

# Recycling & Waste Management Plan – demolition, construction and in-operation

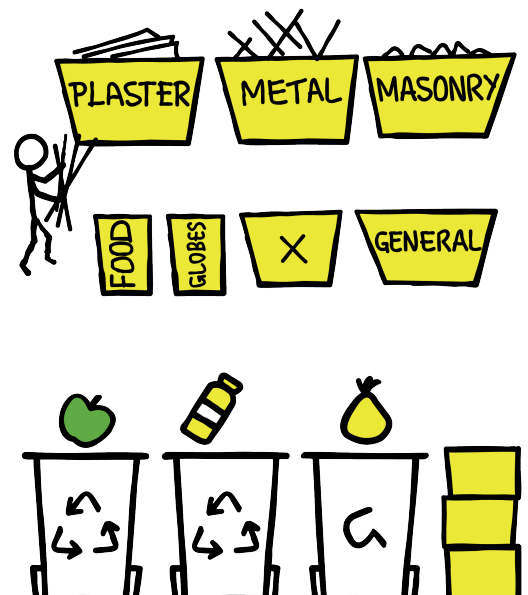
Commercial Solar Farm

19 Murray Street, Hay NSW 2711

**Prepared for:** Green Gold Energy Pty Ltd

**Prepared by:** LR – Low Impact Development Consulting

**Date:** 15/11/2021



**e:** [info@lidconsulting.com.au](mailto:info@lidconsulting.com.au)

**p:** 03 9016 9486

**a:** Suite 7, 252 St Georges Rd, Fitzroy North Vic 3068

**w:** [www.lidconsulting.com.au](http://www.lidconsulting.com.au)

| Version | Date       | Description  | Prepared by | Checked by |
|---------|------------|--------------|-------------|------------|
| 1.0     | 4/10/2021  | Prelim Issue | LR          | LR         |
| 2.0     | 15/11/2021 | Revised      | LR          | CH         |

## Disclaimer

This report is copyright and has been written exclusively for the subject project discussed throughout. No part of this document may be reproduced or transcribed without the express agreement of LID Consulting Pty Ltd. The content of this report remains the intellectual property of LID Consulting.

The content of this document represents the entirety of work output or recommendations offered by LID Consulting for this particular project. This content supersedes all other verbal discussions undertaken by LID Consulting representatives in relation to this project.

Commercial waste calculations are based on rates provided by government organisations and adopted and used as an industry standard. Bin numbers and spatial requirements have been calculated in accordance with these guidelines. The end user requirements may vary from this depending on the business use, type and operational practice.

## Contents

|      |                                                    |    |
|------|----------------------------------------------------|----|
| 1    | Waste Summary .....                                | 1  |
| 1.1  | Demolition & Construction Waste Summary.....       | 1  |
| 1.2  | Operational Waste Summary .....                    | 1  |
| 2    | Recycling & Waste Management Plan .....            | 2  |
| 2.1  | Waste Context.....                                 | 2  |
| 2.2  | Development Outline .....                          | 2  |
| 2.3  | Project Overview.....                              | 4  |
| 2.4  | Head Contractor .....                              | 4  |
| 2.5  | General Waste Management .....                     | 5  |
| 2.6  | Actions for Good Waste Minimisation .....          | 5  |
| 2.7  | Management Responsibilities.....                   | 6  |
| 3    | Demolition & Construction Waste Details .....      | 7  |
| 3.1  | Aims .....                                         | 7  |
| 3.2  | Additional Council Permits.....                    | 7  |
| 3.3  | Waste Register .....                               | 7  |
| 3.4  | Accurate Estimation .....                          | 7  |
| 3.5  | Waste Charges by Volume & Weight.....              | 7  |
| 3.6  | Site Training in Waste Management.....             | 7  |
| 3.7  | Pollution Control Measures .....                   | 8  |
| 3.8  | Runoff, Spills, Siltation & other Pollutants ..... | 8  |
| 3.9  | Truck / Bin Clean-up .....                         | 8  |
| 3.10 | Excavation Stage .....                             | 8  |
| 3.11 | Construction Stage .....                           | 11 |
| 4    | Operational Waste Management Details .....         | 18 |
| 4.1  | General .....                                      | 18 |
| 5    | Supplementary information.....                     | 19 |
| 5.1  | Waste Links.....                                   | 19 |
|      | Appendix 1 - Existing Site Conditions.....         | 20 |
|      | Appendix 2 - Proposed Works.....                   | 21 |
|      | Appendix 3 - Construction Bin Locations.....       | 23 |
|      | Appendix 4 - Preliminary Risk Review .....         | 24 |

 LID acknowledges and pays respect to the Australian Aboriginal and Torres Strait Islander people, to their ancestors and elders, past, present and emerging, as the traditional custodians of the lands upon which we work and live. We recognise Aboriginal and Torres Strait Islander people's deep cultural and spiritual relationships to the water, land and sea, and their rich contribution to society.

# 1 Waste Summary

## 1.1 Demolition & Construction Waste Summary

With over 25 Solar farms already constructed around Australia in various remote locations, Green Gold Energy have advised that their sub-contractor agreements stipulate that each trade is to manage and remove their own waste.

The local Hay Waste Transfer Station / Waste depot is unable to accept construction waste without an executed Waste Management Agreement with the Hay Shire Council. This depot is currently at capacity.

Cleanaway is contracted by Hay Shire Council to collect local residential waste. The closest depot is in Wagga Wagga. They are also able to be engaged privately to collect construction and operational waste as required.

All waste is to managed within the site and property boundary. No waste is to be left along the roadside at any time.

## 1.2 Operational Waste Summary

Once operational, the site will be monitored remotely. There will be a need for panel cleaning 1-2 times a year, periodic mowing / weed removal as well as any general maintenance to ensure continued operation. It is anticipated that any operational waste will be limited to lunch wrappers and drink containers for workers undertaking these tasks and any supplies required for maintenance or repair. Any contractor entering the site will be required to remove their own waste.

The approved Waste Management Plan (WMP) will be the model to be adopted for this development. Detailed design and as-built installation must incorporate the design proposed and approved under this WMP. Any revisions of the WMP or changes to the approved waste system of the development may require Council approval and may require a re-submitted Waste Management Plan. More detail is contained within this report.



## 2 Recycling & Waste Management Plan

Low Impact Development (LID) Consulting was engaged by Green Gold Energy Pty Ltd to assess the proposed development at 19 Murray Street, Hay NSW 2711 to provide a Waste Management Plan (as required by Hay Shire Council's Statutory Planning).

A waste management analysis has been undertaken based on the following documents:

- Dept of Environment & Climate Change NSW's Better Practice Guide for Waste Management in Multi-unit Dwellings (includes commercial rates);
- AS 2601 - 2001 Demolition of Structures, published by Standards Australia
- Code for the Control & Regulation of Noise on Building Sites NSW
- Environment Protection Authority Guidelines for Removal of Lead Paint & Asbestos
- Waste Avoidance and Resource Recovery Act 2001
- Contaminated Land Management Act 1997
- Refrigerant Handling Code of Practice 2007 (AIRAH/IRHACE)
- NSW Waste Avoidance and Resource Recovery Strategy 2014 – 2021

### 2.1 Waste Context

In 2016-17, the Australian economy generated or imported 68.9 megatonnes of waste, of which the largest contributors were:

- Construction (20.4 megatonnes, 29.6%)
- Electricity, gas, water and waste services generation (12.7 megatonnes, 18.4%)
- Manufacturing (10.8 megatonnes, 15.6%).

The intent of this demolition, construction and operational waste management plan is to assist in reducing this.

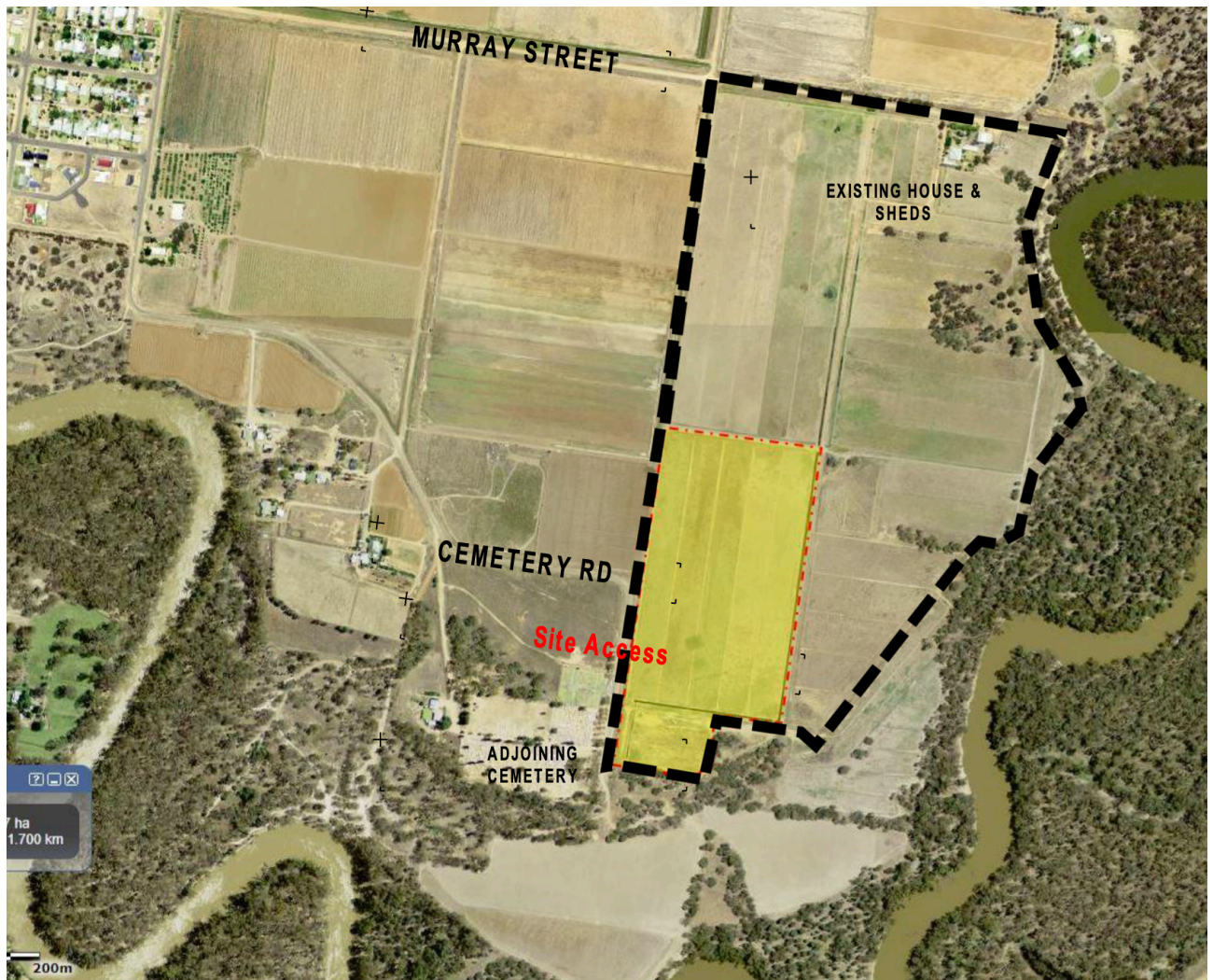
### 2.2 Development Outline

|                               |                                                                                                                                                                                                                                                               |
|-------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Site Address:</b>          | 19 Murray Street, Hay NSW 2711                                                                                                                                                                                                                                |
| <b>Applicant:</b>             | Chris Smith & Associates                                                                                                                                                                                                                                      |
| <b>Type:</b>                  | Commercial Solar Farm                                                                                                                                                                                                                                         |
| <b>Key Project Documents:</b> | <ol style="list-style-type: none"><li>1. Site Plan, dated 6/8/2021 Rev D</li><li>2. PV Tracker Detail Drawing M-101 Rev A dated 7/9/2021</li><li>3. Chainwire Mesh Security Fence &amp; Gate drawing Rev O dated 3/4/20 prepared by GPA Engineering</li></ol> |

#### Existing Buildings and other structures:

- The subject site is approximately 67.7 HA located east of the Hay township. The site contains a number of storage facilities to the north of the property at the end of Murray Street.
- The property adjoins the Hay Lawn Cemetery at 124 Cemetery Road to the west.

- The Murrumbidgee River adjoins the eastern and southern boundaries.
- The subject site is relatively flat with minimal vegetation.



 Tentative Solar Farm  
Location – 14.67 ha approx

 Site Boundary – 67.67 ha  
approx

Brief description of proposal:

- The project solar farm is to be located in the south west corner of the site and will cover approximately 14.7 HA.
- The primary access will be via Cemetery Road with 2 sets of gates to be constructed.
- In addition to the solar arrays system, there will be secure perimeter fencing and an inverter station. Temporary site amenities and a storage area will be onsite during the construction stage only.
- Space for the collection, separation and storage of waste and recyclables during construction has been accounted for.

The details provided in this report are the recommendations for better practice management of construction waste. Separation of waste streams is recommended to improve recycling of excess construction materials and packaging. This is considered practical given the size of the site and project.



## 2.3 Project Overview

While there is no demolition to occur on the site, there will be some excavation limited to hole boring for pad footings for a new perimeter security fence. There are 4 key stages during the construction stage as follows:

**Stage 1 – Early works:** Includes piling tests, road and access upgrades with up to 10 persons on site.

**Stage 2 – Civil works:** includes vegetation clearing, internal roadway formation, fence installation and site establishment with preparation of the delivery area. Up to 5 persons on site.

**Stage 3 – Mechanical works:** includes foundation piling (ramming & auguring), tracker and module delivery and installation. 10-15 persons on site.

**Stage 4 – Electrical works:** includes solar cabling, aerials and conduits, DC main cabling via direct burial, MV cabling from inverter station to delivery station direct burial module connection, connection of junction boxes, connection to grid and finally testing and commissioning. Up to 20 persons on site for this stage.

The project of this size is expected to be 6 months approximately. It is anticipated that all components will be delivered by semi-trailer trucks scheduled across the project construction period.

## 2.4 Head Contractor

The responsible Head Contractor is Green Gold Energy Pty Ltd who have a long standing history in solar farm installation and management. They will hold the key responsibility to ensure all waste is appropriately managed within and from the site during all stages of construction and the facility's ongoing operation.

Any issues or enquires can be directed to:

### **Green Gold Energy**

Contact: Darren Spriggs

Ph: 0426 528 925

[Darren@greengoldenergy.com.au](mailto:Darren@greengoldenergy.com.au)

[www.greengoldenergy.com.au](http://www.greengoldenergy.com.au)



## 2.5 General Waste Management

With over 25 Solar farms already constructed around Australia in various remote locations, Green Gold Energy have advised that their sub-contractor agreements stipulate that each trade is to manage and remove their own waste. This agreement should also ensure that the waste is appropriately streamed and materials recycled where possible to minimise waste going to landfill.

Sub-Contractors and suppliers come from various locations around Australia depending on the site location and service required. In this instance, they may come from Melbourne or Sydney. Sub-contractors and suppliers may take their own waste back to their base for re-use &/or recycling – such as timber pallets and copper wiring. A more local solution may also be sourced if required (such as packaging waste).

The local Hay Waste Transfer Station / Waste depot is unable to accept construction waste without an executed Waste Management Agreement with the Hay Shire Council. This depot is currently at capacity.

Cleanaway is contracted by Hay Shire Council to collect local residential waste. The closest depot is in Wagga Wagga. They are also able to be engaged privately to collect construction and operational waste as required. This may suite large volumes of streamed cardboard and soft and hard plastic wrapping waste for instance in larger skip bins.

The closest waste recovery centre is also in Wagga Wagga. Cleanaway takes their waste here. The Gregadoo Waste Management Centre also accepts waste from outside of the council district.

Details of what is accepted (either for free of charge or at a cost), it detailed on their website: <https://wagga.nsw.gov.au/services/waste-and-recycling/waste-management-centres/accepted-waste-and-fees>. Refer Section 5.1 below for details.

## 2.6 Actions for Good Waste Minimisation

Where possible, the practice of the waste reduction hierarchy identified in the Environmental Protection Act 2017 inverted triangle should be followed.

The first step to reducing waste is to avoid and minimise waste from occurring in the first instance. Changing purchasing habits and implementing waste avoidance include:

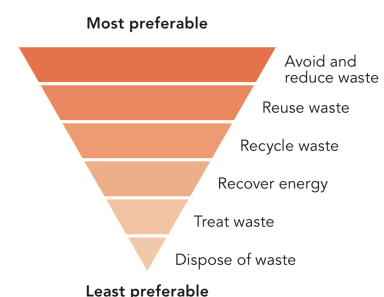
- Purchase only what will be used
- Purchase items of quality that can be re-used, sold on donated or up-cycled.

The discussion of creating a circular economy aligns with the hierarchy but presents it differently.

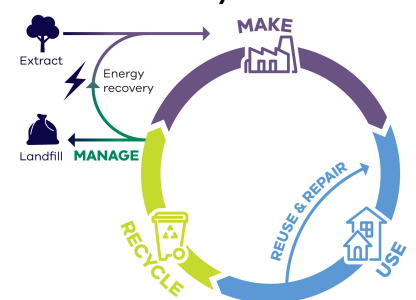
In a circular economy there is no bin. No waste.

A circular economy is a system where products and services are designed to be reused or ideally regenerative – as opposed to the predominantly linear model of “take, make and waste” that we have seen in the last few decades.

### Waste hierarchy



### Circular Economy



The material and assembly choices architects and designers make during the detailed design phase of a building or infrastructure asset impact directly on whether that built element is part of the circular economy or is used once and discarded.

More information can be found at: <https://acehub.org.au>

The following measures help to ensure reduced waste to landfill:

1. Inclusion in contract conditions that all sub-contractor are to manage their own waste and ensure all materials are recycled where possible. This should also include clean up of their own work at the end of each day, placing waste into their own bins – specifically metal off cuts or cabling for recycling.
2. Commitment to keeping a waste register.
3. Inclusion of a discussion of the intent to recycle and minimise waste in all site inductions.
4. Supervision of waste bins and enforcement of separation of waste types.
5. Separate bins with lids on for workers food waste and wrappers. Reduces contamination of other recycling loads.

## 2.7 Management Responsibilities

The Head contractor is responsible for all aspects of waste management including implementing adequate safe operating procedures. Items to be addressed in maintaining the system include:

- Ensuring each sub-contractor's contract agreement includes waste management clauses to stipulate they are each sub trade is responsible to remove and manage their own waste. Further, each waste stream is to be appropriately streamed and recycled where possible.
- Coordinate, execute and manage any Waste Management Agreement directly with Hay Shire Council & the council run Waste transfer station as required if it is intended that any waste it to be specifically taken there.
- Coordinating any and all additional waste collections required, ensuring the end destination is as outlined in this report. The waste contractor is to ensure they collect any waste that spills from the bins or skips during emptying.
- With the local cemetery located adjoining the proposed entry / exit points, collections are to occur at times least likely to cause noise or disruption to funeral or memorial services. The Head Contractor is to ensure collection times are coordinated accordingly.
- The Head Contractor is responsible for providing 240L general waste and recycling bins for day-to-day lunch of office waste. Individual persons are responsible for placing their waste in the appropriate colour coded bins ensure all waste types are collected and recycled where possible.
- That bins and skips are monitored regularly as required to ensure areas are fully operational with regular cleaning and clean-up after collection if necessary.
- Provision of information to all sub-contractors with guides of how to using the various bin systems if required e.g. boxes to be flattened, bins to not be over-full. See **Section 3.13** for further information about Signage, Education & Safety.
- Monitoring and feedback to all sub-contractors if the system is not working properly. Undertake a waste audit should it be suspected waste is not being managed or streamed appropriately.

## 3 Demolition & Construction Waste Details

### 3.1 Aims

The purposed of this Waste and Recycling Management Plan is to address construction waste and include:

- (a) details regarding how waste is to be minimised within a development;
- (b) estimations of quantities and types of materials to be re-used or left over for removal from the site;
- (c) details regarding the types of waste and likely quantities of waste to be produced;
- (d) a site plan showing storage areas away from public access for reusable materials and recyclables and the vehicle access to these areas;
- (e) nomination of the role/person responsible for retaining waste dockets from facilities appropriately licensed to receive the development's construction and demolition waste;
- (g) confirmation that all waste going to landfill is not recyclable or hazardous.

### 3.2 Additional Council Permits

Waste bins are proposed to be fully within the fenced site boundary. Should additional waste skips be required outside of the property on the roadway or nature strip a permit would be required from council.

### 3.3 Waste Register

A register is to be kept for recording types and quantity of waste taken off site, waste contractor used and destination for the treatment or disposal of the waste.

The register should also include tracking of contaminated wastes generated on site that include but may not be limited to:

- Contaminated soils
- Waste oils, oil and fuel filters from machinery used on site, oily water
- Solvents, paints and adhesives and their containers

### 3.4 Accurate Estimation

Careful estimation, ordering and prefabrication offsite prior to site construction will ensure that minimal excess material is wasted and that variations on site that result in waste are minimised.

### 3.5 Waste Charges by Volume & Weight

Most demolition and construction waste is charged by volume (set price for the bin or per standard size truck), and also by weight. This means that even some lightweight voluminous products are expensive to be disposed of – which may improve the incentive to recycle more.

### 3.6 Site Training in Waste Management

All sub-contractors on site should be trained in the contents of this waste management plan as part of site induction procedures, to maximise the use of recycling storage provided on site and the diversion of construction waste from general landfill.

### 3.7 Pollution Control Measures

Pollution control measures should be identified and documented, prior to work commencing. This should identify where pollution control measures will be installed, and how erosion and loose waste will be managed. Examples of measures follow:

- Erosion control blankets over any mounded earth
- Installation of tarps/coverings on site waste bins during non-work hours to prevent blown material leaving the site.
- Dust and blown waste control at boundary fence line to ensure rubbish is not blown into adjoining properties or into the creek



Example – Silt Fencing



Example – Dust control

### 3.8 Runoff, Spills, Siltation & other Pollutants

Suitable measures are to be taken to ensure the possibility of pollutant runoff from the site is contained and managed. Containment fencing and silt management measures at the boundaries are recommended as required.

Spill and sediment tracking off the site from vehicles leaving the site should be managed to minimise pollutant and sediment loads that could otherwise enter street stormwater or river catchment.

### 3.9 Truck / Bin Clean-up

Trucks existing the site will need to be inspected to ensure broken glass, shards of metal and brick rubble is not transported off-site on to the roadways.

Trucks will potentially collect soil on wheels. The use of crushed rock on internal roadways will reduce this, as will the use of rumble grids. Washing down trucks and storage bins prior to leaving site is another method that may be required to prevent silt and pollutants leaving the site, All measures reduce the need to clean down roadways.

### 3.10 Excavation Stage

Excavation on this site will be limited to pad footing holes for the perimeter fencing. There may be a small amount of soil movement to ensure current grades are installed at the entry & exit gates.

#### 3.10.1 Sequence

The general sequence to be followed for completing the demolition and excavation stages is as follows:

1. Installation of washdown and other site safety protection measures



## 2. Demolition methods

- By machine – grass vegetation – minimal

## 3. Excavation

- An Auger or similar will bore holes for fence footings only. Soil can be pushed around the site and dispersed.

### 3.10.2 Contaminated Land

No contamination report has been undertaken at the time of writing this report. Should any contamination be found, it is to be remediated and disposed of to an approved contaminated/remediated soil facility per the Contaminated Land Management Act as required by NSW EPA.

### 3.10.3 Trees

There are no trees to be removed/relocated in the proposed works area.



**Table 1 Excavation phase waste analysis – Site Establishment, Demolition, and Excavation**

| Materials on Site |                     |                                                                    | Destination                                                                                                                                                                                                                                                        |          | Contractor#                 |
|-------------------|---------------------|--------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|-----------------------------|
| Type of Material  | Location / examples | Estimated Qty – TBA by contractor                                  | Reuse and recycling                                                                                                                                                                                                                                                | Disposal | Operating in the local area |
| Excavated fill    | Fence footings only | <ul style="list-style-type: none"> <li>10 m<sup>3</sup></li> </ul> | <ul style="list-style-type: none"> <li>Excavated fill is often able to be re-used so long as the fill is clean and uncontaminated.</li> <li>Excavated fill to be spread around on site.</li> <li>No excavated fill is expected to be removed from site.</li> </ul> | NA       | On Site                     |

# For further information regarding each contractor refer to the Waste Contractors section of this report.

## 3.11 Construction Stage

For Bin Placement and Vehicle Collection Path see: Appendix 1 - Construction Waste Bin Location Plan.

### 3.11.1 Sub-Contractor Agreements

The Head Contractor as well as Sub-contractors and their attitude to waste has a significant impact on the waste performance of a building site. Waste minimisation strategies should identify which products are to be recycled and where they are to be taken to, and which are not to be recycled and where they will be sent.

It will be the responsibility of each sub-contractor / trade to manage their own waste. All other waste will be managed by the Head Contractor.

Table 2 below outlines the waste streams identified for the construction stages and recommends appropriate methods for recovery and disposal to be followed, particularly where individual trades contractors are to be appointed.

### 3.11.2 Construction System & Take-offs

Items to be pre-fabricated off-site in controlled yards or factories and delivered complete to site will reduce on-site waste significantly. Pre-fabricated products include:

- Fence components
- Amenity & utility structures
- Solar panels & frames

Further; waste is generally reduced at off-site fabricators for economic benefits.

### 3.11.3 Construction Components

|                                                         |                                                                                                                                                                                                                                                      |
|---------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Concrete for fence pad footings                         | Installation - pored direct from truck.                                                                                                                                                                                                              |
| Fence & gates                                           | Galvanised individual components bought on truck with rolls of mesh – no packaging as such.<br><br>Installation will generate metal off cuts                                                                                                         |
| Solar panels & frames shipped in from overseas          | Re-packed to fit on truck from warehouse to site.<br><br>Packaging waste – pallets, styrene, strapping, cardboard boxes. Waste<br><br>Installation includes bolted components only with frames pushed directly into ground (no concrete pad footing) |
| Inverter building – prefabricated & fitted out off site | Craned into place directly on ground. No hydraulic services.<br><br>Installation includes wire / conduit runs and connection to the building – off cuts only.                                                                                        |
| Amenity building – prefabricated storage & lunchroom    | Craned into place directly on ground. No hydraulic services.<br><br>Furniture (table and chairs), fridge & water cooler.                                                                                                                             |

|                   |                                                      |
|-------------------|------------------------------------------------------|
|                   | Lunch waste (food wrappers, drink containers, food). |
| Toilet facilities | Are temporary mobile units (no plumbed facilities)   |

### 3.11.4 Waste Container Guidelines & Signage

All waste containers / skip bins are to be clearly visible, accessible and labelled in a well-lit area to ensure use.

No hazardous, flammable or explosive materials are to be disposed of within skip bins.

It will be the responsibility of the Head Contractor to ensure all sub-contractors have all of the material available to them and that they adhere to the required practices regarding waste management, sustainability and promoting waste minimisation.

**Instructional signage** to indicate which bin is for garbage and which is for recyclables or other waste streams.



*Simple, brightly coloured signs, such as those shown above, quickly communicate what items are acceptable for each bin.*

**A preliminary OHS risk assessment** has been included to identify potential OHS issues, however this risk assessment does not replace the need for the Head Contractor and collection contractors to complete their own OHS assessment for the bin collection process. See **Appendix 2** for further detail.

### 3.11.5 Contamination of soil during construction

Contamination of soil, which then needs to be removed off site, often occurs and can be addressed in the following ways in *italics*

- small items such as discarded fasteners, food scraps packaging and straws – *locate small easy to find bins with lids around the site*
- broken polystyrene – *cut and sweep up immediately then place in bins with lids*

### 3.11.6 Sequence

The general sequence to be followed for completing the construction stages is as follows:

## **1. Pad footings**

Fence Footings - Experienced concreters order loads accurately, ordering on a load by load basis near the end of the pour. Waste concrete would be a fraction of one load per pouring day i.e. approx. 1-2m<sup>3</sup> at most on the last delivery of the pour. Waste to be crushed and used for ground stabilisation or removed and crushed for re-use in road base or similar.

## **2. Services installation**

- Installation of electrical systems- Wire waste should not end up in general waste bins on site but should be removed, stored and sent for recycling of the copper.
- PVC conduit and other piping can be separated for collection and may be recovered for granulation and reuse. Otherwise it may be disposed to landfill.
- Waste solvents from PVC gluing are to be tracked in the contaminated waste register and disposed to a suitable landfill for solvent container disposal.

## **3. Packaging**

- All equipment will generate plastic and cardboard packaging waste. Separate cardboard and plastics bins or enclosures should be provided to capture this waste.
- Any large quantities of unframed damaged glass (solar panel damage) should also be recycled.

## **4. Restoration**

Re-establishment of any kerbing, vehicle crossings and footpaths.

**Table 2 Construction phase waste analysis – Structure, Services, Fit-out and Finishes**

| Materials On Site and Collection Bin |                                     |                                   | Destination                                                                                                                |                                                                                                                                                                                                                                                   |                                                                                                                          |
|--------------------------------------|-------------------------------------|-----------------------------------|----------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|
|                                      |                                     |                                   | Reuse and Recycling                                                                                                        |                                                                                                                                                                                                                                                   | Disposal                                                                                                                 |
| Type of Material                     | Bin / Container                     | Estimated Qty – TBA by contractor | On-site<br>(Re-use / onsite recycling)                                                                                     | Off-site<br>(Offsite Recycling)                                                                                                                                                                                                                   | (Contractor and landfill site)                                                                                           |
| Concrete                             | Concrete bin (if required)          | 1m <sup>3</sup> Approx            | The small volumes of waste concrete expected may be reused onsite as ground stabilisation or binned for offsite recycling. | A concrete recycler can receive waste concrete hauled off site.<br><br>Separating masonry / concrete / bitumen attracts reduced charges from offsite recyclers compared with mixed materials.                                                     | Used on site (if any)<br><br>Fencing sub-contractor's responsibility<br><br>Wagga Wagga Gregadoo Waste Management Centre |
| Metals - ferrous steel framing       | Metals - ferrous                    | 4m <sup>3</sup> Approx            |                                                                                                                            | Recycled building products contractor or scrap metal merchant<br><br>Hay Transfer Station will only accept waste if it is part of a pre-executed Waste Management Agreement.                                                                      | Used on site (if any)<br><br>Fencing sub-contractor's responsibility<br><br>Wagga Wagga Gregadoo Waste Management Centre |
| Electrical cabling/wiring offcuts    | Mixed metals or separate wiring bin | 4m <sup>3</sup> Approx            |                                                                                                                            | A copper wire recycling facility such as will accept quantities from 2kg upwards, with better prices for large quantities of wire.<br><br>Hay Transfer Station will only accept waste if it is part of a pre-executed Waste Management Agreement. | Electrical sub-contractor's responsibility<br><br>Wagga Wagga Gregadoo Waste Management Centre                           |



| Materials On Site and Collection Bin |                        |                                   | Destination                            |                                                                                                                                                                                                         |                                                                                      |
|--------------------------------------|------------------------|-----------------------------------|----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
|                                      |                        |                                   | Reuse and Recycling                    |                                                                                                                                                                                                         | Disposal                                                                             |
| Type of Material                     | Bin / Container        | Estimated Qty – TBA by contractor | On-site<br>(Re-use / onsite recycling) | Off-site<br>(Offsite Recycling)                                                                                                                                                                         | (Contractor and landfill site)                                                       |
| Soft plastic                         | Soft plastic recycling | 16m <sup>3</sup> Approx           |                                        | Back to head contractor's facilities or to Wagga Wagga's general recycling waste centre.<br><br>Hay Transfer Station will only accept waste if it is part of a pre-executed Waste Management Agreement. | Head contractor's responsibility<br><br>Wagga Wagga Gregadoo Waste Management Centre |
| Plastic strapping                    | Hard plastic recycling | 4m <sup>3</sup> Approx            |                                        | Back to head contractor's facilities or to Wagga Wagga's general recycling waste centre.<br><br>Hay Transfer Station will only accept waste if it is part of a pre-executed Waste Management Agreement. | Head contractor's responsibility<br><br>Wagga Wagga Gregadoo Waste Management Centre |
| Cardboard packaging                  | cardboard recycling    | 42m <sup>3</sup> Approx           |                                        | Back to head contractor's facilities or to Wagga Wagga's general recycling waste centre.<br><br>Hay Transfer Station will only accept waste if it is part of a pre-executed Waste Management Agreement. | Head contractor's responsibility<br><br>Wagga Wagga Gregadoo Waste Management Centre |
| Styrene                              | Styrene                | 16m <sup>3</sup> Approx           |                                        | Back to head contractor's facilities or to Wagga Wagga's general recycling waste centre.<br><br>Hay Transfer Station will only accept waste if it is part of a pre-executed Waste Management Agreement. | Head contractor's responsibility<br><br>Wagga Wagga Gregadoo Waste Management Centre |

| Materials On Site and Collection Bin                          |                                                                       |                                   | Destination                            |                                                                                                                                                                                                          |                                                                                                |
|---------------------------------------------------------------|-----------------------------------------------------------------------|-----------------------------------|----------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|
|                                                               |                                                                       |                                   | Reuse and Recycling                    |                                                                                                                                                                                                          | Disposal                                                                                       |
| Type of Material                                              | Bin / Container                                                       | Estimated Qty – TBA by contractor | On-site<br>(Re-use / onsite recycling) | Off-site<br>(Offsite Recycling)                                                                                                                                                                          | (Contractor and landfill site)                                                                 |
| Timber pallets                                                |                                                                       | 110m³ Approx                      |                                        | All to be re-used – ownership retained by each supplier (there is generally a shortage of pallets Australia wide).<br><br>If left on site, these can be chipped and re-used as last resort.              | Each delivery sub-contractor's responsibility                                                  |
| Paint / Solvent / Adhesive waste tins                         | Solvents                                                              | 20L Approx                        |                                        | Back to sub - contractor's facilities or to Wagga Wagga's general recycling waste centre.<br><br>Hay Transfer Station will only accept waste if it is part of a pre-executed Waste Management Agreement. | Electrical sub-contractor's responsibility<br><br>Wagga Wagga Gregadoo Waste Management Centre |
| Bulky hardwaste such as tables, chairs etc                    |                                                                       | TBC                               |                                        | Back to head contractor's facilities or to Wagga Wagga's general recycling waste centre.<br><br>Hay Transfer Station will only accept waste if it is part of a pre-executed Waste Management Agreement.  | Head Contractor's responsibility                                                               |
| General waste & Recycling from lunches, including paper waste | 240L general waste bins<br>240L recycling waste bin<br>240L paper bin | Weekly                            |                                        | Cleanaway are contracted to collect Hay Shire Council's general waste & recycling service for residential waste.<br><br>They can be engaged to collect general site waste as required.                   | Head Contractor's responsibility<br><br>Cleanaway Waste contractor can collect as required     |

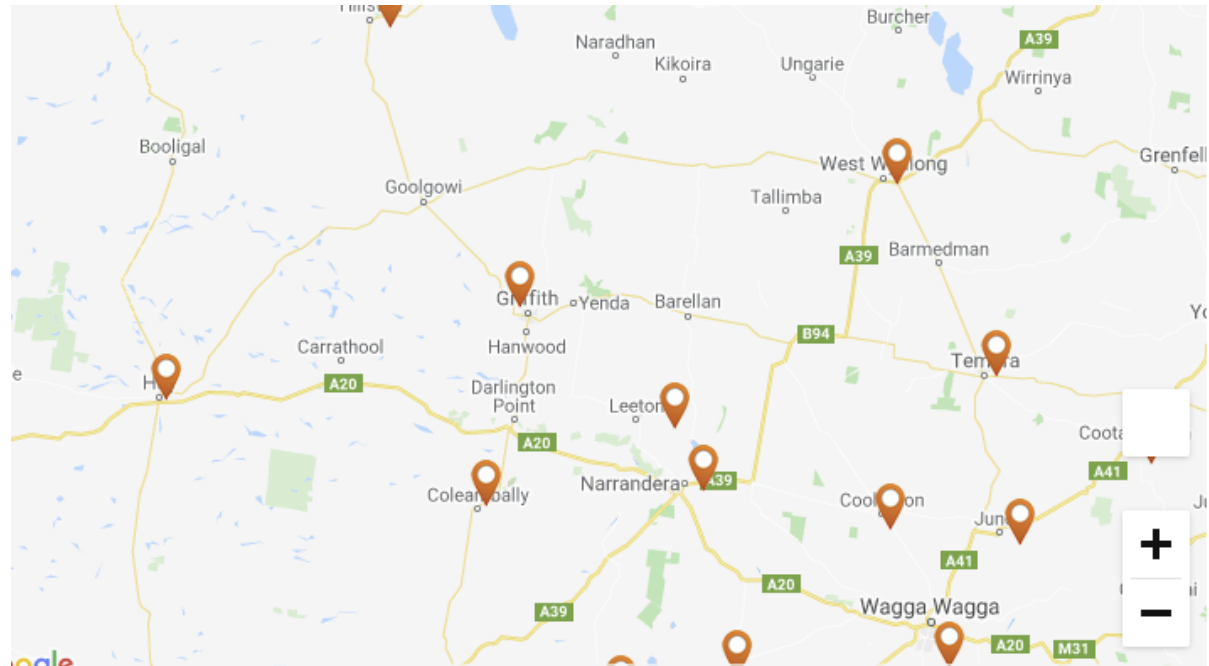
Note alternatives regional waste and recycling locations can be found on the NSW EPA website <https://www.epa.nsw.gov.au/your-environment/recycling-and-reuse/household-recycling-overview/find-crccs-or-hcco> and include:

Wagga Wagga  
Gregadoo Waste Management Centre

Deniliquin Community Recycling Centre  
Tip Road, Deniliquin  
Phone 03 5898 3000

Moama Community Recycling Centre  
Centre Road, off the Cobb Highway, Moama  
Phone 1300 087 004

Coleambally Community Recycling Centre  
Martin Bell Road, Coleambally  
Phone 02 6960 5500



## 4 Operational Waste Management Details

### 4.1 General

Once operational, the site will be monitored remotely. There will be a need to panel cleaning 1-2 times a year, mowing / weed removal as well as any general maintenance to ensure continued operation.

It is anticipated that any operational waste will be limited to lunch wrappers and drink containers and any supplies required for maintenance or repair. Any contractor entering the site will be required to remove their own waste.

.

# 5

## 5 Supplementary information

### 5.1 Waste Links

Hay Shire Council Waste information can be found at the link below:

<https://www.hay.nsw.gov.au/Water-Waste-Roads/Waste-and-Recycling>

Local Waste collection companies in NSW:

- Transpacific-Cleanaway - <https://www.cleanaway.com.au>, ph 13 13 39  
Contact Andrew Dickens [Andrew.dickens@cleanaway.com.au](mailto:Andrew.dickens@cleanaway.com.au) (Wagga depot)  
9 Schiller St, Wagga Wagga NSW 2650  
Ph: 02 5908 4401
- JJ Richards & Sons [www.jjrichards.com.au](http://www.jjrichards.com.au)
- Veolia - <https://www.veolia.com/anz/>, Ph 132 955

#### **Gregadoo Waste Management Centre**

132 Ashfords Rd, Gregadee NSW 2650

<https://wagga.nsw.gov.au/services/waste-and-recycling/waste-management-centres>

The centre will accept the following for free:

- Polystyrene
- Cardboard / Paper / bottles / cans
- Computer eWaste
- Paint

The centre will accept the following for a specified fee:

- Clean rubble / scrap metal
- Unsorted construction & demolition waste
- Other specialist waste

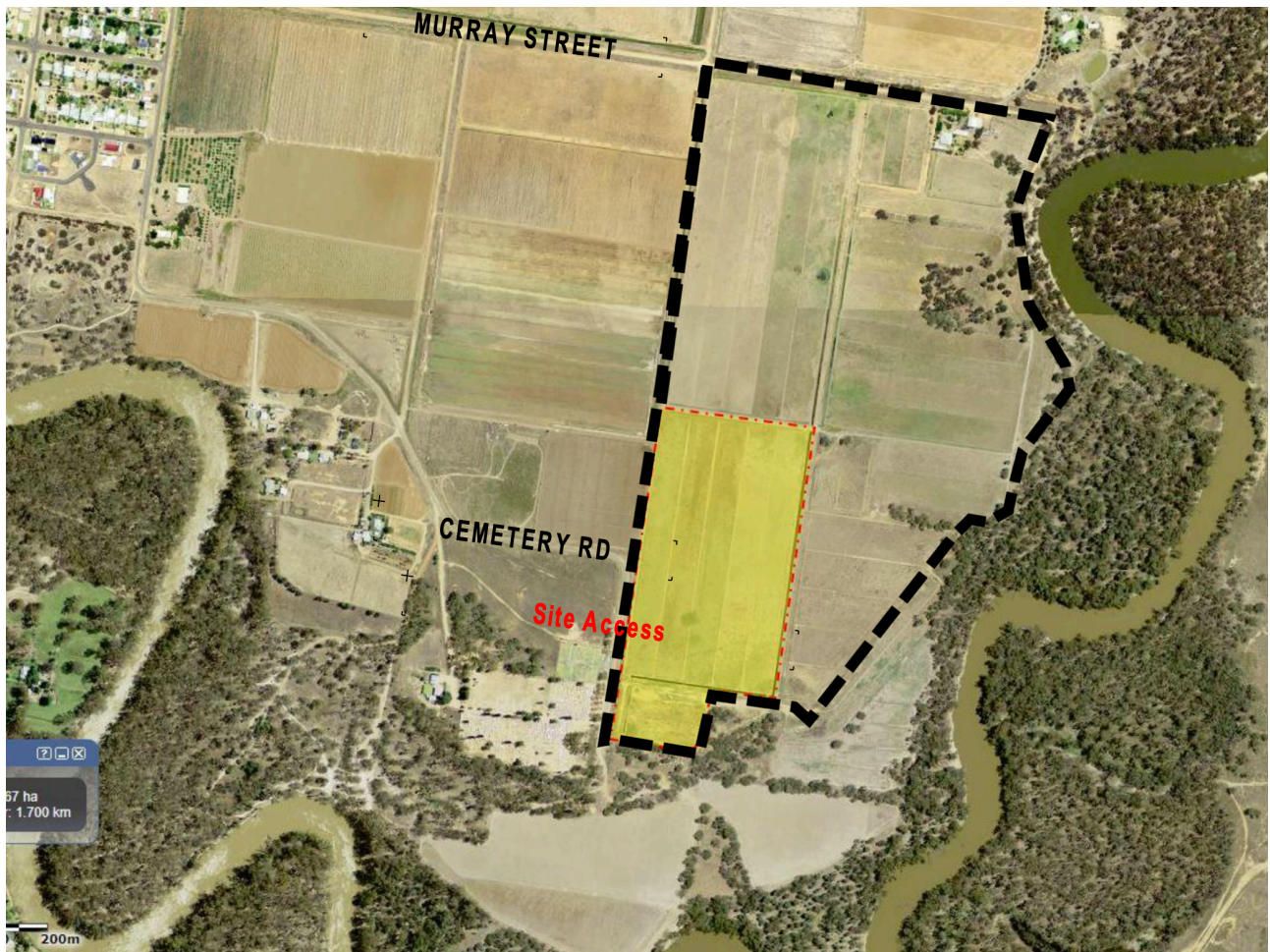
#### **Hay Community Recycling Centre**

<https://www.hay.nsw.gov.au/Water-Waste-Roads/Waste-and-Recycling>

The centre may accept materials with prior arrangement and a Waste management Agreement in place prior to construction:

- Cardboard
- Metals
- Glass,
- Hard plastics
- Aluminium
- Paints
- Fluorescent globes and tubes
- Green Waste
- Clean concrete material
- Paints, oils, batteries, smoke detectors

## Appendix 1 - Existing Site Conditions



 Tentative Solar Farm  
Location – 14.67 ha approx

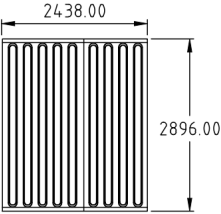
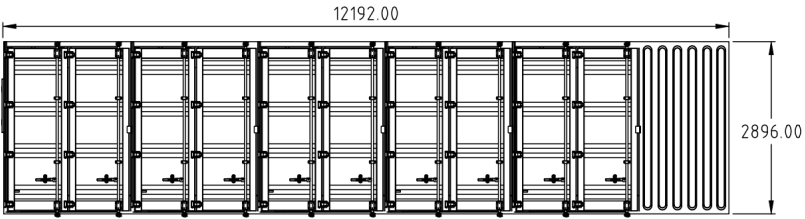
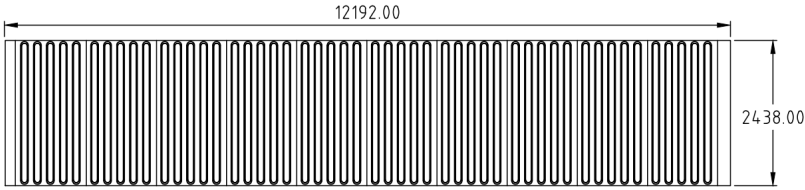
 Site Boundary – 67.67 ha  
approx



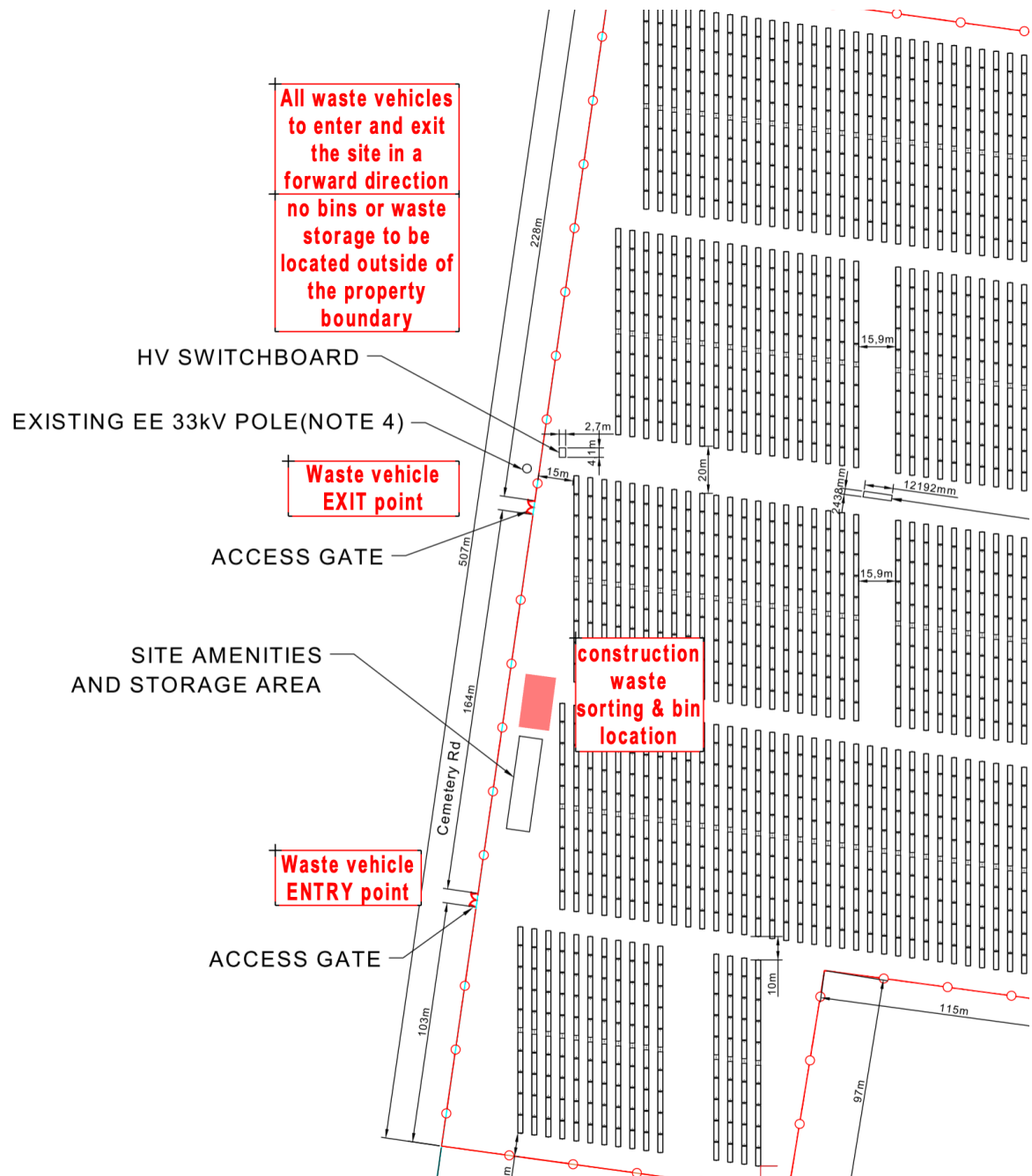
## Appendix 2 - Proposed Works



TYPICAL INVERTER STATION ELEVATION DETAILS



## Appendix 3 - Construction Bin Locations



Construction Bin Store Location.

## Appendix 4 - Preliminary Risk Review

Per industry practice detailed, specific risk assessments should be prepared by the individual sub-contractors responsible for demolition, excavation, the construction of the structure, services and commissioning phases. The risk assessments should take into account but not be limited to waste related activities such as below:

- Worker, pedestrian and traffic hazards created by movement of waste to waste bins and movement of waste bins and vehicles on and off site.
- Excavation risks
- Safe handling of hazardous and toxic waste materials if they are identified on the site, such as asbestos.

|                                                                     |                                                                              |                                                                              |
|---------------------------------------------------------------------|------------------------------------------------------------------------------|------------------------------------------------------------------------------|
| <b>Class 1 Risk</b> = Potential to cause death or permanent injury. | <b>Class 2 Risk</b> = Potential to cause injury requiring medical attention. | <b>Class 3 Risk</b> = Potential to cause an injury treatable with first aid. |
|---------------------------------------------------------------------|------------------------------------------------------------------------------|------------------------------------------------------------------------------|

| Activity                                                                                                                                                                                                                                                 | Steps involved in completing activity & risk                                                                                       | Risk level | Risk mitigating measures                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Implementation responsibility                 |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|
| Vehicle comes on site for collection                                                                                                                                                                                                                     | Large vehicle entering site, and reversing before exiting site. Major risk is hitting unaware people, particularly when reversing, | 1          | <p>Vehicle driver entering site is to survey the area for activity. If there is no activity near reversing location, driver to execute reverse move immediately before the situation can change. If there is activity, the driver should ensure the person/persons moving in the area are aware of the pending reversing action, and have time to stay away from the reversing zone. Reversing should be at very slow speed.</p> <p>There should be no/few people in the area.</p> <p>Reversing buzzers to be applied to all trucks.</p> | Waste collection contractor / Head Contractor |
| <b>Note this assessment is for consideration during the design phase of the project. It is <u>not</u> to replace a risk assessment / Safe Work Method Statement being completed by the contractor and persons undertaking the waste removal process.</b> |                                                                                                                                    |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                               |