PROPOSED BLUE BUSH PROJECT
BROKEN HILL, NSW

SCOPING REPORT
REQUEST FOR SECRETARY'S ENVIRONMENTAL ASSESSMENT REQUIREMENTS

October 2020

DOCUMENT CONTROL

The signatures below certify that this report has been reviewed and accepted and demonstrates that the signatories are aware of all the requirements contained herein and are committed to ensuring their provision.

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NOTES ON THE TEXT

Two sites were originally considered for the Blue Bush Transfer Station – Site A and Site B. Based on feedback received from within the Broken Hill community during the Scoping Phase of the proposed Blue Bush Project, Site B has been eliminated.

Accordingly, Site A is the preferred location for the Blue Bush Transfer Station because it is located outside of the Broken Hill Local Government Area and industrial estate and lies within Unincorporated Land, and wholly within a Western Lands Lease.

The Blue Bush Transfer Station was originally referred to as the 'Blue Bush Inter-modal'. References to the Blue Bush Inter-modal within the technical reports appended to this Scoping Report should be read as 'Blue Bush Transfer Station'.

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ABBREVIATIONS

AEP	Annual Exceedance Probability
AHIMS	Heritage Information System
AHIP	Aboriginal Heritage Impact Permit
AIS	Agricultural Impact Statement
ANZEC	Australian and New Zealand Environment Council
ANZECC	Australian and New Zealand Environment and Conservation Council
ARMCANZ	Agriculture and Resource Management Council of Australia and New Zealand
ARPANSA	Australian Radiation Protection and Nuclear Safety Agency
BAM	Biodiversity Assessment Method
BAM-C	Biodiversity Assessment Method Calculator
BBF	Blue Bush Facility
BBTS	Blue Bush Transfer Station
BC Act	*Biodiversity Conservation Act 2016* (NSW)
BC Regulation	Biodiversity Conservation Regulation 2017
BDAR	Biodiversity Development Assessment Report
BESS	Battery Energy Storage System
BHLALC	Broken Hill Local Aboriginal Land Council
BNTG	Barkandji Native Title Group
BSAL	Biophysical Strategic Agricultural Land
CEMP	Construction Environmental Management Plan
CES	Community Engagement Strategy
CEP	Circular Economy Park
Cmlth	Commonwealth

DAWE	Department of Agriculture, Water and the Environment
DEC	NSW Department of Environment and Conservation
DECC	NSW Department of Environment and Climate Change
DECCW	NSW Department of Environment, Climate Change and Water
DEE	Australian Government Department of the Environment and Energy
DEWHA	Australian Government Department of the Environment, Water, Heritage and Arts
DGL	Dangerous Goods Transportation
DLWC	NSW Department of Land and Water Conservation
DPE	NSW Department of Planning and Environment
DPI	NSW Department of Primary Industries Office of Water
DPIE	NSW Department of Planning, Industry and Environment
DSEWPC	Australian Government Department of Sustainability, Environment, Water, Population and Communities
EEZ	Exclusive Economic Zone
EIS	Environmental Impact Statement
EPA	NSW Environment Protection Authority
EP&A Act	*Environmental Planning and Assessment Act 1979* (NSW)
EPBC Act	*Environment Protection Biodiversity Conservation Act 1999* (Cwlth)
EPBC Regulations	Environment Protection and Biodiversity Conservation Regulations
EPL	Environmental Protection Licence
EW	Exempt Waste
HLW	High Level Waste
ILW	Intermediate Level Waste
kL/day	kilolitres per day
LEP	Local Environmental Plan
LLW	Low Level Waste

MNES	Matters of National Environmental Significance
NEPM	National Environment Protection Measure
NEPM 75	National Environment Protection (Movement of Controlled Waste between States and Territories) Measure
NEPM	National Environment Protection Measure
NHMRC	Australian Government National Health and Medical Research Council
NORM	Naturally Occurring Radioactive Material
NPW Act	*National Parks and Wildlife Act 1974* (NSW)
NSW	New South Wales
NT	Northern Territory
NWP	National Waste Policy
OEH	Office of Environment and Heritage
OEMP	Operational Environmental Management Plan
PMF	Probable Maximum Flood
POEO Act	*Protection of the Environment Operations Act 1997*
REF	Review of Environmental Factors
REPs	Regional Environmental Plans
RMS	NSW Roads and Maritime Services
RTA	Roads and Maritime Service
SAII	Serious and Irreversible Impacts
SEARs	Secretary's Environmental Assessment Requirements
SEPP	State Environmental Planning Policy
SRD	State and Regional Development
SRLUP	Strategic Regional Land Use Policy
SSD	State Significant Development
Tellus	Tellus Holdings Ltd

tpa	tonnes per annum
UNESCO	United Nations Educational, Scientific and Cultural Organization
VLLW	Very Low Level Waste
WA	Western Australia
WAC	Tellus Waste Acceptance Criteria
WAP	Tellus Waste Acceptance Procedure
WFDCP	Waste Facility Decommissioning and Closure Plan
WZG	Tellus Waste Zoning Guide

GLOSSARY

Blue Bush Facility	Near-surface geological waste repository and associated infrastructure located approximately 45 kilometres south of Broken Hill.
Blue Bush Transfer Station	Proposed off-site transfer station located adjacent to Adelaide-Sydney Railway Line. This site will also be studied as a potential future circular economy park, where valuable materials could be recycled and recovered. The circular economy park would be subject to additional stakeholder engagement, studies and approvals – it is not currently part of the Blue Bush Project. Note: The Blue Bush Transfer Station was originally referred to as the 'Blue Bush Inter-modal'. References to the Blue Bush Inter-modal within the technical reports appended to this Scoping Report should be read as 'Blue Bush Transfer Station'. Two sites were originally considered for the Blue Bush Transfer Station – Site A and Site B. Site B has been eliminated based on the results of community engagement during scoping of the Blue Bush Project. Accordingly, Site A is the preferred location for the Blue Bush Transfer Station because it is located outside of the Broken Hill Local Government Area and industrial estate and lies within Unincorporated Land, and wholly within a Western Lands Lease.
Blue Bush Project	Encompasses the proposed Blue Bush Facility and the Blue Bush Transfer Station.
Community	Anyone affected by or interested in the Blue Bush Project. Includes individuals, groups, businesses, industry, non-government organisations, and local, state and federal government.
Engagement	The activities by which the community has their say and potentially influence decisions.
Pit	Pit created from the open cut extraction of overburden and clay.
Hazardous waste	Includes hazardous waste and special waste as defined per Clause 49, Division 1 of the *Protection of the Environment Operations Act 1997* (NSW) and only if it meets Tellus' strict Waste Acceptance Criteria (WAC).
Safety Case	A safety case draws upon site selection and characteristics, organisational and technical arrangements, nature of the waste to be accepted, design of the facility, including its multi barrier system, construction, operation, decommissioning, closure and post-closure stages, risk assessment, assurance and insurance and must demonstrate the protection of people and the environment.

Scoping	The process of identifying the matters that require detailed assessment in an EIS and informing the setting of SEARs for State Significant Projects.
SEARS	The Planning Secretary's environmental assessment requirements for the preparation of an EIS for a State significant Project.
State Significant Development	Pursuant to Section 89C of the EP&A Act, projects are classified as State Significant Development (SSD) if they are declared to be as such by the State Environmental Planning Policy (State and Regional Development) 2011 (SRD SEPP).
Waste cell	Once the excavation of a pit is completed and it is ready for storage and permanent isolation of waste, it is termed a 'cell'.

1 INTRODUCTION

1.1 Overview

Tellus Holdings Ltd (Tellus) propose to construct and operate:

- A transfer station (referred to as the 'Blue Bush Transfer Station' [or BBTS]) located west of the industrial precinct of Broken Hill, outside of the Broken Hill Local Government Area (LGA), within Unincorporated Land, and wholly within a Western Lands Lease.
- A near-surface geological repository (referred to as the Blue Bush Facility [BBF]) located approximately 45 kilometres south of Broken Hill and approximately 3.5 kilometres to the east of the Silver City Highway, outside of the Broken Hill LGA, within Unincorporated Land, and wholly within a Western Lands Lease pastoral property known as Pine Point.

The proposed BBTS and BBF are collectively referred to as the 'Blue Bush Project'. The regional location of the BBTS and BBF are shown in Figure 1-1.

It is envisaged that a future Circular Economy Park (CEP), where valuable waste materials could be recycled and recovered, may be constructed to support the Project. The CEP would be subject to additional stakeholder engagement, environmental and engineering studies and approvals. The CEP does not form part of the Blue Bush Project.

1.2 The proponent

Tellus is the proponent for the Blue Bush Project. The company details are as follows:

Tellus Holdings Ltd
Suite 2, Level 10, 151 Castlereagh Street
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ABN 97 138 119 829

Key contacts with regards to the Blue Bush Project are:

Mr. Richard Phillips
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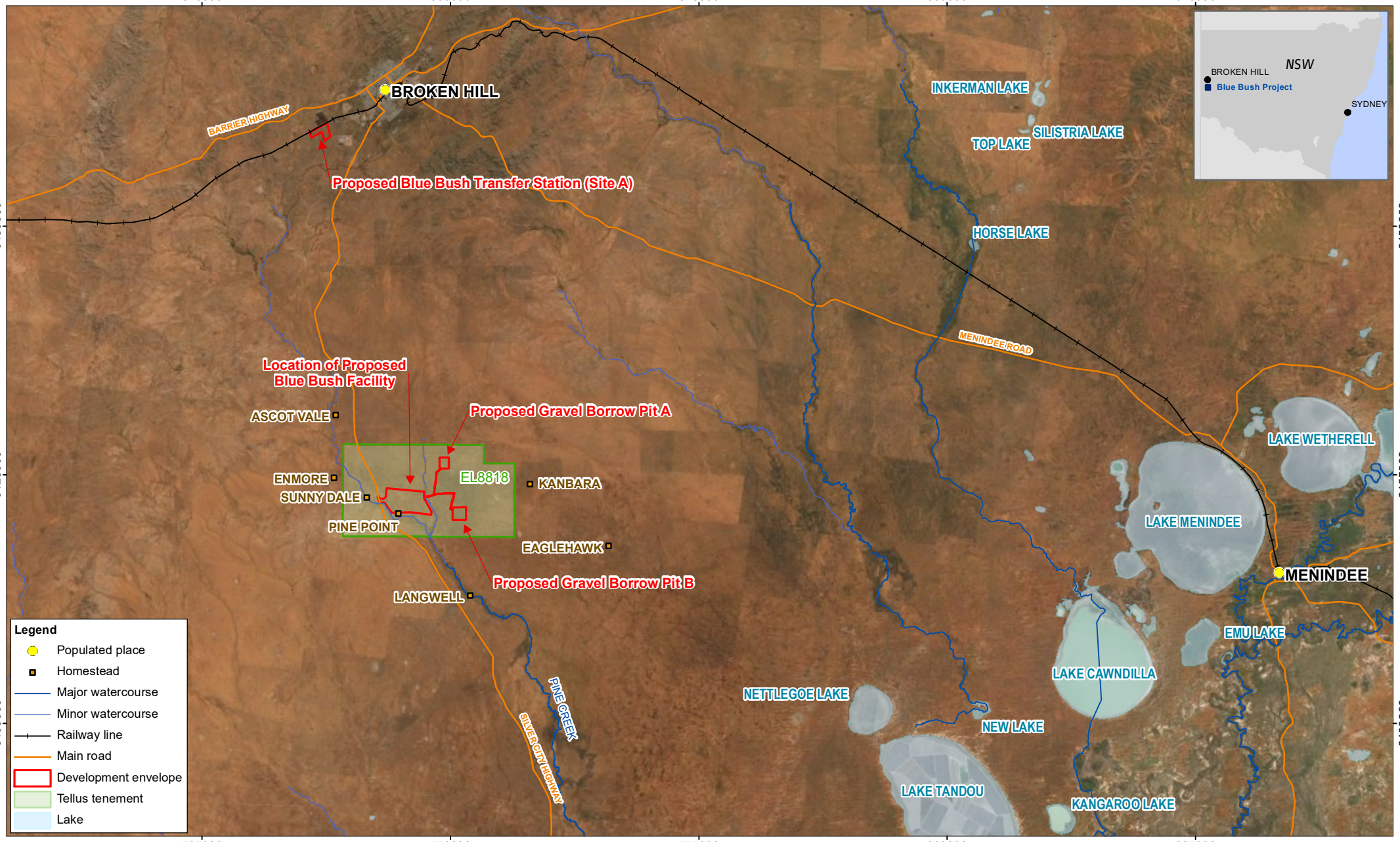

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Regional location

Figure 1-1

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Tellus is an innovative Australian infrastructure development company in the business of creating economic, social and environmental value from waste, clay and salt resources. Tellus' mission is to contribute towards a safer and cleaner Australia by developing a portfolio of geological repositories that provide waste storage, recycling, recovery, permanent isolation services and related commodity by-products.

Tellus owns and operates the Sandy Ridge Facility in Western Australia (WA); a 100,000-tonne-per-annum (tpa), 25-year life, arid near-surface geological repository. The Chandler Facility, a deep geological repository located 130 km from Alice Springs in the Northern Territory, has made significant progress with respect to environmental planning approvals.

Tellus is currently evaluating other clay and salt opportunities in Queensland, Victoria and South Australia. Tellus is a public unlisted company (incorporated in 2009). Further information regarding the proponent is provided on their website at the following address: www.tellusholdings.com.

1.3 What is a geological repository?

Geological repositories are a combination of natural barriers and highly engineered structures. They offer long-term storage (retrievable services) and permanent isolation (disposal) of equipment, hazardous materials and waste from the biosphere over geological time.

The key difference between a landfill and a geological repository is that landfills rely on human (engineered) containment barriers (e.g. liners) which ultimately fail over time. Due to legacy leachate and environmental contamination issues, landfills cannot permanently isolate disposed hazardous waste materials.

A geological repository relies on natural geological barriers (e.g. kaolin clay) to isolate the materials from the biosphere and hence can permanently isolate the waste for hundreds of thousands to millions of years. Geological repositories provide 'passive safety' which does not require them to be actively maintain the facility post closure. This is commonly known as the Institutional Control Period. Hence, there are no significant legacy risks passed on to future generations.

Geological repositories have been operating in Europe since the 1970's and more recently in the United Kingdom, North and South America, and in Africa. A WA Government-owned geological repository has been operating safely in WA (the Mt Walton Intractable Waste Disposal Facility) since 1992 and Tellus' Sandy Ridge Facility since 2020.

Geological repositories are recognised globally for the storage and/or permanent isolation of difficult to manage hazardous (chemical) waste materials.

1.4 Purpose of this document

This Scoping Report:

- Describes the proposed Blue Bush Project.
- Identifies the relevant strategic and statutory context.
- Summarises the results of early key stakeholder and community engagement.
- Identifies the scale and nature of potential impacts (positive or negative) of the proposed Project.
- Outlines the proposed approach to future assessment and community engagement.

This Scoping Report will be used by the NSW Planning Secretary to issue the environmental assessment requirements (SEARs) for the Project's Environmental Impact Statement (EIS).

The SEARs will be published online following publication of the Scoping Report. The Planning Secretary may revise Project SEARs at any time.

It is anticipated the Project will require approval under Part 4, Division 4.7 of the *Environmental Planning and Assessment Act 1979* (NSW) (EP&A Act). This Scoping Report:

- Provides a conceptual description of the Project.
- Summarises the community engagement undertaken to-date.
- Presents a preliminary environmental risk-based assessment undertaken during environmental scoping of the Project.
- Presents the proposed scope of the environmental impact assessment that would be included in the EIS for the Project.
- Outlines the proposed community engagement that will be undertaken during the environmental impact assessment of the Project.

2 PROJECT DESCRIPTION

2.1 Overview

A description of the Blue Bush Project is mapped out and summarised in Figure 2-1. Prescribed activities associated with the Project are governed by pre-waste acceptance and post-waste acceptance at the BBF. These activities govern the lifecycle of the proposed Project. The activities for each stage, responsibilities and ownership of hazardous waste for each activity is listed in Table 2-1.

Table 2-1 Summary of activities associated with pre and post waste acceptance at the Blue Bush Facility

Pre-waste acceptance activity	Responsibility	Ownership of waste
Waste characterisation and verification	Waste generator	Waste generator
Waste packaging	Waste generator	Waste generator
Waste transport to the BBTS	Waste generator	Waste generator
Temporary waste storage at BBTS	Tellus	Waste generator
Waste transfer to the BBF	Tellus	Waste generator
Post-waste acceptance activity	**Responsibility**	**Ownership of waste**
Physical waste inspection at BBF	Tellus	Tellus
Chemical waste testing at BBF	Tellus	Tellus
Waste acceptance at BBF	Tellus	Tellus
Permanent Isolation Certificate (**PIC**) issued to client	Tellus	Tellus
Temporary storage of waste at BBF	Tellus	Tellus
Long-term waste storage at BBF	Tellus	Tellus
Permanent isolation of hazardous waste materials at BBF	Tellus	Tellus
Progressive closure of waste cells and cell rehabilitation.	Tellus	Tellus
Environmental and operational performance monitoring of BBF	Tellus	Tellus
Decommissioning and closure of BBF	Tellus	Tellus
Institutional control	To be agreed	

Tellus is seeking environmental planning approval to build and operate a near-surface geological repository (the BBF). The term would be for 25 years at a capacity of 200,000 tonnes per annum. This volume of waste is not expected in year one of operations. Rather, it would be achieved over a 'ramp up' period of approximately six years.

If approved, the proposed BBF would be linked to a network of geological repositories currently owned or being developed by Tellus. For example, waste materials that do not meet the Waste Acceptance Criteria (WAC) for the BBF, would be sent to Tellus' Sandy Ridge Facility in WA.

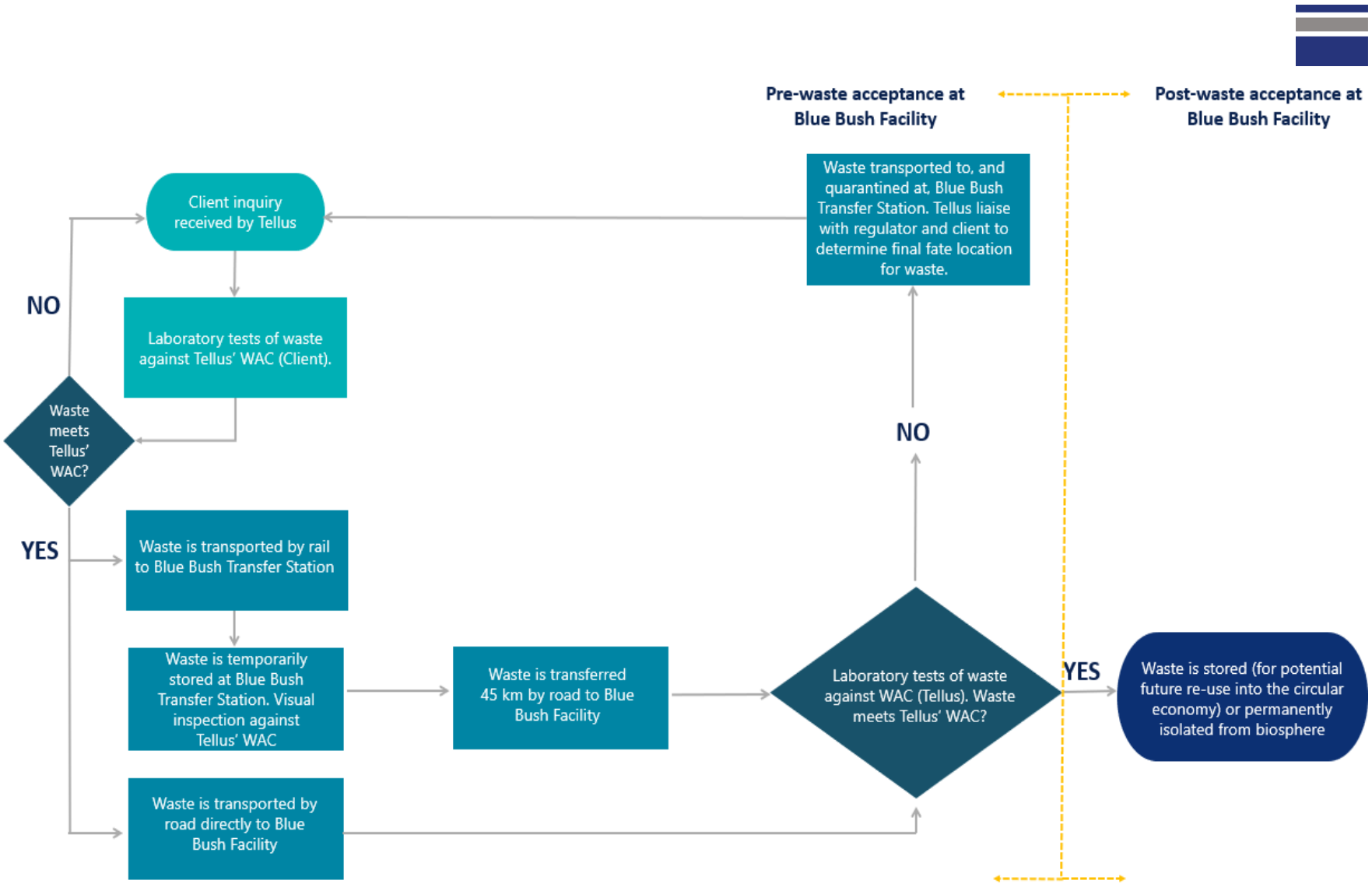

Figure 2-1 Lifecycle process flow diagram of the Blue Bush Project

2.2 Site description and suitability

2.2.1 Blue Bush Transfer Station

The BBTS site is located approximately 0.5 kilometres to the west of the industrial precinct of Broken Hill, outside of the Broken Hill Local Government Area (LGA) on Unincorporated Land and wholly within a Western Lands Lease. The BBTS site is shown in Figure 2-2.

The site of the proposed BBTS is predominantly vegetated with native shrubland and grassland with some areas of woodland (refer to Plate 2-1). The site is well-suited for a transfer station as it is located outside of, but adjacent to, the industrial precinct of Broken Hill and over 5 kilometres from the nearest residential area in Broken Hill.

Plate 2-1 View east towards site of proposed Blue Bush Transfer Station

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Local setting (Blue Bush Transfer Station)

Figure

2-2

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2.2.2 Blue Bush Facility

The BBF site located approximately 45 kilometres south of Broken Hill and approximately 3.5 kilometres to the east of the Silver City Highway, outside of the Broken Hill LGA, within Unincorporated Land, and wholly within a Western Lands Lease pastoral property known as Pine Point. The site is shown in Figure 2-3. The site has historically been used for grazing. It has flat topography and is predominantly vegetated with native shrubland with some areas of woodland with stands of medium-sized trees (3-5 metres in height) (refer to Plate 2-3).

The geology for long-term storage and/or permanent isolation of hazardous waste is unsaturated. It is not at risk of flooding. High evaporation and low average annual rainfall are typical long-term climatic trends for this area. The site is considered appropriate for the development of a near-surface geological repository.

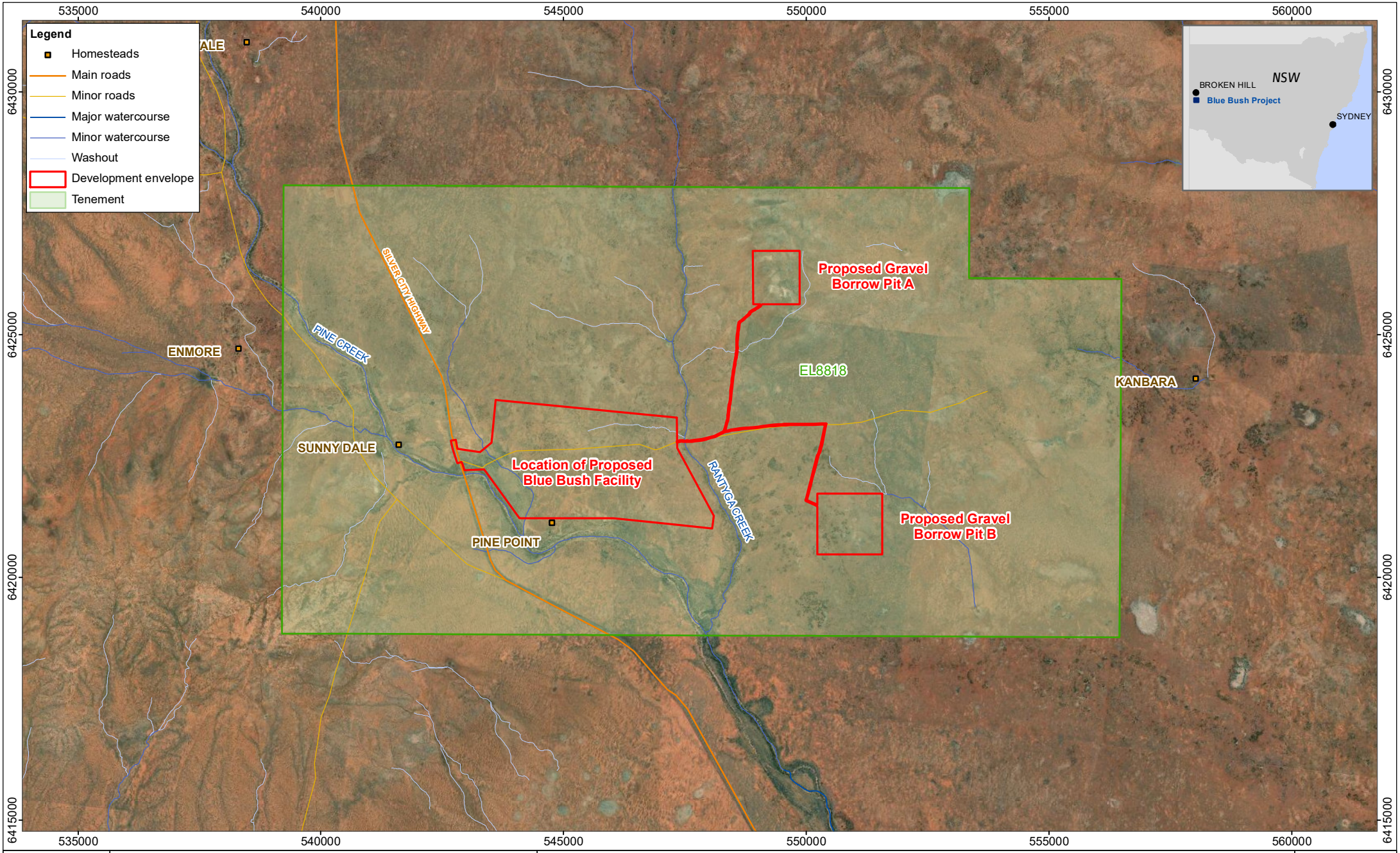
Plate 2-2 View looking north across site of the proposed Blue Bush Facility

2.3 Pre-waste acceptance at the Blue Bush Facility

2.3.1 What are the primary sources and generators of waste for the Project?

The primary sources and generators of hazardous waste for the Project are likely to be from legacy and emerging stockpiles associated with:

- Contaminated soils.
- Asbestos.
- Industrial wastes contaminated with heavy metals.
- The chemicals, heavy manufacturing and mining industries.
- Decommissioning of offshore oil and gas sludges and Naturally Occurring Radioactive Material (NORM).
- PFAS wastes.
- Energy industry (e.g. energy from waste; coal fired power; end of life solar plants).
- E-wastes.
- Agriculture sector.



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Local setting (Blue Bush Facility)

Figure

2-3

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2.3.2 Waste not accepted

The form and type of hazardous waste that would not be accepted at the proposed BBF (and therefore the BBTS) are listed in Table 2-2.

Tellus is not seeking approval from Government to accept:

- Nuclear waste.
- Very Low-Level Waste (VLLW).
- Low Level Waste (LLW).
- Intermediate Level Waste (ILW).
- High Level Waste (HLW).

Wastes that are gases, explosive, biodegradable, infectious, tyres or uncertified would not be accepted under any circumstances. However, gases could be accepted, provided that the gas is contained within an instrument or a cementitious matrix.

Wastes that are liquids or sludges, explosive, flammable liquids or solids, self-combusting, generate a gas-air mixture which is toxic or explosive, biodegradable, could release free liquid or react with the host geology would not be accepted unless they could be chemically stabilised, solidified or modified in such a way that they would not affect the operational or post closure safety of the proposed BBF, in accordance with the WAC.

2.3.3 Waste accepted

Waste would be accepted from NSW, other neighbouring states and territories in Australia, and from the Australia's Exclusive Economic Zone (EEZ).

The form and type of hazardous waste that would be accepted at the proposed BBF (and therefore the BBTS) are listed in Table 2-2

The BBF would be designed and located in a host geological environment capable of permanently isolating and storing a large majority of chemical wastes listed under Schedule 1 of the Protection of the Environment Operations (Waste) Regulation 2014 (NSW) and the National Environment Protection (Movement of Controlled Waste between States and Territories) Measure (NEPM 75) subject to them meeting Tellus' strict WAC.

Exempt Waste (EW) (e.g. wastes containing radionuclides at concentrations that does not require regulatory oversight such as Naturally Occurring Radioactive Material [NORM]) would also be accepted at the proposed BBF. The proposed WAC for the Project is provided in Appendix A.

Table 2-2 Waste acceptance criteria for the Blue Bush Project

Type of waste	Accepted on-site for surface storage	Accepted below-surface in waste cells
Hazardous waste subject to meeting the characteristics criteria below:	✓	✓
- Liquid and sludges	✓	✗[1]
- Explosive wastes	✗[1]	✗[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	✓	✗[1]
- Gases (greater than 5% in volume)	✓	✗[1]
Clinical waste (e.g. infectious hospital waste and body parts)	✗	✗
Municipal solid waste (putrescible household and commercial waste)	✗	✗
Uncertified waste (which cannot be identified or has not undergone characterisation testing)	✗	✗
Exempt Waste (EW) [2] (e.g. wastes containing radionuclides at concentrations that does not require regulatory oversight such as NORM wastes from the solar and electric car battery industries)	✓	✓
Very Low Level Waste (VLLW) [2] (e.g. wastes from medical, industrial, research and NORM industries with activity concentration levels at or just above exempt limits that require consideration of radiation protection and safety)	✗	✗
Low Level Waste (LLW)[2] (e.g. oil and gas industry scale)	✗	✗
Intermediate Level Waste (ILW)[2] **and High Level Waste (HLW)**[2] (e.g. reprocessed spent nuclear fuel and components with high levels of radioactivity)	✗	✗
Nuclear waste[3] (e.g. from power generation and defence use)	✗	✗

Notes:

1 Normally excluded unless modified in accordance with Tellus' WAC before disposal or during disposal so that the operational and post closure safety of the waste cell and facility is not compromised.

2 Classification of Radioactive Waste as per ARPANSA RPS 20 and Definition as per Section 21 and 22 of the EPBC Act.

3 Definition as per Section 21 and 22 of the EPBC Act.

✓ = Accepted; ✗ = not accepted; ✗[1] = normally excluded, but possibly suitable.

2.3.4 Transport of waste to Blue Bush Transfer Station

Waste would be transported via rail from various ports of origin to the proposed BBTS. These ports of origin would include inter-modal rail facilities across states and territories of Australia. The waste generator would be responsible for the transport of waste to the proposed BBTS.

2.3.5 Proposed activities at Blue Bush Transfer Station

The BBTS would be used to receive waste prior to its onward transfer to the BBF. Waste would be managed in accordance with Tellus' Waste Zoning Guide (WZG), Waste Acceptance Procedure (WAP) and applicable national and state codes, guidelines and standards. The processing of waste at the BBTS does not form part of the Blue Bush Project.

Waste materials transported via rail would be delivered to the proposed BBTS. The waste would arrive to the site in the following designated freight or cargo types:

- Packaged: Examples include open head drums, closed head drums, unitized packages, flexible, composite or rigid intermediate bulk containers (IBCs) (refer to Table 2-3).
- Bulk: Examples include lidded half-height containers, designated BK2 containers, portable tanks, demountable tanks (refer to Table 2-3).
- Containerised: Examples include general purpose containers ISO dimensioned predominantly 20' (refer to Table 2-3).
- Project: Examples include flat rack containers, side opening containers, top opening containers (refer to Table 2-3).

The freight or cargo type used would depend on the physical form of the waste i.e. liquid, solid, hazard attributes, etc. and specific receptacle or containment requirements. The freight or cargo type used would also consider applicable regulatory control frameworks including (without limitation) dangerous goods transportation and relevant chain of responsibility/national heavy vehicle legislation requirements.

Waste arriving to site would do so via a proposed rail spur line off the Adelaide-Sydney Railway Line. The process of delivery is likely to involve the steps presented in Figure 2-4.

Waste arriving at the BBTS would be temporarily stored in an open storage area (impervious hardstand or to an equivalent standard) until it is inspected and verified against the Blue Bush Project WAC. Waste verification activities would include:

- Collection, assessment and verification of internal, regulatory and commercial paperwork associated with each individual container received at the transfer station.
- Visual external inspection of the container to ensure that there are no waste discharges or container integrity issues.
- Where required, external non-destructive screening of waste containers.
- Daily storage container storage yard area inspections

Waste would undergo a strict analysis and risk assessment process before the containers are transported from the waste generator to the proposed BBTS.

Once the waste has been verified, it would then be transferred safely via truck to the Silver City Highway and on to the proposed BBF.

As stated above, up to 200,000 tonnes of waste per annum could pass through the transit station and up to a maximum 20,000 tonnes could be stored at any one time at the BBTS.

Table 2-3 Waste storage containers

Waste Storage Containers			
Type	**Examples**		
Packaged			
			
Bulk			
Containerised			
Project			

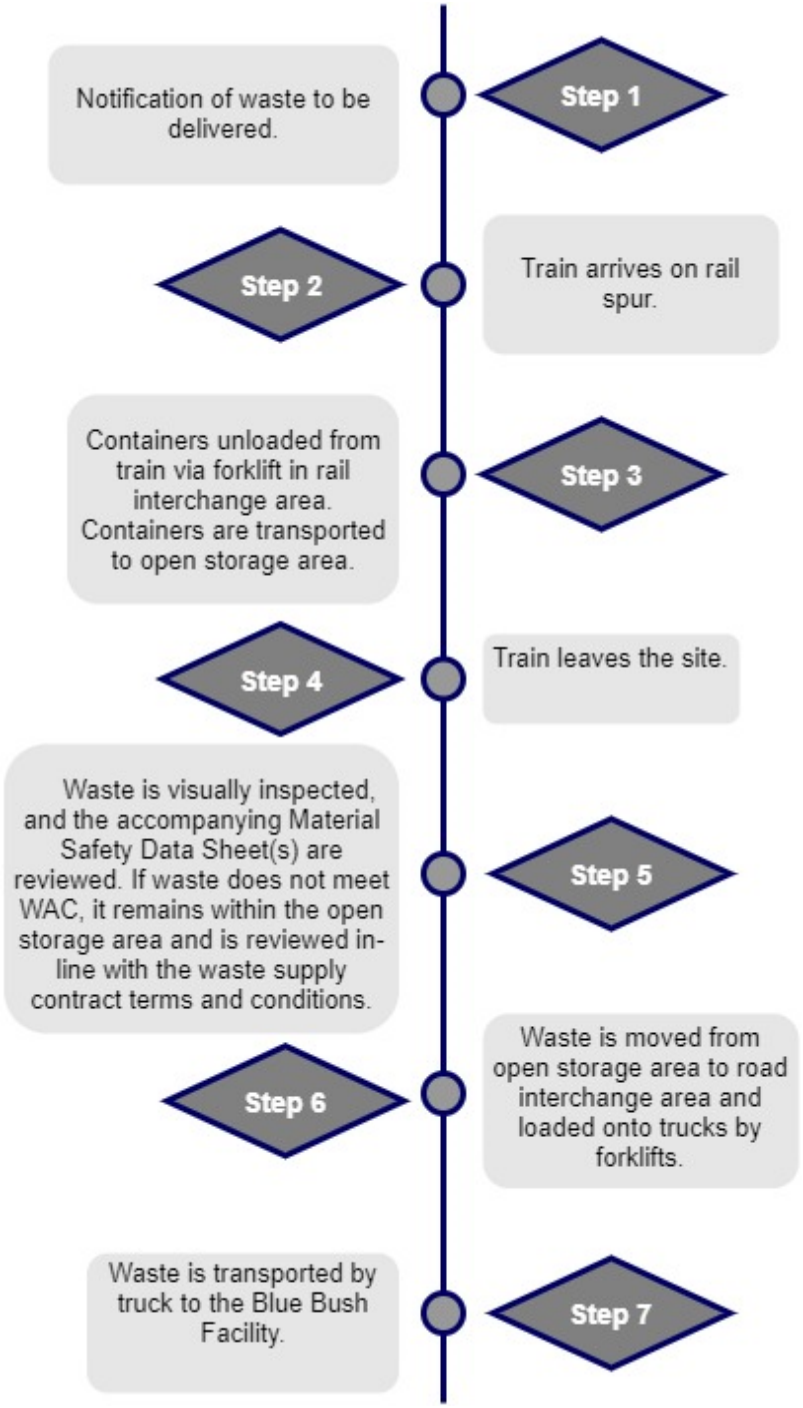


Figure 2-4 Process of waste delivery at the Blue Bush Transfer Station

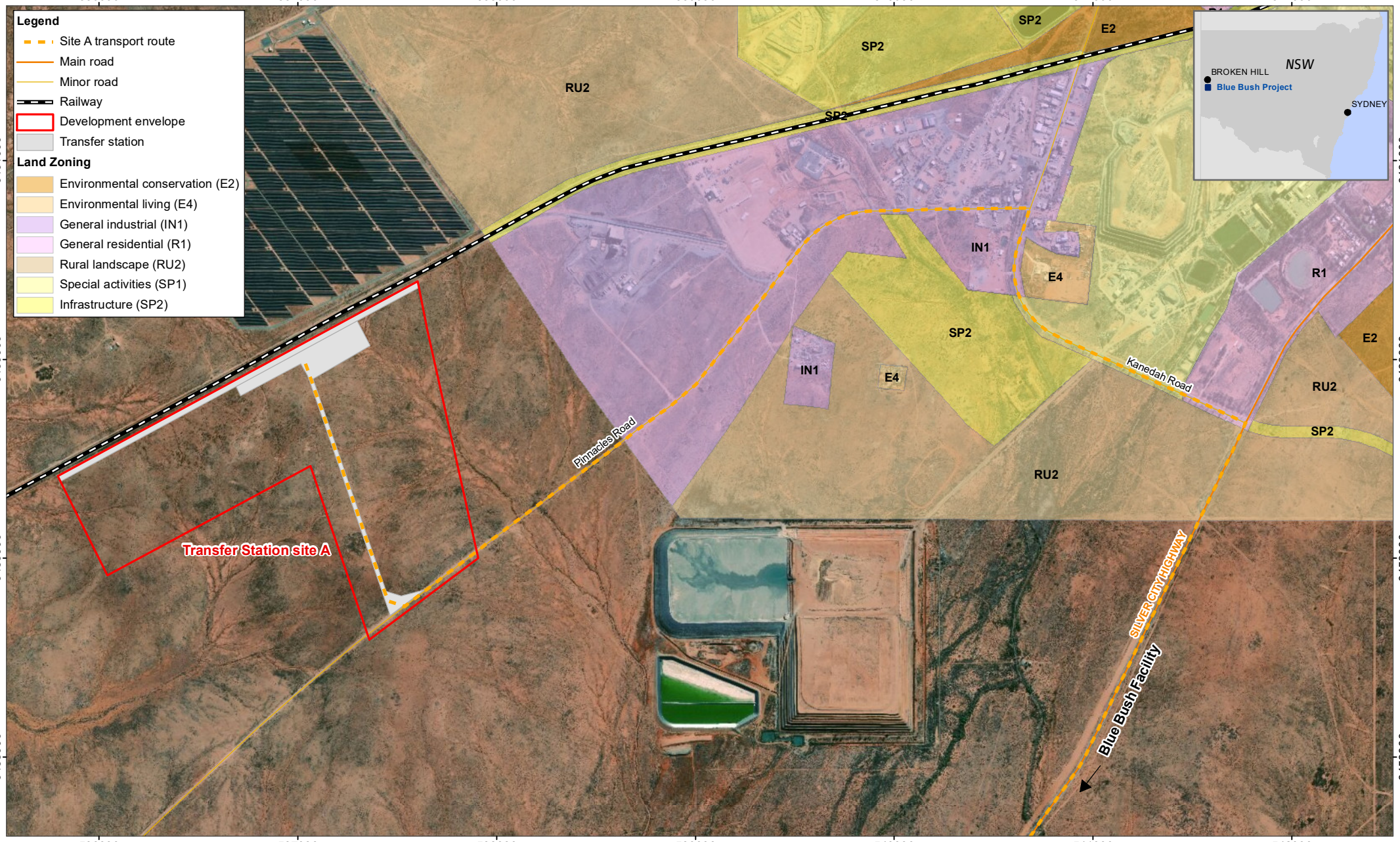
2.3.6 Transport of waste to Blue Bush Facility

It is expected that most of the waste would be transported to the proposed BBF via the proposed BBTS (refer to Section 2.3.4).

The transfer of waste from the BBTF to the BBF would follow the route shown in Figure 2-5. Trucks carrying waste materials inside shipping containers would exit the site and travel along Pinnacles Road to Kanandah Road out of the Broken Hill Industrial Precinct to where Kanandah Road meets the Silver City Highway.

At that T-intersection, heavy vehicles would make a right-hand turn on to the Silver City Highway and travel south for approximately 45 kilometres until reaching a proposed dedicated slip lane for entry into the BBF.

Where waste is located within several hundred kilometres and/or not within easy access to rail, it could be transported via road directly to the BBF. The potential transport routes for this waste will be assessed in the EIS. It is estimated that not more than 20 per cent of waste would be transported via road directly to the BBF.



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Proposed transport route from Blue Bush Transfer Station to Blue Bush Facility

Figure 2-5

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2.4 Waste acceptance at the Blue Bush Facility

Trucks may enter a weighbridge before passing through the front gate of the BBF. Once weighed, the trucks would proceed into the BBF where the waste material would be verified by physical inspection and, also chemical analysis. If the waste material meets Tellus' WAC, a Permanent Isolation Certificate would be issued to the waste generator/client. Once a Permanent Isolation Certificate is issued, all risk and liability of the waste transfers from the client to Tellus.

2.5 Post-waste acceptance at the Blue Bush Facility

This section summarises the processes involved with the long-term storage and permanent isolation of waste at the BBF (refer to Figure 2-6).

2.5.1 Step 1 – Temporary storage of waste

Waste would be temporarily stored in an open storage area that would be appropriately secured and bunded. It would then be transferred to waste cells for storage or permanent isolation.

2.5.2 Step 2 – Cell cover is erected

Before excavation of clay occurs, the area would be stripped of any vegetation and topsoil. The topsoil would be stored up-gradient of the proposed waste cell for future rehabilitation purposes.

For waste cells with medium to high environmental, health and safety hazards and risks, a cell cover would be placed over the pit prior to extracting overburden and clay. It would remain over the waste cell during waste emplacement. The primary purpose of the cell cover would be to prevent water ingress into the waste cell and to regulate air quality (refer to Figure 2-7).

The cell cover would be moved from pit to pit as each one is excavated, the pit (now termed a waste cell) is filled with waste with barriers between and above the waste types, and then capped. This method is currently used at Tellus' Sandy Ridge Facility in WA (refer to Plate 2-4).

Two cell covers may be in use during operation of the proposed BBF. This would allow multiple pits to be excavated and waste cells to be filled at any one time. Waste cells characterised as having lower environmental, health and safety hazards and risks may not require cell cover(s).

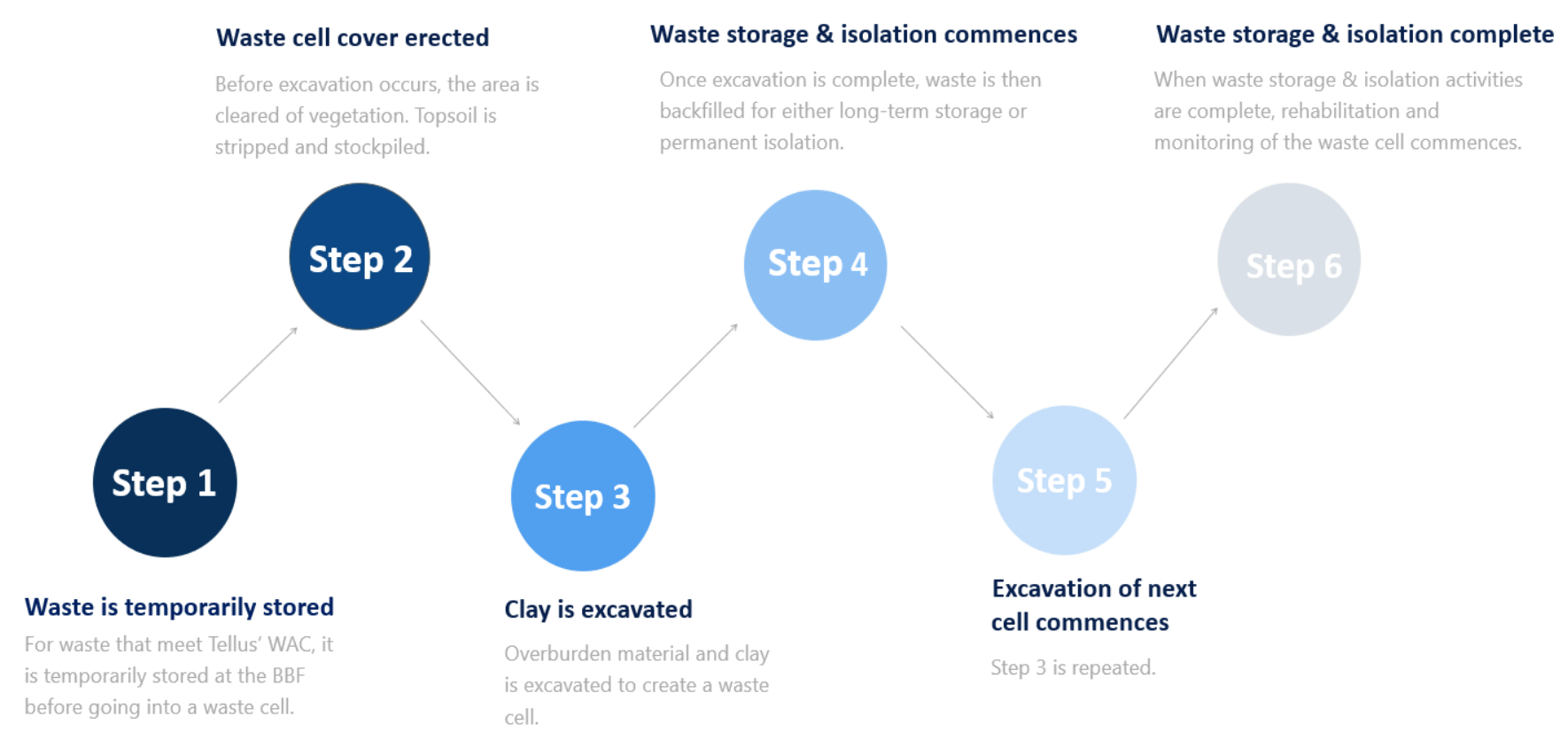
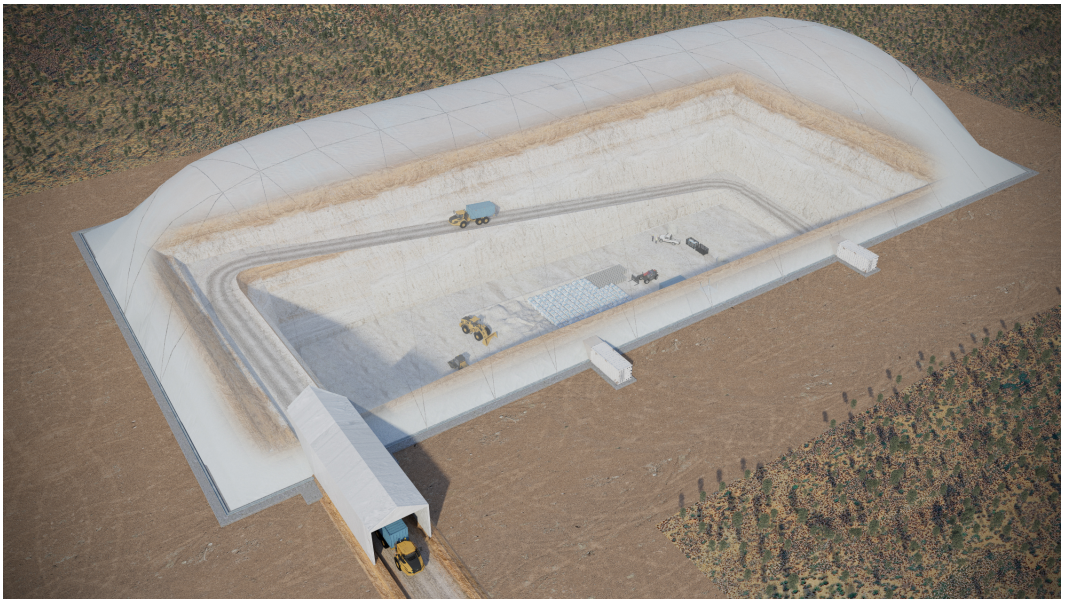


Figure 2-6 Summary of proposed operations at the Blue Bush Facility.



For waste cells with medium to high environmental health and safety hazards and risk, a cell cover would be placed over the pit during clay extraction and would remain over the waste cell during waste emplacement.

Figure 2-7 Pictorial representation of cell cover

Plate 2-3 A cell cover at the Sandy Ridge Facility in WA.

2.5.3 Step 3 – Extraction of clay

Clay would be extracted from open-cut pits at the proposed BBF. The voids created from this extraction would then be used for the storage and/or permanent isolation of hazardous waste. At this stage, it is envisaged that the BBF would receive up to a maximum of 200,000 tpa of waste for approximately 25 years.

Under cover of the cell cover (if required), the pit would be opened by excavation and clay would then be extracted by conventional earthmoving equipment (scrapers, excavator and trucks). Overburden and clay would be stockpiled separately adjacent to the pit for later re-use in closing the waste cell and for waste immobilisation, if needed.

The dimensions, final location and number of pits would be dependent on further drilling results, geotechnical and hydrogeological investigations, and best practice open-cut pit design principles relevant to the information collated from exploration and hydrogeological drilling. The cell bottom is likely to be a minimum of 5 metres above the gneiss bedrock.

2.5.4 Step 4 – Long-term storage and permanent isolation of hazardous waste

Waste storage/permanent isolation

The voids created from clay extraction would be used for the storage of hazardous waste. The waste cells would be filled with packaged solid or chemically treated and immobilised waste placed in layers (cells separated with clay) and waste types would be placed in compliance with waste zoning guidelines (refer to Figure 2-8). Separation barriers would be placed between different compatible zones based on strict waste acceptance and zoning guidelines. A thick capping layer would be placed on top of the waste layer. This would be repeated until the waste cell is full and the final seal is placed on top.

Clay is extracted creating a pit (top). The pit is then termed a waste cell and is used for the safe and secure storage of waste in sealed containers (bottom).

Figure 2-8 Pictorial representation of clay extraction and waste emplacement

Waste cells with potential valuable resources would be designed and managed to allow for future waste recovery opportunities – that is, wastes would be stored like-with-like and the final storage/permanent isolation locations of the waste would be tracked and logged for future reference. This would allow for either the technology, the economics, or both, to catch up to support the recovery event that contributes to the circular economy.

Liquid waste immobilisation

Liquid waste would not be accepted unless it could be immobilised (chemically treated, encapsulated or solidified) in such a way that it would not affect the operational or post closure safety of the proposed BBF, as per the Blue Bush WAC. The receival, immobilisation and permanent isolation of liquid waste would be undertaken at the proposed BBF and would be completed in compliance with the NSW Waste Classification Guidelines Part 2: Immobilisation of Waste (NSW EPA 2014).

Waste would be immobilised via the following options:

- Liquid waste may be treated in a dedicated enclosed shed equipped with a fume extraction system and associated chemical scrubbing system to prevent chemical and odour discharges to the surrounding environment. An excavator would be used to mix proprietary waste treatment formulations.

  Two fixation pits would be used to allow for the simultaneous chemical treatment and/or fixation of two different waste streams, increasing waste fixation efficiency. A hardstand area would allow fixated waste to dry or to complete a monitored ongoing chemical reaction. Once the waste has been treated (immobilised), it would be transported to a designated waste cell for permanent isolation.

- Treating liquid waste in a dedicated Waste Immobilisation Plant (WIP) like the WIP being operated at Tellus' Sandy Ridge Facility in WA.

The plant used to fixate the waste would be selected based on the chemical and physical characteristics of the waste. Liquid waste would be mixed with a mixture of kaolin and either Portland cement or fly ash in accordance with predetermined proprietary waste formulations.

Preliminary waste fixation analysis has been completed by Curtin University in Perth, WA. This analysis indicates that both the mottled clay and kaolin clay present naturally at the site of the proposed BBF can effectively be used in concrete formulations mirroring the processes in use at Tellus' Sandy Ridge Facility. The analysis was completed using a PFOS concentrate, dried and crushed clay or kaolin from the site of the proposed BBF and Portland cement.

Modelling completed for the Sandy Ridge Facility indicated that a minimum Unconfined Compressive Strength (UCS) of 0.5 MPS is required to mitigate the risk of long-term cell subsidence caused by a breakdown of the concrete matrix at Tellus' Sandy Ridge Facility. Test results indicate an UCS of greater than 0.5 MPS at the site of the proposed BBF. This suggests that the concrete monolith would be strong enough to be placed within the waste cell, also mitigating the risk of long-term cell subsidence caused by a breakdown of the concrete matrix at the proposed BBF.

The average free liquid content is an indicator of the potential for liquid contained within the concrete matrix to be released into the waste cell during long term storage conditions. Testing indicates very low free liquid results (less than 0.5 per cent), indicating that waste liquid would

remain contained within the concrete matrix, thus ensuring that the waste cell remains dry at the proposed BBF.

For reference, operational procedures for the chemical treatment of liquid waste and PFAS waste for Tellus' Sandy Ridge Facility are provided in Appendix B. These procedures would be modified, as appropriate, for the proposed BBF.

Residual risk from the stabilisation process

Potential risks associated with the waste chemical treatment option are identified within the waste formulation testing campaign and are assessed, and where necessary, mitigated by Tellus chemists.

Storage, handling and transport of hazardous chemicals and dangerous goods

Hazardous chemicals are classified based on their health, physical and environmental hazards. The risks associated with the storage and handling of hazardous chemicals would be managed at the proposed BBF and BBTS through proactive compliance with the *Work Health and Safety Act 2011* (NSW) and Work Health and Safety Regulation 2017 (NSW).

The transport of controlled or trackable waste would be carried out in accordance with the *Protection of the Environment Operations Act 1997* (NSW) (POEO Act) and Protection of the Environment Operations (Waste) Regulations 2014 (NSW). Certain controlled or trackable wastes will also be classified as dangerous goods.

Dangerous goods are classified according to their more immediate physical chemical properties (e.g. flammability, corrosivity, toxicity) and the transport of dangerous goods would be carried out in accordance with the *Dangerous Goods (Road and Rail Transport) Act 2008* (NSW) and the Dangerous Goods (Road and Rail Transport) Regulations 2014 (NSW).

2.5.5 Step 5 – Excavation of a new cell is repeated

Excavation of other pits would be carried out in campaigns. The frequency of excavation campaigns would depend on the depth of the excavation in each area and the volume of waste deliveries to the proposed BBF.

2.5.6 Step 6 – Waste storage and isolation completed

Final filling and initial compacting of waste cell with clay seal

Within the waste cell, the space between the waste packages would be filled with clay and compacted to remove air and void space. Each layer would also be compacted, until approximately six to 12 metres below the existing ground surface (refer to Figure 2-9).

The space between the waste packages would be filled with clay or cement and compacted to remove air and void space, until approximately six to 12 metres below the existing ground surface.

Figure 2-9 Pictorial representation of waste packages in waste cell

Waste cell is closed, subsidence monitoring commences, cell is rehabilitated

At approximately six to 12 metres below the ground surface, a 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 waste storage/isolation zone within the cell. The remaining void space would then be backfilled using original overburden material. A clay cap would be placed on top of the overburden and would be constructed and designed to horizontally shed any landing rainfall for the duration of a subsidence monitoring period.

Subsidence monitoring would commence as soon as the cap has been situated on top of the cell and would continue as part of a proposed Institutional Control Period (ICP). The term of the ICP would be agreed upon with the NSW Government.

The first phase of ICP (Active ICP) would be where Tellus retains tenure, carries out subsidence monitoring plus groundwater monitoring and rehabilitation monitoring over the life of the Blue Bush Project.

The second phase (Passive ICP) would be where Tellus relinquishes tenure back to the Crown. The Crown would then be responsible for undertaking the monitoring that Tellus undertook during Active ICP. Both phases of the ICP would be covered by a whole of project assurance and insurance framework to be agreed upon with the NSW Government. A model framework has been agreed with the WA Government for the Sandy Ridge Facility. Tellus is of the opinion that the Sandy Ridge Facility framework could be adapted and adopted to meet the requirements of the NSW Government.

At the completion of the subsidence monitoring period, soil would be placed over the domed clay cap to enable re-vegetation.

The process described above would be underpinned by a comprehensive insurance and assurance framework. The framework would likely be based upon the provisions of the POEO Act and would

involve a whole of government agreement. The Blue Bush Project's insurance and assurance framework will be developed during the preparation of the EIS.

2.6 Proposed infrastructure

2.6.1 Blue Bush Transfer Station

Proposed infrastructure

The proposed BBTS would be used for the temporary storage of hazardous waste materials prior to their onward transfer to the BBF. Up to 200,000 tonnes of waste per annum could pass through the proposed BBTS.

Up to a maximum of 10 per cent of the BBF license capacity (20,000 tonnes) could be stored at any one time at the BBTS. This would be to accommodate for flexibility in the supply chain for operational issues at the BBF such as potential access problems (e.g. road failure), mechanical equipment failure (e.g. weeks to get spares from global supply chain) or human resourcing problems (e.g. pandemic – COVID-19).

The following infrastructure would be constructed at the proposed BBTS:

- Temporary open container storage area.
- Road and rail interchange areas.
- Office and maintenance and equipment storage sheds.
- Internal roads and car parking.
- Vehicle wash down facility.
- Truck driver amenities.
- Security fencing, cameras and lighting.
- Stormwater drainage.
- Electricity, water and sewerage services.

Impervious hardstand areas or to an equivalent standard would be constructed in the open storage area and in the office and maintenance and storage sheds. Fuels, chemicals and other hazardous substances would also be stored in a secure, bunded area. Appropriate spill response procedures would be implemented in line with a site-specific Emergency Response Plan.

A conceptual layout of the proposed BBTS is provided in Figure 2-10.

Water supply

This area is serviced by the local water provider, Essential Water. A water connection would be established following a connection process via Essential Water. Fit-for-purpose water connections would be sought, for example, raw water for operational requirements and potable water for consumption needs at the proposed BBTS.

2.6.2 Blue Bush Facility

Proposed infrastructure

The following infrastructure would be constructed at the proposed BBF:

- Waste infrastructure that includes:
    - Excavated pits to be used as waste cells.
    - Stockpile areas for overburden and clay.
    - Container hardstand (for the temporary storage of waste).
    - Waste inspection and unloading areas and warehouses.
    - Waste laboratory.
    - Waste Immobilisation Plant (WIP) fitted with consumables storage, blending and mixing equipment and stormwater management system; and/or a fully enclosed chemical waste treatment and fixation pit fitted with a negative pressure fume extraction system and associated gas scrubbing system.
    - Clay and kaolin processing equipment used in waste management.
    - Cell cover(s) which could be in the form of an air dome(s) like the Sandy Ridge Facility in WA, are planned for waste cells with medium to high environmental, health and safety hazards and risks (e.g. air quality). Waste cells characterised as having lower environmental, health and safety hazards and risks may not require cell cover(s).
- Other ancillary infrastructure:
    - Administration building and workshop.
    - Laydown yard including repair and maintenance facilities.
    - Mobile equipment re-fuelling and washdown facility (including oily water separator and storage).
    - Site access roads and internal haul roads.
    - Vehicle wash down facility.
    - Secure site fencing and gatehouse.
    - A water treatment system and tanks for raw and potable water.
    - Wastewater treatment system and effluent disposal equipment.
    - Diesel storage tanks (including piping reticulation and bowsers).

- Hydrocarbon/renewable hybrid power generation system.
    - The site is expected to be powered by a variety of technologies inclusive of diesel generation, solar photovoltaic power generation and microgrid forming lithium ion battery energy storage system (BESS).
    - Whilst the overall site power load would determine the final configuration, the proponent would aim to size the system to maximise solar generation in summer, minimise reliance on diesel generation in winter and provide a stable power system capable of meeting operational requirements.
    - The inclusion of a BESS allows excess solar generation to be stored and increases the reliability of the power station should any generation component fail. A solar generation capacity of around 2 megawatts could be installed at the BBF, which would require a footprint of approximately 3.5 hectares.
- Permanent accommodation village, services and infrastructure (if required). Whilst the proponent would seek to utilise a local workforce to fill staff and contractor roles, it is possible that some specialist roles may require an alternative point of hire. In this case, a permanent accommodation village may be required for these personnel. The village would be serviced by the same power generation system as the BBF. Further investigations regarding the need for, and size of, a permanent accommodation village will be undertaken during the preparation of the EIS.
- Road upgrades at the intersection of the Silver City Highway and access road to the proposed BBF.

- Construction-related infrastructure:
    - Temporary construction accommodation village, services and infrastructure.
    - Gravel borrow pit(s). Subject to geotechnical site investigations, gravel may need to be imported to enable the infrastructure area and site roads to be constructed to a suitable specification to meet a 25-year facility life. Gravel would be excavated from the borrow pit(s) and hauled to the infrastructure area for building purposes.

A conceptual layout of the proposed BBF is provided in Figure 2-11.

Water supply

The proponent will seek approval for raw water supply from the Wentworth to Broken Hill water pipeline located adjacent to the Silver City Highway. Approximately 18 megalitres per month of raw (untreated) water or 220 megalitres per annum would be required for the proposed Project. If this supply of water is not possible, an alternative water supply via a dedicated borefield will be investigated during the preparation of the EIS.

Raw water would be used for interstitial fill in the waste cells (to provide compaction of clay), cell capping and dust suppression, waste immobilisation activities, container and vehicle washdown and personnel use. Raw water from the pipeline would also be used for construction purposes.

Potable water would be required on-site for staff and contractor consumption. The volume of potable water required would be small and met by either the installation of a small water treatment plant to treat raw water to a suitable standard for drinking at the site of the proposed BBF or by trucking potable water from Broken Hill using a suitably qualified and approved contractor.

2.7 Decommissioning and closure

At the end of the operating life of the BBTS and BBF, all infrastructure would be decommissioned, closed, and disturbed areas would be rehabilitated in accordance with a Waste Facility Decommissioning and Closure Plan (WFDCP). The WFDCP would be prepared in accordance with the appropriate guidelines at the time stipulated by the NSW Government.

Rehabilitation would primarily include respreading of topsoil, ripping of surface, revegetation using locally endemic species, irrigation in the initial months of establishment, where appropriate.

2.8 Long-term management

The post-closure long-term financial liabilities (i.e. costs), mechanism (how finances are held and spent) and ongoing management (who is responsible) are key issues for the Project.

These aspects will be supported by expert advice e.g. in the fields of hazardous storage liabilities and financial forecasting/management.

Tellus will prepare a detailed assurance and insurance framework that will support the Project. This will be subject to review and approval by several NSW Government departments.

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Conceptual layout of the proposed Blue Bush Transfer Station (Site A)

Figure

2-10

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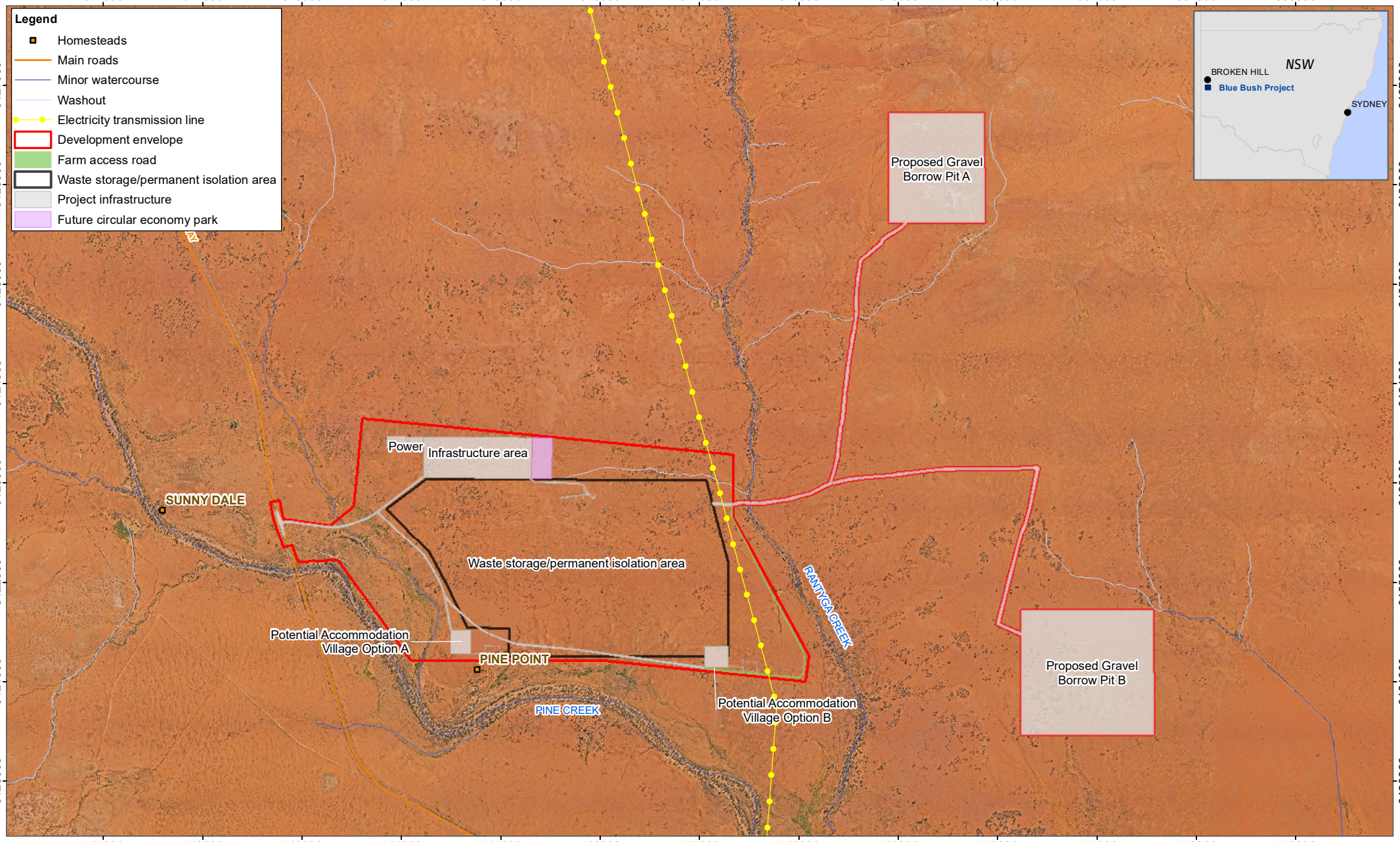

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Conceptual layout of the proposed Blue Bush Facility

Figure

2-11

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3 STRATEGIC CONTEXT

3.1 Benefits of the Blue Bush Project

The Blue Bush Project would result in significant, positive long term social, economic and environmental benefits to Broken Hill, NSW and to Australia. These benefits include:

- Providing local jobs and final fate infrastructure for Broken Hill's legacy contaminated soil and lead dust problem. Tellus is prepared to commit funds for third party studies, local training, equipment and local jobs involved in cleaning up of contaminated sites in and around Broken Hill up to an agreed budget funded from construction capex.
- Providing an innovative, safe and secure storage and permanent isolation facility for hazardous waste in NSW.
- Providing opportunities for sustainable, long-term employment and training at a local and regional scale in NSW. About 80-120 full time equivalent jobs generated during the peak of construction and 50-90 full time equivalent jobs generated during operation.
- Diversifying the economy.
- Boosting the economy. Capital expenditure is estimated to be up to $140 million. There would be spending of around $30-40 million per annum to operate the Blue Bush Project.
- Providing local business support.
- Fulfilling the Australian and NSW Government's own environmental and waste policy obligations.
- Supporting the circular economy by providing an opportunity for the future potential recovery of valuable materials (that are currently deemed waste). The Blue Bush Project could attract new waste recycling and recovery industries to NSW.

3.2 Need for the Blue Bush Project

This section discusses the need for a hazardous waste near-surface geological repository on the east coast of Australia. To put it simply, Australia produces too much hazardous waste and does not have enough intermediary and final fate infrastructure at competitive price points to deal with the size of the problem.

3.2.1 Hazardous waste produced in NSW and Australia

Australia is one of the world's highest generators of hazardous waste per capita and has insufficient infrastructure to deal with legacy, current and emerging waste volumes. In 2017-2018, Australia generated a total of 67 million tonnes of waste across four categories – municipal solid waste (22 per cent), commercial and industrial (33 per cent), construction and demolition (33 per cent) and

hazardous waste (12 per cent). Of the 67 million tonnes produced in 2017-2018, approximately 7.5 million tonnes are reported hazardous waste (Blue Environment and Ascend 2019).

Hazardous waste is growing at three times gross domestic product and five times population growth rates. From 2013-2014 to 2017-2018 the Australian hazardous waste market that met Tellus' WAC increased in volume by 68 per cent, a compound annual growth rate of 13.8 per cent per annum. This is despite downturns in some types of heavy manufacturing and aluminium smelting, which has reduced traditional wastes like alkalis, aluminium industry wastes and various inorganic chemical residues. Contaminated soils and asbestos waste have driven this trend, with nationally unprecedented increases in 2017-2018 (Blue Environment and Ascend 2019).

Hazardous waste in Australia moves in three sub-markets, each associated with different wastes and with distinct scales and issues of interest: 93 per cent of waste is generated in, and managed by, infrastructure located within a state/territory border; 6 per cent crosses interstate borders; and 1 per cent is exported to or imported from overseas for management in specialised infrastructure not available (or not economically viable) within the generating jurisdiction (Blue Environment and Ascend 2019).

The east coast of Australia accounts for approximately 83 per cent of the hazardous waste generated in Australia (refer to Figure 3-1). NSW generates approximately 33 per cent of this waste, while Queensland produces 27 per cent and Victoria produces 20 per cent (Blue Environment and Ascend 2019).

Figure 3-1 Reported hazardous waste volumes in Australian jurisdictions during 2017/18 (Source: Ascend 2019)

3.2.2 Total hazardous waste market volume (emerging and legacy waste stockpiles)

Approximately 45.8 million tonnes of emerging and legacy wastes are produced every year. However, this waste volume is unreported waste (as it does not leave waste production sites and cross over or move on public roads). This is over and above the 12 per cent of hazardous waste that was reported in 2017-2018 (Blue Environment and Ascend 2019).

Emerging wastes include mostly PFAS, other persistent organic pollutants (POPs), increasing quantities of contaminated soil and asbestos, waste required to be stored due to problems with hazardous waste infrastructure, contaminated biosolids, fly ash, and oil and gas industry wastes.

Nationally, there is an approximate 1,035-million tonne legacy waste stockpile, which is growing at approximately 45 million tpa, mostly from coal-fired power station ash, red mud, PFAS soils, etc. (Ascend 2017).

3.2.3 Current management of hazardous waste in NSW and Australia

Hazardous waste was dealt with in Australia in the following ways: 57 per cent was sent to landfill, 19 per cent was recycled, 10 per cent underwent specific treatment (chemical/thermal treatment to reduce or remove the hazard) and 10 per cent was stored for accumulation and later released into waste-management infrastructure ((Blue Environment and Ascend 2019).

Traditional re-processing, incineration, treatment before landfilling, and disposal into engineered landfills are temporary solutions (intermediary infrastructure) for the management of hazardous waste in Australia verse geological repositories (final fate infrastructure) that permanently solves the problem.

Many of the traditional hazardous waste management options are intermediary (verse final fate), costly, and not sustainable in terms of power usage and carbon footprint. Many also produce hazardous by-products. For example, the widespread use of engineered landfills with either no liner or liners with limited life spans, and with no or limited discrimination in waste acceptance has created significant legacy contamination problems that require ongoing remediation requirements.

Many of the traditional hazardous waste management options are not viewed today as world's best practice, supporting the old linear economy of 'mine, manufacture, use and dispose'.

As a result of this emerging and widespread environmental problem, governments globally have banned disposing of certain hazardous waste into engineered landfills and are rather endorsing the long-term storage and/or permanent isolation of this hazardous waste in geological repositories or advocating for destruction of a limited range of materials at a suitable facility such as a high temperature incinerator.

Tellus is in the final stage of construction of Australia's first commercially operated near-surface geological repository – the Sandy Ridge Facility in WA. However, there is a lack of suitable long-term storage and/or permanent isolation facilities for hazardous waste in NSW, and indeed on the east coast of Australia.

3.2.4 The need for a safe and secure storage facility for hazardous waste in NSW

There is a need and regulatory obligation to provide for the safe and secure long-term storage, recovery of valuable materials, and the permanent isolation of hazardous waste on the east coast of Australia. The solution put forward involves the storage and recovery of valuable materials and the permanent isolation of such wastes in an arid, near-surface geological repository that safeguards human health and the environment from harm over geological time (and achieved by applying proven scientific and environmentally sound management principles).

A geological repository is an underground storage or disposal facility of hazardous waste that relies on both the following:

- Man-made engineered barriers (active controls): includes engineered design, build, operational, closure controls, assurances and insurances and waste management procedures that meet government regulatory requirements.
- Natural geological barrier (passive controls): includes geography, geological, climate and seismic factors, that combined are superior to any active controls.

This combination forms one segment of a multibarrier system, as part of an overall safety case that is globally recognised for its permanent isolation capabilities. Once the repository 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 hazardous waste.

The proposed BBF would be categorised as an arid, near-surface geological repository. This infrastructure could contribute towards solving the legacy and forecast pool of waste materials which require long-term storage, the recovery of valuable materials that supports the circular economy, or the permanent isolation of hazardous materials using sound environmental management principals. These solutions would become available via the development of the proposed BBF in NSW.

3.2.5 Fulfilling national, state and local environmental and waste policies and strategies

The development of the Blue Bush Project would meet the objectives of several national, state and local environmental and waste policies and strategies including:

- 2018 National Waste Policy and National Action Plan.
- NSW 20-Year Waste Strategy.
- NSW Circular Economy Policy.
- Broken Hill LEP.

4 STATUTORY CONTEXT

The EP&A Act and the Environmental Planning and Assessment Regulation 2000 (NSW) (EP&A Regulation) provide the statutory basis for planning and environmental assessment in NSW.

The need, or otherwise, for development consent is set out in environmental planning instruments – State Environmental Planning Policies (SEPPs), Regional Environmental Plans (REPs) or Local Environmental Plans (LEPs).

Part 4, Division 4.7 of the EP&A Act provides for the assessment and determination of State Significant Development (SSD). Pursuant to Section 89C of the EP&A Act, projects are classified as SSD if they are declared to be as such by the State Environmental Planning Policy (State and Regional Development) 2011 (SRD SEPP). Clause 23 of Schedule 1 of the SRD SEPP identifies the following types of developments to be SSD:

> *(3) Development for the purpose of resource recovery or recycling facilities that handle more than 100,000 tonnes per year of waste.*
>
> *(5) Development for the purpose of hazardous waste facilities that transfer, store or dispose of solid or liquid waste classified in the Australian Dangerous Goods Code or medical, cytotoxic or quarantine waste that handles more than 1,000 tonnes per year of waste.*

Based on the intended receipt of up to 200,000 tpa of hazardous waste (some of which may be listed in the Australian Dangerous Goods Code), the Project would be classified as SSD.

A summary of the tier one approvals for the Blue Bush Project is provided in Figure 4-1.

Current NSW legislative requirements do not permit hazardous waste to be stored long term and/or disposed of to land unless the hazardous contaminants have been destroyed or immobilised. Accordingly, waste immobilisation at the BBF (as described in Section 2.5.4) will require approval from the NSW EPA.

The Project will meet the current NSW and Commonwealth legislative requirements around transport and disposal of hazardous waste.

As described in Section 2.5.4, best practice handling, processing, storage and disposal would be implemented for the Project consistent with the NSW Waste hierarchy.

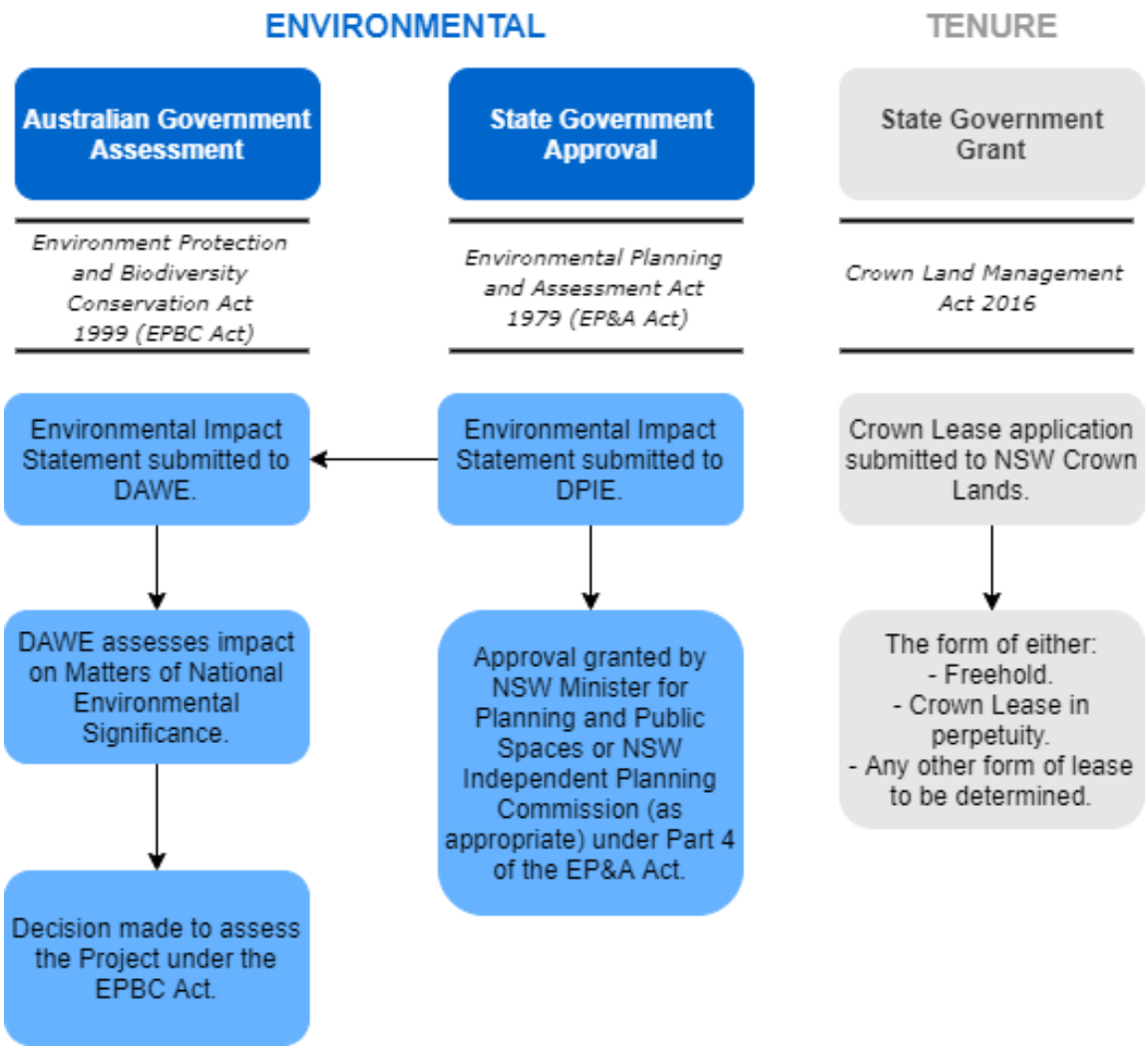

Figure 4-1 Approvals summary

5 COMMUNITY ENGAGEMENT UNDERTAKEN DURING SCOPING

Tellus will conduct appropriate community consultation during all states of the proposed Project, in accordance with Tellus' Community Engagement Strategy (refer to Appendix I). This will involve eight key phases of sustained and committed community consultation involving various forms and mediums of engagement.

The eight phases of the proposed project are:

1. Scoping (this is where we are now).
2. Preparation of an EIS.
3. Exhibition of the EIS.
4. Post EIS including a possible modification report.
5. Construction.
6. Operation.
7. Decommissioning
8. Closure.

Key community stakeholders were identified as those that may be interested in or who may be affected by the Blue Bush Project. Key stakeholders include:

- Residents and landowners (directly affected and those on or near transport routes to/from the site.
- Community and advocacy groups.
- Aboriginal people/native title groups.
- Nearby local businesses.
- Broken Hill City Council.
- Regional committees connected to Broken Hill City Council.
- Elected members including local councillors, State and Commonwealth Members of Parliament.
- Government departments, consent authorities, public authorities, utility companies, regulatory agencies.
- Media commentators.
- State Significant Projects and nearby infrastructure.
- Local educational institutions.
- Visitors to Broken Hill.

Community engagement commenced in mid-2019 and has continued through environmental scoping to September 2020. Many of the above community stakeholders have been consulted via face-to-face meetings, online meetings, phone calls, and correspondence via letter/email.

Members of Broken Hill Local Aboriginal Land Council (BHLALC), the Barkandji Native Title Group and Wilyakali Group participated in cultural heritage clearance surveys in May 2020 and site inductions and supervision of exploratory drilling and groundwater drilling in June/July 2020 (refer to Plate 5-1).

Members of BHLALC, Barkandji Native Title Group and Wilyakali Group attended cultural heritage clearance surveys at the site of the proposed Blue Bush Facility in May 2020. Members also provided site inductions and supervised exploratory drilling and groundwater drilling in June/July 2020.

Plate 5-1 Cultural heritage clearance surveys

Key issues identified during community engagement to-date include:

- Project support. Neutral to broad support has been received to-date. Broader community views will be obtained during the development of the EIS.
- Job opportunities/economic development. Local and regional job opportunities and bringing people back to Broken Hill. Procurement opportunities for businesses in Broken Hill.
- Opportunities to clean up country. Opportunity to solve local historical and emerging waste problems (e.g. lead contamination) in Broken Hill.
- Environmental aspects. Environmental issues including groundwater, surface water, and cultural heritage (Aboriginal).
- Logistics and transport. Logistics of transporting hazardous waste from the proposed BBTS to the proposed BBF.
- Location of BBTS. Preference of moving BBTS outside of Broken Hill LGA.
- Waste acceptance. Wastes accepted and not accepted at the proposed BBF.

The forms of engagement are likely to include:

- A devoted project website – www.tellusholdings.com/projects/bluebush
- Information fact sheets available on the project website.
- Community drop-in sessions within Broken Hill that will include:
  - Posters.
  - Surveys.
  - Questionnaires.
- One-on-one or group meetings with key stakeholders.
- Radio.

6 SCOPE OF ENVIRONMENTAL IMPACT ASSESSMENT IN THE EIS

The EIS will be prepared in line with Project SEARs.

A risk assessment was undertaken to identify the potential environmental, social and economic matters that are likely to be impacted by construction, operation and decommissioning and rehabilitation of the Blue Bush Project. This assessment was based on a site visit, field surveys, preliminary environmental impact assessments, a review of relevant online databases, and the environmental and engineering expertise of the project team. This preliminary analysis is provided in the Scoping Worksheet in Appendix C.

The results of the preliminary environmental impact assessments are presented in Table 6-1 and technical reports are provided in Appendix D through Appendix H.

Key issues identified during the risk assessment that will require detailed (quantitative) assessment and standard (qualitative) assessment and the proposed methodology for the assessment within the EIS for the Blue Bush Project are listed in Table 6-2.

Table 6-1 Results of preliminary environmental impacts assessments undertaken during scoping

Matter	Results of preliminary environmental impact assessment	Location of further detailed information in this Scoping Report
Biodiversity	**Biota listed under the *Biodiversity Conservation Act 2016* (NSW) (BC Act) and *Fisheries Management Act 1994* (NSW) (FM Act)** The proposed development envelope of the BBTS has been reduced to avoid impacts to *Acacia loderi* shrublands Endangered Ecological Community (EEC). Drainage lines at the BBTS and the BBF are part of the Lowland Darling River EEC. Impacts on large ephemeral watercourses would be avoided. There may be impacts on small drainage lines, predominantly 1st order streams. Indirect impacts would be managed via appropriate set-backs, and sediment and erosion control. As such, a significant impact is unlikely for this EEC. A number of threatened flora and fauna species listed under the BC Act may occur within the vicinity of the proposed BBF/BBTS. Further seasonal studies are required to determine presence/absence and, therefore, impacts to threatened flora and fauna species during construction, operation, decommissioning and rehabilitation of the Blue Bush Project. These studies will be undertaken during the preparation of the EIS. There would be no direct impacts on large ephemeral watercourses. No threatened species listed under the FM Act are likely to occur or be impacted by the Blue Bush Project. **Matters of National Environmental Significance listed under the EPBC Act** No Threatened Ecological Communities (TECs) listed under the EPBC Act would be impacted during construction, operation, or decommissioning and rehabilitation of the Blue Bush Project. One threatened flora species is known to occur south of the BBF site (outside of the proposed development envelope) – *Acacia carneorum* (Purple-wood Wattle) listed a Vulnerable under the EPBC Act. Direct impacts on this species would be purposely avoided, and mitigation measures would be implemented to protect this stand during construction, operation, and decommissioning and rehabilitation of the proposed BBF There is unlikely to be a significant impact on any other threatened flora or fauna species listed under the EPBC Act that may occur within the vicinity of the proposed BBF/BBTS (refer to assessments of significance in Appendix D).	Appendix D

Matter	Results of preliminary environmental impact assessment	Location of further detailed information in this Scoping Report
Heritage (Aboriginal)	There is the potential for impacts on Aboriginal heritage sites during construction, operation, and/or or decommissioning and rehabilitation of the proposed BBF. Forty-two new Aboriginal sites were identified and recorded during the pre-clearance surveys, consisting of 33 isolated artefacts and nine low-density surface artefact scatters. The results of the field survey indicate that there is a high likelihood of additional Aboriginal objects – primarily stone artefacts – to be present within the site of the proposed BBF.	Appendix E
Land	With reference to the Strategic Regional Land Use Policy (SRLUP) Guideline for Agricultural Impact Statements at the Exploration Stage (DRE 2015), no formal Agricultural Impact Statement (AIS) would be required as the Blue Bush Project would not involve mineral or petroleum exploration and would not be assessed under a Review of Environmental Factors (REF) pursuant to Part 5 of the EP&A Act. General impacts to agriculture and agricultural land uses would still be assessed through the land impact assessment within the EIS. With reference to the Interim Protocol for Site Verification and Mapping of Biophysical Strategic Agricultural Land (NSW Office of Environment and Heritage 2013), the site of the proposed BBF is not mapped as Biophysical Strategic Agricultural Land (BSAL) and does not have access to a reliable water supply (either through rainfall, surface water or a suitable quality groundwater resource) as per the BSAL assessment criteria. Therefore, a detailed assessment of impacts to BSAL would not be required in the EIS (refer to Appendix F).	Appendix F
Water (surface water)	The flood modelling indicates the proposed geological repository infrastructure area at the BBF would not be inundated in a Probable Maximum Flood (PMF), a 1 per cent, or 5 per cent Annual Exceedance Probability (AEP) event. The flood modelling shows the following: • For the Probable Maximum Flood (PMF) event, extensive out of banks flows are evident for both Pine Creek and Rantyga Creek. The Silver City Highway is overtopped over a total length of about 2 kilometres, extending north from Pine Creek. Along Pine Creek the PMF event engages a broad floodplain in the order of 1 to 2 kilometres wide. Flow along Rantyga Creek continues to follow the creek alignment with the flood extent clearly encroaching on the development envelope of the proposed BBF (refer to Figure 3.6 in Appendix G). • For the 5 per cent Annual Exceedance Probability (AEP) event, mainstream flooding in the vicinity of the development envelope of the proposed BBF is contained to the watercourses and immediate overbank areas. Flow along Rantyga Creek does not encroach within the development envelope (refer to Figure 3.3 in Appendix G).	Appendix G

Matter	Results of preliminary environmental impact assessment	Location of further detailed information in this Scoping Report
	• For the 1 per cent AEP event, more extensive out of banks flows are evident, particularly along Pine Creek. The Silver City Highway is overtopped in several locations over a total length of about 1 kilometre, extending north from Pine Creek. Flow along Rantyga Creek remains relatively well confined to the creek, with the flood extent just reaching the eastern boundary of the development envelope of the proposed BBF (refer to Figure 3.4 in Appendix G).	
Water (groundwater)	The preliminary hydrogeological investigation provides a broad characterisation of the existing groundwater environment. It presents an overview of the current hydrogeological field investigation program; an identification of potential groundwater dependent receptors; provides a preliminary hydrogeological conceptual model; and outlines how the proponent propose to address the minimal impact considerations defined in the *Aquifer Interference Policy 2012*. The local hydrogeological regime comprises: • Shallow, unconfined and temporary groundwater of limited extent associated with the near-surface sediment deposits. • Regional fractured rock groundwater associated with the underlying basement geological units (gneiss). The underlying fractured rock groundwater system associated with the basement rock is the primary regional water-bearing system in the area. The unit outcrops to the north of the BBF development envelope, dipping north-south. Recharge to this system is thought to be low due to the massive nature of the rock, low matrix permeability, and as indicated by the elevated salinity (~20,000 microsiemens per centimetre (µS/cm)) of the groundwater within the system. Groundwater flow follows topography and the structural dip of the unit, trending north-south at the site of the proposed BBF. Groundwater is intercepted in the northern extent of the development envelope at monitoring bore TBBMW05A at approximately 52 meters Below Ground Level (mBGL) and intercepted further south at TBBMW01A at approximately 92 mBGL (refer to Appendix H). Neighbouring landholder bores intercept this fractured rock groundwater at depth. The condition of neighbouring landholder bores and the purpose (use) of the supply will be developed in the EIS and will include a regional bore census limited to a 25-kilometre radius. Given the known salinity of the groundwater within the system, it is unlikely that nearby bores are used for potable water or even stock supply.	Appendix H

Matter	Results of preliminary environmental impact assessment	Location of further detailed information in this Scoping Report
	The conceptual model will continue to be refined in the EIS and monitoring data will be included into the impact assessment. An integrated Water Management Plan will also be appended to the EIS. The proponent is currently addressing the requirements of the AIP 2012 as part of the EIS.	

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Table 6-2 Matters requiring assessment in the EIS for the Blue Bush Project

Matter	Level of assessment	Scope of environmental impact assessment in EIS
Access (road network)	Detailed	The assessment will be undertaken with reference to the following guidelines: • Guide to Traffic Management – Part 3 Traffic Studies and Analysis (Austroads 2017). • Guide to Traffic Management – Part 12 Traffic impacts of Developments (Austroads 2019). • Guide to Traffic Generating Developments Version 2.2 (RTA 2002). The assessment will include: • Identification of haulage routes, site access and egress points. • Analysis of the existing operational condition of the road network. • Determination of the daily and peak traffic movements likely to be generated and the potential impacts on the local and regional traffic network. • Identification of measures to minimise or mitigate identified impacts, including an assessment of available options and the expected effect of the measures proposed, in accordance with relevant best practice guidelines. Relevant government agencies will be consulted during the preparation of the road network assessment, including the RMS/Transport for NSW, ARTC and Broken Hill City Council.
Air	Detailed	The assessment will be undertaken with reference to the NSW EPA Air Quality Guidance Note for Construction Sites. The assessment will include: • Identification and description of the background air quality environment based on a desktop assessment. • Identification of potential sources of air emissions during construction, operation, and decommissioning and rehabilitation. • Identification of potential sensitive receivers likely to be impacted by emissions. • Identification of mitigation measures to avoid, minimise and/or mitigate potential impacts to air quality.
Amenity (noise and vibration)	Detailed	The assessment will be undertaken with reference to the following guidelines: • Noise Policy for Industry (EPA 2017). • NSW Road Noise Policy (DECCW 2011).

Matter	Level of assessment	Scope of environmental impact assessment in EIS
		• Interim Construction Noise Guideline (DECC 2009). • Assessing Vibration: A Technical Guideline (DEC 2006a). • Technical Basis for Guidelines to Minimise Annoyance due to Blasting Overpressure and Ground Vibration (ANZEC 1990). The assessment will include: • Identification of the nature of construction, operation, and decommissioning and rehabilitation activities. • Analysis of the intensity and duration of noise and vibration impacts. This will include a 'typical level' or 'typical range' in noise levels expected as construction and operation work move around the site as well as a realistic 'worst-case' noise level from each activity. • Correlation between the likely noise impacts and the anticipated duration and timing of the activity. The nature, sensitivity, and impact on potentially affected receivers, including consideration of sensitive receivers or sensitive structures, if present within the vicinity. • Identification of impacts associated with work proposed to be undertaken outside standard daytime hours (if applicable). • Identification of measures to address identified construction, operation, or decommissioning and rehabilitation noise and/or vibration impacts. Relevant government agencies will be consulted during the preparation of the noise and vibration assessment, including the EPA and Broken Hill City Council.
Amenity (odour)	Detailed	The assessment will be undertaken with reference to the following guidelines: • Technical Framework: Assessment and Management of Odour from Stationary Sources in NSW (DEC 2006c). • Technical Notes: Assessment and Management of Odour from Stationary Sources in NSW (DEC 2006d). The assessment will include: • Identification of sensitive receptors and consideration of surrounding land use. • Determination of constant versus variable odour emissions. • Determination of the appropriate level of assessment (Level 1, 2, or 3) as per the 'Technical Framework: Assessment and Management of Odour from Stational Sources in NSW (Department of Environment and Conservation 2006).

Matter	Level of assessment	Scope of environmental impact assessment in EIS
		• Identification of mitigation measures to avoid, minimise and/or mitigate potential odour. Relevant government agencies will be consulted during the preparation of the odour assessment, including the NSW EPA.
Biodiversity	Detailed	The assessment will be undertaken with reference to the following guidelines: • Biodiversity Assessment Method (BAM) (OEH 2017a). • BAM Operational Manual – Stage 1 (OEH 2018). • BAM Operational Manual – Stage 2 (DPIE 2019d). • BAM Calculator User Guide (OEH 2017b). • NSW Guide to Surveying Threatened Plants (OEH 2016). • Threatened Biodiversity Survey and Assessment: Guidelines for Developments and Activities (Working Draft) November 2004 (DEC 2004). • Survey Guidelines for Australia's Threatened Birds (DEWHA 2010). • Survey Guidelines for Australia's Threatened Mammals (DSEWPC 2011a). • Survey Guidelines for Australia's Threatened Reptiles (DSEWPC 2011b). • Survey Guidelines for Australia's Threatened Frogs (DEWHA 2011). The assessment will include: • Review of databases and literature. This will likely include searches and review of: ○ NSW Office of Environment and Heritage (OEH) BioNet (Atlas of NSW Wildlife) - -for records of threatened species, populations and endangered ecological communities listed under the BC Act. ○ DAWE Protected Matters Search Tool – for MNES listed under the EPBC Act. ○ DPIE BioNet Vegetation Information System. ○ DPIE Biodiversity Values Map. ○ DPIE BioNet Threatened Biodiversity Profile Data Collection. ○ Existing regional vegetation mapping relevant to the site (if available). ○ Previous ecological assessments and scientific publications relevant to the site (if available).

Matter	Level of assessment	Scope of environmental impact assessment in EIS

		• Assessment of likelihood of occurrence. Based on the collation of database records, species and community profiles, the results of previous ecological assessments within the locality, data collected during field surveys, and interrogation of the BAM calculator (BAM-C).
		• Terrestrial flora surveys. These will likely include:
		  ○ Plant community type mapping and validation, supported by plot/transect surveys, as required by the BAM.
		  ○ Targeted seasonal threatened flora surveys, as per the BAM-C.
		• Terrestrial fauna surveys. These will likely include:
		  ○ Fauna habitat assessments.
		  ○ Targeted seasonal fauna surveys, as per the BAM-C which may consist of anabat bat detection surveys, trapping, secondary sign surveys, area searches, spotlighting, call playback or motion-sensing camera surveys.
		• Impact calculations. Removal of vegetation and habitat loss quantified to determine potential impacts on biodiversity, using the BAM-C.
		• Preparation of a Biodiversity Development Assessment Report (BDAR) in line with the requirements of the Biodiversity Assessment Methodology (BAM), including demonstrated attempts to avoid and minimise impacts resulting from the Blue Bush Project. If necessary, an assessment of Serious and Irreversible Impacts (SAII) on SAII entities as per the Threatened Biodiversity Data Collection would be completed. Figures and maps, as required by the BAM, would be included in the BDAR.
		Relevant government agencies will be consulted during the preparation of the biodiversity assessment including DPIE, the NSW Biodiversity Conservation Trust and DAWE, if necessary.

Economic	Detailed	The assessment will be undertaken with reference to the following guidelines: • Guidelines for the Economic Assessment of Mining and Coal Seam Gas Proposals (DPE 2015). • Technical Notes supporting the Guidelines for the Economic Assessment of Mining and Coal Seam Gas Proposals (DPE 2018) Note that there do not seem to be other applicable guidelines relating to the economic assessment of waste storage facilities.

Matter	Level of assessment	Scope of environmental impact assessment in EIS
		The assessment will include: • Review of publicly available economic data – to establish a base case. • Undertake a cost/benefit analysis and local effects analysis to estimate economic impact. • Identification of measures to address identified construction, operation, or decommissioning and rehabilitation economic impacts (if needed). Relevant government agencies will be consulted during the preparation of the economic assessment.
Hazards and risk	Detailed	The assessment will be undertaken with reference to the following guidelines: • Hazardous and Offensive Development Application Guidelines: Applying SEPP 33 (Department of Planning 2011a). • Hazardous Industry Planning Advisory Paper No. 6 - Guidelines for Hazard Analysis (Department of Planning 2011b). • Multi-Level Risk Assessment (DPI 2011). • Storage and Handling of Dangerous Goods Code of Practice (WorkCover NSW 2005). • Australian Code for the Transport of Dangerous Goods by Road and Rail (Edition 7.6) (National Transport Commission 2018). • International Standard (ISO/IEC 31010:2009) Risk Management – Risk Assessment Techniques. The assessment will include: • Identifying hazards and abnormal operating conditions that could give rise to hazards. • Analysing hazards in terms of their consequence (effects) to people, surrounding land uses and the environment and their probability (likelihood) of occurrence. • Quantifying the analysis and estimate the resulting risks to surrounding land uses and the environment. • Assessing the risks in terms of the location, land use planning implications, and existing criteria and ensuring that the proposed mitigation and management measures are adequate. The assessment will be undertaken in accordance with the guidelines listed above, in particular, the Hazardous Industry Planning Advisory Paper No. 6 - Guidelines for Hazard Analysis (Department of Planning 2011).

Matter	Level of assessment	Scope of environmental impact assessment in EIS
Heritage (Aboriginal)	Detailed	The assessment will be undertaken with reference to the following guidelines: • Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW (OEH 2011). • Aboriginal Cultural Heritage Consultation Requirements for Proponents (DECCW 2010a). • Code of practice for Archaeological Investigation of Aboriginal Objects in NSW (DECCW 2010b). • Skeletal Remains: Guidelines for the Management of Human Remains under the Heritage Act 1977 (NSW Heritage Office 1998). The assessment will include: • Database review and literature review. This will likely include searches and review of: o World Heritage List (United Nations Educational, Scientific and Cultural Organization [UNESCO]). o National Heritage List (Australian Heritage Council). o Aboriginal Heritage Information System (AHIMS) (NSW DPIE). o Atlas of Aboriginal Places (NSW DPIE). o Site cards, reports and associated documents relevant to the defined study area held in the AHIMS. o Published monographs, thesis, and other relevant material. • Undertake field surveys. • Identify the potential to disturb Aboriginal heritage (sites, objects, remains, values, features or places) and, where this is the case: o Determine, in consultation with relevant stakeholders, the significance of the heritage resources to the Aboriginal community. o Determine the extent and significance of impact to those resources. o Identify any requirements for in-situ conservation of items and/or areas (as appropriate). • Identify appropriate measures to avoid, minimise and/or mitigate potential impacts to Aboriginal heritage. Relevant government agencies will be consulted during the preparation of the Aboriginal heritage assessment, including Heritage NSW. Consultation would also be undertaken with Traditional Owners and the Broken Hill Local Aboriginal Land Council.

Matter	Level of assessment	Scope of environmental impact assessment in EIS
Heritage (non-Aboriginal)	Detailed	The assessment will be undertaken with reference to the following guidelines: • NSW Heritage Manual (NSW Heritage Office and Department of Urban Affairs and Planning 1996). • Assessing Heritage Significance (NSW Heritage Office 2011a). • Statements of Heritage Impact (NSW Heritage Office 2002). • Criteria for the Assessment of Excavation Directors (NSW Heritage Council 2011b). • Skeletal Remains: Guidelines for the Management of Human Remains under the Heritage Act 1988 (NSW Heritage Office 1998). The assessment will include: • Database review and literature review. This will likely include searches and review of: o World Heritage List (UNESCO). o Commonwealth Heritage List (Australian Heritage Council). o National Heritage List (Australian Heritage Council). o Register of the National Estate (Australian Heritage Council). o State Heritage Register (NSW Office of Environment and Heritage). o Heritage and Conservation Registers (Section 170 Registers). o Historic Heritage Information Management System (DPIE). o Register of Significant Architecture in NSW (Australian Institute of Architects). o Broken Hill Local Environmental Plan. • Undertake field surveys. • Identify the potential to disturb or otherwise impact non-Aboriginal heritage and, where this is the case: o Determine the extent and significance of impact to those resources. o Identify any requirements for in-situ conservation of items and/or areas (as appropriate). • Identify impacts on the listing of the 'City of Broken Hill' on the National Heritage Register. • Identify appropriate measures to avoid, minimise and/or mitigate potential impacts.

Matter	Level of assessment	Scope of environmental impact assessment in EIS
		Relevant government agencies will be consulted during the preparation of the Aboriginal heritage assessment, including Heritage NSW and Broken Hill City Council.
Land	Detailed	The assessment will be undertaken with reference to the following guidelines: • The Land and Soil Capability Assessment Scheme: Second Approximation (NSW Office of Environment and Heritage 2012). • Interim Protocol for Site Verification and Mapping of Biophysical Strategic Agricultural Land (NSW Office of Environment and Heritage 2013). • Strategic Regional Land Use Policy (SRLUP) Guideline for Agricultural Impact Statements at the Exploration Stage (Division of Resources and Energy (DRE) 2015). • Australian Soil and Land Survey Handbook Series. • Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act 1997 (NSW EPA 2015). The assessment will include: • Database review and literature review. This will likely include searches and review of state-wide land and soils mapping, soil profiles, soil and land resources mapping, soil landscape mapping, land systems mapping, acid sulphate soil risk mapping, and state-wide landuse mapping. • Consideration of potential impacts to land (e.g. erosion and sedimentation, contamination, topography, and land use). • Identification of mitigation measures to avoid, minimise and/or mitigate potential impacts to land. • No formal Agricultural Impact Statement or BSAL Assessment required as part of EIS (refer to Appendix F). Relevant government agencies will be consulted during the preparation of the assessment, including the NSW EPA.
Social	Detailed	The assessment will be undertaken with reference to the following guidelines: • Principles from the Social Impact Assessment Guideline for State Significant Mining, Petroleum Production and Extractive Industry Development (Department of Planning and Environment 2017). • Social Impact Assessment: Guidance for Assessing and Managing the Social Impacts of Projects (International Association for Impact Assessment 2015). • SIA Principles: International Principles for Social Impact Assessment (Vanclay 2003).

Matter	Level of assessment	Scope of environmental impact assessment in EIS
		• Environmental Planning and Impact Assessment Practice Note: Socio-economic Assessment (Roads and Maritime Services 2013). The assessment will include: • Review of community characteristics and identification of the social and community facilities within the region of the proposed BBF and BBTS. • Identification and assessment of potential social benefits that could occur during construction, operation, and decommissioning ad rehabilitation of the Blue Bush Project. • Identification and assessment of potential social impacts on the community and community facilities/services that could occur during construction, operation, and decommissioning ad rehabilitation of the Blue Bush Project. • Review of air quality and noise impacts that have the potential to impact on social amenity in the vicinity of the proposed BBF and BBTS. • Identification of appropriate measures to avoid, minimise and/or mitigate potential impacts. The assessment will incorporate issues raised by the community (i.e. members of the community, business and government and non-government agencies) during implementation of the Community Engagement Strategy.
Water (surface water)	Detailed	The assessment will be undertaken with reference to the following guidelines: • Managing Urban Stormwater: Soils and Construction Volume 1 (Landcom 2004). • Managing Urban Stormwater: Soils and Construction Volume 2 (DECC 2008). • Guidelines for Groundwater Protection in Australia (ANZECC/ARMCANZ 1995). • Approved Methods for the Sampling and Analysis of Water Pollutants in NSW (DEC and NSW EPA 2004). • Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC and ARMCANZ 2000). • Using the ANZECC Guidelines and Water Quality Objectives in NSW (DEC 2006b). • NSW Water Sharing Plans. • NSW Water Conservation Strategy (DLWC 1990). • No. 8 Groundwater Quantity Management (date unknown, NSW Government).

Matter	Level of assessment	Scope of environmental impact assessment in EIS
		• NSW Aquifer Interference Policy (Department of Primary Industries Office of Water 2012). The assessment will include: • Preparation of site water balance to define site water demands and the expected volume of discharges. This would identify required water supply, storage and management infrastructure. • Description of proposed potable and wastewater management systems. • Consideration of potential impacts to surface water quality at nearby watercourses (e.g. Pine Creek and Rantyga Creek). • Identification of mitigation measures to avoid, minimise and/or mitigate potential impacts to surface water quality. Relevant government agencies will be consulted during the preparation of the surface water quality assessment, including the NSW EPA and the NSW Department of Primary Industries (Office of Water).
Water (groundwater)	Detailed	The assessment will be undertaken with reference to the following guidelines: • Guidelines for the Assessment and Management of Groundwater Contamination (DEC 2007). • NSW Aquifer Interference Policy (DPI 2012). • Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC and ARMCANZ 2000). • Using the ANZECC Guidelines and Water Quality Objectives in NSW (Department of Environment and Conservation 2006). The assessment will include: • Groundwater surveys to identify the presence/absence of groundwater, and if present, the potential groundwater volume, level and the direction of flow and quality. • Development of a conceptual hydrogeological model for the BBF. This would be used as a basis for numerical modelling to assess the potential impacts on existing groundwater systems, surface water-groundwater interactions, etc. • Identification of mitigation measures to avoid, minimise and/or mitigate potential impacts to groundwater. The following additional tasks will be undertaken if groundwater (rather than water from the Wentworth-Broken Hill Pipeline) is needed to supply water to the proposed BBF:

Matter	Level of assessment	Scope of environmental impact assessment in EIS
		• Analysis of impacts associated with the extent and magnitude of drawdown. • Analysis of the likely quality of extracted groundwater. • Discussion of issues associated with obtaining a license for groundwater extraction. • Outline of the proposed program to monitor groundwater extraction. • Assessment of potential impacts on surrounding users and groundwater dependent ecosystems. • Identification of mitigation measures to avoid, minimise and/or mitigate potential impacts to groundwater users and groundwater dependent ecosystems. Relevant government agencies will be consulted during the preparation of the groundwater assessment, including the NSW EPA and the NSW Department of Primary Industries (Office of Water).
Greenhouse gas	Detailed	The assessment will be undertaken with reference to the following guidelines: • The Greenhouse Gas Protocol (World Business Council for Sustainable Development 2006). • National Carbon Accounting Toolbox (Australian Government 2005). • National Greenhouse Accounts Factors (DEE 2019). • Life Cycle Assessment Principles and Framework (ISO 14040 Series). The assessment will include: • Identification of the activities which are likely to be the major source of greenhouse gas emissions during construction, operation, and decommissioning and rehabilitation. • Preparation of a greenhouse gas inventory of projected annual emissions for each relevant greenhouse gas. • Outline of the data collection and calculation procedures used to create the greenhouse gas emissions inventory. • Description of the methods used in the greenhouse gas emissions inventory. • Identification of the proposed actions and measures for greenhouse gas abatement.
Amenity (visual)	Standard	The assessment will be undertaken with reference to the following guidelines: • Guideline for Landscape Character and Visual Impact Assessment. Environmental Impact Assessment Practice Note EIA-N04 (RMS 2018).

Matter	Level of assessment	Scope of environmental impact assessment in EIS
		• Guidelines for Landscape and Visual Impact Assessment (Landscape Institute and Institute of Environmental Management and Assessment 2013) • Guidance Note for Landscape and Visual Assessment (Australian Institute of Landscape Architects 2018). • AS4282-1997 Australian Standard Control of the Obtrusive Effects of Outdoor Lighting. The assessment will include: • Description of the visual character and unique qualities of the area surrounding both facilities. • Consideration of the heritage and other social values of the sites to establish the potential sensitivity of receivers and visual absorption capacity. • Identification of visual impacts during daytime and night-time conditions (including lighting). • Identification of measures to avoid, minimise and/or mitigate potential visual impacts.
Built environment (private property and public infrastructure)	Standard	The assessment will include: • Description of the existing built environment. • Identification of impacts to the built environment (in particular, impacts to private property and public infrastructure). • Identification of measures to avoid, minimise and/or mitigate potential impacts to the built environment. Adjoining landowners would be consulted as would relevant government agencies during the preparation of the built environment assessment, including the NSW RMS and Broken Hill City Council.

7 PROPOSED COMMUNITY ENGAGEMENT IN THE EIS

A Community Engagement Strategy (CES) has been developed for the EIS (refer to Appendix I). The CES was developed with reference to 'Engagement in EIA. Guidance for State Significant Projects, June 2019' (DPIE 2019b) and 'Community Participation Plan' (DPIE 2019c) as well as Tellus' corporate 'Stakeholder Engagement Management Plan'.

The CES:

- Provides an overview of the Blue Bush Project. It also details the objectives for community engagement and states the purpose of the CES for the Blue Bush Project.
- Outlines the objectives of community participation, the types of engagement that will be implemented and the community stakeholders that will be engaged during the environmental impact assessment of the Blue Bush Project.
- Outlines how and when the community can participate in the environmental impact assessment of the Blue Bush Project.
- Describes the ways in which information obtained from community engagement will be collated and used in the planning, design and environmental impact assessment of the Blue Bush Project.

The CES will be revised upon receipt of the SEARs for the Blue Bush Project.

Community engagement for the EIS will occur on a monthly basis within Broken Hill and with other key stakeholders in NSW. Key phases are based on project milestones and lifecycle management linked to Tellus' Quality Management System and ISO 9001. These phases include:

1. Engagement during preparation of the Scoping Report (current phase).
2. Engagement during preparation of the EIS.
3. Engagement during exhibition of the EIS.
4. Engagement following exhibition of the EIS.
5. Engagement during preparation of an Amendment Report or Modification Report (if needed).
6. Engagement during construction of the Blue Bush Project.
7. Engagement during operation of the Blue Bush Project.
8. Engagement during closure of the Blue Bush Project.

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APPENDIX A: BLUE BUSH PROJECT WASTE ACCEPTANCE CRITERIA

APPENDIX B: OPERATIONAL PROCEDURES FOR LIQUID WASTE AND PFAS WASTE

Tellus has options to use different treatment options for waste received at our near surface geological repositories.

Each waste type is rigorously assessed through the internal Tellus WAP and WAC (refer to Appendix A). No waste type would be accepted for storage or permanent isolation at our geological repositories if it is not able to be treated to meet the strict requirements of the WAP and WAC. For example, if a waste is explosive and is unable to be treated to remove the explosive nature of the waste, it would not be accepted for storage/permanent isolation.

Liquid waste would not be accepted directly for permanent isolation at the BBF. This includes wastes that are received as liquids or solids which may change physical state during or following permanent isolation. An appropriate chemical formulation must be created and verified by Tellus to allow liquid wastes to be safely permanently isolated.

The waste treatment option used to chemically treat waste on-site is broadly based on the following parameters:

- Chemical reaction risk and long-term stability interaction between waste and chemical treatment media over geological time (<1000 years).
- The long-term environmental risk posed by permanently placing the treated waste into a waste cell.
- Relevant legislation – i.e. State environmental legislation, Basel Convention, Stockholm Convention, Minamata Convention etc.
- Chemical-specific issues.
- The long-term physical strength and geotechnical stability of treated waste streams.

Proprietary chemical treatment formulations are individually created by Tellus chemists to chemically neutralise or chemically encapsulate the hazardous components within the waste matrix. As each waste type is different, a different chemical formulation is required. Chemical treatment options include a combination of concrete encapsulation, kaolin encapsulation and chemical neutralisation techniques dependant on the environmental and safety risk posed by each waste type.

Tellus have and continue to conduct extensive proprietary formulation work and associated testing at independent commercial laboratories and universities to determine the long-term stability and leachability of each specific waste formulation. For example, Tellus has recently engaged one of Western Australia's leading concrete testing facilities, Curtin University, backed by professors in Civil Engineering to test the formulations developed by Tellus for structural integrity. Tellus also has a

APPENDIX C: SCOPING WORKSHEET

APPENDIX D: PRELIMINARY BIODIVERSITY IMPACT ASSESSMENT

APPENDIX E: ABORIGINAL CULTURAL HERITAGE DUE DILIGENCE ASSESSMENT

APPENDIX F: AGRICULTURAL IMPACT STATEMENT AND BIOPHYSICAL STRATEGIC AGRICULTURAL LAND DESKTOP REVIEW

APPENDIX G: PRELIMINARY SURFACE WATER ASSESSMENT

APPENDIX H: PRELIMINARY GROUNDWATER ASSESSMENT

APPENDIX I: COMMUNITY ENGAGEMENT STRATEGY