ResourceCo RRF Pty Ltd

Water Management Plan

Wetherill Park RRF

March 2018

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Definitions

Term	Definition
Accredited laboratory	a testing laboratory accredited by the National Association of Testing Authorities, Australia (NATA) or a similar accreditation authority, or otherwise granted recognition by NATA, either solely or in conjunction with one or more other persons.
Applicant	ResourceCo RRF Pty Ltd
C&D	Construction and demolition
Construction and Demolition Waste	Waste arising from commercial or industrial premises, refurbishments and demolition and construction work
EfWP	NSW Energy from Waste Policy
EfWMP	Energy from Waste Management Plan
EIS	Environmental Impact Statement titled *Waste and Resource Management Facility* SSD 15-7256, ResourceCo Pty Ltd, 35-37 Franck Street, Wetherill Park, prepared by Nexus Environmental Planning Pty Ltd dated 8 March 2016
EMS	Environmental Management System
EPA	Environment Protection Authority
EPL	Environment Protection Licence issued by the EPA under the POEO Act
Load	the quantity of waste material delivered to the stockpile by truck, bin or trailer
Minister	Minister for Planning (or delegate)
NATA	National Association of Testing Authorities
OEMP	Operational Environmental Management Plan
Operation	The receipt, removal or processing of waste
PEF	Process Engineered Fuel
Personal Protective Equipment (PPE)	equipment and clothing that is used or worn by an individual person to protect themselves against, or minimise their exposure to, workplace risks. It includes items such as facemasks and respirators, coveralls, goggles, helmets, gloves and footwear
POEO Act	*Protection of the Environment Operations Act 1997*
PROC	Procedure
Processing	the complete recycling process, including inspection of incoming loads, removal of extraneous material, crushing and blending of different materials to create a recycled product.
QC	Quality control
RTS	Response to Submissions titled *Response to Submissions Waste and Resource Management Facility* SSD 15-7256, ResourceCo Pty Ltd, 35-37 Frank Street, Wetherill Park, prepared by Nexus Environmental Planning Pty Ltd, dated 28 November 2016
SOP	Standard operating procedure
Waste	As defined in the POEO Act and includes any materials receive or processed on the site

1. Introduction

1.1 Overview

ResourceCo RRF Pty Ltd (ResourceCo) is the operator of the Wetherill Park Resource Recovery Facility (the facility) located at 35-37 Frank Street, Wetherill Park.

The facility comprises a waste and resource management operation which processes relevant waste materials to recover products including aggregates, metal, timber and to manufacture solid recovered fuel (Processed Engineered Fuel or PEF).

This Water Management Plan (WMP) is one of a suite of plans that governs the operation of the facility.

1.2 Purpose

This WMP has been developed to:

- Detail water use, metering, disposal and management on-site
- Detail the water licence requirements
- Detail the arrangements for management of wastewater streams on-site including leachate and firewater
- Document the proposed Surface Water Management Plan including:
  - (i) the program to monitor:
    - Surface water flows and quality; and
    - Surface water storage and use
  - (ii) sediment and erosion control plans
  - (iii) surface water impact assessment criteria, including trigger levels for investigating potential adverse surface water impacts
  - (iv) a protocol for investigation and mitigation of identified exceedances of the surface water impact assessment criteria

The WMP provides an overall framework for water management during operation. It has been developed to satisfy the requirements of:

- Condition B22 of the Development Consent for SSD 7256 dated 10 April 2017
- the commitments made in the Environmental Impact Statement titled 'Waste and Resource Management Facility' SSD 15-7256, ResourceCo Pty Ltd, 35-37 Frank Street, Wetherill Park, prepared by Nexus Environmental Planning Pty Ltd dated 8 March 2016 (EIS)
- the commitments made in the Response to Submissions titled 'Response to Submissions Waste and Resource Management Facility' SSD 15-7256, ResourceCo Pty Ltd, 35-37 Frank Street, Wetherill Park, prepared by Nexus Environmental Planning Pty Ltd, dated 28 November 2016 (RTS)
- ResourceCo's Environmental Management System (EMS), including ISO14001
- applicable legislation and regulatory requirements
- requirements of relevant government agencies

In the event of any inconsistency in the above documents, the Development Consent prevails.

1.3 Project description

The Waste and Resource Management Facility Project, as defined in the EIS includes the following key built elements:

- Industrial sheds for housing the facility operations
- Processing equipment capable of converting up to 250,000 tonnes of relevant waste materials per year into approximately 150,000 tonnes of PEF and over 75,000 tonnes of reusable commodities such as metal, aggregates and timber.
- Workshop, office and staff amenities
- Vehicular access and internal roadways, weighbridge and 42 car parking spaces in two car parking areas
- Stormwater management system for collection of water for reuse in the processing system, and dust suppression or treatment and discharge from the site, including a 300 kL underground stormwater storage tank and two above ground tanks with combined capacity of 27 kL.
- 30 kL diesel fuel tank

1.4 Environmental management system

1.4.1 ResourceCo corporate EMS

This WMP has been developed and will be implemented in accordance with ResourceCo's corporate EMS. This EMS has been developed, implemented and certified in accordance with the International Standard for Environmental Management Systems AS/NZS ISO 14001 (Certification No. 2012017).

Throughout the operation of the facility, ResourceCo will undertake periodic reviews and audits of the works to ensure the corporate commitments are fulfilled. ResourceCo's EMS, as implemented at the facility, will be periodically audited as part of the corporate EMS re-certification and ongoing validation process.

1.4.2 Wetherill Park Resource Recovery Facility OEMP

This WMP is a sub-plan to the Wetherill Park Resource Recovery Facility Operational Environmental Management Plan (OEMP). The OEMP is based on the ISO14001 Environmental Management System, which provides for continual improvement in environmental performance.

The OEMP is intended as an over-arching environmental management document that forms the basis for development of detailed sub plans (such as this) and procedures for managing specific environmental aspects and impacts. It includes a number of subordinate environmental planning and management instruments (e.g. sub plans, procedures, instructions, forms etc.) that will be implemented during operation of the facility.

The scope and interaction of this document within the OEMP document framework is illustrated in Figure 1.

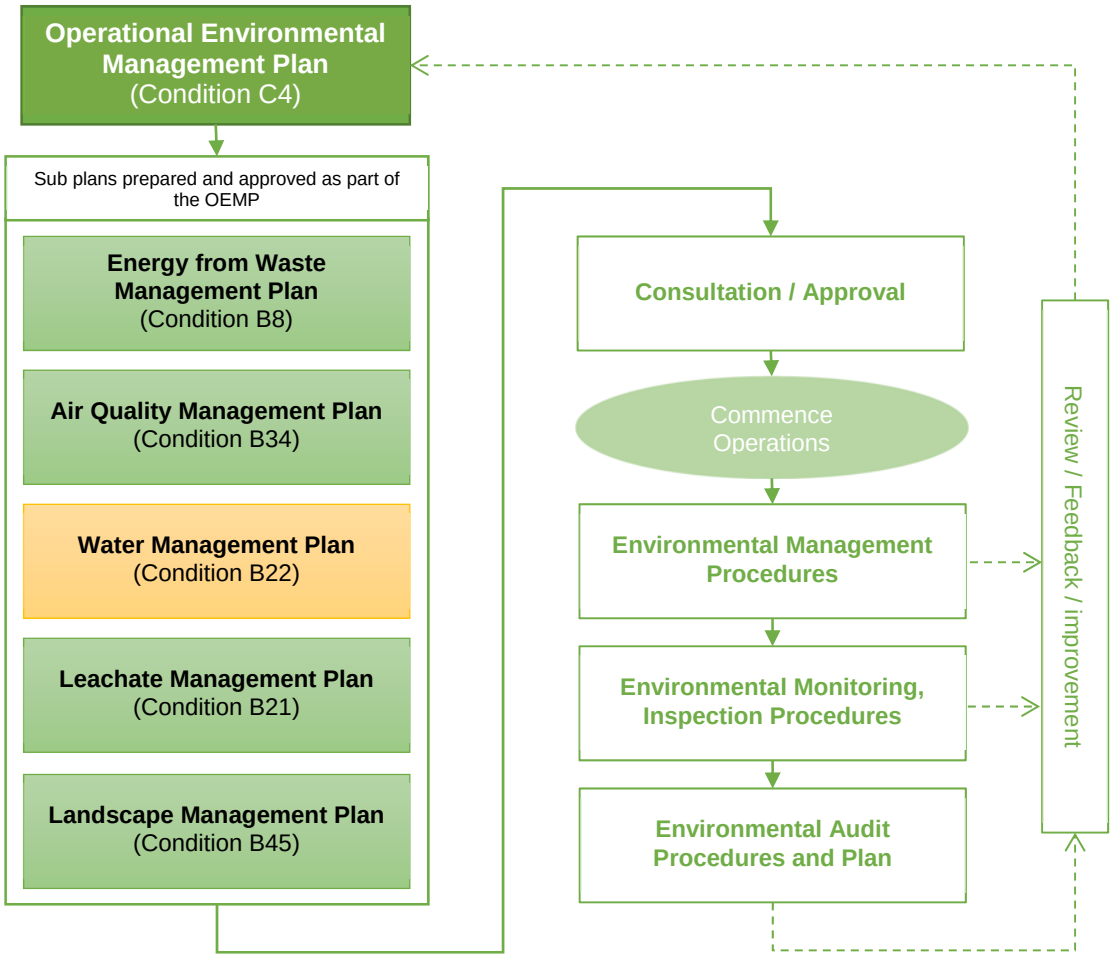


Figure 1 Operational environmental management document structure

1.4.3 Sub plans

In accordance with the Conditions of Approval, a number of sub plans are required to document ResourceCo's management approach to identified risks (e.g. air quality, water and leachate). These sub plans identify potential impacts as they relate to the operation of the facility (as defined in the EIS and RTS) and outline the physical and management safeguards, mitigation measures, responsibilities and monitoring requirements to be implemented to minimise potential impacts on the environment.

The sub plans (including this plan) required according to the Conditions of Approval are shown in Figure 1. Additionally this shows the sub plans that are to be approved as part of the OEMP and those that are to be approved and/or consulted upon separately.

1.4.4 Procedures and forms

In addition to the environmental management documents nominated above, ResourceCo uses a suite of additional processes and procedures for its EMS. These management tools (described below) are referred to in this WMP and/or the individual sub plans:

- Procedures (PROC) and Safe Operating Procedures (SOP) – provide instructions to ResourceCo staff and subcontractors to guide the completion of tasks required during the operation of the facility. The implementation of these PROCs and SOPs will ensure consistency in approach and quality of results. Specific procedures are developed for management issues including Job Safety and Environmental Analysis (JSEA) for reviewing

works to identify hazards and appropriate control measures, and environmental monitoring etc.

- Environment-related forms (FORM) are used to document environmental issues, actions and/or performance against requirements. Typical forms include incident reporting, inspection checklists, audit protocols, complaints/feedback reports etc.

1.5 Consultation and approval process

1.5.1 WMP compliance with the Conditions of Approval

Table 1 lists the key requirements of Condition B22 and indicates where these requirements are addressed within this WMP or other documents.

Table 1 Conditions of Approval requirements

Condition requirements	Response/reference
Condition B22	
Prior to the commencement of operations, the Applicant must prepare a Water Management Plan. The Water Management Plan must:	
(a) form part of the OEMP required by Condition C4 and be prepared in accordance with Condition C6	
(b) be prepared in consultation with DPI	Section 1.5.2
(c) detail water use, metering, disposal and management on-site	Section 2
(d) detail the water licence requirements for the development	Section 2
(e) detail the management of wastewater streams on-site, including leachate and firewater	Section 2.3
(f) contain a Surface Water Management Plan, including:	Section 3
(i) a program to monitor: • Surface water flows and quality • Surface water storage and use	
(ii) sediment and erosion control plans	
(iii) surface water impact assessment criteria, including trigger levels for investigating potential adverse surface water impacts	
(iv) a protocol for the investigation and mitigation of identified exceedances of surface water impact assessment criteria	

1.5.2 Consultation and approval

In accordance with Condition B22, this WMP is required to be prepared in consultation with the DPI.

A draft version of this document was sent to the NSW Department of Primary Industries for review and comment. NSW Department of Primary Industries provided a response (Appendix C) which indicated that it has no regulatory role with respect to collection of roof runoff and encourages the beneficial reuse of this water. In its response, NSW Department of Primary Industries also indicated that it has no comments on the testing regime outlined.

2. Water use, metering, disposal and management on-site

2.1 Water demand and water use

2.1.1 Water demand

Table 2 summarises the estimated daily water demands for each month of the year. The key water demands include:

- Process water
- Toilet flushing
- Landscape watering

Where monthly rainfall is expected to exceed evapotranspiration, it is assumed that no landscape watering is required.

Table 2 Daily water demands

Month	Processing Use (kL/day)	Toilet Flushing (kL/day)	Landscape Watering (kL/day)
Jan	55.9	0.84	0.47
Feb	54.6	0.84	0.19
Mar	50.5	0.84	0.08
Apr	43.4	0.84	0.00
May	33.1	0.84	0.00
Jun	19.9	0.84	0.00
Jul	16.5	0.84	0.00
Aug	29.0	0.84	0.18
Sep	39.3	0.84	0.45
Oct	47.6	0.84	0.57
Nov	51.7	0.84	0.54
Dec	55.9	0.84	0.74

2.1.2 Rainwater re-use

Apart from a minor volume of water for amenities, the facility is expected to require about 15.5 ML of water per year of which an average of 4.82 ML per year (31%) would be provided by rainwater as follows:

- Process water supply of 30% from rainwater (4.49 ML/year)
- Toilet flushing and landscape water supply of 82% from rainwater (0.33 ML/year).

2.2 Water management and disposal

2.2.1 Stormwater drainage

In accordance with the requirements of Fairfield City Council, no on-site detention of stormwater is required.

The stormwater drainage system includes a below ground pit and pipe network designed to control nuisance flooding and enable effective stormwater management for the site. The piped

system has been designed to convey runoff from 20 year average recurrence interval (ARI) storm.

A combination of grated inlet pits and side entry pits will be used on the site.

The majority (98%) of the new pit and pipe network connects to the 900 mm diameter stormwater line located at the north-west corner of the site. The remainder of the pit and pipe network will discharge directly to the kerb on Frank Street.

For storms larger than 20 year ARI up to 100 year ARI, the drainage system incorporates overland flow routes over proposed hardstand, car parking and landscaped areas which have been designed to ensure that personal safety is not compromised.

In this case, overland flows are designed to drain to the south where they can safely exit the site onto Frank Street via the access road.

Roof water from the production building drains to an underground rainwater harvesting tank (300 kL) located under the roadway on the northern side of the facility. Roof water from the office and workshop building drains directly to an above ground rainwater tanks (capacity 27 kL). Overflows from the 27 kL tank will be conveyed by the surface stormwater collection system to the northern end of the site.

The stormwater drainage plan is provided in Drawings TX-11972.00-C10 and TX-11972.000C11 in Appendix A.

All stormwater drains/pits on the site will be provided and maintained with the message “This pit drains to the Georges River”. Lettering will be 100 mm high block bold yellow painted lettering. Paints used will be of road line marking standard.

2.2.2 Stormwater pollution control

The proposed stormwater quality improvement measures are shown in Drawings TX-11972.00-C10 and TX-11972.000C11 in Appendix A.

Stormwater pollution controls include a series of treatment devices:

- HumeGard HG18 GPT
- Humes JellyFish JF3000-19-4 Filter
- Ecosol RSF100 litter baskets

2.3 Management of wastewater streams

2.3.1 Fire water containment

In the instance of a fire event, the facility design will cater for the containment of contaminated fire services water on site. Contaminated fire services water is to be removed from the site by vacuum truck. Refer to the Leachate Management Plan for details.

2.3.2 Leachate management

The waste materials received into the site will be dry in nature and will all be stored under cover in the manufacturing building. There will be no waste materials stored outside. In the rare instance that materials received into the manufacturing process release leachates, for example if a non-conforming load of wet waste is delivered, the design of the receiving slab levels caters for an effectively bunded area that grades to dry sumps within the receiving area.

The dry sumps will be emptied via vacuum trucks and any leachates removed from the site to an appropriately licensed disposal facility. Refer to the Leachate Management Plan for details.

2.4 Metering

The facility will be connected to the potable water supply.

2.5 Water licence requirements

Nil.

3. Surface Water Management Plan

3.1 Plan objective and approach

This Surface Water Management Plan is to define the surface water monitoring program to be conducted through the operational life of the development, meeting the requirements of development approval documentation, commitments, and requirements as listed in Section 1.2. Specifically, this monitoring program has been prepared in response to the requirement B22(f) of Development Consent (Application no. SSD 7256; File reference no. 15/13400) and requirements from Conditions O4.1 and O4.2 of NSW EPA General Terms of Approval (GTA) – Issued for the site (notice no. 1545129).

Site operational life for surface water management consists of three stages: pre-commissioning, commissioning, and ongoing operations. The purpose of the pre-commissioning stage is to characterise upstream water quality. The purpose of the commissioning stage is to characterise stormwater discharge to assist in assessing performance of the surface water pollution controls. The purpose of the less intensive ongoing operations stage is to assist in ensuring the ongoing performance of site surface water management.

As such, the monitoring program detailed in below Sections 3.2 through 3.8 was developed considering site operations and surface water storage, reuse, flow and quality, with sediment and erosion control plans are presented in Appendix B. This program was developed to provide the data necessary for assessment of site surface water management performance.

The findings of this program will be used to assist in stormwater management including the management of runoff contamination of surface water, the management of site flooding and minimising impacts to downstream flow conditions.

3.2 Surface water drainage and monitoring locations

The drainage of surface water at the site is discussed in Section 2.2.1 and includes stormwater conveyance to the 900 mm stormwater culvert in the adjacent drainage easement and to the Council's street kerb/gutter[1], designed as detailed in Triaxial Consulting letter report (dated 6 September 2016) and drawings TX-11972.00 – C2.0, – C2.1 and – C2.2 Issue C (refer Appendix A). Surface water management at the site is summarised as follows:

- **Overland flow to site infrastructure |** The majority of the site (approximately 98% of property area) drains runoff over impervious areas to pits and piping conveying stormwater by gravity away from the process area of the site and to the northwest property boundary stormwater pollution controls (i.e., gross pollutant trap and jellyfish membrane filter). This flow is then conveyed by gravity through to the junction box (identified as 'JB1') connection to the downstream 900 mm diameter culvert in the stormwater drainage easement.
- **Overland flow to off site infrastructure |**The southwest corner of the property (approximately 2% of property area) drains runoff via the site access road to the Council's adjacent Frank Street stormwater infrastructure through grated inlet pits with pollution controls (i.e., litter baskets). The southwest corner of the property is away from the manufacturing building, separated also by dry sumps and capture pits, and is thereby anticipated to drain only relatively clean rainfall runoff.
- **Roof water from office and workshop/service building |** Runoff drains to two above ground rainwater tanks (combined capacity of 27 kL) prior to overflow draining by gravity to

[1] In accordance with Development Consent requirement B19 (in line with Council's Stormwater Drainage Policy).

the above-noted pits/piping and discharging off site through JB1 to the 900 mm diameter culvert in the stormwater drainage easement.

- **Roof water from manufacturing building |** Runoff drains to one below ground rainwater tank (capacity of 300 kL) for reuse as part of the manufacturing operations. Overflow from this tank is conveyed by gravity to a junction box ahead of JB1, prior to discharging off site through JB1 to the 900 mm diameter culvert in the stormwater drainage easement.

The downstream 900 mm diameter circular stormwater drainage easement culvert conveys site and other upstream area stormwater runoff approximately 0.35 km to an open surface water canal. The canal conveys water from this point east then south approximately 0.90 km to Prospect Creek.

The monitoring locations for the site are proposed based on the site surface water management, as summarised above and to characterise the majority of runoff (approximately 98%). These site water quality sampling locations are listed below and are shown on drawing TX-11972.00 – C2.2 Issue C, provided as Appendix A.

- **Upstream** – within drainage easement at point the entry point to the 900 mm diameter culvert, adjacent to the NW corner boundary of the site.
  (sampled approximately 65 m upstream of the location where site runoff enters the easement pipe).
- **Site discharge** – within junction box ahead of JB1 to sample all runoff discharged from the site at this location

The monitoring of the upstream location would allow for understanding of the water quality in the receiving system. Configuration of this sampling location would be confirmed during detailed design to allow safe and effective sampling.

The monitoring of water quality for the clean rainfall runoff (approximately 2%) from the southwest corner of the property is not deemed required based on the small catchment of this area and lower quality risk posed by this area.

The findings of water quality monitoring will provide data to inform the assessment of site surface water management performance. With regard to monitoring of surface water flow rates and volumes, runoff from the site is conveyed by gravity to the area 900 mm stormwater drainage easement. As such, the direct measurement of this flow rate is not practicable. The site staff will collect as appropriate rainfall records for the applicable to the area. Using these records and if required by the NSW EPA, calculations of estimated volume discharged from the site could be performed. Separately, the water reused from the 300 kL rainwater tank will be conveyed to the manufacturing facility by pumping and this flow may be measured and logged as part of operations.

3.3 Monitoring analytes and rationalisations

Surface water monitoring will include water quality sampling and analyses specific to the development. The development is for a waste and resource management facility to convert waste materials into commodities for reuse (e.g., metal, timber, concrete, bricks, rubble and soil) and process engineered fuel (e.g. timber and plastics for solid fuel in cement kilns). Considering these operations, the site-specific stormwater and leachate related analytes are listed in Table 3.

Table 3 Monitoring analytes

Surface water management (stormwater and leachate analytes)	
Field parameters	***Metals (dissolved and total)***
Electrical conductivity (µS/cm)	Aluminium
Oxidation-reduction potential (ORP)	Arsenic
pH	Boron
Temperature	Cadmium
Turbidity	Chromium
General chemistry parameters	Cobalt
Anions (i.e., total alkalinity as $CaCO_3$, sulfate and chloride)	Copper
Biochemical oxygen demand	Iron
Cations (i.e., calcium, magnesium, sodium and potassium)	Lead
Dissolved organic carbon	Manganese
Hardness	Mercury
Total dissolved solids	Nickel
Total suspended solids	Selenium
Hydrocarbons	Zinc
Total recoverable hydrocarbons (C6-C40) (includes volatile organic compounds)	***Nutrients***
Benzene, toluene, ethylbenzene, xylene and naphthalene (BTEXN)	Ammonia
Polycyclic aromatic hydrocarbons (PAHs)	Nitrite and nitrate
Other parameters	Total Kjeldahl nitrogen (TKN)
Oil and grease	Total nitrogen
Organochlorine pesticides (suite of 15 analytes)	Total phosphorous
Organophosphate pesticides (suite of 11 analytes)	

Sampling for above-noted site-specific analytes will assist in the evaluation of surface water management performance as detailed in below Section 3.5. Should the water quality findings indicate analyte concentrations consistently at less than 50 percent of the defined site performance benchmarks (refer below Section 3.5) or less than the limit of reporting, discontinuing sampling for the analyte may be warranted.

3.4 Monitoring frequency and methods

The requirements of this monitoring program are generally to assess and minimise site-related potential surface water impacts to downstream surface water conditions. The overall site stormwater management comprises stormwater capture, conveyance, filtration, and discharge to the stormwater drainage easement. Given the impervious nature of the development (e.g., paved surfaces and building roofs), rainfall events will cause immediate runoff which ceases shortly after the event. Further, potential contaminants are likely to be contained at onset of rainfall runoff. As such, site-related potential surface water impacts would be limited to rainfall events with contaminants primarily present at onset. As such, event-based single water quality sampling is appropriate and deemed an appropriate approach.

3.4.1 Frequency

Given the site-related potential surface water risks are greater during rainfall events (and particularly at the initial stages of rainfall), this monitoring program's rainfall event-based monitoring frequency has been set as listed below, for the pre-commissioning, commissioning and ongoing operations monitoring stages with additional spill event-based monitoring. The

monitoring methods are subsequently discussed. This staged monitoring program satisfies requirements from Conditions O4.1 and O4.2 of NSW EPA GTA.

A key concept in defining the proposed monitoring frequency is a specified site sampling trigger as defined below for the staged monitoring and spill monitoring:

- **Staged Monitoring Site Sampling Trigger |** More than 5 mm of rainfall recorded by an onsite meteorological station during operating hours of any one day. Once rainfall exceeding 5 mm is observed, trained site staff will access the monitoring location on a half-hourly basis during operational hours. The trigger is activated on first instance of runoff being observed at the monitoring location.
- **Spill Monitoring Site Sampling Trigger |** Spill event where trained site staff have observed a spill conveyed to the site surface water management system and/or when a spill occurs during a rainfall event.

Water sampling will be undertaken by trained site staff. It is deemed appropriate for trained site staff to undertake water sampling activities as the frequency for sampling is related to rainfall and/or spills during operational hours. This approach is considered appropriate for mitigation of inherent health and safety risks (water sampling in daylight and with other staff present onsite) and to provide the data necessary to assess surface water management (and leachate management performance (refer also Leachate Management Plan).

Pre-commissioning stage

Monitoring for the pre-commissioning stage will be following construction and be conducted for a duration of up to 12 months, prior to the commissioning stage. This monitoring will provide characterisation of upstream water quality and data to assist in deriving the site-specific performance benchmarks (refer Section 3.5). The end of the pre-commissioning stage will be triggered by achieving establishment of the site to the point where the site discharge monitoring location is installed (refer Table 5) The maximum length of the pre-commissioning stage will be 12 months.

The monitoring frequency for the pre-commissioning stage is listed in below Table 4 and is proposed only during site operational hours.

Table 4 Monitoring frequency – pre-commissioning stage

Location	Frequency
Upstream	When Site Sampling Trigger is activated at Upstream location with a maximum of one sampling event per month

The findings of the pre-commissioning stage may have implications for performance benchmarks as deemed appropriate for the ongoing operations.

Commissioning stage

Monitoring for the commissioning stage will be started once the pre-commissioning stage is completed, that is, after establishment of the site to the point where the site discharge monitoring location is installed. This lead in time will allow for manufacturing operations to have been fully implemented and assist in providing a more complete characterisation of site surface water management and performance. This monitoring will also provide data to assist in deriving the site-specific performance benchmarks (refer Section 3.5). It will continue until 12 months following construction (that is, the combined duration of the pre-commissioning and commissioning stage will be 12 months) at which point the ongoing operations stage begins.

The monitoring frequency for the commissioning stage is listed in below Table 5.

Table 5 Monitoring frequency – commissioning stage

Location	Frequency
Upstream	When Site Sampling Trigger is activated at Site Discharge location with a maximum of one sampling event per month
Site discharge	

The findings of the commissioning stage will inform any changes to sampling analytes, frequency and methods deemed appropriate for the ongoing operations.

Ongoing operations stage

Monitoring for the ongoing operations stage will be started following the commissioning stage. This monitoring will assist in demonstrating continued surface water management performance. The monitoring frequency and methods for this stage are listed below and may be initially modified as deemed appropriate (and approved by the NSW EPA) based on the findings of the commissioning stage.

The monitoring frequency for the ongoing operations stage is listed in below Table 6.

Table 6 Monitoring frequency – ongoing operations stage

Location	Frequency
Upstream	When Site Sampling Trigger is activated at Site Discharge location with a maximum of one sampling event per six months
Site discharge	

The findings of the ongoing operations stage will inform any changes to the site surface water management system (and leachate management system; refer Leachate Management Plan) deemed appropriate for achieving required performance.

Spill

Monitoring for spills will occur should there be a spill. The monitoring frequency is listed in below Table 7.

Table 7 Monitoring frequency – spills

Location	Frequency
Upstream	On each occasion of the Spill Monitoring Sampling Trigger being activated
Site discharge	

This monitoring will primarily assist in assessing any potential site related impacts to downstream surface water conditions.

3.4.2 Methods

Water sampling will be undertaken by trained site staff, for health and safety purposes and the per the rainfall and/or spill event-based monitoring frequency, as noted in Section 3.4.1. The following sampling methods will be used by trained site staff for this monitoring program, also to include the quality assurance and quality control (QA/QC) program methods detailed in below Section 3.7.

- **Collection |** Disposable bailer or grab sampler for sample collection (selected for safe sampling). Samples are to be field filtered as required and immediately placed into laboratory prepared bottles, based on the monitoring analytes/laboratory analyses.
- **Identification/Preservation |** Sample bottles are to be labelled with the task number, sample identification number, sampler and collection time and date. Sample bottles are to be placed immediately into ice-filled coolers for preservation.
- **Custody |** Samples are to be accompanied with completed chain of custody documentation to the analytical laboratory, submitted with consideration for sample holding times and

required analyses (e.g., 12 hours maximum holding time from collection to analysis for dissolved sulphide, per Australian Government National Measurement Institute publication no. 17-COM1468).

3.5 Treatment performance benchmarks and investigation

The Development Consent and NSW EPA GTAs generally require the identification of treatment performance benchmarks.

The NSW Department of Planning and Environment approved the development on the basis of pollutant reduction criteria, considering a Triaxial Consulting letter report (dated 6 September 2016) submitted as part of Development Consent Application no. SSD 7256 (File reference no. 15/13400). The Triaxial Consulting letter report includes MUSIC modelling for the development's surface water management approach with pollution control device treatment train (i.e., Humes HumeGard HG18 GPT and Humes JellyFish JF3000-19-4 Filter). This modelling showed the pollution control devices are suitable for meeting Council requirements of pollutant reduction and therefore treatment performance as shown in Table 8.

Table 8 MUSIC Modelling Results (Triaxial Stormwater Addendum Report 6/09/2016)

Pollutant	Reduction Target (%)	Proposed Development Reduction (%)
Total Suspended Solids	85	88
Total Phosphorus	65	66
Total Nitrogen	45	60.7
Gross Pollutants	90	99.3

As such, it is considered appropriate to consider the pollutant reduction criteria as performance benchmarks, with these benchmarks being satisfied through the provision of the proposed treatment train, as demonstrated by the MUSIC modelling.

However, it is not possible to demonstrate compliance with these benchmarks through water quality sampling as this would require monitoring of concentrations and flow rates continuously and instantaneously for all discharges. Furthermore the NSW EPA GTAs specifically note benchmarks are to be derived with reference to the relevant ANZECC (2000)[2] guidelines however the pollutant reduction criteria are not directly comparable to the ANZECC (2000) procedures. At this stage insufficient water quality data is available to derive site specific trigger values in accordance with the ANZECC procedures, and adoption of default ANZECC values is not considered appropriate on the basis that these default values generally represent ambient objectives and not necessarily discharge limits.

In summary, pollution reduction criteria are considered as appropriate benchmarks based on the project approval, however they cannot be monitored and are not directly comparable to the ANZECC (2000) procedures that are noted in the EPA GTAs. Insufficient data is currently available to set concentration benchmarks based on the ANZECC (2000) procedures.

As such, it is proposed that the satisfaction of the pollutant reduction criteria, as previously demonstrated, supports deferring the derivation of concentration based benchmarks in accordance with the ANZECC guidelines

[2] ANZECC (2000) – National Water Quality Management Strategy, Paper No. 4, Australian and New Zealand Guidelines for Fresh and Marine Water Quality, October 2000, Australian and New Zealand Environment and Conservation Council (ANZECC) and Agriculture and Resource Management Council of Australia and New Zealand.

Therefore, the ongoing performance benchmarks will be derived, based upon data, at completion of the commissioning stage when more water quality data (12 months of data) is available.

The water quality sampling results collected during the pre-commissioning and commissioning stages of monitoring would be used along with reference to the ANZECC guidelines to derive the performance benchmarks for use during the ongoing operations stage. These benchmarks would provide water quality analysis triggers for further investigation of site performance during the operations stage.

It is noted that the ANZECC guidelines typically require 24 months of data to develop site specific trigger values. Derivation of values is proposed in this instance based on 12 months of data. This is based on input provided by NSW Department of Planning and Environment stating that a shorter period would be preferable, on the basis that leaving the site without trigger values for a longer period of time is undesirable. Therefore, based on the ANZECC guidelines the trigger values may be refined after 24 months of data is available, should 12 months of data be deemed to be non-representative of longer term conditions.

The trigger based investigation approach will assist in conducting timely evaluations of treatment performance and in identifying the need for further investigation and potential mitigation (refer below Section 3.6).

The investigation of surface water management performance (and leachate management performance) is proposed for the ongoing operations stage, to be conducted using the following Investigation Steps should an exceedance in the performance benchmarks be observed:

1. Record occurrence of performance benchmark exceedance.
2. Assess available historical upstream and discharge results for analyte trending and to potentially derive site-specific trigger values.
3. Conduct/record field observations of pollution control devices, qualitatively assess whether any issues identified may have contributed to observed exceedance, and perform/enhance maintenance as appropriate.
4. Should there be a consecutive exceedance (observed during subsequent sampling event per monitoring frequency), perform above Investigation Step 3 and consider the need to sample at additional monitoring location ahead of pollution control devices[3] to confirm treatment performance.

The findings of the above investigation should identify the need for potential additional mitigation measures, to be developed in line with below Section 3.6.

3.6 Mitigation

The findings of this monitoring program will be used to confirm the pollutants of concern for the site, the sources of these pollutants, the performance of the pollution control devices and any subsequent mitigation measures which may be deemed required. The development of potential mitigation measures should therefore be based on investigation of findings exceeding performance benchmarks (refer above Section 3.5) and include a timeframe for implementation dependent on the investigation and significance of the findings, in line with the NSW EPA GTA – Issued Condition O4.1f).

Preliminary mitigation measures which could be implemented to assist with performance of site surface water management are listed below.

[3] Additional monitoring location – side entry pit SEP6 as per drawing TX-11972.00 – C2.2 Issue C, provided as Appendix A.

- Cleaning of the site impervious areas
  (to reduce any residual pollution being potentially conveyed to surface water)
- If a particular material is considered to be the potential source identified issues it will be relocated to a location undercover to eliminate the risk to water quality
- Enhanced maintenance/replacement of pollution control device components
  (to improve treatment and help ensure pollutant capture)
- Further sampling of water quality upstream of treatment devices to assess the performance of the treatment system.

3.7 Quality assurance and quality control

A water quality sampling QA/QC program will be implemented. This QA/QC program has been developed with consideration for data quality indicators (DQI) that form the basis of assessing whether the data is of sufficient quality on which to base decisions regarding contamination and performance.

3.7.1 Data quality indicators

To minimise the potential for decision errors, DQIs have been established, for completeness, comparability, representativeness, precision and accuracy.

The DQIs for sampling techniques and laboratory analysis of collected samples identify the acceptable level of error. Data quality objectives will be assessed by reference to data quality indicators as outlined in Table 9. These DQIs have informed the QA/QC program and the development of the sampling program.

Table 9 Data quality indicators

DQI	Limits
Data representativeness	Expresses the degree which sample data accurately and precisely represent a characteristic of a population or an environmental condition. Representativeness is achieved by collecting samples in an appropriate pattern across the site, and by using an adequate number of sample locations to characterise the site. Consistent and repeatable sampling techniques and methods are utilised throughout the sampling.
Completeness	Defined as the percentage of measurements made which are judged to be valid measurements. The completeness goal is set at there being sufficient valid data generated during the study. If there is insufficient valid data, then additional data are to be collected.
Comparability	A qualitative parameter expressing the confidence with which one data set can be compared with the other. This is achieved through maintaining a level of consistency in techniques used to collect samples and ensuring analysing laboratories use consistent analysis techniques and reporting methods.

DQI	Limits
Precision	Measures the reproducibility of measurements under a given set of conditions. The precision of the data is assessed by calculating the Relative Percent Difference (RPD) between duplicate sample pairs. $RPD(\%) = \frac{\lvert C_o - C_d \rvert}{C_o + C_d} \times 200$ Where Co = Analyte concentration of the original sample Cd = Analyte concentration of the duplicate sample GHD adopts a nominal acceptance criterion of ± 30% RPD for field duplicates and splits for inorganics and a nominal acceptance criterion of ± 50% RPD for field duplicates and splits for organics. This is not always achievable however, particularly at low analyte concentrations.
Accuracy	Quantifies the bias in an analytical measurement system. Accuracy can be undermined by such factors as field contamination of samples, poor preservation of samples, poor sample preparation techniques and poor selection of analytical techniques by the analysing laboratory. Accuracy is assessed by reference to the analytical results of laboratory control samples, laboratory spikes, laboratory blanks and analyses against reference standards. The nominal "acceptance limits" on laboratory control samples are defined as follows: • Laboratory spikes | Recovery of 70-130% (metals/inorganics) and 60-140% (organics) • Laboratory duplicates | If contaminant concentration is less than 10 times the PQL: no RPD limit applied; if concentration 10-20 times the PQL: 0-50% RPD limit; and if greater than 20 times the PQL: 0-20% RPD limit • Laboratory surrogates (organics only) | 60-140% recovery • Laboratory blanks | < PQL

3.7.2 QA/QC program

The QA/QC program consists of field and laboratory quality control as detailed below.

Field quality control

All fieldwork will be conducted using a set of uniform and systematic methods. Key requirements of these procedures are as follows:

- **Training \|** Appropriately trained samplers are to document site activities using photographs/notes on standard field forms such as daily site records and sampling logs;
- **Calibration \|** All field monitoring equipment are to be appropriately calibrated;
- **Identification/Preservation \|** Sample bottles are to be labelled with the task number, sample identification number, sampling technician and collection time and date. Sample bottles are to be placed immediately into ice-filled coolers for preservation.
- **Custody \|** Samples are to be accompanied with completed chain of custody documentation to the analytical laboratory, submitted with consideration for sample holding times and required analyses (e.g., 12 hours maximum holding time from collection to analysis for dissolved sulphide, per Australian Government National Measurement Institute publication no. 17-COM1468).
- **Decontamination \|** Decontamination procedures are to include the use of new disposable gloves for the collection of each sample, decontamination of the sampling

equipment between each sampling location using appropriate decontamination solution and the use of dedicated sampling containers provided by the analytical laboratory; and

Before commencement of a sampling program, training in these field quality control procedures is to be provided by an appropriately qualified and experienced person, with a register of all staff having undertaken the training recorded. All staff undertaking the sampling program are to have undertaken the training. This training would also involve instruction on standard sampling, decontamination and filtration methods, including guidance on how to avoid zinc contamination which is commonly associated with plastic sampling equipment. Training would also involve instruction on the collection of duplicate and blank samples.

Field quality control procedures to be used during the project comprise the collection and analysis of the following:

- **Blind duplicate sample pairs |** Comprise a single sample that is divided into two separate sampling containers. Both samples are to be sent 'anonymously' to the analytical laboratory. Blind duplicates provide an indication of the analytical precision of the laboratory, but are inherently influenced by other factors such as sampling techniques and sample media heterogeneity;
- **Trip Spikes |** Surrogate compounds are 'spiked' into blanks, standards and samples submitted for organic analyses. Trip spikes provide a means of checking that no gross errors have occurred during any stage of the test method leading to significant analyte loss and are included with the samples in the field during collection; and
- **Rinsate blanks |** Comprise a sample of deionised water rinsed over multiple use sampling/monitoring equipment following decontamination and rinsing. Rinsate blanks provide an indication of the potential for cross contamination between sample locations and should return concentrations of the contaminant of potential concern (COPC) below laboratory detection limits.

The above field quality control procedures would be implemented as part of the first sampling round of the program and again as part of the first sampling round occurring after the program has been underway for six months.

Laboratory quality control

The engaged analytical laboratory will employ National Association of Testing Authorities (NATA) accredited methods in accordance with their quality assurance system. Standard laboratory quality control procedures to be used during the project are summarised in Table 10.

Table 10 Laboratory quality control

Method	Quality control
Laboratory duplicate samples	The analytical laboratory collects duplicate sub samples from one sample submitted for analytical testing at a rate equivalent to one in twenty samples per analytical batch, or one sample per batch if less than twenty samples are analysed in a batch. A laboratory duplicate provides data on the analytical precision and reproducibility of the test result.
Spiked samples	An authentic field sample is 'spiked' by adding an aliquot of known concentration of the target analyte(s) prior to sample extraction and analysis. A spike documents the effect of the sample matrix on the extraction and analytical techniques. Spiked samples will be analysed for each batch where samples are analysed for organic chemicals of concern.
Certified reference standards	A reference standard of known (certified) concentration is analysed along with a batch of samples. The Certified Reference Standard (CRS) or Laboratory Control Spike provides an indication of the analytical

Method	Quality control
	accuracy and the precision of the test method and is used for inorganic analyses.
Surrogate standards/spikes	These are organic compounds which are similar to the analyte of interest in terms of chemical composition, extractability, and chromatographic conditions (retention time), but which are not normally found in environmental samples. These surrogate compounds are 'spiked' into blanks, standards and samples submitted for organic analyses by gas-chromatographic techniques prior to sample extraction. Surrogate Standard/Spikes provide a means of checking that no gross errors have occurred during any stage of the test method leading to significant analyte loss.
Method blanks	Usually an organic or aqueous solution that is as free as possible of analytes of interest to which is added all the reagents, in the same volume, as used in the preparation and subsequent analysis of the samples. The reagent blank is carried through the complete sample preparation procedure and contains the same reagent concentrations in the final solution as in the sample solution used for analysis. The reagent blank is used to correct for possible contamination resulting from the preparation or processing of the sample. Laboratory duplicate samples should return RPDs within the acceptance criteria of ±30% per the National Environment Protection Council's (NEPC's) National Environment Protection (Assessment of Site Contamination) Measure. Percent recovery is used to assess spiked samples and surrogate standards. Percent recovery; although dependent on the type of analyte tested, concentrations of analytes and sample matrix; should normally range from about 70-130%. Method (laboratory) blanks should return analyte concentrations as 'not detected'.

3.8 Sediment and erosion control plans

Prior to any earthworks commencing on site, erosion and sediment control measures will be but in place.

Construction erosion and sediment control plans have been prepared in accordance with *Managing Urban Stormwater: Soils and Construction* (Landcom, 2004). The plans are attached in Appendix B. Sediment control will take place in two stages during construction to ensure that there is adequate control at all stages of construction.

The stormwater harvesting tank will be used for sediment control as part of Stage 2. This will ensure there is sediment control even when the last sections of external pavement are being constructed. The waste from this will be removed off site for disposal to a licensed facility.

4. Records and reporting

4.1 Reporting

Environmental management records generated will be identified, collected and stored in accordance with ResourceCo's quality management system. Reporting and review will include the following:

- Summary of water quality monitoring results to the EPA as part of Annual Return for EPL.
- Exceedances of EPL conditions will be reported at toolbox or site meetings
- A record of all inspections will be kept on file

4.2 Record keeping

Monitoring results and records generated will be identified, collected and stored in accordance with ResourceCo's quality management system.

6. Review and improvement

6.1 Review of the Water Management Plan

The WMP will be reviewed on a regular basis to ensure that it accurately reflects the ResourceCo EMS and conforms to applicable legislative and other requirements. The frequency of review will be at least annually as part of the OEMP review, or more frequently, as a result of a significant non-conformance or as directed by the Secretary of the Department of Planning and Environment or other authority.

At the conclusion of the review process, any recommendations for change, or improvement, to EMS will be reflected through amendments to the relevant system element including the OEMP, other sub plans, procedures or forms.

An assessment will be undertaken of the proposed documentation change against the Conditions of Approval (including development consent, EIS and RTS).

Minor changes to the documentation will be recommended by the appropriate manager. The revised documents will be managed in accordance with ResourceCo's quality management system – including document control and communication of changes to relevant staff.

Major documentation changes to the documentation will be reviewed by senior management, and if deemed necessary, approval will be sought from the Department of Planning and Environment. Approved revised documents will be managed in accordance with ResourceCo's quality management system – including document control and communication of changes to relevant staff.

Table 11 lists the types of amendments that would be considered minor and major, and the approval process.

Table 11 WMP approval process

Review trigger	Amendment type	DPE approval	Examples
Minor amendments and corrections	-	No	Changes to system processes without change to environmental outcome Minor changes to operational processes without change to environmental outcomes
In response to environmental incidents	Minor	No	Minor spill
	Major	Yes	Non-compliance with EPL
Audit findings	Minor	No	Change to procedure to improve a process
	Major	Yes	Non-compliance with a Condition of Approval
Request by government agency	Minor or major	Yes	-
Annual review findings	Minor	No	Non-compliance with a target

6.2 Non-conformance, corrective and preventative action

Non-conformances, including those of an environmental nature, shall be identified through verification processes such as monitoring, inspections, audits and reviews as well as through the receipt of complaints and incidents and near misses. All ResourceCo personnel can raise a non-conformance. In summary the management process is:

- When a non-conformance issue is detected, the corrective and preventative actions are entered on a CAR (Corrective Action Request) form. In addition the CAR assigns responsibilities for actions to a manager for close-out and the timing for completion.
- The CAR is entered into the CAR register for recording and tracking progress of follow-up and close-out.
- Upon satisfactory completion of all corrective actions and follow-on preventative actions (e.g. revision of documented procedures), the CAR is closed-out by the responsible staff member.
- The environmental CARs will be reviewed monthly and during the regular review meetings.
- During the annual environmental review, CAR statistics will be assessed and trends analysed.

7. References

ANZECC (2000) '*National Water Quality Management Strategy, Paper No. 4, Australian and New Zealand Guidelines for Fresh and Marine Water Quality*', October 2000, Australian and New Zealand Environment and Conservation Council (ANZECC) and Agriculture and Resource Management Council of Australia and New Zealand.

Landcom (2004) 'Managing Urban Stormwater: Soils and Construction'

Nexus Environmental Planning Pty Ltd (2016) Environmental Impact Statement titled 'Waste and Resource Management Facility' SSD 15-7256, ResourceCo Pty Ltd, 35-37 Frank Street, Wetherill Park

Nexus Environmental Planning Pty Ltd (2016) Response to Submissions titled 'Response to Submissions Waste and Resource Management Facility' SSD 15-7256, ResourceCo Pty Ltd, 35-37 Frank Street, Wetherill Park

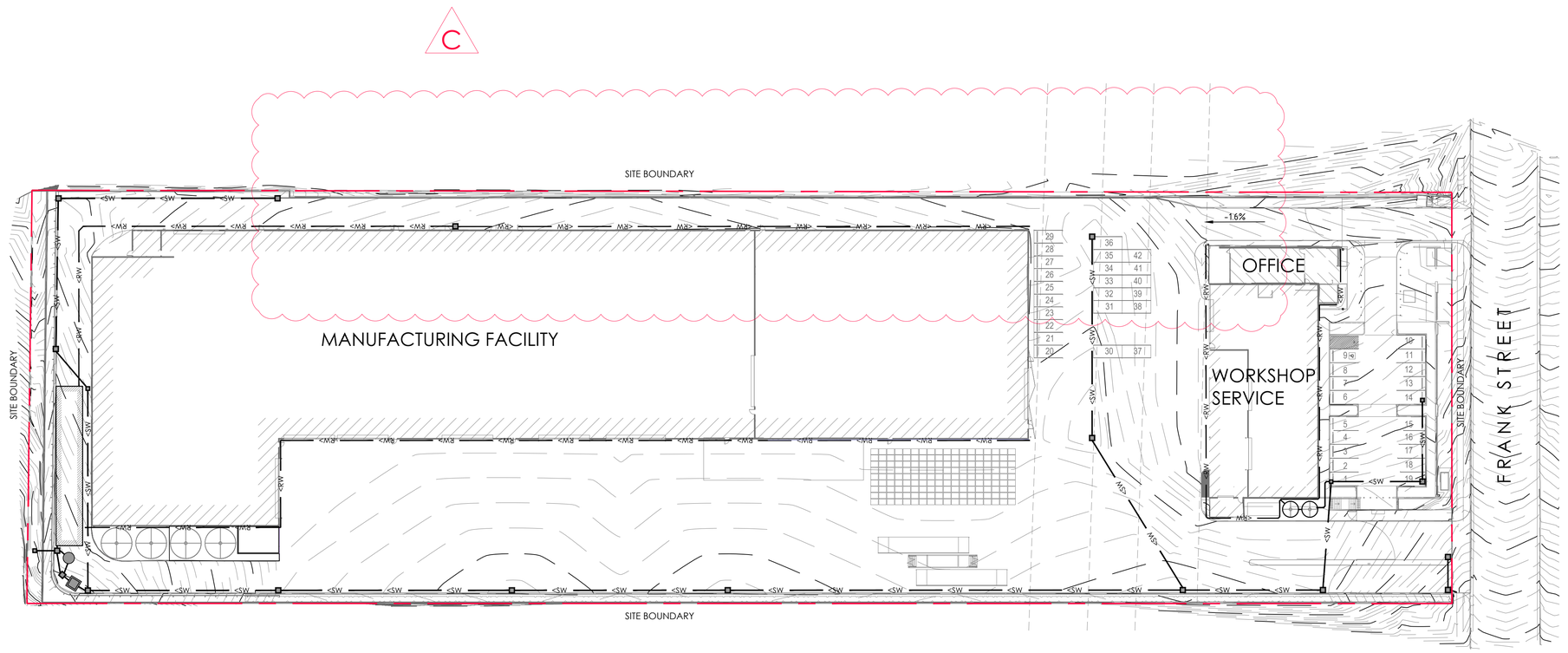
Triaxial Consulting (2016) 35-37 Frank Street, Wetherill Park- Stormwater Addendum Report

Appendices

Appendix A – Stormwater management plan drawings

TX-11972.00-C10

TX-11972.00-C11



STORMWATER PLAN

SCALE 1:500 @ A1
SCALE 1:1000 @ A3

5m 0 10 20 30 40 50m

SCALE 1:500 AT A1 SHEET | 1:1000 AT A3 SHEET

AMENDMENTS	DATE	ISSUE
PITS REVISED, PAVEMENT CHANGES, LEVELS CHANGE	25.01.2017	C
ISSUED FOR REVIEW	20.01.2017	B
ISSUED FOR REVIEW	24.08.2016	A

STATUS
ISSUED FOR REVIEW

ARCHITECT

CLIENT
Ahrens

PROJECT
INDUSTRIAL DEVELOPMENT
35-37 FRANK STREET
WETHERILL PARK, NSW, 2164

DESIGNED	DRAWN	DATE	SIZE	CAD REF
J.S./J.D.	J.M.		A1	TX-11972.00

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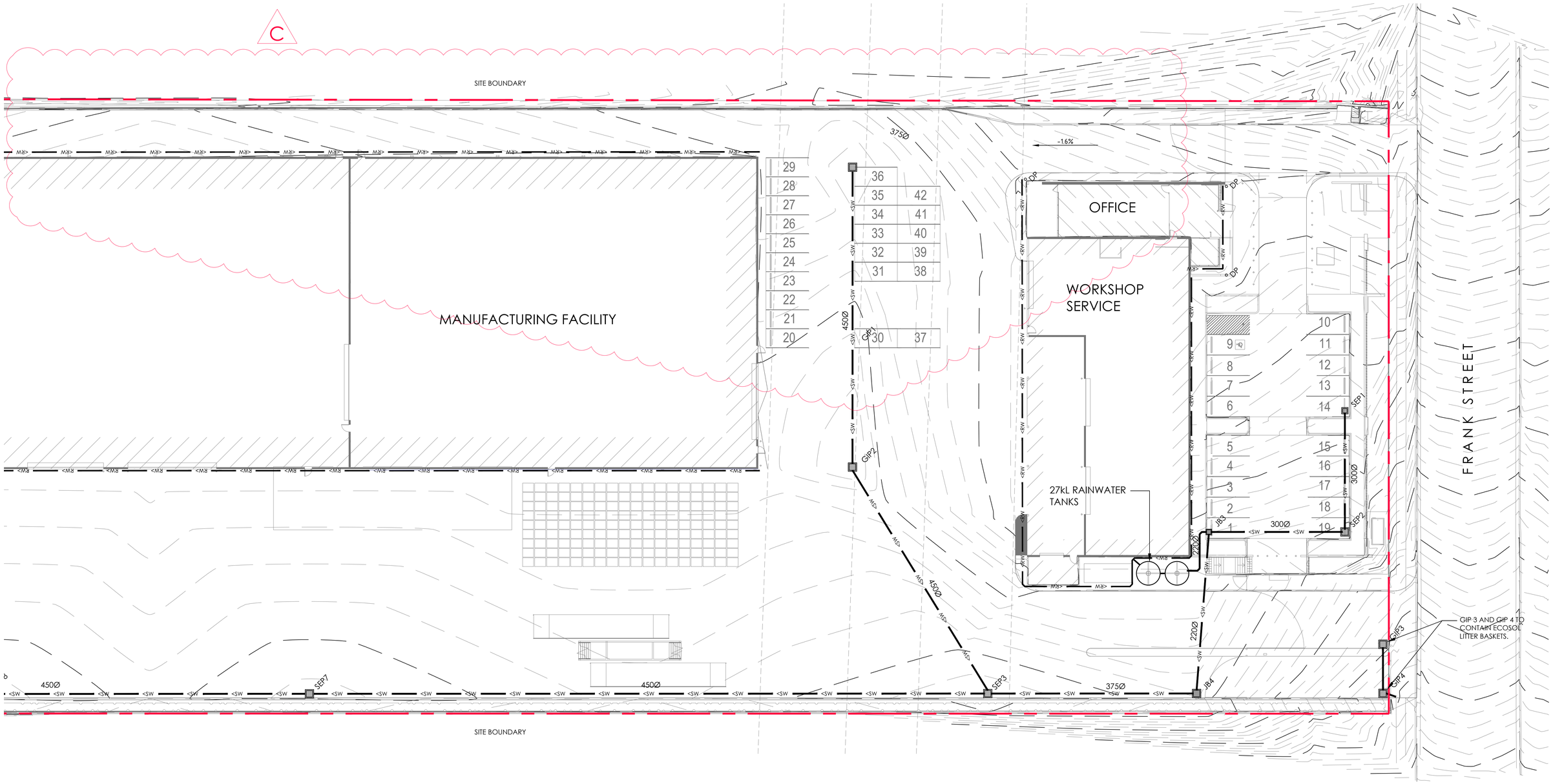
SYDNEY | ADELAIDE | BAROSSA | DARWIN | MUDGEE

DRAWING TITLE
STORMWATER PLAN

DRAWING No
TX-11972.00 - C2.0

ISSUE
C



STORMWATER PLAN

SCALE 1:250 @ A1
SCALE 1:500 @ A3

NOTES:

REFER SHEET C2.3 FOR PIT SCHEDULE

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SCALE 1:250 AT A1 SHEET | 1:500 AT A3 SHEET

PITS REVISED, PAVEMENT CHANGES, LEVELS CHANGE	25.01.2017	C
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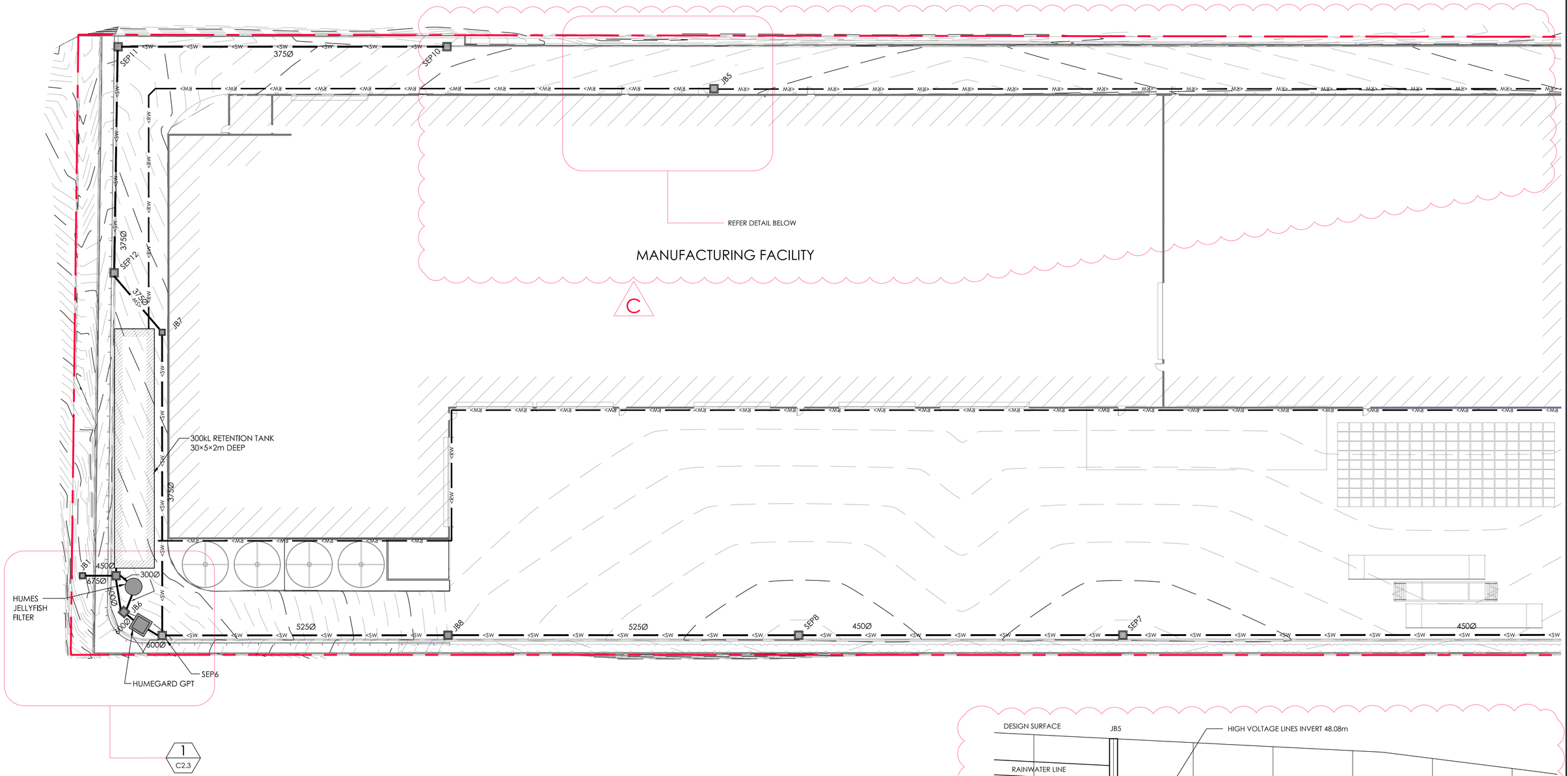
DRAWING TITLE
STORMWATER PLAN
SOUTH END
SHEET 1 OF 2

DRAWING No
TX-11972.00 - C2.1

ISSUE
C

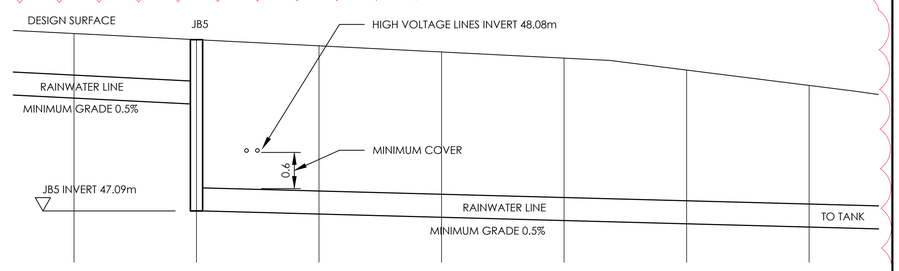


STORMWATER PLAN

SCALE 1:250 @ A1
SCALE 1:500 @ A3

NOTES:

REFER SHEET C2.3 FOR PIT SCHEDULE



RAINWATER JUNCTION PIT JB5

SCALE VERTICAL 1:5
SCALE HORIZONTAL 1:1

C

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SCALE 1:250 AT A1 SHEET | 1:500 AT A3 SHEET

AMENDMENTS	DATE	ISSUE
PITS REVISED, PAVEMENT CHANGES, LEVELS CHANGE	25.01.2017	C
ISSUED FOR REVIEW	20.01.2017	B
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J.S./J.D.	J.M.		A1	TX-11972.00

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SYDNEY | ADELAIDE | BAROSSA | DARWIN | MUDGEE

DRAWING TITLE
STORMWATER PLAN
NORTH END
SHEET 2 OF 2

DRAWING No
TX-11972.00 - C2.2

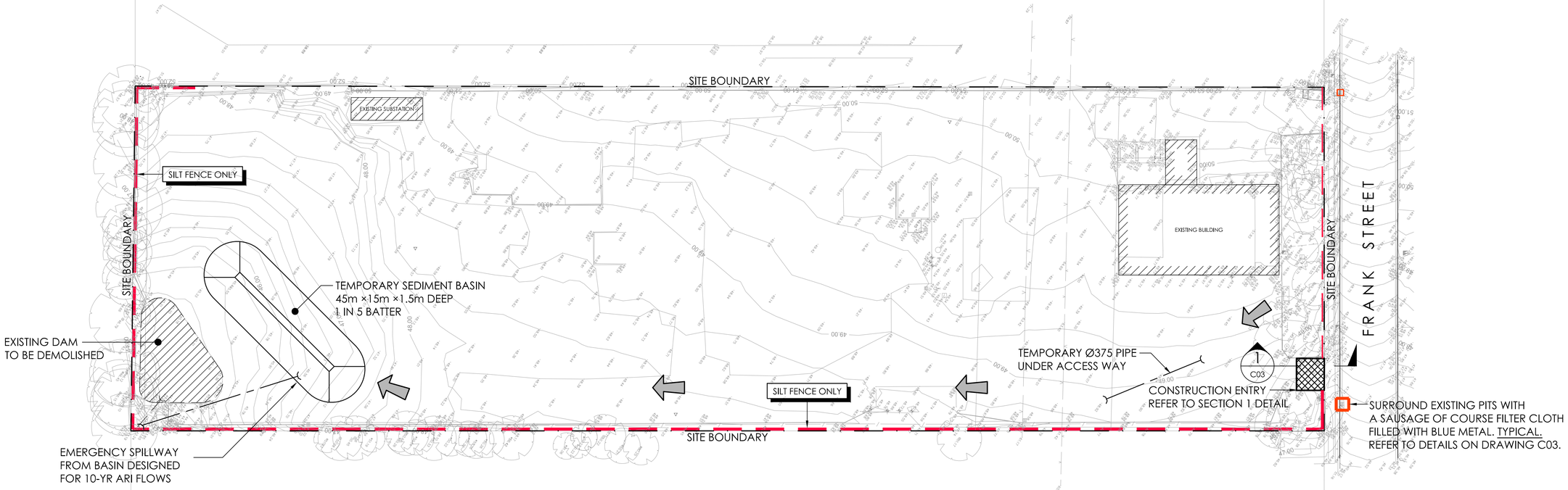
ISSUE
C

Appendix B – Erosion and sediment control plan drawings

TX-11972.00-C01

TX-11972.00-C02

TX-11972.00-C03



STAGE 1
EROSION & SEDIMENT CONTROL PLAN

SCALE 1:500

LEGEND:

- SILT FENCE ONLY
  REFER DETAILS ON DRAWING C03
- Q100 AR1 OVERLAND FLOW PATH

SEDIMENT BASIN DETAILS					
Cv	RAINFALL EVENT (5 DAY 85%)	CATCHMENT AREA (ha)	SETTLING ZONE VOLUME (m^3)	SEDIMENT STORAGE VOLUME (m^3)	TOTAL BASIN STORAGE VOLUME (m^3)
0.51	32.2	2.05	334	167	501

POST STORM DEWATERING NOTES

ON THE DAY IMMEDIATELY FOLLOWING A STORM EVENT:

- ADD GYPSUM TO THE SEDIMENT BASIN AT A RATE OF 30KG PER 100M3
- GYPSUM IS TO BE ADDED EVENLY ACROSS THE SURFACE OF THE BASIN FOLLOWING THE APPLICATION GUIDELINES IN SECTION E4.1 OF THE BLUEBOOK
- NOTE APPROXIMATELY 4 DAYS SETTLING TIME IS REQUIRED

FOLLOWING 4-DAY SETTLING PERIOD:

- WATER TO BE TESTED FOR TURBIDITY. TARGET 50MG/L
- PUMP OUT SEDIMENT BASIN TO COUNCIL STORMWATER SYSTEM

5-DAY FOLLOWING STORM

- SEDIMENT BASIN TO BE EMPTIED IN READY FOR ANY FUTURE STORM EVENTS

CONSTRUCTION STAGING

STAGE 1

- INSTALL SEDIMENT CONTROLS
- FORM NEW TEMPORARY SEDIMENT TRAP
- REMOVE EXISTING SEDIMENT TRAP
- FORM NEW RETAINING WALLS ALONG THE NORTHERN AND WESTERN PERIMETERS OF THE SITE
- INSTALL NEW HARVESTING TANKS
- BULK FILL AND GRADE TO HARVESTING TANKS

STAGE 2

- CONNECT OVERFLOW FROM HARVESTING TANK TO STORMWATER
- REMOVE TEMPORARY SEDIMENT TRAP & BACKFILL
- BULK FILL AND GRADE SITE TO FINISHED LEVELS
- INSTALL SITE STORMWATER SYSTEM
- INSTALL FINAL PAVEMENTS
- CONNECT STORMWATER SYSTEM INTO COUNCIL MAINLINE
- DESLUDGE HARVESTING TANKS

5m 0 10 20 30 40 50m

SCALE 1:500 AT A1 SHEET | 1:1000 AT A3 SHEET

AMENDMENTS	DATE	ISSUE
ISSUED FOR APPROVAL	24/08/2016	0
POST STORM DEWATERING NOTES REVISED	19/08/2016	B
ISSUED FOR APPROVAL	18/08/2016	A

STATUS

ISSUED FOR APPROVAL

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CLIENT

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PROJECT

RESOURCE Co.
35-37 FRANK STREET
WETHERILL PARK NSW

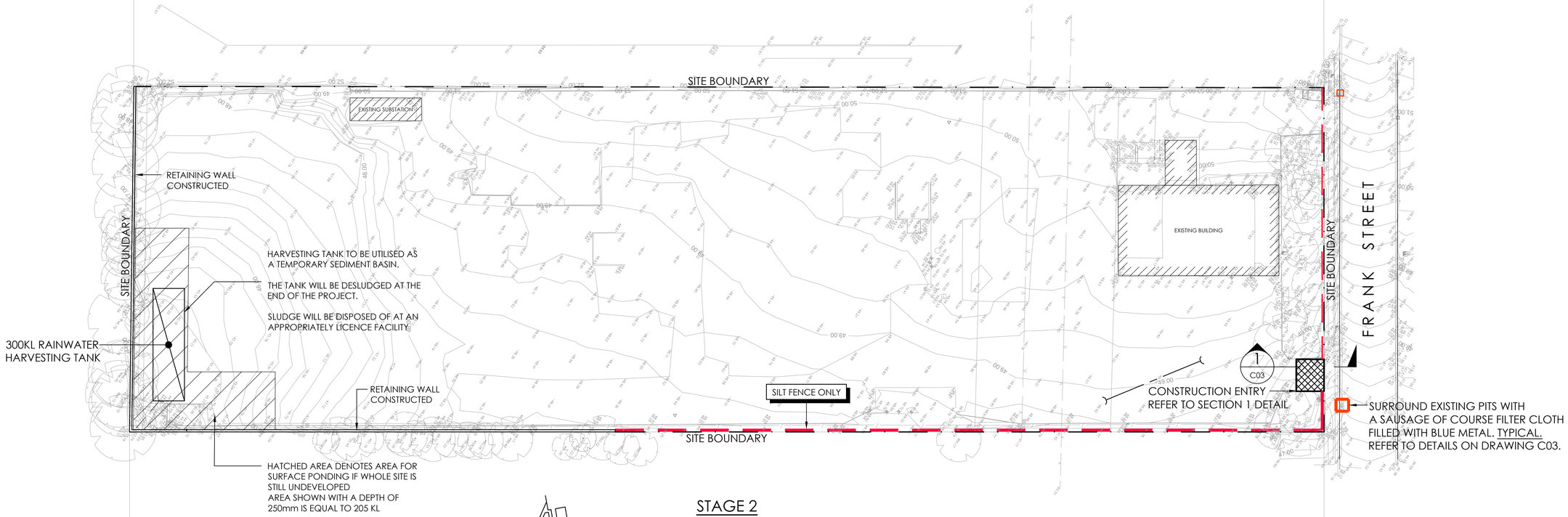
DESIGNED	DRAWN	DATE	SIZE	CAD REF
D.V.	F.N.	17.08.16	A1	TX-11972.00-C01

DRAWING TITLE

STAGE 1
EROSION & SEDIMENT CONTROL PLAN

DRAWING No | ISSUE

TX-11972.00 C01 0



STAGE 2
EROSION & SEDIMENT CONTROL PLAN
SCALE 1:500

LEGEND:

— — SILT FENCE ONLY
REFER DETAILS ON DRAWING C03

SEDIMENT BASIN DETAILS

Cv	RAINFALL EVENT (5 DAY 85%)	CATCHMENT AREA (ha)	SETTLING ZONE VOLUME (m³)	SEDIMENT STORAGE VOLUME (m³)	TOTAL BASIN STORAGE VOLUME (m³)
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5-DAY FOLLOWING STORM
- SEDIMENT BASIN TO BE EMPTIED IN READY FOR ANY FUTURE STORM EVENTS

CONSTRUCTION STAGING

STAGE 1
- INSTALL SEDIMENT CONTROLS
- FORM NEW TEMPORARY SEDIMENT TRAP
- REMOVE EXISTING SEDIMENT TRAP
- FORM NEW RETAINING WALLS ALONG THE NORTHERN AND WESTERN PERIMETERS OF THE SITE
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STAGE 2
- CONNECT OVERFLOW FROM HARVESTING TANK TO STORMWATER
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- INSTALL FINAL PAVEMENTS
- CONNECT STORMWATER SYSTEM INTO COUNCIL MAINLINE
- DESLUDGE HARVESTING TANKS

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SCALE 1:500 AT A1 SHEET | 1:1000 AT A3 SHEET

AMENDMENTS	DATE	ISSUE
SEDIMENT BASIN TABLE ADDED	27/09/2016	1
ISSUED FOR APPROVAL	24/08/2016	0
POST STORM DEWATERING NOTES REVISED	19/08/2016	B
ISSUED FOR APPROVAL	18/08/2016	A

STATUS: ISSUED FOR APPROVAL

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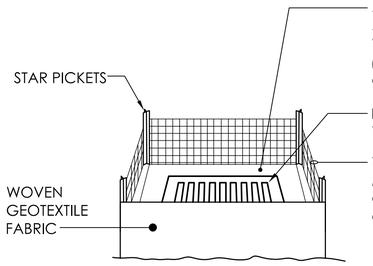
CLIENT: Ahrens

PROJECT: RESOURCE Co.
35-37 FRANK STREET
WETHERILL PARK NSW

DESIGNED	DRAWN	DATE	SIZE	CAD REF
D.V.	F.N.	17.08.16	A1	TX-11972.00-C01

DRAWING TITLE: STAGE 2 EROSION & SEDIMENT CONTROL PLAN

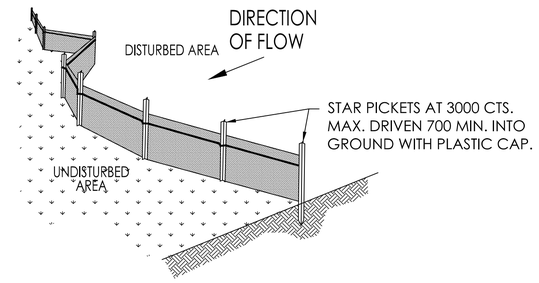
DRAWING No: TX-11972.00 C02 ISSUE: 1



GRATED INLET PIT FILTER DETAIL

N.T.S.

NOTE : ADOPT ABOVE DETAIL AROUND ALL PITS WITHIN AREA ENCOMPASSED BY SILT FENCE.

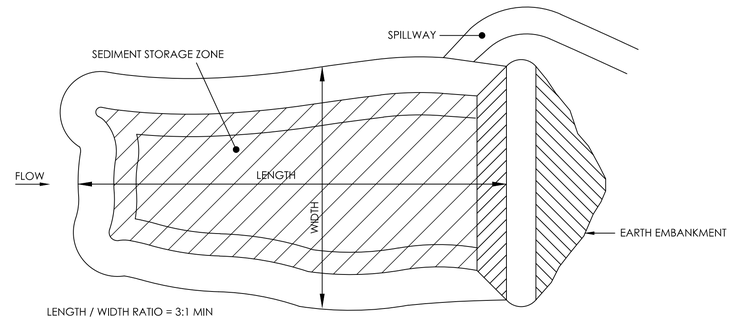


TYPICAL SILT FENCE DETAIL

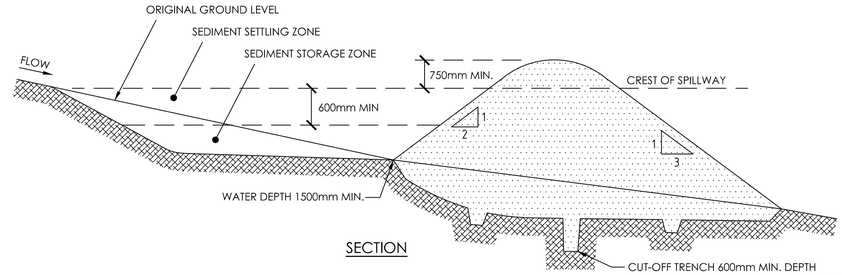
N.T.S.

PROVIDE 1m RETURNS AT 30m INTERVALS.

TYPICAL



PLAN



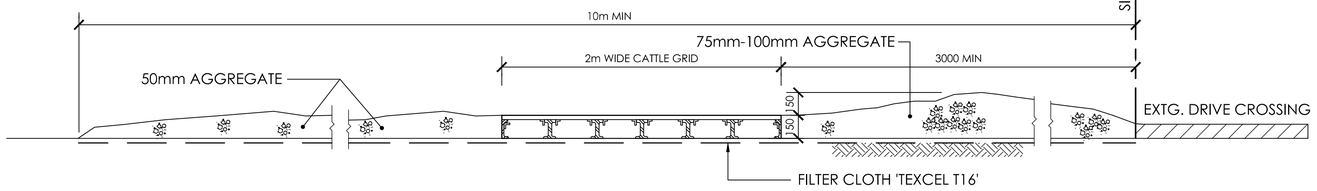
SECTION

CONSTRUCTION NOTES

1. REMOVE ALL VEGETATION AND TOPSOIL FROM UNDER THE DAM WALL AND FROM WITHIN THE STORAGE AREA.
2. CONSTRUCT A CUT-OFF TRENCH 500mm DEEP AND 1200mm WIDE ALONG THE CENTRELINE OF THE EMBANKMENT EXTENDING TO A POINT ON THE GULLY WALL LEVEL WITH THE RISER CREST.
3. MAINTAIN THE TRENCH FREE OF WATER AND RECOMPACT THE MATERIALS WITH EQUIPMENT SPECIFIED IN THE SWMP TO 95% STANDARD PROCTOR DENSITY
4. SELECT FILL ACCORDING TO THE DIRECTIONS OF THE SWMP THAT IS FREE OF ROOTS, WOOD, ROCK, LARGE STONE OR FOREIGN MATERIAL.
5. PREPARE THE SITE UNDER THE EMBANKMENT BY RIPPING AT LEAST 100mm DEEP TO HELP BOND COMPACTED FILL TO EXISTING SUBSTRATE.
6. SPREAD FILL IN 100mm TO 150mm LAYERS AND COMPACT AT OPTIMUM MOISTURE CONTENT IN ACCORDANCE WITH SWMP.
7. CONSTRUCT EMERGENCY SPILLWAY.
8. REHABILITATE STRUCTURE IN ACCORDANCE WITH THE SWMP.
9. PLACE A "FULL OF SEDIMENT" MARKER TO SHOW WHEN LESS THAN DESIGN CAPACITY OCCURS AND SEDIMENT REMOVAL IS REQUIRED.

TYPICAL TEMPORARY SEDIMENT BASIN DETAIL

N.T.S.



STABILISED CONSTRUCTION ENTRANCE 'TRUCK SHAKER'

NOTE:

TO BE CONSTRUCTED PRIOR TO COMMENCEMENT OF ANY WORKS.

SECTION 1 / C01-2

NOTES:

ALL EROSION & SEDIMENT CONTROL MEASURES TO BE IMPLEMENTED PRIOR TO COMMENCEMENT OF SITE WORKS.

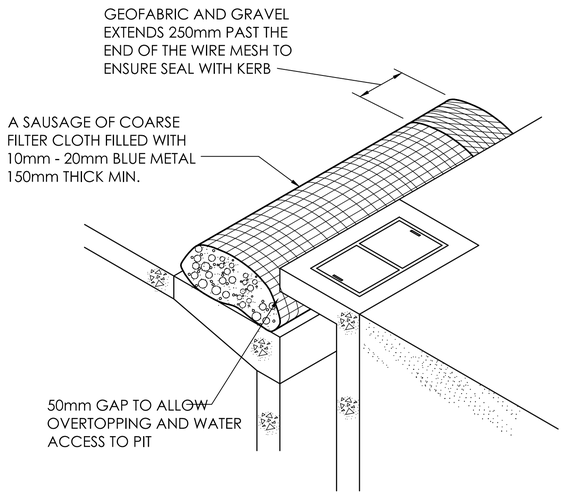
ALL EROSION & SEDIMENT CONTROL MEASURES TO BE INSPECTED & MAINTAINED DAILY BY SITE MANAGER.

MINIMISE DISTURBED AREAS.

ROADS & FOOTPATHS TO BE SWEPT DAILY. NO MUD OR DIRT ALLOWED ON FOOTPATH OR ROAD PAVEMENTS.

BATTERS TO BE STABILISED BY VEGETATING, TURFING OR OTHER APPROVED METHOD WITHIN 30 DAYS OF COMPLETION.

DUST MINIMISATION CONTROL BY WATERING TO BE IMPLEMENTED BY SITE MANAGER AS REQUIRED OR AS PER COUNCIL SPECIFICATIONS.



KERB INLET CONTROL

N.T.S.

AMENDMENTS	DATE	ISSUE
ISSUED FOR APPROVAL	24/08/2016	0
ISSUED FOR APPROVAL	18/08/2016	A

STATUS

ISSUED FOR APPROVAL

TRIAXIAL CONSULTING
COMPLEX PROBLEMS RESOLVED SIMPLY
1300 874 294 | TRIAXIAL.COM.AU
SUITE 12, LEVEL 14, 327 PITT STREET, SYDNEY 2000
PO BOX A203, SYDNEY SOUTH, NSW 1235
SYDNEY | ADELAIDE | BAROSSA | DARWIN | MUDGEE

CLIENT

Ahrens

PROJECT

RESOURCE Co.
35-37 FRANK STREET
WETHERILL PARK NSW

DESIGNED	DRAWN	DATE	SIZE	CAD REF
D.V.	F.N.	17.08.16	A1	TX-11972.00-C01

DRAWING TITLE

EROSION & SEDIMENT CONTROL DETAILS

DRAWING No

TX-11972.00 C03

ISSUE

0

Appendix C – Department of Primary Industries – Consultation Response

Department of Primary Industries
Water

Contact John Galea
Phone (02) 8838 7520
Email john.galea@dpi.nsw.gov.au
Our ref OUT17/32822

Mr Bill Hudson
Operations Manager NSW
Corner Hines and Wingfield Roads
Wingfield SA 5013

Via email: BillH@resourceco.com.au

Dear Mr Hudson

ResourceCo RRF Water Management Plan

I refer to your email of 7 July 2017 inviting the Department of Primary Industries – Water (DPI Water) to comment on the ResourceCo Water Management Plan.

DPI Water has reviewed the plan and notes that the company will be collecting and storing roof water in several aboveground tanks and one underground tank. As the collection of roof runoff is exempt from the licensing requirements of the *Water Management Act 2000* as set out in the *Water Management (General) Regulation 2011*, DPI Water has no regulatory role with respect to the collection of this roof runoff. DPI Water encourages the beneficial reuse of this water as it reduces reliance on potable water.

DPI Water has no comments on the testing regime outlined.

For further information please contact John Galea, Water Regulation Officer, Parramatta Officer, telephone 8838 7520 or email john.galea@dpi.nsw.gov.au.

Yours sincerely

Irene Zinger, Manager
Regulatory Operations- Metro
Water Regulation

GHD

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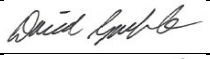
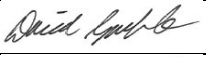
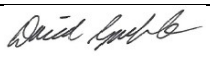
2126346-55258/https://projects.ghd.com/oc/Sydney/oempforresourcecofac/Delivery/Documents/2126346-REP_Water Management Plan Wetherill Park RRF.docx

Document Status

Revision	Author	Reviewer		Approved for Issue		
		Name	Signature	Name	Signature	Date
0	R Towner	D Gamble		D Gamble		4/7/17
1	R Towner	D Gamble		D Gamble		17/8/17
2	R Towner	D Gamble		D Gamble		22/2/18
3	R Towner	D Gamble		D Gamble		9/3/18

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