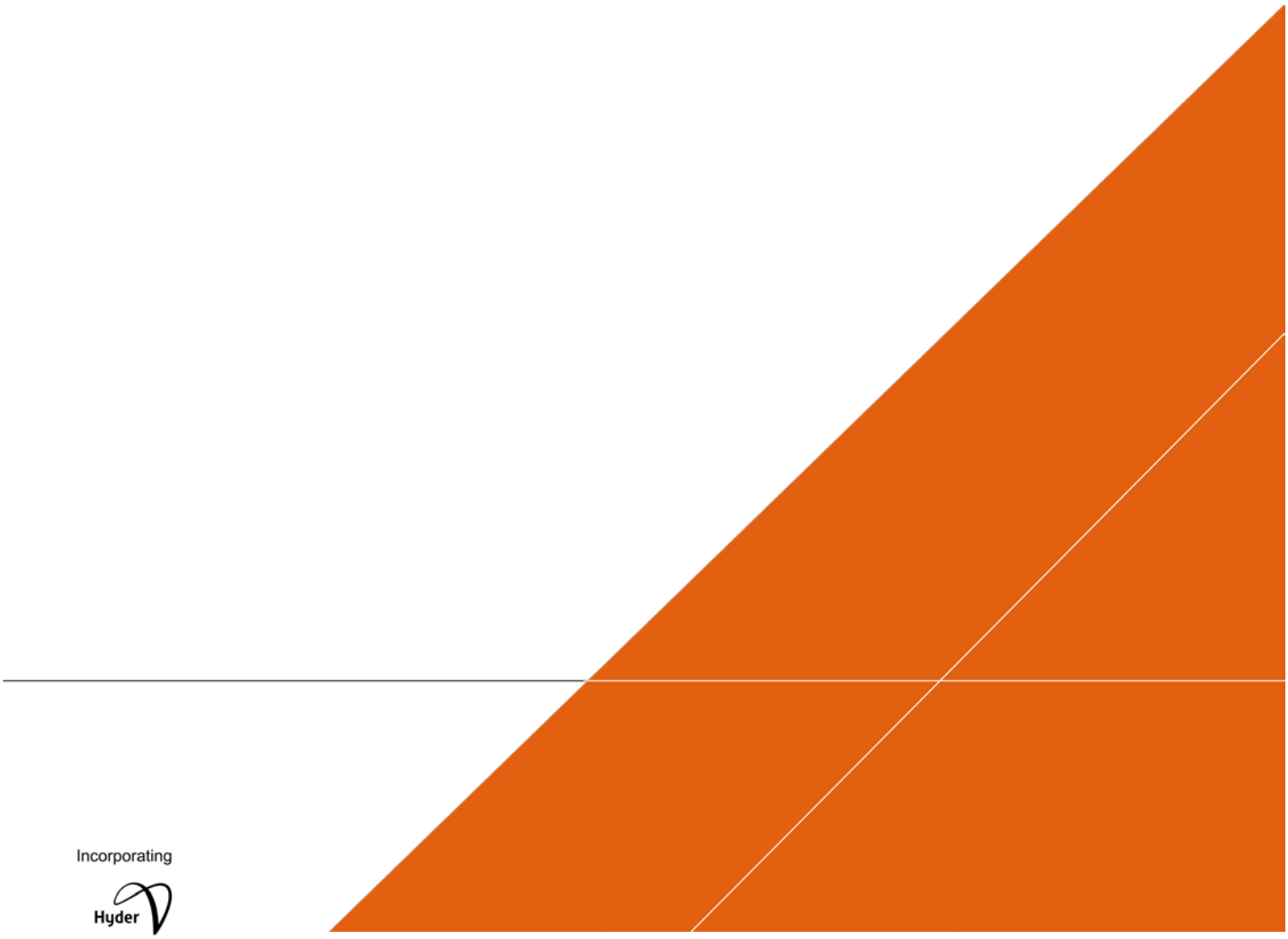
ARCADIS Design & Consultancy for natural and built assets

APPENDIX A CONSOLIDATED PROJECT DESCRIPTION

Minto Resource Recovery Facility Response to Submissions

15 DECEMBER 2017



Incorporating Hyder

CONTACT

CLAIRE HODGSON
Senior Environmental Consultant

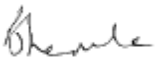
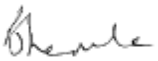
M 0431 384 875
E Claire.hodgson@arcadis.com

Arcadis
Level 16, 580 George, Sydney
NSW 2000 | Australia

BINGO INDUSTRIES
MINTO RESOURCE RECOVERY FACILITY

Response to Submissions

Consolidated Project Description

Author	Claire Hodgson, Sean Fishwick	
Checker	Bradley Searle	
Approver	Bradley Searle	

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A	14/9/17	Preliminary draft project description	CH	BS
B	22/9/17	Draft project description	CH	BS
C	26/09/17	Draft project description v2	CH	BS
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1 CONSOLIDATED PROJECT DESCRIPTION

1.1 Proposal overview

Approval is sought to increase the processing capacity of the existing waste and resource recovery facility from 30,000 tonnes per annum (tpa) to 220,000 tpa. An approval will supersede previous approvals issued over the Proposal site and provide a new suite of operating requirements and mitigation measures commensurate to the increased processing capacity. The facility would continue to process general solid waste (non-putrescible), as described in the *Waste Classification Guidelines, 2014*, prepared by the NSW Environment Protection Authority (EPA). The facility is defined as a resource recovery facility under Part 3, Division 23 of *State Environmental Planning Policy (Infrastructure), 2007* (ISEPP).

The key components of the Proposal would include:

- Construction of a shed and roof structure to enclose the existing waste processing and handling area
- Demolition of minor wall and cladding extents within Shed A and Shed C to accommodate the proposed shed extension, to facilitate changes to internal heavy vehicle flow paths
- Minor vegetation and landscape clearing, and planting of new landscaping
- Provision of 16 on-site car parking spaces and 1 accessible car space
- Relocation of demountable site office and amenities buildings
- Provision of two vehicle access points at the eastern entrance and a single exit point at the western exit.
- Removal of the existing above-ground wheel wash
- Installation of a new 20 m long weighbridge and in-ground wheel wash at the vehicle egress point
- Relocation of the 30,000 L self-bunded fuel tank closer to the rear of Shed A
- Extension of the dust suppression and sprinkler system across the new shed and its openings
- Provision of ancillary infrastructure and internal structures including new internal push walls
- Demarcation of an internal unloading floor and visual inspection area
- Extension of internal tipping floor and provision of new push walls
- Provision of an internal dangerous goods storage area.

The key operational components of the Proposal would include:

- Increasing operational (including processing and waste delivery and collection) hours 6am to 10pm, Monday to Saturday (no works on Sundays or public holidays would be undertaken)
- Processing of up to 220,000 tpa of non-putrescible waste
- Waste storage of up to 10,000 tonnes of non-putrescible waste at any given time

The majority of waste types appearing in in-bound waste are listed below with a predicted breakdown of the 220,000 tonnes of waste as a percentage being:

- Two per cent wood waste
- Two per cent non-chemical waste from manufacturing

- One per cent asphalt
- Ten per cent soils
- Half a per cent paper and cardboard
- Half a per cent glass, plastic, rubber, plasterboard etc
- Two per cent household waste from clean up
- Two per cent office and packaging waste
- Five per cent VENM (Virgin Excavated Natural Material)
- Seventy five per cent building and demolition waste
- The remaining 10 per cent to comprise of other non-putrescible general solid waste to be accepted at the Minto Facility, the percentage of which is dependent on customers and waste generating activities in the region being:
- Waste classified as non-putrescible general solid waste
- Waste pre-classified as non-putrescible general solid waste such as:
  - Foundry sand
  - Household waste from residential clean-up
  - Council clean-up materials from public, community and open space
  - Waste that meets all conditions of a resource recovery order
  - Any mixture of non-putrescible general solid waste types
  - Bulky goods waste containing building de-fittings, fixtures and furniture
  - Waste collection by or on behalf of Council's street sweepings
  - Grit, sediment, litter, gross pollutants collected and removed from stormwater treatment devices and/or stormwater management systems that have been dewatered so that they do not contain free liquids
  - Grit and screenings from potable water and water reticulation plants that are:
- Non-putrescible vegetative wastes; and
- Cured concrete waste from a batch plant.

Unexpected finds of materials such as asbestos, tyres, batteries, gas bottles, fire extinguishers and food may be encountered from time to time. These materials would be handled in accordance with a project specific Operational Environmental Management Plan (OEMP) procedure and appropriately stored for efficient disposal. A separated area for storage of unexpected finds and materials, and dangerous goods would be demarcated within the south-eastern portion of the enclosed processing shed; incorporating an asbestos bin area, battery storage cage, fire extinguisher cage and gas bottle storage cage.

The proposed 220,000 tonnes sought under the SSD application reflects a market demand for waste and recycling facilities from the housing and infrastructure boom currently being experienced in NSW. The specialist studies in the EIS and the addendum assessment completed as part of the RtS have supported the 220,000-tonne limit sought and this study has proven that the Proposal site would operate within industry standards with minimal impact to the environment, the surrounding business and community.

Processing and handling of waste would generally be undertaken in a manner consistent with the current arrangements as described in Section 1.4. A plan of the amended Proposal site layout detailing the abovementioned improvements is included in Figure 1-1 with full architectural plans provided in Appendix B of the RtS.

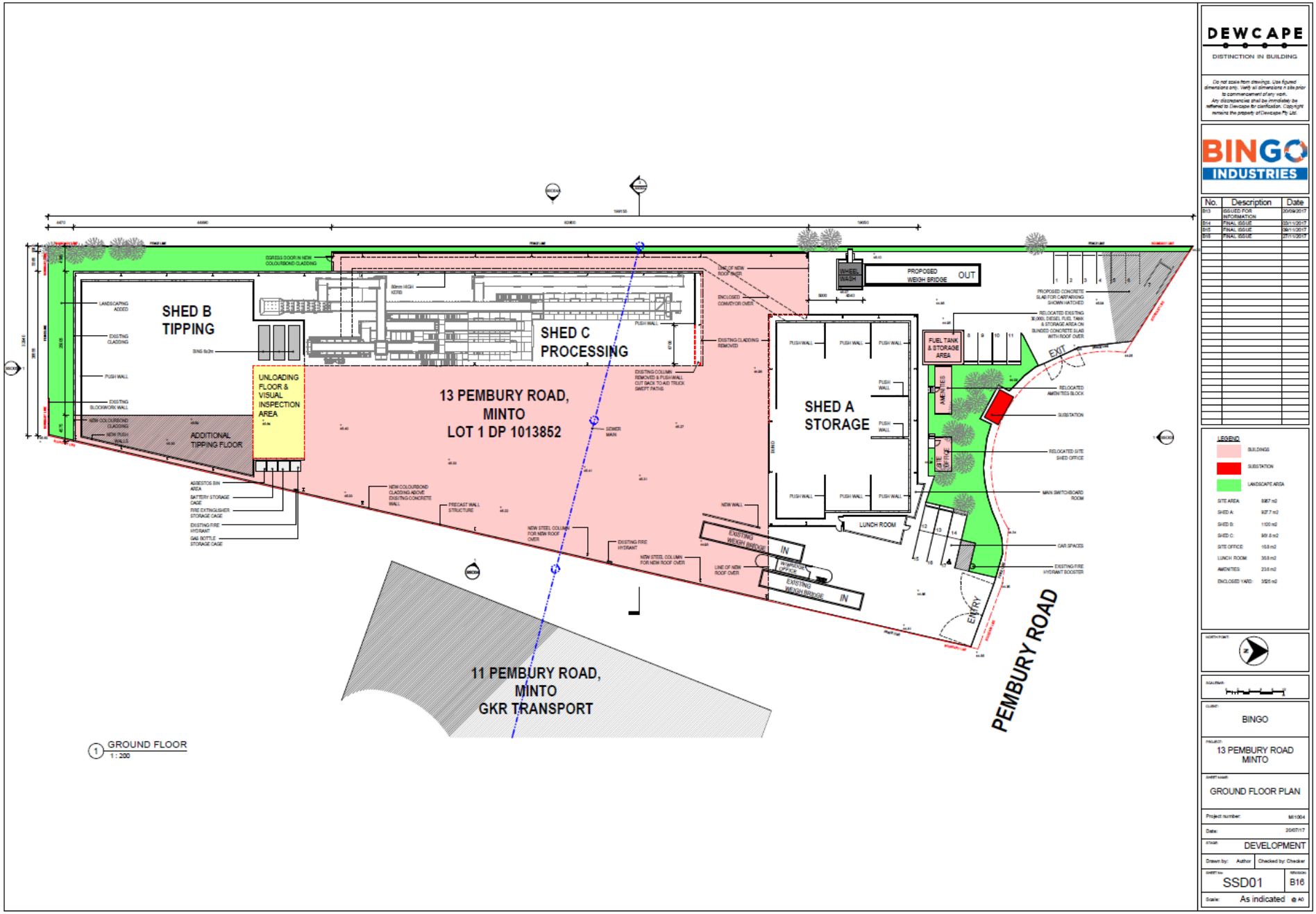

Figure 1-1 Proposal site layout

1.1.1 Cost of development

An assessment of the predicted capital investment value (CIV) has been prepared by a quantity surveyor in accordance with NSW Planning Circular PS 10-1008 and is provided at Appendix E of the RtS. This report outlines a CIV of $3,850,000 excluding GST (construction and plant) as being fair and reasonable for the scope of work proposed.

1.2 Built form

1.2.1 Enclosed shed

The existing waste tipping, processing and waste storage sheds on site comprise:

- **Shed A Waste Storage**: Storage Shed A has a floor space area of 927.7 m^2 and a maximum roof height of 11.07 m and comprises concrete tilt panel walls with metal cladding. The waste storage shed comprises seven waste storage bays with concrete push walls. It is proposed to remove approximately half the southern wall and cladding of Shed A in the sheds south—western corner. A small section of the western wall and cladding would also be removed in the south-western corner of the shed. The existing push wall in the south-western corner of the shed would remain in place providing the internal wall structure for the shed. The removal of the external wall and cladding would enhance turning movements for vehicles exiting the site; maximising the safety of internal vehicle movements, particularly for B-double vehicles.
- **Shed B Waste Tipping:** Shed B has a floor space area of 1,150 m^2 and a maximum roof height of 11.84 m. Shed B is located at the southern end of the Proposal site and is utilised as the waste tipping floor for the facility. The push wall extending along the southern edged of Shed B would be extended to the eastern perimeter of the proposed enclosed shed. A push wall would be constructed along the eastern edge to create additional tipping floor space within Shed B. At the entrance of Shed B a demarcated unloading floor and visual inspection area would be provided within the enclosed shed. Immediately to the east of the proposed unloading floor and visual inspection area, would be the designated area for dangerous goods storage and unexpected finds bins; incorporating an asbestos bin area, battery storage cage, fire extinguisher storage cage and gas bottle storage cage.
- **Shed C Processing**: Shed C contains the processing equipment for the facility. The Shed has a floor space area of 961.8 m^2 and a maximum roof height of 11.84 m, with a protruding roof feature with an additional 2 m in height. At its northern end Shed C contains a storage area with a concrete push wall; 3.5 wide x 15 m deep x 4 m high. Shed C contains ten waste storage bays. To support the amended Proposal and maximise the safety of internal vehicle movements, particularly for B-double vehicles, it is proposed to remove the northern wall and cladding of Shed C. The existing support column in the north-eastern corner of Shed C would be removed and the 15 m long concrete push wall is proposed to be shortened by 3.6 m. The removal of the column and cladding, and the shortening of the push wall would aid trucks exiting the Proposal site via the new proposed site exit (described in Section 1.2.3).

The three existing sheds, described above, would largely remain in their current built form with the exception of the northern wall and push wall within Shed C and the south-western corner of Shed A which would be removed. It is proposed to construct a new roof over the majority of the Proposal site to provide a fully enclosed waste tipping, processing and storage area. The proposed new roof would enclose the current yard area (covering 3,525 m^2) utilised for truck inspections, manoeuvring, bin storage, truck loading and ancillary infrastructure. The proposed roof and enclosed shed would extend

from the eastern boundary of the Proposal site where new colourbond cladding would be constructed above the existing concrete wall, to approximately 9.7 m above ground level from the western boundary of the site.

The proposed enclosed shed would connect the three existing sheds providing a fully enclosed facility, including enclosure of the conveyor system which connects Shed A to Shed C. The southern extent of the proposed enclosed shed would extend from the southern extent of Shed B. New concrete push walls would be constructed in the south-eastern corner of the proposed enclosed shed to provide additional waste tipping floor area extending from Shed B. This area would also provide additional area for visual inspection of tipped waste. The total area available for tipping and inspecting of waste would therefore be increased from 630 m^2 to 1,120 m^2 approximately. The northern extent of the proposed enclosed shed would extend from the southern edge of Shed A to the east, and to the west extend partially beyond (to the north) the southern edge of Shed A.

The proposed enclosed shed would have a maximum roof height of 11.84 m matching the existing maximum height of Shed B and Shed C. The ridge line of the roof would run north south, falling to a height of 7 m at the north-eastern corner of the shed and 8.8 m at the south-eastern corner of the shed. Along the western wall the enclosed shed would have a roof height of 10.11 m. The proposed shed would therefore be of the same height and scale as the existing shed structures on the Proposal site, and would be in compliance with the 12 m height limit as prescribed within the *Campbelltown Local Environment Plan 2015.*

Within the proposed enclosed shed the following built form would be provided:

- New concrete push walls would be constructed within the south-eastern corner of the enclosed shed, as described above
- A bin storage area would be provided adjacent to the north of the proposed new push wall within the south-eastern portion of the enclosed shed. This storage area would contain storage for unexpected finds and dangerous goods as described above
- A new wall would be constructed adjacent to the second in-bound weighbridge to provide safety and protection measures to separate truck loading activities and machinery from trucks entering the enclosed shed
- Internal signage.

1.2.2 Site office and amenity building

It is proposed to construct supporting infrastructure to accommodate the relocated demountable site office and an amenity building as part of the amended Proposal. The site office would be located to the north of the north-eastern corner of Shed A. The amenity building would be located to the north of the north-western corner of Shed A at the front of the site adjoining Pembury Road. [Both buildings would be located adjacent to and parallel to Shed A. The amended Proposal has considered the proposed location of the site office and amenity building to provide additional area for car parking, compared to that presented in the EIS, and to maximise the layout and operational efficiency of the Proposal.

The site office and amenity building would have a floor space area of 16.8 m^2 and 23.6 m^2 respectively. The maximum height of the buildings would be 2.85 m for the site office and amenity block. Both buildings would be accessed via the existing concrete footpath running adjacent to the northern wall of Shed A.

1.2.3 Vehicle access

All access to the site would be via the existing 11.5 metre wide driveway crossing with Pembury Road. All waste disposal and collection vehicles would access the Proposal site via this access point, as would staff and visitors wishing to access car parking spaces located to the west of the access driveway. The Proposal site would be accessed by a mix of b-doubles, truck-and-dogs, walk-in floor trailers, marrel trucks and skip hook lift trucks. The maximum vehicle size that would access the processing shed would therefore be 25 m in length.

All vehicles would exit the site via the egress driveway exit point in the north-western corner of the Proposal site. The egress driveway would be utilised for access and egress to car parking spaces for staff parking adjacent to the exit point.

The internal road layout of the proposed development would be utilised to accommodate forward movement by larger vehicles accessing the site to allow for 19 m semi-trailers, 19.6 m truck and quad dog combinations and 25 m B double trucks.

A total of 21 vehicle stacking spaces would provided onsite where vehicles wait before tipping waste. These stacking spaces are provided within the Proposal site and can accommodate a mixture of vehicle sizes, ranging from a car with a trailer to a 19 m truck and dog.

1.2.4 Parking

The amended Proposal would include 17 parking spaces for staff and visitor parking. Six car parking spaces, including one disability access parking space, would be provided immediately to the west of the Proposal site access point (where three existing car spaces are currently located) as vehicles first enter the Proposal site. The spaces would be provided in a double stacking arrangement with three spaces provided in each row. Minor clearing of the existing landscaped area would be required to construct the additional car spaces in this location. Given that onsite staff would typically arrive and leave the Proposal site in a staggered shift pattern (with a half hour ‘down’ period between shifts to ensure no/minimal cross over of staff) the double stacked parking arrangement is considered suitable.

It is proposed to construct a concrete slab within the north-western corner of the Proposal site to provide additional parking adjacent to the egress driveway. A total of seven parking spaces would be provided in this corner of the Proposal site, to the west of the site egress point. Minor clearing of the existing landscaped area would be required to construct the additional car spaces in this location. The provision of an additional four car parking would be provided on the eastern side of the exit driveway adjacent to the proposed location for the fuel tank (described below). The provision of 17 car parking spaces would provide sufficient onsite parking for total onsite operational staff requirements.

1.2.5 Ancillary infrastructure

The amended Proposal would include the following relocated, modified or additional ancillary infrastructure:

- The existing 30,000 L diesel fuel tank would be relocated from adjacent to the southern wall of Shed A to the northern side of Shed A within the north-western portion of the site. A concrete bunded slab would be constructed for storage of the fuel tank and a roof canopy would be provided over the tank to reduce stormwater inflow and contamination risks associated with fuel storage.
- The existing inbound weighbridge would remain unchanged. The existing outbound weighbridge would be converted to an inbound weighbridge such that the two adjacent weighbridges would both operate as incoming weighbridges simultaneously. No changes are proposed to the existing weighbridge office and viewing platform. It is proposed to install a third (outbound) 20 m weighbridge to the west of Shed A. All vehicles would exit the Proposal site via the new exit weighbridge out the proposed egress point.
- The existing wheel wash and associated infrastructure (water tanks, piping etc) would be removed. A new in-ground wheel wash is proposed to be located prior to the new exit weighbridge on the western side of shed A
- A substation is located on the northern perimeter of the Proposal site
- A proposed overhead enclosed conveyor system would be installed connecting the processing equipment in Shed C directly to the storage area in Shed A, in the south-western corner of the shed of Shed A for the transfer of soil.

1.2.6 Urban design and landscaping

A landscape and urban design plan has been prepared for the amended Proposal and is provided in Appendix C.

The buildings and structures included in the Proposal would be of high design quality. The proposed enclosed shed's colours and finishes would be compatible with and blend with the existing sheds located onsite and with surrounding land uses, including non-reflective colours. The proposed enclosed shed would comprise colourbond windspray cladding and painted concrete tilt up walls.

Landscaping would be undertaken on the Proposal site as part of the Proposal. An indicative layout of the landscaping to be undertaken as part of the Proposal is provided in Appendix C. Landscaping would include a mix shrubs and grasses.

In particular, the Amended Proposal would include a landscaped area along the southern boundary of the Proposal site. The area would comprise mixed planting in new garden beds; comprising shrubs, groundcovers and grasses. The existing Banksias and Grevilleas in the south-western corner of the site and along the western boundary of the Proposal site would be retained and protected during construction. Landscaping, comprising mixed planting would be installed along the entire western boundary of the Proposal site.

Minor clearing to existing landscaped areas would be required in the north-western corner of the Proposal site to allow for construction of additional car parking spaces.

Landscaping and screen planting would provide a natural visual barrier for the Proposal along the southern and western edges, where no landscaping is currently provided. Figure 1-1 shows the key landscaping locations proposed within the Proposal site. These areas would be predominantly planted with native and locally indigenous species, including:

Table 1-1 Indicative plant species and quantity

Botanic name	Common name	Indicative quantity	Mature height
Shrubs			
Westringia Mundi	Coastal Rosemary	35	0.6 m
Groundcovers and grasses			
Dianella Little Rev	Flax Lilly	30	0.4 m
Lomandra longifolia	Lomandra	20	0.7 m
Pennisetum nafray	Swamp Fox Tail Grass	40	0.8 m

1.2.7 Water management works

The proposed stormwater management plan for the Proposal site is provided in Appendix D. This plan details the following improvements / measures as part of an overall water cycle management strategy:

- Use of the existing 8 cartridge Stormwater 360 unit and provision of two additional filter cartridges.
- Installation of downpipes to new amenities and office building, connecting to the underground rainwater tank
- Use of existing 100 kL rainwater tank and associated drainage to collect runoff from the existing roof areas.
- Direction of roof water from the new roof areas to the existing Stormwater 360 Filter Chamber for treatment prior to discharge offsite into the council stormwater system.
- Connection of all external hose cocks and landscape watering system to the rainwater tank
- Installation of Ecosol gross pollutant traps (GPTs) on existing and proposed stormwater pits across the site
- The modification of the pavement in Shed C to provide a bund to contain firewater runoff and installation of a closed leachate sump pit. Any leachate generated would be collected and disposed by an authorised liquid waste disposal company
- Cleanout of all existing stormwater pipes and pits and verification that they are all in good working order
- Construction of bunds for the purpose of containing water within the enclosed shed and directing site runoff from external areas away from the enclosed shed
- Installation of a gate valve on the existing stormwater pipe at the exit of the site. The gate valve is to be operated in the event of fire or other emergency involving site inundation to retain water on-site
- Blocking off any existing stormwater pits (that would now become internal due to new roof enclosure) to form a blind sump to capture potential leachate. Leachate would be pumped out as required and trucked for disposal at an appropriately licensed facility.

In addition to plant and equipment required to enable processing, the following equipment / technology are deployed to mitigate impacts associated with waste processing operations:

- 'Cool Mist' Misting System within the processing building
- Sprinkler systems to cover vehicle manoeuvring areas within the yard
- Stormwater 360 filter at the exit of the site
- Gate valve to control firewater runoff
- Leachate capture sumps

1.3 Construction

1.3.1 Construction overview

The construction period of the Proposal would be approximately four months, and is anticipated to commence in early 2018. Construction of the Proposal would be undertaken in three key phases (shown in Table 1-2).

- **Stage 1** – Site preparation, demolition and installation of hardstand
- **Stage 2** – Construction of the enclosed processing shed, site office, amenity building and ancillary facilities
- **Stage 3** – Commissioning and demobilisation.

Operation of resource recovery activities would cease during the construction period.

Table 1-2 Indicative construction program (based on a five month construction period)

Stage	Week																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Stage 1																	
Stage 2																	
Stage 3																	

Stage 1: Site preparation, demolition and installation of hardstand

Site preparation and demolition would take approximately three weeks. Under the amended Proposal, extents of wall, cladding and push wall would be removed from Shed C and Shed A. The existing wheel wash and associated infrastructure would also be removed and new concrete slab would be poured in its current location.

Minor clearing and grubbing would be undertaken in the north-western corner of the Proposal site, as well as to a minor extent within the northern portion of the site and along the western boundary of the Proposal site. Minor earthworks and levelling within these areas would also be undertaken. Sedimentation and erosion controls, as required, would be installed for the duration of the construction period.

Once the site has been levelled in the relevant areas and any required earthworks completed, concrete slab would be poured within the north-western portion of the site.

Any demolition or vegetation waste generated during this stage of construction would be processed within the Minto facility. This stage may involve the use of equipment such as trucks, scrapers, graders, rollers, backhoes, and compaction equipment.

Stage 2: Construction of the enclosed processing shed, site office, amenities building and ancillary facilities

Stage 2 would take approximately 12 weeks to complete. This stage would include the construction of the proposed enclosed shed, site office, amenity building and ancillary infrastructure

The enclosed shed would be constructed, including the erection of the external and internal walls, frames and roofing. It would also involve the installation of building utilities, such as the sprinkler system, lighting and plumbing.

Construction of the site office and the amenities building would be undertaken concurrently with the construction of the enclosed shed. Construction of the site office and amenities would include foundations, slab and external hardstand, involving excavation of footings, laying formwork, placing reinforcement, concrete pouring and curing, as well as installation of demountable building structures.

Ancillary facilities works would include:

- Installation of the exit weighbridge and wheel wash
- Installation of an extended dust suppression and sprinkler system
- Construction of the bunded area, awning and relocation of the fuel tank
- Installation of landscaping
- Installation of the proposed enclosed conveyor system
- Demarcation of on-site car parking

Stage 3: Commissioning and demobilisation

Stage 3 would be undertaken over a period of approximately two weeks. Commissioning would be undertaken for the site utilities and the sprinkler system ancillary plant. Operation of the facility would recommence during this stage.

Temporary site structures would then be demobilised and removed, including site office and amenities, and temporary fencing.

1.3.2 Construction workforce and hours

It is anticipated that between five and 30 staff would be on site at any one time during construction.

Works would primarily be undertaken during standard construction hours:

- 7am to 6pm Monday to Friday
- 8am to 1pm Saturday
- No works on Sundays or public holidays.

In some instances, minor (non-intrusive and audible from a surrounding receiver) construction activities may be conducted outside these hours.

1.3.3 Plant and equipment

A range of plant and equipment would be required for the various construction activities and phases included in the amended Proposal. A summary of the plant and equipment that are likely to be used during the construction of the Proposal is provided in Table 1-3.

Table 1-3 Indicative construction plant and equipment for the Proposal

Equipment	Construction Stage		
	Stage 1 – Site preparation, demolition and installation of hardstand	Stage 2 – Construction of the enclosed processing shed, site office, amenities building and ancillary facilities	Stage 3 – Commissioning and demobilisation
Backhoe excavator	✓		
Bulldozer	✓		
Cherrypickers	✓	✓	
Concrete agitators (or similar)	✓	✓	
Concrete Pump	✓	✓	
Concrete saw	✓	✓	
Excavators	✓		
Mobile crane		✓	
Static and vibratory rollers, and high energy impact compaction			
Scraper open-bowl	✓		
Water truck			
Forklift		✓	
Boom lifts x 2		✓	
Scissor lifts x 2		✓	

1.3.4 Construction traffic movements

Vehicles associated with the construction works would include light vehicles (workers travelling to and from site at the start and finish of shift, during lunch breaks and to conduct errands), and heavy vehicles delivering construction plant and equipment and materials, and removing waste from demolition and construction activities. Construction traffic would enter and exit the Proposal site using the existing site access.

Estimated average and peak daily construction traffic movements are outlined in Table *1-4*.

Table 1-4 Average and peak daily construction traffic movements

Vehicle Type	Estimated maximum daily movements (average throughout construction period)	Estimated daily movements (peak during construction period)
Light vehicles	45	90
Heavy vehicles	8	16

1.3.5 Construction ancillary facilities

A temporary site office, with lunchroom and amenities would be utilised for construction works under the Proposal.

1.3.6 Construction Environmental Management Plan

A Construction Environmental Management Plan (CEMP) will be prepared for the construction of the Proposal. This CEMP will be prepared based on the mitigation and management measures in the EIS and the RtS (refer to Section 7) and the conditions of approval. The CEMP would provide the framework for the management of all potential environmental impacts resulting from the construction activities.

1.4 Operation

The Proposal would aim to recover, reuse and/or recycle up to 80-90 per cent of incoming material suitable for reuse in secondary markets, including concrete, plastics, paper, wood and metal. The Proposal would facilitate a throughput of 220,000 tpa of general solid waste (non-putrescible).

1.4.1 Waste streams

The general category of material received at the Minto facility would not change compared to current operations, however, the composition of materials may vary from time to time based on waste materials received from long-term infrastructure projects. There would be a greater proportion of heavy mixed waste material including materials such as soil, brick and concrete, rock and sandstone being received as a result of significant infrastructure and housing development activity in Greater Sydney.

The processed waste and residual materials would be delivered to a wide range of facilities located both within and outside Sydney for further processing or reuse. The facilities to which waste is delivered vary frequently due to market conditions, gate fees, capacity to accept material and waste acceptance criteria. This situation is expected to continue to be the case for the life of the Proposal.

Due to the extent of development and associated waste generation rates, both current and proposed, as well as the requirement for facilities to adhere to authorised amounts, it is necessary to maintain a number of options for tipping of each material type. The facility currently has access to many sites (including both disposal and resource recovery facilities) for disposal and recycling of recovered materials. New sites are considered on an ongoing basis in relation to the facilities ability to lawfully accept the waste, and as there are changes in market demand and market drivers, including changes to gate fees and or a facility advising that they have reached their limits.

The Proposal is proposed to operate as a waste and resource management facility for processing non-putrescible general solid waste (GSW). Waste streams received and

processed on site would be consistent with GSW (non-putrescible) waste types. Limited quantities of green waste would also be accepted at the Proposal site within other 'mixed waste' streams, however it is expected that this would represent less than one per cent of the waste held on the Proposal site at any one time and less than 3,000 tonnes handled per annum. The anticipated breakdown of waste streams received is provided in Table 1-5. Other materials are not expected to exceed five per cent of the total waste on site at any time.

Table 1-5 Predicted waste streams

Material	Volume (TPA)	Percentage
Wood waste	4,400	2%
Non Chemical Manufacturing Waste	4,400	2%
Asphalt Waste	2,200	1%
Soils	22,000	10%
Paper and cardboard	1,100	0.5%
Glass, plastic, rubber, plaster board	1,100	0.5%
Household waste (municipal clean up)	4,400	2%
Office and packaging waste	4,400	2%
Building and demolition waste	165,000	75%
VENM	11,000	5%
TOTAL	220,000	100%

The above estimates have been derived from current throughput at the existing Minto Facility, other similar resource recovery facilities operated by the proponent and predicted waste streams from infrastructure projects which would be serviced by the Minto Facility.

The following waste streams would not be accepted on site:

- Asbestos
- Liquid Wastes
- Putrescible Wastes
- Flammable Materials
- Hazardous Wastes
- Radioactive Wastes.

1.4.2 Plant and equipment

The majority of the plant and equipment to be utilised at the Proposal would be existing operational equipment associated with the operation of the existing Minto Facility. The equipment currently onsite, that would continue to be used as part of the Proposal, includes the following:

- Forklift
- Excavator with Magnet Plant
- Front end loader (x 2)
- 20 m Weighbridge (x 2) and in ground wheel wash (x 1)
- Diesel Industrial Sweeper
- Liebherr LH22M Hydraulic Excavator (x 2)
- In line processing / separating plant (described in Table 1-6)

Table 1-6 Resource recovery processing equipment

Sorting plant	Description
Finger and double deck screens	Screens use movement to spread materials evenly across a deck. Wire 'fingers' with various spacing options facilitate separation of materials by size.
Magnet	Ferrous metals are removed using an overhead magnet suspended above or in line with a conveyor belt.
Picking station	Picking stations facilitate manual sorting of recyclables into bunkers or bins. The picking station can accommodate up to 12 pickers along the belt. Each picker is tasked with targeting a particular material which may be a product being targeted for recovery (e.g. timber, metal, cardboard) or a contaminant that needs to be removed. The picking station is provided in an elevated enclosed platform. The platform includes a ventilated, climate controlled cabin minimising dust intrusion and maximising working comfort.
De-stoner	De-stoners use high velocity/low pressure air streams to separate items such as stones, glass and dirt.
Conveyors	A series of conveyors would be used within the processing equipment. Conveyors would either infeed waste or be used to transfer waste once processed into the outgoing storage area.

In addition to the equipment currently used onsite the following additional equipment is proposed to be used as part of the amended Proposal:

- Enclosed conveyor between Shed C and Shed A
- 20 m Weighbridge (x 1) and in ground wheel wash (x 1).

1.4.3 Waste processing

Proposed waste scheduling

Waste deliveries to the Proposal site, undertaken by the site operator's fleet, would be scheduled with the operator prior to the waste leaving its point of origin. Currently, the site operator utilises a live logging system which allows customers to log a request via telephone or via a mobile application (app) that is exclusive to the site operator. Although public deliveries (i.e. non-site operator trucks) are not required to book-in ahead of time, they would be encouraged to do so.

All requests are centrally managed by the Customer Service and Allocations Team at the Head Office in Auburn. The role of the Allocations Team would be to determine suitable vehicles to collect the waste and designate the facility that is best suited to accept the delivery. The Allocations Team determines these details based on the information provided by the customer at the time of request.

The Allocations Team is also responsible for coordinating the timing of waste collection and delivery. The site operator's fleet are tracked via GPS through the operator's mobile app. Hence, trucks can be diverted to other nearby facilities by the site operator, if required.

All waste vehicles would enter the site via the 11.5 metre wide driveway crossing with Pembury Road, where they would be weighed on arrival via either of the two inbound weighbridges. A traffic controller would be located at the site access driveway to manage inbound movements of all vehicles across the two weighbridges. The contents of trucks are visually inspected at this point by the weighbridge operator. The load is to be inspected again on the tipping floor during and after unloading to determine waste acceptability. Bins containing waste to be transported off-site or for tipping at a different time would be held in the bin storage area and covered for transport.

Loaded vehicles would enter Shed B, or the new extended tipping floor in the south-eastern corner of the proposed enclosed shed, by undertaking a U-turn and reversing into the tip floor. Following unloading all vehicles would exit the site via the proposed exit wheel wash and weighbridge located to the west of Shed A, and exit via the western egress driveway onto Pembury Road. A portion of the heavy vehicles, particularly truck and dog vehicles, would proceed to Shed A to be loaded with outgoing, processed material prior to exiting the site.

Figure 1-2 demonstrates the proposed flow of waste and vehicle movements through the facility.

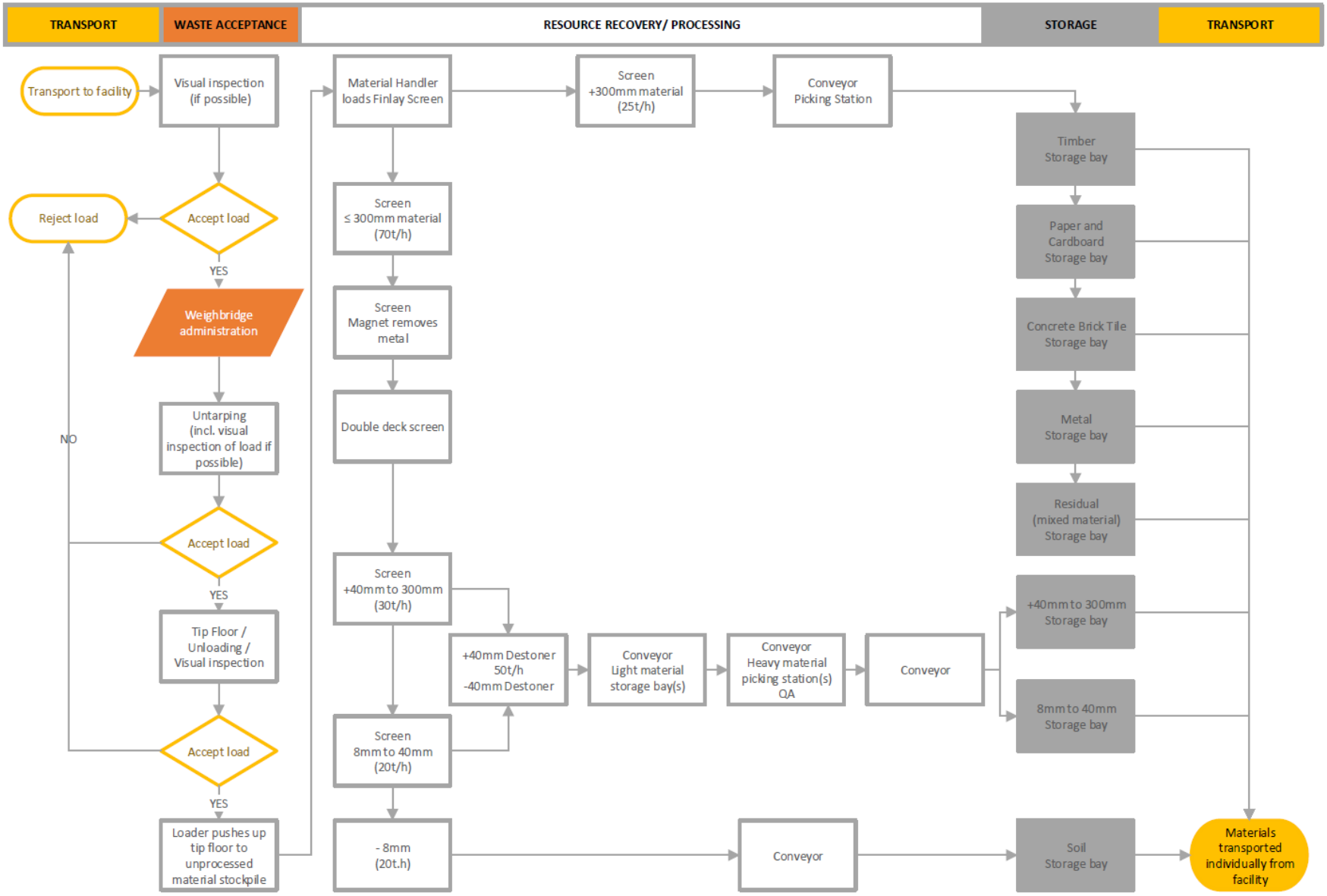

Figure 1-2 Minto Processing and Handling Flow Chart

Waste handling

Once light residual waste is separated in Shed C, a Liebherr Hydraulic Excavator transfers this waste from the waste storage bays onto waste collection trucks, namely b-doubles, which transport waste off-site. A front-end loader would be used on-site to transfer all other processed waste from Shed C to Shed A as needed. The same loader would be used to load material out of Shed A onto trucks for removal.

With regard to operations, material would not be transferred between Shed C and Shed A while waste collection trucks are being loaded out of Shed A. Where possible, storage bays are to be emptied when the site is not busy, hence, eliminating interference with vehicle movements on-site. Soil is transferred by an enclosed conveyor from Shed C to Shed A which does not disrupt vehicle movements in any manner.

There would be no conflict between the loader and vehicles whilst on-site as a result of the above operations. Also, trucks would not impede the loader operations as vehicles would not queue outside of designated stacking spaces and traffic controllers would be appropriately positioned throughout the site to supervise these movements.

Processing of waste

The waste storage capacity takes into account the capacity of the designated stockpile area for unprocessed material and storage areas for processed materials, deliveries and outbound materials. Figure 1-2 sets out the process to manage the proposed annual throughput of 220,000 tonnes per annum waste from delivery to removal off-site. Processing capacity at key stages of material processing are noted in this Figure 1-2 and described in Section 1.4.9.

The advanced automated plant not only improves handling and processing efficiency, but also improve vehicle circulation through to the site which reduces stacking of vehicles throughout the business operations. With regard to traffic and safety, an additional traffic controller would be positioned at the entrance of the facility to improve vehicle flow in Pembury Road and facilitate vehicles entering and exiting the facility in an efficient and safe manner to both avoid congestion and improve road and pedestrian safety.

SKALA Australasia Pty Ltd (Skala) was commissioned by the business operator to design, supply and install the plant and machinery for the Minto facility. Skala is a service and equipment supplier specialising in bulk material handling and vibratory process equipment.

The Minto resource recovery facility is designed to process up to 100 tonnes per hour (tph) of 600 kg/m^3 material through a highly efficient, refined propriety designed system whilst minimising waste. The equipment would be capable of recovering, reusing and/or recycling up to 80-90 per cent of incoming material suitable for reuse in secondary markets, including concrete, plastics, paper, wood and metal.

The following provides a description of Skala plant functionality at the Minto facility:

- Construction and demolition materials are tipped on the floor within Shed B
- A primary inspection and sort of the waste on the tipping floor by one or more excavators, with a grab attachment or a magnet to extract ferrous metals. The driver would pick out any large oversize materials that might damage or block the equipment or which are unsuitable for processing, or any large clumps of single materials that can be recovered (e.g. scrap metal).
- Tipped waste would be spread by an excavator to approximately 100 mm thick, so that any non-conforming materials would be visible. The tipped waste would be visually inspected, and any non-conforming waste would be removed from the Proposal site.

- A material handler with a grab attachment loads the waste from the stockpile into the feed hopper, while an excavator moves material across the stockpile up to the material handler. A loader continues to push material into the stockpile to clear and maintain the tip floor.
- The feed hopper controls the feed and therefore the flow of waste onto the primary screen – a heavy duty finger screen which separates the waste into two fractions:
  - A stream of smaller, dense items such as brick, concrete and fines
  - A stream of larger, flat or long, two-dimensional items such as timber or cardboard
- The lighter less dense materials pass through a manual picking line where recyclables are extracted including paper and cardboard, timber, green waste, plasterboard, metals and pieces of concrete/brick that have passed through. Anything that is not picked off the belt is waste, and is sent to the residual waste storage area at the northern end of Shed C prior to being sent for further resource recovery or landfill.
- Dense materials pass through a secondary screen to separate out a fines fraction (recovered soil) and one or two larger fractions. A density separator separates out any light contaminants such as paper and plastic. The resulting stream of mostly concrete, brick and stone will also pass through manual pickers to remove any further contaminants, and is then stored in a bunker before being sent to be crushed and screened into secondary aggregate products.
- Once processed, waste would be deposited directly into temporary storage bays within Shed C. Waste would be transferred into the outputs storage area via excavators, with the exception of soil which would be directly transferred to storage Shed A via the overhead enclosed conveyor. The use of conveyor's is proposed to minimise requirements to manually transfer fine materials such as soils via excavators in order to minimise dust generation.

The processing equipment is highly effective and efficient at sorting, separating and selecting products. Once processed, products are sent for further quality checks and are hand processed in a controlled indoor environment before being conveyed to their respective storage bays. Equipment selected has the highest efficiency and lowest power consumption. The machinery is isolated from the building and from adjacent slabs and floors to minimise vibration. Any airborne dust is suppressed by means of fine water mist, covers and hoods on machines.

Waste product is conveyed directly to storage bay or discharged by machine directly in to an enclosed storage bay.

Post processing arrangements

There are currently over 60 sites listed on the business operator's Tip Site Register, most of which remain active tip sites for the business on an ongoing basis. At the time of writing, processed waste is being transported to the facilities listed in Table 1-7. These arrangements are subject to change due to market and regulatory influences including but not limited to, changes to gate fees, variations in conditioned agreements, approved site capacity thresholds, processing and storage capacity, facility operational issues (such as product preferences related to what is being stored and processed at the time), and weather conditions. Waste would be scheduled to leave the Proposal site to arrive within operational hours of the receiving facilities. Waste collection vehicles may be preloaded with waste outside of receiving facilities operational hours to be received at the facilities within their next earliest opening period.

Table 1-7 Tipping facilities

Material	Facility location	EPL No.
Metals	Kings Park	EPL11555 Sell and Parker
	Minto	Sell and Parker[1]
	Ingleburn	CMI[1]
Brick and concrete	Wetherill Park	EPL11815 Boral
	Windsor	EPL4849 Rock and Dirt Recycling
	Kembla Grange	EPL20601 Wollongong Recycling
Green Waste	Kembla Grange	EPL20601 Wollongong
Timber	Badgerys Creek	EPL4625 ANL
	Menangle	EPL3991 Menangle
	Kembla Grange	EPL20601 Wollongong
Paper and cardboard	Botany	EPL1594 Orora
	St Marys	EPL20640 Cardboard King
	Smithfield	EPL20752 Visy
Plasterboard	Kurnell	EPL4608 Regyp
Unexpected finds (e.g. batteries, gas bottles)	Various depending on item and waste classification	Various as required

1. EPL not required as operations are below 30,000t annual throughput

1.4.4 Processed waste storage

Waste storage is undertaken in a number of storage bays within the Proposal site:

- Storage Shed A contains seven waste storage bays
- Processing Shed C contains ten waste storage bays plus an open storage bay at the end of the processing area; 3.5 wide x 15 m deep x 4 m high.

The current Environment Protection Licence (EPL 20638) issued on 25 November 2015 under the Protection of Environment Operations Act 1997 (POEO Act), allows for 7,500 tonnes of waste to be held at the Minto resource recovery facility at any one time.

It is proposed to increase the maximum allowable waste to be held at the Proposal site at any one time to 10,000 tonnes. The proponent believes that a maximum limit of 10,000 tonnes at any one time is appropriate for the operation of the Proposal site. Following project approval, an application will be made to the Environment Protection Authority (EPA) to vary the EPL to ensure it remains consistent with the approval.

Whilst the proposed plant and machinery has capacity to process in excess of 100 tonnes per hour, it is unlikely that this would occur as the Proposal site would never operate at capacity for 100 per cent of the time. It should be noted that the main feed for the plant would be adjusted to process a maximum of 100 tonnes per hour under normal operating conditions.

It can be demonstrated that the stockpile capacity of the Proposal site is suitable for the volumetric breakdown of the stockpile area having regard for the different types of waste accepted at the site based on the proposed throughput of 220,000 tpa. The Amended Proposal extends the waste tipping floor area in Shed B and provides a demarcated waste tipping and visual inspection area which provide additional area for holding of tipped waste.

Waste density is the key factor in determining stockpile capacity. Two scenarios have been provided to account for a scenario where either a high volume of high density or low density waste is received at the facility at any given time. The low and high density waste stockpile capacity (in tonnes) has been determined using the conversion factors adopted by NSW EPA Waste Levy Guidelines for each material type.

The high-density waste scenario represents a situation where 100 per cent of inbound material is heavy waste. The stockpile area for unprocessed waste has an approximate capacity of 7,380 tonnes. When taking into account the additional storage capacity provided by processed material bays in Shed A, the site has a total storage capacity of approximately 9,843 tonnes (refer Table 1-8).

Table 1-8 High density waste stockpile capacity scenario

Storage Area	Area (m^2)	Volume (m^3)	Conversion factor (t/m^3)	Tonnes
1. Shed B: Tip Floor / Unprocessed Material	1,120	4,920	1.5	7,380
2. Shed C: bay - soil	16	61	1.5	91
3. Shed C: bay - waste	16	61	0.7	43
4. Shed C: bay - timber	33	94	1.1	103
5. Shed C: bay - brick concrete rock	33	94	1.2	113
6. Shed C: bay - timber	16	61	1.1	67
7. Shed C: bay - concrete	16	61	1.2	73
8. Shed C: bay - green waste	16	616	1.1	67
9. Shed C: bay - plastic	16	61	1.1	67
10. Shed C: bay - paper and cardboard	16	61	1.1	67
11. Shed C: bay - scrap metal	16	61	1.1	67
12. Shed C: bay - mixed	53	196	0.7	137
13. Shed A: soil	43	147	1.5	220
14. Shed A: concrete	44	151	1.2	181
16. Shed A: mixed	42	140	0.7	98
17. Shed A: brick and concrete	74	248	1.2	298

Storage Area	Area (m^2)	Volume (m^3)	Conversion factor (t/m^3)	Tonnes
18. Shed A: brick and concrete	46	155	1.2	186
19. Shed A: mixed	59	210	0.7	147
20. Trucks (assumes max stacking of 17 trucks on site at any one time and average 1:1 density all inbound / outbound waste)		170	1	170
TOTAL	**1,262**	**7,085**		**9,843**

The low-density waste scenario represents a scenario where 100 per cent of inbound material is light waste. The stockpile area for unprocessed waste has an approximate capacity of 3,444 tonnes.

The site has a total storage capacity of approximately 5,907 tonnes when taking into account the additional storage capacity provided by processed material bays in Shed A (refer Table 1-9).

Table 1-9 Low density waste stockpile capacity scenario

Storage Area	Area (m2)	Volume (m3)	Conversion factor (t/m3)	Tonnes
1. Shed B: Tip Floor / Unprocessed Material	1,120	4,920	0.7	3,444
2. Shed C: bay - soil	16	61	1.5	91
3. Shed C: bay - waste	16	61	0.7	43
4. Shed C: bay - timber	33	94	1.1	103
5. Shed C: bay - brick concrete rock	33	94	1.2	113
6. Shed C: bay - timber	16	61	1.1	67
7. Shed C: bay - concrete	16	61	1.2	73
8. Shed C: bay - green waste	16	616	1.1	67
9. Shed C: bay - plastic	16	61	1.1	67
10. Shed C: bay - paper and cardboard	16	61	1.1	67
11. Shed C: bay - scrap metal	16	61	1.1	67
12. Shed C: bay - mixed	53	196	0.7	137
13. Shed A: soil	43	147	1.5	220

Storage Area	Area (m2)	Volume (m3)	Conversion factor (t/m3)	Tonnes
14. Shed A: concrete	44	151	1.2	181
16. Shed A: mixed	42	140	0.7	98
17. Shed A: brick and concrete	74	248	1.2	298
18. Shed A: brick and concrete	46	155	1.2	186
19. Shed A: mixed	59	210	0.7	147
20. Trucks (assumes max stacking of 17 trucks on site at any one time and average 1:1 density all inbound / outbound waste)		170	1	170
TOTAL	1,262	7,085		5,907

As a result of the above calculations, it can be concluded that approximately 10,000 tonnes of waste can be held on the site at any one time and that the amount of waste held, when measured in tonnes, is highly influenced by the nature and density of inbound material. Taking into account the above-mentioned waste calculations, a 10,000 tonne 'at any one time' limit is considered to be appropriate and justified for the Minto facility.

1.4.5 Delivery and collection of waste

A Traffic Controller would be located at the site access driveway to manage inbound movements of all vehicles at the eastern access. Waste-carrying vehicles would be weighed on one of the two inbound weighbridges and visually inspected by the Weighbridge Operator or Traffic Controller before unloading and again immediately following unloading.

Loaded vehicles would enter Shed B by undertaking a u-turn and reversing to the tip floor. Following unloading, vehicles would proceed to the proposed exit wheel wash and weighbridge and exit via the western egress driveway. Two additional Traffic Controllers would distributed throughout the site to ensure safe and efficient vehicle movements entering, within and exiting the site.

Non-recyclable waste and recovered waste (to be sent to material-specific recovery facilities) would be transported away from the site by large trucks. Some of these trucks would arrive at the site empty and some with waste material. Large vehicles containing waste would be unloaded prior to being loaded with waste from Shed A. Loaded trucks would be weighed at the outbound weighbridges before departing the site.

Predicted vehicle movements and routes

A Transport Impact Assessment Report (Appendix G of the EIS) and addendum Traffic Impact Assessment (Appendix I of the RtS), detail predicted light and heavy vehicle movements associated with the Proposal

The assessments provides breakdown of the proposed heavy vehicle movements associated with the Amended Proposal. This breakdown shows that the Proposal site has capacity to generate a maximum of 209 heavy vehicle movements per day (two-way).

A breakdown of the anticipated two-way vehicle movements under Amended Proposal operations scenario is provided in Table 1-10.

Table 1-10: Proposed Vehicle Movement Breakdown based on vehicle size

Starting Hour	Light Vehicles	Heavy Vehicles	All Vehicles
6:00	6	48	54
7:00	12	16	28
8:00	8	16	24
9:00	10	15	25
10:00	11	23	34
11:00	5	5	10
12:00	15	15	30
13:00	14	16	30
14:00	11	17	28
15:00	5	11	16
16:00	7	5	12
17:00	5	5	10
18:00	5	5	10
19:00	4	4	8
20:00	2	4	6
21:00	2	4	6
Total	**122**	**209**	**331**

The peak traffic movements of existing operations occur between 6:00am and 7:00am, which is outside the road network peak periods of 8:00am to 9:00am and 4:00pm to 5:00pm.

The main haul routes to/from the Proposal site include Hume Highway, Campbelltown Road and Airds Road. The route towards the north includes Ben Lomond Road and towards the south includes Rose Payten Drive.

Recent bridge load limits have been imposed by Campbelltown City Council at two locations along the haul routes which restrict large vehicles, namely trucks greater than 40 tonnes, on the Ben Lomond Road bridge and 32 tonnes on the Airds Road bridge over the Bow Bowing Channel.

When loaded with material, waste collection trucks departing the Proposal site can be in excess of 60 tonnes (gross weight). Trucks include 19m semi-trailers, 19m truck and dogs and 25m B-double trucks. Trucks use Pembroke Road to avoid the bridges on Ben Lomond Road and Airds Road. When empty, these trucks travel to the Proposal site via the regular haul routes which include the bridges. The regular haul routes are shown in Figure 1-3and Figure 1-4.

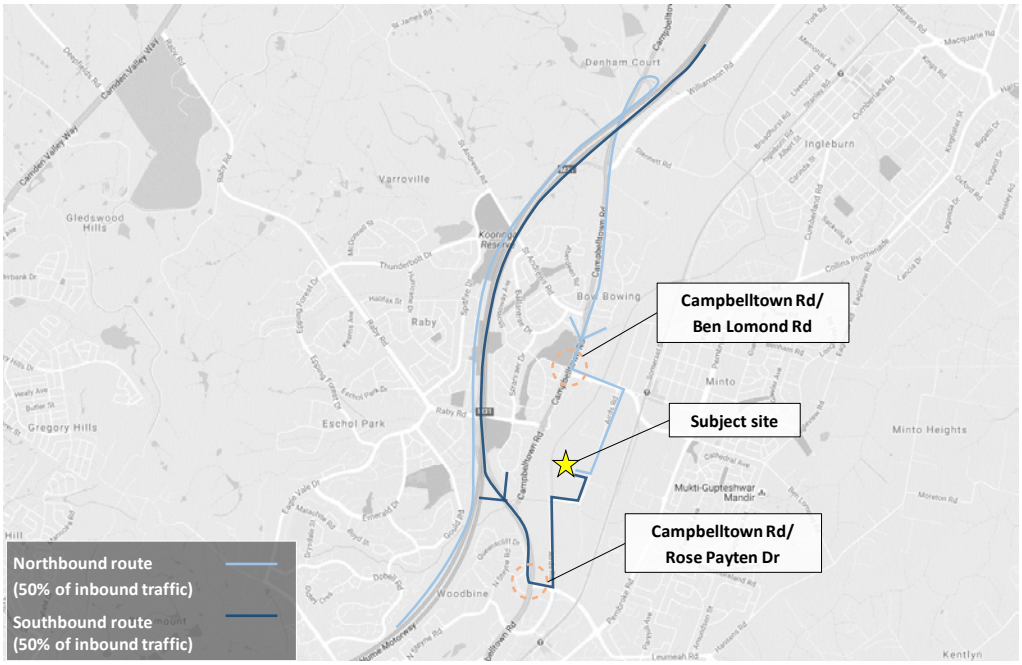

Figure 1-3 Inbound Haul Routes

Figure 1-4 Outbound Haul Route for Trucks

According to Roads and Maritime NSW Combined Higher Mass Limits (HML) and Restricted Access Vehicle (RAV) interactive map, all of the aforementioned routes permit access by vehicles up to and including 25m B-double trucks. These routes are also approved for use by B-double trucks as per the National Heavy Vehicles Regulator (NHVR) online interactive map.

The alternate outbound route via Pembroke Road is shown overlain on Roads and Maritime's HML and RAV map in Figure 1-6. This route is considered an appropriate alternative to Ben Lomond Road and Airds Road given it is approved by Roads and Maritime and NHVR, which have jurisdiction over state roads (which these routes are). Furthermore, Pembroke Road is a wide road located in an industrial area where businesses in the vicinity utilise this route for large size vehicles.

Figure 1-5 Alternate Outbound Haul Route for Large Trucks

1.4.6 Vehicle stacking arrangements

Onsite vehicle stacking spaces would be provided where trucks can queue without causing interruptions to site operations and the surrounding road network. From the stacking spaces, all inbound waste trucks are able to undertake a U-turn and reverse onto the tip floor in Shed B. From the tip floor, these trucks are able to proceed in a forward direction toward the western outbound weighbridge to exit the site without being restricted by stacked vehicles. Vehicles carrying inbound waste range in size from vans/small trucks to 19 m semi-trailers.

A total of 21 stacking spaces would be provided along the eastern boundary of the Proposal site that can satisfactorily accommodate a mixture of vehicle types, ranging from vans/utes to 25 m B-double trucks.

TTPP predict that during any hour of operation across the day, the proposed queuing arrangement would allow for a turnover of 74 vehicles (3.5 vehicles per hour x 21 spaces). TTPP predict that the site would generate a maximum of 54 two-way vehicle movements at the site during peak operations. In theory, the 27 vehicles expected to arrive during this peak hour could be accommodated across 8 stacking spaces (27 vehicles / 3.5). As a result, with 21 available stacking spaces, there would be 13 vacant stacking spaces remaining.

1.4.7 Pedestrian access

Pedestrian movements throughout the Proposal site would be low and generally limited to the start/end of work shifts and at lunch time. Therefore, interaction between vehicles and pedestrians across the Proposal site would be infrequent.

Pedestrian access to the waste processing and sorting sheds would be prohibited, with permission granted only to the Traffic Controller on duty. Staff would access the sheds using the pedestrian paths provided. Pedestrians would give-way to all vehicles onsite, including trucks and mobile plant. When moving around onsite, pedestrians would keep to the designated pathway. Where the pathway intersects with a traffic route, pedestrians would be required to give-way to vehicles before crossing the traffic lane.

All employees, visitors, contractors and truck drivers would be required to wear high visibility clothing to enhance discernibility of pedestrians during day and night

conditions. Truck drivers would be permitted to exit their vehicle only when untarping the load in preparation to enter the tip floor. Such activity would be undertaken in the stacking area and under the supervision of the Traffic Controller in the designated area.

1.4.8 Operational workforce and hours

The proposed hours of operation are:

- Monday to Saturday: 6:00am to 10:00pm
- Sunday and Public Holidays: No processing operations

Table 1-11 provides an overview of the typical operational characteristics of the site between 6:00am and 10:00pm.

Table 1-11 Operational Scenarios over a 24 hour period. INP Assessment Time Period Operational Characteristics

Time period	Operational characteristics
Morning Shoulder (6:00 am to 7:00 am)	• Waste processing vehicles fully operational sorting waste and loading trucks • Trucks dropping off / picking up waste (4 Trucks idling, up to 5 trucks arriving and leaving during any 15 minute period at a speed of 5km/h)
Daytime (7:00 am to 6:00 pm)	• Waste processing vehicles fully operational sorting waste and loading trucks • Trucks dropping off / picking up waste (4 Trucks idling, up to 5 trucks arriving and leaving during any 15 minute period at a speed of 5km/h)
Evening (6:00 pm to 10:00 pm)	• Waste processing vehicles fully operational sorting waste and loading trucks • Trucks dropping off / picking up waste (4 Trucks idling, up to 5 trucks arriving and leaving during any 15 minute period at a speed of 5km/h)

Approximately 30 full time staff would be employed at the facility. Staff would operate in two shifts per day with 13-15 people onsite at any given time, including:

- One weighbridge / office staff
- One yard supervisor
- Eight machine/ plant operators
- Three traffic controllers (site entrance, yard untarping area and Shed B)

Shift patterns would be arranged to not overlap to allow sufficient parking on the Proposal site for staff. The work day would be split into two shifts as follows:

- Morning shift: 6:00am to 1:30pm
- Afternoon shift: 2:30pm to 10:00pm.

There would be a change-over period in between the two shifts between 1:30 pm and 2:30 pm. Operation of the Proposal site would continue with ‘skeleton’ staff remaining present onsite during this change-over period.

Typically, workers would arrive at the Proposal site before 6:00 am to begin the morning shift. Therefore, car movements due to employees arriving at the Proposal site would

not conflict with the site's operational peak hour that occurs between 6:00 am and 7:00 am.

A total of 17 car parking spaces would be provided on site.

1.4.9 Processing capacity and timing

Section 1.4.1 to 1.4.10 describes the proposed development, and operational details for the Proposal. The expanded Minto RRF is proposed to have a processing capacity of up to 220,000 tonnes of non-putrescible waste per annum. The expanded Minto RRF is considered to have adequate processing capacity to accommodate the proposed throughput. A number of operational processes would be undertaken concurrently which could be split into five key operational elements, namely:

- Pre-loading
- Waste disposal and collection
- Waste processing
- Transfer of waste from processing area into outputs storage area
- Waste storage

Pre-loading

A Pre-loading strategy would be used to enable the facility to process waste throughout the full operational hours of the facility. Pre-loading is a common waste management strategy where vehicles are loaded with waste in the evening prior to transfer to a receival facility the following morning. This allows waste to be processed throughout the operational hours of the Proposal even when receiving facilities are potentially closed. Vehicles loaded with processed waste from the Proposal in the evening that are unable to deposit their waste that day would transit to their regular overnight parking location with the pre-loaded waste, prior to depositing waste at the receival facility the following morning.

The early opening hours of the Proposal would allow it to accept waste from sources including infrastructure projects that have pre-loaded their vehicles.

Waste disposal and collection

Waste would be deposited at the Proposal site by a mix of light and heavy vehicles. Section 1.4.5 and Table 1-12 below describe the total number of waste disposal vehicles that would access the Minto RRF at a proposed throughput of 220,000 tonnes per annum (tpa). Each vehicle would weigh-in prior to depositing their waste onto the tipping floor then exit via the weigh-out bridge. These activities could be undertaken by multiple vehicles simultaneously. Based on traffic survey data for existing operating conditions, a vehicle spends on average 17 minutes on-site between entering and exiting the Proposal site. To allow for increased throughput, as noted in the EIS an average onsite time of 20 minutes has been considered to provide a conservative estimate.

The Traffic Impact Assessment (Appendix G of the EIS) and Addendum Traffic Impact Assessment (Appendix I of this RtS) presents the average time taken for a waste disposal vehicle to deposit waste on the tipping floor. The average time for a car/ute/MR/HRV would average 10 minutes, while the time taken for semi-trailers would be approximately 15 minutes. It is noted that this time would include time taken between weigh-in and weight-out; that is, waiting time within the stacking area, time to perform u-turn to reverse onto tip floor, unloading time on the tip floor, time for the waste to be inspected on the tipping floor, and time to drive to the weighbridge before exiting. Multiple vehicles can be performing this sequence of events simultaneously (i.e. one

vehicle will be waiting following weigh in, while another in tipping and a third is driving toward the out weighbridge).

The key constraint for the time required to deposit of waste at the facility is therefore dependent on the time taken to deposit waste onto the tipping floor (as the activity requiring the greatest length of time to complete for waste disposal vehicles). Of the 10 minute onsite time for light-medium vehicles, and 15 minutes for heavy vehicles only a portion of this time would be spent actually tipping waste onto the tip floor.

The actual time spent tipping has been estimated to be one minute per car/ute to tip plus an additional three minutes to visually inspect the waste; two-three minutes tip time per medium sized vehicle plus an additional three minutes to visually inspect the waste, and seven minutes for a semi-trailer plus an additional three minutes to visually inspect the waste (refer Table 1-12). Table 1-12 shows the number of vehicles that would tip and the total time required to tip across a peak week day (Monday) onto the tipping floor .

Table 1-12 Total tipping time required to tip waste based on peak day at the Minto RRF

Vehicle type	One-way movements per peak day (of vehicles accessing the tipping floor)	Time required (minutes)		Total time required (hours)
		To tip**	To visual inspect waste	
Small vehicle (car/ute)	26	3	1	1.7
Small-medium heavy vehicle	76	2.5	3	7
Heavy vehicle	29	7	3	4.8
Total	**131***			**13.5**

* As per the Addendum TIA (Appendix I of the RtS) Table 6.1. Table 61 of the Addendum TIA outlines the total vehicles movements to and from the Proposal site (including staff movements and waste collection movements). Total one-way movements accessing the tipping floor have been extrapolated based on weight bridge data.

** Tip time has been determined based on onsite data collection undertaken over a 12 month period.

Based on Table 1-12 above, it would take up to 4,212 hours to deposit a total of 220,000 tonnes of waste onto the tipping floor. The Minto RRF is proposed to operate from 6 am to 10 pm (16 hours) Monday to Saturday (refer Section 1.4.8 of the EIS). Therefore the facility would be operational for approximately 4,992 hours per year. The operating hours are therefore considered sufficient to ensure that the proposed volume of waste can be tipped, with appropriate contingency time for any stoppages or delays. Further the total required tipping hours have been conservatively estimated based on the peak weekday.

Collection of waste could be undertaken concurrently with the deposition of waste at the facility. The Amended Proposal would facilitate the processing and consolidation of materials. Waste would be removed for the Proposal via medium and heavy vehicles. Due to the operational efficiency and consolidation of waste the number of waste collection vehicles would be substantially lower than waste disposal vehicles. Up to 18 waste collection vehicles (in the peak worst case day) would access the Proposal site per day. Based on a conservative loading time of 15 minutes per vehicle only 4.5 hours

would be needed per day to load waste collection vehicles (far below the available 16 operational hours per day). This equates to approximately 1,404 hours annually.

Based on these findings, the operational hours and capacity of the Minto RRF are considered sufficient to efficiently and safely accommodate waste disposal and collection vehicles at the proposed throughput. Operational hours exceed required waste disposal and collection vehicles, and ensure adequate contingency for any delays or stoppages can also be accommodated.

Waste processing timing and capacity

The processing plant and equipment that would be used to process waste at the Minto RRF. The Minto RRF is designed to process up to 100 tonnes per hour (t/hr) of 600 kilogram per cubic metre (kg/m^3) material through a highly efficient, refined propriety designed system. A conservative estimate of 75 t/hr has been adopted to allow for stoppages, processing of lighter waste materials and poor waste quality.

Based on processing rate of 75 t/hr the facility could process up to 1,200 tonnes per day. This would equate to a total of 374,400 tpa, far in excess of the proposed 220,000 tpa. The waste processing equipment would consequently process waste at a rate equal to that of waste deposited.

Timing and capacity for transfer of waste from Shed C to Shed A

Section 0 describes the waste handling process for the transfer of waste between Shed C (tipping shed) and Shed A (storage shed). Waste would be transferred between Shed C and Shed A either via loaders or via the conveyor system.

The conveyor system would be used to transfer soil between Shed C and Shed A. Soil would comprise on average 10 per cent of the waste stream, plus an additional 5 per cent of Virgin Excavated Natural Material (VENM), or 33,000 tpa. The conveyor system would have the capacity to transfer up to 30 t/hr. On this basis it would take approximately 1,000 hours to transfer soil between Shed C and Shed A. Total operational hours (4,992 hours) far exceed this required time, and therefore the conveyor system is considered to have adequate capacity to transfer all soil received.

All other waste streams, would be transferred via a loader. As noted in Section 0 materials would not be transferred via loaders between Shed C and Shed A while waste collection trucks are being loaded. Waste collection vehicles would be loaded for up to approximately 1,404 hours per annum. Based on the total operational hours 3,588 hours would remain for loaders to transfer waste between Shed C and Shed A.

Section 1.4.1 describes the waste streams that are anticipated to be received at the Minto RRF. Based on the total volume and the average densities of the processed waste streams a total volume of waste that would need to be transported between Shed C and Shed A is presented in Table 1-13 below. A total of approximately 163,786 m^3 of waste would need to be transferred between Shed C and Shed A via a loader. The loader proposed for use at the Minto RRF is a Hyundai 760-9 Wheel Loader, with a capacity of 3.3 m^3. The loader would take an average of three minutes to complete a round trip between Shed A and Shed C. Consequently it would take approximately 2,482 hours to transfer processed waste between Shed C and Shed A via the loader.

The total operational time required to transfer waste between Shed C and Shed A of 2,482 hours would therefore be below the available 3,588 available hours allowing contingency time.

Table 1-13 Total time required to transport waste by loader between Shed C and Shed A

Waste stream	Tonnes	Conversion factor (t/m^3)	Volume (m^3)	Time required to transport between Shed C and Shed A (hours)
Wood waste	4,400	1.1	4,000	61
Building and demolition waste	165,000	1.2	137,500	2,083
Paper, cardboard and office and packaging waste	5,500	1.1	5,000	76
Other waste	12,100	0.7	17,286	262
Total	**187,000**		**163,786**	**2,482**

Waste storage and capacity

Section 1 describes the process and capacity of waste storage within the Minto RRF. As noted in Section 1 it can be demonstrated that the stockpile capacity of the site is suitable for the volumetric breakdown of the stockpile area having regard for the different types of waste accepted at the site. As waste densities are a significant influence on stockpile capacity, two scenarios have been provided to indicate low and high density waste stockpile capacity (in tonnes) using the conversion factors adopted by NSW EPA Waste Levy Guidelines for each material type.

Table 1-8 and Table 1-9 describe the likely volumes of waste that would be stored onsite. Approximately 1,400 tonnes of waste wold be stored within Shed A (storage shed) at any given time. As shown in Table 1-8 and Table 1-9 the floor space area required to hold 1,400 would be about 381 m^2. The total floor space are of Shed A is 927.7 m^2 and is therefore sufficient to hold the anticipated waste volumes, even when allowing sufficient room not utilised for storage area for truck and machinery manoeuvring. As described in the section above waste collection vehicles would only require 4.5 hours per day to collect waste. There would therefore be sufficient additional operational hours available should additional waste collection be required. Waste collection could therefore occur at a rate per day greater than the anticipated storage volume. Therefore through appropriate scheduling and management of waste collection vehicles, the storage capacity could be maintained to ensure stockpiles do not exceed the capacity of Shed A.

Summary of processing capacity

The key operational processes include:

- Waste disposal and collection timing and capacity
- Waste processing timing and capacity
- Timing and capacity for transfer of waste from the processing area to the stockpiling area
- Waste storage capacity.

Each of these activities could be undertaken simultaneously, and as described above, each could be completed within fewer hours than the total available operational hours available (refer Figure 1-6).

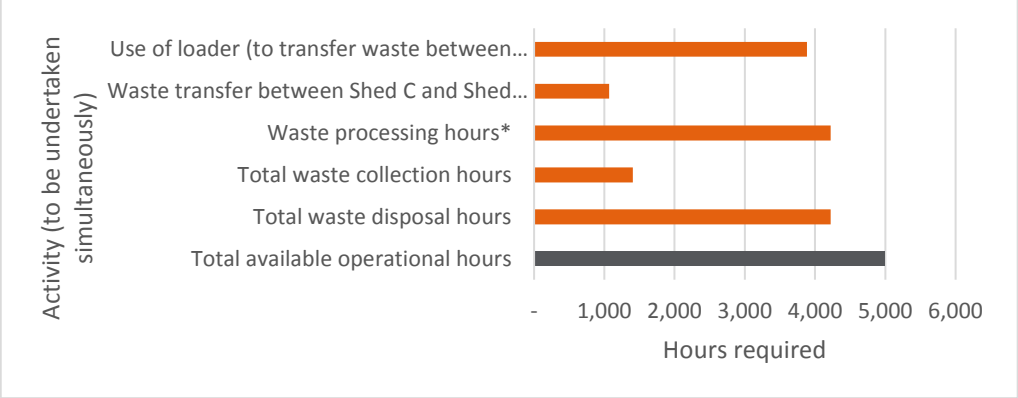

Figure 1-6 Summary of operational hours required to process 220,000 tpa at the Minto RRF

** Waste processing could occur at a rate faster than waste disposal. Therefore total processing hours would match total waste disposal hours*

Contingency

The equipment that is used in the RRF is robust and appropriately designed for the heavy duty nature of the application, but processing of C&D waste is an aggressive and harsh application. The equipment is naturally prone to blockages and requires a relatively high degree of maintenance attention. Heavy materials such as blocks of concrete, fine dust and grit, and difficult waste such as cables and garden hoses, all contribute to blockages and high rates of wear and tear.

A number of contingency measures would be put in place to minimise the risk of equipment shut-down or failure, including:

- A proactive, planned maintenance regime, regular inspections and good housekeeping practices to minimise unplanned downtime
- An in-house maintenance team with mobile workshop that can respond quickly to issues
- Abundant storage capacity within Shed C and Shed A. As noted above the storage capacity allows for substantial volumes of waste to be stored prior to collection being required. It is anticipated that bays within the outputs storage area would typically have a 'backlog' of waste awaiting collection.
- Therefore, transportation of waste from the RRF can continue for a period while plant and equipment is maintained.
- Spare processing capacity. The processing capacity of the RRF, as noted above, far exceeds the proposed annual throughput. This provides a buffer to mitigate any shutdown periods. That is, plant and equipment can be shut down for prolonged periods without impacting the RRF's ability to process 220,000 tpa.
- Access to a broader network of resource recovery facilities. The Amended Proposal would comprise a single RRF within a broader network of facilities owned and operated by Bingo Industries. In a period of extended shutdown of plant and equipment, waste can be redirected to other facilities within the broader network, without compromising the broader Sydney recycling network. Bingo has the ability to readily move waste between facilities using Bingo bulk haulage trucks or to redirect Bingo trucks accordingly.

Based on the above contingency measures, plant and equipment shutdown or maintenance periods are not anticipated to impact the ability of the RRF to process 220,000 tpa.

1.4.10 Non-conforming waste

Non-conforming waste would be handled in accordance with Bingo's 'Systems and procedures for managing non-conforming waste'.

Any trucks containing non-compliant waste would be directed off-site. Heavy vehicles would be pre-screened at the entry weighbridge to determine whether the load is compliant for acceptance. Any load deemed non-compliant would exit the Proposal site via the exit weighbridge and the wheel wash.

Key procedures for managing non-conforming waste will be outlined in the Proposals Operational Environmental Management Plan (OEMP), and may include:

- Checking and inspection of incoming waste prior to its stockpiling or processing to minimise the risk of non-conforming material in processed and recovered waste materials. Waste that has been tipped onto the tipping floor would be spread to approximately 100 mm thick so that each load can be visually inspected.
- Rejection of waste loads that may contain non-conforming material to prevent acceptance of non-conforming materials
- Recording details of non-complying waste generators
- Review of the waste processing systems in line with EPA requirements,
- Increasing the level of appropriate and safe recycling of waste in a sustainable and environmentally sound manner.

1.4.11 Hazardous goods storage

Approximately 30,000 litres of diesel is stored on site within a bunded area and separated from flammable liquids. No LPG would be stored on-site as forklifts would be diesel fuelled.

The diesel fuel store is currently contained in a bunded area separate from other flammable liquids. It is proposed to relocate the diesel fuel store to sit between Storage Shed A and the western driveway crossing. The designated fuel store area is illustrated on the proposed Site Plan (Appendix B of the RtS).

The Proposal will not accept hazardous materials. However, on occasion items may be discovered in the received materials that contain hazardous substances. These non-complying materials will be managed in accordance with the asbestos and non-complying waste management procedures. Hazardous materials would be stored (until they can be disposed of at an appropriately licenced facility) within the hazardous materials bins on the eastern side of the tipping floor.