Government of **Western Australia**
Development Assessment Panels

Mid-West/Wheatbelt Joint Development Assessment Panel Agenda

Meeting Date and Time: 3 April 2019, 10:00am
Meeting Number: MWWJDAP/35
Meeting Venue: Department of Planning, Lands and Heritage
140 William Street
Perth

Attendance

DAP Members

Mr Paul Kotsoglo (Presiding Member)
Ms Jacky Jurmann (Deputy Presiding Member)
Mr Justin Page (A/Specialist Member)
Cr Tracey Rathbone (Local Government Member, Shire of Coolgardie) – *via teleconference*
Cr Sophie Bott (Local Government Member, Shire of Coolgardie) – *via teleconference*

Officers in attendance

Ms Francesca Lefante (Shire of Coolgardie)

Minute Secretary

Ms Michelle Tan (DAP Secretariat)

Applicants and Submitters

Mr Richard Phillips (Tellus Holdings)
Ms Julie Mahony (Tellus Holdings)
Mr Michael Ingram (Tellus Holdings)

Members of the Public / Media

Nil

1. Declaration of Opening

The Presiding Member declares the meeting open and acknowledges the past and present traditional owners and custodians of the land on which the meeting is being held.

2. Apologies

Mr Andrew Mack (Specialist Member)

3. Members on Leave of Absence

Nil

4. Noting of Minutes

Signed minutes of previous meetings are available on the DAP website.

5. Declarations of Due Consideration

Any member who is not familiar with the substance of any report or other information provided for consideration at the DAP meeting must declare that fact before the meeting considers the matter.

6. Disclosure of Interests

Member	Item	Nature of Interest
Mr Andrew Mack	8.1	Impartiality Interest - Mr Mack's firm, Talis Consultants, has been actively courting Tellus Holdings for work.

7. Deputations and Presentations

The Shire of Coolgardie may be provided with the opportunity to respond to questions of the panel, as invited by the Presiding Member.

8. Form 1 – Responsible Authority Reports – DAP Applications

8.1

Property Location:	Various Lots, Shire of Coolgardie
Development Description:	Waste Disposal Facility Class V and VI – Sandy Ridge
Applicant:	Mr Richard Phillips, Tellus Holdings
Owner:	State of Western Australia
Responsible Authority:	Shire of Coolgardie
DAP File No:	DAP/17/01318

9. Form 2 – Responsible Authority Reports – Amending or cancelling DAP development approval

Nil

10. Appeals to the State Administrative Tribunal

Nil

11. General Business / Meeting Closure

In accordance with Section 7.3 of the DAP Standing Orders 2017 only the Presiding Member may publicly comment on the operations or determinations of a DAP and other DAP members should not be approached to make comment.

Government of **Western Australia**
Development Assessment Panels

Form 1 – Responsible Authority Report

(Regulation 12)

Property Location:	Various Lots, Shire of Coolgardie
Development Description:	Waste Disposal Facility Class V and VI – Sandy Ridge
DAP Name:	Mid-West/Wheatbelt JDAP
Applicant:	Mr Richard Phillips, Tellus Holdings
Owner:	State of Western Australia
Value of Development:	$74 Million
LG Reference:	PA 2017
Responsible Authority:	Shire of Coolgardie
Authorising Officer:	Consultant Planner, Francesca Lefante
DAP File No:	DAP/17/01318
Report Due Date:	22 March 2019
Application Received Date:	1 November 2017
Application Process Days:	60
Attachment(s):	1: Location Map 2: Site Map & Aerial 3: Site plan demarcating infrastructure forming part of the development application 4: Development proposal, plans and elevations 5. Detailed design plans and Cell dome cap 6: Environmental Assessment Report 7: Environmental Determination 8: Schedule of Submissions & copies of response received 9: Tellus summary changes in response to DFES advice – 24 January 2019 10: Emergency Response Plan – 24 January 2019 11: Transportation Management Plan – 13 February 2019 12: Bushfire Management Plans updated – 19 March 2019 13: DFES response dated 22 March 2019

Officer Recommendation:

That the Mid-West/Wheatbelt JDAP resolves to:

1. **Accept** that the DAP Application reference DAP/17/01318 is appropriate for consideration as a "Waste Disposal Facility" land use and compatible with the objectives of the zoning table in accordance with Local Planning Scheme No 5 of the Shire of Coolgardie.

2. **Approve** DAP Application reference DAP/17/01318 and accompanying plans in accordance with Clause 68 of the *Planning and Development (Local Planning Schemes) Regulations 2015* and the provisions of the Shire of Coolgardie Local Planning Scheme No.5 subject to the following conditions:

Conditions

1. This approval shall expire and be of no further effect if the land use has not substantially commenced within a period of five (5) years or within any extension of time as granted by the Shire of Coolgardie or JDAP.

2. The land use and development shall be undertaken in accordance with the approved plans and specifications.

3. No waste other than that allowed for Class IV and Class V (as defined in the accordance with the *Landfill Waste Classification and Waste Definitions 1996*) landfill is permitted to be accepted by the facility.

4. No nuclear waste storage or disposal services to be provided at the site.

5. The transportation, handling and storage of radioactive material a transportation program is to be prepared and implemented in accordance with approval issued by the Radiological Council under the Radiation *Safety (Transport of Radioactive Substances) Regulations 2002.*

6. Prior to the commencement of the operation of the landfill written confirmation will be required from Main Roads Western Australia that the intersection between the undedicated Mount Walton access road and Great Eastern Highway is been constructed and upgraded to its satisfaction.

7. The Emergency Response Plan to be implemented in accordance with the approved plans and maintained for the duration of operation of the site for waste disposal facility. The plan to be reviewed and updated in accordance with *Emergency Management Act 2005* and *Bushfire Act 1954 (as amended)* to the satisfaction of the Shire of Coolgardie.

8. The Bushfire Management Plan is to be modified in compliance with DFES response dated 19 March 2019 and submitted to the satisfaction of the Shire of Coolgardie in relation to the following elements:
    a. Vegetation classification – the photographic evidence and photo point labels to align with vegetation classification.
    b. Vehicular Access – to be updated to reflect the private road access routes and ensure that they comply with the technical requirements of A3.5 of the Guidelines.

Advice Notes

1. Mining activities comprising the kaolin mine, workers accommodation and associated Class II and Class III waste facility do not form part of this application and are subject to separate approval in accordance with the Mining Act 1978.

2. The proponent is responsible for obtaining any approvals and/or clearances under the Aboriginal Heritage Act 1972.

3. The proponent is responsible for ensuring compliance all conditions contained in the Ministerial Statement (as amended).

4. The proponent is responsible for ensuring compliance with all transportation and safety requirements are maintained in accordance with the requirements of DFES (Department Fire and Emergency Services).

Details: outline of development application

Insert Property Address:		Lot 501 Crown Land
Insert Zoning	MRS:	Not Applicable
	TPS:	Shire of Coolgardie - Rural
Insert Use Class:		Waste Disposal Facility
Insert Strategy Policy:		Shire of Coolgardie Local Planning Strategy
Insert Development Scheme:		Shire of Coolgardie Local Planning Scheme No 5
Insert Lot Size:		873 ha
Insert Existing Land Use:		Vacant Land

Background

The JDAP, at its meeting on 24 August 2018, resolved that the consideration of DAP Application DAP/17/01318 be deferred for a period of up to 3 months in accordance with section 5.10.1a of the DAP Standing Orders 2017, for the following reasons:

1 To allow for the provision of the following additional information: -
   a) An updated set of plans clearly demarcating the elements included in the planning application (Planning legislation) and mining activities (Mining Act) including information on the workforce accommodation
   b) A Bushfire management plan and emergency evaluation plan.
   c) A Transport Management Plan addressing: -
      i) Intersection at Mt Walton / Great Eastern Highway including movement of vehicles and management of incidents,
      ii) Mt Walton Road upgrades and responsibilities
      iii) Transport along all routes used to transport material to the site with particular reference to incidents and contingencies for emergencies.

Proposal

The proposal is for a waste disposal facility and infrastructure comprises:
- Waste disposal cells accepting Class IV (Secure Landfill) and Class V (Intractable Landfill) material.
- Processing plant & stockpile area,
- Office, storage building, laboratory,
- Vehicle access, service roads, car parking, loading and turning areas.
- Operation of the facility for 25-years.
- Operation of the facility between the hours of 6am – 6pm, seven days per week.

The infrastructure associated with the development application is identified in (***Attachment 3)***. Further information on various infrastructure is provided in the detailed plans ***(Attachment 4***) and cell dome cap plans (***Attachment 5)***

It is noted that the kaolin mine, workers accommodation and associated Class II and Class III waste facility do not form part of this application and are subject to separate approval under the Mining Act 1978.

The waste disposal cells are to be filled with packaged waste in layers. The material is to be placed like with like in each layer, compacted and covered in clay.

- The cells are filled to approximately 7 metres below the surface then sealed with a 3-metre-thick layer of clay, with compacted gravel and laterite backfill.
- The cells are to be capped with a fabric membrane doom, controlled through a vehicle airlock fabric shroud.
- Subsidence monitoring to occur for a 10-year period.
- Waste to be disposed of comprises: -
    - 100,000 tonnes of waste (class IV and V) per annum
    - Hazardous and intractable waters, and low-level radiation.
    - Hazardous and intractable waste is primarily from the mining, oil and gas, chemical, manufacturing, agricultural and remediation industries.
    - Low level radiation waste includes medical isotopes, smoke detectors and sealed gauges.
- No nuclear waste storage or disposal services would be provided at the Sandy Ridge facility.

In support of the proposal the applicant has advised: -

- The proposal provides diversity in the WA mining sector
- Responds to a recognised need and is consistent with WA and national waste management strategies in addition to regional economic strategies and plans.
- Provides a number of community and economic benefits including the opportunities for the long-term storage, treatment and recovery of valuable materials or the permanent isolation of hazardous, intractable and low-level radioactive waste (LLW).
- In consistent with the principles of sustainability and environmental protection.

Background:

The site is located within the Shire of Coolgardie, approximately 75 kilometres north east for Koolyanobbing; 5 kms west of Mount Walton Intractable Disposal facility and 50 kms north of the Carina Mine and workers accommodation. (***Attachment 1)***

The site (Lot 510) is 873 hectares in area and zoned “Rural” under the Shire of Coolgardie Local Planning Scheme.

The land surrounding the site comprises: -

- Vacant crown land;
- Mining activities;
- Mount Walton Intractable Waste Disposal Facility located 5 km east of the site. This facility provides is currently the only Class V facility in WA where intractable wastes are permanently isolated.
- Carine Mining Camp accommodation approximately 50 kilometres south of the site. The closest sensitive landuse.

Legislation and Policy:

Legislation

Planning and Development Act 2005

- Part 5 of the Act provides a statutory head of power for the Shire of Coolgardie to prepare, adopt and implement a local planning scheme.
- Part 14 of the Act provides a right of review by the State Administrative Tribunal if an applicant or owner is aggrieved by the determination of their development application. An application for review must be made within 28 days of determination.

Planning and Development (Local Planning Scheme) Regulations 2015

- Schedule 2, Part 9, Clause 67 – Matters to be considered by Local Government.

Planning and Development Regulations 2009

- Part 7 of the Regulations enables local government to charge specified fees for planning services, including development approval applications.
- Fees have been charged and paid in accordance with the Regulations.

Planning and Development (Development Assessment Panels) Regulations 2011

- The value of the development exceeds $10 million and is therefore a “mandatory” DAP application where the Mid-West / Wheatbelt Joint Development Assessment Panel becomes the determining authority.
- The DAP application reference is Ref DAP/17/01318) on 9 November 2017

Environmental Protection Act 1986

- Part IV sets out the environment assessment process, and Part V provides for the licencing, registration and compliance/inspections of prescribed premises. The Department of Water and Environmental Regulation (DWER) has received an application for works Approval under Part V of the Act.

Environmental Protection Regulations 1987

- Schedule 1 (Category 65 & 66) refers to prescribed premises which require licencing and registration under the Act.

Waste Avoidance & Recovery Act 2007

- Provides a framework to establish the Waste Authority, levies on waste, provide for waste avoidance and resource recovery and other matters
- Part 4 of the Act makes provision for the preparation, application and reporting of a Waste Strategy.

Aboriginal Heritage Act 1972

- For preservation of places and objects used by or traditional to the original inhabitants.
- Section 18 compliance.

Main Roads Act 1930

- Provides for the declaration of highways and main roads, and to control access, structures and advertising on the roadside.
- The closest Main Road controlled road is Great Eastern Highway which is 100 kms south of the site.

Radiation Safety Act 1975

- Regulates the keeping and use of radioactive substances.
- Requires permits to be obtained from the Radiological Council for the disposal of radioactive substances.

Radiation Safety (General) Regulations 1983

- Provides the controls and precautions to be implemented for the management and handling of radioactive substances. Schedule sets permissible exposure levels, radioactive concentration levels in the air and water above natural background.

Radiation Safety (Transport of Radioactive Substances) regulations 2002.

- Apply to the transport of radioactive materials in WA and the storing, packing and stowing of radioactive material in WA.
- Reg 5 requires carriers to have an agreed radiation protection program which is to be submitted and approved by the Radiological Council.

State Government Policies

State Planning Strategy 2050 (WAPC 2012)
Waste Strategy 2012 (Waste Authority)
Goldfields- Esperance Regional Planning Strategy July 2000
State Planning Policy 1 – State Planning Framework (2017)
State Planning Policy 2 – Environmental and Natural Resources
State Planning Policy No 2.5 – Land Use Planning in Rural Areas
State Planning Policy No 3.7 – Planning in Bushfire Prone Areas
State Planning Policy No 2.4 - Basic Raw Materials
Western Australian Waste Strategy

Local Scheme

Shire of Coolgardie – Local Planning Scheme No 5
Shire of Coolgardie – Strategic Planning

Local Policies

Nil

Consultation:

Public Consultation

Local Planning Scheme No 5 identifies a waste disposal faciality as a discretionary "D" use in a rural zone.

Consultation with other Agencies or Consultants

The Shire of Coolgardie invited comments from the following agencies:

- Department of Mines, Industry Regulation and Safety
- DWER - Department of Water and Environmental Regulation
- Environmental Protection Authority
- Department of Health
- Radiological Council of WA

- Department of Fire and Emergency Services
- Department of Finance
- Shire of Yilgarn

The following government agencies made comments on the proposal (***attachment 8***)

Agency	Comments	Shire Response
Department of Mines, Industry, regulation and Safety	Advised that no comments to provide.	Noted
DWER – Department of Water, Environment and Regulation	EPA Report 1611 Received	Environmental Conditions to be included in any approval.
Environmental Protection Authority	EPA Report 1611 received with assessment and recommended conditions. The matter requires Ministerial. determination.	Ministerial Determination received – dated 27 June 2018.
Radiological Council	Due to current resourcing will not be able to review the application. The facility is currently subject to review by the Radiological Council with several documents that Tellus was required to provide to the EPA and Department of Water and Environmental Regulation.	Noted
Department of Fire and Emergency Services	Reviewed and provided comments on the transport, emergency response and bushfire plans.	Note DFES has provided feedback and conditional support on the amended plans
The Department of Finance	Advised verbally that the applicant is negotiating a Access and Use Agreement for Mount Walton road with the Department.	This aspect to be addressed as a condition.

No comments have been received from the following agencies: -
- Department of Health
- Shire of Yilgarn

In accordance with the JDAP deferral and the provisions of SPP3.7 addition consultation has been undertaken with DEFS on various aspects of the proposal including Bushfire Management Plan, Emergency Response Plan and Transport Management Plan and the following is relevant:
- 11 December 2018 plans received and referred to DFES.
- 11 January 2019 - DFES Scientific Officer provided comments, queries and suggestion for inclusion in the plans
- 24 January 2019 updated emergency response plan (***attachments 10)***
- 13 February 2019 updated Transport Management Plans. (***attachment 11***)
- 22 February 2019 DFES advised that the plans submitted were not supporting and further information was required.
- 19 March 2019 the revised Bushfire Management Plans were received (***attachment 12).***

- 22 March 2019 DFES recommendation – support subject to modifications. ***(attachment 13).***

Planning Assessment:

Local Planning Scheme

The subject land is zoned "Rural" under the Shire's Local Planning Scheme No 5 (LPS5). The land adjoining and surrounding the site is also zoned rural, comprising predominantly crown land.

A waste disposal facility is defined as a premise used: -
a) For the disposal of waste by landfill, or
b) the incineration of hazardous, clinical or biomedical waste.

The proposal development has been assessed as a "waste disposal facility" which is classified as an "D" discretionary use within the "Rural zone under LPS 5

The Scheme objectives of the Rural Zone include: -
- To provide for a range of non-rural land uses where they have demonstrated benefit and are compatible with surrounding rural uses.
- To provide for a range of rural and mining pursuits that are compatible with the capability of the land, retain rural character and amenity of the locality and acknowledge the significance of mining operations and the extraction of basic raw materials with appropriate environmental safeguards.

There are no specific development standards within Local Planning Scheme No 5 that would impact on the proposal.

Item	**Requirement**	**Proposal**	**Compliance**
Table 2 – Rural Zone Objective	To provide a range of non-rural land uses where they have demonstrated benefit and are compatible with surrounding rural uses	The land surrounding the site is using for miming activities. A similar facility the Mt Walton Intractable Disposal Facility is 5 km east of the site.	Complies
Development Requirements	For development within a rural zone the standards shall be as determined by the local government in each particular case.	The subject site is 873 hectares. Development, parking loading and support infrastructure is contained within the site.	There are no specified development standards. The site layout can be permitted
Setbacks	At the discretion of Council	A flood levee separates the material stockpiles and infrastructure are from the boundary. Infrastructure area is setback a minimum of 250metes from the boundary.	There are no specified development standards. The site layout can be permitted

Item	Requirement	Proposal	Compliance
		Material stockpiles are a minimum of 10 metres from the boundary.	
Parking	At the discretion of the Council	Parking for 13 vehicles is provide adjoining the main office area Loading areas are located within the facility area and includes a turnaround loop.	Complies
Landscaping	At the discretion of the Council	Clearing is proposed to approximately 273 ha, with the remaining area left as nature bush setting	Complies.

Use

The proposal is located in a remote area with the closest sensitive land use (Carina workers Accommodation) being 55 kilometres south of the site.

The suitability of the site for waste disposal is evident by the proximity of the Mount Walton Intractable Waste Disposal facility 5 km east of the site for which management of intractable wastes includes full clay containment.

Under the Shire of Coolgardie there are no specific development standards that apply to the use. Within a rural zone development are assessment on merits of the proposal and surrounding development. The key issues with this proposal are the environment and bushfire and safety management and considerations against relevant provisions and SPP3.7. These aspects are dealt with separately relative to the assessment by the relevant agency.

Traffic, access, parking and Loading

The site is accessed along 100 kms of undedicated haul roads including the Mt Walton access road located on Crown Reserve R44102, which is a private road managed by the authority of Department of Finance. The undedicated Mount Walton access road intersects with Great Eastern Highway in Boorabbin.

Great Eastern Highway is the primary route for freight, intra-regional road connections, and provides access to reginal towns and mining activities with the region. This road is under the control of Main Roads.

The applicant has advised that: -

- The intersection works have been approved by Main Roads WA and have commenced.
- The long-term road-use agreement with Department of Finance is being finalised. There is an interim agreement in place.

Environmental Review

The proposal has been assessed by the Environmental Protection Authority (***attachment 6***), and has been: -

- Determined to be a controlled action under the Environmental Protection and Biodiversity Conservation Act 1999 Act as it may impact on National Environmental Significance on matters relating to nuclear actions (sections 21 and 22A).
- Assessed under the bilateral agreement between the Commonwealth and Western Australian governments.

The EPA has assessed the environmental matters and provided a recommendation on the proposal. The report considered such matters as: -

- The site's characteristics of geological stability, deep impermeable clay soils, low rainfall, low land erosion potential and remoteness.
- The presence of a similar waste facility in the region since 1991.
- The absence of a discernible water table.
- Impacts on the flora, vegetation, human health, fauna and inland water quality.
- Proponents mitigation measures.
- EPA principles and objectives

The EPA concluded that the proposal is environmentally acceptable and recommended that the proposal may be implemented subject to conditions including:

- That only permitted wastes generated within Australia and the Australian Exclusive Economic Zone are accepted on site.
- Detailed records of the accepted wastes on site are accepted.
- A Radiation Management Plan to be developed to ensure that exposure to radiation is eliminated or reduced as far as reasonable in accordance with the Radiation Safety Act. The EPA clarifies that the facility is only for low level radiative waste and is not being considered for acceptance of nuclear waste.

The EPA also noted that there are additional regulatory requirements for this facility which include:

- A licence under Part V of the EP Act.
- A permit under the Radiation Safety Act 1975
- Financial assurance and insurance to WA Government through a State Agreement process.

Ministerial determination of the proposal was granted on 27 June 2018 (***attachment 7)***. The determination Statement (Statement No 1078) supports implementation of the proposal and includes conditions and procedures.

Aboriginal Heritage

A review of the Register of Places and Objects as well as the AHD's Aboriginal Heritage Database did not identify any known Aboriginal heritage places on the subject site. The applicant will be required to undertake any investigations and obtain any necessary clearances or approvals relative to the Aboriginal Heritage Act 1972.

SPP 7 - Bushfire Prone Areas Bushfire Management Plan

The site falls within an area designated as Bush Fire Prone Area. The infrastructure and buildings have been identified as having a moderate level of bushfire hazard risk.

It is noted that the workers accommodation, which does not form part of this development application has extreme hazard level.

Consideration of the plans under State Planning Policy No 3.7 – Planning in Bushfire Prone Areas, for Vulnerable or high-risk land use has been undertake, and the following is relevant: -

- The infrastructure has BAL level of 12.5 – FZ.
- The plan

The Bushfire Management Plan has been reviewed a number of times to address the concerns raised by DFES, including January 2019, February 2019 and the final Bush Fire Management Plan was received on 21 March 2019.

DFES has considered the Bushfire Management plan against the provisions of SPP3.7 and advised in response dated 19 March 2019 (***Attachment 12)*** that: -

- the plan is supported subject to modifications.
- the modifications will not affect the development design and can be undertaken without further referral to DFES and are ensure the accurately identifies the bushfire risk and necessary mitigation measures.

In light of the above a condition is proposed requiring modifications to the plan to the satisfaction of the Shire of Coolgardie.

Emergency Response Plan

The emergency response plan has been revised in response to comments provided these were reviewed by DFES Scientific Officer who provided comments, queries and suggestion (email dated 11 January 2019). Updated plans and response including the following:

- Inspection requirements under the Mine Safety and Inspection Act and Occupational Safety and Health Act.
- HAZMAT response plan
- Regular review of the plan by Tellus with agencies
- Emergency controls, training and testing, and monitoring
- Road entrapment procedure to Mount Walton Access Road

Transport Management Plan

Transport Management Plans were referred to DFES, these were reviewed by DFES Scientific Officer who provided comments, queries and suggestion (email dated 11 January 2019)

The updated Transport Management plans were received on 13 February 2019, with reference to the additional information sort in relation to the Transport Management Plan the table below contains applicant's response.

Additional information	**Tellus Response**
Intersection at Mt Walton / Great Eastern Highway including movement of vehicles and management of incidents	The intersection works have been approved by Main Roads WA and have commenced.
Mt Walton Road upgrades and responsibilities	The long-term road-use agreement with DoF is being finalised. There is an

Additional information	Tellus Response
	interim agreement in place.
Transport along all routes used to transport material to the site with particular reference to incidents and contingencies for emergencies	Tellus proposes a chain of responsibility on road transportation requiring their service contractor to have approved emergency responders.

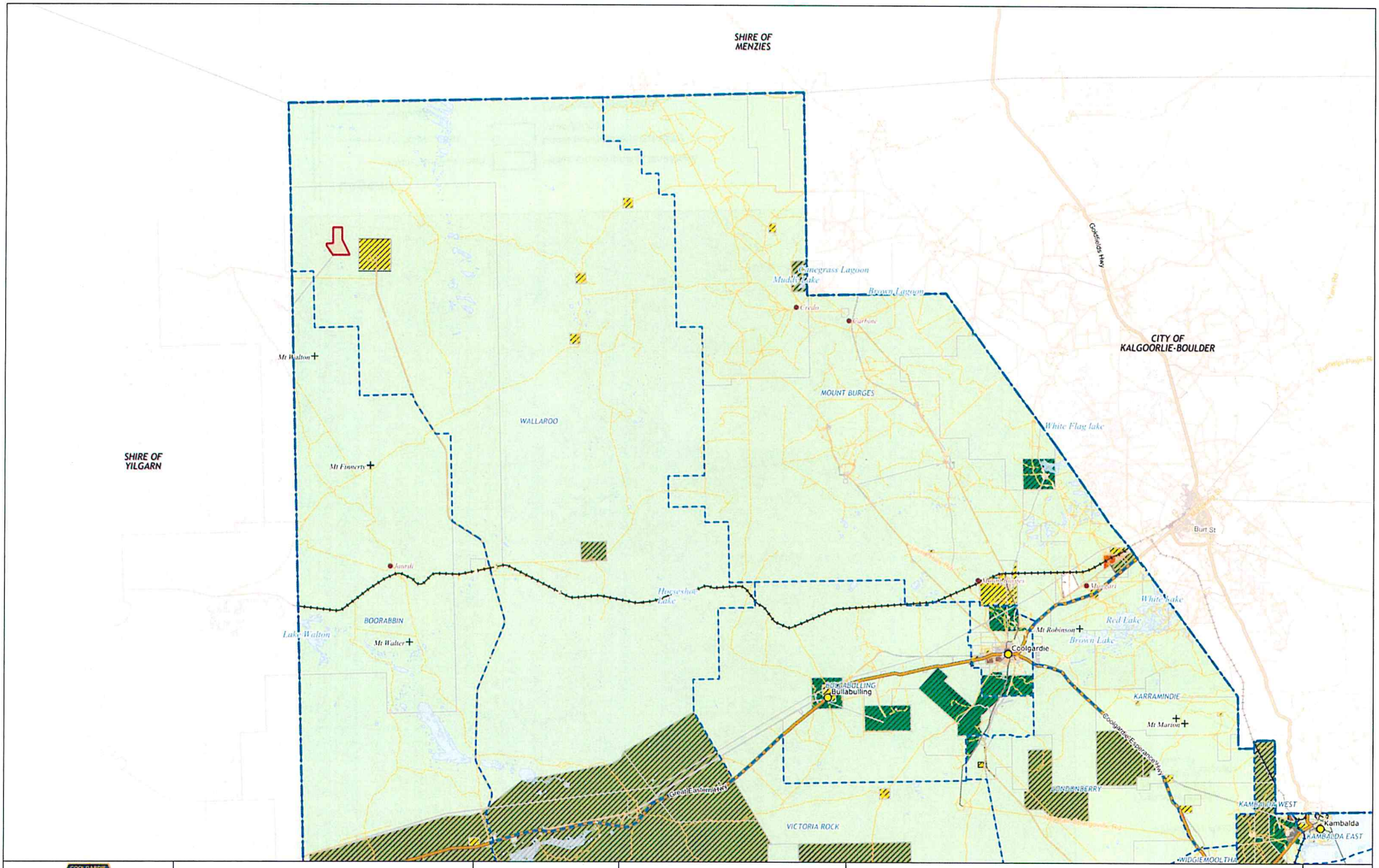
Conclusion:

The proposed development is located a significant distance from sensitive land uses, residential and commercial areas, the closest facilitate is the Mount Walton Intractable Waste Disposal Facility which comprises a similar facility.

The key issues surrounding this proposal are the environmental and safety issues associated with the transportation and operation of the facility. Significant liaison has been undertaken with the DFES in relation to Bushfire management and emergency response. Conditional support has been provided, with will require updating and regular reviewing of the plans in liaison with the agencies.

Attachment 1

Location Map



Shire of Coolgardie does not warrant the accuracy of information in this publication and any person using or relying upon such information does so on the basis that Coolgardie Shire Council shall bear no responsibility or liability whatsoever for any errors, faults, defects or omissions in this information.

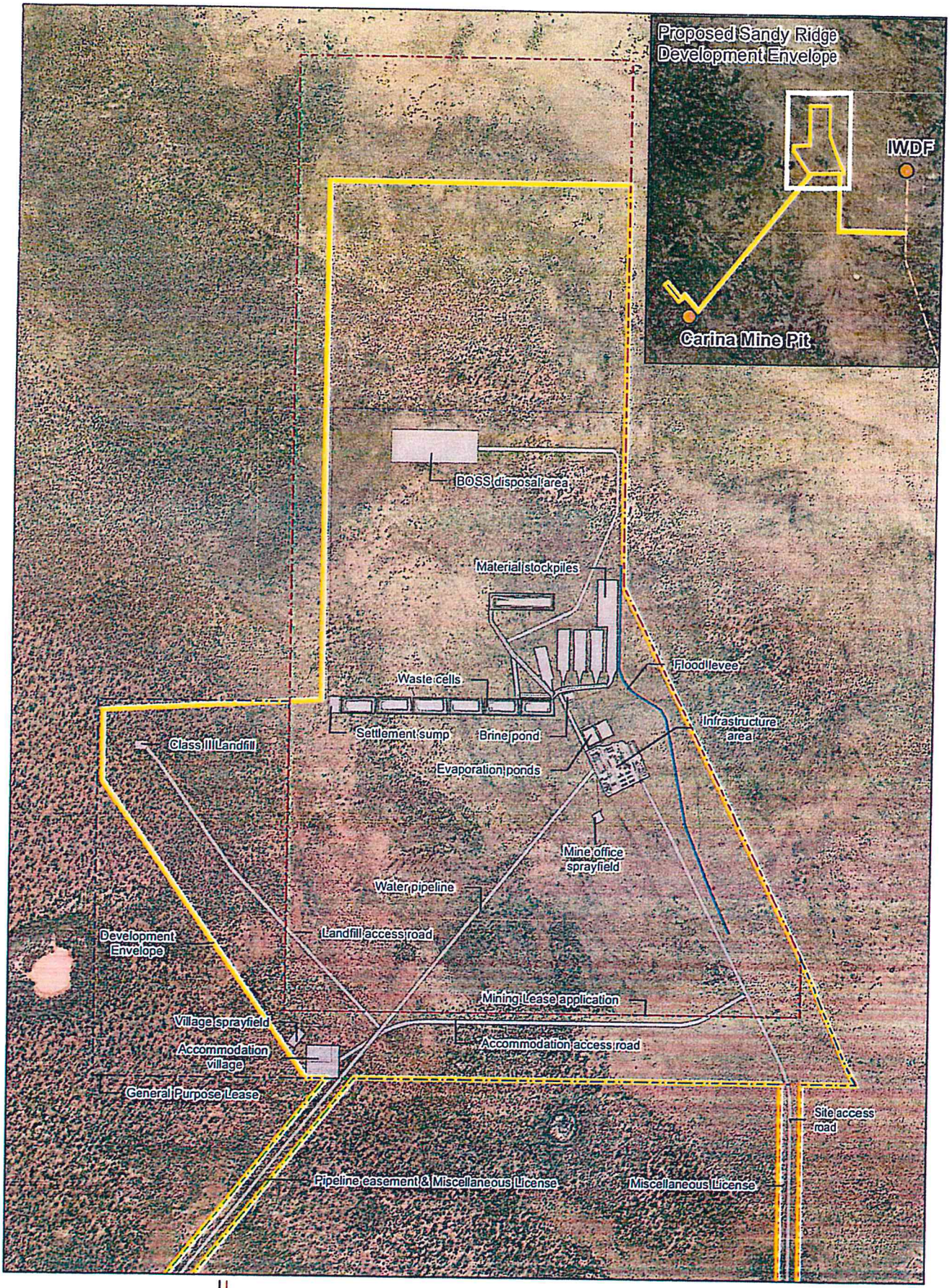
Property Mapping System

Scale: 1:534240
Projection: GDA94 / MGA zone 51
Date: 25/07/2018>

PIN 12309511
Lot 510
Plan P413497

Attachment 2

Site Map & Aerial



N

0 125 250 375 500 Meters

Coordinate System: GDA 1994 MGA Zone 51

TSR0039_DA_SitePlan.mxd

Legend

- Proposed flood levee
- Proposed infrastructure design
- Proposed infrastructure
- Development envelope
- General Purpose Lease
- Miscellaneous License
- Pipeline easement and Miscellaneous License
- Mining Lease application

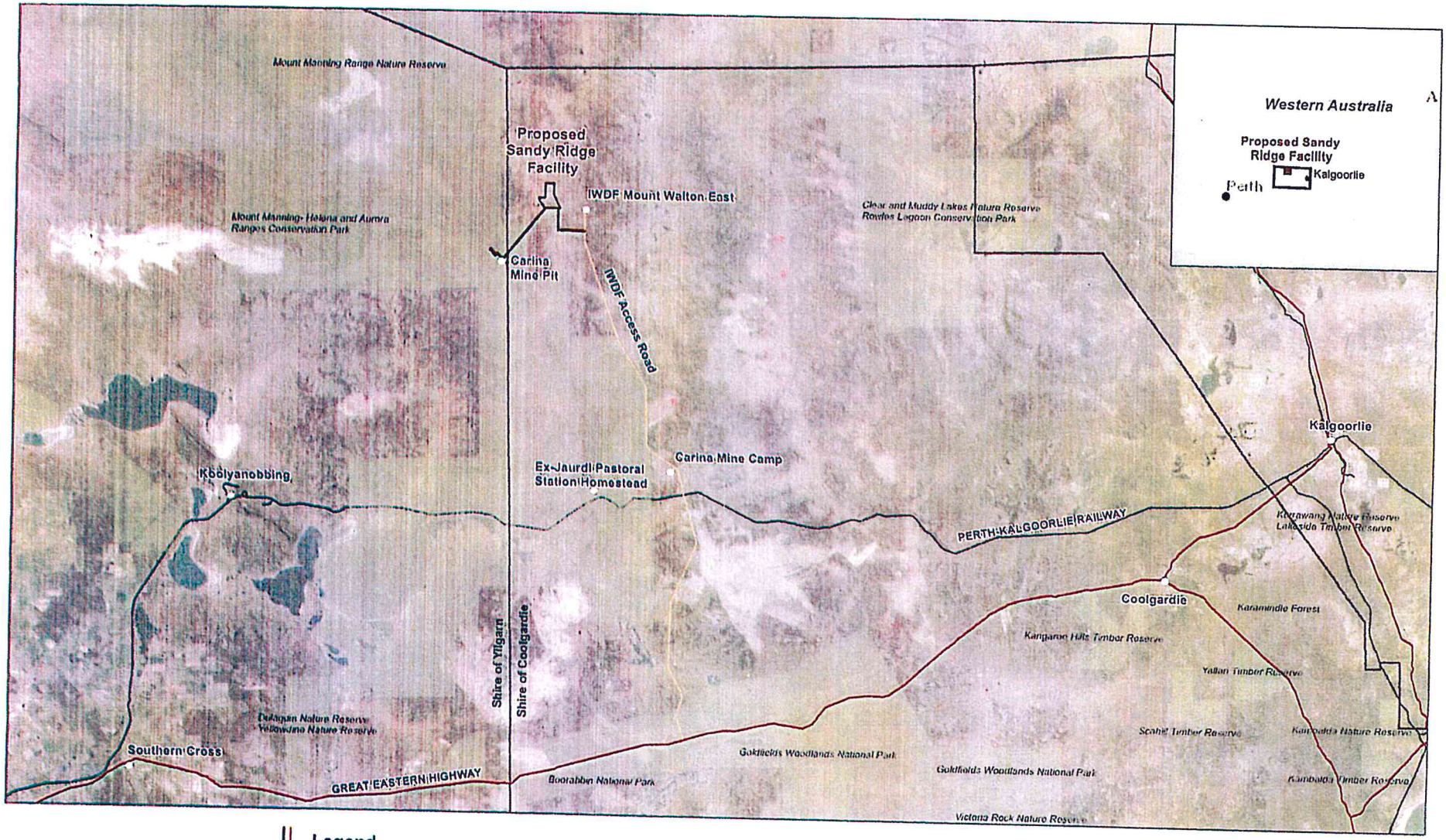
Figure 4-4

PROPOSED SANDY RIDGE FACILITY

Proposed Site Layout

TELLUS

Tellus Holdings Ltd makes every effort to ensure this map is free of errors but does not warrant the map or its features are either spatially or temporally accurate or fit for a particular use.
Tellus Holdings Ltd provides this map without any warranty of any kind whatsoever, either expressor implied.



N

10 5 0 10 Km

TSR0041_DA_RegionalLocation.mxd

Legend

- IWDF access road
- Principal road
- Railways
- Tellus Development Envelope
- Local government authority boundaries
- DPAW managed lands

Figure 1-1
Proposed Sandy Ridge Facility
Regional Location

TELLUS

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Attachment 3

Site Plan demarcating infrastructure forming part of the development application.

Development Application Infrastructure showing in yellow

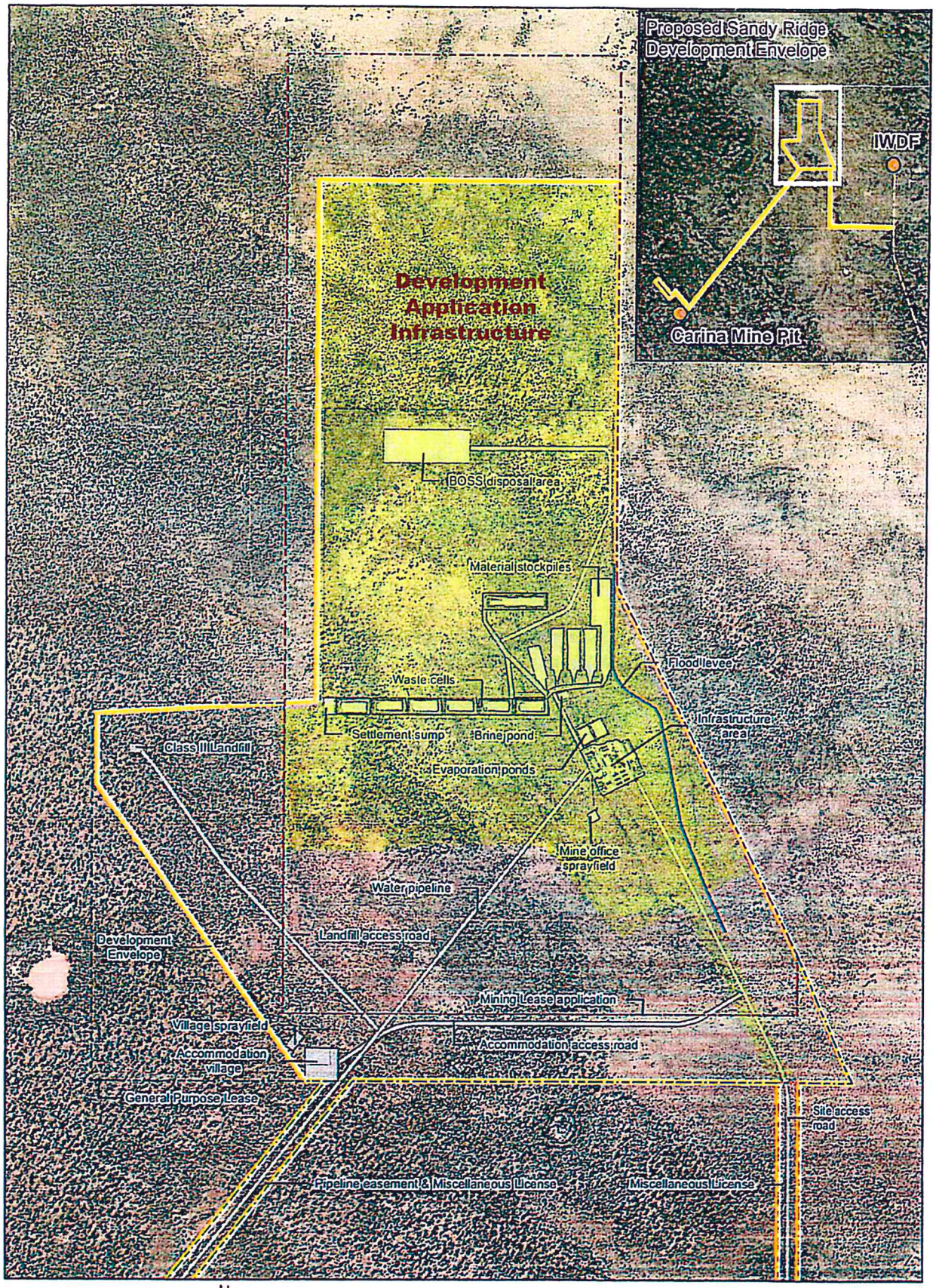


Figure 4-4

PROPOSED SANDY RIDGE FACILITY

Proposed Site Layout

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Attachment 4

Development proposal, plans and elevations.

TELLUS

Ms. Ms Jill O'Brien
Deputy Chief Executive Officer
Coolgardie Shire Council
PO Box 138 Kambalda
Western Australia 6442

CC: Francesca Lefante

25 October, 2017

Dear Francesca,

Sandy Ridge Facility – Tellus Holdings Ltd – Application for Development Approval

Tellus Holdings Ltd (Tellus) is proposing to develop the Sandy Ridge Facility located approximately 75 km north-east of Koolyanobbing, in the Shire of Coolgardie, within the Goldfields Region of Western Australia.

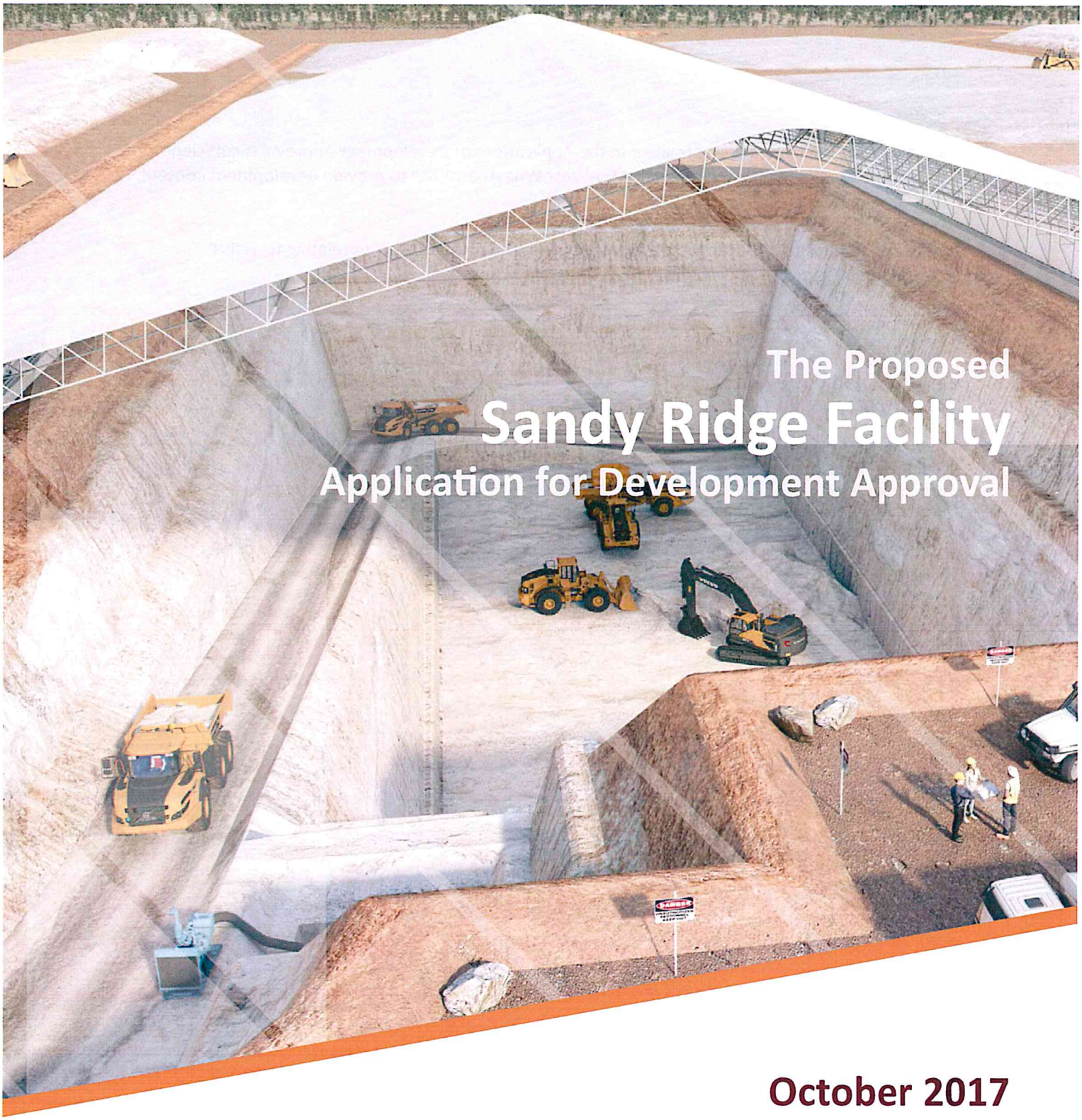
The proposal is currently being assessed by the Western Australian Office of the Environmental Protection Authority (under Part IV and Part V of the WA *Environmental Protection Act 1986*) and by the Commonwealth Department of the Environment and Energy (under Section 133 of the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*). Subject to ministerial approval timeframes, the proposal is anticipated to be approved by the end of 2017.

Tellus is submitting this Application for Development Approval to the Shire of Coolgardie Council and the Mid-West Wheatbelt Joint Development Assessment Plane (JDAP). Development approval is required from the Shire of Coolgardie Council under the *Planning and Development Act 2005* and associated Planning and Development (Local Planning Schemes) Regulations 2015. Furthermore, development approval is also required from the Mid-West Wheatbelt JDAP under Clause 5 of the Development Assessment Panel (DAP) Regulations 2011.

Please note that the Application for Development Approval makes reference to the Public Environmental Review (PER) and Response to Submissions Report prepared for the proposed Sandy Ridge Facility. These documents were provided to the Shire of Coolgardie as part of stakeholder consultation for the PER and can be viewed online at the following locations:

- Sandy Ridge PER - http://www.tellusholdings.com/project_sandy_ridge_public_environmental_review.html
- Sandy Ridge Response to Submissions Document - http://www.epa.wa.gov.au/sites/default/files/Proponent_response_to_submissions/CMS15087%20-%20Response%20to%20submissions%20-%20Updated%20document%20-%2021%20August%202017%20%281%29.pdf

A: Suite 2, Level 10, 151 Castlereagh Street, Sydney, NSW, 2000
T: +61 2 8257 3395 | F: +61 2 8233 6199 | E: info@tellusholdings.com.au
W: Tellusholdings.com.au | ABN: 97 138 119 829



The Proposed
Sandy Ridge Facility
Application for Development Approval

October 2017

TELLUS

We trust that the information provided in the Application for Development Approval is sufficient for the Shire of Coolgardie Council and the Mid-West Wheatbelt JDAP to provide development consent for the proposed Sandy Ridge Facility.

Please do not hesitate to contact me should you have any further queries relating to Tellus' Development Approval Application.

Yours sincerely,



Richard Phillips
General Manager
Health, Safety, Environment, Community, Compliance and Quality
e: richie@telluslholdings.com **t:** +61 2 8257 3395

Shire of Coolgardie

Our Community, Our People, Our Future

APPLICATION FOR DEVELOPMENT APPROVAL

Owner details		
Name: Department of Lands Planning and Heritage		
ABN (if applicable):		
Address:	Postcode:	
Phone: Work: ..... Home: ..... Mobile:	Fax:	Email: .....
Contact person for correspondence: Mr Shane Edwards		
Signature: See below		Date:
Signature:		Date:
The signature of the owner(s) is required on all applications. This application will not proceed without that signature. For the purposes of signing this application an owner includes the persons referred to in the Planning and Development (Local Planning Schemes) Regulations 2015 Schedule 2 clause 62(2).		

Applicant details (if different from owner)		
Name: Tellus Holdings Ltd.		
Address: Suite 2, Level 10, 151 Castlereagh Street Sydney, NSW	Postcode: 2000	
Phone: Work: +61 2 8257 3395 Home: ..... Mobile:	Fax: +61 2 8233 6199	Email: richie@tellusholdings.com
Contact person for correspondence: Mr. Richard Phillips, General Manager HSECCQ		
The information and plans provided with this application may be made available by the local government for public viewing in connection with the application. ✓ Yes ☐ No		
Signature:		Date: 16/10/2017

Signed only as acknowledgment that a development application is being made in respect of a proposal that includes Crown land, land owned in fee simple by the Crown or a state instrumentality. Crown reserves under management for the purpose, or a road, permitting this application to be assessed under the appropriate local and/or region planning scheme. The signature does not represent approval or consent for planning purposes under the relevant local and/or region scheme. Further in the event that development approval is granted for the proposal, the above signature should not be taken as an acknowledgment of or consent to the commencement or carrying out of the proposed development or to any modification of the tenure or reservation classification of the Crown land component.

NAME: George Roppas

TEAM LEADER

TEAM: Delivery

Job No. 170860

24/10/17

Property details		
Lot No: Unallocated Crown Land	House/Street No: N/A	Location No: N/A
Diagram or Plan No: N/A	Certificate of Title Vol. No: N/A	Folio: N/A

Title encumbrances (e.g. easements, restrictive covenants):

The Sandy Ridge Facility will be governed by the following legal requirements:

- Environmental planning approval under Section 133 of the *Environmental Protection Biodiversity Conservation Act 1999.*
- Environmental planning approval under Part IV and Part V of the *Environmental Protection Act 1986.*
- Security of land tenure via a Crown Lease or Managed Reserve under the *Land Administration Act 1997*
- Security of land access under various Government and Third Party agreements.
- Development Approval by Shire of Coolgardie
- Relinquishment of tenure under the *Land Administration Act 1997* during closure, decommissioning and post-closure.

For further detail refer to the *Sandy Ridge Facility Shire of Coolgardie Council Application for Development Approval Supporting Document.*

Street name: Not applicable	Suburb: Shire of Coolgardie

Nearest street intersection: Great Eastern Highway and IWDF Access Road.

Proposed development

Nature of development:

- ☐ Works
- ☐ Use
- ☒ Works and use

Is an exemption from development claimed for part of the development? ☐ Yes ☐✓ No

If yes, is the exemption for:

- ☐ Works
- ☐ Use

Description of proposed works and/or land use: Refer to Chapter 1 and Chapter 4 of the *Sandy Ridge Facility Shire of Coolgardie Council Application for Development Approval Supporting Document* for a description of the proposed works. The proposed development envelope is located on unallocated Crown Land managed by the WA Government. There is no current land use or occupation of the land within the proposed development envelope. Further land use details are provided in the *Sandy Ridge Facility Public Environmental Review (PER).* Land zoning requirements are explained in the Development Approval Application (Chapter 2).
Description of exemption claimed (if relevant): Tellus understands that mining operations and their associated infrastructure (such as buildings, plant and workforce accommodation) are exempt from the requirement for local government approval because mining activities and associated miscellaneous infrastructure is approved under the *Mining Act 1978.*
Nature of any existing buildings and/or land use: The proposed development envelope is located on unallocated Crown Land managed by the WA Government. There is no current land use or occupation of the land within the proposed development envelope. Tellus has installed an automated weather station and groundwater monitoring bores within the proposed development envelope which is covered under the existing Mining Exploration Lease.
Approximate cost of proposed development: $74,000,000.00 AUD.
Estimated time of completion: Construction aimed to be completed December 2018.

OFFICE USE ONLY	
Acceptance Officer's initials:	Date received:
Local government reference No:	

Government of **Western Australia**
Development Assessment Panels

DAP FORM 1

Notice of Development Application to be Determined by a Development Assessment Panel

Planning and Development Act 2005
Planning and Development (Development Assessment Panel) Regulations 2011 – regulations 7, 10, 21

Application Details

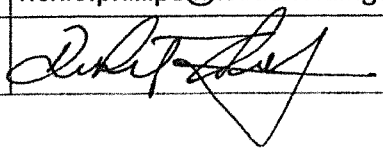
To	*Name of local government and/or Western Australian Planning Commission* Shire of Coolgardie/Mid-West Wheatbelt (Central) JDAP	
Planning Scheme(s)	*Name of planning scheme(s) that applies to the prescribed land* Shire of Coolgardie Local Planning Scheme No. 5	
Land	*Lot number, street name, town/suburb* Crown Land. Proposed development envelope is formed by a combination of: Mining Lease M16/540; G16/21 (granted); L16/119 (pending); and L16/121 (pending). Located in Shire of Coolgardie and Shire of Yilgarn.	
Certificate of Title *(provide copy)*	*Volume Number*	*Folio*
	Location Number	*Plan / Diagram Number*
Details of development application made to responsible authority	*Summary of Proposal* Please refer to (1) Attached Sandy Ridge Project Shire of Coolgardie Council Application for Development Approval Supporting Document (Chapter 1, Section 1.2 and Chapter 4); and (2) Proposed Sandy Ridge Facility Public Environmental Review (PER).	
Development Use	*Residential / Commercial / Industrial / Rural / Mixed Use / Other* Industrial	
Estimated cost of development *(GST Exc)*	$ $74,000,000.00 AUS.	

Part A - Acknowledgement by Applicant and Landowner

Mandatory Application	☒ I give notice that I understand that this is a mandatory Development Assessment Panel application *(regulation 5)*
Optional Application	☒ I give notice that I have elected to have the development application that accompanies this form determined by a Development Assessment Panel *(regulation 6)*
Delegated Application	☒ I give notice that I understand that this is an application of a class delegated to a Development Assessment Panel for determination *(regulation 19)*

Applicant Details (to be completed and signed by applicant)

By completing this notice, I declare that all the information provided in this application is true and correct.
I understand that the information provided in this notice, and attached forming part of the development application will be made available to the public on the Development Assessment Panel and local government websites.

Name	Mr. Richard Phillips, General Manager HSECCQ	
Company	Tellus Holdings Ltd.	
Address	*Street number/PO Box number, street name, suburb, state, postcode* Suite 2, Level 10, 151 Castlereagh Street, Sydney, NSW	
Contact Details	*Email* richie.phillips@tellusholdings.com	*Phone* (02) 8257 3395
Signature		*Date* 13/10/2017

Landowner Details (to be completed and signed if landowner is different from applicant) By completing this notice, I give consent to the making of this application by any authorised applicant on my behalf.		
Name	State of Western Australia	
Address	*Street number/PO Box number, street name, suburb, state, postcode*	
Contact Details	*Email*	*Phone*
Signature	See below	*Date*

Part B - Acknowledgement by Local Government

Responsible Authority	☐ Local Government ☐ Western Australian Planning Commission ☐ Dual – Local Government and Western Australian Planning Commission ☐ Building Management and Works (Department of Finance) – *Public School Applications*	
Fees for applications *(DAP Regulations - Schedule 1)*	$ Amount that has been paid by the applicant $ Amount to be paid by local government *(delegated applications only - regulation 22)*	
Statutory Timeframe *(regulation 12)*	☐ 60 days (advertising not required) ☐ 90 days (advertising required or other scheme provision)	
LG Reference Number		
Name of planning officer *(Report Writer)*		
Position/Title		
Contact Details	*Email*	*Phone*
Planning Officer's Signature		*Date*

Please refer to the Development Assessment Panel's "Guidance Note: Lodging a DAP Application" for further information.

Signed only as acknowledgment that a development application is being made in respect of a proposal that includes Crown land, land owned in fee simple by the Crown or a state instrumentality. Crown reserves under management for the purpose, or a road, permitting this application to be assessed under the appropriate local and/or region planning scheme. The signature does not represent approval or consent for planning purposes under the relevant local and/or region scheme. Further in the event that development approval is granted for the proposal, the above signature should not be taken as an acknowledgment of or consent to the commencement or carrying out of the proposed development or to any modification of the tenure or reservation classification of the Crown land component.

George Poppas

NAME: GEORGE POPPAS

TEAM LEADER

TEAM: DELIVERY

Job No 150862

24/10/17

TELLUS

SANDY RIDGE FACILITY
SHIRE OF COOLGARDIE COUNCIL
APPLICATION FOR DEVELOPMENT APPROVAL
SUPPORTING DOCUMENT

Final | October 2017



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ABBREVIATIONS

ARPANSA	Australian Radiation Protection and Nuclear Safety Agency
CCTV	Closed Circuit Television
CEMP	Construction Environmental Management Plan
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DA	Application for Development Approval
DAA	Department of Aboriginal Affairs
DAP	Development Assessment Panel
DFES	Department of Fire and Emergency Services
DMAs	Decision Making Authorities
DMP	Department of Mines and Petroleum
DoL	Department of Lands
DPAW	Department of Parks and Wildlife
DWER	Department of Water and Environmental Regulation
EP Act	*Environmental Protection Act 1986* (WA)
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Cmth)
EPBC Regulations	Environment Protection and Biodiversity Conservation Regulations 2000
EPC	Engineering Procurement and Construction
ESD	Environmental Scoping Document
FIBC	Flexible Intermediate Bulk Container
GSM	Global System for Mobile
HV	heavy vehicle
IBC	Intermediate Bulk Containers
IWDF	Mount Walton Intractable Waste Disposal Facility
kL	kilolitres

km	kilometres
LAN	Local Area Networks
LLW	Low level radioactive waste
LPS5	Shire of Coolgardie Local Planning Scheme No. 5
LV	light vehicle
m	metres
MCP	Mine Closure Plan
mSv	milli sievert
NT	Northern Territory
NORM	Naturally Occurring Radioactive Material
OEMP	Operational Environmental Management Plan
OEPA	WA Office of the Environmental Protection Authority
PER	Public Environmental Review
RC	Radiological Council of Western Australia
SMOF	Single-mode optic fibre
Tellus	Tellus Holdings Ltd
tpa	tonnes per annum
VOIP	Voice Over Internet Protocol
WA	Western Australia
WAC	Waste Acceptance Criteria
WAP	Waste Acceptance Procedure
WFDCP	Waste Facilities Decommissioning and Closure Plan
WZG	Waste Zoning Guide

GLOSSARY

Cell	With respect to the proposed Sandy Ridge Facility, a Cell is an excavation or cut made beneath the ground for the purpose of encapsulating and permanently isolating waste.
Controlled wastes	A substance or object that exhibits hazardous characteristics, is no longer fit for its intended use and requires disposal – as per the *National Waste Policy: Less waste, more resources* (Australian Government 2009).
Pit	With respect to the proposed Sandy Ridge Facility, a Pit is an excavation or cut made at the surface of the ground for the purpose of extracting ore and which is open to the surface.
Low level radioactive waste	Waste that is above exemption levels, but with limited amounts of long lived radionuclides. Such waste requires robust isolation and containment for periods of up to a few hundred years and is suitable for disposal in engineered near surface facilities. Low level waste may include short lived radionuclides at higher activity concentration levels and long lived radionuclides, but only at relatively low activity concentration. Examples of LLW are contaminated laboratory waste, such as paper, plastic, glassware and protective clothing, contaminated soil, and discarded smoke detectors and emergency exit signs
Sandy Ridge Facility	A proposal to develop a dual revenue business comprising an open cut kaolin mine that would mine kaolin, and would use the voids resulting from mining for the permanent isolation of hazardous and intractable waste using a best practice safety case.
Retention pond	Lined surface water runoff storage pond located adjacent to the Raw Water Pond. In the event of heavy rainfall events, captured stormwater will be retained in the Retention Pond for re-use.

1 BACKGROUND

1.1 About Tellus Holdings Ltd

Tellus Holding Ltd (Tellus) is the proponent for the proposed Sandy Ridge Facility. The proponent is an infrastructure development company in the business of creating economic, social and environmental value from waste, clay and salt resources. This dual revenue model involves mining the commodities kaolin clay and rock salt in thick dry remote beds which creates world's best practice geological repositories. The voids created by mining are then used to store equipment, archives or waste using a multi barrier system as part of an overall safety case.

The proponent plans to permanently isolate controlled (hazardous) waste and low level radioactive waste (LLW) using environmentally sound management principles that protect the environment and human health. The proponent also supports the circular economy using long term storage by placing like-with-like materials for operational safety reasons and to create opportunities for the future recovery of valuable materials. The proponent' business model mirrors international solutions operating in the United Kingdom, Europe and North America.

The proponent incorporated in 2009 and has offices in Perth and Sydney. The proponent also has two proposals currently undergoing environmental assessment and planning approvals. The first is located at Sandy Ridge approximately 75 kilometres (km) north-east of Koolyanobbing in Western Australia (WA) and the second at Chandler approximately 120 km south of Alice Springs in the Northern Territory (NT). The proponent is not currently, nor has the company ever been, subject to any proceedings under a Commonwealth, State or Territory law in relation to the protection of the environment or the conservation and sustainable use of natural resources.

The company details are as follows:

Tellus Holdings Ltd
Suite 2, Level 10
151 Castlereagh Street
Sydney NSW 2000
Tel: +61 2 8257 3395
ABN 97 138 119 829

1.2 Overview of the proposed Sandy Ridge Facility

Tellus propose to construct and operate an open-cut kaolin mine and complementary waste storage and disposal facility with supporting aboveground infrastructure (herein referred to as the 'Sandy Ridge Facility' or 'the Proposal').

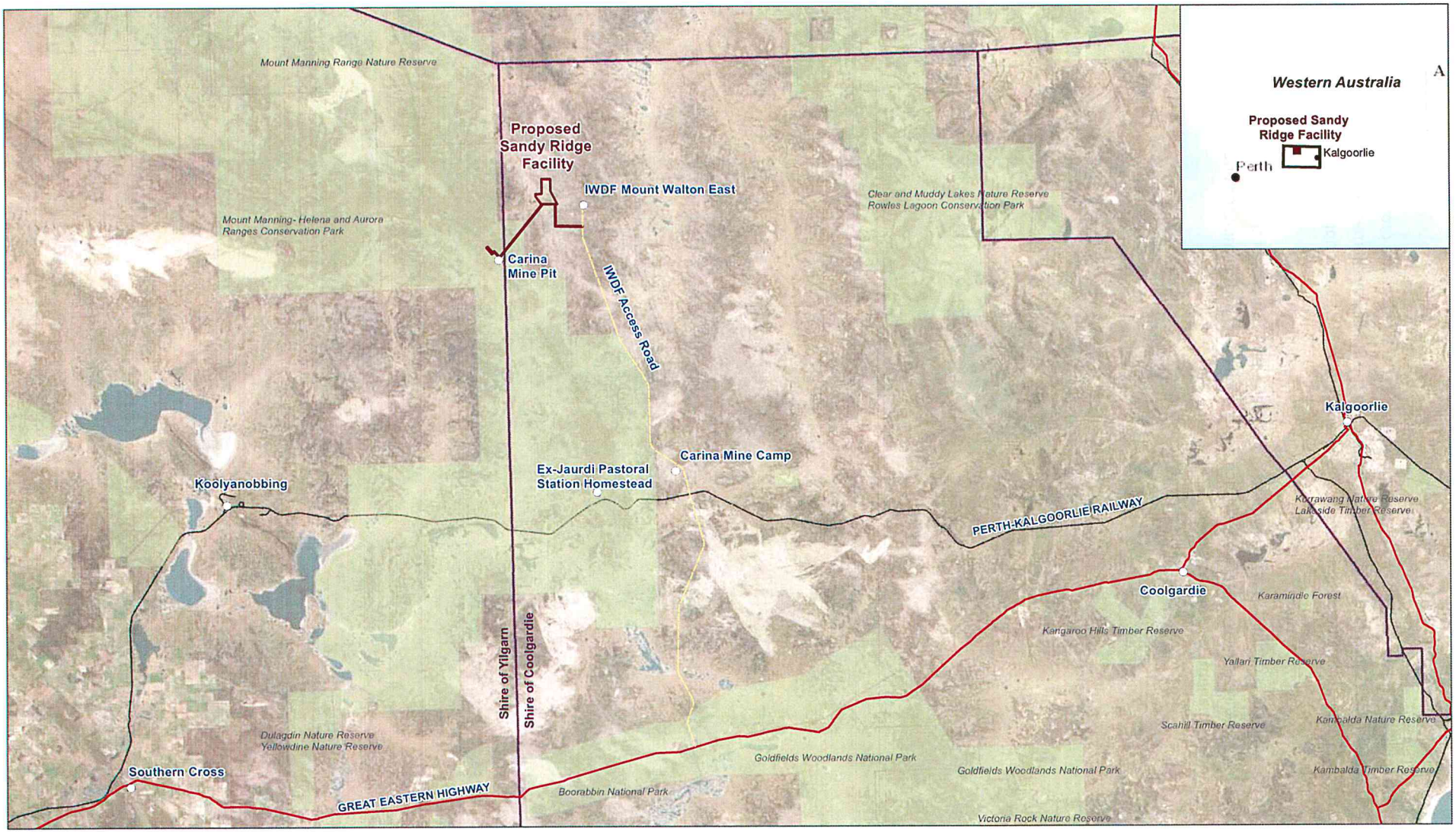
If approved, the Sandy Ridge Facility would be located approximately 75 km north-east of Koolyanobbing, in the Shire of Coolgardie, within the Goldfields Region of WA. The closest sensitive receiver is the Carina Mine Camp, approximately 50 km to the south. The Mount Walton Intractable Waste Disposal Facility (IWDF) is 5 km to the east (refer to Figure 1-1)[1].

[1] *Please note – the existing Mt Walton IWDF Facility is under Western Australia Government care and maintenance and has been since 2008.*



An outline of the mining and waste storage and disposal processes at Sandy Ridge are provided in Section 1.2.1 and Section 1.2.2. Further details are also provided in the Public Environmental Review (PER) that should be read in conjunction, where appropriate and where required, with this application for Development Approval (DA).

In this document, a mine 'pit' is defined as an excavation or cut made at the surface of the ground for the purpose of extracting ore and which is open to the surface. Once mining of a pit is completed and it is ready for waste storage and permanent isolation activities, it is termed a 'cell'.



N

10 5 0 10 Km

Legend

- IWDF access road
- Principal road
- Railways
- Tellus Development Envelope
- Local government authority boundaries
- DPAW managed lands

TSR0041_DA_RegionalLocation.mxd

Figure 1-1
Proposed Sandy Ridge Facility
Regional Location

TELLUS

Tellus Holdings Ltd makes every effort to ensure this map is free of errors but does not warrant the map or its features are either patially or temporally accurate or fit for a particular use.
Tellus Holdings Ltd provides this map without any warranty of any kind whatsoever, either expressor implied.

1.2.1 Kaolin mining

Up to 200,000 tonnes per annum (tpa) of kaolinised granite would be extracted using the open cut method of mining. The surface of each pit would be cleared of vegetation and stockpiled (for later reuse in rehabilitation). The pit would then be opened by excavation of the topsoil, subsurface soils and laterite. Topsoil and subsurface soils would be stockpiled adjacent to the cell area for later use in rehabilitation.

Following this, surface mining would be used to remove the hard, dense silcrete layer that overlays the kaolin which would then be removed by excavator and truck. Overburden would be stockpiled adjacent to the cells in readiness for capping cells that are to be closed. Ore would be screened into separate stockpiles of different grades of kaolinised granite located adjacent to the pit for use either in immobilising wastes or for backfilling around wastes that are deposited in cells.

Current market conditions make kaolin processing and export unviable. However, mine material will be stockpiled for processing when market conditions are more favourable.

1.2.2 Waste storage, recovery and isolation

Waste Acceptance Criteria (WAC) would be used to determine whether a waste stream is suitable for acceptance at the Sandy Ridge Facility. If the waste is found to be acceptable in accordance with Tellus' WAC, a contractual agreement would be used to specify any treatment and packaging requirements for the waste prior to it leaving the customers site. These steps are taken to ensure waste material is safely transported to Sandy Ridge.

Waste would be transported mostly via rail to Kalgoorlie and then via road by reputable licensed transport contractors to the proposed Sandy Ridge Facility. Waste arriving would be inspected, sampled and unloaded in line with a strict Waste Acceptance Procedure (WAP). Wastes would be temporarily stored on hardstand storage areas until they are placed in waste disposal cells in accordance with a waste zoning protocol and operational management plans. Above-ground storage time for wastes at Sandy Ridge would be expected to be less than one week for most wastes, but may be longer due to operational constraints. Tellus would store materials 'like-with-like' wherever possible and in accordance with its Waste Zoning Guide (WZG). Some temporary surface storage may be required to ensure waste types could be placed appropriately within a cell.

The waste cells would be filled with packaged waste in layers, placed 'like-with-like'. Each layer would also be compacted and further layers added until approximately seven metres (m) below the ground surface. At this depth, a 3 m thick layer of low permeability clay would be placed on top of the waste to seal the waste layers and to prevent water ingress into the cell.

Compacted gravel and laterite backfill would then be placed on the clay layer. A clay domed cap would then be situated on the top of the cell, to horizontally shed rainfall for the duration of a subsidence monitoring period. At the completion of the 10-year subsidence monitoring period, excess kaolinised granite and soil would be placed over the domed clay cap to enable re-vegetation.

During the waste storage and isolation process, a roof canopy would be positioned over the cell to exclude rainfall prior to the capping layer being installed (refer to Figure 1-2).



Figure 1-2. Open cut kaolin mine creates the voids. A canopy is erected (left). The voids are used for the safe and secure storage of waste (right).

The cells would be designed and managed to allow for future waste recovery opportunities – that is, wastes would be stored like-with-like and the final disposal locations of all waste would be tracked and logged for future reference. At some point in the future, a recovery technology park would be established at the Sandy Ridge Facility to support research and development into ways to release waste materials back into the circular economy[2].

In the first year of operation, about 55,000 tpa of waste material would be disposed of at the Sandy Ridge Facility. After a short ramp-up period of approximately six years, the full capacity of 100,000 tpa is assumed to be reached.

Hazardous and intractable waste primarily from the mining, oil and gas, chemical, manufacturing, agricultural, and remediation industries would be accepted at the proposed Sandy Ridge Facility. If and where necessary, wastes would also be accepted from the State Emergency Services such as hazardous material resulting from man-made or natural disasters. Accepted waste materials would come from WA, the Australian mainland and Australia's Exclusive Economic Zone waters.

Hazardous and intractable chemical waste accepted and not accepted at the Sandy Ridge Facility

Hazardous and intractable chemical waste that would and would not be accepted at the Sandy Ridge Facility are summarised in Table 1-1. Specific detail of accepted and not accepted wastes is defined in the WAC.

[2] *The proposed Technology Park does not form part of the Sandy Ridge Approval under Part IV of the Environmental Protection Act 1986. Furthermore, it does not form part of this Development Approval Application.*

Table 1-1. Hazardous and intractable chemical wastes accepted and not accepted at the Sandy Ridge Facility

Hazardous and intractable wastes (NEPM 75)	Accepted on site (surface storage)[2]	Accepted below ground in waste cells[2]
Hazardous and intractable wastes (NEPM 75) subject to meeting the characteristics criteria below.	✓	✓
• **Liquid and sludges**	✓	×[1]
• **Explosive wastes**	✓	×[1]
• **Flammable liquids or solids**	✓	×[1]
• **Self-combusting wastes or wastes that can generate a gas-air mixture which is toxic or explosive**	✓	×[1]
• **Highly corrosive or oxidizing**	✓	×
• **Gases**	×	×
• **Clinical waste** *such as infectious hospital waste and body parts*	×	×
• **Municipal solid waste** *such as putrescible household and commercial waste*	×	×
• Putrescible wastes *not generated at Sandy Ridge Facility, which rot such as household rubbish*	×	×
• Uncertified waste *which cannot be identified or has not undergone characterisation testing*	×	×
• Reacts with the repository geology *such as dissolving it or producing a gas*	×	×

[1]*Normally excluded unless modified before disposal or during disposal so the operational or post closure safety of the waste cell and facility is not compromised.*
[2] ✓ = accepted, × = not accepted. ×[1]= normally excluded but possibly suitable

Radioactive wastes accepted and not accepted at the Sandy Ridge Facility

Radioactive waste that would and would not be accepted at the Sandy Ridge Facility are listed in Table 1-2. Examples of low level radioactive waste that would be accepted include medical isotopes, smoke detectors, and sealed gauges. The WAC states the radiation criteria for waste acceptance.

In summary, the proponent has set a dose constraint of 0.3 milli sievert (mSv)/a as for critical members of the public e.g. waste transport truck driver, which is well below the 1 mSv/a per annum limit set by Australian Radiation Protection and Nuclear Safety Agency (ARPANSA).

The WAC identifies that Naturally Occurring Radioactive Material (NORM) up to Low Level Radioactive Waste (LLW) activity content would be accepted at Sandy Ridge.

Nuclear waste storage or disposal services would not be provided at the Sandy Ridge Facility. The Sandy Ridge Facility has not been nominated as a potential National Radioactive Waste Management Facility. No such nomination is planned and no such nomination would be accepted should it be made by any other party.

Table 1-2. Radioactive waste accepted and not accepted at the Sandy Ridge Facility

Radioactive wastes[1] (✓ = accepted, × = not accepted)	Accepted on site (surface storage)	Accepted below ground in waste cells
NORM ***up to*** **LLW** ***activity levels*** *such as, oil and gas industry scale*	✓	✓
LLW *such as smoke detectors, exit signs, industrial gauges and medical isotopes*	✓	✓
Intermediate level (ILW) and high level waste (HLW) *such as reprocessed spent nuclear fuel and components with high levels of radioactivity*	×	×
Nuclear waste *from power generation and defense use*	×	×

[1] *Classification of Radioactive Waste – ARPANSA RPS20*

1.3 Approvals required for the proposed Sandy Ridge Facility

The approvals required for the proposed Sandy Ridge Facility are outlined below and are discussed in further detail in Chapter 2.

1.3.1 Environmental planning and other approvals

Kaolin mining or mineral processing activities require tenure in the form of a Mining Lease and other ancillary tenure (General Purpose Lease and Miscellaneous Licences) under the *Mining Act 1978*. A Mining Lease Application (M16/540) has been lodged by Tellus but will not be granted until the Minister for the Environment has approved the proposed Sandy Ridge Facility.

As discussed above, the *Mining Act 1978* (WA) allows for, and regulates the kaolin mining component of the Sandy Ridge Facility. However, the *Mining Act 1978* does not allow for the placement of wastes (other than mining waste) into a mining void, such is as proposed at the Sandy Ridge Facility. The hazardous and intractable waste disposal activities will require land tenure under the *Land Administration Act 1997* (WA) and approvals under Part IV and Part V of the *Environmental Protection Act 1986* (WA) (EP Act).

A Public Environmental Review (PER) has been prepared to support the approval of the proposed Sandy Ridge Facility under Part IV of the EP Act and the *Environment Protection and Biodiversity Conservation Act 1999* (Cmth) (EPBC Act).

The PER was prepared to address the requirements set out in the final Environmental Scoping Document (ESD) issued by the WA Office of the Environmental Protection Authority (OEPA) on 26 May, 2016. The PER was also prepared to address the requirements set out in Schedule 4 of the Environment Protection and Biodiversity Conservation Regulations 2000 (EPBC Regulations).

The PER was available for a public review from 12 December, 2016, to 7 March, 2017. On 18 April, 2017, the OEPA directed the proponent to prepare a Response to Submissions Report (Submissions Report) to the PER. The Submissions Report was formally submitted to the OEPA on 28 April, 2017 in accordance with the requirements of the WA *Environmental Assessment Guideline No.6*. The PER and the Submissions Report collectively form the PER for the proposed Sandy Ridge Facility. Approval from the Minister of the Environment for the proposed Sandy Ridge Facility is currently pending.

The status of other approvals is outlined in Section 2.3 and Section 2.4.

1.3.2 Development approval

Development approval is required from the Shire of Coolgardie Council under the *Planning and Development Act 2005* (WA) and associated Planning and Development (Local Planning Schemes) Regulations 2015.

Under the Shire of Coolgardie Local Planning Scheme No. 5 (LPS5), the proposed Sandy Ridge Facility is located within a 'Rural' zone. The most applicable development class for the Sandy Ridge Facility is a 'Waste Disposal Facility', which is not permitted in a Rural zone without development consent from the Shire of Coolgardie Council.

Furthermore, development approval is also required from the Mid-West Wheatbelt Joint Development Assessment Panel (JDAP) under Clause 5 of the Development Assessment Panel (DAP) Regulations 2011. This is because the cost to construct the proposed Sandy Ridge Facility is over $10,000,000.00 and because it is located within a district outside of the City of Perth.

Previous correspondence from the Shire of Coolgardie regarding the Application for Development Approval is provided in Appendix A.

1.4 Document objectives

Document objectives are:

- To summarise the statutory framework required for the proposed Sandy Ridge Facility.
- To address matters relevant under the *Planning and Development Act 2005* and associated Regulations (Planning and Development (Local Planning Schemes) Regulations 2015).
- To summarise the results of stakeholder engagement undertaken by the proponent for the proposed Sandy Ridge Facility.
- To outline the existing and proposed use of the proposed development envelope and the aboveground infrastructure (buildings and structures) proposed to be constructed.
- To summarise the results of the extensive environmental impact assessment undertaken for the proposed Sandy Ridge Facility as presented in the PER.

1.5 Document structure

This document is structured as outlined in Table 1-3.

Table 1-3 Document structure

Chapter	Title	Description
1	Background	Overview of Tellus Holdings, the Proposal and document objectives.
2	Statutory framework	• Overview of Sandy Ridge statutory framework. • Details of the Application for Development Approval under the Planning and Development (Local Planning Schemes) Regulations 2015.
3	Stakeholder engagement	• History of engagement by Tellus with key stakeholders through the Part IV assessment under the *Environmental Protection Act 1986*. • Summary of outcomes involving discussions with Shire of Coolgardie Council.
4	Existing and proposed use of the development envelope including proposed infrastructure	Existing and proposed use of the development envelope including proposed infrastructure along with corresponding drawings of the proposed infrastructure.
5	Environmental impact assessment	A summary of the environmental impact assessment undertaken for the proposed Sandy Ridge Facility as presented in the PER.
6	Application for development approval.	Addresses relevant clauses under the Planning and Development (Local Planning Schemes) Regulations 2015.
7	References	A list of materials referenced within this document.

2 STATUTORY FRAMEWORK

2.1 Planning Development Act 2005

The *Planning and Development Act 2005* (WA) is the primary piece of legislation governing development and subdivision in WA, and its stated purposes is to provide for an efficient and effective land-use planning system in the state, and to promote the sustainable use and development of land in the state (Department of Planning, 2014).

Amongst many other functions, the *Planning and Development Act 2005* (WA) gives powers to local governments to make their local planning schemes and establishes the process for how the schemes are developed and managed by local governments. It sets out the requirement for approval to commence development under a planning scheme. Supporting the *Planning and Development Act 2005* (WA) are the Town Planning Regulations 1967 and Planning and Development (Local Planning Schemes) Regulations 2015.

The Regulations prescribe the detail of procedures for preparing and implementing local planning schemes. Development approval is also required from the Mid-West Wheatbelt JDAP under Clause 5 of the Development Assessment Panel (DAP) Regulations 2011. This is because:

- The cost to construct the proposed Sandy Ridge Facility exceeds $10,000,000.00; and
- The proposal is located within a district outside of the City of Perth.

2.2 Shire of Coolgardie Local Planning Scheme

In addition to the Planning and Development (Local Planning Schemes) Regulations 2015, Shire of Coolgardie Local Planning Scheme No. 5 (LPS5) was gazetted on 8 March 2017. The Scheme divides the local government district into zones to identify areas for particular uses and identifies land reserved for public purposes.

The Scheme controls the types of uses and development allowed in different zones shown in the Scheme Map. Clause 9 of LPS5 lists the aims of the Scheme, namely:

- To assist the effective implementation of regional plans and policies including the State Planning Strategy.
- To ensure there is a sufficient supply of serviced and suitable land for housing, employment, commercial activities, community facilities, recreation and open space.
- To assist employment and economic growth by facilitating the timely provision of suitable land for retail, commercial, industrial, entertainment and tourist developments, as well as providing opportunities for home-based employment.
- To facilitate a diverse and integrated network of open space catering for both active and passive recreation, consistent with the needs of the community.
- To promote the sustainable use of rural land for agricultural purposes whilst accommodating other rural and mining activities.
- To protect and enhance the environmental values and natural resources of the local government area and to promote ecologically sustainable land use and development.
- To safeguard and enhance the character and amenity of the built and natural environment of the local government area.

Shire of Coolgardie's Strategic Directions Plan 2012-2021

The LPS5 is supported by the Shire of Coolgardie's Strategic Directions Plan 2012-2021 (Strategic Plan). Chapter 9 of the Strategic Plan outlines priorities for the Shire of Coolgardie. The strategies to achieve these priorities – or future direction outcome areas - are described in Chapter 11. Future Direction Outcome Area 3 is for a diversified and strengthened local economy. The proposed Sandy Ridge Facility can contribute to these strategies by:

- Diversifying the economic opportunities in the Shire of Coolgardie.
- Attracting and retaining residents to the Shire of Coolgardie.
- Sourcing materials and services locally.
- Providing training/employment opportunities for local residents.
- Participating in a resource sector forum with the Shire of Coolgardie and other companies.

Land zoning and permitted use

Clause 16, Table 2 of LPS5 presents the objectives of zones on the Scheme Map. The proposed Sandy Ridge Facility is located in a 'Rural' Zone, for which the objectives are:

- To provide for the maintenance or enhancement of specific local rural character.
- To protect broad acre agricultural activities such as cropping and grazing and intensive uses such as horticulture as primary uses, with other rural pursuits and rural industries as secondary uses in circumstances where they demonstrate compatibility with the primary use.
- To maintain and enhance the environmental qualities of the landscape, vegetation, soils and water bodies, to protect sensitive areas especially the natural valley and watercourse systems from damage.
- To provide for the operation and development of existing, future and potential rural land uses by limiting the introduction of sensitive land uses in the rural zone.
- To provide for a range of non-rural land uses where they have demonstrated benefit and are compatible with surrounding rural uses.
- To provide for a range of rural and mining pursuits that are compatible with the capability of the land, retain the rural character and amenity of the locality and acknowledge the significance of mining operations and the extraction of basic raw materials with appropriate environmental safeguards.

Clause 17, Table 3 of LPS5 identifies permitted uses and development classes in each of the Scheme Zones. Tellus understands that the most applicable development class for the Sandy Ridge Facility is 'Waste Disposal Facility' which is defined as follows:

'**Waste disposal facility**' which means premises used –

(a) for the disposal of waste by landfill; or

(b) the incineration of hazardous, clinical or biomedical waste.

Waste Disposal Facilities are a Code D development class in Rural Zones. Code D is defined in Clause 18 as "*... the use is not permitted unless the local government has exercised its discretion by granting development approval*".

Tellus notes that the kaolin mining component of the proposed Sandy Ridge Facility operations are exempt from the requirement for development approval under LPS5 due to "*mining operations*" being subject to regulation under the *Mining Act 1978* (refer to Section 2.3 for more detail).

2.3 Approval for the mining of kaolin

Tellus currently holds an Exploration Tenement (E16/440) and General Purpose Lease (G16/21) at Sandy Ridge under the *Mining Act 1978*. Kaolin mining or mineral processing activities also require tenure in the form of a Mining Lease and other ancillary tenure (General Purpose Lease and Miscellaneous Licences) under the *Mining Act 1978*. A Mining Lease Application (M16/540) has been lodged by Tellus but will not be granted until the Minister for the Environment has approved the proposed Sandy Ridge Facility.

The status of title or tenure required for the Sandy Ridge Facility is summarised in Table 2-1.

Table 2-1. Summary of tenure for Sandy Ridge Facility (under the *Mining Act 1978*)

Title or Tenure	In preparation by Tellus	Under assessment by Government	Granted	Likely tenure approval
Mining Lease M16/540	✓	✓		March 2018
General Purpose Lease G16/540			✓	March 2017
Miscellaneous Licence L15/361	✓	✓		December 2017
Miscellaneous Licence L16/119	✓	✓		December 2017
Miscellaneous Licence L77/283	✓	✓		December 2017
Miscellaneous Licence L15/310	✓	-		January 2018
Miscellaneous Licence L15/311	✓	-		January 2018
Miscellaneous Licence L15/320	✓	-		January 2018
Miscellaneous Licence L15/306	✓	-		January 2018
Miscellaneous Licence L15/135	-	-	✓	December 2017
Miscellaneous Licence 77/135	✓	-		January 2018
Mining lease 77/1244	✓	-		January 2018

2.4 Approval for waste storage and isolation

The *Mining Act 1978* allows for, and regulates the kaolin mining component of the proposed Sandy Ridge Facility. However, the *Mining Act 1978* does not allow for the placement of wastes (other than mining waste) into a mining void, such is as proposed at the Sandy Ridge Facility.

Controlled waste disposal activities will require land tenure under the *Land Administration Act 1997* and approvals under Part IV and Part V of the *Environmental Protection Act 1986*. The PER has been prepared to gain approval under these Acts. The status of current regulatory approvals required for the Sandy Ridge Facility are summarised in Table 2-2.

Table 2-2. Status of regulatory approvals for the Sandy Ridge Facility

Approval	Decision Making Authority	Status (expected date for obtaining approval)	Required approval document
Approval for the Sandy Ridge Facility under Section 133 of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) (Cth)	Department of Environment and Energy (DoEE)	Controlled Action (nuclear actions sections 21 and 22A). EPBC 2015/7478. Bilateral Assessment with Department of Water and Environmental Regulation (DWER).	PER (currently a bilateral under assessment with Department of Water and Environmental Regulation (DWER)
Statement that the Sandy Ridge Facility may be implemented under Section 45 of the *Environmental Protection Act 1986* (EP Act) (WA)	Minister for Environment	Assessment number 2057. Response to Submissions report finalised. Awaiting DWER to publish the Assessment Report and issue Draft Conditions of Consent.	PER
Works Approval (under Section 54) and Licence (under Section 57) of the EP Act	DWER	Application for works approval and licence submitted to DWER on 30 August 2017. Grant is subject to issue of Ministerial Statement under Part IV of the EP Act.	Works Approval application (submitted by the proponent in September 2017 and currently under assessment by DWER.
Mining lease under Section 71 of the *Mining Act 1978* (WA)	Department of Mines, Industry Regulation and Safety (DMIRS).	Application submitted 19 August 2015. Grant is subject to issue of Ministerial Statement under Part IV of the EP Act.	Mining Proposal
Miscellaneous licences under Section 91 of the *Mining Act 1978* (WA)	DMIRS	As per above.	-
Mining Proposal and Mine Closure Plan under Section 82A (2) of the *Mining Act 1978* (WA)	Department of Mines, Industry Regulation and Safety	Submitted with Mining Lease application (see above). Approval is subject to grant of mining lease and issue of Ministerial Statement under Part IV of the EP Act.	Mining Proposal
Land administration and land tenure under the *Land Administration Act 1997* (WA)	Department of Planning, Lands and Heritage (DPLH)	Submitted application under Section 165. Anticipated grant December 2017.	PER
Land administration and land tenure under the *Land Administration Act 1997* (WA)	DPLH	Crown Lease and Easement application is in development.	PER
Aboriginal land interests because native title processes would need to be followed for the valid grant of tenure under the *Native Title Act 1993*	DMIRS and DPLH	Under assessment	-
Registration (under Section 28)/Disposal Permit (under Section 34) under the *Radiation Safety Act 1975* (WA)	Radiological Council (Department of Health) of Western Australia	Site Registration and Licence is currently under assessment.	Safety Case
Radiation Management Plan under Part 16 of the Mines Safety and Inspection Regulations 1995 (WA)	Radiological Council (Department of Health) of Western Australia	Site Registration and Licence is currently under assessment.	Safety Case

Approval	Decision Making Authority	Status (expected date for obtaining approval)	Required approval document
Licence to Construct or Alter Well Water under Section 26D of the *Rights in Water and Irrigation Act 1914* (WA) (RIWI Act)	DWER	Pending grant of land access (either Miscellaneous Licence under the Mining Act 1978, or provisions under the *Land Administration Act 1997*.	Water abstraction licence document.
Licence to Take Water under Section 5C of the RIWI Act	DWER	Pending land access and issue of 26D licence under the RIWI Act.	Water abstraction licence document.
Dangerous Goods Site Licence under Part 4 of the *Dangerous Goods Safety Act 2004* (WA) and *Dangerous Goods Safety (Storage and Handling of Non-explosives) Regulations 2007* (WA)	DMIRS	Licence will be sought prior to commencing operations.	Project Management Plan and Safety Case
Development approval under Section 162 and building permits for construction of buildings under Part 2 of the *Planning and Development Act 2005* (WA) and *Building Act 2011* (WA)	Shire of Coolgardie	Application is in development.	DA
Project management plan under Regulation 3.13 of the *Mines Safety and Inspection Regulations 1995* (WA)	DMIRS	Project Management Plan is in development.	Project Management Plan

3 STAKEHOLDER ENGAGEMENT

3.1 Stakeholder engagement throughout the preparation of the PER

The PER was placed on public review from 12 December, 2016, until 7 March, 2017. Prior to and at the beginning and end of the public review period, a series of public consultation 'drop-in' sessions were held by the proponent. They were held within the communities of Coolgardie, Kalgoorlie and Southern Cross and in Perth. The dates for these events and the stakeholders consulted are listed in Table 3-1.

The proponent also briefed various federal government departments in Canberra prior to and during the public review of the PER.

Table 3-1 Summary of consultation held with the Shire of Coolgardie and other stakeholders during preparation of the Sandy Ridge PER

Date	Stakeholder	Meeting location
April and May 2015	Local indigenous families	On-site.
October 2015	• Government departments. • Ministers of Government. • Shadow Ministers of Government.	Perth.
October 2015	• Local community. • Local government.	Southern Cross.
February 2016	Local community	Coolgardie.
February 2016	• Local business. • Local government.	Kalgoorlie Boulder Shire Council and Coolgardie Shire Council.
February 2016	Local community	Kalgoorlie.
February 2016	Local government	Coolgardie Shire Council
August 2016	Local community	Kalgoorlie.
	Local community and Shire of Coolgardie	Coolgardie.
	Government departments	Perth.
October 2016	• Government departments. • Ministers of Government. • Shadow Ministers of Government.	Perth.
November 2016	Local community	Southern Cross.
November 2016	• Local community. • Local government.	Coolgardie.
December 2016	• Local business. • Local government. • Community.	Kalgoorlie and Coolgardie.
February 2017	Local business and community	Kalgoorlie.
March 2017	Local government	Coolgardie Shire Council.

The principal aim of the PER consultation sessions was to present and explain the technical findings of the environmental impact assessment process.

In addition, consultations attempted to:

- Identify key issues important to community and government stakeholders.
- Inform and raise awareness within local communities of the Proposal.

- Advise potentially directly affected stakeholders of the Proposal and its potential environmental, social and economic benefits and risks.
- Record comments and issues about the Proposal and concept design from those who may be affected.
- Seek ideas from interested parties to be considered in finalising the design.
- Advise stakeholders on how they may obtain further information or communicate concerns, complaints or suggestions.

Tools used during consultation included PowerPoint presentations, a three-dimensional video of the Facility's operations, posters, factsheets and one-on-one consultations tailored toward the stakeholder's specific interests (refer to Plate 3-1 and Plate 3-2).



http://www.tellusholdings.com/project_sandy_ridge_public_environmental_review.html

Plate 3-1 Sandy Ridge Video



Plate 3-2 Example of one-on-one consultations

A key issues management system (Consultation Manager) was used to capture, collate and analyse feedback for the Proposal.

The proponent advertised the Proposal in a variety of community forums, including:

- Their website.
- News releases.
- Local, state and national newspapers.
- Community notices.

- Emails to key local stakeholders.

The advertisements noted where copies of the PER could be viewed (in hard copy and soft copy) and detailed the process for interested parties to make submissions on the PER.

The main issues raised by members of the public during the PER were (in order of importance):

- Training and employment opportunities.
- Transport of kaolin and waste materials.
- Waste materials.
- Flora.
- Groundwater.

3.2 Stakeholder engagement throughout the preparation of the PER Submissions Report

The OEPA provided Tellus with the submissions on the PER in April 2017. A series of consultations were held with WA Decision Making Authorities (DMAs) during the preparation of the Response to Submissions Report. These consultations are summarised in Table 3-2.

Table 3-2 Summary of consultation during the preparation of the Response to Submissions Report

Date	Stakeholder	Primary focus	Resolution
March 2017	OEPA	Project update including the timing of responses to the PER.	Some DMA responses were submitted late. The OEPA confirmed that some DMA responses would take longer than 12 weeks to ensure good environmental outcomes for the Proposal.
	Department of Parks and Wildlife (DPAW)	Terrestrial flora – *Lepidosperma sp.*	Aspects of DPAW's submission, specifically the survey efforts and mitigation measures proposed for the *Lepidosperma* taxonomy.
	WA Herbarium	Terrestrial flora – *Lepidosperma sp.*	No resolution as to the identification of the unidentified *Lepidosperma sp.* Suggested contacting Dr Russell Barrett or Dr Peter Barrett, both experts on *Lepidosperma* taxonomy.
	Dr Russell Barrett - Commonwealth Scientific and Industrial Research Organisation (CSIRO)	Terrestrial flora – *Lepidosperma sp.*	Confirmation that the *Lepidosperma sp.* recorded at Sandy Ridge is in the *Lepidosperma lyonsii* species complex, which has a mix of highly localised and widespread taxa ranging from Mt Jackson south to Ravensthorpe and from about Tammin east to Queen Victoria Spring and Cape Arid. Confirmation that the species is not a new species and not restricted to the proposed development envelope.
	Department of Environment and Regulation (DER)	Project update; Works Approval	DER accepts the proponents request to concurrently assess the Works Approval.
	Department of Mines and Petroleum (DMP)	Project update; Mine Plan	A General Purpose Lease (GPL) was granted to the proponent during the preparation of the Supplement Report. Aspects of DMP's submission would be updated in the proponent's Mining Proposal which was previously lodged.
	Department of Lands (DoL)	Land tenure	Ongoing consultations between the proponent and the Department of Lands relating to tenure were undertaken during the preparation of the

Date	Stakeholder	Primary focus	Resolution
			Supplement Report. A Section 91 Licence under the *Lands Administration Act 1997* was granted to the proponent during the preparation of the Supplement Report.
	Department of Fire and Emergency Services (DFES)	Project update	Response to the PER provided to the OEPA.
	Department of Finance	Project update	No response received.
April 2017	DPAW	Technical discussion	Primary focus of the discussion centred on the proponent's survey effort with respect to *Calytrix creswellii, Lepidosperma lyonsii* and the undescribed *Lepidosperma* sp. In addition, proposed mitigation and management measures were also discussed. Refer to Section 5.4 for more information.
	OEPA	Technical discussion	Discussion focused on the structure of the Submissions Report, including the proponent's proposed assurance and insurance details.
	Department of Aboriginal Affairs (DAA)	Project update	Response to the PER provided to the OEPA.
	Radiological Council (RC) of Western Australia	Project update	Response to the PER provided to the OEPA.
	DoL	Land tenure	Parallel processing of tenure, e.g. Crown Lease, is feasible. The proponent has also submitted its Mining Lease. The proponent's Mining Proposal will be submitted for approval to DMP in late 2017.
May 2017	Radiological Council	PER submissions	The proponent will prepare an application for site registration under the *Radiation Safety Act 1975*. Early engagement on delivery of the application is necessary.
	DPAW	PER submissions	The proponent confirmed that avoidance of *Lepidosperma sp* will be followed. Future assessment of bushfire risk will also be undertaken with DPAW.
	DER	PER submissions	The proponent will submit a Works Approval application for parallel assessment by mid-late 2017.
	OEPA	PER submissions	The Sandy Ridge approval timelines were discussed. The proponent will submit a revised Response to Submissions document in mid-2017.
	DMP	PER submissions	Updated Mining Proposal will be completed by the proponent.

3.3 Future engagement

Tellus is committed to close relationships with stakeholders as the Sandy Ridge Facility progresses through the approvals phase into construction, operations and closure. With the approval process under Part IV of the EP Act nearing completion, Tellus is preparing a framework in line with its corporate Communication Plan to engage with, and contribute to, the communities in which they intend to be operating.

4 EXISTING AND PROPOSED USE OF THE DEVELOPMENT ENVELOPE INCLUDING PROPOSED INFRASTRUCTURE

4.1 Introduction

This chapter describes the existing and proposed use of the site and the proposed hours of operation (as per Part 8, Clause 63 of the Planning and Development (Local Planning Schemes) Regulations 2015). A list (with corresponding drawings) of the aboveground infrastructure proposed for the Sandy Ridge Facility is also provided as per Part 8, Clause 63 of the Planning and Development (Local Planning Schemes) Regulations 2015.

This chapter also provides details on access to and egress from the site, plus arrangements for the loading, unloading, manoeuvring and parking of vehicles. The amount of traffic likely to be generated by the development in relation to the capacity of the road system in the locality and the probable effect on traffic flow and safety is also discussed as per Part 9, Clause 67 of the Planning and Development (Local Planning Schemes) Regulations 2015.

Services are discussed as per Part 9, Clause 67 of the Planning and Development (Local Planning Schemes) Regulations 2015).

4.2 Existing and proposed use of the development envelope

This section describes the existing and proposed use of the development envelope including the proposed hours of operation of the Sandy Ridge Facility.

4.2.1 Existing use of the proposed development envelope

The proposed development envelope is located on unallocated Crown Land managed by the WA Government. There is no current land use or occupation of the land within the proposed development envelope. There are no existing structures or buildings located within the proposed development envelope other than an automatic weather station and eight groundwater monitoring bores installed by Tellus.

Existing ground levels within the proposed development envelope are shown in Figure 4-1. Existing environmental features (specifically, native vegetation given the lack of watercourses and wetlands) within the proposed development envelope are shown in Figure 4-2 and Figure 4-3. Further detailed descriptions of the existing environment of the proposed development envelope are provided in Section 5.7 of this document and in Chapter 9 the PER.

4.2.2 Proposed use of the development envelope

As discussed in Section 1.2, Tellus propose to construct and operate an open-cut kaolin mine and complementary waste storage and disposal facility with supporting aboveground infrastructure (referred to as the 'Sandy Ridge Facility'). An outline of the proposed mining and waste storage and disposal processes are provided in Section 1.2.1 and Section 1.2.2 with greater detail provided in the Chapter 5 of the PER.

An assessment of potential impacts and risks to the environment during construction and operation of the proposed Sandy Ridge Facility is presented in Section 5.7 of this document and further details provided in Chapter 10 of the PER.

There are no existing structures within the proposed development envelope, therefore, no structures would be removed during construction or operation of the proposed Sandy Ridge Facility. Environmental

features (i.e. vegetation) that would be removed during construction of the proposed Sandy Ridge Facility are shown in Figure 4-2 and Figure 4-3. Vegetation removal is quantified in Table 4-1 and Table 4-2.

Table 4-1 Impacts on regional vegetation associations

Beard vegetation association	Pre-European extent (ha)[3]	Current area remaining (ha)*	Total area within proposed development envelope	Total clearing for Proposal (ha)	Percentage of area remaining directly affected by Proposal (%)
141 – Medium woodland: York gum, salmon gum and gimlet	883,085.69	858,525.04	224.61	18.89	<1%
437 – Shrublands: mixed acacia thicket on sandplain	312,850.92	312,825.96	773.57	254.16	<1%
538 – Eucalyptus open woodland/*Triodia* open hummock grassland	127,866.58	124,866.81	5.23	2.61	<1%
435 – Acacia sparse shrubland/*Cryptandra* mixed sparse heath	732,096.18	726,352.32	0.79	0.39	<1%

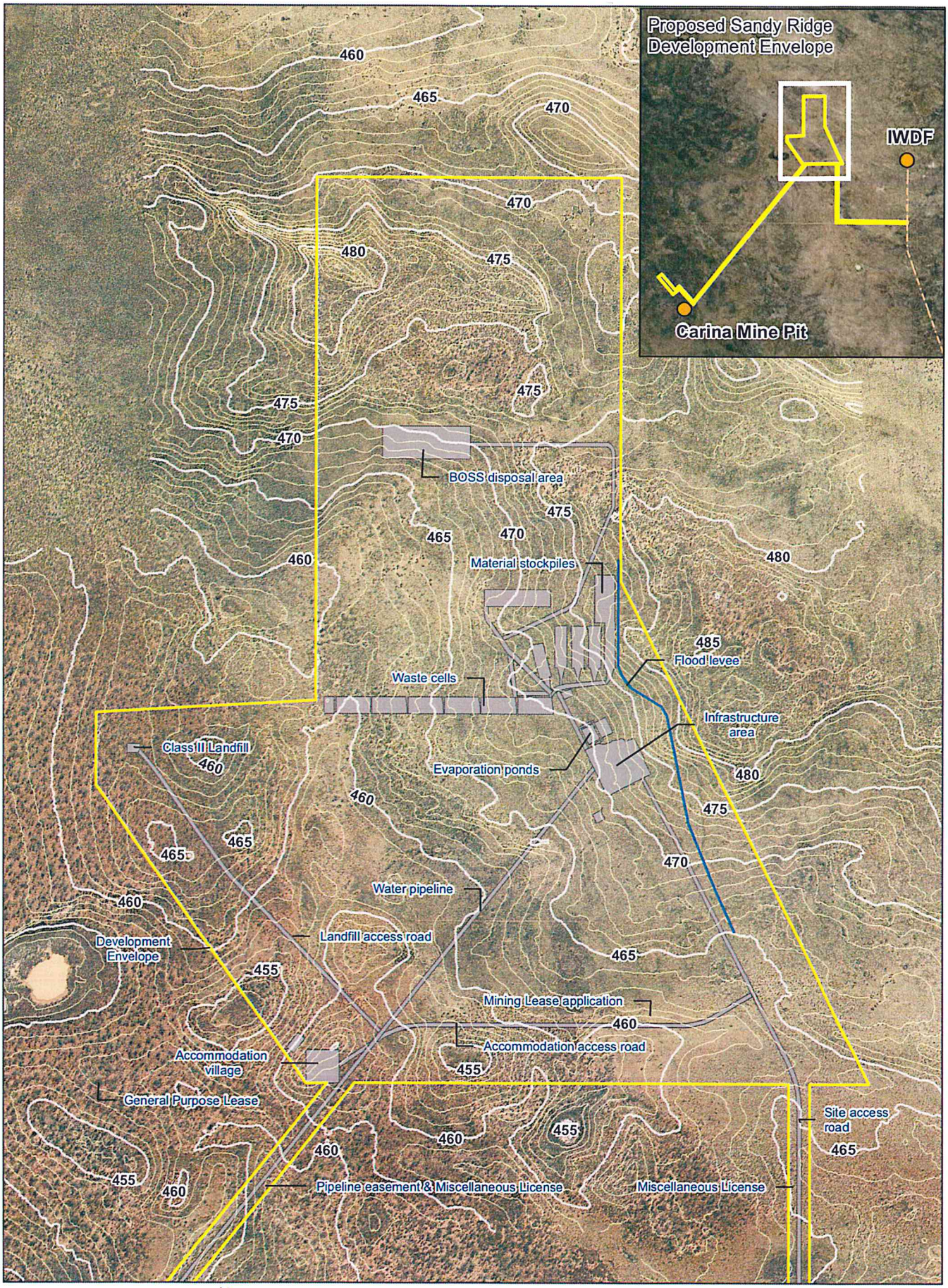
Table 4-2 Impacts on local vegetation types

Vegetation type (code)	Total area in proposed development envelope (ha)	Total area of clearing (ha)	Clearing as a percentage of total area within proposed development envelope (%)
Ab	0.98	0.49	50.00
Ar	434.18	139.51	32.13
ArAa	0.04	0.04	100
ArEpTs	295.57	92.97	31.45
ArMu	10.91	5.45	49.95
CpAr	2.19	0.08	3.65
EcAt	60.44	4.72	7.81
Eg	150.86	18.22	12.08
EgAaEo	0.91	0.46	50.55
EpMuTs	15.59	2.06	13.21
ErMuAa	2.22	1.11	50.00
EsalMu	1.62	0.81	50.00
EsAt	4.42	1.82	41.18
EsEo	16.11	8.06	50.03
Lr	8.16	0.25	3.06
Total	1004.2	276.05	-

4.2.3 Hours of operation

Construction of the proposed Sandy Ridge Facility would occur between the hours of 6AM and 6PM, seven days per week. Similarly, operation of the proposed Sandy Ridge Facility would occur between the hours of 6AM and 6PM, seven days per week.

[3] *Source: 2014 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (DPAW, 2014).*



N

0 125 250 375 500 Meters

Coordinate System:
GDA 1994 MGA Zone 51

TSR0040_DA_GroundLevels.mxd

Legend

- 1m contours
- 5m contours
- Proposed flood levee
- Development envelope
- Proposed infrastructure

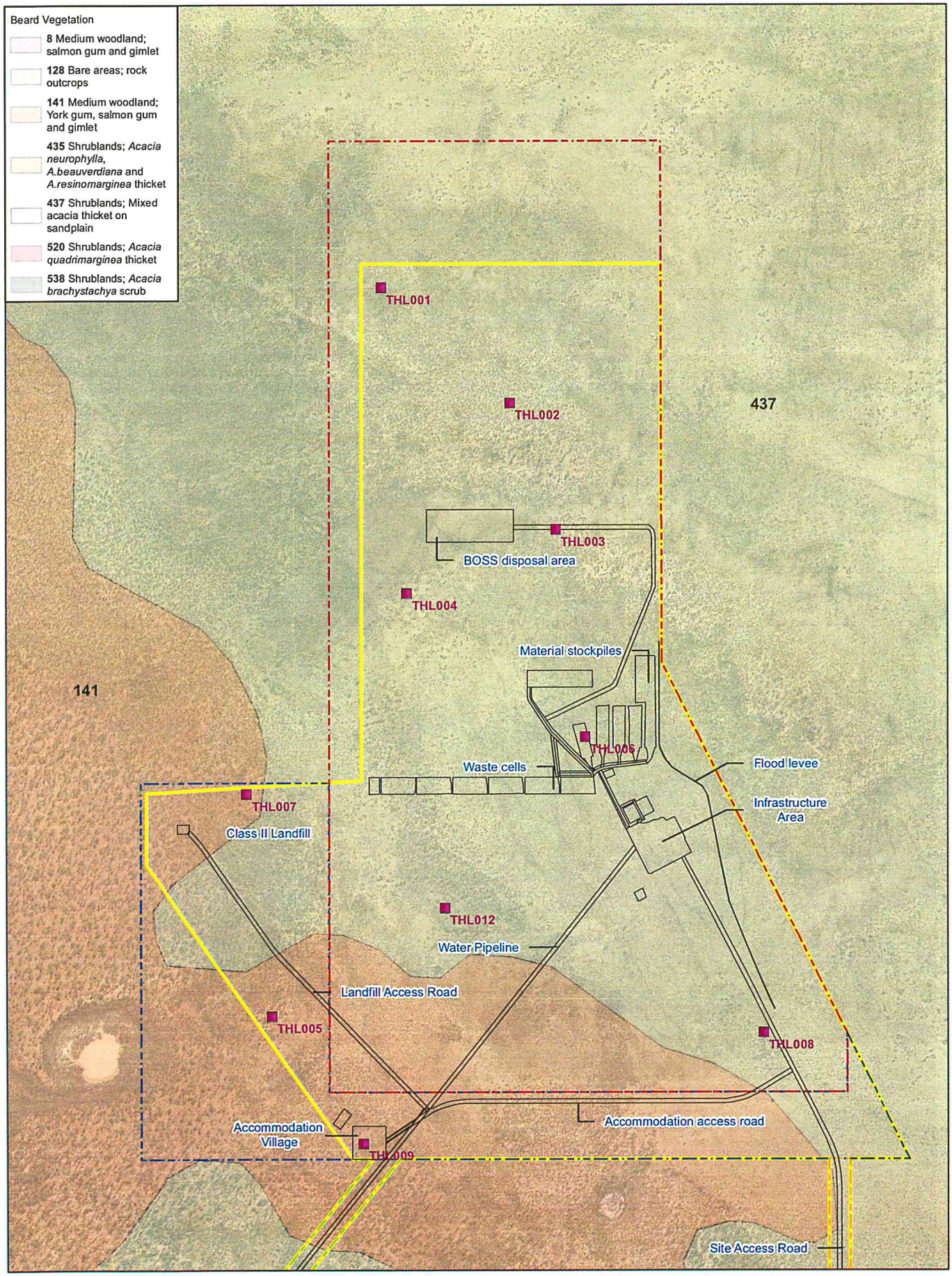
Figure 4-1

PROPOSED SANDY RIDGE FACILITY

Existing ground levels
within the Development Envelope

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Tellus Holdings Ltd provides this map without any warranty of any kind whatsoever, either expressor implied.



N

0 90 180 360 540 Meters

Coordinate System:
GDA 1994 MGA Zone 51

TSR0036_DA_VegeAssoc.mxd

Legend

- SRE sites
- Proposed infrastructure
- Development envelope
- General Purpose Lease
- Mining Lease application
- Miscellaneous License
- Pipeline easement and Miscellaneous License

Figure 4-2

PROPOSED SANDY RIDGE FACILITY

Existing environmental features: vegetation associations

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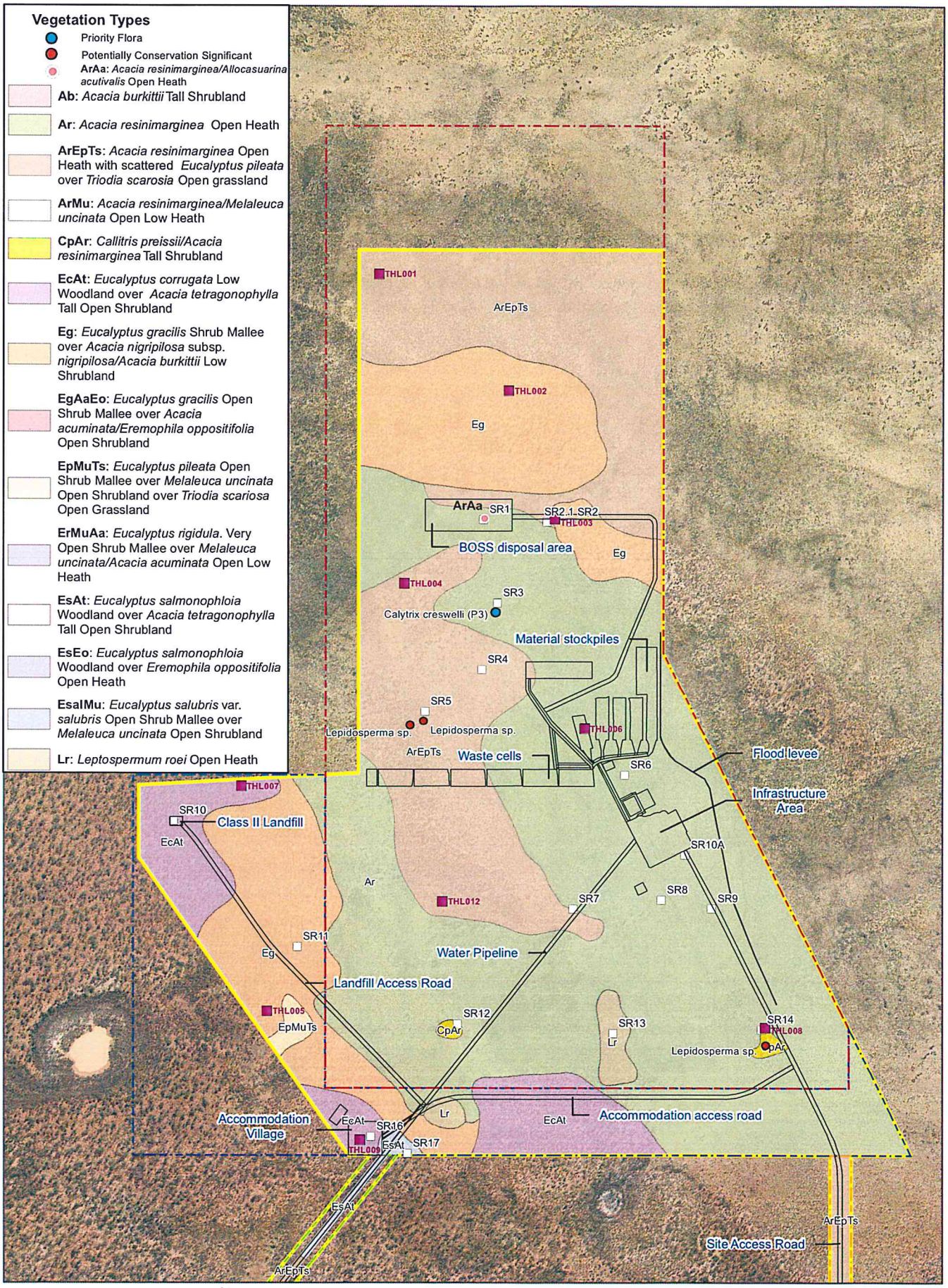


Figure 4-3

PROPOSED SANDY RIDGE FACILITY

Existing environmental features: vegetation types

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4.3 Proposed aboveground infrastructure

A list of proposed aboveground infrastructure, along with a reference to drawings for each of the proposed infrastructure for the Sandy Ridge Facility is provided in Table 4-3. The drawings have been prepared in accordance with Part 8, Clause 63 of the Planning and Development (Local Planning Schemes) Regulations 2015.

The complete list of drawings is provided in Appendix B. The proposed site layout is shown in Figure 4-4.

Please note – where drawings are not provided, the proponent intends to develop these drawings as part of Detailed Design and will be provided to the Shire of Coolgardie and the DAP, as part of the building permit stage.

Table 4-3 Proposed infrastructure- Sandy Ridge Facility

Infrastructure	Site-specific infrastructure	Corresponding drawing title	Corresponding drawing reference (refer to Appendix B)
Above ground fuel tanks	-	*Detailed design and building permit stage*	*Delivered during building permit stage*
Accommodation village	Accommodation village layout	Accommodation General Arrangement	TSR-3-PO-07300-GE-DGA-0027
	3 person/single disabled accommodation unit	3 Person/ Single Disabled Accommodation Unit	TSR-3-PO-07300-GE-DGA-0011
	4 person accommodation unit	4 Person Accommodation Unit General Arrangement	TSR-3-PO-07300-GE-DGA-0010
	Ablution block	Ablution Block General Arrangement	TSR-3-PO-07300-GE-DGA-0015
	Beer garden	Beer Garden General Arrangement & Details	TSR-3-PO-07300-GE-DGA-0017
	Dry mess	Dry Mess Floor Plan, Dry Mess Elevations, Dry Mess Notes and Equipment List	TSR-3-PO-07300-GE-DWG-0011, TSR-3-PO-07300-GE-DWG-0012, TSR-3-PO-07300-GE-DWG-0013
	Gymnasium	Gymnasium General Arrangement	TSR-3-PO-07300-GE-DGA-0014
	Ice room	Ice Room General Arrangement	TSR-3-PO-07300-GE-DGA-0013
	Laundry	Laundry General Arrangement	TSR-3-PO-07300-GE-DGA-0012
	Village office and first aid	Office and First Aid General Arrangement	TSR-3-PO-07300-GE-DGA-0016
	Village spray-field	Camp Waste Water Treatment Plant and spray-field General Arrangement	TSR-3-PO-07300-GE-DGA-0034
	Wet mess	Wet Mess Floor Plan, Wet Mess Elevations	TSR-3-PO-07300-GE-DWG-0014, TSR-3-PO-07300-GE-DWG-0015
BOSS disposal area	-	*Detailed design and building permit stage*	*Delivered during building permit stage*
Brine pond	-	*Detailed design and building permit stage*	*Delivered during building permit stage*
Cell area safety hut	-	*Detailed design and building permit stage*	*Delivered during building permit stage*
Cell cover building	-	*Detailed design and building permit stage*	*Delivered during building permit stage*
Class II landfill	-	Class II Landfill Arrangement and Details	TSR-3-PO-07300-GE-DGA-0025
Fire water storage and pumping system	-	Water System General Arrangement	TSR-3-PO-07300-GE-DGA-0018
Flood levee	-	Value Engineered Site Bulk Earthworks General Arrangement	TSR-3-PO-07300-EG-DGA-0012

Infrastructure	Site-specific infrastructure	Corresponding drawing title	Corresponding drawing reference (refer to Appendix B)
Infrastructure area	Infrastructure area layout	Value Engineered Facility General Arrangement	TSR-3-PO-07300-EG-DWG-0003
	Communications tower	Facility Communication Tower Arrangement and Details	TSR-3-PO-07300-GE-DGA-0033
	Container storage yard	Value Engineered Container Storage Yard General Arrangement	TSR-3-PO-07300-EG-DWG-0002
	Diesel unloading and light vehicle refueling	*Detailed design and building permit stage*	*Delivered during building permit stage*
	Entrance gate	Entrance Gate Arrangement and Details	TSR-3-PO-07300-GE-DGA-0023
	Evaporation pond 1	*Detailed design and building permit stage*	*Delivered during building permit stage*
	Evaporation pond 2	*Detailed design and building permit stage*	*Delivered during building permit stage*
	Facility main office (including amenities and first aid)	Main Office Floor Plan, Main Office Elevations	TSR-3-PO-07300-GE-DWG-0003, TSR-3-PO-07300-GE-DWG-0004
	Fuel farm and power generation	*Detailed design and building permit stage*	*Delivered during building permit stage*
	Heavy vehicle/light vehicle washdown and heavy vehicle refueling	HV/LV Washdown & HV Refueling Slab General Arrangement	TSR-3-PO-07300-GE-DGA-0019
	Heavy vehicle/light vehicle and mobile plant workshop	HV/LV and Mobile Plant Workshop General Arrangement	TSR-3-PO-07300-GE-DGA-0005
	Pump station	*Detailed design and building permit stage*	*Delivered during building permit stage*
	Radioactive warehouse and container yard	Value Engineered Radioactive Warehouse and Yard General Arrangement, Value Engineered Radioactive Warehouse & Yard Elevations	TSR-3-PO-07300-EG-DGA-0008, TSR-3-PO-07300-EG-DGA-0009
	Raw water tanks	Water System General Arrangement	TSR-3-PO-07300-GE-DGA-0018
	Reverse osmosis plant	Water System General Arrangement	TSR-3-PO-07300-GE-DGA-0018
	Security office	Main Office Floor Plan, Main Office Elevations	TSR-3-PO-07300-GE-DWG-0003, TSR-3-PO-07300-GE-DWG-0004
	Service and administration facilities	Main Office Floor Plan, Main Office Elevations	TSR-3-PO-07300-GE-DWG-0003, TSR-3-PO-07300-GE-DWG-0004

Infrastructure	Site-specific infrastructure	Corresponding drawing title	Corresponding drawing reference (refer to Appendix B)
	Service water pond and yard capture pond	Service Water and Container Yard Capture Ponds, Service Water and Container Yard Capture Ponds Sections and Details	TSR-3-PO-07300-GE-DWG-0040, TSR-3-PO-07300-GE-DWG-0042
	Temporary container yard	*Detailed design and building permit stage*	*Delivered during building permit stage*
	Vessel discharge pad	*Detailed design and building permit stage*	*Delivered during building permit stage*
	Waste immobilisation plant	Waste Immobilisation Plant General Arrangement - Plan Sheet 1, Waste Immobilisation Plant, General Arrangement- Sections	TSR-3-PO-07300-GE-DGA-0044
	Waste inspection bays	Waste Inspection Bays General Arrangement, Waste Inspection Bays, Elevations	TSR-3-PO-07300-GE-DGA-0002
	Waste laboratory	Waste Laboratory General Arrangement, Waste Laboratory Elevations	TSR-3-PO-07300-GE-DGA-0003, TSR-3-PO-07300-GE-DGA-0004
	Waste water treatment plant	*Detailed design and building permit stage*	*Delivered during building permit stage*
Lighting	-	*Detailed design and building permit stage*	*Delivered during building permit stage*
Material stockpiles	-	Cell Area Layout of Pit 1	TSR-3-PO-12000-MG-DLA-0001
Mine office spray-field	-	Value Engineered Facility General Arrangement	TSR-3-PO-07300-EG-DWG-0003
Perimeter fencing	-	Site Fencing Arrangement and Details	TSR-3-PO-07300-GE-DGA-0046
Remote pumping station and pipeline	-	*Detailed design and building permit stage*	*Delivered during building permit stage*
Road drainage on Mt Walton Road	-	Proposed Roadworks Road Cross Sections Typical Sections	TSR-3-PO-07300-GE-DWG-0018
Settlement sump	-	*Detailed design and building permit stage*	*Delivered during building permit stage*
Waste cells	-	Cell Area Years 1- 25	TSR-3-PO-12000-MG-DLA-0005
Water system		Water Distribution Piping and Instrumentation Diagram- Sheet 1	TSR-3-PO-07300-PI-PID-0001

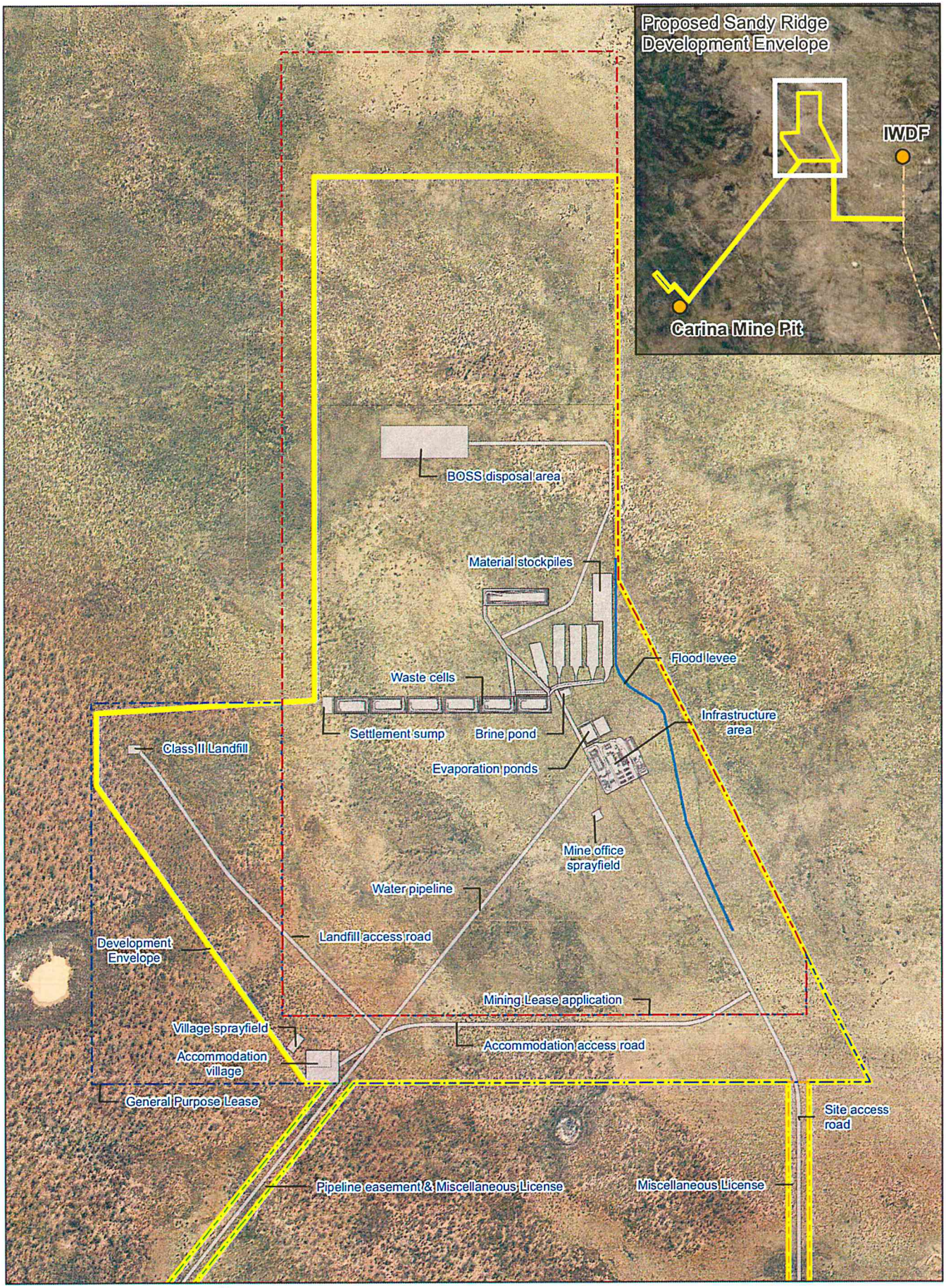


Figure 4-4

PROPOSED SANDY RIDGE FACILITY

Proposed Site Layout

TELLUS

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4.4 Site access, carparking, loading/unloading, open storage and open space/landscaping

4.4.1 Site access

Access to the Sandy Ridge site is via the Great Eastern Highway and then via the IWDF Access Road (also referred to as Mount Walton Road and shown in Figure 1-1).

Intersection upgrade works are being evaluated by the WA Department of Main Roads for the intersection of the Great Eastern Highway and the IWDF Access Road. An independent condition assessment of the IWDF Access Road was commissioned by the proponent. The results of that study will be used by the proponent to progressively upgrade the IWDF Access Road to:

- Improve the overall quality of the road.
- Improve road drainage (where required),
- Replace substandard wearing course and to prevent localised flooding.

New, unsealed access roads would be constructed to connect the proposed infrastructure area, accommodation camp and Class II landfill to the IWDF Access Road. The roads would be designed to suit expected site traffic. The site access road and the village road would be two-way with a minimum lane width of 3.5 metres and with an appropriate base and wearing course on the new unsealed roads, the landfill access road would be single lane.

4.4.2 Carparking

Two carparking areas are proposed as part of the Sandy Ridge Facility. These include:

- Facility main office carpark. This carpark would consist of approximately 12 light vehicle car parking bays (including accessible parking bays and emergency vehicle parking bays). Bus parking bays would also be provided.
- Accommodation village carpark. This carpark would consist of approximately 30 light vehicle parking bays (including accessible parking bays and an emergency vehicle parking bays). Bus parking bays would also be provided.

The location of the facility main office and accommodation village is shown on Figure 4-4. The carparking areas are shown in TSR-3-PO-07300-GE-DGA-0027 and TSR-3-PO-07300-EG-DWG-0003 (refer to Appendix B). If required, the carparking areas will be refined further during detailed design of the Sandy Ridge Facility.

4.4.3 Loading/unloading

A loading/unloading area would be located just past the entrance gate on the left-hand side, within the infrastructure area. The location of the infrastructure area is shown on Figure 4-4. The location of the loading/unloading area is shown in TSR-3-PO-07300-EG-DWG-0003 (refer to Appendix B). The loading/unloading area will be further refined during detailed design of the Sandy Ridge Facility.

4.4.4 Open storage and trade display

Open storage areas are proposed as part of the Sandy Ridge Facility. These include:

- Infrastructure area:
    - Heavy vehicle/light vehicle and mobile plant workshop (refer to TSR-3-PO-07300-GE-DGA-0005 in Appendix B).
    - Container storage yard (refer to TSR-3-PO-07300-EG-DWG-0002 in Appendix B).
    - Radioactive warehouse and container yard (refer to TSR-3-PO-07300-EG-DGA-0008 and TSR-3-PO-07300-EG-DGA-0009 in Appendix B).
    - Temporary container yard (detailed design pending).
    - Service water pond and yard capture pond (refer to TSR-3-PO-07300-GE-DWG-0040 and TSR-3-PO-07300-GE-DWG-0042 in Appendix B).
    - Evaporation ponds (detailed design pending).
- Brine ponds (detailed design pending).
- Waste cells (refer to TSR-3-PO-12000-MG-DLA-0005).

The location of the infrastructure area, brine ponds and waste cells is shown on Figure 4-4. The infrastructure area is shown in more detail in TSR-3-PO-07300-EG-DWG-0003 in Appendix B.

No trade display is proposed as part of the Sandy Ridge Facility.

4.4.5 Open space and landscaping

Some open space area is proposed within the accommodation village for employee recreation (e.g. bowling green and golf practice area), as shown in TSR-3-PO-07300-GE-DGA-0027 (refer to Appendix B). This open space will be refined during detailed design of the Sandy Ridge Facility.

The accommodation village and facility main office will be designed to ensure existing vegetation will be retained (where possible) and landscaped using groundcovers, shrubs and trees endemic to the area.

4.5 Traffic

The estimated number of vehicles entering (and exiting) the site per week during operation of the proposed Sandy Ridge Facility is provided in Table 4-4. Traffic generated during construction of the proposed Sandy Ridge Facility is estimated to be less than this amount.

Table 4-4 Traffic generated per week during operation of the proposed Sandy Ridge Facility

Department	Light vehicles (per week)	Heavy vehicles rigid or single trailer (per week)	Heavy vehicle road trains (per week)
Mining	16	0	0
Waste operations	16	0	6
Utilities and maintenance	8	4	2
Waste delivery	0	0	68
Administration and visitors	4	0	0
Accommodation village	4	2	0
TOTAL PER WEEK	**48**	**6**	**76**
TOTAL PER DAY	**7**	**1**	**11**

Both the Great Eastern Highway and IDWF Access Road are considered to have ample carrying capacity to adsorb the anticipated increase in traffic during construction and operation of the proposed Sandy Ridge Facility.

As discussed in Section 4.4.1, intersection upgrade works (to reduce impacts on traffic flow and safety) are being evaluated for the intersection of the Great Eastern Highway and the IWDF Access Road. The IWDF Access Road would be upgraded progressively to improve the overall quality of the road, road drainage, to replace substandard wearing course and to prevent localised flooding.

4.6 Services

Public utility services are not available within the proposed development envelope. As such, services would be installed during construction of the proposed Sandy Ridge Facility. These services are discussed below.

4.6.1 On-site roads and drains

Site roads and the accommodation village roads would consist of unsealed roads. Bituminised or asphalt seal would be applied for the container storage yard only.

Generally, the site roads would be designed to minimise interactions between all vehicle types, primarily heavy vehicle interactions. In addition to minimising interactions, the roads would be laid out to maintain one-way traffic, where possible, to maintain best practice traffic management systems.

Preliminary hydrology investigations indicate that there would be little to no surface run-off. Hence, site drainage would be limited to:

- Cut-off drains to the eastern side of the site to prevent any surface water generated from the local catchments areas from impacting on the site's infrastructure.
- Localised drainage to pond or nominated catch points for dissipating any water collected in large sealed areas.
- Unsealed pavement encouraging a greater rate of water infiltration.

4.6.2 Water supply, storage and distribution

Water at the site is required for:

- Bore water supply.
- Fresh water production.
- Potable water production.
- Brine water production.
- Contaminated water (wash water) capture.
- Rainfall capture.

The amount of water required is considered to be relatively small (4.2 L/s to 5.0 L/s) and only requires a very low level of assessment to obtain an extraction licence. The site's geography and geology was selected based on its suitability to store waste, and as a result, there is no apparent water source available on the site. Rockwater Pty Ltd completed a desktop water supply study and identified the Carina Iron Ore Mine area as the best source of water, by way of a bore(s).

Rockwater used released data from the Carina Mine (who also use Rockwater for hydrogeological services). The Carina Mine currently has an excess of water from pit de-watering, which is disposed of in evaporation ponds. At the time of preparing this document, the Carina Mine pit is closed and the pit is only partly backfilled, being left to flood naturally.

The drawn bore water is close to sea-water in salinity, but is fresher than most sources in the area and only requires a genset, floating pump, buffer storage tank and transfer pump sets, and approximately a 17.5 km pipeline to transfer the water to the Sandy Ridge Facility.

The transfer pipeline from the Carina Mine to the Sandy Ridge Facility site is currently designed and costed with sufficient capacity for the construction phase, i.e. supplying approximately 18.0 L/s. After this, the flow rate would be reduced to the operational supply rates. The pipe would be installed underground and monitored (via telemetry) for leaks.

Saline water delivered to the Sandy Ridge Facility site would be treated in a reverse osmosis plant to produce fresh water for washdown and waste immobilisation plant, and potable for site and accommodation village use. Reverse osmosis reject and raw saline water would be used for dust suppression, compacting of waste cell backfill and capping.

A schematic (final design to be completed by the EPC Contractor) of the water circuit is indicated on in Figure 4-5. Water transfer between the Carina Mine and the Sandy Ridge Facility site would be controlled by localised telemetry.

Raw water from the Carina Mine bore would be stored in both raw water tank(s) and the service water pond at the site, as indicated on preliminary design drawing TSR-3-PO-07300-PI-PID-0001 (refer to figure 4-6, and Appendix B).

The site's reverse osmosis system would use the raw water in the raw water tank(s) to generate fresh water and brine. Fresh water would be stored in a single storage tank (with allowance for the fire water requirement) and then distributed both through a chlorination system (stored in the site's potable tank) for potable water and distributed via a dedicated pump and underground piping network to the waste immobilisation plant. Reverse osmosis brine water and any sediment backflush

water would be recycled by way of piping underground to the mining area brine pond, to be used in waste cell backfilling.

Similarly, the potable water from the potable water tank would be transferred through a dedicated potable pump and underground piping network to points of use throughout the facility, i.e. office and ablutions. To reduce capital and maintenance costs, a single reverse osmosis system was considered. As a result, potable water from the site would also be used to fill the accommodation village's potable water tank (re-treated with a chlorine dosing system), which would be similarly equipped with a fire reserve. A dedicated co-extruded HDPE PE100 pipe, run aboveground, would provide the connection between locations.

An underground, independent, pumped, fire ring main service would be installed to provide site-wide fire protection. A reserve capacity would be allocated within the site's fresh water tank to cater for this allowance. An opportunity exists for an independent fire water supply line, to supply a dedicated fire water tank at the accommodation village, depending on the final EPC Contractor selection.

4.6.3 Fire systems

Fire/smoke detection systems would be installed in individual buildings and would feed a master fire panel at both the site and the accommodation village. The master fire panels would then use the available on-site communications for monitoring, and would contact the relevant on-site emergency response personnel.

A fire hydrant ring main system would provide full site and accommodation village protection from fire. Individual buildings would also be served by fire extinguishers and fire hose reels; the latter to be fed from the associated water network. A combination electric/diesel fire pumping system would be used to meet the required flow rates and pressures, typical for similar mine site operations.

All installed equipment and systems would meet the necessary standards and regulations.

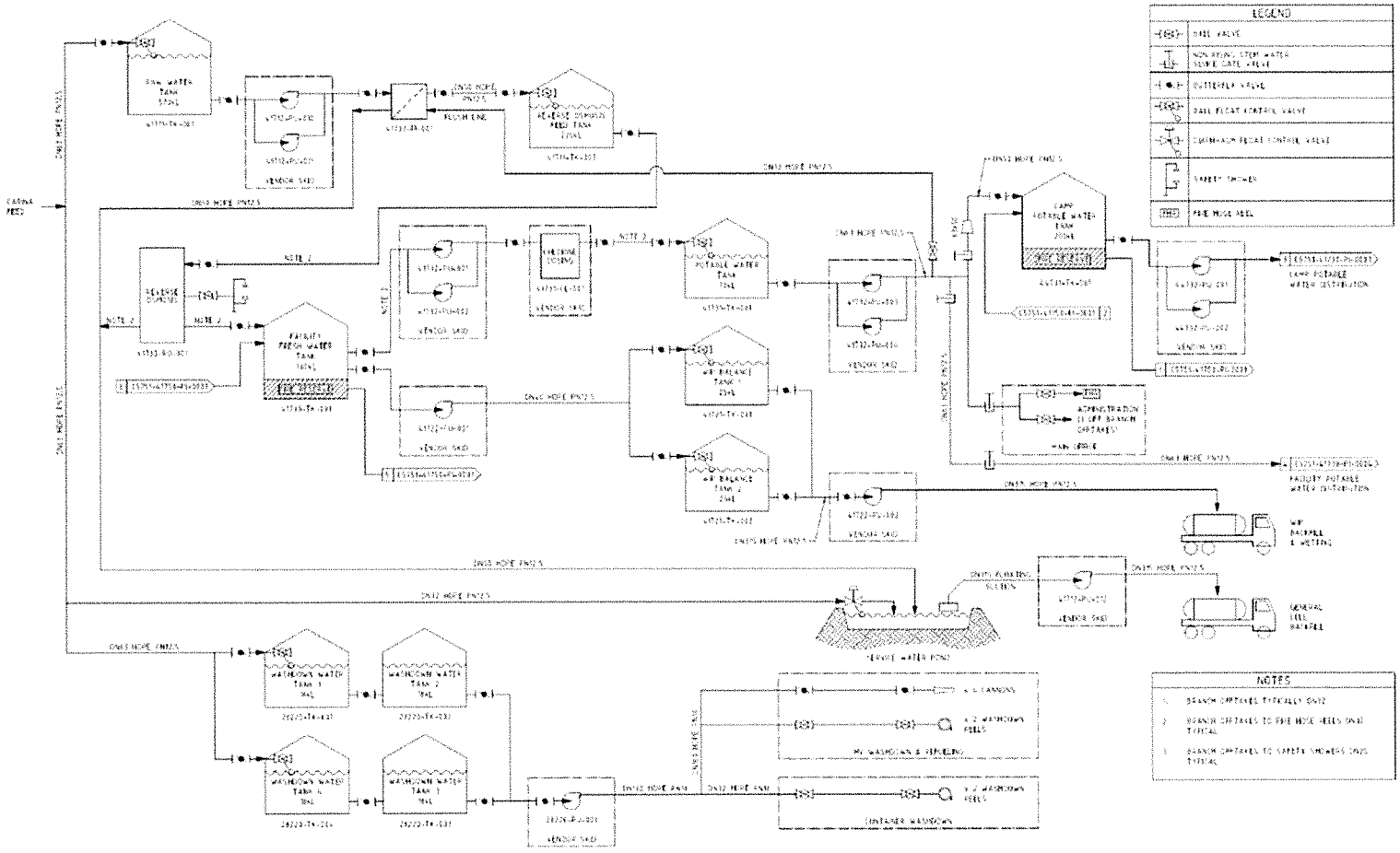


Figure 4-5: Water schematic

4.6.4 Compressed air systems

Compressed air plant would be limited to the vehicle workshop area. Compressed air plant would generally be limited to a packaged compressor system and would typically include a compressor, receiver and dryer.

4.6.5 Fuel facilities

Diesel would be primarily stored on site, in either two 53 kL, or a single 110 kL, self-bunded tank(s). The self-bunded fuel tank(s) would have four direct points of use, which include:

- Fuel unloading – from fuel tankers delivering fuel to site.
- Site generator supply – via transfer piping to associated self-bunded belly/day tanks.
- Heavy vehicle (HV)/light vehicle (LV) refuelling facility supply – the refuelling facility would be supplied via transfer piping.

The arrangement of the fuel storage and refuelling facilities is shown in Figure 4-6.

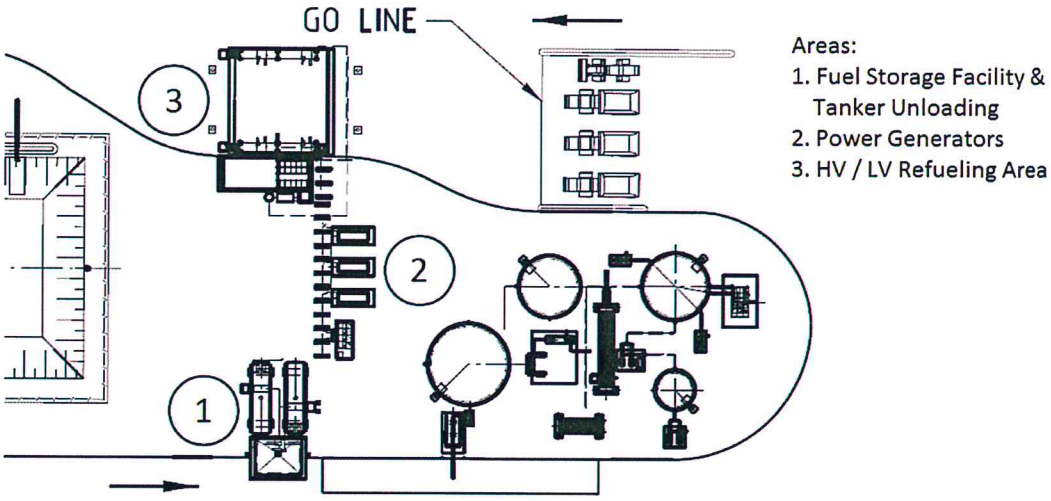


Figure 4-6: Fuel storage, power generation and refuelling facilities

There would be additional fuel storage to the main fuel storage facility, which services the Carina bore pump(s). Sizing would be determined at the point of award for the supply of generators, and is expected to be approximately 2 kL, the tank would also be similar to the main fuel storage facility, in that it would be self-bunded.

There is currently no provision for fuelling vehicles and plant at the accommodation village.

It is expected that fuel suppliers would deliver fuel to the site, as needed. Delivery tankers would not exceed A-double configuration. The Carina mine bulk storage is expected to be refuelled via a fuel trailer, or alternatively, negotiated with Carina mine operations as a regular task.

4.6.6 Power supply and distribution

The power requirements for the Sandy Ridge Facility are presented in Table 4-5. These loads are the peak values expected during day shift operations.

Table 4-5 Power requirement summary

Item	Units	Day	Night
Waste facilities	kW	256	48
Accommodation village	kW	93	131
Carina bore water supply	kW	34	34
TOTAL	**kW**	**383**	**213**

The overall loads would be minor when compared to a typical mining operation of size and, as such, would be easily managed through readily sourced generators.

A centralised power facility located at the site close to the fuel storage facility reticulating power throughout the site (by way of underground services) and to the accommodation village, offers significant operating cost savings.

Supply of the generators would form part of an operational serviced lease arrangement, with the remainder of the power-related equipment forming part of the EPC contract (including installation of the free issue generators). Generators would be sized to allow for full redundancy with associated standby power and would include an associated load management system.

Due to the type of operations, a typical Switch Room/MCC Room would not be required. Power distribution would occur by way of a main distribution board. The main distribution board would have allowance to connect renewable power sources (still under development with generator supply contractors) and would distribute directly to localised distribution boards for each facility, such as waste inspection bays, waste immobilisation plant and accommodation village.

The Carina bore pump(s) would be serviced by duty and standby power arrangement, inclusive of associated fuel storage, as part of the overall site generators serviced lease arrangement contract. The generators would be used to also power the associated telemetry system managing the bore pumps.

4.6.7 Lighting

Site external lighting would generally consist of pole-mounted LED light fittings, or wall-mounted LED flood lights, as appropriate. Illumination would generally be limited to internal site roads.

Site internal lighting would be limited to LED T-bar fittings in prefabricated modular buildings and LED high bay suspended lights within the clad buildings or dome fabric structures. Accommodation village external lighting would generally consist of pole mounted LED light fittings illuminating the carpark and village road areas. In addition, bollard lighting would be used for all footpaths.

Modular buildings would be fitted with LED T-bar fittings internally and LED wall lights under the covered verandas. All lighting is anticipated to be fed via the power supply and distribution network, on a separate small power chassis, with associated distribution/switch boards.

4.6.8 On-site communications

On-site communications would be structured around what is primarily required to support the site's waste management, isolation and storage operations, including specific security and access. Its secondary requirement would be to provide personnel with an ability to communicate outside the site in any recreation time or rest time.

On-site communications would include the following major capabilities:

- Process Control Systems.
- CCTV cameras.

- Swipe-card access.
- Fire system and monitoring.
- Corporate IT LAN and VOIP phones.
- 2-way radios and CB radio.
- Unlicensed radio telemetry communications.
- GSM mobile and data (where available).

The main server room for the site and accommodation village would be located at the facility main office. Site facilities would be linked to the main server room by single-mode optic fibre (SMOF). Underground conduits would provide the path for the SMOFs to connect between the facilities. The accommodation village would be connected to the main server room via a microwave, WI-FI link or optical fibre link (dependent on selection of EPC Contractor).
Generally, the facility would be serviced site-wide via Wi-Fi, allowing for operation and coordination of works by use of Wi-Fi-connected equipment and hardware. The accommodation village would also be serviced by Wi-Fi, primarily personal communications.

4.6.9 Off-site communications

Options for a telecommunications link to the site considered were a microwave tower and upgrades to the nearest Telstra facility, an independent satellite link, or connection to the 'SkyMuster' federal NBN system - also by satellite. Connecting to either satellite system would not provide standard connectivity to the local GSM (mobile phone) network, but relies on internet connectivity for all communications, such as Skype and others.

Independent satellite connection (by Red Networks) has proven to be the most suitable, by way of bandwidth, performance level availability (comparable to fixed line systems) and costs. The proposed system would provide a connection bandwidth of 100/100 Mbps, compared to a bandwidth of 60/60 Mbps that is considered to be typical for similar mining operations. Increasing the available bandwidth is primarily a result of entertainment options for on-site personnel, namely removing of Foxtel channels and provision of bandwidth to allow for bring-your-own on-demand services, such as Netflix and others. Additionally, Red Networks have an established presence throughout the Kalgoorlie region and of note, provide similar communications services to the Carina mine site and village.

4.6.10 Waste

External waste packaging (Intermediate Bulk Containers (IBC)/Flexible Intermediate Bulk Container (FIBC) bags/pallets/drums) would be either returned to the client, or shredded, or bundled for permanent isolation within the waste cell, with corresponding external waste.

Mined material for waste cell creation is not considered waste and would be used for initial construction structural fill, for ongoing operations within the waste immobilisation plant, and as material for intermediate backfill.

Class II waste generated from the accommodation village and from operations and maintenance activities would generally be separated into recyclable and putrescible wastes. Recyclable items would be processed off site and the remaining putrescible waste disposed of within the site Class II landfill.

Waste effluent from the accommodation village and mine operations would be treated directly on site by biological treatment processes. Treated effluent would be chlorinated before being disposed of on site at nominated irrigation fields called spray-fields.

Petrochemical wastes, such as equipment service oils, would be collected and stored (within nominated holding areas and containers) until the wastes are ready to be shipped off site, to be processed at nominated centres, usually for recycling.

Processed raw water brine waste from the reverse osmosis plant would be used for waste backfilling.

Rainfall events on site would generally have little impact due to the flat gradient and capacity for soils in the area to adsorb surface water. Potentially contaminated and nominated controlled areas would be designed to capture and manage a 1:100 year 72 hr rainfall event. Captured rainfall would generally be used for waste backfilling and immobilisation and disposed of with the site-external waste in the waste cell.

5 ENVIRONMENTAL IMPACT ASSESSMENT

5.1 Introduction

A Public Environmental Review (PER) was prepared to support the approval of the Proposal under Part IV of the *Environmental Protection Act 1986* (WA) (EP Act) and the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The PER was prepared to address the requirements set out in the final Environmental Scoping Document (ESD) for the Proposal issued by the WA Office of the Environmental Protection Authority (OEPA) on 26 May, 2016. The PER was also prepared to address the requirements set out in Schedule 4 of the Environment Protection and Biodiversity Conservation Regulations 2000 (EPBC Regulations).

The PER was available for a public review from 12 December, 2016, to 7 March, 2017. On 18 April, 2017, the OEPA directed the proponent to prepare a Response to Submissions Report (Submissions Report) to the PER. The Submissions Report is required for the purpose of responding to issues raised by Decision Making Authorities (DMA) and interested stakeholders during the 12-week public review period. It was formally submitted to the OEPA on 28 April, 2017 in accordance with the requirements of the WA *Environmental Assessment Guideline No.6*. The PER and the Submissions Report collectively form the PER for the proposed Sandy Ridge Facility.

This chapter presents a summary of the major findings of the PER and addresses Part 9, Clause 67 of the Planning and Development (Local Planning Schemes) Regulations 2015. For further information, the reader is directed to the PER located at:
http://www.tellusholdings.com/project_sandy_ridge_public_environmental_review.html\

5.2 Alternatives, justification and benefits

This section outlines the alternatives to, justification for, and benefits of the proposed Sandy Ridge Facility.

5.2.1 Alternatives to the proposed Sandy Ridge Facility

A range of options and alternatives were investigated for the Proposal including an assessment of the 'do nothing' scenario. In-depth, detailed investigations were also undertaken into site selection. Further investigations were undertaken with respect to the site selection for the mining components, the approach to mining the kaolin, access to the proposed development envelope, transportation of the kaolin, water and power supply alternatives, alternatives to handling mining spoil, the design of the waste cells, the types of waste to be accepted, the criteria for accepting them and the handling and storage of wastes.

5.2.2 Justification for the proposed Sandy Ridge Facility

The viability of the proposed Sandy Ridge Facility would rely on implementing both aspects of the dual revenue Proposal:

- The kaolin business.
- The waste storage, recovery and isolation business (in an arid, near surface geological repository).

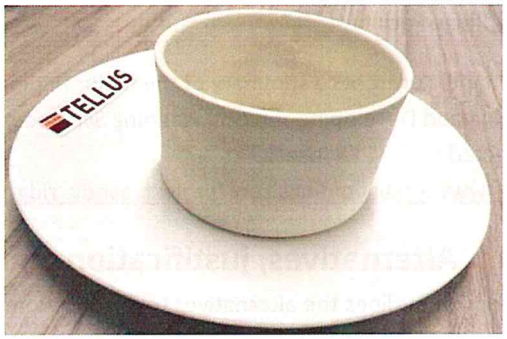
Kaolin business

Kaolin is found across Australia, with large deposits in WA, but significant production is now restricted to Victoria. Kaolin customers like Australian kaolin quality but are wary of Australian supply reliability. The

Asia/Pacific region continues to have the largest kaolin market influence globally, underpinned by strong manufacturing demand and continued urban development amongst its emerging economies. These trends are expected to continue and consolidate Asia as the fastest growing region for kaolin demand over the next five years, hosting the top four growth users, China, India, Malaysia, and Thailand.

WA has a number of world class kaolin deposits. However, none of these to date, have been able to be developed on a commercial scale due to development and operating cost hurdles. In the case of Sandy Ridge, these economic disincentives are overcome because of the synergies of operating a dual revenue kaolin and waste repository, on the same site, and collecting two revenue streams. As a result, for the first time, WA would potentially have a viable kaolin mine, and storage facility which would generate additional regional investment, training and jobs, business opportunities, infrastructure, royalties and taxes for the State and improved overall product stewardship. The kaolin deposit at Sandy Ridge has been determined to be high grade and Australia is well positioned geographically for the distribution of the processed kaolin products into the Asian marketplace.





Kaolin is used widely in the ceramic industry. It is also used in a number of other industries including the paper, paint, rubber, plastics, ink and insecticide industry.

The dual revenue business model is attractive to investors as it generates a higher margin and is countercyclical. The benefit of this is that it produces a more predictable revenue stream. The customers who want to buy the kaolin and customers who want to use the storage space also like the dual revenue business as it gives them confidence that the operations would be reliable, cost effective, and sustainable and that Tellus would be around over the next 25 years.

Waste storage, recovery and isolation business

The problem

Australians are the second highest emitters of hazardous waste per capita due to our economy being driven largely by mining, oil and gas, and manufacturing. Approximately 10% of the waste Australian's produce is hazardous. That means approximately six million tonnes per year of known hazardous waste is produced and is growing at approximately 3% per annum. There is also approximately 900 million tonnes of reported legacy waste (hazardous and intractable waste generated historically) estimated to be temporarily stored in WA and across other Australian states and territories.

The solution

There is a need and regulatory obligation to provide for the safe and secure storage and permanent isolation of both hazardous and intractable waste. The solution put forward involves the isolation of such wastes in an arid near surface clay geological repository that safeguards human health and the

environment from harm over geological time. This can be achieved by applying proven scientific and environmentally sound management principles.

A geological repository is an underground storage or disposal facility of hazardous and intractable waste that relies on both a natural geological barrier (e.g. a clay bed) and man-made engineered barriers that both form part of a multibarrier system as part of an overall safety case that is globally recognised for its permanent isolation capabilities.

The natural geological barrier isolates waste from the biosphere safely and permanently. Once the site is closed, it requires very little ongoing monitoring as the geological barrier is passively safe. The lifespan of containment is in the hundreds of thousands to millions of years. As a result, geological repositories that can permanently isolate materials are globally considered "best practice" for both hazardous, intractable and LLW.

At present, WA has one operational Class IV facility (Red Hill Waste Management Facility) and one campaign based operational Class V facility (IWDF). The IWDF facility is the only Class V facility in Australia and is also classed as an arid, near surface geological repository. However, the use of existing facilities, such as the IWDF facility, is limited due to the site being cost prohibitive and not well known. It is difficult for customers as the onus is on waste producers to demonstrate that they have exhausted all other potential options for handling the hazardous waste materials before they can be directed to the IWDF. The IWDF facility is also only open for a campaign style operation once every few years with the last operation being eight years ago in 2008.

The lack of cost effective and regular disposal operations at the IWDF facility means that potentially hazardous and intractable wastes are being stockpiled in undesirable circumstances around Australia or are shipped overseas at great expense to international facilities. Current management of hazardous and intractable waste, at unknown locations across Australia, may pose a significant human health and environmental risk due to their locations near sensitive environmental and social receptors. It is also possible that some wastes may be disposed of in an inappropriate or illegal manner.

The proposed Sandy Ridge Facility would operate within an environment not constrained by sensitivities such as communities as it is in a very remote area, groundwater, surface water or protected flora and fauna species or populations. In addition, the Facility would offer significantly lower gate charges than currently available at the IWDF facility. This would encourage the correct storage, recovery or disposal / permanent isolation of high risk hazardous and intractable wastes, eliminating a significant environmental residual risk to the community.

5.3 Environmental suitability for a waste storage, recovery and isolation business

The following key site characteristics are of specific importance for establishing a dual use kaolin business and waste storage, recovery and isolation business (in an arid, near surface geological repository) at the site of the proposed Sandy Ridge Facility:

- Geologically stable – it has very low seismicity and no volcanic or tectonic activity.
- Natural geological barrier – the clay bed is approximately 70 million old and is laterally extensive, thick, flat, and has been stable for millions of years, and is capped by a natural impermeable rock layer. The in situ clay has very low permeability. When combined with the thickness and extent of the clay it would not transmit waste off-site, even if a solute (water) was present.
- Climate – Semi arid, therefore low erosion and water ingress risk.

- Groundwater and surface water – no regional aquifers present (confirmed through hydrogeological investigations), the site is not subject to flooding, it has low rainfall (averages just over 250 mm of rainfall per annum) and evaporation is greater than 2,000 mm per annum. This means that water would generally evaporate before infiltrating into the ground), and there are no defined surface watercourses or waterbodies in the proposed development envelope.
- Other features –
    - Very low rates of erosion.
    - Lack of commercial mineral deposits (other than kaolin).
    - It is located in an area with zero population (the closest non-permanent camp is approximately 52 km away).
    - There is no potential for medium to high value agriculture.
    - The site has no special environmental or cultural features (confirmed through field surveys in consultation with stakeholder's familiar with the area).

In addition to the above, the IWDF Facility, Australia's only Class V waste disposal facility is located immediately to the east of the proposed development envelope as the locality has previously been recognised for its suitability for intractable wastes and has a 22-year safe operating history.

The proposed development envelope is located within a bushfire prone area according to the WA Department of Fire and Emergency Services. The risk of bushfire would be managed through the development of a Bushfire Management Plan prepared in consultation with the WA Department of Biodiversity, Conservation and Attractions (Parks and Wildlife Service). The Bushfire Management Plan would be implemented during construction, operation and rehabilitation and decommissioning of the proposed Sandy Ridge Facility.

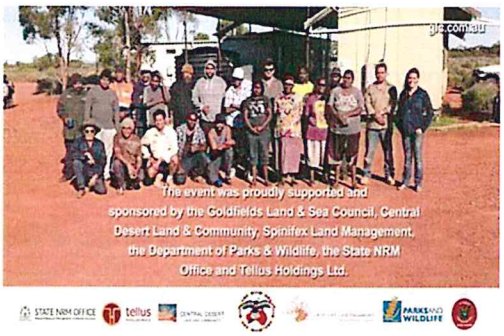
The proposed development envelope is not located in an area of tidal inundation (it is located inland) nor in an area prone to landslip or subsidence.

5.4 Benefits of the proposed Sandy Ridge Facility

The Proposal would result in significant, positive social and economic benefits to WA and to Australia, including:

- Providing a unique dual revenue business that commercialises an industrial bulk commodity (kaolin) and provides safe environmentally sound management solutions for difficult to manage hazardous waste resources.
- Future potential recovery of valuable materials (that are currently deemed waste).

- Long-term jobs and major investment and business opportunities in remote regional Australia.
- Diversification of the economy by an environmental infrastructure business with strong social, environmental and economic values.
- Royalties, taxes and levies over the 25 year term could support other parts of the economy.
- Employment and business opportunities that can support local and regional communities.
- Long project life of 26 years. The site can be expanded for generations (1 year build, 25 year operation plus possible rolling terms).



Indigenous training, employment and business opportunities would result from the Proposal

- Creation of approximately 90 jobs during the construction phase, and approximately 23 direct and 46 indirect (2x multiplier) during the operation phase.
- Benefits would apply to local indigenous communities where opportunities for training, employment and business opportunities during construction and operations exist.
- When operating, the Facility would also provide a reliable long-term utility service to other industries that produce waste materials within Australia.
- The Facility could attract new kaolin and waste recycling and recovery industries to WA, and support industrial development in WA, bringing attendant economic benefits.

5.5 Key environmental factors

The key environmental factors identified in the ESD include:

- Flora and vegetation.
- Terrestrial environmental quality.
- Terrestrial fauna.
- Inland waters environmental quality.
- Human health.
- Heritage.
- Offsets (integrating factor).
- Rehabilitation and decommissioning (integrating factor).

In addition, amenity (in relation to noise, dust and visual impacts) as well as cumulative impacts are considered relevant to the Proposal.

5.6 Environmental risk assessment

An environmental risk assessment was undertaken to identify, evaluate and mitigate the potential environmental impacts of the Proposal. As the environmental impact assessment included input from a wide range of technical disciplines, a standardised environmental risk assessment was undertaken to ensure consistency in determining the level of risks. This standardised approach did not replace the

methodologies used by technical disciplines to identify or assess impacts, nor did it replace methods of impact assessment prescribed by existing guidance. Rather, it supplemented the impact assessment by providing clear, more readily comparable conclusions regarding the significance of impacts.

The standardised risk assessment for the Proposal involved:

- Defining the sensitivity of environmental and social values, resources and receptors.
- Describing the potential impacts that may arise as a result of the Proposal.
- Assessing the likelihood of an impact occurring.
- Assessing the probability of an impact occurring.
- Evaluating the consequence of an impact.
- Identifying outline management and/or mitigation measures and evaluating the residual impact.
- Assigning an overall risk rating.

The environmental and social systems, resources and receptors potentially affected by the Proposal were defined through desktop-based research, field surveys and consultation with local communities, regional stakeholders, and with key agencies within the WA Government.

As the Proposal develops into detailed design, construction and operation, risk assessments would be undertaken at each milestone.

5.7 Assessment of key environmental factors

Extensive investigations have been undertaken to describe the existing (baseline) environment and to assess the potential environmental impacts during construction, operation, decommissioning and closure of the Proposal. These included specialist studies of flora and vegetation, geological evolution, soils and landform, fauna, hydrology and hydrogeology, infiltration and seepage, heritage, and radiation. Environmental mitigation and management measures have been identified to avoid and minimise potential impacts and to protect the environment. A summary of the environmental assessment is provided below.

5.7.1 Flora and vegetation

A flora and vegetation assessment was undertaken to assess the potential impacts to flora and vegetation during construction and operation of the Proposal. The flora and vegetation assessment included a review of previous flora and vegetation surveys in the region, review of aerial photography and contour maps, a review of publicly available databases for conservation significant flora and vegetation communities that may be affected by the Proposal and a field survey.



Flora and vegetation surveys

A range of different vegetation associations and vegetation types were recorded within the proposed development envelope and vicinity. The proposed development envelope consists of open woodland and shrublands dominated by *Acacia* and *Eucalyptus* spp. Open heaths are dominated by *Leptospermum* sp. All of the vegetation types are considered common and widespread within the region. Most of the vegetation within the proposed development envelope is considered to be in excellent condition.

There are no Priority Ecological Communities listed by the Department of Parks and Wildlife (DPAW), Threatened or Endangered Ecological Communities listed under the *Wildlife Conservation Act 1950* (WC Act) or Threatened or Endangered Ecological Communities listed under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) within the proposed development envelope.

Direct impacts on terrestrial flora and vegetation during construction and operation of the Proposal include the removal of vegetation and impacts to land managed by the DPAW. Up to 276.05 hectares (ha) of native vegetation would be removed for the construction and operation of the Proposal. Of this, approximately 13.32 ha of vegetation would be removed within the former Jaurdi Pastoral Lease, which includes 6.44 ha of vegetation within a proposed Conservation and Mining Reserve (both managed by DPAW). The removal of this vegetation would be negligible given the expanse of similar vegetation in the general vicinity of the Proposal.

There would be no impact to conservation significant flora or vegetation listed under the WC Act or the EPBC Act. Conservation significant flora populations would not be cleared during either construction or operation of the Proposal.

Two flora species of conservation significance were recorded within the proposed development envelope. These were *Calytrix creswellii* and *Lepidosperma lyonsii* (both listed as Priority 3 by the DPAW) and are not protected by environmental legislation. In addition, an undescribed sedge species was also recorded within the proposed development envelope – *Lepidosperma* sp. This species was later confirmed as *Lepidosperma lyonsii* in the Submissions Report.

Indirect impacts on flora and vegetation may include an increased incidence of fire, altered hydrology, increased dust, the uptake of saline water, and the introduction and spread of weeds. The potential for radiation exposure and the transpiration of leachate from the waste cells would not likely occur.

Mitigation and management measures would be implemented to avoid (eliminate) or reduce these impacts including ensuring that vegetation clearing is kept to a minimum, ensuring populations of conservation significant flora are clearly marked and avoided, implementing dust suppression and management measures, monitoring vegetation health to determine if water ponding/water starvation is occurring and incorporating a weed management plan into the construction and operational environmental management plan for the Proposal.



***Acacia resinmarginea* Open Heath is one of the most dominant vegetation types within the proposed development envelope.**

5.7.2 Terrestrial environmental quality

Topography and landforms within and in the vicinity of the proposed development envelope was determined based on a desktop review of publicly available information, a review of aerial photography and via a field reconnaissance survey. A regional geology and geological evolution assessment was also undertaken in order to understand and describe the geology within and in the vicinity of the proposed development envelope. This included a desktop review of publicly available information, a review of geological mapping and a field reconnaissance survey.

A baseline soils assessment was undertaken to characterise and quantify the soil resource within the proposed development envelope. The baseline soils assessment included a review of publicly available information, a field assessment (which included the excavation of soil pits to collect soil samples and to log soil profiles), physical and chemical analysis of collected soil samples and interpretation of results and soil mapping of the proposed development envelope.



Geological assessment

The proposed development envelope has very low relief. It consists of flat to gently undulating plains and low rises and is typical of landscape which occurs over deeply weathered granite rocks. The topography ranges from about 460 m above sea level to 490 m above sea level and generally rises slightly from west to east.

The geology of the proposed development area is well understood due to mineral exploration drilling across the exploration tenement. In geological terms, the proposed development envelope is a deeply weathered granitoid terrane that generally comprises four main lithologies. From the surface these are: colluvial and gravel with mottled zone laterite; silcrete, kaolinitic clay; and granitoid basement. Current weathering and erosion in the area is extremely slow. The semi-arid climate, with a median annual rainfall of about 250 mm and an annual evaporation rate over 2,000 mm is not conducive to chemical weathering.

Two soil types occur within the proposed development envelope. These are deep yellow sand and red sandy duplexes. The deep yellow sand is associated with the higher relief areas within the proposed development envelope. The red sandy duplexes are associated with the lower lying areas within the proposed development envelope and are areas potentially subject to erosion.

Impacts to the quality of land and soils during the construction and operation of the Proposal may include the degradation of stockpiled soils; soil contamination from leaks/spills; and a change in landform upon closure of a cell. Mitigation and management measures would be implemented to avoid (eliminate) or reduce these impacts including implementing stockpile management measures (maximum height restrictions, seeding to reduce erosion, monitoring for erosion and weed infestation), implementing spill response procedures and implementing traffic management procedures to avoid potential spills.

Other potential impacts include radiation impacts on surrounding land and soils, and the subsidence and instability of waste cells/pits allowing infiltration of water and the potential generation of leachate. These would be highly unlikely given that the Proposal has been specifically designed to avoid these impacts.

5.7.3 Terrestrial fauna

A terrestrial fauna assessment was undertaken to assess the potential impacts to fauna during construction and operation of the Proposal. The fauna assessment included a review of previous fauna surveys in the region, a review of publicly available databases for conservation significant fauna that may be affected by the Proposal and a field reconnaissance survey that included a habitat assessment. Targeted threatened fauna searches were also undertaken for *Leipoa ocellata* (Malleefowl).

Two fauna habitats were recorded within the proposed development envelope. These included open woodland and shrublands.



Fauna surveys

Evidence of two fauna species of conservation significance was recorded within the proposed development envelope. These were *Leipoa ocellata* (Malleefowl) (listed as Vulnerable under the WC Act and the EPBC Act) and *Merops ornatus* (Rainbow Bee-eater) (listed as Migratory under the WC Act and the EPBC Act). An additional four conservation significant species may possibly occur within the proposed development area. These species include *Nyctophilus(timoriensis)* sp. 1 (Central Long-eared Bat), *Platycercus icterotis xanthogenys* (Western Rosella (Mallee)), *Apus pacificus* (Fork-tailed Swift) and *Falco peregrinus* (Peregrine Falcon).

Direct impacts on terrestrial fauna during construction and operation of the Proposal include the loss of habitat through the removal of native vegetation. The removal of up to 276.05 ha of native vegetation would result in the loss of fauna foraging, breeding, roosting, sheltering and/or dispersal habitat. The removal of this habitat would have a negligible impact on fauna present in the vicinity of the Proposal given the presence of large areas of suitable adjoining habitat.

Clearing of vegetation would unlikely have a significant impact on conservation significant fauna listed under the WC Act or the EPBC Act. All would readily move to adjacent undisturbed habitat once vegetation clearing commences.

Indirect impacts may include those associated with increased light, noise and vibration; fauna displacement, increased predation and competition for resources; fire; increased feral fauna attracted to water and food resources; and injury or death from fauna ingress into a cell or from collisions. Impacts associated with radiation exposure and the generation of void space and subsequent collapse/instability of the waste cell are highly unlikely to occur.

Mitigation and management measures would be implemented to avoid (eliminate) or reduce these impacts including pre-clearing surveys (and capture/relocation, if necessary), ensuring clearing is kept to a minimum and conducted in stages, ensuring that an experienced spotter/handler is present onsite during clearing activities, ensuring there is no driving off designated access roads, limiting night driving and restricting speed limits, implementing vehicle strike procedures and designing infrastructure to deter fauna from accessing operational areas.

5.7.4 Inland waters environmental quality

A hydrological (surface water) study of the proposed development envelope was undertaken. The hydrological study included:

- Demarcation of the catchment areas and waterways likely to impact on the cell/pit area, infrastructure area and access road.
- A hydrological analysis of relevant catchment areas in order to estimate peak run-off for rainfall events between 1 and 2 year and 1 in every 100 years average recurrence intervals, and the extreme probable maximum precipitation (which is a 1 in 2,000 year event).

- Examination of historical rainfall records for nearby weather stations in order to assess the maximum total rainfall and average recurrence intervals.
- Preparation of intensity frequency duration rainfall curves using the polynomials as recommended by the Australian Rainfall and Run-off Publication (Geoscience Australia, 2016).
- Examination of recorded total losses due to evaporation and infiltration in the Mount Walton area in order to estimate realistic peak flows.
- Completion of a surface water hydraulic analysis in order to assess the extent, depths and velocities of natural flow paths likely to impact the cell/pit area, infrastructure area and access road.
- Design and recommendations for preliminary concept flood protection levees for the cell area, infrastructure area and waterway crossings along the access road.

A hydrogeological (groundwater) study of the proposed development envelope was also undertaken. The groundwater study included a desktop review of regional hydrogeology (which included a review of publicly available mapping, databases, and previous hydrogeological and geotechnical drilling results from other investigations in the vicinity of the proposed development envelope) and a field investigation (which included drilling bores to depths ranging from 21 metres (m) to 49 m below ground level).

No channels or creeks occur within the proposed development envelope. There are no major flow paths in the area of the proposed cells/pits, and surface water runoff would only be generated from very infrequent high rainfall events. These flows would be from small local catchments which drain residual runoff after infiltration losses, to low–lying depressions. Generally, surface water would only be retained for short periods in the depressions due to continual evaporation and infiltration.

Extensive groundwater investigations (undertaken within the proposed development envelope and vicinity by others previously and for the Proposal) have revealed that there is no groundwater aquifer present in the proposed development envelope.



Seven monitoring bores were drilled to confirm the absence of groundwater (left). Equipment was installed to confirm soil evaporation rates (right).

Impacts to groundwater and surface water during construction and operation of the Proposal may include contamination from leaks/spills and from water entering an open cell/pit. These impacts would be minor, however, as the Proposal has been specifically cited in an area where there is no groundwater aquifer or surface water receptors present. Surface water flows are generated only under extreme rainfall events and there is a both high evaporation rates and high infiltration rates into the sandy soils present in the proposed development envelope. Mitigation and management measures would be implemented to avoid (eliminate) or reduce impacts including implementing spill response procedures and by implementing

controls to prevent water ingress into the cell during operation (roof canopy, diversion levees, bunding, drains and sumps). Following closure of the cells they are expected to be stable, with no water ingress.

Other impacts include the generation of leachate from a stored waste package which may contaminate surface water runoff and groundwater. These would be highly unlikely given that the Proposal has been specifically designed (engineered) to avoid these impacts. The location of the Proposal has also been specifically selected for its natural abilities to avoid leachate generation. The natural climatic and geological conditions within the proposed development envelope reduce the chance of water infiltration and the generation of a groundwater table at the site.

5.7.5 Human health

An assessment of the potential impacts on human health during construction and operation of the Proposal was undertaken. This included a baseline radiation and metals assessment and a worker dose assessment.

Activities or situations considered to pose the greatest potential risk for adverse human health effects include the mining of kaolin; the acceptance and handling of hazardous and intractable waste; the storage and containment of hazardous and intractable waste; and bushfire. These activities/situations may result in injury, illness or possibly death.

Mitigation and management measures would be implemented to reduce human health impacts during both construction and operation of the Proposal. This would include the development of a detailed Safety Case and Operating Strategy. The implementation of these plans and procedures would minimise the risk of adverse impacts to human health to as low as reasonably achievable.

5.7.6 Heritage

A cultural heritage assessment was undertaken to assess the potential impacts to heritage (Aboriginal and European) during construction and operation of the Proposal. The heritage assessment included a desktop review of previous heritage surveys and relevant heritage databases to determine whether there were any listed heritage sites within or in close proximity of the proposed development envelope. A field survey consisting of pedestrian transects was also undertaken in consultation with representatives of the Kapam Native Title Group, Kelamaia Kabu(d)n and Widji Group.

There are no known records of heritage items within the proposed development envelope. This was confirmed via the field survey. Therefore, there would be no impact to cultural heritage during construction or operation of the Proposal. In the event that items of potential European historical significance are encountered, work in their immediate vicinity (defined as a 10 metre radius) would stop and the Heritage Council and State Heritage Office would be contacted. Similarly, if items of Aboriginal heritage significance are identified during construction, work in their immediate vicinity would stop and the Department of Aboriginal Affairs in addition to the Kaparn Native Group, Kelamaia Kabu(d)n and Widji Group would be contacted for further advice.

If suspected skeletal remains are discovered during construction, work in their immediate vicinity would stop and the local police and the Department of Aboriginal Affairs would be notified as soon as possible to determine a course of action. Construction works in the area of the remains would not resume until the proponent receives written approval from either the police or from the Department of Aboriginal Affairs, as appropriate.

5.7.7 Offsets

An assessment of the residual impacts on flora and vegetation and terrestrial fauna was undertaken in accordance with the *Environmental Offsets Guidelines* (Government of Western Australia, 2014). The only issue which potentially triggers a requirement for an offset relates to the clearing required within the former Jaurdi Pastoral Lease (of which 6.44 ha is located within a proposed Conservation and Mining Reserve). As this area is only a proposed reserve at this stage and vegetation is sparse with no conservation significant flora or fauna present within the 6.44 ha area, the potential impact is not considered to be significant enough to warrant an offset.

5.7.8 Rehabilitation and decommissioning

Potential impacts during rehabilitation and decommissioning include the subsidence of a waste cell allowing infiltration of water and the generation of leachate; topsoil degradation; erosion/gullies/deep rooted vegetation creating cracks in the clay capping allowing infiltration of water and the generation of leachate; vegetation not growing and unable to support a functioning ecosystem; fauna not returning and a functioning ecosystem is not achieved; and long term impacts on terrestrial environmental quality, inland waters and human health.

Two closure and decommissioning plans would be implemented in order to avoid (eliminate) or reduce the potential impacts associated with rehabilitation and decommissioning of the Proposal. Two plans would be implemented, primarily as the regulation of mining and waste disposal and are managed under different legislation in WA:

- Mining aspect – details relating to mine closure for tenement relinquishment would be outlined in a Mine Closure Plan (MCP).
- Waste storage and isolation aspect – details relating to the waste cells and associated infrastructure would be outlined in a Waste Facilities Decommissioning and Closure Plan (WFDCP).

Both documents would contain closure objectives, indicative completion criteria and key measurement tools. The measurement tools would include (but would not be limited to):

- Geotechnical assessments.
- Visual inspections.
- Safety bunding.
- Revegetation monitoring.
- Subsidence monitoring.
- Erosion, radiation and monitoring for any potential groundwater.

5.8 Environmental management

The assessment of key environmental factors (and other factors) has indicated that the Proposal would result in environmental impacts during construction, operation, rehabilitation and decommissioning. A range of management plans, protocols and procedures to manage the environmental impacts of the Proposal would be implemented. A range of management plans are required during construction and operation. They include:

- A Construction Environmental Management Plan (CEMP).
- Operational Environmental Management Plan (OEMP).

- Emergency Response Management Plan[4].
- Biodiversity Management Plan.
- Water Resource Management Plan.
- Waste Facility Decommissioning and Closure Plan (WFDCP)
- Mine Closure Plan (MCP)

All plans would include:

- Environmental objectives and performance targets for construction, operation, and rehabilitation and decommissioning.
- Required statutory and other obligations, including consents, licences, approvals and voluntary agreements.
- Management policies, procedures and review processes to assess the implementation of environmental management practices and the environmental performance of the Proposal against the objectives and targets.
- Requirements and guidelines for management in accordance with:
    - Conditions of consent for the Proposal.
    - Mitigation measures specified by the PER.
    - Relevant management guidelines.
- Requirements in relation to incorporating environmental protection measures and instructions in all relevant standard operating procedures and emergency response procedures.
- Specific procedures, including monitoring, as defined by the PER and the conditions of consent.
- Roles and responsibilities of all personnel and contractors to be employed on-site.
- Procedures for complaints handling and ongoing communication with the community.
- Environmental sub-plans.
- Incident response procedure.
- Monitoring and auditing program.

An environmental monitoring program would be implemented that enables auditing of mitigation measures to ensure they achieve their objectives and to facilitate modification, where necessary. An environmental monitoring program would be established for both the construction, operational, and rehabilitation, decommissioning and closure phases of the Proposal.

Environmental management information and data would be stored in Tellus' existing Environmental Management System (EMS). The Tellus EMS is accredited to Australian and New Zealand Standards (AS/NZS) ISO 14001:2004 Environmental Management Systems. It is regularly audited internally, and annually audited by an external party.

[4] *Please note – the proponent is currently working with the WA Department of Fire and Emergency Services to agree the contents of the draft Emergency Response Management Plan.*

5.9 Justification and conclusion

The Proposal is considered justified because it:

- Provides diversity in the WA mining sector.
- Responds to a recognised need and is consistent with WA and national waste management strategies in addition to regional economic strategies and plans.
- Provides a number of community and economic benefits including opportunities for the long-term, storage, treatment and recovery of valuable materials or the permanent isolation of hazardous, intractable and LLW in addition to long-term full-time employment.
- Would not result in significant effects on the environment.
- Is consistent with the principles of sustainability and environmental protection.

Proceeding with the Proposal would result in significant social and economic benefits, including:

- Providing a unique dual revenue business that commercialises an industrial bulk commodity (kaolin) and provides safe management solutions for difficult to manage hazardous waste resources.
- Future potential recovery of valuable materials.
- Long-term jobs and major investment and business opportunities in remote regional Australia.
- Diversification of the economy by an environmental infrastructure business with strong social, environmental and economic values.
- Royalties, taxes and levies over the 25 year term could support other parts of the economy.
- Employment and business opportunities that can support local and regional communities.
- Long project life of 26 years (1 year build, 25 year operation). The site can be expanded for generations.
- Creation of approximately 90 jobs during the construction phase, and approximately 23 direct and 46 indirect (2x multiplier) during the operation phase.
- Benefits would apply to local indigenous communities where opportunities for training, employment and business opportunities during construction and operations exist.
- When operating, the Facility would also provide a reliable long-term utility service to other industries that produce waste materials within Australia.
- The Facility could attract new kaolin and waste recycling and recovery industries to WA, and support industrial development in WA, bringing attendant economic benefits.

Detailed scientific desktop and field investigations were undertaken to assess key environmental factors and to discuss their potential environmental impacts, positive or negative, during each phase of the Proposal. These included specialist studies of biodiversity, soils, cultural heritage, surface water, groundwater and radiology. These studies were undertaken in accordance with relevant Commonwealth and State environmental legislation, guidelines and procedures established by regulatory agencies.

Based on the findings of the environmental investigations, it is likely there would be some minor but manageable adverse impacts on the environment. Mitigation measures that would be implemented during all phases of the Proposal have been recommended to avoid (eliminate) or ensure potential impacts are

short-term and easily managed. The environmental performance of the Proposal would be managed through the implementation of a CEMP, OEMP and WFDCP and MCP. This would also help to ensure compliance with relevant legislation and any conditions of approval.



Tellus has supported indigenous jobs (left) and local firms (right) during the development of the PER.

6 APPLICATION FOR DEVELOPMENT APPROVAL

6.1 Introduction

The *Planning and Development Act 2005* (WA) and associated Planning and Development (Local Planning Schemes) Regulations 2015 are directly applicable to the DA. The information presented in this chapter addresses the Parts and Clauses under the Planning and Development (Local Planning Schemes) Regulations 2015 directly applicable to the Sandy Ridge Facility (refer to Table 6-1).

Table 6-1 Matters addressed under the Local Planning Scheme Regulations 2015

Part	Clause	Matter to be addressed
7	60	Requirement for development approval
8	62	Form of application
	63	Accompanying material
	64	Advertising applications
9	66	Consultation with other authorities
	67	Matters to be addressed by local government
10A	78 (C)	Determining whether development site is in a bushfire prone area
11	86 (1)	Forms referred to in this Scheme

6.2 Part 7, Clause 60 - Requirement for development approval

6.2.1 Part 7, Clause 60

Part 7, Clause 60 (Requirement for development approval) of the Planning and Development (Local Planning Schemes) Regulations 2015 states:

> *A person must not commence or carry out any works on, or use, land in the Scheme area unless —*
>
> *a) the person has obtained the development approval of the local government under Part 8; or*
> *b) the development is of a type referred to in clause 61.*
>
> *Note:*
> *1. Development includes the erection, placement and display of advertisements.*
> *2. Approval to commence development may also be required from the Commission if the land is subject to a region planning scheme.*

6.2.2 Proponent's response to Part 7, Clause 60

The proponent's response to Part 7, Clause 60 of the Planning and Development (Local Planning Schemes) Regulations is provided in Table 6-2.

Table 6-2 Proponent's response to Part 7, Clause 60 of Planning and Development (Local Planning Schemes) Regulations

Clause	Proponents response
60(a)	The proposed Sandy Ridge Facility requires development approval from the Shire of Coolgardie Council. The Application for Development Approval has been submitted along with the *Sandy Ridge Facility Shire of Coolgardie Council Development Approval Application Supporting Document* (this document) in accordance with Part 8 of the Planning and Development (Local Planning Schemes) Regulations 2015.
60(b)	The proposed Sandy Ridge Facility is not of a type referred to in Part 7, Clause 61 of the Planning and Development (Local Planning Schemes) Regulations 2015.

6.3 Part 8, Clause 62 – Form of application

6.3.1 Part 8, Clause 62

Part 8, Clause 62 (Form of application) of the Planning and Development (Local Planning Schemes) Regulations 2015 states:

(1) An application for development approval must be —

a) made in the form of the "Application for development approval" set out in clause 86(1); and

b) signed by the owner of the land on which the proposed development is to be located; and

c) accompanied by any fee for an application of that type set out in the Planning and Development Regulations 2009 or prescribed under the Local Government Act 1995;and

d) accompanied by the plans and information specified in clause63.

(2) For the purposes of subclause (1)(b), a person or body may sign an application for development approval as the owner of freehold land if the person or body is one of the following —

a) a person who is referred to in the definition of owner in respect of freehold land in clause 1;

b) a strata company that is authorised by a management statement registered under the Strata Titles Act 1985 section 5C to make an application for development approval in respect of the land;

c) a person who is authorised under another written law to make an application for development approval in respect of the land;

d) an agent of a person referred to in paragraph (a).

Note: The Planning and Development Act 2005 section 267A makes provision for the signing of documents by the owner of Crown land.

(3) An application for development approval for the erection, placement or display of an advertisement must be accompanied by sufficient information to determine the application in the form of the "Additional information for development approval for advertisements" set out in clause 86(2).
Note: The Interpretation Act 1984 section 74 provides for circumstances in which deviations from a prescribed form do not invalidate the form used.

6.3.2 Proponent's response to Part 8, Clause 62

The proponent's response to Part 8, Clause 62 of the Planning and Development (Local Planning Schemes) Regulations is provided in Table 6-3.

Table 6-3 Proponent's response to Part 8, Clause 62 of Planning and Development (Local Planning Schemes) Regulations

Clause	Proponents response
62, 1(a)	The Application for Development Approval has been submitted along with the *Sandy Ridge Facility Shire of Coolgardie Council Development Approval Application Supporting Document* (this document) in the form set out in Part 11, Clause 86(1) of the Planning and Development (Local Planning Schemes) Regulations 2015.
62, 1(b)	The owner of the land on which the proposed development is to be located has signed the Application for Development Approval.
62, 1(c)	A fee yet to be determined as per the Planning and Development Regulations 2009 or prescribed under the *Local Government Act 1995* will accompany the Application for Development Approval in due course.
62, 1(d)	The Application for Development Approval is accompanied by the plans and information specified in Part 8, Clause 63 of the Planning and Development (Local Planning Schemes) Regulations 2015.
62, 2(a)	Please refer to the executed letter of ownership in Appendix C.
62, 2(b)	No applicable to this Application for Development Approval.
62, 2(c)	Please refer to the executed letter of ownership in Appendix C.

Clause	Proponents response
62, 2(d)	Please refer to the executed letter of ownership in Appendix C.
63	Not applicable to this Application for Development Approval.

6.4 Part 8, Clause 63 – Accompanying material

6.4.1 Part 8, Clause 63

Part 8, Clause 63 (Accompanying material) of the Planning and Development (Local Planning Schemes) Regulations 2015 states:

(1) An application for development approval must be accompanied by—

a) a plan or plans in a form approved by the local government showing the following—

(i) the location of the site including street names, lot numbers, north point and the dimensions of the site;

(ii) the existing and proposed ground levels over the whole of the land the subject of the application;

(iii) the location, height and type of all existing structures and environmental features, including watercourses, wetlands and native vegetation on the site;

(iv) the structures and environmental features that are proposed to be removed;

(v) the existing and proposed use of the site, including proposed hours of operation, and buildings and structures to be erected on the site;

(vi) the existing and proposed means of access for pedestrians and vehicles to and from the site;

(vii) the location, number, dimensions and layout of all car parking spaces intended to be provided;

(viii) the location and dimensions of any area proposed to be provided for the loading and unloading of vehicles carrying goods or commodities to and from the site and the means of access to and from those areas;

(ix) the location, dimensions and design of any open storage or trade display area and particulars of the manner in which it is proposed to develop the open storage or trade display area;

(x) the nature and extent of any open space and landscaping proposed for the site; and

b) plans, elevations and sections of any building proposed to be erected or altered and of any building that is intended to be retained; and

c) a report on any specialist studies in respect of the development that the local government requires the applicant to undertake such as site surveys or traffic, heritage, environmental, engineering or urban design studies; and

d) any other plan or information that the local government reasonably requires.

(2) The local government may waive or vary a requirement set out in subclause (1).

(3) Where an application relates to a place entered on a heritage list prepared in accordance with this Scheme or within an area designated under this Scheme as a heritage area, the local government may require the application to be accompanied by one or more of the following —

a) street elevations drawn as one continuous elevation to a scale not smaller than 1:100 showing the proposed development and the whole of the existing development on each lot immediately adjoining the land the subject of the application;

b) a detailed schedule of all finishes, including materials and colours of the proposed development;

c) a description of the finishes of the existing developments on the subject lot and on each lot immediately adjoining the subject lot.

6.4.2 Proponent's response to Part 8, Clause 63

The proponent's response to Part 8, Clause 63 of the Planning and Development (Local Planning Schemes) Regulations 2015 is provided in Table 6-4.

Table 6-4 Proponent's response to Part 8, Clause 63 of Planning and Development (Local Planning Schemes) Regulations

Clause	Proponents response
63, 1(a)(i)	The location of the site is presented in Section 1.2 and Figure 1-1.
63, 1(a)(ii)	The existing ground levels are presented in Section 4.2.1 and Figure 4-1. The proposed ground levels are shown in the various drawings presented in Appendix B.
63, 1(a)(iii)	Refer to Section 4.2.1. There are no existing structures within the proposed development envelope. Environmental features (specifically native vegetation) within the proposed development envelope are shown on Figure 4-2 and Figure 4-3. There are no watercourses or wetlands within the proposed development envelope.
63, 1(a)(iv)	There are no existing structures within the proposed development envelope, therefore, no structures would be removed during construction or operation of the proposed Sandy Ridge Facility. Environmental features (i.e. vegetation) that would be removed during construction of the proposed Sandy Ridge Facility are shown in Figure 4-2 and Figure 4-3. Vegetation removal is also quantified in Table 4-1 and Table 4-2.
63, 1(a)(v)	The existing and proposed use of the site, including proposed hours of operation are discussed in Section 4.2. The proposed aboveground infrastructure (along with a reference to drawings for each of the proposed infrastructure) is provided in Section 4.3.
63, 1(a)(vi)	Access and egress to/from the site is shown in Figure 1-1 and discussed in Section 4.4.1.
63, 1(a)(vii)	Carparking is discussed in Section 4.4.2.
63, 1(a)(viii)	Loading and unloading of vehicles carrying goods/commodities to/from the site and the means of access to and from those areas is discussed in Section 4.4.3.
63, 1(a)(ix)	Open storage and trade display is discussed in Section 4.4.4.
63, 1(a)(x)	Open space and landscaping is discussed in Section 4.4.5.
63, 1(b)	There are no existing structures within the proposed development envelope, therefore, no structures would be altered or retained during construction or operation of the proposed Sandy Ridge Facility. The proposed aboveground infrastructure is listed in Section 4.3 (Table 4-3). Plans, elevations and sections of buildings proposed to be erected are shown in the Sandy Ridge Facility Plans provided in Appendix B.
63, 1 (c)	Extensive environmental studies were undertaken as part of the PER for the proposed Sandy Ridge Facility. These included flora and vegetation surveys; terrestrial fauna surveys; a soil assessment, clay cap characterisation and landform evolution modelling; hydrogeological and hydrological studies, infiltration and seepage modelling, radiation assessment; heritage surveys; geology and mineral resource assessments; and geotechnical assessments. These studies are summarised in Chapter 9 and 10 of the PER. They are also presented as appendices to the PER.
63, 1(d)	The Shire of Coolgardie Council have not indicated the need for any other plans or information.
63, 2	The proponent to discuss with the Shire of Coolgardie what aspects of the DA can be waivered. The clause relating to carparking is one such potential waiver.
63, 3	Not applicable. The proposed development envelope is not located in a heritage area nor are there any places entered on a heritage list within or in the vicinity of the proposed development envelope (refer to Section 5.7 in addition to Section 9.6 and Appendix A.13 of the PER).

6.5 Part 8, Clause 64 – Advertising applications

6.5.1 Part 8 Clause 64

Part 8, Clause 64 (Advertising applications) of the Planning and Development (Local Planning Schemes) Regulations 2015 states:

(1) *An application for development approval must be advertised under this clause if the proposed development —*

a) *relates to the extension of a non-conforming use; or*

b) *relates to a use if —*

(i) *the use is not specifically referred to in the zoning table for this Scheme in respect of the zone in which the development is located; and*

(ii) *the local government determines that the use may be consistent with the objective of that zone and that notice of the application should be given;*
or

c) *does not comply with a requirement of this Scheme; or*

d) *is a development for which the local government requires a heritage assessment to be carried out under clause 11(1); or*

e) *is of a type that this Scheme requires to be advertised.*

(2) *The local government may waive a requirement for an application to be advertised in the circumstances set out in subclause (1)(c) if the local government is satisfied that the departure from the requirements of this Scheme is of a minor nature.*

(3) *The local government may advertise, or require the applicant to advertise, an application for development approval in one or more of the following ways —*

a) *by giving notice of the proposed use or development to owners and occupiers of properties in the vicinity of the development who, in the opinion of the local government, are likely to be affected by the granting of development approval, including a statement that submissions may be made to the local government by a specified day being a day not less than 14 days from the day on which the notice is given to the person;*

b) *by publishing a notice of the proposed use or development in a newspaper circulating in the Scheme area including a statement that submissions may be made to the local government by a specified day being a day not less than 14 days from the day on which the notice is published;*

c) *by publishing a notice of the proposed use or development by electronic means in a form approved by the local government CEO including a statement that submissions may be made to the local government by a specified day being a day not less than 14 days from the day on which the notice is published;*

d) *by erecting a sign or signs in a conspicuous place on the land the subject of the application giving notice of the proposed use or development for a period of not less than 14 days from the day on which the sign is erected including on each sign a statement that submissions may be made to the local government by a specified day being a day not less than 14 days from the day on which the sign is erected.*

(4) *Notice referred to in subclause (3) must be in the form of the "Notice of public advertisement of planning proposal" set out in clause 86(3) unless the local government specifies otherwise.*

(5) *If an application for development approval is advertised under this clause, the local government —*

a) *must make the application and the material accompanying it available for public inspection during business hours at the offices of the local government; and*

b) *may publish the application and the material accompanying it on the website of the local government.*

6.5.2 Proponent's response to Part 8 Clause 64

The proponent's response to Part 8, Clause 64 of the Planning and Development (Local Planning Schemes) Regulations is provided in Table 6-5.

Table 6-5 Proponent's response to Part 8, Clause 64 of Planning and Development (Local Planning Schemes) Regulations

Clause	Proponents response
64, 1(a)	Not applicable
64, 1(b)	The proponent assumes the proposal may require advertising under 1 (b) {ii}
64, 1(c)	Not applicable
64, 1(d)	Not applicable
64, 1(e)	The proponent assumes the proposal will require advertising under 1 (b) {ii}
64, 2	A waiver to advertising may be applicable to the proposal. This is subject to further consultation between the Shire and the proponent.
64, 3(a)	Noted.
64, 3(b)	Noted.
64, 3(c)	Noted.
64, 3(d)	Noted.
64, 4	Noted.
64, 5	Noted.

6.6 Part 9, Clause 66 – Consultation with other authorities

6.6.1 Part 9, Clause 66

Part 9, Clause 66 (Consultation with other Authorities) of the Planning and Development (Local Planning Schemes) Regulations 2015 states:

(1) *When, in the opinion of the local government, an application for development approval may affect any other statutory, public or planning authority, the local government is to provide a copy of the application to the authority for objections and recommendations.*

(2) *If an application for development approval relates to proposed development on land that is reserved under this Scheme for a public purpose and vested in a public authority, the local government must provide a copy of the application to that authority for objections and recommendations before making a decision on the application.*

(3) *A statutory, public or planning authority receiving a copy of an application may, within 42 days of receiving the application or within such longer period as the local government allows, provide to the local government a memorandum in writing containing any objections to, or recommendations in respect of the whole or part of the proposed development.*

(4) *If a statutory, public or planning authority does not provide a memorandum within the time allowed under subclause (3), the local government may determine that the authority is to be taken to have no objections or recommendations to make.*

6.6.2 Proponents response to Part 9, Clause 66

The proponent's response to Part 9, Clause 66 of the Planning and Development (Local Planning Schemes) Regulations is provided in Table 6-6.

Table 6-6 Proponent's response to Part 9, Clause 66 of Planning and Development (Local Planning Schemes) Regulations

Clause	Proponents response
66, 1	Noted.
66, 2	Noted.
66, 3	Noted.
66, 4	Noted.

6.7 Part 9, Clause 67 – Matters to be considered by local government

6.7.1 Part 9, Clause 67

Part 9, Clause 67 (Matters to be considered by local government) of the Planning and Development (Local Planning Schemes) Regulations 2015 states:

In considering an application for development approval the local government is to have due regard to the following matters to the extent that, in the opinion of the local government, those matters are relevant to the development the subject of the application —

a) the aims and provisions of this Scheme and any other local planning scheme operating within the Scheme area;

b) the requirements of orderly and proper planning including any proposed local planning scheme or amendment to this Scheme that has been advertised under the Planning and Development (Local Planning Schemes) Regulations 2015 or any other proposed planning instrument that the local government is seriously considering adopting or approving;

c) any approved State planning policy;

d) any environmental protection policy approved under the Environmental Protection Act 1986 section 31(d);

e) any policy of the Commission;

f) any policy of the State;

g) any local planning policy for the Scheme area;

h) any structure plan, activity centre plan or local development plan that relates to the development;

i) any report of the review of the local planning scheme that has been published under the Planning and Development (Local Planning Schemes) Regulations 2015;

j) in the case of land reserved under this Scheme, the objectives for the reserve and the additional and permitted uses identified in this Scheme for the reserve;

k) the built heritage conservation of any place that is of cultural significance;

l) the effect of the proposal on the cultural heritage significance of the area in which the development is located;

m) the compatibility of the development with its setting including the relationship of the development to development on adjoining land or on other land in the locality including, but not limited to, the likely effect of the height, bulk, scale, orientation and appearance of the development;

n) the amenity of the locality including the following —

(i) environmental impacts of the development;

(ii) the character of the locality; social impacts of the development;

o) the likely effect of the development on the natural environment or water resources and any means that are proposed to protect or to mitigate impacts on the natural environment or the water resource;

p) whether adequate provision has been made for the landscaping of the land to which the application relates and whether any trees or other vegetation on the land should be preserved;

q) the suitability of the land for the development taking into account the possible risk of flooding, tidal inundation, subsidence, landslip, bush fire, soil erosion, land degradation or any other risk;

r) the suitability of the land for the development taking into account the possible risk to human health or safety;

s) the adequacy of —

(i) the proposed means of access to and egress from the site; and

(ii) arrangements for the loading, unloading, manoeuvring and parking of vehicles;

t) the amount of traffic likely to be generated by the development, particularly in relation to the capacity of the road system in the locality and the probable effect on traffic flow and safety;

u) the availability and adequacy for the development of the following —

(i) public transport services;

(ii) *public utility services;*
(iii) *storage, management and collection of waste;*
(iv) *access for pedestrians and cyclists (including end of trip storage, toilet and shower facilities);*
(v) *access by older people and people with disability;*

v) the potential loss of any community service or benefit resulting from the development other than potential loss that may result from economic competition between new and existing businesses;
w) the history of the site where the development is to be located;
x) the impact of the development on the community as a whole notwithstanding the impact of the development on particular individuals;
y) any submissions received on the application;
za) the comments or submissions received from any authority consulted under clause 66;
zb) any other planning consideration the local government considers appropriate.

6.7.2 Proponent's response to Part 9, Clause 67

The proponent's response to Part 9, Clause 67 of the Planning and Development (Local Planning Schemes) Regulations is provided in Table 6-7.

Table 6-7 Proponent's response to Part 9, Clause 67 of Planning and Development (Local Planning Schemes) Regulations

Clause	Proponents response
67(a)	Noted.
67(b)	Noted.
67(c)	Noted.
67(d)	Noted.
67(e)	Noted.
67(f)	Noted.
67(g)	Noted.
67(h)	Noted.
67(i)	Noted.
67(j)	Noted.
67(k)	Noted. The proposed development envelope is not located in a heritage area nor are there any built structures of heritage conservation value within or in the vicinity of the proposed development envelope (refer to Section 5.7.6 and also Section 9.6, Section 10.7 and Appendix A.13 of the PER).
67(l)	Noted. The proposed development envelope is not located in a heritage area nor are there any built structures of heritage conservation value within or in the vicinity of the proposed development envelope. There would be no impacts on the cultural heritage significance of the area in which the proposed development envelope is located (refer to Section 5.7.6 and also Section 9.6, Section 10.7 and Appendix A.13 of the PER).
67(m)	The compatibility of a dual use kaolin business and waste storage, recovery and isolation business (in an arid, near surface geological repository) at the site of the proposed Sandy Ridge Facility is discussed in Section 5.3. The location of the proposed development envelope is remote (there are no sensitive receptors located within 5 km of the development envelope). The nearest permanent residents are tourists staying at the Jaurdi Homestead (approximately 51 km away), residents of the Carina Iron Ore Mine Accommodation Village (approximately 52 km away) and Koolyanobbing (75 km away). Impacts on amenity would be limited to a small footprint within a vast landscape of similar landscape character. There would be no impact to sensitive receptors as none occur within the vicinity of the proposed development footprint. Visual impacts would be reduced, however, through active vegetation rehabilitation once pits have been infilled and capped. The accommodation village and main office would also be landscaped using small shrubs and trees endemic to the area. The colours and finishes selected for the proposed buildings would be chosen to blend with the colour of the landscape (refer to Section 4.4.5).

Clause	Proponents response
67(n)	Impacts to amenity are discussed above under Clause 67(m). Impacts on amenity would be limited to a small footprint within a vast landscape of similar landscape character. There would be no impact to sensitive receptors as none occur within the vicinity of the proposed development footprint (the closest permanent receptor is located approximately 51 km away). Visual impacts would be reduced, however, through active vegetation rehabilitation once pits have been infilled and capped. The accommodation village and main office would also be landscaped using small shrubs and trees endemic to the area. The colours and finishes selected for the proposed buildings would be chosen to blend with the colour of the landscape. The social impacts (benefits) of the proposed Sandy Ridge Facility are summarised in Section 5.4. The potential environmental impacts of the proposed Sandy Ridge Facility are summarised in Section 5.7 with further detail provided in Chapter 10 of the PER. Mitigation measures to eliminate or reduce these impacts are summarised in Section 5.8 with further detail provided in Chapter 12 of the PER.
67(o)	Impacts to water resources (inland waters) and mitigation measures to eliminate or reduce these impacts are summarised in Section 5.7.4. Further details are provided in Section 10.5 and Section 12.3 of the PER as well as in Appendix A.10, Appendix A.11 and Appendix A.12 of the PER.
67(p)	Impacts to amenity are discussed above under Clause 67(m). To reduce impacts on visual amenity, active vegetation rehabilitation would occur once pits have been infilled and capped. The accommodation village and main office would also be landscaped using small shrubs and trees endemic to the area. Impacts to flora and vegetation and measures to eliminate or reduce these impacts are summarised in Section 5.7.1. Further details are provided in Section 10.2 and Appendix A.3 of the PER. Vegetation clearing would be kept to a minimum and populations of conservation significant flora present within the proposed development envelope would be clearly marked and avoided.
67(q)	The compatibility of a dual use kaolin business and waste storage, recovery and isolation business (in an arid, near surface geological repository) at the site of the proposed Sandy Ridge Facility is discussed in Section 5.3.
67(r)	The compatibility of a dual use kaolin business and waste storage, recovery and isolation business (in an arid, near surface geological repository) at the site of the proposed Sandy Ridge Facility is discussed in Section 5.3. The possible risk to human health is summarised in Section 5.7 with further detail provided in Section 10.6 and Appendix A.14 of the PER.
67(s)	The proposed means of access to and egress from the site, plus arrangements for the loading and unloading, manoeuvring and parking of vehicles is discussed in Section 4.4.
67(t)	The amount of traffic likely to be generated by the development in relation to the capacity of the road system in the locality and the probable effect on traffic flow and safety is discussed in Section 4.5.
67(u)	There would be no impact on public transport services nor on access for pedestrians and cyclists or older people and people with disability. Services are discussed in Section 4.6.
67(v)	There would be no loss of any community service nor would economic competition between new and existing businesses result from the proposed Sandy Ridge Facility. The social and economic benefits of the proposed Sandy Ridge Facility are presented in Section 5.4.
67(w)	The proposed development envelope is located on unallocated Crown Land managed by the WA Government. The proposed development envelope stretches across to shires – Coolgardie Shire and Yilgarn Shire. Land that occurs in Coolgardie Shire is zoned 'Rural/Mining' under the Shire of Coolgardie's Town Planning Scheme No. 4. There is no current land use or occupation of the land within the proposed development envelope. Further information on land use, ownership and tenure, and zoning is provided in Section 5.2 of the PER. The existing environment (with respect to flora and vegetation, terrestrial environmental quality, terrestrial fauna, inland waters, human health, heritage and amenity) is summarised in Section 5.7 with further detail provided in Chapter 9 of the PER.
67(x)	The social and economic benefits of the proposed Sandy Ridge Facility are presented in

Clause	Proponents response
	Section 5.4.
67(y)	Noted.
67(za)	Noted.
67(zb)	Noted.

6.8 Part 10A, Clause 78C – Determining whether development site is in a bushfire prone area

6.8.1 Part 10A, Clause 78C

Part 10A, Clause 78C (Determining whether the development site is in a bushfire prone area) of the Planning and Development (Local Planning Schemes) Regulations 2015 states:

> *For the purposes of this Part, a development site is subject, or likely to be subject, to bushfires and is referred to as being in a bushfire prone area if the development site is on land designated by an order made under the Fire and Emergency Services Act 1998 section 18P as a bus fire prone area.*

6.8.2 Proponent's response to Part 10A, Clause 78C

The proposed development envelope is located within a bushfire prone area according to the WA Department of Fire and Emergency Services. The risk of bushfire would be managed through the development of a Bushfire Management Plan prepared in consultation with the WA Department of Biodiversity, Conservation and Attractions (Parks and Wildlife Service). The Bushfire Management Plan would be implemented during construction, operation and rehabilitation and decommissioning of the proposed Sandy Ridge Facility.

6.9 Part 11, Clause 86(1) – Forms referred to in this Scheme

6.9.1 Part 11, Clause 86(1)

The format of the Application for Development Approval is provided in Part 11, Clause 86(1) of the Planning and Development (Local Planning Schemes) Regulations 2015.

6.9.2 Proponent's response to Part 11, Clause 86(1)

The Application for Development Approval has been submitted along with the *Sandy Ridge Facility Shire of Coolgardie Council Development Approval Application Supporting Document* (this document) in the form set out in Part 11, Clause 86(1) of the Planning and Development (Local Planning Schemes) Regulations 2015.

7 REFERENCES

Australian Government Geoscience Australia (2016) *Australian Rainfall and Runoff Guidelines*.

Department of Parks and Wildlife, 2014, 2014 Statewide Vegetation Statistics (formerly the CAR Reserve Analysis – Full Report). GIS Applications Section, Geographic Information Services Branch, Western Australian Department of Parks and Wildlife.

Department of Planning (2014). *Introduction to the Western Australian Planning System*. State of Western Australia. Accessible at https://www.planning.wa.gov.au/dop_pub_pdf/intro_to_planning_system.pdf

Government of Western Australia, 2014, *WA Environmental Offsets Guidelines*, Perth Western Australia. Available at: http://www.epa.wa.gov.au/sites/default/files/Policies_and_Guidance/WA%20Environmental%20Offsets%20Guideline%20August%202014.pdf

APPENDIX A: CORRESPONDENCE

A.1 Town Planning Approval

A.1.1 Correspondence with the Shire of Coolgardie Council relating to the Sandy Ridge Facility

The Managing Director

Tellus Holdings Ltd
Level 34, Exchange Tower,
2 The Esplanade,
PERTH WA 6000

Dear Sir

TOWN PLANNING APPROVAL

SANDY RIDGE FACILITY - PUBLIC ENVIRONMENTAL REVIEW

I refer to the above matter and wish to advise that Waste Disposal component of your Sandy Ridge Facility at Mount Walton will require Town Planning Approval from the Shire of Coolgardie.

Please find attached an *Application for Development Approval* for your completion. It is requested that you have the Application completed and returned to the Shire as soon as possible for processing.

The Shire will treat your Application urgently in view of the pending Environmental Protection Authority's release of the Public Environmental Review for the Sandy Ridge Facility.

Should you require any further information or assistance regarding this matter please contact the undersigned or Jill O'Brien Manager of Regulatory Services on 0417 912 830.

Yours faithfully

Paul Webb

Chief Executive Officer

23 June 2016

Attachments: 1 x Application for Development Approval

cc: Mr Anthony Sutton

Director Assessment & Compliance Division

Environmental Protection Authority

Level 8, The Atrium, 168 St Georges Terrace



PERTH WA 6000

Shire of Coolgardie

Our Community, Our People, Our Future

APPLICATION FOR DEVELOPMENT APPROVAL

Owner details		
Name:		
ABN (if applicable):		
Address: .... Postcode:		
Phone: Work: ..... Home: ..... Mobile:	Fax:	Email: .....
Contact person for correspondence:		
Signature:		Date:
Signature:		Date:
The signature of the owner(s) is required on all applications. This application will not proceed without that signature. For the purposes of signing this application an owner includes the persons referred to in the Planning and Development (Local Planning Schemes) Regulations 2015 Schedule 2 clause 62(2).		

Applicant details (if different from owner)		
Name:		
Address: .... Postcode:		
Phone: Work: ..... Home: ..... Mobile:	Fax:	Email: .....
Contact person for correspondence:		
The information and plans provided with this application may be made available by the local government for public viewing in connection with the application. ❑ Yes ❑ No		
Signature:		Date:

Property details		
Lot No:	House/Street No:	Location No:
Diagram or Plan No:	Certificate of Title Vol. No:	Folio:
Title encumbrances (e.g. easements, restrictive covenants):		
Street name:	Suburb:	
Nearest street intersection:		

Proposed development	
Nature of development:	❑ Works ❑ Use ❑ Works and use
Is an exemption from development claimed for part of the development? ❑ Yes ❑ No If yes, is the exemption for:	❑ Works ❑ Use
Description of proposed works and/or land use:	
Description of exemption claimed (if relevant):	

Nature of any existing buildings and/or land use:
Approximate cost of proposed development:
Estimated time of completion:

OFFICE USE ONLY	
Acceptance Officer's initials:	Date received:
Local government reference No:	

A.2 Town Planning Approval

A.1.2 Shire of Coolgardie File Note NAM5361

AGENDA REFERENCE: 11.2.12

SUBJECT: Development Approval (DA) application for Class II landfill facility to support the proposed Sandy Ridge kaolin mine and near surface geological repository.

LOCATION: VCL located within tenement (application) G16/21 located 75 km north- east of Koolyanobbing.

APPLICANT: Tellus Holdings Ltd (ABN 97 138 119 829)

FILE REFERENCE: NAM5361

DISCLOSURE OF INTEREST: Nil

DATE: 20 February 2017

AUTHOR: Paul Bashall – Consultant Planner, Planwest

SUMMARY: The applicant has lodged a DA application for Class II landfill facility to support the proposed Sandy Ridge kaolin mine and near surface geological repository. There is no specific development approval report – other than the details contained in the 458-page PER (Public Environmental Review) report. The PER contains many reports and plans that appear to be NOT part of the DA.

BACKGROUND: The Tellus covering letter to the DA is in support of the Sandy Ridge kaolin mine and near surface geological repository. The value of the DA is stated to be $50,000.

The proposal is in 2 parts, the first is the mining of the kaolin (clay) deposits. The second involves the filling of the open cut mine, left from the kaolin extraction, with (from p11 of the PER);

- waste of hazardous and intractable wastes,
- liquid and sludges,
- explosive wastes flammable liquids or solids,
- self-combusting wastes or wastes that can generate a gas-air mixture which is toxic or explosive,
- highly corrosive or oxidizing wastes.

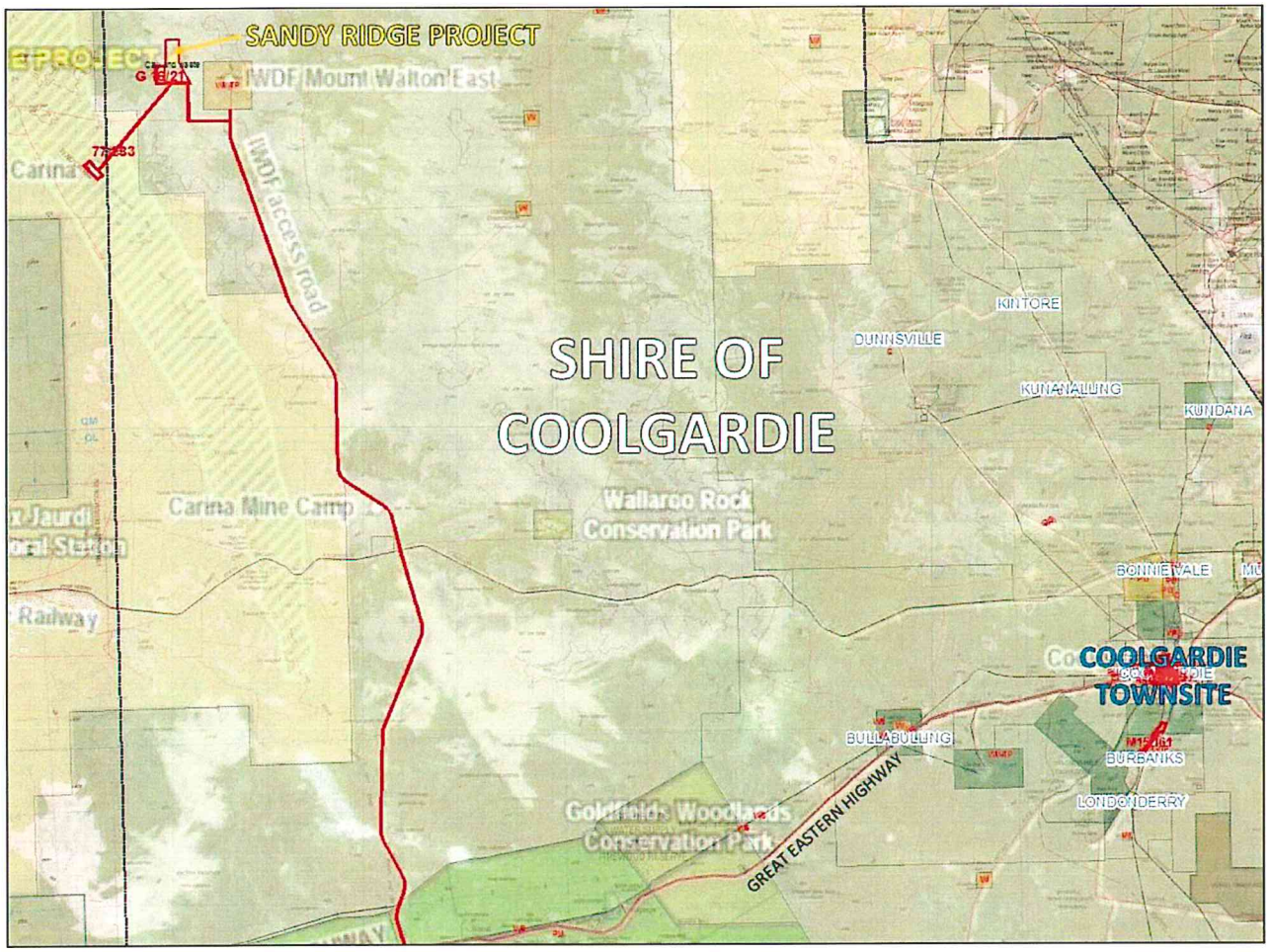
Figure 1 shows the location of the proposed activities including the zoning (Rural) in the Council's Local Planning Scheme No 5. The figure also shows the areas (in red) that have been the subject of Sandy Ridge applications for general purpose and miscellaneous licenses.

The existing Mt Walton East Intractable Waste Disposal Facility that states *'Intractable wastes do not have commercially viable recycling, reuse or disposal options and include wastes that need time to breakdown and chemical wastes that are not readily destroyed. These wastes need long-term management. The Facility provides a location where intractable wastes can be permanently isolated to protect the community and the environment.*

The operation of the Facility is governed by the Minister for the Environment and requires a waste register database to be prepared, maintained and made publicly available.'

This information is provided on the Department of Finance web site and was given approval by the Minister for the Environment on 1 February 2001.

FIGURE 1 – LOCATION PLAN



Source: PER, Planwest

THE LAND: The extent of the DA application is unclear as no specific plans have been lodged with the Council. The area shown in the PER (Figure 1.3 on p17) as a 'Development Envelope' amounts to over 1,000 hectares. A copy of this figure is shown in **Figure 2**.

As can be seen in **Figure 2** there are several components that do not form part of the current DA. These components include a 'future technology park', 'accommodation camp' and 'infrastructure area'.

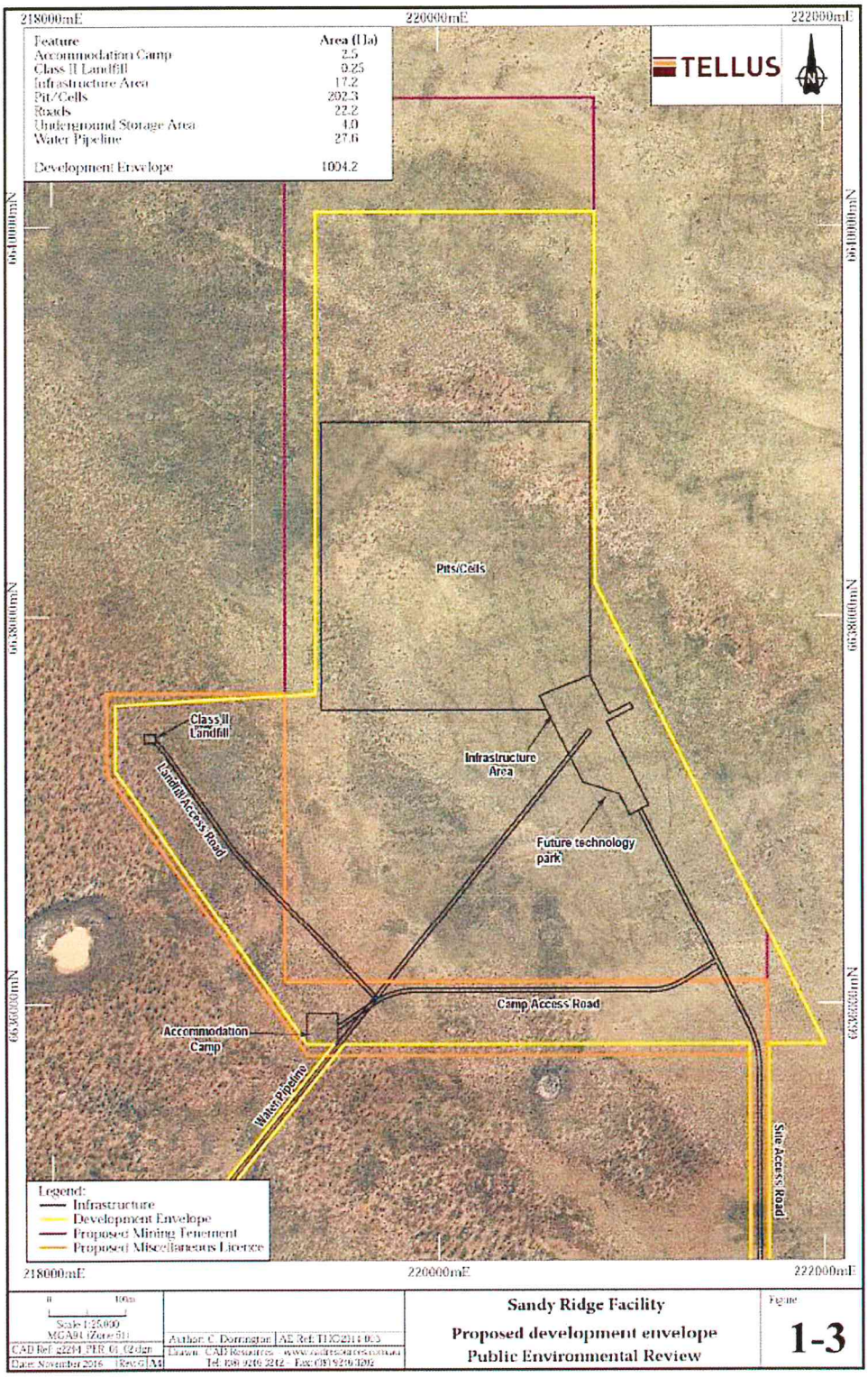
It would appear unlikely that any substantial development can be set up for $50,000, however it is considered that any endorsement of the PER could be interpreted as conveying the Council's support for the components contained in the report that do not form part of the current DA.

There is no information about the proximity of sensitive uses to the proposed facility nor the minimum buffer



required to sensitive uses that may be required by the EPA (Environmental Protection Authority).

FIGURE 2 – PROPOSED DEVELOPMENT ENVELOPE



Source: Nearmap, PER

GENERAL COMMENT: The proximity of Mt Walton East Intractable Waste Disposal Facility to the proposed site evidently uses the same access roads. However, there is little information about why two similar facilities are warranted bearing in mind the significant objection raised by the traditional owners of the land in the process of obtaining approval for the Mt Walton East facility.

SPECIFIC COMMENT ON PROPOSAL:

There are no details that can be assessed against the information required by the Regulations (*Planning and Development (Local Planning Schemes) Regulations 2015*).

This includes the application being signed by the owner of the land. The DA is signed by Tellus indicating that Tellus is the owner. According to the author's Landgate records the land is designated as Unallocated Crown Land.

The following provides some detail about the requirements for Development Approvals extracted from the Regulations;

Regulation 60 says;

60. Requirement for development approval

A person must not commence or carry out any works on, or use, land in the Scheme area unless —
(a) the person has obtained the development approval of the local government under Part 8; or
(b) the development is of a type referred to in clause
61. Notes:
1. Development includes the erection, placement and display of advertisements.
2. Approval to commence development may also be required from the Commission if the land is subject to a region planning scheme.

Clause 62 says:

62. Form of application

(1) An application for development approval must be —
(a) made in the form of the "Application for development approval" set out in clause 86(1); and
(b) signed by the owner of the land on which the proposed development is to be located; and
(c) accompanied by any fee for an application of that type set out in the Planning and Development Regulations 2009 or prescribed under the Local Government Act 1995; and
(d) accompanied by the plans and information specified in clause 63.
(2) For the purposes of subclause (1)(b), a person or body may sign an application for development approval as the owner of freehold land if the person or body is one of the following —
(a) a person who is referred to in the definition of owner in respect of freehold land in clause 1;
(b) a strata company that is authorised by a management statement registered under the Strata Titles Act 1985 section 5C to make an application for development approval in respect of the land;
(c) a person who is authorised under another written law to make an application for development approval in respect of the land;
(d) an agent of a person referred to in paragraph (a).
Note: The Planning and Development Act 2005 section 267A makes provision for the signing of documents by the owner of Crown land.

(3) An application for development approval for the erection, placement or display of an advertisement must be accompanied by sufficient information to determine the application in the form of the "Additional information for development approval for advertisements" set out in clause 86(2).
Note: The Interpretation Act 1984 section 74 provides for circumstances in which deviations from a prescribed form do not invalidate the form used.

Clause 63 says:

63. Accompanying material

(1) An application for development approval must be accompanied by—

(a) a plan or plans in a form approved by the local government showing the following—

(i) the location of the site including street names, lot numbers, north point and the dimensions of the site;

(ii) the existing and proposed ground levels over the whole of the land the subject of the application;

(iii) the location, height and type of all existing structures and environmental features, including watercourses, wetlands and native vegetation on the site;

(iv) the structures and environmental features that are proposed to be removed;

(v) the existing and proposed use of the site, including proposed hours of operation, and buildings and structures to be erected on the site;

(vi) the existing and proposed means of access for pedestrians and vehicles to and from the site;

(vii) the location, number, dimensions and layout of all car parking spaces intended to be provided;

(viii) the location and dimensions of any area proposed to be provided for the loading and unloading of vehicles carrying goods or commodities to and from the site and the means of access to and from those areas;

(ix) the location, dimensions and design of any open storage or trade display area and particulars of the manner in which it is proposed to develop the open storage or trade display area;

(x) the nature and extent of any open space and landscaping proposed for the site; and

(b) plans, elevations and sections of any building proposed to be erected or altered and of any building that is intended to be retained; and

(c) a report on any specialist studies in respect of the development that the local government requires the applicant to undertake such as site surveys or traffic, heritage, environmental, engineering or urban design studies; and

(d) any other plan or information that the local government reasonably requires.

(2) The local government may waive or vary a requirement set out in subclause (1).

(3) Where an application relates to a place entered on a heritage list prepared in accordance with this Scheme or within an area designated under this Scheme as a heritage area, the local government may require the application to be accompanied by one or more of the following—

(a) street elevations drawn as one continuous elevation to a scale not smaller than 1:100 showing the proposed development and the whole of the existing development on each lot immediately adjoining the land the subject of the application;

(b) a detailed schedule of all finishes, including materials and colours of the proposed

development;

(c) a description of the finishes of the existing developments on the subject lot and on each lot immediately adjoining the subject lot.

Clause 66 says;

Consultation with other authorities

(1) When, in the opinion of the local government, an application for development approval may affect any other statutory, public or planning authority, the local government is to provide a copy of the application to the authority for objections and recommendations.

(2) If an application for development approval relates to proposed development on land that is reserved under this Scheme for a public purpose and vested in a public authority, the local government must provide a copy of the application to that authority for objections and recommendations before making a decision on the application.

(3) A statutory, public or planning authority receiving a copy of an application may, within 42 days of receiving the application or within such longer period as the local government allows, provide to the local government a memorandum in writing containing any objections to, or recommendations in respect of the whole or part of the proposed development.

(4) If a statutory, public or planning authority does not provide a memorandum within the time allowed under subclause (3), the local government may determine that the authority is to be taken to have no objections or recommendations to make.

Clause 67 says;

67. Matters to be considered by local government

In considering an application for development approval the local government is to have due regard to the following matters to the extent that, in the opinion of the local government, those matters are relevant to the development the subject of the application —

(a) the aims and provisions of this Scheme and any other local planning scheme operating within the Scheme area;

(b) the requirements of orderly and proper planning including any proposed local planning scheme or amendment to this Scheme that has been advertised under the Planning and Development (Local Planning Schemes) Regulations 2015 or
any other proposed planning instrument that the local government is seriously considering adopting or approving;

(c) any approved State planning policy;

(d) any environmental protection policy approved under the Environmental Protection Act 1986 section 31(d);

(e) any policy of the Commission;

(f) any policy of the State;

(g) any local planning policy for the Scheme area;

(h) any structure plan, activity centre plan or local development plan that relates to the development;

(i) any report of the review of the local planning scheme that has been published under the Planning and Development (Local Planning Schemes) Regulations 2015;

(j) in the case of land reserved under this Scheme, the objectives for the reserve and the additional and permitted uses identified in this Scheme for the reserve;
(k) the built heritage conservation of any place that is of cultural significance;
(l) the effect of the proposal on the cultural heritage significance of the area in which the development is located;
(m) the compatibility of the development with its setting including the relationship of the development to development on adjoining land or on other land in the locality including, but not limited to, the likely effect of the height, bulk, scale, orientation and appearance of the development;
(n) the amenity of the locality including the following —
(i) environmental impacts of the development;
(ii) the character of the locality; social impacts of the development;
(o) the likely effect of the development on the natural environment or water resources and any means that are proposed to protect or to mitigate impacts on the natural environment or the water resource;
(p) whether adequate provision has been made for the landscaping of the land to which the application relates and whether any trees or other vegetation on the land should be preserved;
(q) the suitability of the land for the development taking into account the possible risk of flooding, tidal inundation, subsidence, landslip, bush fire, soil erosion, land degradation or any other risk;
(r) the suitability of the land for the development taking into account the possible risk to human health or safety;
(s) the adequacy of —
(i) the proposed means of access to and egress from the site; and
(ii) arrangements for the loading, unloading, manoeuvring and parking of vehicles;
(t) the amount of traffic likely to be generated by the development, particularly in relation to the capacity of the road system in the locality and the probable effect on traffic flow and safety;
(u) the availability and adequacy for the development of the following —
(v) public transport services;
(ii) public utility services;
(iii) storage, management and collection of waste;
(iv) access for pedestrians and cyclists (including end of trip storage, toilet and shower facilities);
(v) access by older people and people with disability;
(v) the potential loss of any community service or benefit resulting from the development other than potential loss that may result from economic competition between new and existing businesses;
(w) the history of the site where the development is to be located;
(x) the impact of the development on the community as a whole notwithstanding the impact of the development on particular individuals;
(y) any submissions received on the application;
(za) the comments or submissions received from any authority consulted under clause 66; (zb) any other planning consideration the local government considers appropriate.

CONSULTATION:

Chief Executive officer – James

Trail Deputy Chief Executive

Officer – Jill O'Brien

STATUTORY ENVIRONMENT: The land is zoned 'Rural' in the Council's existing Local Planning Scheme (No 5), The proposed use is considered to be closest to a '**waste disposal facility**' which means premises used - (a) for the disposal of waste by landfill; or (b) the incineration of hazardous, clinical or biomedical waste.

The designation of a waste disposal facility is a 'D' use in a Rural zone.

A 'D' use means that the use is not permitted unless the local government has exercised its discretion by granting development approval.

POLICY IMPLICATIONS: Nil

FINANCIAL IMPLICATIONS: Nil

STRATEGIC IMPLICATION: The Local Planning Strategy is silent on this matter.

VOTING REQUIREMENT:

Simple Majority

OFFICER RECOMMENDATION:

That the Council;

1. Advise the applicant (for the Development Approval of a waste disposal facility at Sandy Ridge Facility) that it is not satisfied that the information provided in the Public Environmental Review is adequate to enable the Council to determine the Development Approval application.

2. That the applicant be advised of the need to appropriately furnish the following information as required by the Planning and Development (Local Planning Schemes) Regulations 2015 in accordance with the draft letter below.

Attachment - Draft letter to applicant.

Dear Sir,

PROPOSED WASTE DISPOSAL FACILITY TELLUS - SANDY RIDGE FACILITY

I refer to your Development Approval (DA) application dated 13 February 2017 regarding the above proposal.

As described in your letter there are two components to the proposal. The first business activity is to mine Kaolin clay from the identified area; the second is a proposal to establish an intractable waste site.

It is the Council's opinion that the mining operation should come under the jurisdiction of the DMP whilst the proposed waste site would need other approvals including Health Department WA, EPA?? and the Council.

The latter approval must be submitted in the form of a Development Approval (DA) application. There is some discrepancy between the components included in the Public Environmental Review (PER) and the description on the DA application form.

The proposed development envelope plan in the PER (Figure 1-3) shows several other activities that are not mentioned or costed in the DA application. These additional activities include a 'future technology park', 'accommodation camp' and 'infrastructure area'.

The application requirements for a DA are outlined in the *Planning and Development (Local Planning Schemes) Regulations 2015* (Regs 2015). The following provides some extracts that may help.

Regulation 60 says;

60. Requirement for development approval
A person must not commence or carry out any works on, or use, land in the Scheme area unless —
(a) the person has obtained the development approval of the local government under Part 8; or
(b) the development is of a type
referred to in clause 61. Notes:
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and
(d) accompanied by the plans and information specified in clause 63.
(2) For the purposes of subclause (1)(b), a person or body may sign an application for development approval as the owner of freehold land if the person or body is one of the following —
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(b) a strata company that is authorised by a management statement registered under the Strata Titles Act 1985 section 5C to make an application for development approval in respect of the land;
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(iv) the structures and environmental features that are proposed to be removed;
(v) the existing and proposed use of the site, including proposed hours of operation, and buildings and structures to be erected on the site;
(vi) the existing and proposed means of access for pedestrians and vehicles to and from the site;
(vii) the location, number, dimensions and layout of all car parking spaces intended to be provided;
(viii) the location and dimensions of any area proposed to be provided for the loading and unloading of vehicles carrying goods or commodities to and from the site and the means of access to and from those areas;the location, dimensions and design of any open storage or trade display area and particulars of the manner in which it is proposed to develop the open storage or trade display area;

(ix) the nature and extent of any open space and landscaping proposed for the site; and
(b) plans, elevations and sections of any building proposed to be erected or altered and of any building that is intended to be retained; and
(c) a report on any specialist studies in respect of the development that the local government requires the applicant to undertake such as site surveys or traffic, heritage, environmental, engineering or urban design studies; and
(d) any other plan or information that the local government reasonably requires.
(2) The local government may waive or vary a requirement set out in subclause (1).
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(b) a detailed schedule of all finishes, including materials and colours of the proposed development;
(c) a description of the finishes of the existing developments on the subject lot and on each lot immediately adjoining the subject lot.

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66. Consultation with other authorities
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(3) A statutory, public or planning authority receiving a copy of an application may, within 42 days of receiving the application or within such longer period as the local government allows, provide to the local government a memorandum in writing containing any objections to, or recommendations in respect of the whole or part of the proposed development.
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(f) any policy of the State;

(g) any local planning policy for the Scheme area;

(h) any structure plan, activity centre plan or local development plan that relates to the development;

(i) any report of the review of the local planning scheme that has been published under the Planning and Development (Local Planning Schemes) Regulations 2015;

(j) in the case of land reserved under this Scheme, the objectives for the reserve and the additional and permitted uses identified in this Scheme for the reserve;

(k) the built heritage conservation of any place that is of cultural significance;

(l) the effect of the proposal on the cultural heritage significance of the area in which the development is located;

(m) the compatibility of the development with its setting including the relationship of the development to development on adjoining land or on other land in the locality including, but not limited to, the likely effect of the height, bulk, scale, orientation and appearance of the development;

(n) the amenity of the locality including the following —

(i) environmental impacts of the development;

(ii) the character of the locality;

(iii) social impacts of the development;

(o) the likely effect of the development on the natural environment or water resources and any means that are proposed to protect or to mitigate impacts on the natural environment or the water resource;

(p) whether adequate provision has been made for the landscaping of the land to which the application relates and whether any trees or other vegetation on the land should be preserved;

(q) the suitability of the land for the development taking into account the possible risk of flooding, tidal inundation, subsidence, landslip, bush fire, soil erosion, land degradation or any other risk;

(r) the suitability of the land for the development taking into account the possible risk to human health or safety;

(s) the adequacy of —

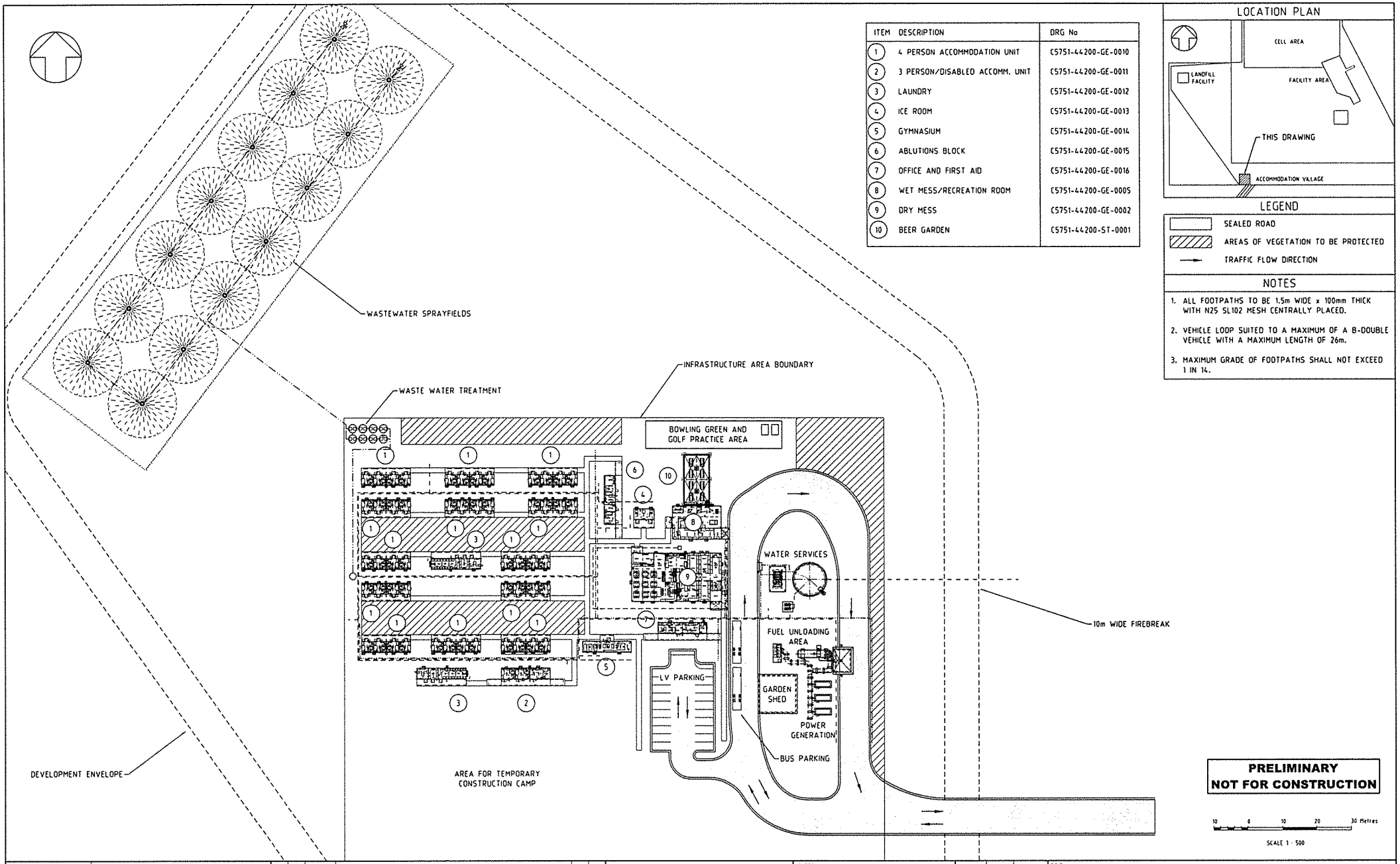
(i) the proposed means of access to and egress from the site; and
(ii) arrangements for the loading, unloading, manoeuvring and parking of vehicles;
(t) the amount of traffic likely to be generated by the development, particularly in relation to the capacity of the road system in the locality and the probable effect on traffic flow and safety;
(u) the availability and adequacy for the development of the following —
(v) public transport services;
(ii) public utility services;
(iii) storage, management and collection of waste;
(iv) access for pedestrians and cyclists (including end of trip storage, toilet and shower facilities);
(v) access by older people and people with disability;
(v) the potential loss of any community service or benefit resulting from the development other than potential loss that may result from economic competition between new and existing businesses;
(w) the history of the site where the development is to be located;
(x) the impact of the development on the community as a whole notwithstanding the impact of the development on particular individuals;
(y) any submissions received on the application;
(za) the comments or submissions received from any authority consulted under clause 66; (zb) any other planning consideration the local government considers appropriate.

We look forward to be in a position to determine a DA proposal that is prepared and submitted in accordance with the Regs 2015.

Regards

CEO

APPENDIX B: SANDY RIDGE FACILITY PRELIMINARY DRAWINGS



ITEM	DESCRIPTION	DRG No
1	4 PERSON ACCOMMODATION UNIT	C5751-44200-GE-0010
2	3 PERSON/DISABLED ACCOMM. UNIT	C5751-44200-GE-0011
3	LAUNDRY	C5751-44200-GE-0012
4	ICE ROOM	C5751-44200-GE-0013
5	GYMNASIUM	C5751-44200-GE-0014
6	ABLUTIONS BLOCK	C5751-44200-GE-0015
7	OFFICE AND FIRST AID	C5751-44200-GE-0016
8	WET MESS/RECREATION ROOM	C5751-44200-GE-0005
9	DRY MESS	C5751-44200-GE-0002
10	BEER GARDEN	C5751-44200-ST-0001

LOCATION PLAN

LEGEND

- SEALED ROAD
- AREAS OF VEGETATION TO BE PROTECTED
- TRAFFIC FLOW DIRECTION

NOTES

1. ALL FOOTPATHS TO BE 1.5m WIDE x 100mm THICK WITH N25 SL102 MESH CENTRALLY PLACED.
2. VEHICLE LOOP SUITED TO A MAXIMUM OF A B-DOUBLE VEHICLE WITH A MAXIMUM LENGTH OF 26m.
3. MAXIMUM GRADE OF FOOTPATHS SHALL NOT EXCEED 1 IN 14.

PRELIMINARY
NOT FOR CONSTRUCTION

10 0 10 20 30 Metres

SCALE 1 : 500

REF DRG No	TITLE	REV	BY	DATE	DESCRIPTION	CKD	ENG
		0	SW	09/08/2017	ISSUED FOR BFS	JL	JL

TELLUS

VENDOR

ONYX PROJECTS

Project Managers & Engineers

VENDOR DRG No C5751-44200-GE-0001 REV C

	BY	DATE
DRAWN	SW	09/08/2017
CHECKED	JL	09/08/2017
DES ENG	JL	09/08/2017
BFS MAN	JL	09/08/2017
CLIENT		

TITLE
SANDY RIDGE PROJECT
BANKABLE FEASIBILTY STUDY (BFS)
ACCOMMODATION VILLAGE
GENERAL ARRANGEMENT

A1	SCALE 1:500	DRG No TSR-3-PO-07300-GE-DGA-0027	REV 0

DESIGN CRITERIA	
DESIGN LIFE	25 YEARS
WIND REGION	A4
IMPORTANCE LEVEL	2
TERRAIN CATEGORY	2

LEGEND		
	DESCRIPTION	QTY
$	LIGHT SWITCH AT 1350 AFL UNO	9
	LED OYSTER LIGHT FITTING	2
	18w LED BATTEN LIGHT	4
W	WEATHER PROOF SGPO AT 1350 AFL	4
	DOUBLE GPO AT 900 AFL (UON)	6
	ISOLATOR - 10Amp AT 400 AFL	4
	RJ45 (CAT6) AT 900 AFL	6
	TV POINT AT 1300 AFL	3
	EXTERNAL LED BULKHEAD LIGHT (AT 2200 AFL) WIRED TO PE CELL & BY-PASS SWITCH TO DB	2
	LOCKABLE MAIN ELECTRICAL DISTRIBUTION BOARD	1
	EXTERNAL FIRE ALARM BREAKGLASS AT 1400 AFL WITH BELL AT 2100 AFL	1
(S)	HARD WIRED SMOKE DETECTOR WITH BATTERY BACK-UP WIRED TO LOCAL PANEL	3
	MOTION SENSOR c/w LOCKABLE BYPASS SWITCH & TIMER LINKED TO A/C & LIGHT CIRCUITS	3
(FE)	9kg FIRE EXTINGUISHER (DRY POWDER) WALL MOUNTED AT 900 AFL	1
fw	FLOOR WASTE (ENSUITE FLOOR GRADED TO WASTE AND CONNECTED TO SEWER)	3
POE	ELECTRICAL POINT OF ENTRY	1

CONSTRUCTION NOTES (NON-CYCLONIC SPECIFICATION)

CHASSIS -
14.4m x 3.3m STEEL SKID BASE PAINTED RED OXIDE PRIMER

FLOORING -
18mm HIGH-DENSITY COMPRESSED FIBRE CEMENT SHEETING

FLOOR COVERING -
2mm ANTI-STATIC VINYL. COLOUR - TBA
COMPLETE WITH 65mm BLACK PVC SKIRTING
NON-SLIP VINYL TO WET AREAS. COLOUR - TBA

WALLS -
75 x 1.5mm STEEL STUD SECTION AT 600 CRS BOLTED TO SKID
CEILING HEIGHT - 2400mm

INTERNAL CLADDING -
POLY PLY TO CEILING AND WALL. COLOUR - WHITE
COMPLETE WITH STAIN RESISTANT COATING
DIVIDING WALLS BETWEEN ROOMS TO EXTEND CONTINUOUSLY UP TO UNDERSIDE OF ROOF (I.E. CEILING STOPS EACH SIDE OF WALL)
DIVIDING WALLS BETWEEN ROOMS TO BE ACOUSTICALLY RATED 10% ABOVE THE BCA REQUIREMENT

INSULATION -
ACOUSTIC INSULATION TO WALLS & CEILINGS TO COMPLY WITH LATEST EDITION OF THE BUILDING CODE OF AUSTRALIA

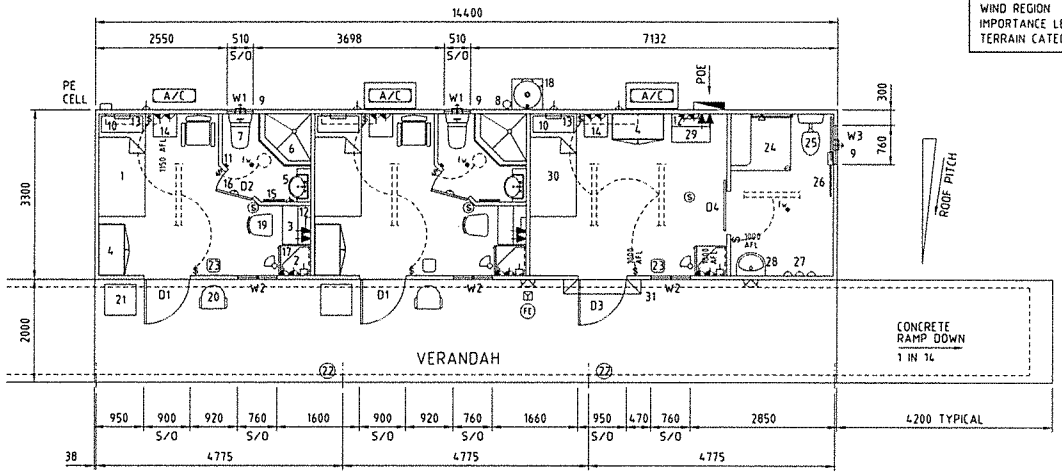
EXTERNAL CLADDING -
COLORBOND.
COLOUR - TBA

ROOF CLADDING -
COLORBOND ROOF SHEETING WITH COLORBOND FLASHINGS
FLASHING COLOUR - TBA

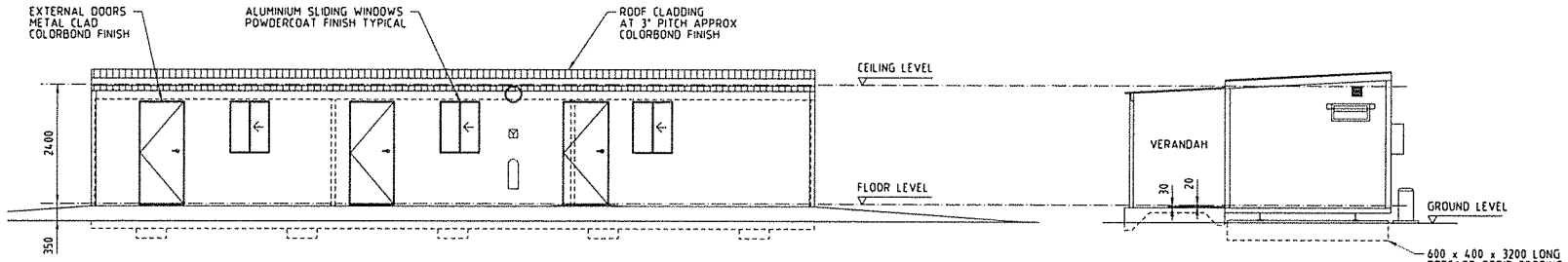
CANOPIES -
COLORBOND ROOF SHEETING WITH COLORBOND FLASHINGS
FLASHING COLOUR - TBA
700(L)x400(W) OVER W1 WINDOWS
CANOPIES AT 15 DEG. TO BE REMOVABLE AND FIXED AFTER INSTALLATION OF UNIT AND ITS SERVICES

ELECTRICAL -
TO COMPLY WITH AS/NZS 3000 STANDARDS AND AMENDMENTS

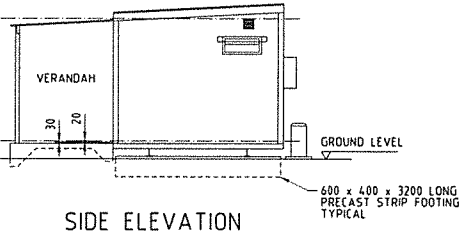
PLUMBING -
TO COMPLY WITH AS/NZS 3500 STANDARDS AND AMENDMENTS



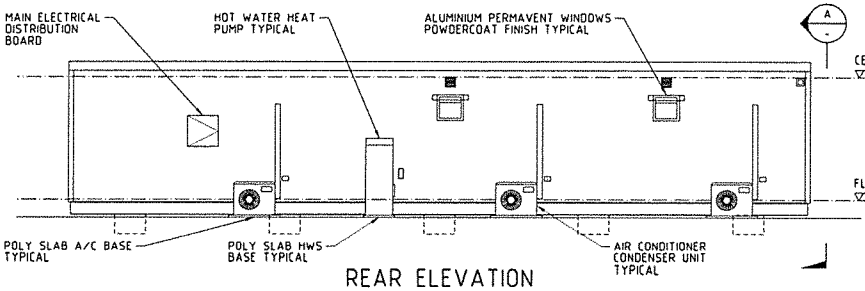
FLOOR PLAN



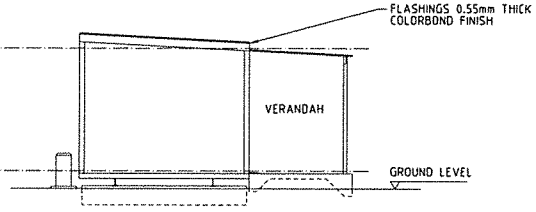
FRONT ELEVATION



SIDE ELEVATION



REAR ELEVATION



SECTION A

1 0 1 2 3 Metres

SCALE 1 50

PRELIMINARY
NOT FOR CONSTRUCTION

FITTINGS & FIXTURES

No	DESCRIPTION	QTY
	FOR FIXTURES AND FITTINGS 1 TO 23 REFER DRG C5751-44200-GE-0010	
24	SHOWER UNIT SUITABLE FOR USE BY DISABLED PERSONS c/w FOLDING SEAT, GRABRAILS, MULTI-DIRECTIONAL ROSÉ, SHOWER CURTAIN AND CURTAIN ROD	1
25	VITREOUS CHINA TOILET PAN & DUAL FLUSH CISTERN SUITABLE FOR USE BY DISABLED PERSONS c/w GRABRAIL & TOILET PAPER HOLDER	1
26	TOWEL RAIL (600 LONG)	1
27	METAL COAT HOOK (3 OFF) AT 1000 AFL	1
28	HAND BASIN SUITABLE FOR USE BY DISABLED PERSONS (IN ACCORDANCE WITH AS 1428.1) c/w LEVER ACTION TAPS & MIRROR OVER	1
29	ACCESSIBLE WORKDESK 850H c/w 640mm OBSTRUCTION FREE SPACE	1
30	ACCESSIBLE KING SINGLE BED 520 AFL (TWO SIDES)	1
31	280D x 30H ACCESSIBLE THRESHOLD RAMP	1

DOOR AND WINDOW SCHEDULE

No	DESCRIPTION	QTY
D1	2040 x 870mm METAL CLAD DOOR c/w METAL FRAME ENTRANCE SET DOOR FURNITURE & SELF CLOSING LOCKABLE FLY SCREEN. (MASTER KEYED). COLOUR - TBA.	3
D2	2040 x 720mm TIMBER DOOR & METAL FRAME c/w PRIVACY SET DOOR FURNITURE. COLOUR - TBA.	3
D3	2040 x 920mm METAL CLAD DOOR c/w METAL FRAME ENTRANCE SET DOOR FURNITURE AT 1000 AFL. (MASTER KEYED). COLOUR - TBA.	1
D4	2040(H) x 900(W) TIMBER SLIDING DOOR (WITH PELMET) IN SPLIT METAL FRAME. COLOUR - TBA.	1
W1	500(H) x 500(W) ALUMINIUM FRAMED POWDERCOAT FINISH PERMAVENT WINDOW c/w HOOD & OBSCURED GLAZING. COLOUR - TBA.	2
W2	1000(H) x 750(W) ALUMINIUM FRAMED POWDERCOAT FINISH SLIDING WINDOW c/w LOCK, FLYSCREEN & 1 PASS BLOCKOUT ROLLER BLIND.	3
W3	350(H) x 750(W) ALUMINIUM FRAMED POWDERCOAT FINISH PERMAVENT WINDOW c/w HOOD & OBSCURED GLAZING. COLOUR - TBA.	1

REF DRG No	TITLE	REV	BY	DATE	DESCRIPTION	CKD	ENG
		0	SW	09/08/2017	ISSUED FOR BFS	JL	JL

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ONYX PROJECTS
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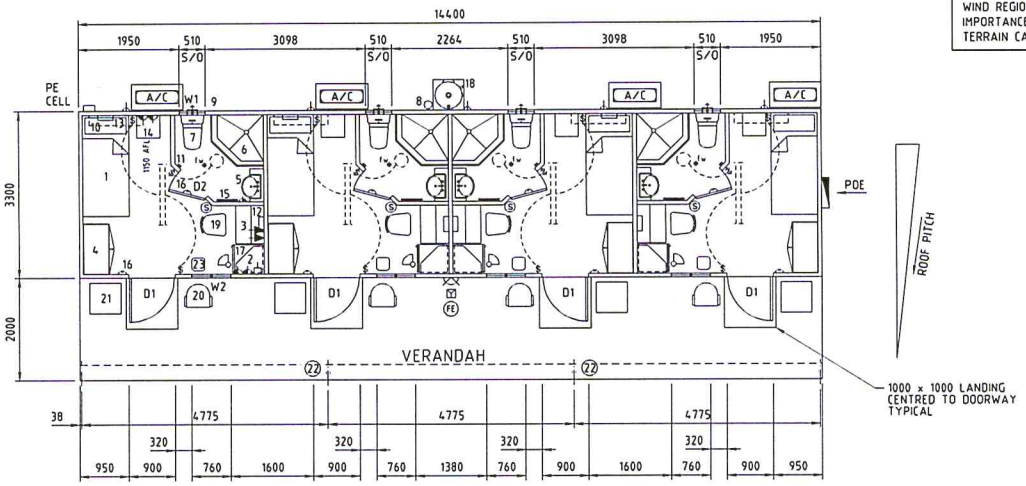
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C5751-44200-GE-0011	A

	BY	DATE
DRAWN	SW	09/08/2017
CHECKED	JL	09/08/2017
DES ENG	JL	09/08/2017
BFS MAN	JL	09/08/2017
CLIENT		

TITLE
SANDY RIDGE PROJECT
BANKABLE FEASIBILTY STUDY (BFS)
3 PERSON/SINGLE DISABLED ACCOMODATION UNIT
GENERAL ARRANGEMENT

SCALE	DRG No	REV
A1 1:50	TSR-3-PO-07300-GE-DGA-0011	0

DESIGN CRITERIA	
DESIGN LIFE	25 YEARS
WIND REGION	A4
IMPORTANCE LEVEL	2
TERRAIN CATEGORY	2

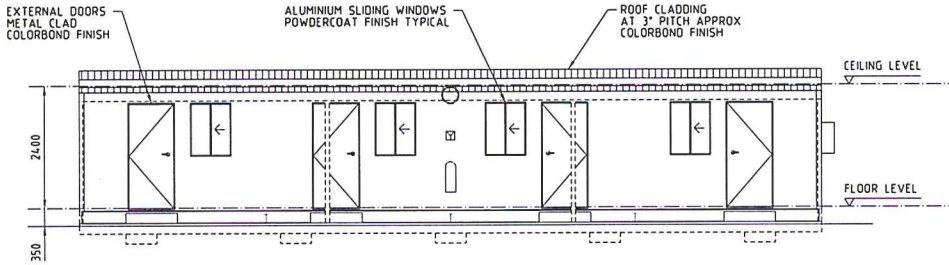


FLOOR PLAN

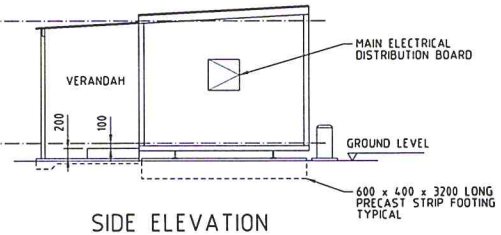
LEGEND		
	DESCRIPTION	QTY
$	LIGHT SWITCH AT 1350 AFL	8
	LED OYSTER LIGHT FITTING	4
	18w LED BATTEN LIGHT	4
W	WEATHER PROOF SGPO AT 1350 AFL	4
	DOUBLE GPO AT 900 AFL (UON)	8
	ISOLATOR - 10Amp AT 400 AFL	5
	RJ45 (CAT6) AT 900 AFL	4
	TV POINT AT 1300 AFL	4
	EXTERNAL LED BULKHEAD LIGHT (AT 2200 AFL) WIRED TO PE CELL & BY-PASS SWITCH TO DB	1
	LOCKABLE MAIN ELECTRICAL DISTRIBUTION BOARD	1
	EXTERNAL FIRE ALARM BREAKGLASS AT 1400 AFL WITH BELL AT 2100 AFL	1
(S)	HARD WIRED SMOKE DETECTOR WITH BATTERY BACK-UP WIRED TO LOCAL PANEL	4
	MOTION SENSOR c/w LOCKABLE BYPASS SWITCH & TIMER LINKED TO A/C & LIGHT CIRCUITS	4
(FE)	9kg FIRE EXTINGUISHER (DRY POWDER) WALL MOUNTED AT 900 AFL	1
fw	FLOOR WASTE (ENSUITE FLOOR GRADED TO WASTE AND CONNECTED TO SEWER)	4
POE	ELECTRICAL POINT OF ENTRY	1

CONSTRUCTION NOTES (NON-CYCLONIC SPECIFICATION)
CHASSIS - 14.4m x 3.3m STEEL SKID BASE PAINTED RED OXIDE PRIMER
FLOORING - 18mm HIGH-DENSITY COMPRESSED FIBRE CEMENT SHEETING
FLOOR COVERING - 2mm ANTI-STATIC VINYL. COLOUR - TBA COMPLETE WITH 65mm BLACK PVC SKIRTING NON-SLIP VINYL TO WET AREAS. COLOUR - TBA
WALLS - 75 x 1.5mm STEEL STUD SECTION AT 600 CRS BOLTED TO SKID CEILING HEIGHT - 2400mm
INTERNAL CLADDING - POLY PLY TO CEILING AND WALL. COLOUR - WHITE COMPLETE WITH STAIN RESISTANT COATING DIVIDING WALLS BETWEEN ROOMS TO EXTEND CONTINUOUSLY UP TO UNDERSIDE OF ROOF (I.E. CEILING STOPS EACH SIDE OF WALL) DIVIDING WALLS BETWEEN ROOMS TO BE ACOUSTICALLY RATED 10% ABOVE THE BCA REQUIREMENT
INSULATION - ACOUSTIC INSULATION TO WALLS & CEILINGS TO COMPLY WITH LATEST EDITION OF THE BUILDING CODE OF AUSTRALIA
EXTERNAL CLADDING - COLORBOND. COLOUR - TBA
ROOF CLADDING - COLORBOND ROOF SHEETING WITH COLORBOND FLASHINGS FLASHING COLOUR - TBA
CANOPIES - COLORBOND ROOF SHEETING WITH COLORBOND FLASHINGS FLASHING COLOUR - TBA
ELECTRICAL - TO COMPLY WITH AS/NZS 3000 STANDARDS AND AMENDMENTS
PLUMBING - TO COMPLY WITH AS/NZS 3500 STANDARDS AND AMENDMENTS

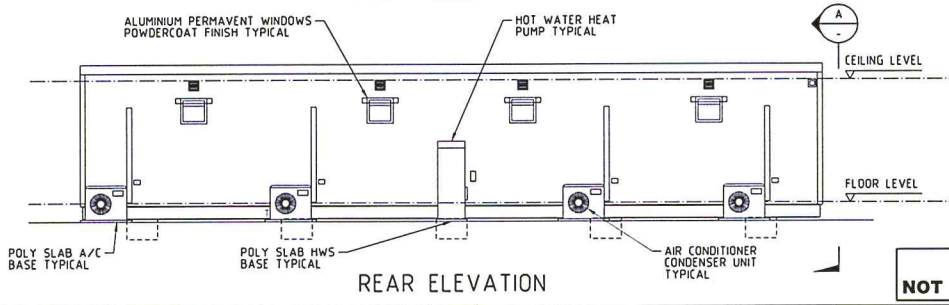
DOOR AND WINDOW SCHEDULE		
No	DESCRIPTION	QTY
D1	2040 x 870mm METAL CLAD DOOR c/w METAL FRAME. ENTRANCE SET DOOR FURNITURE & SELF CLOSING LOCKABLE FLY SCREEN. (MASTER KEYED). COLOUR - TBA.	4
D2	2040 x 720mm TIMBER DOOR & METAL FRAME c/w PRIVACY SET DOOR FURNITURE. COLOUR - TBA.	4
W1	500(H) x 500(W) ALUMINIUM FRAMED POWDERCOAT FINISH PERMAVENT WINDOW c/w HOOD & OBSCURED GLAZING. COLOUR - TBA.	4
W2	1000(H) x 750(W) ALUMINIUM FRAMED POWDERCOAT FINISH SLIDING WINDOW c/w LOCK, FLYSCREEN & 1 PASS BLOCKOUT ROLLER BLIND.	4



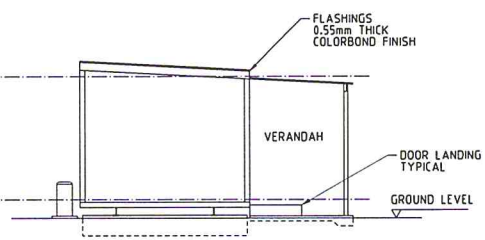
FRONT ELEVATION



SIDE ELEVATION



REAR ELEVATION



PRELIMINARY
NOT FOR CONSTRUCTION

SECTION A

1 0 1 2 3 Metres

SCALE 1 50

FITTINGS & FIXTURES		
No	DESCRIPTION	QTY
1	ENSEMBLE KING SIZE SINGLE BED ON FREE CASTORS WITH INNER SPRING MATTRESS	4
2	CORNER TV SHELF 500x500 AT 1400 AFL WITH FRIDGE RECESS COLOUR - TBA	4
3	WRITING TOP WITH SHELF ABOVE. TOP COLOUR - TBA. CARCASS COLOUR - 'WHITE'	4
4	TWO DOOR MELAMINE ROBE c/w SHELVES & CUPBOARD OVER. COLOUR - TBA CARCASS COLOUR - 'WHITE'	4
5	STAINLESS STEEL VANITY BASIN (800 AFL) WITH 350(W) x 500(H) x 130(D) MEDICINE CABINET OVER c/w MIRROR DOORS (BASE OF CABINET AT 1300 AFL) TOP COLOUR - TBA CARCASS COLOUR - 'WHITE'	4
6	MOULDED FIBREGLASS SHOWER CUBICLE WITH STAINLESS STEEL RAIL & CURTAIN c/w WATER SAVING SHOWER HEAD	4
7	DUAL FLUSH CISTERN AND PAN (WATER SAVING)	4
8	WATER FILTER	1
9	WALL MOUNTED EXHAUST FAN OVER OBSCURED WINDOW	4
10	REVERSE CYCLE SPLIT SYSTEM INVERTER AIR CONDITIONER c/w REMOTE	4
11	CHROME PLATED TOILET ROLL HOLDER AT 750 AFL	4
12	DESK LIGHT - FLUORESCENT AT 1350 AFL	4
13	BED LIGHT - LED AT 1400 AFL & 450 FROM WALL	4
14	MELAMINE CHEST OF 3 DRAWERS c/w CASTORS. COLOUR - TBA CARCASS COLOUR - 'WHITE'	4
15	400(L) STAINLESS STEEL TOWEL RAIL AT 900 AFL	4
16	TWO METAL COAT HOOKS AT 1650 AFL	8
17	120 LITRE (TYP) BAR FRIDGE	4
18	160 LITRE ELECTRIC HEAT PUMP HOT WATER STORAGE SYSTEM	1
19	MESH OFFICE CHAIR c/w CASTORS	4
20	ALUMINIUM FRAMED CHAIR RATED TO 120kg	4
21	LOCKER 600 x 600 x 1800H - (2 DOORS) c/w PADLOCKABLE HANDLE	4
22	SMOKERS CEASE FIRE UNIT	2
23	WASTE BIN	4

REF DRG No	TITLE	REV	BY	DATE	DESCRIPTION	CKD	ENG
		0	SW	09/08/2017	ISSUED FOR BFS	JL	JL

TELLUS

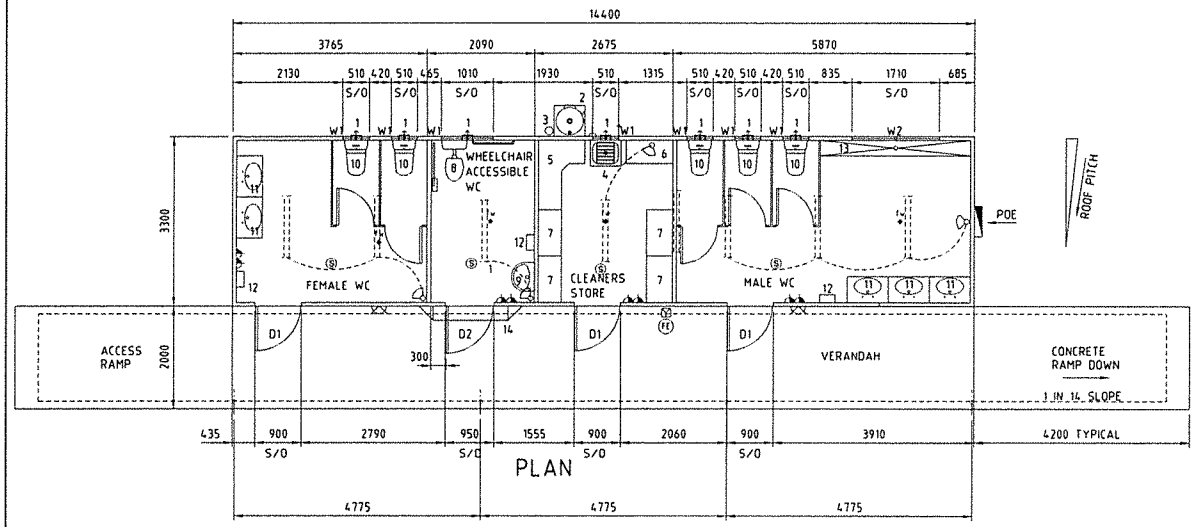
VENDOR
ONYX PROJECTS
Project Managers & Engineers

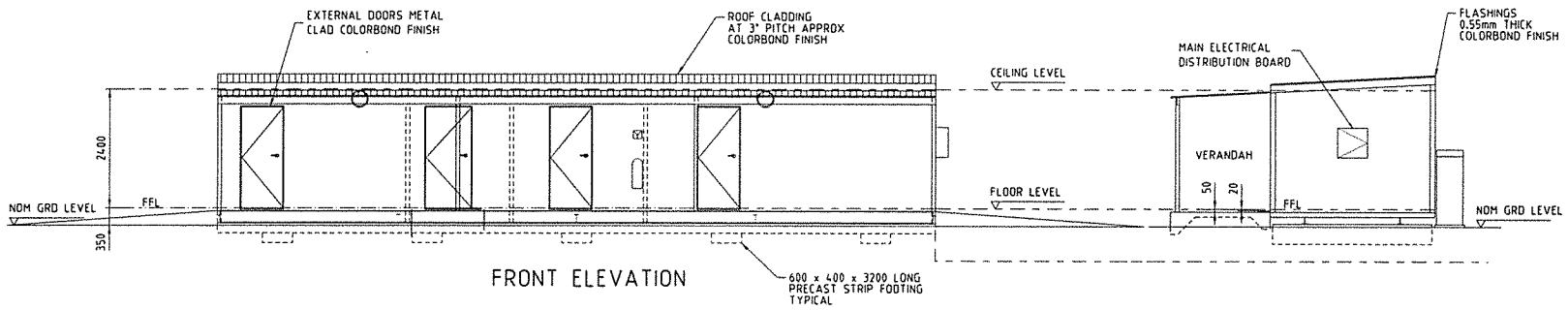
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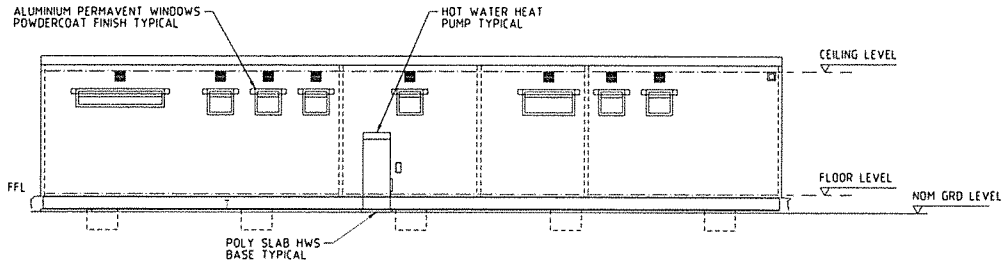
	BY	DATE
DRAWN	SW	09/08/2017
CHECKED	JL	09/08/2017
DES ENG	JL	09/08/2017
BFS MAN	JL	09/08/2017
CLIENT		

TITLE
SANDY RIDGE PROJECT
BANKABLE FEASIBILTY STUDY (BFS)
4 PERSON ACCOMODATION UNIT
GENERAL ARRANGEMENT

A1	SCALE 1:50	DRG No TSR-3-PO-07300-GE-DGA-0010	REV 0







LEGEND

	DESCRIPTION	QTY
	18w LED BATTEN LIGHT	7
	DOUBLE GPO AT 900 AFL (UON)	4
	ISOLATOR - 10Amp AT 400 AFL	1
	EXTERNAL LED BULKHEAD LIGHT (AT 2200 AFL) WIRED TO PE CELL & BY-PASS SWITCH TO DB	2
	LOCKABLE MAIN ELECTRICAL DISTRIBUTION BOARD	1
(S)	HARD WIRED SMOKE DETECTOR WITH BATTERY BACK-UP WIRED TO LOCAL PANEL	2
	EXTERNAL FIRE ALARM BREAKGLASS AT 1400 AFL WITH BELL AT 2100 AFL	1
(FE)	9kg FIRE EXTINGUISHER (DRY POWDER) WALL MOUNTED AT 900 AFL	1
fw	FLOOR WASTE (GRADED TO WASTE AND CONNECTED TO SEWER)	1
	HOSE COCK	2
	WALL MOUNTED EXHAUST FAN	11
	MOTION SENSOR c/w LOCKABLE BYPASS SWITCH & TIMER LINKED TO AC & LIGHT CIRCUITS	4
POE	ELECTRICAL POINT OF ENTRY	1
S/O	STUD OPENNING	-

CONSTRUCTION NOTES (NON-CYCLONIC SPECIFICATION)

CHASSIS -
14.4m x 3.3m STEEL SKID BASE PAINTED RED OXIDE PRIMER

FLOORING -
18mm HIGH-DENSITY COMPRESSED FIBRE CEMENT SHEETING

FLOOR COVERING -
2mm ANTI-STATIC VINYL. COLOUR - TBA
COMPLETE WITH 65mm BLACK PVC SKIRTING
NON-SLIP VINYL TO WET AREAS. COLOUR - TBA

WALLS -
75 x 1.5mm STEEL STUD SECTION AT 600 CRS BOLTED TO SKID
CEILING HEIGHT - 2400mm

INTERNAL CLADDING -
POLY PLY TO CEILING AND WALL. COLOUR - WHITE
COMPLETE WITH STAIN RESISTANT COATING

INSULATION -
ACOUSTIC INSULATION TO WALLS & CEILINGS TO COMPLY WITH LATEST EDITION OF THE BUILDING CODE OF AUSTRALIA

EXTERNAL CLADDING -
COLORBOND.
COLOUR - TBA

ROOF CLADDING -
COLORBOND ROOF SHEETING WITH COLORBOND FLASHINGS
FLASHING COLOUR - TBA

CANOPIES -
COLORBOND ROOF SHEETING WITH COLORBOND FLASHINGS
FLASHING COLOUR - TBA

ELECTRICAL -
TO COMPLY WITH AS/NZS 3000 STANDARDS AND AMENDMENTS

PLUMBING -
TO COMPLY WITH AS/NZS 3500 STANDARDS AND AMENDMENTS

FITTINGS & FIXTURES

No	DESCRIPTION	QTY
1	WALL MOUNTED EXHAUST FAN OVER OBSCURED WINDOW	11
2	160 LITRE ELECTRIC HEAT PUMP HOT WATER STORAGE SYSTEM	1
3	WATER FILTER	1
4	CLEANERS SINK AT 650 AFL	1
5	1350(L) x 900(W) x 450(DP) FULL HEIGHT "L" SHAPED MELAMINE SHELVING. SHELVES AT 500 CRS AND VERTICAL DIVIDERS. CARCASS COLOUR - 'WHITE'.	1
6	MOP DRYING RACK c/w DRIP TRAY PLUMBED TO SEWER	1
7	900(L) x 450(W) FULL HEIGHT MELAMINE SHELVING, SHELVES AT 500 CRS AND VERTICAL DIVIDERS. CARCASS COLOUR - 'WHITE'	4
8	ACCESSIBLE TOILET & DUAL FLUSH CISTERN (WATER SAVING) c/w GRABRAILS & TOILET PAPER HOLDER	1
9	WALL MOUNTED ACCESSIBLE WASH HAND BASIN	1
10	DUAL FLUSH CISTERN & PAN (WATER SAVING) C/W CHROME PLATED TOILET ROLL HOLDER AT 750 AFL	5
11	WALL MOUNTED HAND WASH BASIN	5
12	PAPER TOWEL DISPENSER AT 1350 AFL UNO. ACCESSIBLE WC DISPENSER TO SUIT SINK HEIGHT	3
13	2930(W) NOM x 300(DP) ST. STL. WALL MOUNTED URINAL TROUGH. FOLDED SAFETY EDGES / POLISHED FINISH - CONNECTED TO SEWER.	1
14	2800 x 30H ACCESSIBLE THRESHOLD RAMP	1

DOOR AND WINDOW SCHEDULE

No	DESCRIPTION	QTY
D1	2040 x 870mm METAL CLAD DOOR AND METAL FRAME. c/w ENTRANCE SET DOOR FURNITURE & SELF CLOSING LOCKABLE FLY SCREEN. (MASTER KEYED). COLOUR - TBA.	3
D2	2040 x 920mm TIMBER DOOR IN METAL FRAME C/W VACANT / OCCUPIED SIGNAGE, LOCK SET & DOOR FURNITURE. COLOUR - TBA.	1
W1	500(H) x 500(W) ALUMINIUM FRAMED POWDERCOAT FINISH PERMAVENT WINDOW c/w HOOD & OBSCURED GLAZING. COLOUR - TBA.	8
W2	350(H) x 1700(W) ALUMINIUM FRAMED POWDERCOAT FINISH PERMAVENT WINDOW c/w HOOD & OBSCURED GLAZING. COLOUR - TBA.	1
W2	500(H) x 1000(W) ALUMINIUM FRAMED POWDERCOAT FINISH PERMAVENT WINDOW c/w HOOD & OBSCURED GLAZING. COLOUR - TBA.	1

DESIGN CRITERIA

DESIGN LIFE	25 YEARS
WIND REGION	A4
IMPORTANCE LEVEL	2
TERRAIN CATEGORY	2

1 0 1 2 3 Metres
SCALE 1 50

PRELIMINARY
NOT FOR CONSTRUCTION

REF DRG No	TITLE	REV	BY	DATE	DESCRIPTION	CKD	ENG
		0	AH	09/08/2017	ISSUED FOR BFS	JL	JL

TELLUS

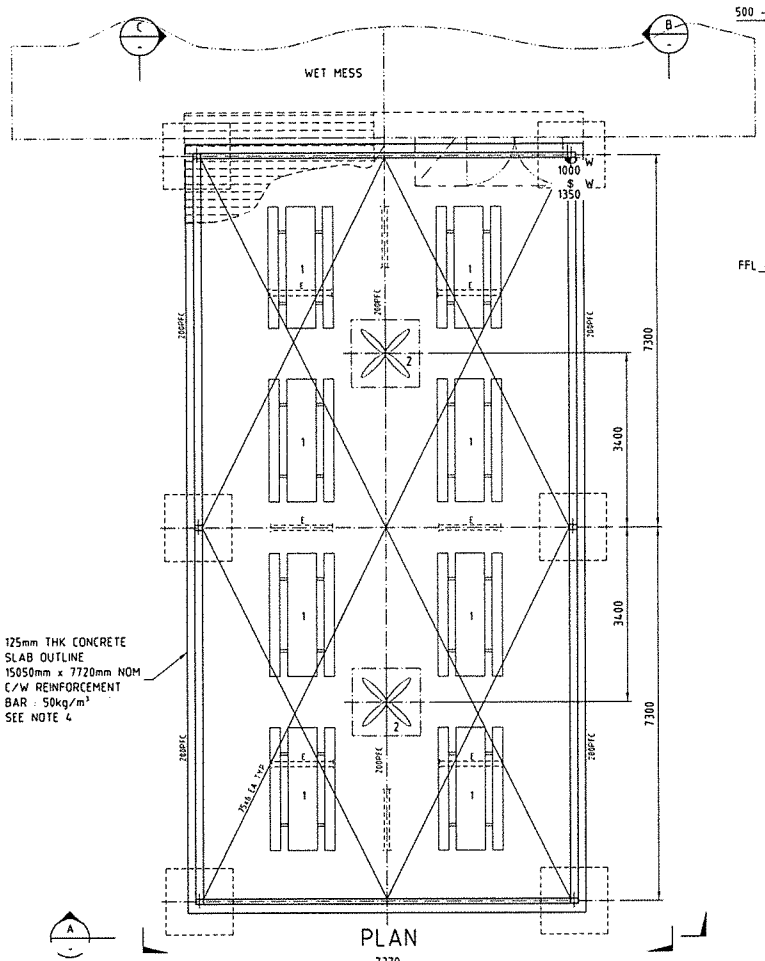
VENDOR
ONYX PROJECTS
Project Managers & Engineers

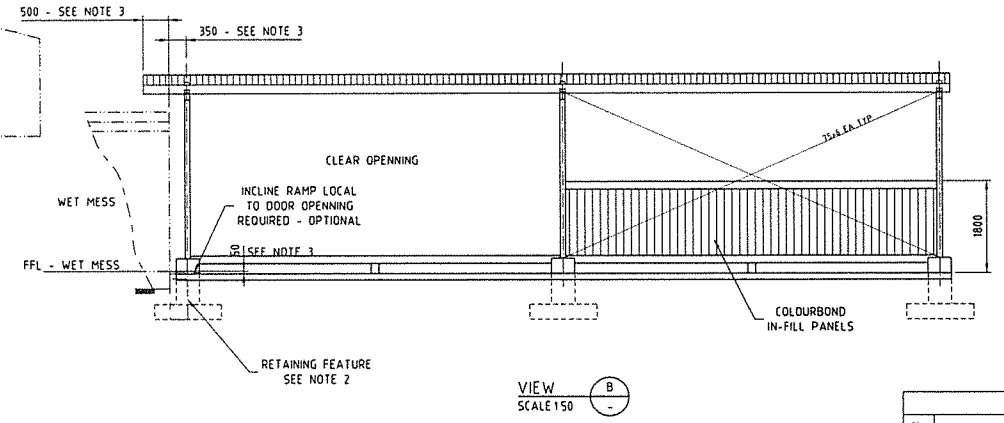
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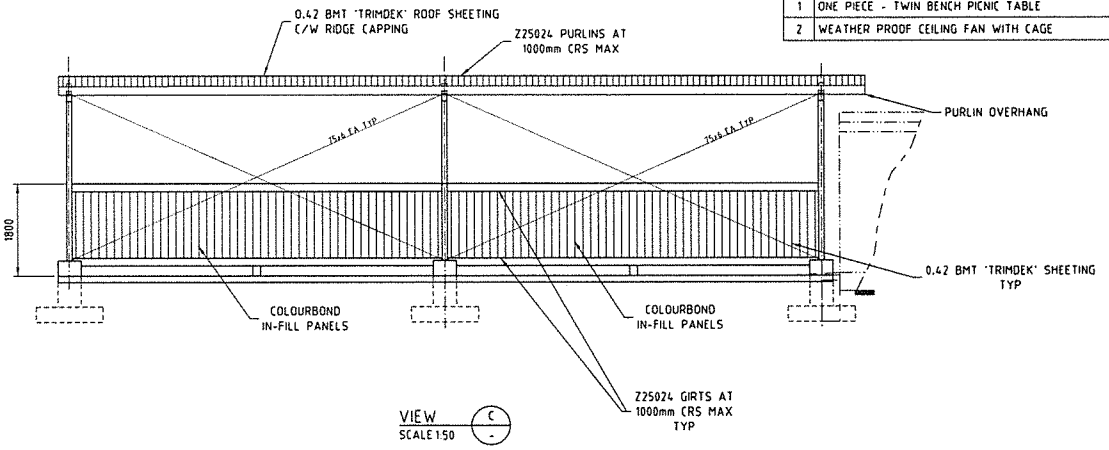
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DRAWN	AH	09/08/2017
CHECKED	JL	09/08/2017
DES ENG	JL	09/08/2017
BFS MAN	JL	09/08/2017
CLIENT		

TITLE
SANDY RIDGE PROJECT
BANKABLE FEASIBILTY STUDY (BFS)
ABLUTION BLOCK
GENERAL ARRANGEMENT

A1 | SCALE 1:50 | DRG No TSR-3-PO-07300-GE-DGA-0015 | REV 0







NOTES

1. NOTE. HEIGHT TO EAVES DEPENDANT UPON BRACING DETAIL AGAINST CONFIRMED DETAILS OF WET MESS. REF ORG C5751-44200-GE-0005
2. EARTHWORKS TO BE CONFIRMED.
3. BUILDING DETAILS SUBJECT TO FINAL VILLAGE ARRANGEMENT / SET OUT
4. SLAB DESIGNED FOR FOOT TRAFFIC ONLY.
5. A MINIMUM OF 525MPa CONCRETE TO BE USED.

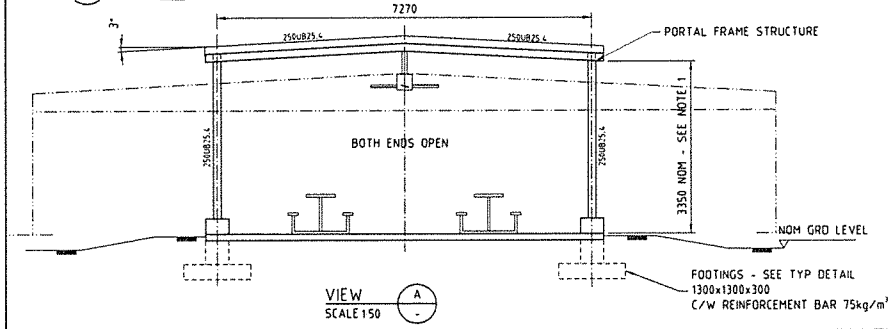
LEGEND

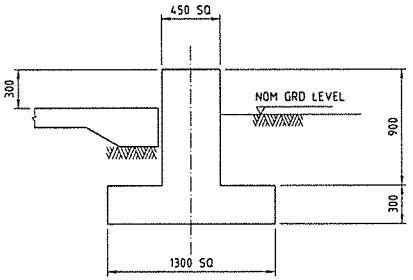
$W WEATHER PROOF LIGHT SWITCH @ 1350 AFL

EXTERIOR 18W LED BATTEN LIGHT

WEATHER PROOF SGPO @ 1000 AFL

FITTINGS & FIXTURES		
No	DESCRIPTION	QTY
1	ONE PIECE - TWIN BENCH PICNIC TABLE	8
2	WEATHER PROOF CEILING FAN WITH CAGE	2





TYP FOOTING DETAIL
TYP - 6 POSITIONS
1:20

DESIGN CRITERIA	
DESIGN LIFE	25 YEARS
WIND REGION	A4
IMPORTANCE LEVEL	2
TERRAIN CATEGORY	2

0.4 0.2 0 0.4 0.8 1.2 Metres
SCALE 1:20
1 0 1 2 3 Metres
SCALE 1:50

PRELIMINARY
NOT FOR CONSTRUCTION

REF DRG No	TITLE	REV	BY	DATE	DESCRIPTION	CKD	ENG
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TELLUS

VENDOR
ONYX PROJECTS
Project Managers & Engineers

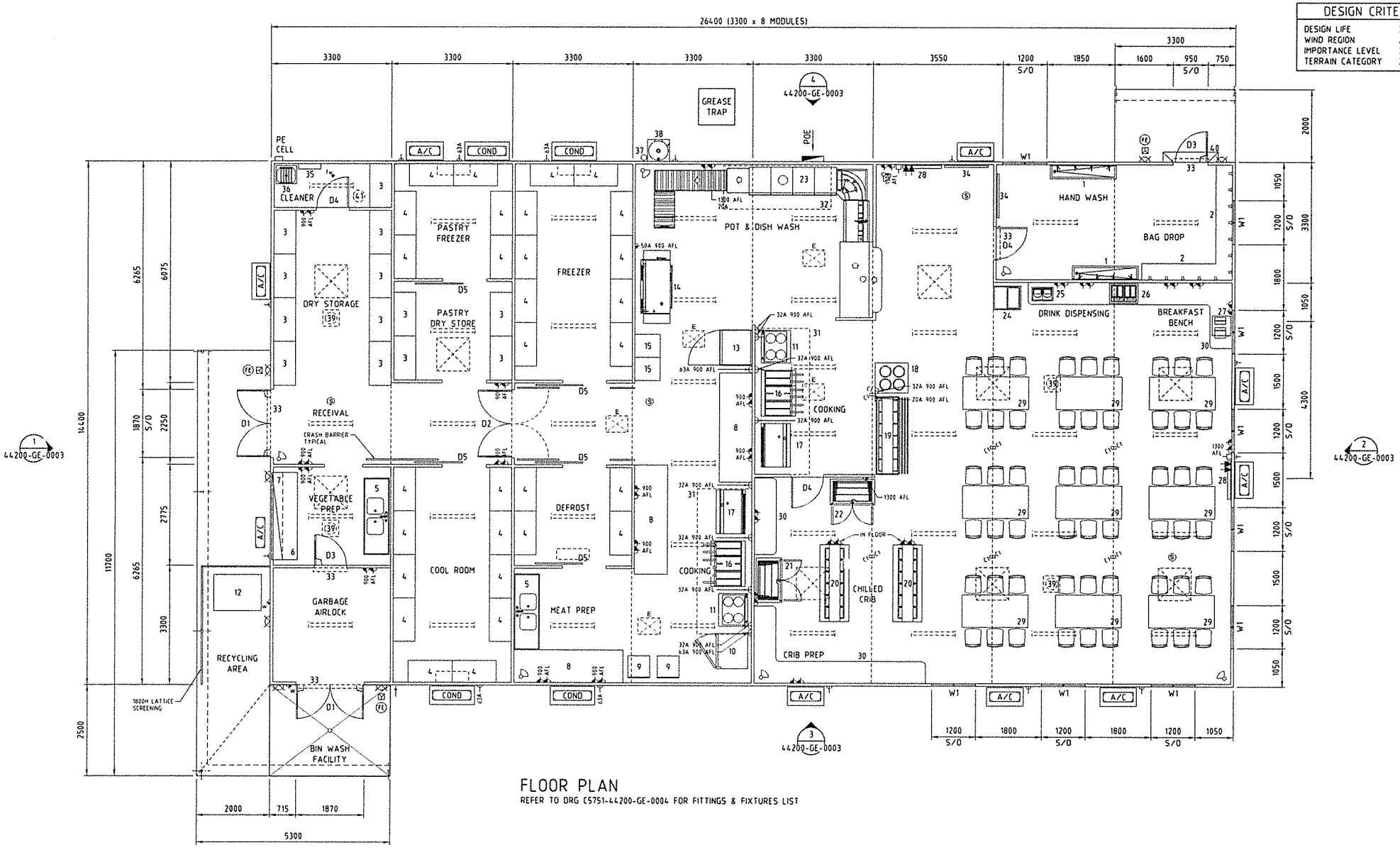
VENDOR ORG No	REV
C5751-44200-ST-0001	A

	BY	DATE
DRAWN	G	10/08/2017
CHECKED	PC	10/08/2017
DES ENG	JL	10/08/2017
BFS MAN	JL	10/08/2017
CLIENT		

TITLE
SANDY RIDGE PROJECT
BANKABLE FEASIBILTY STUDY (BFS)
BEER GARDEN
GENERAL ARRANGEMENT & DETAILS

A1	SCALE 1:50	DRG No TSR-3-PO-07300-GE-DGA-0017	REV A

DESIGN CRITERIA	
DESIGN LIFE	25 YEARS
WIND REGION	A4
IMPORTANCE LEVEL	2
TERRAIN CATEGORY	2



FLOOR PLAN

REFER TO DRG C5751-44200-GE-0004 FOR FITTINGS & FIXTURES LIST

SCALE 1 50

PRELIMINARY
NOT FOR CONSTRUCTION

REF DRG No	TITLE	REV	BY	DATE	DESCRIPTION	CKD	ENG
		0	SW	09/08/2017	ISSUED FOR BFS	JL	JL

TELLUS

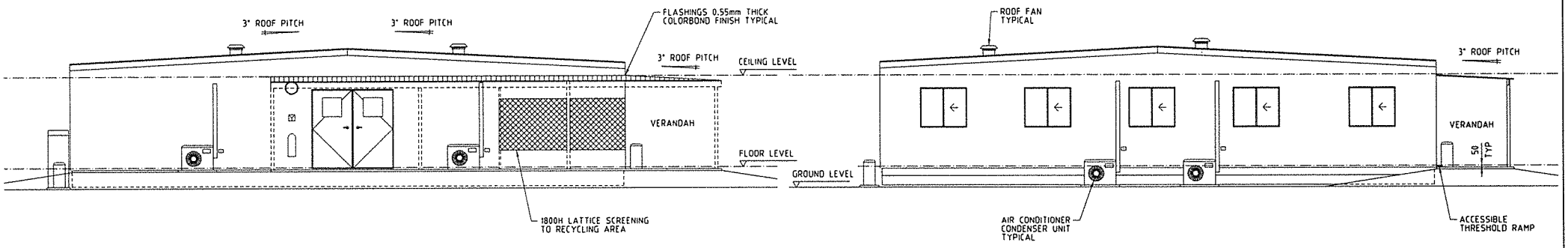
VENDOR: ONYX PROJECTS — Project Managers & Engineers

VENDOR DRG No: C5751-44200-GE-0002 REV: C

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CHECKED	JL	09/08/2017
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BFS MAN	JL	09/08/2017
CLIENT		

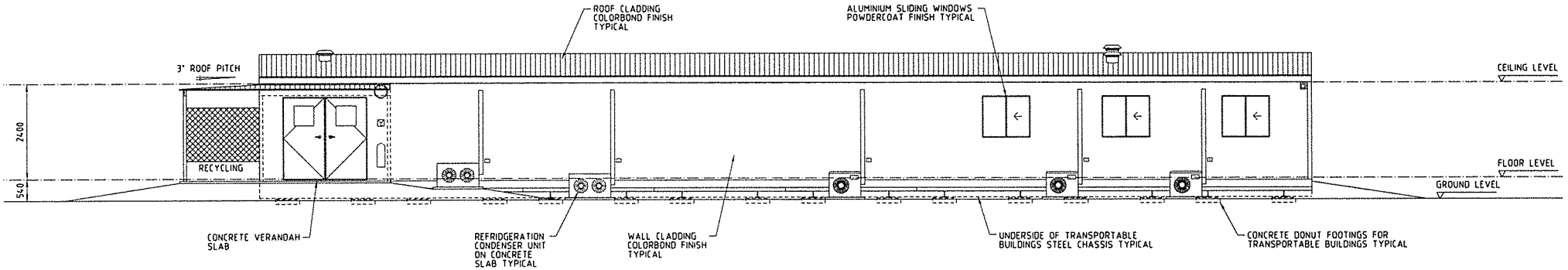
TITLE: SANDY RIDGE PROJECT
BANKABLE FEASIBILTY STUDY (BFS)
DRY MESS
FLOOR PLAN

A1 | SCALE 1:50 | DRG No TSR-3-PO-07300-GE-DWG-0011 | REV 0

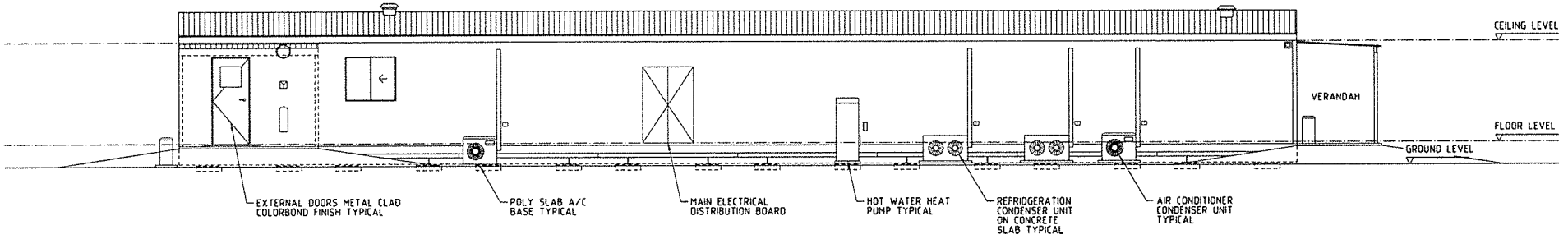


ELEVATION 1

ELEVATION 2



ELEVATION 3



ELEVATION 4

1 0 1 2 3 Metres

SCALE 1 : 50

PRELIMINARY
NOT FOR CONSTRUCTION

REF DRG No	TITLE	REV	BY	DATE	DESCRIPTION	CKD	ENG
		0	SM	10/08/2017	ISSUED FOR BFS	JL	JL

TELLUS

VENDOR
ONYX PROJECTS
Project Managers & Engineers

VENDOR DRG No	REV
C5751-44200-GE-0003	A

	BY	DATE
DRAWN	SM	10/08/2017
CHECKED	JL	10/08/2017
DES ENG	JL	10/08/2017
BFS MAN	JL	10/08/2017
CLIENT		

TITLE
SANDY RIDGE PROJECT
BANKABLE FEASIBILTY STUDY (BFS)
DRY MESS
ELEVATIONS

A1	SCALE 1:50	DRG No TSR-3-PO-07300-GE-DWG-0012	REV 0

CONSTRUCTION NOTES (NON-CYCLONIC SPECIFICATION)

CHASSIS -
14.4m x 3.3m STEEL SKID BASE PAINTED RED OXIDE PRIMER

FLOORING -
18mm HIGH-DENSITY COMPRESSED FIBRE CEMENT SHEETING ON PLYBOARD OVER SHS JOISTS
CHILLER/FREEZER FLOORS -
PLYBOARD/INSULATED PANEL 150 THICK/PLYBOARD & COMPRESSED FIBRE SHEETING

FLOOR COVERING -
2mm ANTI-STATIC VINYL. COLOUR - TBA
COMPLETE WITH 65mm BLACK PVC SKIRTING
NON-SLIP VINYL TO WET AREAS. COLOUR - TBA

WALLS -
75 x 1.5mm STEEL STUD SECTION AT 600 CRS BOLTED TO SKID
CEILING HEIGHT - 2400mm

INTERNAL CLADDING -
POLY PLY TO CEILING AND WALL. COLOUR - WHITE
COMPLETE WITH STAIN RESISTANT COATING

INSULATION -
ACOUSTIC INSULATION TO WALLS & CEILINGS TO COMPLY WITH LATEST EDITION OF THE BUILDING CODE OF AUSTRALIA

EXTERNAL CLADDING -
COLORBOND.
COLOUR - TBA

ROOF CLADDING -
COLORBOND ROOF SHEETING WITH COLORBOND FLASHINGS
FLASHING COLOUR - TBA

CANOPIES -
COLORBOND ROOF SHEETING WITH COLORBOND FLASHINGS
FLASHING COLOUR - TBA

ELECTRICAL -
TO COMPLY WITH AS/NZS 3000 STANDARDS AND AMENDMENTS

PLUMBING -
TO COMPLY WITH AS/NZS 3500 STANDARDS AND AMENDMENTS

LEGEND

	DESCRIPTION	QTY
	18w LED BATTEN LIGHT	46
	SINGLE GPO AT 900 AFL (UON)	5
	DOUBLE GPO AT 900 AFL (UON)	25
	ISOLATOR - 10Amp AT 400 AFL	26
	RJ45 (CAT6) AT 900 AFL	4
	TV POINT AT 1300 AFL	2
	EXTERNAL LED BULKHEAD LIGHT (AT 2200 AFL) WIRED TO PE CELL & BY-PASS SWITCH TO DB	7
	LOCKABLE MAIN ELECTRICAL DISTRIBUTION BOARD	1
	EXTERNAL FIRE ALARM BREAKGLASS AT 1400 AFL WITH BELL AT 2100 AFL	3
(S)	HARD WIRED SMOKE DETECTOR WITH BATTERY BACK-UP WIRED TO LOCAL PANEL	4
	MOTION SENSOR c/w LOCKABLE BYPASS SWITCH & TIMER LINKED TO A/C & LIGHT CIRCUITS	7
(FE)	9kg FIRE EXTINGUISHER (DRY POWDER) WALL MOUNTED AT 900 AFL	3
	FLOOR WASTE (FLOOR GRADED TO WASTE AND CONNECTED TO SEWER)	1
POE	ELECTRICAL POINT OF ENTRY	1
A/C	AIR CONDITIONER CONDENSER UNIT	9
COND	FREEZER/COOL ROOM CONDENSER UNIT	4
	CEILING MOUNTED CASSETTE A/C OUTLET	9
	EVAPORATIVE A/C OUTLET	5
	EXTERNAL HOSE COCK	1

DOOR AND WINDOW SCHEDULE

No	DESCRIPTION	QTY
D1	2040 x 1840mm METAL CLAD DOUBLE DOOR IN METAL FRAME c/w ENTRANCE SET DOOR FURNITURE. (MASTER KEYED). DOOR CLOSERS. 500 x 500 VIEWING PANELS & SIGNAGE. COLOUR - TBA	2
D2	2040 x 1840mm DOUBLE ACTION TIMBER DOOR IN METAL FRAME c/w ENTRANCE SET DOOR FURNITURE. (MASTER KEYED). 500 x 500 VIEWING PANEL. COLOUR - TBA	1
D3	2040 x 920mm TIMBER DOOR IN METAL FRAME c/w ENTRANCE SET DOOR FURNITURE. (MASTER KEYED). DOOR CLOSER. 500 x 500 VIEWING PANEL & SIGNAGE. COLOUR - TBA	2
D4	2040 x 920mm TIMBER DOOR IN METAL FRAME c/w PASSAGE SET DOOR FURNITURE. 500 x 500 VIEWING PANEL & SIGNAGE. COLOUR - TBA	3
D5	100mm INSULATED FREEZER PANEL SLIDING DOOR c/w PULL HANDLE	5
W1	1000(H) x 1200(W) ALUMINIUM FRAMED POWDERCOAT FINISH SLIDING WINDOW c/w LOCK. FLYSCREEN & 1 PASS BLOCKOUT ROLLER BLIND.	9

FITTINGS & FIXTURES

No	DESCRIPTION	QTY
1	STAINLESS STEEL HAND WASH TROUGH	2
2	BAG DROP SHELF AND METAL COAT HOOKS	2
3	1200W x 600D x 4 TIER ZINC PLATED DRY STORAGE SHELVING	13
4	1200W x 600D x 4 TIER STAINLESS STEEL FREEZER/CHILLER STORAGE SHELVING	30
5	DOUBLE BOWL COMMERCIAL FREESTANDING STAINLESS STEEL SINK	2
6	STAINLESS STEEL BENCH 2400W x 600D x 900H c/w UNDERSHELF	1
7	STAINLESS STEEL SINGLE TIER SOLID SHELF 2400W x 300D AT 1800 AFL	1
8	STAINLESS STEEL MOBILE BENCH 3000W x 600D x 900H c/w LOCKABLE CASTORS	2
9	STAINLESS STEEL MOBILE WORKBENCH 600W x 600D x 900H c/w LOCKABLE CASTORS	2
10	20 TRAY COMBI OVEN	1
11	INDUCTION TOP & CABINET 900H c/w LOCKABLE CASTORS	2
12	CARDBOARD COMPACTOR/BALER	1
13	16 TRAY ELECTRIC BAKERS OVEN	1
14	MULTI FUNCTION TILTING BRATT PAN	1
15	STAINLESS STEEL MOBILE TROLLEY 630W x 690D x 900H c/w LOCKABLE CASTORS	2
16	3 WELL DEEP FRYER	2
17	1200W GRIDDLE PLATE & STAND c/w LOCKABLE CASTORS	2
18	PLATE WARMER DISPENSER	1
19	INSET BAIN MARIE UNIT WITH SNEEZE GUARDS & FRONT TRAY RACE	1
20	COLD FOOD DISPLAY WITH SNEEZE GUARDS & TRAY RACE BOTH SIDES	2
21	2 DOOR UPRIGHT DISPLAY FREEZER	1
22	2 DOOR UPRIGHT DISPLAY FRIDGE	1
23	4 STAGE DISHWASHER & POT WASH CONVEYOR	1
24	ICE CREAM FREEZER WITH SLIDING TOP	1
25	TWIN BOWL MILK DISPENSER	1
26	4 BOWL DRINK DISPENSER	1
27	CONVEYOR TOASTER	1
28	WALL MOUNTED FLAT SCREEN TV	2
29	1800W x 900D x 720H DINING TABLES c/w 6 DINING CHAIRS PER TABLE	9
30	CUSTOM BENCH 600D x 900H c/w LOCKABLE CUPBOARDS BELOW	3
31	EXHAUST HOOD OVER COOKING	2
32	EXHAUST HOOD OVER DISHWASHING	1
33	POWERED AIR CURTAIN EXTERNAL TO EXIT DOORS & AIRLOCKS	5
34	1200W x 900H NOTICE BOARD	2
35	WALL MOUNTED MOP/BROOM STORAGE RACK	1
36	CLEANERS MOP SINK c/w HOT & COLD WATER OUTLETS	1
37	WATER FILTER	1
38	ELECTRIC HEAT PUMP HOT WATER STORAGE SYSTEM	1
39	FANTECH HEAVY DUTY AXIAL ROOF FAN (AIR IN)	4
40	2800 x 30H ACCESSIBLE THRESHOLD RAMP	1
41	DUCTED CEILING EXHAUST FAN	1

PRELIMINARY
NOT FOR CONSTRUCTION

REF DRG No	TITLE	REV	BY	DATE	DESCRIPTION	CKD	ENG
		0	SW	09/08/2017	ISSUED FOR BFS	JL	JL

TELLUS

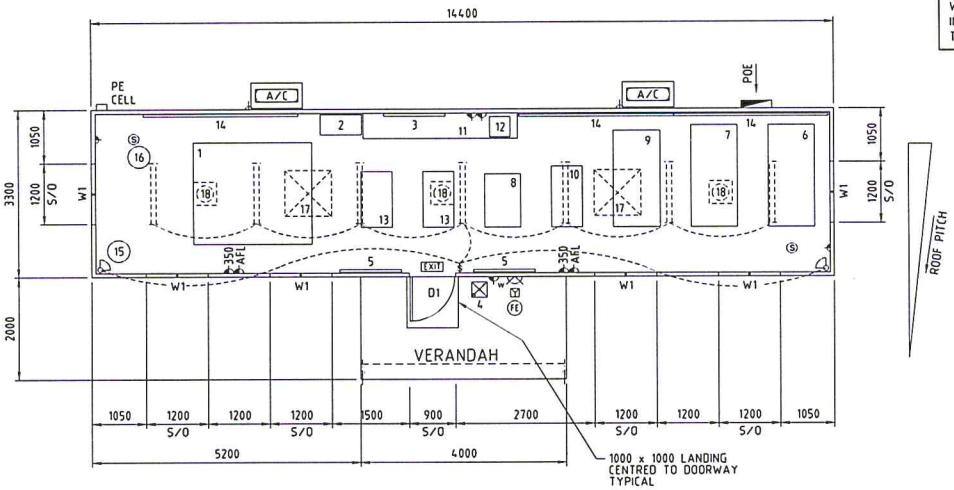
VENDOR
ONYX PROJECTS
Project Managers & Engineers

VENDOR DRG No: C5751-44200-GE-0004 | REV: A

	BY	DATE
DRAWN	SW	09/08/2017
CHECKED	JL	09/08/2017
DES ENG	JL	09/08/2017
BFS MAN	JL	09/08/2017
CLIENT		

TITLE
SANDY RIDGE PROJECT
BANKABLE FEASIBILTY STUDY (BFS)
DRY MESS
NOTES AND EQUIPMENT LIST

A1 | SCALE: NTS | DRG No: TSR-3-PO-07300-GE-DWG-0013 | REV: 0



FLOOR PLAN

DESIGN CRITERIA

DESIGN LIFE	25 YEARS
WIND REGION	A4
IMPORTANCE LEVEL	2
TERRAIN CATEGORY	2

LEGEND

	DESCRIPTION	QTY
$	LIGHT SWITCH AT 1350 AFL	1
	18w LED BATTEN LIGHT	7
W	WEATHER PROOF SGPO AT 1350 AFL	1
	DOUBLE GPO AT 900 AFL (UON)	2
	ISOLATOR - 10Amp AT 400 AFL	2
	EXTERNAL LED BULKHEAD LIGHT (AT 2200 AFL) WIRED TO PE CELL & BY-PASS SWITCH TO DB	1
	LOCKABLE MAIN ELECTRICAL DISTRIBUTION BOARD	1
	EXTERNAL FIRE ALARM BREAKGLASS AT 1400 AFL WITH BELL AT 2100 AFL	1
(S)	HARD WIRED SMOKE DETECTOR WITH BATTERY BACK-UP WIRED TO LOCAL PANEL	2
	MOTION SENSOR c/w LOCKABLE BYPASS SWITCH & TIMER LINKED TO A/C & LIGHT CIRCUITS	2
(FE)	9kg FIRE EXTINGUISHER (DRY POWDER) WALL MOUNTED AT 900 AFL	1
POE	ELECTRICAL POINT OF ENTRY	1

DOOR AND WINDOW SCHEDULE

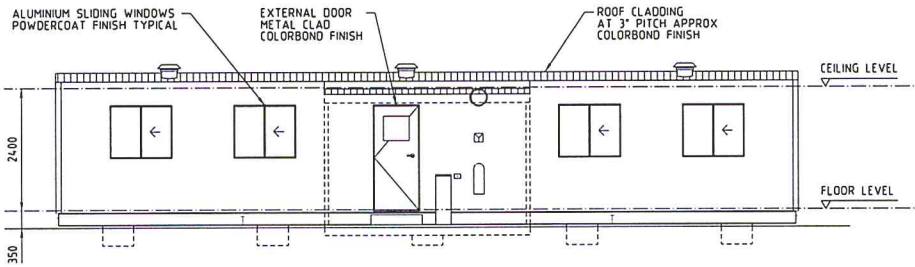
No	DESCRIPTION	QTY
D1	2040 x 870mm METAL CLAD DOOR AND METAL FRAME. c/w LEVER HANDLE PASSAGE SET DOOR FURNITURE, DOOR CLOSERS & 500 x 500 VIEWING PANEL. COLOUR - TBA.	1
W1	1000(H) x 1200(W) ALUMINIUM FRAMED POWDERCOAT FINISH SLIDING WINDOW c/w LOCK, FLYSCREEN & 1 PASS BLOCKOUT ROLLER BLIND.	6

CONSTRUCTION NOTES (NON-CYCLONIC SPECIFICATION)

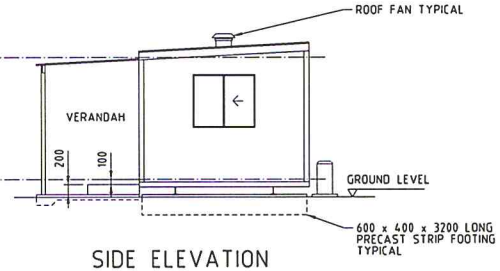
CHASSIS - 14.4m x 3.3m STEEL SKID BASE PAINTED RED OXIDE PRIMER
FLOORING - 18mm HIGH-DENSITY COMPRESSED FIBRE CEMENT SHEETING
FLOOR COVERING - 2mm ANTI-STATIC VINYL. COLOUR - TBA COMPLETE WITH 65mm BLACK PVC SKIRTING NON-SLIP VINYL TO WET AREAS. COLOUR - TBA
WALLS - 75 x 1.5mm STEEL STUD SECTION AT 600 CRS BOLTED TO SKID CEILING HEIGHT - 2400mm
INTERNAL CLADDING - POLY PLY TO CEILING AND WALL. COLOUR - WHITE COMPLETE WITH STAIN RESISTANT COATING
INSULATION - ACOUSTIC INSULATION TO WALLS & CEILINGS TO COMPLY WITH LATEST EDITION OF THE BUILDING CODE OF AUSTRALIA
EXTERNAL CLADDING - COLORBOND. COLOUR - TBA
ROOF CLADDING - COLORBOND ROOF SHEETING WITH COLORBOND FLASHINGS FLASHING COLOUR - TBA
CANOPIES - COLORBOND ROOF SHEETING WITH COLORBOND FLASHINGS FLASHING COLOUR - TBA
ELECTRICAL - TO COMPLY WITH AS/NZS 3000 STANDARDS AND AMENDMENTS
PLUMBING - TO COMPLY WITH AS/NZS 3500 STANDARDS AND AMENDMENTS

FITTINGS & FIXTURES

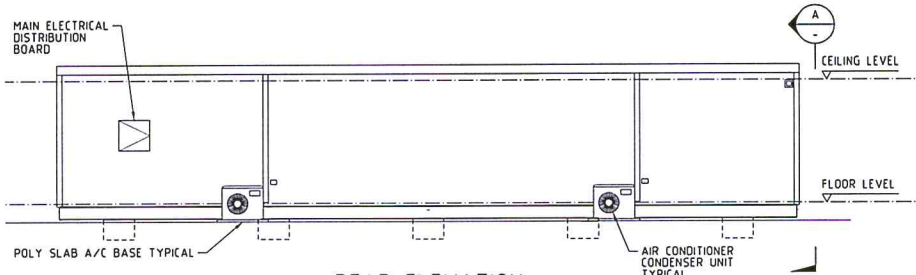
No	DESCRIPTION	QTY
1	MULTI STATION WITH OPTIONAL LEG PRESS	1
2	3 TIER HEX DUMBELL RACK	1
3	1200 X 900 WHITEBOARD	1
4	COLD WATER DRINK FOUNTAIN c/w WATER FILTER, IN-LINE UV AND BOTTLE FILLER	1
5	1200M X 900 NOTICEBOARD	2
6	TREADMILL	1
7	CROSSTRAINER / ELLIPTICAL	1
8	UPRIGHT CARDIO BIKE	1
9	ROWER	1
10	SPIN BIKE	1
11	BENCH WITH LOCKABLE CUPBOARDS (3m LONG)	1
12	MINI HI FI STEREO SYSTEM	1
13	YOGA MATS	2
14	FLOOR LENGTH MIRROR (3m WIDE)	3
15	SPEED BALL	1
16	5 FOOT BOXING BAG	1
17	CASSETTE STYLE SPLIT SYSTEM INVERTER AIR CONDITIONER	2
18	FANTECH HEAVY DUTY AXIAL ROOF FAN (AIR IN)	3



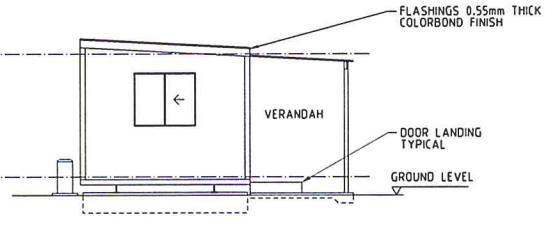
FRONT ELEVATION



SIDE ELEVATION



REAR ELEVATION



SECTION A

1 0 1 2 3 Metres

SCALE 1 : 50

PRELIMINARY
NOT FOR CONSTRUCTION

REF DRG No	TITLE	REV	BY	DATE	DESCRIPTION	CKD	ENG
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TELLUS

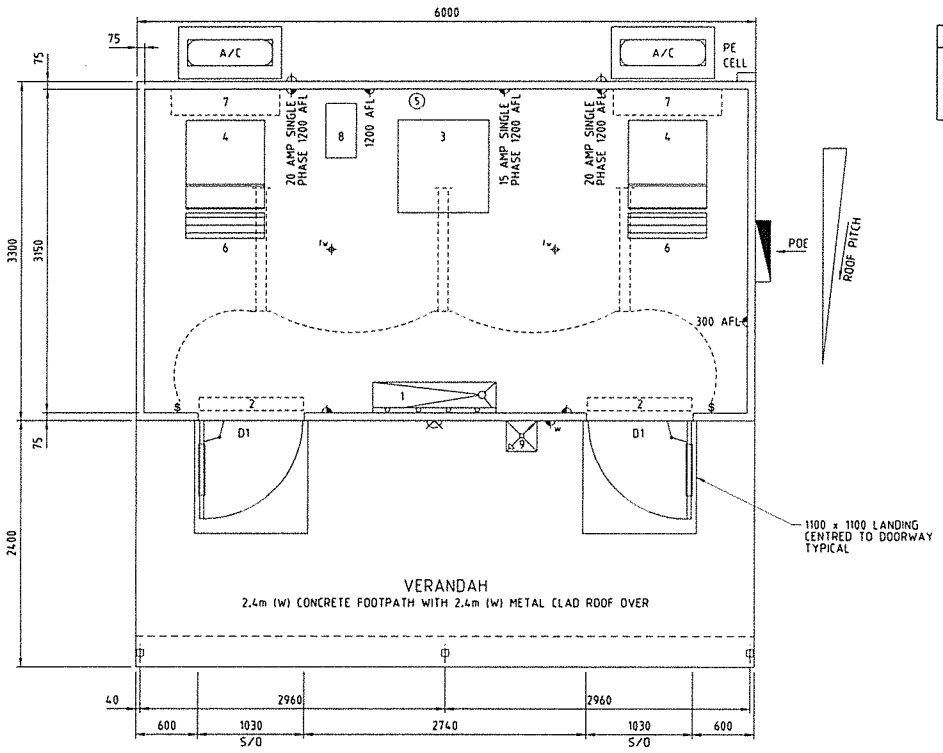
VENDOR: ONYX PROJECTS — Project Managers & Engineers

VENDOR DRG No: C5751-44200-GE-0014 REV: B

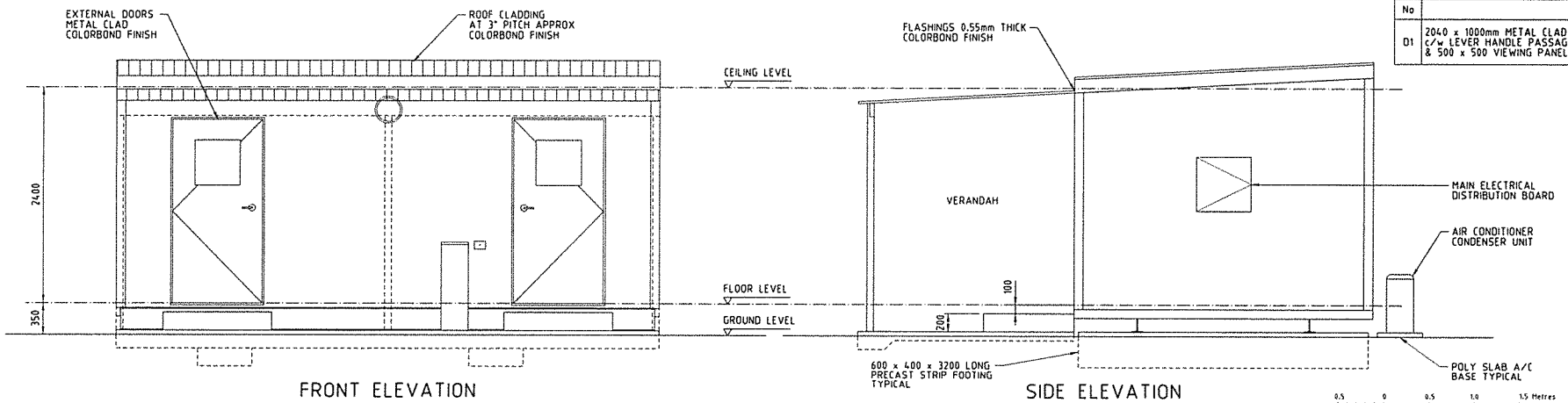
	BY	DATE
DRAWN	SW	09/08/2017
CHECKED	JL	09/08/2017
DES ENG	JL	09/08/2017
BFS MAN	JL	09/08/2017
CLIENT		

TITLE
SANDY RIDGE PROJECT
BANKABLE FEASIBILTY STUDY (BFS)
GYMNASIUM
GENERAL ARRANGEMENT

A1 | SCALE 1:50 | DRG No TSR-3-PO-07300-GE-DGA-0014 | REV 0



FLOOR PLAN



FRONT ELEVATION

SIDE ELEVATION

0.5 0 0.5 1.0 1.5 Metres

SCALE 1 25

DESIGN CRITERIA	
DESIGN LIFE	25 YEARS
WIND REGION	A4
IMPORTANCE LEVEL	2
TERRAIN CATEGORY	2

LEGEND		
	DESCRIPTION	QTY
$	LIGHT SWITCH AT 1350 AFL	2
	18w LED BATTEN LIGHT	3
	SINGLE GPO AT 1800 AFL (UON)	7
W	WEATHER PROOF GPO AT 900 AFL	1
	ISOLATOR - 10Amp AT 400 AFL	2
	EXTERNAL LED BULKHEAD LIGHT (AT 2200 AFL) WIRED TO PE CELL & BY-PASS SWITCH TO DB	1
	LOCKABLE MAIN ELECTRICAL DISTRIBUTION BOARD	1
fw	FLOOR WASTE (FLOOR GRADED TO WASTE AND CONNECTED TO SEWER)	2
POE	ELECTRICAL POINT OF ENTRY	1
A/C	AIR CONDITIONER CONDENSER UNIT	2

CONSTRUCTION NOTES (NON-CYCLONIC SPECIFICATION)
CHASSIS - 6.0m x 3.3m STEEL SKID BASE PAINTED RED OXIDE PRIMER
FLOORING - 18mm HIGH-DENSITY COMPRESSED FIBRE CEMENT SHEETING
FLOOR COVERING - 2.0mm SLIP RESISTANT VINYL. COLOUR - TBA COMPLETE WITH 100mm BLACK VINYL SKIRTING
WALLS - 75 x 1.5mm STEEL STUD SECTION AT 600 CRS BOLTED TO SKID CEILING HEIGHT - 2400mm
INTERNAL CLADDING - POLY PLY TO CEILING AND WALL. COLOUR - WHITE COMPLETE WITH STAIN RESISTANT COATING
INSULATION - ACOUSTIC INSULATION TO WALLS & CEILINGS TO COMPLY WITH LATEST EDITION OF THE BUILDING CODE OF AUSTRALIA
EXTERNAL CLADDING - COLORBOND TBA COLOUR - TBA
ROOF CLADDING - COLORBOND ROOF SHEETING WITH COLORBOND FLASHINGS FLASHING COLOUR - TBA
CANOPIES - COLORBOND ROOF SHEETING WITH COLORBOND FLASHINGS FLASHING COLOUR - TBA
ELECTRICAL - TO COMPLY WITH AS/NZS 3000 STANDARDS AND AMENDMENTS
PLUMBING - TO COMPLY WITH AS/NZS 3500 STANDARDS AND AMENDMENTS

FITTINGS & FIXTURES		
No	DESCRIPTION	QTY
1	STAINLESS STEEL TROUGH WITH TAPS	1
2	AIR CURTAIN	2
3	STAINLESS STEEL WATER CHILLER - 520 LITRE CAPACITY	1
4	ICE MACHINE (382kg CAPACITY) WITH STAINLESS STEEL ICE SCOOPS	2
5	WATER FILTER c/w IN-LINE UV	1
6	BENCH (STAINLESS STEEL)	2
7	SPLIT SYSTEM INVERTER AIR CONDITIONER (COOLING ONLY)	2
8	PRESSURE PUMP TO ICE MACHINES	1
9	COLD WATER DRINK FOUNTAIN c/w BOTTLE FILLER	1

DOOR SCHEDULE		
No	DESCRIPTION	QTY
D1	2040 x 1000mm METAL CLAD DOOR AND METAL FRAME c/w LEVER HANDLE PASSAGE SET DOOR FURNITURE, DOOR CLOSERS & 500 x 500 VIEWING PANEL. COLOUR - TBA.	2

PRELIMINARY
NOT FOR CONSTRUCTION

REF DRG No	TITLE	REV	BY	DATE	DESCRIPTION	CHD	ENG
		0	SW	09/08/2017	ISSUED FOR BFS	JL	JL

TELLUS

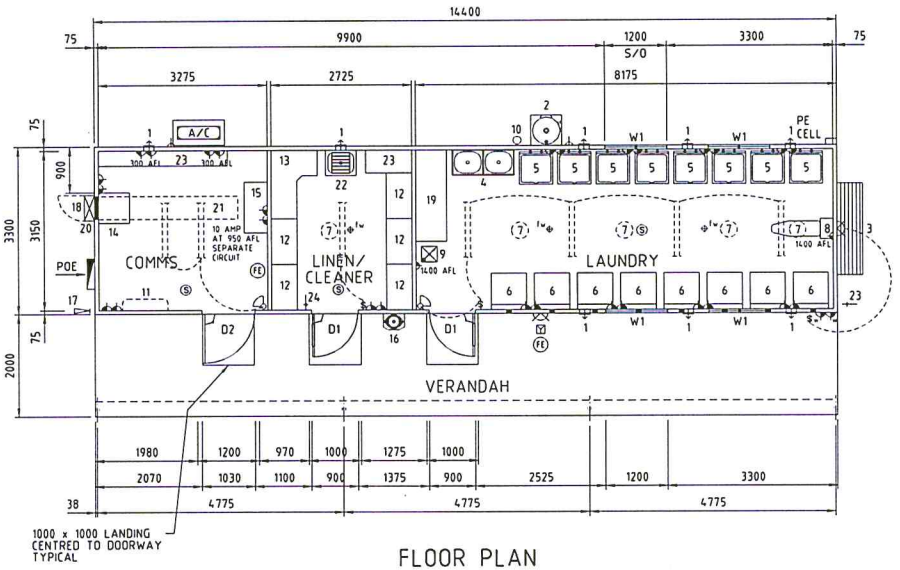
VENDOR
ONYX PROJECTS
Project Managers & Engineers

VENDOR DRG No: C5751-44200-GE-0013 REV: B

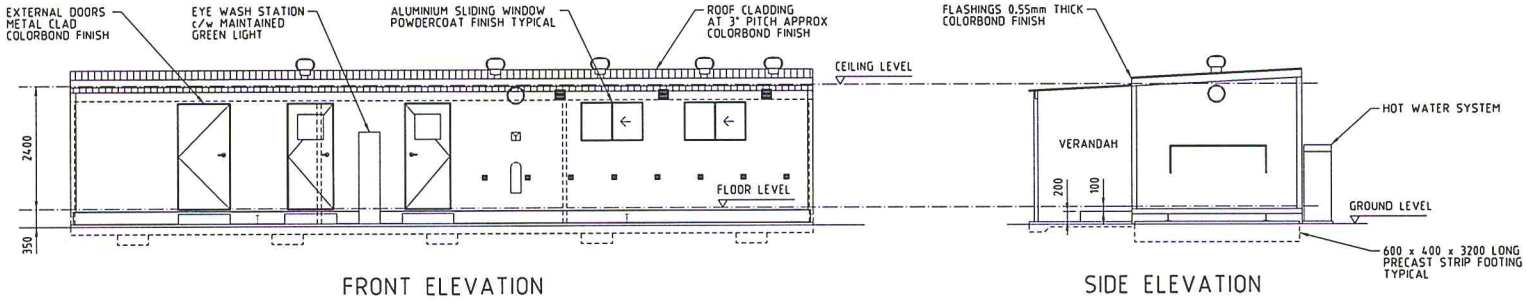
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DRAWN	SW	09/08/2017
CHECKED	JL	09/08/2017
DES ENG	JL	09/08/2017
BFS MAN	JL	09/08/2017
CLIENT		

TITLE
SANDY RIDGE PROJECT
BANKABLE FEASIBILTY STUDY (BFS)
ICE ROOM
GENERAL ARRANGEMENT

A1 | SCALE 1:25 | DRG No TSR-3-PO-07300-GE-DGA-0013 | REV 0

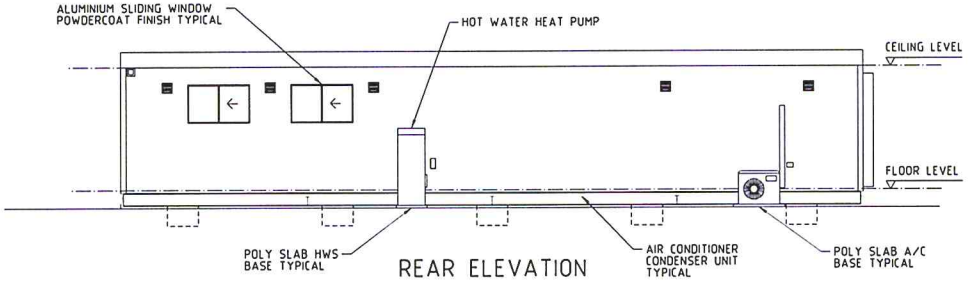


FLOOR PLAN



FRONT ELEVATION

SIDE ELEVATION



REAR ELEVATION

DESIGN CRITERIA	
DESIGN LIFE	25 YEARS
WIND REGION	A4
IMPORTANCE LEVEL	2
TERRAIN CATEGORY	2

ROOF PITCH

LEGEND

	DESCRIPTION	QTY
$	LIGHT SWITCH AT 1350 AFL	8
W $	WEATHERPROOF LIGHT SWITCH AT 1000 AFL	2
	18w LED BATTEN LIGHT	7
	SINGLE GPO AT 1350 AFL (RCD PROTECTED)	8
W	WEATHERPROOF SINGLE GPO (RCD PROTECTED)	4
	DOUBLE GPO AT 1300 AFL U.O.N. (RCD PROTECTED)	14
	ISOLATOR - 10Amp AT 400 AFL	3
	EXTERNAL LED BULKHEAD LIGHT (AT 2200 AFL) WIRED TO PE CELL & BY-PASS SWITCH TO DB	2
S	HARD WIRED SMOKE DETECTOR WITH BATTERY BACK-UP WIRED TO LOCAL PANEL AT 2250 AFL	3
	LOCKABLE MAIN ELECTRICAL DISTRIBUTION BOARD	1
	EXTERNAL FIRE ALARM BREAKGLASS AT 1400 AFL WITH BELL AT 2100 AFL	1
FE	9kg FIRE EXTINGUISHER (DRY POWDER) WALL MOUNTED AT 900 AFL	1
fw	FLOOR WASTE (FLOOR GRADED TO WASTE AND CONNECTED TO SEWER)	4
	HOSE COCK	2
	MOTION SENSOR c/w LOCKABLE BYPASS SWITCH & TIMER LINKED TO A/C & LIGHT CIRCUITS	2
	WALL MOUNTED EXHAUST FAN	8
POE	ELECTRICAL POINT OF ENTRY	1

CONSTRUCTION NOTES (NON-CYCLONIC SPECIFICATION)

CHASSIS -
14.4m x 3.3m STEEL SKID BASE PAINTED RED OXIDE PRIMER

FLOORING -
18mm HIGH-DENSITY COMPRESSED FIBRE CEMENT SHEETING

FLOOR COVERING -
2.0mm ANTI-STATIC VINYL TO COMMS. COLOUR - TBA
2.0mm SLIP RESISTANT VINYL TO REMAINING ROOMS. COLOUR - TBA
c/w 100mm BLACK VINYL SKIRTING

WALLS -
75 x 1.5mm STEEL STUD SECTION AT 600 CRS BOLTED TO SKID
CEILING HEIGHT - 2400mm

INTERNAL CLADDING -
POLY PLY TO CEILING AND WALL. COLOUR - WHITE
COMPLETE WITH STAIN RESISTANT COATING

INSULATION -
ACOUSTIC INSULATION TO WALLS & CEILINGS TO COMPLY WITH LATEST EDITION OF THE BUILDING CODE OF AUSTRALIA

EXTERNAL CLADDING -
COLORBOND TBA
COLOUR - TBA

ROOF CLADDING -
COLORBOND ROOF SHEETING WITH COLORBOND FLASHINGS
FLASHING COLOUR - TBA

CANOPIES -
COLORBOND ROOF SHEETING WITH COLORBOND FLASHINGS
FLASHING COLOUR - TBA

ELECTRICAL -
TO COMPLY WITH AS/NZS 3000 STANDARDS AND AMENDMENTS

PLUMBING -
TO COMPLY WITH AS/NZS 3500 STANDARDS AND AMENDMENTS

FITTINGS & FIXTURES

No	DESCRIPTION	QTY
1	WALL MOUNTED EXHAUST FAN AT 2200 AFL	4
2	ELECTRIC HEAT PUMP HOT WATER SYSTEM SUPPLYING ALL MACHINES	1
3	T BAR CLOTHES LINE SUPPLY	2
4	46L STAINLESS STEEL LAUNDRY TROUGH, HOT & COLD TAPS c/w CABINET	2
5	HEAVY DUTY TOP LOAD WASHING MACHINES (WITH HOT & COLD TAPS AT 1200 AFL)	8
6	HEAVY DUTY DRYERS (EXTERNALLY VENTED)	8
7	WHIRLY BIRD c/w ROOF FLASHING	5
8	1270(H) x 410(W) ROBIN HOOD FOLD DOWN IRONING CENTRE AT 750 AFL	1
9	COLD WATER DRINK FOUNTAIN c/w BOTTLE FILLER & UV FILTER	1
10	WATER FILTER	1
11	SPLIT SYSTEM INVERTER AIR CONDITIONER - AUTO START (COOLING ONLY) COMMS ROOM ONLY	1
12	900(L) x 450(W) FULL HEIGHT MELAMINE SHELVING. SHELVES AT 500 CRS AND VERTICAL DIVIDERS. CARCASS COLOUR - 'WHITE'	5
13	1350(L) x 450(W) FULL HEIGHT "L" SHAPED MELAMINE SHELVING, SHELVES AT 500 CRS AND VERTICAL DIVIDERS. CARCASS COLOUR - 'WHITE'.	1
14	42RU COMMUNICATIONS RACK c/w PATCH PANEL	1
15	1000(L) x 450(W) WORK BENCH AT 750 AFL. COLOUR - TBA	1
16	MANUALLY OPERATED EYE WASH STATION WITH GREEN MAINTAINED LED LIGHT OVER & APPLICABLE SIGNAGE	1
17	EVACUATION SIREN CONNECTED TO CENTRAL SYSTEM	1
18	450(L) x 200(H) PENETRATION THROUGH WALLS FOR COMMS AT 2200 AFL	1
19	1800(W) x 600(L) x 900(H) BENCH c/w C/P LEGS. COLOUR - TBA TOP COLOUR - TBA. CARCASS COLOUR - 'WHITE'.	1
20	2200(H) x 500(L) x 200(W) CABLE ENTRY CABINET. CABINET TOP AT 2250 AFL	1
21	2700(W) x 450(L) CEILING MOUNTED CABLE TRAY CENTRALLY LOCATED RELATIVE TO COMMS RACK (14) AT 2200 AFL	1
22	CLEANERS SINK AT 650 AFL	1
23	MOP DRYING RACK c/w DRIP TRAY PLUMBED TO SEWER	1

DOOR AND WINDOW SCHEDULE

No	DESCRIPTION	QTY
D1	2040 x 870mm METAL CLAD DOOR & METAL FRAME c/w ENTRANCE SET DOOR FURNITURE (MASTER KEYED), DOOR CLOSER, 500 x 500 VIEWING PANEL & SIGNAGE. COLOUR - TBA	2
D2	2040 x 870mm METAL CLAD DOOR & METAL FRAME c/w ENTRANCE SET DOOR FURNITURE (MASTER KEYED) DOOR CLOSER, SIGNAGE, DOOR SEALS & BOLT LATCH TOP & BOTTOM. COLOUR - TBA	1
W1	750(H) x 1190(W) ALUMINIUM FRAMED, POWDERCOAT FINISH SLIDING WINDOW c/w FLYSCREEN & GREY GLASS. SILL AT 1350 AFL. COLOUR - TBA	4

PRELIMINARY
NOT FOR CONSTRUCTION

1 0 1 2 3 Metres
SCALE 1 50

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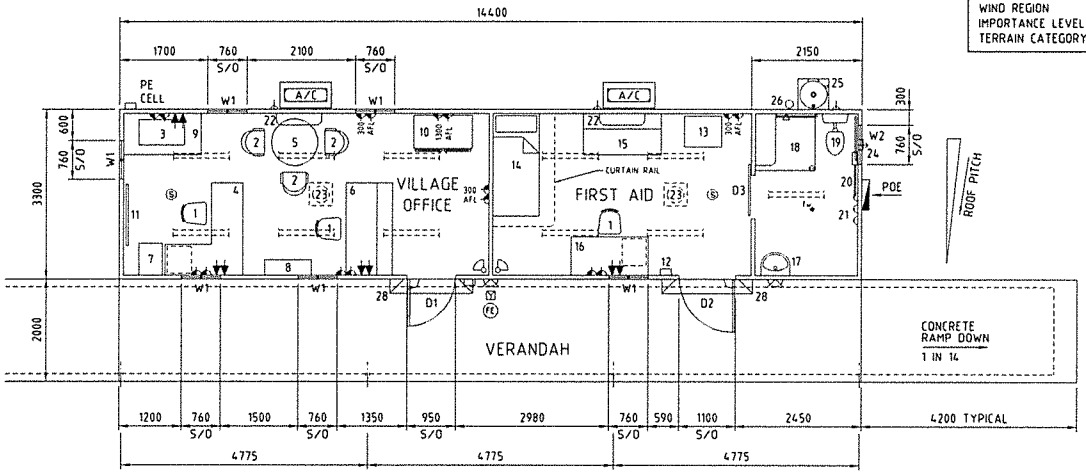
VENDOR
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VENDOR DRG No	REV
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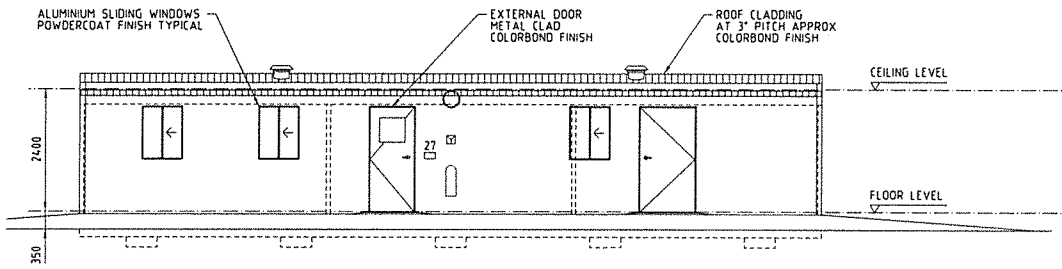
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CHECKED	JL	09/08/2017
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BFS MAN	JL	09/08/2017
CLIENT		

TITLE
SANDY RIDGE PROJECT
BANKABLE FEASIBILTY STUDY (BFS)
LAUNDRY
GENERAL ARRANGEMENT

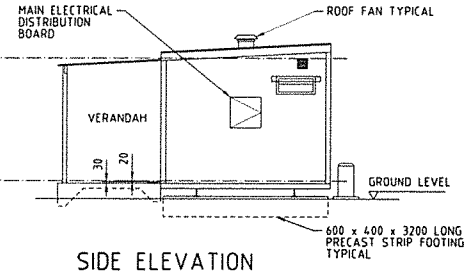
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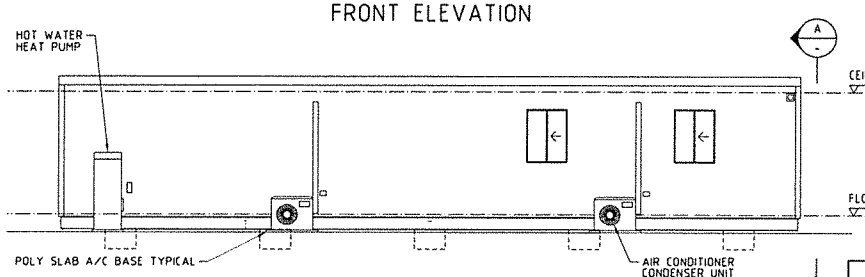
FLOOR PLAN



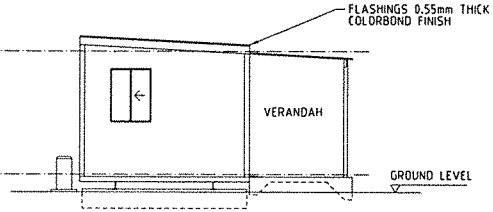
FRONT ELEVATION



SIDE ELEVATION



REAR ELEVATION



SECTION A

SCALE 1 50

DESIGN CRITERIA	
DESIGN LIFE	25 YEARS
WIND REGION	A4
IMPORTANCE LEVEL	2
TERRAIN CATEGORY	2

LEGEND		
	DESCRIPTION	QTY
	18w LED BATTEN LIGHT	11
	DOUBLE GPO AT 900 AFL (UON)	8
	ISOLATOR - 10Amp AT 400 AFL	3
	RJ45 (CAT6) AT 900 AFL	8
	EXTERNAL LED BULKHEAD LIGHT (AT 2200 AFL) WIRED TO PE CELL & BY-PASS SWITCH TO DB	2
	LOCKABLE MAIN ELECTRICAL DISTRIBUTION BOARD	1
	EXTERNAL FIRE ALARM BREAKGLASS AT 1400 AFL WITH BELL AT 2100 AFL	1
(S)	HARD WIRED SMOKE DETECTOR WITH BATTERY BACK-UP WIRED TO LOCAL PANEL	2
	MOTION SENSOR c/w LOCKABLE BYPASS SWITCH & TIMER LINKED TO AC & LIGHT CIRCUITS	2
(FE)	9kg FIRE EXTINGUISHER (DRY POWDER) WALL MOUNTED AT 900 AFL	1
fw	FLOOR WASTE (ENSUITE FLOOR GRADED TO WASTE AND CONNECTED TO SEWER)	1
	WALL MOUNTED EXHAUST FAN	1
POE	ELECTRICAL POINT OF ENTRY	1

DOOR AND WINDOW SCHEDULE		
No	DESCRIPTION	QTY
D1	2040 x 920mm METAL CLAD DOOR AND METAL FRAME c/w ENTRANCE SET DOOR FURNITURE & SELF CLOSING LOCKABLE FLY SCREEN. (MASTER KEYED). COLOUR - TBA.	1
D2	2040 x 1070mm METAL CLAD DOOR AND METAL FRAME c/w ENTRANCE SET DOOR FURNITURE & SELF CLOSING LOCKABLE FLY SCREEN. (MASTER KEYED). COLOUR - TBA.	1
D3	2040(H) x 900(W) TIMBER SLIDING DOOR (WITH PELMET) IN SPLIT METAL FRAME. COLOUR - TBA.	1
W1	1000(H) x 750(W) ALUMINIUM FRAMED POWDERCOAT FINISH SLIDING WINDOW c/w LOCK, FLYSCREEN & 1 PASS BLOCKOUT ROLLER BLIND.	6
W2	350(H) x 750(W) ALUMINIUM FRAMED POWDERCOAT FINISH PERMAVENT WINDOW c/w HOOD & OBSCURED GLAZING. COLOUR - TBA.	1

CONSTRUCTION NOTES (NON-CYCLONIC SPECIFICATION)
CHASSIS - 14.4m x 3.3m STEEL SKID BASE PAINTED RED OXIDE PRIMER
FLOORING - 18mm HIGH-DENSITY COMPRESSED FIBRE CEMENT SHEETING
FLOOR COVERING - 2mm ANTI-STATIC VINYL. COLOUR - TBA COMPLETE WITH 65mm BLACK PVC SKIRTING NON-SLIP VINYL TO WET AREAS. COLOUR - TBA
WALLS - 75 x 1.5mm STEEL STUD SECTION AT 600 CRS BOLTED TO SKID CEILING HEIGHT - 2400mm
INTERNAL CLADDING - POLY PLY TO CEILING AND WALL. COLOUR - WHITE COMPLETE WITH STAIN RESISTANT COATING
INSULATION - ACOUSTIC INSULATION TO WALLS & CEILINGS TO COMPLY WITH LATEST EDITION OF THE BUILDING CODE OF AUSTRALIA
EXTERNAL CLADDING - COLORBOND. COLOUR - TBA
ROOF CLADDING - COLORBOND ROOF SHEETING WITH COLORBOND FLASHINGS FLASHING COLOUR - TBA
CANOPIES - COLORBOND ROOF SHEETING WITH COLORBOND FLASHINGS FLASHING COLOUR - TBA
ELECTRICAL - TO COMPLY WITH AS/NZS 3000 STANDARDS AND AMENDMENTS
PLUMBING - TO COMPLY WITH AS/NZS 3500 STANDARDS AND AMENDMENTS

FITTINGS & FIXTURES		
No	DESCRIPTION	QTY
1	MESH OFFICE CHAIR c/w CASTORS	2
2	CHAIR WITH FABRIC COATING & PADDING RATED TO 120kg	3
3	MULTIFUNCTION PRINTER, COPIER, SCANNER & FACSIMILE MACHINE	1
4	L-SHAPED OFFICE DESK 1800 x 1500 x 600D x 730H c/w 3 DRAWER MOBILE PEDESTAL UNIT	1
5	ROUND TABLE 900 DIA x 730H	1
6	RECEPTIONIST DESK 1800 x 600 x 730H c/w 300W COUNTER TOP 900H	1
7	4 DRAWER METAL FILING CABINET 460W x 620D x 1321H	1
8	SHELVING UNIT 900W x 300D x 1800H	1
9	CREDENZA 1500W x 800D x 900H	1
10	2 DOOR UPRIGHT DISPLAY FRIDGE	1
11	1200W x 900H WHITEBOARD	1
12	AUTOMATIC ELECTRONIC DEFIBRILLATOR (AED)	1
13	BENCHTOP PHARMACEUTICAL FRIDGE	1
14	PATIENT TRANSPORT TROLLEY c/w SINGLE DROPSIDE, HYDRAULIC OPERATION	1
15	CREDENZA 1500W x 800D x 900H c/w 300W CABINET ABOVE FOR TREATMENT SUPPLIES AND EQUIPMENT	1
16	1500W x 750D x730H DESK c/w 3 DRAWER MOBILE PEDESTAL UNIT	1
17	WALL MOUNTED HAND WASH BASIN	1
18	ACCESSIBLE SHOWER UNIT c/w FOLDING SEAT, GRAB RAILS, MULTI-DIRECTIONAL ROSE, SHOWER CURTAIN AND CURTAIN ROD	1
19	ACCESSIBLE TOILET & DUAL FLUSH CISTERN (WATER SAVING) c/w GRABRAIL & TOILET PAPER HOLDER	1
20	TOWEL RAIL (600 LONG)	1
21	METAL COAT HOOK (3 OFF) AT 1650 AFL	1
22	REVERSE CYCLE SPLIT SYSTEM INVERTER AIR CONDITIONER	2
23	FANTECH HEAVY DUTY AXIAL ROOF FAN (AIR IN)	2
24	WALL MOUNTED EXHAUST FAN OVER OBSCURED WINDOW	1
25	ELECTRIC HEAT PUMP HOT WATER STORAGE SYSTEM	1
26	WATER FILTER	1
27	LOCKABLE KEY DROP BOX	1
28	280D x 30H ACCESSIBLE THRESHOLD RAMP	2

PRELIMINARY
NOT FOR CONSTRUCTION

REF DRG No	TITLE	REV	BY	DATE	DESCRIPTION	CKD	ENG
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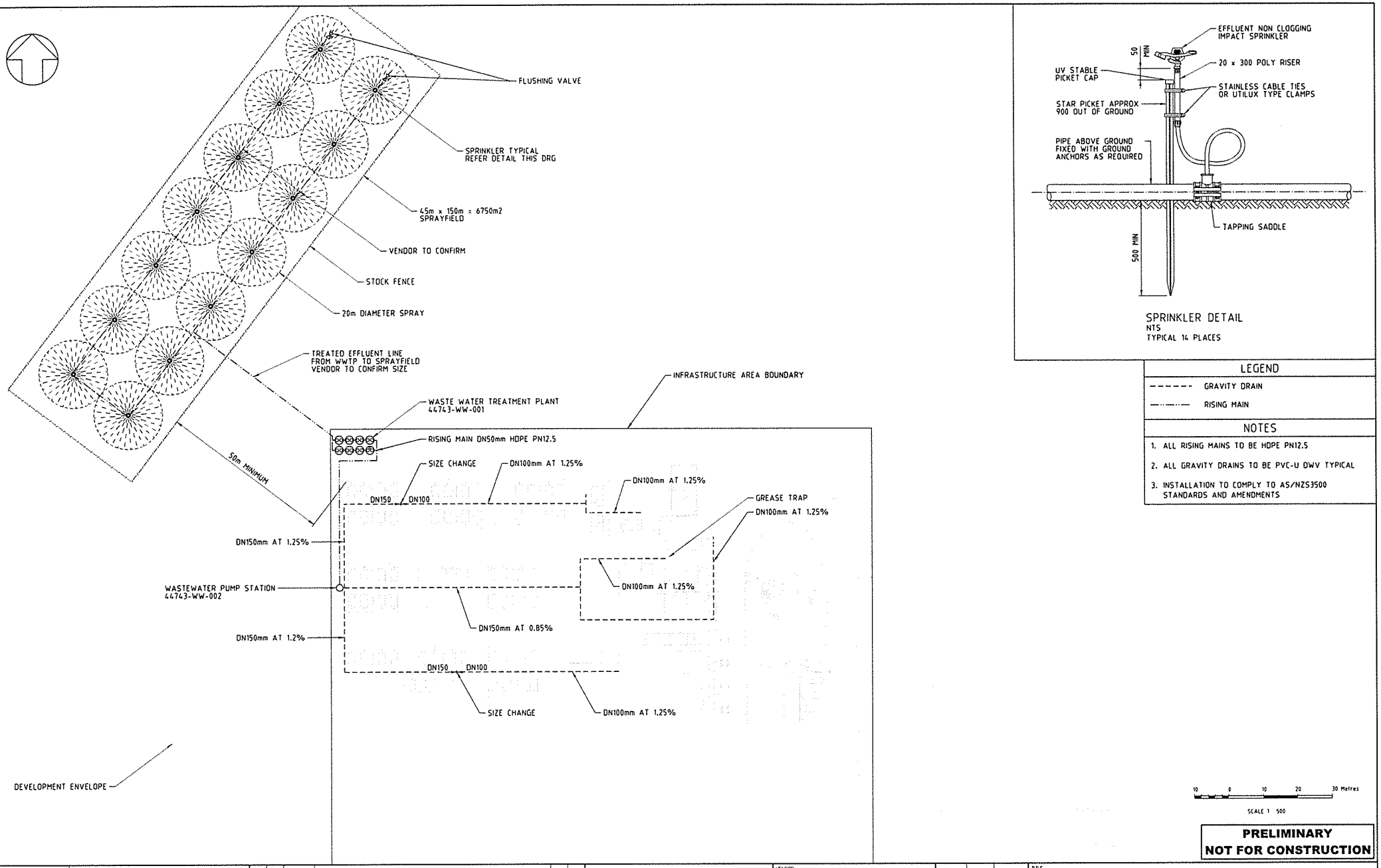
VENDOR
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VENDOR DRG No	REV
C5751-44200-GE-0016	A

	BY	DATE
DRAWN	SW	09/08/2017
CHECKED	JL	09/08/2017
DES ENG	JL	09/08/2017
BFS MAN	JL	09/08/2017
CLIENT		

TITLE
SANDY RIDGE PROJECT
BANKABLE FEASIBILTY STUDY (BFS)
OFFICE AND FIRST AID
GENERAL ARRANGEMENT

SCALE	DRG No	REV
A1 1:50	TSR-3-PO-07300-GE-DGA-0016	0



SPRINKLER DETAIL
NTS
TYPICAL 14 PLACES

LEGEND	
- - - - - -	GRAVITY DRAIN
——·——	RISING MAIN

NOTES

1. ALL RISING MAINS TO BE HDPE PN12.5
2. ALL GRAVITY DRAINS TO BE PVC-U DWV TYPICAL
3. INSTALLATION TO COMPLY TO AS/NZS3500 STANDARDS AND AMENDMENTS

10 0 10 20 30 Metres

SCALE 1 : 500

PRELIMINARY
NOT FOR CONSTRUCTION

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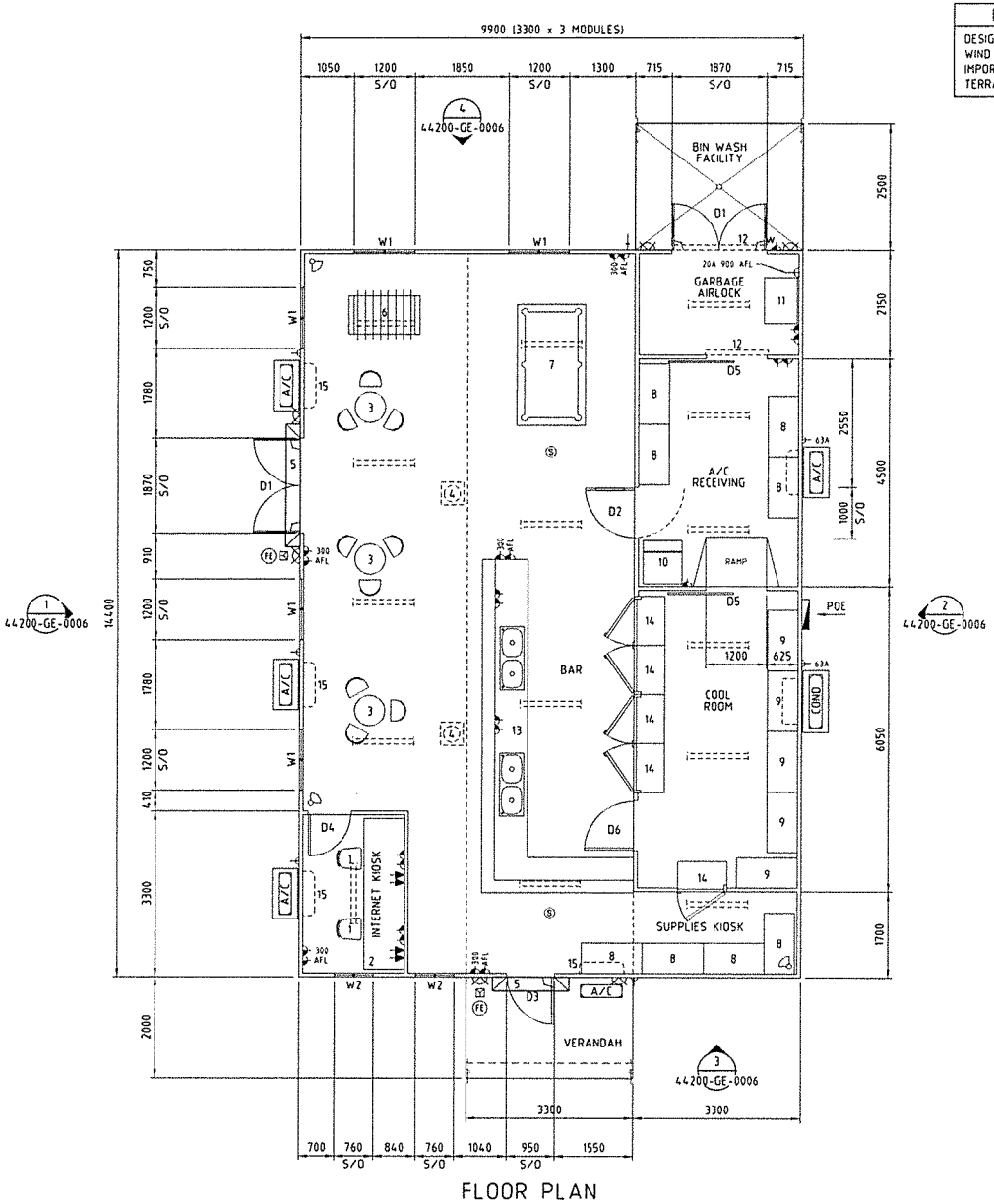
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ONYX PROJECTS
Project Managers & Engineers

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DES ENG	JL	09/08/2017
BFS MAN	JL	09/08/2017
CLIENT		

TITLE
SANDY RIDGE PROJECT
BANKABLE FEASIBILTY STUDY (BFS)
CAMP WASTE WATER TREATMENT PLANT & SPRAYFIELD
GENERAL ARRANGEMENT

A1	SCALE 1:500	DRG No TSR-3-PO-07300-GE-DGA-0034	REV 0



FLOOR PLAN

DESIGN CRITERIA	
DESIGN LIFE	25 YEARS
WIND REGION	A4
IMPORTANCE LEVEL	2
TERRAIN CATEGORY	2

LEGEND

	DESCRIPTION	QTY
	18w LED BATTEN LIGHT	15
	SINGLE GPO AT 1350 AFL	1
W	WEATHER PROOF SGPO AT 1350 AFL	1
	DOUBLE GPO AT 900 AFL (UON)	11
	ISOLATOR - 10Amp AT 400 AFL	7
	RJ45 (CAT6) AT 900 AFL	4
	EXTERNAL LED BULKHEAD LIGHT (AT 2200 AFL) WIRED TO PE CELL & BY-PASS SWITCH TO DB	6
	LOCKABLE MAIN ELECTRICAL DISTRIBUTION BOARD	1
	EXTERNAL FIRE ALARM BREAKGLASS AT 1400 AFL WITH BELL AT 2100 AFL	2
(S)	HARD WIRED SMOKE DETECTOR WITH BATTERY BACK-UP WIRED TO LOCAL PANEL	2
	MOTION SENSOR c/w LOCKABLE BYPASS SWITCH & TIMER LINKED TO A/C & LIGHT CIRCUITS	3
(FE)	9kg FIRE EXTINGUISHER (DRY POWDER) WALL MOUNTED AT 900 AFL	2
POE	ELECTRICAL POINT OF ENTRY	1
A/C	AIR CONDITIONER CONDENSER UNIT	5
COND	COOL ROOM CONDENSER UNIT	1
	EXTERNAL HOSE COCK	1

DOOR AND WINDOW SCHEDULE

No	DESCRIPTION	QTY
D1	2040 x 1840mm METAL CLAD DOUBLE DOOR IN METAL FRAME c/w ENTRANCE SET DOOR FURNITURE. (MASTER KEYED). DOOR CLOSERS. 500 x 500 VIEWING PANELS & SIGNAGE. COLOUR - TBA	2
D2	2040 x 970mm DOUBLE ACTION TIMBER DOOR IN METAL FRAME c/w ENTRANCE SET DOOR FURNITURE. (MASTER KEYED). 500 x 500 VIEWING PANEL. COLOUR - TBA	1
D3	2040 x 920mm TIMBER DOOR IN METAL FRAME c/w ENTRANCE SET DOOR FURNITURE. (MASTER KEYED). DOOR CLOSER. 500 x 500 VIEWING PANEL & SIGNAGE. COLOUR - TBA	1
D4	2040 x 870mm TIMBER DOOR IN METAL FRAME c/w PASSAGE SET DOOR FURNITURE & SIGNAGE. COLOUR - TBA	1
D5	100mm INSULATED FREEZER PANEL SLIDING DOOR c/w PULL HANDLE	2
D6	100mm INSULATED FREEZER PANEL DOOR c/w BELL & LEVER LATCH	1
W1	1000(H) x 1200(W) ALUMINIUM FRAMED POWDERCOAT FINISH SLIDING WINDOW c/w LOCK, FLYSCREEN & 1 PASS BLOCKOUT ROLLER BLIND.	5
W2	1000(H) x 750(W) ALUMINIUM FRAMED POWDERCOAT FINISH SLIDING WINDOW c/w LOCK, FLYSCREEN & 1 PASS BLOCKOUT ROLLER BLIND.	2

CONSTRUCTION NOTES (NON-CYCLONIC SPECIFICATION)

CHASSIS -
14.4m x 3.3m STEEL SKID BASE PAINTED RED OXIDE PRIMER

FLOORING -
18mm HIGH-DENSITY COMPRESSED FIBRE CEMENT SHEETING ON PLYBOARD OVER SHS JOISTS
COOL ROOM FLOOR -
PLYBOARD/INSULATED PANEL 150 THICK/PLYBOARD & COMPRESSED FIBRE SHEETING

FLOOR COVERING -
2mm ANTI-STATIC VINYL. COLOUR - TBA
COMPLETE WITH 65mm BLACK PVC SKIRTING
NON-SLIP VINYL TO WET AREAS. COLOUR - TBA

WALLS -
75 x 1.5mm STEEL STUD SECTION AT 600 CRS BOLTED TO SKID
CEILING HEIGHT - 2400mm

INTERNAL CLADDING -
POLY PLY TO CEILING AND WALL. COLOUR - WHITE
COMPLETE WITH STAIN RESISTANT COATING

INSULATION -
ACOUSTIC INSULATION TO WALLS & CEILINGS TO COMPLY WITH LATEST EDITION OF THE BUILDING CODE OF AUSTRALIA

EXTERNAL CLADDING -
COLORBOND.
COLOUR - TBA

ROOF CLADDING -
COLORBOND ROOF SHEETING WITH COLORBOND FLASHINGS
FLASHING COLOUR - TBA

CANOPIES -
COLORBOND ROOF SHEETING WITH COLORBOND FLASHINGS
FLASHING COLOUR - TBA

ELECTRICAL -
TO COMPLY WITH AS/NZS 3000 STANDARDS AND AMENDMENTS

PLUMBING -
TO COMPLY WITH AS/NZS 3500 STANDARDS AND AMENDMENTS

FITTINGS & FIXTURES

No	DESCRIPTION	QTY
1	MESH OFFICE CHAIR c/w CASTORS	2
2	3000W x 800D x 730H OFFICE DESK	1
3	600 DIA BAR TABLE c/w 3 BAR STOOLS	3
4	FANTECH HEAVY DUTY AXIAL ROOF FAN (AIR IN)	2
5	280D x 30H ACCESSIBLE THRESHOLD RAMP	2
6	FOOSBALL TABLE	1
7	POOL TABLE	1
8	1200W x 600D x 4 TIER ZINC PLATED DRY STORAGE SHELVING	8
9	1200W x 600D x 4 TIER STAINLESS STEEL COOL ROOM/RECEIVING STORAGE SHELVING	5
10	ICE MACHINE WITH STAINLESS STEEL ICE SCOOPS	1
11	CARDBOARD COMPACTOR/BALER	1
12	POWERED AIR CURTAIN EXTERNAL TO AIRLOCK	2
13	CUSTOM BAR c/w STAINLESS STEEL DOUBLE TROUGHS x 6000	2
14	COOL ROOM SHELVING c/w GLASS DISPLAY DOOR	5
15	REVERSE CYCLE SPLIT SYSTEM INVERTER AIR CONDITIONER	5

1 0 1 2 3 Metres
SCALE 1 : 50

PRELIMINARY
NOT FOR CONSTRUCTION

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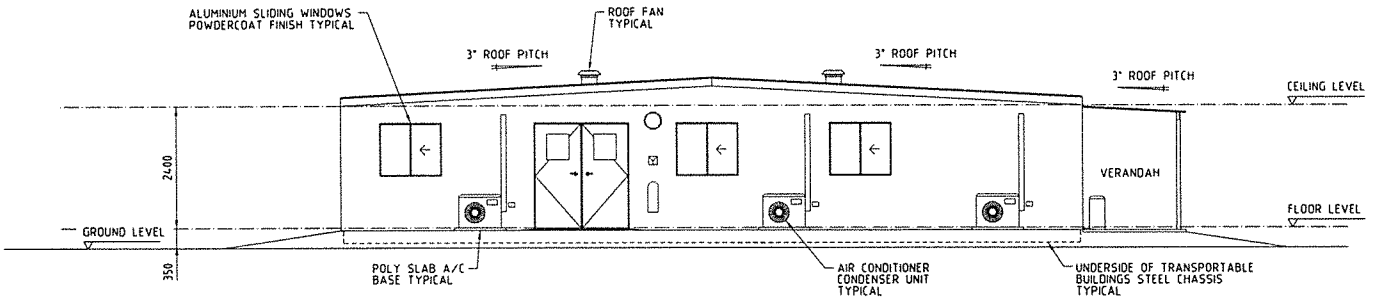
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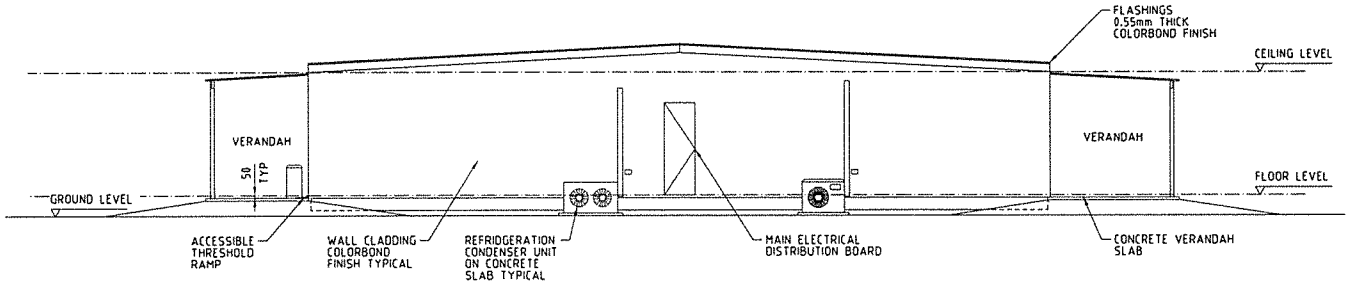
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DRAWN	SW	10/08/2017
CHECKED	JL	10/08/2017
DES ENG	JL	10/08/2017
BFS MAN	JL	10/08/2017
CLIENT		

TITLE
SANDY RIDGE PROJECT
BANKABLE FEASIBILTY STUDY (BFS)
WET MESS
FLOOR PLAN

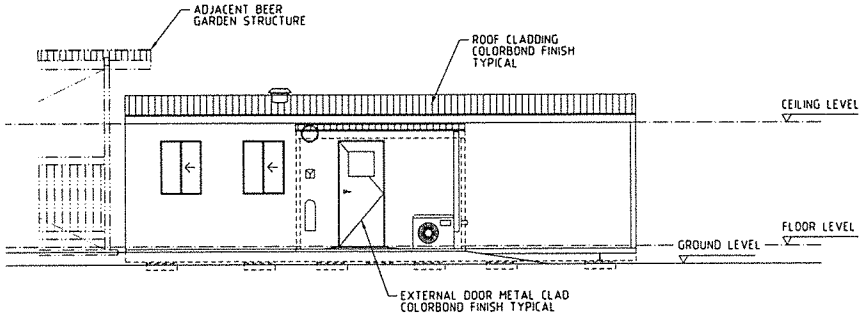
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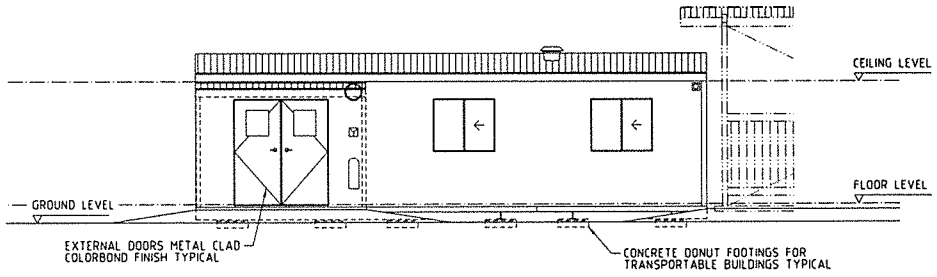
ELEVATION 1



ELEVATION 2



ELEVATION 3



ELEVATION 4

1 0 1 2 3 Metres

SCALE 1 : 50

PRELIMINARY
NOT FOR CONSTRUCTION

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		0	SW	10/08/2017	ISSUED FOR BFS	JL	JL

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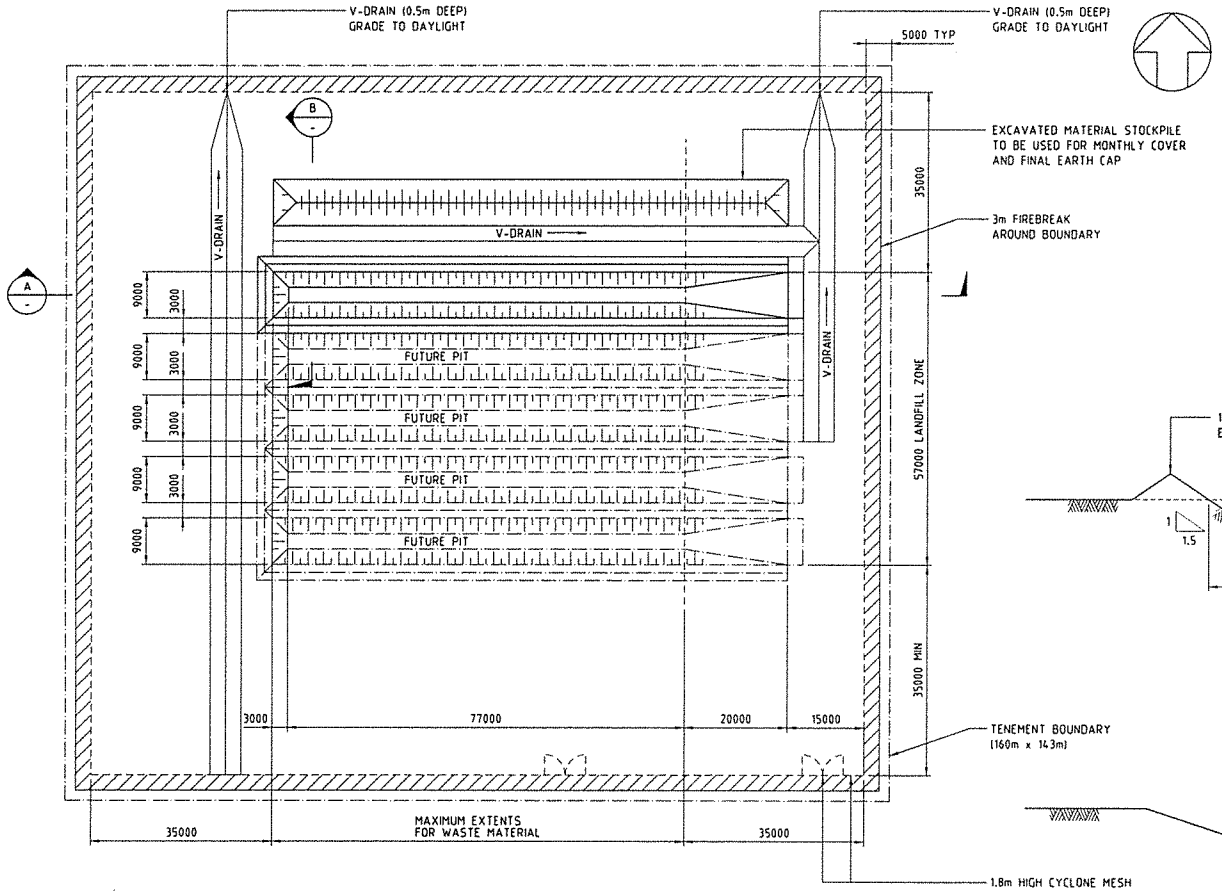
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VENDOR DRG No: C5751-44200-GE-0006 | REV: A

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CHECKED	JL	10/08/2017
DES ENG	JL	10/08/2017
BFS MAN	JL	10/08/2017
CLIENT		

TITLE
SANDY RIDGE PROJECT
BANKABLE FEASIBILTY STUDY (BFS)
WET MESS
ELEVATIONS

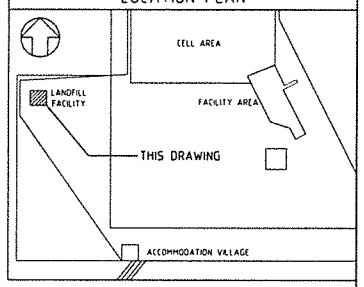
A1 | SCALE 1:50 | DRG No TSR-3-PO-07300-GE-DWG-0015 | REV 0

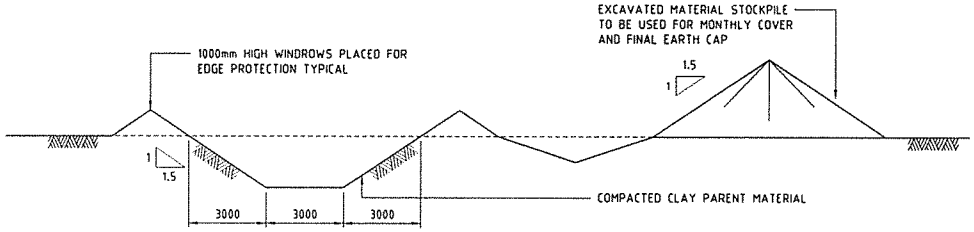


GENERAL ARRANGEMENT SCALE 1:500

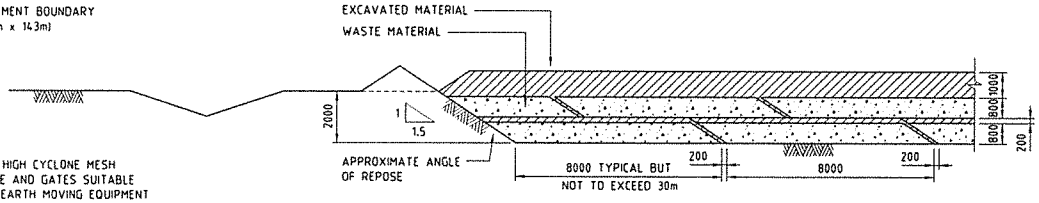
No	GENERAL NOTES
1	ONE ACTIVE TRENCH AT ANY GIVEN TIME
2	EXCAVATED MATERIAL TO BE STORED OVER PROPOSED TRENCHES
3	LANDFILL IS UNLINED
4	LANDFILL CONSTRUCTION AND OPERATION TO COMPLY WITH ENVIRONMENTAL PROTECTION (RURAL LANDFILL) REGULATIONS 2002
5	MAXIMUM OPEN TIPPING AREA IS 30m
6	LANDFILL TO BE COVERED MONTHLY AS A MINIMUM
7	LANDFILL TO NOT EXCEED 2m ABOVE GROUND LEVEL
8	35m WASTE FREE SETBACK FROM FENCE IS REQUIRED

LOCATION PLAN

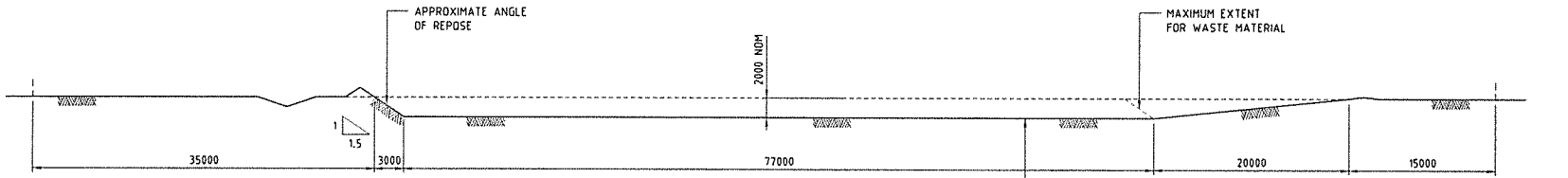




SECTION B 1:100



TYPICAL BACKFILLING DETAIL SCALE 1:100



SECTION A 1:250

DESIGN CRITERIA	
DESIGN LIFE	25 YEARS
WIND REGION	A4
IMPORTANCE LEVEL	2
TERRAIN CATEGORY	2

SCALE 1:100 SCALE 1:250 SCALE 1:500

PRELIMINARY
NOT FOR CONSTRUCTION

REF DRG No	TITLE	REV	BY	DATE	DESCRIPTION	CKD	ENG
		0	AB	10/08/2017	ISSUED FOR BFS	JL	JL

TELLUS

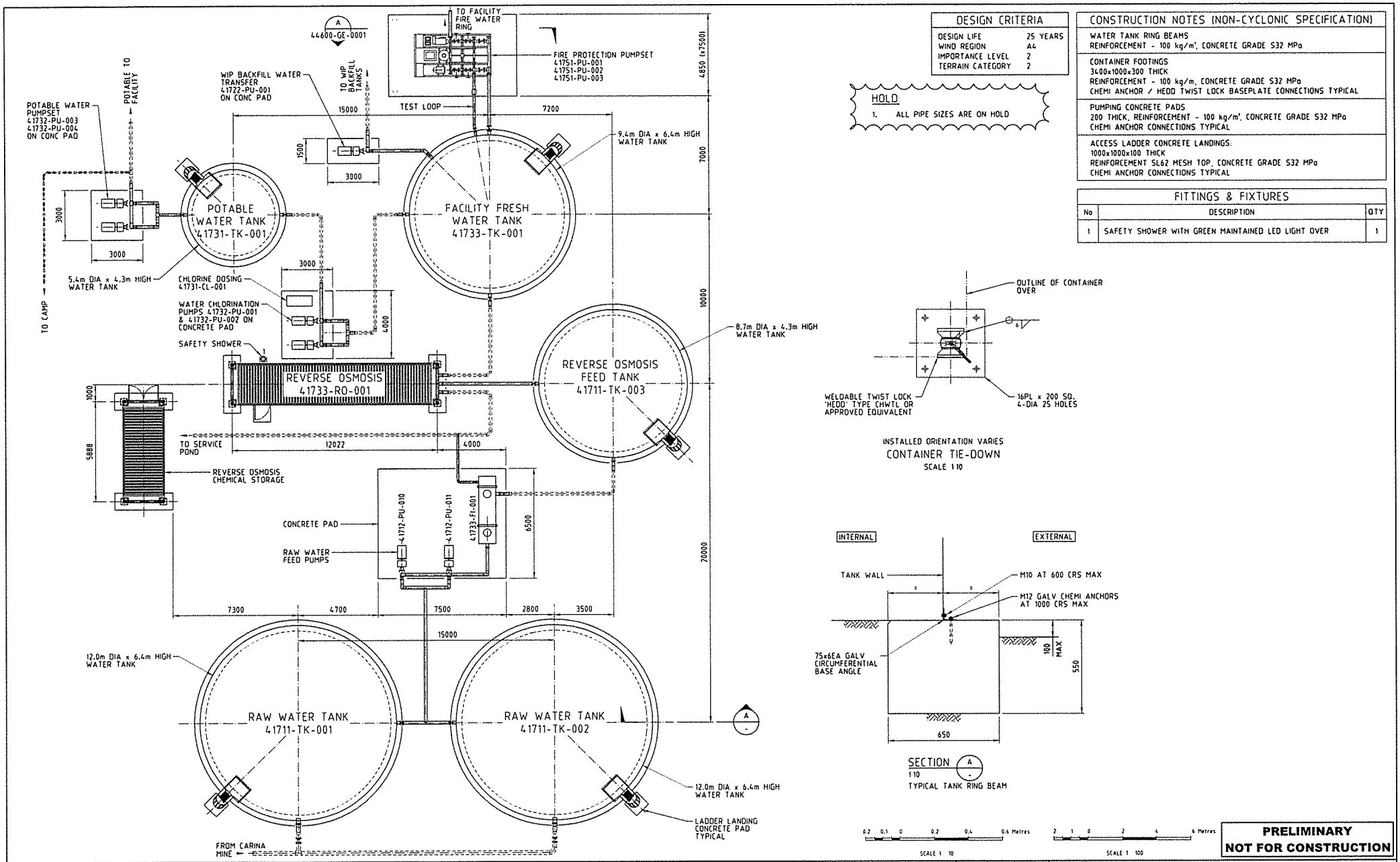
VENDOR: ONYX PROJECTS — Project Managers & Engineers

VENDOR DRG No: C5751-44000-GE-0001 REV: A

	BY	DATE
DRAWN	AB	10/08/2017
CHECKED	JL	10/08/2017
DES ENG	JL	10/08/2017
BFS MAN	JL	10/08/2017
CLIENT		

TITLE
SANDY RIDGE PROJECT
BANKABLE FEASIBILTY STUDY (BFS)
CLASS II LANDFILL
ARRANGEMENT & DETAILS

A1 | SCALE 1:500 UNO | DRG No TSR-3-PO-07300-GE-DGA-0025 | REV 0



DESIGN CRITERIA	
DESIGN LIFE	25 YEARS
WIND REGION	A4
IMPORTANCE LEVEL	2
TERRAIN CATEGORY	2

HOLD:

1. ALL PIPE SIZES ARE ON HOLD

CONSTRUCTION NOTES (NON-CYCLONIC SPECIFICATION)

WATER TANK RING BEAMS
REINFORCEMENT - 100 kg/m³, CONCRETE GRADE S32 MPa

CONTAINER FOOTINGS:
3400x1000x300 THICK
REINFORCEMENT - 100 kg/m, CONCRETE GRADE S32 MPa
CHEMI ANCHOR / HEDD TWIST LOCK BASEPLATE CONNECTIONS TYPICAL

PUMPING CONCRETE PADS
200 THICK, REINFORCEMENT - 100 kg/m³, CONCRETE GRADE S32 MPa
CHEMI ANCHOR CONNECTIONS TYPICAL

ACCESS LADDER CONCRETE LANDINGS:
1000x1000x100 THICK
REINFORCEMENT SL62 MESH TOP, CONCRETE GRADE S32 MPa
CHEMI ANCHOR CONNECTIONS TYPICAL

FITTINGS & FIXTURES

No	DESCRIPTION	QTY
1	SAFETY SHOWER WITH GREEN MAINTAINED LED LIGHT OVER	1

INSTALLED ORIENTATION VARIES
CONTAINER TIE-DOWN
SCALE 1:10

SECTION A
1:10
TYPICAL TANK RING BEAM

0.2 0.1 0 0.2 0.4 0.6 Metres
SCALE 1:10

2 1 0 2 4 6 Metres
SCALE 1:100

PRELIMINARY
NOT FOR CONSTRUCTION

REV	BY	DATE	DESCRIPTION	CKD	ENG
0	SW	09/08/2017	ISSUED FOR BFS	JL	JL

REF DRG No | TITLE

TELLUS

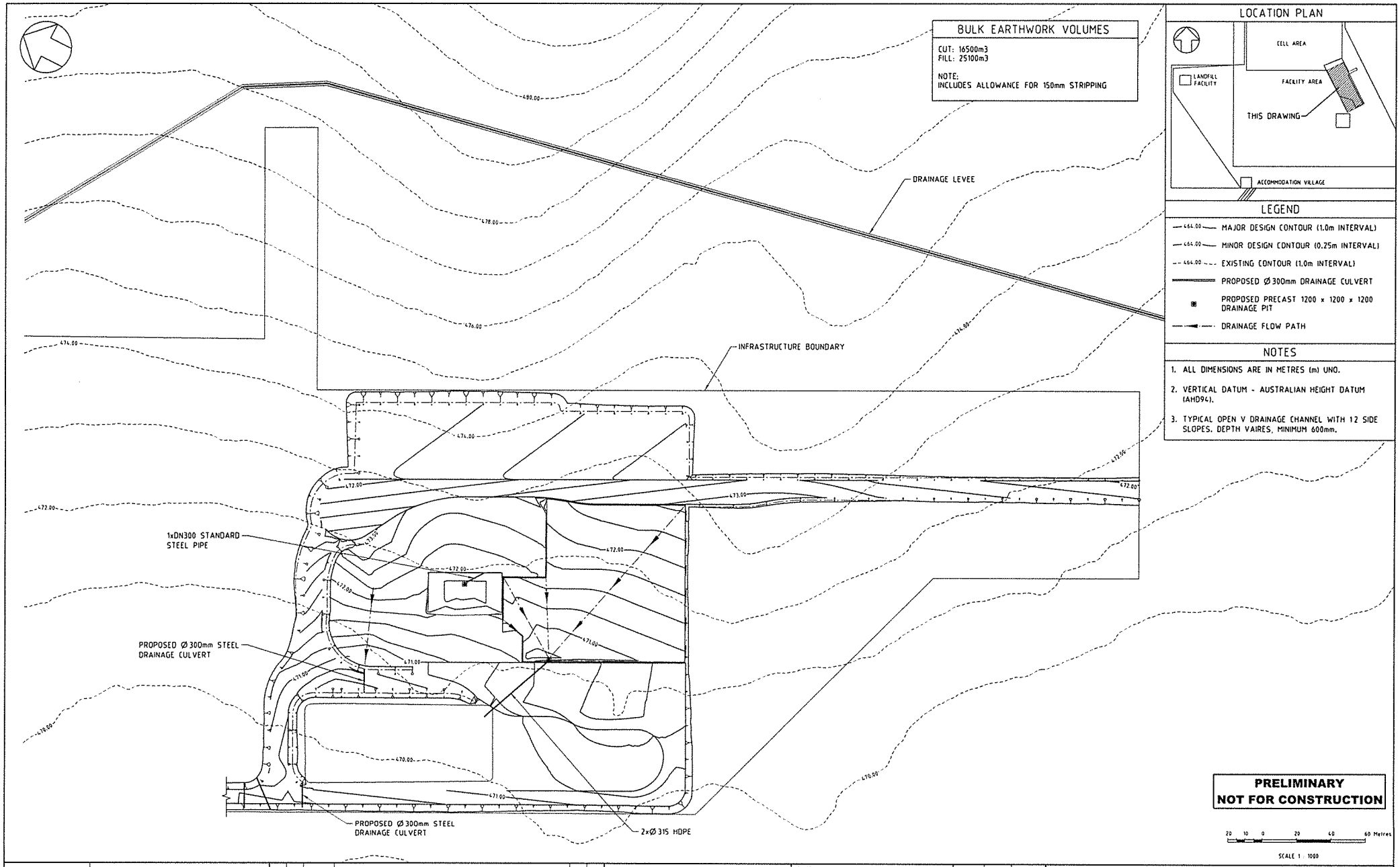
VENDOR
ONYX PROJECTS
Project Managers & Engineers

VENDOR DRG No: C5751-41730-GE-0001 | REV: A

	BY	DATE
DRAWN	SW	09/08/2017
CHECKED	JL	09/08/2017
DES ENG	JL	09/08/2017
BFS MAN	JL	09/08/2017
CLIENT		

TITLE
SANDY RIDGE PROJECT
BANKABLE FEASIBILTY STUDY (BFS)
WATER SYSTEM
GENERAL ARRANGEMENT

A1 | SCALE 1:100 | DRG No: TSR-3-PO-07300-GE-DGA-0018 | REV: 0



BULK EARTHWORK VOLUMES

CUT: 16500m3
FILL: 25100m3

NOTE:
INCLUDES ALLOWANCE FOR 150mm STRIPPING

LOCATION PLAN

LEGEND

- 464.00 — MAJOR DESIGN CONTOUR (1.0m INTERVAL)
- 464.00 — MINOR DESIGN CONTOUR (0.25m INTERVAL)
- 464.00 — EXISTING CONTOUR (1.0m INTERVAL)
- PROPOSED Ø300mm DRAINAGE CULVERT
- PROPOSED PRECAST 1200 x 1200 x 1200 DRAINAGE PIT
- DRAINAGE FLOW PATH

NOTES

1. ALL DIMENSIONS ARE IN METRES (m) UNO.
2. VERTICAL DATUM - AUSTRALIAN HEIGHT DATUM (AHD94).
3. TYPICAL OPEN V DRAINAGE CHANNEL WITH 12 SIDE SLOPES. DEPTH VAIRES, MINIMUM 600mm.

PRELIMINARY
NOT FOR CONSTRUCTION

20 10 0 20 40 60 Metres
SCALE 1 : 1000

REF DRG No	TITLE	REV	BY	DATE	DESCRIPTION	CKD	ENG
		0	TS	09/08/2017	ISSUED FOR BFS	DT	JL

TELLUS

VENDOR
ONYX PROJECTS
Project Managers & Engineers

VENDOR DRG No	REV
C5751-45200-CE-0006	A

	BY	DATE
DRAWN	TS	09/08/2017
CHECKED	DT	09/08/2017
DES ENG	JL	09/08/2017
BFS MAN	JL	09/08/2017
CLIENT		

TITLE
SANDY RIDGE PROJECT
BANKABLE FEASIBILTY STUDY (BFS)
VALUE ENGINEERED SITE BULK EARTHWORKS
GENERAL ARRANGEMENT

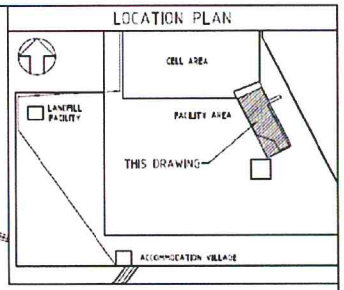
SIZE	SCALE	DRG No	REV
A1	1:1000	TSR-3-PO-07300-EG-DGA-0012	0

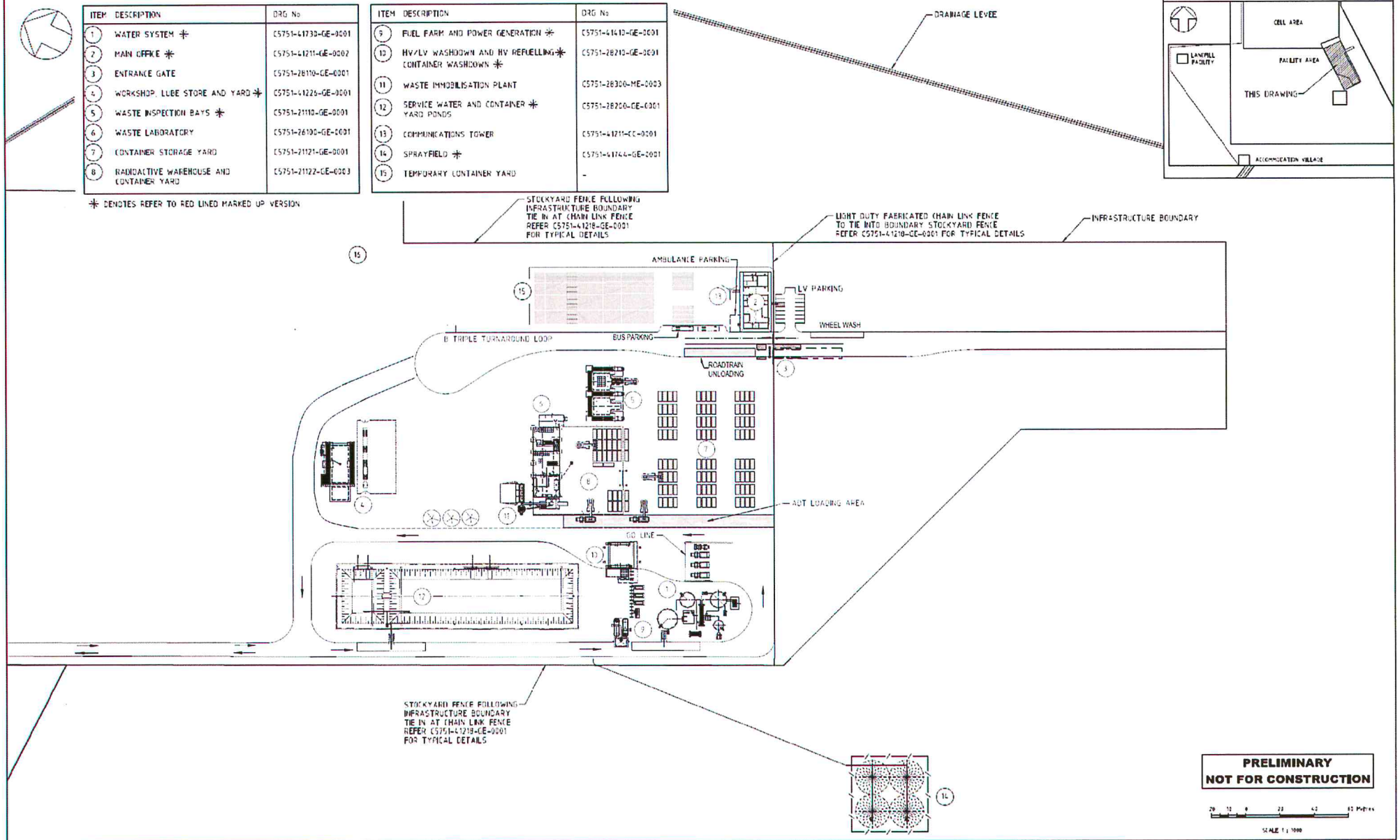
ITEM	DESCRIPTION	DRG No
1	WATER SYSTEM ✳	C5751-41730-GE-0001
2	MAIN OFFICE ✳	C5751-41211-GE-0002
3	ENTRANCE GATE	C5751-28110-GE-0001
4	WORKSHOP, LUBE STORE AND YARD ✳	C5751-41225-GE-0001
5	WASTE INSPECTION BAYS ✳	C5751-21110-GE-0001
6	WASTE LABORATORY	C5751-26100-GE-0001
7	CONTAINER STORAGE YARD	C5751-21121-GE-0001
8	RADIOACTIVE WAREHOUSE AND CONTAINER YARD	C5751-21122-GE-0003

ITEM	DESCRIPTION	DRG No
9	FUEL FARM AND POWER GENERATION ✳	C5751-41410-GE-0001
10	HV/LV WASHDOWN AND HV REFUELLING ✳ CONTAINER WASHDOWN ✳	C5751-28210-GE-0001
11	WASTE IMMOBILISATION PLANT	C5751-28300-ME-0003
12	SERVICE WATER AND CONTAINER ✳ YARD PONDS	C5751-28200-GE-0001
13	COMMUNICATIONS TOWER	C5751-41211-EC-0001
14	SPRAYFIELD ✳	C5751-41744-GE-0001
15	TEMPORARY CONTAINER YARD	-

✳ DENOTES REFER TO RED LINED MARKED UP VERSION

LOCATION PLAN





PRELIMINARY
NOT FOR CONSTRUCTION

SCALE 1 : 1000

REV	TITLE	BY	DATE	DESCRIPTION	DES ENG	ENG
		TS	18/08/2017	ISSUED FOR BFS	JL	JL

TELLUS

ONYX PROJECTS
Project Managers & Engineers

	BY	DATE
DRAWN	TS	01/08/2017
CHECKED	JL	01/08/2017
DES ENG	JL	01/08/2017
BFS MAN	JL	01/08/2017
CLIENT		

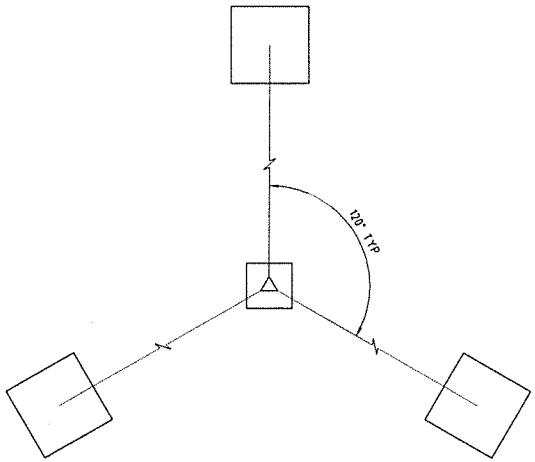
VENDOR DRG No: C5751-40000-GE-0002 REV: B

TITLE
SANDY RIDGE PROJECT
BANKABLE FEASIBILTY STUDY (BFS)
VALUE ENGINEERED FACILITY
GENERAL ARRANGEMENT

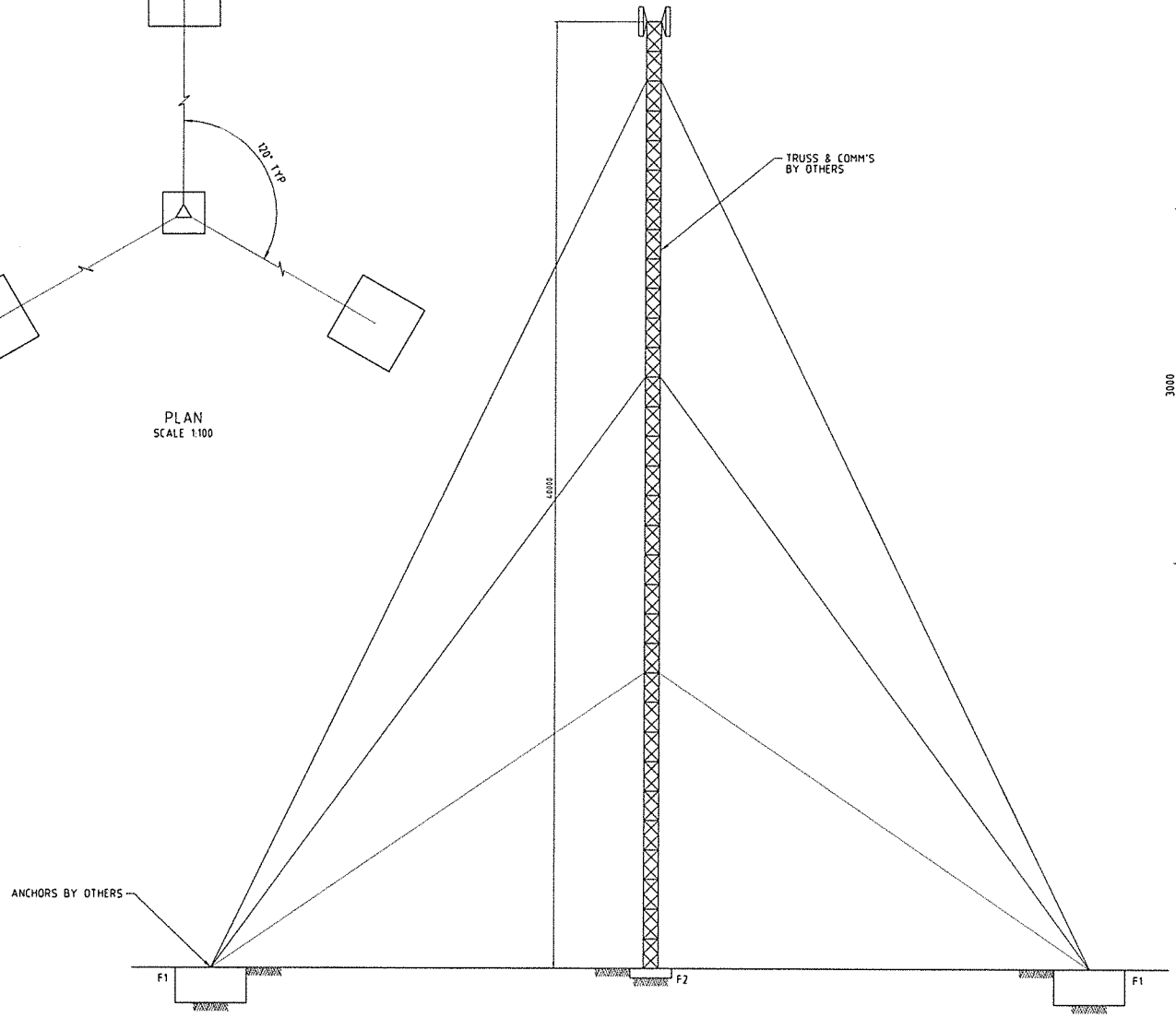
A1 | SCALE 1:1000 | DRG No TSR-3-PO-07300-EG-DWG-0003 | REV 1

NOTES

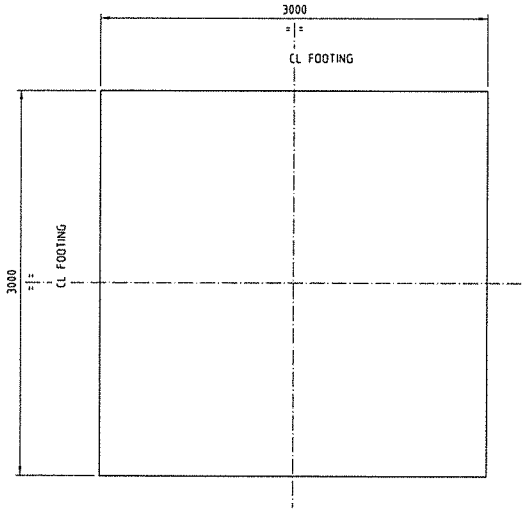
1. CONCRETE SHALL BE GRADE S32 MPa TYPICAL
2. GROUND BEARING PRESSURE 250 kPa TYPICAL
3. ALL CONCRETE SHALL BE POURED ON WATERPROOF MEMBRANE TYPICAL
4. REINFORCEMENT TYPICALLY 125 kg/m3
5. REINFORCEMENT SHALL BE GRADE 500N AS PER AS/NZS 4671



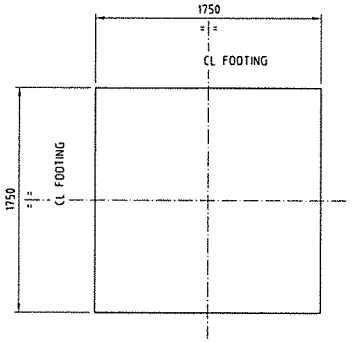
PLAN
SCALE 1:100



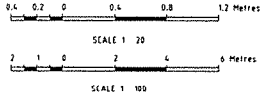
ELEVATION
SCALE 1:100



FOOTING DETAIL - F1
SCALE 1:20 3 OFF
1500 DEEP



FOOTING DETAIL - F2
SCALE 1:20 1 OFF
400 DEEP



PRELIMINARY
NOT FOR CONSTRUCTION

REF DRG No	TITLE	REV	BY	DATE	DESCRIPTION	CKD	ENG
		0	SW	09/08/2017	ISSUED FOR BFS	JL	JL

TELLUS

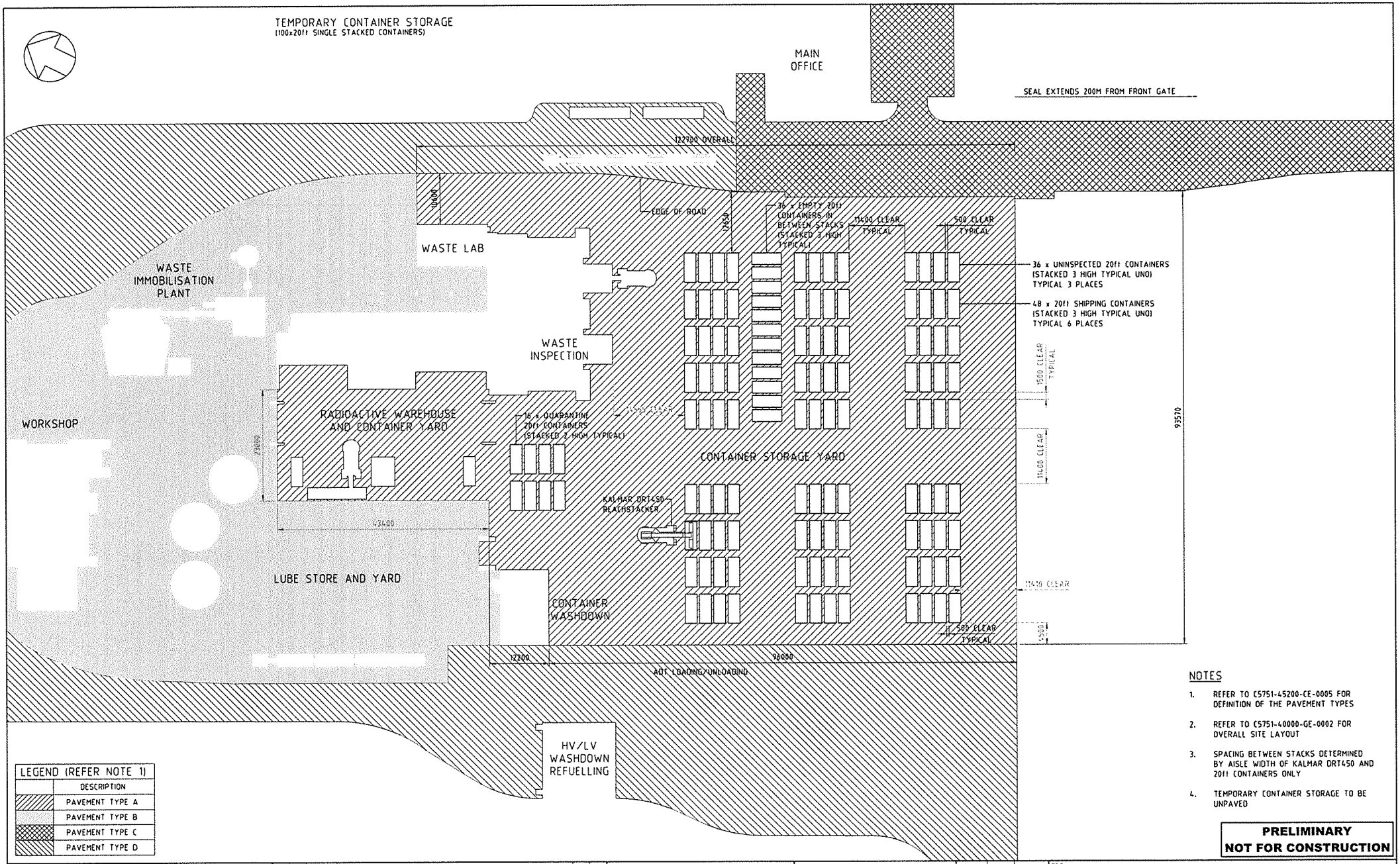
VENDOR
ONYX PROJECTS
Project Managers & Engineers

VENDOR DRG No: C5751-41211-CC-0001
REV: A

	BY	DATE
DRAWN	SW	09/08/2017
CHECKED	JL	09/08/2017
DES ENG	JL	09/08/2017
BFS MAN	JL	09/08/2017
CLIENT		

TITLE
SANDY RIDGE PROJECT
BANKABLE FEASIBILTY STUDY (BFS)
FACILITY COMMUNICATION TOWER
ARRANGEMENT AND DETAILS

SIZE	SCALE	DRG No	REV
A1	1:100	TSR-3-PO-07300-GE-DGA-0033	0



LEGEND (REFER NOTE 1)
DESCRIPTION
PAVEMENT TYPE A
PAVEMENT TYPE B
PAVEMENT TYPE C
PAVEMENT TYPE D

NOTES

1. REFER TO C5751-45200-CE-0005 FOR DEFINITION OF THE PAVEMENT TYPES
2. REFER TO C5751-40000-GE-0002 FOR OVERALL SITE LAYOUT
3. SPACING BETWEEN STACKS DETERMINED BY AISLE WIDTH OF KALMAR DRT450 AND 20ft CONTAINERS ONLY
4. TEMPORARY CONTAINER STORAGE TO BE UNPAVED

PRELIMINARY
NOT FOR CONSTRUCTION

REF DRG No	TITLE	REV	BY	DATE	DESCRIPTION	CKD	ENG
		0	TS	10/08/2017	ISSUED FOR BFS	JL	JL

TELLUS

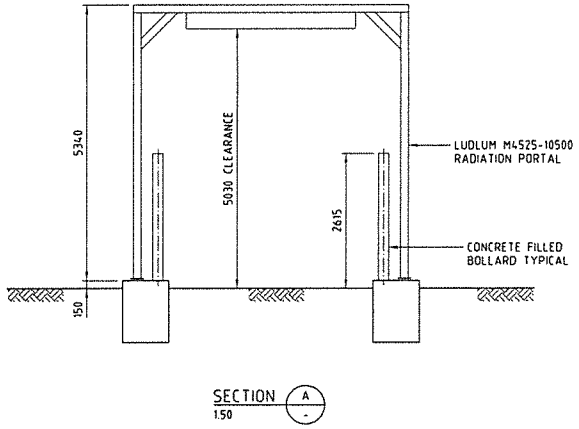
VENDOR: ONYX PROJECTS — Project Managers & Engineers

VENDOR DRG No	REV
C5751-21121-GE-0001	A

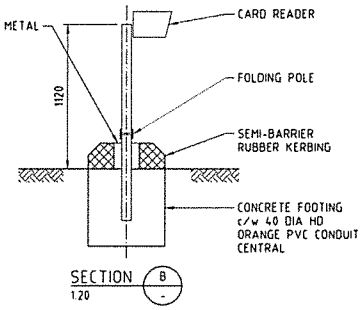
	BY	DATE
DRAWN	TS	10/08/2017
CHECKED	JL	10/08/2017
DES ENG	JL	10/08/2017
BFS MAN	JL	10/08/2017
CLIENT		

TITLE
SANDY RIDGE PROJECT
BANKABLE FEASIBILTY STUDY (BFS)
VALUE ENGINEERED CONTAINER STORAGE YARD
GENERAL ARRANGEMENT

SIZE	SCALE	ORG No	REV
A1	NTS	TSR-3-PO-07300-EG-DWG-0002	0



SECTION A
1.50

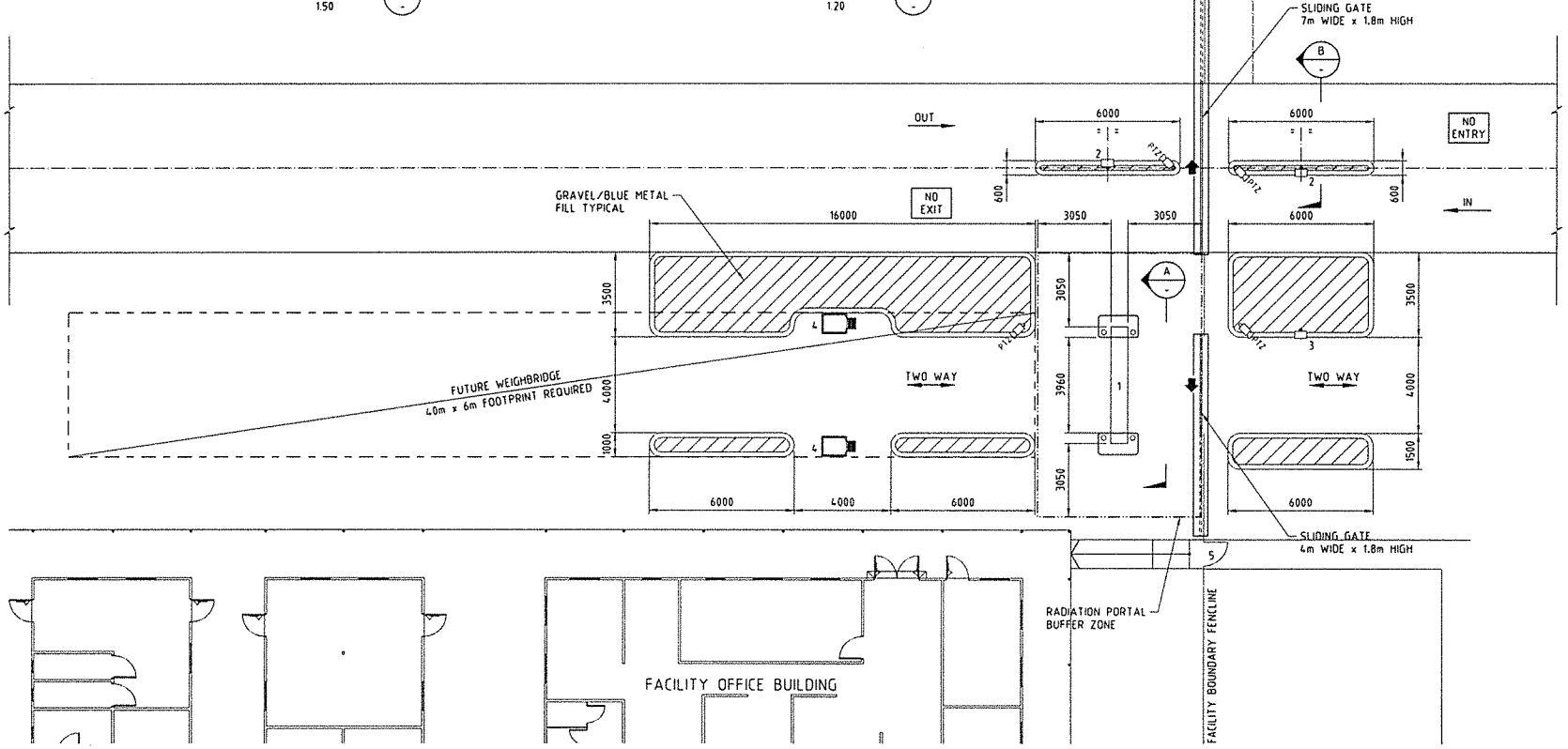


SECTION B
1.20

CONSTRUCTION NOTES (NON-CYCLONIC SPECIFICATION)
RADIATION PORTAL FOOTINGS. 1650x900x1200 DEEP REINFORCEMENT - 100 kg/m3, CONCRETE GRADE S32 MPa
CARD READER & ELEVATED INTERCOM FOOTINGS 600x600x600 DEEP REINFORCEMENT - 50 kg/m3, CONCRETE GRADE S32 MPa
GATE FOOTINGS. 600x200 THICK, LENGTH TO SUIT GATE REINFORCEMENT - 75 kg/m3, CONCRETE GRADE S32 MPa

FITTINGS & FIXTURES		
No	DESCRIPTION	QTY
1	LUDLUM MODEL 4525-10500 RADIATION PORTAL MONITOR WITH 3 DETECTORS & 4 BOLLARDS	1
2	CARD READER ON FOLDING POLE	2
3	INTERCOM ELEVATED (2.5m) ON POLE	1
4	MOBILE ALUMINIUM PLATFORM STEP LADDER 1420 HIGH	2
5	SELF CLOSING PERSONNEL GATE WITH MAGNETIC LOCK, CARD READER & INTERCOM	1

LEGEND		
	DESCRIPTION	QTY
PTZ	PAN / TILT / ZOOM CCTV CAMERA	4



ENTRANCE GATE LAYOUT

0.4 0.2 0 0.4 0.8 1.2 Metres
SCALE 1 20
1 0 1 2 3 Metres
SCALE 1 50
2 1 0 2 4 6 Metres
SCALE 1 100

PRELIMINARY
NOT FOR CONSTRUCTION

REF DRG No	TITLE	REV	BY	DATE	DESCRIPTION	CKD	ENG
		0	SW	09/08/2017	ISSUED FOR BFS	JL	JL

TELLUS

VENDOR
ONYX PROJECTS
Project Managers & Engineers

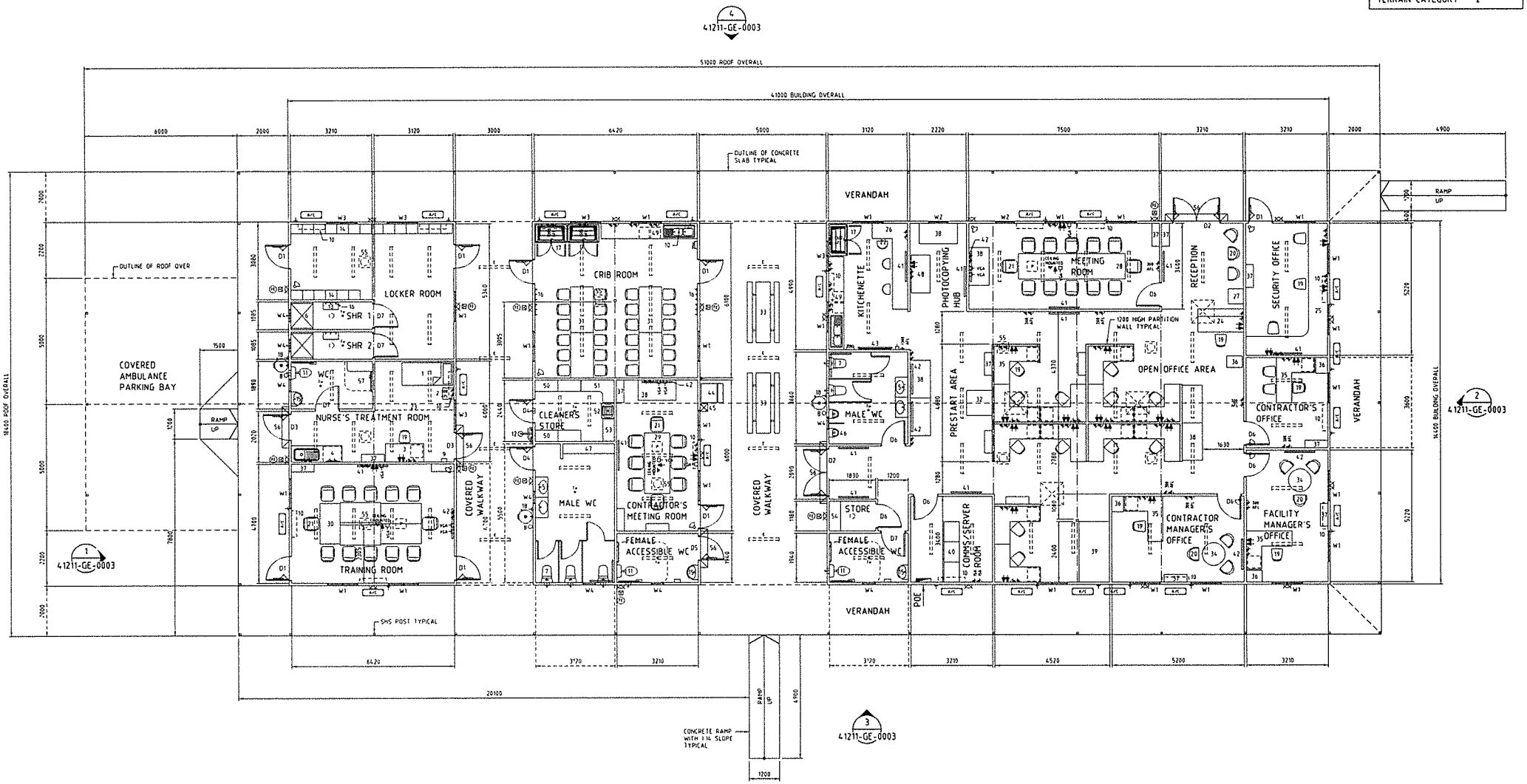
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C5751-28110-GE-0001	A

	BY	DATE
DRAWN	SW	09/08/2017
CHECKED	JL	09/08/2017
DES ENG	JL	09/08/2017
BFS MAN	JL	09/08/2017
CLIENT		

TITLE
SANDY RIDGE PROJECT
BANKABLE FEASIBILTY STUDY (BFS)
ENTRANCE GATE
ARRANGEMENT & DETAILS

A1	SCALE 1:100	ORG No TSR-3-PO-07300-GE-DGA-0023	REV 0

DESIGN CRITERIA	
DESIGN LIFE	25 YEARS
WIND REGION	A4
IMPORTANCE LEVEL	3
TERRAIN CATEGORY	2



FLOOR PLAN

REFER TO DRG C5751-41211-GE-0001 FOR FITTINGS & FIXTURES LIST

1.5 0 1.5 3 4.5 Metres

SCALE 1 75

PRELIMINARY
NOT FOR CONSTRUCTION

REF DRG No	TITLE	REV	BY	DATE	DESCRIPTION	CKD	ENG
		0	BK	09/08/2017	ISSUED FOR BFS	JL	JL

TELLUS

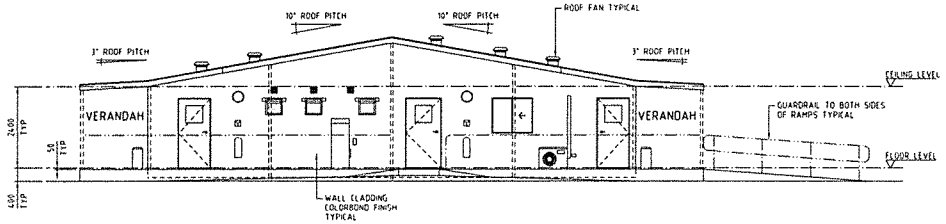
VENDOR
ONYX PROJECTS
Project Managers & Engineers

VENDOR DRG No: C5751-41211-GE-0002 REV: A

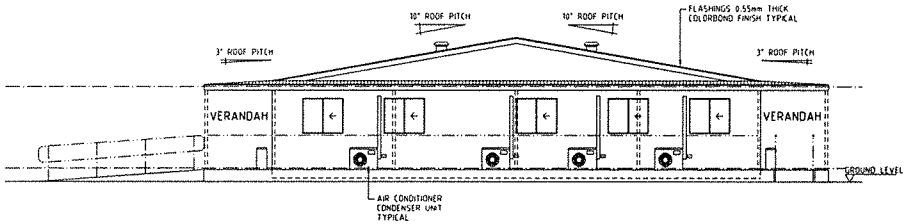
	BY	DATE
DRAWN	BK	09/08/2017
CHECKED	JL	09/08/2017
DES ENG	JL	09/08/2017
BFS MAN	JL	09/08/2017
CLIENT		

TITLE
SANDY RIDGE PROJECT
BANKABLE FEASIBILTY STUDY (BFS)
MAIN OFFICE
FLOOR PLAN

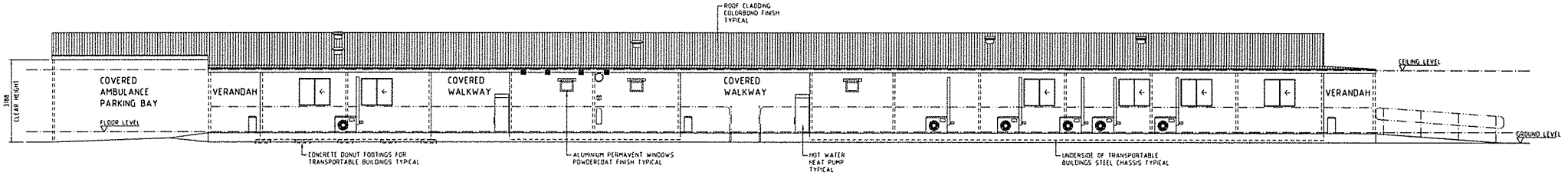
A1 | SCALE 1:75 | DRG No TSR-3-PO-07300-GE-DWG-0003 | REV 0



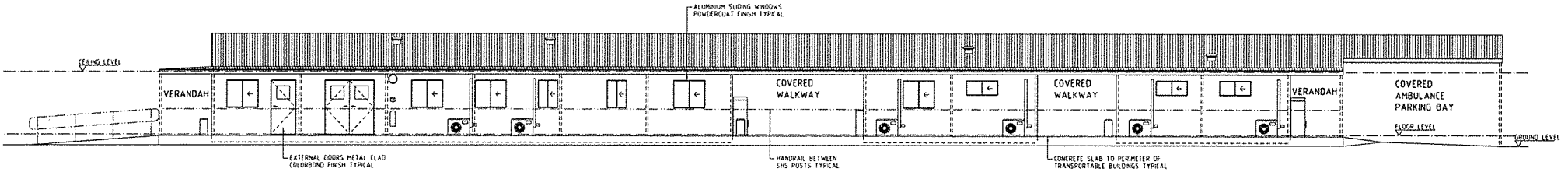
ELEVATION 1



ELEVATION 2



ELEVATION 3



ELEVATION 4

1.5 0 1.5 3 4.5 Metres

SCALE 1 75

PRELIMINARY
NOT FOR CONSTRUCTION

REF DRG No	TITLE	REV	BY	DATE	DESCRIPTION	CKD	ENG
		0	BK	09/08/2017	ISSUED FOR BFS	JL	JL

TELLUS

VENDOR

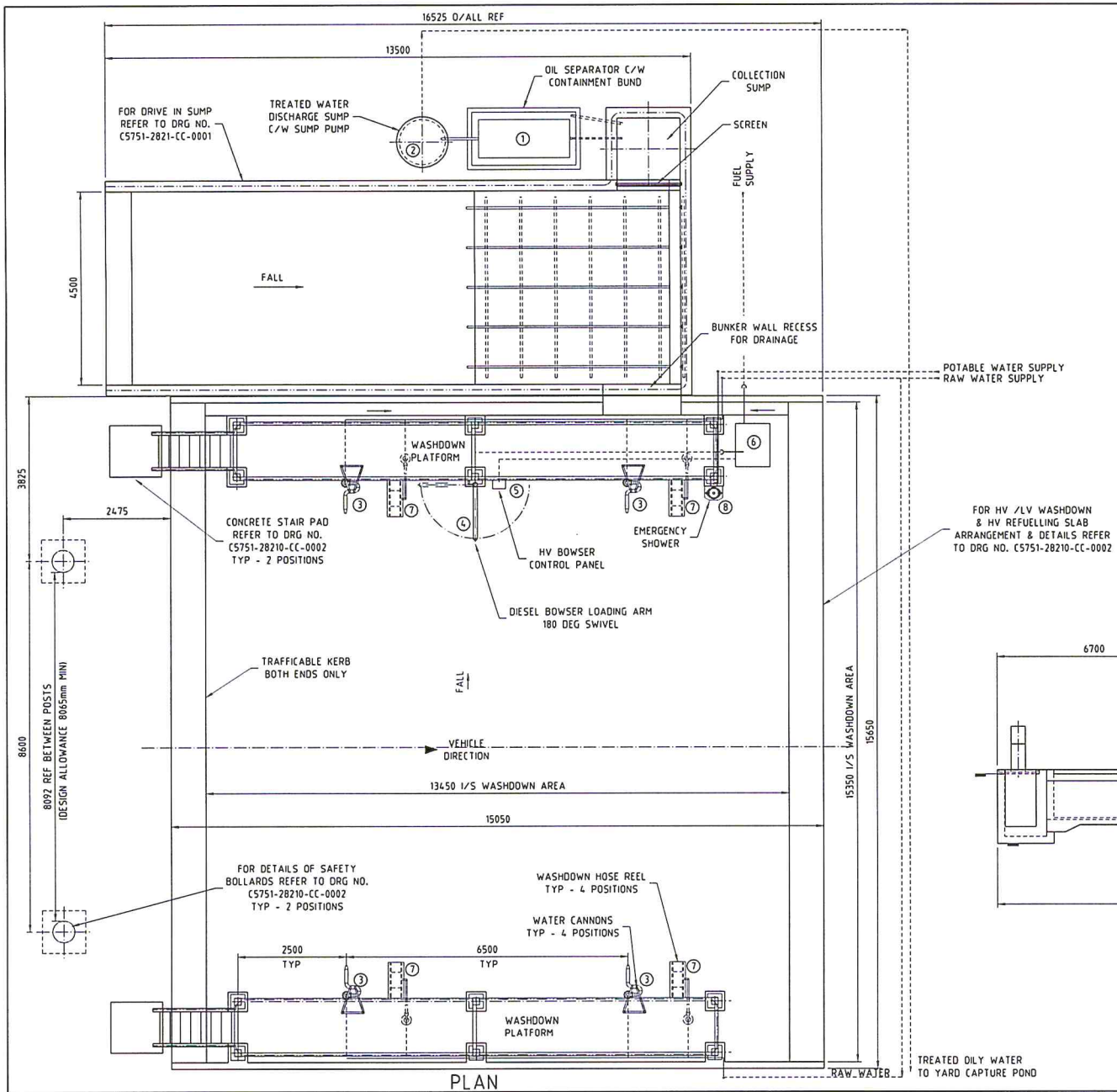
ONYX PROJECTS
Project Managers & Engineers

VENDOR DRG No	REV
C5751-41211-GE-0003	A

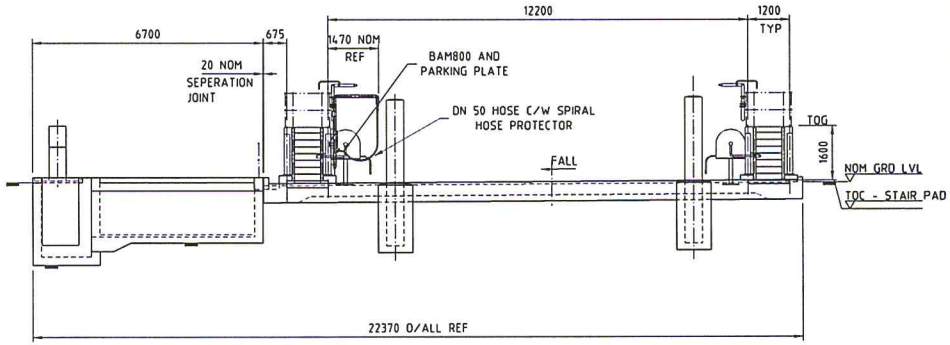
	BY	DATE
DRAWN	BK	09/08/2017
CHECKED	JL	09/08/2017
DES ENG	JL	09/08/2017
BFS MAN	JL	09/08/2017
CLIENT		

TITLE
SANDY RIDGE PROJECT
BANKABLE FEASIBILTY STUDY (BFS)
MAIN OFFICE
ELEVATIONS

A1	SCALE 1:75	DRG No TSR-3-PO-07300-GE-DWG-0004	REV 0



PLAN



END ELEVATION
SCALE 1:75



SCALE 1 75



SCALE 1 150

CONSTRUCTION NOTES (NON-CYCLONIC SPECIFICATION)

WASHDOWN & HV REFUELLING SLAB
CONCRETE SHALL BE GRADE S32 MPa.
DESIGN BASED ON REACH STACKER DRT450 & ADT BELL E-SERIES B30E MK2.

DRIVE-IN SUMP
250 THK NOM / THICKENING AS REQUIRED.
DESIGN BASED ON WHEEL LOADER ZW310
REINFORCEMENT BAR - 100kg/m

PLATFORMS AND STAIRS HOT DIPPED GALVANISED MILD STEEL

FITTINGS & FIXTURES

No	DESCRIPTION	QTY
1	OILY WATER COALESCING PLATE SEPARATOR SYSTEM C/W BUNDED CONCRETE SLAB 2600(L) x 1450(W) x 150 THICK WITH 100(W) x 100(H) KERB UPSTAND TO PERIMETER. ALL DIMS SUBJECT TO FINAL DESIGN.	1
2	DISCHARGE PIT PRE-CAST CONCRETE 1190 DIA x 1200(H) C/W PIT COVER PLATE AND SUMP PUMP	1
3	WATER CANNON	4
4	FUEL ARM	1
5	HV REFUELLING CONTROL PANEL.	1
6	HV REFUELLING FILTER SKID	1
7	WASHDOWN HOSE REELS	4
8	EMERGENCY SAFETY SHOWER	1

DESIGN CRITERIA

DESIGN LIFE	25 YEARS
WIND REGION	A4
IMPORTANCE LEVEL	2
TERRAIN CATEGORY	2

PRELIMINARY
NOT FOR CONSTRUCTION

REF DRG No	TITLE	REV	BY	DATE	DESCRIPTION	CKD	ENG
		a	AH	09/08/2017	ISSUED FOR BFS	JL	JL

TELLUS

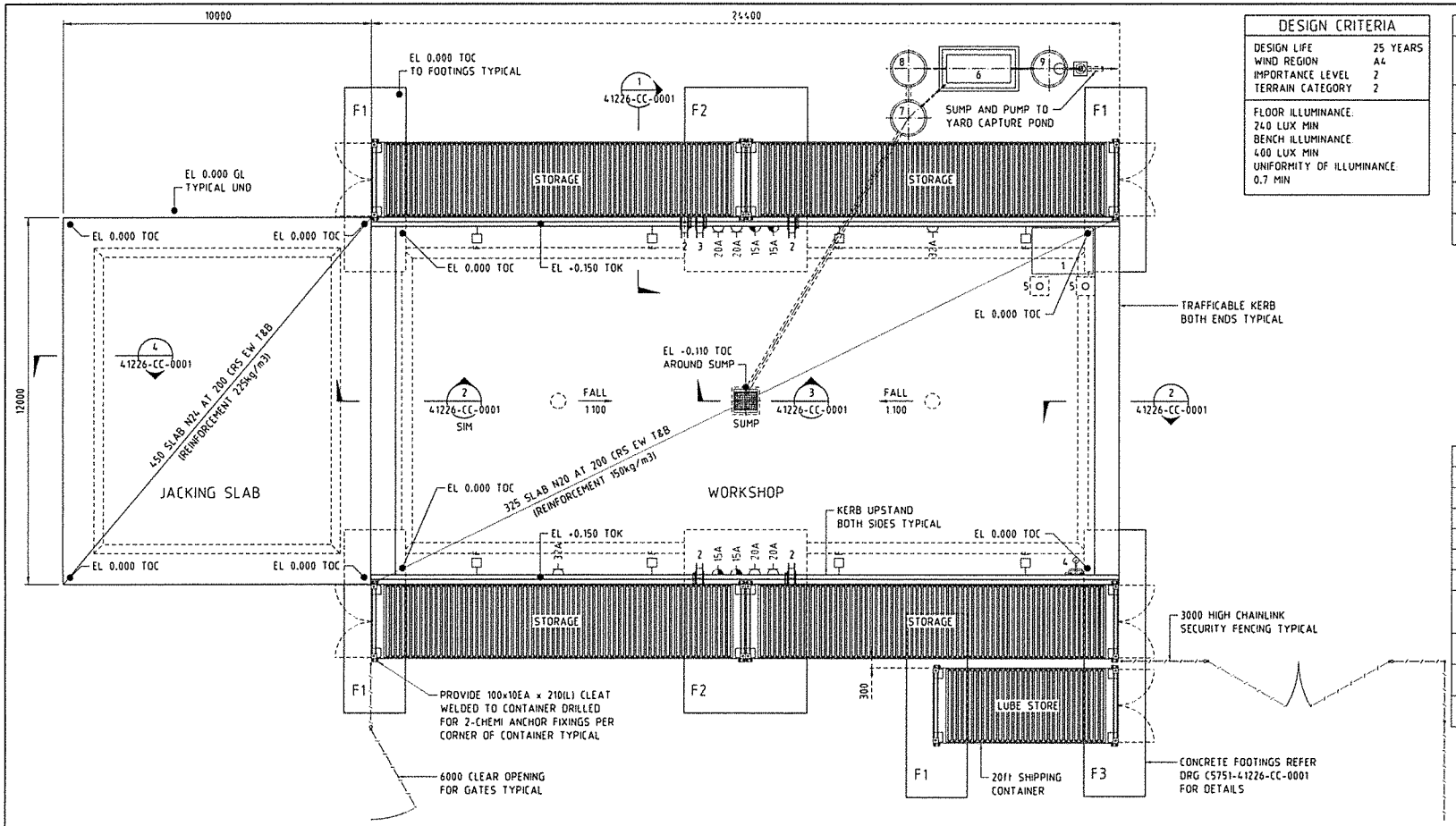
VENDOR
ONYX PROJECTS
Project Managers & Engineers

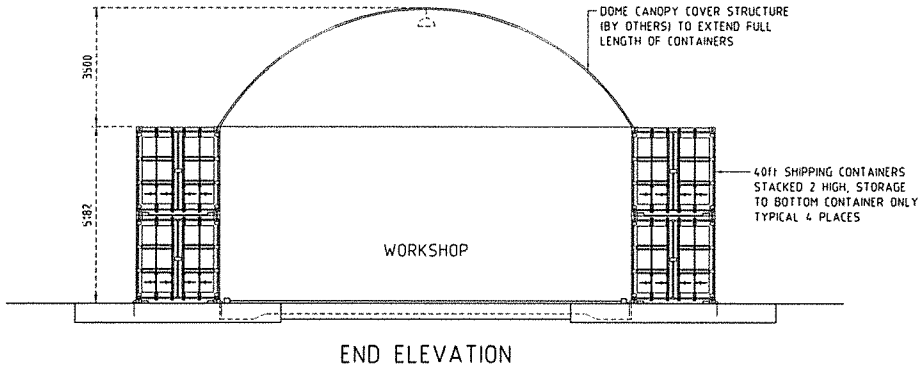
VENDOR DRG No	REV
C5751-28210-GE-0001	A

	BY	DATE
DRAWN	AH	09/08/2017
CHECKED	JL	09/08/2017
DES ENG	JL	09/08/2017
BFS MAN	JL	09/08/2017
CLIENT		

TITLE
SANDY RIDGE PROJECT
BANKABLE FEASIBILTY STUDY (BFS)
HV/LV WASHDOWN & HV REFUELLING SLAB
GENERAL ARRANGEMENT

A1	SCALE 1:50	DRG No TSR-3-PO-07300-GE-DGA-0019	REV 0





END ELEVATION

FLOOR PLAN

REFER TO DRG C5751-41226-GE-0001
FOR OVERALL LAYOUT PLAN

DESIGN CRITERIA	
DESIGN LIFE	25 YEARS
WIND REGION	A4
IMPORTANCE LEVEL	2
TERRAIN CATEGORY	2
FLOOR ILLUMINANCE. 240 LUX MIN	
BENCH ILLUMINANCE. 400 LUX MIN	
UNIFORMITY OF ILLUMINANCE. 0.7 MIN	

CONSTRUCTION NOTES (NON-CYCLONIC SPECIFICATION)
JACKING SLAB - CONCRETE SHALL BE GRADE S32MPa DESIGNED FOR 50T JACK (200 x 200 BASEPLATE)
WORKSHOP SLAB - CONCRETE SHALL BE GRADE S32MPa DESIGNED FOR KALMAR DRT450 REACH STACKER (AXEL LOAD = 38.9T)
ROOF CLADDING - DOME CANOPY COVER STRUCTURE (BY OTHERS) COLOUR - TBA
ELECTRICAL - TO COMPLY WITH AS/NZS 3000 STANDARDS AND AMENDMENTS
DRAINAGE - TO COMPLY WITH AS/NZS 3500 STANDARDS AND AMENDMENTS

LEGEND		
	DESCRIPTION	QTY
	WEATHERPROOF LED HIGH BAY LIGHT FITTING	3
F	WEATHERPROOF LED FLOODLIGHT AT 5100 AFL (UNO)	8
	WEATHERPROOF SINGLE 3 PHASE POWER OUTLET AT 900 AFL (UNO)	6
	WEATHERPROOF SINGLE GPO AT 900 AFL (UNO)	4

FITTINGS & FIXTURES		
No	DESCRIPTION	QTY
1	ROTARY SCREW COMPRESSOR	1
2	RETRACTABLE 12mm x 15m(L) AIR HOSE REEL	4
3	RETRACTABLE 12mm x 15m(L) WATER HOSE REEL	1
4	EYEWASH SAFETY SHOWER FITTED WITH MAINTAINED GREEN LIGHT	1
5	LIGHT VEHICLE BOLLARD WITH 600(L) x 600(W) x 1000(H) FOOTING	2
6	OILY WATER COALESCING PLATE SEPARATOR SYSTEM C/W BUNDED CONCRETE SLAB 2600(L) x 1450(W) x 150 THICK WITH 100(W) x 100(H) KERB UPSTAND TO PERIMETER	1
7	SILT ARRESTOR PIT PRE-CAST CONCRETE 1190 DIA x 1200(H) C/W PIT COVER PLATE	1
8	SUCTION PIT PRE-CAST CONCRETE 1190 DIA x 1200(H) C/W PIT COVER PLATE	1
9	DISCHARGE PIT PRE-CAST CONCRETE 1190 DIA x 1200(H) C/W PIT COVER PLATE AND SUMP PUMP	1

1.5 0 1.5 3 4.5 Metres
SCALE 1 75

PRELIMINARY
NOT FOR CONSTRUCTION

REF DRG No	TITLE	REV	BY	DATE	DESCRIPTION	CKD	ENG
		0	BK	09/08/2017	ISSUED FOR BFS	JL	JL

TELLUS

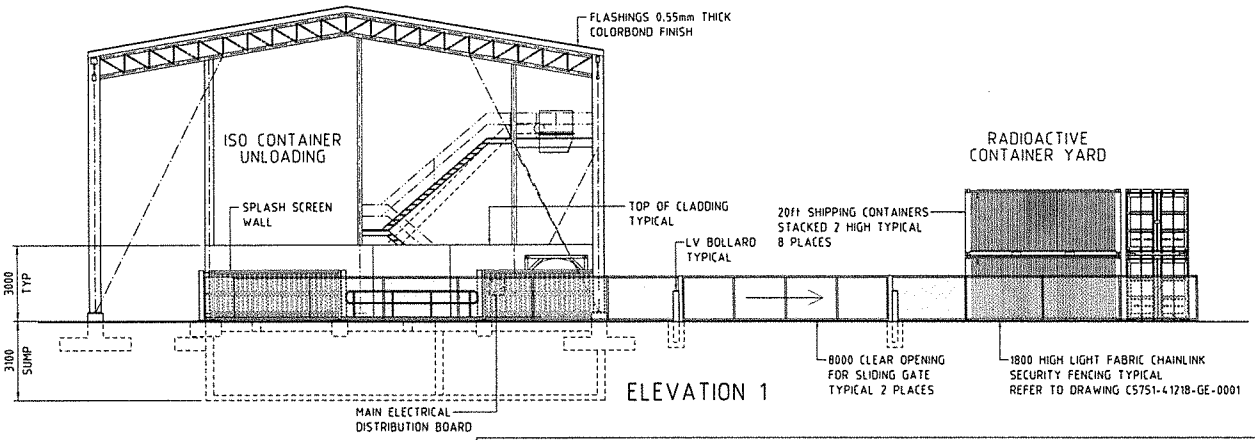
VENDOR
ONYX PROJECTS
Project Managers & Engineers

VENDOR DRG No	REV
C5751-41226-GE-0002	A

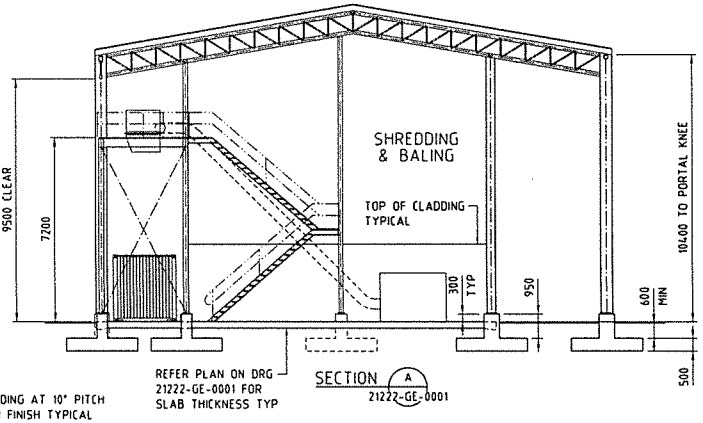
	BY	DATE
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CHECKED	JL	09/08/2017
DES ENG	JL	09/08/2017
DES MAN	JL	09/08/2017
CLIENT		

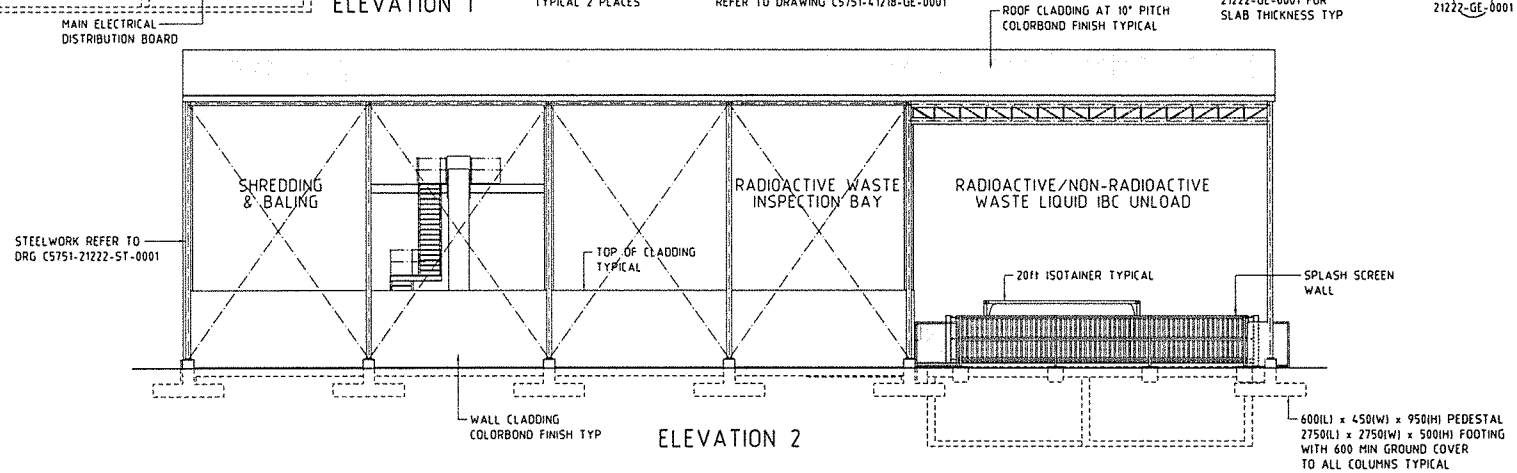
TITLE
SANDY RIDGE PROJECT
BANKABLE FEASIBILTY STUDY (BFS)
HV, LV AND MOBILE PLANT WORKSHOP
GENERAL ARRANGEMENT

SIZE	SCALE	DRG No	REV
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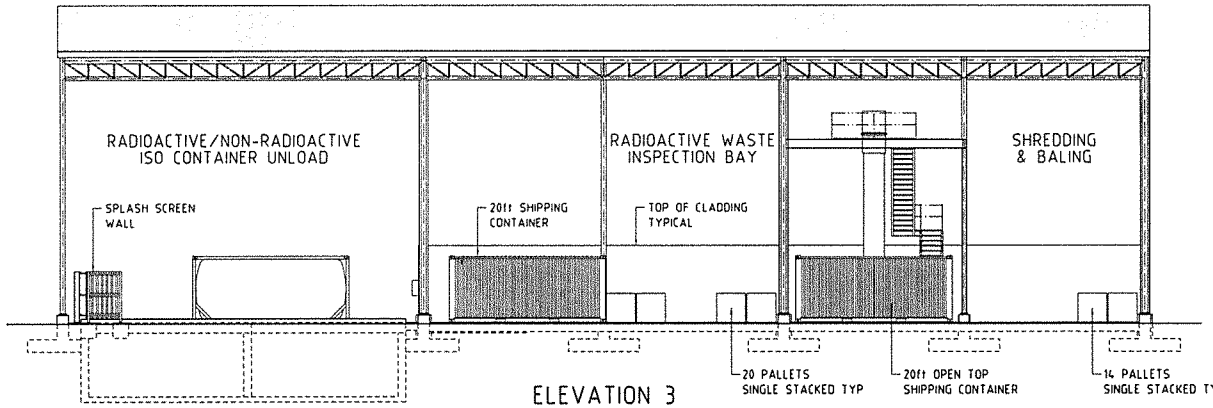


ELEVATION 1





ELEVATION 2



ELEVATION 3

2 1 0 2 4 6 Metres

SCALE 1 100

PRELIMINARY
NOT FOR CONSTRUCTION

REF DRG No	TITLE	REV	BY	DATE	DESCRIPTION	CKD	ENG
		0	TS	09/08/2017	ISSUED FOR BFS	DT	JL

TELLUS

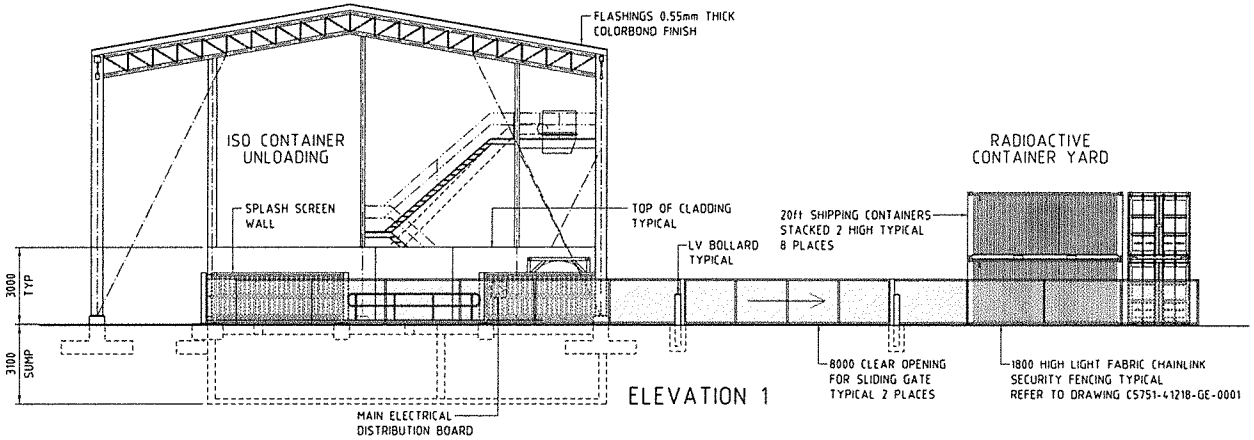
VENDOR: ONYX PROJECTS — Project Managers & Engineers

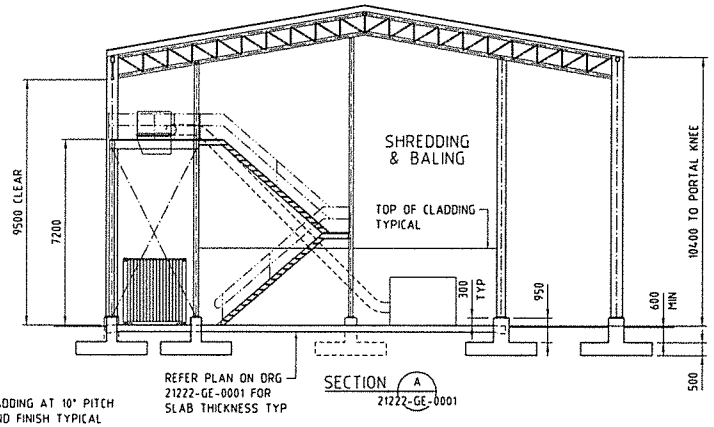
VENDOR DRG No	REV
C5751-21222-GE-0002	C

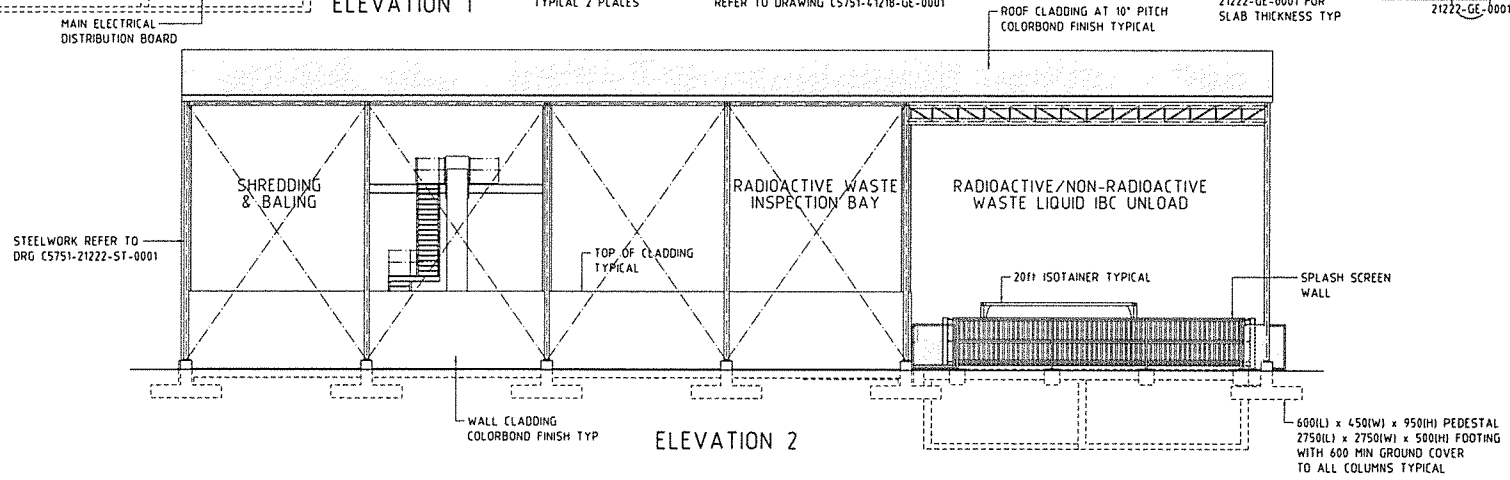
	BY	DATE
DRAWN	TS	09/08/2017
CHECKED	DT	09/08/2017
DES ENG	DL	09/08/2017
BFS MAN	DL	09/08/2017
CLIENT		

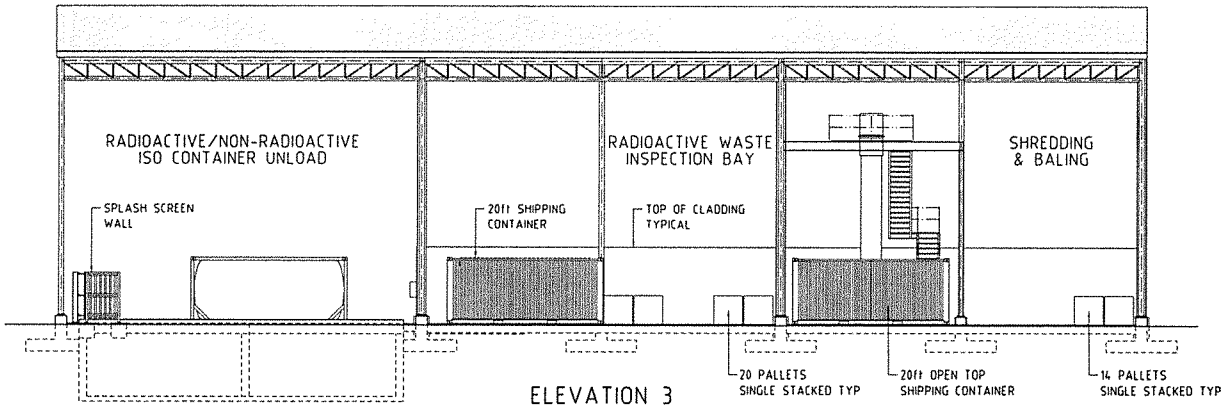
TITLE
SANDY RIDGE PROJECT
BANKABLE FEASIBILTY STUDY (BFS)
VALUE ENGINEERED RADIOACTIVE WAREHOUSE & YARD
ELEVATIONS

SIZE	SCALE	DRG No	REV
A1	1:100	TSR-3-PO-07300-EG-DGA-0009	0









2 1 0 2 4 6 Metres
SCALE 1 100

PRELIMINARY
NOT FOR CONSTRUCTION

REF DRG No	TITLE	REV	BY	DATE	DESCRIPTION	CKD	ENG
		0	TS	09/08/2017	ISSUED FOR BFS	DT	JL

TELLUS

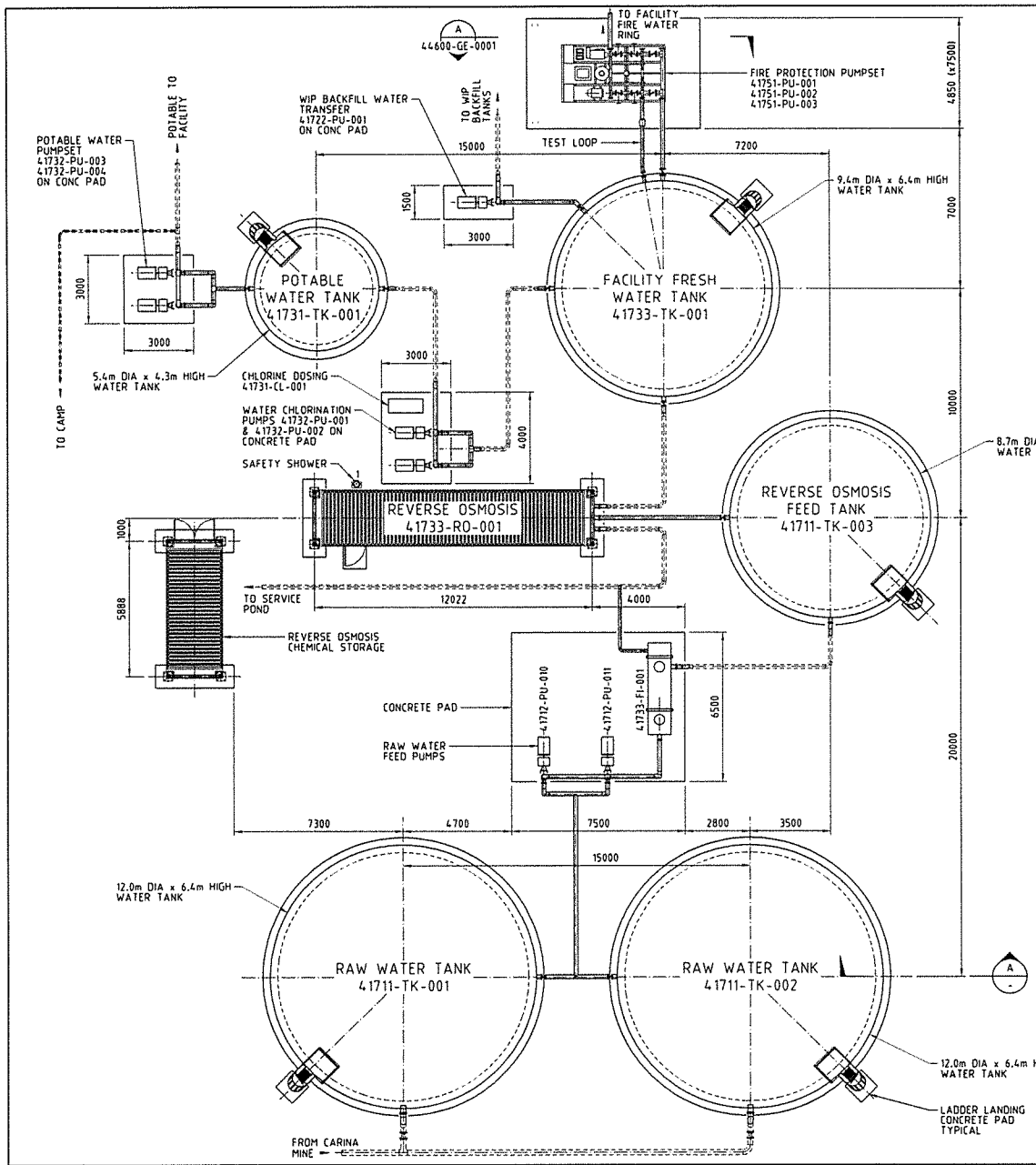
VENDOR
ONYX PROJECTS
Project Managers & Engineers

VENDOR DRG No	REV
C5751-21222-GE-0002	C

	BY	DATE
DRAWN	TS	09/08/2017
CHECKED	DT	09/08/2017
DES ENG	DL	09/08/2017
BFS MAN	DL	09/08/2017
CLIENT		

TITLE
SANDY RIDGE PROJECT
BANKABLE FEASIBILTY STUDY (BFS)
VALUE ENGINEERED RADIOACTIVE WAREHOUSE & YARD
ELEVATIONS

A1	SCALE 1:100	DRG No TSR-3-PO-07300-EG-DGA-0009	REV 0



DESIGN CRITERIA	
DESIGN LIFE	25 YEARS
WIND REGION	A4
IMPORTANCE LEVEL	2
TERRAIN CATEGORY	2

HOLD:

1. ALL PIPE SIZES ARE ON HOLD

CONSTRUCTION NOTES (NON-CYCLONIC SPECIFICATION)

WATER TANK RING BEAMS.
REINFORCEMENT - 100 kg/m³, CONCRETE GRADE S32 MPa

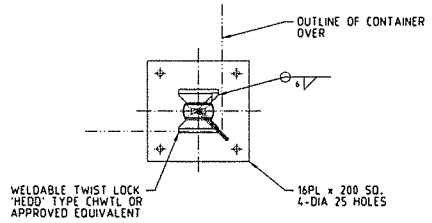
CONTAINER FOOTINGS
3400x1000x300 THICK
REINFORCEMENT - 100 kg/m³, CONCRETE GRADE S32 MPa
CHEMI ANCHOR / HEDD TWIST LOCK BASEPLATE CONNECTIONS TYPICAL

PUMPING CONCRETE PADS
200 THICK, REINFORCEMENT - 100 kg/m³, CONCRETE GRADE S32 MPa
CHEMI ANCHOR CONNECTIONS TYPICAL

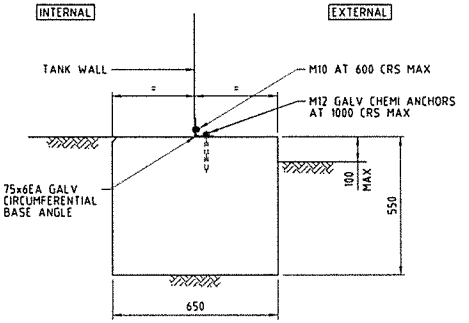
ACCESS LADDER CONCRETE LANDINGS:
1000x1000x100 THICK
REINFORCEMENT SL62 MESH TOP, CONCRETE GRADE S32 MPa
CHEMI ANCHOR CONNECTIONS TYPICAL

FITTINGS & FIXTURES

No	DESCRIPTION	QTY
1	SAFETY SHOWER WITH GREEN MAINTAINED LED LIGHT OVER	1



INSTALLED ORIENTATION VARIES
CONTAINER TIE-DOWN
SCALE 1:10



SECTION A-A
1:10
TYPICAL TANK RING BEAM

0.2 0.1 0 0.2 0.4 0.6 Metres
SCALE 1:10

2 1 0 2 4 6 Metres
SCALE 1:100

PRELIMINARY NOT FOR CONSTRUCTION

REF DRG No	TITLE	REV	BY	DATE	DESCRIPTION	CKD	ENG
		0	SW	09/08/2017	ISSUED FOR BFS	JL	JL

TELLUS

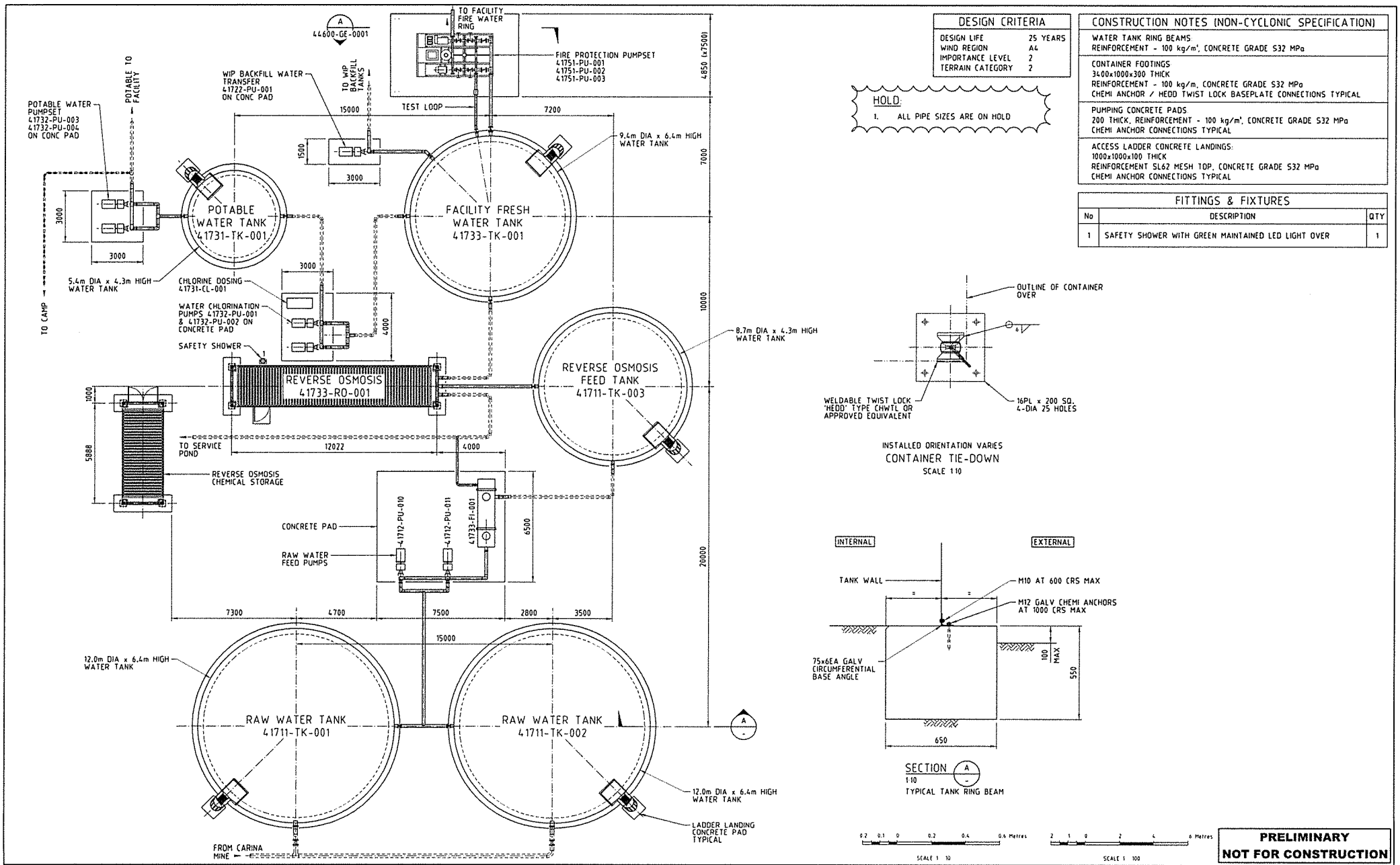
VENDOR
ONYX PROJECTS
Project Managers & Engineers

VENDOR DRG No: C5751-41730-GE-0001
REV: A

	BY	DATE
DRAWN	SW	09/08/2017
CHECKED	JL	09/08/2017
DES ENG	JL	09/08/2017
BFS MAN	JL	09/08/2017
CLIENT		

TITLE
SANDY RIDGE PROJECT
BANKABLE FEASIBILTY STUDY (BFS)
WATER SYSTEM
GENERAL ARRANGEMENT

A1 | SCALE 1:100 | DRG No TSR-3-PO-07300-GE-DGA-0018 | REV 0



DESIGN CRITERIA	
DESIGN LIFE	25 YEARS
WIND REGION	A4
IMPORTANCE LEVEL	2
TERRAIN CATEGORY	2

HOLD:

1. ALL PIPE SIZES ARE ON HOLD

CONSTRUCTION NOTES (NON-CYCLONIC SPECIFICATION)

WATER TANK RING BEAMS:
REINFORCEMENT - 100 kg/m³, CONCRETE GRADE S32 MPa

CONTAINER FOOTINGS
3400x1000x300 THICK
REINFORCEMENT - 100 kg/m, CONCRETE GRADE S32 MPa
CHEMI ANCHOR / HEDD TWIST LOCK BASEPLATE CONNECTIONS TYPICAL

PUMPING CONCRETE PADS
200 THICK, REINFORCEMENT - 100 kg/m³, CONCRETE GRADE S32 MPa
CHEMI ANCHOR CONNECTIONS TYPICAL

ACCESS LADDER CONCRETE LANDINGS:
1000x1000x100 THICK
REINFORCEMENT SL62 MESH TOP, CONCRETE GRADE S32 MPa
CHEMI ANCHOR CONNECTIONS TYPICAL

FITTINGS & FIXTURES

No	DESCRIPTION	QTY
1	SAFETY SHOWER WITH GREEN MAINTAINED LED LIGHT OVER	1

INSTALLED ORIENTATION VARIES
CONTAINER TIE-DOWN
SCALE 1:10

SECTION A
1:10
TYPICAL TANK RING BEAM

0.2 0.1 0 0.2 0.4 0.6 Metres
SCALE 1:10

2 1 0 2 4 6 Metres
SCALE 1:100

PRELIMINARY NOT FOR CONSTRUCTION

REV	BY	DATE	DESCRIPTION	CHD	ENG
0	SW	09/08/2017	ISSUED FOR BFS	JL	JL

REF DRG No | TITLE

TELLUS

VENDOR
ONYX PROJECTS
Project Managers & Engineers

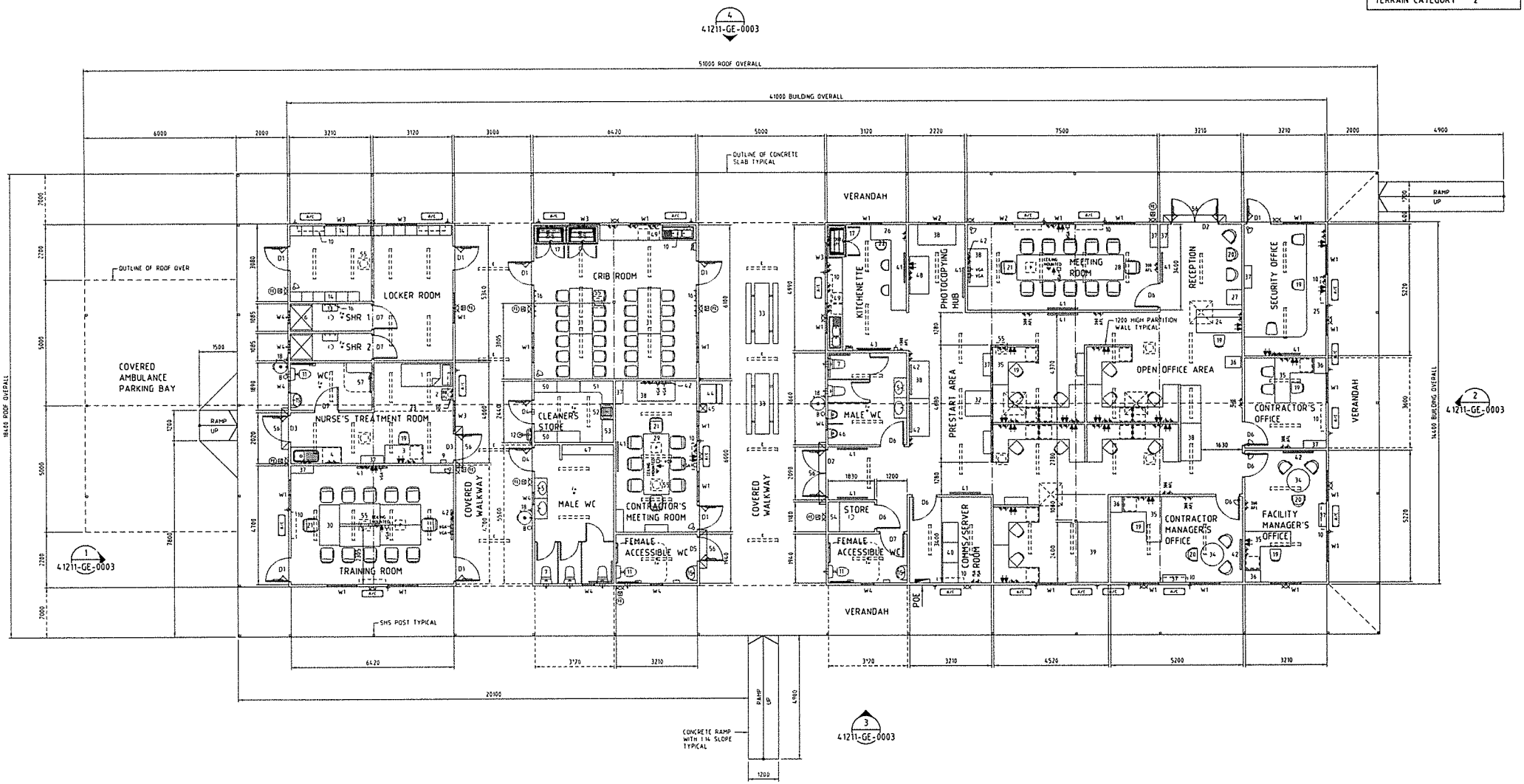
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C5751-41730-GE-0001	A

	BY	DATE
DRAWN	SW	09/08/2017
CHECKED	JL	09/08/2017
DES ENG	JL	09/08/2017
BFS MAN	JL	09/08/2017
CLIENT		

TITLE
SANDY RIDGE PROJECT
BANKABLE FEASIBILTY STUDY (BFS)
WATER SYSTEM
GENERAL ARRANGEMENT

SIZE	SCALE	DRG No	REV
A1	1:100	TSR-3-PO-07300-GE-DGA-0018	0

DESIGN CRITERIA	
DESIGN LIFE	25 YEARS
WIND REGION	A4
IMPORTANCE LEVEL	3
TERRAIN CATEGORY	2



FLOOR PLAN

REFER TO DRG C5751-41211-GE-0001 FOR FITTINGS & FIXTURES LIST

1.5 0 1.5 3 4.5 Metres

SCALE 1 75

PRELIMINARY
NOT FOR CONSTRUCTION

REF DRG No	TITLE	REV	BY	DATE	DESCRIPTION	CKD	ENG
		0	BK	09/08/2017	ISSUED FOR BFS	JL	JL

TELLUS

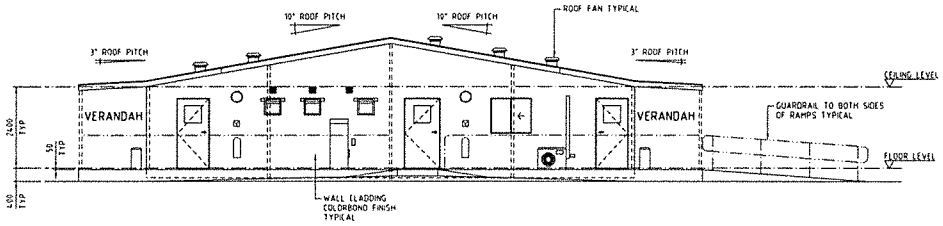
VENDOR
ONYX PROJECTS
Project Managers & Engineers

VENDOR DRG No	REV
C5751-41211-GE-0002	A

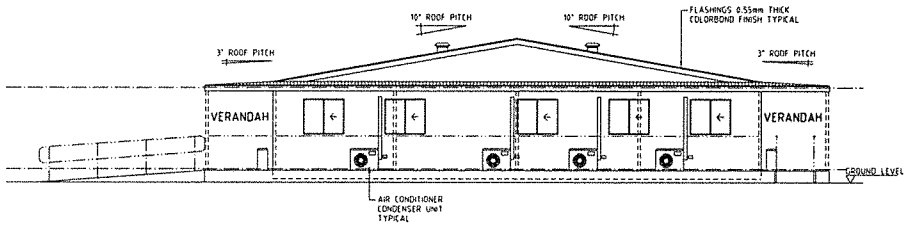
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CHECKED	JL	09/08/2017
DES ENG	JL	09/08/2017
BFS MAN	JL	09/08/2017
CLIENT		

TITLE
SANDY RIDGE PROJECT
BANKABLE FEASIBILTY STUDY (BFS)
MAIN OFFICE
FLOOR PLAN

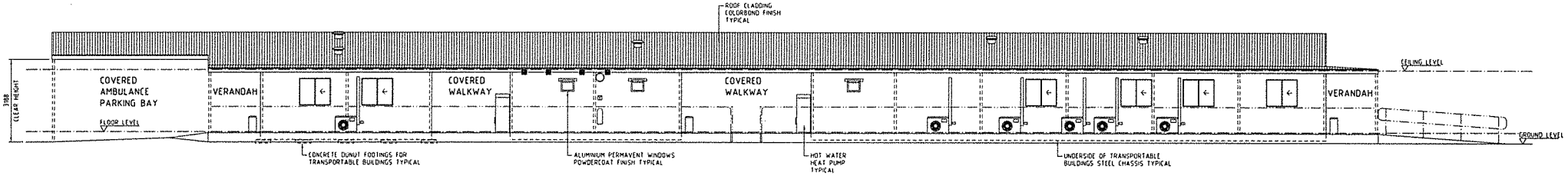
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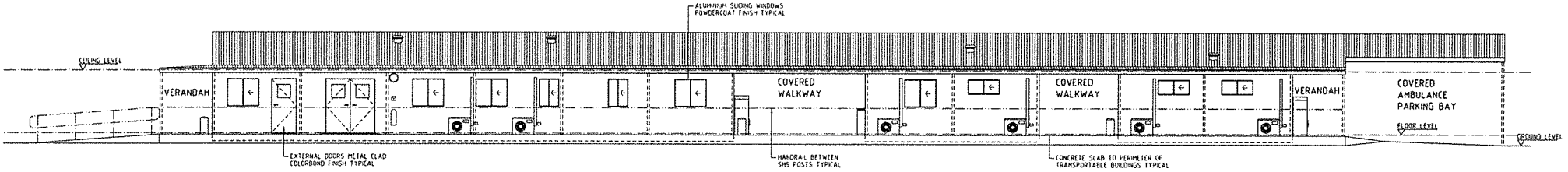
ELEVATION 1



ELEVATION 2



ELEVATION 3



ELEVATION 4

1.5 0 1.5 3 4.5 Metres

SCALE 1 75

PRELIMINARY
NOT FOR CONSTRUCTION

REF DRG No	TITLE	REV	BY	DATE	DESCRIPTION	CKD	ENG
		0	BK	09/08/2017	ISSUED FOR BFS	JL	JL

TELLUS

VENDOR
ONYX PROJECTS
Project Managers & Engineers

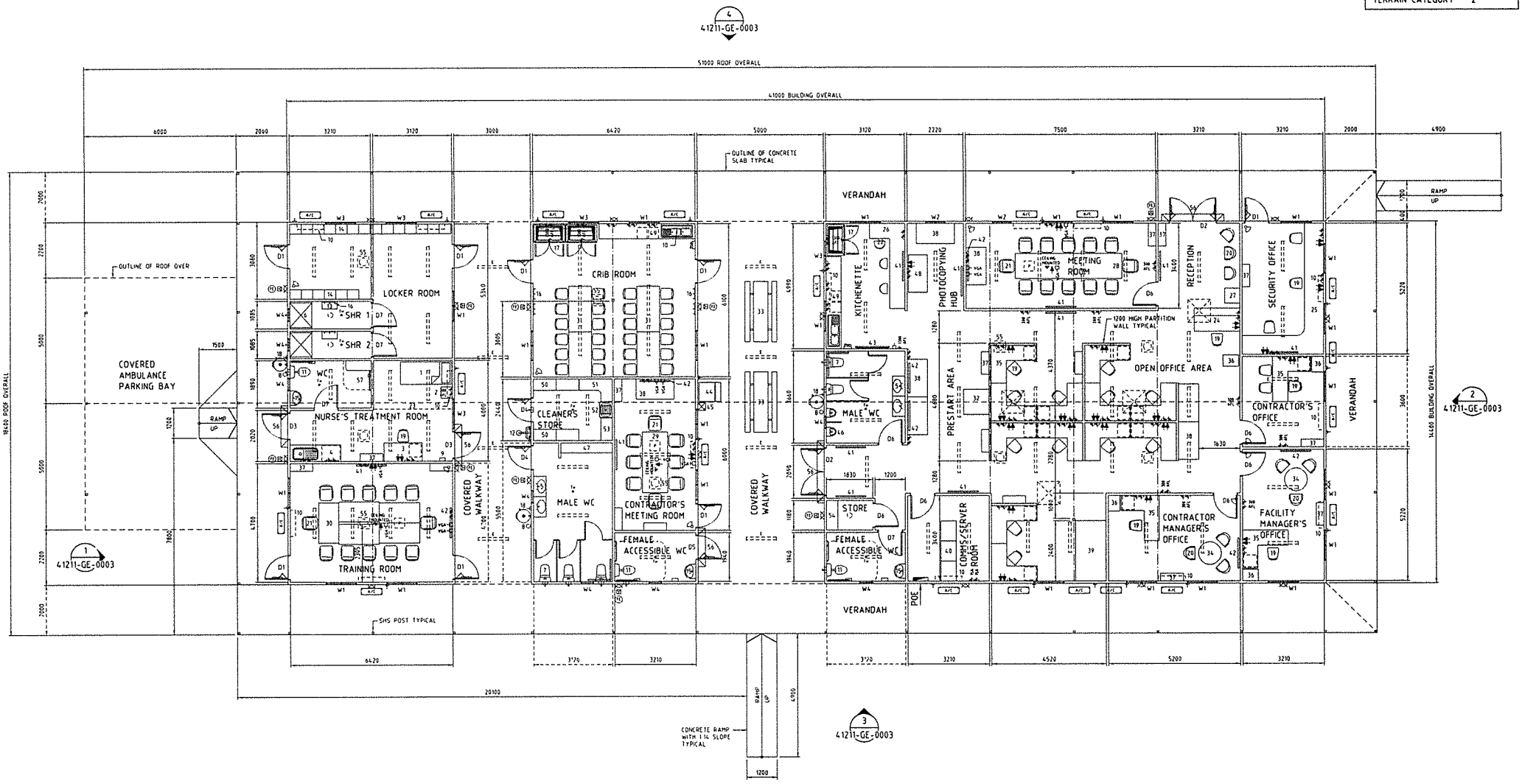
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	BY	DATE
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CHECKED	JL	09/08/2017
DES ENG	JL	09/08/2017
BFS MAN	JL	09/08/2017
CLIENT		

TITLE
SANDY RIDGE PROJECT
BANKABLE FEASIBILTY STUDY (BFS)
MAIN OFFICE
ELEVATIONS

A1 | SCALE 1:75 | DRG No TSR-3-PO-07300-GE-DWG-0004 | REV 0

DESIGN CRITERIA	
DESIGN LIFE	25 YEARS
WIND REGION	A4
IMPORTANCE LEVEL	3
TERRAIN CATEGORY	2



FLOOR PLAN

REFER TO DRG C5751-41211-GE-0001 FOR FITTINGS & FIXTURES LIST

1.5 0 1.5 3 4.5 Metres

SCALE 1 75

PRELIMINARY
NOT FOR CONSTRUCTION

REF DRG No	TITLE	REV	BY	DATE	DESCRIPTION	CKD	ENG
		0	BK	09/08/2017	ISSUED FOR BFS	JL	JL

TELLUS

VENDOR

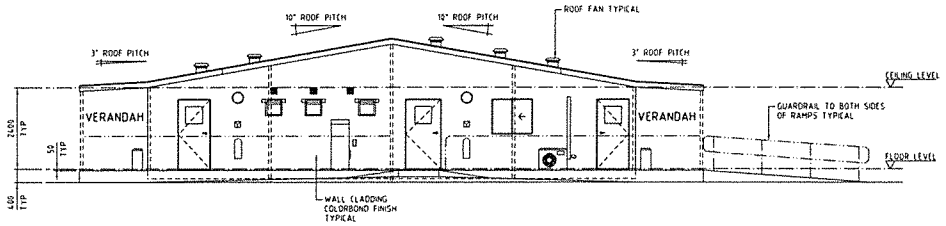
ONYX PROJECTS
Project Managers & Engineers

VENDOR DRG No: C5751-41211-GE-0002 | REV: A

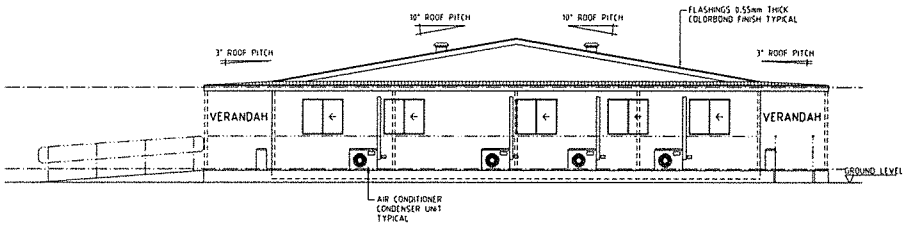
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DES ENG	JL	09/08/2017
BFS MAN	JL	09/08/2017
CLIENT		

TITLE
SANDY RIDGE PROJECT
BANKABLE FEASIBILTY STUDY (BFS)
MAIN OFFICE
FLOOR PLAN

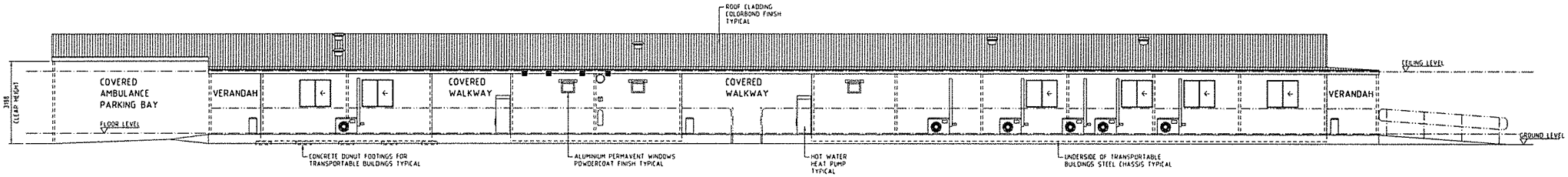
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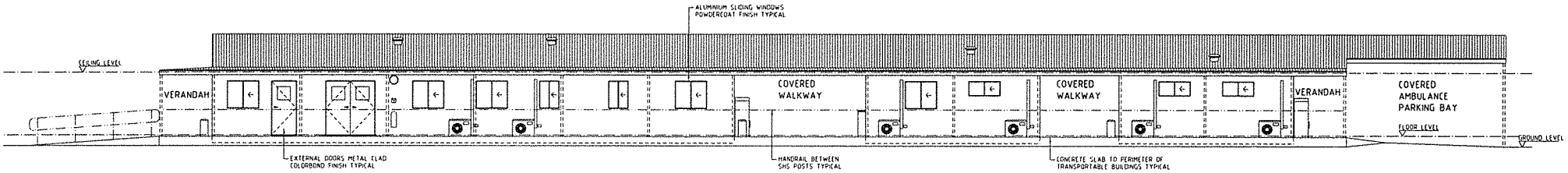
ELEVATION 1



ELEVATION 2



ELEVATION 3



ELEVATION 4

1.5 0 1.5 3 4.5 Metres

SCALE 1 75

PRELIMINARY
NOT FOR CONSTRUCTION

REF DRG No	TITLE	REV	BY	DATE	DESCRIPTION	CKD	ENG
		0	BK	09/08/2017	ISSUED FOR BFS	JL	JL

TELLUS

VENDOR
ONYX PROJECTS
Project Managers & Engineers

VENDOR DRG No: C5751-41211-GE-0003 | REV: A

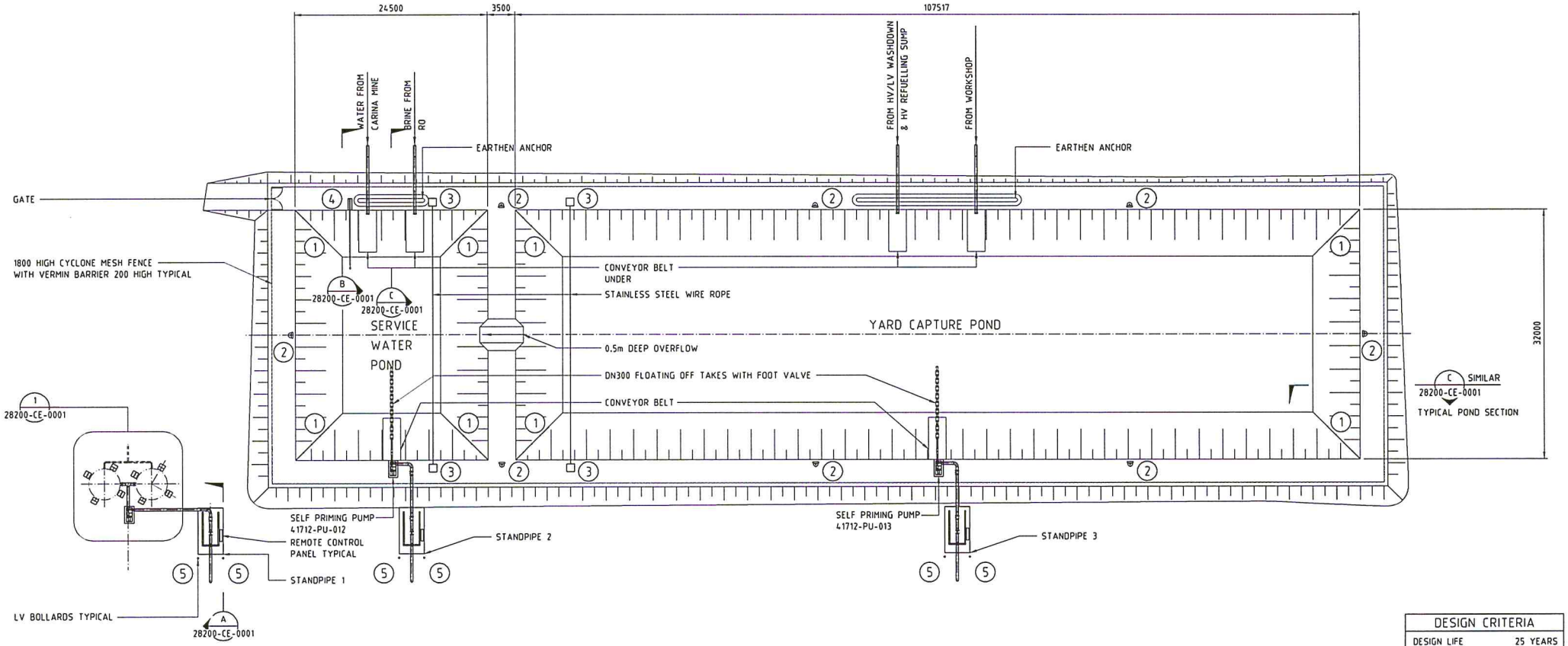
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CHECKED	JL	09/08/2017
DES ENG	JL	09/08/2017
BFS MAN	JL	09/08/2017
CLIENT		

TITLE
SANDY RIDGE PROJECT
BANKABLE FEASIBILTY STUDY (BFS)
MAIN OFFICE
ELEVATIONS

A1 | SCALE 1:75 | DRG No TSR-3-PO-07300-GE-DWG-0004 | REV 0

ITEM LIST		
No	DESCRIPTION	QTY
1	ROPE CLIMB ASSIST C/W CLIMBING MAT	8
2	LIFE BUOY ON POLE WITH 30m OF FLOATING LINE C/W 600 DIAMETER x 600 DEEP FOOTING	8
3	ANCHOR BLOCK FOR FLOAT SWITCH SUPPORT 1000x1000x1000 DEEP TYPICAL CONCRETE BLOCK	4
4	FLOAT VALVE SUPPORT ASSEMBLY	1
5	LV BOLLARDS - 1000x600 SQ CONCRETE FOOTING CONCRETE GRADE S32 MPa DN200 STD WT GALV PIPE 1200 HIGH CONCRETE FILLED AND DOMED PAINTED BLACK AND YELLOW IN 200 WIDE BANDS	6

CONSTRUCTION NOTES (NON-CYCLONIC SPECIFICATION)
POND CONSTRUCTION: COMPACTED EARTHEN PONDS COMPLETE WITH HDPE LINER
POND STANDPIPE PUMPS FOUNDED ON COMPACTED EARTHEN PAD



DESIGN CRITERIA	
DESIGN LIFE	25 YEARS
WIND REGION	A4
IMPORTANCE LEVEL	2
TERRAIN CATEGORY	2

GENERAL ARRANGEMENT SCALE 1:250

5 0 5 10 15 Metres
SCALE 1 250

PRELIMINARY NOT FOR CONSTRUCTION

REF DRG No	TITLE	REV	BY	DATE	DESCRIPTION	CKD	ENG
		*	AB	09/08/2017	ISSUED FOR BFS	JL	JL

TELLUS

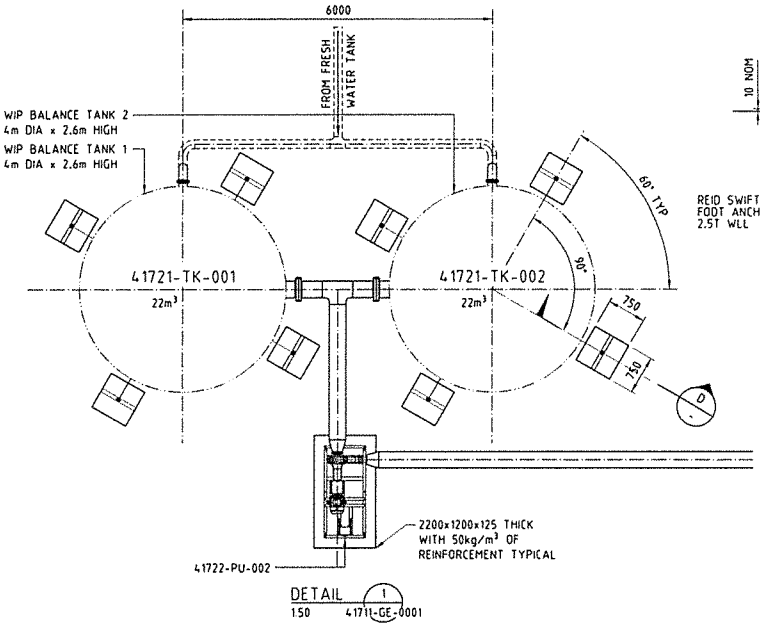
VENDOR
ONYX PROJECTS
Project Managers & Engineers

VENDOR DRG No	REV
C5751-28200-GE-0001	A

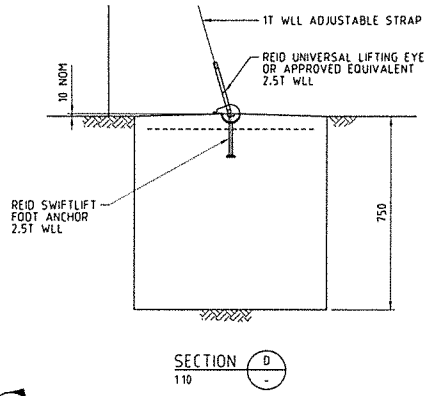
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DRAWN	AB	09/08/2017
CHECKED	JL	09/08/2017
DES ENG	JL	09/08/2017
BFS MAN	JL	09/08/2017
CLIENT		

TITLE
SANDY RIDGE PROJECT
BANKABLE FEASIBILTY STUDY (BFS)
SERVICE WATER & CONTAINER YARD CAPTURE PONDS

A1	SCALE 1:250 UNO	DRG No TSR-3-PO-07300-GE-DWG-0040	REV 0

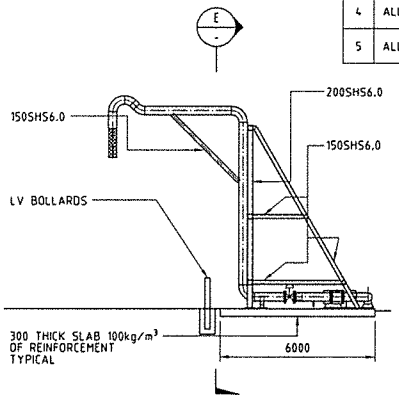


DETAIL 1 / 1:50 / 41711-GE-0001

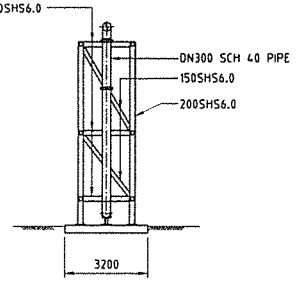


SECTION D / 1:10

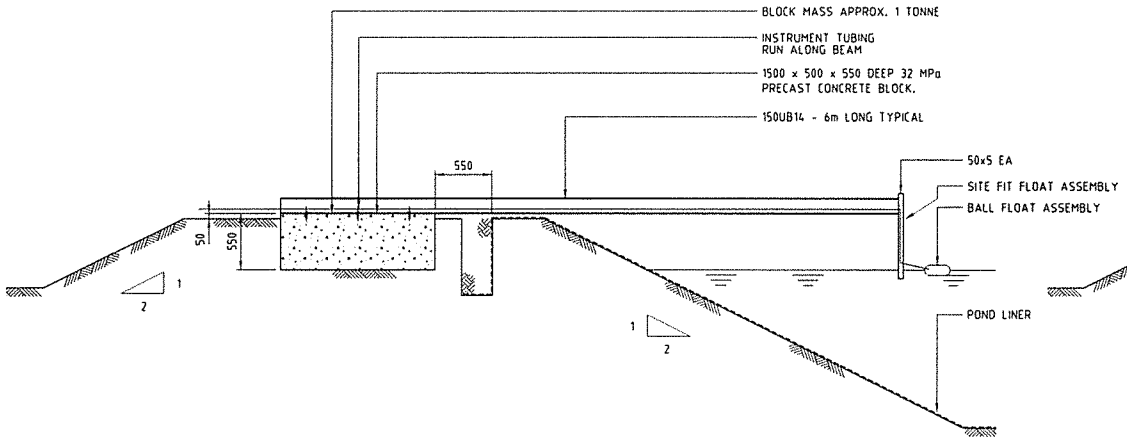
GENERAL NOTES	
No	DESCRIPTION
1	CONCRETE GRADE TO BE S32 MPa
2	REINFORCEMENT TO BE GRADE 500 AS PER AS/NZS 4671
3	GROUND BEARING PRESSURE 250kPa TYPICAL
4	ALL STEELWORK TO BE HOT DIPPED GALVANISED
5	ALL CONCRETE FOUNDED ON WATERPROOF MEMBRANE TYPICAL



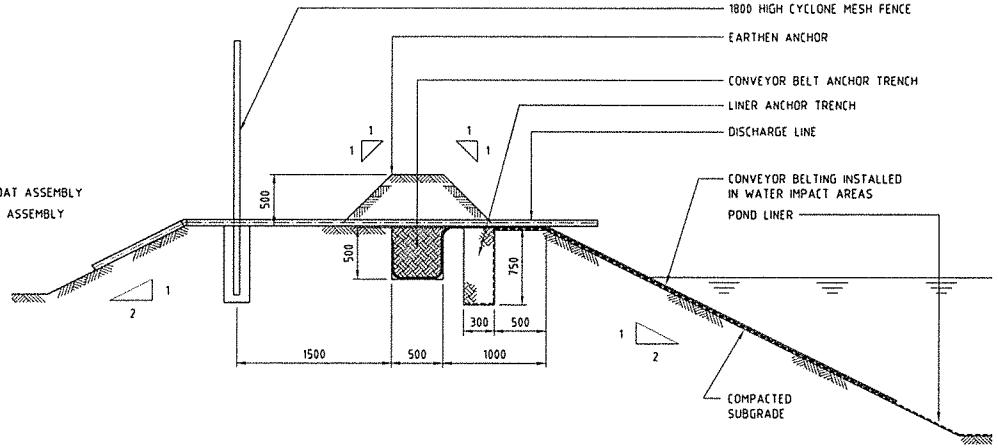
SECTION A / 1:100 / 28200-GE-0001



SECTION E / 1:100



SECTION B / 1:25 / 28200-GE-0001



SECTION C / 1:25 / 28200-GE-0001

DESIGN CRITERIA	
DESIGN LIFE	25 YEARS
WIND REGION	A4
IMPORTANCE LEVEL	2
TERRAIN CATEGORY	2

2 1 0 2 4 6 Metres — SCALE 1 : 100

1 0 1 2 3 Metres — SCALE 1 : 50

0.5 0 0.5 1.0 1.5 Metres — SCALE 1 : 25

0.2 0.1 0 0.2 0.4 0.6 Metres — SCALE 1 : 10

PRELIMINARY
NOT FOR CONSTRUCTION

REF DRG No	TITLE	REV	BY	DATE	DESCRIPTION	CKD	ENG
		0	AB	09/08/2017	ISSUED FOR BFS	PC	JL

TELLUS

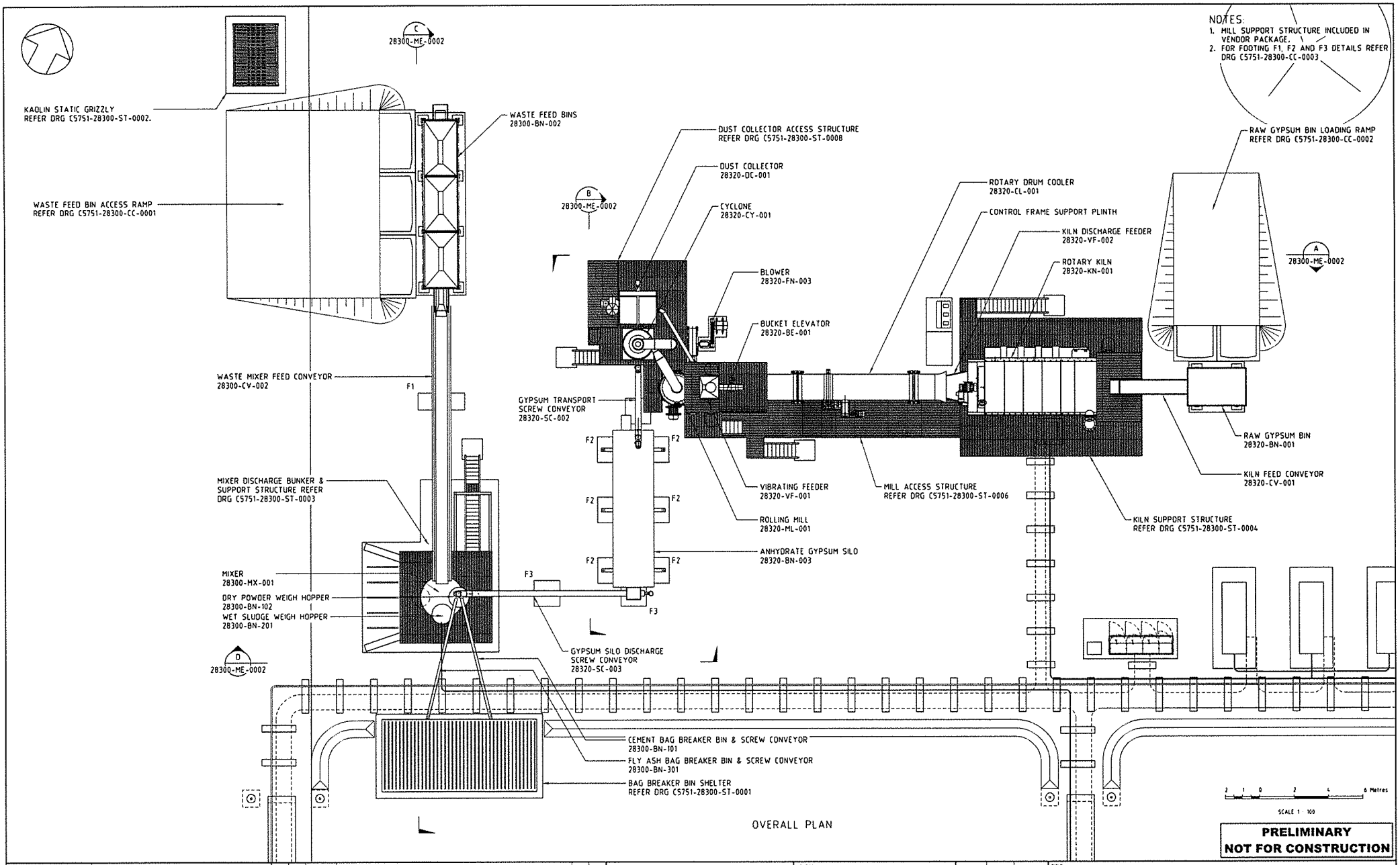
VENDOR: ONYX PROJECTS — Project Managers & Engineers

VENDOR DRG No: C5751-28200-CE-0001 REV: A

	BY	DATE
DRAWN	AB	09/08/2017
CHECKED	PC	09/08/2017
DES ENG	JL	09/08/2017
BFS MAN	JL	09/08/2017
CLIENT		

TITLE
SANDY RIDGE PROJECT
BANKABLE FEASIBILTY STUDY (BFS)
SERVICE WATER & CONTAINER YARD CAPTURE PONDS
SECTIONS AND DETAILS

A1 | SCALE 1:25 UNO | DRG No TSR-3-PO-07300-GE-DWG-0042 | REV 0



REF DRG No	TITLE	REV	BY	DATE	DESCRIPTION	CKD	ENG
		0	BA	10/08/2017	ISSUED FOR BFS	JL	JL

TELLUS

VENDOR

ONYX PROJECTS
Project Managers & Engineers

VENDOR DRG No	REV
C5751-28300-ME-0001	A

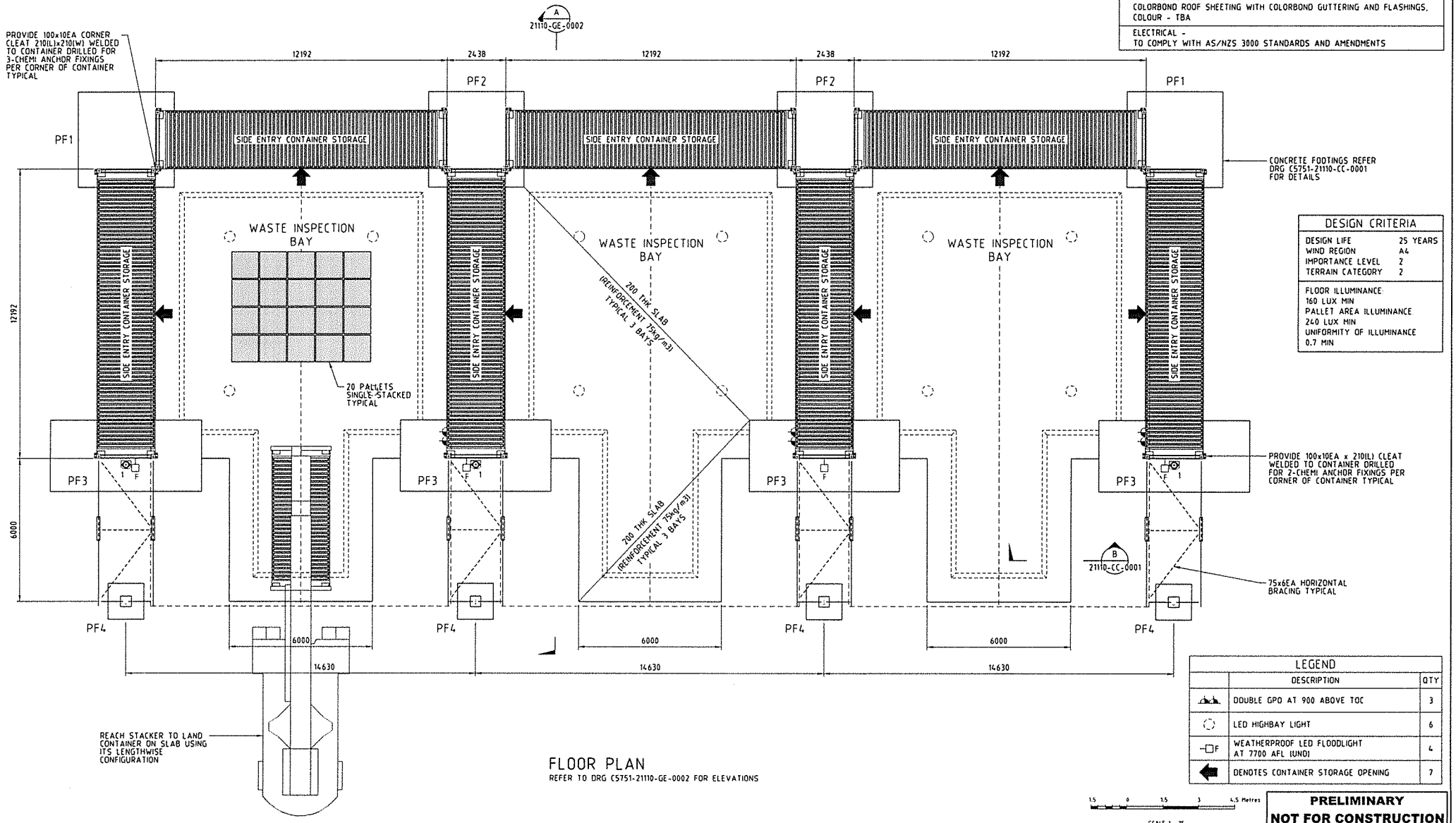
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CHECKED	JL	10/08/2017
DES ENG	JL	10/08/2017
BFS MAN	JL	10/08/2017
CLIENT		

TITLE
SANDY RIDGE PROJECT
BANKABLE FEASIBILTY STUDY (BFS)
WASTE IMMOBILISATION PLANT
GENERAL ARRANGEMENT – PLAN SHEET 1

A1	SCALE 1:100	DRG No TSR-3-PO-07300-GE-DGA-0044	REV 0

FITTINGS & FIXTURES		
No	DESCRIPTION	QTY
1	SAFETY SHOWER WITH GREEN MAINTAINED LED LIGHT OVER	3

CONSTRUCTION NOTES (NON-CYCLONIC SPECIFICATION)
FLOOR SLAB - DESIGNED FOR 3.5T FORKLIFT & 1T PALLETS STACKED 2 HIGH MAXIMUM CONCRETE TO BE GRADE S32 MPa
ROOF CLADDING - COLORBOND ROOF SHEETING WITH COLORBOND GUTTERING AND FLASHINGS, COLOUR - TBA
ELECTRICAL - TO COMPLY WITH AS/NZS 3000 STANDARDS AND AMENDMENTS



DESIGN CRITERIA	
DESIGN LIFE	25 YEARS
WIND REGION	A4
IMPORTANCE LEVEL	2
TERRAIN CATEGORY	2
FLOOR ILLUMINANCE: 160 LUX MIN PALLET AREA ILLUMINANCE 240 LUX MIN UNIFORMITY OF ILLUMINANCE 0.7 MIN	

LEGEND		
	DESCRIPTION	QTY
	DOUBLE GPO AT 900 ABOVE TOC	3
	LED HIGHBAY LIGHT	6
F	WEATHERPROOF LED FLOODLIGHT AT 7700 AFL (UNO)	4
	DENOTES CONTAINER STORAGE OPENING	7

FLOOR PLAN

REFER TO DRG C5751-21110-GE-0002 FOR ELEVATIONS

1.5 0 1.5 3 4.5 Metres

SCALE 1 : 75

PRELIMINARY
NOT FOR CONSTRUCTION

REF DRG No	TITLE	REV	BY	DATE	DESCRIPTION	CKD	ENG
		0	SW	08/08/2017	ISSUED FOR BFS	PC	JL

TELLUS

VENDOR

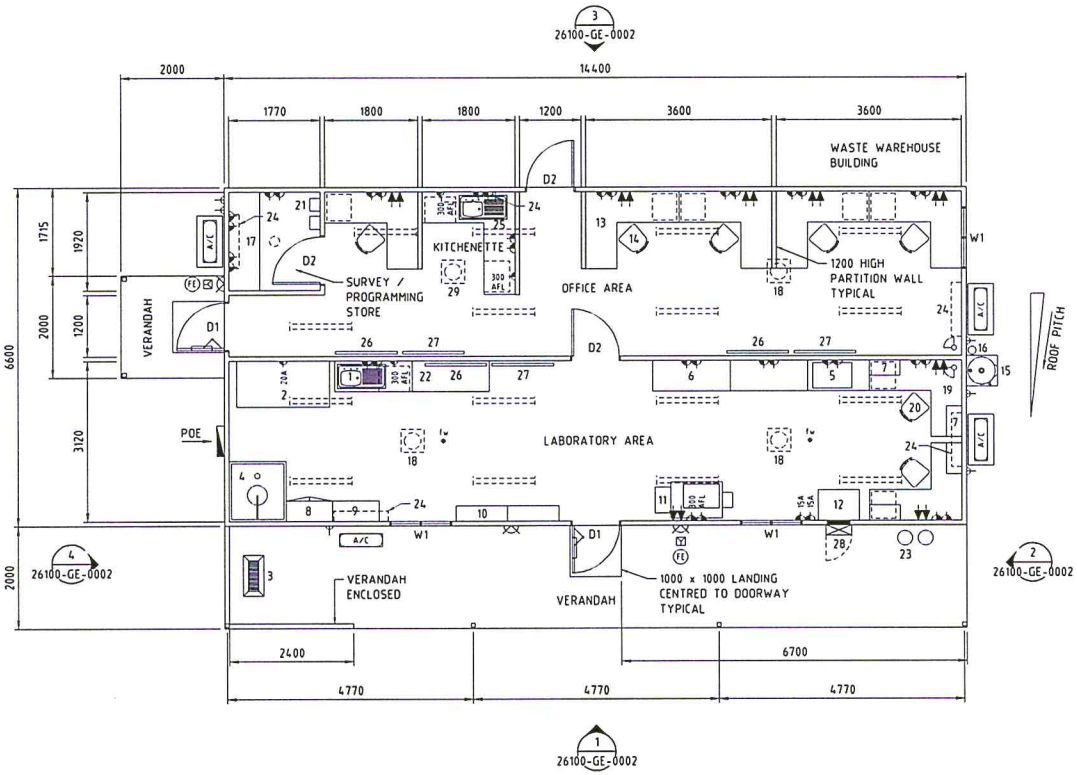
ONYX PROJECTS
Project Managers & Engineers

VENDOR DRG No: C5751-21110-GE-0001 REV: A

	BY	DATE
DRAWN	SW	08/08/2017
CHECKED	PC	08/08/2017
DES ENG	JL	08/08/2017
BFS MAN	JL	08/08/2017
CLIENT		

TITLE
SANDY RIDGE PROJECT
BANKABLE FEASIBILTY STUDY (BFS)
WASTE INSPECTION BAYS
GENERAL ARRANGEMENT

A1	SCALE 1:75	DRG No TSR-3-PO-07300-GE-DGA-0002	REV 0



FLOOR PLAN

REFER TO DRG C5751-26100-GE-0002 FOR ELEVATIONS

DESIGN CRITERIA

DESIGN LIFE	25 YEARS
WIND REGION	A4
IMPORTANCE LEVEL	2
TERRAIN CATEGORY	2

LEGEND

	DESCRIPTION	QTY
	LED OYSTER LIGHT FITTING	1
	18w LED BATTEN LIGHT	16
	SINGLE GPO AT 900 AFL (UON)	4
	DOUBLE GPO AT 900 AFL (UON)	18
	ISOLATOR - 10Amp AT 400 AFL	6
	RJ45 (CAT6) AT 900 AFL	16
	EXTERNAL LED BULKHEAD LIGHT (AT 2200 AFL) WIRED TO PE CELL & BY-PASS SWITCH TO DB	3
	LOCKABLE MAIN ELECTRICAL DISTRIBUTION BOARD	1
	EXTERNAL FIRE ALARM BREAKGLASS AT 1400 AFL WITH BELL AT 2100 AFL	2
	MOTION SENSOR c/w LOCKABLE BYPASS SWITCH & TIMER LINKED TO AC & LIGHT CIRCUITS	2
POE	ELECTRICAL POINT OF ENTRY	1
A/C	AIR CONDITIONER CONDENSER UNIT	5
FE	9kg FIRE EXTINGUISHER (DRY POWDER) WALL MOUNTED AT 900 AFL	2
fw	FLOOR WASTE (FLOOR GRADED TO WASTE AND CONNECTED TO SEWER)	2

DOOR AND WINDOW SCHEDULE

No	DESCRIPTION	QTY
D1	2040 x 920mm METAL CLAD DOOR IN METAL FRAME C/W ENTRANCE SET DOOR FURNITURE. (MASTER KEYED). DOOR CLOSER. 500 x 500 VIEWING PANEL & SIGNAGE. COLOUR - TBA	2
D2	2040 x 920mm TIMBER DOOR IN METAL FRAME C/W DOOR FURNITURE. 500 x 500 VIEWING PANEL & SIGNAGE. COLOUR - TBA.	3
W1	1000(H) x 1200(W) ALUMINIUM FRAMED POWDERCOAT FINISH SLIDING WINDOW C/W LOCK. FLYSCREEN & 1 PASS BLOCKOUT ROLLER BLIND.	3

FITTINGS & FIXTURES

No	DESCRIPTION	QTY
1	EPOXY LABORATORY BENCHTOP 1500(L) x 600(D) C/W SINK. CUPBOARD UNIT. UNDER BENCH DISHWASHER & HOT WATER UNIT.	1
2	FUME CUPBOARD C/W EXHAUST STACK	1
3	RIFFLE SPLITTER (SMALL)	1
4	SAFETY SHOWER FITTED WITH MAINTAINED GREEN LIGHT	1
5	EPOXY LABORATORY BALANCE BENCH 1200(L) x 600(D) x 800(H) C/W UNDER BENCH SHELF. ICP MASS SPECTROMETER (NON CHILLED WATER MODEL)	1
6	EPOXY LABORATORY BALANCE BENCH 1500(L) x 600(D) x 800(H) C/W UNDER BENCH SHELF. PH. CONDUCTIVITY AND BALANCES	2
7	ABOVE DESK SHELVING 600(W) x 300(D)	4
8	DANGEROUS GOODS CUPBOARD	1
9	SHELVING UNIT 900(W) x 400(D) x 1800(H)	1
10	SHELVING UNIT 1000(W) x 300(D) x 1800(H)	2
11	OFFICE PHOTOCOPIER / PRINTER UNIT	1
12	42RU COMMUNICATIONS RACK 800(W) x 600(D) C/W PATCH PANEL & FOBOT	1
13	L-SHAPED OFFICE DESK 1800(L) x 1500(W) x 600(D) x 730(H) C/W 3 DRAWER MOBILE PEDESTAL	5
14	MESH OFFICE CHAIR C/W CASTORS	5
15	ELECTRIC HEAT PUMP HOT WATER STORAGE SYSTEM	1
16	WATER FILTER	1

CONSTRUCTION NOTES (NON-CYCLONIC SPECIFICATION)

CHASSIS - 14.4m x 3.3m STEEL SKID BASE PAINTED RED OXIDE PRIMER
FLOORING - 18mm HIGH-DENSITY COMPRESSED FIBRE CEMENT SHEETING
FLOOR COVERING - 2mm ANTI-STATIC VINYL. COLOUR - TBA COMPLETE WITH 65mm BLACK PVC SKIRTING NON-SLIP VINYL TO WET AREAS. COLOUR - TBA
WALLS - 75 x 1.5mm STEEL STUD SECTION AT 600 CRS BOLTED TO SKID CEILING HEIGHT - 2400mm
INTERNAL CLADDING - POLY PLY TO CEILING AND WALL. COLOUR - WHITE COMPLETE WITH STAIN RESISTANT COATING DIVIDING WALLS BETWEEN ROOMS TO EXTEND CONTINUOUSLY UP TO UNDERSIDE OF ROOF (I.E. CEILING STOPS EACH SIDE OF WALL) DIVIDING WALLS BETWEEN ROOMS TO BE ACOUSTICALLY RATED 10% ABOVE THE BCA REQUIREMENT
INSULATION - ACOUSTIC INSULATION TO WALLS & CEILINGS TO COMPLY WITH LATEST EDITION OF THE BUILDING CODE OF AUSTRALIA
EXTERNAL CLADDING - COLORBOND. COLOUR - TBA
ROOF CLADDING - COLORBOND ROOF SHEETING WITH COLORBOND FLASHINGS FLASHING COLOUR - TBA
CANOPIES - COLORBOND ROOF SHEETING WITH COLORBOND FLASHINGS FLASHING COLOUR - TBA
ELECTRICAL - TO COMPLY WITH AS/NZS 3000 STANDARDS AND AMENDMENTS
PLUMBING - OFFICE AREA TO COMPLY WITH AS/NZS 3500 STANDARDS AND AMENDMENTS
PLUMBING - LABORATORY AREA TO COMPLY WITH AS/NZS 3500 STANDARDS AND AMENDMENTS. EFFLUENT FROM LAB SHALL BE COLLECTED AND DISCHARGED SEPARATELY TO OFFICE AREA.

FITTINGS & FIXTURES

No	DESCRIPTION	QTY
17	CUSTOM 600(D) x 900(H) BENCH WITH SHELVES BELOW. CARCASS COLOUR - 'WHITE'.	1
18	FANTECH HEAVY DUTY AXIAL FAN (AIR IN).	3
19	L-SHAPED EPOXY LABORATORY DESK 1800(L) x 1500(W) x 600(D) x 800(H) C/W MOBILE CHEMICAL RESISTANT CABINET WITH 2 SHELVES	2
20	LAB CHAIR - PU FOAM. BACKREST & CASTORS	2
21	TRIPOD AND STAFF RACK	2
22	EPOXY LABORATORY BENCH 1500(L) x 600(D) x 800(H)	1
23	LABORATORY GAS STORAGE CYLINDER	2
24	REVERSE CYCLE SPLIT SYSTEM INVERTER AIR CONDITIONER C/W REMOTE	5
25	CUSTOM L-SHAPED BENCHTOP C/W SINK. CUPBOARD UNIT. UNDER BENCH DISHWASHER. UNDER BENCH FRIDGE. HOT WATER UNIT & MICROWAVE.	1
26	NOTICE BOARD 1200(W) x 900(H)	3
27	WHITE BOARD 1200(W) x 900(H)	3
28	500(W) x 200(D) x 2200(H) CABLE ENTRY CABINET. CABINET TOP AT 2250 AFL. PROVIDE 450(W) x 200(H) PENETRATION THROUGH WALL FOR COMMS AT 2200 AFL.	1
29	FANTECH HEAVY DUTY AXIAL FAN (AIR OUT).	1

1 0 1 2 3 Metres

SCALE 1 : 50

PRELIMINARY
NOT FOR CONSTRUCTION

REF DRG No	TITLE	REV	BY	DATE	DESCRIPTION	CKD	ENG
		0	BK	09/08/2017	ISSUED FOR BFS	JL	JL

TELLUS

VENDOR

ONYX PROJECTS

Project Managers & Engineers

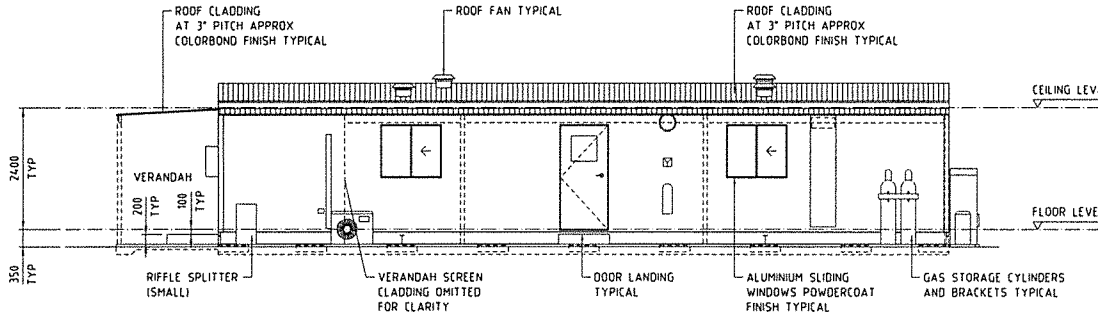
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C5751-26100-GE-0001	A

	BY	DATE
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BFS MAN	JL	09/08/2017
CLIENT		

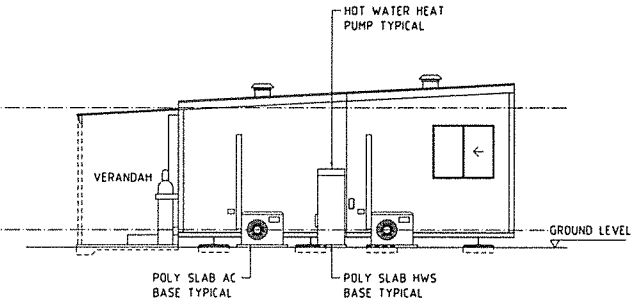
TITLE

SANDY RIDGE PROJECT
BANKABLE FEASIBILTY STUDY (BFS)
WASTE LABORATORY
GENERAL ARRANGEMENT

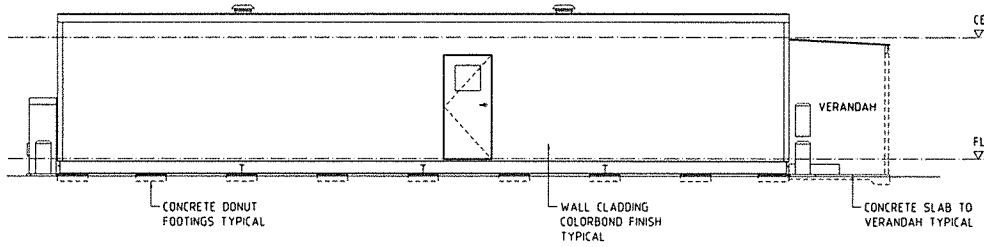
A1	SCALE 1:50	DRG No TSR-3-PO-07300-GE-DGA-0003	REV 0



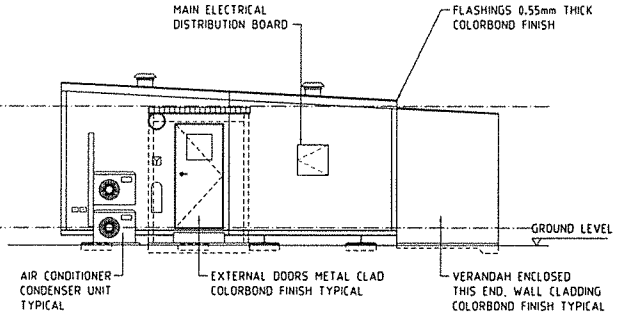
ELEVATION 1



ELEVATION 2



ELEVATION 3



ELEVATION 4

1 0 1 2 3 Metres

SCALE 1 50

PRELIMINARY
NOT FOR CONSTRUCTION

REF DRG No	TITLE	REV	BY	DATE	DESCRIPTION	CKD	ENG
		0	BK	09/08/2017	ISSUED FOR BFS	JL	JL

TELLUS

VENDOR

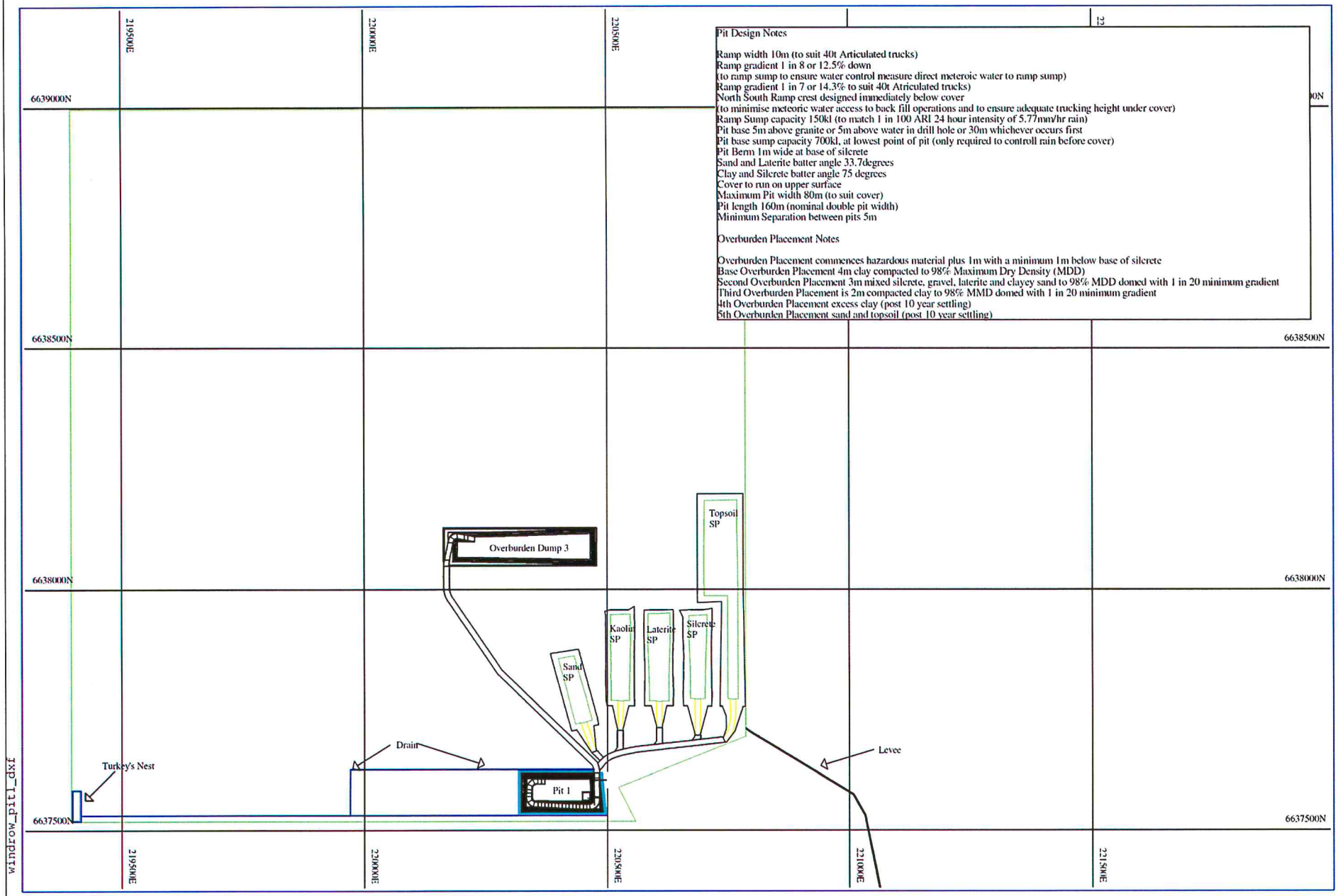
ONYX PROJECTS
Project Managers & Engineers

VENDOR DRG No	REV
C5751-26100-GE-0002	A

	BY	DATE
DRAWN	BK	09/08/2017
CHECKED	JL	09/08/2017
DES ENG	JL	09/08/2017
BFS MAN	JL	09/08/2017
CLIENT		

TITLE
SANDY RIDGE PROJECT
BANKABLE FEASIBILTY STUDY (BFS)
WASTE LABORATORY
ELEVATIONS

A1	SCALE 1:50	DRG No TSR-3-PO-07300-GE-DGA-0004	REV 0



Pit Design Notes

Ramp width 10m (to suit 40t Articulated trucks)
Ramp gradient 1 in 8 or 12.5% down
(to ramp sump to ensure water control measure direct meteroic water to ramp sump)
Ramp gradient 1 in 7 or 14.3% to suit 40t Atriculated trucks)
North South Ramp crest designed immediately below cover
(to minimise meteoric water access to back fill operations and to ensure adequate trucking height under cover)
Ramp Sump capacity 150kl (to match 1 in 100 ARI 24 hour intensity of 5.77mm/hr rain)
Pit base 5m above granite or 5m above water in drill hole or 30m whichever occurs first
Pit base sump capacity 700kl, at lowest point of pit (only required to controll rain before cover)
Pit Berm 1m wide at base of silcrete
Sand and Laterite batter angle 33.7degrees
Clay and Silcrete batter angle 75 degrees
Cover to run on upper surface
Maximum Pit width 80m (to suit cover)
Pit length 160m (nominal double pit width)
Minimum Separation between pits 5m

Overburden Placement Notes

Overburden Placement commences hazardous material plus 1m with a minimum 1m below base of silcrete
Base Overburden Placement 4m clay compacted to 98% Maximum Dry Density (MDD)
Second Overburden Placement 3m mixed silcrete, gravel, laterite and clayey sand to 98% MDD domed with 1 in 20 minimum gradient
Third Overburden Placement is 2m compacted clay to 98% MMD domed with 1 in 20 minimum gradient
4th Overburden Placement excess clay (post 10 year settling)
5th Overburden Placement sand and topsoil (post 10 year settling)

PRELIMINARY
NOT FOR CONSTRUCTION

SURPAC - Mining Plus Ltd

REF DRG No	TITLE	REV	BY	DATE	DESCRIPTION	CKD	ENG
		0	KG	17/08/2017	ISSUED FOR BFS	KG	KG

TELLUS

VENDOR: MINING PLUS
VENDOR DRG No: MG-DLA-0001
REV: 0

	BY	DATE
DRAWN	KG	17/08/2017
CHECKED	KG	17/08/2017
DES ENG	KG	17/08/2017
BFS MAN	JL	17/08/2017
CLIENT		

TITLE
SANDY RIDGE PROJECT
BANKABLE FEASIBILTY STUDY (BFS)
CELL AREA
LAYOUT OF PIT 1

A1 | SCALE: NTS | DRG No: TSR-3-PO-12000-MG-DLA-0001 | REV: 0

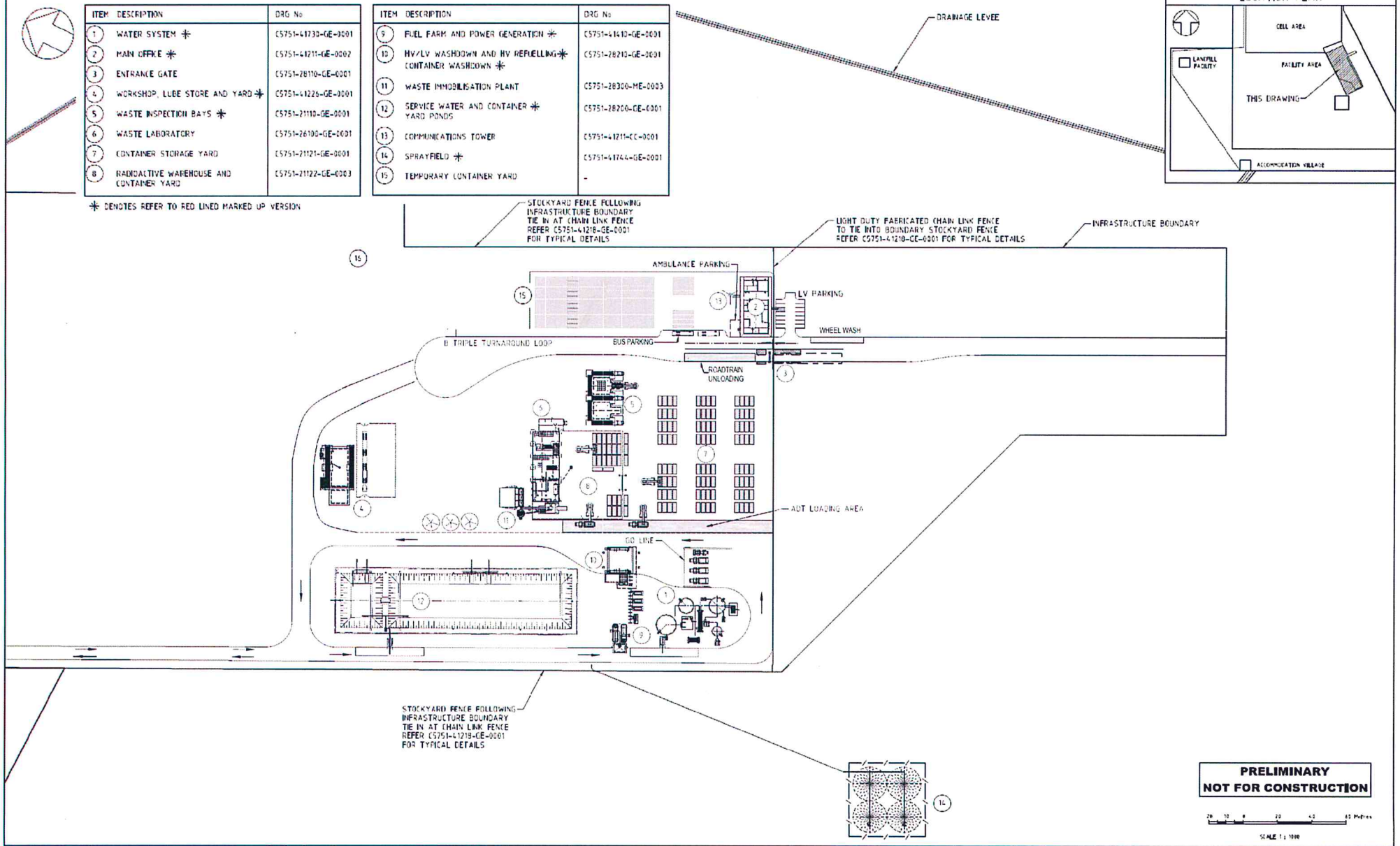
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ITEM	DESCRIPTION	DRG No
1	WATER SYSTEM ✳	C5751-41730-GE-0001
2	MAIN OFFICE ✳	C5751-41211-GE-0002
3	ENTRANCE GATE	C5751-28110-GE-0001
4	WORKSHOP, LUBE STORE AND YARD ✳	C5751-41226-GE-0001
5	WASTE INSPECTION BAYS ✳	C5751-21110-GE-0001
6	WASTE LABORATORY	C5751-26100-GE-0001
7	CONTAINER STORAGE YARD	C5751-21121-GE-0001
8	RADIOACTIVE WAREHOUSE AND CONTAINER YARD	C5751-21122-GE-0003

ITEM	DESCRIPTION	DRG No
9	FUEL FARM AND POWER GENERATION ✳	C5751-41410-GE-0001
10	HV/LV WASHDOWN AND HV REFUELLING ✳ CONTAINER WASHDOWN ✳	C5751-28210-GE-0001
11	WASTE IMMOBILISATION PLANT	C5751-28300-ME-0003
12	SERVICE WATER AND CONTAINER ✳ YARD PONDS	C5751-28200-GE-0001
13	COMMUNICATIONS TOWER	C5751-41211-EC-0001
14	SPRAYFIELD ✳	C5751-41744-GE-0001
15	TEMPORARY CONTAINER YARD	-

✳ DENOTES REFER TO RED LINED MARKED UP VERSION

LOCATION PLAN



PRELIMINARY
NOT FOR CONSTRUCTION

SCALE 1 : 1000

REF DRG No	TITLE	REV	BY	DATE	REMARKS FOR RFI	L	L
		0	TS	14/08/2017			

TELLUS

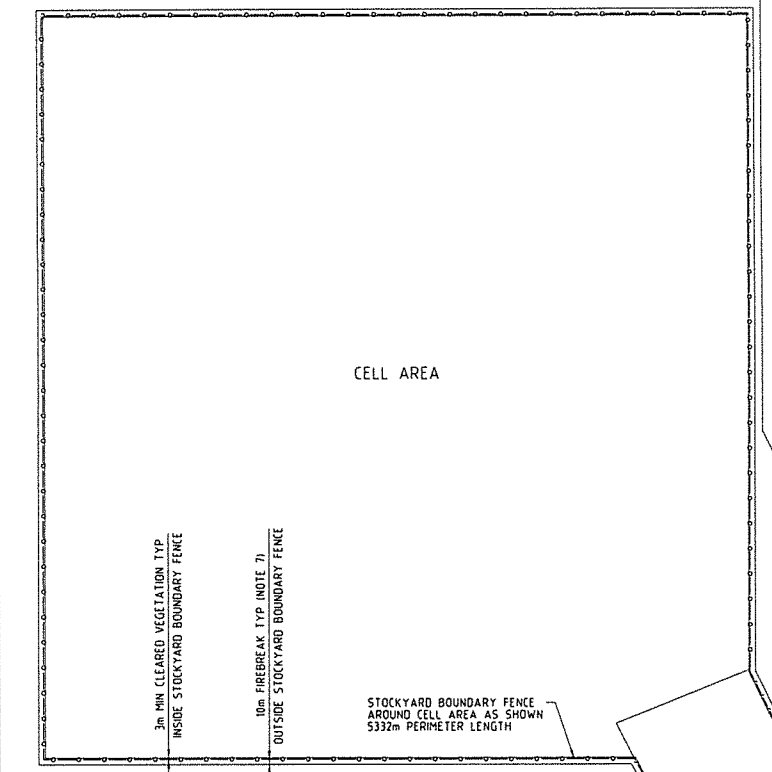
ONYX PROJECTS
Project Managers & Engineers

VENDOR DRG No	REV
C5751-40000-GE-0002	B

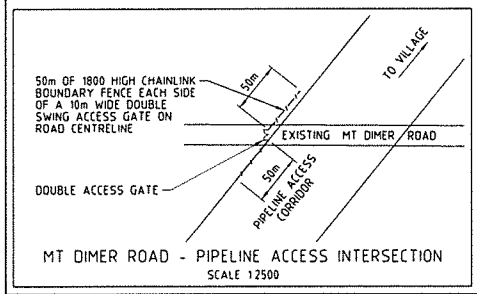
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DRAWN	TS	03/08/2017
CHECKED	JL	03/08/2017
DES ENG	JL	03/08/2017
RFS MAN	JL	03/08/2017
CLIENT		

TITLE
SANDY RIDGE PROJECT
BANKABLE FEASIBILTY STUDY (BFS)
VALUE ENGINEERED FACILITY
GENERAL ARRANGEMENT

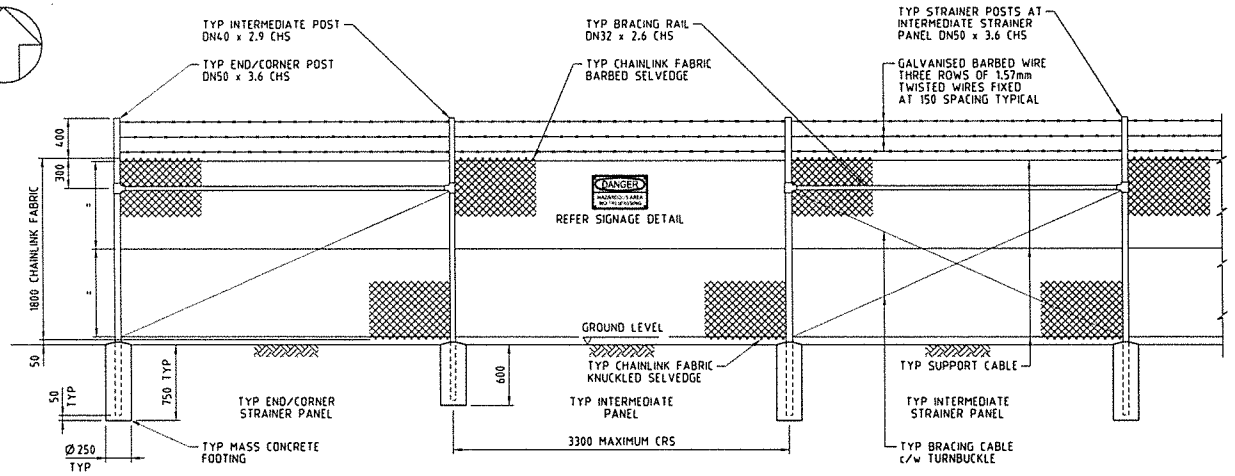
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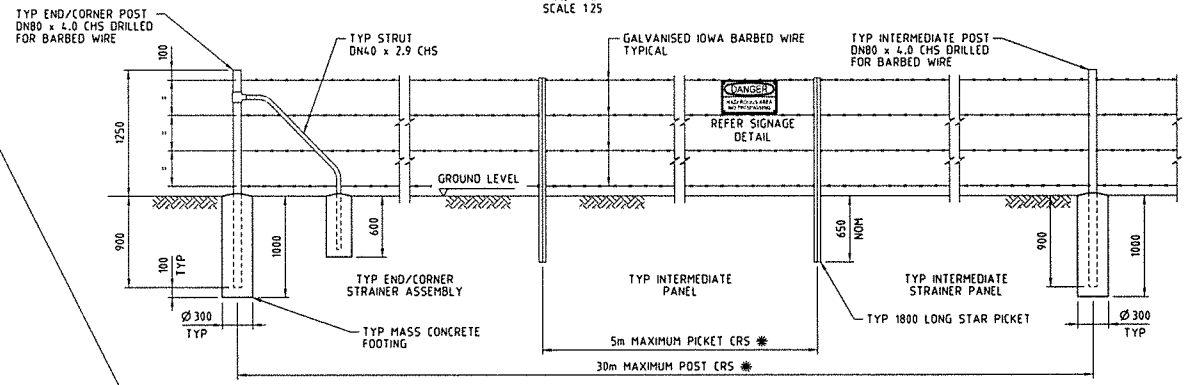
SITE PLAN
SCALE 15000



MT DIMER ROAD - PIPELINE ACCESS INTERSECTION
SCALE 12500



TYPICAL ELEVATION - LIGHT DUTY FABRIC CHAINLINK BOUNDARY FENCE
SHOWING END/CORNER STRAINER PANEL, INTERMEDIATE PANEL & STRAINER PANEL
SCALE 125



TYPICAL ELEVATION - STOCKYARD BOUNDARY FENCE
SHOWING END/CORNER STRAINER POST, STAR PICKETS & INTERMEDIATE POST
SCALE 125

✱ DENOTES TYPICAL DETAIL ONLY. CONTRACTOR TO ADVISE OF ANY CHANGES AS APPROPRIATE

DANGER
HAZARDOUS AREA
NO TRESPASSING

TYPICAL SIGNAGE DETAIL
(REFER NOTE 6)
NTS

NOTES

1. CHAINLINK FENCING TO BE MANUFACTURED AND ERECTED IN ACCORDANCE WITH AS 1725.1
2. ALL POSTS, RAILS, PICKETS AND STRUTS SHALL BE GALVANISED
3. ALL CAPS, CLAMPS, FASTENERS AND ANY OTHER PARTS SHALL BE GALVANISED CARBON STEEL, DOWNEE OR APPROVED EQUIVALENT COMPLYING WITH AS 4680
4. LIGHT DUTY CHAINLINK FABRIC SHALL BE 1800 HIGH, 50 x 50 PITCH, 2.5 WIRE DIA, GALVANISED AND KNUCKLE BARBED
5. ALL CONCRETE SHALL BE S32 MPa TYPICAL
6. SIGNS SHALL TYPICALLY BE LOCATED AT 100m INTERVALS
7. FIREBREAK CONSTRUCTION SHALL BE IN ACCORDANCE WITH FESA 'FIREBREAK LOCATION, CONSTRUCTION AND MAINTENANCE GUIDELINES'

0.5 0 0.5 1.0 1.5 Metres
SCALE 1 25

50 0 50 100 150 Metres
SCALE 1 2500

100 0 100 200 300 Metres
SCALE 1 5000

PRELIMINARY
NOT FOR CONSTRUCTION

REF DRG No	TITLE	REV	BY	DATE	DESCRIPTION	CKD	ENG
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TELLUS

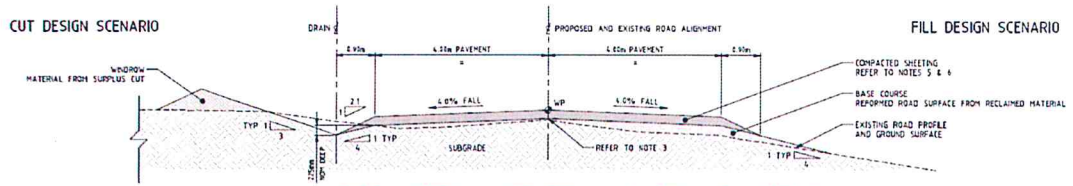
VENDOR
ONYX PROJECTS
Project Managers & Engineers

VENDOR DRG No	REV
C5751-41218-GE-0001	A

	BY	DATE
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CHECKED	JL	09/08/2017
DES ENG	JL	09/08/2017
BFS MAN	JL	09/08/2017
CLIENT		

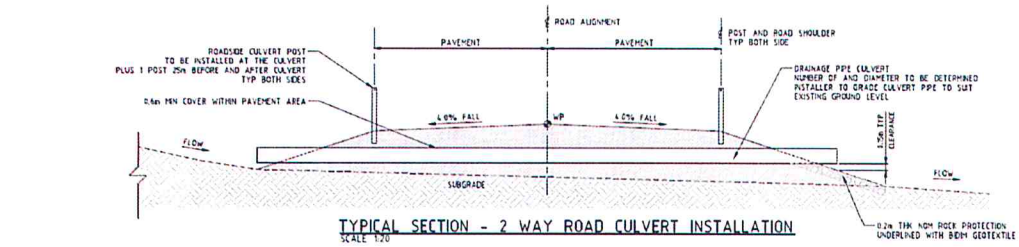
TITLE
SANDY RIDGE PROJECT
BANKABLE FEASIBILTY STUDY (BFS)
SITE FENCING
ARRANGEMENT & DETAILS

A1	SCALE 1:5000	DRG No TSR-3-PO-07300-GE-DGA-0046	REV 0



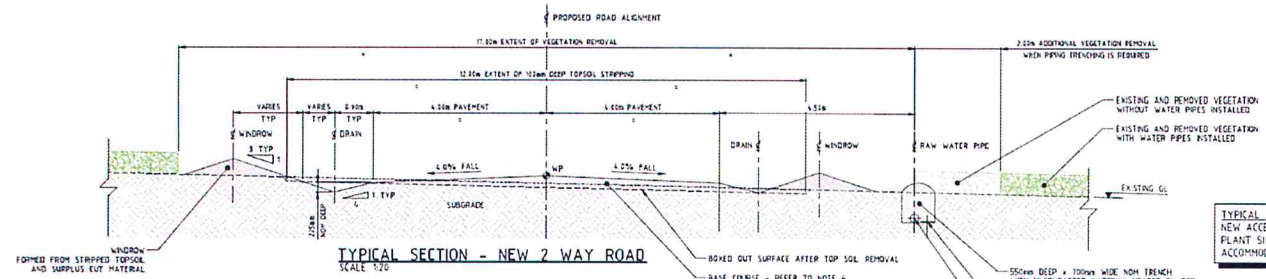
TYPICAL SECTION - UPGRADED 2 WAY ROAD WITH SHEETING
SCALE 1:20

TYPICAL APPLICATION:
MT WALTON ROAD
NEW ACCESS ROADS
ACCOMMODATION ACCESS ROAD
PLANT ACCESS ROAD



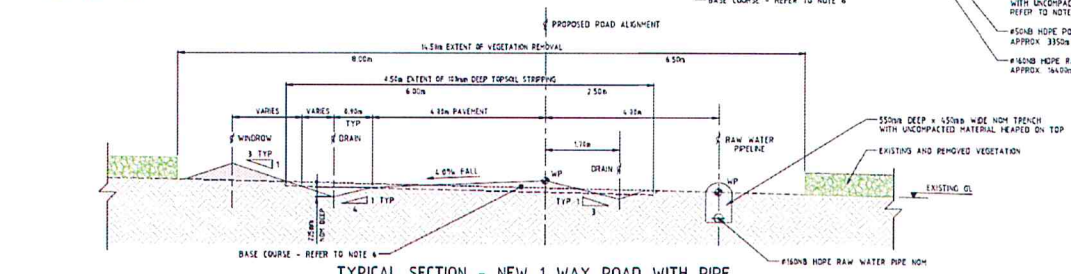
TYPICAL SECTION - 2 WAY ROAD CULVERT INSTALLATION
SCALE 1:20

TYPICAL APPLICATION:
ALL ROADS



TYPICAL SECTION - NEW 2 WAY ROAD
SCALE 1:20

TYPICAL APPLICATION:
NEW ACCESS ROADS
PLANT SITE ACCESS ROADS
ACCOMMODATION ACCESS ROADS



TYPICAL SECTION - NEW 1 WAY ROAD WITH PIPE
SCALE 1:20

TYPICAL APPLICATION:
PIPELINE MAINTENANCE TRACK

NOTES:
1. ALL UNITS ARE IN METERS UNO.
2. EXISTING GROUND SURFACE IS MODELLED USING LIDAR INFORMATION CREATED BY AUSURV - 19TH MAY 2016.
3. MAINTAIN EXISTING ROAD ALIGNMENT UNO.
4. DRAINS TO BE RPEE DRAINING AND 225mm MIN DEEP.
5. REFER TO ROAD GA PLAN FOR NOMINATED AREAS REQUIRING ADDITIONAL SHEETING FILL.
6. FOR NEW ROADS INSTALL AND PREPARE BASE COURSE ONLY. 200mm THK MIN NOM SHEETING TO BE INSTALLED ON NEW ROADS AFTER PLANT SITE COMPLETION.
7. RAW WATER AND POTABLE WATER PIPELINES AND TRENCHES OCCURS ON THE ACCOMMODATION ACCESS ROAD AND PART OF THE PLANT ACCESS ROAD.
8. TRENCH WIDTHS ARE DETERMINED BY THE SUM OF THE PIPE DIAMETERS PLUS 200mm CLEARANCE BETWEEN PIPES AND 150mm CLEARANCE BETWEEN THE PIPE AND THE TRENCH WALL.

LEGEND
- PROPOSED ROAD DESIGN
- EXISTING GROUND SURFACE
- EXISTING SURFACE PRIOR TO STRIPPING

INDICATIVE VOLUMES

MT WALTON ROAD
COHESIVE SUBGRADE AREAS
TOTAL SHEETING MATERIAL 44,780m³

LOW AREAS
- TOTAL SHEETING MATERIAL:
  COMBINED LENGTH 11.1kms x 1.78m² 19,760m³

NEW SITE ACCESS ROAD - FROM MT WALTON RD
- TOTAL LENGTH 9.505kms
- VEGETATION CLEARING (17m WIDE x 8615m) 144,655m²
- VEGETATION CLEARING (19m WIDE x 890m) 16,910m²
- TOPSOIL STRIPPING (12m x 0.1m) 11,466m³

ACCOMMODATION ACCESS ROAD
- TOTAL LENGTH 2.075kms
- VEGETATION CLEARING (19m WIDE) 39,425m²
- TOPSOIL STRIPPING (12m x 0.1m) 2,490m³

RUBBISH DUMP ACCESS ROAD
- TOTAL LENGTH 1.765kms
- VEGETATION CLEARING (17m WIDE) 30,000m²
- TOPSOIL STRIPPING (12m x 0.1m) 2,118m³

WATER PIPELINE ACCESS ROAD
- TOTAL LENGTH 13.355kms
- VEGETATION CLEARING (14.5m WIDE) 193,650m²
- TOPSOIL STRIPPING (8.5m x 0.1m) 11,350m³

PRELIMINARY

SCALE 1:20

REFERENCE DRAWING No	TITLE

REVISIONS REV	BY	DATE	DESCRIPTION	CKD	DESGN ENG APPR	PROJ APPR
B	DPH	15.05.17	ADDED POTABLE AND RAW WATER PIPES AND REVISED VOLUMES	CD	DPH	
A	DPH	29.03.17	PRELIMINARY ISSUE	CD	DPH	

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APPPROVALS		
DRAWN	DPH	29.03.17
CHECKED		
DESIGNED	DPH	29.03.17
ENG APPR.	CD	29.03.17
PROJ APPR.		
CLIENT APPR.		

CLIENT: TELLUS HOLDINGS PTY. LTD.

TITLE: SANDY RIDGE PROJECT
PROPOSED ROADWORKS
ROAD CROSS SECTIONS
TYPICAL SECTIONS

A1

SCALE 1:20 U.N.O | DRAWING No. 40871-DWG-00-C-0100 | REV. B

PRELIMINARY
NOT FOR CONSTRUCTION

REF DRG No	TITLE	REV	BY	DATE	DESCRIPTION	CKD	ENG
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TELLUS

VENDOR: CLOUGH

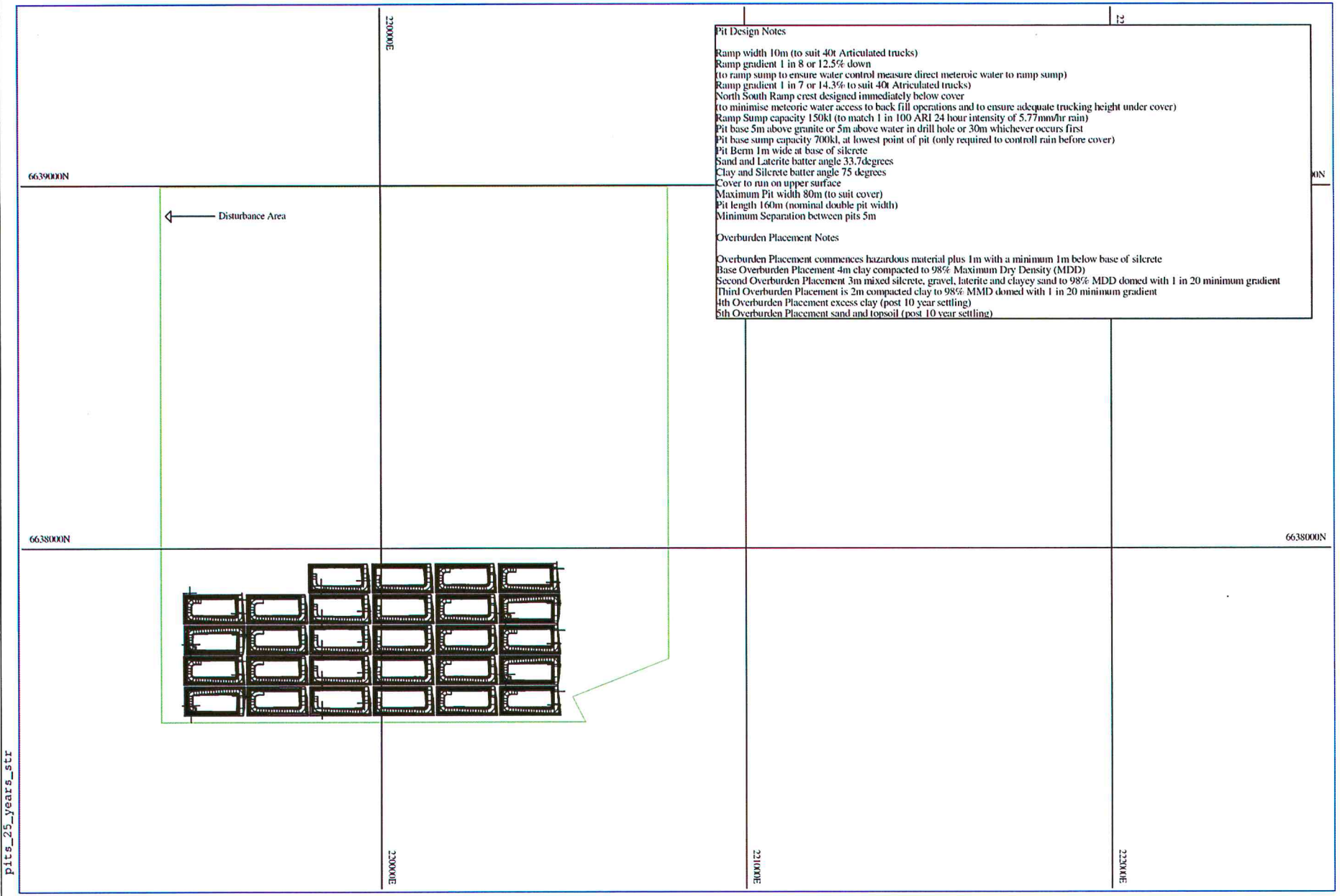
VENDOR DRG No 40871-DWG-00-C-0100 | REV B

	BY	DATE
DRAWN	CKJV	18/08/2017
CHECKED	CKJV	18/08/2017
DES ENG	CKJV	18/08/2017
BFS MAN	JL	18/08/2017
CLIENT		

TITLE
SANDY RIDGE PROJECT
BANKABLE FEASIBILTY STUDY (BFS)
PROPOSED ROADWORKS ROAD CROSS SECTIONS
TYPICAL SECTIONS

A1 | SCALE NTS | DRG No TSR-3-PO-07300-GE-DWG-0018 | REV 0

G:\PROJECTS\40871 Tellus Sands Pty Ltd\DESIGN\CIVIL\1-DWG\00-C-0100 - Typical Road Cross Sections.dwg May 15, 2017 - 2:50pm dmorrison



pits_25_years_str

SURPAC - Mining Plus Ltd

PRELIMINARY
NOT FOR CONSTRUCTION

REF DRG No	TITLE	REV	BY	DATE	DESCRIPTION	CKD	ENG
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TELLUS

VENDOR

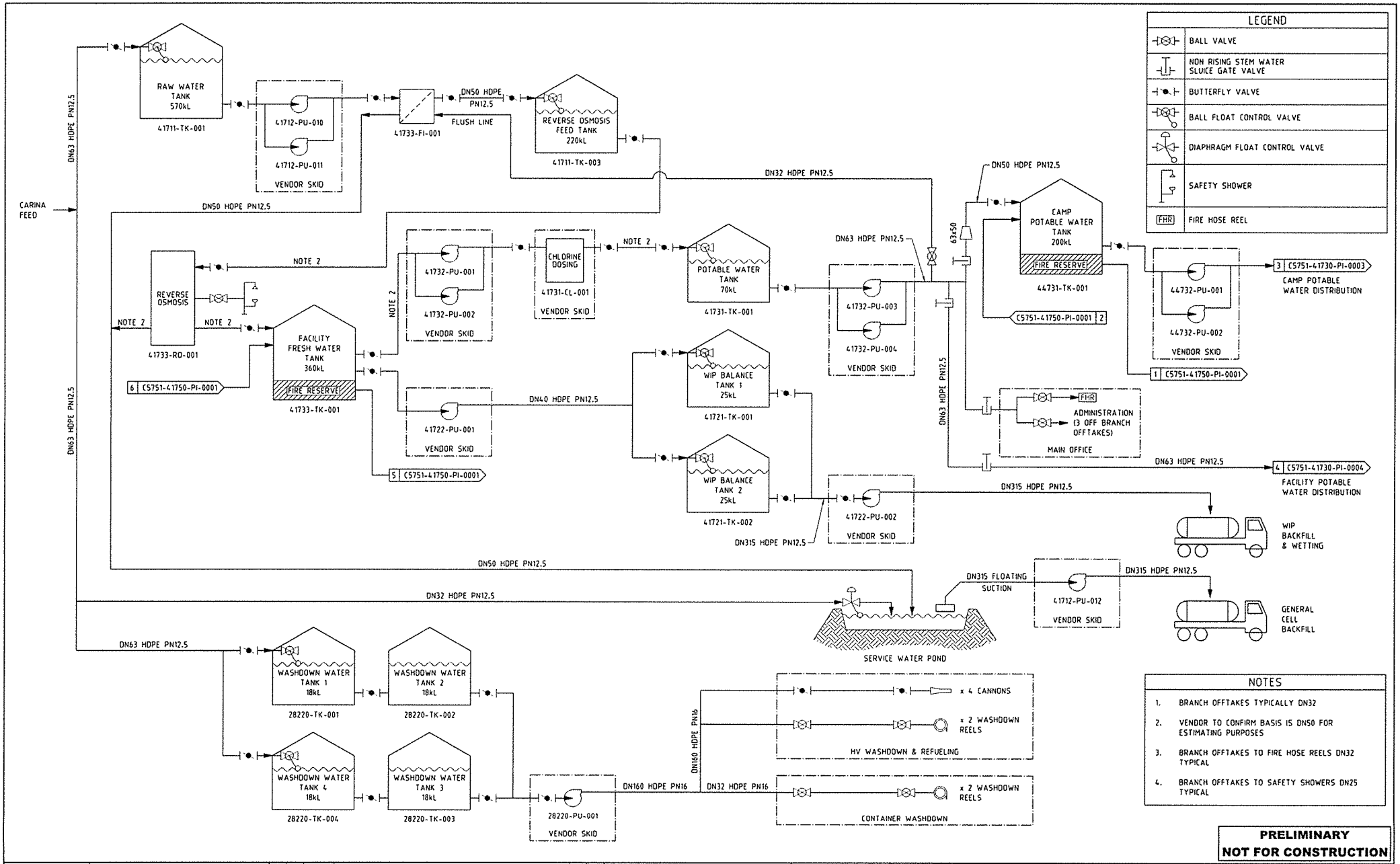
MINING PLUS

VENDOR DRG No | REV

	BY	DATE
DRAWN	KG	17/08/2017
CHECKED	KG	17/08/2017
DES ENG	KG	17/08/2017
BFS MAN	JL	17/08/2017
CLIENT		

TITLE
SANDY RIDGE PROJECT
BANKABLE FEASIBILTY STUDY (BFS)
CELL AREA
YEARS 1- 25

A1 | SCALE NTS | DRG No TSR-3-PO-12000-MG-DLA-0005 | REV 0



REF DRG No	TITLE	REV	BY	DATE	DESCRIPTION	CKD	ENG
		0	SW	10/08/2017	ISSUED FOR BFS	JL	JL

TELLUS

VENDOR

ONYX PROJECTS
Project Managers & Engineers

VENDOR DRG No: C5751-41730-PI-0002 REV: A

	BY	DATE
DRAWN	SW	10/08/2017
CHECKED	TM	10/08/2017
DES ENG	JL	10/08/2017
BFS MAN	JL	10/08/2017
CLIENT		

TITLE
SANDY RIDGE PROJECT
BANKABLE FEASIBILTY STUDY (BFS)
WATER DISTRIBUTION
PIPING & INSTRUMENTATION DIAGRAM – SHEET 1

A1 | SCALE: NTS | DRG No: TSR-3-PO-07300-PI-PID-0001 | REV: 0

APPENDIX C: EXECUTION OF OWNERSHIP

GOVERNMENT OF
WESTERN AUSTRALIA

Department of **Planning,**
Lands and Heritage

Your ref:
Our ref: 00276-2015
Job No. 150860
Enquiries: George Poppas, ph 6552 4571
Email: george.poppas@lands.wa.gov.au

Mr Richard Phillips
Tellus
Suite 2, Level 10
151 Castlereagh Street
SYDNEY NSW 2000

Dear Sir

SANDY RIDGE DAP FORM 1 AND APPLICATION FOR DEVELOMENT APROVAL SHIRE OF COOLGARDIE

Please find enclosed the endorsed DAP Form 1 and Application for Development Approval (Applications) in relation to the proposed development over the undescribed unallocated Crown land contained in Landgate PIN 12285357 and detailed in Tellus's submission for tenure under the *Land Administration Act* 1997 (LAA).

For your information the definition of Owner in the relevant planning scheme may require you to obtain consent to the Applications from the Director General of the Department of Mines, Industry Regulation and Safety.

The forms are signed only as acknowledgment that a development application is being made in respect of a proposal that includes Crown land, land owned in fee simple by the Crown or a State instrumentality, Crown reserves under management for the purpose, or a road, permitting this application to be assessed under the appropriate local and/or region planning scheme. The signature does not represent approval or consent for planning/development purposes under the relevant local and/or region scheme.

Further, in the event that development approval is granted for the proposal, the attached signature should not be taken as an acknowledgement of or consent to the commencement or carrying out of the proposed development or to any modification of the tenure or reservation classification of the Crown land component.

Should you have any enquiries, please do not hesitate to contact me.

Yours faithfully

George Poppas
Assistant Manager, Delivery

24 October 2017

Shire of Coolgardie

Our Community, Our People, Our Future

APPLICATION FOR DEVELOPMENT APPROVAL

Owner details		
Name: Department of Lands Planning and Heritage		
ABN (if applicable):		
Address:	Postcode:	
Phone: Work: ..... Home: ..... Mobile:	Fax:	Email: .....
Contact person for correspondence: Mr Shane Edwards		
Signature: See below		Date:
Signature:		Date:
The signature of the owner(s) is required on all applications. This application will not proceed without that signature. For the purposes of signing this application an owner includes the persons referred to in the Planning and Development (Local Planning Schemes) Regulations 2015 Schedule 2 clause 62(2).		

Applicant details (if different from owner)		
Name: Tellus Holdings Ltd.		
Address: Suite 2, Level 10, 151 Castlereagh Street Sydney, NSW Postcode: 2000		
Phone: Work: +61 2 8257 3395 Home: ..... Mobile:	Fax: +61 2 8233 6199	Email: richie@tellusholdings.com
Contact person for correspondence: Mr. Richard Phillips, General Manager HSECCQ		
The information and plans provided with this application may be made available by the local government for public viewing in connection with the application. ✓ Yes ☐ No		
Signature:		Date: 16/10/2017

Signed only as acknowledgment that a development application is being made in respect of a proposal that includes Crown land, land owned in fee simple by the Crown or a state instrumentality. Crown reserves under management for the purpose, or a road, permitting this application to be assessed under the appropriate local and/or region planning scheme. The signature does not represent approval or consent for planning purposes under the relevant local and/or region scheme. Further in the event that development approval is granted for the proposal, the above signature should not be taken as an acknowledgment of or consent to the commencement or carrying out of the proposed development or to any modification of the tenure or reservation classification of the Crown land component.

NAME: George Foppas

TEAM LEADER

TEAM: Delivery

Job No. 170860

24/10/17

Property details		
Lot No: Unallocated Crown Land	House/Street No: N/A	Location No: N/A
Diagram or Plan No: N/A	Certificate of Title Vol. No: N/A	Folio: N/A

Title encumbrances (e.g. easements, restrictive covenants):

The Sandy Ridge Facility will be governed by the following legal requirements:

- Environmental planning approval under Section 133 of the *Environmental Protection Biodiversity Conservation Act 1999.*
- Environmental planning approval under Part IV and Part V of the *Environmental Protection Act 1986.*
- Security of land tenure via a Crown Lease or Managed Reserve under the *Land Administration Act 1997*
- Security of land access under various Government and Third Party agreements.
- Development Approval by Shire of Coolgardie
- Relinquishment of tenure under the *Land Administration Act 1997* during closure, decommissioning and post-closure.

For further detail refer to the *Sandy Ridge Facility Shire of Coolgardie Council Application for Development Approval Supporting Document.*

Street name: Not applicable	Suburb: Shire of Coolgardie

Nearest street intersection: Great Eastern Highway and IWDF Access Road.

Proposed development	
Nature of development:	☐ Works ☐ Use ☒ Works and use

Is an exemption from development claimed for part of the development? ☐ Yes ☐✓ No

If yes, is the exemption for: ☐ Works ☐ Use

Description of proposed works and/or land use:

Refer to Chapter 1 and Chapter 4 of the *Sandy Ridge Facility Shire of Coolgardie Council Application for Development Approval Supporting Document* for a description of the proposed works. The proposed development envelope is located on unallocated Crown Land managed by the WA Government. There is no current land use or occupation of the land within the proposed development envelope. Further land use details are provided in the *Sandy Ridge Facility Public Environmental Review (PER).* Land zoning requirements are explained in the Development Approval Application (Chapter 2).

Description of exemption claimed (if relevant):

Tellus understands that mining operations and their associated infrastructure (such as buildings, plant and workforce accommodation) are exempt from the requirement for local government approval because mining activities and associated miscellaneous infrastructure is approved under the *Mining Act 1978.*

Nature of any existing buildings and/or land use:

The proposed development envelope is located on unallocated Crown Land managed by the WA Government. There is no current land use or occupation of the land within the proposed development envelope. Tellus has installed an automated weather station and groundwater monitoring bores within the proposed development envelope which is covered under the existing Mining Exploration Lease.

Approximate cost of proposed development: $74,000,000.00 AUD.

Estimated time of completion: Construction aimed to be completed December 2018.

OFFICE USE ONLY

Acceptance Officer's initials: Date received:

Local government reference No:

Government of Western Australia
Development Assessment Panels

DAP FORM 1

Notice of Development Application to be Determined by a Development Assessment Panel

Planning and Development Act 2005
Planning and Development (Development Assessment Panel) Regulations 2011 – regulations 7, 10, 21

Application Details

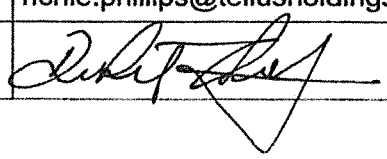
To	*Name of local government and/or Western Australian Planning Commission* Shire of Coolgardie/Mid-West Wheatbelt (Central) JDAP	
Planning Scheme(s)	*Name of planning scheme(s) that applies to the prescribed land* Shire of Coolgardie Local Planning Scheme No. 5	
Land	*Lot number, street name, town/suburb* Crown Land. Proposed development envelope is formed by a combination of: Mining Lease M16/540; G16/21 (granted); L16/119 (pending); and L16/121 (pending). Located in Shire of Coolgardie and Shire of Yilgarn.	
Certificate of Title *(provide copy)*	*Volume Number*	*Folio*
	Location Number	*Plan / Diagram Number*
Details of development application made to responsible authority	*Summary of Proposal* Please refer to (1) Attached Sandy Ridge Project Shire of Coolgardie Council Application for Development Approval Supporting Document (Chapter 1, Section 1.2 and Chapter 4); and (2) Proposed Sandy Ridge Facility Public Environmental Review (PER).	
Development Use	*Residential / Commercial / Industrial / Rural / Mixed Use / Other* Industrial	
Estimated cost of development *(GST Exc)*	$ $74,000,000.00 AUS.	

Part A - Acknowledgement by Applicant and Landowner

Mandatory Application	☒ I give notice that I understand that this is a mandatory Development Assessment Panel application *(regulation 5)*
Optional Application	☒ I give notice that I have elected to have the development application that accompanies this form determined by a Development Assessment Panel *(regulation 6)*
Delegated Application	☒ I give notice that I understand that this is an application of a class delegated to a Development Assessment Panel for determination *(regulation 19)*

Applicant Details (to be completed and signed by applicant)

By completing this notice, I declare that all the information provided in this application is true and correct.
I understand that the information provided in this notice, and attached forming part of the development application will be made available to the public on the Development Assessment Panel and local government websites.

Name	Mr. Richard Phillips, General Manager HSECCQ	
Company	Tellus Holdings Ltd.	
Address	*Street number/PO Box number, street name, suburb, state, postcode* Suite 2, Level 10, 151 Castlereagh Street, Sydney, NSW	
Contact Details	*Email* richie.phillips@tellusholdings.com	*Phone* (02) 8257 3395
Signature		*Date* 13/10/2017

Landowner Details (to be completed and signed if landowner is different from applicant) By completing this notice, I give consent to the making of this application by any authorised applicant on my behalf.		
Name	State of Western Australia	
Address	*Street number/PO Box number, street name, suburb, state, postcode*	
Contact Details	*Email*	*Phone*
Signature	See below	*Date*

Part B - Acknowledgement by Local Government

Responsible Authority	☐ Local Government ☐ Western Australian Planning Commission ☐ Dual – Local Government and Western Australian Planning Commission ☐ Building Management and Works (Department of Finance) – *Public School Applications*	
Fees for applications *(DAP Regulations - Schedule 1)*	$ Amount that has been paid by the applicant $ Amount to be paid by local government *(delegated applications only - regulation 22)*	
Statutory Timeframe *(regulation 12)*	☐ 60 days (advertising not required) ☐ 90 days (advertising required or other scheme provision)	
LG Reference Number		
Name of planning officer *(Report Writer)*		
Position/Title		
Contact Details	*Email*	*Phone*
Planning Officer's Signature		*Date*

Please refer to the Development Assessment Panel's "Guidance Note: Lodging a DAP Application" for further information.

Signed only as acknowledgment that a development application is being made in respect of a proposal that includes Crown land, land owned in fee simple by the Crown or a state instrumentality. Crown reserves under management for the purpose, or a road, permitting this application to be assessed under the appropriate local and/or region planning scheme. The signature does not represent approval or consent for planning purposes under the relevant local and/or region scheme. Further in the event that development approval is granted for the proposal, the above signature should not be taken as an acknowledgment of or consent to the commencement or carrying out of the proposed development or to any modification of the tenure or reservation classification of the Crown land component.

George Poppas

NAME: GEORGE POPPAS

TEAM LEADER

TEAM: DELIVERY

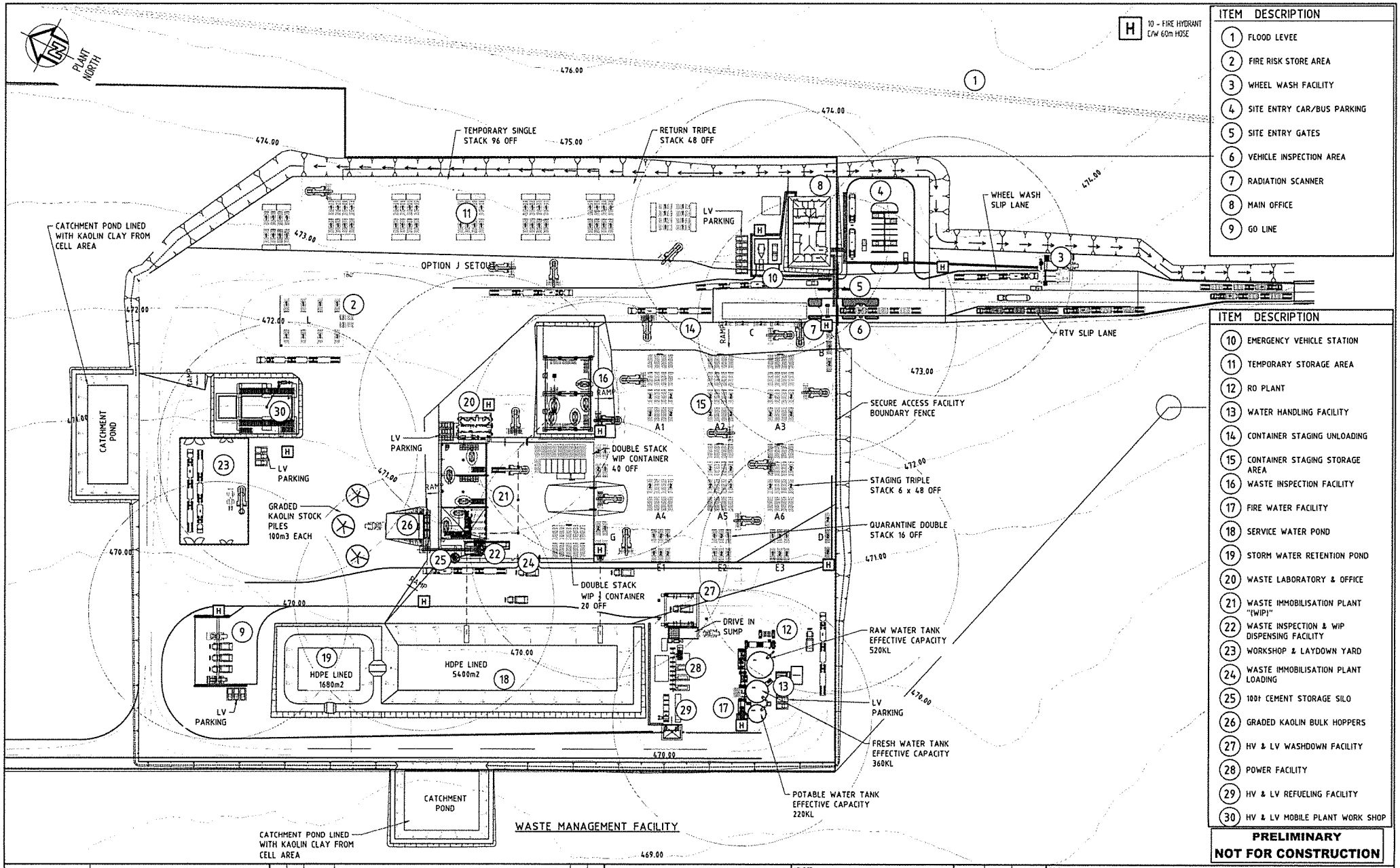
Job No 170862

24/10/17

Attachment 5

Detailed design plans and

Cell dome cap.



REF DRG No	TITLE	REV	BY	DATE	DESCRIPTION	CKD	ENG
		F	MK	23.01.2019	PRELIMINARY LAYOUT REVISED		
		E	MK	22.01.2019	PRELIMINARY LAYOUT REVISED		
		D	MK	24.05.2018	PRELIMINARY LAYOUT REVISED		
		C	MK	20.12.2017	PRELIMINARY		
		B	MK	05.12.2017	PRELIMINARY LAYOUT REVISED FOR REVIEW/COMMENT		
07400-EG-DWG-0002	SITE PLOT KEY PLAN	A	MK	10.11.2017	LAYOUT REVISED FOR REVIEW/COMMENT		

TELLUS

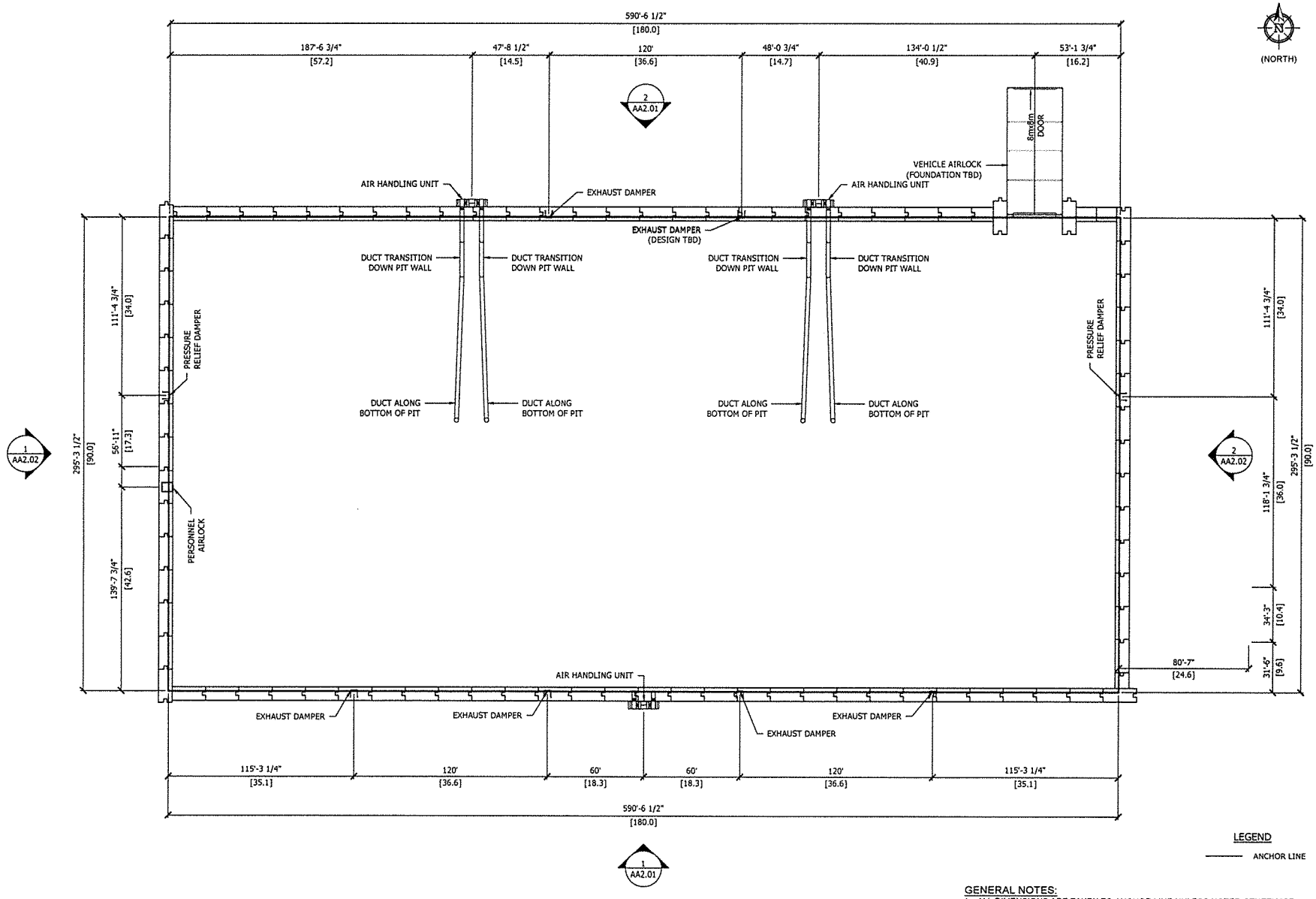
VENDOR
GR ENGINEERING SERVICES LTD
ENGINEERING CONSULTANTS AND CONTRACTORS
71 Daly Street, Ascot
Western Australia, 6104
Phone: (08) 9272 6669
Fax: (08) 9272 6891
ACN 121 647 738

VENDOR DRG No 12388-L-003 REV F

	BY	DATE
DRAWN	MK	01.011.17
CHECKED		
DES ENG		
BFS MAN		
CLIENT		

TITLE
SANDY RIDGE PROJECT
DETAILED DESIGN
FACILITY
GENERAL ARRANGEMENT

A1 | SCALE 1:750 | DRG No TSR-4-PO-07400-EG-DWG-0003 | REV F



GENERAL NOTES:
1. ALL DIMENSIONS ARE TAKEN TO ANCHOR LINE UNLESS NOTED OTHERWISE.

1 *DOME FLOOR PLAN*
SCALE: 1" = 30'-0"

NOT FOR CONSTRUCTION

ARIZON™
BUILDING SYSTEMS
www.arizonbuildingsystems.com

MANUFACTURER (SELLER):
Arizon Structures Worldwide, LLC
11880 Dorsett Rd.
St. Louis, MO, USA 63043
(314)-739-0037

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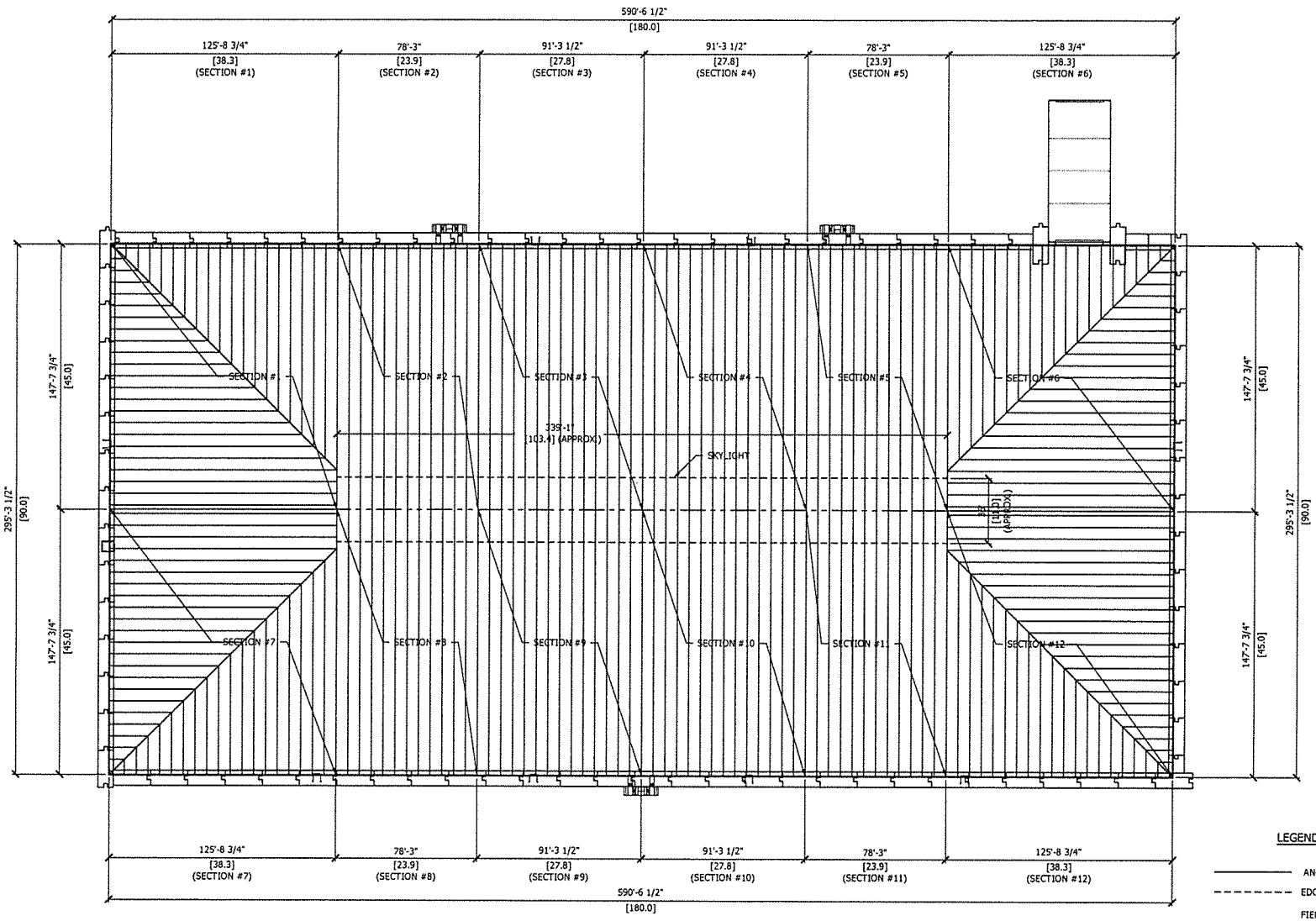
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ANSI-D SIZE: 1"=30'

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DRAWING TITLE:
FLOOR PLAN

PROJECT: A10260

DRAWING NO: AA1.01



LEGEND

- ANCHOR LINE
- EDGE OF SKYLIGHT
- FIELD JOINT (TYP.) AKA "SECTIONALIZING" (SEE 02/AS1.00)
- FABRIC SECTION PALLET

GENERAL NOTES:

1. ALL DIMENSIONS ARE TAKEN TO ANCHOR LINE UNLESS NOTED OTHERWISE.
2. LOCATIONS OF FIELD JOINTS ARE APPROXIMATE AND MAY VARY WITH MANUFACTURING.

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1 FABRIC SECTION PLAN
SCALE: 1" = 30'-0"

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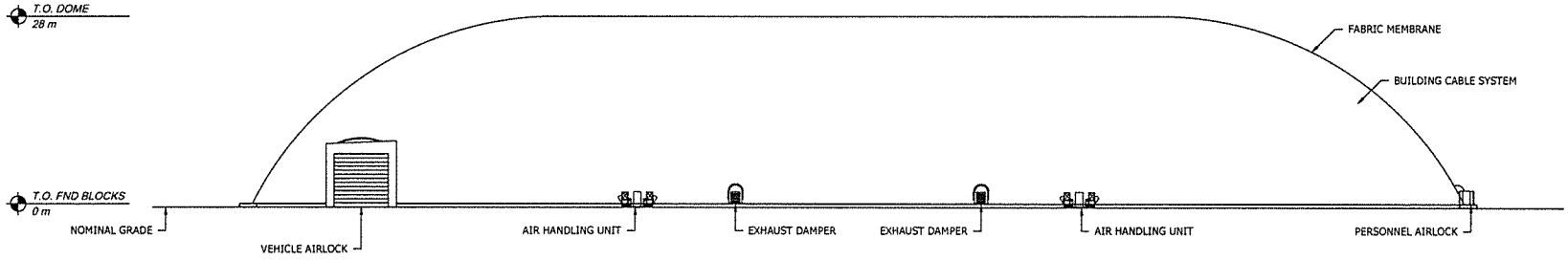
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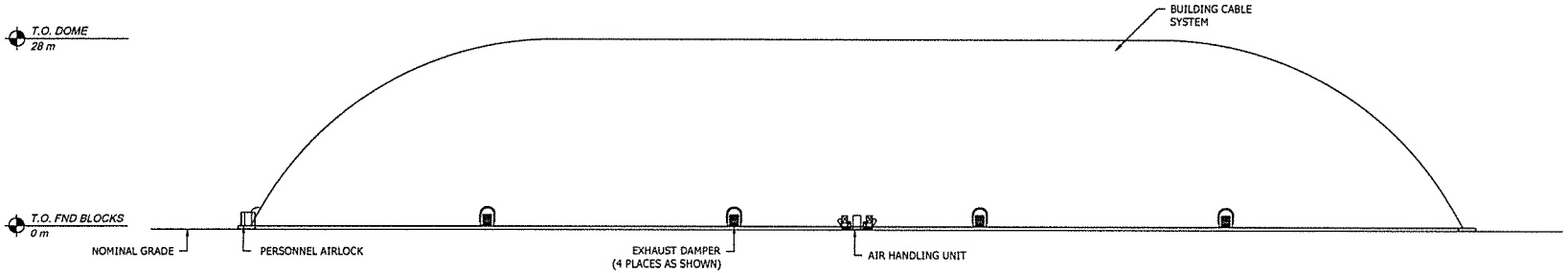
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FABRIC SECTION PLAN

PROJECT: A10260

DRAWING NO: AA1.02



2 WEST ELEVATION
SCALE: 1" = 30'-0"



1 EAST ELEVATION
SCALE: 1" = 30'-0"

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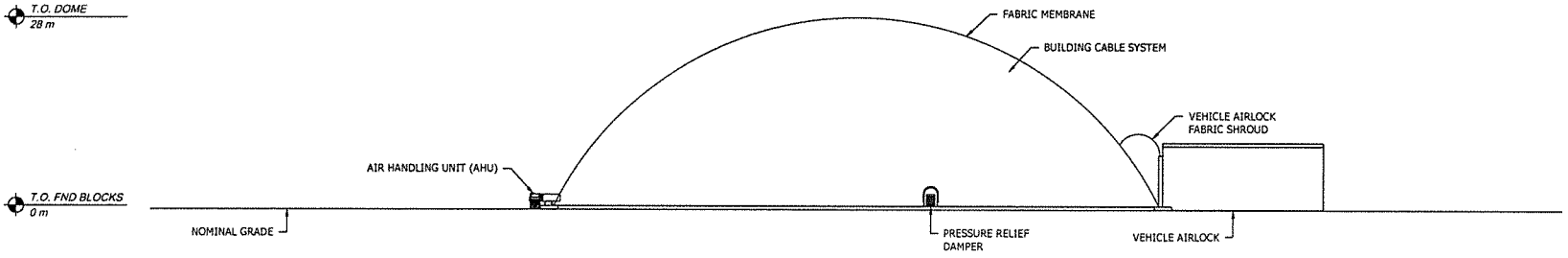
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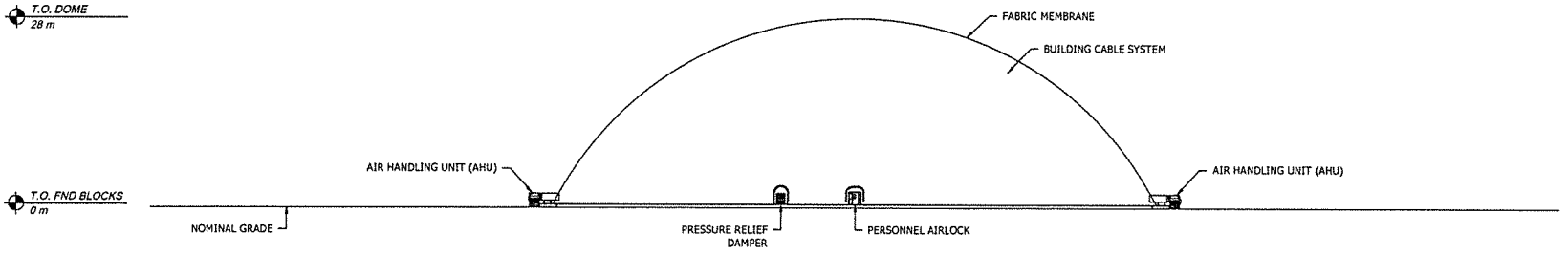
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EXTERIOR DOME ELEVATIONS

PROJECT: A10260

DRAWING NO: AA2.01



2 NORTH ELEVATION
SCALE: 1" = 30'-0"



1 SOUTH ELEVATION
SCALE: 1" = 30'-0"

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DRAWING TITLE:
EXTERIOR DOME ELEVATIONS

PROJECT: A10260

DRAWING NO: AA2.02

Attachment 6

Environmental Assessment Report

Report and recommendations of the Environmental Protection Authority



Sandy Ridge Project

Tellus Holdings Ltd

Report 1611

December 2017

Environmental Impact Assessment Process Timelines

Date	Progress stages	Time (weeks)
12/08/2015	EPA decides to assess – level of assessment set	
31/03/2016	Environmental Scoping Document released for public review	33
14/04/2016	Public review period for Environmental Scoping Document closed	2
27/05/2016	EPA approved Environmental Scoping Document	6
7/12/2016	EPA accepted Environmental Review Document	28
12/12/2016	Environmental Review Document released for public review	1
7/03/2017	Public review period for Environmental Review Document closed	14
14/09/2017	EPA accepted Proponent Response to Submissions	27
8/11/2017	EPA received final information for assessment	8
16/11/2017	EPA completed its assessment	1
5/12/2017	EPA provided report to the Minister for Environment	3
8/12/2017	EPA report published	3 days
22/12/2017	Close of appeals period	2

Timelines for an assessment may vary according to the complexity of the proposal and are usually agreed with the proponent soon after the EPA decides to assess the proposal and records the level of assessment.

In this case, the Environmental Protection Authority met its timeline objective to complete its assessment and provide a report to the Minister.



Dr Tom Hatton
Chairman

05 December 2017

ISSN 1836-0483 (Print)
ISSN 1836-0491 (Online)
Assessment No. 2057

Summary

This report provides the Minister for Environment with the outcomes of the Environmental Protection Authority's (EPA's) environmental impact assessment of the proposal to construct and operate a dual open cut kaolin mine and waste facility, by Tellus Holdings Ltd.

Proposal

The proposal for the Sandy Ridge Facility is to construct and operate a dual kaolin (clay) mine and a waste facility, accepting Class IV (Secure Landfill) and a V (Intractable Landfill) waste, approximately 75 kilometres north east of Koolyanobbing, in the Shire of Coolgardie, within the Goldfields Region of Western Australia (Figure 1). The proposal would receive a maximum of 100,000 tonnes of waste per annum for approximately 25 years.

Background and context

The proponent referred the proposal to the EPA on 4 May 2015. On 12 August 2015, the EPA decided to assess the proposal and set the level of assessment at Public Environmental Review (PER) with a 10 week public review period.

It was determined that Tellus would prepare an Environmental Scoping Document (ESD) with a two week public review period. The EPA approved the ESD for the proposal on 27 May 2016. The ESD was released for public review from 31 March 2016 to 14 April 2016.

The EPA approved the draft PER for public review on 7 December 2016, with the PER released for public review from 12 December 2016 to 7 March 2017.

The proposal was determined to be a controlled action under the *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act) on 23 September 2015 as it may impact on the following Matters of National Environmental Significance (MNES):

- nuclear actions (section 21 and 22A).

The proposal is being assessed under the bilateral agreement between the Commonwealth and Western Australian governments.

The *Environmental Protection Act 1986* (EP Act) requires that the EPA's report on the outcome of its assessment sets out key environmental factors identified in the course of the assessment, as well as the EPA's recommendations as to whether or not the proposal may be implemented and, if so, the conditions and procedures that should apply. The EPA may also include any other information, advice and recommendations in the assessment report that it thinks fit.

Public submissions

Key issues raised in the submissions during the PER public review period included:

- potential impacts to human health from the handling, storage and transport of intractable waste;
- concerns about the long term management and decommissioning of the site;
- the waste acceptance criteria and transport of the waste;
- potential impacts from waste leachate to soils and groundwater from the storage of intractable waste; and
- potential impacts to significant vegetation and flora, and terrestrial fauna from clearing and waste emissions.

Tellus provided responses to issues raised in the public submissions and further information where appropriate in the Response to Submissions document (Tellus, 2017a). In the response to submissions, the proponent clarified and provided supplementary technical information regarding flora and vegetation (*Lepidosperma* sp.) and fauna (short range endemic fauna). This information was made available to the public on the EPA's website and has been considered in this assessment.

Key environmental factors and relevant principles

The EPA identified the following key environmental factors (see Section 4) during the course of its assessment:

1. **Terrestrial environment quality** – direct impacts to the quality of land and soils during the operation of the proposal and from the acceptance and storage of hazardous and intractable waste (including radioactive material).
2. **Flora and vegetation** – direct impacts associated with the clearing of native vegetation.
3. **Human health** – direct impacts from exposure to chemical/hazardous materials from waste handling, and leaks or spills from waste packages.
4. **Terrestrial fauna** – direct impacts on fauna habitat from clearing, and contaminants or radiation exposure to fauna.
5. **Inland waters environmental quality** – direct impacts from potential leaks or spills and generation of leachate from waste package storage.

In identifying the key environmental factors, the EPA had regard to the object and principles set out in section 4A of the EP Act. The EPA considered that the following principles were particularly relevant to this assessment (see Section 4):

1. the precautionary principle;
2. principles relating to improved valuation, pricing and incentive mechanisms; and
3. the principle of waste minimisation.

Assessment

The EPA has taken the following into account in its assessment of the proposal as a whole:

1. the impacts to the key environmental factors including Terrestrial Environmental Quality, Flora and Vegetation, Human Health, Terrestrial Fauna, and Inland Waters Environmental Quality;
2. the EPA's confidence in the proponent's proposed mitigation measures;
3. the relevant EP Act principles, including the precautionary principle, principles relating to improved valuation, pricing and incentive mechanisms and the principle of waste minimisation; and
4. the EPA's environmental objectives for Terrestrial Environmental Quality, Flora and Vegetation, Human Health, Terrestrial Fauna, and Inland Waters Environmental Quality.

Given the above, the EPA has concluded that the proposal is environmentally acceptable and therefore recommends that the proposal may be implemented subject to the conditions recommended in Appendix 5.

Conclusion and recommendations

Having assessed the proposal, the EPA has concluded that the proposal is environmentally acceptable.

The EPA recommends that the Minister notes:

1. That the proposal assessed is for the construction and operation of a dual open cut kaolin mine and a near-surface geological waste repository.
2. The key environmental factors identified by the EPA in the course of its assessment are Terrestrial Environmental Quality, Flora and Vegetation, Human Health, Terrestrial Fauna, and Inland Waters Environmental Quality, set out in Section 4.
3. The EPA has concluded that the proposal may be implemented, provided the implementation of the proposal is carried out in accordance with the recommended conditions and procedures set out in Appendix 5. Matters addressed in the conditions include the requirement:
    a) to ensure only permitted wastes generated within Australia and the Australian Exclusive Economic Zone are accepted on site;
    b) to keep detailed records of accepted wastes on site;
    c) to conduct an annual independent audit of the accepted wastes on site;
    d) for a Leachate Monitoring and Management Plan;
    e) for a targeted flora survey and management plan for *Calytrix Creswellii*, *Lepidosperma lyonsii*, and the undescribed *Lepidosperma* sp; and
    f) for a management plan for terrestrial fauna.
4. Other advice provided by the EPA, set out in Section 7.

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1. References
2. List of submitters
3. Consideration of principles
4. Evaluation of other environmental factors
5. Identified Decision-Making Authorities and Recommended Environmental Conditions

1. Introduction

This report provides the advice and recommendations of the Environmental Protection Authority (EPA) to the Minister for Environment on the outcomes of the EPA's environmental impact assessment (EIA) of the proposal by Tellus Holdings Ltd (Tellus). The proposal is to construct and operate a dual open cut kaolin mine and near-surface geological waste repository, approximately 75 kilometres (km) north east of Koolyanobbing in the Shire of Coolgardie.

The EPA has prepared this report in accordance with section 44 of the *Environmental Protection Act 1986* (EP Act), which requires that the EPA prepare a report on the outcome of its assessment of a proposal and provide this assessment report to the Minister for Environment. The report must set out:

- what the EPA considers to be the key environmental factors identified in the course of the assessment; and
- the EPA's recommendations as to whether or not the proposal may be implemented, and, if the EPA recommends that implementation be allowed, the conditions and procedures to which implementation should be subject.

The EPA may also include any other information, advice and recommendations in the assessment report as it thinks fit.

The proponent referred the proposal to the EPA on 4 May 2015. On 12 August 2015 the EPA decided to assess the proposal and set the level of assessment at Public Environmental Review (PER) with a 10 week public review period. The proponent prepared the Environmental Scoping Document (ESD) and it was released for a two week public review period from 31 March 2016 to 14 April 2016. The EPA approved the ESD for the proposal on 27 May 2016. The PER document was released for public review from 12 December 2016 to 7 March 2017.

1.1 EPA procedures

The EPA introduced a new suite of EIA procedures on 13 December 2016. The EPA approved the ESD and PER document under the 2012 Administrative Procedures.

The EPA followed the procedures in the *Environmental Impact Assessment (Part IV Divisions 1 and 2) Administrative Procedures 2016* and the *Environmental Impact Assessment (Part IV Divisions 1 and 2) Procedures Manual 2016*, to the extent that it was appropriate and practicable. The EPA consulted the proponent on the application of the current procedures to its assessment of the proposal.

1.2 Assessment on behalf of Commonwealth

The proposal was determined to be a controlled action by a delegate of the Commonwealth Minister for the Environment under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) on 23 September 2015 as it is likely

to have, a significant impact on the following Matters of National Environmental Significance (MNES):

- Nuclear actions (sections 21 & 22A)

The proposal was assessed under the Bilateral Agreement as an accredited assessment between the Commonwealth and Western Australian governments.

2. The proposal

2.1 Proposal summary

The proponent, Tellus, proposes to construct and operate a dual kaolin (clay) mine and a near-surface geological waste repository, accepting Class IV (Secure Landfill) and Class V (Intractable Landfill) waste, including waste from interstate, and offshore oil and gas facilities. The proposal is located approximately 75 km north east of Koolyanobbing, in the Shire of Coolgardie, within the goldfields region of Western Australia (Figure 1 and 2).

The proposal would firstly involve mining up to 290,000 tonnes per annum (tpa) of kaolin clay. The voids created from mining would then be used for the storage of wastes, including hazardous and intractable wastes, and low level radioactive wastes. The site would receive up to a maximum of 100,000 tpa of waste for approximately 25 years.

The proposal would require the construction of:

- mine infrastructure, including a processing plant, stockpile area, storage building, laboratory, mining offices and laydown yard;
- waste infrastructure including a relocatable waste cell roof canopy and rail system, container hardstand, waste inspection area, radioactive waste warehouse and package building, waste laboratory, and waste solidification and stabilisation facility; and
- other infrastructure including an accommodation camp, future technology park, access roads, water pipelines, and a Class II putrescible landfill. The Class II landfill would service the accommodation camp and office. Only Class II wastes generated at the proposed facility would be disposed of in this landfill.

The key characteristics of the proposal are summarised in Tables 1 and 2 below. A detailed description of the proposal is provided in Section 5 of the PER document (Tellus, 2016).

Table 1: Summary of the Proposal

Proposal Title	Sandy Ridge Project
Short Description	The proponent proposes to construct and operate a dual kaolin clay mine and near-surface geological waste repository within the mine voids for the storage of Class IV and Class V waste. The proposal is located approximately 75 kilometres north-east of Koolyanobbing, in the Shire of Coolgardie.

Table 2: Location and proposed extent of physical and operational elements

Element	Location	Proposed Extent
Physical elements		
Mine pits/waste cells	Figure 2	Clearing up to 202.3 ha of native vegetation within a 1004.2 ha development envelope
Associated infrastructure	Figure 2	Clearing up to 73.75 ha of native vegetation with a 1004.2 ha development envelope
Operational elements		
Class IV & V wastes accepted at gate		up to 100,000 tonnes per annum
Temporary waste storage on surface		up to 15,000 tonnes
Maximum temporary storage time		up to 12 months
Waste (including treated waste) disposed to waste cells		up to 280,000 tonnes per annum
Water use		up to 0.18 Gigalitres per annum

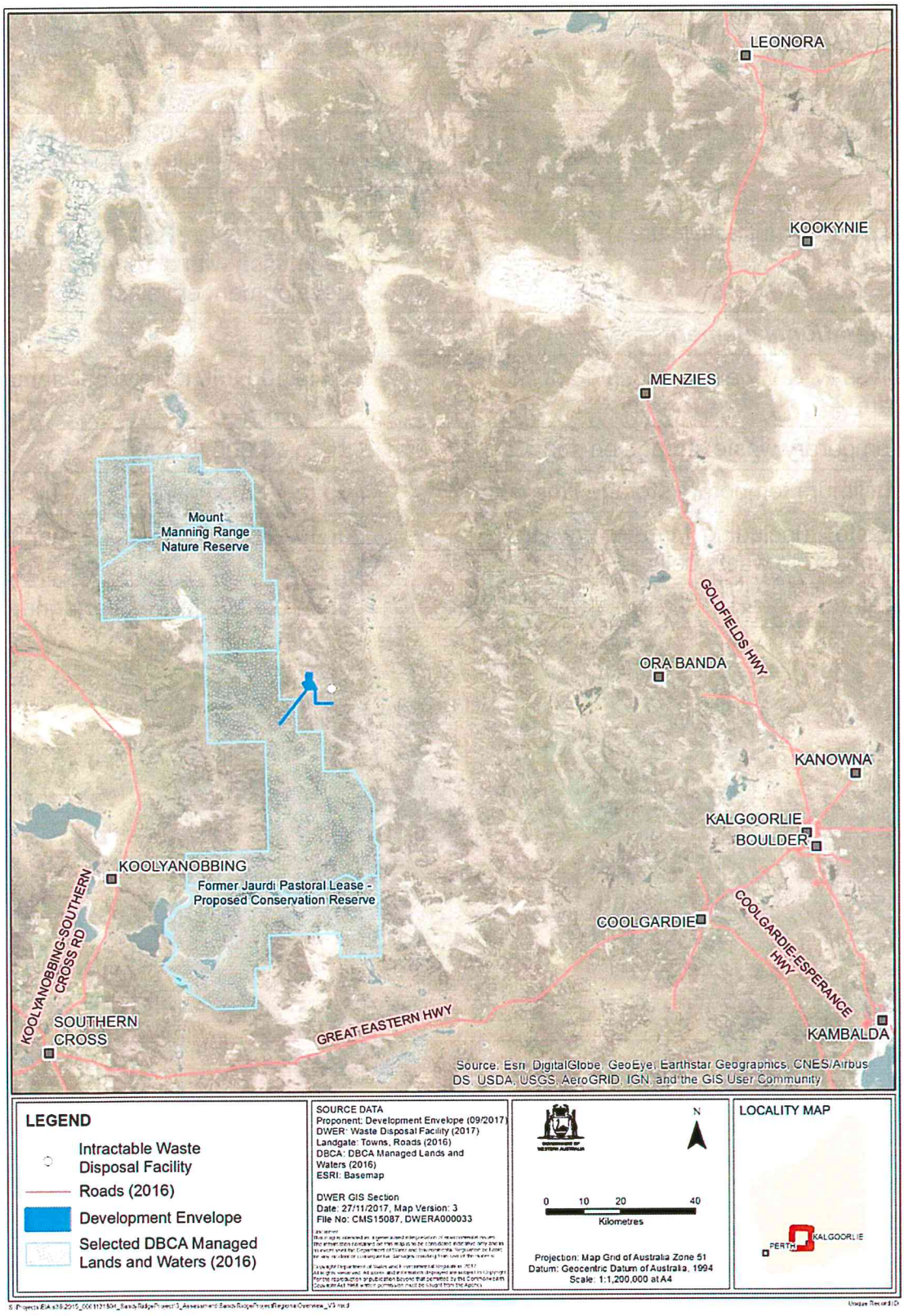


Figure 1: Regional location

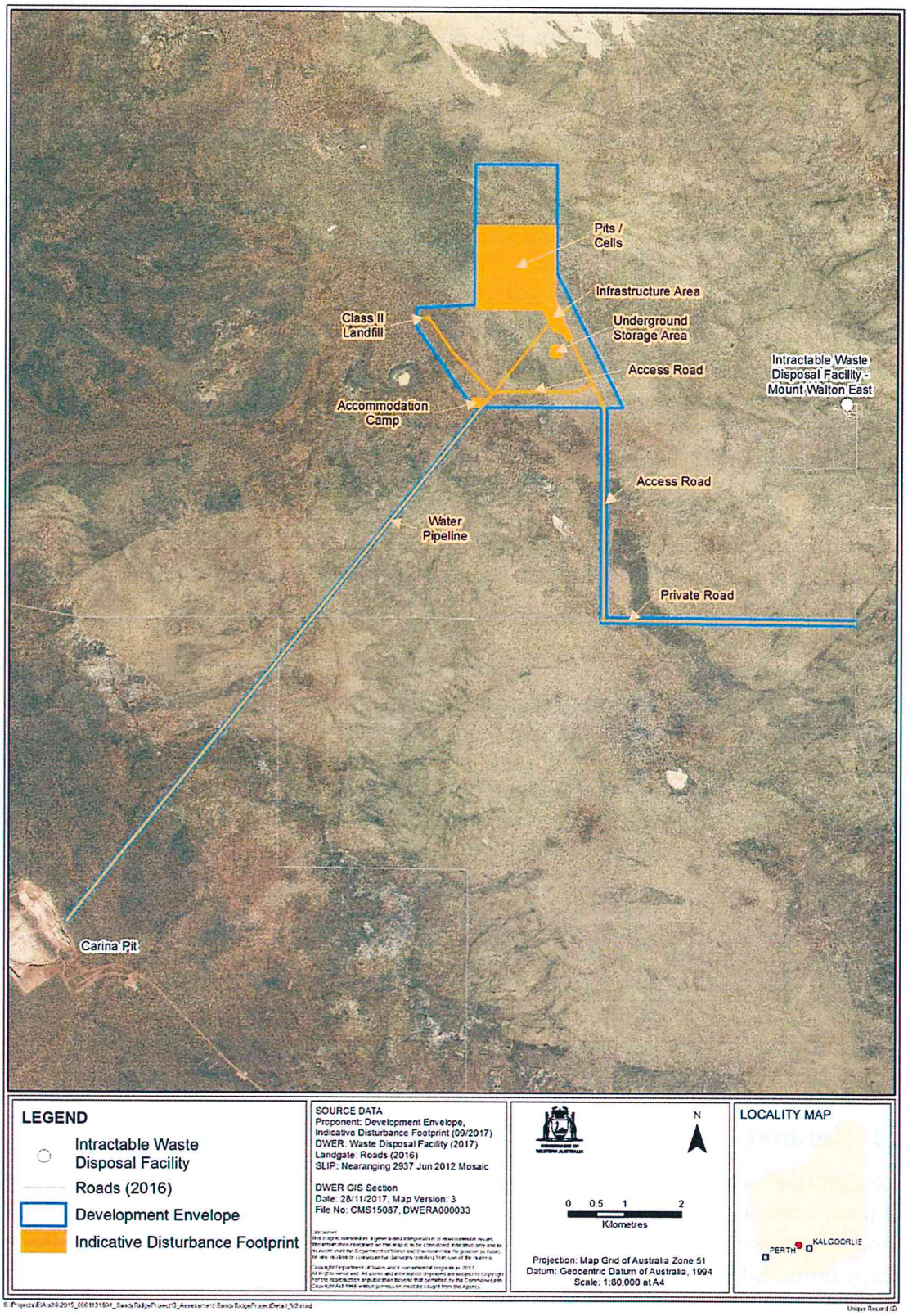


Figure 2: Development envelope

2.2 Changes to the proposal

Tellus requested consent from the EPA on 29 October 2015 to change the proposal during assessment. The changes requested included:

- the addition of access roads and a water pipeline;
- an increase to the ore processing rate;
- changes to the waste disposal rate;
- an increase to the development envelope to allow for access roads and the water pipeline; and
- an increase to the clearing within the development envelope.

The EPA Chairman, as a delegate of the EPA, considered the requested changes were unlikely to significantly increase any impact the proposal may have on the environment, and gave consent to the change under section 43A (s43A) of the EP Act on 11 November 2015. The PER document addressed the potential environmental impacts associated with the above changes.

A second request was submitted by the proponent on 23 August 2017 requesting a change to the proposal. The change requested was to:

- increase the volume of waste to be permanently isolated from 100,000 tpa to 280,000 tpa.

The proponent clarified that 40,000 tpa of waste, (out of a total of 100,000 tpa) received at the facility is likely to be liquid waste and require treatment through the addition of materials including kaolin, cement and gypsum. Hence, although up to 100,000 tpa of waste would still be received at the site gate, up to 280,000 tpa of treated waste would be placed into the waste cells. The proposed change was advertised for public comment from 30 August to 6 September 2017.

The EPA Chairman noted that the volume of waste to be accepted at the site gate remains the same as originally proposed, and that the requested change to the proposal originates from the requirement to treat sludge wastes prior to permanent isolation. This treatment increases the weight and volume of the waste. The EPA Chairman considered that the change would be unlikely to significantly increase the potential impacts on the environment, and consented to the change under s43A of the EP Act on 11 September 2017.

2.3 Context

The proposal is located 9.8 km south east of the Mount Manning Nature Reserve and 19.8 km north east of the Mount Manning-Helena and Aurora Ranges Conservation Park. The majority of the proposal's development envelope is located on unallocated crown land, with no current land use or occupation. A portion of the development envelope falls within the former Jaurdi Pastoral lease and the proposed Conservation and Mining Reserve (managed by the Department of Biodiversity Conservation and Attractions).

There are no sensitive receptors within 5 km of the proposal site. The nearest sensitive premise is the Carina Iron Ore Mine Accommodation Village, approximately 52 km to the south of the proposal.

The nearest operation is the Class V Intractable Waste Disposal Facility at Mount Walton East, approximately 5.5 km to the east of the proposal, which operates on a campaign basis, the last of which was in 2008.

In 1993, the EPA assessed the Mount Walton Class V Intractable Waste Disposal Facility and concluded that the site was appropriate for intractable waste disposal because of its geological stability, deep impermeable clay soils, low rainfall, low land erosion potential and remoteness.

Tellus has also proposed the Chandler Facility Project in the Northern Territory (NT). This is a dual underground salt mine and deep geological waste repository, located 120 km south of Alice Springs. The NT EPA is currently assessing the Chandler proposal.

Site selection for a near-surface geological waste repository

The ultimate objective for a near-surface geological waste repository is the isolation of the waste from environmental receptors over geological time. Assessment against this objective should be based on local site-specific conditions and include consideration of the:

- waste types;
- containment design (including any multiple barriers) and likelihood of failure;
- location of sensitive environmental receptors; and
- likelihood and consequence of contaminant transport to receptors.

The waste types proposed to be accepted at the Sandy Ridge Facility include hazardous and intractable wastes and low level radioactive waste. The sensitive environmental receptors, pathways and impact of containment failure are largely influenced by the chosen site's characteristics, and site selection is therefore critical to achieving permanent isolation. The geological and hydrogeological characteristics including type of rock, soils, aquifers, topography, climate, along with frequency and potential impact of seismic activity, need to be well understood.

The *Code of Practice for the near-surface disposal of radioactive waste in Australia* (NMMRC, 1992) outlines site selection criteria, and in Section 2.3 of the PER, the proponent compares the Sandy Ridge site against these criteria. Important characteristics include:

- geologically stable with very low seismicity;
- natural and extensive clay barrier;
- semi-arid desert climate with low rainfall and no flooding;
- no surface water receptors;

- no regional aquifer;
- flat topography with very low rates of erosion; and
- remote location away from population centres.

The EPA considers that the above characteristics make the site suitable for a more detailed consideration (as outlined in the report herein) as a near-surface geological waste repository.

3. Consultation

The EPA advertised the referral information for the proposal for public comment in July 2015 and received 27 submissions. Three submissions requested 'Assess – Public Environmental Review' and 24 submissions requested 'Assessment on Proponent Information Category B (environmentally unacceptable)'.

The Environmental Scoping Document (ESD) for the proposal was released from 31 March to 14 April 2016. There were nine submissions, including government agency submissions, on the document. The EPA considered the submissions and EPA policy and guidance during finalisation of the ESD.

The proponent consulted with government agencies and key stakeholders during the preparation of the PER document. The issues raised and the proponent's responses are detailed in Table 6-2 of the proponent's PER document (Tellus, 2016).

The final PER document was released for public comment for a twelve-week period from 12 December 2016 to 6 March 2017. Two additional weeks, beyond those proposed at the time the level of assessment was set, were made available for public comment due to the summer holiday period. Ten agency submissions and six public submissions were received during the public review period. The key issues raised related to:

- potential impacts to human health from the handling, storage and transport of intractable waste;
- concerns about the long-term management and decommissioning of the site;
- the waste acceptable criteria and transport of the waste;
- potential impacts from waste leachate to soils and groundwater from the storage of intractable waste; and
- potential impacts to significant vegetation and flora, and terrestrial fauna from clearing and waste emissions.

Tellus provided responses to issues raised in the public submissions and further information where appropriate in the Response to Submissions (RtS) document (Tellus, 2017a). In the response to submissions, the proponent clarified and provided supplementary technical information regarding flora and vegetation (*Lepidosperma* sp.) and fauna (short range endemic fauna). This information was made available to the public on the EPA's website and has been considered in this assessment where appropriate.

The EPA considers that the consultation process has been appropriate and that reasonable steps have been taken to inform the community and stakeholders on the proposed development. Relevant environmental issues identified from this process have been taken into account by the EPA during its assessment of the proposal.

4. Key environmental factors

In undertaking its assessment of this proposal, and preparing this assessment report, the EPA had regard for the object and principles contained in s4A of the EP Act to the extent relevant to the particular matters that were considered.

The EPA considered the following information during its assessment:

- the proponent's referral information and the PER document;
- public comments received on the referral, stakeholder comments received during the preparation of proponent documentation and public and agency comments received on the PER document;
- the proponent's response to submissions raised during the public review of the PER document;
- the proponent's request to change the proposal;
- the EPA's own inquiries;
- the EPA's *Statement of environmental principles, factors and objectives*; and
- the relevant principles, policy and guidance referred to in the assessment of each key environmental factor in sections 4.1 to 4.5.

Having regard to the above information, the EPA identified the following key environmental factors during the course of its assessment of the proposal:

- **Terrestrial environment quality** – direct impacts to the quality of land and soils during the operation of the proposal and from the acceptance and storage of hazardous and intractable waste (including low level radioactive waste).
- **Flora and vegetation** – direct impacts associated with the clearing of native vegetation.
- **Human health** – direct impacts from exposure to chemical/hazardous materials from waste handling, and leaks or spills from waste packages.
- **Terrestrial fauna** – direct impacts on fauna habitat from clearing, and contaminants or radiation exposure to fauna.
- **Inland waters environmental quality** – direct impacts from potential leaks or spills and generation of leachate from waste package storage.

The EPA considered other environmental factors during the course of its assessment of the proposal. These factors, which were not identified as key environmental factors, are discussed in the PER document (Tellus, 2016). Appendix 4 contains an evaluation of why these other environmental factors were not identified as key environmental factors.

Having regard to the EP Act principles, the EPA considered that the following principles were particularly relevant to its assessment of the proposal:

1. **The precautionary principle** – site specific studies have been undertaken to evaluate the potential impacts to the environment.

2. **Principles relating to improved valuation, pricing and incentive mechanisms** – the ongoing management of the proposal following closure would be the responsibility of the proponent until it could be demonstrated that the site is safe, stable and non-polluting.
3. **The principle of waste minimisation** – voids created from kaolin mining would be used for the long-term storage/disposal of hazardous and intractable waste material. The proposal addresses the waste hierarchy by permanently isolating wastes that are a risk to human health and the environment and for which no other practicable options are available.

The EPA notes that the assessment on the Mt Walton facility contemplated that other practicable treatment or destructive technologies might be available proceeding the approval of that proposal. Such technologies are not currently widely in use in Australia, and in particular Western Australia, and from the perspective of managing Class V waste, appropriate disposal facilities should be available to avoid long term stockpiling of hazardous and intractable wastes. The EPA notes that Tellus has indicated a willingness to recycle some wastes received on the site (where amongst other things it is safe to do so) and this forms part of a reporting condition for this assessment.

Appendix 3 provides a summary of the principles and how the EPA considered these principles in its assessment.

The EPA's assessment of the proposal's impacts on the key environmental factors is provided in Sections 4.1 – 4.5. These sections outline whether or not the EPA considers that the impacts to each factor are manageable. Section 6 provides the EPA's conclusion as to whether or not the proposal as a whole is environmentally acceptable.

Changes to EPA environmental policy and guidance

The EPA introduced a new suite of environmental guidance for EIA on 13 December 2016. This replaced EPA policy and guidance that were current at the time of referral and preparation of the PER document for the proposal.

In its assessment of the proposal, the EPA considered and gave due regard to, where relevant, its current EIA policy and guidance documents. The EPA consulted the proponent on the application of the current EIA policy and guidance documents relevant to its environmental review and the EPA's assessment of the proposal.

Assessment on behalf of Commonwealth

The EPA assessed the proposal on behalf of the Commonwealth Minister for Environment under the Bilateral Agreement as an accredited assessment. The EPA has addressed MNES under each relevant factor and has summarised its assessment of MNES in Section 5.

4.1 Terrestrial environmental quality

EPA Objective

The EPA's environmental objective for this factor is *to maintain the quality of land and soils so that environmental values are protected*.

Relevant policy and guidance

The EPA considers that the following current environmental policy and guidance is relevant to its assessment of the proposal for this factor:

- Environmental Factor Guideline – *Terrestrial Environment Quality* (EPA, 2016b);
- Guidance Statement No. 6 – *Rehabilitation of Terrestrial Ecosystems* (EPA 2006); and
- *Guidelines for Preparing Mine Closure Plans* (EPA & DMP 2015).

The considerations for EIA for this factor are outlined in Environmental Factor Guideline – *Terrestrial Environmental Quality* (EPA 2016b).

EPA Assessment

Consistent with Environmental Factor Guideline – *Terrestrial Environmental Quality* (EPA 2016b), the EPA has considered the potential impacts and risks of the proposal on soils and landforms.

The proposal would involve the storage of hazardous and intractable chemical wastes and low level radioactive wastes in mine voids. Proposal activities have the potential to impact on terrestrial environmental quality through contamination of soils from leaks or spills during waste handling, and failure of the waste cells or capping. The completed capped waste cells may also be subject to erosion over the long term.

Existing environment

The proposal lies within the Archean Yilgarn Craton, which forms one of the largest intact segments of the Archaean crust on earth and has been tectonically stable for approximately 2,500 million years. The topography of the development envelope consists of flat to gently undulating plains and low rises, and is typical of landscapes over deeply weathered granite rock.

Impacts

The potential impact to terrestrial environmental quality is soil contamination through:

- leaks or spills of waste during handling and short term surface storage;
- geological barrier failure through subsidence, instability of waste cells or seismic activity;
- failure of cap integrity due to slumping of cell backfill material;
- infiltration of water into waste cells causing the generation of leachate; and

- erosion of completed cell capping allowing water to infiltrate or waste to be exposed.

Management and mitigation

The EPA notes that in designing the proposal and selecting the site, the proponent has considered the application of the mitigation hierarchy, in accordance with Environmental Factor Guideline – *Terrestrial Environmental Quality* (EPA 2016b).

The potential for the waste stored in a near-surface geological waste repository to contaminate surrounding soils can be largely mitigated by the specific site characteristics. Site selection is therefore the most important management consideration to avoid soil contamination. In selecting the Sandy Ridge site, the proponent has considered geological and hydrogeological data and site specific aspects of climate and seismicity.

Importantly, the Sandy Ridge site is geologically stable with very low seismicity, has a natural extensive clay barrier, and flat topography with very low rates of erosion. The proponent has undertaken landform evolution modelling to predict changes to the landform post-closure. The model considered potential changes to landforms over a 10,000 year period and accounted for changes to climate. The model predicted that there would be relatively little change to the clay domes and that the landform is likely to be stable over the long term. The final waste cell landforms, while being at an increased height, are expected to blend in with the natural topography of the surrounding landscape.

Secondary to site selection, management measures are essential to ensure impacts to terrestrial environmental quality are mitigated. The proponent has proposed measures, including:

- preparing and implementing an Emergency Response Management Plan for spill and leaks and maintaining a rapid clean-up capability;
- testing of backfill compaction density to confirm engineering design specifications so as to avoid subsidence and voids within the waste cells;
- maintaining a roof canopy over each open waste cell to prevent rainfall from entering the waste cell during waste disposal and isolation operations;
- capping completed cells with a minimum of seven metres of low permeability kaolin or kaolinised granite material, silcrete and laterite material;
- keeping detailed records of the location, quantity and characteristics of all waste disposed into the waste cells;
- installing monitoring bores which would be monitored annually; and
- monitoring of the clay dome following cell completion.

The EPA considers the management and mitigation measures proposed by the proponent to be appropriate. However, periodic monitoring is essential to demonstrate the integrity of the near-surface geological waste repository, and the EPA recommends that the proponent be required to use a monitoring system that could detect any leachate from the facility every six months rather than annually. As such

the EPA recommends condition 9, which requires the preparation and implementation of a Leachate Monitoring and Management Plan.

Interim on-site storage

The EPA considers that waste delivered to the site should be dealt with in a timely manner. The stockpiling of large quantities of waste on the surface (interim on-site storage) prior to placement in waste cells poses some inherent risks, both financial and to the environment. As such, the EPA recommends that the inventory of waste in interim on-site storage and in transit to the facility, be limited to a total of 15,000 tonnes at any time.

The EPA also considers that waste should not be stored on-site for more than 12 months before placement in a waste cell. Allowing on-site storage for up to 12 months is considered sufficient to provide flexibility to dispose of wastes in a 'like with like' manner, or at deeper depths in a new waste cell.

The EPA considers that it is important to know what waste has been disposed and where into the future. The EPA recommends condition 7 which requires the proponent to prepare and maintain a Waste Management System to records details of the location, quantity and characteristics of all waste stored in waste cells.

The PER states that only wastes generated within Western Australia, other Australian States and Territories, and the Australian Exclusive Economic Zone will be accepted at the Sandy Ridge Facility. The EPA notes that there is particular public interest in the origin of the waste, and has recommended condition 6 to ensure that only waste from the above locations is accepted at the facility.

Closure and rehabilitation

Closure and rehabilitation are critical aspects for the Sandy Ridge Facility, and the EPA considers it important to secure funding to cover these aspects through financial assurances and insurances. The EPA has provided further advice on the financial assurance and insurance aspects of closure and rehabilitation in Section 7 Other Advice.

Summary

The EPA has paid particular attention to the:

- Environmental Factor Guideline – *Terrestrial Environmental Quality* (EPA 2016b);
- suitability of the site characteristics for a near-surface geological waste repository;
- potential risk of soil contamination from failure of waste cells, leaks or spills;
- proponent's mitigation and management measures; and
- Emergency Response Management Plan to deal with spillage or leaks.

The EPA considers, having regard to the relevant EP Act principles and environmental objective for Terrestrial Environmental Quality that the impacts to this factor are manageable, provided that:

- the condition statement includes schedule 1 which outlines the requirements for the volume and storage of waste on the site;
- condition 6 is imposed to ensure that only wastes from within Australia and the Australian Exclusive Economic Zone are accepted;
- condition 7 is imposed which requires preparation and maintenance of a detailed Waste Management System;
- condition 8 is imposed requiring an annual independent audit; and
- condition 9 is imposed requiring preparation and implementation of a Leachate Monitoring and Management Plan.

In addition to the above considerations, the EPA notes that some aspects of the facility would be regulated under Part V of the EP Act and that additional conditions would be placed during consideration of the application for a Part V works approval and licence. These may include further requirements on waste acceptance, emissions, the design of the facility and waste storage structures.

4.2 Flora and vegetation

EPA Objective

The EPA's environmental objective for this factor is *to protect flora and vegetation so that biological diversity and ecological integrity are maintained.*

Relevant policy and guidance

The EPA considers that the following current environmental policy and guidance is relevant to its assessment of the proposal for this factor:

- Environmental Factor Guideline – *Flora and Vegetation* (EPA 2016c); and
- Technical Guidance – Flora and Vegetation Surveys for Environmental Impact Assessment (EPA 2016).

The considerations for EIA for this factor are outlined in Environmental Factor Guideline – *Flora and Vegetation* (EPA 2016c).

In addition to the relevant current policy and guidance above, the EPA also had regard to the following replaced policy:

- Position Statement 2: *Environmental Protection of Native Vegetation in Western Australia* (EPA 2000);
- Position Statement 3: *Terrestrial Biological Surveys as an Element of Biodiversity Protection* (EPA 2002); and

- Guidance Statement No. 51: *Terrestrial Flora and Vegetation Surveys for Environmental Impact Assessment in Western Australia* (EPA 2005).

EPA Assessment

Consistent with Environmental Factor Guideline – *Flora and Vegetation* (EPA 2016c), the EPA has considered the potential direct impacts, indirect impacts and risks of the proposal on flora and vegetation.

The proposal has the potential to impact on flora and vegetation from clearing up to 276.05 ha of native vegetation for kaolin mining and operation of the waste facility.

Existing Environment

The proponent has undertaken a Level 1 and 2 flora and vegetation survey. Four regional vegetation associations were found to occur within the development envelope. These vegetation associations have greater than 97 percent of their pre-European extent remaining outside of the development envelope and are considered well represented.

There were no Priority or Threatened Ecological Communities, or Threatened flora species recorded within the development envelope. Two Priority 3 species, *Calytrix creswellii* and *Lepidosperma lyonsii* were found within the development envelope. While populations of both the *Calytrix creswellii* and the *Lepidosperma lyonsii* were recorded within the development envelope, they are outside of the disturbance footprint. Both species have also been recorded outside of the development envelope. An undescribed species (*Lepidosperma* sp.) which may have conservation value was also recorded within the development envelope.

The proponent has consulted with the Western Australian Herbarium, and confirmed that the unidentified *Lepidosperma* sp. is most likely in the *Lepidosperma lyonsii* species complex, which has a mix of highly localised and widespread taxa ranging from Mt Jackson south to Ravensthorpe, and from Tammin east to Queen Victoria Spring and Cape Arid. The Western Australian Herbarium considers that the species may not be new, but would require further survey work to be undertaken to confirm this view.

In having regard to Guidance Statement 51, the EPA notes that the flora and vegetation surveys undertaken did not fully meet the current technical guidance, and a targeted survey (pre-clearing survey) for the two Priority 3 species and the potentially undescribed flora species would be required.

Impacts

Flora and vegetation would be impacted through direct clearing and has potential to be indirectly impacted through:

- alteration of the natural fire regime resulting in increased incident of fire;
- change in water access through altered hydrology;
- dust emissions;

- radiation exposure;
- transpiration of leachate;
- uptake of saline water used for dust suppression; and
- the introduction and spread of weeds.

Mitigation and management

The proponent has committed to undertaking targeted surveys to determine the presence of the potentially unidentified *Lepidosperma* sp. within and outside the development envelope prior to construction. In the event the species are identified within the development envelope, impacts would be minimised through changes to the location and/or alignment of the proposed infrastructure (Tellus, 2016).

The proponent has also proposed to implement a Construction Environmental Management Plan (CEMP) to address potential impacts to flora and vegetation during construction works, including the avoidance of populations of *Calytrix creswellii* and *Lepidosperma lyonsii*, dust suppression, weed management, and vegetation health monitoring.

Following closure of the site, the proponent intends to rehabilitate the site with local species. Approximately seven metres of compacted backfill is proposed to separate the stored waste from the surface.

The proponent would be managing the increased risk of fire through the implementation of fire prevention and management through an Emergency Response Management Plan. Surface water would be diverted around waste cells, however vegetation within the development envelope is not reliant on surface water. Dust generation is expected to be low due to the frequency and extent of the construction and operation activities. Saline water used for dust suppression would be applied sparingly and is expected to impact on less than 1% of vegetation within the development envelope. The Jaurdi Pastoral lease pipeline used to supply water would also be checked weekly for any leakages.

An assessment was undertaken using the Environmental Risk from Ionising Contaminants Assessment (ERICA) software to model the radiation exposure risk of flora and fauna. The model predicted that all organisms would be below the threshold dose rate, and that external gamma dose rate on surface post closure would be similar to background levels.

The EPA notes that in designing the proposal, the proponent has considered the application of the mitigation hierarchy, in accordance with Environmental Factor Guideline – *Flora and Vegetation* (EPA 2016c). In considering the proponent's mitigation and management measures, the EPA considers it unlikely that the proposal will have a significant impact on flora and vegetation. However, the EPA recommends condition 10 be imposed to manage the potential impacts from the proposed activities associated with clearing of flora and vegetation. Condition 10 requires pre-clearing surveys to ensure the proposal is sited to avoid (where practicable) and minimise impacts to the two Priority 3 and one potentially undescribed flora species identified within the development envelope.

Summary

The EPA has paid particular attention to:

- Environmental Factor Guideline – *Flora and Vegetation* (EPA 2016c);
- the presence of priority flora species within the development envelope;
- proposed clearing would not remove current populations of *Calytrix creswellii* and *Lepidosperma lyonsii*; and
- the management and mitigation measures proposed by the proponent, including the avoidance of direct impacts where practicable, monitoring of vegetation health, dust suppression, and weed management.

The EPA considers, having regard to the relevant EP Act principles and environmental objective for flora and vegetation, the impacts to this factor are manageable, provided that:

- condition 10 is imposed requiring additional targeted surveys to be undertaken prior to clearing, and the avoidance where practicable and minimisation of direct impacts to flora, and management of indirect impacts to flora.

Rehabilitation of the site would be managed in part by the Department of Mines, Industry Regulation and Safety and also determined during the finalisation of the institutional control period and the financial assurances and insurances for the site. This is discussed further in Section 7 'Other advice'.

4.3 Human health

EPA Objective

The EPA's environmental objective for this factor is *to protect human health from significant harm.*

Relevant policy and guidance

The EPA considers that the following current environmental policy and guidance is relevant to its assessment of the proposal for this factor:

- Environmental Factor Guideline – *Human Health* (EPA 2016d); and
- Guidance Statement No. 3 – *Separation Distances between Industrial and Sensitive Land Uses* (EPA 2005).

The considerations for EIA for this factor are outlined in Environmental Factor Guideline – *Human Health* (EPA 2016d).

In addition to the relevant current policy and guidance above, the EPA also had regard to its former policy on the environmental impacts from noise in Environmental Assessment Guideline 13: *Consideration of environmental impacts from noise* (EPA 2014).

EPA Assessment

Consistent with Environmental Factor Guideline – *Human Health* (EPA 2016d), the EPA has considered the potential impacts to human health during transport and operations, and exposure to contaminants and radiation following closure.

The proposal has potential to impact on human health from exposure to hazardous and intractable waste, and low level radioactive waste.

Impacts from storage of waste to terrestrial environmental quality are discussed under Section 4.1 so have not been considered in detail here.

Impacts

There are no sensitive receptors within 5 km of the development envelope. Tellus employees and transport drivers, have the potential to be exposed to hazardous and intractable wastes. Potential pathways for exposure could occur through inappropriate acceptance, handling, and storage of wastes, leaks or spills during transport or on-site, radiation exposure, and dust emissions.

An assessment of the potential impacts on human health during construction and operation of the proposal was undertaken. This included a baseline radiation and metals assessment, and a worker dose assessment. The baseline radiation assessment considered radioactive waste receipt, storage, packaging, placement and earthmoving activities. Results predicted that the maximum dose is up to 0.42 millisieverts per annum (mSv/a), which is well below the occupational dose limit of 20 mSv/a.

A post closure assessment was undertaken to consider the risk to recreational visitors which found that the maximum total dose is well below the public dose limit of 1 mSv/a.

Modelling for water seepage and infiltration was undertaken to identify if any complete source-pathway-receptor links are present. Due to the climate, even with extreme rainfall assumptions a completed exposure pathway is not present, and the risk to human health is therefore low.

The proponent undertook a study using the software Environmental Risk from Ionising Contaminants Assessment (ERICA) to predict the potential radiation exposure to land, soils and biota. The data from this assessment was used to predict impacts to humans from ingestion of food. The results predicted that there would not likely be any impacts to human health from consumption of bush tucker.

The EPA considers that it is highly unlikely that workers or members of the public would be exposed to levels above the annual occupational and public dose limits.

Mitigation and management

The proposed mitigation measures to minimise impact to human health include:

- storing of waste material according to zoning schemes;
- extensive training for workers relating on the acceptance and handling of waste;

- enforcing appropriate use of personal protection equipment;
- implementation of relevant management plans;
- fencing the operational areas to exclude public and fauna access;
- placing a minimum capping of seven metres over completed waste cells to ensure radiation impacts are negligible; and
- ensuring appropriate maintenance of machinery and equipment.

The proponent proposes to undertake human health monitoring of workers to ensure that radiation exposure is below the occupational limit of 20 mSv/a. A permit would be required for the site and a Radiation Management Plan will be developed to ensure that exposure to radiation is eliminated or reduced as low as reasonably achievable, in accordance with the *Radiation Safety Act 1975* (RS Act). A Radioactive Waste Management Plan would also be required under the *Mines Safety and Inspection Regulations 1995*

The EPA notes that hazardous material delivered on site would be appropriately packaged through pre-disposal management practices, that material accepted at Sandy Ridge would follow specific waste packaging acceptance protocol, and would then be placed in an appropriate disposal zone within a waste cell and covered with kaolin.

Transport of waste

The transport of waste to the Sandy Ridge Facility is proposed mostly via rail to Kalgoorlie and then by road using licensed transport contractors. Specific Waste Acceptance Criteria has been proposed for the facility describing how the proponent will accept, test, store and isolate hazardous and intractable material.

A risk assessment was conducted to identify, evaluate and mitigate potential environmental impacts associated with the proposal and the transport of hazardous and intractable waste. The risks assessed include the following:

- collision of the transport truck with native fauna causing injury or death to humans;
- chemical spill onto roads and the surrounding environment from designated containers; and
- radiation exposure due to accidental spillage and incorrect handling and storage.

The risk assessment concluded that transport of wastes did not represent an unmanageable risk.

Summary

The EPA has paid particular attention to:

- Environmental Factor Guideline – *Human Health* (EPA 2016d);
- the remote location of the proposal site;

- the baseline qualitative risk assessment identifying potential worker exposure;
- the modelling results from the post closure risk assessment;
- the potential exposure pathway from bush tucker consumption;
- the likely risk from spills and accidents during transportation; and
- the proposed mitigation and management measures.

The EPA considers, having regard to the relevant EP Act principles and environmental objective for human health, that the impacts to this factor are manageable and would no longer be significant, provided there is:

- appropriate conditioning of waste auditing and management as outlined under Section 4.1 Terrestrial Environmental Quality.

The EPA notes there are a number of national and state regulations to manage waste transport. These cover both state and inter-state transportation and management of chemical wastes and management of low level radioactive waste. They include:

- The *National Environmental Protection (Movement of Controlled Waste between States and Territories) Measure* which has been adopted by all States and Territories and addresses interstate transport of controlled waste;
- The *Environmental Protection (Controlled Waste) Regulations 2004* (Controlled Waste regulations) which sets out licensing requirements for drivers and vehicles and the use of Controlled Waste Tracking Forms; and
- The *Radiation Safety (Transport) Regulations 2002* which require the carrier to develop a transport management plan for the movement of low level radioactive waste to the Sandy Ridge Facility.

4.4 Terrestrial fauna

EPA Objective

The EPA's environmental objective for this factor is *to protect terrestrial fauna so that biological diversity and ecological integrity are maintained.*

Relevant principles, policy and guidance

The EPA considers that the current environmental policy and guidance is relevant to its assessment of the proposal for this factor:

- Environmental Factor Guideline – *Terrestrial Fauna* (EPA 2016f);
- Technical Guide – *Terrestrial Vertebrate Fauna Surveys for Environmental Impact Assessment* (EPA 2010);
- Guidance Statement No. 56 – *Terrestrial Fauna Surveys for Environmental Impact Assessment in Western Australia* (EPA 2004);
- Guidance Statement No. 20 – *Sampling of Short Range Endemic Invertebrate Fauna for Environmental Impact Assessment* (EPA 2009);
- Environmental Offsets Policy (Government of Western Australia 2011); and

- Environmental Offsets Guidelines (Government of Western Australia 2014).

The considerations for EIA for this factor are outlined in Environmental Factor Guideline – *Terrestrial Fauna* (EPA 2016f).

In addition to the relevant current policy and guidance above, the EPA also had regard to its former policy on terrestrial biological surveys in EPA Position Statement No. 3: *Terrestrial Biological Surveys as an Element of Biodiversity Protection* (EPA 2002). Contemporary policy and guidance is now described in the Technical Guide.

EPA Assessment

Consistent with Environmental Factor Guideline – *Terrestrial Fauna* (EPA 2016f), the EPA has considered the potential impacts and risks of the proposal on terrestrial fauna and habit.

The proposal would involve clearing up to 276.05 ha of native vegetation and would result in the loss of fauna habitat. Terrestrial fauna could also be impacted from increased light, noise and vibration from construction and operational activities.

Existing Environment

The proponent undertook a Level 1 vertebrate fauna assessment, however this desktop study did not fully meet the requirements of EPA Guidance for terrestrial fauna. Further information was presented as part of a targeted Malleefowl survey and short range endemic (SRE) survey. The provision of this additional information has resulted in the proponent now meeting EPA Guidance for terrestrial fauna.

The assessments identified two fauna habitats within the proposed development envelope. These are open woodland and shrubland. Both the fauna habitats were in 'very good to excellent' condition. Approximately 18 percent of the open woodland and 28 percent of the shrubland within the development envelope would be cleared.

Fourteen fauna species listed under the *Wildlife Conservation Act 1950* (WC Act) and the EPBC Act have potential to occur within the local area. Evidence of Malleefowl and the Rainbow Bee-eater within the development envelope has been recorded during surveys. The Malleefowl is listed as Vulnerable under the WC Act and the EPBC Act. However no Malleefowl tracks, active mounds, or individuals were observed during the targeted survey. A total of 63 old mounds were identified, and these were of various ages, most of which appeared unused for decades.

The Rainbow Bee-eater is listed under the WC Act. The sandy soils within the development envelope provides potential suitable breeding habitat. Two observations of the Rainbow Bee-eater were made during the survey, however no recently used burrows were found. As the nesting period had finished for the season it is likely that the birds observed were passing through the site.

An additional four listed species were noted to possibly occur within the proposed development envelope and included the Central Long-eared bat (*Nyctophilus timoriensis*), Western Rosella (Mallee) (*Platycercus icterotis xanthogenys*), Fork-tailed

swift (*Apus pacificus*), and Peregrine Falcon (*Falco peregrinus*). The remaining eight species are considered unlikely to occur within the development envelope due to lack of suitable habitat.

The Sandy Ridge study area has a moderate SRE species diversity with a minimum of 30 species from SRE groups recorded (Bennelongia 2017). Of these, two potential SRE species, spider *Aganippe* sp. B26 and millipede *Antichiropus* sp., were recorded. *Aganippe* sp. B26 was collected from outside the impact area but within the development envelope from tall eucalypt woodland habitat that is widespread. *Antichiropus* sp. was collected from two sites within the impact area from two different habitat types (tall eucalypt woodland and open heath). Both habitat types occur widely in the development envelope and wider region.

Impacts

Consistent with the EPA's Environmental Factor Guideline – *Terrestrial Fauna* (EPA 2016f), the EPA has considered the potential direct and indirect impacts of the proposal and risk to significant terrestrial fauna.

The direct impacts likely to occur include the loss of habitat. The clearing and removing of 276.05 ha of native vegetation would result in the loss of fauna foraging, breeding, roosting, sheltering and/or dispersal habitat. Indirect impacts may also occur as a result of construction and operation activities, such as from the following:

- increased light, noise and vibration;
- fauna displacement;
- increased predation and competition for resources;
- increased feral fauna attracted to water and food resources; and
- injury and death from fauna ingress into cell or from collision.

Mitigation and management

To minimise impacts to terrestrial fauna, the proponent has proposed pre-clearing surveys prior to any ground disturbance. It is proposed that any fauna identified within the proposed clearing areas will be captured and relocated to adjacent habitats or encouraged to move to nearby vegetation. In the event any Malleefowl mounds are identified within the development envelope, the area containing the mound is proposed to be demarcated and an assessment would be undertaken to determine if the mound is active or not.

Light, noise and vibration from construction and operational activities are not expected to cause significant indirect impacts to terrestrial fauna. Areas likely to experience the highest disturbance would be cleared and blasting would only occur yearly and last seconds at a time. Construction and operation of the proposal would only occur during day time. The site would also be fenced to restrict access to the site.

The proponent would be implementing a Construction Environmental Management Plan (CEMP), which would include key mitigation and management measures, including but not limited to clearing procedures, implementation of a boundary fence to restrict access, recording sightings of conservation significant species, control

measures for feral fauna, and restricting vehicle speeds. All disturbed areas would be rehabilitated at closure, including revegetation with local flora and vegetation species.

The EPA notes that there are adjoining areas of each habitat type outside of the development envelope. The EPA considers that the proposal will have a minimal impact on SREs in the region, based on the habitat extent and value. The EPA considers that the proponent has appropriately identified the likely impacts to terrestrial vertebrate fauna and the management and mitigations methods.

Summary

The EPA has paid particular attention to the:

- Environmental Factor Guideline – *Terrestrial Fauna* (2016f);
- the likely occurrence of conservation significant fauna in the development envelope, in particular the Malleefowl and Rainbow Bee-eater;
- the results from the vertebrate fauna survey, the targeted Malleefowl survey, and the SRE survey; and
- the proposed mitigation and management measures.

The EPA considers, having regard to the relevant EP Act principles and environmental objective for terrestrial fauna, the impacts to this factor are manageable and would not be significant, provided there is:

- condition 11 requiring the development and implementation of the CEMP to manage impacts on conservation significant fauna.

4.5 Inland waters environmental quality

EPA Objective

The EPA's environmental objective for this factor is *to maintain the quality of groundwater and surface water so that environmental values are protected*.

Relevant policy and guidance

The EPA considers that the following current environmental policy and guidance is relevant to its assessment of the proposal for this factor:

- Environmental Factor Guideline – *Inland Waters Environmental Quality* (EPA, 2016g)

The considerations for EIA for this factor are outlined in Environmental Factor Guideline – *Inland Waters Environmental Quality* (EPA 2016g).

EPA Assessment

Consistent with the EPA's Environmental Factor Guideline – *Inland Waters Environmental Quality* (EPA 2016g), the EPA has considered the potential direct and indirect impacts of the proposal on groundwater and surface water.

The proposal has the potential to impact on inland waters environmental quality from the generation of leachate from waste cells, leaks and spills during the transport of waste, or loss of cell integrity.

Impacts from storage of waste to terrestrial environmental quality are discussed under Section 4.1 so have not been considered in detail here.

Existing Environment

The area is characterised as semi-arid, with little rainfall occurring over the site. There are no channels or creeks in the development envelope. The proponent conducted a hydrological study which included a desktop review of regional hydrogeology and field investigation. No groundwater table was discernible during the drilling of boreholes at depths between 21 to 49 metres below ground level.

There are no groundwater users (or bores) in the local area, with the exception of bores for monitoring purposes at the Intractable Waste Disposal Facility at Mount Walton East 5.5 km east of the development envelope. Water supply bores are location at the Mount Dimer gold mine, 23 km from the development envelope.

Impacts

The proponent considers that the risk from an on-site leak or spill of waste would be low, as individual waste packages would be solid and liquid waste would be treated (solidified or packaged in sufficient absorbent material). The proponent considers that due to the hydrogeology of the site, waste disposal operations are unlikely to impact on groundwater quality.

The proponent has conducted contaminant fate and transport modelling to consider the possibility of cell containment failure and degradation of the waste packages, allowing water ingress into the cells and the production of leachate. Modelling results predicted that in the worst-case scenario, seepage could enter the environment at a rate of 6 cubic centimetres per year and that the unsaturated geology directly beneath the cell has sufficient capacity to contain this volume of water for approximately 400,000 years. If the geological storage capacity was exceeded, then contaminated water would take between 6000 and 200,000 years (depending on fracture connectivity) to reach the most likely exposure point 75 km to the north.

The former Department of Water (now Department of Water and Environmental Regulation) advised that the risks to waters environmental quality from operation of the site are negligible.

Mitigation and management

Site selection is the most important management consideration to avoid groundwater contamination. The Sandy Ridge Site has no surface water receptors, no regional aquifer, low rainfall and no flooding. The natural clay would act as a natural barrier to seepage of any leachate and geology under the clay has sufficient storage should any contamination event occur. The proponent expects that the self-healing properties of clay would also make it more impermeable than a synthetic liner in the long term.

Secondary to site selection, management measures are essential to ensure impacts to inland waters environmental quality are mitigated. The proponent has proposed measures including:

- use of a covered area with bunded concrete floors for all unloading, handling and temporary storage of waste packages prior to disposal in waste cells;
- diversion levees and operational bunding to manage any surface water flows;
- the presence of kaolin clays on the base and walls of the voids;
- maintaining a minimum depth of 5 metres (m) of kaolin clay above the unweathered /fresh granite bedrock;
- segregating waste of different types by 5 m of internal compacted kaolin clay walls; and
- compacting and capping the waste cells with a 3 m layer of low permeability clay, to prevent the ingress of water from rainfall.

Given the absence of surface and groundwater receptors and the proponent's mitigation measures, the EPA considers there is unlikely to be any residual impact on inland waters environmental quality.

Summary

The EPA has paid particular attention to:

- Environmental Factor Guideline – *Inland Waters Environmental Quality* (EPA 2016f);
- the natural geology (clay and unsaturated zones for capture and storage) of the site;
- the absence of surface water bodies;
- the absence of a groundwater aquifer and groundwater users within the local vicinity; and
- the results from the contaminant fate and transport modelling.

The EPA considers, having regard to the relevant EP Act principles and environmental objective for inland waters environmental quality that the impacts to this factor are manageable, provided there is:

- appropriate conditioning of leachate monitoring and management, and waste management as outlined under Section 4.1 Terrestrial Environmental Quality.

In addition to the above considerations, the EPA notes that some aspects of the facility would be regulated under Part V of the EP Act and that additional conditions would be placed on the Part V works approval and licence. These may include additional requirements on waste acceptance, emissions, design of the facility and waste storage structures.

5. Matters of National Environmental Significance

The Commonwealth Minister for the Environment has determined that the proposal is a controlled action under the EPBC Act as it is likely to have a significant impact on one or more MNES. It was determined that the proposed action is likely to have a significant impact on the following matters protected by the EPBC Act:

- Nuclear actions (section 21 and 22A).

The EPA has assessed the controlled action on behalf of the Commonwealth under the Bilateral Agreement made under section 45 of the EPBC Act. The proposed action has been assessed by the EPA in a manner consistent with Schedule 1 of the Bilateral Agreement and this assessment report satisfies clause 6.2 of Schedule 1.

This assessment report is provided to the Commonwealth Minister for Environment who will decide whether or not to approve the proposal under the EPBC Act. This is separate from any Western Australian approval that may be required.

Commonwealth policy and guidance

The EPA had regard to the following relevant Commonwealth guidelines, policies and plans during its assessment:

- *National Waste Policy: Less Waste, More Resources* (Department of the Environment, Water, Heritage and the Arts 2009).
- *Guide for Radiation Protection of the Environment* (ARPANSA 2015).
- *National Recovery Plan for Malleefowl Leipoa ocellata* (Benshemesh 2007).
- *Survey Guidelines for Australia's Threatened Birds.* EPBC Act survey guidelines 6.2 (Department of the Environment, Water, Heritage and the Arts 2010).
- *Threat Abatement Plan for Competition and Land Degradation by Unmanaged Goats* (Department of the Environment, Water, Heritage and the Arts 2008a).
- *Threat Abatement Plan for Predation by the European Red Fox* (Department of the Environment, Water, Heritage and the Arts 2008b).
- *Threat Abatement Plan for Predation by Feral Cats* (Department of the Environment 2015).
- *Threat Abatement Plan for Competition and Land Degradation by Rabbits* (Department of the Environment and Energy 2016).
- *Threat Abatement Plan for Predation, Habitat Degradation, Competition and Disease Transmission by Feral Pigs (Sus scrofa)* (Department of the Environment and Energy 2017).

EPA Assessment

The EPA notes that the proponent has given attention in the PER document to the intent of Commonwealth policy, guidelines and plans considered to be relevant for this matter.

Impacts to the environment are covered under the key environmental factors of Terrestrial Environmental Quality, Flora and Vegetation, Human Health, Terrestrial Fauna, and Inland Waters Environmental Quality where relevant.

Nuclear Actions

The EPA's assessment of the likely environmental impacts of the Proposal are provided in Section 4 of this report. In particular, the EPA has assessed the potential impacts of radiation on people in Section 4.3 (Human Health), on flora in Section 4.2 (Flora and Vegetation), and on terrestrial fauna in Section 4.4 (Terrestrial Fauna). The EPA's consideration of other aspects of the environment that are not discussed in Section 4, are provided in Appendix 4 under the Evaluation of Other Environmental Factors.

A permit would be required for the site and a Radiation Management Plan will be developed to ensure that exposure to radiation is eliminated or reduced as far as reasonable, in accordance with the RS Act. The EPA also notes that there are a number of national and state regulations to manage waste transport, including:

- The *National Environmental Protection (Movement of Controlled Waste between States and Territories) Measure* which has been adopted by all States and Territories and addresses interstate transport of controlled waste.
- The *Environmental Protection (Controlled Waste) Regulations 2004* which sets out licensing requirements for drivers and vehicles and the use of Controlled Waste Tracking Forms.
- The *Radiation Safety (Transport of Radioactive Substances) Regulations 2002* which require the carrier to develop a transport management plan for the movement of low level radioactive waste to the Sandy Ridge Facility.

The EPA further clarifies that the facility is only for low level radioactive waste and is not being considered for acceptance of nuclear waste as outlined in the *Nuclear Waste Storage and Transportation (Prohibition) Act 1999*.

Summary

The EPA has recommended condition 6 to ensure that only wastes generated in a certain area are transported to the site, and condition 8 requiring an annual audit of the wastes stored and disposed of at the site.

In noting that there is adequate regulation for low level radioactive wastes to be accepted on site and the condition to monitor incoming waste, the EPA's view is that the impacts from the proposal on the above-listed MNES are therefore not expected to result in an unacceptable impact.

6. Conclusion

The EPA has considered the proposal by the proponent to develop the Sandy Ridge site. The EPA recognises that site selection is the most critical consideration for a near-surface geological waste repository. The EPA agrees that the proposed site's characteristics of geological stability, deep impermeable clay soils, low rainfall, low land erosion potential and remoteness make it conditionally-suitable for a near-surface geological waste repository. The Sandy Ridge site is also in close proximity to the existing Class V Intractable Waste Disposal Facility at Mount Walton East which became operational in 1991 and has demonstrated the suitability of the localities characteristics.

Application of mitigation hierarchy

Consistent with relevant policies and guidance, the proponent has addressed the EPA's mitigation hierarchy by identifying measures to avoid, minimise and rehabilitate environmental impacts including but not limited to:

- implementation of clearing procedures;
- propose procedures to manage impacts to conservation significant flora and fauna;
- proposed monitoring and management of leachate at the site;
- bunding to contain any contaminated surface waters;
- the appropriate application of site selection;
- a 3 m layer of low permeability clay between waste cells; and
- capping of the filled waste cells.

Conclusion

The EPA has taken the following into account in its assessment of the proposal as a whole:

- the site's characteristics of geological stability, deep impermeable clay soils, low rainfall, low land erosion potential and remoteness;
- the presence of a similar waste facility in the region since 1991;
- the absence of a discernible water table;
- the impacts to the key environmental factors including Terrestrial Environmental Quality, Flora and Vegetation, Human Health, Terrestrial Fauna, and Inland Waters Environmental Quality;
- the EPA's confidence in the proponent's proposed mitigation measures, including the preparation and implementation of a Construction Environmental Management Plan;
- the relevant EP Act principles, including the precautionary principle, principles relating to improved valuation, pricing and incentive mechanisms and the principle of waste minimisation;

- the EPA's environmental objectives for Terrestrial Environmental Quality, Flora and Vegetation, Human Health, Terrestrial Fauna, and Inland Waters Environmental Quality; and
- the EPA's view that the impacts to the Terrestrial Environmental Quality, Flora and Vegetation, Human Health, Terrestrial Fauna, and Inland Waters Environmental Quality are manageable, provided the recommended conditions are imposed.

Given the above, the EPA has concluded that the proposal is environmentally acceptable and therefore recommends that the proposal may be implemented subject to the conditions recommended in Appendix 5.

The EPA also notes that there are additional regulatory requirements for this facility which can apply further conditions of approval, including those under Part V of the EP Act and the *Radiation Safety Act 1975*.

7. Other advice

Currently there are large volumes of legacy hazardous waste temporarily stockpiled at sites around Australia. These stockpiles vary in safety and security and represent an ongoing risk to the environment and public health. The EPA supports the concept of a near-surface geological waste repository where such wastes can be safely isolated in an appropriately designed and tightly regulated facility. However, in noting this position, the EPA provides other advice below that relates to management of the facility by other agencies.

Waste Acceptance Criteria

Formal Waste Acceptance Criteria (WAC) is required to ensure that waste received and disposed at the Sandy Ridge Facility meets appropriate standards for safe and secure disposal.

The characteristics, quantities and types of waste likely to be received at the Sandy Ridge Facility will depend somewhat on commercial considerations and thus cannot be determined up front and will also likely evolve over time. As such, the EPA recognises the need for the WAC to be flexible so that it can be updated to reflect changes in waste types and treatment technology.

The proponent has prepared WAC documentation for the Sandy Ridge Facility which proposes the types of wastes and procedures for acceptance and disposal. This WAC documentation has been reviewed by the two key regulators for waste disposal;

- DWER's Regulatory Services for chemical waste; and
- Radiological Council for low level radioactive waste.

The DWER's Regulatory Services advised that the WAC is mostly consistent with the *Landfill Waste Classification and Waste Definitions 1996* (LWCWD; as amended December 2009) as well as other National and State recognised legislation, regulations and guidelines. DWER's Regulatory Services has advised that it would need to regulate waste acceptance at the site in accordance with the LWCWD under the Part V licence. The EPA considers that DWER regulatory services may apply additional conditions on waste acceptance through the Part V licence.

The facility will require a permit under the *Radiation Safety Act 1975* (RS Act) and *Radiation Safety (General) Regulations 1983*. The Radiological Council is an independent statutory authority established under the RS Act. The Radiological Council has advised that the WAC documentation is satisfactory for this stage of the assessment process, however it is likely that the WAC will require some amendments prior to operations and these may be implemented through the RS Act.

The EPA considers that the RS Act and Part V of the EP Act in combination are adequate and appropriate to assess and regulate the WAC in a stringent but flexible manner. The EPA recommends that DWER regulatory services and the Radiological Council work together when finalising the waste acceptance criteria and conditions to ensure there is appropriate and consistent regulation of waste acceptance as well as minimal regulatory duplication.

Financial Assurance and Insurance

The proponent has prepared a document: *The Sandy Ridge Facility - Financial Assurances and Insurances - draft report for discussion* (Tellus 2017b). This document outlines the proponent's proposed quantum of assurance and insurance to ensure that the WA Government does not incur an unacceptable liability.

The EPA notes that the provision of financial assurances and insurances does not diminish the proponent's responsibility, but is intended to protect the Western Australian Government in the event that the site is abandoned or costs exceed the operator's ability to pay.

There are several areas that need to be financially covered should the operator fail to meet its obligations. The costs that could potentially fall to the Western Australian Government, and which need to be covered include:

- Landfill operational financial assurance – this is to fund costs associated with unforeseen closure. The Victorian EPA (VEPA) has a guideline on *Calculation of financial assurance for landfills, Prescribed Industrial Waste (PIW) management and container washing,* Publication 1596.1 (VEPA, 2017). This guidance describes calculations to estimate the cost based on the volume of filled cells that are not fully rehabilitated, plus the volume of approved cells.
- Hazardous inventory disposal – this is to fund the cost of disposing of waste temporarily stored on the surface at the site, and in transit to the facility. The VEPA guidance describes calculations based on the maximum licensed storage of a particular waste type, and the unit disposal costs for that waste type (VEPA, 2017). The unit disposal cost includes transportation to, and disposal at an alternative facility.
- Closure and Rehabilitation – there are two aspects of the proposal that require consideration:
    - Mine closure and rehabilitation – closure and rehabilitation of the kaolin mining aspect of the proposal will be required. Under the *Mining Rehabilitation Fund Act 2012*, the proponent would be required to contribute to the Mining Rehabilitation Fund (MRF) which is used to rehabilitate abandoned mine sites. An Unconditional Performance Bond could also be imposed; and
    - Waste facility decommissioning and closure – once waste is placed into the mine voids, the voids become waste cells and would not be covered by the MRF. As such separate financial assurance is required for this aspect, which is likely to be the major cost component for closure and rehabilitation of the Sandy Ridge Facility.
- Phase I of the Institutional Control Period (ICP) – Tellus proposes to be responsible for undertaking the first 20 years of the ICP. Costs associated with the ICP include both fixed ICP costs and variable ICP costs. The proponent intends to fund the total fixed component up front (when the first waste is placed in a cell), and then contribute to the variable cost each time a new waste cell is developed.

- Phase II of the ICP – at the end of Phase I of the ICP, the Sandy Ridge site is proposed to be handed back to the Western Australian Government to complete the remaining 80 years of the ICP. During Phase II, funds to cover monitoring, site inspections, administration and potential remedial actions are required and the proponent has proposed to provide these to the WA government.

The EPA has considered potential instruments to secure the financial assurance and insurance for the Sandy Ridge Facility. Some instruments depend on land tenure, and the Department of Planning, Lands and Heritage has advised there are two potential tenure options for the Sandy Ridge site:

1. Creation of a Crown Reservation under section 41 of the LA Act and Management Order (section 46 LA Act) with power to lease or licence in favour of an applicable government holding body for successive leasing to Tellus; or
2. Granting a lease (section 79 LA Act) directly to Tellus.

The EPA considered the suitability of financial assurance provisions under Part VA of the EP Act, and a Performance Bond under the *Land Administration Act 1997*. Neither of these instruments are particularly suitable for all the required components of financial assurance and insurance, particularly in relation to the variable ICP costs and Phase II of the ICP.

The EPA considers that the best option to secure the financial assurance and insurance might be standalone legislation specific to the Sandy Ridge Facility. This would allow the flexibility needed to cope with the variable ICP cost component and Phase II of the ICP. One such instrument may be a State Agreement which is a legal contract between the Western Australian Government and the proponent which is ratified by an Act of State Parliament.

The Western Australian Government has a Lead Agency Framework to assist proponents through the State's approval process. The Department of Jobs, Tourism, Science and Innovation (DJTSI) is the Lead Agency for the Sandy Ridge Facility and is also the agency responsible for administrating State Agreements.

The EPA considers that DJTSI is the agency responsible to determine the most appropriate instrument, negotiate the quantum required and secure the financial assurance and insurance.

Institutional Control Period

The ICP is the period after operations cease and the site is closed and rehabilitated, where the site is monitored to demonstrate that it is safe, stable and non-polluting. The ICP may be selected to represent the time for radioisotopes to decay to safe levels, however in the case of radioisotopes with long half-lives and intractable wastes which remain hazardous in the long term, the ICP needs to be sufficient to demonstrate that the repository is functioning as predicted and that wastes will remain isolated in perpetuity.

Internationally, typical ICP's range from 100 to 300 years depending on the type of waste disposed at the facility. The proponent has proposed an ICP of 100 years for the Sandy Ridge Facility which is the same as the nearby Mount Walton Intractable Waste Facility. The EPA notes that an ICP of 100 years from cessation of operations appears reasonable.

Agency Resourcing

The EPA notes that the public expects hazardous waste to be regulated to a high standard and in a transparent manner. Providing the regulatory oversight to ensure that the Sandy Ridge Facility is operated to a high standard will involve:

- tracking of controlled waste under the Controlled Waste regulations;
- tracking of low level radioactive waste under the TRS regulations;
- regulatory oversite – including site inspections under Part V and VI of the EP Act and the RS Act;
- emergency response – agencies will need to cater for a potential increase in remote transport incidents involving hazardous material; and
- administration of financial assurance and insurance - there will be a considerable administrative burden to determine, secure and review the required financial assurance and insurance (especially in relation to the components that vary over time) to ensure that it remains up to date and fit for purpose.

Should the Sandy Ridge Facility receive approval, the above aspects are likely to have resourcing implications for some State Government agencies. These agencies may require additional resources to administer the significant increases in controlled waste and low level radioactive waste being transported across Western Australia and being disposed into the Sandy Ridge Facility.

Landfill Waste Levies

The *Waste Avoidance and Resource Recovery Levy Act 2007* and *Levy Regulations 2008* apply a waste levy to landfills in the Perth metropolitan area and to waste generated within the Perth metropolitan area. Since only a fraction of waste going to the Sandy Ridge facility is likely to be generated in the Perth metropolitan area, the proponent has proposed that no waste levy should be payable.

Landfill waste levies are also imposed under various State and Territory legislation, however at this time, it appears likely that interstate waste would not be subject to a landfill levy when disposed to the Sandy Ridge Facility. The EPA notes that a situation could arise where suitable disposal facilities exist in the State or Territory where waste is generated, but disposal to the Sandy Ridge Facility is economic based on the waste levy in the State or Territory of origin. The EPA considers that interstate waste should only be disposed to the Sandy Ridge Facility if this represents the best option and not simply if it is the cheapest option.

The EPA recommends that the Western Australian Government consider its position on the issue of a waste levy for the Sandy Ridge Facility and decide whether the *Waste*

Avoidance and Resource Recovery Levy Act 2007 and *Levy Regulations 2008* should be amended to address the Sandy Ridge Facility. The EPA notes that a State Agreement might also address the matter of landfill levies and the money used to fund regulation of the site by state government agencies.

8. Recommendations

That the Minister notes:

1. That the proposal assessed is for the construction and operation of a dual open cut kaolin mine and a near-surface geological waste repository.
2. The key environmental factors identified by the EPA in the course of its assessment are Terrestrial Environmental Quality, Flora and Vegetation, Human Health, Terrestrial Fauna, and Inland Waters Environmental Quality, set out in Section 4.
3. The EPA has concluded that the proposal may be implemented, provided the implementation of the proposal is carried out in accordance with the recommended conditions and procedures set out in Appendix 6. Matters addressed in the conditions include the requirement:
    a) to ensure only permitted wastes generated within Australia and the Australian Exclusive Economic Zone are accepted on site;
    b) to keep detailed records of accepted wastes on site;
    c) to conduct an annual independent audit of the site;
    d) for a Leachate Monitoring and Management Plan; and
    e) for management procedures for conservation significant flora and fauna.
4. Other advice provided by the EPA, set out in Section 7.

Appendix 1

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EPA 2016d, Environmental Factor Guideline – *Human Health*, Environmental Protection Authority, Perth, WA.

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EPA 2016f, Environmental Factor Guideline – *Terrestrial Fauna*, Environmental Protection Authority, Perth, WA.

EPA 2016g, Environmental Factor Guideline – *Inland Waters Environmental Quality*, Environmental Protection Authority, Perth, WA.

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Tellus 2017b, *The Sandy Ridge Facility - Financial Assurances and Insurances - draft report for discussion*

Tellus 2017c, *Sandy Ridge Public Environmental Review Section 43a Amendment*, Tellus Holdings Ltd, Sydney, NSW.

VEPA 2017, *Calculation of financial assurance for landfills, Prescribed Industrial Waste management (PIW) and container washing,* Publication 1596.1, Environmental Protection Authority Victoria, Melbourne, VIC.

Appendix 2

List of submitters

Organisations:

Cleanway
Conservation Council of Western Australia
Department of Fire and Emergency Services
Department of the Environment and Energy
Former Department of Environment Regulation
Former Department of Parks and Wildlife
Former Department of Mines and Petroleum
Former Department of Water
Kwinana Industries Council
Radiological Council of Western Australia
Shire of Coolgardie

Individuals:

Anonymous submitter 1
Anonymous submitter 2

Appendix 3

Consideration of principles

EP Act Principle	Consideration
1. The precautionary principle *Where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. In application of this precautionary principle, decisions should be guided by –* *a) careful evaluation to avoid, where practicable, serious or irreversible damage to the environment; and* *b) an assessment of the risk-weighted consequences of various options.*	This principle is a relevant consideration for the EPA when assessing and considering the impacts of the proposal on the environmental factors of terrestrial environment quality, flora and vegetation, human health, terrestrial fauna, and inland waters environment quality. The assessment of these impacts is provided in this report. Investigations into the biological and physical environmental that have been undertaken by the proponent have provided sufficient certainty to assess risks and identify measures to avoid or minimise impacts. The EPA has recommended conditions to ensure relevant measures are undertaken by the proponent (if the proposal is approved for implementation). From its assessment of the proposal, the EPA has concluded there is no threat of serious or irreversible harm.
2. The principle of intergenerational equity *The present generation should ensure that the health, diversity and productivity of the environment is maintained and enhanced for the benefit of future generations.*	In considering this principle, the EPA notes that human health could be impacted by the proposal. The assessment of these impacts is provided in this report. The proposal is remote and there are no sensitive receptors within 52 km of the development envelope. The proposal would be utilising best practice for the safe and long term storage of hazardous and intractable waste. From its assessment of this proposal, the EPA has concluded that the environmental values will be protected and that the health, diversity and productivity of the environment will be maintained for the benefit of future generations.
3. The principle of the conservation of biological diversity and ecological integrity *Conservation of biological diversity and ecological integrity should be a fundamental consideration.*	In considering this principle, the EPA notes that flora and vegetation and terrestrial fauna could be significantly impacted by the proposal. The assessment of these impacts is provided in this report.

	The proposal would involve clearing of 276.05 ha of native vegetation, and potential impacts on conservation significant fauna. However, in considering the proponent's mitigation and management measures, the impacts to flora and vegetation and terrestrial fauna are unlikely to be significant. From its assessment of this proposal the EPA has concluded that the proposal would not compromise the biological diversity and ecological integrity of the affected areas.
4. Principles relating to improved valuation, pricing and incentive mechanisms *(1) Environmental factors should be included in the valuation of assets and services.* *(2) The polluter pays principles – those who generate pollution and waste should bear the cost of containment, avoidance and abatement.* *(3) The users of goods and services should pay prices based on the full life-cycle costs of providing goods and services, including the use of natural resources and assets and the ultimate disposal of any waste.* *(4) Environmental goals, having been established, should be pursued in the most cost effective way, by establishing incentive structure, including market mechanisms, which enable those best placed to maximise benefits and/or minimize costs to develop their own solution and responses to environmental problems.*	This principle is a fundamental and relevant consideration for the EPA when assessing and considering the impacts of the proposal on the environmental factors, particularly terrestrial environmental quality. In considering this principle, the EPA notes that the proponent would bear the cost relating to waste and pollution, including avoidance, containment, decommissioning, rehabilitation and closure of the proposal. The cost for ongoing management and monitoring of the proposal would be the responsibility of the proponent until it could be demonstrated that the site is safe, stable and non-polluting. The proposal is consistent with the polluter pays principle where those who generate pollution and waste should bear the cost of containment, avoidance and abatement. The EPA has had regard to this principle during the assessment of the proposal.
5. The principle of waste minimisation *All reasonable and practicable measures should be taken to minimise the generation of waste and its discharge into the environment.*	This principle is a fundamental and relevant consideration for the EPA when assessing and considering the impacts of the proposal on the environmental factors, particularly terrestrial environmental quality and human health. The proposal outlines that approximately 3.2 million tonnes of legacy waste are estimated to be temporary stored in over 200 locations across Australia, awaiting an appropriate long term storage option. The

	proposal would minimise the amount of waste that is currently stored in temporary and often inappropriate storage locations, by providing a suitable near-surface geological repository for permanent waste isolation. The proposal addresses the waste hierarchy by providing a solution for those wastes that are a risk to human health and the environment and for which no other practicable alternatives are available.

Appendix 4

Evaluation of other environmental factors

Environmental factor	Description of the proposal's likely impacts on the environmental factor	Government agency and public comments	Evaluation of why the factor is not a key environmental factor
LAND			
Terrestrial Environmental Quality	The proposal is for a Class IV and Class V landfill. The mine pits would be used to permanently isolate Class IV and Class V wastes. The proposal has potential to impact on soil quality from the handling and disposal of hazardous and intractable wastes, and low level radioactive wastes.	**Former Department of Mines and Petroleum** It is expected that a materials balance be provided in the Mining Proposal to demonstrate that the required amount of capping materials is available for the proposed rehabilitation strategy.	The EPA considers Terrestrial Environmental Quality to be a key environmental factor at the conclusion of its assessment, and is further discussed in section 4.1.
Flora and Vegetation	The proposal would involve clearing up to 276.5 ha of native vegetation. There are no Threatened, Endangered or Priority Ecological Communities within the development envelope. Priority species *Calytrix Creswellii*, *Lepidosperma lyonsii*, and an undescribed Lepidosperma sp. were identified within the development envelope.	**Department of the Environment and Energy** Further research regarding the *Lepidosperma* sp. taxonomy and conservations is required. **Former Department of Parks and Wildlife** The proponent should provide further information to clarify the extent of local impacts from the proposal on individuals and populations of the unnamed and potentially new *Lepidosperma* species and any available, information on its confirmed distribution beyond the proposal envelope. Decisions on the closure and relinquishment of areas affected by infrastructure in the Jaurdi area at the time of closure should be subject to consultation and the agreement of the	The EPA considers Flora and Vegetation to be a key environmental factor at the conclusion of its assessment, and is further discussed in section 4.2.

Environmental factor	Description of the proposal's likely impacts on the environmental factor	Government agency and public comments	Evaluation of why the factor is not a key environmental factor
		Department of Biodiversity Conservation and Attractions (former Parks and Wildlife). **Former Department of Mines and Petroleum** The Waste Facility Decommissioning and Closure Management Plan requires revision. The completion criteria require further refinement to ensure they are specific, measurable, achievable, relevant and time-bound and that they include environmental indicators suitable for demonstrating achievement of the desired closure objectives. The Mine Closure Plan would be required to address the requirements of the former Department of Mines and Petroleum and EPA (2015) *Guidelines for Preparing Mine Closure Plans*. **Public comments** A weed management plan should be developed.	
Terrestrial Fauna	The proposal would involve the disturbance of up to 276.5 ha of fauna habitat. There is a potential occurrence of two conservation significant	**Public comments** An assessment on the impacts of light and noise on fauna in surrounding protected areas close to the site are required. An assessment of the impacts of feral animals should also be undertaken.	The EPA considers Terrestrial Fauna to be a key environmental factor at the conclusion of its assessment, and is further discussed in section 4.4.

Environmental factor	Description of the proposal's likely impacts on the environmental factor	Government agency and public comments	Evaluation of why the factor is not a key environmental factor
	fauna species; Malleefowl and Rainbow Bee-eater.		
Subterranean Fauna	The proposal has potential to impact on subterranean fauna from operations.	**Department of the Environment and Energy** The proponent should provide further information on subterranean fauna as required.	Subterranean Fauna was not identified as a preliminary key environmental factor when the EPA decided to assess the proposal. The types of geology known to support stygofauna and troglofauna do not occur within the development envelope. There is also no water table within proximity of the proposal site. Having regard to: • the type of geology of the site; • the lack of water table in the area; and • the significance considerations in the *Statement of Environmental Principles, Factors and Objectives*, the EPA considers that it is unlikely that the proposal would have a significant impact on Subterranean Fauna and that the impacts to this factor are negligible. Accordingly, the **EPA did not consider Subterranean Fauna to be a key**

Environmental factor	Description of the proposal's likely impacts on the environmental factor	Government agency and public comments	Evaluation of why the factor is not a key environmental factor
			environmental factor at the conclusion of its assessment.
WATER			
Hydrological Processes	The proposal has potential to impact on hydrological processes through the transport, handling and storage of wastes.	**Former Department of Water** The former Department of Water agrees that the most practical source of water for the project is likely to be the Carina iron ore mine, 12 km south west of Sandy Ridge.	Hydrological Processes was not identified as a preliminary key environmental factor when the EPA decided to assess the proposal. There are no channels or creeks within the development envelope. Surface water runoff would only be generated from very infrequent high rainfall events. There were also no aquifers intersected during investigations. There are no known registered users of groundwater in the vicinity of the proposal. Having regard to: • the lack of water receptors in the proposal area; and • the significance considerations in the *Statement of Environmental Principles, Factors and Objectives*, the EPA considers that it is unlikely that the proposal would have a significant impact on Hydrological Processes and that the impacts to this factor are manageable.

Environmental factor	Description of the proposal's likely impacts on the environmental factor	Government agency and public comments	Evaluation of why the factor is not a key environmental factor
			Accordingly, the **EPA did not consider Hydrological Processes to be a key environmental factor** at the conclusion of its assessment.
Inland Waters Environmental Quality	There is potential for leaks and spills to occur from the handling and storage of hazardous and intractable wastes, as well as low level radioactive wastes.	**Department of the Environment and Energy** Longer term groundwater monitoring across the site is required to determine natural variability of water table fluctuation, temporally and spatially, beneath the proposed site. This is important as the depth to groundwater beneath the site will affect long term transport rates of leached contaminants, in groundwater, away from the site. **Former Department of Mines and Petroleum** More detail and definitive commitment on the safety bund design should be provided in the Mining Proposal. **Public comments** The submitter considers there is unlikely to be an operational time overlap of the Carina Pit and Sandy Ridge operations, and that any concern about water supply to both operations is alleviated.	While there is no evidence of the presence of a groundwater aquifer or surface water receptors near the development envelope, the proposal involves the transport and storage of hazardous and intractable wastes, as well as low level radioactive wastes. There is potential for the generation of leachate from stormwater and the handling of liquid wastes. The EPA considers Inland Waters Environmental Quality to be a key environmental factor at the conclusion of its assessment, and is further discussed in section 4.5.
PEOPLE			
Human Health	The proposal would involve the transport and permanent isolation of hazardous and intractable	**Department of the Environment and Energy** The Department of the Environment and Energy considers that there should be further explanation of whether naturally occurring	The EPA considers Human Health to be a key environmental factor at the conclusion of its assessment, and is further discussed in section 4.3.

Environmental factor	Description of the proposal's likely impacts on the environmental factor	Government agency and public comments	Evaluation of why the factor is not a key environmental factor
	wastes, as well as low level radioactive wastes.	radionuclides and metals are likely to be of environmental significance or detrimental to human health during the development of the project and throughout operations. **Former Department of Mines and Petroleum** The former Department of Mines and Petroleum expects the Radioactive Waste Management Plan to meet the requirements of the *Mines Safety and Inspection Regulations 1995* and to be submitted to the Resources Safety Division for assessment prior to development. **Public comments** There is concern about the long shifts of workers affecting efficient performance.	
Social Surroundings	The location of the proposal is remote, with the nearest permanent residence approximately 51 km away (Jaurdi Homestead). The Carina Ore Mine Accommodation Village is located 52 km away.	**Department of the Environment and Energy** The proponent should propose management measures to avoid or minimise impacts should heritage sites and/or cultural associations be identified during construction/operation and be likely to be impacted. **Former Department of Aboriginal Affairs** Based on previous heritage surveys held by the former Department of Aboriginal Affairs (DAA), there are no known Aboriginal sites or Aboriginal heritage places within the Project footprint. The former DAA is of the opinion that	Heritage was identified as a preliminary key environmental factor when the EPA decided to assess the proposal. A cultural heritage assessment was undertaken, and results indicate that there are no known record of heritage items within the site. Having regard to: • the submission from the former Department of Aboriginal Affairs (now Department of Plans, Lands and Heritage);

Environmental factor	Description of the proposal's likely impacts on the environmental factor	Government agency and public comments	Evaluation of why the factor is not a key environmental factor
		if any Aboriginal heritage issues arise, these are able to be addressed through the provisions of the *Aboriginal Heritage Act 1972*.	• the remote location of the site; • the results from the cultural heritage assessment; and • the significance considerations in the *Statement of Environmental Principles, Factors and Objectives*, the EPA considers that it is unlikely that the proposal would have a significant impact on Social Surroundings and that the impacts to this factor are manageable. Accordingly, the **EPA did not consider Social Surroundings to be a key environmental factor** at the conclusion of its assessment.

Appendix 5

Identified Decision-Making Authorities and Recommended Environmental Conditions

Identified Decision-making Authorities

Section 44(2) of EP Act specifies that the EPA's report must set out (if it recommends that implementation be allowed) the conditions and procedures, if any, to which implementation should be subject. This Appendix contains the EPA's recommended conditions and procedures.

Section 45(1) requires the Minister for Environment to consult with decision-making authorities (DMAs), and if possible, agree on whether or not the proposal may be implemented, and if so, to what conditions and procedures, if any, that implementation should be subject.

The following DMAs have been identified:

Decision-making Authority	Legislation (and Approval)
1. Minister for Environment	*Wildlife Conservation Act 1950* Taking of flora and fauna
2. Minister for Water	*Rights in Water and Irrigation Act 1914* Water abstraction licence
3. Minister for Mines and Petroleum	*Mining Act 1978* Mining lease
4. Minister for Lands	*Land Administration Act 1997* Section 79 General purpose lease
5. Department of Water and Environment Regulation	*Environmental Protection Act 1986* *Environmental Protection (Controlled Waste) Regulations 2004* *Environmental Protection Regulations 1987*
6. Department of Mines and Petroleum Mining Registrar State Mining Engineer Chief Dangerous Goods Officer	*Mining Act 1978* *Mines Safety and Inspection Act 1994* *Dangerous Goods Safety Act 2004* Dangerous Goods Safety (Storage and handling of non-explosives) Regulation 2007
7. Radiological Council of Western Australia	*Radiation Safety Act 1975* *Radiation Safety (Transport of Radioactive Substances) Regulations 2002*
8. Shire of Coolgardie	*Planning and Development Act 2005* Planning approval Building permit

Note: In this instance, agreement is only required with DMA 1 to 4, since these DMAs are Ministers.

Statement No. xxx

RECOMMENDED ENVIRONMENTAL CONDITIONS

STATEMENT THAT A PROPOSAL MAY BE IMPLEMENTED
(Environmental Protection Act 1986)

SANDY RIDGE FACILITY

Proposal: The proposal is to construct and operate a dual open cut kaolin clay mine and a near-surface geological waste repository accepting Class IV and Class V waste, approximately 75 kilometres north east of Koolyanobbing.

Proponent: Tellus Holdings Limited
Australian Company Number 138 119 829

Proponent Address: Suite 2, Level 10
151 Castlereagh Street
Sydney NSW 2000

Assessment Number: 2057

Report of the Environmental Protection Authority: 1611

Pursuant to section 45 of the *Environmental Protection Act 1986* (EP Act) it has been agreed that the proposal described and documented in Table 2 of Schedule 1 may be implemented and that the implementation of the proposal is subject to the following implementation conditions and procedures:

1 Proposal Implementation

1-1 When implementing the proposal, the proponent shall not exceed the authorised extent of the proposal as defined in Table 2 in Schedule 1, unless amendments to the proposal and the authorised extent of the proposal have been approved under the EP Act.

2 Contact Details

2-1 The proponent shall notify the CEO of any change of its name, physical address or postal address for the serving of notices or other correspondence within twenty eight (28) days of such change. Where the proponent is a corporation or an association of persons, whether incorporated or not, the postal address is that of the principal place of business or of the principal office in the State.

3 Time Limit for Proposal Implementation

3-1 The proponent shall not commence implementation of the proposal after five (5) years from the date on this Statement, and any commencement, prior to this date, must be substantial.

3-2 Any commencement of implementation of the proposal, on or before five (5) years from the date of this Statement, must be demonstrated as substantial by providing the CEO with written evidence, on or before the expiration of five (5) years from the date of this Statement.

4 Compliance Reporting

4-1 The proponent shall prepare, and maintain a Compliance Assessment Plan which is submitted to the CEO at least six (6) months prior to the first Compliance Assessment Report required by condition 4-6, or prior to implementation of the proposal, whichever is sooner.

4-2 The Compliance Assessment Plan shall indicate:

(1) the frequency of compliance reporting;

(2) the approach and timing of compliance assessments;

(3) the retention of compliance assessments;

(4) the method of reporting of potential non-compliances and corrective actions taken;

(5) the table of contents of Compliance Assessment Reports; and

(6) public availability of Compliance Assessment Reports.

4-3 After receiving notice in writing from the CEO that the Compliance Assessment Plan satisfies the requirements of condition 4-2 the proponent shall assess compliance with conditions in accordance with the Compliance Assessment Plan required by condition 4-1.

4-4 The proponent shall retain reports of all compliance assessments described in the Compliance Assessment Plan required by condition 4-1 and shall make those reports available when requested by the CEO.

4-5 The proponent shall advise the CEO of any potential non-compliance within seven (7) days of that non-compliance being known.

4-6 The proponent shall submit to the CEO the first Compliance Assessment Report fifteen (15) months from the date of issue of this Statement addressing the twelve (12) month period from the date of issue of this Statement and then

annually from the date of submission of the first Compliance Assessment Report, or as otherwise agreed in writing by the CEO.

The Compliance Assessment Report shall:

(1) be endorsed by the proponent's CEO or a person delegated to sign on the CEO's behalf;

(2) include a statement as to whether the proponent has complied with the conditions;

(3) identify all potential non-compliances and describe corrective and preventative actions taken;

(4) be made publicly available in accordance with the approved Compliance Assessment Plan; and

(5) indicate any proposed changes to the Compliance Assessment Plan required by condition 4-1.

5 Public Availability of Data

5-1 Subject to condition 5-2, within a reasonable time period approved by the CEO of the issue of this Statement and for the remainder of the life of the proposal the proponent shall make publicly available, in a manner approved by the CEO, all validated environmental data (including sampling design, sampling methodologies, empirical data and derived information products (e.g. maps)) relevant to the assessment of this proposal and implementation of this Statement.

5-2 If any data referred to in condition 5-1 contains particulars of:

(1) a secret formula or process; or

(2) confidential commercially sensitive information;

the proponent may submit a request for approval from the CEO to not make these data publicly available. In making such a request the proponent shall provide the CEO with an explanation and reasons why the data should not be made publicly available.

6 Boundary for Waste Generation

6-1 The proponent shall ensure that only wastes generated within Western Australia, other Australian States and Territories, and the Australian Exclusive Economic Zone are accepted at the Sandy Ridge Facility.

7 Waste Management System

7-1 The proponent shall manage the proposal to meet the following objective:

(1) ensure that detailed records are kept of all wastes accepted on site.

7-2 The proponent shall implement and maintain a Waste Management System to record all wastes accepted on site.

7-3 The Waste Management System shall:

(1) detail monitoring procedures to track and record incoming waste to the site;

(2) record the origins, quantity, and the physical and chemical characteristics of all waste accepted on site;

(3) provide details about any treatment of the waste undertaken on site;

(4) provide details about the waste characteristics, quantity, storage duration and specific coordinates for the location of each waste package stored in the waste cells and temporary storage area; and

(5) be reviewed every five (5) years to ensure that all data stored in the Waste Management System remains compatible with contemporary information technology.

7-4 The proponent shall continue to record all wastes accepted on site as required by condition 7-2 until cessation of waste receival operations at the Sandy Ridge Facility.

7-5 The proponent shall retain and maintain the data required by condition 7-2 and provide the data to the Western Australian Government at the completion of Phase I of the Institutional Control Period.

7-6 The proponent shall provide the data required by condition 7-2 to the CEO when requested within four (4) weeks of the request date.

8 Independent Annual Audit

8-1 The proponent shall manage the implementation of the proposal to meet the following objectives:

(1) ensure that only permitted wastes are accepted at the facility for placement in the repository; and

(2) that the facility is managed in accordance with all regulatory requirements.

8-2 The proponent shall engage an independent waste expert approved by the CEO to undertake an annual audit of the waste disposal operations at the Sandy Ridge Facility. The first audit shall be undertaken twelve (12) months from the date of waste acceptance. The audit shall address site operations, including whether:

(1) each waste is uniquely identified;

(2) the origin, quantity and characterisation of each waste is recorded;

(3) the waste acceptance criteria and procedures have been adhered to;

(4) all required regulatory approvals and permits were in place for transport and disposal of the waste;

(5) there is a clear and documented chain of custody from client to waste receival;

(6) the final location of each waste in the waste cell is accurately recorded in three dimensions (northing, easting and elevation);

(7) all regulatory requirements have been met; and

(8) other options have become available to reuse, recycle or recover wastes that are being accepted at the Sandy Ridge Facility.

8-3 The proponent shall provide the annual audit report required by condition 8-2 to the CEO within twelve (12) weeks of the audit date until the CEO has confirmed by notice, in writing, that provision of the annual audit report is no longer required.

8-4 In the event that the annual audit report identifies issues with waste acceptance, waste tracking or compliance with regulatory requirements, the proponent shall immediately notify the CEO, and other relevant regulators where a non-compliance against other legislation has occurred, and implement investigations to identify the cause.

8-5 Should the cause identified in condition 8-4 result in a potential risk to human health or a sensitive environmental receptor, then the proponent shall commence remedial actions immediately until otherwise advised by the CEO.

9 Terrestrial Environmental Quality

9-1 The proponent shall manage the implementation of the proposal to meet the following environmental objective:

(1) ensure that impacts to soil quality are minimised.

9-2 Prior to the commencement of waste receival, the proponent shall prepare and submit a Leachate Monitoring and Management Plan to the CEO, to demonstrate that the environmental objective in condition 9-1 will be met.

9-3 The Leachate Monitoring and Management Plan shall specify:

(1) monitoring procedures and protocols, including monitoring location points and frequency of monitoring (minimum every six months);

(2) mitigation and management measures;

(3) an adaptive management framework, including trigger criteria, monitoring design and methodologies, and trigger management actions;

(4) incident reporting;

(5) review periods; and

(6) implementation reporting and auditing.

9-4 After receiving notice in writing from the CEO that the Leachate Monitoring and Management Plan satisfies the requirements of condition 9-1, the proponent shall:

(1) implement the Leachate Monitoring and Management Plan, or any subsequent revisions as approved by the CEO; and

(2) continue to implement the Leachate Monitoring and Management Plan, or any subsequent revisions as approved by the CEO, until the CEO has confirmed by notice in writing that the proponent has demonstrated the objective specified in condition 9-1 has been met and therefore the implementation of the management plan is no longer required.

9-5 The proponent may review and revise the Leachate Monitoring and Management Plan or any subsequently revisions as approved by the CEO.

9-6 The proponent shall review and revise the Leachate Monitoring and Management Plan or any subsequently approved revisions, as and when directed by the CEO.

10 Flora and Vegetation

10-1 The proponent shall manage the implementation of the proposal to meet the following environmental objectives:

(1) Avoid direct impacts to *Calytrix creswellii*, *Lepidosperma lyonsii*, and the undescribed *Lepidosperma* sp. where practicable; and

(2) Manage indirect impacts to *Calytrix creswellii*, *Lepidosperma lyonsii*, and the undescribed *Lepidosperma* sp.

10-2 Prior to the commencement of ground disturbing activities, the proponent shall prepare and submit a Targeted Flora Survey Plan for *Calytrix Creswellii*, *Lepidosperma lyonsii*, and the undescribed *Lepidosperma* sp. to the CEO.

10-3 The Targeted Flora Survey Plan required by condition 10-2 shall:

(1) detail the methodology for the targeted survey;

(2) quantify the number of *Calytrix creswellii*, *Lepidosperma lyonsii*, and the undescribed *Lepidosperma* sp found within the development envelope; and

(3) meet the requirements of EPA Flora and Vegetation Guidance.

10-4 The proponent shall undertake the Targeted Flora Survey in accordance with the Targeted Flora Survey Plan as required by condition 10-2.

10-5 Prior to commencement of ground disturbing activities, and after completion of the Targeted Flora Survey, the proponent shall submit a Flora and Vegetation Management Plan to the CEO.

10-6 The Flora and Vegetation Management Plan shall include detailed information on potential direct and indirect impacts to *Calytrix creswellii*, *Lepidosperma lyonsii*, and the undescribed *Lepidosperma* sp. and include the following:

(1) targeted flora survey results required by condition 10-4;

(2) avoidance of direct impacts where practicable; and

(3) mitigation, monitoring and management measures for indirect impacts, including those for fire, dust suppression and water quality, and weeds.

10-7 After receiving notice in writing from the CEO that the Flora and Vegetation Management Plan satisfies the requirements of condition 10-6, the proponent shall:

(1) implement the Flora and Vegetation Management Plan, or any subsequent revisions as approved by the CEO; and

(2) continue to implement the Flora and Vegetation Management Plan, or any subsequent revisions as approved by the CEO, until the CEO has confirmed by notice in writing that the proponent has demonstrated the objectives specified in condition 10-1 has been met and therefore the implementation of the management plan is no longer required.

10-8 The proponent may review and revise the Flora and Vegetation Management Plan or any subsequent revisions as approved by the CEO.

10-9 The proponent shall review and revise the Flora and Vegetation Management Plan or any subsequently approved revisions, as and when directed by the CEO.

11 Terrestrial Fauna

11-1 The proponent shall manage the implementation of the proposal to meet the following environmental objective:

(1) ensure that impacts to terrestrial fauna are minimised.

11-2 Prior to the commencement of ground disturbing activities the proponent shall prepare and submit the Construction Environmental Management Plan to the CEO, to demonstrate that the environmental objective in condition 11-1 will be met.

11-3 The Construction Environmental Management Plan shall include:

(1) results from a pre-clearing survey;

(2) avoidance, mitigation and management measures, including but not limited to recording sightings of conservation significant species including the Malleefowl and Rainbow Bee-eater; detailed clearing procedures, implementation of a boundary fence, control measures for feral fauna, and restricting vehicle speed limits;

(3) an adaptive management framework, including trigger criteria, monitoring design and methodologies, and trigger management actions;

(4) incident reporting;

(5) review periods; and

(6) implementation reporting and auditing.

11-4 After receiving notice in writing from the CEO that the Construction Environmental Management Plan satisfies the requirements of condition 11-1, the proponent shall:

(1) implement the Construction Environmental Management Plan, or any subsequent revisions as approved by the CEO; and

(2) continue to implement the Construction Environmental Management Plan, or any subsequent revisions as approved by the CEO, until the CEO has confirmed by notice in writing that the proponent has demonstrated the objectives specified in condition 11-1 has been met and therefore the implementation of the management plan is no longer required.

11-5 The proponent may review and revise the Construction Environmental Management Plan or any subsequent revisions as approved by the CEO.

11-6 The proponent shall review and revise the Construction Environmental Management Plan or any subsequently approved revisions, as and when directed by the CEO.

Schedule 1

Table 1: Summary of the Proposal

Proposal Title	Sandy Ridge Facility
Short Description	The proposal is to construct and operate a dual open cut kaolin clay mine and a near-surface geological waste repository accepting Class IV and Class V waste, approximately 75 kilometres north east of Koolyanobbing in the Shire of Coolgardie over 25 years.

Table 2: Location and authorised extent of physical and operational elements

Column 1	**Column 2**	**Column 3**
Element	**Location**	**Authorised Extent**
Mine pits/waste cells	Figure 1	Clearing up to 202.3 hectares of native vegetation within a 1004.2 hectare development envelope
Associated infrastructure	Figure 1	Clearing up to 73.75 hectares of native vegetation with a 1004.2 hectare development envelope
Class IV & V waste accepted at gate		up to 100,000 tonnes per annum
Temporary waste storage on surface		up to 15,000 tonnes
Maximum temporary storage time		up to 12 months
Waste (including treated waste) disposed to waste cells		up to 280,000 tonnes per annum
Water use		up to 0.18 Gigalitres per annum

Table 3: Abbreviations and Definitions

Acronym or Abbreviation	**Definition or Term**
Australian Exclusive Economic Zone	An area beyond and adjacent to the territorial sea, subject to the specific legal regime established in Part V of the *Sea and Submerged Lands Act 1973*, under which the rights and jurisdiction of the coastal State and the rights and freedoms of other States are governed by the relevant provisions of this Convention.
CEO	The Chief Executive Officer of the Department of the Public Service of the State responsible for the administration of section 48 of the *Environmental Protection Act 1986*, or his delegate.
DWER	Department of Water and Environmental Regulation
EPA	Environmental Protection Authority
EP Act	*Environmental Protection Act 1986*
EPA Flora and Vegetation Guidance	EPA 2016, *Technical Guidance – Flora and Vegetation Surveys for Environmental Impact Assessment*, EPA, Western Australia, or any future updates to EPA flora and vegetation survey guidance.
Phase I of the Institutional Control Period	That portion of the Institutional Control Period for which the proponent is responsible.

Phase II of the Institutional Control Period	That portion of the Institutional Control Period for which the Western Australian Government is responsible.
Waste acceptance criteria and procedures	The documented criteria specifying the types of waste that can be accepted at the facility and the procedures for accepting that waste that have been agreed under: • Part V of the EP Act; and • Permitting under the *Radiation Safety Act 1975*.
Waste expert	A person with a minimum of 15 years of experience in the assessment and/or operation of waste facilities.

Figures (attached)

Figure 1 Sandy Ridge Development Envelope

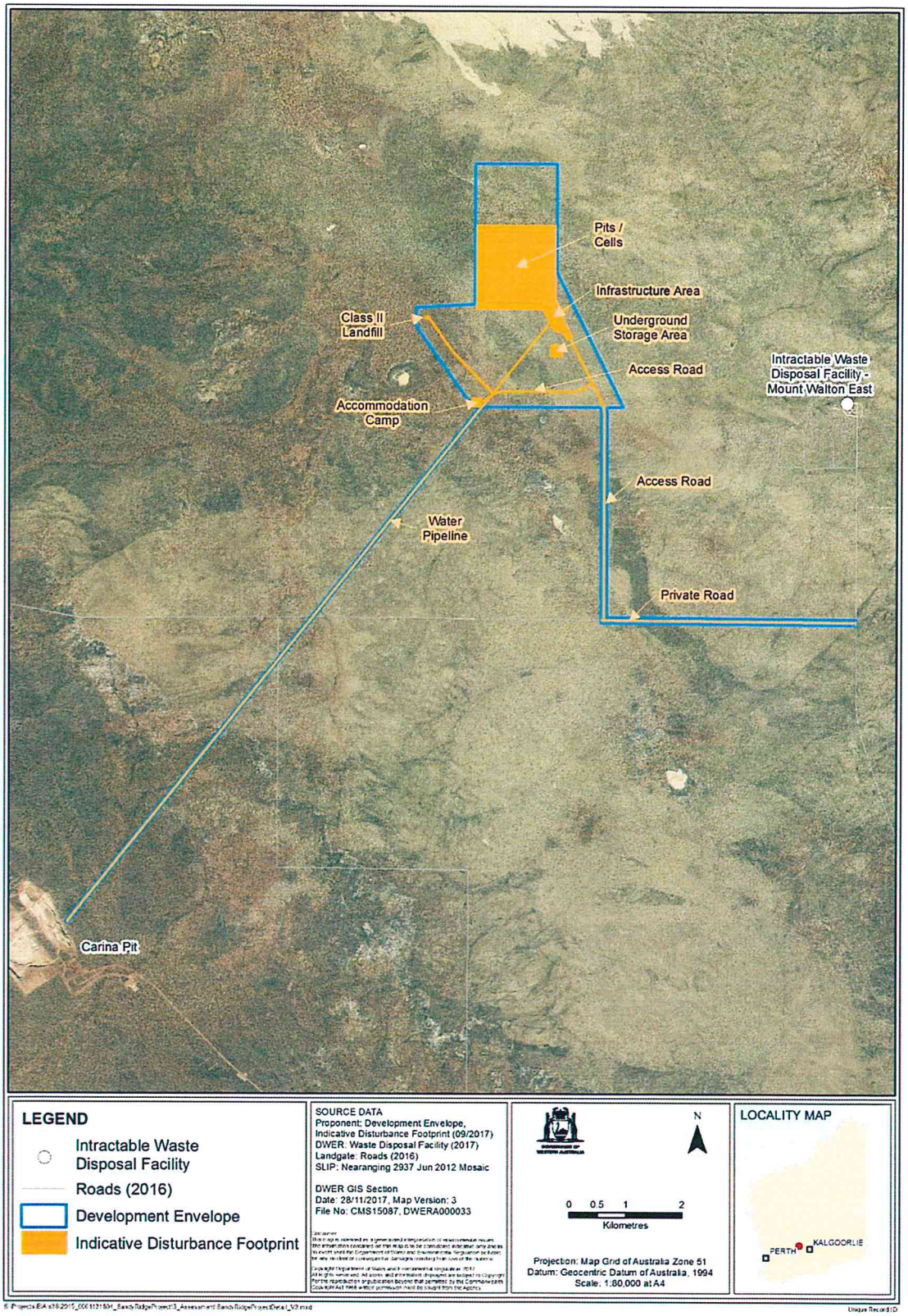


Figure 1: Sandy Ridge Development Envelope

Schedule 2

Coordinates defining the mine site development envelope are held by the Department of Water and Environmental Regulation, Document Reference Number 2017-1510204047942.

Attachment 7

Environmental Determination

THIS DOCUMENT
This document has been produced by the Office of the Appeals Convenor as an electronic version of the original Statement for the proposal listed below as signed by the Minister and held by this Office. Whilst every effort is made to ensure its accuracy, no warranty is given as to the accuracy or completeness of this document.
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Published on: 27 June 2018 Statement No. 1078

STATEMENT THAT A PROPOSAL MAY BE IMPLEMENTED
(Environmental Protection Act 1986)

SANDY RIDGE FACILITY

Proposal: The proposal is to construct and operate a dual open cut kaolin clay mine and a near-surface geological waste repository accepting Class IV and Class V waste, approximately 75 kilometres north east of Koolyanobbing.

Proponent: Tellus Holdings Ltd
Australian Company Number 138 119 829

Proponent Address: Suite 2, Level 10, 151 Castlereagh Street
SYDNEY NSW 2000

Assessment Number: 2057

Report of the Environmental Protection Authority: 1611

Pursuant to section 45 of the *Environmental Protection Act 1986* (EP Act) it has been agreed that the proposal described and documented in Table 2 of Schedule 1 may be implemented and that the implementation of the proposal is subject to the following implementation conditions and procedures:

1 Proposal Implementation

1-1 When implementing the proposal, the proponent shall not exceed the authorised extent of the proposal as defined in Table 2 of Schedule 1, unless amendments to the proposal and the authorised extent of the proposal have been approved under the EP Act.

2 Contact Details

2-1 The proponent shall notify the CEO of any change of its name, physical address or postal address for the serving of notices or other correspondence within twenty-eight (28) days of such change. Where the proponent is a corporation or an association of persons, whether incorporated or not, the postal address is that of the principal place of business or of the principal office in the State.

3 Time Limit for Proposal Implementation

3-1 The proponent shall not commence implementation of the proposal after five (5) years from the date on this Statement, and any commencement, prior to this date, must be substantial.

3-2 Any commencement of implementation of the proposal, on or before five (5) years from the date of this Statement, must be demonstrated as substantial by providing the CEO with written evidence, on or before the expiration of five (5) years from the date of this Statement.

4 Compliance Reporting

4-1 The proponent shall prepare and maintain a Compliance Assessment Plan which is submitted to the CEO at least six (6) months prior to the first Compliance Assessment Report required by condition 4-6, or prior to implementation of the proposal, whichever is sooner.

4-2 The Compliance Assessment Plan shall indicate:

(1) the frequency of compliance reporting;

(2) the approach and timing of compliance assessments;

(3) the retention of compliance assessments;

(4) the method of reporting of potential non-compliances and corrective actions taken;

(5) the table of contents of Compliance Assessment Reports; and

(6) public availability of Compliance Assessment Reports.

4-3 After receiving notice in writing from the CEO that the Compliance Assessment Plan satisfies the requirements of condition 4-2, the proponent shall assess compliance with conditions in accordance with the Compliance Assessment Plan required by condition 4-1.

4-4 The proponent shall retain reports of all compliance assessments described in the Compliance Assessment Plan required by condition 4-1 and shall make those reports available when requested by the CEO.

4-5 The proponent shall advise the CEO of any potential non-compliance within seven (7) days of that non-compliance being known.

4-6 The proponent shall submit to the CEO the first Compliance Assessment Report fifteen (15) months from the date of issue of this Statement addressing the twelve (12) month period from the date of issue of this Statement and then annually from the date of submission of the first Compliance Assessment Report, or as otherwise agreed in writing by the CEO.

The Compliance Assessment Report shall:

(1) be endorsed by the proponent's CEO or a person delegated to sign on the CEO's behalf;

(2) include a statement as to whether the proponent has complied with the conditions;

(3) identify all potential non-compliances and describe corrective and preventative actions taken;

(4) be made publicly available in accordance with the approved Compliance Assessment Plan; and

(5) indicate any proposed changes to the Compliance Assessment Plan required by condition 4-1.

5 Public Availability of Data

5-1 Subject to condition 5-2, within a reasonable time period approved by the CEO of the issue of this Statement and for the remainder of the life of the proposal, the proponent shall make publicly available, in a manner approved by the CEO, all validated environmental data (including sampling design, sampling methodologies, empirical data and derived information products (e.g. maps)) relevant to the assessment of this proposal and implementation of this Statement.

5-2 If any data referred to in condition 5-1 contains particulars of:

(1) a secret formula or process; or

(2) confidential commercially sensitive information;

the proponent may submit a request for approval from the CEO to not make these data publicly available. In making such a request the proponent shall provide the CEO with an explanation and reasons why the data should not be made publicly available.

6 Boundary for Waste Generation

6-1 The proponent shall ensure that only wastes generated within Western Australia, other Australian States and Territories, and the Australian Exclusive Economic Zone are accepted at the Sandy Ridge Facility.

7 Waste Management System

7-1 The proponent shall manage the proposal to meet the following objective:

(1) ensure that detailed records are kept of all wastes accepted on site.

7-2 The proponent shall implement and maintain a Waste Management System to record all wastes accepted on site.

7-3 The Waste Management System shall:

(1) detail monitoring procedures to track and record incoming waste to the site;

(2) record the origins, quantity, and the physical and chemical characteristics of all waste accepted on site;

(3) provide details about any treatment of the waste undertaken on site;

(4) provide details about the waste characteristics, quantity, storage duration and specific coordinates for the location of each waste package stored in the waste cells and temporary storage area; and

(5) be reviewed every five (5) years to ensure that all data stored in the Waste Management System remain compatible with contemporary information technology.

7-4 The proponent shall continue to record all wastes accepted on site as required by condition 7-2 until cessation of waste receival operations at the Sandy Ridge Facility.

7-5 The proponent shall retain and maintain the data required by condition 7-2 and provide the data to the Western Australian Government at the completion of Phase I of the Institutional Control Period.

7-6 The proponent shall provide the data required by condition 7-2 to the CEO when requested within four (4) weeks of the request date.

8 Independent Annual Audit

8-1 The proponent shall manage the implementation of the proposal to meet the following objectives:

(1) ensure that only permitted wastes are accepted at the facility for placement in the repository; and

(2) that the facility is managed in accordance with all regulatory requirements.

8-2 The proponent shall engage an independent waste expert approved by the CEO to undertake an annual audit of the waste disposal operations at the Sandy Ridge Facility. The first audit shall be undertaken twelve (12) months from the date of waste acceptance. The audit shall address site operations, including whether:

(1) each waste is uniquely identified;

(2) the origin, quantity and characterisation of each waste is recorded;

(3) the waste acceptance criteria and procedures have been adhered to;

(4) all required regulatory approvals and permits were in place for transport and disposal of the waste;

(5) there is a clear and documented chain of custody from client to waste receival;

(6) the final location of each waste in the waste cell is accurately recorded in three dimensions (northing, easting and elevation);

(7) all regulatory requirements have been met; and

(8) other options have become available to reuse, recycle or recover wastes that are being accepted at the Sandy Ridge Facility.

8-3 The proponent shall provide the annual audit report required by condition 8-2 to the CEO within twelve (12) weeks of the audit date until the CEO has confirmed by notice, in writing, that provision of the annual audit report is no longer required.

8-4 In the event that the annual audit report identifies issues with waste acceptance, waste tracking or compliance with regulatory requirements, the proponent shall immediately notify the CEO, and other relevant regulators where a non-compliance against other legislation has occurred, and implement investigations to identify the cause.

8-5 Should the cause identified in condition 8-4 result in a potential risk to human health or a sensitive environmental receptor, then the proponent shall commence remedial actions immediately until otherwise advised by the CEO.

9 Terrestrial Environmental Quality

9-1 The proponent shall manage the implementation of the proposal to meet the following environmental objective:

(1) ensure that impacts to soil quality are minimised.

9-2 Prior to the commencement of waste receival, the proponent shall prepare and submit a Leachate Monitoring and Management Plan to the CEO, to demonstrate that the environmental objective in condition 9-1 will be met.

9-3 The Leachate Monitoring and Management Plan shall specify:

(1) monitoring procedures and protocols, including monitoring location points and frequency of monitoring (minimum every six (6) months);

(2) mitigation and management measures;

(3) an adaptive management framework, including trigger criteria, monitoring design and methodologies, and trigger management actions;

(4) incident reporting;

(5) review periods; and

(6) implementation reporting and auditing.

9-4 After receiving notice in writing from the CEO that the Leachate Monitoring and Management Plan satisfies the requirements of condition 9-1, the proponent shall:

(1) implement the Leachate Monitoring and Management Plan, or any subsequent revisions as approved by the CEO; and

(2) continue to implement the Leachate Monitoring and Management Plan, or any subsequent revisions as approved by the CEO, until the CEO has confirmed by notice in writing that the proponent has demonstrated the objective specified in condition 9-1 has been met and therefore the implementation of the management plan is no longer required.

9-5 The proponent may review and revise the Leachate Monitoring and Management Plan or any subsequently revisions as approved by the CEO.

9-6 The proponent shall review and revise the Leachate Monitoring and Management Plan or any subsequently approved revisions, as and when directed by the CEO.

10 Flora and Vegetation

10-1 The proponent shall manage the implementation of the proposal to meet the following environmental objectives:

(1) avoid direct impacts to *Calytrix creswellii*, *Lepidosperma lyonsii*, and the undescribed *Lepidosperma* sp. where practicable; and

(2) manage indirect impacts to *Calytrix creswellii*, *Lepidosperma lyonsii*, and the undescribed *Lepidosperma* sp.

10-2 Prior to the commencement of ground disturbing activities, the proponent shall prepare and submit a Targeted Flora Survey Plan for *Calytrix creswellii*, *Lepidosperma lyonsii*, and the undescribed *Lepidosperma* sp. to the CEO.

10-3 The Targeted Flora Survey Plan required by condition 10-2 shall:

(1) detail the methodology for the targeted survey;

(2) quantify the number of *Calytrix creswellii*, *Lepidosperma lyonsii*, and the undescribed *Lepidosperma* sp. found within the development envelope; and

(3) meet the requirements of EPA Flora and Vegetation Guidance.

10-4 The proponent shall undertake the Targeted Flora Survey in accordance with the Targeted Flora Survey Plan as required by condition 10-2.

10-5 Prior to commencement of ground disturbing activities, and after completion of the Targeted Flora Survey, the proponent shall submit a Flora and Vegetation Management Plan to the CEO.

10-6 The Flora and Vegetation Management Plan shall include detailed information on potential direct and indirect impacts to *Calytrix creswellii*, *Lepidosperma lyonsii*, and the undescribed *Lepidosperma* sp. and include the following:

(1) targeted flora survey results required by condition 10-4;

(2) avoidance of direct impacts where practicable; and

(3) mitigation, monitoring and management measures for indirect impacts, including those for fire, dust suppression and water quality, and weeds.

10-7 After receiving notice in writing from the CEO that the Flora and Vegetation Management Plan satisfies the requirements of condition 10-6, the proponent shall:

(1) implement the Flora and Vegetation Management Plan, or any subsequent revisions as approved by the CEO; and

(2) continue to implement the Flora and Vegetation Management Plan, or any subsequent revisions as approved by the CEO, until the CEO has confirmed by notice in writing that the proponent has demonstrated the objectives specified in condition 10-1 have been met and therefore the implementation of the management plan is no longer required.

10-8 The proponent may review and revise the Flora and Vegetation Management Plan, or any subsequent revisions as approved by the CEO.

10-9 The proponent shall review and revise the Flora and Vegetation Management Plan or any subsequently approved revisions, as and when directed by the CEO.

11 Terrestrial Fauna

11-1 The proponent shall manage the implementation of the proposal to meet the following environmental objective:

(1) ensure that impacts to terrestrial fauna are minimised.

11-2 Prior to the commencement of ground disturbing activities, the proponent shall prepare and submit a Construction Environmental Management Plan to the CEO, to demonstrate that the environmental objective in condition 11-1 will be met.

11-3 The Construction Environmental Management Plan shall include:

(1) results from a pre-clearing survey;

(2) avoidance, mitigation and management measures, including but not limited to recording sightings of conservation significant species including the Malleefowl and Rainbow Bee-eater; detailed clearing procedures, implementation of a boundary fence, control measures for feral fauna, and restricting vehicle speed limits;

(3) an adaptive management framework, including trigger criteria, monitoring design and methodologies, and trigger management actions;

(4) incident reporting;

(5) review periods; and

(6) implementation reporting and auditing.

11-4 After receiving notice in writing from the CEO that the Construction Environmental Management Plan satisfies the requirements of condition 11-1, the proponent shall:

(1) implement the Construction Environmental Management Plan, or any subsequent revisions as approved by the CEO; and

(2) continue to implement the Construction Environmental Management Plan, or any subsequent revisions as approved by the CEO, until the CEO has confirmed by notice in writing that the proponent has demonstrated the objective specified in condition 11-1 has been met and therefore the implementation of the management plan is no longer required.

11-5 The proponent may review and revise the Construction Environmental Management Plan, or any subsequent revisions as approved by the CEO.

11-6 The proponent shall review and revise the Construction Environmental Management Plan, or any subsequently approved revisions, as and when directed by the CEO.

12 Waste Facility Decommissioning and Closure

12-1 Within six (6) months of the date of this Statement or as otherwise agreed in writing by the CEO, and after consulting with, and obtaining the advice of the Radiological Council and the Department of Planning, Lands, and Heritage, the proponent shall update and submit the Waste Facility Decommissioning and Closure Plan (Plan) to the CEO demonstrating how the site will be rehabilitated, remediated and decommissioned to ensure it is physically safe to members of the public and non-human biota, and is geotechnically and geomorphically stable, and chemically and radiologically non-polluting, in the long term.

12-2 The Plan shall:

(1) specify the environmental objective in condition 12-1;

(2) detail outcomes based upon completion criteria that would need to be quantitative or semi-quantitative;

(3) specify rehabilitation, remediation and decommissioning actions that would result in the site meeting the completion criteria of condition 12-2(2) above;

(4) specify modelling or projection techniques that are being developed and used to predict the site would meet the completion criteria of condition 12-2(2) above in the long term;

(5) specify monitoring to measure the effectiveness of remediation, rehabilitation and decommissioning actions against completion criteria, including but not limited to, parameters to be measured, baseline data, monitoring locations, and frequency and timing of monitoring;

(6) provide the format and timing to demonstrate the objective in condition 12-1 has been met for the reporting period in the Compliance Assessment Report required by condition 4-6 including, but not limited to:

(a) verification of the implementation of rehabilitation, remediation and decommissioning actions; and

(b) reporting on the effectiveness of rehabilitation, remediation and decommissioning actions against completion criteria.

12-3 After receiving notice in writing from the CEO that the Plan satisfies the requirements of conditions 12-1 and 12-2, the proponent shall implement the Plan.

12-4 The proponent shall review and revise the Plan required by conditions 12-1 and 12-2 at intervals not exceeding three years, or as otherwise agreed by the CEO, and submit the Plan to the CEO. The revision of the Plan shall include, in addition to the requirements of condition 12-2:

(1) an estimate of the liability represented by the site should it require closure when the revised Plan is implemented;

(2) actions that would need to be undertaken should the site require closure when the revised Plan is implemented; and

(3) the matters set out in condition 12-4(1) and condition 12-4(2) must be reviewed by an independent person with suitable expertise.

12-5 The proponent shall implement the latest revision of the Plan, which the CEO has confirmed by notice in writing, satisfies the requirements of condition 12-4.

12-6 The proponent shall not commence Phase I of the Institutional Control Period until a Plan that satisfies the requirements of condition 12-4 has been approved by the CEO.

12-7 After receiving notice in writing from the CEO that the final Plan satisfies the requirements of conditions 12-4, the proponent shall implement the final Plan.

12-8 The proponent shall not stop implementing the final Plan until it has demonstrated the completion criteria of the final Plan will be met in the long term.

13 Financial assurance requirement

13-1 Pursuant to Part VA of the EP Act, the proponent must provide to the CEO financial assurance in the form of:

(1) a current insurance policy or policies (**Insurance Policies**); and

(2) a bank guarantee (**Bank Guarantee**),

before accepting any waste at the site (collectively, **Financial Assurance**).

13-2 The Financial Assurance may be called upon or used in accordance with section 86E of the EP Act if the proponent fails to comply with the EP Act, or these conditions.

13-3 The Financial Assurance or any part of it shall be discharged by the CEO and the Minister when the CEO has given the proponent written notice pursuant to section 86F(1) of the EP Act.

Insurance Policies

13-4 The Insurance Policies must:

(1) be with an insurer authorised by the Australian Prudential Regulation Authority to conduct insurance business in Australia;

(2) be in the name, or in favour of the Minister and the CEO, or list the Minister and CEO as 'insured parties';

(3) be in a form acceptable to the CEO, and provide for payment of any costs incurred by the Minister or the CEO:

(a) pursuant to Part VA of the EP Act; or

(b) as a consequence of a breach of these conditions by the proponent; and

(4) provide policy limits of not less than AUD$50 million in respect of any one event, and AUD$50 million in the aggregate for any three year period of cover.

13-5 The proponent must maintain the Insurance Policies and not cancel them, allow them to lapse, or do or allow anything to be done which will adversely affect the Insurance Policies.

13-6 The proponent must not vary the Insurance Policies without the prior written approval of the CEO.

13-7 Each 1 July, and each time the Insurance Policies are renewed, the proponent must provide a certificate of currency or alternative evidence in a form acceptable to the CEO of the existence of the Insurance Policies.

13-8 Within 15 months of accepting waste at the site, and thereafter every 3 years or such other period agreed with the CEO, or upon request by the CEO in the event of a change of circumstance at the site material to any matter relating to the EP Act, the proponent must review and provide a report to the CEO in relation to the adequacy of the Insurance Policies.

Bank Guarantee

13-9 The Bank Guarantee shall:

(1) be in the form of an unconditional and irrevocable bank guarantee in favour of the Minister and the CEO from a guarantor acceptable to the CEO;

(2) be for AUD$6.12 million; and

(3) be substituted every five years after the provision of the first Bank Guarantee with the fixed initial amount of each successive guarantee being indexed to inflation (being the Consumer Price Index, Perth).

13-10 The proponent may by agreement with the CEO terminate its liability under the Bank Guarantee by paying to the Minister or the CEO the amount of the Bank Guarantee remaining unpaid, and the CEO will hold that amount as security for any liability of the proponent arising pursuant to the EP Act or these conditions in an interest bearing account nominated by the CEO, with interest accruing for the benefit of the Minister and / or the CEO.

[signed on 26 June 2018]

Hon Stephen Dawson MLC
MINISTER FOR ENVIRONMENT

Schedule 1

Table 1: Summary of the Proposal

Proposal Title	Sandy Ridge Facility
Short Description	The proposal is to construct and operate a dual open cut kaolin clay mine and a near-surface geological waste repository accepting Class IV and Class V waste, approximately 75 kilometres north east of Koolyanobbing in the Shire of Coolgardie over 25 years.

Table 2: Location and authorised extent of physical and operational elements

Column 1	**Column 2**	**Column 3**
Element	**Location**	**Authorised Extent**
Mine pits/waste cells	Figure 1	Clearing up to 202.3 hectares of native vegetation within a 1,004.2 hectare development envelope
Associated infrastructure	Figure 1	Clearing up to 73.75 hectares of native vegetation with a 1,004.2 hectare development envelope
Class IV & V waste accepted at gate		up to 100,000 tonnes per annum
Temporary waste storage on surface		up to 15,000 tonnes
Maximum temporary storage time		up to 12 months
Waste (including treated waste) disposed to waste cells		up to 280,000 tonnes per annum
Water use		up to 0.18 gigalitres per annum

Table 3: Abbreviations and Definitions

Acronym or Abbreviation	**Definition or Term**
Australian Exclusive Economic Zone	An area beyond and adjacent to the territorial sea, subject to the specific legal regime established in Part V of the *Sea and Submerged Lands Act 1973*, under which the rights and jurisdiction of the coastal State and the rights and freedoms of other States are governed by the relevant provisions of this Convention.
CEO	The Chief Executive Officer of the Department of the Public Service of the State responsible for the administration of section 48 of the *Environmental Protection Act 1986*, or his delegate.
EPA	Environmental Protection Authority
EP Act	*Environmental Protection Act 1986*
EPA Flora and Vegetation Guidance	EPA 2016, *Technical Guidance – Flora and Vegetation Surveys for Environmental Impact Assessment*, EPA, Western Australia, or any future updates to EPA flora and vegetation survey guidance.
Geomorphically stable	Reflects baseline conditions.
Long term	1000 years
Phase I of the Institutional Control Period	That portion of the Institutional Control Period for which the proponent is responsible.

Acronym or Abbreviation	Definition or Term
Phase II of the Institutional Control Period	That portion of the Institutional Control Period for which the Western Australian Government is responsible.
Waste acceptance criteria and procedures	The documented criteria specifying the types of waste that can be accepted at the facility and the procedures for accepting that waste that have been agreed under: • Part V of the EP Act; and • Permitting under the *Radiation Safety Act 1975*.
Waste expert	A person with a minimum of 15 years of experience in the assessment and/or operation of waste facilities.

Figures (attached)

Figure 1 Sandy Ridge Development Envelope

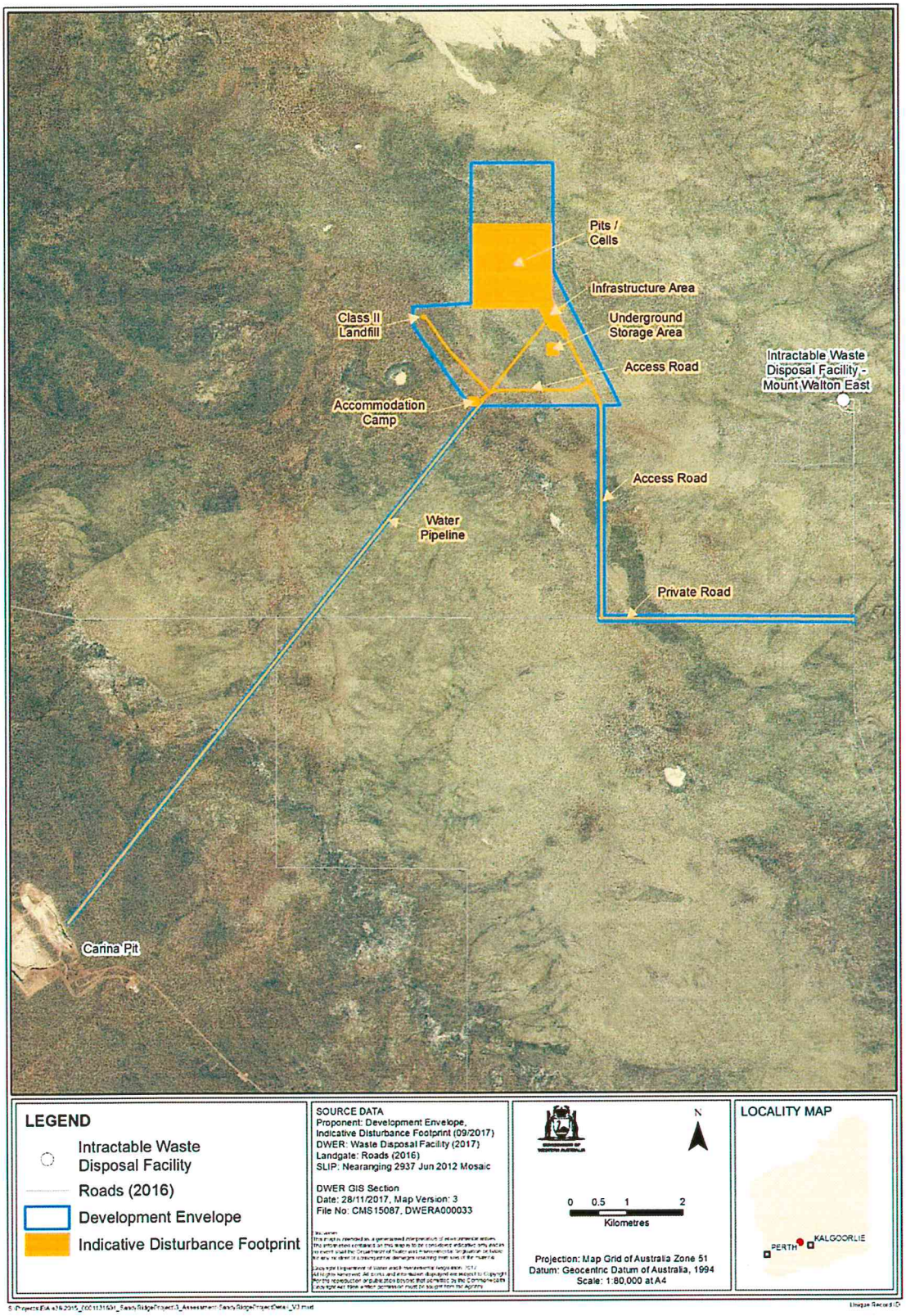


Figure 1: Sandy Ridge Development Envelope

Schedule 2

Coordinates defining the mine site development envelope are held by the Department of Water and Environmental Regulation, Document Reference Number 2017-1510204047942.

Attachment 8

Schedule of Submissions & copies of response received.

DFES Submission

From: DAVIS Jeff [mailto:Jeff.Davis@dfes.wa.gov.au]
Sent: Wednesday, 13 December 2017 1:54 PM
To: Jill O'Brien <dceo@coolgardie.wa.gov.au>
Subject: Tellus Sandy Ridge Project - request for DFES comment.

Hi Jill,

I had a phone call from the Kalgoorlie office of DFES this morning to the effect that the comment period for the Sandy Ridge project had been extended. I just wanted to confirm if that is the case and have a go at accessing the dropbox file/s if that is the case.

I originally reviewed the EPA proposal/PER on the project, during which some issues were identified, raised and addressed. I have subsequently looked through DWER dealings with the project from a licensing perspective and have provided comment on that over the phone. I'm happy to go through what the Shire is assessing, although I would hope that most issues have been identified and addressed at this stage. I'm happy to discuss if you wish to do so.

Thanks and regards,

Jeff Davis

Principal Scientific Officer | Special Operations Response

Department of Fire and Emergency Services

Emergency Services Complex, 20 Stockton Bend, Cockburn Central, WA

T: 08 9395 9311 | M: 0418 408 477 | F: 08 9395 9583 | E: jeff.davis@dfes.wa.gov.au

Government of Western Australia
Department of Fire & Emergency Services

DFES
Department of Fire & Emergency Services

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DMIRS Submission

---------- Forwarded message ---------
From: **MITCHELL, Ian** <Ian.MITCHELL@dmirs.wa.gov.au>
Date: Thu, 7 Dec 2017 at 10:50 am
Subject: RE: Tellus Sandy Ridge DA
To: Elly McKay <execsec@coolgardie.wa.gov.au>
Cc: Francesca Lefante <fclefante@gmail.com>, ENDACOTT, Daniel <Daniel.ENDACOTT@dmirs.wa.gov.au>

Hello,

Thank you for your letter requesting DMIRS comments on the proposal. DMIRS has no comment to provide.

Thank you.

Ian Mitchell | Acting Manager Abandoned Mines Program | Administration and Reform Branch

Department of Mines, Industry Regulation and Safety

Tel: +61 8 9222 3441

ian.mitchell@dmirs.wa.gov.au | www.dmirs.wa.gov.au

DWER Submission

---------- Forwarded message ---------
From: **Jarrod Abrahams** <jarrod.abrahams@dwer.wa.gov.au>
Date: Wed, 3 Jan 2018 at 3:19 pm
Subject: RE: Sandy Ridge kaolin mine and Waste Disposal facility.
To: Francesca Lefante <fclefante@gmail.com>
Cc: Jill O'Brien <dceo@coolgardie.wa.gov.au>

Hi Francesca,

Apologies as I have been on leave for past three weeks.

I have spoken to our Land use Planning Coordinator (Teresa Gepp) and understand that DWER provided comment to the Shire prior to Christmas (sent through on 22 December 2017). Please confirm otherwise and I shall follow-up with Teresa.

Regards,

Jarrod Abrahams

Senior Environmental Officer,

Industry Regulation – Waste Industries

Department of Water and Environmental Regulation

181-205 Davy Street Booragoon WA 6154| Locked Bag 33, Cloisters Square

Locked Bag 33, Cloisters Square, PERTH WA 6850

T: (08) 6364 7059

E: jarrod.abrahams@dwer.wa.gov.au | www.dwer.wa.gov.au

Twitter: @DWER_WA

Radiological Council Submission

From: "Surin, Duncan" <Duncan.Surin@health.wa.gov.au>
Date: 6 December 2017 at 6:23:11 pm AWST
To: "dceo@coolgardie.wa.gov.au" <dceo@coolgardie.wa.gov.au>
Subject: Referral for Comment - Proposed Waste Disposal Facility

Good afternoon Jill

Thank you for your letter to the Radiological Council of 10 November 2017 regarding the above matter for the Tellus Holdings Ltd Sandy Ridge facility.

I regret to advise that due to our current resourcing, we will not be able to review the planning application within the timeframe requested and may not be able to for some time. I can advise that the facility is currently subject to review by the Radiological Council, with several documents that Tellus was required to provide to the EPA and Department of Water and Environment Regulation that they have subsequently also forwarded to the Council for consideration.

As per your letter, could you please assist in providing access to the planning application documents. If you think it will be of assistance, I will endeavour to conduct a surface review of your documentation and potentially advise of any major flaws.

Thanks and regards

Duncan

Duncan Surin
Authorised Officer, Radiological Council
Health Physicist, Radiation Health | Environmental Health Directorate | Public and Aboriginal Health Division
Department of Health
Locked Bag 2006, NEDLANDS WA 6009
Grace Vaughan House, 227 Stubbs Terrace, SHENTON PARK WA 6008
T: 08 9388 4999 | F: 08 9382 0701
www.health.wa.gov.au

Address regulatory correspondence to 'The Secretary, Radiological Council'
www.radiologicalcouncil.wa.gov.au

Please call the above number if you require urgent assistance.

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Attachment 9

Tellus summary changes in response to DFES advice – 24 January 2019

Table 1. Tellus Holdings Response to DFES Review of Management Plans.

Issue	DFES Review Comment	Tellus Response
Transport Management Plan		
Dangerous Goods Incident Response	There is a requirement under the *Dangerous Goods Safety (Road and Rail Transport of Non-explosives) Regulations 2007* for every prime contractor who is transporting a placard load of dangerous goods in WA to either be, or have a contractual arrangement in place with, a DMIRS approved emergency responder to deal with transport incidents involving dangerous goods. The role of the approved responders is to assist with recovery of product and site clean up at a transport incident – the intent being that emergency services are not required to remain on scene for extended periods (days), and can hand the scene over to the approved responder once the immediate emergency has been made safe. This is particularly an issue in regional areas (such as Coolgardie, Southern Cross and Kalgoorlie) where there is a limited local response capability, and protracted incidents may significantly deplete emergency service resources available to attend other incidents in the region. In previous discussions with Tellus, it has been suggested that there would be significant benefit for Tellus and the community if Tellus were to approach DMIRS and arrange to be approved as an emergency responder. Tellus would then be able to respond to transport incidents from Sandy Ridge, and minimise response times for incidents involving their clients' materials consigned to the facility, or materials consigned from the facility. It makes sense if the material in question is consigned to Sandy Ridge anyway, and hence the recovered material from an incident should be OK to send there. This may augment arrangements already in place with other emergency responders, who may be based in the Perth metro area, for example, and have extended response times – and should result in an optimised response time to incidents by the closest emergency responder. The net result is the Great Eastern Highway being closed for the least time necessary, and volunteer/ regional crews being returned to station and available for other incidents as soon as practicable.	As part of Tellus' pre-gate service and pre-qualification of the customer's transport contract, a thorough review and sign off of all transport requirements under the *Dangerous Goods Safety (Road and Rail Transport of Non-explosives) Regulations 2007* will form part of the Waste Supply Contract (WSC) and Chain of Responsibility. Tellus is fully aware of this potential resource drain on emergency services in the Coolgardie, Southern Cross and Kalgoorlie regions. Please also note that Tellus is not engaging the transport contractor. This is the responsibility of the waste owner and will be assigned through our WSC. Tellus only commits to this issue in as far as we are party to the transport chain (of dangerous goods) through Chain of Responsibility laws. Please be advised that on 16 November 2018, Tellus met with Mr Stuart Parks from DFES (email enclosed). A draft Memorandum of Understanding between Tellus and DFES was discussed. In summary, any future MOU's between Tellus and DFES are based on what Tellus can provide to assist DFES and emergency services responding to certain types of incidents, and conversely, what DFES can provide in return, such as training drills,

		exercises and the like. The legislative requirements/OH&S and/or insurance requirements of Tellus' operation would be critical to the MOU and, will dictate what response capability Tellus may require. This will also heavily influence the qualifications required of Tellus' Emergency Response Team (ERT) members. Tellus' *Training Needs Analysis* includes the following: • PUAFIR320 Render hazardous materials incidents safe. • PUAFIR308B Employ personal protection at a hazardous materials incident. • PUAFIR316 Identify, detect and monitor hazardous materials at an incident. • Confined Space. • Road crash rescue. Tellus will have fully trained ERT members across a variety of incident types. They will hopefully become a valuable resource for DFES during operations at Sandy Ridge.
	Notwithstanding the recommendation that Tellus become an approved responder themselves, there is no reference to approved emergency responders in the Transport Management Plan, or specific mention of processes to ensure they are in place and checked in the overall governance process for transport operators delivering to site.	Agree that we will include the approved emergency responder item in pre-qualification of the customer's transport contractor. We will also include the check that transporters delivering DG to Sandy Ridge have approved responder (themselves or by contract) in transporter safety audits. Please note that Tellus is not engaging the transport contractor, - that is the

		responsibility of the waste owner. Tellus only commits to this issue in as far as we are party to the transport chain through Chain of Responsibility laws.
Other Materials Response	The above described provisions do not apply to class 1 dangerous goods (explosives), division 6.2 dangerous goods (infectious substances), class 7 dangerous Goods (radioactive materials) or materials which are not dangerous goods. Nevertheless, all of these materials can be the subject of a HAZMAT response under the *Fire Brigades Act 1942*, S4: ***hazardous material*** means anything that, if it escapes while being produced, stored, moved, used or otherwise dealt with, may cause personal injury or death, or damage to property or the environment; ***hazardous material incident*** means an actual or impending spillage or other escape of hazardous material that causes or threatens to cause injury or death, or damage to property or the environment; Hence it has been suggested to Tellus that such an off site transport incident response capability should be extended to cover all waste consigned to them which may fall within the definition of a "***hazardous material***". Any such incident would involve the same response process for DFES crews, and would also need to be handed over to someone to facilitate product recovery etc and get the road open as soon as practicable.	Agree to a limited degree. Again, the primary responsibility is with the waste owner and their transporter. However, Tellus will need to have the capability to provide HAZMAT response within our Facility boundaries. Tellus commits our future services in emergency response as far as the Great Eastern Highway intersection, so it is not unreasonable to expect that Tellus' HAZMAT response team could be called upon to service a larger area. The problem then arises that as soon as Tellus' HAZMAT response team is sent off-site to deal with some un-related incident, our own on-site production activities must cease as we no longer have HAZMAT response coverage at our site. We are happy to assist off-site in emergency situations, but we can't afford to be a proxy for State resources and be called upon with any frequency to respond to non-Tellus incidents
Emergency Management Plan		
General Tellus Comment: Tellus' view is that an Emergency Response Plan (ERP) is best developed by the team that will implement and use that plan, taking into account the resources available to them. The plan should be a regularly reviewed and updated document as circumstances both at the project site and off-site (external resources) change and evolve over time. Until such time as Tellus' on-site staff are recruited, the Emergency Response Team formed and trained, final facility design and procurement is		

completed, and risk workshops taking all of the above into account are completed, the Emergency Response Plan can only ever be an advanced draft.		
General	A number of the definitions in the plan are incorrect. For example, those for Site/Field Area, and Stakeholders. Other are partial, such as that for emergency management, which would normally be taken to encompass prevention, preparation, response and recovery - rather than the emphasis given on emergency response in the definition given. Additionally, risk is usually taken to be the product of likelihood and consequence, not just likelihood (or probability) alone.	Noted – Tellus has reviewed and update the plan's definitions accordingly.
Section 1.2 Statutory requirements	There are emergency plan, training, fire protection and emergency equipment requirements in the *Dangerous Goods Safety (Storage and Handling of Non-explosives) Regulations 2007*, which are not mentioned here.	The *Dangerous Goods Safety (Storage and Handling of Non-explosives) Regulations 2007* has been included in references. Section 1.2 has been re-drafted.
	Additionally, some provisions of the *Dangerous Goods Safety (Road and Rail Transport of Non-explosives) Regulations 1997* may apply, with regard to placarding of vehicles in transit, and transport documents - which may be used as part of the site manifest for dangerous goods in transit.	Transport of DG is the waste owner's responsibility, along with their transport provider. Tellus commits to its role as consignee of the waste materials in the transport Chain of Responsibility.
	The document states the emergency plan must be compliant with a range of legislation, although there may be both unnecessary inclusions and potential omissions. It is not clear for example why the plan needs to simultaneously comply with the: *Mines Safety and Inspection Act 1984 (WA)* *Mines Safety and Inspection Regulations 1995 (WA)* *Occupational Safety and Health Act 1984 (WA)* *Occupational Safety and Health Regulations 1996 (WA)* *Work Health and Safety Act 2016* *Work Health and Safety Regulations 2016* The first of two sets of which are mutually exclusive WA instruments.	The Facility is also a "Mine" as defined in the *Mining Act 1978*, and hence must meet the requirements of the *Mines Safety and Inspection Act 1984* (MSIA) and *Mines Safety and Inspection Regulations 1995*. The waste operations fall under the *Occupational Safety and Health Act 1984* and associated regulations, which contain certain

	It is not clear which jurisdiction the third act is from. It is not a WA act, and the Commonwealth equivalent is a 2011 act, so it is not clear how that instrument applies to an operation in WA. If there are multiple workplace safety jurisdictions operational at the site, which have differing emergency prevention, preparation, response and recovery requirements, and different investigative jurisdictions – it may be helpful to clarify what they are and the extent of their jurisdiction in the plan.	requirements for emergency preparedness. They are not mutually exclusive. Waste placement activities are not covered by the MSIA/R, and the Dangerous Goods Safety Act/Regs don't apply to all materials. Not all wastes are dangerous goods. *Work Health and Safety Act 2016* is not applicable and reference to it has been removed from the document.
	The list of legislation does not include the *Coroner's Act 1996* (WA), which is relevant for the purposes of scene preservation and dealing with the deceased after a fatality.	Tellus has amended the document to include the *Coroner's Act 1996* as it relates to reportable deaths and powers to restrict access, enter, inspect and seize, and the body to be under the control of the coroner.
1.3 Statutory authority.	The plan states that the "..WA Police is the designated control authority for all critical incidents and fatalities in Western Australia..". This may be true or false, depending on the definition of "critical incidents" for the purposes of this plan – which is not given – and hence may give the erroneous perception to the reader that WA Police are the authority for all incidents, which is not the case. HAZMAT, Fire and Rescue, for example are the preserve of DFES, not WA Police. Perhaps it may be useful to indicate which agency is the authority for which hazard, so any request for external assistance is directed to the correct agency, and hence to 000 call takers most appropriately trained to gain the necessary information about the incident. It would also be useful in this section to identify the potential need for scene preservation prior to internal investigation by the site operator's own investigation team. Whilst this is outlined in later duty cards, such information may be useful here before the outline of company procedures to form an investigation team etc. A number of entities may direct scene preservation by law, including an Inspector of Mines, Dangerous Goods Officer, Police Officer, Coroner, Coroner's Investigator, DFES Officer and a range of others depending	Tellus has revised the wording of this section. Section 1.4 has been revised to include text on scene preservation and the statutory requirements to allow Regulator investigation as a priority over internal investigations.

<table>
<tr><td></td><td>on the nature and location of the incident.</td><td></td></tr>
<tr><td>Table 1-1 Distribution List</td><td>A number of entries in this table require clarification/correction, examples are given below:

<table>
<tr><th>Title</th><th>Tellus contact name</th><th>Location</th></tr>
<tr><td>WA Department of Fire and Emergency Services (DFES)</td><td>NIL – Held at regional level.</td><td></td></tr>
<tr><td>Department of Mines, Industry Regulation and Safety</td><td>~~Chief Officer~~ It is not clear who is the intended entity:
State Mining Engineer
District Mines Inspector
Chief Dangerous Goods Officer
Worksafe Commissioner</td><td>Various, depending on the specific jurisdiction intended within DMIRS</td></tr>
<tr><td>~~Rural Fire Service~~
Bushfire Service</td><td>Clarify with Shire of Coolgardie –
Chief Bush Fire Control Officer?</td><td></td></tr>
<tr><td>DFES</td><td>Superintendent Goldfields / Midlands</td><td>Northam Regional Office
Kalgoorlie Regional Office</td></tr>
</table></td><td>Noted

Noted, correction

Noted, correction

Noted, correction</td></tr>
<tr><td>Table 1.11 Emergency contact numbers.</td><td>The 1800 number provided for Dept of Mines, Industry Regulation and Safety is incorrect, as it contains too many digits.</td><td>As published on the DMIRS website (see http://www.dmp.wa.gov.au/Utilities/Report-an-incident-8324.aspx, accessed 21 January 2019), the contact number to report a mines safety incident is:

“1800 SAFE MINE (1800 7233 6463)”.</td></tr>
</table>

Section 2 – General Emergency Procedures	There is a statement in 2.6 that the Emergency Controller will instigate any request for external emergency services, but it is not clear what criteria will prompt a call for external support, or what the expected in house capability in various emergency responses may be. It is noted that DFES (WA Fire & Rescue Service) is listed as a potential external help for: Light vehicle incident Bus accident General delivery truck accident Surface building fire Chemical spill/HAZMAT Building/Infrastructure collapse Potential tyre fire/explosion Bushfire Aerodrome/aviation incident checklist	The text in Section 2.6 has been revised accordingly.
	Given the distance to the nearest DFES response at Southern Cross and Coolgardie, it would be expected that significant in house emergency response capability would be in place for most incident scenarios. It is noteworthy that in some circumstances response may be from Kalgoorlie.	Correct, Tellus is planning to be self-sufficient for all incident types, but the scale of some incidents may require external assistance.
	Numerous scenarios in Part 3 refer to notification of Government Authorities in the response sections, but do not state which authorities. The specific authorities should be able to be listed for the specific scenarios in each plan element.	Text in these sections has been edited to state which authorities are relevant.
2.7 Emergency control	The requirement for an escort for external emergency services is identified, however it is not recognised in the document that multiple crews may respond and hence the escort may need to repeat the escort several times. (e.g. Fire & Rescue / Ambulance may attend from east and/or west on the Great Eastern Highway).	Section 2.7 has been edited to redefine the meeting point.
3.7 Chemical spill / HAZMAT	The SDS also provides useful information including actions on fire and spill.	Noted, though it is unlikely that a simple single MSDS is available for waste materials.
3.13 Bushfire	In the response section there is mention of securing explosives in a magazine,	No explosives will be on the site. This has

	but no mention of how partially loaded or unfired shots/benches are to be treated / dealt with – which is particularly pertinent if external responders are on site fighting a fire or protecting assets/equipment/infrastructure. This needs to be specifically addressed to ensure responders stay clear of explosives hazards.	been clarified in the document.
3.14 Thunderstorms and dust storms	Again, processes/procedures/precautions specific to explosives should be incorporated in this section as appropriate.	See previous.
4 Liaising with the media	If external emergency services have taken control of an incident or site – the media releases need to be coordinated between the site and the agency in question.	Agree and text has been edited to reflect this.
6.1 Training	Emergency Response Training – it is not clear what skill sets are to be trained / revised/maintained (e.g. bush fire fighting, structural fire fighting, tyre/wheel fires, HAZMAT, road crash/vehicle rescue, line rescue, etc) or whether any training is intended to be combined with mutual aid responders.	Tellus has a draft training register, which will be completed prior to operations, after completion of HAZOPs and other risk assessments with the Operations Team (yet to be recruited). An Appendix has been added to include the Training Register. The draft training register has not been included yet as it is still a work in progress. Some outlines of training and capabilities are listed on the placeholder page for that Appendix.
6.3 Tests and inspections	It is suggested that **emergency eyewashes** are added to the test/inspection schedule.	Emergency eyewashes have been added to the test/inspection schedule.
Duty Card 5 : ERT Operations Officer	The card states that during the incident external emergency services are inducted – such an induction needs to be very brief and specific to the role of the response personnel at the time for external emergency responders, not the full site induction.	Agree and text edited.

Appendix F Emergency Equipment List	A number of entries require more detail: Waste facility water tank – what capacity is it, what connections does it have? Village water tank – what capacity is it, what connections does it have?	To be addressed in detailed engineering design and risk assessments, and ERP will be updated once completed.
	What are the "couple of larger extinguishers" – dry powder/ foam – what type of powder or foam? What capacity? Hydrant hose and nozzle kits - how many hoses, what length, what diameter? What type of branch/nozzle/couplings? Is there any A or B class foam on site? If so, what, where and how much?	To be addressed in detailed engineering design and risk assessments, and ERP will be updated once completed.
	"Handheld gas detector" – to detect what gas/es? "Fixed gas monitoring system and alarm" - to detect what gas/es? "Open circuit BA kit" – how many, what size cylinders, how many cylinders held? What PPE (Leve;l 1 & 2 fire fighting, splash suit / encapsulated suit for HAZMAT?). How many overdrums are available?	To be addressed after HAZOP and Operations risk assessment, and ERP will be updated once completed.
Bushfire Management Plan		
	I haven't gone through this in great detail, however I would draw your attention to 6.3 on suppression - particularly the idea of "3-5" available personnel trained in bushfire fighting during construction and "2-3" available personnel trained in bushfire fighting when operational. Effectively this gives 3 during construction and 2 during operations. I'll let you comment on the adequacy of this, and perhaps combine comment with minimum responder numbers required for an effective/safe HAZMAT response, RCR etc	A bushfire response team will be adequately resourced for minimum responder numbers required for an effective bushfire response. The team will be suitably trained. Please refer to the Emergency Response Management Plan regarding safe HAZMAT response, Road Crash Rescue and other incidents relevant to the Sandy Ridge Facility. The specifics of the bushfire response team and emergency response team will be

		developed with Facility Manager and Emergency Response Team as Tellus recruit them. The detail will be work-shopped and risk assessed to ensure compliance with the Regulations is adequately addressed.
	Also the advice at 6.5 for evacuation which refers to a bushfire being **detectable** whilst travelling on the Mt Walton road only applies when the vehicle is actually **trapped** in a bushfire, which is not clear in 6.5. The relevant DFES publication this section has been taken from is at: https://www.dfes.wa.gov.au/firechat/documents/downloads/travelling-during-a-bushfire-dfes-bushfire-fact-sheet.pdf	Tellus has tailored the road entrapment procedure to the Mount Walton Access Road, which was adapted from and is consistent with the DFES publication to which DFES provided the link. The document has been revised to clarify the vehicle entrapment scenario.

Attachment 10

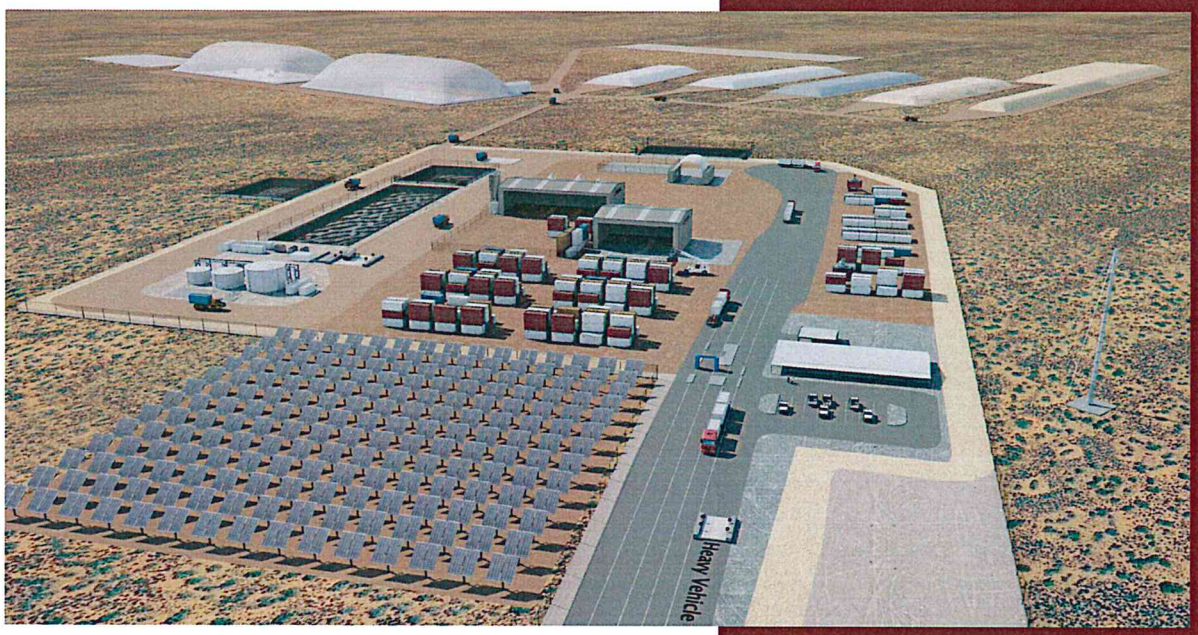
Emergency Response Plan

24 January 2019

TELLUS

Sandy Ridge Facility

Sandy Ridge Emergency Response Plan



Compliance Document

Tellus Holdings Ltd

January 19

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DOCUMENT CONTROL

The signatures below certify that this Emergency Response Plan has been reviewed, accepted and demonstrates that the signatories are aware of all the requirements contained herein and are committed to ensuring their provision.

	Name	Signature	Position	Date
Prepared by	Ali Perkin Riklan Emergency Management Services		General Manager	4/12/2018
Reviewed by	Nick Ballard		Compliance and Quality Manager	05/12/2018
	Michael Ingram		Chief Operating Officer	06/12/2018
Approved by	Richard Phillips		General Manager HSECQ	10/12/2018

AMENDMENT RECORD

This Emergency Response Plan is reviewed to ensure its continuing relevance to the systems and process that it describes. A record of contextual additions or omissions is given below:

Page No.	Context	Edits ByName	Version	Date
Various	Changes after DFES comments	Michael Ingram	C	24/01/2019

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The electronic version of this Emergency Response Plan is the latest version. It is the responsibility of the individual to ensure that any paper material is the current version. The printed version of this procedure is uncontrolled, except when provided with a document reference number and version in the field below:

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ABBREVIATIONS

CMP	Crisis Management Plan
CMT	Crisis Management Team
COO	Chief Operating Officer
ECL	Emergency Contact List
ERP	Emergency Response Plan
ERT	Emergency Response Team
FM	Facility Manager
FRT	First Response Team
GM	General Manager
HSE	Health, Safety, Environment
HSECQ	Health, Safety, Environment, Compliance and Quality
IMP	Incident Management Plan
km	kilometres
NoK	Next of Kin
OSC	On Scene Commander
PSP	People Support Plan
ROC	Response Operating Centre
SAR	Search and Rescue
WA	Western Australia

DEFINITIONS

Term	Definition
Asset	A specific business entity owned, or partially owned by the Client, Contractor or subcontractor.
Audit	A formal, scheduled evaluation of an activity or asset with pre-determined objectives, criteria and protocols to test compliance against expectations, implementation and/or performance.
Business Continuity Plan (BCM)	BCM is an operational management activity. It describes a whole of business approach to ensuring critical business functions can be maintained or restored in a timely fashion, in the event of material disruptions. Its purpose is to minimise the environment, health and safety, financial, legal, reputation and other material consequences arising from an incident, and to ensure that there is a return to normal operations as soon as possible.
Crisis Management Team (CMT)	A team of nominated Tellus senior management based in Sydney and/or Perth who will, where required, augment the capability and skills of the Incident Management Team. The Crisis Management Team Leader is responsible for coordinating the necessary resources to support the Incident Management Team response and recovery efforts.
Crisis Management Plan (CMP)	A plan to enable an organisation to deal with a disruptive and unexpected event that threatens to harm the organisation, its stakeholders, or the general public. For Tellus, the CMP provides guidance on managing internal external stakeholders at the State level e.g. media and government.
Emergency	An unforeseen situation that requires immediate action to mitigate threats. An abnormal occurrence that can pose a threat to the safety or health of employees, customers or local communities, or which can cause damage to assets or the environment.
Emergency Management	~~The discipline dealing with risk and risk avoidance.~~ The management of the prevention, preparation and response to an incident focusing on preserving life, protecting the environment, preventing escalation and on regaining control (recovery) of an emergency situation to the extent that business can continue.
Emergency Plan	A plan for dealing with emergencies at a mine as required by the legislation (Mines Safety and Inspection Regulations 1995).
Emergency Operations Centre (ROC)	Safe, site or field facility, local to the incident from which the Emergency Response Team operates in an emergency. It is set up as a communication hub to the Incident Operations

Term	Definition
	Centre, where the coordination of the response effort and support for the incident response is provided.
Emergency Response Management Plan (ERMP)	A plan developed for a specific scenario containing a course of action to prevent harm to people and mitigate damage.
Employee Assistance Program	The PSP is typically invoked when an incident involves injuries or fatalities and is intended to provide guidance and procedures for providing support to personnel and their next-of-kin (NoK) who have been adversely impacted by an incident.
Facility Manager	The responsible person who is "on call" and who initiates the call out of the Incident Management Team. The Facility Manager is contactable via a central contact number and forms part of a rotational roster.
First Response Team	A team of nominated Tellus personnel who perform asset specific incident management/ support functions. The First Response Team is determined by the Emergency Response Team Co-ordinator upon activation of the Emergency Operations Centre.
Incident	A work-related event in which an adverse event has occurred or, could have occurred. An event or situation that results in damage or has the potential to cause injury, illness, financial loss or liability, or an environmental impact.
InControl	Online Module that is the hub of the online cloud-based Company-wide Environmental Health and Safety database INx.
Incident Management Team	A team of nominated Tellus senior management and other support personnel based in Sydney and Perth who provide support to the Emergency Response Team.
Monitor	The observation, tracking or measurement of activities resulting in recorded data or information for assessment of operating conditions, status or performance. To check, supervise, observe or record the progress of an activity, action or system in such a manner as to assess compliance or identify change.
Next-of-Kin	The nominated family member or contact person for Tellus employees or contractors as managed by Human Resources.
Non-conformance	An unacceptable deviation or a failure against internally or externally defined specifications or requirements related to a product, service or process. A departure from the requirements of a condition of approval, Client approvals, legislation or procedure.
On-Scene Commander	The senior person in charge at a scene of the emergency or incident who coordinates and leads the First Response Team. The On-scene Commander is responsible for directing and supervising all work and operations under the direction of the Emergency Response Team Co-ordinator.

Term	Definition
Reportable / Notifiable Incident	An incident that must be reported to a regulator or other authority.
Risk	In relation to any injury or harm, the probability of that injury or harm occurring.
Site ~~/ Field Area~~	The Sandy Ridge Facility and related project areas.
Stakeholders	Third-parties (other than Tellus) who have an interest commercially, socially or regulatory in the events at the Sandy Ridge Facility and related project areas.

1 INTRODUCTION

Tellus Holdings Ltd (**"Tellus"**) has Environmental Approval (refer to Ministerial Statement 1078) to construct and operate the Sandy Ridge Facility (**the "Facility"**). The Facility is located approximately 75 kilometres (km) north east of Koolyanobbing, and approximately 240 km by road north west of Kalgoorlie, in the Shire of Coolgardie, within the Goldfields Region of Western Australia.

The Facility is accessed from the Great Eastern Highway by the Mt Walton Road, which leaves the highway 96 km east of Southern Cross and 90 km west of Coolgardie. After travelling 90 km north on the Mt Walton Road, turn west onto the Mt. Dimer Road for 4.5 km, then north along the access road for another 4 km.

This plan has been developed to define the methods to be followed in the case of an emergency to limit the injury of people and minimize the damage to the environment, property, process and production. This includes but is not limited to:

- Fire (e.g. structural, vegetation, vehicular, chemical).
- Vehicle collision / interaction.
- Aircraft accident.
- Fall from height or to depth.
- Confined Space incident.
- Engulfment.
- Tyre Explosion.
- Chemical or fuel release (e.g. failure of containment).
- Natural event (e.g. cyclone, earthquake, flooding, lightning strike).
- Medical incident.
- Lost person(s).
- Fixed or mobile plant catastrophic failure.
- Electrical incident.
- Gas release or explosion.
- Loss of ventilation.
- Radiation exposure.
- Man-made events (e.g. bomb threats, armed hold ups).

This list is not exhaustive and foreseeable scenarios will be identified from a risk assessment during operation.

1.1 Aim

This Emergency Response Plan (**ERP**) acts as a guide to complement the Emergency Response Management Plan *(Document reference HSOO-1760150200-20199 and HSOO-1760150200-20200)* for staff at corporate and site level. It provides information concerning site responsibilities, actions, reporting requirements and resources available to ensure an effective and timely response is undertaken in the event of an emergency situation that involves Company employees, visitors, members of the public, contractors or Company assets.

This document was developed to help ensure compliance with Part 4, Division 3 "Emergency Preparation" of the WA *Mines Safety and Inspection Regulations 1995* as a guideline, and more specifically Regulation 4.30 "Preparation of emergency plan". This ERP is aligned with Australian Standard 3745-2010 Planning for emergencies in facilities (AS 3745-2010).

This **ERP** has been derived from the Sandy Ridge Corporate Emergency Response Management documents and contains detailed procedures to be adopted and actions required during all phases of emergency response and management at the Sandy Ridge Project. Tellus is committed to providing its employees with a safe and healthy workplace, by working towards the prevention of occupational incidents, illnesses and injuries.

This ERP applies to Tellus employees, visitors, contractors and members of the public who may visit the Sandy Ridge Facility. This ERP may be supported by supporting management plans such as a Bushfire Management Plan and Transport Management Plan, which will be implemented as determined by Project risk assessment or contractual requirements.

This ERP covers the controls Tellus will have in place at Sandy Ridge. Where appropriate, it will reference the support actions other Tellus locations will provide. These include Tellus Head Office (Sydney) and Tellus Perth Office.

At the Sandy Ridge Facility, the following PEARL principles apply during an emergency situation:

- People - Protection of human life.
- Environment - Protection of the environment.
- Assets - Protection and preservation of plant, product and equipment.
- Reputation - Protection of Tellus' reputation.
- Liability - Protection of Tellus' legal responsibilities.

All Company employees and contractors have the authority to shut down or cease operations to follow the above emergency priorities. Measures are in place to ensure a high level of readiness is maintained through regular programmed training exercises which include Senior Management members with specific funding in place to support this.

1.2 Statutory requirements

The Emergency Response Management Plan and guidance information contained in this document have been developed following a formal risk assessment of potential emergency incidents at Sandy Ridge Project.

This document was developed to help ensure compliance with Part 4, Division 3 "Emergency Preparation" of the WA Mines Safety and Inspection Regulations 1995, and more specifically Regulation 4.30 "Preparation of emergency plan". The Emergency Plan must be compliant with statutory requirements contained in:

- *Emergency Management Act 2005 (WA).*
- Emergency Management Act Regulations 2006 (WA).
- *Mines Safety Inspection Act 1994 (WA).*
- Mines Safety and Inspection Regulations (1995).
- *Occupational Safety and Health Act 1984 (WA).*
- Occupational Safety and Health Regulations 1996 (WA)
- ~~*Work Health and Safety Act 2016.*~~
- ~~Work Health and Safety Regulation 2016.~~
- *Radiation Safety Act 1975.*
- Radiation Safety Regulation 1983.
- *Dangerous Goods Safety Act 2004.*
- Dangerous Goods Safety (Explosives) Regulations 2007.
- Dangerous Goods (General) Regulations 2007.
- Dangerous Goods Safety (Storage and Handling of Non-explosives) Regulations 2007.
- *Environmental Protection Act 1986.*
- *Bush Fires Act 1954.*
- *Poisons Act 1964.*
- *Coroners Act 1996.*
- Code of Practice Guide for Major Hazard Facilities, March 2012, Safe work Australia.
- Code of Practice Emergency Management for Western Australia Mines – 2018.
- Australian Standard 3745-2010 - Planning for emergencies in facilities (AS 3745-2010).
- State Emergency Management Policy of Western Australia.
- Other relevant statutory requirements/ Standards.

This information is important to the safety of everyone associated with Sandy Ridge Project and is to be accessible and used by all personnel on site. This information must be communicated to all new employees through a formal induction process to ensure that the various requirements are understood and acknowledged.

1.3 Statutory authority

The statutory authority for any particular incident is dependent upon the type and location of the incident.

- On-site incidents will initially be responded to by Tellus' on-site Emergency Response Team (ERT), and only if the incident cannot be resolved or adequately dealt with by the ERT will external resources be requested to assist.
- In most cases, the Department of Fire and Emergency Services (DFES) will be the first external resource requested to attend for first-response support to the on-site ERT and the incident will transfer to their control. Exceptions may be for a radiation incident or only human injury (Department of Health, Radiation Health Branch or ambulance services respectively). If in doubt,

a request for external emergency response assistance should be directed to the 000 phone number.

- Once first-response actions have been completed, due to the varied nature of Acts applicable to activities on the site, notification of several authorities (e.g., DMIRS, WorkSafe, Radiation Health) is going to be required and they will need to determine who will be the statutory authority for the purposes of an investigation.

Refer to the Mines Safety & Inspection Act 1994 "Section 78 (3) Recording of occurrences in the record book" of the list of occurrences, which must immediately be reported to the District Inspector for the region by the Registered Manager or a nominated delegate.

1.4 Incident investigation team

There must be an incident investigation in the event of a near-miss or any greater form of incident~~serious injury or where a major incident has occurred~~.

Regulatory authorities (eg, DMIRS, Coroner, etc.,) may determine that they will conduct an incident investigation, in which case Tellus must provide all possible assistance and take direction from that authority and observe all laws with respect to incident site preservation and provision of information. In all cases, Tellus' internal incident investigation activities are secondary to that of the regulatory authority.

Where an incident has occurred, an investigation team will be assembled to carry out the investigation. ~~This will consist of approximately 4 to 6 people.~~ Representation on the investigation team will be commensurate with the actual or potential seriousness of the incident and may include some or all of the following:

- Employees or contractors involved.
- Employee safety representatives.
- The Crew Leader of the operations/area leading to the incident.
- Senior management.
- Relevant specialists.
- Safety and training coordinator.

The procedure for the investigation should include an investigation of:

- The basic event.
- The controls that would normally protect the event from occurring.
- Factors that contributed to the control failure.
- Detailed control failures.
- Corrective actions to prevent re-occurrence.

The incident investigation and report must be investigated to a depth of detail commensurate with the actual or potential seriousness of the incident. The status of corrective actions identified through incident investigations are to be tracked monthly to ensure compliance. The results of the incidents should also be discussed in detail in all safety meetings and posted on Notice Boards.

1.5 Incident investigation reporting

This report must be written up and include information on the causes of the incident and the actions that will be taken to prevent the recurrence.

The Facility Manager will prepare a monthly report of all incidents and progress on incident follow-ups and this should be circulated to all Tellus employees and contractors on site and reviewed as appropriate e.g. the monthly report includes information on safety statistics, these should be discussed at safety/toolbox meetings. There should be a uniform approach to tracking the status of actions arising from incidents.

1.6 Corrective actions

There needs to be corrective actions and recommendations that arise from Emergency Response. This may include:

- Meetings.
- Audits and inspections.
- Hazard observations.
- Complaints.
- Communication from the regulators and debriefs.
- Incidents.

1.7 Control authority

The Facility Manager or his nominated designate is the Control Authority for all employees and contractors on site.

1.8 Duties and responsibilities

This is outlined in the form of "Duty Cards" which are specified duties for key personnel involved in an Emergency. Refer Appendix A.

1.9 Notification of authority

The purpose of the Emergency Response Plan is to outline the procedure for notifying the Emergency Response team on the mine site and the exact advice to be given on contact, which is specified through the use of duty cards. The duty cards and the Emergency Management Plan must specify who is to notify authorities and under what conditions.

1.10 Distribution list

An up-to-date distribution list of all personnel/contractors will be maintained by the Emergency Services Officer (refer to Table 1-1). All personnel/contractors on the distribution list will be supplied with a copy of the Emergency Response Plan.

Personnel on the distribution list are responsible and required to ensure they keep themselves and personnel in their nominated areas familiar and updated should an emergency occur. The Emergency Services Officer is responsible for supplying updated copies to these persons allocated.

Table 1-1 Distribution list

Title	~~Tellus contact~~ Contact name	Location
Managing Director	Duncan van der Merwe	Sydney Office
Chief Operating Officer	Michael Ingram	Perth Office
General Manager, HSECQ	Richard Phillips	Sydney Office
Office Manager	Claudia Knights	Sydney Office
Office Manager	Cynthia Ingram	Perth Office
Technical Services Manager	Lincoln Morton	Perth Office
Compliance and Quality Manager	Nick Ballard	Sydney Office
Sandy Ridge Facility Manager	*To be confirmed*	Sandy Ridge Facility
Emergency Services Officer	*To be confirmed*	Sandy Ridge Facility
(add other site positions once recruited)	*To be confirmed*	Sandy Ridge Facility
HSECQ Manager (Sandy Ridge)	Julie Mahony	Perth Office
Radiation Safety Officer	*To be confirmed*	*To be confirmed*
Coolgardie Shire Council	HSE Manager (tbc)	Coolgardie Shire Council Office
WA Police Department	Regional Superintendent	Kalgoorlie / Coolgardie
WA Department of Fire and Emergency Services (DFES)	Superintendent Goldfields / Midlands	DFES Kalgoorlie Regional Office / DFES Northam Regional Office
Department of Mines Industry Safety and Regulation	District Inspector of Mines	Kalgoorlie

The persons in the distribution list above, Emergency Services and relevant Contractors are responsible for distributing controlled hardcopies of the Plan to others in their area of responsibility and for;

- Maintaining a register of persons to whom they have distributed controlled hardcopies of the Plan
- Distributing any amendments from time to time to those persons.
- Periodically validating that distributed controlled copies are the complete current version and issuing a controlled copy of the plan to new contractors and operations.

1.11 Emergency contact numbers

EMERGENCY

EMERGENCY NUMBERS		
FIRE / POLICE / AMBULANCE		000 or 112
KALGOORLIE POLICE		08 9021 9777
COOLGARDIE POLICE		08 9093 8400
SOUTHERN CROSS POLICE		08 9081 2100
KALGOORLIE / BOULDER FIRE STATION		08 9021 1044
KALGOORLIE HOSPITAL		08 9080 5888
SOUTHERN CROSS HOSPITAL		08 9081 2222
ROYAL FLYING DOCTOR SERVICE (KALGOORLIE)		1800 625 800
ROYAL FLYING DOCTOR SERVICE (SATELLITE PHONE)		08 9417 6389
WA POISON INFORMATION CENTRE		13 11 26
COOLGARDIE VOLUNTEER FIRE & RESCUE SERVICE		0412 859 582
SOUTHERN CROSS VOLUNTEER FIRE & RESCUE SERVICE		0427 491 294
TELLUS HOLDINGS LTD CONTACT NUMBERS		
Radiation Safety Officer	*To be confirmed*	0408 314 580
General Manager HSECQ	Richard Phillips	0439 202 507
Compliance & Quality Manager	Nick Ballard	0418 220 755
Legal Counsel	Jonathan Fisher	0411 688 384
Chief Operating Officer	Michael Ingram	0400 777 157
GM Project Development	Stephen Hosking	0439 444 406
GM Strategy, IT & Innovation	Jaime Livesey	0432 244 154
OTHER CONTACT NUMBERS		
Carina Mine	Site Office	08 6310 6222 / 08 6310 6245
Carina Mine	ERT	0467 657 580
Carina Mine	UHF Radio	Ch 40–Road / Ch 19-Mine
Western Australia Pollution Hotline		08 6364 7000
WA Environment Protection Authority		08 6364 7000
Dept of Mines, Industry Regulation and Safety		1800 7233 6463
Radiation Health		08 9388 4999
Chemistry Centre Perth		08 9422 9800
WA Health Direct (Medical Advice - non-urgent)		1800 022 222

2 GENERAL EMERGENCY PROCEDURES

This procedure covers the emergency response actions for the Sandy Ridge Project. Following a threat analysis of foreseeable emergency events, the plan was developed. These foreseeable emergencies are listed below with specific emergency plans developed for each of the following:

- Fire (e.g. structural, vegetation, vehicular, chemical).
- Vehicle collision / interaction.
- Aircraft accident.
- Fall from height or to depth.
- Confined Space incident.
- Engulfment.
- Chemical or fuel release (e.g. failure of containment).
- Natural event (e.g. cyclone, earthquake, flooding, lightning strike).
- Medical incident.
- Lost person(s).
- Fixed or mobile plant catastrophic failure.
- Electrical incident.
- Gas release or explosion.
- Loss of ventilation.
- Radiation exposure.
- Man-made events (e.g. bomb threats, armed hold ups).

This list is not exhaustive and foreseeable scenarios will be identified from a risk assessment during operations.

2.1 Key roles

Key roles referred to in this procedure may be filled by various personnel depending on the emergency. These roles and the people who may fill them are detailed in Table 2-1.

Table 2-1 Key roles in emergency response

Emergency response roles	Dayshift	Nightshift *Note, no nightshift operations at Sandy Ridge
Emergency controller	• Facility Manager. • Emergency Response Coordinator Site Medic Production Supervisor. • Maintenance Supervisor. • Health & Safety Coordinator.	As for day-shift. Personnel will be roused from the Village.
Communications officer	Person designated by Emergency Controller at Main Office Control Centre	As for day-shift. Personnel will be roused from the Village.
Other key personnel: • **ER Team.** • **First Aid.** • **ER Team Support (e.g. security muster, admin, etc.)**	• Shift crew. • Maintenance crew. • Office staff. • Medical staff.	As for day-shift. Personnel will be roused from the Village.

The roles assumed by individuals during an emergency may not conform exactly to the table above. Flexibility between roles is required based on the specific emergency situation.

2.2 Alarm raised

The alarm is raised by calling 'Emergency, Emergency, Emergency' over the defined UHF radio channel.

- For a fire - Attempt to put the fire out without endangering yourself and have someone raise the alarm via the Radio.
- For an injury - Administer first aid and have someone raise the alarm via the Radio.

2.3 Initial response - general

Following the emergency call, all personnel will maintain radio silence except when directed by the Emergency Controller. The emergency call will be responded to by any of the personnel listed as Emergency Controllers in the table above.

This person assumes the role of the Emergency Controller. A person with higher seniority as detailed in the table above may relieve the Emergency Controller if required.

The Emergency Controller will obtain the following detail from the person raising the alarm by requesting:

- Location of emergency
- Nature of emergency
- Number of personnel involved
- Nature of injuries
- Location of person raising the alarm
- Assistance required

The Emergency Controller will ensure that the person raising the alarm remains in constant contact.

2.4 Initial response – Emergency Controller

The Emergency Controller should assume control of the emergency situation and proceed to the Emergency Control Centre which is located in the Facility Administration Office.

The Emergency Controller should request one person to assist (if available) to act as a scribe to take notes during the emergency.

The Emergency Controller should announce over the defined UHF Radio Channel:

'This is an Emergency situation; radio communication is only to be made for emergency response'.

2.5 Initial response – all personnel

When notified of an emergency via the UHF radio communications, all personnel should not make radio calls unless instructed to by the emergency controller of if they have important information pertaining to the emergency and listen for further instructions.

If a partial or full evacuation is required, all personnel will follow the instructions of the Emergency Controller and evacuate to the designated emergency evacuation point.

2.6 Initial response – establishing a communications centre

The Emergency Controller must establish a communications centre and appoint a "Communications Officer".

At the Sandy Ridge Project Operation, the locations to be utilised as communications centres are:

- Facility Administration Office.
- Any light vehicle with radio contact and mobile telephone service.
- Village Administration Office.

Emergency communications should remain on the same radio channel over which it was originally called. Any personnel contacted on other radio channels should be asked to change immediately to the emergency channel.

The Emergency Controller will pass on all details of the incident to the Communications Officer.

If external emergency services are required (fire or ambulance) the Emergency Controller will be responsible for instigating the request.

The decision to request assistance from external resources is made by the Emergency Controller and shall take into consideration;

- The location of the incident (eg, distance from site, proximity to other resources)
- The number of people involved and the severity of injuries
- The time for external resources to arrive at the incident site
- The type of incident
- The level of information available from the incident site
- The availability of Tellus' Emergency Response Team

Appendix J of this document is the Mutual Aid Providers Register. This document shall be updated six monthly or whenever it is known that there is a change in the status of a potential or recorded mutual aid provider.

2.7 Emergency control

The shift supervisors should ensure that personnel are ready to respond to the instructions of the Emergency Controller.

The Emergency Controller shall determine whether the emergency situation may require the call out of the Emergency Response Team. This decision will be based on the available information. If in any doubt the Emergency Response Team are to be alerted immediately.

All mobile equipment on pit ramps when an emergency is called should proceed to either the top or bottom of the pit, make their equipment safe, shut down and await further instructions.

The Emergency Controller must ensure that all personnel within the vicinity of the emergency are informed of the situation and their equipment shut down.

A firefighting tender and site ambulance are located at the Facility Administration Office.

If external services have been requested ~~from Coolgardie or Kalgoorlie~~, the Emergency Controller must provide an escort for these vehicles within the Sandy Ridge Facility site to the emergency scene. An emergency meeting point is located at the ~~intersection Great Eastern Highway and the~~Sandy Ridge Facility front gate, adjacent to the Facility Office which is also the primary location for the emergency communication centre.

The route to the Facility from Great Eastern Highway via Mt Walton Road and the site entrance road is clearly sign-posted.

2.8 Emergency call out procedure

Once the Emergency Controller has determined that the Emergency Response Team needs to be called out, the following procedures must be followed:

- Using the Emergency Response team members 'Call out List', request all Emergency Response personnel to report to the Sandy Ridge Emergency Response Room at a prescribed time.
- Ensure back-up team is called and heading to site.
- Brief the Team Leader of the situation.
- The Emergency Controller will ring the Facility Manager and provide a status report of the situation.
- Once the equipment is in place, the Emergency Response Coordinator /ER Team Captain will brief the team of the situation and wait for instructions from the Emergency Controller or Facility Manager.
- Keep the team members together and keep the team calm.
- Once the team has left the Emergency Response Centre and back-up team has arrived, back-up team is to stay in the Emergency Response Centre until directed to do otherwise.

2.9 Evacuation procedures

All surface work places (i.e. offices, buildings etc.) at the Sandy Ridge Project will have evacuation procedures posted on walls or noticeboards. These advise where the area Muster Point is located and what persons should do in the event of an emergency evacuation. In all cases, a record of the names of persons who have evacuated must be recorded.

The **Muster Point Warden** or other competent person assigned the task must account for all employees and visitors in the area. This should be done using a muster area attendance form (Appendix D).

In the event of an evacuation, a competent person (e.g. Administration Officer) should be appointed with the task of collecting the Visitors Book so that the names of any visitors can be checked against the Evacuation Log.

2.9.1 Muster Point Wardens

The role of the **Muster Point Warden** is to take control of a local area evacuation to ensure that all persons are evacuated quickly to a safe location. **Muster Point Wardens** should be familiar with the layout of the buildings and areas for which they are responsible as well as all exit routes and muster points.

The operation of portable fire extinguishers and hose reels may be required to assist with the extinguishment of small fires.

In the case of an emergency, the **Muster Point Warden** should:

- Initiate the evacuation or any other procedures as advised by the **Emergency Controller.**
- Assist with the extinguishment of fires where early notification is given.
- Supervise the evacuation of allocated areas, buildings and the mine where necessary.
- Complete Evacuation Log and submit to **Emergency Controller**.
- Advise the **Emergency Controller** of any actions taken or required.

2.9.2 Surface Evacuation Procedure

These Evacuation Procedures should generally be followed for all surface evacuation situations (e.g. fire in office building):

- Raise the alarm by following the Emergency Response Procedure
- Inform your Supervisor of the emergency. Should your Supervisor not be available, contact the most senior manager available.
- Warn other people in the area.
- Evacuate the building or area immediately if or when instructed to by your supervisor (or the most senior person in the area at the time) or if you hear the evacuation siren.

When told to evacuate:

- Follow any instructions issued by the **Muster Point Warden**.
- Proceed to the Muster Point for your area by the most direct and safest route.
- Use "Plan of Escape" routes displayed on all external doors.
- Inform anyone you see of the directive to evacuate.
- If initially downwind of the hazard, move across wind to get out of the plume of gas or smoke and then move upwind.

The **Muster Point Warden** (or other appointed person) will:

1. Open up the Muster Point Emergency box.
2. Put on the Muster Point Warden vest.
3. Perform a head count and fill in the muster area attendance form at the muster point.
4. The muster area attendance form will be passed on to the emergency controller.
5. Note any missing persons and their possible locations.
6. Contact emergency personnel. Ensure that no one leaves the Muster Point without permission from the Emergency Controller.

2.10 Emergency all clear

Once the emergency response effort has been completed, a signal should be provided to all personnel to "stand down" and report back to the **Emergency Controller**. This is termed the "All Clear".

The "All Clear" can only be issued by the **Emergency Controller**. The "All Clear" is issued when the Emergency Controller is satisfied that the emergency situation is under full control and able to be handed over to operations personnel for repairs or remedial action.

Once the emergency is given the "All Clear", the Emergency Controller will broadcast over UHF Radio Channel XX:

> ***'Attention all personnel, the emergency situation is over. Please await further instructions from your shift supervisor.'***

Once the "All Clear" has been issued, all emergency personnel should stand down and hand over control of essential services to operational personnel. This should be followed by the required de-briefing sessions

3 SPECIFIC INCIDENT RESPONSE

3.1 Light vehicle incident

Accidents involving light vehicles on site will require response from site personnel. The presence of leaking fuel and possibility of having to cut persons out using hydraulic cutting equipment may require an Emergency response call-out.

Main threats:	• Injury to employee/s • Damage to equipment
Alarms:	• Designated UHF Radio Channel.
Response:	• Initiate appropriate emergency response (first-aid/ medical/ fire/ vehicle extrication) Notify Facility Manager. • Notify Contractor Manager, if contractor personnel involved Secure area using site personnel. • Facility Manager to initiate Emergency Management Team, if required. Initiate Emergency Duty Card system. • Notify Police. • Notify Kalgoorlie Medical Centre. • Report to Department of Mines, Industry Regulation and Safety if on company lease or involves mining equipment. • Maintain security of affected area until the Facility Manager or Department of Mines, Industry Regulation and Safety give "All Clear". • Initiate appropriate investigation (may need to maintain security of area until completed).
External help:	• Royal Flying Doctor Service (Medical Evacuation) Kalgoorlie Medical Centre. • Mutual Aid Providers. • DFES

3.2 Bus accident

A bus accident involving employees on the Facility access road or main roads in the near vicinity is likely to require a response from site personnel. A bus is likely to be carrying a large number of people (up to 20); a major medical emergency could result.

The presence of leaking fuel and possibility of having to cut persons out using hydraulic cutting equipment may require the Emergency Response call-out.

Main threats:	• Injury to employee(s) or another person(s) • Impact on other employees/public/local • Community damage to equipment • Impact to company image/ reputation if accident involves members of the public
Alarms:	• Designated UHF Radio Channel. • Kalgoorlie Police.
Response:	• Initiate appropriate emergency response (first-aid/ medical/ fire/ triage/ vehicle extrication). • Notify Facility Manager and Registered Manager. • Notify Contractor Manager, if contractor personnel involved. • Secure area using site personnel. • Facility Manager to request Emergency Response Team, if required. • Facility Manager to initiate Emergency Management Team, if required. • Initiate Emergency Duty Card system. • Notify Police. • Advise Kalgoorlie Medical Centre of possible need for RFDS assistance (if multiple casualties). • Report to Department of Mines, Industry Regulation and Safety if involves mining equipment. • Notify Mutual Aid providers, if require additional assistance with transporting injured persons. • Maintain security of affected area until the Facility Manager or Department of Mines, Industry Regulation and Safety gives "All Clear".
External help:	• Mutual Aid Providers. • RFDS (Medical Evacuation). • Kalgoorlie Medical Centre Kalgoorlie Police. • Kalgoorlie town management. • DFES

3.3 Surface mobile equipment accident

Accidents involving Surface Mobile Equipment (e.g. trucks, cranes, loaders, dump trucks, etc.) on site will require response from site emergency personnel. This type of incident has potential to result in multiple casualties (e.g. if truck collides with light vehicle/s) and may require the use of cutting or heavy lifting equipment to extricate casualties. The presence of leaking fuel and possibility of having to cut persons out using hydraulic cutting equipment may require Emergency Response call-out. Leaking fuel may also pose an environmental risk.

Main threats:	• Injury to truck driver/ other employees • Damage to equipment • Environmental impact (e.g. if significant fuel loss)
Alarms:	• Designated UHF Radio Channel.
Response:	• Initiate appropriate emergency response (medical/ fire/ hazmat/ rescue) • Isolate any energy sources or contain hazardous substances (e.g. power if hit power line, gas, diesel, reagents etc.) • Secure area using site personnel. • Notify Facility Manager. • Facility Manager to request Emergency Response Team, if required. • Facility Manager to initiate Emergency Management Team, if required. • Initiate Emergency Duty Card system. • Notify Contractor Manager if accident involves contractor employees or require assistance with extrication (e.g. use of heavy lifting equipment) • Notify Mutual Aid providers or DFES, if require additional assistance with transporting injured persons or extrication. • If rubber-tyred equipment strikes power line or tyres subject to heating or fire, park up in secured/ isolated area for 24 hours. • Notify Police. • Advise St. Johns Ambulance. • Advise Kalgoorlie Medical Centre of possible need for RFDS assistance. • Report to Government Authorities (DMIRS and WorkSafe if so advised by DMIRS). • ~~Department of Mines, Industry Regulation and Safety (if Dangerous Goods involved).~~ • Department of Environmental Protection (if environmental impact results). • Maintain security of affected area until Facility Manager or Department of Mines, Industry Regulation and Safety give "All Clear". • Initiate appropriate investigation (may need to maintain security of area). • Arrange clean-up using crane, low-loader etc.
External help:	• Mutual Aid Providers. • Chemical Supplier/ Transport Company (for information) RFDS (Medical Evacuation). • Kalgoorlie Medical Centre.

3.4 General delivery truck accident

An accident involving a general delivery truck should be treated as a heavy equipment accident. The presence of potential hazardous substances should be determined as part of the response. Leaking fuel and possibility of having to cut persons out using hydraulic cutting equipment may require Emergency Response call-out. Leaking fuel may also pose an environmental risk.

Main Threats:	• Injury to truck driver/ other employees • Damage to equipment • Environmental impact (e.g. if hazardous substances on board)
Alarms:	• Designated UHF Radio Channel. • Police • Fire & Rescue Service
Response:	• Secure area using site personnel • Determine if any hazardous substances are being carried (e.g. chemicals, radioactive sources, poisons, compressed gases etc.). • Initiate appropriate emergency response (first-aid/ medical/ fire/ triage/ Hazmat/ vehicle extrication). • Notify Facility Manager. • Facility Manager to request Emergency Response Team, if required. • Facility Manager to initiate Emergency Management Team, if required. • Initiate Emergency Duty Card system. • Notify Contractor Manager if accident involves contractor employees or require assistance with extrication (e.g. use of heavy lifting equipment) • Notify Police. • Advise Kalgoorlie Medical Centre of possible need for RFDS assistance (if several casualties). • Report to Government Authorities (DMIRS, WorkSafe, Rad. Health if relevant). • ~~Report to Department of Mines, Industry Regulation and Safety (Perth Inspectorate).~~ • Department of Environmental Protection (if environmental impact results). • Maintain security of affected area until Facility Manager or DMIRS give "All Clear". • Arrange clean-up using crane, low-loader etc.
External help:	• Mutual Aid Providers. • Chemical Supplier/ Transport Company (for information). • RFDS (Medical Evacuation). • Kalgoorlie Medical Centre. • DFES ~~– (WA Fire & Rescue Service)~~

3.5 Open pit wall/ramp failure

Open pit wall or access ramp failures are often preceded by cracking and ground movements, which may be visible. Regular monitoring of pit walls crests and berms may help identify any potential failures.

If a sudden failure occurs, evacuation to a safe place within the pit itself is usually the best course of action. Egress from the pit can then be made once an access way is re-cut. The possibility of having to evacuate injured persons quickly over the pit wall (if no vehicle access) may require Emergency Response call-out.

Main threats:	• Injury to employees • Disruption to production • Damage to Equipment
Alarms:	• Designated UHF Radio Channel.
Response:	• Initiate appropriate emergency response (first-aid/ medical/ search/ pit evacuation/ rope rescue etc.). • Secure area using site personnel. • Notify Facility Manager. • Facility Manager to request Emergency Response Team, if required. • Facility Manager to initiate Emergency Management Team, if required. • Initiate Emergency Duty Card system. • Notify Geotechnical Advisor Notify Police (if potential fatality). • Advise Mutual Aid partners, if require assistance (e.g. additional rescue equipment etc.). • Advise Kalgoorlie Medical Centre of possible need for RFDS assistance (if several casualties). • Notify Contractor Manager, if contractor personnel involved. • Report to Department of Mines, Industry Regulation and Safety ~~(Perth)~~. • Maintain security of affected area/s until Facility Manager and DMIRS give "All Clear". • Initiate appropriate investigation (may need to maintain security of area until completed).
External help:	• Mutual Aid Providers. • Open Pit Mining Contractor. • Geotechnical Expert (independent advice/ assist with recovery plan).

3.6 Surface building fire

A surface building fire can occur at any location where fuel and ignition sources exist. The greatest impact of a surface fire is where any fire is likely to cause a disruption to production. Locations for significant fire potential are electrical control rooms, workshops and reagent/ fuel storage areas.

Main threats:	• Injury to employees. • Loss of company assets. • Adverse impact on company image. • Disruption to production.
Alarms:	• Security/ Fire Alarms. • Designated UHF Radio Channel.
Response:	• Initiate appropriate emergency response (first-aid/ medical/ assist evacuation/ BA rescue etc.). • Evacuate area immediately to muster point - TAKE NOTE OF WIND DIRECTION. • Isolate any energy sources or hazardous substances (e.g. power, gas, diesel, reagents etc.). • Secure area using site personnel. • Notify Facility Manager. • Notify Contractor Manager, if contractor personnel involved. • Facility Manager to request Emergency Response Team, if required. • Facility Manager to initiate Emergency Management Team, if required. Initiate Emergency Duty Card system. • Notify Police (if potential fatality). • Advise Kalgoorlie Medical Centre of possible need for RFDS assistance (if multiple casualties). • Report to Government Authorities (DMIRS and WorkSafe if advised by DMIRS). • ~~Department of Mines, Industry Regulation and Safety (Perth Inspectorate).~~ • Department of Environmental Protection (if environmental impact results). • Maintain security of affected area until Facility Manager or DMIRS give "All Clear". • Initiate appropriate investigation (may need to maintain security of area until completed).
External help:	• Mutual Aid Providers. • DFES ~~– (WA Fire & Rescue Service).~~ • Chemical / Reagent Suppliers (for specific firefighting advice).

3.7 Chemical spill/HAZMAT

A chemical spill could result in the release of toxic agents and potential exposure. Containing uncontrolled hazardous materials is a complex and challenging task requiring a range of different response methods to ensure personnel safety and protect the environment.

Main threats:	• Injury to employees. • Disruption to production. • Environmental impact.
Alarms:	• Designated UHF Radio Channel.

Response:	• Secure and enforce an exclusion zone.
	• Notify Facility Manager and Registered Manager.
	• Facility Manager to request Emergency Response Team for HAZMAT emergency response.
	• Determine substances involved.
	• Obtain SDS to provide information on the safe handling and use of chemicals and/or mixtures of chemicals in the workplace. The main information outline in SDS includes:
	  ○ Identification of the product (including exposure standards).
	  ○ Properties of the product (including its reactivity and the chemical's fire/explosion hazards).
	  ○ Engineering controls.
	  ○ Methods for safe storage and transport.
	  ○ Correct personal protection equipment.
	  ○ Health hazard information and first aid instructions
	• Notify Contractor Manager.
	• Notify Police.
	• Advise Kalgoorlie Medical Centre (if casualties).
	• Report to Government Authorities (DMIRS, DFES, WorkSafe).
	• Report to ~~Department of Mines, Industry Regulation and Safety (Perth Inspectorate)~~ Department of Environmental Protection (if environmental impact results) Coordinate clean-up with HAZMAT team.
	• Maintain security of affected area until Facility Manager or DMIRS give "All Clear".

External help:	• Mutual Aid Providers. • DFES ~~– (WA Fire & Rescue Service).~~ • Chemical/ Reagent Suppliers.

3.8 Malicious damage

Malicious damage can involve any intentional act by an employee or contractor that is intended to disrupt operations or damage equipment or property.

Examples are setting fires (arson), sabotaging equipment, opening valves to chemicals, initiating explosives etc. Malicious intent is often difficult to identify as the deliberate act may be well concealed. Any suspicion that acts may be deliberate should be notified to the police for formal investigation.

Main threats:	• Injury to employees • Loss of company assets (if fire/ explosion occurs) • Disruption to production
Alarms:	• Designated UHF Radio Channel.
Response:	• If fire or explosion, evacuate affected area/s • Initiate appropriate emergency response (first-aid/ medical/ fire/ Hazmat response/ assisted evacuation etc.) • Isolate any energy sources or hazardous substances (e.g. power, gas, diesel, reagents etc.) • Secure area using site personnel. • Notify Facility Manager. • Facility Manager to request Emergency Response Team, if required. • Facility Manager to initiate Emergency Management Team, if required. • Initiate Emergency Duty Card system. • Notify Police. • Await Police instructions/ arrival to investigate. • Assist Police with investigation. • Report any injuries to DMIRS. • Maintain security of affected area/s until Police give "All Clear"
External help:	• Mutual Aid Providers

3.9 Working at height incident

Personnel work at heights on a daily basis. Should a person fall, the person may be trapped or suspended by their fall arrest equipment and it may be necessary to undertake a "height rescue" using site personnel.

This type of event could involve a person being suspended from fall arrest equipment and being seriously injured or otherwise incapacitated. The possibility of having to extract injured persons (possibly using rope rescue) will require Emergency Response call-out.

Main threats:	Injury to employees/ response personnel
Alarms:	• Designated UHF Radio Channel.
Response:	• Assess situation to identify appropriate rescue method (e.g. rope rescue, use of crane with man-basket/ cherry picker etc.) • Isolate any energy sources (e.g. power) or hazardous substances, if required • Initiate appropriate emergency response (first-aid/ medical/ rope rescue/ call for back-up equipment etc.) • Notify Facility Manager and Registered Manager • Facility Manager to request Emergency Response Team. • Facility Manager to initiate Emergency Management Team, if required. • Initiate Emergency Duty Card system. • Notify Contractor Manager, if contractor personnel involved • Notify Police (if potential fatality). • Advise Kalgoorlie Medical Centre. • Report to ~~Department of Mines, Industry Regulation and Safety (Perth)~~DMIRS and WorkSafe if directed by DMIRS • Maintain security of affected area until Facility Manager and DMIRS give "All Clear". • Initiate appropriate investigation (may need to maintain security of area until completed).
External help:	• Mutual Aid Providers • Royal Flying Doctor Service (Medical Evacuation) • Crane or Cherry-picker Contractor

3.10 Inrush into open pit

An inrush of water or mud into an open pit is only likely to occur following a major flood event or wall failure. Establishment of an evacuation process in case of major rainfall may alleviate the need for an emergency response.

If a sudden inrush does occur, evacuation from the pit or moving to a safe place within the pit itself is the best course of action. This will depend on the location of the inrush and volume of material involved. Egress from the pit can then be made once the inrush has stabilised. The possibility of having to evacuate injured persons quickly over the pit wall (if no vehicle access) may require Emergency Response call-out.

Main Threats:	• Injury to employees • Disruption to production
Alarms:	• Designated UHF Radio Channel. • Monitoring weather radar
Response:	• Initiate appropriate emergency response (first-aid/ medical/ search /pit evacuation/ rope rescue etc.). • Secure area using site personnel. • Notify Facility Manager. • Facility Manager to request Emergency Response Team, if required. • Facility Manager to initiate Emergency Management Team, if required. • Initiate Emergency Duty Card system. • Notify Contractor Manager, if contractor personnel involved • Advise Kalgoorlie Medical Centre. • Notify Police (if potential fatality). • Advise Mutual Aid partners, if require assistance (e.g. additional pumps etc.). • Advise Kalgoorlie Medical Centre of possible need for RFDS assistance (if several casualties). • Report to Department of Mines, Industry Regulation and Safety ~~(Perth Inspectorate)~~. • Maintain security of affected area/s until DMIRS give "All Clear". • Initiate appropriate investigation (may need to maintain security of area until completed).
External help	• Mutual Aid Providers. • Equipment Hire Companies (pumps to de-water pit).

3.11 Building/infrastructure collapse

Building or infrastructure collapse can be the result of a seismic event, explosion or major structural failure. If collapse occurs, the immediate response should be to evacuate the area to a safe distance and wait for expert assistance.

Main threats:	• Injury to employees • Damage to infrastructure/ assets
Alarms:	• Area Evacuation Alarms • Designated UHF Radio Channel.
Response:	• Initiate area evacuation alarms & evacuate to safe locations (e.g. designated Muster points may be too close). • Secure area at safe distance using site personnel. • Initiate appropriate emergency response (first-aid/ medical/ assisted evacuation/ firefighting/ rescue). • Notify Facility Manager. • Notify Contractor Manager, if contractor personnel involved • Facility Manager to request Emergency Response Team, if required. • Facility Manager to initiate Emergency Management Team, if required. • Initiate Emergency Duty Card system • Notify Police (if fatality). • Advise Kalgoorlie Medical Centre. • Advise Kalgoorlie Medical Centre (possible need for RFDS assistance if several casualties) • Report to ~~Department of Mines, Industry Regulation and Safety (Perth)~~DMIRS and WorkSafe if directed by DMIRS. • Maintain security of affected area until Facility Manager and DMIRS give "All Clear".
External help:	• Mutual Aid Providers • DFES ~~– (WA Fire & Rescue Service)~~ • RFDS (Medical Evacuation) • Police

3.12 Potential tyre fire/explosion

Tyre fires or explosions can result when equipment or vehicle tyres are heated due to welding/ cutting, an equipment or vehicle fire, contact with power lines or heating due to mechanical failure or damage (e.g. operating with deflated tyre, brake failure, rubbing on guards etc.).

A tyre explosion can cause devastating results, particularly for large earthmoving equipment tyres. Tyre explosions are unpredictable and may occur even if tyres are deflated and there are no visible signs of fire or heating. Evacuation of personnel to a safe distance (at least 500 metres) and sealing off the area for 24 hours should occur if there is any likelihood of tyre fire or explosion.

Where possible, special areas should be identified and designated as "emergency park-up areas" in case equipment or vehicles hit power lines or are suspect of having over-heated tyres.

Main threats:	• Injury to employees • Loss of company assets (if explosion occurs)
Alarms:	• Designated UHF Radio Channel.
Response:	• Isolate and de-energise any energy sources (e.g. power if equipment has hit power line) using Shift Electrician. • Instruct equipment operator/ driver to park-up equipment/ vehicle in designated safe location (if possible) and leave area immediately. • Evacuate area inside "safe" distance (at least 500 metres). • Secure area using site personnel (control points at least 500 metres away). • Notify Facility Manager and Registered Manager. • Notify Contractor Manager, if contractor personnel involved. • Facility Manager to request Emergency Response Team, if required. • Facility Manager to initiate Emergency Management Team, if required. • Initiate Emergency Duty Card system. • Report to DMIRS. • Maintain secure access to park-up site or tyre location for 24 hr. • Develop "safe approach" strategy. • Initiate appropriate investigation (may need to maintain security of area until completed).
External help:	• Mutual Aid Providers. • DFES ~~– (WA Fire & Rescue Service).~~ • RFDS (Medical Evacuation).

3.13 **Bushfire**

A bushfire can occur at any location where a sufficient fuel loading and ignition sources exist. The greatest impact of a bush fire is where any fire is likely to cause a disruption to production and damage to site infrastructure.

Main threats:	• Injury to employees • Damage to or loss of infrastructure/ assets
Alarms:	• Observation of smoke or fire across the designated UHF Radio Channel.
Response:	• Notify Contractor Manager. • Follow instructions to withdraw to a designated safe area prior to the arrival of the bushfire • ~~Any explosives or detonators situated outside shall be promptly placed inside the magazine and locked up (or removed to a safe location)~~ • Isolate any energy sources or hazardous substances (e.g. power, gas, diesel, reagents etc.) • Facility Manager to request Emergency Response Team, if required. • Facility Manager to initiate Emergency Management Team, if required. • Refer to Bushfire Management Plan.
External help:	• Mutual Aid Providers. • DFES ~~– (WA Fire & Rescue Service).~~ • Police.

3.14 Thunderstorms and dust storms

Lightning strikes and strong winds associated with these storms can cause damage to buildings and machinery.

Main threats:	• Injury to employees • Damage to or loss of infrastructure/ assets
Alarms:	• Storm front observed, or thunder heard • Weather radar • UHF Radio Channel XX
Response:	• Notify shift supervisor if any lightening observed or storm front closing in. • Monitor weather radar or allocate someone to do so • Advise all personnel of possible storm approaching • Notify Facility Manager, if required • Notify Contractor Manager, if required
External help:	• BOM Website

3.15 Aerodrome/aviation incident checklist

The Sandy Ridge facility is serviced by the Mount Dimer Aerodrome, located approximately 30km west of the facility along the Mt Dimer Road. This aerodrome is owned by Golden Iron Resources, and Tellus has an agreement to use and maintain the aerodrome.

Details of the aerodrome are as provided in Appendix 9.8.

An accident or serious incident involving an aircraft should be treated as a major incident and an immediately reportable matter. The potential for such an event may result in mass casualties and also the presence of hazardous substances. Emergency Response call out will be essential as will the need to notify external authorities. Leaking fuel may also pose an environmental risk.

Main Threats:	• Injury to employees • Damage to or loss of infrastructure/ assets • Disruption to production • Environmental impact
Alarms:	• Designated UHF Radio Channel. • Security/Fire Alarm. • Police / Fire Department.
Response:	• Initiate appropriate emergency response. • Initiate external response by calling 000. • Secure area using site personnel. • Notify Facility Manager. • Facility Manager to request Emergency Response Team. • Facility Manager to initiate Emergency Response Team. • Initiate Emergency Duty Card System. • Notify Contractor Manager, if contractor personnel involved. • Advise Mutual Aid partners if assistance required. • Advise RFDS if assistance is required. • Maintain security of area until "All Clear" is given by appropriate authorities.
External help:	• DFES. • Police. • Ambulance. • Mutual Aid Partners. • RFDS (Medical Evacuation).

Refer to Sandy Ridge Project Emergency Information Directory page for Contact Numbers

4 LIAISING WITH THE MEDIA

In the event a serious incident occurs on site, e.g., a serious injury or environmental spill, the Tellus Project Manager must initially confer with the Tellus Sydney – Managing Director's office to help provide information (neutral) for media releases.

The Tellus Managing Director is the only person authorised to release media statements. Any media personnel must have written approval from the Managing Director prior to entering the Sandy Ridge Project site. The Managing Director will conduct press releases at his discretion. All liaisons with the Media shall be in compliance with the Emergency Response Procedures – Media Response Reception and Office Staff.

In the event that external emergency services have taken control of an incident or site, media releases shall be coordinated with the agency of the external emergency services.

5 EMERGENCY INCIDENT DEBRIEFING

Debriefing of all personnel involved with an emergency provides for any exchange of experiences and views during which the effectiveness of the emergency response effort can be reviewed.

The debriefing should not be a blaming session. The objective is to assess the efficiency of the emergency response operation and associated procedures as they were applied to the particular emergency and identify opportunities for improvement.

5.1 What to debrief

A de-brief should be conducted for any incident that required formal emergency response.

5.2 When to debrief

A de-brief should be convened by the **Emergency Controller** and be held within 48 hours of the conclusion of the emergency. That is, before detail of the emergency is forgotten, but after the emotional impact has subsided.

5.3 What to cover in the debrief

Information processing:

- Was it effective?
- Were channels correctly used?
- What were the results?

Information received:

- When was the incident identified and by whom?
- Was the incident correctly assessed?
- Was potential to expand identified?

Planning:

- Were all options to resolve the incident identified?
- Was the best course of action chosen?
- Was the control plan effective?
- Were people able to respond to the plan?

Control:

- Who was in control?
- Did the control structure work?
- How good was the internal communication?
- Were external emergency services involved and how well did it work?

Communication Systems:

- How well did they work?
- Was the equipment/ hardware sufficient and work effectively?

Response to procedures:

- Did people do as they were required and according to procedure (e.g. follow Duty Cards), or was there a degree of panic?

Hand over:

- Did this work effectively?
- What were the problems?

Reporting:

- Were all important parties kept informed?
- What were the failings?
- What improvements are required?

Media:

- Was media relations/control effective?
- What improvements are required?
- The results of the De-brief should be recorded by the **Communications Officer** and any actions arising from the de-brief be recorded into the site action plan management system.

6 REVIEW AND IMPROVEMENT

This Surface Mining Emergency Response Procedure will be reviewed at least annually to ensure it remains up to date. The review will be based on an analysis of the types of incidents that are likely to occur, and the appropriate emergency response required.

6.1 Training

Type of training	Proposed dates	Persons to attend
Area Emergency Plan Overview	Annually	Registered Manager, Safety Advisor
Basic Fire Prevention & Use of Fire Extinguishers	Annually	All employees
Emergency Response Training	Monthly – Maintenance Annually - Compliance	ERT

6.2 Site exercises

Type of exercise	Proposed dates	Persons to be involved
Mock Evacuation Drills	Refer to Compliance Schedule	All Personnel on shift
Mock Full Emergency Drills	Refer to Compliance Schedule	All Personnel on shift
External emergency services coordination exercise	Annually	ERT

6.3 Tests and inspections

Type of inspection/test	Proposed frequency	Persons responsible
Safety Showers & Eyewash Stations	Weekly	Emergency Services Officer
Fire Extinguishers	Six Monthly	Emergency Services Officer
Refer to maintenance Schedule for Vehicle Inspections	Annually	Maintenance Personnel
Alarms	Weekly – Thursdays at 3pm	Facility Manager
Emergency Response Equipment	Weekly	Emergency Services Officer
Currency of Mutual Aid Register	Six Monthly	Emergency Services Officer
Currency and relevance of ERT training	Six Monthly	Facility Manager

6.4 Review of area emergency plan

Type of audit/ review	Proposed dates	Person responsible
Annually review	TBA	Facility Manager

7 RECORDS MANAGEMENT

All records from emergency exercises or real incidents are kept in the Sandy Ridge Facility Administration office.

8 APPENDICIES

APPENDIX A - DUTY CARDS

DUTY CARD 1: EMERGENCY RESPONSE COORDINATOR

Performed by: Facility Manager

Reports to: Chief Operating Officer (initial contact) and Incident Management Team Response Team Leader (ongoing communication)

Role

1. Responsible for the effective leadership of the Emergency Response Team from the ROC.
2. Responsible for the management of the emergency response at the Sandy Ridge Facility.
3. Ensure that all necessary support is provided to the Sandy Ridge Facility.
4. Ensures effective communications are established with all appropriate internal and external parties.

Responsibilities

Pre-incident:

1. Remain contactable while on duty and adhere to the zero drug and alcohol policy requirements.
2. Nominate a delegate as required in the event of absence.
3. Attend all training activities organised for the Emergency Response Team.
4. Remain familiar with responsibilities within the Emergency Response Team and Emergency Response Coordinator duties.

Immediate actions:

1. Implement the Sandy Ridge Facility Emergency Response Plan (ERP) immediately and assign roles (build the team for the situation).
2. Nominate and deploy person to meet with Emergency Services at the relevant location.
3. Ensure the Emergency Operations Centre has been activated and setup.
4. Confirm that ERT members have been contacted and are attending the EOC.
5. Appoint a Log Keeper and ensure a log of events is commenced as soon as possible.
6. Establish clear, uninterrupted lines of communications with the affected site and the On-Scene Commander.
7. Establish and clarify the details of the emergency and then provide ongoing assistance and guidance to the On-Scene Commander at site.
8. Brief all ERT members on factual information and the current status of the emergency.
9. Ensure ERT members are fully aware of their respective roles and responsibilities.
10. Assess need for senior management to attend the Facility. Check IMT and/or CMT for further guidance.
11. Consult with the GM HSECQ as to the emergency classification level and determine if the emergency is to be escalated to IMT and CMT.

During incident

1. Establish ERT relief/shift arrangements as necessary.
2. Monitor and ensure effectiveness of information flow to/from the Sandy Ridge Facility.
3. Communicate on a regular basis with the On-Scene Commander and request regular situation reports. Set call-back times so as not to detract from the response efforts.
4. Continually assess the emergency to meet any changes in the situation.
5. Ensure all personnel are accounted for and that their welfare is monitored.
6. Obtain details of any personnel injured.
7. Confirm that the Emergency Services are attending/are in attendance.
8. If warranted ensure that the emergency site is cordoned off so as not to contaminate any evidence that may be required.
9. Conduct regular briefings with ERT to keep all informed of emergency status and forward planning process.

10. As required – provide situation reports to the Chief Operating Officer and IMT.
11. Ensure all need-to-know Company and Tellus personnel have been notified of the emergency. If the IMT and CMT have been activated; ascertain its role, location and point of contact.
12. Ensure the Log Keeper and ERT Status Board are up to date.
13. Identify potential problem areas and issues that may arise directly or indirectly due to an ongoing response i.e. risk and exposure to personnel/environmental/ company assets and consider production/commercial impacts.
14. Consider site human resources and welfare issues resulting from the emergency and take appropriate action.
15. Because of an emergency situation, assess site security arrangements.
16. Ensure the ERT and all of its supporting functions continue to operate effectively.
17. Ensure a complete filing system of documents is established and all documents pertinent to the emergency and the response are collected, recorded and securely managed stored until they can be uploaded to SharePoint and/or INx.

Post-incident

1. In consultation with the On-Scene Commander ensure that all personnel have been accounted for and that it is safe to resume normal operations.
2. Ensure all actions have been closed out and the emergency log completed.
3. Brief all ERT members of the termination of the emergency.
4. Ensure the termination of the emergency is communicated to all personnel involved.
5. Consider what investigations will be appropriate in relation to the emergency.
6. Conduct a detailed debrief with the ERT to ensure all issues, actions and lessons learnt are captured
7. Ensure the On-Scene Commander provides a detailed debrief report that includes issues arising from the assistance provided by the ERT and external parties i.e. Emergency Services.
8. Ensure that a responsible person has been delegated the role of commencing an investigation into the emergency and is provided with the necessary support.

DUTY CARD 2: ERT LOG KEEPER

Performed by: Nominated staff member

Reports to: Emergency Response Coordinator

Role

1. Responsible for the efficient recording of all emergency information, requests, actions, decisions, strategies and relevant information in the emergency response log.
2. Provides administration support to the ERT and undertake other duties as directed by the ERC.

Responsibilities

Pre-incident:

1. Attend all training activities organised for the ERT.
2. Remain familiar with responsibilities within the ERT and Log Keeper duties.

Immediate actions:

1. Assemble at the on-site EOC and receive a detailed briefing on the emergency.
2. Perform the setup of the EOC and all facilities
3. Obtain briefing and likely requirements of the role.
4. Establish as soon as possible the Emergency Log and record all matters in a chronological and concise manner.
5. Utilise a desktop computer, laptop or tablet to electronically record the Emergency Log and if possible display the log with a data projector.
6. Ensure ERT members are aware of the emergency document flow process.
7. Prepare the ERT status and information boards for recording, if electronic whiteboards are used ensure copies are made prior to the removal of any information.
8. Act as a 'recording secretary', taking meeting minutes when requested.
9. Remain focused on the log keeping role but assist the ERT when possible.

During incident

1. As the recording role is critical - DO NOT get involved in any activities or roles other than on this duty card unless directed by the ERC
2. Continually review the Emergency Log for accuracy and if recording by electronic means, ensure that the data being entered is saved or backed-up
3. As requested, copy or print off log sheets for ERT members and mark the log sheet as an uncontrolled copy.

Post-incident

1. On advice from the Emergency Response Coordinator, complete all necessary log keeping and administration requirements.
2. Collect and collate all personal records and log sheets from all ERT members.
3. Participate in the ERT debrief.
4. Assist with the restoration of the EOC and secure filing of all records.

DUTY CARD 3: ERT LOGISTICS OFFICER

Performed by: Nominated staff member.

Reports to: Emergency Response Coordinator.

Role

1. Manage ERT related support and service activities for the emergency response.
2. Responsible for coordinating personnel, equipment, facilities and materials required to carry out the response operations (including food, shelter, transportation, facilities, security, communications etc.) both for the field and the ERT.
3. Ensure that internal and external service needs are met.
4. Assist in other duties as directed by the Emergency Response Coordinator.

Responsibilities

Pre-incident:

1. Attend all training activities organised for the ERT.
2. Remain familiar with responsibilities within the ERT and Logistics Officer duties.

Immediate Actions:

1. Assemble at the EOC and receive a detailed briefing on the emergency.
2. Confirm the level of activation of the Logistics Group in consultation with the ERC.
3. Mobilise any additional resources or specialist advisors required for the Logistics.
4. Group and conduct an initial group briefing where applicable.
5. Start an individual log.
6. Start a 'Status Board' using the EOC whiteboard which captures the current status of the emergency response and key activities.

During incident

1. Identify the location and status of off-site equipment and personnel suitable to deal with the emergency and coordinate their deployment as required.
2. Liaise with the relevant ERT and staff members to provide transport and care/accommodation for the injured, other employees and relatives if necessary.
3. Ensure an overall inventory is maintained of all equipment, materials and supplies purchased, rented, borrowed or used.
4. Inform the Emergency Response Coordinator of logistical movements (include names and locations).
5. Develop a resource plan in support of the response plan to:
    - prioritise needs.
    - identify alternative resources and supplies.
    - coordinate delivery/deployment.
6. Attend ERT briefings and keep the ERT informed.
7. Contribute to the development of the response plan.
8. Contribute to the development of the recovery plan.
9. Contribute to the ERT situation reports.
10. Document all personal actions and decisions on an individual log sheet.
11. Ensure group actions, decisions and events are accurately recorded and documented, and also recorded in the ERT Log.

Post-incident

1. Consult with the ERC on the release of all relevant resources, equipment and personnel.
2. Identify any group follow-on actions required and allocate responsibilities and deadlines.
3. Liaise with the Log Keeper to ensure that all issues and actions have been recorded in the Log.
4. Participate in the ERT debrief.
5. Contribute to emergency post-crisis review.

DUTY CARD 4: ERT PLANNING OFFICER

Performed by: Nominated staff member

Reports To: Emergency Response Coordinator

Role

1. Manage support and service activities for the emergency response (to include: recovery planning, directing media and community queries to the appropriate Company or Tellus representative.
2. Ensures specialist advisors are called upon for the response and recovery to an emergency.
3. Assist in other duties as directed by the Emergency Response Coordinator.

Responsibilities

Pre-incident:

1. Attend all training activities organised for the Emergency Response Team.
2. Remain familiar with responsibilities within the ERT and Planning Officer duties.

Immediate actions:

1. Respond to the ERT activation.
2. Start an individual log.
3. Attend the ERT initial briefing.
4. Nominate and activate additional personnel required in the recovery (build the team for the situation). Be clear when allocating roles in initial tasks. This can be collaborative in nature.

During incident

1. Consult with specialist advisers for their input into the recovery plan (e.g. health and safety, maintenance, engineering, etc.) where required.
2. Develop contingency event response plans where appropriate.
3. In consultation with the ERT, ensure that:
    - media arrangements are in place (facilities, guides etc.)
    - internal employee communication is occurring and effective.
    - an external communications plan (for families, key stakeholders etc.) is in place.
    - Ensure ERT is kept informed of key issues and actions.
4. Document all personal actions and decisions on an individual log.
5. Ensure all group actions, decisions and events are accurately recorded and documented in the ERT log.

Post-incident

1. Consult with the ERC on the release of all relevant resources, equipment and personnel.
2. Identify any group follow-on actions required and allocate responsibilities and deadlines.
3. Liaise with the Log Keeper to ensure that all issues and actions have been recorded in the Log.
4. Participate in the ERT debrief.
5. Contribute to emergency post-crisis review.

DUTY CARD 5: ERT OPERATIONS OFFICER

Performed By: Nominated staff member

Reports To: Emergency Response Coordinator

Role

1. Responsible for managing the immediate event response, including activating and coordinating resources and activities.
2. Maintaining ongoing communication with key stakeholders throughout the response and recovery activities.
3. Assist in other duties as directed by the Emergency Response Coordinator.

Responsibilities

Pre-incident:

1. Attend all training activities organised for the ERT.
2. Remain familiar with responsibilities within the ERT and FM duties.

Immediate actions:

1. Assemble at the Emergency Operations Centre and receive a detailed briefing on the emergency.
2. Assist in the setup of the room and ensure an up to-date 'Emergency Contact' list is available to the ERT.
3. Following initial contact by the ERC with the scene, maintain communications and receive ongoing Situation Reports.
4. Ensure that they have the appropriate communication mediums available at all times (i.e. UHF/VHF radio/landline/mobile).
5. Ensure that a direct line of communication is established with the Sandy Ridge Facility.
6. As requested by the ERC communicate with nominated parties and relay messages/instructions given by the ERC.
7. Obtain contact details (if not on Emergency Contact List) for any external parties involved in the emergency.

During incident

1. Continually review and assess the effectiveness of all communication mediums within the ERT and with the field and rectify any problems.
2. Ensure that the On-Scene Commander is adequately supported and kept informed of ERT actions.
3. Manage and monitor event response activities including site evacuation if required.
4. Ensure that Emergency Services are briefed, suitably inducted and appropriately guided in their response to the emergency.
5. Assist in the timely delivery of all correspondence, internal and external communiqués.
6. Assist in the setup of any conference calls with either the affected site or IMT.
7. As required consult with the ERC to maintain effective liaison with key stakeholders.
8. Review all site situation reports to assess long term communication issues.
9. Ensure that important correspondence and messages are delivered to ERT members.
10. If necessary, maintain own log of events or notes.
11. Liaise closely with ERT members and keep Log Keeper informed of any developments at EOC or affected site.

Post-incident

1. Consult with the ERC on the completion of all necessary internal and external emergency termination communications.
2. Liaise with the affected site as to final emergency communication issues with all key stakeholders, including the OSC and Emergency Services.
3. Ensure that any post emergency communication commitments are completed.
4. Liaise with the Log Keeper to ensure that all issues and actions have been recorded in the Emergency Log.
5. Ensure that no information is deleted from the status or information boards until all comments have been captured.
6. Any audio recordings must be labelled, retained and sealed with the EOC confidential files.
7. Participate in the ERT debrief.
8. Assist with the restoration of the EOC and secure filing of all records.

DUTY CARD 6: ON-SCENE COMMANDER

Performed by: Responsible Operations Supervisor or senior-most person at affected site.

Reports to: Emergency Response Coordinator (initial contact) FM (ongoing communication)

Role

1. Responsible for the activation of mandatory site emergency procedures.
2. Head of Field Response Team (FRT).
3. Responsible for the safe and effective evacuation of site personnel.
4. Ensures that appropriate Emergency Shut Down procedures are implemented.
5. Responsible for factual information being communicated to the ERC / ERT.

Responsibilities

Pre-Incident:

1. Attend all training activities organised for the ERT and FRT
2. Remain familiar with responsibilities within the FRT and On-Scene Commander duties.

Immediate actions:

1. When emergency alarm is raised – determine the source/type of emergency and gather all available information. Call 000 as soon as the ERT deems it necessary.
2. Assume initial responsibility for control of the emergency at the Sandy Ridge Facility and FRT.
3. Ensure site emergency response procedures are immediately implemented.
4. If required, initiate site evacuation to Muster Points.
5. Ensure a Muster Point Warden is present to conduct a headcount of all personnel.
6. Arrange for the safe shutdown of equipment/plant in the affected area (if possible) as long as personnel are not endangered in the process.
7. If safe to do so, make the area/site safe and render assistance to affected personnel.
8. Assess what immediate response can safely be undertaken by personnel at the emergency location prior to the arrival of further assistance (i.e. Emergency Services).
9. Notify the ERC of the emergency and provide a full Situation Report.
10. Assess whether the nominated ROC will be a safe area to manage the emergency. Advise ERC if evacuation to the accommodation village (alternate location) is required.
11. Maintain an open line of communication with the ERC and EOC.
12. Further assess the emergency and in consultation with the ERC determine the emergency response classification level and what assistance/support/resources are required.

During Incident

1. Ensure that any injured personnel are provided with appropriate first aid treatment and monitored at all times.
2. Maintain a chronological record of activities record events/actions/messages/decisions.
3. Provide regular situation reports to the ERT Operation Officer (aim for 15-minute update intervals if possible).
4. Assist in the coordination of onsite resources to the emergency Muster Point(s).
5. Ensure any responding emergency services have the correct details/location of the emergency and give directions as required.
6. Act as the primary point of contact for the Emergency Services upon their arrival and provide a detailed briefing on the emergency and known hazards.
7. Continually monitor the site for any other hazards that may be present.
8. Gather permits that are in use and determine what work is currently in progress and what other work may impact on the emergency.
9. If warranted, ensure that the location of the emergency is cordoned off so as not to contaminate any evidence that may be required.
10. Monitor the welfare of all personnel and ensure that any provisions required are provided (i.e. water/food/shelter).

11. In consultation with the ERC ensure that access to the location of the emergency is restricted to authorised personnel only.
12. Assess the impact the emergency may have on the environment and advise the ERT.
13. Continue to provide ERC with situation reports at intervals of 15-30 minutes, or as required.
14. Ensure that all site personnel/contractors (shift workers) are provided with details of the emergency and given a factual briefing during shift handover.
15. Assess need for additional assistance and relieving of ERT personnel.

Post-incident

1. Account for all personnel and ensure the Sandy Ridge Facility and the location of the emergency at the site has been made safe before standing down personnel and stating that the emergency has concluded.
2. Conduct a debrief with all FRT personnel.
3. Maintain security of the emergency location until an investigation has been completed.
4. Assist in the assessment and integrity of plant/equipment for use after the emergency.
5. Compile and record a factual description of the emergency.
6. Collect/collate all recorded information/documents and retain.
7. Provide the ERC with a comprehensive debrief.
8. Assist in the investigation process.
9. Assess the emergency response equipment utilised and arrange for repair/replacement if required.

DUTY CARD 7: FRT MUSTER POINT WARDEN

Performed by: Nominated staff member

Reports to: Chief Warden/On-Scene Commander

Role

1. Maintain information on location and medical status of evacuated personnel.
2. Assist and coordinate the effective and safe evacuation of personnel from the emergency location.
3. Assist in other duties as directed by the Chief Warden/On-Scene Commander.

Responsibilities

Pre-incident:

1. Attend all training activities organised for the ERT and FRT.
2. Remain familiar with responsibilities within the FRT and Muster Point Warden duties.

Immediate actions:

1. Ensure that the designated muster point is safe to have people congregate and nominate an alternate muster point if required.
2. Arrange first-aid for any injured persons at the Muster Point.
3. Conduct the initial headcount of evacuated personnel – compare against site personnel register if possible.
4. Confirm emergency status with ERT (i.e. ensure the whole site is aware of the emergency and mobilising accordingly).
5. Communicate headcount result; including details of injured and missing personnel to the Facility Manager located at the EOC and the On-Scene Commander via radio or via messenger.

During incident

1. Don Muster Point Warden identification (i.e. hard hat, reflective vest).
2. Maintain a log of personnel movements in and out of the muster point (ensure there are no non-essential movements).
3. Communicate relevant 'Situation Report' information with personnel at the muster point.
4. Report and update relevant emergency information to the ERT / On Scene Commander whichever is applicable at the time.
5. Provide back-up support to emergency response efforts as directed by the ERC or Chief Warden.
6. Involve additional persons as required to assist.

Post-Incident

1. Pass on stand-down information to muster point, including any no-go areas as directed by the Chief Warden/On Site Commander.
2. Arrange safe transfer of all muster point personnel to any nominated assembly/de- brief area.
3. Attend FRT debrief.

DUTY CARD 8: FIRST AID OFFICER

Performed by: Nominated staff member.

Reports to: On-Scene Commander.

Role

1. Responsible for the provision of first aid treatment to all injured personnel involved in the emergency.
2. First concern is to ensure own safety and the safety of others is not compromised.

Responsibilities

Pre-Incident:

1. Attend all training activities organised for the ERT and FRT.
2. Remain familiar with responsibilities within the FRT and First Aid Officer duties.

Immediate Actions:

1. Go to the emergency scene if safe to do so.
2. Make an initial assessment of the emergency for danger.
3. If required by the OSC, make the scene safe if possible and follow appropriate hygiene protocols.
4. Check response levels and provide treatment as required.
5. Direct responders on handling of injured as required.
6. Stabilise and prepare injured for transportation if required.
7. Remain in communication with On-Scene Commander (OSC) at all times
8. Begin log of vital signs and symptoms as soon as practical.

During Incident

1. Determine if there is any ongoing risk to personnel in the area.
2. Communicate any additional support required to On Site Commander.
3. Ensure hygiene protocols are maintained i.e. manage triage (i.e. sorting casualties in order of priority).
4. Hand over all vital information on injured to External Response Providers.
5. Note all relevant details and begin log of treatment given.

Post-Incident

1. Communicate with the IMT and Employee Assistance Program for handling of emotionally affected employees and/or relatives.
2. Attend FRT debriefing session.

DUTY CARD 9: COMMUNICATIONS ADVISOR

Performed by: Nominated staff member.

Reports to: On-Scene Commander.

Role

1. The Communications Advisor reports to the Crisis Management Team and will liaise with the Media/Public Affairs Manager in the corporate office, managing stakeholder issues during the response.
2. They will coordinate external communications that support the Incident Control team objectives and will work closely with the HR/Family Liaison Officer to develop a communication response strategy.

Responsibilities

Pre-Incident:

1. Attend all training activities organised for the ERT and FRT
2. Remain familiar with your responsibilities within the Incident Control team and communication principles and policies
3. Have prepared materials such as company fact sheets and stakeholder information
4. Ensure all employees are aware of and understand the media policy

Immediate Actions:

5. Respond to Emergency Activation
6. Start an Action Log
7. Proceed to the Control Centre
8. Advise the media/public affairs manager of the incident
9. Advise the On Scene Commander on potential communications issues

During Incident

10. Provide communications advice to the On Scene Commander on emergency communications management
11. Develop a stakeholder communication strategy that supports response objectives
12. Maintain liaison with the Media/Public Affairs Manager for media communication management
13. In consultation with the On Scene Commander and the Media/Public Affairs Manager develop key messages, holding statements and Q&A's
14. Prepare spokespeople for interviews and media briefings
15. Serve as the principal advisor to the On Scene Commander regarding stakeholder interaction and advise on ongoing issues
16. In consultation with the HR Manager, ensure that:
    - Internal employee communication is occurring and is effective
    - Communication plans include external stakeholders including relatives, government and community
17. Ensure the approvals process is followed for media releases and fact sheets and that priority stakeholders are given information prior to the media
18. Escort media on-site, as necessary
19. Be available to respond to inquiries from the media
20. Monitor and maintain a record of media and internet coverage of the incident
21. Ensure the response plan and the recovery plan adequately considers ongoing stakeholder issues
22. Identify community concerns and key issues
23. Identify community stakeholders and determine the best way to communicate with them
24. Develop a community management plan, if appropriate:
    - Determine the optimum timing for and arrange and manage, community meetings
    - Be available to respond to community enquiries with confirmed facts.
25. In conjunction with the On Scene Commander, ensure that all relevant external agencies have been contacted and advised of the incident
26. Work closely with and coordinate activities with the HR Manager
27. Advise the On Scene Commander on external communication issues.

Post-Incident

28. Complete any follow-up actions as directed
29. Contribute to the Control Group post emergency debrief
30. Attend the incident post-crisis review and advise of any ongoing stakeholder management issues or follow up communication actions that are required
31. Ensure that all community-related concerns have been addressed and the best possible relations with the community are maintained
32. Continue to monitor community attitudes concerning the incident and keep management advised of any that may have a substantial impact on the company or its operations
33. Evaluate effectiveness of the community outreach program during the response and make appropriate modifications to strategies and plans
34. Contribute to the incident report as required.

DUTY CARD 10: HEALTH SAFETY AND ENVIRONMENT ADVISOR

Performed by: Health, Safety and Environment Advisor

Reports to: On-Scene Commander.

Role

1. Responsible to identify, monitor and manage and assess hazardous and unsafe situations and develop measures to ensure the safety of response and the public
2. Provide guidance on the HSEC practices to be followed during response operations, monitor compliance with applicable health and safety regulations and ensure that response personnel receive appropriate safety briefings and training.
3. Develop and implement incident-specific safety and medical plans and messages.
4. They may also exercise emergency authority to prevent or stop unsafe acts when immediate action is necessary.
5. The HSE Advisor is also responsible for the security of the site during an incident.

Responsibilities

Pre-Incident:

3. Attend all training activities organised for the ERT.
4. Remain familiar with responsibilities within the Incident Control team and communication principles and policies
5. Establish and monitor safety and security-related training programs for response personnel and maintain training records.

Immediate Actions:

6. Respond to emergency activation
7. Start an actions log
8. Proceed to Incident control centre
9. Attend Incident Control briefing

During Incident

10. Ensure the response plan and recovery plan give sufficient consideration to OH&S issues
11. Advise on potential safety issues and the likelihood of escalation
12. Monitor response and recovery activities to ensure compliance with OH&S regulations, policies and procedures as well as site security requirements
13. Exercise emergency authority to prevent or stop any unsafe acts
14. Investigate, report and record any accidents involving any personnel that occur during response operations
15. Develop and implement remedial actions to avoid recurrence
16. Advise on incident investigation requirements relating to safety and health
17. Advise the On-Scene Commander (OSC) on safety issues or on dangers relating to the incident site
18. Document all personal actions and decisions

Post-Incident

19. Complete any follow-up actions
20. Contribute to the Control Group post emergency debrief
21. Attend the incident post-crisis review and advise of any ongoing safety or environmental concerns
22. Undertake and oversee any necessary investigations
23. Provide advice on the implementation of the recovery plan
24. Contribute to the incident report as required

APPENDIX B - EMERGENCY CALL OUT RESPONSE FORM

EMERGENCY CALL RESPONSE FORM

REMAIN CALM AND TELL THE CALLER THAT THEY ARE - NOT TO HANG UP OR LEAVE UNTIL TOLD TO DO SO

ASK ALL THE QUESTIONS IN ORDER

1. TIME OF CALL:_____AM/PM:_____
2. DATE:_____
3. COMMUNICATION: Ph_____CH##_____UHF## Other
4. TIME OF INCIDENT_____
5. NAME OF CALLER_____
6. PHONE NO. OF CALLER_____
7. EXACT LOCATION OF INCIDENT_____
8. EXACT TYPE OF INCIDENT (If Fire or Smoke) _____
9. NAME OF CASUALITIES AND TYPES OF INJURIES:_____

_____

_____

_____

NAME_____CAS 1_____INJURY_____
NAME_____CAS 2_____INJURY_____
NAME_____CAS 3_____INJURY _____

10. IS ANYONE TRAPPED? YES/NO

If YES – HOW MANY IF KNOWN?_____

11. WHAT ARE THE HAZARDS / EXPOSURES AT THE SCENE? _____

_____

_____

_____

12. NOW REPEAT THE INFORMATION BACK TO THE CALLER FOR VERIFICATION.

APPENDIX C – ER TEAM MEMBERS ATTENDANCE SHEET

EMERGENCY RESCUE TEAM MEMBER CALL OUT AND ATTENDANCE FORM

NAME	TIME CALLED	TIME ARRIVED

APPENDIX D – EVACUATION LOG

EVACUATION LOG

AREA: ..... MUSTER POINT LOCATION:

NAME	PRESENT	NOT PRESENT	POSSIBLE LOCATION (if not present)	CONDITION (if Present)
	☐	☐		
	☐	☐		
	☐	☐		
	☐	☐		
	☐	☐		
	☐	☐		
	☐	☐		
	☐	☐		
	☐	☐		
VISITORS (use Visitors Book/ Visitors log)				
	☐	☐		
	☐	☐		
	☐	☐		
	☐	☐		

I have accounted for all *(number)* employees. Date:___/_____/_____ Time: __

Name:_(Area Warden/ Appointed Person to sign) (***Number pages and staple additional pages together)***

PAGE:_of ___

APPENDIX E – EMERGENCY CONTACT LIST COMMUNICATIONS

- All surface phone numbers can be located on the Emergency Call Out List;
- Administration buildings have access to phones;
- All vehicles have repeater radios accessible to Emergency Channel XX
- Nominated person to fill in Emergency Response Operational Record

EMERGENCY

EMERGENCY NUMBERS		
FIRE / POLICE / AMBULANCE		000 or 112
KALGOORLIE POLICE		08 9021 9777
COOLGARDIE POLICE		08 9093 8400
SOUTHERN CROSS POLICE		08 9081 2100
KALGOORLIE / BOULDER FIRE STATION		08 9021 1044
KALGOORLIE HOSPITAL		08 9080 5888
SOUTHERN CROSS HOSPITAL		08 9081 2222
ROYAL FLYING DOCTOR SERVICE (KALGOORLIE)		1800 625 800
ROYAL FLYING DOCTOR SERVICE (SATELLITE PHONE)		08 9417 6389
WA POISON INFORMATION CENTRE		13 11 26
COOLGARDIE VOLUNTEER FIRE & RESCUE SERVICE		0412 859 582
SOUTHERN CROSS VOLUNTEER FIRE & RESCUE SERVICE		0427 491 294
TELLUS HOLDINGS LTD CONTACT NUMBERS		
Radiation Safety Officer	To be confirmed	0408 314 580
General Manager HSECQ	Richard Phillips	0439 202 507
Compliance & Quality Manager	Nick Ballard	0418 220 755
Legal Counsel	Jonathan Fisher	0411 688 384
Chief Operating Officer	Mike Ingram	0400 777 157
GM Project Development	Stephen Hosking	0439 444 406
GM Strategy, IT & Innovation	Jaime Livesey	0432 244 154
OTHER CONTACT NUMBERS		
Carina Mine	Site Office	08 6310 6222 / 08 6310 6245
Carina Mine	ERT	0467 657 580
Carina Mine	UHF Radio	Ch 40–Road / Ch 19-Mine
Western Australia Pollution Hotline		08 6364 7000
WA Environment Protection Authority		08 6364 7000
Dept of Mines, Industry Regulation and Safety		1800 7233 6463
Radiation Health		08 9388 4999
Chem Centre Perth		08 9422 9800
WA Health Direct (Medical Advice- non-urgent)		1800 022 222

APPENDIX F – EMERGENCY EQUIPMENT LIST

In the following list, the location of the equipment is provided in italics. A number in square brackets refers to the location number on drawing TSR-4-PO-07400-EG-DWG-0003_C.

EMERGENCY EQUIPMENT

Facilities:

- Medical Facility (Village Administration Building).
- Medical Facility (Facility Administration Building [8]).
- Waste Facility fire water tank and pump system feeding both hydrants (yard areas) and building hose reels. (See plan drawing for hydrant coverage).
- Village fire water tank and pumps for hydrants and hose reels.
- Fire extinguishers in all buildings, on vehicles, etc. A couple of larger extinguishers (wheeled) will be kept in the working area of the waste cell.
- Hydrant hose and nozzle kits (on Light Tanker vehicle [10], Workshop building – two sets [30], Emergency Vehicle Station [10], Waste Inspection Bay (west) [16], Fire Water Facility [35])

Vehicles:

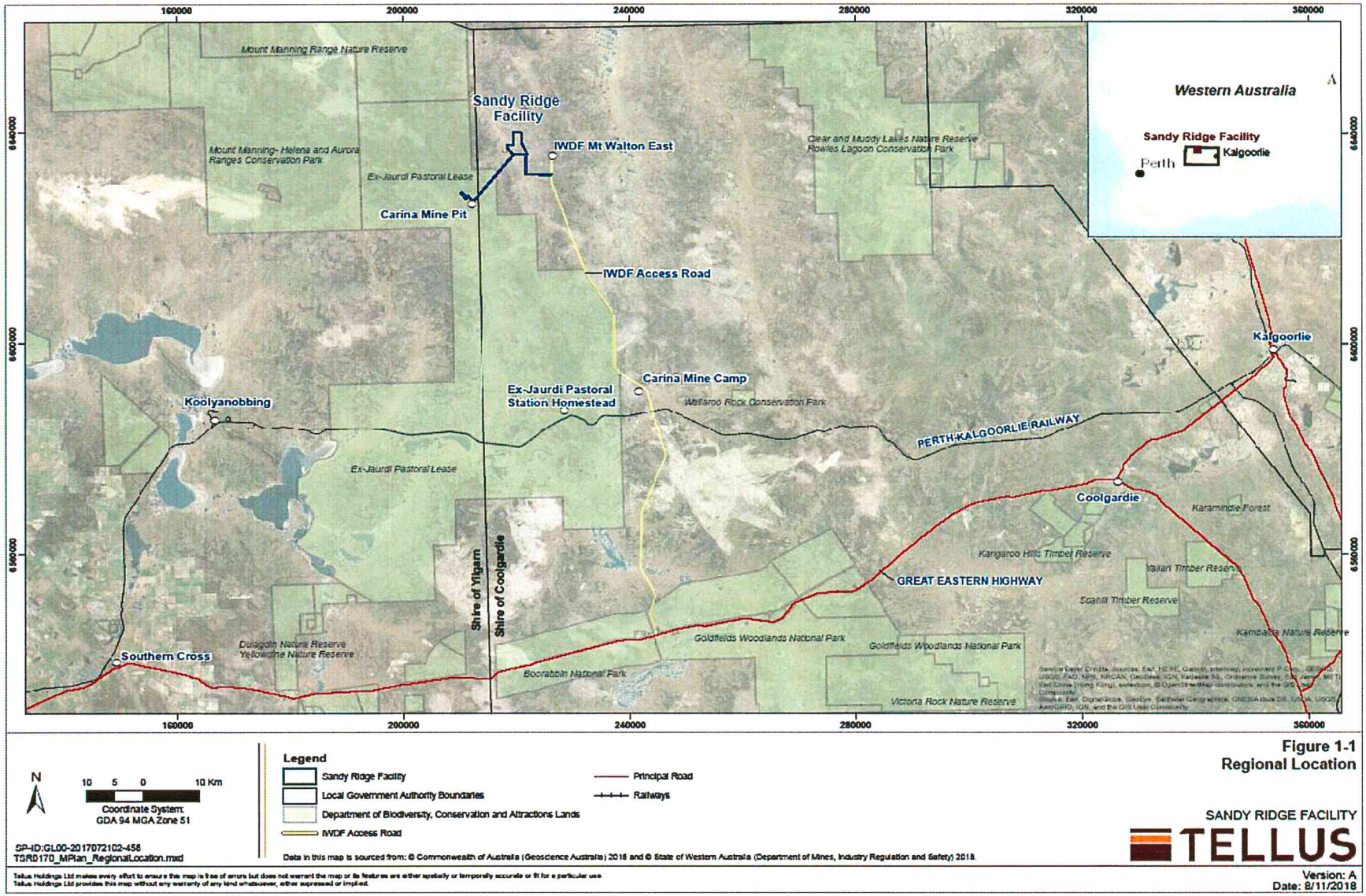
- 4wd Landcruiser Ambulance (Emergency Vehicle Station [10]).
- 4wd Light Tanker (Emergency Vehicle Station [10]).
- Spill Response Trailer (Emergency Vehicle Station [10]).
- Caterpillar 735C Articulated 6x6 Water Truck fitted with front mounted cannon and rear hose reel, and connection for Light Tanker (in use, or parked at Go Line [32]).
- Road-train water truck (approx. 80,000 litres) with connection for Light Tanker (in use, or parked at HV & LV Mobile plant Yard [31]).

Equipment:

- Handheld Radon gas detector (Waste Laboratory & Office [20]).
- Handheld Contamination and dose rate meter (radiation) (Waste Laboratory & Office [20]).
- Electronic personal dosimeters (radiation) (Waste Laboratory & Office [20]).
- Handheld gas detector (Waste Laboratory & Office [20]).
- Fixed gas monitoring system and alarm (Waste Cells)
- Hazchem Spill Kit (in Spill Response Trailer at Emergency Vehicle Station [10]).
- Vehicle Extraction Kit (Emergency Vehicle Station [10]).
- Open Circuit BA kit (Emergency Vehicle Station [10]).
- Vertical Rescue Kit (Emergency Vehicle Station [10]).

- Spill response kits (in work areas).
- Portable signage, traffic cones, lighting (Emergency Vehicle Station [10]).

APPENDIX G - REGIONAL LOCATION MAP



APPENDIX H - MUSTER POINTS

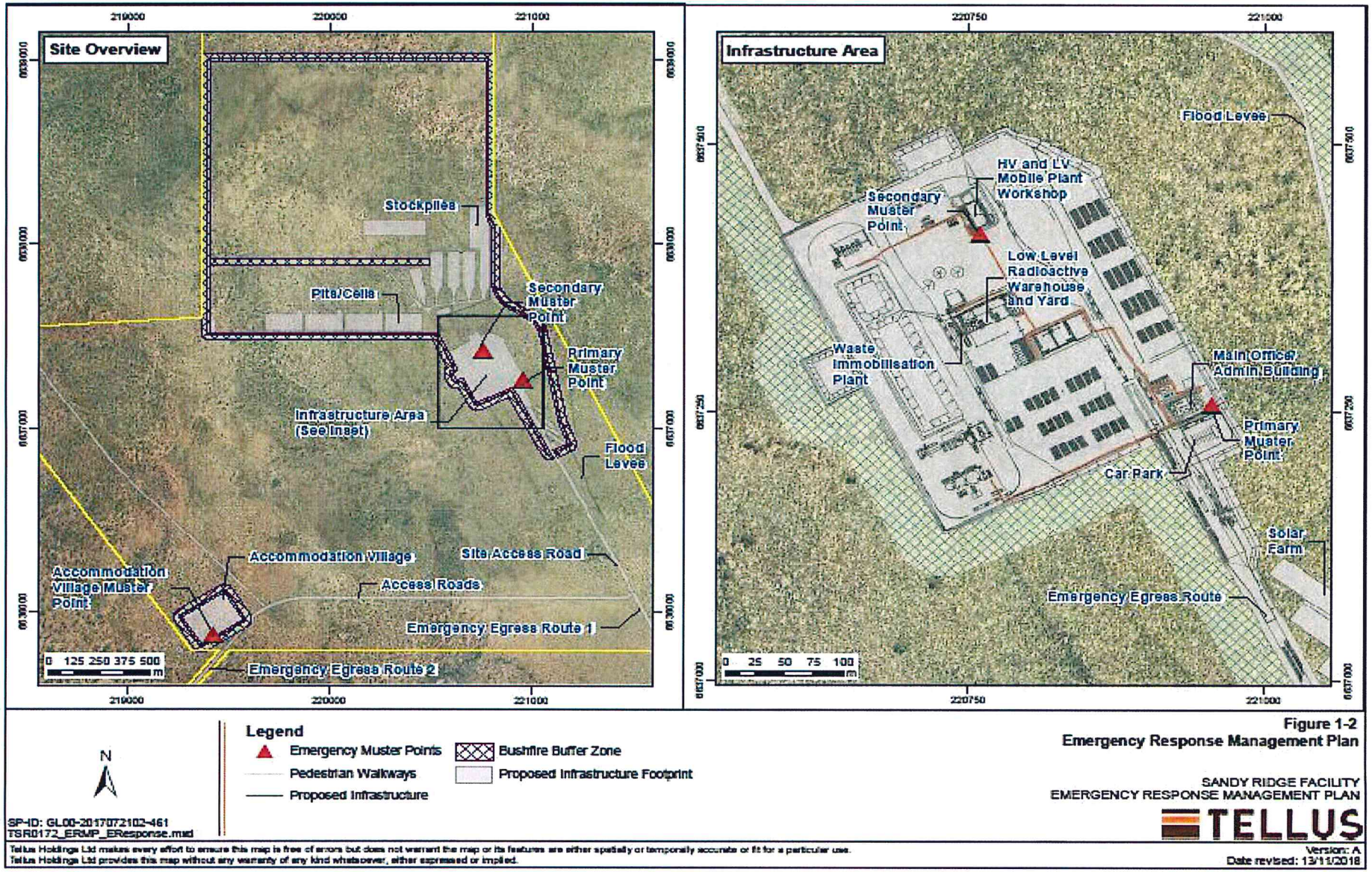


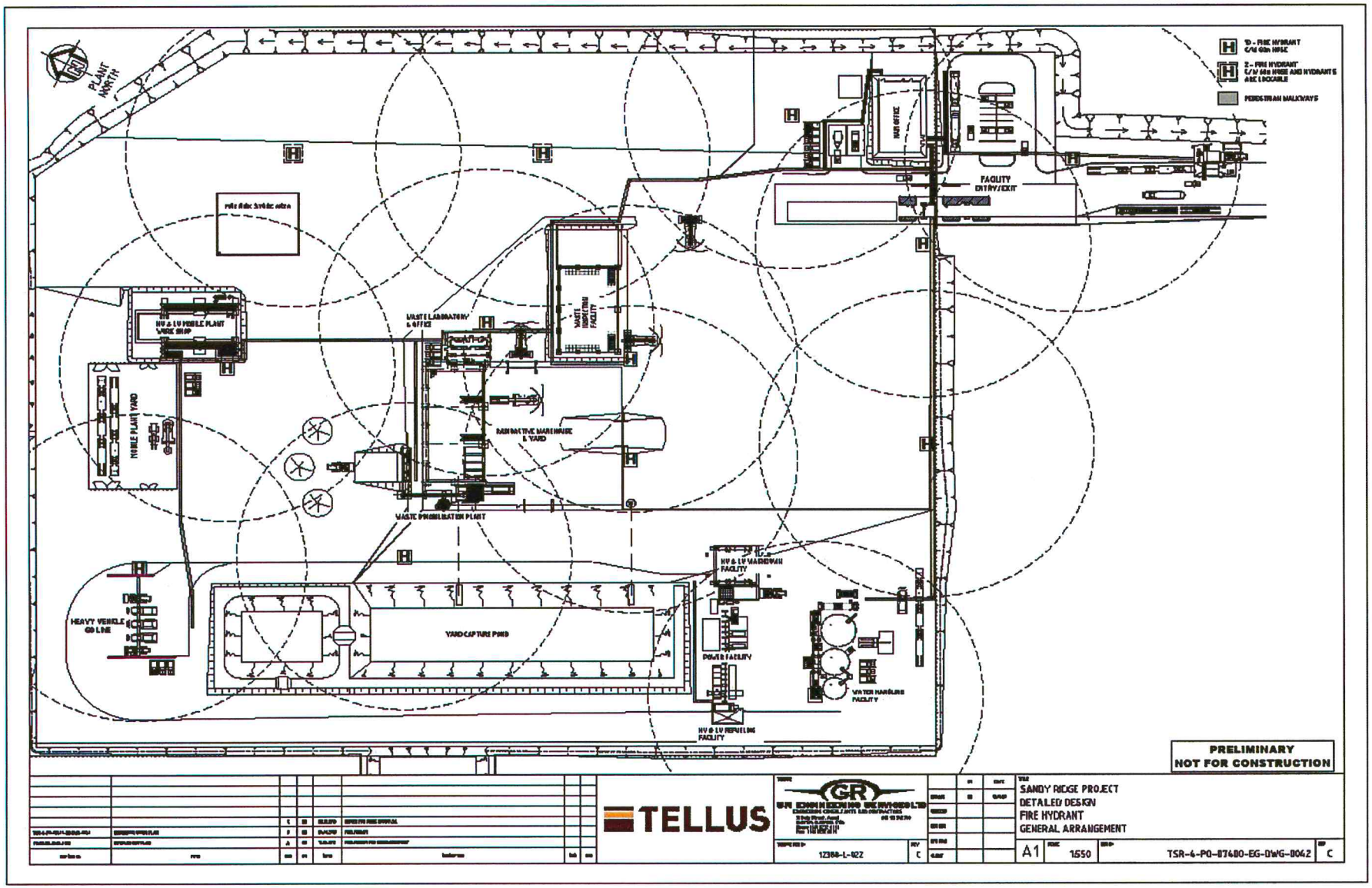
Figure 1-2
Emergency Response Management Plan

SANDY RIDGE FACILITY
EMERGENCY RESPONSE MANAGEMENT PLAN

TELLUS

Version: A
Date revised: 13/11/2018

APPENDIX I - FIRE HYDRANT LOCATIONS



APPENDIX I - MT DIMER AIRSTRIP

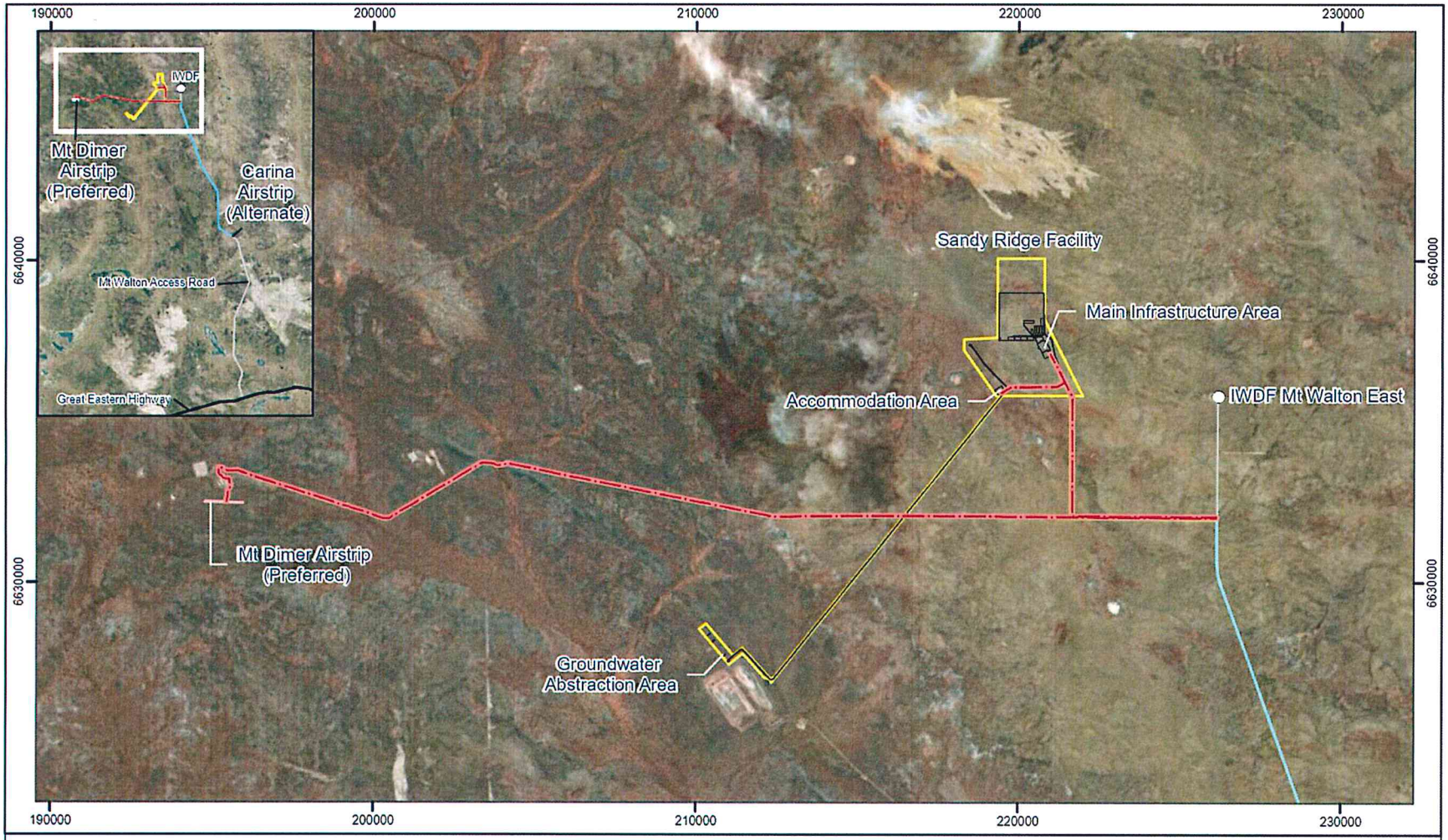


Figure 9-1
Mt Dimer Airstrip

SANDY RIDGE FACILITY
EMERGENCY RESPONSE MANAGEMENT PLAN

TELLUS

Version: A
Date revised: 9/11/2018

APPENDIX J – MUTUAL AID PROVIDERS REGISTER

[To be completed prior to commencement of construction activities]

Data to be recorded in the register shall include;

- Contact details (including alternates)
- Location of resources and estimated mobilisation and travel time to Sandy Ridge
- Capability register (hardware and personnel)

APPENDIX K – ERT TRAINING MATRIX

[To be completed prior to commencement of construction activities]

[Proposed training includes;

- First Aid, Advanced Resuscitation and Breathing Apparatus
- HAZMAT response
- Road Crash Rescue
- Fire Warden, Structural Firefighting
- Suppress & Respond to Wildfire
- Confined Space Rescue
- Cert IV in Health Care (site medic)
- Cert III Mine Emergency Response and Rescue
-

Attachment 11

Transport Management Plan

13 February 2019

TELLUS

Sandy Ridge Facility

Sandy Ridge Transport Management Plan



Compliance Document

Tellus Holdings Ltd

13 February 2019

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DOCUMENT CONTROL

	Name	Signature	Position	Date
Prepared by	Julie Mahony		Manager - HSECQ	04/02/2019
Reviewed by	Michael Ingram		Chief Operating Officer	13/02/2019
Approved by	Richard Phillips		General Manager - HSECQ	13/02/2019

AMENDMENT RECORD

Page No.	Context	Version	Date
various	Complete revision per DFES review comments and internal review.	1	4 Feb 2019

COMPANY PROPRIETARY INFORMATION

Document Ref.	**HS00-1760150200-20347**					**Ver**	**1**
Uncontrolled Copy	✓		**Controlled Copy**			**Date**	**13/02/2019**

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ABBREVIATIONS AND DEFINED TERMS

Facility	Sandy Ridge Facility
km	kilometres
Sensitive load	A waste consignment that Tellus deems to be sensitive, taking into consideration the nature of the waste, regulatory requirements and/or relevant agency interest.
TMP	Transport Management Plan
WA	Western Australia
WAC	Waste Acceptance Criteria
WAP	Waste Acceptance Procedure
Waste generator	The generator of a waste proposed to be disposed at Sandy Ridge Facility under a Waste Services Contract.
Waste Services Contract (WSC)	A written agreement between a waste generator and Tellus Holdings Ltd to dispose of a waste at Sandy Ridge Facility.

1 INTRODUCTION

1.1 Background

Tellus Holdings Ltd ('**Tellus**') has Environmental Approval (refer to Ministerial Statement 1078 and EPBC 2017/7478) to construct and operate the Sandy Ridge Facility ('**Facility**'). The Facility involves the construction and operation of an open-cut kaolin mine and complementary waste storage and disposal facility with supporting above-ground infrastructure.

The Facility is located approximately 75 kilometres (km) north east of Koolyanobbing, and approximately 240 kilometres (km) north west of Kalgoorlie, in the Shire of Coolgardie, within the Goldfields Region of Western Australia (WA) (Figure 1-1).

The Facility is accessed from the Great Eastern Highway by the Mt Walton East Intractable Waste Disposal Facility (IWDF) Access Road, which intersects the highway 96 km east of Southern Cross and 90 km west of Coolgardie. After travelling 90 km north on the IWDF Access Road, turn west onto Mt. Dimer Road for 4.5 km, then north along the Sandy Ridge access road for a further 4 km to the Facility.

1.2 Project description

The Facility's Ministerial Statement 1078 authorises the following:

Table 1-1 Location and authorised extent of physical and operational elements

Element	Location	Authorised extent
Mine pits/waste cells	Figure 1	Clearing up to 202.3 hectares of native vegetation within a 1,061 hectare development envelope
Associated infrastructure	Figure 1	Clearing up to 73.75 hectares of native vegetation with a 1061 hectare development envelope
Class IV & V waste accepted at gate		up to 100,000 tonnes per annum
Temporary waste storage on surface		up to 15,000 tonnes
Maximum temporary storage time		up to 12 months
Waste (including treated waste) disposed to waste cells		up to 280,000 tonnes per annum
Water use		up to 0.18 gigalitres per annum
Term of licence		25 years

1.3 Purpose and scope

This Transport Management Plan (TMP) provides a description of the measures to be implemented by Tellus to manage transport of wastes to the Facility. As described in Sections 1.1 and 1.2, Tellus is an operator of an open-cut kaolin mine and complementary waste storage and disposal facility and does not propose to provide waste transport services to the Facility. Notwithstanding this, Tellus recognises that it has transport responsibilities as a receiver of waste.

The nature of most of the waste to be received at the Facility is defined as a subset of the wastes laid out in the *Environmental Protection (Controlled Waste) Regulations 2004, Schedule 1 – Controlled Waste*. For the purposes of transport and storage, these wastes may also be dangerous goods or be radioactive.

This plan identifies the administrative and operational controls which Tellus intends to implement to minimise the potential impact of transport activities associated with the Facility. The primary focus of this Plan is on waste materials which will be received at the Facility but general freight would be subject to those controls which are applicable to the lower risk profile of such freight. This Plan reflects the controls currently anticipated to be implemented by Tellus and is subject to optimisation and improvements over time.

This Transport Management Plan does not seek to consider emergency response arrangements to be implemented by Tellus other than within the context of Chain of Responsibility. This aspect will be addressed in the Sandy Ridge Emergency Response Plan as published and updated from time to time.

General freight movement will also occur during construction and with ongoing operation and management of the Facility. This TMP will briefly outline transport management of hazardous goods to or from the Facility where Tellus directly engages the transport (see Section 4.2).

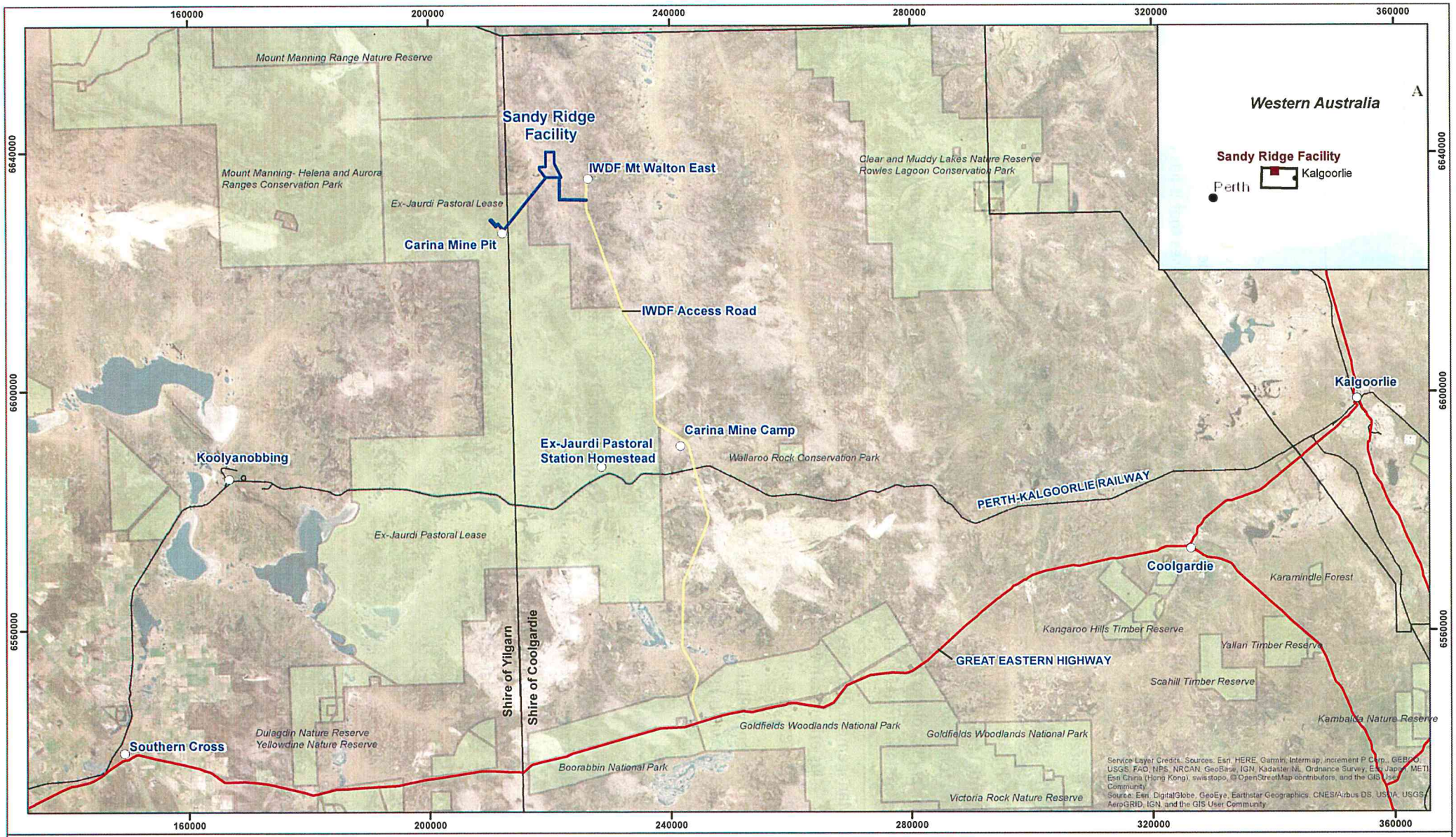
In summary, the purpose of this Transport Management Plan (TMP) is to:

- Outline the legislative framework and industry codes applicable to transport of waste, hazardous goods and dangerous goods in Western Australia.
- Explain Tellus' role in waste transport management.
- Describe the controls that Tellus will implement to support the transport management regulatory framework.

1.4 Objectives

The principal objective of this TMP is to:

- Minimise potential impact of waste transport operations on the environment
- Minimise potential impacts to the public from waste transport.
- Support a high quality, reliable and safe transport system to the Facility.



N

10 5 0 10 Km

Coordinate System:
GDA 94 MGA Zone 51

SP-ID:GL00-2017072102-484
TSR0170_MPlan_RegionalLocation.mxd

Legend

- Sandy Ridge Facility
- Local Government Authority Boundaries
- Department of Biodiversity, Conservation and Attractions Lands
- IWDF Access Road
- Principal Road
- Railways

Data in this map is sourced from: © Commonwealth of Australia (Geoscience Australia) 2018 and © State of Western Australia (Department of Mines, Industry Regulation and Safety) 2018.

Figure 1-1
Regional Location

SANDY RIDGE FACILITY

TELLUS

Version: A
Date: 8/11/2018

Tellus Holdings Ltd makes every effort to ensure this map is free of errors but does not warrant the map or its features are either spatially or temporally accurate or fit for a particular use.
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2 REGULATORY FRAMEWORK

Road transport of wastes to Sandy Ridge Facility is subject to an extensive suite of legislation administered by multiple agencies. This is summarised in Table 2-1.

Table 2-1. Regulation of transport of waste and hazardous materials to Sandy Ridge Facility.

Legislation	Agency	Relevance to Transport to Sandy Ridge Facility
National		
Heavy Vehicle National Law 2012 (enacted in all Australian states except WA and NT)	National Heavy Vehicle Regulator	Originated in Queensland and was duplicated in other States (except WA and NT). **Imposes** chain of responsibility requirements **on all facets of road transport management** for heavy vehicles (over 4.5 tonnes). Applicable to Sandy Ridge Facility as wastes will be accepted from throughout Australia.
Western Australian		
Dangerous Goods Safety Act 2004		
- Dangerous Goods Safety (Road and Rail Transport of Non-explosives) Regulations 2007	Department of Mines Industry Regulation and Safety – Resources Safety Division	Requires a transporter to have a Transport Emergency Plan and to be or to have engaged an approved (by DMIRS' Chief Dangerous Goods Officer) emergency responder to attend in the event of an incident during transport. Tellus will require via waste service contract conditions, that waste generators will use a suitably qualified transporter, including an approved emergency responder. Tellus may apply to become an approved emergency responder in the future.
- Dangerous Goods Safety (Storage and Handling of Non-explosives) Regulations 2007	Department of Mines Industry Regulation and Safety – Resources Safety Division	Specifies the requirements for storage, use, carrying (e.g. transporting) and disposal of dangerous goods. Requirements vary depending on the quantity and safety risk of the materials. Tellus will accept some dangerous goods for disposal at Sandy Ridge Facility and holds a Dangerous Goods Site Licence (DGS022452) allowing above-ground storage of diesel fuel and a range of dangerous goods classes.
Environmental Protection Act 1986		
- Environmental Protection (Controlled Waste) Regulations 2004	Department of Water and Environmental Regulation	Regulates road transport of specified wastes (controlled wastes), including carrier licensing, waste transport vehicle licensing, approved disposal facilities, waste tracking records to be kept and reporting. Sandy Ridge will be an approved controlled waste

Legislation	Agency	Relevance to Transport to Sandy Ridge Facility
		disposal site. Waste tracking records will be kept and reported to DWER. Transporter breaches will be recorded and communicated to DWER.
Occupational Safety and Health Act 1984	WorkSafe – Department of Commerce	**Regulates hazardous substances at non-mining workplaces. Workplaces includes transport activities and infrastructure.** **Transport companies will have to comply with the requirements of this Act.**
Radiation Safety Act 1975	Radiological Council (with Radiation Health Unit - Department of Health).	Specifies safe use, handling, storage and transport of radioactive materials, including radioactive waste. Transporters will be licensed under the Act. Sandy Ridge Facility will be authorised to accept radioactive wastes for disposal, via a site registration under this Act.
- **Radiation Safety (Transport of Radioactive Substances) Regulations 2002.**		Specifies the requirements for transporting and disposing of radioactive wastes. Radioactive waste disposal records will be kept and reported to Radiation Health Unit. Tellus will liaise with Radiation Health Unit to identify transport reporting requirements.
Road Traffic (Vehicles) Act 2012	Main Roads WA	Imposes chain of responsibility requirements on all facets of road transport management regardless of vehicle size.
Codes of Practice		
Code for the Safe Transport of Radioactive Material (2014)		**Commonly referred to as the Transport Code**, the objective of the code is to establish uniform requirements for the transport of radioactive material in Australia by road, rail and those waterways not covered by Maritime legislation. In WA, the 2008 edition is referenced in the Radiation Safety Act. Transporters of radioactive waste must comply with the 2008 edition of the Transport Code.

2.1 Development consent

Development consent for the Facility was assessed under the Western Australia (**WA**) *Environmental Protection Act 1986* and the Commonwealth *Environmental Protection Biodiversity Conservation Act 1999*. Approval for the project was granted by the Minister for Environment on 27 June 2018.

The requirement for this TMP arises from a meeting held with the Joint Development Assessment Panel in Kalgoorlie on 24 August 2018. It accompanies Tellus' Development Application submitted to the Shire of Coolgardie in 2018.

The transport of materials to and from the Sandy Ridge Facility will be undertaken in accordance with relevant legislation, regulations and guidelines applicable at a State, Territory and Commonwealth level.

3 TRAINING AND INDUCTION

Tellus aims to provide the necessary tools and training for its employees and contractors to enable the effective implementation of Tellus' management systems and, to assist with the risk management process for the Facility. Please note – the delivery of waste materials by road to the Facility are to be under the control of an independent third party, not Tellus employees or contractor.

Tellus will implement appropriate training outlining the requirements of the TMP as part of the general induction process. Tellus' Training Needs Analysis relevant to transport management includes the following:

- PUAFIR320 Render hazardous materials incidents safe.
- PUAFIR308B Employ personal protection at a hazardous materials incident.
- PUAFIR316 Identify, detect and monitor hazardous materials at an incident.
- Confined Space Rescue suite of training modules.
- Road Crash Rescue suite of training modules.
- TLID2004 Load and unload goods/cargo.

Records will be kept of all personnel undertaking the site induction and training, including the contents of the training, date and name of the trainer(s).

4 TRANSPORT MANAGEMENT CONTROLS

4.1 Transport Controls

4.1.1 Waste characterisation

Tellus uses the European model for geological repositories to determine whether wastes can be accepted at the Facility by undertaking detailed chemical characterisation as a contractual requirement prior to agreeing to accept wastes at the Facility. Characterisation is conducted in accordance with the Western Australian *Landfill Waste Classification and Waste Definitions 1996 (as amended 2018)* and in a manner which satisfies the Tellus Waste Acceptance Procedure available at the Tellus website[1]. By requiring such detailed characterisation prior to contracting to receive wastes at the Facility, Tellus has taken due care to ensure that the composition and characteristics of the wastes are well understood. As such, packaging and transport arrangements can be tailored to a specific waste and ensure compliance with relevant Codes and Regulations. This process also supports disclosure of waste transportation via the controlled waste tracking form system[2].

Implementation - Scenario example.
Waste characterising will provide a comprehensive understanding of the chemical composition and characteristics (e.g. flammability, self-heating potential and pH) of wastes. The analyses results will ensure that the waste is packaged appropriately for transport and is segregated from incompatible materials. For example, wastes with low pH (acidic) would not be transported with wastes with high pH (basic).

4.1.2 Waste packaging specifications

As a part of the contracting process, Tellus requires the waste generator to agree the packaging type and format which will be used for a waste. As a component of the Chain of Responsibility, Tellus uses the characterisation data to determine whether the proposed packaging is suitable. The *Australian Code for the Transport of Dangerous Goods by Road and Rail*[3] packing instructions are refenced to understand the type of packaging formats which are acceptable for dangerous goods. For non-dangerous goods, alternative packaging formats may be possible, and the principles of controlled waste transport apply[4], primarily the requirement to ensure wastes do not spill during transport (p9) and that spill containment is planned and necessary equipment is being carried in the event a spill should occur (p7).

Implementation - Scenario example.
Waste packaging will be tailored to the chemical composition and characteristics of wastes to be transported. Packaging will be selected to minimize the likelihood of spills in the event of an incident en-route to the Facility.

[1] Available at: (https://www.tellusholdings.com/pdf/2016/sr-per/sr-per_a-24_waste-acceptance-criteria.pdf)
[2] Available at: (https://www.der.wa.gov.au/images/documents/our-work/controlled-waste/cw-fs3-controlled-waste-tracking.pdf)
[3] Available at: (https://www.ntc.gov.au/Media/Reports/(91D53582-C568-8B4A-6C7C-E746D36C65FD).pdf)
[4] Available at: (https://www.der.wa.gov.au/images/documents/our-work/controlled-waste/cw-fs-Requirements_of_controlled_waste_carriers.pdf)

4.1.3 Delivery plan

The Delivery Plan is a Waste Services Contract (WSC) requirement for the supply of waste consignments to the Facility for each calendar quarter. It consists of the waste generators schedule (forecast) of planned waste deliveries, the pre-qualification requirements for waste generators to assess their transporters to be considered for waste transport activities, and relevant waste consignment documentation. The waste generator's Delivery Plan will be reviewed by Tellus prior to any transport activities and if approved, a Waste Dispatch Notice will be issued. The Waste Dispatch Notice is a notification issued by Tellus to the waste generator permitting commencement of transport activities.

Implementation - Scenario example.
Tellus will not authorise a waste to be dispatched to the Facility unless the transporter has passed pre-qualification.

4.1.4 Schedule

The Schedule is the waste generator's forecast of weekly waste consignment deliveries to the Facility, including expected tonnages or volumes. The information in the schedule, such as waste type and quantity, informs the planning of the Facility's operational activities such as waste treatment and onsite waste storage capacity requirements, based on expected waste consignment arrivals.

Implementation - Scenario example.
Tellus will have weekly schedules of wastes to be transported to the Facility. Information will include the type of waste, where it is coming from and who the transporter is.

4.1.5 Transporter pre-qualification

All waste generators delivering waste to the Facility, must ensure their transporters satisfy Tellus' Transport Pre-Qualification Assessment. The Pre-Qualification process will be conducted by the waste generator and will consider their transporter's:

- Quality Management System, such as ISO Accreditations other standards:
    - ISO 9001 Quality certification
    - ISO 14001 Environmental management
    - AS/NZ 4801 Occupational health and safety
- Compliance with Chain of Responsibility obligations, according to both National Heavy Vehicles Law (NHVL) and Western Australian, such as:
    - speeding
    - fatigue management
    - mass management
    - dimensions
    - load restraint
- Licences and Registrations
    - Driver's licence
    - Vehicle registration

- Controlled Waste Driver's Licence (Bulk)
- Controlled Waste Vehicle Registrations (Packaged)
- Dangerous Goods Vehicle Licence
- Dangerous Goods Driver's Licence

- Insurances
  - Motor Vehicles
  - Public Liability
  - Third Party Damage
  - Dangerous Goods
  - Goods in Transit
  - Indemnity

- Emergency Response Services Providers
  - Western Australia
  - National

Implementation - Scenario example.
Transport of wastes and dangerous goods is comprehensively regulated (see Section 2). Tellus' prequalification criteria must be met as a condition of Waste Services Contracts, to allow a waste generator to send their waste to the Facility.
Rigorous pre-qualification of transporters supports compliance with regulatory requirements.

4.1.6 Waste consignment transport documentation

The following documentation will be applicable to waste consignment deliveries to the Facility. These plans, permits or forms are either required prior to dispatch or upon arrival at the Facility gate:

- Route Plan, specifying the exact route details from the waste generator location to the Sandy Ridge Facility, considering the waste's Dangerous Goods characteristics, modes of transport, vehicle combinations, rest stop locations, refuelling locations, local jurisdiction authority notifications and Tellus notifications (for sensitive loads only), emergency response services providers, contingency systems and procedures applicable to deviations to the route plan, use of the IWDF Access Road, etc.
- Controlled Waste Tracking forms, relevant to the State of waste generation and the State of disposal (Western Australia).
- Consignment Authorisation applications, for transport of interstate generated Controlled Waste into Western Australia.
- Radiation Safety Act Disposal Permit, applicable to disposal of radioactive waste in Western Australia.
- Oversized permits, if required for height, width or mass exceedances.
- Container weight declarations, listing the weight and contents of each shipping container.
- Biosecurity WA permit, for the importation of wastes into Western Australia.

The above list of Waste Consignment Transport Documentation should not be considered exhaustive as it's requirements will be specific to each waste consignment.

Implementation - Scenario example.
Transporters must submit a Route Plan to Tellus to be granted a Waste Dispatch Notice (=Tellus approves the waste to be sent to the Facility). For Sensitive loads, Tellus will request that relevant agencies are notified in advance of the planned transport date(s).

The Route Plan must include contingency procedures if the consignment is unable to be delivered according to the Schedule. For example:

- Which agencies must be consulted/notified of a consignment's change of delivery route.
- Where the transporter will divert to if the planned route is blocked.
- Whom the emergency response service provider is (for dangerous goods).

Please refer to the Sandy Ridge Emergency Response Plan for information on managing an incident involving a waste consignment destined for the Facility.

4.1.7 Waste Receipt

Upon arrival at Facility gate, the waste consignment's transport documentation will be reviewed by the Sandy Ridge Facility gatehouse attendant. The exterior of the truck, shipping containers and non-containerised bulk wastes will also be inspected.

If the documentation meets packaging and transport standards as per the WSC and Tellus' Waste Acceptance Criteria (see section 4.1.1), the consignment will be permitted to enter site and be subjected to the Sandy Ridge Waste Acceptance Procedures. These include internal inspection of containers containing packaged goods to confirm that the stowage and restraint is appropriate. Poor packaging and restraints may trigger actions relating to Chain of Responsibility and transporter pre-qualification. A waste acceptance notice will be issued for conforming consignments and the waste will be placed in the waste storage area prior to treatment and disposal.

If a consignment is found to be non-conforming, it is initially quarantined and an attempt is made to resolve the non-conformance with the waste generator and relevant regulatory authority, if required. A non-conforming consignment could arise for several reasons such as:

- incomplete documentation,
- packaging or transport standards or
- composition and identity

If the non-conformance cannot be resolved, the WSC enables Tellus to issue a Waste Rejection Notice to the waste generator and the consignment remains quarantined pending resolution by the waste generator.

In the event of inaction by the waste generator, the WSC allows Tellus to treat, dispose or remove the consignment at the waste generator's cost. In which case external transport will be in conformance with the relevant disciplines of this plan.

Implementation - Scenario example.
Tellus will check the transporter's vehicle and waste documentation to verify compliance with regulatory requirements. Packaging and restraints will also be checked. Any discrepancies will be recorded and investigated and, if appropriate, will be reported to the relevant regulator.

Transport non-compliances will be managed through Tellus' incident investigation process. Significant breaches may result in the transporter being disqualified from Tellus' approved transporter register.

4.2 Transport directly contracted by Tellus

As stated earlier, management of transport of wastes to the Facility is the responsibility of the waste generator and transporter. However, some hazardous material transport activities for the Facility are engaged directly by Tellus. These are:

- Contracted Bulk fuel deliveries.
- Contracted Waste Oil collections for recycling.
- Contracted disposal of wastes not able to be disposed at the Facility.
- Transport of rejected waste (see Section 4.1.7).

Tellus' contractor management includes a prequalification process (see Section 4.1.5). In this process, potential transport contractors wishing to bid for contracts with Tellus will be screened on the basis of factors such as ISO certification, experience, reputation and proof of appropriate regulatory licences. Only contractors passing this process will be used by Tellus.

5 RISK MANAGEMENT

Tellus recognises that whilst transport is a function undertaken by the waste generator, not all waste generators will be capable of selecting transporters that are able to undertake transport to the standard required. This may particularly be the case where the waste generator's preferred transporter does not typically operate across multiple jurisdictions. To assist waste generators to meet their transport obligations, Tellus has awarded preferred transporter status to Toll Group, a transport company with a national footprint capable of operating compliantly and to a high standard in all jurisdictions. Toll Group already provide transport services to many of Tellus' prospective clients, enabling a smooth transition to waste transport. Should a waste generator be unable to source a suitable transporter or transporter combination for the entire route, Tellus will recommend that the waste generator engage with Toll Group.

5.1 Toll Group

Toll Group ("Toll") is Australia's leading integrated logistics provider with over 125 years' experience, employing over 40,000 people across 1,200 locations in more than 50 countries. On 12 August 2016, Tellus signed a Logistics Services and Infrastructure Services Agreement with Toll. The agreement will see the companies leverage their complementary assets, capabilities and services.

5.2 Emergency Response

As part of the transporter pre-qualification process (Section 4.1.5), Tellus will require transporters to identify their Emergency Responders whose identity and scope can be verified from the DMIRS list of Approved Emergency Responders[5]. This ensures consistency with Western Australia's *Dangerous Goods Safety (Road and Rail Transport of Non-explosives) Regulations 2007* and Chain of Responsibility obligations.

Tellus' capacity to respond to external emergency response incidents is detailed in Tellus' Sandy Ridge Emergency Response Plan.

5.3 Verification and Auditing

In addition to the transporter checks conducted at the Facility gate (see Section 4.1.6 and Section 4.1.7), Tellus reserves the right to conduct compliance and audit checks of waste generator's pre-qualified transport contractors at regular intervals (or at random or as required).

These audits are intended to ensure compliance with transport legislation, chain of responsibility and safety and quality performance standards is maintained.

[5] Available at: http://www.dmp.wa.gov.au/Documents/DGS_IS_ApprovedEmergencyResponder.pdf

5.4 Transport Risk Assessment and Journey Management Plans

Tellus reserves the right to require that a transport contractor (engaged by Tellus or a customer) prepare and submit for Tellus' approval a Transport Risk Assessment and/or a Journey Management Plan for any loads being delivered to the Facility, prior to the issuing of a Dispatch Notification.

For waste material deliveries, the need for Tellus' review and acceptance of a Transport Risk Assessment and/or a Journey Management Plan is defined during Tellus' Waste Acceptance Procedure, prior to issue of a Dispatch Notice. The decision as to whether a Transport Risk Assessment and/or a Journey Management Plan is required will be determined by an internal (Tellus) risk assessment which will consider;

- the type of waste and any environmental and/or safety hazards associated with that material,
- the transport route,
- the mode of transport (road, rail, sea),
- the quantity and frequency of deliveries, and
- Existing Legislative controls.

Transport contractors will be able to use their own format and systems of Transport Risk Assessment and/or a Journey Management Plans, and these will be audited upon submission to Tellus to ensure that they address at minimum:

- Chain of Responsibility Legislation.
- Dangerous Goods and Radioactive Materials Transport Legislation.
- Vehicle and road ratings (eg, RAV system in Western Australia).
- Route assessment (including alternate routes and hold-points if required).
- Incident response capabilities and plans.
- Communications plan.

6 ROLES AND RESPONSIBILITIES

Responsibilities for transport management are summarised in Table 6-1. Tellus' responsibilities centre around setting strict criteria on the nature of wastes acceptable for disposal at the Facility. Tellus liaises with the waste generator to schedule the dispatch of the waste to the Facility. Once the waste arrives at the Facility, Tellus is responsible for verifying that the waste meets the agreed consignment specifications. It is during this acceptance process that Tellus will record and report any non-compliances.

Table 6-1. Transport management responsibilities.

	Waste generator	Transporter (client contractor)	Tellus (Manager Packaging and Logistics)	Tellus (Manager Storage and Inventory)	Tellus (Gatehouse Attendant)	Tellus (Chemist)	Tellus (Facility Manager)
Detailed waste characterisation	*						
Waste packaging	*						
Waste acceptance			*				
Delivery plan	*						
Transporter pre-qualification	*						
Transport schedule	*			*			
Transport contingency		*					
Transport activities		*					
Waste consignment documentation (ref ?)		*					
Waste receipt					*		*
Waste conformance (onsite verification testing)						*	*

The Facility Manager will be accountable for all aspects pertaining to the operations, traffic management and safety at the Facility and on the Mt Walton Road.

The Facility Manager is responsible for:

- Implementation of this Plan.
- Day-to-day Facility management.
- Continued improvement of traffic management.
- Ensure compliance with relevant legislation and company policy by establishing and maintaining appropriate management and monitoring systems.
- Monitor the performance of the TMP.
- Liaise with the government, community and other key stakeholders identified by Tellus.
- Implement environmental induction procedures and appropriate training for Tellus staff and contractors.
- Report necessary compliance obligations.

The Manager Waste Packaging and Logistics will be responsible for:

- Supporting waste characterisation and waste inventory management functions.
- Ensuring proposed packaging type and format is fit for purpose.
- Ensuring waste generator implementation of the Delivery Plan.

The Manager Storage and Inventory will be responsible for:

- Supporting waste inventory management functions.
- Ensuring the waste transport schedule is implemented as part of the Delivery Plan.

The gate house attendant will be responsible for:

- Ensure safe traffic management functions of all inbound and outbound vehicles.
- Assess the waste consignment documentation upon arrival at the facility gate.
- Assess all inbound vehicles and loads upon arrival at the facility gate.
- Assess all outbound vehicles and loads prior to departure from facility.
- Undertake waste receipt tasks in accordance with the Transport Schedule.

The Site Chemist will be responsible for:

- Supporting waste characterisation and waste treatment functions.
- Undertake onsite verification testing in accordance with the Waste Acceptance Criteria.

It is the responsibility of all Facility staff and contractors to comply with the regulations and procedures defined in the TMP and, to carry out their work in a way that minimises potential adverse social and environmental impacts.

7 REPORTING

All risk assessments, transporter provided data, audit records, vehicle inspections, vehicle arrival and departure times will be recorded by Tellus.

Breaches of Chain of Responsibility laws and other transport or waste Legislation will be reported to the relevant Regulatory authority, as well as triggering an internal Non-Conformance Report.

Tellus will keep records of any complaints and any disciplinary action that may be taken. This information will be maintained for internal use.

Attachment 12

Bushfire Management Plan

19 March 2019

TELLUS

Sandy Ridge Facility

Bushfire Management Plan



Compliance Document

Tellus Holdings Ltd

March 19

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DOCUMENT CONTROL

The signatures below certify this **Bushfire Management Plan** has been reviewed, accepted and demonstrates that the signatories are aware of all the requirements contained herein and are committed to ensuring their provision.

	Name	Signature	Position	Date
Prepared by	Sophy Townsend		Manager - HSECQ	29/11/2018
Reviewed by	Michael Ingram		Chief Operating Officer	03/12/2018
Approved by	Richard Phillips		General Manager - HSECQ	05/12/2018

AMENDMENT RECORD

This Bushfire Management Plan is reviewed, audited and updated to ensure its continuing relevance to the systems and process that it describes. A record of contextual additions or omissions is given below:

Page No.	Context	Version	Name	Date
Section 6.3 and 6.5	As per DFES review comments dated 10 January 2019. Revised bushfire response team info and evacuation section. For consideration by JDAP.	C	Julie Mahony	24 Jan 2019
Throughout	As per DFES Land Use Planning review comments 22 February 2019	1	D. Panickar - ecoLogical	19 Mar 2019

COMPANY PROPRIETARY INFORMATION

The electronic version of this Bushfire Management Plan is the latest version. It is the responsibility of the individual to ensure that any paper material is the current version. The printed version of this procedure is uncontrolled, except when provided with a document reference number and version in the field below:

Document Ref.	**HSOO-1760150200-20316**					**Ver**	**0**
Uncontrolled Copy	✓		**Controlled Copy**			**Date**	**20/03/2019**

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1 INTRODUCTION

1.1 Project overview

Tellus Holdings Ltd (**'Tellus'**) has lodged a Development Application (DA) to construct and operate the Sandy Ridge Facility (the '**Facility**' and/or '**Project**'). The Facility involves the construction and operation of an open-cut kaolin mine and complementary waste storage and disposal facility with supporting above-ground infrastructure in the Shire of Coolgardie over 25 years.

The Facility is located approximately 75 km north east of Koolyanobbing, and approximately 240 km north west of Kalgoorlie, in the Shire of Coolgardie, within the Goldfields Region of WA (Figure 1-1).

The proposed development is encompassed within a 'development envelope' and has been divided into four sections as described below:

- Accommodation Village;
- Mine infrastructure area;
- Class II Landfill Area; and
- Groundwater Abstraction Area.

The Facility is within a designated bushfire prone area as per the *Western Australia State Map of Bush Fire Prone Areas* (DFES 2018; Figure 1-2), which triggers bushfire planning requirements under *State Planning Policy 3.7 Planning in Bushfire Prone Areas* (SPP 3.7; WAPC 2015) and reporting to accompany submission of the development application in accordance with the associated *Guidelines for Planning in Bushfire Prone Areas v 1.3* (the Guidelines; WAPC 2017).

This assessment has been prepared in conjunction between Tellus and Eco Logical Australia (ELA) Senior Bushfire Consultants Daniel Panickar (FPAA BPAD Level 2 Certified Practitioner No. BPAD37802-L2) and Bruce Horkings (FPAA BPAD Level 3 Certified Practitioner No. BPAD29962-L3).

1.2 Purpose and application of the plan

The primary purpose of this Bushfire Management Plan (BMP) is to act as a technical supporting document to inform planning assessment.

This BMP is also designed to provide guidance on how to plan for and manage the bushfire risk to the subject site through implementation of a range of bushfire management measures in accordance with the Guidelines.

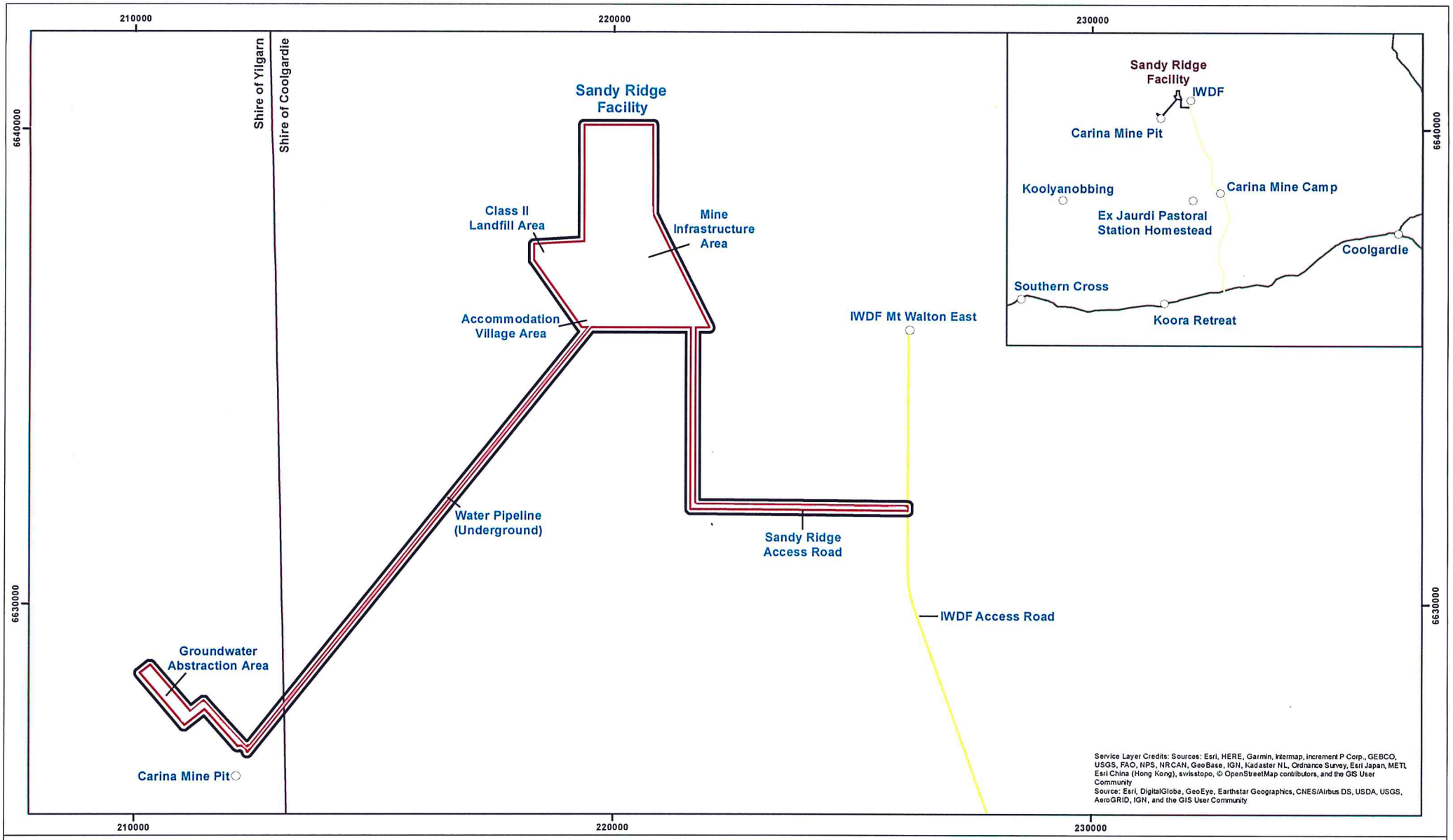
The Facility is considered a high-risk land use under SPP 3.7. Policy Measure 6.6 of SPP .7 requires development applications for high-risk land uses in areas between BAL-12.5 and BAL-29 to be accompanied by a risk management plan for any flammable on-site hazards. A Bushfire Risk Management Plan has been prepared by for the proposed development and is included in Appendix A.

1.3 Environmental factors

1.3.1 Native vegetation clearing

The development envelope for the Facility consists of open woodland and shrublands dominated by Acacia and Eucalyptus species. Open heaths are dominated by Leptospermum species. All vegetation types are considered common and widespread within the region. Most of the vegetation within the development envelope is in excellent condition.

The proposed development has received environmental approval under s45 of the State *Environmental Protection Act 1986* (EP Act; refer to Ministerial Statement 1078).



N

1 0.5 0 1 Km

Coordinate System:
GDA 94 MGA Zone 51
A3 Scale 1:75,000

SP-ID:GL00-2017072102-558
TSR0248_BFMPv1_SiteOverview.mxd

Legend

- Development Envelope
- 100m Assessment Area
- Infrastructure footprint
- Principal road
- IWDF access road

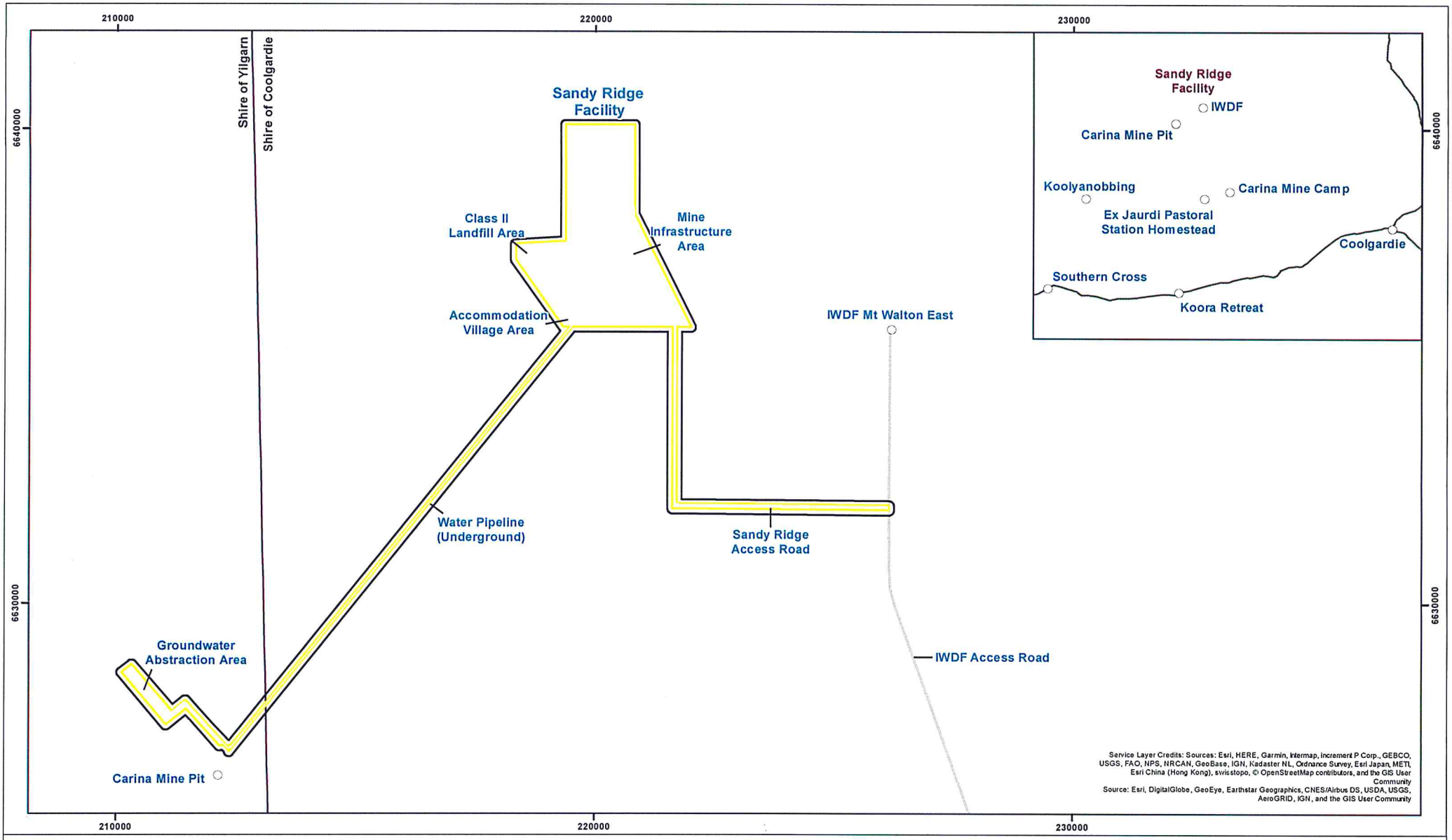
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Figure 1-1
Site Overview

SANDY RIDGE FACILITY
BUSHFIRE MANAGEMENT PLAN

Version: A
Date: 14/03/2019



N

1.5 0.75 0 1.5 Km

Coordinate System:
GDA 94 MGA Zone 51
A3 Scale 1:100,000

SP-ID:GL00-2017072102-560
TSR0249_BFMPv1_BFProneArea.mxd

Legend

- Bushfire Prone Areas 2018
- 100M Assessment Area
- Development Envelope
- Infrastructure footprint
- IWDF Access Road
- Local Government Authority Boundaries

Data in this map is sourced from: © Commonwealth of Australia (Geoscience Australia) 2018 and © State of Western Australia (Department of Mines, Industry Regulation and Safety and Department of Fire and Emergency Services) 2018.

Figure 1-2
Bushfire Prone Area

SANDY RIDGE FACILITY
BUSHFIRE MANAGEMENT PLAN

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2 BUSHFIRE ASSESSMENT RESULTS

2.1 Bushfire assessment inputs

The following section is a consideration of spatial bushfire risk and has been used to inform the bushfire assessment in this report.

2.1.1 General

The Facility is located in the Shire of Coolgardie on unallocated Crown Land and accessed from the Great Eastern Highway by the Mt Walton East Intractable Waste Disposal Facility (**IWDF**) Access Road, which leaves the highway approximately 96 km east of Southern Cross and 90 km west of Coolgardie. After travelling approximately 90 km north on the IWDF Access Road, access to the Facility is gained by turning west onto the Mt Dimer Road for 4.5 km, then north for 4 km along a new access road to the Facility.

Desktop investigations (involving the interpretation of publicly available aerial imagery) followed by field investigations have identified past fire history to the north and south of the Sandy Ridge Facility. The reasons for past fires are unknown but could be attributed to lightning strike.

2.1.2 Fire Danger Index

A blanket rating of FDI 80 is adopted for Western Australian environments, as outlined in *AS 3959-2009 Construction of Buildings in Bushfire Prone Areas* (AS 3959-2009) (SA 2009) and endorsed by Australasian Fire and Emergency Service Authorities Council (AFAC).

2.1.3 Vegetation classification

Vegetation within the development envelope and surrounding 150 m (the assessment area) was assessed in accordance with the Guidelines and AS 3959-2009 with regard given to the *Visual guide for bushfire risk assessment in Western Australia* (DoP 2016).

The vegetation assessment has been based on extensive flora and vegetation surveys undertaken within the development envelope and surrounds supporting environmental approvals. The results of these surveys have been reviewed by ELA and aligned to vegetation classifications described in AS 3959-2009.

The following vegetation classes and exclusions were identified within the assessment area as depicted in Figure 2-1:

- Class B woodland;
- Class C shrubland;
- Class D scrub;
- Class E mallee; and
- Exclusions as per clause 2.2.3.2 (e) and (f) (i.e. non-vegetated areas and low-threat vegetation).

Photographs relating to each vegetation type are included in Appendix B.

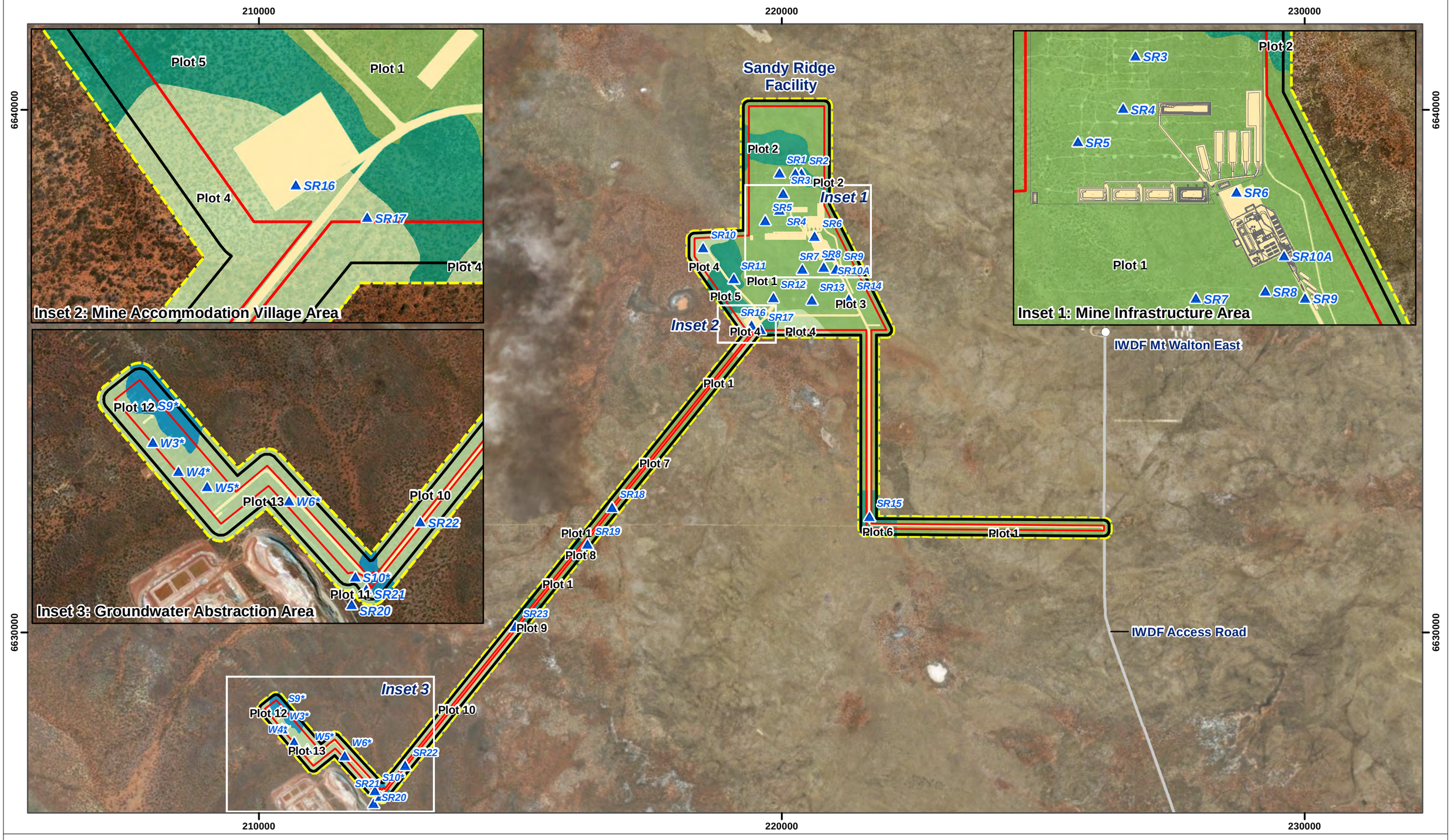
2.1.4 Topography and slope under vegetation

Effective slope under vegetation was assessed for a distance of 150 m from the development envelope in accordance with the Guidelines and AS 3959 2009 and is depicted in Figure 2-1. Slope under all areas of classified vegetation within the assessment area was assessed as upslope/flat.

The BAL assessment addresses this topic further in section 2.2.

2.1.5 Distance between proposed development areas and classified vegetation

Separation distances between proposed development areas within the development envelope and classified vegetation are discussed in the BAL assessment in section 2.2.



N

1 0.5 0 1 Km

Coordinate System:
GDA 94 MGA Zone 51

SP-ID:GL00-2017072102-557
TSR0250_BFMPv1_VegClass.mxd

Legend

Vegetation Classification

- Class B Woodaland
- Class C Shrubland
- Class D Scrub
- Class E Mallee/Mulga
- Area to be modified to low threat state
- Development Envelope
- 100m Assessment Area
- 150m Assessment Area
- Infrastructure footprint
- IWDF access road

* Photo point locations are indicative only

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Figure 2-1
Vegetation Classification

SANDY RIDGE FACILITY
BUSHFIRE MANAGEMENT PLAN

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2.2 Bushfire assessment outputs

A Bushfire Attack Level (BAL) assessment has been undertaken in accordance with SPP 3.7, the Guidelines, AS 3959-2009 and the bushfire assessment inputs in section 2.1.

2.2.1 Bushfire Attack Level (BAL) assessment

All land located within 100 m of the classified vegetation depicted in Figure 2-1 is considered bushfire prone and is subject to a BAL assessment in accordance with AS 3959 2009.

A Method 1 BAL assessment (as outlined in AS 3959 2009) has been completed for the proposed development and incorporates the following factors:

- State adopted Fire Danger Index (FDI);
- Vegetation class;
- Slope under classified vegetation; and
- Distance between proposed development areas and the classified vegetation.

Based on the identified BAL, construction requirements for proposed buildings can then be assigned. The BAL rating gives an indication of the expected level of bushfire attack (i.e. radiant heat flux, flame contact and ember penetration) that may be received by proposed buildings and subsequently informs the standard of construction required to increase building survivability.

2.2.2 Method 1 BAL assessment

Table 2-1 and Figure 2-2 display the Method 1 BAL assessment (in the form of BAL contours) undertaken for the proposed development in accordance with AS 3959-2009 methodology. The results show that all habitable buildings within the development envelope are located in areas subject to a BAL rating of BAL-12.5 or lower.

Table 2-1 Method 1 BAL calculation

Vegetation classification and plot	Effective slope under vegetation	Hazard separation distance (m)	BAL rating	Comment
Class B woodland Plots 4, 10 and 13	Upslope/flat	<10	BAL-FZ	No habitable buildings proposed in this area
		10-<14	BAL-40	No habitable buildings proposed in this area
		14-<20	BAL-29	No habitable buildings proposed in this area
		20-<29	BAL-19	No habitable buildings proposed in this area
		29-<100	BAL-12.5	Habitable buildings proposed in this area
Class C shrubland Plot 1		<7	BAL-FZ	No habitable buildings proposed in this area
		7-<9	BAL-40	No habitable buildings proposed in this area
		9-<13	BAL-29	No habitable buildings proposed in this area
		13-<19	BAL-19	No habitable buildings proposed in this area
		19-<100	BAL-12.5	Habitable buildings proposed in this area
Class D scrub Plots 3, 9 and 11		<10	BAL-FZ	No habitable buildings proposed in this area
		10-<13	BAL-40	No habitable buildings proposed in this area
		13-<19	BAL-29	No habitable buildings proposed in this area
		19-<27	BAL-19	No habitable buildings proposed in this area
		27-<100	BAL-12.5	Habitable buildings proposed in this area
Class E mallee Plots 2, 5, 6, 7, 8 and 12		<6	BAL-FZ	No habitable buildings proposed in this area
		6-<8	BAL-40	No habitable buildings proposed in this area
		8-<12	BAL-29	No habitable buildings proposed in this area
		12-<17	BAL-19	No habitable buildings proposed in this area
		17-<100	BAL-12.5	Habitable buildings proposed in this area

2.3 Identification of issues arising from the BAL assessment

All new structures are located in areas subject to a BAL rating of BAL 12.5 or lower. Should there be any changes in development design or vegetation/hazard extent that requires a modified bushfire management response, then the above BAL ratings will need to be reassessed for the affected areas and documented in a brief addendum to this BMP.

210000

220000

6640000

6633000

Sandy Ridge Facility

Inset 1

Inset 2

IWDF Mt Walton East

IWDF Access Road

Carina Mine Pit

Inset 1: Mine Infrastructure Area

Inset 2: Accommodation Village Area

N

1 0.5 0 1 Km

Coordinate System:
GDA 94 MGA Zone 51

SP-ID:GL00-2017072102-561
TSR0250_BFMPv1_BAL-Contours.mxd

Legend

Indicative Bush Fire Attack Level

- BAL-LOW
- BAL 12.5
- BAL 19
- BAL 29
- BAL 40
- BAL FZ

- Development Envelope
- 100m Assessment Area
- 150m Assessment Area

- Infrastructure footprint
- IWDF access road

Accommodation Village layout is indicative only

Data in this map is sourced from: © Commonwealth of Australia (Geoscience Australia) 2018

Figure 2-2
Bushfire Attack Level (BAL) Contour Map

SANDY RIDGE FACILITY
BUSHFIRE MANAGEMENT PLAN

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3 ASSESSMENT AGAINST THE BUSHFIRE PROTECTION CRITERIA

3.1 Compliance

The proposed development is required to comply with policy measures 6.2, 6.5 and 6.6 of SPP 3.7 and the Guidelines.

In response to the above requirements of SPP 3.7 and the Guidelines, bushfire management measures have been devised for the proposed development in accordance with Guideline acceptable solutions where possible to meet compliance with bushfire protection criteria.

Table 3-1 outlines the Acceptable Solutions (AS) that are relevant to the proposal and summarises how the intent of each Bushfire Protection criteria has been achieved. No Performance Solutions (PS) have been used for this proposal. These management measures are depicted in Figure 3-1.

Table 3-1 Summary of solutions used to achieve bushfire performance criteria

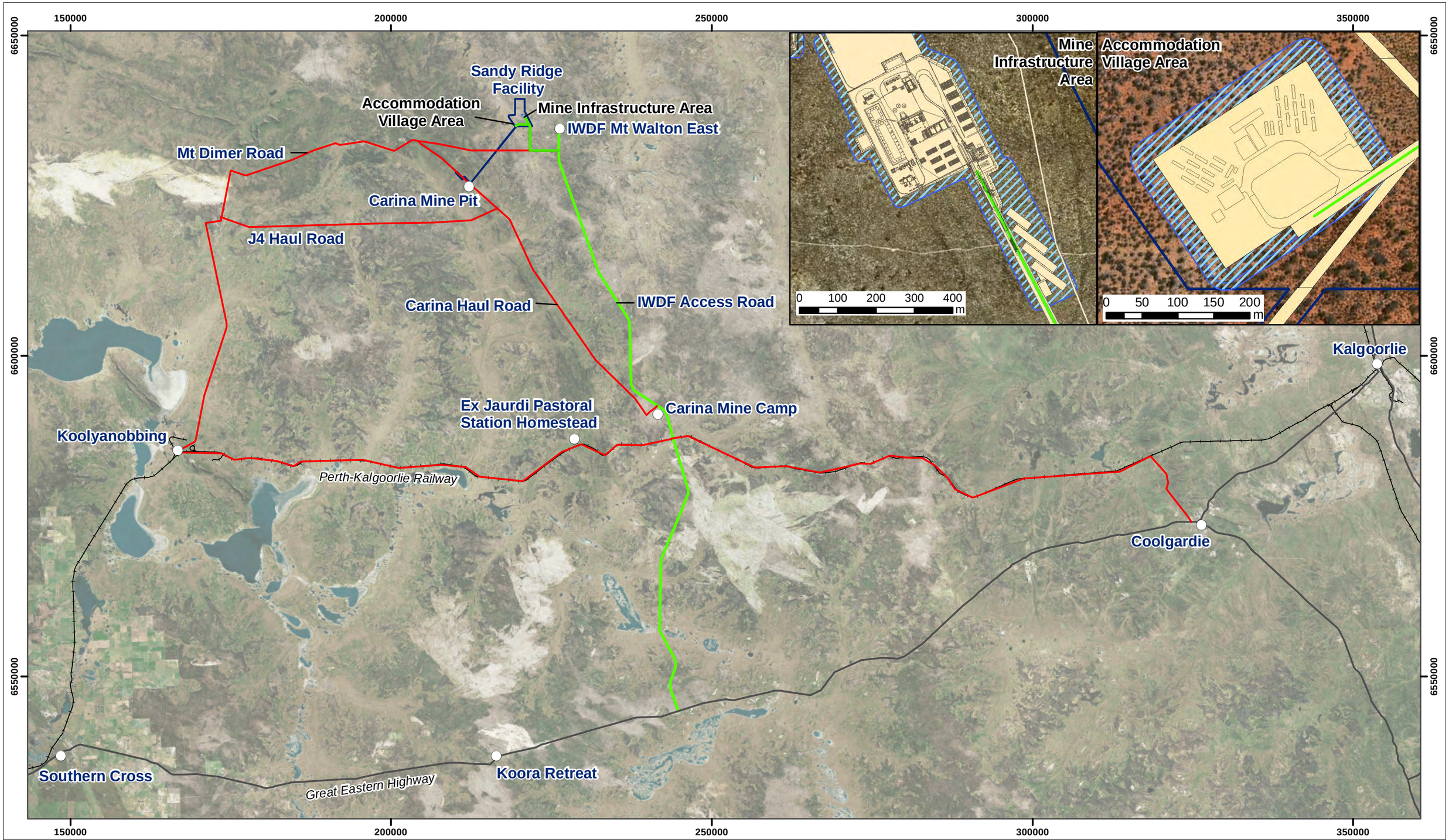
Bushfire Performance Criteria	AS	PS	N/A	Comment
Element 1: Location A1.1 Development location	☒	☐	☐	All habitable buildings within the development envelope are situated in areas subject to BAL ratings of ≤BAL-12.5 (Figure 2-2). The proposed development is considered to be compliant with A1.1.
Element 2: Siting and design of development A2.1 Asset Protection Zone (APZ)	☒	☐	☐	APZs will be implemented between all habitable buildings and classified vegetation in the form of cleared areas and maintained vegetation (refer to Figure 3-1). APZs will be maintained in accordance with *Standards for Asset Protection Zones* reproduced in Appendix C. The proposed development is considered to be compliant with A2.1.
Element 3: Vehicular access A3.1 Two access routes	☒	☐	☐	Two access/egress routes are available to/from the development envelope as depicted in Figure 3-1. The proposed development is considered to be compliant with A3.1.
Element 3: Vehicular access A3.2 Public road	☒	☐	☐	All public roads will be constructed in accordance with Table 6, Column 1 in the Guidelines. The proposed development is considered to be compliant with A3.2.
Element 3: Vehicular access A3.3 Cul-de-sac	☐	☐	☒	No cul-de-sacs are proposed as part of the development.

Bushfire Performance Criteria	AS	PS	N/A	Comment
Element 3: Vehicular access A3.4 Battle-axe	☐	☐	☒	No battle-axe lots are proposed as part of the development.
Element 3: Vehicular access A3.5 Private Driveway longer than 50 m	☒	☐	☐	Internal site roads (considered private driveways) will meet the requirements of Table 6, Column 3 and explanatory note 3.5 in the Guidelines. The proposed development is considered to be compliant with A3.5.
Element 3: Vehicular access A3.6 Emergency Access way	☐	☐	☒	No Emergency Access Ways are proposed or required for the development.
Element 3: Vehicular access A3.7 Fire-service access routes	☐	☐	☒	No Fire Service Access Routes are proposed or required for the development.
Element 3: Vehicular access A3.8 Firebreak width	☒	☐	☐	Where required, firebreaks will meet the requirements of the Shire of Coolgardie *Bush Fire Act Notice*. The proposed development is considered to be compliant with A3.8.
Element 4: Water A4.2 Non-Reticulated areas	☒	☐	☐	The accommodation village will have 4 x 32 kL water tanks, with 50 kL in reserve for firefighting purposes. The mine infrastructure area has a dedicated fire water system that includes the following tanks: • 520 kL raw water tank; • 360 kL fresh water tank; and • 220 kL potable water tank. Hardstand turnaround areas for a 3.4 fire appliance (minimum kerb to kerb width of 17.5 m) are available within 3 m of the tanks. The proposed development is considered to be compliant with A4.2.

3.2 Additional management strategies

A BRMP has been prepared for the proposed development in accordance with Policy measure 6.6 of SPP 3.7 (Appendix A). This plan details how high-risk components of the proposed development will be managed to reduce bushfire risk.

All cleared and maintained vegetation areas within the development envelope will be maintained in accordance with *Standards for Asset Protection Zones* (Appendix C).



N

10 5 0 10 Km

Coordinate System:
GDA 94 MGA Zone 51

SP-ID:GL00-2017072102-559
TSR0251_BFMPv1_Management.mxd

Legend

- Primary Egress Route
- Alternate Egress Route
- Indicative APZ
- Development Envelope
- Localities
- Principal road
- Infrastructure footprint
- Infrastructure footprint

Data in this map is sourced from: © Commonwealth of Australia (Geoscience Australia) 2018

Figure 3-1
Spatial Representation of Bushfire Management Strategies

SANDY RIDGE FACILITY
BUSHFIRE MANAGEMENT PLAN

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4 IMPLEMENTATION AND ENFORCEMENT

Implementation of the BMP applies to Tellus to ensure bushfire management measures are adopted and implemented on an ongoing basis. A summary of the bushfire management measures described in section 3, as well as a works program, is provided in Table 4-1. These measures will be implemented to ensure the ongoing protection of life and property assets is achieved. Timing and responsibilities are also defined to assist with implementation of each measure.

Table 4-1 Proposed works program

No.	Bushfire management measure	Responsibility
Prior to operation of Facility		
1	Ensure all new structures are located outside of areas subject to BAL-FZ and BAL-40 as per the design in Figure 5-2.	Tellus
2	Ensure APZs are implemented and maintained in accordance with standards in Appendix C.	Tellus
3	Ensure water supply is provided as per section 3 of this BMP.	Tellus
	Comply with Bushfire Risk Management Plan	Tellus
Ongoing management		
4	Ensure APZs are implemented and maintained in accordance with standards in Appendix C.	Tellus
5	Comply with Bushfire Risk Management Plan	Tellus

5 CONCLUSION

In the author's professional opinion, the bushfire protection requirements listed in this assessment provide an adequate standard of bushfire protection for the proposed development consistent with the aim and objectives of SPP 3.7 and associated guidelines and is recommended for approval.



Daniel Panickar
Senior Bushfire Consultant
FPAA BPAD Certified Practitioner
No. BPAD37802-L2

BPAD Bushfire Planning & Design Accredited Practitioner Level 2



Bruce Horkings
Senior Bushfire Consultant
FPAA BPAD Certified Practitioner
No. BPAD29962-L3

BPAD Bushfire Planning & Design Accredited Practitioner Level 3

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APPENDICES

TELLUS

Sandy Ridge Facility

Bushfire Risk Management Plan



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DOCUMENT CONTROL

The signatures below certify this **Bushfire Risk Management Plan** has been reviewed, accepted and demonstrates that the signatories are aware of all the requirements contained herein and are committed to ensuring their provision.

	Name	Signature	Position	Date
Prepared by	Sophy Townsend		Manager - HSECQ	29/11/2018
Reviewed by	Michael Ingram		Chief Operating Officer	03/12/2018
Approved by	Richard Phillips		General Manager - HSECQ	05/12/2018

AMENDMENT RECORD

This Bushfire Risk Management Plan is reviewed, audited and updated to ensure its continuing relevance to the systems and process that it describes. A record of contextual additions or omissions is given below:

Page No.	Context	Version	Name	Date
ALL	Transferred risk assessment from BFMP to separate document	0	D. Panickar	19/03/2019

COMPANY PROPRIETARY INFORMATION

The electronic version of this Bushfire Management Plan is the latest version. It is the responsibility of the individual to ensure that any paper material is the current version. The printed version of this procedure is uncontrolled, except when provided with a document reference number and version in the field below:

Document Ref.	**HSOO-1760150200-20316**					**Ver**	**0**
Uncontrolled Copy	✓		**Controlled Copy**			**Date**	**05/12/2018**

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1 PROJECT OVERVIEW

Tellus Holdings Ltd (**'Tellus'**) has lodged a Development Application (DA) to construct and operate the Sandy Ridge Facility (the '**Facility**' and/or '**Project**'). The Facility involves the construction and operation of an open-cut kaolin mine and complementary waste storage and disposal facility with supporting above-ground infrastructure in the Shire of Coolgardie over 25 years.

The Facility is located approximately 75 km north east of Koolyanobbing, and approximately 240 km north west of Kalgoorlie, in the Shire of Coolgardie, within the Goldfields Region of WA (Figure 1-1).

The proposed development is encompassed within a 'development envelope' and has been divided into four sections as described below:

- Accommodation Village;
- Mine infrastructure area;
- Class II Landfill Area; and
- Groundwater Abstraction Area.

The Facility is within a designated bushfire prone area as per the *Western Australia State Map of Bush Fire Prone Areas* (DFES 2018; Figure 1-2), which triggers bushfire planning requirements under *State Planning Policy 3.7 Planning in Bushfire Prone Areas* (SPP 3.7; WAPC 2015) and reporting to accompany submission of the development application in accordance with the associated *Guidelines for Planning in Bushfire Prone Areas v 1.3* (the Guidelines; WAPC 2017).

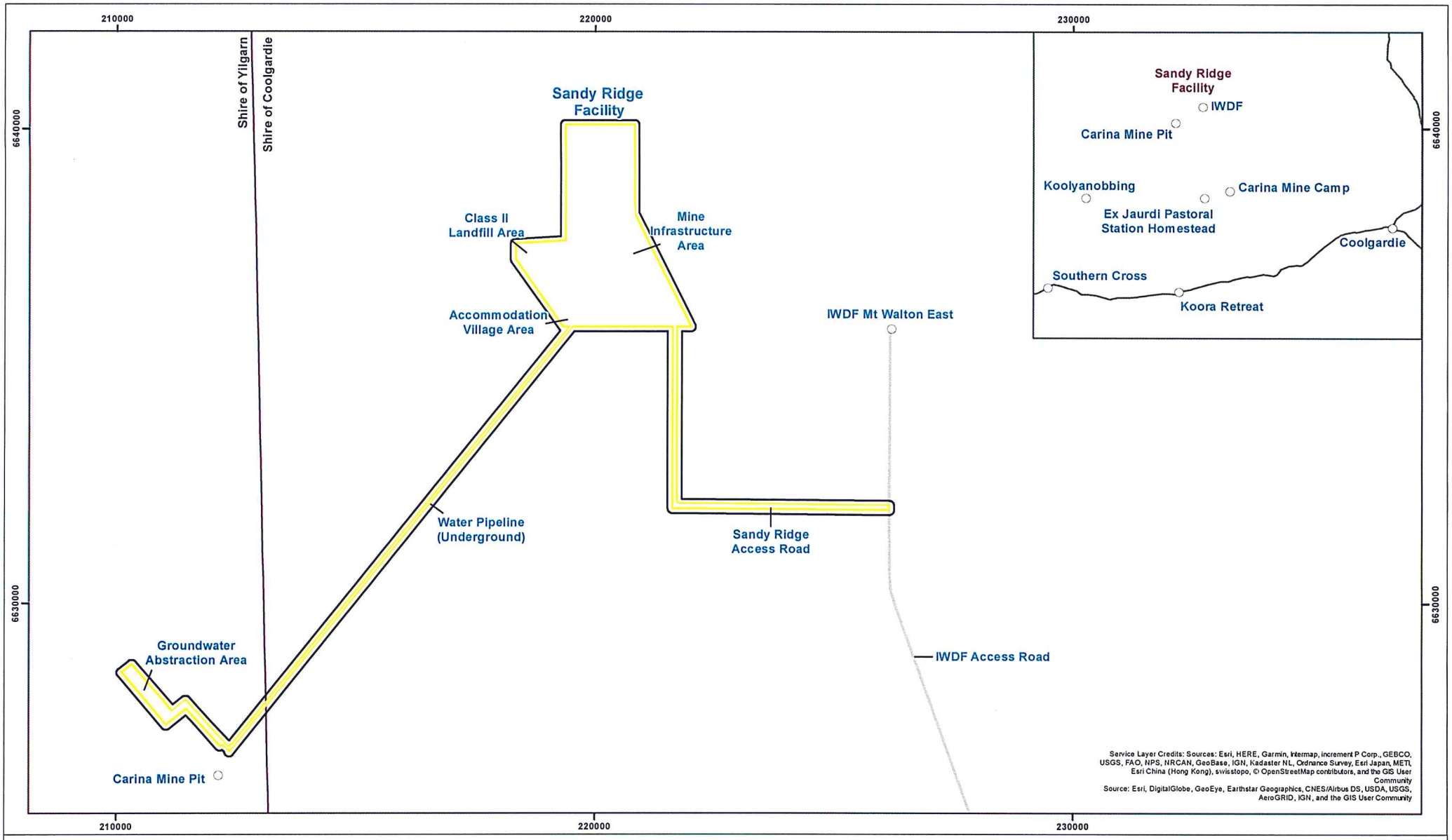
This assessment has been prepared by Tellus. Eco Logical Australia (ELA) has provided input into the risk assessment section of this document, however controls and mitigation have been developed by Tellus.

1.1 Purpose and application of the plan

The primary purpose of this Bushfire Risk Management Plan (BRMP) is to act as a technical supporting document to inform planning assessment in conjunction with the corresponding Bushfire Management Plan (BMP).

SPP 3.7 (Policy Measure 6.6) requires development applications for high-risk land uses (such as petrol stations) in areas between BAL-12.5 and BAL-29 to be accompanied by a risk management plan for any flammable on-site hazards. The BMP prepared by Tellus and ELA for the development identifies all habitable buildings within the development envelope as being located within areas subject to a BAL rating of BAL-12.5 or lower.

The Building Code of Australia bushfire construction requirements only apply to residential buildings and associated structures. The Guidelines therefore require the planning process to focus on location and siting of high-risk land uses rather than application of bushfire construction requirements.



N

1.5 0.75 0 1.5 Km

Coordinate System:
GDA 94 MGA Zone 51
A3 Scale 1:100,000

SP-ID:GL00-2017072102-560
TSR0249_BFMPv1_BFProneArea.mxd

Legend

- Bushfire Prone Areas 2018
- 100M Assessment Area
- Development Envelope
- Infrastructure footprint
- IWDF Access Road
- Local Government Authority Boundaries

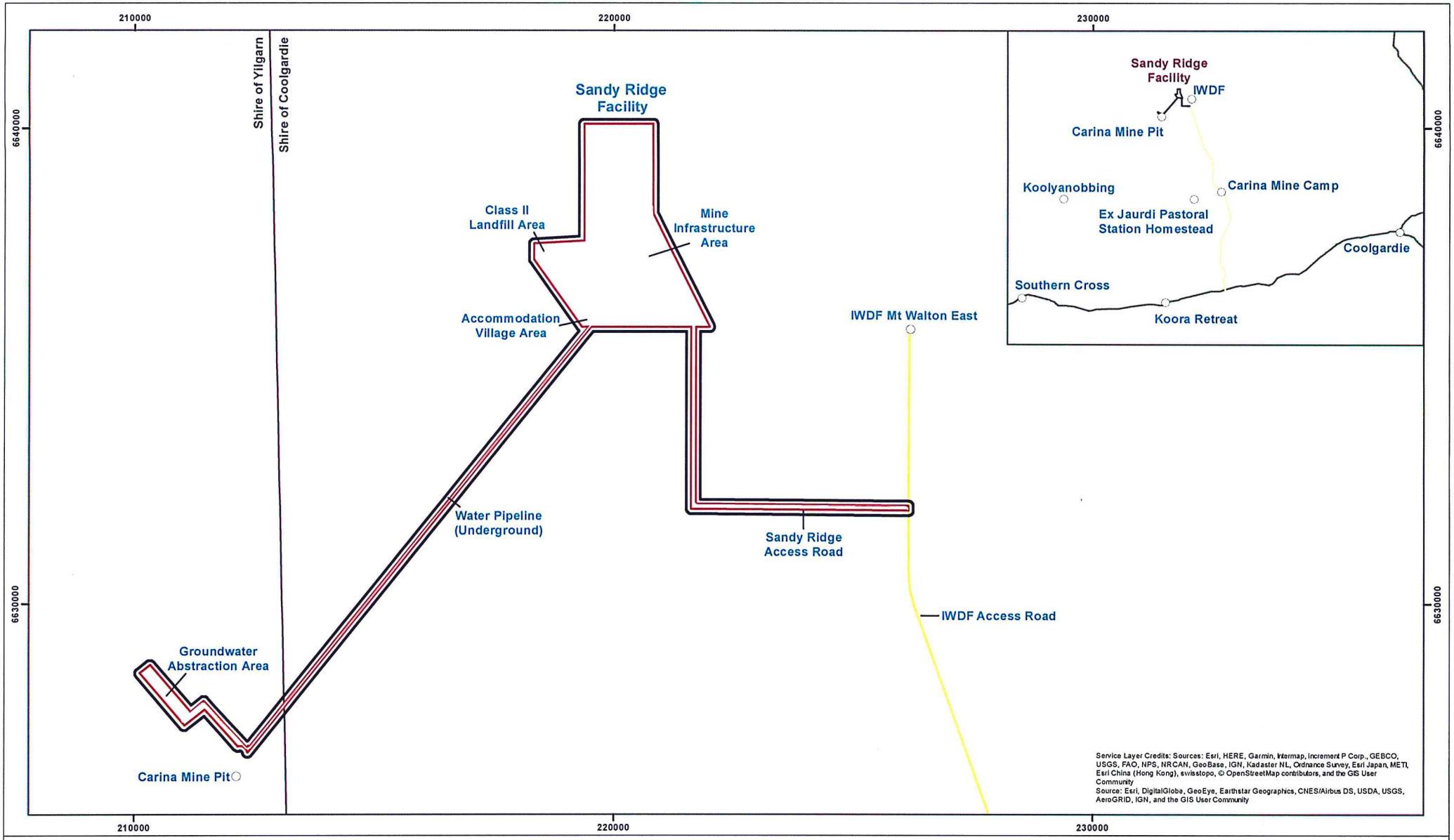
Data in this map is sourced from: © Commonwealth of Australia (Geoscience Australia) 2018 and © State of Western Australia (Department of Mines, Industry Regulation and Safety and Department of Fire and Emergency Services) 2018.

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Figure 1-2
Bushfire Prone Area

SANDY RIDGE FACILITY
BUSHFIRE MANAGEMENT PLAN

Version: A
Date: 14/03/2019



N

1 0.5 0 1 Km

Coordinate System:
GDA 94 MGA Zone 51
A3 Scale 1:75,000

SP-ID:GL00-2017072102-558
TSR0248_BFMPv1_SiteOverview.mxd

Legend

- Development Envelope
- 100m Assessment Area
- Infrastructure footprint
- Principal road
- IWDF access road

Data in this map is sourced from: © Commonwealth of Australia (Geoscience Australia) 2018

Figure 1-1
Site Overview

SANDY RIDGE FACILITY
BUSHFIRE MANAGEMENT PLAN

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Version: A
Date: 14/03/2019

2 POTENTIAL BUSHFIRE SCENARIOS

The BMP identifies and classifies the existing bushfire hazards within 150 m of the development envelope, based on existing vegetation and slope and separation distance to the vegetation.

Based on this information, an assessment of potential bushfire scenarios that could affect assets within the development envelope has been undertaken. The potential bushfire scenarios have been used to inform a bushfire risk assessment (refer to section 4) and assist in development of appropriate bushfire mitigation responses (refer to section 5). The following bushfire scenarios were assessed:

1. Bushfire approaching the Facility from a southerly or easterly direction; and
2. Bushfire approaching the Facility from all other directions.

Bushfire scenarios have been selected based on the location of classified vegetation from the development envelope, climate and direction of prevailing winds during the bushfire season.

2.1 Vegetation and slope

Vegetation and slope under vegetation within the development envelope and surrounding 150 m (the assessment area) was assessed in accordance with the Guidelines and AS 3959-2009 with regard given to the *Visual guide for bushfire risk assessment in Western Australia* (DoP 2016).

The following vegetation classes and exclusions were identified within the assessment area:

- Class B woodland;
- Class C shrubland;
- Class D scrub;
- Class E mallee; and
- Exclusions as per clause 2.2.3.2 (e) and (f) (i.e. non-vegetated areas and low-threat vegetation).

Slope under all areas of classified vegetation within the assessment area was assessed as upslope/flat.

2.2 Climatic contributions

2.2.1 Wind

Wind is an important factor in influencing the direction and speed of a bushfire. Wind supplies oxygen and can remove soot and ash from the flame; increasing its ability to burn. Wind can slant, carry embers causing spot fires and dictate the direction of the fire front. Unpredictable wind changes can occur during a bushfire which alter the direction of the fire, having catastrophic effects.

The dominant wind direction in the region is from the east-southeast and is generally the strongest in autumn and summer (refer to Figure 2-1) with maximum average wind speeds of 16 m s^{-1} (refer to Figure 2-2 and Figure 2-3).

Wind patterns follow a counter clockwise progression (varying around a week-long periodicity) but are normally from high pressure systems that result in south-west and east dominance of wind direction. However, during the spring and autumn equinoxes and during the unpredictable summer wet season, storms more commonly come from the west and north-west

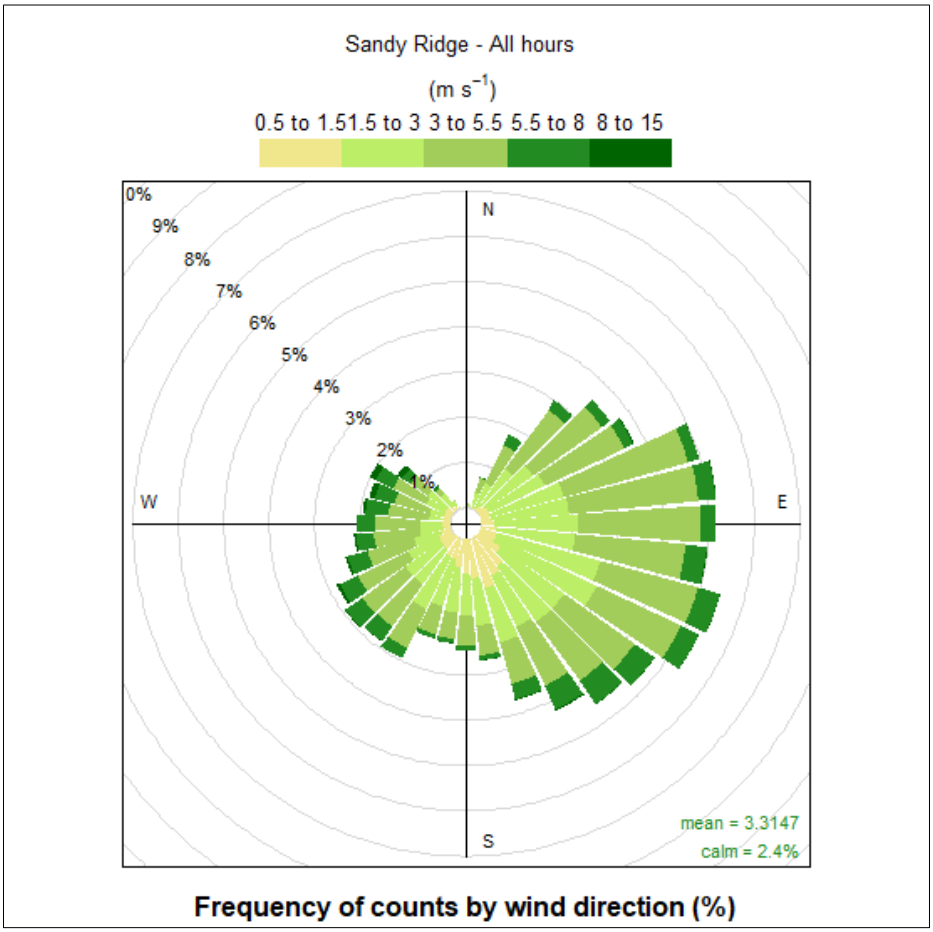


Figure 2-1 Annual and seasonal wind roses at Sandy Ridge from 7 May 2015 to 30 April 2018 (on site weather station).

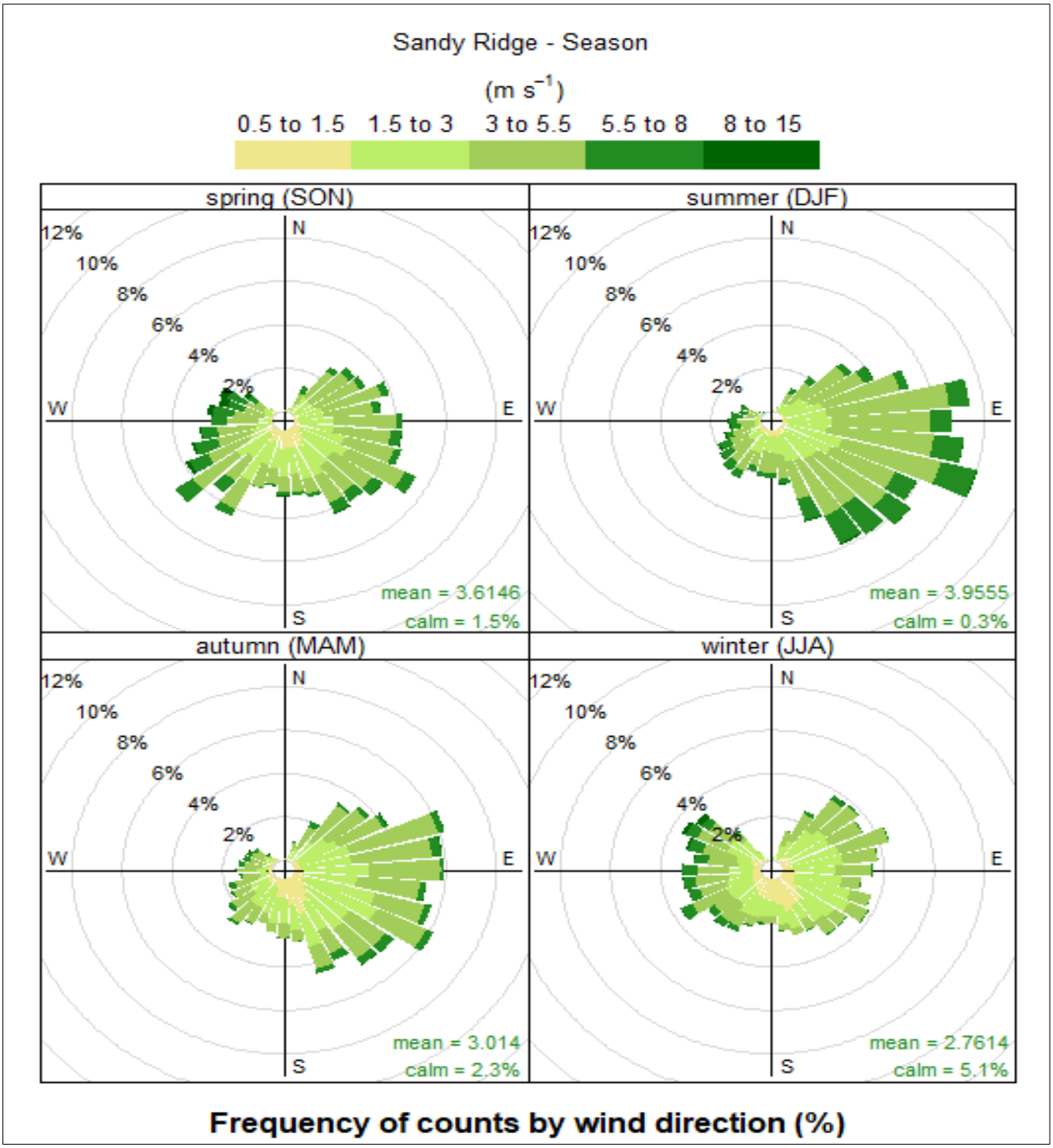


Figure 2-2 Annual and seasonal wind speed distribution from 7 May 2015 to 30 April 2018 (on site weather station).

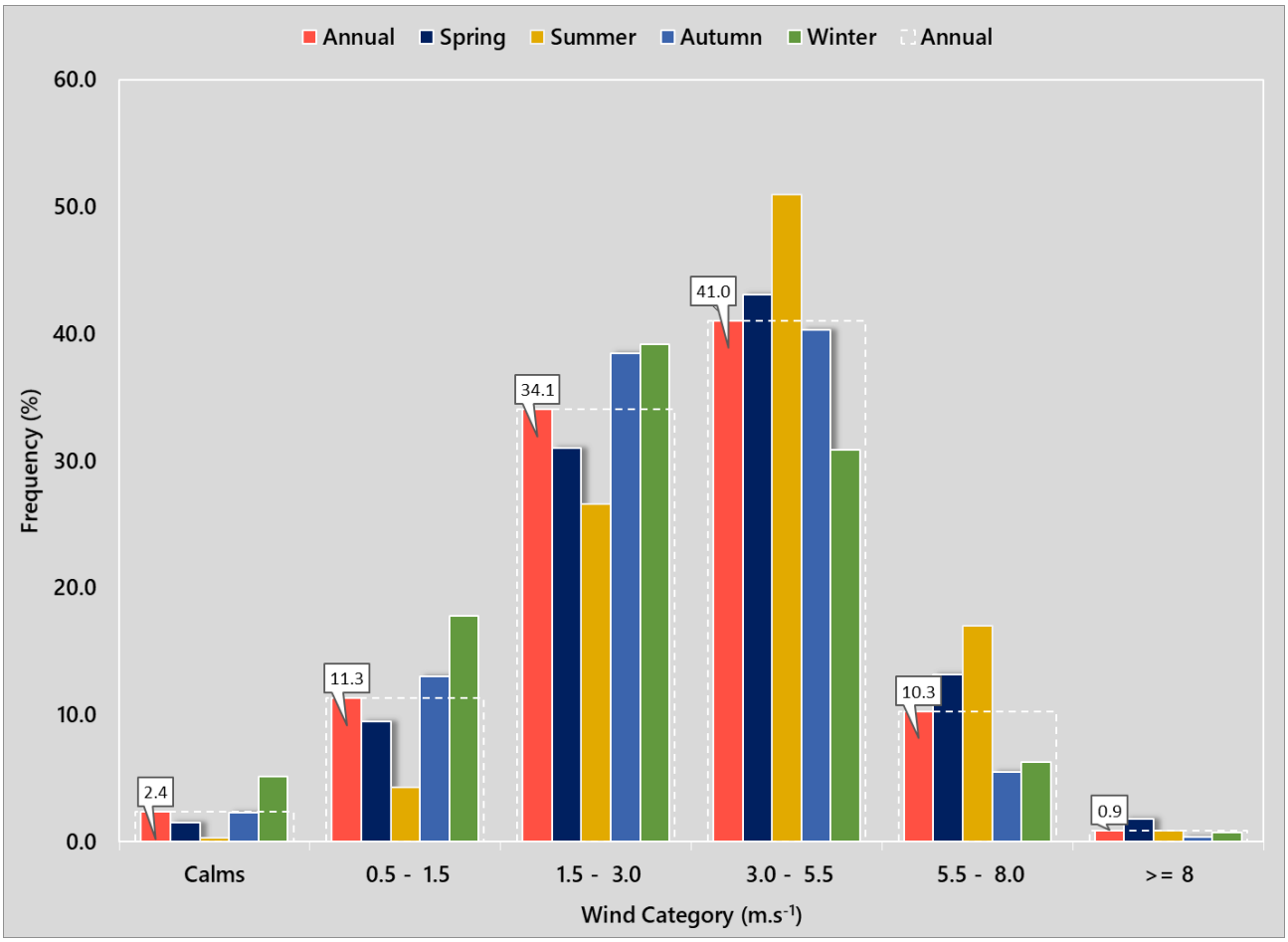


Figure 2-3 Annual and seasonal wind speed distribution - 7 May 2015 to 30 April 2018 (on site weather station).

2.2.2 Lightning

Bureau of Meteorology (BOM) information for Coolgardie shows a high rate of lightning strikes during summer storms. These have the potential to start bushfires that could impact the Facility.

2.2.3 Temperature and humidity

Air temperatures measured in the region between 7 May 2015 to 30 April 2018 varied between a period minimum of -6.7°C and a period maximum of 42.4°C. The average temperature measured over the monitoring period was 17.8°C.

Average, maximum and minimum hourly temperatures measured during each season in the region are presented in Table 2-1. The daily average temperature calculated between 7 May 2015 to 30 April 2018 is presented in Figure 2-4.

Table 2-1 Observed temperature at Sandy Ridge between 7 May 2015 to 20 April 2018 (on site weather station).

7 May 2015 to 30 April 2018	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Maximum temperature													
Mean maximum temperature (°C)	33.6	31.6	30.3	26.3	20.6	18.2	16.8	18.0	22.2	27.4	31.1	33.1	25.8
Highest maximum temperature (°C)	42.4	42.1	38.5	37.3	28.4	27.6	28.3	27.9	33.9	38.5	39.7	42.0	42.4
Lowest maximum temperature (°C)	21.8	19.2	17.7	17.5	14.5	10.2	8.4	11.4	12.4	17.4	20.2	21.1	8.4
Minimum temperature													
Mean minimum temperature (°C)	18.3	16.9	15.7	10.3	4.3	3.8	2.6	4.2	4.7	9.3	14.7	16.1	10.1
Highest minimum temperature (°C)	24.8	23.8	23.5	17.5	12.4	15.3	13.3	13.1	15.3	21.1	23.0	23.5	24.8
Lowest minimum temperature (°C)	12.6	6.1	5.0	1.3	-2.2	-4.8	-6.7	-5.7	-5.0	-1.7	4.8	5.7	-6.7

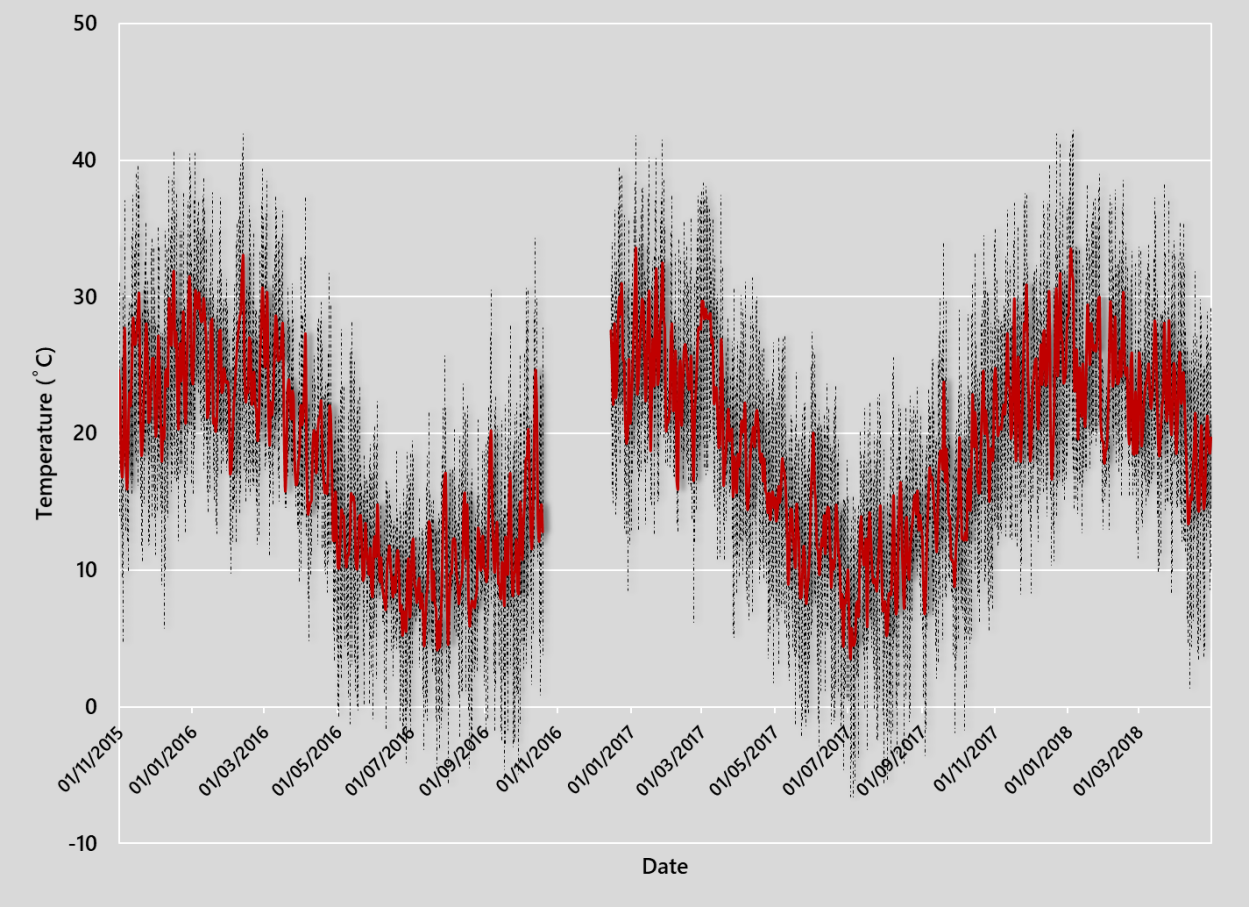


Figure 2-4 Daily average air temperature at Sandy Ridge from 7 May 2015 to 30 April 2018 (on site weather station).

2.2.4 Rainfall and evaporation

The region received at total of 950 mm of rainfall between 7 May 2015 and 30 April 2018. The distribution of rainfall is presented in Table 2-2. Distribution of rainfall by season is presented in Figure 2-5.

2.3 Assessment of bushfire scenarios

2.3.1 Bushfire approaching the Facility from a southerly to easterly direction

Land to the south and east of the Facility consists of a mixture of bushfire fuel structures on flat to gently undulating ground. These fuels are largely contiguous for hundreds of kilometres in all directions. A bushfire occurrence in the region could potentially be fast-moving and largely wind driven given the predominantly open structure of the bushfire fuels present and the high wind speeds experienced in summer, spring and autumn; potential fires could result in radiant heat and ember attack into the Facility itself.

2.3.2 Bushfire approaching the Facility from all other directions

Whilst land in all directions from the Facility is comprised of largely contiguous varieties of bushfire fuel structures on flat to gently undulating ground; the low wind speeds from the northeast to southwest, combined with the predominantly open nature of vegetation suggest that fires coming from these directions will be much slower moving, and potentially less intense than those approaching the Facility from the south to east.

3 BUSHFIRE RISK ASSESSMENT METHODOLOGY

Australian and New Zealand Standard *AS/NZS ISO 31000:2009 Risk Management–Principles and Guidelines* (SA & SNZ 2009) provides an internationally recognised approach to risk management. Methodology for this process is further described in *Risk Management Guidelines: Companion to AS/NZS 4360/2004* (SA & SNZ 2004), which defines the risk assessment process as outlined in Figure 3-1.

AS/NZS ISO 31000:2009 is adopted by DFES, as documented in the agency's Bushfire Risk Management Framework (DFES 2015), to formalise and communicate the approach of managing bushfire risk across the department in the aim of leading to improved coordination and effectiveness of bushfire risk management processes.

From a bushfire management perspective, this methodology can be useful in determining:

1. The inherent bushfire risk (i.e. the initial level of risk prior to risk treatment and mitigation); and
2. The residual bushfire risk (i.e. the level of risk remaining following risk treatment and mitigation).

Inherent and residual bushfire risk can be determined for individual bushfire events on the basis of the following risk criteria, which is used to inform the likelihood and consequence of such events:

- Likelihood of ignition and bushfire occurrence takes into consideration the bushfire history of the area, risk of ignition, vegetation type, fuel age and load, slope under vegetation and predominant fire weather conditions; and
- Consequence or impact from bushfire on life, property and the environment takes into consideration the degree and severity of potential bushfire scenarios, location of bushfire hazard areas, assets present in the area and the level of management and suppression response available.

The two bushfire scenarios identified in Section 2 have been subject to bushfire risk assessment through determination of likelihood and consequence in accordance with the rating tables outlined in Table 3-1 and Table 3-2[1]. This process determines the inherent bushfire risk of the event and informs the level of mitigation or management response required to reduce the risk to an acceptable level. The risk assessment matrix used to determine inherent and residual bushfire risk is outlined in Table 3-3.

[1] The determined consequence rating is the most likely outcome, not the worst case

Table 3-1 Likelihood rating system

Likelihood rating	Description
Almost certain	Consequence expected to occur in most circumstances; may occur once every year or more
Likely	Consequence will probably occur in most circumstances; may occur once every five years
Possible	Consequence might occur at some time; may occur once every twenty years
Unlikely	Consequence is not expected to occur; may occur once every one-hundred years
Rare	Consequence may occur only in exceptional circumstances; may occur once every five hundred or more years

Table 3-2 Consequence rating system

Likelihood rating	Description
Catastrophic	A large number of severe injuries, widespread damage and displacement of the community, significant impact on the environment
Major	Extensive number of injuries requiring hospitalisation, significant damage and impact on the community, longer term impacts on the environment
Moderate	Some injuries requiring medical treatment but no fatalities, localised damage and short-term impact on the environment
Minor	Small number of injuries but no fatalities, some damage and disruption but no lasting effects
Insignificant	No injuries or fatalities, little damage or disruption

Table 3-3 Risk assessment matrix

	Consequence				
Likelihood	**Insignificant**	**Minor**	**Moderate**	**Major**	**Catastrophic**
Almost Certain	High	High	Extreme	Extreme	Extreme
Likely	Medium	High	High	Extreme	Extreme
Possible	Low	Medium	High	Extreme	Extreme
Unlikely	Low	Low	Medium	High	Extreme
Rare	Low	Low	Medium	High	High
Risk level	**Risk response**				
Low	Acceptable risk. Application of standard management measures will ensure risk level remains low and risk should be eliminated or reduced as time permits.				
Medium	Potentially unacceptable risk. Development of site specific management measures may be required to lower the risk level and risk should be reduced as soon as reasonably practicable.				
High	Potentially unacceptable risk. Development of additional site specific management measures will be required to lower the risk level and requires urgent action as soon as possible.				
Extreme	Unacceptable risk. Additional site-specific mitigation will be required to lower the risk level and an immediate mitigation response is required.				

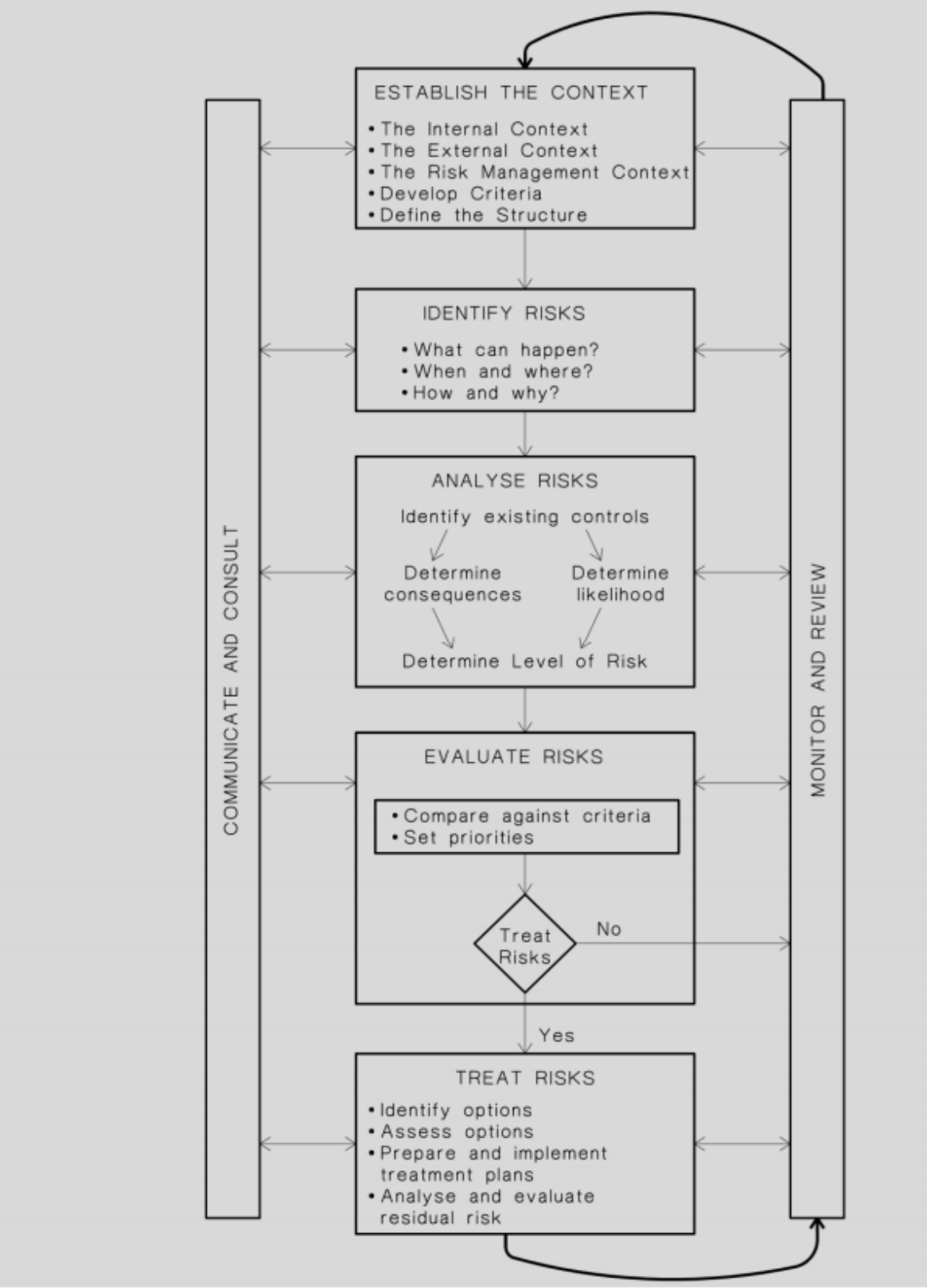


Figure 3-1 Risk assessment process as per AS/NZS ISO 31000:2009

4 BUSHFIRE RISK ASSESSMENT

4.1 Risk context

Risk is being assessed to inform bushfire mitigation for the Facility for the protection of life and property within and adjacent to the site. The risk assessment adopts a broad area and supports a tenure blind approach to ensure wider risk impacts and adjoining lands are captured to suitably address potential risk.

4.2 Risk identification

Bushfire risk is identified in the potential bushfire scenarios outlined in Section 2, which indicate the potential bushfire events that could impact life and property within the Facility and adjacent land. These two scenarios are considered to cover the majority of bushfire events that could occur in order to develop suitable bushfire risk mitigation.

4.3 Risk analysis and evaluation

Risk analysis and evaluation for each of the two potential bushfire scenarios is provided in Table 4-1 which specifies the likelihood and consequence of each scenario with and without management measures to determine inherent and residual risks.

Due to the storage and handling of flammable materials within the subject site, the potential consequence of a bushfire entering the site would be greater than if flammable materials were not present.

ELA and Tellus are of the view that following implementation of management measures, the risk of ignition will not be reduced due to the likelihood of lightning-induced ignition and presence of off-site classified vegetation and on-site flammable goods. Therefore, bushfire risk management measures are likely to reduce the level of consequence resulting from the bushfire event, rather than the likelihood of the event occurring. For example, an evacuation plan will reduce the potential impacts on life; thus reducing the level of consequence received from the bushfire event, but the likelihood of the event occurring will not be reduced.

Table 4-1 Bushfire risk assessment

Bushfire scenario	Comments	Likelihood	Consequence	Inherent risk	Mitigation	Likelihood	Consequence	Residual risk
1) Bushfire approaching from a southerly to easterly direction and impacting Facility	• Extended fire run through variety of open fuels. Limited firebreaks and roads to limit rate of spread. Limited points of access for fire suppression prior to reaching Facility. Greatest level of impact would occur under adverse fire weather conditions with an easterly wind (common during the bushfire season). • Consequence might occur at some time; may occur once every twenty years based on fire history, suppression response capability, fuel types, anticipated rate of spread etc. • Extensive number of injuries requiring hospitalisation, significant damage and impact on the community, longer term impacts on the environment based on analysis of assets.	Possible	Major	Extreme	Implementation of management measures identified in Section 5.	Possible	Moderate	High
2) Bushfire approaching from a westerly to northerly direction and impacting Facility	• Extended fire run through variety of open fuels. Limited firebreaks and roads to limit rate of spread. Limited points of access for fire suppression prior to reaching Facility. Carina mine pit between vegetation and the Facility expected to reduce rate of spread of bushfire. Predominant winds in the bushfire season suggest that a bushfire from these directions would be less probable than one from the south to east. • Consequence is not expected to occur; may occur once every one-hundred years based on fire history, suppression response capability, fuel types, anticipated rate of spread etc. • Extensive number of injuries requiring hospitalisation, significant damage and impact on the community, longer term impacts on the environment based on analysis of assets.	Unlikely	Major	High	Implementation of management measures identified in Section 5.	Unlikely	Moderate	Medium

5 BUSHFIRE MANAGEMENT MEASURES

Results of the bushfire risk assessment indicate that both bushfire scenarios pose a level of risk to the Facility, however Scenario 1 is considered to pose an increased level of risk than Scenario 2.

Implementation of the management measures provided in the following subsections prioritise protection of life and property and will reduce bushfire risk (residual risk) within the Facility.

5.1 Prevention

5.1.1 Identification of high bushfire risk areas

As a part of this BRMP it is recommended that bushfire fuel load assessments are conducted annually to assess bushfire potential and the need for pro-active controls (refer to Appendix B and C).

Survey lines/areas, vegetation densities and high fuel load areas will be identified and recorded with global positioning system (GPS) coordinates. Additional locations of interest (such as flora and fauna of conservation significance and habitat) will be determined by associated flora and fauna surveys and additional important sites will also be recorded and identified. This information will be mapped using GIS mapping and form a key part of the BRMP.

A quick assessment method for fuel loads based on **The Overall Fuel Hazard Guide for South Australia (2012)** will be used at the designated observation points across the development envelope and surrounds (Appendix D). This assessment technique is dominantly based on the visual assessment of dominant site species such as acacia's and grevillea, native grasses, woody shrubs and trees. It is a risk rating based assessment and is broadly described in Table 5-1. Additional assessment of fuel loads will be recorded opportunistically on a data sheet similar to that in Appendix B based on Table 5-1 and expanded information in Appendix C to update any high risk areas.

The result from annual and opportunistic fire load assessments will be used to develop bush fire management strategies and update this draft BRMP. The annual survey results will be available in the Facility Manager's office for emergency referral.

5.1.2 Specific controls

The following controls will be implemented to reduce the risk of bushfire ignition within the Facility and surrounds.

Construction

Construction has the potential to cause bushfires through:

- Hot works;
- Increased vehicles;
- Clearing and stockpiling vegetation; and
- Increased ignition sources.

The following controls will be implemented during construction activities:

- All hot works to have a permit and safety assessment in line with Tellus policy framework;
- Only diesel vehicles used onsite;
- No open flames unless permit approved;
- Vegetation stockpile in low mounds to reduce large fuel source and separated from buildings by a minimum of 20 m;
- Vehicles regularly checked and cleaned for build-up of grasses or vegetation around engine and undercarriage;
- All vehicles to be fitted with firefighting equipment;
- Fire tender available on-site at all times;
- Heavy earthmoving equipment available;
- Trained firefighting team at site; and
- A permit obtained and DFES to be informed not less than 48 hours before any planned back and/or patch burning activities performed.

Operation, closure and rehabilitation

Operation, closure and rehabilitation of the Facility has the potential to cause bushfires through:

- Ignition sources;
- Use of flammable materials;
- Hot works;
- Increased vehicles; and
- Increased use of project area.

The following controls will be implemented during operation, closure and rehabilitation of the Facility:

- At least a 40 m fire break to be established around working areas during operation;
- All hot works to have a permit and safety assessment in line with Tellus policy framework;
- No open flames outside of designated areas;
- Designated smoking area;
- No wastes burnt onsite;
- Weather and bushfire conditions assessed daily from website listed in Table 5-2;
- Fire tender available on-site at all times;
- Off-road 30,000 L water truck with cannon available at site;
- Heavy earthmoving equipment available;
- Site-wide fire hydrant system and fire hose reels, supplied from approx. 250 kL tank system;
- Trained firefighting team at site; and
- A permit obtained and DFES to be informed not less than 48 hours before any planned back- and/or patch-burning activities performed.

Hazardous materials, chemicals and fuels

Hazardous materials, chemicals and fuels within the Facility have the potential to cause/contribute to bushfires through:

- Flammable hazardous material stores;
- Flammable chemicals; and
- Flammable and volatile fuels.

The following controls will be implemented for hazardous materials, chemicals and fuels within the Facility:

- Ensure all flammable material is stored within enclosed buildings within a bunded area;
- Appropriate fire extinguishers and fire-fighting equipment to be located near to flammable material;
- All staff trained in the use and location of appropriate firefighting equipment; and
- If volatile fuels are required onsite, they will have an individual risk assessment undertaken and stored in separate area with appropriate controls;
- All hazardous materials, chemicals and fuels within the Facility to be stored in areas subject to BAL ratings of BAL-12.5 or lower.

Third party access

Third party access to the Facility have the potential to cause/contribute to bushfires through:

- Increase in ignition sources;
- Open flames outside of designated areas; and
- Unapproved back and/or patch burning.

The following controls will be implemented for third party access:

- Very limited access to undeveloped regions (limits ignition sources). No pastoral or Traditional Owner activities in the region due to restricted access;
- Liaise with local TOs and Pastoralists in back- and/or patch-burning operation planning;
- Inform local TOs and Pastoralists on the boundaries of the project area and no open flame policy;
- Visitors must sign in and undergo visitor site induction; and
- Visitors must be accompanied by a site representative and not deviate from formal access routes.

5.2 Suppression

If a bushfire is deemed to potentially impact the Facility, bushfire suppression techniques will be activated. A site bushfire response team will be adequately resourced for minimum responder numbers required for an effective bushfire response.

The team size will comply with legislative requirements and be consistent with relevant codes of practise. In addition, the team size will be informed by a risk-assessment workshop, taking into consideration the potential for ignition sources at different stages of the life of the facility. For example, there may be a higher risk of ignition sources during construction than during operations. During operation the workforce on site will be reduced and the number of potential ignition sources also reduced, so the number of bushfire fighting trained personnel may be reduced.

The team will be suitably trained.

5.2.1 Bushfire control methods

A bushfire can be broken down into components which aids on-ground co-ordination of control method; these are described in Table 5-3 and displayed in Figure 5-1.

5.2.2 Bushfire management approaches

The two main approaches to bushfire management are direct and indirect attack, as detailed in Table 5-4.

5.2.3 Fire control equipment

Firefighting equipment will be available at the Facility. This equipment includes:

- A 6x6 articulated 30,000L water cart with sprays and cannon;
- A 4x4 fast response foam unit with a 1,500L trailer-mounted water tank both with motorised water pump and hose;
- Fire extinguishers appropriate to potential fire type – chemical, electrical etc.;
- Fire hoses around facilities;
- Hydrants and hoses (yard areas);
- Hose reels are inside buildings and only for close by around buildings; and
- Heavy Earthmoving equipment as secondary support for fire appliances (can cut fire breaks and remove vegetation as required).

A map of the location of firefighting equipment and potential high fire risks areas are shown in Figure 5-2.

Table 5-1 Parts of a bushfire

Component	Description
Head	Is the part of the fire making the most progress, it will have the most intense and hottest fires and can also be called the fire front.
Flank	These are the sides of the fire between the front and the heel (rear). They are generally of lower intensity than the head and often described in direction, eastern flank, or location, left flank.
Fingers	Long slender sections of fire that extend beyond the head or flanks. Usual caused by variations in wind and fuel loads.
Heel	This is the rear of the fire, which is the lowest intensity part of the fire with the least spread. It is generally upwind or downslope of the head.
Spot fire	Fires caused by wind transported embers, outside of the area of the main fire; usually in front of the head of the fire.

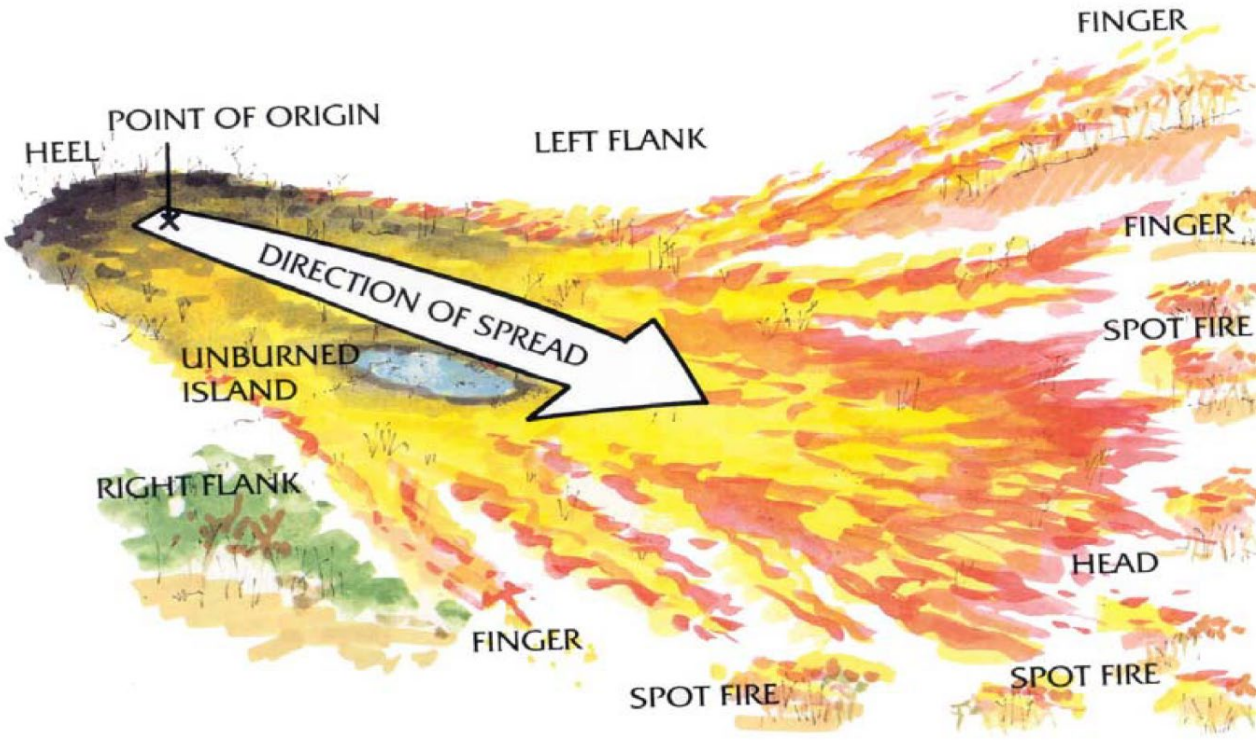


Figure 5-1 Graphic description of components of a bushfire

Table 5-2 Bushfire management techniques for consideration at Sandy Ridge

Control Method	Details	
Direct Attack		
Head	Attacking the head of the fire either by developing a control line (clearing around the edges of the fire) or using fire retardants or water to extinguish the head of the flame. Only recommended for low intensity fire.	
Flank	Like head attack but work is done on the flanks of fire, generally moving from the rear to the head to try and pinch the fire out. Useful if the fire is too intense to attack from the front.	
Parallel	Develop a control line a short distance ahead of the fire, useful when the fire is too intense to attack at close range. The attack line should be placed as close as possible to the main fire and if possible a second unit can burn out the fuel between the main fire and the control line.	
Equipment	**Advantages**	**Disadvantages**
• Mechanical, e.g. bulldozers • Hand tools, e.g. shovels. • Fire retardants – foam, chemicals, water. • Source of fire - Drip torches.	• Less area burnt. • Quickly contain the fire. • Edges where fire extinguished can be turned into the control line.	• Obstacles (e.g. fences) can impede on the control line. • Limited to low intensity fires. • Places firefighters in direct path of fire. • Needs constant patrol of fire line. • Irregular fire line constructed quickly.
Indirect Attack		
Back and/or patch burning	A control line is established some distance from the head or flanks of the fire and the fuel in between is burnt out. This can be advantageous when the intensity is extreme or, the terrain makes it difficult to attack the fire at close range.	
Equipment	**Advantages**	**Disadvantages**
• Mechanical, e.g. bulldozer. • Hand tools, e.g. shovels. • Source of fire, e.g. drip torch. • Water or other fire retardant source	• Removes firefighters from direct contact with fires. • Allows for strategic placement of control line. • Allows more time and consideration in control of the fire. • Choice of location for control line.	• Increases size of fire. • Allows for more intense fires to develop. • Larger area to control. • Back and/or patch burning may result in intense fires at intersection, potentially causing spotting outside of control lines. • Need to monitor and patrol large line.

Sourced from - ACT Fire and Rescue. (2011). Basic Wildfire Awareness: ACT Fire & Rescue Community Fire Units Learners Guide. Canberra: ACT Fire and Rescue.

PLANT NORTH

10 - FIRE HYDRANT C/W 60m HOSE

2 - FIRE HYDRANT C/W 60m HOSE AND HYDRANTS ARE LOCKABLE

PEDESTRIAN WALKWAYS

MAIN OFFICE

FACILITY ENTRY/EXIT

FIRE RISK STORE AREA

HV & LV MOBILE PLANT WORK SHOP

MOBILE PLANT YARD

WASTE LABORATORY & OFFICE

WASTE INSPECTION FACILITY

RADIOACTIVE WAREHOUSE & YARD

WASTE IMMOBILISATION PLANT

HEAVY VEHICLE GO LINE

YARD CAPTURE POND

HV & LV WASHDOWN FACILITY

POWER FACILITY

WATER HANDLING FACILITY

HV & LV REFUELING FACILITY

PRELIMINARY
NOT FOR CONSTRUCTION

REF DRG No	TITLE	REV	BY	DATE	DESCRIPTION	CKD	ENG
		C	MK	08.08.2018	ISSUED FOR DMIRS APPROVAL		
TSR-4-PO-07400-EG-DWG-0040	DANGEROUS GOODS PLAN	B	MK	24.04.2018	PRELIMINARY		
07400-EG-DWG-0002	SITE PLOT KEY PLAN	A	MK	17.04.2018	PRELIMINARY FOR REVIEW/COMMENT		

TELLUS

VENDOR

GR ENGINEERING SERVICES LTD
ENGINEERING CONSULTANTS AND CONTRACTORS
71 Daly Street, Ascot ACN 121 542 738
Western Australia 6104
Phone: (08) 6272 6000
Fax: (08) 6272 6001

VENDOR DRG No: 12388-L-022 REV: C

	BY	DATE
DRAWN	MK	05.04.18
CHECKED		
DES ENG		
BFS MAN		
CLIENT		

TITLE
SANDY RIDGE PROJECT
DETAILED DESIGN
FIRE HYDRANT
GENERAL ARRANGEMENT

Figure 5-2. Locations of fire fighting equipment.

A1 | SCALE 1:550 | DRG No TSR-4-PO-07400-EG-DWG-0042 | REV C

5.3 Mitigation

Table 5-5 details mitigation and management measures to control the spread, development and severity of bushfires within the project area. This BRMP should be read in conjunction with the following management plans:

- Emergency Response Plan;
- Biodiversity Management Plan;
- Waste Management Plan;
- Water Management Plan; and
- Hazardous Material Management Plan.

Table 5-3 Measures for bushfire control during life of project

Mitigation measure	Responsible	Reporting	Audit
Bushfire risk map – highlighting high-risk areas for bushfires and potential direction of approach. This map is to be updated annually and after results of fire fuel load assessment surveys.	Facility Manager	At least annually or as required	Map showing latest update of fire risk and reference to fire fuel load assessment
All staff inducted into this BRMP, the Emergency Response Management Plan (ERMP) and other management plans associated with bushfire management.	Facility Manager	Annual Report	Annual report showing details of all completed inductions
Firebreaks developed around all assets and strategically to most effectively stop or slow potential incoming bushfires	Construction Manager	End of construction	All firebreaks are at least 4 m (*Bushfire Act)* wide, surrounding all assets, locations; mapped and recorded
Firebreaks maintained and cleared of vegetation	Construction and Facility Manager	End of construction report, then annually	Records of work completed and all fire breaks with vegetation below 10 cm
Appropriate signage and MSDS placed around site	Facility Manager	Annual Report	Signage at all hazardous and flammable material stores
Firefighting equipment and fire extinguisher onsite	Facility Manager	Annual Report	Location map and fire extinguishers present on site
Fire extinguishers maintained and inspected every 6 months	Facility Manager	6 months	Inspection every six months to verify
ERP clearly displayed for fire response	Emergency Services Officer	Annual Report	Annually audit to inspect plans and muster points
A dedicated team of 3-5 staff member during construction and 2-3 during operations to be present on site at any one time trained in bushfire fighting	Facility and Construction Manager	Annual Report	Records show 100% satisfactory completion by all staff
Fire drills conducted	Facility Manager	Annual Report	Annual report shows fire drills conducted regularly
Open flames or ignition sources prohibited from 20 m of flammable material	Facility Manager	Annual Report	Signage marking no open flame zones
Designated smoking area	Construction Manager	Annual Report	Designated smoking zones clearly signed and designated no smoking zones clearly signed
Dedicated firefighting equipment and personnel	Facility Manager	Annual Report	Firefighting equipment in place, operational, maintained, and tested and staff trained in its use.

Mitigation measure	Responsible	Reporting	Audit
Back- and/or patch-burning conducted as required in co-ordination with key stakeholders	Facility Manager	Annual Report	Evidence of stakeholder engagement; records of back and/or patch burning work conducted and permits granted
Vehicles inspected daily for build-up of vegetative matter in undercarriage and engine bay	Facility Manager	Daily	Records show daily checks and clean out of vehicles, as required
Monitor bushfires through websites	Facility Manager	Daily	Records show daily updates from fire advice websites and use during fire season
Any hot work requires a permit and a bushfire spotter if in areas next to flammable material	Facility Manager	As required	Annual report shows indication of hot works permits approved
Enforce no open flames or hot works during designated fire bans	Facility Manager	As required	Records show evidence of communicating and enforcing fire bans
Incident report lodged for any fire	Facility Manager	As required	Annual report shows records of any fire incident reports
Annual BFMP compliance and performance review	HSECQ Manager	Annual Report	Audit of BFMP criteria and management measure
All vehicles to carry fire extinguisher and UHF radio	Facility Manager	During new vehicle fit out	Records of compliance with all vehicles or visual inspection

5.4 Evacuation

5.4.1 Sandy Ridge Facility

Tellus will maintain a strict bushfire information control system. Tellus will adapt the DFES warning system which will broadly involve:

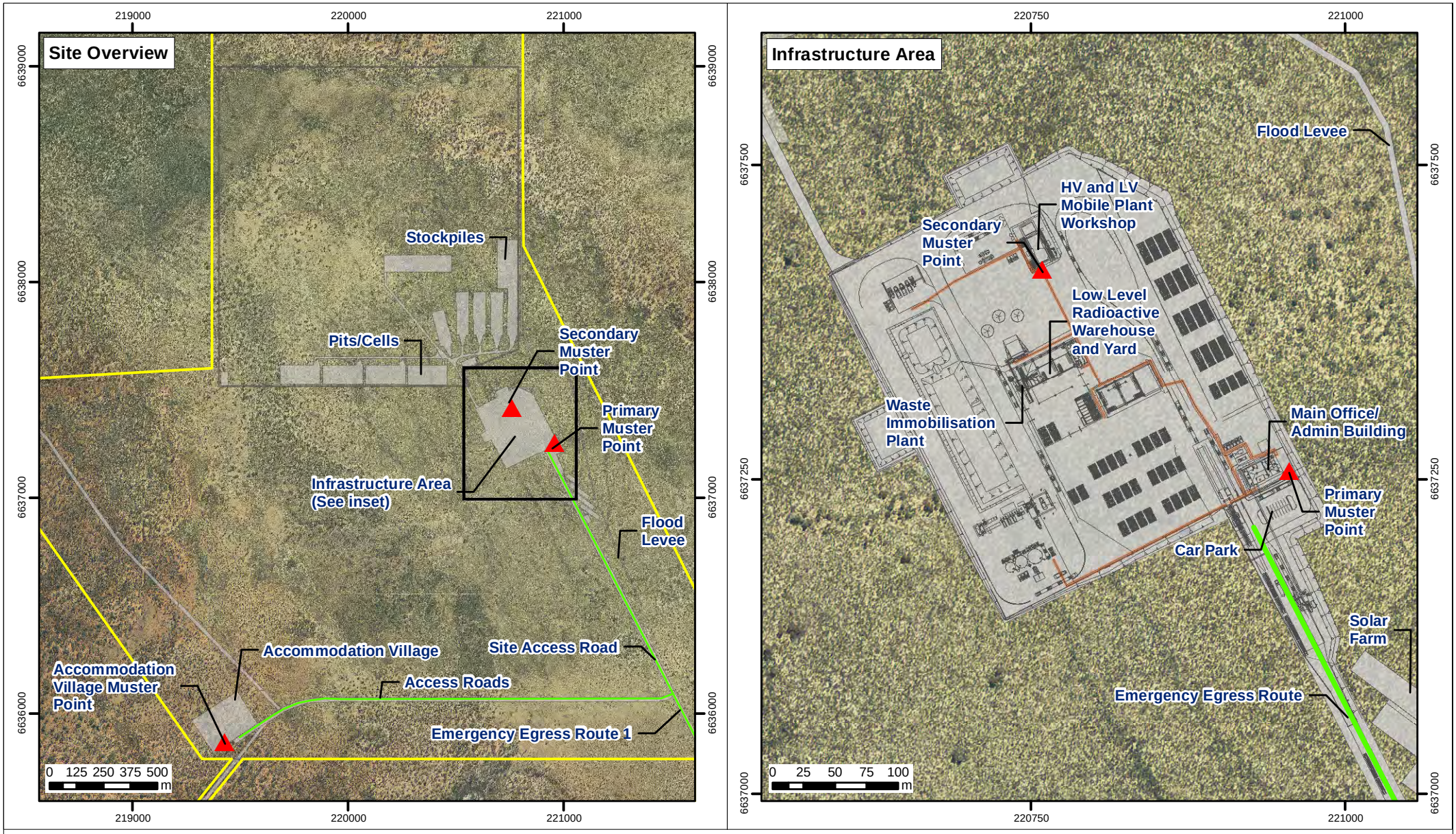
- Advice;
- Watch and act;
- Emergency warning; and
- All clear.

Muster points within the Mine Infrastructure Area are shown in Figure 5-3. Due to potential bushfire risks off-site (i.e. along Mt Walton Road), staff at the Facility will not be permitted to leave the site during a bushfire event. They will muster at the locations provided in Figure 5-3 and await further instruction from site Emergency Services Officer (refer to Section 6 for more information). Muster locations are considered by Tellus to align with DFES definition of a 'Safer Places' (DFES 2018).

5.4.2 Mount Walton Access Road

If trapped by a bushfire while travelling along Mt Walton Access Road, the following steps must be taken:

- Park the vehicle off the roadway where there is little vegetation, with the vehicle facing towards the oncoming fire front. There are relatively bare borrow pits at various points along the road;
- Turn the engine off;
- Close the car doors, windows and outside vents;
- **Call 000**;
- **Call the Sandy Ridge Facility and report to the Facility Manager**;
- Stay as close to the floor as possible and cover your mouth with a damp cloth to avoid inhalation of smoke. If smoke enters the vehicle, toxic fumes are released from the interior of the vehicle;
- Stay covered in woollen blankets if possible, continue to drink water and wait for assistance;
- Stay in the car until the fire front has passed and do not open windows or doors; and
- Once the front has passed and the temperature has dropped, cautiously exit the vehicle. Internal parts may still be extremely hot.



N

Legend

- Emergency Muster Points
- Emergency Egress Routes
- Pedestrian Walkways
- Proposed Infrastructure
- Proposed Infrastructure Footprint

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TSR0253_BFMPv1_MusterPoints.mxd

Figure 5-3
Muster Points in the event of Bushfire

SANDY RIDGE FACILITY
BUSHFIRE MANAGEMENT PLAN

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Version: A
Date: 15/03/2019

6 IMPLEMENTATION STRATEGY

6.1 Staff responsibilities

It is the responsibility of all staff to ensure the following:

- Meet requirements of this BRMP;
- Ensure have appropriate training for use of basic firefighting equipment;
- Aware of locations of all firefighting equipment and emergency procedures;
- Daily check of vehicles and water storage facilities;
- Report any fire incident to the Facility Manager;
- Apply for hot work permits;
- Maintain fire breaks as directed by Facility or construction manager;
- Follow bushfire advice as given by Facility Manager and / or Emergency Response Coordinator; and
- No open flames outside of designated areas during high fire risk periods.

6.2 Staff roles

6.2.1 Construction Manager

It is the responsibility of the Construction Manager to ensure the following:

- All staff are inducted and trained in this BRMP, Weed Management Plan and ERP.
- Staff are trained in the use of fire-fighting equipment.
- A dedicated team of 3-5 DFES accredited bushfire management personnel are available on-site at any time during construction
- Placement of dangerous goods and/or hazardous materials signage around flammable material stores.
- Permits are issued and managed for any hot works.
- Development of designated smoking area.
- Development of fire breaks.
- Ensure fire extinguishers are maintained and tested every six months.
- Ensure vehicles are checked and cleaned regularly of any vegetative build up.
- Ensure vehicles are maintained in accordance with the manufacturers requirements.
- Check for regular updates with internet-based fire websites.
- Report any incident to the Registered Manager for further action.
- Ensure fire fuel load assessments conducted annually or more frequently, if required.
- Consultation with key stakeholders to plan back- and/or patch-burning operations.
- Application and granting of a permit to conduct back- and/or patch-burning.
- Notification to DFES and Coolgardie Shire Council not less than 48 hours before any planned back- and/or patch-burning occurs.

6.2.2 Facilities Manager

It is the responsibility of the Facilities Manager to ensure the following:

- All staff are inducted and trained in this BRMP and ERP.
- Adequate firefighting equipment and staff trained in its use on site; this will include a dedicated bushfire trailer or utility with a 5,000L water tank and motorised water pump and hose.
- A dedicated team of 2-3 staff during operations to be present on site at any one time accredited with appropriate bushfire management training.
- Placement of appropriate signage around flammable material stores.
- Issuing of hot work permits.
- Development of designated smoking area.
- Maintenance of fire breaks.
- Ensure fire-fighting equipment are maintained and tested every 6 months.
- Ensure vehicles are checked and cleaned daily of any vegetative build up.
- Ensure all vehicles are maintained in accordance with the manufacturers requirements.
- Check for regular updates with internet-based fire websites.
- Ensure fire fuel load assessments conducted annually or more frequently, if required.
- Application and granting of a permit to conduct back- and/or patch-burning.
- Notification to the local DFES not less than 48 hours before any planned back and/or patch burning occurs.
- Annual report.
- Incident reports.
- Stakeholder engagement.
- Annual BFMP compliance and performance audit.
- Vehicles fitted with fire extinguisher and UHF radio.
- Report any incident to HSECQ Manager for further action.
- Monitor of bushfires and emergencies through websites.

6.2.3 Emergency Services Officer

It is the responsibility of the Emergency Services Officer to ensure the following:

- Maintain the ERP.
- Designate emergency muster points.
- Responsible for co-ordinating emergency response, including fire events.
- Audit and review emergency response plan.
- Ensure emergency response drills are conducted regularly.
- Develop emergency response induction.
- Ensure adequate emergency evacuation maps and signage is adequately displayed.
- Co-ordinate with relevant government, and other stakeholders in response to a bushfire or large fire event.
- Determine level of threat and appropriate action required.
- Co-ordinate with Facility or Construction Manager for staff response.

6.3 Training and competency

A dedicated team of 3-5 staff members during construction and 2-3 during operations will be present on site at any time and will be appropriately trained in the management and control of bushfires by an accredited Registered Training Organisation.

All staff will be familiar with and inducted into this BFMP. As part of the induction, all staff will be made aware of the potential fire sources, bushfire risk map and location of control equipment available.

Staff will be given cultural competency training to work effectively with key stakeholders in fire management and mitigation measures.

6.4 Reporting

6.4.1 Routine reporting

An annual **Bushfire Management Report** will be compiled containing the following information:

- Any fire incidents or near misses.
- Any fire mitigation work conducted – back- and/or patch-burning, development of fire breaks or other.
- An assessment of fire fuel loads in the surrounding area, including GPS locations.
- Records of all staff inductions into this BRMP.
- Records of required staff in bushfire training with satisfactory completion.
- Fire equipment maintenance and calibrations.
- Fire and emergency response drills.
- Fire break maintenance.
- Stakeholder engagement –, Pastoralists, TOs and other.
- Results of audits.
- Review and update of the BRMP.

6.4.2 Incident reporting

Where required, an incident report will be generated and submitted to the Facility Manager who will then distribute the results to the **relevant authority** and other affected stakeholders as soon as possible. DBCA and DFES will be notified immediately if there is a serious fire on-site.

An incident report will typically include the following:

- Location of fire.
- Date and time fire noticed.
- Updated bushfire map.
- Cause or source of fire (if known).
- Mitigation and management response.
- Stakeholder engagement.
- Damages – personal, assets or environment.
- Recommendations for future fire management.
- Rehabilitation work.

6.5 Stakeholder engagement

Tellus will engage the following stakeholders to determine concerns and attain information and advice relating to fire risk and management at the Facility:

- Tellus representative responsible for fire safety;
- DBCA, DFES and Shire of Coolgardie representatives; and
- Where appropriate, cultural heritage stakeholders.

Tellus will engage with the above in the planning of fuel load assessment surveys and controlled burn planning at the site. There will be ongoing management of firebreaks, ground fuel surveys and consultation on frequency and timing of controlled burning.

Key stakeholders and, where appropriate, an appropriately experienced consultant, will also be consulted for specialist advice and notified of any planned fire activities at Sandy Ridge. Concerns, information and advice resulting from stakeholder consultation and engagement will be incorporated in the annual review and audit of the BFMP.

If appropriate, there will be direct engagement of Aboriginal Rangers wherever possible in the ongoing development of the BRMP, particularly through participation in field surveys.

7 BUSHFIRE RESPONSE

7.1 Response management

Table 7-1 details the bushfire action response plan delegating responsibilities and required actions based on fire threat and occurrence. This plan will be annually reviewed and updated to improve the safety of all staff, assets and environmental values within the project area. The information is derived from the ACT Fire and Rescue (2011) community fire training manual and the national bushfire warning system alert levels.

A dedicated team of 3-5 staff members during construction and 2-3 during operations will be present on site at any one time and will have rural bushfire management training.

7.2 Notification management

Pursuant to Section 43(1) of the Bush Fires Regulations, Tellus shall within 7 days of the occurrence of a bushfire, send to the Shire of Coolgardie, written notice in duplicate notifying the local government of the occurrence of the fire.

The notice shall set out:

(a) the date on which the fire occurred.

(b) the cause or origin of the fire.

(c) the approximate area burned by the fire.

(d) an estimate of the total loss caused by the fire.

(e) the time when the fire was first noticed.

(f) the time when the fire was extinguished.

(g) details of persons and equipment used to suppress the fire.

Pursuant to section 78 of the *Mines Safety Inspection Act 1994*, Tellus will notify the Department of Mines, Industry, Regulation and Safety of any outbreak of fire above or below ground at the Facility.

Table 7-1 Bushfire action response plan for the Facility

Responsibility	Situation			
	No fire: *Carry out maintenance and scheduled inspection requirements of this BFMP*	**Advice:** *Either inspection identifies specific local fire risk or advice is issued of potential fire risk in the area*	**Watch and Act:** *A fire is approaching. Action should be taken to protect life and assets*	**Emergency Warning:** *Unplanned fire or bushfire imminent.* ***Immediate action required*** *- prioritise human life.*
General staff	• Maintain strict adherence to this BFMP. • Maintain fire breaks. • Assist with pre-fire season back- and/or patch-burning, as required.	• Notify Facility Manager of potential risk. • Mitigate risk by all available methods without placing staff at risk.	• Maintain safe distance from bushfire. • Report to Emergency Response Coordinator and Construction Manager/Facility Manager. • Review location of bushfire fighting equipment, evacuation procedures and muster points.	• If small fire, use available firefighting equipment and control fire. • Report to Emergency Response Coordinator or Construction Manager/Facility Manager. • If large fire, follow ERP. • Follow instructions from Emergency Response Coordinator or Construction Manager/Facility Manager.
Facility Manager and / or Emergency Response Coordinator	• Organise maintenance of fire breaks, fire extinguishers, waters sources, firefighting equipment and staff training. • Conduct emergency drills regularly.	• Follow advice on internet sources • Prepare for mitigation response. • Respond to site specific hazard increase. • Report on incident. • Review ERP.	• Follow bushfire on internet sources. • Determine level of bushfire and potential risk to on site personnel through on-ground assessments. • Prepare bushfire response team; Review	• Assess fire on-ground and internet. • Implement fire control techniques, if appropriate. • Alert DBCA, DFES and appropriate stakeholders. • Initiate evacuation plan, if appropriate. • Prioritise human life.

Responsibility	Situation			
	No fire: *Carry out maintenance and scheduled inspection requirements of this BFMP*	**Advice:** *Either inspection identifies specific local fire risk or advice is issued of potential fire risk in the area*	**Watch and Act:** *A fire is approaching. Action should be taken to protect life and assets*	**Emergency Warning:** *Unplanned fire or bushfire imminent.* ***Immediate action required*** *- prioritise human life.*
	• Co-ordinate back- and /or patch-burning. • Inspection of site for fuel and fire risk • Co-ordinate vegetation fuel load assessments.		ERP and evacuation procedures. • Actions need to be implemented to protect life and assets.	

8 REVIEW, UPDATE AND AUDIT

This BRMP will be reviewed, audited and updated by a third party prior to construction commencing and updated by Tellus. Following that, it will be reviewed, audited and updated by Tellus as and when required by the relevant authority. Results of the audit will be used to improve the BRMP for the life of the Project.

9 REFERENCES

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APPENDIX B – PLATES (TO BE UPDATED)

Class C shrubland (Plot 1)

Class B woodland
Plots 4, 10 and 13

Class D scrub
Plots 3, 9 and 11

Class E mallee
Plots 2, 5, 6, 7, 8 and 12



Photo ref: SR1



Photo ref: SR2



Woodland of *Eucalyptus salmonophloia* and *E. salubris* over open shrubland of *Eremophila scoparia,* and *Atriplex vesicaria* and *Senna artemisioides* subsp. *filifolia*

Vegetation Area 2	**B – Woodland**	**B06 – Open woodland**



Open woodland of *Eucalyptus corrugata* over open shrubland of *Acacia acuminata* (narrow phyllode variant), *Senna artemisioides* subsp. *filifolia* and *Grevillea acuaria*



Open woodland of *Eucalyptus vittata* and *E. salmonophloia* over sparse shrubland of *Atriplex* spp., *Eremophila scoparia* and *Templetonia sulcate*

Vegetation Area 3	**B – Woodland**	**B07 – Low woodland**



Eucalyptus corrugata Low Woodland over *Acacia tetragonophylla* Tall Open Shrubland (EcAt)

Vegetation Area 4	**B – Woodland**	**B09 – Open shrubland**



Eucalyptus gracilis Open Shrub Mallee over *Acacia acuminata/Eremophila oppositifolia* Open Shrubland (EgAaEo)



Eucalyptus salubris var. salubris Open Shrub Mallee over *Melaleuca uncinata* Open Shrubland (EsalMu)



Eucalyptus pileata Open Shrub Mallee over *Melaleuca uncinata* Open Shrubland over *Triodia scariosa* Open Grassland (EpMuTs)

Vegetation Area 5	**C – Shrubland**	**C11 – Open heath**



Acacia resinimarginea/Allocasuarina acutivalvis Open Heath (ArAa)



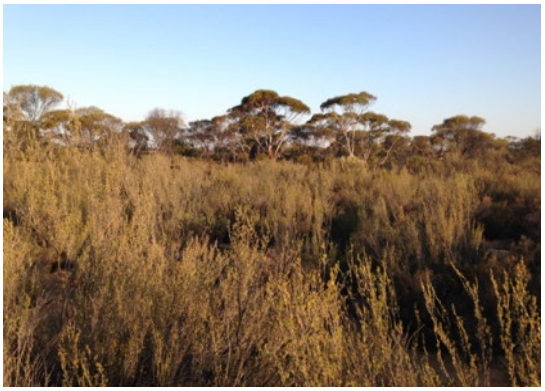
Acacia resinimarginea/Melaleuca uncinata Open Low Heath (ArMu)



Acacia resinimarginea Open Heath with scattered *Eucalyptus pileata* over *Triodia scariosa* Open Grassland (ArEpTs)



Acacia resinimarginea Open Heath (Ar)



Leptospermum roei Open Heath (Lr)

Vegetation Area 6	**C – Shrubland**	**C12 – Low shrubland**



Eucalyptus gracilis Shrub Mallee over *Acacia nigripilosa subsp. nigripilosa/Acacia burkittii* Low Shrubland (Eg)

Vegetation Area 7 E – Mallee/Mulga E15 – Tall shrubland



Callitris preissii/Acacia resinimarginea Tall Shrubland (CpAr)



Eucalyptus rigidula Very Open Shrub Mallee over *Melaleuca uncinata/Acacia acuminata* Open Low Heath (ErMuAa)



Acacia burkittii Tall Shrubland (Ab)



Tall sparse shrubland of *Acacia sibina* with *Allocasuarina campestris*, over open shrubland of *Baeckea elderiana, Grevillea obliquistigma* subsp. *obliquistigma* and *Leucopogon* sp. Clyde Hill

APPENDIX C – STANDARDS FOR ASSET PROTECTION ZONES

The following standards have been extracted from the Guidelines for Planning in Bushfire Prone Areas v 1.3 (WAPC 2017).

Every habitable building is to be surrounded by, and every proposed lot can achieve, an APZ depicted on submitted plans, which meets the following requirements:

a. **Width**: Measured from any external wall or supporting post or column of the proposed building, and of sufficient size to ensure the potential radiant heat impact of a fire does not exceed 29kW/m² (BAL-29) in all circumstances.
b. **Location**: the APZ should be contained solely within the boundaries of the lot on which a building is situated, except in instances where the neighbouring lot or lots will be managed in a low-fuel state on an ongoing basis, in perpetuity (see explanatory notes).
c. **Management**: the APZ is managed in accordance with the requirements of '*Standards for Asset Protection Zones*' (below):

- Fences: within the APZ are constructed from non-combustible materials (e.g. iron, brick, limestone, metal post and wire). It is recommended that solid or slatted non-combustible perimeter fences are used
- Objects: within 10 metres of a building, combustible objects must not be located close to the vulnerable parts of the building i.e. windows and doors
- Fine Fuel load: combustible dead vegetation matter less than 6 millimetres in thickness reduced to and maintained at an average of two tonnes per hectare
- Trees (> 5 metres in height): trunks at maturity should be a minimum distance of 6 metres from all elevations of the building, branches at maturity should not touch or overhang the building, lower branches should be removed to a height of 2 metres above the ground and or surface vegetation, canopy cover should be less than 15% with tree canopies at maturity well spread to at least 5 metres apart as to not form a continuous canopy (Figure 1)
- Shrubs (0.5 metres to 5 metres in height): should not be located under trees or within 3 metres of buildings, should not be planted in clumps greater than 5m2 in area, clumps of shrubs should be separated from each other and any exposed window or door by at least 10 metres. Shrubs greater than 5 metres in height are to be treated as trees
- Ground covers (<0.5 metres in height): can be planted under trees but must be properly maintained to remove dead plant material and any parts within 2 metres of a structure, but 3 metres from windows or doors if greater than 100 millimetres in height. Ground covers greater than 0.5 metres in height are to be treated as shrubs
- Grass: should be managed to maintain a height of 100 millimetres or less.

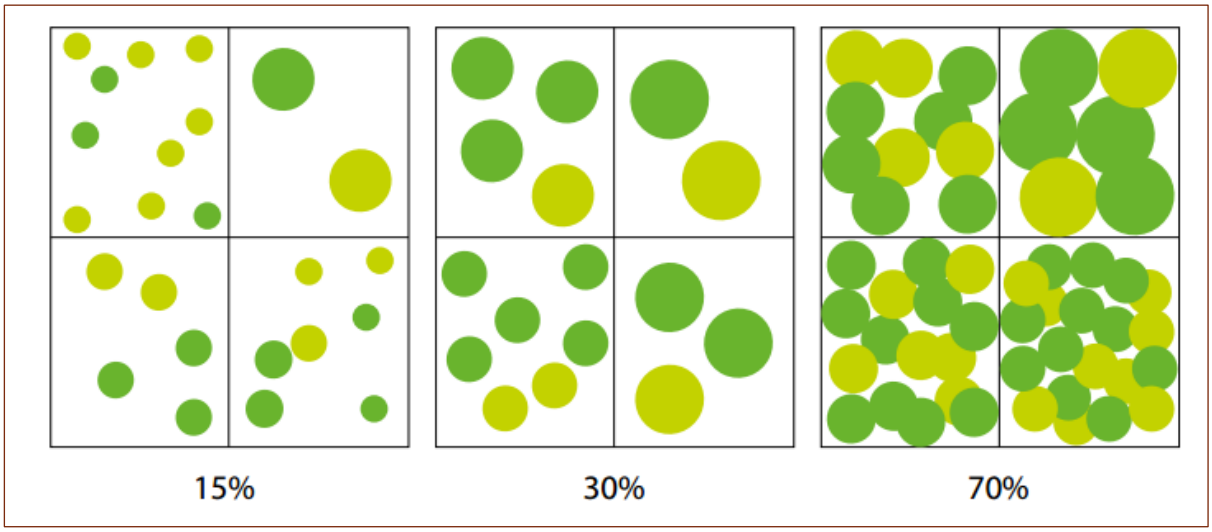


Figure 1 Illustrated tree canopy cover projection (WAPC 2017)

Additional notes

The Asset Protection Zone (APZ) is an area surrounding a building that is managed to reduce the bushfire hazard to an acceptable level. Hazard separation in the form of using subdivision design elements or excluded and low threat vegetation adjacent to the lot may be used to reduce the dimensions of the APZ within the lot.

The APZ should be contained solely within the boundaries of the lot on which the building is situated, except in instances where the neighbouring lot or lots will be managed in a low-fuel state on an ongoing basis, in perpetuity. The APZ may include public roads, waterways, footpaths, buildings, rocky outcrops, golf courses, maintained parkland as well as cultivated gardens in an urban context, but does not include grassland or vegetation on a neighbouring rural lot, farmland, wetland reserves and unmanaged public reserves.

APPENDIX B - PLATES

The following vegetation descriptions inform classification.

Class C shrubland (Plot 1)

PH01



Acacia resinimarginea/Allocasuarina acutivalvis Open Heath

PH03



Acacia resinimarginea Open Heath over *Triodia scariosa* Open Grassland

PH04



Acacia resinimarginea Shrubland over *Triodia scariosa* Open Grassland

PH05



Acacia resinimarginea Open Heath

PH06



Acacia resinimarginea/Eucalyptus pileata Shrubland over *Triodia scariosa* Open Grassland

PH09



Callitris preissii/Acacia resinimarginea Tall Shrubland

PH10



Leptospermum roei Open Heath

Class B woodland
Plots 4, 10 and 13

PH07



Eucalyptus corrugata Low Woodland over *Acacia tetragonophylla* Tall Open Shrubland

PH13



Eucalyptus corrugata Low Woodland over *Acacia tetragonophylla*
Tall Open Shrubland

PH17



Eucalyptus salmonophloia Woodland over *Eremophila oppositifolia* Open Heath

PH19*



Open woodland of *Eucalyptus vittata* and *E. salmonophloia* over sparse shrubland of *Atriplex* spp., *Eremophila scoparia* and *Templetonia sulcata*

PH20*



Woodland of *Eucalyptus salmonophloia* and *E. salubris* over open shrubland of *Eremophila scoparia,* and *Atriplex vesicaria* and *Senna artemisioides* subsp*. filifolia*

Class D scrub
Plots 3, 9 and 11

PH11



Callitris preissii/Acacia resinimarginea Tall Shrubland

PH16



Acacia burkittii Tall Shrubland

PH18



Eucalyptus ?rigidula Very Open Shrub Mallee over *Melaleuca uncinata/Acacia acuminata* Open Low Heath

Class E mallee
Plots 2, 5, 6, 7, 8 and 12

PH02



Eucalyptus gracilis Shrub Mallee over *Acacia nigripilosa* subsp.*nigripilosa* Low Shrubland

PH08



Eucalyptus gracilis Very Open Shrub Mallee over *Acacia burkittii* Tall Open Shrubland over *Melaleuca uncinata* Open Shrubland

PH14



Acacia resinimarginea/Melaleuca uncinata Open Low Heath

PH12



Eucalyptus pileata Open Shrub Mallee over *Melaleuca uncinate* Open Shrubland over *Triodia scariosa* Open Grassland

PH21*



Tall sparse shrubland of *Acacia sibina* with *Allocasuarina campestris*, over open Shrubland of *Baeckea elderiana, Grevillea obliquistigma* subsp. *obliquistigma* and *Leucopogon* sp. Clyde Hill (M.A. Burgman 1207)

PH15



Eucalyptus salubris var. *salubris* Open Shrub Mallee over *Melaleuca uncinata* Open Shrubland

Attachment 13

DFES response dated

22 March 2019

Government of Western Australia
Department of Fire & Emergency Services
Rural Fire Division

DFES
Department of Fire & Emergency Services

Our Ref: D09209

Francesca Lefante
Shire of Coolgardie
planning@coolgardie.wa.gov.au

Dear Ms Lefante

RE: HIGH RISK – SANDY RIDGE FACILITY – OPEN-CUT KOALIN MINE, WORKERS ACCOMMODATION AND WASTE STORAGE - DEVELOPMENT APPLICATION

I refer to an email dated 20 March 2019 regarding the submission of a revised Bushfire Management Plan (BMP) (Version 1), prepared by Tellus Holdings Ltd and dated 19 March 2019, for the above development application.

It should be noted that this advice relates only to *State Planning Policy 3.7 Planning in Bushfire Prone Areas* (SPP 3.7) and the *Guidelines for Planning in Bushfire Prone Areas* (Guidelines). It is the responsibility of the proponent to ensure that the proposal complies with all other relevant planning policies and building regulations where necessary. This advice does not exempt the applicant/proponent from obtaining necessary approvals that may apply to the proposal including planning, building, health or any other approvals required by a relevant authority under other written laws.

Advice

- It is acknowledged that the Responsible Authority Report (RAR) for the JDAP is due on 22 March 2019.
- Further clarification is required within the BMP of the requirements of SPP3.7 and the Guidelines as outlined in our assessment below.

Assessment

1. Policy Measure 6.5 a) (ii) Preparation of a BAL contour map

Issue	Assessment	Action
Vegetation classification	Photographic evidence has been provided however the photo point labels on the vegetation classification do not align with the photograph labels.	Shire to be satisfied with modification to the BMP.

2. Policy Measure 6.5 c) Compliance with the Bushfire Protection Criteria

Element	Assessment	Action
Vehicular Access	The BMP states that the Sandy Ridge Facility is compliant with A3.2 however there are no public roads that traverse to the facility. The Shire has confirmed that the Mount Lawson road is a private State owned road (managed by the Department of Finance) which leads to the facility. The BMP should be updated to reflect the private road (private driveway) access routes and ensure that they comply with the technical requirements of A3.5 of the Guidelines.	Modification to the BMP is required. The Shire to be satisfied that vehicle access complies with A3.5 of the Guidelines.

Recommendation – supported subject to modifications

The development application and the BMP have adequately identified issues arising from the bushfire risk assessment and considered how compliance with the bushfire protection criteria can be achieved. However, modifications to the BMP are necessary to ensure it accurately identifies the bushfire risk and necessary mitigation measures. As these modifications will not affect the development design, these modifications can be undertaken without further referral to DFES.

As this planning decision is to be made by a Joint Development Assessment Panel please forward notification of the decision to DFES for our records.

If you require further information, please contact Coordinator Land Use Planning Sasha De Brito on telephone number 6551 4075.

Yours sincerely



Ron de Blank
DIRECTOR LAND USE PLANNING

22 March 2019