BURCHILLS
SCIENCE AND ENGINEERING



2 Karingal Drive, Pimpama
Vegetation and Fauna Management Plan

Client:	Bosform Pty Ltd
Project Number:	BE200223
Document Number:	BE200223-RP-VFMP-01
Date of Issue:	July 2026

Document Control Record

Prepared by:	Camilo Espinosa Kristina Entwistle Caroline Kelly
Position:	Environmental Scientist Principal Ecologist Principal Environmental Scientist
Date:	July 2026

Approved by:	Caroline Kelly
Position:	Principal Environmental Scientist
Date:	July 2026

Version No.	Description	Date	Prepared	Approved
00	Initial issue	24.03.2026	CE	CK
01	Revised earthworks extent	07.07.2026	CE	CK

Recipients are responsible for eliminating all superseded documents in their possession.

Coote Burchills Engineering Pty Ltd ACN: 166 942 365

GOLD COAST – Level 2, 26 Marine Parade Southport QLD 4215 - PO Box 3766, Australia Fair Southport QLD 4215
BRISBANE – Level 25, 215 Adelaide Street Brisbane QLD 4000 – GPO Box 3083, Brisbane QLD 4001
TOOWOOMBA – Unit 4, 462 Ruthven Street Toowoomba QLD 4350 - PO Box 1439, Toowoomba QLD 4350

MORETON BAY I SUNSHINE COAST I IPSWICH I BANGALOW

RELIANCE, USES and LIMITATIONS

This report is copyright and is to be used only for its intended purpose by the intended recipient and is not to be copied or used in any other way. The report may be relied upon for its intended purpose within the limits of the following disclaimer.

This study, report and analyses have been based on the information available to Burchills Engineering Solutions at the time of preparation. Burchills Engineering Solutions accepts responsibility for the report and its conclusions to the extent that the information was sufficient and accurate at the time of preparation. Burchills Engineering Solutions does not take responsibility for errors and omissions due to incorrect information or information not available to Burchills Engineering Solutions at the time of preparation of the study, report or analyses.

Executive Summary

This Vegetation and Fauna Management Plan has been prepared to support a proposed residential community title development at 2 Karingal Drive, Pimpama (Lot 19 on RP152380). Clearing is required to facilitate the construction of the proposed development.

A desktop review determined mapped values within the project area under State and Council regulatory provisions including the Qld *Vegetation Management Act 1999*, Qld *Nature Conservation Act 1992* and the Gold Coast City Plan.

Field surveys were undertaken in February and March 2026 to assess all protected trees (as defined in the Gold Coast City Plan) within the proposed works impact area. The impact area includes the proposed earthworks footprint and a five (5) metre construction access buffer. Trees surveyed are predominantly native canopy trees. No conservation significant species were encountered.

A total of 282 trees were surveyed within the project area as being potentially impacted by the works with 263 identified to be removed. All trees require removal to facilitate the proposed works due to either poor structural form, earthworks impacts on the Structural Root Zone (SRZ) and/or moderate/major impacts on the Notional Root Zone (NRZ), or to facilitate construction access.

To ensure potential impacts on native wildlife and breeding places are avoided, a licensed spotter-catcher is to undertake a pre-clearing survey no more than two (2) weeks prior to the clearing to identify any nests, habitat features or fauna breeding places that may be impacted, to determine actions required prior, during and following clearing works. The Project Arborist should supervise all works to ensure that retained, protected vegetation is not impacted by the works.

All vegetation clearing works are to be undertaken in accordance with the provisions of this Vegetation and Fauna Management Plan and conditions of approval.

Table of Contents

1. Introduction 1
   1.1 Scope and Objectives 1
   1.2 Site Description 1
   1.3 Proposed Development 3
2. Desktop Review – Environmental Site Constraints 5
3. Summary of Site Investigations 7
4. Vegetation Clearing 10
   4.1 Justification for Clearing Works 10
   4.2 Management of Vegetation Impacts 10
   4.3 Vegetation Protection and Site Responsibilities 10
   4.4 Erosion and Sediment Control 10
   4.5 Compensatory Replanting 11
      4.5.1 Site Inductions 13
      4.5.2 Tree Protection Fencing 13
   4.6 Methods of Vegetation Removal and Disposal 15
   4.7 General Management of Trees to be Retained 15
   4.8 Control of Invasive and Environmental Weeds 15
5. Fauna Management 18
   5.1 Pre-operational Works Actions 18
   5.2 Operational Works Actions 19
      5.2.1 Habitat Features 22
      5.2.2 Terrestrial Species 22
      5.2.3 Native Bees 22
      5.2.4 Injured Wildlife 22
      5.2.5 Reporting 23
6. Project Management 24
7. Conclusions 25
8. References 26

Tables

Table 2.1 Environmental Overlay Constraints for Subject Site 5
Table 4.1 Weed Control Methods 16
Table 5.1 Pre-clearing Fauna Mitigation Strategy 19
Table 5.2 Vegetation Clearing General Fauna Management Measures 21
Table 6.1 Roles and Responsibilities 24

Figures

Figure 1.1 Project Area location (Google maps, 2026) 1

Figure 1.2 Recent aerial photo of Project Area (Qld Globe, 2026) 2
Figure 1.3 Site zoning (*Gold Coast City Plan Version 13*) 2
Figure 1.4 Proposed plan of development (MPS Architects, 2026) 3
Figure 1.5 Proposed earthworks (Burchills, 2026) 4
Figure 2.1 Acid Sulfate Soils overlay (Gold Coast City Plan V13, 2026) 6
Figure 2.2 Minor Waterway and Buffer Mapped on Site (Gold Coast City Plan V13, 2026) 6
Figure 3.1 Vegetation Association A – General Composition 8
Figure 3.2 Vegetation Association A – General Composition 8
Figure 3.3 Vegetation Association B – General Composition 9
Figure 3.4 Vegetation Association B – General Composition 9
Figure 4.1 Vegetation Impacts 12
Figure 4.2 Tree Protection Fencing Detail – Fauna Exclusion and Fauna Friendly 14

Appendices

Appendix A – Proposed Development Design
Appendix B –Vegetation Clearing Plan and Tree Schedule
Appendix C – Local Veterinarian Clinics and Wildlife Hospitals

1. Introduction

This Vegetation and Fauna Management Plan (VFMP) has been prepared for a proposed residential community title development at 2 Karingal Drive, Pimpama (Lot 19 on RP152380), within the City of Gold Coast local government area.

This plan has been prepared in accordance with the *SC6.8 City Plan Policy – Environmental Management Plans* and outlines all measures to be undertaken during the construction phase to avoid and minimise harm to native fauna and flora within and adjacent to the project area.

1.1 Scope and Objectives

The scope and objectives of this VFMP are to:

- Undertake a desktop assessment for the project area;
- Summarise the results of surveys of the site's vegetation and provide a description of vegetation and habitat features impacted by proposed clearing;
- Determine the level of fauna management required based on site observations; and
- Outline management strategies and actions to be implemented to mitigate the risk of harm to native fauna and retained vegetation.

1.2 Site Description

The project area is located within the road reserve of Beattie Rd at Coomera (Figure 1.1 and Figure 1.2).

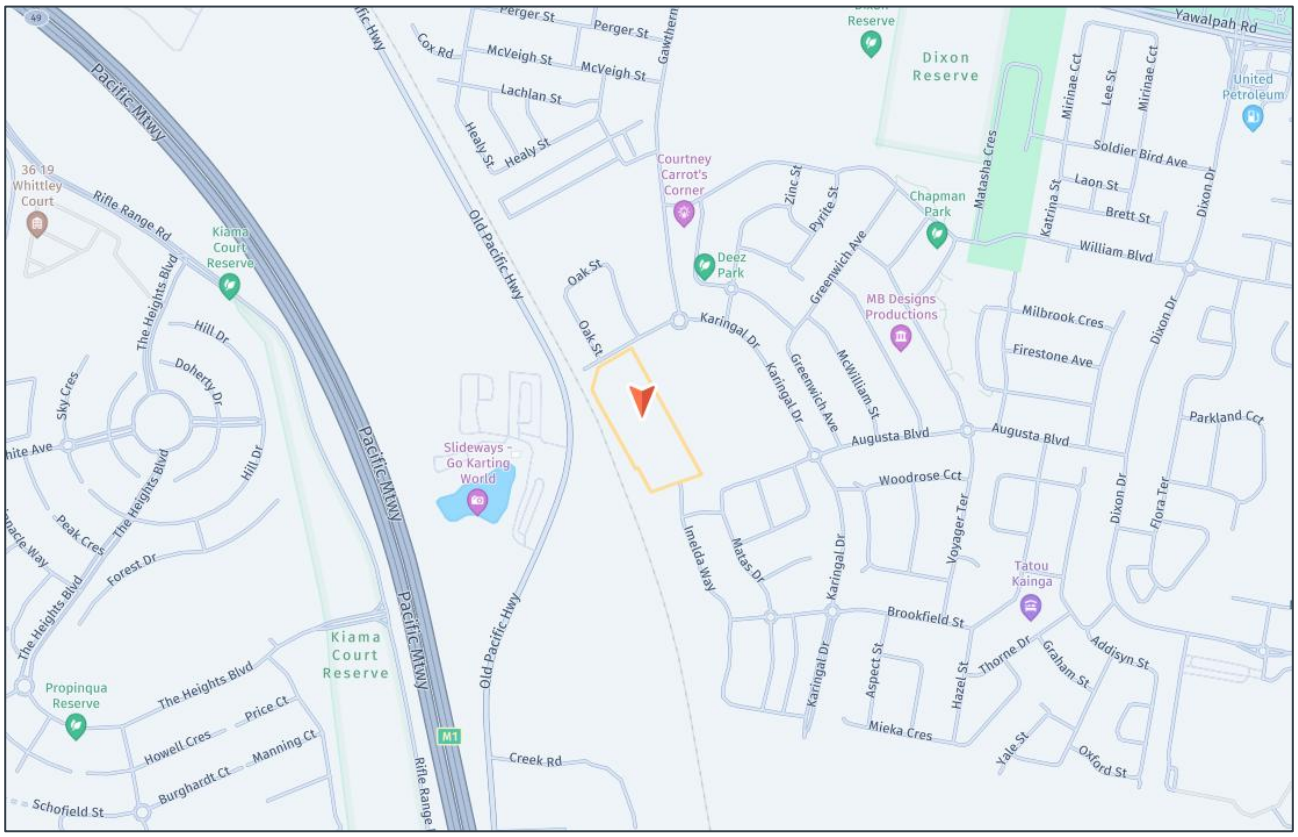


Figure 1.1 Project Area location (Google maps, 2026)

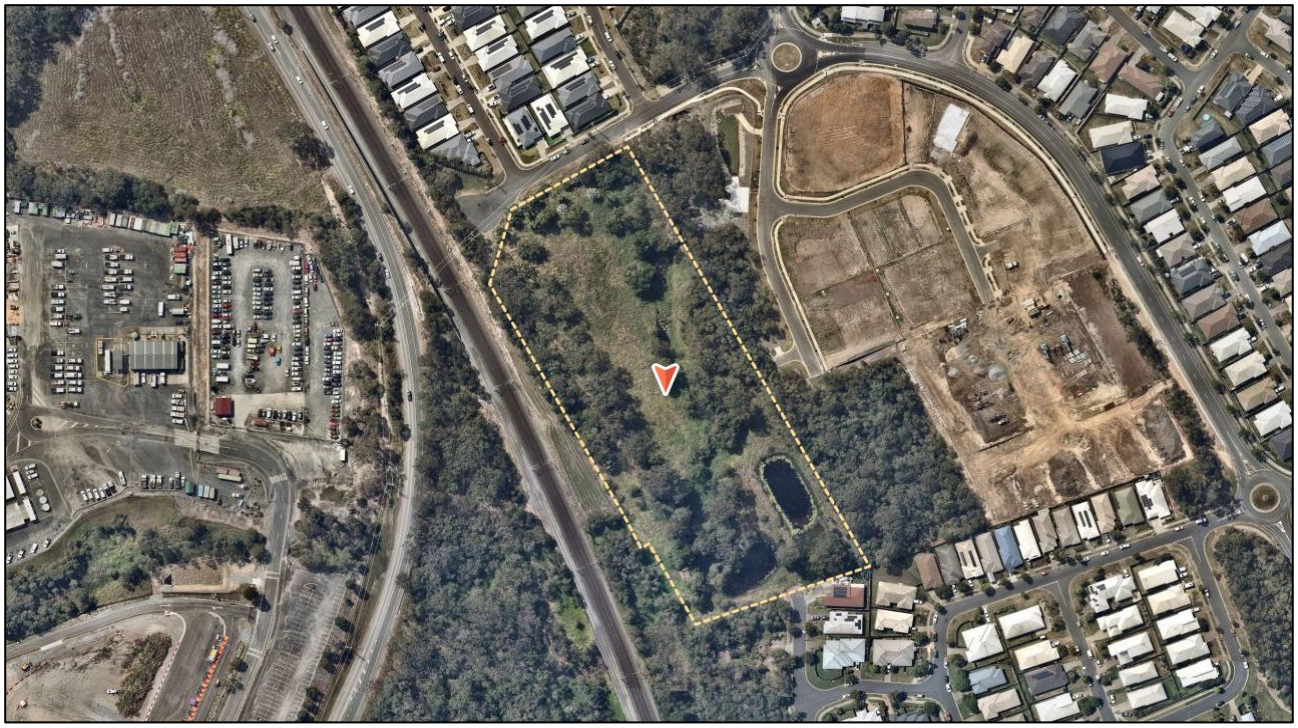


Figure 1.2 Recent aerial photo of Project Area (Qld Globe, 2026)



Figure 1.3 Site zoning (*Gold Coast City Plan Version 13*)

1.3 Proposed Development

A Development Approval is sought for a Material Change of Use, Reconfiguration of a Lot and Operational Works (change to ground level and vegetation clearing). Specifically, the proposal involves a new townhouse development which comprises a complex of 16 townhouses with access from Imelda Way; and 41 townhouses with access from Karingal Drive and internal private roads. The development includes creation of management lots for the townhouse components and a park lot to be dedicated to Council for the drainage reserve traversing the site.

For further details, please refer to design drawings prepared by MPS Architects attached in Appendix A of this report. Figure 1.4 below provides an excerpt taken from the development's site plan (MPS Architects, 2026) and Figure 1.5 provides an extract of the proposed earthworks design (Burchills, 2026).

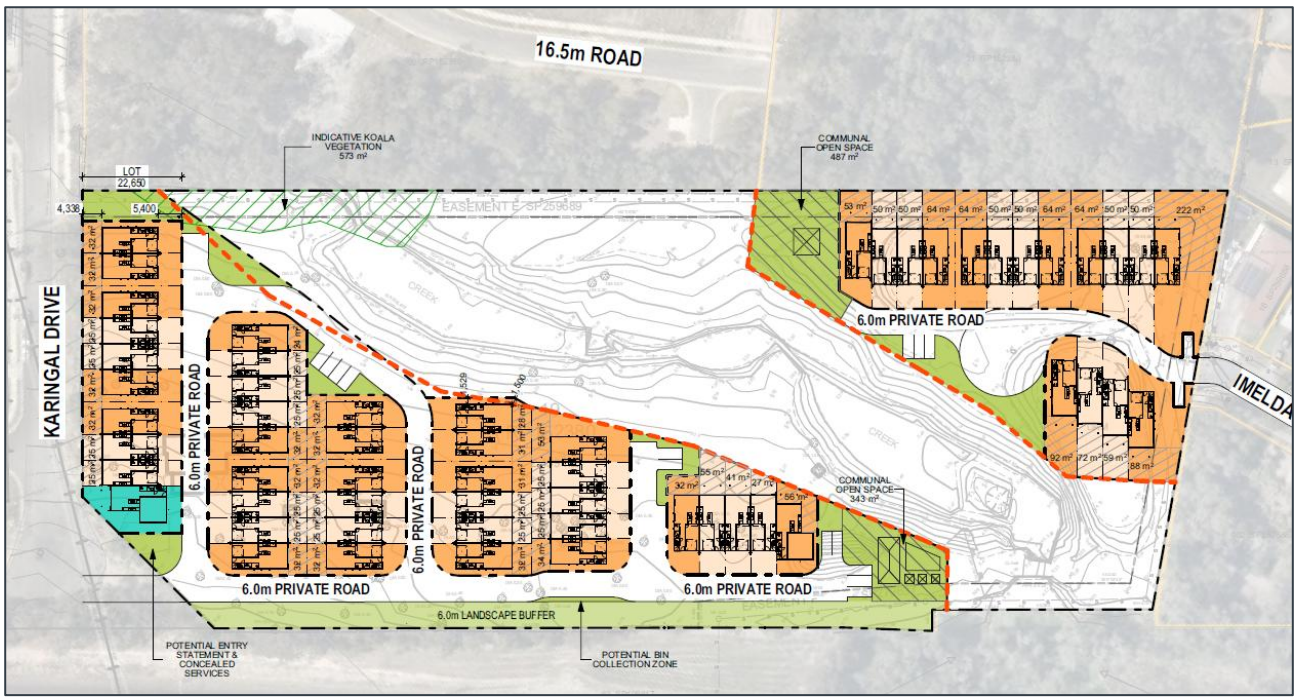


Figure 1.4 Proposed plan of development (MPS Architects, 2026)

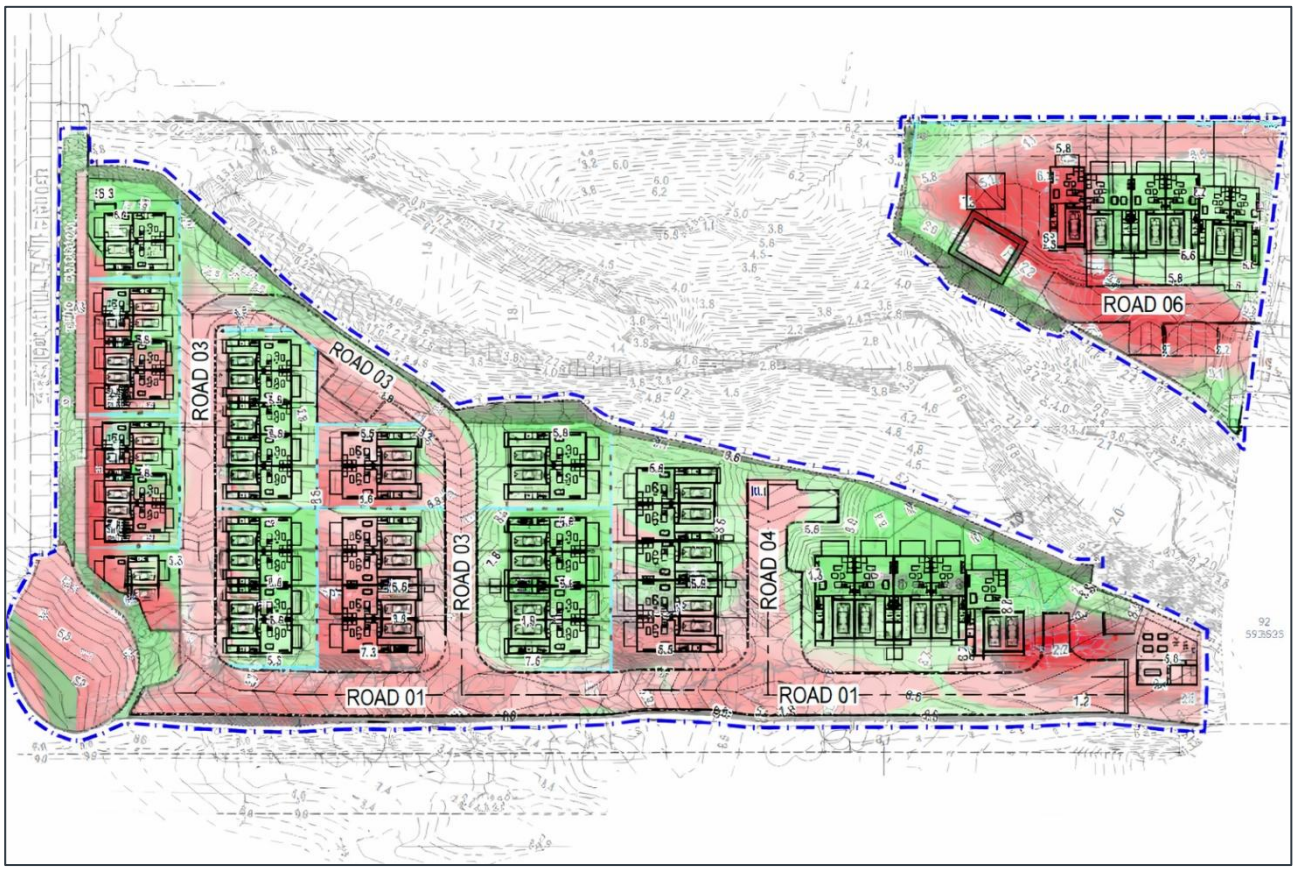


Figure 1.5 Proposed earthworks (Burchills, 2026)

2. Desktop Review – Environmental Site Constraints

A desktop review was undertaken to verify current environmental overlay constraints at a State and local level that may apply to the proposed works as summarised below in Table 2.1.

Table 2.1 Environmental Overlay Constraints for Subject Site

Constraint	Present	Absent	Comments
Regulated Vegetation (VMA)	x		The site contains regulated vegetation under the *Vegetation Management Act 1999,* including approximately 0.06 ha of Category B – Of Concern remnant vegetation (RE 12.3.11) and a minor area of RE 12.11.24 (Least Concern). [1]
Koala Habitat SEQ	x		The site is not within a Koala Priority Area but does contain 0.41 ha (4,095m^2) of Core Koala Habitat Area.
NCA Essential Habitat	x		Mapping under the *Nature Conservation Act 1992 (NCA)* shows a small portion of the south-eastern corner of the site is mapped as Essential Habitat [1.]
NCA Protected Plants	x		The Protected Plants Flora Survey Trigger Map identifies no high-risk areas within the subject site. [1]
NCA Threatened Species - Observed		x	No threatened species were observed on site during the site assessments.
Fisheries Act Waterway Barrier Works	x		Mapping under the *Fisheries Act 1994* indicates that low-order and moderate risk waterways traverse portions of the subject site. [1]
Water Act 2000 Waterways	x		Mapping under the Water Act 2000 indicates a drainage feature that traverses the subject site. [1]
City Plan Acid Sulfate Soils	x		The site is mapped as containing potential acid sulfate soils (Land at or below 5mAHD).[2]
City Plan Biodiversity		x	The site is not in the City Plan Biodiversity overlay. [2]
City Plan Bushfire Risk	x		The site is partially mapped as containing medium potential bushfire hazard.[2]
City Plan Flood	x		The site is partially mapped as being subject to flooding during the design flood event, with a small area affected in the north-eastern portion of the subject site.[2]
City Plan Landslide Hazard		x	The site is not mapped within a Landslide Hazard area. [2]
City Plan Vegetation	x		The Vegetation Management Overlay indicates areas of mapped vegetation within the subject site, including general and medium priority vegetation. [2]
City Plan Waterways and Wetlands	x		The Waterways and Wetlands Overlay indicates a mapped waterway runs through the subject site, with the associated buffer extending across the site. [2]

Notes:
[1] as identified on Queensland Globe (2026)
[2] as identified by the *Gold Coast City Plan Version 13* Interactive Mapping (2026)



Figure 2.1 Acid Sulfate Soils overlay (Gold Coast City Plan V13, 2026)



Figure 2.2 Minor Waterway and Buffer Mapped on Site (Gold Coast City Plan V13, 2026)

3. Summary of Site Investigations

A site inspection of the area proposed to be restored was undertaken by the authors of this report in February and March 2026 and was focused upon the mapped minor waterway/drainage feature that is to be protected in environmental reserve and subject to rehabilitation. It is noted that this area has been highly disturbed through historic clearing, weed incursion and significant modification of the upstream and downstream catchment. This modification includes channelisation, damming, construction of stormwater infrastructure (e.g. swales, detention basins) and piping. The development protects the waterway in the proposed reserve and all site stormwater will be treated for quality and quantity before discharging into the downstream environment. The width of the waterway reserve varies from 24m at its narrowest point to 116m at its widest.

A total of 142 species of flora were detected during the surveys including 72 non-native species, eight (8) of which are Restricted Invasive Plants under the '*Biosecurity Act 2016*'. The sites vegetation can be classed as

- Vegetation Association A – Urban Woodland and Anthropogenic Grassland; and
- Vegetation Association B – Disturbed Riparian Woodland.

These associations are highly modified and degraded by historical clearing, abandoned horticultural infrastructure and significant weed incursion. In particular, *Setaria sphacelata* (South African pigeon grass) is present throughout this association, and is present as dense stands across much of the site.

The canopy layer where present in both associations comprised patches and copses with irregular height and cover. Common species include *Eucalyptus tereticornis* (forest red gum), *Eucalyptus siderephloia* (grey ironbark), *Corymbia intermedia* (pink bloodwood), *Lophostemon confertus* (brush box), *Lophostemon suaveolens* (swamp box), *Elaeocarpus grandis* (blue quandong), **Syagrus romanzoffiana* (cocos palm) and **Roystonea regia* (Cuban royal palm). Exotic vine species were found to be smothering trees and, in some instances, causing tree failure within the waterway corridor.

The shrub layer across the site was also unevenly distributed with species including *Archontophoenix alexandrae* (Alexander palm), *Acacia concurrens* (late-flowering hickory), *Acacia disparrima* (hickory wattle), *Glochidion ferdinandi var. ferdinandi* (cheese tree), *Lantana camara* (lantana), *Senna pendula var. glabrata* (Easter cassia), *Delonix regia* (poinciana), *Schefflera actinophylla* (umbrella tree), *Solanum torvum* (devil's fig) and *Tipuana tipu* (Tipuana) and *Melaleuca quinquenervia* (broad-leaved paperbark).

The ground layer, as per all other strata is highly variable in terms of composition, height and structure and is dominated by weedy/pasture grasses – predominantly *Setaria sphacelata* (South African pigeon grass), Melinis *minutiflora* (molasses grass), *Megathyrsus maximus* (Guinea grass), and other environmental weeds including *Asparagus aethiopicus cv. Sprengeri* (asparagus fern).

No part of the site meets remnant benchmark criteria as presented in the Qld Herbarium Benchmarks (2019) - including the small area adjacent to the north-east boundary that is mapped as remnant (Category B) of concern Regional Ecosystem 12.3.11 *Eucalyptus tereticornis* +/- *Eucalyptus siderephloia, Corymbia intermedia* open forest on alluvial plains. Additionally, the composition of the vegetation was not found to reflect the preclearing Regional Ecosystems 12.3.11 (associated with the waterway) and 12.11.24 (the remaining parts of the site). No flora species of conservation significance (EVNT) at a national, state or local level was detected on-site.

Images of site vegetation are presented in the subsequent pages.



Figure 3.1 Vegetation Association A – General Composition



Figure 3.2 Vegetation Association A – General Composition



Figure 3.3 Vegetation Association B – General Composition



Figure 3.4 Vegetation Association B – General Composition

4. Vegetation Clearing

A total of 282 trees were surveyed within the project area as being potentially impacted by the works with 263 identified to be removed (refer Figure 4.1). The Project Arborist will supervise the works and identify where trees may be retained subject to micro-siting of earthworks and/or other strategies to protect trees.

4.1 Justification for Clearing Works

The tree clearing is required to facilitate proposed works and construction access as detailed in Section 1.3. The proposed operational works design is provided in Appendix A and the Construction Access Plan in Appendix B. Vegetation Clearing Plans and the tree schedule are provided in Appendix C.

4.2 Management of Vegetation Impacts

To ensure the ongoing viability of protected vegetation within the project area and adjoining areas during site works, impacts will be avoided and minimised through the following measures:

- All contractors will be made aware of the provisions of this **Vegetation and Fauna Management Plan (VFMP)** and relevant approval conditions during site induction.
- Tree protection fencing will be installed around vegetation to be retained and inspected daily throughout the works, and following any significant rainfall events. Any damage or signs of failure must be promptly repaired or replaced.
- No storage of materials, fill, construction machinery or vehicles is permitted within designated **tree protection zones**.

4.3 Vegetation Protection and Site Responsibilities

Prior to the commencement of clearing operations, the limits of all vegetation to be retained must be clearly delineated on site. The Site Supervisor, in consultation with the Project Arborist, will be responsible for:

- Overseeing implementation of this VFMP;
- Ensuring tree protection measures are installed and maintained;
- Provision of advice regarding tender and contract documentation where relevant;
- Supervising tree-related works;
- Providing guidance to contractors regarding vegetation protection; and
- Ensuring contractors clearly understand the approved clearing limits and vegetation management requirements.

The Site Supervisor must also ensure the area of approved vegetation clearing is clearly identified to the clearing contractor and that all contractors and sub-contractors comply with vegetation protection requirements during site works.

4.4 Erosion and Sediment Control

An **Erosion and Sediment Control Plan (ESCP)** will be prepared for the works by a **Certified Professional in Erosion and Sediment Control (CPESC)**.

The ESCP will be prepared in accordance with the *Soil Erosion and Sediment Control Engineering Guidelines for Queensland Construction Sites* (The Institution of Engineers, Australia Queensland Division, June 1996) and industry best practice.

All ESCP controls should be installed and checked by the Site Supervisor prior to the prestart for clearing works.

4.5 Compensatory Replanting

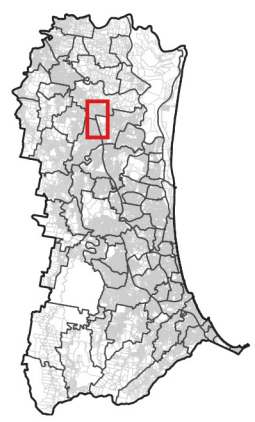
A total of 282 trees were surveyed within the project area as being potentially impacted by the works with 263 identified to be removed. To ensure no net loss of native tree cover as a result of the proposed works, each native tree removed will be replaced as specified in the proposed Rehabilitation Management Plan prepared by Burchills (2026).

This includes planting of endemic canopy trees, shrubs and groundcovers from the Pre-clearing Regional Ecosystems.

2 Karingal Dve Pimpama

Figure 4.1 Vegetation Impacts

Project: BE200223	Date: 07-07-2026
Scale: 1:900 at A3	Projection: GDA 2020/MGA Zone 56
Data Sources: Nearmap February 2026	



Location of site within Gold Coast LGA

Legend

- Subject Lot
- Cadastre
- Disturbance footprint
- Surveyed Tree Trunk [282]
- Habitat trees (NRZ*)
- * Notional Root Zone measured and calculated per AS4590:2025

Actions - Retain/Remove [282]

- Retain [19]
- Remove [263]

Vegetation Associations Impacts

- A – Urban Woodland and Anthropogenic Grassland
- B – Disturbed Riparian Woodland
- Watercourse centreline
- Constructed dams

Note: All works within the vicinity of trees nominated for protection are to be micro-sited on site, where practicable, to avoid impacts to those trees, under the supervision of an AQF Level 5 Arborist.

BURCHILLS SCIENCE AND ENGINEERING

BOSFORM 30 YEARS

This drawing is copyright and the property of Burchills Engineering Solutions. It must not be retained, copied or used without the authority of Burchills Engineering Solutions.

DISCLAIMER: This figure and its contents are electronically generated, are confidential and may only be used for the purpose for which they were intended. Burchills Engineering Solutions will not accept responsibility for any consequences arising from the use of the figure for other than its intended purpose or where the drawing has been altered, amended or changed either manually or electronically by any third party. Some or all of the data presented on this plan may have been digitised or sourced from third parties, and as such may contain spatial innaccuracies.

4.5.1 Site Inductions

A responsibility of the Site Supervisor will include provision of site inductions for all staff who will be working on site. The purpose of the site induction is to instruct all contractors and sub-contractors on their responsibilities regarding the protection of vegetation. All site workers must attend an induction; a record will be kept of all persons attending inductions and cards will be issued to site workers upon completion. This procedure will enable Council Officers to ensure that all site workers have been made fully aware of their responsibilities associated with vegetation management.

4.5.2 Tree Protection Fencing

The appointed Project Arborist (minimum AQF Level 5) will be responsible for ensuring the ongoing viability of trees to be retained. As required by the Project Arborist, any tree protection fencing is to be installed in accordance with *AS4590-2025: Protection of Trees on Development Sites* (Figure 4.2). The fencing will ensure that no earthworks or prohibited activities occur within areas that could adversely impact upon trees to be retained. The fencing will also protect and redirect fauna away from the works area depending on the fencing type required – fauna friendly or fauna exclusion.

Tree Protection Fencing is to be fauna exclusion around any potential threats to displaced fauna (e.g. roads, areas of active clearing works). This will be determined by the Project Spotter Catcher. Areas that will provide refuge for displaced fauna (e.g. areas of retained vegetation) are to be fenced with fauna friendly Tree Protection Fencing.

Tree protection fencing must comply with the following:

- In accordance with *AS4590-2025 Protection of trees on development sites*, fencing is to be installed before any machinery or materials are brought onto the site;
- Fencing is to be installed prior to any pre-start meetings with Council Officers;
- Fencing is to remain in place for the duration of operational works (as determined by the Site Supervisor);
- Signage is to be displayed on the exterior of the tree protection fence that displays contact details for the civil contractor;
- Signs must be made in accordance with *Australian Standard AS 1319-1994; Safety signs for the occupational environment*; and
- Signage is to remain in place for the duration of the operational works.

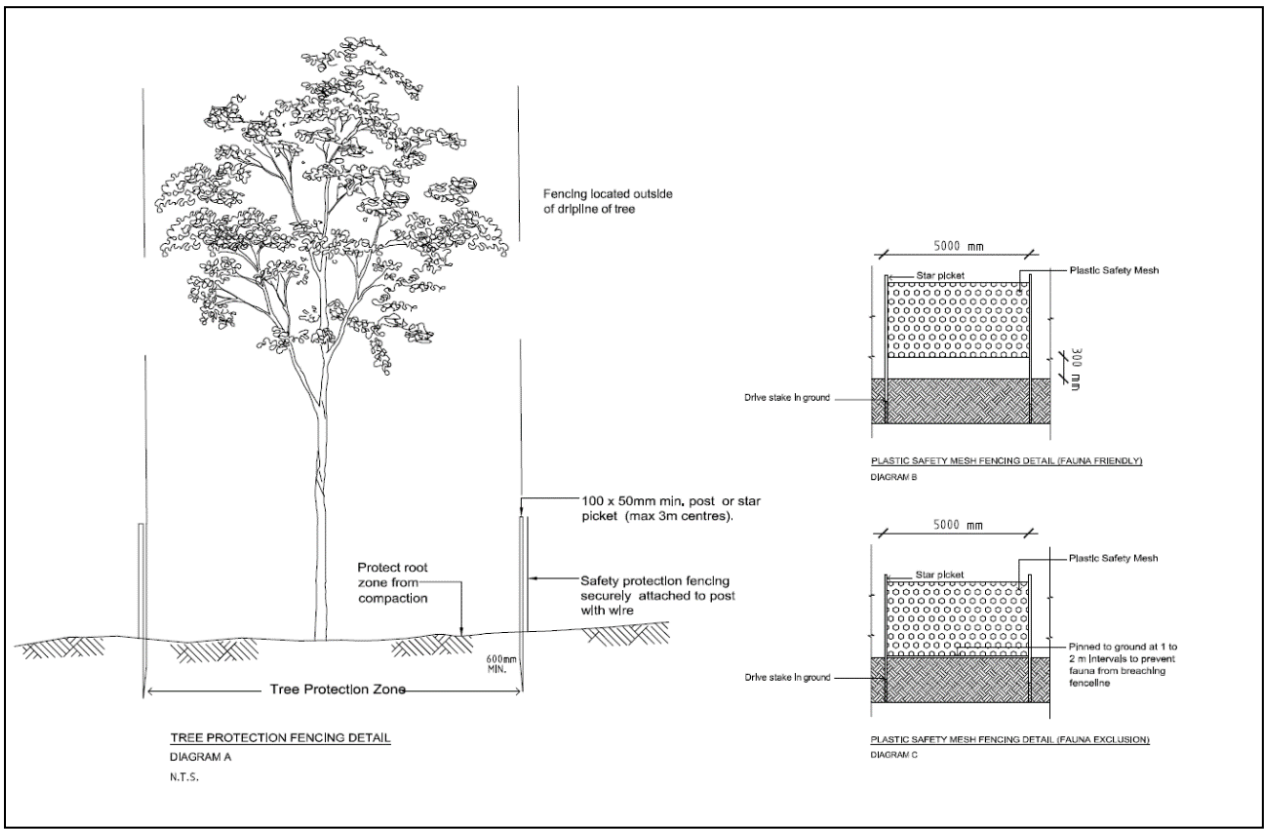


Figure 4.2 Tree Protection Fencing Detail – Fauna Exclusion and Fauna Friendly

Non-essential works are to be excluded from the Tree Protection Zones and all construction related activities are to be in accordance with approved plans. If temporary or permanent vehicle access is required through Tree Protection Zones, compaction bridging is to be installed and maintained in accordance with AS4970-2025.

Within the NRZ/TPZ, the following activities are not permitted:

- Storage and mixing of materials;
- Construction of unapproved pathways / trails;
- Vehicle parking;
- Earthworks;
- Construction of site office or shed;
- Storage of machinery and / or vehicles;
- Dumping of site waste;
- Liquid disposal;
- Stockpiling of mulch / chipped material / soil, rubble or debris;
- Refuelling of machinery;
- Wash down and clearing of equipment;
- Lighting of fires;
- Unauthorised application of pesticide, herbicides or chemicals;
- Erosion resulting from site works;
- Unauthorised vegetation removal; and
- Introduction of non-native species.

4.6 Methods of Vegetation Removal and Disposal

To minimise waste from the site, all felled timber will be recycled. Tree species suitable for milling will be removed from the site and transported to a timber milling establishment. Remaining timber is to be chipped and mulched on-site. Where possible, chipped and mulched material is to be used on site and incorporated into restoration areas, landscape features, batter stabilisation techniques or other approved site works. This material will be stockpiled for a minimum of six (6) weeks prior to use on-site to prevent nitrogen drawdown.

Non-recyclable debris is to be transported from the site and disposed of at an approved Council waste facility. Pit burning or any other method of combustion of vegetation is prohibited, both on or off-site. Any declared and / or environmental weeds removed from the site are to be disposed of at an approved Council green waste facility.

4.7 General Management of Trees to be Retained

Vegetation on adjoining properties will be protected during the clearing and operational stages of the development. The following general protective measures apply to this vegetation:

- Tree Protection Fencing to be installed as required by the Project Arborist and construction activities are to be confined to the approved development footprint;
- Stem wraps or other protective devices are to be implemented where deemed necessary by the Site Supervisor to protect trunks and branches from damage during specific demolition and construction activities;
- Where a protected tree's root zone and / or trunk could be damaged by the proposed earthworks, the Project Arborist will:
    - Provide advice regarding the protection of the subject tree(s);
    - Treat any roots that may be exposed during the construction; and
    - Treat any damage that may occur during construction.
- No materials, substances (e.g. herbicides, fuel, concrete, etc.) or machinery are to be stored within NRZ/TPZ. Any potentially hazardous substances are to be safely stored within a secure area away from vegetation to be retained;
- Sufficient training is to be provided to all site staff in relation to vegetation protection measures;
- Pruning of protected trees is to occur as only where determined necessary by the Project Arborist (e.g. crown thinning, removal of dead wood or damaged or overhanging limbs to promote sound tree form and health) – any such work on the trunk, foliage, or root system of the tree must adhere to the *Australian Standard AS 4373-2007: Pruning of amenity trees;*
- No protected tree is to be 'topped' and 'spur' or 'spike' climbing of any protected tree is to be avoided;
- If root pruning of a protected tree is required, it is to be undertaken using a high pressure, needle point water jet; and
- Regular assessment of trees is to occur to ensure ongoing health during operational works.

Any damage to protected trees, or surrounding soil, is to be remedied as soon as is practicable.

4.8 Control of Invasive and Environmental Weeds

For the purposes of this report, a weed has been defined as a species that is not native to the Gold Coast and is recognised as an environmental weed by DETSI in the Wildnet database.

Weed species are not to be introduced to the site during construction activities; this includes introduction in topsoil and / or mulch. Invasive and environmental weeds are to be controlled using appropriate methods. It is expected weeds within the development footprint will be removed as part of the earthworks however

suggested methods for weed control for are provided in Table 4.1 Weed Control Methods for the purposes of ongoing management during the construction stage.

Herbicide application is to be undertaken in accordance with the South East Queensland Restoration Framework (Chenoweth EPLA and Bushland Restoration Services, 2012). Treatment is to target introduced species only and be carried out in a manner that minimises disturbance to native plants. When undertaking herbicide application for weed control, care will be taken to ensure that no off-target damage occurs to native vegetation. To prevent any unnecessary and excessive use of herbicides during weed control activities, a vegetable-based dye will be mixed with all herbicides to be used for spray application.

All weed control on-site must be undertaken in a manner that does not promote erosion or instability of soil, particularly within drainage lines.

Note: Where Glyphosate is indicated for use in chemical treatments, Glyphosate Biactive or an equivalent 'Frog Friendly' herbicide is recommended.

Table 4.1 Weed Control Methods

Method	Application	Procedure
Cut-scrape-paint	All woody shrubs and trees Some vines	Prepare herbicide with 1-part of Glyphosate[1] to 1.5-parts water; Cut plant low to ground at an angle and apply herbicide with a paintbrush; Scrape sides lightly to reveal green tissue and apply the herbicide to the scraped area; Ensure that the brush is not contaminated with soil; and All species with seeds that have high viability or longevity (e.g. *Senna spp*., some members of the Fabaceae family, or plants with high invasive potential such as *Heptapleurem actinophyllum*) must be removed from the parent and either composted on-site or removed from the site.
Stem injection	All woody trees and shrubs with a diameter of 6-10cm or greater	Prepare herbicide with 1-part of Glyphosate[1] to 1.5-parts water; With a tomahawk or saw, make a slightly angled cut approximately 1.5cm wide and 1.5cm deep into the trunk and apply herbicide immediately into the cut using a tree-injecting device; Repeat this process in a brickwork pattern around the circumference of the tree, as close to the ground as possible; and Two (2) rows of cuts will be sufficient for trees with trunks of 6-10cm; larger trunk diameters will require more rows.
Spraying	Dense infestations of shrubs and groundcover with no native species interspersed.	Using a 15L spray backpack with a nozzle providing a solid spray pattern, spray herbicide on the infestation[2]; and If Glyphosate[1] is to be utilised as the herbicide, dilution rates are to be in accordance with the manufacturer's recommendations.
Overspray	Plants with large, dense infestations (such as Lantana camara) Where dead plants should be intact to prevent erosion and over-exposure of large areas, protect native seedlings from predators and avoid trampling of the area by humans	Prepare a solution of 1-part Glyphosate[1] to 100-parts water; Spray over the top of the infestation[2]; Leave the sprayed plants intact so that native seedlings can establish under the shelter provided; and Weeds can be cut and flattened with bush-hooks or loppers and the subsequent regrowth sprayed with Glyphosate

Method	Application	Procedure
Crowning	Weeds which have their growing points beneath the surface in the form of corms, bulbs, rhizomes, clumped or fibrous root systems or similar structures (e.g. *Asparagus aethiopicus, Chlorophytum comosum* and Poaceae species)	Grasp the leaves or stems and hold them tightly so that the base of the plant is visible. Plants with sharp leaves or stems should be cut back first; Insert a knife close to the base of the plant at a slight angle with the tip well under the system; Cut through the roots close to the base. Depending on the size of the plant, two (2) or more cuts may be needed to sever the roots; and Remove the plant and make sure that the base of the plant where the roots begin is completely removed

Notes:

[1] –Dilution rates should always be in line with the manufacturer's recommendations and any variation requires a permit from the National Registration Authority.

[2] - To prevent any unnecessary and excessive use of herbicides during weed control activities, a vegetable-based dye should be mixed with all herbicides to be used for spraying and over spraying

5. Fauna Management

The actions outlined in the following sections are to be adhered to during the operational works on the subject site. They have been adapted or directly taken from the Queensland Code of Practice for the Welfare of Wild Animals Affected by Land-Clearing and other Habitat Impacts and Wildlife Spotter/Catchers (Hanger and Nottidge, 2009).

The principal management strategies are to:

- Identify wildlife and habitat features;
- Avoid impacting wildlife and habitat features where possible; and
- Mitigate and minimise these impacts.

Habitat features such as hollows were located during site assessment. Wildlife is often unpredictable and highly mobile. Mitigating impacts is necessary in the overall management of fauna as it recognised that fauna may colonise trees in the project footprint in the time from when this report was prepared and the clearing works commence post-approval. Where wildlife is present, vegetation clearing should not commence until fauna have relocated or appropriate mitigation and management measures have been implemented.

5.1 Pre-operational Works Actions

All fauna management procedures shall be undertaken by a qualified wildlife specialist who holds a valid DETSI issued spotter-catcher licence. The spotter-catcher must undertake a pre-clearing clearing inspection of the site to identify and mark (i.e. using flagging tape) all potential habitat values (e.g. tree hollows, nests, fissures, dreys, arboreal termitaria, ground resources) that require specific management during clearing operations. A pre-clearing assessment must be undertaken by the spotter-catcher no earlier than two (2) weeks of the commencement of clearing and the pre-clearing inspection report provided to Council one (1) week prior to the pre-start meeting.

The spotter-catcher Pre-Clearing report should identify the location of habitat features and specific operational works actions required prior to / during and after clearing.

The Pre-Clearing Report will include at a minimum:

- Breeding places and habitat features identified and / or marked on site (hollow-bearing trees, nests, water bodies etc.);
- Fauna species observed during the assessment and expected to be encountered during works;
- Available nearby refugial habitat suitable for release of fauna expected to be encountered; and
- Protection measures to be implemented including emergency contact information for nearest vet clinic and / or wildlife carer.

The spotter-catcher will be engaged to assess the level of use of native fauna and management of fauna during construction activities. The number of wildlife specialists contracted during works shall be determined by the number of machinery pieces in operation used for clearing. Typically, one (1) spotter-catcher will be required per machine.

A summary of the pre-clearing fauna mitigation strategies is presented in Table 5.1.

Vehicle exclusions and vegetation protection fencing measures must be in place prior to the pre-start meeting. All site staff are to be made aware of the no-go zones on site and the management measures adopted to minimize impacts to both fauna and flora.



Table 5.1 Pre-clearing Fauna Mitigation Strategy

Activity	Management Measure	Responsibility
Engage a registered fauna spotter-catcher	A registered spotter-catcher will need to be present on site for the duration of vegetation clearing activities. One spotter-catcher is required per machine. The spotter-catcher is the only person permitted to handle wildlife. The spotter-catcher is to be present at the pre-start meeting.	Site Supervisor
Awareness of roles and responsibilities	At the pre-start meeting, all site personnel will be made aware of their roles and responsibilities in relation to the welfare of wildlife.	Site Supervisor
Mark all habitat features such as hollows, wood stockpiles and nest sites	Nest and hollows should be clearly marked prior to clearing if present. Machinery operators made aware of these markings. Active nests should be avoided where possible. Marked trees / habitat features to be removed in the presence of the spotter-catcher.	Spotter-catcher
Mark 'no-go' zones around vegetation to be retained	Tree protection fencing should be erected around vegetation that is to be retained. Spotter Catcher to advise of any amendments required to fencing. All site personnel made aware of the no-go zones on site.	Site Supervisor
Relocate habitat features	Immediately prior to the commencement of clearing works ground hollows are to be relocated to the Environmental Corridor Park.	Spotter-catcher
Fauna flushed or hand caught prior to clearing	Immediately prior to the commencement of clearing works each day, the spotter-catcher is to examine the canopy and area to be cleared (including any stockpiles) and flush fauna / remove nests or habitat features as required. Mobile species should be flushed towards retained vegetation on site or in adjacent areas. Species that are not highly mobile (e.g. skinks, snakes, small mammals), should be hand caught and relocated to suitable vegetation. Any dams or waterbodies to be filled are to be netted and fauna relocated in accordance with the conditions of the Spotter Catcher's license.	Spotter-catcher

5.2 Operational Works Actions

A licensed spotter-catcher must be present during all clearing activities. The site should be inspected by a spotter-catcher prior to clearing and trees with hollows, termitaria and / or active nests clearly marked. The spotter-catcher will be in constant radio communication with machinery operators and on-ground clearing crews.

Prior to the commencement of works for clearing each day, the spotter-catcher is to examine the canopy and area to be cleared for arboreal mammals, nests and terrestrial habitat features, and remove and relocate fauna, nests or habitat features as required. All terrestrial fauna should be flushed from the vegetation immediately prior to clearing.

A cherry-picker is unlikely to be required as no nests or hollow bearing trees were identified. However, this will only be undertaken where access and stable foundations for the cherry picker are available and where the operation of the cherry picker will achieve compliance with Interim Australian Standard AS1418.10 [Int-2004]:



Cranes, hoists and winches. Part 10: Elevating work platforms and any other applicable Occupational Health and Safety requirements. The wildlife specialist will determine the requirement for use of the cherry picker on a case-by-case basis, considering the associated access and safety considerations. The instances in which the cherry picker will be used during clearing activities will be at the sole discretion of the wildlife specialist.

In instances where a cherry-picker cannot safely be used, an alternative is to leave hollow-bearing trees and remove surrounding vegetation. Hollow-bearing trees should be left standing at least overnight to allow for hollow-dwelling species, such as possums and gliders, to move from the site. Any hollow-bearing trees or those with arboreal termitaria are to be felled under the supervision of the spotter-catcher.

It is the responsibility of the spotter-catcher to identify significant wildlife safety risks both for wildlife retained on-site, as well as wildlife in adjacent areas or widely ranging wildlife that may use, or move through, the site during operational works.

Under-scrubbing of shrub and understorey vegetation is to take place prior to the clearing of mature and over-mature trees.

Clearing is to be directed towards retained vegetation to flush wildlife towards protected habitat. Clearing must be completed by 6 p.m. and not commence before 6 a.m.

For this site, relocation of fauna to retained vegetation is suitable within the northern sections and within the adjacent bushland to the south of site of site. However, the final relocation site will be determined at the discretion of the spotter-catcher.

Euthanasia should not be undertaken unless the animal is severely injured, or a listed pest species under local, State or Commonwealth legislation. In order of preference, outcomes for removed wildlife are as follows:

- Translocation to suitable retained vegetation on-site within the nominated area;
- Translocation to distant suitable habitat;
- Placement in an institution for rehabilitation and release, or where this is not possible for educational, conservation or research purposes; or
- Euthanasia.

Note: Euthanasia of animals must be carried out in accordance with the provisions of the Queensland *Animal Care and Protection Act 2001*. This will generally involve euthanasia being performed by a registered veterinarian following anaesthesia of the animal. Contact details of veterinarians located within the vicinity of the site are provided in Appendix D.

Where project timelines allow for flexibility in the scheduling of operational works, clearing should be timed to not take place in the main breeding period of Spring-Summer.

Dogs are not allowed into the work site. Any resident dogs on the premise are to be restrained appropriately and not allowed to move freely within the site to avoid harm to native wildlife. All site personnel will be made aware of this requirement during site induction.

A summary of the vegetation clearing fauna mitigation strategy is presented in Table 5.2.

Table 5.2 Vegetation Clearing General Fauna Management Measures

Activity	Management Measure	Responsibility
Communication	The spotter-catcher is required to be in communication with machinery operators during the clearing operations, either by hand signals or two-way radio.	Spotter-catcher Machinery operator(s)
Check fencing	Prior to commencement of works, daily check of all fencing to ensure it is in place in accordance with this plan (including conditions of approval) and/or Spotter Catcher recommendations.	Spotter-catcher Site Supervisor
Direction of clearing	Clearing is to be directed towards retained vegetation west of the site. Flushing of wildlife towards the road corridor is to be avoided. Machine operators are to be made aware of the direction of clearing at the site pre-start meeting.	Site Supervisor
Clearing hollow-bearing trees or those with termitaria	Hollow-bearing trees should be left standing for at least 24 hours after surrounding vegetation has been cleared. This will allow any resident fauna a chance to move on their own volition. Trees with hollows should first be 'shaken' using the blades of the machinery where possible. This is to allow any resident arboreal fauna to escape prior to the tree being felled. Where possible, trees should be felled with the hollows / termitaria receiving minimal contact on impact. This can often be achieved through strategic excavation of select root structure and the weight of the machine incorporated to assist in the laying down of the tree on the ground. Adjacent felled trees may also be used to absorb the impact. Trees are to be inspected post felling. If an animal remains within the hollow / termitaria, the spotter-catcher will decide to either remove the animal or remove the section of tree containing the animal. This will then be relocated to a nearby protected area. Empty hollows are to be relocated to the corridor as ground hollows.	Spotter-catcher Machine operator(s)
Restraining fauna	Terrestrial species captured during clearing shall be restrained using appropriate bags or traps and released into habitat at the discretion of the spotter-catcher. Any nocturnal species will be kept in a bag in a dark, well ventilated, quiet area and released within 1km of the subject site at dusk in suitable habitat.	Spotter-catcher
Injured wildlife	Any injured animal will be taken directly to a veterinary clinic for treatment. Treatment costs will be the responsibility of the site developers. Displaced young will be taken to a registered Wildlife Carer. Locations of nearby vet clinics are provided in Appendix D.	Spotter-catcher
Removing trees with nests	Where project timelines allow, vegetation clearing be conducted outside of the main breeding season of many wildlife species (spring and early summer). Trees with active nests should be retained where possible. A crane platform or cherry picker should be used to remove the nest and / or eggs or chicks prior to felling. However, this will only be undertaken where access and stable foundations for the cherry picker are available and where the operation of the cherry picker will achieve compliance with *Interim Australian Standard AS1418.10 [Int-2004]: Cranes, hoists and winches. Part 10: Elevating work platforms* and any other Occupational Health and Safety requirements. The spotter-catcher will determine the requirement for use of the cherry picker on a case-by-case basis, considering the associated access and safety considerations.	Spotter-catcher

Activity	Management Measure	Responsibility
Removing habitat features	A spotter-catcher needs to be present when potential habitat such as log piles, mulch heaps or rock piles are removed to check for any sheltering wildlife. All potential habitat features are to be relocated to the Environmental Corridor Park at the discretion of the Spotter Catcher.	Spotter-catcher
Stockpiles	Cleared vegetation and construction equipment should not be stockpiled where it will impede fauna movement into adjacent habitat.	Site Supervisor
Reporting	All wildlife that is hand-caught and moved to adjacent habitat will be recorded and details reported to QPWS.	Spotter-catcher

5.2.1 Habitat Features

Piles of rubble, felled timber or any other material, proposed to be chipped, are not to be left to serve as a refuge for displaced or roaming wildlife unless they are in a protected area. Old piles of felled vegetation or other material must be treated in the same way as any other potential wildlife habitat, and must be assumed to be inhabited by wildlife, unless proven otherwise. Appropriate risk mitigation measures include immediate destruction or removal of such materials, or erection of wildlife-proof barriers to prevent wildlife use.

Any hollow bearing limbs or branches identified during clearing operations must be utilised as ground hollows within the reserve – refer to Appendix B which includes the tree table with identified habitat trees and location. Locations for ground hollows are to be determined on-site by either a Council Environmental Assessment Officer or a DETSI-approved spotter-catcher.

5.2.2 Terrestrial Species

Terrestrial species captured during clearing shall be restrained using appropriate bags or traps and released into habitat at the discretion of the spotter-catcher. Retained vegetation within the site, or other retained vegetation in the immediate area is considered a suitable option for the relocation of most terrestrial species. Nocturnal species shall be released after dusk. Until they can be released, these animals should be placed in a soft bag in a cool, quiet place.

5.2.3 Native Bees

Any native bee hives identified during clearing operations are to be preserved without damage, whether the hives are in limbs or tree trunks. Native bee hives are to be relocated by a DETSI-approved spotter-catcher from areas to be cleared, prior to any works commencing on the site, to those areas where vegetation is to be retained and / or rehabilitated.

The new location of the native bee hive is to be submitted to Council (with GPS coordinates) and included within the post clearing fauna summary, prior to the release of the vegetation performance bond.

5.2.4 Injured Wildlife

In some cases, a native animal captures by the spotter-catcher may require hand-rearing (in the case of dependent young) or rehabilitation because of injury or illness. In such cases, the animal shall be placed in the care of a suitable qualified wildlife carer or wildlife hospital, preferably in the vicinity of the subject site. Any costs associated with the care of displaced or injured wildlife will be the responsibility of the proponent. Appendix D provides a list of local vet clinics and wildlife hospitals.

5.2.5 Reporting

A post-clearing spotter-catcher report must be submitted to Council within five (5) business days of vegetation clearing being completed. The post-clearing report is to be undertaken by the DETSI-approved spotter-catcher present on site during the clearing works and must include the following as a minimum:

- Fauna species identified during clearing;
- Fauna species captured, including any native bees captured and relocated;
- Release sites for any fauna relocated with GPS coordinates to be provided for native bee hives; and
- Details of any fauna injuries or incidents.

6. Project Management

The site supervisor is responsible for all site works including overseeing vegetation clearing, health and safety of fauna and adhering to the development Conditions, Council guidelines and Australian Standards including AS4970-2025: Protection of trees on development sites.

The Project Arborist is responsible for ensuring appropriate arboricultural measures are undertaken to ensure the long-term health of the surrounding environment. This includes the supervision of all works within and adjacent to the NRZ as well as other measures required such as soil decompaction / aeration, mulching, crown reduction etc. as determined by the Project Arborist.

Roles and Responsibilities are summarised in Table 6.1. The Contractor is the enter contact details prior to commencement of works. Additional measures required for fauna management are detailed in section 5 of this VFMP.

Table 6.1 Roles and Responsibilities

Requirement	Responsibility	Contact
Engage Project Arborist	Site Supervisor	TBC
Engage a registered fauna spotter-catcher	Site Supervisor	TBC
Undertake arboricultural impact assessment of trees to be retained – complete	Project Arborist	TBC
Undertake Preclearing Fauna Assessment	Spotter Catcher	TBC
Awareness of roles and responsibilities	Site Supervisor	TBC
Supervise works within/near TPZs	Project Arborist	TBC
Mark all habitat features such as hollows, wood stockpiles and nest sites	Spotter-catcher	TBC
Mark 'no-go' zones around vegetation to be retained	Site Supervisor	TBC
Relocate habitat features	Spotter-catcher	TBC
Fauna flushed or hand caught prior to clearing	Spotter-catcher	TBC

7. Conclusions

This Vegetation and Fauna Management Plan has been prepared to support an operational works vegetation clearing application for proposed residential community title development at 2 Karingal Drive, Pimpama (Lot 19 on RP152380). Clearing is required to facilitate the construction of the proposed development.

A site inspection of the area proposed to be restored was undertaken by the authors of this report in February and March 2026 and was focused upon the mapped minor waterway/drainage feature that is to be protected in environmental reserve and subject to rehabilitation. It is noted that this area has been highly disturbed through historic clearing, weed incursion and significant modification of the upstream and downstream catchment. This modification includes channelisation, damming, construction of stormwater infrastructure (e.g. swales, detention basins) and piping.

A total A total of 142 species of flora were detected during the surveys including 72 non-native species, eight (8) of which are Restricted Invasive Plants under the '*Biosecurity Act 2016'*. No conservation significant flora species were identified during the survey. The sites vegetation can be classed as one association – anthropogenic grassland with irregular patches/copses of native canopy and landscaped trees. This association is highly modified and degraded by historical clearing, abandoned horticultural infrastructure and significant weed incursion. In particular, *Setaria sphacelata* (South African pigeon grass) is present throughout this association, and is present as dense stands across much of the site.

A total of 282 trees were surveyed within the project area as being potentially impacted by the works with 263 identified to be removed. All trees require removal to facilitate the proposed works due to either poor structural form, earthworks impacts on the Structural Root Zone (SRZ) and/or moderate/major impacts on the Notional Root Zone (NRZ), or to facilitate construction access.

To ensure potential impacts on native wildlife and breeding places are avoided, a licensed spotter-catcher is to undertake a pre-clearing survey no more than two (2) weeks prior to the clearing to identify any nests, habitat features or fauna breeding places that may be impacted, to determine actions required prior, during and following clearing works. The Project Arborist should supervise all works to ensure that retained, protected vegetation is not impacted by the works.

All vegetation clearing works are to be undertaken in accordance with the provisions of this Vegetation and Fauna Management Plan and conditions of approval.

8. References

Batianoff, G.N. and Butler, D.W. (2002). Assessment of invasive naturalised plants in south-east Queensland. Environmental Protection Agency, Brisbane.

Chenoweth EPLA Bushland Restoration Services (2012) South East Queensland Ecological Restoration Framework: Guideline. Prepared on behalf of SEQ Catchments and South East Queensland Local Governments, Brisbane.

Eyre TJ, Ferguson DJ, Smith GC, Mathieson MT, Venz MF, Hogan, LD, Hourigan CL, Kelly, AL & Rowland, J. (2022). Terrestrial Vertebrate Fauna Survey Assessment Guidelines for Queensland, Version 4.0. Brisbane: Department of Environment and Science, Queensland Government.

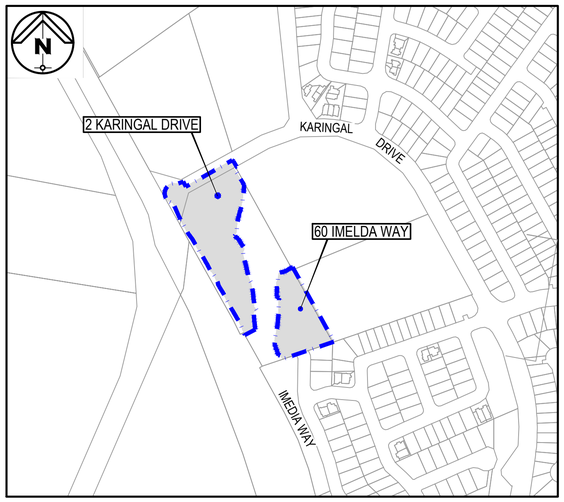
Hanger, J. and Nottidge, B. (2009). Queensland Code of Practice for the Welfare of Wild Animals Affected by Land-Clearing and other Habitat Impacts and Wildlife Spotter/Catchers. Australia Zoo Wildlife Warriors Worldwide Ltd.

Neldner, V.J., Wilson, B.A., Dillewaard, H.A., Ryan, T.S., Butler, D.W., McDonald, W.J.F, Richter, D., Addicott, E.P. and Appelman, C.N. (2022) Methodology for survey and mapping of regional ecosystems and vegetation communities in Queensland. Version 6.0. Updated April 2022. Queensland Herbarium, Queensland Department of Environment and Science, Brisbane.

Appendix A – Proposed Development Design

PROPOSED LOT DEVELOPMENT
AT 2 KARINGAL DRIVE & 60 IMELDA WAY, PIMPAMA

ROADWORKS & CIVIL SERVICES
CONTRACT BE200223



LOCALITY PLAN

N.T.S.

DRAWING INDEX	
DRG.NO	DESCRIPTION
C1000	COVER SHEET
C1101	TYPICAL SECTIONS & GENERAL NOTES
C2000	OVERALL BULK EARTHWORKS LAYOUT PLAN
C2100	BULK EARTHWORKS NOTES & DETAILS
C2200	BULK EARTHWORKS SECTIONS
C2300	EROSION & SEDIMENT CONTROL NOTES & TYPICAL DETAILS
C2400	EROSION & SEDIMENT CONTROL PLAN - BULK EARTHWORKS PHASE
C3000	OVERALL ROADWORKS AND DRAINAGE LAYOUT PLAN
C3200	ROAD LONGITUDINAL SECTIONS - SHEET 1 OF 3
C3300	DRIVEWAY CROSS SECTIONS
C3400	PAVEMENT LAYOUT PLAN
C3405	PAVEMENT DETAILS
C4000	STORMWATER CATCHMENT PLAN
C4100	STORMWATER LONGITUDINAL SECTIONS
C4500	STORMWATER DETAIL
C4600	WATER AND SEWER LAYOUT PLAN
C9000	HAZARD RISK REGISTER - DESIGN RISKS

SURVEY

PROVIDED BY:	MICHEL GROUP SERVICES
REPORT No:	25218-2 Rev.A
DATE:	03/02/2026
SYSTEM:	PM 197770 RL 4.521 MGA 2020

PREPARED FOR

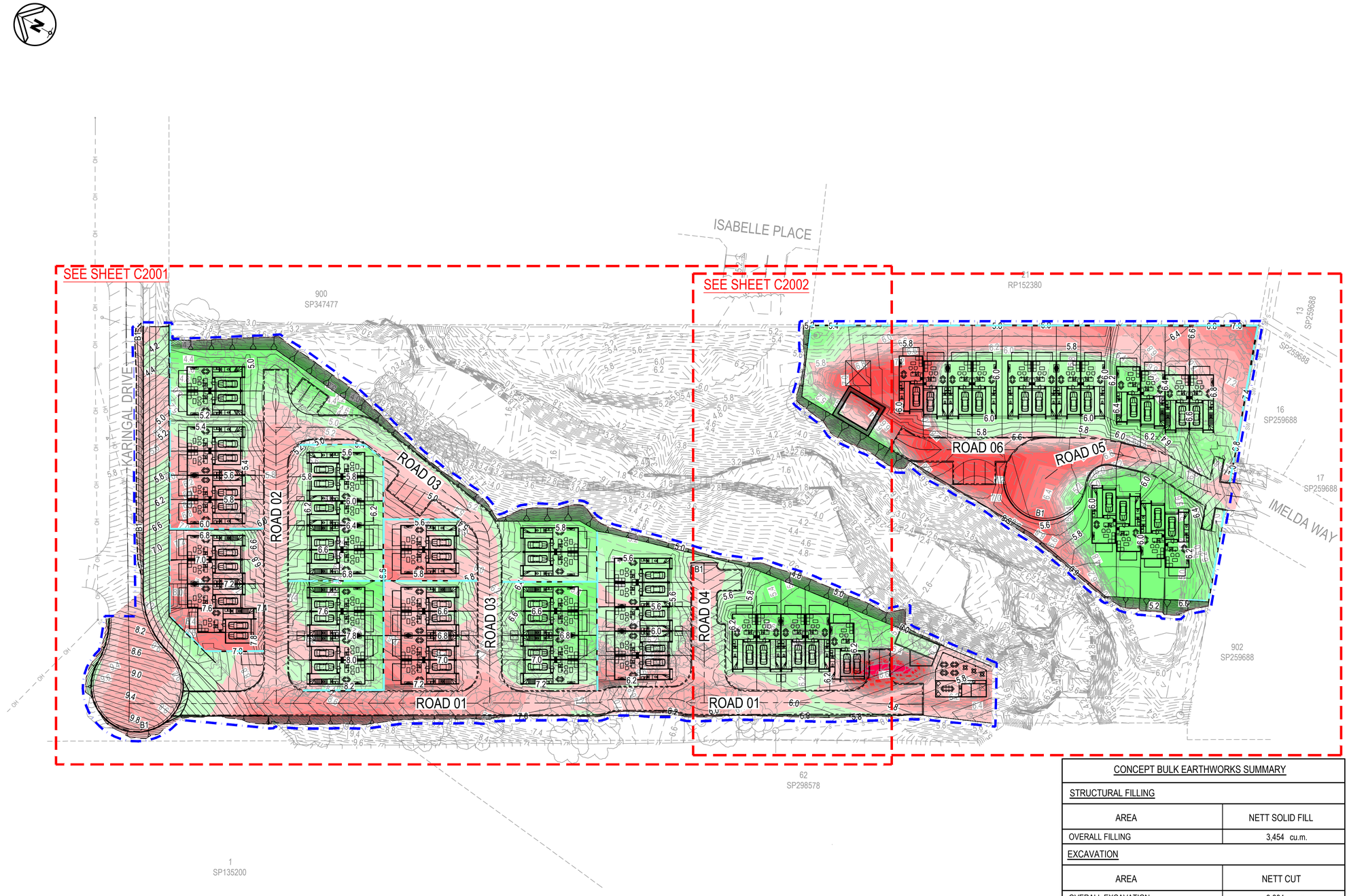
BOS

PREPARED BY

BURCHILLS
ENGINEERING SOLUTIONS

GOLD COAST | BRISBANE | TOOWOOMBA
IPSWICH | MORETON BAY
PHONE: +61 7 5509 6400
FAX: +61 7 5509 6411
EMAIL: ADMIN@BURCHILLS.COM.AU
COOTE BURCHILLS ENGINEERING PTY LTD
ABN 76 166 942 365

PROJECT No.:	DRAWING No. :	VERSION:	DATE :
BE20023	C1000	A	03-03-26



LEGEND

- DEVELOPMENT SITE BOUNDARY
- EXISTING FENCE
- EXISTING WATER
- EXISTING STORMWATER
- EXISTING SEWER
- EXISTING OVERHEAD ELECTRIC
- EXISTING CHANGE GRADE
- EXISTING EDGE OF BITUMEN
- EXISTING ROAD CONTROL LINE
- EXISTING TOP OF BANK
- EXISTING BOTTOM OF BANK
- EXISTING LOT BOUNDARY
- EXISTING SURFACE CONTOURS
- EXISTING ROAD CONTROL LINE
- EARTHWORK SURFACE CONTOUR
- PROPOSED ROAD CONTROL LINE
- PROPOSED EDGE RESTRAINT TYPE ER2
- PROPOSED BARRIER KERB TYPE B1
- PROPOSED RETAINING WALL
- PROPOSED BATTER
- PROPOSED CUTBACK

EARTHWORKS DEPTH ANALYSIS LEGEND

LOWER		UPPER	COLOUR
-3.0m	TO	-2.75m	
-2.75m	TO	-2.50m	
-2.50m	TO	-2.25m	
-2.25m	TO	-2.0m	
-2.0m	TO	-1.75m	
-1.75m	TO	-1.50m	
-1.50m	TO	-1.25m	
-1.25m	TO	-1.0m	
-1.0m	TO	-0.75m	
-0.75m	TO	-0.50m	
-0.5m	TO	-0.25m	
-0.25m	TO	0.0m	
0.0m	TO	0.25m	
0.25m	TO	0.50m	
0.50m	TO	0.75m	
0.75m	TO	1.0m	
1.0m	TO	1.25m	
1.25m	TO	1.50m	
1.50m	TO	1.75m	
1.75m	TO	2.0m	
2.0m	TO	2.25m	
2.25m	TO	2.50m	
2.50m	TO	2.75m	
2.75m	TO	3.0m	

CONCEPT BULK EARTHWORKS SUMMARY

STRUCTURAL FILLING

AREA	NETT SOLID FILL
OVERALL FILLING	3,454 cu.m.

EXCAVATION

AREA	NETT CUT
OVERALL EXCAVATION	3,284 cu.m.

SUMMARY:
TOTAL MATERIAL ON LEADS (NETT FILL) = 3,454 cu.m.
i.e. 3,454 cu.m. - 3,284 cu.m. = 170 c.um.

- ALLOWANCE FOR 450mm FOR BUILDING SLAB THICKNESS
- ALLOWANCE FOR 325mm FOR ROAD PAVEMENT THICKNESS
- ALLOWANCE FOR 300mm TOPSOIL RESPREAD TO FOR LANDSCAPE AREAS

BULK EARTHWORKS VOLUMES INCLUDE A NOMINAL 200mm OF TOPSOIL STRIPPING VOLUME WITHIN EARTHWORKS AREA

NOTE:
ALL DESIGN/SETOUT INFORMATION SHOWN ON THIS DRAWING IS AVAILABLE IN DIGITAL FORMAT FROM THE OFFICE OF THE SUPERINTENDENT UPON REQUEST BY THE CONTRACTOR.

WARNING: UNDERGROUND SERVICES:
UNDERGROUND SERVICES EXIST IN THIS VICINITY. THE CONTRACTOR IS TO CONTACT THE RELEVANT AUTHORITIES TO CONFIRm EXACT LOCATION OF SERVICES ON SITE PRIOR TO ANY EXCAVATION OR CONSTRUCTION COMMENCING.

COPYRIGHT ©
This drawing is copyright and the property of Burchills Engineering Solutions. It must not be retained, copied or used without the authority of Burchills Engineering Solutions.

DISCLAIMER
This drawing and its contents are electronically generated, are confidential and may only be used for the purpose for which they were intended. Burchills Engineering Solutions will not accept responsibility for any consequences arising from the use of the drawing for other than its intended purpose or where the drawing has been altered, amended or changed either manually or electronically by any third party.

NOTE
This is an uncontrolled document issued for information purposes only, unless the checked sections are signed or completed. Figured dimensions take precedence over scale. Do not scale reduced size drawings. Verify dimensions prior to commencing any on-site or off-site works or fabrication.

VER.	DESCRIPTION	DATE
A	ORIGINAL ISSUE	03-03-26

BURCHILLS ENGINEERING SOLUTIONS
GOLD COAST | BRISBANE | TOOWOOMBA
IPSWICH | MORETON BAY
PHONE: +61 7 5509 6400
FAX: +61 7 5509 6411
EMAIL: ADMIN@BURCHILLS.COM.AU
COOTE BURCHILLS ENGINEERING PTY LTD
ABN 76 166 942 365

CLIENT : BOS

DRAWING TITLE :
OVERALL BULK EARTHWORKS LAYOUT PLAN

PROJECT :
2 KARINGAL DRIVE & 60 IMELDA WAY, PIMPAMA

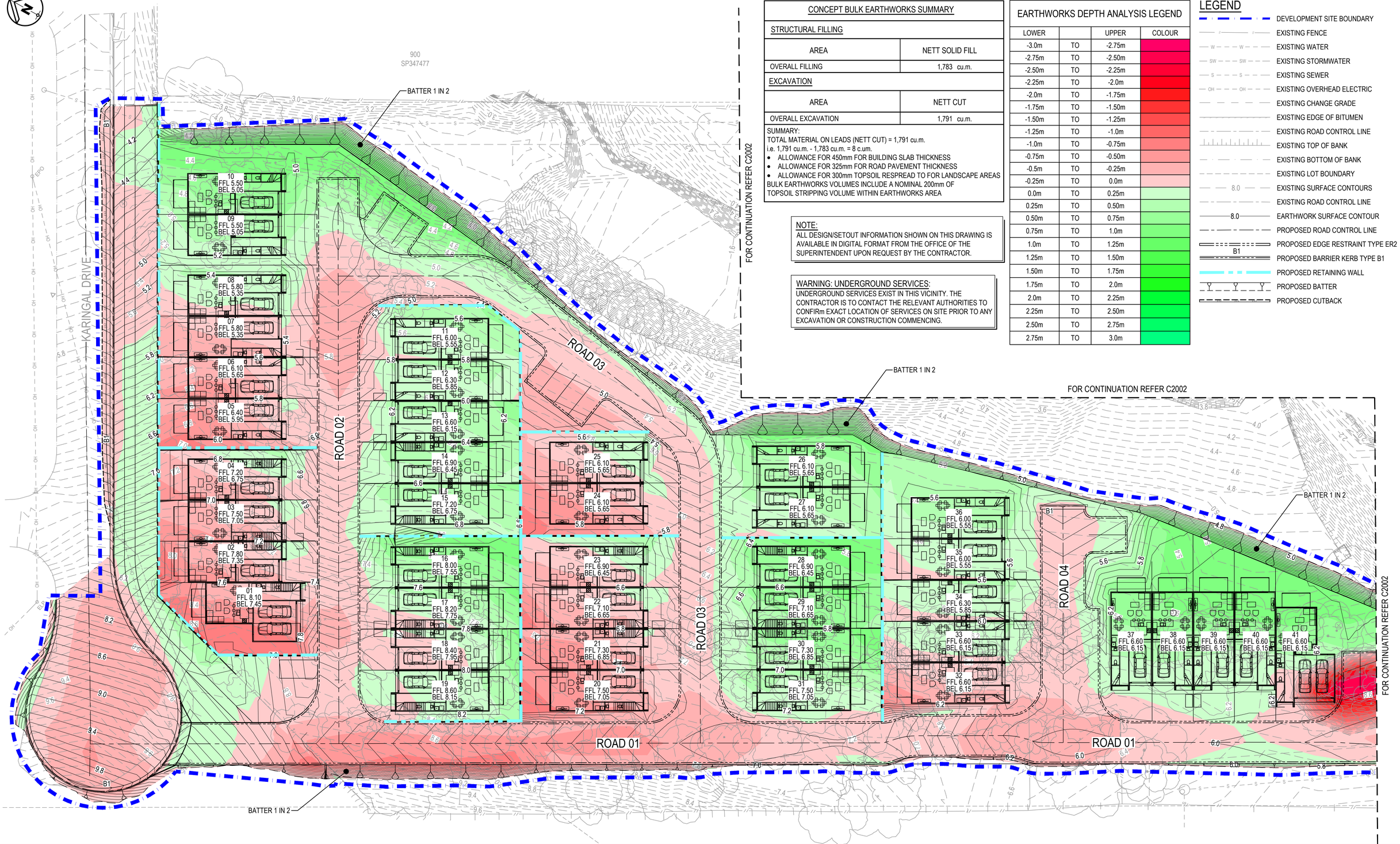
PRELIMINARY
NOT FOR CONSTRUCTION OR TENDER

SCALE AT FULL SIZE (A1) :
SCALE (metres)
2.5 0 2.5 5 7.5 10 12.5
1 : 500 (FULL SIZE)

DEVEL. APPLIC. No. :		DATE : 03-03-26
PROJECT LEADER : -	DESIGNER : BNB	
DRAFTSPERSON : BNB	CHECKED : -	

APPROVED FOR AND ON BEHALF OF
BURCHILLS ENGINEERING SOLUTIONS ABN 76 166 942 365

PROJECT No.:	DRAWING No. :	VERSION:
BE20023	C2000	A



CONCEPT BULK EARTHWORKS SUMMARY

STRUCTURAL FILLING

AREA	NETT SOLID FILL
OVERALL FILLING	1,783 cu.m.

EXCAVATION

AREA	NETT CUT
OVERALL EXCAVATION	1,791 cu.m.

SUMMARY:
TOTAL MATERIAL ON LEADS (NETT CUT) = 1,791 cu.m.
i.e. 1,791 cu.m. - 1,783 cu.m. = 8 c.um.

- ALLOWANCE FOR 450mm FOR BUILDING SLAB THICKNESS
- ALLOWANCE FOR 325mm FOR ROAD PAVEMENT THICKNESS
- ALLOWANCE FOR 300mm TOPSOIL RESPREAD TO FOR LANDSCAPE AREAS

BULK EARTHWORKS VOLUMES INCLUDE A NOMINAL 200mm OF TOPSOIL STRIPPING VOLUME WITHIN EARTHWORKS AREA

NOTE:
ALL DESIGN/SETOUT INFORMATION SHOWN ON THIS DRAWING IS AVAILABLE IN DIGITAL FORMAT FROM THE OFFICE OF THE SUPERINTENDENT UPON REQUEST BY THE CONTRACTOR.

WARNING: UNDERGROUND SERVICES:
UNDERGROUND SERVICES EXIST IN THIS VICINITY. THE CONTRACTOR IS TO CONTACT THE RELEVANT AUTHORITIES TO CONFIRm EXACT LOCATION OF SERVICES ON SITE PRIOR TO ANY EXCAVATION OR CONSTRUCTION COMMENCING.

EARTHWORKS DEPTH ANALYSIS LEGEND

LOWER		UPPER	COLOUR
-3.0m	TO	-2.75m	
-2.75m	TO	-2.50m	
-2.50m	TO	-2.25m	
-2.25m	TO	-2.0m	
-2.0m	TO	-1.75m	
-1.75m	TO	-1.50m	
-1.50m	TO	-1.25m	
-1.25m	TO	-1.0m	
-1.0m	TO	-0.75m	
-0.75m	TO	-0.50m	
-0.5m	TO	-0.25m	
-0.25m	TO	0.0m	
0.0m	TO	0.25m	
0.25m	TO	0.50m	
0.50m	TO	0.75m	
0.75m	TO	1.0m	
1.0m	TO	1.25m	
1.25m	TO	1.50m	
1.50m	TO	1.75m	
1.75m	TO	2.0m	
2.0m	TO	2.25m	
2.25m	TO	2.50m	
2.50m	TO	2.75m	
2.75m	TO	3.0m	

LEGEND

- DEVELOPMENT SITE BOUNDARY
- EXISTING FENCE
- EXISTING WATER
- EXISTING STORMWATER
- EXISTING SEWER
- EXISTING OVERHEAD ELECTRIC
- EXISTING CHANGE GRADE
- EXISTING EDGE OF BITUMEN
- EXISTING ROAD CONTROL LINE
- EXISTING TOP OF BANK
- EXISTING BOTTOM OF BANK
- EXISTING LOT BOUNDARY
- EXISTING SURFACE CONTOURS
- EXISTING ROAD CONTROL LINE
- EARTHWORK SURFACE CONTOUR
- PROPOSED ROAD CONTROL LINE
- PROPOSED EDGE RESTRAINT TYPE ER2
- PROPOSED BARRIER KERB TYPE B1
- PROPOSED RETAINING WALL
- PROPOSED BATTER
- PROPOSED CUTBACK

COPYRIGHT ©
This drawing is copyright and the property of Burchills Engineering Solutions. It must not be retained, copied or used without the authority of Burchills Engineering Solutions.

DISCLAIMER
This drawing and its contents are electronically generated, are confidential and may only be used for the purpose for which they were intended. Burchills Engineering Solutions will not accept responsibility for any consequences arising from the use of the drawing for other than its intended purpose or where the drawing has been altered, amended or changed either manually or electronically by any third party.

NOTE
This is an uncontrolled document issued for information purposes only, unless the checked sections are signed or completed. Figured dimensions take precedence over scale. Do not scale reduced size drawings. Verify dimensions prior to commencing any on-site or off-site works or fabrication.

VER.	DESCRIPTION	DATE
A	ORIGINAL ISSUE	03-03-26

BURCHILLS ENGINEERING SOLUTIONS
GOLD COAST | BRISBANE | TOOWOOMBA
IPSWICH | MORETON BAY
PHONE: +61 7 5509 6400
FAX: +61 7 5509 6411
EMAIL: ADMIN@BURCHILLS.COM.AU
COOTE BURCHILLS ENGINEERING PTY LTD
ABN 76 166 942 365

CLIENT : BOS

DRAWING TITLE :
BULK EARTHWORKS LAYOUT PLAN - SHEET 1 OF 2

PROJECT :
2 KARINGAL DRIVE & 60 IMELDA WAY, PIMPAMA

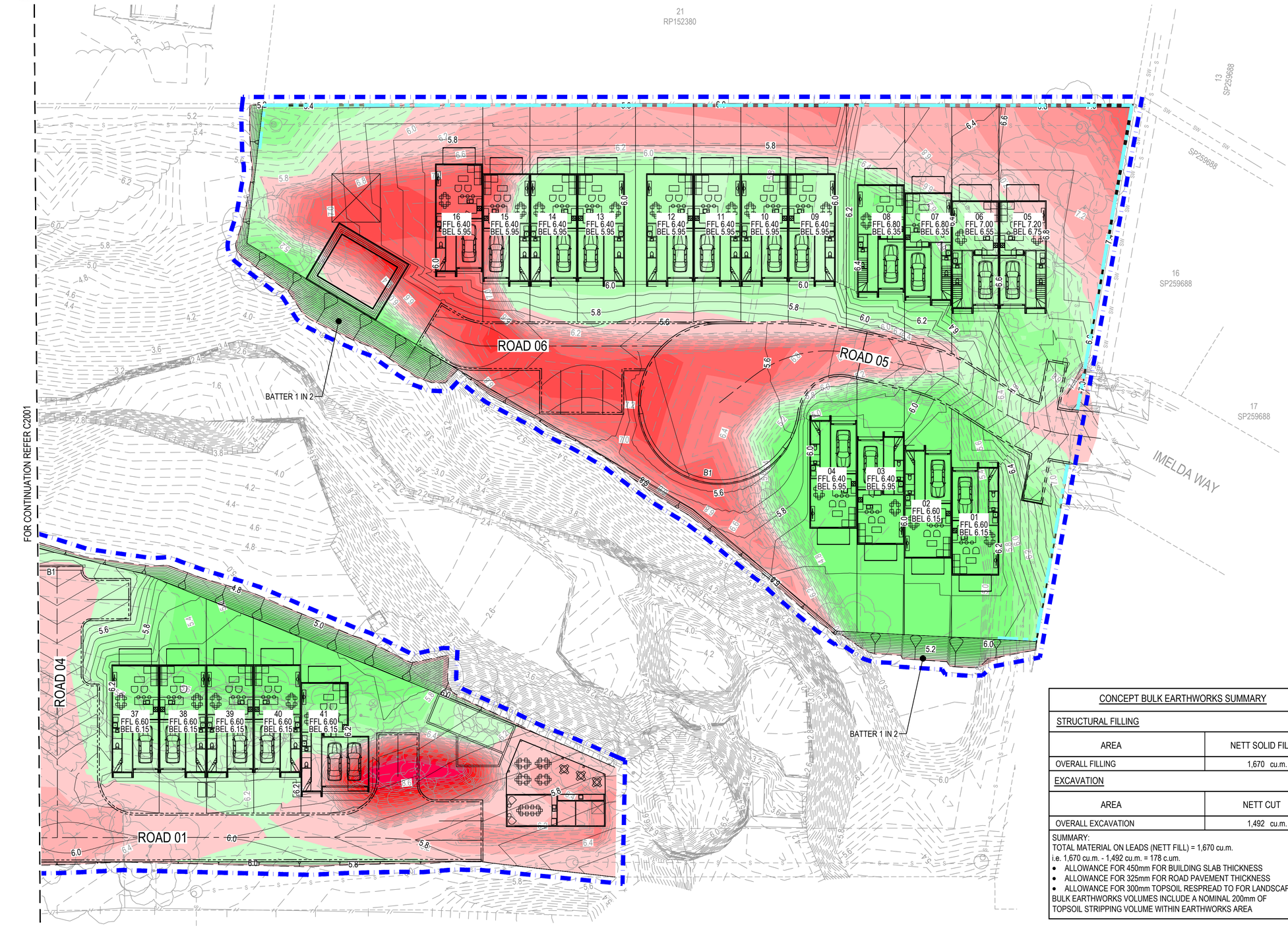
PRELIMINARY
NOT FOR CONSTRUCTION OR TENDER

SCALE AT FULL SIZE (A1) :
SCALE (metres) 5 0 5 10
1 : 250 (FULL SIZE)

DEVEL. APPLIC. No. :	DATE : 03-03-26
PROJECT LEADER : -	DESIGNER : BNB
DRAFTSPERSON : BNB	CHECKED : -

APPROVED FOR AND ON BEHALF OF
BURCHILLS ENGINEERING SOLUTIONS ABN 76 166 942 365

PROJECT No.:	DRAWING No. :	VERSION:
BE20023	C2001	A



LEGEND

- DEVELOPMENT SITE BOUNDARY
- EXISTING FENCE
- EXISTING WATER
- EXISTING STORMWATER
- EXISTING SEWER
- EXISTING OVERHEAD ELECTRIC
- EXISTING CHANGE GRADE
- EXISTING EDGE OF BITUMEN
- EXISTING ROAD CONTROL LINE
- EXISTING TOP OF BANK
- EXISTING BOTTOM OF BANK
- EXISTING LOT BOUNDARY
- EXISTING SURFACE CONTOURS
- EXISTING ROAD CONTROL LINE
- EARTHWORK SURFACE CONTOUR
- PROPOSED ROAD CONTROL LINE
- PROPOSED EDGE RESTRAINT TYPE ER2
- PROPOSED BARRIER KERB TYPE B1
- PROPOSED RETAINING WALL
- PROPOSED BATTER

EARTHWORKS DEPTH ANALYSIS LEGEND

LOWER		UPPER	COLOUR
-3.0m	TO	-2.75m	
-2.75m	TO	-2.50m	
-2.50m	TO	-2.25m	
-2.25m	TO	-2.0m	
-2.0m	TO	-1.75m	
-1.75m	TO	-1.50m	
-1.50m	TO	-1.25m	
-1.25m	TO	-1.0m	
-1.0m	TO	-0.75m	
-0.75m	TO	-0.50m	
-0.5m	TO	-0.25m	
-0.25m	TO	0.0m	
0.0m	TO	0.25m	
0.25m	TO	0.50m	
0.50m	TO	0.75m	
0.75m	TO	1.0m	
1.0m	TO	1.25m	
1.25m	TO	1.50m	
1.50m	TO	1.75m	
1.75m	TO	2.0m	
2.0m	TO	2.25m	
2.25m	TO	2.50m	
2.50m	TO	2.75m	
2.75m	TO	3.0m	

CONCEPT BULK EARTHWORKS SUMMARY

STRUCTURAL FILLING

AREA	NETT SOLID FILL
OVERALL FILLING	1,670 cu.m.

EXCAVATION

AREA	NETT CUT
OVERALL EXCAVATION	1,492 cu.m.

SUMMARY:
TOTAL MATERIAL ON LEADS (NETT FILL) = 1,670 cu.m.
i.e. 1,670 cu.m. - 1,492 cu.m. = 178 c.um.

- ALLOWANCE FOR 450mm FOR BUILDING SLAB THICKNESS
- ALLOWANCE FOR 325mm FOR ROAD PAVEMENT THICKNESS
- ALLOWANCE FOR 300mm TOPSOIL RESPREAD TO FOR LANDSCAPE AREAS

BULK EARTHWORKS VOLUMES INCLUDE A NOMINAL 200mm OF TOPSOIL STRIPPING VOLUME WITHIN EARTHWORKS AREA

NOTE:
ALL DESIGN/SETOUT INFORMATION SHOWN ON THIS DRAWING IS AVAILABLE IN DIGITAL FORMAT FROM THE OFFICE OF THE SUPERINTENDENT UPON REQUEST BY THE CONTRACTOR.

WARNING: UNDERGROUND SERVICES:
UNDERGROUND SERVICES EXIST IN THIS VICINITY. THE CONTRACTOR IS TO CONTACT THE RELEVANT AUTHORITIES TO CONFIRm EXACT LOCATION OF SERVICES ON SITE PRIOR TO ANY EXCAVATION OR CONSTRUCTION COMMENCING.

COPYRIGHT ©
This drawing is copyright and the property of Burchills Engineering Solutions. It must not be retained, copied or used without the authority of Burchills Engineering Solutions.

DISCLAIMER
This drawing and its contents are electronically generated, are confidential and may only be used for the purpose for which they were intended. Burchills Engineering Solutions will not accept responsibility for any consequences arising from the use of the drawing for other than its intended purpose or where the drawing has been altered, amended or changed either manually or electronically by any third party.

NOTE
This is an uncontrolled document issued for information purposes only, unless the checked sections are signed or completed. Figured dimensions take precedence over scale. Do not scale reduced size drawings. Verify dimensions prior to commencing any on-site or off-site works or fabrication.

VER.	DESCRIPTION	DATE
A	ORIGINAL ISSUE	03-03-26

BURCHILLS ENGINEERING SOLUTIONS
GOLD COAST | BRISBANE | TOOWOOMBA
IPSWICH | MORETON BAY
PHONE: +61 7 5509 6400
FAX: +61 7 5509 6411
EMAIL: ADMIN@BURCHILLS.COM.AU
COOTE BURCHILLS ENGINEERING PTY LTD
ABN 76 166 942 365

CLIENT : BOS

DRAWING TITLE : BULK EARTHWORKS LAYOUT PLAN - SHEET 2 OF 2

PROJECT : 2 KARINGAL DRIVE & 60 IMELDA WAY, PIMPAMA

PRELIMINARY
NOT FOR CONSTRUCTION OR TENDER

SCALE AT FULL SIZE (A1) :
SCALE (metres)
5 0 5 10
1 : 250 (FULL SIZE)

DEVEL. APPLIC. No. :	DATE : 03-03-26
PROJECT LEADER : -	DESIGNER : BNB
DRAFTSPERSON : BNB	CHECKED : -

APPROVED FOR AND ON BEHALF OF
BURCHILLS ENGINEERING SOLUTIONS ABN 76 166 942 365

PROJECT No.:	DRAWING No. :	VERSION:
BE20023	C2002	A



LEGEND

- DEVELOPMENT SITE BOUNDARY
- EXISTING FENCE
- EXISTING WATER
- EXISTING STORMWATER
- EXISTING SEWER
- EXISTING OVERHEAD ELECTRIC
- EXISTING CHANGE GRADE
- EXISTING EDGE OF BITUMEN
- EXISTING ROAD CONTROL LINE
- EXISTING TOP OF BANK
- EXISTING BOTTOM OF BANK
- EXISTING LOT BOUNDARY
- EXISTING CONTOURS
- EXISTING ROAD CONTROL LINE
- DESIGN SURFACE CONTOUR
- PROPOSED ROAD CONTROL LINE
- PROPOSED EDGE RESTRAINT TYPE ER2
- PROPOSED BARRIER KERB TYPE B1
- PROPOSED CUTBACK
- PROPOSED RETAINING WALL
- PROPOSED BATTER
- PROPOSED STORMWATER
- PROPOSED STORMWATER PIT
- PROPOSED HEADWALL
- PROPOSED UNIT
- PROPOSED ASPHALT PAVEMENT
- PROPOSED ROCK PROTECTION
- PROPOSED COURTYARD
- PROPOSED 1.5m FOOTPATH
- PROPOSED BIORETENTION BASIN

WARNING: UNDERGROUND SERVICES:
UNDERGROUND SERVICES EXIST IN THIS VICINITY. THE CONTRACTOR IS TO CONTACT THE RELEVANT AUTHORITIES TO CONFIRM EXACT LOCATION OF SERVICES ON SITE PRIOR TO ANY EXCAVATION OR CONSTRUCTION COMMENCING.

NOTE:
ULTIMATE FINISHED SURFACE PROFILES AND ASSOCIATED STORMWATER CAPTURE PITS TO LANDSCAPED AREAS SUCH AS PEDESTIAN LINKS AND COURTYARDS ARE BY LANDSCAPE ARCHITECT AND HYDRAULIC CONSULTANT AT TIME OF BUILDING WORKS.

NOTE:
ALL DESIGN/SETOUT INFORMATION SHOWN ON THIS DRAWING IS AVAILABLE IN DIGITAL FORMAT FROM THE OFFICE OF THE SUPERINTENDENT UPON REQUEST BY THE CONTRACTOR.

COPYRIGHT ©
This drawing is copyright and the property of Burchills Engineering Solutions. It must not be retained, copied or used without the authority of Burchills Engineering Solutions.

DISCLAIMER
This drawing and its contents are electronically generated, are confidential and may only be used for the purpose for which they were intended. Burchills Engineering Solutions will not accept responsibility for any consequences arising from the use of the drawing for other than its intended purpose or where the drawing has been altered, amended or changed either manually or electronically by any third party.

NOTE
This is an uncontrolled document issued for information purposes only, unless the checked sections are signed or completed. Figured dimensions take precedence over scale. Do not scale reduced size drawings. Verify dimensions prior to commencing any on-site or off-site works or fabrication.

VER.	DESCRIPTION	DATE
A	ORIGINAL ISSUE	03-03-26

BURCHILLS ENGINEERING SOLUTIONS
GOLD COAST | BRISBANE | TOOWOOMBA
IPSWICH | MORETON BAY
PHONE: +61 7 5509 6400
FAX: +61 7 5509 6411
EMAIL: ADMIN@BURCHILLS.COM.AU
COOTE BURCHILLS ENGINEERING PTY LTD
ABN 76 166 942 365

CLIENT : BOS

DRAWING TITLE : OVERALL ROADWORKS AND DRAINAGE LAYOUT PLAN

PROJECT : 2 KARINGAL DRIVE & 60 IMELDA WAY, PIMPAMA

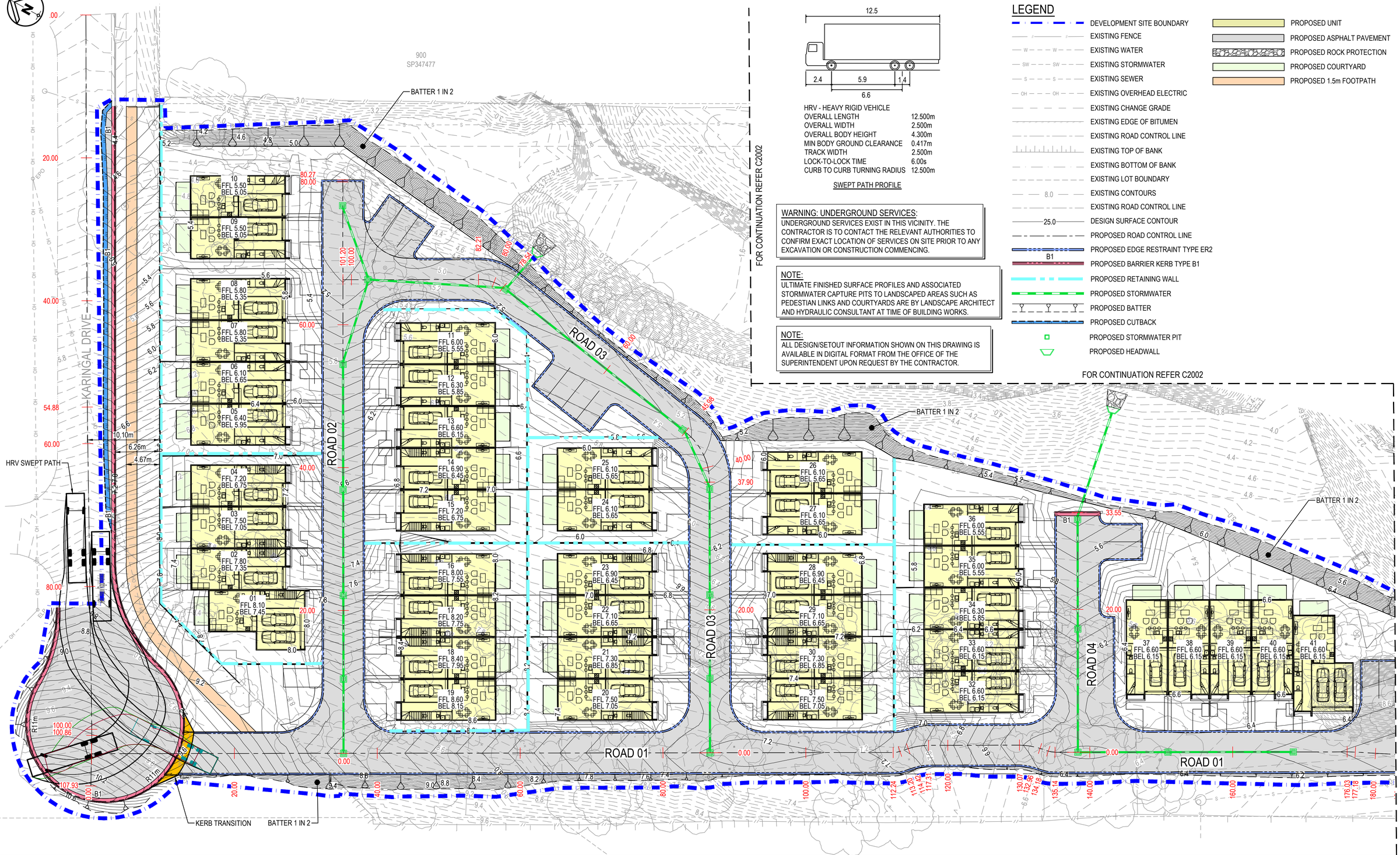
PRELIMINARY
NOT FOR CONSTRUCTION OR TENDER

SCALE AT FULL SIZE (A1) :
SCALE (metres)
2.5 0 2.5 5 7.5 10 12.5
1 : 500 (FULL SIZE)

DEVEL. APPLIC. No. :	DATE : 03-03-26
PROJECT LEADER : -	DESIGNER : BNB
DRAFTSPERSON : BNB	CHECKED : -

APPROVED FOR AND ON BEHALF OF
BURCHILLS ENGINEERING SOLUTIONS ABN 76 166 942 365

PROJECT No.:	DRAWING No. :	VERSION:
BE20023	C3000	A



HRV - HEAVY RIGID VEHICLE

OVERALL LENGTH	12.500m
OVERALL WIDTH	2.500m
OVERALL BODY HEIGHT	4.300m
MIN BODY GROUND CLEARANCE	0.417m
TRACK WIDTH	2.500m
LOCK-TO-LOCK TIME	6.00s
CURB TO CURB TURNING RADIUS	12.500m

SWEPT PATH PROFILE

WARNING: UNDERGROUND SERVICES:
UNDERGROUND SERVICES EXIST IN THIS VICINITY. THE CONTRACTOR IS TO CONTACT THE RELEVANT AUTHORITIES TO CONFIRM EXACT LOCATION OF SERVICES ON SITE PRIOR TO ANY EXCAVATION OR CONSTRUCTION COMMENCING.

NOTE:
ULTIMATE FINISHED SURFACE PROFILES AND ASSOCIATED STORMWATER CAPTURE PITS TO LANDSCAPED AREAS SUCH AS PEDESTIAN LINKS AND COURTYARDS ARE BY LANDSCAPE ARCHITECT AND HYDRAULIC CONSULTANT AT TIME OF BUILDING WORKS.

NOTE:
ALL DESIGN/SETOUT INFORMATION SHOWN ON THIS DRAWING IS AVAILABLE IN DIGITAL FORMAT FROM THE OFFICE OF THE SUPERINTENDENT UPON REQUEST BY THE CONTRACTOR.

LEGEND

- DEVELOPMENT SITE BOUNDARY
- EXISTING FENCE
- EXISTING WATER
- EXISTING STORMWATER
- EXISTING SEWER
- EXISTING OVERHEAD ELECTRIC
- EXISTING CHANGE GRADE
- EXISTING EDGE OF BITUMEN
- EXISTING ROAD CONTROL LINE
- EXISTING TOP OF BANK
- EXISTING BOTTOM OF BANK
- EXISTING LOT BOUNDARY
- EXISTING CONTOURS
- EXISTING ROAD CONTROL LINE
- DESIGN SURFACE CONTOUR
- PROPOSED ROAD CONTROL LINE
- PROPOSED EDGE RESTRAINT TYPE ER2
- PROPOSED BARRIER KERB TYPE B1
- PROPOSED RETAINING WALL
- PROPOSED STORMWATER
- PROPOSED BATTER
- PROPOSED CUTBACK
- PROPOSED STORMWATER PIT
- PROPOSED HEADWALL
- PROPOSED UNIT
- PROPOSED ASPHALT PAVEMENT
- PROPOSED ROCK PROTECTION
- PROPOSED COURTYARD
- PROPOSED 1.5m FOOTPATH

COPYRIGHT ©
This drawing is copyright and the property of Burchills Engineering Solutions. It must not be retained, copied or used without the authority of Burchills Engineering Solutions.

DISCLAIMER
This drawing and its contents are electronically generated, are confidential and may only be used for the purpose for which they were intended. Burchills Engineering Solutions will not accept responsibility for any consequences arising from the use of the drawing for other than its intended purpose or where the drawing has been altered, amended or changed either manually or electronically by any third party.

NOTE
This is an uncontrolled document issued for information purposes only, unless the checked sections are signed or completed. Figured dimensions take precedence over scale. Do not scale reduced size drawings. Verify dimensions prior to commencing any on-site or off-site works or fabrication.

VER.	DESCRIPTION	DATE
A	ORIGINAL ISSUE	03-03-26

BURCHILLS ENGINEERING SOLUTIONS
GOLD COAST | BRISBANE | TOOWOOMBA
IPSWICH | MORETON BAY
PHONE: +61 7 5509 6400
FAX: +61 7 5509 6411
EMAIL: ADMIN@BURCHILLS.COM.AU
COOTE BURCHILLS ENGINEERING PTY LTD
ABN 76 166 942 365

CLIENT : BOS

DRAWING TITLE :
ROADWORKS AND DRAINAGE LAYOUT PLAN - SHEET 1 OF 2

PROJECT :
2 KARINGAL DRIVE & 60 IMELDA WAY, PIMPAMA

PRELIMINARY
NOT FOR CONSTRUCTION OR TENDER

SCALE AT FULL SIZE (A1) :
SCALE (metres) 5 0 5 10
1 : 250 (FULL SIZE)

DEVEL. APPLIC. No. :	DATE : 03-03-26
PROJECT LEADER : -	DESIGNER : BNB
DRAFTSPERSON : BNB	CHECKED : -

APPROVED FOR AND ON BEHALF OF
BURCHILLS ENGINEERING SOLUTIONS ABN 76 166 942 365

PROJECT No.:	DRAWING No. :	VERSION:
BE20023	C3001	A



WARNING: UNDERGROUND SERVICES:
UNDERGROUND SERVICES EXIST IN THIS VICINITY. THE CONTRACTOR IS TO CONTACT THE RELEVANT AUTHORITIES TO CONFIRM EXACT LOCATION OF SERVICES ON SITE PRIOR TO ANY EXCAVATION OR CONSTRUCTION COMMENCING.

NOTE:
ULTIMATE FINISHED SURFACE PROFILES AND ASSOCIATED STORMWATER CAPTURE PITS TO LANDSCAPED AREAS SUCH AS PEDESTIAN LINKS AND COURTYARDS ARE BY LANDSCAPE ARCHITECT AND HYDRAULIC CONSULTANT AT TIME OF BUILDING WORKS.

NOTE:
ALL DESIGN/SETOUT INFORMATION SHOWN ON THIS DRAWING IS AVAILABLE IN DIGITAL FORMAT FROM THE OFFICE OF THE SUPERINTENDENT UPON REQUEST BY THE CONTRACTOR.

COPYRIGHT ©
This drawing is copyright and the property of Burchills Engineering Solutions. It must not be retained, copied or used without the authority of Burchills Engineering Solutions.

DISCLAIMER
This drawing and its contents are electronically generated, are confidential and may only be used for the purpose for which they were intended. Burchills Engineering Solutions will not accept responsibility for any consequences arising from the use of the drawing for other than its intended purpose or where the drawing has been altered, amended or changed either manually or electronically by any third party.

NOTE
This is an uncontrolled document issued for information purposes only, unless the checked sections are signed or completed. Figured dimensions take precedence over scale. Do not scale reduced size drawings. Verify dimensions prior to commencing any on-site or off-site works or fabrication.

VER.	DESCRIPTION	DATE
A	ORIGINAL ISSUE	03-03-26

BURCHILLS ENGINEERING SOLUTIONS
GOLD COAST | BRISBANE | TOOWOOMBA
IPSWICH | MORETON BAY
PHONE: +61 7 5509 6400
FAX: +61 7 5509 6411
EMAIL: ADMIN@BURCHILLS.COM.AU
COOTE BURCHILLS ENGINEERING PTY LTD
ABN 76 166 942 365

CLIENT : BOS

DRAWING TITLE : ROADWORKS AND DRAINAGE LAYOUT PLAN - SHEET 2 OF 2

PROJECT : 2 KARINGAL DRIVE & 60 IMELDA WAY, PIMPAMA

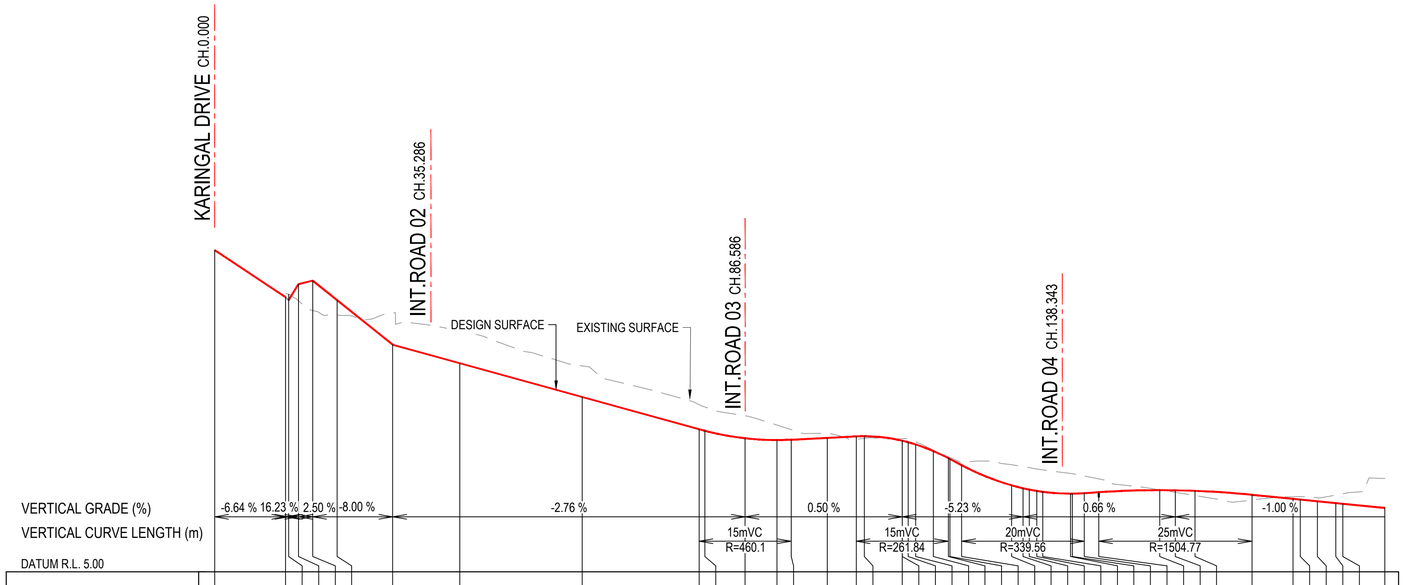
PRELIMINARY
NOT FOR CONSTRUCTION OR TENDER

SCALE AT FULL SIZE (A1) :
SCALE (metres) 5 0 5 10
1 : 250 (FULL SIZE)

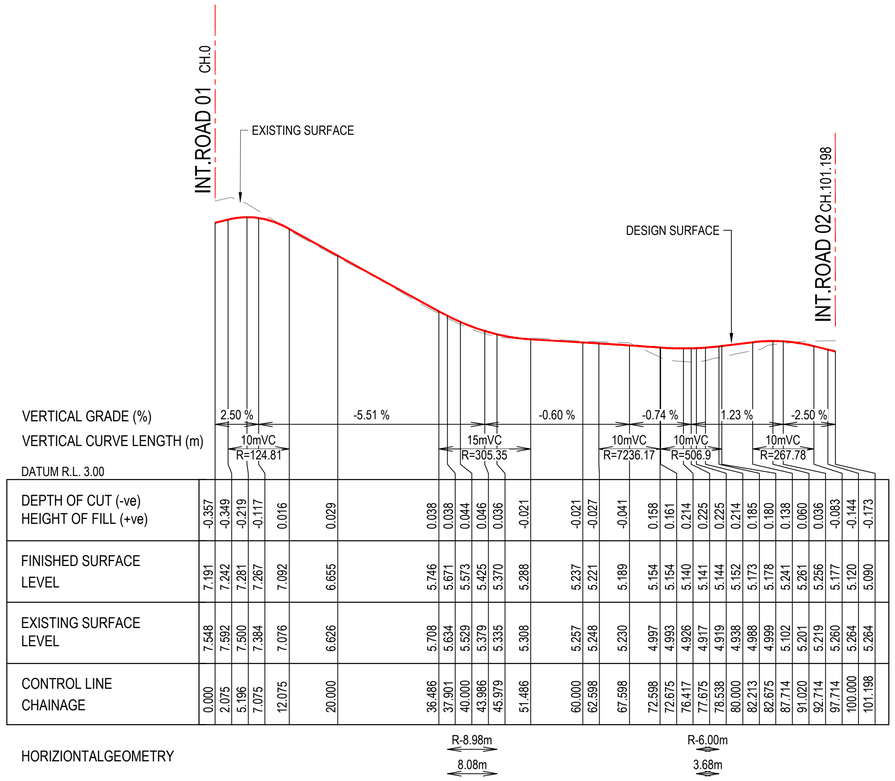
DEVEL. APPLIC. No. :	DATE : 03-03-26
PROJECT LEADER : -	DESIGNER : BNB
DRAFTSPERSON : BNB	CHECKED : -

APPROVED FOR AND ON BEHALF OF
BURCHILLS ENGINEERING SOLUTIONS ABN 76 166 942 365

PROJECT No.:	DRAWING No. :	VERSION:
BE20023	C3002	A

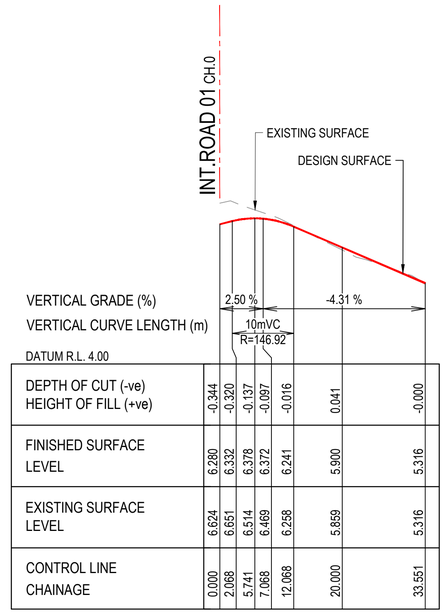

KARINGAL DRIVE CH:0.000
INT.ROAD 02 CH.35.286
INT.ROAD 03 CH.86.586
INT.ROAD 04 CH.138.343
DESIGN SURFACE
EXISTING SURFACE

| | | |



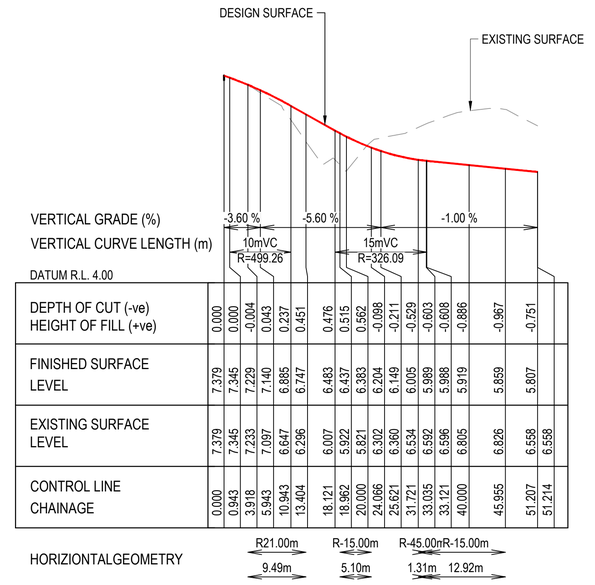
ROAD 03 LONGITUDINAL SECTION

SCALES
5 0 5 10 15 20 25 — 1 : 500 HORIZ.
0.5 0 0.5 1.0 1.5 2.0 2.5 — 1 : 50 VERT.
(metres) (FULL SIZE)



ROAD 04 LONGITUDINAL SECTION

SCALES
5 0 5 10 15 20 25 — 1 : 500 HORIZ.
0.5 0 0.5 1.0 1.5 2.0 2.5 — 1 : 50 VERT.
(metres) (FULL SIZE)



ROAD 05 LONGITUDINAL SECTION

SCALES
5 0 5 10 15 20 25 — 1 : 500 HORIZ.
0.5 0 0.5 1.0 1.5 2.0 2.5 — 1 : 50 VERT.
(metres) (FULL SIZE)

COPYRIGHT ©
This drawing is copyright and the property of Burchills Engineering Solutions. It must not be retained, copied or used without the authority of Burchills Engineering Solutions.

DISCLAIMER
This drawing and its contents are electronically generated, are confidential and may only be used for the purpose for which they were intended. Burchills Engineering Solutions will not accept responsibility for any consequences arising from the use of the drawing for other than its intended purpose or where the drawing has been altered, amended or changed either manually or electronically by any third party.

NOTE
This is an uncontrolled document issued for information purposes only, unless the checked sections are signed or completed. Figured dimensions take precedence over scale. Do not scale reduced size drawings. Verify dimensions prior to commencing any on-site or off-site works or fabrication.

VER.	DESCRIPTION	DATE
A	ORIGINAL ISSUE	03-03-26

BURCHILLS ENGINEERING SOLUTIONS
GOLD COAST | BRISBANE | TOOWOOMBA
IPSWICH | MORETON BAY
PHONE: +61 7 5509 6400
FAX: +61 7 5509 6411
EMAIL: ADMIN@BURCHILLS.COM.AU
COOTE BURCHILLS ENGINEERING PTY LTD
ABN 76 166 942 365

CLIENT : BOS

DRAWING TITLE : ROAD LONGITUDINAL SECTIONS - SHEET 2 OF 3

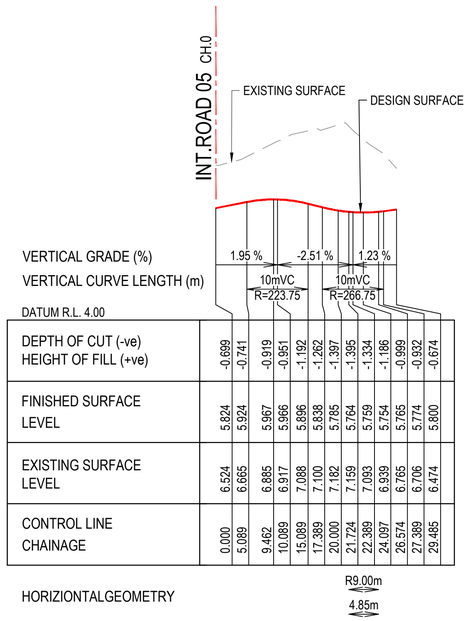
PROJECT : 2 KARINGAL DRIVE & 60 IMELDA WAY, PIMPAMA

PRELIMINARY
NOT FOR CONSTRUCTION OR TENDER

SCALE AT FULL SIZE (A1) :

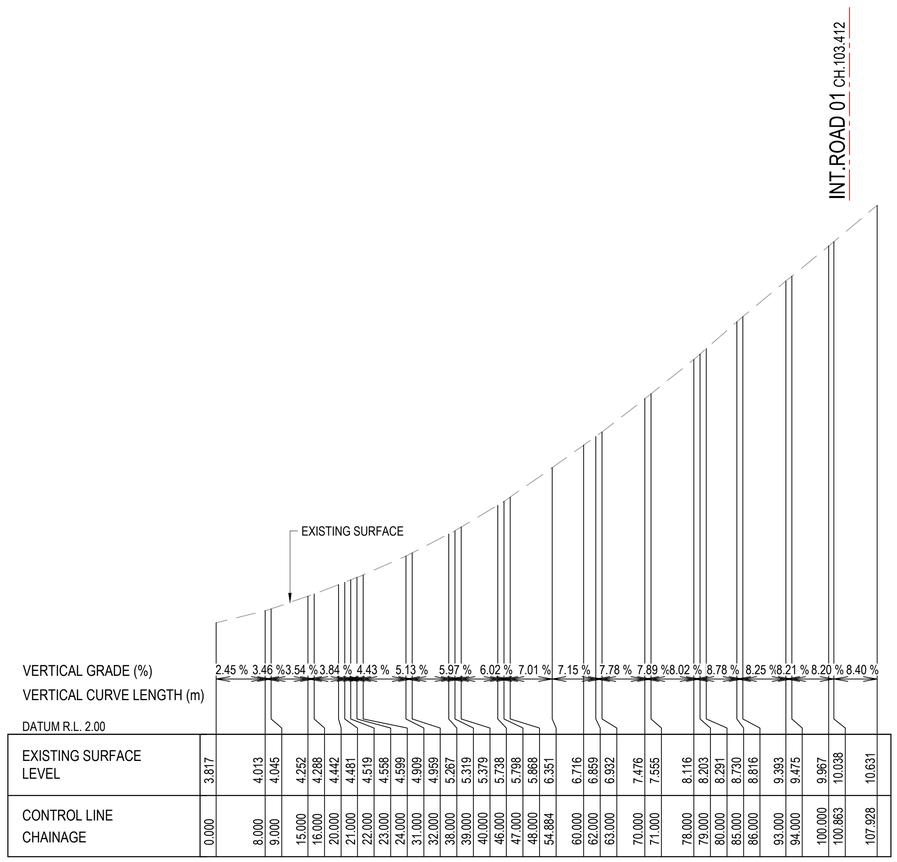
DEVEL. APPLIC. No. : DATE : 03-03-26
PROJECT LEADER : - DESIGNER : BNB
DRAFTSPERSON : BNB CHECKED : -
APPROVED FOR AND ON BEHALF OF BURCHILLS ENGINEERING SOLUTIONS ABN 76 166 942 365

PROJECT No.: BE20023
DRAWING No. : C3201
VERSION: A



ROAD 06 LONGITUDINAL SECTION

SCALES
5 0 5 10 15 20 25 — 1 : 500 HORIZ.
0.5 0 0.5 1.0 1.5 2.0 2.5 — 1 : 50 VERT. (FULL SIZE)
(metres)



KARINGAL DRIVE LONGITUDINAL SECTION

SCALES
5 0 5 10 15 20 25 — 1 : 500 HORIZ.
0.5 0 0.5 1.0 1.5 2.0 2.5 — 1 : 50 VERT. (FULL SIZE)
(metres)

COPYRIGHT ©
This drawing is copyright and the property of Burchills Engineering Solutions. It must not be retained, copied or used without the authority of Burchills Engineering Solutions.

DISCLAIMER
This drawing and its contents are electronically generated, are confidential and may only be used for the purpose for which they were intended. Burchills Engineering Solutions will not accept responsibility for any consequences arising from the use of the drawing for other than its intended purpose or where the drawing has been altered, amended or changed either manually or electronically by any third party.

NOTE
This is an uncontrolled document issued for information purposes only, unless the checked sections are signed or completed. Figured dimensions take precedence over scale. Do not scale reduced size drawings. Verify dimensions prior to commencing any on-site or off-site works or fabrication.

VER.	DESCRIPTION	DATE
A	ORIGINAL ISSUE	03-03-26

BURCHILLS ENGINEERING SOLUTIONS
GOLD COAST | BRISBANE | TOOWOOMBA
IPSWICH | MORETON BAY
PHONE: +61 7 5509 6400
FAX: +61 7 5509 6411
EMAIL: ADMIN@BURCHILLS.COM.AU
COOTE BURCHILLS ENGINEERING PTY LTD
ABN 76 166 942 365

CLIENT : BOS

DRAWING TITLE : ROAD LONGITUDINAL SECTIONS - SHEET 3 OF 3

PROJECT : 2 KARINGAL DRIVE & 60 IMELDA WAY, PIMPAMA

PRELIMINARY
NOT FOR CONSTRUCTION OR TENDER

SCALE AT FULL SIZE (A1) :

DEVEL. APPLIC. No. : | DATE : 03-03-26
PROJECT LEADER : - | DESIGNER : BNB
DRAFTSPERSON : BNB | CHECKED : -

APPROVED FOR AND ON BEHALF OF
BURCHILLS ENGINEERING SOLUTIONS ABN 76 166 942 365

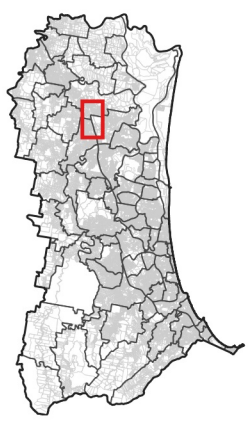
PROJECT No.:	DRAWING No. :	VERSION:
BE20023	C3202	A

Appendix B – Vegetation Clearing Plan and Tree Schedule

2 Karingal Dve Pimpama

Appendix B
Vegetation Clearing Plan

Project: BE200223	Date: 07-07-2026
Scale: 1:900 at A3	Projection: GDA 2020/MGA Zone 56
Data Sources: Nearmap February 2026	



Location of site within Gold Coast LGA

Legend

- Subject Lot
- Cadastre
- Watercourse centreline
- Constructed dams
- Disturbance footprint
- Conservation Lot [7,439m2]
- Surveyed Tree Trunk [282]

Tree impacts
Actions - Retain/Remove [282]

- Retain [19]
- Impacted [263]
- Habitat trees (NRZ*)
  * Notional Root Zone measured and calculated per AS4590:2025

Vegetation Associations Impacts

- A – Urban Woodland and Anthropogenic Grassland
- B – Disturbed Riparian Woodland
- Clearing direction

Tree protection fencing type

- fauna exclusion
- fauna friendly

BURCHILLS SCIENCE AND ENGINEERING

BOSFORM 30 YEARS

This drawing is copyright and the property of Burchills Engineering Solutions. It must not be retained, copied or used without the authority of Burchills Engineering Solutions.

DISCLAIMER: This figure and its contents are electronically generated, are confidential and may only be used for the purpose for which they were intended. Burchills Engineering Solutions will not accept responsibility for any consequences arising from the use of the figure for other than its intended purpose or where the drawing has been altered, amended or changed either manually or electronically by any third party. Some or all of the data presented on this plan may have been digitised or sourced from third parties, and as such may contain spatial innaccuracies.

Table B1 - Tree Schedule

ID	Species	DBH (m)	SRZ (m)	SRZ Impact	NRZ (m)	NRZ Total Area (m²)	NRZ Impacted Area by EWKS (m²)	NRZ Impact (%)	Tree Status	Easting	Northing
1	*Eucalyptus tereticornis*	0.7	2.85	No	8.4	259.07	37.36	14.42	Retain	530142.8	6921656
2	*Acacia concurrens*	0.1	1.5	Yes	2	13.8	2.09	15.14	Remove	530136.9	6921658
3	*Acacia concurrens*	0.15	1.5	Yes	2	14.46	14.46	100	Remove	530130.3	6921658
4	*Eucalyptus tereticornis*	1	3.31	Yes	12	528.71	333.86	63.15	Remove	530124.7	6921659
5	*Archontophoenix alexandrae*	0.6	2.67	Yes	7.2	190.34	190.34	100	Remove	530085.3	6921596
6	*Archontophoenix alexandrae*	0.55	2.57	Yes	6.6	159.93	159.93	100	Remove	530087.1	6921591
7	*Syagrus romanzoffiana*	0.275	1.92	Yes	3.3	39.98	39.98	100	Remove	530079.7	6921589
8	*Lophostemon suaveolens*	0.15	1.5	Yes	2	14.46	14.46	100	Remove	530078.4	6921588
9	*Melaleuca viminalis*	0.2	1.68	Yes	2.4	21.15	21.15	100	Remove	530081.1	6921585
11	*Melaleuca viminalis*	0.2	1.68	Yes	2.4	21.15	21.15	100	Remove	530079	6921590
12	*Lophostemon suaveolens*	0.3	2	Yes	3.6	47.58	47.58	100	Remove	530098	6921588
13	*Lophostemon suaveolens*	0.275	1.92	Yes	3.3	39.98	39.98	100	Remove	530096.9	6921587
14	*Melaleuca quinquenervia*	0.25	1.85	Yes	3	33.04	33.04	100	Remove	530092.6	6921580
15	*Corymbia intermedia*	0.5	2.47	Yes	6	132.18	132.18	100	Remove	530100.8	6921578
16	*Lophostemon suaveolens*	0.3	2	Yes	3.6	47.58	47.58	100	Remove	530097	6921584
17	*Corymbia intermedia*	0.3	2	Yes	3.6	47.58	47.58	100	Remove	530108.9	6921573
18	*Glochidion ferdinandi*	0.6	2.67	Yes	7.2	190.34	190.34	100	Remove	530104.4	6921571
19	*Glochidion ferdinandi*	0.2	1.68	Yes	2.4	21.15	21.15	100	Remove	530109.2	6921572
20	*Eucalyptus tereticornis*	0.25	1.85	Yes	3	33.04	33.04	100	Remove	530109	6921571
21	*Glochidion ferdinandi*	0.5	2.47	Yes	6	132.18	132.18	100	Remove	530112	6921559
22	*Syagrus romanzoffiana*	0.25	1.85	Yes	3	33.04	33.04	100	Remove	530086	6921606
23	*Syzygium jambos*	0.5	2.47	Yes	6	132.18	132.18	100	Remove	530087.1	6921605
24	*Pittosporum tinifolium*	0.25	1.85	Yes	3	33.04	33.04	100	Remove	530093.2	6921618
25	*Backhousia citriodora*	0.5	2.47	Yes	6	132.18	132.18	100	Remove	530095.3	6921621
26	*Heptapleurum actinophyllum*	0.5	2.47	Yes	6	132.18	132.18	100	Remove	530089.7	6921620
27	*Archontophoenix alexandrae*	0.5	2.47	Yes	6	132.18	132.18	100	Remove	530086.9	6921625
28	*Archontophoenix alexandrae*	0.7	2.85	Yes	8.4	259.07	259.07	100	Remove	530085.5	6921628
29	*Eucalyptus tereticornis*	0.1	1.5	Yes	2	13.8	13.8	100	Remove	530081.2	6921621

ID	Species	DBH (m)	SRZ (m)	SRZ Impact	NRZ (m)	NRZ Total Area (m²)	NRZ Impacted Area by EWKS (m²)	NRZ Impact (%)	Tree Status	Easting	Northing
30	*Blakella torelliana*	0.3	2	Yes	3.6	47.58	47.58	100	Remove	530117.4	6921647
31	*Archontophoenix alexandrae*	0.35	2.13	Yes	4.2	64.77	64.77	100	Remove	530110.7	6921643
32	*Archontophoenix alexandrae*	0.45	2.37	Yes	5.4	107.06	107.06	100	Remove	530106.9	6921640
33	*Archontophoenix alexandrae*	0.3	2	Yes	3.6	47.58	47.58	100	Remove	530101.6	6921635
34	*Archontophoenix alexandrae*	0.5	2.47	Yes	6	132.18	132.18	100	Remove	530104.6	6921633
35	*Livistona australis*	0.3	2	Yes	3.6	47.58	47.58	100	Remove	530107.3	6921633
36	*Bismarckia nobilis*	0.5	2.47	Yes	6	132.18	132.18	100	Remove	530108.9	6921629
37	*Archontophoenix alexandrae*	0.45	2.37	Yes	5.4	107.06	107.06	100	Remove	530105.6	6921627
38	*Auranticarpa rhombifolia*	0.4	2.25	Yes	4.8	84.59	84.59	100	Remove	530106.6	6921623
39	*Elaeocarpus grandis*	0.3	2	Yes	3.6	47.58	47.58	100	Remove	530108.8	6921623
40	*Elaeocarpus grandis*	0.4	2.25	Yes	4.8	84.59	84.59	100	Remove	530109.6	6921623
41	stag	0.25	1.85	Yes	3	33.04	33.04	100	Remove	530110.2	6921624
42	*Elaeocarpus grandis*	0.4	2.25	Yes	4.8	84.59	84.59	100	Remove	530110.7	6921625
43	*Archontophoenix alexandrae*	0.2	1.68	Yes	2.4	21.15	21.15	100	Remove	530100.6	6921625
44	*Archontophoenix alexandrae*	0.2	1.68	Yes	2.4	21.15	21.15	100	Remove	530100.2	6921623
45	*Mangifera indica*	0.5	2.47	Yes	6	132.18	132.18	100	Remove	530097.7	6921626
46	*Bismarckia nobilis*	0.5	2.47	Yes	6	132.18	132.18	100	Remove	530121.1	6921636
47	*Archontophoenix alexandrae*	0.5	2.47	Yes	6	132.18	132.18	100	Remove	530127.2	6921635
48	*Archontophoenix alexandrae*	0.5	2.47	Yes	6	132.18	132.18	100	Remove	530134.9	6921625
49	*Archontophoenix alexandrae*	0.5	2.47	Yes	6	132.18	132.18	100	Remove	530134.9	6921623
50	*Syzygium australe*	0.15	1.5	Yes	2	14.46	14.46	100	Remove	530124.7	6921644
51	*Acacia disparrima*	0.3	2	Yes	3.6	47.58	47.58	100	Remove	530122.1	6921653
52	*Syzygium francisii*	0.15	1.5	Yes	2	14.46	14.46	100	Remove	530132.3	6921649
53	*Syzygium francisii*	0.2	1.68	Yes	2.4	21.15	21.15	100	Remove	530133.7	6921650
54	*Blakella torelliana*	0.15	1.5	No	2	14.46	0	0	Retain	530139	6921654
55	*Murraya paniculata 'Exotica'*	0.3	2	Yes	3.6	47.58	47.58	100	Remove	530125.5	6921643
56	*Archontophoenix alexandrae*	0.25	1.85	Yes	3	33.04	33.04	100	Remove	530129.7	6921619
57	*Archontophoenix alexandrae*	0.25	1.85	Yes	3	33.04	33.04	100	Remove	530130.1	6921619
58	*Syagrus romanzoffiana*	0.15	1.5	Yes	2	14.46	14.46	100	Remove	530131.1	6921618
59	*Diospyros fasciculosa*	0.2	1.68	Yes	2.4	21.15	21.15	100	Remove	530132.6	6921621

ID	Species	DBH (m)	SRZ (m)	SRZ Impact	NRZ (m)	NRZ Total Area (m²)	NRZ Impacted Area by EWKS (m²)	NRZ Impact (%)	Tree Status	Easting	Northing
60	*Diospyros fasciculosa*	0.2	1.68	Yes	2.4	21.15	21.15	100	Remove	530133	6921618
61	*Syzygium luehmannii*	0.15	1.5	Yes	2	14.46	14.46	100	Remove	530133.7	6921618
62	*Syzygium luehmannii*	0.2	1.68	Yes	2.4	21.15	21.15	100	Remove	530133	6921617
63	*Syagrus romanzoffiana*	0.7	2.85	Yes	8.4	259.07	115.81	44.7	Remove	530146.6	6921608
64	*Syagrus romanzoffiana*	0.2	1.68	Yes	2.4	21.15	10.41	49.22	Remove	530146.2	6921609
65	*Nauclea orientalis*	0.3	2	Yes	3.6	47.58	25.81	54.25	Remove	530145.8	6921609
66	*Nauclea orientalis*	0.25	1.85	Yes	3	33.04	16.84	50.97	Remove	530145.9	6921608
67	*Flindersia australis*	0.7	2.85	Yes	8.4	259.07	102.48	39.56	Remove	530147.2	6921607
68	*Flindersia australis*	0.2	1.68	Yes	2.4	21.15	5.27	24.92	Remove	530146.3	6921605
69	*Elaeocarpus grandis*	0.2	1.68	No	2.4	21.15	0	0	Retain	530148.2	6921605
70	*Flindersia australis*	0.6	2.67	Yes	7.2	190.34	80.2	42.14	Remove	530145.8	6921604
71	*Syagrus romanzoffiana*	0.25	1.85	Yes	3	33.04	16.14	48.85	Remove	530145.1	6921604
72	*Elaeocarpus grandis*	0.1	1.5	Yes	2	13.8	2.05	14.86	Remove	530146.3	6921604
73	*Heptapleurum actinophyllum*	0.3	2	No	3.6	47.58	6.05	12.72	Retain	530147.2	6921603
74	*Diospyros fasciculosa*	0.15	1.5	No	2	14.46	0.66	4.56	Retain	530144.1	6921594
75	*Sterculia quadrifida*	0.2	1.68	No	2.4	21.15	0	0	Retain	530145.5	6921594
76	stag	0.3	2	No	3.6	47.58	6.56	13.79	Retain	530144.5	6921594
77	*Syzygium floribundum*	0.6	2.67	Yes	7.2	190.34	54.17	28.46	Remove	530144.7	6921592
78	*Syzygium floribundum*	0.7	2.85	No	8.4	259.07	61.5	23.74	Retain	530145.7	6921591
79	*Syzygium australe*	0.25	1.85	No	3	33.04	0.17	0.51	Retain	530144.5	6921590
80	*Syzygium luehmannii*	0.25	1.85	No	3	33.04	0	0	Retain	530145.2	6921588
81	*Syzygium luehmannii*	0.3	2	No	3.6	47.58	0	0	Retain	530145.3	6921587
82	*Syzygium luehmannii*	0.3	2	No	3.6	47.58	0	0	Retain	530145.7	6921585
83	*Syzygium luehmannii*	0.1	1.5	Yes	2	13.8	13.4	97.1	Remove	530139.8	6921591
84	*Harpullia pendula*	0.1	1.5	No	2	13.8	0	0	Retain	530146.3	6921596
85	*Eucalyptus siderophloia*	0.1	1.5	No	2	13.8	0	0	Retain	530146.5	6921595
86	*Flindersia australis*	0.4	2.25	Yes	4.8	84.59	84.59	100	Remove	530142.5	6921622
87	*Delonix regia*	0.5	2.47	Yes	6	132.18	128.48	97.2	Remove	530142.7	6921627
88	*Nauclea orientalis*	0.5	2.47	Yes	6	132.18	111.84	84.61	Remove	530144.6	6921629
89	*Calodendrum capense*	0.25	1.85	Yes	3	33.04	33.04	100	Remove	530144	6921634

ID	Species	DBH (m)	SRZ (m)	SRZ Impact	NRZ (m)	NRZ Total Area (m²)	NRZ Impacted Area by EWKS (m²)	NRZ Impact (%)	Tree Status	Easting	Northing
90	*Inga edulis*	0.3	2	Yes	3.6	47.58	47.58	100	Remove	530141.7	6921633
91	*stag*	0.25	1.85	Yes	3	33.04	30.41	92.04	Remove	530140.3	6921643
92	*Acacia concurrens*	0.1	1.5	Yes	2	13.8	4.48	32.46	Remove	530141.5	6921646
93	*Melaleuca quinquenervia*	0.3	2	No	3.6	47.58	0	0	Retain	530145.3	6921648
94	*Acacia concurrens*	0.15	1.5	Yes	2	14.46	8.06	55.74	Remove	530139.3	6921649
95	*Acacia concurrens*	0.15	1.5	Yes	2	14.46	2.79	19.29	Remove	530140.2	6921650
96	*Melaleuca quinquenervia*	0.15	1.5	No	2	14.46	0	0	Retain	530141.3	6921652
97	*Syzygium francisii*	0.2	1.68	Yes	2.4	21.15	21.15	100	Remove	530136.2	6921646
98	*Syzygium francisii*	0.25	1.85	Yes	3	33.04	33.04	100	Remove	530133.4	6921647
99	*Syzygium luehmannii*	0.2	1.68	Yes	2.4	21.15	21.15	100	Remove	530131.5	6921644
100	*Syzygium luehmannii*	0.2	1.68	Yes	2.4	21.15	21.15	100	Remove	530129.1	6921645
101	*Syzygium luehmannii*	0.15	1.5	Yes	2	14.46	14.46	100	Remove	530128	6921642
102	*Backhousia citriodora*	0.25	1.85	Yes	3	33.04	33.04	100	Remove	530078.9	6921622
103	*Heptapleurum actinophyllum*	0.2	1.68	Yes	2.4	21.15	21.15	100	Remove	530078.4	6921622
104	*stag*	0.5	2.47	Yes	6	132.18	132.18	100	Remove	530078.6	6921625
105	*Schinus terebinthifolius*	0.25	1.85	Yes	3	33.04	33.04	100	Remove	530080	6921627
106	*Schinus terebinthifolius*	0.2	1.68	Yes	2.4	21.15	21.15	100	Remove	530079.7	6921627
107	*Archontophoenix alexandrae*	0.5	2.47	Yes	6	132.18	132.18	100	Remove	530074.1	6921614
108	*Glochidion ferdinandi*	0.1	1.5	Yes	2	13.8	13.8	100	Remove	530073.2	6921611
109	*Corymbia intermedia*	0.5	2.47	Yes	6	132.18	129.52	97.99	Remove	530071.4	6921601
110	*Melaleuca quinquenervia*	0.35	2.13	Yes	4.2	64.77	64.77	100	Remove	530075.8	6921595
111	*Eriobotrya japonica*	0.15	1.5	Yes	2	14.46	14.46	100	Remove	530077.2	6921594
112	*Melaleuca viminalis*	0.2	1.68	Yes	2.4	21.15	21.15	100	Remove	530078.1	6921591
113	*Melaleuca viminalis*	0.2	1.68	Yes	2.4	21.15	21.15	100	Remove	530082.1	6921584
114	*Melaleuca viminalis*	0.2	1.68	Yes	2.4	21.15	21.15	100	Remove	530082.6	6921583
115	*Elaeocarpus grandis*	0.25	1.85	Yes	3	33.04	33.04	100	Remove	530083.1	6921584
116	*Melaleuca viminalis*	0.2	1.68	Yes	2.4	21.15	21.15	100	Remove	530084.6	6921582
117	*Eucalyptus tereticornis*	0.6	2.67	Yes	7.2	190.34	116.99	61.46	Remove	530074	6921585
118	*Eucalyptus tereticornis*	0.5	2.47	Yes	6	132.18	131.6	99.56	Remove	530083.1	6921579
119	*Lophostemon confertus*	0.3	2	Yes	3.6	47.58	47.58	100	Remove	530085.9	6921573

ID	Species	DBH (m)	SRZ (m)	SRZ Impact	NRZ (m)	NRZ Total Area (m²)	NRZ Impacted Area by EWKS (m²)	NRZ Impact (%)	Tree Status	Easting	Northing
120	*Lophostemon confertus*	0.2	1.68	Yes	2.4	21.15	21.15	100	Remove	530086.1	6921573
121	*Lophostemon suaveolens*	0.25	1.85	Yes	3	33.04	33.04	100	Remove	530090.4	6921567
122	*Eucalyptus tereticornis*	0.4	2.25	Yes	4.8	84.59	25.22	29.81	Remove	530084.3	6921562
123	*Eucalyptus tereticornis*	0.25	1.85	Yes	3	33.04	8.75	26.48	Remove	530086	6921560
124	*Melaleuca salicina*	0.3	2	Yes	3.6	47.58	47.58	100	Remove	530095.4	6921561
125	*Syagrus romanzoffiana*	0.2	1.68	Yes	2.4	21.15	21.15	100	Remove	530094.5	6921560
126	*Corymbia intermedia*	0.4	2.25	Yes	4.8	84.59	84.59	100	Remove	530095.4	6921559
127	*Lophostemon suaveolens*	0.25	1.85	Yes	3	33.04	33.04	100	Remove	530095.1	6921587
128	*Lophostemon suaveolens*	0.2	1.68	Yes	2.4	21.15	21.15	100	Remove	530096.5	6921584
129	stag	0.4	2.25	Yes	4.8	84.59	84.59	100	Remove	530090.1	6921581
130	*Lophostemon suaveolens*	0.2	1.68	Yes	2.4	21.15	21.15	100	Remove	530090.2	6921578
131	*Melaleuca quinquenervia*	0.4	2.25	Yes	4.8	84.59	84.59	100	Remove	530094.7	6921575
132	*Eucalyptus tereticornis*	0.6	2.67	Yes	7.2	190.34	89.04	46.78	Remove	530091.9	6921551
133	*Lophostemon suaveolens*	0.25	1.85	Yes	3	33.04	26.36	79.78	Remove	530097	6921547
134	*Lophostemon suaveolens*	0.2	1.68	Yes	2.4	21.15	21.15	100	Remove	530100	6921548
135	*Cupaniopsis anacardioides*	0.3	2	Yes	3.6	47.58	47.58	100	Remove	530103.2	6921542
136	*Archontophoenix alexandrae*	0.2	1.68	Yes	2.4	21.15	21.15	100	Remove	530107.5	6921548
137	*Archontophoenix alexandrae*	0.2	1.68	Yes	2.4	21.15	21.15	100	Remove	530107.8	6921549
138	*Archontophoenix alexandrae*	0.4	2.25	Yes	4.8	84.59	84.59	100	Remove	530106.4	6921564
139	*Lophostemon suaveolens*	0.25	1.85	Yes	3	33.04	33.04	100	Remove	530110.5	6921559
140	*Lophostemon suaveolens*	0.25	1.85	Yes	3	33.04	33.04	100	Remove	530110.5	6921558
141	*Melaleuca quinquenervia*	0.3	2	Yes	3.6	47.58	47.58	100	Remove	530111.3	6921556
142	*Eucalyptus tereticornis*	0.15	1.5	Yes	2	14.46	14.46	100	Remove	530111.5	6921556
143	*Melaleuca quinquenervia*	0.25	1.85	Yes	3	33.04	33.04	100	Remove	530112	6921554
144	*Melaleuca quinquenervia*	0.4	2.25	Yes	4.8	84.59	84.59	100	Remove	530111.6	6921552
145	*Melaleuca quinquenervia*	0.35	2.13	Yes	4.2	64.77	64.77	100	Remove	530116.1	6921549
146	*Melaleuca quinquenervia*	0.25	1.85	Yes	3	33.04	33.04	100	Remove	530116.6	6921548
147	*Melaleuca quinquenervia*	0.5	2.47	Yes	6	132.18	132.18	100	Remove	530117.3	6921548
148	*Melaleuca quinquenervia*	0.2	1.68	Yes	2.4	21.15	21.15	100	Remove	530116.8	6921546
149	*Stenocarpus sinuatus*	0.15	1.5	Yes	2	14.46	14.46	100	Remove	530104.9	6921540

ID	Species	DBH (m)	SRZ (m)	SRZ Impact	NRZ (m)	NRZ Total Area (m²)	NRZ Impacted Area by EWKS (m²)	NRZ Impact (%)	Tree Status	Easting	Northing
150	*Eucalyptus tereticornis*	0.5	2.47	Yes	6	132.18	132.18	100	Remove	530112.3	6921531
151	*Eucalyptus tereticornis*	0.8	3.01	Yes	9.6	338.37	338.37	100	Remove	530115.6	6921543
152	*Eucalyptus tereticornis*	0.8	3.01	Yes	9.6	338.37	338.37	100	Remove	530120.3	6921541
153	*Lophostemon suaveolens*	0.25	1.85	Yes	3	33.04	33.04	100	Remove	530121.9	6921543
154	*Lophostemon suaveolens*	0.2	1.68	Yes	2.4	21.15	21.15	100	Remove	530120.8	6921545
155	*Melaleuca quinquenervia*	0.3	2	Yes	3.6	47.58	47.58	100	Remove	530119.7	6921543
156	*Livistona chinensis*	0.3	2	Yes	3.6	47.58	47.58	100	Remove	530113.8	6921543
157	*Ficus benjamina*	0.25	1.85	Yes	3	33.04	33.04	100	Remove	530112.6	6921542
158	*Eucalyptus tereticornis*	0.4	2.25	Yes	4.8	84.59	53.57	63.33	Remove	530104.5	6921533
159	*Flindersia australis*	0.5	2.47	No	6	132.18	1.68	1.27	Retain	530098.4	6921529
160	*Harpephyllum caffrum*	0.6	2.67	No	7.2	190.34	32.25	16.94	Retain	530103.3	6921524
161	*Eucalyptus tereticornis*	0.5	2.47	Yes	6	132.18	109.37	82.74	Remove	530109.9	6921528
162	*Eucalyptus tereticornis*	0.5	2.47	Yes	6	132.18	92.37	69.88	Remove	530110.4	6921525
163	*Eucalyptus tereticornis*	0.2	1.68	Yes	2.4	21.15	21.15	100	Remove	530118.8	6921533
164	*Lophostemon suaveolens*	0.2	1.68	Yes	2.4	21.15	21.15	100	Remove	530123.2	6921533
165	*Eucalyptus tereticornis*	0.5	2.47	Yes	6	132.18	132.18	100	Remove	530124.1	6921532
166	*Melaleuca quinquenervia*	0.2	1.68	Yes	2.4	21.15	21.15	100	Remove	530120.7	6921534
167	*Melaleuca quinquenervia*	0.35	2.13	Yes	4.2	64.77	64.77	100	Remove	530127	6921531
168	*Eucalyptus tereticornis*	0.7	2.85	Yes	8.4	259.07	259.07	100	Remove	530122.7	6921526
169	*Lophostemon suaveolens*	0.15	1.5	Yes	2	14.46	14.46	100	Remove	530122	6921528
170	*Lophostemon suaveolens*	0.15	1.5	Yes	2	14.46	14.46	100	Remove	530122.9	6921530
171	*Lophostemon suaveolens*	0.1	1.5	Yes	2	13.8	13.8	100	Remove	530122.1	6921531
172	*Lophostemon suaveolens*	0.2	1.68	Yes	2.4	21.15	21.15	100	Remove	530121.5	6921532
173	*Lophostemon suaveolens*	0.4	2.25	Yes	4.8	84.59	84.59	100	Remove	530125.5	6921529
174	*Eucalyptus tereticornis*	0.5	2.47	Yes	6	132.18	132.18	100	Remove	530126	6921528
175	*Lophostemon suaveolens*	0.15	1.5	Yes	2	14.46	14.46	100	Remove	530127.3	6921530
176	*Heptapleurum actinophyllum*	0.5	2.47	Yes	6	132.18	132.18	100	Remove	530125.6	6921526
177	*Heptapleurum actinophyllum*	0.1	1.5	Yes	2	13.8	13.8	100	Remove	530125.4	6921525
178	*Eucalyptus tereticornis*	0.35	2.13	Yes	4.2	64.77	64.77	100	Remove	530128.3	6921526
179	*Eucalyptus tereticornis*	0.65	2.76	Yes	7.8	223.38	223.38	100	Remove	530128.6	6921525

ID	Species	DBH (m)	SRZ (m)	SRZ Impact	NRZ (m)	NRZ Total Area (m²)	NRZ Impacted Area by EWKS (m²)	NRZ Impact (%)	Tree Status	Easting	Northing
180	*Lophostemon suaveolens*	0.2	1.68	Yes	2.4	21.15	21.15	100	Remove	530128.9	6921523
181	*Lophostemon suaveolens*	0.35	2.13	Yes	4.2	64.77	64.77	100	Remove	530129.5	6921522
182	*Eucalyptus tereticornis*	0.65	2.76	Yes	7.8	223.38	223.38	100	Remove	530125.9	6921523
183	*Lophostemon suaveolens*	0.2	1.68	Yes	2.4	21.15	21.15	100	Remove	530125.2	6921523
184	*Heptapleurum actinophyllum*	0.4	2.25	Yes	4.8	84.59	84.59	100	Remove	530126.2	6921521
185	*Lophostemon suaveolens*	0.15	1.5	Yes	2	14.46	14.46	100	Remove	530127.5	6921519
186	*Eucalyptus tereticornis*	0.45	2.37	Yes	5.4	107.06	107.06	100	Remove	530128.5	6921519
187	*Lophostemon suaveolens*	0.2	1.68	Yes	2.4	21.15	21.15	100	Remove	530128.2	6921518
188	*Lophostemon suaveolens*	0.15	1.5	Yes	2	14.46	14.46	100	Remove	530128	6921516
189	*Lophostemon suaveolens*	0.2	1.68	Yes	2.4	21.15	21.15	100	Remove	530129.2	6921516
190	*Heptapleurum actinophyllum*	0.2	1.68	Yes	2.4	21.15	21.15	100	Remove	530115	6921525
191	*Syzygium jambos*	0.2	1.68	Yes	2.4	21.15	19.02	89.93	Remove	530114	6921520
192	*Elaeocarpus reticulatus*	0.25	1.85	Yes	3	33.04	33.04	100	Remove	530119	6921515
193	*Lophostemon suaveolens*	0.45	2.37	Yes	5.4	107.06	106.09	99.09	Remove	530121.7	6921512
194	*Lophostemon suaveolens*	0.2	1.68	Yes	2.4	21.15	21.15	100	Remove	530131.9	6921516
195	*Lophostemon suaveolens*	0.15	1.5	Yes	2	14.46	14.46	100	Remove	530133	6921514
196	*Lophostemon suaveolens*	0.1	1.5	Yes	2	13.8	13.8	100	Remove	530134.2	6921516
197	*Eucalyptus tereticornis*	0.6	2.67	Yes	7.2	190.34	190.34	100	Remove	530134.5	6921517
198	*Lophostemon suaveolens*	0.15	1.5	Yes	2	14.46	14.46	100	Remove	530136	6921517
199	*Lophostemon suaveolens*	0.2	1.68	Yes	2.4	21.15	21.15	100	Remove	530137.8	6921517
200	*Lophostemon suaveolens*	0.2	1.68	Yes	2.4	21.15	21.15	100	Remove	530137.3	6921515
201	*Lophostemon suaveolens*	0.5	2.47	Yes	6	132.18	132.18	100	Remove	530137.9	6921514
202	*Lophostemon suaveolens*	0.3	2	Yes	3.6	47.58	47.58	100	Remove	530137.6	6921512
203	*Lophostemon suaveolens*	0.15	1.5	Yes	2	14.46	14.46	100	Remove	530136.1	6921513
204	*Lophostemon suaveolens*	0.2	1.68	Yes	2.4	21.15	21.15	100	Remove	530137.5	6921510
205	*Lophostemon suaveolens*	0.15	1.5	Yes	2	14.46	14.46	100	Remove	530132.6	6921509
206	*Eucalyptus tereticornis*	0.7	2.85	Yes	8.4	259.07	259.07	100	Remove	530132	6921510
207	*Lophostemon suaveolens*	0.2	1.68	Yes	2.4	21.15	21.15	100	Remove	530133	6921512
208	*Elaeocarpus grandis*	0.2	1.68	Yes	2.4	21.15	21.15	100	Remove	530121.2	6921509
209	*Elaeocarpus grandis*	0.3	2	Yes	3.6	47.58	36.8	77.34	Remove	530120.3	6921506

ID	Species	DBH (m)	SRZ (m)	SRZ Impact	NRZ (m)	NRZ Total Area (m²)	NRZ Impacted Area by EWKS (m²)	NRZ Impact (%)	Tree Status	Easting	Northing
210	*Lophostemon suaveolens*	0.5	2.47	Yes	6	132.18	114.25	86.44	Remove	530124.3	6921503
211	*Eucalyptus tereticornis*	0.9	3.17	Yes	10.8	428.26	229.2	53.52	Remove	530122.1	6921501
212	*Elaeocarpus reticulatus*	0.1	1.5	Yes	2	13.8	13.8	100	Remove	530128.3	6921500
213	*Lophostemon confertus*	0.6	2.67	Yes	7.2	190.34	190.34	100	Remove	530143.3	6921500
214	*Eucalyptus tereticornis*	0.8	3.01	Yes	9.6	338.37	338.37	100	Remove	530143.1	6921498
215	*Lophostemon confertus*	0.25	1.85	Yes	3	33.04	33.04	100	Remove	530144.2	6921497
216	*Eucalyptus tereticornis*	0.4	2.25	Yes	4.8	84.59	84.59	100	Remove	530143.7	6921495
217	*Eucalyptus siderophloia*	0.9	3.17	Yes	10.8	428.26	428.26	100	Remove	530142	6921494
218	*Eucalyptus tereticornis*	0.4	2.25	Yes	4.8	84.59	84.59	100	Remove	530145.2	6921492
219	*Lophostemon suaveolens*	0.2	1.68	Yes	2.4	21.15	21.15	100	Remove	530146.2	6921491
220	*Lophostemon suaveolens*	0.2	1.68	Yes	2.4	21.15	21.15	100	Remove	530148	6921491
221	*Lophostemon suaveolens*	0.4	2.25	Yes	4.8	84.59	84.59	100	Remove	530149.2	6921490
222	*Lophostemon suaveolens*	0.25	1.85	Yes	3	33.04	33.04	100	Remove	530148.6	6921490
223	*Lophostemon suaveolens*	0.2	1.68	Yes	2.4	21.15	21.15	100	Remove	530148.5	6921488
224	*Lophostemon suaveolens*	0.2	1.68	Yes	2.4	21.15	21.15	100	Remove	530148.6	6921487
225	*Corymbia intermedia*	0.35	2.13	Yes	4.2	64.77	51.82	80.01	Remove	530127.3	6921495
226	*Corymbia intermedia*	0.2	1.68	Yes	2.4	21.15	16.09	76.08	Remove	530126.1	6921494
227	*Lophostemon suaveolens*	0.25	1.85	Yes	3	33.04	11.45	34.65	Remove	530124.9	6921493
228	*Corymbia intermedia*	0.45	2.37	Yes	5.4	107.06	107.06	100	Remove	530153.4	6921483
229	*Corymbia intermedia*	0.4	2.25	Yes	4.8	84.59	84.59	100	Remove	530152.6	6921482
230	*Eucalyptus tereticornis*	1	3.31	Yes	12	528.71	430.91	81.5	Remove	530156.2	6921479
231	*Archontophoenix alexandrae*	0.25	1.85	Yes	3	33.04	33.04	100	Remove	530155.4	6921479
232	*Eucalyptus siderophloia*	0.3	2	Yes	3.6	47.58	47.58	100	Remove	530154.2	6921480
233	*Eucalyptus siderophloia*	0.15	1.5	Yes	2	14.46	14.46	100	Remove	530143.8	6921475
234	*Lophostemon suaveolens*	0.2	1.68	Yes	2.4	21.15	21.15	100	Remove	530156.8	6921463
235	*Lophostemon suaveolens*	0.15	1.5	Yes	2	14.46	14.46	100	Remove	530156.8	6921464
236	*Eucalyptus tereticornis*	0.4	2.25	Yes	4.8	84.59	84.59	100	Remove	530155.3	6921467
237	*Lophostemon suaveolens*	0.2	1.68	Yes	2.4	21.15	21.15	100	Remove	530151.9	6921473
238	*Lophostemon suaveolens*	0.1	1.5	Yes	2	13.8	13.8	100	Remove	530152.6	6921470
239	*Lophostemon suaveolens*	0.2	1.68	Yes	2.4	21.15	21.15	100	Remove	530148.8	6921470

ID	Species	DBH (m)	SRZ (m)	SRZ Impact	NRZ (m)	NRZ Total Area (m²)	NRZ Impacted Area by EWKS (m²)	NRZ Impact (%)	Tree Status	Easting	Northing
240	*Lophostemon suaveolens*	0.45	2.37	Yes	5.4	107.06	67.76	63.29	Remove	530162.1	6921472
241	*Lophostemon suaveolens*	0.2	1.68	Yes	2.4	21.15	11.77	55.65	Remove	530162.2	6921468
242	*Lophostemon suaveolens*	0.1	1.5	Yes	2	13.8	8.04	58.26	Remove	530162.3	6921467
243	*Lophostemon suaveolens*	0.35	2.13	Yes	4.2	64.77	34.39	53.1	Remove	530162.4	6921465
244	*Lophostemon suaveolens*	0.1	1.5	Yes	2	13.8	7.22	52.32	Remove	530162.7	6921464
245	*Lophostemon suaveolens*	0.1	1.5	Yes	2	13.8	4.92	35.65	Remove	530163.5	6921460
246	*Lophostemon suaveolens*	0.4	2.25	Yes	4.8	84.59	32.59	38.53	Remove	530164.2	6921457
247	*Lophostemon suaveolens*	0.1	1.5	Yes	2	13.8	7.92	57.39	Remove	530163.1	6921456
248	*Lophostemon suaveolens*	0.25	1.85	Yes	3	33.04	21.49	65.04	Remove	530162.8	6921453
249	*Lophostemon suaveolens*	0.25	1.85	Yes	3	33.04	13.05	39.5	Remove	530163.8	6921450
250	*Lophostemon suaveolens*	0.35	2.13	Yes	4.2	64.77	9.66	14.91	Retain	530164.3	6921447
251	*Melaleuca quinquenervia*	0.4	2.25	Yes	4.8	84.59	48.36	57.17	Remove	530192.3	6921432
252	*Acacia disparrima*	0.15	1.5	Yes	2	14.46	13.28	91.84	Remove	530193.2	6921432
253	*Allocasuarina littoralis*	0.2	1.68	Yes	2.4	21.15	21.15	100	Remove	530198.5	6921445
254	*Melaleuca quinquenervia*	0.15	1.5	Yes	2	14.46	14.46	100	Remove	530198.7	6921446
255	*Corymbia intermedia*	0.15	1.5	Yes	2	14.46	14.46	100	Remove	530200.7	6921448
256	*Corymbia intermedia*	0.15	1.5	Yes	2	14.46	14.46	100	Remove	530201.3	6921449
257	*Eucalyptus tereticornis*	0.1	1.5	Yes	2	13.8	13.8	100	Remove	530201	6921450
258	*Eucalyptus tereticornis*	0.15	1.5	Yes	2	14.46	14.46	100	Remove	530202.3	6921451
259	*Eucalyptus tereticornis*	0.35	2.13	Yes	4.2	64.77	14.71	22.71	Remove	530191	6921442
260	stag	0.15	1.5	Yes	2	14.46	14.46	100	Remove	530218.3	6921447
261	*Melaleuca quinquenervia*	0.2	1.68	Yes	2.4	21.15	21.15	100	Remove	530223	6921440
267	*Acacia disparrima*	0.25	1.85	Yes	3	33.04	33.04	100	Remove	530252.5	6921432
268	*Eucalyptus tereticornis*	0.6	2.67	Yes	7.2	190.34	190.34	100	Remove	530223.9	6921440
269	*Acacia disparrima*	0.4	2.25	Yes	4.8	84.59	84.59	100	Remove	530224.5	6921438
270	*Acacia concurrens*	0.1	1.5	Yes	2	13.8	13.8	100	Remove	530235.1	6921433
271	*Acacia concurrens*	0.1	1.5	Yes	2	13.8	13.8	100	Remove	530237.9	6921436
272	*Eucalyptus tereticornis*	0.25	1.85	Yes	3	33.04	33.04	100	Remove	530240.4	6921433
273	*Acacia disparrima*	0.15	1.5	Yes	2	14.46	14.46	100	Remove	530243.2	6921435
274	*Eucalyptus tereticornis*	0.8	3.01	Yes	9.6	338.37	338.37	100	Remove	530247.1	6921439

ID	Species	DBH (m)	SRZ (m)	SRZ Impact	NRZ (m)	NRZ Total Area (m²)	NRZ Impacted Area by EWKS (m²)	NRZ Impact (%)	Tree Status	Easting	Northing
275	*Acacia disparrima*	0.15	1.5	Yes	2	14.46	14.46	100	Remove	530256.3	6921434
276	*Acacia disparrima*	0.25	1.85	Yes	3	33.04	24.58	74.39	Remove	530262	6921439
277	*Eucalyptus tereticornis*	0.15	1.5	Yes	2	14.46	14.46	100	Remove	530262.4	6921435
278	*Acacia disparrima*	0.1	1.5	Yes	2	13.8	13.8	100	Remove	530249.4	6921441
279	*Eucalyptus tereticornis*	0.5	2.47	Yes	6	132.18	132.18	100	Remove	530245.5	6921444
280	stag	0.1	1.5	Yes	2	13.8	13.8	100	Remove	530246.7	6921446
281	stag	0.15	1.5	Yes	2	14.46	14.46	100	Remove	530249.4	6921447
282	*Melaleuca quinquenervia*	0.1	1.5	Yes	2	13.8	13.8	100	Remove	530246.7	6921452
283	stag	0.1	1.5	Yes	2	13.8	13.8	100	Remove	530246.9	6921453
284	*Lophostemon suaveolens*	0.2	1.68	Yes	2.4	21.15	21.15	100	Remove	530202	6921513
285	*Corymbia intermedia*	0.5	2.47	Yes	6	132.18	123.57	93.49	Remove	530201	6921516
286	*Lophostemon suaveolens*	0.15	1.5	Yes	2	14.46	14.46	100	Remove	530199.4	6921517
287	*Corymbia intermedia*	0.4	2.25	Yes	4.8	84.59	61.72	72.96	Remove	530199.1	6921518
288	*Lophostemon suaveolens*	0.2	1.68	Yes	2.4	21.15	12.91	61.04	Remove	530196.8	6921518

**** Trunk Diameter at Standard Height (DBH), Structural Root Zone (SRZ) and Notional Root Zone (NRZ) were determined in accordance with AS 4970-2025 – Protection of Trees on Development Sites.***

Appendix C – Local Veterinarian Clinics and Wildlife Hospitals

Greencross Vets Upper Coomera

Shop 9/1-13 Coomera Grand Drive
Upper Coomera QLD 4209

Phone: (07) 5580 6360

Operating Hours:

Mon-Fri: 8:00am to 6pm
Saturday: Closed
Sunday: Closed

Foxwell Vet Coomera

Suite 11/334 Foxwell Road
Coomera QLD 4209

Phone: (07) 5502 6699

Operating Hours:

Mon-Fri: 8:00am to 6pm
Saturday: 8:00am to 1pm
Sunday: Closed

Lawfully captured koalas must be taken to:

Currumbin Wildlife Hospital
Address*: 27 Millers Dr, Currumbin QLD 4223*
Phone*: (07) 5534 0813*
7 days a week (8am-5pm)

or the following after hours:

Wildcare Australia
Wildlife rescue service
Phone*: (07) 5527 244*

Pacific Geotech
Consulting Geotechnical Engineers

GEOTECHNICAL REPORT: Proposed Residential Development

2 Karingal Drive

Pimpama

Bosform Pty Ltd

March 2026

PG-14709

E: info@pacgeo.com.au
www.pacgeo.com.au ABN: 62 615 248 952

Pacific Geotech
Consulting Geotechnical Engineers

Ref: PG-14709, 2026-02-26, GR VER 1
Author: Ben Elsmore

12th March, 2026

Bosform Pty Ltd
Email: jhansard@bosproperty.com.au

ATTN: JUSTIN HANSARD

Dear Sir,

GEOTECHNICAL INVESTIGATION – PROPOSED RESIDENTIAL DEVELOPMENT
2 KARINGAL DRIVE, PIMPAMA

Enclosed is a copy of our report for the above project dated March 2026. An electronic copy of the report has been issued.

Should you have any queries regarding this report, please do not hesitate to contact Ben Elsmore or Peter Elkington at this office.

Yours faithfully,

B. ELSMORE (RPEQ 19656)

For and on behalf of
PACIFIC GEOTECH PTY LTD

TABLE OF CONTENTS

1.0 INTRODUCTION 1

2.0 METHODOLOGY 2

3.0 SITE DESCRIPTION 2

4.0 GEOTECHNICAL MODEL 7

5.0 LABORATORY TESTING 7

6.0 EARTHWORKS AND SITE PREPARATION CONSIDERATIONS 8

7.0 EXCAVATION CHARACTERISTICS 10

8.0 BATTERS 11

9.0 SITE CLASSIFICATION 11

10.0 BUILDING FOUNDATIONS 12

10.1 General 12

10.2 High-Level Footings 12

10.3 Deep Foundations 12

11.0 RETAINING WALLS 14

12.0 PAVEMENT DESIGN CONSIDERATIONS 15

13.0 SITE MANAGEMENT 16

14.0 LIMITATIONS 17

Appendices

Appendix A
Notes Relating to this Report

Appendix B
Borehole Record Sheets

Appendix C
Laboratory Test Certificates

Appendix D
Site Plan

1.0 INTRODUCTION

This report contains the results of the geotechnical investigation and provides advice and recommendations relating to the following:

- Subsurface conditions in accordance with AS 1726-2017
- Groundwater conditions
- Earthworks considerations
- Indicative site classification in accordance with AS 28702-2017
- Indicative foundation recommendations
- Retaining wall design parameters
- Indicative pavement design parameters
- Construction Considerations

Proposed Development

It is understood that the proposed development is to comprise the residential subdivision of the site into approximately 50 Lots with associated roads, detention basins and park areas.

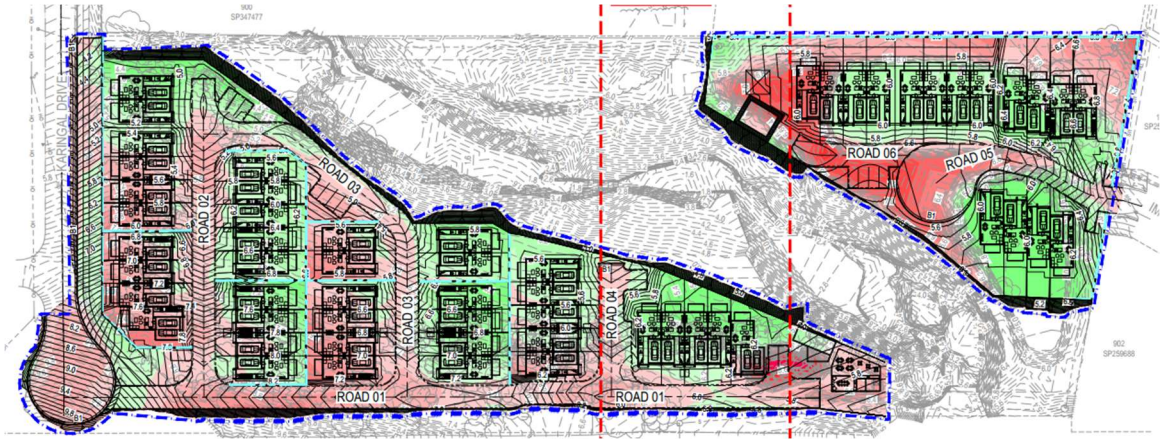
Earthworks are expected to comprise of minor to moderate cuts and fills in the order of 3m to create a level platform. It is expected that material won from excavations in the elevated portions of the site will be used as fill in the downslope fill areas of the site.

The proposed development is indicated below.

PROPOSED DEVELOPMENT



PROPOSED CUT/FILL EARTHWORKS



2.0 METHODOLOGY

The geotechnical investigation comprised the drilling and sampling of twelve (12) boreholes (BH01 to BH12), extending to depths ranging between 1.1m (drilling rig refusal in rock) and 5m, using an IH50 drilling rig and 100mm solid flight augers. Dynamic Cone Penetrometer (DCP) testing was conducted adjacent to the boreholes.

The soil classification descriptions and field tests were carried out in general accordance with Australian Standards.

AS 1726	Geotechnical Site Investigations
AS 1289	Methods of Testing Soils for Engineering Purposes

Borehole records, Dynamic Cone Penetrometer test results, the laboratory test certificates and a site plan showing the test locations are appended to the report.

3.0 SITE DESCRIPTION

The site of the proposed development is located at 2 Karingal Drive, Pimpama. The site is bound by Karingal Drive to the north, bushland and residential properties to the east, residential properties to the south and the rail line to the west.

At the time of the investigation, the site was undeveloped. A large dam is located in the south-eastern corner of the site.

Vegetation comprised grass coverage as well as trees and shrubs across most of the site.

The topography of the site slopes gently downwards from the north-western corner towards the east at an angle of less than 5°, flattening out towards the eastern boundary.

Drainage at the site was considered fair.

Refer following aerial and site photographs for typical site conditions.

AERIAL IMAGE



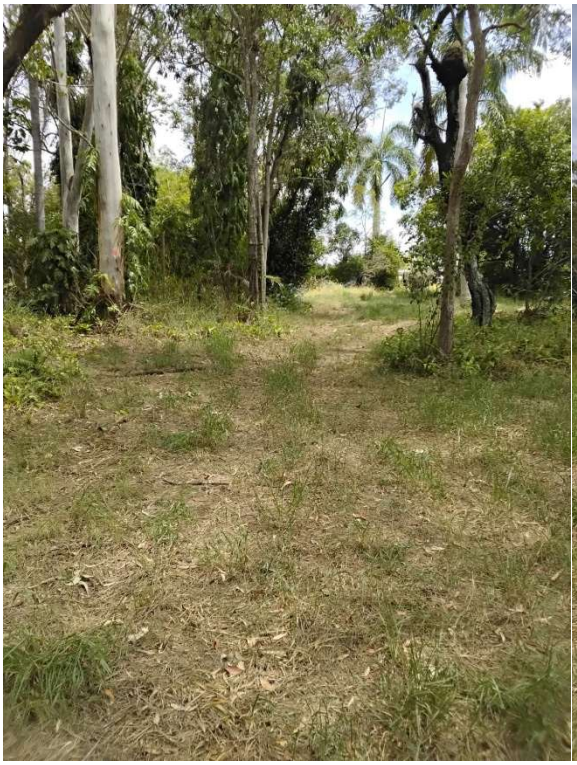
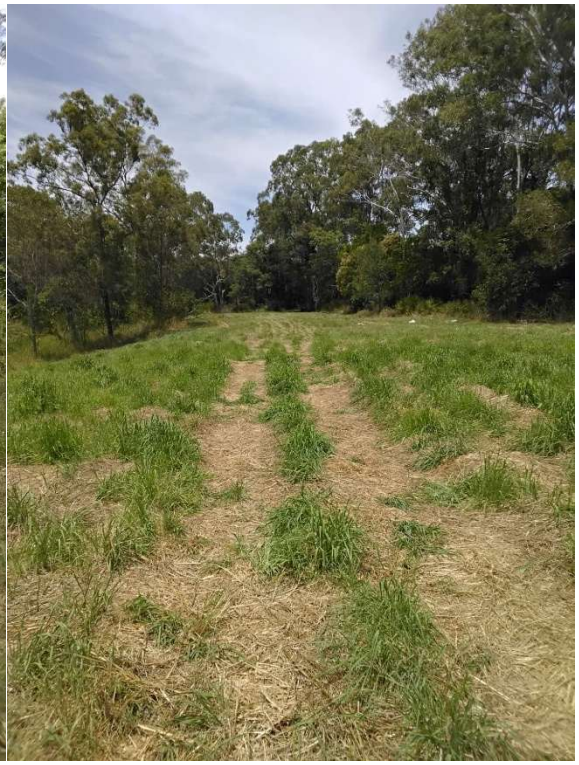
SITE PHOTOGRAPHS



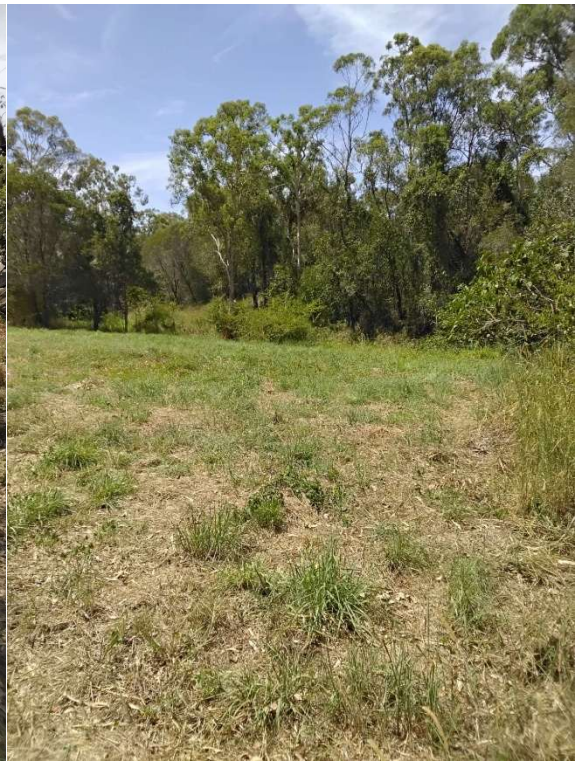










4.0 GEOTECHNICAL MODEL

The subsurface profile encountered in the boreholes consisted of clay, sand and gravel fill material (BH04, BH06, BH11 and BH12) and sand topsoil at the ground surface overlying natural, medium dense and dense but with localised very loose/loose layering, silty sand and clayey sand and stiff to hard, silty clay and sandy clay of low to high plasticity.

This natural soil is underlain by extremely weathered (XW) and highly weathered (HW) sandstone rock of extremely low to very low strength which extends to the borehole termination depths.

No information in relation to the compaction status of the encountered fill material is available. On this basis, the existing fill is considered to be uncontrolled in accordance with AS 3798-2007 and AS 2870-2011.

Table 1 presents a summary of the encountered subsurface profile. Detailed borehole record sheets are appended to this report.

TABLE 1 SUBSURFACE PROFILE SUMMARY

BH No.	Existing Fill/ Topsoil	NATURAL			BH TD
		Sand- Medium Dense/Dense	Clay – Stiff to Hard	XW/HW Sandstone	
BH01	0.0-0.1	0.1-0.8	0.8-2.3	2.3-TD	2.4 (3)
BH02	NE	0.0-1.4	1.4-2.1	2.1-TD	2.2 (3)
BH03	0.0-0.1	0.1-0.8	0.8-3.5	3.5-TD	3.7 (3)
BH04	0.0-0.1	0.1-0.9	0.9-4.8	4.8-TD	5.0
BH05	0.0-0.1	0.1-0.5	0.5-3.2	3.2-TD	3.8 (3)
BH06	0.0-0.6	NE	0.6-0.9	0.9-TD	1.1 (3)
BH07	0.0-0.1	0.1-0.7 (4)	0.7-2.2	2.2-TD	3.0
BH08	0.0-0.1	0.1-0.5	0.5-0.9	0.9-TD	1.6 (3)
BH09	0.0-0.1	0.1-0.4	0.4-1.9	1.9-TD	3.0
BH10	NE	0.0-0.6	0.6-TD	NE	1.5
BH11	0.0-TD	NE	NE	NE	1.5
BH12	0.0-0.7	NE	0.7-0.9	0.9-TD	1.5

Notes:
1. All depths in metres below ground level at time of investigation.
2. NE - Not Encountered; TD - Termination Depth.
3. Maximum TC bit; drill rig refusal.
4. Very loose/loose sand encountered.

Seepage was encountered in borehole BH07 within a depth range of 0.2m to 0.7m at the time of drilling. Seepage could be expected through the surficial soils and along the soil/rock interface following periods of rainfall.

5.0 LABORATORY TESTING

Laboratory testing was carried out on samples retrieved from the site investigation program and was directed towards assessing the reactivity and subgrade characteristics of the subsurface material.

Laboratory testing included:-

- Shrink/Swell Index - to assess the reactivity of the subsurface material.
- California Bearing Ratio - to assess the subgrade characteristics of the subsurface material under soaked conditions.

The results of the laboratory testing are contained in Appendix C.

6.0 EARTHWORKS AND SITE PREPARATION CONSIDERATIONS

Earthworks are expected to comprise of a cuts and fills of up to 3m across the site.

It is recommended that the following site preparation and earthworks procedures be carried out as part of the earthworks procedures during development.

- All earthworks operations should be carried out in general accordance with AS 3798-2007 "Guidelines on Earthworks for Commercial and Residential Developments".
- Trafficability across the site at the time of the investigation was assessed to be fair with no significant difficulties encountered at the time.
- If significant rainfall events occur during the earthworks operation, some difficulties could be experienced in trafficking the exposed surface, particularly where the surficial sands are removed to expose natural clay soils which will soften when saturated. Consideration could be given to constructing a minimum 150mm thick gravel working platform in highly trafficked areas to facilitate access during wet weather periods.
- All topsoil (i.e. soil containing organic matter) and soils containing deleterious matter should be stripped from the construction area at the commencement of the earthworks operation. This is expected to involve the removal of up to approximately 0.3m of surficial material containing organics across the site, but possibly more adjacent to existing structures.
- Ground treatment works will be required prior to backfilling of the existing dam.
- The existing dam must be dewatered and ground treatment works carried out including the removal of all wet soils and any unsuitable materials to expose a competent base, prior to any fill being placed.
- The dam side walls are to be benched to no greater than 1V:2.5H to reduce the effects of potential differential settlements where fill thickness vary significantly over short distances and the batters benched to key the backfill into the slope.
- Treatment and/or assessment of the existing surficial fill should be undertaken to determine its suitability for reuse on site. The testing undertaken to date indicates that the existing fill appears to be of a good quality and may be suitable for the support of the proposed pavements, with suitable in-situ

assessment and treatment. Some localised areas may require over-excavation and replacement and must be allowed for.

- Some difficulties in the area have been experienced in dealing with the surficial silty/clayey sands. Trafficability is very limited in this material when the sands are wet of optimum moisture content. The sands encountered on-site have performed poorly when saturated. Particular attention should be paid to ensuring sufficient coverage of the sands will be available with the structural fill to provide a suitable bridging/capping layer. In the area of the cut/fill interface, some over-excavation and replacement may be required to allow trafficability across the site in the long term.
- The stripped surface should be proof rolled under Pacific Geotech's supervision using a large vibrating roller of minimum weight of at least 12 tonnes, to identify areas of weak surficial soils and to compact the upper level fill material.
- Root balls from trees removed should have the organic matter fully removed and the excavation backfilled in a controlled manner.
- The majority of the soils on site will be suitable for re-use as structural fill, provided material is free of organic matter and deleterious material. It is likely that the soils will require conditioning to bring the soils to optimum. If the clays were overly moist, difficulty in achieving compaction of the materials will be encountered and moisture conditioning will be required. Preferential disposal of the clayey sands should be undertaken, to reduce the potential handling issues associated with this material.
- The natural clays would be expected to be highly to extremely reactive and if they are re-used as structural fill on site, an increase in the potential ground surface movements may result.
- The weathered rock, where broken down upon extraction to a maximum particle size of 75mm would generally be suitable for reuse as structural fill. Rock particles ranging between 50mm and 75mm in size should not make up more than 15% of the total fill volume.
- Imported fill should be of fair to good quality with a minimum Soaked CBR value of 10%, a maximum Iss=1.0% and a maximum particle size of 75mm.
- All filling should be undertaken in layer thicknesses of approximately 250mm (or as appropriate for the compaction equipment being used). Fill should be compacted to a minimum dry density ratio of 95% Standard in accordance with AS1289 5.1.1 at a placement moisture content of ±2% of Optimum Moisture Content (OMC).
- Field density testing should be carried out to check the standard of compaction achieved and the placement moisture content. The frequency and extent of testing should be as per guidelines in AS.3798-2007.

- All earthworks operations should be performed under appropriate supervision by Pacific Geotech, in general accordance with the requirements of AS3798 and should be certified as controlled fill by Pacific Geotech.

7.0 EXCAVATION CHARACTERISTICS

Cuts of up to 3m are understood to be required for the development. Weathered sandstone rock was encountered at depths of between 0.9m and 4.8m across the site and drilling rig refusal was met in these boreholes at depths of between 1.1m and 3.8m. Difficulty in achieving excavation for conventional equipment beyond the depths of borehole refusal is typically met.

The depth of drilling rig refusal across the site is tabulated below.

TABLE 2 SUMMARY OF DRILL BIT LIMITS

Borehole No.	Depth to Rock (m)	Limit of 'TC' Bit (m)
BH01	2.3	2.4
BH02	2.1	2.2
BH03	3.5	3.7
BH04	4.8	NE
BH05	3.2	3.8
BH06	0.9	1.1
BH07	2.2	NE
BH08	0.9	1.6
BH09	1.9	NE
BH10	NE	NE
BH11	NE	NE
BH12	0.9	NE

The limit of the drilling rig is typical of the practical limit of excavations for a medium sized dozer (say Cat D6) in bulk excavation or a 20 to 25 tonne excavator fitted with general purpose and toothed buckets.

As excavations up to 2m or more beyond the level of drilling rig refusal is required, it is expected that either larger dozers (D8 or larger) in bulk excavations and large excavators (30t or larger) fitted with ripper attachments and possibly hydraulic rock breakers will be required to achieve economical excavation rates.

It should be noted that difficulty in the excavation of the less weathered rock in the immediate area has been experienced.

It is recommended that further test pitting with a large excavator be carried out in the areas of shallow refusal to further assess the nature of the rock in these areas prior to finalising the earthworks contract.

Consideration of the presence of high level rock across the site should be made in the earthworks contract.

8.0 BATTERS

It is understood that cut batters to 3m in height will be required as part of the proposed earthworks. It is expected that the profile in the batter excavation will consist of surficial sand overlying natural medium dense and dense sands, stiff to hard clays and weathered sandstone rock.

Considering the proposed maximum height of cut, a maximum short-term batter slope of 45 degrees and a maximum long-term batter slope of 26 degrees is recommended for the natural soils and new controlled fill. A maximum short-term batter slope of 60 degrees and a maximum long-term batter slope of 45 degrees is recommended for the weathered (subject to inspection at the time of excavation). Steeper batters are possible by use of retaining structures.

Where cut batters only partially expose weathered rock, it is recommended that the batter angles provided for soil be adopted.

For excavations of a very short term nature, and subject to assessment of factors such as the conditions at the time of excavation, length of time excavations are to remain open, working conditions/requirements and most importantly the rock structure in the cut face, etc., steeper excavations could be possible. Pacific Geotech should be contacted to determine an appropriate profile when construction details have been finalised.

It is essential that batters be suitably protected from erosion and scour. Runoff should not be allowed to discharge directly across the batters.

9.0 SITE CLASSIFICATION

Site investigation and laboratory test results indicate that there is a variation in soil reactivity across the site. The laboratory test results indicate that the site would typically be Class 'M' or possibly Class 'H1' for the current soil profiles with maximum characteristic ground surface movements (y_s)of up to 50mm calculated. The final site classification will be dependant on the material utilized for the fill operation and specifically the reactivity of the upper level fill material.

At the BH11 location where clay fill in excess of 0.4m in thickness was encountered, this area would be considered Class 'P' in accordance with AS 2870-2011.

If the natural clays are excavated and reused as structural fill, characteristic ground surface movements of up to 70mm corresponding to a Class 'H2' in accordance with AS 2870-2011 could result if suitable control of the placement of the reactive clays is not undertaken during bulk earthworks. Pacific Geotech should be engaged as part of the bulk earthworks planning and supervision to ensure an optimal site classification can be achieved following bulk earthworks.

Where excavations are carried out to expose the weathered rock, these areas would be considered Class 'S' in accordance with AS 2870-2011.

It is recommended that the readers satisfy themselves that the use of AS 2870-2011 is applicable for the proposed design and the above site classification re-confirmed following the completion of the bulk earthworks operation.

10.0 BUILDING FOUNDATIONS

10.1 General

The most suitable foundation system for the support of the proposed residential structures would be dependent on the final design loads, the ability of the structure to tolerate settlement, characteristic ground surface movements and construction considerations but is expected to typically comprise high level footing systems.

10.2 High-Level Footings

A high-level footing system could typically be adopted for the support of the proposed buildings.

An allowable bearing capacity of 100kPa in the natural stiff clay and medium dense sand, 200kPa in the very stiff clay, 400kPa in the hard clay and 500kPa in the weathered rock would be available, subject to inspection at the time of excavation.

Where uncontrolled fill is encountered, footings should be deepened to penetrate the uncontrolled fill material.

Where footings found into new controlled fill compacted to a minimum density ratio of 95% in accordance with AS3798-2007, an allowable bearing capacity of 125kPa would be available, subject to inspection at the time of excavation.

It is recommended that footing inspections be undertaken by Pacific Geotech, following excavation, to confirm the specified founding strata has been reached.

It is recommended that masonry walls supported on high level footings founding in the fill or natural clay be suitably articulated.

Where footings are located adjacent to excavations such as underground service trenches, it is recommended that the footings be deepened to found at least 200mm below a line drawn up at 45 degrees from the base of the trench.

10.3 Deep Foundations

If a deep foundation system is required, bored piers or screw piles could be considered for the support of the proposed structure.

The deep foundation system should be designed in accordance with the recommendations of AS 2159-2009 'Piling - Design and Installation'.

The ultimate geotechnical strength ($R_{d,ug}$) of piles can be calculated using the unfactored, ultimate shaft adhesion and end bearing values given in Table 3. The $R_{d,ug}$ values given in Table 3 will need to be multiplied by a suitable geotechnical strength reduction factor ($ø_g$) to obtain the design geotechnical strength ($R_{d,g}$) of piles. In accordance with AS2159-2009, the $ø_g$ value must be determined by the designer, but based on the anticipated site, design and installation risk factors, a $ø_g$ value of 0.48 is recommended. Higher values may be applicable with suitable supervision.

If working stress methods are used in the pile design, the $R_{d,ug}$ values given in Table 3 will need to be divided by a factor of safety of 2.5 to caluculate the maximum single pile working load.

TABLE 3 ULTIMATE (UNFACTORED) PILE DESIGN PARAMETERS

Material		Ultimate Unfactored End Bearing* (kPa)		Ultimate Unfactored Shaft Adhesion* (kPa)
		L < 4D	L > 4D	
Existing Fill		NR	NR	10
Natural Sand	Medium Dense	NR	NR	20
	Dense	NR	NR	30
Natural Clay	Stiff	300	450	25
	Very Stiff	600	900	35
	Hard	1200	1800	50
XW/HW Rock	XW	1500	2250	75
	HW	1800	2700	90

Notes:
*Geotechnical strength reduction factor needs to be applied to these parameters.
1. NR – Not Recommended.
2. L – total pile length; D – pile diameter.

Construction Considerations

If bored piers are adopted, the bases of bored pile holes must be thoroughly cleaned of all loose soil and rock debris using a proper cleaning tool. The practice of adding water and spinning the auger is generally not acceptable.

Seepage was encountered in some of the boreholes during the investigation at this site. An allowance for the use of steel liners, which will likely have to be socketed into rock to achieve an impermeable seal against any water charged soils above, should be made. The groundwater seepages may be controllable by pumping. Shaft adhesion must be ignored for the portion of the pile that is permanently lined.

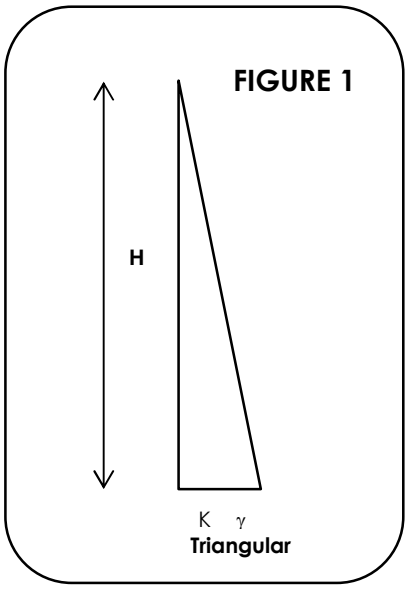
Drilling piles is not only dependent on the subsurface profile characteristics, but also the type (power and size) of the bored pile drilling rig, drilling teeth, size of pile, etc. It is recommended that a specialist drilling contractor be consulted to be able to manage the above conditions and materials encountered.

During construction, all bored piles must be inspected by a geotechnical engineer to confirm the geotechnical strength parameters presented in Table 3 and to check the capacity of the piles.

11.0 RETAINING WALLS

Retaining walls should be specifically engineer designed in accordance with AS 4678-2002 (Ref 9).

The design of flexible retaining walls could be undertaken using a triangular pressure distribution and the earth pressure parameters given in Table 4. Flexible walls are those which are free to rotate or tilt (such as cantilevered walls) and should be designed using active (Ka) earth pressure coefficient and the pressure (Ko) and a trapezoidal pressure distribution as per Figure 1.



Passive resistance (Kp) at the toe of the wall should be ignored in the zone where future disturbance (e.g. services trenches) could occur or the land in front of the wall slopes steeply.

The effects of surcharge in the retained zone should be included by multiplying the vertical pressure developed by the surcharge by the appropriate lateral earth pressure coefficient. Allowance should also be made for the surcharge due to sloping crests if applicable.

TABLE 4 EARTH PRESSURE COEFFICIENTS (NON-SLOPING CREST BACKFILL)

Material	Unit Weight (kN/m³)	Friction Angle (degrees)	Active Ka	At Rest Ko	Passive Kp
Controlled Fill*	19	24	0.45	0.60	2.40
Clays – Stiff to Hard	19	26	0.39	0.57	2.57
Sands – Medium Dense	19	32	0.31	0.47	3.25
Sands - Dense	20	34	0.28	0.44	3.54
XW/HW Rock	21	33	0.31	0.47	3.39

Notes: * Depends on fill material type and level of compaction. Assumes material compacted under 'Level 1' supervision.

Preference should be given to adopting thin soil layers and using small hand-controlled compaction equipment during backfilling against retaining walls. This is in order to limit the stress applied to the walls during construction. Should heavy compaction be required, then wall stresses will be well in excess of Ko and temporary propping should be used.

Clay backfill should not be placed dry of optimum moisture content, as this can lead to increased future swelling with changes to moisture content or inundation from water creating additional load on the back of the wall.

It is recommended that all retaining walls be drained for full height in order to minimise hydrostatic pressure build-up behind the wall. Additional guidelines on wall drainage are provided in Appendix G of AS 4678-2002.

12.0 PAVEMENT DESIGN CONSIDERATIONS

It is expected that the natural clays will form the subgrade for new pavements. It is expected that the surficial sands will be removed from the road box to achieve a satisfactory proof roll outcome.

Soaked CBR laboratory testing was conducted on a sample of the natural clays recovered from BH10 and BH11. The Soaked CBR test produced values of 3.5% and 3.0% respectively.

Considering the nature of the natural clays, a design CBR value of 2-3% and a modulus of subgrade reaction of 20-25kPa/mm are recommended for the pavement design. This value should be confirmed with additional on-site sampling and testing following the bulk earthworks operation on site.

Specific additional construction considerations are offered in regard to the construction of the pavements on the site:-

- Suitable subsurface drainage should be installed around the perimeter of the pavements.

- It should be ensured that the subgrade of the pavement is suitably graded to allow any seepage to flow from under the pavement to the perimeter drains.
- Pavement materials should comply with MRTS05 8.4.3 specifications and the corresponding minimum dry density ratios are recommended:

i)	Lower Sub-base	(Type 2.5)	100% (Standard)
ii)	Sub-base	(Type 2.3)	100% (Standard)
iii)	Base	(Type 2.1)	100% (Modified)

- Inspections and testing should be carried out by Pacific Geotech following the completion of the bulk earthworks to confirm subgrade conditions across the pavement areas.

13.0 SITE MANAGEMENT

To maintain the long-term performance of the structure, good management of the soil conditions and the development is vital throughout the life of the development.

The following are some specific comments with respect to site management.

- The ground surface around the perimeter of the buildings should slope away from the structure and fall to the stormwater system. Water should not be allowed to pond adjacent to the buildings.
- Founding soils should not be allowed to become saturated. Saturation of the on-site material will result in an increase in potential ground surface movements.
- Service trenches under the buildings should be kept to a minimum.
- Footings should be poured immediately after excavation. If footings cannot be poured on the same day as excavation, a blinding layer of 50mm thickness is recommended.
- Trees, garden beds and other vegetation should be planted at a distance at least equivalent to their mature height away from the structures. This will assist in minimising shrinkage movements in the expansive on-soils.

14.0 LIMITATIONS

We have prepared this report for the Proposed Residential Development at 2 Karingal Drive, Pimpama. The report is provided for the exclusive use of Bosform Pty Ltd, for this project only and for the purposes outlined in the report. It should not be used by, or relied upon, for other projects on the same or different sites or by a third party. In preparing this report, we have relied upon information provided by the client or their agents.

The results are indicative of the subsurface conditions on site only at the specific testing locations. Subsurface conditions can change between test locations and the design and construction should take the spacing of the testing and testing methods adopted and the potential for variation between the test locations.

It is recommended that Pacific Geotech be engaged to provide advice and ensure the development is undertaken in accordance with the assumptions made in writing this report.

This is not to reduce the level of responsibility accepted by Pacific Geotech, but rather to ensure that the parties who may rely on the information contained in this report are aware of the responsibilities they assume in doing so.

B. ELSMORE (RPEQ 19656)

For and on behalf of
PACIFIC GEOTECH PTY LTD

APPENDICES

APPENDIX A

NOTES RELATING TO THIS REPORT

Notes Relating to this Report

Reports

The report has been prepared by qualified personnel, is based on the information obtained from field and laboratory testing, and has been undertaken to current engineering standards of interpretation and analysis.

Every care has been taken with the report as it relates to interpretation of subsurface conditions, discussion of geotechnical conditions and contains recommendations or suggestions for design and construction. However, unexpected variations in ground conditions will occur. The potential for this will depend partly on testing, spacing and sampling frequency.

If variations are identified, Pacific Geotech would be pleased to assist with additional investigations or advice to resolve the matter.

Copyright

This report is the property of Pacific Geotech Pty Ltd. The report may only be used for the purpose for which it was commissioned and in accordance with the Terms of Engagement of proposal. Unauthorised use of this report is prohibited.

Borehole and Test Pit Logs

The borehole and test pit logs presented in this report are an engineering and/or geological interpretation of the subsurface conditions, and their reliability will depend to some extent on frequency of sampling and the method of drilling or excavation.

Interpretation of the information and its application to design and construction should therefore take into account the spacing of boreholes or pits, the frequency of sampling, and the possibility of other than 'straight line' variations between the test locations.

Description and Classification Methods

The description and classification of soils and rocks used in this report are based on AS 1726.

Soil types are described according to the predominating particle size and behaviour as set out in the attached Unified Soil Classification Table qualified by the percent of other particles present (e.g. sandy clay) as set out below:

Soil Classification	Particle Size
Clay	less than 0.002mm
Silty	0.002 to 0.06mm
Sand	0.06 to 2mm
Gravel	2 to 60mm

Non-cohesive soils are classified on the basis of relative density which can be correlated from the results of Standard Penetration Test (SPT) as below:

Relative Density	SPT 'N' Value (blows/300mm)
Very Loose	less than 4
Loose	4 – 10
Medium Dense	10 – 30
Dense	30 – 50
Very Dense	greater than 50

Cohesive soils are classified on the basis of strength (consistency) and can be quantified by the Pocket Penetrometer test, Vane Shear test, laboratory testing or engineering examination. The strength terms are defined as follows:

Classification	Unconfined Compressive Strength kPa
Very Soft	less than 25
Soft	25 - 50
Firm	50 – 100
Stiff	100 – 200
Very Stiff	200 - 400
Hard	greater than 400
Friable	strength not attainable – soil crumbles

Rock types are classified by their geological names, together with descriptive terms regarding weathering, strength, defects, etc.

Planarity	
CU	Curved
DIS	Discontinuous
IR	Irregular
PR	Planar
ST	Stepped
UN	Undulose

Roughness	
POL	Polished
RJ	Rough
S	Smooth
SL	Slickened
VR	Very Rough

Defects	Type
BP	Bedding Parting
CL	Cleavage
CO	Contact
CS	Crushed Seam
CZ	Crushed Zone
DB	Drilling Break
DK	Dyke
DL	Drill Lift
DZ	Decomposed Zone
FC	Fracture
FL	Foliation
FZ	Fracture Zone
HB	Handling Break
IS	Infilled Seam
JT	Joint
H	Schistosity
SI	Sill
SM	Seam
SS	Shear Seam
SZ	Shear Zone
VN	Vein
VO	Void

Sampling

Sampling is undertaken during the fieldwork to allow examination of the soil or rock and to allow laboratory testing to be undertaken.

Disturbed samples taken during drilling provide information on plasticity, grain size, colour, moisture content and minor constituents. Bulk samples are similar but of greater volume required for some test procedures such as CBR testing.

Undisturbed samples are taken by pushing a thin-walled sample tube, usually 50mm diameter (known as a U50), into the soil and collecting a sample of the soil contained in a relatively undisturbed state. Such samples yield information on structure and strength, and are necessary for laboratory determination of shear strength and compressibility. Undisturbed sampling is generally effective only in cohesive soils.

Details of the type and method of sampling used are given on the attached logs.

Investigation Methods

Test Pits: These are typically undertaken with a backhoe or a tracked excavator, allowing examination of the insitu soils. Limitations of test pits are the problems associated with collapse of the pits, disturbance and difficulty of reinstatement and the consequent effects on close-by structures. Care must be taken if construction is to be carried out near test pit locations to either properly recompact the backfill during construction or to design and construct the structure so as not to be adversely affected by poorly compacted backfill at the test pit location.

Hand Auger Drilling: A borehole of typical diameter of between 50mm to 75mm advance manually operated equipment. Premature refusal of the hand augers can occur on a variety of materials such as fill, gravel, hard clays and collapse of the borehole (typically in non-cohesive soil).

Continuous Spiral flight Augers: The borehole is advanced using 65mm to 100mm diameter continuous spiral flight augers, which are withdrawn at intervals to allow sampling and insitu testing. Augers of up to 300mm in diameter are used to recover larger volumes of sample. Samples are returned to the surface by the flights or may be collected after withdrawal of the auger flights. Samples can be disturbed and layers may become mixed. Augering below the groundwater table can be less reliable than augering above the water table.

A Tungsten Carbide (TC) bit for auger drilling into rock can be used to indicate rock strength and continuity by variation in drilling resistance and from examination of recovered rock fragments but provides only an indication of the likely rock strength. Where rock strengths may have a significant impact on construction feasibility or costs, then further investigation by means of cored boreholes may be warranted.

Wash Boring: The borehole is advanced by a bit attached to the end of a hollow rod string, with water being pumped down the drill rods and returned up the annulus of the borehole, carrying the drill cuttings. Changes in stratification can be determined from the return, together with information from "feel" and rate of penetration.

The borehole can be stabilised through the use of drilling mud as a circulating fluid. The term 'mud' encompasses a range of products ranging from bentonite to polymers such as Revert or Biogel.

Continuous Core Drilling: A continuous core sample is obtained using a diamond tipped core barrel. This technique provides a reliable (but relatively expensive) method of investigation. In rocks, an NMLC triple tube core barrel is used, which gives a core of about 50mm diameter. The length of core recovered is compared to the length drilled and any length not recovered is shown as CORE LOSS.

Standard Penetration Tests: Standard Penetration Tests (SPT) are used mainly in non-cohesive soils, but can also be used in cohesive soils as a means of indicating density or strength and also of obtaining a disturbed sample. The test procedure is described in Australian Standard 1289, "Methods of Testing Soils for Engineering Purposed", Test 6.3.1.

The test is carried out in a borehole by driving a 50mm diameter split sample tube with a tapered shoe, under the impact of a 63kg hammer, with a free fall of 760mm. The sample is driven in three successive 150mm increments and the 'N' value is taken as the number of blows for the last 300mm. In dense soils, hard clays or weak rock, the full 450mm penetration may not be practicable and the test is discontinued.

The test results are reported in the following form:

- In the case where full penetration is obtained with successive blow counts for each 150mm of , say, 4, 6 and 7 blows, as
  N = 13
  4, 6, 7
- In a case where the test is discontinued short of full penetration, say after 15 blows for the first 150mm and 30 blows for the next 40mm, as
  N > 30
  15, 30/40mm

Cone Penetrometer Testing (CPT): Cone Penetrometer Testing with or without pore pressure measurement (CPTu) is carried out using a Cone Penetrometer in general accordance with AS 1289 6.5.1, 1999.

In the tests, a 36mm diameter rod with a conical tip is pushed continuously into the soil, the reaction being provided by a hydraulic ram system. Measurements are made of the end bearing resistance on the cone and the fractional resistance on a separate 135mm long sleeve, immediately behind the cone. Pore Pressure is recovered through a pore ring located either within, or more usually immediately behind the cone/tip.

As penetration occurs (at a rate of approximately 20mm per second) and data is recorded every 20mm of penetration, the results are presented graphically.

The information provided on the plot comprises:

- Cone resistance – expressed in mPa
- Sleeve friction – expressed in kPa
- Friction ratio – the ratio of sleeve friction to cone resistance expressed as a percentage.
- Pore pressure in kPa
- Tilt of probe (in degrees).

The ratios of the sleeve resistance to cone resistance will vary with the type of soil encountered, with higher relative friction in clays than in sands. Friction ratios of 1% to 2% are commonly encountered in sands and rising to 2% to as high as 8%, and higher in organic soils. Soil descriptions based on cone resistance and friction ratios are only inferred and must not be considered as exact.

Stratification can be inferred from the cone and friction traces and from experience and information from nearby boreholes, etc. Where shown, this information is presented for general guidance, but must be regarded as interpretive.

Dynamic Cone Penetrometers:

Dynamic Cone Penetrometer (DCP) tests are carried out by driving a 16mm diameter rod into the ground with a 9kg sliding hammer dropping 510mm and counting the blows for successive 100mm increments of penetration.

Logs

The borehole or test pit logs are an interpretation of the subsurface conditions, and their reliability will depend to some extent on the frequency of sampling and the method of drilling or excavation.

Interpretation of the information shown on the logs, and its application to design and construction, should therefore take into account the spacing of the boreholes or test pits, the method of drilling or excavation, the frequency of sampling and testing and the possibility of other than "straight line" variations between the boreholes or test pits. Subsurface conditions between boreholes or test pits may vary significantly from conditions encountered at the borehole or test pit locations.

Groundwater

Where groundwater levels are measured in boreholes, there are several potential problems:

- Although groundwater may be present, in low permeability soils it may enter the hole slowly or perhaps not at all during the time it is left open.
- A localised perched water table may lead to an erroneous indication of the true water table.
- Water table levels will vary from time to time with seasons or recent weather changes and may not be the same at the time of construction.
- The use of water or mud as a drilling fluid will mask any groundwater inflow. Water has to be flushed from the hole and drilling mud must be washed out of the hole or 'reverted' chemically if water observations are to be made.

More reliable measurements can be made by installing standpipes from which ongoing monitoring can be undertaken.

Fill

The present of fill materials can often be determined only by the inclusion of foreign objects (e.g. bricks, steel ,etc.) or by distinctly unusual colour, texture or fabric. Identification of the extent of fill materials will also depend on investigation methods and frequency. Where natural soils similar to those at the site are used for fill, it may be difficult to reliably determine the extent of the fill.

Laboratory Testing

Laboratory testing is carried out in general accordance with Australian Standard 1289 'Methods of Testing Soil for Engineering Purposes'.

Site Anomalies

In the event that conditions encountered on site during construction appear to vary from those which were expected from the information contained in the report, the company requests that it immediately be notified. Most problems are much more readily resolved when conditions are exposed than at some later stage.

Review of Design

Where major civil or structural developments are proposed or where only a limited investigation has been completed or where the geotechnical conditions/constraints are quite complex, it is prudent to have a design review.

Site Inspection

Pacific Geotech would be pleased to provide engineering inspection services for geotechnical aspects of work to which this report is related:

Requirements could range from:

i. a site visit to confirm that conditions exposed are no worse than those interpreted, to
ii. a visit to assist the contractor or other site personnel in identifying various soil/rock types such as appropriate footing or pier founding depths, or
iii. full time engineering present on site.

APPENDIX B

BOREHOLE RECORD SHEETS

Pacific Geotech
Consulting Geotechnical Engineers

Borehole No.
BH01
Page 1 OF 1

Project No.: PG-14709

Client: Bosform Pty Ltd
Project Name: Proposed Residential Development
Hole Location: 2 Karingal Drive, Pimpama
Hole Position:

Commenced: 09/02/2026
Logged By: MW
Checked By:

Drill Model and Mounting: IH50 2019
Hole Diameter:

RL Surface: No Survey
Datum: AHD
Operator: MW

Drilling Information							Soil Description			DCP	
Method	Casing	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	0 5 10 15 20 25	Well Diagram
Auger			D 0 - 0.8 m			0.1		SM	NATURAL Silty SAND (SM) Dense, fine to medium grained, dark brown, low plasticity fines, dry to moist. (with organics)	11 12	
								SM	NATURAL Silty Gravelly SAND (SM) Dense, fine to medium grained, brown, fine to medium sized gravel, low plasticity fines, dry.	9 9 9 9 10	
			U50 0.9 - 1.05 m PP=>600kPa			0.8		CI-CH	NATURAL Silty CLAY (CI-CH) Very stiff, medium to high plasticity, pale brown mottled pale orange grey red, moist.	7 6 6 5 5 5 6 6 6	
						1.7		CL	NATURAL Sandy CLAY (CL) Hard, low plasticity, light orange grey brown, fine to medium grained sand, dry to moist.	13 14 14 14	
						2.3		SS T	ROCK SANDSTONE (HW) Highly weathered, very low strength, light brown mottled light orange, dry.		
									BH01 Refusal at 2.4 m		

Method
AS - Auger
RR - Rock Roller
W - Washbore

Water
Level (Date)
Inflow

Samples and Tests
U - Undisturbed Sample
D - Disturbed Sample
SPT - Standard Penetration Test
B - Bulk Sample

Remarks
1. Groundwater not encountered.

Support
C - Casing

Classification Symbols and Soil Descriptions
Based on Unified Soil Classification System

Pacific Geotech
Consulting Geotechnical Engineers

Borehole No.
BH02
Page 1 OF 1

Project No.: PG-14709

Client: Bosform Pty Ltd
Project Name: Proposed Residential Development
Hole Location: 2 Karingal Drive, Pimpama
Hole Position:

Commenced: 09/02/2026
Logged By: MW
Checked By:

Drill Model and Mounting: IH50 2019
Hole Diameter:

RL Surface: No Survey
Datum: AHD
Operator: MW

Drilling Information							Soil Description				
Method	Casing	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	DCP	Well Diagram
Auger						0.5		SM	NATURAL Silty Gravelly SAND (SM) Dense, fine to medium grained, brown, fine to medium sized gravel, low plasticity fines, dry.	8 9 9 8 9	
						1.0		SM	NATURAL Silty Gravelly SAND (SM) Dense, fine to medium grained, brown, fine to medium sized gravel, low plasticity fines, dry. (with clay layering throughout)	7 7 8 8 8 7 6 7 9	
						1.4		CI	NATURAL Silty Sandy CLAY (CI) Hard, medium plasticity, pale orange brown, fine to medium grained sand, dry to moist.	8 6 6 8 6 9	
						2.0 2.1		CL	NATURAL Sandy CLAY (CL) Hard, low plasticity, light brown, fine to medium grained sand, dry. (tending to xw sandstone)		

DCP: 0 5 10 15 20 25

BH02 Refusal at 2.2 m

Method
AS - Auger
RR - Rock Roller
W - Washbore

Water
Level (Date)
Inflow

Samples and Tests
U - Undisturbed Sample
D - Disturbed Sample
SPT - Standard Penetration Test
B - Bulk Sample

Support
C - Casing

Classification Symbols and Soil Descriptions
Based on Unified Soil Classification System

Remarks
1. Groundwater not encountered.

Pacific Geotech
Consulting Geotechnical Engineers

Borehole No.
BH03
Page 1 OF 1

Project No.: PG-14709

Client:	Bosform Pty Ltd	Commenced:	09/02/2026
Project Name:	Proposed Residential Development	Logged By:	MW
Hole Location:	2 Karingal Drive, Pimpama	Checked By:	
Hole Position:			
Drill Model and Mounting:	IH50 2019	RL Surface:	No Survey
Hole Diameter:		Datum:	AHD
		Operator:	MW

Drilling Information							Soil Description				
Method	Casing	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	DCP	Well Diagram
Auger			D 0.1 - 0.8 m			0.1		SM	NATURAL Silty SAND (SM) Medium dense, fine to medium grained, dark brown, dry. (with organics)	0 5 10 15 20 25 6 6 8 8 7 9 7 7	
						0.8		SM	NATURAL Silty SAND (SM) Dense, fine to medium grained, brown, low plasticity fines, dry.		
			U50 0.9 - 1.15 m PP=>600kPa			1.0		CI-CH	NATURAL Silty Sandy CLAY (CI-CH) Hard, medium to high plasticity, pale red grey light mottled pale orange brown, fine to medium grained sand, moist.	6 8 7 6 6 5 6 6	
						1.6		CI-CH	NATURAL Silty Sandy CLAY (CI-CH) Very stiff to hard, medium to high plasticity, pale grey mottled pale orange red, fine to medium grained sand, moist.	5 5 5 5	
						2.0					
						2.7		CL	NATURAL Sandy CLAY (CL) Hard, low plasticity, light grey brown, fine to medium grained sand, dry to moist.		
						3.0					
						3.5		SS T	ROCK SANDSTONE (HW) Highly weathered, very low strength, light orange grey, dry.		
									BH03 Refusal at 3.7 m		

Method
AS - Auger
RR - Rock Roller
W - Washbore

Water
Level (Date)
Inflow

Samples and Tests
U - Undisturbed Sample
D - Disturbed Sample
SPT - Standard Penetration Test
B - Bulk Sample

Remarks
1. Groundwater not encountered.

Support
C - Casing

Classification Symbols and Soil Descriptions
Based on Unified Soil Classification System

Pacific Geotech
Consulting Geotechnical Engineers

Borehole No.
BH04
Page 1 OF 1

Project No.: PG-14709

Client:	Bosform Pty Ltd	Commenced:	09/02/2026
Project Name:	Proposed Residential Development	Logged By:	MW
Hole Location:	2 Karingal Drive, Pimpama	Checked By:	
Hole Position:			
Drill Model and Mounting:	IH50 2019	RL Surface:	No Survey
Hole Diameter:		Datum:	AHD
		Operator:	MW

Drilling Information							Soil Description				
Method	Casing	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	DCP	Well Diagram
Auger						0.1		GM	FILL Silty Sandy GRAVEL (GM) Medium dense, fine to medium sized, dark brown grey, fine to medium grained sand, low plasticity fines, dry.	0 5 10 15 20 25 9 6 6	
								SM	NATURAL Silty SAND (SM) Medium dense, fine to medium grained, brown, low plasticity fines, dry.	8 8 7 5 6 7	
						0.9 1.0		CI-CH	NATURAL Silty Sandy CLAY (CI-CH) Hard, medium to high plasticity, dark grey mottled pale red, fine to medium grained sand, moist.	5 6 4 4 5 5 5 5	
						1.7 2.0		CI-CH	NATURAL Silty Sandy CLAY (CI-CH) Very stiff to hard, medium to high plasticity, pale orange grey brown mottled pale red, fine to medium grained sand, moist.	6 5 5	
						3.0 3.2		CI	NATURAL Silty Sandy CLAY (CI) Very stiff, medium plasticity, light grey brown, fine to medium grained sand, trace of fine sized gravel, moist.		
						3.6 4.0		CL-CI	NATURAL Silty Sandy CLAY (CL-CI) Hard, low to medium plasticity, fine to medium grained sand, moist.		
						4.3		CL	NATURAL Sandy CLAY (CL) Hard, low plasticity, light grey brown, fine to medium grained sand, dry to moist.		
						4.8		SST	ROCK SANDSTONE (XW) Extremely weathered, extremely low strength, light grey mottled light orange, dry.		
									BH04 Terminated at 5 m		

Method
AS - Auger
RR - Rock Roller
W - Washbore

Water
Level (Date)
Inflow

Samples and Tests
U - Undisturbed Sample
D - Disturbed Sample
SPT - Standard Penetration Test
B - Bulk Sample

Support
C - Casing

Classification Symbols and Soil Descriptions
Based on Unified Soil Classification System

Remarks
1. Groundwater not encountered.

Pacific Geotech
Consulting Geotechnical Engineers

Borehole No.
BH05
Page 1 OF 1

Project No.: PG-14709

Client:	Bosform Pty Ltd	Commenced:	09/02/2026
Project Name:	Proposed Residential Development	Logged By:	MW
Hole Location:	2 Karingal Drive, Pimpama	Checked By:	
Hole Position:			
Drill Model and Mounting:	IH50 2019	RL Surface:	No Survey
Hole Diameter:		Datum:	AHD
		Operator:	MW

Drilling Information							Soil Description				
Method	Casing	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	DCP	Well Diagram
Auger			U50 0.5 - 0.75 m PP >600kPa			0.1		SM	NATURAL Silty SAND (SM) Medium dense, fine to medium grained, dark brown, low plasticity fines, dry. (with organics)	4 7 7	
						0.5		SM	NATURAL Silty SAND (SM) Medium dense to dense, fine to medium grained, dark brown, low plasticity fines, dry.	6 7	
						0.9		CI-CH	NATURAL Silty Sandy CLAY (CI-CH) Hard, medium to high plasticity, grey brown mottled pale red, fine to medium grained sand, moist.	5 6 6 6 6	
						1.0		CI-CH	NATURAL Silty Sandy CLAY (CI-CH) Very stiff to hard, medium to high plasticity, pale grey orange brown mottled pale red, fine to medium grained sand, moist.	5 4 4 4 5 4 5 6 4 6	
						1.8		CI-CH	NATURAL Sandy CLAY (CI-CH) Very stiff, medium to high plasticity, light grey mottled pale brown, fine to medium grained sand, moist.		
						2.4		CL-CI	NATURAL Silty Sandy CLAY (CL-CI) Stiff to very stiff, low to medium plasticity, light grey mottled light orange brown, fine to medium grained sand, dry to moist.		
						2.8		CL	NATURAL Silty Sandy CLAY (CL) Hard, low plasticity, light grey brown, fine to medium grained sand, dry to moist.		
						3.2		SS T	ROCK SANDSTONE (XW) Extremely weathered, extremely low strength, light grey mottled light orange, dry.		
						3.7		SS T	ROCK SANDSTONE (HW) Highly weathered, very low strength, light grey, dry.		
									BH05 Refusal at 3.8 m		

DCP: 0 5 10 15 20 25

Method
AS - Auger
RR - Rock Roller
W - Washbore

Water
Level (Date)
Inflow

Samples and Tests
U - Undisturbed Sample
D - Disturbed Sample
SPT - Standard Penetration Test
B - Bulk Sample

Support
C - Casing

Classification Symbols and Soil Descriptions
Based on Unified Soil Classification System

Remarks
1. Groundwater not encountered.

Pacific Geotech
Consulting Geotechnical Engineers

Borehole No.
BH06
Page 1 OF 1

Project No.: PG-14709

Client: Bosform Pty Ltd
Project Name: Proposed Residential Development
Hole Location: 2 Karingal Drive, Pimpama
Hole Position:

Commenced: 09/02/2026
Logged By: MW
Checked By:

Drill Model and Mounting: IH50 2019
Hole Diameter:

RL Surface: No Survey
Datum: AHD
Operator: MW

Drilling Information							Soil Description			DCP	
Method	Casing	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	0 5 10 15 20 25	Well Diagram
Auger						0.1		SM	FILL Silty SAND (SM) Dense, fine to medium grained, dark brown, low plasticity fines, dry. (with organics)	9	
								GM	FILL Silty Sandy GRAVEL (GM) Medium dense to dense, medium to coarse sized, grey brown pale orange, fine to medium grained sand, low plasticity fines, dry.	20/10mm	
						0.6		CL	NATURAL Sandy CLAY (CL) Hard, low plasticity, light brown, fine to medium grained sand, dry to moist.		
						0.9		SS T	ROCK SANDSTONE (HW) Highly weathered, very low to low strength, light grey brown mottled light orange, dry.		
						1.0			BH06 Refusal at 1.1 m		

Method
AS - Auger
RR - Rock Roller
W - Washbore

Water
Level (Date)
Inflow

Samples and Tests
U - Undisturbed Sample
D - Disturbed Sample
SPT - Standard Penetration Test
B - Bulk Sample

Remarks
1. Groundwater not encountered.
2. DCP refusal at 0.11m.

Support
C - Casing

Classification Symbols and Soil Descriptions
Based on Unified Soil Classification System

Pacific Geotech
Consulting Geotechnical Engineers

Borehole No.
BH07
Page 1 OF 1

Project No.: PG-14709

Client: Bosform Pty Ltd
Project Name: Proposed Residential Development
Hole Location: 2 Karingal Drive, Pimpama
Hole Position:

Commenced: 09/02/2026
Logged By: MW
Checked By:

Drill Model and Mounting: IH50 2019
Hole Diameter:

RL Surface: No Survey
Datum: AHD
Operator: MW

Drilling Information							Soil Description				
Method	Casing	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	DCP	Well Diagram
Auger			U50 0.7 - 0.9 m PP=400kPa			0.1		SM	NATURAL Silty SAND (SM) Loose, fine to medium grained, dark brown, low plasticity fines, dry to moist. (with organics)	2	
						0.2		SC		1	
								SC	NATURAL Clayey SAND (SC) Very loose, fine to medium grained, dark brown mottled black, medium plasticity clay, moist.	1	
						0.7		SC	NATURAL Clayey SAND (SC) Loose, fine to medium grained, dark brown mottled black, medium plasticity clay, moist to wet.	2	
						1.0		CH	NATURAL Silty Sandy CLAY (CH) Very stiff, high plasticity, brown mottled pale orange, fine to medium grained sand, trace of fine sized gravel, moist.	3	
			D 1.2 - 1.7 m			1.2		CH	NATURAL Silty Sandy CLAY (CH) Very stiff, high plasticity, pale red dark grey, fine to medium grained sand, moist.	4	
			D 1.7 - 2.1 m			1.7		CH	NATURAL Silty Sandy CLAY (CH) Stiff to very stiff, high plasticity, pale orange grey mottled light red, fine to medium grained sand, moist.	3	
						2.0		CL	NATURAL Sandy CLAY (CL) Hard, low plasticity, light grey mottled light orange, fine to medium grained sand, dry to moist.	4	
						2.1		SS T	ROCK SANDSTONE (XW) Extremely weathered, extremely low to very low strength, light grey, dry.		
						2.2			BH07 Terminated at 3 m		

DCP: 0 5 10 15 20 25

Method
AS - Auger
RR - Rock Roller
W - Washbore

Water
Level (Date)
Inflow

Samples and Tests
U - Undisturbed Sample
D - Disturbed Sample
SPT - Standard Penetration Test
B - Bulk Sample

Support
C - Casing

Classification Symbols and Soil Descriptions
Based on Unified Soil Classification System

Remarks
1. Groundwater not encountered.

Pacific Geotech
Consulting Geotechnical Engineers

Borehole No.
BH08
Page 1 OF 1

Project No.: PG-14709

Client: Bosform Pty Ltd
Project Name: Proposed Residential Development
Hole Location: 2 Karingal Drive, Pimpama
Hole Position:

Commenced: 09/02/2026
Logged By: MW
Checked By:

Drill Model and Mounting: IH50 2019
Hole Diameter:

RL Surface: No Survey
Datum: AHD
Operator: MW

Drilling Information							Soil Description				
Method	Casing	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	DCP	Well Diagram
Auger			U50 0.5 - 0.7 m PP=450kPa			0.1 0.5 0.9 1.0		SM SM CI-CH SS T	NATURAL Silty SAND (SM) Medium dense, fine to medium grained, dark brown, low plasticity fines, dry to moist. (with organics) NATURAL Silty SAND (SM) Dense, fine to medium grained, dark brown, low plasticity fines, dry to moist. NATURAL Silty CLAY (CI-CH) Very stiff, medium to high plasticity, dark brown, moist. ROCK SANDSTONE (HW) Highly weathered, very low to low strength, pale orange brown, dry.	0 5 10 15 20 25 6 9 10 10 12 9 4 4 8 20/20mm	

BH08 Refusal at 1.6 m

Method
AS - Auger
RR - Rock Roller
W - Washbore

Water
Level (Date)
Inflow

Samples and Tests
U - Undisturbed Sample
D - Disturbed Sample
SPT - Standard Penetration Test
B - Bulk Sample

Remarks
1. Groundwater not encountered.
2. DCP refusal at 0.92m.

Support
C - Casing

Classification Symbols and Soil Descriptions
Based on Unified Soil Classification System

Pacific Geotech
Consulting Geotechnical Engineers

Borehole No.
BH09
Page 1 OF 1

Project No.: PG-14709

Client: Bosform Pty Ltd
Project Name: Proposed Residential Development
Hole Location: 2 Karingal Drive, Pimpama
Hole Position:

Commenced: 09/02/2026
Logged By: MW
Checked By:

Drill Model and Mounting: IH50 2019
Hole Diameter:

RL Surface: No Survey
Datum: AHD
Operator: MW

Drilling Information							Soil Description				
Method	Casing	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	DCP	Well Diagram
Auger			D 0.02 - 0.4 m			0.1		SM	NATURAL Silty SAND (SM) Medium dense, fine to medium grained, dark brown, low plasticity fines, dry. (with organics)	6	
								SM	NATURAL Silty SAND (SM) Medium dense, fine to medium grained, dark brown, low plasticity fines, dry. (with clay layering)	4	
						0.4				6	
			U50 0.6 - 0.85 m PP=>600kPa							6	
										4	
								CI-CH	NATURAL Silty Sandy CLAY (CI-CH) Hard, medium to high plasticity, pale orange grey brown mottled red, fine to medium grained sand, trace of fine sized gravel, moist.	5	
										5	
										5	
										6	
						1.0				5	
										5	
						1.2				5	
								CI-CH	NATURAL Silty Sandy CLAY (CI-CH) Very stiff, medium to high plasticity, grey brown mottled pale orange, fine to medium grained sand, moist.	4	
										4	
										6	
										5	
										5	
						1.9				8	
										14	
						2.0		SS T	ROCK SANDSTONE (XW) Extremely weathered, extremely low to very low strength, light grey brown, dry.	20/40mm	
									BH09 Terminated at 3 m		

DCP scale: 0 5 10 15 20 25

Method
AS - Auger
RR - Rock Roller
W - Washbore

Water
Level (Date)
Inflow

Samples and Tests
U - Undisturbed Sample
D - Disturbed Sample
SPT - Standard Penetration Test
B - Bulk Sample

Remarks
1. Groundwater not encountered.
2. DCP refusal at 1.94m.

Support
C - Casing

Classification Symbols and Soil Descriptions
Based on Unified Soil Classification System

Pacific Geotech
Consulting Geotechnical Engineers

Borehole No.
BH10
Page 1 OF 1

Project No.: PG-14709

Client:	Bosform Pty Ltd	Commenced:	09/02/2026
Project Name:	Proposed Residential Development	Logged By:	MW
Hole Location:	2 Karingal Drive, Pimpama	Checked By:	
Hole Position:			
Drill Model and Mounting:	IH50 2019	RL Surface:	No Survey
Hole Diameter:		Datum:	AHD
		Operator:	MW

Drilling Information							Soil Description			DCP	Well Diagram
Method	Casing	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	0 5 10 15 20 25	
Auger			B 0 - 1.5 m			0.6		SM	NATURAL Silty SAND (SM) Dense, fine to medium grained, brown, low plasticity fines, trace of fine sized gravel, dry.	7 7 8 6 6 7	
						1.0		CI-CH	NATURAL Silty Gravelly CLAY (CI-CH) Very stiff, medium to high plasticity, dark brown mottled pale orange grey red, fine to coarse sized gravel, moist.	5 5 5 4 6 5 5 5 5	
									BH10 Terminated at 1.5 m	5 5 5 5 5	

Method
AS - Auger
RR - Rock Roller
W - Washbore

Water
Level (Date)
Inflow

Samples and Tests
U - Undisturbed Sample
D - Disturbed Sample
SPT - Standard Penetration Test
B - Bulk Sample

Support
C - Casing

Classification Symbols and Soil Descriptions
Based on Unified Soil Classification System

Remarks
1. Groundwater not encountered.

Pacific Geotech
Consulting Geotechnical Engineers

Borehole No.
BH11
Page 1 OF 1

Project No.: PG-14709

Client: Bosform Pty Ltd
Project Name: Proposed Residential Development
Hole Location: 2 Karingal Drive, Pimpama
Hole Position:

Commenced: 09/02/2026
Logged By: MW
Checked By:

Drill Model and Mounting: IH50 2019
Hole Diameter:

RL Surface: No Survey
Datum: AHD
Operator: MW

Drilling Information							Soil Description			DCP	Well Diagram
Method	Casing	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	0 5 10 15 20 25	
Auger			B 0 - 1.5 m			0.2 1.0		GM CI-CH	FILL Silty Sandy GRAVEL (GM) Dense, fine to medium sized, dark brown grey, fine to medium grained sand, low plasticity fines, dry to moist. FILL Silty Sandy CLAY (CI-CH) Stiff, medium to high plasticity, dark brown grey mottled black, fine to medium grained sand, moist.	4 6 2 1 1 2 2 1 2 2 3 2 3 1 2	
									BH11 Terminated at 1.5 m	1 2 2 2 2	

Method
AS - Auger
RR - Rock Roller
W - Washbore

Water
Level (Date)
Inflow

Samples and Tests
U - Undisturbed Sample
D - Disturbed Sample
SPT - Standard Penetration Test
B - Bulk Sample

Support
C - Casing

Classification Symbols and Soil Descriptions
Based on Unified Soil Classification System

Remarks
1. Groundwater not encountered.

Pacific Geotech
Consulting Geotechnical Engineers

Borehole No.
BH12
Page 1 OF 1

Project No.: PG-14709

Client: Bosform Pty Ltd
Project Name: Proposed Residential Development
Hole Location: 2 Karingal Drive, Pimpama
Hole Position:

Commenced: 09/02/2026
Logged By: MW
Checked By:

Drill Model and Mounting: IH50 2019
Hole Diameter:

RL Surface: No Survey
Datum: AHD
Operator: MW

Drilling Information							Soil Description				
Method	Casing	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	DCP	Well Diagram
Auger			B 0 - 1.5 m			0.1 0.15 0.7 0.9 1.0		SM SM GM CL SS T	FILL Silty SAND (SM) fine to medium grained, dark brown, low plasticity fines, dry. (with organics) FILL Silty SAND (SM) Dense, fine to medium grained, dark brown, low plasticity fines, dry. FILL Silty Sandy GRAVEL (GM) Dense, fine to medium sized, pale grey brown, fine to medium grained sand, low plasticity fines, dry. NATURAL Sandy CLAY (CL) Hard, low plasticity, dark brown, fine to medium grained sand, dry to moist. ROCK SANDSTONE (XW) Extremely weathered, extremely low to very low strength, light orange brown, dry. BH12 Terminated at 1.5 m	0 5 10 15 20 25 4 17 20/10mm	

Method
AS - Auger
RR - Rock Roller
W - Washbore

Water
Level (Date)
Inflow

Samples and Tests
U - Undisturbed Sample
D - Disturbed Sample
SPT - Standard Penetration Test
B - Bulk Sample

Remarks
1. Groundwater not encountered.
2. DCP refusal at 0.21m.

Support
C - Casing

Classification Symbols and Soil Descriptions
Based on Unified Soil Classification System

APPENDIX C

LABORATORY TEST CERTIFICATES

Pacific Geotech
Consulting Geotechnical Engineers

SHRINK SWELL INDEX REPORT

CLIENT:	Bosform Pty Ltd	PROJECT NUMBER:	PG-14709
CLIENT ADDRESS:	c/o 3 Jowett Street, Coomera Q 4209	REPORT NUMBER:	PG-14709-BH01-0.9-1.05-SS
PROJECT NAME:	Proposed Residential Development	REPORT DATE:	18/02/2026
PROJECT LOCATION:	2 Karungal Drive, Pimpama	TEST METHOD:	AS 1289.7.1.1, 2.1.1 & 2.1.4

SAMPLE LOCATION:	**BH01, 0.9-1.05m, U50**
SAMPLE NUMBER:	26-6605
SAMPLING METHOD:	SAMPLE AS SUPPLIED
SAMPLED BY:	PACIFIC GEOTECH
DATE SAMPLED:	9/02/2026
DATE TESTED:	16/02/2026
MATERIAL TYPE:	**Silty CLAY, mottled brown/grey**

SHRINKAGE MOISTURE CONTENT (%):	16.5
SHRINKAGE (%):	3.2
SWELL MOISTURE CONTENT INITIAL (%):	18.3
SWELL MOISTURE CONTENT FINAL (%):	27.2
SWELL (%):	6.6
UNIT WEIGHT (t/m³):	2.04
SHRINK SWELL INDEX Iss (%):	**3.6**
CRACKING:	Slight
CRUMBLING:	None
ESTIMATED PERCENTAGE OF INERT INCLUSIONS (%):	2

NATA WORLD RECOGNISED ACCREDITATION	**Accredited for Compliance with ISO/IEC 17025 - Testing** **Pacific Geotech Pty Ltd - Accreditation No. 21130** **Gold Coast Laboratory - Site No. 25487**	**Approved Signatory** **Ian Masman** **Laboratory Manager**
Report Remarks:		

ER 010.5 This document shall not be reproduced except in full without approval of the laboratory. Results relate only to the items sampled/tested.
Sampling test method is not covered by our scope of accreditation.

P: (07) 5636 4680 F: (07) 5636 0286 E: info@pacgeo.com.au
3 Jowett Street, Coomera, Qld, 4209 | PO Box 499, Paradise Point, Qld, 4216
www.pacgeo.com.au
ABN: 62 615 248 952

Pacific Geotech
Consulting Geotechnical Engineers

SHRINK SWELL INDEX REPORT

CLIENT:	Bosform Pty Ltd	PROJECT NUMBER:	PG-14709
CLIENT ADDRESS:	c/o 3 Jowett Street, Coomera Q 4209	REPORT NUMBER:	PG-14709-BH03-0.9-1.05-SS
PROJECT NAME:	Proposed Residential Development	REPORT DATE:	18/02/2026
PROJECT LOCATION:	2 Karungal Drive, Pimpama	TEST METHOD:	AS 1289.7.1.1, 2.1.1 & 2.1.4

SAMPLE LOCATION:	**BH03, 0.9-1.05m, U50**
SAMPLE NUMBER:	26-6606
SAMPLING METHOD:	SAMPLE AS SUPPLIED
SAMPLED BY:	PACIFIC GEOTECH
DATE SAMPLED:	9/02/2026
DATE TESTED:	16/02/2026
MATERIAL TYPE:	**Silty CLAY, grey**

SHRINKAGE MOISTURE CONTENT (%):	15.0
SHRINKAGE (%):	2.7
SWELL MOISTURE CONTENT INITIAL (%):	12.8
SWELL MOISTURE CONTENT FINAL (%):	22.8
SWELL (%):	2.7
UNIT WEIGHT (t/m³):	2.07
SHRINK SWELL INDEX Iss (%):	**2.2**
CRACKING:	Slight
CRUMBLING:	None
ESTIMATED PERCENTAGE OF INERT INCLUSIONS (%):	2

NATA WORLD RECOGNISED ACCREDITATION	**Accredited for Compliance with ISO/IEC 17025 - Testing** **Pacific Geotech Pty Ltd - Accreditation No. 21130** **Gold Coast Laboratory - Site No. 25487**	**Approved Signatory** **Ian Masman** **Laboratory Manager**
Report Remarks:		

ER 010.5 This document shall not be reproduced except in full without approval of the laboratory. Results relate only to the items sampled/tested.
Sampling test method is not covered by our scope of accreditation.

P: (07) 5636 4680 F: (07) 5636 0286 E: info@pacgeo.com.au
3 Jowett Street, Coomera, Qld, 4209 | PO Box 499, Paradise Point, Qld, 4216
www.pacgeo.com.au
ABN: 62 615 248 952

Pacific Geotech
Consulting Geotechnical Engineers

SHRINK SWELL INDEX REPORT

CLIENT:	Bosform Pty Ltd	PROJECT NUMBER:	PG-14709
CLIENT ADDRESS:	c/o 3 Jowett Street, Coomera Q 4209	REPORT NUMBER:	PG-14709-BH05-0.5-0.75-SS
PROJECT NAME:	Proposed Residential Development	REPORT DATE:	18/02/2026
PROJECT LOCATION:	2 Karungal Drive, Pimpama	TEST METHOD:	AS 1289.7.1.1, 2.1.1 & 2.1.4

SAMPLE LOCATION:	**BH05, 0.5-0.75m, U50**
SAMPLE NUMBER:	26-6607
SAMPLING METHOD:	SAMPLE AS SUPPLIED
SAMPLED BY:	PACIFIC GEOTECH
DATE SAMPLED:	9/02/2026
DATE TESTED:	16/02/2026
MATERIAL TYPE:	**Silty CLAY, brown**

SHRINKAGE MOISTURE CONTENT (%):	13.1
SHRINKAGE (%):	1.0
SWELL MOISTURE CONTENT INITIAL (%):	13.1
SWELL MOISTURE CONTENT FINAL (%):	20.4
SWELL (%):	3.8
UNIT WEIGHT (t/m³):	2.08
SHRINK SWELL INDEX Iss (%):	**1.6**
CRACKING:	Slight
CRUMBLING:	Slight
ESTIMATED PERCENTAGE OF INERT INCLUSIONS (%):	2

NATA WORLD RECOGNISED ACCREDITATION	**Accredited for Compliance with ISO/IEC 17025 - Testing** **Pacific Geotech Pty Ltd - Accreditation No. 21130** **Gold Coast Laboratory - Site No. 25487**	**Approved Signatory** **Ian Masman** **Laboratory Manager**
Report Remarks:		

ER 010.5 This document shall not be reproduced except in full without approval of the laboratory. Results relate only to the items sampled/tested.
Sampling test method is not covered by our scope of accreditation.

P: (07) 5636 4680 F: (07) 5636 0286 E: info@pacgeo.com.au
3 Jowett Street, Coomera, Qld, 4209 | PO Box 499, Paradise Point, Qld, 4216
www.pacgeo.com.au
ABN: 62 615 248 952

Pacific Geotech
Consulting Geotechnical Engineers

SHRINK SWELL INDEX REPORT

CLIENT:	Bosform Pty Ltd	PROJECT NUMBER:	PG-14709
CLIENT ADDRESS:	c/o 3 Jowett Street, Coomera Q 4209	REPORT NUMBER:	PG-14709-BH07-0.7-0.9-SS
PROJECT NAME:	Proposed Residential Development	REPORT DATE:	18/02/2026
PROJECT LOCATION:	2 Karungal Drive, Pimpama	TEST METHOD:	AS 1289.7.1.1, 2.1.1 & 2.1.4

SAMPLE LOCATION:	**BH07, 0.7-0.9m, U50**
SAMPLE NUMBER:	26-6608
SAMPLING METHOD:	SAMPLE AS SUPPLIED
SAMPLED BY:	PACIFIC GEOTECH
DATE SAMPLED:	9/02/2026
DATE TESTED:	16/02/2026
MATERIAL TYPE:	**Sandy CLAY, brown**

SHRINKAGE MOISTURE CONTENT (%):	16.1
SHRINKAGE (%):	0.9
SWELL MOISTURE CONTENT INITIAL (%):	20.1
SWELL MOISTURE CONTENT FINAL (%):	23.7
SWELL (%):	0.0
UNIT WEIGHT (t/m³):	2.04
SHRINK SWELL INDEX Iss (%):	**0.5**
CRACKING:	Slight
CRUMBLING:	Slight
ESTIMATED PERCENTAGE OF INERT INCLUSIONS (%):	2

NATA WORLD RECOGNISED ACCREDITATION	**Accredited for Compliance with ISO/IEC 17025 - Testing** **Pacific Geotech Pty Ltd - Accreditation No. 21130** **Gold Coast Laboratory - Site No. 25487**	**Approved Signatory** **Ian Masman** **Laboratory Manager**
Report Remarks:		

ER 010.5 This document shall not be reproduced except in full without approval of the laboratory. Results relate only to the items sampled/tested.
Sampling test method is not covered by our scope of accreditation.

P: (07) 5636 4680 F: (07) 5636 0286 E: info@pacgeo.com.au
3 Jowett Street, Coomera, Qld, 4209 | PO Box 499, Paradise Point, Qld, 4216
www.pacgeo.com.au
ABN: 62 615 248 952

Pacific Geotech
Consulting Geotechnical Engineers

SHRINK SWELL INDEX REPORT

CLIENT:	Bosform Pty Ltd	PROJECT NUMBER:	PG-14709
CLIENT ADDRESS:	c/o 3 Jowett Street, Coomera Q 4209	REPORT NUMBER:	PG-14709-BH08-0.5-0.7-SS
PROJECT NAME:	Proposed Residential Development	REPORT DATE:	18/02/2026
PROJECT LOCATION:	2 Karungal Drive, Pimpama	TEST METHOD:	AS 1289.7.1.1, 2.1.1 & 2.1.4

SAMPLE LOCATION:	**BH08, 0.5-0.7m, U50**
SAMPLE NUMBER:	26-6609
SAMPLING METHOD:	SAMPLE AS SUPPLIED
SAMPLED BY:	PACIFIC GEOTECH
DATE SAMPLED:	9/02/2026
DATE TESTED:	16/02/2026
MATERIAL TYPE:	**Silty CLAY, brown**

SHRINKAGE MOISTURE CONTENT (%):	24.3
SHRINKAGE (%):	5.2
SWELL MOISTURE CONTENT INITIAL (%):	20.0
SWELL MOISTURE CONTENT FINAL (%):	25.9
SWELL (%):	1.6
UNIT WEIGHT (t/m³):	1.98
SHRINK SWELL INDEX Iss (%):	**3.3**
CRACKING:	Slight
CRUMBLING:	None
ESTIMATED PERCENTAGE OF INERT INCLUSIONS (%):	2

NATA WORLD RECOGNISED ACCREDITATION	**Accredited for Compliance with ISO/IEC 17025 - Testing** **Pacific Geotech Pty Ltd - Accreditation No. 21130** **Gold Coast Laboratory - Site No. 25487**	**Approved Signatory** **Ian Masman** **Laboratory Manager**
Report Remarks:		

ER 010.5 This document shall not be reproduced except in full without approval of the laboratory. Results relate only to the items sampled/tested.
Sampling test method is not covered by our scope of accreditation.

P: (07) 5636 4680 F: (07) 5636 0286 E: info@pacgeo.com.au
3 Jowett Street, Coomera, Qld, 4209 | PO Box 499, Paradise Point, Qld, 4216
www.pacgeo.com.au
ABN: 62 615 248 952

Pacific Geotech
Consulting Geotechnical Engineers

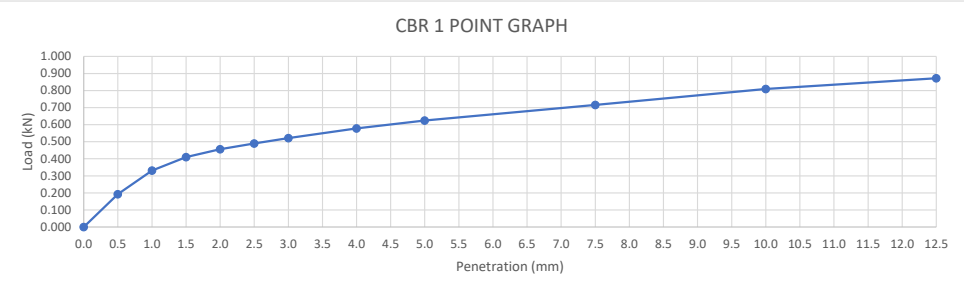
CALIFORNIA BEARING RATIO REPORT (1 POINT)

CLIENT:	Bosform Pty Ltd	PROJECT NUMBER:	PG - 14709
CLIENT ADDRESS:	c/o 3 Jowett Street, Coomera QLD 4209	REPORT NUMBER:	PG-14709-CBR-CBR-BH10
PROJECT NAME:	Proposed Residential Development	REPORT DATE:	23/02/2026
PROJECT ADDRESS:	2 Karungal Drive, Pimpama	TEST METHOD:	AS 1289.6.1.1

SAMPLE LOCATION:	BH 10 (0.0m-1.5m)
SAMPLE NUMBER:	26-6610
SAMPLING METHOD:	AS SUPPLIED
SAMPLED BY:	PACIFIC GEOTECH
DATE SAMPLED:	6/02/2026
DATE TESTED:	16/02/2026
PREPERATION METHOD:	AS 1289.1.1
MOISTURE CONTENT METHOD:	AS1289.2.1.1
MATERIAL TYPE:	Sandy Clay, Brown

MAXIMUM DRY DENSITY (t/m³):	1.72
OPTIMUM MOISTURE CONTENT (%):	18.2
COMPACTIVE EFFORT:	Standard
COMPACTION METHOD:	AS1289.5.1.1
LABORATORY DENSITY RATIO:	100.0
LABORATORY MOISTURE RATIO:	101.0
DRY DENSITY BEFORE SOAK (t/m³):	1.72
DRY DENSITY AFTER SOAK (t/m³):	1.72
FIELD MOISTURE CONTENT:	14.2
MOISTURE CONTENT AT COMPACTION BEFORE SOAK (%):	18.4
MOISTURE CONTENT OF TOP 30mm AFTER PENETRATION (%):	23.1
MOISTURE CONTENT REST OF SAMPLE AFTER PENETRATION (%):	19.8
SWELL (%):	1.5
CBR SURCHARGE (Kg):	4.5
SOAKING PERIOD (Days):	4
CURING TIME (Hours):	77
PERCENTAGE OVERSIZE MATERIAL RETAINED ON 19mm SIEVE (%):	0
METHOD OF ESTABLISHING PLASTICITY:	Visual/Tactile Assessment

CBR 2.5mm (%):	3.5
CBR 5mm (%):	3.0
CBR VALUE (%):	**3.5**



NATA WORLD RECOGNISED ACCREDITATION

Accredited for Compliance with ISO/IEC 17025 - Testing

Pacific Geotech Pty Ltd - Accreditation No. 21130

Gold Coast Laboratory - Site No. 25487

Approved Signatory

Ian Masman
Laboratory Manager

Report Remarks: -

ER 014.7

This document shall not be reproduced except in full without approval of the laboratory. Results relate only to the items sampled/tested.
Sampling test method is not covered by our scope of accreditation.

P: (07) 5636 4680 F: (07) 5636 0286 E: info@pacgeo.com.au
3 Jowett Street, Coomera, Qld, 4209 | PO Box 499, Paradise Point, Qld, 4216
www.pacgeo.com.au
ABN: 62 615 248 952

Pacific Geotech
Consulting Geotechnical Engineers

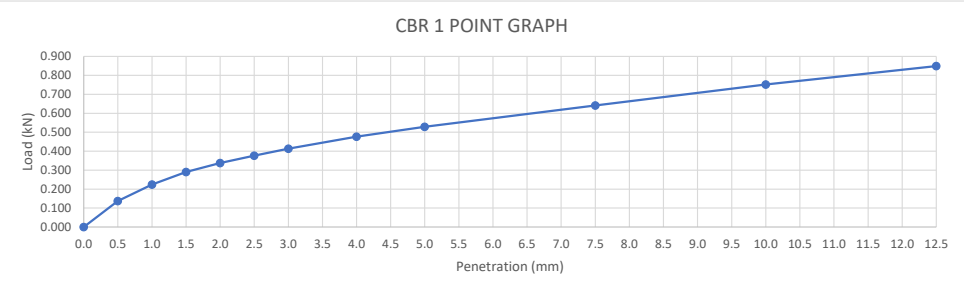
CALIFORNIA BEARING RATIO REPORT (1 POINT)

CLIENT:	Bosform Pty Ltd	PROJECT NUMBER:	PG - 14709
CLIENT ADDRESS:	c/o 3 Jowett Street, Coomera QLD 4209	REPORT NUMBER:	PG-14709-CBR-CBR-BH11
PROJECT NAME:	Proposed Residential Development	REPORT DATE:	23/02/2026
PROJECT ADDRESS:	2 Karungal Drive, Pimpama	TEST METHOD:	AS 1289.6.1.1

SAMPLE LOCATION:	BH 11 (0.0m-1.5m)
SAMPLE NUMBER:	26-6611
SAMPLING METHOD:	AS SUPPLIED
SAMPLED BY:	PACIFIC GEOTECH
DATE SAMPLED:	6/02/2026
DATE TESTED:	16/02/2026
PREPERATION METHOD:	AS 1289.1.1
MOISTURE CONTENT METHOD:	AS1289.2.1.1
MATERIAL TYPE:	Sandy Clay, Brown

MAXIMUM DRY DENSITY (t/m³):	1.73
OPTIMUM MOISTURE CONTENT (%):	16.3
COMPACTIVE EFFORT:	Standard
COMPACTION METHOD:	AS1289.5.1.1
LABORATORY DENSITY RATIO:	100.0
LABORATORY MOISTURE RATIO:	98.5
DRY DENSITY BEFORE SOAK (t/m³):	1.73
DRY DENSITY AFTER SOAK (t/m³):	1.73
FIELD MOISTURE CONTENT:	14.1
MOISTURE CONTENT AT COMPACTION BEFORE SOAK (%):	16.0
MOISTURE CONTENT OF TOP 30mm AFTER PENETRATION (%):	21.3
MOISTURE CONTENT REST OF SAMPLE AFTER PENETRATION (%):	17.4
SWELL (%):	1.5
CBR SURCHARGE (Kg):	4.5
SOAKING PERIOD (Days):	4
CURING TIME (Hours):	77
PERCENTAGE OVERSIZE MATERIAL RETAINED ON 19mm SIEVE (%):	0
METHOD OF ESTABLISHING PLASTICITY:	Visual/Tactile Assessment

CBR 2.5mm (%):	3.0
CBR 5mm (%):	2.5
CBR VALUE (%):	**3.0**



NATA
WORLD RECOGNISED ACCREDITATION

Accredited for Compliance with ISO/IEC 17025 - Testing

Pacific Geotech Pty Ltd - Accreditation No. 21130

Gold Coast Laboratory - Site No. 25487

Approved Signatory

Ian Masman
Laboratory Manager

Report Remarks: -

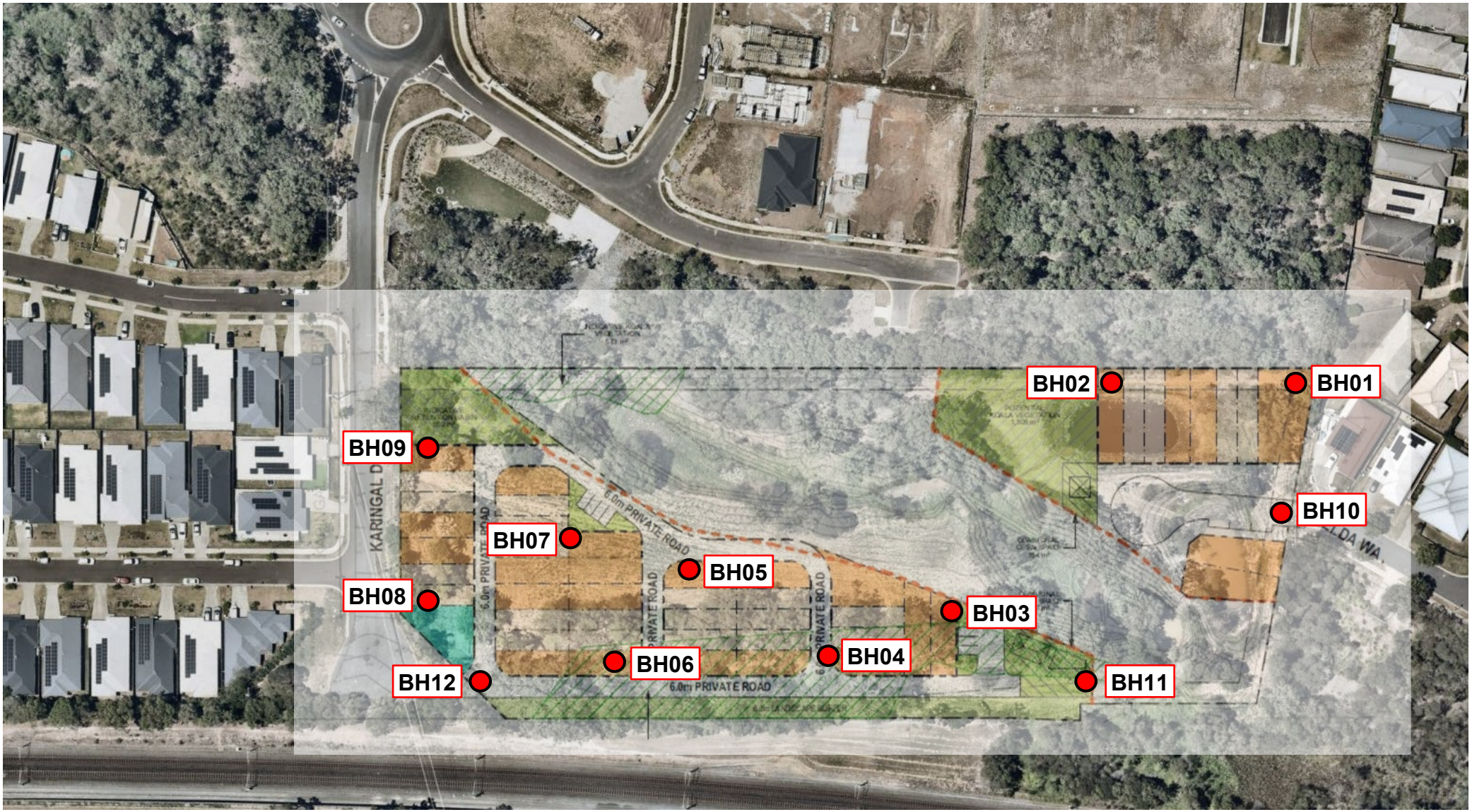
ER 014.7

This document shall not be reproduced except in full without approval of the laboratory. Results relate only to the items sampled/tested.
Sampling test method is not covered by our scope of accreditation.

P: (07) 5636 4680 F: (07) 5636 0286 E: info@pacgeo.com.au
3 Jowett Street, Coomera, Qld, 4209 | PO Box 499, Paradise Point, Qld, 4216
www.pacgeo.com.au
ABN: 62 615 248 952

APPENDIX D

SITE PLAN



Pacific Geotech
Consulting Geotechnical Engineers

Drawn ER	Project:	Proposed Residential Development	Drawing No. PG-14709-01 SITE PLAN	A4
Date FEB 26	Location:	2 Karingal Drive, Pimpama		
Checked	Client:	Bosform Pty Ltd		