

# Borumba Pumped Hydro Project - Proposed Halys Transmission Corridor

Draft Corridor  
Selection Report

APRIL 2023



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## Executive Summary

This Draft Corridor Selection Report (CSR) has been prepared by Queensland Electricity Transmission Corporation Limited, trading as Powerlink Queensland (Powerlink), for the proposed Halys transmission connection from the Borumba Pumped Hydro Energy Storage (PHES) Project. Powerlink has engaged AECOM Australia Pty Ltd (AECOM) to undertake technical, spatial and mapping analysis to support the preparation of this Draft CSR.

### Project background

The Queensland Government has committed to unlocking renewable investment and achieving a Renewable Energy Target (RET) of 80% by 2035. In September 2022, the Queensland Government released the Queensland Energy and Jobs Plan (QEJP), identifying the critical role of long duration PHES in Queensland's energy transformation, and more broadly in meeting our global responsibilities to reduce greenhouse gas emissions. The QEJP also outlined the need for the transmission network to evolve to meet the changing electricity system.

As part of delivering on this commitment, the Queensland Government also announced the creation of Queensland Hydro, a publicly owned entity to carry out detailed analytical studies for a PHES facility at Borumba Dam, located near Imbil and south-west of Gympie. Powerlink has been engaged by Queensland Hydro to develop two new transmission lines to connect the PHES to the existing transmission network.

This includes new high voltage transmission lines connecting the PHES at Woolooga in the north and Halys in the south-west. These connections are the first stage in the development of the transmission network required under the QEJP, providing support for load growth, future renewable energy developments in Wide Bay and Central Queensland, and access to high quality renewables in South West Queensland.

The detailed analytical studies for the PHES are considering a facility capable of generating between 1,500 megawatts (MW) to 2,000MW with up to 24 hours of storage. When operational, the facility will have the capacity to supply electricity to up to two million Queensland homes.

This increase in generation capacity will require new transmission connections. This Draft CSR has been prepared on the basis of 500 kilovolt (kV) transmission connections to Powerlink's network for the PHES facility.

### Approach to corridor selection

In mid-2022, Powerlink commenced investigations into potential corridor options to connect the PHES facility to the transmission network.

As a key component of the transmission network development process, Powerlink sought community and stakeholder input in July and August 2022, on the study area. This engagement included hearing from local councils, Traditional Owners, peak bodies, and the wider community to understand and gain better insights into important community matters and what is happening in the area. These investigations also involved a strategic desktop assessment of legislative frameworks, spatial analysis of land characteristics, environment, heritage and social constraints.

Corridor options considering these constraints were then developed, including three potential transmission corridors four kilometres (km) in width, with a sub-option for each. These corridor options were taken to the community for their feedback and input in late 2022 and early 2023.

This Draft CSR builds on the outcomes of the earlier corridor options analysis, by reviewing each of the corridor options based on further assessment of feedback received from community engagement, physical land, environment and heritage values, social impacts, legislative requirements, and technical input from Powerlink in relation to constructability of transmission lines.

Three objectives were identified to inform the approach to corridor selection:



#### Social

To consider the use of land and the community livelihood within and adjacent to corridor options.



#### Environment

To consider a balanced approach to corridor selection with the least practicable impact on environment and heritage values.



#### Economic

To consider construction and operational factors such as cost at a preliminary level, given the scale of the project.

The methodology for the corridor selection was developed to incorporate:

- the feedback from engagement with landholders, Traditional Owner groups, the local community and other stakeholders
- publicly available spatial data relating to environment, planning and heritage constraints
- technical information provided by Powerlink relevant to the planning and delivery of transmission line infrastructure.

Corridor selection has been undertaken in two phases:

1. corridor selection – selecting which 4km-wide corridor option has the least overall impact across the objectives
2. corridor refinement – identifying a 1km-wide recommended corridor within the 4km-wide corridor option.

Each phase was driven by the identified social, environment and economic objectives.

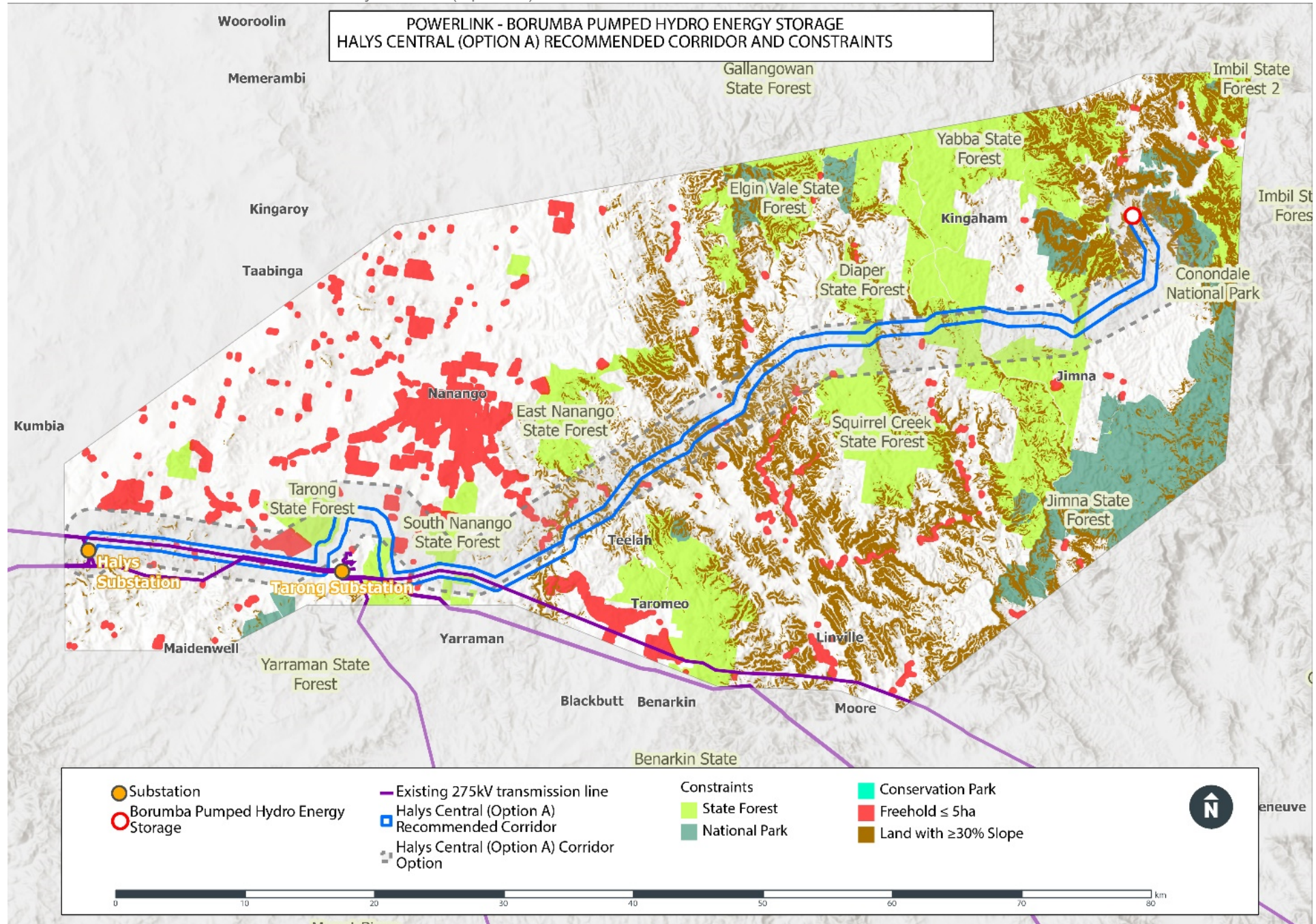
### Recommended corridor

The Halys Central (Option A) corridor has been selected as the 4km-wide corridor option with the least overall impact across social, environment and economic objectives when compared to the other corridor options.

A recommended 1km-wide corridor has been identified within the selected 4km-wide Halys Central (Option A) corridor. Through the corridor selection and refinement processes the 1km-wide recommended corridor:

- reduces the impact on the number of landholders and particularly smaller land parcels
- avoids National Parks
- avoid critical infrastructure, community facilities and townships
- minimises impacts on agriculture, intensive land use and cropping lands
- optimises the use of State-owned land
- identifies potential to co-locate with existing transmission lines and,
- minimises the overall land required to support new transmission infrastructure.

Figure 1: 1km-wide recommended corridor – Halys Central (Option A)



# 1.0 Introduction

## 1.1 Project background

The Queensland Government has committed to unlocking renewable investment and achieving a Renewable Energy Target (RET) of 80% by 2035. As part of delivering on this commitment, Queensland Hydro is carrying out detailed analytical studies for a potential Pumped Hydro Energy Storage (PHES) facility at Borumba Dam, located near Imbil and south-west of Gympie.

Land parcels adjoining Borumba Dam were acquired to support a future PHES facility nearly four decades ago. This land is now owned by Queensland Hydro as the delivery entity of the PHES facility.

Detailed analytical studies for the PHES are considering a facility capable of generating between 1,500 megawatts (MW) to 2,000MW with up to 24 hours of storage. When operational, the facility will have the capacity to supply electricity to up to two million Queensland homes.

This increase in generation capacity will require new transmission connections. This Draft CSR has been prepared on the basis of 500 kilovolt (kV) transmission connections to our network for the PHES facility.

The QEJP applies a whole-of-system planning approach, setting out the pathways and targets that will facilitate a low carbon economy in the future and ensure an orderly, least-cost transformation of Queensland’s power system.

Powerlink will play a critical role in supporting the energy transformation, over the coming decade.

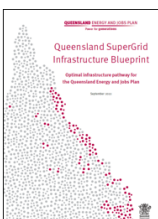
Figure 2: Queensland Energy and Jobs Plan

### Plan and Blueprint



Three focus areas:

- Clean Energy Economy
- Empowered households and businesses
- Secure jobs and communities



- Queensland SuperGrid Infrastructure Blueprint outlines the infrastructure to enable the decarbonisation of the existing electricity system
- Includes Renewable Energy Zones, Pumped Hydro Energy Storage and High Capacity Transmission

### Key targets and objectives

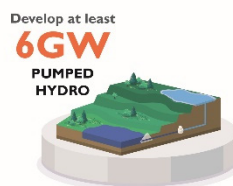
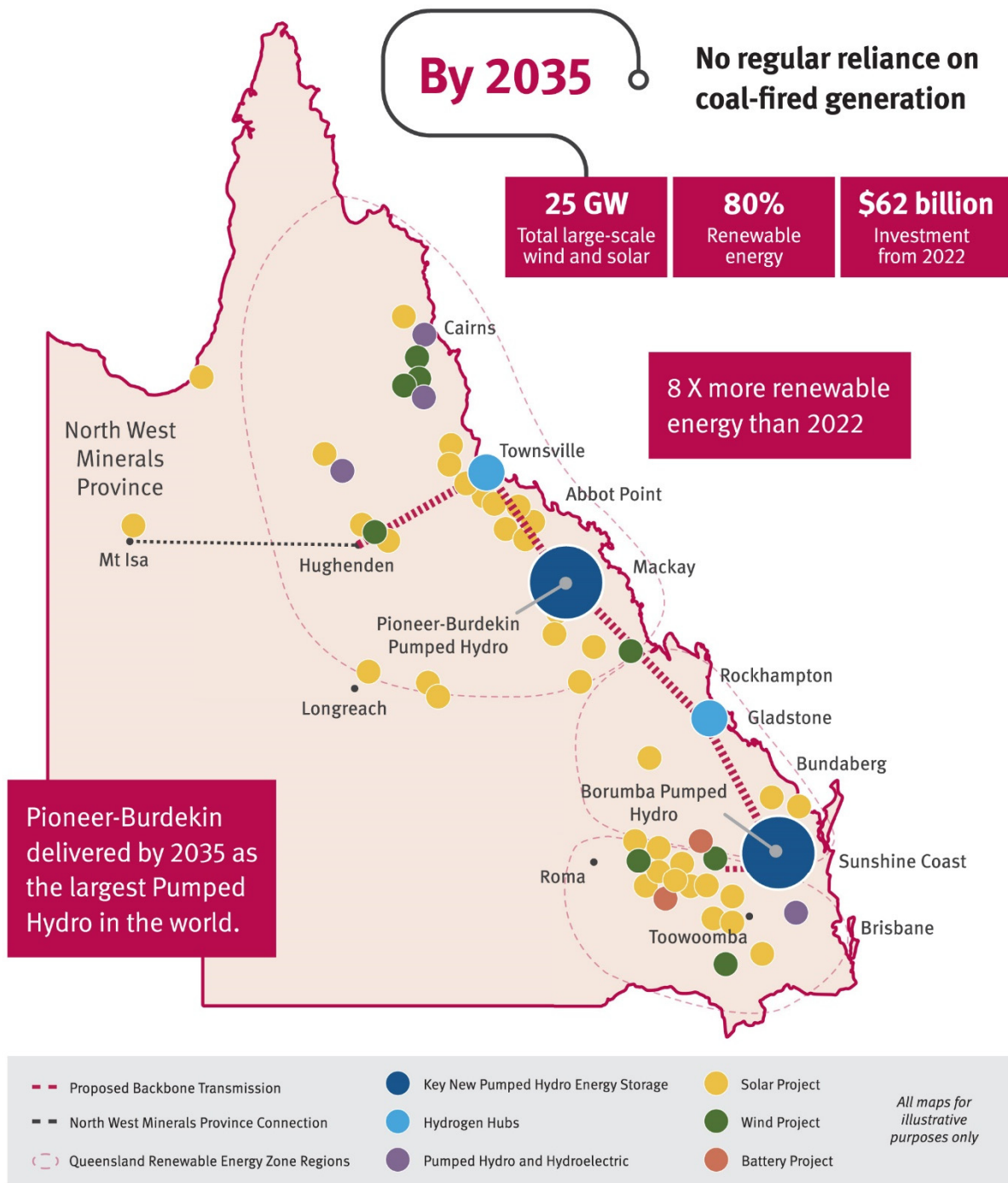




Figure 3: Queensland SuperGrid



The Queensland Government has outlined the optimal infrastructure pathway in the *Queensland SuperGrid Infrastructure Blueprint*.

*Projections informed by independent modelling and internal analysis*

## 1.2 Purpose of this report

Powerlink has prepared this Draft Corridor Selection Report (CSR), to undertake an assessment and recommend a transmission corridor from the Borumba PHES Project site to the Halys Substation. Powerlink has engaged AECOM Australia Pty Ltd (AECOM) to undertake technical, spatial and mapping analysis to support the preparation of this Draft CSR.

The key objective of the corridor selection process is to undertake further assessment of the various corridor options developed and presented to the community to recommend a 1km-wide corridor.

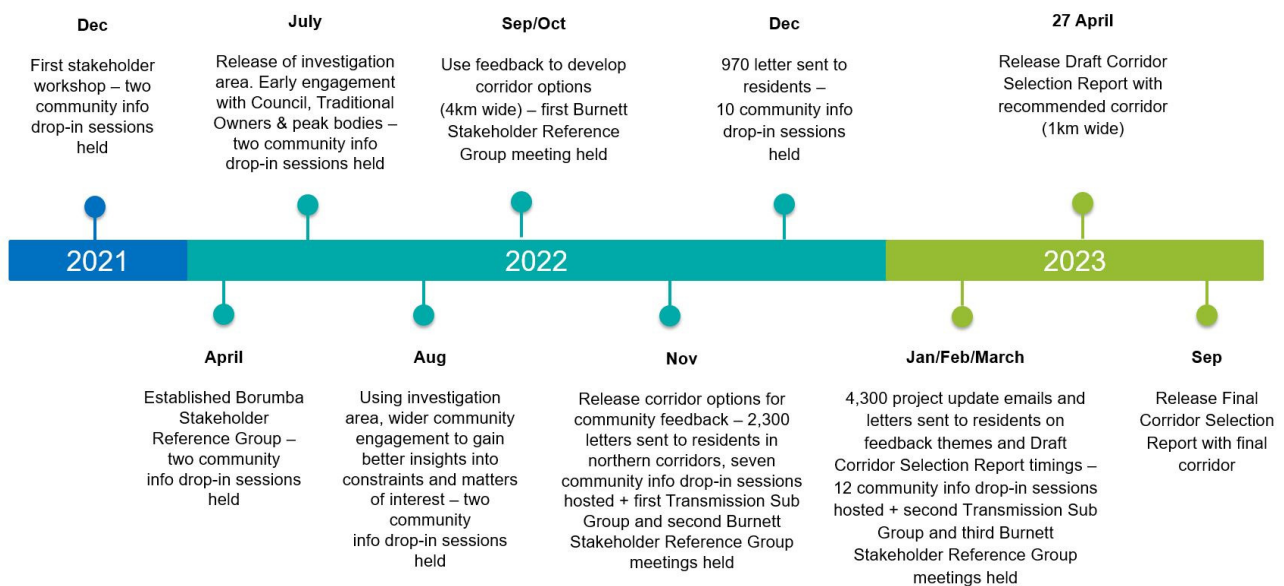
The purpose of this Draft CSR is to document the assessment outcomes as described below:

- consideration of all stakeholder input and feedback in identifying key criteria
- development of objectives, criteria and measures to identify and select a corridor option that has the least overall impact from a social, environmental and economic perspective
- selection of the 4km-wide corridor option, with further refinement to a 1km-wide recommended corridor in consideration of the corridor selection objectives
- review and evaluation of the planning and legislative framework applicable to the 1km-wide recommended corridor

During the consultation phase of the Draft CSR, the 1km-wide recommended corridor will require further activities to be undertaken as outlined in section 10.

A final 1km-wide corridor will be published in the Final CSR in September 2023. Subsequent phases of the project will include further community engagement, detailed environmental and social impact assessment including targeted investigations, impact assessments and the development of planning, design and construction considerations. Figure 4 provides the timeframe for the corridor selection process and engagement.

**Figure 4:** Corridor selection process engagement timeline



### 1.3 Approach

The methodology for the corridor selection was developed to incorporate direct feedback from landholders, the local community and other stakeholders, publicly available spatial data and information relevant to the planning and delivery of the transmission line. It has been undertaken in two phases:

1. corridor selection - selecting a 4km-wide corridor option
2. corridor refinement - identifying a 1km-wide recommended corridor within the 4km-wide corridor.

Three objectives were identified to inform the approach to corridor selection and refinement:



**Social**

To consider the use of land and the community livelihood within and adjacent to corridor options.



**Environment**

To consider a balanced approach to corridor selection with the least practicable impact on environment and heritage values.

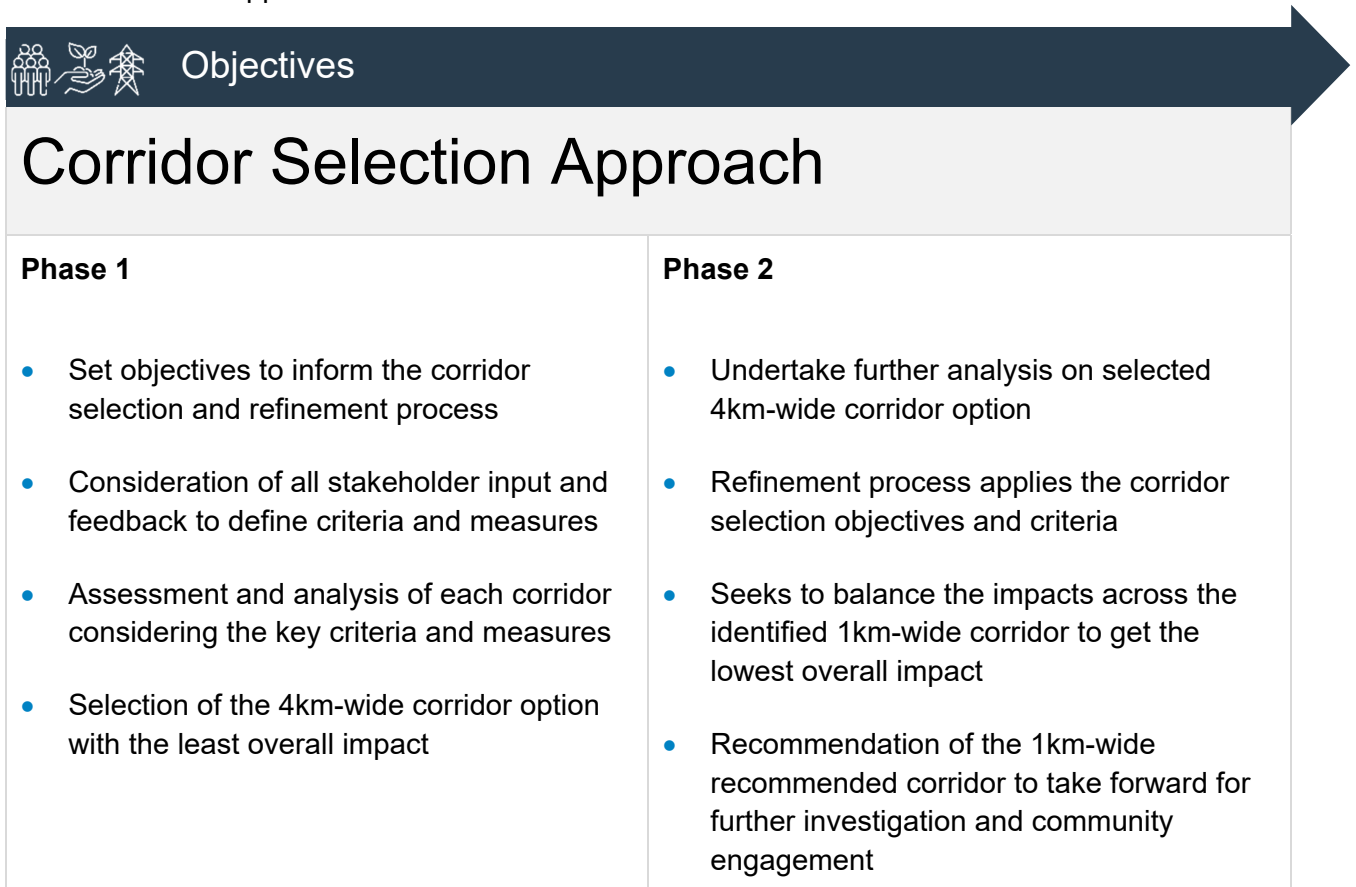


**Economic**

To consider construction and operational factors such as cost at a preliminary level, given the scale of the project.

The corridor selection approach seeks to balance the impacts of the recommended corridor across the three objectives identified, ultimately resulting in a recommended corridor with least overall impact across social, environment and economic objectives.

The assessment approach is outlined below.



## 2.0 Transmission Line Construction Overview

To connect to the Halys Substation, a double-circuit transmission line is required. The final alignment will be located on an easement 70 metres (m) in width. Transmission infrastructure is generally located either at the centre of the easement or offset from existing towers when co-located with an existing transmission line.

Easements provide legal access over land to construct, operate and maintain energy infrastructure and to regulate certain activities on the easement area, allowing Powerlink to provide a safe and secure power supply. Landholders continue to own and be responsible for the land on which the easement is located, including land management and other general land maintenance activities. In some instances, rules around activities that can and cannot be undertaken on our easements are outlined in the registered easement terms and conditions on property titles, along with the rights of

both the landholder and Powerlink. In addition to registered conditions, there are also other rules based on:

- safety for the public, our employees and contractors
- the risk of damage to property
- the safe operation of the overhead transmission line, underground cable or other assets
- access to the line or associated infrastructure for any future works, including maintenance, upgrading or renewal activities.

We are committed to working closely with directly affected landholders to understand how they use and manage their property so we can suitably locate transmission towers within the easement and provide sufficient tower height to avoid or minimise impacts on farming or other property operations.

Due to the design and operating requirements of high voltage electricity transmission infrastructure, easements require clearing of vegetation to safely construct and maintain towers and lines. Where possible, Powerlink does not clear the entire easement but rather minimises vegetation clearing for the safe and reliable operation of transmission line. When designing the transmission line, mitigation measures such as selective tower placement and spanning to decrease the amount of required vegetation clearing will be used, particularly in sensitive environments.

Tower pads will be approximately 60m x 60m and spans between towers will be around 500m. Tower heights will be dependent on terrain, topography and land use of the final alignment with shorter towers likely on higher ground and taller towers within low points of the corridor. It is likely 500kV towers will be around 60m in height. Generally, the steps involved in building a transmission line include:

- preparing the site
- installing the foundations
- assembling the transmission towers and equipment
- stringing the transmission line
- testing and commissioning
- reinstating the site.

More detail on each step is outlined below.

## 2.1 Preparing the site

Following comprehensive field visits to sample or test soil, vegetation and water, and undertake other detailed investigations, the exact position of each transmission tower is marked on-ground.



Vegetation clearing is then undertaken to make way for tower pads, lay-down areas and access tracks. Clearing is required to ensure the line can operate safely and reliably. Various clearing methods may be used based on existing land use, environmental considerations, maintenance requirements and landholder preferences. To minimise vegetation clearing, existing access tracks are used wherever possible. We will continue to use access tracks beyond construction activities to facilitate safe and streamlined access to towers during operation and maintenance.

## 2.2 Installing the foundations

Based on findings from geotechnical investigations completed prior to construction, the construction crew commences work to install suitable foundations at each tower site. A large boring machine is generally used to excavate foundations which can be around 8m to 12m deep. Steel is inserted to reinforce foundations and tower leg stubs are held in place, while concrete is poured into the excavation. Final steelwork is then completed, with the foundation column finishing slightly above ground level.



## 2.3 Assembling the structures and equipment

Fabricated and galvanised steel components for lattice towers are sorted and bundled ahead of being delivered to tower sites. Usually this delivery takes place with a semi-trailer, with tower assembly work completed adjacent to a tower's final location. Specialist crews methodically piece together the towers, with smaller assembled sections lifted with a crane and bolted into place until the tower is fully erected.



## 2.4 Stringing the transmission line

Machinery such as helicopters, semi-trailers, cranes and light 4WD vehicles are on-site to string the transmission line. Normally, stringing takes place in 5km to 10km sections at a time. Prior to stringing, large drums of conductor (transmission line wires) are delivered to locations along the line route. A draw wire is run between the assembled towers and used to pull the conductor along a section of line. Helicopters may be used to pull the draw wire. The conductor is fed through the line section and tensioned from the ground using winches. Equipment is then repositioned to the next stringing section to repeat the process until the conductor is strung across all towers.



## 2.5 Testing and commissioning

After a new transmission line is assembled, strung and ready to be energised, a series of thorough inspections and commissioning tests are carried out. This ensures the line is ready to be put into service safely and reliably as it enters the operation and maintenance phase of the project lifecycle.



## 2.6 Reinstating the site

Powerlink will engage with landholders to determine site and property specific rehabilitation works following completion of construction activities. Depending on the type and level of on-ground works completed, crews reinstate the tower site area and surrounding environment to ensure appropriate rehabilitation occurs. This helps to stabilise soil and encourage vegetation re-establishment to occur, preventing erosion. This stage also includes reinstating farm infrastructure that may have been impacted during construction works, and remediating paddocks and other grazing areas to enable recommencement of farming activities. Installation of identification signs on towers and

anti-climb barriers are installed for safety purposes. Access tracks are finalised to allow ongoing access for future maintenance as required.

Powerlink continues to engage with landholders once a transmission line enters the operation and maintenance phase to undertake a range of activities periodically as required, including:

- routine inspections on easements and infrastructure
- vegetation management to maintain safety clearances
- minor works for infrastructure, replacement of parts and emergency repair of damage
- access track management
- installing or replacing tower signage
- installing or replacing anti-climbing barriers on towers.

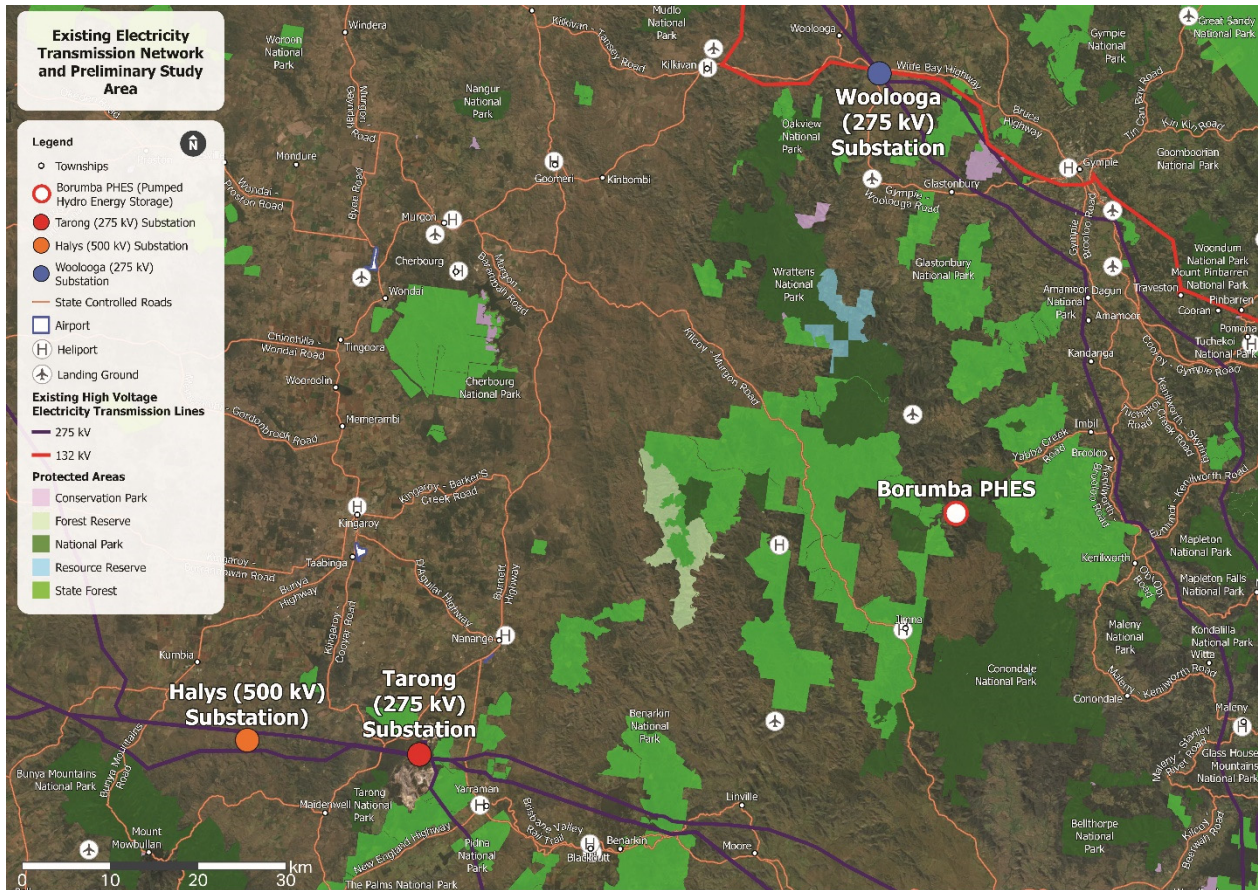


## 3.0 Study Area

### 3.1 Study Area overview

The Halys Study Area encompasses 2,959 square kilometres (km<sup>2</sup>) of land and is predominantly freehold, State Forest and National Park tenures. Freehold land parcels vary in size, from small residential lots to larger rural land holdings. The Halys Substation is located in the western portion of the Study Area (approximately 35km south-west of Nanango). High voltage electricity transmission lines run from Halys Substation in a south-easterly direction through the Study Area via Tarong Substation.

Figure 5: Study Area



Key findings of the Study Area include:

### 3.1.1 Land use

The Study Area intersects the Gympie Regional Council, Somerset Regional Council, South Burnett Regional Council, Sunshine Coast Regional Council and Toowoomba Regional Council Local Government Areas.

The land within the Study Area is mostly zoned ‘rural’ with pockets of intensive use (i.e. commercial or industrial) and residential settlements throughout. Rural land uses primarily consist of grazing and production from dryland and irrigated agriculture, and plantations. The intent of the rural zoning is to preserve land for agricultural purposes and protect the rural character and amenity of the region.

Most residences are concentrated around townships with rural residences spread across the remainder of the Study Area.

### 3.1.2 Topography

The topography of the Study Area ranges from 96m to 839m Australian Height Datum (AHD) at Conondale National Park. Areas of difficult terrain are present across the Study Area due to mountainous areas, especially towards Borumba Dam. Lower lying areas are between Nanango, Linville and Jimna and correspond to upper reaches of the Brisbane River.

Cleared land uses are found near the lower elevations proximate to Yabba Creek, Middle Creek and the Brisbane River and its tributaries. The Brisbane River is associated with areas of strategic cropping land. On higher land there are several softwood and hardwood forestry areas.



### 3.1.3 Flora

The Study Area contains previously cleared land as well as regrowth and remnant native vegetation, some of which is protected within National Parks and State Forests. Remnant vegetation supports Endangered, Of Concern and Least Concern vegetation. Within the Study Area, remnant and regrowth vegetation is predominantly associated with forest reserves, State Forests and National Parks to the east and surrounding Borumba Dam. The western portion of the Study Area has a greater portion of non-remnant vegetation due to clearing for other land uses such as agriculture, resource land use and townships.

The Protected Matters Search Tool (PMST) identifies Matters of National Environmental Significance protected under the Commonwealth (Cth) *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). An ecological community is a naturally occurring vegetation community. Its structure, composition and distribution are determined by environmental factors such as soil type, position in the landscape, altitude, and climate and water availability. EPBC Act-listed threatened ecological communities are listed in in Table 1.

**Table 1:** EPBC Act listed threatened ecological communities

Common name	Threatened category	Likelihood within Study Area
Lowland Rainforest of Subtropical Australia	Critically Endangered	Likely
Natural grasslands on basalt and fine-textured alluvial plains of northern New South Wales and southern Queensland	Critically Endangered	May
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Critically Endangered	Likely
Coastal Swamp Sclerophyll Forest of New South Wales and South East Queensland	Endangered	May
Poplar Box Grassy Woodland on Alluvial Plains	Endangered	May
Subtropical eucalypt floodplain forest and woodland of the New South Wales North Coast and South East Queensland bioregions	Endangered	Likely
Weeping Myall Woodlands	Endangered	May

The PMST identified 37 EPBC Act-listed threatened flora species with potential to occur within the Study Area listed in in Table 2.

**Table 2:** EPBC Act listed threatened flora

Scientific name	Common name	Threatened category	Likelihood within Study area
<i>Rhodamnia rubescens</i>	Scrub Turpentine, Brown Malletwood	Critically Endangered	Known
<i>Rhodomyrtus psidioides</i>	Native Guava	Critically Endangered	Known
<i>Cossinia australiana</i>	Cossinia	Endangered	Likely
<i>Lepidium peregrinum</i>	Wandering Pepper-cress	Endangered	Likely
<i>Phaius australis</i>	Lesser Swamp-orchid	Endangered	May
<i>Phebalium distans</i>	Mt Berryman Phebalium	Endangered	Known
<i>Planchonella eerwah</i>	Shiny-leaved Condoe, Black Plum, Wild Apple	Endangered	May
<i>Plectranthus nitidus</i>	Nightcap Plectranthus, Silver Plectranthus	Endangered	Likely
<i>Plectranthus omissus</i>	N/A	Endangered	Known
<i>Triunia robusta</i>	Glossy Spice Bush	Endangered	Likely
<i>Arthraxon hispidus</i>	Hairy-joint Grass	Vulnerable	Likely
<i>Bertya opposens</i>	N/A	Vulnerable	Known
<i>Bosistoa transversa</i>	Three-leaved Bosistoa, Yellow Satinheart	Vulnerable	Known
<i>Bothriochloa bunyensis</i>	Satin-top Grass	Vulnerable	Known
<i>Cadellia pentastylis</i>	Ooline	Vulnerable	Likely
<i>Clematis fawcettii</i>	Stream Clematis	Vulnerable	Known
<i>Cryptostylis hunteriana</i>	Leafless Tongue-orchid	Vulnerable	May
<i>Cupaniopsis shirleyana</i>	Wedge-leaf Tuckeroo	Vulnerable	Likely
<i>Denhamia parvifolia</i>	Small-leaved Denhamia	Vulnerable	Known
<i>Dichanthium setosum</i>	bluegrass	Vulnerable	Likely
<i>Floydia praealta</i>	Ball Nut, Possum Nut, Big Nut, Beefwood	Vulnerable	Known
<i>Fontainea rostrata</i>	N/A	Vulnerable	Likely
<i>Fontainea venosa</i>	N/A	Vulnerable	May
<i>Haloragis exalata subsp. velutina</i>	Tall Velvet Sea-berry	Vulnerable	Known
<i>Macadamia integrifolia</i>	Macadamia Nut, Queensland Nut Tree, Smooth-shelled Macadamia, Bush Nut, Nut Oak	Vulnerable	Known

Scientific name	Common name	Threatened category	Likelihood within Study area
<i>Macadamia ternifolia</i>	Small-fruited Queensland Nut, Gympie Nut	Vulnerable	Known
<i>Macadamia tetraphylla</i>	Rough-shelled Bush Nut, Macadamia Nut, Rough-shelled Macadamia, Rough-leaved Queensland Nut	Vulnerable	Likely
<i>Paspalidium grandispiculatum</i>	Grass	Vulnerable	Known
<i>Persicaria elatior</i>	Knotweed, Tall Knotweed	Vulnerable	May
<i>Picris evae</i>	Hawkweed	Vulnerable	Known
<i>Polianthion minutiflorum</i>	N/A	Vulnerable	Likely
<i>Rhaponticum australe</i>	Austral Cornflower, Native Thistle	Vulnerable	Likely
<i>Samadera bidwillii</i>	Quassia	Vulnerable	Likely
<i>Sarcochilus fitzgeraldii</i>	Ravine Orchid	Vulnerable	May
<i>Sarcochilus weinthalii</i>	Blotched Sarcochilus, Weinthals Sarcanth	Vulnerable	Known
<i>Sophora fraseri</i>	N/A	Vulnerable	May
<i>Thesium australe</i>	Austral Toadflax, Toadflax	Vulnerable	Known

High risk areas for protected plants are mapped over land where plants listed as Endangered, Vulnerable or near threatened under the *Queensland Nature Conservation Act 1992* are known or likely to occur. High risk areas for protected plants are present in the Study Area, especially:

- Directly west of Tarong Power Station and Meandu Mine
- North of the D'Aguiar Highway between Benarkin, Taromeo and Linville
- Between Jimna and Conondale National Park
- Jimna State Forest north and east of Monsildale
- Yabba State Forest west of Kingaham
- West and East of Lake Borumba

### 3.1.4 Fauna

Essential Habitat is mapped where an Endangered, Vulnerable or near threatened species listed under the *Nature Conservation Act 1992* has been recorded or has potential to occur. There are extensive areas of Essential Habitat through the eastern portion of the Study Area associated with remnant vegetation.

Mapped Core Koala Habitat Areas and Locally Refined Koala Habitat Areas are present across the Study Area. The Study Area is known to provide habitat supporting plentiful native wildlife such as koalas, owls, bats, wallabies, echidna and platypus, however not all are listed as threatened species.

The PMST report identified 49 EPBC Act-listed threatened and migratory species that have the potential to occur within the Study Area as outlined in Table 3.

**Table 3:** EPBC Act listed threatened fauna

Scientific name	Common name	Threatened category	Likelihood
<b>Birds</b>			
<i>Anthochaera phrygia</i>	Regent Honeyeater	Critically Endangered	May
<i>Calidris ferruginea</i>	Curlew Sandpiper	Critically Endangered	May
<i>Cyclopsitta diophthalma coxeni</i>	Coxen's Fig-Parrot	Critically Endangered	Known
<i>Lathamus discolor</i>	Swift Parrot	Critically Endangered	Likely
<i>Numenius madagascariensis</i>	Eastern Curlew, Far Eastern Curlew	Critically Endangered	May
<i>Botaurus poiciloptilus</i>	Australasian Bittern	Endangered	Known
<i>Erythrotriorchis radiatus</i>	Red Goshawk	Endangered	Known
<i>Rostratula australis</i>	Australian Painted Snipe	Endangered	Likely
<i>Calyptorhynchus lathami lathami</i>	South-eastern Glossy Black-Cockatoo	Vulnerable	Known
<i>Climacteris picumnus victoriae</i>	Brown Treecreeper (south-eastern)	Vulnerable	May
<i>Falco hypoleucos</i>	Grey Falcon	Vulnerable	Likely
<i>Geophaps scripta scripta</i>	Squatter Pigeon (southern)	Vulnerable	Known
<i>Grantiella picta</i>	Painted Honeyeater	Vulnerable	Known
<i>Hirundapus caudacutus</i>	White-throated Needletail	Vulnerable	Known
<i>Stagonopleura guttata</i>	Diamond Firetail	Vulnerable	Known
<i>Turnix melanogaster</i>	Black-breasted Button-quail	Vulnerable	Known
<b>Fish</b>			
<i>Maccullochella mariensis</i>	Mary River Cod	Endangered	Known
<i>Neoceratodus forsteri</i>	Australian Lungfish, Queensland Lungfish	Vulnerable	Known

Scientific name	Common name	Threatened category	Likelihood
<b>Frog</b>			
Mixophyes fleayi	Fleay's Frog	Endangered	Known
Mixophyes iteratus	Giant Barred Frog, Southern Barred Frog	Vulnerable	Known
<b>Mammals</b>			
Dasyurus hallucatus	Northern Quoll, Digul (Gogo-Yimidir), Wijingadda (Dambimangari), Wiminji (Martu)	Endangered	Likely
Dasyurus maculatus maculatus (SE mainland population)	Spot-tailed Quoll, Spotted- tail Quoll, Tiger Quoll (southeastern mainland population)	Endangered	Known
Petauroides volans	Greater Glider (southern and central)	Endangered	Known
Phascolarctos cinereus (combined populations of Queensland, New South Wales and the Australian Capital Territory)	Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory)	Endangered	Known
Chalinobus dwyeri	Large-eared Pied Bat, Large Pied Bat	Vulnerable	May
Macroderma gigas	Ghost Bat	Vulnerable	May
Nyctophilus corbeni	Corben's Long-eared Bat, South-eastern Long-eared Bat	Vulnerable	May
Petaurus australis australis	Yellow-bellied Glider (south-eastern)	Vulnerable	Known
Petrogale penicillata	Brush-tailed Rock-wallaby	Vulnerable	May
Potorous tridactylus tridactylus	Long-nosed Potoroo (northern)	Vulnerable	Known
Pseudomys novaehollandiae	New Holland Mouse, Pookila	Vulnerable	May
Pteropus poliocephalus	Grey-headed Flying-fox	Vulnerable	Known
<b>Migratory</b>			

Scientific name	Common name	Threatened category	Likelihood
<i>Actitis hypoleucos</i>	Common Sandpiper	Migratory	May
<i>Apus pacificus</i>	Fork-tailed Swift	Migratory	Likely
<i>Calidris acuminata</i>	Sharp-tailed Sandpiper	Migratory	May
<i>Calidris ferruginea</i>	Curlew Sandpiper	Migratory	May
<i>Calidris melanotos</i>	Pectoral Sandpiper	Migratory	May
<i>Crocodylus porosus</i>	Salt-water Crocodile, Estuarine Crocodile	Migratory	Likely
<i>Cuculus optatus</i>	Oriental Cuckoo, Horsfield's Cuckoo	Migratory	Known
<i>Gallinago hardwickii</i>	Latham's Snipe, Japanese Snipe	Migratory	Known
<i>Hirundapus caudacutus</i>	White-throated Needletail	Migratory	Known
<i>Monarcha melanopsis</i>	Black-faced Monarch	Migratory	Known
<i>Motacilla flava</i>	Yellow Wagtail	Migratory	May
<i>Myiagra cyanoleuca</i>	Satin Flycatcher	Migratory	Known
<i>Numenius madagascariensis</i>	Eastern Curlew, Far Eastern Curlew	Migratory	May
<i>Pandion haliaetus</i>	Osprey	Migratory	Known
<i>Rhipidura rufifrons</i>	Rufous Fantail	Migratory	Known
<i>Symposiachrus trivirgatus</i>	Spectacled Monarch	Migratory (as <i>Monarcha trivirgatus</i> )	Known
<i>Tringa nebularia</i>	Common Greenshank, Greenshank	Migratory	May

Waterway barrier works with potential to impede fish passages are regulated under the *Fisheries Act 1994* and the *Planning Act 2016*. Barrier works include construction, raising, replacement and some maintenance works on structures such as culvert crossings, bed level and low-level crossings, weirs and dams (both permanent and temporary). The Study Area includes major-risk waterways for waterway barrier works, as well as high, moderate and low risk waterways.

### 3.1.5 Heritage

A search of the Department of Seniors, Disability Services and Aboriginal and Torres Strait Islander Partnerships' (DSDSATSIP) cultural heritage database for the Study Area has identified several recorded Aboriginal cultural heritage sites, including artefact scatters, earthen and stone arrangements, scarred trees, painting, burial sites and other cultural sites. Further on-ground surveys will be conducted to confirm the presence of any additional cultural heritage.

A search of the DSDSATSIP cultural heritage database also identifies the following Aboriginal parties within the Study Area:

- Kabi Kabi First Nation Traditional Owners Native Title Claim Group
- Wakka Wakka Native Title Aboriginal Corporation Registered Native Title Body Corporate (RNTBC)
- Jinibara People Aboriginal Corporation RNTBC.

The Queensland Heritage Register (QHR) and Local Heritage Registers (LHR) list several heritage places. The Cultural Heritage Inventory Management System (CHIMS, maintained by the Department of Environment and Science) indicates sites are present throughout the eastern extent of the Study Area. One Queensland Heritage Place located within the Study Area is the Tarong Homestead on Kingaroy Cooyar Road, Tarong. The Linville War Memorial within the Linville town centre on George Street, and Taromeo Homestead complex and cemetery are located towards the southern boundary.

Mapping under the non-statutory Register of National Estate (RNE) identifies sites corresponding to National Parks in the Study Area. A search of the World Heritage List (WHL), National Heritage List (NHL) and the Commonwealth Heritage List (CHL) identifies no listed heritage places within or near the Study Area.

### 3.1.6 Transport

The state-controlled roads that traverse the Study Area include:

- Kilcoy-Murgon Road through Jimna
- D’Aguilar Highway, which connects Yarraman to Kingaroy via Nanango
- Kingaroy-Cooyar Road, which connects Kingaroy to Tarong
- Nanango-Tarong Road, which connects Nanango to Maidenwell.

Local roads are managed by local councils, including Gympie Regional Council, Somerset Regional Council, South Burnett Regional Council, Sunshine Coast Regional Council and Toowoomba Regional Council. There are no railways or rail networks traversing the Study Area.

Within the Study Area there is one airport (Nanango Airport) in the South Burnett Local Government Area and one landing ground in Somerset Local Government Area. Three heliports are mapped within the Jimna and Nanango areas.

## 3.2 Study Area engagement

Initial stakeholder engagement regarding the proposed project began in December 2021 and was followed by the release of a Study Area in mid-2022.

In July and August 2022, Powerlink sought input from the community and other stakeholders on the Study Area. This engagement included hearing from local councils, Traditional Owners, peak bodies, and the wider community to understand and gain better insights into important community matters, constraints and what is happening in the area.

Engagement activities at this stage involved:

- establishment of a dedicated project website
- community information drop-in sessions
- presentations to the Borumba Pumped Hydro Stakeholder Reference Group

- elected representative briefings
- project update newsletter/s
- interactive map of Study Area, hosted on the project website
- community survey
- consultation meetings with representatives of Traditional Owner groups
- stakeholder briefings with local organisations
- establishment of two dedicated Stakeholder Reference Groups (Burnett Stakeholder Reference Group and Transmission Sub-Group of Borumba Pumped Hydro Stakeholder Reference Group) and meetings held.

The community information drop-in sessions were advertised via social media (e.g. community Facebook groups), the project website, local government channels, radio and newspaper advertisements, and posters/flyers on community noticeboards in key townships.

As part of the social impact study for the Borumba PHES Project, a community survey was undertaken in August and September 2022, with 327 responses received. Two questions regarding transmission infrastructure were included in the survey with the responses highlighting the following key themes regarding community perspectives on the project:

- location of new transmission line with an existing line
- avoid areas of significant Aboriginal and non-Aboriginal cultural heritage
- avoid known recreation and tourism areas
- avoid residential dwellings and key buildings
- mitigation of biosecurity risks
- minimise impacts on highly productive and profitable agricultural land

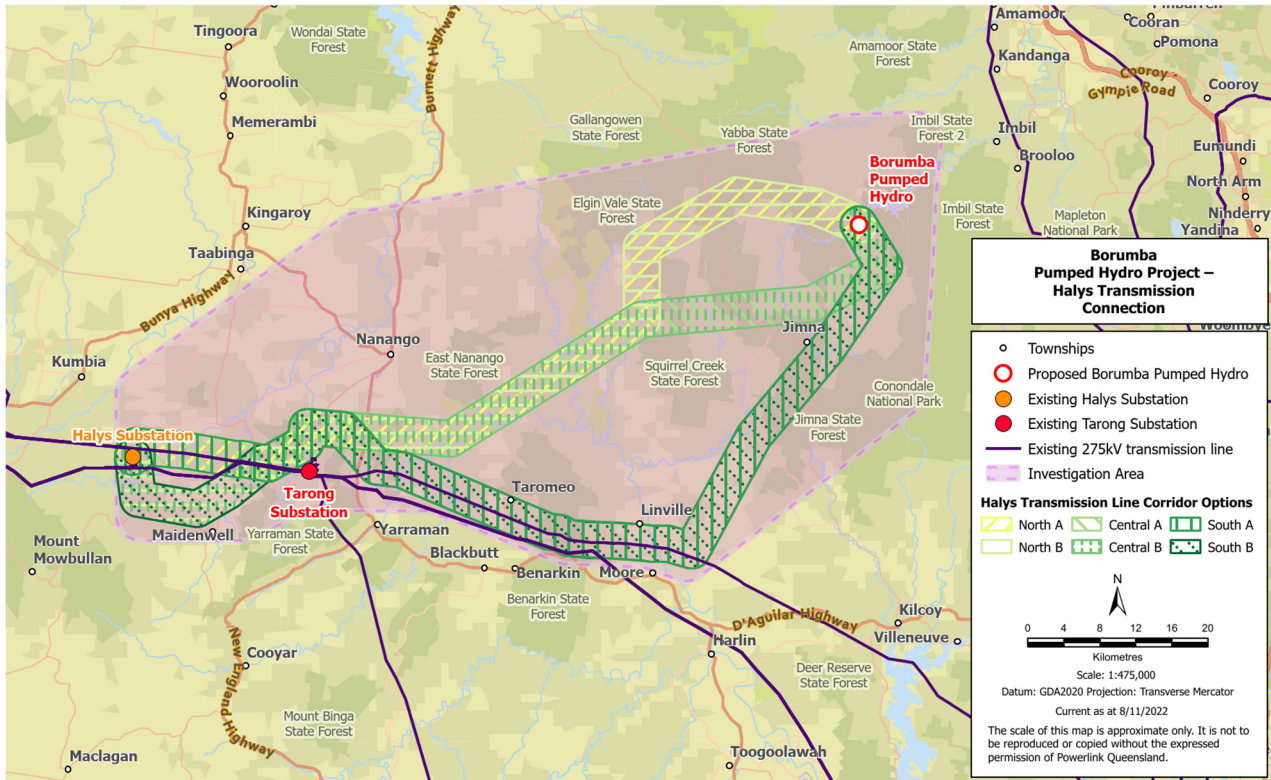
This feedback helped shape the initial development of the corridor options.

## 4.0 Corridor Options

Corridor options were developed based on community feedback, and the identified opportunities and constraints within the Study Area. In November 2022, the transmission line corridor options, shown in Figure 6, were released for further engagement and feedback.



Figure 6: Corridor options – Halys



## 4.1 Corridor options overview

Three 4km-wide corridor options for the transmission line between the Borumba PHES and Halys Substation were developed including two sub-options (Table 4).

Table 4: Corridor Options

<p><b>Halys North</b></p> <p>This corridor traverses north-west from the proposed pumped hydro facility before heading south towards Tarong, bypassing Nanango township. This option avoids townships, existing infrastructure and irrigated agriculture to the north of the existing transmission line.</p>
<p><b>Halys Central</b></p> <p>This corridor traverses south-east from the proposed pumped hydro facility before heading west towards Tarong Substation. This route is more direct than the Halys South option (description below) but does not co-locate with existing transmission lines.</p>
<p><b>Halys South</b></p> <p>This corridor traverses south-east from the proposed pumped hydro facility and veers south-west towards Jimna before co-locating with the existing transmission lines east of Linville. The corridor co-locates with existing transmission lines to the west before heading north to avoid built infrastructure at Tarong Substation.</p>
<p><b>Options A and B</b></p> <p>When Halys North, Halys Central and Halys South corridors reach Tarong, we have identified two options to connect into Halys Substation. Option A prioritises co-location with existing transmission lines between Tarong and Halys substations. Option B diverts south of existing transmission lines towards Maidenwell before connecting back into Halys Substation from the south.</p>

A northern corridor option was initially considered extending from Elgin Vale State Forest, between

Kingaroy and Nanango, and connecting to Tarong and Halys substations. Following engagement with community members and other stakeholders, this option was not actively considered, due to the significant economic impacts on strategic cropping land and production from dryland agriculture and plantations.

All corridor options consider sub-options A and B.

## 4.2 Corridor options engagement

Powerlink has undertaken extensive engagement on the corridor options between November 2022 and March 2023 to understand the social, environment and economic factors that may influence the criteria used in the corridor selection process.

In the early phases of our engagement on the corridor options, we received feedback on low levels of project awareness. In response to this feedback Powerlink broadened its engagement focus and activities.

Inputs from landholders and the community have been valuable in helping Powerlink to identify a corridor that has the least overall impact across the social, environment and economic objectives of the proposed transmission line. Engagement has included:

- community information drop-in sessions in Jimna, Yarraman, Nanango, Linville, Blackbutt, Kilcoy, Maidenwell, Moore, Kumbia, Kilkivan, Woolooga, Imbil, Manumbar, Widgee, Amamoor, Kandanga, and Gympie. In some cases, these locations were visited multiple times to gather additional feedback
- Interactive mapping with proposed corridor options, enabling direct feedback on the corridor options
- landholder letters and emails
- briefings with Stakeholder Reference Groups
- elected representative briefings
- consultation meetings with representatives of identified Traditional Owner groups.

Like earlier engagement phases, the community information drop-in sessions were advertised via social media, the project website, local government channels, various community Facebook groups, radio and newspaper advertisements, and posters/flyers on community noticeboards in key townships.

Following the community information drop-in sessions, additional engagement was undertaken in March 2023 to provide further information about the proposed corridor options and seek further feedback. This included sending 901 letters in the Halys corridors providing a project update, including the key themes from the community feedback and the release date for the Draft Corridor Selection Report (CSR).

### 4.2.1 Traditional Owner engagement

Powerlink acknowledges and respects the ongoing connection of Traditional Owners to their traditional lands. Whilst Traditional Owners and First Nation People are welcome at community engagement sessions, a separate engagement process has been undertaken with Traditional Owners likely to be impacted by the proposed corridor selection. The focus of engagement has been the dissemination of study information to allow Traditional Owners to consider and provide feedback on cultural values and constraints that may be impacted by the project.

For the proposed transmission connection to into Halys, independent engagement has been undertaken with the following Aboriginal parties identified under the *Aboriginal Cultural Heritage Act 2003 (Qld)* (ACH Act):

- Kabi Kabi First Nation Traditional Owner Native Title Claim Group
- Wakka Wakka Native Title Aboriginal Corporation Registered Native Title Body Corporate (RNTBC)
- Jinibara People Aboriginal Corporation RNTBC.

There is also a section of the Study Area where there is no registered Native Title claim. It is anticipated that Traditional Owners will assert authority to speak for all parts of the recommended corridor in accordance with the ACH Act.

### 4.3 Engagement analysis

Since July 2022, Powerlink has shared information and gathered feedback via:

- 33 community information drop-in sessions, attended by more than 2,000 residents
- 2,060 project update emails and 7,200 letters sent to landholders
- more than 500 digital and hardcopy feedback forms received
- 1,000 comments received and responded to on our online interactive map
- phone calls and emails with landholders
- meetings with local community groups and landholders
- letterbox drops across the wider community in the South Burnett, Somerset and Gympie areas
- briefings with Stakeholder Reference Groups, Traditional Owners, state and local government officials, and representatives from a number of state government departments
- selective site visits with Traditional Owner representatives
- social media channels, and advertisements in local newspapers and other publications, and radio stations
- more than 13,000 visits to the project website.

Feedback received has been grouped into themes to identify key areas of community interest and concern relating to this project. All feedback has been reviewed and considered to determine the constraint, potential impact and necessary action. The below themes have flowed into the corridor selection process and have been referenced in the Multi-Criteria Analysis (MCA).



#### Property impacts

- Property impacts throughout planning, construction and operation
- Compensation considerations and loss of value
- Loss of generational ownership
- Amenity impacts and future use
- Loss of productive and developed agricultural land
- Devaluation of land and business operations



#### Lifestyle impacts

- Visual amenity impacts
- Disruption of key recreational activities
- Changes to lifestyle features that attracts residents and tourists



#### Wildlife

- Presence of endangered species
- Damage and destruction of wildlife habitats
- Wildlife has a significant value to the community

- Key reason for living in the region and community lifestyle value



#### State-owned land

- Investigate increased use of State-owned land including State Forests and National Parks
- Potential for bushfire mitigation through use of State-owned land
- Avoiding areas of cultural significance and connection to country



#### Corridor preferences

- Opportunities around the co-location of corridors
- Avoidance of communities and private properties
- Potential of undergrounding sections of the transmission lines
- Minimising impacts to flood areas



#### Vegetation

- Vegetation clearing and acquisition of offsets
- Impacts to remnant vegetation
- Vegetation management practices



#### Environment and Heritage

- Environmental impacts including biodiversity
- Conservation management and practices
- Compliance with environmental legislation
- Avoidance of areas with heritage or cultural significance.

Additional themes were also noted in relation to:

- Biosecurity – raising existing issues with the management of Giant Rats Tail Grass (GRT) and Parthenium, Powerlink and contractor compliance with biosecurity regulations, and spread and control of weed and pest species in a new corridor.
- Health – areas of concern include electric and magnetic fields (EMF), perceived health impacts regarding residents living near transmission lines, and the potential for unknown and long-term health impacts.

While these additional themes are important factors, they are managed in broader terms throughout the corridor selection phases, in particular when selecting a final alignment.

## 5.0 Corridor Selection Process

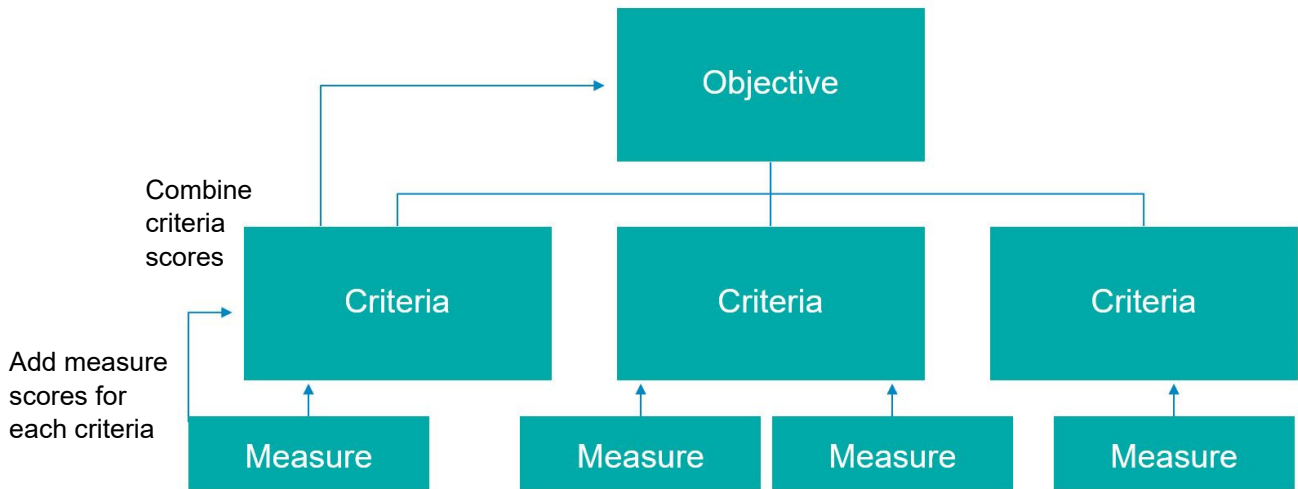
### 5.1 Methodology

The methodology for assessment considered a Multi-Criteria Analysis (MCA) framework, involving identification of the key corridor selection objectives, development of the key criteria for each objective and the measures required to assess each criteria.

The MCA framework seeks to balance the impacts of the recommended corridor across the three objectives identified, ultimately resulting in a recommended corridor with least overall impact across social, environment and economic objectives.

The overarching process of assessment is shown in Figure 7.

**Figure 7:** Corridor selection process, adapted from Infrastructure Australia’s Multi-Criteria Analysis process



## 5.2 Objectives

Three objectives were identified to inform the approach to corridor selection and refinement:



**Social**  
To consider the use of land and the community livelihood within and adjacent to corridor options.



**Environment**  
To consider a balanced approach to corridor selection with the least practicable impact on environment and heritage values.



**Economic**  
To consider construction and operational factors such as cost at a preliminary level, given the scale of the project.

## 5.3 Criteria

To assess each corridor option against the objectives, criteria were identified through analysis of community and stakeholder feedback and spatial mapping. Table 5 outlines the criteria developed for assessing the corridor option and provides a summary of the rationale for the criteria. The table also sets out the relevant community feedback themes and captures the spatial data layers used to support the assessment of criteria against the social, environment and economic objectives.

Table 5: Key criteria and rationale

Criteria	Rationale	Relevant feedback theme	Spatial data
<b>Social</b>			
<b>Strategic cropping and agricultural lands</b>	<p>The <i>Regional Planning Interests (RPI) Act 2014</i> regulates impacts from resource and other regulated activities in areas where land is or is likely to be highly suitable for cropping due to a combination of the soil, landscape and climatic features of the land. While the Act does not specifically apply to the activities of the proposed project, due to the value of Strategic Cropping Land to the community and its protection under legislation, land in this category will be considered in the corridor selection process as areas where impact should be minimised to the greatest extent possible.</p> <p>This criteria includes plantation forests, grazing and modified pastures such as legumes and grasses, cropping, hay, perennial and seasonal horticulture for example fruits, herbs, vegetables and flowers, as well as land in transition, which can include land under rehabilitation, abandoned and degraded lands. Dryland agriculture, irrigated plantation forests, grazing modified pastures for example legumes and pastures, irrigated cropping such as hay, cereals, pulses, seasonal and perennial horticulture such as fruits, herbs, vegetables and flowers are also considered.</p>	Property impacts	<p>Areas of strategic cropping land have been obtained from the Queensland spatial data layer <i>Electronic mapping data for Strategic Cropping Land in Queensland under the RPI Act 2014 v3.90</i>.</p> <p>The areas of production from dryland and irrigated agriculture and plantations have been obtained from the Queensland State data <i>Land use mapping – 1999 to 2017</i>.</p>
<b>Avoidance of properties &lt;5 hectares (ha)</b>	<p>The mapping of properties less than 5ha in size was considered as a proxy to the impact on landowners, including housing clusters and townships. Given the limited flexibility in impact to these properties in terms of size of land required, visual impact, impact to businesses being run from properties, proximity of infrastructure and impact to access, impact to these areas should be avoided wherever possible, or minimised where avoidance is not possible.</p>	<p>Property impacts</p> <p>Lifestyle impacts</p> <p>Corridor preferences</p>	<p>Land tenure less than 5ha has been identified through spatial data analysis using property information.</p>
<b>State-owned land</b>	<p>The reference to State-owned land has included State Forest, National Parks and Conservations Parks. Early engagement with the community and landholders for the project has indicated a strong preference by some parts of the community for the recommended corridor to be located on State-owned land, avoiding impact to landholders within the area. This community feedback has led to State-owned</p>	<p>State-owned land</p> <p>Property impacts</p> <p>Lifestyle impacts</p> <p>Corridor preferences</p>	<p>The ‘State-owned land’ spatial data includes information maintained by the Department of Resources (DoR)</p>

Table 5: Key criteria and rationale

Criteria	Rationale	Relevant feedback theme	Spatial data
	<p>land being included in the criteria for the analysis of the corridors. The preference for utilising State-owned land is expected to minimise the impact on other community centres, towns and places of assembly as well as potential new visual impacts from residences, roads and towns.</p> <p>Conversely, feedback from Traditional Owner groups has indicated preferences for areas containing mature native vegetation particularly National Parks, to be avoided. In addition, feedback from some of the community has highlighted the importance of avoiding State-owned land including National Park for its heritage value, recreational and tourism activities including features such as hiking trails, waterfalls, swimming holes, accommodation and camping grounds.</p> <p>State Forests and timber reserves are set aside for the production of log timber and forest products, which include quarry material, protection of watersheds and soil as well as inherent natural and environmental attributes, and can often allow for ongoing grazing, recreation and tourism activities. A number of State Forests are present throughout the Study Area. It should be noted that while State Forests have been conserved for logging and provision of forestry resources, a number of these reserves are also habitat for a range of threatened species and additionally, can contain mapped essential habitat. Therefore, while State Forests are recommended over National and Conservation Parks, these areas may still trigger assessment for impacts to threatened species and potential approvals for impact to these species and habitats.</p> <p>The opportunities to use State-owned land is considered where a balance can be achieved taking into consideration our planning approach to avoid impacting on these conserved areas, where possible.</p>	Environment and Heritage	comprised of land parcels within the Digital Cadastral Database (DCDB) owned by State government agencies and includes land parcels of State Forest and state land tenure, as well as several parcels of State-owned land.
<b>Number of properties</b>	The mapping of properties in a corridor is important to understand as a proxy for the number of landholders overall. The preference is to minimise the total number of properties impacted, where possible.	Property impacts Lifestyle impacts	Number of properties has been identified through spatial data analysis using property information.
<b>Intensive use</b>	Intensive use includes land used for horticulture (such as production nurseries and shade houses), intensive animal production (such as feedlots, aquaculture,	Property impacts	The areas of intensive uses have been

Table 5: Key criteria and rationale

Criteria	Rationale	Relevant feedback theme	Spatial data
	<p>and dairy sheds), manufacturing and industrial (such as grain storage, saw mills and farm infrastructure), and services (such as wind, solar, gas and water infrastructure, transport, mining and waste treatment). Areas across the corridor options contain intensive uses, however these areas are not the predominant land use.</p> <p>Landholders with intensive use on their properties are often solely supported by these activities, therefore the recommended corridor should avoid these areas where possible or minimise impacts where avoidance is not possible.</p>	Lifestyle impacts	obtained from the Queensland State <i>Land Use Mapping – 1999 to 2013 South East Queensland NRM</i> data layer which provides primary use or management objectives for land in South East Queensland using the Australian Land Use and Management Classification categories.
<b>Environment</b>			
<b>Endangered Regional ecosystem (RE) Category A, B, C, R</b>	Endangered regional ecosystems are vegetation communities containing ecosystems where less than 10% remains of the pre-clearing extent across the bioregion or 10% to 30% of its pre-clearing extent remains and the remnant vegetation is less than 10,000ha. Impact to these areas of vegetation should be avoided wherever possible, or minimised where avoidance is not possible.	Wildlife Vegetation Environment and Heritage	Queensland Government spatial data - Vegetation management regional ecosystem map - version 12.02 - By Area Of Interest.
<b>Areas Of Concern (RE) Category A, B, C, R</b>	Of Concern regional ecosystems are vegetation communities containing ecosystems where remnant vegetation is 10–30% of its pre-clearing extent across the bioregion, or more than 30% of its pre-clearing extent remains and the remnant extent is less than 10,000ha. Impact to these areas of vegetation should be avoided wherever possible, or minimised where avoidance is not possible.	Wildlife Vegetation Environment and Heritage	Queensland Government spatial data - Vegetation management regional ecosystem map - version 12.02 - By Area Of Interest.



Table 5: Key criteria and rationale

Criteria	Rationale	Relevant feedback theme	Spatial data
<b>Least Concern (RE) Category A, B, C, R</b>	Least Concern regional ecosystems are vegetation communities containing ecosystems where remnant vegetation is over 30% of its pre-clearing extent across the bioregion, and the remnant area is greater than 10,000ha. Impact to these areas of vegetation should be avoided wherever possible, or minimised where avoidance is not possible	Wildlife Vegetation Environment and Heritage	Queensland Government spatial data - Vegetation management regional ecosystem map - version 12.02 - By Area Of Interest.
<b>Essential habitat</b>	Essential habitat is defined under the <i>Vegetation Management Act 1999</i> as vegetation containing habitat for Endangered, Vulnerable or near threatened wildlife, which have been afforded protection under the <i>Nature Conservation Act 1992</i> . Essential habitat is likely to contain values that are needed to sustain wildlife such as particular vegetation communities, altitude, landscape and regional ecosystems, or where wildlife is known to occur. Due to areas of essential habitat being critical to threatened flora and fauna species, impact to essential habitat should be avoided wherever possible, or minimised where avoidance is not possible	Wildlife Vegetation Environment and Heritage	Queensland Government spatial data.
<b>National Park, Conservation Parks, and Nature Refuges</b>	<u>National Parks and Conservations Parks</u> These are considered to provide outstanding examples of Queensland’s natural environment and heritage, providing habitat for wildlife and opportunities for outdoor recreation activities. These parks are afforded protection under the <i>Nature Conservation Act 1992</i> and supported by <i>Queensland’s Protected Area Strategy 2020-2030</i> and the <i>Master Plan for Queensland’s parks and forests</i> . Key management principles for National Parks and Conservation Parks include keeping parks as close as possible to their natural state, ensuring that the use of the park is sustainable and nature-based, and protecting the park’s natural and cultural resources and values. In addition to the environment and cultural values of National Parks, unavoidable impact to these areas involves a complex and lengthy approvals process requiring negotiation with State agencies and compensatory offsets to be provided. Feedback from some of the community has highlighted the importance of National Parks and Conservation Parks for	Property impacts Lifestyle Wildlife Corridor preferences Vegetation Environment and Heritage State-owned land	The National Park, Conservation Park and Nature Refuge areas have been extracted from the ‘protected areas estate’ spatial layer.  Cultural heritage places of significance were obtained from state and local government database searches undertaken by

Table 5: Key criteria and rationale

Criteria	Rationale	Relevant feedback theme	Spatial data
	<p>heritage values, recreational and tourism activities including features such as hiking trails, waterfalls, swimming holes, accommodation and camping grounds.</p> <p><u>Aboriginal cultural heritage values</u></p> <p>Aboriginal cultural heritage is defined under the <i>Aboriginal Cultural Heritage Act 2003</i> (ACH Act) as anything that is either a significant Aboriginal area in Queensland, a significant Aboriginal object, or significant archaeological or historical evidence of Aboriginal occupation of an area of Queensland. A significant Aboriginal area or object under the ACH Act is considered to be an area or object that is of particular significance to Aboriginal people because of Aboriginal tradition and/or the history, including contemporary history, of any Aboriginal party(s) for the area. In addition, consultation has also identified additional sites and places of cultural value.</p> <p>The Department of Seniors, Disability Services and Aboriginal and Torres Strait Islander Partnerships (DSDSATSIP) cultural heritage database and register have been established and are maintained in accordance with Part 5 of the ACH Act. The DSDSATSIP database assembles information about known Aboriginal cultural heritage values.</p> <p>Feedback from Traditional Owner groups has indicated preferences for areas containing mature native vegetation particularly National Parks, to be avoided.</p> <p><u>Queensland and Local Heritage values</u></p> <p>The <i>Queensland Heritage Act 1992</i> (QH Act) provides the framework for assessing the significance of items and places of historical cultural heritage value in Queensland. It makes provision for the conservation of Queensland’s cultural heritage by protecting all places and areas listed on the <i>Queensland Heritage Register</i> (QHR). Queensland heritage sites were identified and ranked as areas to avoid in the spatial data inputs.</p> <p>Local heritage places are managed under Part 11 of the QH Act, local planning schemes and the <i>Planning Act 2016</i> and sites of significance are listed on Local</p>		<p>AECOM’s cultural heritage team.</p>

Table 5: Key criteria and rationale

Criteria	Rationale	Relevant feedback theme	Spatial data
	<p>Heritage Registers (LHR) which are generally maintained by councils. The <i>Cultural Heritage Inventory Management Systems</i> (CHIMS) is a register maintained by the Department of Environment and Science (DES) containing sites of potential cultural heritage throughout Queensland. LHR and CHIMS sites were identified and categorised as areas to avoid.</p> <p><u>Protected Areas</u></p> <p>Nature Refuges are a part of the Private Protected Area Program in Queensland. The declaration of a Nature Refuge is a voluntary agreement between a landholder and the Minister to conserve natural and cultural values on the land. Nature Refuges are protected under the <i>Nature Conservation Act 1992</i> as a class of protection which remains in place even when the land is bought or sold. The declaration places an obligation to conserve the areas significant resources and control the use of the land and resources in conjunction with the landholders' rights to use the land.</p> <p>While it is recognised that cultural and heritage values can exist across any land tenure, it is included in this criteria as typically National Parks have greater areas of cultural value due to their undisturbed nature and significance.</p> <p>Overall, given the sensitivities of impacting these highly protected areas, these should be avoided wherever possible.</p>		
<b>Economic</b>			
<b>Corridor length</b>	<p>Longer corridors generally indicate a requirement for more materials, greater areas of disturbance, longer construction times and maintenance over infrastructure life. Corridor length has been used as a proxy to compare for potential upfront and ongoing maintenance costs for the infrastructure. Shorter corridor lengths are considered an opportunity.</p>	Corridor preferences	N/A
<b>Land &gt;30% slope</b>	<p>Steep topography limits vehicle and machinery access and significantly increases the required earthworks at each tower site. Additional easements and access are generally required in steep country and therefore environmental impacts can be increased in these areas, as additional clearing maybe required. Land in this</p>	Environment and Heritage Corridor preferences	Land which contains topography of slopes greater than 30% has been identified based

Table 5: Key criteria and rationale

Criteria	Rationale	Relevant feedback theme	Spatial data
	<p>category poses a significant constraint to construction of infrastructure and the need to build on this category of land needs to be considered in the context of constructability, cost and time to ensure feasibility. Due to these constraints, the corridor options analysis aims to minimise impact to this land category as far as practicable.</p>		<p>on topographic mapping and land contours.</p>
<p><b>Co-location</b></p>	<p>In terms of environment and heritage values and the potential for impact, it may be preferable for new transmission infrastructure to be co-located within or directly adjacent to an existing easement. Also, where communities or landholders are already impacted by existing infrastructure, co-location may be preferential over creating new impacts in other areas.</p> <p>Co-location of transmission lines with other linear infrastructure has the potential to minimise impact on land values and make use of existing maintenance points and access tracks. Additionally, there may be fewer impacts on farming land, general disruption to landholders due to access both during construction and operationally, reduced biosecurity risk due to fewer new property impacts and less impact on landholder privacy for landholders regarding third party access.</p> <p>Although co-location has advantages, it may not always be feasible due to landholders and community response to an additional easement width for an existing line. The network's overall risks of resilience when assessing corridor options must also be considered. For instance, potential co-location in an area may pose a risk to loss of supply if both lines become unavailable due to local conditions like bushfires, floods, or other natural disasters, which could adversely affect the network.</p> <p>The corridor selection process included spatial data for the locations of existing state-controlled roads, powerlines and easements. Infrastructure corridors and easements can be considered as an opportunity for the project depending on location, direction and width, to make use of existing disturbed corridors where this is acceptable to the community.</p> <p>However, crossing existing infrastructure can have potentially significant impacts to the proposed project given the need to safely traverse and modify existing infrastructure, where considered acceptable to the infrastructure owner. Impacts</p>	<p>Property impacts Environment and Heritage Corridor preferences</p>	<p>The location of existing transmission line easements was sourced through Geoscience Australia via the National Electricity Transmission Lines 2016 dataset and used to spatially indicate locations where existing electricity transmission infrastructure is present.</p> <p>Queensland Government spatial data.</p>

Table 5: Key criteria and rationale

Criteria	Rationale	Relevant feedback theme	Spatial data
	<p>to the project can involve lengthy lead times for consultation with asset owners, additional design and construction works to modify and relocate infrastructure to accommodate transmission line infrastructure and the associated costs with these requirements</p> <p>The opportunities to co-locate are considered based on other constraints in the area.</p>		

## 5.4 Measures

To assess each corridor option against the criteria outlined in Table 5, a series of measures were developed. The objectives, criteria and measures adopted for the project are summarised within Table 6.

**Table 6:** Corridor selection assessment parameters

Objectives	Criteria	Measures
<b>Social</b> To consider the use of land and the community livelihood within and adjacent to corridor options.	<b>Criteria 1:</b> Strategic cropping and agricultural lands	Area of corridor with Strategic Cropping Land
		Area of corridor with Agricultural Class A
		Area of corridor with Agricultural Class B
	<b>Criteria 2:</b> Properties (<5ha in size)	Number of properties less than 5ha in size
	<b>Criteria 3:</b> Use of State-owned land	Area of State-owned land within the corridor
	<b>Criteria 4:</b> Number of properties	Number of properties within the corridor
<b>Environment</b> To consider a balanced approach to corridor selection with the least practicable impact on environment and heritage values.	<b>Criteria 1:</b> Endangered regional ecosystems	Area of remnant and regrowth Endangered regional ecosystems in the corridor
	<b>Criteria 2:</b> Of Concern regional ecosystems	Area of remnant and regrowth Of Concern regional ecosystems in the corridor
	<b>Criteria 3:</b> Least Concern regional ecosystems	Area of remnant and regrowth Least Concern regional ecosystems in the corridor
	<b>Criteria 4:</b> Essential habitat	Area of Essential Habitat within the corridor
	<b>Criteria 5:</b> National Parks, Conservation Parks and Nature Refuges	Area of National Park within the corridor
		Area of Conservation Park within the corridor
Area of Nature Refuges within the corridor		
<b>Economic</b> To consider construction and operational factors such as cost at a preliminary level, given the scale of the project.	<b>Criteria 1:</b> Corridor length	Length of corridor
	<b>Criteria 2:</b> Land greater than 30% slope	Percentage of land greater than 30% slope within the corridor
	<b>Criteria 3:</b> Co-location	Percentage of corridor able to be co-located with existing 275kV line



**Table 7:** Agricultural land use comparison

	Unit	North A	North B	Central A	Central B	South A	South B
Criteria 1: Strategic cropping and agricultural land	ha	4421	4103	4859	4540	7918	7595

All proposed corridor options intersect areas of agricultural land as well as plantations near the existing Halys and Tarong substations. The South options intersect larger areas of strategic cropping land (south of Linville), and dryland agriculture and plantations associated with both Benarkin and Jimna State Forests.

The Central options also intersect some areas of dryland agriculture and plantations at the northern end of Jimna State Forest.

**The North options have the lowest potential to impact agricultural land, although not significantly different to the Central options.**

### 6.1.2 Property impacts

The avoidance of townships and impacts to residences was a key feedback theme from the community. Land parcels less than 5ha have been used as a proxy for the locations of housing density as well as townships and associated infrastructure. Avoiding these properties aims to minimise impacts to communities such as visual amenity and loss of land used for recreation or livelihood purposes. A count of individual properties was also used to compare corridor options.

The number of properties and properties less than 5ha in each corridor is shown in Table 8.

**Table 8:** Number of properties comparison

	Unit	North A	North B	Central A	Central B	South A	South B
Criteria 2: Properties <5 ha	count	281	246	281	246	685	651
Criteria 4: Number of properties	count	762	761	762	761	1481	1483

All corridor options intersect a large number of small properties and individual properties due to the distance between the proposed PHES and Halys Substation as well as the 4km width of the corridor options investigated. The area proximate to the existing Tarong Substation, especially south of Nanango, is congested with smaller properties and applies to all options.

Significantly more small properties are intersected by the South options including residences near Teelah, Taromeo and Linville townships. The North and Central corridor options track through much larger parcels of freehold land and State Forests.

**The North and Central options intersect with the fewest number of properties and properties less than 5ha.**



### 6.1.3 State-owned land

Feedback from parts of the community has indicated a preference for the transmission line to be located on State-owned land to avoid impact to landholders within the area. The reference to State-owned land has included State Forest, National Parks and Conservation Parks.

Other feedback received highlighted the importance of State-owned land for heritage values, recreational and tourism activities. A number of State Forests are present throughout the Study Area. It should be noted that while State Forests have been conserved for logging and provision of forestry resources, a number of these reserves are also habitat for a range of threatened species and additionally, can contain mapped essential habitat. Therefore, while State Forests are recommended over National and Conservation Parks, these areas may still trigger assessment for impacts to threatened species and potential approvals for impact to these habitats and species.

The use of State-owned land in each corridor is shown in Table 9.

**Table 9:** State owned land comparison

	Unit	North A	North B	Central A	Central B	South A	South B
Criteria 3: State-owned land	%	22	22	15	15	17	16

All proposed corridor options intersect some areas of State-owned land.

**The North corridor intersects the largest proportion of State-owned land.**

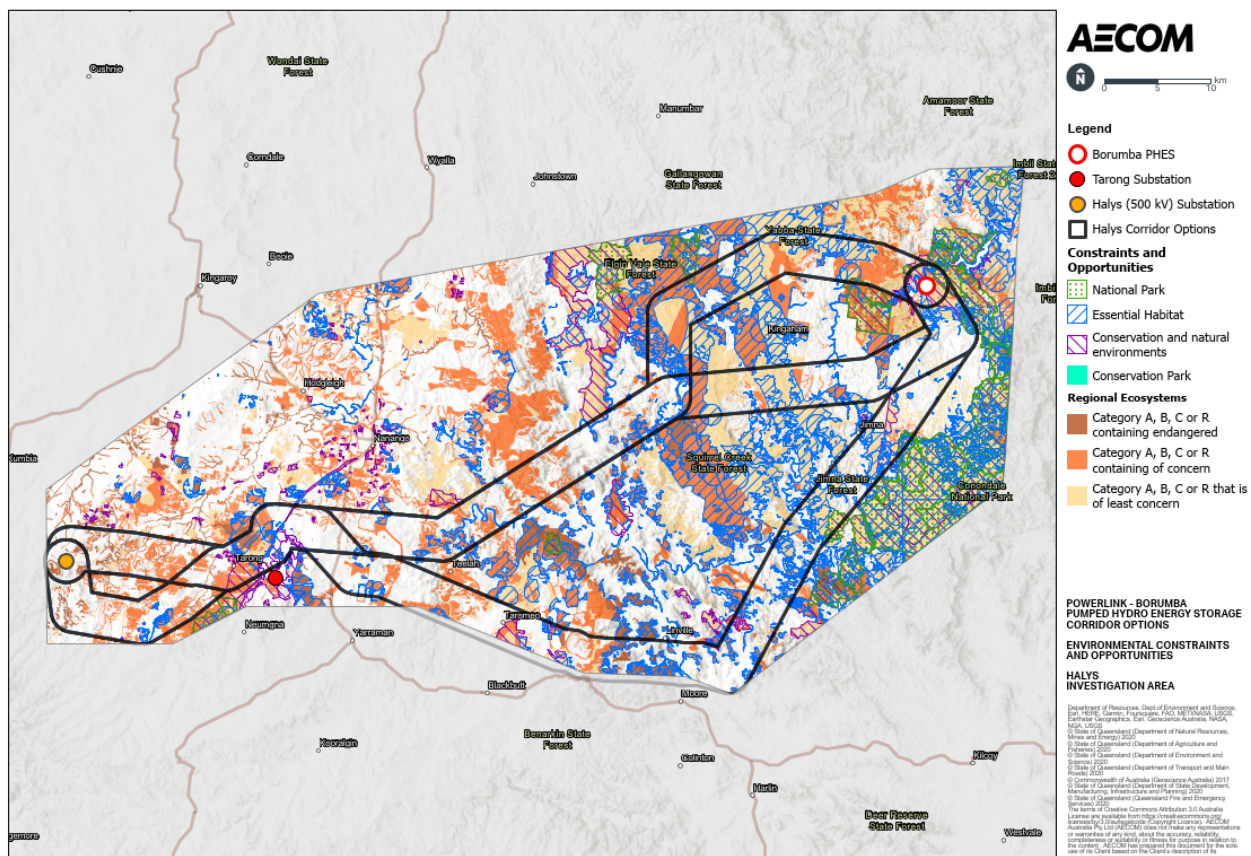
## 6.2 Environment

The environment criteria were assessed to ensure a balanced approach to corridor selection with the least impact on environment and heritage values where practical.

Environmental criteria were developed based on feedback and accepted importance of vegetation and essential habitat within the corridor such as categories under the *Queensland Vegetation Management Act 1994 (Qld)* and the preference to avoid protected areas managed under the *Queensland Nature Conservation Act 1992 (Qld)*. It is noted that while not all environmental values available in spatial format were considered in the first phase of corridor selection, the general presence of vegetation was considered as a proxy to habitat values.

Figure 9 shows the environmental constraints and opportunities used to compare the corridor options.

Figure 9: Environmental constraints and opportunities



## 6.2.1 National Parks

National Parks provide outstanding examples of Queensland’s natural environment and heritage, providing habitat for wildlife and opportunities for outdoor recreation activities. National Parks are afforded protection under the *Queensland Nature Conservation Act 1992* and supported by Queensland’s Protected Area Strategy 2020-2030 and the Master Plan for Queensland’s parks and forests. Key management principles for National Parks include keeping parks as close as possible to their natural state, ensuring that the use of the park is sustainable and nature-based, and protecting the park’s natural and cultural resources and values. In addition to the environment and cultural values of National Parks, unavoidable impact to these areas involves a complex and lengthy approvals process requiring negotiation with state agencies, revocation of the park and compensatory offsets to be provided.

National Parks and Conservation Parks have also been used as a proxy to other recreational and tourism values such as hiking trails, waterfalls, swimming holes, accommodation and camping grounds.

The area of each corridor overlaying these areas are shown in Table 10.

Table 10: National Park comparison

	Unit	North A	North B	Central A	Central B	South A	South B
Criteria 5: National Parks	ha	186	186	271	271	538	538

Being 4km in width, all corridor options intercept with National Park in some areas. The National Parks proximate to the corridors include:

- Tarong National Park to the west of Meandu Mine (all corridor options)
- Benarkin National Park (between Central and South options)
- Conondale National Park (predominantly adjacent to South corridor options and a section in the Central options east of the proposed PHES)
- Wrattens National Park (North corridor options and proximate to the Borumba Dam).

Avoidance of National Parks was a priority in developing the corridor options.

**The North options and Central options avoid more National Park than the Southern options.**

## 6.2.2 Protected vegetation

Remnant and regrowth vegetation is present across all corridor options.

Endangered, Of Concern and Least Concern regional ecosystems are all vegetation communities that should be avoided wherever possible, or minimised where avoidance is not possible.

The area of each corridor overlaying these areas are shown in Table 11.

**Table 11:** Protected vegetation comparison

	Unit	North A	North B	Central A	Central B	South A	South B
Criteria 1: Endangered RE (Cat A,B,C,R)	ha	1278	1067	1276	1067	2427	2217
Criteria 2: Of Concern RE (Cat A,B,C,R)	ha	12560	13172	8868	8480	7271	7883
Criteria 3: Least Concern RE (Cat A,B,C,R)	ha	6807	6753	6238	6185	7540	7487

The South corridor options have the most Endangered vegetation and the highest vegetation of Least Concern.

The North options have significantly higher areas with Of Concern vegetation than the Central and South corridor options.

**The Central options have the lowest overall areas of protected vegetation.**

### 6.2.2.1 Essential habitat

Essential habitat is present across all corridor options.

Essential habitat is defined under the *Vegetation Management Act 1999* as vegetation containing habitat for endangered, vulnerable or near threatened wildlife, which have been afforded protection under the *Queensland Nature Conservation Act 1992*. Essential habitat is likely to contain values that are needed to sustain wildlife such as particular vegetation communities, altitude, landscape and regional ecosystems, or where wildlife is known to occur. Due to areas of essential habitat being critical to threatened flora and fauna species, impact to essential habitat should be avoided wherever possible, or minimised where avoidance is not possible.

The area of each corridor overlaying these areas are shown in Table 12.

Table 12: Essential habitat comparison

	Unit	North A	North B	Central A	Central B	South A	South B
Criteria 4: Essential habitat	ha	6582	6774	4264	4456	5677	5869

The Central options have the lowest area of essential habitat.

### 6.3 Economic

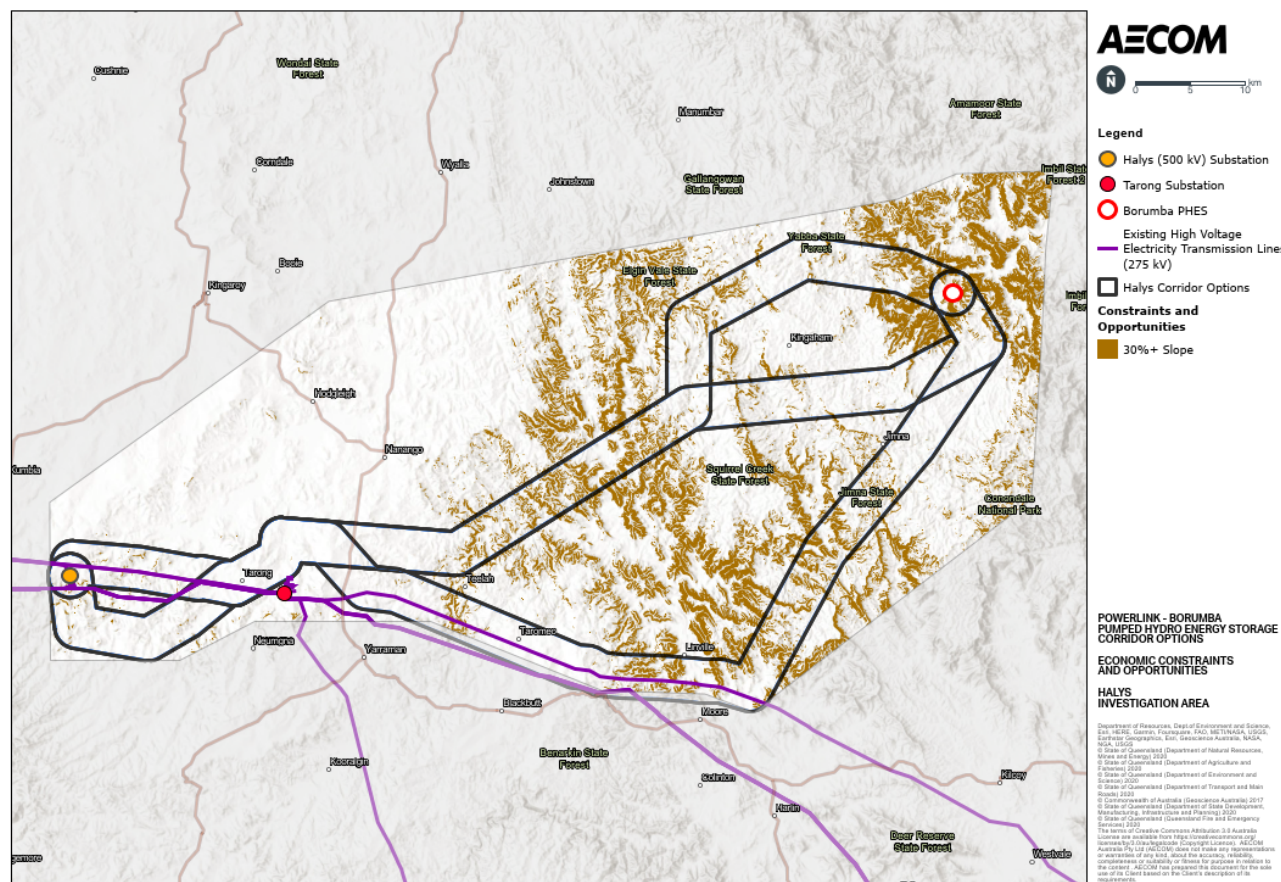
The economic criteria were assessed to ensure construction and operational factors such as cost be considered at a preliminary level, given the scale of project.

Analysis of potential economic factors for each corridor were assessed based on criteria relating to constructability, including length of the overall corridor, presence of difficult terrain and potential to co-locate with existing transmission infrastructure.

Constructability values were generally based on impacts to design or construction and items that were assessed to significantly increase cost to projects. Economic considerations of the corridor options are based on corridor length, difficult terrain and opportunities to co-locate with existing infrastructure.

Figure 10 shows the economic constraints and opportunities used to compare the corridor options.

Figure 10: Economic constraints and opportunities



Longer corridors generally indicate a requirement for more materials, greater areas of disturbance, longer construction times and maintenance over infrastructure life. Corridor length has been used as a proxy to compare potential upfront and ongoing maintenance costs for the infrastructure.

Steep topography limits vehicle and machinery access and significantly increases the required earthworks at each tower site. Additional easements and access are often required in steep country and therefore environmental impacts can be increased in these areas, for example, as additional clearing for access tracks is required. Land in this category poses a significant constraint to construction and needs to be considered in the context of constructability, cost and time. Due to these constraints, the corridor options analysis aims to minimise impact to this land category as far as practicable.

Co-location of transmission lines with other linear infrastructure aims to make use of existing maintenance points and access tracks. Additionally, co-location potentially reduces the overall number of people and properties impacted.

The area of each corridor overlaying these areas are shown in Table 13.

**Table 13:** Economic constraints comparison

	Unit	North A	North B	Central A	Central B	South A	South B
Criteria 1: Corridor length	km	98	103	97	102	113	117
Criteria 2: Land >30% slope	%	13%	12%	11%	10%	11%	10%
Criteria 3: Co-location	km	15%	1%	15%	1%	47%	32%

**The Central and North corridor options are the shortest and similar in length.**

**There is no significant difference between areas of difficult terrain between the corridor options.**

**The South corridor options have the greatest potential to co-locate with existing transmission lines.**

## 6.4 Summary of selected 4km-wide corridor

The corridor analysis resulted in Halys Central (Option A) as the selected 4km-wide corridor option. Aiming to achieve a balance across social, environment and economic objectives, this corridor has the least overall impact when compared to the other corridor options (Refer Table 14).

From the Borumba Dam, the Halys Central (Option A) corridor moves south-east to avoid National Park and difficult terrain associated with ridgelines, while traversing available State-owned and freehold land. The Halys Central (Option A) corridor shifts into a south-westerly direction to maximise previously cleared, freehold land avoiding rural residential areas and regional townships such as Nanango. This corridor is also the shortest in length and achieves the most direct route. From near Teelah, the corridor turns west to bypass existing infrastructure such as Tarong Substation, Tarong cooling water dam and Meandu Mine. West of Tarong Substation, the Halys Central (Option A) corridor maximises opportunities to co-locate with existing Powerlink transmission lines between Tarong and Halys substations.

Feedback was also received from local residents living near the existing transmission corridors, raising concerns about widening the existing easement to co-locate the new infrastructure, and associated property and lifestyle impacts. To reduce the requirement for additional land and encroachment on private property, the recommended corridor will replace and upgrade the existing infrastructure between Tarong and Halys substations. East of Tarong Power Station, the corridor avoids smaller allotments and community areas, and enable co-location within the existing easement in this area. It also incorporates the use of land owned by Stanwell Corporation surrounding the Tarong Power Station.

In summary, the Halys Central (Option A) corridor:

- has lower impacts on properties, including those smaller than 5ha, similar to the Halys North corridor option
- has the least overall impact on environmental criteria including essential habitat, with higher impacts on National Parks avoided by narrowing down to a 1km-wide recommended corridor
- is the shortest of those assessed, providing the ability to co-locate with existing Powerlink transmission lines
- includes opportunities to use State-owned land, and incorporates the use of land owned by Stanwell Corporation adjacent to the Tarong Power Station.

**Table 14:** Assessment of Halys 4km-wide corridor options

Objectives and Criteria	Unit	North A	North B	Central A	Central B	South A	South B
<b>Social</b>							
Criteria 1: Strategic cropping and agricultural land	ha	4,421	4,103	4,859	4,540	7,918	7,595
Criteria 2: Properties <5 ha	Count	281	246	281	246	685	651
Criteria 3: State-owned land	%	22	22	15	15	17	16
Criteria 4: Number of properties	Count	762	761	762	761	1,484	1,483
Criteria 5: Intensive use	ha	546	571	546	571	1,535	1,560
<b>Environment</b>							
Criteria 1: Endangered RE (Cat A,B,C,R)	ha	1,278	1,067	1,276	1,067	2,427	2,217
Criteria 2: Of Concern RE (Cat A,B,C,R)	ha	12,560	13,172	8,868	8,480	7,271	7,883
Criteria 3: Least Concern RE (Cat A,B,C,R)	ha	6,807	6,753	6,238	6,185	7,540	7,487
Criteria 4: Essential habitat	ha	6,582	6,774	4,264	4,456	5,677	5,869
Criteria 5: National Parks	ha	186	186	271	271	538	538
<b>Economic</b>							
Criteria 1: Corridor length	km	98	103	97	102	113	117
Criteria 2: Land >30% slope	%	13%	12%	11%	10%	11%	10%
Criteria 3: Co-location	km	15%	1%	15%	1%	47%	32%

## 7.0 Corridor Refinement Process

### 7.1 Methodology

The methodology for this phase builds upon the objectives, criteria and measures identified for the project to recommend a 1km-wide corridor for further consultation and investigations.

Planning and legislative frameworks, spatial analysis and community and stakeholder feedback, are factored into this process. Further considerations to identify a least constrained path include:

- Queensland and Local Heritage registered sites
- Department of Seniors, Disability Services and Aboriginal and Torres Strait Islander Partnerships (DSDSATSIP) sites
- protected plant survey trigger area
- wetlands – General Ecological Significance/High Ecological Significance
- airports, heliports and landing strips
- mining lease
- number of crossings (distribution powerlines)
- flood hazard areas
- State-controlled roads and railways.

#### 7.1.1 Central corridor variation

Based on discussions and feedback with landholders regarding impacts in this area, a small deviation from the Central corridor was made to include a portion of the South corridor. This was designed to:

- avoid properties north and south of Cooyar Creek between Teelah and South Nanango
- avoid impacts to surrounding high density housing north and east of Tarong Power Station
- takes advantage of the opportunity to co-locate the transmission line for approximately 8.5km with the existing 275kV transmission line from Noora Road to the east of Tarong Power Station and Tarong Substation, before aligning close to State Forests and land surrounding Tarong Power Station.

This short deviation from the Halys Central (Option A) 4km-wide corridor delivers a better outcome by avoiding significant community and industry present in the area and increasing the ability to co-locate with existing infrastructure.

## 8.0 1km-wide Recommended Corridor

The selected 4km-wide corridor has been refined to a 1km-wide recommended corridor. The recommended corridor aligns with least constrained areas identified through spatial analysis.

A summary of key findings and characteristics of the 1km-wide recommended corridor is included below. For further detail please refer to Appendix C for further detail on key considerations.



## 8.1 Social

### 8.1.1 Tenure

The 1km-wide recommended corridor is predominantly freehold land and includes areas of State-owned land. Through the refinement, the 1km-wide recommended corridor includes no impacts to National Parks, Conservation Parks or Nature Refuges, which aims to protect high value remnant vegetation and potential habitat and heritage values in those areas. State land, comprising both State Forest and State-owned land are present within the refined corridor including land owned by Stanwell Corporation, Yarraman State Forest, South Nanango State Forest, Gibson State Forest, Diaper State Forest, Squirrel Creek State Forest, Yabba State Forest and Jimna State Forest.

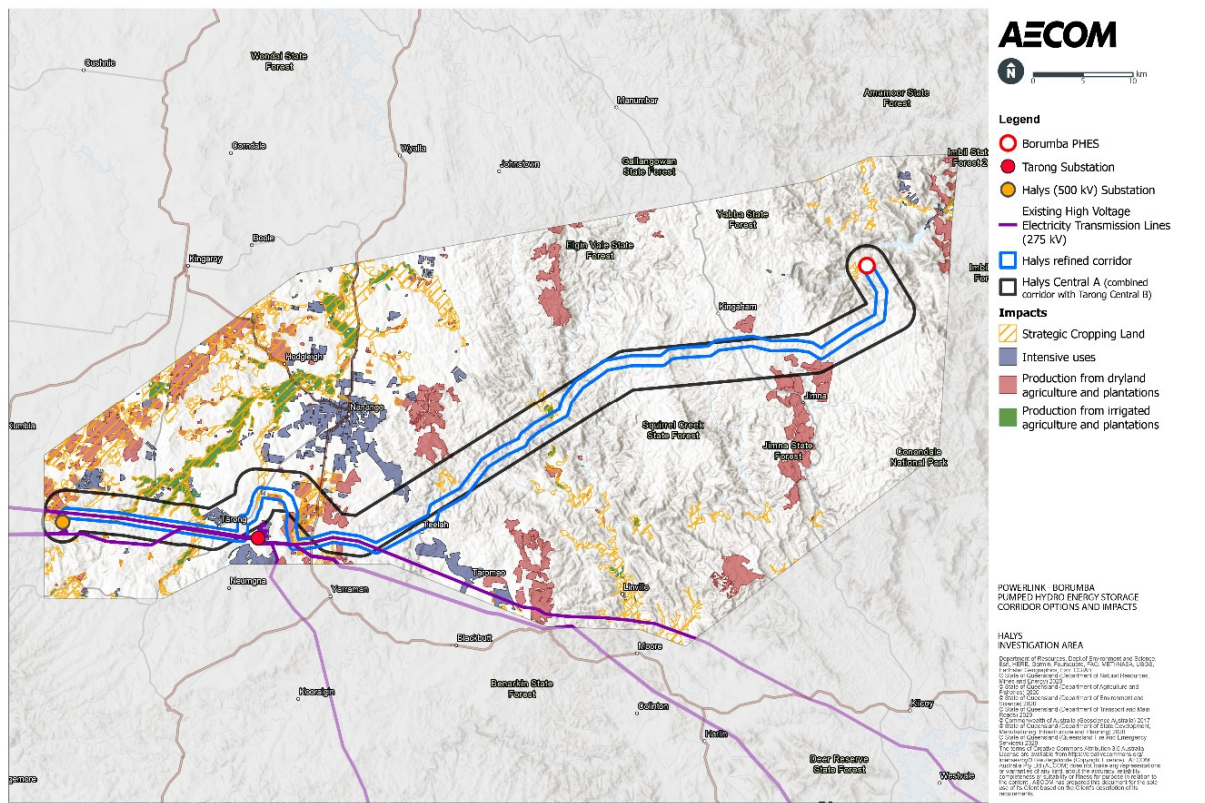
### 8.1.2 Land use

The 1km-wide recommended corridor area intersects the Gympie Regional Council, Somerset Regional Council and South Burnett Regional Council Local Government Areas.

The potential impact of the transmission line on amenity and productivity of rural communities has been a key issue raised through the engagement process. The 1km-wide recommended corridor has been aligned to minimise intensive use areas associated with closer residential settlement, commercial or industrial uses. The corridor contains 25ha (0.2%) of land which is mapped for intensive land.

To maintain agricultural productivity, the refined corridor minimises the area within mapped strategic cropping land, agriculture and plantations by maximising co-location with existing transmission corridors and use of State-owned land. The area of strategic cropping land and agricultural lands within the 1km-wide recommended corridor is 858ha (8.2%).

Figure 11: Land Use Constraints



### 8.1.3 Property

By using State-owned land and co-locating with existing transmission lines for 26km of the 105km alignment, the 1km-wide recommended corridor has reduced property impacts. This corridor avoids small rural residential lots (18 freehold properties less than 5ha) to minimise impacts to communities. The total number of freehold properties within the 1km-wide recommended corridor is 164, including lots partially within the corridor.

### 8.1.4 Resources interests

The 1km-wide recommended corridor avoids interaction with active mining leases but interfaces with existing exploration tenure north of Tarong Substation.

### 8.1.5 Transport

There are no rail, airports, heliports or landing strips within the 1km-wide recommended corridor. State-controlled roads intersecting the refined corridor include:

- Kilcoy-Murgon Road through Jimna
- D'Aguilar Highway, which connects Yarraman to Kingaroy via Nanango
- Kingaroy-Cooyar Road, which connects Kingaroy to Tarong
- Nanango-Tarong Road, which connects Nanango to Maidenwell.

### 8.1.6 Native Title

The 1km-wide recommended corridor intersects the registered Native Title claim area of the Kabi Kabi First Nation Traditional Owners Native Title Claim Group (QC2018/007), the Native Title determination area of the Wakka Wakka People #3 Part A & B (QCD2022/003 ) and the previously registered claim Wakka Wakka #2 (QC1999/033). Continued engagement with the Native Title parties on the impact of the transmission line on Native Title rights and interests will be addressed in accordance with the Native Title Act 1993 (Cth).

A portion of the recommended corridor intersects an area not currently subject to a registered Native Title claim.

## 8.2 Environment

### 8.2.1 Flora

The 1km-wide recommended corridor contains previously cleared land as well as regrowth and remnant native vegetation, some of which is within State Forest. This corridor aligns to more non-remnant vegetation in areas previously cleared for other land uses such as agriculture, resources and commercial and residential development.

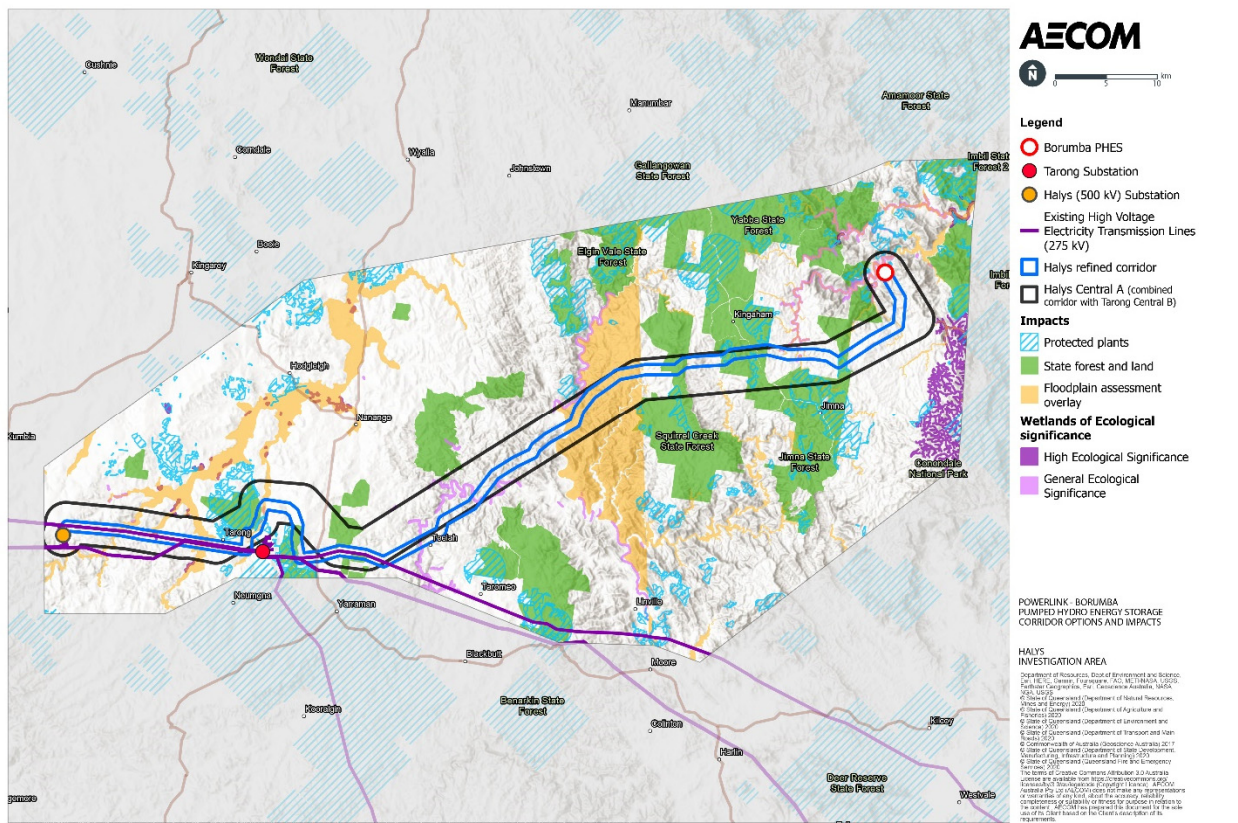
Within the 1km-wide recommended corridor, remnant vegetation comprises up to approximately 325ha of Endangered vegetation, predominantly located in forestry areas surrounding the Tarong Power Station.

Of Concern vegetation is particularly prominent in the 1km-wide recommended corridor adjacent to existing transmission lines between Tarong and Halys substations where the preference is to replace in-situ transmission lines. This co-location opportunity will offer potential to reduce impacts to Of Concern vegetation in this area. Of Concern vegetation is also scattered between Benarkin, Nanango and the vicinity of Borumba Dam. More dense Of Concern vegetation areas include Squirrel Creek State Forest and Diaper State Forest.

Approximately 1,484 ha of Least Concern vegetation is present in the 1km-wide recommended corridor. This relates predominantly to the corridor passing through areas of Diaper State Forest, Squirrel Creek State Forest, Yabba State Forest, and vegetation values surrounding Borumba Dam.

High risk areas for protected plants are present in the 1km-wide recommended corridor, including west of Tarong Power Station and Jimna State Forest.

Figure 12: Protected plants constraints



## 8.2.2 Fauna

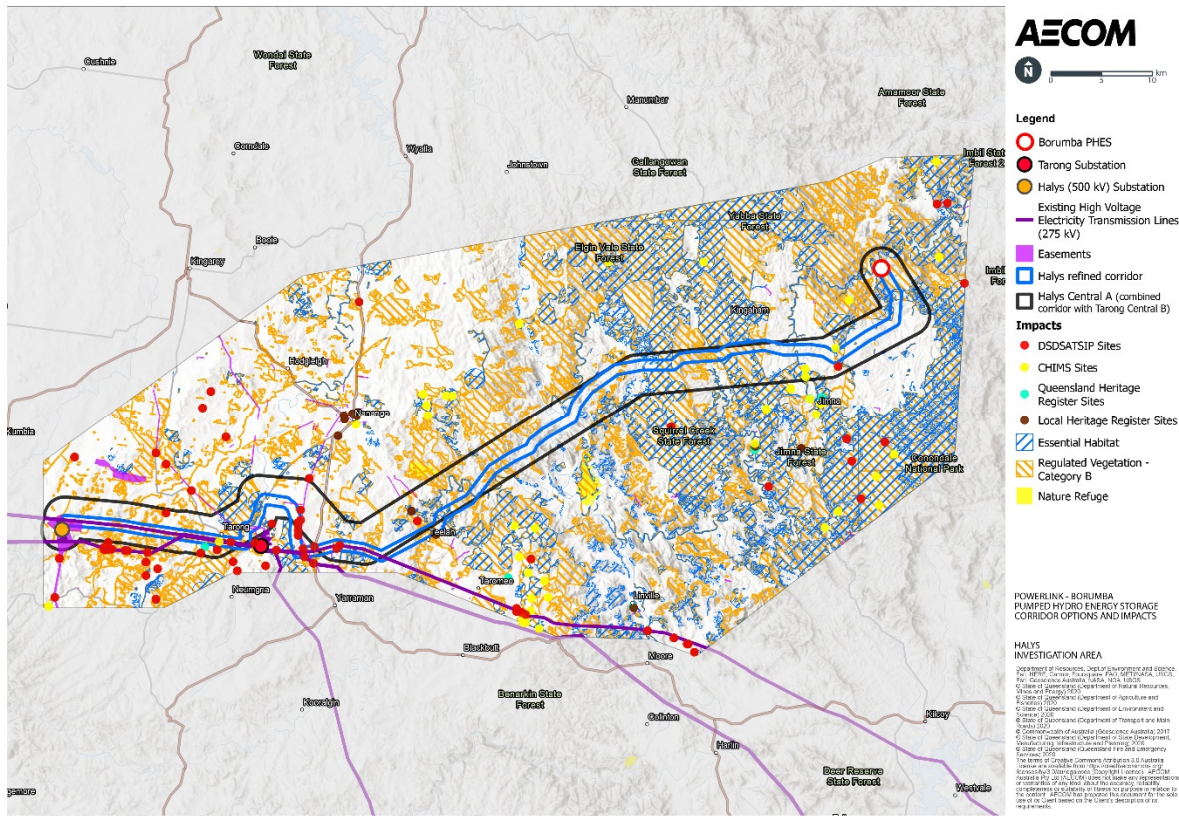
There is approximately 681ha of Essential Habitat through the remnant vegetation in the 1km-wide recommended corridor, especially related to the State Forests.

Mapped Core Koala Habitat Areas and Locally Refined Koala Habitat Areas are present related predominantly to remnant vegetation in the central portion of the 1km-wide recommended corridor, in State Forests and biodiversity corridors connecting these areas.

Co-location of existing transmission lines within the 1km-wide recommended corridor supports the minimisation of disturbance to additional areas.

The recommended corridor intersects multiple waterways mapped as having potential risk for fish passage.

Figure 13: Heritage and essential habitat constraints



## 8.2.3 Heritage

Recognising the significant environmental and heritage values, the 1km-wide recommended corridor prioritises previously cleared areas and avoids alignment to ridgelines, National Parks, remnant native vegetation and waterways. There are 12 sites identified on the DSDSATSIP database within the recommended corridor and one Cultural Heritage Inventory Management Systems (CHIMS) site.

## 8.3 Economic

### 8.3.1 Topography

The 1km-wide recommended corridor aims to avoid steep terrain where practical. There is 10% of land with slope greater than 30% in the 1km-wide recommended corridor.

### 8.3.2 Geology

The 1km-wide recommended corridor contains mapped geological features associated with granitoid, volcanics, sedimentary and alluvium deposits, some of which present challenges for design and construction of a transmission line.

### 8.3.3 Soils

Based on broad soil types mapped by the Australian Soils Classification mapping, the refined corridor has potential to intersect:

- dermosols – well-structured clay to clay loam soils, generally suitable for earthworks, non-dispersive, prone to compaction

- ferrosols – well-structured and drained clay to clay loam soils, high agricultural potential, prone to degradation by erosion and compaction
- sodosols – texture contrast soils with impenetrable subsoils, low agricultural potential commonly used for grazing, vulnerable to erosion and dryland salinity when vegetation removed
- tenosols – poor structure and water holding capacity, low agricultural potential commonly used for grazing, prone to erosion on steep slopes
- vertosols – clay-rich soils, high soil fertility, large water holding capacity, potential for strong cracking and salinity.

Additionally, acid sulfate soils or potential acid sulfate soils may be present in low-lying areas.

#### 8.3.4 Hydrology

Watercourses and drainage lines cross the 1km-wide recommended corridor in low-lying areas and are associated with potential flood hazards during extreme rainfall events.

The recommended corridor intersects watercourses as defined and mapped under the *Queensland Water Act 2000 (Qld)*.

#### 8.3.5 Contaminated land

Contaminated land searches (including searches of the Environmental Management Register and Contaminated Sites Register) will need to be undertaken for land generally associated with mining, power generation, manufacturing, service stations and landfill sites – particularly for properties associated with industrial and commercial activities in the vicinity of Tarong.

#### 8.3.6 Unexploded ordnance

The 1km-wide recommended corridor crosses an area mapped by Department of Defence as having slight potential for unexploded ordnance (UXO) between Diaper State Forest, Squirrel Creek State Forest and Jimna State Forest, adjacent to Kilcoy Murgon Road. This area was authorised for Artillery Practice in 1942 under the *National Security Act 1939-1940 (Cth)*. This area will require further assessment during subsequent stages of the project.

### 8.4 Summary of 1km-wide recommended corridor

The location of the recommended 1km-wide corridor has been influenced by feedback received and spatial analysis highlighting environmentally sensitive areas surrounding the Borumba Dam. From the Borumba Dam, the recommended 1km-wide corridor aligns to the least constrained areas traversing State-owned land, freehold property and otherwise previously cleared areas within the selected Halys Central (Option A) corridor, to avoid areas of higher environmental value where possible.

The corridor travels to the north of Jimna and south of Kingaham, which has the least impact on high value ecological constraints associated with Endangered regional ecosystems and avoids impact within Wrattens and Conondale National Parks.

The terrain steepens as the corridor heads west through Jimna and Diaper State Forests. These forests contain undulating, steep terrain with remnant and regrowth vegetation. The recommended corridor seeks to align with areas that have been subject to selective clearing and plantation timber.

The corridor continues across undulating, hilly terrain where the land tenure size is larger with predominantly agricultural lands and partly cleared grazing lands. The corridor continues south-west towards Teelah and slightly deviates outside the 4km-wide corridor option avoiding wetland areas and communities southeast of Nanango, Teelah and Taromeo.

Near Teelah, this deviation allows the recommended corridor to avoid residential areas and co-locate for approximately 8.5km with the existing transmission line between Noora Road and Tarong Substation.

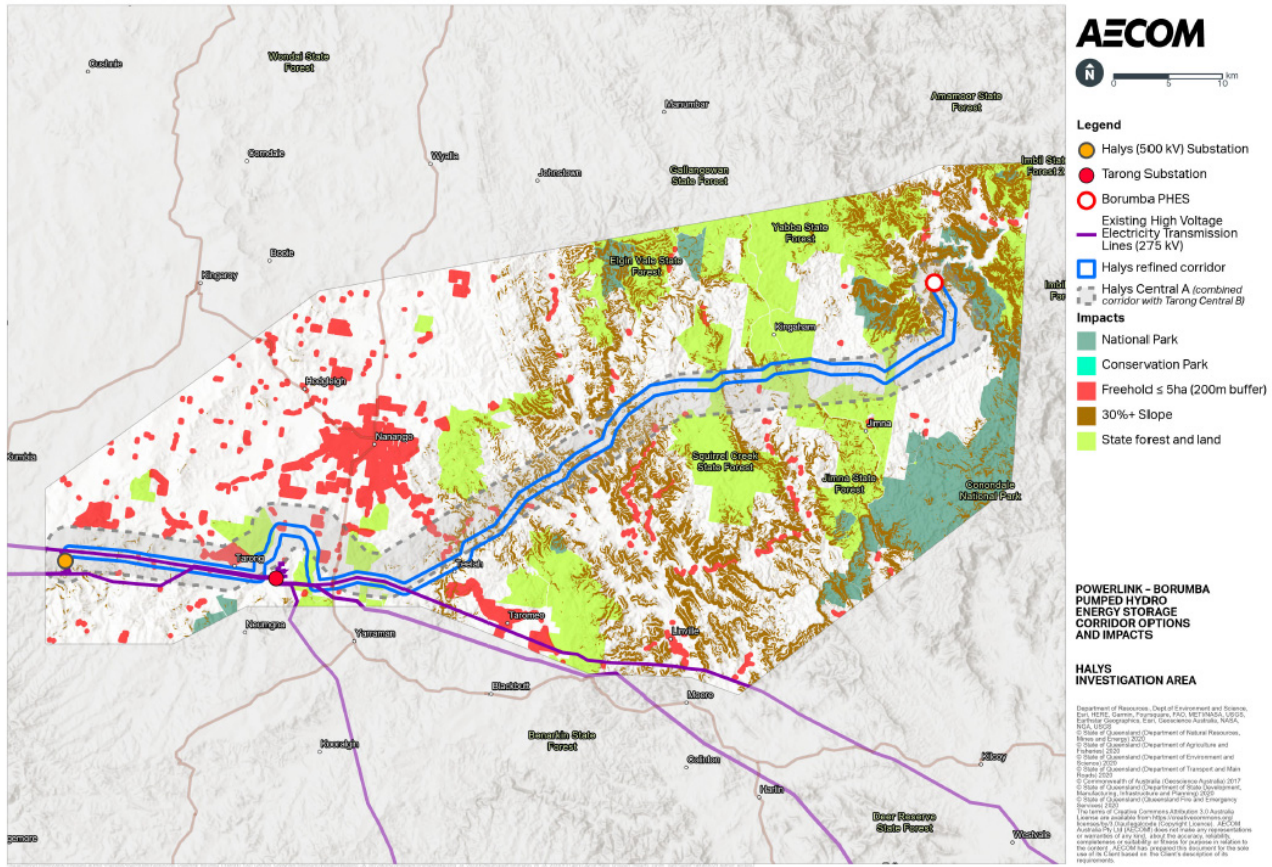
The 1km-wide recommended corridor diverts north to align with HQPlantations and along the northern boundary of Tarong Power Station before returning to the existing transmission line easement. This aims to minimise impact in the area by aligning with access roads and areas that are already disturbed with plantation timber. This incorporates the use of land owned by Stanwell Corporation. The recommended corridor follows the same alignment 17km west approaching Halys Substation with the intent to replace transmission infrastructure within this corridor.

A summary of the 1km-wide recommended corridor against the corridor selection objectives is captured in Table 15.

**Table 15:** Assessment of Halys 1km-wide recommended corridor

Objective and Criteria	Unit	Recommended corridor option (1 km-wide)
<b>Social</b>		
Criteria 1: Strategic cropping and agricultural land use	ha	858
Criteria 2: Properties <5ha	count	18
Criteria 3: State-owned land	%	12
Criteria 4: Number of properties	count	164
Criteria 5: Intensive use	ha	25
<b>Environment</b>		
Criteria 1: Endangered RE (Cat A,B,C,R)	ha	325
Criteria 2: Of Concern RE (Cat A,B,C,R)	ha	1946
Criteria 3: Least Concern RE (Cat A,B,C,R)	ha	1484
Criteria 4: Essential habitat	ha	681
Criteria 5: National Park	ha	0
<b>Economic</b>		
Criteria 1: Corridor length	km	105
Criteria 2: Land >30% slope	%	10
Criteria 3: Co-location with 275kV line	km	26

Figure 14: 1km-wide recommended corridor



## 9.0 Legislative and Approval Requirements

There are a number of potential legislative and approval requirements in order to progress the project. Some of the Local, State and Federal Government approval frameworks are discussed in this section.

### 9.1 Potential environmental approvals

The 1km-wide recommended corridor requires further investigation from an environmental perspective. At this scale, the potential for approvals for a transmission line through this corridor can only be provided at a preliminary level. A full list of legislative considerations and other obligations is provided within Appendix B. Potential approvals are identified below and are subject to further corridor refinement, actual infrastructure disturbance locations and further ecological and cultural heritage investigations:

- Ministerial Infrastructure Designation under the *Planning Act 2016 (Qld)*
- *Environment Protection and Biodiversity Conservation Act (EPBC) 1999 (Cth)* referral and potential approval for significant impact on Matters of National Environmental Significance
- clearing permit under the *Nature Conservation Act 1992 (Qld)*
- species management program (SMP) under the *Nature Conservation (Animals) Regulation 2020 (Qld)* for the tampering of active breeding places where impact cannot be avoided (Low Risk SMP required for impact to Least Concern species / High Risk SMP is required for impact to colonial breeders, near threatened, Vulnerable, Endangered and Critically Endangered species)

- soil disposal permit under the *Environmental Protection Act (EP Act) (Qld)* to remove contaminated soil for treatment and / or disposal
- riverine protection permit where the Riverine protection permit exemption requirements under the *r 2000 (Qld)* cannot be met.

Offsets are likely to be applicable to some of the approvals above. To determine the likely offset liabilities under the EPBC Act (Cth) and *Environmental Offsets Act (Qld)*, field surveys and the following assessments are recommended:

- a significant impact assessment using the *EPBC Act Significant Residual Impact Guidelines Policy Statement 1.1*
- a significant residual impact assessment under the *Queensland Environmental Offsets Policy Significant Residual Impact Guideline: Nature Conservation Act 1992*, and *Environmental Protection Act 1994*.

Prior to the future construction of the project, further assessment of the project's potential legislative obligations should be undertaken once the corridor is further refined and once additional desktop and field investigations have been undertaken. Additionally, where approvals are required, potential offsets will also need to be considered.

For further detail on legislation potentially applicable to the corridor, refer to Appendix B.

## 10.0 Conclusion and Future Studies

A recommended 1km-wide corridor has been identified within the selected 4km-wide Halys Central (Option A) corridor. The assessment used criteria and measures (within the Multi-Criteria Analysis) informed by landholder, community feedback and spatial analysis.

Through the corridor selection and refinement processes, the 1km-wide recommended corridor:

- reduces the impact on the number of landholders and particularly smaller land parcels
- avoids National Parks
- avoid critical infrastructure, community facilities and townships
- minimises impacts on agriculture, intensive land use and cropping lands
- optimises the use of State-owned land
- identifies potential to co-locate with existing transmission lines and,
- minimises the overall land required to support new transmission infrastructure.

Following release of the Draft Corridor Selection Report (CSR), additional investigations and feedback from landholders, Traditional Owners and the broader community is needed to finalise the recommended 1km-wide corridor. Powerlink will undertake further engagement and analysis before finalising the 1km-wide corridor.

The final 1km-wide corridor (referred to as a Study Corridor) will be published in the Final CSR to be released in September 2023. Powerlink will continue to work with landholders in the study corridor to undertake detailed technical studies to determine a 70m-wide easement for the final transmission line alignment.



## 10.1 Future studies

Further desktop and field studies are required to finalise corridor selection in line with the project objectives. These investigations will build understanding of the project constraints, opportunities and required approvals for the recommended corridor. As the 1km-wide recommended corridor is further refined, the project will continue to seek to avoid and/or minimise impacts to landholders and community areas as well as environment, cultural values, agriculture and cropping land values through siting and design.

### *Social*

- Review of consultation feedback - further engagement with stakeholders, particularly affected landholders and Traditional Owner groups, on the recommended corridor to understand use of land, proximity to homes and potential impacts to properties.
- Visual amenity assessment - further assessment of the recommended corridor in relation to visual amenity.
- Strategic cropping, agriculture and intensive uses - further investigation and consideration to avoiding these areas during the next phase of corridor refinement.

### *Environment, heritage and planning*

- Ecology - based on the vegetation present within the 1km-wide recommended corridor, there is potential for the corridor to contain areas of habitat for threatened flora and fauna species, or threatened ecological communities. Further assessment will be undertaken to determine the potential impact to habitat for threatened flora and fauna species. Assessment should comprise a detailed desktop assessment and targeted field surveys.
- Biosecurity matters - further investigation into the potential biosecurity risks is recommended during ecology desktop and field investigations.
- Unexploded ordnance (UXO) - within the 1km-wide recommended corridor, there is one site listed as containing slight potential of UXO presence. It is likely that a future final alignment will intrude into land with UXO potential, therefore specialist advice and the preparation of a detailed UXO Risk Assessment will be required. Additionally, a UXO Management Plan may need to be prepared to manage risk, including the possibility of encountering munitions.
- Heritage studies - further investigations are required to identify any potential risk to Aboriginal and Non-Aboriginal heritage values.

### *Economic*

- Land, geology and soils - contaminated land, acid sulfate soils or dispersive soils can pose construction issues due to the need to implement specialist management or design practices and/or treatment. Whilst acid sulfate soils may pose less of a risk, contamination and dispersive soils may be present. Field investigations including sampling and analysis are recommended and can be combined with geotechnical investigations where appropriate.
- Poor ground conditions - further geotechnical investigations to identify problematic soils and geology such as hard rock, which can pose constructability difficulties, or substantially increase project costs due to specialist design required and/or additional construction materials and foundations, as well as access and easements to be provided.
- Flood potential - further investigation into the potential for flooding within the corridor will be required to understand the risk to the project both during construction and operation. Waterway crossings may require a tailored design response to ensure minimal damage to vegetation and mitigate risks of damage to tower structures.

- Crossings and bends - further investigation to confirm the minimum number of interfaces for the corridor with other infrastructure such as roads, rail, pipelines and other identified values is required to understand where these asset types are located and options for the final alignment. The number of potential bends and associated impacts to the project can be assessed and further refine during the next phase.

The corridor selection process has relied on data from publicly available data sources and the feedback of all engagement activities undertaken to date. These have been considered at a regional scale to inform future direction for studies and refinement. No investigations have been undertaken and mapped at the regional scale, and analysis has not occurred at the lot-based/property-specific level. Additional opportunities, constraints and studies may be deemed necessary through the next phases of the project.

## 11.0 References

- DCCEEW. (2023). Australia's Commonwealth Heritage List. Retrieved from Australian Government Department of Climate Change, Energy, the Environment and Water: <https://www.dcceew.gov.au/parks-heritage/heritage/places/commonwealth-heritage-list>
- DCCEEW. (2023). Protected Matters Search Tool. Retrieved from Australian Government Department of Climate Change, Energy, the Environment and Water: <https://www.dcceew.gov.au/environment/epbc/protected-matters-search-tool>
- DoR. (2023). Cadastral data - Queensland - by area of interest. Retrieved from Queensland Government, Queensland Spatial Catalogue - QSpatial: <https://qldspatial.information.qld.gov.au/catalogue/custom/detail.page?fid=%7BA07975CC-FE78-408F-959F-B0CDEC1C6EDA%7D>
- DS DSATIP. (2023). Aboriginal and Torres Strait Islander Cultural Heritage Database and Register. Retrieved from Queensland Government, Department of Seniors, Disability Services and Aboriginal and Torres Strait Islander Partnerships: <https://culturalheritage.datsip.qld.gov.au/achris/public/home>
- Orr, K., & Allan, B. (2015). Electricity Transmission Lines. Retrieved from Geoscience Australia: <http://dx.doi.org/10.4225/25/553DC89AD105C>
- Queensland Government. (2014). Land use mapping - 1999 to 2013 - South East Queensland NRM. Retrieved from Queensland Government: <http://www.qld.gov.au/environment/land/vegetation/mapping/qlump>
- Queensland Government. (2023). Queensland Heritage Register. Retrieved from Queensland Government: <https://www.qld.gov.au/environment/land/heritage/register>
- Queensland Government. (2023). Strategic cropping land series. Retrieved from Queensland Government: <https://www.data.qld.gov.au/dataset/strategic-cropping-land-series>
- State of Queensland (Department of Environment and Science). (2023). Queensland Spatial Catalogue - QSpatial. Retrieved from <http://qldspatial.information.qld.gov.au/catalogue>

# Appendix **A**



**AECOM**



**Legend**

- Proposed Borumba Pumped Hydro
- Existing Tarong Substation
- Existing Halys Substation
- State controlled roads
- Major watercourse
- Existing 275kV transmission line

**Proposed Transmission Line Corridor Options**

- Halys Central A (combined corridor with Tarong Central B)
- Halys refined corridor

**Constraints and Opportunities Surface**

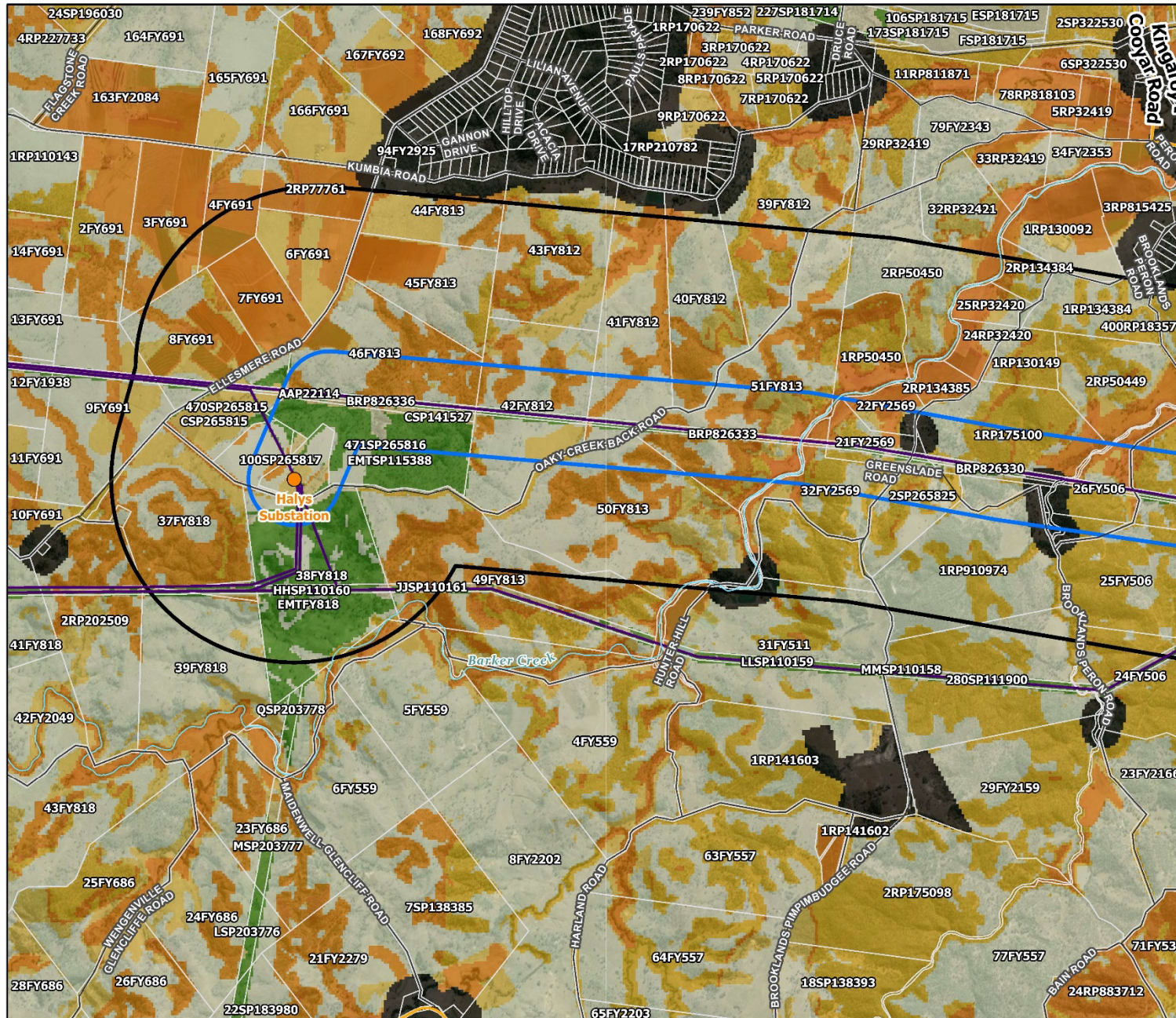
- Barrier

**Value**

- Avoid
- Neutral
- Preferred

**BORUMBA PUMPED HYDRO PROJECT – PROPOSED 500KV DRAFT HALYS TRANSMISSION RECOMMENDED CORRIDOR**

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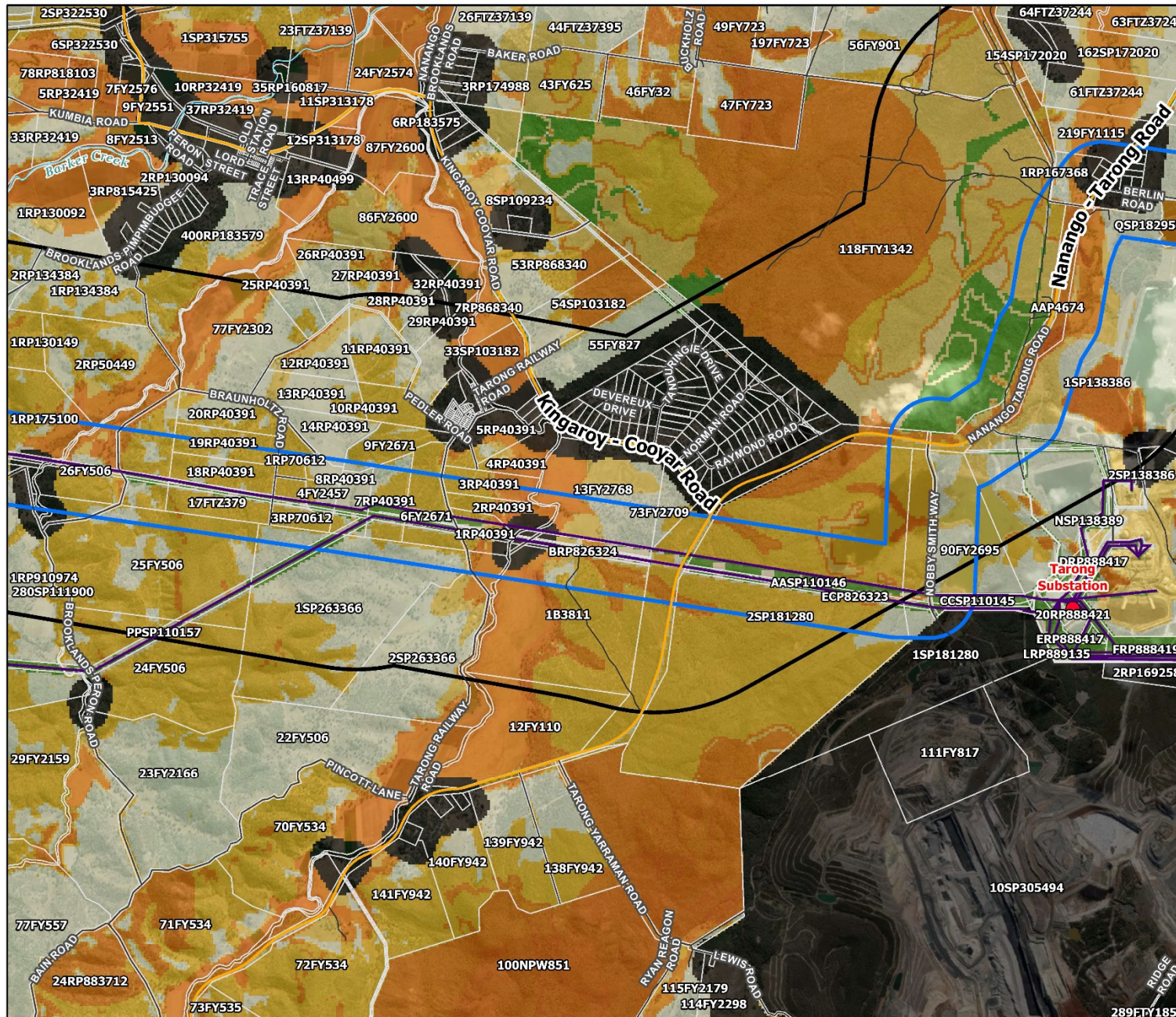


- Legend**
- Existing Halys Substation
  - State controlled roads
  - Local roads
  - Major watercourse
  - Existing 275kV transmission line
  - Lot boundary
- Proposed Transmission Line Corridor Options**
- Halys Central A (combined corridor with Tarong Central B)
  - Halys recommended corridor
- Constraints and Opportunities Surface**
- Barrier
  - Avoid
  - Neutral
  - Preferred

**FIGURE 1A**

**BORUMBA PUMPED HYDRO PROJECT – PROPOSED 500KV DRAFT HALYS TRANSMISSION RECOMMENDED CORRIDOR**

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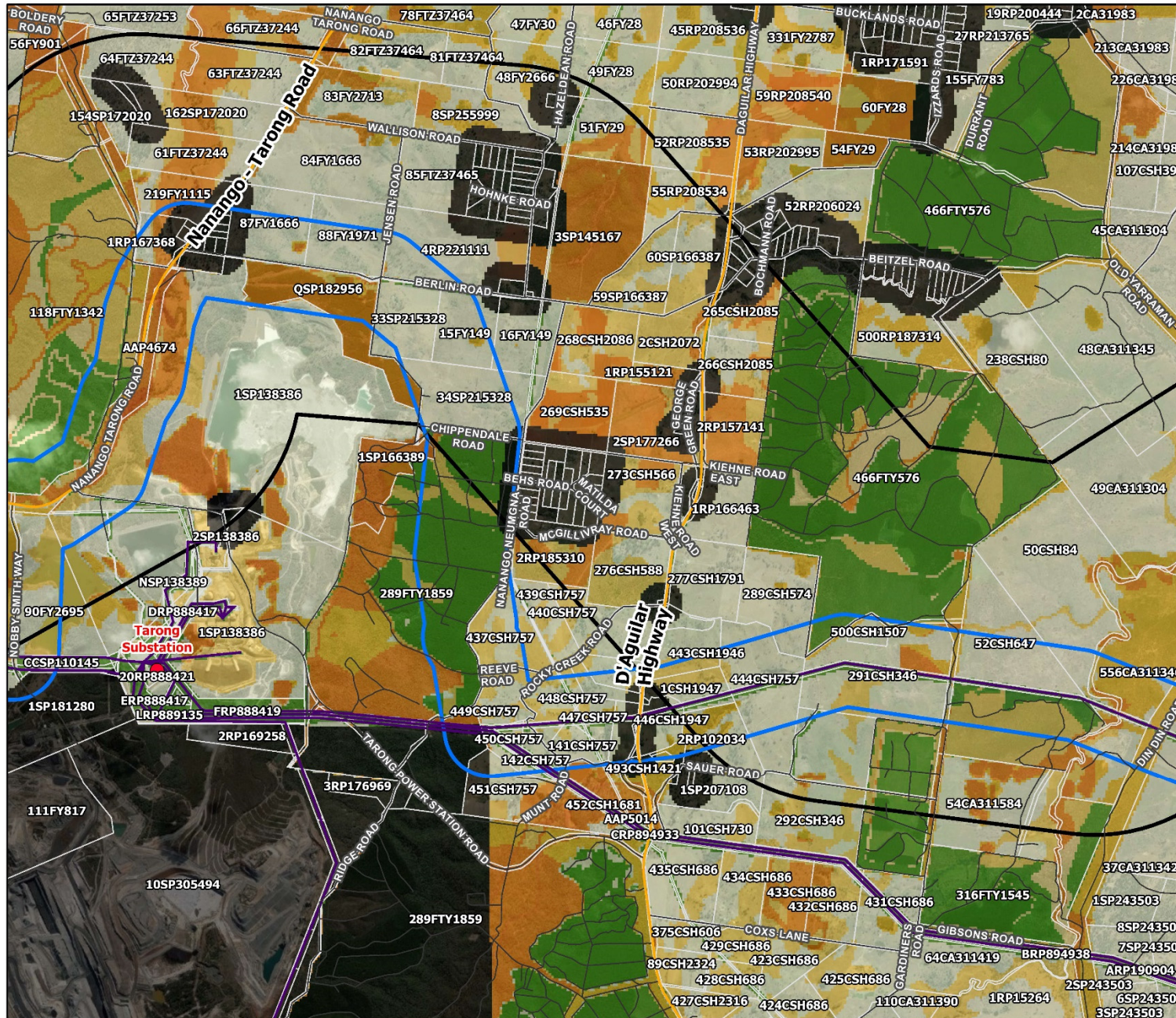


- Legend**
- Tarong Substation
  - State controlled roads
  - Local roads
  - Major watercourse
  - Existing 275kV transmission line
  - Lot boundary
- Proposed Transmission Line Corridor Options**
- ▭ Halys Central A (combined corridor with Tarong Central B)
  - ▭ Halys recommended corridor
- Constraints and Opportunities Surface**
- Barrier
  - Avoid
  - Neutral
  - Preferred

**FIGURE 1B**

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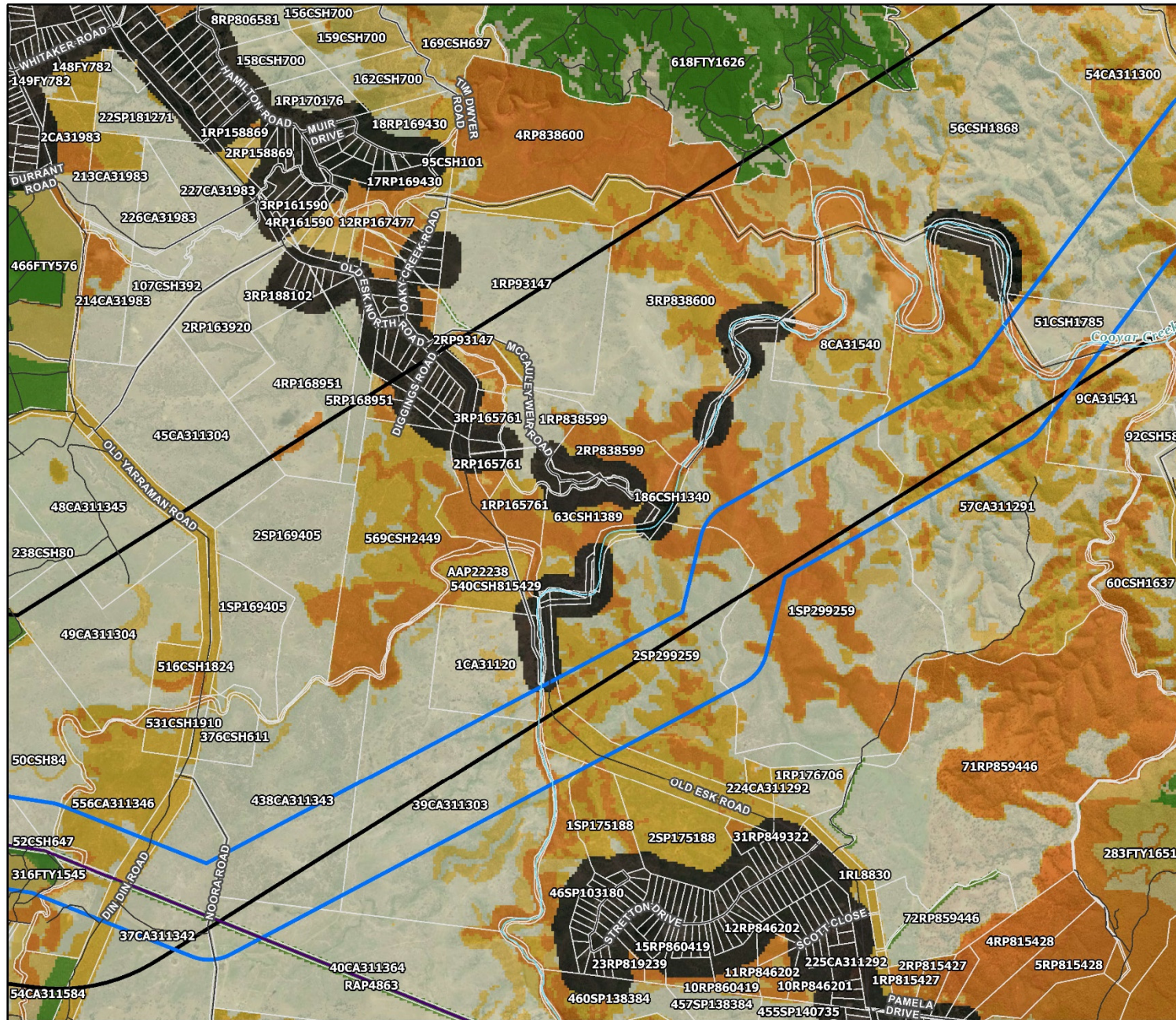
- Legend**
- Tarong Substation
  - State controlled roads
  - Local roads
  - Existing 275kV transmission line
  - Lot boundary
- Proposed Transmission Line Corridor Options**
- Halys Central A (combined corridor with Tarong Central B)
  - Halys recommended corridor
- Constraints and Opportunities Surface**
- Barrier
  - Avoid
  - Neutral
  - Preferred

**FIGURE 1C**

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**AECOM**



- Legend**
- Local roads
  - Major watercourse
  - Existing 275kV transmission line
  - Lot boundary

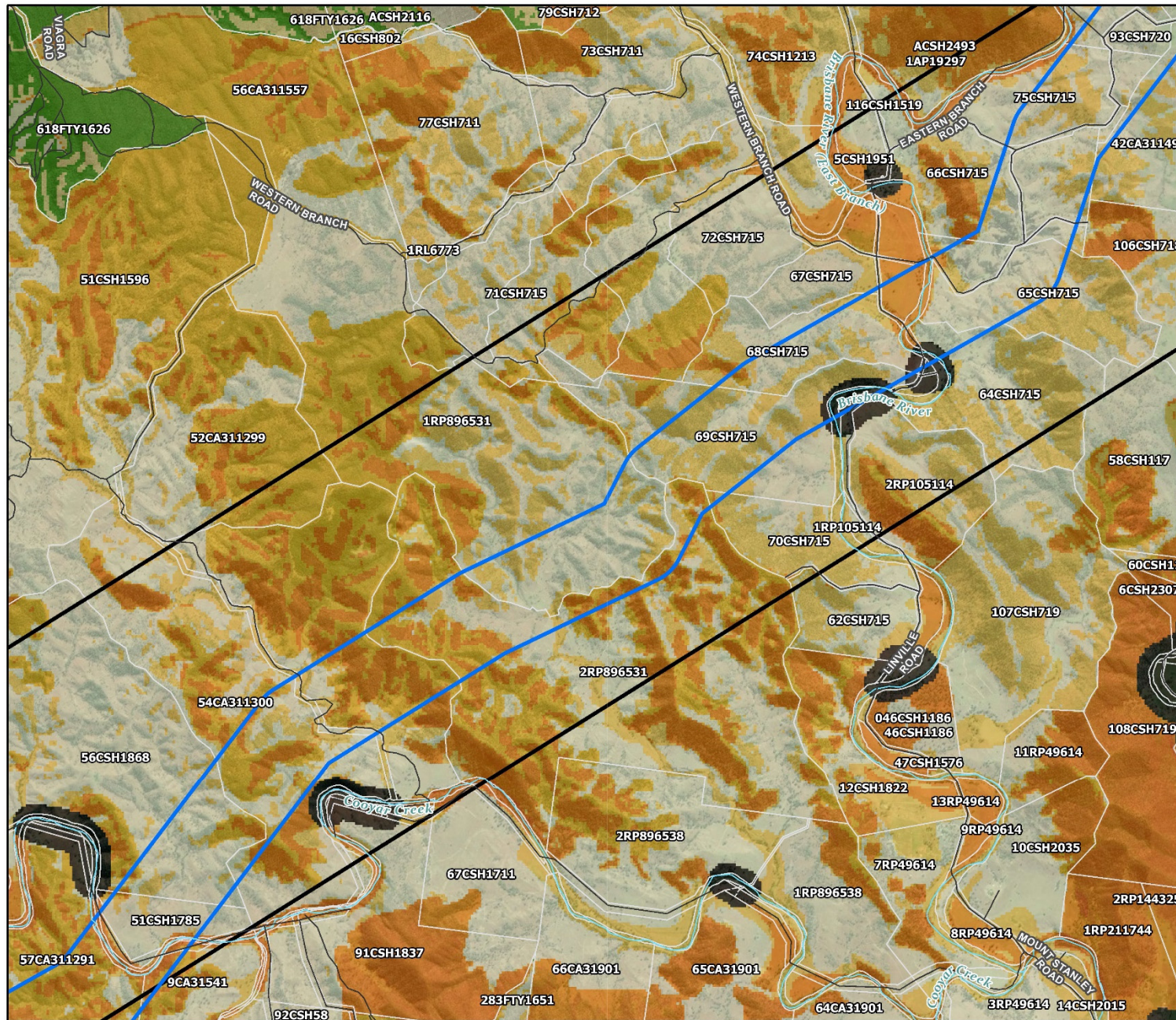
- Proposed Transmission Line Corridor Options**
- Halys Central A (combined corridor with Tarong Central B)
  - Halys recommended corridor

- Constraints and Opportunities Surface**
- Barrier
  - Avoid
  - Neutral
  - Preferred

**FIGURE 1D**

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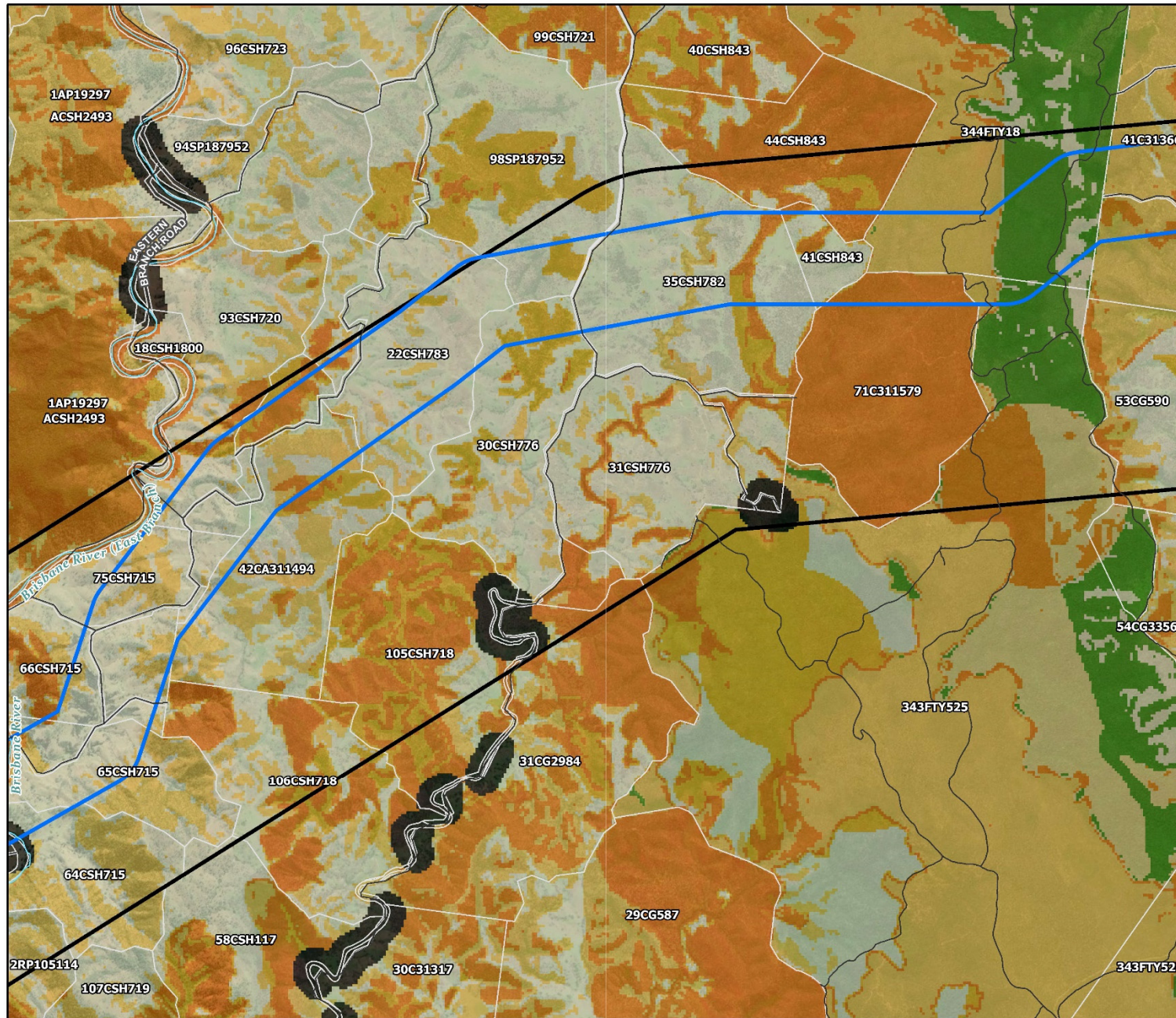
**Legend**

- Local roads
- Major watercourse
- Lot boundary
- Proposed Transmission Line Corridor Options**
- ▬ Halys Central A (combined corridor with Tarong Central B)
- ▬ Halys recommended corridor
- Constraints and Opportunities Surface**
- Barrier
- Avoid
- Neutral
- Preferred

**FIGURE 1E**

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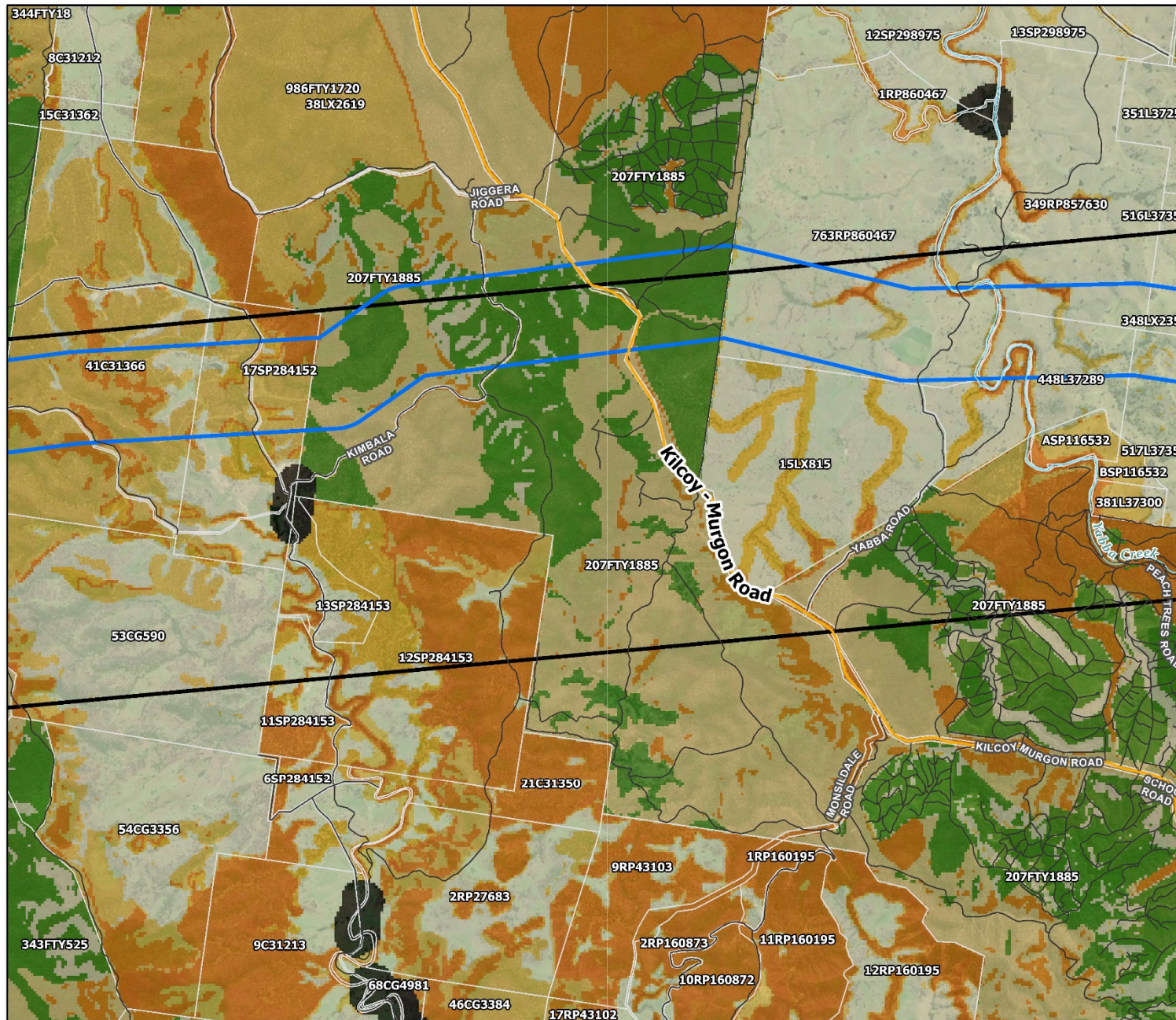


- Legend**
- Local roads
  - Major watercourse
  - Lot boundary
- Proposed Transmission Line Corridor Options**
- ▬ Halys Central A (combined corridor with Tarong Central B)
  - ▬ Halys recommended corridor
- Constraints and Opportunities Surface**
- Barrier
  - Avoid
  - Neutral
  - Preferred

**FIGURE 1F**

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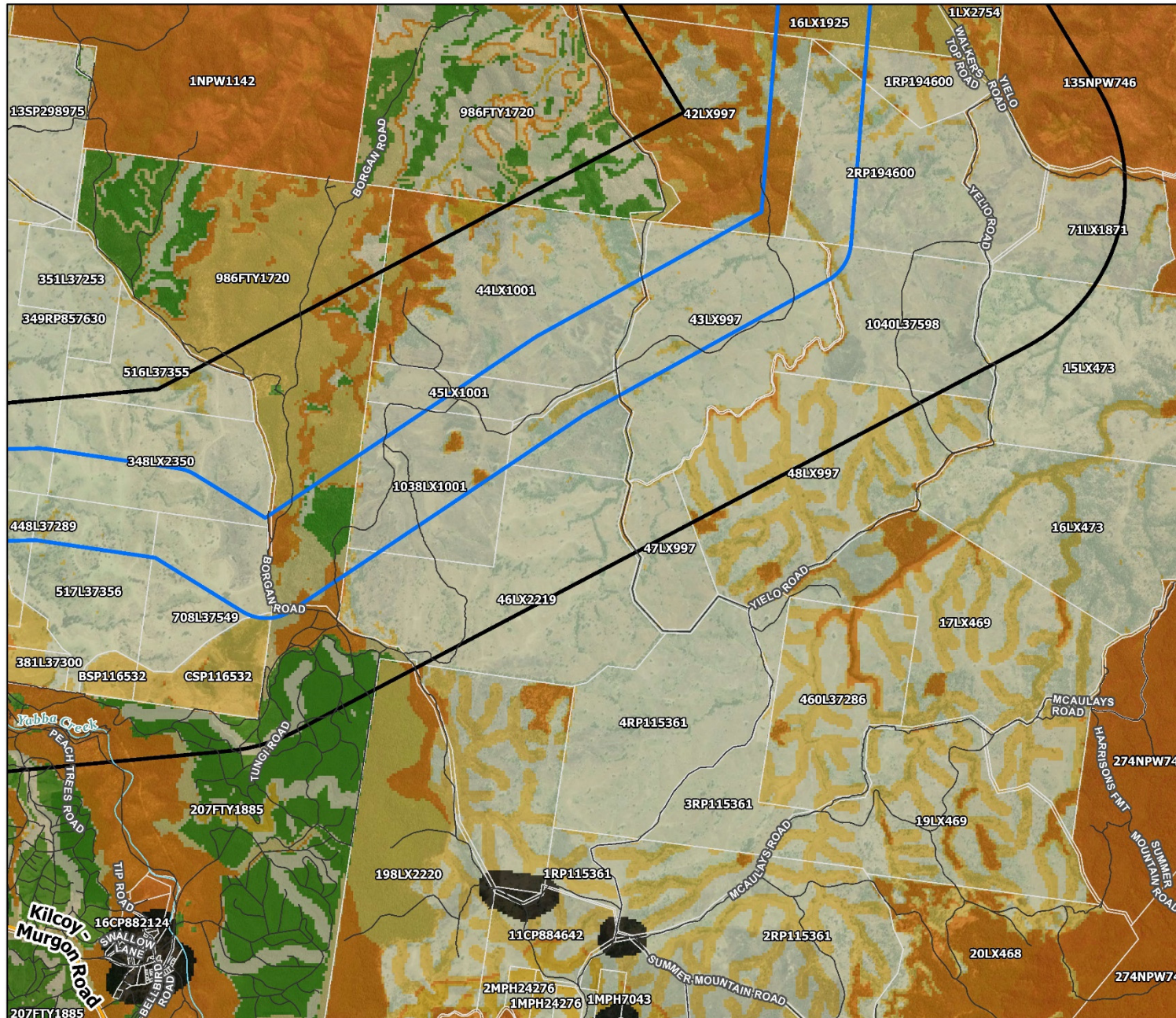


- Legend**
- State controlled roads
  - Local roads
  - Major watercourse
  - Lot boundary
- Proposed Transmission Line Corridor Options**
- Halys Central A (combined corridor with Tarong Central B)
  - Halys recommended corridor
- Constraints and Opportunities Surface**
- Barrier
  - Avoid
  - Neutral
  - Preferred

**FIGURE 1G**

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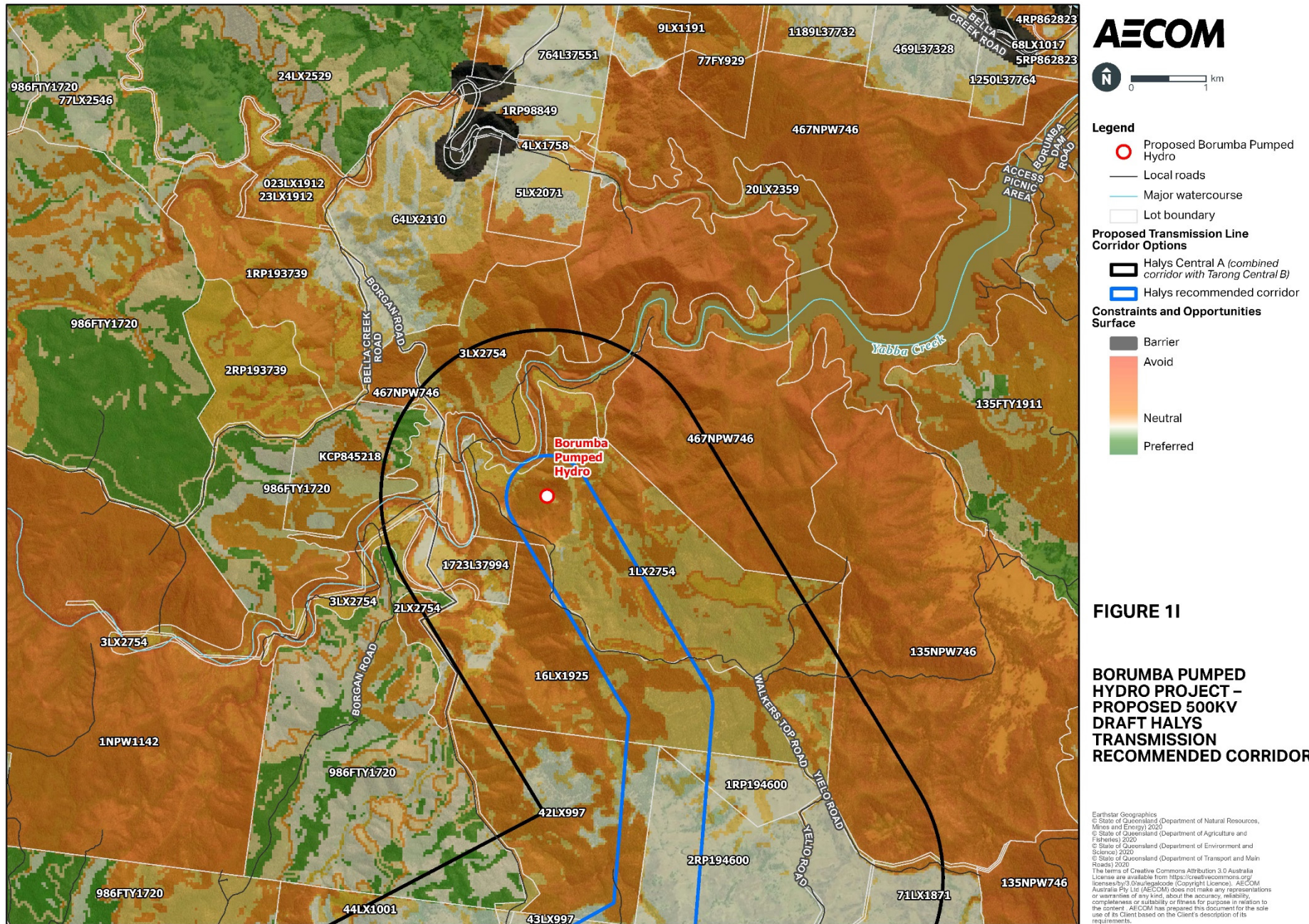


- Legend**
- State controlled roads
  - Local roads
  - Major watercourse
  - Lot boundary
- Proposed Transmission Line Corridor Options**
- Halys Central A (combined corridor with Tarong Central B)
  - Halys recommended corridor
- Constraints and Opportunities Surface**
- Barrier
  - Avoid
  - Neutral
  - Preferred

**FIGURE 1H**

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# Appendix **B**

## Appendix B Summary of legislative considerations

A summary of legislation potentially applicable to the project is provided below in Table 16 based on the 1km-wide recommended corridor. However, further design and detailed investigations and assessment will be required to confirm the appropriate approval pathway for the project.

Table 16 Summary of legislation

Legislation	Summary
Commonwealth Legislation	
<p><i>Environment Protection and Biodiversity Conservation Act 1999</i></p>	<p>The <i>Environment Protection and Biodiversity Conservation Act 1999</i> (EPBC Act) is the centrepiece of Commonwealth environmental laws. Broadly, it protects and regulates impacts on the following Matters of National Environmental Significance (MNES):</p> <ul style="list-style-type: none"> <li>• The world heritage values of a declared world heritage property</li> <li>• The national heritage values of a declared national heritage place</li> <li>• The ecological character of a declared Ramsar wetland (wetlands of international importance)</li> <li>• Listed threatened species and ecological communities</li> <li>• Listed migratory species</li> <li>• Nuclear actions (including uranium mining)</li> <li>• Commonwealth marine areas</li> <li>• The Great Barrier Reef Marine Park</li> <li>• A water resource, in relation to coal seam gas development and large coal mining development.</li> </ul> <p>Actions that have, will have, or are likely to have a significant impact on MNES and actions by the Commonwealth, or involving Commonwealth land are called controlled actions and require approval under the EPBC Act.</p> <p>The process of assessing and approving a controlled action under the EPBC Act potentially involves three stages, including referral, assessment and approval. At the first stage a person refers a proposed action for determination of whether it is a controlled action. If the proposed action is determined to involve a controlled action it is then assessed in accordance with the EPBC Act before the Minister (or delegate of the Minister) determines whether it can proceed and any conditions that should apply.</p>



<p><i>Native Title Act 1993</i></p>	<p>The <i>Native Title Act 1993</i> (NT Act) establishes a national framework for the protection and recognition of Native Title, including by conferring on Indigenous people who hold (or claim to hold) Native Title rights and interests in respect of any land or waters, the right to be consulted with and in some cases to participate in decisions about activities proposed to be undertaken.</p> <p>Whilst Native Title has been extinguished (refused recognition) over freehold land, Native Title interests and rights may still exist over a number of tenures including reserves, State Forest and National Parks, land that is or has been subject to lease, waters that are not privately owned, as well as unallocated state land. The NT Act prescribes the statutory process to allow parties to reach agreement about the use of land or waters where Native Title may continue to exist and for state governments and territories to grant interests over that land to both Native Title claimants and non-Native Title parties.</p>
<p>State legislation</p>	
<p><i>Aboriginal Cultural Heritage Act 2003</i></p>	<p>The purpose of the <i>Aboriginal Cultural Heritage Act 2003</i> (ACH Act) is to provide effective recognition, protection and conservation of Aboriginal and Torres Strait Islander cultural heritage. The ACH Act protects all indigenous cultural heritage in Queensland, whether or not it has been recorded in a database.</p> <p>The ACH Act requires anyone who carries out a land use activity to exercise a duty of care to take all reasonable and practical measures to avoid harming Aboriginal and Torres Strait Islander cultural heritage.</p> <p>Failure to comply with the duty of care is an offence, including unlawfully harming, excavating, relocating, taking away and possessing indigenous cultural heritage.</p>
<p><i>Biosecurity Act 2014</i></p>	<p>The <i>Biosecurity Act 2014</i> (Biosecurity Act) provides a biosecurity system framework which aims to minimise biosecurity risk and facilitate responses to biosecurity impacts, to ensure the safety and quality of agricultural inputs and to align the state's management of biosecurity risk and other requirements for plant and animal responses to biosecurity risk with federal and international obligations. The Act also aims to manage emerging endemic and exotic pests and diseases as well as the transfer of diseases between humans and animals and contaminants in carriers.</p> <p>Under the Act, a general biosecurity obligation is placed on all persons to undertake all reasonable and practicable measures to prevent or minimise biosecurity risk. Additionally, the movement of biosecurity matter must comply with movement restrictions associated with each relevant biosecurity zone, and biosecurity instrument permits are required for the movement of biosecurity matter which cannot comply with movement restrictions.</p>
<p><i>Environmental Offsets Act 2014</i></p>	<p>The purpose of the <i>Environmental Offsets Act 2014</i> (EO Act) is to counterbalance the significant residual impacts of particular activities on prescribed environmental matters through the use of environmental offsets.</p>

	<p>Prescribed environmental matters are described under the EO Act as a:</p> <ul style="list-style-type: none"> <li>• Matter of National Environmental Significance (MNES)</li> <li>• Matter of State Environmental Significance (MSES)</li> <li>• Matter of Local Environmental Significance (MLES).</li> </ul> <p>An environmental offset may be required as a condition of development approval, where following consideration of avoidance and mitigation measures, a prescribed activity is likely to result in a significant residual impact on a prescribed environmental matter. Once the administering authority has decided that a prescribed activity is required to provide an offset, the environmental offset is required to be delivered in accordance with the EO Act, the <i>Environmental Offsets Regulation 2014</i> (EO Regulation) and the Queensland Environmental Offsets Policy. The desktop assessment has identified that MNES and MSES are potentially present within the Study Area, however this will need to be confirmed during future phases of the project through field surveys.</p> <p>To avoid duplication between jurisdictions, state and local governments can only impose an offset condition in relation to a prescribed activity if the same, or substantially the same impact, or substantially the same matter has not been subject to assessment under the EPBC Act.</p> <p>It is important to note that advice from Queensland Treasury is that the EO Act does not apply to the designation of premises for development of infrastructure, however the designation decision can still apply compensatory measures/requirements akin to an offset.</p>
<i>Electricity Act 1994</i>	<p>The <i>Electricity Act 1994</i> (Electricity Act) sets out the requirements that all electricity industry participants are required to promote a safe, efficient and reliable supply and use of electricity. The Act also requires that the supply of electricity is undertaken in an environmentally sound manner. Under Section 31(b) of the Electricity Act, a transmission entity is required to properly consider the environmental effects of its activities under the transmission authority.</p> <p>Powerlink will be required to implement project specific Environmental Management Plans (EMPs) to comply with requirements of the Electricity Act. The EMPs will be implemented through the construction, operation and maintenance stages of the Project.</p>
<i>Electrical Safety Act 2002</i>	<p>The <i>Electrical Safety Act 2002</i> (Electrical Safety Act) seeks to prevent through regulation, the death, injury and destruction that can be caused by electricity. Accordingly, the purpose of the Electrical Safety Act is to establish a legislative framework for:</p> <ul style="list-style-type: none"> <li>• preventing persons from being killed or injured by electricity</li> <li>• preventing property from being destroyed or damaged by electricity.</li> </ul>

<p><i>Environmental Protection Act 1994</i></p>	<p>The purpose of the <i>Environmental Protection Act 1994</i> (EP Act) is to protect Queensland’s environment while allowing for development that improves the total quality of life, both now and in the future, in a way that maintains the ecological processes on which life depends.</p> <p>The EP Act regulates activities that will or may have the potential to cause environmental harm and prescribes several mechanisms to ensure that objectives are met. The two primary environmental duties that apply to everyone in Queensland are:</p> <ul style="list-style-type: none"> <li>• general environmental duty – a person must not carry out any activity that causes, or is likely to cause environmental harm, unless all reasonable and practicable measures to prevent or minimise the harm have been taken. Environmental harm is defined in Section 14 of the EP Act as any adverse effect, or potential adverse effect (whether temporary or permanent and of whatever magnitude, duration or frequency) on an environmental value and includes environmental nuisance</li> <li>• duty to notify of environmental harm – a person must inform the administering authority and landowner or occupier when an incident has occurred that may have caused or threatens serious or material environmental harm that is not authorised.</li> </ul> <p>The EP Act also provides the power to administering authorities to order the actions to be taken to improve environmental performance, conduct audits and environmental evaluations of activities, approve environmental management programs and impose penalties or prosecute persons for non- compliance with the requirements of the EP Act.</p> <p>The EP Act is supported by the following subordinate legislation:</p> <ul style="list-style-type: none"> <li>• <i>Environmental Protection Regulation 2019 (EP Regulation)</i></li> <li>• <i>Environmental Protection (Air) Policy 2019 (EPP (Air))</i></li> <li>• <i>Environmental Protection (Noise) Policy 2019 (EPP (Noise))</i></li> <li>• <i>Environmental Protection (Water and Wetland Biodiversity) Policy 2019 (EPP (Water and Wetland Biodiversity))</i>.</li> </ul> <p>The EP Act also describes Environmentally Relevant Activities (ERAs) for which an Environmental Authority (EA) is required. Some significant construction activities can trigger the requirement for an ERA.</p>
<p><i>Fisheries Act 1994</i></p>	<p>The <i>Fisheries Act 1994</i> (Fisheries Act) provides for the use, conservation and enhancement of fisheries resources and fish habitats in Queensland. The Department of Agriculture and Fisheries (DAF) is responsible for development assessment under the Fisheries Act in combination with the Planning Act, along with the conservation and management of fish habitats in Queensland.</p>

	<p>A development under the Fisheries Act can be either an accepted development or assessable development for, relevantly, works involving the construction or raising of waterway barrier works. An accepted development must comply with all the requirements within the relevant accepted development requirements. If the development does not comply, it is assessable development, and a development application must be lodged.</p> <p>The Study Area contains waterways for waterway barrier works. If proposed works by Powerlink traverse mapped waterways, this may require waterway barrier works and therefore trigger a requirement to obtain a development permit for operational works, that is constructing or raising waterway barrier works, unless the works are designed to comply with accepted development requirements under the Fisheries Act.</p>
<p><i>Forestry Act 1959</i></p>	<p>The <i>Forestry Act 1959</i> (Forestry Act) provides for forest reservations, the management, silvicultural treatment and protection of State Forests, and the sale and disposal of forest products and quarry material, the property of the Crown on State Forests, timber reserves and on other lands; and for other purposes. The Forestry Act is administered primarily by the DAF.</p> <p>State Forests are managed by the Department of Environment and Science (DES) and Queensland Parks and Wildlife Service (QPWS). Areas of State Forest may require revocation to facilitate the provision of infrastructure. This process is regulated under the <i>Forestry Act 1959</i> and where the future intent of the revoked area is for a particular purpose other than a tourist purpose or use as a public road, a regulation to revoke all or part of an area may only be made where the Legislative Assembly has passed a resolution requesting the Governor in Council to make the revocation.</p> <p>An application to revoke an area of State Forest should only be undertaken as a last resort where no alternative options are available. Revocation of state land will only be considered when it can be demonstrated that it is in the interests of the specific tenure or where there is a net forest production benefit outcome to the QPWS managed area as an outcome.</p> <p>Purposes relevant to the project which may be considered by the State for revocation include:</p> <ul style="list-style-type: none"> <li>• where there is a mutual benefit to the state and applicant</li> <li>• to enable essential public infrastructure works to be undertaken to support delivery of a specific government commitment.</li> </ul>
<p><i>Nature Conservation Act 1992</i></p>	<p>The purpose of the <i>Nature Conservation Act 1992</i> (NC Act) is the conservation of nature while allowing for the involvement of landholders and Indigenous people in the management of protected areas in which they have an interest under Aboriginal tradition or Island custom.</p> <p>A framework is created under the NC Act for the dedication, declaration and management of protected areas, protection of wildlife and its habitat. The clearing regulatory requirements and the list of critically endangered, endangered, vulnerable or near threatened plants are contained in the <i>Nature Conservation (Plants) Regulation 2020</i>.</p>

	<p>The Study Area potentially contains protected plants and protected areas, however this will require confirmation during further ecological surveys during the next phase of the project. The clearing of native flora species and native fauna habitat protected under the NC Act. It is recommended that detailed ecological field surveys are undertaken to confirm the requirements of the NC Act, which may include protected plants permits.</p>
<p><i>Planning Act 2016</i></p>	<p>The <i>Planning Act 2016</i> (Planning Act) establishes a framework and overarching policy for land use planning and development assessment in Queensland. The purpose of the Planning Act is to provide an efficient, effective, transparent, integrated, coordinated and accountable system of land use planning and development assessment to facilitate the achievement of ecological sustainability.</p> <p>The Planning Act and <i>Planning Regulation 2017</i> (Planning Regulation) describes the type of development, the level of assessment required for particular development, responsible entity for assessing development, assessment benchmarks, as well as the process for making, assessing and deciding development applications.</p> <p>The Planning Act and Planning Regulation also prescribe the assessment and approval process for the designation of premises for development of infrastructure (an ‘infrastructure designation’) prescribed within the Planning Regulation. Infrastructure designation is a Ministerial approval pathway, which is commonly used to facilitate electricity distribution and transmission infrastructure. Where an infrastructure designation is obtained, assessable development in relation to the infrastructure is deemed accepted development under the Planning Act, excluding building works under the <i>Building Act 1975</i>. This means that when an infrastructure designation is in effect, the development does not require any further development approvals for development normally assessable under the Planning Act, apart from building works.</p> <p>In practice, an infrastructure designation assessment will address the applicable State interests and constraints ordinarily made assessable under the Planning Act (i.e., vegetation clearing, waterway barrier works, etc).</p>
<p><i>Queensland Heritage Act 1992</i></p>	<p>The objective of the <i>Queensland Heritage Act 1992</i> is to provide for the conservation of Queensland’s cultural heritage for the benefit of the community and future generations. The <i>Queensland Heritage Act 1992</i> is administered by DES and the Queensland Heritage Council to identify and protect places that have special heritage values to the community and future generations.</p> <p>The <i>Queensland Heritage Act 1992</i> conserves and protects Queensland Heritage Places by:</p> <ul style="list-style-type: none"> <li>• establishing heritage registers</li> <li>• regulating development that may impact on registered places</li> <li>• establishing a process for reporting discoveries of objects that may be of cultural heritage significance.</li> </ul> <p>Section 89 of the <i>Queensland Heritage Act 1992</i> requires a person to notify DES of an archaeological artefact that is an important source of information about an aspect of Queensland history.</p>

<p><i>State Planning Policy</i></p>	<p>The State Planning Policy (SPP) identifies matters of State interest requiring protection and enhancement. The SPP is at the top of the planning hierarchy in Queensland and is the overarching policy for all other regional and local planning instruments. The SPP States that the SPP applies to the extent relevant, when designating premises for infrastructure under the Planning Act and development applications.</p>
<p><i>Stock Route Management Act 2002</i></p>	<p>The <i>Stock Route Management Act 2002</i> (Stock Route Management Act) provides a framework for management of Queensland's stock routes. Local government authorities are responsible for the day-to-day administration and management of stock routes. The Queensland Stock Route Network Management Strategy has been prepared under the Stock Route Management Act. The strategy is a tool to link legislative principles with decision making, to ensure a consistent approach.</p>
<p><i>Transport Infrastructure Act 1994</i></p>	<p>The overall objective of the <i>Transport Infrastructure Act 1994</i> (Transport Infrastructure Act) is to provide a regime that allows for and encourages effective integrated planning and efficient management of a system of transport infrastructure. The Act is administered by the Department of Transport and Main Roads (DTMR).</p> <p>Under section 50 of the Act, the ancillary works and encroachments within State-controlled roads can only be undertaken with the written permission of DTMR</p> <p>Under section 33 of the Transport Infrastructure Act, written approval is required from the DTMR to carry out road works on a State-controlled Road (SCR) or interfere with a SCR or its operation. This may include where road works to a Council Road interferes with a SCR or its operations.</p> <p>Under section 62 of the Transport Infrastructure Act, written approval is required from DTMR to locate a permitted access on a SCR. A decision of access approval may include conditions or restrictions on the location or use of the permitted road access, type or number of vehicles to use the permitted road access location.</p> <p>Under the <i>Transport Infrastructure (Rail) Regulation 2006</i> permission from the railway manager (Queensland Rail) is required to take over dimensional road loads across Queensland Rail infrastructure (e.g. rail level crossings and rail bridges).</p>
<p><i>Vegetation Management Act 1999</i></p>	<p>The <i>Vegetation Management Act 1999</i> (VM Act) regulates and manages the process and impacts of native vegetation clearing. The objectives of the VM Act include conservation of remnant regional ecosystems, prevention of the loss of biodiversity, maintenance of ecological processes, and conservation of vegetation in areas of high nature conservation value or lands vulnerable to land degradation.</p> <p>The Study Area contains areas of regulated vegetation under the VM Act, classified as Category A (declared), Category B (remnant), Category C (high value regrowth) and Category R (watercourse regrowth). Areas of Category X (non-</p>

	<p>remnant) vegetation also exist throughout the study area. The regional ecosystems (REs) present across the Halys Study Area include Endangered, Of Concern and Least Concern vegetation communities.</p> <p>Clearing of any relevant remnant or regulated regrowth vegetation constitutes operational work under schedule 10 of the <i>Planning Regulation 2017</i>, which will require development approval unless a vegetation clearing code or exemption applies. Under Section 22A of the VM Act, an application for operational work, including applications where Department of Resources (DoR) is a concurrence agency, cannot be accepted as properly made unless the Chief Executive is satisfied that the development is for a relevant purpose. Exemptions exist for electricity infrastructure where associated with an infrastructure designation.</p> <p>Any infrastructure designation or development application will need to demonstrate that Powerlink has sought to reduce the impacts of vegetation clearing through the hierarchy of avoid, minimise and mitigate. Where a significant residual impact remains, an offset, or compensatory measures may be required.</p>
<p><i>Water Act 2000</i></p>	<p>The <i>Water Act 2000</i> (Water Act) provides a framework to deliver sustainable water planning, allocation, management and supply processes to provide for the improved security of water resources in Queensland. The Water Act is supported by the <i>Water Regulation 2016</i> and various water resource plans for the defined geographic regions. The Water Act provides a framework for relevant:</p> <ul style="list-style-type: none"> <li>• The sustainable management of Queensland’s water resources and quarry material by establishing a system for the: <ul style="list-style-type: none"> <li>○ Planning, allocation and use of water</li> <li>○ Allocation of quarry material and riverine protection</li> </ul> </li> <li>• The sustainable and secure supply and demand management for the south-east Queensland region and other designated regions.</li> </ul> <p>Under the Water Act, water licences or permits are required to take water and to interfere with the flow of water on, under or adjoining land, including interfering with water in aquifers (if determined necessary).</p>
<p>Matters of State Environmental Significance</p>	<p>Matters of State Environmental Significance (MSES) are a component of the biodiversity state interest that is defined under the SPP and <i>Environmental Offsets Regulation 2014</i>. MSES includes certain environmental values that are protected under Queensland legislation. MSES are defined as:</p> <ul style="list-style-type: none"> <li>• Protected areas (including all classes of protected areas except coordinated conservation areas) under the <i>Nature Conservation Act 1992</i></li> <li>• Marine parks and land within a 'marine National Park', 'Conservation Park', 'scientific research', 'preservation' or 'buffer' zone under the <i>Marine Parks Act 2004</i></li> </ul>

	<ul style="list-style-type: none"> <li>• Areas within declared fish habitat areas that are management A areas or management B areas under the <i>Fisheries Regulation 2008</i></li> <li>• Threatened wildlife under the Nature Conservation Act 1992 and special Least Concern animals under the Nature Conservation (Wildlife) Regulation 2006</li> <li>• Regulated vegetation under the <i>Vegetation Management Act 1999</i> that is:             <ul style="list-style-type: none"> <li>○ Category B areas on the regulated vegetation management map, that are 'Endangered' or 'Of Concern' regional ecosystems</li> <li>○ Category C areas on the regulated vegetation management map that are 'Endangered' or 'Of Concern' regional ecosystems</li> <li>○ Category R areas on the regulated vegetation management map</li> </ul> </li> <li>• Regional ecosystems that intersect with watercourses identified on the vegetation management watercourse and drainage feature map</li> <li>• Regional ecosystems that intersect with wetlands identified on the vegetation management wetlands map</li> <li>• Strategic Environmental Areas under the <i>Regional Planning Interests Act 2014</i></li> <li>• Wetlands in a wetland protection area of wetlands of high ecological significance shown on the map of Queensland Wetland Environmental Values under the <i>Environment Protection Regulation 2019</i></li> <li>• Wetlands and watercourses in high ecological value waters defined in the <i>Environmental Protection (Water) Policy 2009</i>, schedule 2</li> <li>• Legally secured offset areas.</li> </ul>
Regional Plans	<p>The Study Area is subject to the following regional plans:</p> <ul style="list-style-type: none"> <li>• South East Queensland Regional Plan 2017 (ShapingSEQ)</li> <li>• Wide Bay Burnett Regional Plan 2011 Reference is also made to The Draft Wide Bay Burnett Regional Plan 2022, expected to be released late 2023.</li> </ul>
South East Queensland Regional Plan 2017 (ShapingSEQ)	<p>ShapingSEQ is a state planning instrument providing a framework to manage growth, change, land use and development in SEQ and is underpinned by five key themes: grow, prosper, connect, sustain and live. ShapingSEQ was prepared by the Department of Infrastructure, Local Government and Planning (DILGP) in 2017 and guides the future infrastructure planning and investment of 12 Local Government Areas (LGAs) within the region. ShapingSEQ defines the</p>



	<p>desired future settlement pattern that aims to use land more efficiently, while protecting the values important to the community into the following regional land use classifications:</p> <ul style="list-style-type: none"> <li>• Urban Footprint</li> <li>• Rural Living Area</li> <li>• Regional Landscape and Rural Production Area.</li> </ul> <p>Key themes related to electricity infrastructure in ShapingSEQ include:</p> <ul style="list-style-type: none"> <li>• <b>Theme 3 – Connect</b> <ul style="list-style-type: none"> <li>○ Our communities will have secure, high-quality food and water supplies as key elements of the region's sustainability, and will maximise technological advances in energy production, including renewable production and battery storage.</li> </ul> </li> <li>• <b>Theme 4 – Sustain</b> <ul style="list-style-type: none"> <li>○ SEQ will have reduced greenhouse gas emissions and be more resilient to the projected effects of climate change. SEQ will be carbon neutral and have zero net waste, and the region's food, water and energy supply systems will be flexible, reliable and secure.</li> <li>○ ShapingSEQ seeks to protect regional scenic amenity areas from development that would compromise their value. Regionally significant amenity is mapped to the east of Strategic Area 3 and to the south-east of Strategic Area 4.</li> </ul> </li> </ul>
<p>State Government Supported Infrastructure Koala Conservation Policy July 2017 (SGSIKCP)</p>	<p>This policy (SGSIKCP) is to ensure that state activities not regulated through planning schemes or in accordance with the koala assessment benchmarks in Schedule 11 of the <i>Planning Regulation 2017</i> meet the same requirements as the <i>Planning Regulation 2017</i>, to ensure equitable treatment of state and non-State infrastructure projects.</p> <p>The corridor is not located within the area covered by the SGSIKCP.</p>
<p>Wide Bay Burnett Regional Plan 2011</p>	<p>The Wide Bay region's economic drivers are in the agriculture, fishing and tourism sectors. As the gateway to the southern Great Barrier Reef and Fraser Island, tourism is also an important economic driver. The Wide Bay Regional Plan was prepared by the Department of Local Government and Planning in 2011 and covers the LGAs of Bundaberg Regional Council, Cherbourg Aboriginal Shire Council, Fraser Coast Regional Council, Gympie Regional Council, North Burnett Regional Council and South Burnett Regional Council.</p>

	<p>The Wide Bay Burnett Regional Plan aims to respond to the variety of distinct challenges facing the region over the next two decades and beyond by guiding and supporting projected growth. The plan recognises that the economy and population comprise an ageing population and workforce, a limited but strong number of economic drivers, and a need to prepare for, and appropriately respond to, the anticipated impacts of climate change.</p> <p>The Wide Bay Regional Plan identifies that energy requirements are escalating due to population growth, industrial development and economic growth.</p> <p>Wide Bay Burnett Regional Plan 2011. Reference is also made to the Draft Wide Bay Burnett Regional Plan 2022, expected to be released late 2023.</p>
Local Laws	<p>The <i>Local Government Act 2020</i> (Local Government Act) allows for councils to create laws for matters that the Council has function or power under the Local Government Act to undertake and to regulate specific matters within their LGA. While the Planning Scheme is exempt where an Infrastructure Designation has been enacted, local laws imposed by each local government authority will still apply and may trigger approvals for certain activities.</p>

# Appendix C



**Table 17:** Halys 1km-wide Recommended Corridor – Key Considerations

Considerations	Summary of 1km-wide recommended corridor	
Opportunity for co-location 275kV	The Halys Central (Option A) corridor provides the ability to co-locate with existing Powerlink transmission lines around Tarong Power Station and Halys Substation. This recommended corridor is approximately 26km long which is around 25% of the total corridor length (105km). The interface with lower voltage transmission infrastructure will be defined in future stages.	
Number of crossings (roads and rail)	<p>Local roads will be traversed through this corridor including:</p> <ul style="list-style-type: none"> <li>• Tungi Road</li> <li>• Borgan Road</li> <li>• Yabba Road</li> <li>• Kilcoy-Murgon Road (State-controlled)</li> <li>• Kimbala Road</li> <li>• Noora Road</li> <li>• Din Din Road</li> <li>• Munt Road</li> <li>• Nanango Neumgna Road</li> <li>• Tarong Railway Road</li> <li>• Brauholtz Road</li> <li>• Oaky Creek Back Road</li> <li>• Eastern Branch Road</li> </ul>	<ul style="list-style-type: none"> <li>• Linville Road</li> <li>• Old Esk Road</li> <li>• Sauer Road</li> <li>• Throrer Track Daguilar Highway (State-controlled)</li> <li>• Tarong Powerstation Road</li> <li>• Kingaroy-Cooyar Road (State-controlled)</li> <li>• Brooklands Peron Road</li> <li>• Greenslade Road</li> <li>• Brooklands Pimpimbudgee Road</li> <li>• Nanango-Tarong Road (State-controlled)</li> <li>• Several other un-named tracks and access roads, particularly associated with Gallangowan State Forest and Jimmy’s Scrub State Forest</li> </ul> <p>There are no rail lines traversed by the corridor.</p>
Flood hazard areas (Ha of moderate or higher risk)	<p>Queensland Globe extreme basin events flood level mapping indicates areas of potential flooding within the recommended corridor to the west of the D’Aguilar Highway and the east of Kilcoy-Murgon Road.</p> <p>The corridor intersects the following watercourses as defined and mapped under the <i>Water Act 2000</i>:</p> <ul style="list-style-type: none"> <li>• Sandy Creek</li> <li>• Yabba Creek</li> </ul>	<ul style="list-style-type: none"> <li>• Meandu Creek</li> <li>• Middle Creek</li> <li>• Tanduringie Creek</li> <li>• Barker Creek</li> </ul> <p>The corridor intersects drainage lines as defined and mapped under the <i>Water Act 2000</i> at the following approximate locations:</p>

Considerations	Summary of 1km-wide recommended corridor	
	<ul style="list-style-type: none"> <li>• Brisbane River (east branch)</li> <li>• Paradise Creek</li> <li>• Oaky Creek</li> <li>• Cooyar Creek</li> <li>• Yarraman Creek</li> <li>• Rocky Creek</li> </ul>	<ul style="list-style-type: none"> <li>• near Tanduringie Creek</li> <li>• Tarong Substation</li> <li>• land surrounding Brisbane River</li> <li>• land east of Thrower Track</li> </ul> <p>Several additional watercourses mapped of fisheries significance and other small unnamed drainage features are present throughout the corridor.</p>
DSDSATSIP Sites	There are 12 DSDSATSIP identified sites within the recommended corridor and one Cultural Heritage Inventory Management Systems (CHIMS) site. These locations would be a priority for avoidance for future refinement and investigations.	
Protected plant survey trigger area	Protected plant survey trigger areas are present within the corridor, however it was selected to avoid these areas to the greatest extent practicable at the 1km-wide scale. The largest areas of protected plant survey trigger areas are surrounding the Tarong Power Station, however with the corridor designed to take advantage of the existing easement through this area, additional impacts through these areas can be minimised.	
Wetlands – GES / HES	<p>The following wetlands of State significance (High Ecological Significant wetlands (HES), HES Great Barrier Reef (GBR HES) and General Ecological Significance (GES)) are mapped as occurring within the corridor:</p> <ul style="list-style-type: none"> <li>• associated with Yabba Creek (GES)</li> <li>• associated with the Brisbane River (GES)</li> <li>• associated with the Cooyar Creek (GES)</li> <li>• associated with the Yarraman Creek (GES)</li> <li>• east of Middle Creek (GBR HES)</li> </ul> <p>In addition to the state regulated wetlands, areas of vegetation where wetlands comprise up to 51% of the vegetation type are also present within the corridor.</p>	
Unexploded ordnance	Department of Defence mapping indicates there is one unexploded ordnance (UXO) area of slight potential located between Diaper State Forest, Squirrel Creek State Forest and Jimna State Forest, adjacent to Kilcoy Murgon Road. This area was	

Considerations	Summary of 1km-wide recommended corridor
	authorised for Artillery Practice in 1942 under the <i>National Security Act 1939-1940</i> . This area will require further assessment during subsequent stages of the project.
Airports, heliports and landing strips	There are no airports, heliports or landing strips within the 1km-wide recommended corridor.
Mining lease	The corridor avoids interaction with active mining leases but interfaces with existing exploration tenure north of Tarong Substation.
Strategic cropping and agricultural lands	<p>Several areas of Strategic Cropping Land (SCL) are present within the corridor near:</p> <ul style="list-style-type: none"> <li>• Eastern Branch Road</li> <li>• Sauer Road</li> <li>• D’Aguilar Highway</li> <li>• Rocky Creek Road</li> <li>• Tarong Railway Road and surrounding Tanduringie Creek</li> <li>• Adjacent to Middle Creek near Brookland Peron Road</li> <li>• Adjacent to Barker Creek</li> <li>• Munt Road</li> <li>• Adjacent to Oaky Creek Back Road in several locations.</li> </ul> <p>The area of SCL and agricultural lands within the corridor is 858 ha</p>
State-owned land	<p>The following areas of State land, comprising both State Forest or State-owned land is present within the corridor:</p> <ul style="list-style-type: none"> <li>• Yarraman State Forest</li> <li>• South Nanango State Forest</li> <li>• Gibson State Forest</li> <li>• Diaper State Forest</li> </ul>

Considerations	Summary of 1km-wide recommended corridor
	<ul style="list-style-type: none"> <li>• Squirrel Creek State Forest</li> <li>• Yabba State Forest</li> <li>• Jimna State Forest</li> <li>• Land owned by Stanwell Corporation</li> </ul>
Intensive use lands	The corridor contains 25ha of land which is mapped for intensive land. The preference is to avoid in future refinement and investigations.
Number of lots	The total number of freehold properties within the corridor is 164, including lots partially within the corridor.
Proximity to public amenity (townships, town halls, churches, schools)	Small properties of less than 5ha have been used as a proxy for the locations of housing clusters as well as townships and associated community infrastructure. Properties smaller than 5ha have been considered as a high priority to avoid and buffers of 200m have been applied within the corridor refinement (spatial analysis) process. This buffer is used to better identify small properties and clusters of small properties that may have associated support services.

# Appendix **D**



## Acronyms in Halys Draft CSR

<b>ABS</b>	Australian Bureau of Statistics
<b>ACH Act</b>	Aboriginal Cultural Heritage Act 2003
<b>AHD</b>	Australian Height Datum
<b>BoM</b>	Bureau of Meteorology
<b>CHL</b>	Commonwealth Heritage List
<b>CHIMS</b>	Cultural Heritage Inventory Management System
<b>CSR</b>	Corridor Selection Report
<b>DAF</b>	Department of Agriculture and Fisheries
<b>DCDB</b>	Digital Cadastral Database
<b>DES</b>	Department of Environment and Science
<b>DILGP</b>	Department of Infrastructure, Local Government and Planning
<b>DoR</b>	Department of Resources
<b>DSDILGP</b>	Department of State Development, Infrastructure, Local Government and Planning
<b>DSDSATSIP</b>	Department of Seniors, Disability Services and Aboriginal and Torres Strait Islander Partnerships
<b>DTMR</b>	Department of Transport and Main Roads

<b>EA</b>	Environmental Authority
<b>EMF</b>	Electric and magnetic fields
<b>EMP</b>	Environmental Management Plan
<b>EO Act</b>	Environmental Offsets Act 2014
<b>EO Regulation</b>	Environmental Offsets Regulation 2014
<b>EP Act</b>	Environmental Protection Act 1994
<b>EPP (Air)</b>	Environmental Protection (Air) Policy 2019
<b>EPP (Noise)</b>	Environmental Protection (Noise) Policy 2019
<b>EP Regulation</b>	Environmental Protection Regulation 2019
<b>EPP (Water and Wetland Biodiversity)</b>	Environmental Protection (Water and Wetland Biodiversity) Policy 2019
<b>EPBC Act</b>	Environment Protection and Biodiversity Conservation Act 1999
<b>ERA</b>	Environmentally Relevant Activities
<b>GBR</b>	Great Barrier Reef
<b>GES</b>	General Ecological Significance
<b>GRT</b>	Giant Rats Tail Grass
<b>ha</b>	Hectares

<b>HES</b>	High Ecological Significant
<b>km</b>	Kilometres
<b>km2</b>	Square kilometres
<b>kV</b>	Kilovolt
<b>LGA</b>	Local Government Area
<b>LHR</b>	Local Heritage Register
<b>m</b>	Metres
<b>MCA</b>	Multi-Criteria Analysis
<b>MLES</b>	Matter of Local Environmental Significance
<b>MNES</b>	Matter of National Environmental Significance
<b>MSES</b>	Matter of State Environmental Significance
<b>MW</b>	Megawatts
<b>NC Act</b>	Nature Conservation Act 1992
<b>NHL</b>	National heritage list
<b>NT Act</b>	Native Title Act 1993
<b>PHES</b>	Pumped Hydro Energy Storage

<b>PMST</b>	Protected Matters Search Tool
<b>QEJP</b>	Queensland Energy and Jobs Plan
<b>QH Act</b>	Queensland Heritage Act 1992
<b>QHR</b>	Queensland Heritage Register
<b>QPWS</b>	Queensland Parks and Wildlife Service
<b>RE</b>	Regional ecosystem
<b>RET</b>	Renewable Energy Target
<b>RNE</b>	Register of National Estate
<b>RNTBC</b>	Registered Native Title Bodies Corporate
<b>RPI Act</b>	Regional Planning Interests Act 2014
<b>SCL</b>	Strategic cropping land
<b>SCR</b>	State-controlled road
<b>SGSIKCP</b>	State Government Supported Infrastructure Koala Conservation Policy July 2017
<b>SMP</b>	Species Management Program
<b>SPP</b>	State Planning Policy
<b>UXO</b>	Unexploded ordnance

<b>VM Act</b>	Vegetation Management Act 1999
<b>WHL</b>	World Heritage List