

COTERRA Environment



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 $\textbf{This report was prepared by:} \qquad \textbf{Coterra Pty Ltd trading as COTERRA ENVIRONMENT}$

ABN: ABN: 92 143 411 456

Author(s): K. Watts
Reviewer: K Choo

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Carey Baptist College Inc. 51 Wright Road Harrisdale WA 6112



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Appendices

Appendix 1 Carey Baptist College Forrestdale Campus Master Plan



1 Introduction

1.1 Background

Carey Baptist College operates a primary school campus at Lot 2 (540) Nicholson Road, Forrestdale. This site is approximately 24 kilometres (km) southeast of Perth, within the City of Armadale (Figure 1). The site is zoned 'Rural' under the Metropolitan Region Scheme (MRS) and 'General Rural' under the City of Armadale's Town Planning Scheme 4 (TPS4).

Historically, the site was used for agricultural (stock grazing) purposes. Consultation commenced with the City of Armadale, Department of Planning, Department of Environment and Conservation, and other key stakeholders regarding development of a school at this site in 2011. A Master Plan for the school was prepared to outline the full development proposed for the site. A copy of the current Master Plan is provided in Appendix 1. The development footprint of the school once fully constructed will be approximately 11.14 hectares (ha), which is approximately 50% of the total site area.

Stage 1 of the Forrestdale school campus was approved for construction in 2014. Following completion of initial construction works, the first areas of the school were opened in 2016. Since this time, construction of Stage 1 has been completed.

The initial part of the Stage 2 construction works was approved in 2020 and is now underway. The first area constructed will be the Science, Technology, Engineering and Mathematics (STEM) Centre and associated service road.

An aerial photograph of the site is provided in Figure 2.

1.2 Carpark Extension Area

As part of the construction requirements at the site a small extension to the existing carpark is required to be constructed. The overall extension area footprint, which includes a 5m wide potential construction disturbance area surrounding the carpark pavement, is approximately 1,493m². The location and extent of the carpark and potential construction disturbance zone is shown on Figure 2 to Figure 5. As can be seen from the aerial photograph, much of the area is devoid of native vegetation.

1.3 Existing Clearing Permits and Environmental Offsets

The clearing required for Stage 1 of the campus (4.26 ha) was approved by the (then) Department of Environmental Regulation (DER) in May 2014 (CPS 4860/1).

The permit was amended to increase the size of the clearing area to 4.45 ha in December 2014 (CPS 4860/2).

Clearing required to facilitate the initial Stage 2 works was approved by DWER in July 2020 (CPS 8768/1). This approval allowed for clearing of a further 1.21 ha.

These above clearing permits included the requirement for onsite revegetation works. The revegetation program undertaken and in progress for the site has included:

- 5.4 ha revegetation within the eastern end of the site as part of the Stage 1 approval requirements
- 1.22 ha rehabilitation of Banksia woodland as part of the Stage 2 approval requirements
- 0.30 ha revegetation of Banksia woodland as part of the Stage 2 approval requirements
- 0.51 ha revegetation of mesic woodland vegetation as part of the Stage 2 approval requirements

The location of these revegetation areas is shown on Figure 3.



1.4 Environment Protection and Biodiversity Conservation Act 1999 referral

The full Master Plan was referred to the (then) Federal Department of Sustainability, Environment, Water, Population and Communities under the *Environment Protection and Biodiversity Conservation Act 1999* in 2012 (EPBC Ref: 2012/6561).

Following assessment of the proposal, including the proposed onsite revegetation works, the referral decision was issued as 'Not a Controlled Action'.



2 Site Characteristics

2.1 Topography and Soils

Topography within the proposed clearing area ranges from approximately 26 to 28 metres Australian Height Datum (m AHD) (Figure 4).

The clearing area contains the following soil unit (Figure 4), as described by Jordan (1986):

• Bassendean Sand (S8): 'very light grey at surface, yellow at depth, fine to medium-grained, sub-rounded quartz, moderately well sorted of eolian origin'

These soils are mapped as having a Moderate to Low Acid Sulfate Soil (ASS) risk (Landgate, 2022).

2.2 Hydrology

The maximum groundwater level in this location is approximately 25 mAHD (DWER, 2021), which equates to 1 to 3 m below ground level within the proposed clearing area. Groundwater flow direction is easterly toward Forrestdale Lake (located over 650m east of Lot 2).

A mapped Resource Enhancement category wetland (UFI 15820) is located over 35m to the east of the proposed clearing area (Figure 5).

2.3 Flora and Vegetation

Remnant vegetation at the site is identified to be part of the Southern River vegetation complex which is described as 'Open woodland of *Corymbia calophylla- Eucalyptus marginata- Banksia* sp. with fringing woodland of *Eucalyptus rudis – Melaleuca rhaphiophylla* along creek beds' (Heddle et al., 1980).

Approximately 25% of the original extent of the Southern River Complex remains within the City of Armadale (Table 2-1).

Table 2-1: Southern River Vegetation Complex Remaining Extent

Area	Pre-European extent (ha)	Current extent (ha)	Extent remaining (%)
Swan Coastal Plain (SCP)	58,781	10,832	18.43
Perth Metropolitan Region of SCP	31,146	4,360	14.00
City of Armadale	4,108	1,027	25.01

Source: DBCA, 2019

The proposed clearing extent has limited areas of remnant vegetation present amongst weeds (Figure 2).

A portion of this area was reviewed by Focused Vision Consulting in 2021 who updated the vegetation condition mapping. The condition of the vegetation based on this updated mapping was 'Degraded' as shown on Plate 2-1.



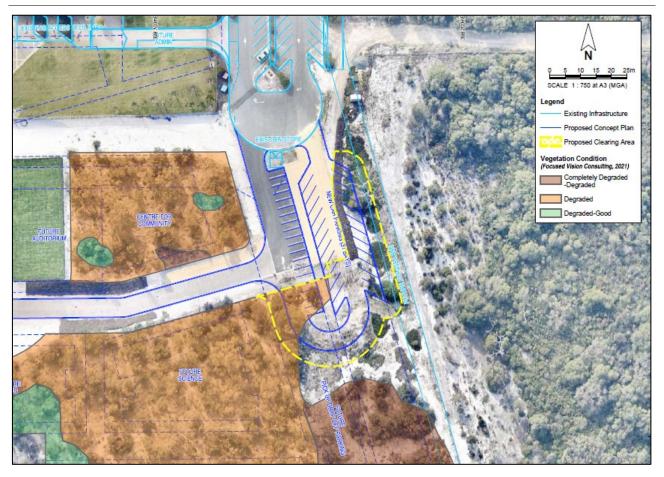


Plate 2-1: Vegetation condition mapping (2021)

Source: Focused Vision Consulting

The native vegetation which may be impacted by the proposed clearing includes the following:

- 1 x Acacia sp. (eastern site boundary; Plate 2-2)
- 1 x juvenile *Eucalyptus* sp. (eastern site boundary; Plate 2-3)
- 3 x Adenanthos cygnorum (in western half of the site; Plate 2-7)
- 10 x Banksia menziesii trees (along western site boundary; Plate 2-8 & Plate 2-9) Note: The total area of the Banksia patch within the potential clearing footprint is approximately 218 m2.
- 1 x Eucalyptus todtiana tree (along western site boundary; Plate 2-8)
- 1 dead tree, species unknown (eastern site boundary; Plate 2-2)

Photographs of the vegetation area are provided in Plate 2-2 to Plate 2-9. Photograph locations are noted on Plate 2-10.





Plate 2-2: Photograph 1 - Eastern side of proposed clearing area, looking south



Plate 2-3: Photograph 2 - South eastern end of proposed clearing area, looking south east





Plate 2-4: Photograph 3 - South eastern end of proposed clearing area, looking north

Date of Photograph: 10 August 2022



Plate 2-5: Photograph 4 - Central section of proposed clearing area, looking north west





Plate 2-6: Photograph 5 - Western section of propsed clearing area, looking north



Plate 2-7: Photograph 6 - Western section of proposed clearing area, looking south





Plate 2-8: Photograph 7 - Western boundary of proposed clearing area, looking west

Date of Photograph: 10 August 2022



Plate 2-9: Photograph 8 - Western boundary of proposed clearing area, looking north





Plate 2-10: Photograph Locations

2.4 Fauna and Habitat

The majority of the proposed clearing area is dominated by weeds with occasional native vegetation species. Approximately 218 m² along the western boundary contains Banksia vegetation, comprising 10 *Banksia menziesii* trees.

These trees may provide potential foraging opportunities for black cockatoo species. The proposed clearing area does not contain any potential black cockatoo breeding or roosting habitat.

The following foraging habitat areas are present in other sections of the site which are located within conservation areas:

- 0.74 ha Banksia woodland rehabilitation area along the northern boundary of the site plus a 0.48ha Banksia woodland rehabilitation area along the southern boundary of the site
- 0.30 ha Banksia woodland revegetation area along the northern boundary of the site
- 0.51 ha mesic woodland revegetation vegetation area containing Marri trees which will provide a minimum of 15% cover of black cockatoo habitat species
- 5.4 ha wetland/mesic revegetation within the eastern end of the site which includes habitat species such as *Eucalyptus rudis* and *Eucalyptus todtiana and Hakea varia*



2.5 Conservation Areas

The following conservation areas are located within and in proximity to the site:

- Onsite revegetation and rehabilitation areas as shown on Figure 3 including:
 - 5.4 ha revegetation within the eastern end of the site as part of the Stage 1 approval requirements
 - 1.22 ha rehabilitation of Banksia woodland as part of the Stage 2 approval requirements
 - 0.30 ha revegetation of Banksia woodland as part of the Stage 2 approval requirements
 - 0.51 ha revegetation of mesic woodland vegetation as part of the Stage 2 approval requirements
- Jandakot Regional Park including Bush Forever site 344 Denis de Young Reserve and Gibbs Road Swamp Bushland (289.8 ha)
- Forrestdale Lake Nature reserve which is part of Bush Forever Site 345 Forrestdale Lake and Surrounding Bushland (344.5 ha)

The site and surround are mapped as an Environmentally Sensitive Area.



3 Native Vegetation Clearing Referral Assessment Criteria

3.1 Criterion 1: The area proposed to be cleared is small relative to the total remaining vegetation

Native vegetation is proposed to be cleared within a 1,493m² area, much of which is not vegetated (Figure 2). Vegetation will remain present on the site within conservation areas created as offsets to previous Native Vegetation Clearing Permit (NVCP) decisions relevant to development onsite as noted in Section 1.3 and shown on Figure 3. The site is also located adjacent to parts of the Jandakot Regional Park (Plate 3-1) in which vegetation is protected. Assessment again the Criteria 1 factors is outlined in Table 3-1.

Table 3-1: NVCR Assessment Criteria Review - Criteria 1

Factor	DWER Threshold and criteria used to determine if a clearing permit is required for Perth Metropolitan Area sites	Assessment Against Clearing Proposed
Extent of proposed clearing for each referral	If more than 1 ha is proposed to be cleared, a permit is required.	Footprint of area which clearing would be undertaken is approximately 1,493 m ² . Entire area is not vegetated (see Figure 2)
Threshold for remaining extent of that native vegetation association or complex in the relevant IBRA bioregion	If less than 10% of that native vegetation association or complex is remaining within the relevant IBRA bioregion, a permit is required.	Southern River vegetation complex has 18.42% of the pre-European extent remaining on the Swan Coastal Plain.
Threshold for remaining native vegetation surrounding the boundary of the proposed clearing	If less than 10% native vegetation is remaining within a 5 km buffer of the proposed clearing, a permit is required.	There is approximately 2,722 ha of vegetation remaining within 5 km (7,835 ha) of the site based on the DPIRD Native Vegetation Extent data (Landgate, 2022; Plate 3-2). This equates to approximately 35%.



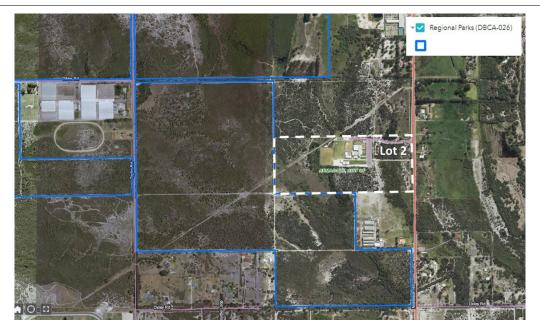


Plate 3-1: Jandakot Regional Park

Source: Landgate, 2022

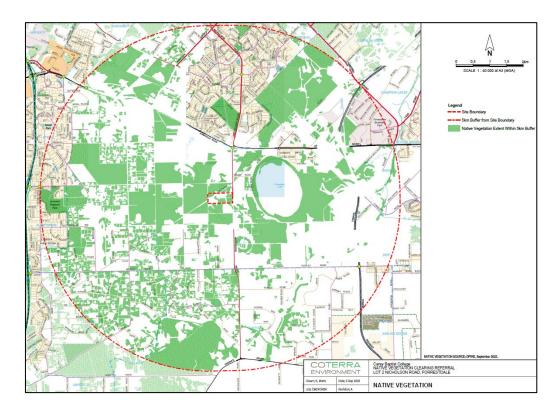


Plate 3-2: Native Vegetation Extent



3.2 Criterion 2: There are no known or likely significant environmental values within the area

The following table outlines the potential impacts of the proposed clearing on significant environmental values within the site and surrounding area.

Table 3-2: NVCR Assessment Criteria Review - Criteria 2

Factor	DWER Considerations used to determine if a permit is required	Assessment Against Clearing Proposed
Vegetation condition	The quality of the existing remnant vegetation within and nearby the area to be cleared, based on the Keighery (1994) and/or Trudgen (1988) vegetation condition scales.	The majority of the area is in completely degraded condition based on the lack of native vegetation. A review of the Banksia area undertaken in 2021 by Focused Vision Consulting found this vegetation to be in a Degraded condition (Plate 2-1).
Significant fauna	Whether the proposed clearing area provides habitat for any threatened, priority, or specially protected fauna.	Black cockatoos are known to occur in this general area. The clearing area does not contain any potential nesting or roosting habitat. The Bankia trees, which occur within 218 m² of the clearing area, may provide foraging habitat opportunities. Similar foraging habitat opportunities are located in the onsite conservation areas and offsite conservation reserves.
Fauna habitat	Whether the proposed clearing area provides critical habitat for fauna.	Due to the limited size of the area to be cleared it is not likely to provide critical habitat for fauna. Larger areas of potential habitat are present within conservation areas onsite and in the adjacent Regional Park.
Significant ecological linkage	Whether the proposed clearing is part of a significant ecological linkage.	The small size of the proposed clearing area will not alter any ecological linkages functions this general area may contribute to.
Mapped ecological community	The proximity of the proposed clearing to any threatened ecological communities or priority ecological communities.	The Banksia vegetation in the eastern side of the propsed clearing area is in a Degraded condition and therefore, would not meet the diagnostic criteria to form part of the Banksia Woodlands of the Swan Coastal Plain TEC.
Significant flora	The proximity of the proposed clearing to any records of threatened or priority flora.	No threatened flora have been identified onsite during the previous botanical surveys. Schoenus pennisetis (P3) and Jacksonia gracillima (P3) were identified in the 2011 flora and vegetation survey within Lot 2 (BEC, 2011), but not within the proposed clearing area.



Factor	DWER Considerations used to determine if a permit is required	Assessment Against Clearing Proposed
Mapped wetland	The proximity of the proposed clearing to any wetlands listed under the Convention on Wetlands of International Importance (Ramsar Convention) or the Directory of Important Wetlands in Australia, or wetlands classified as 'conservation category' or 'resource enhancement'.	A Resource Enhancement wetland is located within Lot 2, over 35m from the proposed clearing area. Forrestdale Lake, which is listed as a Ramsar site, is approximately 620m east of Lot 2.
Mapped watercourse	Whether the proposed clearing may impact on a watercourse (e.g. the structural stability of a watercourse or deterioration of water quality).	There are no mapped watercourses in proximity to the site.
Water resources (e.g. public drinking water supply areas)	Whether the clearing is in an area with high risk of decreasing water quality, rising groundwater levels, or increasing salinity.	The proposed clearing area is located within the proclaimed Jandakot Groundwater Area. The proposed clearing area, however, is not located within any Public Drinking Water Source Areas (PDWSA), with the nearest located over 1.2 km to the west. The small size of the proposed clearing area, the activities propose at this site (i.e. carpark extension) and the distance to the PDWSA mean clearing as proposed is unlikely to impact water resources.
Conservation reserve	Whether the proposed clearing is within a 'conservation reserve' (e.g. Bush Forever; Environmental Protection Policy areas; land managed by the Department of Biodiversity, Conservation and Attractions; Regional Open Spaces; crown reserves vested for conservation purposes).	The clearing area is not within a conservation reserve.
Land and soil quality	Whether the clearing is in an area with high risk of land and/or soil degradation. Factors to determine this may include (among other matters) contaminated sites records, risk of dieback disease or acid sulfate soils, and susceptibility to erosion.	The proposed clearing area comprises Bassendean Sand which has a moderate to low risk of ASS. There will be no excavation as part of the construction works which could intersect any potential ASS. The construction of the carpark extent will follow on immediately after the clearing is undertaken. This will facilitate stabilisation of the land surface through application of road base and asphalt. As such the potential for erosion of surface soils will be avoided.
Heritage-related values and native title matters	Proximity to heritage-related values, including sites of Aboriginal significance, and native title matters.	The site is not located within or adjacent to any Aboriginal heritage sites. The closest sites are located in association with Forrestdale Lake.



3.3 Criterion 3: The state of scientific knowledge of native vegetation within the region is adequate

The site is located within the Perth Metropolitan Region and within the Swan Coastal Plain floristic region. Regional information regarding vegetation types and representation is readily available and can be accessed through the following sources:

- DBCA Threatened and Priority Flora Database
- DBCA Threatened and Priority Ecological Community Database
- DBCA NatureMap Species Report / DBCA Dandjoo system
- DBCA vegetation statistics (DBCA, 2019)
- Flora and vegetation datasets available through the Landgate Shared Land Information Platform (SLIP)

In addition, the following flora and vegetation assessments have occurred onsite:

- Level 2 flora and vegetation survey (BEC, 2011) report provided to DWER as part of previous NVCP applications
- Targeted review of banksia vegetation condition by Focused Vision Consulting in 2021.

The above demonstrates that the relevant state of scientific knowledge within the region and the site has been reviewed and an assessment provided, and therefore the requirements of criterion 3 are considered to have been met.

3.4 Criterion 4: Conditions will not be required to manage environmental impacts

The propsed carpark extension area will follow the approved construction practices for surrounding areas onsite which include procedures to avoid the potential introduction of dieback into construction areas, dust management, water management etc.

As previously noted, a large area of the site has already been set aside for environmental offsets to ensure that vegetation and habitat will remain onsite in perpetuity.



4 Conclusion

The key features of the proposed clearing onsite are summarised as:

- The total size of the carpark extension area is 1,493m²
- Most of the area does not contain native vegetation
- Approximately 218 m² of Banksia vegetation in degraded condition is present in the western side of the area

Based on the assessment against the NVCR criteria, it is concluded that the proposed clearing activity will result in a very low environmental impact and satisfies all four criteria listed in s51DA(4) of the *Environmental Protection Act 1986* and therefore, appears suitably addressed through the NVCR approval process.

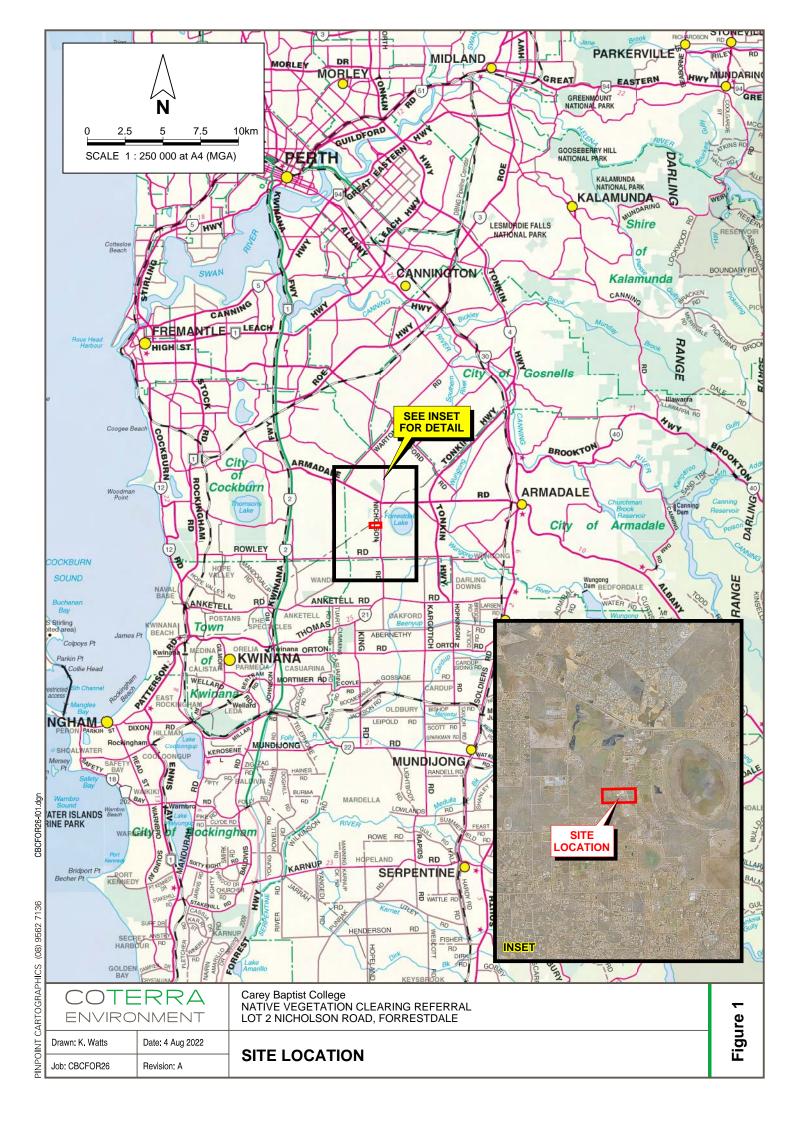


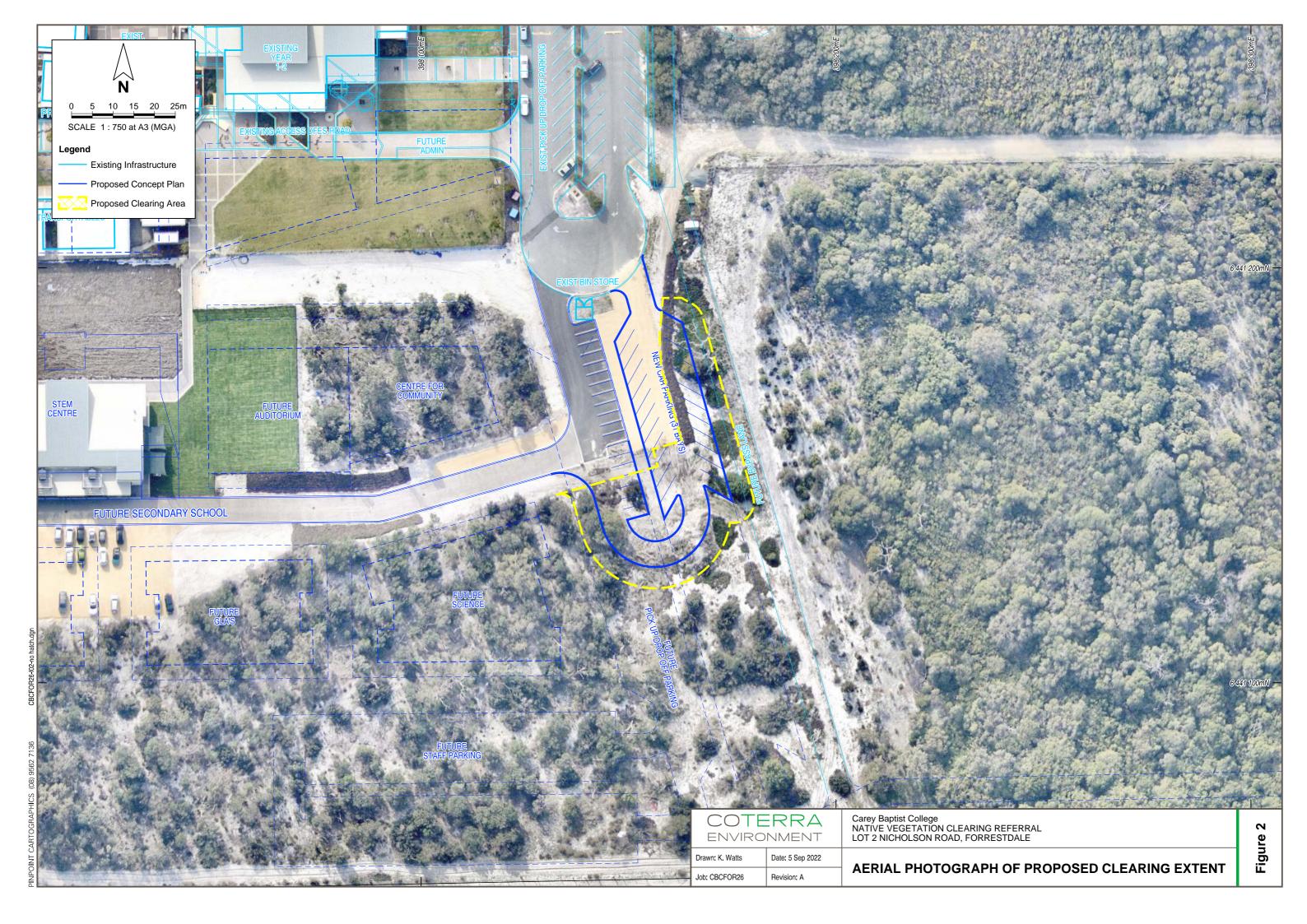
5 References

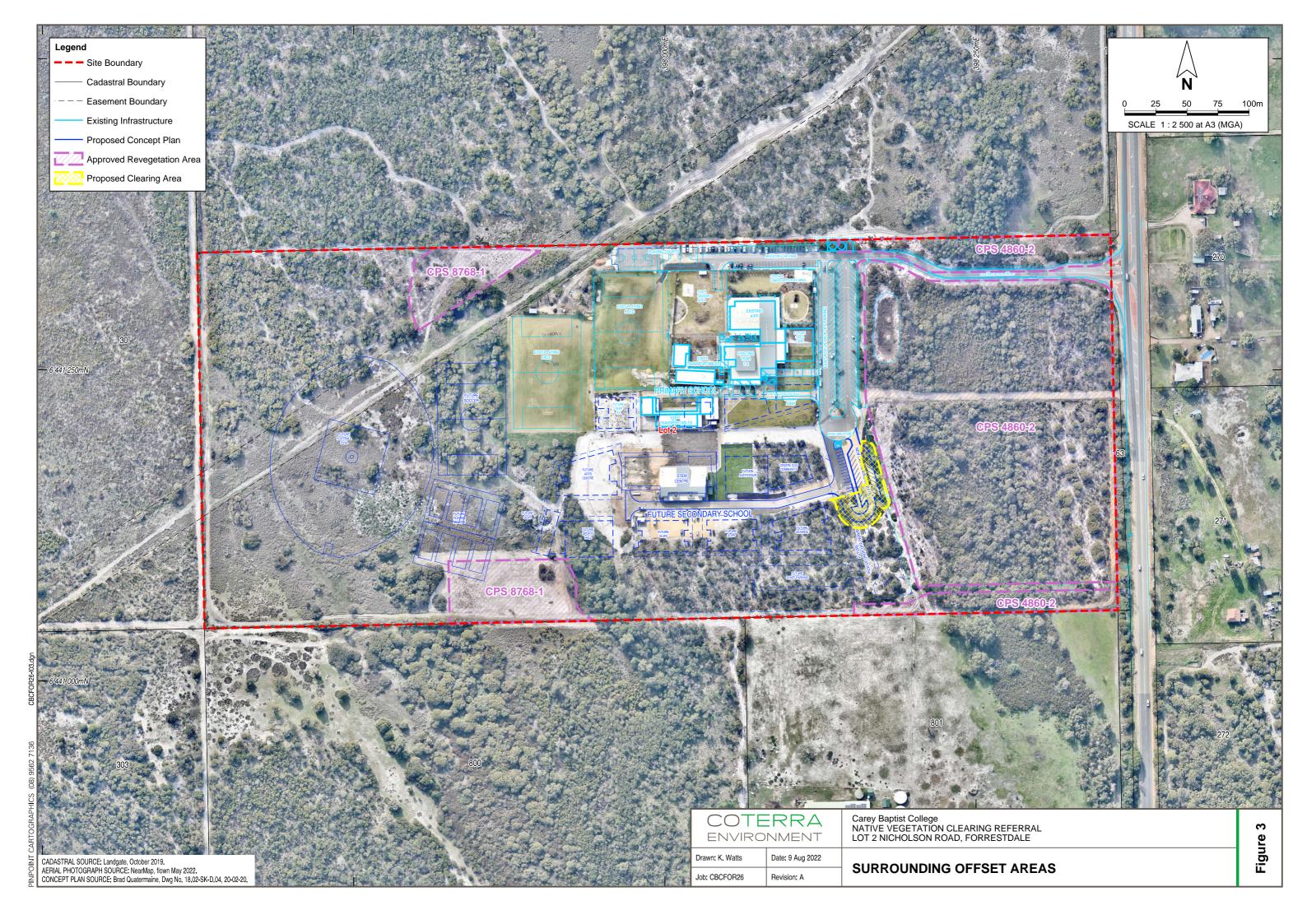
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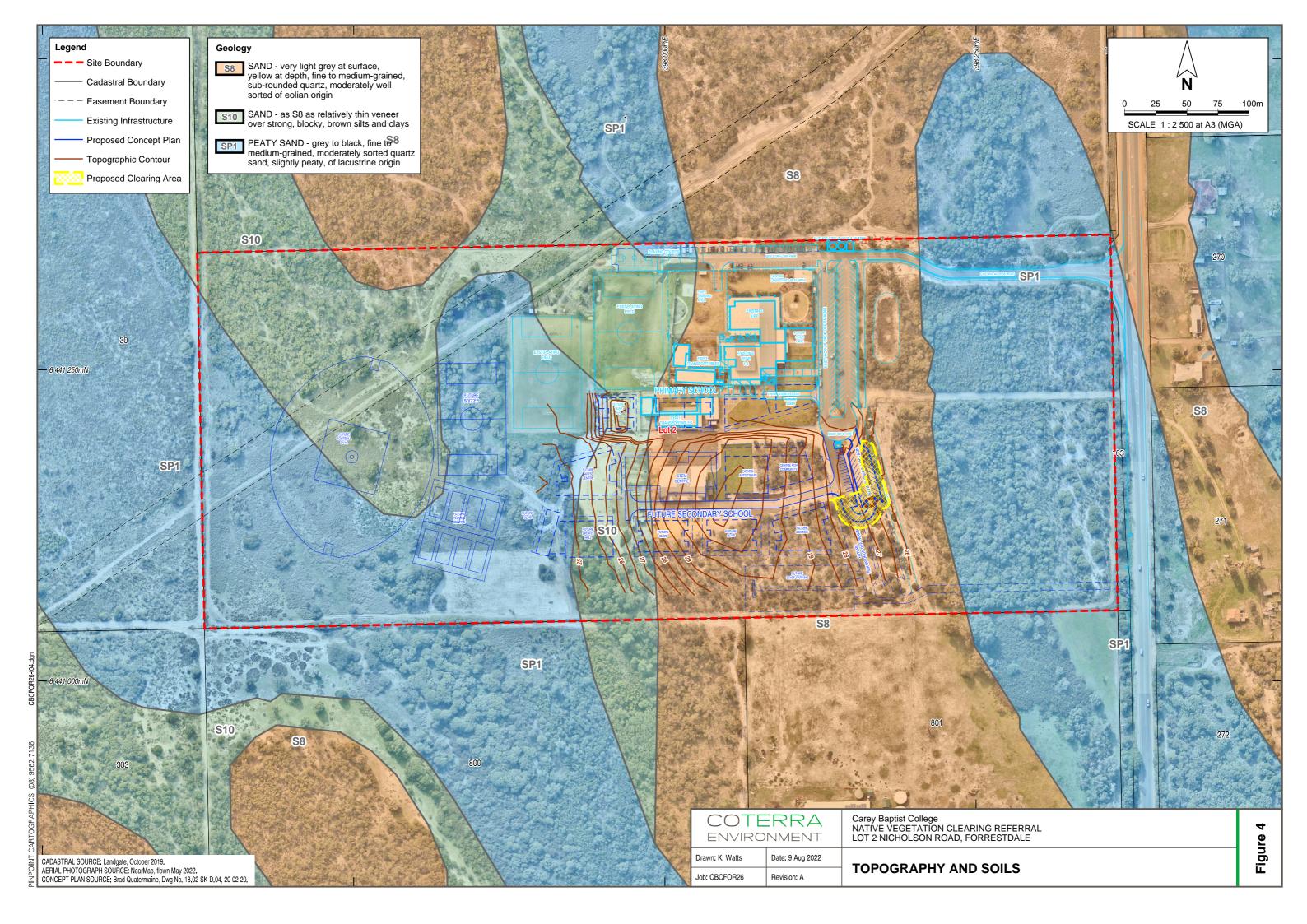


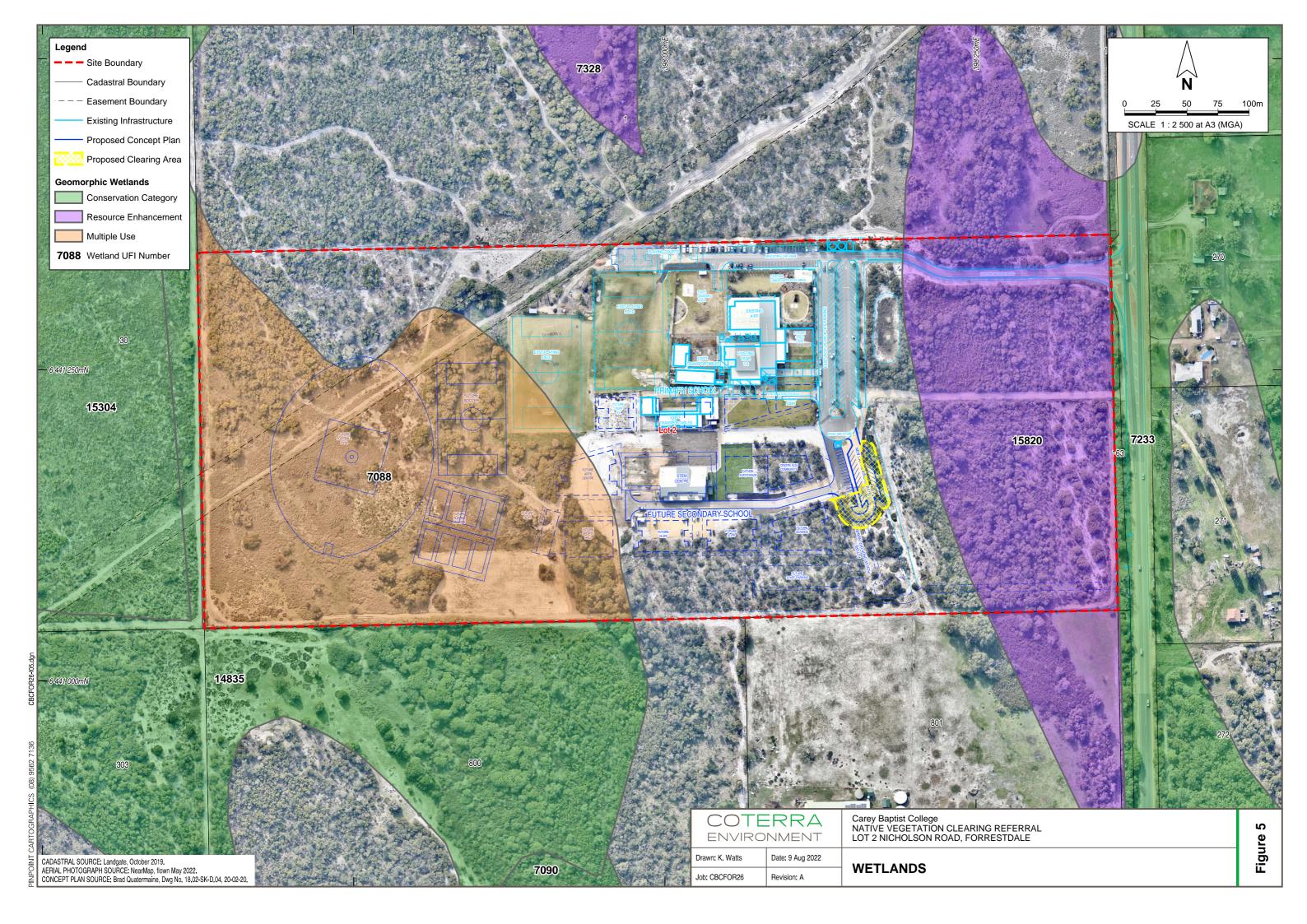
Figures





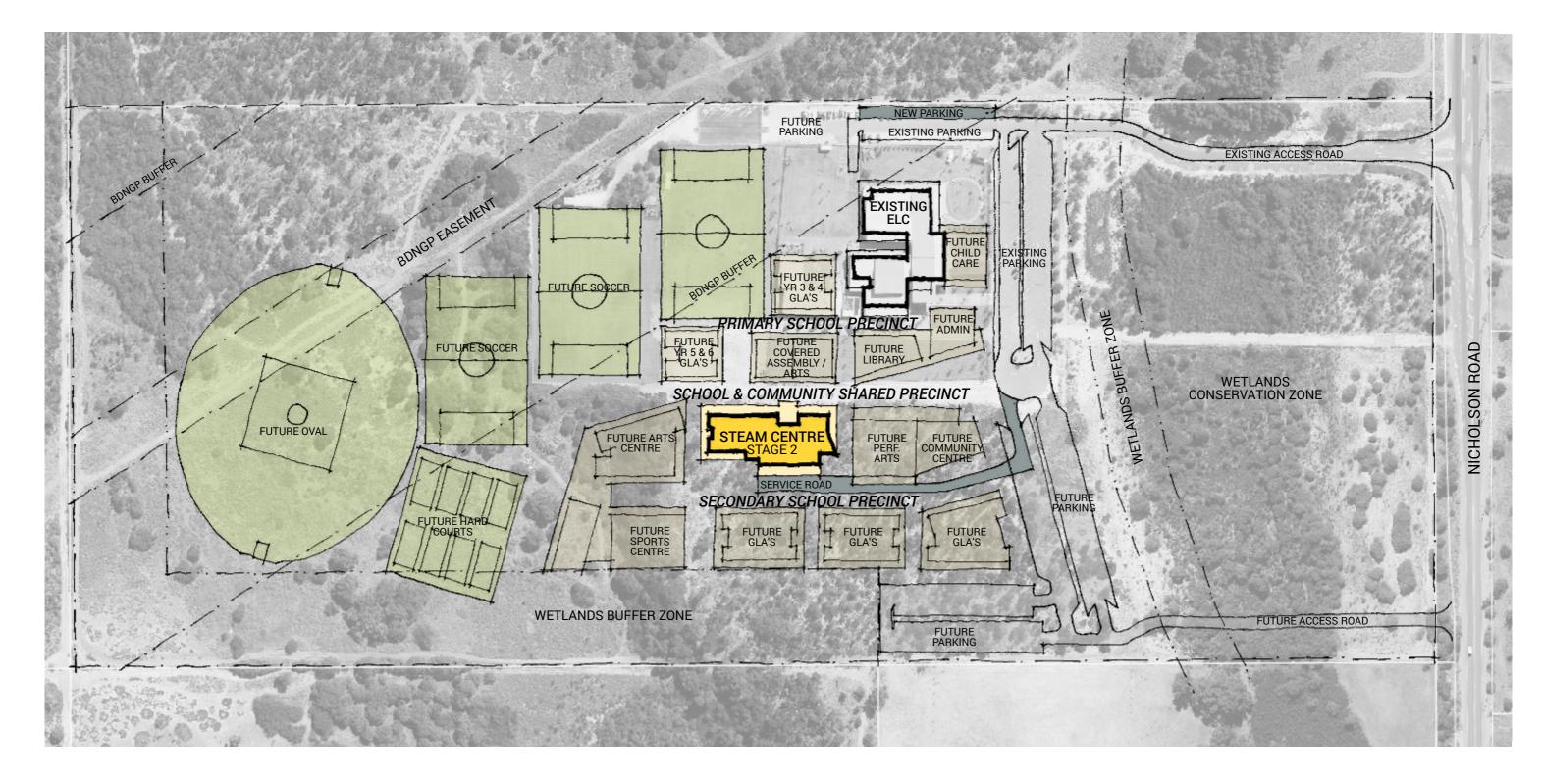








Appendix 1 Carey Baptist College Forrestdale Campus Master Plan







PROJECT

FORRESTDALE STAGE 2 - STEAM

DRAWING:

SITE PLAN



COTERRA

Level 1, 98 Colin Street West Perth WA 6005

T (08) 9381 5513

info@coterra.com.au

