Attachment 13

Documents forwarded to the EPA by ResourceCo

Index to Appendix 13

ResourceCo's Response to NSW EPA's 11 July 2016 Energy from Waste Questions regarding ResourceCo's Resource Recovery Facility Wetherill Park SSD 7256

NSW EPA question:

Item *i. Additional information on each waste stream to be received at facility including:*
b. specifications

EPA comments on RtS: Limited information is provided on waste specifications. For example no scientific waste audit/sampling has been conducted on the waste streams proposed to be received at the facility. Further information, such as results of a waste audit and analysis is required.

ResourceCo response:

ResourceCo will be sourcing its waste from selected C&D and C&I streams. The following waste audits and analysis have been undertaken in determining the incoming waste streams to be expected and the products (both PEF and non-PEF) that are planned to be produced:

- Construction and Demolition waste streams:
  - Arcadis, 2016 PEF Sydney feedstock study for ResourceCo [redacted]
  - Department of Environment and Climate Change NSW, 2007, Report into the Construction and Demolition Waste Stream Audit 2000-2005: Sydney Metropolitan Area
  - NSW Waste Avoidance and Resource Recovery Strategy 2014–21
  - ResourceCo's own research and analysis
- Commercial and Industrial waste streams:
  - Arcadis, 2016 PEF Sydney feedstock study for ResourceCo
  - NSW Environment Protection Authority, 2015a, Disposal-based audit of the Commercial and Industrial Waste Stream in the Regulated Areas of NSW
  - NSW Environment Protection Authority, 2015b, Pilot generator site-based audit of the commercial and industrial waste streams in the metropolitan levy areas of NSW
  - NSW Environment Protection Authority and Anne Price Consulting, 2015 Audit of C&I waste in the regulated areas of NSW, NSW. Conference proceedings of the Coffs Harbour Waste Conference, presented by Alex Young, NSW EPA, and Anne Prince, APC
  - Department of Environment and Climate Change NSW, 2008, Disposal based survey of the commercial and industrial waste stream in Sydney
  - ResourceCo's own research and analysis

ResourceCo will outline how it intends to monitor compliance with the resource recovery criteria in the draft environmental management plan (EMP) in Appendix 1. It is important to note that ResourceCo will continually refine its target waste streams to both ensure compliance with the resource recovery criteria as well as maximise its commercial outcomes.

Construction and Demolition waste sources:

ResourceCo will be receiving waste inputs from two different C&D waste streams:

- Residual waste from C&D waste recycling operations, and
- Mixed C&D waste from skip bin collection operators

Residual waste from C&D recyclers

The [redacted] It is important to note that [redacted] This is in line with NSW EPA's reported recycling of C&D waste at greater than 75%. ResourceCo will elaborate on the proposed mechanism to be used to demonstrate compliance with the EfW resource recovery criteria in the following questions and in Appendix 1 (draft EMP).

From the research undertaken, including ResourceCo's own waste audits of targeted C&D recyclers, the breakdown of this C&D recycling residual waste stream is as follows:

Component	%
Concrete/bricks/aggregates	24%
Timber	30%
Fines	10%
Metals	5%
Paper and cardboard	7%
Plastic & textiles	7%
Other/unidentified	17%

ResourceCo's resource recovery facility will convert this incoming waste stream into the following products with associated destinations:

Component	Product recovered	Destination
Concrete/bricks/aggregates	Recycled aggregates	C&D recycler who resells recycled aggregates
Timber	Half clean timber, half PEF	Clean timber to the landscaping industry, PEF to cement kilns
Fines	PEF	Cement kilns who consumes PEF as fuel in place of fossil fuel
Metals	Metals	Metal recycler who resells scrap metal
Paper and cardboard	PEF	Cement kilns who consumes PEF as fuel in place of fossil fuel
Plastic & textiles	PEF	Cement kilns who consumes PEF as fuel in place of fossil fuel
Other/unidentified	Half PEF, half waste	PEF to cement kilns, waste to landfill

Construction and Demolition waste sources:

ResourceCo will be receiving waste inputs from two different C&D waste streams:

- Residual waste from C&D waste recycling operations, and
- Mixed C&D waste from skip bin collection operators

Residual waste from C&D recyclers

The [redacted] It is important to note that [redacted] This is in line with NSW EPA's reported recycling of C&D waste at greater than 75%. ResourceCo will elaborate on the proposed mechanism to be used to demonstrate compliance with the EfW resource recovery criteria in the following questions and in Appendix 1 (draft EMP).

From the research undertaken, including ResourceCo's own waste audits of targeted C&D recyclers, the breakdown of this C&D recycling residual waste stream is as follows:

Component	%
Concrete/bricks/aggregates	24%
Timber	30%
Fines	10%
Metals	5%
Paper and cardboard	7%
Plastic & textiles	7%
Other/unidentified	17%

TABLE 1

ResourceCo's resource recovery facility will convert this incoming waste stream into the following products with associated destinations:

TABLE 2

Component	Product recovered	Destination
Concrete/bricks/aggregates	Recycled aggregates	C&D recycler who resells recycled aggregates
Timber	Half clean timber, half PEF	Clean timber to the landscaping industry, PEF to cement kilns
Fines	PEF	Cement kilns who consumes PEF as fuel in place of fossil fuel
Metals	Metals	Metal recycler who resells scrap metal
Paper and cardboard	PEF	Cement kilns who consumes PEF as fuel in place of fossil fuel
Plastic & textiles	PEF	Cement kilns who consumes PEF as fuel in place of fossil fuel
Other/unidentified	Half PEF, half waste	PEF to cement kilns, waste to landfill

Therefore the conversion of incoming waste into products and residual will be as follows:

Component	%	Product recovered
Concrete/bricks/aggregates	24%	Recycled aggregates
Timber	30%	Half clean timber, half PEF
Fines	10%	PEF
Metals	5%	Metals
Paper and cardboard	7%	PEF
Plastic & textiles	7%	PEF
Other/unidentified	17%	Half PEF, half waste

TABLE 3

Non-PEF products recovered	44%
PEF product recovered	48%
Landfill disposal	9%

TABLE 4

Mixed C&D waste from skip bin collection operators

From the research undertaken the breakdown of this specific C&D waste stream is as follows:

Component	%
Concrete/bricks/aggregates	54%
Timber	14%
Fines	13%
Metals	7%
Paper and cardboard	2%
Plastic & textiles	2%
Other/unidentified	8%

TABLE 5

ResourceCo's resource recovery facility will convert this incoming waste stream into the following products with associated destinations:

TABLE 6.

Component	Product recovered	Destination
Concrete/bricks/aggregates	Recycled aggregates	C&D recycler who resells recycled aggregates
Timber	Half clean timber, half PEF	Clean timber to the landscaping industry, PEF to cement kilns
Fines	Half recycled material, half PEF	C&D recycler who manufactures soil, half to cement kilns for fuel
Metals	Metals	Metal recycler who resells scrap metal
Paper and cardboard	PEF	Cement kilns who consumes PEF as fuel in place of fossil fuel
Plastic & textiles	PEF	Cement kilns who consumes PEF as fuel in place of fossil fuel
Other	Half PEF, half waste	Landfill

Therefore the conversion of incoming waste into products and residual will be as follows:

TABLE 7

Component	%	Product recovered
Concrete/bricks/aggregates	54%	Recycled aggregates
Timber	14%	Half clean timber, half PEF
Fines	13%	Half recycled material, half PEF
Metals	7%	Metals
Paper and cardboard	2%	PEF
Plastic & textiles	2%	PEF
Other/unidentified	8%	Half PEF, half waste

Non-PEF products recovered	74%
PEF product recovered	22%
Landfill disposal	4%

TABLE 8

Commercial and Industrial waste source:

From the research undertaken the breakdown of this C&I waste stream is as follows (please note that C&I waste will be sourced from both no limit and 50% limit sources):

TABLE 9

Component	%	Product recovered
Food Organics	4%	Residual waste
Cardboard	8%	PEF
Wood MDF /Chipboard (Treated)	26%	Half clean timber, half PEF
Other Plastics	13%	PEF
Other Paper	7%	PEF
Glass& Packaging Glass	1%	Residual waste
Leather & Textiles	7%	PEF
Steel (Metals)	3%	Metals
Tyres & Rubber	0%	PEF
Garden Organics (Trees & Stumps)	5%	Residual waste
Other C&D (Masonary soil)	11%	Recycled aggregates
Electrical	0%	Residual waste
Other/unidentifiable	15%	50% PEF, 50% waste

ResourceCo's resource recovery facility will convert this incoming waste stream into the following products with associated destinations:

TABLE 10

Component	Product recovered	Destination
Food Organics	Residual waste	Landfill or MSW resource recovery facility
Cardboard	PEF	Cement kilns who consumes PEF as fuel in place of fossil fuel
Wood MDF /Chipboard (Treated)	Half clean timber, half PEF	Clean timber to the landscaping industry, PEF to cement kilns
Other Plastics	PEF	Cement kilns who consumes PEF as fuel in place of fossil fuel
Other Paper	PEF	Cement kilns who consumes PEF as fuel in place of fossil fuel
Glass & Packaging Glass	Residual waste	Landfill or glass recycler
Leather & Textiles	PEF	Cement kilns who consumes PEF as fuel in place of fossil fuel
Steel (Metals)	Metals	Metal recycler who resells scrap metal
Tyres & Rubber	PEF	Cement kilns who consumes PEF as fuel in place of fossil fuel
Garden Organics (Trees & Stumps)	Residual waste	Landfill or green waste resource recovery facility
Other C&D (Masonary soil)	Recycled aggregates	C&D recycler who resells recycled aggregates
Electrical	Residual waste	E-waste recycler
Other/unidentifiable	50% PEF, 50% waste	PEF to cement kilns, waste to landfill

Therefore the conversion of incoming waste into products and residual will be as follows:

TABLE 11

Component	%	Product recovered
Food Organics	4%	Residual waste
Cardboard	8%	PEF
Wood MDF /Chipboard (Treated)	26%	Half clean timber, half PEF
Other Plastics	13%	PEF
Other Paper	7%	PEF
Glass & Packaging Glass	1%	Residual waste
Leather & Textiles	7%	PEF
Steel (Metals)	3%	Metals
Tyres & Rubber	0%	PEF
Garden Organics (Trees & Stumps)	5%	Residual waste
Other C&D (Masonary soil)	11%	Recycled aggregates
Electrical	0%	Residual waste
Other/unidentifiable	15%	50% PEF, 50% waste

TABLE 12.

Non-PEF products recovered	26%
PEF product recovered	55%
Landfill or other resource recovery	18%

NSW EPA question:

Item *i. Additional information on each waste stream to be received at facility including:*
c. suppliers

EPA comments on RtS: The Proponent has not identified waste suppliers, nor demonstrated any proposed supply agreements. More information is needed to demonstrate the facility will have sufficient waste supply.

ResourceCo response

ResourceCo has undertaken significant identification of and engagement with the potential suppliers of waste in the Sydney market. In addition ResourceCo has also undertaken an overview study of the market, potential volumes and key segments (Arcadis PEF Sydney Feedstock Summary). In summary ResourceCo has very high confidence that sufficient waste volume and type can be sourced from the market to underpin its facility.

ResourceCo requires approximately [redacted] tonnes of waste materials to achieve its base business plan for its new facility, although the plant has a rated capacity of [redacted] tonnes of waste materials input to enable future business growth. (It is the [redacted] tonnes of capacity that is being applied for.)

ResourceCo is only targeting those waste streams which are currently going to landfill. ResourceCo's market strategy is to [redacted] and in addition promote the very large benefits of providing a non-landfill solution for customers as well as a far superior tipping service (i.e. reduced turnaround times, driving on pavements, central location, no risk of vehicle damage, clean and easy facilities to operate within). In particular the non-landfill disposal solution is a very attractive benefit for many waste disposers as they are able to then promote to their upstream customers the fact they have a non-landfill solution – this generates significant interest and sustainability advantage for collectors.

In addition to the financial and sustainability benefits mentioned above, a large amount of landfill capacity is going to close over the coming few years within the catchment area of ResourceCo's facility in Wetherill Park. The closure of this landfill capacity will result in a higher demand for resource recovery options as the remaining limited landfill airspace increases in disposal costs. This will add further demand on the ResourceCo plant in the years ahead.

In terms of the high level potential waste streams going to landfill by category, as identified in the Arcadis report plus ResourceCo's own market research, they are as follows:

- C&D recycling residual waste streams to landfill: approximately [redacted]
- C&I waste streams to landfill: approximately [redacted]
- C&D waste streams to landfill: approximately [redacted]

To recap, ResourceCo's base business case requires [redacted] It is also important to note that the commercial breakeven position of the facility [redacted]

[redacted]

In addition to the high level overview, [redacted]

Waste Stream Category	Identified Target Companies	Waste Characteristics	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
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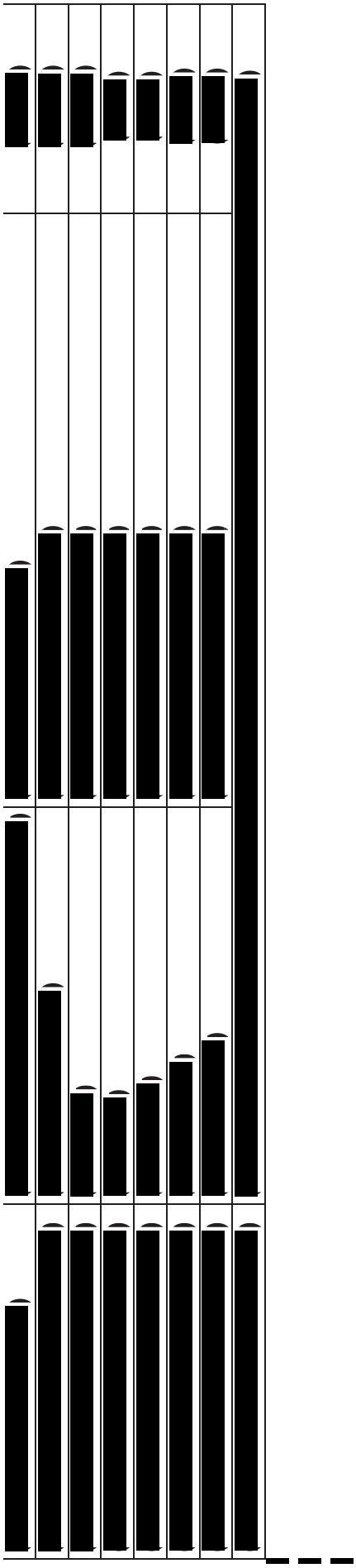
[redacted]	[redacted]	[redacted]	[redacted]



In summary, ResourceCo is engaged with potential customers who have a combined waste stream of more than [redacted] In terms of securing contracted supply agreements with these waste generators, [redacted] ResourceCo is very certain that the plant will be able to attract sufficient quantity and quality of waste to fulfil its business case and future growth objectives.

NSW EPA question:

Item *i. Additional information on each waste stream to be received at facility including:*
d. upstream management procedures (to support waste specifications and controls for non-conforming wastes as well as PVC and hazardous materials)

EPA comments on RtS: Limited information is provided on upstream procedures. Only general suppliers are outlined in point i.c. It is unclear how these facilities, if they provide residuals, will comply with Table 1. Resource Recovery Criteria of the NSW Energy from Waste Policy.

More information is required to clarify what waste material upstream suppliers will provide, and how upstream procedures will comply with Table 1 Resource Recovery Criteria.

ResourceCo response:

ResourceCo's responses to the previous questions outlines the types and sources of waste ResourceCo's plant will take.

In terms of the residual waste taken from C&D recyclers, ResourceCo will have as a condition of supply that these facilities provide ResourceCo with their EPA compliant mass balance showing that the commodities they have extracted from their incoming raw C&D waste stream are at least 75% by weight of their incoming waste received. The remaining residuals, which are typically the light non-recyclable fractions, will therefore be assured to be less than 25% of their incoming raw C&D waste stream. This will give ResourceCo the ability to extract PEF from all of the incoming residual waste stream from the C&D recycling customers, even though, as was outlined in the response to question 1ib) it is anticipated that ResourceCo will extract additional commodities other than PEF from this waste stream.

In terms of the C&I waste, ResourceCo will work with the EPA to gain approval for any C&I waste streams that comply with the "no limit" category for conversion of their waste into PEF. All other C&I waste streams that do not achieve this categorisation will be classified in the "up to 50%" category for the conversion of their waste into PEF.

In terms of the C&D waste, all of this waste will be categorised in the "up to 25%" category for the conversion of their waste into PEF.

ResourceCo has outlined the planned process and formula for its upstream waste sourcing procedures and compliance with Table 1 Resource Recovery Criteria of the NSW Energy from Waste Policy in its draft EMP in Appendix 1 and is also laid out in the relevant subsequent question.

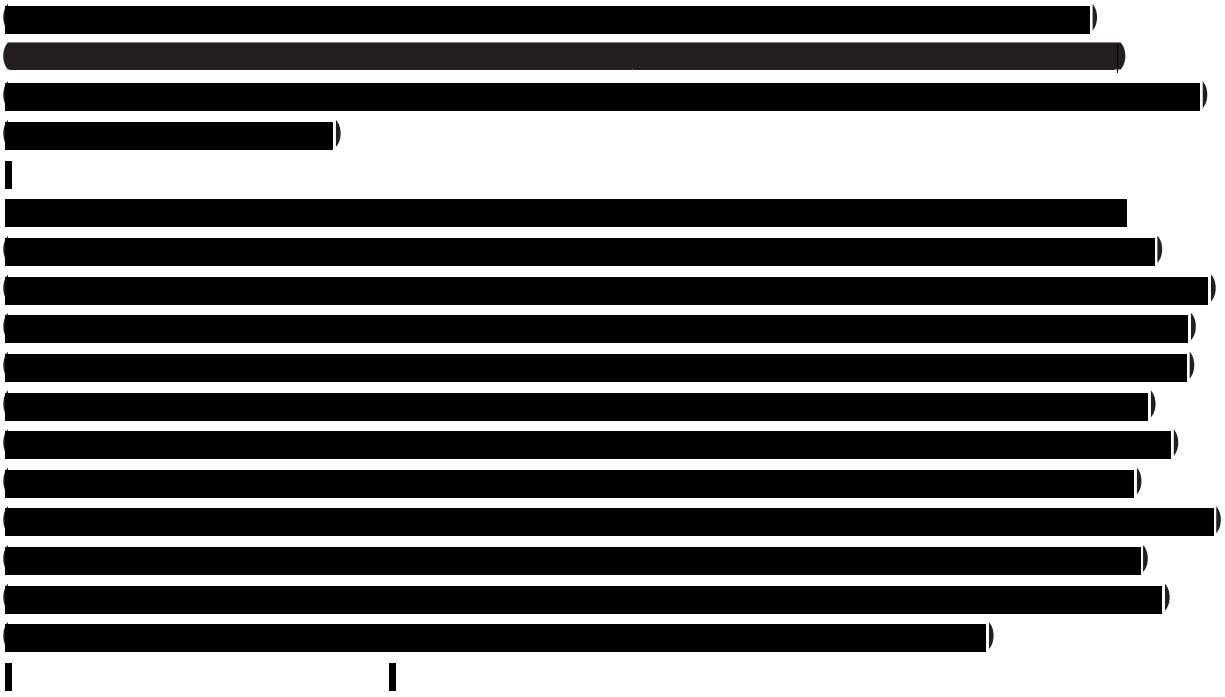
NSW EPA question:

Item i. Additional information on each waste stream to be received at facility including:
e. current destination for each waste stream.

EPA comments on RtS: Limited evidence is provided to demonstrate current destinations for each waste stream. This information is required to demonstrate the supply of waste will not detrimentally impact other facilities undertaking higher order resource recovery.

ResourceCo response:

All waste streams that will come into the ResourceCo facility are currently going to landfill either in NSW or Queensland.



NSW EPA question:

Item ii. Demonstrated compliance with resource recovery criteria in Table 1 of the Policy for each waste stream.

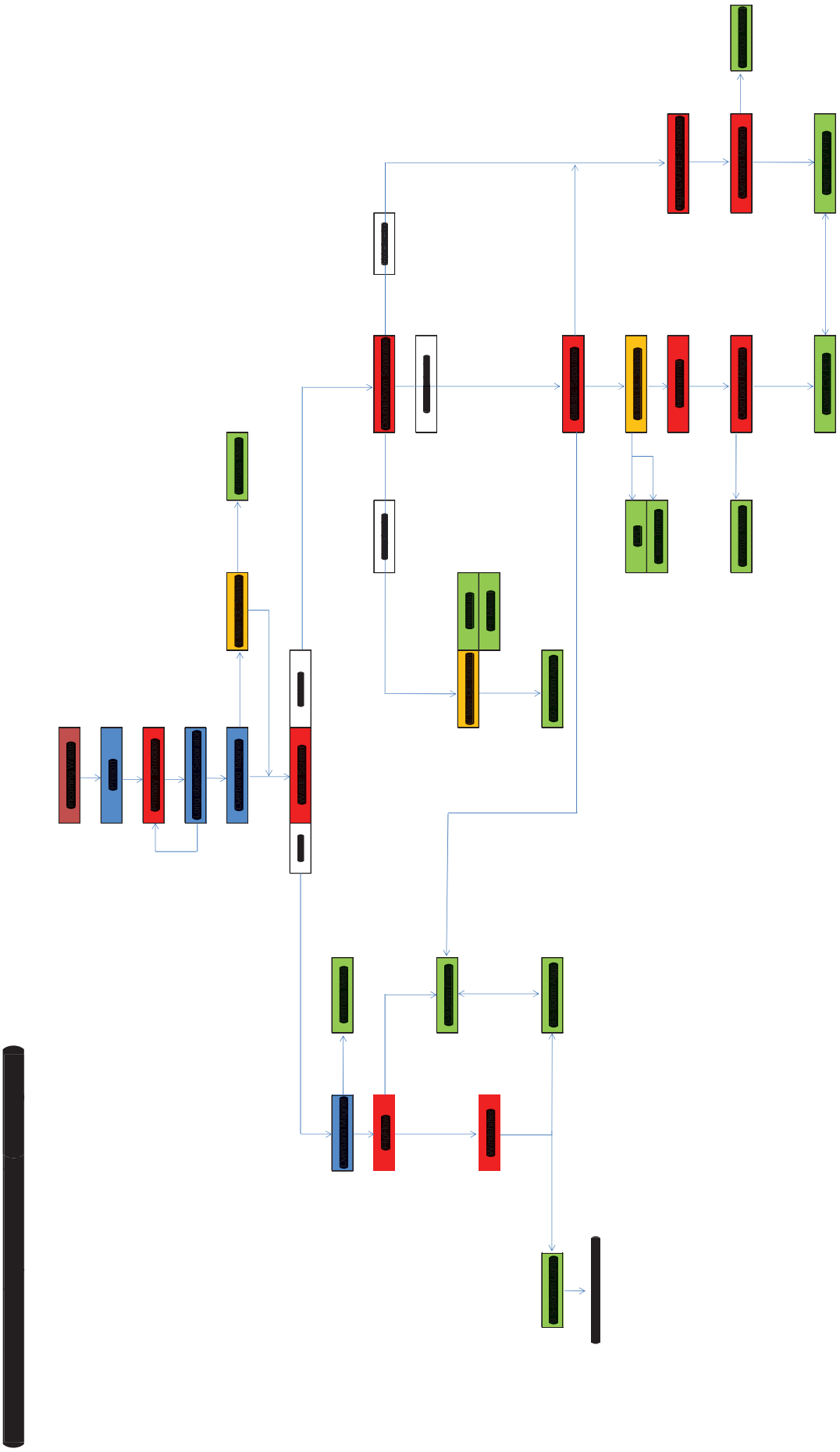
EPA comments on RtS: The Proponent has not demonstrated compliance with Table 1 Resource Recovery Criteria. The Proponent must, for example, provide:

- *procedures for the calculation of a PEF production target (in tonnes, on an ongoing basis), including the projected maximum residual waste allowed for energy recovery;*
- *clarification of collection system for C&I category (50% or no limit);*
- *a management plan to ensure the facility complies with Table 1 on an ongoing basis; and*
- *clarification of what processing will occur at the facility, or at any upstream supply facility.*

If the Proponent intends to receive residuals from other facilities, with no further processing on site, evidence to demonstrate how these facilities comply with Table 1 Resource Recovery Criteria will also be required.

ResourceCo response:

Firstly, it must be noted that all waste streams (including residuals from recycling facilities) coming into the ResourceCo facility are processed through the facility in the same manner. There is no bypassing of the production line as the design of the plant does not allow for anything other than the inputting of all waste materials into the production line at the single input point. The production process is outlined in section 2.5 of Volume 1 (Consolidate Text) of the EIS submission document. For ease of reference, we have outlined below the process flow diagram for the facility showing the various processes the waste materials go through in the plant.



ResourceCo will implement the following procedure to calculate the PEF production target and demonstrate compliance with Table 1 Resource Recovery Criteria (this is included in the draft EMP in Appendix 1 but is also laid out below for ease of reference):

Formula:

PEF % ≤ (100% x C&D recycling residuals) + (100% x "no limit mixed C&I" waste) + (50% x "50% mixed C&I" waste) + (25% x mixed C&D waste)

Formula component details:

- All measures are by weight
- The ResourceCo facility's weighbridge is the point of measurement
- Incoming waste stream volumes are measured when they enter the site over the weighbridge over the 3 month period
- PEF volume is measured when it leaves the site over the weighbridge over the 3 month period
- Incoming waste is classified into the following waste streams:
    - C&D recycling residuals
    - "No limit mixed C&I" waste from C&I sources
    - "50% mixed C&I" waste from C&I sources
    - C&D waste from C&D sources
- C&D recycling residuals will be from a facility which recycles mixed C&D waste and can produce an EPA compliant declaration that the residuals being sent to ResourceCo are less than 25% of the mixed C&D waste intake for the facility and that ResourceCo is the only offtaker of their residuals for energy recovery purposes
- "No limit mixed C&I" will be those C&I waste sources which have been approved by the EPA as meeting the no limit criteria
- "50% mixed C&I" will be those C&I waste sources which do not meet the "no limit" criteria
- Mixed C&D will be raw mixed C&D waste that has not gone through a resource recovery process

The frequency of calculation will be 3 monthly (quarterly). This frequency is deemed appropriate as any higher frequency than this (e.g. monthly) can be distorted by natural variations in the waste received at any particular time during a month. The above procedure is outlined in the draft environmental management plan for the facility.

NSW EPA question:

Item iii. More information on contaminated material management of waste inputs including:
a. detailed information on procedures for hazardous material identification and removal;

EPA comments on RtS: Limited information is provided on the processes involved in hazardous material removal. Procedures are limited to visual identification and removal. There are no quality assurance and quality control (QAQC) processes to outline how hazardous material removal procedures will be validated as effective. Further information is required to demonstrate effective procedures for hazardous material removal.

ResourceCo response:

Please refer to the draft EMP in Appendix 1 which outlines how hazardous wastes will be dealt with.

The verification of the removal of the hazardous substances will be achieved through the testing of all the elements of the finished PEF – the elements' specified, sampling and test procedures to be used for each of the elements is also included in the draft EMP in Appendix 1.

NSW EPA question:

Item iii. More information on contaminated material management of waste inputs including:
b. controls and management for the removal of halogenated substances (including PVC materials); and

EPA comments on RtS: Limited information is provided to outline controls and management for the removal of halogenated substances. A specification for a cement kiln is provided, however there is no information provided to clarify if the proposed facility will only produce material to this specification. Limited QAQC procedures have been provided to demonstrate how the PEF will comply with the proposed fuel specification.

For example, in reference to halogenated substances, the RtS states that: "An online analyser provides real time recording of the Chlorine content of the PEF as well as other parameters. Should fuel going through the analyser be beyond the specification, then this fuel is diverted for re-processing or to landfill disposal."
There is no further details of this equipment, such as:

- *name, manufacturer, design specifications etc;*
- *operational information;*
- *relevant standards;*
- *method of analysis;*
- *level of accuracy; and*
- *justification of why this piece of equipment is sufficient to manage risk of halogenated substances in PEF for the project.*

Also, limited information about how material will be removed/quarantined if it does not meet specification. This needs to include details of the storage /quarantine area (demonstrating sufficient storage capacity, segregation of material, quarantine procedures etc.).

No details are provided about how the results of the specification will be determined and if any sampling and analysis will be conducted. For example, no information on verification of chlorine analysis (such as sampling and analysis at a NATA accredited laboratory). This information is critical to understand if process controls are effective to manage risks and meet a PEF specification.

ResourceCo response:

Please refer to the draft EMP (Sections 3 and 4) in Appendix 1 in response to the questions above.

NSW EPA question:

Item iv. Additional information on the halogenated substances contained in the PEF including laboratory test results of current residual waste to landfill and expected PEF material post processing. Facilities in NSW using the PEF will be required to demonstrate the content of halogenated substances in waste fuels and Group 6 emissions standards within the Protection of the Environment Operations (Clean Air) Regulation 2010, as outlined in the Technical Criteria of the Policy.

EPA comments on RtS: The response to point iv. is provided in Attachments 6-8 of the RtS. However:

- *Attachment 6 provides no evidence of halogenated substance content in PEF;*
- *Attachment 7 only provides a proposed fuel specification, no evidence of halogenated substances contained in PEF;*
- *Attachment 8 provides a very basic graph of samples of typical wasted taken from Sydney PEF feedstock in 2014-15, tested in the Proponent's laboratory. This is insufficient as no information is provided on the:*
    - *source of the waste material, collection systems, processing facility etc.;*
    - *sampling method;*
    - *approved or accredited methods for analysis; and*
    - *QAQC procedures used during the analysis.*

The response does not demonstrate the halogenated substances contained in the PEF. Laboratory test results of current residual waste and expected PEF material post processing are still required.

ResourceCo response:

Please find attached in Appendix 2 the specific test results of PEF that has been manufactured from C&I waste sourced from the Sydney market. It is important to note that this stream of C&I waste was fully converted into PEF, therefore the PEF characteristics are equal to the inputted waste characteristics. The test method used for each of the characteristics is contained in the results table. The sampling method used is also included in Appendix 2.

NSW EPA question:

Item v. PEF is not being used on site and no information on the destination for this material is provided. More information is required to detail contingency management plans for the PEF material. For example, failure of pickup and transport, resulting in stockpiling of PEF.

EPA comments on RtS: The RtS outlines that the PEF will primarily be sold to local cement kiln facilities. No information has been provided on these facilities, including for example any supply agreements or fuel specifications etc. Further information is required to demonstrate valid destinations for the PEF.

Limited information has been provided to detail the contingency management plans for risks such as failure of pickup and transport, resulting in stockpiling of PEF. The RtS describes a 1,800 tonne PEF storage area but no further information is provided.

More information is required, including procedures for how PEF will be identified and segregated if it does not meet specification. This should also include further details of the storage/quarantine area (demonstrating sufficient storage capacity, segregation of material, quarantine procedures etc.).

ResourceCo response:

Please refer to the draft EMP for the response to this above questions. In addition, please see below further information to help explain to whom the PEF will sent, and how Resource will deal with PEF despatch or out of specification issues.

The PEF produced by the plant will go to cement kiln customers. Presently there are two customers for this PEF –[redacted]
The supply agreements for these customers are attached in Appendix 3 and 4 respectively. Please note that[redacted]

With regard to potential despatching issues, the supply chain design avoids potential issues by [redacted]and will be supplied in 25 tonne truck loads from the facility. These trucks will deliver 5.5 days per week and enable a constant offtake of PEF in small 25 tonne amounts to minimise stockpile build up in the storage facility accordingly. [redacted]is also only a short distance away therefore enabling fast supply chain response. Lafarge Holcim PEF is baled, wrapped and then loaded into 40 foot containers (25 tonne loads) and trucked to Port Botany for shipping. The supply chain time of supply to the Lafarge Holcim Kanthan plant is approximately 5 weeks and the PEF is unpacked and blended at ResourceCo Asia's facility in Ipoh Malaysia on the way, thereby enabling significant stock buffering capacity throughout this supply chain. Should[redacted] not be able to receive PEF, then all PEF will be baled, wrapped and despatched to Lafarge Holcim accordingly. The baling, wrapping, container loading and despatching has the capacity to handle to full output of the plant. Both customers also have "take or pay" penalties in their contracts to ensure that they are financially motivated to consistently offtake the PEF. Therefore, based on these

factors, it will be highly unlikely there will be an interruption to both customers for a sufficiently long period of time that would constrain PEF production. In the event though that this did happen then procedure ResourceCo will follows to cope with this event will be (in the following sequence):

- Maximise the storage of PEF in the PEF storage area which has the ability to store up to 1,600 tonnes (excluding quarantine storage)
- Once the PEF storage facility is full, cease manufacturing PEF and fill the undercover waste infeed area (which has a capacity of approximately 2,000 tonnes)
- Once both these areas are full then the facility would have to stop receiving waste (which is highly unlikely for the reasons described above). These waste types would be able to dispose of their waste at one of the non-putrescible landfills in western Sydney.

With regard to the PEF that does not meet the specification, this topic is covered in the content in the draft EMP in Appendix 1.

Appendix 1: Draft EMP

Environmental Management Plan

Wetherill Park RRF

Note as at 5 August 2016: This draft environment management plan (EMP) is a work in progress and is not planned to be complete by this stage of the project. The elements contained in this draft EMP document as it stands are focussed on addressing the key questions raised by the NSW EPA during the EIS process. The completed operating EMP will also incorporate all elements outlined in the full EIS submission as well as all elements contained in ResourceCo's similar operating facilities plus any conditions placed on the facility as part of the EIS approval process.

1 Table of Contents

This section is under construction

2 Introduction

2.1 Purpose

The key principles of the ResourceCo Environmental Management Plan (EMP) will be to provide:

- An environmental management tool for the construction and operation of the proposed Waste and Resource Management Facility (facility)
- A means of identifying baselines for monitoring the impact of the facility
- An outline of reporting requirements associated with the facility
- The processes for interaction between ResourceCo and the relevant Government Authorities
- The means by which compliance with the Secretary's requirements and the requirements of the Environmental Protection Licence will be achieved

The ResourceCo Resource Recovery Facility (RRF) is a materials recovery and process engineered fuel (PEF) production facility operating in Wetherill Park and servicing Metropolitan Sydney. It is owned by ResourceCo Pty Ltd who has extensive experience in this industry.

The facility has been specifically designed to recover materials and process PEF from dry, non-putrescible waste streams sourced from the Commercial, Industrial, Construction and Demolition sectors.

The facility's production process firstly extracts materials through mechanical and manual means which can be sent to other EPA facilities for further processing and/or sale. These materials will including metal, aggregates of various sizes, clean timber and PVC.

The remaining fraction, which primarily contains high calorific residues such as plastics, unclean timber, textiles and papers, will be further processed into PEF. PEF is an alternative fuel used in cement kilns to replace fossil fuels, such as coal and pet coke.

There will be a small residual volume of material from which no materials can be economically or allowably recovered, and this volume will be disposed of to landfill.

2.2 Legal and Statutory Requirements

2.2.1 NSW Legislation

Schedule 1 of the State Environment Planning Policy (State and Regional Development) 2011 (SEPP), contains the following definition for waste management facilities relative to the ResourceCo RRF:

> "Paragraph (3) Development for the purpose of resource recovery or recycling facilities that handle more than 100,000 tonnes per annum"

The facility has been constructed for the purpose of processing up to 250,000 tonnes per annum of waste materials and is therefore classified as a State Significant Development (SSD). An EIS

was prepared accordingly and lodged with the Planning Department in January 2016. The EIS documentation outlines the full design details of the facility.

2.2.2 Conditions of EIS

The facility is listed as a scheduled activity under the New South Wales protection of the Environment and Operations Act (POEO ACT). An EIS application SSD 15-7256 was lodged on the 28 January 2016 and was approved on the / /2016 (complete this section when we have an actual date). To view a copy of the approved EIS with conditions please refer to Appendix 1. (complete when this information is obtained)

2.2.3 Environment Protection Licence

An application for a NSW Environment Protection Authority was lodged on the / /2016 (complete this section when we have an actual date). The licence to operate was issued on the / /2016.

To view a copy of the EPA Licence number and conditions please refer Appendix 2. (complete when this information is obtained)

3 Site Description

3.1 Location and Surrounding Land Uses

The site is located on the Northern side of Frank Street to the West of the intersection with Redfern Street. The site is owned by Harmony Wetherill Park Pty Ltd with an ACN 612 621 566 and a business address of 2 Eton Street Keswick SA 5035. The property is described as Lot 1 DP 589097; the street number is 35-37 Frank Street, Wetherill Park 2164 NSW.

The site has an area of approximately 2.077 hectares with a Northern Boundary of 77.66m, a Western boundary of 268.46m, a Southern Boundary of 77.38m and an Eastern boundary of 267.49m. There is an easement for a power transmission line 30.38m wide and is located in the Southern section of the site.

Sims Metal Management purchased the site from Wanless Waste Services in the 1980s. The Site operated as a scrap metal processing facility with the operational layout generally unchanged until its closure as a scrap metal processing facility in December 2013.

The site is located within the Wetherill Park Industrial precinct and is well serviced by a major arterial road network. Neighbours include large transport yards, warehousing and heavy industry.

3.2 Site Layout and Buildings

There are two main buildings on the site being the production building and the office/workshop building. There is open space between these buildings which is dictated by the power line easement – car parking spaces are located on a portion of this open easement space.

Access to the site will be from Frank Street and a circular internal road network will be installed to allow for all access and egress of vehicles in a forward manner.

Two weighbridges with a weigh station will be installed so as to ensure that all vehicles are registered as entering and exiting the site. Signage will be installed to direct incoming vehicles to the appropriate weigh bridge.

4 Site Operations

4.1 Operational Conditions

The operational conditions and ResourceCo RRF responsibilities are defined in this section. The RRF Operations Manager monitors the facilities performance to ensure compliance with all operational, regulatory and environmental requirements. Assistance is provided to the Operations Manager and site from ResourceCo's affiliated business units, corporate centre and specialist consultants.

The operating conditions for the facility are attached in the NSW EPA operating conditions attached in Appendix 2.

4.2 Waste Stream Control

4.2.1 Targeted Waste Streams

The facility is approved to receive dry, non-putrescible waste streams from C&I and C&D sources. Specifically, ResourceCo will be targeting the following landfill-destined waste streams:

- C&D recycling residuals from a facility which recycles mixed C&D waste. This waste stream comprises lighter materials leftover once the C&D recycler has extracted metal, aggregates, soil and some timber from waste stream and typically includes plastics, papers, textiles, timber (clean and unclean) and unrecovered C&D materials
- Mixed C&I Waste from C&I collectors that is free of organics, wet, liquid, hazardous or radioactive wastes
- Mixed C&D wastes from C&D collectors that is free of organics, wet, liquid, hazardous or radioactive wastes

Within these waste streams ResourceCo will accept a very small range and volume of specific materials which it will not put into the production process and instead send back out in unprocessed form to an EPA approved receiver of these materials. Such materials will include tyres, batteries and gas bottles.

4.2.2 PEF Manufacturing Control to Meet the NSW EfW Policy

One of the key policies with which ResourceCo must comply is the NSW EPA's Energy from Waste policy. This policy specifically states the proportion of a particular waste stream that can be used for energy recovery. With respect to the waste streams that ResourceCo is targeting, the following PEF recovery limits apply (by weight):

- C&D recycling residues where the upstream C&D recycler certifies that less than 25% of their incoming C&D waste stream is being sent to energy recovery – 100%
- Mixed C&I waste streams where they are approved by the NSW EPA as coming from a source that has separate collection systems for all relevant waste streams – 100%
- Mixed C&I waste streams that are not in the above category – 50%
- Mixed C&D waste streams – 25%

ResourceCo will work with the NSW EPA to determine the appropriate evidence required to be provided to determine the classification of each of the waste steams into one of these categories. The Customer Service Officer, who controls the weighbridge and interfaces with customers coming into the facility, will be responsible for ensuring each incoming load is waste is correctly categorised in the ResourceCo system.

ResourceCo will apply the following formula to ensure its PEF production volume complies with the NSW EPA policy:

Formula:

PEF % ≤ (100% x C&D recycling residuals) + (100% x "no limit mixed C&I" waste) + (50% x "50% mixed C&I" waste) + (25% x mixed C&D waste)

Formula component details:

- All measures are by weight
- The ResourceCo facility's weighbridge is the point of measurement
- Incoming waste stream volumes are measured when they enter the site over the weighbridge over the 3 month period
- PEF volume is measured when it leaves the site over the weighbridge over the 3 month period
- Incoming waste is classified into the following waste streams:
    - C&D recycling residuals
    - "No limit mixed C&I" waste from C&I sources
    - "50% mixed C&I" waste from C&I sources
    - C&D waste from C&D sources
- C&D recycling residuals will be from a facility which recycles mixed C&D waste and can produce an EPA compliant declaration that the residuals being sent to ResourceCo are less than 25% of the mixed C&D waste intake for the facility and that ResourceCo is the only offtaker of their residuals for energy recovery purposes
- "No limit mixed C&I" will be those C&I waste sources which have been approved by the EPA as meeting the no limit criteria
- "50% mixed C&I" will be those C&I waste sources which do not meet the "no limit" criteria
- Mixed C&D will be raw mixed C&D waste that has not gone through a resource recovery process

ResourceCo will submit these numbers and associated information outlined above on a quarterly (3 monthly) basis to the EPA (including the declaration from the C&D recyclers that less than 25% of their mixed C&D waste intake for a facility is being sent as residuals to ResourceCo and that ResourceCo is the only offtaker of their residuals for energy recovery purposes). This frequency is deemed appropriate as any higher frequency than this (e.g. monthly) can be distorted by natural variations in the waste received at any particular time during a month.

4.2.3 Excluded Materials

Specific waste types not allowed to be accepted into the facility include the following:

- Liquid Wastes (paint, chemicals, oils, solvents etc)
- Listed wastes
- Household or kerbside collected green and general waste
- Explosives
- Poisons

- Radioactive materials
- Medical Waste (syringes, clinical and related waste)
- Asbestos
- Scheduled Pharmaceuticals
- Contaminated Soils

When the product is delivered to site the Waste Receival Inspection Officer inspects the load for waste types not accepted or to be excluded from the production process. Waste that are not able to be accepted are either sent back out of the site on the waste truck (if it is able to be) or removed from site as soon as possible by a licenced collector at the customers expense (if the incoming waste truck has left the site). Refer to Appendix 5 for an example job description for this person's role and procedure for dealing with unapproved waste.

4.3 Waste Delivery and Transport

Firstly, all potential customers will need to be pre-qualified before being allowed to bring waste to the facility. This pre-qualification process will determine if the waste meets the approved acceptance criteria for the site, if it will enable high quality PEF product to be made and which category it meets for the PEF processing criteria (i.e. C&D recycling residues, mixed C&I "no limit PEF", mixed C&I "50% PEF" or mixed C&D). If they meet the C&D recycling residues category then they will be required to complete a declaration stating that no more than 25% of their incoming waste by weight is being sent to ResourceCo and that ResourceCo is the only energy recover facility to which they are sending their residues). This declaration will be required to be completed on a quarterly basis to allow ResourceCo to submit this declaration with its quarterly allowable PEF percentage calculation to the NSW EPA.

All waste delivered to site shall be weighed in at the weighbridge and the following information recorded:

- Vehicle Registration
- Customer name and address
- On accessing the site, Gross Weight, on egressing the site Tare Weight, ascertaining the Net Weight
- Categorisation of the waste materials (either C&D recycling residues, C&I "no limit PEF", C&I "50% PEF" or mixed C&D)

Once a visual inspection of the waste has been undertaken and the material is deemed suitable as meeting acceptance criteria the driver will be directed to report to the Waste Receival Inspection Officer. Any material deemed to be unsuitable as meeting the acceptance criteria will be rejected from site and directed to an appropriate facility as per the section above.

All vehicular travel will be on well sign posted roads and once waste has been deposited vehicles will exit via a second weigh bridge at this point the transaction will be completed and additional charges and/or information recorded (if applicable) will be applied.

4.4 Finished PEF Storage and Despatch

In terms of despatch methods, [redacted] is constructing a large storage facility at [redacted] and will be supplied in 25 tonne truck loads from the facility. These trucks will deliver 5.5 days per week and enable a constant offtake of PEF in small amounts to minimise stockpile build up in the storage facility accordingly.

Lafarge Holcim PEF is baled, wrapped and then loaded into 40 foot containers (25 tonne loads) and trucked to Port Botany for shipping. The supply chain time of supply is approximately 5 weeks and the PEF is unpacked and blended at ResourceCo Asia's facility in Ipoh Malaysia on the way, thereby enabling significant stock buffering capacity throughout this supply chain.

Both customers also have take or pay penalties in their contracts to ensure that they are financially motivated to consistently receive the PEF. Therefore, based on these factors, it will be highly unlikely there will be an interruption to both customers for a sufficiently long period of time that would constrain PEF production.

The finished PEF storage area is able to store approximately 1,800 tonnes and will be operated with the following parameters:

- 10% of the capacity to be a designated quarantine area for out of specification PEF diversion temporary storage
- Minimum PEF to be stored on site at any one time (target less than 1 day's production) to target the maximum buffer storage space available in case of a despatch issue

Should despatch to [redacted] be interrupted then all PEF production is to be diverted to the baling, wrapping, containerising and exporting line so as not to interrupt PEF production. The supply chain to Lafarge Holcim is sufficiently long and buffered with the ResourceCo Asia facility in between that it is not anticipated to create any despatch issues at the facility. However, should both customer have a despatch interruption then the procedure to be enacted is as follows (in this sequence):

- Maximise the storage of PEF in the PEF storage area (which has the ability to store up to 1,600 tonnes (excluding quarantine storage))
- Once the PEF storage facility is full, cease manufacturing PEF and fill the undercover waste infeed area (which has a capacity of approximately 2,000 tonnes)
- Once both these areas are full then the facility will have to cease receiving waste. These waste types would be able to dispose of their waste at one of the non-putrescible landfills in western Sydney.

5 Quality Control

5.1 Waste Processing

5.1.1 Hazardous Materials

Any materials itemized in 3.2.3 will be immediately rejected from the site where safe to do so and staff will be trained in the following to ensure that these materials are first quickly identified and secondly safely removed from the waste stream.

In addition to the general process of dealing with hazardous materials as outlined in section 3.2.3, there are some specific hazardous materials worthy of focussing on in the body of this EMP document given their likelihood of appearing in the waste streams and/or their hazardous nature.

Asbestos: ResourceCo has been dealing with C&D and C&I waste streams for over 20 years and has very extensive experience dealing with asbestos contaminated waste. As a result ResourceCo have developed a multi-pronged approach to managing the potential for asbestos in the waste stream as follows:

- Direct education with the customer base to ensure that only materials that are asbestos free will be accepted at the site. This is particularly focussed upon in the pre-qualification process with a potential new customer
- Appropriate signage is well positioned at the entrance, weighbridge on weight dockets and at the drop off point
- Asbestos identification training for all relevant staff on site. Please see Appendix 7 for the draft Asbestos Management Plan
- Staff are trained in safe asbestos management and removal if identified on site, this includes but is not limited to:
    - The contaminated material is to be bunded and contained.
    - The contaminated material is to be wet down
    - If a small amount is identified, asbestos removal trained staff are to don appropriate PPE the remove and bag the material and all asbestos as well as potentially contaminated PPE to be sealed in a clearly identified purpose produced asbestos bag. That bag and contents are to be stored in a container until such time as it is appropriately transported to a licensed disposal facility for the purpose of disposal
    - If the contamination is too large the whole of the material is to be wet down, rejected, covered and then loaded and transported to a facility approved to dispose of asbestos containing material

Sharps and medical wastes: ResourceCo have identified a need to develop a protocol for the potential for sharps to be in the waste stream and have developed protocols for their safe removal if identified:

- Wear appropriate PPE to ensure the item cannot come into contact with the employee's skin
- Get the "sharp safe" vessel and bring it to the sharp
- If at the tipping floor use tongs or other grabbing instrument to remove the sharp and place in the sharp safe
- If on the picking table stop the table, carry the sharp safe to the sharp and use appropriate PPE and tongs to remove the sharp place in the sharp safe

Chemicals and Oils: An Oil spill kit will be provided and staff will be trained in its appropriate use.

- Chemicals will be managed on an as needs basis with supervisors with dangerous goods training quickly assessing if the spill can be safely managed internally of if external assistance is required i.e. NSW Fire and Rescue

5.1.2 PEF

The process flow diagram for the facility is attached in Appendix 3.

The first point of quality control occurs in the waste allowed to be accepted into the facility. In addition to the aforementioned unapproved wastes that cannot be accepted, additional constraints on accepted wastes includes minimal PVC plastics which are the great majority of the causes of chlorine in PEF. The key upfront activity to achieve this is the pre-qualification process mentioned in the previous section which occurs before a potential customer is accepted to bring waste materials to the facility. Once pre-approval has occurred, the Customer Service Officer on the weighbridge in conjunction with the Waste Receival Inspection Officer on the floor in the waste receival area are responsible for ensuring that the waste delivered does indeed meet the pre-approved criteria.

The PEF specification and test procedures are determined in conjunction with each specific customer (cement kilns). There are currently two PEF customers for this facility ([redacted] cement kiln and Lafarge Holcim Kanthan cement kiln) and their required specification and test procedures are summarised in Appendix 4. The facility's PEF will be produced to meet the specifications of these two customers.

It is important to note that ResourceCo views the Lafarge Holcim Kanthan customer specifications as the baseline specifications that the facility's PEF needs to meet (with the exception of calorific value, ash and moisture), and ResourceCo would apply these specifications to a new customer should it not have its own specifications or if the new customer's specification was of a lower standard. ResourceCo takes this view due to the fact that Lafarge Holcim is the largest and most experienced cement kiln user of PEF in the world and has decades of experience in scores of cement kilns which has led them to refine their specifications to those reflected in their specification to ResourceCo.

The facility's PEF production process has been specifically designed to meet cement kilns' PEF specifications through the following means:

- The use of a Waste Receival Inspection Officer to ensure inappropriate items are taken out of the waste stream at the tipping floor and do not enter the production line
- The use of multiple magnets, screens, air separators and manual QC stations to ensure that the following materials do not go into the PEF product:
    - PVC plastics (specifically the separation of the 3 dimensional plastics onto the mid-heavy fraction processing line with the ballistic separator and manned QC PVC picking station will remove PVC plastics which are the major contributor to chlorine in PEF)
    - Aggregates such as concrete, rocks, bricks and other heavy inert materials
    - Clean timber (this will be picked out at a manned QC picking station)
    - Metal

In combination with the above PEF production process is the PEF QC process which compromises of two components to meet the customer specification:

- The physical testing regime incorporating the specific test methods is attached in Appendix 4. This physical testing regime will be performed in a third party, Australian based NATA accredited laboratory. As at May 2016 this laboratory is proposed to be HRL Technology.
- An online PEF analyser for the lower CV PEF output line (the "[redacted]PEF") which provides real time feedback on the major parameters of chlorine content, calorific value and moisture. Again please refer to Appendix 4 for further details on how this QC process will work. It is important to note that this online analyser does not replace the physical testing regime – it is there to provide proactive real time feedback on key elements to enable continual refinement of the process to ensure the key parameters remain within specification. The chosen analyser and its detail is attached in Appendix 6. The calibration procedure to ensure this analyser remains within specification will be finalised with the manufacturer during the installation and commissioning of the machine. The analyser is also only placed on the "[redacted]PEF" line as this product has a lower chlorine content specification and the analyser will help ensure this line continually produces within the 0.2% Cl specification. An analyser is not required on the other PEF line (the "Lafarge Holcim Kanthan" higher CV line) as this material has the more usual 0.8% Cl specification, and in ResourceCo's experience with multiple PEF plants over time combined with the fact that this line will be processing naturally PVC/chlorine free light two dimensional plastic inputs, the chlorine content will be well within the 0.8% Cl specification. It is important to note that all the Lafarge Holcim Kanthan PEF from the Wetherill Park facility is unloaded and debaled at the ResourceCo Asia facility in Ipoh and blended with locally made PEF to ensure Lafarge Holcim Kanthan is supplied with a consistent PEF material

Should the PEF test out of specification, then it will either be reprocessed immediately or quarantined in a quarantine section of the finished PEF warehouse and investigated for the root cause before being reprocessed. The finished PEF warehouse is purposely designed to be large enough to hold a quarantine section.

5.1.3 Commodities (excluding PEF)

The commodities extracted from the waste streams throughout the process will be sent to EPA approved facilities for further processing and/or sale as follows:

- Metal – scrap metal operation
- Aggregates – C&D recycling operation
- Clean timber – landscaping products operation
- PVC plastic – if possible to a PVC recycling operation, otherwise to landfill

The specifications for these commodities will be agreed with the entities that will take these commodities prior to the commencement of operations of the facility.

6 Environmental Management

6.1 Management Responsibilities and Organisation

This section is under construction

6.2 Induction and Training

This section is under construction

6.3 Erosion and Sediment Control

This section is under construction

6.4 Noise Management Plan

This section is under construction

6.5 Air Quality Management Plan

This section is under construction

6.6 Waste Management Plan

This section is under construction

6.7 Stormwater Management Plan

This section is under construction

6.8 Traffic Management Plan

This section is under construction

6.9 Complaints Management

This section is under construction

6.10 Hazard Reduction

This section is under construction

7 Environmental Monitoring

7.1 Protocols for monitoring and measuring

This section is under construction

8 Document References

This section is under construction

9 Appendix 1: EIS Approval and Conditions

To be inserted when achieved

10 Appendix 2: EPA Licence to Operate and Conditions

To be inserted when achieved

11 Appendix 3: Facility's Process Flow Diagram

Removed from this document as it is Commercial In Confidence

12 Appendix 4: PEF Specifications and Test Procedures

Removed from this document as it is Commercial In Confidence

13 Appendix 5: Example Waste Receival Officer Job Description

This document was provided to the EPA and is contained in Attachment 4 of the Response to Submissions (RTS) document

14 Appendix 6: Online Analyser Details

Appendix A1 TITECH autosort 4 – RDF online analysis

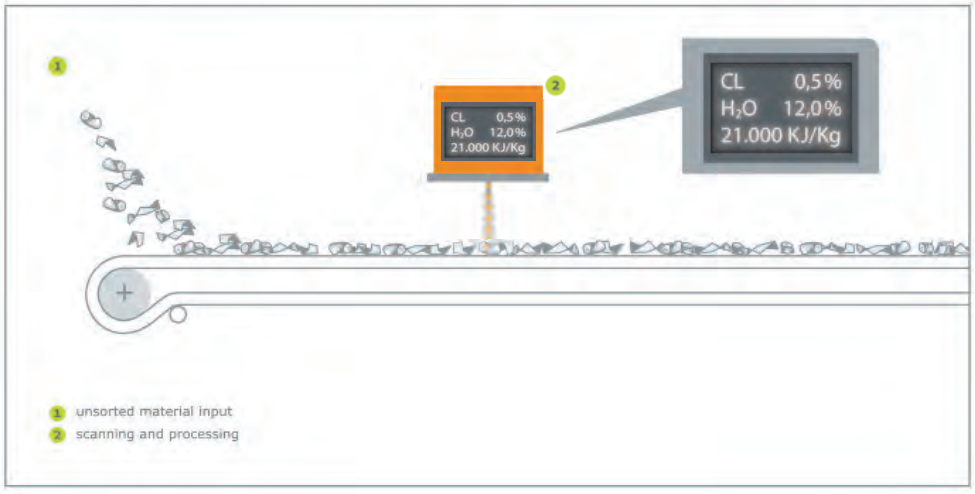
TITECH autosort 4 Overview

With TITECH autosort 4 for the RDF online analysis, it is possible to continuously determine quality parameter for refuse derived fuel. Near infrared sensors detect the chlorine and water content – as well as the calorific value. The DUOLINE® scanning technology automatically detects the materials contact-free during the production process.

A very good optical solution of the detection system, combined with a high measuring rate allows even small objects to be safely detected. The sensor itself detects materials, based on their specific and unambiguous spectral properties of reflected light. Two sensors are used simultaneously to detect different spectral areas.

To analyze RDF online, only the detection module is necessary. Other than systems, supplied for the recovery of valuables, this sorting unit is supplied without valve control and valve block.

The sketch below shows the functional principle of TITECH autosort 4 for online RDF analysis:



Input material (1) is evenly fed onto a conveyor belt, which is under the scanner. A constant flow of material is necessary to achieve correct measurements. To ascertain defined statistical data, the surface of the material stream is measured by the two NIR spectrometers (2). The material composition and water values, taken by the sensors will be assigned to empirically ascertained parameters, which make it possible to estimate the content of chlorine and water, as well as the calorific value.

The sensor can only detect chlorine that is organically bound in PVC. This means that this technology is based on the assumption that PVC is the main carrier of chlorine.

Chlorine and water content estimations must always be adjusted to new material streams. This requires the comparison with the representative lab samples to be repeatedly taken in defined intervals over the year.

The NIR sensor will not detect black or dark objects, as they do not reflect useful light. The analytical system ist not suitable for such materials. That is why black objects are excluded from the measurement results.

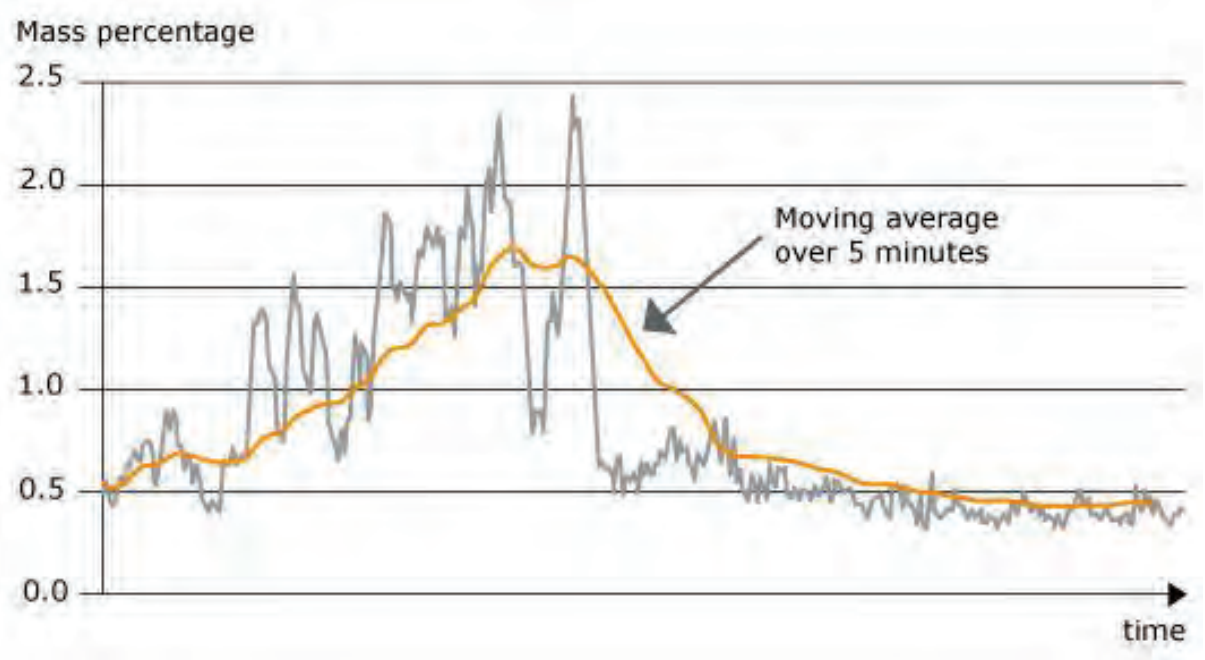
The material must be continuously fed to the analytical system – spread over the measureing width as even as possible. Varying layer heights to be avoided.

The calculated data for the chlorine and water content and the calorific value are of qualitative more than of quantitative nature. Based on the lab values, determined upon inspection of the input material, the online analyses system is calibrated and continuously supplies measuring values.

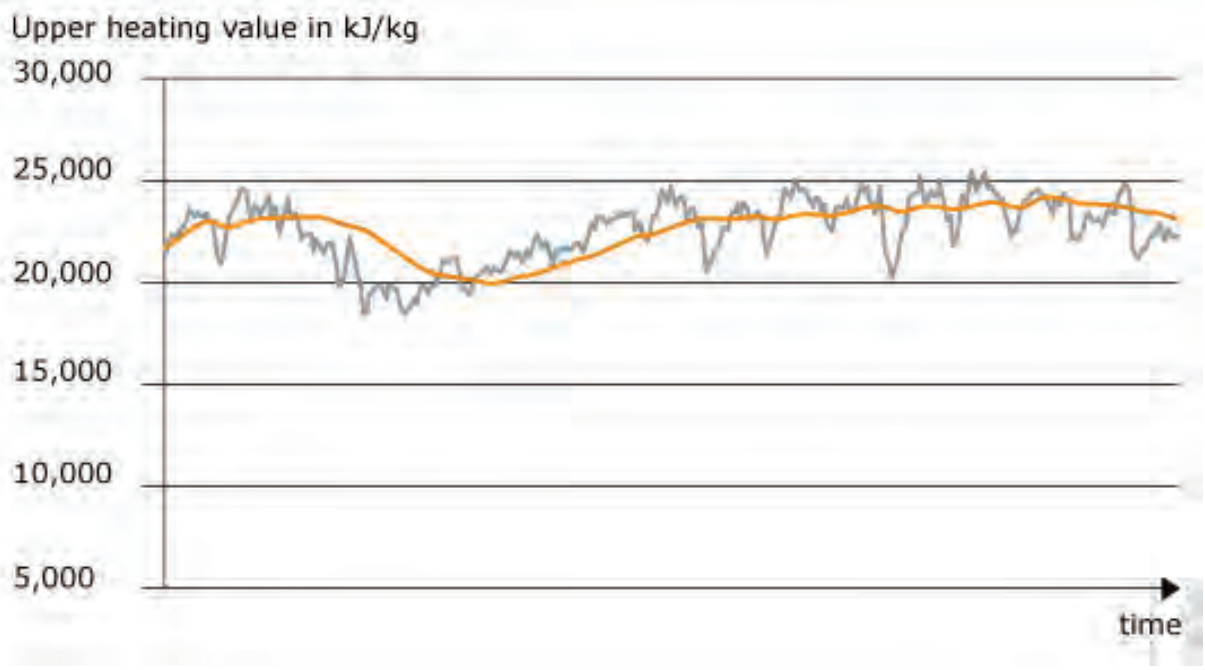
These data quality is clearly better than that of the lab values, as they are taken continuously - without interruption time-wise.

The data taken give an overview regarding the quality of the produced refuse derived fuel online and mainly serve the purpose to guarantee a stable process control and product quality.

Example – Online determination of chlorine



Example – Online determination of calorific value



System specification:

System	TITECH autosort 4 [NIR1-NIR2] - RDF online Analyse
Sensor configuration	NIR1 – NIR2 Installation position “low” High Resolution
Particle size	10 – 50 mm
Input material	Refuse derived fuel, high calorific (light fraction) Typical provenance: pre-sorted industrial waste or household waste
Working widths	600 / 1000 / 1400
Application package	RDF online analysis
Quality parameter **(additional statistical data)**	Water content Content of chlorine Upper/gross calorific value Lower/net calorific value
A.O.B.	Remote access – package I (VPN) Statistic Explorer (STATISTIC-EXP) Central Control Unit – Interface to visualize measurements (CCU)

TITECH autosort *4* scope of supply:

- Control unit with local control panel and analytical electronics
- TITECH autosort 4 operating software
- Scanner unit
- Lamp unit with cables and brackets
- EM sensor module integrated in the belt (optional)
- Cable sets
- Documentation: User Manual in national language within EU – in English for Non-EU countries

Further options available:

The following options and versions are labelled to show the version of the sorting system offered.

Option	Description
Statistik Options	
USB-Kit	USB download kit for statistic data
Data transfer	
OPC	Interface via OPC
MODBUS-TCP	To be inquired
LED-display	To be inquired

Surface treatment/colouring

Standard colour for Detection System and Control Unit is RAL 2008 (bright red-orange).

Environmental conditions and other requirements

- Temperature range: +5°C to +40°C
- Material dry to damp (not dripping)

Not included in the price:

- Steel construction and platform around the system with rails and stairs
- Service area
- Electric wiring to terminal
- Integration in the client's plant control system
- Lifting equipment
- Plant building (steel construction, conveyor technique)
- All options and optional extras unless otherwise stated in the system specifications
- Connection for remote access
- Customer to install network cable if more than one sorting system within the sorting plant is to be used
- Vibrating feeder if not expressively quoted under item “Scope of supply and prices”
- Any cost for lab measurements to parameterize quality parameter

Other supplemental information on client goods and services to be rendered is given in Appendices A2.

Appendix A3 Client specific contribution – lab analyses during commissioning

Parameterization of the estimation of chlorine, water content and heating value must be adapted to new material streams.
This requires that the data, TOMRA Sorting has measured need to be compared to the lab samples for the same time period.

Adaptation to the client-specific incoming material:

The scope of the lab analyses carried out by the customer depends on the following factors: measurement area to be calibrated, measuring accuracy to be achieved, nature of the fuel to be measured (e.g. particle size).

The more lab analyses are made, the more precise the measuring result. That is why the customer himself should be interested in making as many analyses as possible.

Lab analyses in general are not the most reliable source of information, as only a few grams of the total input stream are examined. That is why the adjustment of the TITECH system's data is difficult – but the only possibility to calibrate the system.

It is of utmost importance to unambiguously define the time correlation between representative sample take for the lab analyses and the TOMRA Sorting measurement. This means that the customer must take the sample at the same time as the online analytical system takes the measurements. Based on the samples, respectively the lab analyses, TOMRA Sorting will optimize the parameterization of the analysis.

When the samples are taken, the material stream must be homogeneous - should it differ from the input material specification R&D must be contacted.

The customer has to provide a working modem line which is the basic requirement before commissioning can start. Every sample taken must be discussed and co-ordinated with TOMRA Sorting's project management.
Before commissioning, TOMRA Sorting and customer will work out a commissioning schedule that will be discharged in the course of the 6 weeks commissioning.

Calibration sample – Water content measurement in the range of 10% - 25%
E.g. Calibration points in 5 % steps and every measurement to be repeated min. 3 times. (little standard deviation!!!), i.e. min 12 calibration points. Samples must be taken for a complete material stream for one time interval.
For larger calibration ranges, more analyses are necessary!

Calibration sample – measurement of chlorine content in the range of 0.3% - 1 %
E. g. 0.2 % steps, every measurement to be repeated at least 3 time (little standard deviation!!!), i.e. min 12 calibration points.

Calibration sample – measurement of the upper heating value

The upper heating value should be checked for different input streams at least 5 times each. The upper heating database values might differ for different input streams. In case of deviations more lab analysis might be necessary. The correct calibration is important for the calculation of the lower heating value.

Please note: ***The recommended intensity of the belt's threshold value is below 10%, as an transgression will lead to improper analysis data. Thus, the conveyor belt always needs to be kept clean during operation!***

For larger calibration ranges, more analyses are necessary!

15 Appendix 7: Draft Asbestos Management Plan

This document was provided to the EPA and is contained in Attachment 5 of the Response to Submissions (RTS) document

Appendix 2: Waste and PEF test results and sampling procedure

Removed from this document as it is Commercial In Confidence

Appendix 3: [redacted] cement kiln PEF supply agreement

Removed from this document as it is Commercial In Confidence

Appendix 4: [redacted] PEF supply agreement

Removed from this document as it is Commercial In Confidence

Appendix 5: Arcadis, 2016 PEF Sydney feedstock study for ResourceCo

Removed from this document as it is Commercial In Confidence

6 September 2016

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COMPLEX PROBLEMS RESOLVED SIMPLY

Suite 12, Level 14, 327 Pitt St
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Attn: Ben Sawley
ResourceCo RRF
PO Box 542
Enfield Plaza SA 5085

Dear Sir,

Re: ResourceCo
35-37 Frank Street, Wetherill Park- Stormwater Addendum Report
ResourceCo Stormwater Addendum Report.docx

(A) INTRODUCTION

ResourceCo are proposing to establish a resource recovery facility at 35-37 Frank Street, Wetherill Park. Mott McDonald prepared a concept stormwater management plan and site grading for the proposed development in January 2016. The Ahrens Group engaged Triaxial Consulting to further refine the site grading and stormwater management plan for the proposed development. The key drivers for this addendum are that the original concept documentation did not take into consideration:-

i) The impact of the new works on the existing east and west boundary retaining walls and the formation of an up to 6m high retaining wall on the north boundary. The original design undermined the existing blockwork retaining wall footing on the east boundary and significantly surcharged the existing crib retaining wall on the west boundary. This revised submission has minimised the undermining and surcharging of the existing west and east retaining walls respectively and reduced the north side retaining wall from 6m at the boundary to be approx. 3.3m at the boundary and then approx. 1.90m at the building alignment approx. 11m setback from the boundary.

ii) The existing sediment trap at the north-west corner of the site was documented to remain for the duration of the construction which is not practically buildable as the existing sediment trap encroaches well under the footprint of the new building, pavements and retaining walls. Early removal and reinstating the ground in the area of the sediment trap with controlled fill, integrally with the bulk earthworks, to the bench level is required. This revised submission summarises the staged preparation of new temporary sediment traps and the removal of the original one in parallel with the building works.

The revised design included refining the concept to reduce the amount of site filling and height of retaining structures. Triaxial Consulting have reviewed the previous works and have made some amendments to site levels and stormwater system layout.

This addendum report is to be read in conjunction with the Mott McDonald Stormwater Management Report dated January 2016 and Advisian Surface Water Assessment Report, also dated January 2016.

(B) SITE GRADING

The proposed concept grading for the site is shown in Triaxial Consulting drawing numbers C10 & C11, Appendix A. Notable changes to the site grading include:

- The floor level of the office has been reduced from 51.05 m AHD to 50.75 m AHD.
- The floor level of the workshop has been reduced from 50.10 m AHD to 49.65 m AHD.
- The floor level of the manufacturing facility has been reduced from 49.50 m AHD to 49.00 m AHD.
- The catchment area discharging to Frank Street has been significantly reduced to 25 m of the south western access road to the site.
- The access road around the northern end of the manufacturing facility has been lowered by approximately 2.5 m to reduce the height of the retaining wall and site filling along the northern boundary and the impact on the western boundary and existing crib retaining wall.
- The pavement to the eastern side of the building has been raised to minimise the undermining and impact of the new works on the existing blockwork retaining wall footing along the eastern boundary.
- The pavement to the western side of the building has been lowered to align as near as possible to the top of the existing crib retaining to minimise the impact of the new works on the existing crib retaining wall along the western boundary

(C) STORMWATER SYSTEM LAYOUT

The proposed stormwater system layout is shown in Triaxial Consulting drawing numbers C10 & C11, Appendix A. Notable changes to the proposed stormwater system layout include:

- Stormwater runoff from the car park on Frank Street is collected by two side entry pits and conveyed by an underground stormwater pipe system to the northern end of the lot.
- The 300 kL stormwater harvesting tank has been moved from the manufacturing facility to under the roadway on the northern side of the manufacturing facility.
- Overflows from the proposed 27 kL retention tank on the western side of the proposed workshop will be conveyed by the surface stormwater collection system to the northern end of the lot.

DRAINS MODELLING

A catchment plan for the proposed stormwater system is shown in Triaxial Consulting drawing C10 & C11 Appendix A. A DRAINS model was established to size the pit and pipe system to convey the 20-year Average Recurrence Interval (ARI) storm event peak flows, in accordance with Council's Stormwater Drainage Policy. The DRAINS model set up, 20-year ARI modelling results and 100-year ARI modelling results are shown in Appendix B. Note that the pit names and catchment names correspond to the Triaxial Consulting catchment plan shown in Appendix A.

The significant changes from the Mott McDonald Stormwater Management Report are:

- Only 2% of the site discharges directly to Frank Street in a 20-year ARI storm event. The remaining 98% of the site will discharge to the northern end of the site, to the DN900 mm pipe in the drainage easement.

- The 20-year ARI flow to Frank Street is 26 L/s. It is proposed to discharge the 20-year ARI flow to the kerb on Frank Street and not via direct connection to Council's existing DN450 mm stormwater pipe.
- 100-year ARI overflows from the manufacturing facility 300 kL retention tank will discharge to the DN900 mm pipe in the easement at the northern end of the site and not Frank Street.
- A combination of grated inlet pits and side entry pits will be used on the site. Side entry pits will be largely used on site to provide increased inlet capacity and reduce the risk of blockage.
- DRAINS modelling results show that a wall will be required along the western boundary, as shown in Triaxial Consulting drawing number C10 & C11, Appendix A, to direct 100-year ARI overland flows to Frank Street. The wall will need to be a minimum height of 48.80 m AHD.

(D) STORMWATER QUALITY IMPROVEMENT

The proposed stormwater quality improvement measures are shown in Triaxial Consulting drawing C10, C11 Appendix A. The significant changes from the Mott McDonald Stormwater Management Report are:

- It is proposed that the HumeGard Gross Pollutant Trap (GPT) and Downstream Defender sediment oil removal device are replaced with Ecosol RSF100 litter baskets in GIPs 3 and 4 to treat stormwater runoff from the relatively small access road catchment area of 427 m^2, discharging directly to Frank Street.
- Overflows from the 300 kL stormwater retention tank will not pass through a treatment device prior to discharging to the existing DN900 mm pipe in the northern drainage easement.

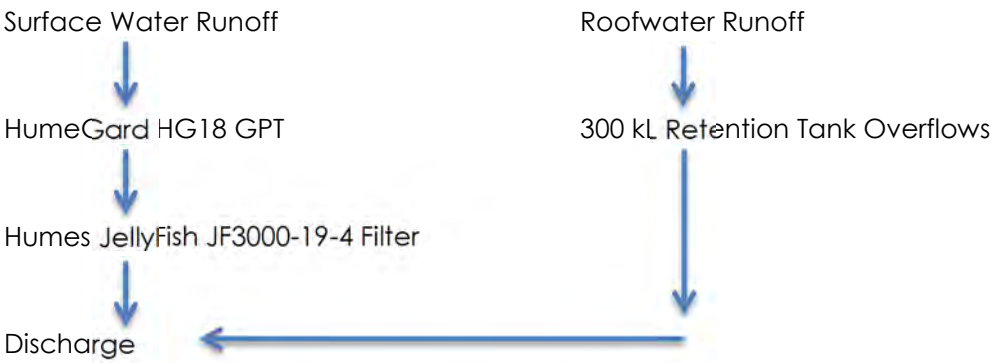
Response to EPA item – Discharges during operation

The EPA considers that the construction and operation of the facility should support the relevant NSW Water Quality Objectives (WQOs) and that any discharges from the premises should be derived to maintain or restore the WQOs of the receiving waters with reference to the ANZECC (2000) Guidelines. Advisian has noted in their additional response to the EPA that the WQO and ANZECC trigger values are "**not designed for direct application in activities such as discharge consents, recycled water quality or stormwater quality, nor should they be used in this way**" and "**They are not intended to be applied directly as regulatory criteria, limits or conditions**."

Advisian has informed Triaxial Consulting that the Blacktown City Council reduction targets remain the appropriate targets and any pollutant control measures for the Project should comply with these targets for any water leaving the site. Triaxial Consulting have shown that these targets have been met.

MUSIC MODELLING

A MUSIC model was established using Blacktown City Council's MUSIC Link data, which is consistent with the approach documented in the Mott McDonald Stormwater Management Report. The treatment train adopted for the proposed development discharging to the existing DN900 mm pipe in the northern drainage easement includes:



It is noted that overflows from the 27 kL retention tank, on the western side of the workshop, will discharge to the surface water stormwater collection system and will pass through the GPT and filter before discharging off site.

Stormwater reuse on site from both the 300 kL and 27 kL retention tanks was included in the MUSIC model. Daily reuse from the tanks was based on Table 4.2 from the Advisian, Surface Water Assessment Report, January 2016. Processing usage was assumed to only occur from the 300 kL tank and toilet flushing and landscape watering were only assumed from the 27 kL tank.

Table 4.2: 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

Source: Advisian Surface Water Assessment Report, January 2016.

The Humes JellyFish filter was sized based on 50% of the 1-year ARI flow. The DRAINS model 1-year ARI flow upstream of the GPT is 220 L/s. Therefore 50% of the 1-year ARI flow is 110 L/s, which corresponds to the treatment flow capacity of a Jellyfish JF3000-19-4 filter. A DN300 mm low flow diversion pipe will be installed in a pit downstream of the GPT to divert low flows to the JellyFish filter.

The MUSIC model layout is shown in Appendix C. The MUSIC model was simulated for the Blacktown City Council rainfall record, as per the MUSIC Link template. The MUSIC modelling results are shown in Appendix C and are summarised in Table 1.

Table 1 – MUSIC Modelling Results

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

The MUSIC modelling results in Table 1 show that the proposed measures are sufficient to meet Blacktown City Council's pollutant reduction targets.

(E) STORMWATER QUALITY & SEDIMENT MANAGEMENT DURING CONSTRUCTION

Response to EPA item – Discharges during construction

The proposed stormwater and sediment management measures during construction are shown in Triaxial Consulting drawing numbers C01, C02 & C03, Appendix A. Likely pollution caused by carrying out the construction work will be sediments from soil and other building materials. Most of the sediment pollution would be from erosion during a storm event. The stormwater and sediment management measures shown in the Triaxial erosion & sediment control plans & details reduce and control this form of pollution to protect the downstream environment. The significant changes from the Mott McDonald sediment management plan are:

- The existing sediment basin is not going to be used as the existing basin is partly under the proposed building footprint so the previous method would not have been able to be used for the full construction phase.
- The sediment control will now be a two stage process during construction as shown in the sediment control plans for stage 1 & 2 to ensure that there is adequate control at all stages of construction.
- The proposed 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.

- The water treatment requirements for any discharge from the sediment basin/tank are documented on the revised Triaxial Consulting Erosion & Sediment Control Plans. These measures will control any polluted water and prevent polluted discharge to the waterway which flows to Prospect creek.

(F) FIRE EVENT WATER CONTAINMENT

In the instance of a fire event the design will cater for the containment of contaminated fire services water on site, to be removed from site by vacuum truck.

(G) LEACHATE MANAGEMENT SYSTEM

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 appropriate disposal facility. The Standard Operating Procedure (SOP) to manage this potential issue will form part of the operating Environmental Management Plan (EMP) and will be completed prior to the commencement of site operations. With regard to the potential delivery of non-conforming waste it should be noted that SOPs will cover the prevention of delivery of such waste as well as the removal of such waste should it reach the site.

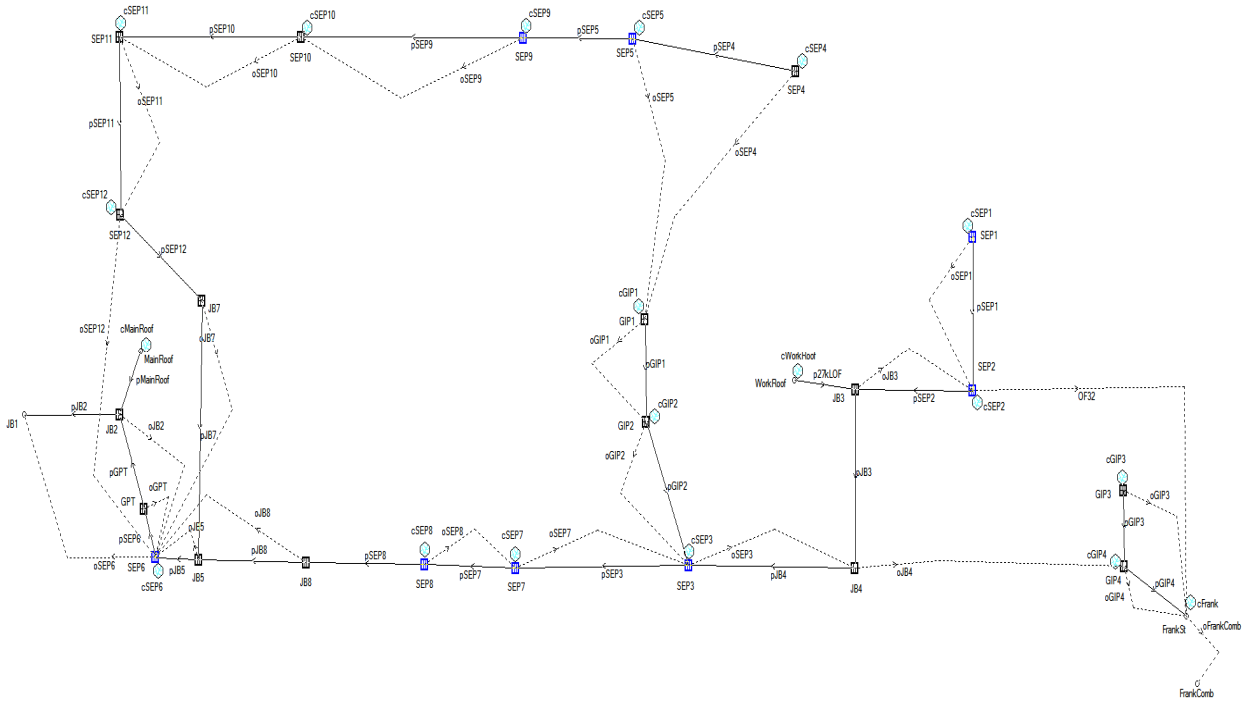
Yours faithfully,

TRIAXIAL CONSULTING

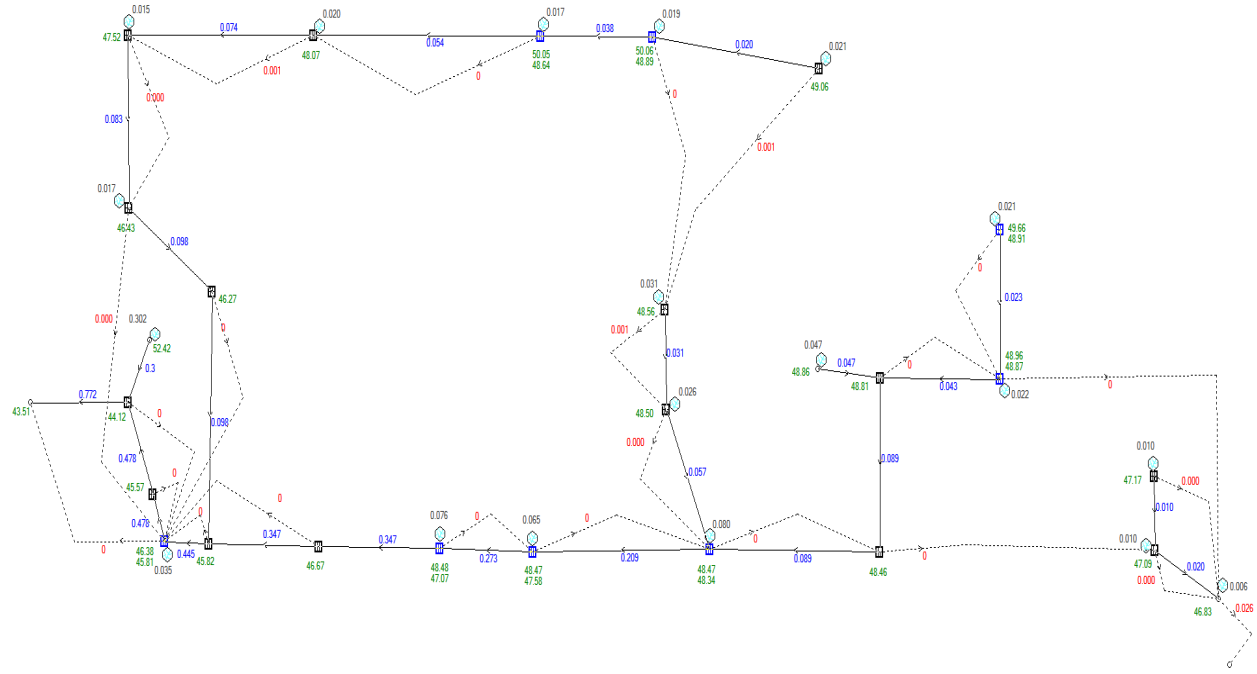
DANIEL VYDEN
Encl.

APPENDIX A
TRIAXIAL CONSULTING DRAWINGS

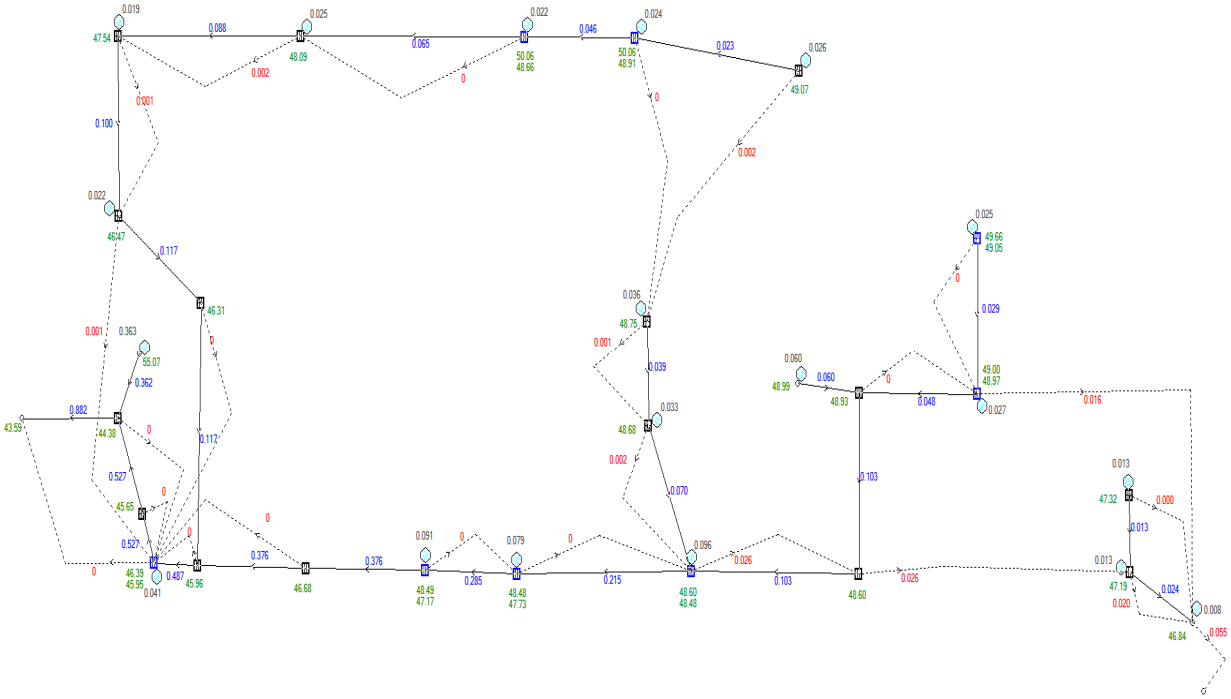
APPENDIX B
DRAINS MODELLING RESULTS



DRAINS Model Setup (above)

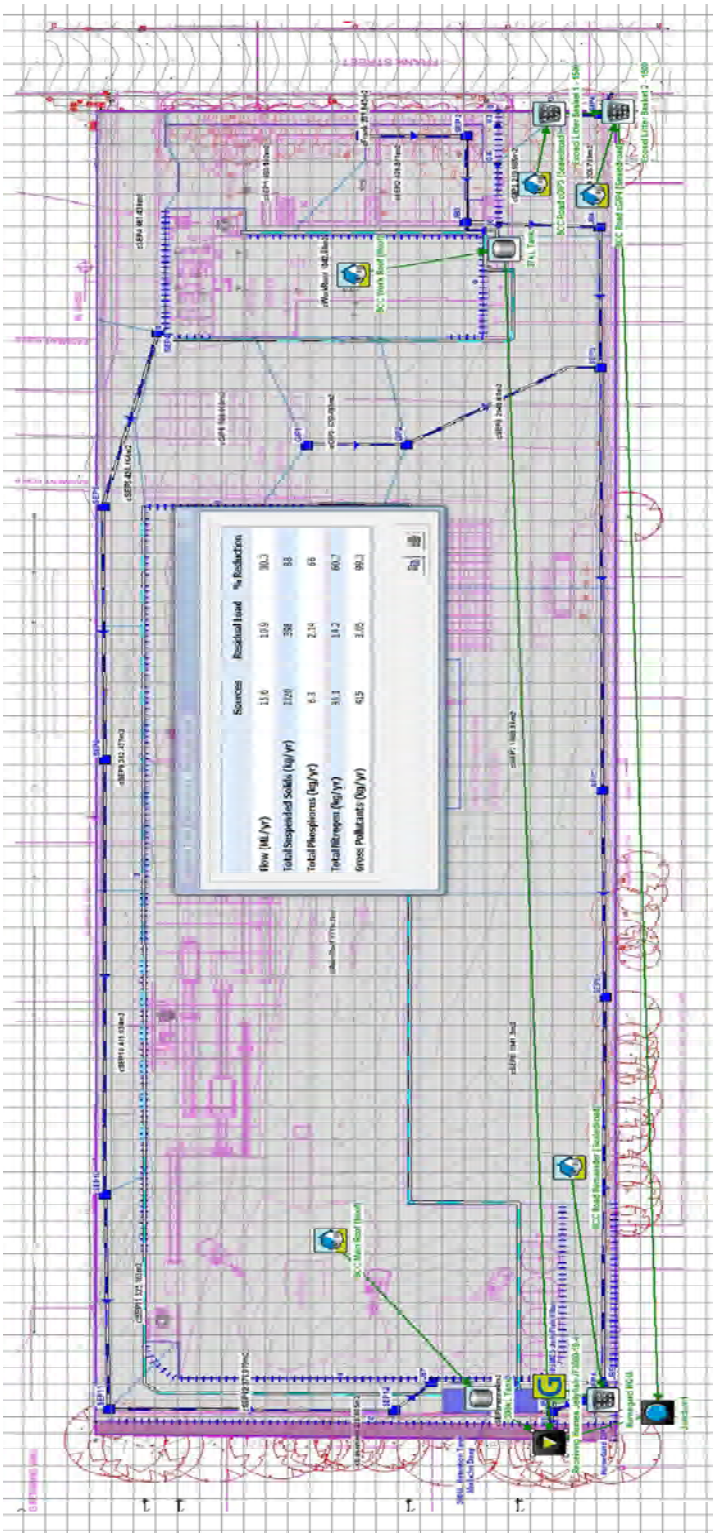


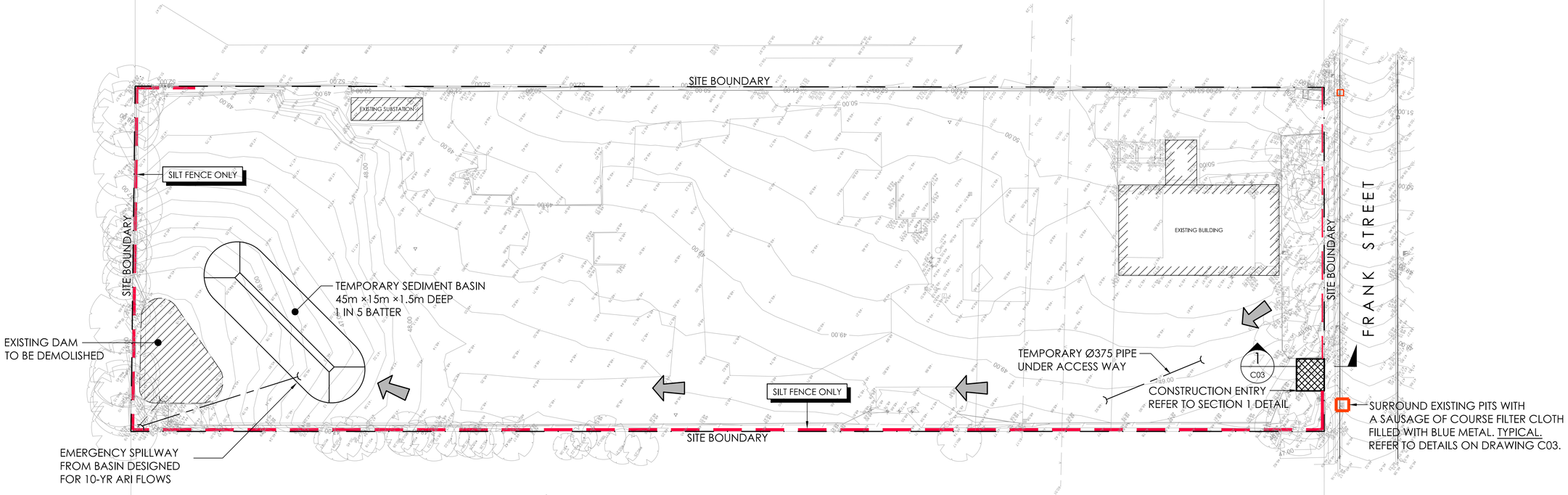
20-year ARI DRAINS Modelling Results (above)



100-year ARI DRAINS Modelling Results (above)

APPENDIX C
MUSIC MODELLING RESULTS





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

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PROJECT

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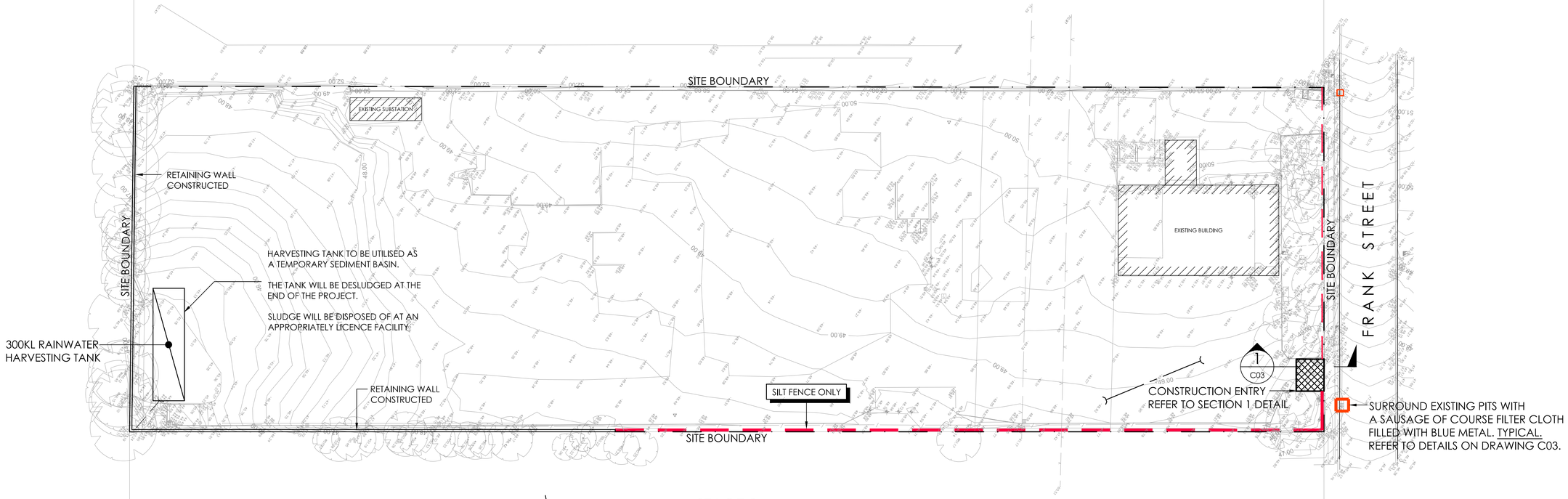
DESIGNED	DRAWN	DATE	SIZE	CAD REF
D.V.	F.N.	17.08.16	A1	TX-11972.00-C01

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

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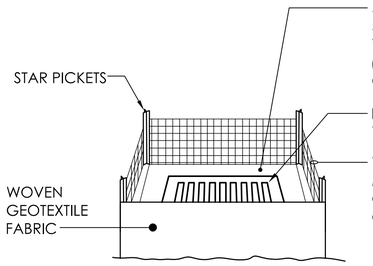
DESIGNED	DRAWN	DATE	SIZE	CAD REF
D.V.	F.N.	17.08.16	A1	TX-11972.00-C01

DRAWING TITLE
STAGE 2
EROSION & SEDIMENT CONTROL PLAN

DRAWING No
TX-11972.00 C02

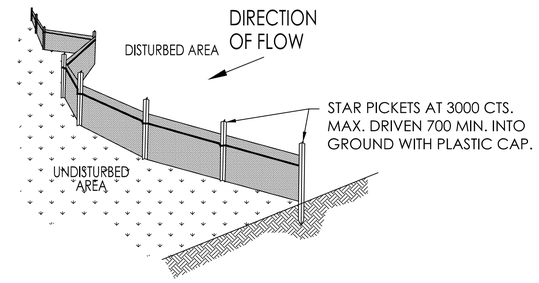
ISSUE
0



GRATED INLET PIT FILTER DETAIL

N.T.S.

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

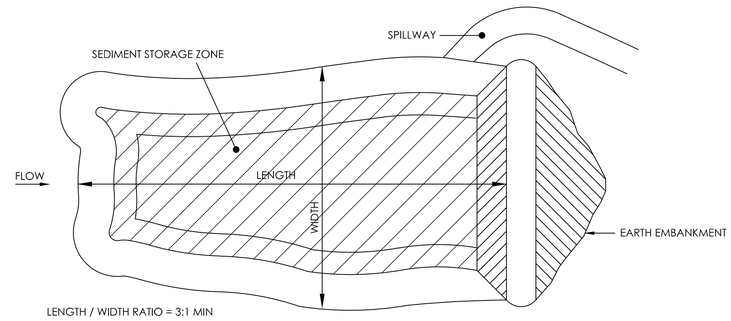


TYPICAL SILT FENCE DETAIL

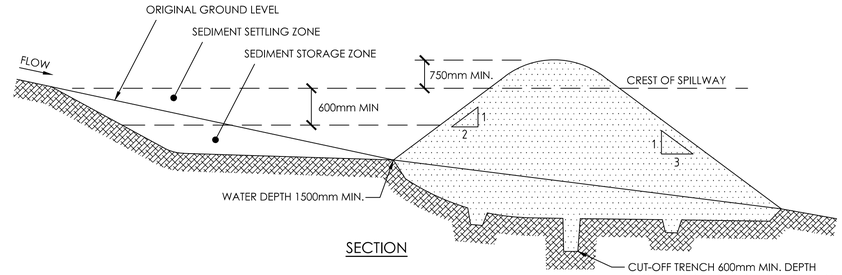
N.T.S.

PROVIDE 1m RETURNS AT 30m INTERVALS.

TYPICAL



PLAN



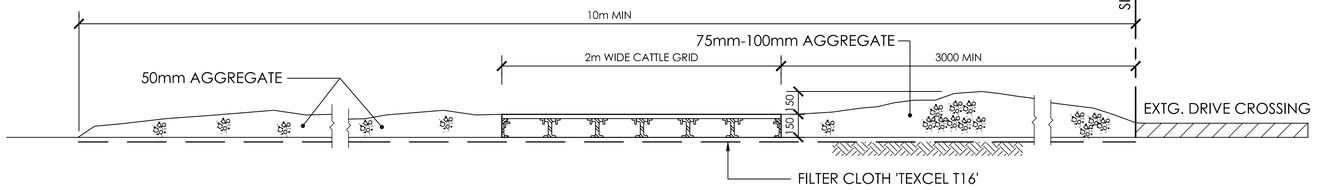
SECTION

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.

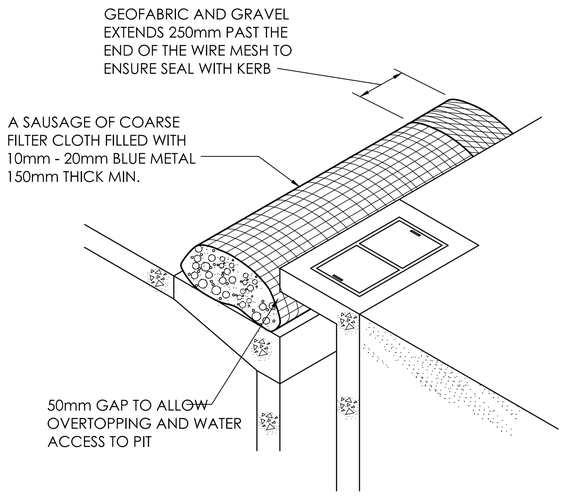
ALL EROSION & SEDIMENT CONTROL MEASURES TO BE INSPECTED & MAINTAINED DAILY BY SITE MANAGER.

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.

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

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DRAWING TITLE

EROSION & SEDIMENT CONTROL DETAILS

DRAWING No

TX-11972.00 C03

ISSUE

0

HEIGHT OF RETAINING WALL: 0.4m

HEIGHT OF RETAINING WALL: 0.3m

BOUNDARY LINE 188° 50' 41" 267.49 m

HEIGHT OF RETAINING WALL: 0.45m

BOUNDARY LINE 99° 29' 21" 77.62 m

LEGEND:

- <RW — DENOTES: ROOF DRAINGE LINE
- <SW — DENOTES: STORMWATER DRAINGE LINE
- DENOTES: RETAINING WALL LINE

RL: 49000

300kL RETENTION TANK
30×5×2m DEEP

HEIGHT OF RETAINING WALL: 1.85m

FFL: 47600

FFL: 48300

FFL: 48300

HEIGHT OF RETAINING WALL: 0.15m

HUMES JELLYFISH FILTER

SEP6

HUMEGARD GPT

HEIGHT OF RETAINING WALL: 3.0m

HEIGHT OF RETAINING WALL: 2.0m

HEIGHT OF RETAINING WALL: 1.4m

BOUNDARY LINE 8° 47' 10" 268.46 m

HEIGHT OF RETA WALL: 0.5m

STORMWATER PLAN

SCALE 1:200

2m 0 5 10 15 20m

SCALE 1:200 AT A1 SHEET | 1:400 AT A3 SHEET

ARCHITECT

AMENDMENTS	DATE	ISSUE
ISSUED FOR APPROVAL	24/08/2016	0
ISSUED FOR APPROVAL	23/08/16	A

STATUS
ISSUED FOR APPROVAL

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WETHERILL PARK N.S.W.

DESIGNED	DRAWN	DATE	SIZE	CAD REF
D.V.	D.F.	19/08/16	A1/A3	TX-11972.00-C01

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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

DRAWING TITLE
STORMWATER PLAN

DRAWING No
TX-11972.00 - C10

ISSUE
0

RL 50750

RL: 50.750

RL: 49.650

RL: 49.000

HEIGHT OF RETAINING WALL: 1.15m

HEIGHT OF RETAINING WALL: 0.6m

HEIGHT OF RETAINING WALL: 0.2m

HEIGHT OF RETAINING WALL: 1.1m

HEIGHT OF RETAINING WALL: 0m

HEIGHT OF RETAINING WALL: 0.5m

HEIGHT OF RETAINING WALL: 0m

HEIGHT OF RETAINING WALL: 1.1m

HEIGHT OF RETAINING WALL: 0.6m

HEIGHT OF RETAINING WALL: 0m

LEGEND:

<RW DENOTES: ROOF DRAINGE LINE

<SW DENOTES: STORMWATER DRAINGE LINE

DENOTES: RETAINING WALL LINE

BOUNDARY LINE 278° 46' 11" 77.38 m

' 47' 10" 268.46 m

STORMWATER PLAN

SCALE 1:200

2m 0 5 10 15 20m

SCALE 1:200 AT A1 SHEET | 1:400 AT A3 SHEET

ARCHITECT

AMENDMENTS	DATE	ISSUE
ISSUED FOR APPROVAL	24/08/2016	0
ISSUED FOR APPROVAL	23/08/16	A

STATUS

ISSUED FOR APPROVAL

CLIENT

Ahrens

PROJECT

RESOURCE CO.
35-37 FRANK STREET
WETHERILL PARK N.S.W.

DESIGNED	DRAWN	DATE	SIZE	CAD REF
D.V.	D.F.	19/08/16	A1/A3	TX-11972.00-C01

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DRAWING TITLE

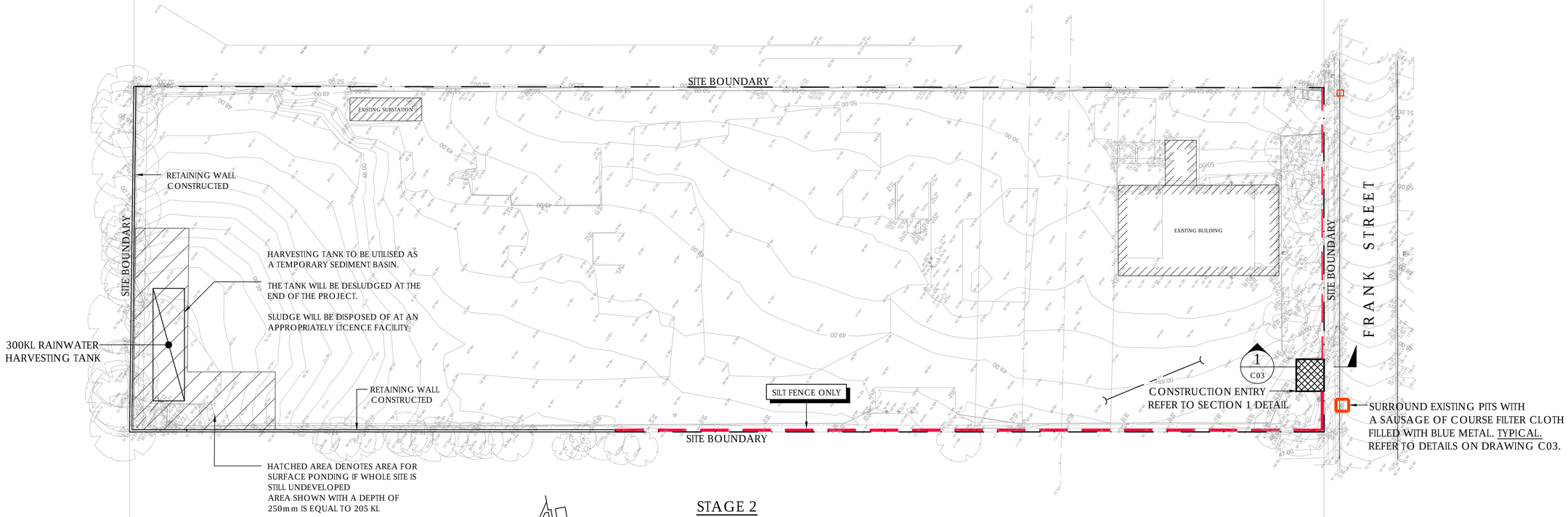
STORMWATER PLAN

DRAWING No

TX-11972.00 - C11

ISSUE

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 (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
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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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