Review of Environmental Factors (REF) Decision Statement Report

Catherine Park Mobile Zone Substation

29/11/2024

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1. Introduction

Endeavor Energy (EE) is proposing to install and operate a temporary mobile substation at Catherine Park to service future residential development within Catherine Fields precinct (herein referred to as the 'Project').

The components of the Project include:

- A temporary mobile substation to be installed at the existing Catherine Fields Substation site.
- Distribution works to connect the temporary mobile substation to the existing street supply on Coleman Loop.
- Replacement of three power poles along the existing 132 kV transmission line.
- Replacement overhead earth wire (OHEW) with an optical ground wire (OPGW).
- Associated Fibre Optic works to be established within existing easements between Alma Road in Catherine Field to a site in Oran Park.
- Ancillary infrastructure including stockpile sites, construction compounds, laydown area and access tracks.

The proposed activity has been classed as Class 4 activity in accordance with the *NSW Code of Practice for Authorised Network Operators* (DPE, 2015) (the Code), and a Review of Environmental Factors (REF) *Endeavour Energy Catherine Park Mobile Zone Substation* was prepared by Niche Environment and Heritage (November 2024) to assess the potential impacts of the proposed activity. The REF was prepared in accordance with Part 5 of the *Environmental Planning and Assessment Act 1979* (EP&A Act), Section 171 of the *Environmental Planning and Assessment Regulation 2021* and the *NSW Code of Practice for Authorised Network Operators* (DPE, 2015) which is an approved Code under Section 198 of the *Environmental Planning and Assessment Regulation 2021.*

The NSW Government has prescribed Endeavour Energy, an Authorised Network Operator, as a prescribed determining authority for the purpose of the *Environmental Planning and Assessment Act 1979*. To allow the proposed activity to proceed, Endeavour Energy must make a determination of the REF in accordance with Part 5 of the *EP&A Act*.

2. Consultation

Consultation was undertaken as below:

- Camden Council was notified on the 18th May 2024. No response has been received from Camden Council
- Local MP for Camden (Sally Quinnell) was notified on the 18th May 2024. No response has been received from the Local MP.
- Direct notification of potentially affected residents has been carried out on the 17th October 2024. Two responses were received: regarding potential impact on easement and visual impact. Endeavour Energy responded on 23rd October 2024 and 29th November 2024 accordingly and no further comments received.

3. Consideration of Environmental Impacts

The REF details the proposed activity, assesses the potential impacts on the environment and provides management measures to avoid, minimise, manage and/or offset those impacts. The key sensitive environmental aspects related to this proposed activity during construction include vegetation clearing and other typical construction impacts such as noise, traffic and air quality.

A review of spatial records of threatened flora and fauna within a 10 kilometre (km) radius of the Project was undertaken using data obtained from the BioNet Atlas of NSW Wildlife) and the Commonwealth Protected Matters Search Tool. For the most part, the Project occurs within previously cleared areas such as road verges. The mobile ZS site was had been cleared, with bare soil exposed throughout much of the area, with introduced plantings and some very sparse native shrubs (Bursaria spinulosa).

Regional vegetation mapping indicated that there are two vegetation communities within the Project Footprint; PCT 3320 Cumberland Shale Plains Woodland (BC Act: CE; EPBC Act: CE) and PCT 4025 Cumberland Red Gum Riverflat Forest (BC Act: E; EPBC Act: CE).

No threatened flora species were recorded during the current survey.

Replacement of Pole 16 will result in clearing of approximately 12 sqm of PCT 4025 Cumberland Red Gum Riverflat Forest, which aligns with the endangered threatened ecological community (TEC), River-Flat Eucalypt Forest on Coastal Floodplains of the NSW North Coast, Sydney Basin and South East Corner bioregions under the BC Act and the critically endangered River-flat eucalypt forest on coastal floodplains of southern New South Wales and eastern Victoria under the EPBC Act.

Excavation of the Joint Bays will result in clearing of approximately 4 sqm of PCT 3320 Cumberland Shale Plains Woodland, which aligns with the critically endangered threatened ecological community (TEC), Cumberland Plain Woodland in the Sydney Basin Bioregion under the BC Act and the Cumberland Plain Shale Woodlands and Shale-Gravel Transition Forest under the EPBC Act.

Both TECs are in very low condition. The vegetation has been extensively disturbed, and the groundcover and understory consist of limited native species

An Assessment of Significance determined the Project is not likely to result in a significant impact to any threatened ecological communities listed under the BC Act and/or EPBC Act.

4. Conclusion

In summary, the REF addresses the requirements of Section 5.5 of the *EP&A Act* by considering to the fullest extent possible, all matters affecting or likely to affect the environment from the proposed activity. The REF also considers factors prescribed under Section 171 of the *Environmental Planning and Assessment Regulation 2021.* The REF assesses and considers the likely significance of the environmental impacts of the proposed activity under Section 5.7 of the *EP&A Act.*

The REF also considers the requirements of the *Commonwealth Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act) and assesses all matters of National Environmental Significance (NES) and any impacts on Commonwealth land.

Potential impacts would result in the temporary modification of up to 12sqm conforming to the TEC River-Flat Eucalypt Forest on Coastal Floodplains of the NSW North Coast, Sydney Basin and South East Corner bioregions under the BC Act and the critically endangered River-flat eucalypt forest on coastal floodplains of southern New South Wales and eastern Victoria under the EPBC Act, and 4 sqm conforming to the TEC Cumberland Plain Woodland in the Sydney Basin Bioregion under the BC Act and the Cumberland Plain Shale Woodlands and Shale-Gravel Transition Forest under the EPBC Act, will be potentially impacted by the Project. An Assessment of Significance (AoS; BC Act) and Significant Impact Criteria assessment SIC; EPBC Act) concluded that the proposed activity was unlikely to have a significant impact on this threatened ecological communities.

The proposed activities are unlikely to harm any Aboriginal objects as no artefacts were identified during the site inspection within 30 m of the pole locations and most of the remaining activity area occurs in areas of previous disturbance along the power line and associated access tracks. The Project Area is assessed to have little historical heritage significance.

Given the nature, scale and extent of impacts and implementation of the mitigation measures outlined in the REF, the REF concludes that the proposed activity is not likely to significantly affect the environment or threatened species, populations or ecological communities, or their habitats. The REF also considers that the proposed activity is not likely to have a significant impact on matters of National Environmental Significance (NES) or Commonwealth land, and therefore does not require a referral under the Commonwealth EPBC Act.

With consideration of the environmental impacts detailed in the REF, the key conclusions are accepted for the following reasons:

- The REF has been prepared by persons appropriately trained to consider and assess the impacts of the proposed activity
- It is considered that the REF provides a true and fair review of the proposed activity in relation to its potential effects on the environment
- The REF is comprehensive and examines and takes into account, to the fullest extent possible, all matters affecting or likely to affect the environment as a result of the proposed activity.

5. Determination

I, as an authorised person on behalf of Endeavour Energy, have examined and considered the REF for the Catherine Park Mobile Zone Substation in accordance with Section 5.5 of the *EP&A Act*.

In accordance with the requirements of Section 2.5.1 of the Code, I am an appropriately authorised person and I am not the same person who conducted the assessment.

I determine, on behalf of Endeavour Energy, that:

☒ The proposed activity is not likely to significantly affect the environment, and is not likely to significantly affect threatened species, ecological communities or their habitats and is not to be carried out on land that is or is part of a declared area of outstanding biodiversity value. No Environmental Impact Statement (EIS) or Species Impact Statement (SIS) is therefore required in respect of the subject Activity. Further:

☐ This is not a conditional decision and no further conditions are required (other than the mitigation measures attached to this Decision Statement)

☒ This is a conditional decision and the conditions are attached to this Decision Statement below. The conditions are required as

- The 21-day notification period to the Department of Planning, Housing and Infrastructure, required due to parts of the project crossing non-certified land as per the SEPP (Precincts - Western Parklands City) 2021, is in progress and will be completed on 18th December 2024 unless the Department responds earlier.

☐ The proposed activity is likely to significantly affect the environment and an EIS or SIS or both is required in respect of the subject Activity.

☐ there is insufficient information contained in REF and a supplementary EIA should be prepared.

Signature Panel for Authorised Person who has made the Determination	
Signature	[redacted]
Name in full	Roweena D'souza
Role/Title	Environmental Services Manager
Date	29/11/2024

6. Conditions of Determination

1) Until 18th December 2024, no vegetation clearing works are permitted on Non - Certified areas (areas highlighted in orange in attached maps) around Pole 16 (Fig 12a), around the substation site (refer Figure 12d) and access tracks indicated in Figures 12a – 12c unless the Department of Planning, Housing and Infrastructure responds in this period and their feedback is considered.
2) Post 18th Dec 2024, vegetation clearing works assessed in the REF are permitted.

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niche Environment and Heritage

Endeavour Energy Catherine Park Mobile Zone Substation

Review of Environmental Factors

Prepared for Endeavour Energy | 2 December 2024

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Document control

Project number	Client	Project manager	LGA
8372	Endeavour Energy	Justin Merdith	Camden

Version	Author	Review	Status	Date
D1	Charlotte Cross	Christie Chapman	Draft	30 November 2023
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D6	Justin Merdith	Luke Baker and EE	Final	6 September 2024
D7	Justin Merdith	EE	Final	4 October 2024
D8	Emma McIntyre	EE	Final	29 November 2024

Important information about your Report

Your Report has been written for a specific purpose: The Report has been developed for a specific purpose as agreed by us with you and applies only for that purpose. Unless otherwise stated in the Report, this Report cannot be applied or used when the nature of the specific purpose changes from that agreed. **Report for the sole benefit of Niche's client:** This Report has been prepared by Niche for you, as Niche's client, in accordance with our agreed purpose, scope, schedule and budget. This Report should not be applied for any purpose other than that stated in the Report. Unless otherwise agreed in writing between us, the Report has been prepared for your benefit and no other party. Other parties should not and cannot rely upon the Report or the accuracy or completeness of any recommendation. **Limitations of the Report:** The work was conducted, and the Report has been prepared, in response to an agreed purpose and scope, within respective time and budget constraints, and possibly in reliance on certain data and information made available to Niche. The analyses, assessments, opinions, recommendations, and conclusions presented in this Report are based on that purpose and scope, requirements, data, or information, and they could change if such requirements or data are inaccurate or incomplete. **No responsibility to others:** Niche assumes no responsibility and will not be liable to any other person or organisation for, or in relation to, any matter dealt with, or conclusions expressed in the Report, or for any loss or damage suffered by any other person or organisation arising from matters dealt with, or conclusions expressed in the Report.

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Glossary and list of abbreviations

Term or abbreviation	Definition
AHIMS	Aboriginal Heritage Information Management System
ANO	Authorised Network Operator
AoS	Assessment of Significance
Authorised Transactions Act	*Electricity Network Assets (Authorised Transactions) Act 2015*
BC Act	*Biodiversity Conservation Act 2016* (NSW)
CEMP	Construction Environmental Management Plan
CLM Act	*Contaminated Land Management Act 1997*
DCCEEW	Department of Climate Change, Energy, Environment and Water
DPE	Department of Planning and Environment
EE	Endeavour Energy
EIS	Environmental Impact Statement
EP&A Act	*Environmental Planning and Assessment Act 1979*
EP&A Regulation	*Environmental Planning and Assessment Regulation 2021*
EPA	Environmental Protection Authority
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
EPL	Environmental Protection Licence
ESCP	Erosion and Sediment Control Plan
ESD	Ecologically Sustainable Development
ha	Hectare/s
Heritage Act	*Heritage Act 1979*
kV	kilovolt
LEP	*Camden Local Environmental Plan 2010*
LGA	Local Government Area
Locality	The Development site and surrounds, nominally a 10 km radius from the development site.
MNES	Matters of National Environmental Significance (from the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*).
Niche	Niche Environment and Heritage
NorBE	Neutral or Beneficial Effect
NPW Act	*National Parks and Wildlife Act 1974*
NPW Regulation	*National Parks and Wildlife Regulation 2009*
OEH	Office of Environment and Heritage (formerly DPIE, now DPE)
POEO Act	*Protection of the Environment Operations Act 1997*
POEO Waste Regulation	*Protection of the Environment Operations (Waste) Regulation 2014*
Project	The proposed works involving the Catherine Park mobile zone substation and the associated installation of overhead fibre optics, underground fibre optics and associated distribution works
Project Footprint	All proposed works from overhead and underground fibre optics locations and Catherine Park mobile zone substation
REF	Review of Environmental Factors
SEPP	State Environmental Planning Policy
SHR	State Heritage Register
TEC	Threatened Ecological Community

Term or abbreviation	Definition
TfNSW	Transport for NSW
Transport & Infrastructure SEPP	*State Environmental Planning Policy (Transport and Infrastructure) 2021*

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1. Introduction

1.1 Introduction

Niche was engaged by Endeavor Energy (EE) to undertake a Review of Environmental Factors (REF) for the proposed development of infrastructure to service future residential development within Catherine Fields precinct (herein referred to as the 'Project').

The components of the Project include:

- A temporary mobile substation to be installed at the existing Catherine Fields Substation site.
- Distribution works to connect the temporary mobile substation to the existing street supply on Coleman Loop.
- Replacement of three power poles along the existing 132 kV transmission line.
- Replacement overhead earth wire (OHEW) with an optical ground wire (OPGW).
- Associated Fibre Optic works to be established within existing easements between Alma Road in Catherine Field to a site in Oran Park.
- Ancillary infrastructure including stockpile sites, construction compounds, laydown area and access tracks.

These components are further described in Section 2.

1.2 Background and need for the Project

EE is responsible for the distribution of electricity to over 2.7 million people living and working across Sydney's Greater West, the Blue Mountains, Southern Highlands, Illawarra and the South Coast of NSW.

Increased electrical infrastructure is required to support future residential land development within the Catherine Fields precinct, which is located in Sydney's South West Growth Area, in the Camden Local Government Area.

Recent load enquiries from future developments have prompted EE to investigate methods of supply to the area. There is currently no spare capacity on adjacent feeders to provide the supply.

1.3 Purpose of this REF

Under Clause 2.44 of the *State Environmental Planning Policy (Transport and Infrastructure) 2021,* development for the purpose of an electricity transmission or distribution network may be carried out by or on behalf of an electricity supply authority or public authority without consent on any land. Endeavour Energy is an Authorised Network Operator (ANO) and is both a public authority proponent and the determining authority (Part 5.1 of the EP&A Act) for the Project.

EE has commissioned Niche to prepare this REF for determination by EE (the Determining Authority) as an activity in accordance with Part 5 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) and Clause 171 of the *Environmental Planning and Assessment Regulation 2021* (EP&A Regulation).

The purpose of this REF is to examine and take into account to the fullest extent possible all matters affecting or likely to affect the environment as a result of this project. This REF identifies mitigating measures to be incorporated into the design and construction, to minimise environmental impacts.

2. Description of the Project

2.1 Project components

The Project components are described below and illustrated in Figures 1 and 2a through to 2h.

2.1.1 Temporary Mobile Zone Substation

A temporary mobile zone substation to is proposed at the existing Catherine Fields Substation site at Lot 4401, DP 1235004, 30 Wilhelm Parade, Catherine Field, NSW (Figure 1 and Figure 2d).

Deployment of a temporary mobile zone substation to the Catherine Park site is required to service the initial needs of the future development. The temporary mobile zone substation will defer the establishment of a permanent zone substation by up to 10 years whilst still meeting the expected electricity demand needs of future development. This was found to be the most cost effective and practical solution to meet the project need.

The substation site is currently vacant. The site is fenced off with chain wire and has EE signage displayed.

Earthworks have been conducted on the site of the proposed temporary mobile ZS for the purpose of eventually housing a permanent ZS that would service the needs of the future development within the Catherine Field precinct. Bulk fill was brought in and compacted to raise the ground level to a height, and with a compaction, suitable for construction of a ZS. Drainage has been established to direct stormwater around the site. The works completed to date have been performed by the developer of Catherine Park Estate.

Components to include:

- An Asset Protection Zone (APZ) that extends 3m beyond the lot boundary on the western and southern side of the property.
- A reinforced concrete pad onto which the mobile zone substation would be mounted.
- An asphalt driveway and drive-in bund.
- Widening of the existing gravel access driveway.
- An amenities building, control room, fire hydrant enclosure, and fibre optic box.
- New concrete power pole and 132kV feeder line.
- New stormwater pit and pipe, diversion swale drain and rip rap scour protection.
- New sewer connection.
- New site security fence, vehicle and pedestrian access gates, safety station and two light car parking spaces.

2.1.2 Distribution Works

Distribution works will be required to connect the temporary mobile ZS to the existing street supply on Coleman Loop. The cables will be trenched from the proposed driveway and along the road verge to connect to an existing pillar. These works are required to provide electricity for the operation of the mobile ZS.

2.1.3 Power Pole Replacement

Replacement of three power poles along the existing 132 kV transmission line. The location of these poles is shown in Figure 2a and 2b in Annex 2.

Components include:

- Pole 13 north of the Catherine Field mobile ZS, a two (2) pole structure (asset number 647621 & 647624) on Lot 51, DP 28057 (also known as (211 Dwyer Road Leppington). These are wooden poles that require replacement as they are in poor condition. They will be replaced on a like for like basis.
- Pole 16 north of the Catherine Field mobile ZS, a three (3) pole structure (asset number 755726, 647628 & 647627) on Lot 30, DP 221082 (also known as 80 Anthony Street Leppington). These are wooden poles that require replacement as they are in poor condition. They will be replaced on a like of like basis.
- Pole 12 (Melaleuca Road), south of the Catherine Field mobile ZS, a single pole (asset number 643816) in the road corridor between Camden Bypass and Melaleuca Road opposite 2 Ash Place Narellan Vale. The existing single concrete pole is being replaced as a thicker concrete pole of the same height to withstand the additional load of the OPGW.

2.1.4 Replacement of Overhead Earth Wire

The existing overhead earth wire (OHEW) will be replaced with an optical ground wire (OPGW). This will occur along the feeder route shown in in Figure 1 (see Annex 2) and the design diagrams (see Annex 5).

To complete these works a winder drum will be set up around a designated pole where required to allow for the stringing of multiple poles. The new OPGW would be attached to the existing cabling and pulled through from pole to pole. Each pole would have runners attached were a conductor can be fed/guided through.

2.1.5 Underground Fibre Optic Works

Associated Underground Fibre Optic works are to be established within existing easements. The existing Underground Optical Fibre (UGOF) will be replaced with a larger (OGOF) between Henretta Drive and the Nepean Transmission Substation (TS).

To complete these works the existing joint bays will need to be opened. This involves a 2m x 2m excavation of the joint bays A and B as they are buried. Joint bay A is in the verge, within the road corridor, in front of 19 and 21 Plymouth Boulevard Spring Farm. Joint bay B is within Lot 162, DP 800254 (also known as 35 Wellington Drive Narellan Vale), this is an electrical easement adjacent residential properties and Gundungurra Reserve. The location of Joint bays A and B are shown in Figure 2h in Annex 2.

2.1.6 Access tracks

The existing roads within and adjacent to the existing electrical overhead alignment will be used to access the minor excavation areas and the mobile ZS site. Access to the mobile ZS site will be via Coleman Loop.

The access tracks and roads to be used to access the pole locations for fibre optic works are all within previously disturbed areas. Existing access tracks that may require some stabilisation and minor vegetation disturbance are illustrated in Figure 2. Stabilisation works would utilise geotextile underlay with overlaid, weed free, Excavated Natural Material (ENM) or Virgin Excavated Natural Material (VENM) materials. Vegetation disturbance may include removal of shrubs and ground covers.

2.1.7 Ancillary Infrastructure

Stockpiles, laydown areas and construction compound:

All stockpile, laydown areas and compound sites will be within previously disturbed areas.

The temporary stockpile site and construction compound for the mobile zone substation is indicated in Annex 5.

Stockpile sites, laydown areas and construction compounds for all other project components will be within existing easements.

The stockpiling of material will need to be completed in accordance with the mitigation measures detailed in Annex 1.

2.2 Proponent

Endeavour Energy is the proponent of the proposal. EE operates under national electricity laws, statutory instruments and policies which government networks in the National Electricity Market.

Proponent address: 8 Parramatta Square (Levels 40-42), 10 Darcy Street Parramatta, NSW 2150.
Proponent website link: Endeavour Energy

2.3 Staging of Works

The proposed works would be undertaken in stages as follows:

2.3.1 Pre-Construction Stage

- Transporting a 132/11kV mobile ZS from the EE Springhill Field Services Centre (FSC), near Wollongong, to the existing EE substation site. The temporary mobile ZS will consist of two trailer mounted sections, the control room and the mobile substation itself. The two trailer mounted sections will be transported by road from Springhill to the proposed site in Catherine Field. This will likely be at night given the size of the trailer mounted section and the restrictions on oversized and overmass vehicle movements.
- Preparation of the mobile ZS site including vegetation removal and earthworks to level the ground surface. Site preparation will occur within the extent of the Bushfire Asset Protection Zone (APZ). This extent of the APZ includes the property boundary (4401/-/DP1235004) and extends 3m beyond the lot boundary.
- Preparation of access tracks as required.
- Establish stockpile sites and construction compounds.

2.3.2 Construction Stage

- Construction of the Mobile ZS site components.
- Trenching of cables and connection of the mobile ZS to existing electricity supply on Coleman Loop.
- Replacement of the power poles along the existing 132 kv mains.
- Replacement of the overhead earth wire with optical ground wire.
- Excavation of joint bays A and B, and replace Underground Optical Fibre.

2.3.3 Post-Construction Stage

- Landscaping, site rehabilitation and revegetation as required at all sites where ground disturbance has occurred.

Demobilisation of the proposed temporary mobile ZS will be detailed within the approval process for the installation of the permanent ZS, in a separate REF. This is due to the possible need for a phased demobilisation of the temporary mobile ZS as the permanent ZS is constructed and commissioned.

2.4 Equipment and materials required

A list of the plant and equipment required for the construction works has been provided below. This is an indicative list developed by the project team and industry professionals familiar with the project scope.

Plant and Equipment:

- Prime mover
- Trailer mounted substation
- Trailer mounted control room
- Light vehicles
- Concrete agitator
- Concrete pump
- Trucks (and trailers)
- Flocon truck
- Flatbed truck with hiab
- Tipper trucks
- Delivery vehicles
- Skid steer/ compact track loader
- Trowel machine
- Generator
- Hand tools
- 20 tonne franna crane
- 40-100 tonne slew crane
- 5/10 crane borer
- 18-23 meter elevated work platform (EWP)
- 21 tonne excavator
- 14 tonne excavator
- 5 tonne excavator
- Winch truck
- 8-12 tonne tipper truck
- Cable stands
- Cable trailers

2.5 Workforce

The workforce numbers would include:

- 30 - 40 workers during construction phase
- No permanent staff on site during operation of the mobile ZS.

2.6 Location of Works and Assessment Area

2.6.1 Temporary Mobile Zone Substation

The proposed works for the temporary mobile ZS will be at the existing EE permanent substation site located at 30 Wilhelm Parade in Catherine Field, NSW, 2557.

The temporary mobile ZS is currently located at the EE Springhill Field Service Centre, 191-195 Five Island Road Unanderra NSW. The mobile ZS will be deployed to the Catherine Park site from Unanderra by road transportation.

The REF assesses all components listed in section 2.1.1. Some ground disturbance outside the existing fence line is required, as follows:

- Clearing of vegetation within the property boundary (4401/-/DP1235004) and extends 3m beyond the lot boundary to establish an Asset Protection Zone (APZ).
- Ground disturbance to allow for widening of the existing driveway access.
- Ground disturbance to allow for 2m wide stormwater pipe trench, to connect to an existing pit on Coleman Loop.
- Ground disturbance to allow for 2m wide sewer pipe trench, to connect to existing sewer beyond the existing fence line.
- Ground disturbance for rip rap is an area of 5 m x 5m, and extends beyond the existing fence line.

2.6.2 Distribution Works

Cables will be trenched under the driveway at the substation site, and along the road verge to connect to an existing pillar on Coleman Loop. The REF includes assessment of a 2 metre width of the proposed trench. Ground disturbance is within the required outside the existing fence line.

2.6.3 Power Pole Replacement

- Pole 16 is located on Lot 30 DP221082, also known as 80 Anthony Street Leppington. The ground disturbance area is a 1.5 m buffer around each of the three individual poles.
- Pole 13 is located on Lot 51, DP 28057, also known as 211 Dwyer Road Leppington. The ground disturbance area is a 1.5 m buffer around each of the two individual poles.
- Pole 12 (Melaleuca Road) is located in the road corridor between Camden Bypass and Melaleuca Road opposite 2 Ash Place Narellan Vale. The ground disturbance area is a 1.5 m buffer around the single pole.

2.6.4 Replacement of Overhead Earth Wire

The replacement of existing overhead earth wire (OHEW) with an optical ground wire (OPGW) will occur along the feeder route shown in in Figure 1 (see Annex 2). No ground disturbance is required.

2.6.5 Underground Fibre Optic Works

Fibre optic cables will be established within existing easements between Alma Road in Catherine Field to near Equinox Street in Oran Park (Figures 2a to 2c); and between Oran Park Drive, Oran Park to the Nepean Transmission Substation located at 156 Springs Road, Spring Farm (Figures 2e to 2h). The majority of the fibre optics works will be installed overhead on existing power poles. There is a small section from the Nepean Transmissions Substation to past Liz Kernohan Drive where the route will be entirely underground in existing conduits in the ground, with requirement for minor excavations to expose the end of the conduits and excavations at both Site A and Site B where joint bays are located (Figure 2h, Site A and Site B). The underground fibre optic works will occur over approximately 1.25 km, while the overhead fibre optic works to occur over approximately 10 km.

The ground disturbance area includes a 2m x 2m excavation of the joint bays A and B. Joint bay A is in the verge, within the road corridor, in front of 19 and 21 Plymouth Boulevard Spring Farm. Joint bay B is within Lot 162, DP 800254 (also known as 35 Wellington Drive Narellan Vale), this is an electrical easement adjacent residential properties and Gundungurra Reserve. The location of Joint bays A and B are shown in Figure 2h in Annex 2.

2.6.6 Access Tracks

The access tracks and roads to be used to access the pole locations for fibre optic works are all within previous disturbed areas, and no new access tracks will be established. The location of access tracks to each pole is indicated in Figures 2a to 2h. An average width of 3m has been estimated for all access tracks.

2.7 Land Tenure

The fibre optics easement transgresses through ten different tenures and land uses such as land in transition, urban residential, recreation and culture, manufacturing and industrial, irrigated perennial horticulture, grazing modified horticulture, river, intensive horticulture, intensive animal production and residential and farm infrastructure, outlined in Table 1 (Figure 3). It is unlikely the works will be undertaken within privately owned lots. Works will stay within the roads and road verges/reserves where possible. All necessary consultation and negotiations will be undertaken by EE to carry out works within each tenure.

Table 1: Land Tenure

Proposed works	Land Zoning	Land Use
Catherine Park mobile substation	R2 - Low Density Residential, C2 – Environmental Conservation.	Land in transition
Joint bays	R2 - Low Density Residential, R1 - General Residential	Urban residential
Underground fibre optics	R2 - Low Density Residential, R1 - General Residential, E2 - Environmental Conservation	Urban residential & Recreation and culture
Overhead fibre optics	R3 - Medium Density Residential, E2 - Environmental Conservation, SP2 - Infrastructure, RE1 - Public Recreation, E4 - Environmental Living, R5 - Large Lot Residential, RU4 - Primary Production Small Lots	Urban residential, Recreation and culture, Manufacturing and industrial, Irrigated perennial horticulture, Grazing modified pastures, River, Intensive horticulture, Intensive animal production, Residential and farm infrastructure

2.8 Project Commencement and Hours of operation

The Project construction is expected to commence November 2024, with substation works expected to take 12 months. and take about 12 months. Fibre optics works may be staged, with works expected to be completed by December 2025. The replacement work (ie drilling) for individual poles is expected to be completed in less than a week.

Most of the activities will be undertaken in accordance with the Interim Construction Noise Guideline (DECC 2009) and the Draft Construction Noise Guideline (EPA, 2020) standard construction working hours of:

- Monday to Friday: 7 am to 6 pm
- Saturday: 8 am to 1 pm
- No work on Sundays or public holidays.

For areas where the work area traverses busy roads, night works when traffic volumes are low may be required to allow for half-road closures. During the road closures, through traffic will be limited to single lane each way with short stoppages of traffic in both directions for specific tasks. Relevant licences and approvals (eg. road occupancy licences from TfNSW) will be sought by EE for these works as required.

Should any other construction work be required outside standard working hours, approval from the EE Environmental Services Team will be sought.

Once commissioned, the mobile ZS at Catherine Park will operate continuously, 24 hours a day, 7 days per week. The main source of operational noise will be the transformer that operates continually throughout the day and night. The noise level will not change appreciably from the day to the night and therefore the predicted noise level at night will be the worst-case scenario. Operational noise levels for the mobile ZS have been assessed and are further discussed in Section 5.5. The mobile ZS is expected to remain in operation at the site for approximately 10 years and will defer the establishment of a permanent zone substation by 10 years, whilst still meeting expected initial demand needs.

3. Project Justification and Alternatives

3.1 Justification for the Project

EE is responsible for the distribution of electricity to over 2.7 million people living and working across Sydney's Greater West, the Blue Mountains, Southern Highlands, Illawarra and the South Coast of NSW.

Sydney's South West Growth Area consists of approximately 17,000ha of greenfield land identified by the NSW Department of Planning, Housing and Infrastructure (DPHI) for future urban development. The South West Growth Area currently comprises of 16 precincts across the Camden, Campbelltown and Liverpool Local Government Areas.

EE requires additional power supply at Catherine Fields within the Camden Local Government Area to support planned residential developments occurring throughout the Catherine Fields Precinct. These developments will account for over 3,000 new residential lots.

As there is currently no spare capacity on adjacent feeders to supply these residential developments (with Oran Park Zone Substation and Leppington Zone Substation over 4km away), there is a need to service future customers in the Catherine Fields Precinct. This requires the addition of a zone substation to support the increased development within the area. A temporary mobile zone substation is the EE preferred solution to most effectively meet the network demand in a cost effective and timely manner.

The Project will also include associated fibre optic works and distribution program works connecting to the temporary zone substation.

The proposed design maximises the use of previously disturbed areas (i.e. within existing overhead alignments, within residential zones) and minimises any additional disturbance while achieving the objective of increasing power supply to support initial supply to planned developments in Catherine Fields precinct.

Underground fibre optics works in existing conduits from Nepean Transmission ZS prevent the need for overhead works and new power poles, which would otherwise require greater disturbance and vegetation clearing. The use of existing easements and power poles have also been utilised to further prevent disturbance.

3.2 Alternatives

Various alternatives were considered by EE to address the needs of the project. These included:

Long Term Network Options (Permanent substation)

- Option 1 - Establish a permanent 132/11kV 45MVA ZS at Catherine Park
- Option 2 - Establish a permanent 132/11kV 90MVA ZS at Catherine Park

Temporary Network Options

- Option 3 – Deployment of a 132kV/11kV 15MVA mobile zone substation at the Catherine Park to defer the establishment of a permanent 132/11kV 2xTx90MVA ZS by 10 years. This will allow for the Catherin Fields area to grow and the network demand to be properly understood prior to the installation of the permanent substation.

Non-network Options

- Due to the lack of supporting infrastructure and no current load from proposed developments, non-network options were considered to be not feasible.

The proposed design of a temporary mobile ZS, as described within this REF, was found to be the most cost effective and practical solution to meet the project need within the required timeframes and is therefore EE's preferred option.

3.3 Benefits

Residents, commercial and industrial business operators, and their customers will all benefit from safe, efficient, cost-effective, and continuous electrical supply within the Western Sydney Growth area.

The NSW Government will benefit from achieving its goals of transforming the Sydney's South West Growth Area into the purposeful precincts that have been intended and planned.

3.4 Consideration of ecologically sustainable development

While there is no universally accepted definition of Ecological Sustainable Development (ESD), in 1992 the Commonwealth Government, in "Australia's National Strategy for Ecologically Sustainable Development" (1992) suggested the following definition for ESD in Australia:

'*Using, conserving and enhancing the community's resources so that ecological processes, on which life depends, are maintained, and the total quality of life, now and in the future, can be increased*'.

The Project has been designed with these values in mind. EE is committed to the concept of ESD and have incorporated these objectives in the Project through:

- Maximising the use of previously disturbed areas.
- Confining activities to areas that have lower environmental sensitivity where possible – i.e. Unnatural environmental such as urbanised and industrial areas.
- Minimising the disturbance footprint of the works.
- Incorporating environmental safeguards to avoid, minimise and mitigation the potential impact from the project that could not be avoided during the design process.

4. Statutory and Planning Framework

4.1 Code of Practice for Authorised Network Operators (ANOs)

The Code is approved under Clause 198C of the EP&A Regulation that provides the statutory planning context for environmental assessment and approval of works to be undertaken by an ANO.

The Code requires an ANO to classify its activities and development proposals into one of six possible assessment classes. This Project has been identified as a Class 4 Proposal under the Code, which requires the preparation of a REF. A Class 4 Proposal refers to projects which are expected on a reasonable basis to have impacts which go beyond minor, can be extensive and/or complex and at the discretion of the ANO be a project for which it is deemed appropriate to prepare, such as a project which may generate considerable public interest.

On 14 June 2017 EE was transacted and became an ANO. This means that EE is now a privately managed network business in accordance with the *Electricity Networks Assets (Authorised Transactions) Act 2015* and is subject to The Code gazetted in September 2015 under Clause 198C of the Regulation. The Code is deemed to be in force until it is revoked or varied in accordance with the Regulation.

The NSW Government has prescribed the ANOs as a "prescribed Determining Authorities" for the purposes of Section 5.2 of the EP&A Act and the definition of "public authority" under Part 1 of that Act.

This prescription allows an ANO to be a Part 5 Determining Authority (EP&A Act) for the purposes of an electricity transmission or distribution network. While Part 5 Activities do not require development consent under Part 4 of the EP&A Act, consideration of an Activity's environmental impact is required under Division 5.1, Section 5.5 of that Act.

The *Electricity Network Assets (Authorised Transactions) Act 2015* (Authorised Transactions Act) inserted Division 9 into Part 14 of the EP&A Regulation. Clause 198C provides that The Code may make provision for or with respect to the exercise by an ANO of its functions under Division 5.1 of the EP&A Act in respect of *"an activity for the purposes of a transacted electricity transmission or distribution network".* These words are defined non-exhaustively in Clause 198C as including: -

The exercise by an authorised network operator of its functions under the Act, section 5.5 in relation to activities, including activities for the following purposes—

a) *Development for the purposes of the construction, maintenance or operation of a transacted electricity transmission or distribution network*
b) *Geotechnical investigations relating to a transacted electricity transmission or distribution network*
c) *Environmental management and pollution control relating to a transacted electricity transmission or distribution network*
d) *Access for the purposes of the construction, maintenance or operation of a transacted electricity transmission or distribution network*
e) *Temporary construction sites and storage areas, including batching plants, the storage of plant and equipment and the stockpiling of excavated material.*

As a Determining Authority an ANO can assess and self-determine Activities that are not likely to significantly affect the environment and are conducted for and on behalf of the ANO for the purposes of electricity transmission or distribution.

By virtue of an ANO's status under the Transport & Infrastructure SEPP, certain activities will be subject to Part 2.3 Division 5 Subdivision 1- *Electricity Transmission or Distribution Networks* of the Transport & Infrastructure SEPP for the purposes of development connected with electricity transmission or distribution.

These are outlined below:-

Under "Clause 2.44 Development permitted without consent"

1. *"Development for the purpose of an electricity transmission or distribution network may be carried out by or on behalf of an electricity supply authority or public authority without consent on any land .... "* Excluding land reserved under the *National Parks and Wildlife Act 1974*.

The Transport & Infrastructure SEPP's definition of an "electricity transmission or distribution network" includes the following components:

a. *Above or below ground electricity transmission or distribution lines (and related bridges, cables, conductors, conduits, poles, towers, trenches, tunnels, ventilation and access structures)*
b. *Above or below ground electricity kiosks or electricity substations, feeder pillars or transformer housing, substation yards or substation buildings .....*

The aim of this Policy is to facilitate the effective delivery of infrastructure across the State through increased regulatory certainty, improved efficiency and flexibility in the location of infrastructure and service facilities, while still providing adequate stakeholder consultation.

The nature of construction impacts of the Project are expected to be regarded as being minor but having some complexity. The Project is not envisaged to be an activity that is likely to significantly affect the environment (including critical habitat) or threatened species, populations or ecological communities or their habitats, an Environmental Impact Statement (EIS) is not expected to be required.

In view of the above, this Project has been assessed as a Class 4 Proposal in accordance with the Code.

Since this Project is classified as an activity in accordance with Part 5 of the EP&A Act, it must consider Clause 171 of the EP&A Regulation.

4.2 *Environmental Planning and Assessment Act 1979*

The EP&A Act and the associated EP&A Regulation provides the framework for assessing the potential environmental impacts associated with developments in NSW.

This REF has been prepared on behalf of EE and given that development consent is not required as outlined by the Transport and Infrastructure SEPP, the Project can be undertaken as an activity under Part 5 of the EP&A Act, with EE as the Determining Authority.

An assessment of the Project's impact on threatened species and ecological communities listed under the *Biodiversity Conservation Act 2016* (BC Act) and Aboriginal items or places, is required under Part 5 of the EP&A Act.

Section 5.5 of the EP&A Act outlines the primary considerations for any determining authority when determining an application under Part 5 of the EP&A Act. Those matters are outlined below in Table 2

Table 2: EP&A Act compliance

EP&A Act	Project Compliance
Take into account to the fullest extent possible all matters affecting or likely to affect the environment due to the proposed activity.	This REF addresses relevant environmental matters relating to the development of the Project. The Project would not have a significant environmental impact.
The effect of an activity on any wilderness area in the locality in which the activity is intended to be carried on.	The Project would not affect any wilderness areas.

4.3 *Environmental Planning and Assessment Regulation 2021*

Section 171 of the EP&A Regulation sets out the factors to consider when assessing impacts on the environment from activities (for the purposes of Part 5 of the EP&A Act). An assessment of the impacts of the activity against each of these is provided in Table 3Table 3.

Table 3: Compliance with EP&A Regulation 2021

Environmental factors	Impacts
(a) The environmental impact on the community. Some of the Project Footprint is accessible to the public (roads, footpaths and driveways). The works would only be temporary. Road closures during the day will be limited to single lane closure at a time. There will be road closures at night across RMS roads to avoid high traffic volumes.	Minor (Temporary)
(b) The transformation of the locality. The Project involves deployment of a mobile ZS and associated installation of fibre optic cables and distribution works. These aspects are not considered to result in a major transformation of the locality with nil to negligible environmental impact.	Minor (Temporary)
(c) The environmental impact on the ecosystems of the locality. The Project has the potential to negatively impact on biodiversity. However, the areas are largely disturbed areas dominated by weed species and these impacts have been minimised through the mitigation and management safeguards in Section 5.4.	Minor
(d) Reduction of the aesthetic, recreational, scientific or other environmental quality or values of the locality. The project may alter the aesthetic of the locality temporarily, although will not affect the recreational, scientific or other environmental quality or values of the locality.	Minor
(e) The effect on any locality, place or building having aesthetic, anthropological, archaeological, architectural, cultural, historical, scientific or social significance or other special value for present or future generations. The Project is not likely to significantly impact the locality, place or building having aesthetic, anthropological, archaeological, architectural, cultural, historical, scientific or social significance or other special value for present or future generations.	Negligible
(f) The impact on the habitat of protected fauna, within the meaning of the Biodiversity Conservation Act 2016. An assessment of potential impact to threatened species, populations and ecological communities and their habitats listed under the NSW *Biodiversity Conservation Act 2016* was undertaken. Results of these assessments are covered in Section 5.4. Threatened biodiversity will not likely be significantly impacted by the Project.	Negligible

(g) The endangering of any species of animal, plant or other form of life, whether living on land, in water or in the air. The Project will not endanger any species of animal, plant or other form of life, whether living on land, in water or in the air.	Highly unlikely
(h) Long-term effects on the environment. The Project will not lead to any detrimental long-term impacts on the environment.	Negligible
(i) Degradation of the quality of the environment. The Project will not lead to the long-term degradation of the environment.	Negligible
(j) Risk to the safety of the environment. The Project will improve the safety of the environment from its existing state by upgrading the electricity distribution assets.	Long term positive
(k) Reduction in the range of beneficial uses of the environment. The Project will not lead to any reduction in the range of beneficial uses of the environment.	Negligible
(l) Pollution of the environment. The Project has the potential to contribute to pollution of the environment. These impacts have been minimised through the mitigation and management safeguards as outlined in Section 5.12.	Minor
(m) Environmental problems associated with the disposal of waste. The Project will generate waste streams which will be managed appropriately and therefore will not result in any environmental problems, further details are provided in Section 5.12.	Negligible
(n) Increased demands on natural or other resources that are, or are likely to become, in short supply. The Project will not result in any increased demand on resources that are, or are likely to become, in short supply.	Negligible
(o) The cumulative environmental effect with other existing or likely future activities. The Project is not expected to have cumulative effects on existing or future activities of the Project Footprints or their surroundings.	Minor
(p) The impact on coastal processes and coastal hazards, including those under projected climate change conditions. The Project will not impact any coastal processes or coastal hazards.	Negligible
(q) Applicable local strategic planning statements, regional strategic plans or district strategic plans made under the ACT, Division 3.1 This Project will not influence any local strategic planning statements, regional strategic plans or district strategic plans made under the ACT, Division 3.1.	Complimentary
(r) other relevant environmental factors.	Negligible to minor

This REF has taken into account all relevant environmental factors.

4.4 *Camden Local Environmental Plan 2010*

The *Camden Local Environmental Plan 2010* (CLEP) outlines the key planning controls used to manage the way land is used through zoning and development standards.

The Proposal Footprint is largely mapped as Low Density Residential (R2) and General Residential (R1) in the *CLEP* (Table 1). The provisions of Clause 2.44, of the Transport and Infrastructure SEPP, permits development on any land for the purpose of an electricity transmission or distribution network to be carried out by or on behalf of an electricity supply authority without consent. The Project is therefore permissible under the Transport and Infrastructure SEPP and development consent from Council is not required.

4.5 Other Relevant Legislation

4.5.1 *Biodiversity Conservation Act 2016*

The *Biodiversity Conservation Act 2016* (BC Act) establishes mechanisms for the:

- Management and protection of listed threatened species of native flora and fauna (excluding fish and marine vegetation).
- Listing of threatened species or key threatening processes.
- Development and implementation of recovery and threat abatement plans.
- Declaration of critical habitat.
- Consideration and assessment of threatened species impacts in development assessment process.
- Management and regulation of actions that may damage critical or other habitat or otherwise significantly affect threatened species, populations and ecological communities.

If an Activity potentially affects any flora or fauna species, populations or ecological communities listed by the BC Act, a test of significance is required. The Test of Significance, referred to in Section 7.3 of the BC Act, determines whether the Project is likely to have a significant impact. If a significant impact is determined, either a Species Impact Statement is required, or the Biodiversity Offset Scheme would need to be applied.

A biodiversity assessment, including Assessment of Significance under section 7(3) of the BC Act was carried out. The Project Footprint was assessed for the potential presence of threatened species; populations and ecological communities listed under the BC Act and concluded that the Project would not have significant impacts on biodiversity.

4.5.2 *NSW Biosecurity Act 2015*

The *Biosecurity Act 2015* provides for the management and control of priority and environmental weeds by local control authorities. All private landowners, occupiers, public authorities and councils are required to control weeds on their land under Schedule 1 of the Act. Further assessment has been provided in Section 5.4.

4.5.3 *National Parks and Wildlife Act 1974*

The *National Parks and Wildlife Act 1974* (NPW Act) aims to conserve nature, objects, places or features of cultural value within the landscape. The NPW Act is the primary legislation regulating Aboriginal cultural heritage in NSW.

Items of Aboriginal cultural heritage (Aboriginal objects) or Aboriginal places (declared under Section 84) are protected and regulated under the NPW Act. Aboriginal objects are protected under Section 86 of the Act. Under Section 90(1) of the NPW Act, the Secretary may issue an Aboriginal heritage impact permit for an activity that would harm an Aboriginal object.

Further assessment of the potential impacts on Aboriginal cultural heritage is provided in Section 5.9.

4.5.4 *Heritage Act 1977*

The *Heritage Act 1977* (Heritage Act) aims to provide for the identification, registration and conservation of items of State heritage significance. Investigations of the Projects potential to interact with or impact on items of heritage significance are documented in Section 5.10.

4.5.5 *Waste Avoidance and Resource Recovery Act 2001*

The main objectives of the *Waste Avoidance and Resource Recovery Act 2001* is to develop and support the implementation of regional and local programs to meet the outcomes of a State-wide strategy for waste avoidance and resource recovery and to minimise the consumption of natural resources and final disposal of waste by encouraging the reuse and recycling of waste.

The recording of waste disposal would be undertaken as part of the Project during the construction phase. Procedures would be implemented during construction to promote the objectives of the Act, refer to Section 5.12.

4.5.6 *Protection of the Environment Operations Act 1997*

The *Protection of the Environment Operations Act 1997* (POEO Act) establishes the procedures for issuing licences for activities listed in Scheduled 1 of the POEO Act to regulate aspects such as waste, air, noise and water pollution. The owner or occupiers of the premises engaged in scheduled activities is required to hold an Environment Protection Licence (EPL) and comply with the conditions of that licence.

Under Part 3.2 of the POEO Act, the carrying out of scheduled activities as defined in Schedule 1 requires an EPL.

The Project is not listed as a Scheduled Activity in Schedule 1 and therefore an EPL is not required.

4.5.7 *Contaminated Land Management Act 1997*

The *Contaminated Land Management Act 1997* (CLM Act) establishes a process for investigating and remediating land where contamination presents a “significant risk of harm” to human health or the environment. It applies to contamination which occurred before or after its commencement.

A search of the NSW Environment Protection Authority (EPA) Contaminated Land Register has identified no registered contaminated sites within one kilometre of the Project Footprint (Annex 9).

4.5.8 *Electricity Supply Act 1995*

The *Electricity Supply Act 1995* provides for network operators such as EE to carry out development and maintenance of electricity works for the purpose of exercising its function to supply electricity.

Section 45 Erection and placement of electricity works provides:

> *(1) This section applies to work connected with the erection, installation, extension, alteration, maintenance and removal of electricity works.*
> *(2) For the purpose of exercising its functions under this or any other Act or law, a network operator:*

(a) may carry out work to which this section applies, and

(b) in particular, may carry out any such work on a public road or public reserve.

Section 53 of the Act protects existing "electricity works" and the repairing, modifying or upgrading of these works, where the electricity work is located within land over which the network operator does not own or have the benefit of an easement. Electrical infrastructure is protected under Section 53 where it existed before the commencement of the *Electricity Supply Amendment (Protection of Electricity Works) Act 2006*. The Act also provides for entry to property to operate and maintain network assets, trim and remove trees, as well as duties for notifying landowners. The Act requires that works (other than routine repairs or maintenance works) must not be undertaken unless a minimum of 40 days notice is provided to the relevant local council. Any submissions received must be considered by EE.

4.5.9 *Water Management Act 2000*

Section 60A of the *Water Management Act 2000* states that it is an offence to take water without a licence. A Water Access Licence (WAL) is required under Section 61 where groundwater extraction is greater than 3 megalitre (ML). During construction, there is the potential for interception of groundwater during the proposed excavation work near waterway. However, the volume of water requiring to be dewatered is expected to be less than 3 ML.

4.5.10 *Fisheries Management Act 1994*

The *Fisheries Management Act 1994* (FM Act) protects threatened species, populations, and communities of fish and marine vegetation, as well as commercial and recreational fishing areas, in NSW waters. A permit and or notification is required under Part 7 of the FM Act for activities that involve dredging (any work that involves moving material on water land) and reclamation work, temporarily or permanently obstructing fish passages and or harming marine vegetation.

Sections of the Project Footprint are within mapped Key Fish Habitat (KFH). As those sections are located on the ground and behind the top of the natural bank, the mapped KFH areas for the Project Footprint do not meet the Policy Definition of KFH (up to the top of the natural bank).

Notification for work within KFH under s199 of the under the FM Act is therefore not required.

4.5.11 *Roads Act 1993*

Section 138 of the *Roads Act 1993* requires that all work or activities undertaken within road reserves must have the consent of the relevant authority prior to the work being undertaken.

A s138 Application to Camden Council is required for the proposed driveway access modifications to the substation site.

4.6 State Environmental Planning Policies

4.6.1 State Environmental Planning Policy (Transport and Infrastructure) 2021

The Transport and Infrastructure SEPP aims to facilitate the effective delivery of infrastructure and transport across the State, including for power supply networks. Clause 2.44 of the Transport and Infrastructure SEPP permits development on any land for the purpose of an electricity transmission or distribution network may be carried out by or on behalf of an electricity supply authority or public authority without consent on any land, excluding land reserved under the *National Parks and Wildlife Act 1974*.

The Project is not located on land reserved under the *National Parks and Wildlife Act 1974* and does not affect land or development regulated by the State Environmental Planning Policy (Resilience and Hazards)

2021, SEPP (Planning Systems) 2021 and does not trigger the requirement for development consent or designated development.

As the Project is appropriately characterised as development for the purposes of electricity transmission and is to be carried out by an electricity supply authority, it can be assessed under Part 5 of the EP&A Act. Development consent from Council under Part 4 is not required.

Part 2.2, Division 1 of the Transport and Infrastructure SEPP outlines the consultation requirements for public authorities to consult with local council and other public authorities before the start of certain types of development, the consultation requirements for the Project are further outlined in Section 4.8.

4.6.2 State Environmental Planning Policy (Biodiversity and Conservation) 2021 (Biodiversity and Conservation SEPP)

The Biodiversity and Conservation SEPP consolidates, transfers and repeals provisions of the following 11 SEPPs (or deemed SEPPs):

- SEPP (Vegetation in Non-Rural Areas) 2017 (Vegetation SEPP)
- SEPP (Koala Habitat Protection) 2020 (Koala SEPP 2020)
- SEPP (Koala Habitat Protection) 2021 (Koala SEPP 2021)
- Murray Regional Environmental Plan No 2—Riverine Land (Murray REP)
- SEPP No 19—Bushland in Urban Areas (SEPP 19)
- SEPP No 50—Canal Estate Development (SEPP 50)
- SEPP (Sydney Drinking Water Catchment) 2011 (Sydney Drinking Water SEPP)
- Sydney Regional Environmental Plan No 20 – Hawkesbury – Nepean River (No 2 – 1997) (Hawkesbury–Nepean River SREP)
- Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005 (Sydney Harbour Catchment SREP)
- Greater Metropolitan Regional Environmental Plan No 2 – Georges River Catchment (Georges River REP)
- Willandra Lakes Regional Environmental Plan No 1 – World Heritage Property (Willandra Lakes REP).

The Biodiversity and Conservation SEPP incorporates provisions from these SEPPs.

The Project Footprint is located within the Camden Council LGA, and therefore this would apply to this assessment if it was being assessed under Part 4 of the EP&A Act. As the Project is being assessed under Part 5 of the EP&A Act, the provisions of Chapter 4 Koala habitat protection 2021 do not apply in relation to the assessment of Koala habitat.

Koala habitat is not likely to be impacted by the Project as clearing of mature trees is not proposed. Where further clearing is necessary additional survey and assessment would be required to determine any potential impacts to koala habitat. The Koala is independently considered as a listed species under the BC Act and EPBC Act.

4.6.3 State Environmental Planning Policy (Resilience and Hazards) 2021 (Resilience and Hazards SEPP)

The Resilience and Hazards SEPP consolidates, transfers and repeals provisions of the following three (3) SEPPs (or deemed SEPPs):

- SEPP (Coastal Management) 2018
- SEPP 33 – Hazardous and Offensive Development
- SEPP 55 – Remediation of Land

The Resilience and Hazards SEPP incorporates provisions from these former SEPPs.

No coastal management areas under the Resilience and Hazards SEPP are present within the Project Footprint, therefore the Project does not need to consider the Resilience and Hazards SEPP.

4.6.4 State Environmental Planning Policy (Precincts – Western Parkland City) 2021 (WPC SEPP)

The WPC SEPP facilitates the development of the LGA's Development Control Plans and helps with certification and history of the land. WPC SEPP was formerly the following SEPPs:

- SEPP (State Significant Precincts) 2005
- SEPP (Sydney Region Growth Centre) 2006
- SEPP (Western Sydney Aerotropolis) 2020
- SEPP (Penrith Lakes Scheme) 1989
- Sydney Regional Environmental Plan No 30 – St Marys
- SEPP (Western Sydney Parklands) 2009

The WPC SEPP incorporates provisions from these former SEPPs. Under the WPC SEPP, the Project is within the South West Sydney Growth Area. This is further described below.

South West Growth Area

The Project is located within Catherine Fields (Part) Precinct within the South West Sydney Growth Area. This precinct is anticipated to provide 3,200 homes (DPE 2022).

Land within the South West Sydney Growth Area is subject to a biodiversity certification order which identifies and maps "Certified Land" and "Non-Certified Land". Development proposals within Certified Land do not require any further biodiversity assessment. Development within "Non-Certified Land" requires a biodiversity assessment to assess the potential impact to native vegetation, threatened species, populations or ecological communities.

Further, part of the Project also falls within "Existing Native Vegetation" (ENV), which has been identified and mapped within Non-Certified Land. Proposals to clear or modify ENV are subject to further development controls under the WPC SEPP. Biodiversity Certification "Relevant Biodiversity Measures" (RBMs) also establish a process for any essential infrastructure proposals that require the clearing of native vegetation in non-certified lands, but which do not require development consent under the SEPP.

Riparian areas have also been identified and mapped within the South West Growth Area. Planning in the Growth Area has an established practice of restoring and re-naturalising river and creek systems.

The Project components that require ground disturbance and their interaction with Certified and Non-Certified Lands is outlined in Table 4.

Table 4: Project components that require ground disturbance and interaction with Certified and Non-Certified Lands.

Proposed works requiring potential ground disturbance	Certification Status	Notes
Temporary Mobile Substation Site	A majority of the site is within Certified Land. Some of the proposed works are within Non-Certified Land including the APZ to the west and south of the site, the rip rap scour protection area and the sewer connection. A portion of the proposed works within Non-Certified Land also falls within an area identified and mapped as "Existing Native Vegetation" (ENV).	The total area of ENV to be cleared and/or modified to allow the proposed works is 12 sqm. This includes a portion of the APZ to the north west of the site as well as the trenching of the sewer connection.
Distribution Works	Certified Land	
Power Pole Replacement:		
Access Track to Pole 1	Certified Land	Some mowing and ground stabilisation work may be required along the existing access track to Pole 1.
Access Track to Pole 2	Non-Certified Land and Riparian Area	Pole 2 and the proposed access track is within a cleared area and approximately 22m from the closest waterway (South Creek/ Wianamatta). Some mowing and ground stabilisation work may be required along the existing access track to Pole 2.
Access Track to Pole 3	Certified Land	The existing access track to Pole 3 is cleared, and no mowing or stabilisation work is required.
Access Track to Pole 4	Certified Land	The existing access track to Pole 4 is cleared, and no mowing or stabilisation work is required.
Access Track to Pole 5	Certified Land	No access track required (accessible from Catherine Fields Road).
Access Track to Pole 6	Certified Land	The existing access track to Pole 6 is cleared and will be accessed by foot traffic only. No mowing or stabilisation work is required.
Access Track to Pole 7	Certified Land	No access track required (accessible from Yorkshire Close).
Access Track to Pole 8	Certified Land	No access track required (accessible from Yorkshire Close).
Access Track to Pole 9	Certified Land	No access track required (accessible from Deepfields Road).
Access Track to Pole 10	Certified Land	The existing access track to Pole 10 is cleared. Some mowing and ground stabilisation work may be required along the existing access track.
Access Track to Pole 11	Non-Certified Land	The existing access track to Pole 11 is cleared. Some mowing and ground stabilisation work may be required along the existing access track. *Note: If an additional access track is required between Pole 10 and Pole 11, this access will be on foot only.*

Pole 12 (Melaleuca Rd) – to be replaced *Access Track to Pole 12*	N/A – outside South West Sydney Growth Area	No access track required (accessible from Melaleuca Road).
Pole 13 – to be replaced *Access Track to Pole 13*	Non-Certified Land	Pole 13 and the existing access track to Pole 13 is cleared. Some ground disturbance is required to allow for replacement of Pole 13. Some mowing and ground stabilisation work may be required along the existing access track.
Access track to Pole 14	Non-Certified Land	The existing access track to Pole 14 is cleared. Some mowing and ground stabilisation work may be required along the existing access track.
Access Track to Pole 15	Non-Certified Land	The existing access track to Pole 15 is cleared. Some mowing and ground stabilisation work may be required along the existing access track.
Pole 16 – to be replaced *Access Track to Pole 16*	Non-Certified Land	Pole 16 and the existing access track to Pole 16 is cleared. Some ground disturbance is required to allow for replacement of Pole 16. Some mowing and ground stabilisation work may be required along the existing access track.
Access Track to Pole 17	Non-Certified Land	The existing access track to Pole 17 is cleared and crosses an unnamed tributary of Rileys Creek. Some mowing and ground stabilisation work may be required along the existing access track.
Access Track to Pole 18	Non-Certified Land	New access track required: Some mowing and ground stabilisation work is required in the cleared area to establish an access track to Pole 18.
Access Track to Pole 19	Non-Certified Land	New access track required: Some mowing and ground stabilisation work is required in the cleared area to establish an access track to Pole 19.
Access Track to Pole 20	Non-Certified Land	No access track required (accessible from Alma Road).
Access Track to Pole 21	Non-Certified Land	No access track required (accessible from Alma Road). *Note: If additional access track between Pole 19 and Poles 20 and 21 is required, this access will be on foot only.*
Access Track to Pole 23	N/A – outside South West Sydney Growth Area	No access track required (accessible from Camden Bypass).
Access Track to Pole 24	Certified Land	No access track required (accessible from Camden Bypass).
Access Track to Pole 34	Certified Land	New access track required: Some mowing and ground stabilisation work is required to in the cleared area establish an access track to Pole 34.
Access Track to Pole 35	Certified Land	New access track required:

		Some mowing and ground stabilisation work is required in the cleared area to establish an access track to Pole 35.
Access track to Poles 37, 38 and 39	Certified Land	The existing track to these poles is in a cleared area. Some mowing and ground stabilisation work may be required.

The project would involve clearing of vegetation mapped as ENV within Non-Certified land, to allow for the APZ and sewer connection at the substation site.

Some ground disturbance and minor vegetation modification (mowing / slashing) within Non-Certified land is required to replace Poles 13 and 16, however no native vegetation clearing is required. A buffer of 1.5 metres per pole is required, noting that Pole 13 contains two poles, and Pole 16 contains three poles.

Vegetation modification and ground stabilisation works is required to allow access to a number of power pole sites, including some within Non-Certified Land, as identified in Table 4. No native vegetation clearing is required.

The Department of Climate Change, Energy, the Environment and Water must be consulted in accordance with clause 3.24 Chapter 3 of the WPC SEPP, regarding project components within Non-Certified Land, particularly the components of the mobile ZS substation site which fall within land mapped and identified as ENV.

Written notification to Council was issued by Endeavor Energy detailing the proposed works on 18th May 2024.

4.7 Commonwealth Legislation

4.7.1 *Environment Protection and Biodiversity Conservation Act 1999*

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) provides for the protection of nationally significant natural or cultural values and the regulation of certain nationally significant activities. These values are known as Matters of National Environmental Significance (MNES) and the regulated activities are known as Controlled Actions and include activities, which may impact:

1. World Heritage properties.
2. National Heritage places.
3. Wetlands of international importance.
4. Commonwealth listed threatened species and ecological communities.
5. Commonwealth listed Migratory species.
6. Commonwealth marine or land areas.
7. The Great Barrier Reef Marine Park.
8. Nuclear actions (including uranium mining).
9. A water resource, in relation to coal seam gas development and large coal mining development.

None of the components of the Project would be located within a World Heritage site, a National Heritage place, a wetland of international importance, a Commonwealth Marine or land area, are located in The Great Barrier Reef Marine Park or involve any nuclear actions or impact on water resources.

Section 5.4 of this document considers potential impacts on habitat for threatened species and ecological communities listed under the EPBC Act. The Project is unlikely to significantly impact any MNES.

As the Project is unlikely to have a significant impact on controlled matters or MNES, a referral under the EPBC Act is not considered necessary.

4.8 Consultation

This Project is proposed to be assessed as a Class 4 Proposal under the *Code of Practice for Authorised Network Operators* (DPIE, 2015) (referred to here as *the Code*). The Code is further discussed in Section 4.1.

As the Project in part lies within multiple land uses and tenures, consultation has been undertaken with the affected residences, Camden Council and Transport for NSW (TfNSW).

The Code

The Code requires that EE must publish on its website, and in a newspaper which circulates in the region of the location of the proposed works, the proposed activity and its impacts and invite members of the public to make submissions on the proposal. This draft REF will be published on the EE website and community notification would be provided via the local newspaper (ie. the Macarthur Chronicle) and feedback will be sought.

Affected residences

Direct notification of potentially affected residences was carried out on 18th May 2024. Adjacent or nearby landowners were notified by a letterbox drop in the affected area. Two responses were received regarding potential impact on easement and visual impact. Endeavour Energy responded on 23rd October 2024 and 29th November 2024 accordingly and no further comments were received (see Annex 7). An example of the notification letter is also attached in Annex 7. Notifications and Responses (Consultation)

Electricity Supply Act 1995

Section 45(4) of the *Electricity Supply Act 1995* requires that the local Council be given a reasonable opportunity (no less than 40 days from the date on which the notice was given) to make submissions on the Project. All submissions must be considered prior to the commencement of the works. Council was notified on the 18th May 2024. No response has been received from Camden Council.

State Environmental Planning Policy (Transport and Infrastructure) 2021 (Transport & Infrastructure SEPP)

Section 2.10-2.12 & 2.14 of the Transport & Infrastructure SEPP require that consultation is undertaken with Council if the development has impacts on Council-related infrastructure or services, local heritage, flood liable land and certain land within the coastal zone.

Clause 2.15 of the Transport & Infrastructure SEPP requires that consultation is undertaken with public authorities other than Council, in certain circumstances. Council was notified under the Electricity Supply Act 1995 on the 18th May 2024 for this Project. No response has been received from Camden Council.

Clause 2.45 of the Transport and Infrastructure SEPP provides that written notification must be given to Council and the occupiers of adjoining land for development for the purpose of a new or existing electricity substation. Any responses received within 21 days after the notice is given must be taken into consideration.

The Project is not impacting any state infrastructure, local heritage or flood liable land.

Camden City Council

A letter providing notification of the proposal was sent to Camden City Council. Notifications were also sent to local MP's. No response has been received from Camden Council. A copy of the letter will be attached to Annex 7. Notifications and Responses (Consultation) in the final revision of the REF.

TfNSW

Prior to construction, transport permits for the deployment of the temporary mobile ZS and road closures will be organised with the respective stakeholder/s within TfNSW and a traffic management plan/s will be prepared.

Future Consultation

The Construction Environmental Management Plan (CEMP) to be developed for the project will include site specific control measures as required. In addition, the Project Manager will develop a project specific complaints and grievance handling protocol to be adhered to. All potentially affected residents will be notified prior to the commencement of construction works. Details are to include the likely duration of the works and 24-hour contract details for the Project Manager and Construction Contractor. In the event any electricity supply outages are required to facilitate the safe construction of the proposal, impacted landowners will be notified in advance.

5. Existing environment, potential impacts, and environmental safeguards

This section discusses the potential impacts of the Project on the environment, as well as discussing safeguards that may help reduce or eliminated these potential impacts. A constraints figure, Figure 11, has been provided for this Project which shows the main constraints within the Project Footprint and surrounds. A summary of all the safeguards discussed in the section is provided in Annexure 1

5.1 Land use

5.1.1 Existing land uses and Infrastructure

The proposed Catherine Park mobile ZS site is vacant land located within a Low Density Residential (R2) land zone, and adjacent to Environmental Conservation (C2) land (Figure 3).

The existing easement for the fibre optics works passes through General Residential (R1), Low Density Residential (R2), Environmental Conservation (C2), Infrastructure (SP2), Large Lot Residential (R5) and Primary Production Small Lots (RU4) land zoning under the *Camden Local Environmental Plan 2010* (Camden LEP). This area comprises of many residential receivers. The two locations of Site A and Site B where minor excavations for the underground fibre optic cable are located, are on General Residential (R1) and Low Density Residential (R2).

Overall, the proposed works occur within previously cleared lands, existing easements and areas such as road verges.

5.1.2 Potential impacts

5.1.2.1 Construction

The Project predominately lies within areas previously disturbed and will avoid disturbance of vegetation wherever possible. The scale of this Project would be commensurate with a small to moderate scale construction project; temporary and short-term. Land use within the alignment would not be significantly altered by the construction of the Project.

5.1.2.2 Operation

The Project is not expected to cause any significant changes or impact to any land uses within the general area during the ongoing operation of the proposed mobile ZS or fibre optics.

5.1.3 Environmental Safeguards

The following safeguards would be implemented to minimise land use impacts:

- All impacted sensitive receivers and landowners within or adjacent to the works will be notified in writing 7 to 14 days prior to the commencement of construction works. Notification will include:
    - Proposed commencement date
    - Brief of scope of works
    - Anticipated duration of the works
    - 24 hour contact details of the Project Manager or other appropriate contact person in the event of any complaints
    - Details on proposed blocking or impairing access to driveways and/or residences/businesses (if any)

  Evidence of this notification should be stored in the project file. This notification will be required in addition to any notification carried out during the preparation of this REF.

- No new access tracks are to be created, only some stabilisation works to existing access tracks are to be undertaken.
- On completion of the work, any soil disturbance caused during construction shall be stabilised and returned to as close to original condition or as otherwise agreed with the landowner.

5.2 Geology and Soils

5.2.1 Existing environment

The proposed mobile ZS site is characterised by Triassic sedimentary rocks, specifically quartz-lithic to quartz-rich sandstone featuring conglomerate, mudstone and siltstone (Figure 4). The Project Footprint is situated within the Hawkesbury Sandstone formation in the Sydney Basin.

The existing easement where there will be replacement overhead fibre optic works, transverses through Quaternary Alluvial deposits. Underground fibre optic works transverse through Cenozoic silcrete and silicified, poorly consolidated sediments and sedimentary rocks (Figure 4).

The main soil groups found across the Project Footprint are Blacktown soil (bt), South Creek soil (sc) and Theresa Park soil (tp) (Figure 5).

Blacktown soil (bt) is a shallow to moderately deep soil, generally located on slopes <5%. It is associated with Winanamatta Group shale and has minor to moderate erosion. It is present where there is almost completely cleared wet and dry sclerophyll forests and open forests.

South Creek soil (sc) has very deep layered sediments and is associated with the Cumberland Plain including high risk of flooding. It is typically derived from Wianamatta Group shales and Hawkesbury Sandstone. This soil is very dynamic and results in high erosion and deposition.

Theresa Park soil (tp) is found on gently undulating slops mostly <5%, in landscapes of almost completed cleared low open-woodland. There is relatively high erosion hazard for concentrated flows, and moderate to high for non-concentrated flows.

There is no known occurrence of Acid Sulfate soils in the Project Footprint.

5.2.2 Potential impacts

5.2.2.1 Construction

During construction, the Project has the potential to impact the soils and/or water quality of the area in the following ways:

- Ground disturbance which has the potential to lead to local erosion and downstream water quality impacts.
- Compaction of soils due to vehicular movement.
- Contamination of soils or waterways from hydrocarbon spills.
- Entrainment of sediments from spoil stockpiles
- Placement of crushed rock or gravel (only if and where required) to improve track conditions.

The minor excavations for the underground fibre optics works which will be located at Site A and Site B are expected to generate the most amount of spoil – each measuring approximately 2m by 2m and 1.5m in depth. Excess spoil will be tested and classified and disposed of off-site at a licensed waste facility in accordance with its waste classification.

Erosion generated from the movement of vehicles along existing access tracks and exposed surfaces is not expected to be significant given the low volume of vehicles required to service the Project and the minimal

excavation required. Providing the mitigation measures below are implemented, the risk of erosion and sedimentation can be effectively managed.

Soil contamination has the potential to occur during construction works from any accidental spills or leaks of fuels, oils and other chemicals from plant, equipment and vehicles used during construction works. Any unplanned release is expected to be minor and can be effectively managed through the implementation of the mitigation measures in Section 5.2.3.

The Project Footprint is predominately located on flat or low-grade sloping land which will reduce the erosion potential of rain events during construction.

5.2.2.2 Operation

The ongoing operation is not expected to contribute to any additional impacts on geology and soils during operation.

5.2.3 Environmental safeguards

The following safeguards will be employed to protect and minimise geology and soil impacts to waterbodies:

- An Erosion and Sediment Control Plan (ESCP) shall be prepared as part of the CEMP. All erosion and sediment control measures shall be designed, implemented and maintained in general accordance with *Managing Urban Stormwater: Soil and Construction Volume 1* (Landcom, 2004) ('the Blue Book') (particularly Section 2.2). The ESCP shall include stockpiles, stormwater run-off, trees, site boundaries, site access and storage areas. Exposed surfaces shall be kept to a minimum to limit the potential for erosion and dust generation.
- Inspections of the erosion and sediment controls will be on a periodic basis and at opportunistic times such as prior to rainfall events with predictions of 10 mm or more rain in a 24-hour period or following complaints regarding the integrity of the sediment and erosion controls. The inspection program will record the following:
    - Condition of rehabilitation areas (including records of any slumping)
    - Condition of sediment and erosion control structures
    - Whether sediment or other pollutants are leaving the site or have the potential to do so
    - Maintenance requirements Location(s) where sediment is disposed.
    - Pre-rainfall inspection to ensure that the controls are in place and working.
- Vegetation disturbance is to be minimised. Activities will be preferentially undertaken in cleared or weedy areas or in areas that have been subject to previous disturbance or are themselves existing access tracks.
- Clearing of mature trees will be avoided.
- Mulch will be disposed of at a licenced waste facility to prevent weed disbursement.
- Heavy duty matting, metal plates or the installation of handstand with geotextile base will be used at sites where high pedestrian or vehicle traffic is likely to lead to soil disturbance.
- Soil compaction will be minimised by utilising existing access tracks where possible and minimising vehicle movements along access tracks to only that required.
- Sites which are subject to temporary levelling for the construction phase will be re-contoured to match the surrounding topography post development.
- All chemicals or other hazardous substances shall be stored in bunded and weatherproof facilities away from drainage lines. The capacity of the bunded area shall be at least 110% of the largest chemical volume contained within the bunded area.
- A spill kit will be located at each site to manage hydrocarbon spills (if there are any) and be used in the event of a spill.

- Any imported fill shall be certified at source location as pathogen and weed free ENM or VENM in accordance with the POEO Act and the *Protection of the Environment (Waste) Regulation 2014* (POEO Waste Regulation).
- Any material or soil suspected of showing evidence of contamination shall be sampled and analysed by a NATA Registered laboratory and managed in accordance with the *Waste Classification Guidelines* (EPA, 2014), the Guidelines on the *Duty to Report Contamination* (EPA, 2015) and the *Contaminated Land Management Act 1997*.
- Spoil management and dewatering of worksites will be managed in accordance with the following EE Standards and the Environmental Guidelines Handbook:
    - EMS 0007 – Waste Management
    - EMS 0008 - Environmental Incidents Response and Management
    - EMS 0013 - Spoil Management
    - EMS 0014 – Dewatering worksites.
- Existing roads and access tracks are to be used for vehicles and equipment to gain access to the sites.

5.3 Hydrology and Water Quality

5.3.1 Existing Environment

South Creek / Wianamatta, Rileys Creek and Howe Rivulet are the main hydrology flowing through the Project Footprint. Figure 6 shows the drainage lines within the general area of the Project.

Drainage lines within the Project Footprint consist of mainly non-perennial streams, with the exception of Rileys Creek which is a first-order perennial stream.

The Project is not mapped within the Flood Planning Map under the Camden LEP 2010.

A review of groundwater data for bores located in the Project area was conducted to indicate Standing Water Level (SWL). Values range from 0.70m (GW014161) to 29.20m (GW038092).

5.3.2 Potential Impacts

5.3.2.1 Construction

Erosion and sedimentation, if uncontrolled, would have the potential to increase the amount of sediment and organic matter entering waterways. This has the potential to increase turbidity and result in a decline in the water quality of these watercourses. This risk of impacts on the water quality of surrounding watercourses (South Creek / Wianamatta, Rileys Creek and Howe Rivulet) is increased where ground disturbance work is carried out in close proximity (particularly within 40 m) of watercourses and during periods of high rainfall where exposed areas are more susceptible to sediment runoff.

Water quality impacts also have the potential to occur during construction if fuel or chemical spills from construction vehicles enter waterways. If not managed appropriately, the introduction of pollutants could result in the following potential impacts to the quality of the watercourses:

- Changes to pH, electrical conductivity, dissolved oxygen and temperature.
- Reduced light penetration due to increased turbidity.
- Increased sediment load, organic matter and turbidity of water.
- Increase in gross pollutants.
- Introduction of toxic pollutants such as construction fuels, oils and grease and chemicals.

Potential chemical, oil or grease leaks and accidental spills associated with construction machinery could also result in localised contamination of soils and/or water. However, with the implementation of the mitigation measures in Section 5.3.3, the risk of contaminating nearby watercourses would be adequately managed.

The drainage lines and waterbodies would be avoided by the proposed works and are therefore unlikely to be impacted by the Project. Mitigation measures will be implemented where impacts to the aquatic environment are likely to occur.

The Project would not significantly alter the shape and contour of the land within the Project Footprint. As such, the flood regime of the Project Footprint is not expected to be affected.

There is the potential for interception of groundwater during excavations where the work intercepts the groundwater table. More groundwater is expected in low lying areas and especially near creeks and after rainfall. The amount of groundwater inflow to be managed and dewatered during construction is dependent on the excavation and backfilling methodology and staging. The volume of water requiring to be dewatered is expected to be less than 3 ML.

5.3.2.2 Operation

During operation, the increase in impervious surface (e.g. driveway) is expected to increase in surface runoff and have the potential to change existing drainage pattern. However, such increase is expected to be minor due to the project scale and will be adequately managed with the proposed stormwater design and diversion swale drain with riprap protection at the proposed mobile ZS. No ongoing adverse impacts to water quality and hydrology are anticipated once proposed activity works have has been completed or during the ongoing operation of the proposed mobile ZS.

5.3.3 Environmental Safeguards

The following safeguards would be implemented to minimise hydrology and water quality impacts:

- The drainage lines and waterbodies would be avoided by the proposed works ~~(where feasible)~~.
- Spoil shall be stockpiled in a manner so as to avoid the possibility of sediments entering watercourses (including stormwater drains) or migrating off-site.
- Any bulk fuel or hazardous material transport vehicles shall be parked on level ground a minimum of 40 m away from watercourses (including drainage lines).
- All chemicals or other hazardous substances shall be stored in bunded and weatherproof facilities away from drainage lines. The capacity of the bunded area shall be at least 110% of the largest chemical volume contained within the bunded area.
- Any groundwater encountered would be dewatered, collected and disposed of appropriately. If minor dewatering is required, the management of discharge water shall be documented in the CEMP and be in accordance with EE Procedure EMS0014. Discharge water should be limited to vegetated, grassed areas, away from waterways, and within the fibre optics overhead alignment. If the discharge water is highly turbid, dewatering through a filter sock (or similar) shall be considered, where appropriate, to minimise sedimentation. Drainage from the construction sites must comply with the provisions of the POEO Act so as not cause water pollution as defined by this Act. The proposed construction shall not impede or divert natural surface water run off so as to cause a nuisance to adjoining properties.

5.4 Flora and fauna

5.4.1 Existing Environment

A review of spatial records of threatened flora and fauna within a 10 kilometre (km) radius of the Project Footprint was undertaken using data obtained from the BioNet Atlas of NSW Wildlife (NSW Department of Climate Change, Energy, the Environment and Water [NSW DCCEEW] 2023). The Commonwealth Protected Matters Search Tool (Commonwealth Department of Climate Change, Energy, the Environment and Water [DCCEEW] 2023) was also used to identify threatened biodiversity and any other Matters of National Environmental Significance (MNES) listed under the EPBC Act with the potential to occur within a 10 km radius of the Project Footprint. Records were obtained prior to undertaking the field survey to identify threatened biodiversity with the potential to occur in the Project Footprint. The likely occurrence of threatened biodiversity previously recorded was considered during the subsequent field survey and a likelihood of occurrence analysis (Annex 3) was undertaken.

5.4.2 Site Assessment

The site assessment was undertaken on the 11th December by two environmental scientists (Niche) to verify existing vegetation mapping, including the presence of Threatened Ecological Communities (TECs), and determine flora and fauna habitat in the Project Footprint. As this was primarily a habitat-based assessment, targeted threatened species surveys were not undertaken.

Regional vegetation mapping indicates that there are two vegetation communities within the Project Footprint; PCT 3320 Cumberland Shale Plains Woodland (BC Act: CE; EPBC Act: CE) and PCT 4025 Cumberland Red Gum Riverflat Forest (BC Act: E; EPBC Act: CE). For the most part, the Project occurs within previously cleared areas such as road verges (see Figure 7).

Temporary Mobile Substation Site:

The mobile ZS site was investigated by an ecologist that confirmed that the site had been cleared, with bare soil exposed throughout much of the area, with introduced plantings and some very sparse native shrubs (*Bursaria spinulosa*). Due to the highly cleared nature of the site at the time of inspection, this area would align to a non-native cleared vegetation unit (Figure 11). Plate 1 showing a recent arial imagery of the site is provided below:

Plate 1. Cleared land at the site of the Mobile ZS (Nearmap – 25/3/24)

In summary:

- 0.12 ha of the Substation Site is within Non-Certified Land. The remainder is within Certified Land and does not require further assessment.
- Vegetation within the Non-Certified Land comprises introduced plantings and some very sparse native shrubs (*Bursaria spinulosa*).
- Vegetation does not meet the definition of ENV (areas of indigenous trees, including saplings that are at least 0.5 ha in area and with canopy cover of at least 10%).

Distribution Works:

- The proposed trench for distribution works is within Certified Land and does not require further assessment.

Power Pole Replacement:

- The sites at Pole 12 (Melaleuca Road) and Pole 13 do not contain native vegetation.
- The site at Pole 16 contains approximately 12 sqm of PCT 4025 Cumberland Red Gum Riverflat Forest (allowing for a 1.5 metre buffer of each of the 3 poles that comprise Pole 16). Pole 16 is within Non-Certified Land.

Underground Fibre Optic Works:

- The ground disturbance area includes a 2m x 2m excavation of the joint bays A and B, which are both outside of the South West Sydney Growth Area.
- The site assessment identified the presence of one native vegetation community, PCT 3320 Cumberland Shale Plains Woodland (Figure 11h) located near Joint Bay/Site B where there will be two minor excavations required as part of the fibre optics works.

Access Tracks[1]:

- Allowing for a 3m average width of all mapped access tracks, 0.65 ha falls within Non-Certified Land.
- Of this area, 0.03 ha contains PCT 3320 Cumberland Shale Plains Woodland and 0.04 ha contains PCT 4025 Cumberland Red Gum Riverflat Forest. The remaining area is cleared and/or disturbed.

Threatened Flora

A total of 27 threatened flora species records have been recorded (NSW DCEEW 2023) or are predicted to have habitat (DCCEEW 2023) within 5 km of the Project Footprint (Figure 8.

No threatened flora species were recorded during the current survey. However, 3 threatened flora were considered to have a Moderate likelihood of occurrence in the Project Footprint (Annex 3. Likelihood of occurrence table):

- *Eucalyptus benthamii*
- *Pomaderris brunnea*
- *Pimelea spicata*

[1] A site assessment was not completed for all access tracks. Calculations are based on desktop assessment of regional vegetation mapping.

Given the relatively conspicuous nature of these threatened flora, it is considered unlikely that they would have remained un-detected during the field surveys. Furthermore, the proposal would only result in minor disturbance of vegetation. This relatively minor and limited disturbance is unlikely to result in a significant impact to threatened flora habitat.

Threatened fauna and habitat

A total of 49 threatened fauna species records have been recorded (NSW DCCEEW 2023) or are predicted to have habitat (DCCEEW 2023) within 5 km of the Project Footprint (Figure 9).

No threatened fauna species were recorded during the current survey. However, 5 threatened fauna were considered to have a Moderate likelihood of occurrence in the Project Footprint (Annex 3. Likelihood of occurrence table):

- Cumberland Plain Land Snail (*Meridolum corneovirens*)
- Little Bentwing-bat (*Miniopterus australis*)
- Eastern Coastal Free-tailed Bat (*Micronomus norfolkensis*)
- Grey-headed Flying-fox (*Pteropus poliocephalus*)
- Southern Myotis (*Myotis macropus*)

The proposal does not have the potential of impacting foraging habitat within the Project Footprint, however the bushland immediately adjacent to the Project Footprint is extensive and likely to provide a variety of habitat features, such as hollow bearing trees, stags, dense shrubs and mature trees. Furthermore, the proposal will not remove any hollow bearing trees, stags or mature trees. It is therefore unlikely that the proposal will result in a significant loss of habitat or directly impact any threatened fauna species.

Woodland habitat

Woodland habitat provides a wide range of food and shelter for vertebrate fauna. Trees from the family Myrtaceae (mostly *Eucalyptus* spp.) generally dominate the upper canopy in these areas and supply a direct (foliage, nectar, exudates) and indirect food (arthropods) source for a range of vertebrates, particularly birds and arboreal mammals.

No hollow bearing trees were observed within the Project Footprint. All mature trees will be retained.

Biosecurity

A range of exotic flora and fauna species common to urban and agricultural areas are likely to be present within the Project Footprint.

Key Fish habitat

Some sections of the Project footprint are within mapped Key Fish Habitat (KFH). This includes

- stabilisation work for existing access track section near Pole 16 and pole replacement.
- stabilisation work for existing access track section near Pole 13 are within mapped KFH.
- stabilisation work for existing access track section in Lot 2702/DP1261712 (west of Springfield Road) are within mapped KFH.
- stabilisation work for existing access track section near Sir Warwick Fairfax Drive are within mapped KFH.

As those sections are located on the ground and behind the top of the natural bank, the mapped KFH areas for the Project Footprint are not considered as KFH as they do not meet the Policy Definition of KFH (up to the top of the natural bank).

The proposed mobile ZS is located about 40m to the east of a KFH.

5.4.3 Potential Impacts

5.4.3.1 Construction

A summary of direct impacts to native vegetation outside of Certified Lands is summarised in Table 5.

Table 5: Direct Impacts to Native Vegetation outside of Certified Lands.

Project Component	PCT 3320 Cumberland Shale Plains Woodland	PCT 4025 Cumberland Red Gum Riverflat Forest	Total
Non Certified Lands within South West Sydney Growth Area:			
Pole 16	-	12 sqm	12 sqm
Outside South West Sydney Growth Area:			
Joint Bays	4 sqm	0	4 sqm
TOTAL	4 sqm	12 sqm	16 sqm

A total of 16 sqm of native vegetation outside of Certified Lands will be impacted by the Project, of which 12 sqm is within the Non-Certified Lands of South West Growth Area.

Replacement of Pole 16 will result in clearing of 12 sqm of PCT 4025 Cumberland Red Gum Riverflat Forest, which aligns with the endangered threatened ecological community (TEC*), River-Flat Eucalypt Forest on Coastal Floodplains of the NSW North Coast, Sydney Basin and South East Corner bioregions* under the BC Act and the critically endangered *River-flat eucalypt forest on coastal floodplains of southern New South Wales and eastern Victoria* under the EPBC Act.

Excavation of the Joint Bays will result in clearing of 4 sqm of PCT 3320 Cumberland Shale Plains Woodland, which aligns with the critically endangered threatened ecological community (TEC), *Cumberland Plain Woodland in the Sydney Basin Bioregion* under the BC Act and the *Cumberland Plain Shale Woodlands and Shale-Gravel Transition Forest* under the EPBC Act.

Both TECs are in very low condition. The vegetation has been extensively disturbed, and the groundcover and understory consist of limited native species. Plate 2 illustrates vegetation condition at the site of Joint Bay B.

Plate 2. PCT 3320 Cumberland Shale Plains Woodland to be removed near Site B for underground fibre optics alignment

An Assessment of Significance (refer Annex 4) determined the Project is not likely to result in a significant impact to any threatened ecological communities listed under the BC Act and/or EPBC Act.

Other impacts to vegetation and flora include:

- Minor removal or modification of native vegetation within the footprint of access tracks that occur within Non-Certified Land, which includes 0.03 ha contains PCT 3320 Cumberland Shale Plains Woodland and 0.04 ha contains PCT 4025 Cumberland Red Gum Riverflat Forest.
- Minor removal or modification of native vegetation, for pole replacement, access to poles, excavation of Site A and B and clearing around the proposed substation.
- Minor removal or modification of threatened species habitat other than native vegetation, including excavation of Site A and Site B.
- Clearing of some introduced plantings and some very sparse native shrubs (*Bursaria spinulosa*) around the Catherine Park mobile ZS is required.
- Sedimentation and erosion during excavation and deployment of Catherine Park mobile ZS.
- Weed invasion during transportation, soil disturbance and transporting of spoil.

Vegetation removal will be limited to the Project Footprint and no mature tree will be removed as a result of the Project.

With the exception of the TECs, no suitable habitat of the threatened species that are likely to occur (listed above) will be altered as a result of the Project. An Assessment of Significance (refer Annex 4) determined the Project is not likely to result in a significant impact to any threatened fauna listed under the BC Act and/or EPBC Act.

With consideration of the mitigation measure stipulated in Section 5.4.4, there is not expected to be significant impacts on nearby watercourses, sedimentation and erosion or weed invasion.

Potential impacts on biodiversity are expected to be minor. There is not expected to be any significant impacts on biodiversity resulting from the construction phase of the Project. These impacts will be mitigated through the safeguards in Section 5.4.4.

5.4.3.2 Operation

No ongoing adverse impacts to biodiversity are anticipated once the Project construction is completed or during the ongoing operation of the proposed mobile ZS.

The biodiversity assessment concluded that the Project would not have significant impacts on biodiversity during operation.

5.4.4 Environmental Safeguards

The following recommendations are to be implemented to minimise disturbance to flora:

1. Areas of native vegetation in close proximity to works areas are to be demarcated with flagging tape as 'no-go' areas.
2. All vegetation disturbance would be restricted to the removal of shrubs and small trees. No large trees or hollow-bearing trees to be removed.
3. Soil disturbance would be minimised and soil that is disturbed would be replaced according to the natural profile of the soil (i.e. topsoil reinstated as the top layer).
4. All actions should be in accordance with EE's "Pests, Weeds and Diseases" section of the EE Environmental Guidelines Handbook and DPI's best Practice weed management guidelines (DPI 2008).

The following recommendations are to be implemented to minimise disturbance to fauna and their habitats:

1. Silt fencing will be used at all locations where ground disturbance (i.e. removal or topsoil and subsoils) is undertaken and erosion and sediment run off may occur, particularly upslope of creeks or drainage lines.
2. All creeks and drainage lines that contain flowing or still water are to be avoided.
3. Soil disturbance would seek to avoid areas prone to erosion or sediment run off, such as steep slopes.

5.5 Noise and vibration

The likelihood of noise impact from the Project was reviewed against risk factors (based on Table 2 of the EPA's 2020 Draft Construction Noise Guideline). The review indicated that the construction noise impact would be a low-medium risk and therefore a qualitative noise impact was undertaken (refer Annexure 6).

5.5.1 Existing environment

The noise emissions surrounding the Project Footprint consists of localised traffic noise and noise emitted from the industrial area. Therefore, there are moderate levels of background noise already occurring.

There are many sensitive receivers in the residential areas near the Project Footprint, particularly along the southern fibre optics alignment. Acceptable operational noise limits are derived from the EPA's Noise Policy for Industry for intrusive noise impacts at each residence, and amenity criterion at the nearest commercial premises. The nearest sensitive receiver to the proposed ZS is 32 m to the North-West (refer Annex 6. Acoustic Report.

5.5.2 Potential impacts

5.5.2.1 Construction

The main sources of Project construction noise and vibration emissions are movement and operation of the machinery outlined in Section 2.4 undertaking Project activities. Larger plant and heavy equipment with diesel engines (such as the proposed franna crane, slew crane, crane borer, excavator, tipper truck) typically generate higher noise levels than smaller equipment (such as light vehicles). The Project has the potential to exceed the Draft Construction Noise Guideline (EPA, 2020), and impact on sensitive receivers, including residential properties and members of the public. The proposed groundbreaking activity such as open trenching and drilling at the mobile ZS site is expected to go for only 4 weeks during standard construction hours over the 12-month work period. Night work is limited to only stringing of poles and delivery. The work associated with poles will progress along the alignment, limiting the noise exposure of individual receivers, with noise levels increasing as the work approaches a receiver and decreasing as they move past.

All reasonable and feasible measures will be implemented to reduce noise impacts during construction.

The Project Footprint vibration impacts are expected to be relatively minor and would be managed in accordance with *Assessing Vibration: a technical guideline* (DEC 2006). Vibrational sources are likely to be during the construction phase of the Project and from borers. This machinery will be typical plant items consistent with Section 2.4. The activities producing vibrational output can be described as continuous, impulsive and intermittent vibration in DEC (2006).

Noise and vibrational emissions during construction would be commensurate with a typical small to moderate scale construction project. The impacts are assessed as relatively minor and temporary (short term).

5.5.2.2 Operation

Once commissioned the temporary Catherine Park ZS will be operating continuously, 24 hours per day, 7 days per week. The main source of noise from the project during operation will be the transformer that operates continually throughout the day and night. The noise level will not change appreciably from the day to the night and therefore the predicted noise level at night will be the worst-case scenario.

Noise and vibrational impacts during the ongoing operation of the proposed mobile ZS have been calculated at the nearest residential premises and comply with the EPA's Noise Policy for Industry. The sound power level of the mobile transformer is less than the required maximum sound power level of 82 dBA, the noise emission at all existing sensitive receivers will meet the acceptable noise limits (refer to Annexure 6).

5.5.3 Environmental safeguards

The following safeguards will be employed to protect air quality and reduce noise:

- All vehicles, plant and equipment are modern, well maintained and fit for purpose. Emissions from these items will be regulated by their standard exhaust systems.
- All vehicles and other equipment will be switched off when not in use. Vehicles must adhere to speed limits.
- Limit concurrent use of machinery where possible.
- Minimising noisy activities in proximity to the residential premises where feasible.

- Where maximum vibration values in DEC (2006) cannot be met after all feasible and reasonable measures have been applied, any unacceptable impacts may be dealt with between the operator and the affected community. Negotiation should be made available to those people whose amenity is potentially affected by non-achievement of the relevant vibration criteria.
- Where minimum distances outlined in BS 7385 (1993) cannot be maintained, a dilapidation assessment will be required to manage the risk of cosmetic damages within the Project Footprint.
- Compliance with the amenity criteria identified in Environmental Noise Impact Assessment (29 September 2023) prepared by Day Design Pty Ltd (Annex 5).

5.6 Air Quality

5.6.1 Existing environment

The surrounding environments consist of predominantly built up urban areas with some minor remnant vegetation remaining. The surrounding areas consist of residential and industrial land use areas. The air quality is expected to be typical of the Sydney airshed.

There are many sensitive receivers in the residential area, particularly along the southern fibre optics alignment.

5.6.2 Potential impacts

5.6.2.1 Construction

Activities associated with the Project have the potential to impact air quality in the following ways:

- Increased vehicular movements and construction activities (Section 2.3) leading to the generation of dust.
- Increased machinery/vehicular exhaust and fuel combustion related particulate and greenhouse gas emissions.

Air quality during construction would be commensurate with a typical small to moderate construction project. The impacts are assessed as relatively minor and short term.

5.6.2.2 Operation

Minor air emissions that are expected from the ongoing operation of the proposed ZS and therefore air quality impacts during operation would be negligible.

5.6.3 Environmental safeguards

The following safeguards will be employed to protect air quality and reduce noise:

- Minimise soil disturbance.
- Water carts to be used if necessary.
- Weather conditions to be monitored. Works are not to take place in extreme wind conditions.
- All vehicles, plant and equipment are modern, well maintained and fit for purpose. Emissions from these items will be regulated by their standard exhaust systems.
- All vehicles and other equipment will be switched off when not in use. Vehicles must adhere to speed limits.
- Limit concurrent use of machinery where possible.
- Cover all transported waste
- Where minimum distances outlined in BS 7385 (1993) cannot be maintained, a dilapidation assessment will be required to manage the risk of cosmetic damages within the Project Footprint.

- An Erosion and Sediment Control Plan (ESCP) shall be prepared as part of the CEMP. All erosion and sediment control measures shall be designed, implemented and maintained in accordance with Managing Urban Stormwater: Soil and Construction Volume 1 (Landcom, 2004) ('the Blue Book') (particularly Section 2.1). The ESCP shall include stockpiles, stormwater run-off, trees, site boundaries, site access and storage areas. Exposed surfaces shall be kept to a minimum to limit the potential for dust generation

5.7 Traffic and accessibility

5.7.1 Existing environment

The mobile ZS is currently located at the EE Springhill Field Service Centre in Unanderra NSW. The mobile ZS will be deployed to the Catherine Park site from Unanderra by road transportation. Any works required for road worthiness as per local guidelines, including necessary approvals will be obtained prior to transportation.

For the fibre optics works, access to most of the poles is along public roads, or on open paddocks. The fibre optics alignment also passes over Camden Valley Way, Narellan Road and Camden Bypass, which carry high volumes of traffic. The access to the Catherine Field mobile ZS will be from Coleman Loop road verge.

5.7.2 Potential impacts

5.7.2.1 Construction

The Project will temporarily impact vehicular traffic levels and accessibility to the Project Footprint. During construction, vehicles would be used to transport personnel, materials, waste and equipment to and from the work locations within the Project Footprint via the existing roads and access tracks. The temporary mobile ZS consist of two trailer mounted sections; the control room and the mobile substation itself. The mobile ZS will be transported by road from Springhill to the proposed site in Catherine Field.

During delivery of the mobile ZS from Springhill to Catherine Field, some temporary disruption to the local road network, especially in and around Coleman Loop is expected. Any TfNSW or Council permits required for road/lane closures will be obtained prior to the commencements of the works and affected residents will be notified. Disruptions are expected to be short in duration and localised.

Expected permits required for the proposed works are:

- Section 138 Application (Council)
- Road Occupancy Licence (TfNSW)

The Project will impact the traffic on public roads. However, these impacts are only expected to be minor and temporary.

For areas where the Project Footprint traverses busy roads, night works when traffic volumes are low may be required to allow for partial closures. During the road closures, through traffic will be limited to single lane each way with short stoppages of traffic in both directions for specific tasks. These works will be organised with the respective stakeholder/s and traffic management plans will be prepared. The relevant licences and permits (eg. road occupancy licences from TfNSW) will be sought by EE prior to commencement of works as required.

For works involving low traffic areas, lane closures may also temporarily affect the function of the road network. This will occur during standard construction hours and will allow the road to remain open, with restrictions and necessary permits will be obtained and affected residents notified.

There will be no restrictions to emergency service accessibility as public transport companies and emergency services will be contacted directly, at least 14 days prior to any traffic alterations to allow for sufficient time to alter routes if required.

The traffic and accessibility impacts of construction are assessed as relatively minor/moderate and temporary. It is not anticipated that the increase in traffic due to the works would significantly affect the safety and function of the surrounding road network.

5.7.2.2 Operation

After the completion of the construction phase, traffic conditions would return back to the existing state. And there would be no impacts expected during the ongoing operation of the proposed mobile ZS or fibre optics.

5.7.3 Environmental safeguards

The following safeguards will be employed to minimise traffic impacts:

- Ensure that a Traffic Management Plan is prepared and any recommendations in the TMP will be implemented during construction works.
- Traffic control is to be used to maintain continued traffic access where feasible.
- The temporary modification to traffic will be as minimal as possible.
- Any Transport for NSW (TfNSW) or Council Permits required for lane closures will be obtained prior to the commencements of the works and affected residents notified. As a part of these permits emergency services and public transport sectors will be notified of any traffic changes.
- After significant rainfall of ≥ 10 mm/24 hrs, undertake inspection of the access tracks to determine if use of tracks at this time would potentially result in a detrimental effect, and if required allow for the road to sufficiently dry out.
- Traffic, transportation and access mitigation and management strategies shall be documented and implemented in accordance with the CEMP and updated as required.

5.8 Visual amenity

5.8.1 Existing environment

The Project Footprint does not offer very high visual amenity, mostly consisting of industrial, rural and residential areas and includes existing overhead powerlines.

The mobile ZS site at Catherine Field is currently vacant, cleared land that is fenced off with EE signage. Large transmission lines run beyond the eastern boundary of the site.

The site is located in a residential area with access off Coleman Loop. There is currently low shrub landscaping around the perimeter fence of the site which was previously planted by the Developer, comprising two rows of native shrubs (refer Plate 3 below). There are two existing high voltage electricity transmission poles at the site with a height of around 20 m, located just within the eastern boundary of the site.

Plate 1: Proposed Catherine Field mobile zone substation with existing landscaping around the current perimeter fence

5.8.2 Potential impacts

5.8.2.1 Construction

Activities associated with the Project have the potential to impact visual amenity in the following way:

- Vegetation and soil disturbance associated with set up of Catherine Field mobile ZS.
- Vegetation and soil disturbance associated with the fibre optic works at Site A and Site B.

Construction works associated with the setup of Catherine Field mobile ZS would be temporary and considered minor in nature. Widening of the existing driveway access will be required to allow for truck movement when the mobile ZS is being delivered and for future access to the site. This may involve some localised clearing of 210 m^2 of existing low shrub vegetation. There will also be some clearing of vegetation required within the site (low lying weeds etc) and likely for the Asset Protection Zone (APZ) around the mobile ZS, however this would be minor in nature and is necessary for site safety. As part of the works there will be six (6) electricity mains poles and two (2) lightning masts installed within the site between 12.5 m and 20 m in height. There are already two existing high voltage electricity transmission poles at the site with a height of around 20 m, located within the eastern boundary and these would be retained. The mobile ZS will only take-up a limited footprint along the western site of the site (refer General Arrangement Figure in Section 2.1) and requires a smaller land area than a permanent ZS. The mobile substation trailer

itself would be set back approximately 80 m from the Coleman Loop street frontage. The section of the current site fencing that surrounds the mobile ZS would be replaced with security fencing that is typically used at other EE substation sites (refer Plate 4).

Plate 2: Example of typical security fencing installed around EE substation sites

For construction works moving progressively along the fibre optics alignment, visual impacts associated with the construction activities would be temporary and considered minor in nature.

With the implementation of the mitigation measures below, visual impacts during construction are anticipated to be minor and unlikely to be significant.

5.8.2.2 Operation

Visual amenity along the fibre optics alignment during operation would be similar to current conditions.

Visual amenity during operation of the Catherine Park mobile ZS would be low. The existing environment is highly residential and previously disturbed, and the site is already fenced off with EE signage. During operation of the mobile ZS, the site would have site security fencing around the site perimeter to provide further visual screening and safety. The mobile ZS will also be positioned towards the back of the site approximately 50 m away from the Coleman Loop street frontage.

5.8.3 Environmental safeguards

The following safeguards will be implemented to reduce or eliminate impacts to visual amenity:

- All actions should be in accordance with the best Practice weed management guidelines (DPI 2021).
- All construction plant, equipment, waste and excess materials shall be contained within the designated boundaries of the work site and shall be removed from the site following the completion of construction.
- Disturbed areas would be rehabilitated to previous conditions if feasible.
- Materials used for the Project would be consistent with the existing materials where practical.
- Appropriate site security fencing to be installed around the mobile ZS site to provide visual screening and ensure the site is safe and secure.

5.9 Aboriginal cultural heritage and archaeology

An Aboriginal Objects Due Diligence Assessment (AODDA) has been completed in accordance with the Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales (NSW) (Annex 10), as developed in association with Part 6 of the *National Parks and Wildlife Act 1974* (NPW Act), which outlines the specific protection for Aboriginal objects and declared Aboriginal places by establishing offences of harm.

5.9.1 Existing Environment

5.9.1.1 Heritage registers search results

An extensive Aboriginal Heritage Information Management System (AHIMS) search was conducted by Niche heritage consultant Riley Finnerty on 06 December 2024, covering the following area: GDA, Zone: 56, Eastings: 291576.0 - 295176.0, Northings: 6234685.0 - 6240218.0 with a Buffer of 0 m, which was focussed on the Project Footprint.

The AHIMS search identified 53 Aboriginal cultural heritage sites and objects. None of these sites intersect with the Project Footprint, although some are within 100 m of the electricity line alignment (Figure 10). Eight (8) of these Aboriginal cultural heritage sites are located within 200 m of the Project Footprint (Figure 10). The closest Aboriginal cultural heritage site to the Project Footprint is SRCF IF 2 open camp site (AHIMS ID# 45-5-5582) which is 30 m west of the existing overhead powerlines within the Project Footprint. However, none of the sites are in locations where ground disturbance works are proposed.

5.9.2 Potential impacts and safeguards

The Project Footprint has been previously disturbed and no culturally modified trees were identified within proximity to the Project Footprint.

The Project Footprint is within landscape features that are classified by the Code of Practice as being archaeologically sensitive, this being: The Project Footprint is within 200 m of Riley Creek, which the power line crosses. In addition, the Project Footprint is located within 200 m of the first or third-order streams that are located across this floodplain region.

The following recommendations have been developed as a result of this AODDA report:

1. *With respect to Aboriginal Cultural Heritage, works can proceed with caution.*

   Due to the results of the Due Diligence process, works can proceed with caution with respect to Aboriginal Cultural Heritage.

2. *Avoidance of AHIMS Site#45-5-4047*

   If proposed access to Pole 2 to the AHIMS site #45-5-4047 it is recommended that vehicles are restricted to using this access route during dry weather only, in order to minimise the risk of ground disturbance near this site. All vehicles should be kept west to the extent of this site.

3. *Record keeping*

   The due diligence assessment must be kept by Endeavour Energy so that it can be presented, if needed, as a defence from prosecution under Section 86(2) of the *NPW Act*.

4. *Unexpected finds procedure, Aboriginal object/s*

If suspected Aboriginal objects are identified during construction the following procedures must be followed:

(1) Immediately cease all activity at the location.
(2) Ensure no further harm occurs and secure the area.
(3) Notify Environment Protection Authority's Enviro Line on 131 555 and a suitably qualified archaeologist.
(4) No further action to be undertaken until Heritage NSW provides written consent.

5. Unexpected finds procedure, Suspected Human Remains

In the unlikely event that suspected human remains are encountered during works, all work in the area that may cause further impact must cease immediately and:

(1) The location, including a 20 m curtilage, should be secured using barrier fencing to avoid further harm.
(2) The NSW Police must be contacted immediately.
(3) No further action is to be undertaken until the NSW Police provide written notification.
(4) If the skeletal remains are identified as Aboriginal, Endeavour Energy or their agent must contact:
  (a) Heritage NSW's Enviroline on 131 555; and representatives of the RAPs.
(5) No works are to continue until Heritage NSW provides written notification to the proponent or their Agent.

5.10 Non-Aboriginal heritage

5.10.1 Heritage registers search results

A search conducted on 5th March 2024, of the following databases were undertaken to identify items and places of non-Aboriginal heritage recorded within the Project Footprint:

- World Heritage Register.
- National Heritage List.
- Commonwealth Heritage Register
- NSW State Heritage Register and State Heritage Inventory.
- Section 170 register (NSW government agencies) on the State Heritage Inventory.
- *Camden Local Environment Plan* (2010).

The Project Footprint is not within any heritage listed item curtilage and hence would not impact on any non-Aboriginal heritage items.

5.10.2 Potential impacts and safeguards

It is recommended that prior to the proposed works within the Project Footprint:

- If potential archaeological deposits are found in areas that have not been identified in this assessment, work should stop immediately, and the EE Environmental Specialist notified of the find. If required a qualified heritage specialist may be contacted and Heritage NSW may need to be notified, and their advice followed as per Heritage NSW guidelines.

5.11 Electromagnetic Fields

5.11.1 Existing Environment

Electromagnetic fields (EMF) are part of the natural environment and are present in the atmosphere. Static magnetic fields are created by the earth's core. EMF is also produced wherever electricity or electrical equipment is in use. Existing sources of EMF within and close to the Project Footprint include a 132 kV transmission feeder.

5.11.2 Potential impacts

5.11.2.1 Construction

During construction the new Catherine Park Mobile ZS would not be energised and is therefore not expected to generate an electromagnetic field. Existing electrical infrastructure has been designed to meet relevant EMF standards and therefore construction work in proximity to existing infrastructure would not create EMF risks.

5.11.2.2 Operation

During operation, the Project would produce electromagnetic emissions. Electrical infrastructure such as substations are designed to meet relevant EMF standards and therefore construction work in proximity to existing infrastructure would not create EMF risks.

5.11.3 Environmental safeguards

The following safeguards will be employed to reduce or eliminate impacts from EMF:

- All designs are to comply with ARPANSA Radio Protection Standard 3 exposure limits (ARPANSA, 2002).

5.12 Generation of waste and hazardous materials

5.12.1 Existing environment

During the site inspection the proposed site for the Catherine Field mobile ZS had been under-scrubbed of vegetation previously and the groundcover and understory consist of weed species.

A search of the Environmental Protection Authority (EPA) Contaminated Sites Register did not identify any contaminated sites within proximity to the Project Footprint.

5.12.2 Potential impacts

5.12.2.1 Construction

Activities associated with the Project are unlikely to generate hazardous materials.

The Project has the potential to increase the generation of waste in the following ways:

- The inappropriate discarding of packaging of consumables and other general site rubbish.

Anticipated waste streams generated during construction works would include:

- General construction waste such as off-cuts, packaging and excess construction material (such as wood, concrete, plastic and metal).
- Excess spoil. Excess spoil will be tested and classified and disposed of off-site at a licensed waste facility in accordance with its waste classification.
    - Redundant cables, conductors, earth wires and fittings.
    - Waste oils, greases and lubricants from maintenance of construction plant and equipment.
    - Domestic and putrescible waste (including food scraps, bottles, cans and paper).
    - Invasive weed material.

All waste generated during construction would be reused or recycled if appropriate, or removed, transported and lawfully disposed from the site in accordance with the *Waste Classification Guidelines* (NSW EPA, 2014), *Protection of the Environment Operations Act 1997* (POEO Act) and POEO (Waste) Regulation 2005.

5.12.2.2 Operation

A minimal amount of waste will be generated during the operational phase of at the mobile ZS site at Catherine Field.

Minimal waste is generated from the current operation of the existing easement where the fibre optics will be installed. Maintenance activities may generate waste associated with any damaged components of the line that require replacement (e.g. earth wire, insulators and fittings). Routine vegetation maintenance also results in the generation of green waste, in addition to domestic waste generated during line inspections.

With the implementation of the mitigation measures described below, the waste related impacts associated with the construction and operation of the Project are considered to be minor.

5.12.3 Environmental safeguards

The following safeguards will be employed to reduce or eliminate impacts due to waste or hazardous materials generation:

- Avoid the generation of waste whenever possible. Where excess or unwanted material is generated, it should be recycled or reused whenever possible.
- Re-fuelling will not be undertaken on waterfront land (not within 40 m of a watercourse).
- Waste mitigation and management strategies shall be documented in the Work Instructions.
- All waste, including surplus soils, which cannot be reused shall be classified in accordance with the *Waste Classification Guidelines* (EPA, 2014), removed from the site and disposed of at a facility that can lawfully accept the waste in accordance with the POEO Act and POEO Waste Regulation.
- Invasive weed material to be disposed of or treated appropriately as per EE's "Pests, Weeds and Diseases" section of the EE Environmental Guidelines Handbook and EMS0004.

5.13 Cumulative impacts

Cumulative impacts are incremental environmental impacts caused by the combination of past, present and reasonably foreseeable future actions (or projects). Cumulative impacts accumulate over time, from one or more sources. Whilst impacts may be insignificant in isolation, significant impacts may occur when individual effects are considered in combination.

Existing access tracks will be utilised to provide access, thereby minimising any cumulative vegetation clearance and associated impacts.

The assessment of cumulative impacts also focused on the proposed activity's interaction with other projects in the vicinity of the proposed activity, and where construction and/or operational timeframes are likely to be concurrent.

A search of the Department of Planning's Major Projects Register was conducted on the 28 November 2024. Th search identified two major projects within vicinity: Catherine Field Public School Modification and construction of New Catherine Field Primary School. Potential cumulative impacts from these projects include noise and vibration, air quality and increased traffic volumes. There may be other local development occurring in the area but it is not expected that a cumulative impact would result. The construction personnel will work with local developments to reduce impacts as required.

5.13.1 Environmental Safeguards

The safeguards listed throughout this REF will be employed to reduce cumulative impacts and are consolidated in Annex 1. Summary of mitigation measures.

6. Conclusion

The Project is required to support the initial development within Camden Council, specifically the Catherine Fields precinct.

The Project will be located at the EE substation site at 30 Wilhelm Parade Catherine Field and within existing EE overhead alignments to minimise the disturbance and vegetation clearing within the Project Footprint. Proposed open hole construction works will occur in previously disturbed locations and minimise native vegetation removal where possible.

Potential impacts from the Project would result in the temporary modification of 4 m^2 of PCT 3320 Cumberland Shale Plains Woodland and 12 m^2 of PCT PCT 4025 Cumberland Red Gum Riverflat Forest. An Assessment of Significance determined the Project is not likely to result in a significant impact to the TECs listed under the BC Act and/or EPBC Act that are associated with these PCTs.

No threatened flora or fauna were recorded in the Project Footprint. Any nearby species are not anticipated to be impacted by the proposed works.

A number of recommendations have been provided to avoid and mitigate the potential impact the Project may have on native vegetation, flora and fauna.

Given the nature, scale and extent of impacts and implementation of mitigation measures proposed, this Project is unlikely to have a significant impact on the environment. Preparation of an EIS is therefore not required.

As the determining authority, EE should prepare a Decision Statement and make a formal determination in relation to the Project.

A separate environmental assessment should be prepared for any other works associated with this Project that are not covered by this REF.

All works should be undertaken in accordance with this REF, including the mitigation measures provided in Annex 1. Summary of mitigation measures, any Decision Statement issued in relation to this REF, the associated CEMP and any other specific mitigation measures that are developed for this project.

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Annex 1. Summary of mitigation measures

Environmental Aspect	Mitigation Measures
Endeavour Energy (General requirements)	The Project or Activity shall be carried out consistent with the REF. If the scope of the works changes at any time further assessment will be required prior to undertaking works associated with the changed scope.
	Prior to any work commencing, the Endeavour Energy Project Manager and the Principal Construction Contractor must obtain the project Decision Statement and familiarise themselves with its conditions.
	A Construction Environmental Management Plan (CEMP), or equivalent, shall be prepared addressing the environmental safeguards identified in the REF, the conditions contained within the Decision Statement and any appropriate industry standards. The CEMP shall be submitted to the Environmental Services Team for review and approval prior to on-ground works commencing.
	A current and up to date copies of all relevant project approvals, permits and licences, including but not limited to, the project REF Decision Statement, the CEMP, Road Occupancy Licences (ROL), Council Permits and any other pertinent certificates/agreements, permits and documentation to be relied upon shall be available to the project team/crews during construction at all times.
	All works to be carried out in accordance with the approved project design.
	The Project Manager/Construction Contractor is to prepare a dilapidation report or photographic record as deemed necessary of any Council, private or Endeavour Energy assets which have the potential to be damaged by the proposed works.
	All works shall be consistent with Endeavour Energy's Environmental Management System (EMS).
Endeavour Energy (Hazards and Safety)	Environmental risks/incidents shall be managed and reported in accordance with Endeavour Energy's Environmental Guidelines Handbook and EMS008 – Environmental Incident Response and Management.
	All accidents and emergencies must be reported by calling Endeavour Energy's Call Centre 131 003.
	A site induction for contractors working on the project will include general bushfire protection measures and requirements.
	Electrical equipment, plant and equipment to be used for construction works will be maintained in operational order to prevent any potential sparks.
	All legislative requirements regarding safe work procedures will be adhered to, including chemical handling and storage.
	An emergency management plan will be developed as part of the CEMP, which is to include protocols in how to respond to bushfire incidents. Including evacuation during construction.
	Any works that have the potential to generate heat and sparks will be restricted on days of declared catastrophic fire danger.
	All accidents and emergencies must be reported by calling Endeavour Energy's Call Centre 131 003.
	Construction waste will be removed from the site in a timely manner so as not to cause a fire risk or obstruct emergency vehicle access.
	The project will be constructed and maintained in accordance with Endeavour Energy Company Procedure GAM 0011.
	Any worksite areas will be cordoned off with security fencing to direct pedestrians away from any excavations or open manholes.
	Safety signage, barriers, fencing, etc will be placed around construction areas, as required. These will be checked on a regular basis to ensure they are in adequate working condition.
	The works will not occur on days that have extreme or catastrophic fire rating.

Environmental Aspect	Mitigation Measures
	Any open holes that are left unattended at any time will be covered and fenced as necessary to prevent access.
	All works will be undertaken in accordance with Safework NSW requirements, Endeavour Energy standards and procedures and any other applicable requirements.
Endeavour Energy (Environmental Incidents)	Environmental risks/incident shall be managed and reported in accordance with Endeavour Energy's Environmental Guidelines Handbook and EMS008- Environmental Incident Response and Management.
	Spill kits shall be available at all compound areas (and other construction related sites).
	All accidents and emergencies must be reported by calling Endeavour Energy's Call Centre 131 003.
Land use	All impacted sensitive receivers and landowners within or adjacent to the works will be notified in writing 7 to 14 days prior to the commencement of construction works. Notification will include: ▪ Proposed commencement date ▪ A brief of scope of works ▪ Anticipated duration of the works ▪ A 24 hour contact details of the Project Manager or other appropriate contact person in the event of any complaints ▪ Details on proposed blocking or impairing access to driveways and/or residences/businesses (if any) Evidence of this notification should be stored in the project file. This notification will be required in addition to any notification carried out during the preparation of this REF.
	No new access tracks are to be created, only some stabilisation works to existing access tracks are to be undertaken.
	On completion of the work, any soil disturbance caused during construction shall be stabilised and returned to as close to original condition or as otherwise agreed with the landowner.
Geology and Soils	An Erosion and Sediment Control Plan (ESCP) shall be prepared as part of the CEMP. All erosion and sediment control measures shall be designed, implemented and maintained in general accordance with *Managing Urban Stormwater: Soil and Construction Volume 1* (Landcom, 2004) ('the Blue Book') (particularly Section 2.2). The ESCP shall include stockpiles, stormwater run-off, trees, site boundaries, site access and storage areas. Disturbed areas shall be kept to a minimum to limit the potential for erosion and dust generation.
	Inspections of the erosion and sediment controls will be on a periodic basis and at opportunistic times such as prior to rainfall events with predictions of 10 mm or more rain in a 24 hour period or following complaints regarding the integrity of the sediment and erosion controls. The inspection program will record the following: • Condition of rehabilitation areas (including records of any slumping) • Condition of sediment and erosion control structures • Whether sediment or other pollutants are leaving the site or have the potential to do so • Maintenance requirements Location(s) where sediment is disposed. • Pre-rainfall inspection to ensure that the controls are in place and working.
	Vegetation disturbance is to be minimised. Activities will be preferentially undertaken in cleared or weedy areas or in areas that have been subject to previous disturbance or are themselves existing access tracks.
	Clearing of mature trees will be avoided.
	Mulch will be disposed of at a licenced waste facility to prevent weed disbursement.
	Heavy duty matting, metal plates or the installation of hardstand with a geotextile base will be used at sites where high pedestrian or vehicle traffic is likely to lead to soil disturbance.
	Soil compaction will be minimised by utilising existing access tracks where possible and minimising vehicle movements along access tracks to only that required.
	Sites which are subject to temporary levelling for the construction phase will be re-contoured to match the surrounding topography post development.

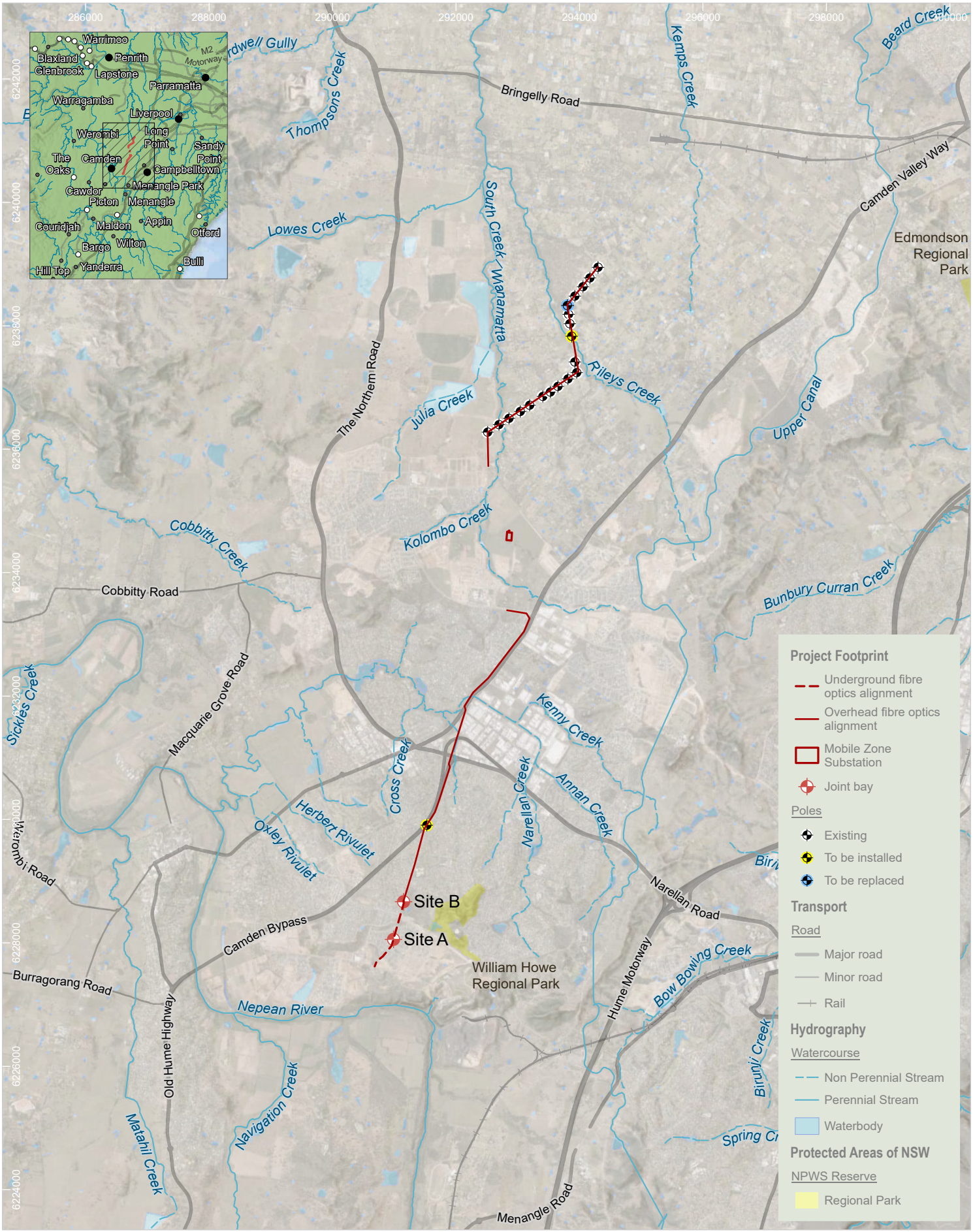
Environmental Aspect	Mitigation Measures
	All chemicals or other hazardous substances shall be stored in bunded and weatherproof facilities away from drainage lines. The capacity of the bunded area shall be at least 130% of the largest chemical volume contained within the bunded area.
	A spill kit will be located at each site to manage hydrocarbon spills (if there are any) and be used in the event of a spill.
	Any imported fill shall be certified at source location as pathogen and weed free ENM or VENM in accordance with the POEO Act and the *Protection of the Environment (Waste) Regulation 2014* (POEO Waste Regulation).
	Any material or soil suspected of showing evidence of contamination shall be sampled and analysed by a NATA Registered laboratory and managed in accordance with the *Waste Classification Guidelines* (EPA, 2014), the Guidelines on the *Duty to Report Contamination* (EPA, 2015) and the *Contaminated Land Management Act 1997*.
	Spoil management and dewatering of worksites will be managed in accordance with the following EE Standards and the Environmental Guidelines Handbook: EMS 0007 – Waste Management EMS 0008 - Environmental Incidents Response and Management EMS 0013 - Spoil Management EMS 0014 – Dewatering worksites.
	Existing roads and access tracks are to be used for vehicles and equipment to gain access to the sites.
Hydrology and Water Quality	The drainage lines and waterbody would be avoided by the proposed works (where feasible).
	Spoil shall be stockpiled in a manner so as to avoid the possibility of sediments entering watercourses (including stormwater drains) or migrating off-site.
	Any bulk fuel or hazardous material transport vehicles shall be parked on level ground a minimum of 40 m away from watercourses (including drainage lines).
	Any groundwater encountered would be dewatered, collected and disposed of appropriately. If minor dewatering is required, the management of discharge water shall be documented in the CEMP and be in accordance with EE procedure EMS0014. Discharge water should be limited to vegetated, grassed areas, away from waterways, and within the fibre optics overhead alignment. If the discharge water is highly turbid, dewatering through a filter sock (or similar) shall be considered, where appropriate, to minimise sedimentation. Drainage from the construction sites must comply with the provisions of the POEO Act so as not cause water pollution as defined by this Act. The proposed construction shall not impede or divert natural surface water run off so as to cause a nuisance to adjoining properties.
Flora	Disturbance and clearing of the native vegetation community, PCT 3320 Cumberland Shale Plains Woodland located near Joint Bay/Site B (Fibre Optics works) will be minimised as much as possible, with a maximum clearance area of 4m^2.
	All other disturbance would be restricted to the removal of shrubs and small trees.
	Soil disturbance would be minimised and soil that is disturbed would be replaced according to the natural profile of the soil (i.e. topsoil reinstated as the top layer).
	All actions should be in accordance with EE's "Pests, Weeds and Diseases" section of the EE Environmental Guidelines Handbook and DPI's best Practice weed management guidelines (DPI 2008).
Fauna	Silt fencing will be used at all locations where ground disturbance (i.e. removal or topsoil and subsoils) is undertaken and erosion and sediment run off may occur, particularly upslope of creeks or drainage lines.
	All large trees, stags and fallen hollow logs would be avoided where practical.
	The removal of hollow bearing trees is not anticipated to be required. However, if it is required it would be performed in the presence of a qualified ecologist to assist in detection and translocation of potentially displaced fauna.
	All creeks and drainage lines that contain flowing or still water are to be avoided.
	Soil disturbance would seek to avoid areas prone to erosion or sediment run off, such as steep slopes.

Environmental Aspect	Mitigation Measures
Noise and vibration	Construction hours limited to standard construction working hours (Monday to Friday: 7 am to 6 pm, Saturday: 8 am to 1 pm, No work on Sundays or public holidays).
	All vehicles, plant and equipment are modern, well maintained and fit for purpose. Emissions from these items will be regulated by their standard exhaust systems.
	All vehicles and other equipment will be switched off when not in use. Vehicles must adhere to speed limits.
	Limit concurrent use of machinery where possible.
	Minimising noisy activities in proximity to the residential premises where feasible.
	Where maximum vibration values in DEC (2006) cannot be met after all feasible and reasonable measures have been applied, any unacceptable impacts may be dealt with between the operator and the affected community. Negotiation should be made available to those people whose amenity is potentially affected by non-achievement of the relevant vibration criteria.
	Where minimum distances outlined in BS 7385 (1993) cannot be maintained, a dilapidation assessment will be required to manage the risk of cosmetic damages within the Project Footprint.
	Compliance with the amenity criteria identified in Environmental Noise Impact Assessment (29 September 2023) prepared by Day Design Pty Ltd (Annex 5).
Air Quality	Minimise soil disturbance. Water carts to be used if necessary.
	Weather conditions to be monitored. Works are not to take place in extreme wind conditions.
Traffic and Accessibility	Ensure that a Traffic Management Plan is prepared and any recommendations in the TMP will be implemented during construction works.
	Traffic control is to be used to maintain continued traffic access where feasible.
	The temporary modification to traffic will be as minimal as possible.
	Any Transport for NSW (TfNSW) or Council Permits required for the lane closures will be obtained prior to the commencements of the works and affected residents notified. As part of these permits emergency services and public transport sectors will be notified of any traffic changes.
	After significant rainfall of < 10 mm/24 hrs, undertake inspection of the access track to determine if use of tracks at this time would potentially result in a detrimental effect, and if required allow for the road to sufficiently dry out.
	Traffic, transportation and access mitigation and management strategies shall be documented and implemented in accordance with the CEMP and updated as required.
Visual Amenity	All actions should be in accordance with the best Practice weed management guidelines (DPI 2021).
	All construction plant, equipment, waste and excess materials shall be contained within the designated boundaries of the work site and shall be removed from the site following the completion of construction.
	Disturbed areas would be rehabilitated to previous conditions if feasible.
	Materials used for the Project would be consistent with the existing materials where practical.
	Appropriate site security fencing to be installed around the mobile ZS site to provide visual screening and ensure the site is safe and secure.
Aboriginal cultural heritage and archaeology	Due to the results of the Due Diligence process, works can proceed with caution with respect to Aboriginal Cultural Heritage.
	This due diligence assessment must be kept by Endeavour Energy so that it can be presented, if needed, as a defence from prosecution under Section 86(2) of the NPW Act.
	If suspected Aboriginal objects are identified during construction the following procedures must be followed: (1) Immediately cease all activity at the location. (2) Ensure no further harm occurs and secure the area. (3) Notify Environment Protection Authority's Enviro Line on 131 555 and a suitably qualified archaeologist. (4) No further action to be undertaken until Heritage NSW provides written consent.
	In the unlikely event that suspected human remains are encountered during works, all work in the area that may cause further impact must cease immediately and:

Environmental Aspect	Mitigation Measures
	(1) The location, including a 20 m curtilage, should be secured using barrier fencing to avoid further harm. (2) The NSW Police must be contacted immediately. (3) No further action is to be undertaken until the NSW Police provide written notification. (4) If the skeletal remains are identified as Aboriginal, Endeavour Energy or their agent must contact: Heritage NSW's Enviroline on 131 555; and representatives of the RAPs. (5) No works are to continue until Heritage NSW provides written notification to the proponent or their Agent.
Historic Heritage	If potential archaeological deposits are found in areas that have not been identified in this assessment, work should stop immediately, and the EE Environmental Specialist notified of the find. If required a qualified heritage specialist may be contacted and Heritage NSW may need to be notified, and their advice followed as per Heritage NSW guidelines.
Electromagnetic Fields	All designs are to comply with ARPANSA Radio Protection Standard 3 exposure limits (ARPANSA, 2002).
Generation of waste and hazardous materials	Avoid the generation of waste and recycle and reuse whenever possible. Where excess or unwanted material is generated, it should be recycled or reused whenever possible.
	Waste mitigation and management strategies shall be documented in the Work Instructions.
	All waste, including surplus soils, which cannot be reused shall be classified in accordance with the *Waste Classification Guidelines* (EPA, 2014), removed from the site and disposed of at a facility that can lawfully accept the waste in accordance with the POEO Act and POEO Waste Regulation.
	Invasive weed material to be disposed of or treated appropriately as per EE's "Pests, Weeds and Diseases" section of the EE Environmental Guidelines Handbook and EMS0004.

Annex 2. Figures

Figure 1. Locality



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niche Environment and Heritage

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GDA2020 MGA Zone 56

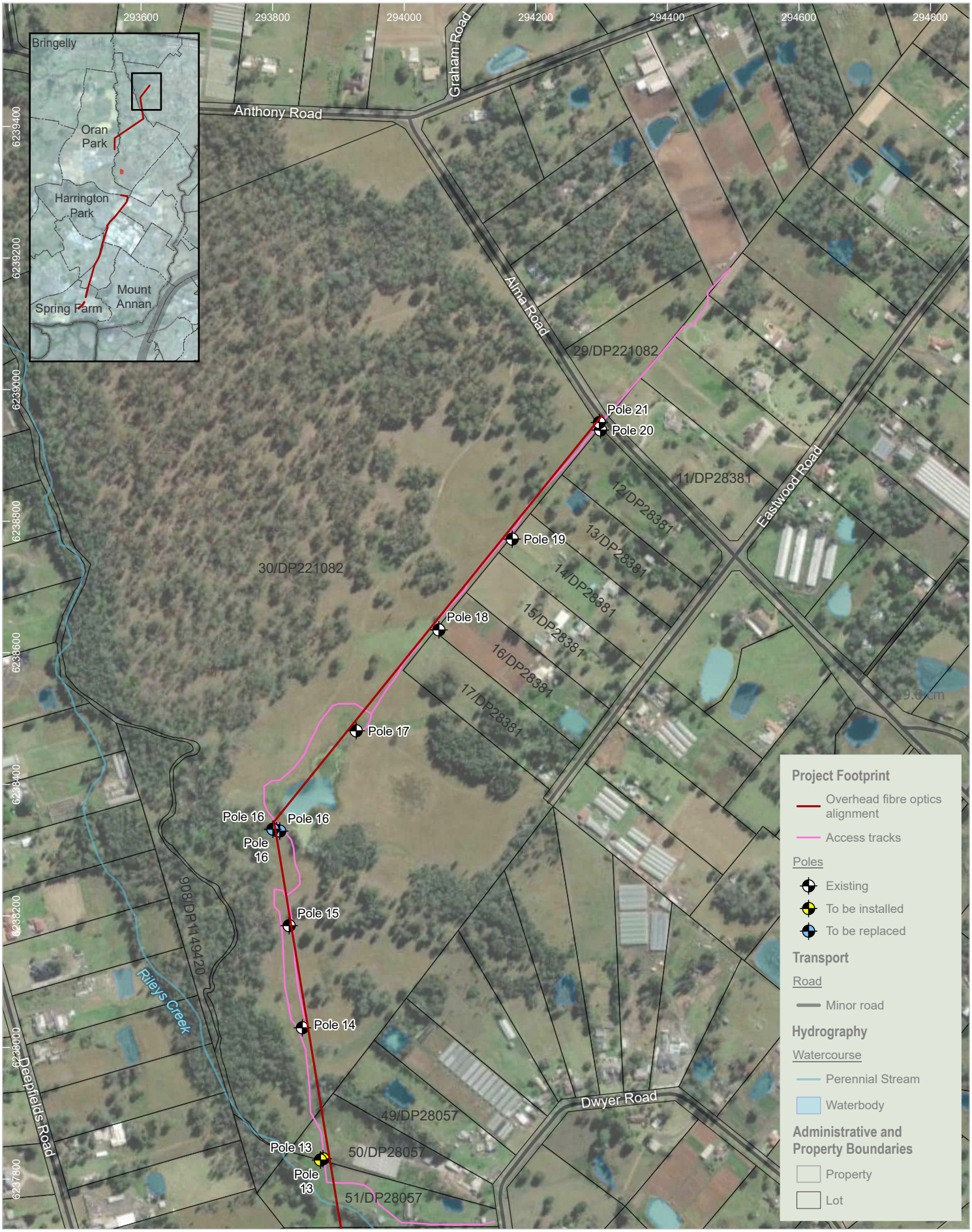
Locality Map

Catherine Park Mobile Zone Substation - REF

Niche PM: Justin Merdith
Niche Proj. #: 8372
Client: Endeavour Energy

Figure 1

Figure 2. Site Plan



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GDA2020 MGA Zone 56

Site Plan

Catherine Park Mobile Zone Substation - REF

Niche PM: Justin Merdith
Niche Proj. #: 8372
Client: Endeavour Energy

Figure 2a

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GDA2020 MGA Zone 56

Site Plan

Catherine Park Mobile Zone Substation - REF

Niche PM: Justin Merdith
Niche Proj. #: 8372
Client: Endeavour Energy

Figure 2b

Hillshade: Esri, Geoscience Australia, NASA, NGA, USGS/Hillshade: Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community/World Imagery: Maxar/public/NSW_Imagery: © Department of Customer Service 2020 | Watercourses, Waterbodies, Road and Rail alignments, Protected areas of NSW © Spatial Services 2021. | Niche uses GDA2020 as standard for all project-related data. In order to ensure that data from numerous sources and coordinate systems is aligned, on-the-fly transformation to GDA2020 MGA Zone 56 is used in the map above. For ease of reference, the grid tick marks and labels shown around the border of the map are presented in GDA2020 MGA Zone 56

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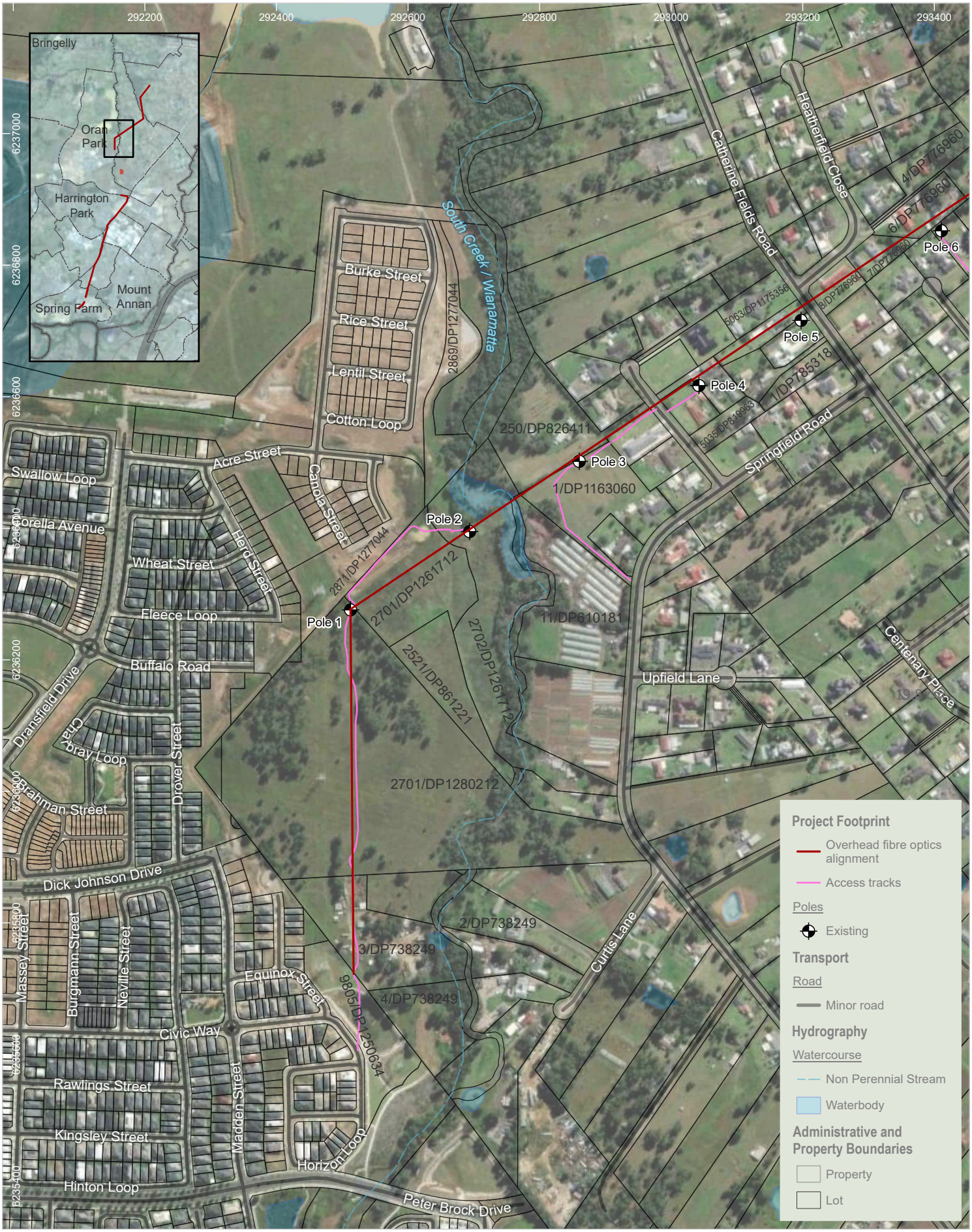

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GDA2020 MGA Zone 56

Site Plan

Catherine Park Mobile Zone Substation - REF

Niche PM: Justin Merdith
Niche Proj. #: 8372
Client: Endeavour Energy

Figure 2c

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GDA2020 MGA Zone 56

Site Plan

Catherine Park Mobile Zone Substation - REF

Niche PM: Justin Merdith
Niche Proj. #: 8372
Client: Endeavour Energy

Figure 2d

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GDA2020 MGA Zone 56

Site Plan

Catherine Park Mobile Zone Substation - REF

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Client: Endeavour Energy

Figure 2e

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GDA2020 MGA Zone 56

Site Plan

Catherine Park Mobile Zone Substation - REF

Niche PM: Justin Merdith
Niche Proj. #: 8372
Client: Endeavour Energy

Figure 2f

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GDA2020 MGA Zone 56

Site Plan

Catherine Park Mobile Zone Substation - REF

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Niche Proj. #: 8372
Client: Endeavour Energy

Figure 2g

Hillshade: Esri, Geoscience Australia, NASA, NGA, USGS/Hillshade: Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community/World Imagery: Maxar/public/NSW_Imagery: © Department of Customer Service 2020 | Watercourses, Waterbodies, Road and Rail alignments, Protected areas of NSW © Spatial Services 2021. | Niche uses GDA2020 as standard for all project-related data. In order to ensure that data from numerous sources and coordinate systems is aligned, on-the-fly transformation to GDA2020 MGA Zone 56 is used in the map above. For ease of reference, the grid tick marks and labels shown around the border of the map are presented in GDA2020 MGA Zone 56

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GDA2020 MGA Zone 56

Site Plan

Catherine Park Mobile Zone Substation - REF

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Niche Proj. #: 8372
Client: Endeavour Energy

Figure 2h

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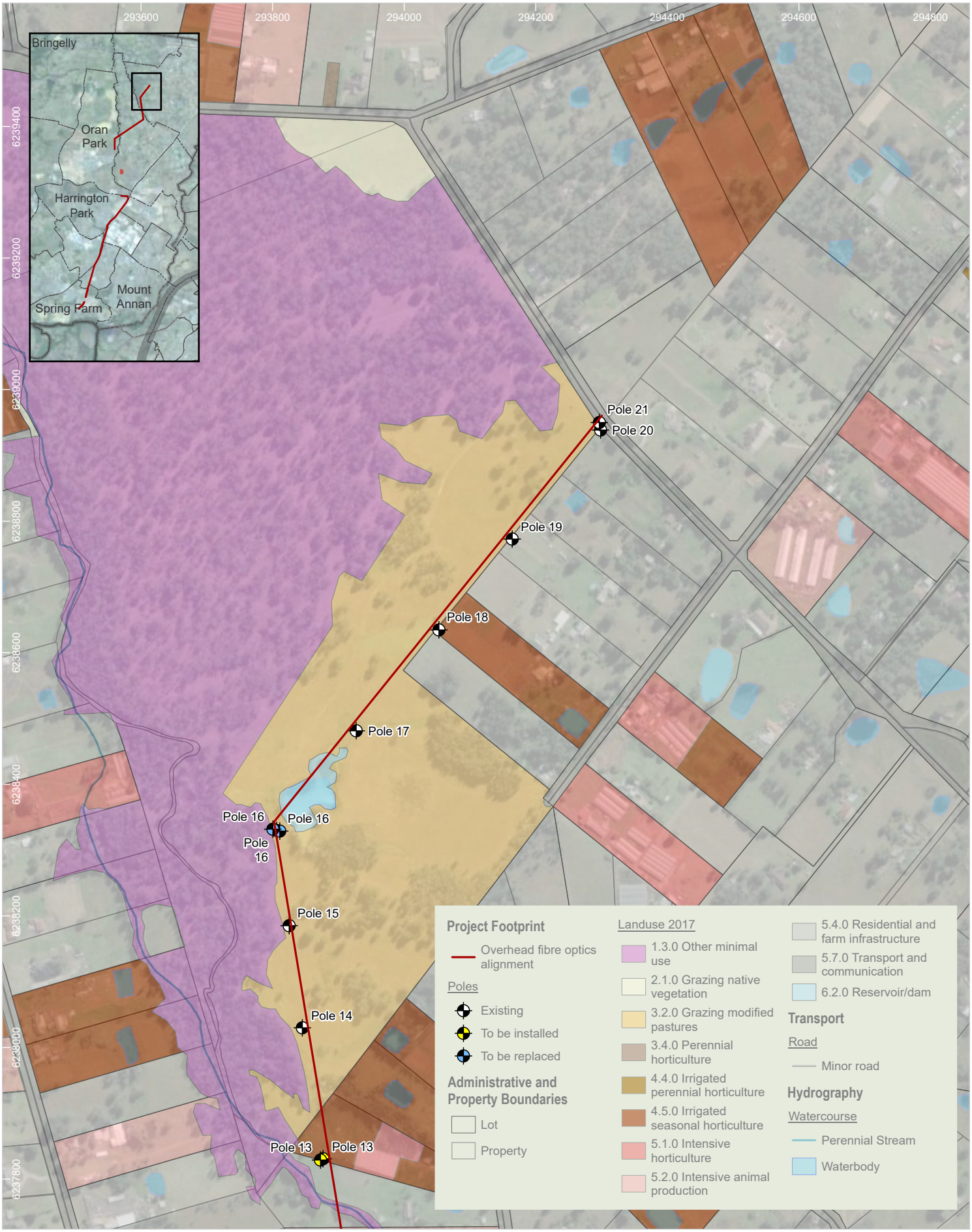
Figure 3. Landuse



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GDA2020 MGA Zone 56

Landuse
Catherine Park Mobile Zone Substation - REF

Niche PM: Justin Merdith
Niche Proj. #: 8372
Client: Endeavour Energy

Figure 3a

Hillshade: Esri, Geoscience Australia, NASA, NGA, USGS/Hillshade: Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community/World Imagery: Maxar/public/NSW_Imagery: © Department of Customer Service 2020 | Watercourses, Waterbodies, Road and Rail alignments, Protected areas of NSW © Spatial Services 2021. | Niche uses GDA2020 as standard for all project-related data. In order to ensure that data from numerous sources and coordinate systems is aligned, on-the-fly transformation to GDA2020 MGA Zone 56 is used in the map above. For ease of reference, the grid tick marks and labels shown around the border of the map are presented in GDA2020 MGA Zone 56

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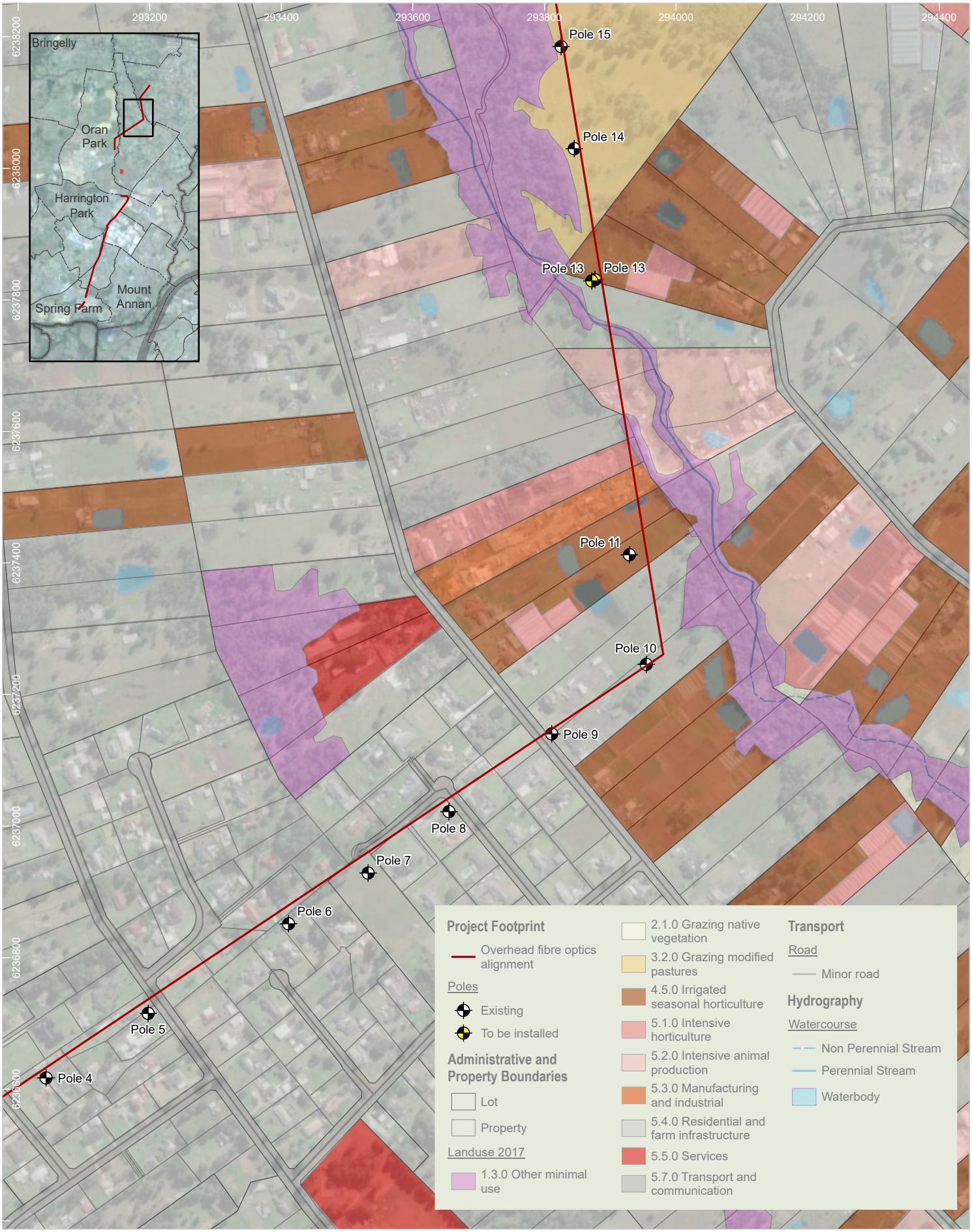

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GDA2020 MGA Zone 56

Landuse

Catherine Park Mobile Zone Substation - REF

Niche PM: Justin Merdith
Niche Proj. #: 8372
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Figure 3b

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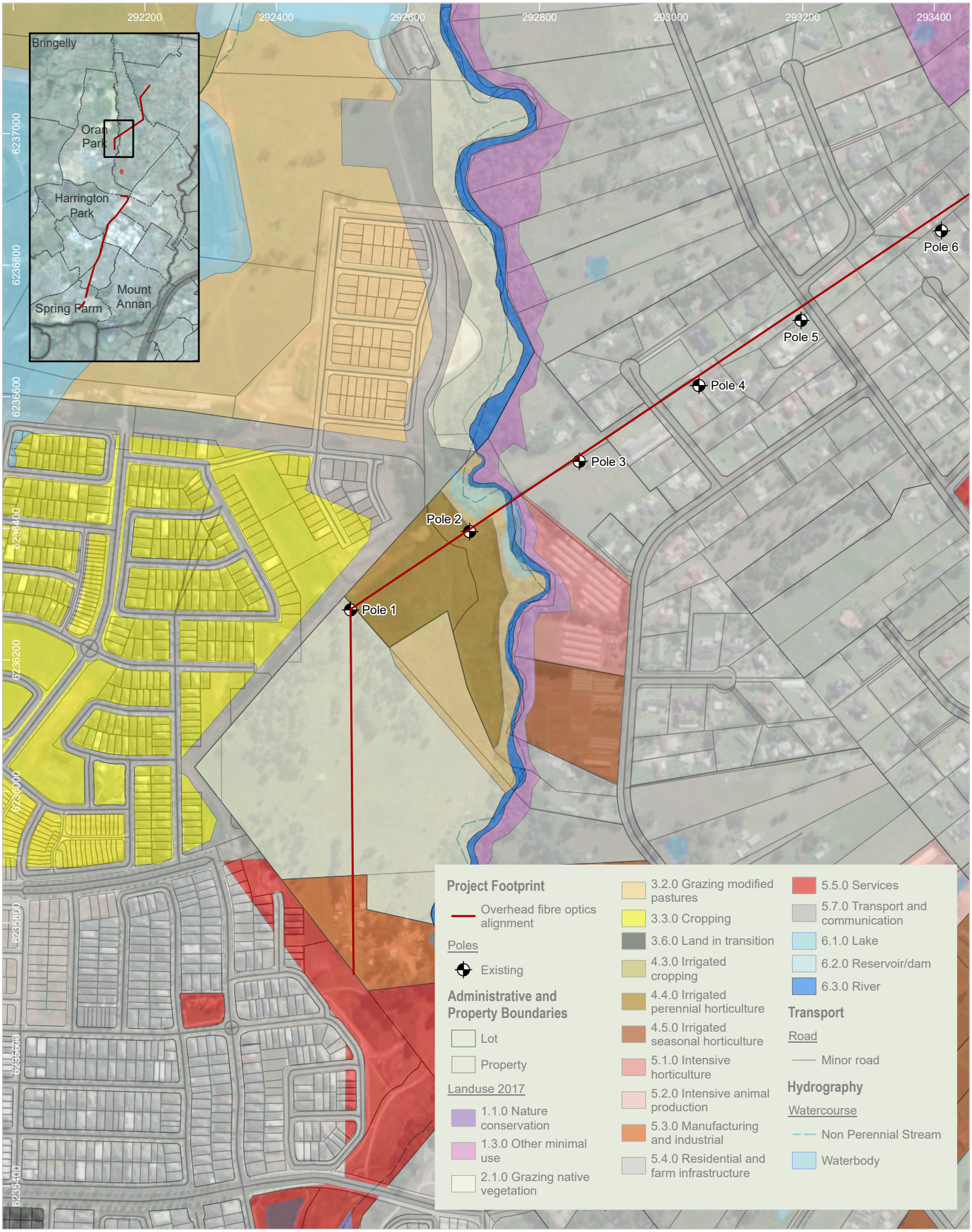

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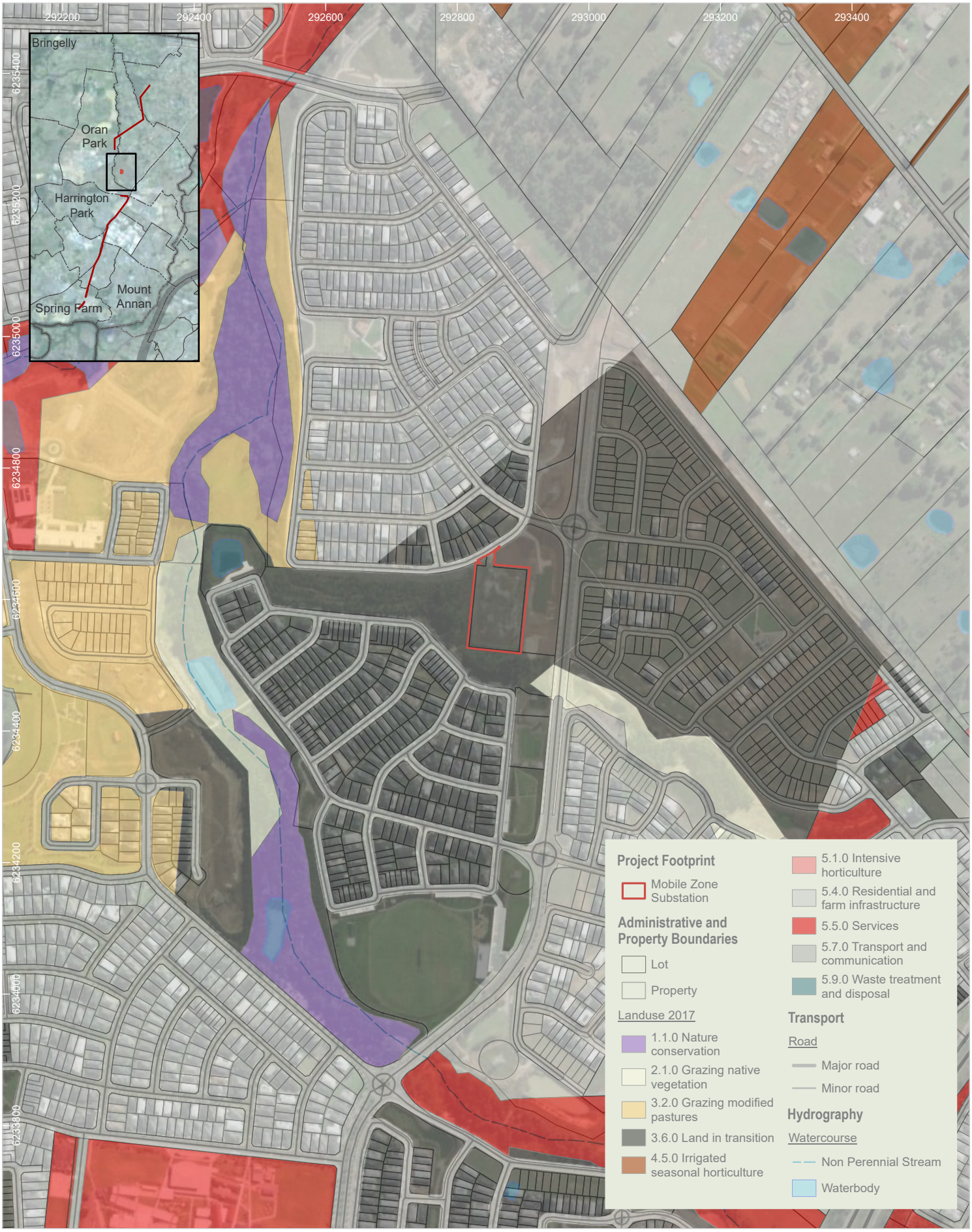
GDA2020 MGA Zone 56

Landuse
Catherine Park Mobile Zone Substation - REF

Niche PM: Justin Merdith
Niche Proj. #: 8372
Client: Endeavour Energy

Figure 3c



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GDA2020 MGA Zone 56

Landuse

Catherine Park Mobile Zone Substation - REF

Niche PM: Justin Merdith
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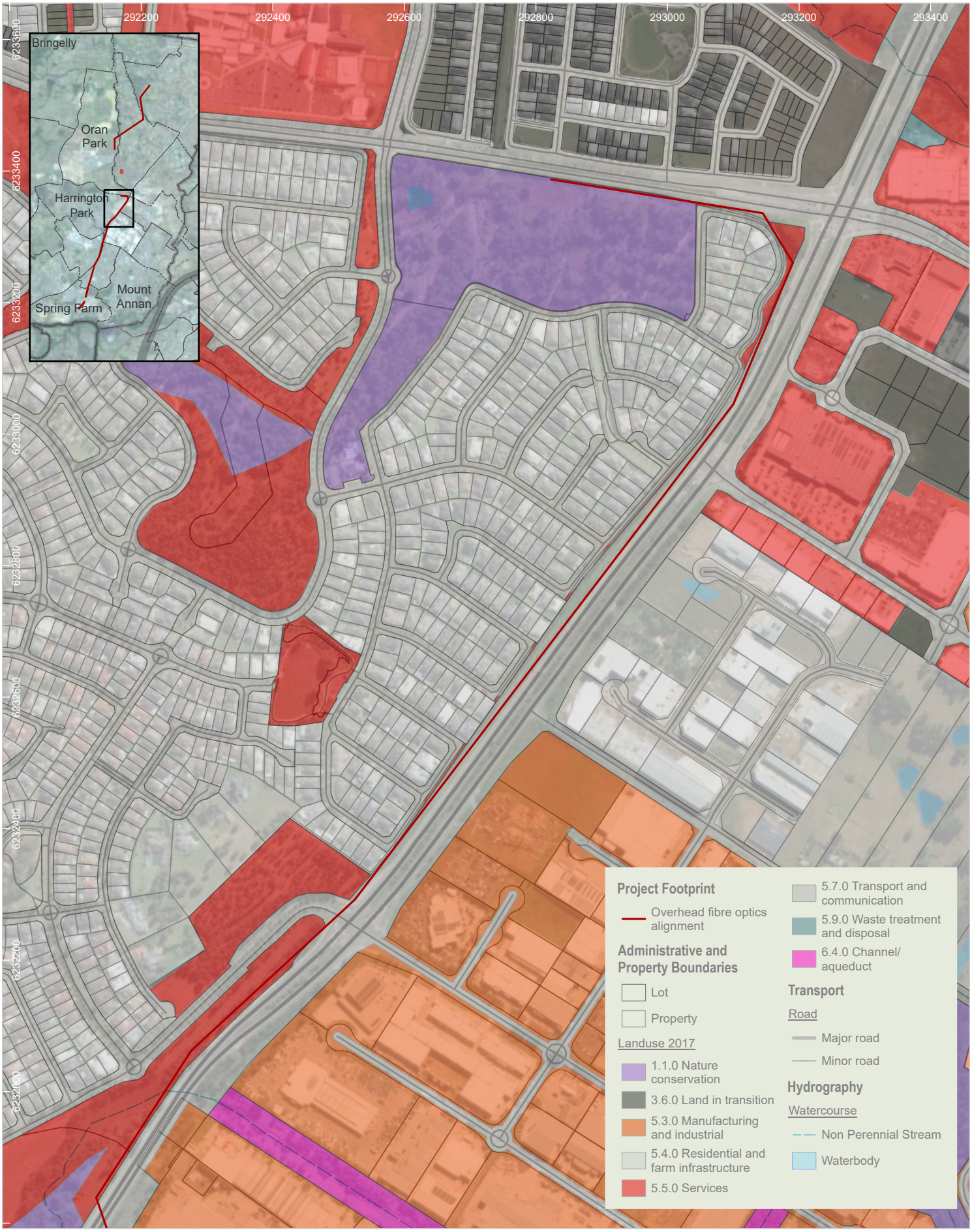
Figure 3d



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GDA2020 MGA Zone 56

Landuse

Catherine Park Mobile Zone Substation - REF

Niche PM: Justin Merdith
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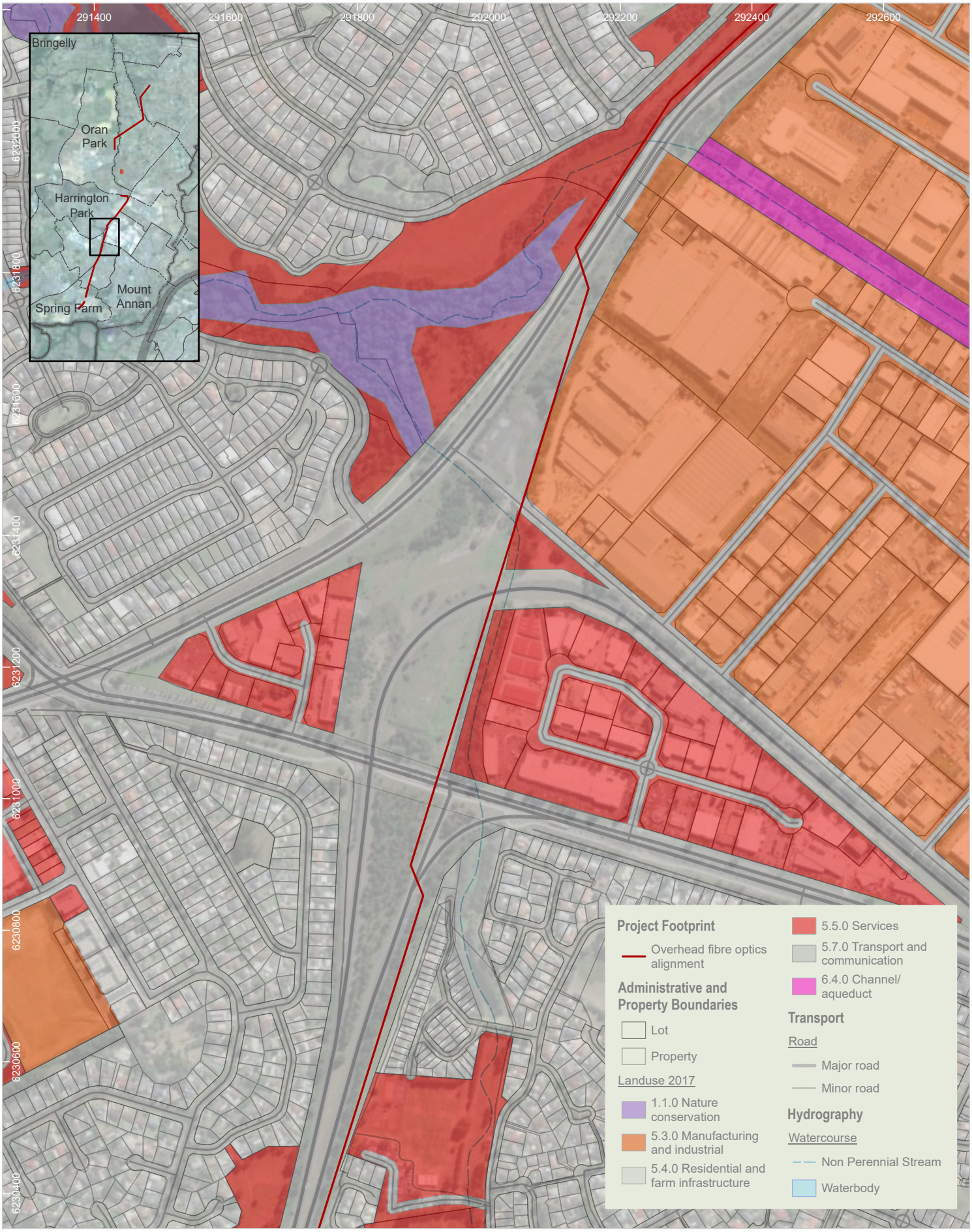
Figure 3e

Hillshade: Esri, Geoscience Australia, NASA, NGA, USGS/Hillshade: Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community/World Imagery: Maxar/public/NSW_Imagery: © Department of Customer Service 2020 | Watercourses, Waterbodies, Road and Rail alignments, Protected areas of NSW © Spatial Services 2021. | Niche uses GDA2020 as standard for all project-related data. In order to ensure that data from numerous sources and coordinate systems is aligned, on-the-fly transformation to GDA2020 MGA Zone 56 is used in the map above. For ease of reference, the grid tick marks and labels shown around the border of the map are presented in GDA2020 MGA Zone 56



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Niche Proj. #: 8372
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Landuse
Catherine Park Mobile Zone Substation - REF

Figure 3f

Hillshade: Esri, Geoscience Australia, NASA, NGA, USGS/Hillshade: Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community/World Imagery: Maxar/public/NSW_Imagery: © Department of Customer Service 2020 | Watercourses, Waterbodies, Road and Rail alignments, Protected areas of NSW © Spatial Services 2021. | Niche uses GDA2020 as standard for all project-related data. In order to ensure that data from numerous sources and coordinate systems is aligned, on-the-fly transformation to GDA2020 MGA Zone 56 is used in the map above. For ease of reference, the grid tick marks and labels shown around the border of the map are presented in GDA2020 MGA Zone 56

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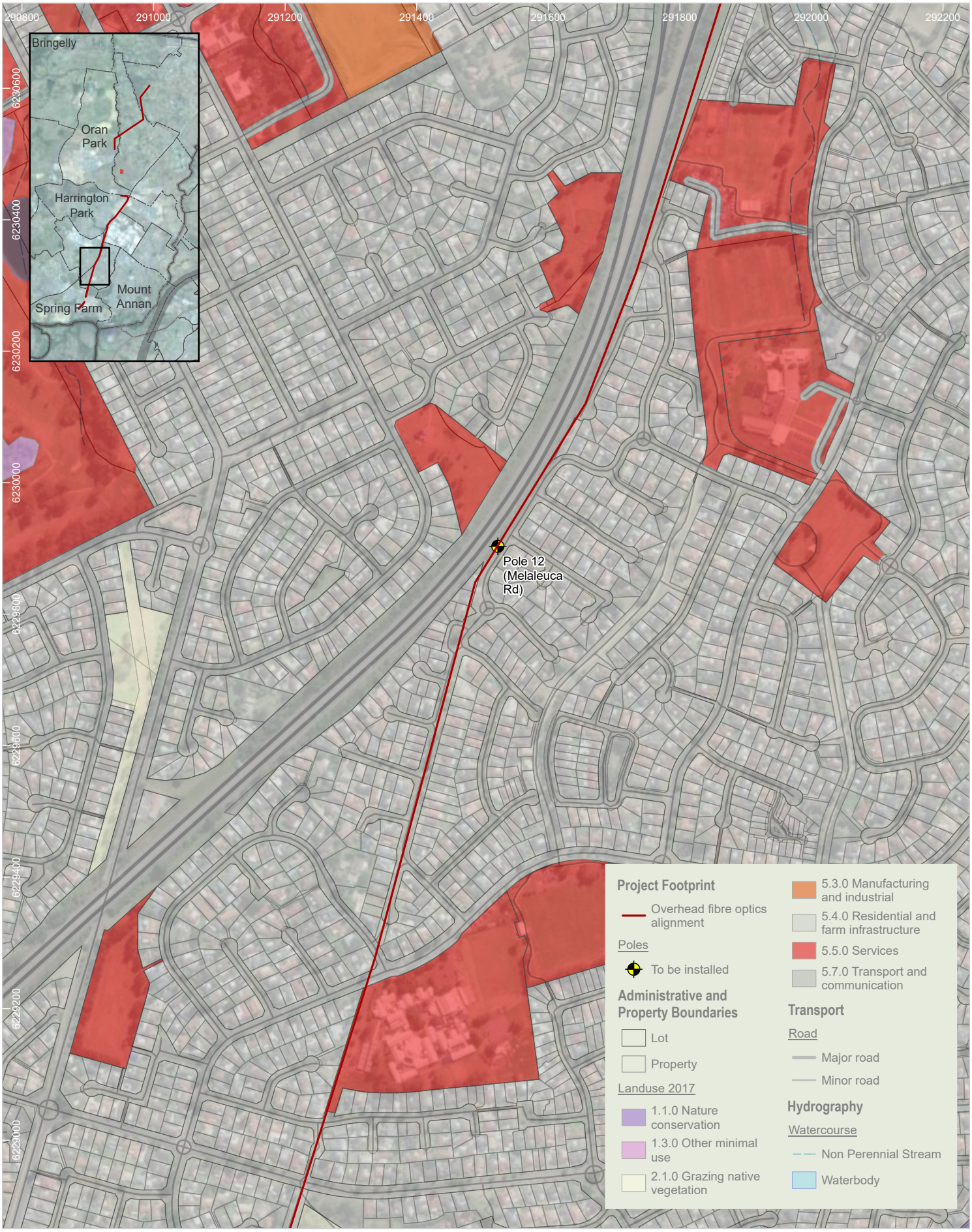

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GDA2020 MGA Zone 56

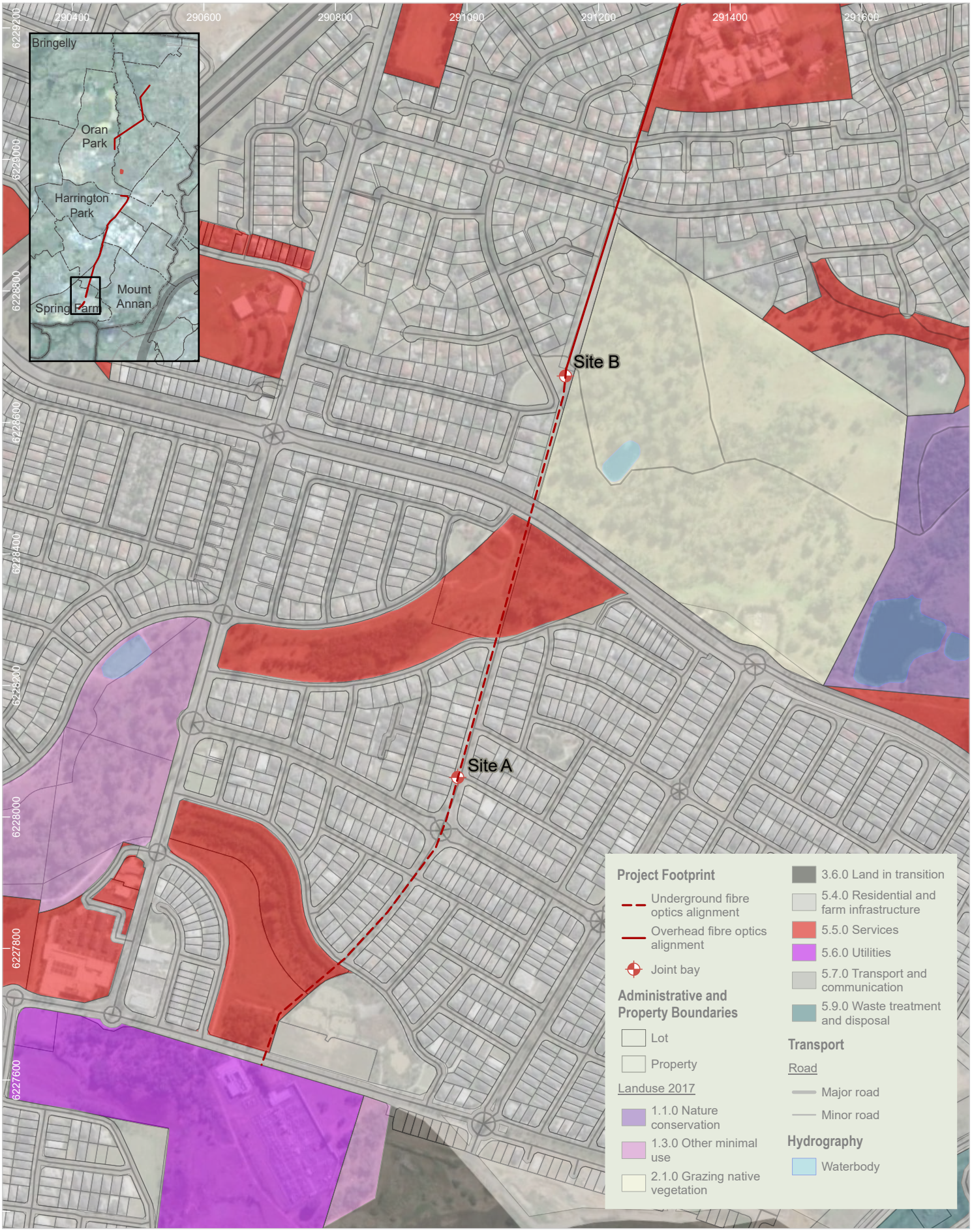
Niche PM: Justin Merdith
Niche Proj. #: 8372
Client: Endeavour Energy

Landuse

Catherine Park Mobile Zone Substation - REF

Figure 3g

Hillshade: Esri, Geoscience Australia, NASA, NGA, USGS/Hillshade: Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community/World Imagery: Maxar/public/NSW_Imagery: © Department of Customer Service 2020 | Watercourses, Waterbodies, Road and Rail alignments, Protected areas of NSW © Spatial Services 2021. | Niche uses GDA2020 as standard for all project-related data. In order to ensure that data from numerous sources and coordinate systems is aligned, on-the-fly transformation to GDA2020 MGA Zone 56 is used in the map above. For ease of reference, the grid tick marks and labels shown around the border of the map are presented in GDA2020 MGA Zone 56



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GDA2020 MGA Zone 56

Landuse

Catherine Park Mobile Zone Substation - REF

Niche PM: Justin Merdith
Niche Proj. #: 8372
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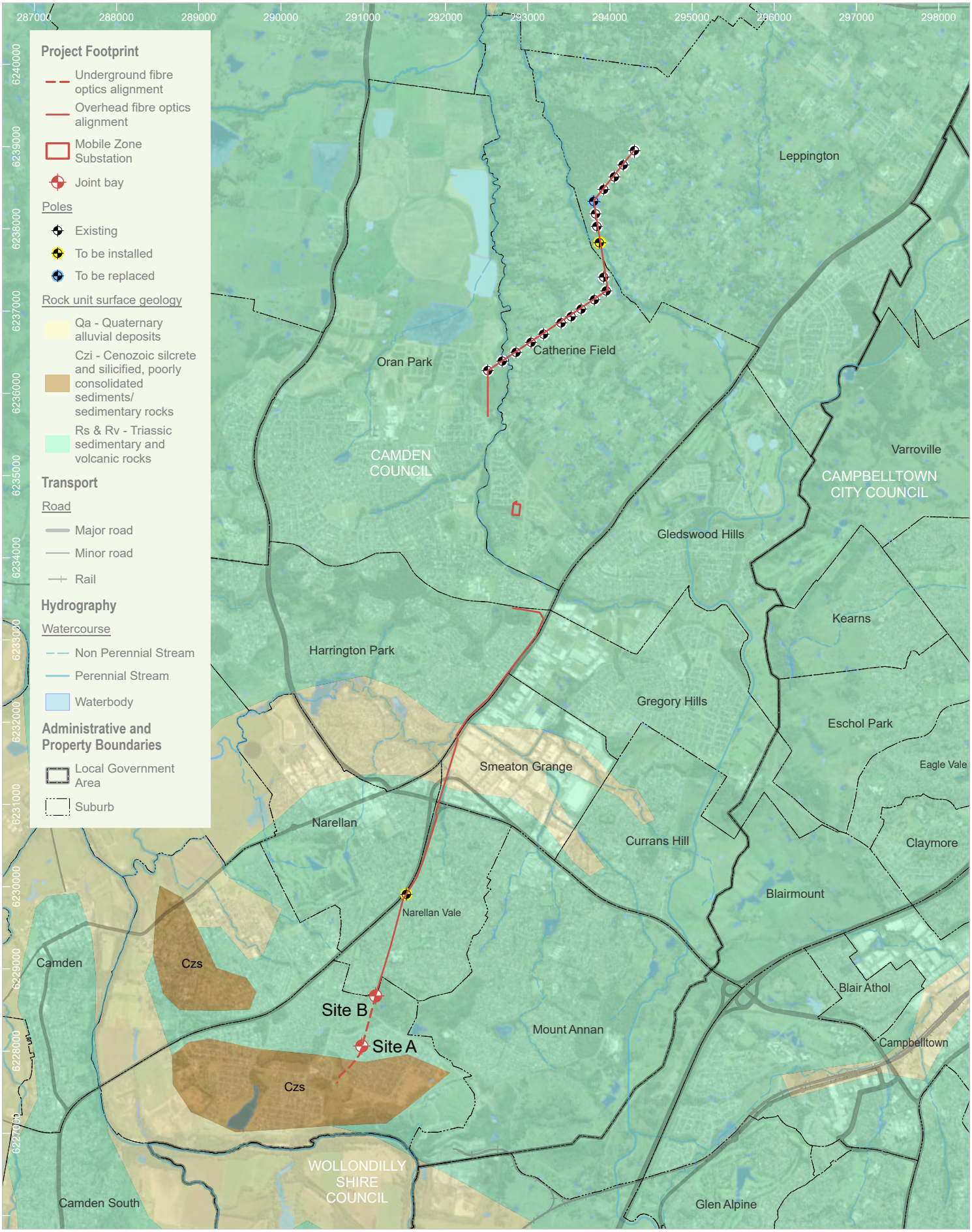
Figure 3h

Hillshade: Esri, Geoscience Australia, NASA, NGA, USGS/Hillshade: Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community/World Imagery: Maxar/public/NSW_Imagery: © Department of Customer Service 2020 | Watercourses, Waterbodies, Road and Rail alignments, Protected areas of NSW © Spatial Services 2021. | Niche uses GDA2020 as standard for all project-related data. In order to ensure that data from numerous sources and coordinate systems is aligned, on-the-fly transformation to GDA2020 MGA Zone 56 is used in the map above. For ease of reference, the grid tick marks and labels shown around the border of the map are presented in GDA2020 MGA Zone 56

Figure 4. Geology



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GDA2020 MGA Zone 56

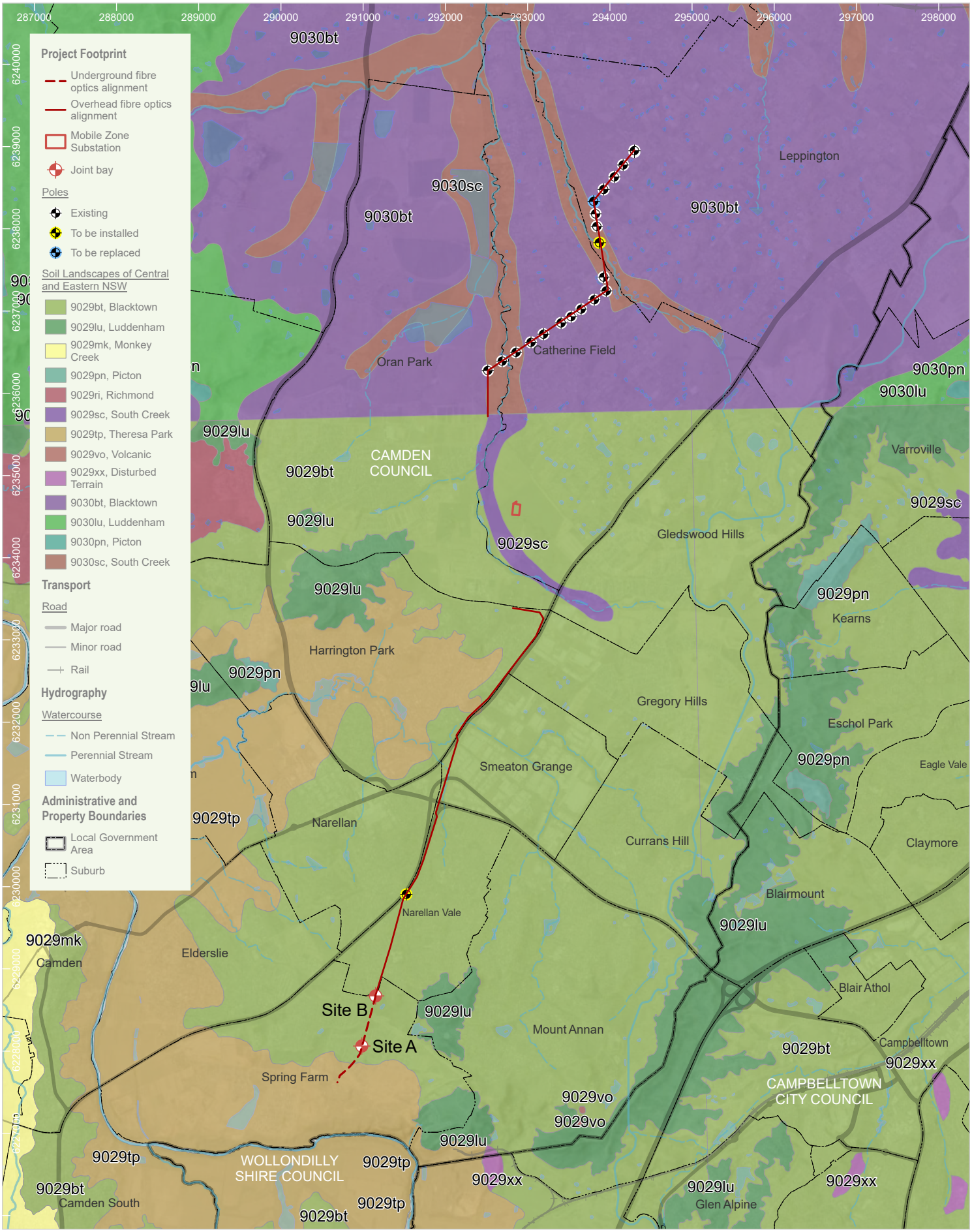
Surface Geology

Catherine Park Mobile Zone Substation - REF

Niche PM: Justin Merdith
Niche Proj. #: 8372
Client: Endeavour Energy

Figure 4

Figure 5. Soil landscapes



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GDA2020 MGA Zone 56

Soil Landscapes
Catherine Park Mobile Zone Substation - REF

Niche PM: Justin Merdith
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Figure 5

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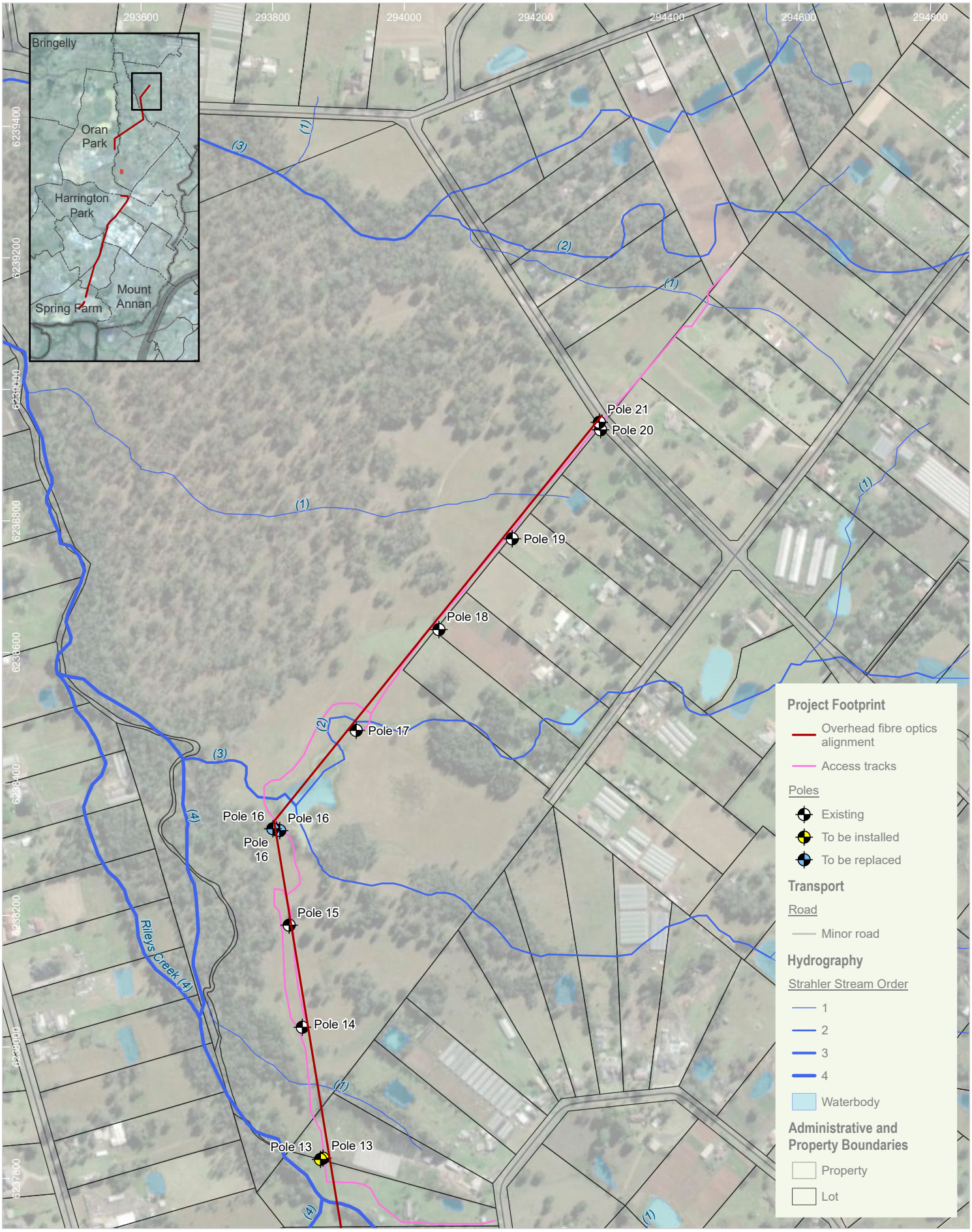
Figure 6. Hydrology



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GDA2020 MGA Zone 56

Hydrology
Catherine Park Mobile Zone Substation - REF

Niche PM: Justin Merdith
Niche Proj. #: 8372
Client: Endeavour Energy

Figure 6a

Hillshade: Esri, Geoscience Australia, NASA, NGA, USGS/Hillshade: Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community/World Imagery: Maxar/public/NSW_Imagery: © Department of Customer Service 2020 | Watercourses, Waterbodies, Road and Rail alignments, Protected areas of NSW © Spatial Services 2021. | Niche uses GDA2020 as standard for all project-related data. In order to ensure that data from numerous sources and coordinate systems is aligned, on-the-fly transformation to GDA2020 MGA Zone 56 is used in the map above. For ease of reference, the grid tick marks and labels shown around the border of the map are presented in GDA2020 MGA Zone 56

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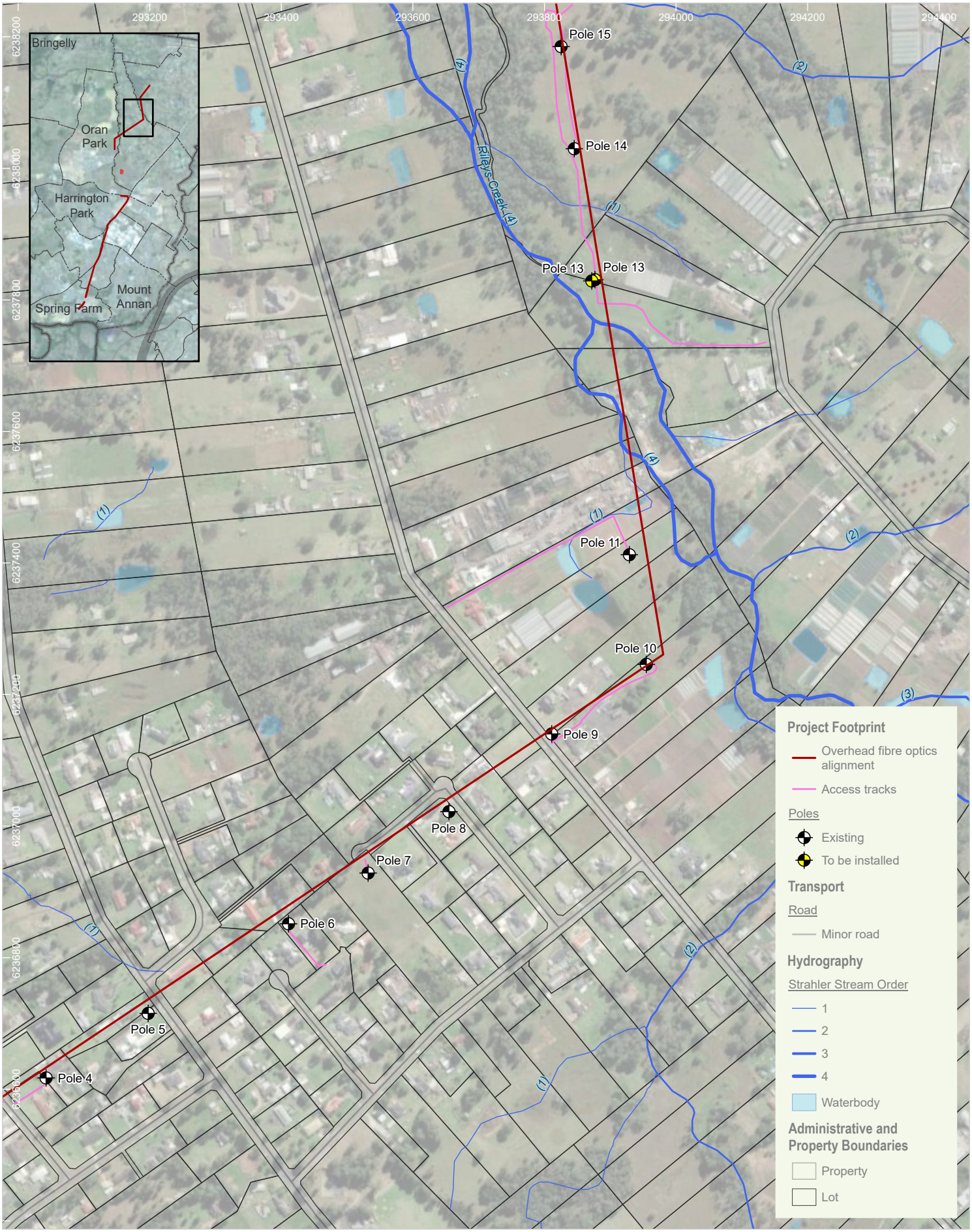

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m
GDA2020 MGA Zone 56

Hydrology
Catherine Park Mobile Zone Substation - REF

Niche PM: Justin Merdith
Niche Proj. #: 8372
Client: Endeavour Energy

Figure 6b

Hillshade: Esri, Geoscience Australia, NASA, NGA, USGS/Hillshade: Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community/World Imagery: Maxar/public/NSW_Imagery: © Department of Customer Service 2020 | Watercourses, Waterbodies, Road and Rail alignments, Protected areas of NSW © Spatial Services 2021. | Niche uses GDA2020 as standard for all project-related data. In order to ensure that data from numerous sources and coordinate systems is aligned, on-the-fly transformation to GDA2020 MGA Zone 56 is used in the map above. For ease of reference, the grid tick marks and labels shown around the border of the map are presented in GDA2020 MGA Zone 56

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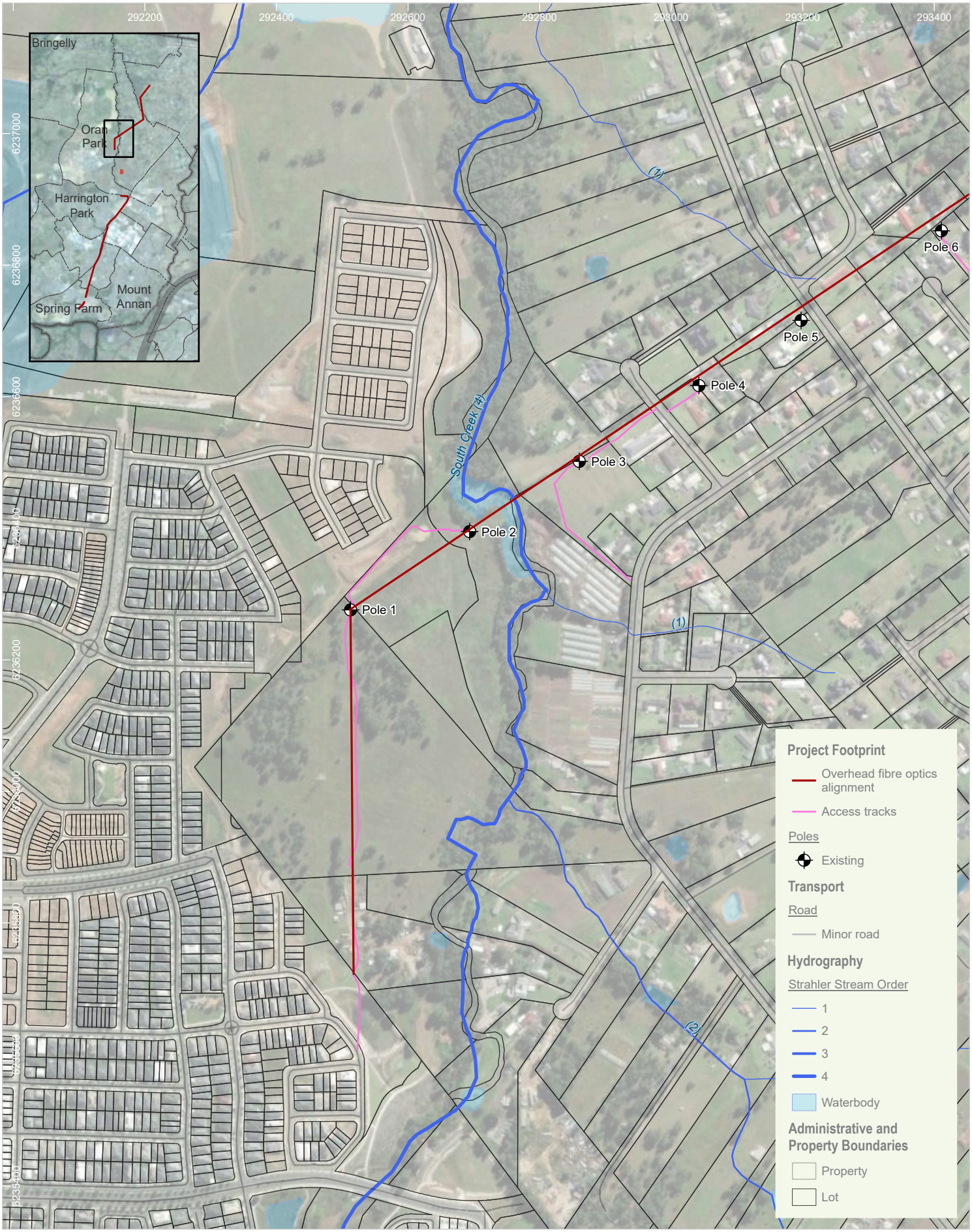

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GDA2020 MGA Zone 56

Hydrology

Catherine Park Mobile Zone Substation - REF

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Niche Proj. #: 8372
Client: Endeavour Energy

Figure 6c

Hillshade: Esri, Geoscience Australia, NASA, NGA, USGS/Hillshade: Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community/World Imagery: Maxar/public/NSW_Imagery: © Department of Customer Service 2020 | Watercourses, Waterbodies, Road and Rail alignments, Protected areas of NSW © Spatial Services 2021. | Niche uses GDA2020 as standard for all project-related data. In order to ensure that data from numerous sources and coordinate systems is aligned, on-the-fly transformation to GDA2020 MGA Zone 56 is used in the map above. For ease of reference, the grid tick marks and labels shown around the border of the map are presented in GDA2020 MGA Zone 56

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GDA2020 MGA Zone 56

Hydrology
Catherine Park Mobile Zone Substation - REF

Niche PM: Justin Merdith
Niche Proj. #: 8372
Client: Endeavour Energy

Figure 6d

Hillshade: Esri, Geoscience Australia, NASA, NGA, USGS/Hillshade: Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community/World Imagery: Maxar/public/NSW_Imagery: © Department of Customer Service 2020 | Watercourses, Waterbodies, Road and Rail alignments, Protected areas of NSW © Spatial Services 2021. | Niche uses GDA2020 as standard for all project-related data. In order to ensure that data from numerous sources and coordinate systems is aligned, on-the-fly transformation to GDA2020 MGA Zone 56 is used in the map above. For ease of reference, the grid tick marks and labels shown around the border of the map are presented in GDA2020 MGA Zone 56

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GDA2020 MGA Zone 56

Hydrology

Catherine Park Mobile Zone Substation - REF

Niche PM: Justin Merdith
Niche Proj. #: 8372
Client: Endeavour Energy

Figure 6e

Hillshade: Esri, Geoscience Australia, NASA, NGA, USGS/Hillshade: Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community/World Imagery: Maxar/public/NSW_Imagery: © Department of Customer Service 2020 | Watercourses, Waterbodies, Road and Rail alignments, Protected areas of NSW © Spatial Services 2021. | Niche uses GDA2020 as standard for all project-related data. In order to ensure that data from numerous sources and coordinate systems is aligned, on-the-fly transformation to GDA2020 MGA Zone 56 is used in the map above. For ease of reference, the grid tick marks and labels shown around the border of the map are presented in GDA2020 MGA Zone 56

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GDA2020 MGA Zone 56

Hydrology
Catherine Park Mobile Zone Substation - REF

Niche PM: Justin Merdith
Niche Proj. #: 8372
Client: Endeavour Energy

Figure 6f

Hillshade: Esri, Geoscience Australia, NASA, NGA, USGS/Hillshade: Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community/World Imagery: Maxar/public/NSW_Imagery: © Department of Customer Service 2020 | Watercourses, Waterbodies, Road and Rail alignments, Protected areas of NSW © Spatial Services 2021. | Niche uses GDA2020 as standard for all project-related data. In order to ensure that data from numerous sources and coordinate systems is aligned, on-the-fly transformation to GDA2020 MGA Zone 56 is used in the map above. For ease of reference, the grid tick marks and labels shown around the border of the map are presented in GDA2020 MGA Zone 56

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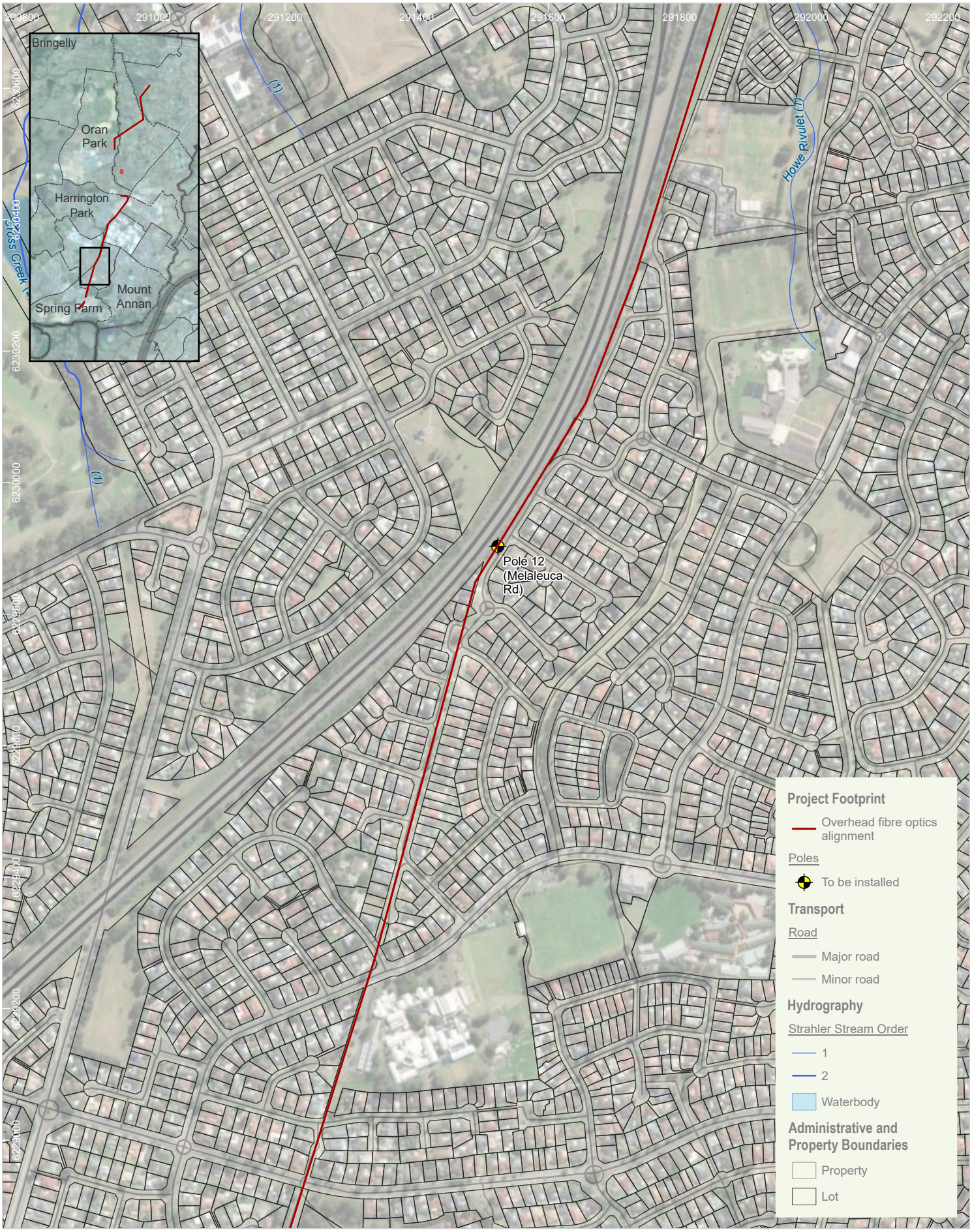

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GDA2020 MGA Zone 56

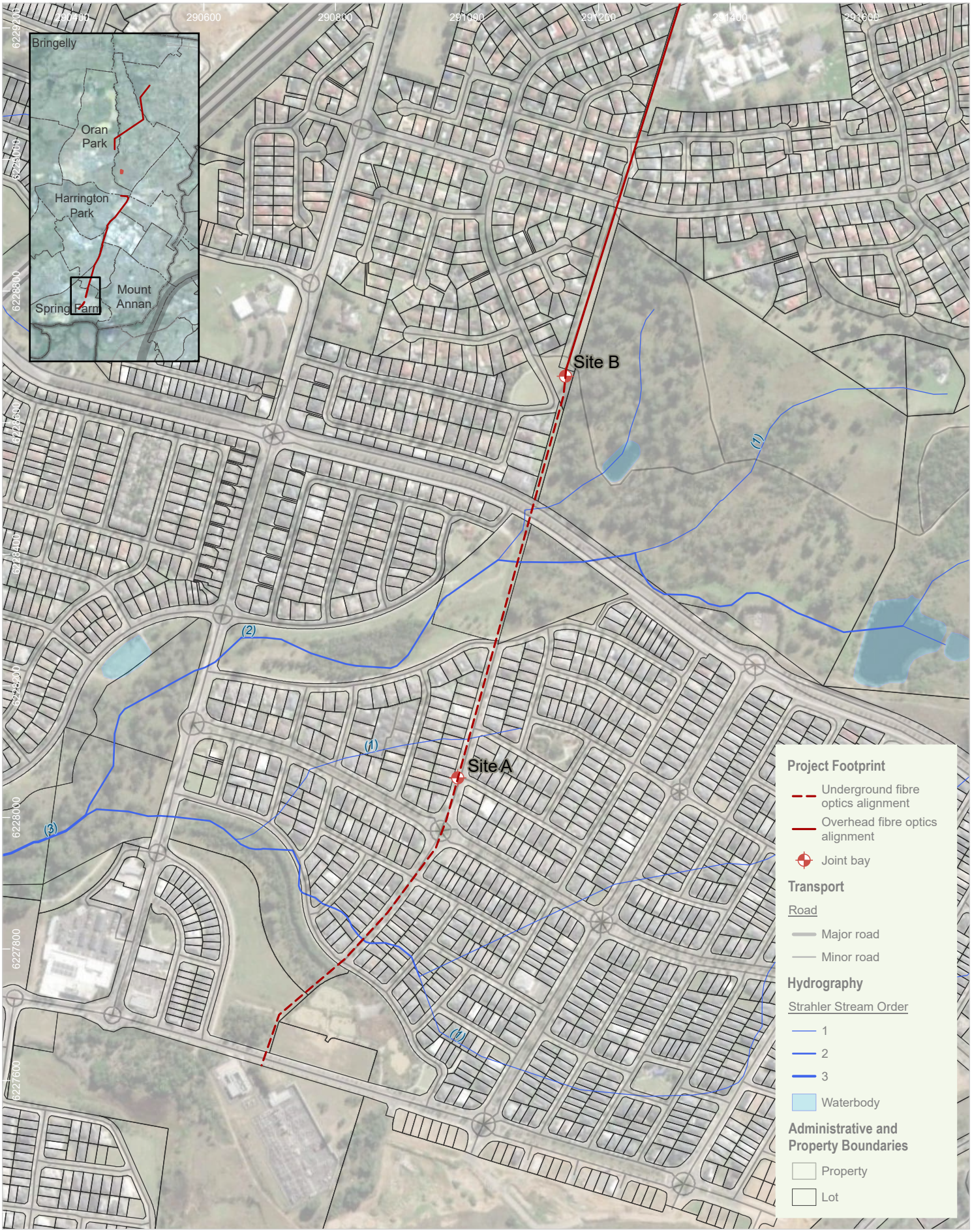
Hydrology

Catherine Park Mobile Zone Substation - REF

Niche PM: Justin Merdith
Niche Proj. #: 8372
Client: Endeavour Energy

Figure 6g

Hillshade: Esri, Geoscience Australia, NASA, NGA, USGS/Hillshade: Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community/World Imagery: Maxar/public/NSW_Imagery: © Department of Customer Service 2020 | Watercourses, Waterbodies, Road and Rail alignments, Protected areas of NSW © Spatial Services 2021. | Niche uses GDA2020 as standard for all project-related data. In order to ensure that data from numerous sources and coordinate systems is aligned, on-the-fly transformation to GDA2020 MGA Zone 56 is used in the map above. For ease of reference, the grid tick marks and labels shown around the border of the map are presented in GDA2020 MGA Zone 56



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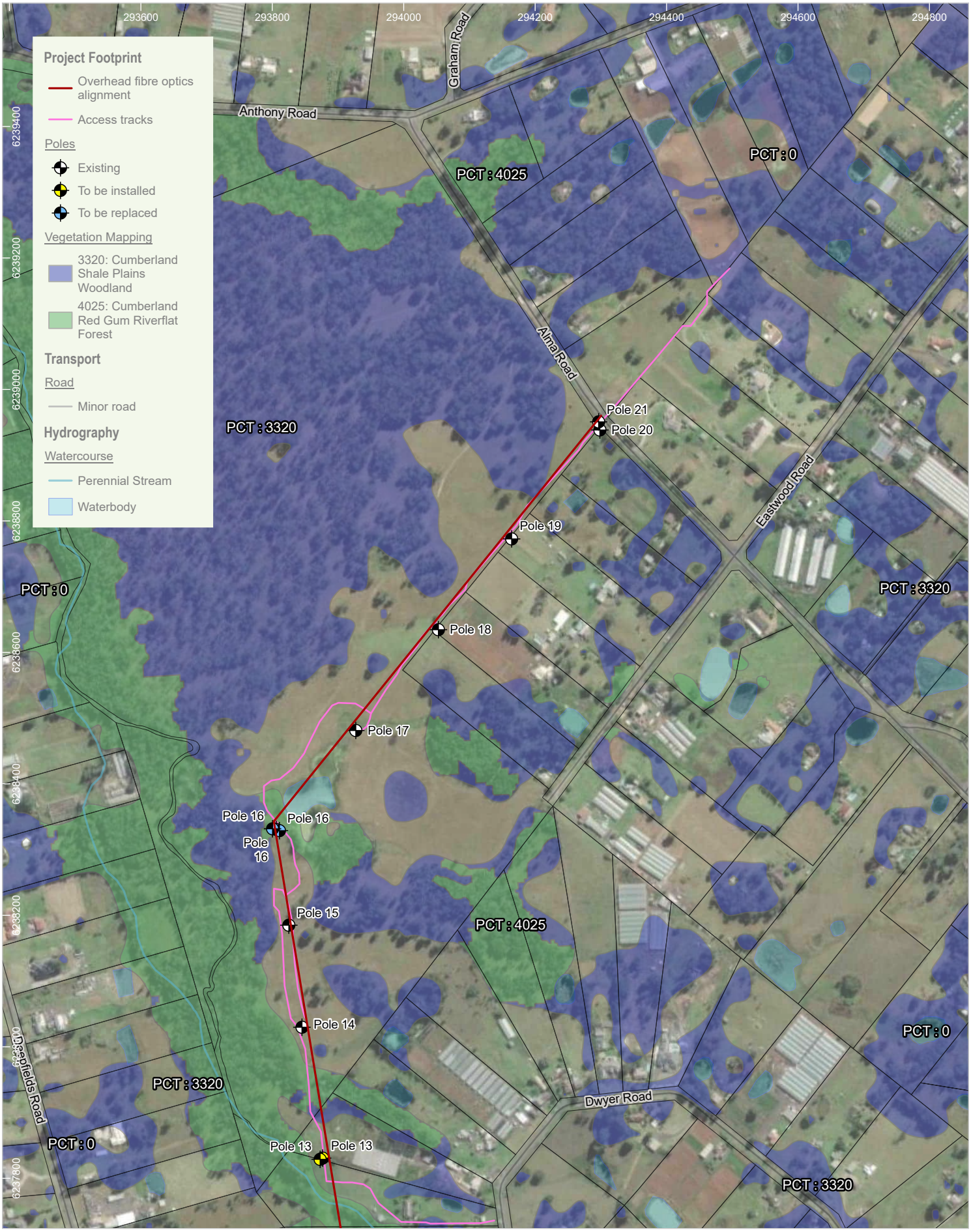
m
GDA2020 MGA Zone 56

Hydrology
Catherine Park Mobile Zone Substation - REF

Niche PM: Justin Merdith
Niche Proj. #: 8372
Client: Endeavour Energy

Figure 6h

Figure 7. Vegetation



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m
GDA2020 MGA Zone 56

Vegetation
Catherine Park Mobile Zone Substation - REF

Niche PM: Justin Merdith
Niche Proj. #: 8372
Client: Endeavour Energy

Figure 7a

Hillshade: Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community/World Imagery: Maxar | Watercourses, Waterbodies, Road and Rail alignments, Protected areas of NSW © Spatial Services 2021. | Niche uses GDA2020 as standard for all project-related data. In order to ensure that data from numerous sources and coordinate systems is aligned, on-the-fly transformation to GDA2020 MGA Zone 56 is used in the map above. For ease of reference, the grid tick marks and labels shown around the border of the map are presented in GDA2020 MGA Zone 56

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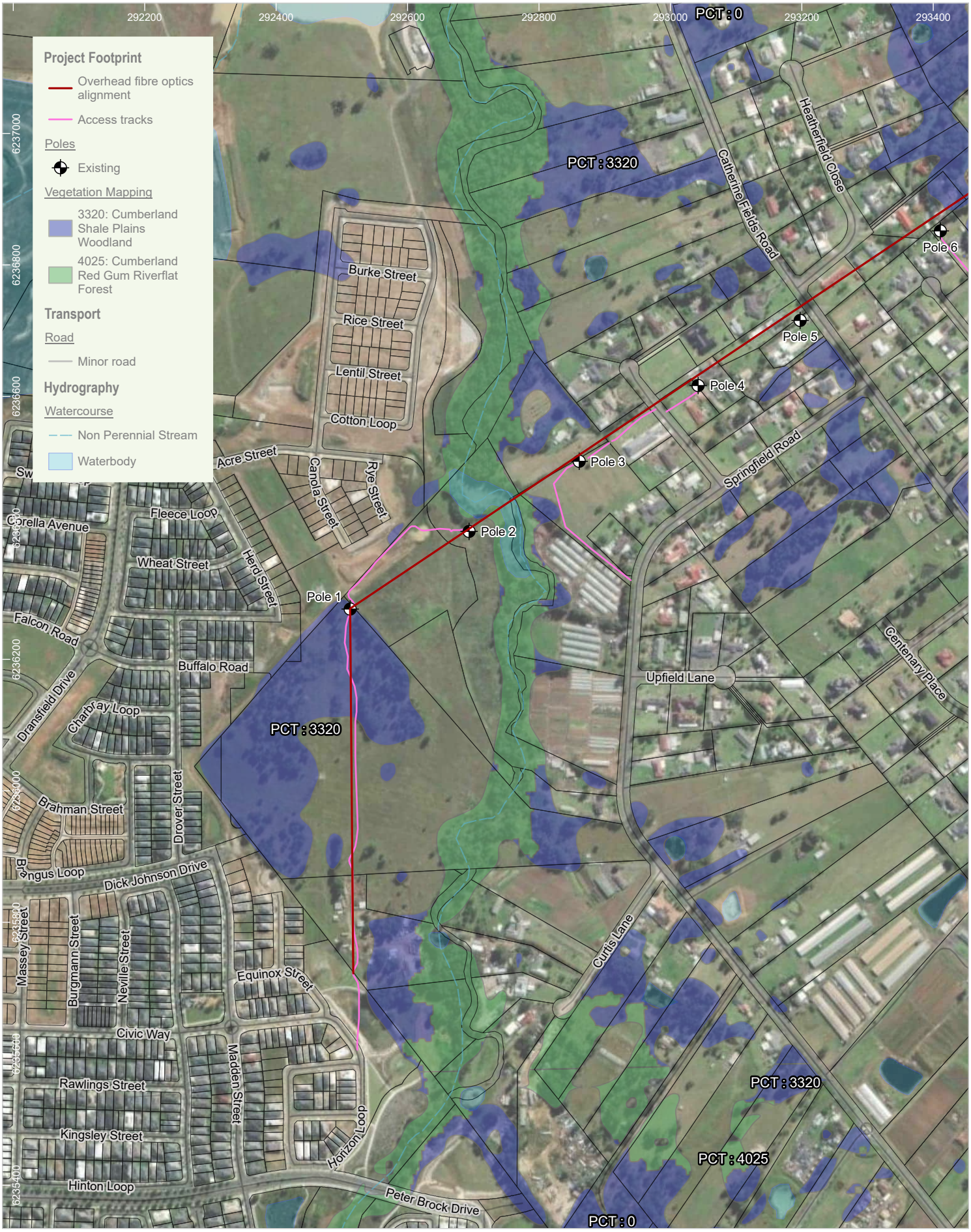
0 150
m
GDA2020 MGA Zone 56

Vegetation
Catherine Park Mobile Zone Substation - REF

Niche PM: Justin Merdith
Niche Proj. #: 8372
Client: Endeavour Energy

Figure 7b

Hillshade: Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community/World Imagery: Maxar | Watercourses, Waterbodies, Road and Rail alignments, Protected areas of NSW © Spatial Services 2021. | Niche uses GDA2020 as standard for all project-related data. In order to ensure that data from numerous sources and coordinate systems is aligned, on-the-fly transformation to GDA2020 MGA Zone 56 is used in the map above. For ease of reference, the grid tick marks and labels shown around the border of the map are presented in GDA2020 MGA Zone 56



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0 150
m
GDA2020 MGA Zone 56

Vegetation
Catherine Park Mobile Zone Substation - REF

Niche PM: Justin Merdith
Niche Proj. #: 8372
Client: Endeavour Energy

Figure 7c

Hillshade: Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community/World Imagery: Maxar | Watercourses, Waterbodies, Road and Rail alignments, Protected areas of NSW © Spatial Services 2021. | Niche uses GDA2020 as standard for all project-related data. In order to ensure that data from numerous sources and coordinate systems is aligned, on-the-fly transformation to GDA2020 MGA Zone 56 is used in the map above. For ease of reference, the grid tick marks and labels shown around the border of the map are presented in GDA2020 MGA Zone 56

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0 150
m
GDA2020 MGA Zone 56

Vegetation
Catherine Park Mobile Zone Substation - REF

Niche PM: Justin Merdith
Niche Proj. #: 8372
Client: Endeavour Energy

Figure 7d

Hillshade: Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community/World Imagery: Maxar | Watercourses, Waterbodies, Road and Rail alignments, Protected areas of NSW © Spatial Services 2021. | Niche uses GDA2020 as standard for all project-related data. In order to ensure that data from numerous sources and coordinate systems is aligned, on-the-fly transformation to GDA2020 MGA Zone 56 is used in the map above. For ease of reference, the grid tick marks and labels shown around the border of the map are presented in GDA2020 MGA Zone 56

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GDA2020 MGA Zone 56

Vegetation

Catherine Park Mobile Zone Substation - REF

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Niche Proj. #: 8372
Client: Endeavour Energy

Figure 7e

Hillshade: Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community/World Imagery: Maxar | Watercourses, Waterbodies, Road and Rail alignments, Protected areas of NSW © Spatial Services 2021. | Niche uses GDA2020 as standard for all project-related data. In order to ensure that data from numerous sources and coordinate systems is aligned, on-the-fly transformation to GDA2020 MGA Zone 56 is used in the map above. For ease of reference, the grid tick marks and labels shown around the border of the map are presented in GDA2020 MGA Zone 56

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0 150 m

GDA2020 MGA Zone 56

Vegetation

Catherine Park Mobile Zone Substation - REF

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Niche Proj. #: 8372
Client: Endeavour Energy

Figure 7f

Hillshade: Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community/World Imagery: Maxar | Watercourses, Waterbodies, Road and Rail alignments, Protected areas of NSW © Spatial Services 2021. | Niche uses GDA2020 as standard for all project-related data. In order to ensure that data from numerous sources and coordinate systems is aligned, on-the-fly transformation to GDA2020 MGA Zone 56 is used in the map above. For ease of reference, the grid tick marks and labels shown around the border of the map are presented in GDA2020 MGA Zone 56

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GDA2020 MGA Zone 56

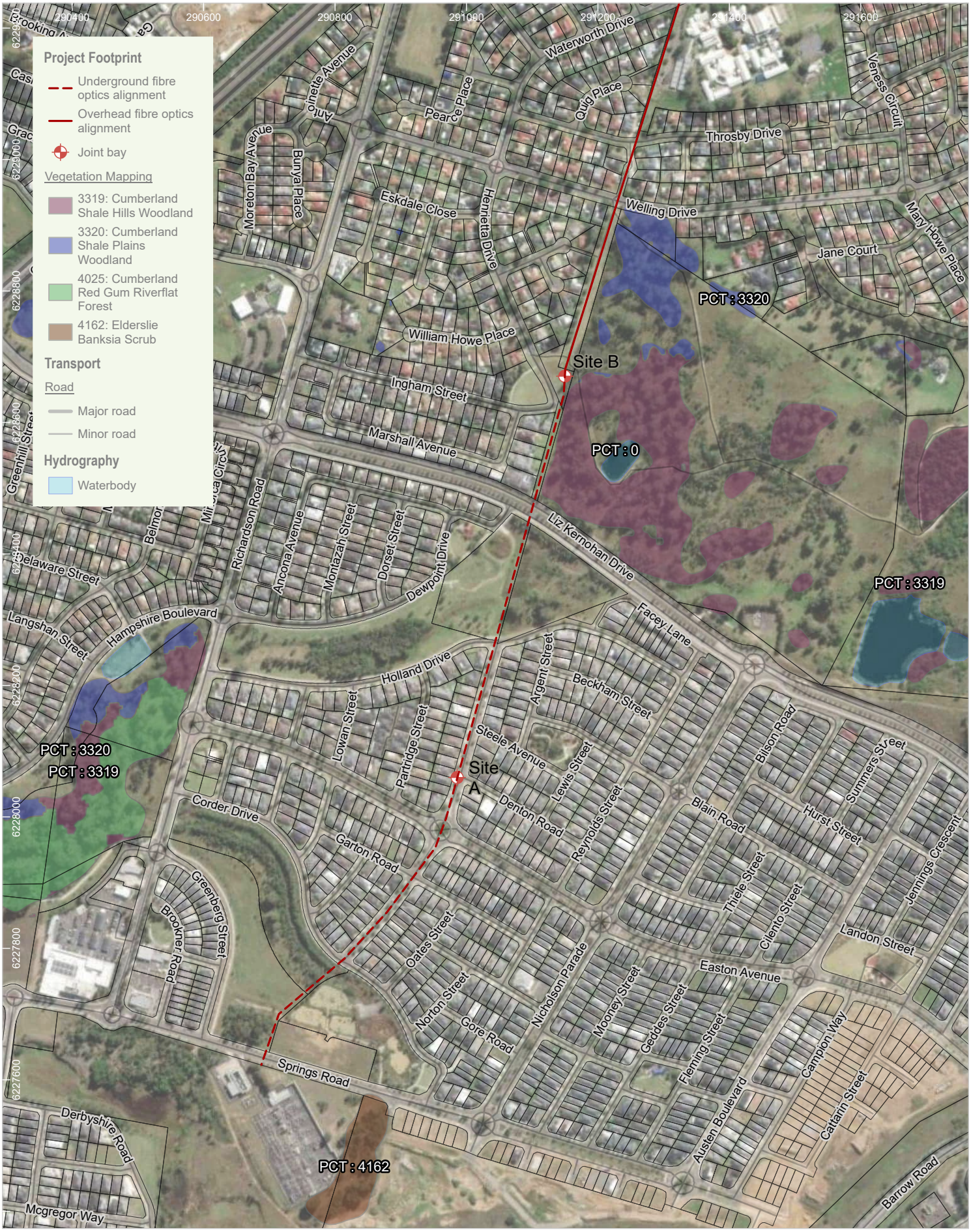
Vegetation

Catherine Park Mobile Zone Substation - REF

Niche PM: Justin Merdith
Niche Proj. #: 8372
Client: Endeavour Energy

Figure 7g

Hillshade: Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community/World Imagery: Maxar | Watercourses, Waterbodies, Road and Rail alignments, Protected areas of NSW © Spatial Services 2021. | Niche uses GDA2020 as standard for all project-related data. In order to ensure that data from numerous sources and coordinate systems is aligned, on-the-fly transformation to GDA2020 MGA Zone 56 is used in the map above. For ease of reference, the grid tick marks and labels shown around the border of the map are presented in GDA2020 MGA Zone 56



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GDA2020 MGA Zone 56

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Client: Endeavour Energy

Vegetation

Catherine Park Mobile Zone Substation - REF

Figure 7h

Hillshade: Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community/World Imagery: Maxar | Watercourses, Waterbodies, Road and Rail alignments, Protected areas of NSW © Spatial Services 2021. | Niche uses GDA2020 as standard for all project-related data. In order to ensure that data from numerous sources and coordinate systems is aligned, on-the-fly transformation to GDA2020 MGA Zone 56 is used in the map above. For ease of reference, the grid tick marks and labels shown around the border of the map are presented in GDA2020 MGA Zone 56

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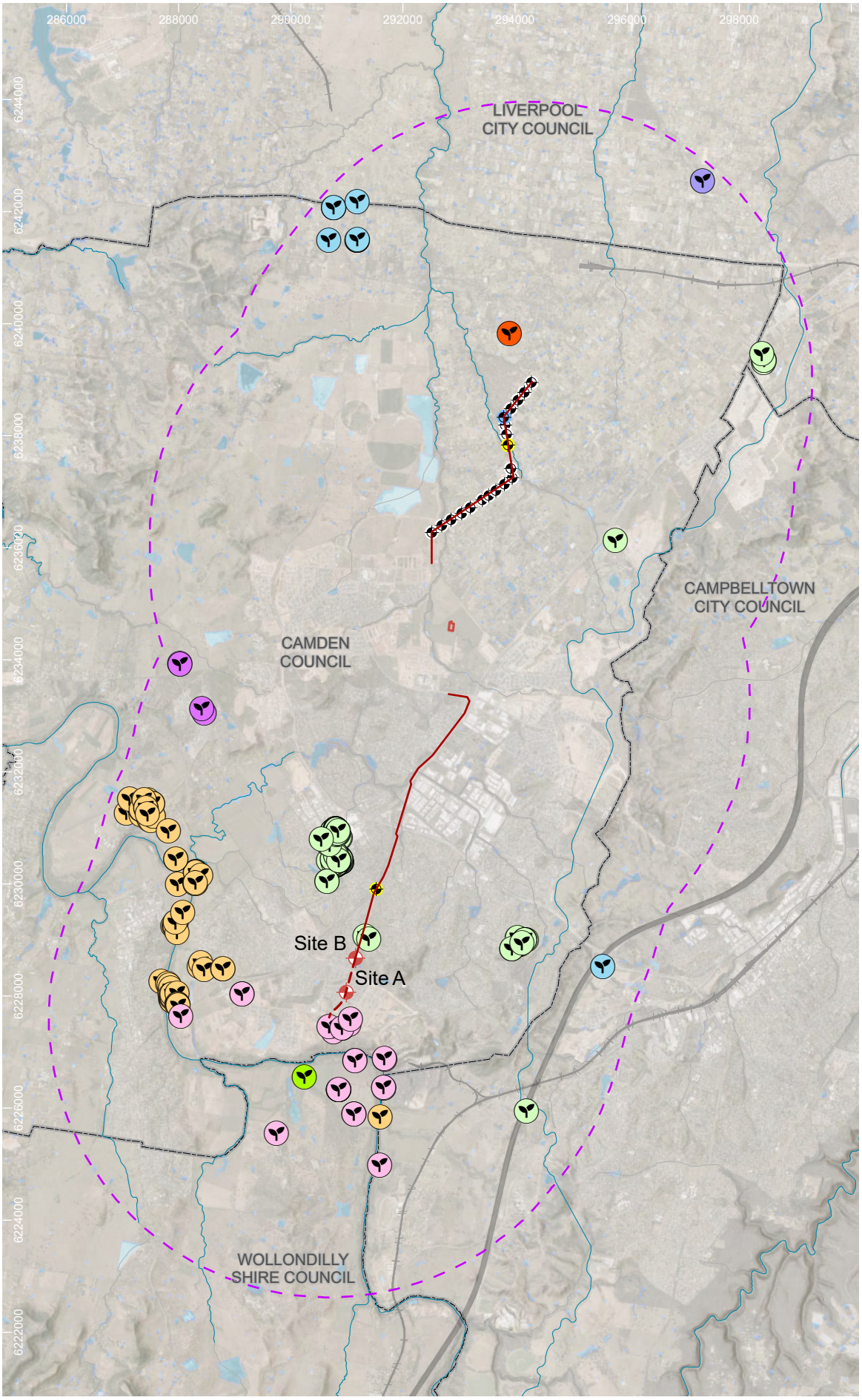
Figure 8. Threatened flora



Project Footprint

- Underground fibre optics alignment
- Overhead fibre optics alignment
- Mobile Zone Substation
- Joint bay

Poles

- Existing
- To be installed
- To be replaced
- 5km Buffer

Threatened Flora

- Acacia pubescens
- Eucalyptus benthamii
- Marsdenia viridiflora subsp. viridiflora
- Pimelea spicata
- Pomaderris brunnea
- Pultenaea pedunculata
- Syzygium paniculatum
- Thesium australe

Transport

Road

- Major road
- Rail

Hydrography

Watercourse

- Non Perennial Stream
- Perennial Stream
- Waterbody

Administrative and Property Boundaries

- Local Government Area

Sensitive Species not displayed

- *Callistemon linearifolius*
- *Prostanthera marifolia*
- *Pterostylis saxicola*

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N

0 2

km

GDA2020 MGA Zone 56

Threatened Flora recorded within 5 km of the study area

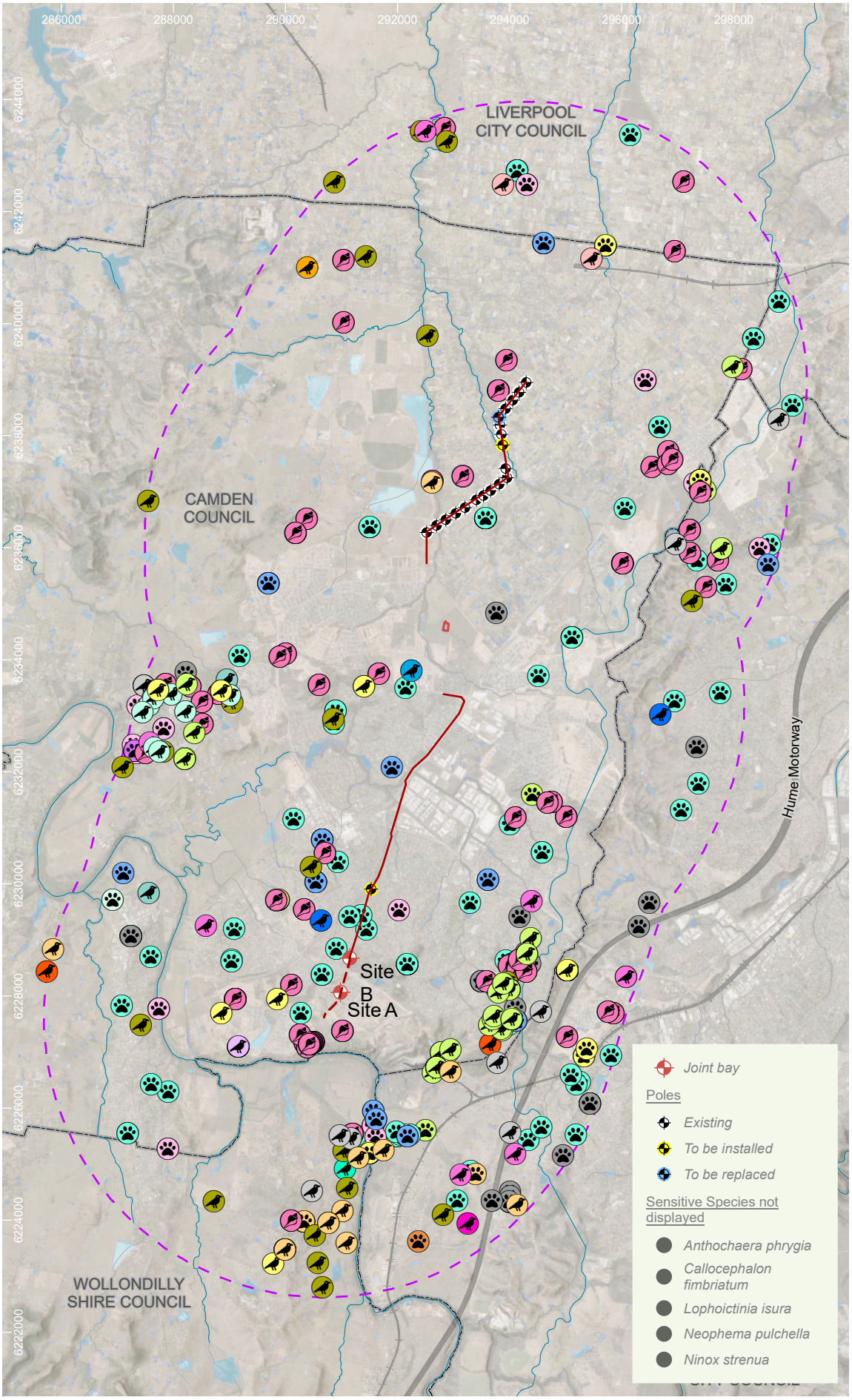
Catherine Park Mobile Zone Substation - REF

*Sensitive species not displayed

Niche PM: Justin Merdith
Niche Proj. #: 8372
Client: Endeavour Energy

Figure 8

Figure 9. Threatened fauna



Project Footprint

- Underground fibre optics alignment
- Overhead fibre optics alignment
- Mobile Zone Substation
- 5km Buffer

Aves

- Australasian Bittern
- Black-necked Stork
- Blue-billed Duck
- Brown Treecreeper (eastern subspecies)
- Diamond Firetail
- Dusky Woodswallow
- Flame Robin
- Freckled Duck
- Little Eagle
- Little Lorikeet
- Red Knot
- Scarlet Robin
- South-eastern Hooded Robin
- Speckled Warbler
- Swift Parrot
- Varied Sittella
- White-bellied Sea-Eagle
- White-throated Needletail

Gastropoda

- Cumberland Plain Land Snail

Mammalia

- Eastern Coastal Free-tailed Bat
- Eastern False Pipistrelle
- Greater Broad-nosed Bat
- Grey-headed Flying-fox
- Koala
- Large Bent-winged Bat
- Large-eared Pied Bat
- Little Bent-winged Bat
- Southern Myotis
- Yellow-bellied Sheathtail-bat

Transport

- Major road
- Rail

Hydrography

- Non Perennial Stream
- Perennial Stream
- Waterbody
- Local Government Area

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0 2
km
GDA2020 MGA Zone 56

Threatened Fauna recorded within 5 km of the study area

Catherine Park Mobile Zone Substation - REF

*Sensitive species not displayed

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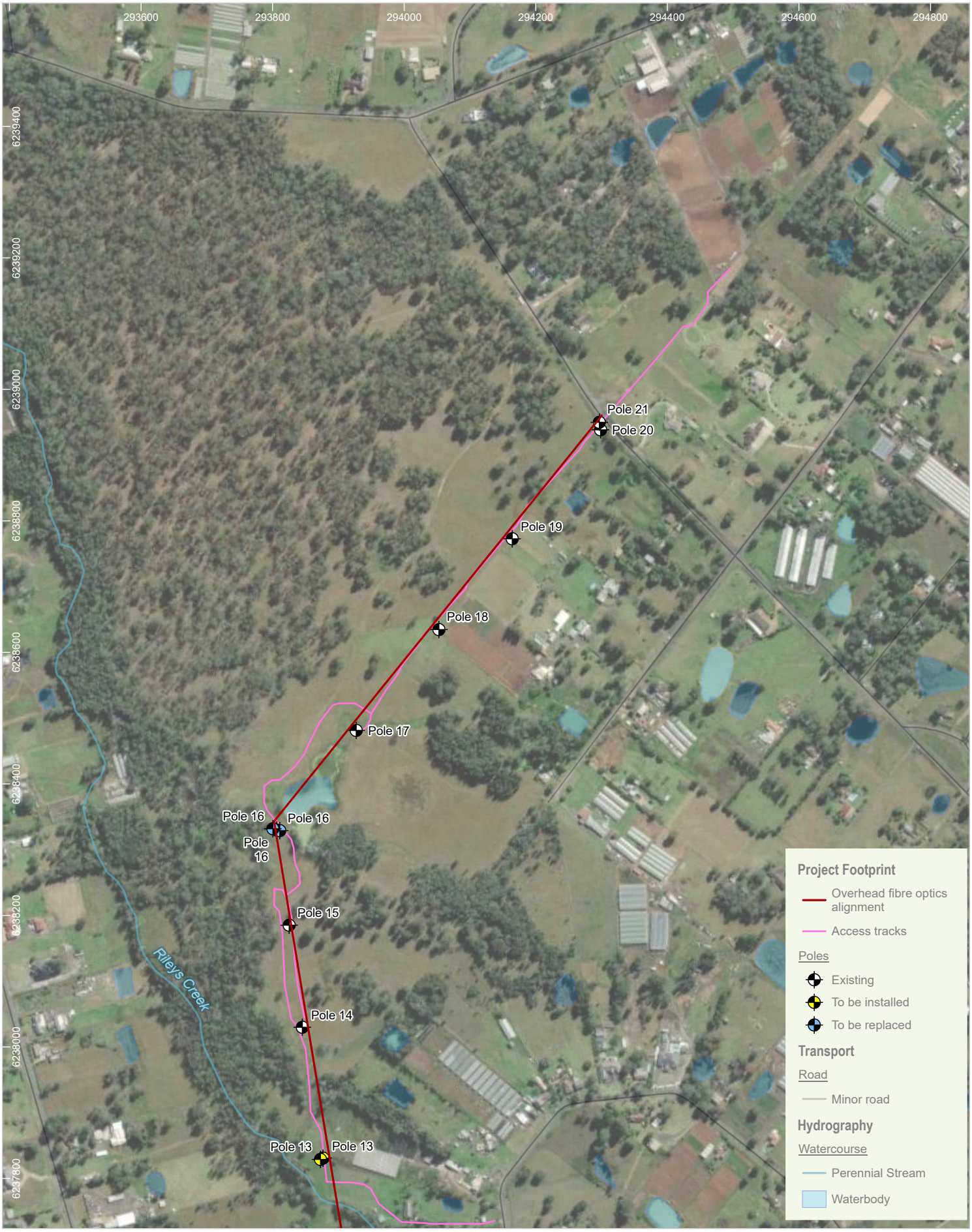
Niche Proj. #: 8372
Client: Endeavour Energy

Figure 9

Figure 10. Cultural Heritage Sites inc. AHIMS



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m
GDA2020 MGA Zone 56

Cultural Heritage Sites (includes historic heritage sites plus AHIMS)

Catherine Park Mobile Zone Substation - REF

Niche PM: Justin Merdith
Niche Proj. #: 8372
Client: Endeavour Energy

Figure 10a

Hillshade: Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community/World Imagery: Maxar | Watercourses, Waterbodies, Road and Rail alignments, Protected areas of NSW © Spatial Services 2021. | Niche uses GDA2020 as standard for all project-related data. In order to ensure that data from numerous sources and coordinate systems is aligned, on-the-fly transformation to GDA2020 MGA Zone 56 is used in the map above. For ease of reference, the grid tick marks and labels shown around the border of the map are presented in GDA2020 MGA Zone 56

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GDA2020 MGA Zone 56

Cultural Heritage Sites (includes historic heritage sites plus AHIMS)

Catherine Park Mobile Zone Substation - REF

Niche PM: Justin Merdith
Niche Proj. #: 8372
Client: Endeavour Energy

Figure 10b

Hillshade: Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community/World Imagery: Maxar | Watercourses, Waterbodies, Road and Rail alignments, Protected areas of NSW © Spatial Services 2021. | Niche uses GDA2020 as standard for all project-related data. In order to ensure that data from numerous sources and coordinate systems is aligned, on-the-fly transformation to GDA2020 MGA Zone 56 is used in the map above. For ease of reference, the grid tick marks and labels shown around the border of the map are presented in GDA2020 MGA Zone 56

This information has been removed to protect sensitive Aboriginal heritage information

Project Footprint

- Overhead fibre optics alignment
- Access tracks

Poles

- Existing

NSW heritage team forms

AHIMS

- Artefact / Isolated Artefact
- Artefact (Isolated and Scatter) / (Scatter or Open Camp Site) / PAD / (with or without PAD) / Art / Grinding Grooves
- Open Camp Site
- Open Camp Site and PAD
- Artefact Scatter
- Cultural heritage site boundary

Transport

Road

- Minor road

Hydrography

Watercourse

- Non Perennial Stream
- Waterbody

NSW heritage team forms

AHIMS

- Artefact / Isolated Artefact
- Artefact (Isolated and Scatter) / (Scatter or Open Camp Site) / PAD / (with or without PAD) / Art / Grinding Grooves
- Open Camp Site
- Open Camp Site and PAD
- Artefact Scatter

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GDA2020 MGA Zone 56

Cultural Heritage Sites (includes historic heritage sites plus AHIMS)

Catherine Park Mobile Zone Substation - REF

Niche PM: Justin Merdith
Niche Proj. #: 8372
Client: Endeavour Energy

Figure 10c

Hillshade: Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community/World Imagery: Maxar | Watercourses, Waterbodies, Road and Rail alignments, Protected areas of NSW © Spatial Services 2021. | Niche uses GDA2020 as standard for all project-related data. In order to ensure that data from numerous sources and coordinate systems is aligned, on-the-fly transformation to GDA2020 MGA Zone 56 is used in the map above. For ease of reference, the grid tick marks and labels shown around the border of the map are presented in GDA2020 MGA Zone 56

This information has been removed to protect sensitive Aboriginal heritage information

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niche Environment and Heritage

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m
GDA2020 MGA Zone 56

Cultural Heritage Sites (includes historic heritage sites plus AHIMS)

Catherine Park Mobile Zone Substation - REF

Niche PM: Justin Merdith
Niche Proj. #: 8372
Client: Endeavour Energy

Figure 10d

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GDA2020 MGA Zone 56

Cultural Heritage Sites (includes historic heritage sites plus AHIMS)

Catherine Park Mobile Zone Substation - REF

Niche PM: Justin Merdith
Niche Proj. #: 8372
Client: Endeavour Energy

Figure 10e

Hillshade: Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community/World Imagery: Maxar | Watercourses, Waterbodies, Road and Rail alignments, Protected areas of NSW © Spatial Services 2021. | Niche uses GDA2020 as standard for all project-related data. In order to ensure that data from numerous sources and coordinate systems is aligned, on-the-fly transformation to GDA2020 MGA Zone 56 is used in the map above. For ease of reference, the grid tick marks and labels shown around the border of the map are presented in GDA2020 MGA Zone 56

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niche Environment and Heritage

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GDA2020 MGA Zone 56

Cultural Heritage Sites (includes historic heritage sites plus AHIMS)

Catherine Park Mobile Zone Substation - REF

Niche PM: Justin Merdith
Niche Proj. #: 8372
Client: Endeavour Energy

Figure 10f

Hillshade: Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community/World Imagery: Maxar | Watercourses, Waterbodies, Road and Rail alignments, Protected areas of NSW © Spatial Services 2021. | Niche uses GDA2020 as standard for all project-related data. In order to ensure that data from numerous sources and coordinate systems is aligned, on-the-fly transformation to GDA2020 MGA Zone 56 is used in the map above. For ease of reference, the grid tick marks and labels shown around the border of the map are presented in GDA2020 MGA Zone 56

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GDA2020 MGA Zone 56

Cultural Heritage Sites (includes historic heritage sites plus AHIMS)

Catherine Park Mobile Zone Substation - REF

Niche PM: Justin Merdith
Niche Proj. #: 8372
Client: Endeavour Energy

Figure 10g

Hillshade: Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community/World Imagery: Maxar | Watercourses, Waterbodies, Road and Rail alignments, Protected areas of NSW © Spatial Services 2021. | Niche uses GDA2020 as standard for all project-related data. In order to ensure that data from numerous sources and coordinate systems is aligned, on-the-fly transformation to GDA2020 MGA Zone 56 is used in the map above. For ease of reference, the grid tick marks and labels shown around the border of the map are presented in GDA2020 MGA Zone 56

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m
GDA2020 MGA Zone 56

Cultural Heritage Sites (includes historic heritage sites plus AHIMS)

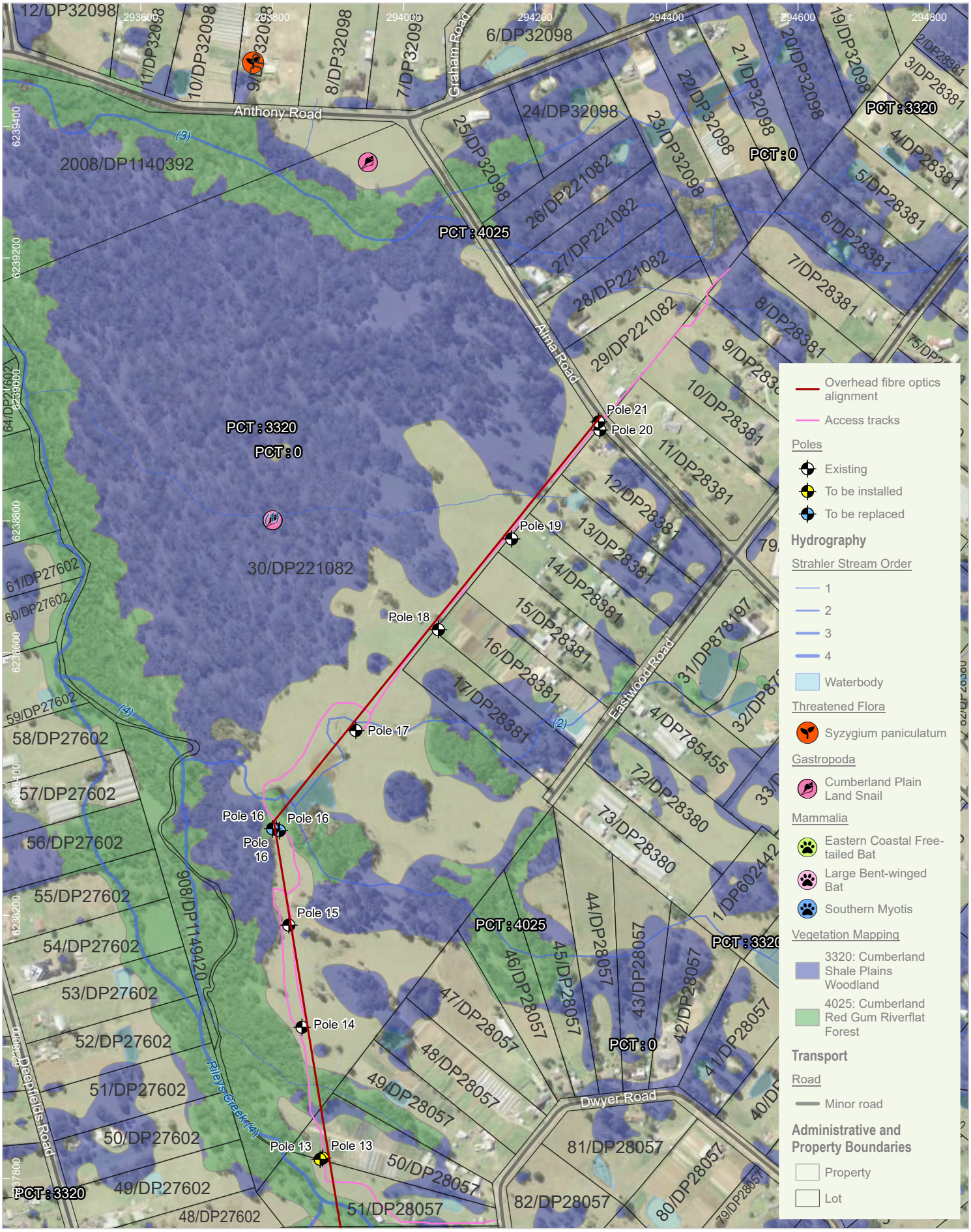
Catherine Park Mobile Zone Substation - REF

Niche PM: Justin Merdith
Niche Proj. #: 8372
Client: Endeavour Energy

Figure 10h

Hillshade: Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community/World Imagery: Maxar | Watercourses, Waterbodies, Road and Rail alignments, Protected areas of NSW © Spatial Services 2021. | Niche uses GDA2020 as standard for all project-related data. In order to ensure that data from numerous sources and coordinate systems is aligned, on-the-fly transformation to GDA2020 MGA Zone 56 is used in the map above. For ease of reference, the grid tick marks and labels shown around the border of the map are presented in GDA2020 MGA Zone 56

Figure 11. Environmental Constraints



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0 150 m

GDA2020 MGA Zone 56

Niche PM: Justin Merdith
Niche Proj. #: 8372
Client: Endeavour Energy

Environmental Constraints

Catherine Park Mobile Zone Substation - REF

Figure 11a

Hillshade: Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community/World Imagery: Maxar/public/ NSW_Imagery: © Department of Customer Service 2020 | Watercourses, Waterbodies, Road and Rail alignments, Protected areas of NSW © Spatial Services 2021. | Niche uses GDA2020 as standard for all project-related data. In order to ensure that data from numerous sources and coordinate systems is aligned, on-the-fly transformation to GDA2020 MGA Zone 56 is used in the map above. For ease of reference, the grid tick marks and labels shown around the border of the map are presented in GDA2020 MGA Zone 56

niche Environment and Heritage

0 150 m

GDA2020 MGA Zone 56

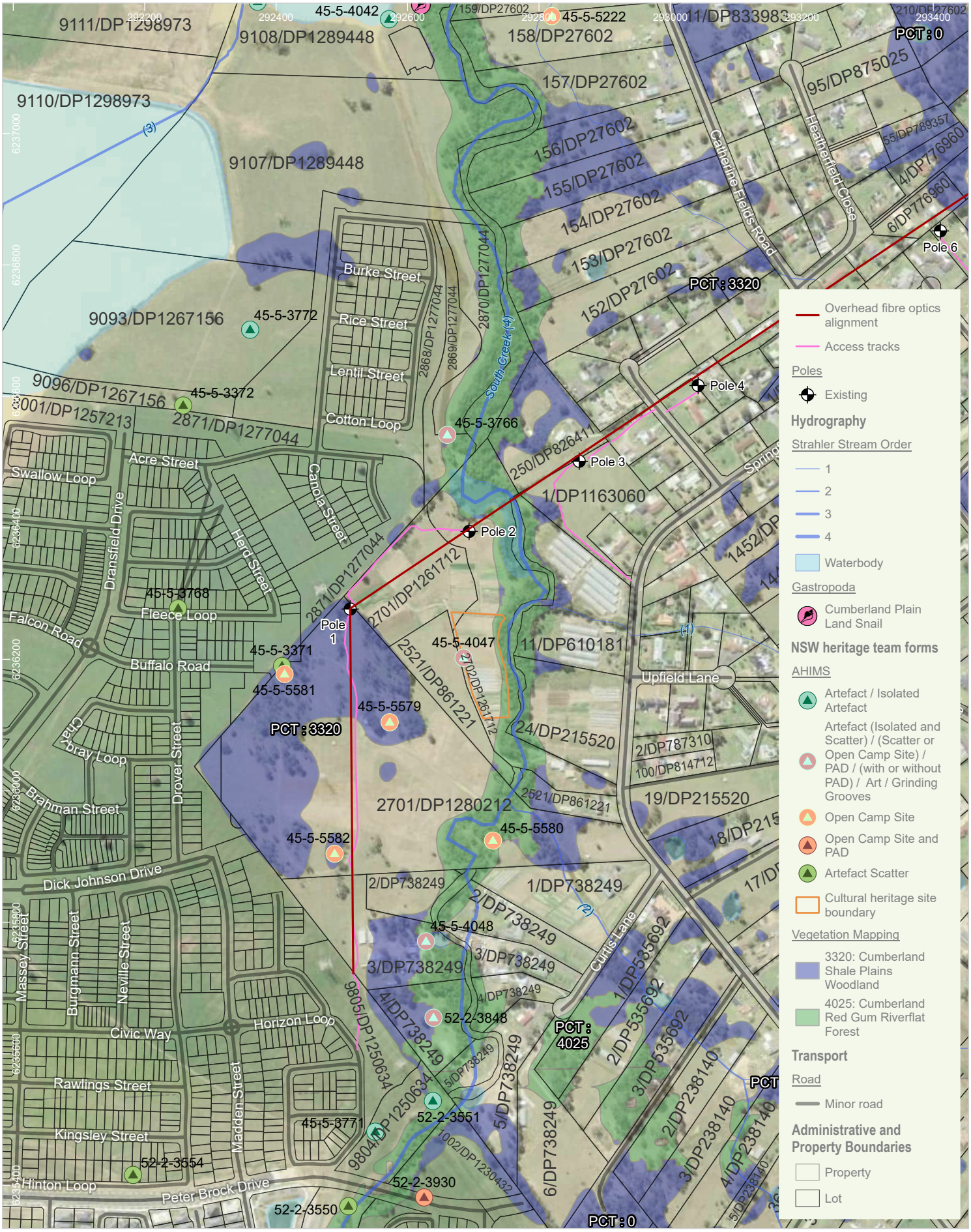
Environmental Constraints

Catherine Park Mobile Zone Substation - REF

Niche PM: Justin Merdith
Niche Proj. #: 8372
Client: Endeavour Energy

Figure 11b

Hillshade: Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community/World Imagery: Maxar/public/ NSW_Imagery: © Department of Customer Service 2020 | Watercourses, Waterbodies, Road and Rail alignments, Protected areas of NSW © Spatial Services 2021. | Niche uses GDA2020 as standard for all project-related data. In order to ensure that data from numerous sources and coordinate systems is aligned, on-the-fly transformation to GDA2020 MGA Zone 56 is used in the map above. For ease of reference, the grid tick marks and labels shown around the border of the map are presented in GDA2020 MGA Zone 56



niche Environment and Heritage

N

0 150

m

GDA2020 MGA Zone 56

Environmental Constraints

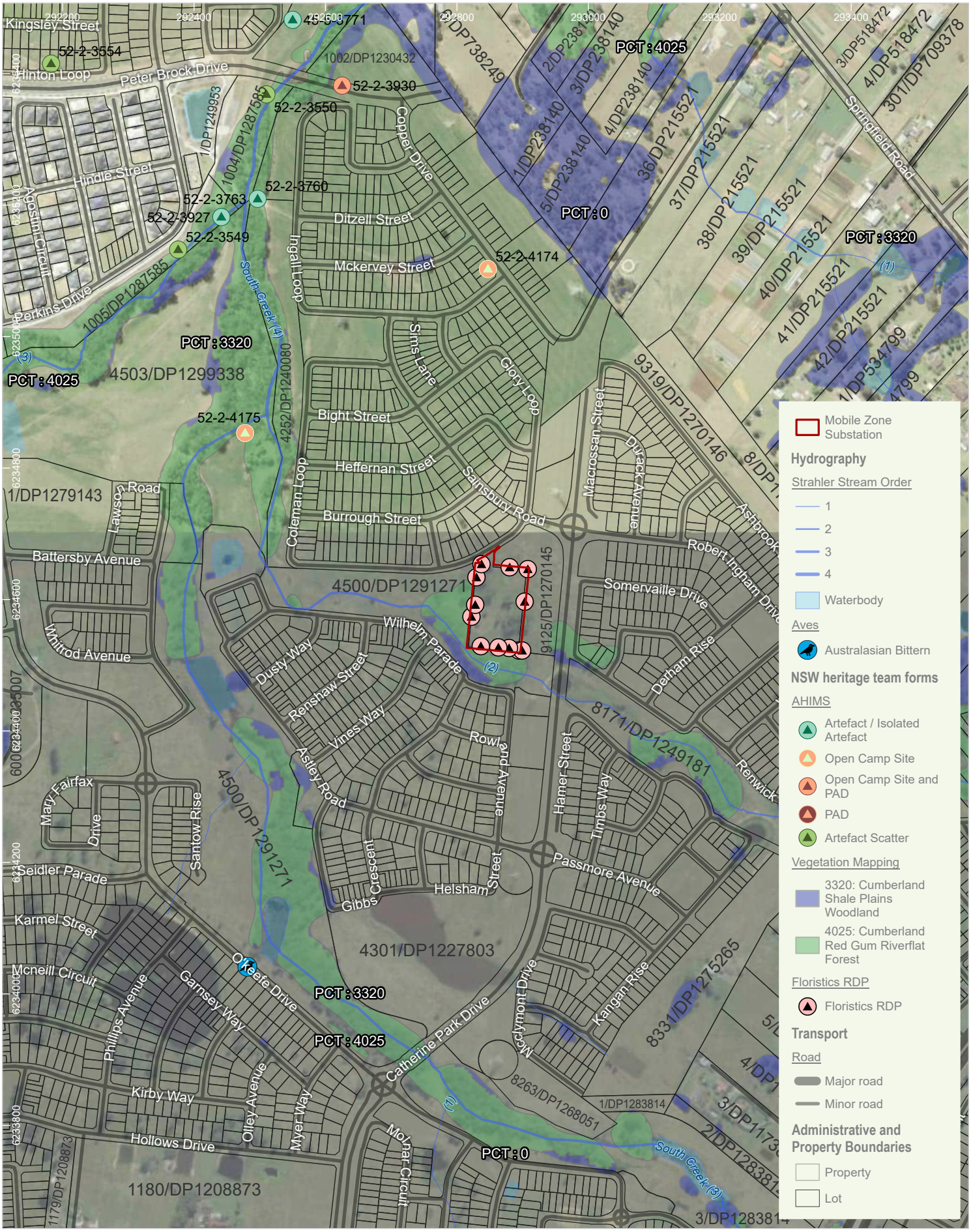
Catherine Park Mobile Zone Substation - REF

Niche PM: Justin Merdith
Niche Proj. #: 8372
Client: Endeavour Energy

Figure 11c

Hillshade: Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community/World Imagery: Maxar/public/ NSW_Imagery: © Department of Customer Service 2020 | Watercourses, Waterbodies, Road and Rail alignments, Protected areas of NSW © Spatial Services 2021. | Niche uses GDA2020 as standard for all project-related data. In order to ensure that data from numerous sources and coordinate systems is aligned, on-the-fly transformation to GDA2020 MGA Zone 56 is used in the map above. For ease of reference, the grid tick marks and labels shown around the border of the map are presented in GDA2020 MGA Zone 56

v2.0



niche Environment and Heritage

0 150 m

GDA2020 MGA Zone 56

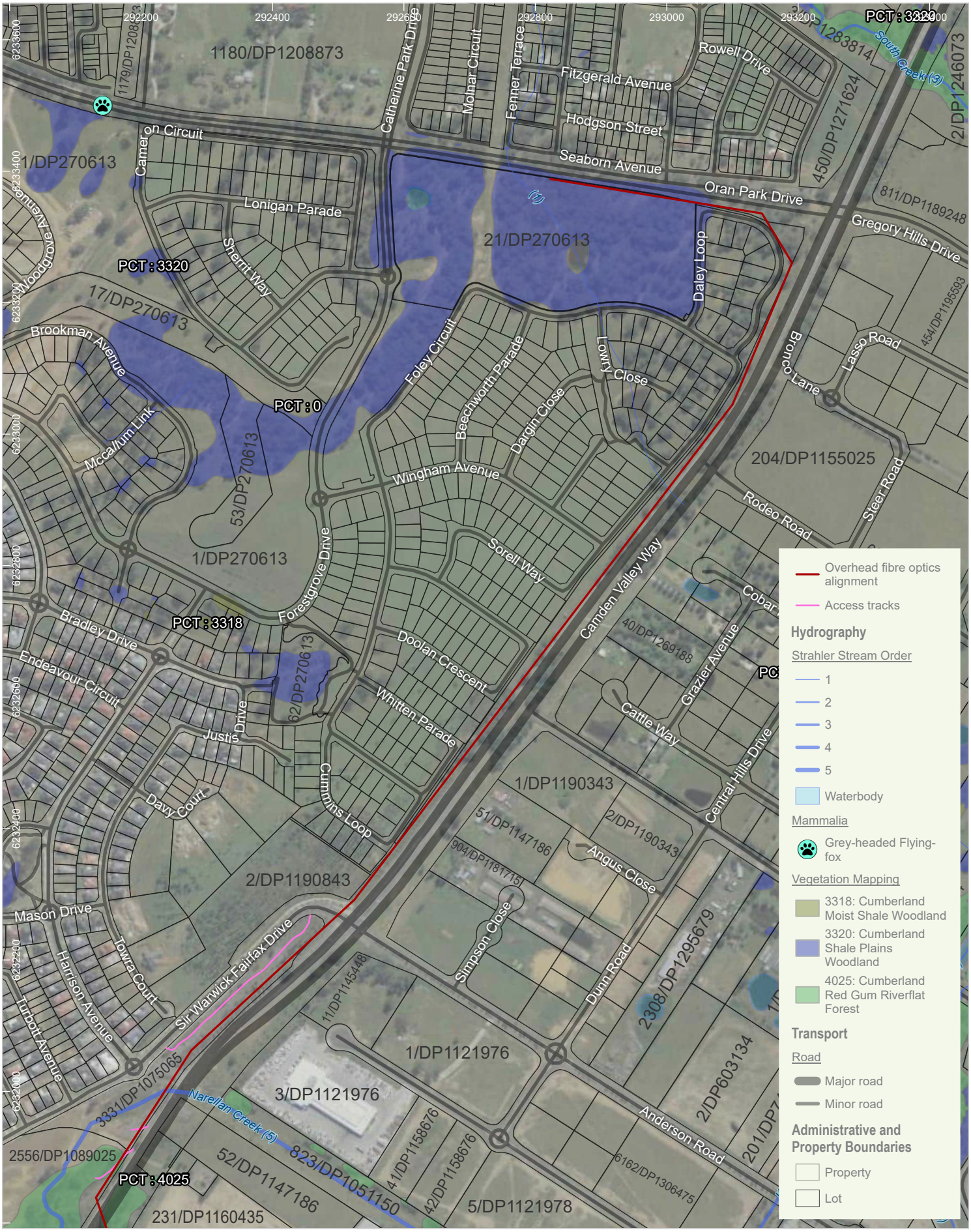
Environmental Constraints

Catherine Park Mobile Zone Substation - REF

Niche PM: Justin Merdith
Niche Proj. #: 8372
Client: Endeavour Energy

Figure 11d

Hillshade: Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community/World Imagery: Maxar/public/ NSW_Imagery: © Department of Customer Service 2020 | Watercourses, Waterbodies, Road and Rail alignments, Protected areas of NSW © Spatial Services 2021. | Niche uses GDA2020 as standard for all project-related data. In order to ensure that data from numerous sources and coordinate systems is aligned, on-the-fly transformation to GDA2020 MGA Zone 56 is used in the map above. For ease of reference, the grid tick marks and labels shown around the border of the map are presented in GDA2020 MGA Zone 56



niche Environment and Heritage

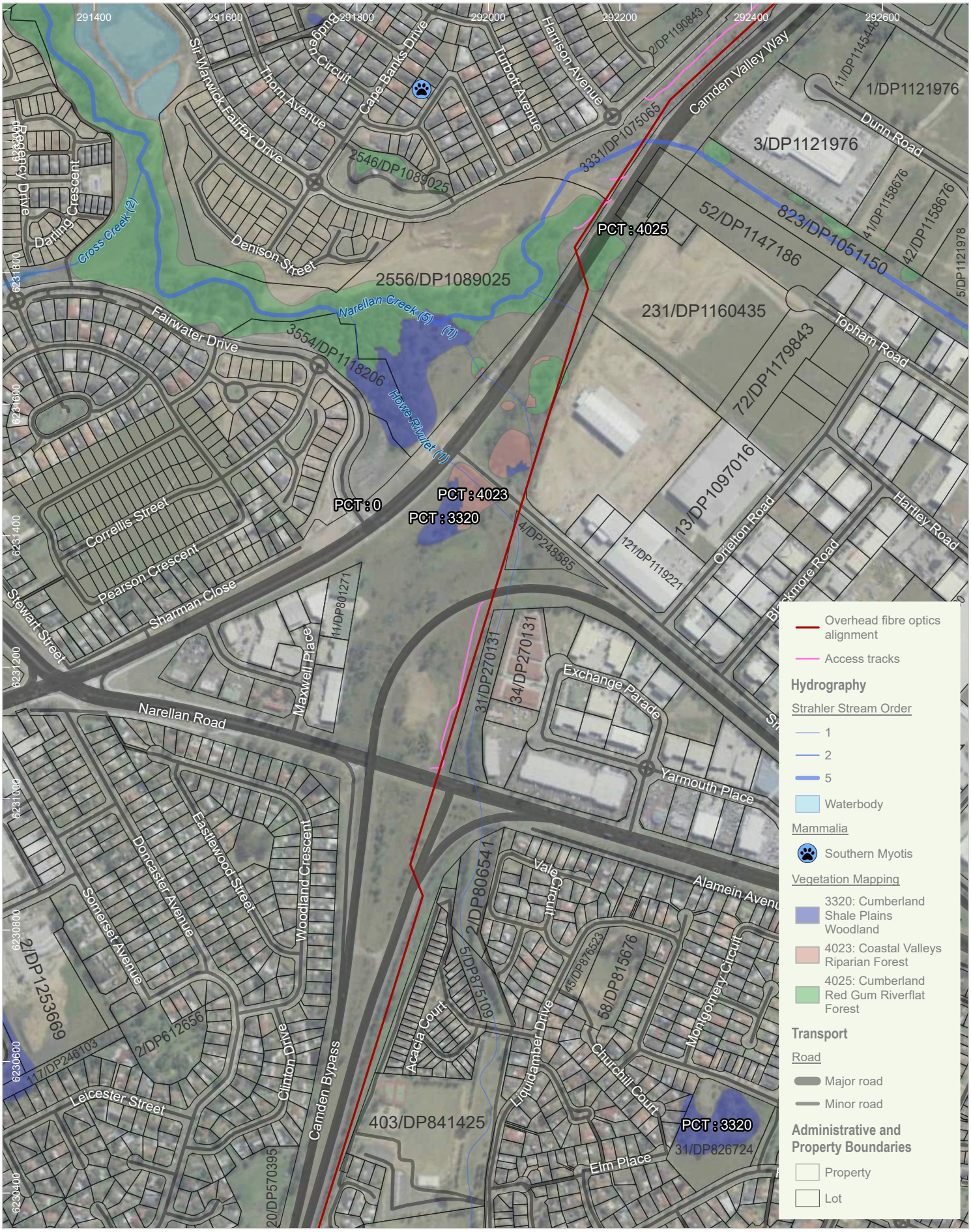
0 150
m
GDA2020 MGA Zone 56

Environmental Constraints
Catherine Park Mobile Zone Substation - REF

Niche PM: Justin Merdith
Niche Proj. #: 8372
Client: Endeavour Energy

Figure 11e

Hillshade: Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community/World Imagery: Maxar/public/ NSW_Imagery: © Department of Customer Service 2020 | Watercourses, Waterbodies, Road and Rail alignments, Protected areas of NSW © Spatial Services 2021. | Niche uses GDA2020 as standard for all project-related data. In order to ensure that data from numerous sources and coordinate systems is aligned, on-the-fly transformation to GDA2020 MGA Zone 56 is used in the map above. For ease of reference, the grid tick marks and labels shown around the border of the map are presented in GDA2020 MGA Zone 56



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N

0 150

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GDA2020 MGA Zone 56

Environmental Constraints

Catherine Park Mobile Zone Substation - REF

Niche PM: Justin Merdith
Niche Proj. #: 8372
Client: Endeavour Energy

Figure 11f

Hillshade: Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community/World Imagery: Maxar/public/ NSW_Imagery: © Department of Customer Service 2020 | Watercourses, Waterbodies, Road and Rail alignments, Protected areas of NSW © Spatial Services 2021. | Niche uses GDA2020 as standard for all project-related data. In order to ensure that data from numerous sources and coordinate systems is aligned, on-the-fly transformation to GDA2020 MGA Zone 56 is used in the map above. For ease of reference, the grid tick marks and labels shown around the border of the map are presented in GDA2020 MGA Zone 56

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N

0 150

m

GDA2020 MGA Zone 56

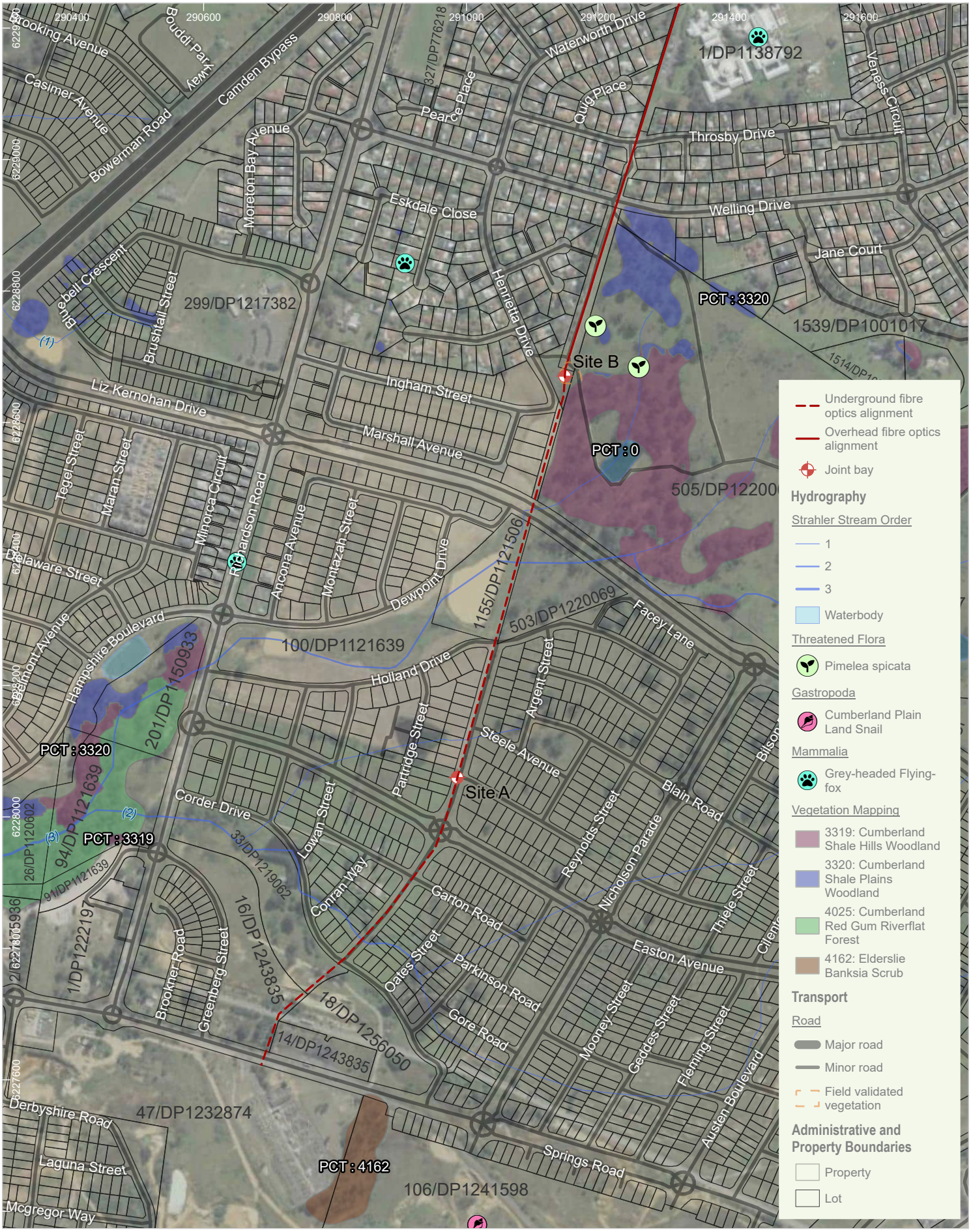
Environmental Constraints

Catherine Park Mobile Zone Substation - REF

Niche PM: Justin Merdith
Niche Proj. #: 8372
Client: Endeavour Energy

Figure 11g

Hillshade: Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community/World Imagery: Maxar/public/ NSW_Imagery: © Department of Customer Service 2020 | Watercourses, Waterbodies, Road and Rail alignments, Protected areas of NSW © Spatial Services 2021. | Niche uses GDA2020 as standard for all project-related data. In order to ensure that data from numerous sources and coordinate systems is aligned, on-the-fly transformation to GDA2020 MGA Zone 56 is used in the map above. For ease of reference, the grid tick marks and labels shown around the border of the map are presented in GDA2020 MGA Zone 56



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N

0 150

m

GDA2020 MGA Zone 56

Environmental Constraints

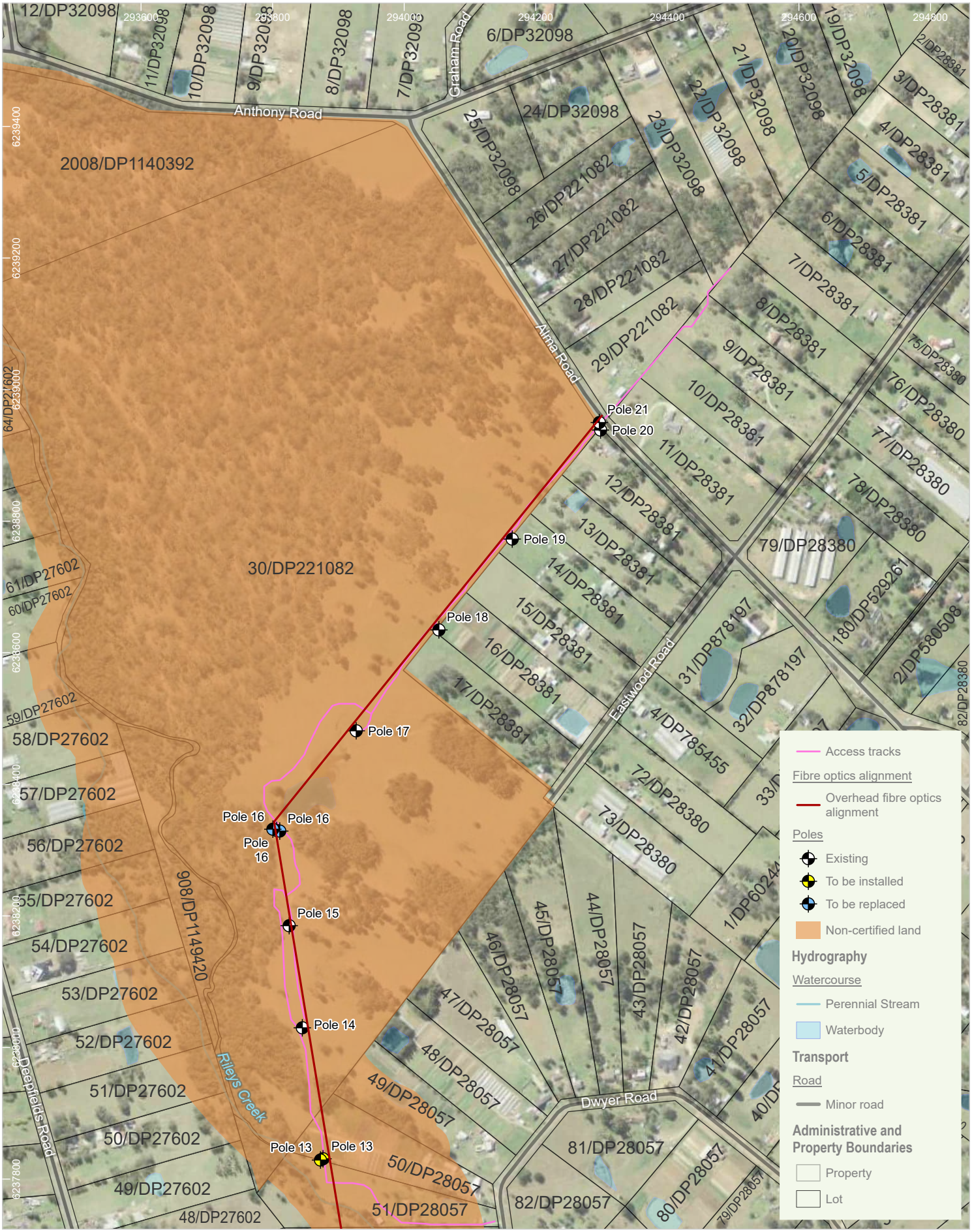
Catherine Park Mobile Zone Substation - REF

Niche PM: Justin Merdith
Niche Proj. #: 8372
Client: Endeavour Energy

Figure 11h

Hillshade: Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community/World Imagery: Maxar/public/ NSW_Imagery: © Department of Customer Service 2020 | Watercourses, Waterbodies, Road and Rail alignments, Protected areas of NSW © Spatial Services 2021. | Niche uses GDA2020 as standard for all project-related data. In order to ensure that data from numerous sources and coordinate systems is aligned, on-the-fly transformation to GDA2020 MGA Zone 56 is used in the map above. For ease of reference, the grid tick marks and labels shown around the border of the map are presented in GDA2020 MGA Zone 56

Figure 12. Planning Constraints



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niche Environment and Heritage

N

0 100

m

GDA2020 MGA Zone 56

Planning Constraints

Catherine Park Mobile Zone Substation - REF

Niche PM: Justin Merdith
Niche Proj. #: 8372
Client: Endeavour Energy

Figure 12a

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N

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GDA2020 MGA Zone 56

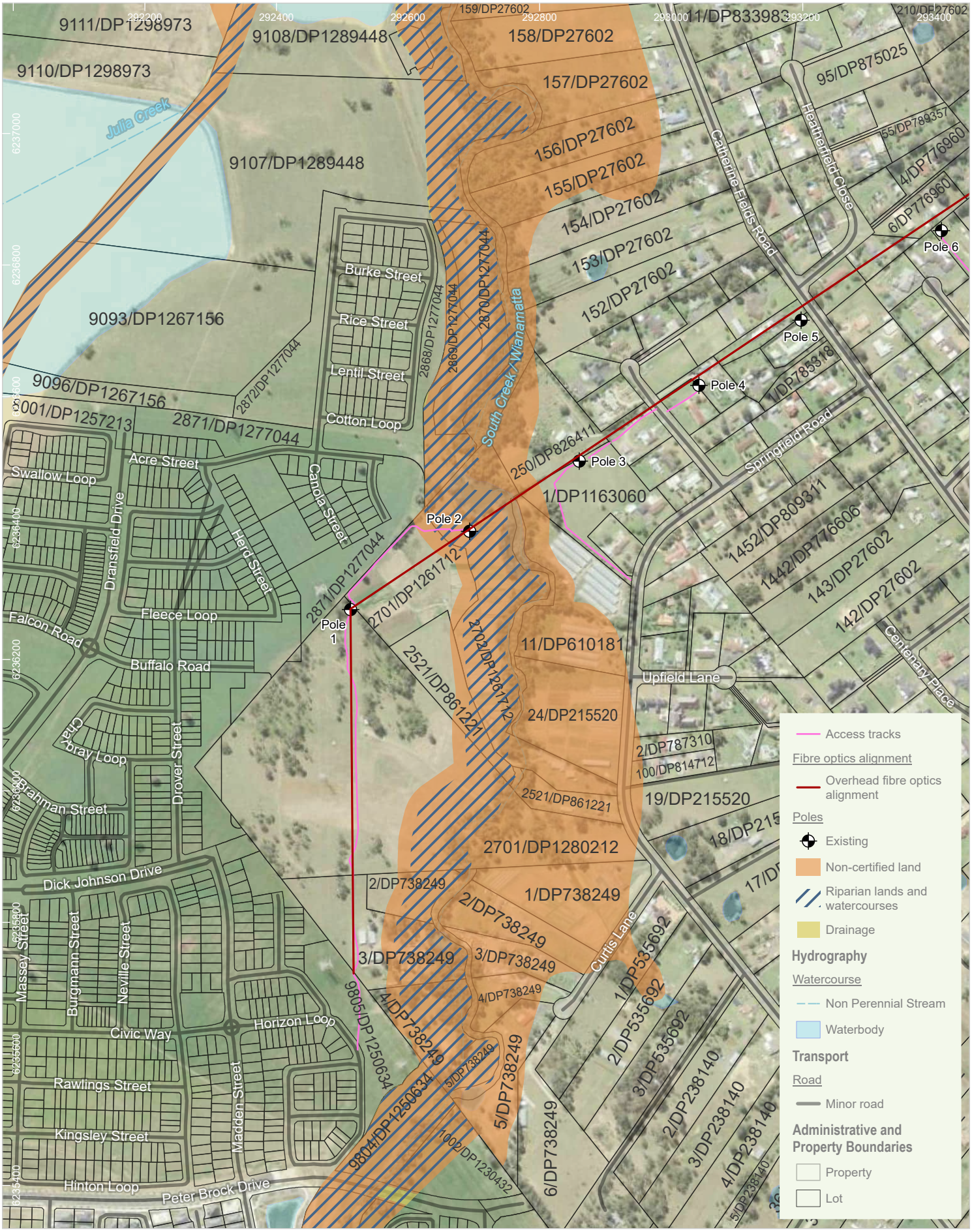
Planning Constraints

Catherine Park Mobile Zone Substation - REF

Niche PM: Justin Merdith
Niche Proj. #: 8372
Client: Endeavour Energy

Figure 12b

Hillshade: Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community/public/NSW_Imagery: © Department of Customer Service 2020 | Watercourses, Waterbodies, Road and Rail alignments, Protected areas of NSW © Spatial Services 2021. | Niche uses GDA2020 as standard for all project-related data. In order to ensure that data from numerous sources and coordinate systems is aligned, on-the-fly transformation to GDA2020 MGA Zone 56 is used in the map above. For ease of reference, the grid tick marks and labels shown around the border of the map are presented in GDA2020 MGA Zone 56



niche Environment and Heritage

0 100 m

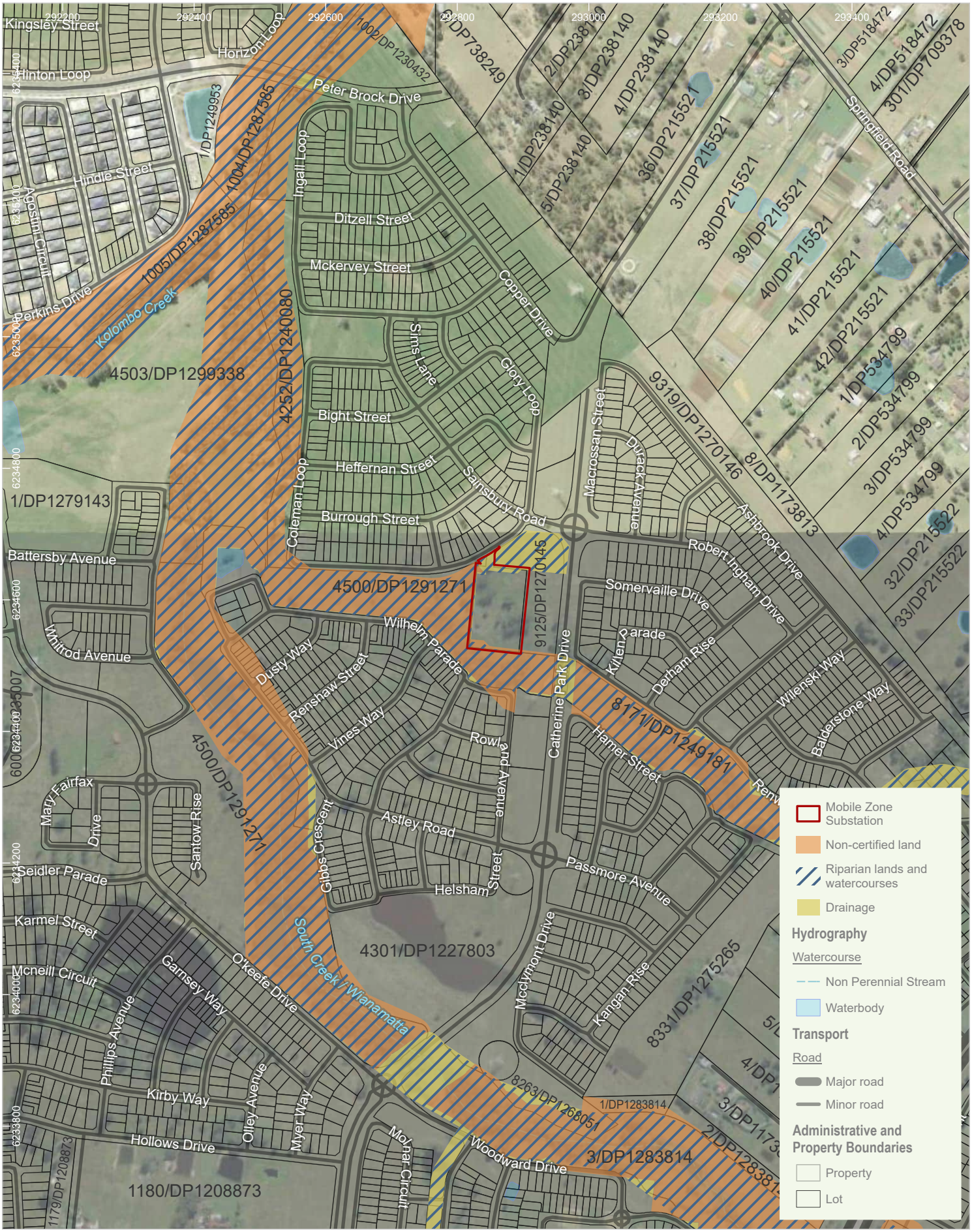
GDA2020 MGA Zone 56

Niche PM: Justin Merdith
Niche Proj. #: 8372
Client: Endeavour Energy

Planning Constraints

Catherine Park Mobile Zone Substation - REF

Figure 12c



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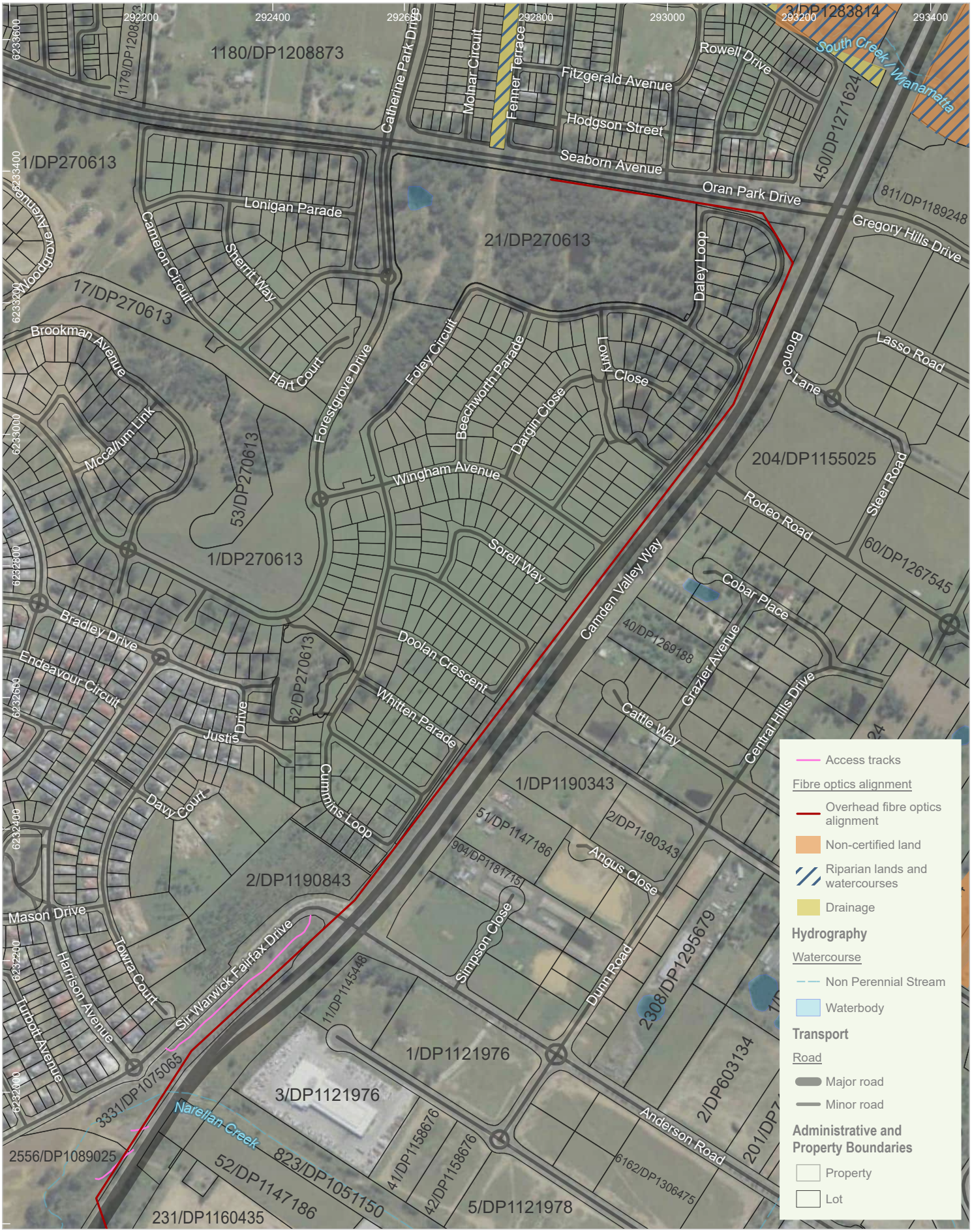
GDA2020 MGA Zone 56

Planning Constraints

Catherine Park Mobile Zone Substation - REF

Niche PM: Justin Merdith
Niche Proj. #: 8372
Client: Endeavour Energy

Figure 12d



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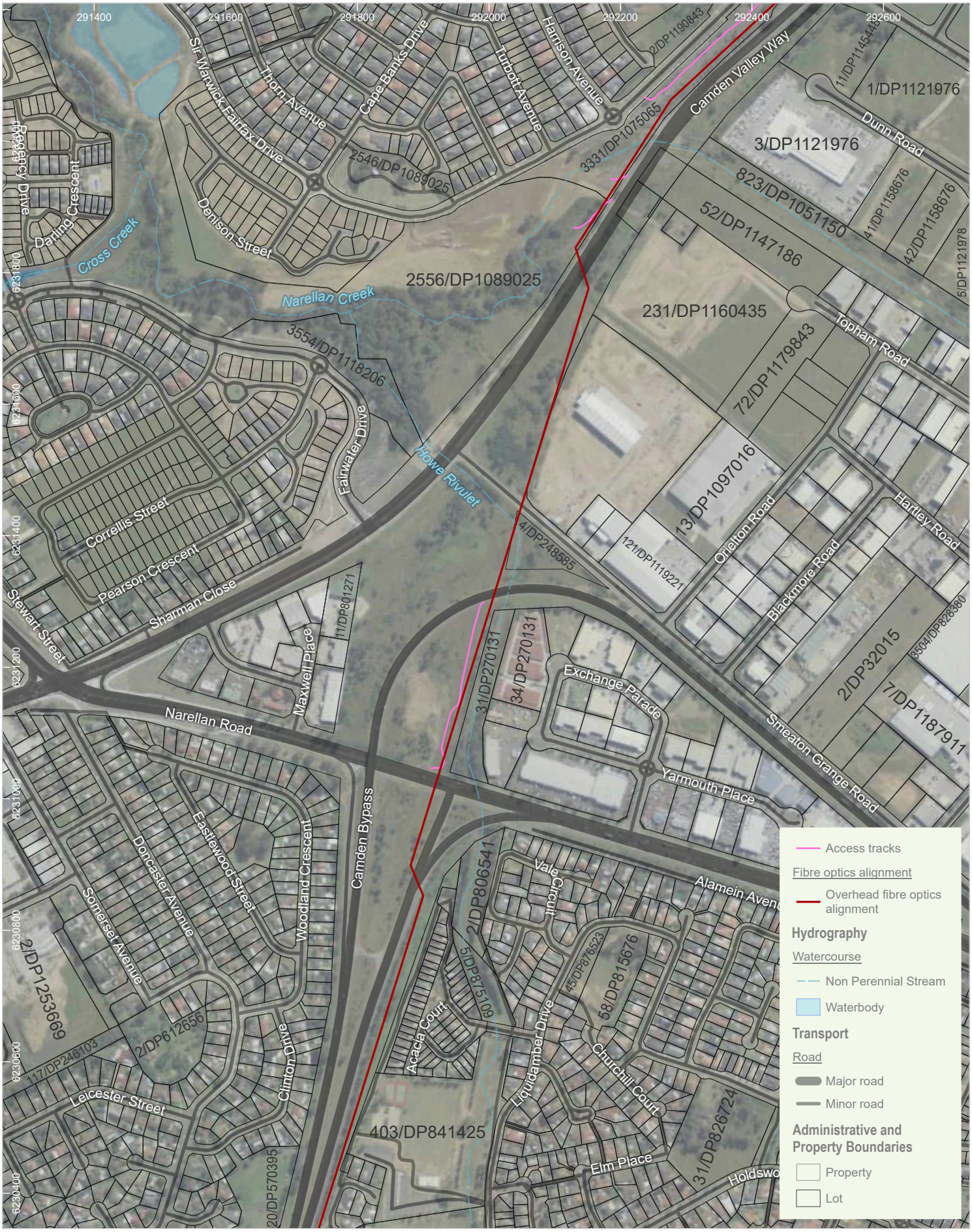
GDA2020 MGA Zone 56

Planning Constraints

Catherine Park Mobile Zone Substation - REF

Niche PM: Justin Merdith
Niche Proj. #: 8372
Client: Endeavour Energy

Figure 12e



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0 100 m

GDA2020 MGA Zone 56

Planning Constraints

Catherine Park Mobile Zone Substation - REF

Niche PM: Justin Merdith
Niche Proj. #: 8372
Client: Endeavour Energy

Figure 12f

niche Environment and Heritage

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GDA2020 MGA Zone 56

Niche PM: Justin Merdith
Niche Proj. #: 8372
Client: Endeavour Energy

Planning Constraints

Catherine Park Mobile Zone Substation - REF

Figure 12g

Hillshade: Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community/public/NSW_Imagery: © Department of Customer Service 2020 | Watercourses, Waterbodies, Road and Rail alignments, Protected areas of NSW © Spatial Services 2021. | Niche uses GDA2020 as standard for all project-related data. In order to ensure that data from numerous sources and coordinate systems is aligned, on-the-fly transformation to GDA2020 MGA Zone 56 is used in the map above. For ease of reference, the grid tick marks and labels shown around the border of the map are presented in GDA2020 MGA Zone 56

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0 100 m

GDA2020 MGA Zone 56

Planning Constraints

Catherine Park Mobile Zone Substation - REF

Niche PM: Justin Merdith
Niche Proj. #: 8372
Client: Endeavour Energy

Figure 12h

Annex 3. Likelihood of occurrence table

Kingdom	Class	Scientific Name	Common Name	EPBC Act	BC Act	Likelihood of Occurrence	Likelihood of Impact
Fauna	Amphibian	*Litoria aurea*	Green and Golden Bell Frog	V	E	None: No suitable habitat present	None: No clearing of suitable habitat
Fauna	Amphibian	*Heleioporus australiacus*	Giant Burrowing Frog	V	V	Low: No records within 5km	Low: Clearing of suitable habitat less than 2m by 2m
Fauna	Bird	*Chthonicola sagittata*	Speckled Warbler		V	Low: If present, would likely be a transient visitor	None: No clearing of suitable habitat
Fauna	Bird	*Erythrotriorchis radiatus*	Red Goshawk	E	CE	None: No suitable habitat present and no records within 5km	None: No clearing of suitable habitat
Fauna	Bird	*Haliaeetus leucogaster*	White-bellied Sea-Eagle		V	None: No suitable habitat present	None: No clearing of suitable habitat
Fauna	Bird	*Hieraaetus morphnoides*	Little Eagle		V	None: No suitable habitat present	None: No clearing of suitable habitat
Fauna	Bird	*Oxyura australis*	Blue-billed Duck	V		Low: If present, would likely be a transient visitor	None: No clearing of suitable habitat
Fauna	Bird	*Hirundapus caudacutus*	White-throated Needletail	V		Low: If present, would likely be a transient visitor	None: No clearing of suitable habitat

Kingdom	Class	Scientific Name	Common Name	EPBC Act	BC Act	Likelihood of Occurrence	Likelihood of Impact
Fauna	Bird	*Botaurus poiciloptilus*	Australasian Bittern	E	E	Low: If present, would likely be a transient visitor	None: No clearing of suitable habitat
Fauna	Bird	*Artamus cyanopterus cyanopterus*	Dusky Woodswallow		V	Low: If present, would likely be a transient visitor	None: No clearing of suitable habitat
Fauna	Bird	*Callocephalon fimbriatum*	Gang-gang Cockatoo	E	V	Low: If present, would likely be a transient visitor	None: No clearing of suitable habitat
Fauna	Bird	*Calyptorhynchus lathami*	South-eastern Glossy Black-Cockatoo	V	V	Low: If present, would likely be a transient visitor	None: No clearing of suitable habitat
Fauna	Bird	*Pluvialis squatarola*	Grey Plover	C,J,K		None: No suitable habitat present and no records within 5km	None: No clearing of suitable habitat
Fauna	Bird	*Climacteris picumnus victoriae*	Brown Treecreeper (eastern subspecies)		V	Low: If present, would likely be a transient visitor	None: No clearing of suitable habitat
Fauna	Bird	*Stagonopleura guttata*	Diamond Firetail	V	V	Low: If present, would likely be a transient visitor	None: No clearing of suitable habitat
Fauna	Bird	*Falco hypoleucos*	Grey Falcon	V	E	Low: If present, would likely be a transient visitor	None: No clearing of suitable habitat
Fauna	Bird	*Anthochaera phrygia*	Regent Honeyeater	CE	CE	Low: If present, would likely be a transient visitor	None: No clearing of suitable habitat
Fauna	Bird	*Grantiella picta*	Painted Honeyeater	V	V	Low: If present, would likely be a transient visitor	None: No clearing of suitable habitat
Fauna	Bird	*Daphoenositta chrysoptera*	Varied Sittella		V	Low: If present, would likely be a transient visitor	None: No clearing of suitable habitat
Fauna	Bird	*Melanodryas cucullata cucullata*	Hooded Robin (south-eastern form)		V	Low: If present, would likely be a transient visitor	None: No clearing of suitable habitat
Fauna	Bird	*Petroica phoenicea*	Flame Robin	V		Low: If present, would likely be a transient visitor	None: No clearing of suitable habitat
Fauna	Bird	*Glossopsitta pusilla*	Little Lorikeet		V	Low: If present, would likely be a transient visitor	None: No clearing of suitable habitat
Fauna	Bird	*Lathamus discolor*	Swift Parrot	CE	E	Low: If present, would likely be a transient visitor	None: No clearing of suitable habitat

Kingdom	Class	Scientific Name	Common Name	EPBC Act	BC Act	Likelihood of Occurrence	Likelihood of Impact
Fauna	Bird	*Neophema pulchella*	Turquoise Parrot		V	Low: If present, would likely be a transient visitor	None: No clearing of suitable habitat
Fauna	Bird	*Rostratula australis*	Australian Painted Snipe	E	E	None: No suitable habitat present and no records within 5km	None: No clearing of suitable habitat
Fauna	Bird	*Calidris ferruginea*	Curlew Sandpiper	CE	E	None: No suitable habitat present and no records within 5km	None: No clearing of suitable habitat
Fauna	Bird	*Gallinago hardwickii*	Latham's Snipe	J,K		Low: If present, would likely be a transient visitor	None: No clearing of suitable habitat
Fauna	Bird	*Numenius madagascariensis*	Eastern Curlew, Far Eastern Curlew	CE		None: No suitable habitat present and no records within 5km	None: No clearing of suitable habitat
Fauna	Bird	*Ninox strenua*	Powerful Owl	V		Low: If present, would likely be a transient visitor	None: No clearing of suitable habitat
Fauna	Bird	*Aphelocephala leucopsis*	Southern Whiteface	V		Low: If present, would likely be a transient visitor	None: No clearing of suitable habitat
Fauna	Bird	*Neophema chrysostoma*	Blue-winged Parrot	V		Low: If present, would likely be a transient visitor	None: No clearing of suitable habitat
Fauna	Gastropoda	*Meridolum corneovirens*	Cumberland Plain Land Snail		E	Moderate: High number of records within 5km	Low: Clearing of suitable habitat less than 2m by 2m
Fauna	Mammal	*Dasyurus maculatus*	Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population)	E	V	Low: No records within 5km	None: No clearing of suitable habitat

Kingdom	Class	Scientific Name	Common Name	EPBC Act	BC Act	Likelihood of Occurrence	Likelihood of Impact
Fauna	Mammal	*Saccolaimus flaviventris*	Yellow-bellied Sheathtail-bat		V	Low: If present, would likely be a transient visitor	None: No clearing of suitable habitat
Fauna	Mammal	*Petrogale penicillata*	Brush-tailed Rock-wallaby	V	E	None: No suitable habitat present	None: No clearing of suitable habitat
Fauna	Mammal	*Miniopterus orianae oceanensis*	Large Bent-winged Bat		V	Moderate: Suitable habitat present	Low: Minimal disturbance to suitable habitat
Fauna	Mammal	*Micronomus norfolkensis*	Eastern Coastal Free-tailed Bat		V	Moderate: Suitable habitat present	Low: Minimal disturbance to suitable habitat
Fauna	Mammal	*Pseudomys novaehollandiae*	New Holland Mouse, Pookila	V		Low: No records within 5km	None: No clearing of suitable habitat
Fauna	Mammal	*Petaurus australis*	Yellow-bellied Glider (south-eastern)	V	V	None: No suitable habitat present	None: No clearing of suitable habitat
Fauna	Mammal	*Phascolarctos cinereus*	Koala	E	E	Low: No suitable habitat present, although records within 5km	None: No clearing of suitable habitat
Fauna	Mammal	*Petauroides volans*	Greater Glider (southern and central)	E		None: No suitable habitat present	None: No clearing of suitable habitat

Kingdom	Class	Scientific Name	Common Name	EPBC Act	BC Act	Likelihood of Occurrence	Likelihood of Impact
Fauna	Mammal	*Pteropus poliocephalus*	Grey-headed Flying-fox	V	V	Moderate: High number of records within 5km	Low: Minimal disturbance to suitable habitat
Fauna	Mammal	*Chalinolobus dwyeri*	Large-eared Pied Bat	V	V	None: No suitable habitat present	None: No clearing of suitable habitat
Fauna	Mammal	*Falsistrellus tasmaniensis*	Eastern False Pipistrelle		V	Low: If present, would likely be a transient visitor	None: No clearing of suitable habitat
Fauna	Mammal	*Myotis macropus*	Southern Myotis		V	Moderate: Suitable habitat present	Low: Minimal disturbance to suitable habitat
Fauna	Mammal	*Scoteanax rueppellii*	Greater Broad-nosed Bat		V	Low: If present, would likely be a transient visitor	None: No clearing of suitable habitat
Fauna	Reptile	*Hoplocephalus bungaroides*	Broad-headed Snake	V	E	Low: No records within 5km	None: No clearing of suitable habitat
Fauna	Reptile	*Aprasia parapulchella*	Pink-tailed Worm-lizard, Pink-tailed Legless Lizard	V	V	Low: No records within 5km	None: No clearing of suitable habitat
Fauna	Reptile	*Delma impar*	Striped Legless Lizard, Striped Snake-lizard	V	V	None: No suitable habitat present	None: No clearing of suitable habitat
Fauna	Fish	*Macquaria australasica*	Macquarie Perch	E		None: No suitable habitat present	None: No disturbance of suitable habitat
Fauna	Fish	*Prototroctes maraena*	Australian Grayling	V		None: No suitable habitat present	None: No disturbance of suitable habitat

Kingdom	Class	Scientific Name	Common Name	EPBC Act	BC Act	Likelihood of Occurrence	Likelihood of Impact
Fauna	Insect	*Austrocordulia leonardi*	Sydney Hawk Dragonfly	E		None: No suitable habitat present	None: No clearing of suitable habitat
Flora	Plant	*Cynanchum elegans*	White-flowered Wax Plant	E	E	Low: No records within 5km	None: No clearing of suitable habitat
Flora	Plant	*Marsdenia viridiflora subsp. viridiflora*	Marsdenia viridiflora R. Br. subsp. viridiflora		EP	Low: No suitable habitat present, although records within 5km	None: No clearing of suitable habitat
Flora	Plant	*Allocasuarina glareicola*	null	E	E	Low: No records within 5km	None: No clearing of suitable habitat
Flora	Plant	*Leucopogon exolasius*	Woronora Beard-heath	V	V	Low: No records within 5km	None: No clearing of suitable habitat
Flora	Plant	*Pultenaea parviflora*	null	E	V	Low: No records within 5km	None: No clearing of suitable habitat
Flora	Plant	*Pultenaea pedunculata*	Matted Bush-pea	E		Low: Records located at border of 5km buffer, away from Project Footprint	None: No clearing of suitable habitat
Flora	Plant	*Acacia bynoeana*	Bynoe's Wattle, Tiny Wattle	V	E	Low: No records within 5km	None: No clearing of suitable habitat

Kingdom	Class	Scientific Name	Common Name	EPBC Act	BC Act	Likelihood of Occurrence	Likelihood of Impact
Flora	Plant	*Acacia pubescens*	Downy Wattle, Hairy Stemmed Wattle	V	V	Low: Records located at border of 5km buffer, away from Project Footprint	None: No clearing of suitable habitat
Flora	Plant	*Haloragis exalata subsp. exalata*	Wingless Raspwort, Square Raspwort	V	V	Low: No suitable habitat present	None: No clearing of suitable habitat
Flora	Plant	*Eucalyptus benthamii*	Camden White Gum, Nepean River Gum	V	V	Moderate: High number of records within 5km	None: No clearing of large trees
Flora	Plant	*Melaleuca deanei*	Deane's Melaleuca	V	V	Low: No records within 5km	None: No clearing of suitable habitat
Flora	Plant	*Rhodamnia rubescens*	Scrub Turpentine, Brown Malletwood	CE	CE	Low: No records within 5km	None: No clearing of suitable habitat
Flora	Plant	*Syzygium paniculatum*	Magenta Lilly Pilly	V	E	Low: One record within 5km	None: No clearing of suitable habitat
Flora	Plant	*Genoplesium baueri*	Yellow Gnat-orchid, Bauer's Midge Orchid, Brittle Midge Orchid	E	E	Low: No records within 5km	None: No clearing of suitable habitat
Flora	Plant	*Pterostylis gibbosa*	Illawarra Greenhood, Rufa Greenhood, Pouched Greenhood	E	E	Low: No records within 5km	None: No clearing of suitable habitat

Kingdom	Class	Scientific Name	Common Name	EPBC Act	BC Act	Likelihood of Occurrence	Likelihood of Impact
Flora	Plant	*Pterostylis saxicola*	Sydney Plains Greenhood	E	E	Low: No records within 5km	None: No clearing of suitable habitat
Flora	Plant	*Rhizanthella slateri*	Eastern Underground Orchid	E	V	Low: No records within 5km	None: No clearing of suitable habitat
Flora	Plant	*Thelymitra kangaloonica*	Kangaloon Sun Orchid	CE	CE	Low: No records within 5km	None: No clearing of suitable habitat
Flora	Plant	*Persicaria elatior*	Knotweed, Tall Knotweed	V	V	Low: No records within 5km	None: No clearing of suitable habitat
Flora	Plant	*Grevillea parviflora subsp. parviflora*	Small-flower Grevillea	V	V	Low: No records within 5km	None: No clearing of suitable habitat
Flora	Plant	*Persoonia bargoensis*	Bargo Geebung	E	E	Low: No records within 5km	None: No clearing of suitable habitat
Flora	Plant	*Persoonia hirsuta*	Hairy Geebung, Hairy Persoonia	E	E	Low: No records within 5km	None: No clearing of suitable habitat
Flora	Plant	*Persoonia nutans*	Nodding Geebung	E	E	Low: No records within 5km	None: No clearing of suitable habitat
Flora	Plant	*Pomaderris brunnea*	Rufous Pomaderris, Brown Pomaderris	V	E	Moderate: High number of records within 5km	Low: Clearing of suitable habitat less than 2m by 2m

Kingdom	Class	Scientific Name	Common Name	EPBC Act	BC Act	Likelihood of Occurrence	Likelihood of Impact
Flora	Plant	*Pomaderris cotoneaster*	Cotoneaster Pomaderris	E	E	Low: No records within 5km	None: No clearing of suitable habitat
Flora	Plant	*Thesium australe*	Austral Toadflax, Toadflax	V	V	Low: Possible suitable habitat with only one record	Low: Clearing of suitable habitat less than 2m by 2m
Flora	Plant	*Pimelea spicata*	Spiked Rice-flower	E	E	Moderate: High number of records within 5km	Low: Clearing of suitable habitat less than 2m by 2m

Annex 4. Assessments of Significances (BC & EPBC Acts)

BC Act - Cumberland Plain Woodland in the Sydney Basin Bioregion – Critically Endangered Ecological Community (CEEC)	
Description Cumberland Plain Woodland (CPW) occurs on soils derived from Wianamatta Shale, and throughout the driest part of the Sydney Basin. Before European settlement, it was extensive across the Cumberland Plain, western Sydney. Today, only 9 percent of the original extent remains intact, with the remnants scattered widely across the Cumberland Plain. Good examples can be seen at Scheyville National Park and Mulgoa Nature Reserve. The dominant canopy trees of Cumberland Plain Woodland are Grey Box (*Eucalyptus moluccana*) and Forest Red Gum (*E. tereticornis*), with Narrow-leaved Ironbark (*E. crebra*), Spotted Gum (*Corymbia maculata*) and Thin-leaved Stringybark (*E. eugenioides*) occurring less frequently. The shrub layer is dominated by Blackthorn (*Bursaria spinosa*), and it is common to find abundant grasses such as Kangaroo Grass (*Themeda australis*) and Weeping Meadow Grass (*Microlaena stipoides* var. *stipoides*). Contains many more species and other references should be consulted to identify these.	
Criteria	**Address of Criteria**
a. in the case of a threatened species, whether the proposed development or activity is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction	N/A
b. in the case of an endangered ecological community or critically endangered ecological community, whether the proposed development or activity: i. is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or ii. is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction.	i. The Proposal is not likely to have an adverse effect on the extent of the of the ecological community such that its local occurrence is likely to be placed at risk of extinction. The direct impacts (such as clearing of vegetation) to the TEC as part of the Proposal include removal of native shrubs. The indirect impacts are not likely to have adverse effects on the extent of the of the ecological community such that its local occurrence is likely to be placed at risk of extinction with disturbance to 4 m^2 of low condition vegetation and highly disturbed groundcover dominated by exotic pasture. ii. The Proposal is not likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction.
c. in relation to the habitat of a threatened species or ecological community: i. the extent to which habitat is likely to be removed or modified as a result of the proposed development or activity, and ii. whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed development or activity, and iii. the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species or ecological community in the locality,	i. The extent of habitat to be removed as a result of the Proposal is minor, there will be minimal clearing of 4 m^2 of the TEC within this disturbance area, reduced to the removal of some native shrub species. ii. The area of habitat is not likely to become fragmented or isolated from other areas of habitat as a result of the Proposal. The current condition of the existing habitat is highly degraded, occurring as scattered fragments within agricultural lands. The removal of up to 4 m^2 of mainly exotic pasture grasses and native shrubs will not create new gaps in the canopy structure or additional fragmentation. ii. The importance of the habitat to be removed and modified will not impact or effect the long-term survival of the ecological community in the locality, with impacts restricted to removal of up to 4 m^2 of highly degraded habitat.
d. whether the proposed development or activity is likely to have an adverse effect on any declared area of outstanding biodiversity value (either directly or indirectly),	No areas of declared outstanding biodiversity value occur within the areas to be potentially directly or indirectly impacted by the Proposal.

BC Act - Cumberland Plain Woodland in the Sydney Basin Bioregion – Critically Endangered Ecological Community (CEEC)	
e. Whether the proposed development or activity is or is part of a key threatening process or is likely to increase the impact of a key threatening process.	The following Key Threatening Processes (KTPs) are known to exist or have the potential to be exacerbated by the Proposal: • Removal of native vegetation • Weed and foreign plant invasion, particularly African Olive and exotic grasses. • Lack of awareness and appreciation of Cumberland Plain Woodland, with the perception that the community is unattractive. These KPTs would be mitigated through onsite management (e.g. waste disposal, cleaning equipment before mobilisation to site, rehabilitation to remove disturbed priority weeds post completion) and construction planning for diverting water and run off.
Conclusion: It is recommended that RR adopts practises that minimise the potential for and manage risks of indirect impacts from interactions e.g. waste disposal, cleaning equipment before mobilisation on site and rehabilitation to remove disturbed priority weeds at site closures. Given implementation of these practices, the Proposal is unlikely to result in a significant impact on the critically endangered ecological community Cumberland Plain Woodland.	

BC Act – River-Flat Eucalypt Forest on Coastal Floodplains of the NSW North Coast, Sydney Basin and South East Corner bioregions - Endangered Ecological Community (EEC)	
Description River-Flat Eucalypt Forest on Coastal Floodplains of the NSW North Coast, Sydney Basin and South East Corner bioregions is the name given to the ecological community associated with silts, clay-loams and sandy loams, on periodically inundated alluvial flats, drainage lines and river terraces associated with coastal floodplains. Floodplains are level landform patterns on which there may be active erosion and aggradation by channelled and overbank stream flow with an average recurrence interval of 100 years or less (adapted from Speight 1990). River-Flat Eucalypt Forest on Coastal Floodplains generally occurs below 50 m elevation, but may occur on localised river flats up to 250 m above sea level in the NSW North Coast, Sydney Basin and South East Corner bioregions. The structure of the community may vary from tall open forests to woodlands, although partial clearing may have reduced the canopy to scattered trees. Typically these forests and woodlands form mosaics with other floodplain forest communities and treeless wetlands, and often they fringe treeless floodplain lagoons or wetlands with semi-permanent standing water (e.g. Goodrick 1970). The composition of River-Flat Eucalypt Forest on Coastal Floodplains is primarily determined by the frequency and duration of waterlogging and the texture, nutrient and moisture content of the soil. Composition also varies with latitude.	
Criteria	Address of Criteria
a. in the case of a threatened species, whether the proposed development or activity is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction	N/A

BC Act – River-Flat Eucalypt Forest on Coastal Floodplains of the NSW North Coast, Sydney Basin and South East Corner bioregions - Endangered Ecological Community (EEC)	
b. in the case of an endangered ecological community or critically endangered ecological community, whether the proposed development or activity: ii.is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction.	ii. The Proposal is not likely to have an adverse effect on the extent of the of the ecological community such that its local occurrence is likely to be placed at risk of extinction. The direct impacts (such as clearing of vegetation) to the TEC as part of the Proposal includes removal of up to 20 m^2 of low condition vegetation for replacement of Pole 16. The Proposal is not likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction.
c. in relation to the habitat of a threatened species or ecological community: ii.the extent to which habitat is likely to be removed or modified as a result of the proposed development or activity, and iii.whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed development or activity, and the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species or ecological community in the locality,	ii. The extent of habitat to be removed as a result of the Proposal is minor, there will be minimal clearing of 12 m^2 of the TEC within this disturbance area, reduced to the removal of some native shrub species. iv. The area of habitat is not likely to become fragmented or isolated from other areas of habitat as a result of the Proposal. The current condition of the existing habitat is highly degraded, occurring as scattered fragments within agricultural lands. The removal of up to 20 m^2 of mainly exotic pasture grasses and native shrubs will not create new gaps in the canopy structure or additional fragmentation. The importance of the habitat to be removed and modified will not impact or effect the long-term survival of the ecological community in the locality, with impacts restricted to removal of up to 12 m^2 of highly degraded habitat.
d. whether the proposed development or activity is likely to have an adverse effect on any declared area of outstanding biodiversity value (either directly or indirectly),	No areas of declared outstanding biodiversity value occur within the areas to be potentially directly or indirectly impacted by the Proposal.
e. Whether the proposed development or activity is or is part of a key threatening process or is likely to increase the impact of a key threatening process.	The following Key Threatening Processes (KTPs) are known to exist or have the potential to be exacerbated by the Proposal: • Removal of native vegetation • Weed and foreign plant invasion, particularly African Olive and exotic grasses. • Lack of awareness and appreciation of Cumberland Plain Woodland, with the perception that the community is unattractive. These KTPs would be mitigated through onsite management (e.g. waste disposal, cleaning equipment before mobilisation to site, rehabilitation to remove disturbed priority weeds post completion) and construction planning for diverting water and run off.
Conclusion: It is recommended that RR adopts practises that minimise the potential for and manage risks of indirect impacts from interactions e.g. waste disposal, cleaning equipment before mobilisation on site and rehabilitation to remove disturbed priority weeds at site closures. Given implementation of these practices, the Proposal is unlikely to result in a significant impact on the endangered ecological community River-flat Eucalypt Forest..	

EPBC Act - Cumberland Plain Woodland in the Sydney Basin Bioregion – Critically Endangered Ecological Community (CEEC)

Description

Cumberland Plain Woodlands (CPW) is the name for the distinct groupings of plants that occur on the clay soils derived from shale on the undulating Cumberland Plain in central New South Wales. The dominant canopy trees of Cumberland Plain Woodland are Grey Box (*Eucalyptus moluccana*) and Forest Red Gum (*E. tereticornis*), with Narrow-leaved Ironbark (*E. crebra*), Spotted Gum (*Corymbia* maculata) and Thin-leaved Stringybark (*E. eugenioides*) occurring less frequently. The shrub layer is dominated by Blackthorn (*Bursaria spinosa*), and it is common to find abundant grasses such as Kangaroo Grass (*Themeda australis*) and Weeping Meadow Grass (*Microlaena stipoides* var. *stipoides*).

Distribution

CPW occurs on soils derived from Wianamatta Shale, and throughout the driest part of the Sydney Basin. Before European settlement, CPW was extensive across the Cumberland Plain, western Sydney. In 1877 CPW covered 107,000 hectares occupying approximately 30 per cent of the Sydney Basin. This community type was once widespread in the plains but has been reduced to a few fragmented stands by human use for farming, industry and housing. Today less than six per cent remains in small fragments scattered across the western suburbs of Sydney, totalling only 6400 hectares. The remaining fragments occur in areas subject to intense pressure from urban development. Good examples can be seen at Scheyville National Park and Mulgoa Nature Reserve.

A total of 4 m^2 of CPW is proposed to be removed at the site. This is in low condition present as regrowth.

Impact Summary

The entire proposal area is present in a mainly degraded state having being subject to past clearing and weed invasion in low condition regrowth vegetation.

Assessment of significance

An action is likely to have a significant impact on a critically endangered or endangered ecological community if there is a real chance or possibility that it will:

Criteria	Address of Criteria
• reduce the extent of an ecological community	A total of 4 m^2 of CPW occurs in the proposal area. This is made up of low condition present as regrowth. Only 4 m^2 of the CPW within the site will be removed as a result of the proposal. The patches at the site are highly fragmented and relatively degraded as a result of previous clearing and weed invasion. As such, the remnant CPW present at the site is already fragmented and relatively isolated from any other patches of CPW in the vicinity of the site. A total of 17,211 ha of CPW (of which 6,568 ha is in condition class A, B or C) occurs within the Cumberland (Hawkesbury- Nepean and Sydney Metro) sub–Catchment Management Area (CMA), in which the majority of the proposal is located. The clearing of 4 m^2 of CPW represents an insignificant part of the total extent of the vegetation type in the Cumberland (Hawkesbury Nepean and Sydney Metro) sub CMA.
• fragment or increase fragmentation of an ecological community, for example by clearing vegetation for roads or transmission lines	The remnant CPW present at the site is already fragmented and relatively isolated from any other patches of CPW in the vicinity of the site.
• adversely affect habitat critical to the survival of an ecological community	The importance of the habitat within the proposal area to the survival of the community is unknown. Given the small size, relatively poor condition (previously cleared/modified and subject to weed invasion) and relative isolation of the remnant patches at the site, the habitat present is unlikely to represent important habitat for the community across it range.

EPBC Act - Cumberland Plain Woodland in the Sydney Basin Bioregion – Critically Endangered Ecological Community (CEEC)	
• modify or destroy abiotic (non-living) factors (such as water, nutrients, or soil) necessary for an ecological community's survival, including reduction of groundwater levels, or substantial alteration of surface water drainage patterns	The proposal would involve the clearing of approximately 4 m^2 of CPW, and therefore destroy abiotic factors necessary for the CEEC survival within the development footprint. Changes to groundwater levels are not expected to occur as a result of the proposal. Changes to surface water drainage (including sedimentation) as a result of development associated with the proposal may occur. Potential impacts of water run-off, sedimentation and contamination to adjacent native vegetation/ecological communities would be managed through implementation of measures within site management plans including the Construction Environmental Management Plan (CEMP).
• cause a substantial change in the species composition of an occurrence of an ecological community, including causing a decline or loss of functionally important species, for example through regular burning or flora or fauna harvesting	A total of 4 m^2 of CPW occurs in the proposal area. This is made up of low condition present as regrowth. The removal of this will not cause a substantial change in the species composition of an occurrence of an ecological community.
• cause a substantial reduction in the quality or integrity of an occurrence of an ecological community, including, but not limited to: ▪ -- assisting invasive species, that are harmful to the listed ecological community, to become established, or causing regular mobilisation of fertilisers, herbicides or other chemicals or pollutants into the ecological community which kill or inhibit the growth of species in the ecological community	The proposal would result in the removal of all CPW within the site through the clearing of approximately 4 m^2 of the CEEC. Weed species are already present within the community at the site. The proposal is unlikely to further exacerbate the introduction or spread of invasive weed species at the site through implementation of controls within the CEMP. Potential contamination issues with adjacent native vegetation will also be controlled for within the CEMP. Key threatening processes identified under the EPBC Act that are affecting CPW include land clearance and loss and degradation of native plant and animal habitat by invasion of escaped garden plants. To prevent indirect impacts, EE will prepare and implement a Construction Environment Management Plan (CEMP) for vegetation clearing to ensure that all direct and indirect impacts (e.g. utilities, access, stormwater run-off etc.) are contained within the development footprint. In addition, the CEMP will include, but not be limited to: • temporary and permanent protective fencing will be erected around all surround native vegetation to minimise any inadvertent damage • where practical and possible, habitat values (e.g. logs, stags, hollows) from trees that are removed in the development area will be salvaged for fauna habitat values
• interfere with the recovery of an ecological community.	An approved recovery plan exists for CPW as part of the recovery plan for the Cumberland Plain (DECCW 2010). The main recovery objectives of this recovery plan include (DECCW 2010): • To build a protected area network, comprising public and private lands, focused on the priority conservation lands • To deliver best practice management for threatened biodiversity across the Cumberland Plain, with a specific focus on the priority conservation lands and public lands where the priority management objectives are compatible with biodiversity conservation • To develop and understanding and enhanced awareness in the community of the Cumberland Plain's threatened biodiversity, the best practice standards for its management and the recovery program • To increase knowledge of the threats to the survival of the Cumberland Plain's threatened biodiversity, and thereby improve capacity to manage these in a strategic and effective manner. The proposal will not interfere with the recovery of the CEEC through removal of 4 m^2 of the community at the site.

EPBC Act - Cumberland Plain Woodland in the Sydney Basin Bioregion – Critically Endangered Ecological Community (CEEC)

Conclusion: CPW at the site is present within several small, isolated, fragmented and disturbed, stands of the CEEC. However, the proposal is considered unlikely to result in a significant impact to CPW due to the removal of all 4 m^2 of the remnant stands of the community within the site.

EPBC Act - River-flat Eucalypt Forest on coastal floodplains of southern New South Wales and eastern Victoria – Critically Endangered Ecological Community (CEEC)

Description

River-flat Eucalypt Forest ecological community occurs on alluvial landforms related to coastal river floodplains and associated sites where transient water accumulates, including floodplains, river-banks, riparian zones, lake foreshores, creek lines (including the floors of tributary gullies), floodplain pockets, depressions, alluvial flats, fans, terraces, and localised colluvial fans. Floodplains may be occasionally or more often saturated, water-logged or inundated. The ecological community is typically found below 50 metres above sea-level (m ASL), although it can occur up to 250 m ASL (e.g. on floodplain pockets and plateaus above nick points).

Distribution

The ecological community occurs It is found on the floodplains of the eastern and southern watershed of the Great Dividing Range from central and southern New South Wales to eastern Victoria.

A total of 12 m^2 of River-Flat Eucalypt Forest is proposed to be removed at the site.

Impact Summary

The entire proposal area is present in a mainly degraded state having been subject to past clearing and weed invasion in low condition regrowth vegetation.

Assessment of significance

An action is likely to have a significant impact on a critically endangered or endangered ecological community if there is a real chance or possibility that it will:

Criteria	Address of Criteria
• reduce the extent of an ecological community	Only 12 m^2 of the River-Flat Eucalypt Forest (RFEF) within the site will be removed as a result of the proposal. The patches at the site are highly fragmented and relatively degraded as a result of previous clearing and weed invasion. As such, the remnant RFEF present at the site is already fragmented and relatively isolated from any other patches of CPW in the vicinity of the site. The clearing of 12 m^2 of RFEF represents an insignificant part of the total extent of the vegetation type in the Cumberland (Hawkesbury Nepean and Sydney Metro) sub CMA.
• fragment or increase fragmentation of an ecological community, for example by clearing vegetation for roads or transmission lines	The remnant RFEF present at the site is already fragmented and relatively isolated from any other patches of RFEF in the vicinity of the site.
• adversely affect habitat critical to the survival of an ecological community	The importance of the habitat within the proposal area to the survival of the community is unknown. Given the small size, relatively poor condition (previously cleared/modified and subject to weed invasion) and relative isolation of the remnant patches at the site, the habitat present is unlikely to represent important habitat for the community across it range.
• modify or destroy abiotic (non-living) factors (such as water, nutrients, or soil) necessary for an ecological community's survival, including	The proposal would involve the clearing of approximately 12 m^2 of RFEF, and therefore destroy abiotic factors necessary for the CEEC survival within the development footprint. Changes to groundwater levels are not expected to occur as a result of the proposal. Changes to surface water drainage (including sedimentation) as a result of development associated with the proposal may occur. Potential impacts of water run-off, sedimentation and contamination to adjacent native vegetation/ecological communities would be managed through implementation of measures within site management plans including the Construction Environmental Management Plan (CEMP).

reduction of groundwater levels, or substantial alteration of surface water drainage patterns	
• cause a substantial change in the species composition of an occurrence of an ecological community, including causing a decline or loss of functionally important species, for example through regular burning or flora or fauna harvesting	A total of 12 m^2 of RFEF occurs in the proposal area. The removal of this will not cause a substantial change in the species composition of an occurrence of an ecological community.
• cause a substantial reduction in the quality or integrity of an occurrence of an ecological community, including, but not limited to: ▪ -- assisting invasive species, that are harmful to the listed ecological community, to become established, or causing regular mobilisation of fertilisers, herbicides or other chemicals or pollutants into the ecological community which kill or inhibit the growth of species in the ecological community	The proposal would result in the removal of all RFEF within the site through the clearing of approximately 12 m^2 of the CEEC. Weed species are already present within the community at the site. The proposal is unlikely to further exacerbate the introduction or spread of invasive weed species at the site through implementation of controls within the CEMP. Potential contamination issues with adjacent native vegetation will also be controlled for within the CEMP. Key threatening processes identified under the EPBC Act that are affecting RFEF include land clearance and loss and degradation of native plant and animal habitat by invasion of escaped garden plants. To prevent indirect impacts, EE will prepare and implement a Construction Environment Management Plan (CEMP) for vegetation clearing to ensure that all direct and indirect impacts (e.g. utilities, access, stormwater run-off etc.) are contained within the development footprint. In addition, the CEMP will include, but not be limited to: • temporary and permanent protective fencing will be erected around all surround native vegetation to minimise any inadvertent damage • where practical and possible, habitat values (e.g. logs, stags, hollows) from trees that are removed in the development area will be salvaged for fauna habitat values
• interfere with the recovery of an ecological community.	An approved recovery plan exists for RFEF as part of the recovery plan for the Cumberland Plain (DECCW 2010). The main recovery objectives of this recovery plan include (DECCW 2010): • To build a protected area network, comprising public and private lands, focused on the priority conservation lands • To deliver best practice management for threatened biodiversity across the Cumberland Plain, with a specific focus on the priority conservation lands and public lands where the priority management objectives are compatible with biodiversity conservation • To develop and understanding and enhanced awareness in the community of the Cumberland Plain's threatened biodiversity, the best practice standards for its management and the recovery program • To increase knowledge of the threats to the survival of the Cumberland Plain's threatened biodiversity, and thereby improve capacity to manage these in a strategic and effective manner. The proposal will not interfere with the recovery of the CEEC through removal of 12 m^2 of the community at the site.
Conclusion: RFEF at the site is present within several small, isolated, fragmented and disturbed, stands of the CEEC. However, the proposal is considered unlikely to result in a significant impact to RFEF due to the removal of all 12 m^2 of the remnant stands of the community within the site.	

Annex 5. Design Plans

LEGEND

SERVICES

- OVERHEAD POWER — OE —
- MOBILE UNDERGROUND DISTRIBUTION POWER. — E —
- SEWER — S —
- DRAINAGE
- RIPARIAN CORRIDOR
- 100 yr ARI FLOOD EXTENT
- NEW SECURITY FENCE
- EXISTING FENCE
- PROPERTY BOUNDARY
- EXISTING EASEMENT
- 10m - APZ (ASSET PROTECTION ZONE). — APZ —
- PROPOSED DRIVEWAY INCLUDING EASEMENT.
- CONCRETE TRAFFIC BARRIER
- SAG PIT
- STORMWATER GRATED PIT
- PIT / LINTEL
- CONTROL CABLE PIT
- SB+LB — SECURITY BOLLARD + YARD LIGHT BOLLARD, REFER TO Drg #. 503665
- WML+MS — WALL MOUNTED LIGHTING + MOTION SENSOR - CLIPSAL 750WPR OR EQUIV. BY OTHERS.
- LP+MS — LIGHT POLE + MOTION SENSOR - CLIPSAL 750WPR OR EQUIV. 3.5m NOM. HEIGHT POLE + AUSPOLE PRODUCT, REFER TO Drg #. 398287
- LM — LIGHTNING MAST 15m HIGH - Drg #. 397978
- DS — DELUGE SHOWER - Drg #. 058205
- B — BOLLARD - Drg #. 058205
- FO — FIBRE OPTIC BOX

SYMBOLS REPRESENTING PHYSICAL STRUCTURES SUCH AS POWER POLES & PITS ARE DIAGRAMMATIC ONLY & DO NOT NECESSARILY REPRESENT THE ACTUAL SIZE & EXTENT OF THESE FEATURES.

EXISTING BOUNDARY 125m
5°35'35"
EXISTING BOUNDARY 50.795m
275°35'35"
EXISTING BOUNDARY 76.35m
95°35'35"
EXISTING BOUNDARY 125m
185°35'35"

DP 1235004
9780m²

CENTRE OF PROPOSED FUTURE FEEDER BAY 1
CENTRE OF PROPOSED FUTURE FEEDER BAY 2

NOTE:
REFER TO CIVIL DRAWINGS FOR DETAIL PROPOSED LEVELS AND SECTIONS

NEW CONCRETE POLE (P1) 16.6m HEIGHT ABOVE GROUND

INSTALL 132kV OVERHEAD LINE FEEDING MOBILE SUBSTATION

RIP RAP SCOUR PROTECTION REFER TO CIVIL DRAWINGS

ISOLATION PANEL TO BE INSTALLED BETWEEN NEW SECURITY FENCE AND EXISTING CHAINWIRE FENCE, REFER TO EARTHING DETAILS

SAFETY STATION, REFER TO EE STD. Drg No. 519575

FIRE HYDRANT BOOSTER ASSEMBLY AND ENCLOSURE, REFER TO Drg. 532568

OUTLINE OF EXISTING DRIVEWAY

1m WIDE PERSONNEL GATE

COLEMAN LOOP

SB+LB LP+MS

CAR PARK

BUILDING AMENITIES

VEHICLE ACCESS SECURITY GATE, POST CENTRES TO SUIT 7500mm

PAVEMENT PLAN & DETAILS REFER TO Drg. No. 532535

EE SECURITY FENCE REFER TO Drg. 518105

EE SECURITY FENCE

GRAVEL AREA

BUND WALL
BUND RAMP 1% FALL
CENTRE OF MOBILE SUBSTATION BUND
CONTROL ROOM
MOBILE SUBSTATION
WML+MS
DS
FO
FIBRE OPTIC BOX
STAIRS

REF. TO HYDRAULIC DRAWINGS FOR OIL WATER SEPARATION DETAILS

NEW OVERHEAD CABLE SUPPORT H-POLE STRUCTURE (P3 & P4) BY MAINS DESIGN.

NEW OVERHEAD CABLE SUPPORT POLE (P2) BY MAINS DESIGN.

NEW OVERHEAD CABLESUPPORT H-POLE STRUCTURE (P5 & P6) BY MAINS DESIGN. REF. NOTE 3

P1 P2 P3 P4 P5 P6

FSL 88.71 FSL 89.14 FSL 89.116 FSL 89.03 FSL 88.67 FSL 88.84 FSL 89.12 FSL 88.52 FSL 89.12 FSL 88.52 FSL 88.91

636 OFFSET EXISTING FENCE
1801 OFFSET EXISTING FENCE
5553 OFFSET EXISTING FENCE

1 2 3

NOTES

1. LOCATION OF FIBRE OPTIC (FO) BOX IS SHOWN INDICATIVE ONLY.
2. FIBRE OPTIC BOX LOCATION TO BE 2m MIN. FROM EE SECURITY FENCE.
3. FOR P5 & P6, PROVIDE PIER SLEEVE FOR 450ø PIERS.

FOR TENDER
NOT FOR CONSTRUCTION
REVISION: 4
DATE: 17/05/24
Amendment:

AMENDMENTS			
1	ORIGINAL ISSUE	JOB No | WPR_ 000499	
2	DRAWING REVISED.	JOB No WPR_ 000499	DESIGN KK, DR'N NL, CHD, DATE, APP'D
3	DRAWING REVISED.	JOB No WPR_ 000499	DESIGN KK, DR'N NL, CHD, DATE, APP'D
4	DRAWING REVISED.	JOB No WPR_ 000499	DESIGN KK, DR'N NL, CHD, DATE 23/04/24, APP'D

Civil version 5.3

ORIGINAL SCALE AS SHOWN

APPROVED MANJU PUTHANVEETIL

DESIGNED	KK	DESIGN CHECKED	JC
DRAWN	NL	DRAFTING CHECKED	PJB
DATE	20/12/23		

Endeavour Energy

-	-
COVER PAGE	532530

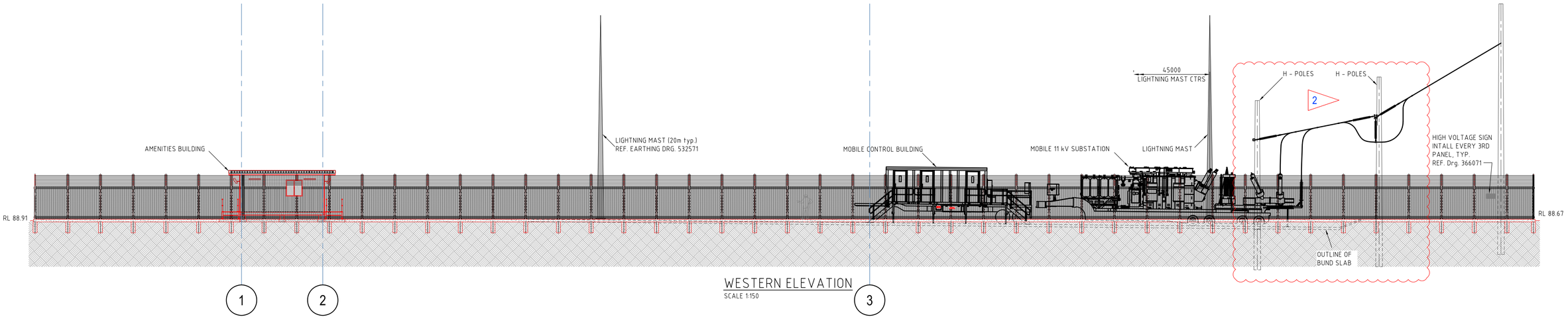
REFERENCE DRAWINGS

DO NOT SCALE
DIMENSIONS IN MILLIMETRES

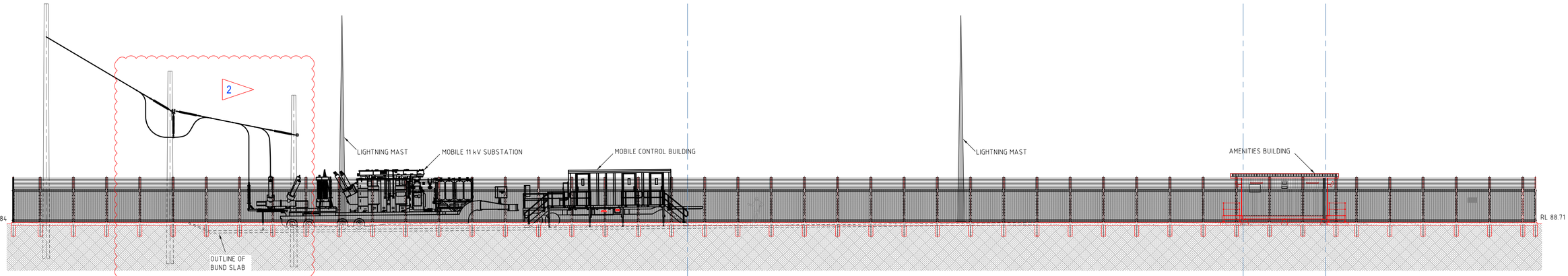
AUTHORISED/CERTIFIED
PETER WEST
CIVIL AND SECONDARY DESIGN MANAGER

CATHERINE PARK MOBILE SUBSTATION
STRUCTURAL DRAWINGS
SITE PLAN - GENERAL ARRANGEMENT

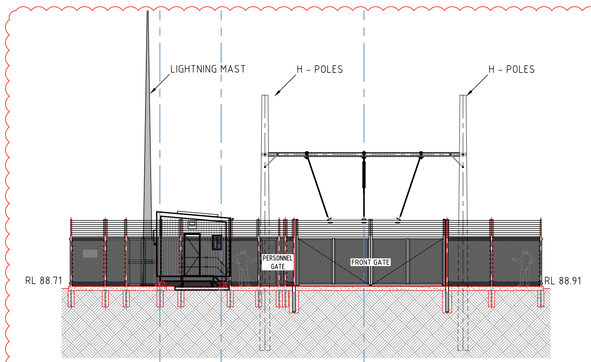
SHEET SIZE A1
532532
REV. 4
SHEET No 1 OF 1 SHEETS



WESTERN ELEVATION
SCALE 1:150

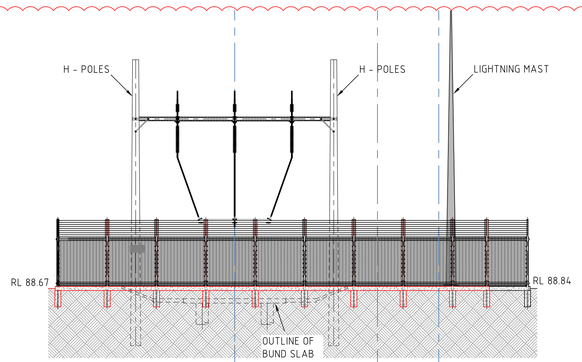


EASTERN ELEVATION
SCALE 1:150



NORTHERN ELEVATION
SCALE 1:150

2



SOUTHERN ELEVATION
SCALE 1:150

2

FOR TENDER
NOT FOR CONSTRUCTION
REVISION: 2
DATE: 31/05/24

Amendment:

AMENDMENTS			
1	ORIGINAL ISSUE	JOB No. NPR - 400499	
2	H-POLES REVISED REFER TO Drg. 532539	JOB No. NPR - 400499	DESIGN KK, DRN NL, CHD, DATE, APPD

Civil version 5.3

ORIGINAL SCALE	AS SHOWN	APPROVED	MANJU PUTHANVEETIL
DESIGNED	KK	DESIGN CHECKED	JC
DRAWN	NL	DRAFTING CHECKED	PJB
DATE	08/05/24		

Endeavour Energy

DO NOT SCALE
DIMENSIONS IN MILLIMETRES

AUTHORISED/CERTIFIED
PETER WEST
CIVIL AND SECONDARY DESIGN MANAGER

REFERENCE DRAWINGS	
COVER PAGE	532530
SITE PLAN - GENERAL ARRANGEMENT	532532

CATHERINE PARK MOBILE SUBSTATION
STRUCTURAL DRAWINGS
SITE ELEVATIONS

SHEET SIZE A1 | 532533 | REV. 2
SHEET No. 1 OF 1 SHEETS

LEGEND

SERVICES

PROPOSED 3m EASEMENT FOR APZ VEGETATION CLEARANCE OUTSIDE THE BOUNDARY FENCE.

ASSET PROTECTION ZONE

APZ LINE — APZ —

DP 1235004
9780m²

EXISTING BOUNDARY 125m
5°35'35"

EXISTING BOUNDARY 50.795m
275°35'35"

EXISTING BOUNDARY 76.35m
95°35'35"

EXISTING BOUNDARY 125m
185°35'35"

7321 REF.
110679
10000
7000
3000
50795
79350
15000
13555
10000
7000
3000

EE SECURITY FENCE
GRAVEL AREA
BUILDING AMENITIES
CAR PARK
BUND RAMP 1% FALL
EE SECURITY FENCE
ASSET PROTECTION ZONE
PROPOSED 3m EASEMENT FOR APZ
ASSET PROTECTION ZONE
PROPOSED 3m EASEMENT FOR APZ VEGETATION CLEARANCE
COLEMAN LOOP

FOR TENDER
NOT FOR CONSTRUCTION
REVISION: 1
DATE: 17/05/24
Amendment:

Endeavour Energy

SITE PLAN	532532
REFERENCE DRAWINGS	
DO NOT SCALE DIMENSIONS IN MILLIMETRES	AUTHORISED/CERTIFIED PETER WEST
CIVIL AND SECONDARY DESIGN MANAGER	

ORIGINAL SCALE AS SHOWN
APPROVED MANJU PUTHANVEETIL

DESIGNED	KK	DESIGN CHECKED	JC
DRAWN	NL	DRAFTING CHECKED	PJB
DATE	26/04/24		

CATHERINE PARK MOBILE SUBSTATION
ASSET PROTECTION
APZ PLAN & VEGETATION CLEARANCE

SHEET SIZE A1 | 532543 | REV. 1
SHEET No 1 OF 1 SHEETS

AMENDMENTS

1	ORIGINAL ISSUE	JOB No | NPR - 0024499

Civil version 5.3

Annex 6. Acoustic Report

(Environmental Noise Impact Assessment, Day Design, August 2023)

This Acoustic Report could be provided upon request.

This information has been removed to protect sensitive personal information.

This information has been removed to protect sensitive Aboriginal heritage information.

Annex 10. Environmental Protection Authority Search

Public registers

+ POEO Public Register
– Contaminated land record of notices
  - About the record of notices
  - List of notified sites
  - Tips for searching
  - Disclaimer
- Dangerous goods licences
- Pesticide licences
- Radiation licences

Home | Public registers | Contaminated land record of notices

Search results

Your search for: LGA: CAMDEN COUNCIL

Search Again | Refine Search

did not find any records in our database.

If a site does not appear on the record it may still be affected by contamination. For example:

- Contamination may be present but the site has not been regulated by the EPA under the Contaminated Land Management Act 1997 or the Environmentally Hazardous Chemicals Act 1985.
- The EPA may be regulating contamination at the site through a licence or notice under the Protection of the Environment Operations Act 1997 (POEO Act).
- Contamination at the site may be being managed under the planning process.

Search TIP

To search for a specific site, search by LGA (local government area) and carefully review all sites listed.

... more search tips

More information about particular sites may be available from:

- The POEO public register
- The appropriate planning authority: for example, on a planning certificate issued by the local council under section 149 of the Environmental Planning and Assessment Act.

See What's in the record and What's not in the record.

If you want to know whether a specific site has been the subject of notices issued by the EPA under the CLM Act, we suggest that you search by Local Government Area only and carefully review the sites that are listed.
This public record provides information about sites regulated by the EPA under the Contaminated Land Management Act 1997, including sites currently and previously regulated under the Environmentally Hazardous Chemicals Act 1985. Your inquiry using the above search criteria has not matched any record of current or former regulation. You should consider searching again using different criteria. The fact that a site does not appear on the record does not necessarily mean that it is not affected by contamination. The site may have been notified to the EPA but not yet assessed, or contamination may be present but the site is not yet being regulated by the EPA. Further information about particular sites may be available from the appropriate planning authority, for example, on a planning certificate issued by the local council under section 149 of the Environmental Planning and Assessment Act. In addition the EPA may be regulating contamination at the site through a licence under the Protection of the Environment Operations Act 1997. You may wish to search the POEO public register

5 March 2024

niche
Environment and Heritage

Contact Us

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PO Box 540 Sandgate
QLD 4017 Australia

Sydney
Brisbane
Cairns
Port Macquarie
Illawarra
Coffs Harbour
Central Coast
Gold Coast
Canberra

Our services

Ecology and biodiversity
Terrestrial
Freshwater
Marine and coastal
Research and monitoring
Wildlife Schools and training

Heritage management
Aboriginal heritage
Historical heritage
Conservation management
Community consultation
Archaeological, built and landscape values

Environmental management and approvals
Impact assessments
Development and activity approvals
Rehabilitation
Stakeholder consultation and facilitation
Project management

Environmental offsetting
Offset strategy and assessment (NSW, QLD, Commonwealth)
Accredited BAM assessors (NSW)
Biodiversity Stewardship Site Agreements (NSW)
Offset site establishment and management
Offset brokerage
Advanced Offset establishment (QLD)