

Mr Paul Purdon
Environmental Assessment Division
Northern Territory Environment Protection Authority
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21st April, 2016

Dear Paul,

Variation to the Chandler Notice of Intent – request for Consideration under Clause 14A of the Northern Territory *Environmental Assessment Administrative Procedures*

1 Context

Pursuant to Section 14A of the *Environmental Assessment Administrative Procedures*, Tellus Holdings Ltd (Tellus) is writing to the Northern Territory Environment Protection Authority (NT EPA) to confirm an *altered action* to the original *proposed action* stated within the Chandler Salt Mine Project Notice of Intent (NOI) 22nd November 2012 (the Chandler Facility).

During recent discussions (April 8th, 2016) between Tellus and the NT EPA, the NT EPA requested Tellus to confirm what aspects of the Chandler Environmental Impact Statement (EIS) would be included for assessment and approval under the Northern Territory *Environmental Assessment Act* (EA Act).

2 EIS overview

With reference to the NOI, Tellus is seeking approval under the EA Act for the ten key project components and activities (listed below) to be included under the original terms of reference for the EIS. Please note, all of the activities listed below would occur within Tellus' project area which is shown in Figure 1.1 of the NOI.

Five activities remain unchanged. They are:

1. **Mine access via decline** - no change to the NOI.
2. **Storage of equipment and archives in the void spaces left from salt mining** – no change to the NOI.
3. **Disposal of potentially recoverable wastes, such as aluminium spent pot line, in void spaces left from salt mining** – no change to the NOI.
4. **Disposal and permanent isolation of intractable solid wastes in void spaces left from salt mining. Intractable wastes will include Naturally Occurring Radioactive Materials (NORM) waste** – no change to the NOI.
5. **A rail siding** – no change to the NOI.

Five activities do represent a change to the original NOI. These are:

6. **Salt mining and processing** – The original NOI makes reference to both dry and wet processing via solar evaporation ponds. Wet processing of salt will not occur and therefore, there is no requirement for having evaporation ponds.
7. **Supporting surface storage and transfer facility located adjacent to the rail siding.** Tellus propose a surface storage and transfer facility adjacent to the rail siding area. It will have a maximum storage capacity of 400,000 tonnes of bulk materials – this represents a change to the NOI. See Sections 3 and Section 4.1 for more information regarding this facility.



8. **A new private access road (60 km) from the Stuart Highway to the Central Australian Railway** - this represents a change to the NOI. Refer to Section 4.2 for more information.
9. **Using hydraulic backfill as a method of waste emplacement** - this represents a change to the NOI. Refer to Section 4.3 for more information.
10. **Remote receiving locations** – This represents a change to the NOI. The Darwin container receiving station will no longer form part of the Chandler EIS.

3 Summary of proposed variations to the 2012 Notice of Intent (NOI)

Variations to the original Chandler NOI are summarised in Table 1. Tellus believes the proposed variations to the NOI will have an overall neutral impact on the environment. In some instances, Tellus believes there will be beneficial impacts on the environment, for example, by removing the need for constructing and operating wet processing and evaporative ponds (refer to Table 1).

Table 1 - Variations to the 2012 Chandler NOI

NOI Section	Original reference	Proposed variation
1.1.1 – second bullet point	Mine site surface processing and packaging plant to produce 1 million tonnes per annum	No requirement for a packaging plant and the volume of salt reduces from 1,000,000 tonnes to 750,000 tonnes.
1.1.1 – third bullet point	Airstrip	No requirement for an airstrip. A smaller footprint for a helicopter pad would be included in the EIS.
1.1.1 – fourth bullet point	Mine roads -6 km haulage road from the mine to the Darwin to Adelaide railway line and a 27 km access road from the mine site to connect to the existing road (plus road upgrades).	<p>The original reference of -6 km was a typographical error. It should read 26 km. The proposed route shown on Figure 1.1 in the NOI remains the same.</p> <p>The major change to mine access roads has arisen as a result of further studies and field work along the public access road (Maryvale Road) from Alice Springs to the Maryvale homestead. Owing to significant health and safety concerns along the unsealed Maryvale Road, Tellus proposes to construct and maintain a private unsealed access road. The proposed location of the access road is shown in attachment one (Figure 1) and is approximately 60 km.</p> <p>Importantly, the selection of this route was discussed with the DoE during their site visit to the Chandler site in September 2015. The preferred route was selected because; (a) it is already an access road (b) it is an area that is already highly disturbed by estate access and grazing activities and (c) would avoid unnecessary disturbance and impacts on native flora and fauna habitat across the Henbury Estate and would not divide the cattle station into isolated management blocks.</p> <p>Consultation with the new Henbury Estate owners has been undertaken and continues to progress throughout the preparation of the EIS. The estate owners have given their in-principal support for Tellus upgrading the existing road to accommodate construction and operation vehicle access.</p> <p>Since October 2015, Tellus has undertaken specialist environmental studies along the proposed access route. Studies include Cultural Heritage (including Traditional Owner involvement); Biodiversity (including Matters of National Environmental Significance (MNES)); Surface water and Soils. The studies have confirmed the proposed access road is not constrained by MNES, threatened, rare or</p>





NOI Section	Original reference	Proposed variation
		endangered plants or animals, or sacred sites. The results of these studies would be presented and discussed within relevant sections of the Chandler EIS. Referencing to environmental risks would follow the existing EIS Final Guidelines for the Chandler Facility.
1.1.1 – fifth bullet point	Mine rail siding (2 km) alongside existing Adelaide/Darwin railway line.	<p>The footprint of the rail siding area would be increased by up to a maximum of 30 hectares to accommodate for the temporary storage of mine construction materials, as well as the storage of future bulk waste materials and salt export materials.</p> <p>Waste materials would be temporarily stored on an impervious surface and contained within 20-foot shipping containers (Refer to Attachment 2). All materials stored within this zone would be transferred along the proposed haul route that is described and illustrated in the original NOI.</p> <p>Salt materials would be temporarily stored on an impervious surface and contained within 20-foot rotainer shipping containers (Refer to Attachment 2).</p> <p>The onsite storage and transfer facility option was raised and presented to the NT Major Projects Working Group during Tellus’ presentation on December 4, 2015. In addition, Tellus accompanied representatives from the DoE to the rail siding area in September 2015. Specialist environmental studies (Cultural Heritage, Biodiversity, Soils, Surface and Groundwater) within this area have already been undertaken as part of the Chandler EIS rail siding alignment.</p>
Brewer Estate	Brewer Estate storage and transfer facility	The Brewer Estate storage and transfer facility was not in the original NOI. Tellus was invited by stakeholders to evaluate the Brewer Estate as an alternative option for temporary storage of bulk materials as it had a number of increased social and economic advantages for Alice Springs. After consultation with the EPA, Tellus has decided to drop this option.
1.1.1 – eighth bullet point	Alice Springs speciality salt processing and packing plant with training school and visitor centre (1 % of production volume).	Removed - however, Tellus’ proposed Indigenous Land Use Agreement will include significant opportunities for onsite training and education.
1.1.1 – ninth bullet point	Supply chain infrastructure, including a container facility near Darwin’s East Arm Port (1085 container capacity) for salt exports and transfer station (102 container capacity)	Removed – Tellus are no longer seeking approval, as part of the EIS, for this facility within the Darwin Business Park.
1.1.1 – tenth bullet point	Mine footprint of surface infrastructure.	By adopting dry salt processing there is no requirement for constructing and maintaining crystallisation and evaporative ponds.





NOI Section	Original reference	Proposed variation
		This reduces the surface infrastructure footprint at the mine site from approximately 108 hectares to 97.5 hectares.
1.1.2	Capital expenditure of about \$200 million	Capital expenditure is now \$648 million
	Construction stage jobs – about 267 direct jobs	Direct construction jobs will be approximately 350 people
	Operation stage jobs – 66 long-term direct jobs	Long-term direct job will be approximately 150 people
	Construction 2 years (2015)	Subject to approvals and final investment, construction is likely to commence in the second half of 2017. Construction will take approximately 3.5 years.
Table 1.1	Proponent details	Tellus' new contact details are: Suite 2, Level 10, 151 Castlereagh Street, Sydney, NSW, 2000 T: +61 2 8257 3395 F: +61 2 8233 6199
2.2	Alice Springs Salt Packaging Plant	Removed -Tellus will not seek approval for this facility as part of the Chandler EIS.
2.3	Darwin Container Facility	Removed - Tellus will not seek approval for this facility as part of the Chandler EIS.
2.4	Darwin Container Transfer Station	Removed - Tellus will not seek approval for this facility as part of the Chandler EIS.
3.2.4	Darwin Harbour – East Arm Logistics Precinct	No longer applies
Table 4.2	Wet processing	Removed - all salt will be dry processed. This step will significantly remove the disturbance footprint on the surface by 11.5 hectares. The evaporation and crystallisation ponds to be removed are shown in Figure 4.6 in the NOI. This area will still be assessed for potential impacts in the Chandler EIS as part of the wider mine infrastructure layout.
4.5	Storage processing	In addition to the emplacement of solid wastes, Tellus propose to transport and permanently isolate some waste type into the mine voids by a method called hydraulic backfill which is common in the European salt mines. See below for more information.
4.10.1	Road Access	Include a 60 km private unsealed access road from the rail siding to the Stuart Highway. See below for more information.
4.10.3	Air Access	Tellus will provide provisions for a helicopter pad.

4 Further information

4.1 Storage and transfer facility adjacent to the rail siding

The primary objective of this facility is to provide a licensed facility that safely allows for the temporary storage of bulk waste products (including hazardous and intractable waste). The development will start at 30,000 tpa, but has an overall design capacity of 400,000 tpa to accommodate for both a steady state growth over 29 years (4 years surface storage during build and ramp up phase +25 years during full operational phase).

In addition, to accommodate a single large surge event like a one off campaign style State Emergency Event Service infrastructure requirement due to a man-made or natural disaster event where significant volumes of materials need to be rapidly removed from communities, or a one off



campaign style transfer event when a large mine dump or tailing pond gets decommissioned from an industrial user.

Waste products would be transported to the Chandler Facility along the proposed 26 km haul route shown in Figure 1.1 of the NOI. Key aspects of the storage and transfer facility, located approximately 150 m east of the proposed rail siding are listed below:

- Grading and preparation works.
- Construction of a fully bunded impervious surface.
- Installation of stormwater drainage.
- Construction of storage areas - a steel-framed warehouse and open storage yard.
- Construction of road to support the proposed rail siding.
- Construction of quarantine zone in line with Tellus' strict waste acceptance criteria.
- Construction of a laboratory, office and maintenance and storage shed.
- Construction of internal roads and car parking.
- Installation of a weighbridge and vehicle wash down and spill recovery facility.
- Installation of truck driver amenities.
- Installation of security fencing, cameras and lighting.
- Installation of electricity, water and sewerage services.

The sources of waste materials that would be temporarily stored at the site would be primarily from the aluminum, oil drilling and refining (petroleum), chemical and plastics, agricultural, pesticide, manufacturing and mining industries, of which a small portion may contain NORM waste.

Figure 1 Proposed storage and transfer facility adjacent to the rail siding over time



4.2 Proposed access road on the Henbury Estate

An existing unsealed access road already follows the southern boundary of the Henbury Estate. It borders the northern boundary of the Idracowra Estate (refer to Attachment 1). The Henbury Estate



access road has been well travelled by Tellus staff, and its contractors, who have completed specialist environmental studies during preparation of the EIS.

As shown in Plates 1 to 4, the Henbury Estate access road is isolated and a highly disturbed environment with minimal vegetation. There is one significant drainage line, namely the Finke River (at approximately 25 km east of the Stuart Highway). To date, seasonal biodiversity surveys undertaken by Low Ecological Services confirm the access road and areas immediately north of this road do not contain any MNES, rare, threatened or endangered flora or fauna species.

Plate 1 – Entrance to access road from Stuart Highway



Plate 2 – 5 km in looking west towards the Stuart Highway



Plate 3 – View east at about 30 km in from Stuart Highway



Plate 4 – 10 km west of the Central Australian Railway



The impact assessment footprint for the proposed private road includes the road itself, and an area 100 metres to the north. This distance was chosen by Tellus to account for any requirements to re-align to avoid constraints, such as, areas of high gully erosion. This distance would also allow for maintenance and necessary sediment and erosion control measures. The actual footprint of the road is not likely to exceed 15 metres. Please note, the proposed road would remain wholly within the Henbury Estate. It will not require any works on neighbouring estates.

Tellus considers from a health and safety perspective the public Maryvale Road connecting Alice Springs with Titjikala as less safe and has already experienced while driving that road a number of drug and alcohol related, poor vehicle maintenance and driving problems. Therefore, Tellus is seeking approval for a safer private road via the Stuart Highway along the southern boundary of the Henbury Estate. In the initial periods of enabling works and construction works, it is envisaged Tellus staff and some contractors will utilise Maryvale Road to bring essential supplies to the existing Tellus camp. However, by opting to utilise and upgrade an existing access road on the Henbury



estate, Tellus believes this is the best possible outcome for the health and safety of its current and future workers, as well as the receiving environment.

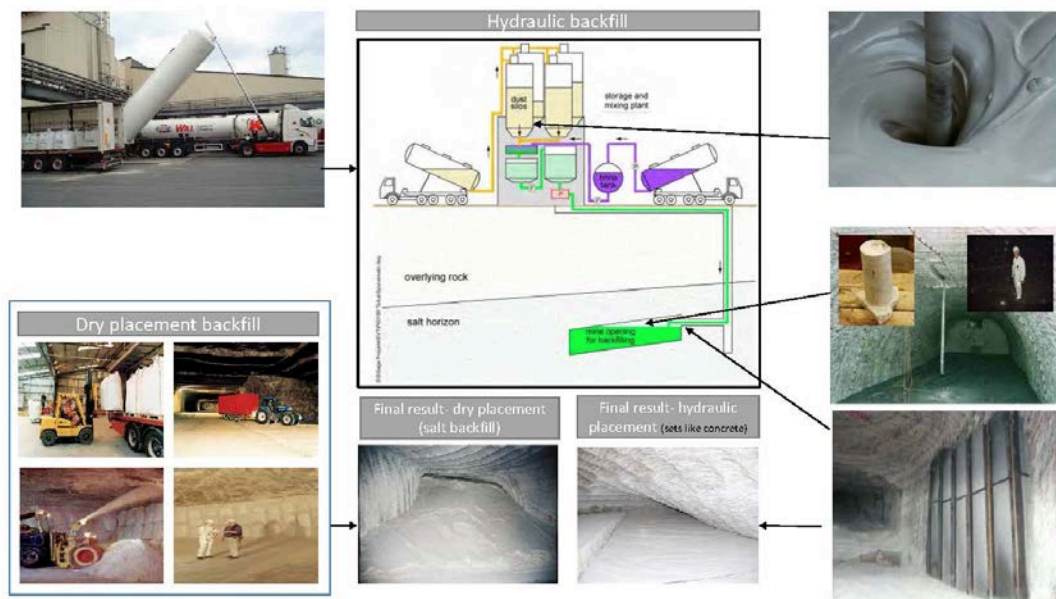
The private road from the Stuart Highway to the Henbury rail siding is proposed to be a broad single width access road for relatively light traffic, with designated passing locations, and would be constructed and maintained to Northern Territory Government standards. The private road from the Henbury rail siding to the Chandler Facility is proposed to be a dual carriage access and haulage road for to accommodate road trains, heavy vehicles and lighter 4WD vehicles moving mostly between the siding and the Chandler facility. Initially, the private road would be used to haul construction equipment for early works and construction works. Once the mine is operational, the road would be used by construction workers from Alice Springs (139 km north). The majority of waste materials would be transported by rail to the proposed rail siding. Only a small amount of waste material is envisaged to be brought to the mine site via the private access road and this is based on “an exception only basis.

4.3 Hydraulic backfill

During value engineering exercise, multiple technical trips overseas looking at operational dual use salt/waste backfill mines overseas, evaluating technology and safety trends overseas Tellus is looking at both dry placement of waste and hydraulic backfilling. This technique is widely practiced in Europe as it is viewed as safer (less handling) and lower cost in repositories similar to our proposed Chandler Facility. The application of hydraulic backfilling is a feasible option to transport and place suitable and compatible wastes in excavated rooms of salt mines. These wastes can be liquid or solid but need a grain size small enough to achieve appropriate hydraulic properties.

There are fundamentally two types of hydraulic backfill, firstly flushing backfill which exhibits low viscosity and is transported by gravity and uses a saturated brine as the transport medium, and secondly viscous slurry backfill which exhibits high viscosity and needs a pump to be transported through a pipe system. A general arrangement for a viscous slurry backfill plant is shown in Figure 2. The backfill mixture must have a composition that does not harm the host rock. An image of a slurry backfill after placement in a disposal room can be seen in Figure 3.

Figure 2 Hydraulic backfill plant general arrangement which requires less handling (safety advantage) with a comparison to dry placement backfill





Early analysis has been undertaken by international experts K-UTEC. A Tellus commissioned scoping study^[1] (K-UTEC 2015) has produced encouraging results based on the potential waste inventory that Chandler could receive. Given these results, Tellus plan to adopt this technique in the future. Over the 25 year life of project approximately 50 % of the total material may be transported and placed in this manner.

5 Assessment

Tellus have reviewed the listed changes and consider the proposed variations to the NOI will have an overall neutral to a positive impact (reduced footprint) on the environment and do not represent a material enough change in Character to the project. Tellus request the NTEPA to assess the variations in accordance with clause 14A of the Administrative Procedures.

Tellus' preferred position is that we stick with the original terms of reference for the EIS as we are keen to lodge the draft EIS by mid July. If any of these changes are viewed as material requiring a new NOI, Tellus would prefer to discuss the concerns first and would be open to drop the recommended change. At a later date Tellus can provide a variation.

Tellus is an innovative company in the business of finding economic, environmental and social value of some difficult to manages wastes. We believe that waste is a valuable resource, and where possible, it should find its way back into the circular economy. If we in this generation cannot find a good use for it with the technology we have, then we should store it safely until a future generation can find a good use for it with new technologies they have.

Should the NTEPA require further information, please contact the undersigned on 0439 202 507 or by email - richie@tellusholdings.com.

Kind regards,

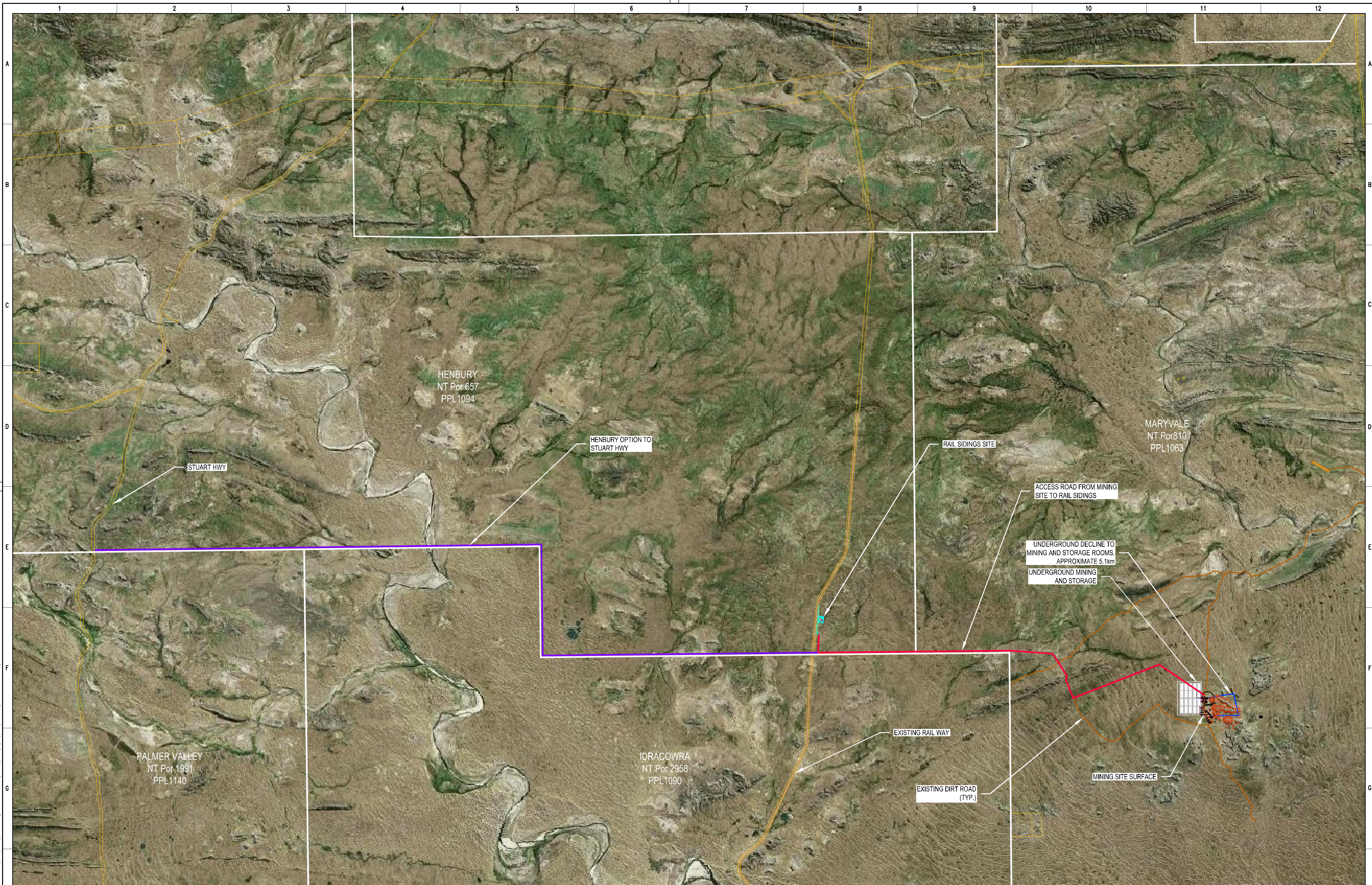
Richard Phillips
Environment & Approvals Manager
Tellus Holdings Ltd

CC: Duncan van der Merwe
Managing Director




Attachment 1 – Proposed private unsealed access road route





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Rev	Revision Description	By	App	Date	Rev	Revision Description	By	App	Date
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 Client: **TELLUS**
 Title: **RAIL SIDINGS & MINING SITE TO STUART HWY LOCALITY MAP**
 Project: **CHANDLER SALT MINE PROJECT**

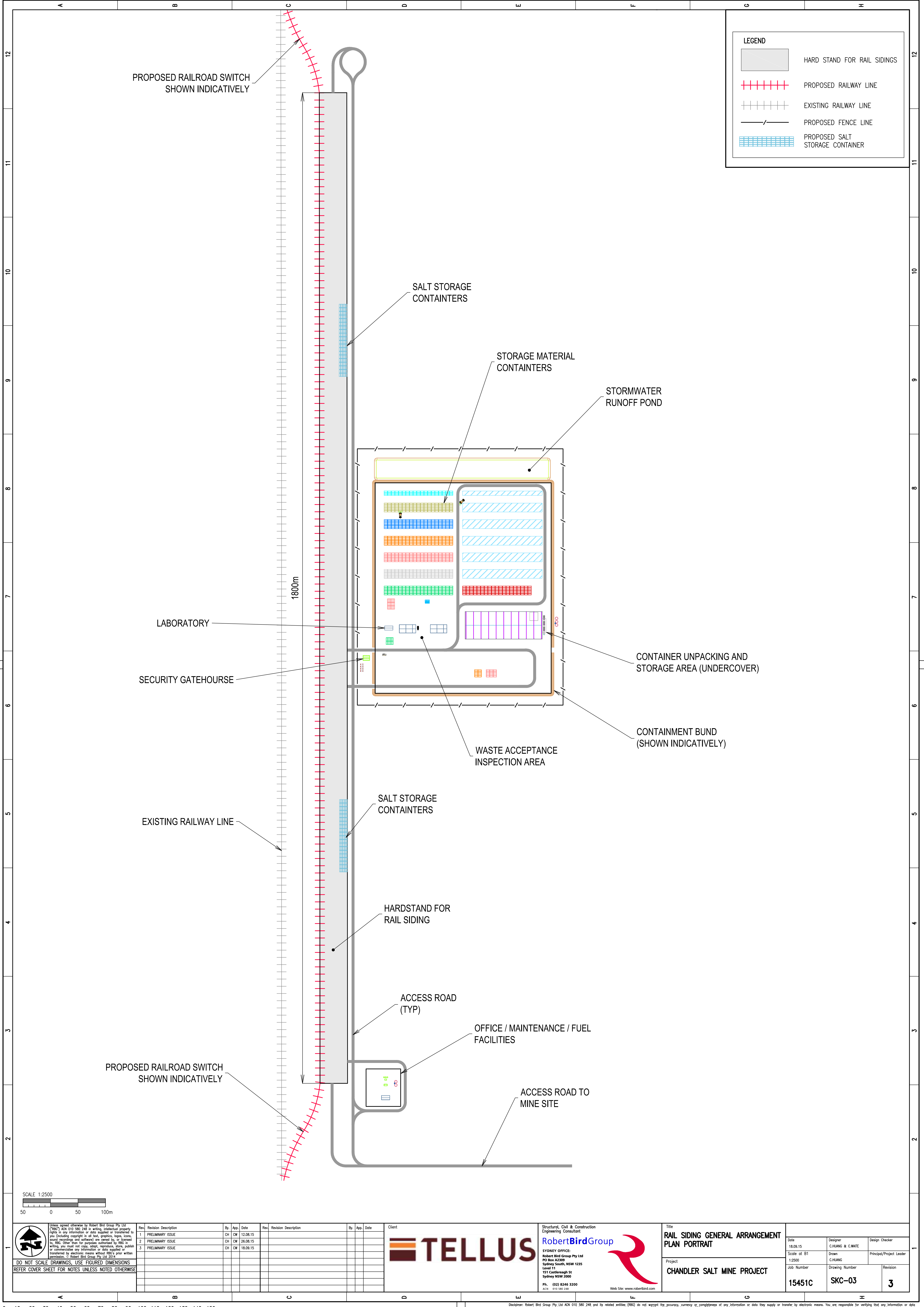
Date	03.09.15	Designer	CHUANG & CHWATE	Design Checker	
Scale	at B1	Drawn	CHUANG	Principal/Project Leader	
Job Number	15451C	Drawing Number	SKC-12	Revision	3

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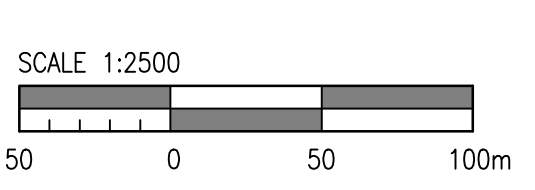
Attachment 2 – Proposed waste storage and transfer area





LEGEND

	HARD STAND FOR RAIL SIDINGS
	PROPOSED RAILWAY LINE
	EXISTING RAILWAY LINE
	PROPOSED FENCE LINE
	PROPOSED SALT STORAGE CONTAINER



Rev.	Revision Description	By	App.	Date	Rev.	Revision Description	By	App.	Date
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Title
**RAIL SIDING GENERAL ARRANGEMENT
PLAN PORTRAIT**
Project
CHANDLER SALT MINE PROJECT

Date 18.09.15	Designer C.CHANG & C.WHITE	Design Checker
Scale of B1 1:2500	Drawn C.CHANG	Principal/Project Leader
Job Number 15451C	Drawing Number SKC-03	Revision 3

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