Government of Western Australia
Department of Water and Environmental Regulation

Works Approval

Works approval number	W6871/2023/1
Works approval holder	C-Wise Holdings Pty Ltd
ACN	619 927 605
Registered business address	Level 9, 1 William St Perth WA 6000
DWER file number	DER2023/000745
Duration	12/07/2024 to 11/07/2029
Date of issue	12/07/2024
Date of amendment	10/09/2024
Premises details	C-Wise Carbon Recycling Facility 320 Gull Road KERALUP WA 6182 Legal description - Part of Lot 9500 on Deposited Plan 414516 Certificate of Title Volume 2991 Folio 741 As defined by the coordinates in Schedule 2

Prescribed premises category description **(Schedule 1, *Environmental Protection Regulations 1987*)**	**Assessed design capacity**
Category 67A: Compost manufacturing and soil blending	200,000 tonnes per annum
Category 61: Liquid waste facility	60,000 tonnes per annum
Assessed activities directly related to the above categories	
Clearing of native vegetation authorised under clearing permit CPS 10386/1	

This works approval is granted to the works approval holder, subject to the attached conditions, on 10 September 2024, by:

Digitally signed by Koby Anderson
Date: 2024.09.10 17:17:40 +08'00'

A/MANAGER WASTE INDUSTRIES
REGULATORY SERVICES
an officer delegated under section 20 of the *Environmental Protection Act 1986* (WA)

Works approval history

Date	Reference number	Summary of changes
12/07/2024	W6871/2023/1	Works approval granted.
10/09/2024	W6871/2023/1	Administrative amendment to correct refences to composting cocoons.

Interpretation

In this works approval:

(a) the words 'including', 'includes' and 'include' in conditions mean "including but not limited to", and similar, as appropriate;

(b) where any word or phrase is given a defined meaning, any other part of speech or other grammatical form of that word or phrase has a corresponding meaning;

(c) where tables are used in a condition, each row in a table constitutes a separate condition;

(d) any reference to an Australian or other standard, guideline, or code of practice in this works approval:

  (i) if dated, refers to that particular version; and

  (ii) if not dated, refers to the latest version and therefore may be subject to change over time;

(e) unless specified otherwise, any reference to a section of an Act refers to that section of the EP Act; and

(f) unless specified otherwise, all definitions are in accordance with the EP Act.

NOTE: This works approval requires specific conditions to be met but does not provide any implied authorisation for other emissions, discharges, or activities not specified in this works approval.

Works approval conditions

The works approval holder must ensure that the following conditions are complied with:

Construction phase

Infrastructure and equipment

1. The works approval holder must:

(a) construct and/or install the infrastructure and/or equipment;

(b) in accordance with the corresponding design and construction / installation requirements; and

(c) at the corresponding infrastructure location as set out in Table 1.

Table 1: Design and construction / installation requirements

	Infrastructure	Design and construction / installation requirements	Infrastructure location
Stage 1			
1.	Carbon Storage Area	(a) To consist of a compacted limestone hardstand that is graded to direct all leachate towards a leachate management pond specified in Table 2, Row 2. (b) The limestone hardstand must have a minimum thickness of 300 mm with a permeability equal to or less than $2.8x10^{-8}$ m/s. (c) Bunding must be installed at the edge of the hardstand to assist in directing leachate towards a leachate management pond specified in Table 2, Row 2.	As specified in Schedule 1, Figure 2.
2.	Receival Building	(a) To be enclosed with a mechanical ventilation system to meet a minimum of four air changes per hour. (b) Contain FOGO pre-sorting and decontamination process line infrastructure.	As specified in Schedule 1, Figure 2.
3.	Liquid Waste Receival Area	(a) To comprise a bunded hardstand with a permeability equal to or less than $1x10^{-9}$ m/s.	As specified in Schedule 1, Figure 2.
4.	Cocoon Area	(a) 15 fully enclosed cocoons each with a tension fabric roof and a structural insulated panel system. (b) Each cocoon must have an approximate capacity of 500 m^3 and be constructed over a graded concrete hardstand. (c) The concrete floor of each cocoon must be graded towards a leachate collection pit for transfer to the storage tank farm.	As specified in Schedule 1, Figure 2.
5.	Process Area	(a) To include a processing shed with a roof located approximately 6 m above the ground level. (b) The floor within the processing shed must be made of a concrete hardstand and feature bunds and slopes to contain and drain leachate towards leachate collection pits. (c) To include precast concrete retaining wall bunkers for compost stockpiles.	As specified in Schedule 1, Figure 2.

	Infrastructure	Design and construction / installation requirements	Infrastructure location
6.	MAF Area	(a) Located within the processing shed. (b) The concrete floor of the MAF area must be graded towards a leachate collection pit for transfer to the storage tank farm.	As specified in Schedule 1, Figure 2.
7.	Final Maturation Area	(a) Located within the processing shed. (b) The concrete floor of the Final maturation area must be graded towards a leachate collection pit for transfer to the storage tank farm.	As specified in Schedule 1, Figure 2.
8.	Screening and Dispatch Area	(a) To consist of a bunded asphalt hardstand with a permeability equal to or less than $1x10^{-9}$ m/s. (b) To be graded such that all leachate generated in this area will be directed towards the adjacent leachate management pond.	As specified in Schedule 1, Figure 2.
9.	Biofilters(s)	(a) To be sized to accept and treat the total volume of odorous air from the headspaces of the mixing area within the Receival Building and from the Cocoons. (b) To be developed in a manner that allows for the expansion or modification of the system.[1] Note 1: This does not provide any implied authorisation for the installation of infrastructure contrary with s. 53 of the EP Act.	N/A
10.	Leachate Conveyance System	(a) Leachate drains must be constructed for the transport of any leachate from all hardstand areas to the leachate evaporation ponds. (b) The leachate drains must have a permeability equal to or less than $1x10^{-9}$ m/s.	N/A
11.	Surface water pond	(a) Earthworks and filling to be conducted in accordance with AS3798 and AS1289. (b) The surface water pond must consist of the following lining system: i. a 300mm Compacted Subgrade Layer; and ii. a 2mm High Density Polyethylene (HDPE) Geomembrane; and (c) Lining system to achieve a permeability of less than $1x10^{-9}$ metres per second or equivalent. (d) Must be constructed and installed according to the specifications set out in *Leachate and Surface Water Management Infrastructure Technical Specification*. (e) CQA activities must be undertaken according to the *Construction Quality Assurance Plan*. (f) Designed to maintain a freeboard of no less than 500 mm. (g) The surface water pond must provide a minimum operational storage capacity[1] of 3,345 m^3. (h) A minimum vertical separation distance of 1.0 m must be maintained between the base of the surface water pond and the highest groundwater level (including seasonal perched aquifers). *Note 1: Operational capacity assumes that a 500 mm*	As specified in Schedule 1, Figures 4, 6 and 7.

	Infrastructure	Design and construction / installation requirements	Infrastructure location
		freeboard is maintained within the capacity of the pond.	
12.	Groundwater monitoring wells MB1 to MB8	<u>Well design and construction:</u> (a) Designed and constructed in accordance with ASTM D5092/D5092M-16: Standard practice for design and installation of groundwater monitoring bores. (b) Well screens must target the part, or parts, of the aquifer most likely to be affected by contamination[1]. Where temporary/seasonal perched features are present, wells must be nested, and the perched features individually screened. Note 1: refer to Section 8 of Schedule B2 of the *Assessment of Site Contamination NEPM* for guidance on well screen depth and length.	As specified in Schedule 1, Figure 8 and labelled as MB1 to MB8.
		<u>Logging of borehole:</u> (a) Soil samples must be collected and logged during the installation of the monitoring wells. (b) A record of the geology encountered during drilling must be described and classified in accordance with the Australian Standard Geotechnical Site Investigations AS1726. (c) Any observations of staining / odours or other indications of contamination must be included in the bore log.	
		<u>Well construction log:</u> (a) Well construction details must be documented within a well construction log to demonstrate compliance with *ASTM D5092/D5092M-16*. The construction logs shall include elevations of the top of casing position to be used as the reference point for water-level measurements, and the elevations of the ground surface protective installations.	
		<u>Well development:</u> (a) All installed monitoring wells must be developed after drilling to remove fine sand, silt, clay and any drilling mud residues from around the well screen to ensure the hydraulic functioning of the well. A detailed record should be kept of well development activities and included in the well construction log.	
		<u>Installation survey:</u> (a) The vertical (top of casing) and horizontal position of each monitoring well must be surveyed and subsequently mapped by a suitably qualified surveyor.	
		<u>Well network map:</u> (a) A well location map (using aerial image overlay) must be prepared and include the location of all monitoring wells in the monitoring network and their respective identification numbers.	

	Infrastructure	Design and construction / installation requirements	Infrastructure location
		Timeframe: (a) Must be constructed, developed (purged), and determined to be operational no later than 15 calendar days prior to the commencement of time-limited operations activities under condition 9.	
13.	Groundwater control drains	(a) A groundwater level control network consisting of open drainage swales and sub-soil drains for the purpose of lowering peak groundwater levels.	As specified in Schedule 1, Figure 2.
Stage 2			
14.	Carbon Storage Area	(a) To consist of a compacted limestone hardstand that is graded to direct all leachate towards a leachate management pond specified in Table 2, Row 4. (b) The limestone hardstand must have a minimum thickness of 300 mm with a permeability equal to or less than $2.8x10^{-8}$ m/s. (c) Bunding must be installed at the edge of the hardstand to assist in directing leachate towards a leachate management pond specified in Table 2, Row 4.	As specified in Schedule 1, Figure 2.
15.	Receival Building	(a) To be enclosed with a mechanical ventilation system to meet a minimum of four air changes per hour. (b) Contain FOGO pre-sorting and decontamination process line infrastructure.	As specified in Schedule 1, Figure 2.
16.	Cocoon Area	(a) 15 fully enclosed cocoons each with a tension fabric roof and a structural insulated panel system. (b) Each cocoon must have an approximate capacity of 500 m^3 and be constructed over a graded concrete hardstand. (c) The concrete floor of each cocoon must be graded towards a leachate collection pit for transfer to the storage tank farm.	As specified in Schedule 1, Figure 2.
17.	Process Area	(a) To include a processing shed with a roof located approximately 6 m above the ground level. (b) The floor within the processing shed must be made of a concrete hardstand and feature bunds and slopes to contain and drain leachate towards leachate collection pits. (c) To include precast concrete retaining wall bunkers for compost stockpiles.	As specified in Schedule 1, Figure 2.
18.	MAF Area	(a) Located within the processing shed. (b) The concrete floor of the MAF area must be graded towards a leachate collection pit for transfer to the storage tank farm.	As specified in Schedule 1, Figure 2.
19.	Final Maturation Area	(a) Located within the processing shed. (b) The concrete floor of the Final maturation area must be graded towards a leachate collection pit for transfer to the storage tank farm.	As specified in Schedule 1, Figure 2.

	Infrastructure	Design and construction / installation requirements	Infrastructure location
20.	Screening and Dispatch Area	(a) To consist of a bunded asphalt hardstand with a permeability equal to or less than $1x10^{-9}$ m/s. (b) To be graded such that all leachate generated in this area will be directed towards the adjacent leachate management pond.	As specified in Schedule 1, Figure 2.
21.	Biofilter(s)	(a) To be sized to accept and treat the total volume of odorous air from the headspaces of the mixing area within the Receival Building and from the Cocoons. (b) To be developed in a manner that allows for the expansion or modification of the system.[1] Note 1: This does not provide any implied authorisation for the installation of infrastructure contrary with s. 53 of the EP Act.	N/A
22.	Leachate Conveyance System	(a) Leachate drains must be constructed for the transport of any leachate from all hardstand areas to the leachate evaporation ponds. (b) The leachate drains must have a permeability equal to or less than $1x10^{-9}$ m/s.	N/A
23.	Surface water pond	(a) Earthworks and filling to be conducted in accordance with AS3798 and AS1289. (b) The surface water pond must consist of the following lining system: i. a 300mm Compacted Subgrade Layer; and ii. a 2mm High Density Polyethylene (HDPE) Geomembrane; and (c) Lining system to achieve a permeability of less than $1x10^{-9}$ metres per second or equivalent. (d) Must be constructed and installed according to the specifications set out in *Leachate and Surface Water Management Infrastructure Technical Specification*. (e) CQA activities must be undertaken according to the *Construction Quality Assurance Plan*. (f) Designed to maintain a freeboard of no less than 500 mm. (g) The surface water pond must provide a minimum operational storage capacity[1] of 3,345 m^3. (h) A minimum vertical separation distance of 1.0 m must be maintained between the base of the surface water pond and the highest groundwater level (including seasonal perched aquifers). *Note 1: Operational capacity assumes that a 500 mm freeboard is maintained within the capacity of the pond.*	As specified in Schedule 1, Figures 5, 6 and 7.

2. The works approval holder must construct the critical containment infrastructure in accordance with the infrastructure features and corresponding design and construction / installation requirements set out in Table 2.

Table 2: Critical containment infrastructure requirements

	Infrastructure	Design and construction / installation requirements	Infrastructure location
Stage 1			
1.	Liquid Waste Storage Tanks	(a) To be located within the Liquid Waste Receival Area as specified in Table 1, Row 3. (b) To include twelve storage tanks, with each tank having a storage capacity of 340,000 L. (c) Located within concrete bunds with capacity to contain 110% of the largest tank. (d) The tanks must be equipped with monitoring equipment to prevent overfill. (e) Must contain a leachate collection pit.	As specified in Schedule 1, Figure 2.
2.	Leachate Management Ponds	(a) Earthworks and filling to be conducted in accordance with AS3798 and AS1289. (b) The leachate ponds must consist of the following composite lining system: i. a 300mm Compacted Subgrade Layer; ii. a 2mm High Density Polyethylene (HDPE) Geomembrane; and iii. a Geosynthetic Clay Liner (GCL). (c) Composite lining system to achieve a permeability of less than $1x10^{-9}$ metres per second or equivalent. (d) Must be constructed and installed according to the specifications set out in *Leachate and Surface Water Management Infrastructure Technical Specification*. (e) CQA activities must be undertaken according to the *Construction Quality Assurance Plan*. (f) Designed to maintain a freeboard of no less than 500 mm. (g) The Carbon Storage Leachate Pond must provide a minimum operational storage capacity[1] of 2,846 m^3. (h) The Screening and Dispatch Leachate Pond must provide a minimum operational storage capacity[1] of 2,478 m^3. (i) A minimum vertical separation distance of 1.0 m must be maintained between the base of any leachate pond and the highest groundwater level (including seasonal perched aquifers). *Note 1: Operational capacity assumes that a 500 mm freeboard is maintained within the capacity of the pond.*	As specified in Schedule 1, Figures 4, 6 and 7.

Stage 2			
3.	Liquid Waste Storage Tanks	(a) To be located within the Liquid Waste Receival Area as specified in Table 1, Row 3. (b) To include twelve storage tanks, with each tank having a storage capacity of 340,000 L. (c) Located within concrete bunds with capacity to contain 110% of the largest tank. (d) The tanks must be equipped with monitoring equipment to prevent overfill. (e) Must contain a leachate collection pit.	As specified in Schedule 1, Figure 2.
4.	Leachate Management Ponds	(a) Earthworks and filling to be conducted in accordance with AS3798 and AS1289. (b) The leachate ponds must consist of the following composite lining system: i. a 300mm Compacted Subgrade Layer; ii. a 2mm High Density Polyethylene (HDPE) Geomembrane; and iii. a Geosynthetic Clay Liner (GCL). (c) Composite lining system to achieve a permeability of less than $1x10^{-9}$ metres per second or equivalent. (d) Must be constructed and installed according to the specifications set out in *Leachate and Surface Water Management Infrastructure Technical Specification*. (e) CQA activities must be undertaken according to the *Construction Quality Assurance Plan*. (f) Designed to maintain a freeboard of no less than 500 mm. (g) The Carbon Storage Leachate Pond must provide a minimum operational storage capacity[1] of 2,846 m^3. (h) The Screening and Dispatch Leachate Pond must provide a minimum operational storage capacity[1] of 2,478 m^3. (i) A minimum vertical separation distance of 1.0 m must be maintained between the base of any leachate pond and the highest groundwater level (including seasonal perched aquifers). *Note 1: Operational capacity assumes that a 500 mm freeboard is maintained within the capacity of the pond.*	As specified in Schedule 1, Figures 5, 6 and 7.

Critical containment infrastructure reporting

3. The works approval holder must within 30 calendar days of an item of critical containment infrastructure required by condition 2 being constructed and/or installed:

(a) undertake an audit of their compliance with the requirements of condition 2; and

(b) prepare and submit to the CEO a Critical Containment Infrastructure Report on that compliance.

4. The Critical Containment Infrastructure Report required by condition 3 must include as a minimum the following:

(a) certification by the CQA Consultant that each item, or component thereof, of the critical containment infrastructure meets the requirements of condition 2, the relevant Technical Specification and that the works have been carried out in accordance with the relevant CQA Plan;

(b) as constructed plans and a detailed site plan showing the location and dimensions for each item of critical containment infrastructure or component thereof, as specified in condition 2;

(c) photographic evidence of the installation of the infrastructure;

(d) a copy of the approvals by the CQA Consultant for each of the hold points listed in the relevant Technical Specification;

(e) a copy of the CQA Validation Report required by the relevant CQA Plan; and

(f) be signed by a person authorised to represent the works approval holder and contains the printed name and position of that person.

Odour Management Plan

5. The works approval holder must prepare, maintain and implement an Odour management plan for the premises that sets out:

(a) the identification of odour sources within the premises;

(b) how odour emissions will be mitigated from the identified odour sources;

(c) the identification of procedures to support the mitigation of odour emissions;

(d) details of engineered controls to support the mitigation of odour emissions;

(e) site inspections to be undertaken to identify and unreasonable sources of odour; and

(f) measures to be undertaken to if unreasonable odour emissions occur outside of the prescribed premises boundary.

Fire and Emergency Management Plan

6. The works approval holder must prepare, maintain and implement a Fire and emergency management plan for the premises that sets out:

(g) an assessment of fire safety risk including identification of areas where a fire might occur and factors that might cause a fire;

(h) how fires will be prevented, detected, responded to, suppressed, contained and controlled addressing all feedstock types and stages of the organics recycling process;

(i) the firefighting equipment and fire response capabilities and responsibilities; and

(j) a plan showing the location and layout of firefighting equipment and systems at the premises, including the layout of drainage and containment infrastructure that will assist during fire management.

Environmental compliance reporting

7. The works approval holder must within 30 calendar days of an item of infrastructure or equipment required by condition 1 being constructed and/or installed:

(a) undertake an audit of their compliance with the requirements of condition 1; and

(b) prepare and submit to the CEO an Environmental Compliance Report on that compliance.

8. The Environmental Compliance Report required by condition 7, must include as a minimum the following:

(a) certification by a suitably qualified engineer that the items of infrastructure or component(s) thereof, as specified in conditions 1, have been constructed in accordance with the relevant requirements specified in condition 1;

(b) as constructed plans and a detailed site plan for each item of infrastructure or component of infrastructure specified in condition 1;

(c) the Odour management plan specified in condition 5;

(d) the Fire and emergency management plan specified in condition 6; and

(e) be signed by a person authorised to represent the works approval holder and contains the printed name and position of that person.

Time limited operations phase

Commencement and duration

9. The works approval holder may commence time-limited operations and contain waste within the critical containment infrastructure identified in condition 2:

(a) where the CEO has notified the works approval holder that the Critical Containment Infrastructure Report for that item of infrastructure as required by condition 3 meets the requirements of that condition; or

(b) where at least 15 business days have passed after the Critical Containment Infrastructure Report for that item of infrastructure as required by condition 3 has been submitted to the CEO.

10. The works approval holder may only commence time limited operations for an item of infrastructure identified in conditions 1 where the Environmental Compliance Report as required by condition 7 has been submitted by the works approval holder for that item of infrastructure.

11. The works approval holder may conduct time limited operations for an item of infrastructure specified in condition 12:

(a) for a period not exceeding 180 calendar days from the day the works approval holder meets the requirements of condition 10 for that item of infrastructure; or

(b) until such time as a licence for that item of infrastructure is granted in accordance with Part V of the *Environmental Protection Act 1986*, if one is granted before the end of the period specified in condition 11(a).

12. During time limited operations, the works approval holder must ensure that the site infrastructure and equipment listed in Table 3 and located at the corresponding infrastructure location is maintained and operated in accordance with the corresponding operational requirement set out in Table 3.

Table 3: Infrastructure and equipment requirements

	Infrastructure and equipment	Operational requirement	Infrastructure location
Stage 1			
1.	Carbon Storage Area	(a) To consist of a bunded compacted limestone hardstand that is graded to direct all leachate towards the leachate management pond specified in Table 3, Row 12. (b) The limestone hardstand must have a minimum thickness of 300 mm with a permeability equal to or less than $2.8x10^{-8}$ m/s. (c) Ponding of leachate on the surface must not occur.	As specified in Schedule 1, Figure 2.
2.	Receival Building	(a) Ensure that building doors remain closed at all times unless vehicles are entering or exiting the building to deliver waste materials. (b) All waste to be removed from the receival building by the end of each working day.	As specified in Schedule 1, Figure 2.
3.	Liquid Waste Receival Area and Storage Tanks	(a) To be situated in a bunded hardstand with a permeability equal to or less than $1x10^{-9}$ m/s. (b) Liquid wastes accepted to the premises must be released into an in-ground pit that contains a pump and filter to any solids, then transferred to the liquid waste storage tanks. (c) Leachate within the storage tanks may be reused in the composting process. (a) The pooling of leachate on hardstands must be prevented. (d) The leachate collection pit must kept clear of litter, debris and sediment. (e) Twelve storage tanks must be maintained, with each tank having a storage capacity of 340,000 L. (f) Storage tanks must be located within concrete bunds with capacity to contain 110% of the largest tank. (g) The storage tanks must maintain monitoring equipment to prevent overfill.	As specified in Schedule 1, Figure 2.

	Infrastructure and equipment	Operational requirement	Infrastructure location
4.	Cocoon Area	(a) 15 fully enclosed cocoons must be maintained each with a tension fabric roof and a structural insulated panel system. (b) Each cocoon must have a capacity of 500 m^3 and be located over a bunded concrete hardstand. (c) Air exchanges must occur throughout the composting process within each cocoon to maintain aerobic conditions. (d) Air removed from the composting process must be pumped through the initial MAF compost stack. (e) The pooling of leachate on hardstands must be prevented. (f) The leachate collection pit must kept clear of litter, debris and sediment.	As specified in Schedule 1, Figure 2.
5.	Process Area	(a) Located within the processing shed. (b) Leachate from the leachate collection pits must be pumped to the tank farm for storage as specified in Table 2, Row 3, or for reuse in the composting process. (c) The pooling of leachate on hardstands must be prevented. (d) The leachate collection pit must kept clear of litter, debris and sediment.	As specified in Schedule 1, Figure 2.
6.	MAF Area	(a) Located within the processing shed. (b) The MAF system must comprise a perforated pipe which is laid on top of the hardstand processing shed floor prior to the placement of organic material, to allow for forced air through the pile to achieve aeration. (c) Leachate from the leachate collection pits must be pumped to the tank farm for storage as specified in Table 2, Row 3, or for reuse in the composting process. (d) The pooling of leachate on hardstands must be prevented. (e) The leachate collection pit must kept clear of litter, debris and sediment.	As specified in Schedule 1, Figure 2.
7.	Final Maturation Area	(a) Located within the processing shed. (b) Leachate from the leachate collection pits must be pumped to the tank farm for storage as specified in Table 2, Row 3, or for reuse in the composting process. (c) The pooling of leachate on hardstands must be prevented. (d) The leachate collection pit must kept clear of litter, debris and sediment.	As specified in Schedule 1, Figure 2.

	Infrastructure and equipment	Operational requirement	Infrastructure location
8.	Screening and Dispatch Area	(a) To consist of a bunded asphalt hardstand with a permeability equal to or less than $1x10^{-9}$ m/s. (b) To be graded such that all leachate generated in this area is directed towards the adjacent leachate management pond.	As specified in Schedule 1, Figure 2.
9.	Biofilter(s)	(a) Maintained to treat the total volume of odorous air from the headspaces of the mixing area within the Receival Building and from the Cocoons.	N/A
10.	Leachate Conveyance System	(a) Leachate drains must transport all leachate from hardstand areas to the leachate evaporation ponds. (b) Leachate drains must have a permeability equal to or less than $1x10^{-9}$ m/s.	As specified in Schedule 1, Figure 2.
11.	Surface water pond	(a) The surface water pond must consist of the following lining system: i. a 300mm Compacted Subgrade Layer; and ii. a 2mm High Density Polyethylene (HDPE) Geomembrane; and (b) Lining system to achieve a permeability of less than $1x10^{-9}$ metres per second or equivalent. (c) Must maintain a freeboard of no less than 500 mm. (d) The surface water pond must provide a minimum operational storage capacity[1] of 3,345 m^3. (e) A minimum vertical separation distance of 1.0 m must be maintained between the base of the surface water pond and the highest groundwater level (including seasonal perched aquifers). *Note 1: Operational capacity assumes that a 500 mm freeboard is maintained within the capacity of the pond.*	As specified in Schedule 1, Figures 4, 6 and 7.

	Infrastructure and equipment	Operational requirement	Infrastructure location
12.	Leachate Management Ponds	(a) The leachate ponds must consist of the following composite lining system: i. a 300mm Compacted Subgrade Layer; ii. a 2mm High Density Polyethylene (HDPE) Geomembrane; and iii. a Geosynthetic Clay Liner (GCL). (b) Composite lining system to achieve a permeability of less than $1x10^{-9}$ metres per second or equivalent. (c) Must maintain a freeboard of no less than 500 mm. (d) The Carbon Storage Leachate Pond must provide a minimum operational storage capacity[1] of 2,846 m^3. (e) The Screening and Dispatch Leachate Pond must provide a minimum operational storage capacity[1] of 2,478 m^3. (f) A minimum vertical separation distance of 1.0 m must be maintained between the base of any leachate pond and the highest groundwater level (including seasonal perched aquifers). (g) The integrity of leachate pond liners must be assessed following any mechanical desludging and any damage effectively repaired. (h) Wastewater within leachate ponds must be maintained in an aerobic state with: i. sediment and litter/ debris screens to effectively remove materials from the inflows; and/ or ii. aeration devices. *Note 1: Operational capacity assumes that a 500 mm freeboard is maintained within the capacity of the pond.*	As specified in Schedule 1, Figures 4, 6 and 7.
13.	Groundwater control drains	(a) A groundwater level control network consisting of open drainage swales and sub-soil drains for the purpose of lowering peak groundwater levels.	As specified in Schedule 1, Figure 2.
14.	Groundwater monitoring wells	(a) Groundwater monitoring wells MB1 to MB8 that provide for the monitoring required under Condition 38.	As specified in Schedule 1, Figure 8 and labelled as MB1 to MB8.
15.	Fire suppression system	(a) Sufficient water supply is available at all times for fire suppression equipment to effectively manage and control a fire.	N/A
Stage 2			
16.	Carbon Storage Area	(a) To consist of a bunded compacted limestone hardstand that is graded to direct all leachate towards the leachate management pond specified in Table 3, Row 27. (b) The limestone hardstand must have a minimum thickness of 300 mm with a permeability equal to or less than $2.8x10^{-8}$ m/s. (c) Ponding of leachate on the surface must not occur.	As specified in Schedule 1, Figure 2.

	Infrastructure and equipment	Operational requirement	Infrastructure location
17.	Receival Building	(a) Ensure that building doors remain closed at all times unless vehicles are entering or exiting the building to deliver waste materials. (b) All waste to be removed from the receival building by the end of each working day.	As specified in Schedule 1, Figure 2.
18.	Liquid Waste Receival Area and Storage Tanks	(a) To be situated in a bunded hardstand with a permeability equal to or less than $1x10^{-9}$ m/s. (b) Liquid wastes accepted to the premises must be released into an in-ground pit that contains a pump and filter to any solids, then transferred to the liquid waste storage tanks. (c) Leachate within the storage tanks may be reused in the composting process. (b) The pooling of leachate on hardstands must be prevented. (e) The leachate collection pit must be kept clear of litter, debris and sediment. (f) Twelve storage tanks must be maintained, with each tank having a storage capacity of 340,000 L. (g) Storage tanks must be located within concrete bunds with capacity to contain 110% of the largest tank. (h) The storage tanks must maintain monitoring equipment to prevent overfill.	As specified in Schedule 1, Figure 2.
19.	Cocoon Area	(a) 15 fully enclosed cocoons must be maintained each with a tension fabric roof and a structural insulated panel system. (b) Each cocoon must have a capacity of 500 m^3 and be located over a bunded concrete hardstand. (c) Air exchanges must occur throughout the composting process within each cocoon to maintain aerobic conditions. (d) Air removed from the composting process must be pumped through the initial MAF compost stack. (e) The pooling of leachate on hardstands must be prevented. (f) The leachate collection pit must kept clear of litter, debris and sediment.	As specified in Schedule 1, Figure 2.
20.	Process Area	(a) Located within the processing shed. (b) Leachate from the leachate collection pits must be pumped to the tank farm for storage as specified in Table 2, Row 3, or for reuse in the composting process. (c) The pooling of leachate on hardstands must be prevented. (d) The leachate collection pit must kept clear of litter, debris and sediment.	As specified in Schedule 1, Figure 2.

	Infrastructure and equipment	Operational requirement	Infrastructure location
21.	MAF Area	(a) Located within the processing shed. (b) The MAF system must comprise a perforated pipe which is laid on top of the hardstand processing shed floor prior to the placement of organic material, to allow for forced air through the pile to achieve aeration. (c) Leachate from the leachate collection pits must be pumped to the tank farm for storage as specified in Table 2, Row 3, or for reuse in the composting process. (d) The pooling of leachate on hardstands must be prevented. (e) The leachate collection pit must kept clear of litter, debris and sediment.	As specified in Schedule 1, Figure 2.
22.	Final Maturation Area	(a) Located within the processing shed. (b) Leachate from the leachate collection pits must be pumped to the tank farm for storage as specified in Table 2, Row 3, or for reuse in the composting process. (c) The pooling of leachate on hardstands must be prevented. (d) The leachate collection pit must kept clear of litter, debris and sediment.	As specified in Schedule 1, Figure 2.
23.	Screening and Dispatch Area	(a) To consist of a bunded asphalt hardstand with a permeability equal to or less than $1x10^{-9}$ m/s. (b) To be graded such that all leachate generated in this area is directed towards the adjacent leachate management pond.	As specified in Schedule 1, Figure 2.
24.	Biofilter(s)	(a) Maintained to treat the total volume of odorous air from the headspaces of the mixing area within the Receival Building and from the Cocoons.	N/A
25.	Leachate Conveyance System	(a) Leachate drains must transport al leachate from hardstand areas to the leachate evaporation ponds. (b) Leachate drains must have a permeability equal to or less than $1x10^{-9}$ m/s.	N/A

	Infrastructure and equipment	Operational requirement	Infrastructure location
26.	Surface water pond	(a) The surface water pond must consist of the following lining system: i. a 300mm Compacted Subgrade Layer; and ii. a 2mm High Density Polyethylene (HDPE) Geomembrane; and (b) Lining system to achieve a permeability of less than $1x10^{-9}$ metres per second or equivalent. (c) Must maintain a freeboard of no less than 500 mm. (d) The surface water pond must provide a minimum operational storage capacity[1] of 3,345 m^3. (e) A minimum vertical separation distance of 1.0 m must be maintained between the base of the surface water pond and the highest groundwater level (including seasonal perched aquifers). *Note 1: Operational capacity assumes that a 500 mm freeboard is maintained within the capacity of the pond.*	As specified in Schedule 1, Figures 4, 6 and 7.
27.	Leachate Management Ponds	(a) The leachate ponds must consist of the following composite lining system: i. a 300mm Compacted Subgrade Layer; ii. a 2mm High Density Polyethylene (HDPE) Geomembrane; and iii. a Geosynthetic Clay Liner (GCL). (b) Composite lining system to achieve a permeability of less than $1x10^{-9}$ metres per second or equivalent. (c) Must maintain a freeboard of no less than 500 mm. (d) The Carbon Storage Leachate Pond must provide a minimum operational storage capacity[1] of 2,846 m^3. (e) The Screening and Dispatch Leachate Pond must provide a minimum operational storage capacity[1] of 2,478 m^3. (f) A minimum vertical separation distance of 1.0 m must be maintained between the base of any leachate pond and the highest groundwater level (including seasonal perched aquifers). (g) The integrity of leachate pond liners must be assessed following any mechanical desludging and any damage effectively repaired. (h) Wastewater within leachate ponds must be maintained in an aerobic state with: i. sediment and litter/ debris screens to effectively remove materials from the inflows; and/ or ii. aeration devices. *Note 1: Operational capacity assumes that a 500 mm freeboard is maintained within the capacity of the pond.*	As specified in Schedule 1, Figures 4, 6 and 7.

Waste acceptance

13. The works approval holder must effectively implement a Feedstock and waste management plan for the purpose of pre-waste acceptance quality verification.

14. The Feedstock and waste management plan specified in condition 13 must be prepared in accordance with the benchmark controls specified in section 8.1 of the *Guideline: Better practice organics recycling*, including:

(a) identification of the source and process that produced the waste stream;

(b) determination of contaminant concentration ranges in the waste stream by laboratory analysis of contaminants known or reasonably expected to be present in the waste;

(c) consideration of the expected degree of variability in composition of the waste stream between loads and over;

(d) estimation of the maximum proportion of the feedstock in the organics recycling process (by weight); and

(e) assessment of how and to what extent the feedstock contributes to the organics recycling process and product quality.

15. The works approval holder must only accept onto the premises for each stage feedstocks of a type that:

(a) does not exceed the rate at which that solid feedstock can be received; and

(b) meets the relevant acceptance specification,

as set out in Table 4 for solid feedstocks and Table 5 for liquid feedstocks.

Table 4: Solid feedstock acceptance criteria

Feedstock type		Rate at which feedstock can be received	Acceptance specification
1.	Green waste	Cumulative 50,000 tonnes during time limited operations	a) Limited to uncontaminated green waste, garden organics, natural fibrous organics, untreated timber and forestry residues. b) Excludes engineered wood products and timber treated with preservatives, pesticides, paint, fire retardants, adhesives or with any non-biodegradable layer.
2.	Natural fibrous organics		a) Limited to straw, grain husks, and other crop waste.
3.	Mushroom compost		b) Limited to mushroom compost from Mushroom Exchange.
4.	Manures		a) Limited to animal manures and bedding organics.
5.	FOGO		a) Limited to food, kitchen and garden putrescible wastes from source-separated kerbside municipal collections or source-separated commercial collections of designated FOGO bins.
6.	Food and food processing wastes		a) Limited to off-specification dairy and food wastes.
7.	Animal mortalities		a) Limited to poultry mortalities and pig mortalities sourced from CM Farms.

Feedstock type		Rate at which feedstock can be received	Acceptance specification
8.	Dewatered screenings		a) Limited to dewatered screenings from the CM Farms wastewater treatment plant.

Table 5: Liquid feedstock acceptance criteria

Feedstock type		Rate at which feedstock can be received	Acceptance specification
1.	Animal effluent and residues	Cumulative 30,000 tonnes during time limited operations	a) Limited to treated wastewater and sludge from CM Farms' wastewater treatment ponds
2.	Fertiliser washwaters		a) Limited to feedstocks sourced from: i. the agricultural sector; ii. ports; iii. fertiliser manufacturing, including products and byproducts; and iv. chemical manufacturing.
3.	Wastes from grease traps		a) Limited to waste from grease interceptors and grease traps.
4.	Glycols		a) Limited to feedstocks sourced from: i. vehicle maintenance; ii. the automotive sector; iii. the mining and energy sector; iv. engine coolant recovery and usage; v. glycol production and usage; and vi. industrial plant and chemical manufacturing.

16. The works approval holder must ensure that where waste does not meet the waste acceptance criteria set out in condition 15, the waste is removed from the premises by the delivery vehicle or, where that is not possible, stored in a quarantined storage area and removed to an appropriately authorised facility within 7 days of the waste being accepted.

17. The works approval holder must ensure residual physical contaminants stored in a quarantined storage area and removed to an appropriately authorised facility within 7 days of the waste being identified.

Feedstock storage and processing

18. The works approval holder must ensure that the feedstock types specified in Table 6 and Table 7 are only subjected to the corresponding process(es) and subject to the corresponding process limits and/or specifications.

Table 6: Solid feedstock processing

Feedstock type		Process(es)	Process limits and/or specifications
1.	All feedstock types	As specified in this table	All feedstocks must be: i) processed into a recycled organic product; or ii) managed as a waste.
2.	Green waste	Storage. Composting (including pasteurisation). Blending into organic feedstocks during or after composting. Production of recycled organic products to be removed from the premises.	a) Must be stored in the Carbon Storage Area. b) Blending must occur within the Receival Building. c) Initial composting must occur within a cocoon. d) Green waste must be processed to achieve pasteurisation.
3.	Natural fibrous organics		
4.	Mushroom compost	Blending Composting (including pasteurisation). Production of recycled organic products to be removed from the premises.	a) Must be accepted into the Receival Building. b) Must be incorporated into windrows within a cocoon on the same day in which the waste is accepted at the premises. c) Must be processed to achieve pasteurisation. d) Must not be used as a feedstock to produce pasteurised mulch.
5.	Manures		
6.	FOGO		
7.	Food and food processing wastes		
8.	Animal mortalities		
9.	Dewatered screenings		

Table 7: Liquid feedstock processing

Feedstock type		Process(es)	Process limits and/or specifications
1.	All feedstock types	As specified in this table	All feedstocks must be: i) processed into a recycled organic product; or ii) managed as a waste.
2.	Glycols	Storage. Blending into organic feedstocks during composting. Composting (including pasteurisation). Production of recycled organic products to be removed from the premises.	i) Must be accepted to the premises into an in-ground pit that contains a pump and filter to any solids, then transferred to the liquid waste storage tanks. ii) Must be incorporated into windrows within a cocoon following release from the liquid waste storage tanks. iii) Must not be applied to any materials in the Carbon Storage Area. iv) Must not be discharged into a leachate pond or stormwater pond.
3.	Fertiliser washwaters		
4.	Wastes from grease traps	Storage. Blending into organic feedstocks during composting.	i) Must be accepted to the premises into an in-ground pit that contains a pump and filter to any solids, then transferred to the liquid waste storage tanks.

Feedstock type		Process(es)	Process limits and/or specifications
5.	Animal effluent and residues	Composting (including pasteurisation). Production of recycled organic products to be removed from the premises.	ii) Must be incorporated into windrows within a cocoon following release from the liquid waste storage tanks. iii) Must not be applied to any materials in the Carbon Storage Area. iv) Must not be discharged into a leachate pond or stormwater pond. v) Must be processed to achieve pasteurisation. vi) Must be incorporated into a cocoon windrow prior to the start of the pasteurisation phase described by the requirements in condition 15. vii) Must not be used as a feedstock to produce pasteurised mulch.

19. The works approval holder must ensure that pasteurisation of feedstocks required by condition 18 is undertaken in accordance with the corresponding requirements for the relevant processing method and location set out in Table 8.

Table 8: Pasteurisation requirements

Processing method	Location	Pasteurisation requirements
Composting (including pasteurisation)	Cocoon	Effective enclose of feedstocks within a cocoon and achieve and maintain a minimum temperature of ≥55ºC for a minimum of three (3) consecutive days throughout the entire cocoon.
Composting (including pasteurisation)	Mobile aerated floor	Effectively force air through the pile and achieve and maintain a minimum temperature of ≥55ºC for a minimum of three (3) consecutive days throughout each pile.

20. The works approval holder must manage composting activities to:

(a) effectively blend and incorporate liquid feedstocks into solid feedstocks to prevent visible pooling of liquid waste or leachate around the piles;

(b) maintain piles in a damp state with a moisture content within the range of 45% to 60%;

(c) maintain the temperature of piles below 75ºC; and

(d) maintain them in an aerobic state.

21. The works approval holder must ensure that recycled organic products and feedstocks are separated so that cross-contamination between these materials, including from leachate or stormwater is prevented.

Leachate reuse

22. The works approval holder must ensure that stormwater and leachate stored in the infrastructure listed in Table 9 is only reused in accordance with the corresponding requirements as set out in Table 9.

Table 9: Leachate reuse requirements

Infrastructure	Requirements
Leachate management ponds and Liquid Waste Storage Tanks	a) Must only be applied to: i) organics feedstocks within the mixers of the Receival Building; or ii) compost piles within a Cocoon before the start of the pasteurisation phase described by the requirements in condition 19.

Fire and emergency management

23. The works approval holder must ensure that:

(a) no waste is burnt at the premises;

(b) equipment is available on the premises at all times that is capable of breaking apart and separating windrows and stockpiles to limit the spread of fire;

(c) a designated area is kept free of other combustible materials to allow the management of windrows or stockpiles that are being impacted by fire; and

(d) ensure that an adequate water supply is available at the premises and can be effectively delivered to extinguish a fire at any part of the premises.

24. In the event of a fire on the premises, the works approval holder must:

(a) take immediate measures to extinguish the fire; and

(b) contain recoverable firefighting washwater and other waste that may result from firefighting on the premises.

Emissions and discharges

25. The works approval holder must ensure that dust emitted from the premises does not unreasonably interfere with the health, welfare, convenience, comfort or amenity of any person who is not on the premises.

26. The works approval holder must ensure that odour emitted from the premises does not unreasonably interfere with the health, welfare, convenience, comfort or amenity of any person who is not on the premises.

27. The works approval holder must ensure that the emissions specified in Table 10, are discharged only from the corresponding discharge point and only at the corresponding discharge point location.

Table 10: Authorised discharge points

Emission	Discharge point	Discharge point location
Stormwater	An overflow channel for the overtopping of the surface water pond during events larger than a 1-in-20-year, 24-hour storm event.	Groundwater control drain as specified in Schedule 1, Figure 2.

Recycled organic product quality

28. The works approval holder must ensure that all recycled organic products do not exceed the upper contaminant limits set out in Schedule 3, based on the monitoring undertaken in accordance with condition 30, before they are removed from the premises.

29. The works approval holder must ensure that any recycled organic products that exceed any upper contaminant limits in Schedule 3 are either:

(a) reprocessed in a manner that will treat or remove the non-conforming contaminants to concentrations that comply with the upper contaminant limits in Schedule 3, with reprocessing starting within 30 days of confirmation of the non-conformance; or

(b) removed from the premises for disposal to an appropriately authorised facility within 30 days of confirmation of the non-conformance.

Monitoring

30. The works approval holder must record the total amount of feedstocks accepted onto the premises, for each feedstock type listed in Table 11, in the corresponding unit, and for each corresponding time period, as set out in Table 11.

Table 11: Monitoring of feedstocks accepted on the premises

Feedstock type	Unit	Time period
Feedstock types as set out in Table 4 and Table 5	m^3 or tonnes	Each load arriving at the premises

31. The works approval holder must record the total amount of outputs removed from the premises, for each output type listed in Table 12, in the corresponding unit, and for each corresponding time period set out in Table 12.

Table 12: Monitoring of outputs removed from the premises

Output type	Description	Unit	Time period
Rejected loads	Waste types as defined in the Landfill Definitions	m^3 or tonnes	Each load rejected from the premises
Waste outputs			Each load leaving the premises
Recycled organic products	Pasteurised mulch; or Compost		Each load leaving the premises

Infrastructure and equipment monitoring

32. The works approval holder must monitor the infrastructure in accordance with the requirements specified in Table 13.

Table 13: Infrastructure monitoring

Equipment/ infrastructure	Parameter	Frequency	Method
Leachate ponds - composite lining system	Leachate[1]	Once during Stage 1 time-limited operations and once during Stage 2 time-limited operations	"Pond drop leakage test" in accordance with IPENZ (2017), or similar
Leachate ponds	Pond level[1]	Daily from 1 May to 30 September Weekly from 1 October to 30 April	Visual check of pond level against the freeboard and depth indicators installed in the pond
	HDPE liner condition [1]	Within one week after mechanical desludging	Visual inspection

Stormwater ponds	Pond level[1]	Weekly	Visual check of pond level against the freeboard depth indicator installed in the pond
	HDPE liner condition[1]	Within one week after mechanical desludging	Visual inspection
	pH[1]	Weekly	Australian Standard AS/NZS 5667.1 and 5667.10 Readings must be taken at a minimum of four points per pond per monitoring event.
	Temperature[1]		
	Oxidation/ reduction potential[1]		
	Dissolved oxygen[1] (mg/L)		
	Chemical Oxygen Demand (mg/L)	Monthly	
	Biological oxygen demand (mg/L)		
Leachate ponds	pH[1]	Weekly	Australian Standard AS/NZS 5667.1 and 5667.10 Readings must be taken at a minimum of four points per pond per monitoring event.
	Temperature[1]		
	Oxidation/ reduction potential[1]		
	Dissolved oxygen[1] (mg/L)		
	Chemical Oxygen Demand (mg/L)	Monthly	
	Biological oxygen demand (mg/L)		

Note 1: In-field non-NATA accredited analysis permitted.

Process monitoring

33. The works approval holder must ensure that sample analysis undertaken to comply with condition 32 is undertaken by a holder of a current accreditation from the National Association of Testing Authorities (NATA) for the relevant parameters.

Process monitoring

34. The works approval holder must monitor the processes in accordance with the requirements specified in Table 14.

Table 14: Process monitoring

Process description	Location	Phase of processing	Parameter	Frequency	Method
Pasteurisation	Process Area (each pile)	Before and during the pasteurisation phase described by the requirements in condition 19	Temperature (ºC)	Daily[1]	Effectively measured within the internal core of the pile
			Moisture content (%)		
			Oxygen concentration (%)		
Composting (including pasteurisation)	Process Area (each pile)	Before and during the pasteurisation phase described by the requirements in condition 19	Temperature (ºC)	Daily[1]	
			Moisture content (%)		
			Oxygen concentration (%)		
		After the pasteurisation phase described by the requirements in condition 19	Temperature (ºC)	Weekly[2]	
			Moisture content (%)		
			Oxygen concentration (%)		
Leachate overflow	Leachate pond/Surface water pond swale	Leachate overflow from the surface water ponds to leachate ponds	kL or m^3	Continuous	Flow meter in inlet swale

Note 1: Daily monitoring is to be undertaken at least 20 hours apart.

Note 2: Weekly monitoring is to be undertaken at least four days apart.

35. The works approval holder must ensure all monitoring equipment used to comply with condition 34 is operated and calibrated in accordance with the manufacturer specifications.

Product quality monitoring

36. The works approval holder must monitor recycled organic products for concentrations of the corresponding parameters listed in Table 15:

(a) using the corresponding sampling method;

(b) using the corresponding analytical method; and

(c) at no less than the corresponding frequency,

as set out in Table 15.

Table 15: Recycled organic product quality sampling

Recycled organic product type	Parameter	Sampling method	Analytical method	Frequency
Compost	Arsenic, cadmium, boron, chromium (total), copper, lead, mercury, nickel, selenium and zinc	AS 4454 – Appendix A	AS 4454 – Appendix D	One sample per 1,000 tonnes of compost
	DDT/DDD/DDE, aldrin, dieldrin, chlordane, heptachlor, HCB, lindane and BHC			
	PCBs			
	Chromium (VI)		Schedule B3 Section 7.5 of NEPM-ASCM (or an equivalent NATA-accredited method)	
	Glass, metal and rigid plastics >2 mm		AS 4454 – Appendix I	
	Plastics: light, flexible or film, including biodegradable and compostable types >5 mm			
	Viable plant propagules		AS 4454 – Appendix M	
	Faecal coliforms and *Salmonella* spp.		AS 4454 – Appendix D	
	E. coli		Membrane filtration or most probable number	
Pasteurised mulch	Arsenic, cadmium, boron, chromium (total), copper, lead, mercury, nickel, selenium and zinc	AS 4454 – Appendix A	AS 4454 – Appendix D	One sample per 5,000 tonnes of pasteurised mulch
	DDT/DDD/DDE, aldrin, dieldrin, chlordane, heptachlor, HCB, lindane and BHC			
	PCBs			
	Glass, metal and rigid plastics >2 mm		AS 4454 – Appendix I	
	Plastics: light, flexible or film, including biodegradable and compostable types >5 mm			
	Viable plant propagules		AS 4454 – Appendix M	

37. The works approval holder must ensure that sample analysis undertaken to comply with condition 35 is undertaken by a holder of a current accreditation from the National Association of Testing Authorities (NATA) for the relevant parameters.

Groundwater monitoring

38. The works approval holder must monitor groundwater for concentrations of the identified parameter(s) in accordance with Table 16 and record the results of all monitoring activity conducted under Table 16.

Table 16: Groundwater monitoring of ambient concentrations

Monitoring well location	Parameter	Unit	Frequency	Method
Groundwater monitoring wells MB1 to MB8	Standing water level[1]	m(AHD) and m(BGL)	Twice each during time-limited operations for Stage and Stage 2, with a minimum of 3 months between each monitoring event.	Spot sample, in accordance with AS/NZS 5667.1 and AS/NZS 5667.11
	pH[1]	pH units		
	Electrical conductivity[1]	µS / cm		
	Biochemical oxygen demand	mg/L		
	Total dissolved solids			
	Chloride, fluoride, potassium, sulfate			
	Total nitrogen, nitrate-nitrogen, nitrite-nitrogen, ammonia nitrogen			
	Total phosphorus, phosphate			
	Zinc, arsenic, aluminium, iron, potassium, zinc			
	Per- and polyfluorinated alkyl substances (PFAS)			
	Perfluorooctane sulfonate (PFOS) Perfluorooctanoic acid (PFOA) 6:2 Fluorotelomer sulfonate (6:2 FtS) 8:2 Fluorotelomer sulfonate (8:2 FtS) Perfluoroheptanoic acid (PFHpA) Perfluorobutane sulfonate (PFBS) Perfluorobutanoic acid (PFBA) Perfluorohexanoic acid (PFHxA) Perfluorohexane sulfonate (PFHxS) Perfluoropentanoic acid (PFPeA)	µg/L	Once each during time-limited operations for Stage and Stage 2, with a minimum of 3 months between each monitoring event.	

Note 1: In-field non-NATA accredited analysis permitted.

39. For the monitoring required by condition 38, the works approval holder must adhere to the following field quality assurance and quality control procedures, as specified in Schedule B2 of the Assessment of Site Contamination NEPM, and must include as a minimum:

(a) decontamination procedures for the cleaning of tools and sampling equipment before sampling and between samples;

(b) field instrument calibration for instruments used on site;

(c) blind replicate samples and rinsate blanks must be collected in the field and sent to the primary laboratory to determine the precision of the field sampling and laboratory analytical program;

(d) completed field monitoring sheets / sampling logs for each sample collected, showing:

(i) time of collection;

(ii) location of collection;

(iii) initials of sampler;

(iv) sampling method;

(v) field analysis results;

(vi) duplicate type / location (if relevant); and

(vii) site observations and weather conditions, and

(e) chain-of-custody documentation must be completed which details the following information:

(i) site identification;

(ii) the sampler;

(iii) nature of the sample;

(iv) collection time and date;

(v) analyses to be performed;

(vi) sample preservation method;

(vii) departure time from site;

(viii) dispatch courier(s); and

(ix) arrival time at the laboratory.

40. The works approval holder must ensure that sample analysis undertaken to comply with condition 38 is undertaken by a holder of a current accreditation from the National Association of Testing Authorities (NATA) for the relevant parameters.

Odour monitoring

41. The works approval holder must retain the services of a suitably qualified person to:

(a) plan and implement a minimum of three odour field assessments (OFAs) each during Stages 1 and 2 time-limited operations which follow the plume measurement methodology as specified in the DWER *Guideline: Odour Emissions* and the *European Standard EN 16841-2 (plume method)*. OFAs are to be undertaken:

(i) with the prime objective of characterising odour plume extents in the directions of receptors which are most likely to be impacted by odour;

(ii) during meteorological and operational conditions most likely to cause impacts at these receptors;

(iii) over the time limited operations period, with each OFA conducted at least 2 weeks apart; and

(b) compile and submit to the works approval holder within six weeks of completion of the final OFA field campaign, an OFA report in accordance with condition 42.

42. An OFA report prepared pursuant to condition 41 is to include:

(a) the objective of the assessment;

(b) a description of the measurement strategy, measurement conditions and the odour field survey standards that were followed;

(c) the following details for each single measurement:

(i) odour intensity levels and odour characters;

(ii) location (GPS coordinates), date and time;

(iii) field survey odour panellist identification; and

(iv) details of feedstock volumes held, product volumes held and feedstock accepted to the site during the assessment period.

(d) the following representative meteorological measurements as recorded during the measurement cycle:

(i) wind speed (metres per second);

(ii) wind direction;

(iii) cloud cover estimate;

(iv) temperature;

(e) map(s) depicting the assessment area, odour sources at the premises and other potential odour sources (if relevant);

(f) a graphical summary of field survey results showing the recorded odour intensity levels either as a percentage of total observations using pie charts if the stationary plume method was used or as coloured dot points if the dynamic plume method was used that will be superimposed at each point assessed on a map of the survey area;

(g) any deviations from the conditions targeted in the OFA strategy and those occurring during the measurement (conclusions should reflect the influence of such deviations on the results); and

(h) detailed analysis, interpretation and conclusions with regard to the objectives of the assessment.

Compliance reporting

43. The works approval holder must submit to the CEO a report on the time limited operations within 60 calendar days of the completion date of time limited operations or 60 calendar days before the expiration date of the works approval, whichever is the sooner.

44. The works approval holder must ensure the report required by condition 43 includes the requirements set out in Table 17.

Table 17: Compliance report

Condition	Requirements
N/A	a summary of the time limited operations.
N/A	a summary of the environmental performance of all infrastructure as constructed or installed.
N/A	a review of performance and compliance against the conditions of the works approval.

Condition	Requirements
N/A	where the manufacturer's design specifications and the conditions of this works approval have not been met, what measures will the works approval holder take to meet them, and what timeframes will be required to implement those measures.
30	a summary of feedstock acceptance volumes.
31	a summary of waste volumes removed and rejected loads.
31	a summary of recycled organic product volumes removed.
34	Leachate management: Tabulated summary with dates and volumes of any leachate overflow from the surface water ponds to leachate ponds.
23 and 24	Fire management: Summary of any events that trigger a fire management response, other than for training/exercise activities.
28, 29 and 36	Product quality monitoring: a) Tabulated summary of monitoring results; b) Comparison of monitoring results to the upper contaminant limits set out in Schedule 3; and c) Identification of any batches of recycled organic products that did not comply with condition 28 and a description of how each of these non-conforming batches was managed in accordance with condition 29.
32	Infrastructure monitoring: a) A list of dates when the minimum freeboard level in the leachate ponds and/ or stormwater ponds was exceeded, the timeframe over which the freeboard was exceeded and any actions taken to manage the pond levels; and b) Summary of findings from visual inspections of the HDPE liner following any mechanical desludging of the leachate pond and/ or stormwater pond.
38	Tabulated groundwater monitoring results as specified in condition 38.
41 and 42	Odour Field Assessment reports as specified in conditions 41 and 42.
45	A summary of complaints received, including the information required to be recorded by condition 45.

Records and reporting (general)

45. The works approval holder must record the following information in relation to complaints received by the works approval holder (whether received directly from a complainant or forwarded to them by the Department or another party) about any alleged emissions from the premises:

(a) the name and contact details of the complainant, (if provided);

(b) the time and date of the complaint;

(c) the complete details of the complaint and any other concerns or other issues raised; and

(d) the complete details and dates of any action taken by the works approval holder to investigate or respond to any complaint.

46. The works approval holder must maintain accurate and auditable books including the following records, information, reports, and data required by this works approval:

(a) the works conducted in accordance with conditions 1 and 2;

(b) any maintenance of infrastructure that is performed in the course of complying with condition 12;

(c) records to confirm that feedstocks accepted at the premises meet the acceptance specifications in condition 15;

(d) records to confirm that feedstocks used in recycled organic products have been processed to achieve pasteurisation in accordance with conditions 18 and 19;

(e) monitoring programmes undertaken in accordance with conditions 30, 31, 32, 36 and 38;

(f) dates and volumes of any leachate overflowed into the surface water ponds;

(g) dates and details of any events that trigger a fire management response in the course of complying with conditions 23 and 24; and

(h) complaints received under condition 45.

47. The books specified under condition 46 must:

(a) be legible;

(b) if amended, be amended in such a way that the original version(s) and any subsequent amendments remain legible and are capable of retrieval;

(c) be retained by the works approval holder for the duration of the works approval; and

(d) be available to be produced to an inspector or the CEO as required.

Definitions

In this works approval, the terms in Table 18 have the meanings defined.

Table 18: Definitions

Term	Definition
1-in-20-year, 24-hour storm event	means a 24-hour storm event of a size that will be equalled or exceeded on average once every 20 years for the premises location.
Assessment of Site Contamination NEPM	means the *National Environment Protection (Assessment of Site Contamination) Measure 1999*, as amended from time to time.
AS1726	means the Australian Standard AS1762 *Geotechnical site investigations*, as amended from time to time.
AS 4454	means Australian Standard AS 4454 *Composts, soil conditioners and mulches*
ASTM D5092/D5092M-16	means the ASTM international standard for *Standard practice for design and installation of groundwater monitoring wells (Designation: ASTM D5092/D5092M-16)*, as amended from time to time.
books	has the same meaning given to that term under the EP Act.
CEO	means Chief Executive Officer. CEO for the purposes of notification means: Director General Department administering the *Environmental Protection Act 1986* Locked Bag 10 Joondalup DC WA 6919 info@dwer.wa.gov.au
CFU	colony forming units
CM Farms	means the piggery that is located on a portions of Lot 89 on Plan 741, Certificate of Title Volume 1112 Folio 243 and Lot 109 on Plan 741, Certificate of Title Volume 1113 Folio 439.
compost	means a solid organic material that has undergone controlled aerobic and thermophilic biological transformation through the composting process to achieve pasteurisation and reduce phytotoxic compounds, and achieved a specified level of maturity for compost. Includes composted products and mature composts as defined in AS 4454.
composting	means the process whereby organic materials are microbiologically transformed under controlled aerobic conditions to achieve pasteurisation and a specified level of maturity.
Construction Quality Assurance Plan	means the document titled *Carbon Recycling Facility - Leachate and Surface Water Management Infrastructure – Construction Quality Assurance Plan*, dated October 2023, Project Number: TW21124, Prepared for C-Wise by Talis Consultants.

Term	Definition
critical containment infrastructure	means the items of infrastructure listed in condition 2.
Critical Containment Infrastructure Report	means a report to satisfy the CEO that works of critical containment infrastructure have been constructed in accordance with the works approval.
CQA Consultant	has the same meaning given to that term under the relevant Construction Quality Assurance Plan.
Department	means the department established under section 35 of the *Public Sector Management Act 1994* and designated as responsible for the administration of Part V Division 3 of the EP Act.
discharge	has the same meaning given to that term under the EP Act.
emission	has the same meaning given to that term under the EP Act.
Environmental Compliance Report	means a report to satisfy the CEO that the conditioned infrastructure and/or equipment has been constructed and/or installed in accordance with the works approval.
EP Act	*Environmental Protection Act 1986* (WA).
EP Regulations	*Environmental Protection Regulations 1987* (WA).
feedstock	means a material used as an ingredient in the production of recycled organic products at the premises. The term feedstock applies to materials whether they are: (a) a waste or not; (b) solid or liquid; and (c) organic or inorganic.
Guideline: Better practice organics recycling	means the document titled *Guideline: Better practice organics recycling* published by the Department as amended.
HDPE	means high-density polyethylene
IPENZ, 2017	means the *Institution of Professional Engineers of New Zealand (IPENZ), 2017. Practice Note 21: Farm Dairy Effluent Ponds.* The document is available from the following website: *www.dairynz.co.nz*.
Landfill Definitions	means the document titled *Landfill Waste Classification and Waste Definitions 1996* published by the Department as amended
Leachate and Surface Water Management Infrastructure Technical Specification	means the document titled *Carbon Recycling Facility - Leachate and Surface Water Management Infrastructure Technical Specification*, dated October 2023, Project Number: TW21124, Prepared for C-Wise by Talis Consultants.

Term	Definition
liquid feedstock	means a feedstock that does not meet the definition of solid as specified in the Landfill Definitions
non-standard feedstock	has the same meaning as defined in *Guideline: Better practice organics recycling.*
MPN	most probable number
pasteurisation	means a process whereby organic materials are treated to significantly reduce the numbers of plant and animal pathogens and plant propagules and in the case of this works approval means a process that meets the requirements for the relevant feedstock processing method and location set out in Table 8.
pasteurised mulch	means mulch that has undergone pasteurisation.
premises	the premises to which this works approval applies, as specified at the front of this works approval and as shown on the premises map (Figure 1) in Schedule 1 to this works approval.
prescribed premises	has the same meaning given to that term under the EP Act.
recycled organic product	means a fit-for-purpose product that has been produced from the substantial transformation of organic waste and feedstocks so that it is no longer waste.
solid feedstock	means a feedstock that meets the definition of solid as specified in the Landfill Definitions.
suitably qualified engineer	means a person who: (a) holds a Bachelor of Engineering recognised by Engineers Australia; (b) has a minimum of five years of experience working in a supervisory area of civil, structural or environmental engineering; and (c) is a third party to the principal.
time limited operations	refers to the operation of the infrastructure and equipment identified under this works approval that is authorised for that purpose, subject to the relevant conditions.
waste	has the same meaning given to that term under the EP Act.
works approval	refers to this document, which evidences the grant of the works approval by the CEO under section 54 of the EP Act, subject to the conditions.
works approval holder	refers to the occupier of the premises being the person to whom this works approval has been granted, as specified at the front of this works approval.

END OF CONDITIONS

Schedule 1: Maps

Premises map

The boundary of the prescribed premises is shown in the map below (Figure 1).

Figure 1: Map of the boundary of the prescribed premises

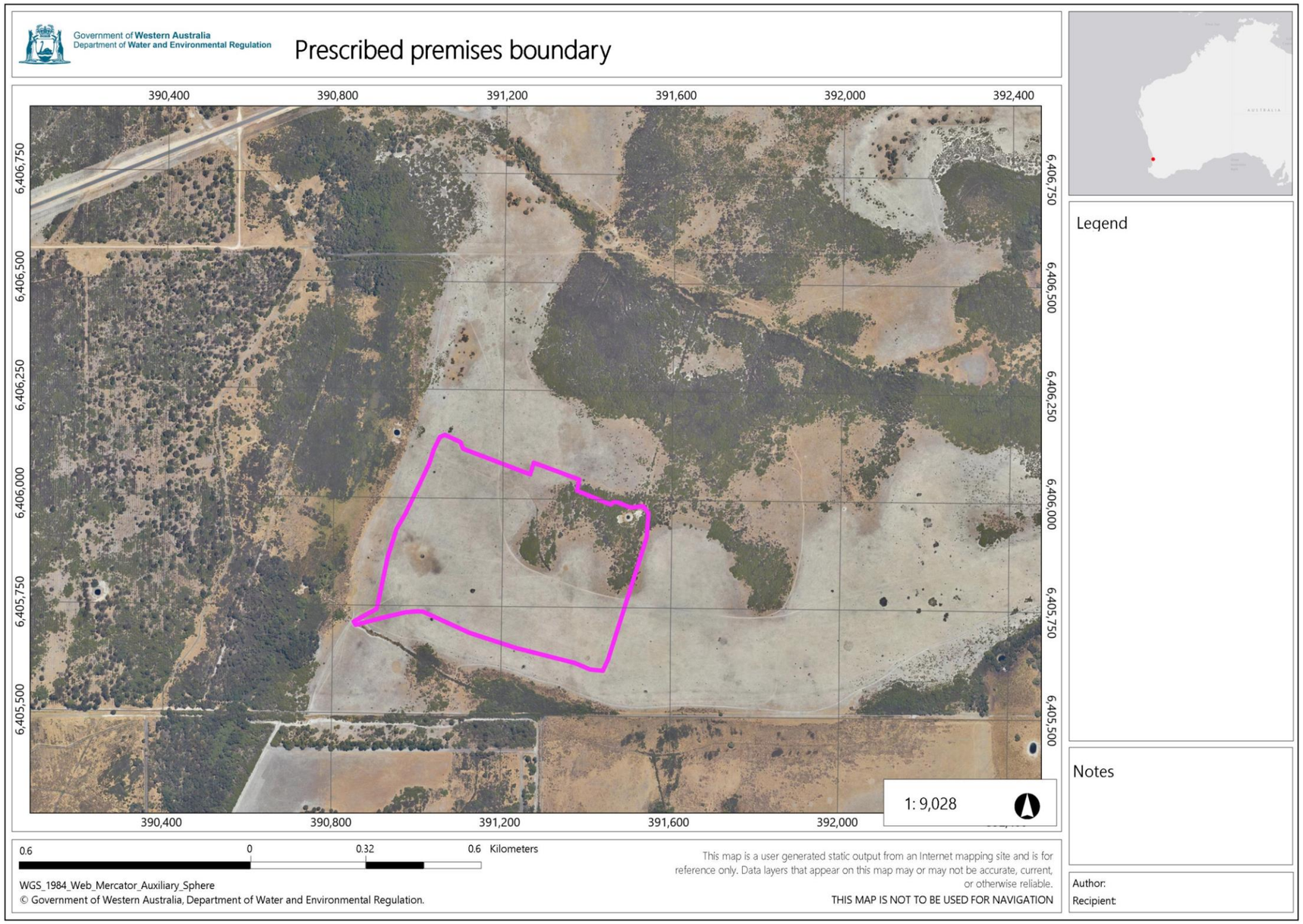


Figure 2: Proposed site layout

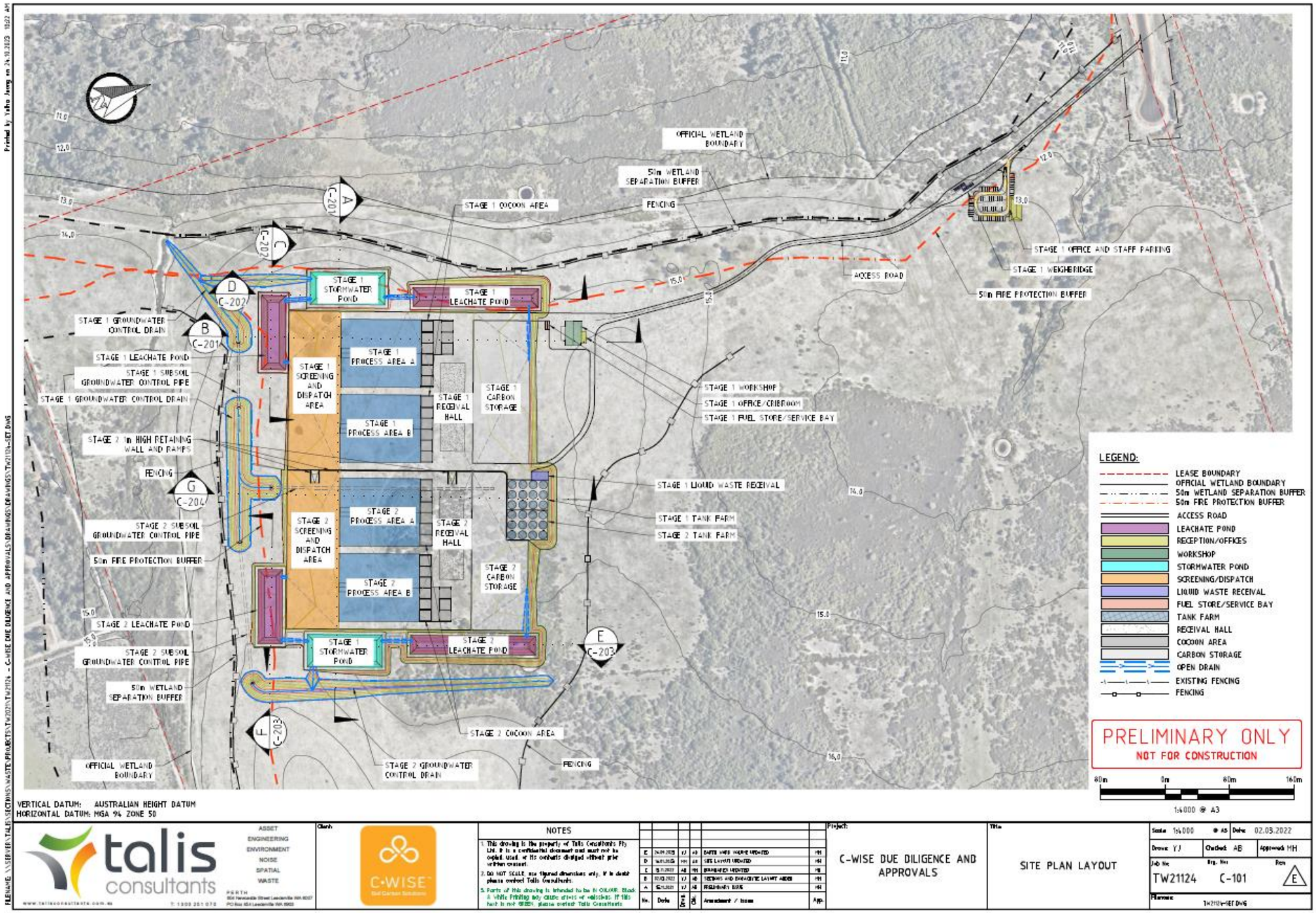


Figure 3: Staged arrangement

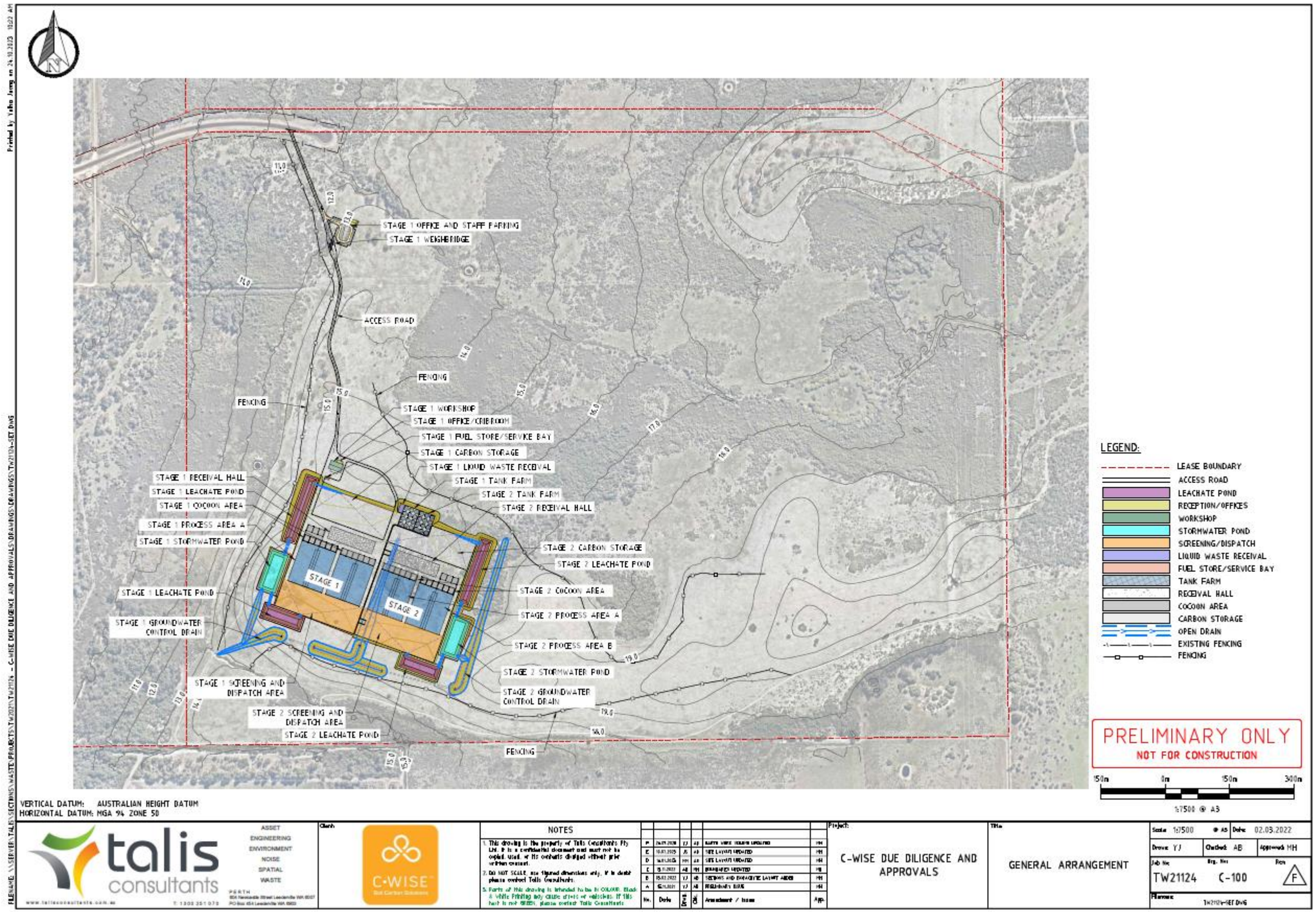


Figure 4: Stage 1 Surface water and leachate management layout

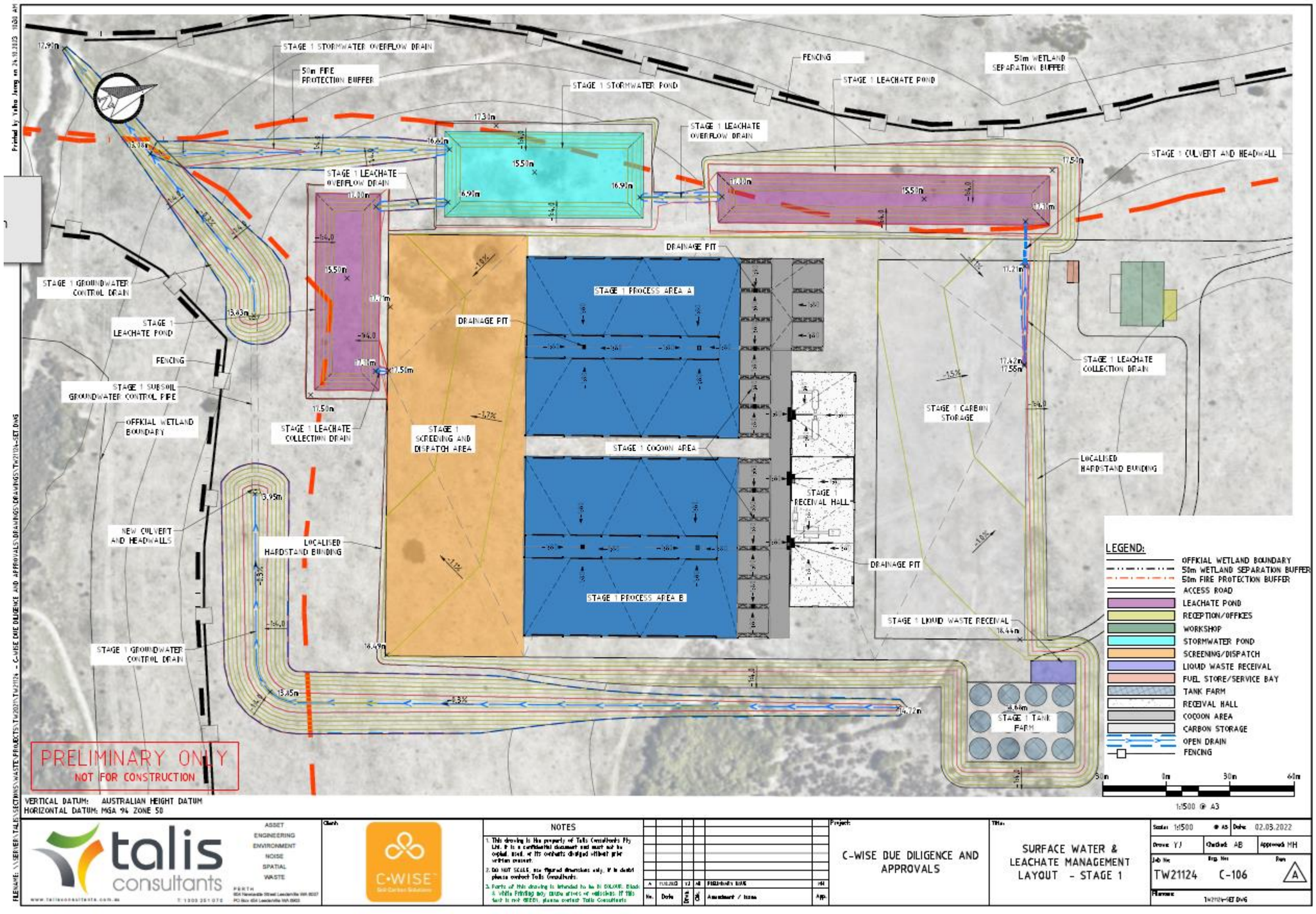


Figure 5: Stage 2 Surface water and leachate management layout

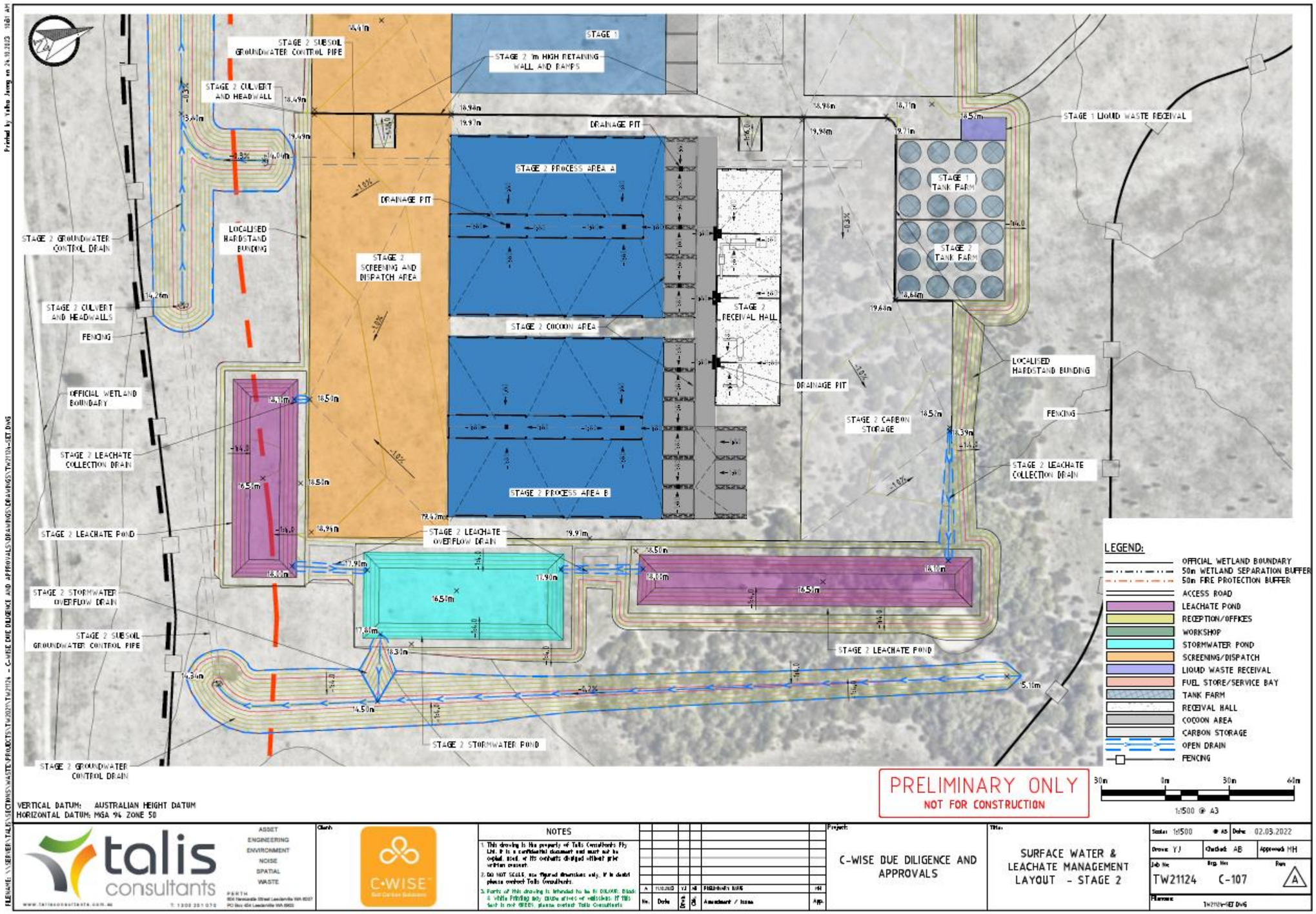


Figure 6: Ponds and containment infrastructure

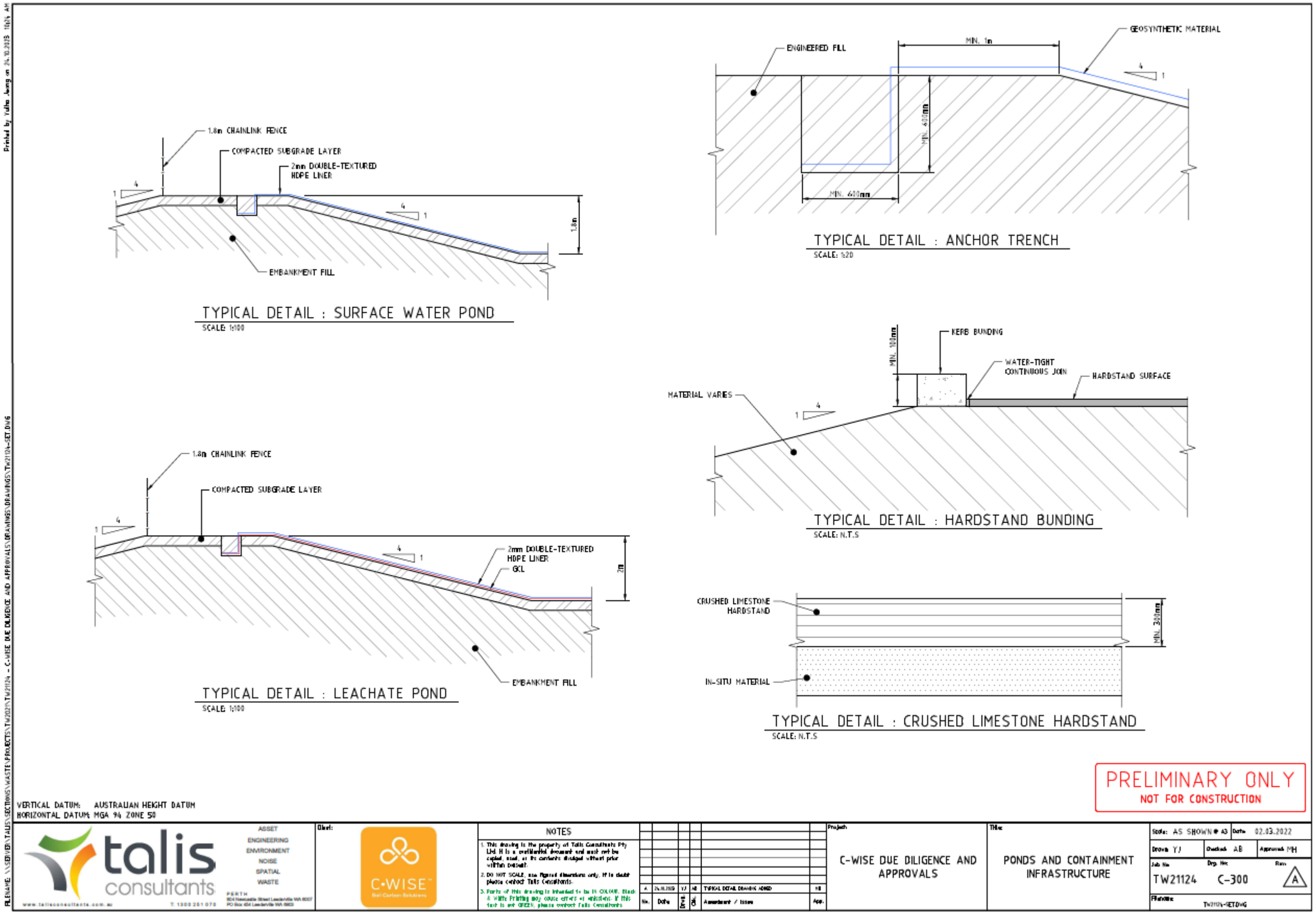


Figure 7: Channels and conveyance infrastructure

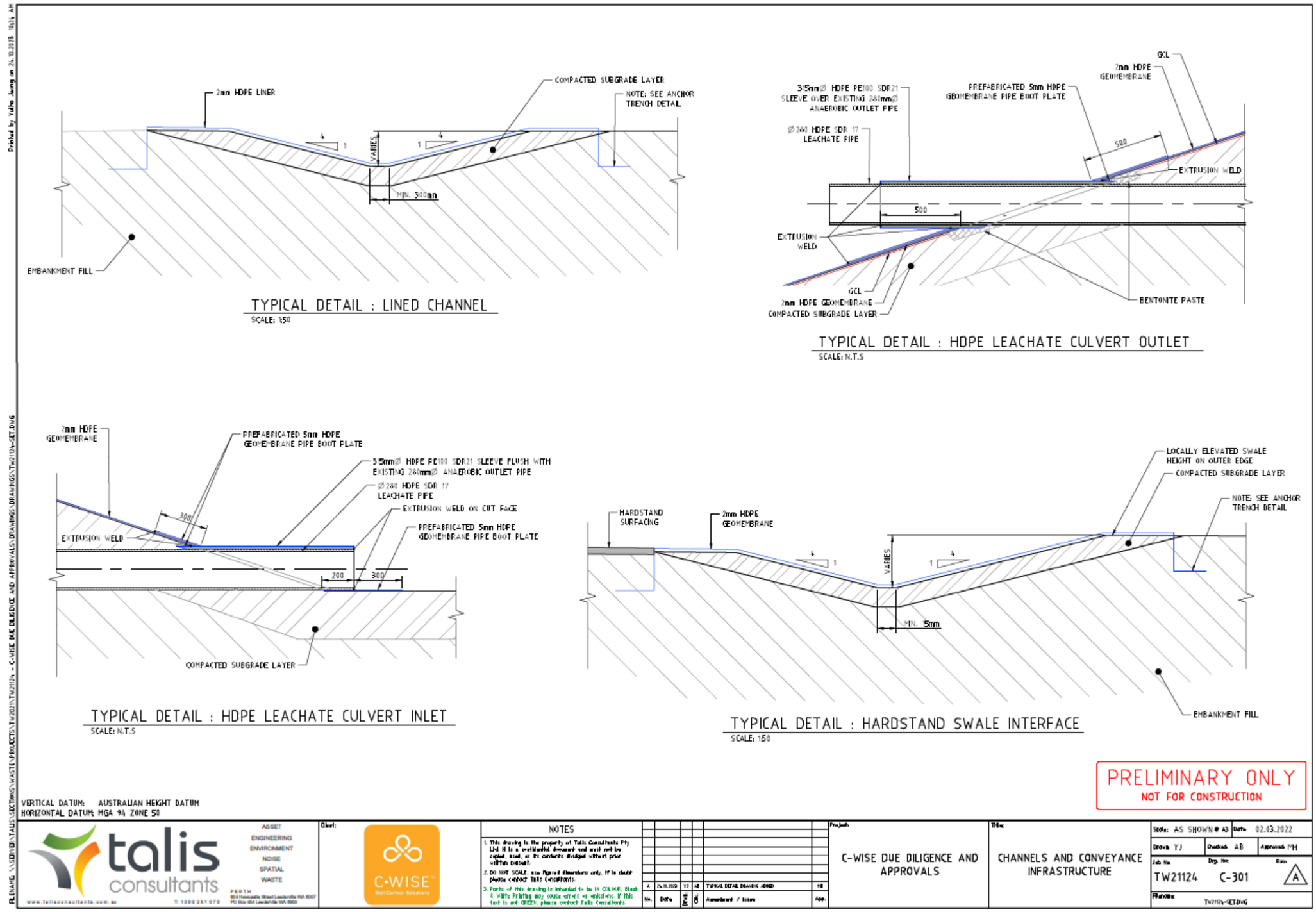
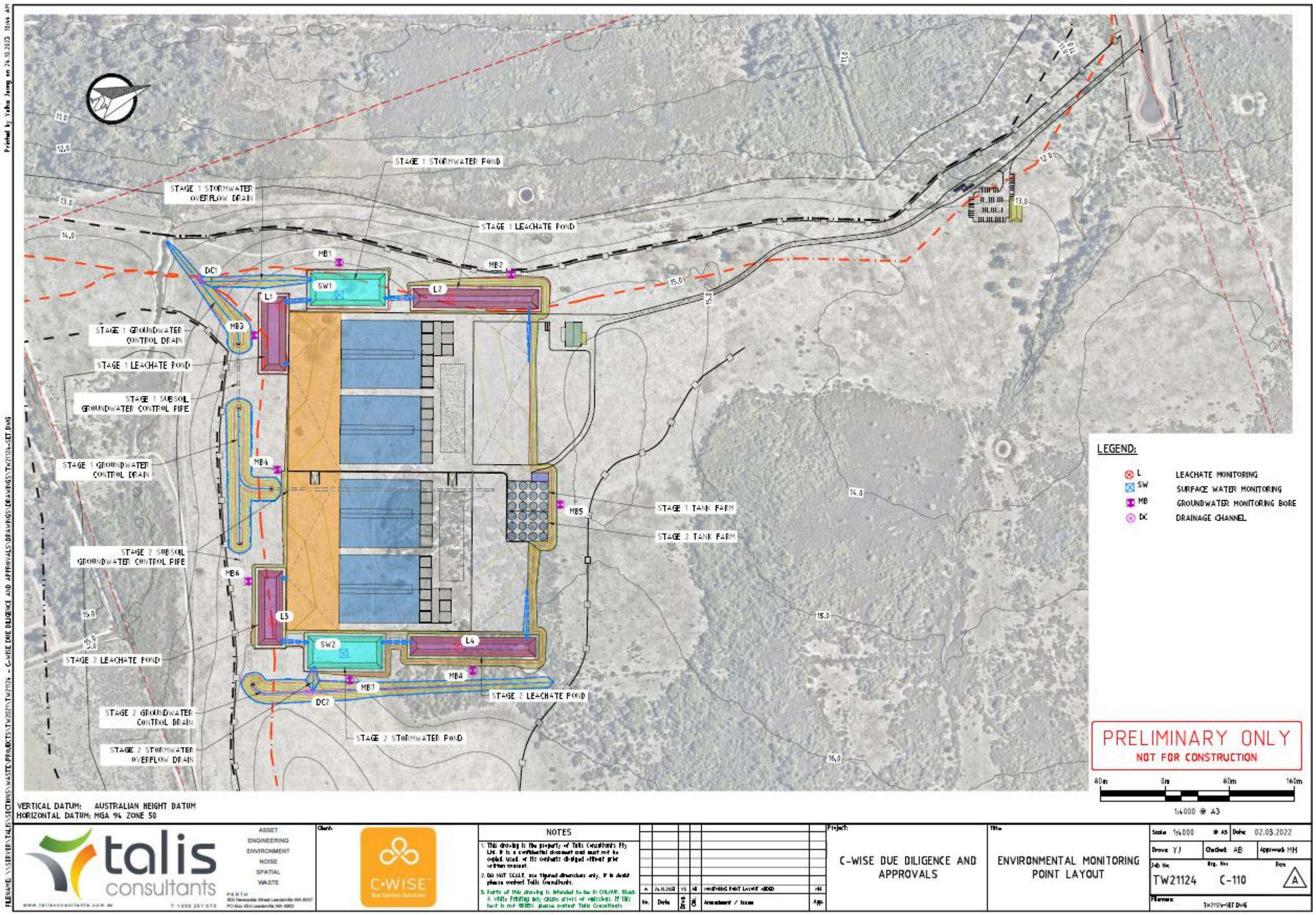


Figure 8: Groundwater monitoring bore locations



Schedule 2: Premises boundary

The corners of the premises boundary are the coordinates listed in Table 19.

Table 19: Premises boundary coordinates (GDA2020)

	Easting	Northing	Zone
1.	391049.01	6406140.49	MGA50
2.	391060.89	6406145.49	
3.	391097.91	6406129.26	
4.	391103.99	6406113.92	
5.	391263.64	6406056.45	
6.	391271.80	6406083.48	
7.	391380.39	6406045.63	
8.	391374.65	6406020.17	
9.	391455.34	6405988.78	
10.	391463.90	6405996.53	
11.	391503.06	6405982.31	
12.	391531.78	6405986.17	
13.	391544.64	6405970.01	
14.	391541.02	6405913.43	
15.	391452.73	6405631.19	
16.	391440.51	6405605.00	
17.	391410.60	6405607.45	
18.	391373.70	6405622.24	
19.	391235.10	6405655.11	
20.	391124.78	6405688.72	
21.	391013.17	6405736.85	
22.	391000.95	6405737.49	
23.	390972.69	6405735.08	
24.	390913.26	6405720.57	
25.	390854.32	6405704.52	
26.	390849.54	6405712.23	
27.	390903.72	6405742.20	
28.	390928.90	6405863.66	
29.	390949.07	6405928.07	
30.	390968.91	6405961.66	
31.	391024.31	6406078.13	
32.	391034.76	6406110.95	
33.	391049.01	6406140.49	

Schedule 3: Upper contaminant limits

Table 20: Recycled product quality upper contaminant limits

Recycled product quality type	Parameter	Upper limit
All recycled organic products	Arsenic	20 mg/kg
	Cadmium	1 mg/kg
	Boron	100 mg/kg
	Chromium (total)	100 mg/kg
	Copper	100 mg/kg
	Lead	150 mg/kg
	Mercury	1 mg/kg
	Nickel	60 mg/kg
	Selenium	5 mg/kg
	Zinc	200 mg/kg
	DDT/DDD/DDE	0.5 mg/kg
	Aldrin	0.02 mg/kg
	Dieldrin	0.02 mg/kg
	Chlordane	0.02 mg/kg
	Heptachlor	0.02 mg/kg
	HCB	0.02 mg/kg
	Lindane	0.02 mg/kg
	BHC	0.02 mg/kg
	PCBs	Not detectable (detection limit of 0.2 mg/kg)
	Glass, metal and rigid plastics (>2 mm)	0.5% dry matter w/w
	Plastics – light, flexible or film, including biodegradable and compostable types (>5 mm)	0.05% dry matter w/w
Compost	Faecal coliforms	1000 MPN or CFU / g (dry weight)
	E. coli	100 MPN or CFU / g (dry weight)
	Salmonella spp.	Absent in 50 g (dry weight)
All recycled organic products	Viable plant propagules	Nil germination after 21 days