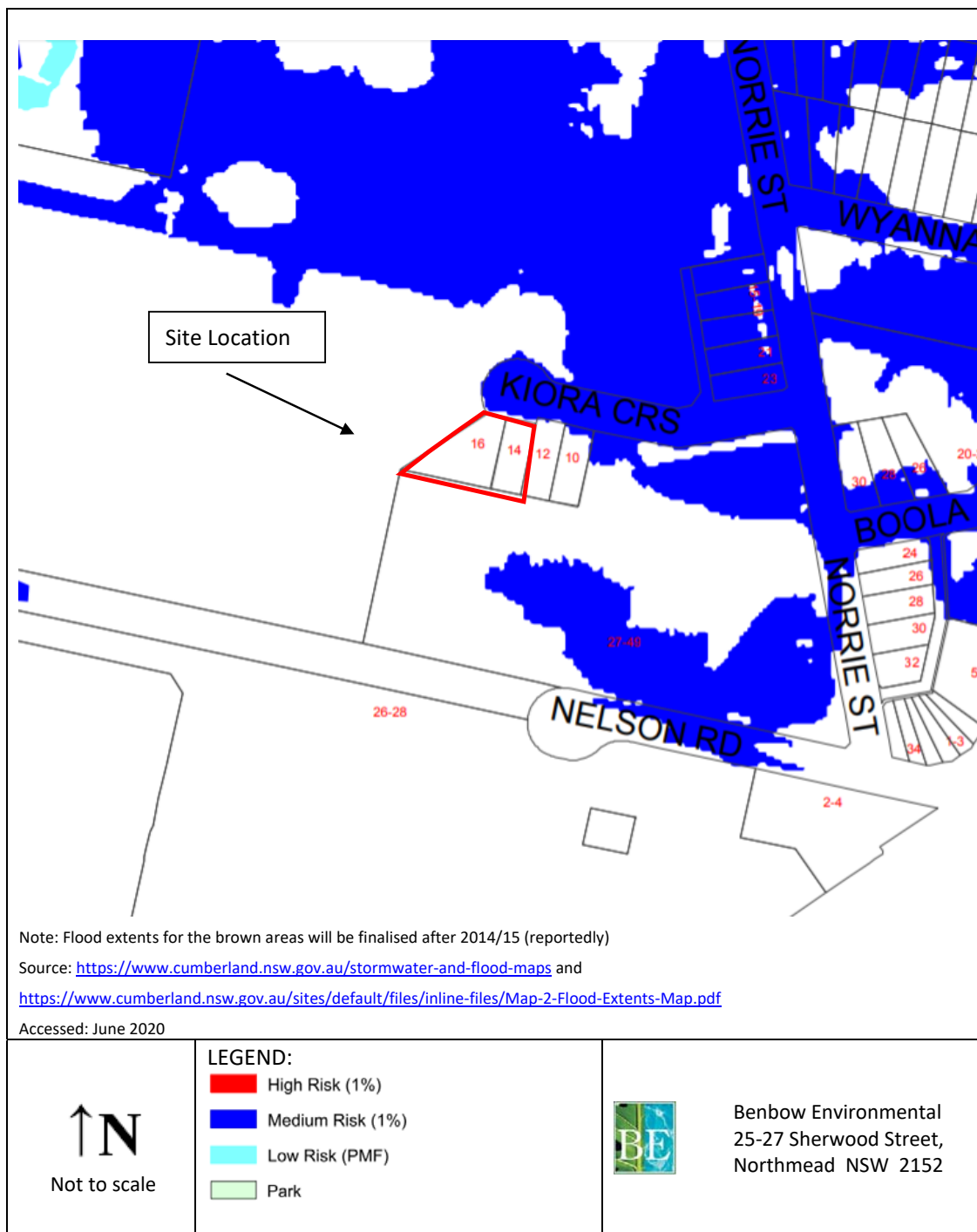


Figure 3-7: Flood Risk Precincts Map (July 2013)



3.5.4 Climate Change

Rising temperature and sea levels are expected to increase the frequency and severity of storm events. This may increase the likelihood of wet weather events leading to stormwater release from the site. Contingency measures for this issue can include increasing the capacity of the sump pits if required.

4. SOIL ASSESSMENT

This section provides the soil assessment for the proposed development.

There are no earthworks proposed for the development or any disturbances to soil. Soil erosion and sediment management and mitigation are not required for the development.

4.1 EXISTING SOIL CONDITIONS

The 'Penrith 1:100,000 Geological Map Sheet 9030' describes the geological composition of the area as follows:

*'WIANAMATTA GROUP Rw (undifferentiated)
Rwb: Shale, carbonaceous claystone, laminate, fine to medium-grained lithic sandstone,
rare coal and tuff.'*

The soil map 'Soil Landscape of Penrith 1:100,000 Sheet 9030' shows that the subject site is located in an area classified as 'Blacktown (bt)', which is described as follows:

'Landscape – gently undulating rises on Wianamatta Group shales. Local relief to 30 m, slopes are usually >5%. Broad rounded crests and ridges with gently inclined slopes. Cleared Eucalypt woodland and tall open-forest (dry sclerophyll forest).

Soils – shallow to moderately deep (>100 cm) hardsetting mottled texture contrast soils, Red and Brown Podzolic Soils (Dr3.21, Dr3.31, Db2.11, Db2.21) on crests grading to Yellow Podzolic Soils (Dy2.11, Dy3.11) on lower slopes and in drainage lines.

Limitations – moderately reactive highly plastic subsoil, low soil fertility, poor soil drainage.'

4.1.1 Topography, Drainage and Landscapes

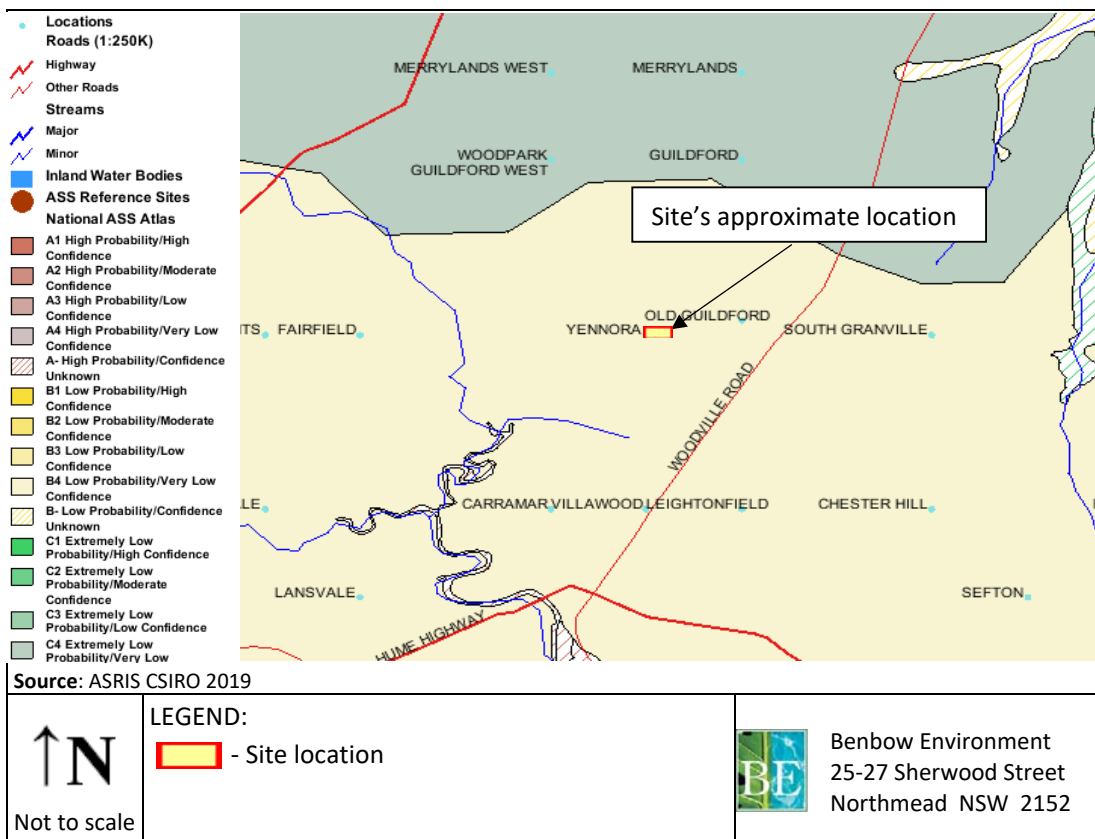
The site is within an industrial area. Its surface terrain is flat and concreted, with little height variation across the site. The site itself sits slightly higher than its access road. Surface water that leaves the site flows into the road's gutter and stormwater system.

A three-dimensional view of the local topography surrounding the site has been provided in Figure 4-1, with the terrain/vertical axis exaggerated by a factor of 10. It should be noted that this figure approximates the actual terrain, based on information that has been digitised from local contour maps.

4.1.2 Acid Sulfate Soil

A search of the CSIRO Atlas of Australian Acid Sulfate Soils database shows this site is located over an area of low probability/low confidence of ASS occurrence (see Figure 4-2). Holroyd LEP 2013 ASS map does not include the site's location. Earthworks are not required for the proposal; therefore an ASS assessment is not needed.

Figure 4-2: Acid Sulfate Soil Map



4.1.3 Saline Soil

Salts occur naturally in soils. However, if salt levels become elevated due to natural or human activity, they have an increasing detrimental impact on plant species and built structures. Such soil may be termed as saline. Other factors also influence the salt's impact, such as soil texture, mineral content and porosity. Concrete, metals and porous materials such as bricks or timber are at risk from saline soil. Structures built on saline soil require specific design and controls (such as vapour barriers, coverage of reinforcing, adequate damp coursing etc.) to avoid damage occurring especially to footings and metal piping. Figure 4-3 shows the Salinity Soil Map from the Holroyd LEP 2012.

The subject site is situated within "Moderate Salinity Potential" zoned land. As per the Holroyd LEP 2012 regarding saline land, Clause 6.8 states:

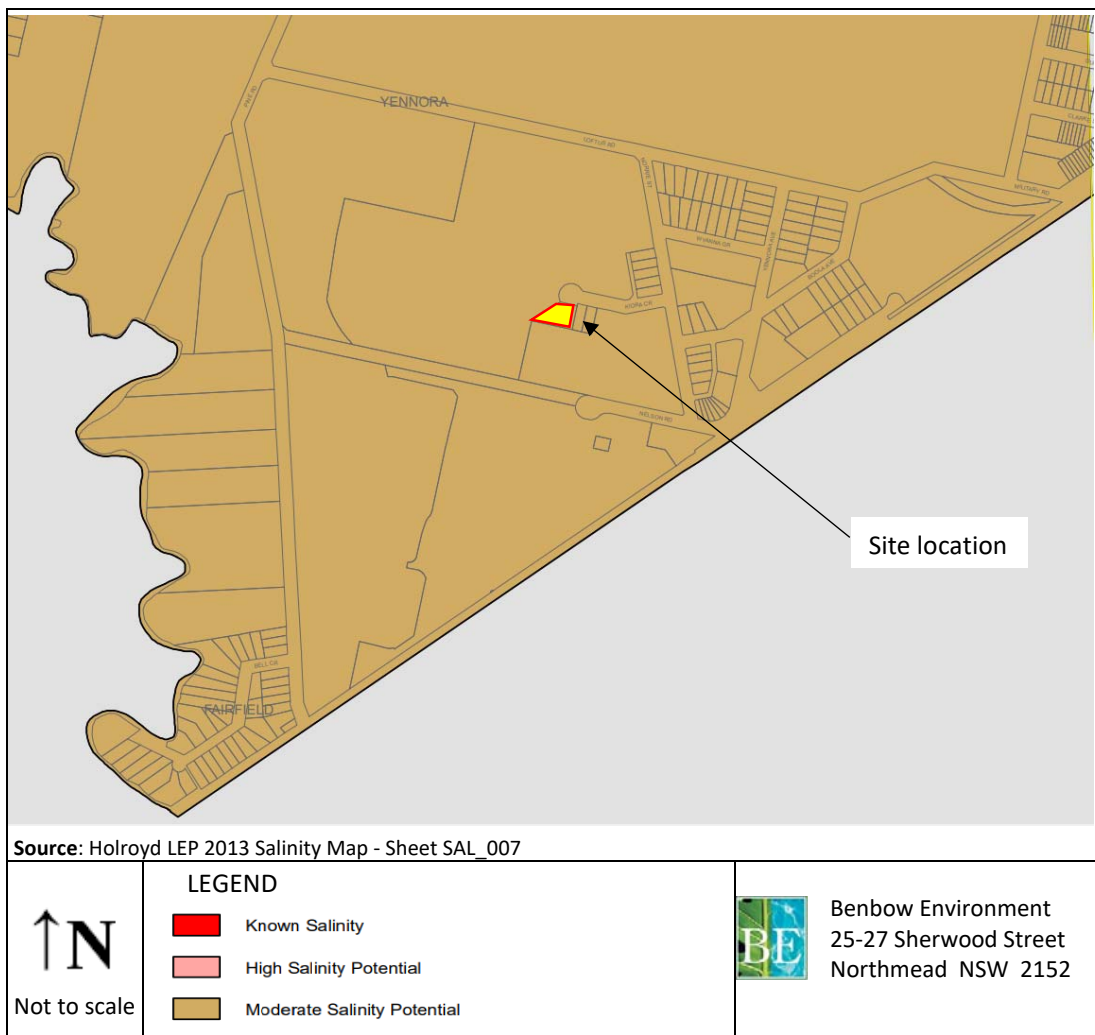
6.8 Salinity

- (1) *The objective of this clause is to provide for the appropriate management of land that is subject to salinity and the minimisation and mitigation of adverse impacts from development that contributes to salinity.*
- (2) *This clause applies to land identified as "Known Salinity", "High Salinity Potential" or "Moderate Salinity Potential" on the Salinity Map.*
- (3) *Before determining a development application for development on land to which this clause applies, the consent authority must consider the following:*

- (a) whether the development is likely to have any adverse impact on salinity processes on the land,
 - (b) whether salinity is likely to have an impact on the development,
 - (c) any appropriate measures proposed to avoid, minimise or mitigate the impacts of the development.
- (4) Development consent must not be granted to development on land to which this clause applies unless the consent authority is satisfied that:
- (a) the development is designed, sited and will be managed to avoid any adverse environmental impact, or
 - (b) if that impact cannot be reasonably avoided—the development is designed, sited and will be managed to minimise that impact, or
 - (c) if that impact cannot be minimised—the development will be managed to mitigate that impact.

All operations would take place on the established industrial and fully sealed site. The proposed increase in waste liquid capacity will not contribute to any increase in soil salinity as there is no pathway (exposed soil) onsite to allow waste water to be absorbed into the ground, since the site is fully covered by concrete hardstand.

Figure 4-3: Salinity Soil Map



4.1.4 Existing Contamination

An inspection of the facility and its current operations was undertaken by Benbow Environmental in September 2019. Observation of operations and processes indicate that there is no cause to believe that soil or water contamination on site has taken place.

No soil sampling or analysis was undertaken at the site. The site has not been listed on the EPA contaminated Land Registry, nor are any of the neighbouring premises. The closest contaminated site is approx. 600 m southwest of the site at 19 Pine Road, Yennora. The site and surrounding area is not subject to acid sulfate soil risk.

In the event of a contamination incident the site is required to comply with the Guidelines of the Duty to Report Contamination under the Contaminated Land Management Act 1997 (EPA, 2015).

Figure 4-4: Site Layout Plans For 14-16 Kiora Crescent



4.2 POTENTIAL IMPACTS ON SOIL

Assessment of potential impacts on soils from the proposed increase in processing volumes and site operations is presented in this section.

4.2.1 Potential Pollutants

The facility accepts liquid waste for processing. The potential exists for contamination to be released onsite through spills or leaks from operational activities such as, filtering, transfer or storage procedures. These pollutants include:

- Heavy metals (iron, copper, zinc, lead, nickel, chromium);
- Inorganic compounds (ammonium, nitrates, phosphorus, phosphates);
- Potentially toxic gases (hydrogen sulphide, methane, carbon dioxide);
- Acids;
- Pesticides;
- Volatile Organic Compounds;
- Hydrocarbons;
- BETXN;
- Polycyclic Aromatic Hydrocarbons; and
- Perfluorocarbons.

These may be contained in:

- Grease trap waste;
- Septic waste;
- Sewage sludge;
- Surfactants; and
- Oily water.

4.2.2 Risk of contamination

The risk of contaminants entering the soil through poor housekeeping, leaks or accidental spills is considered low, since:

- No excavation or earth disturbing activities are proposed. (Such disturbances allow pathways for contamination to infiltrate soils and groundwater);
- The transfer of liquid waste from tanker trucks to storage units occurs within an internal area with concrete bunding and blind sumps;
- All areas involved in processing wastes are surrounded by impervious concrete bunding;
- Sealed blind sump pits are located within bunded areas;
- Blind sump pits and storage tanks are routinely checked for leaks/blockages;
- The site is entirely covered by concrete hardstand;
- Procedures, signage and training in appropriate methods of spill avoidance and response protocols are in place; and
- Only low volumes of hazardous chemicals are stored onsite. These are within enclosed and bunded areas in accordance with relevant standards.



The concrete hardstand is a strong and impervious barrier to potential contaminants entering the soil beneath. The increase in waste storage and processing is expected to have negligible impact upon the surrounding soils. The safeguards and mitigation measures detailed in section 2.5 are considered sufficient to prevent the discharge of contaminated water to land.

5. CONCLUDING REMARKS

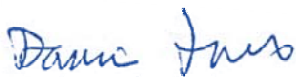
Benbow Environmental has been engaged by Enviro Waste Services Group Pty Ltd to undertake a Soil and Water assessment to support an Environmental Impact Statement (EIS) for the liquid waste facility located at 14 - 16 Kiora Crescent, Yennora NSW 2161. The assessment is a qualitative study that addresses the potential impacts to soil and water from the proposed operations in accordance with the Secretary's Environmental Assessment Requirements (SEARs No. 10407).

A summary of the soil and water environmental safeguards are provided as follows:

- The transfer of liquid waste from tanker trucks to storage units occurs within an internal area with concrete bunding and blind sumps;
- All areas involved in processing wastes are surrounded by impervious concrete bunding;
- Sealed blind sump pits are located within bunded areas;
- Blind sump pits and storage tanks are routinely checked for leaks/blockages;
- The site is entirely covered by concrete hardstand;
- The existing stormwater pits and gutters are isolated, all collected stormwater is processed within the facility;
- Procedures, signage and training in appropriate methods of spill avoidance and response protocols are in place; and
- Only low volumes of hazardous chemicals are stored onsite. These are within enclosed and bunded areas in accordance with relevant standards.

With the safeguards and mitigation measures recommended in this report, the potential soil and water impacts of the proposed development are considered low.

This concludes the report.



Damien Thomas
Environmental Scientist



Matthew Taylor
Environmental Scientist



Kate Barker
Environmental Scientist



R T Benbow
Principal Consultant



6. LIMITATIONS

Our services for this project are carried out in accordance with our current professional standards for site assessment investigations. No guarantees are either expressed or implied.

This report has been prepared solely for the use of Enviro Waste Services Group Pty Ltd, as per our agreement for providing environmental services. Only Enviro Waste Services Group Pty Ltd is entitled to rely upon the findings in the report within the scope of work described in this report. Otherwise, no responsibility is accepted for the use of any part of the report by another in any other context or for any other purpose.

Although all due care has been taken in the preparation of this study, no warranty is given, nor liability accepted (except that otherwise required by law) in relation to any of the information contained within this document. We accept no responsibility for the accuracy of any data or information provided to us by Enviro Waste Services Group Pty Ltd for the purposes of preparing this report.

Any opinions and judgements expressed herein, which are based on our understanding and interpretation of current regulatory standards, should not be construed as legal advice.

7. REFERENCES

- Australian and New Zealand Environment and Conservation Council (ANZECC), 2000. *Australian and New Zealand Guidelines for Fresh and Marine Water Quality*. [Online]
Available at: <https://www.environment.gov.au/water/quality/publications/australian-and-new-zealand-guidelines-fresh-marine-water-quality-volume-1>
- Australian Government Bureau of Meteorology, 2016. *Design Rainfall Data System (2016)*. [Online]
Available at: <http://www.bom.gov.au/water/designRainfalls/revised-ifd/>
- Hawkesbury City Council, 2012. *Hawkesbury Floodplain Risk Management Study and Plan*. [Online]
Available at: <http://www.hawkesbury.nsw.gov.au/development/development-information/planning-policies/strategies-and-policies/draft-hawkesbury-floodplain-risk-management-study-and-plan>
- Hawkesbury Council, 2012. *Hawkesbury Local Environmental Plan 2012 - Acid Sulfate Soils Map - Sheet ASS_008DB*. [Online]
Available at: [https://legislation.nsw.gov.au/maps/c0f85098-b4c2-c19e-f8bb-acd217104649/3800 COM ASS 008DB 020 20120316.pdf](https://legislation.nsw.gov.au/maps/c0f85098-b4c2-c19e-f8bb-acd217104649/3800%20COM%20ASS%20008DB%2020120316.pdf)
- New South Wales Consolidated Acts, 1997. *PROTECTION OF THE ENVIRONMENT OPERATIONS ACT*. [Online]
Available at: http://www.austlii.edu.au/au/legis/nsw/consol_act/poteoa1997455/
- New South Wales Consolidated Acts, 2000. *WATER MANAGEMENT ACT*. [Online]
Available at: http://www.austlii.edu.au/au/legis/nsw/consol_act/wma2000166/
- NSW Government, 2006. *NSW Water Quality and River Flow Objectives*. [Online]
Available at: <https://www.environment.nsw.gov.au/ieo/>
- NSW Government, 2015. *Water Act 1912 No 44*. [Online]
Available at: <http://www.legislation.nsw.gov.au/#/view/act/1912/44>
- NSW Government, 2016. *Sydney Regional Environmental Plan No 20—Hawkesbury-Nepean River (No 2—1997)*. [Online]
Available at: <http://www.legislation.nsw.gov.au/#/view/EPI/1997/592>
- NSW Government-Six Maps, 2018. *Land Property and Information*. [Online]
Available at: <http://maps.six.nsw.gov.au/>

ATTACHMENTS

Attachment 1: *Consent to Discharge Industrial Trade Wastewater Agreement*

Consent to discharge industrial trade wastewater

Consent to Discharge Industrial Trade Wastewater

SYDNEY WATER CORPORATION

and

ENVIRO WASTE SERVICES GROUP PTY LTD

A.C.N. 613 987 438

ACTIVITY: GREASE TRAP WASTE DISPOSAL (GE02)

RISK INDEX: 05

CONSENT NO: 36782

CONNECTION NO: 1

PROPERTY NUMBER: 4535938

This **CONSENT** is made on
Executed for and on behalf of
Sydney Water Corporation

day: 20 month: 03 year: 2019

By


.....
(Signature)

Caleb Furner
Manager Major Customers

In the presence of:

Witness


.....
(Signature)

MATTHEW TRUMICK
.....
(Print name of witness)

Executed for and on behalf of
the Customer:


.....
(Signature)

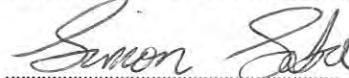
By

EDWARD HAWKEY
.....
(Print name and position of person signing)

who warrants s/he has sufficient authority to execute this consent.

In the presence of:

Witness


.....
(Signature)

SIMON SABA
.....
(Print name of witness)

This consent must be executed by the Customer prior to execution by Sydney Water and submitted by the Customer to Sydney Water for its consideration. Submission of a consent executed by the Customer under no circumstances obliges Sydney Water to enter into or complete the consent. Submission of an executed consent by the Customer constitutes an application for a consent which Sydney Water may in its reasonable discretion reject, or with the consent of the Customer modify any of the proposed terms thereto.

Consent to Discharge Industrial Trade Wastewater

SCHEDULE 1

(SUBJECT TO PUBLIC DISCLOSURE)

TRADE WASTEWATER WHICH MAY BE DISCHARGED

1. Trade wastewater substances

- (a) The Customer may discharge trade wastewater into the Sewer in a manner whereby the substance characteristics of the trade wastewater are of a type and discharged at a rate, level or concentration equal to or less than that described in this schedule.
- (b) The Customer must not discharge trade wastewater into the Sewer in a manner whereby the trade wastewater discharged;
- (i) contains, possesses or produces a substance characteristic not provided in, or which may be determined as being contrary to that described in this schedule.
- (ii) is at or of a rate, level, or concentration not provided in, or which may be determined as being contrary to, that described in this schedule.

SUBSTANCE	LTADM (kg/day)	MDM (kg/day)	Standard (mg/L)
AMMONIA (AS N)	5	10	100
BIOCHEMICAL OXYGEN DEMAND	75	150	
SUSPENDED SOLIDS	60	120	600
GREASE	11	22	110
SULPHATE	50	100	2000
COPPER	0.15	0.3	5
IRON	1.5	5	50
SULPHIDE	0.5	1	5
ZINC	0.5	1	5

RECONCILIATION PROCEDURES:

LONG TERM AVERAGE DAILY MASS:

The Long Term Average Daily Mass is a twelve month arithmetic average of ALL daily mass discharges as calculated for each composite sample. The Daily Mass discharged is to be calculated for each of the above substances, and checked against the above Long Term Average Daily Mass (kg/day) on the basis of average concentrations of substances discharged (mg/L) over any 24 hour period as determined from composite samples, obtained by either the Customer (in accordance with Schedule 2) or Sydney Water, or a combination of sample results by both.

This average concentration (mg/L) is to be multiplied by the total discharge (kL) as recorded by the Customer's discharge flow meter over the 24 hour period in order to calculate the Daily Mass of substances discharged (kg). Exceeding the Long Term Average Daily Mass does not constitute a Breach.

ACCEPTANCE STANDARD:

The Composite Sample Concentration is to be determined for each of the above substances, and checked against the above Acceptance Standard (mg/L) for each sample obtained. Exceeding the Acceptance Standard constitutes a Breach and will also incur an increased Quality Charge as detailed in Schedule 3.

The Discrete Sample Concentration is to be determined for each of the substances identified at Schedule 2, 2 (b) and checked against the above Acceptance Standard (mg/L) for each sample obtained. Exceeding the Acceptance Standard constitutes a Breach.

MAXIMUM DAILY MASS:

The Daily Mass discharged is to be calculated for each of the above substances, and checked against the above Maximum Daily Mass (kg/day) on the basis of average concentrations of substances discharged (mg/L) over any 24 hour period as determined from composite samples, obtained by either the Customer (in accordance with Schedule 2) or Sydney Water, or a combination of sample results by both.

This average concentration (mg/L) is to be multiplied by the total discharge (kL) as recorded by the Customer's discharge flow meter over the 24hour period in order to calculate the Daily Mass of substances discharged (kg). Exceeding the Maximum Daily Mass constitutes a Breach.

Consent to Discharge Industrial Trade Wastewater

2. The trade wastewater discharged must at all times have the following properties:

- | | |
|----------------------------------|---|
| Temperature | - Not to exceed 38 degrees Celsius. |
| Colour | - Determined on a system specific basis |
| pH | - Within the range 7.0 to 10.0. |
| Fibrous material | - None which could cause an obstruction to Sydney Water's sewerage system. |
| Gross solids (other than faecal) | - A maximum linear dimension of less than 20 mm, a maximum cross section dimension of 6 mm, and a quiescent settling velocity of less than 3 m/h. |
| Flammability | - Where flammable and/or explosive substances may be present, the Customer must demonstrate to the satisfaction of Sydney Water that there is no possibility of explosions or fires occurring in the sewerage system. The flammability of the discharge must never exceed 5% of the Lower Explosive Limit (LEL) at 25° Celsius. |

3. Rate of discharge of waste to sewer:

- (a) Instantaneous maximum rate of gravitated discharge 6 litres per second
- (b) Maximum daily discharge 200 kilolitres
- (c) Average daily discharge 100 kilolitres

RECONCILIATION PROCEDURE:

The data obtained from applying these procedures is to be checked by the interface of a chart recorder to the Customer's flow metering equipment, or by the installation of flow metering equipment by Sydney Water, for a minimum of 7 days.

Consent to Discharge Industrial Trade Wastewater

SCHEDULE 2

(SUBJECT TO PUBLIC DISCLOSURE)

SAMPLING, ANALYSIS, FLOW RATES AND VOLUME DETERMINATION

1. The Customer must provide and make available for the purpose of sampling and analysis;
 - (a) Sampling point located at pre-treatment discharge excluding domestic sewage prior to the point of connection to the Sewer.
 - (b) Equipment necessary to allow collection of composite automatic samples on either a flow proportional or a time basis.
2. The Customer is to undertake collection and analysis of samples in accordance with the schedule detailed below:
 - (a) Composite samples are to be obtained:
 - (i) over one full production day by combining equal volumes taken at 5 kilolitre intervals. The volumes are to be such that at least 5,000 millilitres are obtained over the full day. The reading of the Flowmeter meter is to be obtained at the commencement and conclusion of the sampling day.
 - (ii) on 18 March 2019 and every 22 days thereafter. If trade wastewater is not discharged on this day, then the sample is to be taken on the next day that trade wastewater is discharged. Trade wastewater includes all non-domestic wastewater discharged to sewer from the premises, including cleaning waste.
 - (b) Discrete samples are to be obtained as detailed below, and analysed according to the procedures and methods specified in Sydney Water's published analytical methods, to determine the concentrations or levels of the following substance characteristics:

pH	at the start and finish of each sample day
AMMONIA (AS N)	at the finish of each sample day
 - (c) Composite samples are to be analysed according to the procedures and methods specified in Sydney Water's published analytical methods, or methods otherwise agreed to and detailed hereunder, to determine the concentrations or levels of the following substance characteristics:

AMMONIA (AS N)
BIOCHEMICAL OXYGEN DEMAND
SUSPENDED SOLIDS
GREASE
SULPHATE
COPPER
IRON
SULPHIDE
ZINC
 - (d) The Customer, or the laboratory contracted by the customer, is to submit results of analyses to Sydney Water within 21 days from the date the sample was taken. All analysis results are to be submitted on the sample analysis report provided as appendices 1 and 2 to this Consent or in such format as may be specified from time to time by Sydney Water.
 - (e) All data requested on the sample analysis report must be provided.
 - (f) Sydney Water must be notified in writing within 7 days of;
 - (i) any failure to obtain samples in accordance with the provisions of Schedule 2; or
 - (ii) any loss of any analytical data.

Where data is unavailable, lost or not provided, the Quality Charge, as detailed in Schedule 3, will be assessed on the basis of the highest Composite Sample concentration recorded in the 12 months prior to the date of the missing sample data.

Consent to Discharge Industrial Trade Wastewater

3. The volume of wastewater discharged must be obtained from the reading of the total flow on the Customer's flowmetering system.

The rate of waste discharged is to be obtained by the reading of the instantaneous flow rate indicator on the Customer's flowmetering system, or from any chart recorder interfaced to the Customer's flowmetering system.

The flowmetering system is to be calibrated at least annually at the Customer's expense, by a person or company approved by Sydney Water and a copy of the calibration certificate supplied to Sydney Water within one month of such certificate being received by the Customer.

If the Customer's flowmetering system fails to record data for any period, Sydney Water is to be advised in writing by the Customer within 7 days of any such failure becoming known by the Customer. An estimate of any data not recorded is to be made as follows:

Average of the waste discharged, registered for the four weeks before and/or after the failure to record.

Consent to Discharge Industrial Trade Wastewater

SCHEDULE 3

(SUBJECT TO PUBLIC DISCLOSURE)

PAYMENTS

The charges are effective from 1 March 2019 and will continue until otherwise advised by Sydney Water.

All trade waste fees and charges are subject to CPI adjustments from 1 July each year in accordance with Determination No 1, 2012 made by the Independent Pricing and Regulatory Tribunal (IPART) and are detailed in fact sheets on the Sydney Water website.

1. CHARGES FOR TRADE WASTEWATER DISCHARGE

Sydney Water will conduct a reading of the Customer's discharge meter at approximately 90 day intervals. The volume of trade wastewater discharged for the period since the previous reading will be calculated.

Charges are based on the Daily Mass calculated from composite samples and corresponding meter readings for each sampling day in the billing period, and calculated in accord with (c), (d), (e), and (f) below. The charge for each sampling day is then multiplied by a flow weighting factor to give a flow weighted charge. The total charge for each substance for the billing period is equal to the sum of the flow weighted charges for the billing period.

Total Charge = the sum of the flow weighted charges for the billing period

Flow Weighted Charge = (charge for all sample days) x (flow weighting factor) and:

$$\text{Flow Weighting Factor} = \frac{(\text{total volume discharged during billing period})}{(\text{sum of volumes discharged during all sample days during billing period})}$$

In this formula volume discharged refers to the volume of trade wastewater discharged.

(a) Mass Discharged:

For each substance, the Mass Discharged is calculated by multiplying the Composite Sample concentration by the Trade Wastewater discharge for that sample day.

(b) Chargeable Trade Waste Mass:

- (i) For the following substances, the Chargeable Trade Waste Mass is equal to the Mass Discharged:

SUBSTANCE

COPPER
IRON
SULPHIDE
ZINC

- (ii) For the following substances, the Chargeable Trade Waste Mass is calculated by subtracting the Equivalent Domestic Mass from the Mass Discharged. The Equivalent Domestic Mass is defined as the Domestic Concentration multiplied by the Trade Wastewater discharge.

SUBSTANCE	DOMESTIC CONCENTRATION mg/L
AMMONIA (AS N)	35
BIOCHEMICAL OXYGEN DEMAND	230
SUSPENDED SOLIDS	200
GREASE	50
SULPHATE	50

If the resulting Chargeable Trade Waste Mass is zero or negative, then no Quality charges will apply for that substance for that sample day.

Consent to Discharge Industrial Trade Wastewater

(c) Quality Charge:

- (i) For the following substances, the Quality Charge is determined by multiplying the Chargeable Trade Waste Mass by the Rate for that substance as detailed in the Industrial Customers Acceptance Standards and charging rates for the applicable financial year fact sheet on the Sydney Water website.

SUBSTANCE

AMMONIA (AS N)
SUSPENDED SOLIDS
GREASE
COPPER
IRON
SULPHIDE
ZINC

- (ii) For the following substances, the Quality Charge is determined by multiplying the Chargeable Trade Waste Mass by the Rate, where the Rate is a function of the composite sample concentration recorded for that sample day.

SUBSTANCE

BIOCHEMICAL OXYGEN DEMAND

(d) Concentration Breach Charge:

Where the Composite Sample concentration is greater than the Acceptance Standards specified in Schedule 1 (with the exception of sulphate), any charges calculated in (c) above will be doubled for that sampling day.

(e) Failure to collect required samples:

Where the Customer fails to collect and analyse samples in accord with this consent the above charges will be assessed on the basis of the highest composite concentrations recorded for any billing period within the previous 12 months and the average daily discharge for the current billing period.

(f) pH and Temperature charges:

Sydney Water regularly assesses its wastewater networks to determine if a system is affected by accelerated odour and corrosion. Where Sydney Water declares a wastewater system to be affected by accelerated odour and corrosion, the temperature and pH charge will only apply if the customer is not committed to or not complying with an effluent improvement program.

2. CHARGES FOR INSPECTIONS

- (a) If, in the opinion of Sydney Water, it is necessary for a Business Customer Representative to exercise rights under clause 6.1, the Customer will incur no liability for payment for any such exercise unless the Business Customer Representative has already exercised rights under clause 6.1 on 4 occasions within a period of one year.
- (b) If it is necessary, in the opinion of Sydney Water, to carry out more than 4 occasions within a period of one year, the additional inspections will be charged at the current inspection rate.
- (c) Any inspection required following up an alleged breach or a default notice will result in a fee payable even if the number of inspections nominated in paragraph 2 (a) has not been exceeded.
- (d) For the purposes of 2 (a) and 2 (b), above, one year is defined as the period from 1 July to 30 June the following year.

Consent to Discharge Industrial Trade Wastewater

3. CHARGES FOR ADMINISTRATION OF TRADE WASTE CONSENT

A consent fee per quarter is payable from 1 March 2019.

4. CHARGES FOR VARIATION OR RENEWAL OF TRADE WASTE CONSENT

Where a Variation is made to the Consent a fee will be payable. There will be no charge for renewal.

5. CHARGES FOR GREASE TRAPS

Wastesafe administration charges are levied per pit per year.

6. PAYMENT OF FEES AND CHARGES

An account will be issued for all fees and charges. Any fees or charges payable by the Customer must be paid by the Customer within 30 days of the receipt by the Customer of the account detailing those fees and charges.

Consent to Discharge Industrial Trade Wastewater

SCHEDULE 4 ADDITIONAL REQUIREMENTS

1. EFFLUENT IMPROVEMENT PROGRAM

N/A

2. WASTE MANAGEMENT PLAN

The existing pre-treatment will result in the generation of 26 tonne per annum of waste substances in the form of a sludge containing generally solids. The waste substances are, and will continue to be disposed of, in compliance with the requirements of The Environment Protection Authority.

3. OTHER REQUIREMENTS

- (a) A Backflow Containment Device must be installed and maintained at the water meter outlet/property boundary in line with Sydney Water's Responsibilities Of Connected Customers Policy.
- (b) Backflow individual/zone protection is required on any tap located within 5m of the trade waste apparatus.

Consent to Discharge Industrial Trade Wastewater

SCHEDULE 5 APPARATUS, PLANT AND EQUIPMENT

EXISTING: 1 X 7,500L screening tank
5 X 20,000L settling tank
1 X SEPA DAF 5 kL/hr
1 X pH correction & control system
1 X Siemens Magflow 5000
1 X sample point
2 X charcoal filters for air scrubbing

PROPOSED: N/A

Consent to Discharge Industrial Trade Wastewater

SCHEDULE 6 SPECIAL CONDITIONS

1. DANGEROUS DISCHARGES

In this Schedule, the term "may pose a danger to the environment, the Sewer or workers at a sewage treatment plant";

- (a) means an occurrence whereby matter is discharged to the Sewer which either alone or in conjunction with other matter discharged cannot be adequately treated or may cause corrosion or a blockage, explosion or the production of dangerous gases in the Sewer or may adversely affect the operation of a sewer or sewage treatment plant; and
- (b) includes, but not so as to restrict the generality of paragraph (a), matter or substances, which is or are;
 - (i) toxic or corrosive;
 - (ii) petroleum hydrocarbons;
 - (iii) heavy metals;
 - (iv) volatile solvents;
 - (v) phenolic compounds;
 - (vi) organic compounds.

2. UNINTENDED DISCHARGES

- (a) For purposes of avoiding unintended discharges to the Sewer or the stormwater drainage system, all matter and substances on the Premises must be processed, handled, moved and stored in a proper and efficient manner.
- (b) Any substance on the Premises which, if discharged to the Sewer, may pose a danger to the environment, the Sewer or workers at a sewage treatment plant or may harm any sewage treatment process must be handled, moved and stored in areas where leaks, spillages or overflows cannot drain by gravity or by automated or other mechanical means to the Sewer or the stormwater drainage system

3. NOTIFICATION

In the event of a discharge of matter to the sewer that poses or may pose a danger to the environment, the Sewer or workers at a sewage treatment plant the Customer must immediately notify:

- (a) MALABAR STP CONTROL ROOM TEL: (02) 9931 8319 FAX: (02) 9931 8366
- (b) BUSINESS CUSTOMER SERVICES (8AM TO 5PM MON TO FRI) TEL: 1300 985 227
- (c) BUSINESS CUSTOMER SERVICES EMERGENCY CONTACT (24 HOURS) TEL: (02) 8849 5029

4. PROVISION OF SAFE ACCESS

The Customer shall provide safe access to Sydney Water employees visiting the site. In the event that unsafe conditions are identified the Customer must take reasonable steps to correct unsafe conditions and create safe access.

Sydney Water employees must also comply with the Customer's safety policies and procedures and any directions from the Customer's staff while on the Customer's site.

5. ELECTRONIC REPORTING OF SAMPLE ANALYSIS RESULTS

Sydney Water reserves the right to vary this consent to specify the option of reporting by electronic mail as outlined in Schedule 2, 2 (d).

Consent to Discharge Industrial Trade Wastewater

SCHEDULE 7

1. Premises for which Consent is granted
14 KIORA CRES, YENNORA NSW 2161
2. Industrial or other commercial activities for which Consent is granted
GREASE TRAP WASTE DISPOSAL (GE02)
3. Discharge point for which Consent is granted
JUNCTION IN KIORA CRES
4. The date for purposes of clause 3.1 is 1 March 2019
5. The period for purposes of clause 3.2 is 24 months
6. The receiving Treatment Plant is MALABAR Wastewater Treatment Plant / Water Recycling Plant

Consent to Discharge Industrial Trade Wastewater

SCHEDULE 8

NOTICES AND COMMUNICATION ADDRESSES

SYDNEY WATER: MANAGER MAJOR CUSTOMERS
PO Box 399
PARRAMATTA 2150
TEL: 1300 985 227
A.H: (02) 8849 5029

CUSTOMER: EDWARD HAWACH
DIRECTOR
ENVIRO WASTE SERVICE GROUP
PO BOX 706
PARRAMATTA NSW 2124
TEL: (02) 9721 2028
FAX: (02) 9721 1963

SCHEDULE 9

AUTHORISED OFFICERS

SYDNEY WATER: MANAGER MAJOR CUSTOMERS
PO Box 399
PARRAMATTA 2150
TEL: 1300 985 227
A.H: (02) 8849 5029

Email: businesscustomers@sydneywater.com.au

CUSTOMER: EDWARD HAWACH
DIRECTOR
ENVIRO WASTE SERVICES GROUP
14 KIORA RD
YENNORA NSW 2161
TEL: (02) 9721 2028
FAX: (02) 9721 1963
Email: info@enviroblasting.com.au

SCHEDULE 10

NOMINATED REPRESENTATIVES

SYDNEY WATER: MANAGER MAJOR CUSTOMERS
PO Box 399
PARRAMATTA 2150
TEL: 1300 985 227
A.H: (02) 8849 5029

CUSTOMER: EDWARD HAWACH
DIRECTOR
ENVIRO WASTE SERVICES GROUP
14 KIORA RD
YENNORA NSW 2161
TEL: 0420 511 727
FAX: (02) 9687 8389

Consent to Discharge Industrial Trade Wastewater

APPENDIX 1 (Example)

SAMPLE ANALYSIS REPORT (COMPOSITE) DISCHARGE METER

Consent Number: 36782	
Company Name: ENVIRO WASTE SERVICES GROUP PTY LTD	
Company Address: 14 KIORA CRES, YENNORA NSW 2161	
Sample Type:	
<input type="checkbox"/> 6 (composite, manual time based)	Start date: ____/____/____
<input type="checkbox"/> 7 (composite, manual flow proportional)	Finish date: ____/____/____
<input type="checkbox"/> 8 (composite, automatic time based)	Start time: ____:____ am/pm
<input type="checkbox"/> 9 (composite, automatic flow proportional)	Finish time: ____:____ am/pm
grabs taken in sample period: _____	Initial meter reading: _____ kL
sample intervals min/kL: _____	Final Meter reading: _____ kL
mL per grab: _____	Volume discharged: _____ kL

Laboratory:		
Substance	Acceptance Standard (mg/L)	Measured Concentration(mg/L)
AMMONIA (AS N)	100	
BIOCHEMICAL OXYGEN DEMAND		
SUSPENDED SOLIDS	600	
GREASE	110	
SULPHATE	2000	
COPPER	5	
IRON	50	
SULPHIDE	5	
ZINC	5	

COPY OF ORIGINAL ANALYTICAL LABORATORY REPORT TO BE ATTACHED
NOTE: LABORATORY REPORT MUST CERTIFY NATA REGISTRATION FOR EACH ANALYSIS

Comments: _____

Customer Signature: _____ Date: ____/____/____

Designation: _____

OFFICE USE ONLY

Sample No:

--	--	--	--	--

EMAIL TO:
matthew.truman@sydneywater.com.au

Consent to Discharge Industrial Trade Wastewater

APPENDIX 2 (Example)

SAMPLE ANALYSIS REPORT (DISCRETE SAMPLE)

Consent Number:	36782
Company Name:	ENVIRO WASTE SERVICES GROUP PTY LTD
Company Address:	14 KIORA CRES, YENNORA NSW 2161

Sample Type: DISCRETE

Start Date: ___/___/___ Start time: ___:___ am/pm

Finish Date: ___/___/___ Finish Time: ___:___ am/pm

Laboratory: _____

Substance	Acceptance Standard (units or mg/L)	Measured Units or Concentration.
pH at start	7 - 10	
pH at finish	7 - 10	
Ammonia (As N)	100	

COPY OF ORIGINAL ANALYTICAL LABORATORY REPORT TO BE ATTACHED
NOTE: LABORATORY REPORT MUST CERTIFY NATA REGISTRATION FOR EACH
ANALYSIS

Comments: _____

Customer Signature: _____ Date: ___/___/___

Designation: _____

OFFICE USE ONLY

Sample No:

--	--	--	--	--

EMAIL TO:
matthew.truman@sydneywater.com.au

GENERAL CONDITIONS

Recitals:

- A. Under its Operating Licence, Sydney Water provides sewerage services and treats and disposes of trade wastewater. The objectives of Sydney Water include operating as an efficient business, maximising the net worth of the State's investment and exhibiting a sense of social responsibility by having regard to the interests of the community. Sydney Water has special objectives of reducing risks to human health and preventing degradation of the environment.
- B. Sydney Water is granted licences by the Environment Protection Authority, which are subject to conditions to discharge pollutants. A change to a licence condition may require that variations be made to a consent granted by Sydney Water.
- C. In the conduct of its business operations, Sydney Water must comply with its obligations, duties and responsibilities under the Act and its Operating Licence and the Protection of the Environment Administration Act 1991, the Protection of the Environment Operations Act 1997 and the Protection of the Environment Legislation Amendment Act 2011.
- D. The customer requests that Sydney Water grant consent to the customer for purposes of discharge of trade wastewater from the premises to the sewer.

Sydney Water grants to the customer consent to discharge trade wastewater, subject to the terms and conditions specified in this consent. The customer accepts the consent and agrees to be bound by the terms and conditions of this consent:

1. Definitions and interpretation

- 1.1 In this consent, unless the contrary intention appears;

Acceptance standards means Sydney Water's published concentration limits for certain substances in trade wastewater.

Act means the Sydney Water Act 1994.

Business Customer Representative means an officer of Sydney Water who is authorised to enter land or buildings for purposes of carrying out his or her duties in relation to Sydney Water's trade wastewater service.

Consent means this consent together with its attached schedules and appendices. Any definitions or standards referred to in this consent but not contained in it are deemed to form a part of this consent with necessary changes being made to accommodate their inclusion.

Authorised officer means:

- with respect to Sydney Water, the person from time to time holding the position pertained in schedule 9 or such other person or position as may be nominated by Sydney Water from time to time;
- with respect to the customer, the person identified, and includes the details specified, in schedule 9 or as may be notified to Sydney Water by the customer from time to time.

Breach means any contravention of or non-compliance with a term, condition or provision of this consent or the Act.

Chargeable trade waste mass means the mass of a pollutant subject to quality or critical substance charges.

Composite sample means a sample of trade wastewater obtained by combining equal volumes at either equal time or flow intervals.

Critical mass charge means the charge applied to some critical and over capacity substances as calculated in accordance with the provisions set out in schedule 3.

Critical substance means a substance determined to be critical and notified from time to time by Sydney Water.

Customer means the party or parties (except Sydney Water) who executes or execute this consent.

Daily mass means the mass of a substance discharged during a 24-hour period.

Default notice means a notice issued in accordance with clause 8.1.

Domestic concentration means the concentration of a pollutant deemed by Sydney Water to be equivalent to that found in domestic wastewater.

Domestic wastewater means water which has in it human faecal matter, urine or refuse of any type produced in, and which is permitted to be discharged to a Sydney Water sewer from, any premises used exclusively for residential purposes.

Environment Protection Authority means the statutory authority established under section 15 of the Protection of the Environment Administration Act 1991.

Equivalent domestic mass means the mass of a substance that would be expected in the trade wastewater if it were at domestic concentration.

Flow weighted charge means the portion of a substance's charge for a billing period that is attributed to any sample collected in accordance with schedule 2 or, if such sample is required but is not collected, then fixed by Sydney Water in accordance with schedule 2.

Flow weighting factor means a factor used to determine charges as described in schedule 3.

Long term average daily mass means, for each pollutant, the figure listed in schedule 1 and used to determine critical mass charges as described in schedule 3.

Lower explosive limit means the minimum concentration of flammable and/or explosive substances that would result in a fire or explosion.

Mass discharged means the mass of a pollutant discharged on a sample day and is measured by

GENERAL CONDITIONS

multiplying the composite sample concentration by the trade wastewater discharge for that sample day.

Maximum daily mass means the greatest mass of a substance permitted for discharge within a 24-hour period.

Over capacity means the status of a substance as determined in accordance with Sydney Water's Trade Waste Policy, 2007.

Over capacity substance means a substance determined to be over capacity and notified from time to time by Sydney Water.

Premises means the land, plant and buildings described and specified in paragraph 1 of schedule 7, on or in which the customer carries on industrial or other commercial activities specified in paragraph 2 of schedule 7.

Quality charge means a pollutant charge applied to trade waste discharges based on the mass of each pollutant discharged to sewer.

Regulator means any statutory authority, which may grant permission, authority or licence to Sydney Water to operate the sewer or treat or dispose of sewage treatment by-products.

Residual products means biosolids, re-use water or such other product intended for re-use as may be developed by Sydney Water from time to time.

Risk index means a ranking applied to the consent by Sydney Water to describe the relative risk of accepting the trade wastewater. Determination of the risk index will be based on the methodology determined from time to time by Sydney Water, or as may be necessary in the opinion of Sydney Water to take into account particular circumstances. The risk index is used to determine, among other things, the amount of self-monitoring required, the number of inspections to be performed by Sydney Water, the annual consent fee and the term of the consent.

Sewer means the sewerage service of Sydney Water, including the sewage treatment plant, discharge to which is facilitated by a discharge point situated on the premises and specified in item 3 of schedule 7.

Significant breach means any breach of a nature outlined at clause 15.2. Such breaches may result in immediate suspension or termination of the consent.

Standard mass charging rate means the charge per kilogram for substances as defined in schedule 3.

Sydney Water means Sydney Water Corporation.

Responsibilities of connected customers policy means Sydney Water's policy detailing the conditions under which Sydney Water will agree to accept trade wastewater to sewer.

Trade wastewater means any liquid and any substance in it that is produced in an industrial or commercial activity at the premises and discharged into the sewer, but does not include domestic wastewater.

Trade waste residue means any substance separated and retained, from trade wastewater being discharged into the sewer.

1.2 In this consent, unless the contrary intention appears:

- (a) A reference to an Act or any delegated legislation or instrument made under an Act includes any other Act delegated legislation or instrument as may amend or replace any of them.
- (b) A reference to a word or expression
 - (i) in the singular form includes a reference to the word or expression in the plural form; and
 - (ii) in the plural form includes a reference to the word or expression in the singular form.
- (c) A reference to a party or a natural person includes a reference to a corporation.
- (d) A word or expression that indicates one or more particular genders is taken to indicate every other gender.
- (e) Headings to clauses and paragraphs are included in this consent to assist understanding of its terms and conditions but are not intended to affect the meaning or application of any term or condition.
- (f) A reference to a clause, schedule or appendix is a reference to a clause of or schedule or appendix to this consent and any such schedule or appendix is a part of this consent.

1.3 Remedies available to the parties under this consent;

- (a) are cumulative; and
- (b) do not prejudice or affect any other remedy available to the parties.

1.4 No rule of construction applies to the disadvantage of a party because that party was responsible for the preparation of this consent or any part of it.

2. Application of certain statutes and laws

2.1 This consent is made under and is subject to the provisions of the Act.

2.2 This consent is governed by and will be performed according to the law applicable in the State of New South Wales.

2.3 Subject to the terms and conditions of this consent the customer has lawful authority to dispose of trade wastewater for purposes of;

- (i) Section 115 of the Protection of the Environment Operations Act 1997; and
- (ii) Section 49 of the Act; and

3. Commencement and term of consent

3.1 This consent commences on the date specified in paragraph 4 of schedule 7.

3.2 This consent will, unless terminated or renewed in accordance with this consent, continue for the period specified in item 5 of schedule 7.

GENERAL CONDITIONS

4. Discharge of trade wastewater into sewer

- 4.1 The customer may discharge trade wastewater from the premises into the sewer in accordance with the provisions of schedule 1 and schedule 4.
- 4.2 The customer must not discharge trade wastewater from the premises into the sewer contrary to the provisions of schedule 1 and schedule 4.
- 4.3 The customer indemnifies Sydney Water against all damages, losses, costs or expenses suffered or incurred by Sydney Water, caused by any unauthorised discharge from the premises in respect of:
- (a) injury (including death) or harm to any person; or
 - (b) damage to property vested in Sydney Water; or
 - (c) contamination of residual products; or
 - (d) material harm to any sewage treatment process
- provided that the said damages, losses, costs or expenses suffered or incurred by Sydney Water are caused by any unauthorised discharge of trade wastewater or other matter into the sewer by the customer which is in breach of this consent or by any other person from the customer's premises, except to the extent to which the damages, losses, costs or expenses (as the case may be) were caused by either the negligent or wilful act or omission of Sydney Water or a breach of this consent by Sydney Water.
- 4.4 The customer must take all precautions reasonably practicable to ensure that no person, other than a person acting for or on behalf of or with the consent of the customer, discharges any matter from the premises into the sewer.
- 4.5 For purposes of this consent, every discharge of matter from the premises into the sewer will be taken to have been a discharge by a person acting for or on behalf of, or with the consent of, the customer.

5. Charges

- 5.1 The customer must pay Sydney Water charges with respect to trade wastewater discharged to the sewer, the administration of this consent and, when applicable, the processing of grease trap waste determined in accordance with, and within the time and in the manner specified in schedule 3.
- 5.2 Sydney Water may vary the basis of charges or the charging rates in schedule 3;
- (a) as and when determined by the Independent Pricing and Regulatory Tribunal of New South Wales (IPART); or
 - (b) by written consent with the customer.

6. Inspections

- 6.1 A Business Customer Representative may enter the premises at any time;
- (a) for purposes of inspecting whether the activities of the customer are being conducted in accordance with this consent; or

- (b) for the purposes described in Section 38 of the Act or exercising any right or function conferred on Sydney Water under this consent.

This clause does not limit Sydney Water's statutory powers of entry.

- 6.2 When exercising rights under clause 6.1;

- (a) a Business Customer Representative must not cause any delay or inconvenience to the efficient conduct of business activities by the customer which could be reasonably avoided; and
- (b) except for any relevant safety precautions, a Business Customer Representative must not be impeded or delayed by any person on the premises.

- 6.3 If, in the opinion of Sydney Water, it is necessary for a Business Customer Representative to exercise rights under clause 6.1, the customer will make payment in accordance with the provisions of schedule 3.

7. Inquiries

- 7.1 Sydney Water may convene and determine the terms of reference of a joint inquiry about the circumstances relating to an incident that may have caused a breach.
- 7.2 An inquiry under clause 7.1 is to be conducted informally and without legal representation for purposes of gathering information about an incident directly from any person who may be expected to know, from his or her own observations, about the circumstances relating to the incident.
- 7.3 An inquiry under clause 7.1 may be conducted irrespective of whether the incident, the subject of the inquiry, is also the subject of a default notice.
- 7.4 Before conducting an inquiry under clause 7.1, the customer and Sydney Water may agree about what action, if any (except any action pursuant to a statutory obligation), may be taken with respect to any information that may be gathered during the inquiry.

8. Default procedures

- 8.1 If, in the opinion of Sydney Water, the customer commits, causes or allows a breach to occur, Sydney Water may issue to the customer a default notice.
- 8.2 A default notice must;
- (a) provide any relevant particular of the breach alleged by Sydney Water, including any particular known to Sydney Water that may assist the customer to ascertain the alleged breach; and
 - (b) specify that the customer must provide a response in writing to Sydney Water within seven days of receipt of the notice.
- 8.3 A default notice is not invalid merely because it does not provide a particular that may assist the customer to ascertain the alleged breach.
- 8.4 Any supply to the customer by Sydney Water of particulars under clause 8.7(a) is taken, for purposes of clause 8.5, to be a default notice under clause 8.1.

GENERAL CONDITIONS

- 8.5 The customer must supply to Sydney Water a written response to a default notice within seven days of receipt of the default notice which must;
- (a) request further particulars of the alleged breach; or
 - (b) describe or explain the circumstances causing;
 - (i) the event which appeared to Sydney Water to be a breach; or
 - (ii) the breach to occur; and
 - (c) describe any action taken with respect to the alleged breach; and
 - (d) provide a plan of action to be taken by the customer to avoid the occurrence of any incident similar to the alleged breach; or
 - (e) explain the reasons of the customer for disputing the alleged breach.
- 8.6 The customer may make one request only for particulars under clause 8.5(a) with respect to a default notice.
- 8.7 When the customer responds in writing to Sydney Water in accordance with clause 8.5, Sydney Water must within seven days of receipt of that response either;
- (a) with respect to clause 8.5(a), provide in writing to the customer any further particulars that it may be able to provide in which case the customer shall be allowed a further seven days from receipt of those particulars to respond as required by clause 8.5(b)
 - (b) specify to what extent it accepts, rejects or disagrees with the response under 8.5(b) and provide details of any action it proposes to take (including any special requirements it may impose) to deal with the breach.
- 8.8 The issue by Sydney Water of a default notice is without prejudice to any right or power Sydney Water may have pursuant to this consent or conferred on it by statute or statutory rule.
- 9. Improvement program**
- 9.1 The customer must, at its own expense, establish and carry out the improvement program specified in, and in accordance with the provisions of, schedule 4.
- 9.2 If, prior to any failure to comply, the customer notifies Sydney Water that it may not be able to comply with any obligation under clause 9.1, Sydney Water will consider any reasonable proposal of the customer to vary a term or condition of the improvement program.
- 10. Diligence program**
- 10.1 Within six months of the making of this consent, the customer must give a notice to Sydney Water specifying a current diligence program.
- 10.2 For purposes of clause 10.1, a diligence program includes a plan, whereby the customer demonstrates that the management of the customer is exercising reasonable care in planning and taking appropriate action, to prevent or minimise the effects of any incident that may constitute a breach.
- 11. Suspension or termination of consent to discharge trade wastewater**
- 11.1 Sydney Water may suspend the consent granted in clause 4.1 if;
- (a) the customer does not comply with clause 8.5, 9.1, 12.1, 12.2 or notice of the suspension is given to the customer; or
 - (b) Sydney Water is for any reason specified in clause 11.2 unable to accept for treatment trade wastewater that may be discharged by the customer.
- 11.2 Sydney Water may, by a notice given to the customer, suspend the consent granted in clause 4.1 if, in the reasonable opinion of Sydney Water;
- (a) an emergency prevents the sewer from accepting any or certain specified categories of trade wastewater that may be discharged by the customer; or
 - (b) an event has occurred, which could have an adverse effect on any employee or agent of or contractor to Sydney Water or the sewer, including any biological process.
- whether the emergency or event is caused by fire, storm, tempest, flood, malicious damage, act of war, civil disobedience, explosion, earthquake or an act or omission of an employee, or agent of, or contractor to Sydney Water, or an unlawful discharge of matter into the sewer, or some other cause.
- 11.3 The period of any notice of suspension given under clause 11.2 will be no shorter than any period, which in the opinion of Sydney Water the circumstances dictate.
- 11.4 The customer must comply with any notice under clause 11.1 or 11.2 subject only to any delay that may be required to safeguard the health or life of any person.
- 11.5 Any suspension under clause 11.1 or 11.2 must not be for a period longer than, in the opinion of Sydney Water, the circumstances dictate.
- 11.6 If the customer does not cease discharging trade wastewater in accordance with a notice given under clause 11.1 or 11.2 and Sydney Water is of the opinion that the customer is not taking appropriate measures to stop the discharge, a Business Customer Representative may, with such other persons as he or she may think necessary, enter the premises and take such measures as he or she may think necessary to stop the discharge.
- 11.7 A suspension under clause 11.1 or 11.2 or any action that may be taken in accordance with clause 11.6 does not give rise to any remedy to the customer against Sydney Water for, or in respect of, the suspension or action.
- 11.8 Any costs incurred by Sydney Water with regard to taking action under clause 11.6 is a debt payable to

GENERAL CONDITIONS

Sydney Water by the customer on demand made by Sydney Water.

- 11.9 Sydney Water may suspend the consent granted in clause 4.1 if; the discharge of trade wastewater by the customer in accordance with the consent granted under clause 4.1, by itself or in conjunction with the discharges of other persons is likely, in the opinion of Sydney Water, to cause Sydney Water to contravene any legislation, permission, authority or licence granted by a regulator, or any other regulatory authority.
- 11.10 Any suspension under clause 11.9 must be terminated as soon as Sydney Water is reasonably satisfied that the conditions giving rise to the suspension no longer exist.
- 11.11 If the customer and Sydney Water cannot agree in accordance with clause 11.10, they will initiate and attend discussions with the regulator to resolve any relevant matter.
- 11.12 If, after discussions under clause 11.11 the customer and Sydney Water fail to agree in accordance with clause 11.10, the consent granted in clause 4.1 may be terminated by Sydney Water.
- 11.13 Without limitation of the effect of any other clause in this consent, Sydney Water may terminate or suspend the customer's permission to discharge trade wastewater immediately by written notice to the customer, if in the opinion of Sydney Water the customer's discharge of trade wastewater is in breach of this consent and is likely to cause;
- (a) Sydney Water's contravention of the condition of any licence issued to it by the EPA; or
 - (b) the failure to meet a product specification of any of Sydney Water's residual products.
 - (c) Sydney Water to breach or fail to comply with any legislation.
- 11.14 A suspension under clause 11.9 or 11.13 in accordance with the terms of this consent or a termination under clause 11.12 or 11.13 in accordance with the terms of this consent does not give rise to any remedy to the customer against Sydney Water for or in respect of the suspension or termination.
- 11.15 Without limitation of the effect on any other clause in this consent, Sydney Water may terminate or suspend the customer's consent to discharge trade wastewater immediately by written notice served on the customer in accordance with Section 100 of the Act, on the occurrence of any one of the following events;
- (a) The customer fails to pay to Sydney Water any amount due and payable under this consent within twenty-one days of the due date for payment and such payment is not made within fourteen days of a written request from Sydney Water to do so.

- (b) The customer is in breach of the consent and is unable or unwilling to remedy the breach of consent as required by Sydney Water.

The customer acknowledges and agrees that if, following the termination of the consent, it continues to discharge trade wastewater into the sewer, a Business Customer Representative may enter the customer's premises and take all reasonable necessary steps to stop the customer's continued discharge of trade wastewater to the sewer. The right of entry conferred by this clause is in addition to, and not in substitution for, any power of entry conferred on Sydney Water by the Act.

12. Supply of information

- 12.1 Any information supplied by the customer to Sydney Water for purposes of making this consent or for any purpose of this consent must as far as reasonably possible be a true and complete disclosure by the customer for purposes of enabling Sydney Water to;
- (a) determine whether to grant the consent in clause 4.1; and
 - (b) determine whether there has been any breach of this consent.
- 12.2 The customer must not, in or in connection with a document supplied to Sydney Water for purposes of making this consent or for any purpose of this consent, furnish information, which is false or misleading in a material particular with regard to the trade wastewater to be discharged to the sewer.
- 12.3 Sydney Water must not disclose any confidential information obtained in connection with the administration or execution of this consent, unless that disclosure is made;
- (a) with the consent in writing of the customer
 - (b) with other lawful excuse.

13. Sampling

- 13.1 For purposes of this consent, schedule 2 specifies sampling and analysis criteria, flow rates and volume determinations of trade wastewater to be discharged or discharged under clause 4.1.
- 13.2 A Business Customer Representative may take as many samples of trade wastewater at any point in any production process or storage facility, or at any other point on the premises, as he or she thinks fit.
- 13.3 The customer must comply with the provisions of schedule 2.

14. Apparatus, plant and equipment for recording or treating trade wastewater

- 14.1 The customer must, at its own cost, provide, operate and maintain in an effective and efficient working order, the apparatus, plant and equipment described in schedule 5 for purposes of regulating, treating, determining and measuring the quality, quantity and

GENERAL CONDITIONS

rate of discharge of trade wastewater under clause 4.1.

- 14.2 Sydney Water may require the customer to use its discretion to formulate and take such additional actions as may be appropriate to achieve the objects which, in the opinion of Sydney Water, are necessary for the customer to regulate, treat, determine or measure trade wastewater for purposes of discharge under clause 4.1.
 - 14.3 The customer must, at its own costs, maintain records in such manner as may be required by Sydney Water, of all measurements, sampling and results obtained in the course of treatment and discharge of trade wastewater under clause 4.1.
 - 14.4 The customer must submit to Sydney Water documents containing records of results specified in schedule 2.
 - 14.5 The customer must maintain records of particulars and dates of cleaning and maintaining all apparatus, plant and equipment described in schedule 5 and particulars, dates and method of disposal of trade waste residue from such apparatus, plant and equipment.
 - 14.6 The customer acknowledges that Sydney Water does not approve or warrant that any apparatus, plant or equipment used by the customer is sufficient for purposes of processing or treating trade wastewater for discharge under clause 4.1.
- 15. Variation and renewal of consent**
- 15.1 Before varying, substituting or adding any process conducted or to be conducted on the premises that may cause the volume, rate or quality of wastewater discharged to change from that agreed under schedule 1 and schedule 4, the customer shall give Sydney Water not less than 14 days written notice of its intention. Any variation, substitution or addition shall only be conducted after receipt of written approval to same and subject to any conditions (including any requirement to vary the terms of this consent) that Sydney Water may impose.
 - 15.2 Sydney Water may vary the terms of this consent where:
 - (a) Sydney Water alleges a single significant breach or three breaches of the same nature, to have occurred in a six month period; or
 - (b) in the opinion of Sydney Water, a substantial or material part of any plan of action under clause 8.5(d) may not be completed for a period exceeding 90 days; or
 - (c) the customer gives Sydney Water notice under clause 15.1.

For the purposes of this clause and without limitation, the following circumstances shall be regarded as being a single significant breach:

- (i) an activity or event that could adversely affect; the health and safety of any employee, agent or

contractor to Sydney Water, the integrity of Sydney Water assets or the viability of any of Sydney Water's treatment processes or products; or

- (ii) failure to achieve effluent improvement program milestone; or
 - (iii) failure to install pre-treatment; or
 - (iv) by-pass pre-treatment and/or installation of equipment that facilitates by-pass of pre-treatment; or
 - (v) flow-meter turned off or bypassed.
- 15.3 A renewal of this consent may be initiated by the customer:
 - (a) not less than two months before the date of expiration of this consent, and
 - (b) not more than six months before the date of expiration of this consent.
 - 15.4 If this consent remains current immediately prior to the expiration of the term detailed in 3.2, or any subsequent terms renewed in accordance with this clause, and:
 - (a) the customer has not given notice in accordance with clause 20.1 of this consent and;
 - (b) Sydney Water has not given to the customer at least 30 days' notice prior to the expiration of this consent, of its intention to permit the consent to expire in accordance with clause 3.2

Then this consent shall be deemed to be renewed immediately following its expiration, for a further period of six months.

- 15.5 Any amended schedules that Sydney Water prepares in response to a variation or renewal will be taken to be incorporated into this consent;
 - (a) on execution by the customer; or
 - (b) after 14 days of receipt by the customer of the notice of the variation or renewal.
- 15.6 The notification of alterations to the critical status of any pollutants does not constitute a variation.

16. Disposal of trade waste residue

The customer must not dispose of any trade waste residue, except in accordance with the requirements of the EPA.

17. Disposal of grease trap wastes

The customer must not dispose of grease trap wastes other than in accordance with Sydney Water's 'Wastesafe' Management System.

18. This consent comprises all applicable terms and conditions

- 18.1 The provisions of this consent comprise all of the applicable terms and conditions between the parties.
- 18.2 It is declared by the parties that no further or other promises or provisions are, or will be claimed to be implied, or to arise between the parties by way of collateral or other agreement by reason of any promise, representation, warranty or undertaking given or made by any party (or its agent) to another, on or prior to the

GENERAL CONDITIONS

execution of this deed, and the existence of any such implication or collateral or other agreement, is hereby negated by the parties.

- 18.3 Clauses 18.1 and 18.2 do not prejudice the ability of the parties to vary or amend this consent in accordance with the provisions of this consent or by a further consent in writing.

19. No transfer or assignment

The customer cannot transfer or assign the consent granted in clause 4.1 nor any other right or obligation the customer has or may have under this consent, without the prior consent in writing of Sydney Water.

20. Termination of consent by customer

- 20.1 Termination of this consent may be effected by the customer upon the giving of at least 30 days' notice in writing to Sydney Water. The notice must state the date on which this consent terminates.
- 20.2 The customer is bound by the provisions of this consent with regard to any discharge of trade wastewater into the sewer from the premises, including the payment of charges under clause 5.1, from the commencement of this consent until its termination.
- 20.3 Notwithstanding provisions contained elsewhere in this consent the parties may terminate this consent in writing by mutual agreement provided the parties enter into a further trade waste consent immediately following termination of this consent.

21. Notices and communications

- 21.1 A notice or communication under this consent must be in writing.
- 21.2 For purposes of clause 21.1, a notice or communication may;
- (a) be left at the address of the addressee; or
 - (b) be sent by prepaid ordinary post to the address of the addressee; or
 - (c) sent by facsimile transmission to the facsimile number of the addressee
 - (d) sent by email to the email address of the addressee as specified in schedule 8 or such other address as may be notified by the addressee to the other party.
- 21.3 Unless a later time is specified in it, a notice or communication takes effect from the time it is received.
- 21.4 Unless the contrary is shown, for purposes of clause 21.3, if a notice or communication is;
- (a) a letter sent by pre-paid post, it will be taken to have been received on the third day after posting; or
 - (b) a facsimile, it will be taken to have been received on receipt by the sender, of the written or oral advice of the addressee that the whole of the facsimile transmission has been received by the addressee in a form that is legible.

22. Miscellaneous

Each party must act in good faith in the implementation of this consent and, without limiting the scope of this obligation, must also seek to resolve any difference or dispute between them as to the consent in good faith.

23. Entire consent

This consent constitutes the entire agreement between the parties in relation to its subject matter. No understanding, arrangement or provision not expressly set out in this consent will bind the parties. Accordingly all correspondence, negotiations and other communications between the parties in relation to the subject matter of this consent that precede this consent are superseded by and merged in it.

Note: This consent has no effect until it is executed for and on behalf of Sydney Water Corporation.

Contact Us

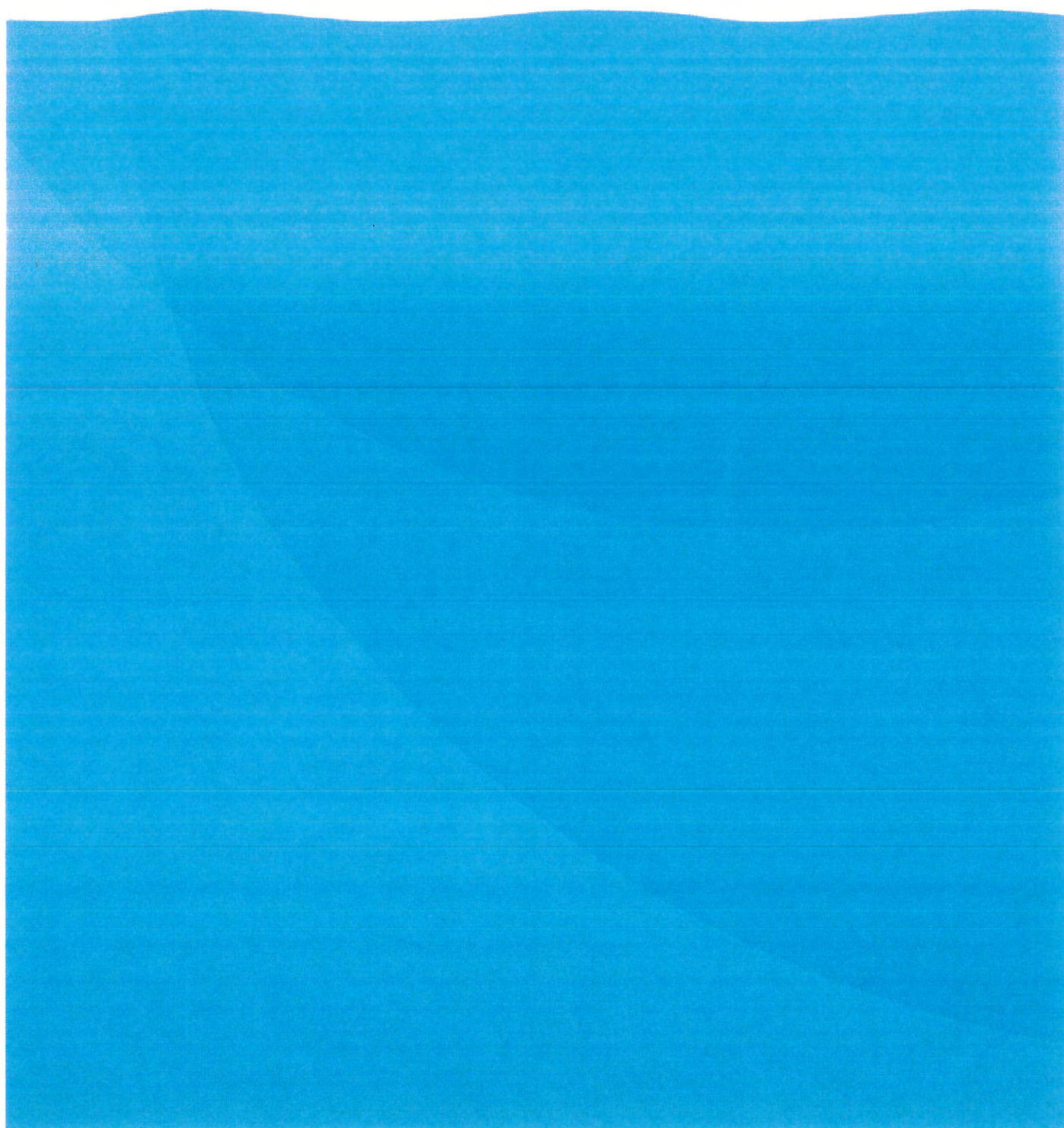
To find out more visit
sydneywater.com.au
or call 13 20 92

Postal address

Sydney Water
PO Box 399
Parramatta NSW 2124

Sydney Water

ABN 49 776 225 038
BCS034



Attachment 2: Flood Advice Letter from Cumberland Council



26 February 2020

Sarah New-Beall c/o Benbow Environmental
25-27 Sherwood Street
NORTHMEAD NSW 2152

Our Reference EC2020/0155
Contact Rolyn Sario
Telephone 8757 9536

Dear Sir/Madam

**FLOOD LEVELS AT NO 14 KIORA CRESCENT, YENNORA
BEING LOT 49 DP 18211**

Council refers to your request dated 24 February 2020, requesting flood information at the above property.

According to the information available to Council from the "Prospect Creek Overland Flood Study" prepared by Lyall and Associates Consulting Water Engineers in June 2017, the above property is not affected by the 1% Annual Exceedance Probability (AEP) flood. However, it is located within the floor level control area, in which the floor levels of the new buildings are required to be set with sufficient freeboard above the adjacent flood level.

The 1% AEP flood level refers to a flood which has a 1% chance of being equalled or exceeded in any one year. It should be noted that a flood could occur that is more severe than the 1% AEP flood at any time.

The maximum 1% AEP flood level relevant to the subject property has been determined (see the attached plan) to Australian Height Datum (AHD) is:

1. At location A - 15.4 mAHD

Minimum habitable floor levels shall be 0.5m above the flood level at the upstream side of the structure. Minimum non-habitable floor levels (garages, laundry, sheds, etc.) shall be 0.15m above the flood level at the upstream side of the structure.

The relationship between these levels and the ground surface may be determined by a survey of the property undertaken by a Registered Surveyor.

It should be noted that where the development or redevelopment of the property is proposed, reference should be made to the relevant Development Control Plan with regard to flooding and drainage issues. Please include a copy of this letter and map with any Development Application that you may lodge with Council for the subject site.

Flood levels are not static due to changing circumstances (e.g. revision of the flood model) and accordingly the above flood level is only valid for six months from the above date.

If you have any questions please do not hesitate to contact Council's Senior Stormwater Engineer, Mr Mark Evens on 8757 9538 or Council's Drainage Engineer, Mr Rolyn Sario on 02 8757 9536.

Yours sincerely,

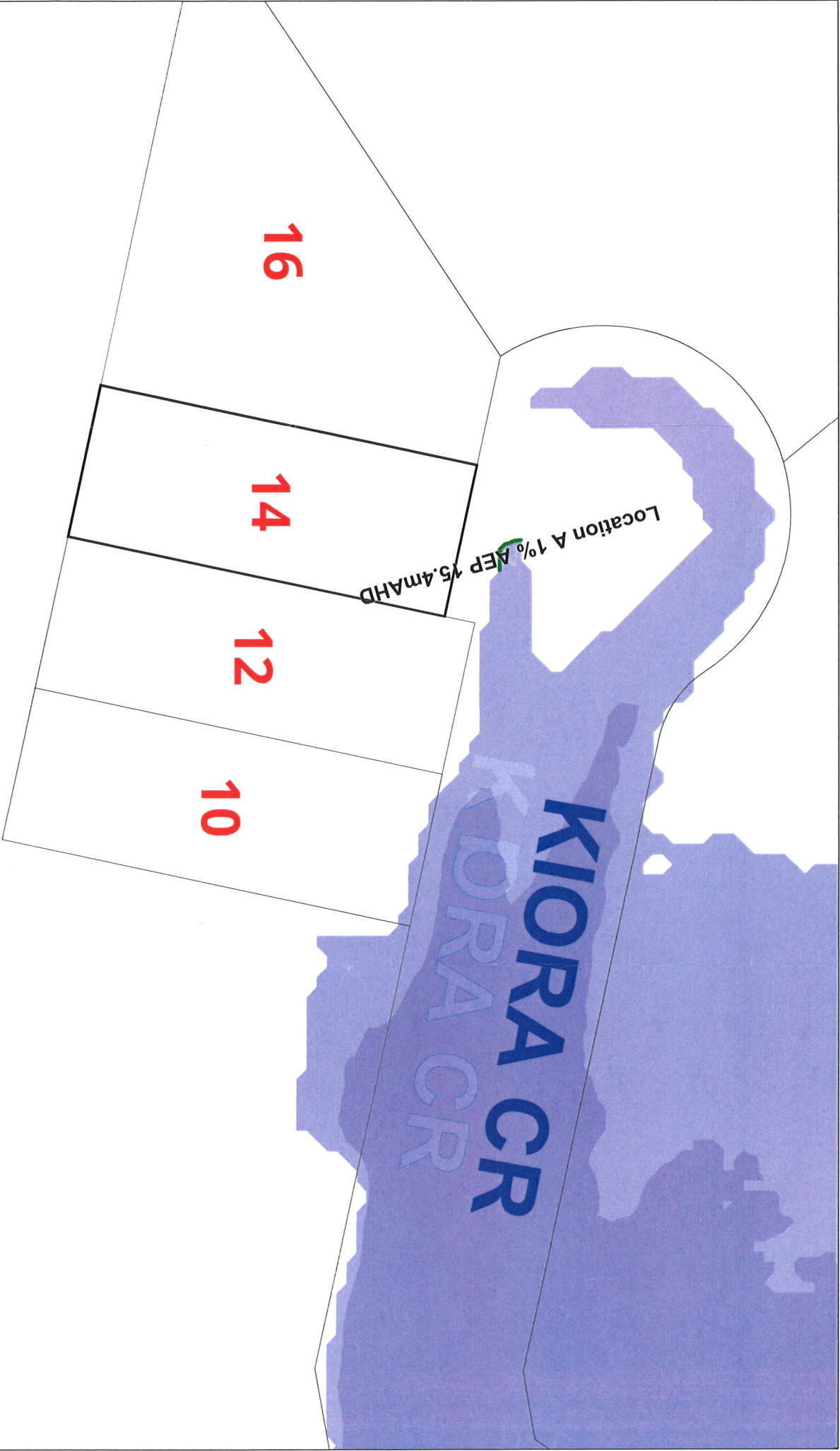


SIVA SIVAKUMAR
MANAGER – ENGINEERING & TRAFFIC



CUMBERLAND
COUNCIL

This publication may be reproduced, modified, copied, republished or distributed to a third party without the express permission of Cumberland Council (CC). Clandestine use of this publication is prohibited. The information provided in this publication is current as at the publication date only. This publication provides general information only and should not be relied upon for the purpose of contracts or other financial purposes and CC accepts no responsibility for any losses arising from any misuse of it.



CERTIFICATE OF ANALYSIS

Work Order : **ES2025861**
Client : **BENBOW ENVIRONMENTAL**
Contact : Matthew Taylor
Address : 25-27 SHERWOOD STREET
 NORTHMEAD NSW, AUSTRALIA 2152
Telephone : ----
Project : 191251_Stormwater
Order number : 191251
C-O-C number : ----
Sampler : Matthew Taylor
Site : ----
Quote number : EN/222
No. of samples received : 6
No. of samples analysed : 6

Page : 1 of 9
Laboratory : Environmental Division Sydney
Contact : Customer Services ES
Address : 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone : +61-2-8784 8555
Date Samples Received : 28-Jul-2020 10:20
Date Analysis Commenced : 28-Jul-2020
Issue Date : 04-Aug-2020 13:55



Accreditation No. 825
 Accredited for compliance with
 ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Ankit Joshi	Inorganic Chemist	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW



General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP075 (SIM): Where reported, Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- Samples containing fine particulate matter less than 1.2 µm may bias low for TSS via EA025H.
- EP074: Where reported, Total Trihalomethanes is the sum of the reported concentrations of all Trihalomethanes at or above the LOR.
- EP074: Where reported, Total Trimethylbenzenes is the sum of the reported concentrations of 1.2.3-Trimethylbenzene, 1.2.4-Trimethylbenzene and 1.3.5-Trimethylbenzene at or above the LOR.
- EP075(SIM): Where reported, Total Cresol is the sum of the reported concentrations of 2-Methylphenol and 3- & 4-Methylphenol at or above the LOR.



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID				
Client sampling date / time				S-1	S-1	S-2	S-2	S-1
Compound				28-Jul-2020 09:45	28-Jul-2020 09:45	28-Jul-2020 09:25	28-Jul-2020 09:25	28-Jul-2020 09:45
CAS Number	LOR	Unit		ES2025861-001	ES2025861-002	ES2025861-003	ES2025861-004	ES2025861-005
				Result	Result	Result	Result	Result
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	----	----	----	----	8.41
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	----	----	----	----	223
EA025: Total Suspended Solids dried at 104 ± 2°C								
Suspended Solids (SS)	----	5	mg/L	----	----	----	----	29
EG020F: Dissolved Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L	<0.001	----	<0.001	----	----
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	----	<0.0001	----	----
Chromium	7440-47-3	0.001	mg/L	<0.001	----	<0.001	----	----
Copper	7440-50-8	0.001	mg/L	0.006	----	0.001	----	----
Nickel	7440-02-0	0.001	mg/L	0.001	----	<0.001	----	----
Lead	7439-92-1	0.001	mg/L	<0.001	----	<0.001	----	----
Zinc	7440-66-6	0.005	mg/L	0.092	----	0.034	----	----
EG035F: Dissolved Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	----	<0.0001	----	----
EP074A: Monocyclic Aromatic Hydrocarbons								
Styrene	100-42-5	5	µg/L	----	<5	----	<5	----
Isopropylbenzene	98-82-8	5	µg/L	----	<5	----	<5	----
n-Propylbenzene	103-65-1	5	µg/L	----	<5	----	<5	----
1,3,5-Trimethylbenzene	108-67-8	5	µg/L	----	<5	----	<5	----
sec-Butylbenzene	135-98-8	5	µg/L	----	<5	----	<5	----
1,2,4-Trimethylbenzene	95-63-6	5	µg/L	----	<5	----	<5	----
tert-Butylbenzene	98-06-6	5	µg/L	----	<5	----	<5	----
p-Isopropyltoluene	99-87-6	5	µg/L	----	<5	----	<5	----
n-Butylbenzene	104-51-8	5	µg/L	----	<5	----	<5	----
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	50	µg/L	----	<50	----	<50	----
2-Butanone (MEK)	78-93-3	50	µg/L	----	<50	----	<50	----
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	----	<50	----	<50	----
2-Hexanone (MBK)	591-78-6	50	µg/L	----	<50	----	<50	----
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	5	µg/L	----	<5	----	18	----
EP074D: Fumigants								
2,2-Dichloropropane	594-20-7	5	µg/L	----	<5	----	<5	----

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID		S-1		S-1		S-2		S-2		S-1	
Client sampling date / time				28-Jul-2020 09:45		28-Jul-2020 09:45		28-Jul-2020 09:25		28-Jul-2020 09:25		28-Jul-2020 09:45			
Compound	CAS Number	LOR	Unit	ES2025861-001		ES2025861-002		ES2025861-003		ES2025861-004		ES2025861-005			
				Result		Result		Result		Result		Result			
EP074D: Fumigants - Continued															
1.2-Dichloropropane	78-87-5	5	µg/L	----		<5		----		<5		----			
cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	----		<5		----		<5		----			
trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	----		<5		----		<5		----			
1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	----		<5		----		<5		----			
EP074E: Halogenated Aliphatic Compounds															
Dichlorodifluoromethane	75-71-8	50	µg/L	----		<50		----		<50		----			
Chloromethane	74-87-3	50	µg/L	----		<50		----		<50		----			
Vinyl chloride	75-01-4	50	µg/L	----		<50		----		<50		----			
Bromomethane	74-83-9	50	µg/L	----		<50		----		<50		----			
Chloroethane	75-00-3	50	µg/L	----		<50		----		<50		----			
Trichlorofluoromethane	75-69-4	50	µg/L	----		<50		----		<50		----			
1.1-Dichloroethene	75-35-4	5	µg/L	----		<5		----		<5		----			
Iodomethane	74-88-4	5	µg/L	----		<5		----		<5		----			
trans-1.2-Dichloroethene	156-60-5	5	µg/L	----		<5		----		<5		----			
1.1-Dichloroethane	75-34-3	5	µg/L	----		<5		----		<5		----			
cis-1.2-Dichloroethene	156-59-2	5	µg/L	----		<5		----		<5		----			
1.1.1-Trichloroethane	71-55-6	5	µg/L	----		<5		----		<5		----			
1.1-Dichloropropylene	563-58-6	5	µg/L	----		<5		----		<5		----			
Carbon Tetrachloride	56-23-5	5	µg/L	----		<5		----		<5		----			
1.2-Dichloroethane	107-06-2	5	µg/L	----		<5		----		<5		----			
Trichloroethene	79-01-6	5	µg/L	----		<5		----		<5		----			
Dibromomethane	74-95-3	5	µg/L	----		<5		----		<5		----			
1.1.2-Trichloroethane	79-00-5	5	µg/L	----		<5		----		<5		----			
1.3-Dichloropropane	142-28-9	5	µg/L	----		<5		----		<5		----			
Tetrachloroethene	127-18-4	5	µg/L	----		<5		----		<5		----			
1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	----		<5		----		<5		----			
trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	----		<5		----		<5		----			
cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	----		<5		----		<5		----			
1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	----		<5		----		<5		----			
1.2.3-Trichloropropane	96-18-4	5	µg/L	----		<5		----		<5		----			
Pentachloroethane	76-01-7	5	µg/L	----		<5		----		<5		----			
1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	----		<5		----		<5		----			
Hexachlorobutadiene	87-68-3	5	µg/L	----		<5		----		<5		----			
EP074F: Halogenated Aromatic Compounds															

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID		S-1		S-1		S-2		S-2		S-1	
Client sampling date / time				28-Jul-2020 09:45		28-Jul-2020 09:45		28-Jul-2020 09:25		28-Jul-2020 09:25		28-Jul-2020 09:45			
Compound	CAS Number	LOR	Unit	ES2025861-001		ES2025861-002		ES2025861-003		ES2025861-004		ES2025861-005			
				Result		Result		Result		Result		Result			
EP074F: Halogenated Aromatic Compounds - Continued															
Chlorobenzene	108-90-7	5	µg/L	----		<5		----		<5		----			
Bromobenzene	108-86-1	5	µg/L	----		<5		----		<5		----			
2-Chlorotoluene	95-49-8	5	µg/L	----		<5		----		<5		----			
4-Chlorotoluene	106-43-4	5	µg/L	----		<5		----		<5		----			
1.3-Dichlorobenzene	541-73-1	5	µg/L	----		<5		----		<5		----			
1.4-Dichlorobenzene	106-46-7	5	µg/L	----		<5		----		<5		----			
1.2-Dichlorobenzene	95-50-1	5	µg/L	----		<5		----		<5		----			
1.2.4-Trichlorobenzene	120-82-1	5	µg/L	----		<5		----		<5		----			
1.2.3-Trichlorobenzene	87-61-6	5	µg/L	----		<5		----		<5		----			
EP074G: Trihalomethanes															
Chloroform	67-66-3	5	µg/L	----		21		----		<5		----			
Bromodichloromethane	75-27-4	5	µg/L	----		10		----		<5		----			
Dibromochloromethane	124-48-1	5	µg/L	----		<5		----		<5		----			
Bromoform	75-25-2	5	µg/L	----		<5		----		<5		----			
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons															
Naphthalene	91-20-3	1.0	µg/L	----		<1.0		----		<1.0		----			
Acenaphthylene	208-96-8	1.0	µg/L	----		<1.0		----		<1.0		----			
Acenaphthene	83-32-9	1.0	µg/L	----		<1.0		----		<1.0		----			
Fluorene	86-73-7	1.0	µg/L	----		<1.0		----		<1.0		----			
Phenanthrene	85-01-8	1.0	µg/L	----		<1.0		----		<1.0		----			
Anthracene	120-12-7	1.0	µg/L	----		<1.0		----		<1.0		----			
Fluoranthene	206-44-0	1.0	µg/L	----		<1.0		----		<1.0		----			
Pyrene	129-00-0	1.0	µg/L	----		<1.0		----		<1.0		----			
Benz(a)anthracene	56-55-3	1.0	µg/L	----		<1.0		----		<1.0		----			
Chrysene	218-01-9	1.0	µg/L	----		<1.0		----		<1.0		----			
Benzo(b+j)fluoranthene	205-99-2	205-82-3	1.0	µg/L		----		<1.0		----		<1.0		----	
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	----		<1.0		----		<1.0		----			
Benzo(a)pyrene	50-32-8	0.5	µg/L	----		<0.5		----		<0.5		----			
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	----		<1.0		----		<1.0		----			
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L	----		<1.0		----		<1.0		----			
Benzo(g,h,i)perylene	191-24-2	1.0	µg/L	----		<1.0		----		<1.0		----			
^ Sum of polycyclic aromatic hydrocarbons		----	0.5	µg/L		----		<0.5		----		<0.5		----	
^ Benzo(a)pyrene TEQ (zero)		----	0.5	µg/L		----		<0.5		----		<0.5		----	
EP080/071: Total Petroleum Hydrocarbons															



Analytical Results

Sub-Matrix: **WATER**
 (Matrix: **WATER**)

Client sample ID

				S-1	S-1	S-2	S-2	S-1
Client sampling date / time				28-Jul-2020 09:45	28-Jul-2020 09:45	28-Jul-2020 09:25	28-Jul-2020 09:25	28-Jul-2020 09:45
Compound	CAS Number	LOR	Unit	ES2025861-001	ES2025861-002	ES2025861-003	ES2025861-004	ES2025861-005
				Result	Result	Result	Result	Result
EP080/071: Total Petroleum Hydrocarbons - Continued								
C6 - C9 Fraction	----	20	µg/L	----	<20	----	<20	----
C10 - C14 Fraction	----	50	µg/L	----	140	----	100	----
C15 - C28 Fraction	----	100	µg/L	----	960	----	610	----
C29 - C36 Fraction	----	50	µg/L	----	700	----	80	----
^ C10 - C36 Fraction (sum)	----	50	µg/L	----	1800	----	790	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	20	µg/L	----	<20	----	<20	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	----	<20	----	<20	----
>C10 - C16 Fraction	----	100	µg/L	----	210	----	180	----
>C16 - C34 Fraction	----	100	µg/L	----	1360	----	570	----
>C34 - C40 Fraction	----	100	µg/L	----	450	----	<100	----
^ >C10 - C40 Fraction (sum)	----	100	µg/L	----	2020	----	750	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	----	210	----	180	----
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	----	<1	----	<1	----
Toluene	108-88-3	2	µg/L	----	<2	----	<2	----
Ethylbenzene	100-41-4	2	µg/L	----	<2	----	<2	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	----	<2	----	<2	----
ortho-Xylene	95-47-6	2	µg/L	----	<2	----	<2	----
^ Total Xylenes	----	2	µg/L	----	<2	----	<2	----
^ Sum of BTEX	----	1	µg/L	----	<1	----	<1	----
Naphthalene	91-20-3	5	µg/L	----	<5	----	<5	----
EP074S: VOC Surrogates								
1,2-Dichloroethane-D4	17060-07-0	5	%	----	104	----	99.5	----
Toluene-D8	2037-26-5	5	%	----	121	----	124	----
4-Bromofluorobenzene	460-00-4	5	%	----	109	----	111	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	1.0	%	----	22.2	----	23.9	----
2-Chlorophenol-D4	93951-73-6	1.0	%	----	40.6	----	52.2	----
2,4,6-Tribromophenol	118-79-6	1.0	%	----	36.8	----	50.6	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	1.0	%	----	74.5	----	65.9	----



Analytical Results

Sub-Matrix: **WATER**
 (Matrix: **WATER**)

Client sample ID

				S-1	S-1	S-2	S-2	S-1
Client sampling date / time				28-Jul-2020 09:45	28-Jul-2020 09:45	28-Jul-2020 09:25	28-Jul-2020 09:25	28-Jul-2020 09:45
Compound	CAS Number	LOR	Unit	ES2025861-001	ES2025861-002	ES2025861-003	ES2025861-004	ES2025861-005
				Result	Result	Result	Result	Result
EP075(SIM)T: PAH Surrogates - Continued								
Anthracene-d10	1719-06-8	1.0	%	----	69.9	----	67.2	----
4-Terphenyl-d14	1718-51-0	1.0	%	----	70.7	----	66.0	----
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	2	%	----	110	----	105	----
Toluene-D8	2037-26-5	2	%	----	114	----	117	----
4-Bromofluorobenzene	460-00-4	2	%	----	104	----	109	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Client sample ID	S-2	----	----	----	----
Client sampling date / time					28-Jul-2020 09:25	----	----	----	----
Compound	CAS Number	LOR	Unit		ES2025861-006	-----	-----	-----	-----
				Result		----	----	----	----
EA005P: pH by PC Titrator									
pH Value	----	0.01	pH Unit		7.35	----	----	----	----
EA010P: Conductivity by PC Titrator									
Electrical Conductivity @ 25°C	----	1	µS/cm		135	----	----	----	----
EA025: Total Suspended Solids dried at 104 ± 2°C									
Suspended Solids (SS)	----	5	mg/L		5	----	----	----	----



Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP074S: VOC Surrogates			
1,2-Dichloroethane-D4	17060-07-0	78	133
Toluene-D8	2037-26-5	79	129
4-Bromofluorobenzene	460-00-4	81	124
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10	44
2-Chlorophenol-D4	93951-73-6	14	94
2,4,6-Tribromophenol	118-79-6	17	125
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	20	104
Anthracene-d10	1719-06-8	27	113
4-Terphenyl-d14	1718-51-0	32	112
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	71	137
Toluene-D8	2037-26-5	79	131
4-Bromofluorobenzene	460-00-4	70	128