

Development and operation of the Star Coal Project Bulk Sample Project

Application Number: 01703

Commencement Date: 10/03/2023

Status: Locked

1. About the project

1.1 Project details

1.1.1 Project title *

Development and operation of the Star Coal Project Bulk Sample Project

1.1.2 Project industry type *

Mining

1.1.3 Project industry sub-type

Coal

1.1.4 Estimated start date *

1/06/2023

1.1.4 Estimated end date *

1/06/2029

1.2 Proposed Action details

1.2.1 Provide an overview of the proposed action, including all proposed activities. *

The Star Coal Project Bulk Sample Project (SCP BSP) is a proposed bulk sample operation located in the central Bowen Basin approximately 20km east of the mining township of Blackwater and approximately 145 km west of the regional centre of Rockhampton (see *Attachment 1 - SCP BSP Location*). The SCP coal deposits lie to the southeast of the third-party owned Jellinbah Mine, and northwest of the third-party owned Bluff Mine. Site access is via the State-controlled Capricorn Highway, with light vehicle access through the town of Bluff utilising the Bluff-Jellinbah Road, and heavy vehicle access potentially being via the Boonal Haul Road, or alternately via a purpose-built road on the MDL 3052 access tenure.

The total area of MDL3052 is approximately 7,024 ha, with the proposed disturbance footprint of the SCP BSP being only 209.5 ha, with no impacts to remnant vegetation communities or mapped regional ecosystems (REs). The proposed general arrangements of activities on MDL 3052 have been provided as *Attachment 2 - SCP BSP General Arrangements*.

Operations on the Star Coal Project Bulk Sample Project (SCP BSP) will generally include the following:

- Clearing and grubbing of non-remnant vegetation using a combination of dozers and belly scrapers in order to salvage potentially usable topsoil. During clearing operations, fauna spotter catchers will be in attendance.
- Civil construction (Water management infrastructure, roads, hardstands, run-of-mine (ROM) pad, offices, workshops, explosives magazine(s) and crib facilities).
- Bulk sampling activities:
 - Excavation of two small box-cuts (Boxcut 1 and Boxcut 2) for extraction of bulk samples, including drilling, blasting, excavation of waste rock and ROM coal, stockpiling, waste rock dumping, ROM coal crushing/screening (if required), and road train haulage

- Workshop activities (i.e. mobile plant assembly, refuelling and maintenance).
- Rehabilitation activities if affected areas are not conditionally surrendered or reduced from the MDL3052 area on grant of an ML.
- Environmental monitoring (dust, surface water, groundwater, vibration, etc.).
- Ongoing exploration and geological assessments:
 - Continued coal exploration drilling to quantify additional resources and confirm feasibility/environmental study parameters within the MDL area.
 - Subsequent refining of the geological and resource modelling based on the results of continued exploration.
- Additional studies for studies in anticipation of a ML Application for a full-scale mining operation:
 - Geotechnical assessment of highwalls.
 - Establish and assess the presence of any unidentified geological intrusions.
 - Further environmental studies including scaled baseline studies and impact assessments, including geochemical studies in additional target areas.
 - Life-of-mine planning and economic modelling.
 - Life-of-mine rehabilitation planning for the Progressive Rehabilitation and Closure Plan (PRCP) required for MLs under the *Environment Protection Act 1994* (EP Act).
- Activities associated with the proposed BSP that will take place outside MDL 3052 (and will therefore not be subject to the MDL EPBC Referral) include the following:
 - ROM coal road train haulage (via public road) to the Cook Colliery, located 12km south of Blackwater. Road train haulage will be subject to a separate agreement with the Department of Transport and Main Roads (DTMR)
 - ROM Coal processing and testing at the CCM CHPP, including analysis of yields, quality, geochemistry and management requirements of product and rejects.
 - Disposal of coal rejects at the CCM Co-disposal Area (CDA)
 - Export of product coal via the CCM rail load-out and the existing South Blackwater and Blackwater Rail Systems to third-party port facilities.
 - Product testing by multiple prospective customers in operating facilities.

The CCM is owned by Constellation and includes existing coal processing and handling facilities located on ML 1768 and ML 1769, and is subject to an existing Queensland Environmental Authority (EA0002027, also held by Constellation).

1.2.2 Is the project action part of a staged development or related to other actions or proposals in the region?

No

1.2.6 What Commonwealth or state legislation, planning frameworks or policy documents are relevant to the proposed action, and how are they relevant? *

The following Commonwealth legislation is applicable to the proposed action:

- Environment Protection and Biodiversity Conservation Act 1999
 - This referral is being made and the potential for controlled action assessed under the framework laid out in this act.
- National Greenhouse and Energy Reporting Act 2007
 - Greenhouse gas emissions from the Star Coal Project Bulk Sample Project (SCP BSP) will be reported under the requirements of this legislation.

The following Queensland legislation is relevant to the proposed action:

- Environmental Protection Act 1994
 - The assessment of the potential environmental impacts from the SCP BSP has been undertaken by the Queensland Department of Environment and Science (DES) under this legislation with an Environmental Authority (EA) having been issued under this legislation by DES.
- Mineral Resources Act 1989
 - Tenure for MDL3052 is administered by the Queensland Department of Resources under this act.
- Vegetation Management Act 1999
 - The management of the land underlying the SCP BSP is undertaken in accordance with the Property Map of Assessable Vegetation (PMAV) administered under this act. Ongoing vegetation management is undertaken under this legislation and in accordance with the continuing use provision of the EPBC Act.

1.2.7 Describe any public consultation that has been, is being or will be undertaken regarding the project area, including with Indigenous stakeholders. Attach any completed consultation documentations, if relevant. *

The SCP BSP is limited in scale and scope, and is isolated with regard to local population centres. As such, public consultation has had a limited scope, with very few relevant stakeholders identified. Consultation to date has included:

- The landholder of Tallawalla Station (on which the entirety of the SCP BSP is located), and

- other underlying landholders for the broader Mineral Development Licence under the process in the Queensland Mineral Resources Act.

Indigenous stakeholders have been involved in the clearing of cultural heritage from areas subject to historical exploration activities and the proposed SCP BSP footprint; however formal consultation regarding the project has not been undertaken.

1.3.1 Identity: Referring party

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Personal information means information or an opinion about an identified individual, or an individual who is reasonably identifiable.

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Confirm that you have read and understand this Privacy Notice *

1.3.1.1 Is Referring party an organisation or business? *

Yes

Referring party organisation details	
ABN/ACN	92133357310
Organisation name	CONSTELLATION MINING PTY LTD
Organisation address	4000 QLD
Referring party details	
Name	Ryan Pane
Job title	Senior Environmental Officer
Phone	(07) 3002 2900
Email	rpane@qcoal.com.au
Address	Level 15, 40 Creek Street, Brisbane QLD 4000

1.3.2 Identity: Person proposing to take the action

1.3.2.1 Are the Person proposing to take the action details the same as the Referring party details? *

Yes

Person proposing to take the action organisation details	
ABN/ACN	92133357310
Organisation name	CONSTELLATION MINING PTY LTD
Organisation address	4000 QLD
Person proposing to take the action details	
Name	Ryan Pane
Job title	Senior Environmental Officer
Phone	(07) 3002 2900
Email	rpane@qcoal.com.au
Address	Level 15, 40 Creek Street, Brisbane QLD 4000

1.3.2.14 Are you proposing the action as part of a Joint Venture? *

No

1.3.2.15 Are you proposing the action as part of a Trust? *

No

1.3.2.17 Describe the Person proposing the action's history of responsible environmental management including details of any proceedings under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources against the Person proposing to take the action. *

Constellation Mining Pty Ltd is a subsidiary of QCoal Pty Ltd, which has an extensive history of responsible environmental management across six currently active coal mines in Queensland.

Three QCoal Pty Ltd subsidiary mines have approvals in place under the EPBC Act:

- 2010/5778 - Byerwen Coal Mine (Byerwen Coal Pty Ltd)
- 2010/5457 - Drake Coal Mine (Drake Mine Management Pty Ltd)
- 2011/5800 - Sonoma Coal Mine (Sonoma Mine Management Pty Ltd)

Constellation Mining Pty Ltd currently manages only one site (being the Cook Colliery since 2021), and has demonstrated responsible environmental management through adherence to the conditions of the DES approval for the site.

No proceedings under Commonwealth, State or Territory law against against QCoal Pty Ltd or Constellation Mining Pty Ltd have been taken.

1.3.2.18 If the person proposing to take the action is a corporation, provide details of the corporation's environmental policy and planning framework

As QCoal Pty Ltd (of which Constellation Mining Pty Ltd is a subsidiary) operates multiple operational mines (open cut and underground) and exploration activities with varying regulatory requirements, environmental and planning frameworks are developed on a site by site basis.

However, in recognition of the importance of an ESG framework, QCoal Pty Ltd is proactively developing an overarching Environment Sustainability and Governance Plan.

1.3.3 Identity: Proposed designated proponent

1.3.3.1 Are the Proposed designated proponent details the same as the Person proposing to take the action? *

Yes

Proposed designated proponent organisation details

ABN/ACN	92133357310
Organisation name	CONSTELLATION MINING PTY LTD
Organisation address	4000 QLD

Proposed designated proponent details

Name	Ryan Pane
Job title	Senior Environmental Officer
Phone	(07) 3002 2900
Email	rpane@qcoal.com.au
Address	Level 15, 40 Creek Street, Brisbane QLD 4000

1.3.4 Identity: Summary of allocation

Confirmed Referring party's identity

The Referring party is the person preparing the information in this referral.

ABN/ACN	92133357310
Organisation name	CONSTELLATION MINING PTY LTD

Organisation address	4000 QLD
Representative's name	Ryan Pane
Representative's job title	Senior Environmental Officer
Phone	(07) 3002 2900
Email	rpane@qcoal.com.au
Address	Level 15, 40 Creek Street, Brisbane QLD 4000

✔ Confirmed Person proposing to take the action's identity

The Person proposing to take the action is the individual, business, government agency or trustee that will be responsible for the proposed action.

Same as Referring party information.

✔ Confirmed Proposed designated proponent's identity

The Person proposing to take the action is the individual or organisation proposed to be responsible for meeting the requirements of the EPBC Act during the assessment process, if the Minister decides that this project is a controlled action.

Same as Person proposing to take the action information.

1.4 Payment details: Payment exemption and fee waiver

1.4.1 Do you qualify for an exemption from fees under EPBC Regulation 5.23 (1) (a)? *

No

1.4.3 Have you applied for or been granted a waiver for full or partial fees under Regulation 5.21A? *

No

1.4.5 Are you going to apply for a waiver of full or partial fees under EPBC Regulation 5.21A?

No

1.4.7 Has the department issued you with a credit note? *

No

1.4.9 Would you like to add a purchase order number to your invoice? *

No

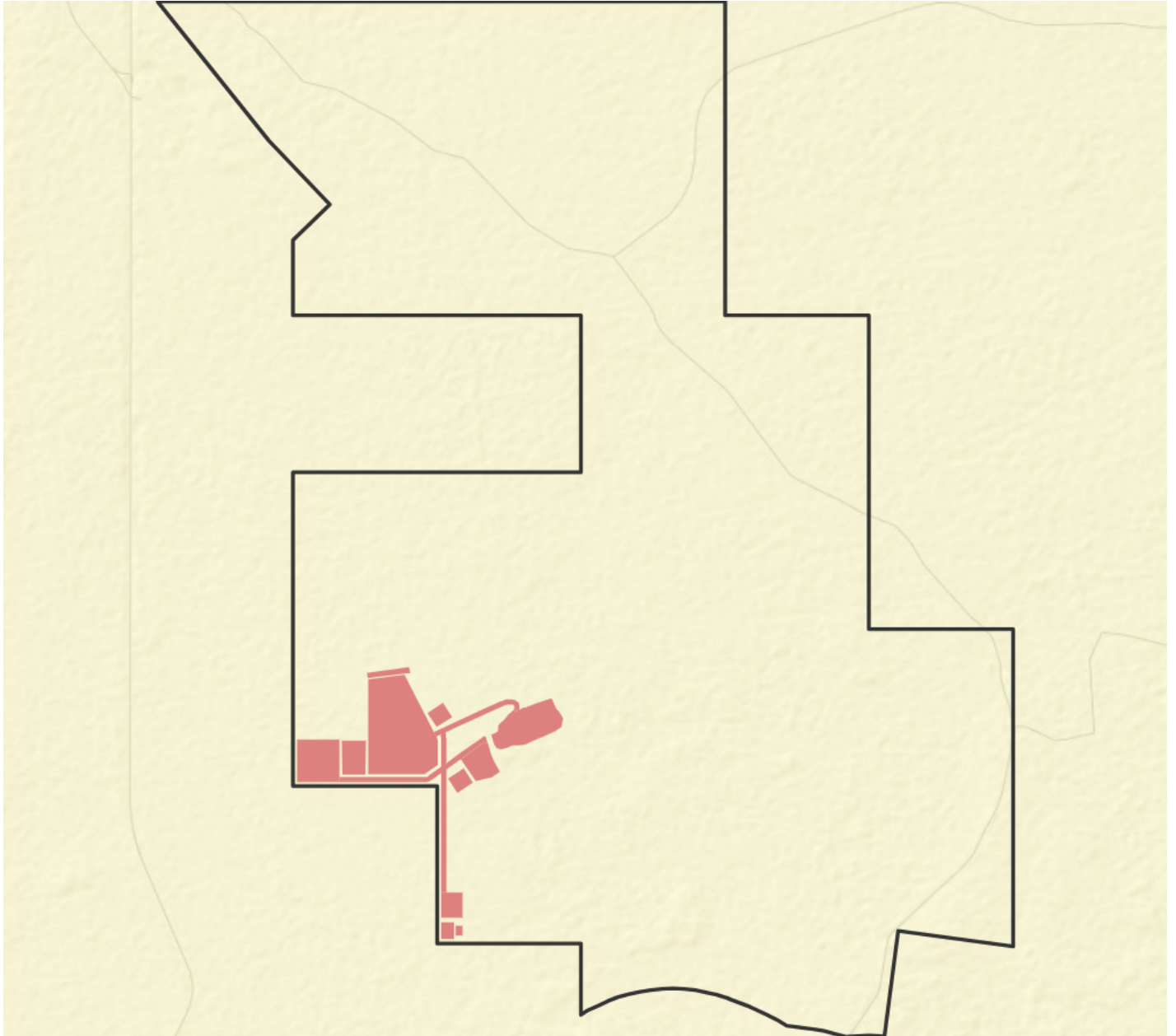
1.4 Payment details: Payment allocation

1.4.11 Who would you like to allocate as the entity responsible for payment? *

Referring party

2. Location

2.1 Project footprint



2.2 Footprint details

2.2.1 What is the address of the proposed action? *

Current access from 195 Bluff-Jellinbah Road, Bluff QLD 4702. Lot 4 on SP255414, Approximately 8 km northeast of the to

2.2.2 Where is the primary jurisdiction of the proposed action? *

Queensland

2.2.3 Is there a secondary jurisdiction for this proposed action? *

No

2.2.5 What is the tenure of the action area relevant to the project area? *

Activities undertaken as part of the SCP BSP are proposed to be undertaken entirely on Tallawalla Stations (Lot 4 on SP255414), which is freehold land privately owned by Christopher Wallin.

Other land underlying MDL3052 (the resource tenure on which the SCP BSP is proposed to be located) are provided below:

Lot 13 on RP861407 (Dunlace Station) - Freehold
 Lot 1 on AP20990 - Freehold
 Lot 1 on SP227977 - Freehold
 Lot 2 on AP20990 - Freehold
 Lot 2 on HT518 (Middle Creek Station) - Freehold
 Lot 2 on SP120726 - Reserve
 Lot 2 on SP227977 - Freehold
 Lot 34 on HT591 - Reserve
 Lot 6 on HT72 - Lands Lease
 Lot 7 on HT186 (Wyoming Station) - Freehold
 Lot A on AP20358 - Road reserve
 Bluff Jellinbah Road - Road reserve

The landholders underlying MDL3052 have also been provided in *Attachment 3 - MDL3052 Underlying Landholdings*.

3. Existing environment

3.1 Physical description

3.1.1 Describe the current condition of the project area's environment.

The SCP BSP is located in the central Bowen Basin approximately 20km east of the mining township of Blackwater and approximately 145 km west of the regional centre of Rockhampton. The SCP coal deposits lie to the southeast of the third-party owned Jellinbah Mine, and northwest of the third-party owned Bluff Mine. Site access is via the State-controlled Capricorn Highway, with light vehicle access through the town of Bluff utilising the Bluff-Jellinbah Road, and heavy vehicle access potentially being via the Boonal Haul Road, or alternately via a purpose-built road on the MDL 3052 access tenure. A number of internal tracks are present currently; however, these will be improved as operations progress in order to facilitate the movement of vehicles within the SCP BSP footprint.

The land underlying the SCP BSP is zoned as rural and has previously been extensively cleared and managed for grazing activities under the continuing use provisions of the EPBC Act and in accordance with the Queensland Vegetation Management Act 1999. No change to the zoning of the underlying land is required to undertake the activities proposed. This extensive clearing and management has led to severe degradation of the underlying land, which has negligible ecological value. Groundcover is dominated by exotic pasture species (particularly buffel grass and Indian blue grass).

Two Stream Order 1 drainage features are present within the SCP BSP area; however, these are heavily degraded by the presence of cattle and extensive clearing of the underlying land for grazing activities.

The land adjoining and surrounding the SCP BSP and MDL3052 generally is zoned as rural, with similar levels of clearing and management for grazing activities undertaken. This has led to similarly low ecological value for the surrounding areas.

3.1.2 Describe any existing or proposed uses for the project area.

The land underlying and surrounding MDL 3052 (the underlying tenure for the SCP BSP) has been primarily utilised for cattle grazing since the early 20th century. This has included extensive clearing of remnant vegetation and ongoing management of regrowth by the landholders.

Other activities undertaken within and surrounding MDL 3052 are historical and current coal mining, processing, and rail haulage, as well as associated exploration activities.

The proposed use of the land underlying MDL 3052 is ongoing cattle grazing activities, ongoing coal exploration activities to better define the available resource in the area, and the proposed bulk sampling operation.

3.1.3 Describe any outstanding natural features and/or any other important or unique values that applies to the project area.

No outstanding natural features and/or other important or unique values apply to the project area.

3.1.4 Describe the gradient (or depth range if action is to be taken in a marine area) relevant to the project area.

The topography of the project area is generally flat in the northern portion and undulating land in the central and southern portions. Figure 1 in *Attachment 4 - Topography Figures* quantifies the slope distribution and indicates that slopes within the project area vary between 0 and 7%, however on average the project area is relatively flat with a median slope of 0.8%. This is visible on the slope distribution map provided as Figure 2 in *Attachment 4 - Topography Figures* where areas with higher slopes are more prominent in the central and southern portions of MDL3052, associated with the tributaries of Wild Horse Creek. Contours for the area underlying the SCP BSP and surrounds have been provided as Figure 3 in *Attachment 4 - Topography Figures*.

3.2 Flora and fauna

3.2.1 Describe the flora and fauna within the affected area and attach any investigations of surveys if applicable.

FLORA

General Flora Observations

A total of 154 flora species were recorded during field surveys. Of this, 24 (15%) were exotic species. Exotic species dominate the disturbed areas (i.e. grazing pasture) (including the area proposed to be disturbed by the SCP BSP) and riparian systems where soil fertility is comparatively higher relative to other areas of MDL 3052.

Conservation Significant Flora

Protected plant flora surveys were conducted during vegetation mapping and targeted searches were undertaken in areas with identified potential habitat. A full list of species encountered during field surveys is provided in the full *Terrestria, 2022* (see *Attachment 5 - Terrestria Ecology Report*, Section 3.2.2). These surveys did not reveal the presence of any flora species listed as threatened or near threatened by the Commonwealth or State.

Four (4) threatened flora species were assessed as likely to occur within MDL 3052 due to the presence of suitable habitat, as presented in **Table 1** of *Attachment 6 - SCP BSP Flora and Fauna Tables and Figures*.

Dichanthium setosum and *Arthraxon hispidus* hairy-joint grass only has a low probability of occurring due to the highly disturbed nature of the cattle grazing country and the fact that cattle have access to all parts of the MDL 3052 area.

Eucalyptus raveretiana Black ironbox has a low probability of occurring in Wild Horse and Middle Creeks as they are minor creek lines. Twelve-Mile Creek provides better habitat for Black ironbox; however it was not located during the limited surveys conducted.

Cadellia pentastylis Ooline is a large, conspicuous tree that, if present, would easily be detectable within the predominantly cleared grazing landscape. This species is known to occur within RE 11.7.1, and those REs would require detailed survey for this species prior to clearing if disturbance were planned in those areas.

Exotic Flora

A survey was conducted to identify the presence, cover, abundance and reproductive status of all plants listed under the *Biosecurity Act 2014* during the course of vegetation community and protected plant surveys. The survey was undertaken by "targeted random meander" where the AQP walks in a random pattern within areas identified as high risk for the presence of weeds. High risk areas include areas with exposed soils, areas of surface disturbance, and areas of high nutrients and/or water. See Section 3.2.3 of *Attachment 5 - Terrestria Ecology Report* for further detail.

Weed species listed under federal and State legislation that were found to occur within the SCP BSP area are presented in **Table 2** of *Attachment 6 - SCP BSP Flora and Fauna Tables and Figures*. Currently, none of these weeds were observed to be causing serious environmental harm, with evidence of the *Harrisia mealybug* (*Hypogeococcus festerianus*) effectively controlling the *Harrisia* cactus, which was abundant across the MDL 3052. There were some notable infestations of rubber vine (*Cryptostegia grandiflora*) observed along Wild Horse Creek.

Environmental weeds are those exotic species considered to cause significant ecological damage if uncontrolled. This damage can include outcompeting native species by niche occupation and/or smothering. Some species are also regarded as 'ecosystem altering', that is, they can alter the direction of ecosystem regeneration resulting in an undesirable alternative stable community. No environmental weeds were observed to be causing significant harm within the SCP BSP area.

FAUNA

General Fauna Observations

A total of 92 terrestrial vertebrate fauna species were recorded during the field survey, including three (3) amphibians, 74 birds, four (4) mammals and 11 reptiles. Of these species, one (1) amphibian, no birds, seven (7) mammals and no reptiles are considered invasive species not native to Australia.

Amphibian activity was reduced due to dry weather in the weeks and months prior to the survey. The frog species recorded were present within anthropogenic water sources (such as farm dams), and the Wild Horse Creek area. Areas of good potential breeding habitat for frog species occurs within the riparian areas of major creek lines and the gilgai plains. It is considered unlikely that the MDL 3052 area supports populations of threatened amphibians.

The woodlands and open forest areas across MDL 3052 provide good habitat for reptile species, with large quantities of fallen woody material, patches of deep leaf litter and mostly native ground cover providing good micro-habitat features.

The bird fauna assemblage observed during surveys was typical of dry habitats of the region and is dominated by common and widespread species found in open eucalypt woodlands. Changes in habitat type across the site provide a diversity of habitat that support a diverse range of bird species; however, the lack of large areas of open water limits attendant waterbird species.

A limited range of macropods were observed during the surveys. The limited availability of surface water limited the distribution of these animals, although this range would be less restricted during wetter times.

No small native ground mammals were trapped during the survey, potentially due to the timing of the survey or the presence of feral predators. The woodlands and open forest areas across MDL 3052 provide good habitat for small mammal species with large quantities of woody material, patches of deep leaf litter and mostly native ground covers.

Arboreal mammals appeared uncommon during spotlighting surveys, with only the Common brushtail possum being recorded. The limited number and distribution of large hollows within the woodlands and open forest, limited the likelihood of species such as the Greater glider being present.

See Sections 3.2.6 and 3.2.7 of *Attachment 5 - Terrestria Ecology Report* for further detail on general fauna observations.

Listed Threatened Species

Potential habitat for 13 listed threatened species was found to exist within the MDL 3052 boundary, including four (4) birds, seven (7) mammals and two (2) reptiles, as presented in **Table 3** of *Attachment 6 - SCP BSP Flora and Fauna Tables and Figures*.

Threatened fauna habitat suitability maps are presented in **Figure 1**, **Figure 2**, **Figure 3**, and **Figure 4** provided in *Attachment 6 - SCP BSP Flora and Fauna Tables and Figures* for the species relevant to MDL 3052.

The following has been determined with regard to the disturbance area for the SCP BSP:

- There is no habitat for koala within the SCP BSP disturbance area; however, a small patch (<3 ha) of medium quality habitat is located approximately 120m from the closest disturbance. Extensive survey of this small patch including a tree-by-tree survey did not find any indications of the potential presence of this species;
- Moderate quality habitat for ornamental snake associated only with the presence of non-remnant gilgai will be impacted by clearing for waste rock dump, water management infrastructure and ROM pad. No individuals were located during surveys in April 2022 or February 2023;
- Low quality dispersal habitat for Squatter pigeon (southern) is present underlying the SCP BSP disturbance area, however, this area is dominated by the presence of buffel grass, with limited food species presence and limited protection from predation;
- No habitat for yakka skink underlies the SCP BSP disturbance area; however, a small patch (<3 ha) of medium quality habitat is located approximately 120m from the closest disturbance. Extensive survey of this small patch did not find any indications of the potential presence of this species.

See Section 3.2.9 of *Attachment 5 - Terrestria Ecology Report* for further detail regarding conservation significant fauna.

Feral Fauna Species

Seven (7) non-native species were observed to utilise the MDL 3052 area including one (1) amphibian, no birds, six (6) mammals and no reptiles, as detailed in **Table 4** of *Attachment 6 - SCP BSP Flora and Fauna Tables and Figures*. These species are common within the region and are expected to be recorded in most surveys within comparable habitats.

See Section 3.2.8 of *Attachment 5 - Terrestria Ecology Report* for further detail regarding feral fauna species.

3.2.2 Describe the vegetation (including the status of native vegetation and soil) within the project area.

General Vegetation Condition

The SCP BSP footprint comprises non-remnant vegetation primarily consisting of improved pasture species (namely buffel grass and Indian blue grass), with a very small proportion of native grasses and regrowth vegetation present. Weed species are also prevalent, mostly comprising parthenium and harrisia cactus. No recent bushfire activity has been noted in the region.

Regional Ecosystems

Field investigations into extant flora community type and distribution combined with land surface observations were used to produce a site-scale RE map (see **Figure 1** of *Attachment 7 - SCP BSP Regional Ecosystem Figure and Table*). The area and descriptions of the REs present within MDL 3052 is presented in **Table 1** of *Attachment 7 - SCP BSP Regional Ecosystem Figure and Table*.

The study area is dominated by a broad sheet of Tertiary – quaternary alluvium forming flat clay plains dominated by vertisols forming gilgais (Land Zone 4) and fine grained sandstones of the Daringa formation which give rise to very gently undulating clay plains (Land Zone 9). These areas have been almost entirely cleared for cattle grazing and only very limited highly impacted areas of regrowth RE 11.4.9 occurs. There is a minor patch of RE 11.9.1 at the southernmost extent of the study area in a council-owned reserve.

Remnant REs are limited in extent and are generally confined to residual landforms in discrete patches in the south. These patches include very low rising jump-ups characterised by the presence of RE 11.7.1 on the slopes and RE 11.7.2 on the tops.

Remnant vegetation has been retained along drainage lines and is typically characterised by narrow bands of riparian RE 11.3.25 flanked by broader areas of RE 11.3.2 with some very minor occurrences of RE 11.3.1 within the matrix and often not mappable at the project scale.

The field-based mapping generally confirmed the Queensland Herbarium's mapping with refinements in linework due to the finer scale. The only major difference being those areas on the jump-ups, mapped by the Herbarium as RE 11.9.1 were found to be almost entirely dominated by Yupunyah *Eucalyptus thozetiana* on lithosols and have therefore been mapped by this assessment as RE 11.7.1.

Soil Characterisation

Methodology

Preliminary soils mapping was undertaken following a detailed review of existing reports and satellite imagery in order to provide an initial understanding of the likely soil types to occur within MDL 3052, and this provided the basis for planning fieldwork and determining the most appropriate survey locations.

Following the development of the sampling plan based on the desktop assessment, a field survey was undertaken by suitably qualified soil scientists under guidance from a nominated certified professional soil scientist (CPSS). The specific locations of survey sites were further refined in the field based on site access and whether the location was determined to be representative of the relevant Soil Management Unit (SMU) being described.

A survey intensity of 1 per 50 (ha) was proposed, which is a medium (semi-detailed) intensity that meets the objectives of semi-detailed project planning (McKenzie et al, 2008). Three levels of assessment were undertaken on site:

- Soil boreholes up to 1.0 m depth with detailed observations, soil sampling and laboratory analysis (detailed sites)
- Soil boreholes up to 1.0 m depth with detailed observations and no sampling or laboratory analysis (detailed sites)
- Surface conditions only described (Surface observation site)

A total of 138 detailed and surface observation sites were completed. The locations can be seen in **Figure 1** of *Attachment 8 - SCP BSP Soils Table and Figures*.

Detailed sites were undertaken at 27 locations. Soil profiles were sampled using a 50 mm hand auger, with soil profiles conducted as per McKenzie et al. (2008), with samples taken at representative depths incorporating the surface and every horizon change in the soil profile. Samples collected for laboratory analysis at the detailed sites were submitted to a NATA accredited laboratory for the relevant parameters (see

Surface observations were undertaken at 111 locations to confirm the SMU and refine mapped soil boundaries.

See Section 4 of *Attachment 9 - Soil and Land Suitability Report* for further detail regarding the soil survey methodology.

Results

Full results of the soil sampling program undertaken on MDL3052 are presented in Section 5 of *Attachment 9 - Soil and Land Suitability Report*.

The laboratory results from these sites combined with field observations were used to determine the quality and characteristics of soils on MDL 3052. Three Soil Management Units (SMUs) were identified for MDL 3052, with the SCP BSP footprint intercepting two of those SMUs, as presented in **Figure 2** and **Table 1** of *Attachment 8 - SCP BSP Soils Table and Figures*. These SMUs have been classified in accordance with the Australian Soil Classification (Isbell, 2002). A general description of these SMUs has been provided below:

MM7 - Dermosol: Brown and red self-mulching clays

This SMU was identified across the northern region of MDL 3052, with additional areas in the western and southern regions of the site. This SMU generally occurs in low-lying areas with very gently undulating to nearly level ground relief. The soil profile consists of a light-medium yellow brown clay which was generally uniform in colour, structure and texture.

A summary of the MM7 soil characteristics and chemistry is provided below:

- Uniform light to medium clay texture;
- Shallow melonholes (30-60cm) cover 20-50% of the surface area;
- pH is generally alkaline to strongly alkaline;
- EC is low to very low in topsoil, and increases with depth to very high from 0.5 mbgl
- CEC is low to moderate;
- ESP is moderate at the surface and strongly to extremely sodic from 0.5 mbgl;
- Ca: Mg ratios are moderate;
- Extractable phosphorus was low to moderate;
- Dispersion was typical of self-mulching clays (score 2); and
- Erosion potential through dispersion is considered moderate to high in topsoils, increasing in subsoils.

VA31 - Chromosol: Soils with strong texture contrast between A and B horizons which are not strongly acidic or sodic

This SMU was located in and adjacent to stream channels and drainage lines in the eastern region of MDL 3052. VA31 is associated predominantly with gently undulating plains currently vegetated with improved Buffel pasture. Soils are cracking with hard setting features, yellow brown sandy clays to medium clays extending beyond 0.6 mbgl.

A summary of the VA31 soil characteristics and chemistry is provided below:

- Texture contrast profile with sandy clay loam overlaying light to medium clay;
- pH is strongly acidic (<5.5);
- EC is low to very low;
- Chloride is low;
- CC is very low to low;
- ESP is low (non-sodic) at the surface and low to moderate at depths greater than 0.5 mbgl;
- Ca:Mg ratios are high to very high;
- Extractable phosphorus is moderate at the surface and decreasing to low at 0.15 mbgl
- Erosion potential through dispersion is considered low to moderate in topsoils, increasing in subsoils.

KU1 - Kurosol: Soils with strong texture contrast between A and B horizons which are strongly acidic

This SMU is located on gently undulating plains in the central-southern region of MDL 3052, typically containing Buffel grass improved pasture. Soils are cracking with hard setting features, yellow brown sandy clays to medium clays extending beyond 0.6 mbgl.

A summary of the KU1 soil characteristics and chemistry is provided below:

- Texture contrast profile with clayey sand overlaying a light to light medium clay;
- pH is strongly acidic;
- EC is low in the surface layers (<0.30 mbgl), but increases to moderate at depths greater than 0.5 mbgl;

- Chloride levels increase from 0.3 mbgl, which may limit rooting depth;
- CEC is very low;
- ESP is sodic (low-moderate) in topsoil, increasing to moderate-strongly sodic (high) at 0.5 mbgl;
- Ca:Mg ratios are high at the surface, and decrease to low at 0.5 mbgl;
- Extractable phosphorus is moderate at the surface and decreases to low at 0.2 mbgl;
- Erosion potential through dispersion is considered moderate; however, the physical attributes indicate that dispersion may increase in specific applications.

3.3 Heritage

3.3.1 Describe any Commonwealth heritage places overseas or other places recognised as having heritage values that apply to the project area.

No Commonwealth heritage places or other places recognised as having heritage values apply to the project area.

3.3.2 Describe any Indigenous heritage values that apply to the project area.

Constellation Mining Pty Ltd has conducted numerous and extensive Aboriginal cultural heritage clearance campaigns on the land underlying the proposed disturbance and the broader MDL 3052 are in accordance with the Queensland Aboriginal Cultural Heritage Act 2003.

To date, no Aboriginal cultural heritage of significance has been identified within the project area.

Constellation Mining continues to engage and work with the Native Title Party and Aboriginal party for the SCP BSP project area in accordance with the Queensland Aboriginal Cultural Heritage Act 20023.

3.4 Hydrology

3.4.1 Describe the hydrology characteristics that apply to the project area and attach any hydrological investigations or surveys if applicable. *

Surface Water Hydrology.

Regional Catchments

MDL 3052 is located in the upper catchment of the Mackenzie River Sub-Basin, which forms part of the Fitzroy River Basin (see **Figure 1** of *Attachment 10 - SCP BSP Hydrology Figures*). The Fitzroy River flows east toward the city of Rockhampton, approximately 400 km downstream of the SCP, and has a total catchment area of 142,530 km². The total catchment area of the Mackenzie River is 76,646 km².

Local Catchments

As shown in **Figure 2 of Attachment 10 - SCP BSP Hydrology Figures** the majority of MDL 3052 drains to the east via the Wild Horse Creek and Middle Creek local catchments, both of which flow to the east to Duckworth Creek (Stream Order 4) and ultimately the Mackenzie River. A portion of the western extent of the SCP drains north via the Twelve Mile Creek local catchment, which also converges with the Mackenzie River, but approximately 25 km upstream of the confluence with inflows from Wild Horse and Middle Creeks.

The SCP BSP area is primarily located within the upper extent of the Wild Horse Creek Wild Horse Creek catchment. Wild Horse Creek is a Stream Order 2/3 waterway with a total catchment area of approximately 40 km², commencing at an elevation of 159 mAHD and ending at an elevation of 108 mAHD at the confluence with Duckworth Creek approximately 15 km downstream of MDL 3052. Within the MDL 3052 footprint, a number of Stream Order 1 tributaries intersect with Wild Horse Creek.

Existing Waterways

The waterways within and surrounding MDL 3052 are shown in **Figure 2 of Attachment 10 - SCP BSP Hydrology Figures**, with only Wild Horse Creek and Twelve Mile Creek classified as Stream Order 2, while all other waterways are Stream Order 1. Due to the limited catchment size, all waterways are highly ephemeral, with flows only occurring during and for a short duration after significant rainfall events. No waterways within MDL 3052 are currently mapped as watercourses under the Queensland Water Act 2000.

A watercourse determination for all Stream Orders within MDL 3052 was undertaken by Engeny in April 2022 (and reported as *Project Star Watercourse Determination Supporting Report* (see *Attachment 11 - Star Watercourse Determination*) to determine if any of the mapped Stream Orders within MDL 3052 should be classed as 'watercourses' under the Queensland Water Act 2000. The assessment identified that the only 'watercourse' within MDL 3052 is a small portion of Wild Horse Creek at the eastern extent of MDL 3052, approximately 5km downstream of the SCP BSP operations. This reach of Wild Horse Creek will not be disturbed or impacted by the SCP BSP activities. All other mapped Stream Orders within MDL 3052 are considered to be 'drainage features' as per the Water Act 2000.

Wetlands

No wetlands of high ecological significance or wetlands mapped under the Queensland Vegetation Management Wetlands Map are located within MDL 3052.

Groundwater

Hydrostratigraphy

The geological units present underlying MDL 3052 can be grouped into the following hydrostratigraphic units based on their ability to transmit and store groundwater:

- Wild Horse Creek alluvium forms a relatively thin, porous ephemeral perched aquifer system of variable permeability depending on the depositional environment.
- Tertiary sediments forms relatively thin, porous ephemeral perched aquifer systems that are generally of low permeability.
- Weathered Triassic Rewan Formation is potentially a low-yielding aquifer in places, with slightly higher permeability compared to the underlying fresh bedrock.
- Triassic-aged Rewan Formation generally comprises fine-grained sediments of low permeability which forms aquitards.
- Permian-aged Rangal Coal Measures broken into:
 - Over/underburden of low permeability that form aquitards
 - Coal seams with low to moderate permeability.

Geological Structure

The fault structures present in the SCP BSP area may provide preferential pathways for groundwater flow, and groundwater drawdown may extend along these geological structures from the BSP boxcuts.

The fault structures may also act as barrier to groundwater flow due to re-healing with fault gorge or clay/carbonate/ferrous precipitate cement. They may also act as barriers to flow or drawdown where vertical offset results in coal seams being juxtaposed against lower-permeability interburden or other strata.

The most influential fault for regional groundwater movement is considered to be the Jellinbah thrust fault, which expresses adjacent to the proposed box cuts. The vertical displacement of this fault is understood to be up to 80 m, and this fault is considered to provide a barrier to horizontal groundwater flow and any drawdown along the strata bedding due to its substantial displacement. The Jellinbah fault is accompanied by a series of sub-parallel thrust faults which effectively compartmentalise the coal seams.

Conceptual Model

Based on the available geological and hydrogeological data, a conceptual model of the groundwater regime in the SCP box cut area has been developed, including faulting, as presented in **Figure 3 of Attachment 10 - SCP BSP Hydrology Figures**.

4. Impacts and mitigation

4.1 Impact details

Potential Matters of National Environmental Significance (MNES) relevant to your proposed action area.

EPBC Act section	Controlling provision	Impacted	Reviewed
S12	World Heritage	No	Yes
S15B	National Heritage	No	Yes
S16	Ramsar Wetland	No	Yes
S18	Threatened Species and Ecological Communities	Yes	Yes
S20	Migratory Species	No	Yes
S21	Nuclear	No	Yes
S23	Commonwealth Marine Area	No	Yes
S24B	Great Barrier Reef	No	Yes
S24D	Water resource in relation to large coal mining development or coal seam gas	No	Yes
S26	Commonwealth Land	No	Yes
S27B	Commonwealth Heritage Places Overseas	No	Yes
S28	Commonwealth or Commonwealth Agency	No	Yes

4.1.1 World Heritage

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

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4.1.1.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

No

4.1.1.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

No World Heritage areas have been identified associated with the Star Bulk Sample Project.

4.1.2 National Heritage

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

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4.1.2.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

No

4.1.2.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

No areas of National Heritage have been identified within the Star Bulk Sample Project footprint.

4.1.3 Ramsar Wetland

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

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4.1.3.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

No

4.1.3.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

No Ramsar Wetlands have been identified in the Star Bulk Sample Project footprint.

4.1.4 Threatened Species and Ecological Communities

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

Threatened species

Direct impact	Indirect impact	Species
No	No	Cadellia pentastylis
No	No	Calidris ferruginea

Direct impact	Indirect impact	Species
No	No	Dasyurus hallucatus
No	No	Delma torquata
Yes	No	Denisonia maculata
No	No	Dichanthium queenslandicum
No	No	Dichanthium setosum
No	Yes	Egernia rugosa
No	No	Euseya albagula
No	No	Erythrorchis radiatus
No	No	Eucalyptus raveretiana
No	No	Falco hypoleucos
Yes	No	Geophaps scripta scripta
No	No	Grantiella picta
No	No	Hemiaspis damelii
No	No	Macroderma gigas
No	No	Neochmia ruficauda ruficauda
No	No	Nyctophilus corbeni
No	No	Onychogalea fraenata
No	No	Petauroides volans
No	Yes	Phascolarctos cinereus (combined populations of Qld, NSW and the ACT)
No	No	Poephila cincta cincta
No	No	Rheodytes leukops
No	No	Rostratula australis

Ecological communities

Direct impact	Indirect impact	Ecological community
No	No	Brigalow (Acacia harpophylla dominant and co-dominant)
No	No	Natural Grasslands of the Queensland Central Highlands and northern Fitzroy Basin
No	No	Poplar Box Grassy Woodland on Alluvial Plains
No	No	Weeping Myall Woodlands

4.1.4.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

Yes

4.1.4.2 Briefly describe why your action has a direct and/or indirect impact on these protected matters. *

Koala (*Phascolarctos cinereus*)

The nearest potential habitat for Koala (an isolated patch (approximately 2 ha) of non-remnant RE 11.7.1) is approximately 120m from the closest area of disturbance on the SCP BSP. Therefore, there will be no direct impacts to the species from the activity. There is potential for indirect impacts to the species from noise, dust and light generated by the works undertaken on the SCP BSP.

Yakka Skink (*Egernia rugosa*)

The nearest potential habitat for Yakka Skink (an isolated patch (approximately 2 ha) of non-remnant RE 11.7.1) is approximately 120m from the closest area of disturbance on the SCP BSP. Therefore, there will no direct impacts to the species from the activity. There is potential for indirect impacts to the species from noise, dust and light generated by the works undertaken on the SCP BSP.

Ornamental Snake (*Denisonia maculata*)

Ornamental snake have the potential to occur in the areas of non-remnant gilgai underlying the western portion of proposed SCP BSP disturbance. Potential direct impacts to the species include the removal of potential medium quality habitat and direct impacts to individuals of the species present within the impact footprint. No indirect impacts to the species are anticipated from the SCP BSP.

Squatter pigeon (southern) (*Geophaps scripta scripta*)

Low quality squatter pigeon habitat is present under the entirety of the SCP BSP footprint. As the habitat present comprises dispersal habitat, the only potential for direct impacts to the species are direct impacts to individuals during clearing works during the construction phase and vehicle movements during the operational phase. No indirect impacts to the species are anticipated from the SCP BSP.

4.1.4.4 Do you consider this likely direct and/or indirect impact to be a Significant Impact? *

No

4.1.4.6 Describe why you do not consider this to be a Significant Impact. ***Koala (*Phascolarctos cinereus*)**

Two detailed fauna surveys were conducted by Terrestria in April 2022 and February 2023, which did not record the presence of any Koala.

The nearby woodland habitat, mapped by Terrestria 2022 as medium quality is entirely dominated by *Eucalyptus thozetiana*. This area was searched on 16 February 2023 by two ecologists with every individual tree and log searched for evidence of these two species. No Koala scratches or scats were located and *Eucalyptus thozetiana* is not considered a primary food tree. The relative isolation, due to cleared lands surrounding also lessens the potential value or likelihood of Koala visitation given the higher value habitats are located along the more connected waterways well outside the impact area.

Given that Koalas have not been found to utilise the medium quality habitats closer to the impact area and that these habitats are a distance from good quality habitats mapped further east, it is also considered that the potential for indirect impacts such as noise, light and dust are likely to be low, and are not considered to be significant impacts.

Yakka Skink (*Egernia rugosa*)

Two detailed fauna surveys were conducted by Terrestria in April 2022 and February 2023, which did not record the presence of any Yakka Skink.

This area has limited shelter value for Yakka skink (logs rocks/ground/shrub cover). Searching for evidence of the presence of Yakka skink is recognised as the only reliable survey method for this species. The site search followed the recommended guidelines (https://www.qld.gov.au/__data/assets/pdf_file/0028/67177/yakka-skink.pdf) with the focus on:

- suitable macrohabitats with searches targeting excavated soil mounded at burrow entrances that is either well-worn and compacted from activity,
- loose and recently excavated soils particularly around suitable logs and rocks;
- evidence of any worn, compacted and/or polished basking areas, typically close to an area of retreat (e.g. burrow entrance, edge of log, top of a log near a hollow or crevice).
- a communal latrine site. Large active colonies will usually have multiple latrines, typically within a few metres of a burrow entrance or shelter site (e.g. logs), often with worn trails leading to the latrines. Note that latrines may not be evident at every colony, even very active ones.

No evidence of Yakka Skink activity was recorded. Given targeted trapping and searching within higher value habitats within the broader site also failed to locate the species it is considered this species is unlikely to occur within or nearby the proposed impact area. Further, given the species is not known to be susceptible to indirect impacts from noise, light and dust, there is considered to be no potential for indirect significant impact to the species.

Ornamental Snake (*Denisonia maculata*)

The area underlying the proposed SCP BSP waste rock dump, ROM stockpile and water management infrastructure (135.6 ha) was identified as having brigalow regrowth over gilgai microrelief deep cracking clays, which may provide moderate quality habitat for Ornamental snake. The area has been historically cleared and continually managed to support cattle grazing activities on the underlying property. The area remains classified as Category X under the Queensland Vegetation Management Act 1999, which allows for the ongoing clearing of the area and remains legal under the EPBC Act under the continuing use provisions.

Two targeted surveys for Ornamental snake were undertaken in April 2022 and February 2023. During each survey, two ecologists undertook three 4-hour searches over three nights (24 hours for each survey). Despite ideal conditions including the presence of potential habitat and frog activity (potential prey) no Ornamental snakes were located during either survey. Further, the nearest record of the species

is more than 15km away from the impact area.

The non-remnant gilgai areas within the impact area were determined to be of medium value due to the presence of cracking clays in association with gilgais. The habitat was deemed to be medium quality due to the low quantities of fallen woody material, dense cover of exotic grasses, presence of cane toads, the short time since clearing and the lack of connectivity to higher quality habitats.

Therefore, activities undertaken as part of the SCP BSP operation will not have a significant residual impact because potential population of Ornamental snake are not considered an important population under DCEEW, 2013) as follows:

- No individuals were identified in the impact area or surrounds during two surveys (April 2022 and February 2023).
- Given the isolated location and probable low numbers of the species, it is not considered that any population present could be a key source population for either breeding or dispersal.
- There is no risk of impacting genetic diversity due to the removal of the potential habitat given the interconnected nature of the non-remnant gilgai system.
- The potential population of Ornamental snake is located in the middle of the range for the species, and thus is not near the limit of the species range.

As the population is not considered an important population under DCCEEW, 2013, the SCP BSP will not have a significant residual impact to Ornamental Snake.

For completeness the other significant impact criteria have been addressed in *Attachment 12 - Ornamental Snake and Squatter Pigeon Significant Impact Assessment*.

Squatter pigeon (southern) (*Geophaps scripta scripta*)

Targeted surveys for Squatter pigeon (southern) were undertaken during April 2022 and February 2023. No individuals were located on the site by Terrestria during either of these surveys; however, in April 2022, a single individual of the species was sighted by Constellation Mining personnel adjacent to the homestead approximately 4 km south southeast of the proposed SCP BSP footprint.

The area underlying the entire proposed SCP BSP footprint has been mapped as low quality dispersal habitat for the species, as it may intermittently utilise the area to travel between areas with food shelter, food or water sources. The groundcover dominating the non-remnant areas underlying the footprint are dominated by buffel grass and Indian blue grass, which are not food sources for the species, and has been historically cleared of trees, meaning there is limited protection from predators in the area. No suitable breeding or feeding habitat for Squatter pigeon (southern) occurs within the impact area.

Based on the above, it is considered that the population of Squatter pigeon (southern) potentially present in the SCP BSP impact area is not an important population (as per DCCEEW, 2013) as follows:

- The population is limited, with one incidental sighting of the species approximately 4km from the impact area, while none were identified during two separate surveys in April 2022 and February 2023 specifically targeting the species.
- The potential population being limited, and the impact area being dominated by buffel grass and Indian blue grass (with almost no native grass cover) and no tree cover for protection from predation means any limited population that may be present would not be a key source population for either breeding or dispersal.
- The potential for disruption of a population that is necessary for maintaining genetic diversity is considered negligible.
- The impact area is located in the middle of the species range, and is not at the limit of the species range.

As the population is not considered an important population under DCCEEW, 2013, the SCP BSP will not have a significant residual impact to Squatter pigeon (southern).

For completeness, the other significant impact criteria have been addressed in *Attachment 12 - Ornamental Snake and Squatter Pigeon Significant Impact Assessment*.

Supplemental Significant Impact Information - *Denisonia maculata* and *Geophaps scripta scripta*

See also *Attachment 13 - Threatened Species Impact Assessment*. Although this document was drafted to address MSES significant impacts to *Geophaps scripta scripta* and *Denisonia maculata*, the DCCEEW significant impact guidelines have materially similar tests for significant impacts, and this remains applicable to the EPBC referral.

4.1.4.7 Do you think your proposed action is a controlled action? *

No

4.1.4.9 Please elaborate why you do not think your proposed action is a controlled action. *

As per the *Significant Impact Guidelines 1.1 - Matters of National Environmental Significance* (Commonwealth of Australia, 2013), based on the nature of the impacts and the status of the potential populations of threatened species and quality of the habitat for the species on the site, there is considered to be no potential for significant impact. Therefore, Constellation Mining believes there is no reason why the development and operation of the SCP BSP should be considered a controlled action under the provisions of the EPBC Act.

4.1.4.10 Please describe any avoidance or mitigation measures proposed for this action and attach any supporting documentation for these avoidance and mitigation measures. *

The proposed layout of the SCP BSP has been undertaken in consideration of the potential impacts to MNES. The disturbance has been sited on areas that have been historically cleared and heavily grazed with vegetation managed since the early 20th century. The disturbance avoids all areas of remnant vegetation, and the disturbance footprint size has been limited to only those areas required for the efficient operation of the bulk sampling project.

Additionally, the following mitigation measures will be implemented to limit the potential for impact to any listed threatened species:

- Fauna spotter catchers will be present during all clearing and grubbing operations in those areas identified as having the potential to hold Ornamental Snake individuals.
- Speed limits will be implemented on site haul and access roads in order to prevent unintended mortality of any Squatter pigeon (southern) individuals which may be travelling through the area.

4.1.4.11 Please describe any proposed offsets and attach any supporting documentation relevant to these measures. *

No offsets are proposed for potential impacts to the relevant species above.

4.1.5 Migratory Species

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

Direct impact	Indirect impact	Species
No	No	Actitis hypoleucos
No	No	Apus pacificus
No	No	Calidris acuminata
No	No	Calidris ferruginea
No	No	Calidris melanotos
No	No	Cuculus optatus
No	No	Gallinago hardwickii
No	No	Motacilla flava

Direct impact	Indirect impact	Species
No	No	Myiagra cyanoleuca

4.1.5.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

No

4.1.5.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

No impacts to migratory species from operations on the Star Bulk Sample Project have been identified. Habitat quality for migratory species was found to be either very low quality, or not present within the broader MDL 3052 footprint, and no habitat for migratory species is present within or adjacent to the SCP BSP footprint. (See Section 3.2.9 and Appendix K of *Attachment 5 - Terrestria Ecology Report*)

4.1.6 Nuclear

4.1.6.1 Is the proposed action likely to have any direct and/or indirect impact on this protected matter? *

No

4.1.6.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

The SCP BSP does not relate to any nuclear actions.

4.1.7 Commonwealth Marine Area

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

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4.1.7.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

No

4.1.7.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

No Commonwealth Marine Areas are present within the Star Bulk Sample Project.

4.1.8 Great Barrier Reef

4.1.8.1 Is the proposed action likely to have any direct and/or indirect impact on this protected matter? *

No

4.1.8.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

No impacts to the Great Barrier Reef from the Star Bulk Sample Project have been identified.

4.1.9 Water resource in relation to large coal mining development or coal seam gas

4.1.9.1 Is the proposed action likely to have any direct and/or indirect impact on this protected matter? *

No

4.1.9.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

The Star Bulk Sample Project is not a large coal mining or coal seam gas development.

4.1.10 Commonwealth Land

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

4.1.10.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

No

4.1.10.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

The Star Bulk Sample Project is not located on Commonwealth Land.

4.1.11 Commonwealth Heritage Places Overseas

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

4.1.11.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

No

4.1.11.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

No Commonwealth Heritage Places Overseas have been identified associated with the Star Bulk Sample Project.

4.1.12 Commonwealth or Commonwealth Agency**4.1.12.1 Is the proposed action to be taken by the Commonwealth or a Commonwealth Agency? ***

No

4.2 Impact summary

Conclusion on the likelihood of significant impacts

You have indicated that the proposed action will likely have a significant impact on the following Matters of National Environmental Significance:

None

Conclusion on the likelihood of unlikely significant impacts

You have indicated that the proposed action will unlikely have a significant impact on the following Matters of National Environmental Significance:

- World Heritage (S12)
- National Heritage (S15B)
- Ramsar Wetland (S16)
- Threatened Species and Ecological Communities (S18)
- Migratory Species (S20)
- Nuclear (S21)
- Commonwealth Marine Area (S23)
- Great Barrier Reef (S24B)
- Water resource in relation to large coal mining development or coal seam gas (S24D)
- Commonwealth Land (S26)
- Commonwealth Heritage Places Overseas (S27B)
- Commonwealth or Commonwealth Agency (S28)

4.3 Alternatives

4.3.1 Do you have any possible alternatives for your proposed action to be considered as part of your referral? *

No

4.3.8 Describe why alternatives for your proposed action were not possible. *

The SCP BSP is being developed in order to determine the market viability of a coal resource prior to application for and development of a larger-scale mining operation. As this process is time-sensitive, no alternative timelines for the proposed action are provided. Further, a different timeline for the proposed action would not materially affect the impact it could have to MNES potentially underlying it.

In accordance with the Queensland Department of Resource guideline *Technical assessment of an application for a Mineral Development Licence for coal* (MIN/2017/4001, v4.03, 05/03/2021), when assessing a works program proposed for an MDL project, the placement of potential infrastructure must not sterilise resources (including inferred resources). The resource underlying the SCP BSP relates to two north-south coal deposits separated by fault lines with no economic resource on the western side. In order to ensure that resources are not sterilised, it was determined that the most appropriate location for the ROM pad, waste rock dump and infrastructure area was west of the fault.

Further, waste rock dump and ROM stockpiles are placed relative to pits in order to maximise the efficiency of the mining fleet and reduce the quantity of diesel being burnt (reducing site greenhouse gas emissions) by reducing the haul length for both ROM and waste rock.

The infrastructure has been located so as not to impact on any remnant regional ecosystems in land that has already been extensively cleared for current and historical grazing operations, as far as practical from any potential sensitive receptors (human or otherwise).

It is therefore considered that the placement of infrastructure (including the ROM pad, waste rock dump, and MIA) is well considered and appropriate with regard to Queensland Department of Resources guidelines and potential impacts to MNES.

In general, the alternative to the proposed action is to not proceed with the bulk sample project, in which case the land will continue to be grazed, with ongoing vegetation management and clearing practices as is currently undertaken.

5. Lodgement

5.1 Attachments

1.2.1 Overview of the proposed action

#1.	Attachment 1 - SCP BSP Location	Document	Figure showing the location of the SCP BSP.
#2.	Attachment 2 - SCP BSP General Arrangements	Document	The proposed layout of the SCP BSP.

2.2.5 Tenure of the action area relevant to the project area

#1.	Attachment 3 - MDL3052 Underlying Landholdings	Document	Figure showing landholdings underlying MDL3052
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3.1.4 Gradient relevant to the project area

#1.	Attachment 4 - Topography Figures	Document	Presents Mean Slope Distribution, Contours and El...
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3.2.1 Flora and fauna within the affected area

#1.	Attachment 5 - Terrestrial Ecology Report	Document	Star MDL Baseline Terrestrial Ecology Technical Re...
#2.	Attachment 6 - SCP BSP Flora and Fauna Tables and Figures	Document	Tables and figures related to flora and fauna prese...

3.2.2 Vegetation within the project area

#1.	Attachment 7 - SCP BSP Regional Ecosystem Figure and Table	Document	Map and table describing regional ecosystems pres...
#2.	Attachment 8 - SCP BSP Soils Table and Figures	Document	Figures and table detailing soil management units ...
#3.	Attachment 9 - Soil and Land Suitability Report	Document	Detailed soils and land suitability assessment of M...

3.4.1 Hydrology characteristics that apply to the project area

#1.	Attachment 10 - SCP BSP Hydrology Figures	Document	Figures related to the surface water and groundwat...
#2.	Attachment 11 - Star Watercourse Determination	Document	Watercourse determination for MDL3052.

4.1.4.6 (Threatened Species and Ecological Communities) Why you do not consider the direct and/or indirect impact to be a Significant Impact

#1.	Attachment 12 - Ornamental Snake and Squatter Pigeon	Document	Significant impact assessment for Ornamental Sna...
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Significant Impact Assessment		
#2.	Attachment 13 - Threatened Species Impact Assessment	Document Geophaps scripta scripta and Denisonia Maculata ...

4.1.5.3 (Migratory Species) Why your action is unlikely to have a direct and/or indirect impact

#1.	Attachment 5 - Terrestrial Ecology Report	Document Star MDL Baseline Terrestrial Ecology Technical Re...
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5.2 Declarations

Completed Referring party's declaration

The Referring party is the person preparing the information in this referral.

ABN/ACN	92133357310
Organisation name	CONSTELLATION MINING PTY LTD
Organisation address	4000 QLD
Representative's name	Ryan Pane
Representative's job title	Senior Environmental Officer
Phone	(07) 3002 2900
Email	rpane@qcoal.com.au
Address	Level 15, 40 Creek Street, Brisbane QLD 4000

- Check this box to indicate you have read the referral form. *
- I would like to receive notifications and track the referral progress through the EPBC portal. *
- By checking this box, I, **Ryan Pane of CONSTELLATION MINING PTY LTD**, declare that to the best of my knowledge the information I have given on, or attached to this EPBC Act Referral is complete, current and correct. I understand that giving false or misleading information is a serious offence. *
- I would like to receive notifications and track the referral progress through the EPBC portal. *

Completed Person proposing to take the action's declaration

The Person proposing to take the action is the individual, business, government agency or trustee that will be responsible for the proposed action.

Same as Referring party information.

- Check this box to indicate you have read the referral form. *
- I would like to receive notifications and track the referral progress through the EPBC portal. *

I, **Ryan Pane of CONSTELLATION MINING PTY LTD**, declare that to the best of my knowledge the information I have given on, or attached to the EPBC Act Referral is complete, current and correct. I understand that giving false or misleading information is a serious offence. I declare that I am not taking the action on behalf or for the benefit of any other person or entity. *

I would like to receive notifications and track the referral progress through the EPBC portal. *

Completed Proposed designated proponent's declaration

The Proposed designated proponent is the individual or organisation proposed to be responsible for meeting the requirements of the EPBC Act during the assessment process, if the Minister decides that this project is a controlled action.

Same as Person proposing to take the action information.

Check this box to indicate you have read the referral form. *

I would like to receive notifications and track the referral progress through the EPBC portal. *

I, **Ryan Pane of CONSTELLATION MINING PTY LTD**, the Proposed designated proponent, consent to the designation of myself as the Proposed designated proponent for the purposes of the action described in this EPBC Act Referral. *

I would like to receive notifications and track the referral progress through the EPBC portal. *