SEPTEMBER 2024

YANCOAL
兖煤澳大利亚有限公司

STRATFORD RENEWABLE ENERGY HUB

ENVIRONMENTAL IMPACT STATEMENT SUMMARY BOOKLET

SSI-73368213

Visualisation of Project concept. Source: GHD (2024)

CONTENTS

EXECUTIVE SUMMARY

This is a summary of the Environmental Impact Statement (EIS) for the Stratford Renewable Energy Hub (the Project), including an overview of the proposed Project, the strategic need for the Project, as well as potential environmental implications and how they would be managed.

The Project is located on land associated with the Stratford Mining Complex (SMC), located in the Gloucester Valley, approximately 95 kilometres north of Newcastle, New South Wales (NSW) (Figure ES-1).

The Project is wholly located within the MidCoast Local Government Area. All freehold land required for the Project is owned by Yancoal Australia Limited (Yancoal) or its subsidiaries (Figure ES-2).

OVERVIEW

The Project has been declared Critical State Significant Infrastructure (CSSI) by the NSW Government as it is recognised as being "essential to NSW for economic, social and environmental reasons" and "will help maintain the state's critical energy security and continue the essential energy supply to homes and businesses during peak-demand periods as coal-fire sources close."

After approximately 30 years, coal mining operations at the SMC in the NSW Gloucester Valley are coming to an end. The SMC team is now focused on ongoing active rehabilitation, closure and potential future land uses.

Yancoal is investigating beneficial post-mining land uses as well as looking at diversification opportunities including the development of renewable energy projects. The Project is the most advanced of these opportunities.

The key component of the Project is a pumped hydro energy storage system (PHES), which would generate up to 3.6 gigawatt-hours (i.e. 300 megawatts [MW] over 12 hours) of renewable energy. Subject to network capacity, the Project is also capable of producing 400 MW over 9 hours, however, for the purposes of this EIS, the capacity is generally stated to be 300 MW over 12 hours.

The Project would also involve staged construction and operation of a Solar Farm to supply approximately 320 MW alternating current(AC) (375 MW direct current [DC]) of local and renewable energy to 'charge' the PHES (i.e. pump water from the lower reservoir to the upper reservoir), noting energy would also need to be imported from the electricity grid to fully charge the PHES.

The renewable energy generated by the Project is equivalent to the daily consumption of approximately 140,000 to 180,000 households.

Once operational, the Project would avoid 320,000 to 550,000 tonnes of carbon dioxide equivalent per annum if this energy was alternatively produced by gas-fired power generation.

The Project has been designed to avoid and minimise environmental impacts via beneficial use of SMC land, infrastructure and water stored in mine voids.

At $1.8 billion, the capital cost of the Project represents one of the largest capital projects in the Gloucester Valley. It would bring new investment to the region, 350 construction jobs, 10 ongoing operational jobs and increase local supply and flow-on economic effects in the Gloucester Valley.

A conceptual visualisation of the Project, including operation of the PHES is provided on Figure ES-3 and Figure ES-4.

Source: NSW Spatial Services (2023)

LEGEND

- 132 kV Transmission Network
- 330 kV Transmission Network
- 500 kV Transmission Network
- State and Regional Roads
- Potential Transgrid Electricity Transmission Line Upgrade (Not Part of the Project)

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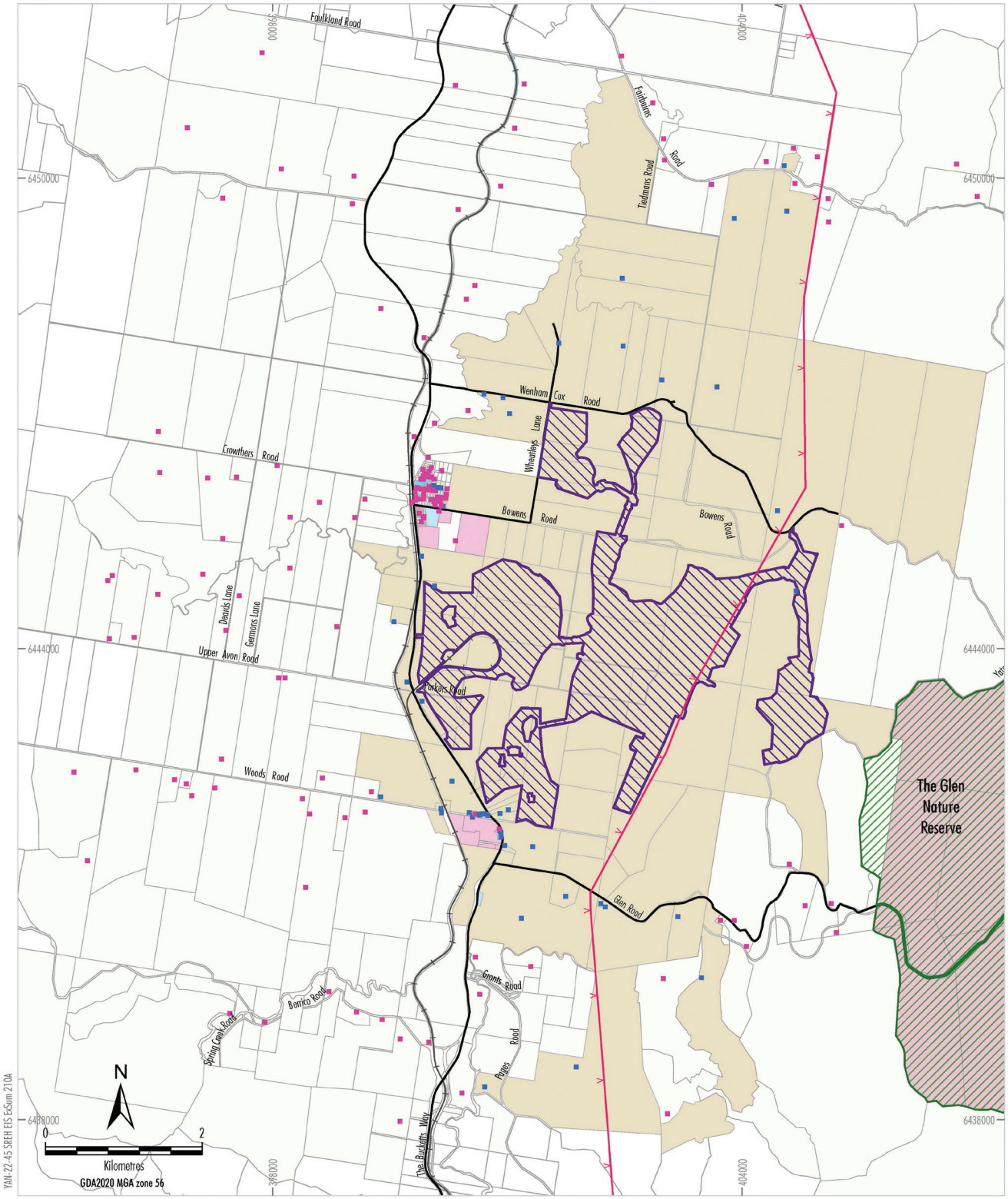
Regional Location

Figure ES-1



Source: NSW Spatial Services (2023), Yancoal (2023)

LEGEND

- National Park, Nature Reserve or State Conservation Area
- Crown
- State Government
- Local Government
- Privately Owned
- Yancoal (or Subsidiary) Owned
- Privately Owned Dwelling
- Yancoal (or Subsidiary) Owned Dwelling
- Project Disturbance Footprint
- Existing 132 kV Transmission Line

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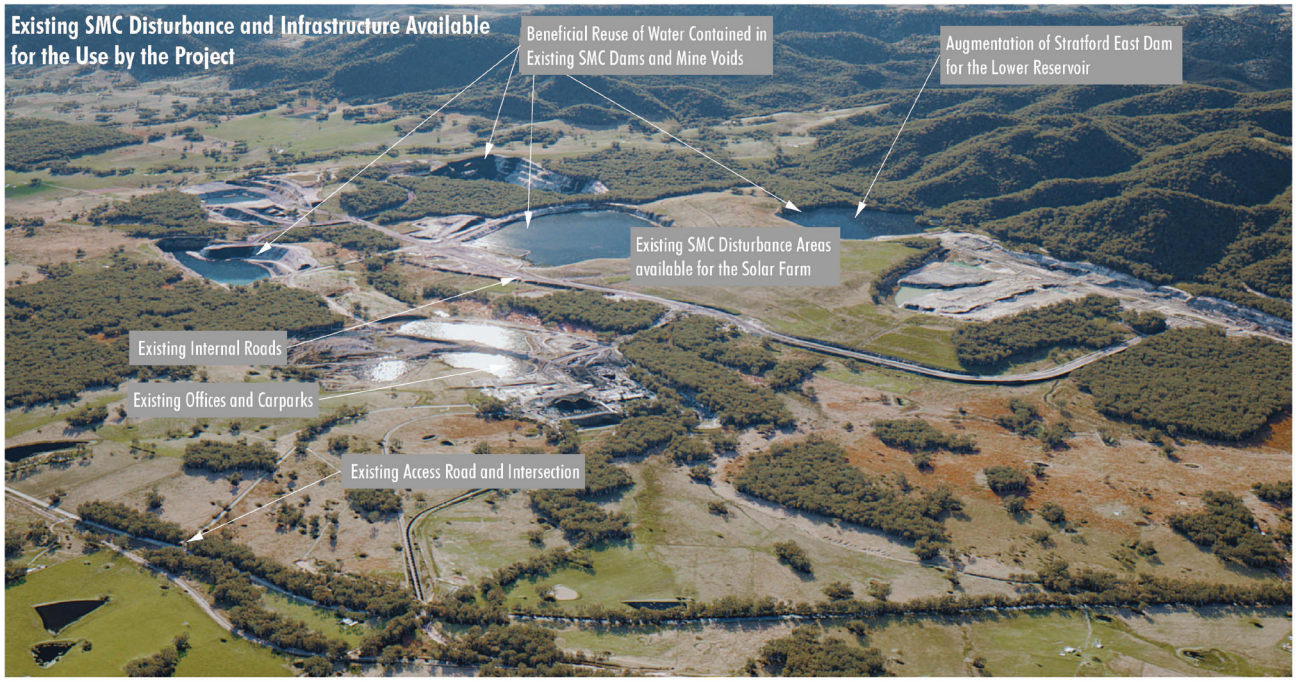
Land Ownership

Figure ES-2

EXISTING SMC DISTURBANCE AND INFRASTRUCTURE AVAILABLE FOR THE USE BY THE PROJECT



CONCEPTUAL PROJECT LAYOUT MAKING USE OF EXISTING SMC INFRASTRUCTURE

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Visualisation of Project concept. Source: GHD (2024)

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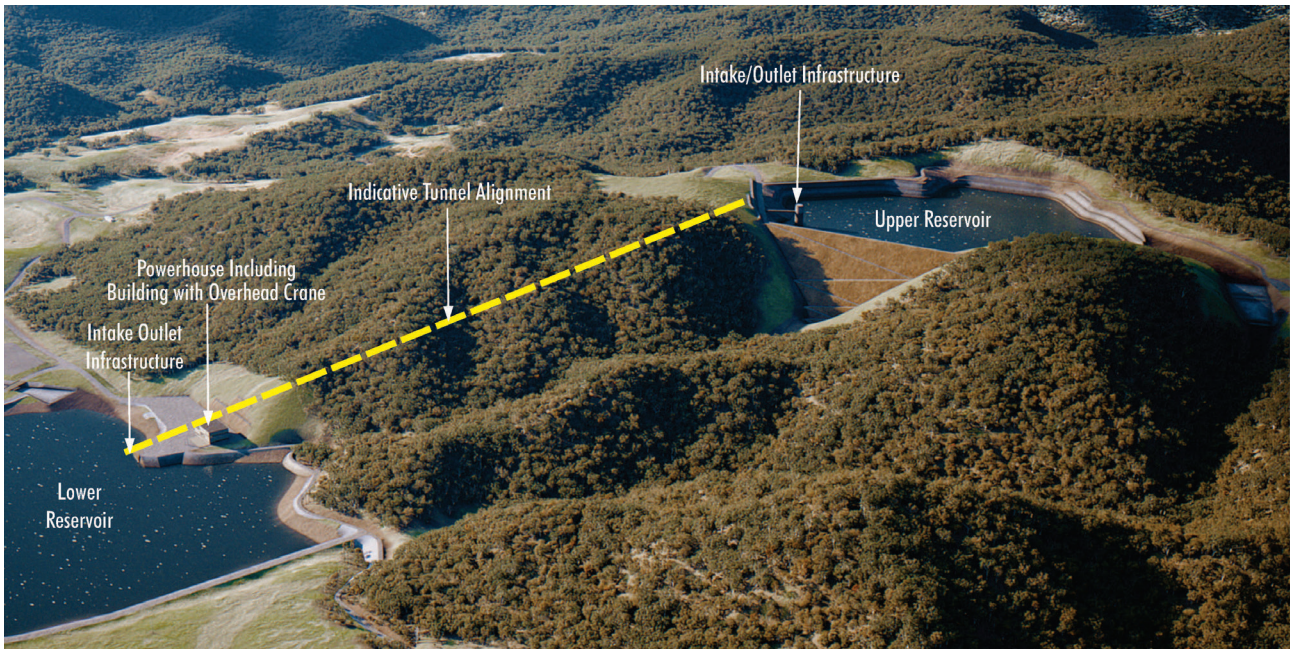
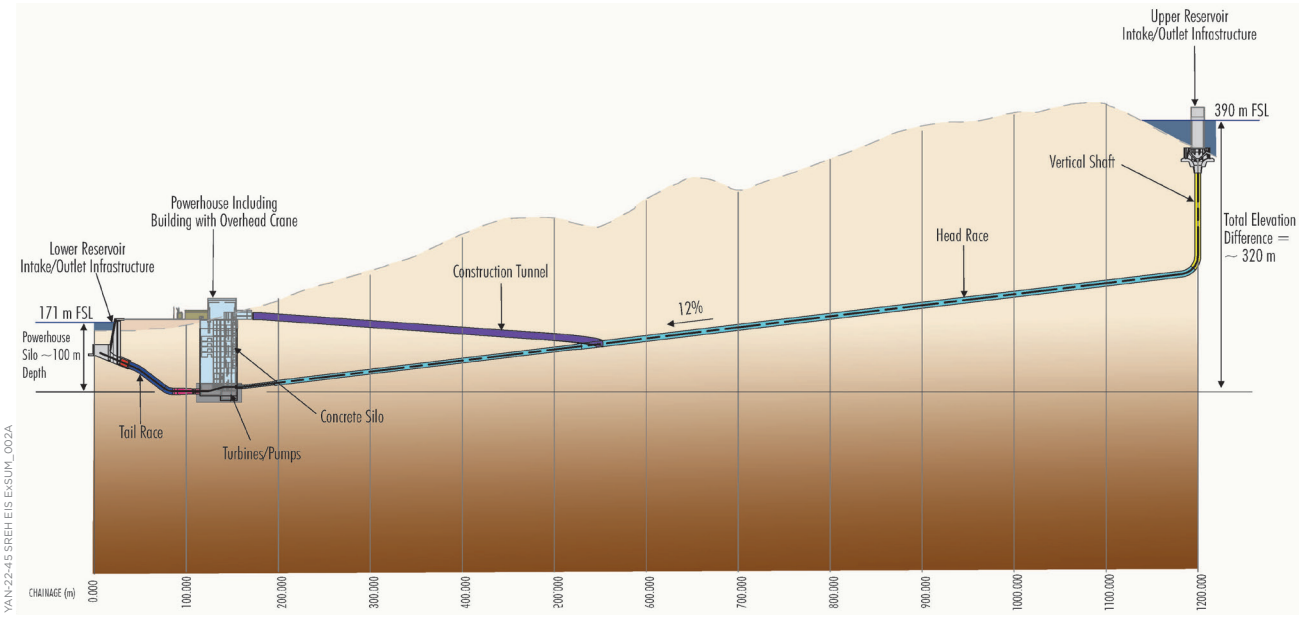
Conceptual Visualisation of the Project

Figure ES-3



Visualisation of Project concept. Source: GHD (2024)

CONCEPTUAL VISUALISATION - LOWER RESERVOIR, POWERHOUSE AND UPPER RESERVOIR



CONCEPTUAL TUNNELLED WATERWAY POWERHOUSE AND CONSTRUCTION TUNNEL

Source: GHD (2024)

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Conceptual Visualisation of the PHES

Figure ES-4

PROJECT NEED

The Project would add to the supply of renewable energy in the electricity grid, and contribute to State and National emissions reduction targets to address climate change.

With the scheduled closure of NSW's existing coal-fired power stations, 'Long Duration Storage' (LDS) projects, like the Project, have been identified as being critical to complement variable renewable energy (VRE) sources (such as solar and wind) and address electricity reliability standard shortfalls forecast by the Australian Energy Market Operator.

LDS is defined by the NSW Government as energy projects "with a registered capacity that can be dispatched for at least 8 hours".

The benefit of LDS projects is the ability to store excess solar and wind energy and then re-distribute this stored energy, on demand, to the grid.

HOW THE PROJECT WORKS

The PHES is a 'closed system' that moves water between two large reservoirs constructed at different heights. The amount of energy a PHES can store is the product of the mass of water in the upper reservoir and the height difference between the reservoirs (referred to as 'head').

When the upper reservoir is charged (i.e. filled with water), the stored energy can be quickly converted to electricity by releasing the water downwards and directing the flow through a turbine just before it reaches the lower reservoir.

To charge the upper reservoir and store energy, water is pumped from the lower reservoir back up to the upper reservoir. This ability to store energy makes PHES an ideal technology to absorb excess electricity generated by other VRE, particularly solar.

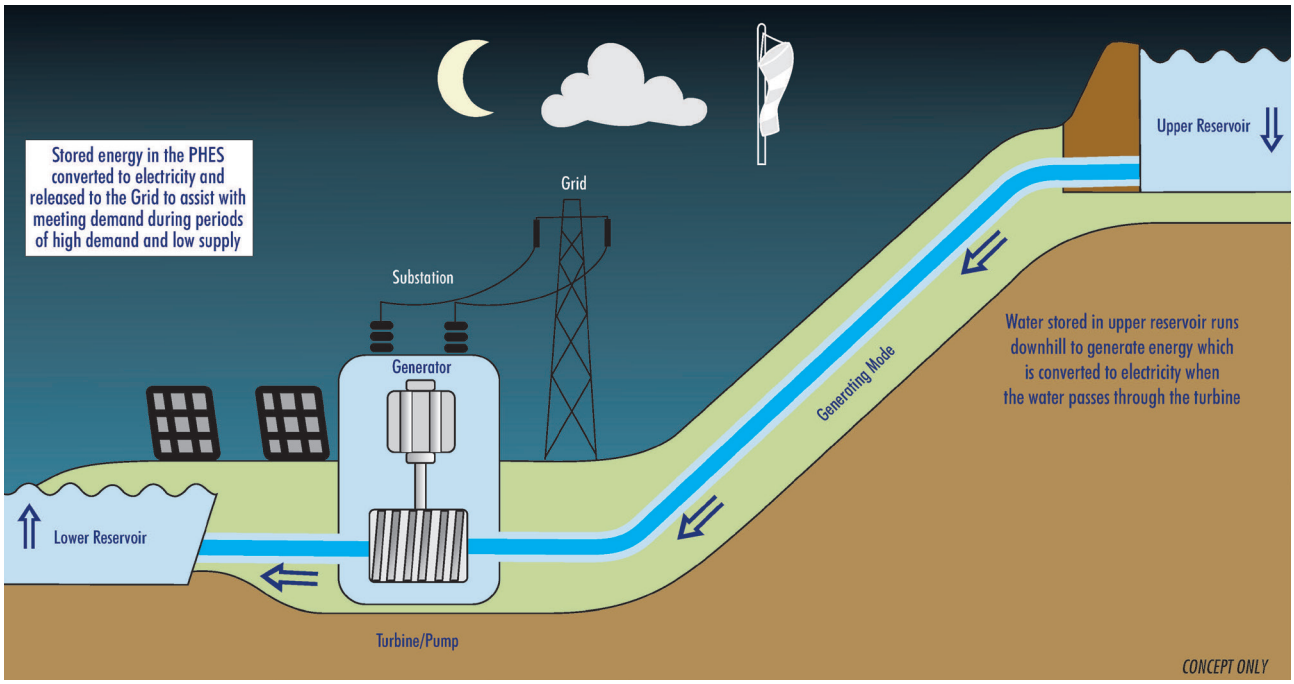
Generally, energy would be generated by the PHES when demand for electricity is high, but supply from VRE is low (particularly during the evening/night when solar is not available). The PHES would be generally 'charged' when solar energy is abundant and demand is low (particularly during the middle of the day).

Figure ES-5 provides a general illustration of the key components and workings of PHES, including an indication of situations when power from pumped hydro is likely to be of most benefit to the grid.

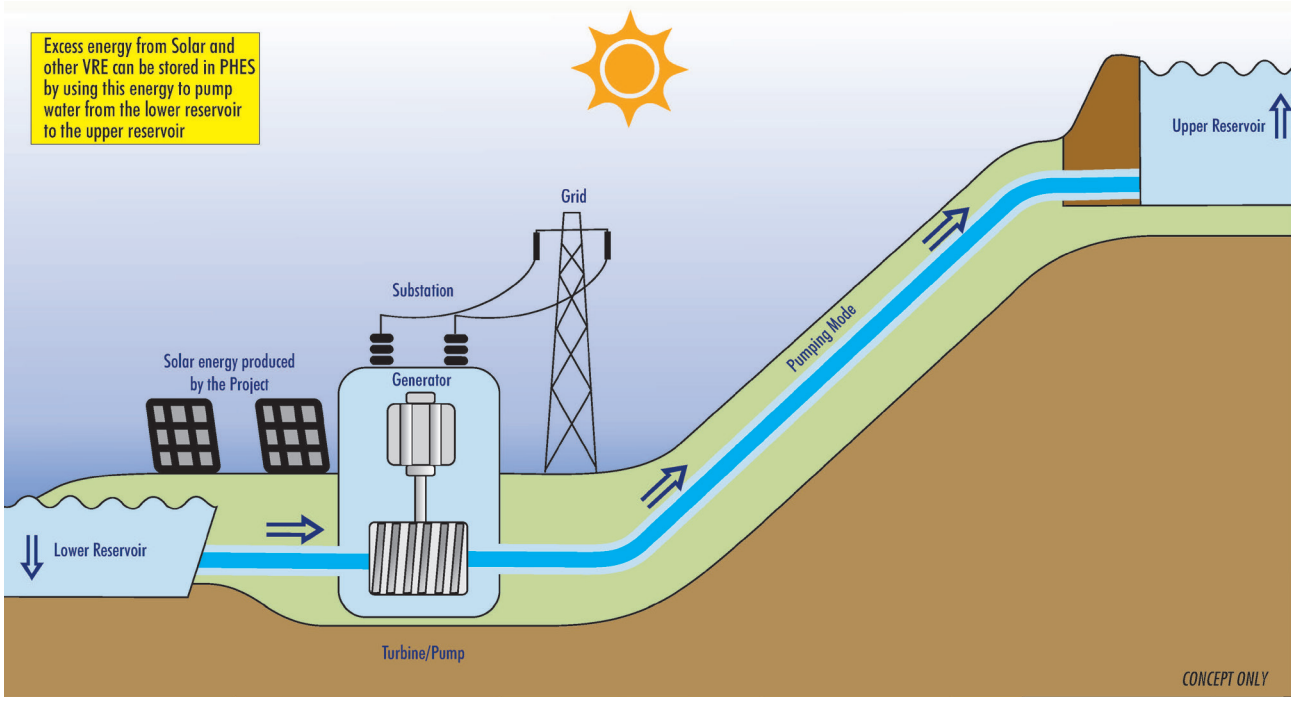
The Project's upper reservoir would be constructed in elevated topography to maximise the height difference relative to the lower reservoir (which would be constructed via augmentation of an existing dam at the SMC).

The Solar Farm is proposed as part of the Project to provide a local source of renewable energy to supply a portion of required energy to pump water from the lower reservoir to 'charge' the upper reservoir. This would reduce the reliance on electricity imported from the grid.

GENERATING MODE



PUMPING MODE



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Conceptual Illustration of Pumped Hydro

Figure ES-5

SITE CONTEXT

The Project's location has a number of advantages compared to alternative 'greenfield' energy projects.

All freehold land required for the Project is owned by Yancoal or its subsidiaries (Figure ES-2).

The majority of the Project site has been used for mining at the SMC (approximately 54 percent [%]) and agriculture (approximately 29%).

The remaining 17% of the Project site comprises native vegetation, mostly associated with the upper reservoir in which its location is determined by topography.

USE OF THE STRATFORD MINING COMPLEX

The Project represents an opportunity to beneficially use the SMC land post-mining.

The Solar Farm has been designed to maximise the use of previously disturbed areas associated with the SMC to minimise new disturbance (Plate ES-1).

Approximately 60% of the Solar Farm footprint is located on land previously disturbed as part of the SMC (with a further 36% located outside the SMC on land mapped as non-native vegetation due to prior clearing for agriculture).

Plate ES-1 Stratford Waste Emplacement - Rehabilitated Agricultural Area available for Solar Establishment

The Project would utilise existing mine infrastructure, including existing carparks, roads, offices, workshops, laydown areas, services and utilities (Plate ES-2), and upgrade the existing Stratford East Dam for the PHES lower reservoir (Plate ES-3).

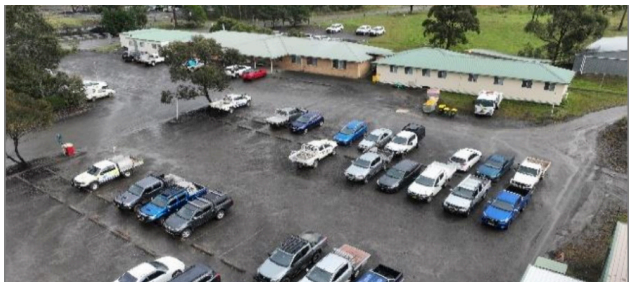


Plate ES-2 SMC Office and Carpark Area Available for Use for the Project

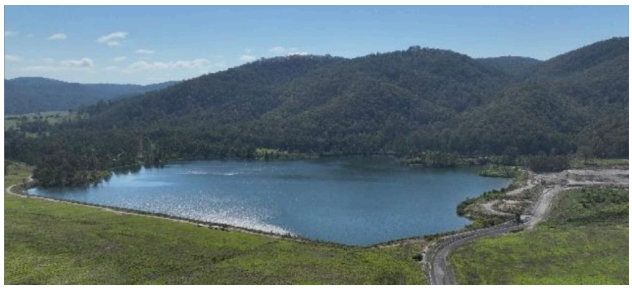


Plate ES-3 Existing Stratford East Dam to be Augmented to Form the Lower Reservoir

Water stored in the Stratford East Dam and mine voids (Plate ES-4) would be used for the initial fill and 'top-up' of the PHES, avoiding the need to rely on water from natural waterways to fill the PHES.

Plate ES-4 Water Stored in the Stratford East Dam and SMC Mine Voids (such as Main Pit) would be Used to Initially Fill the PHES

TOPOGRAPHY

The upper reservoir for the PHES must be located in an area that provides sufficient elevation difference to the lower reservoir to maximise the head of water and thereby maximise power generation.

The upper and lower reservoirs would be located on Yancoal-owned land and in areas with an elevation difference of over 200 metres (m) between the reservoirs. Figure ES-6 shows the elevated topography of the proposed upper reservoir location.

This variation in elevation is key to locating the PHES at the SMC, as it is sufficient to support a commercially viable PHES. Further, the topography of the proposed upper reservoir site also provides a natural basin suitable for the design and storage capacity of an upper reservoir.

The Solar Farm component of the Project would be typically located in lower lying areas, making use of previously disturbed areas associated with the SMC and grazing areas.

PROXIMITY TO EXISTING TRANSMISSION AND ROAD NETWORKS

An existing Transgrid 132 kilovolt (kV) electricity transmission line (ETL) runs through the Project site (Figure ES-2).

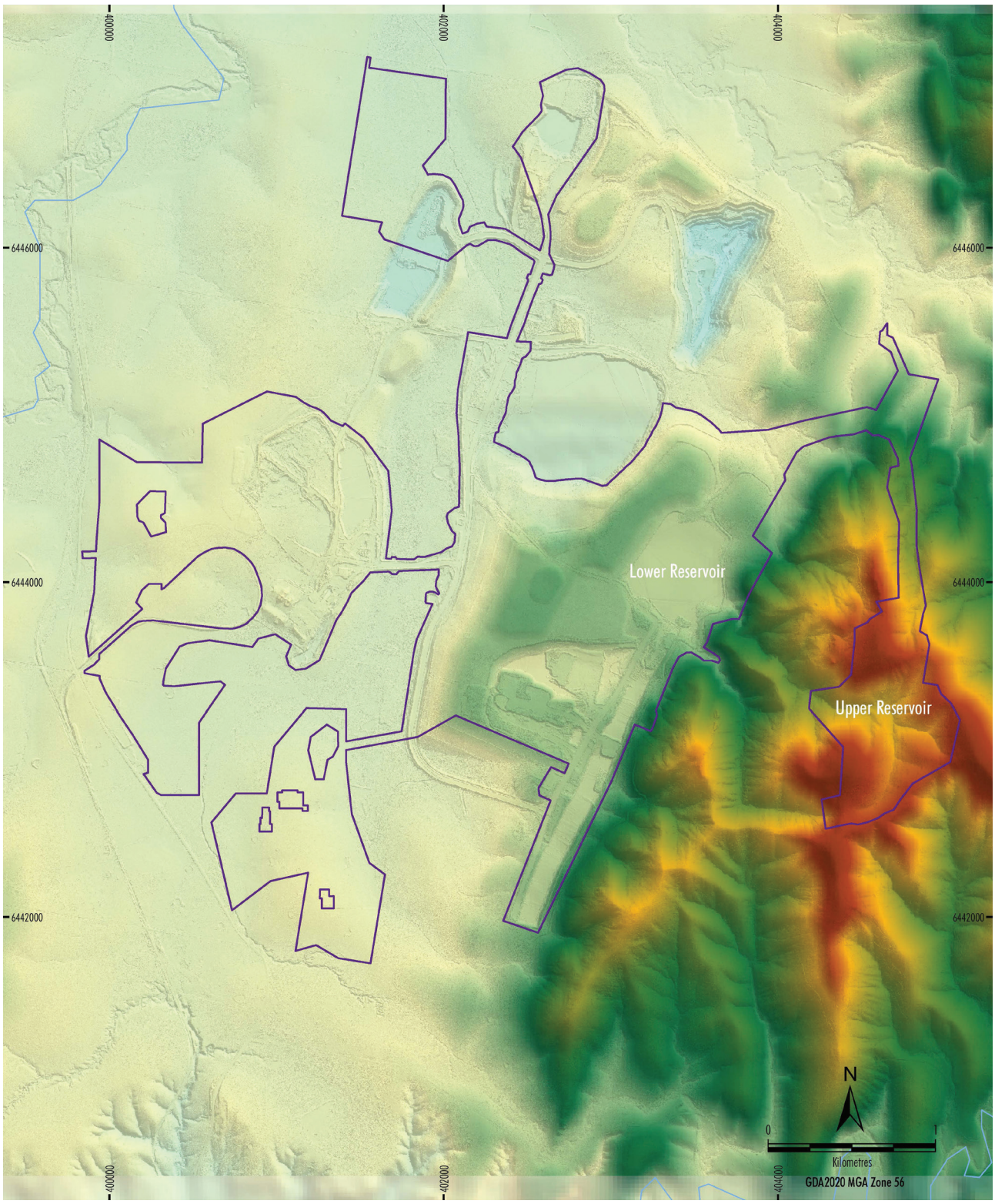
The proximity of the existing Transgrid 132 kV ETL provides an opportunity for the Project to directly connect to the grid, avoiding the need to establish new easements.

Vehicular access to the Project site would be via established major roads, primarily the M1 (Pacific Highway) and The Bucketts Way (a regional road that connects Gloucester to the Pacific Highway).

As demonstrated by SMC's use, the road network can accommodate large traffic volumes and oversize overmass (OSOM) vehicles. No public roads would need to be constructed or upgraded for the Project.

The proximity of multiple regional towns and cities means the construction workforce could be sourced within the broader region, which would benefit the local and regional communities by providing employment opportunities.

THE PROXIMITY OF THE EXISTING TRANSGRID 132 KV ETL PROVIDES AN OPPORTUNITY FOR THE PROJECT TO DIRECTLY CONNECT TO THE GRID, AVOIDING THE NEED TO ESTABLISH NEW EASEMENTS.



Source: Geoscience Australia (2006); Yancoal (2023); NSW Spatial Services (2023)

LEGEND

Project Disturbance Footprint

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Regional Topography

Figure ES-6

SUMMARY OF COMMUNITY CONSULTATION

Community consultation has been undertaken since 2022 via a range of engagement activities, including:

- one-on-one meetings with landowners and local community members;
- community information sessions;
- distribution of community newsletters (Plate ES-5);
- distribution of Project overview video and visual simulation;
- maintenance of the Project website and community hotline;
- community online survey;
- briefings to the SMC workforce;
- briefings to the SMC Community Consultative Committee;
- opportunities for relevant landowners to have visual simulations taken from their property; and
- on-site meetings with Registered Aboriginal Parties and Aboriginal elders.

In response to stakeholder feedback, design changes have been made to the Project to reduce environmental impacts, particularly removal of solar panels on the western side and along The Bucketts Way and avoidance of direct disturbance to potential Aboriginal cultural heritage sites.

Yancoal will continue to consult with a range of stakeholders following the lodgement of the EIS and during the life of the Project.

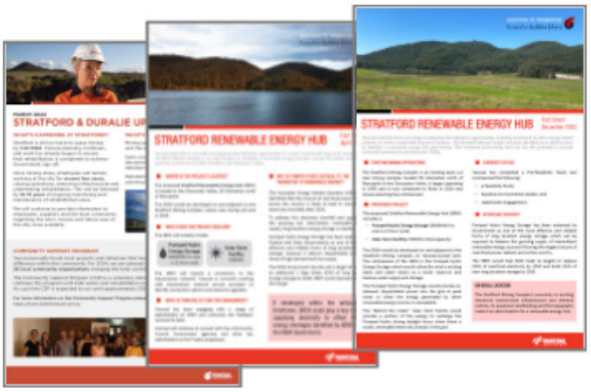


Plate ES-5 Community Newsletters for the Project

STATUTORY CONSIDERATIONS

The NSW Environmental Planning and Assessment Act 1979 (EP&A Act) and NSW Environmental Planning and Assessment Regulation 2021 set the framework for planning and environmental assessment in NSW. This EIS forms part of an Application to seek approval for the Project under the CSSI provisions (i.e. Division 5.2) under Part 5 of the EP&A Act.

The Project also requires approval from the Minister under the Commonwealth Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) and will be assessed under a Bilateral Agreement with the NSW Government. As such, the EIS provides an assessment of potential impacts on the relevant controlling provisions under the EPBC Act, being listed threatened species and communities and listed migratory species.

The Project will require secondary approvals and licences, such as an environmental protection licence under the NSW Protection of the Environment Operations Act 1997.

AVOIDANCE

The Project seeks to maximise the amount of renewable energy that can be generated from the site via the PHES and Solar Farm. The Project design incorporates a number of avoidance and mitigation measures.

Figure ES-7 illustrates the key avoidance measures implemented for the Project.

BIODIVERSITY

The Project avoids and minimises impacts on biodiversity values via maximising the use of the SMC disturbance and infrastructure.

The Project has also been designed around the SMC Biodiversity Offset Areas.

Overall, approximately 54% of the Project Disturbance Footprint would occur on land previously disturbed by the SMC, with a further 29% on land mapped as non-native vegetation outside of the SMC.

For the Solar Farm component, approximately 60% is on land previously disturbed by the SMC, with a further 36% located on land mapped as non-native vegetation outside of the SMC.

Larger patches of higher quality vegetation have been avoided in the Solar Farm to reduce impacts on biodiversity values.

The Project design has been designed to avoid the use of overland pipes to connect the upper and lower reservoirs, and limit the number and length of new access tracks required for construction.

Impacts associated with the upper reservoir cannot be avoided as its location is determined by topography.

ABORIGINAL HERITAGE

The Project layout has been refined to avoid direct disturbance to Aboriginal cultural heritage sites, particularly a potential archaeological deposit and a feature of potential cultural value referred to as CTS-1.

VISUAL

The Project design has been refined to avoid higher visibility areas on land adjacent to The Bucketts Way, particularly land on the western side of The Bucketts Way.

Where the Solar Farm component of the Project is proposed in close proximity to The Bucketts Way, implementation of vegetative screening is proposed to minimise visual impacts of the Solar Farm to users of The Bucketts Way.

In addition, the waterway between the reservoirs is tunnelled, which reduces disturbance and visual impacts.

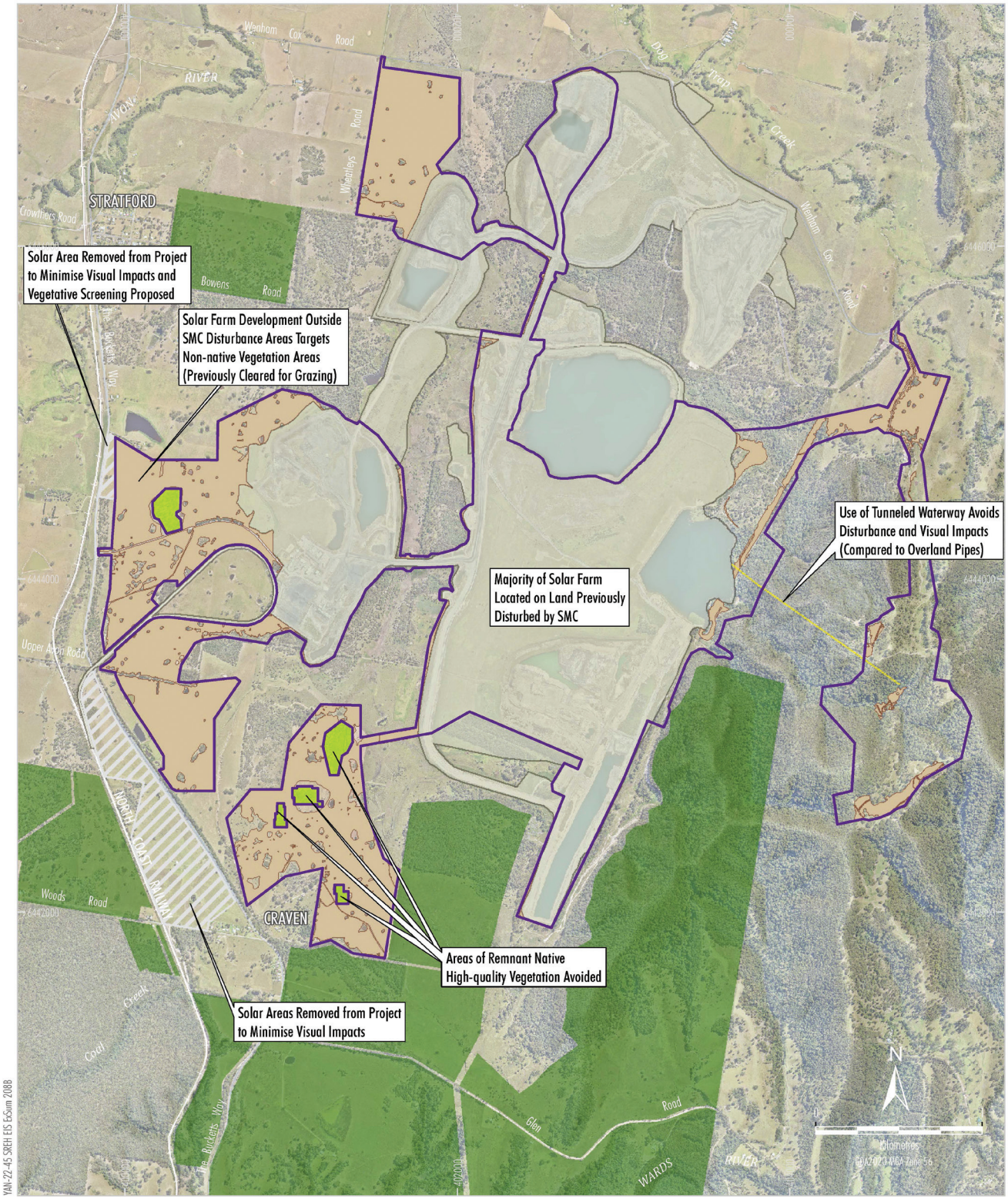
WATER RESOURCES

The PHES provides an opportunity for water stored within the SMC dams and mine voids to be beneficially used to initially fill the PHES and 'top up' the PHES if required during operations. This would avoid reliance on natural water sources to fill and maintain water levels in the PHES, which would be located 'off-river'.

A clean water diversion system would be constructed on the eastern side of the lower reservoir, which would capture upslope catchment runoff between the upper and lower reservoirs, and direct this runoff to the north of the site. This enables the PHES to operate as a 'closed system', meaning no inputs from or outputs to natural watercourses are required to operate the PHES.

The Solar Farm layout has been refined to setback solar panels from riparian corridors and streams.

Treatment of the base of the upper and lower reservoirs would be undertaken to reduce permeability thereby assisting to minimise seepage.



Source: NSW Spatial Services (2023), Yancoal (2023)

LEGEND

- Project Disturbance Footprint
- Tunnelled Waterway
- Area No Longer Proposed for Solar
- Solar Farm Avoidance of High-quality Native Vegetation
- Approx Extent of SMC Exisiting Surface Development
- Non-native Vegetation
- SMC Biodiversity Offset Area*

**The Project has been designed around the SMC Biodiversity Offset Area*

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Project Design Avoidance and Mitigation

Figure ES-7

PROJECT DESCRIPTION

The following provides an overview of the key elements of the Project description.

The Project area partially overlies the existing SMC site, which comprises existing mining disturbance areas and areas of active rehabilitation.

Stratford Coal Pty Ltd (SCPL) is required to establish safe, stable and non-polluting landforms as part of the SMC closure. Some SMC areas are already rehabilitated, meaning the Project construction could commence immediately. However, other areas require some rehabilitation (i.e. landform establishment) as part of the SMC closure before the Project can commence construction (Figure ES-8).

The current status of the landforms within the Project area (including, where relevant, the current rehabilitation status of SMC landforms) is shown on Figure ES-8. Construction of the Project would be undertaken progressively prior to operation. The indicative operational general arrangement of the Project is shown on Figure ES-9.

Key components of the Project are the following:

- upper reservoir;
- lower reservoir;
- underground powerhouse and associated assembly bay;
- tunnelled waterways;
- Solar Farm;
- electrical substation and switchyard;
- transmission infrastructure, including internal connection network from the PHES powerhouse and the Solar Farm to the site electrical substation; and
- upgraded internal access tracks.

Visualisation of Project concept. Source: GHD (2024)

Visualisation of Project concept. Source: GHD (2024)

UPPER RESERVOIR

The upper reservoir would be a new water storage constructed on the ridgeline to the east of the existing Stratford East Dam.

The upper reservoir dam wall involves construction of an outer rockfill wall, with a low permeability concrete slab on the upslope face of the dam. This type of dam wall is known as a 'concrete-faced rockfill dam' configuration.

The upper reservoir would have a total volume of approximately 8.2 gigalitres (GL), with an active storage of approximately 6.95 GL. The upper reservoir has been designed with sufficient freeboard to accommodate a Probable Maximum Flood (PMF) event.

LOWER RESERVOIR

The lower reservoir would be a zoned embankment dam, developed via augmentation of the existing Stratford East Dam.

The lower reservoir would have a total volume of approximately 7.1 GL, with an active storage of approximately 6.95 GL. The lower reservoir has been designed in consideration of a PMF event.

POWERHOUSE

An underground powerhouse, with a silo of approximately 100m deep, would be constructed to the east of the lower reservoir.

Two 'reversible' pumps/turbines used to generate electrical energy when water is released from the upper reservoir to the lower reservoir and pump water from the lower reservoir to the upper reservoir would be housed at the base of the powerhouse silo.

TUNNELLED WATERWAYS

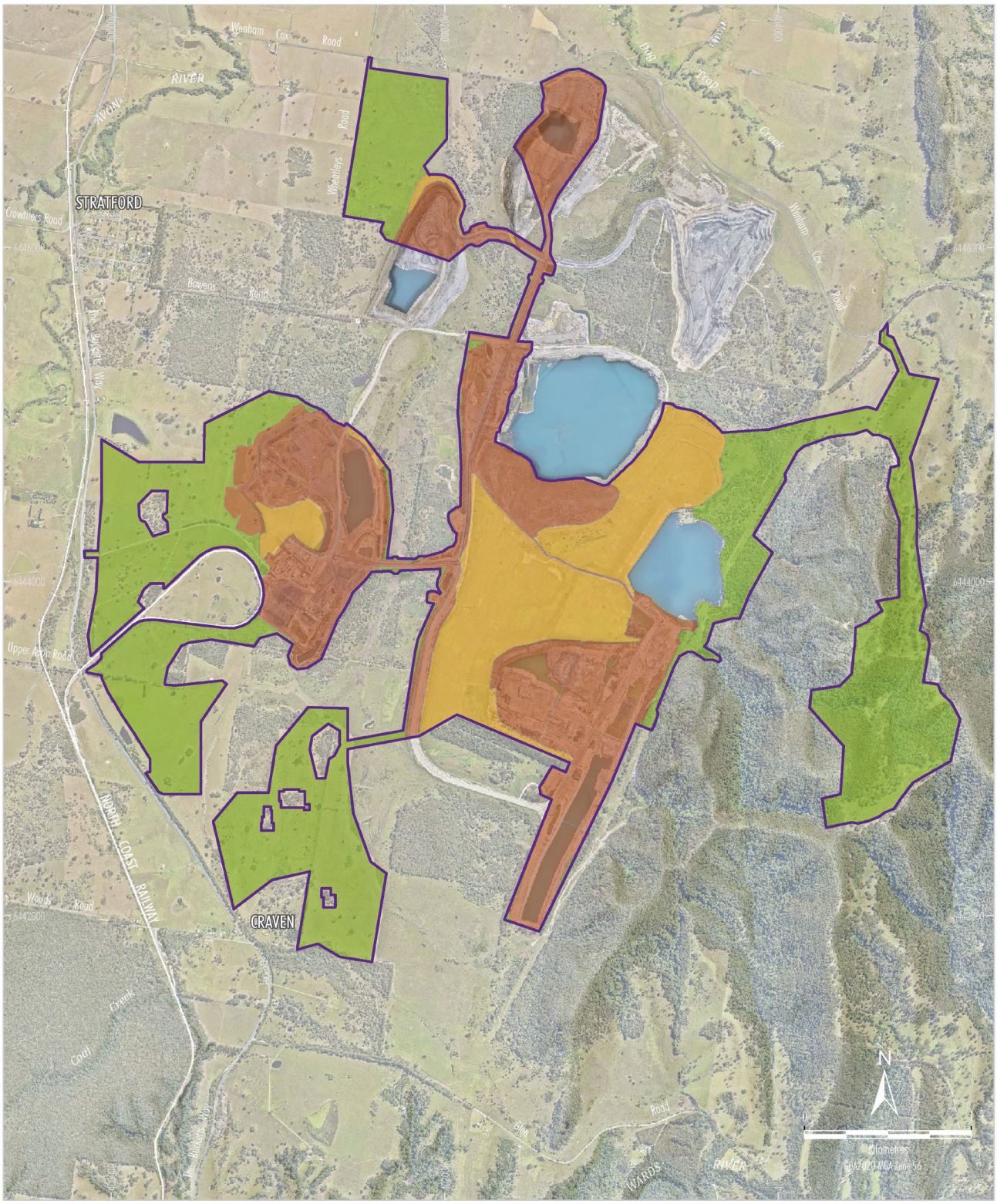
Tunnelled waterways would be constructed to transfer water between the upper reservoir and the lower reservoir.

The tunnelled waterways would comprise a vertical shaft approximately 100 m deep from the upper reservoir, a headrace tunnel connecting the vertical shaft to the powerhouse and a tailrace tunnel connecting the powerhouse to the lower reservoir.

SOLAR FARM

The Solar Farm has been designed to produce more than 300 MW power to maximise the locally generated renewable energy available to partially charge the PHES, with optionality to export electricity to the grid in times of surplus solar generation (noting electricity will also need to be imported from the grid).

The various areas of solar across the Project would be accessed via new or existing internal access roads, and would connect to the electrical substation primarily via underground transmission cables.



Source: NSW Spatial Services (2023), Yancoal (2023)

LEGEND

- Project Disturbance Footprint
- Areas Outside SMC - Immediately Available for SREH Development
- SMC Areas where SCPL has Completed Landform Establishment* - Immediately Available for SREH Development
- SMC Areas where Rehabilitation and Landform Establishment is not Complete - SREH Development is Contingent on SCPL Rehabilitation

As per SMC 2023 Annual Rehabilitation Report

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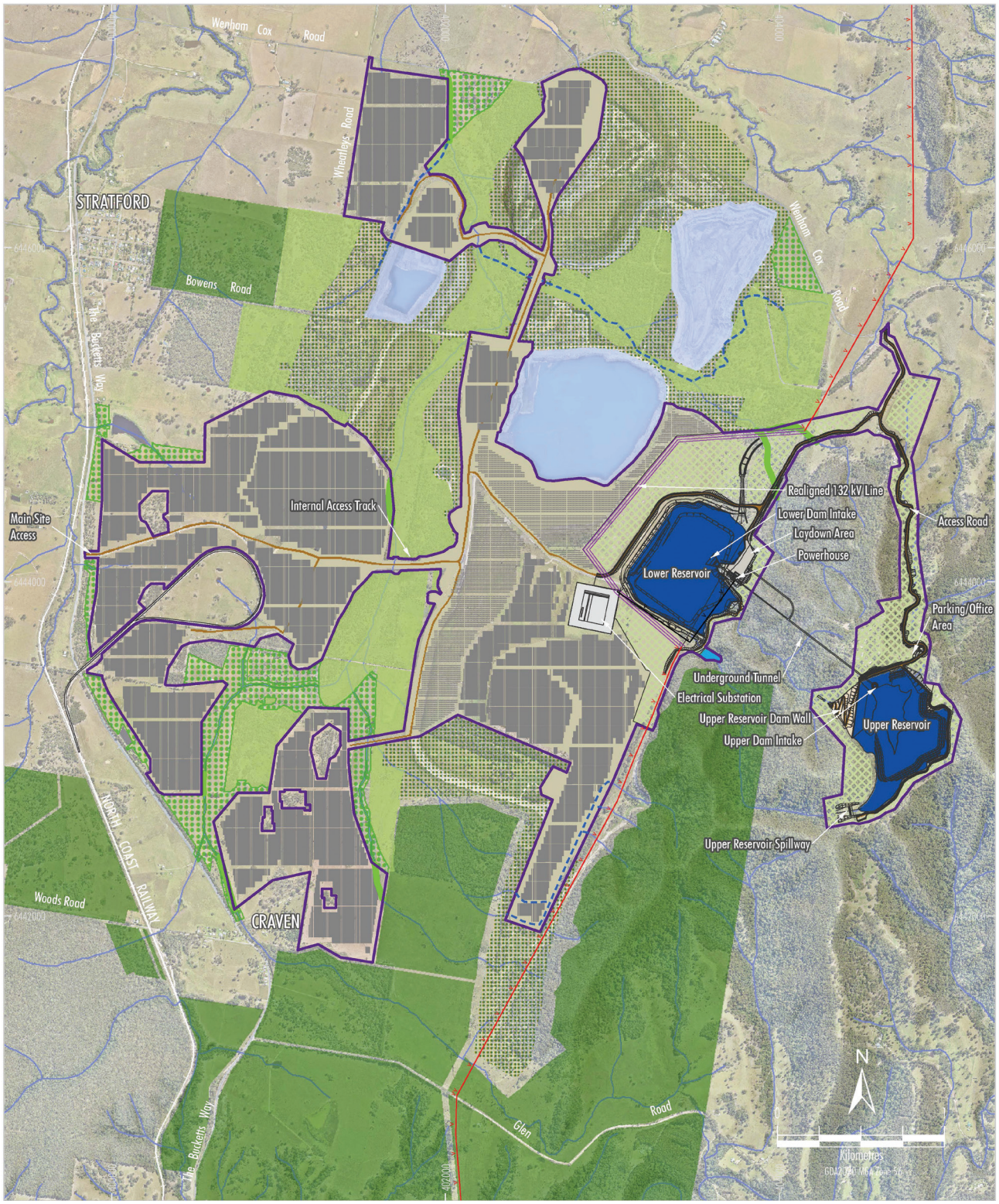
Indicative Development Availability Status of Project Site Landforms

Figure ES-8



Source: NSW Spatial Services (2023), Yancoal (2023)

LEGEND

Project Components

- Project Disturbance Footprint
- Indicative Solar Photovoltaic Array Layout
- Internal Access Road
- Riparian Corridor Protection Zone
- Area Available to be Rehabilitated or Repurposed during Operations
- Potential Areas to Achieve Project Rehabilitation Obligations Associated with the SMC
- Realigned 132kV Transmission Line

SMC Development Conset SSD-4966 Components

- Biodiversity Offset Area
- Indicative Reconfigured Biodiversity Enhancement Area
- SCPL Rehabiliation
- Native Vegetation
- Final Void
- SCPL Retained Water Infrastructure

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Indicative Operational General Arrangement

Figure ES-9

ELECTRICAL SUBSTATION

The electrical substation would be located proximal to the lower reservoir and the 132 kV ETL, and would connect the PHES and Solar Farm to the existing ETL network.

While construction of the substation forms part of the Project, it is expected a portion of this asset would ultimately be owned/managed by Transgrid.

TRANSMISSION INFRASTRUCTURE

Prior to the construction of the Project, a section of the existing Transgrid 132 kV ETL that currently traverses the Stratford East Dam would be realigned to the west of the lower reservoir to enable safe construction of the powerhouse.

Once realigned, this section of ETL would form part of the Transgrid ETL network.

Other transmission infrastructure required for the Project would include overhead powerlines connecting the PHES substation to the Project electrical substation, and primarily underground cables connecting the Solar Farm to the Project electrical substation.

ACCESS TRACKS

The main access to the Project site from the public road network would be via the existing SMC access off The Bucketts Way. Access during construction of the northern Solar Farm area immediately south of Wenham Cox Road would be via a minor site access point at Wenham Cox Road.

Existing SMC internal roads would be used as the internal access roads of the Project, where possible, with upgrades and maintenance as required. Some new access tracks would be required to access all Project areas.

Visualisation of Project concept. Source: GHD (2024)

HOURS OF OPERATION

The Project would operate 24 hours per day, 7 days per week. Pumping cycles of the PHES would be optimised on a daily basis to maximise power supply to the grid. Typically, power generation and pumping could each occur for up to approximately 12 hours over a 24-hour period (i.e. 12 hours of power generation followed by 12 hours of pumping).

Generally, construction activities would occur during daytime construction hours. However, due to the need for continuous activities for the tunnelled waterways (i.e. to manage construction schedule risk by allowing for a more efficient continuous operation and reduce safety risks), these activities are required to occur 24 hours per day, 7 days per week.

Other construction activities may occur 24 hours per day, 7 days per week, subject to compliance of out-of-hours construction noise criteria.

IMPACT OVERVIEW

A summary of the environmental outcomes assessed in the EIS and proposed management and mitigation measures is provided in Table ES-1.

Monitoring and management would be undertaken in accordance with relevant environmental management plans developed for the Project, should it be approved.

INTERACTIONS WITH SMC

Portions of the Project are contingent on rehabilitation of the landforms to be completed by SCPL (Figure ES-8). SCPL needs to complete bulk earthworks to establish safe, stable and non-polluting landforms in order for a portion of the Project to commence construction (Figure ES-8).

The Project would change the final land use of portions of the SMC. Should the Project be approved, SCPL would need to seek approval to change the currently approved final land uses to reflect the Project.

TABLE ES-1 KEY ENVIRONMENTAL ASSESSMENT FINDINGS

ASPECT	AVOIDANCE, MINIMISATION, MITIGATION AND OFFSET	KEY OUTCOMES
BIODIVERSITY	• Maximising use of SMC infrastructure and previously disturbed land to minimise additional disturbance. • Targeting areas of non-native vegetation. • Avoidance of higher biodiversity value patches of native vegetation. • Minimising impacts to isolated stands of trees and other native vegetation. • Biodiversity Offset Strategy proposed to address residual impacts on biodiversity values. • Specific management strategies for Serious and Irreversible Impact entities (SAII) (in addition to offsets). • Biodiversity monitoring and vegetation clearance protocol.	• Disturbance of approximately 145 hectares (ha) of native vegetation (and approximately 385 ha of non-native vegetation). • Potential impacts to three SAII species, including Scrub Turpentine and habitat for Sooty Owl and Stuttering Frog (this species was assumed present). • Potential impact to two Threatened Ecological Communities and two threatened flora species (including Scrub Turpentine and Craven Grey Box), which require species credits. • Potential impacts to 19 threatened fauna species requiring species credits.
SURFACE WATER	• PHES initial fill and 'top-up' from water stored in SMC dams and mine voids and no natural water resources required. • PHES designed as a 'closed system'. • Clean water diversion system around the lower reservoir. • Erosion and sediment controls, stormwater and runoff management. • Riparian corridors setbacks, revegetation and fencing. • Surface Water Monitoring Program.	• Change in stream flow immediately downstream of the upper reservoir, with reduction in flow days from 19.7% of the time (existing) to 13.3% of the time (with the Project). • Minor change in flow downstream of the lower reservoir.
GROUND WATER	• Lining of tunnelled waterways following construction. • Treatment to bases of both reservoirs to achieve low permeability to minimise seepage. • Groundwater level monitoring. • Groundwater quality monitoring.	• Project meets Level 1 Minimal Impact Consideration under the NSW Aquifer Interference Policy. • Groundwater seepage rates predicted to be minor in comparison to the overall groundwater flow. • Drawdown during construction of tunnelled waterways expected to recover following tunnel lining. • Any temporary reduction in stream baseflow unlikely to have a significant impact on streamflow.
AQUATIC ECOLOGY	• Surface water avoidance and minimisation measures (as above) also protecting aquatic ecology.	• No threatened aquatic species recorded. • All aquatic flora and fauna species identified in vicinity of the Project common to the region.
HERITAGE	• Avoidance of a potential archaeological deposit within the Solar Farm footprint, and implementation of high visibility fencing. • Avoidance of direct disturbance of CTS-1, and construction exclusion zone maintained. Continued consultation with the Aboriginal community regarding long-term management. • Surface collection and salvage of sites prior to disturbance.	• Direct impact to four Aboriginal cultural heritage sites of low scientific (archaeological) significance. Surface salvage collection to be undertaken prior to disturbance. • Ongoing engagement with the Aboriginal community to continue in regard to management of CTS-1. • No impacts on sites of historic (non-Aboriginal) significance.

ASPECT	AVOIDANCE, MINIMISATION, MITIGATION AND OFFSET	KEY OUTCOMES
VISUAL	• Removal and/or setback of solar panels originally proposed adjacent to The Bucketts Way in consideration of community feedback. • Visual screening along portions of The Bucketts Way to mitigate direct views of the Project.	• All private receivers assessed as low or very low visual impact. • Visual screening to be implemented where relevant to mitigate views of the Project along roads. • With the implementation of visual screening, public viewpoints assessed as moderate to very low visual impact.
GLINT AND GLARE	• Existing vegetation assists to mitigate potential glare impacts.	• Glare is expected to be within the thresholds noted in the Large-Scale Solar Energy Guideline for all receivers (roads and residential).
AGRICULTURE	• Project does not involve disturbance of high quality agricultural land or Biophysical Strategic Agricultural Land.	• Temporary loss of agricultural (grazing) land due to change in land use for renewable energy.
NOISE	• Construction activities would generally occur during standard daytime construction hours. • Noise mitigation measures would be implemented.	• Noise construction at private receivers predicted to comply with relevant construction noise criteria, with the exception of one receiver. • Operational noise levels predicted to comply with relevant criteria at all private receivers.
VIBRATION	• Maintaining blast sizes to achieve relevant blast criteria.	• Negligible blast-related impacts at residences, public infrastructure and CTS-1.
AIR QUALITY	• Dust mitigation measures such as watering of internal roads and minimising vehicle speeds.	• No significant air emissions sources during operation of the Project. • All private receivers predicted to comply with relevant air quality criteria during construction of the PHES.
GREENHOUSE GAS EMISSIONS	• Project would positively contribute to minimise impacts of climate change due to the supply of renewable energy. • On-site Solar Farm provides a local source of renewable energy to reduce consumption from the grid (and associated Scope 2 emissions). • Planning and scheduling works to minimise fuel usage and to maximise energy efficiency. • Maintenance of plant and equipment to minimise fuel consumption.	• Project would avoid between 320,000 and 550,000 tonnes of carbon dioxide equivalent per annum, if electricity produced by the PHES was alternatively produced by gas-fired power generation. • Average annual construction Scope 1 emissions (from diesel use) would be 0.0006% of NSW emissions and 0.0002% of Australia's emissions.
SOCIAL	• SMC stakeholder engagement and provision of community information. • Management of complaints and incident response protocols through an Environmental Management Strategy.	• Concerns raised, including increased demand for community services (e.g. housing) and environmental impacts, particularly during construction. • Benefits of the Project acknowledged, including benefits of renewable energy, employment and opportunities for businesses.
TRANSPORT	• Use of existing SMC access road and intersection for majority of construction traffic. • Advance warning signs to be installed on Wenham Cox Road during construction of the northern part of the Solar Farm. • Project workers would receive training regarding safe driving behaviours and fatigue management. • Encourage the workforce to car pool.	• Project construction workforce would result in an increase in traffic volumes, particularly on The Bucketts Way, however there would be no exceedances of the road network capacity or reduction in efficiency. • No upgrades to public roads are required to facilitate OSOM vehicles.

SUMMARY

The key component of the Project is the PHES, which can provide LDS. The Project has been declared CSSI by the NSW Government as it is recognised as being "essential to NSW for economic, social and environmental reasons" and "will help maintain the state's critical energy security and continue the essential energy supply to homes and businesses during peak-demand periods as coal-fire sources."

Unlike other proposed pumped hydro projects, the Project is a combined solar generation and storage model, with the Solar Farm providing a local supply of renewable energy for the PHES, reducing the reliance on electricity imported from the grid.

The variation in topography between the lower reservoir and upper reservoir makes the site ideal for pumped hydro.

Locating the Project at the SMC has a number of strategic advantages as the Project can use and repurpose existing SMC disturbance areas, infrastructure and water stored in mine voids.

In addition, the Project is strategically located in close proximity to existing transmission infrastructure and established transport routes.

These strategic advantages of the Project site avoid and minimises environmental impacts, particularly when compared to alternative large-scale renewable energy projects located in remote locations.

Subject to timely approvals, the Project could be operational as early as 2029.

The Project represents significant investment in the Gloucester Valley. It would provide employment opportunities during construction (up to 350 jobs), and long-term employment during operations (approximately 10 jobs).

The Project aligns with the NSW Government's policies encouraging private investment in LDS, as well as the beneficial use of mining land.

Visualisation of Project concept. Source: GHD (2024)

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