WLPP No.	Item 4
DA No.	DA-2020/590
Proposal	Residential - demolition of existing dwelling, tree removals, construction of multi dwelling housing - seven (7) townhouses - associated landscaping and infrastructure
Property	Lot 6 DP 29329, 85 Midgley Street, Corrimal NSW 2518
Applicant	PRD Architects
Responsible Team	Development Assessment and Certification - City Wide Team (AK)

ASSESSMENT REPORT AND RECOMMENDATION

Executive Summary

Reason for consideration by Local Planning Panel - Advice

The proposal has been referred to the Local Planning Panel for **advice** pursuant to clause 2.19(1)(a) of the Environmental Planning and Assessment Act 1979. Under Section 1(c) of the Wollongong Local Planning Panel Submissions draft policy of 24 September 2018, the proposal is the subject of five or more unique submissions by way of objection.

Proposal

The proposal is for demolition of existing structures and construction of a multi-dwelling housing development comprising seven (7) dwellings with associated tree removal, landscaping, visitor car spaces and stormwater drainage works.

Permissibility

The site is zoned R2 Low Density Residential pursuant to Wollongong Local Environment Plan 2009. The proposal is categorised as multi-dwelling housing and is permissible in the zone with development consent.

Consultation

The application was notified in accordance with Council's Community Participation Plan 2019. Five (5) submissions were received and a petition containing twenty-four (24) signatures which are discussed at Section 1.3 of the assessment report.

Council's Stormwater, Landscape, Traffic, Environment, Heritage and Safer Communities Officers have reviewed the application. Council's Landscape Officer is satisfied with the proposal however the remaining referral groups are not supportive of the proposal.

Main Issues

The main issues are:

- Contamination compliance (SEPP 55)
- Traffic and parking associated with proposed ROW and laneway access.
- DCP variations
- Waste management
- Built form & design

RECOMMENDATION

It is recommended the application be **Refused**.

1 APPLICATION OVERVIEW

1.1 PLANNING CONTROLS

The following planning controls apply to the proposal:

State Environment Planning Policies

- SEPP No. 55 – Remediation of Land
- SEPP (Koala Habitat Protection) 2019
- SEPP (Infrastructure) 2007
- SEPP (BASIX) 2004

Local Environmental Planning Policies

- Wollongong Local Environmental Plan (WLEP) 2009

Development Control Plans

- Wollongong Development Control Plan (WDCP) 2009

Other policies

- Wollongong City Wide Development Contributions Plan 2019
- Wollongong Community Participation Plan 2019

The proposal is unsatisfactory with regard to the applicable planning controls as discussed in the body of this report.

1.2 DETAILED DESCRIPTION OF PROPOSAL

The application seeks approval for the following:

- Demolition of existing structures and tree removal.
- Construction of a multi-dwelling housing development comprising seven (7) dwellings with associated landscaping, visitor car spaces and stormwater works. The proposed dwellings are two-storey with associated garage and private open space areas.

1.3 BACKGROUND

Application No.	Description	Decision	Decision Date
DA-1980/10310	Extension of offices	Approved	21-Nov-1980
DA-1987/376	Additions To Amenities & Existing Office	Approved	03-Jul-1987
DA-1995/138	Additions To Existing Offices & Internal Alterations	Approved	29-Mar-1995
BA-1995/656	Alterations And Additions To Office Building - Da95/138	Approved	02-Jun-1995
DA-2012/343	Change of use of building to use as a rehabilitation centre for disabled children	Approved	28-May-2012
DA-2012/343/A	Change of use of building to use as a rehabilitation centre for disabled children - modification to condition of consent	Withdrawn	02-Jan-2013
PC-2013/131	Change of use of building to use as a rehabilitation centre for disabled children	Approved	04-Jul-2012

DA-2013/763	Change of use - from respite day care centre to a transitional group home on the first floor to accommodate up to 3 persons with a disability and staff members and fire safety upgrade works	Approved	30-Oct-2013
PC-2017/1057	Proposed demolition	Approved	23-Aug-2017

A prelodgement meeting (PL-2017/146) was held for a multi-dwelling housing development comprising 9 units on 4 September 2017 by a different proponent for a different proposal to the subject application. No prelodgement was held for the current scheme. It is noted the property ownership appears consistent.

Customer service actions

There are no outstanding customer service requests of relevance to the development.

1.4 SITE DESCRIPTION

The site is known as Lot 6 DP 29329, 85 Midgley Street, Corrimal NSW 2518. The site is located on the western side of the Princes Highway and features a gentle fall to the north. The site contains a building previously been used as medical and administration offices associated with the adjoining mine site.

Vehicular access to the site is available from the Princes Highway, and also via a right of carriageway over Lot 13 DP 1015086 to Midgley Street. The right of carriageway is detailed in D944459, which is attached to the Land Title documents for Lot 6 DP 29329. D944459 verifies that the right of carriageway from the subject site to Midgley Street is appurtenant to the subject site and therefore the proposal has rights to utilise this carriageway for access.

The site is located within an established residential area, with low density residential development to the west and south. The South Bulli coal mine is located to the north, and the Princes Highway is located to the east.

Property constraints

Council records identify the land as being impacted by the following constraints:

- Contamination – the subject site is identified as being “potentially contaminated land due to previous land uses.
- Heritage - The subject site is located adjacent the Bulli mine site which is identified as being a heritage item (Item no. 5928) of local significance.
- The site is benefited by an easement for services over Lot 13 DP 1015086.
- The subject allotment is burdened by a right of way that benefits Lots 1-5 DP 29329.
- As indicated above, the site is also benefited from a right of way over Lot 13 DP 1015086.
- Both of these carriageways provide vehicular access to Midgley Street.

There are no restrictions on the title that preclude assessment of the application.

Figure 1: Aerial photograph

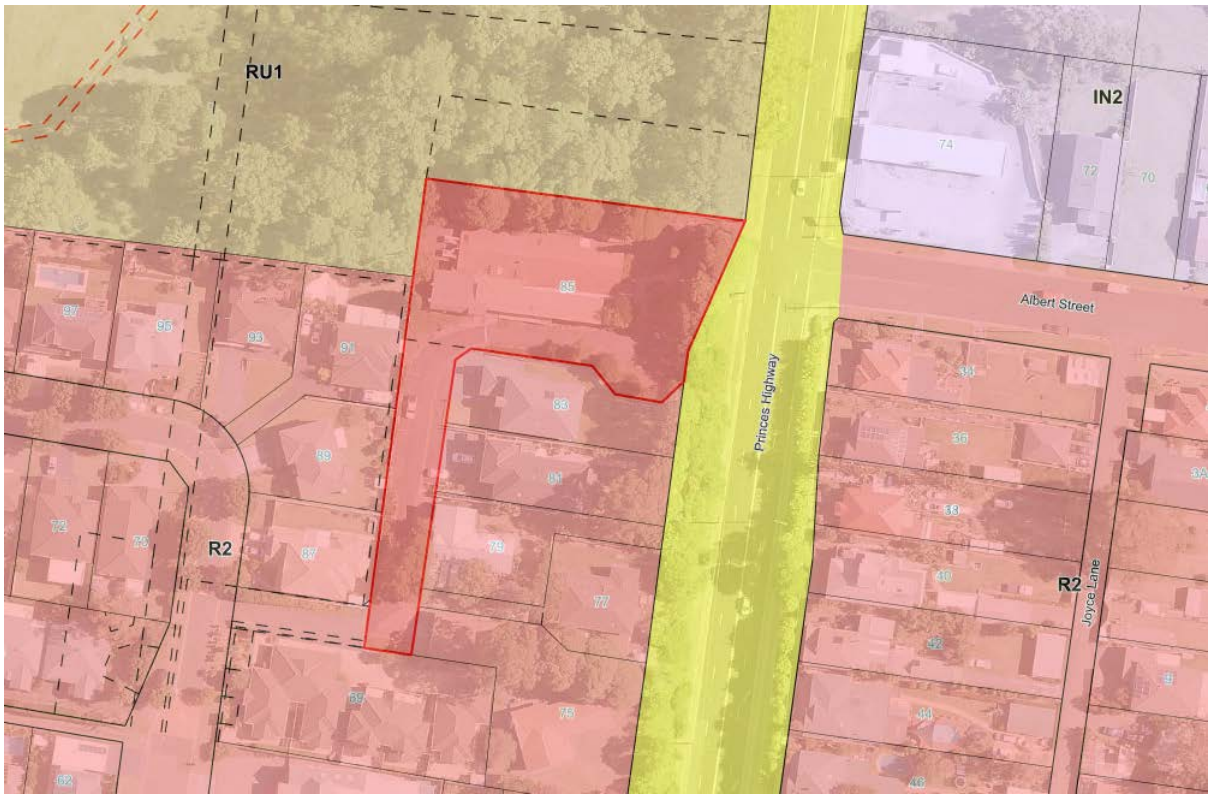

Figure 2: WLEP 2009 zoning map

1.5 SUBMISSIONS

The application was notified in accordance with Council's Community Participation Plan 2019. Five (5) submissions were received and a petition containing twenty-four (24) signatures. The issues identified are discussed below.

Table 1: Submissions

Concern	Comment
1. <u>Traffic/Vehicle Movements/Right of way</u> • The statement does not acknowledge access to the development is through land in the ownership of No. 69 Midgley via a Right of Way (ROW). • What compensation or contributions toward maintenance of the ROW will be made by the developer to address increased wear and tear, increased traffic flows and impacts to resident's peaceful enjoyment. What plans are available to enter into agreements for maintenance? • The laneway is to small and narrow to cater for existing and future traffic, truck movements, emergency vehicles and pedestrian usage. • The surrounding roadways are already congested as a result of the narrow streets, childcare centre and Autistic School all located on Midgley Street. • Access to the proposed development should be from the existing entry point on the Princes Highway. • There is no street lighting on the laneway which creates safety issues with vehicles and pedestrians. • Poor sightlines exist around the 90 degree turn on the laneway which is dangerous for vehicles and pedestrians. • Inadequate visitor spaces have been provided onsite. • The laneway can't cater for garbage trucks so how will it cater for construction vehicles and heavy machinery. • Inadequate information has been submitted in the DA in relation to traffic flows and traffic impact assessment in accordance with Section 6.1. • The intersection of Midgley Street	Council's Traffic Engineer has reviewed the application submission and raised a variety of concerns relating to the proposed single access to the development along the ROW and associated battle-axe laneway access. In particular, concerns are raised in relation to • Laneway/driveway capacity • Access arrangements • Safe usage and operation • Laneway widths • Waste management arrangements The access arrangements for the proposed development are not considered satisfactory and it is recommended that the application be refused.

Concern	Comment
and the laneway is a high risk of collision area. • The Princes Highway access should remain open and not be closed off as proposed.	
2. Waste Services • There is inadequate space available for an additional 14 bins on the Midgley Street frontage. • Bins should be placed on the Princes Highway frontage for collection.	Council's Traffic Officer has reviewed the application with regards to waste servicing and a range of issues have been identified with the proposed waste arrangements. As such, the proposed development is not supported and is recommended for refusal.
3. Contamination • Asbestos contamination in the building and soils of the site is likely due to the previous use of the site in relation to mining operations and associated uses.	A review of Council records indicates that the subject site has a constraint identified as being "Potentially Contaminated Land due to Previous Land Use". This constraint has been imposed on the site as a result of the site previously being associated with the adjoining Corrimal Colliery mine. Council's Environment Officer has reviewed the application and noted no PSI contamination assessment report prepared in accordance with the provisions of SEPP 55 has been submitted. As this does not comply with the SEPP 55 the application is not supported with regards to contamination and is recommended for refusal.
4. Stormwater and Flooding • The laneway only has partial kerb and gutter on one side. During heavy rain the site is flooded by water run-off.	Council's Stormwater Officer has reviewed the application and is satisfied subject to appropriate conditions of consent being recommended.
5. Construction Management • The ROW was not designed to withstand heavy machinery such as during construction. How will this be addressed? • Construction activities will have major impacts on surrounding residences on Midgley Street.	Due to the existing access arrangements for the subject site it has been identified by Council's Traffic Officer that a Construction Management Plan is required to be prepared for the proposed development and submitted for review.
6. Incorrect address • The property is 39 Princes Highway not 85 Midgley Street. The DA should reflect this. • The developer is attempting to market the property under false pretences.	A review of Council records has been undertaken and the legal address for the subject site is No. 85 Midgley Street, Corrimal.

Concern	Comment
7. Vehicle Ramp • The ramp will be built up above the adjoining fence line. This will create privacy issues, additional noise and light intrusion from headlights particularly for living room and kitchen areas. • Drainage impacts on adjoining properties will occur as a result of the proposed ramp.	Council's Traffic Officer has reviewed the application and raised a range of concerns in relation to the access arrangements for the site including safety with the elevated access ramp and associated driveway. This elevated access ramp and parking area has also been identified as having adverse impacts on the adjoining dwelling by way of visual, privacy and car light impacts. These matters are considered unsatisfactory and as a result the application is not supported.
8. Overdevelopment • There are too many townhouses proposed for the site which will create a range of impacts on the laneway and surrounding residences.	A range of issues have been identified regarding the proposed development particularly in relation to built form compliance, traffic and associated access, and waste management arrangements. The proposal is not supported.

Frequency of Issues Raised:

Issue No.	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Frequency	7	6	3	1	2	1	1	1

1.6 CONSULTATION

1.6.1 INTERNAL CONSULTATION

Council's Stormwater, Landscape, Traffic, Environment, Heritage and Safer Communities Officers have reviewed the application. Council's Landscape Officer is satisfied with the proposal however the remain referral groups are not supportive of the application.

1.6.2 EXTERNAL CONSULTATION

None required

2 OTHER LEGISLATION

2.1 NSW BIODIVERSITY CONSERVATION ACT 2016

Section 1.7 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) provides that Act has effect subject to the provisions of Part 7 of the *Biodiversity Conservation Act 2016* (BC Act). Part 7 of the BC Act relates to Biodiversity assessment and approvals under the EP&A Act where it contains additional requirements with respect to assessments, consents and approvals under this Act.

Clause 7.2 of the Biodiversity Conservation Regulation 2017 provides the minimum lot size and area threshold criteria for when the clearing of native vegetation triggers entry of a proposed development into the NSW Biodiversity offsets scheme. For the subject site, entry into the offset scheme would be triggered by clearing of an area greater than 0.25 hectares based upon the minimum lot size of the WLEP 2009 R2 zoned land (i.e. less than 1 hectare minimum lot size). The site is not identified as being of high biodiversity value on the Biodiversity Values Map. Council's Environmental Officer has considered whether the development site would potentially provide suitable habitat for any threatened species and the test of significance and has concluded that the proposed development is not expected to likely significantly affect threatened species or ecological

communities, or their habitats. The development proposed would not be considered a key threatened process. It has also been confirmed that the proposal does not trigger the requirement for a biodiversity offset scheme. The development would therefore not be considered to result in adverse impacts on biodiversity and is consistent with the provisions of the Biodiversity Conservation Act 2016. Notwithstanding, conditions could be recommended which require consideration of fauna during tree removal works if the application was otherwise supported.

3 ENVIRONMENTAL PLANNING AND ASSESSMENT ACT 1979

3.1 SECTION 4.15(1)(A)(1) ANY ENVIRONMENTAL PLANNING INSTRUMENT

3.1.1 STATE ENVIRONMENTAL PLANNING POLICY NO. 55 – REMEDIATION OF LAND

7 Contamination and remediation to be considered in determining development application

(1) A consent authority must not consent to the carrying out of any development on land unless—

(a) it has considered whether the land is contaminated, and

(b) if the land is contaminated, it is satisfied that the land is suitable in its contaminated state (or will be suitable, after remediation) for the purpose for which the development is proposed to be carried out, and

(c) if the land requires remediation to be made suitable for the purpose for which the development is proposed to be carried out, it is satisfied that the land will be remediated before the land is used for that purpose.

(2) Before determining an application for consent to carry out development that would involve a change of use on any of the land specified in subclause (4), the consent authority must consider a report specifying the findings of a preliminary investigation of the land concerned carried out in accordance with the contaminated land planning guidelines.

(3) The applicant for development consent must carry out the investigation required by subclause (2) and must provide a report on it to the consent authority. The consent authority may require the applicant to carry out, and provide a report on, a detailed investigation (as referred to in the contaminated land planning guidelines) if it considers that the findings of the preliminary investigation warrant such an investigation.

(4) The land concerned is—

(a) land that is within an investigation area,

(b) land on which development for a purpose referred to in Table 1 to the contaminated land planning guidelines is being, or is known to have been, carried out,

(c) to the extent to which it is proposed to carry out development on it for residential, educational, recreational or child care purposes, or for the purposes of a hospital—land—

(i) in relation to which there is no knowledge (or incomplete knowledge) as to whether development for a purpose referred to in Table 1 to the contaminated land planning guidelines has been carried out, and

(ii) on which it would have been lawful to carry out such development during any period in respect of which there is no knowledge (or incomplete knowledge).

A review of Council records indicates that the subject site has a constraint identified as being "Potentially Contaminated Land due to Previous Land Use" (See extract below). This constraint has been imposed on the site as a result of the site previously being associated with the adjoining Corrimal Colliery mine.

An assessment of the application against the provisions of the SEPP was undertaken and it was identified that no contamination assessment has been undertaken for the subject site. The Statement of Environment Effects (pg. 15) states that the subject site has been ""used for residential purposes for a significant period of time, with no prior land uses likely to cause contamination". However, this is not the case as the subject site has been used for a variety of commercial and industrial uses in the past associated with the mine site and the current building onsite is of a commercial nature and not residential.

Consequently, Council's Environment Officer has reviewed the proposed development and identified that a Stage 2 - Detailed Site Investigation Report and a Stage 3 – Remediation Action Plan is to be prepared for the subject site.

Overall, an assessment of the proposed development has been undertaken and as no contamination site investigations have been provided Council as the consent authority cannot be satisfied that the site is suitable for the proposed residential change of use. Consequently, as the provisions of Clause 7 (1) & (2) of the SEPP cannot be satisfied the application cannot be supported.

3.1.2 STATE ENVIRONMENTAL PLANNING POLICY (INFRASTRUCTURE) 2007

102 Impact of road noise or vibration on non-road development

(1) This clause applies to development for any of the following purposes that is on land in or adjacent to the road corridor for a freeway, a tollway or a transitway or any other road with an annual average daily traffic volume of more than 20,000 vehicles (based on the traffic volume data published on the website of RMS) and that the consent authority considers is likely to be adversely affected by road noise or vibration—

(a) residential accommodation,

(b) a place of public worship,

(c) a hospital,

(d) an educational establishment or centre-based childcare facility.

(2) Before determining a development application for development to which this clause applies, the consent authority must take into consideration any guidelines that are issued by the Secretary for the purposes of this clause and published in the Gazette.

(3) If the development is for the purposes of residential accommodation, the consent authority must not grant consent to the development unless it is satisfied that appropriate measures will be taken to ensure that the following LAeq levels are not exceeded—

(a) in any bedroom in the residential accommodation—35 dB(A) at any time between 10 pm and 7 am,

(b) anywhere else in the residential accommodation (other than a garage, kitchen, bathroom or hallway)—40 dB(A) at any time.

(4) In this clause, freeway, tollway and transitway have the same meanings as they have in the Roads Act 1993.

A traffic noise intrusion assessment has been submitted and a range of controls have been recommended to meet the noise requirements of Clause 102 of the ISEPP. These recommendations have been reviewed by Council's Environment Officer who is satisfied. However, to ensure compliance is achieved amended plans have been requested reflecting these requirements on plan.

3.1.3 STATE ENVIRONMENTAL PLANNING POLICY (KOALA HABITAT PROTECTION) 2019

The City of Wollongong is identified within Schedule 1 as land to which this Policy applies. Wollongong is located within the South Coast Koala Management Area.

Part of the subject site is mapped as being within the Site Investigation Area for Koala Plans of Management (in blue) pursuant to the SEPP Maps. This mapping is provided as a tool for Council in developing Koala Plans of Management and does not apply to the development application process. Council does not have an approved Koala Plan of Management for the land at the time of preparing this report, and as such, no further consideration of this SEPP is required.

3.1.4 STATE ENVIRONMENTAL PLANNING POLICY (BUILDING SUSTAINABILITY INDEX: BASIX) 2004

The proposal is BASIX affected development to which this policy applies. In accordance with Schedule 1, Part 1, 2A of the Environmental Planning and Assessment Regulation 2000, a BASIX Certificate has been submitted in support of the application demonstrating that the proposed scheme achieves the BASIX targets.

The BASIX certificate was issued no earlier than 3 months before the date on which the development application was lodged.

3.1.5 WOLLONGONG LOCAL ENVIRONMENTAL PLAN 2009

Part 1 Preliminary

Clause 1.4 Definitions

Multi dwelling housing means 3 or more dwellings (whether attached or detached) on one lot of land, each with access at ground level, but does not include a residential flat building.

Part 2 Permitted or prohibited development

Clause 2.2 – zoning of land to which Plan applies

The zoning map identifies the land as being zoned R2 Low Density Residential.

Clause 2.3 – Zone objectives and land use table

The objectives of the zone are as follows:

- *To provide for the housing needs of the community within a low density residential environment.*
- *To enable other land uses that provide facilities or services to meet the day to day needs of residents.*

The proposal would be considered generally satisfactory with regard to the above objectives as it would provide for additional housing opportunities in a low-density residential environment. However, as a result of the outstanding information the application is not supported.

The land use table permits the following uses in the zone:

> *Attached dwellings; Bed and breakfast accommodation; Boarding houses; Boat launching ramps; Centre-based childcare facilities; Community facilities; Dual occupancies; Dwelling houses; Environmental facilities; Exhibition homes; Exhibition villages; Group homes; Health consulting rooms; Home-based childcare; Hospitals; Hostels; Information and education facilities; Jetties;* ***Multi dwelling housing****; Neighbourhood shops; Places of public worship; Recreation areas; Recreation facilities (indoor); Recreation facilities (outdoor); Residential flat buildings; Respite day care centres; Roads; Semi-detached dwellings; Seniors housing; Shop top housing; Signage; Veterinary hospitals*

The proposal is categorised as ***Multi dwelling housing*** as defined above and is permissible in the R2 zone with development consent.

Clause 2.7 Demolition requires development consent

Consent for the demolition of the existing structures is sought as part of the subject application. Conditions could be recommended in this regard to manage such works, including asbestos management.

Part 4 Principal development standards

Clause 4.3 Height of buildings

The proposed building height of 8.84m does not exceed the maximum of 9m permitted for the site.

Clause 4.4 Floor space ratio

Maximum FSR permitted for the zone:	0.5:1
Site area:	3167m²
GFA:	1195.3m^2
FSR:	1195.3/3167 m² = 0.38:1

FSR Complies

It is also noted that with the access handle excluded from the calculations the site area would be 2477.4m^2 resulting in a FSR of 1195.3/2477.4 = 0.482:1 which also complies with Clause 4.4.

Part 5 Miscellaneous provisions

Clause 5.10 Heritage conservation

The subject site is located adjacent to the South Bulli Colliery site. The whole of this adjacent lot is identified as being a heritage item (Item no. 5928) which is of local significance (See extract below).

Council's Heritage officer has reviewed the application submission and raised concerns in relation to the number of DCP variations sought. Notwithstanding this, no specific issues have been raised in relation to heritage impacts of the proposed development.

Part 7 Local provisions – general

Clause 7.1 Public utility infrastructure

The existing site improvements are already serviced by electricity, water and sewage services. It is expected that these services will be capable of augmentation to meet the needs of the development. Conditions can be recommended in this regard requiring evidence from the relevant authorities prior to the issue of the Construction Certificate.

Clause 7.6 Earthworks

The proposal would require minor earthworks consisting of site scraping to provide the required building platforms. The earthworks themselves are not expected to result in unreasonable impacts on environmental functions and processes, neighbouring properties or the features of surrounding land.

Clause 7.14 Minimum site width

(1) Development consent must not be granted for development for the purposes of multi dwelling housing unless the site area on which the development is to be carried out has a dimension of at least 18 metres.

(2) Development consent must not be granted for development for the purposes of a residential flat building unless the site area on which the development is to be carried out has a dimension of at least 24 metres.

The subject site has a minimum site width greater than 18m across the development area of the site which is considered to satisfy the requirements of Clause 7.14(1).

3.2 SECTION 4.15(1)(A)(II) ANY PROPOSED INSTRUMENT

None relevant.

3.3 SECTION 4.15(1)(A)(III) ANY DEVELOPMENT CONTROL PLAN

3.3.1 WOLLONGONG DEVELOPMENT CONTROL PLAN 2009

CHAPTER A1 – INTRODUCTION

8 Variations to development controls in the DCP

An assessment of the proposed development has been undertaken and a number of DCP variations have been identified.

The only variation statement submitted is for Section 5.4 (Side & Rear Setbacks) Chapter B1 WDCP 2009 as relates to Units 6 and 7. However, as outlined in Chapter B1 below the ceiling height measurement may not be calculated in accordance with the ceiling height definition of Appendix 4 WDCP 2009. Consequently, the variation cannot be adequately assessed and cannot be supported.

Other variations identified during the assessment process relate to landscape area, waste service provisions, 3 storeys and, deep soil zones have not been supported with variation request statements prepared in accordance with Clause 8 of Chapter A1 and therefore they cannot be supported.

CHAPTER A2 – ECOLOGICALLY SUSTAINABLE DEVELOPMENT

Development controls to improve the sustainability of development throughout Wollongong are integrated into the relevant chapters of this DCP.

Generally speaking, the proposal is considered to be inconsistent with the principles of Ecologically Sustainable Development as a number of matters in relation to environmental impacts remain outstanding.

CHAPTER B1 – RESIDENTIAL DEVELOPMENT

This Chapter applies to all residentially zoned land in the LGA. Section 4 provides general residential controls which apply to all dwelling houses, dual occupancies, secondary dwellings, ancillary structures and semi-detached dwellings. Section 5 provides controls that must also be taken into consideration for development for the purposes of Multi-Dwelling Housing.

Section 5 provides additional controls to those in Section 4 (excluding 4.1 to 4.11 and 4.19 to 4.22) of this chapter that must also be taken into consideration when preparing a development application for attached dwellings and multi-dwelling housing.

It is noted that the application has not addressed the relevant provisions of Section 4 as outlined below in the 4.0 Residential control table.

4.0 General Residential controls

Controls/objectives	*Comment*	*Compliance*
4.11 Storage Facilities		
• 3 bedroom- $10m^3$ storage volume to $5m^2$ storage area	The proposed development will provide adequate storage with each proposed dwelling.	Yes
4.12 Site Facilities		
• letterboxes in an accessible location • air-con, satellite dishes and other ancillary structures to be located away from street frontage, not in a place where they are a skyline feature.	Appropriate site facilities have been provided and are considered acceptable in this instance.	Yes
4.13 Fire Brigade Servicing		
• All dwellings located within 60m of a fire hydrant	It has not been demonstrated that fire brigade servicing has been adequately considered as part of the proposal. It is noted that as vehicular access will not longer be available from the Princes Highway emergency vehicle access will only be possible on the battle-axe handle from Midgley street. It remains unclear how compliant access to fire hydrants will be achieved for all dwellings onsite and if a fire hydrant will need to be included in the design.	No
4.14 Services		
• Encourage early consideration of servicing requirements.	The site has access to existing services. Conditions of consent can be recommended with regards to services.	Yes
4.15 Development near the coastline	The subject site is not located near the coastline.	NA
4.16 View sharing	It is considered that the proposed development would not result in any significant impact on existing view corridors given the context of the site, prevailing topography and surrounding built form.	Yes

4.17. Retaining walls	The SEE has not addressed the requirements of Clause 4.17. Inadequate detail has been provided on the plans which demonstrate compliance with the controls set out in Clause 4.17.	No

5.0 Attached dwellings and multi -dwelling housing

Controls/objectives	*Comment*	*Compliance*
5.1 Minimum Site Width Requirement		
18m for multi-dwelling	The subject site has a site width greater than 18m which complies. No isolated lots will result.	Yes
5.2 Number of Storeys	The proposed development does not comply with Clause 5.2.2(1) as the proposal is located within an R2 zone and is three (3) storey development as indicated on Section F, sheet DA-32-3 and DA-10-3 to DA-12-3 for unit 4. However, due to the repeated design it appears three (3) storey development may also occur in units 1 to 4. No variation statement has been submitted for this non-compliance.	No
5.3 Front Setbacks	The subject site has frontage to the Princes Highway and additional access via a right of carriageway driveway from Midgley Street. The setback to the Princes Highway is 7.4m which complies. The proposed development has no direct frontage to Midgley for the purposes of front setback calculations.	Yes

5.4 Side and Rear Setbacks	Units 6 and 7 do not comply with Clause 5.4.1 (side and rear setbacks) as the setbacks do not comply with the R2 zoning requirements located in the table. It is noted that a variation statement has been submitted in relation to these non-compliances and sheet DA-14-2 submitted in support of the variation. A review of this information indicates that ceiling height measurement may not have been calculated in accordance with the ceiling height definition of Appendix 4 WDCP 2009 as outlined below and may result in even greater variations to the setback control as only natural ground level has been utilised in calculations where finished ground level may apply. *Ceiling Height: Means the vertical distance from the ceiling level at the outside wall to natural ground level or finished ground level whichever is lower. For a 'cathedral', raked or curved ceiling, or where the roof structure of the building serves the same purpose as the ceiling of a conventional building, the ceiling height is measured as the vertical distance from the pitching point at the outside wall to natural ground level or finished ground level, whichever is lower.* Consequently, it remains unclear if the proposed variation to side and rear setbacks is appropriate in the circumstances.	Variation submitted –Not supported
5.5 Building Character and Form	The proposed building character and from is considered to be modern in appearance and consistent with the prevailing character of the locality.	Yes
5.6 Access / Driveway Requirements	Council's Traffic Engineer has reviewed the application submission and raised a variety of concerns relating to the proposed single access to the development along the ROW and associated battle-axe laneway access. In particular,	No

	concerns are raised in relation to • Laneway/driveway capacity • Access arrangements • Safe usage and operation • Laneway widths • Waste management arrangements (See Chapter E3 comments below)	
5.7 Car Parking Requirements	Council's Traffic Engineer has reviewed the application and is satisfied subject to conditions. Each dwelling is >110m2 and requires 2 car spaces per dwelling. The proposal complies with these requirements.	Yes
5.8 Landscaping Requirements	Total site area = 3167m^2. Therefore 30% is 950m^2 required. Proposed = 718m^2. Does not comply. However, the landscape plan was prepared on the lot excluding the access handle which would result in a site area calculated at 2477.4m^2 requiring 30% of 743.1m^2. This still does not comply. It is also noted that the landscape strip running along the southern boundary behind units 6 & 7 is also identified as an overland flow path on the stormwater drainage plan. Landscaping in this area cannot be supported.	No No variation statement submitted
5.9 Deep Soil Planting	Deep soil zone is calculated at 234m^2. The remaining areas identified on the landscape plan do not meet the minimum 6m wide dimension requirement, is not densely planted, and contains stormwater infrastructure. It also remains unclear if the deep soil zone is proposed in an appropriate location in relation to design outcomes and existing frontages. This does not comply with Clause 5.9.2(2), (3), & (4) and is not supported.	No, No variation statement submitted

5.10 Communal Open Space	Not applicable.	NA
5.11 Private Open Space	Adequate POS is proposed for each dwelling in accordance with the controls of 5.11.	Yes
5.12 Solar Access Requirements	The proposed development complies with the solar access requirements for adjoining dwellings and dwellings onsite. It is noted that proposed two storey units 6 & 7 adjoin the southern boundary with the dwelling at No. 83 Midgley Street. However, due to the change in ground level the proposed units will not adversely impact the dwelling by way of solar access. The garage of the dwelling is located along the boundary and the POS is located elsewhere onsite.	Yes
5.13 Additional Control for Multi Dwelling Housing - Dwelling Mix and Layout	The proposed development comprises less than ten dwellings.	NA
5.14 Additional Control for Multi Dwelling Housing - Adaptable Housing	The Architect (Applicant) has provided a report which confirms that the adaptable unit (6) is capable of being modified to comply with the Australian Adaptable Housing Standard (AS 4299-1995).	Yes
5.15 Additional Control for Multi Dwelling Housing – Crime Prevention through Environmental Design	See Chapter E2 for assessment.	See below.

CHAPTER D1: CHARACTER STATEMENTS

Existing Character

Corrimal is framed by the Illawarra Escarpment and is positioned east of the escarpment landmark known as Brokers Nose.

Corrimal has a low to medium density residential character and is characterised by a mix of residential housing types including one to two storey detached dwelling-houses including circa 1920's - 1930's weatherboard and corrugated iron and brick and tile inter-war bungalows as well as newer larger brick and tile dwelling-houses as well as medium density villas and townhouses.

Corrimal contains a number of heritage items including the Colliery, Palm Court Hotel, former headmaster's residence at Corrimal Public School and the Catholic cemetery.

The Corrimal retail and business centre is classified as a major town centre (district level centre) and represents the highest order retail and business centre for the northern suburbs of Wollongong. The centre is a strong traditional retail and business strip situated along both sides of the Princes Highway. It contains two large enclosed shopping centres which feature a full line supermarket in each centre as well as a range of specialty retail outlets and service businesses.

Corrimal also contains a variety of light industries.

Desired Future Character

The lower density residential areas of Corrimal will retain their low density character. In this respect, it is likely that the replacement of some older dwelling stock will occur with newer two storey dwelling-houses. Any new building should be designed to be sympathetic with the prevailing streetscape and any adjoining dwelling-house, especially an inter-war bungalow.

Additional medium density housing is likely to occur within or in close walking distance (ie 400 – 600 metres) of the Corrimal retail and business centre.

The Corrimal retail and business centre is proposed to be strengthened through the expansion of the existing centre, the encouragement of mixed use developments designed to foster a lively main street and improvements to pedestrian linkages throughout the centre. This will help to establish Corrimal as a major town centre to serve the northern suburbs of Wollongong LGA.

The desired future character for Corrimal is to retain the existing street and built form character of the Corrimal retail and business centre through maintaining an active street frontage with continuous retail uses on the ground floor level and a two storey street façade. Continuous awnings will also be retained along footpath areas. Active retail frontages will be strongly encouraged for the facades of "big box" retail centres to improve the streetscape appearance of each shopping centre and to improve the overall vitality of the Corrimal retail centre.

The built form should also take a "perimeter block" form where public parts of buildings are orientated towards public roads and parking and service loading areas should be internalised.

The location and provision of parking is critical to achieving accessibility to and within the retail centre as well as the vision of a centre that is a general destination rather than a predominantly point-based and car dependent internalised shopping venue.

Off-street parking needs to be located as close as possible to retail and commercial activities but should not sacrifice pedestrian and streetscape amenity.

Residential uses are encouraged for all parts of the Corrimal retail and business centre with the blurring of the edges of the centre encouraged by mixed use development. Ground and first floors are to be designed for retail and commercial office use with residential activity permitted above the first floor.

Higher density mixed use retail, commercial office and residential apartment development is to be orientated towards Princes Highway, Railway Street and Underwood Street.

The strengthening of connections between the Stockland Mall in the south to Collins Street and to the north, along the Princes Highway is recommended.

Clear pedestrian linkages should be provided from Underwood Street to the Princes Highway and the Corrimal Memorial Park. This will also require stronger linkages between Corrimal Memorial Park and Ziems Park and key sites such as the Underwood Street carpark site and the proposed eastward expansion of the Stockland Mall shopping centre. Clear pedestrian routes are also necessary from parking areas to the retail and commercial centre. Through site links are also to be provided in accordance with the DCP.

Additionally, pedestrian linkages should be strengthened between Corrimal retail and commercial centre and Corrimal railway station through to the beach.

All public spaces (including roads, parks and plazas) should be directly overlooked by adjacent development and street planting is to be designed to avoid any potential concealment opportunities.

Night time activities such as restaurants, cinemas etc are encouraged to enliven the retail and commercial centre.

A range of community facilities are also envisaged for the Corrimal centre.

The subject proposal is not considered to be inconsistent with the desired future character statement for the area. The proposed development will act to retain the low-density character of Corrimal by virtue of its location, built form and landscape outcomes.

The development is designed to be sympathetic with the prevailing streetscape and adjoining dwelling houses along the Princes Highway frontage as it will act to renew the frontage and improve the streetscape via landscape works and new fencing.

The proposal is also located within close proximity to the local bus network and walking distance of the Corrimal Retail and Business Centre located to the south on the Princes Highway.

CHAPTER E1: ACCESS FOR PEOPLE WITH A DISABILITY

It is considered that disabled access to the proposed development is acceptable in this circumstance.

The submitted Access Consultant's Report has been reviewed and is considered satisfactory. Appropriate conditions can be imposed as required.

CHAPTER E2: CRIME PREVENTION THROUGH ENVIRONMENTAL DESIGN

Control/objective	*Comment*	*Compliance*
3.1 Lighting	The subject site has a frontage to the Princes Highway and has access to Midgley Street via a ROW and battle-axe laneway which is also relied upon by other adjacent residences. Vehicles and pedestrians from the proposed development and surrounding dwellings utilise this battle-axe handle for the movement of bins, pedestrian and vehicle access across various times of day. No lighting plan has been submitted outlining how these areas will be adequately illuminated to achieve safety operations regarding pedestrian usage, waste collection arrangements, communal bin enclosures, children playing etc. As no lighting plan has been submitted the objectives and controls of 3.1 are not considered satisfied and	No

Control/objective	*Comment*	*Compliance*
	cannot be supported.	
3.2 Natural surveillance and sightlines	The design of the proposed dwellings does not create areas for concealment and also permits natural passive surveillance of the semi-public areas of the development. The living areas of units 6 and 7 also have windows which face the internal driveway to provide added surveillance. It is noted that only partial surveillance of laneway pedestrians is available from the proposed development.	Yes
3.3 Signage	The proposal does not include any signage.	NA
3.4 Building design	As mentioned above, the building designs are adequate to provide secure areas and passive surveillance to semi-public spaces and minimises areas of concealment or entrapment.	Yes
3.5 Landscaping	Landscaping proposed is considered appropriate as relates to CPTED principles only and minimises areas of concealment or entrapment.	Yes
3.6 Public open space and parks.	There is no public open space proposed or required.	NA
3.7 Community facilities	There are no community facilities located within the development as proposed.	NA
3.8 Bus stops and taxi ranks	There are bus-stops located at the Princes Highway frontage of the development. However, no pedestrian pathways or gate to the Princes Highway has been provided to allow access to public transport at the frontage.	No

CHAPTER E3: CAR PARKING, ACCESS, SERVICING/LOADING FACILITIES AND TRAFFIC MANAGEMENT

The subject site has a frontage to the Princes Highway and is also accessed via a Right of Way over other lots to Midgley Street. The application proposes that vehicle access is achieved via the ROW

from Midgley Street with all vehicle access being removed from the Princes Highway. Council's Traffic Engineer has reviewed the application submission and raised a variety of concerns relating to the proposed single access to the development along the ROW and associated battle-axe laneway access. In particular, concern is raised in relation to the following:

- Capacity of the existing private driveway/right of way and the narrowing of this area less than the minimum 5.5m wide required under Clause 3.2.2 of AS 2890.1.
- Detailed traffic assessment of the access arrangements is required and updated plans required reflecting these recommendations.
- The traffic assessment must also determine and address the following matters:
    - the capacity of the driveway,
    - the likelihood of vehicles meeting in this narrow section and clarify where and how vehicles will pass (utilising permitted access rights) so as not to result in impacts for existing residents that rely on this right of way, as well as future residents.
    - Safety of the ROW in relation to other existing dwellings utilising the area.
    - Emergency vehicle access
    - Blocked driveway scenarios
    - Compliant width of laneway and the potential need to remove existing garden beds and existing parallel parking spaces.
    - Blind corner
- The development will require ongoing collection for 14 x 240ltr bins. The site does not have a street frontage with Midgely Street and therefore would not be permitted to leave 14 bins in this location for collection. Bins in this location would impact on the frontages of other residential properties which would not be supported. Developments can only take advantage of street collection where they are able to place their bins within 50 per cent of the development site frontage as per Chapter E7 of the DCP. The waste bins are proposed to be located on Midgley Street which does not comply with Clause 5.4.3(1) as the proposal has no formal frontage to Midgley Street and the bins cannot be located within 50% of the development frontage.
- It is noted that the development will require retaining walls to be constructed near to parking and manoeuvring areas. In these areas, barriers are required wherever the drop from the edge of the platform exceeds 600mm. Barriers are to comply with Clause 2.4.5.3 of AS2890.1 and shall be designed structurally for the loading requirements of AS1170.1. The applicant will need to indicate the areas where retaining walls of 600mm or greater/barriers are required.

As the proposed development does not demonstrate how compliant use of the access laneway and ROW can be used, does not demonstrate a compliant waste collection method and requires amended plans addressing vehicle barriers the application cannot be supported in its current form.

CHAPTER E6: LANDSCAPING

The proposed development has been assessed against the controls of Chapter E6 and does not comply with the landscape and deep soil zone requirements as similarly outlined above in Chapter B1. As such, the proposed development cannot be supported.

Council's Landscape Officer has also assessed the proposal and provided conditionally satisfactory referral advice permitting the removal of twelve (12) trees to provide for the proposed footprint and requiring compensatory planting of twelve (12) 75 litre trees be provided in appropriate locations

onsite. An Arborists Report was provided with the application submission, which is provided at Attachment 2.

CHAPTER E7: WASTE MANAGEMENT

Council's Traffic Officer has assessed the proposal against the requirements of this Chapter and identified that waste servicing arrangements are unsatisfactory. All waste bins are proposed to be stored in a communal bin storage area onsite and then placed on Midgley Street for collection. However, the subject site has not frontage to Midgley Street which already accommodates the bins for a number of adjoining dwellings and units which only have access available from Midgley. This does not comply with Clause 5.4.3(1) Chapter E7 and cannot be supported.

CHAPTER E11 HERITAGE CONSERVATION

Council's Heritage officer has reviewed the application submission with regard to Chapter E11 and has raised concerns in relation to the number of DCP variations sought. Notwithstanding this, no specific issues have been raised in relation to heritage impacts of the proposed development.

CHAPTER E14 STORMWATER MANAGEMENT

Council's stormwater engineer has reviewed the proposal with respect to the provisions of this chapter and has recommended conditions of consent. However, it is noted that the landscape plan submitted indicates that landscaping is proposed within the required overland flow path located along the southern boundary of units 6 & 7 which does not comply. Consequently, the proposed development does not comply with Chapter E14 of WDPC 2009 and cannot be supported.

CHAPTER E17 PRESERVATION AND MANAGEMENT OF TREES AND VEGETATION

Council's Landscape Officer and Environment Officers have assessed the proposal and provided conditionally satisfactory referral advice permitting the removal of twelve (12) trees to provide for the proposed footprint and requiring compensatory planting of twelve (12) 75 litre trees be provided in appropriate locations onsite.

Overall, Councils Landscape Officer has reviewed the application with regards to Chapter E17 and is satisfied.

CHAPTER E18 THREATENED SPECIES

See Section 2.1 within the body of the report for details.

CHAPTER E19 EARTHWORKS (LAND RESHAPING WORKS)

The proposal would require minor site preparation works, which would not otherwise require development consent. The works are not expected to result in unreasonable impacts on environmental functions and processes, neighbouring properties or the features surrounding land. Conditions can be recommended to manage these impacts.

CHAPTER E20 CONTAMINATED LAND MANAGEMENT

See Section 3.1.1 within the body of the report for details. This matter is yet to be satisfied.

CHAPTER E21 DEMOLITION AND HAZARDOUS BUILDING MATERIALS MANAGEMENT

The submitted demolition plan indicates the removal of the all structures on the site. Conditions could be recommended in this regard.

CHAPTER E22 SOIL EROSION AND SEDIMENT CONTROL

Conditions could be recommended in this regard.

5.2.1 WOLLONGONG CITY WIDE DEVELOPMENT CONTRIBUTIONS PLAN 2019

The estimated cost of works is >$100,000 ($2,439,800) and a levy of 1% is applicable under this plan as the threshold value is $200,000. A condition can be recommended in this regard.

5.3 SECTION 4.15(1)(A)(IIIA) ANY PLANNING AGREEMENT THAT HAS BEEN ENTERED INTO UNDER SECTION 7.4, OR ANY DRAFT PLANNING AGREEMENT THAT A DEVELOPER HAS OFFERED TO ENTER INTO UNDER SECTION 7.4

There are no planning agreements entered into or any draft agreement offered to enter into under S7.4 which affect the development.

5.4 SECTION 4.15(A)(IV) THE REGULATIONS (TO THE EXTENT THAT THEY PRESCRIBE MATTERS FOR THE PURPOSES OF THIS PARAGRAPH)

92 What additional matters must a consent authority take into consideration in determining a development application?

Conditions of consent could be recommended with regard to demolition including asbestos management.

93 Fire safety and other considerations

Conditions of consent could be recommended requiring compliance with the BCA/National Construction
Code with regard to fire safety.

94 Consent authority may require buildings to be upgraded

Not applicable

5.5 SECTION 4.15(1)(B) THE LIKELY IMPACTS OF DEVELOPMENT

Context and Setting:

The subject site is located in an existing residential area which includes a mixture of residential building types whilst sharing a boundary with the Bulli mine site. The application proposes a variety of DCP non-compliances which are considered to be inconsistent with the surrounding area and would create an undesirable precedent for future development.

As such, the proposal is considered out of character with the prevailing context and setting of the surrounding area and is not supported.

Access, Transport and Traffic:

The subject site has a frontage to the Princes Highway and is also accessed via a Right of Way over other lots to Midgley Street. The application proposes that vehicle access is achieved via the ROW from Midgley Street with all vehicle access being removed from the Princes Highway.

A range of issues have been identified with the exclusive use of the ROW and access laneway servicing the proposed development and it being shared with surrounding dwellings. Impacts with regards to increased traffic, driveway width compliance, access arrangements, driveway capacity, safety emergency vehicle access and the blind corner have all been identified.

No detailed traffic report or analysis has been undertaken as part of the proposed development.

Overall, the application does not demonstrate that the use of the shared ROW and access laneway will not have an adverse effect on the existing users, or the site and new residents associated with the proposed development.

Public Domain:

The proposal is not considered to be conducive to the site and would set an undesirable precedent of development within the local area.

The proposed development has a range of non-compliances with regards to contamination investigations, vehicular access impacts and safety, waste collection arrangements, built form variations, and stormwater/landscaping compatibility. As these matters remain unresolved the proposal is considered to have adverse impacts on the public domain.

Utilities:

The proposal is not envisaged to place an unreasonable demand on utilities supply. Existing utilities are adequate to service the proposal.

Heritage:

The subject site is located adjacent to the South Bulli Colliery site. The whole of this adjacent lot is identified as being a heritage item (Item no. 5928) which is of local significance. Council's Heritage officer has reviewed the application submission and raised concerns in relation to the number of DCP variations sought. Notwithstanding this, no specific issues have been raised in relation to heritage impacts of the proposed development. Consequently, it is considered that the proposed development will not have adverse impacts on the adjacent South Bulli Colliery site in relation to heritage matters.

Other land resources:

The proposal is not envisaged to impact upon any valuable land resources.

Water:

The site is presently serviced by Sydney Water, which can be readily extended to meet the requirements of the proposed development.

The proposal is not envisaged to have unreasonable water consumption.

Soils:

A review of Council records indicates that the subject site has a constraint identified as being "Potentially Contaminated Land due to Previous Land Use". This constraint has been imposed on the as a result of the site being previously associated with the adjoining Corrimal Colliery mine.

An assessment of the application against the provisions of the SEPP 55 was carried out and it was identified that no contamination assessment has been undertaken for the subject site. The Statement of Environment Effects (pg. 15) states that the subject site has been "used for residential purposes for a significant period of time, with no prior land uses likely to cause contamination". However, this is not the case as the subject site has been used for a variety of commercial and industrial uses in the past associated with the mine site and more recently for commercial uses and not residential. These details and subsequent requirements were also outlined in Council's prelodgement notes of 4 September 2017 for a similar residential proposal.

Consequently, Council's Environment Officer has reviewed the proposed development and identified that a Stage 2 - Detailed Site Investigation Report and a Stage 3 – Remediation Action Plan is to be prepared for the subject site.

Overall, an assessment of the proposed development has been undertaken and as no contamination site investigations have been provided Council as the consent authority cannot be satisfied that the site is suitable for the proposed residential change of use. Consequently, the presence and nature of any contamination located within the soils of the subject site or surrounds cannot be ascertained, and the application cannot be supported.

Air and Microclimate: The proposal is not expected to have negative impact on air or microclimate.
Flora and Fauna: Twelve (12) trees are proposed for removal as part of the development. Council's Landscape Officer has reviewed this tree removal and is satisfied subject to conditions including compensatory planting of twelve (12) new trees to offset the removal. However, it has also been noted that the proposal does not comply with the landscape and deep soil zone requirements outlined above in Chapter B1. As such, the application cannot be supported.
Waste: Council's Traffic Officer has assessed the proposal against the requirements of this Chapter and identified that waste servicing arrangements are unsatisfactory. All waste bins are proposed to be stored in a communal bin storage area onsite and then placed on Midgley Street for collection. However, the subject site has not frontage to Midgley Street which already accommodates the bins for a number of adjoining dwellings and units which only have access available from Midgley. This does not comply with Clause 5.4.3(1) Chapter E7. The proposed development has not adequately demonstrated a suitable waste collection solution for the subject site and cannot be supported in its current form.
Energy: The proposal is not envisaged to have unreasonable energy consumption.
Noise and vibration: The proposed development is located with frontage to the Princes Highway and shares a side boundary with the South Bulli mine site both of which have the potential to impact the development by way of noise. A traffic noise intrusion report has been submitted with the application which makes a range of recommendations regarding noise attenuation in relation to traffic noise. Council's Environment Officer has requested that these recommendations been included on amended plans. In relation to any potential noise impacts from the adjoining mine site Council's Environment Officer has advised that noise management is the responsibility of the mine operator and managed by the NSW Environmental Protection Authority.
Natural hazards: There are no natural hazards affecting the site that would prevent the proposal.

Technological hazards:

A review of Council records indicates that the subject site has a constraint identified as being "Potentially Contaminated Land due to Previous Land Use". This constraint has been imposed on the as a result of the site being previously associated with the adjoining Corrimal Colliery mine.

An assessment of the application against the provisions of the SEPP 55 was carried out and it was identified that no contamination assessment has been undertaken for the subject site. The Statement of Environment Effects (pg. 15) states that the subject site has been "used for residential purposes for a significant period of time, with no prior land uses likely to cause contamination". However, this is not the case as the subject site has been used for a variety of commercial and industrial uses in the past associated with the mine site and more recently for commercial uses and not residential. These details and subsequent requirements were also outlined in Council's prelodgement notes of 4 September 2017 for a similar residential proposal.

Consequently, Council's Environment Officer has reviewed the proposed development and identified that a Stage 2 - Detailed Site Investigation Report and a Stage 3 – Remediation Action Plan is to be prepared for the subject site.

Overall, an assessment of the proposed development has been undertaken and as no contamination site investigations have been provided Council as the consent authority cannot be satisfied that the site is suitable for the proposed residential change of use. Consequently, the presence and nature of any contamination onsite cannot be ascertained, and the application cannot be supported.

Safety, Security and Crime Prevention:

The development as proposed relies upon a right of way access lane for vehicular access and movement of bins for collection. A communal waste bin enclosure is also proposed to service the dwellings proposed. However, no lighting plan has been proposed for these areas to ensure the safety of residents nor has it been demonstrated that the laneway can be used by vehicles in a compliant manner to ensure the safety of other residents and pedestrians. As such, the proposed development has not adequately demonstrated safety, security and crime prevention for all users and cannot be supported.

Social Impact:

The proposal would not be envisaged to result in negative social impacts.

Economic Impact:

The proposal is not expected to create negative economic impact.

Site Design and Internal Design:

The application as proposed requests variations to WDCP 2009. These non-compliances have been outlined through the report above. It is considered that the proposed design does not adequately respond to the constraints of the site and will likely have adverse impacts on surrounding lots.

Construction:

Conditions of consent could be recommended in relation to construction impacts such as hours of work, erosion and sedimentation controls, works in the road reserve, excavation, demolition and use of any crane, hoist, plant or scaffolding.

A condition can be attached to any consent granted that all works are to be in compliance with the Building Code of Australia.

Cumulative Impacts:

It is considered that due to the number of non-compliances with WDCP 2009 that the proposed development will likely result in a negative cumulative impact.

5.6 SECTION 4.15(1)(C) THE SUITABILITY OF THE SITE FOR THE DEVELOPMENT

Does the proposal fit in the locality?

Due to the non-compliances outlined above the proposal is not considered to fit the locality within which it is proposed to be located.

Are the site attributes conducive to development?

The subject site has existing access to the site from the Princes Highway and Midgley Street via a ROW and battle-axe handle laneway which provides access to other existing dwellings. The application has been assessed and Council has identified a number of non-compliances WDCP 2009 which are identified throughout this report and are related to the pedestrian, vehicular and waste management access and servicing of the site. These matters remain unresolved. As such, it is considered that the site attributes are no conducive to the proposed development and it is therefore not supported.

5.7 SECTION 4.15(1)(D) ANY SUBMISSIONS MADE IN ACCORDANCE WITH THIS ACT OR THE REGULATIONS

See Section 1.5 above.

5.8 SECTION 4.15(1)(E) THE PUBLIC INTEREST

The proposed development is not considered to be in the public interest as the proposal is expected to have unreasonable impacts on the environment and amenity of the locality. The proposal is considered inappropriate with consideration to site constraints, contrary to the relevant planning controls and in the current form, approval would not be considered to be in the public interest.

6 CONCLUSION

This application has been assessed as unsatisfactory having regard to the Heads of Consideration under Section S4.15(1) of the Environmental Planning and Assessment Act 1979, the provisions of Wollongong Local Environmental Plan 2009 and all relevant Council DCPs, Codes and Policies.

7 RECOMMENDATION

It is recommended that the development application be refused for the following reasons:

1 Pursuant to the provisions of Section 4.15 (1)(a)(i) of the Environmental Planning and Assessment Act, 1979, it is considered that the proposal fails to demonstrate consistency with:

   a State Environmental Planning Policy No. 55 (Clause 7).

2 Pursuant to the provisions of Section 4.15(1)(a)(iii) of the Environmental Planning and Assessment Act 1979, it is considered that the proposal has failed to demonstrate consistency with the provisions of Wollongong City Council's Development Control Plan 2009, with respect to:

   a Chapter B1 – Residential Development.
   b Chapter E2 – Crime Prevention Through Environmental Design
   c Chapter E3 – Car Parking, Access, Servicing/Loading Facilities and Traffic Management
   d Chapter E6 – Landscaping
   e Chapter E7 – Waste Management
   d Chapter E14 – Stormwater Management.
   e Chapter E20 – Contaminated Land Management

3 Pursuant to the provisions of Section 4.15(1)(b) of the Environmental Planning and Assessment Act 1979, it is considered that the proposal has failed to demonstrate the likely impacts will not be adverse.

4 Pursuant to the provisions of Section 4.15(1)(c) of the Environmental Planning and Assessment Act 1979, it is considered that the proposal has failed to demonstrate the site is suitable for the proposed development.

5 Pursuant to the provisions of Section 4.15(1)(d) & (e) of the Environmental Planning and Assessment Act 1979 it is considered that with submissions received and in the circumstances of the case, approval of the development would set an undesirable precedent for similar inappropriate development and is therefore not in the public interest.

8 ATTACHMENTS

1 Architectural Plans, Landscape plans, Drainage Plan and Site Survey

2 Arborists Report

Proposed Multi-Dwelling Housing - 7 Townhouses

Lot 6, DP29329
85 MIDGLEY STREET, CORRIMAL
(Also known as 39 Princes Highway, Corrimal)

NOT FOR CONSTRUCTION

DEVELOPMENT APPLICATION

AMENDMENTS

No.	Revision Description	Date	BY:
1	Issued for Coordination	13.02.2020	SG
2	Issued for Cordination	18.03.2020	SG
3	Issued for Development Application	20.05.2020	SG

BASIX Certificate
Building Sustainability Index www.basix.nsw.gov.au

1,000 Litre RW tank Collect 33sqm roof area re-use for Garden, laundry and toilets, 5 star bathroom taps, 5 star shower heads, 4 star toilets 4 star kitchen taps, 5 star hot water gas instantaneous system, Gas Cooktop & electric ovens

NatHERS

Glazing SG Clear & HSGLE, Concrete slab onground, All external wall Insulation R2.5 bulk insulation, R2.5 Insulation to internal garage wall, Colours & materials as per colour schedule. Ceiling insulation R5.0

Drawing List		
Sheet Number	Current Revision	Sheet Name
DA-00	3	COVER SHEET
DA-01	2	PROJECT INFORMATION
DA-02	3	EXISTING AND DEMOLITION PLAN
DA-03	3	SITE PLAN
DA-04	3	SITE ANALYSIS PLAN
DA-05	1	SOIL & SEDIMENT CONTROL PLAN
DA-10	3	LOWER GROUND
DA-11	3	GROUND FLOOR
DA-12	3	FIRST FLOOR
DA-13	3	ROOF PLAN
DA-14	2	0.8 x CEILING HEIGHT SETBACK
DA-20	3	NORTH & WEST ELEVATIONS
DA-21	3	SOUTH & EAST ELEVATIONS
DA-30	3	INTERNAL DRIVEWAY ELEVATIONS
DA-31	3	SECTION C & SECTION D
DA-32	3	SECTION E & SECTION F
DA-40	1	SHADOW DIAGRAMS
DA-41	1	3D/ PERSPECTIVES
DA-42	1	TRAFFIC SWEPT PATH DIAGRAMS

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E: office@prdarchitects.com
PRD ARCHITECTS

SUMMARY OF BASIX COMMITMENTS

REFER TO BASIX CERTIFICATE FOR FULL LIST OF COMMITMENTS FOR MULTI-DWELLING HOUSES

BASIX Certificate (Building Sustainability Index www.basix.nsw.gov.au)	NatHERS
1,000 Litre RW tank Collect 33sqm roof area re-use for Garden, laundry and toilets, 5 star bathroom taps, 5 star shower heads, 4 star toilets 4 star kitchen taps, 5 star hot water gas instantaneous system, Gas Cooktop & electric ovens	Glazing SG Clear & HSGLE, Concrete slab onground, All external wall Insulation R2.5 bulk insulation, R2.5 Insulation to internal garage wall, Colours & materials as per colour schedule. Ceiling insulation R5.0

STORMWATER
REFER TO ATB CONSULTING ENGINEER'S STORMWATER DRAWINGS FOR DETAILS AND SPECIFICATIONS

LANDSCAPING
REFER TO SITE DESIGN STUDIO LANDSCAPE ARCHITECT'S DRAWINGS FOR DETAILS AND SPECIFICATIONS

STATEMENT OF ENVIRONMENTAL EFFECTS
DRAWINGS TO BE READ IN CONJUCTION WITH SoEE ASSESSMENT REPORT PREPARED BY E-PLANNING

WASTE MANAGEMENT

REQUIRED BY THE DCP :

WASTE:	120 Litres per week per dwelling;
RECYCLE:	120 Litres per week per dwelling; and
GREEN WASTE:	120 Litres per fortnight per dwelling.

PROVIDED IN THE PROPOSED DEVELOPMENT :
7x 120L WASTE BIN (1 per Unit);
7x 240L RECYCLING BIN (1 per Unit); and
7x 240L GREEN WASTE BIN (1 per Unit).

ALL BINS ARE LOCATED IN THE COMMON BIN STORAGE AREA

ENVIRONMENTAL NOISE IMPACT ASSESSMENT
REFER TO ACOUSTIC REPORT PREPARED BY DAY DESIGN

WINDOW & DOOR GLAZING SCHEDULE

KEY: WINDOW TAG — W.1 / LG.1 — WINDOW NUMBER; LEVEL; UNIT NUMBER

LG = LOWER GROUND LEVEL
G = GROUND FLOOR LEVEL
F = FIRST FLOOR LEVEL

WINDOW/#	LEVEL/UNIT#	HEIGHT	WIDTH	ORIENTATION	COMMENTS
UNIT 1					
W.1	LG.1	1200	1570	N	
W.2	LG.1	1200	1450	W	
W.3	LG.1	2400	3610	N	SLIDING DOOR
W.4	LG.1	1800	850	W	
W.5	LG.1	1800	850	W	
W.1	G.1	1400	1570	N	
W.2	G.1	1400	2100	N	
W.3	G.1	1400	1810	N	
W.4	G.1	2400	840	S	SIDELIGHT TO SOLID ENTRY DOOR
W.5	G.1	1400	850	W	
W.1	F.1	600	1810	N	
W.2	F.1	1200	2100	N	
W.3	F.1	1200	1810	N	
W.4	F.1	600	600	S	
W.5	F.1	1800	600	S	
W.6	F.1	1800	600	S	
W.7	F.1	1400	1810	S	
W.8	F.1	1400	610	W	
UNIT 2					
W.1	LG.2	1200	1570	N	
W.2	LG.2	1200	1450	E	
W.3	LG.2	2400	3610	N	SLIDING DOOR
W.1	G.2	1400	1570	N	
W.2	G.2	1400	2100	N	
W.3	G.2	1400	1810	N	
W.4	G.2	2400	840	S	SIDELIGHT TO SOLID ENTRY DOOR
W.1	F.2	600	1810	N	
W.2	F.2	1000	2100	N	
W.3	F.2	1000	1810	N	
W.4	F.2	600	600	S	
W.5	F.2	1800	600	S	
W.6	F.2	1800	600	S	
W.7	F.2	1400	1810	S	
UNIT 3					
W.1	LG.3	1200	1570	N	
W.2	LG.3	1200	1450	W	
W.3	LG.3	2400	3610	N	SLIDING DOOR
W.1	G.3	1400	1570	N	
W.2	G.3	1400	2100	N	
W.3	G.3	1400	1810	N	
W.4	G.3	2400	840	S	SIDELIGHT TO SOLID ENTRY DOOR
W.1	F.3	600	1810	N	
W.2	F.3	1200	2100	N	
W.3	F.3	1200	1810	N	
W.4	F.3	600	600	S	
W.5	F.3	1800	600	S	
W.6	F.3	1800	600	S	
W.7	F.3	1400	1810	S	
UNIT 4					
W.1	LG.4	1200	1570	N	
W.2	LG.4	1200	1450	E	
W.3	LG.4	2400	3610	N	SLIDING DOOR
W.1	G.4	1400	1570	N	
W.2	G.4	1400	2100	N	
W.3	G.4	1400	1810	N	
W.4	G.4	2400	840	S	SIDELIGHT TO SOLID ENTRY DOOR
W.1	F.4	600	1810	N	
W.2	F.4	1200	2100	N	
W.3	F.4	1200	1810	N	
W.4	F.4	600	600	S	
W.5	F.4	1800	600	S	
W.6	F.4	1800	600	S	
W.7	F.4	1400	1690	S	

WINDOW/#	LEVEL/UNIT#	HEIGHT	WIDTH	ORIENTATION	COMMENTS
UNIT 5					
W.1	LG.5	2400	2100	N	SLIDING DOOR
W.2	LG.5	900	1450	N	
W.3	LG.5	1200	1810	N	
W.4	LG.5	1200	850	E	
W.5	LG.5	2400	3600	N	SLIDING DOOR
W.6	LG.5	1200	2100	E	
W.7	LG.5	1200	850	E	
W.8	LG.5	1200	850	E	
W.1	G.5	1400	2100	N	
W.2	G.5	900	1450	N	
W.3	G.5	1400	1810	N	
W.4	G.5	1400	2100	N	
W.5	G.5	1400	850	E	
W.6	G.5	1400	850	E	
W.7	G.5	1400	850	E	
W.8	G.5	2400	2410	S	SLIDING DOOR
W.9	G.5	2400	1540	E	SLIDING DOOR
W.10	G.5	2400	840	S	SIDELIGHT TO SOLID ENTRY DOOR
UNIT 6					
W.1	G.6	1400	2100	N	
W.2	G.6	2400	840	N	SIDELIGHT TO SOLID ENTRY DOOR
W.3	G.6	1400	850	N	
W.4	G.6	2400	3000	N	SLIDING DOOR
W.5	G.6	1400	850	E	
W.6	G.6	1400	850	E	
W.7	G.6	2400	3000	S	SLIDING DOOR
W.8	G.6	1400	850	E	
W.9	G.6	1000	1450	E	
W.10	G.6	600	850	S	
W.11	G.6	600	850	S	
W.12	G.6	2400	2410	S	SLIDING DOOR
W.13	G.6	600	850	S	
W.1	F.6	1400	2100	N	
W.2	F.6	1400	2100	N	
W.3	F.6	1200	2700	N	
W.4	F.6	1200	2700	E	
W.5	F.6	600	2700	S	
W.6	F.6	1400	1570	S	
W.7	F.6	900	1810	S	
UNIT 7					
W.1	G.7	1400	2410	N	
W.2	G.7	2400	840	W	SIDELIGHT TO SOLID ENTRY DOOR
W.3	G.7	1400	850	N	
W.4	G.7	1400	850	N	
W.5	G.7	1400	850	N	
W.6	G.7	2400	2980	W	SLIDING DOOR
W.7	G.7	1400	850	W	
W.8	G.7	2400	2410	S	SLIDING DOOR
W.9	G.7	2400	2030	S	SLIDING DOOR
W.10	G.7	600	850	S	
W.11	G.7	600	850	S	
W.1	F.7	1400	2100	N	
W.2	F.7	1400	2100	N	
W.3	F.7	1400	2700	N	
W.4	F.7	1800	600	N	
W.5	F.7	1800	600	N	
W.6	F.7	1200	2100	W	
W.7	F.7	1400	850	W	
W.8	F.7	1400	850	S	
W.9	F.7	600	2700	S	
W.10	F.7	1400	1570	S	
W.11	F.7	900	1810	S	

BASIX/NatHERS
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PROJECT INFORMATION

ZONING	R2
HEIGHT LIMIT	9m
NUMBER OF STOREYS	maximum 2 Storey
BUSHFIRE PRONE LAND	Not Applicable
PARKING	2 x Resident Car Spaces per Townhouse; 3 x Resident Bicycle Spaces (Minimum); 1 x Motorbike Space; 2 x Visitor Car Spaces; and 1 x Visitor Bicycle Space.
LANDSCAPE AREAS	Refer to Landscape Plans

Area Schedule (Site Area)	
Name	Area
SITE AREA (Calc)	3172 m²

PERMISSIBLE FSR 0.5:1
PERMISSIBLE GROSS FLOOR AREA 1586 m²

Area Schedule (GFA)	
Name	Area
Unit 1	155.73 m²
Unit 2	158.33 m²
Unit 3	158.33 m²
Unit 4	157.79 m²
Unit 5	176.26 m²
Unit 6	186.69 m²
Unit 7	197.99 m²

PROPOSED GROSS FLOOR AREA (excludes 36m² of each garage) 1191.13 m²
PROPOSED FSR 0.37:1

Area Unit 1			
Name	Comments	Level	Area
Unit 1		LOWER GROUND	51.78 m²
Unit 1		GROUND FLOOR	63.14 m²
Unit 1		FIRST FLOOR	37.99 m²
Unit 1	Garage >36m2	GROUND FLOOR	2.83 m²
Total (excluding 36m2 of garage)			155.73 m²

Area Unit 2			
Name	Comments	Level	Area
Unit 2		LOWER GROUND	52.84 m²
Unit 2		GROUND FLOOR	64.50 m²
Unit 2		FIRST FLOOR	38.17 m²
Unit 2	Garage >36m2	GROUND FLOOR	2.83 m²
Total (excluding 36m2 of garage)			158.33 m²

Area Unit 3			
Name	Comments	Level	Area
Unit 3		LOWER GROUND	52.84 m²
Unit 3		GROUND FLOOR	64.50 m²
Unit 3		FIRST FLOOR	38.17 m²
Unit 3	Garage >36m2	GROUND FLOOR	2.83 m²
Total (excluding 36m2 of garage)			158.33 m²

Area Unit 4			
Name	Comments	Level	Area
Unit 4		LOWER GROUND	52.48 m²
Unit 4		GROUND FLOOR	64.50 m²
Unit 4		FIRST FLOOR	37.98 m²
Unit 4	Garage >36m2	GROUND FLOOR	2.83 m²
Total (excluding 36m2 of garage)			157.79 m²

Area Unit 5			
Name	Comments	Level	Area
Unit 5		LOWER GROUND	85.52 m²
Unit 5		GROUND FLOOR	87.91 m²
Unit 5	Garage >36m2	GROUND FLOOR	2.83 m²
Total (excluding 36m2 of garage)			176.26 m²

Area Unit 6			
Name	Comments	Level	Area
Unit 6		GROUND FLOOR	89.29 m²
Unit 6		FIRST FLOOR	94.58 m²
Unit 6	Garage >36m2	GROUND FLOOR	2.83 m²
Total (excluding 36m2 of garage)			186.69 m²

Area Unit 7			
Name	Comments	Level	Area
Unit 7		GROUND FLOOR	126.56 m²
Unit 7		FIRST FLOOR	68.61 m²
Unit 7	Garage >36m2	GROUND FLOOR	2.83 m²
Total (excluding 36m2 of garage)			197.99 m²

NOT FOR CONSTRUCTION

DEVELOPMENT APPLICATION

AMENDMENTS

No.	Revision Description	Date	BY:
1	Issued for Cordination	18.03.2020	SG
2	Issued for Development Application	20.05.2020	SG

Proposed Multi-Dwelling Housing - 7 Townhouses

Lot 6, DP29329 PRINCES HWY, CORRIMAL
85 Midgely Street, Corrimal (Also known as 39 Princes Highway, Corrimal)

PROJECT INFORMATION

Barry Becarevic

19-36

DA-01 -2

PRD ARCHITECTS

20/05/2020 11:20:19 AM

LOCATION PLAN
1 : 2000

REMOVE EXISTING TREES IN ACCORDANCE WITH ABORIST REPORT PREPARED BY ALLIED TREES.

PART OF THE SOUTH BULLI COLLIERY SITE

DEMOLISH AND REMOVE EXISTING REDUNDANT CONCRETE DRIVEWAY CROSSING. MAKE GOOD FOOPATH AND KERB TO COUNCIL REQUIREMENTS

DEMOLISH EXISTING BITUMEN AND CONCRETE DRIVEWAY

BOUNDARY

LOT 31
DP 1016012

PART OF THE SOUTH BULLI COLLIERY SITE

DEMOLISH EXISTING SPLIT LEVEL BLOCK, CLAD AND BRICK BUILDING

SPLIT LEVEL BLOCK, CLAD & BRICK BUILDING

LOT 6
DP 29329

BOUNDARY

DEMOLISH EXISTING CONCRETE DRIVEWAY

PART OF EXISTING CONCRETE DRIVEWAY TO BE MODIFIED TO TIE IN WITH NEW DRIVEWAY ON SUBJECT SITE

LOT 10
DP 1015086

1 & 2 STOREY BRICK HOUSE
No. 91 MIDGLEY STREET

RETAIN AND PROTECT EXISTING DRIVEWAY IN RIGHT OF WAY

GARAGE

TWO STOREY BRICK HOUSE
No. 83 MIDGLEY STREET

LOT 5
DP 29329

DEMOLISH EXISTING BITUMEN AND CONCRETE DRIVEWAY

RETAIN AND PROTECT EXISTING TREES IN PRINCES HIGHWAY SETBACK AREA

REMOVE TREES NUMBERED 5, 18-24 IN ACCORDANCE WITH ARBORIST REPORT PREPARED BY ALLIED TREES

PRINCES HIGHWAY

BOUNDARY

LOT 11
DP 1015086

EXISTING DRIVEWAY

TWO STOREY BRICK HOUSE
No. 89 MIDGLEY STREET

LOT 4
DP 29329

TWO STOREY BRICK HOUSE
No. 81 MIDGLEY STREET

SINGLE STOREY RENDERED HOUSE
No. 79 MIDGLEY STREET

LOT 12
DP 1015086

LOT 3
DP 29329

TWO STOREY BRICK HOUSE
No. 87 MIDGLEY STREET

LOT 2
DP 29329
No. 77 MIDGLEY STREET

EXISTING DRIVEWAY

BRICK GARAGE
No. 75 MIDGLEY STREET

LOT 1
DP 29329

MIDGLEY STREET

SINGLE STOREY BRICK HOUSE
No. 69 MIDGLEY STREET

SP 68369

TWO STOREY BRICK HOUSE

1 EXISTING & DEMOLITION PLAN
1 : 250

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DEVELOPMENT APPLICATION

AMENDMENTS

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2	Issued for Cordination	18.03.2020	SG
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Proposed Multi-Dwelling Housing - 7 Townhouses

Lot 6, DP29329 PRINCES HWY, CORRIMAL
85 Midgely Street, Corrimal (Also known as 39 Princes Highway, Corrimal)

EXISTING AND DEMOLITION PLAN

Barry Becarevic

19-36

DA-02 -3

Suite 3
73 Market Street
Wollongong NSW 2500
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E: office@prdarchitects.com
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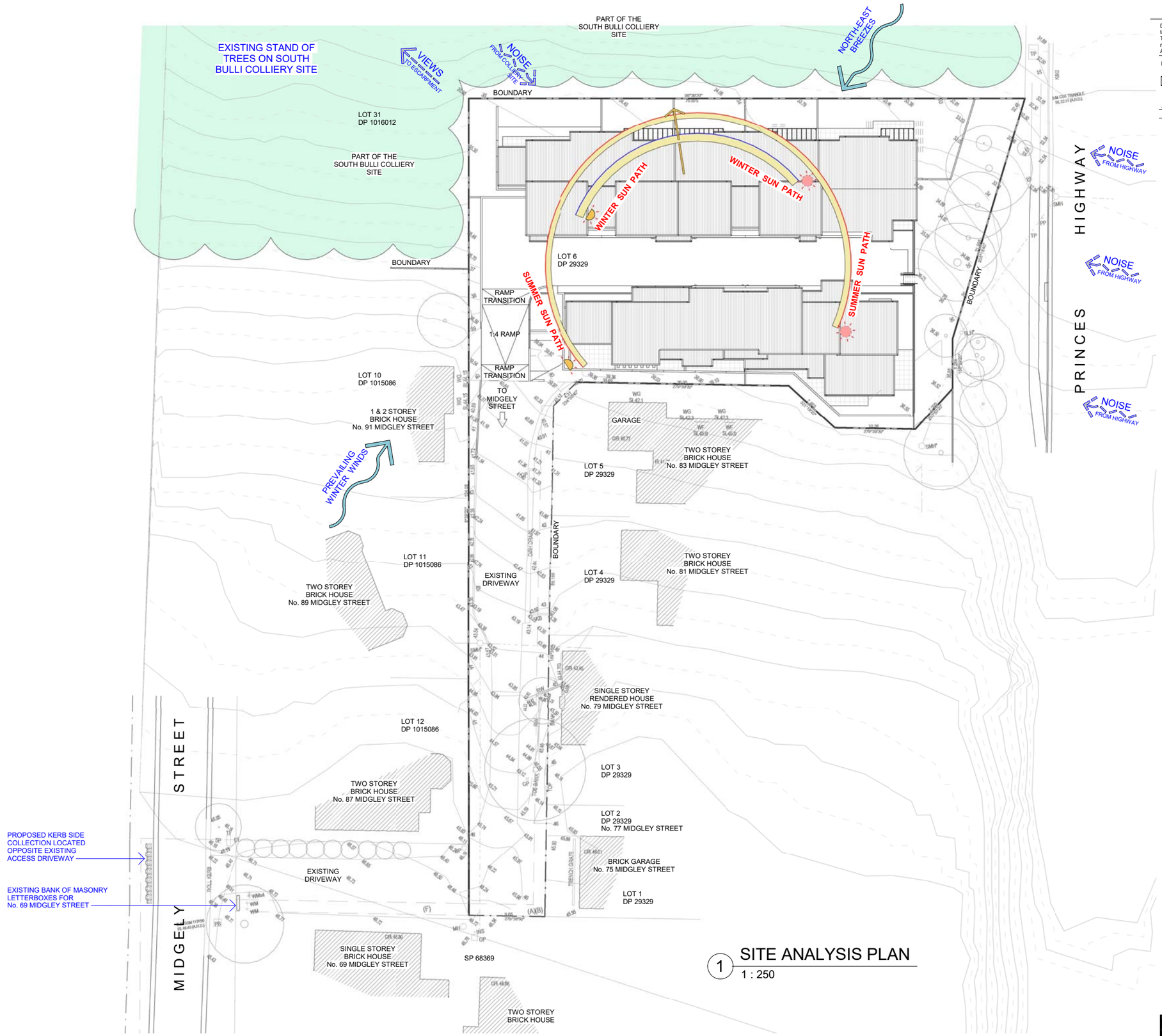

1 SITE ANALYSIS PLAN
1 : 250

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DEVELOPMENT APPLICATION

AMENDMENTS

No.	Revision Description	Date	BY:
1	Issued for Coordination	13.02.2020	SG
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Proposed Multi-Dwelling Housing - 7 Townhouses

Lot 6, DP29329 PRINCES HWY, CORRIMAL
85 Midgely Street, Corrimal (Also known as 39 Princes Highway, Corrimal)

SITE ANALYSIS PLAN

Barry Becarevic

19-36

DA-04 -3

Suite 3
73 Market Street
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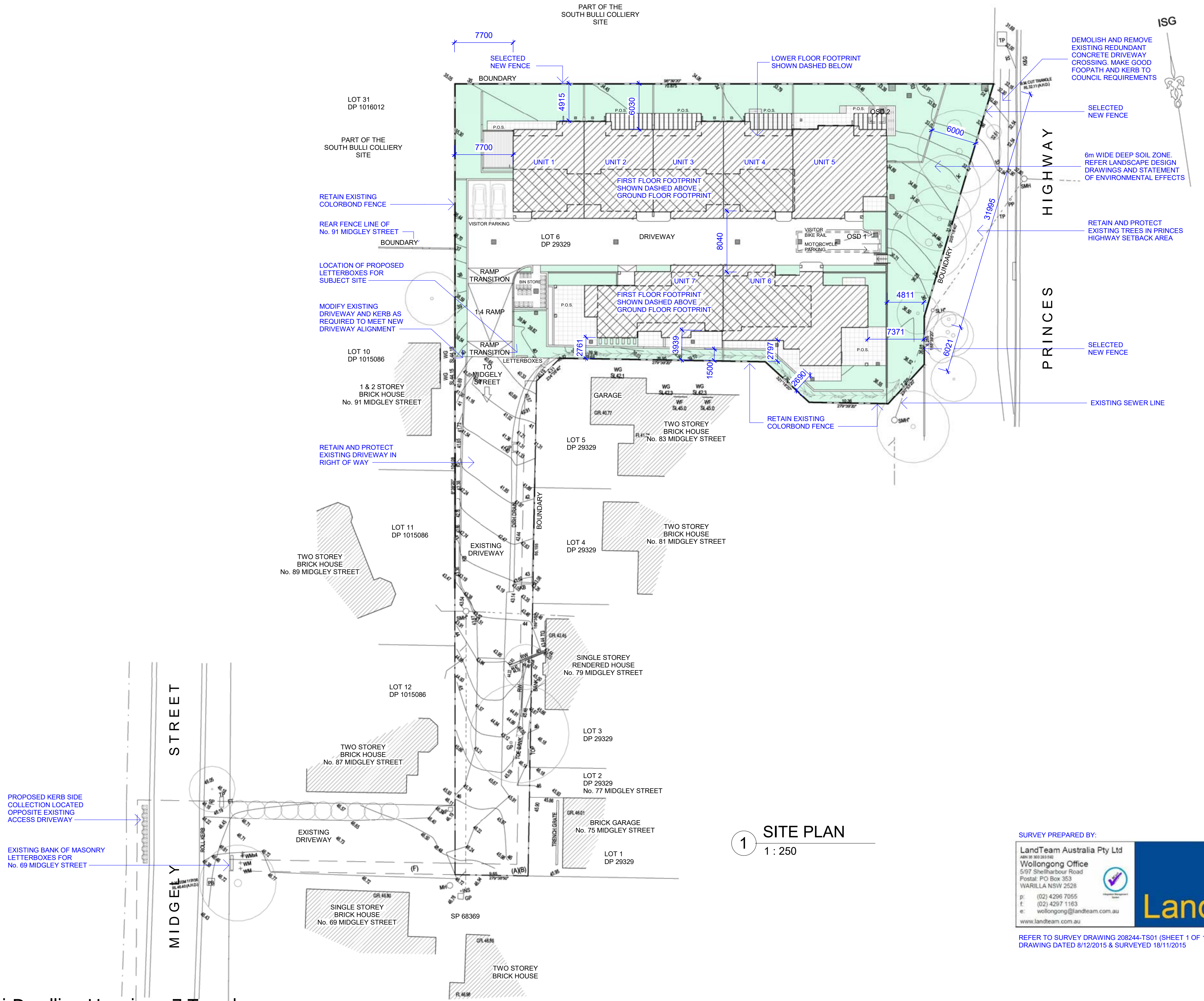

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BASIX Certificate Building Sustainability Index www.basix.nsw.gov.au	NatHERS
1,000 Litre RW tank Collect 33sqm roof area re-use for Garden, laundry and toilets, 5 star bathroom taps, 5 star shower heads, 4 star toilets 4 star kitchen taps, 5 star hot water gas instantaneous system, Gas Cooktop & electric ovens	Glazing SG Clear & HSGLE, Concrete slab onground, All external wall Insulation R2.5 bulk insulation, R2.5 Insulation to internal garage wall, Colours & materials as per colour schedule. Ceiling insulation R5.0
ABSA Accreditation Period 01/04/2020-31/03/2021 Assessor Name Barry Cotton Assessor Number 20470	DIYP6GTQLY 25 May 2020 5.8 NATIONWIDE HOUSE 53.5 MJ/m² Assessor Barry Cotten Accreditation No. 20470 Address 7, No 85 Midgely Street Corrimal NSW 2518 https://www.fr5.com.au/QRCodeLanding?PublicId=DIYP6GTQLY

1 SITE PLAN
1 : 250

SURVEY PREPARED BY:

LandTeam Australia Pty Ltd
Wollongong Office
5/97 Shellharbour Road
Postal: PO Box 353
WARILLA NSW 2528
p: (02) 4296 7055
f: (02) 4297 1163
e: wollongong@landteam.com.au
www.landteam.com.au

REFER TO SURVEY DRAWING 208244-TS01 (SHEET 1 OF 1) REV.A DRAWING DATED 8/12/2015 & SURVEYED 18/11/2015

20/05/2020 11:20:29 AM

Proposed Multi-Dwelling Housing - 7 Townhouses

Lot 6, DP29329 PRINCES HWY, CORRIMAL
85 Midgely Street, Corrimal (Also known as 39 Princes Highway, Corrimal)

SITE PLAN

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DEVELOPMENT APPLICATION

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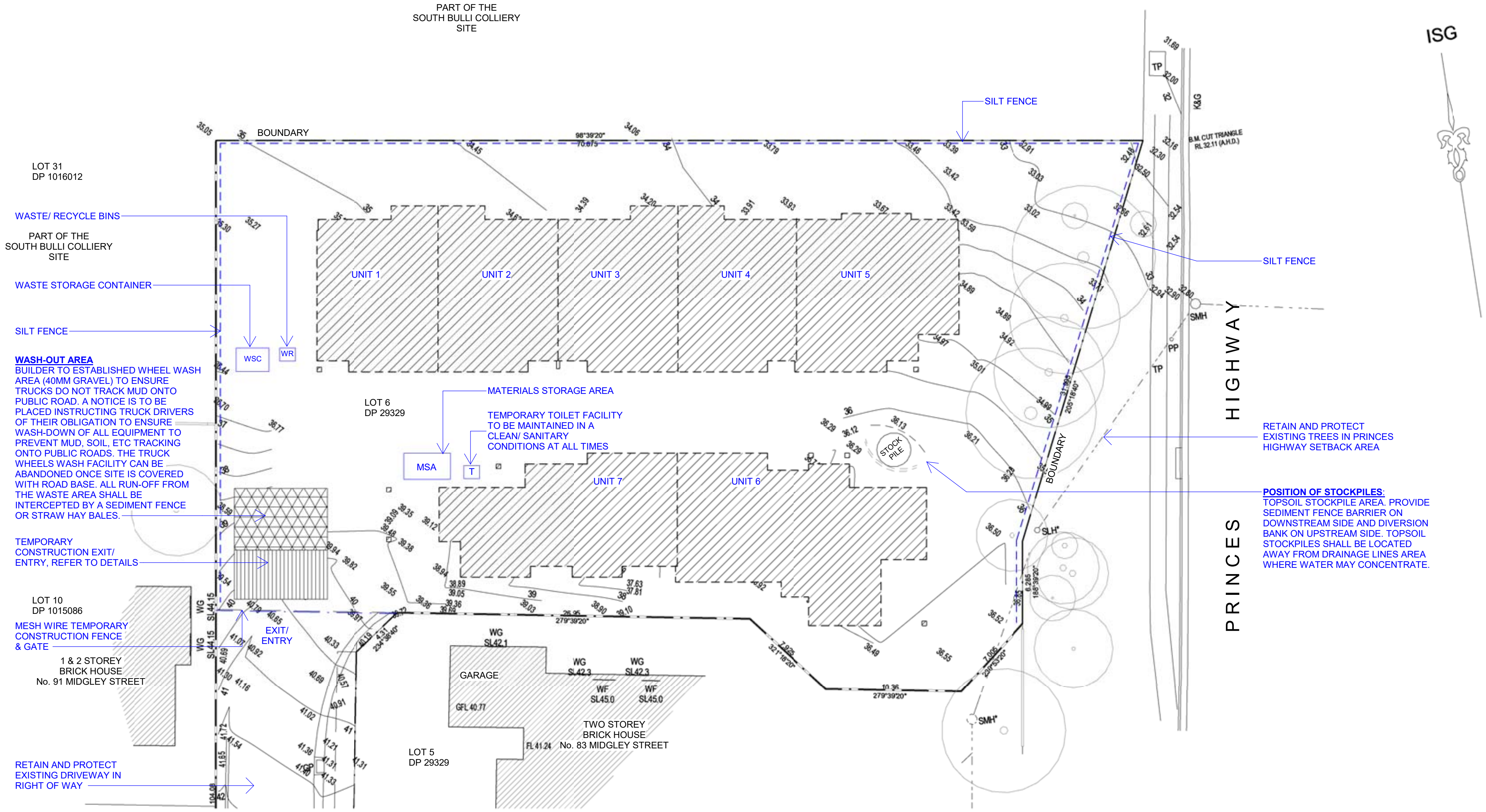
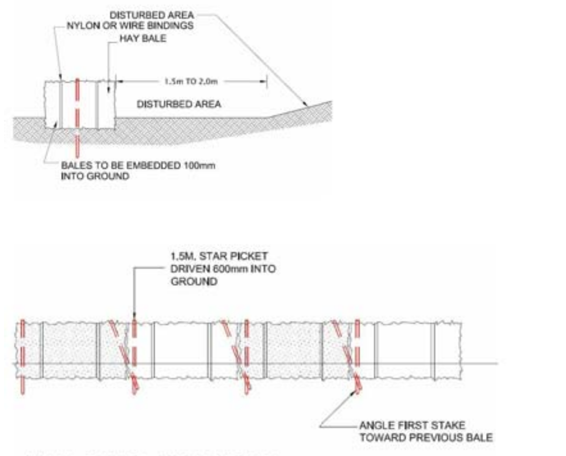


1 SOIL & SEDIMENT CONTROL PLAN

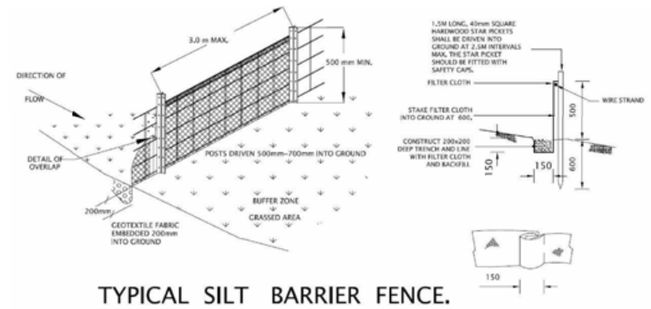
1 : 200



HAY BALE ELEVATION

(NOT TO SCALE)

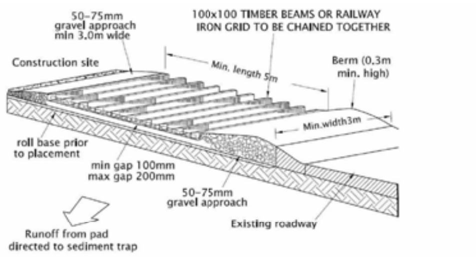
1. CONSTRUCT STRAW BALE FILTER AS CLOSE AS POSSIBLE TO PARALLEL TO THE CONTOURS OF THE SITE OR AT THE TOE OF THE SLOPE.
2. PLACE BALES LENGTH WISE IN A ROW WITH ENDS TIGHTLY ABUTTING. USE LOOSE STRAW TO FILL ANY GAPS BETWEEN BALES. STRAWS TO BE PLACED PARALLEL TO GROUND.
3. ENSURE THAT THE MAXIMUM HEIGHT OF FILTER IS ONE BALE.
4. EMBED EACH BALE IN THE GROUND 75mm TO 100mm AND ANCHOR WITH 2 1.2 METER STAR PICKETS OR STAKES. ANGLE THE FIRST STAKE IN EACH BALE TOWARDS THE PREVIOUSLY LAID BALE. DRIVE STAKES 600mm INTO THE GROUND AND FLUSH WITH THE TOP OF THE BALES.
5. WHERE A STRAW BALE FILTER IS CONSTRUCTED DOWN SLOPE FROM A DISTURBED BATTER THE BALES SHOULD BE LOCATED 1.5 - 2.0 METERS DOWN SLOPE FROM THE TOE OF THE BATTER.
6. ESTABLISH A MAINTENANCE PROGRAM THAT ENSURES THE INTEGRITY OF THE BALES IS RETAINED- THEY COULD REQUIRE REPLACEMENT EACH TWO OR FOUR MONTHS



TYPICAL SILT BARRIER FENCE.

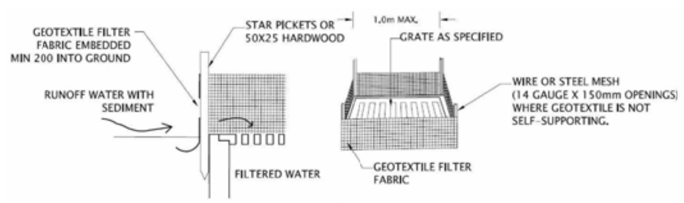
(NOT TO SCALE)

1.CONSTRUCT SEDIMENT FENCES AS CLOSE AS POSSIBLE TO BEING PARALLEL TO THE CONTOURS OF THE SITE BUT WITH SMALL RETURNS AS SHOWN IN THE DRAWING TO LIMIT THE CATCHMENT AREA OF ANY ONE SECTION.
2. CUT A 150mm DEEP TRENCH ALONG UPSLOPE LINE IN THE FENCE FOR THE BOTTOM OF THE FABRIC TO BE ENTRENCHED.
3. 1.5M LONG, 40mm SQUARE HARDWOOD STAR PICKETS SHALL BE DRIVEN INTO GROUND AT 2.5M INTERVALS MAX. THE STAR PICKET SHOULD BE FITTED WITH SAFETY CAPS.
4. FIX SELF-SUPPORTING GEOTEXTILE TO THE UPSLOPE SIDE OF THE POST ENSURING IT GOES TO THE BAE OF THE TRENCH. FIX THE GEOTEXTILE WITH WIRE TIES OR AS RECOMMENDED BY THE MANUFACTURER. ONLY USE GEOTEXTILE SPECIFICALLY PRODUCED FOR SEDIMENT FENCING. THE USE OF SHADE CLOTH FOR THIS PURPOSE IS NOT SATISFACTORY.
5. JOIN SECTION OF FABRIC AT A SUPPORT POST WITH A 150mm OVERLAP.
6. BACKFILL THE TRENCH OVER THE BASE OF THE FABRIC AND COMPACT IT THOROUGHLY OVER THE GEOTEXTILE.



TEMPORARY CONSTRUCTION ENTRY/EXIT

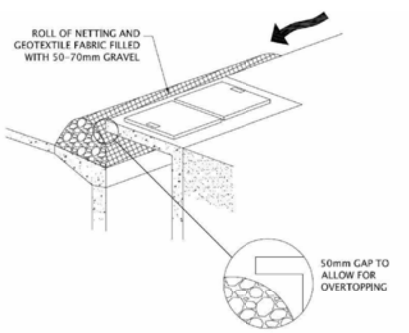
(NOT TO SCALE)



GEOTEXTILE INLET FILTER

(NOT TO SCALE)

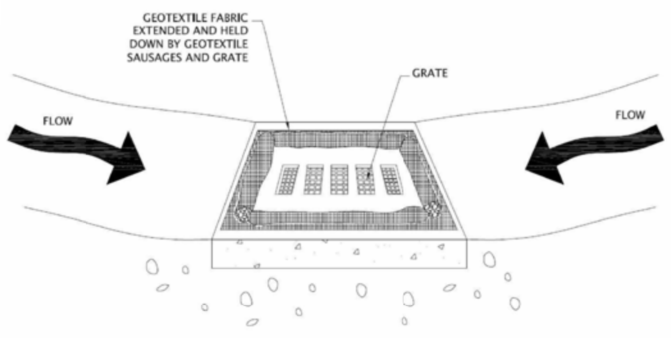
1. FABRICATE A SEDIMENT BARRIER MADE FROM GEOTEXTILE OR STRAW BALES.
2. FOLLOW PROCEDURE FOR INSTALLATION PROCEDURES FOR THE STRAW BALES OR GEOFABRIC. REDUCE THE PICKET SPACING TO 1.0m CENTRES.
3. IN WATERWAY, ARTIFICIAL SAG POINTS CAN BE CREATED WITH SANDBAGS OR EARTH BANKS AS SHOWN IN THE DRAWINGS.
4. DO NOT COVER THE INLET WITH GEOTEXTILE UNLESS THE DESIGN IS ADEQUATE TO ALLOW FOR ALL WATER TO BYPASS IT.



SEDIMENT PROTECTION ON EXISTING STREET PIT-TYPICAL

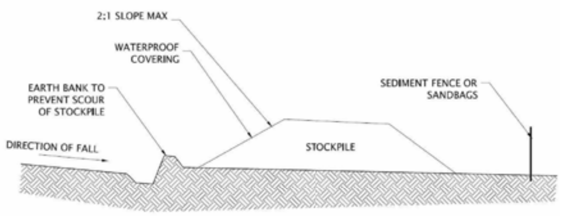
(NOT TO SCALE)

1. ALL SEDIMENT DAMS AND TRAPS SHALL BE CLEANED WHEN THE STRUCTURES ARE A MAXIMUM OF 60 % FULL OF SOIL & DEBRIS
2. FILTER SHALL BE CONSTRUCTED BY REMOVING & WRAPPING GRATE IN FILTER FABRIC (PROPEX OR APPROVED EQUIVALENT) WITH MINIMUM 75mm FREE FABRIC OUTSIDE ALL EDGES OF GRATE WHEN IT IS REINSTALLED



STORMWATER INLET SEDIMENT CONTROL

(NOT TO SCALE)



BUILDING MATERIAL STOCKPILE DETAILS

(NOT TO SCALE)

CONSTRUCTION NOTES

1. PLACE STOCKPILES MORE THAN 2 (PREFERABLY 5) METERS FROM EXISTING VEGETATION, CONCENTRATED WATER FLOW ROADS AND HAZARD AREAS
2. CONSTRUCT ON THE CONTOUR AS LOW, FLAT, ELONGATED MOUNDS
3. WHERE THERE IS SUFFICIENT AREA, TOPSOIL STOCKPILES SHALL BE LESS THAN 2 METERS IN HEIGHT.
4. WHERE ARE TO BE PLACED FOR MORE THAN 10 DAYS, STABILIZE THE APPROVED ESCP OR SWMP TO REDUCE THE C-FACTOR TO LESS THAN 0.10.
5. CONSTRUCT EARTH BANKS ON THE UPSLOE SIDE TO DIVERT WATER AROUND STOCKPILES AND SEDIMENT FENCES 1 TO 2M DOWNSLOPE.

20/05/2020 11:20:38 AM

Proposed Multi-Dwelling Housing - 7 Townhouses

Lot 6, DP29329 PRINCES HWY, CORRIMAL
85 Midgely Street, Corrimal (Also known as 39 Princes Highway, Corrimal)

SOIL & SEDIMENT CONTROL PLAN

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19-36

DA-05 -1

PRD ARCHITECTS

FLOOR FINISHES NOTE:

GARAGE AREAS	- STEEL TROWELLED CONCRETE
LIVING / DINING / LOUNGE AREAS	- TIMBER FLOORING
ENTRY / STAIR / STUDY AREAS	- TIMBER FLOORING
KITCHEN / LAUNDRY AREAS	- TILED FLOOR
BATHROOM / ENSUITE / WC AREAS	- TILED FLOOR
BEDROOM AREAS	- CARPET

STORMWATER
REFER TO ATB CONSULTING ENGINEER'S STORMWATER DRAWINGS FOR DETAILS AND SPECIFICATIONS

LANDSCAPING
REFER TO SITE DESIGN STUDIO LANDSCAPE ARCHITECT'S DRAWINGS FOR DETAILS AND SPECIFICATIONS

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DEVELOPMENT APPLICATION

AMENDMENTS

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1	Issued for Coordination	13.02.2020	SG
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Proposed Multi-Dwelling Housing - 7 Townhouses

Lot 6, DP29329 PRINCES HWY, CORRIMAL
85 Midgely Street, Corrimal (Also known as 39 Princes Highway, Corrimal)

FIRST FLOOR

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19-36

DA-12 -3

Suite 3, 71 Market Street, Wollongong NSW 2500
PRD ARCHITECTS

FLOOR FINISHES NOTE:

GARAGE AREAS	- STEEL TROWELLED CONCRETE
LIVING / DINING / LOUNGE AREAS	- TIMBER FLOORING
ENTRY / STAIR / STUDY AREAS	- TIMBER FLOORING
KITCHEN / LAUNDRY AREAS	- TILED FLOOR
BATHROOM / ENSUITE / WC AREAS	- TILED FLOOR
BEDROOM AREAS	- CARPET

STORMWATER
REFER TO ATB CONSULTING ENGINEER'S STORMWATER DRAWINGS FOR DETAILS AND SPECIFICATIONS

LANDSCAPING
REFER TO SITE DESIGN STUDIO LANDSCAPE ARCHITECT'S DRAWINGS FOR DETAILS AND SPECIFICATIONS

COMPOST REQUIREMENTS
REFER TO LANDSCAPE ARCHITECT'S DRAWINGS FOR LOCATIONS OF INDIVIDUAL COMPOST CONTAINERS

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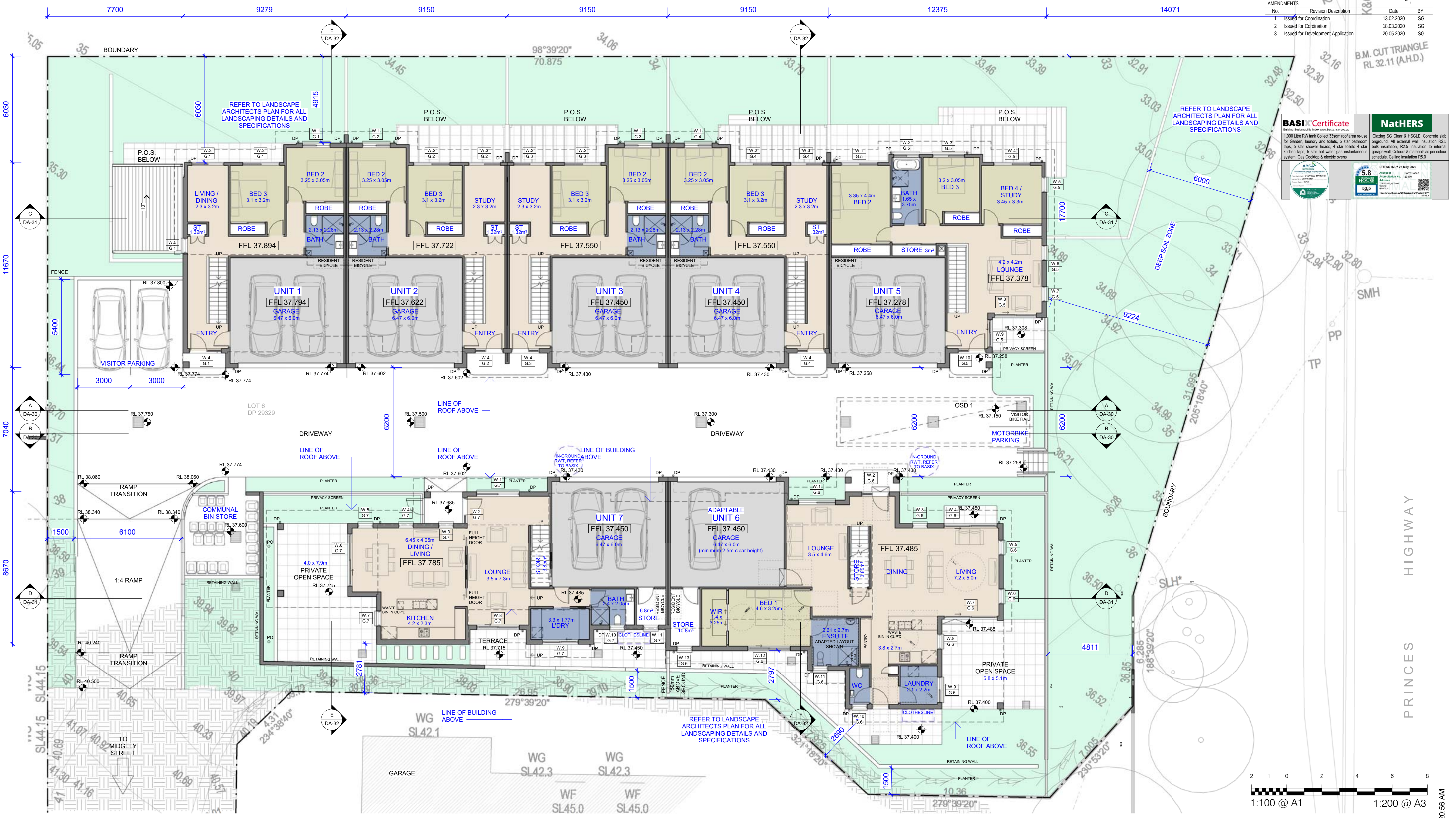


20/05/2020 11:20:56 AM

Proposed Multi-Dwelling Housing - 7 Townhouses

Lot 6, DP29329 PRINCES HWY, CORRIMAL
85 Midgely Street, Corrimal (Also known as 39 Princes Highway, Corrimal)

GROUND FLOOR

Barry Becarevic

19-36

DA-11 -3

PRD ARCHITECTS

FLOOR FINISHES NOTE:

GARAGE AREAS	- STEEL TROWELLED CONCRETE
LIVING / DINING / LOUNGE AREAS	- TIMBER FLOORING
ENTRY / STAIR / STUDY AREAS	- TIMBER FLOORING
KITCHEN / LAUNDRY AREAS	- TILED FLOOR
BATHROOM / ENSUITE / WC AREAS	- TILED FLOOR
BEDROOM AREAS	- CARPET

STORMWATER
REFER TO ATB CONSULTING ENGINEER'S STORMWATER DRAWINGS FOR DETAILS AND SPECIFICATIONS

LANDSCAPING
REFER TO SITE DESIGN STUDIO LANDSCAPE ARCHITECT'S DRAWINGS FOR DETAILS AND SPECIFICATIONS

COMPOST REQUIREMENTS
REFER TO LANDSCAPE ARCHITECT'S DRAWINGS FOR LOCATIONS OF INDIVIDUAL COMPOST CONTAINERS

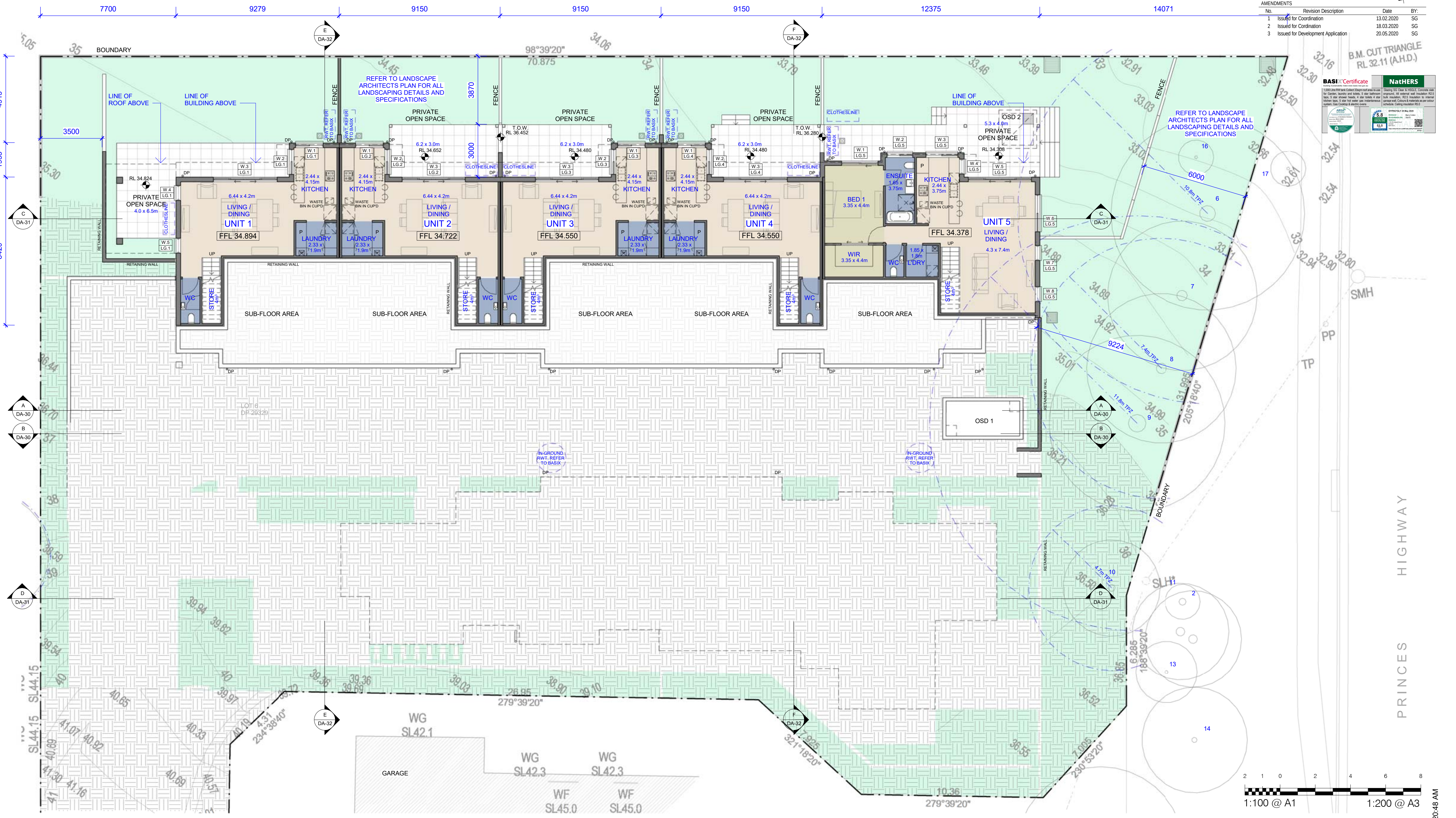
BASIX/NatHERS
THIS DRAWING TO BE READ IN CONJUCTION WITH BASIX/NatHERS REPORT PREPARED BY ePLANNING

NOT FOR CONSTRUCTION

DEVELOPMENT APPLICATION

AMENDMENTS

No.	Revision Description	Date	BY:
1	Issued for Coordination	13.02.2020	SG
2	Issued for Cordination	18.03.2020	SG
3	Issued for Development Application	20.05.2020	SG



1:100 @ A1
1:200 @ A3

Proposed Multi-Dwelling Housing - 7 Townhouses

Lot 6, DP29329 PRINCES HWY, CORRIMAL
85 Midgely Street, Corrimal (Also known as 39 Princes Highway, Corrimal)

LOWER GROUND

Barry Becarevic

19-36

DA-10 -3

PRD ARCHITECTS
Suite 3, 73 Market Street, Wollongong NSW 2500
P: 4226 3699 F: 4229 1145
E: office@prdarchitects.com

20/05/2020 11:20:48 AM

STORMWATER
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LANDSCAPING
REFER TO SITE DESIGN STUDIO LANDSCAPE ARCHITECT'S DRAWINGS FOR DETAILS AND SPECIFICATIONS

BASIX/NatHERS
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BASIX Certificate
Building Sustainability Index www.basix.nsw.gov.au

1,000 Litre RW tank Collect 33sqm roof area re-use for Garden, laundry and toilets, 5 star bathroom taps, 5 star shower heads, 4 star toilets 4 star kitchen taps, 5 star hot water gas instantaneous system, Gas Cooktop & electric ovens

NatHERS

Glazing SG Clear & HSGLE, Concrete slab onground, All external wall Insulation R2.5 bulk insulation, R2.5 Insulation to internal garage wall, Colours & materials as per colour schedule. Ceiling insulation R5.0

DVYPGTQLY 25 May 2020
Assessor Accreditation No. 20470
5.8 Stars HOUSE 53.5 MJ/m²

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DEVELOPMENT APPLICATION

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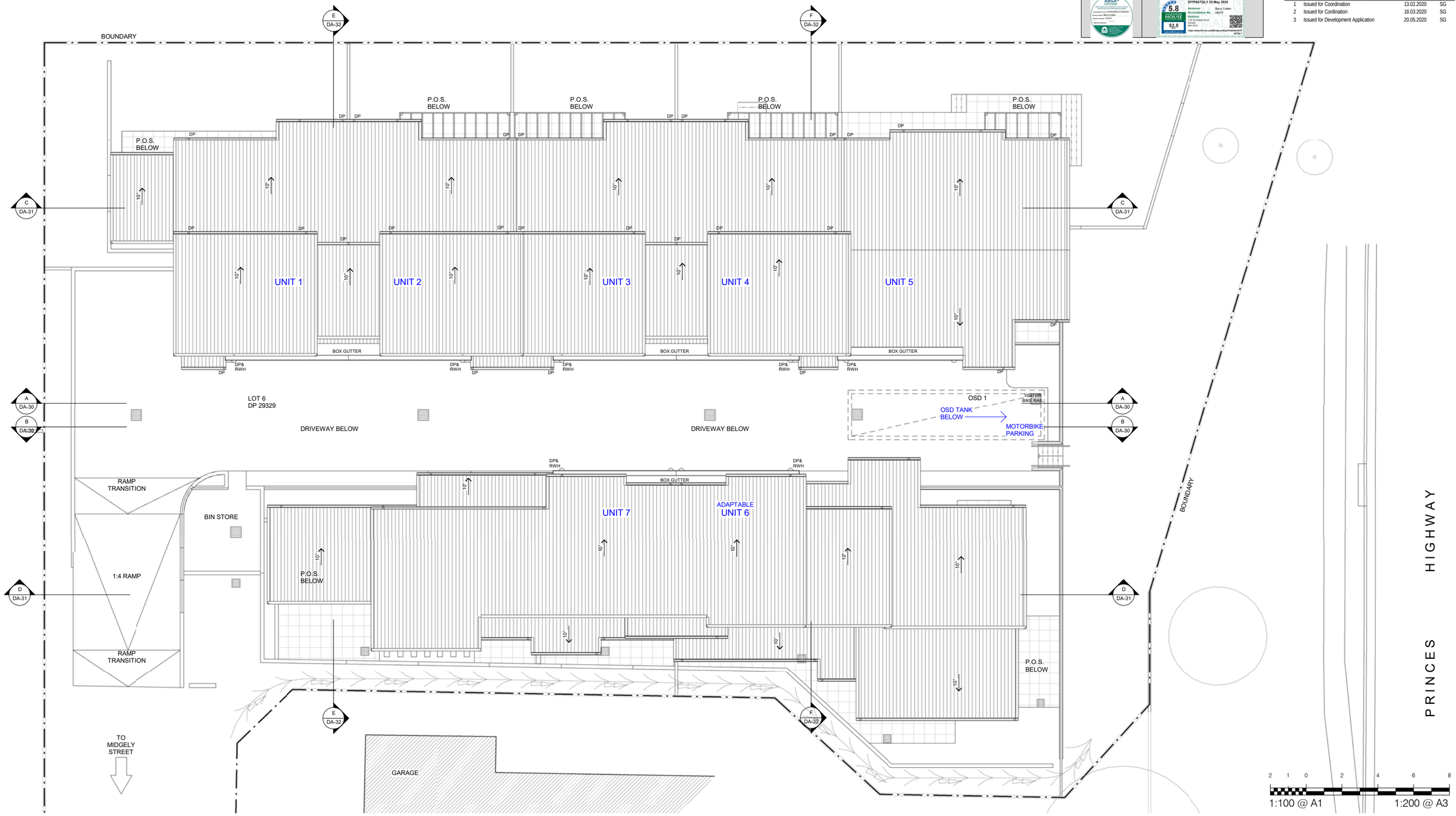

Proposed Multi-Dwelling Housing - 7 Townhouses

Lot 6, DP29329 PRINCES HWY, CORRIMAL
85 Midgely Street, Corrimal (Also known as 39 Princes Highway, Corrimal)

ROOF PLAN

Barry Becarevic

19-36

DA-13 -3

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Wollongong NSW 2500
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DEVELOPMENT APPLICATION

AMENDMENTS

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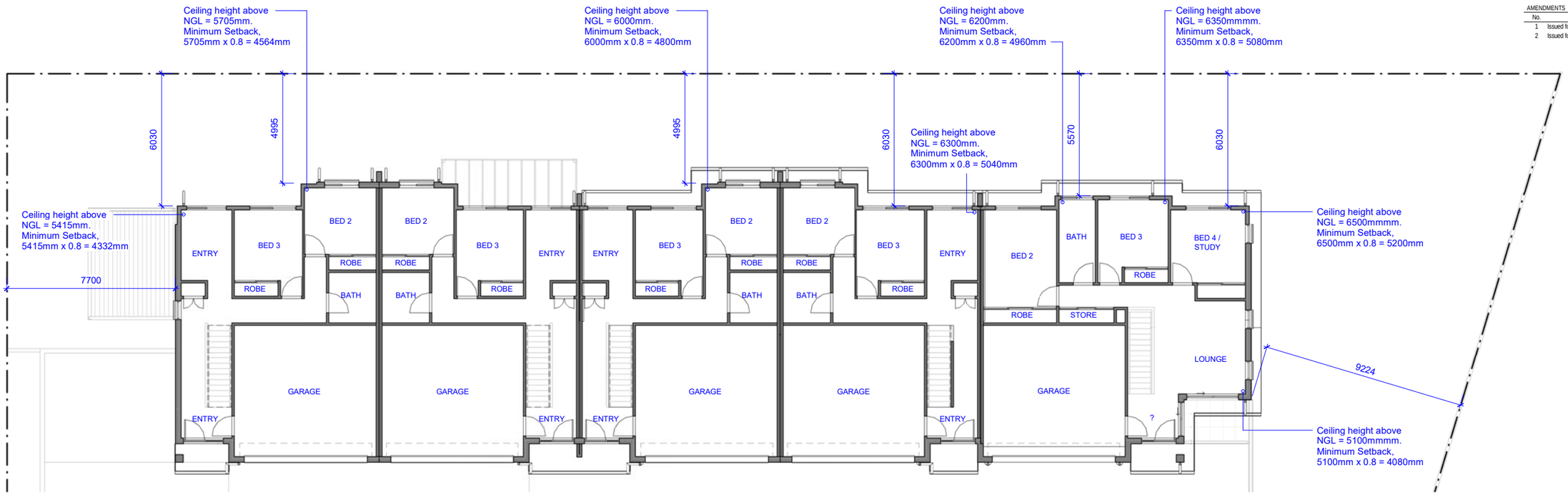
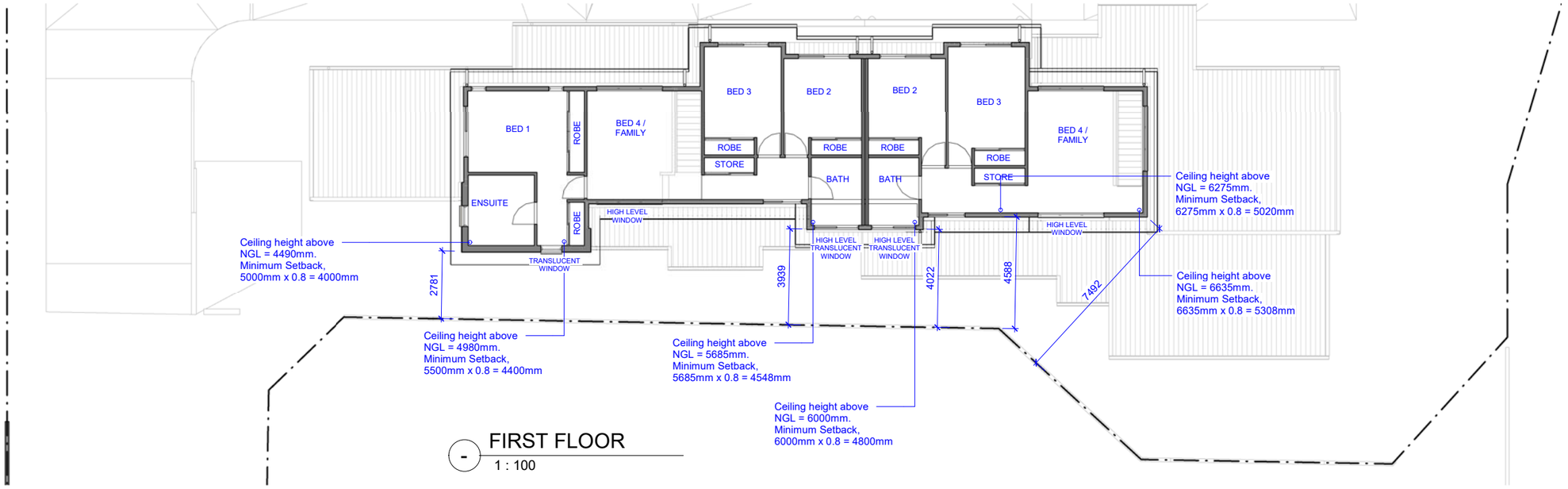


-- GROUND FLOOR
1 : 100



- FIRST FLOOR
1 : 100

2 1 0 2 4 6 8

1:100 @ A1 1:200 @ A3

Proposed Multi-Dwelling Housing - 7 Townhouses

Lot 6, DP29329 PRINCES HWY, CORRIMAL
85 Midgely Street, Corrimal (Also known as 39 Princes Highway, Corrimal)

0.8 x CEILING HEIGHT SETBACK

Barry Becarevic

19-36

DA-14 -2

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Wollongong NSW 2500
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20/05/2020 11:21:13 AM

STORMWATER
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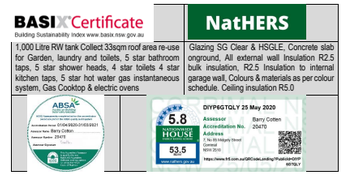
LANDSCAPING
REFER TO SITE DESIGN STUDIO LANDSCAPE ARCHITECT'S DRAWINGS FOR DETAILS AND SPECIFICATIONS

BASIX/NatHERS
THIS DRAWING TO BE READ IN CONJUCTION WITH BASIX/NatHERS REPORT PREPARED BY ePLANNING



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DEVELOPMENT APPLICATION

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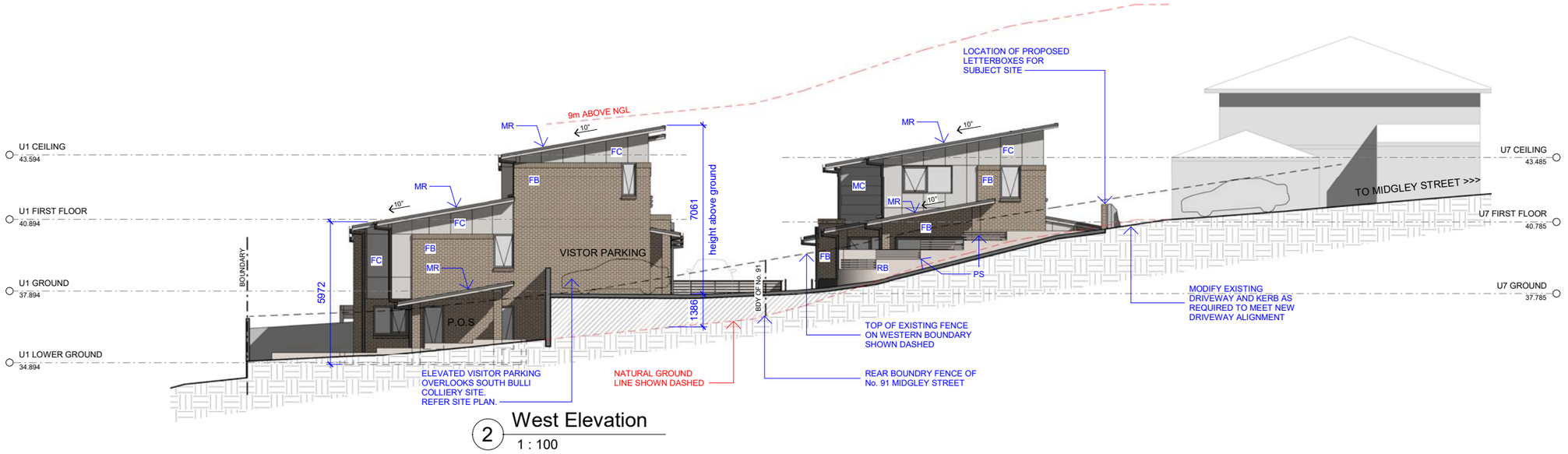
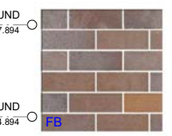
1 North Elevation
1 : 100



2 West Elevation
1 : 100

FINISHES SCHEDULE:

FIBRECEMENT PANEL CLADDING - SYCON MATRIX CLADDING; AND RENDERED BRICKWORK. PAINT FINISH
COLOUR: DULUX "SURFMIST"



FACEBRICK - AUSTRAL BOWRAL RANGE.
COLOUR: "GERTRUDIS BROWN"

HORIZONTAL METAL PANEL FEATURE CLADDING
LYSAGHT DOMINION™. COLOUR: "BASALT MATT"

SECTIONAL GARAGE DOOR
COLORBOND "SURFMIST"

ALUMINIUM BATTEN PRIVACY SCREENS. "SPOTTED GUM" TIMBER LOOK, OR SIMILAR

ROOF SHEETING, GUTTERS, DOWNPIPES & FLASHINGS.
COLOUR: "BASALT MATT"

FASCIAS
LYSAGHT COLORBOND
COLOUR: "SURFMIST"

ALUMINIUM FRAMED AND GLAZED WINDOWS AND DOORS. COLOUR: "BASALT"

LAP & CAP FENCING WITH GALV. STEEL POSTS AND 'Z' BRACKETS

2 1 0 2 4 6 8

1:100 @ A1 1:200 @ A3

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PRD ARCHITECTS

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Proposed Multi-Dwelling Housing - 7 Townhouses

Lot 6, DP29329 PRINCES HWY, CORRIMAL
85 Midgely Street, Corrimal (Also known as 39 Princes Highway, Corrimal)

NORTH & WEST ELEVATIONS

Barry Becarevic

19-36

DA-20 -3

STORMWATER
REFER TO ATB CONSULTING ENGINEER'S STORMWATER DRAWINGS FOR DETAILS AND SPECIFICATIONS

LANDSCAPING
REFER TO SITE DESIGN STUDIO LANDSCAPE ARCHITECT'S DRAWINGS FOR DETAILS AND SPECIFICATIONS

BASIX/NatHERS
THIS DRAWING TO BE READ IN CONJUCTION WITH BASIX/NatHERS REPORT PREPARED BY ePLANNING

BASIX Certificate
Building Sustainability Index www.basix.nsw.gov.au

1,000 Litre RW tank Collect 33sqm roof area re-use for Garden, laundry and toilets, 5 star bathroom taps, 5 star shower heads, 4 star toilets 4 star kitchen taps, 5 star hot water gas instantaneous system, Gas Cooktop & electric ovens

NatHERS

Glazing SG Clear & HSGLE, Concrete slab onground, All external wall Insulation R2.5 bulk insulation, R2.5 Insulation to internal garage wall, Colours & materials as per colour schedule. Ceiling insulation R5.0

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DEVELOPMENT APPLICATION

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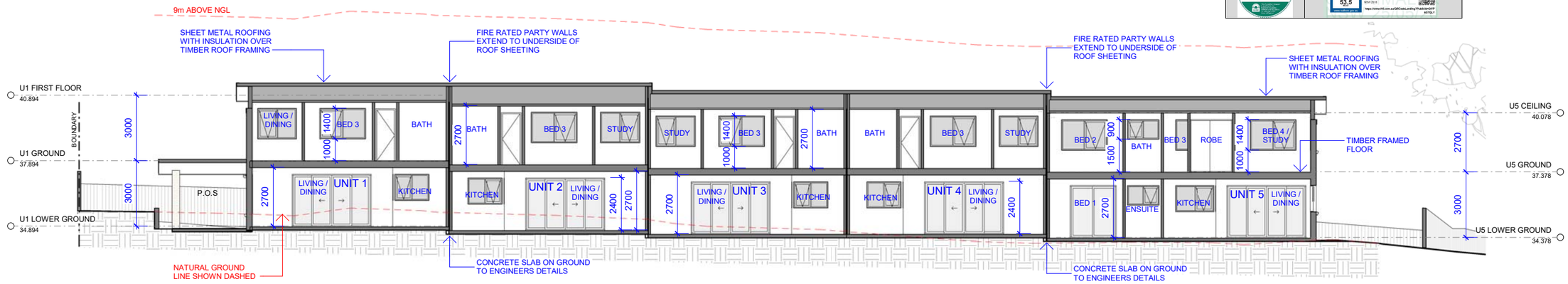
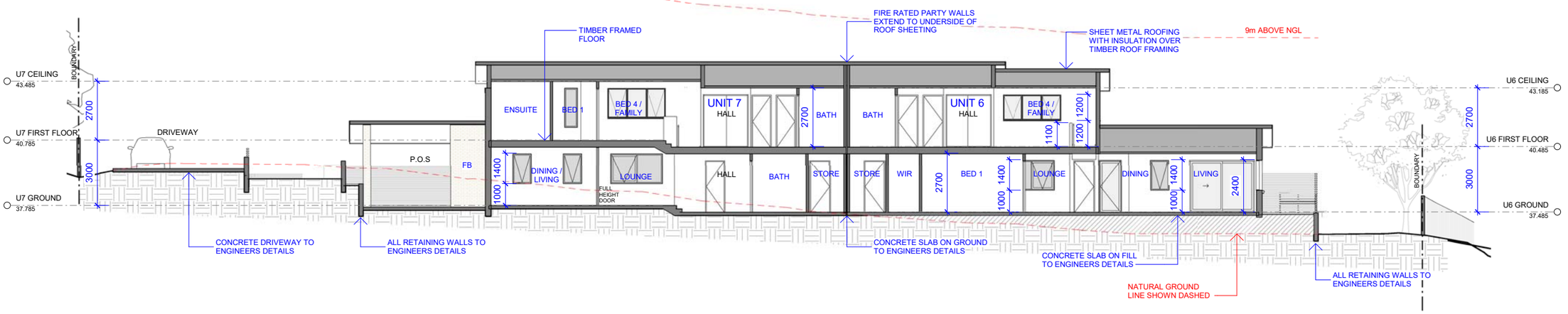


C Section C
1 : 100



D Section D
1 : 100

2 1 0 2 4 6 8
1:100 @ A1 1:200 @ A3

Proposed Multi-Dwelling Housing - 7 Townhouses

Lot 6, DP29329 PRINCES HWY, CORRIMAL
85 Midgely Street, Corrimal (Also known as 39 Princes Highway, Corrimal)

SECTION C & SECTION D

Barry Becarevic

19-36

DA-31 -3

Suite 2
73 Market Street
Wollongong NSW 2500
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PRD ARCHITECTS

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STORMWATER
REFER TO ATB CONSULTING ENGINEER'S STORMWATER DRAWINGS FOR DETAILS AND SPECIFICATIONS

LANDSCAPING
REFER TO SITE DESIGN STUDIO LANDSCAPE ARCHITECT'S DRAWINGS FOR DETAILS AND SPECIFICATIONS

BASIX/NatHERS
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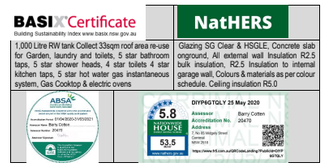

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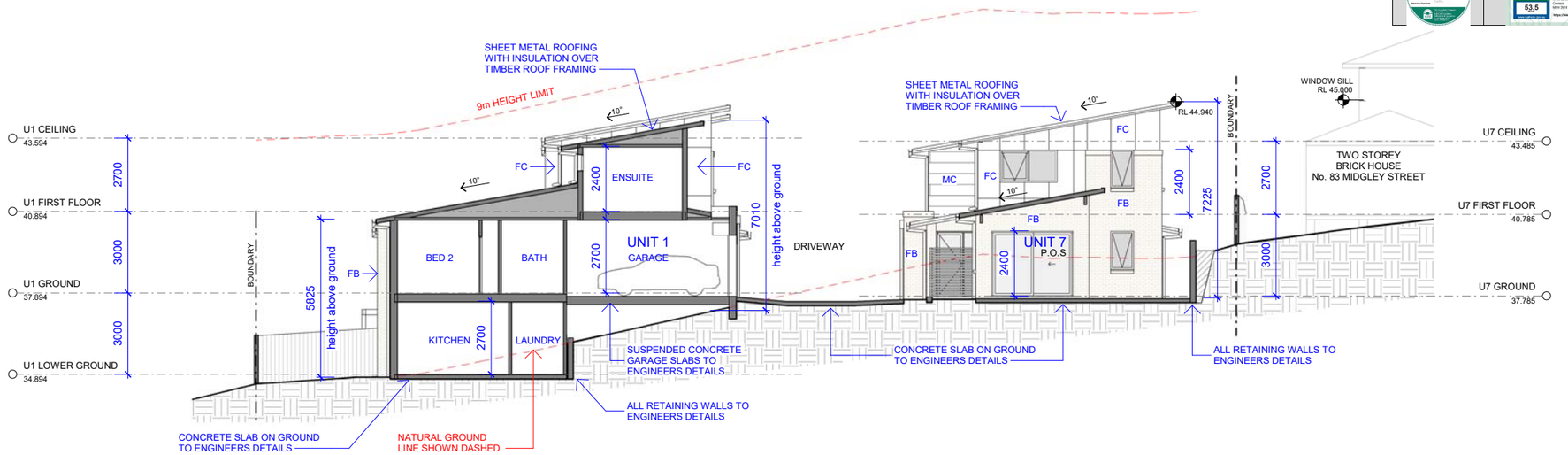
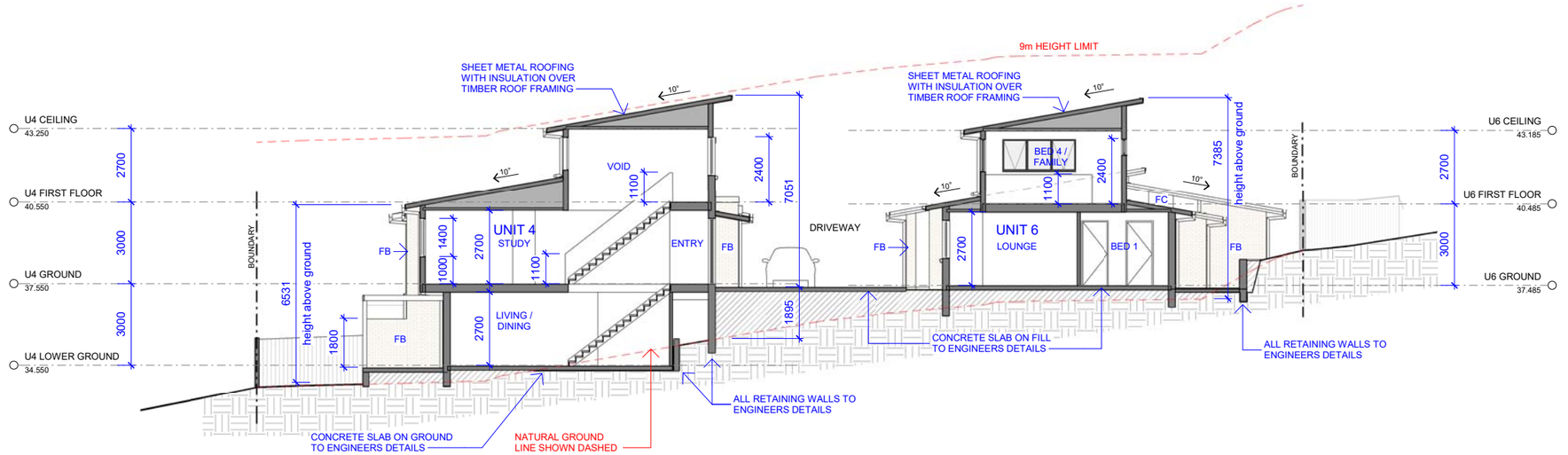


E Section E
1 : 100



F Section F
1 : 100

2 1 0 2 4 6 8
1:100 @ A1 1:200 @ A3

Proposed Multi-Dwelling Housing - 7 Townhouses

Lot 6, DP29329 PRINCES HWY, CORRIMAL
85 Midgely Street, Corrimal (Also known as 39 Princes Highway, Corrimal)

SECTION E & SECTION F

Barry Becarevic

19-36

DA-32 -3

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73 Market Street
Wollongong NSW 2500
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STORMWATER
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LANDSCAPING
REFER TO SITE DESIGN STUDIO LANDSCAPE ARCHITECTS DRAWINGS FOR DETAILS AND SPECIFICATIONS

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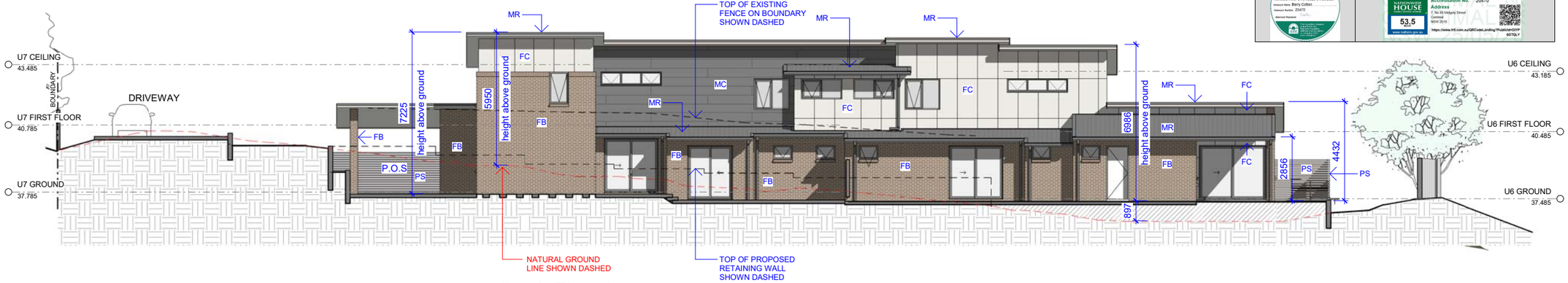

1 South Elevation
1 : 100

5 East Elevation - Princes Highway
1 : 100

BASIX Certificate
Building Sustainability Index www.basix.nsw.gov.au

1,000 Litre RW tank Collect 33sqm roof area re-use for Garden, laundry and toilets, 5 star bathroom taps, 5 star shower heads, 4 star toilets 4 star kitchen taps, 5 star hot water gas instantaneous system, Gas Cooktop & electric ovens

NatHERS

Glazing SG Clear & HSGLE, Concrete slab onground, All external wall Insulation R2.5 bulk insulation, R2.5 Insulation to internal garage wall, Colours & materials as per colour schedule. Ceiling insulation R5.0

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DEVELOPMENT APPLICATION

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FINISHES SCHEDULE:

RB / FC

FIBRECEMENT PANEL CLADDING - SYCON MATRIX CLADDING; AND RENDERED BRICKWORK. PAINT FINISH
COLOUR: DULUX "SURFMIST"

FB

FACEBRICK - AUSTRAL BOWRAL RANGE.
COLOUR: "GERTRUDIS BROWN"

MC

HORIZONTAL METAL PANEL FEATURE CLADDING
LYSAGHT DOMINION™. COLOUR: "BASALT MATT"

GD

SECTIONAL GARAGE DOOR
COLORBOND "SURFMIST"

PS

ALUMINIUM BATTEN PRIVACY SCREENS. "SPOTTED GUM" TIMBER LOOK, OR SIMILAR

MR

ROOF SHEETING, GUTTERS, DOWNPIPES & FLASHINGS.
COLOUR: "BASALT MATT"

FA

FASCIAS
LYSAGHT COLORBOND
COLOUR: "SURFMIST"

WD

ALUMINIUM FRAMED AND GLAZED WINDOWS AND DOORS. COLOUR: "BASALT"

LAP & CAP FENCING WITH GALV. STEEL POSTS AND 'Z' BRACKETS

2 1 0 2 4 6 8
1:100 @ A1 1:200 @ A3

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Proposed Multi-Dwelling Housing - 7 Townhouses

Lot 6, DP29329 PRINCES HWY, CORRIMAL
85 Midgely Street, Corrimal (Also known as 39 Princes Highway, Corrimal)

SOUTH & EAST ELEVATIONS

Barry Becarevic

19-36

DA-21 -3

STORMWATER
REFER TO ATB CONSULTING ENGINEER'S STORMWATER DRAWINGS FOR DETAILS AND SPECIFICATIONS

LANDSCAPING
REFER TO SITE DESIGN STUDIO LANDSCAPE ARCHITECT'S DRAWINGS FOR DETAILS AND SPECIFICATIONS

BASIX/NatHERS
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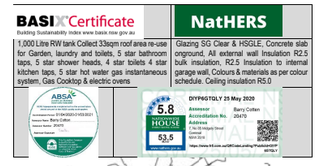
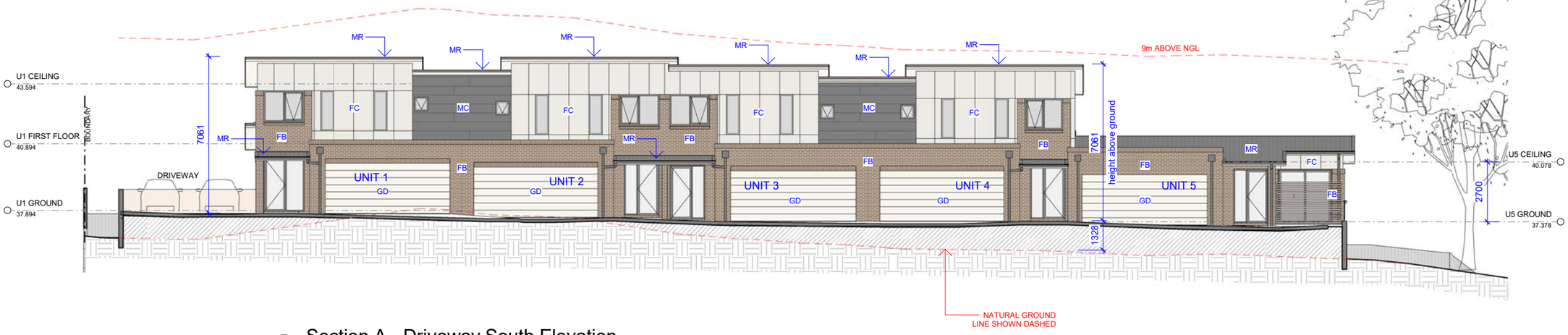
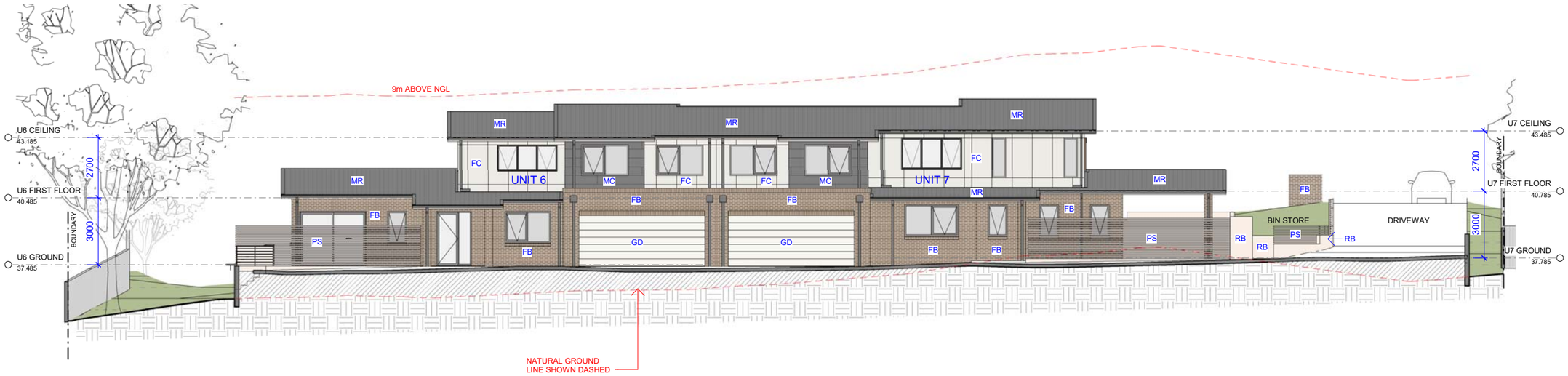




A Section A - Driveway South Elevation
1 : 100



B Section B - Driveway North Elevation
1 : 100

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DEVELOPMENT APPLICATION

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FINISHES SCHEDULE:

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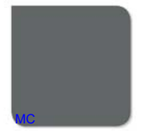
COLOUR: DULUX "SURFMIST"

FACEBRICK - AUSTRAL BOWRAL RANGE.
COLOUR: "GERTRUDIS BROWN"



HORIZONTAL METAL PANEL FEATURE CLADDING
LYSAGHT DOMINION™. COLOUR: "BASALT MATT"

SECTIONAL GARAGE DOOR
COLORBOND "SURFMIST"

ALUMINIUM BATTEN PRIVACY SCREENS. "SPOTTED GUM" TIMBER LOOK, OR SIMILAR

ROOF SHEETING, GUTTERS, DOWNPIPES & FLASHINGS.
COLOUR: "BASALT MATT"

FASCIAS
LYSAGHT COLORBOND
COLOUR: "SURFMIST"

ALUMINIUM FRAMED AND GLAZED WINDOWS AND DOORS. COLOUR: "BASALT"

LAP & CAP FENCING WITH GALV. STEEL POSTS AND 'Z' BRACKETS

2 1 0 2 4 6 8
1:100 @ A1 1:200 @ A3

Proposed Multi-Dwelling Housing - 7 Townhouses

Lot 6, DP29329 PRINCES HWY, CORRIMAL
85 Midgely Street, Corrimal (Also known as 39 Princes Highway, Corrimal)

INTERNAL DRIVEWAY ELEVATIONS

Barry Becarevic

19-36

DA-30 -3

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73 Market Street
Wollongong NSW 2500
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DEVELOPMENT APPLICATION

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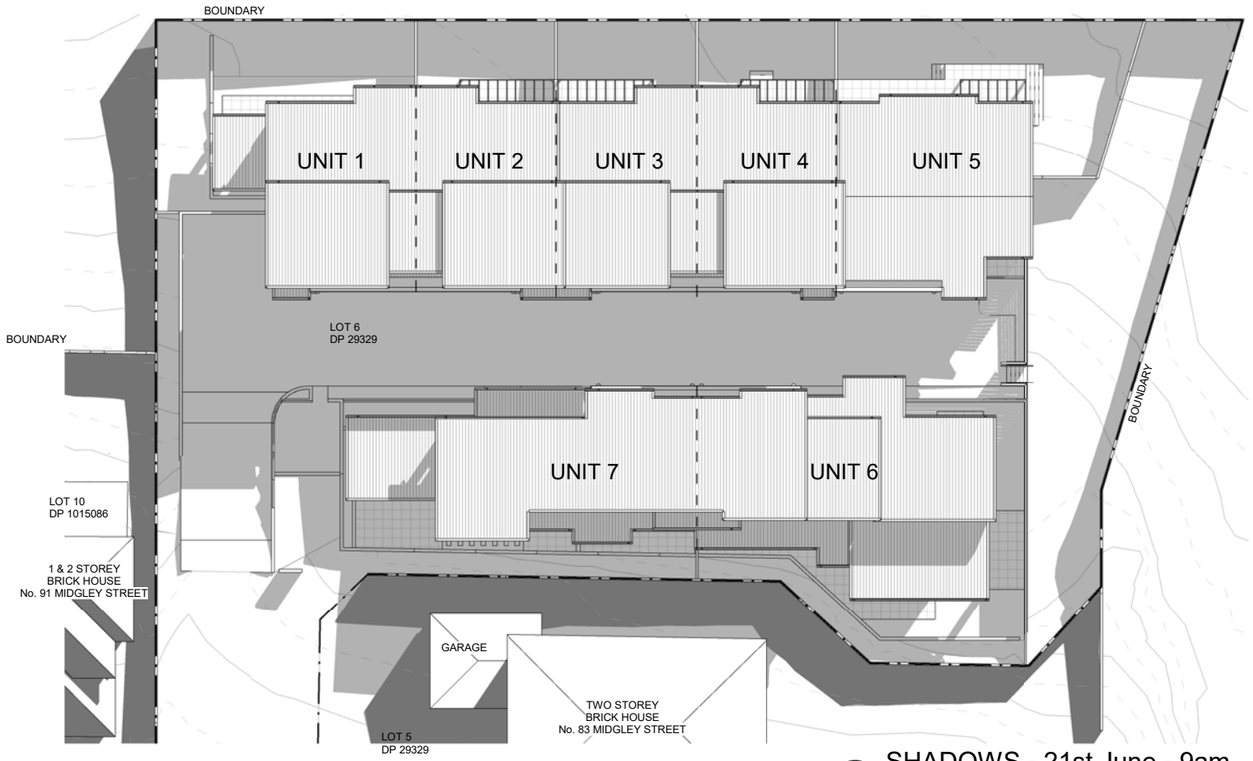
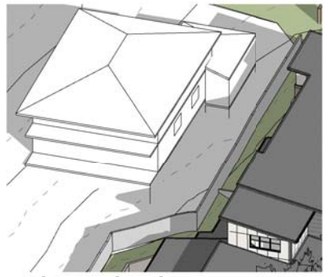
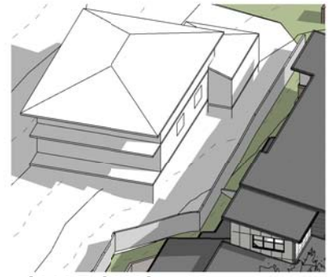


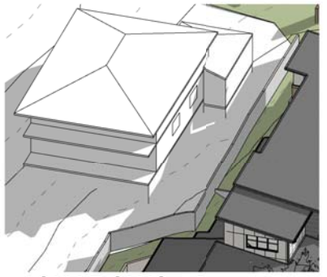
1 SHADOWS - 21st June - 9am
1 : 200



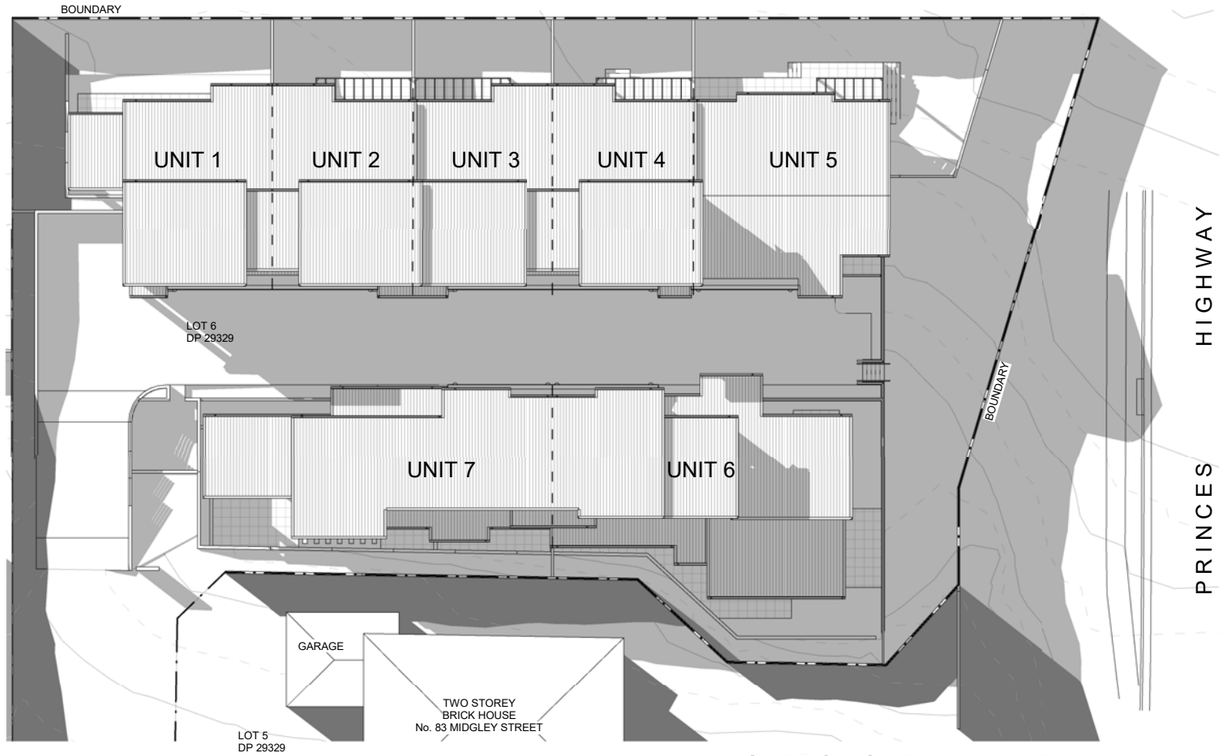
5 SHADOWS - 9am
ELEVATIONAL SHADOWS CAST
ONTO FACADE OF #83 MIDGLEY ST



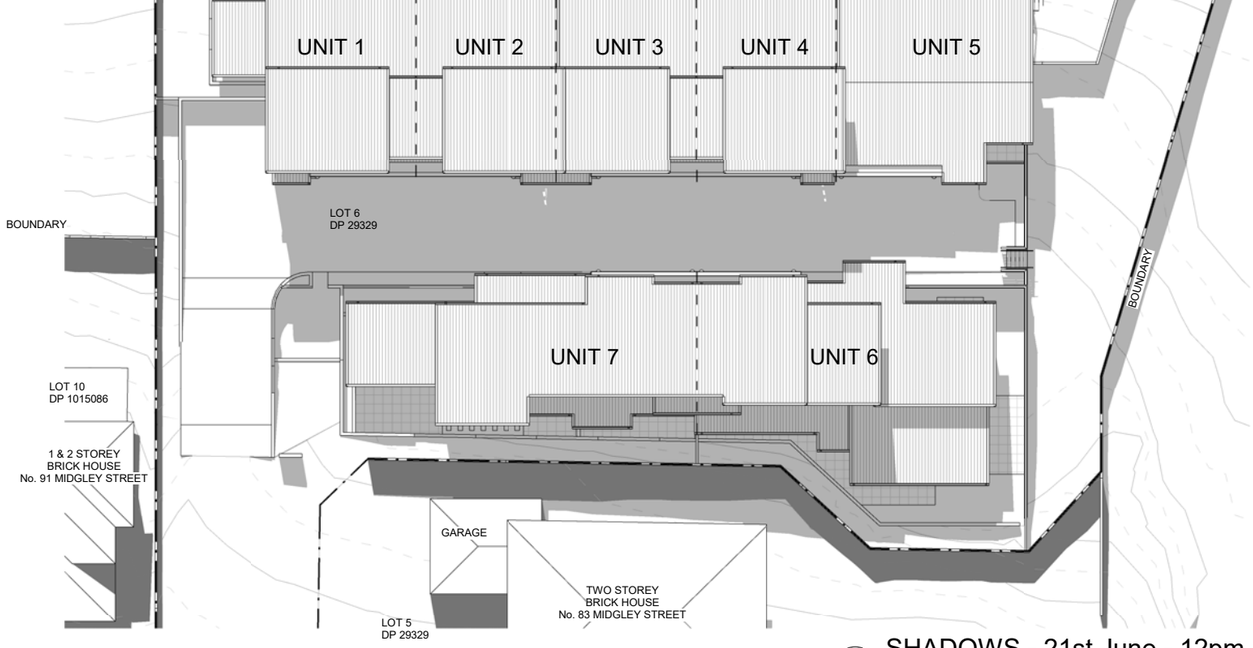
6 SHADOWS - 12pm
ELEVATIONAL SHADOWS CAST
ONTO FACADE OF #83 MIDGLEY ST



4 SHADOWS - 3pm
ELEVATIONAL SHADOWS CAST
ONTO FACADE OF #83 MIDGLEY ST



3 SHADOWS - 21st June - 3pm
1 : 200



2 SHADOWS - 21st June - 12pm
1 : 200

4 0 4 8 12 16
1:200 @ A1 1:400 @ A3

Proposed Multi-Dwelling Housing - 7 Townhouses

Lot 6, DP29329 PRINCES HWY, CORRIMAL
85 Midgely Street, Corrimal (Also known as 39 Princes Highway, Corrimal)

SHADOW DIAGRAMS

Barry Becarevic

19-36

DA-40 -1

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75 Market Street
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DEVELOPMENT APPLICATION

AMENDMENTS

No.	Revision Description	Date	BY:
1	Issued for Development Application	20.05.2020	SG

1 View from top of driveway

2 View from Visitor Parking

Proposed Multi-Dwelling Housing - 7 Townhouses

Lot 6, DP29329 PRINCES HWY, CORRIMAL
85 Midgely Street, Corrimal (Also known as 39 Princes Highway, Corrimal)

3D/ PERSPECTIVES

Barry Becarevic

19-36

DA-41 -1

Suite 3
75 Market Street
Wollongong NSW 2500
P: 4228 3699 F:4229 1145
E: office@prdarchitects.com
PRD ARCHITECTS

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DEVELOPMENT APPLICATION

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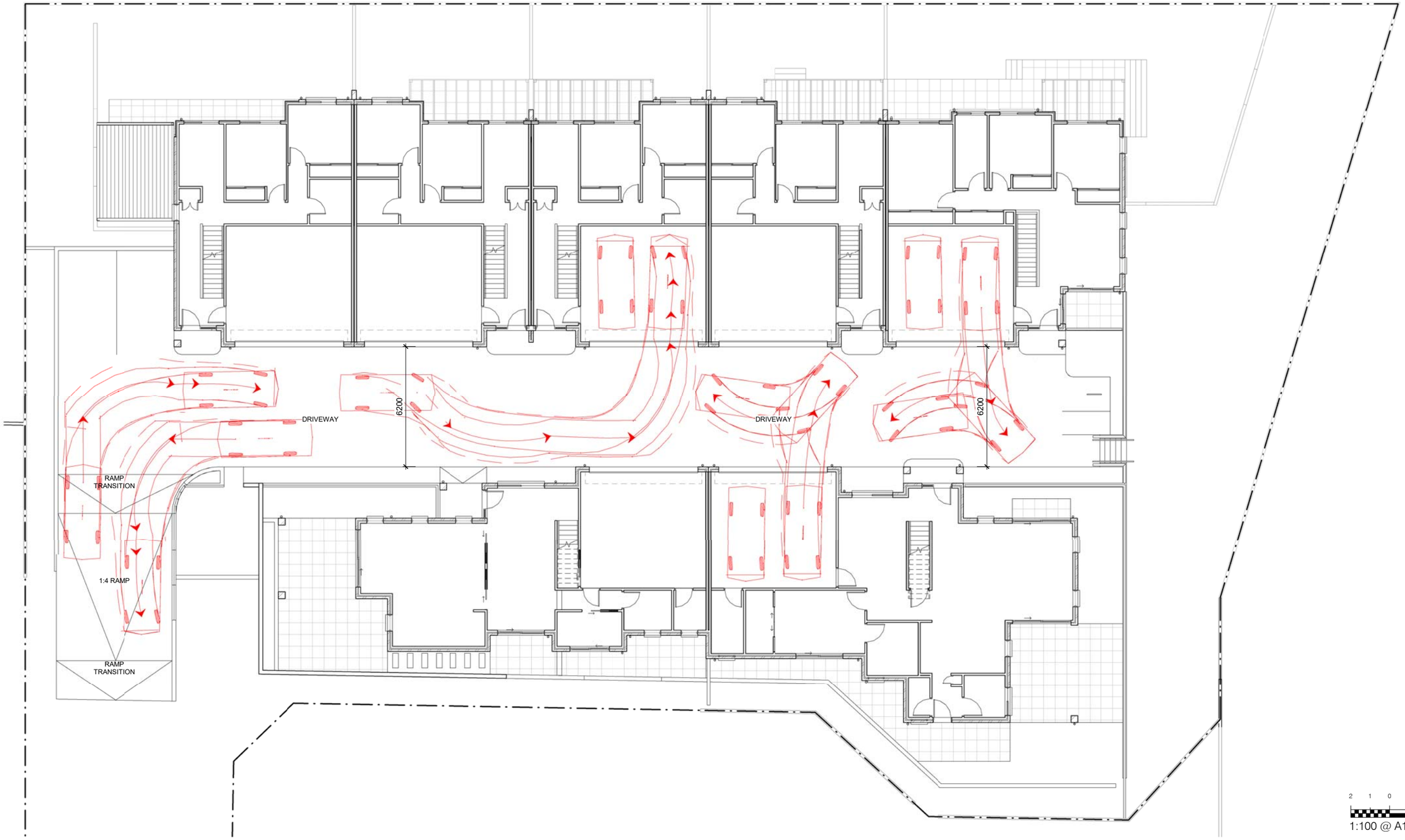
No.	Revision Description	Date	BY:
1	Issued for Development Application	20.05.2020	SG



2 1 0 2 4 6 8

1:100 @ A1 1:200 @ A3

Proposed Multi-Dwelling Housing - 7 Townhouses

Lot 6, DP29329 PRINCES HWY, CORRIMAL
85 Midgely Street, Corrimal (Also known as 39 Princes Highway, Corrimal)

TRAFFIC SWEPT PATH DIAGRAMS

Barry Becarevic

19-36

DA-42 -1

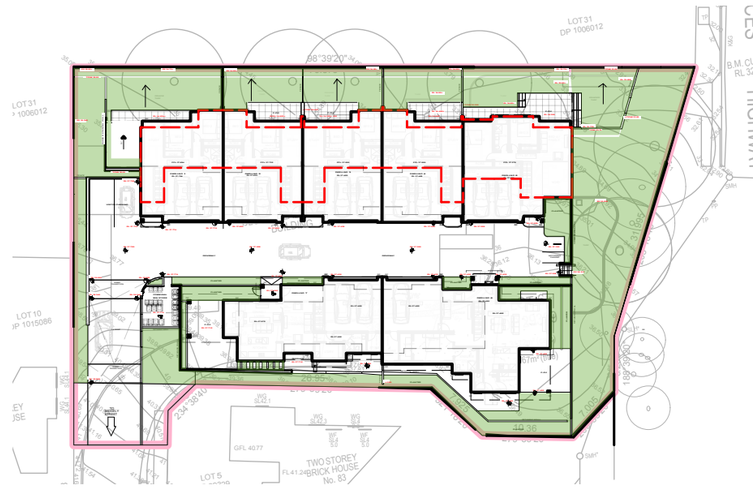
Suite 3
77 Market Street
Wollongong NSW 2500
P: 4228 3699 F:4229 1145
E: office@prdarchitects.com
PRD ARCHITECTS

20/05/2020 11:22:43 AM

LANDSCAPE DA

85 MIDGELY STREET, CORRIMAL

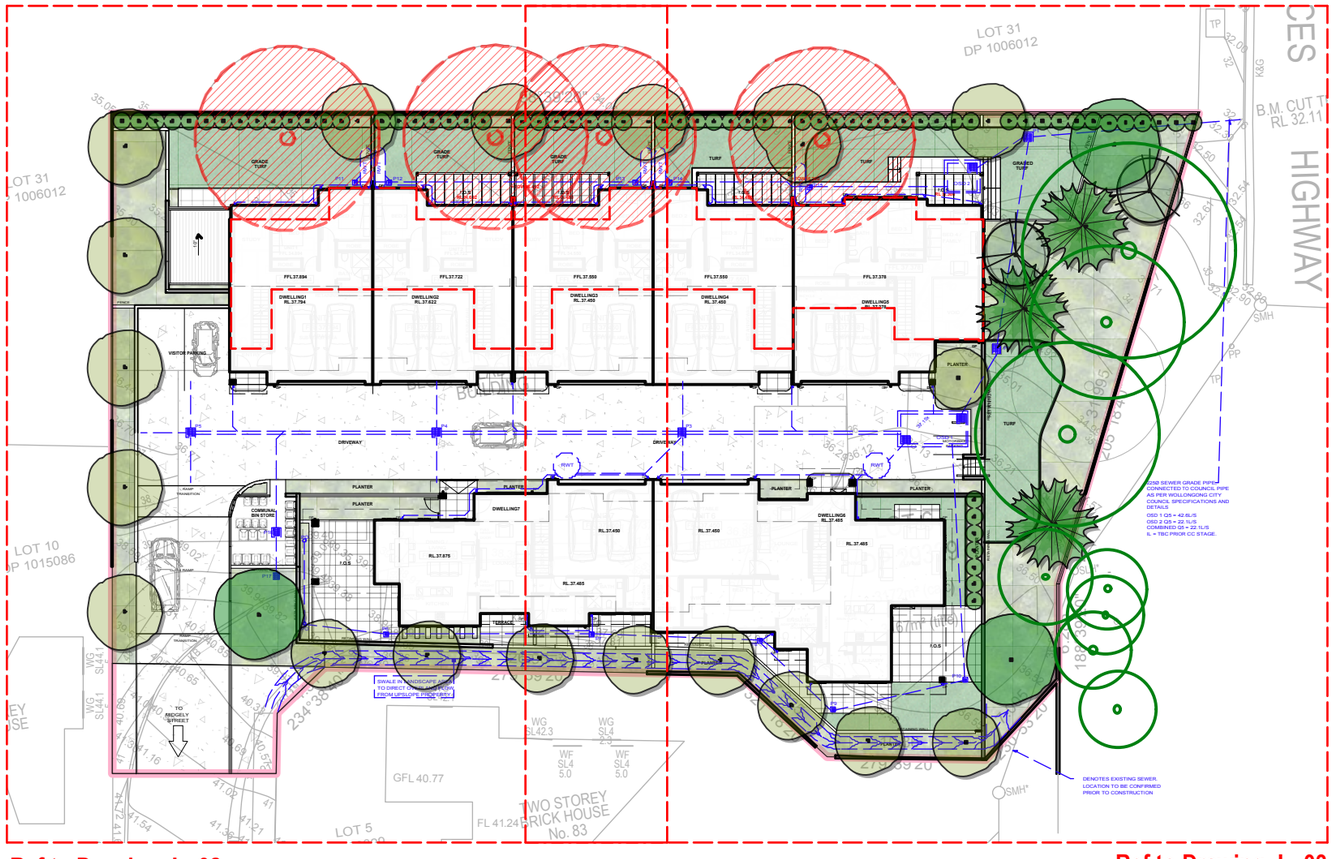
0 10 M



TOTAL SITE AREA: 2550 sqm
LANDSCAPE AREA: 822 sqm/ 32.24%

Drawing List

Sheet No.	Sheet Name	Sheet Size	Rev. No.	Rev. Date	Project No.
L-01	SITE PLANS/CALCULATIONS	A3	D	27/3/20	
L-02	DETAILED PLAN	A3	D	27/3/20	
L-03	DETAILED PLAN	A3	D	27/3/20	
L-04	PLANTING DETAILS	A3	D	27/3/20	
L-05	EXISTING TREE	A3	D	27/3/20	
L-06	NOTES	A3	D	27/3/20	
L-07	SPECIFICATION	A3	D	27/3/20	



Ref to Drawing L- 02

Ref to Drawing L- 03

EXISTING TREE LEGEND

EXISTING TREES TO BE RETAINED

TREES TO BE REMOVED

LEGEND

- DRIVEWAY
- TURF AREAS
- DEEP SOIL GARDENS
- PROPOSED RESIDENCE
- PAVED TYPE 1 (SELECTED TILE OR PAVER ON CONCRETE)
- PAVED TYPE 2 (COBBLE ON CONCRETE OR SIMILAR)
- DECKED AREAS

ISSUE	DATE	COMMENT
D	27/3/20	FOR DA

AMENDMENTS

GENERAL NOTES
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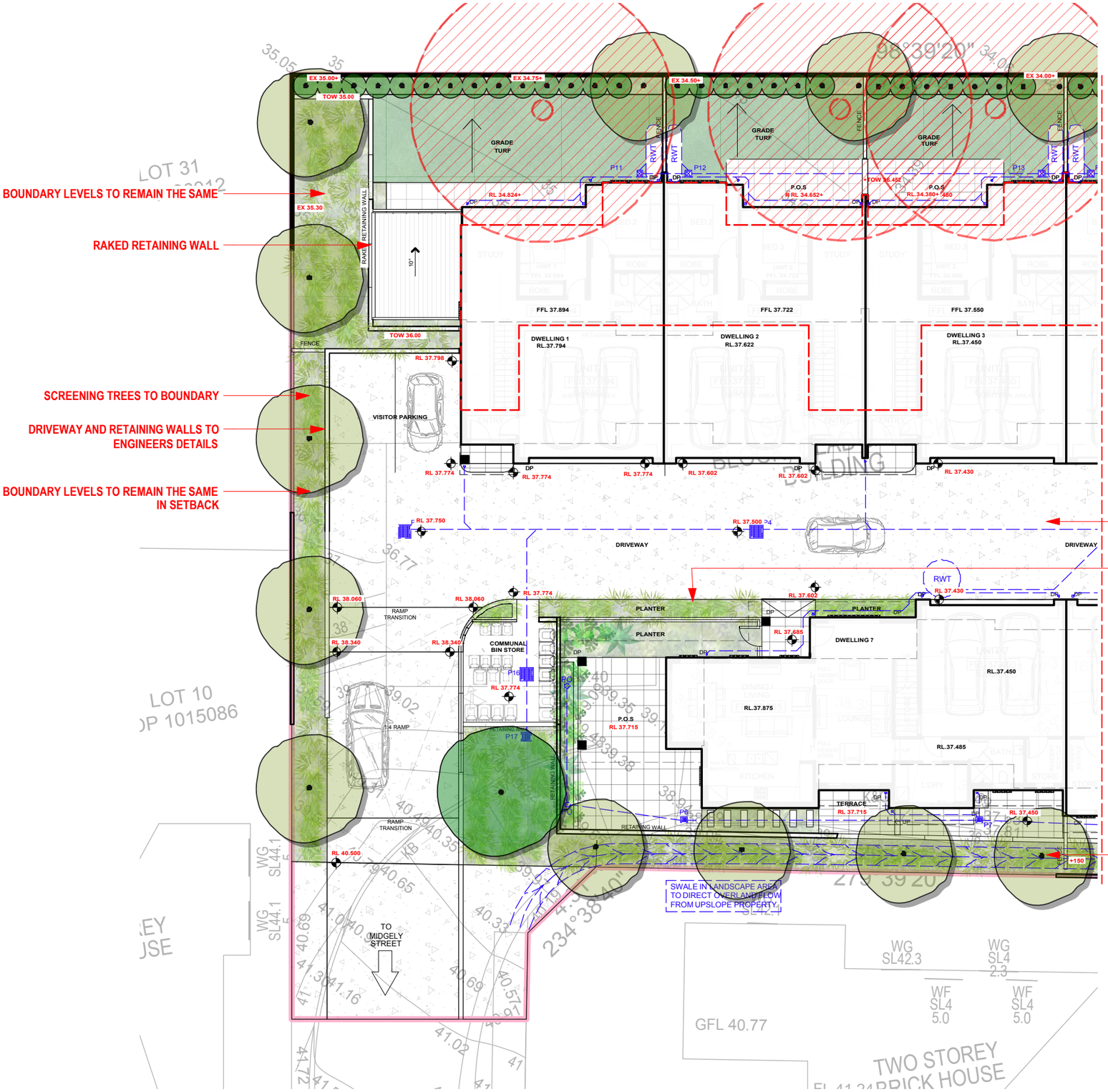
Project **PROPOSED LANDSCAPE PLAN**
Address **85 Midgely Street, Corrimal** Date **27/3/20**
Drawing Title **SITE PLANS/CALCULATIONS** Scale **1:400@A3**
Drawing No.

Page
L-01 D



LEGEND

- DRIVEWAY
- TURF AREAS
- DEEP SOIL GARDENS
- PROPOSED RESIDENCE
- PAVED TYPE 1 — SELECTED TILE OR PAVER ON CONCRETE
- PAVED TYPE 2 — COBBLE ON CONCRETE OR SIMILAR
- DECKED AREAS

EXISTING TREE LEGEND

- EXISTING TREES TO BE RETAINED
- TREES TO BE REMOVED

0 10 M

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Project PROPOSED LANDSCAPE PLAN
Address 85 Midgely Street, Corrimal
Date 27/3/20
Drawing Title DETAILED PLAN
Scale 1:200@A3
Drawing No.

Page
L-02 D

REFER TO L-02

LOW RETAINING WALL OFF BOUNDARY. BOUNDARY LEVELS TO STAY CLOSE TO THE SAME. HEDGE PLANTING TO GARDEN BED.

LOW WALL TO BOUNDARY

NATIVE MASS PLANTING TO SETBACK AREA

STAIRS DOWN TO LOWER TURF AREA

LOW TIMBER WALL TO MINIMISE IMPACT ON EXISTING TREE

SCREENING TREES TO DWELLING 5

FEATURE TREE TO DRIVEWAY TO SOFTEN EDGE

COMMUNAL TURF SPACE. EXISTING LEVELS TO REMAIN

NATIVE MASS PLANTING TO SETBACK AREA

DRAINAGE SWALE. LOW RUSH PLANTING WITH SMALL TREES WITH CLEAR TRUNKS TO ALLOW FOR WATER FLOW

225Ø SEWER GRADE PIPE CONNECTED TO COUNCIL PIPE AS PER WOLLONGONG CITY COUNCIL SPECIFICATIONS AND DETAILS
OSD 1 Q5 = 42.6L/S
OSD 2 Q5 = 22.1L/S
COMBINED Q5 = 22.1L/S
IL = TBC PRIOR CC STAGE.

DENOTES EXISTING SEWER. LOCATION TO BE CONFIRMED PRIOR TO CONSTRUCTION

LEGEND

- DRIVEWAY
- TURF AREAS
- DEEP SOIL GARDENS
- PROPOSED RESIDENCE
- PAVED TYPE 1 SELECTED TILE OR PAVER ON CONCRETE
- PAVED TYPE 2 COBBLE ON CONCRETE OR SIMILAR
- DECKED AREAS

EXISTING TREE LEGEND

- EXISTING TREES TO BE RETAINED
- TREES TO BE REMOVED

0 10 M

ISSUE	DATE	COMMENT
D	27/3/20	FOR DA

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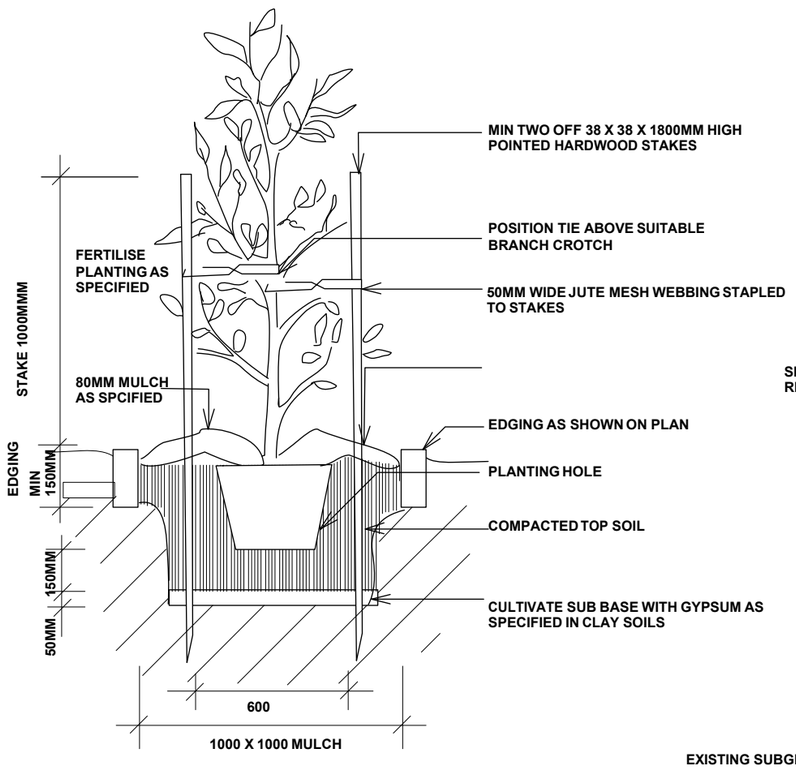
Project	PROPOSED LANDSCAPE PLAN
Address	85 Midgely Street, Corrimal
Date	27/3/20
Drawing Title	DETAILED PLAN
Scale	1:200@A3
Drawing No.	

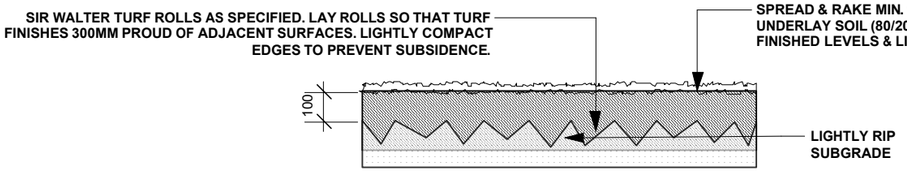
Page
L-03 D

Plant List

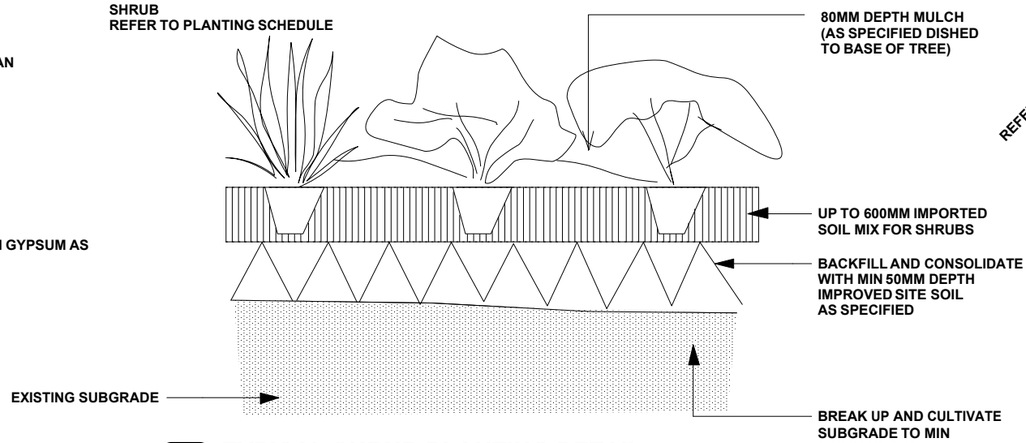
ID	Botanical Name	Common Name	Scheduled Size	Mature Height	Mature Spread
Trees					
Ban-int	Banksia integrifolia	Coastal Banksia	45L	8m	3m
CAna	Cupaniopsis anacardioides	Tuckeroo	45L	10 - 15m	3.5 - 6m
LAust	Livistona australis	Cabbage-tree Palm	45L	10m	3m
TLaur-lus	Tristaniopsis laurina 'luscious'	Kanooka, Water Gum	45L	5 - 10m	3.5 - 6m
Shrubs					
Acm-smi	Acmena smithii 'Minor'	Lillypilly	200mm	2-3m	2m
Cor-alb	Correa alba	White Correa	200mm	0.9 - 1.5m	0.9 - 1.2m
Leu-bro'SN'	Leucophyta brownii nana 'Silver Nugget'	Silver Cushion Bush	200mm	0.3 m	0.3 m
Ros-off	Rosmarinus officinalis	Rosemary	200mm	1.5 - 3m	1.2 - 2.0m
san-cha	Santolina chamaecyparissus	Cotton Lavender	200mm	0.75 - 0.9m	0.6 - 0.9m
wes-gb	Westringia 'Grey Box'	Grey Box' Westringia	200mm	0.9m	0.6m
Ground Covers					
cas'ci'	Casuarina "Cousin It'	Casuarina "Cousin It'	150mm	0.0 - 0.3m	1.2 - 2.0m
Dic-rep	Dichondra repens	Kidney Weed	150mm	0.0 - 0.3m	0.9 - 1.2m
myo-pa'ya'	Myoporum parvifolium 'Yareena'	Yareena boobialla	150mm	0.15m	0.8 - 1m
Ro-off'Pro	Rosmarinus officinalis 'Prostratus'	Trailing rosemary;Creeping Rosemary	200mm	0.5 m	1.2 - 2.0m
Grasses					
cag-ap	Carex appressa	Tall Sedge	150mm	0.8m	1m
Dia-cae	Dianella caerulea	Blue Flax-lily	150mm	0.4m	0.6m
Dor-exc	Doryanthes excelsa	Gymea Lily	300mm	1-2m	2-4m
Lir-mus'eg'	Liriope muscari 'Evergreen Giant'	Evergreen Giant Lilyturf	200mm	0.45 - 0.6m	0.3 - 0.6m
lom-ta-1	Lomandra 'Lime Tuff'	Fine-leaved mat rush	150mm	0.5m	0.6m
Climbers					
Aquatic Plants					
Perennials					
Ferns					



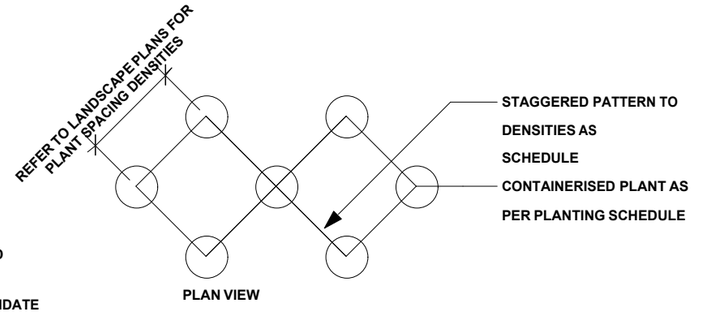
TYPICAL TREE PLANTING DETAIL
NTS



TURF DETAIL
NTS



TYPICAL SHRUB PLANTING DETAIL
NTS



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D	27/3/20	FOR DA

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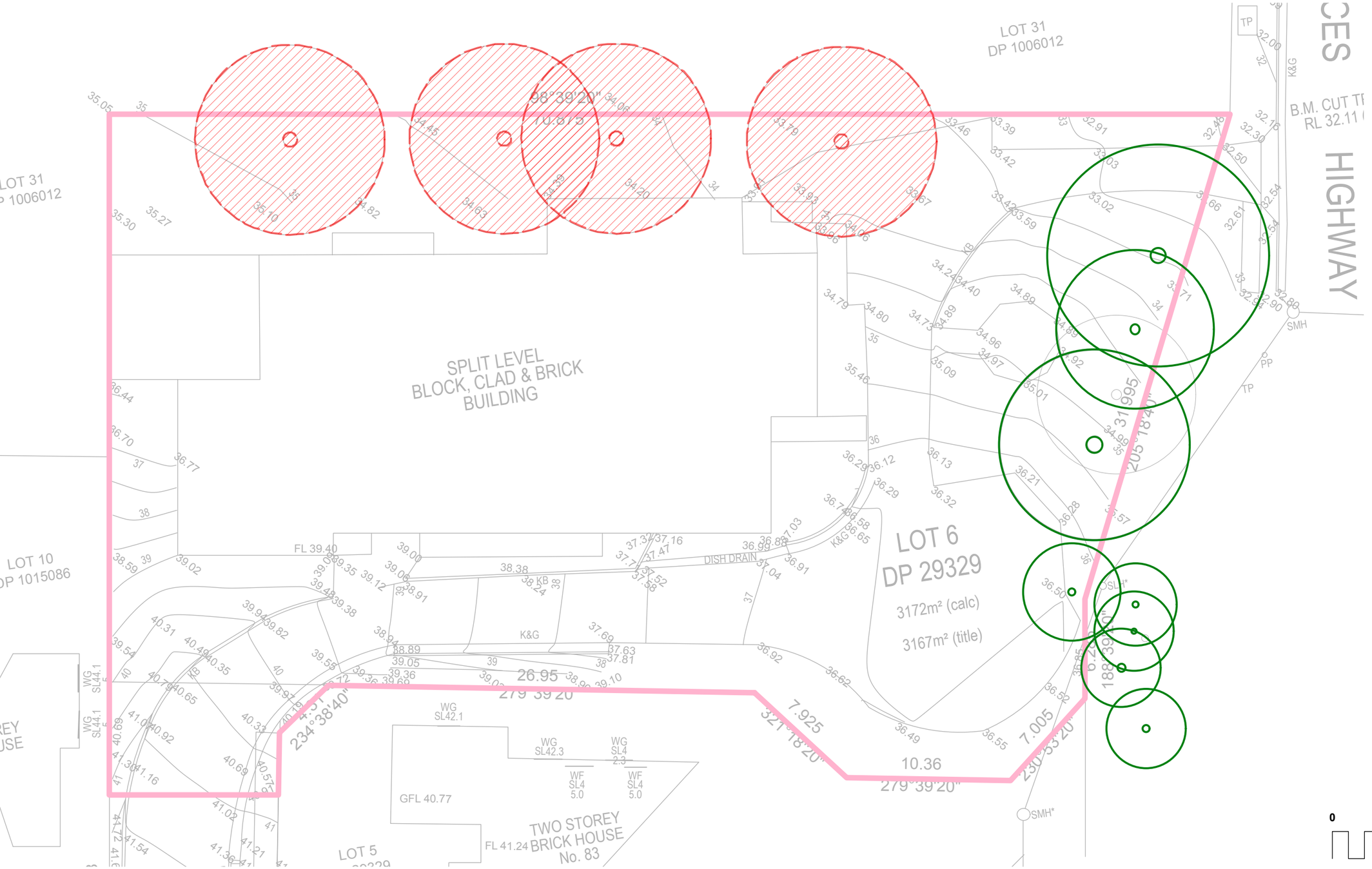
Project **PROPOSED LANDSCAPE PLAN**
Address **85 Midgely Street, Corrimal** Date **27/3/20**
Drawing Title **PLANTING DETAILS** Scale **NTS**
Drawing No.

Page
L-04 D



EXISTING TREE LEGEND

EXISTING TREES TO BE RETAINED

TREES TO BE REMOVED

ISSUE	DATE	COMMENT
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Drawing Title **EXISTING TREE** Scale **1:200@A3**
Drawing No.

Page
L-05 D

LANDSCAPE MAINTENANCE NOTES

MONTH	MOWING EDGING BLOWING	FERTILISING (SEASOL)	CHECK IRRIGATION	HAND WEED REMOVAL	PRUNING	WEED SPARAYING	WATERING/ IRRIGATION	PLANT REPLACEMENT IF REQUIRED
DEC	W	M	M	W	F	M	D	W
JAN	W	M	M	W	F	M	D	W
FEB	W	M	M	W	F	M	D	W
MAR	F	M	M	F	M	M	D	W
APR	F	N/A	M	F	M	M	D	W
MAY	F	N/A	M	M	M	M	D	W
JUNE	M	N/A	M	M	N/A	N/A	2ND D	W
JULY	M	N/A	M	M	N/A	N/A	2ND D	W
AUG	M	N/A	M	M	N/A	N/A	2ND D	W
SEP	M	M	M	M	N/A	N/A	2ND D	W
OCT	F	F	M	F	M	M	D	W
NOV	F	F	M	F	M	M	D	W

PLANTING ESTABLISHMENT PERIOD - 12 MONTHS
LANDSCAPE MATERIAL ESTABLISHMENT - 12 MONTHS
KEY D-DAILY, W-WEEKLY, F-FORTNIGHT, M-MONTHLY, 2ND DAY,

PLAN NOTES

This plan should be read in conjunction with the architectural and hydraulics plans. Work specific to these plans should be prepared in accordance to these plans, including specification and details prior to the installation of landscaping, and should not be altered or compromised during landscape construction.

Retaining wall details to engineers design.

Elements such as drainage swales may be incorporated in garden bed areas (using non-floatable mulch) without compromising the capacity or form.

The Design & location of new letter boxes shall be in accordance with Australia Post's "Requirements for Delivery of Mail to Residential Premises" published Feb '97. All noxious weeds listed in Councils weed lists & located on the site shall be continually removed & suppressed. Reinstate all boundary fencing in poor condition with Council approved 1.8m fencing to rear of building line, rake to 1m forward of BL. Pollution, sediment & erosion control devices as specified shall be in place, and maintained for the duration of the construction period. Proposed excavation near existing established trees to be supervised by arborist.

This plan has been prepared for DA approval only, not for construction.

Planting proposed using commercially available plant species selected from local planting lists and the BASIX local plant list

D.A approved landscape plan's are required to be constructed as approved to obtain occupancy certificate.

EXTERNAL LIGHTING - (AMENITY)

To ensure that any lighting on the site does not cause a nuisance to neighbours or motorists on nearby roads:

Design

All lighting must be designed in accordance with Australian Standard AS4282 - Control of the Obtrusive Effects of Outdoor Lighting.

Ongoing

All lighting must be operated and maintained in accordance with the Standard above.

IRRIGATION NOTE

NOTE
ALL GARDENS TO HAVE INSTALLED A DRIP IRRIGATION SYSTEM CONTROLLED FROM WITHIN THE STORE AND RUN OF TANK WATER (POSSIBLE TOWN WATER TOP UP). IRRIGATION SYSTEM CAN BE DESIGNED AND INSTALLED BY
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CALL DAVID JAMES +61 488 358 180

MAINTENANCE GENERAL NOTES

SECTION C: LANDSCAPE MAINTENANCE SPECIFICATION 1.0 SCOPE

1.1 PERIOD

The 52 week Planting Establishment Period commences at the date of registration of the repective plan.
The contractor is to also allow for maintenance from the date of Practical Completion to the start date of the 52 week Planting Establishment Period. The allowance shall be for a weekly rate which will then be implemented until the formal maintenance period commences.

1.2 PROGRAM

Furnish a proposed planting maintenance program with the tender.

1.3 MAINTENANCE LOGBOOK

Contractor to keep a maintenance record of works carried out on a monthly basis. Log should include but not limited to: - Activities carried out during each attendance;
- Irregularities encountered and actions taken;
NB: Maintenance payments will be evaluated on submission of monthly logbooks.

1.4 RECURRENT WORKS

Throughout the Planting Establishment Period, continue to carry out recurrent works of a maintenance nature including, but not limited to, watering, mowing, weeding, rubbish removal, fertilising, pest and disease control, staking and tying, replanting, cultivating, pruning and keeping the site neat and tidy. All rubbish related to landscape works shall be removed by the landscape contractor before it is allowed to accumulate.

1.5 PLANTING

Commence recurrent planting maintenance works at the completion of planting. Ensure the stock arriving on site is protected and maintained for healthy growth.

1.6 REPLACEMENTS

Continue to replace failed, damaged or stolen plants for the extent of the Planting Establishment Period.

1.7 MULCHED SURFACES

Maintain the surface in a clean and tidy condition and reinstate the mulch as necessary.

1.8 GRASSED AREAS

Commence grass maintenance works at the completion of turfing, and continue to carry out grass maintenance throughout the contract and Planting Establishment Period, maintaining healthy weed free growth.

1.9 STAKES AND TIES

Adjust or replace as required. Remove those not required at the end of the Planting Establishment Period.

1.10 WATERING/ IRRIGATION

An irrigation system is to be installed to all mass planted beds and new tree planting, conntected to a pump and the rainwater tank /OSD tank. Install one tap near the front boundary (Wurrook Circuit) and one tap on the rear (eastern) boundary. This system shall be installed and maintained for the duration of the maintenance period (52 weeks) and in perpetuity of the development. All irrigation works shall be performed by a licensed irrigation contractor. Materials to be used are to be submitted to the site superintendent for approval. The contractor shall provide design drawings and material specifications/samples prior to commencing work. All works are to be conducted to all current and relevant Australian Standards.
The contractor is to be completely responsible for the coordination of the installation of the irrigation system with other services throughout the site. Recommended flow rates: The system shall be set up on a trial basis and them adjusted to suit the local requirements and conditions. Once the system is satisfactorily adjusted the contractor shall make fortnightly visits within the establishment period to ensure satisfactory performance of the system and to adjust the watering periods as required. A minimum even coverage of 25mm of water per week is recommended.

2.0 REPORTS

2.1 LANDSCAPE MAINTENANCE REPORT

'Landscape Maintenance Reports' shall be submitted to the Principle Certifying Authority by the contractor verifying that satisfactory maintenance of the landscape works has been undertaken and that any necessary rectification measures have been carried out to a high professional standard. This documentation is to be submitted through the plant establishment period.

ISSUE	DATE	COMMENT
D	27/3/20	FOR DA

AMENDMENTS

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Address **85 Midgely Street, Corrimal** Date **27/3/20**
Drawing Title **NOTES** Scale **NTS**
Drawing No.

Page
L-06 D

LANDSCAPE WORK SPECIFICATION

PRELIMINARIES

1.01 GENERAL

The following general conditions should be considered prior to the commencement of landscape works:

The landscape plans should be read in conjunction with the architectural plans, hydraulic plans, service plans and survey prepared for the proposed development.

All services including existing drainage should be accurately located prior to the commencement of landscape installation. Any proposed tree planting which falls close to services will be relocated on site under the instruction of the landscape architect.

Installation of conduit for required irrigation, electrical and other services shall be completed prior to the commencement of hardscape works and hardstand pours.

All outdoor lighting specified by architect or client to be installed by qualified electrician

Anomalies that occur in these plans should be brought to our immediate attention.

Where an Australian Standard applies for any landscape material testing or installation technique, that standard shall be followed.

1.02 PROTECTION OF ADJACENT FINISHES

The Contractor shall take all precautions to prevent damage to all or any adjacent finishes by providing adequate protection to these areas / surfaces prior to the commencement of the Works

1.03 PROTECTION OF EXISTING TREES

Existing trees identified to be retained shall be done so in accordance with NATSPEC Guide 2 "A Guide to Assessing Tree Quality". Where general works are occurring around such trees, or pruning is required, a qualified Arborist shall be engaged to oversee such works and manage tree health.

Existing trees designated on the drawing for retention shall be protected at all times during the construction period. Any soil within the drip-line of existing trees shall be excavated and removed by hand only. No stockpiling shall occur within the root zone of existing trees to be retained.

Any roots larger in diameter than 50mm shall only be severed under instruction by a qualified arborist. Roots smaller than 50mm diameter shall be cut cleanly with a saw.

Temporary fencing shall be installed around the base of all trees to be retained prior to the commencement of landscape works. Where possible this fencing will be located around the drip line of these trees, or a minimum of 3m from the trunk. The fencing shall be maintained for the full construction period.

1.04 EROSION & POLLUTION CONTROL

The Contractor shall take all proper precautions to prevent the erosion of soil from the subject site. The contractor shall install erosion & sediment control barriers and as required by council, and maintain these barriers throughout the construction period. Note that the sediment control measures adopted should reflect the soil type and erosion characteristics of the site.

Erosion & pollution control measures shall incorporate the following:

- Construction of a sediment trap at the vehicle access point to the subject site.
- Sediment fencing using a geotextile filter fabric in the location indicated on the erosion control plan or as instructed on site by the landscape architect.
- Earth banks to prevent scour of stockpiles
- Sandbag kerb sediment traps
- Straw bale & geotextile sediment filter.
- Exposed banks shall be pegged with an approved Jute matting in preparation for mass planting

Refer to "Sitewise Reference Kit" as prepared by DLWC & WSROC (1997) for construction techniques

SOIL WORKS

2.01 MATERIALS

Specified Soil Conditioner (Generally to improve site soil)

The specified soil conditioner for site top-soil improvement shall be an organic mix, equal to "Botany Humus", as supplied by ANL. Note that for sites where soil testing indicates toxins or extremes in pH, or soils that are extremely poor, allow to excavate and supply 300mm of imported soil mix.

New gardens & proposed Planting

New garden and planting areas shall consist of a 50/50 mix of clean site soil (refer d) below) and imported "Organic Garden Mix" as supplied by ANL or approved equal. All mixes are to comply with AS 4419 Soils for landscaping & garden use, & AS 4454 Composts, Soil conditioners & mulches.

Specified Soil Mix - Turf

The specified soil mix for all turf areas shall be a min 75mm layer of imported soil mix consisting of 80% washed river sand (reasonably coarse), and 20% composted organic matter equivalent to mushroom compost or soil conditioner, or other approved lawn top dress.

Site Topsoil

Site topsoil is to be clean and free of unwanted matter such as gravel, cXXlay lumps, grass, weeds, tree roots, sticks, rubbish and plastics, and any deleterious materials and materials toxic to plants. The topsoil must have a pH of between 5.5 and 7. Use 100% imported soil mix when site when site topsoil runs out.

2.02 INSTALLATION

a) Establishing Subgrade Levels

Subgrade levels are defined as the finished base levels prior to the placement of the specified material (i.e. soil conditioner). The following subgrade levels shall apply:

Mass Planting Beds - 300mm below existing levels with specified imported soil mix.

Turf areas - 100mm below finished surface level.

Note that all subgrades shall consist of a relatively free draining natural material, consisting of site topsoil placed previously by the Civil Contractor. No builders waste material shall be acceptable.

b) Subgrade Cultivation

Cultivate all subgrades to a minimum depth of 100mm in all planting beds and all turf areas, ensuring a thorough breakup of the subgrade into a reasonably coarse tilth. Grade subgrades to provide falls to surface and subsurface drains, prior to the placement of the final specified soil mix.

c) Drainage Works

Install surface and subsurface drainage where required and as detailed on the drawing. Drain subsurface drains to outlets provided, with a minimum fall of 1:100 to outlets and / or service pits.

d) Placement and Preparation of Specified Soil Conditioner & Mixes.

Trees in turf & beds - Holes shall be twice as wide as root ball and minimum 100mm deeper - backfill hole with 50/50 mix of clean site soil and imported "Organic Garden Mix" as supplied by ANL or approved equal.

Mass Planting Beds - Install specified soil conditioner to a compacted depth of 100mm

Place the specified soil conditioner to the required compacted depth and use a rotary hoe to thoroughly mix the conditioner into the top 300mm of garden bed soil. Ensure thorough mixing and the preparation of a reasonably fine tilth and good growing medium in preparation for planting.

Turf Areas - Install specified soil mix to a minimum compacted depth of 75mm.

Place the specified soil mix to the required compacted depth and grade to required finished soil levels, in preparation for planting and turfing.

PLANTING

3.01 MATERIALS

a) Quality and Size of Plant Material

All trees supplied above a 25L container size must be grown and planted in accordance with *Clarke, R 1996 Purchasing Landscape Trees: A guide to assessing tree quality. Natspec Guide No. 2.* Certification that trees have been grown to Natspec guidelines is to be provided upon request of Council's Tree Management Officer.

Above - Ground Assessment:

The following plant quality assessment criteria should be followed:

Plant true to type, Good vigour and health, free from pest & disease, free from injury, self-supporting, good stem taper, has been pruned correctly, is apically dominant, has even crown symmetry, free from included bark & stem junctions, even trunk position in pot, good stem structure

Below - Ground Assessment:

Good root division & direction, rootball occupancy, rootball depth, height of crown, non-suckering For further explanation and description of these assessment criteria, refer to Ross Clark's book.

All Plant material shall be to the type and size specified. No substitutions of plant material shall be permitted without written prior approval by the Landscape Architect. No plant shall be accepted which does not conform to the standards listed above.

b) Stakes and Ties

Provide min. 2 No. Stakes and ties to all plants identified as trees in the plant schedule. Stakes shall be sound, unpainted, straight hardwood, free of knots and pointed at one end. They shall be 2200mm x 50mm x 50mm Hardwood, or approved alternative. Ties shall be 50mm wide hessian webbing material.

c) Fertilisers

Fertilisers shall be approved slow release fertilisers suitable for the proposed planting types. Note that for native plants, specifically Proteaceae family plants including Grevillea species, low phosphorus fertilizers shall be used.

d) Mulch

Mulch shall be an approved equal to "Forest Blend" as supplied by ANL. Mulch shall be completely free from any soil, weeds, rubbish or other debris.

e) Turf

Turf shall be "Sir Walter" Buffalo or equivalent (unless stated otherwise), free from any weeds and other grasses, and be in a healthy growing condition.

3.02 INSTALLATION

a) Setting Out

All planting set out shall be in strict accordance with the drawings, or as directed. Note that proposed tree planting located near services should be adjusted at this stage. Notify Landscape Architect for inspection for approval prior to planting.

b) Planting

All plant material shall be planted as soon after delivery as possible. Planting holes for trees shall be excavated as detailed and specified. Plant containers shall be removed and discarded, and the outer roots gently teased from the soil mass. Immediately set plant in hole and backfill with specified soil mix, incorporating the approved quantity of fertiliser for each plant type. Ensure that plants are set plumb vertically and root balls set to the consolidated finished grades detailed on the drawings. Compact the backfilled soil and saturate by hand watering to expel any remaining air pockets immediately after planting.

c) Staking and Tying

Staking and tying shall be in strict accordance with the drawings and shall occur immediately following plant placement and soil backfilling. All plants identified as "Trees" on the planting schedule shall be staked with a min. 3 stakes.

d) Mulching

Mulch should be spread so that a compacted thickness of 75mm is achieved after settlement in all planting beds and around each individual plant. Apply immediately following planting and watering in, ensuring that a 50mm radius is maintained around the trunk of each plant . There shall be no mixing of soil and mulch material.

e) Turfing

Moisten soil prior to the turf being laid. Turf shall be neatly butt jointed and true to grade to finish flush with adjacent surfaces. Incorporate a lawn fertilizer and thoroughly water in. Keep turf moist until roots have taken and sods/rolls cannot be lifted. Keep all traffic off turf until this has occurred. Allow for top dressing of all turf areas. All turf shall be rolled immediately following installation.

f) Steel Garden Edging

The Contractor shall install stone edging as shown on the drawings, to all mass planting beds adjoining turf or gravel mulched areas, and where required. The resultant edge shall be true to line and flush with adjacent surfaces.

HARDSCAPE WORKS

4.01 GENERAL

The Contractor shall undertake the installation of all hardscape works as detailed on the drawing, or where not detailed, by manufacturers specification.

Paving - refer to typical details provided, and applicable Australian Standards. *Permeable paving may be used as a suitable means of satisfying Council permeable surface requirements, while providing a useable, hardwearing, practical surface.* In most instances, the client shall nominate the appropriate paving material to be used.

Australian Standards shall be adhered to in relation to all concrete, masonry & metal work. Some details are typical and may vary on site. All hardscape works shall be setout as per the drawings, and inspected and approved by the Landscape Architect prior to installation. All workmanship shall be of the highest standard. Any queries or problems that arise from hardscape variations should be bought to the attention of the Landscape Architect.

Your attention is directed to any obligations or responsibilities under the Dividing Fences Act, 1991 in respect of adjoining property owner/s which may arise from this application. Any enquiries in this regard may be made to the Crown Lands Division on (02) 8836 5332

IRRIGATION WORKS

5.01 GENERAL (PERFORMANCE SPECIFICATION)

An automated drip-irrigation system is to be installed to all gardens, planters and lawn areas in accordance with the approved Irrigation Design.

This system shall be designed and installed by a qualified and licensed irrigation specialist, to the highest industry standards and to maximise the efficient usage of water.

The Installer is required to obtain all approvals necessary for the completion of works in accordance with the Laws of Australia, Laws of the State of NSW, Council By-Laws and Ordinances.

Drawings:

- The Landscape Contractor nominated Licensed Irrigation Specialist shall provide irrigation drawings for approval upon engagement.

Design Requirements:

- The irrigation system shall be installed prior to all planting works. It shall incorporate a commercially available irrigation system, with sub-surface dripper lines to irrigate all gardens, planters and lawn areas.
- It shall incorporate a suitable back flow prevention device for the scale of works, an in-line filter, check valves, and suitable high and low density poly hose fittings and PVC piping to achieve flow rates suitable for specified planting.
- The irrigation application rate shall not exceed the infiltration rate of the soil or creates run-off.
- The landscape contractor shall check the existing pressure available from the ring mains and size irrigation piping to suit. Supply shall be from local hose cock where available.
- All piping and fittings shall be buried 50mm below the finished soil levels in garden and lawn areas, and secured in position at 500mm centres with galv wire pins.
- Size of pipes shall be selected to ensure the working pressure at the end of the line does not decrease by more than 5%.

Services Co-ordination:

- Co-ordination required by Landscape Contractor or Project Manager to provide required conduit, pipe work and penetration through slabs and planter walls for water and power provisions.
- The Landscape Contractor shall be engaged with the Irrigation Specialist to co-ordinate with the Project Manager to identify the preferred service and conduit locations.
- Project Manager and Landscape Contractor to establish area suitable for irrigation control system with required area, power provision and water supply.

Testing & Defects:

Upon completion of installation, the system shall be tested, including:

- Main Line Pressure Test: The main line is pressurised to test for leaks. All valves are shut and the pressure is taken over a determined length of time.
- Dripper Pressure Test: Measurement at flushing valves are taken and the pressure gauged to make sure it conforms to the manufacturer recommendations. The inlet pressure is then tested under the same conditions to check it does not exceed 300Kpa.
- All components are to be satisfactorily functional and operational prior to approval. Should any defect develop, or the capacity or efficiency of the system decline during the agreed maintenance system, then these faults shall be immediately rectified.

Warranty :

- A full 12 month warranty shall be included to cover labour and all parts.

Further Documentation:

- On request, a detailed irrigation performance specification report can be issued.

12 MONTH MAINTENANCE

6.01 GENERAL

The consolidation and maintenance period shall be 12 months beginning from the approved completion of the specified construction work (Practical Completion). A qualified landscape maintenance contractor shall undertake the required landscape maintenance works. Consolidation and maintenance shall mean the care and maintenance of Contracted works by accepted landscaping or horticultural practices, ensuring that all plants are in optimum growing conditions and appearance at all times, as well as rectifying any defects that become apparent in the contracted works.

This shall include, but not be limited to, the following items where and as required: Watering all planting and lawn areas / irrigation maintenance.

Clearing litter and other debris from landscaped areas.

Removing weeds, pruning and general plant maintenance.

Replacement of damaged, stolen or unhealthy plants. Make good areas of soil subsidence or erosion.

Topping up of mulched areas.

Spray / treatment for Insect and disease control.

Fertilizing with approved fertilizers at correct rates.

Mowing lawns & trimming edges each 14 days in summer or 18 days in winter Adjusting ties to Stakes

Maintenance of all paving, retaining and hardscape elements.

On the completion of the maintenance period, the landscape works shall be inspected and at the satisfaction of the superintendent or landscape architect, the responsibility will be signed over to the client.**xx**

ISSUE	DATE	COMMENT
D	27/3/20	FOR DA

AMENDMENTS

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Project **PROPOSED LANDSCAPE PLAN**

Address **85 Midgely Street, Corrimal** Date **27/3/20**

Drawing Title **SPECIFICATION** Scale **NTS**

Drawing No.

Page **L-07 D**

GENERAL

G1 ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF CURRENT SAA CODES AND THE BYLAWS, ORDINANCE OR OTHER REQUIREMENTS OF THE RELEVANT BUILDING AUTHORITIES.

G2. DO NOT OBTAIN DIMENSIONS BY SCALING THESE DRAWINGS. ONLY PRINCIPAL STRUCTURAL DIMENSIONS ARE SHOWN. ALL DIMENSIONS ARE IN MILLIMETERS.

G3 DRAWINGS TO BE READ IN CONJUNCTION WITH THE ALL OTHER CONTRACT DOCUMENTS AND THE REQUIREMENTS OF THE RELEVANT BUILDING AUTHORITIES.

G4. BEFORE PROCEEDING WITH WORK CLARIFY ANY DISCREPANCIES, VERIFY ALL SETTING OUT DIMENSIONS. CONSTRUCTION FROM THESE DRAWINGS AND ASSOCIATED CONSULTANT'S DRAWINGS

G5. WORKS SHALL NOT COMMENCE UNTIL APPROVED BY THE LOCAL AUTHORITIES.

G6.DURING CONSTRUCTION THE STRUCTURE SHALL BE MAINTAINED IN A STABLE CONDITION. DO NOT EXCEED THE DESIGN LIVE LOADS SHOWN OR CAUSE ANY ELEMENT TO BE OVERSTRESSED. TEMPORARY BRACING SHALL BE PROVIDED BY THE BUILDER TO KEEP THE WORKS AND EXCAVATIONS STABLE AT ALL TIMES.

G7. THE BUILDER SHALL GIVE 48 HOURS NOTICE FOR ALL ENGINEERING INSPECTIONS.

G8. ALL SITE RE-GRADING AREAS SHALL BE FINALLY GRADED TO THE SATISFACTION OF THE ENGINEER.

G9 SURPLUS EXCAVATED MATERIAL SHALL BE PLACED WHERE DIRECTED OR REMOVED FROM SITE.

G10. ALL DRAINAGE LINES THROUGH ADJACENT LOTS SHALL BE CONTAINED WITHIN EASEMENTS CONFORMING TO COUNCIL'S STANDARDS.

G11. THE METHOD OF CONSTRUCTION AND THE MAINTENANCE OF SAFETY DURING CONSTRUCTION ARE THE RESPONSIBILITY OF THE BUILDER. IF ANY STRUCTURAL ELEMENT PRESENTS DIFFICULTY IN RESPECT OF CONSTRUCTIBILITY OR SAFETY, THE MATTER SHALL BE REFERRED TO THE STRUCTURAL ENGINEER FOR RESOLUTION BEFORE PROCEEDING WITH THE WORK.

G12. IF THERE IS A DISCREPANCY IN MEMBER SIZES FOR ANY COMPONENT, ASSUME FOR PRICING PURPOSES ONLY THAT THE LARGER OR MORE EXPENSIVE SIZE IS CORRECT. REFER TO STRUCTURAL/CIVIL ENGINEER FOR DECISION BEFORE DETAILING OR CONSTRUCTION

SITE PREPARATION

SP1. STRIP OFF ALL VEGETATION, RUBBISH AND TOPSOIL CONTAINING ORGANIC OR ROOT MATTER FROM THE AREA OF THE CONSTRUCTION.

SP2 PROVIDE SUITABLE SURFACE AND/OR SUBSOIL DRAINAGE IN CONJUNCTION WITH, OR SUBSEQUENT TO BULK EARTHWORKS AS REQUIRED ON SITE, TO MINIMIZE INGRESS OF MOISTURE ADJACENT TO, OR BENEATH THE BUILDING.

SP3 FILL SHALL CONSIST OF MATERIAL COMPACTED TO 98% MAX. STD DRY DENSITY UNLESS NOTED OTHERWISE IN LAYERS BY REPEATED ROLLING WITH PROPRIETARY COMPACTION PLANT. ALL FILLING IS TO BE LAID IN 150mm MAXIMUM LAYERS.

SP4. DRAWINGS TO BE READ IN CONJUNCTION WITH THE SOIL GEOTECHNICAL REPORT BY THE GEOTECHNICAL ENGINEER IS TO APPROVE THE MATERIAL USED FOR FILLING AND IS TO SUPERVISE PLACING OF COMPACTED FILL. FILLING IS TO BE FREE OF RUBBISH, PLASTIC CLAY OR LARGE PIECES OF ROCK/BOULDER WHICH WOULD INHIBIT COMPACTION.

SP5. FOR ON-GROUND CONCRETE SLABS - BLIND WITH SAND UNDER VAPOUR-PROOF MEMBRANE BARRIER. VAPOUR BARRIER SHALL BE POLYETHYLENE SHEETING OF MIN. 0.2mm THICKNESS . LAPPING SHALL BE NOT LESS THAN 200mm AT JOINTS . PENETRATIONS BY PIPES SHALL BE TAPED.

SP6. BACKFILLING AND COMPACTION OF FILL SHALL BE CARRIED OUT SIMULTANEOUSLY ON EACH SIDE OF WALLS.

SP7. ALL FINISHED SURFACE LEVELS OF EARTHWORKS ARE TO GRADE AWAY FROM THE BUILDING & DIVERT RUNOFF INTO THE STORMWATER DRAINAGE SYSTEM IN ACCORDANCE WITH THE RELEVANT CONTRACT DRAWINGS.

SP8. ALL PAD FOOTING EXCAVATIONS ARE TO BE BACKFILLED UP TO FINISHED SURFACE LEVEL.

ENVIRONMENT

THE BUILDERS ATTENTION IS CALLED TO OBSERVE ANY COUNCIL, E1 EPA, OTHER AUTHORITY'S OR CONTRACT CONDITIONS IN COMPLYING WITH MANAGEMENT OF EXCAVATION, SOIL MOVEMENT, SEDIMENT CONTROL AND DUST SUPPRESSION.

STORMWATER DRAINAGE GENERAL:

1. DRAWINGS SHALL BE READ IN CONJUNCTION WITH ALL ARCHITECTURAL AND OTHER CONSULTANT'S DRAWINGS AND SPECIFICATIONS. ALL DISCREPANCIES SHALL BE REFERRED TO THE ARCHITECT AND ENGINEER FOR DECISION BEFORE PROCEEDING WITH THE WORK.
2. DIMENSIONS SHALL NOT BE OBTAINED BY SCALING FROM DRAWINGS. REFER TO ARCHITECT'S FINAL DRAWINGS.
3. THE BUILDER SHALL BE RESPONSIBLE FOR LOCATING ALL EXISTING AND NEW SERVICES, AND SHALL BE RESPONSIBLE FOR DAMAGE TO SAME.
4. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE SAA CODES, AND THE BY-LAWS AND ORDINANCES OF THE FOLLOWING:- WOLLONGONG CITY COUNCIL EPA and WORK COVER AS 3500 PARTS 2 & 3
5. PREPARE PROGRESSIVELY AND FURNISH TO THE ENGINEER WORK AS EXECUTED DRAWINGS OF THE SAME SIZE AND QUALITY AS THIS DRAWING BUT ACCORDANCE WITH DA CONDITIONS & CC REQUIREMENTS
6. SUFFICIENT NOTICE SHALL BE GIVEN TO ALLOW INSPECTIONS TO BE CARRIED OUT AT THE FOLLOWING STAGES:

   WORK READY FOR SPECIFIED TESTING
   WORK READY TO BE COVERED OR CONCEALED
7. OBTAIN APPROVAL BEFORE INTERRUPTING AN EXISTING SERVICE. KEEP THE NUMBER OF INTERRUPTIONS TO A MINIMUM
8. LAY PIPES TO THE LEVELS SHOWN ON THE DRAWINGS AND IN ANY CASE NOT LESS THAN THE FOLLOWING:
   100∅ @ 1.0% , 150∅ @ 1.0%, 225∅ @ 0.5%, 300∅ @ 0.5%
9. ENDS OF PIPES AND STUB CONNECTIONS TO BE SEALED WITH AN APPROVED SEALED DISC.
10. MILD STEEL STAR PICKET 1200mm LONG WITH 300mm PAINTED GREEN EXTENDED ABOVE GROUND LEVEL TO BE PLACED AT EACH INTERLOTMNET DRAINAGE CONNECTION POINT.
11. GEOTEXTILE FABRIC TO BE PLACED UNDER RIP RAP SCOUR PROTECTION.

PAVEMENT GENERAL

1. ALL WORK TO BE IN ACCORDANCE WITH THE DEVELOPMENT CONSTRUCTION SPECIFICATION OF THE WOLLONGONG CITY COUNCIL.
2. MAKE SMOOTH CONNECTION TO ALL EXISTING ENGINEERING WORK.
3. ALL EXISTING SERVICES TO BE LOCATED AND LEVELED BY THE CONTRACTOR PRIOR TO THE COMMENCEMENT OF WORK.
4. ALL SERVICES AFFECTED BY NEW WORK, TO BE ADJUSTED TO SUIT IN THE FIELD, TO THE SATISFACTION OF THE RELEVANT SERVICE AUTHORITY.
5. WHILE WORKING ON COUNCIL ROADS OR ROAD RESERVES, CONTRACTOR TO PROVIDE A TRAFFIC CONTROL PLAN WHICH COMPLIES WITH A.S. 1742.3-1996. A COPY OF THE PLAN SHOWING LAYOUT OF PROPOSED TRAFFIC CONTROL FOR THE COMMENCEMENT OF WORK AND CERTIFIED BY A SUITABLY QUALIFIED PERSON, IS TO BE SUBMITTED TO COUNCIL PRIOR TO THE COMMENCEMENT OF ANY WORK. FURTHER PLANS ARE TO BE SUBMITTED IF WORK SITE ALTERS.
6. ANY ROAD RESTORATION REQUIRED SHALL BE IN 300mm LAYERS OF DGS 40 FROM THE BOTTOM OF TRENCH OR TOP OF SAND OVERLAY OVER ANY PIPES, COMPACTED TO A MINIMUM OF 100% STANDARD COMPACTION, WITH THE FINAL LAYER OF 100mm DGB 20 COMPACTED TO A MINIMUM OF 100% STANDARD COMPACTION AND FINISHED LEVEL WITH EXISTING ROAD SURFACE.
7. ALL DISTURBED SURFACES ARE TO BE REINSTATED TO AS NEARLY AS POSSIBLE TO THE PRE CONSTRUCTION CONDITION.

STORMWATER DRAINAGE CERTIFICATION:

1. PROVIDE CERTIFICATION THAT THE WHOLE INSTALLATION MEETS THE STANDARDS REFERRED TO IN THESE SPECIFICATIONS AND THE REQUIREMENTS OF AUTHORITIES AS WELL AS THE SUPPLY UTILITY.
2. UPON COMPLETION OF DRAINAGE WORKS THE CONTRACTOR IS TO SUPPLY THE ENGINEER WITH WORK AS EXECUTED DRAWINGS CERTIFIED BY A REGISTERED SURVEYOR.

SERVICES CONFLICT: IT IS THE CONTRACTORS RESPONSIBILITY TO CHECK FOR ANY CONFLICT OF SERVICES IN THE FOOTPATH & VERIFY LEVELS OF THE EXISTING STORM WATER CONNECTION BEFORE ANY COMMENCEMENT OF WORK

ATB CONSULTING ENGINEERS TAKES NO RESPONSIBILITY OR LIABILITY FOR ANY DAMAGES OR LOSSES INCURRED TO ANY PERSONS OR PROPERTY (INCLUDING THE DEVELOPMENT SITE) AS A RESULT OF MISINTERPRETATION OF THE RESULTS AND UNFORESEEN CIRCUMSTANCES SUCH AS POOR CONSTRUCTION, LACK OF MAINTENANCE AFTER CONSTRUCTION, ALTERATIONS TO GROUND LEVELS UPSTREAM, DOWNSTREAM OR ADJACENT TO THE DEVELOPMENT.

STORMWATER DRAINAGE NOTES:

1. CONTRACTOR IS TO VERIFY THE LEVEL AND LOCATION OF ALL EXISTING SERVICES PRIOR TO COMMENCEMENT OF EXCAVATION
2. THE CONTRACTOR IS TO VERIFY ANY CONFLICT OF SERVICES IN THE ROAD RESERVE OR SUBJECT PROPERTY AND THE ENGINEER IS TO BE NOTIFIED AT THE EARLIEST POSSIBLE CONVENIENCE.
3. THE CONTRACTOR IS TO VERIFY INVERT LEVELS AT POINT OF CONNECTION TO EXISTING STORMWATER SYSTEM AND REPORT ANY CONFLICT OF LEVELS.
4. ALL BUILDINGS HAVE BEEN RAISED SO THERE IS AT LEAST 150mm STEP UP INTO THE BUILDING TO ALLOW SUFFICIENT FREEBOARD FOR OVERLAND FLOWS IN THE CASE OF PIPE BLOCKAGE.
5. DOWNPIPE, PIT LOCATIONS AND LEVELS MAY BE VARIED TO SUIT SITE CONDITIONS, AFTER ENGINEERS APPROVAL.
6. DOWNPIPES SHOWN ARE INDICATIVE ONLY. ALL ROOF GUTTERING AND DOWNPIPES TO THE CURRENT AUSTRALIAN STANDARDS.
7. DRAINAGE PIPES TO BE CONCRETE ENCASED WHERE LOCATED UNDER DRIVEWAY OR BUILDING.
8. ALL PIPES TO BE FULLY HOUSED INTO PIT WALLS AND JOINED/SEAL IN ACCORDANCE WITH MANUFACTURERS SPECIFICATIONS.
9. GRADE ALL PAVED AND GRASSED AREAS AWAY FROM BUILDING.
10. TOP OF GRATE TO BE POSITIONED TO CATCH ALL UPSTREAM SURFACE FLOWS AS INDICATED BY PLANS.
11. ALL PIPES WITHIN THE PROPERTY TO BE MIN. OF 150 DIA. PVC @ 1% MIN. GRADE, UNO.
12. ANY PIPES OVER 16% GRADE SHALL HAVE CONCRETE BULKHEADS AT ALL JOINTS
13. ALL PITS WITHIN PROPERTY AREA TO BE FITTED WITH WELDLOK OR APPROVED EQUIVALENT GRATES TO AS 3996:
    - LIGHT DUTY FOR LANDSCAPED AREAS
    - HEAVY DUTY WHERE SUBJECTED TO VEHICULAR CROSSING
14. ANY PIPES BENEATH RELEVANT LOCAL AUTHORITY ROAD TO BE RUBBER RING JOINTED RCP, uno.
15. ALL PITS IN ROADWAYS ARE TO BE FITTED WITH HEAVY DUTY GRATES WITH LOCKING BOLTS AND CONTINUOUS HINGE.
16. ALL COURTYARD & LANDSCAPE PITS TO BE 400 SQUARE UNO
17. ALL PLANTER BOXES AND BALCONIES TO BE CONNECTED TO THE PROPOSED STORMWATER DRAINAGE LINE.
18. PROVIDE STEP IRONS TO STORMWATER PITS GREATER THAN 1200 IN DEPTH.
19. COMPRESSIVE STRENGTH OF CONCRETE AT 28 DAYS TO BE MIN. 25MPa
20. PROVIDE CONCRETE BENCHING ACROSS PIT TO SUIT INLET & OUTLET PIPES AS DETAILED.
21. 100∅ SUBSOIL DRAINAGE PIPE 3.0M LONG WRAPPED IN FABRIC SOCK TO BE PLACED ADJACENT TO INLET PIPES ON BOTH SIDES AND 100mm MIN. ABOVE PIT FLOOR
22. SUB-SOIL DRAINAGE SHALL BE PROVIDED TO ALL RETAINING WALLS & EMBANKMENTS, WITH THE LINES FEEDING INTO THE STORMWATER DRAINAGE SYSTEM, UNO.
23. SELECTED GRANULAR BACKFILL IS TO BE PLACED AGAINST THE FULL HEIGHT OF THE PIT VERTICAL FACES AND FOR A HORIZONTAL DISTANCE EQUAL TO ONE-THIRD THE HEIGHT OF THE STRUCTURE.
24. MORTAR BASES TO BE SHAPED TO GIVE MIN. 20mm FALL ACROSS PITS
25. MORTAR BASES TO BE DISHED TO SUIT ADJOINING PIPE SIZES TO GIVE SELF CLEANSING PITS.
26. WHERE PIT DEPTH EXCEEDS STANDARD DEPTH, CONCRETE SHALL BE USED AS PIT BASE, AND ALSO TO GAIN REQUIRED INLET/OUTLET LEVELS.
27. THE INLET PIPE OBVERT IS TO BE HIGHER THAN THE OUTLET PIPE OBVERT.
28. ALL SWALES SHALL HAVE A TURFED INVERT EXTENDING 0.5m UP THE SIDE SLOPES.
29. HAND EXCAVATE STORMWATER PIPES IN VICINITY OF TREE ROOTS
30. FOOTPATH CROSSING LEVELS SHOWN ARE TO BE ADJUSTED TO FINAL COUNCIL'S ISSUED LEVELS
31. ALL FENCES MUST BE RAISED 150mm FROM FINISHED GROUND LEVELS SO THAT OVERLAND FLOWS FROM UPSTREAM PROPERTIES ARE NOT RESTRICTED OR BLOCKED.

SURVEY DRAWINGS

SD1. BOUNDARIES IF SHOWN MAY NOT YET HAVE BEEN DEFINED OR MARKED. ALL BEARING AND DISTANCES ARE SUBJECT TO FINAL SURVEY. ONLY VISIBLE SERVICES HAVE BEEN LOCATED. PRIOR TO ANY DEMOLITION, EXCAVATION OR CONSTRUCTION, RELEVANT AUTHORITIES SHOULD BE CONTACTED FOR DETAILED LOCATION OF ALL SERVICES AND POSSIBLE LOCATION OF FURTHER UNDERGROUND SERVICES.
ALL WORK IS TO BE SET OUT BY A COMPETENT SURVEYOR APPROVED BY COUNCIL.

EARTHWORKS

1. ALL EARTHWORKS ARE TO BE PERFORMED TO LEVEL 1 CLASSIFICATION IN ACCORDANCE WITH AS 3798 - "GUIDELINES ON EARTHWORKS FOR COMMERCIAL, RESIDENTIAL DEVELOPMENTS".
2. ALL WORKS TO BE CONDUCTED TO THE REQUIREMENTS OF THE WOLLONGONG CITY COUNCIL SUBDIVISION POLICY.
3. EXCAVATIONS GREATER THAT 1.5m IN DEPTH SHALL BE BENCHED AT 1.5m INTERVALS IN HEIGHT & PROTECTED BY SAFETY FENCE ABOVE.
4. NO SITE RE-GARDING WORKS ARE TO BE UNDERTAKEN UNTIL EROSION & SEDIMENT CONTROL DEVICES HAVE BEEN ERECTED OR CONSTRUCTED TO THE SATISFACTION OF THE SUPERINTENDENT.
5. PROVIDE PROTECTION BARRIERS TO PROTECTED/SENSITIVE AREAS PRIOR TO ANY BULK EXCAVATION
6. OVER FULL AREA OF EARTHWORKS, CLEAR VEGETATION, RUBBISH, SLABS ETC, AND STRIP TOP SOIL.AVERAGE 200mm THICK. REMOVE FROM SITE, EXCEPT TOP SOIL FOR RE-USE.
7. STRIP AVERAGE 500mm EXISTING UNCONTROLLED FILL IN BUILDING AREAS. STRIP AVERAGE 1000mm UNCONTROLLED FILL UNDER ROADS & SLABS ON GRADE.
8. CUT & FILL OVER THE SITE TO LEVELS REQUIRED. BENCH AS NECESSARY.
9. ALL DISTURBED AREAS INCLUDING BATTERS TABLE DRAINS AND FOOTPATH AREAS ARE TO BE TOP SOILED FERTILIZED AND SEEDED TO THE SATISFACTION OF COUNCIL'S SUBDIVISION AND DEVELOPMENT ENGINEER.
10.
11. STOCKPILE EXCAVATION MATERIAL FOR RE-USE. GEOTECHNICAL ENGINEER TO APPROVE.
12. PRIOR TO ANY FILLING IN AREAS OF CUT OR EXISTING GROUND, PROOF ROLL THE EXPOSED SURFACE WITH A ROLLER OF MIN. WEIGHT OF 5 TONES WITH A MIN. OF 10 PASSES
13. EXCAVATE & REMOVE ANY SOFT SPOTS ENCOUNTERED DURING PROOF ROLLING & REPLACE WITH APPROVED FILL COMPACTED IN LAYERS.THE WHOLE OF THE EXPOSED SUB-GRADE & FILL SHALL BE COMPACTED TO 98% STANDARD MAX. DRY DENSITY AT OPTIMUM MOISTURE CONTENT ±2%.
14. FOR ON SITE FILLING AREAS, THE CONTRACTOR SHALL TAKE LEVELS OF EXISTING SURFACE AFTER STRIPPING TOPSOIL & PRIOR TO COMMENCING OPERATIONS.
15. WHERE HARD ROCK IS EXPOSED IN SUB-GRADE, THIS WILL BE INSPECTED AND A DECISION MADE ON THE LEVEL TO WHICH EXCAVATION IS TAKEN.
16. FILL IN 200mm MAX. (LOOSE THICKNESS) LAYERS TO UNDERSIDE OF BASE COURSE USING THE EXCAVATION MATERIAL & COMPACTED TO REQUIRED STANDARD (AS 1289 5.1.1). MAX. DRY DENSITY AT OPTIMUM MOISTURE CONTENT ±2% SHOULD THERE BE INSUFFICIENT MATERIAL FROM SITE EXCAVATIONS. IMPORT NECESSARY CLEAN GRANULAR FILL TO GEOTECHNICAL ENGINEER APPROVAL
17. USE EXCAVATION MATERIAL IN LOWER LEVELS & UNDER BUILDINGS. USE IMPORTED MATERIAL IN UPPER LEVELS & UNDER ROAD & CAR PARK AREAS.
18. FOR COMPACTION REQUIREMENTS REFER TO ATTACHED DRAWINGS.
19. ALL TESTING WORKS SHALL BE UNDERTAKEN & CERTIFIED BY A NATA REGISTERED LABORATORY. A COPY OF THE TEST RESULTS SHALL BE PROVIDED TO THE SUPERINTENDENT.
20. BATTERS TO BE AS SHOWN OR MAX 1 VERTICAL: 4 HORIZONTAL ALL CONDUITS & MAINS SHALL BE LAID PRIOR TO LAYING FINAL PAVEMENT.
21. ALL BATTERS & FOOTPATHS ADJACENT TO ROADS SHALL BE TOP SOILED WITH 150mm APPROVED LOAM & SEEDED UNLESS OTHERWISE SPECIFIED.
22. REFER TO GEOTECHNICAL ENGINEERS REPORT TO ASSESS ALL CUTTING & FILLING ONSITE.

SYMBOLS & NOTATIONS

100∅ uPVC @ 1.0% MIN.	PIPE SIZE, TYPE AND GRADE
20.71	EXISTING LEVELS
× 22.80	PROPOSED LEVELS
	STORMWATER PIT
	CONCRETE COVERED PIT
KIP 1	KERB INLET PIT 1
	1200 SQ. GRATED PUMP OUT PIT WITH TWIN PUMPS
● DP	DOWN PIPE
RWT	RAINWATER TANK
	STORMWATER PIPE
AGG	AGG. PIPE
	SPOON/SWALE DRAIN
	GRATED DRAIN
	DIRECTION OF FLOW
O/F	DIRECTION OF OVERLAND FLOW
	PROPOSED RETAINING WALLS
	100∅ PVC SPREADER PIPE, 600 LG
BO	BALCONY OUTLET
PO	PLANTER OUTLET
OF	OVERFLOW SLOTS
	PIPE SUSPENDED BELOW SLAB
H1	CONTINUED OH H1
DP 100	DIRECTION OF FLOW, SERVICE, SIZE

LEGEND

AHD	AUSTRALIAN HIGH DATUM
AG	AGG PIPE
ARI	AVERAGE RECURRENCE INTERVAL
BG	BOX GUTTER
BP	BASEMENT PIT.
BWT	BOTTOM WATER LEVEL
CL	COVER LEVEL
CO	CLEAN OUT INSPECTION OPENNING
DP	DOWNPIPE.
EDP	EXISTING DOWN PIPE
EG	EAVES GUTTER
EP	EXISTING PIT.
FFL	FINISHED FLOOR LEVEL
GI	GALVANISED IRON GRATE.
GP	GROUND PIT.
HDG	HEAVY DUTY CAST IRON GRATE.
IL	INVERT LEVEL
IO	INSPECTION OPENING
JP	JUNCTION PIT.
K	KERB.
KIP	KERB INLET PIT.
LDG	LIGHT DUTY CAST IRON GRATE.
MDG	MEDIUM DUTY CAST IRON GRATE.
NTS	NOT TO SCALE
O/F	OVER FLOW
OSD	ONSITE DETENTION
PE	EASEMENT PIT.
PD	PARKING DRAIN
PSD	PERMISSIBLE SITE DISCHARGE
RCP	REINFORCED CONCRETE PIPE
RHS	RECTANGULAR HOLLOW SECTION
RL	REDUCED LEVEL
RRJ	RUBBER RING JOINTED
RWT	RAINWATER TANK
RWO	RAINWATER OUTLET
RWH	RAIN WATER HEAD
SFL	SLAB FINISHED LEVEL
SP	SPREADER.
SS	STAINLESS STEEL
SU	BOX GUTTER SUMP
SWP	STORMWATER PIT
TOK	TOP OF KERB
TW	TOP OF WALL
TWL	TOP WATER LEVEL
U/S	UNDER SIDE OF SLAB
VG	VALLY GUTTER
UNO	UNLESS NOTED OTHERWISE

CONCEPT DESIGN
NOT TO BE USED FOR CONSTRUCTION PURPOSES

ISSUE	AMENDMENT	DATE
A	ISSUE FOR DA APPLICATION	01/04/20

PLANS 0 1000 2000 3000 4000 5000

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WOLLONGONG NSW 2500
TELEPHONE: 02 42 266 646
Email: Info@atbconsulting.com.au
ACEA The Association of Consulting Engineers Australia

Title	STORMWATER NOTES AND LEGENDS
Project	PROPOSED MULTI-DWELLING HOUSING 7 TOWNHOUSES
At	LOT 6 PRINCES HIGHWAY, CORRIMAL (Also known as 85 Midgley Street, Corrimal
Client	BARRY BECAREVIC

SCALES AS SHOWN			DATE PLOTTED 10/03/20
DRAWN D.K.			DATUM A.H.D.
DESIGNED G.U.			
CHECKED G.U.	DATE CHK'D __/01/20		
	PROJECT No 20004	DWG SW1	REVISION A

TREES 1–4 TO BE REMOVED SHOWN DASHED

PRINCES HIGHWAY

B.M. CUT TRIANGLE RL 32.11 (A.H.D.)

225∅ AT MIN. 1% FALL

P1 P2 P3 P4 P5 P6 P7 P8 P9 P10 P11 P12 P13 P14 P15 P16 P17 P18

P.O.S. RL 34.824

P.O.S. RL 34.652

P.O.S. RL 34.480

P.O.S. RL 34.480

P.O.S. RL 34.308

P.O.S. RL 37.715

P.O.S. RL 37.400

OSD 1

OSD 2

UNIT 1 RL 37.894

UNIT 2 RL 37.722

UNIT 3 RL 37.550

UNIT 4 RL 37.550

UNIT 5 RL 37.378

UNIT 6 RL 37.485

UNIT 7 RL 37.785

GARAGE RL 37.794

GARAGE RL 37.622

GARAGE RL 37.450

GARAGE RL 37.450

GARAGE RL 37.278

GARAGE RL 37.450

GARAGE RL 37.450

RAMP

RAMP

RL 38.06

RL 38.34

RL 40.24

RL 37.685

RL 37.715

RL 37.450

RL 37.400

SMH

TP

PP

2 x 150x100 GALVANISED RHS AT MINIMUM 1.5% FALL, CONNECTED TO KERB AS PER WOLLONGONG CITY COUNCIL SPECIFICATIONS AND DETAILS
OSD 1 Q5 = 30L/S
OSD 2 Q5 = 25L/S
COMBINED Q5 = 53L/S
IL = 31.96 TBC PRIOR CC STAGE.

SWALE IN LANDSCAPE AREA TO DIRECT OVERLAND FLOW FROM UPSLOPE PROPERTY

RAINWATER TANK TO COLLECT ROOF AREA AS PER BASIX REQUIREMENTS WITH 100∅ PVC OVERFLOW PIPE, TYPICAL

REFER TO DRAWING SW5 FOR PIT SCHEDULE

ALL FENCES MUST BE RAISED 150mm FROM FINISHED GROUND LEVELS SO THAT OVERLAND FLOWS FROM UPSTREAM PROPERTIES ARE NOT RESTRICTED OR BLOCKED.

EXISTING DRIVEWAY TO BE DEMOLISHED SHOWN DASHED

RETAINING WALL TO STRUCTURAL ENGINEERS DETAILS AND SPECIFICATIONS

EXISTING DWELLING

RETAINING WALL TO STRUCTURAL ENGINEERS DETAILS AND SPECIFICATIONS

DENOTES EXISTING SEWER. LOCATION TO BE CONFIRMED PRIOR TO CONSTRUCTION

ROOF WATER NOTES:

1. DWELLING EAVES GUTTER TO HAVE MIN. CROSS SECTION OF 8910mm2 FOR A MAX. CATCHMENT OF 40.8m2
2. MIN. DOWNPIPE SUBCATCHEMNET = 40.8m2
3. GUTTER GRADES TO BE 1:500 OR STEEPER
4. GUTTERING AND DOWN PIPES ARE SIZED TO AN ARI 20 YEARS.
5. EXACT LOCATION OF DOWNPIPES TO BE CONFIRMED BY ARCHITECT PRIOR TO DETAILED LOCATION.
6. ALL DOWNPIPES CONNECTED TO RAINWATER TANKS TO BE CONNECTED VIA A CHARGED SYSTEM ∅100mm SEWER GRADE AND CLEANOUT RISER AT OPPOSITE SIDE OF RAINWATER TANK(S)

PLAN: CONCEPT SITE STORMWATER LAYOUT

(SCALE 1:100 @ A1, 1:200 @ A3)

1. ALL PIPES SHOWN 100∅ SEWER GRADE WITH 1% FALL UNLESS OTHERWISE SPECIFIED.
2. EXACT LOCATION OF DOWNPIPES TO BE CONFIRMED BY ARCHITECT PRIOR TO DETAILED LOCATION.
3. GRADE ALL PERVIOUS AREAS AWAY FROM BUILDINGS.
4. PROVIDE OVERFLOW PATHS THRU LANDSCAPING BEDS AS REQUIRED OR AS DIRECTED BY ENGINEER ON SITE.
5. GEOFABRIC MATERIAL TO BE FITTED TO ALL OUTLET PIPES FOR ALL PITS. THIS IS REQUIRED TO STOP SEDIMENT FROM EXITING THE PROPERTY.
6. DOWNPIPES CONNECTED TO THE RAINWATER TANKS SHOULD BE VIA A CHARGED SYSTEM ∅100mm SEWER GRADE AND CLEANOUT RISER AT OPPOSITE SIDE OF RAINWATER TANK(S)

UNDERGROUND OSD TANK 1
10.6m L x 2.4m W x 1.0m DEEP
VOLUME = 25.4m³
SSR 5 YRS = 22.86m³
SSR 100 YRS = 24.92m³
TWL = 36.931m AHD
INVERT = 35.95m AHD

UNDERGROUND OSD TANK 2
1.8m L x 1.8m W x 1.0m DEEP
VOLUME = 3.24m³
SSR 5 YRS = 2.89m³
SSR 100 YRS = 3.12m³
TWL = 33.263m AHD
INVERT = 32.30m AHD

TREE PROTECTION ZONE LEGEND

TREE
TREE NUMBER
TREE PROTECTION ZONE
STRUCTURAL ROOT ZONE

REFER TO ARBORICULTURAL IMPACT ASSESSMENT REPORT BY ALLIED TREE CONSULTANCY REFERENCE NO. D3957 DATED MARCH 2020

CONCEPT DESIGN
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PLANS 0 1000 2000 3000 4000 5000

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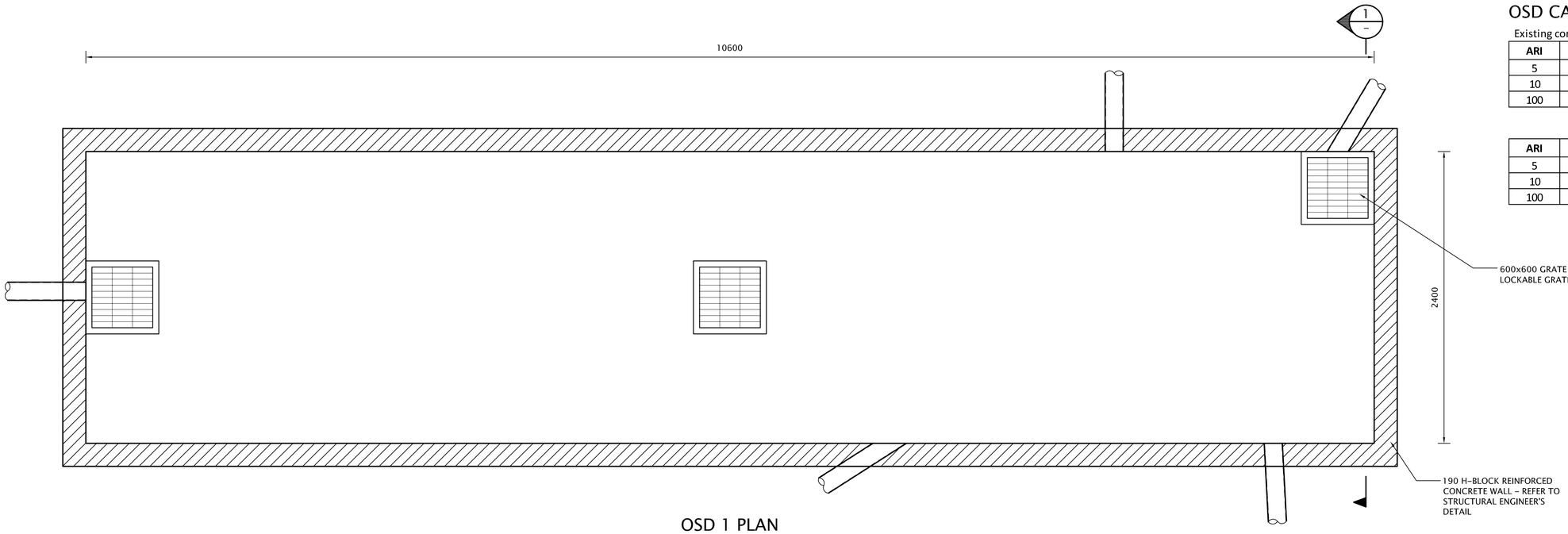
Title	PLAN: CONCEPT SITE STORMWATER LAYOUT
Project	PROPOSED MULTI-DWELLING HOUSING 7 TOWNHOUSES
At	LOT 6 PRINCES HIGHWAY, CORRIMAL (Also known as 85 Midgley Street, Corrimal
Client	BARRY BECAREVIC

SCALES	AS SHOWN	DATE PLOTTED	10/03/20
DRAWN	D.K.		
DESIGNED	G.U.	DATUM	A.H.D.
CHECKED	G.U.	DATE CHK'D	__/01/20
PROJECT No	20004	DWG	SW2
REVISION	A		



OSD 1 PLAN
(SCALE 1:20)

OSD CALCULATIONS

Existing conditions

ARI	Q (L/s)
5	140
10	162
100	242

Existing area contributing to flow

Tributary area m^2	% Impervious
3172	58.8

OSD 1

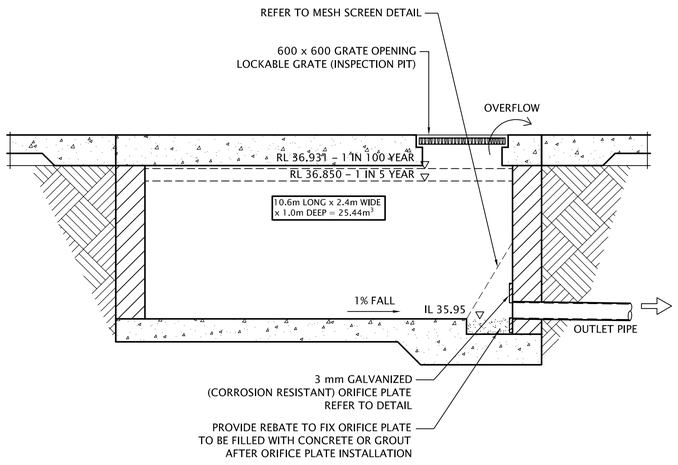
ARI	Q (L/s)	V (m^3)
5	29	22.86
10	51	24.14
100	99	24.92

Post area contributing to flow

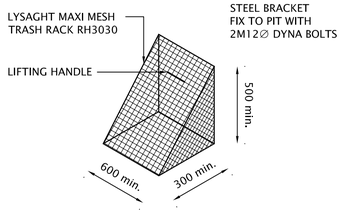
Tributary area m^2	% Impervious
1145	100

Cumulative flow from OSD 1 + 2

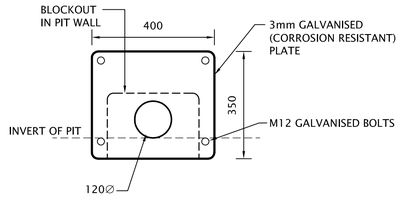
ARI	Q (L/s)
5	53
10	84
100	148



SECTION 1/–
(SCALE 1:20)



MESH SCREEN DETAIL
NOT TO SCALE
GALVANISED LYSAGHT RH3030MAXI
MESH SCREEN IN GALVANISED STEEL
FRAME WITH LIFTING HANDLES



OSD ORIFICE PLATE DETAIL
(NOT TO SCALE)

CONCEPT DESIGN
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ISSUE	AMENDMENT	DATE
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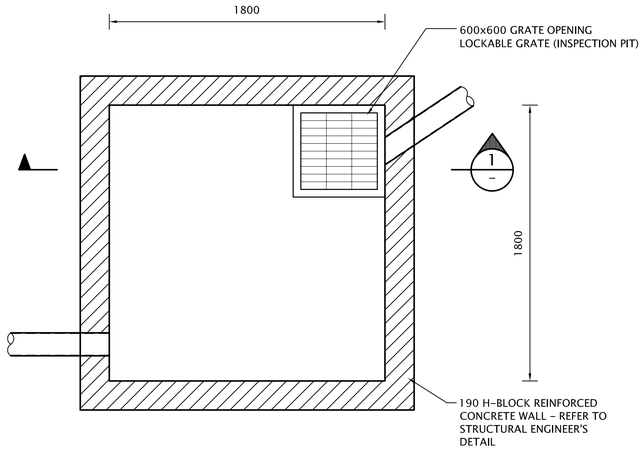
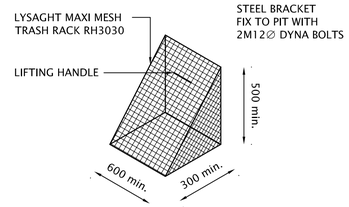
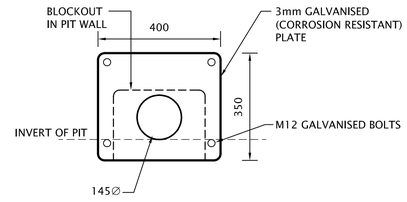


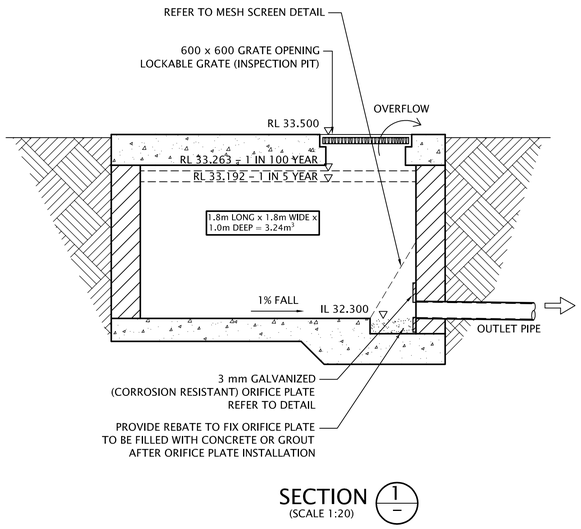
OSD 2 PLAN
(SCALE 1:20)



MESH SCREEN DETAIL
NOT TO SCALE
GALVANISED LYSAGHT RH3030MAXI
MESH SCREEN IN GALVANISED STEEL
FRAME WITH LIFTING HANDLES



OSD ORIFICE PLATE DETAIL
(NOT TO SCALE)



SECTION 1/–
(SCALE 1:20)

OSD CALCULATIONS

Existing conditions

ARI	Q (L/s)
5	140
10	162
100	242

OSD 2

ARI	Q (L/s)	V (m^3)
5	24	2.89
10	33	3.07
100	49	3.12

Cumulative flow from OSD 1 + 2

ARI	Q (L/s)
5	53
10	84
100	148

Existing area contributing to flow

Tributary area m^2	% Impervious
3172	58.8

Post area contributing to flow

Tributary area m^2	% Impervious
588	100

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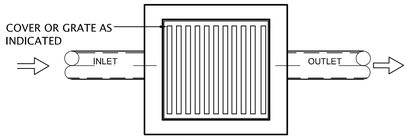
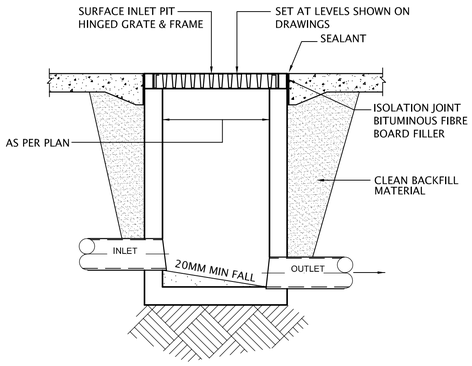
	PROJECT No 20004 / DWG SW4 / REVISION A	

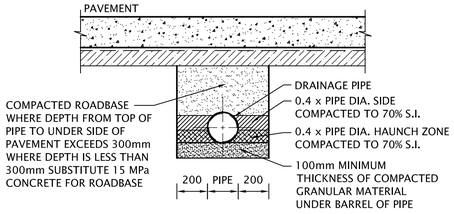


PLAN
(NOT TO SCALE)
PIPE SIZES AND LEVELS AS SHOWN ON DRAWINGS

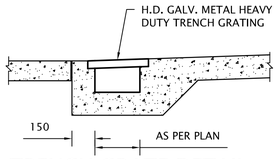


SECTION THROUGH
SURFACE STORMWATER PIT (TYPICAL)
(NOT TO SCALE)

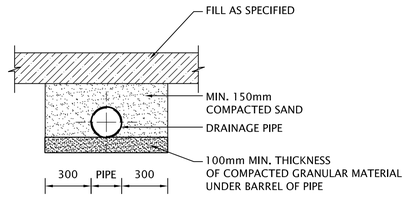
1. ALL PITS TO BE CONSTRUCTED WITH 25MPa CONCRETE AND REINFORCED WITH SL72 MESH CENTRALLY PLACED, MINIMUM COVER TO REINFORCEMENT AT PIPE PENETRATIONS TO BE 50mm.
2. GRATE & FRAME TO BE CLASS 'D' HOT DIP GALVANIZED MILD STEEL – WELDLOK GG50D OR SIMILAR EQUIVALENT.
3. ALL FRAMES TO BE EMBEDDED INTO SURROUNDING CONCRETE AND FINISHED FLUSH WITH THE FINISH FLOOR LEVELS.
4. STEP IRONS TO BE USED WHERE DEPTH TO INVERT IS GREATER THEN 1.2m.
5. ALL EXPOSED EDGES TO BE ROUNDED TO 10mm RADIUS.
6. N12 'L' BARS (MIN. 400x400mm) TO BE PLACED AT 400 CENTRES ON ALL CORNERS (i.e WALLS AND BASE).



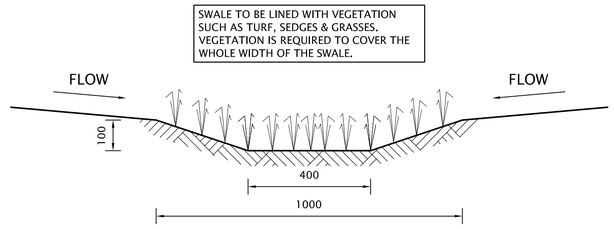
SECTION THROUGH STORMWATER
DRAIN UNDER PAVEMENT
(NOT TO SCALE)



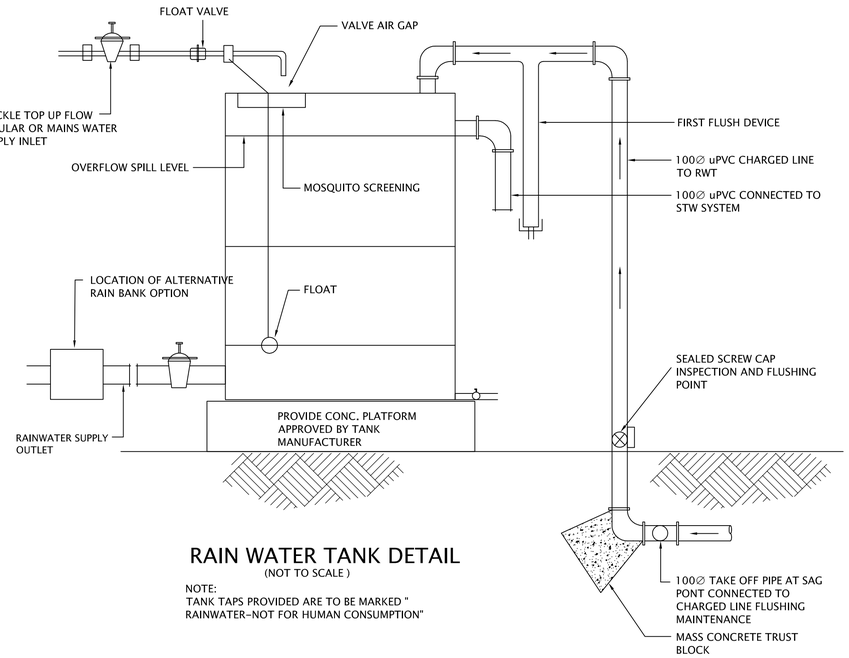
TRENCH GRATE DETAIL
(TYPICAL)
(NOT TO SCALE)



SECTION THROUGH STORMWATER
DRAIN UNDER GROUND
(NOT TO SCALE)

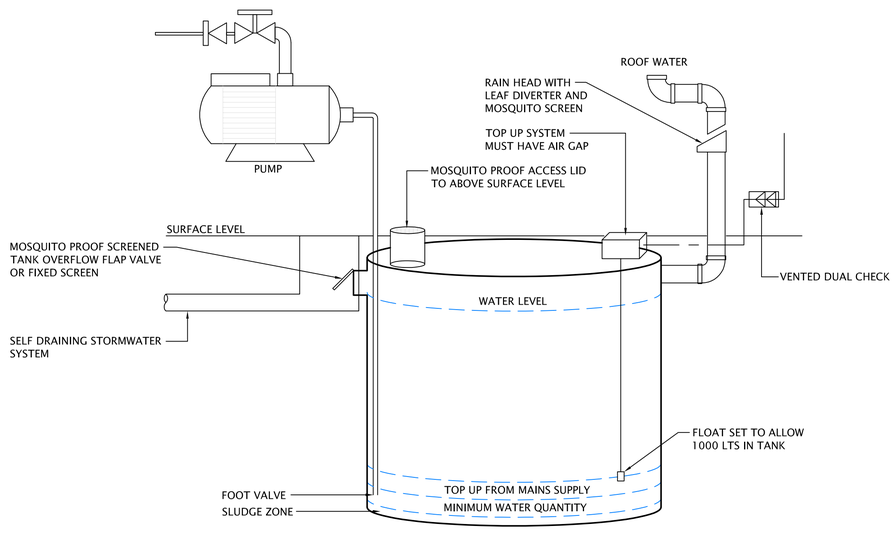


TYPICAL SWALE DETAIL
(SCALE 1:10)



RAIN WATER TANK DETAIL
(NOT TO SCALE)

NOTE:
TANK TAPS PROVIDED ARE TO BE MARKED "
RAINWATER–NOT FOR HUMAN CONSUMPTION"



UNDER GROUND RAIN WATER TANK DETAIL
(NOT TO SCALE)

NOTE:
TANK TAPS PROVIDED ARE TO BE MARKED "
RAINWATER–NOT FOR HUMAN CONSUMPTION"

CLASS OF GRATE AS3996.2006

A – 10kN PEDESTRIAN	B – 80kN LIGHT VEHICLES
C (i) – 150kN LIGHT TRUCK	C (ii) – 150kN SLOW TRUCK
D – 210kN HIGHWAY VEHICLES	

PIT SCHEDULE

PIT	GRATE	SIZE	RL	IL	COMMENT
P1	CLASS A	900 x 900	33.25	32.20	SURFACE PIT
P2	CLASS A	600 x 600	34.90	34.45	SURFACE PIT
P3	CLASS C(II)	600 x 600	37.30	36.75	SURFACE PIT
P4	CLASS C(II)	600 x 600	37.50	36.95	SEALED PIT
P5	CLASS C(II)	600 x 600	37.75	3720	SEALED PIT
P6	CLASS A	300 x 300	37.715	37.315	SURFACE PIT
P7	CLASS A	300 x 300	37.45	37.05	SURFACE PIT
P8	CLASS A	300 x 300	37.40	37.00	SURFACE PIT
P9	CLASS A	300 x 300	37.40	36.90	SURFACE PIT
P10	CLASS A	300 x 300	37.40	36.80	SURFACE PIT
P11	CLASS A	300 x 300	34.70	34.30	SEALED PIT
P12	CLASS A	300 x 300	34.50	34.05	SEALED PIT
P13	CLASS A	300 x 300	34.40	33.95	SEALED PIT
P14	CLASS A	300 x 300	34.40	33.87	SEALED PIT
P15	CLASS A	300 x 300	34.31	33.78	SEALED PIT
P16	CLASS C(II)	600 x 600	37.60	37.15	SILT ARRESTOR
P17	CLASS A	450 x 450	39.50	39.05	SURFACE PIT
P18	CLASS A	900 x 900	32.50	32.05	SEALED PIT

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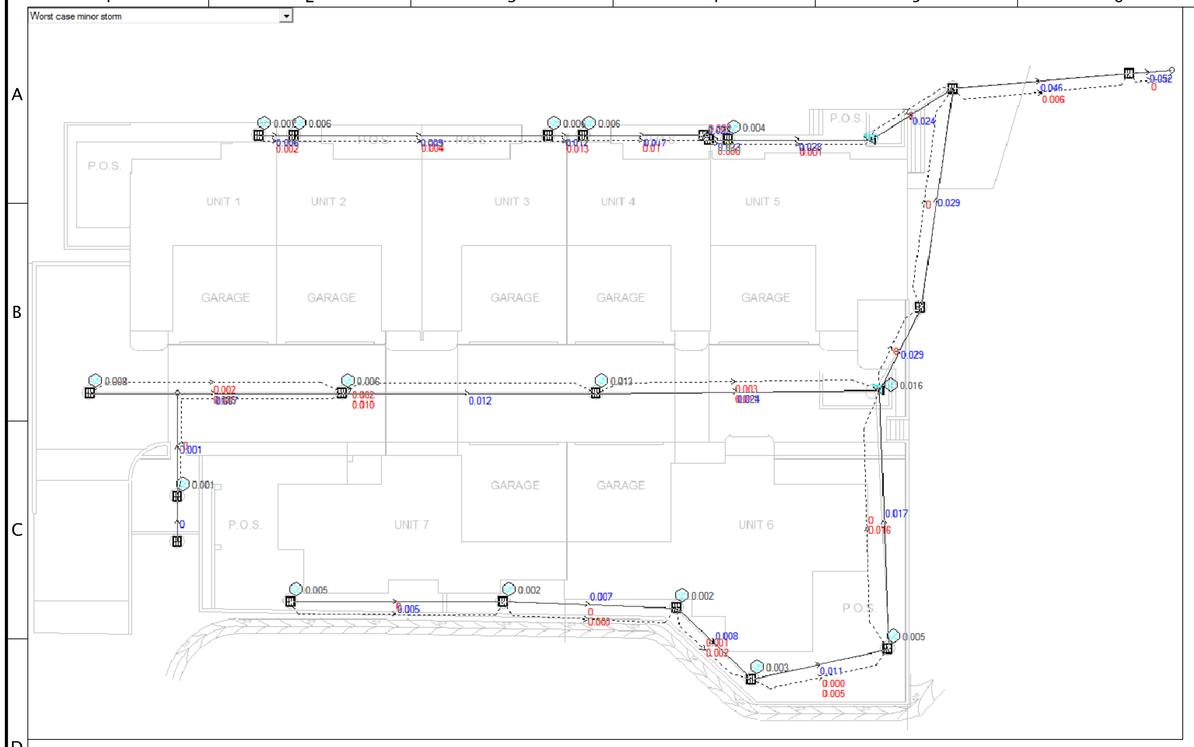
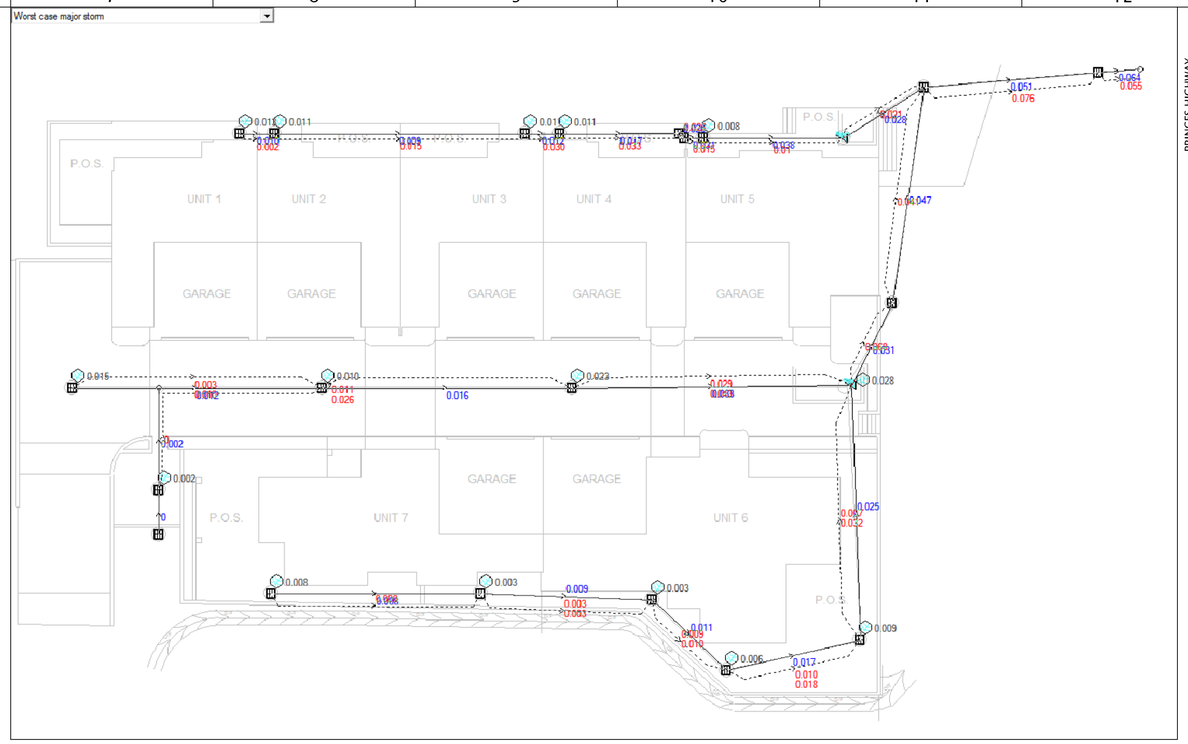
Project	PROPOSED MULTI–DWELLING HOUSING 7 TOWNHOUSES
At	LOT 6 PRINCES HIGHWAY, CORRIMAL (Also known as 85 Midgley Street, Corrimal
Client	BARRY BECAREVIC

SCALES AS SHOWN			DATE PLOTTED 10/03/20
DRAWN D.K.			DATUM A.H.D.
DESIGNED G.U.			
CHECKED G.U.	DATE CHK'D __/01/20		
	PROJECT No 20004	DWG SW5	REVISION A



MINOR STORM 1 IN 5 YEAR CALCULATIONS
NOT TO SCALE



MAJOR STORM 1 IN 100 YEAR CALCULATIONS
NOT TO SCALE

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PLANS 0 1000 2000 3000 4000 5000

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THIS DRAWING SHALL BE READ IN CONJUNCTION WITH SPECIFICATIONS

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ACEA The Association of Consulting Engineers Australia

Title	MINOR AND MAJOR STORM CALCULATIONS
Project	PROPOSED MULTI-DWELLING HOUSING 7 TOWNHOUSES
At	LOT 6 PRINCES HIGHWAY, CORRIMAL (Also known as 85 Midgley Street, Corrimal
Client	BARRY BECAREVIC

SCALES AS SHOWN			DATE PLOTTED 10/03/20
DRAWN D.K.			DATUM A.H.D.
DESIGNED G.U.			
CHECKED G.U.	DATE CHK'D __/01/20		
	PROJECT No 20004	DWG SW6	REVISION A

CAUTION

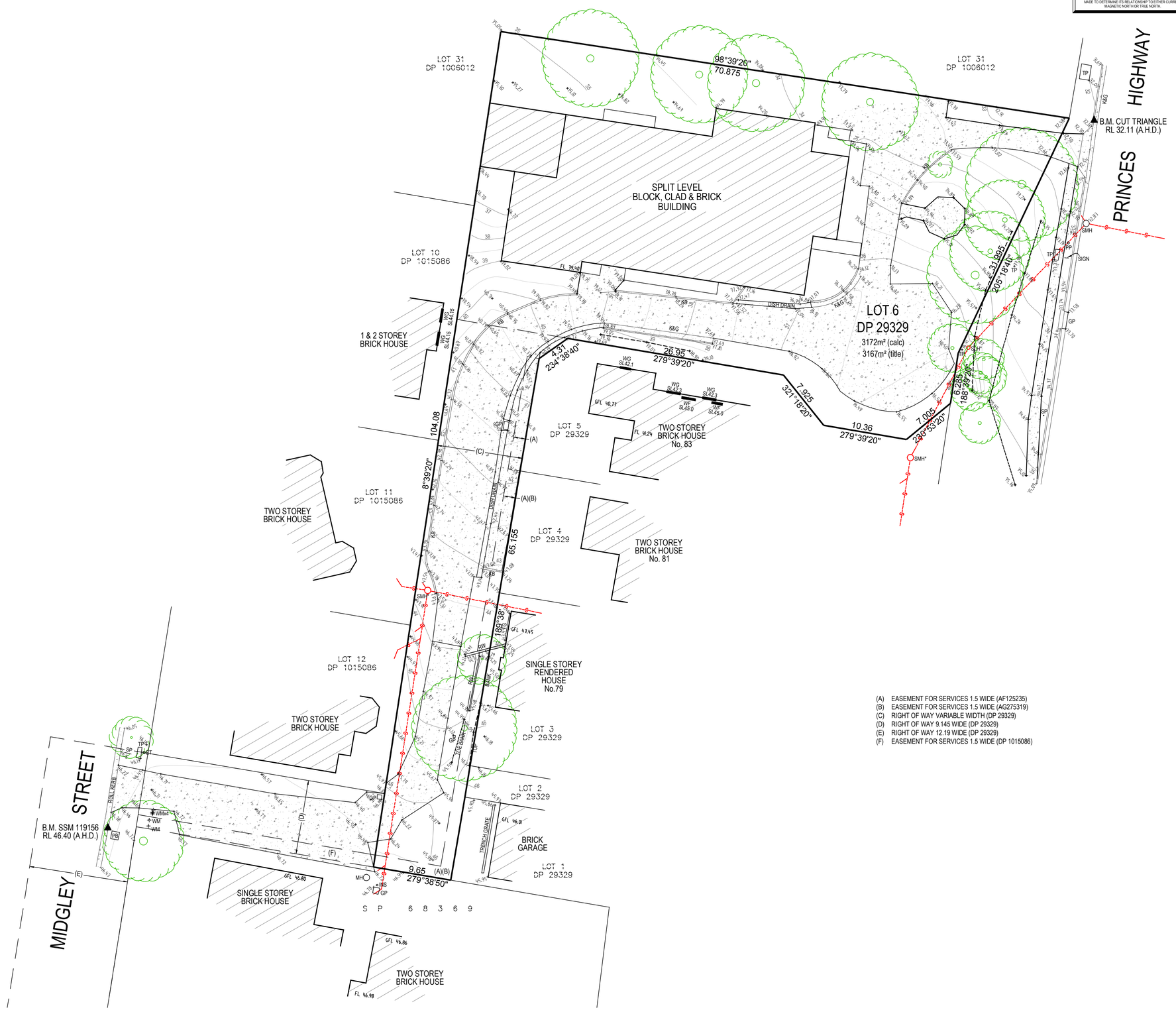
www.dialbeforeyoudig.com.au
DIAL1100 BEFORE YOU DIG

ONLY APPARENT SERVICES HAVE BEEN LOCATED BY SURVEY. NO SEARCH OF PUBLIC UTILITIES HAS BEEN CARRIED OUT TO DETERMINE THE LOCATION OF ANY UNDERGROUND SERVICES SUCH AS TELSTRA, POWER, GAS, SEWER OR WATER, AS SUCH BEFORE CARRYING OUT ANY DESIGN OR CONSTRUCTION WORK YOU NEED TO DIAL 1100 BEFORE YOU PROCEED

CAUTION:
THE NORTH POINT ORIENTATION SHOWN HEREON HAS BEEN TAKEN FROM UNDERLYING CADASTRAL PLANS ONLY, NO ATTEMPT HAS BEEN MADE TO DETERMINE ITS RELATIONSHIP TO EITHER CURRENT MAGNETIC NORTH OR TRUE NORTH.

ISG

NOTE:
WINDOW SILL LEVELS & LOCATIONS ARE APPROXIMATE ONLY



LEGEND

ET	ELECTRICITY TURRET
FL	FLOOR LEVEL
GFL	GARAGE FLOOR LEVEL
GP	GRATED PIT
INS	INSPECTION OPENING
K&G	KERB & GUTTER
KB	KERB ONLY
MH	MAINTENANCE HOLE
PB	PLANTER BOX
PP	POWER POLE
RW	RETAINING WALL
SLH	SEWER LAMP HOLE
SMH	SEWER MAINTENANCE HOLE
SP	SIGN POST
SV	STOP VALVE
TP	TELSTRA PIT
TG	TRENCH GRATE
WF	WINDOW POSITION ON FIRST FLOOR LEVEL (APPROXIMATE ONLY)
WG	WINDOW POSITION ON GROUND FLOOR LEVEL (APPROXIMATE ONLY)
SL	WINDOW SILL LEVEL (APPROXIMATE ONLY)
WM	WATER METER
*	DENOTES STRUCTURE LOCATION BY HYDRA SKETCH ONLY

DENOTES HARDSTAND (BITUMEN AND/OR CONCRETE) AREA

DENOTES APPROXIMATE LOCATION OF SEWER MAIN (APPROX. DEPTH/S IF SHOWN ARE BY HYDRA SKETCH ONLY)

(A) EASEMENT FOR SERVICES 1.5 WIDE (AF125235)
(B) EASEMENT FOR SERVICES 1.5 WIDE (AG275319)
(C) RIGHT OF WAY VARIABLE WIDTH (DP 29329)
(D) RIGHT OF WAY 9.145 WIDE (DP 29329)
(E) RIGHT OF WAY 12.19 WIDE (DP 29329)
(F) EASEMENT FOR SERVICES 1.5 WIDE (DP 1015086)

EXPLANATORY NOTES

1. ONLY APPARENT SERVICES HAVE BEEN LOCATED BY SURVEY. NO SEARCH OF PUBLIC UTILITIES OR SUB-SURFACE INVESTIGATION HAS BEEN CARRIED OUT TO DETERMINE THE LOCATION OF ANY UNDERGROUND SERVICES SUCH AS COMMUNICATIONS, ELECTRICITY, GAS OR WATER. SEE THE ATTACHED DIAL BEFORE YOU DIG CAUTION IN THIS PLAN SPACE. NO INVESTIGATION OF LOCATION OF ANY FOOTINGS OR FOUNDATIONS HAS BEEN CARRIED OUT.

PLEASE NOTE THAT A HYDRA SKETCH HAS BEEN OBTAINED FROM SYDNEY WATER, AND THIS HAS BEEN USED TO SHOW THE SEWER LINE ON THE PLAN. WE CAUTION THAT THE SEWER LOCATION AS SHOWN IS APPROXIMATE ONLY & A "SEWER PEGOUT" MAY BE REQUIRED TO DETERMINE A MORE PRECISE LOCATION.

2. SPOT LEVELS & CONTOURS REPRESENT GENERAL GROUND LEVEL ONLY. THEY GIVE AN APPROXIMATE REPRESENTATION ONLY OF THE SHAPE AND LEVELS OF THE GROUND SURFACE. CONTOURS DO NOT REPRESENT THE PRECISE LEVEL AT ANY PARTICULAR POINT EXCEPT WHERE A SPOT LEVEL IS SHOWN. SHOULD CRITICAL DESIGN FACTORS BE IN EXISTENCE THEN IT MAY BE NECESSARY TO OBTAIN SUPPLEMENTARY LEVELS TO CONFIRM DESIGN CONSTRAINTS OR PARTICULARS. (TO THIS EXTENT IT SHOULD BE NOTED THAT THE CONTOUR INTERVAL IS 0.5 m)

3. CONTOURS ARE INTERPOLATED FROM SPOT LEVELS AS SHOWN & SHOULD BE USED AS A GUIDE ONLY. DO NOT RE-INTERPOLATE CONTOURS.

4. PLEASE NOTE THAT NO BOUNDARY DEFINITION SURVEY HAS BEEN UNDERTAKEN FOR THIS PLAN AND NO BOUNDARIES HAVE BEEN MARKED. BOUNDARIES ARE SHOWN IN APPROXIMATE LOCATION ONLY. DIMENSIONS AS SHOWN ON THE PLAN HAVE ONLY BEEN TAKEN FROM A COPY OF THE DEPOSITED PLAN AND NOT VERIFIED BY FIELD SURVEY. THE DIMENSIONS CAN ONLY BE VERIFIED BY UNDERTAKING A COMPREHENSIVE BOUNDARY DEFINITION SURVEY TO ESTABLISH THE AVAILABLE DIMENSIONS OF THE PROPERTY.

5. RELATIONSHIP OF IMPROVEMENTS AND TREES TO BOUNDARIES IS DIAGRAMMATIC ONLY AS THEY HAVE NOT BEEN ACCURATELY DETERMINED. WHERE OFFSETS ARE CRITICAL THEY SHOULD BE CONFIRMED BY FURTHER SURVEY. THE CO-ORDINATES OF BUILDING CORNERS WERE DETERMINED BY TOPOGRAPHIC SURVEY AND THEREFORE ARE APPROXIMATE ONLY.

6. ORIGIN OF LEVELS IS AUSTRALIAN HEIGHT DATUM (A.H.D.) DERIVED FROM SSM 119156, RL 46.4 (AHD, SOURCE - DP 1015086).

7. THIS PLAN & ACCOMPANYING DIGITAL MODEL HAS BEEN PREPARED FOR BARRY BECAREVIC - ITS USE IS LIMITED TO SITE ANALYSIS MATTERS & MUST BE USED FOR NO OTHER PURPOSE OR BY ANY UNAUTHORIZED THIRD PARTY. THE CONTENTS REMAINS THE INTELLECTUAL PROPERTY OF LANDTEAM.

8. THIS PLAN IS TO BE READ IN CONJUNCTION WITH THE README FILE ON THE ACCOMPANYING DIGITAL TRANSFER AND THE PDF FILE ATTACHED.

Liability limited by a scheme approved under Professional Standards Legislation

FILE NAME : 208244 TS01-B.dwg

SCALE 1:250

0 3 6 9 12 15
Metres

ISSUE	AMENDMENT	DRAWN	DATE
A	INITIAL ISSUE	JAK	8/12/15
B	ADD FURTHER SURVEY DETAIL AS SURVEYED 14/11/2016	JAK	16/11/16

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BARRY BECAREVIC

DETAIL & CONTOUR SURVEY PLAN
LOT 6 IN D.P. 29329
PRINCES HIGHWAY, CORRIMAL

A1 SHEET

SURVEYED: DG RF
DRAWN: JAK
CHECKED: DG
ISSUE B

DRAWING No.
208244-TS01
SHEET 1 OF 1 SHEET(S)

DATUM	AHD	CONTOUR INTERVAL	0.5m	DATE	SURVEYED 18/11/2015

GEOCOMP No.: 8244 03

ALLIED TREE
CONSULTANCY
Level 5 and 8 Arboriculturist

Arboricultural Impact Assessment Report

For the site address
Lot 6 (D.P. 29329)
No. 85 Midgley Street
CORRIMAL, NSW

Prepared for
Barry Becarevic
c/o PRD Architects

AUTHOR
Geoff Beisler and Warwick Varley

STATUS

Draft	March 2020
Draft 2	March 2020
Final	March 2020

REFERENCE D3957

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TABLE OF CONTENTS

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1.0 Introduction

1.1 *Allied Tree Consultancy* (ATC) has been commissioned by *PRD Architects* to prepare an Arboricultural Impact Assessment for the development proposal at No. 85 Midgley Street Corrimal. This proposal includes the construction of a multi-residential dwelling development. This report includes twenty-six trees located on, and adjacent to the lot, and discusses the viability of these trees based on the proposed works.

1.2 This report will address for these trees, the:

- species' identification, location, dimensions, and condition;
- SULE (Safe Useful Life Expectancy) and STARS (Significance of a Tree Assessment Rating System) rating;
- discussion and impact of the proposed works on each tree;
- tree protection zones and protection specifications for trees recommended for retention.

1.3 The subject site resides within Corrimal; for this reason, Wollongong City Council is the consenting authority for any tree works recommended in this report.

2.0 Standards

2.1 Allied Tree Consultancy provides an ethical and unbiased approach to all assignments, possessing no association with private utility arboriculture or organisations that may reflect a conflict of interest.

2.2 This report must be made available to all contractors during the tendering process so that any cost associated with the required works for the protection of trees can be accommodated.

2.3 It is the responsibility of the project manager to provide the requirements outlined in this report relative to the Protection Zones, Measures (Section 7.0) and Specifications (Section 8.0) to all contractors associated with the project before the initiation of work.

2.4 All tree-related work outlined in this report is to be conducted in accordance with the:

- Australian Standard – AS4373; Pruning of Amenity Trees.
- Guide to Managing Risks of Tree Trimming and Removal Work[1].
- All tree works must be carried out at a tertiary level (minimum Certificate-level 3) qualified and experienced (minimum five years) arboriculturist.

[1] Safe Work Australia; July 2016; Guide to Managing Risks of Tree Trimming and Removal Work, Australia

- For any works in the vicinity of electrical lines, the arboriculturist must possess the ISSC26 endorsement (Interim guide for operating cranes and plant in proximity to overhead powerlines).

2.5 As a minimum requirement, all trees recommended for retention in this report must have removed all dead, diseased, and crossing limbs and branch stubs to be pruned to the branch collar. This work must comply with the local government tree policy (Wollongong City Council) and Section 2.4.

2.6 Any tree stock subject to conditions for works carried out in this report must be supplied by a registered Nursery that adheres to the AS 2303; 2015[2].

- All tree stock must be of at least 'Advanced' size (minimum 75lt) unless otherwise requested.
- All tree stock requested must be planted with adequate protection. This may include tree guards (protect stem and crown) and if planted in a lawn area, a suitable barrier (planter ring) of an area, at least, $1m^2$ to prevent grass from growing within the area adjacent to the stem.

3.0 Disclosure Statement

Trees are living organisms and, for this reason, possess natural variability. This cannot be controlled. However, risks associated with trees can be managed. An arborist cannot guarantee that a tree will be safe under all circumstances, nor predict the time when a tree will fail. To live or work near a tree involves some degree of risk, and this evaluation does not preclude all the possibilities of failure.

4.0 Methodology

4.1 The following tree assessment was undertaken using criteria based on the guidelines laid down by the International Society of Arboriculture.

4.2 The format of the report is summarised below;

4.2.1 **Plan 1;** Tree Location Relative to Site: This is an unscaled plan reproduced from the Survey Plan as referenced in Section 4.4.1, depicting the area of assessment.

4.2.2 **Table 1;** This table compiles the tree species, dimensions**,** brief assessment (history, structure, pest, disease or any other variables subject to the tree), significance, allocation of the zones of

[2] Australian Standard; 2015, AS2303, Tree stock for landscape use, Australia

protection (i.e., Tree Protection Zone[3] ;TPZ and Structural Root Zone; SRZ) for each tree illustrated in Plan 1, Section 5.0. All measurements are in metres.

4.2.3 Discussion relating to the site assessment and proposed works regarding the trees.

4.2.4 Protection Specification; Section 8.0 details the requirements for that area designated as the Tree Protection Zone (TPZ), for those trees recommended for retention.

4.3 The opinions expressed in this report, and the material, upon which they are based, were obtained from the following process and data supplied:

4.3.1 Site assessment on the 21st November 2019 using the method of the Visual Tree Assessment[4]. This has included a Level 2 risk assessment, being a *Basic Assessment*[5]. The assessment has been conducted by Geoff Beisler[6] on behalf of *Allied Tree Consultancy*.

4.3.2 Trees included in this report are those that conform to the description of a prescribed tree by the local government policy.

4.3.3 All measurements, unless specified otherwise are taken from the tree centre.

4.3.4 Raw data from the preliminary assessment including the specimen's dimensions was compiled by the use of a diameter tape, height clinometer, angle finder, compass, steel probes, Teflon hammer, binoculars and recording instruments.

4.4 Documentation provided

The following documentation has been provided to Allied Tree Consultancy and utilised within the report.

4.4.1 Surveyor

Drawn by *Land Team*
Date: November 2015
Reference: 208244-TS01

[3] Australian Standard, 4970; 2009 – Protection of Trees on Development Sites, Australia
[4] Mattheck, C. Breloer, H.,1994, The Body Language of Trees – A handbook for failure analysis The Stationary Office, London
[5] Dunster J.A., 2013, Tree Risk Assessment Manual, International Society of Arboriculture, 2013, USA
[6] Consulting Arborist, Diploma of Arboriculture (level 5)

Drawing No: Sheet 1 of 1
Note 1: See Section 4.5.1

4.4.2 Design

Drawn by *PRD Architects*
Date: 13 February 2020
Reference: not referenced
Drawing No: DA-00 – DA-41

4.4.3 Engineering (Stormwater)

Drawn by *ATB Consulting*
Date: 10 March 2020
Reference: (Project No.) 20004
Drawing No: SW2 (Revision 1)

4.4.4 Landscape

Drawn by *Site Design Studios*
Date: 23 February 2020
Reference: not referenced
Drawing No: (Page No.) L-02 A and L-03 A

4.5 Limitations of the assessment/discussion process

4.5.1 Trees No. 15-25 have been omitted from the plans provided; however, are required for inclusion because they conform to the definition of a prescribed tree within the local government tree policy. The tree location has been plotted onto the Plan 1 by *Allied Tree Consultancy*. The tree location was established by measuring from known points and scaling onto the drawing. *Allied Tree Consultancy* is not a registered surveyor and, however, the accuracy of the survey is attempted; the true position of the trees may marginally deviate. Any such deviation provides the potential for changing the actual impact (encroachment) provided to a tree.

4.5.2 The assessment has considered only those target zones that are apparent to the author and the visually apparent tree conditions during the time of assessment.

4.5.3 Any tree, regardless of apparent defects, would fail if the forces applied to exceed the strength of the tree or its parts, for example, extreme storm conditions.

4.5.4 The assessment has been limited to that part of the tree, which is visible, existing from the ground level to the crown. Root decay can exist and, in some circumstances, provide no symptoms of the presence. This assessment responds to all the symptoms provided by a tree; however, cannot provide a conclusive recommendation regarding any tree that may have extensive root decay that leads to windthrow without the appropriate symptoms.

5.0 Plan 1; Area of assessment illustrating tree location

Not to scale
Trees labelled A, are exempt. Trees labelled B are outside the scope of works, see Section 7.0.
Source: Adapted from *Land Team,* see Section 4.4.1

6.0 Table 1 – Tree Species Data

Terminology/references provided in Appendix A.

Tree No.	Botanical Name Common Name	Height (m)	DBH (m)	Crown Spread (m)	Age	Crown Class	Crown Aspect	Vitality	SULE Rating	STARS Rating	TPZ	SRZ
1	*Lophostemon confertus* Brush Box	15	0.70	10 x 12	M	C	Sym.	A	**B1**	**HIGH**	**8.4**	**2.8**
Assessment This tree appears to have been 'lopped' at 3m in the past- the crown is mature epicormic growths. **Proposed works**; See Section 7.1.5												
2	*Lophostemon confertus* Brush Box	17	0.78	12 x 12	M	C	Sym.	A	**B1**	**HIGH**	**9.4**	**2.9**
Assessment This tree appears to have been 'lopped' at 3m in the past- the crown is mature epicormic growths. **Proposed works**; See Section 7.1.5												
3	*Lophostemon confertus* Brush Box	17	0.86	10 x 12	M	C	Sym.	A	**B1**	**HIGH**	**10.3**	**3.1**
Assessment This tree appears to have been 'lopped' at 3m in the past- the crown is mature epicormic growths. **Proposed works**; See Section 7.1.5												
4	*Lophostemon confertus* Brush Box	18	1.0	13 x 14	M	C	W	A	**B1**	**HIGH**	**12.0**	**3.3**
Assessment This tree appears to have been 'lopped' at 3m in the past- the crown is mature epicormic growths. **Proposed works**; See Section 7.1.5												
5	*Cupressus sempervirens* Mediterranean Cypress	16	0.29	2 x 2	M	D	Sym.	A	**A1**	**HIGH**	**3.5**	**1.9**
Assessment This tree presents the habit typical of species. **Proposed works**; See Section 7.1.3												
6	*Lophostemon confertus* Brush Box	10	0.90	9 x 13	M	C	Sym.	A	**B1**	**HIGH**	**10.8**	**3.2**

Tree No.	Botanical Name Common Name	Height (m)	DBH (m)	Crown Spread (m)	Age	Crown Class	Crown Aspect	Vitality	SULE Rating	STARS Rating	TPZ	SRZ
Assessment This tree appears to have been 'lopped' at 2m in the past- the crown is mature epicormic growths. **Proposed works**; See Section 7.1.5												
7	*Lophostemon confertus* Brush Box	9	0.59	6 x 11	M	S	Sym.	A	**B1**	**MEDIUM**	**7.1**	**2.6**
Assessment This tree appears to have been 'lopped' at 2m in the past- the crown is mature epicormic growths. **Proposed works**; See Section 7.1.4												
8	*Lophostemon confertus* Brush Box	12	0.62	6 x 11	M	C	Sym.	A	**B1**	**HIGH**	**7.4**	**2.7**
Assessment This tree appears to have been 'lopped' at 2m in the past- the crown is mature epicormic growths. **Proposed works**; See Section 7.1.4												
9	*Lophostemon confertus* Brush Box	11	0.98[B]	10 x 10	M	C	Sym.	A	**B1**	**HIGH**	**11.8**	**3.3**
Assessment This co-dominant tree appears to have been 'lopped' at 2m in the past- the crown is mature epicormic growths. **Proposed works**; See Section 7.1.5												
10	*Glochidion ferdinandi* Cheese Tree	6	0.39[B]	5 x 6	M	I	Sym.	A	**B1**	**MEDIUM**	**4.7**	**2.4**
Assessment This tree presents the habit typical of species. Co-dominant at the base. **Proposed works**; See Section 7.1.4												
11	*Acacia maidenii* Maidens Wattle	7	0.19	2 x 2	M	I	E	A	**A2/3**[C]	**MEDIUM**	**2.3**	**1.6**
Assessment This council-owned tree presents the habit typical of species. Limited assessment due to fences and surrounding vegetation. **Proposed works**; See Section 7.1.1												
12	*Glochidion ferdinandi* Cheese Tree	5	0.45[CB]	5 x 6[C]	M	I	E	A	**A2**[C]	**MEDIUM**	**5.4**[C]	**2.4**[C]
Assessment This council-owned tree appears to be coppiced re-growth. Limited assessment due to fences and surrounding vegetation. **Proposed works**; See Section 7.1.1												

Tree No.	Botanical Name Common Name	Height (m)	DBH (m)	Crown Spread (m)	Age	Crown Class	Crown Aspect	Vitality	SULE Rating	STARS Rating	TPZ	SRZ
13	*Glochidion ferdinandi* Cheese Tree	5	0.19[C]	3 x 4	M	S	Sym.	B	**A3** [C]	**LOW**	**2.3** [C]	**1.6** [C]
Assessment This council-owned tree presents the habit typical of species, however, exhibits partial crown density. Limited assessment due to fences and surrounding vegetation. **Proposed works**; See Section 7.1.1 and 7.1.2												
14	*Glochidion ferdinandi* Cheese Tree	6	0.30[CB]	6 x 6[C]	M	C	N	A	**A2** [C]	**MEDIUM**	**3.6** [C]	**2.0** [C]
Assessment This (apparently) council-owned tree appears to be coppiced re-growth. Very limited assessment due to fences and surrounding vegetation. **Proposed works**; See Section 7.1.1												
15	*Lophostemon confertus* Brush Box	14	0.60[B C]	9 x 10	M	D	Sym.	A	**B1** [C]	**HIGH**	**7.2** [C]	**2.7** [C]
Assessment This neighbouring tree appears to have been 'lopped' at 3m in the past- the crown is mature epicormic growths. Several stubs are located in the lower crown, north side- wounds show no occlusion. Very limited assessment due to fences and lack of access. **Proposed works**; See Section 7.1.1												
16	*Acacia maidenii* Maidens Wattle	7	0.18	2 x 2	M	I	N	A	**A2**	**MEDIUM**	**2.2**	**1.6**
Assessment This tree presents the habit typical of species. **Proposed works**; See Section 7.1.1												
17	*Acacia maidenii* Maidens Wattle	7	0.17	2 x 2	M	I	E	A	**A2**	**MEDIUM**	**2.1**	**1.6**
Assessment This tree presents the habit typical of species. **Proposed works**; See Section 7.1.1												
18	*Photinia robusta* Photinia	4	0.10[C] (Average)	2 x 8 (Total)	M	C	E	A	**A2**	**LOW**	**2.0**	**1.5**
Assessment This is a lineal planting of 4 specimens, all side by side and similar. **Proposed works**; See Section 7.1.3												

Tree No.	Botanical Name Common Name	Height (m)	DBH (m)	Crown Spread (m)	Age	Crown Class	Crown Aspect	Vitality	SULE Rating	STARS Rating	TPZ	SRZ
19	*Glochidion ferdinandi* Cheese Tree	6	0.35[BC]	5 x 5	M	C	E	A	**A2**	**MEDIUM**	**4.2**[C]	**2.2**[C]
Assessment This tree appears to be coppiced re-growth. Located within a garden bed, strongly suggesting a restricted root mass. A juvenile of the same species has emerged within the TPZ. **Proposed works**; See Section 7.1.3												
20	*Acacia maidenii* Maidens Wattle	5	0.15[C]	2 x 4[C]	M	C	E	A	**A3**[C]	**LOW**	**2.0**[C]	**1.5**[C]
Assessment This poor specimen has suffered multiple failures. Mostly obscured by weed stock- this has greatly hindered the assessment. **Proposed works**; See Section 7.1.2												
21	*Glochidion ferdinandi* Cheese Tree	5	0.25[CB]	4 x 5[C]	M	C	N	A	**A2**[C]	**MEDIUM**	**3.0**[C]	**1.8**[C]
Assessment This tree appears to be coppiced re-growth. Very limited assessment due surrounding vegetation. **Proposed works**; See Section 7.1.3												
22	*Acacia maidenii* Maidens Wattle	5	0.16[C]	4 x 4	M	D	Sym.	A	**A2**[C]	**MEDIUM**	**2.0**[C]	**1.5**[C]
Assessment This tree presents the habit typical of species. Limited assessment due to surrounding vegetation. **Proposed works**; See Section 7.1.3												
23	*Glochidion ferdinandi* Cheese Tree	4	0.05 0.05 0.10 0.10	3 x 3	M	C	N	A	**A2**[C]	**LOW**	**2.0**	**1.5**
Assessment This tree appears to be coppiced re-growth. Limited assessment due surrounding vegetation. **Proposed works**; See Section 7.1.3												
24	*Glochidion ferdinandi* Cheese Tree	4	0.09 0.09 0.09	3 x 3 (Total)	Y	C	Sym.	A	**A2**	**LOW**	**2.0**	**1.5**

Tree No.	Botanical Name Common Name	Height (m)	DBH (m)	Crown Spread (m)	Age	Crown Class	Crown Aspect	Vitality	SULE Rating	STARS Rating	TPZ	SRZ
Assessment This is a group of 3 juveniles, side by side and all similar. **Proposed works**; See Section 7.1.3												
25	*Cupressus leylandii* [A] Leyland Cypress	10	0.30[C]	7 x 7[C]	M	D	Sym.	A	**A2** [C]	**MEDIUM**	**3.6** [C]	**2.0** [C]
Assessment This is a neighbouring tree, therefore no vegetative material could be collected to aid in identification. Not located on the survey provided, it is approximately 3000mm from the boundary fence separating the lots. Limited assessment due to lack of access. **Proposed works**; See Section 7.1.4												
26	*Syzygium spp.* [A] Lilly Pilly	5	0.23	6 x 6	M	D	Sym.	A	**A2**	**MEDIUM**	**2.7**	**1.8**
Assessment This council-owned street tree is typical of the species, however, did not offer sufficient vegetative matter to confirm positive identification within the species. Has received crown lift pruning. **Proposed works**; See Section 7.1.1												

A. Incomplete identification of species due to insufficiently available plant material
B. Diameter taken below 1.4m due to low stem bifurcation
C. Estimate due to the overgrown area and/or limited access
D. Deciduous species, void of foliage at the time of assessment
E. Level 3 assessment required to determine the accurate rating

7.0 Site Assessment

The area of assessment comprises an irregular shaped lot. The lot has been heavily modified to accommodate the structure, garden beds and landscaping, and internal roads/ parking areas. The greater area has a medium gradient with a north-easterly aspect. The deliberate plantings are a combination of native and exotic species and located predominately restricted to the curtilage. The mature Brush Box (*Lophostemon confertus*) throughout the site have all been lopped in the past, and all growth is epicormic. However, this is mature growth (wounds occluded), and the trees have re-generated to become large and significant. An area to the north (identified as Bellambi Gully) appears to be part of the South Bulli Mine and contains many mature native trees not located on the survey. The closest of these (northern boundary) appears to be approximately 5500mm from the northern boundary fence. This stand of trees continues in the northwestern corner of the lot, where the closest tree is approximately 3000mm from the northwestern boundary fence. The topography in this area and the extensive organic matter located in and around these trees support an area that will support greater root biomass for trees No. 1-4, than the area to the south of these trees. Multiple specimens less than 3m are located on the lot, as are exempt species, however not located on the survey. Weed stock and dense vegetation have limited assessment on the eastern and southern boundary. Two trees located on the survey, on the eastern side of the driveway, are a group of three Bangalow Palms (*Archontopheonix cunninghamiana*). These are located to the east of a recent excavation that has taken place immediately adjacent to the driveway. This has removed the root zone on the western side of the palms and, therefore, appears to have removed any impact incurred on these three palms from the proposed works. Some discrepancy appears to exist with the location of these palms as they are located behind (east of) the boundary fence; however, the survey locates them to the west of the boundary line.

The asphalt driveway services Midgeley Street and terminates to the east of the derelict split level structure (containing mixed construction materials). Security fencing, less than 2m high, is located on the eastern and northern boundaries. The remaining boundaries are a combination of fencing materials and styles. Private housing surrounds on all sides except the north.

The trees labeled as A that have been included on the survey drawing (Plan 1), however, excluded from this report because of the failure to conform to the description of a prescribed tree based on the Wollongong Councils Development Control Plan.

Tree A: trees below 3m in height or less than 100mm in diameter
Tree B: outside the scope of works/ have individual TPZ's removed from the proposal

7.1 Proposed development

The proposed development consists of the demolition of existing site structures and construction of a residential townhouse development, drive access, and drainage infrastructure.

The calculations included in the following discussion have not considered;

- subsurface utilities that have not been included in the design,
- Work methods related to subsurface utilities, for example, concrete encasing or replacement of existing lines
- or work methods related to construction (stockpiling, site sheds, scaffolding) unless otherwise specified.

These may also increase the encroachment and tree impact and, therefore, the opportunity for tree retention.

This report discusses the impact of the proposed design on the trees. Twenty-six (26) trees have been listed within this report based upon the vicinity of the proposed works. This has included neighbouring trees where any part of the zones of protection; Tree Protection Zone (TPZ), and Structural Root Zone (SRZ) to encroach into the lot. Recommendations based on the tree significance and condition, together with the impact on these trees, regarding the development for this lot follow.

7.1.1 Trees and zones of protection (TPZ/SRZ) outside of the proposed design

Trees No. 11-17 and 26

None of the proposed works conflict with the location of these trees or respective zones of protection. These trees can be retained without impact by the proposed design.

7.1.2 Trees providing a limited useful life expectancy

Trees No. 13 and 20

These trees provide low significance based on the species, habit, and rating and could be removed due to the low amenity value and limited useful life expectancy.

Tree No. 13 is a council-owned tree and is outside of the proposed development; therefore it does not require removal.

7.1.3 Trees directly conflicting with the design

Trees No. 5, 18, 19 and 20-24

These trees are located in the footprint of the proposed design and would require removal based on this premise alone. The conflict is summarised as follows;

Trees No. 5, 18 and 19; within the footprint of the proposed excavation to facilitate the construction of the townhouses (northern side)

Trees No. 20-24; within the footprint of the proposed retaining wall/ steps, south side of the southern townhouses (see Section 4.5.1)

7.1.4 Trees subject to a minor encroachment

Trees No. 7, 8, 10 and 25

These trees are not directly located in the footprint of the proposed design, however, are subject to a *minor encroachment*. That is, the proportion (<10%) of encroachment provided by design will not adversely impact on the tree. These trees could be retained relative to the design.

7.1.5 Trees subject to a major encroachment

Trees No. 1-4, 6 and 9

These trees are not directly located in the footprint of the proposed design, however, are located close and adjacent to the design footprint and subject to a *major encroachment*, that is, in excess of 10% of the TPZ. The extent and type of encroachment for each tree are discussed and the relative implications.

Tree No. 1: Encroachment: 35%; based on drawing SW2. The encroachment consists of excavation for the stormwater service, and this will present excessive root removal (TPZ) that would be unlikely to sustain the tree. This tree is subject to encroachment of approximately 30% from the proposed development, should the stormwater service be installed by under boring.

Tree No. 2: Encroachment: 34%; based on drawing SW2. The encroachment consists of excavation for the stormwater service, and this will present excessive root removal (TPZ and SRZ) that would be unlikely to sustain the tree. This tree is subject to encroachment of approximately 32% from the proposed development, should the stormwater service be installed by under boring.

Tree No. 3: Encroachment: 36%; based on drawing SW2. The encroachment consists of excavation for the stormwater service, and this will present excessive root removal (TPZ and SRZ) that would be unlikely to sustain the tree. This tree is subject to encroachment of approximately

34% from the proposed development, should the stormwater service be installed by under boring.

Tree No. 4: Encroachment: 43%; based on drawing SW2. The encroachment consists of the proposed development. This includes excavation for the proposed retaining wall to facilitate the proposed private outdoor space for the proposed unit 1.

Trees No. 1-4

These trees are introduced natives and form significant specimens, although with limited amenity value because the area is screened and not obvious from the public thoroughfares. The encroachments by the proposed design are high. Although a significant proportion where the proposed design resides is currently consumed by existing structures and concrete sealing, therefore reducing the root biomass in this area. Coupled with the bush environment north of these trees, which offers an area that will support strong root growth, and the species tolerance, the location of the encroachment offered by design will reduce the impact. An additional encroachment includes the crown structure, where pending the clearance required (typically a minimum of 1m) significant pruning will be required to accommodate the units. Further issues associated with the species in proximity to dwellings are the dense crown structure, which will significantly reduce solar access from the north and east, the prolific leaf/fruit fall associated with the species and related trip hazards and risks this offers.

That is, although an option exists to retain these trees, the vicinity to the dwellings footprints and associated issues does not offer a practical outcome for retaining both trees no. 1 to 4 with the design.

Tree No. 6: Encroachment: 18%; based on drawing SW2. The encroachment consists of excavation for the stormwater service. This is eight percentage points in excess of a minor encroachment. Taking into account the opportunity for retaining the groundmass, where severed roots can continue growing and the species tolerance, this is considered to maintain such encroachment. An opportunity exists for rerouting the stormwater closer to the building footprint, and this will reduce the encroachment, therefore impact.

Tree No. 9: Encroachment: 23%; based on drawing SW2. The encroachment consists of a combination of excavation for the stormwater service and retaining wall. Although the species tolerance will likely reduce

the impact, some loss of vitality can occur. Based on this premise, the following design amendments will offer mitigation;

1. regarding the OSD 1, pending the depth and therefore excavation required for this structure, this can be moved further west and away from the TPZ.
2. rerouting the stormwater closer to the building footprint and away from the TPZ.
3. Elevating the portion of drive above grade to retain existing grade without fill or strip type excavation.

7.2 Sub-surface utilities

No drawings have been provided for the proposed route of sub-surface utilities other than stormwater. Any trenching, other than what has been allowed for should be avoided within the area of the TPZ. Any proposed route shall be re-routed outside of the TPZ. Under boring may be required if a limitation for the route of a service is restricted to an area that falls within the TPZ. Any excavation in the area of a TPZ must be authorised and conditioned by the project arborist.

7.3 Protection measures

Tree protection measures will be required during the demolition and construction stage. However, the design of these will be pending the work methodology and final design. The project arborist shall be contracted after the completion/confirmation of design work for the instruction of the protection measures implementation, that is the Arboricultural Method Statement. Examples of the protection measures are contained in Appendix B.

7.3.1 Ground protection: Tree No. 6-17

Ground protection is required to be laid in the between the trees and building footprint. This is based on the assumption that this area will provide the primary means for access to the rear of the lot. If alternative access is required then the project arborist must allow for the design location of the protection measures, and compensate the protection of this area with site fencing, see Section 7.3.2.

If the existing concrete drive is proposed to be removed, then the area of TPZ that covers this area of the drive will require ground protection. This is recommended to be located in accordance with the requirements of the AS 4970, listed in Appendix B.

7.3.2 Protective fence: Trees No. 6-17

A protective fence is required to be installed to protect the TPZ from all site-related work and are recommended to be located in accordance with

the requirements of the AS 4970, listed in Appendix B. The fence is required to be secured to the ground with pegs to avoid movement during construction. This must be installed prior to the commencement of any demolition, excavation or construction works and shall be maintained throughout the entire construction phase of the development, and until landscaping works and installation of the drive/cross-overs is required.

7.3.3 Conditions of demolition

The following conditions are required during the demolition stages for the zones of protection.

1. The demolition process must remove all other site structures before removal of the concrete surfaces (including the portion of the drive) that are within the TPZ's for trees to be retained. These will be the final structures removed from the site.
2. Machinery can be used for part of this removal, however, must always be retained to a hard surface (drive or slab). No machine should on any occasion work on a soil/lawn based surface within the area of the TPZ.
3. That part of the concrete surface that falls within the area of 4m radius from the girth of the tree must be removed via hand tools, e.g., Jackhammers, etc. removal of the remaining concrete must disturb as little area beneath the drive surface as possible. That is, the removal of this area should not carry any soil with it.
4. If machinery is required to enter the TPZ where no hard surface exists, then ground protection methods are required to be employed. Any machinery used within this process must provide for a minimum height of 2500mm, and that sufficient clearance is offered beneath the branch structure and machine to avoid injury. No pruning can occur for access to machinery.

7.3.4 Conditions for compliance

The following conditions are required before any works proceed on site.

Site induction; All workers related to the construction process and before entering the site must be briefed about the requirements/conditions outlined in this report relative to the zone of protection, measures, and specifications before the initiation of work. This is required as part of the site induction process.

Project Arborist; A project arborist who conforms to the requirements of the AS 4970 is required to be nominated immediately after a *Notice of Determination* is issued, and they are to be provided with all related site documents.

7.4 Compliance Documentation

The following stages will require assessment and documentation (report, letter, certification) by the project arborist or person responsible for the specific work type, and the related documentation is to be issued to the principal certifying agent.

7.4.1 Table 2; Assessment/Certification stages

Hold Points	Work type	Document required
Pre-demolition	Installation of the protection measures, Section 7.3	Certificate*
During demolition	See Section 7.3.3 Project arborist in attendance during pruning	Certificate*
During construction	Any <u>further works</u> required within the area of the TPZ, or decline related to the trees that have not been covered by this report.	Report Brief
During construction	Any crown modification including pruning or root disturbance. Project arborist in attendance during pruning	Report Brief

Construction refers to the time between the initiation of demolition and until an occupation certificate is issued.

***Mandatory**

8.0 Protection Specification

The retention and protection of trees provide for the requirement of the Tree Protection Zone (TPZ) to conform to the conditions outlined below. These conditions provide the limitations of work permitted within the area of the Tree Protection Zone (TPZ) and must be adhered to unless otherwise stated.

1. <u>Foundation/footing types should not be strip type</u>, but utilise footing types that are sympathetic towards retaining root system that is, screw, pier, etc. Slab on the ground can be accommodated in some circumstances and will be nominated by the project arborist. The extent of encroachment will be dependent upon the tree species, soil type (texture and profile) and gradients.

2. <u>Subsurface utilities</u> can extend through the TPZ and Structural Root Zone (SRZ), however, are limited to the method of installation. That is under boring is permitted, however trenching is limited and depends on the

proposed route within the TPZ. No trenching is permitted within the area of the TPZ unless stipulated by the project arborist.

3. Crown pruning can be accommodated, however, must conform to the AS 4373; *Pruning of Amenity Trees*, and not misshape the crown nor remove in excess of 10-15% of the existing crown, pending on the species, and vitality. The opportunity for, type and proportion of pruning will be required to be nominated by the project arborist.

4. Soil levels within the TPZ must remain the same. Any excavation within the TPZ must have been previously specified and allowed for by the project arborist:

   a) So it does not alter the drainage to the tree.

   b) Under specified circumstances,

   - Added fill soil does not exceed 100mm in depth over the natural grade. Construction methodologies exist that can allow grade increases in excess of 100mm, via the use of an impervious cover, an approved permeable material or permanent aeration system or other approved methods.

   - Excavation cannot exceed a depth of more than 50mm within the area of the TPZ, not including the SRZ. The grade within the SRZ cannot be reduced without the consent from a project arborist.

5. No form of material or structure, solid or liquid, is to be stored or disposed of within the TPZ.

6. No lighting of fires is permitted within the TPZ.

7. All drainage runoff, sediment, concrete, mortar slurry, paints, washings, toilet effluent, petroleum products, and any other toxic wastes must be prevented from entering the TPZ.

8. No activity that will cause excessive soil compaction is permitted within the TPZ. That is, machinery, excavators, etc. must refrain from entering the area of the TPZ unless measures have been taken, and with consultation with the project, arborist to protect the root zone.

9. No site sheds, amenities or similar site structures are permitted to be located or extend into the area of the TPZ unless the project arborist provides prior consent.

10. No form of construction work or related activity such as the mixing of concrete, cutting, grinding, generator storage or cleaning of tools is permitted within the TPZ.

11. No part of any tree may be used as an anchorage point, nor should any noticeboard, telephone cable, rope, guy, framework, etc. be attached to any part of a tree.

12. (a) All excavation work within the TPZ will utilise methods to preserve root systems intact and undamaged. Examples of methods permitted are by hand tools, hydraulic, or pneumatic air excavation technology.

(b) Any root unearthed which is less than 50mm in diameter must be cleanly cut and dusted with a fungicide, and not allowed to dry out, with minimum exposure to the air as possible.

(c) Any root unearthed which is greater than 50mm in diameter must be located regarding their directional spread and potential impact. A project arborist will be required to assess the situation and determine future action regarding retaining the tree in a healthy state.

Project Arborist: person nominated as responsible for the provision of the tree assessment, arborist report, consultation with stakeholders, and certification for the development project. This person will be adequately experienced and qualified with a minimum of a level 5 (AQF); Diploma in Horticulture (Arboriculture)[7].

[7] Based upon the definition of a 'consulting arborist' from the AS 4970; Protection of trees on development sites; 2009, Section 1.4.4, p 6.

9.0 Summary of tree impact by design

Based on the design supplied, the following summary provides the impacts imposed on the trees included in this report.

9.1 Trees No. 7, 8, 10-17, 25 and 26

These trees are not adversely impacted by the design, that is, they conform to a minor encroachment or less and the nominated zones of protection (TPZ, SRZ) based on the requirements of the Protection Specification, Section 8.0. The proposed design does not adversely affect these trees.

9.2 Trees No. 1-5, 9, 18, 19 and 20-24

The proposed design will impact adversely on these trees and are unable to be retained based on the design.

9.3 Trees No. 13 and 20

These trees provide poor form and a limited useful life expectancy and could require be removed irrespective of the proposed works.

Tree No. 13 is a council-owned tree and would, therefore, require permission for removal; it is also outside of the proposed works.

9.4 Trees No. 6 and 9

These trees are subject to a major encroachment, although could be retained pending the following conditions/design modification.

9.4.1 Tree No. 6

1. Rerouting the stormwater closer to the building footprint

9.4.2 Tree No. 9

2. Regarding the OSD 1, pending the depth and, therefore, excavation required for this structure, this can be moved further west and away from the TPZ.
3. Rerouting the stormwater closer to the building footprint and away from the TPZ.
4. Elevating the portion of drive above grade to retain existing grade without fill or strip type excavation.

9.5 Sub-surface utilities

No drawings have been provided for the proposed route of sub-surface utilities other than stormwater. Any trenching, other than what has been allowed for should be avoided within the area of the TPZ's for any tree nominated for retention. Any proposed route shall be re-routed outside of the TPZ. Under boring may be required if a limitation for the route of a service is restricted to an area that falls within the TPZ from any tree. Any excavation in the area of a TPZ must be authorised and conditioned by the project arborist.

9.6 Protection measures

Protection measures (outlined in Section 7.3 and 7.4) are required to be implemented for the trees nominated for retention (referenced in Section 9.1) and installed before initiation of site works (including demolition/excavation) and retained until the landscaping works are required unless otherwise specified.

All workers related to the construction process and before entering the site must be briefed about the requirements/conditions outlined in this report relative to the zone of protection, measures, and specifications before the initiation of work.

A project arborist is required to be nominated, and the stages and related certification or similar documentation is to be issued to the principal certifying agent.

The opinions expressed in this report by the author have been provided within the capacity of a Consulting Arborist. Any further explanation or details can be provided by contacting the author.

Assessed and Prepared by Geoff Beisler
Consulting Arborist
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10.0 Appendix A- Terminology Defined

Height

Is a measure of the vertical distance from the average ground level around the root crown to the top surface of the crown, and on palms - to the apical growth point.

DBH

Diameter at Breast Height – being the stem diameter in meters, measured at 1.4m from ground level, including the thickness of the bark.; Mult. refers to multiple stems, that is in excess of 4 stems.

Crown Spread

A two-dimension linear measurement (in metres) of the crown plan. The first figure is the north-south span, the second being the east-west measurement.

Age

Is the estimate of the specimen's age based upon the expected lifespan of the species. This is divided into three stages.

Young (Y)	Trees less than 20% of life expectancy.
Mature (M)	Trees aged between 20% to 80% life expectancy.
Over-mature (O)	Trees aged over 80% of life expectancy with probable symptoms of senescence.

Crown Aspect

In relation to the root crown, this refers to the aspect the majority of the crown resides in. This will be either termed Symmetrical (Sym.) where the centre of the crown resides over the root crown or the cardinal direction the centre of the crown is biased towards, being either North (N), South (S), East (E) or West (W).

Vitality Rating

Is a rating of the health of the tree, irrespective and independent of the structural integrity, and defined by the 'ability for a tree to sustain its life processes' ((Draper, Richards, 2009). This is divided between three variables, and based on the assessment of symptoms including, but not limited to; leaf size, colour, crown density, woundwood development, adaptive growth formation, and epicormic growth.

A: Normal vitality, typical for the species

B: Below average vitality, possibly temporary loss of health, partial symptoms.

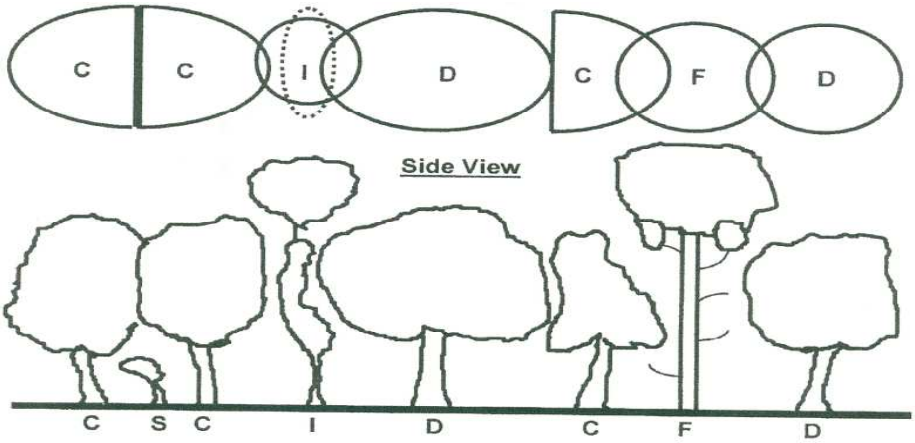
C: Poor vitality; obvious decline, potentially irreversible

Crown Class

Is the differing crown habits as influenced by the external variables within the surrounding environment. They are:

D	– *Dominant*	Crown is receiving uninterrupted light from above and sides, also known as emergent.
C	– *Codominant*	Crown is receiving light from above and one side of the crown.
I	– *Intermediate*	Crown is receiving light from above but not the sides of the crown.
S	– *Suppressed*	Crown has been shadowed by the surrounding elements and receives no light from above or sides.
F	– *Forest*	Characterised by an erect, straight stem (usually excurrent) with little stem taper and virtually no branching over the majority of the stem except for the top of the tree which has a small concentrated branch structure making up the crown.

Top View



D C, I & S, and side view, after (Matheny, N. & Clark, J. R. 1998, Trees Development, Published by International Society of Arboriculture, P.O. Box 3129, Champaign IL 61826-3129 USA, p.20, adapted from the Hazard Tree Assessment Program, Recreation and Park Department, City of San Francisco, California).

Levels of assessment

Level 1: Limited visual: a visual tree assessment to manage large populations of trees within a limited period and in order to identify obvious faults which would be considered imminent.

Level 2: Basic assessment: a standard performed assessment providing for a detailed visual assessment including all parts of the tree and surrounding environment and via the use of simple tools.

Level 3: Advanced assessment: specific type assessments conducted by either arborist who specialise with specific areas of assessment or via the use of specialised equipment. For example, aerial assessment by use of an EWP or rope/harness, or decay detection equipment.

TPZ; Tree Protection Zone

Is an area of protection required for maintaining the trees vitality and long-term viability. Measured in meters as a radius from the trees centre. The requirements of this zone are outlined within the Protection Specification, Section 8.0, and are to be adhered to unless otherwise stated.

The size of the Tree Protection Zone (TPZ) has been calculated from the *Australian Standard, 4970; 2009* – Protection of Trees on Development Sites

The TPZ does not provide the limit of root extension, however, offers an area of the root zone that requires predominate protection from development works. The allocated TPZ can be modified by some circumstances; however will require compensation equivalent to the area loss, elsewhere and adjacent to the TPZ.

SRZ; Structural Root Zone

Is the area around the tree containing the woody roots necessary for stability. Measured in meters as a radius from the trees centre. The requirements of this zone are outlined within the Protection Specification, Section 8.0, and are to be adhered to unless otherwise stated.

Protection Measures

These are required for the protection of trees during demolition/construction activities.
Protective barriers are required to be installed before the initiation of demolition and/or construction and are to be maintained up to the time of landscaping. Samples of the recommended protection measures are illustrated in Appendix B.

All other definitions are referenced from;

Draper D.B., Richards P.A., 2009, Dictionary for Managing Trees in Urban Environments
CSIRO Pub., Australia

Significance Rating, Significance of a Tree Assessment Rating System (S.T.A.R.S), IACA, 2010[8]

Tree Significance – Assessment Criteria

1. High Significance in landscape

- The tree is in good condition and good vitality;
- The tree has a form typical for the species;
- The tree is a remnant or is a planted locally indigenous specimen and/or is rare or uncommon in the local area or of botanical interest or of substantial age;
- The tree is listed as a Heritage Item, Threatened Species or part of an Endangered ecological community or listed on Councils significant Tree Register;
- The tree is visually prominent and visible from a considerable distance when viewed from most directions within the landscape due to its size and scale and makes a positive contribution to the local amenity;
- The tree supports social and cultural sentiments or spiritual associations, reflected by the broader population or community group or has commemorative values;
- The tree's growth is unrestricted by above and below ground influences, supporting its ability to reach dimensions typical for the taxa in situ – tree is appropriate to the site conditions.

2. Medium Significance in landscape

- The tree is in fair-good condition and good or low vitality;
- The tree has form typical or atypical of the species;
- The tree is a planted locally indigenous or a common species with its taxa commonly planted in the local area
- The tree is visible from surrounding properties, although not visually prominent as partially obstructed by other vegetation or buildings when viewed from the street,
- The tree provides a fair contribution to the visual character and amenity of the local area,
- The tree's growth is moderately restricted by above or below ground influences, reducing its ability to reach dimensions typical for the taxa in situ.

3. Low Significance in landscape

- The tree is in fair-poor condition and good or low vitality;
- The tree has form atypical of the species;
- The tree is not visible or is partly visible from surrounding properties as obstructed by other vegetation or buildings,
- The tree provides a minor contribution or has a negative impact on the visual character and amenity of the local area,
- The tree is a young specimen which may or may not have reached dimension to be protected by local Tree Preservation orders or similar protection mechanisms and can easily be replaced with a suitable specimen,
- The tree's growth is severely restricted by above or below ground influences,

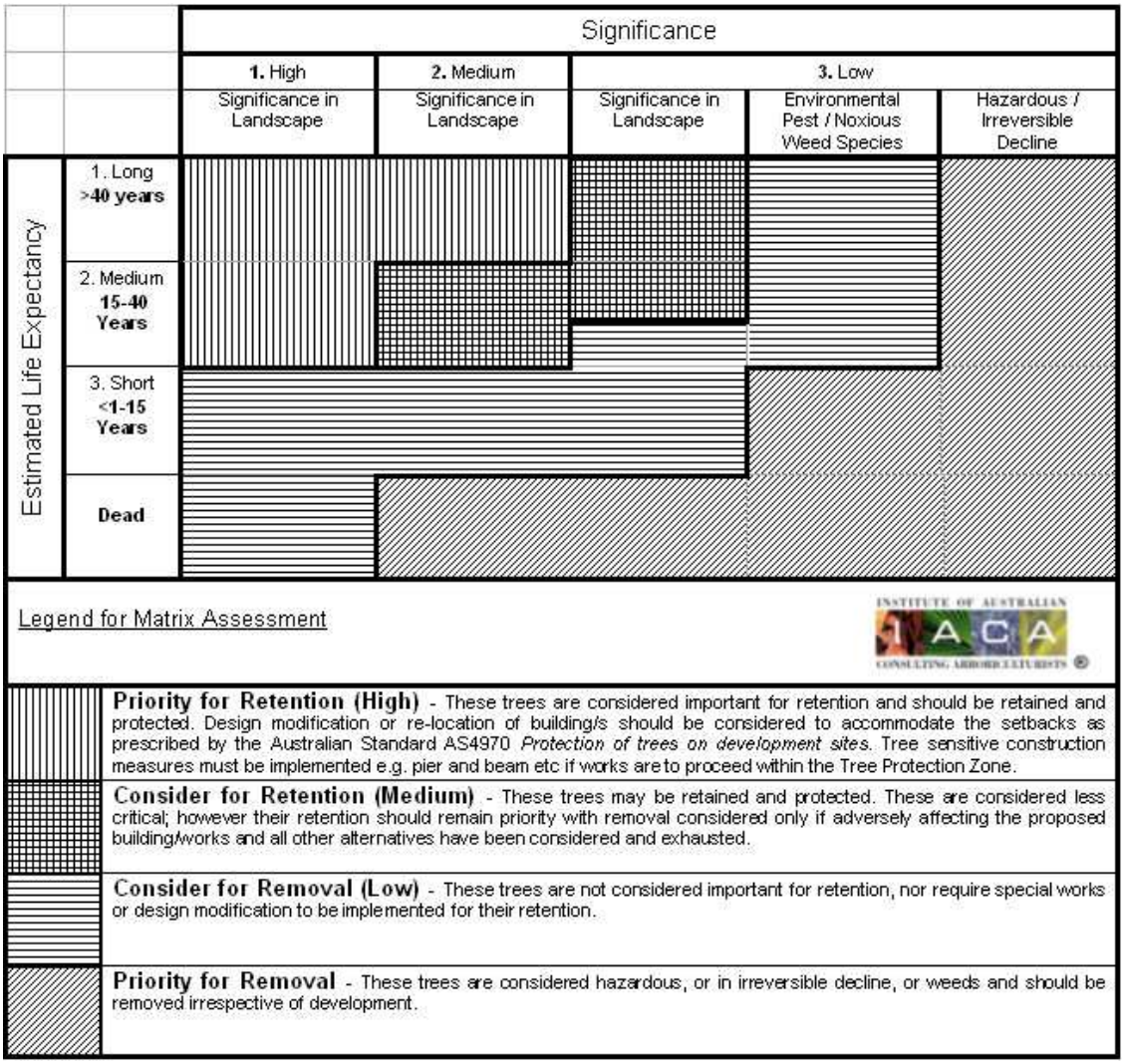
[8] IACA, 2010, IACA Significance of a Tree, Assessment Rating System (STARS), Institute of Australian Consulting Arboriculturists, Australia, www.iaca.org.au

unlikely to reach dimensions typical for the taxa in situ – tree is inappropriate to the site conditions,
- The tree is listed as exempt under the provisions of the local Council Tree Preservation Order or similar protection mechanisms,
- The tree has a wound or defect that has potential to become structurally unsound.
Environmental Pest / Noxious Weed Species
- The tree is an Environmental Pest Species due to its invasiveness or poisonous/ allergenic properties,
- The tree is a declared noxious weed by legislation.
Hazardous/Irreversible Decline
- The tree is structurally unsound and/or unstable and is considered potentially dangerous, - The tree is dead, or is in irreversible decline, or has the potential to fail or collapse in full or part in the immediate to short-term.

The tree is to have a minimum of three (3) criteria in a category to be classified in that group.

Note: The assessment criteria are for individual trees only, however, can be applied to a monocultural stand in its entirety e.g.

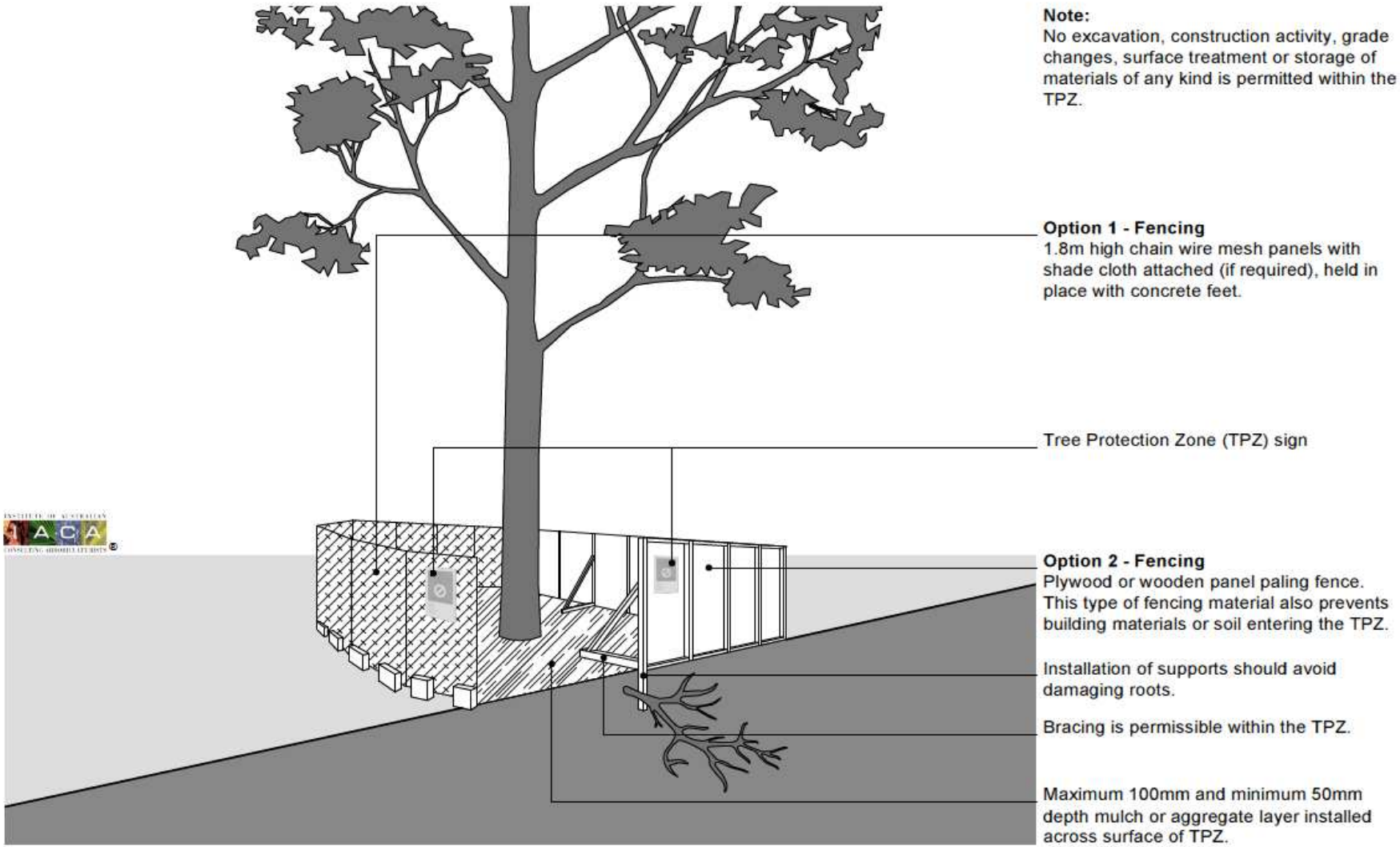
Table 3; Tree Retention Value – Priority Matrix.



Safe Useful Life Expectancy – S.U.L.E (Barell 1995)

	1. Long	2. Medium	3. Short	4. Removal	5. Moved or Replaced
	Trees that appeared to be retainable at the time of assessment for more than 40 years with an acceptable level of risk.	Trees that appeared to be retainable at the time of assessment for 15 – 40 years with an acceptable level of risk.	Trees that appeared to be retainable at the time of assessment for 5 – 15 years with an acceptable level of risk.	Trees that should be removed within the next 5 years.	Trees which can be reliably moved or replaced.
A	Structurally sound trees located in positions that can accommodate future growth.	Trees that may only live between 15 and 40 years.	Trees that may only live between 5 and 15 more years.	Dead, dying, suppressed or declining trees through disease or inhospitable conditions.	Small trees less than 5m in height.
B	Trees that could be made suitable for retention in the long term by remedial tree care.	Trees that may live for more than 40 years but would be removed for safety or nuisance reasons.	Trees that may live for more than 15 years but would be removed for safety or nuisance reasons.	Dangerous trees through instability on recent loss of adjacent trees.	Young trees less than 15 years old but over 5m in heights
C	Trees of special significance for historical, commemorative or rarity reasons that would warrant extraordinary efforts to secure their long term retention.	Trees that may live for more than 40 years but would be removed to prevent interference with more suitable individuals or to provide space for new planting.	Trees that may live for more than 15 years but should be removed to prevent interference with more suitable individuals or to provide space for new planting.	Damaged trees through structural defects including cavities, decay, included bark, wounds or poor form.	Trees that have been pruned to artificially control growth.
D		Trees that could be made suitable for retention in the medium term by remedial tree care.	Trees that require substantial remedial tree care and are only suitable for retention in the short term.	Damaged trees that are clearly not safe to retain.	
E				Trees that may live for more than 5 years but should be removed to prevent interference with more suitable individuals or to provide space for new plantings.	
F				Trees that are damaging or may cause damage to existing structures within 5 years.	
G				Trees that will become dangerous after removal of other trees for reasons given in (A) to (F).	

Appendix B- Protection measures;
Protective fence



Stem and Ground protection