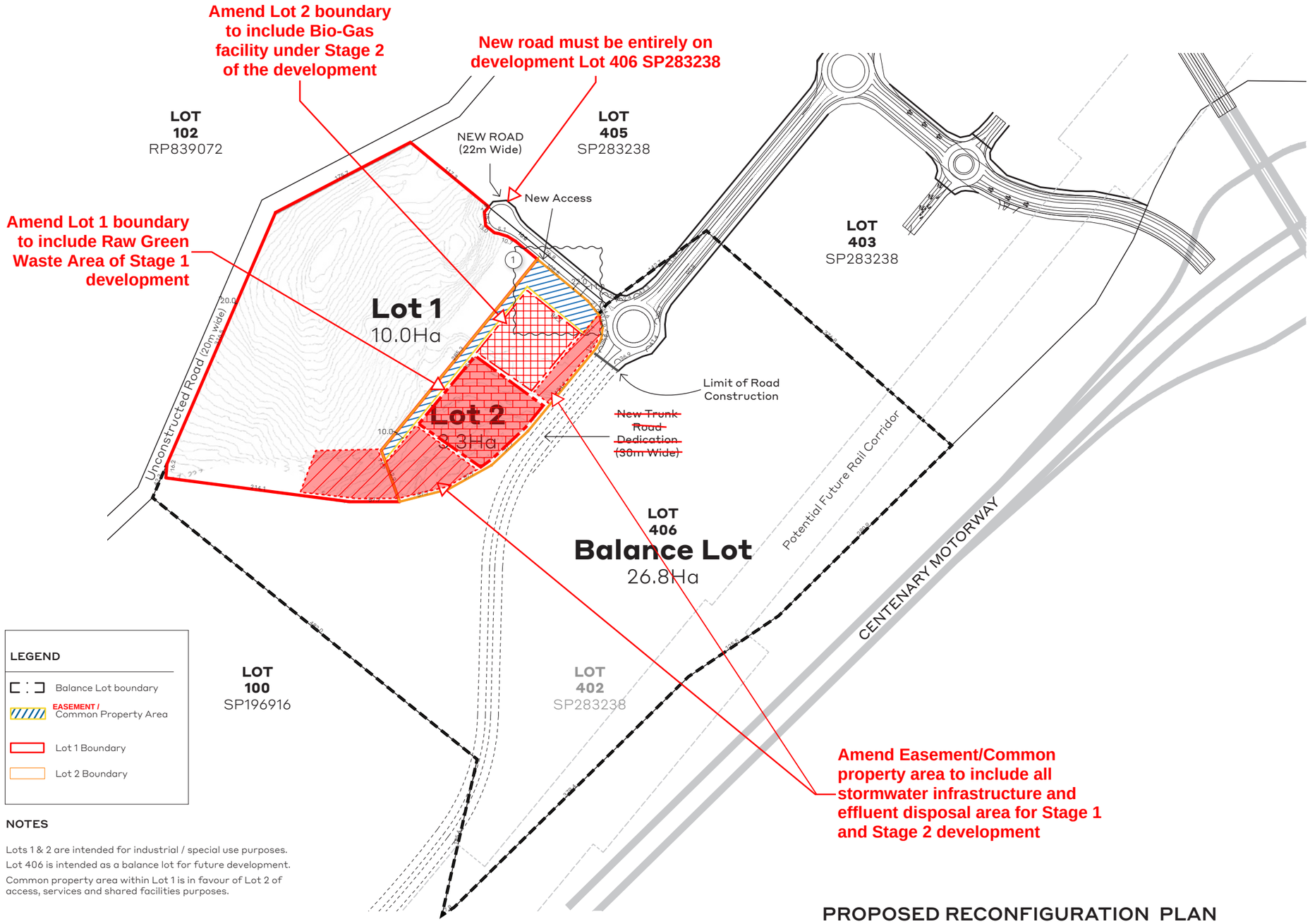
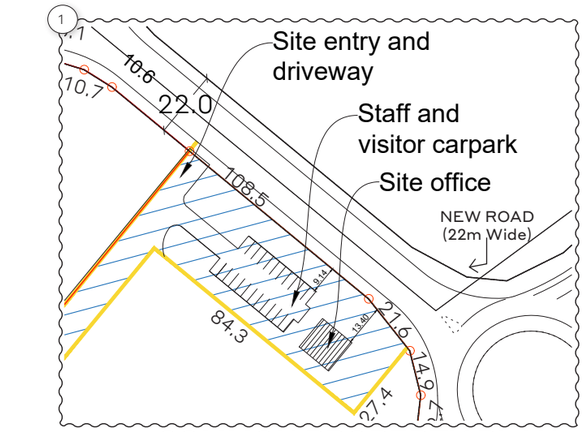
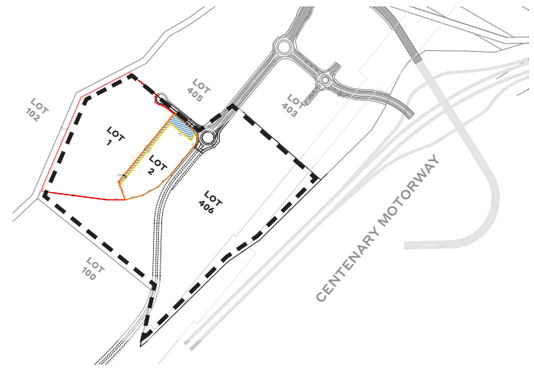




EASEMENT / COMMON PROPERTY PLAN
1:1,0000



KEY PLAN
1:20,0000

LEGEND

- Balance Lot boundary
- EASEMENT / Common Property Area
- Lot 1 Boundary
- Lot 2 Boundary

NOTES

Lots 1 & 2 are intended for industrial / special use purposes.
Lot 406 is intended as a balance lot for future development.
Common property area within Lot 1 is in favour of Lot 2 of access, services and shared facilities purposes.

PROPOSED LOTS

Lot Description	Approx. Lot Area	Approx. average lot dimensions
PROPOSED LOT 1 Enclosed composting facility	**10.0 Ha**	Length: 424m Width: 251m
PROPOSED LOT 2 Enclosed biogas facility and common property	**3.3 Ha** (Common property = 5,688 m²)	Length: 301m Width: 117m
BALANCE LOT	**26.8 Ha** (New Road area = 2,180 m²)	Varied
TOTAL SITE AREA (TITLE)	**40.10 Ha**	

PROPOSED RECONFIGURATION PLAN
1:5,000

Amended in red by Ipswich City Council (ICC) on 25 February 2022

ETHOS URBAN

Ethos Urban Pty. Ltd.
ABN 13 615 087 931 ACN 615 087 931
www.ethosurban.com
L4/215 Adelaide Street, Brisbane
QLD 4000 t +61 7 3852 1822

LEGEND / NOTES

RP Description:	Lot 402 on SP283238
Local Authority:	Ipswich City Council
Contour Interval	1.0m

NOTES
Design subject to Council approvals and detailed design. Areas and dimensions are approximate only and are subject to final survey.

ISSUE	DATE	REVISION	REVISION BY	APPROVED BY
P1	18.05.21	Approval	TB	MS

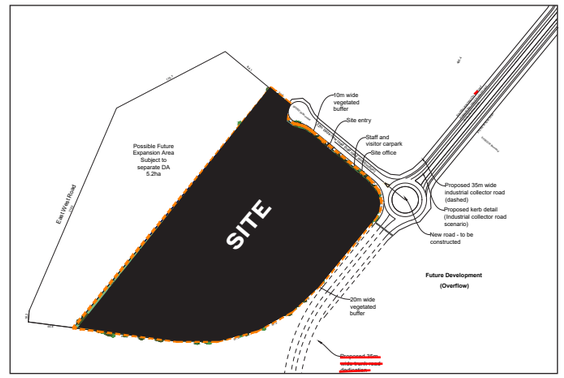
FOR APPROVAL

PROJECT
SWANBANK BIOGAS

1:5000 @ A3

DRAWING
PROPOSED RECONFIGURATION PLAN
A-1.1 /P1

JOB NO.	DWG NO.	ISSUE	DATE	DRAWN BY
7190243	A-1.1	P1	18.05.21	MS



KEY PLAN
Not to scale

NOTES	
Subject Lots:	Lot 402 on SP283238
Local Authority:	Ipswich City Council

Design subject to Council approvals and detailed design. Areas and dimensions are approximate only and are subject to final survey.

DEVELOPMENT SUMMARY

Description	Value
TOTAL SITE AREA	13.291Ha
POSSIBLE FUTURE EXPANT-ION AREA (SUBJECT TO SEPA-RATE DA)	5.2 Ha
SITE AREA STAGE 1	7.19Ha
SITE AREA STAGE 2	0.9 Ha
TOTAL CAR PARKING SPACES (PROVIDED)	23 spaces

LEGEND

- Proposed site & stage boundaries
- Existing Boundaries (SP283238)
- Proposed road widening for 35m trunk road

Amended in red by Ipswich City Council (ICC) on 25 February 2022

ISSUE	DATE	REVISION	REVISION BY	APPROVED BY
P1	07.12.20	Issued for Approval	TB	KG
P2	08.04.21	Issued for Approval	TB	KG
P3	08.05.21	Change of Road Layout	MS	KG
P4	06.09.21	Amended Areas	MS	KG

LEGEND / NOTES

-
-

PRELIMINARY

NOT FOR CONSTRUCTION

ETHOS URBAN

Ethos Urban Pty. Ltd.
ABN 13 615 087 931 ACN 615 087 931
www.ethosurban.com
L4/215 Adelaide Street Brisbane
QLD 4000 t +61 2 3852 1822

PROJECT

Enclosed Biogas / Composting Facility

1:2,500 @ A3

0 10 20 40 100m

DRAWING

Proposed Site Plan **A-1.1 /P4**

PAGE 1 OF 2

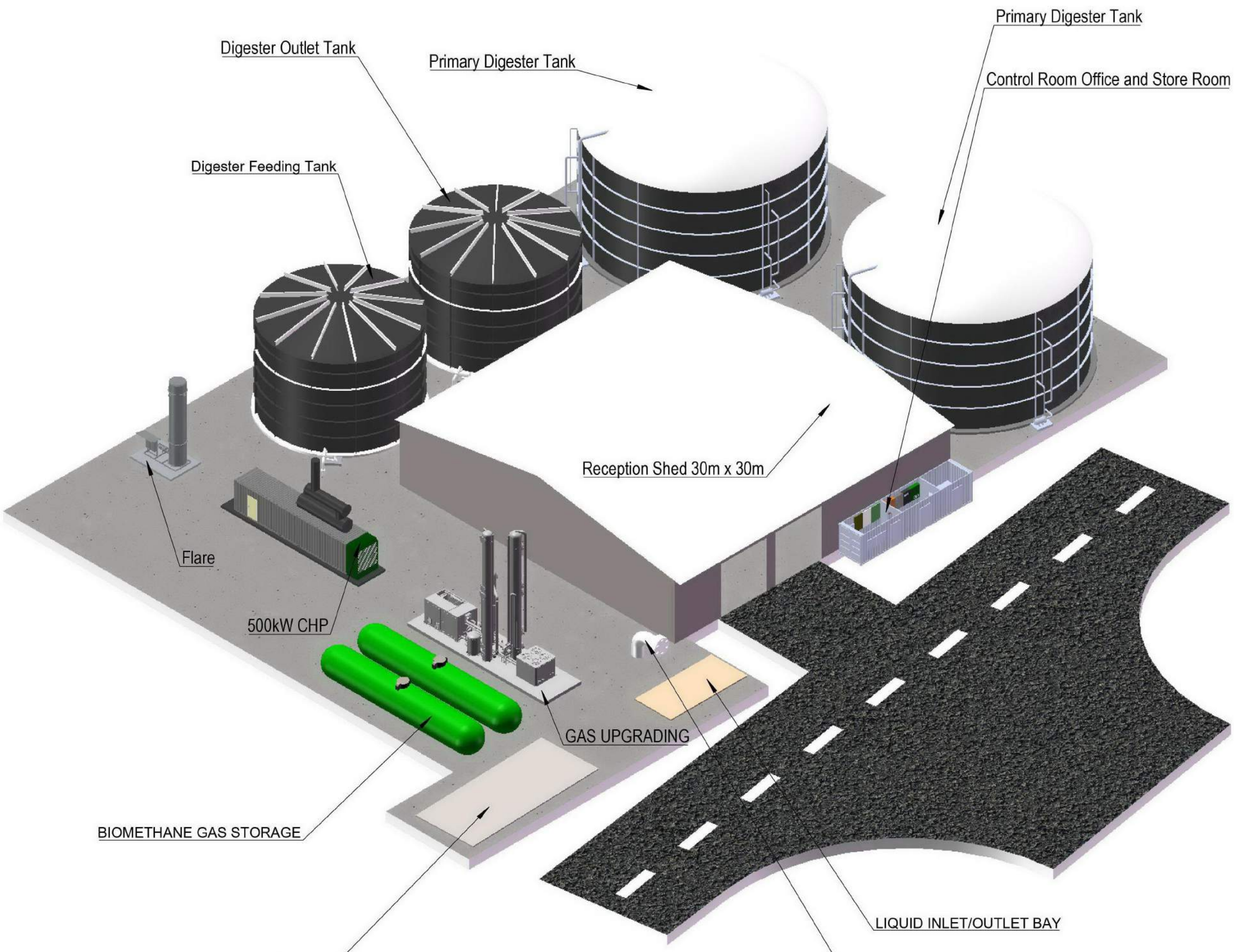
JOB NO.	DWG NO.	ISSUE	DATE	DRAWN BY
718803	A-1.1	P4	06.09.21	MS

A4762848

DO NOT SCALE ~ IF IN DOUBLE ASK

ALL DIMENSIONS IN MILLIMETRES

NOTES:-
1. ALL DIMENSIONS IN MILLIMETERS AND ALL LEVELS IN METERS (AOD) UNLESS NOTED OTHERWISE



REV	DRWN	CHKD	APPD	DESCRIPTION	DATE
D					
C					
B					
A	DZ	DZ	JO		2018/2/8

Biogass Renewables
Level 1, 10 Ord Street, West Perth,
Western Australia 6005
Office: +61 (0)8 9489 2598
www.biogass.com.au

TITLE

WOOD MULCHING INDUSTRIES

SWANBANK, QUEENSLAND

SITE LAYOUT

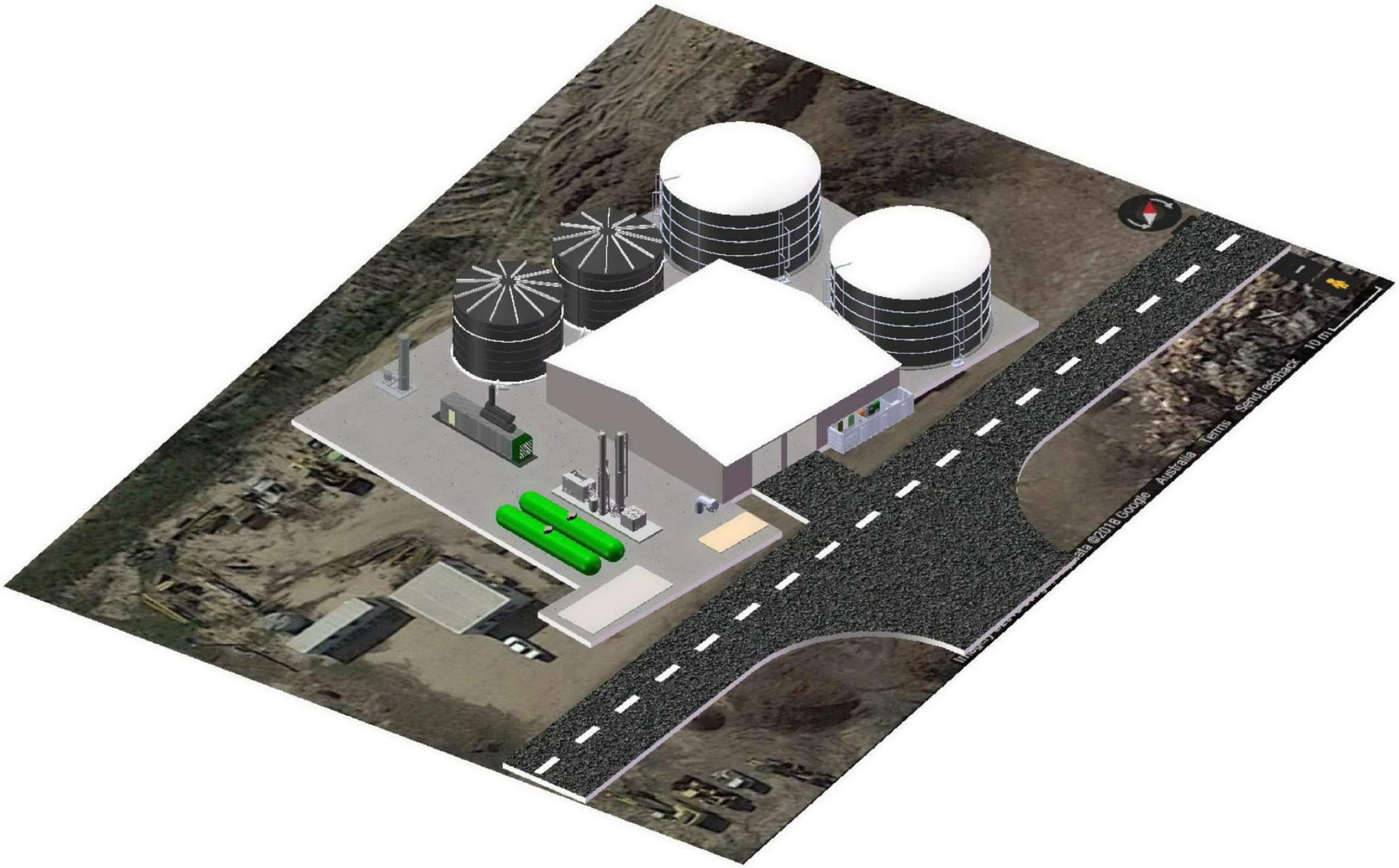
SCALE		DRG No.	
	1:280	A3	J115-100

A4762848

DO NOT SCALE ~ IF IN DOUBLE ASK

ALL DIMENSIONS IN MILLIMETRES

NOTES:-
1. ALL DIMENSIONS IN MILLIMETERS AND ALL LEVELS IN METERS (AOD) UNLESS NOTED OTHERWISE



REV	DRWN	CHKD	APPD	DESCRIPTION	DATE
D					
C					
B					
A	DZ	DZ	JO		2018/2/8

Biogass Renewables
Level 1, 10 Ord Street, West Perth,
Western Australia 6005
Office: +61 (0)8 9489 2598
www.biogass.com.au

TITLE

WOOD MULCHING INDUSTRIES

SWANBANK, QUEENSLAND

SITE LAYOUT

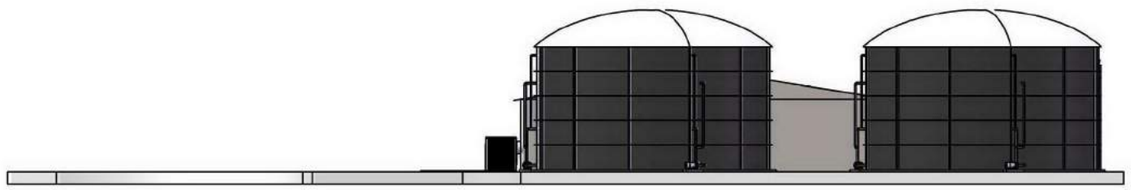
SCALE 1:500 | A3 | DRG No. J115-101

A4762848

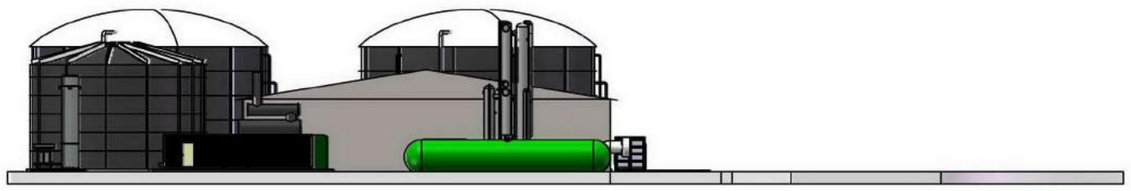
DO NOT SCALE ~ IF IN DOUBLE ASK

ALL DIMENSIONS IN MILLIMETRES

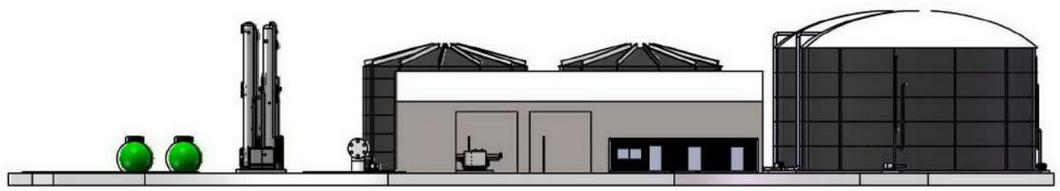
NOTES:-
1. ALL DIMENSIONS IN MILLIMETERS AND ALL LEVELS IN METERS (AOD) UNLESS NOTED OTHERWISE



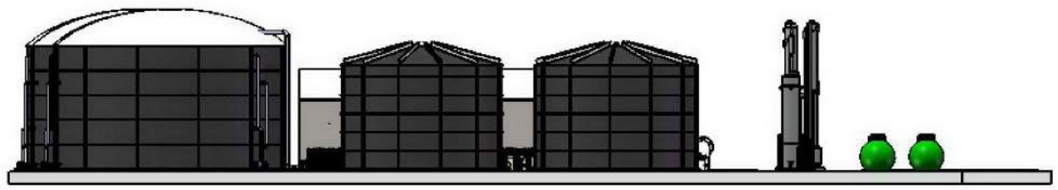
NORTH ELEVATION



SOUTH ELEVATION



EAST ELEVATION



WEST ELEVATION

REV	DRWN	CHKD	APPD	DESCRIPTION	DATE
D					
C					
B					
A	DZ	DZ	JO		2018/2/8

Biogass Renewables
Level 1, 10 Ord Street, West Perth,
Western Australia 6005
Office: +61 (0)8 9489 2598
www.biogass.com.au

TITLE

WOOD MULCHING INDUSTRIES

SWANBANK, QUEENSLAND

ELEVATION DRAWINGS

SCALE		DRG No.	
1:500	A3	J115-102	

A4762848

DO NOT SCALE ~ IF IN DOUBLE ASK

ALL DIMENSIONS IN MILLIMETRES

NOTES:-
1. ALL DIMENSIONS IN MILLIMETERS AND ALL LEVELS IN METERS (AOD) UNLESS NOTED OTHERWISE

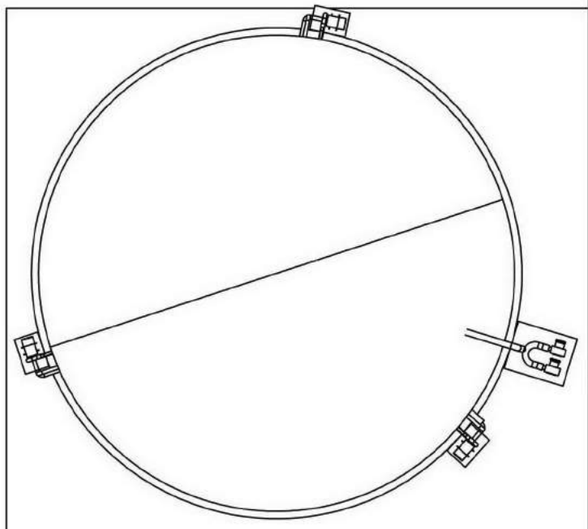
FUEL FILLING BAY

LIQUID INLET/OUTLET BAY

CONTROL ROOM OFFICE AND STORE ROOM

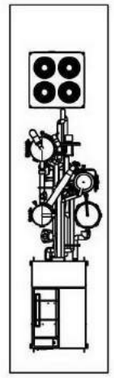
RECEPTION SHED 30m X 30m

LIQUID INLET/OUTLET CONNECTION

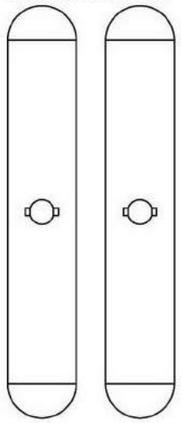


PRIMARY DIGESTER TANK

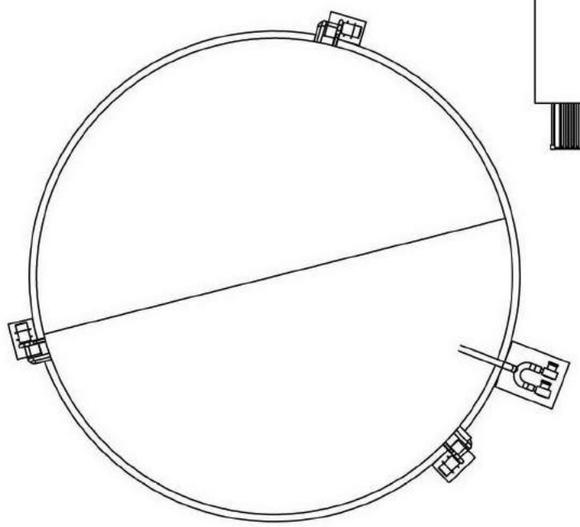
PRIMARY DIGESTER TANK

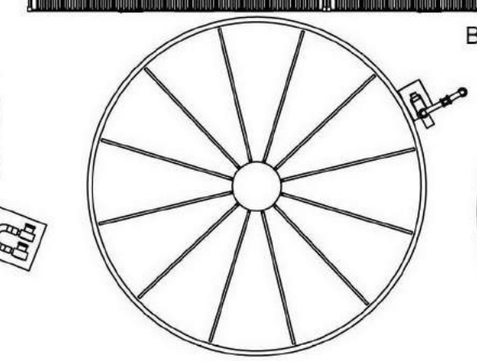


GAS UPGRADE



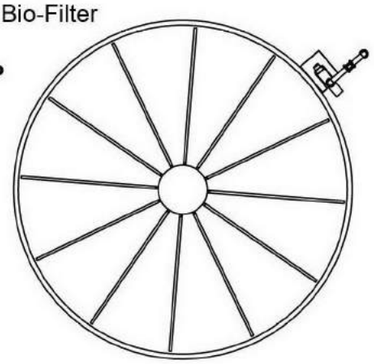
BIOMETHANE GAS STORAGE





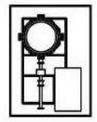
Bio-Filter

Digester Outlet Tank



Digester Feeding Tank

500kW CHP



Flare

REV	DRWN	CHKD	APPD	DESCRIPTION	DATE
D					
C					
B					
A	DZ	DZ	JO		2018/2/8

Biogass Renewables
Level 1, 10 Ord Street, West Perth,
Western Australia 6005
Office: +61 (0)8 9489 2598
www.biogass.com.au

TITLE

WOOD MULCHING INDUSTRIES

SWANBANK, QUEENSLAND

CIVILS LAYOUT

SCALE 1:250 | A3 | DRG No. J115-103

SWANBANK BIOGAS

LOT 405 & 402 on SP283238

DRAWING LIST

PRELIMINARY

SWANBANK BIOGAS
LOT 405 & 402 on SP283238

Telephone +61 7 3840 9999
bne@thomsonadsett.com
128 Robertson Street
Fortitude Valley
Qld 4006 Australia
thomsonadsett.com

thomson adsett

TA # 21.0064.17

COVER SHEET

A-SK-00

2021-04-14

rev. 2

PRELIMINARY

0 10 20 30 50 100 m

Amended in red by Ipswich City Council (ICC) on 25 February 2022

SWANBANK BIOGAS

LOT 405 & 402 on SP283238

Telephone +61 7 3840 9999
bne@thomsonadsett.com
128 Robertson Street
Fortitude Valley
Qld 4006 Australia
thomsonadsett.com

thomson adsett

SITE PLAN

1 : 1000 @ A1

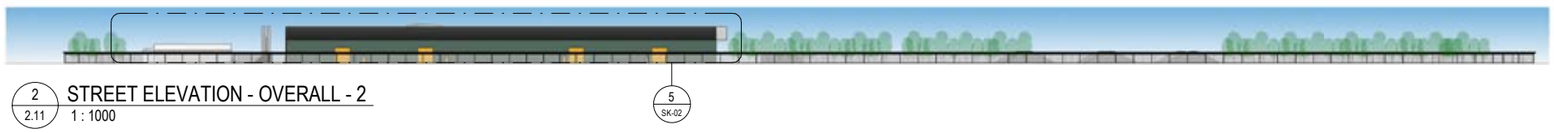
2021-04-14

TA # 21.0064.17

A-SK-01

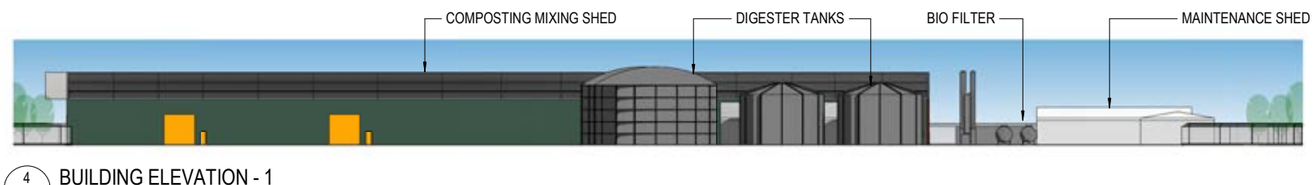
rev. 2

1 / 2.11 STREET ELEVATION - OVERALL - 1
1 : 1000



2 / 2.11 STREET ELEVATION - OVERALL - 2
1 : 1000

3 / 2.11 STREET ELEVATION - OVERALL - 3
1 : 1000



4 / SK-02 BUILDING ELEVATION - 1
1 : 500

5 / SK-02 BUILDING ELEVATION - 2
1 : 500

6 / SK-02 BUILDING ELEVATION - 3
1 : 500

PRELIMINARY

SWANBANK BIOGAS
LOT 405 & 402 on SP283238

Telephone +61 7 3840 9999
bne@thomsonadsett.com
128 Robertson Street
Fortitude Valley
Qld 4006 Australia
thomsonadsett.com

thomson adsett

STREET ELEVATIONS

As indicated @ A1 | 2021-04-14

TA # 21.0064.17 | **A-SK-02** | **rev. 2**

3D AERIAL VIEW - 1

3D AERIAL VIEW - 2

3D AERIAL VIEW - 3

3D AERIAL VIEW - 4

KEY PLAN - AERIAL VIEWS

PRELIMINARY

SWANBANK BIOGAS

LOT 405 & 402 on SP283238

Telephone +61 7 3840 9999
bne@thomsonadsett.com
128 Robertson Street
Fortitude Valley
Qld 4006 Australia
thomsonadsett.com

thomson adsett

3D - AERIAL SITE VIEWS

2021-04-14

TA # 21.0064.17 **A-SK-03** **rev. 2**

3D PERSPECTIVE VIEW - 1

3D PERSPECTIVE VIEW - 2

3D PERSPECTIVE VIEW - 3

3D PERSPECTIVE VIEW - 4

KEY PLAN - PERSPECTIVE VIEWS

PRELIMINARY

SWANBANK BIOGAS

LOT 405 & 402 on SP283238

Telephone +61 7 3840 9999
bne@thomsonadsett.com
128 Robertson Street
Fortitude Valley
Qld 4006 Australia
thomsonadsett.com

thomson adsett

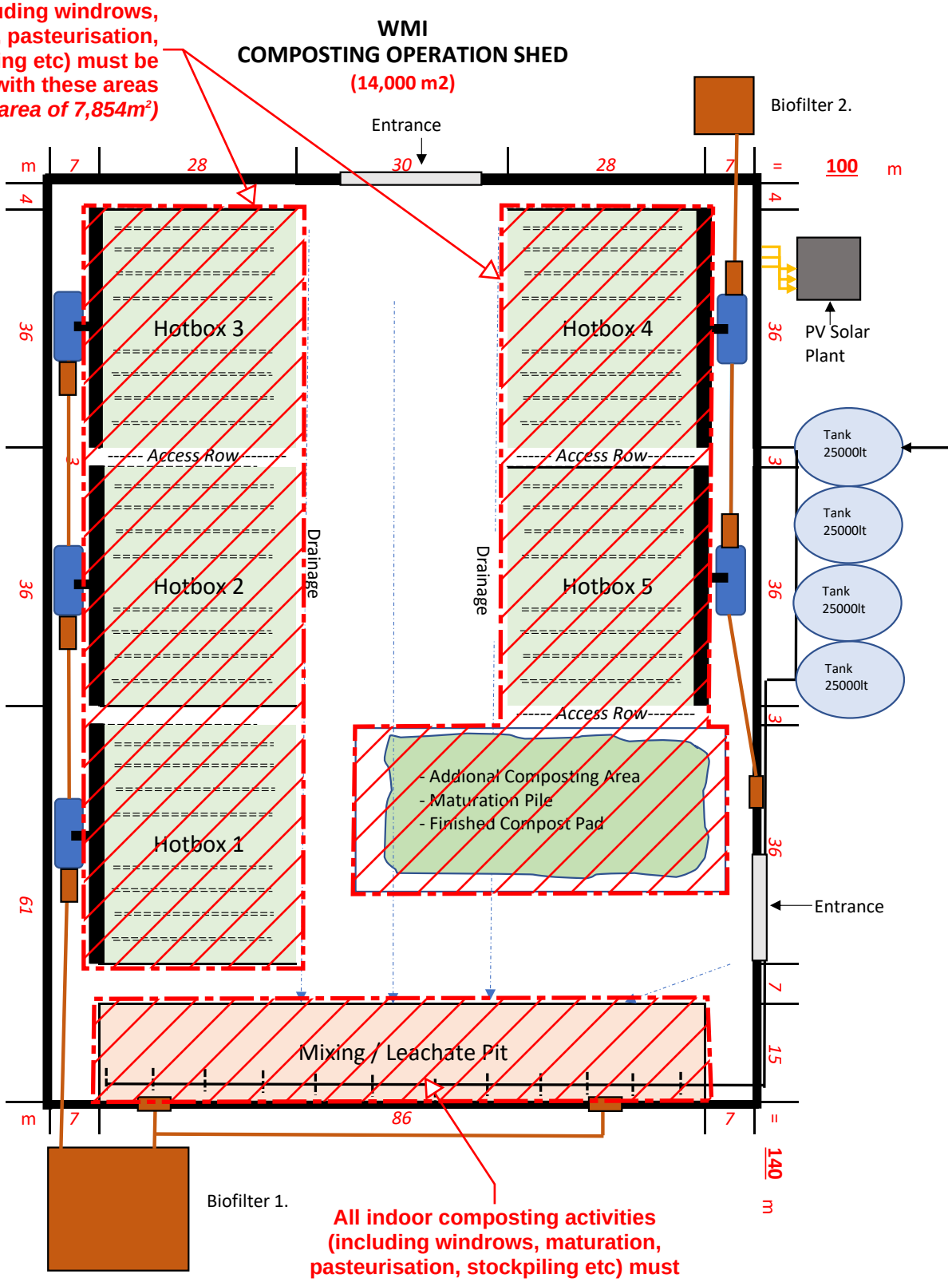
TA # 21.0064.17

3D - PERSPECTIVE VIEWS

2021-04-14

A-SK-04 **rev. 2**

All indoor composting activities (including windrows, maturation, pasteurisation, stockpiling etc) must be contained with these areas *(with a total area of 7,854m²)*



All indoor composting activities (including windrows, maturation, pasteurisation, stockpiling etc) must be contained with these areas *(with a total area of 7,854m²)*

Dwg No. 718803-004-A
Date: 06/09/21

Submitted by Ethos Urban

Amended in red by Ipswich City Council 26 May 2022

STAGE 1 (composting facility) / PHASE 1 (transition phase):

Objective: A phased approach is proposed in relation to Stage 1 to allow for WMI to maintain operations and for staff to continue working whilst transitioning to the enclosed composting environment.

Outline of staging strategy Phase 1:

- Use of the existing site access including wheel wash as per the approved Wheel-wash location plan (Ref: 718803-001) and Extent of sealed road plan (Ref: 718803-002) relating to approval 4335/2011/MAMC/D. This includes the security upon enty and established signage.
- Realign the unsealed access driveway through the site to provide temporary access to Stage 1 which is clear of the area in which the new road will be constructed and clear of the Concrete Batching Plant (DA Ref: 7920/2015/MCU) and Landscape Depot / Garden Centre (DA Ref: 7905/2015/MCU) lots. Approval is to be obtained from Council to modify 4335/2011/MAMC/D to realign the internal access driveway as per the attached draft Proposed tempoary internal driveway re-alignment plan No. 718803-003 dated 02/9/21. It is proposed that construction vehicles temporarily use the Swanbank Road/Cumner Road access to minimise conflicts with WMI's ongoing operations consistent with 4335/2011/MAMC/D condition 20(e).
- Obtain approval and relocate the site compound including demountable buildings, amenities, storage and carparking to the temporary area nominated within the approved use area for Stage 2 of 4335/2011/MAMC/D. This will allow for the existing use to remain operational while the composting shed is being constructed and the use converts to an enclosed facility. Refer to the attached Draft Temporary Site Compound Plan (Ref A-1.1/P1, dated 31/08/21).
- Temporarily relocate existing outdoor composting use areas within the extent of the approved use area boundary for Stage 2 (4335/2011/MAMC/D) to make way for the shed to be constructed and to allow for operations to continue.
- Obtain Operational Works approval and undertake bulk earthworks as per the Bulk Earthworks Layout Plan (Ref: 17BNE-0232 SKC001 Ref 5, prepared by Premise) including vegetation clearance in readiness for the enclosed composting shed to be constructed and for the stormwater basin to be established.
- Obtain Buiding Approval for the establishment of the composting shed in accordance with Proposed Site Plan A-1.1/P4 dated 06/09/21 and Dwg. 718803-004A dated 06/09/21
- Obtain Operational Works approval and construct the stormwater basins in accordance with the Flood Management Strategy Masterplan, Rev O, dated 21/4/21, Ref: M7290_001-REP-003-0 prepared by Engeny and finalise construction of the new composting shed and stormwater basin
- Decommission leachate pond and replace with in-shed drainage
- Ensure connection to necessary services and infrastructre is maintained in accordance with the existing approval 4335/2011/MAMC/D.
- Amend the existing Envirionmental Authority (EA) to remove Lot 400 and Lot 403 on SP 283238

Relevant plans:

- Stage 1/Phase 1 Staging Srategy Plan (Ref: 718803-Stg, Rev A, Sheet 2 of 5, dated 06/09/21)
- Proposed Site Plan A-1.1/P4 dated 06/09/21
- Composting Shed Operation – Floor Plan Dwg. No. 718803-004A dated 06/09/21 and architectural plans prepared by Thomson Adsett Dwg Nos A-SK-01 to SK04 Rev 2, dated 14/04/21
- Draft Temporary Site Compound Plan (Ref A-1.1/P1, dated 31/08/21) and Propsed temporary internal driveway re-alignment plan Dwg No. 718803-003, dated 02/09/21.
- Approved Wheel-wash location plan (ref: 718803-001 amended in red by Ipswich City Council on 25 Nov 2020 (DA Ref: 4335/2011/MAMC/D)
- Approved Extent of sealed road plan (ref: 718803-002) amended in red by Ipswich City Council on 25 Nov. 2020 (DA Ref: 4335/2011/MAMC/D)
- Bulk Earthworks Layout Plan Dwg. 17BNE-0232 SKC001, Rev 5 prepared by Premise

Indicative timing:

- Works to commence immediately upon approval and are expected to be completed within approximately 12 months subject to obtaining the required related approvals from Council and sourcing construction materials and labour.
- Works relating to Stage 1 / Phase 1 will end on issuing of the Certiffcate of Classification for the new shed.

	1 year				2 years				3 years			
Stage 1: Phase 1	←	—	—	—	⇢							
Stage 1: Phase 2					←	—	—	⇢				
Stage 2					←	—	⇢	⇢	⇢	⇢		

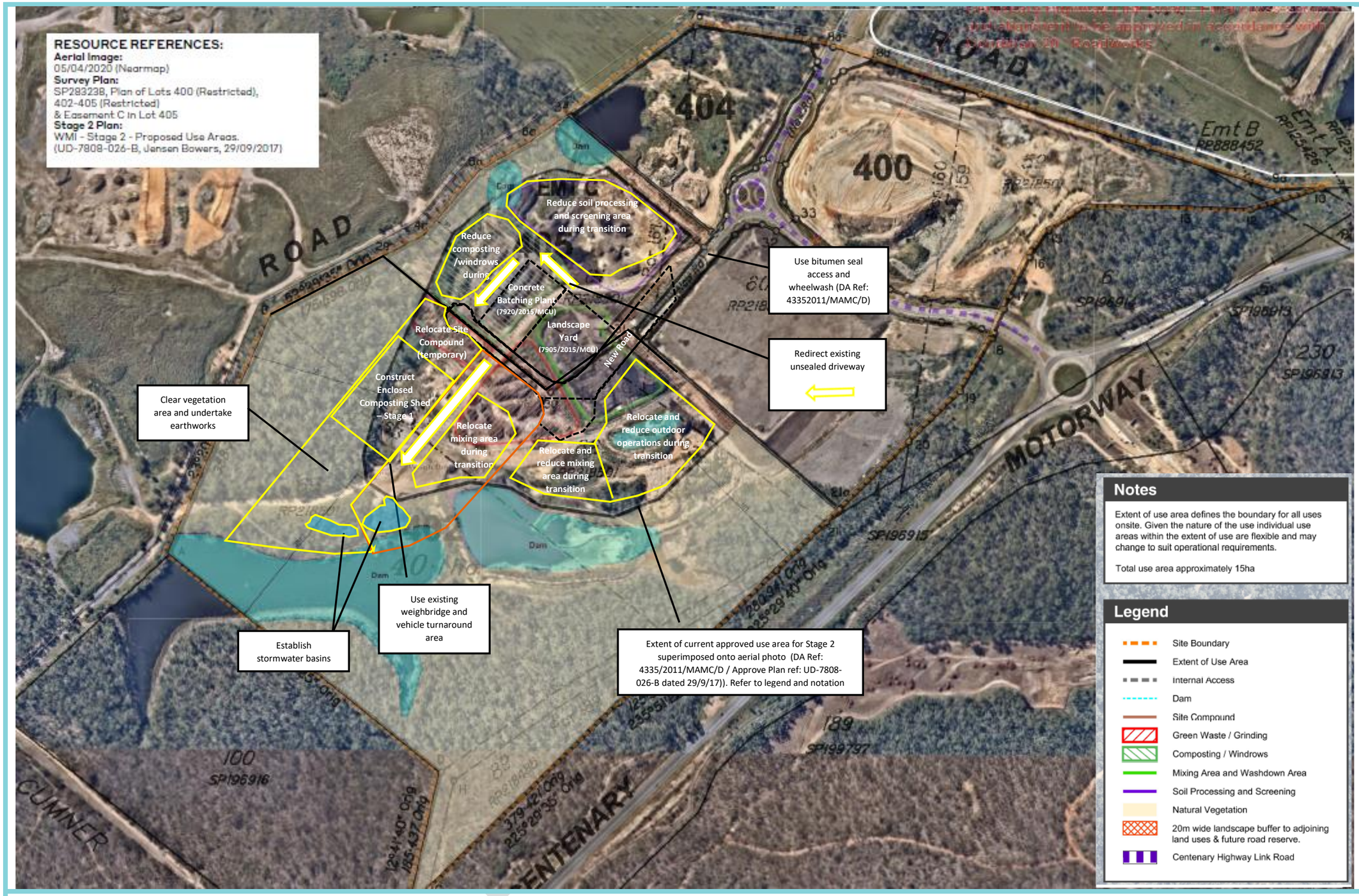
* Solid line indicates approximate timeframe with dashed line indicating potential delays resulting from any unforeseen circumstances.

PROPOSED STAGING STRATEGY

Stage 1 / Phase 1

Ref:	718803-Stg, Rev A
Date:	06/09/2021
Sheet:	1 of 5

ETHOS URBAN



PROPOSED STAGING STRATEGY

Stage 1 / Phase 1

Ref:	718803-Stg, Rev A
Date:	06/09/2021
Sheet:	2 of 5

ETHOS URBAN

STAGE 1 (composting facility) / PHASE 2 (completion phase):

Objective: A phased approach is proposed in relation to Stage 1 to allow for WMI to maintain operations and for staff to continue working whilst transitioning to the enclosed composting environment.

Outline of staging strategy Phase 2:

- Relocate all outdoor composting activities into enclosed shed and make good.
- Establish outdoor raw green waste storage area and finished product pre-screening and stockpile areas
- Obtain operational works approvals in relation to the establishment of the new road (including entering into an IA in relation to the trunk road if applicable)
- Construct the sealed access driveway within the site and relocate the weigh bridge to the new location nominated on Proposed Site Plan A-1.1/P4 dated 06/09/21
- Construct the new road and upon gazettal decommission the temporary internal access arrangement established within Stage 1
- Establish the new office and carpark on the site which are to be used for Stages 1 and 2.
- Decommission the temporary Site Compound establsihed in Phase 1 and establish the maintenance shed and shredded green waste storage area
- Undertake landscaping in accordance with the approved Landscape Concept Plan Dwg No. 40-928-SD002D.
- Connect necessary services and infrastructure in accordance with the External Services Plan and Internal Services Plan prepared by Premise, Dwg. 17BNE-0232 SKC002. Rev 4 and SKC003, Rev 4.
- Carry out the subdivision in accordance with Proposed Reconfiguration Plan Dwg A-1.1/P1, dated 18.06.21 to dedicate new road and create separate Title and reciprocal rights to common areas for Stages 1 and 2
- Cancel the existing approval 4335/2011/MAMC/D upon endorsement and registration of the subdivision plan.
- Amend the EA to remove Lot 404 on SP 313797 and Lot 405 on SP 283238. The EA will relate only to Lot 402 on SP 283238 at the completion of Stage 1/Phase 2.

Relevant plans:

- Stage 1/Phase 2 Staging Srategy Plan (Ref: 718803-Stg, Rev A, Sheet 4 of 5, dated 06/09/21)
- Proposed Site Plan A-1.1/P4 dated 06/09/21
- Proposed Reconfiguration Plan Dwg A-1.1/P1, dated 18.06.21
- External Services Plan and Internal Services Plan prepared by Premise, Dwg. 17BNE-0232 SKC002. Rev 4 and SKC003, Rev 4
- Landscape Concept Plan Dwg No. 40-928-SD002D

Indicative timing:

- Related Operational Works approvals can be applied for prior to the completion of Phase 1 works to minimise delays
- Stage 1 / Phase 2 works to commence upon the issuing of the Certificate of Classification for the new shed constructed in Phase 1 and once the required Operational Works approvals have been obtained.
- Relocation of all outdoor compost processing activities will occur within 1-2 months of the Certificate of Classification being issued for the new shed
- Stage 1/ Phase 2 is expected to be completed approximately 6 months after Phase 1 is completed subject to sourcing construction materials and labour

	1 year				2 years				3 years			
Stage 1: Phase 1	←	—	—	—	—	→						
Stage 1: Phase 2				—	—	—	—	→				
Stage 2					←	—	—	—	—	—	→	

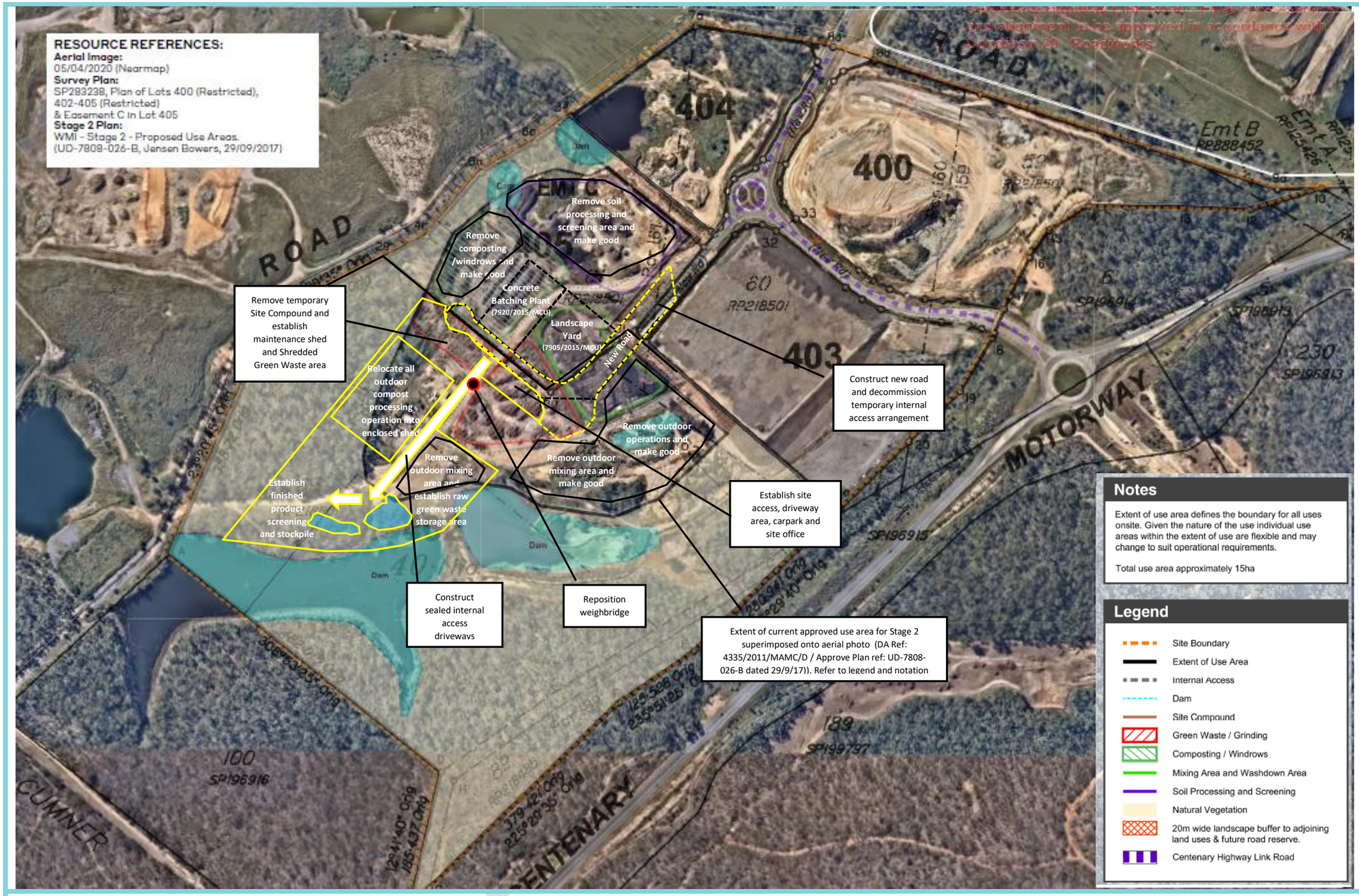
* Solid line indicates approximate timeframe with dashed line indicating potential delays resulting from any unforeseen circumstances.

PROPOSED STAGING STRATEGY

Stage 1 / Phase 2

Ref: 718803-Stg, Rev A
Date: 06/09/2021
Sheet: 3 of 5

ETHOS URBAN



PROPOSED STAGING STRATEGY

Stage 1 / Phase 2

Ref:	718803-Stg, Rev A
Date:	06/09/2021
Sheet:	4 of 5

ETHOS URBAN

STAGE 2 (biogas facility):

Outline of staging strategy:

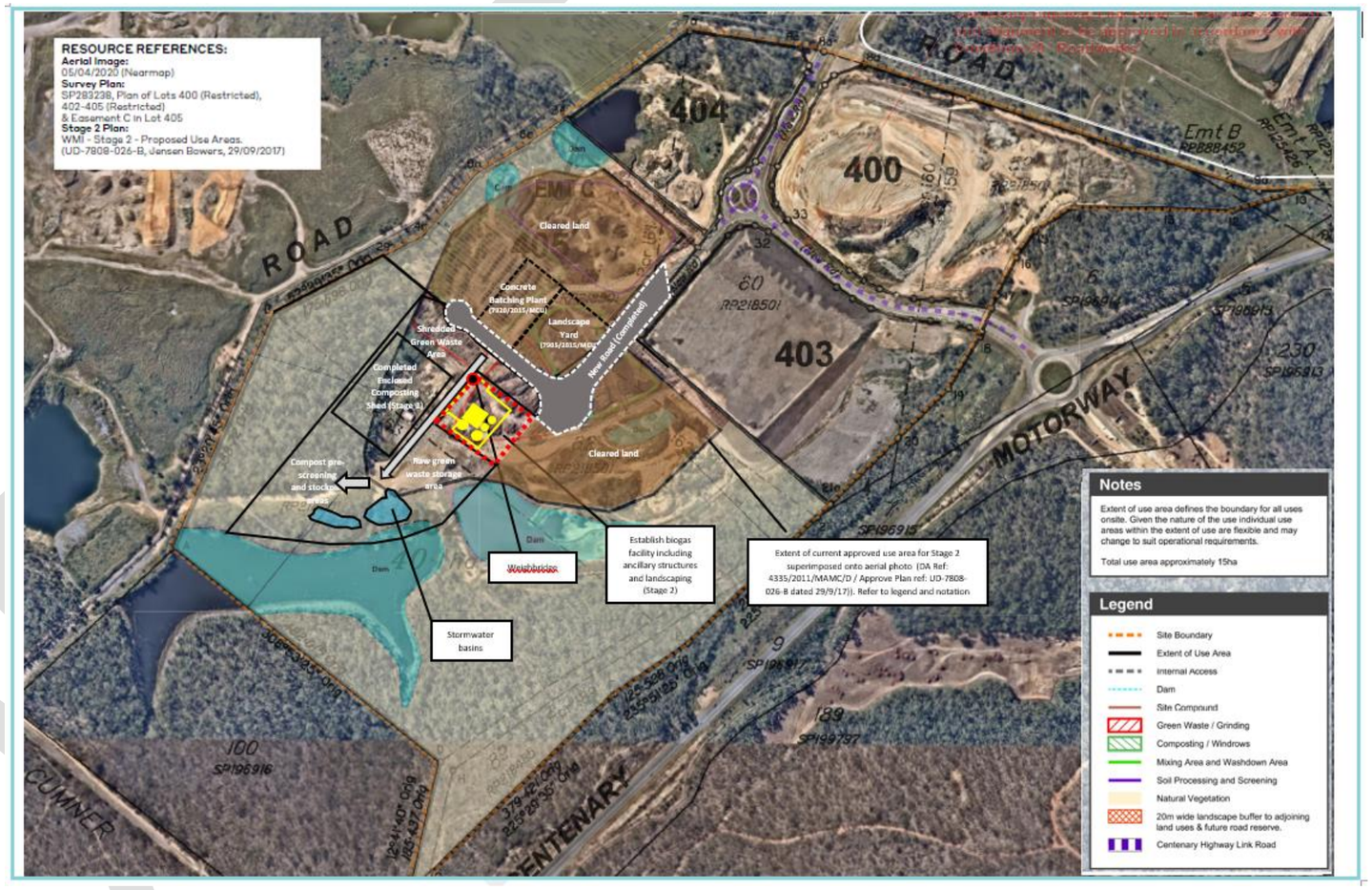
- Obtain Building Approval for the Biogas facility buildings and structures
- Construct the biogas facility including ancillary structures in accordance with architectural plans prepared by Thomson Adsett Dwg Nos A-SK-01 to SK04 Rev 2, dated 14/04/21
- Complete landscaping in accordance with the approved Landscape Concept Plan Dwg No. 40-928-SD002D.
- Connect necessary services and infrastructure in accordance with the External Services Plan and Internal Services Plan prepared by Premise, Dwg. 17BNE-0232 SKC002. Rev 4 and SKC003, Rev 4.

Relevant plans:

- Stage 2 Staging Strategy Plan (refer below)
- Proposed Site Plan A-1.1/P4 dated 06.09.21
- External Services Plan and Internal Services Plan prepared by Premise, Dwg. 17BNE-0232 SKC002. Rev 4 and SKC003, Rev 4
- Landscape Concept Plan Dwg No. 40-928-SD002D
- Architectural plans prepared by Thomson Adsett Dwg Nos A-SK-01 to A-SK04 Rev 2, dated 14/04/21

Indicative timing:

- Stage 2 is expected to be completed approximately 6-9 months after Stage 1 / Phase 2 is completed subject to sourcing construction materials and labour
- To minimise timeframes, works can commence concurrently with Stage 1/Phase 2



	1 year				2 years				3 years			
Stage 1: Phase 1												
Stage 1: Phase 2												
Stage 2												

* Solid line indicates approximate timeframe with dashed line indicating potential delays resulting from any unforeseen circumstances.

PROPOSED STAGING STRATEGY

Stage 2

Ref: 718803-Stg, Rev A
Date: 06/09/2021
Sheet: 5 of 5

ETHOS URBAN

Proposed temporary internal driveway re-alignment plan

Dwg No. 718803-003

Date: 02/09/21

7006 Unnamed Road, Swanbank

ETHOS URBAN

Ethos Urban Pty. Ltd.
ABN 13 615 087 931 ACN 615 087 931
www.ethosurban.com
L4/215 Adelaide Street Brisbane
QLD 4000 t +61 2 3852 1822

DRAFT

NOTES

The design and layout of the car park and associated facilities are indicative only. Car park, hardstand, surface treatments, drainage and lighting subject to future detailed design in accordance to Australian Standards. Car parking will be clearly signed. The design will ensure compliance with traffic sight lines, safety and security.

LANDSCAPE

The landscape area will be designed to provide a suitable and appropriate environment for the site offices and facilities. The landscape is intented to be low maintenance with as much existing vegetation retained and incorporated into the layout. Planting will be layered to provide visual appeal and divide the car park and work area. Landscape will take into consideration CPTED strategies into the design. Shade trees will be provided to the car park to mitigate the climate aspects of the site. Native plant species that are low maintenance and drought resistant will be included in the design. Landscape area will be watered via water tanks.

Suggested Plant Species

Trees

Botanical Name	Common name
Cupaniopsis Anacardioides	Tuckeroo
Corymbia Maculata	Spotted Gum
Lophostemon Confertus	Brush Box
Tristaniopsis laurina	Water Gum

Flower Plant

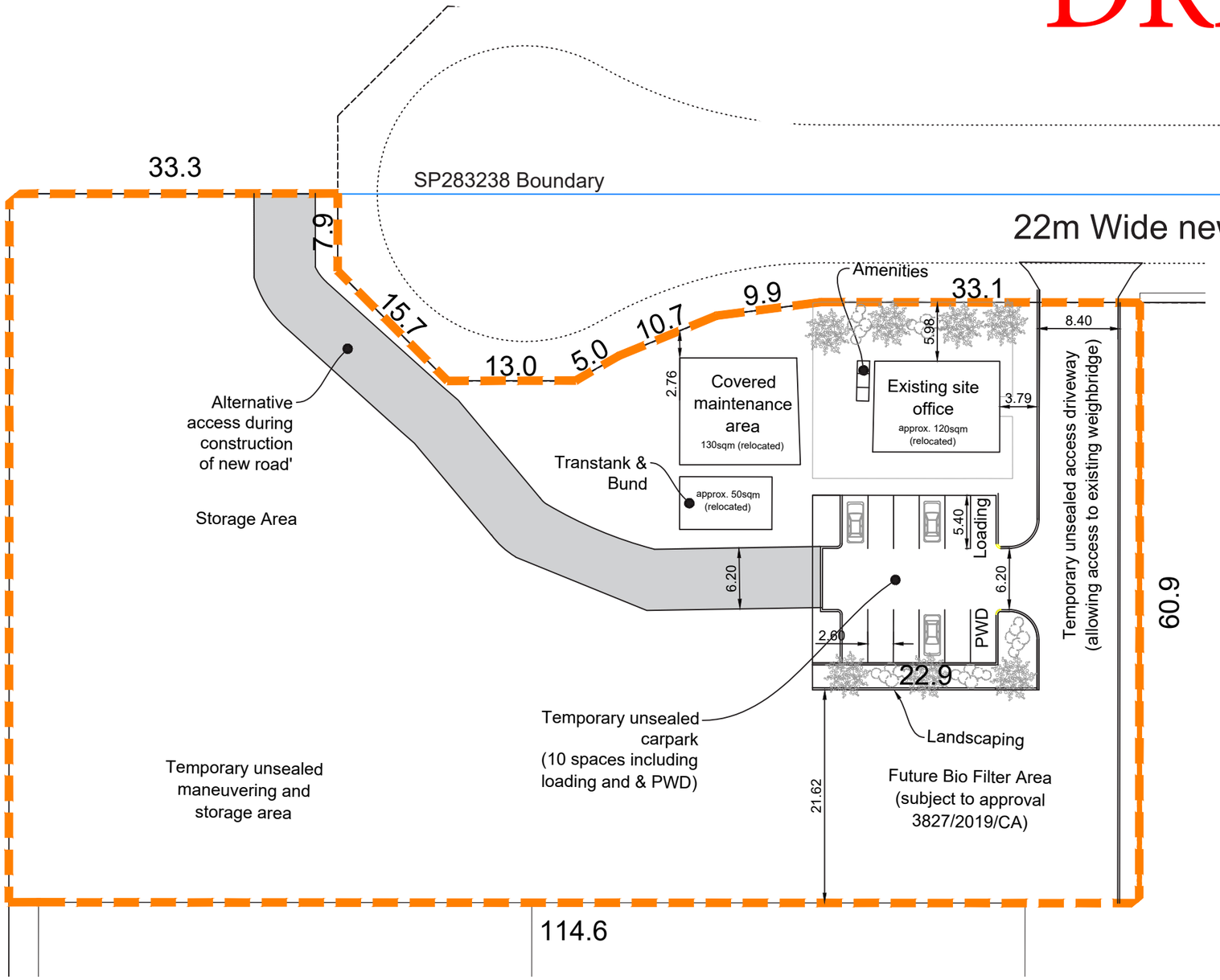
Botanical Name	Common Name
Acacia Fimbriata	Brisbane Black Wattle
Callistemon salignus	Willow bottlebrush
Callistemon Viminalis	Weeping Bottlebrush
Cerastium tomentosum	Snow in Summer
Syzygium Paniculatum	Dwarf Magenta Cherry

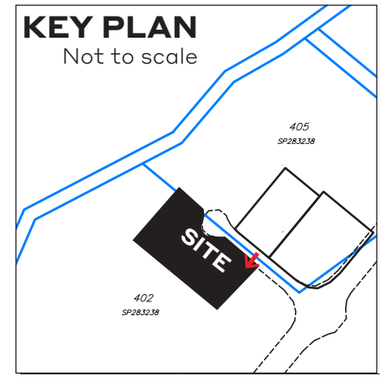
Plants

Botanical Name	Common Name
Dianella tasmanica	Flax Lily
Hardenbergia	False sarsaparilla
Lomandra longifolia	Mat Rush
Myoporum parvifolium	Creeping Boobialla

LEGEND

- Proposed site boundary
- Existing Boundaries (SP283238)





NOTES

Subject Lots:	Lot 402 on SP283238
Local Authority:	Ipswich City Council

Design subject to Council approvals and detailed design. Areas and dimensions are approximate only and are subject to final survey.

DEVELOPMENT SUMMARY

Description	Value
APPROX. USE AREA	7,145m²
TEMPORARY UNSEALED CARPARK	10 spaces INCLUDING LOADING AND & PWD
TOTAL LANDSCAPE AREA APPROX.	114m²
OFFICE AREA APPROX.	120m²
COVERED MAINTENANCE AREA APPROX.	130m²
TRANSTANK & BUND	50m²

DISCLAIMER

ISSUE	DATE	REVISION	REVISION BY	APPROVED BY
P1	31.08.21	Issued for Approval	MS	KG

LEGEND / NOTES

-
-

PRELIMINARY

NOT FOR CONSTRUCTION

PROJECT

7006 Unnamed Road, Swanbank

1:500 @ A3

0 2.5 5 10 25m

DRAWING

Proposed Temporary Site Compound & Landscape Plan **A-1.1 /P1**

JOB NO.	DWG NO.	ISSUE	DATE	DRAWN BY
7190243	A-1.1	P1	31.08.21	MS

ETHOS URBAN

Ethos Urban Pty. Ltd.
ABN 13 615 087 931 ACN 615 087 931
www.ethosurban.com
L4/215 Adelaide Street Brisbane
QLD 4000 t +61 2 3852 1822

SUPPORTING
SPECIFICATIONS / DRAWINGS / DOCUMENTS

Biogas
Development

Project Address:
Centenary Highway, Swanbank, Qld, 4306
Client: Wood Mulching Industries (WMI)

LANDSCAPE AIM

To provide a functional and low maintenance landscape solution that integrates the development proposal within the broader landscape context and contributes positively to the visual amenity of surrounding transport corridors.

LANDSCAPE OBJECTIVES

1. Integrate the landscape with the surrounding context through a locally native planting selection.

2. Establish hierarchy and structure to the landscape treatment of the site.

4. Provide shade to carpark areas through the placement of shade trees in accordance with local authority requirements.

4. Incorporate appropriate landscape buffers to the site road frontages and neighbouring property boundaries to minimise the visual dominance of the proposed structures.

5. Include appropriate vegetation to stormwater treatment mechanisms in accordance with W.S.U.D. (Water Sensitive Urban Design) requirements.

6. Consider and apply C.P.T.E.D. (Crime Prevention Through Environmental Design) requirements throughout the development site.

7. Strategically position planting to maintain safe sightlines throughout vehicular and pedestrian areas.

8. Provide streetscape improvements where suitable to enhance the site amenity.

LANDSCAPE CHARACTER

The landscape character of the proposed waste management facility will integrate the site into the broader area context and reduce the visual impact of the development on the immediate area, particularly the nearby Centenary Highway.

A functional, hardy and drought tolerant landscape solution is envisioned that minimises maintenance, making use of plant species that are native to the local area.

Pedestrian zones and car parking areas will be shaded with medium canopy shade trees and low understorey planting of groundcovers.

Suitable existing trees and vegetation to buffer zones will be retained where possible to assist with integrating the new works into the site context. Additional planting of native trees, shrubs and groundcovers will form a dense layered screening effect to the site perimeter.

Street trees and turf to the proposed new road verge will improve the amenity of the site entry and frontage.

Australian Institute of Landscape Architects
Registered Landscape Architects

LOCALITY MAP

Source: http://qldglobe.qld.gov.au Downloaded 22nd October 2018

PRELIMINARY PLANT SCHEDULE

Botanical Name and Common Name
Trees
ALLOCASUARINA littoralis - Black She-oak
ALPHITONIA excelsa - Red Ash
ANGOPHORA floribunda - Rough-barked Apple
ANGOPHORA leiocarpa - Smooth-barked Apple
CASTANOSPERMUM australe - Black Bean
CASUARINA cunninghamiana - River She-oak
CORYMBIA citriodora - Lemon-scented Gum
GLOCHIDION ferdinandi - Cheese Tree
LOPHOSTEMON confertus - Brush Box
LOPHOSTEMON suaveolens - Swamp Box
MELALEUCA bracteata - Black Tea-tree
WATERHOUSIA floribunda - Weeping Lilly Pilly
Shrubs
ACACIA fimbriata - Fringed Wattle
AUSTROMYRTUS dulcis - Midgen Berry
BANKSIA spinulosa - Hairpin Banksia
BORONIA rosmarinifolia - Forest Boronia
BURSARIA spinosa - Christmas Bush
CALLISTEMON citrinus 'Mauve Mist'
CALLISTEMON citrinus 'White Anzac'
DODONAEA viscosa - Sticky Hop Bush
EUSTREPHUS latifolius - Wombat Berry
GREVILLEA 'Honey Gem'
HAKEA florulenta - Sweet-scented Hakea
JACKSONIA scoparia - Dogwood
LEPTOSPERMUM polygalifolium - Tantoon
LEUCOPOGON juniperinus - Prickly Beard-heath
MELALEUCA thymifolia - Thyme Honey-myrtle
MELASTOMA affine - Blue Tongue
OZOTHAMNUS diosmifolius - Sago Flower
PULTENAEA villosa - Hairy Bush Pea

Botanical Name and Common Name
Groundcovers
BABINGTONIA virgata 'Dwarf' - Dwark Heath Myrtle
GARDENIA augusta 'Radicans'
GOODENIA rotundifolia - Star Goodenia
GREVILLEA 'Poorinda Royal Mantle'
HIBBERTIA linearis - Guinea Flower
HIBBERTIA scandens - Snake Vine
Grasses
CAREX appressa - Tall Sedge
CYMBOPOGON refractus - Barbed Wire Grass
DIANELLA caerulea - Blue Flax Lily
FICINIA nodosa - Knobby Club Rush
LOMANDRA fluviatilis 'Shara'
LOMANDRA longifolia - Mat Rush

TREES


CORYMBIA citriodora
Lemon-scented Gum


GLOCHIDION ferdinandi
Cheese Tree


LOPHOSTEMON confertus
Brush Box


LOPHOSTEMON suaveolens
Swamp Box


MELALEUCA bracteata
Black Tea-tree


WATERHOUSIA floribunda
Weeping Lilly Pilly


ALLOCASUARINA littoralis
Black She-oak


ALPHITONIA excelsa
Red Ash


ANGOPHORA floribunda
Rough-barked Apple


ANGOPHORA leiocarpa
Smooth-barked Apple


CASTANOSPERMUM australe
Black Bean


CASUARINA cunninghamiana
River She-oak

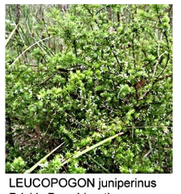
SHRUBS, GROUNDCOVERS & GRASSES


GREVILLEA
'Poorinda Royal Mantle'


HAKEA florulenta
Sweet-scented Hakea


HIBBERTIA linearis
Guinea Flower


LEPTOSPERMUM
polygalifolium - Tantoon


LEUCOPOGON juniperinus
Prickly Beard-heath


LOMANDRA longifolia
Mat Rush


BURSARIA spinosa
Christmas Bush


CALLISTEMON citrinus
Red Bottlebrush


DIANELLA caerulea
Blue Flax Lily


EUSTREPHUS latifolius
Wombat Berry


GOODENIA rotundifolia
Star Goodenia


GREVILLEA 'Honey Gem'


ACACIA fimbriata
Fringed Wattle


AUSTROMYRTUS dulcis
Midgen Berry


BABINGTONIA virgata
'Minature'


BANKSIA oblongifolia
Rusty Banksia


BANKSIA spinulosa
Hairpin Banksia


BORONIA rosmarinifolia
Forest Boronia


MELALEUCA thymifolia
Thyme Honey-myrtle


MYOPORUM ellipticum
Creeping Boobialla


OZOTHAMNUS diosmifolius
Sago Flower


PATERSONIA sericea
Native Iris


POA labillardieri
Large Tussock Grass


PULTENAEA villosa
Hairy Bush Pea

FOR APPROVAL

citicene

LANDSCAPE CHARACTER
WOOD MULCHING INDUSTRIES
Centenary Highway, Swanbank, QLD, 4306

WMI Wood Mulching Industries Pty Ltd

Issue	Reason	Date
A	Preliminary	14.02.2019
B	For Council Approval	25.02.2019
C	RFI Response	18.05.2021

citicene
your project | our priority
ph: 07 3161 6420
ph: 07 4698 7006
e: mail@citicene.com.au
w: www.citicene.com.au

Drawn: JP
Approved: DR

Drawing No:
40-928-SD001 C
SCALE: NTS @ A1

LEGEND

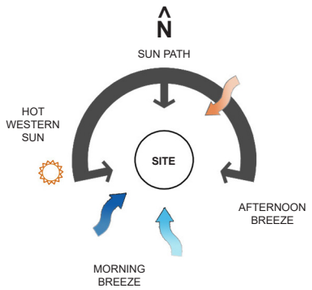
- EXISTING VEGETATION ON SITE
- TIERED LANDSCAPE BUFFER
- NEW ROAD AND STREET TREES
- FEATURE FLOWERING TREE
- CARPARK CANOPY SHADE TREES
- EXISTING VEGETATION IN FUTURE AREA

NOTES

SITE DETAILS:
LOT 402, 403 & 405 ON SP283238

EXISTING VEGETATION:
OPEN FOREST OR WOODLAND INCLUDING:
ANGOPHORA Spp.
CORYMBIA citriodora subsp. variegata
CORYMBIA tessellaris
EUCALYPTUS crebra
EUCALYPTUS fibrosa
EUCALYPTUS tereticornis
EUCALYPTUS melanophloia
EUCALYPTUS moluccana
EUCALYPTUS acmenoides
EUCALYPTUS siderophloia
LOPHOSTEMON confertus (whipstick form)

CLIMATIC CONDITIONS



Australian Institute of Landscape Architects
Registered Landscape Architects

10 METRE WIDE NATIVE VEGETATED LANDSCAPE BUFFER CONSISTING OF TREES, SHRUBS AND GROUNDCOVERS OF VARYING FORM TO CREATE A DENSE SCREEN ALONG THE PROPERTY BOUNDARY

EXISTING VEGETATION IN POSSIBLE FUTURE EXPANSION AREA TO REMAIN

DASHED LINE INDICATES STAGING BOUNDARY

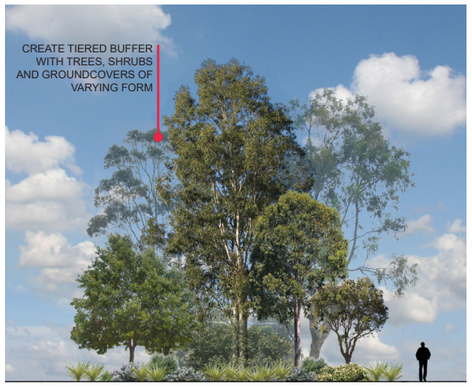
20 METRE WIDE MINIMUM NATIVE VEGETATED LANDSCAPE BUFFER CONSISTING OF TREES, SHRUBS AND GROUNDCOVERS OF VARYING FORM TO CREATE A DENSE SCREEN ALONG THE PROPERTY BOUNDARY

EXISTING TREES AND UNDERSTOREY TO BE RETAINED WHERE POSSIBLE AND LEVEL CHANGES PERMIT

STORMWATER BASINS - REFER TO ENGINEER'S DRAWINGS

PROPOSED TRUNK INDUSTRIAL ROAD DEDICATION OF 35 METRES WIDE

STREETSCAPE PLANTING TO PROPOSED ROAD AS PER COUNCIL REQUIREMENTS AND SUBJECT TO AN INFRASTRUCTURE AGREEMENT



SECTIONAL ELEVATION
SCALE 1:100 - TYPICAL BUFFER

CARPARK SHADE TREES AND LOW GROUNDCOVERS TO PROVIDE ADEQUATE SIGHT LINES FOR VEHICLES AND PEDESTRIANS

LARGE FEATURE FLOWERING TREES TO HIGHLIGHT ENTRY

FOR APPROVAL

citicene

LANDSCAPE CONCEPT PLAN - BIOGAS FACILITY

WOOD MULCHING INDUSTRIES
Centenary Highway, Swanbank, QLD, 4306

WMI Wood Mulching Industries Pty Ltd

Issue	Reason	Date
A	Preliminary	14.02.2019
B	For Council Approval	25.02.2019
C	RFI Response	18.05.2021
D	RFI Response	06.09.2021

citicene
your project | our priority
ph: 07 3161 6420
ph: 07 4698 7006
e: mail@citicene.com.au
w: www.citicene.com.au

Drawn: JP
Approved: DR

Drawing No:
40-928-SD002 D

Scale1:1000 @ A1 SIZE

15 0 10 20 30 40 50m

ETHOS URBAN

Our Reference: 718803
Council Reference: 3827/2019/CA
SARA Reference: 1911-14304 SRA

9 September 2021

Attention: Sandeep Nanjappa
Assessment Manager
Development Planning Branch
Ipswich City Council (ICC)

Email: plandev@ipswich.qld.gov.au
sandeep.nanjappa@ipswich.qld.gov.au

Dear Sandeep,

RE: ICC FURTHER ADVICE RESPONSE & NOTIFICATION OF MINOR CHANGE TO APPLICATION (STAGING) - 7006 & LOT 6 UNNAMED ROAD, SWANBANK

RECONFIGURING A LOT & MATERIAL CHANGE OF USE FOR STAGED WASTE ACTIVITY (COMPOST MANUFACTURING ENCLOSED - BIOGAS & COMPOSTING FACILITY AND ASSOCIATED MAJOR UTILITY (ELECTRICITY/GAS GENERATION), ERA 53 (ORGANIC MATERIAL PROCESSING CONSISTING OF OPERATING A FACILITY FOR PROCESSING BY WAY OF COMPOSTING OR ANAEROBIC DIGESTION, ERA 33 (CRUSHING, GRINDING, MILLING OR SCREENING & ERA 54 (MECHANICAL WASTE REPROCESSING)

COUNCIL REF: 3827/2019/CA
SARA REF: 1911-14304 SRA

1.0 Introduction

On behalf of the Applicant, Wood Mulching Industries Pty Ltd (WMI), we write in response to Council's Further Advice letter dated 2 August 2021, which relates to development application (DA) 3827/2019/CA over land at 7006 Unnamed Road and Lot 6 Unnamed Road, Swanbank for:

- Reconfiguring a Lot – One (1) lot into two (2) lots, one (1) balance lot, new road and access, servicing and shared facilities easements;
- Material change of use (MCU) for Waste Activity (Compost manufacturing enclosed – Biogas Facility) and associated Major Utility (Electricity/ Gas Generation) over proposed Lot 2;
- MCU for Waste Activity (Compost manufacturing enclosed – Composting Facility) over proposed Lot 1;
- MCU for Environmentally Relevant Activity (ERA) 53 (Organic material processing consisting of operating a facility for processing by way of composting or anaerobic digestion, more than 200t of organic material in a year);

ETHOS URBAN

- MCU for ERA 33 (Crushing, grinding, milling or screening more than 5,000t of material in a year); and
- MCU for ERA 54 (Mechanical waste reprocessing consisting of operating a facility for receiving and mechanically reprocessing, in a year, more than 5,000t of inert, non-putrescible waste or green waste only).

The following information is provided in support of this response:

- **Appendix A – Updated Site Plan A-1.1/P4 dated 06/09/21**
- **Appendix B – Proposed Staging Strategy 718803-Stg, Rev A, dated 06/09/21**
- **Appendix C – Composting Operation Shed Floor Plan 718803-004A, dated 06/09/21**
- **Appendix D – Draft Site Compound Plan A-1.1/P1 dated 31/08/21**
- **Appendix E – Proposed Temporary Internal Driveway Re-alignment Plan 718803-003, dated 02/09/21**
- **Appendix F– Preliminary Air Quality Impact Assessment v6, dated 09/09/21**
- **Appendix G – Landscape Concept Plan Dwg No. 40-928-SD002 D dated 06/09/21**
- **Appendix H - Engeny Response to DA Further Advice Request (3/9/21)**
- **Appendix I - Stormwater Management Plan (Engeny, 2021), Rev 2, dated 08/09/21**
- **Appendix J - Item 6(c) supporting reports**
- **Appendix K -Receiving Environment Management Plan**
- **Appendix L – WMI Operational Management Plans prepared by WMI, Final Plan, dated 30/8/21.**

2.0 Minor change to staging boundary

Pursuant to section 52(1) of the *Planning Act 2016* (the Act) and section 25 of the *Development Assessment Rules 1.3* (DA Rules), a minor change is proposed to the staging boundary which alters the extent of area for stage 2 to just the biogas facility component. This change is required in response to item 2 of Council's further advice letter which requires that the applicant demonstrate how the existing compost manufacturing facility will be able to lawfully operate independently during the staged transition process. In particular, the revised staging boundary incorporates the site access, carparking, wastewater treatment and site office into stage 1 of the development allowing this stage to be established as a stand-alone stage with reciprocal rights granted to these common facilities in stage 2. A comparison image of the revised staging boundaries is included below.

Previous site plan/staging boundary	Modified site plan/staging boundary
	

ETHOS URBAN

Please refer to **Appendix A – Updated Site Plan A-1.1/P4 dated 06/09/21** and **Appendix B – Proposed Staging Strategy 718803-Stg, Rev A, dated 06/09/21.**

Pursuant to section 25.1 of the *Development Assessment Rules* (DA Rules), the assessment manager is to advise referral agencies about the changed application including the effect of the change on the development assessment process.

In accordance with section 52(3) of the Act, *If the change is a minor change, the change does not affect the development assessment process.* In accordance with section 26.1 of the DA Rules, *for a change that is not a minor change, the development assessment process does not stop if the assessment manager is satisfied the change…(b) is in response to an information request for the application*

The proposed changes constitute a minor change as defined in Schedule 2 of the *Planning Act 2016* as demonstrated below. .

- The proposed changes do not correct a mistake about the name or address of the applicant or owner or the address or other property details of the land.
- A change of applicant is not proposed. The applicant remains Wood Mulching Industries Pty Ltd.
- The change does not merely correct spelling or a grammatical error
- The change to the staging boundary does not involve a new use and does not apply to a new parcel of land.
- There are no changes to the built form in terms of scale, bulk or appearance with the revised staging boundary.
- The proposed change allows for each stage to be established as a stand-alone stage allowing the facility to operate as intended.
- The proposed change to the staging boundary does not remove an incentive of offset component that would have balanced a negative impact of the development nor does it impact on infrastructure provisions.
- The realignment of the staging boundary does not require the application to referred to additional referral agencies, does not change the type of approval sought or the change the level of assessment.

3.0 Response to Further Advice

This response uses the same numbering as Council's Further Advice request, and the relevant information request items are shown in italics for ease of reference.

The Applicant's response to Council's request for further advice is as follows.

1. Temporary Local Planning Instrument No. 1 of 2020 (Waste Activity Regulation (TLPI)

Further advice requested:

The applicant's information response cover letter dated 21 May 2021 indicates 'enclosure of all outdoor compost manufacturing operations in accordance with the requirements of Temporary Local Planning Instrument (TLPI) No. 1

of 2020 (Waste Activity Regulation)' as part of the proposed change to the development application, and the amended DA Forms now describe the proposal as a 'Staged Material Change of Use for Major Utility and Waste Activity (Composting Manufacturing Enclosed – biogas and compost facility) in accordance with TLPI No. 1 of 2020'. Contrary to this, the submitted proposal plans clearly illustrate that outdoor composting activities are still proposed on the site, such as the mulch BCC area, storage & screening area etc on proposed Lot 1 and raw green storage areas on proposed Lot 2.

Should you wish to pursue the approval of a Waste Activity (Compost Manufacturing Enclosed) the application is requested to submit amended proposal plans and supporting technical documents clearly demonstrating that all activities (including receiving, grinding, mulching, blending, storing, mixing, processing, disposal, drying or composting of organic material or wastes) are conducted within an enclosed environment so as to control the composting process, including associated emissions and leachates that will be generated by the proposed use on the site.

In addition to the above, it is considered that this issue should be considered in light of item 2 'Transitioning the existing Outdoor Composting Operations' and Item 3 'Site Based Operational Management Plans' below in respect to both the effect operational transition of the uses, and clarify on site operations.

Applicant response:

Part 8 – Definitions of the TLPI defines 'Compost Manufacturing Enclosed' as:

(a) *Storing, processing, disposal, drying or composting of organic material or wastes e.g. animal manures, sludges and domestic waste, for manufacturing soil conditioners or fertilisers, in works processing 200 tonnes or more a year; or*

(b) *Manufacturing of soil conditioners by receiving and blending, storing, processing, drying or composting organic material or organic waste including animal manures, sewage, septic sludges and domestic waste, in works producing more than 200 tonnes per year; and*

(c) *Is conducted in a fully enclosed building which controls the composting process and contains and treats emissions.*

All feedstock is delivered, received, stored, mixed, processed and maturated within a fully enclosed system under negative pressure as per the requirements of the TLPI. Whilst (a) of the above definition refers to the storage of organic matter or wastes for manufacturing of soil conditioners or fertilisers, part (c) of the above definition requires storage of organic waste in a fully enclosed building which controls the composting process and contains and treat emissions. It is understood therefore that the purpose of fully enclosing the organic waste as per the definition is to control the 'composting process' and contain and treat emissions.

It is our understanding that the 'composting process' does not relate to the storage of green waste or finalised product as the 'composting process' has either not commenced (as in the case of raw greenwaste) or has been finalised. The 'composting process' relates to the stage in which decomposition of organic matter occurs under controlled aerobic conditions. This is consistent with the DES and Macquarie Dictionary definitions below:

DES Best Practice Guidelines - *Composting is the controlled biological decomposition of organic material under aerobic and thermophilic conditions.*

Macquarie Dictionary - Composting is defined as the biological degradation process of heterogeneous solid organic materials under controlled moist, self-heating, and aerobic conditions to obtain a stable material that can be used as organic fertilizer (Lobo & Dorta, 2019)

ETHOS URBAN

As outlined in **Appendix K – Receiving Environment Management Plan,** the segregated stable waste streams in tanks is not considered to be composting as there is no active breakdown process commenced at the this stage, nor is product material management once the process is complete and stable considered to be composting and requiring enclosure as per the TLPI.

It is our view that the proposed use is defined as 'Compost Manufacturing Enclosed' given that all organic matter in the 'composting process' is conducted in a fully enclosed building as per the TLPI.

As identified in the attached technical responses (including the stormwater management, air quality and receiving environment management responses), both green waste and finished product have a low odour risk and low contamination risk and do not require the management of leachate or emissions. These products remain outdoors for a short period of time only before they are transferred to the enclosed environment to begin compost processes or are delivered to the market. It is also pointed out that the finished product is consistent with organic composting material stored in open / outdoors environments supplied at landscape depots and garden centres including the recently approved landscape yard located opposite the site (DA ref: 7905/2015/MCU).

The Proposed Site Plan (Dwg. A-1.1/P2 dated 08.04.21) which was previously submitted in response to Council's Information Request identifies a number of outdoor storage areas for raw green waste and finished product. These areas are identified in the table below. It is acknowledged that the labelling of these areas may be unclear in relation to the intent of these areas. Accordingly, we have relabelled these areas to provide more clarity including providing a detailed description of the activities undertaken within each area. Please refer to **Appendix A – Updated Site Plan A-1.1/P4 dated 06/09/21** and the **Table 1** below.

Table 1 – Description of outdoor use areas

Existing label on Dwg A-1.1/P2	Re-labelled area on Dwg A-1.1/P4	Description of area
New Grid Raw Green Storage	Raw Green Waste Area	Storage of raw green waste only which has been received from South-east Queensland local authorities. Green waste is shredded in this area by a mulching grinder. Stockpile height <3.5m.
Mulch BCC Area	Shredded Green Waste Area	This area is used for the storage of shredded green waste only. Storage of shredded green waste is required adjacent to the Stage 1 composting shed to allow for easy transfer of the shredded product into the shed where it can then be used as a bulking agent in the compost processes undertaken within the shed. Stockpile height <3.5m.
Storage and Screening Area	Finished Pre-Screening Area	This area is used to mechanically screen, blend and store finished product. The screening area is located outside of the Stage 1 composting shed within a bunded earthen hardstand area. Stockpile height <3.5m. Storage: up to 25,000t
Finished Stockpile Area	Finished Product Stockpile Area	Storage of finished product only for transfer to the market. Stockpile height <3.5m.

2. Transitioning the exiting Outdoor Composting Operations

Further advice requested:

The applicant is advised that if this development were approved, the existing outdoor compost manufacturing facility (as currently permitted by Development Approval 4335/2011/MAMC/D) will transition into the proposed Compost Manufacturing and Biogas Facility via a staged process. In light of such, the application is requested to provide a detailed breakdown of how this staged transition process will occur and over what period of time. This should include clarification and details like what facilities / activities shall operate under the which approval (including DA and EA approvals), corresponding layout plan/s, time frames and trigger points for the transition process etc. In doing so, the applicant must specifically demonstrate how the existing compost manufacturing facility will be able to lawfully operate independently during the staged transition process and be serviced by roads, water, sewer, etc and how stormwater, leachate, noise, air quality management systems shall be managed so as to not cause adverse impacts including odour, dust, noise, air quality, and amenity on nearby existing, approved and planned residential and other sensitive receiving uses.

The applicant is also requested to advise at what point Development Approval 4335/2011/MAMC/D will no longer be of relevance and whether the applicant proposes to abandon or cancel that approval. Furthermore, it is expected that this exercise should also consider the transition from the existing EA's to the new EA to deal with the site operations proposed as part of this application.

Applicant response:

Refer to attached Proposed Staging Strategy (**Appendix B**) which provides a detailed breakdown of how the proposed staged transition process will occur and over what period of time.

In addition, a summary is provided below of how the existing compost manufacturing facility will be able to lawfully operate independently during the staged transition process and be serviced by roads, water, sewer, etc and how stormwater, leachate, noise, air quality management systems shall be managed so as to not cause adverse impacts including odour, dust, noise, air quality, and amenity on nearby existing, approved and planned residential and other sensitive receiving uses.

Stage 1/Phase 1:

- Stage 1/Phase 1 will operate under the current Environmental Authority EPPR00816413 (EA) issued on the 18 October 2019 being ERA 53 and ERA 54 and Council approval ref: 4335/2011/MAMC/D. Conditions are imposed in both the EA and Council approval to protect nearby residential uses, including planned and approved residential uses from adverse amenity impacts.
- Whilst individual use areas have been repositioned and/or reduced in size in Stage 1/Phase 1 to allow for operations to continue as they transition to the enclosed composting shed once constructed, individual use areas (including mixing areas, windrows, screening) are still located within the approved Extent of Use Area under the current approval 4335/2011/MAMC/D. The current WMI approval allows for flexibility in individual use areas to suit operational requirements provided that all areas are located within the approved extent of use areas. As such, transitioning of outdoor composting activities to the enclosed environment remains consistent with the current approval.
- Odour/air quality emissions are improved in Stage 1/Phase 1 given that the size of the outdoor windrow use area and operations is reduced during the transitional phase.
- The proposed phased transition approach, minimises the timeframe for construction of the enclosed composting shed. This staging/transitioning strategy allows the composting shed

to be constructed first and for all outdoor compost processing activities to be relocated indoors as early as possible which will substantially improve air quality.

- Stage 1/Phase 1 is able to be fully serviced by roads, water and sewer consistent with the existing approval 4335/2011/MAMC/D.
- Leachate in relation to Stage 1/Phase 1 is managed consistent with the current approval 4335/2011/MAMC/D.
- Stormwater will be managed in accordance with 4335/2011/MAMC/D until such time as stormwater ponds are established. The phased transition allows for the stormwater ponds to be established concurrently with the construction of the shed ensuring that stormwater is appropriately managed on site at the completion of Stage 1/Phase 1. The leachate pond will be decommissioned and replaced with in-shed drainage also reducing odour emissions.
- The existing EAs include conditions which ensure that environmental impacts are managed in accordance with:
  - Environmental Protection (Noise) Policy
  - Environmental Protection Policy (Air)
  - Environmental Protection (Water) Policy
- The Operational Management Plans prepared by WMI sets management standards/requirements to ensure a high level of amenity is achieved during Stage 1/Phase 1. Refer to **Appendix L - WMI Operational Management Plans**
- Stage 1/Phase 1 can be operated and managed as a standalone facility as follows:-
  - Staff amenities, administrative functions, storage and carparking are available in the temporarily located Site Compound (subject to Council approval in relation to a change to the existing approval 4335/2011/MAMC/D). Refer to **Appendix D.**
  - Access is provided by the sealed bitumen road (Op works application ref: 15038/2021/OW) with site security and signage in place
  - All vehicles are required to go through the wheel wash upon exiting the site as per the current situation
  - All services are available to the site including roads, stormwater, wastewater, electricity and telecommunications consistent with 4335/2011/MAMC/D.

Stage 1/Phase 2:

- All outdoor compost processing activities are located in an enclosed environment in Stage 1/Phase 2 and therefore odour emissions are substantially reduced as demonstrated in the **Appendix F - Preliminary Air Quality Impact Assessment**
- Previously used outdoor composting areas located outside of Stage 1 and Stage 2 will be cleared with the land made suitable for re-development maximising visual amenity.
- The new road and services (within the road network) will be completed in Phase 2 ensuring that all essential services are available to the site.
- Given that the stormwater ponds are to be established in Stage 1/Phase 1, all hardstand areas established in Phase 2 including the new road and internal sealed driveways will drain to these ponds ensuring that stormwater quality and quantity is managed in accordance with State and Council requirements.
- Dust / air quality will be improved in Phase 2 by enclosure of mixing and windrow activities within the shed.

- Stage 1/Phase 2 will operate under both the existing EA (current EA EPPR00816413 issued on the 18 October 2019 being ERA 53 and ERA 54) until the completion of this stage and a new EA (ERA 54(1), ERA53(a), ERA 53(b) and ERA 33) which include conditions ensuring that amenity is protected.
- Leachate within the enclosed composting shed will be drained and collected within the leachate pit which is then pumped into a feedstock tank or the biogas plant. Leachate pumped into the feedstock tank is used for the composting process. There are no leachate catchments, as all material processing which produces leachate is contained indoors and under cover, thus no interaction with stormwater runoff from the site.
- The feedstock will be taken to the temporary mixing bay in the same way it is currently handled. The reduction in size of the mixing stockpiles will reduce odour impacts.
- The site based operational management plans prepared by WMI includes the operational requirements to ensure a high level of amenity is achieved during Stage 1/Phase 2 . Refer to **Appendix L – WMI Operational Management Plans**
- The existing approval 4335/2011/MAMC/D will be cancelled at the completion of Phase 2 to given that it will no longer have validity and cancellation will ensure that there are no conflicts.
- Stage 1/Phase 2 can be operated and managed as a stand alone facility as follows:-
  - Staff amenities, office functions, storage, site access and carparking are established as per the Updated Site Plan A-1.1/P4 (refer to **Appendix A**)
  - The weighbridge will be established in a new location within Stage 1 along with necessary signage and operational management procedures to ensure that required vehicles access weighbridge on entering the site. A wheelwash is also located within Stage 1 to ensure that all vehicles existing the 'raw green waste area', 'finished pre-screening area' and 'finished product stockpile area' utilise the facility on exiting the site to ensure minimal transmission of soil/debris to the road network.
  - All services are available to the site including roads, stormwater, wastewater, electricity and telecommunications consistent with the Internal and External Services Plans prepared by Premise (Dwg. 17BNE-0232 SKC002. Rev 4 and SKC003, Rev 4)

WMI's existing approval 4335/2011/MAMC/D expires in 2025. In the unlikely event that Stage 2, which involves the establishment of the biogas facility, does not occur, the composting facility proposed in Stage 1 can still operate as a stand-alone facility, albeit at a substantially smaller operation than the existing approved outdoor facility and with composting activities undertaken in an enclosed environment. Construction of Stage 1 will need to be substantially started prior to the existing approved WMI operations under 4335/2011/MAMC/D expiring in 2025.

3. Site Based Operational Management Plans

Further advice requested:

a) The applicant is requested to submit detailed and consolidated site based operational management plans for each of the proposed uses. Owing to the fact that the Compost Manufacturing and Biogas Facilities can operate as both interdependent and independent facilities (with the potential to be operated by different entities) it is requested that the applicant prepares three (3) separate management plans that cover each possible scenario. The operational management plans must be prepared in such a way that they can form part of a Council approval package. As a minimum the management plans must include the following:

	(i)	*Provide a detailed description of the processes and/or activities involved in each of the use/activity areas illustrated on the proposal plans.*
	(ii)	*Identify all types of material/waste that are proposed to be received on the site.*
	(iii)	*Identify the maximum threshold quantities for the various material/wastes proposed to be received (it is recommended that this be in the form of anticipated monthly/yearly figures).*
	(iv)	*Identify the types/forms of all products (either as final products like compost, soil conditioner etc, or as by-products, or wastes) proposed to be dispatched from the facility and their maximum threshold quantities (it is recommended that this be in the form of anticipated monthly/yearly figures). Where by-products cannot be utilised as part of processes occurring on the Lot, an indication of the final use/destination should be identified.*
	(v)	*Identify the maximum anticipated vehicle trips that are proposed to enter and exit the site (including types and numbers) on a daily basis.*
	(vi)	*Identify the location of the proposed weigh bridge, wheel-wash and outline their operation mechanisms to ensure all vehicles go through the weigh bridge/wheel wash as applicable.*
	(vii)	*Detail all operational processes from when material/wastes arrives on site until the finished product leaves the site in various forms, ensuring consistency with the maximum threshold quantities requested above.*
	(viii)	*Identify stormwater (quantity and quality) and leachate management mechanisms for all areas of the site, including delineation of clean and dirty water catchments and management infrastructure.*
	(ix)	*Identify all air quality and noise management mechanisms.*
	(x)	*Identify all waste (including on-site effluent etc) management mechanisms.*
	(xi)	*Include any other items (specifically Item 4 'Unenclosed Composting and Biogas Activities' below) of this Further Advice Letter as relevant.*
b)	*The site based operational management plan must be prepared in such a way that it can easily facilitate site operations and induction, informing site staff, compliance audits by the relevant regulatory authorities as well as be easily read and understood by a third party (including members of the general public).*	

Applicant response:

Refer to **Appendix L - WMI Operational Management Plans** prepared by WMI.

Two separate operating plans have been provided. Whilst the biogas facility could be a standalone operation, WMI are subcontracting the operation for the purposes of WMI's composting operations, thus it extremely unlikely the biogas plant would proceed if the composting operations were not.

It is noted that the operations and procedures included in the attached Operational Management Plans (OMP) have been established based on the facility design and it is expected that operational flows and procedures will be amended, expanded upon and improved once the various operations have been commissioned. Should Council include the OMPs as part of an approval, it is requested that the OMP be conditioned to allow for minor changes to be made with only changes that have potential to impact on amenity requiring formal approval by Council.

A summary of the responses to items 3(a)-3(b) is provided below:

(i) See section 6 of the OMP (Composting) and section 8 of the OMP (Biogas and Composting) which provides a detailed description of processes and activities including feedstock receivables, feedstock authorisation, weighbridge operations, visitor

requirements and parking, anaerobic digestion, emergency flare, odour control, feedstock mixing, composting, batch management, pasteurisation, batch monitoring, product analysis, screening and odour treatment and control.

(ii) See section 6.2 Feedstock of the OMP (Composting) and section 8 as well as Appendix A – Supplier feedstock assessment form of OMP (Biogas and Composting).

(iii) There are no maximum thresholds as this is a market driven service for acceptance of organic waste it would be commercially inhibitive if specific limits were to be placed on individual waste streams. The maximum capacity will be driven by the composting shed size, rate of the composting process, the biogas plant capacity. As WMI are still trialling different feedstock C:N mixes with the MAF this cannot be determined at this point. It is noted the plant is designed to handle circa 50,000 tonnes/year of throughput (i.e. green waste) and process up to 150m3/day of trucked organic waste and an average of 40 truck loads a day is the average expected at the composting shed.

(iv) The imposition of maximum stock for sales is commercially inhibitive and the information requested is commercially sensitive data which will not be provided within a publicly available document.

(v) Maximum vehicle trips and impacts are set out in the TTM Traffic Impact Assessment (operationally it is expected there would approximately 90 loads (180 movements to/from the site) per day based on the capacity of the facilities). The intent of an OMP is to guide staff on site operations. This information is superfluous to the plans intent and erroneous detail and complexity always reduces the functionality of such plans as it needs to be understood by all staff regardless of their education level.

(vi) The wheelwash location and weighbridge are detailed on the site plan in figure 1 of each OMP. Refer to 6.3 of the OMPs for procedures associated with the weighbridge. The wheelwash is located and will be signed to ensure that all vehicles exiting the 'raw green waste area', 'finished pre-screening area' and 'finished product stockpile area' utilise the wheelwash facility prior to exiting the site. The wheelwash is located so as to provide approximately 90m of hardstand driveway within the site prior to vehicles exiting the site to the public road network.

(vii) All key composting and biogas processes are described in Section 6. WMI disagree with a maximum threshold being imposed, the ERA states over 200t. If the plant can efficiently compost greater quantities while meeting all the environmental performance objectives and council traffic requirements, then it would result in a more sustainable outcome.

(viii) Refer to sections 6.4.6 and 8.4 of the OMP (Composting) and section 6.5.6 and 8.4 of the OMP ((Biogas and Composting).

(ix) Odour treatment and control is addressed in section 6.6 of the OMP (Composting) with other environmental management controls including dust and noise addressed in section 8 of this OMP. In relation to the OMP (Biogas and Composting) these matters are addressed in section 6.7 and section 8 respectively.

(x) Litter is addressed in section 8.3 of each OMP. On-site waste water treatment and disposal is as per the Engineering Services Report prepared by Premise and incudes a pre-approved Aerated Wastewater Treatment System (AWTS) such as the EnviroCycle Model 10NR or equivalent system which will have specific management requirements relevant to the system.

4. Unenclosed Composting and Biogas Activities

Further advice requested:

Further to Item 1 'TLPI' and Item 2 'Transitioning the existing Outdoor Composting Operations' above, the applicant is requested to provide further information regarding any components of the waste activity uses still proposed to be unenclosed on the site. In particular the following:

a) The applicant is requested to clarify the activities occurring within the areas denoted on the site plan as "Mulch BCC Area", "New Grid Raw Green Storage", "Storage & Screening Area and "Finished Stockpile Area". The "Mulch BCC Area" has not been included as an air emissions source in either the odour or dust modelling investigations despite the air quality report identifying green waste as an odour source. Sections 2.3 and 2.4 of the Receiving Environment Management Plan suggests that the area denoted as "New Grid Raw Green Storage" on Lot 2 may be required to support the proposed enclosed composting operation proposed for Lot 1. For these areas the applicant is requested to detail:

- *i. Types of materials proposed to be received and stored;*
- *ii. Daily and annual throughout tonnages for each type of material;*
- *iii. Types of processing activities proposed;*
- *iv. Duration that materials will be stored (pre and post processing);*
- *v. Where and how processed material will be distributed within and off the site;*
- *vi. Method of enclosing these activities and operational controls (leachate, stormwater, odour, dust management) to ensure the activity is consistent with the TLPI Buffer Area outcomes and will not have a detrimental impact on the environment and amenity of the surrounding area; and*
- *vii. Confirm that all storage and processing areas required to support the operation of the enclosed green waste composting operation proposed as Stage 1 on Lot 1 can occur independently to any activities proposed for Lot 2.*

b) The Composting OPEX prepared by All Energy Pty Ltd indicates that "Finished Product (Compost) Processing", involving screening and "pre-mix to recipe", will occur in an outdoor screening & stockpile area. The air quality assessment identifies screening as an odour source. The applicant is therefore requested to detail:

- *I. Types of materials proposed to be stored and mixed with the composted product;*
- *II. Daily and annual throughout tonnages for each type of material;*
- *III. Types of processing activities proposed as part of the screening and mixing;*
- *IV. Duration that materials will be stored (before screening and mixing and post processing);*
- *V. Where and how processed material will be distributed within and off the site; and*
- *VI. Method of enclosing these activities and operational controls (leachate, stormwater, odour, dust management) to ensure the activity is consistent with the TLPI Buffer Area outcomes and will not have a detrimental impact on the environment and amenity of the surrounding area.*

c) Further to Items 4(a) and 4(b), above, and consistent with the TLPI Buffer Area, the applicant is requested to submit amended plan/s and details demonstrating that all grinding/processing and stockpiling of green waste material, and all screening and mixing of composted material occurs within an enclosed area.

d) The Receiving Environment Management plan indicates the product screening area receives "matured stabilised product material" after five (5) weeks of composting within the mixing shed. The air quality assessment indicates

eight (8) weeks of composting prior to material being transferred to the screening stockpiles for processing. The applicant is requested to clarify the discrepancy and provide further detail around the minimum time period for material to be composted indoors (consistent with Items 4(a) and (4b) above) and minimum performance measures required to define "matured stabilised product material" in order to ensure that odour emissions from all material stored in outdoor areas are prevented. To be clear, it is considered that this should also include detail on the maturation phase of the product. Consistent with the TLPI, only storage of finished product will be permitted within outdoor areas (i.e. no mixing of composted product material will be permitted).

Applicant response:

- **Item 4(a)** - Refer to the responses to items 1 and 2 and Table 1 above and to **Appendix L - WMI Operational Management Plans** and **Appendix F - Preliminary Air Quality Impact Assessment** which states odour from raw green waste and shredded green waste will be very low and of a pleasant tone. Any odour from these areas will not have a cumulative contribution to odour that has potential to cause nuisance at sensitive receptors. Finished product stockpiles and pre-screening areas will also be located outside the shed. Low odour (consistent with odour in a landscaping yard) will occur from this area and has been included in the dispersion modelling.
- **Item 4(b)** – refer to the response to item 4(a) above.
- **Item 4(c) –** refer to the response to item 1 above.
- **Item 4(d)** – the Preliminary Air Quality Impact Assessment (**Appendix F)** identifies that the composting duration in the shed will vary from 5 to 10 weeks to ensure pasteurisation and stabilisation of material. The REMP (**Appendix K**) states that the compost / mulch remains in the windrows under aeration for a period of 5 weeks, during which, the mulch compost is turned weekly over a two-day period and watered regularly to assist in decomposition to the final product. The composting process (could range from 5 to 10 weeks or longer) dependant on the point it reaches stabilization.

  Consistent with the TLPI, only storage of raw and finished product will be permitted within outdoor area (i.e. no mixing of composted product material will be permitted).

  Section 4.4 of the REMP (**Appendix K**) states that to create a finished mature product the stabilised compost is moved outside for final screening and blending. A layout plan of the shed is shown in Figure 4 of the REMP. To ensure the compost is adequately matured, ongoing testing and records will be maintained as set out in Section 4.4 of the REMP below.

  Australian Standards be adopted in setting environmental goals and quality parameters for compost products:

  - AS 4454:2012 Compost, soil conditioners and mulches
  - AS4419:2003 Soils for landscaping and garden use
  - AS 3743:2003 Potting mixes
  - AS 5024:2005 Potting mixes, composts and other matrices: examination for legionellae.

ETHOS URBAN

5. Leachate and Stormwater Management

Further advice requested:

a) *The submitted amended Stormwater Management Plan (SMP - Engeny's, Swanbank Industrial Park, Biogas SMP Addendum Report, dated 19 May 2021) states "Engeny understands that the processing areas are covered and bunded off from the rest of the site, such that stormwater runoff does not interact with any leachate products". No detail is provided around the proposed site stormwater catchments, clean and dirty water collection systems (including leachate) or infrastructure required to facilitate this. Further to this, the air quality report indicates removal of the existing leachate pond with Stages 1 and 2 of the development. In order to support the above statements, the applicant is requested to submit an amended site-based stormwater management plan (SMP), including detailed leachate management plan, responding to the site changes required by Item 1 'TLPI' and Item 4 'Unenclosed Composting and Biogas Activities' above, and the following:*

   I. *Clearly identify clean water, stormwater and leachate catchments and collection/treatment systems proposed for all areas within each of proposed Lots 1 and 2;*

   II. *Clarify the fate and treatment of any leachate (and sludge) collected within the site (including the mixing shed);*

   III. *Demonstrate how the site will be managed to prevent leachate contamination within any proposed stormwater ponds; and*

   IV. *Identify any proposed reuse of stormwater/leachate throughout the process.*

b) *Further to Issue 9 identified in the SARA Advice Notice (dated 1 July 2021) and Item 4(b) 'Unenclosed Composting and Biogas Activities', above, the applicant is requested to detail what products will be stored, the method of storage and methods of mixing into the "matured stabilised product material" contained within the product screening area. Management measures to reduce risks of leaching and contaminate mobilisation from this area must also be detailed.*

c) *Engeny's, Swanbank Industrial Park, Biogas SMP Addendum Report, dated 19 May 2021, provides two (2) options for the mitigation of flows from the Biogas site. Option 1 proposes additional detention volume to the ERA requirements. Table 2.1 provides preliminary pond sizing details to facilitate the ERA requirement but does not include details of the sizing required for the biogas facility. Accordingly, the applicant is requested to provide a revised stormwater management plan (SMP) that includes details of the increase in detention requirements resulting from the proposed biogas facility, and demonstrate how each proposed individual lot will be managed separately. The report should include plans and cross-sections, low flow pipe details, hydraulic calculations, stage discharge details and lawful point of discharge for the proposed ponds.*

d) *Roads external to the site are proposed to be constructed to provide access to the development. The applicant is requested to provide details of proposed staging of the Swanbank Regional Basin 01 or provide details of how the changes in the relevant catchments and the potential increase and / or concentration in stormwater runoff associated with the construction of the roads will be facilitated in the interim until the ultimate basins are constructed. The applicant is also requested to demonstrate how stormwater quality treatment will be delivered for the road component of the development in the interim, until such time as the regional basin is constructed.*

Applicant response:

Refer to **Appendix H - Engeny Response to DA Further Advice Request** dated 3 September 2021. A summary is provided below.

- **Item 5a(i)** - Upstream clean water catchments are diverted via a diversion drain along the western boundary of Stage 2. Internal catchments drain towards stormwater detention and retention ponds located in Stages 1 and 2. There are no leachate catchments, as all material

processing which produces leachate is contained indoors and under cover, thus no interaction with stormwater runoff from the Site.

- **Item 5a(ii)** - All leachate from the composing and mixing shed is drained and collected within the leachate pit which is then pumped into a feedstock tank or the biogas plant. Leachate pumped into the feedstock tank is used for the composting process.
- **Item 5a(iii)** - All incoming raw material is assumed to be inert and will be quality controlled to ensure no additional contaminants are introduced to the Site. Incoming raw material is proposed to be stored outdoors and poses no risk to contamination of stormwater runoff. All material processing, which while the mulching process is occurring is identified to produce harmful leachate substances, is contained indoors such that stormwater runoff cannot interact and mix with leachate which would contaminate the stormwater reuse ponds. All final product which has undergone the composting and mixing process is to be stored outdoors. The final product is assumed to be inert as it is ready for distribution to landscape yards and gardens across Brisbane. Additionally, it is noted that the Biogas and Composting Site will be constructed with a new design pad with clean imported fill, such that the soil will not contain any harmful contaminants which may affect the water quality within the reuse ponds. Thus, it has been demonstrated that there is no leachate contamination of the proposed stormwater ponds.
- **Item 5a(iv)** - Stormwater captured within the stormwater ponds is proposed to be reused for various Site operational processes such as dust suppression, washdown and material processing. A detailed breakdown of the proposed reuse of stormwater is provided in the REMP prepared by Environtech, 2021 (**Appendix K**).
- **Item 5(b)** - Mixing of materials are proposed to occur in the enclosed Composting and Mixing Shed. Raw material received by the surrounding LGA's is stored in the 'Mulch BCC Area' and 'New Grid Raw Green Storage area'. Inert and stable final product is proposed to be stored in the 'Finished Stockpile Area' and the 'Finished Pre-screening Area'.
- **Item 5(c)** – Engeny has prepared a revised SMP –refer to **Appendix I - Stormwater Management Plan (Engeny, 2021), Rev 2.**
- **Item 5(d)** - Section 3 of the Biogas Facility Stormwater Management Plan (Engeny, 2021) provides advice regarding the proposed staging of the Biogas Site in relation to the overall masterplan strategy outlined in the Swanbank Industrial Park Flood Management Strategy (Engeny, 2021).

6. Air Quality

Further advice requested:

The applicant is requested to submit an amended odour impact assessment responding to the amendments requested at Item 1 'TLPI', Item 4 'Unenclosed Composting and Biogas Activities' and item 5' Leachate and Stormwater Management' above, and Items 6(a) – 6(d) below:

a) Further to Issue 4 identified in the SARA Advice Notice (dated 1 July 2021):

I. The odour dispersion modelling assumptions for the composting, screening stockpile and windrow emissions do not appear to have accounted for the presence of "more odorous" feedstocks, such as chicken waste/manure (refer Section 2.2.2, 8.3.2, 8.3.5.1 and Table 8.5). As such, the applicant is requested to clarify whether the receival and processing of chicken waste and other more odorous feedstock has in fact been excluded from the assessment and amend the odour assessment to account for this feedstock. Alternatively, the applicant may choose to exclude this, and other more odorous, feedstock from the

Planning development approval and Environmental Authority (EA) sought for Stages 1 and 2 operations, and the same must be clearly clarified in the information responses to assessment manager and referral agency (SARA).

II. *The odour emissions estimation for the mixing stockpile has included limited contribution from the high odour risk wastes (grease trap and liquid food waste), stating that odour from these sources represents a small fraction of this stockpile. However, Table 2.1 indicates that grease trap and liquid food waste received over a 5.5mnth period in 2020 represented approximately 54% of the mass of wastes received and Table 8.1 indicates that these waste streams represent approximately 17% of the mixing stockpile volume (wastes mixed with 40-50,000 tonnes green waste). These masses are not considered to be insignificant. The applicant is requested to amend the odour modelling assumptions to more appropriately account for the potential odour signature from these high odour risk sources. Alternatively, the applicant may choose to exclude this feedstock from the Planning development approval and Environmental Authority (EA) sought for Stages 1 and 2 operations, and the same must be clearly clarified in the information responses to assessment manager and referral agency (SARA).*

III. *The odour dispersion modelling assumes a 95% reduction in leachate pond odour emissions with Stage 1 and Stage 2, following removal of the existing leachate pond, yet no detail has been provided on the management of leachate generation for outdoor storage, stockpile and screening areas. Consistent with the changes requested at Item 1 'TLPI', Item 4 'Unenclosed Composting and Biogas Activities' and Item 5(a) 'Leachate and Stormwater Management' above, the applicant is requested to clarify the proposed leachate management in support of this significant reduction in odour emissions. Where necessary, amended odour dispersion modelling may be required.*

(b) *Further to Issue 5 identified in the SARA Advice Notice (dated 1 July 2021), Section 8.3.5.1 indicates that the emissions estimation for the green waste composting shed, post commissioning of the biogas facility, did not incorporate digestate (from biogas facility) mixing with the green waste windrow and reductions observed at Richgro were attributed to the non-inclusion of chicken waste in green waste windrow post commissioning.*

Despite the above omissions from feedstock, a significant reduction in odour emissions from the compost piles within the mixing shed (66%) were assumed with the use of digestate to replace un-treated animal manure. This reduction was based on a 2013 Ortech study which is stated to have 'assumed' a 70% decrease in animal manure odour emissions and a 2016 Riva study which found digestate 82-88% less odorous than un-treated cattle slurry.

If the applicant wishes to receive and process chicken waste (or other wastes with substantial odour risk) as part of the proposal, a much more detailed feedstock specific review of the odour emissions reductions likely to be achieved at the Swanbank site, must be provided. Where limited data is provided on the performance of certain waste feedstock, any potential support for the development proposal is likely to exclude these materials from the permitted site operations

(c) *In support of the above, and as previously requested at Item 6(n) 'Air Quality' of the Assessment Manager Information Request dated 20 November 2019, the applicant is requested to submit the following reports referenced in this assessment:*

(i) Richgro AD Facility Stack Emissions Commissioning report 2015;

(ii) the Richgro Garden Products Field Odour Survey Anaerobic Digester Facility Emission Assessments, 2016;

(iii) ASK 2018 Wood Mulching Industries Odour Impact Assessment Report 8185R05V02 for Wood Mulching Industries dated 10 January 2018;

(iv) Emission Assessments (2018), Richgro AD Plant Stack Emissions Testing 2018, Report Number 1819-017, 17 December 2018;

(v) MWA sampling August & September 2020 and MWA model (as referenced in Section 8.3.2 of the report); and

(vi) ASK 2017, Air Quality Assessment of Permissible Change Application for the WMI Location,

Applicant response:

Refer to **Appendix F - Preliminary Air Quality Impact Assessment** which has been updated in response to the matters raised above. A summary is provided in section 1.3 of this report as outlined below:

- **Item 6(a)i** – Modelling of very high risk feedstocks has been undertaken based on the discussion in section 8.3.8. From November 2017, WMI no longer accepted chicken wastes in their facility and hence odour emissions from the facility have generally reduced as evidenced by more recent sampling results. The sources that were sampled previously by ASK in 2017 likely contain remnants of chicken wastes which were considered the most odorous raw materials.

  After Stage 2 is commissioned, future consideration will be given to accepting chicken waste and other very high feedstocks with high odour risk. The best estimate of the impact this would have on the odour emission rates is that the digestate being applied to the composting would have odour emissions 1.6 times higher. This is derived from the ratio of the emissions from the leachate pond in November 2017 (25 ou·m3/m2/s) when chicken wastes had been accepted to that in November 2020 (16 ou·m3/m2/s) when these wastes had not been accepted.

  Chicken waste is considered representative of very high risk waste feedstocks.

- **Item 6(a)ii** – The calculation of the mixing area odour emissions described in Section 8.3.2 is based on the relative area of fresh material compared to older material. The fresh material sample was high risk waste and the samples used to calculate emissions for the remainder of the mixing area also included high risk wastes such as grease trap waste.
- **Item 6(a)iii** – Sampling of odour from the windrow catchment dam taking runoff from the existing windrows, product storage and screening areas demonstrated low odour emissions (0.5 ou.m3/s). Without the windrow contribution, runoff is not anticipated to general substantial odour.
- **Item 6(b)** – Modelling has been undertaken based on the discussion in Section 8.3.8. Refer to item 6(a)(i) above.
- **Item 6(c)** – The reports reference are attached (**Appendix J**) as required including:
  - *(i) Richgro AD Facility Stack Emissions Commissioning report 2015;*
  - *(ii) the Richgro Garden Products Field Odour Survey Anaerobic Digester Facility Emission Assessments, 2016;*
  - *(iii) ASK 2018 Wood Mulching Industries Odour Impact Assessment Report 8185R05V02 for Wood Mulching Industries dated 10 January 2018;*
  - *(iv) Emission Assessments (2018), Richgro AD Plant Stack Emissions Testing 2018, Report Number 1819-017, 17 December 2018;*
  - *(v) MWA sampling August & September 2020 and MWA model (as referenced in Section 8.3.2 of the report); and*
  - *(vi) ASK 2017, Air Quality Assessment of Permissible Change Application for the WMI Location*

7. On-site Sewage Treatment

Further advice requested:

The submission of Premise's Proposed Biogas Facility at Unnamed Road, Swanbank, Engineering Services Report dated 20 May 2021 is acknowledged. The report provides details of servicing of the site including reticulated water, electricity/telecommunications and sewer, and includes a wastewater services technical note that provides details of land areas required for wastewater treatment. However, the Premise report also concludes that 'No sewerage infrastructure is required for this development. All onsite sewage will be captured within an onsite holding tank. A sucker truck will empty the tank as required and deliver the sewage direct to the digestor tank of the biogas facility.' As such, the applicant is requested to clarify the method of effluent disposal for the development i.e. on site waste water treatment or disposal by a sucker truck.

Applicant response:

On site waste water treatment and disposal is proposed. A 13.59 Equivalent Person (EP) value is identified which is suitable for a pre-approved Aerated Wastewater Treatment System (AWTS) such as an EnvironCycle Model 10NR or equivalent system. The application area for the sub-surface irrigation is approximately 1,450sqm. As shown in Appendix F of the aforementioned Engineering Services Report, there is sufficient area to adequately accommodate the proposed effluent irrigation demand.

The applicant has advised that the overall ultimate sewage treatment strategy for the site, until such time as connection to the reticulated sewerage system is possible, is to develop a Hydroflux Containerised MBR System or similar system which is a modular system capable of accommodating more than 250 EP. It is anticipated that this system will service a number of future uses within the Swanbank Eco Park development site with a body corporate arrangement in place. It is proposed to locate this system within part of Lot 402 on SP 283238 and to seek approval for the ultimate sewage treatment strategy as part of a separate development for a 'Major Utility' and ERA/EA.

5.0 Summary/Conclusion

The above provides a full response to the matters raised in Council's further advice notice and demonstrates that the proposal is consistent with the intent of the TLPI Waste Activity Area and Buffer Area. All compost processing activities are undertaken in an enclosed and sealed environment. The development application is supported by quantifiable technical assessments demonstrating with a high degree of certainty that improved amenity, environmental and community outcomes are able to be achieved including a site based operational management plan. Each stage of the development can lawfully operate independently during the staged transition process.

ETHOS URBAN

If you have any questions regarding this matter, please do not hesitate to contact me on 07 3852 1822.

Your sincerely,

Keri Grainger

Associate Director, Planning
Ethos Urban
kgrainger@ethosurban.com

CC **Attention: Tamara Cavallaro**
State Assessment and Referral Agency
Department State Development, Infrastructure,
Local Government & Planning (DSDILGP)
By: MyDAS 2

Wood Mulching Industries Pty Ltd

Operational Management Plan - Biogas and Composting

September 2021

Contents

Tables

Figures

Document History and Status

Description	Comment	Authored/Reviewed	Date
Plan preparation		OR – SF	6/8/2021
Draft plan	To WMI	OR – SF WMI – CN	30/8/2021
Final Plan	Including comments from WMI	OR – SF WMI – CN	30/8/2021

1 INTRODUCTION

Wood Mulching Industries Pty Ltd (WMI) own and operate a commercial composting operation at Swanbank Road, Swanbank QLD; Lots 400, 402, 403 and 405 SP283280 and Lot 404 on SP 313797. The facility operates under the following legislation:

- ERA 53 organics material composting of more than 200t of organic material in a year
- ERA 54 mechanical waste reprocessing of more than 5,000t of inert, non-putrescible waste or green waste only
- Environmental authority EPPR00816413 and

The facility currently includes the following infrastructure and areas:

- Weighbridge
- Green waste storage and processing areas
- Mixing bay with leachate capture and recirculation system
- Mixing stockpiles area
- Turned windrow area
- Screening and products areas
- A leachate pond
- A catchment and stormwater pond for stormwater retention

1.1 Purpose

The purpose of this Operational Management Plan (Plan) is to create a working document that WMI will use to manage the site and to train staff in the policies, procedures and expectations of the company.

1.2 Future direction

WMI plan to develop a best practice operation at the Swanbank site to include an anerobic digestor and biogas plant and enclosed mixing and composting. These operations will be conducted in negative pressure sheds fitted with biofilters. WMI have submitted a Development Application and have created this Operational Management Plan to satisfy the City of Ipswich's request as per application correspondence dated the 2nd of August 2021.

It should be noted that the operations and procedures included in this plan have been established based on the facility design. Therefore, it is to be expected that operational flows and procedures will be amended, expanded upon and improved once the various operations have been commissioned.

2 POLICIES AND PROCEDURES

2.1 Health, safety and rehabilitation

WMI recognises that the health and safety of its people cannot be compromised. Safe work practices and health work environments must be provided for all employees, contractors and customers.

To ensure that this commitment is fulfilled, WMI will:

- Ensure safe and health work areas, plant and equipment
- Comply with health and safety laws, regulations and statutory obligations
- Incorporate health and safety management policies and practices into all aspects of WMI operations
- Incorporate appropriate health and safety risk management systems and procedures commensurate with the nature and scale of the work undertaken
- Engage in a system of open communication with all employees to achieve the personal commitment of all employees, contractors, suppliers, clients and consultants to health and safe workplace practices while at WMI premises or site under WMI control
- Establish and maintain training for individuals to enable them to undertake their tasks in a safe and health work environment
- Carry out periodical review and revision of this health and safety policy and procedures to maintain their relevance

Where an employee is injured in the source of work, WMI will ensure that appropriate medical assistance is administered and that a rehabilitation program is commenced as soon as practicable, aimed at preparing the employee for return to his or her pre-injury duties.

WMI will also endeavour to provide suitable duties of equal employment as part of an integrated programs for the rehabilitation of an employee returning to work after an injury or illness in the workplace.

WMI will ensure that no employee is prejudiced as a result of their workplace injury or their participation in a rehabilitation program.

It is the responsibility of every WMI employee to implement this policy. Heavy machinery. Construction equipment and road transport vehicles by nature have inherent dangers in the workplace, and if an employee breaches site safety plan procedures or conditions on more than two occasions, termination of employment may occur. The safety of all employees, contractors and visitors is of paramount importance.

2.2 Occupational rehabilitation

WMI is committed to preventing injury and disease in the workplace through ensuring the health, safety and welfare at work of all employees. However, while ensuring that all reasonable and practical steps are taken to safeguard employees, it must be recognised that the nature of work performed contains some element of risk and despite all effort's accidents may occur.

Should an employee be injured in the course of work, the company will ensure that, after appropriate treatment, then in line with medical advice and legislative requirements, a rehabilitation program will be commenced as soon as practicable.

It is acknowledged that return to work as soon as possible by an injured employee is a normal practice and expectation. Accordingly, the company will seek to provide suitable or alternate duties/employment as an integral part of the rehabilitation program.

WMI will consult with employees and their treating doctor to ensure that the rehabilitation program is maintained effectively. In this regard, the company has undertaken that participation in a rehabilitation program will not, of itself, prejudice an injured employee.

It is the normal expectation of all parties that participation in a rehabilitation program will ultimately lead to a resumption of pre-injury duties. In that event of this expectation being unrealistic or unrealised, then retraining, redeployment or termination may need to be considered.

WMI will, in the course of such rehabilitation program, respect the rights and the confidentiality of all employees.

2.3 Environment

Wood Mulch Industries (WMI) is committed to the organics management industry and candidly recognises the opportunities for material re-use rather than disposal. We will continue to provide the opportunity for the diversion of material from landfill, and work closely with our customers, clients, the government and the Environmental Protection Authority to maximise the potential for organic material recovery.

We are committed to managing our operations to:

- Comply with all environmental laws, regulations and statutory obligations related to our operations
- Ensure that environmental incidents are reported as required and appropriate corrective action is implemented
- Work closely with our staff to maintain a high standard of awareness and performance, promoting active participation in the improvement of our environmental performance and the growth of our business
- Ensure that our staff are highly trained in the relevant areas of our operations so as to safeguard the health and safety of our employees, customers, onsite visitors and the public at large
- Continually improve our operational procedures and our understanding and management of environmental issues and aspects, to prevent, minimise or control potential environmental impacts associated with our operations.
- Work with our suppliers to source organic feedstocks that are consistent in nature to ensure that our compost products are of an exceptionally high quality
- Work with our suppliers to ensure only permitted feedstocks are received onsite
- Endeavor to prevent waste and conserve water in our own operations and encourage our suppliers to embrace similar objectives, practices and policies with the intention of protecting our environment
- Ensure that environmental aspects are integrated into the evaluation process when assessing new technologies and process changes
- Communicate this policy and related procedures to all employees, contractors and other stakeholders as appropriate

The implementation of process procedures, monitoring and regulatory measures is an integral part of our policy and will be achieved with the direct involvement of management and staff. In preparing annual reports we will address the achievement of old objectives and targets and set new objectives, targets and activities, and regularly monitor our environmental performance.

2.4 Quality

WMI is committed to the aim of exceeding customer expectations in terms of product quality, operational capability and cost effectiveness at all times. The company is committed to improving its processes in all facets of its business.

The company also acknowledges its responsibility to abide by statutory requirements for health, safety and the environment in all its operations. At the same time, it is fundamental to the company's long term prosperity that it realises an adequate financial return and acts as a responsible corporate citizen.

To assist in achieving these objectives, WMI is implementing quality management systems via this Operations Management Plan. The Plan, outlines procedures which form the basis of the company quality management system and ensures that customer and relevant regulatory requirements will be consistently met. The system incorporates safety and training programs to enhance employee skills and assist in the selection of optimum equipment, materials and methods for customers' particular applications.

We endeavour to provide/produce quality products and services by:

- Striving to work as an efficient team within each business area of the company
- Preparing and completing each task to the customer's requirements and on time
- Notifying the customer immediately of any delays to delivery of products
- Adhering to and keeping up to date with legal and client requirements
- Establishing and reviewing our business and quality objectives
- Monitoring quality objectives to ensure customer satisfaction and continuous improvement

An essential part of this is that we must always seek to maintain good relationships with customers, employees, sub-contractors and suppliers. WMI management is focused on the implementation of this quality policy and believes that through quality assurance the company will be able to raise the level of services to its customers and maintain its competitive edge.

2.5 Theft policy

All items, goods and services on site or given as a gift to on site staff are the property of Wood Mulch Industries (WMI), except for personal items brought to site by employees. Theft includes failing to write dockets for cash customers, giving discounts to customers, on selling compost products, all property removed without consent etc.

Theft from the Company is considered a serious offence and an employee who breaches the provisions of this policy without a reasonable explanation shall be removed immediately from any of WMI's worksites and may be terminated. WMI are within their rights to press charges.

2.6 Alcohol and non-medically prescribed drug use

WMI does not countenance and will not accept the consumption of excess quantities of alcohol or the taking of non-medically prescribed drugs by employees whilst in the workplace or while conducting the company's business.

Alcohol and/or illicit drugs must not be consumed on site or on company premises or in work areas. Employees must not attend or present for work if they are under the influence of alcohol or drugs of any description.

WMI reserves the right to reasonably conduct searches of a person, possessions, vehicles, and other property of its employees, contractors, agents, and subcontractors while they are on WMI premises or worksites. Any person who refuses to cooperate with any such search shall be removed from the premises and may not be permitted to return. WMI also acknowledges the rights of clients to conduct any such searches on premises or worksites owned by the client.

Management responsibility

If an employee's behaviour is noticeably affected by alcohol or other drugs, his or her supervisors or manager will ensure that the employee immediately ceases to undertake work duties and does not resume those duties unless and until he or she is no longer under the influence of drugs or alcohol.

Employee responsibility

It is the responsibility of each employee to ensure that the performance of their duties is not impaired to a level which will in any way endanger their own safety or the safety of others in the workplace.

Notification

Where an employee is under a prescribed course of medication or medicated treatment which the employee believes might have an adverse effect on his or her work performance, they are to notify their supervisor or manager.

Confidentiality or information will be respected and maintained, and no employee will be discriminated against or disadvantaged in circumstances where they notify in accordance with this policy.

Disciplinary action

Due to the nature of WMI's worksites and the presence of heavy machinery, an employee who breaches the provisions of this policy without a reasonable explanation may be dismissed instantly.

Additional assistance

Upon request from an employee, WMI will arrange for confidential counselling, for both personal and work related problems.

2.7 Smoking policy

Active and passive smoking are known hazards in the workplace, and it is Wood Mulch Industries (WMI) responsibility to provide a smoke free environment. Smoking is not permitted in the operational areas, machines, site huts, toilets or in the maintenance, chemical, or fuel storage areas. Smoking is only permitted in the designated smoking area(s) near the site hut.

An employee who breaches the provisions of this policy without a reasonable explanation will be subject to disciplinary procedures and may be terminated.

2.8 Discrimination, harassment and bullying policy

Wood Mulching Industries (WMI) is committed to providing a workplace free of all forms discrimination and harassment including bullying. Discrimination and harassment are not only unacceptable it is unlawful pursuant to state and federal legislation.

Management shall ensure all complaints are treated confidentially, seriously and sympathetically. Relevant disciplinary action will be taken against anyone found to have breached this policy. No employee will be penalised or disadvantaged because of raising concerns or complaints relating to discrimination or harassment.

Discrimination occurs when a person considers they have been treated less favourably because of an attribute including age, industrial activity, gender, marital status including defacto, physical features, political belief, pregnancy/breastfeeding, race, religious belief, status as a parent or career and/or irrelevant criminal conviction.

Harassment (including sexual harassment) is an unwanted behaviour. It may involve inappropriate actions, behaviour, comments or physical contact that is objectionable or causes offence, unwelcome sexual advances or unwelcome requests for favours or other unwelcome conduct of a sexual nature. It is important to note that it is irrelevant whether the inappropriate behaviour was intended or not. It is also important to understand that it is the person being subjected to the behaviour, who determines whether the behaviour is welcome or unwelcome.

Harassment may be seen to have occurred if the behaviour makes the victim feel offended and humiliated, intimidated or frightened and/or uncomfortable at work.

Workplace bullying is repeated, unreasonable behaviour directed toward an employee, or group of employees, that creates a risk to health and safety.

If you consider you have been discriminated against, raise your concerns with your manager or leading hand. These people should be able to give you the rationale behind any decision which may have caused you to feel disadvantaged.

What can you do if you are being harassed or bullied?

- Do not ignore the harassment (ignoring the behaviour could be taken as tacit consent)
- Inform the offender that their behaviour is offensive, unacceptable and against company policy
- Seek assistance to have behaviour stopped. This may include making a report or a complaint.

3 COMPANY STRUCTURE AND RESPONSIBILITIES

The General Manager shall:

- Demonstrate commitment to environmental performance through the implementation of this plan
- Continually maintain and improve health and environmental standards
- Where practicable provide resources so health and environmental standards can be implemented and maintained
- Display the health and environmental policies in a prominent location
- Encourage involvement of all employees and sub-contractors in achieving Zero Harm at our workplaces by involving them in operational decisions
- Provide and maintain plant and equipment suitable to achieve our health and environmental objectives
- Provide documented procedures to ensure that employees and sub-contractors do little or no harm to their workplace and/or environment
- Ensure that all workplace incidents and near misses are fully recorded and investigated and the relevant people/authorised are notified where required
- Ensure that contractors and site visitors understand and observe WMI environmental and health practices and procedures.

Site Managers and Supervisors shall:

- Be involved in implementing WMI's health and environmental policies and procedures
- Ensure that workplace procedures are implemented and adhered too
- Through regular site inspections, observe working behaviours and identify potential environmental issues and/or hazards to employees and contractors
- When necessary, undertake risk assessment on hazards identified and implement control strategies in accordance with the company's risk management system and procedures
- In the case of an incident, ensure the appropriate forms are completed. Investigate all reported events. Ensure corrective action is implemented to prevent a recurrence of the incident. Update procedures.
- Undertake toolbox meetings as appropriate to ensure that employees are kept up to date with any proposed changes to procedures, processes and or equipment
- Provide an environment whereby employees can bring to your attention and discuss their particular health and/or environmental concerns without fear of discrimination
- Keep all health and environmental documents and records

Employees shall:

- Take reasonable care for his or her own health and safety and for the health and safety of anyone else who may be affected by his or her acts or omissions at the workplace
- cooperate with his or her employer with respect to any action taken by the employer to comply with any requirement imposed by the health and/or environmental act and other relevant legislation
- Comply with all onsite procedures
- Report any potential hazards identified in the workplace or any damage, near misses or incidents to the manager/supervisor.
- No person shall wilfully, recklessly, or intentionally, interfere with anything that is provided in the interests of health and safety or environment protection at their workplace.

Contractors shall:

Conduct all work in accordance with all statutory requirements and WMI policies and procedures (unless the contractor can show that they have equivalent procedures). WMI reserves the right to stop any work if and when the agreed policies and procedures are violated by the contractor or their employees.

4 HUMAN RESOURCES

Staff will be employed and paid under the Timber and Forestry and Waste Management Award.

4.1 Training

Training requirements are detailed on the WMI Training Matrix.

All staff will be trained prior to carrying out a task for the first time. Staff shall also be trained annually in the operational requirements of this document.

All personnel, subcontractors, consultants and visitors will receive inductions into environmental obligations prior to commencing work on site. All environmental inductions will be conducted as part of the site induction. The site induction will be reviewed regularly or in the event of a substantial change to an environmental procedure, to ensure it reflects current working practice.

The topics addressed in the Project inductions shall include:

- duties under environmental legislation and contractual requirements
- specific environmental objectives and mitigation measures established from the Environment Risk Assessment
- responsibilities under this plan in relation to implementing mitigation measures, monitoring, reporting and implementing corrective actions
- definition, management and responsibilities in the event of an environmental incident
- the consequences of not implementing mitigation measures or departure from specified operating conditions
- internal and external communication processes and protocols
- community awareness and sensitivities, and cultural perspectives and expectations

Records will be maintained of all inductions conducted, including:

- names and signatures of personnel attending
- date of attendance
- name of trainer/facilitator.

Induction records will be generated, controlled and maintained within the document management system.

4.2 Inductions

All new staff, sub-contractors, consultants and visitors to the site will undergo a site induction. A written record of each induction must be made, signed and filed.

These inductions will be created during commissioning of the plant and will include training on identification of fire ants.

4.3 Inductions and training

All new staff shall be inducted to site as per the Site Induction Form.

Staff shall be trained in the relevant procedures prior to undertaking tasks. Training is continual and will be refreshed annually. Training shall be documented in the Training Matrix.

New staff are supervised and continually monitored to ensure competency and safety. This is done by a buddying system whereby a new employee is placed with an experienced staff member until deemed competent by that senior staff member or supervisor.

Specific Fire ant recognition training is included in the induction and refreshed annually for all staff and applicable sub-contractors.

4.4 Counselling and disciplinary procedure

Warnings may be issued to staff members failing to follow WMI's policies, procedures, occupation health and safety requirements, for repeated damage to equipment, inappropriate behaviour, or negligence etc.

Disciplinary steps:

1. Counseling shall be verbal and maybe in the presence of a witness
2. First warning shall be in writing
3. Final warning shall be in writing
4. Termination

All incidents shall be investigated, the reason for a warning shall be outlined. An employee shall be given every opportunity to respond. WMI shall provide additional training and or support where required.

WMI considers the following employee actions as serious misconduct which can lead to instant dismissal:

- theft
- assault or sexual contact
- the employee being intoxicated at work
- refusal to obey the lawful instruction of the employer
- willful damage

Note: that the above list is not inclusive, and management reserves the right to dismiss employees without notice for acts of serious misconduct.

5 FACILITY ACTIVITIES

Figure 1 – Site layout

5.1 Amenities

Visitor parking, the site office and maintenance shed are located adjacent to the site entry/weighbridge.

5.2 Visitors

Due to the nature of the site and presence of heavy earth moving equipment and trucks, visitors must report to the site office upon entry. All visitors shall sign in, complete a site induction and be accompanied once they leave the car park/office area. Work boots, high vis vests and eye protection must be worn.

5.3 Maintenance

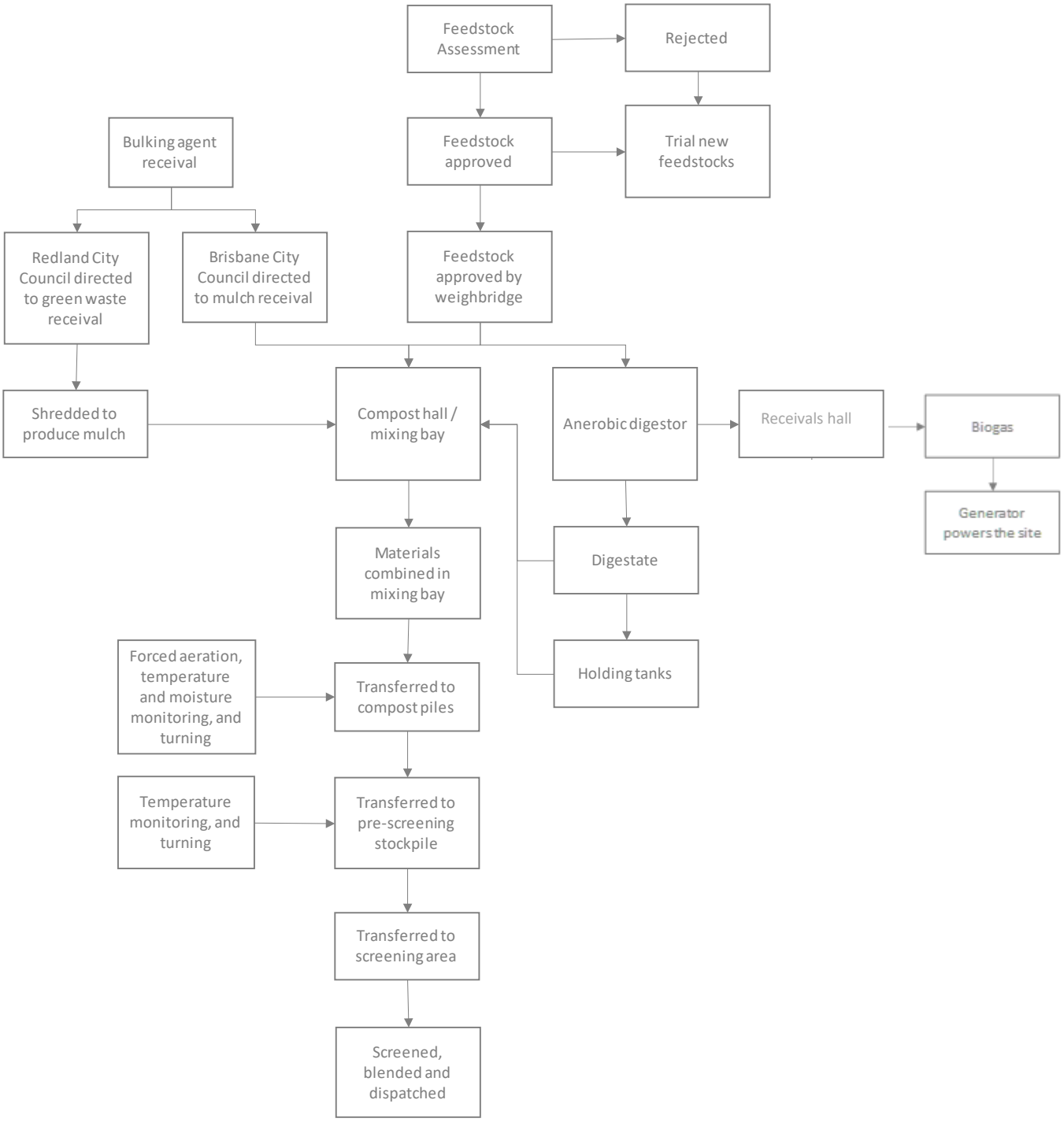
In order to ensure the ongoing operation of the facility, plant shall be maintained and serviced to ensure continuity of operations. Where a break down occurs, all efforts shall be made to have the plant up and running as quickly as possible.

Plant and equipment

- Inspect daily for function and condition as per pre-start checks
- Management to schedule repairs as appropriate
- Servicing shall be carried out as per plant specifications

6 COMPOSTING PROCEDURES

6.1 Materials and process flow chart



6.2 Feedstock

6.2.1 Types and receival

WMI are permitted to receive a variety of putrescible and non-putrescible feedstocks as per the table below.

Table 1 – Acceptable feedstocks

Waste	Code	DES Odour Risk Rating
Fish processing waste Abattoir waste Animal manure Poultry waste	K100	High – very high High – very high High Very high
Grease trap waste	K110	Very high
Food and food processing waste including: Clarified waste Seeds/grains Flour Soft drink waste Yeast water Alcohol distillate water Ginger waste Vegetable matter	K200	 High – very high Low - medium Low Low High High – very high High Medium
Bio-solids stabilised Biosolids insufficiently stabilised Septic tank waste (untreated) Grey water / sullage	K130	Medium Very high Very high
Substances used for manufacturing fertiliser for agricultural, horticultural or garden use including: Fertiliser sludge Ammonia water Urea water Fertiliser wash	N205	 High High High Medium
Cardboard and paper waste		Low (mulch) – medium (pulp)
Potting mix		
Green waste		Low
Storm water		Low

Feedstocks with an Odour Risk Rating of high or very high will need to be received into the anaerobic digestor receivals hall or feed tank inlet.

6.2.2 Feedstock authorisation

New customers or existing customers with new feedstocks are required to complete the Supplier feedstock authorisation form, refer **Appendix A** and provide feedstock details and analysis. Results shall be assessed against WMI thresholds to be established during commissioning.

Wastes approved for receival will be done on a trial basis. Wastes considered to be suitable for the process will continue to be received where supply remains consistent with initial observations. A sampling and testing schedule for incoming feedstocks by type and customer shall be established during commissioning and will be based on the following:

- High risk feedstocks, quarterly for analytes of concern
- Medium risk feedstocks, biannually for analytes of concern
- Low risk feedstocks, annually for analytes of concern

Only licenced waste transporters with waste transporter certificates are to be accepted for receival onsite as per Table 1. Analysis provided by the supplier shall be assessed to ensure the feedstock will be suitable for the composting process.

6.2.3 Green waste

Green waste is received from:

- Brisbane City Council 40,000 tonnes per annum of mulch. Mulch can be received directly into the composting shed and/or onto the mulch receival pad, from where it will be transferred to the composting shed.
- Redland City Council 30,000 tonnes per annum of raw green waste. Green waste shall be received onto the green waste receival pad, stockpiled, shredded and transferred to the composting shed.
- Residents or contractors delivering green waste shall be directed to the green waste receival pad

For quality purposes transfer the oldest mulch to the composting shed.

6.3 Weighbridge

All wastes are received over the weight bridge to determine the tonnes for mixing and invoicing purposes. The weighbridge operator shall:

- Document the load via the weighbridge software system, this will include date, time and waste description. These details will support odour complaint investigations
- Complete the Prescribed Waste Transport Certificate, ensuring only permitted wastes are received as per the Table 1 above
- Direct the driver to the appropriate receival point i.e., mulch receival, green waste receival, anaerobic digestor, holding tanks, and or mixing bay

- For feedstocks document on the Liquid Total Record where the load was received too
- Document any samples taken from a load on the Liquid Total Record

6.4 BIOGAS PLANT PROCEDURES

The plant is designed to handle circa 50,000 tonnes/year of throughput (i.e. green waste) and process up to 150m3/day of trucked organic waste

6.4.1 Anaerobic digestor

Feedstocks with an Odour Risk Rating of high or very high will need to be received into the anaerobic digestor receivals hall or feed tank inlet.

All high and very high Solid feedstocks shall be unloaded into the storage bays which hold up to 300m^3 of material. Material is pre-treated/macerated to remove larger materials and then loaded into the digester feed tank. The digestor feed tank is 8m heigh and holds 500m^3 or 500,000L of feedstock. The feed tank is a continuous process, mixed by an agitator, ensuring a homogeneous mix while keeping the solids in suspense for output to the digestion tanks. Ideally solids shall be input at a rate of 20%. Liquid feedstocks shall be deposited into two inlet connection points outside the DA hall which will feed directly into the digestor feed tank. The feed tank prepares the blended organics for digestion and has a holding time of approximately 2.5 days.

Two primary digestors with a combined capacity of 5,000m^3 will receive material from the feed tank. These anerobic digestors (without oxygen), will be continuously fed at set rates to maintain optimum bacteria health and gas production. They have a retention period of 15 to 30 days and will operate at approximately 38°C.

The output from the primary digestor tanks will be hydrostatically fed into a 500m^3 discharge tank. Gas production from this tank will be reduced and any captured fed back to a primary digestor tank. Digestate from the discharge tank will be collected delivered to or piped to the composting shed mixing bay for blending with mulch and batching within the composting shed.

6.4.2 Biogas

Once gas pressures reaches 7 to 8 millibar, gas is captured and automatically fed via offtake lines to the dehumidifier to reduce liquid content. Positive pressure allows the biogas to flow out of the digestors to the gas management system. The generator coverts the gas into power for export or use. During peak production gas can be stored for later use.

6.4.3 Emergency flare

In emergency conditions when the power generation unit is not in operation, the high temperature enclosed flare will operate automatically. It is designed to burn at 1,000°C at a gas flow rate of up to 500 m^3/hour killing any potential airborne pathogens from the biogas and ensuring a 100% combusted biogas release to atmosphere.

The anaerobic digestor, biogas plant, generator and flare are operated from the main control centre and shall only be operated by trained personnel.

6.5 COMPOSTING SHED PROCEDURES

The composting shed will house a mixing bay and five to six composting bays with forced aeration. Additionally, compost piles may be turned with plant to facilitate the composting process. Water can be added as required, temperatures shall be monitored three to five days per week and aeration adjusted accordingly. After five to six weeks, compost shall be relocated to the adjacent storage and screening area (renamed the pre-screening area) and stockpiled.

The composting shed will be under negative pressure and all air will be captured and treated via biofilter 1 and biofilter 2.

Compost will be transferred to the finished stockpile area (renamed the screening and finished product area) for screening, blending and dispatch.

6.5.1 Carbon and nitrogen ratio

As per the Queensland Department of Environment and Science Best Practice Environmental Management Guideline, the 'ideal ratio of C:N for composting is generally thought to be in the range of 25:1 to 40:1'.

WMI has established typical carbon and nitrogen levels of wastes received onsite. Based on this data mix ratios have been established for open windrow composting. Once the composting shed has been constructed, these mix ratios shall be reviewed and confirmed during commissioning. In addition, the typical carbon and nitrogen content of the digestate will be established and mixing rates formulated. The Ready Reckoner used by operators to determine the tonnes of mulch to blend with the tonnes of individual waste types and or digestate shall be updated.

The through put of feedstocks via the anerobic digestor is limited by the feed tank and is approximately 60,000 tonnes per annum. It should be noted that low risk wastes including stormwater can be received directly to the composting shed mixing bay.

6.5.2 Feedstock mixing

Feedstocks can be received directly into the anaerobic digester, into holding tanks outside the composting hall or directly the mixing bay in the composting shed. The concrete mixing bay is where feedstocks shall be mixed with mulch using a front end loader. This task shall be carried out as follows:

- Between receival and mixing of loads, a layer of mulch will be spread on the bottom of the bay to reduce odour and prepare for the next load
- Where a load is received directly to the mixing bay, the weigh bridge operator shall notify the mixing bay operator of the type and tonnes of waste to arrive
- The operator shall refer to the Ready Reckner to determine the tonnes of mulch to be mixed with the load based on the waste type and tonnes
- Feedstocks are mixed promptly upon receipt
- Mix the load thoroughly with the loader to mix any liquids with the mulch
- Transfer the load to the 'open' batch within the mixing hall

- Record the bulk density of a bucket of material when transferring to a batch
- Bulk density should generally be below 650kg/m^3
    - If greater than 650kg/m^3 add additional mulch
    - Measuring bulk density will address porosity
- Report to the weigh bridge the volume of mulch used, the bulk density and the batch added too
- Keep the mixing bay clean and tidy at all times
- Report any issues to the weigh bridge operator i.e., physical contamination, odourous etc.

6.5.3 Batch Management

Turning helps to physically break up mulch material, cool piles and replenish oxygen, assisting microbes to break down the organic materials, thereby producing compost. In order to ensure quality compost production and minimise odour, batches shall be managed as follows:

- Batches are formed from material from the mixing bay area using the loader and moxie
- Batches shall be approximately 30m long by 30m wide and no higher than 3m
- Forced aeration shall be used to manage batch temperature
- Batches shall be turned routinely using fit for purpose plant
- Batches shall be turned every one to two weeks
- Where batches are >65°C schedule a turn
- Where screening stockpiles are >60°C schedule a turn
- Do not drive on newly formed batches with the loader
- When turning with an excavator do not walk back over the batch to exit
- Water shall be added where required

6.5.4 Pasteurisation

As per AS4454 green waste containing food waste, grease trap waste, biosolids etc., are all considered high risk wastes. The process WMI are to implement is force aeration in an enclosed environment, it, therefore turning is still required to invert the surface material to ensure the whole mass is subject to temperatures >55°C. Therefore, the pasteurisation requirement for turned, high risk wastes is a minimum of five turns with a minimum of three consecutive days >55°C between each turn.

Pathogen and plant health indicators as per AS4454 are as follows:

- Salmonella spp: absent in 50g (dry weight equivalent)
- Faecal coliforms: <1000 MPN/g (dry weight equivalent)
- Viable plant propagules: nil after 21 days

An initial testing frequency to prove processing systems shall be implemented during commissioning which shall determine ongoing testing frequency.

6.5.5 Batch Monitoring

Heat is a direct indicator of microbial health and therefore the batch health. Batches within the compost hall pre-screening area shall be monitored as follows:

- Batch temperatures shall be monitored daily in the compost hall, twice a week in the pre-screening area and once a week in the screening area
    - For batches >65°C increase aeration and or turn
    - During pasteurisation, for batch temperatures <55°C decrease aeration and monitor temperatures until they are >55° again
    - Calibration can be done using an ice slurry (0°C) or boiling water (98 to 102°C) and shall be carried out every three months. Record on the calibration record.

- Moisture is ideally between 30 to 50%, depending on the composting stage and shall be monitored visually as follows:
    - During temperature monitoring
    - By using the squeeze test where required, that is the media is at 50% where one drop of water can be squeezed out
    - Prior to screening
    - Visually during any relocation task
    - Compost during composting is ideally 50% moisture
    - Composting for screening is ideally 30-40% moisture

- Oxygen and pH monitoring are not required
    - Bulk density (as per Feedstock Mixing) will address porosity, oxygen and natural draft ventilation
    - pH will be monitored for trouble shooting purposes where required
    - Results for oxygen (>5%) and pH (6.5 to 8.5) would not alter batch management as above

6.5.6 Leachate Management

Leachate overflow to be contained within the drainage area and flow towards the sump area.

The leachate collected from the composting bunkers in the leachate sump will be used as required to provide additional moisture for the composting process.

The leachate sump level will be controlled using a float switch on the pump. When a critical level is reached the leachate will be recirculated into the maturing piles or removed from the Facility by pumping to the nearby septage ponds.

The Facility Supervisor is responsible for ensuring that runoff water or other potentially contaminated water from the Facility is not released into the environment or if a release does occur that the appropriate actions are taken.

The Facility Supervisor or a designated staff member must:

- Visually inspect the leachate sump daily for contamination, erosion, leaks, damage, and pump operation; and
- Ensure that there is freeboard in the leachate sump at all times

6.6 PRODUCT MANAGEMENT PROCEDURES

6.6.1 Product analysis

Product testing shall be in line with the site EA once finalised. WMI use a NATA accredited lab for all analysis and sampling is carried out by trained personnel.

6.6.2 Screening

WMI successfully sell all product produced annually, with stockpiling during non-peak periods required to fulfill periods of peak demand. Screening shall occur as follows:

- Once a batch is composted or as room dictates, relocate the compost to the screening area.
- At this point material should be <60°C
- Screen the oldest material/stockpile first
- Locate the screen so litter does not blow into the product and to prevent dust emissions off site
- Consider wind speed and direction during screening, do not screen during periods of high winds

6.7 ODOUR TREATMENT AND CONTROL

6.7.1 Feedstock Odour

All feedstocks shall be received directly into sealed inlets, tanks or enclosed environments. The composting shed and digestor receival hall are under negative pressure, with captured air directed to one of three onsite biofilters. Feedstocks with an Odour Risk Rating of high or very high will need to be received into the anaerobic digestor receivals hall or feed tank inlet.

Grinding, relocation of compost from the composting shed to the pre-screening area, relocation within the pre-screening area, transfer from the pre-screening area to the screening area, screening and product blending and dispatch have minimal odour potential.

6.7.2 Digestor Receival Hall odour control

The anaerobic digestor receival hall is under slight negative pressure, with the room air being changed over 4 to 5 times per hour. Captured air is transferred via internal ducting to the biofilter where it is treated via the odour eating bacteria living on the spongealite media.

The biofilter daily, weekly and monthly maintenance checks and requirements are provided in **Appendix B.**

6.7.3 Composting shed odour control

Daily, Weekly and monthly maintenance to be completed for composting shed biofilters as set out in **Appendix B.**

6.7.4 Odour Monitoring

Commission testing

Within four weeks of any air filtration system being installed, an air filtration system efficiency monitoring procedures shall be included here in line with EA condition 3G19 and must include the following:

- Monitoring shall be undertaken in accordance with REMP.
- Performance parameters tested monthly shall include pH, moisture and temperature content of the filter bed.
- Daily performance measures to ensure optimum performance – daily checks of the biofilters, refer Appendix A
- Corrective actions in the event that a biofilter is operating outside optimum parameters include:
    - Adjust moisture, add water if too dry or turn off water if too wet
    - Repair/replace watering system parts
    - Remove weeds
    - Fill gaps or cracks not corrected by increased moisture with the appropriate media
    - Replace media as required, according to supplier specifications
    - Complete an Incident Report
- Daily observations of odour and dust at the downwind side of the site boundary should be undertaken by a WMI staff member and the observations recorded.

Annual Monitoring

Annually a suitably qualified person shall be engaged to undertake odour monitoring, which is to be performed in accordance with the site EA and Receiving Environment Monitoring Plan (REMP) as follows:

- For determining odour emissions from an air filtration system, and for taking odour measurements in n the ducts or stack of an air filtration system, must be carried out in accordance with the test methods in AS 4323.1:1995 (Stationary source emissions Selection of sampling positions
- Odour emissions from a surface area shall be carried out using the 'Witches hat' odour sampling method
- For odour concentration, analysed from air samples from the ducts or stack of an air filtration system in accordance with AS 4323.3:2001 (Stationary source emissions – Part 3: Determination of odour concentration by dynamic olfactometry)

Should odour emission rates exceed 473ou·m3/s from either of the two biofilters, co-incident monitoring should be undertaken at the biofilter inlets and outlets to identify whether the inlet concentrations are high, or the filter is not sufficiently efficient.

7 HAZARD AND RISK MANAGEMENT

WMI shall maintain a system to ensure all hazards are identified, investigated, corrected (eliminated or controlled) and verified. A 'hazard' is a source of potential harm. A 'risk' is the combination of the likelihood of a specific unwanted event and the potential consequences should it occur.

The process for risk management includes:

- Identify the hazards
- Determining the level of risk based on the likelihood that an event will occur and the consequence or outcome should it occur (refer below)
- Determine strategies to eliminate or reduce the risk
- Implement the strategies to eliminate or reduce the risk
- Review strategies for effectiveness

Likelihood scale (select an option from 1 – 5):

1 **Rare** – e.g., theoretically possible, little to no chance of occurrence, not known to have happened
2 **Unlikely** – e.g., would involve major systems and controls failure, has occurred in industry
3 **Not likely, but possible** – e.g., could occur but has not in many years of activity
4 **Likely or could occur** – e.g., known to occur once in the last 12 months
5 **Almost certain** – e.g., common occurrence – multiple times per year

Severity or consequence (select an option from 1 – 5):

	People/health	Environment	Business impact/assets	Product quality
1	First aid injury, no lost time	Slight, affecting limited area onsite, no regulatory non-compliance	Slight damage, less than $5,000	Product issue amended prior to load out
2	Lost time injury	Minor damage onsite, confined to boundary, procedural breach	Minor damage, less than $10,000	Minor issue grade maturity or contamination
3	Serious injury, not resulting in permanent injury	Moderate, largely confined to boundary, procedural/systems breach	Moderate damage less than $50,000	Moderate issue of maturity, damage to crop or plants or contamination
4	Serious injury, resulting in permanent injury	Major, short term, beyond boundary, affecting receptors, community complaints	Major damage less than $500,000	Major issue of maturity, damage to crop or plants or contamination
5	Single or multiple fatality	Extensive, long term, beyond boundary, affecting receptors, community action	Server damage, more than $500,000	Server issue of maturity, damage to crop or plants or contamination

Use the two figures to identify the risk in the following matrix.

Likelihood	Consequence				
	Insignificant (1)	Minor (2)	Moderate (3)	Major (4)	Severe (5)
Almost certain (5)					
Likely (4)					
Possible (3)					
Unlikely					
Rare (1)					

Emergency – Unacceptable risk, cease work, alternate methods to be reviewed. Policy – DO NOT PROCEED
High risk – Further control measures required, weekly review . Policy – PROCEED WITH EXTREME CAUTION
Moderate risk - Implementation of controls for monthly monitoring. Policy – PROCEED WITH CAUTION
Minor - Monitor and implement control measures. Policy – PROCEED WITH CARE
Low - Manageable by routine procedures, task conducted as normal. Policy – PROCEED WITH AWARENESS

The below list of policies and procedures to manage workplace risk are to be referred

to by the Project Manager during the all phases of the Project.

System	Management	Safety	Training	Audit
Standard Operating Procedures Policies	Checklists & Review Documentation Change Management	Safe Work Plans Safe Work Method Statements	Training Records	Review of Procedures and Practices

7.1 Internal Communications

Procedures and other safety information or topics are communicated across the site through the following measures:

Tool box meetings - WHS Toolbox / Safety meetings are mandatory and attended by all personnel. These meetings enable an exchange of information between Site Supervisors, site personnel and where practical the client representative.

Daily pre-start meetings shall be attended by all site personnel, and attendance documented, prior to the commencement of each day's work activities.

Safety Alerts - these are emailed, placed on notice boards or discussed at the above meetings depending on the target audience.

7.2 PPE

PPE required onsite includes the following:

- Steel capped lace up boots
- Long sleeves and long pants
- High visibility vest
- Glasses
- Sun hat
- Sunscreen is available
- Hard hat required when grinders are operational

7.3 Issue resolution

Where an employee has an issue on site, they are to report it to site management. Should the issue not be resolved, the issue should be reported to the General Manager. Should the issue still not be resolved an independent third party can be engaged to resolve the issue. Factors to be considered when resoling an issue area:

- Can the hazard/risk be isolated, or it likely to affect a wider area?
- The number and locate of employees affected
- Can appropriate temporary measures be taken?
- Should monitoring be implemented?
- When can the hazard/risk be corrected permanently?
- Who is responsible for resolving the hazard/risk?

7.4 Accident/Incident/Hazard Reporting

Any accident, incident, near miss or hazard which involves the safety or health of a person or damage to plant, equipment, materials, processes, contractors, members of the public and their property require reporting. This reporting enables the Management team to ensure appropriate prevention, corrective or medical treatment is actioned as soon as practicable.

7.5 Incident Reporting

All odour complaints are to be recorded on an Odour Complaint Investigation, refer Appendix B. All near misses and incidents are to be documented on an Incident Report, refer Appendix C. An investigation into all incidents shall be carried out, the cause identified, corrective action taken, procedures updated and staff informed via toolbox meetings and or direct communication. All incidents shall be investigated by management and reviewed by the General Manager. Incident reports shall form the Incident Register, filed by date. All incidents shall be reported and documented immediately after the initial response and promptly investigated.

8 ENVIRONMENTAL MANAGEMENT CONTROLS

8.1 Dust

Grinding green waste, relocation of materials, traffic movement around site, screening can all produce dust.

Dust shall be managed as follows:

- Internal roads are predominately bitumen, any dirt roads will be maintained to minimise dust
- Roads shall be kept clean as far as practical
- Enforce low speeds enforced for plant and vehicle movement
- Trucks leaving the site shall pass through the wheel wash where necessary
- During grinding and screening, where possible position equipment so dust remains in the working area
- Shut down dusty activities in server conditions
- Enclosed composting shed with negative pressure and air capture
- Minimise storage of mixed materials on-site prior to placing in windrows.
- Maintain compost moisture at around 30 to 40 % prior to screening
- Consider the wind direction and speed, during tasks which produce dust
- Wear eye protection and when required dust masks
- Activities undertaken in enclosed or segregated areas where possible.
- Operators should ensure optimal moisture content of products to minimise dust generation.
- Weather monitoring. In the event that dust management objectives are not being achieved due to weather conditions or other factors, only those activities that do not generate dust will be undertaken. Dust generating activities will be limited during periods of high wind.
- Operators of front end loaders should minimise drop height when handling materials.

8.2 Noise

Noise must not cause environmental nuisance to any sensitive place or commercial place. Noise must not exceed the level outlined in the site EA.

Assured Environmental (2018) conducted a noise impact assessment of the WMI upgrade and relocation, including reviews of previous noise studies, computational modelling and control recommendations to achieve compliance. Overall, the WMI facility is not expected to impact on the amenity of existing and future sensitive receptors in the area nor were noise emissions from the facility expected to present a constraint on the proposed development.

Particular attention should be given to mitigating potential noise impacts for nearby residents on the periphery. Appropriate measures may include:

- minimal to no openings in building walls facing residents

- enclosure or other suitable acoustic treatments for machinery

- placement and screening of outdoor storage and work areas, and

- provision of adequate physical separation and appropriate landscaped treatments including establishing planted buffer areas and acoustic mounds or fencing.

8.3 Litter

Litter shall be collected from the site grounds and perimeter as required.

8.4 Stormwater

- There are two dams on site which serve as catchment for runoff from the green waste area and screening and finished product area.
- The stormwater runoff from disturbed areas, must be retained on site and can only be released after the event where:
    - beneficial reuse on site is not viable, and
    - a release is required to maintain the required stormwater retention capacity, and
    - there are no contaminants present or at concentrations which may cause environmental harm.
- Water monitoring shall be in accordance with the Stormwater Management Plan.
- Under EA Condition G16 any breach must be reported to the administering authority as soon as practicable, or at most within 24 hours of becoming aware of the breach. Records must be kept including full details of the breach and subsequent actions undertaken.

8.5 Fauna Management

No staff are permitted to handle any fauna unless authorised. If injured fauna is found the below local wildlife rescue or other wildlife group should be contacted.

Australian Rescue and Rehabilitation of Wildlife Association Inc (ARROW) is a volunteer organisation dedicated to the rescue and rehabilitation of sick, injured and orphaned wildlife. Rescue hotline 0430 904 415 (24-hours) Website: www.arrowwildlife.org.au

Other measures to mitigate impacts to fauna include:

- Pre-start checks on screening and mulching plants to ensure no fauna sheltering.
- Ensure slopes of stormwater catchment ponds are not steep and have material to enable fauna escape (rope, stick or rocks up bank to allow fauna grip to climb).

8.6 Weeds Pests and other Biosecurity Risks

Weeds will be managed by:

- Green waste shall be shred promptly upon receival.
- Compost shall be pasteurised as per AS4454.
- A weed management program to ensure ongoing weed eradication and the ongoing health of the retained vegetation on the northern slopes.
- Weeds shall be managed as required via slashing and or spraying or if a restricted matter under Biosecurity Act in accordance with the recommended method to remove and destroy.
- Weekly HSE inspections to include visual observation for weeds, staff to be trained in weed identification, particularly for weeds of national significance and restricted matter category weeds.
- Training of operating staff to identify weeds, know the requirements outlined in the Queensland biosecurity manual.
- Any declared weeds or restricted matter category detected onsite are treated/removed as soon as practicable.

Pests and Other biosecurity risks will be managed by:

- No acceptance of any organic material considered to be a biosecurity risk or quarantine waste.
- Waste shall be received directly into tanks or receival halls. Baiting shall be carried out as required.
- Green waste is mulched promptly upon receival, and the oldest mulch shall be used as a priority.
- Where food waste is included in green waste/ mulch this will be used as a priority over green waste/mulch without food waste.

Swanbank is within a declared fire ant zone. Staff are to undertake regular checks for their presence. As fire ants are a category 1 restricted pest WMI must report suspected sightings of fire ants on the property to Biosecurity Queensland or face heavy fines. Guidance on identifying fire ants is provided in **Appendix G.**

8.7 Subsidence

Potential maximum subsidence values indicated in the Moreton Geotechnical Report Services (2020) Subsidence Impacts Report for the Bluff Seam workings be catered for in the design of the tank area and maintenance shed, whereas the potential subsidence impacts from the Bergins Seam workings be catered for in the design of the remaining structures e.g. the very large shed.

The potential regional subsidence effects noted above are not expected to restrict the proposed works. However, the following design considerations or alternatives that achieve the same objective should be applied:

- The Moreton Geotechnical Report Services (2020) Subsidence Impacts Report should be supplied to your Engineers for their consideration.
- Methods to minimise the risk of potential subsidence to the estate should also be incorporated into the planning, design and construction phases.

- The composting mixing shed is designed to tolerate some distortion or that the portal frames can be adjusted if or when required.
- Flexible connections are constructed for all underground and aboveground structures.
- Locating and capping, at least of Borehole NS 118, to be carried out prior to the start of construction of the proposed work. Initial work in this regard will however need to establish the current platform level in relation to the original ground level to establish the thickness of any overlying fill. Extensive overfill may preclude the recommendation for further remediation works.
- Recommended measures include redesigning the largest lots to be in the Zone 2 area adjacent to the highway, constructing flexible buried services (e.g. use poly-pipe for water and sewerage supply, install power and telecommunications cables loosely in PVC pipes etc), construct mainly portal frame type buildings (with flexible cladding) that can be relevelled if or when required etc.
- Risk minimisation strategies however assume that concrete slabs can be resurfaced or replaced in the event that any tilting or rotations of slabs become problematic.
- An intrusive site investigation is required to determine the feasibility for removing Lot 123 from the EMR. If it is not feasible to remove the Lot from the EMR and the site has contaminant concentrations acceptable for the proposed landuse, a Site Management Plan (SMP), approval by EHP would be required.

8.8 Land

8.8.1 UXO

A formal UXO Technical Assessment by Lambert & REibein in 2015 found the property has a "slight" risk for UXO contamination zones, as such the following is recommended:

- a minimum 10% area UXO technical assessment in order to obtain (if present) evidence of High Explosive (HE) munitions impacts and detonation is recommended.

This evidence is typically in the form of fragmentation, fuses, driving bands etc. that would confirm the site has been impacted by HE munitions.

If UXO were encountered during any future re-development works, an individual should not touch or disturb the object;

- take action, where appropriate, to prevent it being disturbed by another person
- note its approximate dimensions and general appearance; -
- note the route to its location; and -
- advise the Police as soon as possible.

This evidence would then be forensically examined to determine the type of HE munitions.

8.8.2 Land Contamination and Chemical Management

The following measures may be implemented to reduce the risk of contaminating soils, groundwater and surface waters:

- Waste Acceptance procedure and risk assessment
- Asset maintenance program
- Routine inspections of leachate collection tank
- Routine water quality testing in accordance with stormwater management plan and REMP to ensure it is suitable for intended reuse purpose.

To ensure the handling and use of chemicals onsite do not cause contamination the following measures may be applied:

- Spill response procedure
- ChemAlert system
- SWMS on herbicide application, emulsion usage, handling and line marking.
- SWMS on emulsion usage and handling
- Trained operators with spill kit training and spill kits in close proximity - in vehicles
- Spill containment systems (e.g. curbing, graded surfaces) in place for the dispensing area
- Compost processing testing to ensure stage completion and product stable.

9 COMPLIANCE

9.1 Complaints

Should WMI receive a complaint regarding odour from the complainant directly, from Council, DES, the DES Task Force or other source an Odour Investigation Report will be completed, refer **AppendixC**

Should WMI receive a complaint for dust, noise, litter or stormwater etc, directly, from Council, DES, the DES Task Force or another source an Incident Report shall be completed, refer A**ppendix D**

Where WMI identifies an incident the above shall apply. An investigation into the source and cause of the complaint will be conducted, corrective actions shall be taken, procedures updated and outcomes reported to the relevant regulators.

9.2 Daily, weekly and monthly checks

Daily, weekly, and monthly site checks will be established during commissioning and will include perimeter checks, weeds, erosion, litter, flashing lights, odour etc refer **Appendix A** for an example.

9.3 Internal audits

To be established during commissioning and will include amenities, compliance with approval conditions and legislative requirements and analysis etc.

9.4 Internal review

This Plan shall be reviewed annually, between August and November along with procedures and forms linked to this Plan i.e., Incident reports, Training matrix. This will ensure the Plan is up to date, continuous improvement and corrective actions have been incorporated and training is monitored.

9.5 Document records and control

The following environmental records will be retained for the period specified in the Project Manual:

- legislative updates
- licences and permits
- training and induction activities
- monitoring results
- details of non-conformances and corrective/preventive actions/improvements
- incident or complaints reports
- results of environmental audits
- results of management reviews
- inspection, calibration and maintenance activities
- records of hazardous material waste sent for off-site disposal
- correspondence

All information and records required by the conditions of the EA must be kept for a minimum of five years except for environmental monitoring results which must be kept until surrender of this environmental authority. All information and records required by the conditions of the EA must be provided to DES upon request and in the format requested.

9.6 External Reporting

External reporting requirement to be met are:

1. Reporting of waste returns to Department of Environment and Science (DES) (mandatory requirement: quarterly)
2. Annual return and compliance review submitted to DES under the Environmental Authority.

9.7 External Notification Obligations

There are a number of legislative requirements to notify of events , those relevant to WMI operations include:

- Environmental incidents resulting in potential or actual material or serious harm Table 1 details the reporting requirements.
- Any breach of a condition of this environmental authority must be reported to the DES as soon as practicable, or at most, within 24 hours of becoming aware of the breach. Records must be kept including full details of the breach and any subsequent actions undertaken.

11 EMERGENCY PROCEDURES

In the event of an emergency, stop and assess the situation. Where is it safe, assist others. Contact management for direction and support. Follow their guidance and remain calm.

WMI will co-operate completely with the emergency services when onsite. Always advise WMI General Manager of an emergency as soon as possible after the initial response.

In the event of an injury:

- Provide first aid, take the worker to your nominated doctor or call an ambulance on 000 as appropriate
- Ensure the injured seeks appropriate medical attention
- If you are injured at work, you will need to be cleared by a doctor to return to work, please work with your manager to achieve this
- Notify WorkSafe if serious injury (to head, eyes, amputation, burns, spinal, loss of bodily function, serious lacerations medical treatment within 48 hours of exposure to a substance) or death
- Should the company receive a WorkSafe Workers Injury Claim Form
    - Refer to WorkSafe's What to do if a worker is injured guide
    - Request a Certificate of capacity
    - Send Part A and B of the Workers Injury Claim Form to your agent
    - Complete the Employer Injury Claim Form and submit to agent
    - Maintain daily contact (where possible) with the injured worker
    - Develop a Return to Work Plan
- As per WMI, workers will be returned to work as soon as possible on alternative duties where required

In the event of machinery fire:

- Where safe move away from green waste compost
- Stop the machine and exit
- Use the fire extinguisher or hoses to extinguish
- If unable to control the fire, the General Manager will call the fire brigade on 000
- Restrict public access
- Follow the Incident Reporting Procedure

In the event of a mulch/compost smoulder:

- Prepare source of water (water truck or hose)
- Restrict public access
- Break down the pile with a loader or excavator slowly so as not to inflame the smoulder
- **Do not walk excavator onto of the pile**
- Apply water as the pile is broken down
- Reduce the pile to half height
- Continue to apply water till soaked
- Once deemed safe, turn the pile while monitoring for hot spots
- Apply water where required

- Monitor the piles temperature daily until safe
- Review pile temperatures and turning regime to identify the system breakdown which caused the smoulder
- Follow the Incident Reporting Procedure

In the event of a mulch/compost fire:

- Soak the fire with water where safe to do so
- Move nearby material away where safe to do so
- Restrict public access
- Break down the pile with a loader or excavator slowly so as not to inflame the smoulder
- **Do not walk excavator onto of the pile**
- Apply water as the pile is broken down
- Reduce the pile to half height
- Continue to apply water till soaked
- If unable to control and where deemed appropriate the General Manager shall call the fire brigade on 000 and follow their directions
- Otherwise, once deemed safe, turn the pile while monitoring for hot spots
- Apply water where required
- Monitor the piles temperature daily until safe
- Review pile temperatures and turning regime to identify the system breakdown which caused the smoulder
- Follow the Incident Reporting Procedure

In the event of a hydraulic fluid spill from a machine:

- Stop the machine
- Stop the leak / flow of liquid form the machine
- Contain the spill to the immediate area
- Contact an operator on the 2-way to being sand to the area
- Place enough sand on the spill to completely cover
- Dig up the affected area and dispose of appropriately
- Follow the Incident Reporting Procedure

Within the Biogas Facility ?

11.1 Evacuation Plan

The Facility may need to be evacuated for a number of reasons. The order to evacuate will be given by the Facility Supervisor. However, if personnel believe themselves to be in danger they have the right to evacuate the premise at any time. Upon receiving the evacuation order personnel should:

- Turn off any plant equipment currently in use;
- Ensure all non-personnel in the area have evacuated;
- Proceed to a muster point which is at staff carpark; and
- Facility Supervisor to make sure that all personnel have evacuated the Facility before providing further instructions.

Appendix A – Supplier feedstock assessment form

All waste must comply with the latest revision of Department of Environment and Science Protection Guideline: Open windrow composting under Environmentally Relevant Activity 53 Compost and soil conditioner manufacturing EM1138.

Permitted wastes include:

- Fish processing waste
- Abattoir waste
- Animal manure
- Poultry waste
- Grease trap waste
- Food and food processing waste
- Vegetable matter
- Biosolids
- Substances used for manufacturing fertiliser for agricultural, horticultural or garden use
- Carboard
- Potting mix
- Green waste / mulch
- Stormwater

Unacceptable wastes include:

- Unidentified or contaminated material
- Organic Chemicals (e.g., chlorinated hydrocarbons, mineral oil, lubricating greases, pesticides, tars).
- PFAS chemicals
- Clinical and medical waste
- Sewer grit and rubble
- Cement slurry
- Dyes

Should you be unsure about the nature of the material being delivered, please contact WMI site management on 07 3801 8913 for clarification on acceptable and unacceptable wastes.

All loads shall be delivered as follows:

- In a seal vessel or container
- Accompanied by a Waste Transport Certificate with parts 1 and 2 complete
- Waste is to be categorised as per the Waste Tracking Guideline Waste Category and Code.
- The driver shall have knowledge of the waste material classification and volume. Non-permitted wastes will be rejected. All costs associated with rejection will be undertaken by the relevant transporter. A non-conformance report will be raised with corrective actions required to be undertaken by the supplier.

For all new waste types or waste sources/suppliers, please complete the form below and forward to WMI for review along with the required analysis. All new waste approved for receival onsite will be done so on a trial basis. Wastes identified during the trial as particularly odourous shall need to be discontinued.

Waste source and contact details (Licence requirement):	
Waste description/process by-product:	
Waste Code:	
Are any unacceptable wastes materials or contaminants present?	
Typical frequency of delivery and volume, monthly:	
Does the delivery vehicle get washed out prior to filling? If not, what is the potential for contamination of loads being delivered?	

Please provide a typical analysis of the waste including the following analytes as per the nominated units of measure:

Analyte	**Units**
Petroleum hydrocarbons (C6 – C40)	Mg/kg
Benzene, toluene, ethyl benzene, xylene (BTEX)	Mg/kg
Polycyclic aromatic hydrocarbons (PAH)	Mg/kg
Organochlorine pesticides (OC)	Mg/kg
Polychlorinated biphenyls (PCB)	Mg/kg
Volatile organic compounds (VOC)	Mg/kg
Metals (As, B, Cd, Cr, Cu, Pb, Hg, Mo, Ni, Se, Zn)	Mg/kg
pH	Units
Electrical Conductivity	ds/m
Per and poly-fluoroalkyl substances via total oxidisable precursor analysis (PFAS TOPA)	Ug/L
Total organic carbon	Mg/kg
Total nitrogen	Mg/kg
Total solids	Mg/kg

WMI completion

Analysis received from supplier: YES | NO
Waste accepted for trial receival: YES | NO

Appendix B – Biofilter Checks and Maintenance

Continuous checks on the pressure reading.

- Any sudden increase in pressure should be investigated and its cause determined. Excessive moisture in the biofilter beds is a likely cause. This can be managed by decreasing the frequency of the drip irrigation system.

Daily biofilter management procedure is as follows:

- Inspect the biofilter system and check that the fan is running and the humidification system is operating.
- Check the drainage sumps, particularly the delivery from the drains. This should be a steady, fast drip or dribble. Too little suggests insufficient irrigation and too much suggests over-irrigation.
- Check the temperature of the foul air stream into the biofilters (post-fan).
- Check the under-bed pressure in the inlet air distribution chambers.
- Check above each bed and downwind for any odours. Check the surface of the medium for dry patches and adjust watering regime if necessary. Particularly note any odours or dry areas around the walls. Log any adverse results.
- Identify any areas where odour and/or short-circuiting may be occurring and rectify as required.

Weekly biofilter management procedure is as follows:

- Check and record the back-pressure into the biofilter, as indicated by the fixed pressure gauges at the end of the inlet chambers. It is desirable that the backpressures be graphed, as to demonstrate any sudden changes that may have occurred from the previous operating period. This gives assistance when the six-monthly checks are carried out. A gradual falling in back pressure may indicate that the beds are drying out. A sudden increase indicates overwatering or accumulation of water in the plenum, while a gradual increase over a period of years indicates normal bed consolidation.
- Inspect the top surface of the biofilters. Remove any weeds. If the problem is persistent the use of a light surface spray of herbicide is acceptable (e.g. Roundup). Check for any dry spots. If these occur, water well with a hand hose or sprinkler and consolidate the area by tramping. These are most likely at the inlet chamber/medium interface. During filling these areas were filled a little higher and given extra tramping to consolidate. In the event that any problems develop it may be necessary to spread extra compost and compact well.
- Inspect the action of the irrigation drippers. Check that the surface of the beds is uniformly moist and that all drippers are free from blockages. Adjust irrigation timer if necessary.
- Check that negative pressures are been maintained within the foul air collection systems, by observing process air capture at the extremities of the system.

Monthly biofilter management procedure is as follows:

- Measure and record the foul airflow to the biofilters. Check against set-point airflow to determine whether the air capture system is operating effectively.
- Assess the air distribution between each of the biofilter cells, by observing the steamy outflow from the surface of the cells. This is best done in the early morning.
- Check and record the relative humidity and temperature in the foul airstream into the biofilter, using either a combined anemometer/RH meter or a wet/dry bulb thermometer system. Investigate reasons for lower than desirable RH if present. Check the operation of the spray humidification system.
- Check the moisture of the biofilter beds. This can best be done by digging to a depth of at least 300mm and observing the condition of the medium. If dry areas are evident the surface drip irrigation system should be adjusted to increase irrigation times.

Appendix C – Example of Routine Site Checks

Daily Checks

Date:

Performed by:

Item	Yes / No	Comments/Task
Is fly away litter observable		
Can odour be detected beyond the boundary		
Odour detected at biofilter 1		
Odour detected at biofilter 2		
Odour detected at biofilter 3		
Is air borne dust present		
Is surface water running off the site boundary		
Nuisance noise detected		
Is green waste / mulch contamination unusual / high		
Are spills or surface contamination present		
Chemicals being stored in bunds or defined storage area		
Is anything burning		
Are pests or vermin present onsite		

Weekly Checks

Date:

Performed by:

Item	Comments/Task
Condition/levels of stormwater sumps/pumps	
Condition of stormwater ponds	
Condition of onsite GW bores	
Condition of sheds	
Condition of plant	
Function of flashing lights/beepers	
Conditions of weeds and vegetation	
Condition of generator and flare	
Condition of forced aeration system	
Are weeds present on biofilters	
Are there gaps/cracks in the biofilter media	
Spills kits near chemicals and stocked	

Monthly Checks

Date:

Performed by:

Item	Comments/Task
Biofilter pH	
Biofilter moisture	
Biofilter temperature	
Monthly monitoring of biofilter physical parameters (air humidity, air temperature and bed moisture) is to be undertaken according to the Biofilter Design & Management Plan.	
Active check for fire ants completed	

Appendix A - Odour Investigation Report

Date and time of the complaint:

Date and Time the complaint was received:

Name and Contact details of the complainant:

Nature of complaint:

Description of the odour:

Wind direction at the time of the complaint:

Investigation undertaken

Carried out on the	
Odour Abatement website	
WMI Weather station records	
Feedstocks receive (type, when and actions)	
Other operations being carried out at the time of the compliant	
Odour detected upwind of the site	
Odour detected downwind of the site	
Odour detected at the complainant's location by WMI	
Odour matching the description detected onsite	
Are the details, description and wind direction at the time of the odour complaint consistent with WMI operations?	

Conclusion Formed:

Action Taken:

Completed by:

Appendix B – Incident Report

Incident report and investigation

-Staff to complete-

☐	Incident	☐	Near Miss	☐	Hazard
☐	Injury	☐	Spill	☐	Water pollution

Date of Incident ____/____/____ Time of Incident____:____ Site _____

Date notified to Supervisor____/____/____ Time notified to Supervisor____:____

Notified who _____ Incident Report Completed by_____

Report submitted to _____ Injury register completed Y / N

Incident description

_____
_____
_____
_____

Cause of incident (use back if needed)

_____
_____
_____
_____

Nature of injury (if any)

_____
___

Actions taken and required (fix loader, replace items in first aid kit)

_____
_____
_____

Spills – type, quality and affected area. Did the spill enter a waterway? Was the spill kit used?

_____
_____
_____

Staff, witness or customers involved

Name: _____ Phone _____

Name: _____ Phone _____

Comments

-Management to complete in conjunction with staff-

Incident investigation (including cause, circumstances and contributing factors – operator error, procedure not followed, no procedure/JSEA)

Date of Investigation:____/____/____ Time of Investigation: ____:____ Name _____

_____

_____

_____

_____

_____

_____

Measures that were in place to prevent this type of incident

_____

_____

_____

Measures and procedures developed to prevent re-occurrence

_____

_____

_____

Submitted to General Manager on ____/____/_____Submitted by _____

Does this Incident Require Reporting to WorkSafe: Y / N Date submitted:____/____/____

Submitted to Work cover by:_____ Time ____:____

Submitted to Managing Director on ____/____/_____Submitted by _____

Signed: _____Managing Director

Further comments

_____

_____

_____

Appendix E -Fire Ant Identification and Check Record

What to look for

- Small ants (2–6mm) that vary in size within the one nest and are copper brown in colour with a darker abdomen.
- Ants that exhibit aggressive behaviour when disturbed.
- Nests that are mounds of loose soil with no obvious entry or exit holes.

Watch the fire ant identification video to know what to look for.

Materials most likely to spread fire ants

Materials that can spread fire ants are known as fire ant carriers. There are restrictions on the movement of these materials within fire ant biosecurity zones. Fire ant carriers include:

- soil (e.g. fill, clay, scrapings, and any material removed from the ground at a site where earthworks are being carried out)
- mulch
- animal manures
- baled hay or straw
- potted plants
- turf
- mining or quarry products
- composted materials.

Fire ant nests

Fire ant nests have no obvious entry or exit holes.

Nests often appear as dome-shaped mounds, but these mounds are not always easily identifiable. They can be up to 40cm high, but may also be flat and look like a small patch of disturbed soil. They are usually found in open areas such as lawns and pastures, and along roadsides and unused cropland.

Nests can also be found next to or under other objects on the ground, such as timber, logs, rocks, pavers or bricks. Look near pots or any areas of disturbed ground as well as:

- in pot plants on the ground
- in stores of topsoil, mulch and potting mixes
- under landscape materials (e.g. logs, stones)
- under timber or pallets on the ground
- adjacent to buildings and other structures
- in untidy or overgrown areas
- near areas of permanent water (e.g. the banks of dams, rivers, ponds, aquaculture containers)
- tufts of grass in open areas, where the soil is built up around the tufts.

Conducting fire ant surveillance

Follow these steps when conducting fire ant surveillance.

- Ensure you wear appropriate personal protective equipment such as boots and gloves.
- Before moving a fire ant carrier or excavating at an earthworks site, examine the fire ant carrier or site for excavation, and adjacent areas on the site, for signs of fire ant nests.
- If you find a suspect ant or nest, use a long rod or stick and gently prod the nest, and inspect any ants present. Take care not to overly disturb the nest.
- Call Biosecurity Queensland on **13 25 23** if you have found ants you suspect are fire ants.
- If you find fire ants on your commercial site, Biosecurity Queensland will work with you to ensure that your business activities can continue without the risk of further spread of fire ants.