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Waste Management Plan

Kariong Sand and Soil Supplies

90 Gindurra Rd, Somersby

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Executive Summary

The Davis Family are the owners of IN1 General Industrial zoned land at 90 Gindurra Rd, Somersby (Lot 4/DP227279). The site is currently used for storing and screening soil and sand, which is sold for landscaping. The site is referred to as the Kariong Sand and Soil Supplies (KSSS) site. The site was originally approved as a Sand and Metal Recycling Facility on 28/02/1992 (DA 15337). As part of the original approval, only the front section of the site was approved for this use.

Subsequently, approval has been given to construct a warehouse, office building and driveway at the northern end of the site (DA52541/2017). The building design and location was modified and approved by Central Coast Council on 21/09/2018 under DA52541/2017.2.

The Kariong Sand and Soil Supplies development will involve the construction and operation of a best practice recycling and landscape supplies facility that will enable the receipt of up to 200,000 tonnes of sand, soil and building materials each year. The project will transform the site into a state-of-the-art facility turning sand, soil and building materials into 100% recycled building and landscaping supplies. The facility aims to produce a number of building and landscape products, providing them for re-use mainly in the Central Coast region.

The project will involve the development of a largely undeveloped industrial site, to enable the facility to be used to receive, process and recycle construction and demolition waste, as well as supply building and landscape supplies for local projects. All waste materials will be received and processed indoors, to minimise impacts on the environment and neighbours.

The front part that will be visible from Gindurra Rd will be the landscaping supply operations, including landscaping along the road frontage and landscape storage bays behind the setback area. A fully enclosed warehouse where sorting and recycling operations will be conducted will be visible from the front of the site. Along the eastern boundary, a noise barrier and a native landscape buffer will be planted to avoid noise impacts on nearby rural dwellings, and to provide an aesthetically pleasing interface between the edge of the Somersby Industrial Estate and nearby rural zone lots and dwellings.

Waste processing and recycling operations for selected materials, including crushing and mulching will be done on the southern section of the site, where processing will also be done in dedicated buildings to avoid any impacts on nearby land uses. These operations are to be conducted at maximum distance from any sensitive receptors. The southern section of the site will be retained as bushland to provide a natural buffer between the development and other residential areas more than a kilometre away from the southern boundary of the site.

Advanced water capture, rainwater harvesting, water treatment and dust suppression systems will be integrated in all buildings and outdoor areas to prevent dust being formed. The site will also include an advanced membrane filtration plant to enable much of the water captured from the site to be fully reused across the site for operational uses. The site will also include its own weather monitoring station, high volume air samplers for continuous air quality and dust analysis, and continuous noise loggers to confirm compliance with consent and licence conditions. The site will be fully serviced with fire suppression systems.

The waste generated during the demolition / construction phase of the project is estimated to be up to 18,090 m³ of inert material (recycled concrete, rubble, soil), 5 m³ of scrap metal, 100 m³ of woody garden organics, 20m³ mixed building waste and 3 m³ of municipal solid waste (MSW). Existing concrete stockpiles on site need to be sampled and tested for compliance with the EPA's *Recovered Aggregate Resource Recovery Order 2014* to confirm the material is acceptable for use in construction works on the site. The metal will be recycled at a scrap metal recycling facility, off-site. The woody garden organics will be shredded to produce mulch, and either used on-site or sold. The MSW will be removed from site and disposed in a licensed landfill.

During the operational phase, up to 200,000 tpa of waste materials will be received on site for recycling. The majority will be soil or source-separated inert material. It is estimated that the recycling rate for the facility will be approximately 95%, with approximately 5,225 tpa of residual waste being removed for disposal to landfill. The recovered material will be processed into various building and landscaping products, and sold from the premises.

The proposed development will seek to expand the current facility into a best-practice recycling plant that will assist the Central Coast in achieving the NSW Government's target of an 80% recycling rate for construction and demolition waste by 2021.

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1. Introduction

1.1. Background

The Davis Family are the owners of IN1 General Industrial zoned land at 90 Gindurra Rd, Somersby (Lot 4/DP227279). The site is currently used for storing and screening soil and sand, which is sold for landscaping. The site is referred to as the Kariong Sand and Soil Supplies (KSSS) site. The site was originally approved as a Sand and Metal Recycling Facility on 28/02/1992 (DA 15337). As part of the original approval, only the front section of the site was approved for this use.

The development consent permits only limited processing and storage at the site. The majority of the site is bushland, with two areas cleared in use. The original consent permitted an operational area of approximately 10,000 m². An additional area of approximately 14,000 m² is currently being used as a processing and sorting area. Development approval is required to obtain consent to increase the permitted operational area to allow the design and construction of a resource recovery facility in line with best practice.

Subsequently, approval has been given to construct a warehouse, office building and driveway at the northern end of the site (DA52541/2017). The building design and location was modified and approved by Central Coast Council on 21/09/2018 under DA52541/2017.2.

The Kariong Sand and Soil Supplies development will involve the construction and operation of a best practice recycling and landscape supplies facility that will enable the receipt of up to 200,000 tonnes of sand, soil and building materials each year. The project transform the site into a state-of-the-art facility turning sand, soil and building materials into 100% recycled building and landscaping supplies. The facility aims to produce a number of building and landscape products, providing them for re-use mainly in the Central Coast region.

The proposed development will seek to expand the current facility into a best-practice recycling plant that will assist the Central Coast in achieving the NSW Government's target of an 80% recycling rate for construction and demolition waste by 2021.

The project will involve the development of a largely undeveloped industrial site, to enable the facility to be used to receive, process and recycle construction and demolition waste, as well as supply building and landscape supplies for local projects. All waste materials will be received and processed indoors, to minimise impacts on the environment and neighbours.

The front part that will be visible from Gindurra Rd will be the landscaping supply operations, including landscaping along the road frontage and landscape storage bays behind the set back area. A fully enclosed warehouse where sorting and recycling operations will be conducted will be visible from the front of the site. Along the eastern boundary, a noise barrier and a native landscape buffer will be planted to avoid noise impacts on nearby rural dwellings, and to provide an aesthetically pleasing interface between the edge of the Somersby Industrial Estate and nearby rural zone lots and dwellings.

Waste processing and recycling operations for selected materials, including crushing and mulching will be done on the southern section of the site, where processing will also be done in dedicated buildings to avoid any impacts on nearby land uses. These operations are to be conducted at maximum distance from any sensitive receptors. The southern section of the site will retained as bushland to provide a natural buffer between the development and other residential areas more than a kilometre away from the southern boundary of the site.

Advanced water capture, rainwater harvesting, water treatment and dust suppression systems will be integrated in all buildings and outdoor areas to prevent dust being formed. The site will also include an advanced membrane filtration plant to enable much of the water captured from the site to be fully reused across the site for operational uses. The

site will also include its own weather monitoring station, high volume air samplers for continuous air quality and dust analysis, and continuous noise loggers to confirm compliance with consent and licence conditions. The site will be fully serviced with fire suppression systems.

The proposed development will provide a broader range of recycling options and make progress towards the NSW Government's recycling targets.

1.2. Objectives

The objectives of the Waste Management Plan as stated in the *Gosford Development Control Plan 2013* (the DCP) are to:

- Maximise reuse and recycling of materials;
- Minimise waste generation;
- Ensure appropriate collection and storage of waste;
- Minimise the environmental impacts associated with waste management;
- Avoid illegal dumping;
- Promote improved project management;
- Optimise adaptive reuse opportunities of existing building/structures;
- Ensure appropriate waste storage and collection facilities;
- Maximise source separation and recovery of recyclables;
- Ensure waste management facilities are as intuitive for occupants as possible and readily accessible to occupants and service providers;
- Ensure appropriate resourcing of waste management systems, including servicing;
- Minimise risk to health and safety associated with handling and disposal of waste and recycled material and ensure optimum hygiene;
- Minimise adverse environmental impacts associated with waste management; and
- Discourage illegal dumping by providing on site storage, and removal services.

1.3. Legislative requirements and related documentation

The explicit details of managing particular types of wastes are clearly defined in the *EPA Waste Classification Guidelines* of the *Protection of Environment Operations Act 1997 (POEO Act)* to manage different waste types generated on-site. These include:

- Taking waste to the right waste management facility; and
- Specialised storage, handling, treatment and disposal requirements.

Other relevant legislation and publications are:

- *Environmental Planning and Assessment Act 1979*;
- *Waste Avoidance and Resource Recovery Act 2001*;
- *Protection of the Environment Operations (Waste) Regulation 2014*;
- *Work Health and Safety Act 2011* and the *Work Health and Safety Regulations 2011*;
- *Environmental Protection (Controlled Waste) Regulation 2001*;
- *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*: Part 5A, Division 4, Clause 5A.26 Garbage and waste storage;
- Australian Standards 2601-2001 Demolition of Structures;
- Gosford Development Control Plan 2013 – Part 7.2 Waste Management;
- *Recovered Aggregate Order 2014* and *Recovered Aggregate Exemption 2014*;
- *“Batch Process” Recovered Fines Order 2014* and *“Batch Process” Recovered Fines Exemption 2014*;

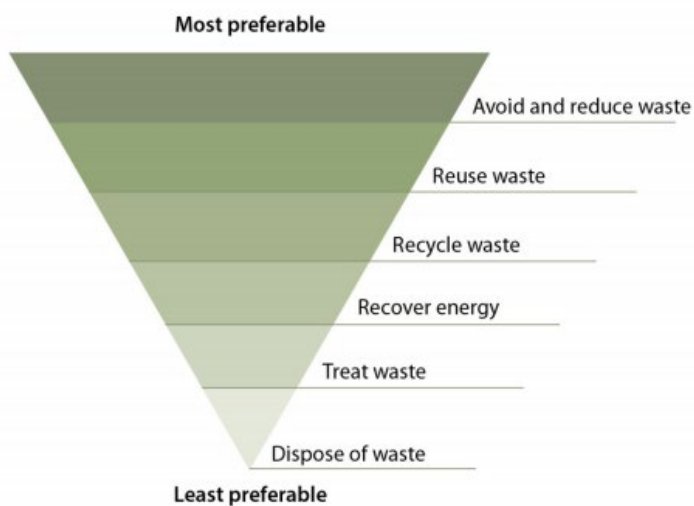
- NSW EPA (2014) *Draft Protocol for managing asbestos during resource recovery of construction and demolition waste*; and
- NSW EPA (2018) *Standards for Managing Construction Waste in NSW*.

The *Waste Avoidance and Resource Recovery Strategy 2014-21* has the following objectives:

- Waste Avoidance
- Increase recycling rate of Construction and Demolition waste to 80%
- Divert 75% waste from landfill
- Manage problem wastes better
- Reduce Litter
- Reduce Illegal Dumping

The manner in which waste is to be managed is driven by the Ecologically Sustainable Development principles. Guidance in managing waste has been provided by the hierarchical chart below.

Figure 1. The waste hierarchy as published in the NSW Waste Avoidance and Resource Recovery Strategy 2014-21.



1.4. Secretary's Environmental Assessment Requirements and Comments on EIS during Public Exhibition

The table below provides a summary of how the SEARs requirements are addressed. It also collates comments received on waste management aspects of the project

Agency	Requirement / comment	Response / where addressed.
SEARs	<p>Waste Management – including:</p> <ul style="list-style-type: none"> • A description of the waste streams that would be accepted at the site, including maximum daily, weekly and annual throughputs and the maximum size for stockpiles. 	Section 3.2.1 of the Waste Management Plan

Agency	Requirement / comment	Response / where addressed.
	<ul style="list-style-type: none"> A description of waste processing operations, including a description of the technology to be installed, resource outputs and the quality control measures that would be implemented 	Chapter 2 of the Waste Management Plan
	<ul style="list-style-type: none"> Details of how waste would be stored (including the maximum daily waste storage capacity of the site) and handled on the site, and transported to and from the site including details of how the receipt of non-conforming waste would be dealt with 	Chapter 3 of the Waste Management Plan
	<ul style="list-style-type: none"> Detail the development's waste tracking system for incoming and outgoing waste 	Section 2.2 of the Waste Management Plan
	<ul style="list-style-type: none"> Details if the waste management strategy for demolition, construction and ongoing operational waste generated 	Chapter 3 of the Waste Management Plan
	<ul style="list-style-type: none"> The measures that would be implemented to ensure that the development is consistent with the aims, objectives and guidance in the NSW Waste Avoidance and Resource Recovery Strategy 2014-2021. 	Chapter 2 and Chapter 3 of the Waste Management Plan
Comments on EIS from Public Exhibition (Feb – Mar 2019)		
NSW EPA – Waste Compliance (1 st submission)	<p>Table 2.3 of the EIS outlines that 40% or 79,200 tonnes per annum of the proposed product outputs for the facility as being manufactured soils produced under the provision of the Excavated Natural Material (ENM) Order 2014.</p> <p>Any material that has been processed cannot be considered ENM. The EPA considers that processing ENM significantly increases the risk for contamination and encourages poor practices such as blending contaminated materials with cleaner waste streams. As such, the EPA has specifically excluded processing from the definition of ENM.</p> <p>The ENM Order (section 1.1) and Exemption (section 1.2) clearly states that ENM does not include material:</p> <ul style="list-style-type: none"> located in a hotspot; that has been processed; or that contains asbestos, Acid Sulfate Soils (ASS), Potential Acid Sulfate soils (PASS) or sulfidic ores. <p>In light of the above, the proponent must advise what product outputs are proposed for the facility.</p>	<p>Any ENM received at the site will be immediately transferred to the landscape supplies business area for sale, after inspection. No ENM will be processed at the site. All ENM will meet the specifications and requirements in the ENM Resource Recovery Order and Resource Recovery Exemption.</p> <p>The EIS clarifies that only material that meets the definition of ENM under the Excavated Natural Material (ENM) Order 2014 will be sold as ENM.</p>
NSW EPA – Waste Compliance (1 st submission)	<p>The proposal details that mixed building waste comprises 5% or 10,000 tonnes per annum of the facilities incoming waste. The proponent must identify the source of the mixed building waste to give a better understanding of the potential contents of this waste.</p>	<p>Most material received at the site will be from demolition projects conducted by the site owner, Davis Quarrying & Earthmoving.</p>
NSW EPA – Waste Compliance (1 st submission)	<p>The EIS lists a number of waste types proposed to be accepted at the facility including hazardous and special waste. The EPA does not intend to licence the facility to accept these waste types and the proponent must implement strict procedures to prevent the acceptance of these wastes at the Premises.</p>	<p>The site does not intend to accept hazardous or special waste. The EIS is clear that the facility will follow the protocols for inspecting and rejecting/accepting loads described in the EPA's Standards for Managing</p>

Agency	Requirement / comment	Response / where addressed.
		Construction Waste in NSW (2018). More detail is provided in section 3.22 of the Waste Management Plan. A non-conforming waste protocol is provided at Attachment 1 of the Waste Management Plan.
Department of Planning and Environment	The Department notes the NSW Environment Protection Authority's (EPA) <i>Standards for Managing Construction Waste in NSW</i> (2018) will commence on 15 May 2019. A detailed assessment of the development against Standards 1 to 5 is required in the RtS.	Standard 1: Section 3.2.2 Standard 2: Section 3.3.1 Standard 3: Section 3.3.1 Standard 4: Section 3.3.2 Standard 5: Section 3.3
Department of Planning and Environment	The Department notes Figure E1 Process flow chart for recycling operations in the EIS shows that the first step of the primary sorting and processing includes "waste materials are moved into the 'Processing Area' via front end loader, a mobile excavator is used to remove any gross contaminants prior to processing, and residual waste then stored in bays for off-site disposal". The submitted plans do not show locations of residual waste storage bays. An updated site plan showing the residual waste bay is required in the RtS	An updated site plan, showing storage bays labelled by material is provided in Figure 3.5 of Waste Management Plan and Appendix E of the EIS.
Central Coast Council	<p>The development proposes to process 200,000 tonnes per year, and store 50,000 tonnes onsite at any one time, of non-putrescible construction and demolition waste, consisting of sand and metal, VENM soil, Soil (non-putrescible solid waste meeting the CTI threshold), concrete, tiles, masonry, asphalt, timber, stumps, root balls and mixed building waste (masonry, concrete, brick, tiles, wood, timber and metal). This is listed as a scheduled activity in the Protection of the Environment Operations Act 1997 ('POEO') and as such requires an Environmental Protection Licence ('EPL').</p> <p>As such the operation of the facility in relation to environmental issues (noise, air, water and land pollution) will be responsibility of the NSW EPA to administrator and enforce POEO. The EPL will also set limits in relation to the type of waste allowed to be received on the site, along with how much material can be stored and processed per day/ per year at the site, along with discharge limits. Conditions have been applied.</p>	Noted. An EPL will be applied for once the development is approved. The application will be consistent with the Waste Management Plan and the EIS.
Individual submissions	Suggested that waste should be recycled / better managed than disposed to landfill.	The purpose of the facility is to recycle construction and demolition waste. Most of the material received at the site will be soil. The site is not a landfill. No material will be buried at the site.
Individual submissions	Concerns that putrescible waste would be received.	No putrescible waste will be accepted at the site.
Individual submissions	Did not want Central Coast to receive waste from Sydney. Central Coast perceived as "dumping ground" for Sydney's waste.	While most of the material will be sourced from the Central Coast, the facility will also service development projects in

Agency	Requirement / comment	Response / where addressed.
		other areas. Further, it will provide high quality recycled products for local projects, including building and landscaping projects.
Individual submissions	Problems with illegal dumping in the area.	<p>The facility will provide a lower cost alternative to landfill for construction and demolition waste generated in the area. Illegal dumping is of concern across all areas. The proponent will work with Council to manage any illegal dumping problems near the facility.</p> <p>Community Consultative Committee (CCC) will be formed. One of the roles of the CCC will be to monitor any issues, such as illegal dumping.</p>
DPIE comments on Response to Submissions report (19 February 2020)		
DPIE	Table 6.3 outlines the incoming waste materials at the site during the operational phase. It is noted that the EIS has stated that soil loads that meet the requirements of the EPA Excavated Natural Material Resource Recovery Order 2014 will be either sold unprocessed as ENM or blended and processed with other soil materials to produce manufactured soils. Regardless if materials have been pre-classified as ENM, if it has been blended/processed then the material no longer meets the definition of ENM, and subsequently would require to be re-classified against a current EPA RR order, or have a specific RR order approved by the EPA for the purposes of re-use.	Noted. ENM will be received and sold unprocessed in accordance with the ENM Resource Recovery Order 2014. Or depending on customer requirements, KSSS will apply for a specific Resource Recovery Order and Exemption for any blended soils as per Clause 92 of the <i>Protection of the Environment Operations (Waste) Regulation 2014</i> . Update the Waste Management Plan with this detail, and add a new column 2 into Table 3.4 "or a Specific Resource Recovery Order to be sought from the EPA."

2. Project Description

The project is to establish a C&D recycling facility at 90 Gindurra Rd, Somersby. There will also be a building and landscape supplies business at the site, which will source the majority of its products for sale from the construction and demolition (C&D) waste recycling facility.

The project consists of two stages; the demolition / construction phase and the operational phase.

The demolition and construction phase involves the following activities:

- Clear selected vegetation from the front half of the site as determined by the Fauna and Flora and Vegetation Management Plan;
- Construct sediment control basin to capture run-off during construction;

- Grading of site. Construct retaining walls. Install water, power and recycled water services across the site. Install hardstand across the operational areas of the site;
- Install noise wall along eastern side of the site;
- Construct onsite roads, new entrance and modifications to Gindurra Rd (turning lane);
- Construct stormwater drainage system, including pond, floating wetland, level rock spreader, bioswales, gross pollutant traps and a packaged recycled water plant, connect to sewer;
- Construct crusher building;
- Construct mulcher building;
- Construct tip and spread waste receival building, rainwater harvesting tanks and misting system. Install truck wash bay, coalescing plate separator and awning (and connect to sewer);
- Install dust and fire suppression systems across the site, including the Secondary Sorting Warehouse;
- Construct waste storage bays, aggregate and landscape supply concrete bays, including bay mounted sprinkler system;
- Install processing equipment in crusher building, mulcher building and secondary sorting warehouse;
- Install weighbridge, traffic control lights and boom gates on site;
- Install environmental monitoring equipment (weather station, high volume air samplers, dust gauges, sound meters);
- Complete landscaping works;
- Commissioning and testing of site plant, equipment and environmental control systems;
- Commence formal operations for receival and recycling of waste materials up to 100,000 tonnes per annum;
- Install second weighbridge and weighbridge office once waste receival exceeds 100,000 tonnes per annum;
- Waste receival to increase to 150,000 tonnes per annum subject to the site demonstrating compliance with consent and EPA licence conditions and satisfactory environmental performance; and
- Waste receival to increase to a maximum of 200,000 tonnes per annum subject to the site demonstrating compliance with consent and EPA licence conditions.

The construction phase involves grading to achieve the desired final contours. The Tip and Spread building will be constructed of metal sheeting on a concrete base, with a metal roof. The crusher building and mulcher building will be constructed of metal sheeting.

The operational phase involves the operation of the C&D recycling facility to produce recycled products from C&D waste. The building and landscape supplies business will mainly sell recycled C&D materials produced by the C&D recycling facility. However, it will also import some additional products from off-site, such as compost and specialist soils.

2.1. Demolition and construction phase

The demolition / construction phase consists of removing existing stockpiles of concrete, rubble and metal from the site. The site then needs to be cleared and levelled. This will involve excavating some areas and filling other areas of the site. The site will then be compacted, to form a working hard stand using recycled concrete aggregate above a geotextile membrane. Selected areas of the site will be surfaced in recycled asphalt (under the landscaping material storage bays and waste storage bays), which will be brought onto the site. The crushed concrete aggregate hardstand areas will be compacted to form a hardstand surface suitable to support the operational machinery and heavy vehicle traffic. The main access driveway and the tip and spread inspection area will be provided with an engineered concrete hardstand.

Material in the existing stockpiles will be used for pavement construction as far as possible. Cleared woody garden organics and trees will be mulched and either used on-site or sold.

Three buildings will be constructed; the Crusher Building, the Mulcher Building and the Tip and Spread Building.

2.2. Operational phase

The operational phase of the project consists of receiving, inspecting, processing and storing waste materials from off-site. The resulting products will be stored and sold through a landscape and building supplies business on the site.

All material received and leaving the site will be weighed on the weighbridge. Therefore, the facility operators will know how much material has been processed, is on-site and has been removed from site. Amounts of waste received, processed and removed from site will be reported via the New South Wales Waste and Resource Reporting Portal (WARRP).

In accordance with the NSW EPA (2018) *Standards for managing construction waste in NSW* and the NSW EPA's Draft Protocol for managing asbestos during resource recovery of construction and demolition waste, incoming loads will be thoroughly inspected using a two-stage process; initial inspection at the weighbridge and a thorough inspection at in the Tip and Spread building.

All material arriving on site will be unloaded in a designated receiving tip and spread area. The tip and spread area is enclosed in a 3-sided building with a misting dust suppression system. The load will be spread out to a height of no more than 100mm using an excavator. The load will be inspected to ensure no unacceptable materials are in the load. Loads with unacceptable material (such as hazardous materials, asbestos, etc.) will be re-loaded and removed from site.

Non-hazardous contaminants, such as plastic, treated timber and paper/cardboard, will be removed during the inspection stage. These will be stored separately in a skip bin (within the Tip and Spread building) awaiting removal from site for disposal at a licensed landfill. Recoverable materials are sorted and stored in separate storage bunkers awaiting processing.

Virgin Excavated Natural Materials (VENM) and Excavated Natural Materials (ENM) received at the site will be transferred directly into storage bunkers after inspection. Any material to be sold as VENM or ENM will not undergo any processing as per *The Excavated Natural Material Order 2014*. However, some VENM or ENM received at the site may be blended with other materials to manufacture other products. Kariong Sand and Soil Supplies may apply for a special exemption in the future to allow the screening of VENM and/or ENM to remove large rocks.

Mixed building waste will be inspected in the receiving area, then transferred to the secondary processing building for sorting. The equipment in the secondary processing building consists of a hopper, conveyor, screens, a manual sorting line and wind sifter. Sorted materials are transferred to the product storage area or back to the main processing area for further processing or blending.

The processing equipment in the main processing area includes a crushing, shredding and screening equipment. Inert materials, such as concrete, bricks, rubble, rocks are crushed, screened and blended to meet product specifications. The final products, such as aggregate, roadbase, soil substitute, are transferred to the storage bunkers.

Clean timber and tree waste will be shredded to produce mulch, which will be sold through the landscape and building supplies business in accordance with the EPA's *Mulch Order 2016*.

Scrap metal will be stored in bunkers and periodically removed from site by a scrap metal recycler.

All products will be tested in line with EPA requirements to ensure products meet the requirements of the relevant regulatory instrument and the client's specification.

3. Waste Management

The implementation of waste management practices outlined in this waste management plan meet the key objectives of Gosford DCP Part E7.2. These measures address the economic, environmental and safety imperatives during the

demolition and construction phases and into the operational phase. These enhanced management practices also produce triple bottom line benefits including financial efficiencies, sustainable demolition and construction methods and a safe work site for the duration of the demolition and construction process.

These positive outcomes will be achieved through thorough planning and procurement of exacting measurements reducing upfront costs of demolition and construction which will benefit the business directly.

The benefits of the management practices outlined in the plans will be realised from the outset by both the business and the broader community in the form of reduced costs of disposal, reduced costs of legal liability and common good through:

- Separation of waste at the source during the demolition and construction phase;
- Maximising recovery of valuable resources;
- Exercising due diligence for safe disposal of waste; and
- Providing a safe worksite.

3.1. Demolition and construction phase

The development phase of the project does not involve the demolition of any built structures. There are a number of stockpiles on site, mainly used concrete (approximately 18,090 m³). There is also a small stockpile of recyclable metal.

This phase of the project involves removing excess stockpiled material, levelling and filling the site to achieve desired contours, constructing hardstands and roads across the site, and constructing three buildings.

3.1.1. Waste generation

The waste streams generated on site during the demolition and construction phase are as summarised in Table 3.1 below.

It should be noted that existing concrete stockpiles on site need to be sampled and tested for compliance with the EPA's *Recovered Aggregate Resource Recovery Order 2014* to confirm the material is acceptable for use in construction works on the site. Non-compliant materials will be removed for disposal at an appropriate facility.

Table 3.1. Estimated waste generation during demolition and construction phase.

Source	Material	Description	Estimated amount
Land clearing	Woody garden organics	Tree stumps and branches, as well as some grasses.	100 m ³
Stockpile removal, processing	Stockpiled C&D waste	Existing concrete stockpiles on site need to be sampled and tested for compliance with the EPA's <i>Recovered Aggregate Resource Recovery Order 2014</i> to confirm the material is acceptable for use in construction works on the site. There are also small amounts of scrap metal stockpiles at the site. These will be removed from site and transferred to a scrap metal recycler.	18,090 m ³
Site levelling	Soil	The cut and fill plan indicates a net importation of 71,300 m ³ of fill will be required for the development. Material used will be VENM or ENM in accordance with the EPA's <i>Excavated Natural Material Resource Recovery Order 2014</i> .	Nil
Site capping / pavement construction	Recycled concrete and asphalt	Recycled crushed concrete will be used as an engineered pavement (above a geotextile membrane) across the operation areas. Recycled asphalt will be brought onto the site to be laid down and compacted to produce a final sealed layer beneath the waste storage bays,	Nil

Source	Material	Description	Estimated amount
		landscaping storage and aggregate storage bays. All material brought onto the site will be used on-site. Products used will comply with the EPA's <i>Recovered Aggregate Resource Recovery Order 2014</i> and the <i>Reclaimed Asphalt Pavement Resource Recovery Order 2014</i> .	
Building construction	Metal & mixed building waste	The buildings will be constructed primarily of metal. Small amounts of packaging materials may be associated with transport of building materials	20m ³
Employee waste	MSW	Small amounts of packaging waste and other MSW will be generated by employees on site conducting the development project.	240L per week for 12 weeks

3.1.2. Waste management measures

The management and destination of waste materials from the demolition and construction phase of the project is summarised in Table 3.2 below.

As noted above, the stockpiles of used concrete need to be inspected and tested for compliance with the EPA's *Recovered Aggregate Resource Recovery Order 2014* to confirm the material is acceptable for use in construction works on the site. If the material is suitable, it will be processed (crushed and screened) and used to produce a crushed concrete hardstand across the site. If the material is not suitable, it will be removed from site and disposed in an appropriate landfill.

Table 3.2. Waste management measures during demolition and construction phase.

Material	Treatment / destination	Estimated recovery rate
Woody garden organics	Woody garden organics will be shredded and either used as mulch on site or sold as mulch in the landscape products business.	100%
Stockpiled C&D waste	Concrete stockpiles will be investigated and tested for compliance with EPA <i>Recovered Aggregate Resource Recovery Order 2014</i> . Compliant materials to be used as a base for the hardstand area. Scrap metal will be sold. Any non-useable material, including stockpiles found to be contaminated will be removed from site and disposed in a licensed landfill.	95%
Soil and concrete	Any excess material will be sold directly off-site as fill or stockpiled for sale in the building products business.	100%
Recycled asphalt	Recycled asphalt brought onto the site will comply with EPA <i>Reclaimed Asphalt Pavement Resource Recovery Order 2014</i> and will be used as a top layer for the hardstand that forms the operational area of the site in accordance with the EPA <i>Reclaimed Asphalt Pavement Resource Recovery Exemption 2014</i> . Any excess will be sold as product in the building supplies business.	100%
Mixed building waste	Any metals will be separated for re-use or recycling. Mixed building waste will be collected in a skip bin and sent to landfill.	10%
MSW	MSW will be collected in a MGB and removed weekly by a licensed waste removal contractor, and disposed at a licensed landfill.	0%

The overall waste recovery rate for the demolition / construction phase will be 95-100%.

Residual waste will be collected in a separate stockpile or skip bin and regularly removed from site for disposal in a licensed landfill (Genesis Landfill, Eastern Creek, EPL: 13426). Recovered metal will be removed to a metal recycler off-site (One-Steel, EPL: 1977).

3.2. Operational phase

The operational phase consists of the operation of the 200,000 tpa C&D recycling facility. In addition, it is estimated a further 10,000 tpa specialist landscape products may be imported for sale in the landscape supplies business. The C&D recycling facility will be operated in accordance with the NSW EPA's *Standards for Managing Construction Waste in NSW* and the NSW EPA's *Draft Protocol for Managing Asbestos during Resource Recovery of Construction and Demolition Waste*.

3.2.1. Waste generation

The site operations will generate very little waste itself. The vast bulk of "waste" materials will be brought onto site for processing. While a small proportion of this material will be non-recyclable "residual" waste, most material will be recovered, processed and sold as products. The total amount of residual waste is expected to range from approximately 2,500 tonnes in the first year of operation up to approximately 5,225 tpa once the facility reaches full capacity. Figure 3.2 shows the anticipated composition of the material that will be delivered to the site for processing. Figure 3.3 shows the extrapolated tonnes received over the first 6-7 years of operation, assuming the facility reaches full capacity in 2027. As these charts show, the majority of the waste will be source-separated, inert material, such as soil or concrete/brick/tiles. The aim will be to recover as much material as possible to recycle into products for sale through the landscape and building supplies business to be located at the site.

Figure 3.2. Composition of incoming waste stream.

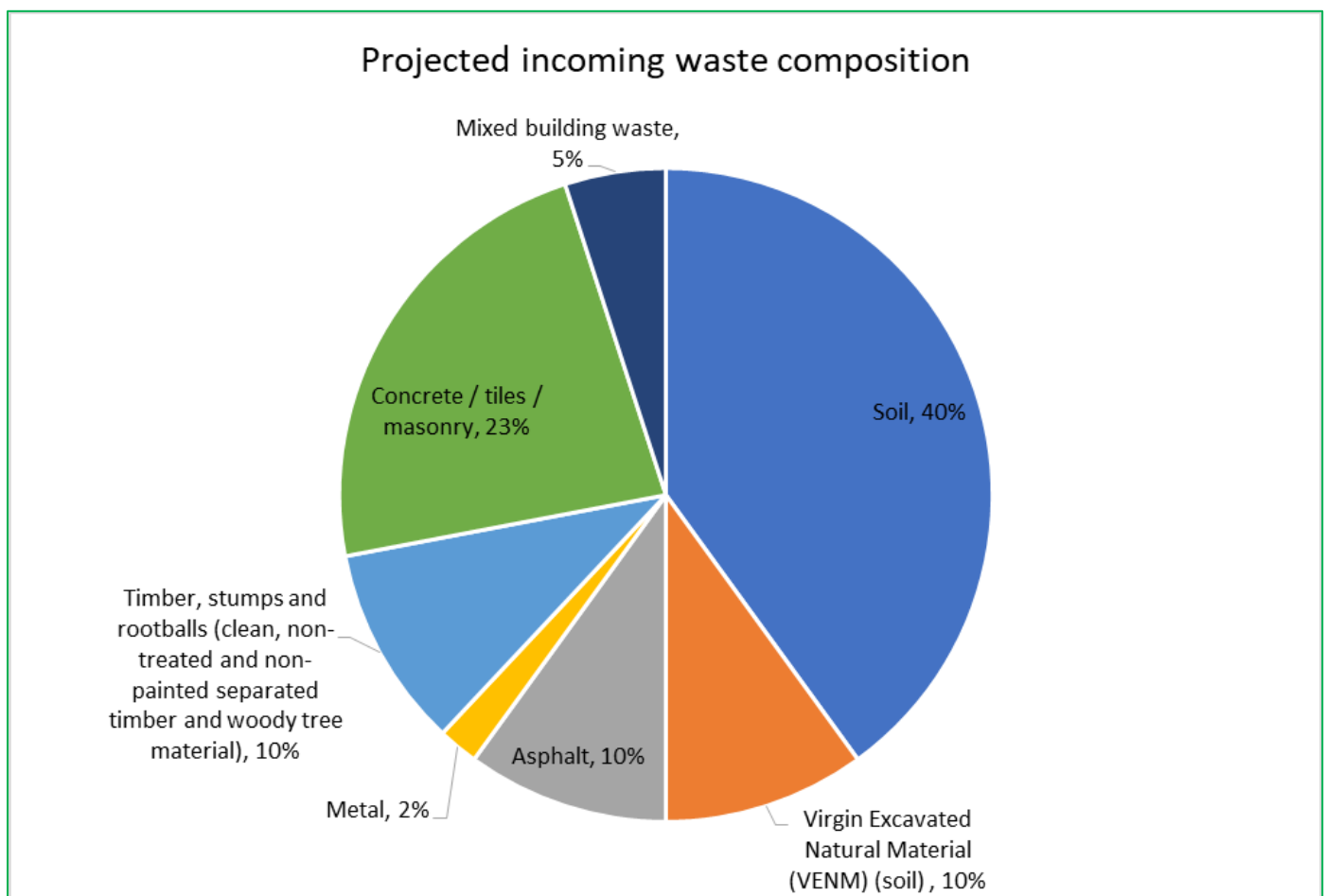


Figure 3.3. Estimates of annual amounts of incoming waste during the operational phase.



The anticipated daily and weekly amounts of incoming waste when the facility is at maximum capacity of 200,000tpa is presented in Table 3.3. These amounts may vary, depending on what construction or demolition projects that customers are engaged in at any one time.

Table 3.3 Estimated weekly and daily amounts (based on the facility operating six days per week).

Incoming waste	Weekly amount	Daily amount
Soil	1,538	256
Virgin Excavated Natural Material (VENM) (soil)	385	64
Asphalt	385	64
Metal	77	13
Timber, stumps and root balls (clean, non-treated and non-painted separated timber and woody tree material)	385	64
Concrete / tiles / masonry	885	147
Mixed building waste	192	32
TOTAL	3,846	641

3.2.2. Waste inspection, acceptance and non-conforming waste

Most customers using the site will be regular customers, with much of the material recycled at the site generated through projects associated with Davis Earthmoving & Quarrying's civil works projects. All regular customers will be informed of which wastes are acceptable at the site, and which are not. In addition, a sign will be erected at the entrance to the site clearly stating which materials are not accepted at the site, including asbestos, as required in the NSW EPA's *Draft Protocol for Managing Asbestos during Resource Recovery of Construction and Demolition Waste*.¹

The incoming waste inspection and management of non-conforming loads will conform to the standards in the NSW EPA's *Standards for managing construction waste in NSW*.² These are summarised below.

Standard 1 Inspection requirements

At the verified weighbridge on entry into the facility (inspection point 1), trained personnel must:

1. Inspect the entire top of each load from an elevated inspection point or by using a video camera connected to a monitor and determine whether or not the load contains any asbestos waste and any other unpermitted waste;
2. Where the load is identified as containing, or is reasonably suspected to contain, any asbestos waste, reject the entire load of waste by directing the driver to immediately leave the facility and record the information required by Standard 1.4 into the C&D waste facility's rejected loads register; and
3. Where the load is not rejected, record the details as required by clause 27 of the Waste Regulation and direct the driver and the load of waste to proceed directly to inspection point 2.

¹ NSW EPA (2014) Draft Protocol for Managing Asbestos during Resource recovery of Construction and Demolition Waste, Internet: <https://www.epa.nsw.gov.au/-/media/epa/corporate-site/resources/waste/140345-asbestos-draft.pdf> ; accessed 11/09/2019.

² NSW EPA (2018), Standards for managing construction waste in NSW, internet: <https://www.epa.nsw.gov.au/-/media/epa/corporate-site/resources/wasteregulation/18p1270-standards-for-managing-construction-waste-in-nsw.pdf> ; accessed 4/12/2018.

At the tip and spread inspection area (inspection point 2), trained personnel must:

1. Direct the driver of the vehicle to tip the entire load on the tip and spread inspection area;
2. Spread the entire load and inspect the visible surface area for any asbestos waste and any other unpermitted waste. Tipped loads must not come into contact with any other waste materials;
3. Manually turn, or direct a plant operator to turn, the entire load and inspect the entire load for any asbestos waste and any other unpermitted waste on or beneath the visible surface;
4. Where any asbestos waste is identified, reject the entire load of waste.
5. Where any other unpermitted waste is identified, remove that waste from the load or reject the entire load of waste.
6. Where a load is rejected, ensure that the entire load is immediately reloaded onto the vehicle in which it arrived or onto another vehicle and ensure that the vehicle with the rejected load leaves the C&D waste facility on the same business day and then immediately record the information required by Standard 1.4 into the C&D facility's rejected loads register; and
7. Ensure that all waste that may lawfully be received at the C&D waste facility proceeds to be sorted and stored in accordance with Standards 2, 3 and 4.

Standard 1.2 does not apply to a load of construction waste received at the C&D waste facility that, upon receipt, only contains waste that meets the requirements of a resource recovery order, as evidenced by a statement of compliance for that waste which has been provided and kept in accordance with the applicable resource recovery order and is current at the time of receipt. The statement of compliance must be made available for inspection to an authorised officer of the EPA if requested. This load of waste must be immediately transferred to the appropriate waste storage area referred to in Standard 4.

3.3. Products from recycling operations

Table 3.4 provides an estimate of the breakdown of the products that will be made and sold at the site, once the facility reaches full capacity of 200,000 tpa.

Table 3.4. Estimation of annual amounts of products from recycling operations at the facility.

Product output	EPA Resource Recovery Order	Standard Specification	or % of product	Tonnage output per year (approx.)
Manufactured Soils	Excavated Material Order 2014	Natural Australian Standard AS4419 (2003): Soils for Landscaping and Garden Use	40	79,200
Aggregate and road base ¹ Products to include: sand (0-6mm); Aggregate (0-10mm; 10-14mm; 10-20mm; 20-30mm; 30-40mm; 40-60mm); Road base (0-20mm; 20-40mm); and Recycled	Recovered Aggregate Order 2014	IPWEA (2010). Specification for Supply of Recycled Material for Pavements, Earthworks and Drainage	25	50,040

Product output	EPA Resource Recovery Order	Standard Specification	or % of product	Tonnage output per year (approx.)
terra cotta aggregate (0-6mm; 6-10mm; 10-20mm)				
Virgin Excavated Natural Material (VENM) (soil)	EPA VENM validation certificate required	n/a	10	20,000
Asphalt	<i>Reclaimed Asphalt Pavement Order 2014</i>	IPWEA (2010). Specification for Supply of Recycled Material for Pavements, Earthworks and Drainage	10	19,800
Timber mulch	<i>Mulch Order 2016</i>	N/a	11	21,300
Metal (ferrous and non-ferrous)	N/a	N/a	2	4,000
Paper / cardboard	N/a	N/a	0.3	500
Plastic	N/a	N/a	0.3	500
Residual waste sent to landfill	N/a	N/a	2	3,200
TOTAL			100	200,000

Products will be manufactured to meet the relevant resource recovery orders, standards and product specifications. All loads will be inspected prior to leaving the site to ensure only quality material is sold from the facility.

3.3.1. Waste management measures

Figure 3.4 shows the process flow chart for accepting, inspecting and processing the incoming waste material.

Table 3.3 summarises the waste treatment and destination for each of the incoming waste streams. The majority of waste received at the site will be processed into re-usable products for sale through the on-site building and landscape supplies business. The small amount of dry residual waste will be stored separately on-site, in either skip bins or bunkers, prior to removal to a licensed landfill for disposal.

Where appropriate, all products will conform to the relevant Order and Exemption. It is anticipated that the following orders will be relevant to this facility;

- *Recovered Aggregate Resource Recovery Order 2014;*
- *"Batch process" Recovered Fines Resource Recovery Order 2014*
- *Mulch Resource Recovery Order 2016;*
- *Recovered Plasterboard Resource Recovery Order 2014*
- *Excavated Natural Material Resource Recovery Order 2014*
- *Reclaimed Asphalt Pavement Order 2014.*

It is anticipated that the site will receive large amounts of VENM and ENM. The facility may apply to EPA in the future to obtain a special order/exemption to permit the screening of VENM and ENM to remove large rocks, which would make these material more suitable for re-use.

Products will also be required to conform to customer specifications.

Figure 3.4. Flowchart of waste acceptance and processing operations during operational phase.



3.3.2. Waste storage

After inspection in the tip and spread area, materials that have been accepted at the site will be stored in designated, labelled concrete bays in the waste storage area. Some materials, such as timber or concrete, will require further processing. These are transferred to the relevant processing area as and when required. Products that do not require further processing are transferred to the product sales area as required.

All stockpiles are inspected regularly for contamination, quality and containment.

3.3.3. Authorised amount (maximum stock held on site)

Under Clause 10B of the *Protection of the Environment Operations (Waste) Regulation 2014*, operators of licensed resource recovery facilities are required to not exceed the storage of a certain amount of waste and processed products (from waste) on site at any one point in time. This is referred to the 'Authorised Amount'. Exceedance of the Authorised Amount triggers the requirement for payment of the Waste and Environment Levy for tonnages of waste and product held on site (above the Authorised Amount). This regulatory measure encourages operators of resource recovery facilities to manage the inventory of waste and products held on site to avoid potential risks and hazards to the environment, public safety and human health.

An assessment of the storage capacity of the site based on designated areas for waste storage, processing, blending and product storage is provided in Table 3.5.

Table 3.5. Analysis of the storage capacity of the site for waste materials and processed products, based on the site layout and concrete block and outdoor storage areas.

Waste or product storage area (refer Figure 3.5)	Waste material or product storage	Bay or pile dimensions (m)	Volume stored (maximum) (m ³)	Bulk density [‡] (t/m ³)	Maximum storage capacity (tonnes)
Waste storage bays	Soil (Bay 1)	21 m (wide) x 18m (deep) x 3 m (high)	1,130	1.1	1,243
	Soil (Bay 2)	21 m (wide) x 18m (deep) x 3 m (high)	1,130	1.1	1,243
	Soil (Bay 3)	21 m (wide) x 18m (deep) x 3 m (high)	1,130	1.1	1,243
	Virgin Excavated Natural Material	21 m (wide) x 18m (deep) x 3 m (high)	560	1.1	616
	Metals	21 m (wide) x 18m (deep) x 3 m (high)	1,130	0.8	904
	Timber	21 m (wide) x 18m (deep) x 3 m (high)	1,130	0.8	904
	Asphalt	21 m (wide) x 18m (deep) x 3 m (high)	1,130	1.1	1,243
	Mixed building waste	21 m (wide) x 18m (deep) x 3 m (high)	1,130	0.7	791
	Concrete / masonry / tiles	21 m (wide) x 18m (deep) x 3 m (high)	560	1.2	672

Waste or product storage area (refer Figure 3.5)	Waste material or product storage	Bay or pile dimensions (m)	Volume stored (maximum) (m ³)	Bulk density [†] (t/m ³)	Maximum storage capacity (tonnes)
Tip and spread area	Tip and spread area 1	Assume no storage	-	-	-
	Tip and spread area 2	Assume no storage	-	-	-
	Tip and spread area 3	Assume no storage			
	Tip and spread area residual waste	1 x 20m ³ skip bin	20	1.1	22
Crusher Building area	Inert waste for crushing	Area ≈10m x 20m Height ≈3m	200	1.1	660
	Processed inert product in piles	Area ≈2 bays x 10m x 20m Height ≈3m	400	1.1	1,320
	Residual waste	1 x 20m ³ skip bin	20	1.1	22
Mulcher Building area	Timber feed awaiting processing	Area ≈19m x 4.5m Height 3m	258	0.8	206
	Mulched processed product	Area 4 bays x 10m x 11m Height ≈3m	1,320	0.8	884
Blending area	Processed products awaiting blending of blended awaiting for storage in landscaping supplies bays	Assume ≈50% area can be used for temporary storage. Total area ≈3,130 m ²	4,700	1.3	6,110
Secondary Processing Building	Timber	3 m3 skip bin	3	0.8	2.5
	Wood mulch	3 m3 skip bin	3	0.8	2.5
	Paper/cardboard	3 m3 skip bin	3	0.77	2.3
	Plastics	3 m3 skip bin	3	0.6	1.8
Landscape storage (centre of site 12 bays total)	Landscaping supplies	Total storage area in bays ≈67m x 18m x 3m high	3,600	1.5	5,400
Aggregate storage area (4 bays)	Recovered aggregates	Total storage area in bays ≈40m x 11m x 3m high	1,320	1.3	1,716
Landscape storage bays at front of site (13 bays)	Various landscape supply materials	Total storage area in bays ≈3,365 m ² x 3m high	10,095	1.1	11,105
Total estimated site storage capacity			30,975		36,313

[‡] Density factors sourced from NSW EPA (2015). *Waste Levy Guidelines* (Table 4.1).

It is noted that as part of the development, the site will store up to 10,000 tonnes of pebbles, bricklayers sand, plasterers sand, washed paving sand, soil mixes, pine mulches, timber mulches and other landscaping products which will be purchased and sold commercially from the site.

The analysis in Table 3.5 suggests that operationally, the site can store up to 30,975m³ of wastes and processed products, equivalent to an estimated 36,313 tonnes of materials. These estimates include the storage of the purchased landscaped supply materials which will be sold commercially from the site.

As a consequence, the total amount of waste and products derived from waste that can be safely stored on the site is estimated to be 40,000 tonnes at any one point in time. Given this, the proponent will seek to apply for an Authorised Amount of 40,000 tonnes at any one point in time under Clause 10B of the *Protection of the Environment Operations (Waste) Regulation 2014*.

3.3.4. Stockpile heights

Stockpile heights have been based on best practice guidelines outlined in the South Australian Environmental Protection Agency (EPA SA, 2010)³ in order manage fire, dust and odour:

- Stockpiles of waste materials in the designated waste storage area will be limited to 3m. Height guidance will be provided by the 3m height of the concrete block bays;
- Stockpiles will limited to a maximum height of 3m in the processing area near the Crusher Building;
- Stockpiles of inert material such as concrete, brick, soil etc. will be limited to a maximum of 3m in height in the blending area. Height poles to the exact length (3m) will provide on-site guidance for stockpile management;
- Stockpiles of organic material such as timber and mulch will be limited to a maximum of 3m in height in the processing and blending areas. Height poles to the exact length (3m) will provide on-site guidance for stockpile management; and
- Stockpiles of all processed products, aggregates and landscaping supplies will be limited to 3m. Height guidance will be provided by the 3m height of the concrete block bays.

³ EPA South Australia (2017). Guideline for stockpile management: Waste and waste derived products for recycling and reuse. Internet publication: http://www.epa.sa.gov.au/environmental_info/waste_management/solid_waste/storage_and_stockpiling

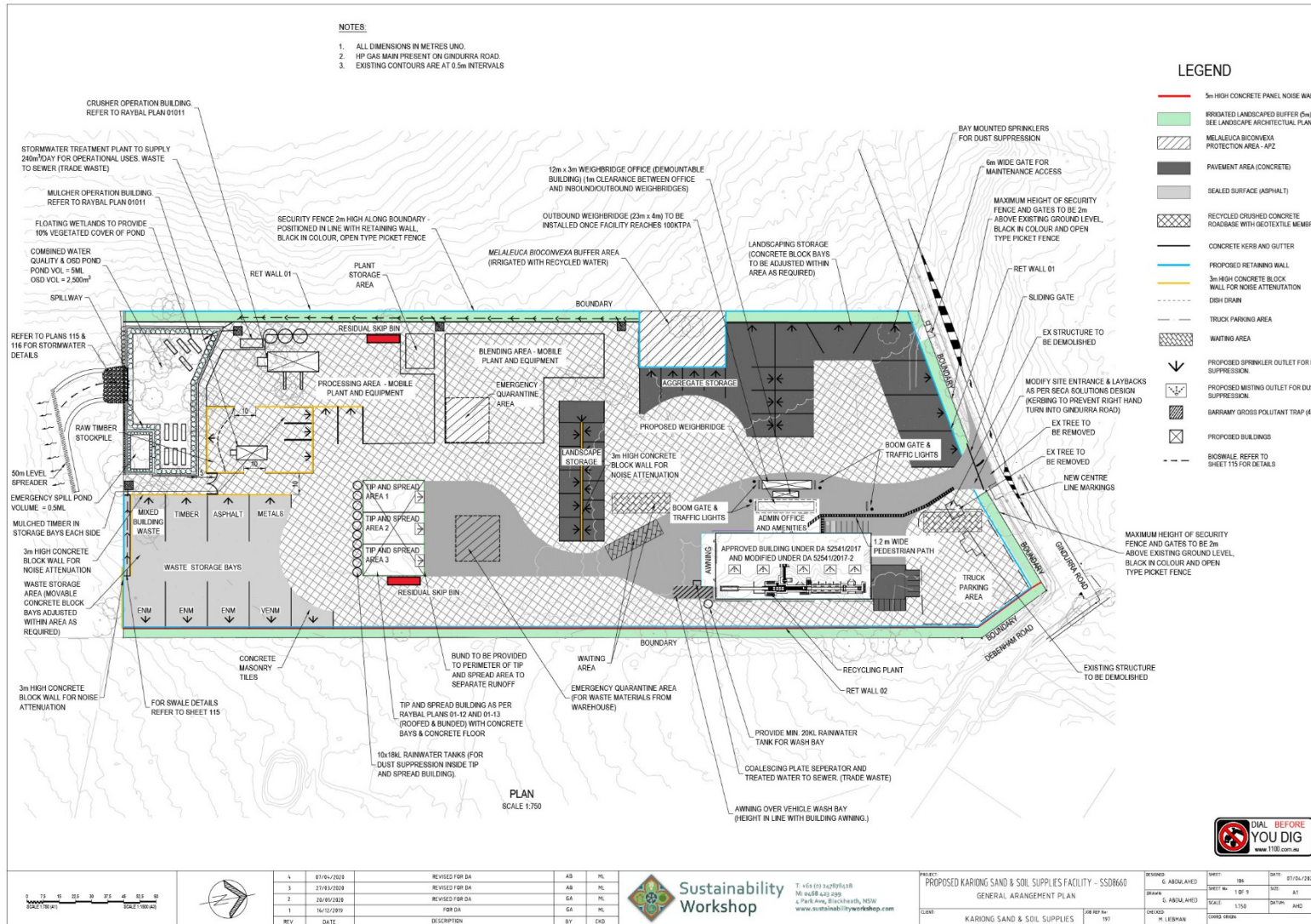
Table 3.3. Waste Management during the operational phase.

Incoming Material	Description	Processing / treatment	Destination	Resource Recovery Order for Products	Expected recovery rate (wt%)
Mixed building waste	Mixed building waste from demolition or construction projects. Waste may contain cardboard, plastic, etc. among the concrete, bricks, soil, metal.	<p>Loads will be received separately in B-Doubles, semi-trailers, skip bins or rigid trucks, tipped in an unloading bay in the Tip and Spread Building, then moved via front end loader to the 'Mixed building waste' storage bay. Material will then be subject to a primary sorting process using a grab excavator to remove concrete, steel and timber. Residual waste to be stored in skip bin or a separate bunker and disposed off-site.</p> <p>Concrete, masonry, clean timber from the primary sorting process will be separated and crushed/shredded and screened to specifications to produce saleable products.</p> <p>Residual waste from the primary sorting process will be stored in skip bin before being transferred to a secondary sorting facility located in the warehouse building at the North of the site. The secondary sorting process consists of a screen trammel, a picking station, a magnet and a blower. Concrete, brick, asphalt, paper, cardboard, plastic and metals will be separated at the secondary processing stage. Separated materials will be stored in skip bins prior to being transferred for recycling. Residual waste from the secondary processing stage will be stored in skip bins prior to being disposed off-site at a landfill.</p>	<p>Recovered materials will be processed into saleable products and sold either directly to customers or through the on-site building supplies business. Aggregate will be sold to construction and road projects. Recovered fines will be sold as landfill alternative daily cover. Re-useable timber will be sold for construction and landscape projects.</p> <p>Residual waste will be collected in a separate bunker or skip bin and regularly removed from site for disposal in a licensed landfill (Genesis Landfill, Eastern Creek, EPL: 13426).</p>	<p>Recovered Aggregate Resource Recovery Order 2014;</p> <p>"Batch process" Recovered Fines Resource Recovery Order 2014</p> <p>Mulch Resource Recovery Order 2016;</p> <p>Recovered Plasterboard Resource Recovery Order 2014.</p>	85%

Incoming Material	Description	Processing / treatment	Destination	Resource Recovery Order for Products	Expected recovery rate (wt%)
Concrete tiles / masonry	Source-separated inert building materials, such as concrete, tiles, bricks and rubble.	Loads will be received separately in B-Doubles, semi-trailers or rigid trucks, tipped in the unloading bay associated with the 'Tip and Spread Building', then moved via front end loader to the 'Concrete/tiles/masonry' storage bay. Material will then be crushed / screened in the 'Processing area' then stored in a pile then moved to the 'Landscape supplies' bunker for sale.	<p>Clean, inspected material will be crushed, screened and blended to produce aggregate and soil-replacement products. These will then be sold either directly to customers or through the on-site building supplies business.</p> <p>Any contaminants will be collected in a separate bunker or skip bin and regularly removed from site for disposal in a licensed landfill (Genesis Landfill, Eastern Creek, EPL: 13426).</p>	<p>The Recovered Aggregate Resource Recovery Order 2014;</p> <p>The "Batch process" Recovered Fines Resource Recovery Order 2014</p>	99%
Timber, stumps, and rootballs	Clean, non-treated and non-painted separated timber and woody tree material.	Loads will be received separately in rigid trucks, tipped in the unloading bay associated with the 'Tip and Spread Building', then moved via front end loader to the 'Timber' storage bay. Material will then be chipped in an on-site shredder. Chipped material will then be moved via front end loader to the 'timber' mulch storage bay in the landscape supplies area	<p>Clean, inspected material will be shredded, screened and blended to produce a range of mulches and landscape products. These will then be sold either directly to customers or through the on-site building supplies business.</p> <p>Any contaminants will be collected in a separate bunker or skip bin and regularly removed from site for disposal in a licensed landfill (Genesis Landfill, Eastern Creek, EPL: 13426).</p>	Mulch Resource Recovery Order 2016	99%
Metal	Steel, iron, copper, aluminium and other metal items.	Loads will be received separately in rigid trucks, tipped in the unloading bay associated with the 'Tip and Spread Building', then moved via front end loader to the 'Metals' storage bay. Material will then be picked up and taken off-site for recycling in a semi-trailer on a periodic basis.	<p>Clean, inspected metals will be sorted into metal types. Some scrap metal may be shredded to reduce size and save space. Recovered metal will be removed to a metal recycler off-site (One-Steel, EPL: 1977).</p> <p>Any contaminants will be collected in a separate bunker or skip bin and regularly removed from site for disposal in a licensed landfill (Genesis Landfill, Eastern Creek, EPL: 13426).</p>	n/a	99%

Incoming Material	Description	Processing / treatment	Destination	Resource Recovery Order for Products	Expected recovery rate (wt%)
Asphalt	Recovered asphalt from re-surfacing roads and pavements.	Loads will be received separately in B-Doubles, semi-trailers or rigid trucks, tipped in the unloading bay associated with the 'Tip and Spread Building', then moved via front end loader to the 'Asphalt' storage bay. Material will then be crushed / screened in the 'Processing area' then stored in a pile then moved to the 'Landscape supplies' bunker for sale.	Clean, inspected material will be crushed, screened and blended to produce aggregate and soil-replacement products. These will then be sold either directly to customers or through the on-site building supplies business. Any contaminants will be collected in a separate bunker or skip bin and regularly removed from site for disposal in a licensed landfill (Genesis Landfill, Eastern Creek, EPL: 13426).	Reclaimed Asphalt Pavement Resource Recovery Order 2014	99%
Virgin Excavated Natural Material (VENM)	Natural material that has been excavated or quarried from the ground in an area uncontaminated by chemicals and does not contain sulphidic soils.	Loads will be received separately in B-Doubles, semi-trailers or rigid trucks (e.g. 12 t), tipped in the unloading bay associated with the 'Tip and Spread Building', then moved via front end loader to the 'VENM' storage bay. Material to be blended and/or sold as manufactured soil will then be screened in the 'Processing area' then stored in a pile then moved to the 'Landscape supplies' bunker for sale. Material to be sold as VENM will be transferred, unprocessed, to the sale area.	Clean, inspected material to be blended with other material or sold as manufactured soil will be crushed, screened and blended to produce aggregate and soil-replacement products. These will then be sold either directly to customers or through the on-site building supplies business. Material to be sold as VENM will be transferred, unprocessed, to the sale area.	Not applicable	100%
Soil	Soils that meet the CT1 thresholds for general solid waste in Table 1 of the NSW EPA's Waste Classification Guidelines	Loads will be received separately in B-Doubles, semi-trailers or rigid trucks, tipped in the unloading bay associated with the 'Tip and Spread Building', then moved via front end loader to the soil storage bay. Material will then be screened in the 'Processing area' then stored in a pile then moved to the 'Landscape supplies' bunker for sale. Soil loads that meet the criteria for Excavated Natural Materials (ENM), will be either sold unprocessed as ENM, or blended and processed with other soil materials to produce manufactured soils.	Clean, inspected material will be crushed, screened and blended to produce aggregate and soil-replacement products. These will then be sold either directly to customers or through the on-site building supplies business. Any contaminants will be collected in a separate bunker or skip bin and regularly removed from site for disposal in a licensed landfill.	The "Batch Process" Recovered Fines Order 2014 Excavated Natural Material Resource Recovery Order 2014 – where appropriate	99%

Figure 3.5. Location of waste storage areas during operational phase (residual waste marked by red squares).



4. Management of hazardous, toxic and liquid waste

As far as possible, no hazardous, toxic or liquid waste will be accepted at the site. Where such material is delivered, but not detected at arrival, it will be removed and stored in a designated area awaiting removal by a licensed waste contractor. The procedure for detecting and managing unacceptable waste is provided at Attachment 1. This procedure is consistent with the NSW EPA guidelines. Chemical, flammable and radioactive wastes will be managed using the same procedures.

5. Incident Management – Spills

Spills on-site during the demolition and construction and operational phases likely to occur are oils, fuel, paints and primers.

To better manage a spill incident Spill Response Kits will be kept on-site, at various clearly identified locations in easily accessible areas.

The MSDS will be placed within sight and near spill kits. The MSDS has clear instructions on spill response management – cleanup and disposal.

6. Impacts assessment and mitigation measures

During the demolition and construction process, a series of best practice resource recovery measures will be implemented to avoid, reduce/reuse and recover waste to minimise disposal to landfill and maximise recovery.

To help in waste management planning during each stage of the project, an estimate of the types and quantities of waste to be generated during the demolition / construction and operational phases has been prepared. This analysis is given in Table 3.1 and Figure 3.3.

It is noted that the majority of materials to be generated through the demolition and construction phase is inert material, mainly soil. The majority of this will be re-used on site.

Some living and dead trees, shrubs and grasses as identified in the Fauna and Flora report will need to be cleared from the site to permit construction. As mentioned earlier all waste materials will be processed at the facility or sent to a licensed recycling facility for processing.

The overall recovery rate during the operational phase is expected to be very high (approximately 95%). It is anticipated that a maximum approximately 5,225 tpa of residual waste requiring off-site disposal will be generated at the site. This will be regularly removed from site and disposed in a licensed landfill.

Overall the waste impacts of the facility are believed to be positive, with wastes being recovered and recycled, instead of being sent to landfill.

7. Conclusion

The Davis Family are the owners of IN1 General Industrial zoned land at 90 Gindurra Rd, Somersby (Lot 4/DP227279). The site is currently used for storing and screening soil and sand, which is sold for landscaping. The site is referred to as the Kariong Sand and Soil Supplies (KSSS) site. The site was originally approved as a Sand and Metal Recycling Facility on 28/02/1992 (DA 15337). As part of the original approval, only the front section of the site was approved for this use.

Subsequently, approval has been given to construct a warehouse, office building and driveway at the northern end of the site (DA52541/2017). The building design and location was modified and approved by Central Coast Council on 21/09/2018 under DA52541/2017.2.

The Kariong Sand and Soil Supplies development will involve the construction and operation of a best practice recycling and landscape supplies facility that will enable the receipt of up to 200,000 tonnes of sand, soil and building materials each year. The project will transform the site into a state-of-the-art facility turning sand, soil and building materials into 100% recycled building and landscaping supplies. The facility aims to produce a number of building and landscape products, providing them for re-use mainly in the Central Coast region.

The project will involve the development of a largely undeveloped industrial site, to enable the facility to be used to receive, process and recycle construction and demolition waste, as well as supply building and landscape supplies for local projects. All waste materials will be received and processed indoors, to minimise impacts on the environment and neighbours.

The front part that will be visible from Gindurra Rd will be the landscaping supply operations, including landscaping along the road frontage and landscape storage bays behind the set back area. A fully enclosed warehouse where sorting and recycling operations will be conducted will be visible from the front of the site. Along the eastern boundary, a noise barrier and a native landscape buffer will be planted to avoid noise impacts on nearby rural dwellings, and to provide an aesthetically pleasing interface between the edge of the Somersby Industrial Estate and nearby rural zone lots and dwellings.

Waste processing and recycling operations for selected materials, including crushing and mulching will be done on the southern section of the site, where processing will also be done in dedicated buildings to avoid any impacts on nearby land uses. These operations are to be conducted at maximum distance from any sensitive receptors. The southern section of the site will be retained as bushland to provide a natural buffer between the development and other residential areas more than a kilometre away from the southern boundary of the site.

Advanced water capture, rainwater harvesting, water treatment and dust suppression systems will be integrated in all buildings and outdoor areas to prevent dust being formed. The site will also include an advanced membrane filtration plant to enable much of the water captured from the site to be fully reused across the site for operational uses. The site will also include its own weather monitoring station, high volume air samplers for continuous air quality and dust analysis, and continuous noise loggers to confirm compliance with consent and licence conditions. The site will be fully serviced with fire suppression systems.

The waste generated during the demolition / construction phase of the project is estimated to be 18,090 m³ of inert material (recycled concrete, rubble, soil), 5 m³ of scrap metal, 100 m³ of woody garden organics, 20m³ mixed building waste and 3 m³ of municipal solid waste (MSW). Existing concrete stockpiles on site need to be sampled and tested for compliance with the EPA's *Recovered Aggregate Resource Recovery Order 2014* to confirm the material is acceptable for use in construction works on the site. The metal will be recycled at a scrap metal recycling facility, off-site. The woody garden organics will be shredded to produce mulch, and either used on-site or sold. The MSW will be removed from site and disposed in a licensed landfill.

During the operational phase, up to 200,000 tpa of waste materials will be received on site for recycling. The majority will be soil or source-separated inert material. It is estimated that the recycling rate for the facility will be approximately 95%, with approximately 5,225 tpa of residual waste being removed for disposal to landfill. The recovered material will be processed into various building and landscaping products, and sold from the premises.

This facility will make a major contribution towards meeting the NSW Waste Strategy's target of 80% recycling of C&D waste by 2021.

Attachment 1 – Non-conforming Waste Procedure

NON-CONFORMING WASTE PROCEDURE

Kariong Sand and Soil Supplies

Sand, Soil and Building Materials Recycling Facility

90 Gindurra Rd, Somersby, NSW

1. Purpose of This Procedure

To ensure that non-conforming waste (waste that does not meet the NSW EPA classification of *General waste – non putrescible*) is not received at the site



If non-conforming waste is found on the site, to ensure it is managed in a way that minimises harm to human health and the environment.

2. Responsible Person

Operations Manager

3. Associated Internal Documents

Rejected Load Register and Rejected Load Certificate



Asbestos Inspection Register



Pollution Incident Response Management Plan

4. External Reference Documents

NSW EPA *Waste Classification Guidelines* 2014



NSW EPA *Draft Protocol for managing asbestos during resource recovery of construction and demolition waste* 2014

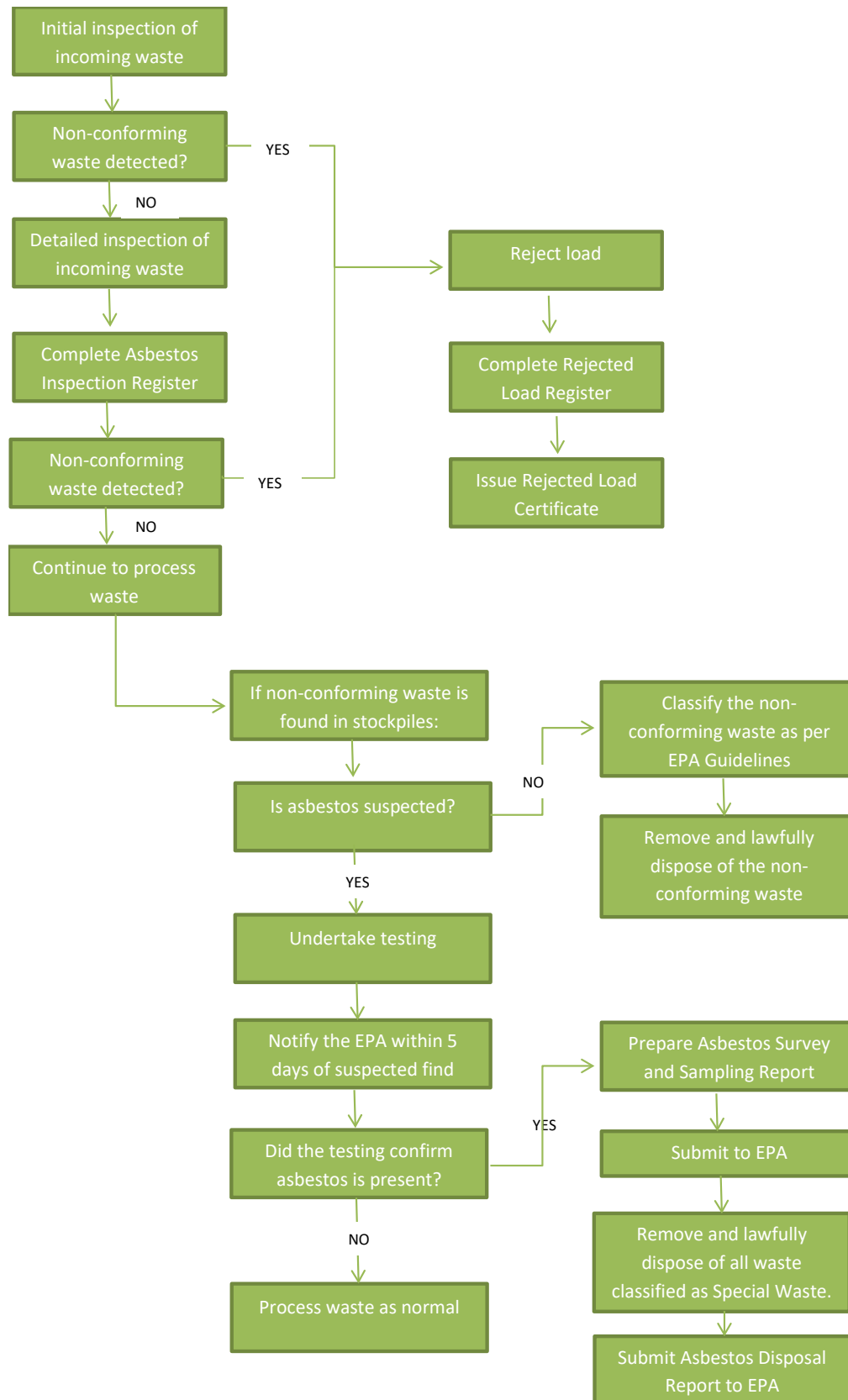


NSW EPA (2017) *Reforms to the construction waste recycling sector*



NSW *Protection of the Environment Operations Act* 1997

5. Steps to be undertaken for all incoming waste loads



6. Detail of Each Step in the Procedure

6.1 Initial inspection of incoming waste

When a load arrives at the gate, check the top of the load to see if non-conforming waste is visible. Also check for smell of putrescible waste.



If non-conforming waste is visible or you can smell putrescible waste, reject the load (see *Rejection of non-conforming loads*)



If non-conforming waste is not suspected, allow provisional acceptance of the waste

6.2 Detailed inspection of incoming waste, and Asbestos Inspection Register

Once the waste is tipped, spread and visually inspect the waste again for non-conforming materials.



If non-conforming waste is visible, reject the load (see *Rejection of non-conforming loads* below)



If asbestos is suspected, wet down the load immediately.



For each load that underwent a detailed inspection, fill out the Asbestos Inspection Register.



If non-conforming waste is not suspected, process the waste as normal.

6.3 Rejection of non-conforming loads

Inform driver that load is being rejected due to presence of non-conforming waste.



Record details of the rejected load in the Rejected Load Register.



Issue the driver with a Rejected Load Certificate and keep a copy on file.

6.4 Non-conforming waste suspected in stockpiles

If non-conforming material other than asbestos is found, don appropriate PPE and remove it from the stockpile, to a bunded area if necessary. Arrange lawful disposal based on classification in accordance with EPA Guidelines.



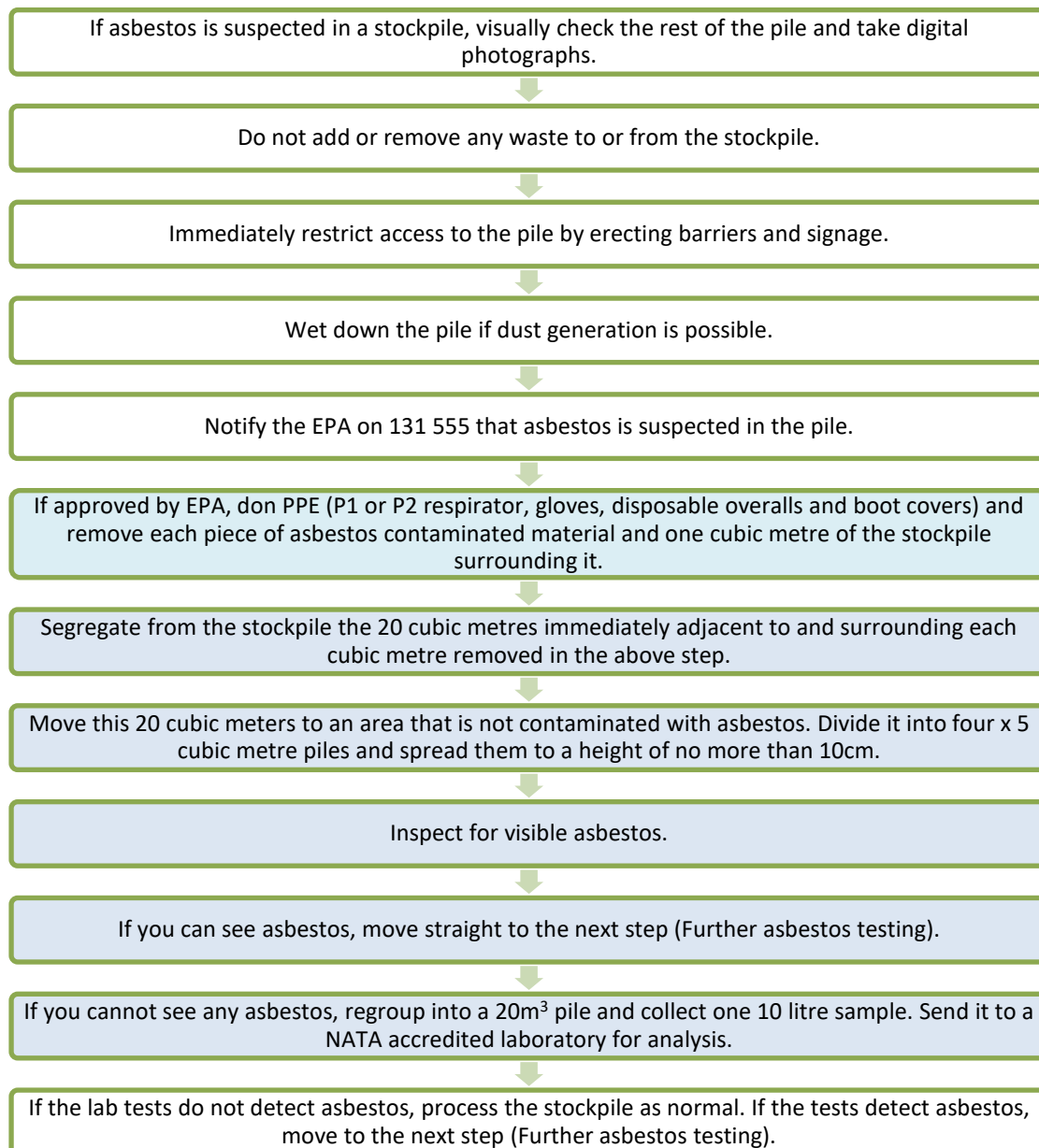
If asbestos is suspected in a stockpile, DO NOT attempt to pick it out either manually or with equipment.



If asbestos is suspected, implement the next steps below.

6.5 Asbestos testing and notification

NOTE: all blue steps must be undertaken by a suitably qualified expert who has previous experience in classifying waste in accordance with the NSW Guidelines.



6.6 Further asbestos testing

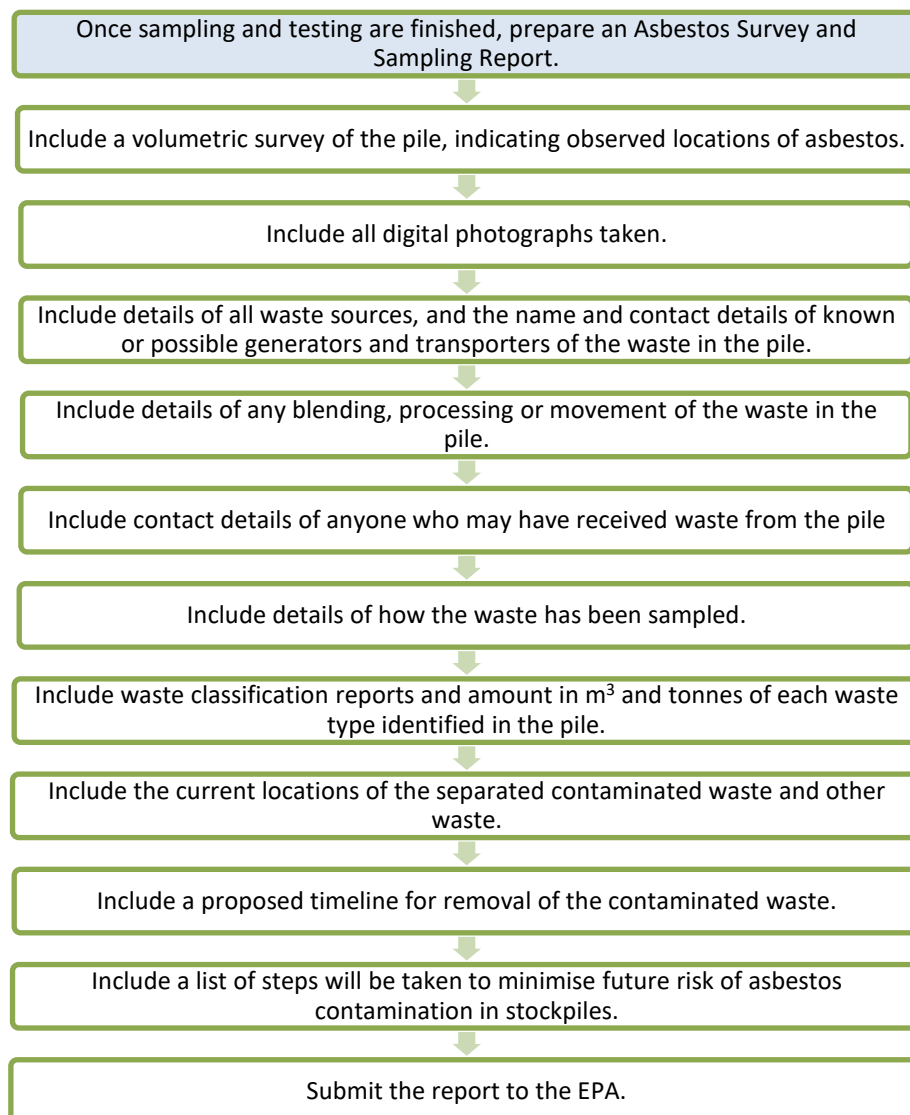
NOTE: all blue steps must be undertaken by a suitably qualified expert who has previous experience in classifying waste in accordance with the NSW Guidelines.

If asbestos is found in the above step by visual inspection or by lab analysis, the 40m³ surrounding each 20m³ sampled above must be tested using the same procedures as the above step.

If asbestos is found in the 40m³ tested above, the step must be repeated on more adjacent 40m³ samples until it can be demonstrated that the waste material is free of asbestos.

6.7 Asbestos survey and sampling report

NOTE: all blue steps must be undertaken by a suitably qualified expert who has previous experience in classifying waste in accordance with the NSW Guidelines.



6.8 Removal of asbestos-contaminated waste

Once permission is granted by the EPA, arrange for lawful transport and disposal of all waste now classified as Special Waste (and any other waste identified to be removed) by trained personnel in accordance with the timelines in the Asbestos survey and sampling report.

6.9 Asbestos Disposal Report

