

PENRITH CITY COUNCIL

MAJOR ASSESSMENT REPORT

Application number:	DA21/0788
Proposed development:	Demolition of Existing Structures & Construction of Seven (7) Storey Mixed Use Development including Ground & First Floor Commercial Tenancies, Boarding House including 96 Boarding Rooms & Manager's Room & Two (2) Levels of Basement Car Parking
Property address:	2 a Bringelly Road, KINGSWOOD NSW 2747 31 Santley Crescent, KINGSWOOD NSW 2747
Property description:	Lot 5 DP 215200 Lot 3 DP 215200
Date received:	26 October 2021
Assessing officer	Donna Clarke
Zoning:	SEPP WSA - Affected by Obstacle Limitation SEPP WSA - Affected by Wildlife Buffer Zone Zone B4 Mixed Use - LEP 2010
Class of building:	Class 3 , Class 5
Recommendations:	Refuse

Executive Summary

Council is in receipt of a development application for a Seven Storey Mixed Use Development including Ground & First Floor Commercial Tenancies, Boarding House including 96 Boarding Rooms & Manager's Room & Two (2) Levels of Basement Car Parking, at 31 Santley Crescent and 2a Bringelly Road, Kingswood.

The proposal is defined as a *Boarding House* and *Commercial Premises* and is a permissible form of development in the B4 Mixed Use zone under Penrith Local Environmental Plan 2010 (PLEP), with consent. The development proposal is also permissible within the B4 Mixed Use zone under State Environmental Planning Policy (Affordable Rental Housing) 2009, with consent.

Key issues identified during the assessment of the proposed development include:

- Incompatibility of the development with the provisions of State Environmental Planning Policy (Affordable Rental Housing) 2009 and the recently adopted State Environmental Planning Policy (Housing) 2021.
- Incompatibility of the development with the provisions of PLEP including the B4 Mixed Use zone objectives.
- Non compliance with lot width and side and rear setback controls.
- Incompatibility of the design with local character and street pattern, streetscape and future desired character.
- Inappropriate vegetation removal and insufficient landscaping design.
- Bulk, scale and overbearing impacts and no transition to existing development, as well as isolation of adjoining corner lot at 33 Santley Crescent.

- Unacceptable height variation.
- Incompatibility of the design and size of the landscaped area with the streetscape and vegetation loss.
- Negative privacy and amenity impacts.
- Shortfall of car parking and unacceptable access between the two levels of basement by car lift.
- Social impacts including potential for increases in crime from the proliferation of boarding house development in the immediate vicinity of the site.
- Unsatisfactory response to site suitability and SEPP 55.
- Inconsistencies in documentation or lack of information.
- Unsatisfactory design response with regard to environmental sustainability.

This application was lodged when State Environmental Planning Policy (Affordable Rental Housing) 2009 was in force. On 26 November 2021, State Environmental Planning Policy (Housing) 2021 (the Housing SEPP) came into force and repealed SEPP ARH. Schedule 7 of the Housing SEPP provides for the provisions of SEPP ARH to continue to apply as the development application had been made, but not yet determined, on or before the commencement date.

The development application has been advertised, and notified to adjoining residents and land owners. The public exhibition period was between 15 November 2021 to 29 November 2021 and the Application was advertised and notified to adjoining and nearby residences. Fifteen (15) individual submissions were received objecting to the application. The submissions raised objections on various matters including negative impacts on amenity, local character, privacy, traffic and parking, impact on development of adjoining land, crime and social issues, and the cumulative impacts of boarding house developments in the vicinity of the site. A response to the matters raised in the submissions is provided within this report.

The proposal was reviewed by the Urban Design Review Panel (UDRP21/0023), where it was indicated that the proposal is considered to be fundamentally unsupportable in terms of urban design and it is recommended that that application not be supported as currently lodged.

The application is to be determined by the Penrith Local Planning Panel as it has received 10 or more unique submissions by way of objection.

An assessment under Section 4.15 of the Environmental Planning and Assessment Act 1979 has been undertaken and the application is recommended for Refusal for the reasons stated at the end of this report.

The application is found to be unsuitable for the site and is not in the public interest.

Site & Surrounds

The Site is legally described as Lot 3 DP 215200 and Lot 5 DP 215200, and is known as 2a Bringelly Road and 31 Santley Crescent, Kingswood. The combined development site is an irregular, "L" shaped allotment, which wraps around the adjoining land at 33 Santley Crescent, which is on the corner of Bringelly Rd and Santley Crescent to the west and south of the development site.

The two lots have the following characteristics:

- Lot 3 DP 215200, 2a Bringelly Road - frontage of 16m, depth of 43m, site area of 688m². A single storey dwelling exists on the site and mature trees and hedging at the frontage.
- Lot 5 DP 215200, 31 Santley Crescent - frontage of 20m, depth of 34m, site area of 680m². A single storey dwelling exists on the site and mature tree is frontage and north-west corner.

The Site is relatively flat and a footpath exists along both frontages.

The Site wraps around No. 33 Santley Crescent, which contains an "L" shaped single storey building and open car park, which operates as a Day Surgery.

The area is characterised by a mix of older style, single storey dwellings and two and three storey multi-unit housing, as well as newer multi-unit housing including a residential flat building at No. 20 Santley Crescent.

On the western side of Bringelly Rd is a single storey development containing local shops. The Site is within the vicinity of Kingswood Railway Station approx 120m to the north, Western Sydney University, Kingswood Public School and Chapman Gardens Oval to the east and Nepean Hospital to the west.

The site is located on the eastern edge of the Health & Education Precinct.

Background

A Pre-lodgement meeting (PL 21/0052) was held prior to lodgement of the application and Council indicated that the proposal was unacceptable.

After lodgement, the proposal was reviewed by the Urban Design Review Panel (UDRP21/0023), where it was indicated that the proposal is considered to be fundamentally unsupportable and it is recommended that that application not be supported as currently lodged. The comments made by the UDRP are detailed further in the body of the report.

On 20 June 2017, Council refused DA 16/1289 for a Residential Flat Building on 31 Santley Crescent.

Proposal

The proposed development includes:

- Demolition of Existing Structures.
- Construction of a Seven Storey Mixed Use Development building.
- Ground & First Floor Commercial Tenancies, which are accessed via the Bringelly Road frontage and entrance.
- Boarding House including 95 Boarding Rooms & Manager's Room pursuant to SEPP (Affordable Rental Housing) 2009.
- Two (2) Levels of Basement Car Parking, including excavation.

- Associated works including services, driveway and landscaping.
- Removal of all vegetation from the site including mature trees and hedging.

The 96 Boarding House rooms (plus manager/caretaker room) with capacity for 192 lodgers, with each room including individual kitchen and bathroom, and 6 x accessible rooms.

The building configuration is outlined in the application as follows:

- Basement 2: Car lift, vehicular parking for 31 cars (boarding house) and 12 motorcycles, 3 services rooms, 9 storage cages, stairs and lifts.
- Basement 1: Car lift, vehicular parking for 14 cars (3 for boarding house including 2 disabled space, 2 car shares spaces and 9 commercial spaces including 1 disabled space), 7 motorcycle spaces and 21 bicycle spaces, commercial and boarding room bin storage room, boarding room bin storage room, bulk waste storage, truck area, stairs and lifts.
- Ground Floor: 2 commercial tenancies, 2 lobbies and lifts, fire corridor, 2 platform lifts, bathroom facilities, 3 storage areas, 2 pedestrian access points, services room, waste chute, letter boxes, boarding house common room, managers office, communal living room, communal laundry, 6 boarding rooms (each with kitchenette and bathroom) and caretakers' room and open space.
- Level 1: 4 commercial tenancies, bathroom facilities, 14 boarding rooms (each with a kitchenette and bathroom) and stairs & lifts.
- Level 2: 17 boarding rooms (each with a kitchenette and bathroom) and stairs & lifts.
- Levels 3 & 4: 17 boarding rooms (each with a kitchenette and bathroom), cleaners room and stairs & lifts.
- Level 5: 14 boarding rooms (each with a kitchenette and bathroom), roof terrace and stairs & lift.
- Level 6: 11 boarding rooms (each with a kitchenette and bathroom), services room and stairs & lifts.

A communal room is proposed to be located on the ground floor will be available for use for small gatherings, with a communal area of open space adjoining. A secondary meeting room is located adjacent to the Santley Crescent entrance.

The proposed building finishes include rendered and painted surfaces and timber look and painted cladding.

The proposed car parking is broken up as follows between the residential and commercial components:

- Boarding House - 36 spaces including 2 disabled; plus two car share spaces.
- Commercial - 9 spaces including 1 disabled

A mechanical car lift is proposed to provide access between Basements 1 and 2.

Plans that apply

- Local Environmental Plan 2010
- Development Control Plan 2014
- State Environmental Planning Policy (Affordable Rental Housing) 2009
- State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004
- State Environmental Planning Policy (Infrastructure) 2007
- State Environmental Planning Policy (Western Sydney Aerotropolis) 2020
- State Environmental Planning Policy No 55—Remediation of Land
- Sydney Regional Environmental Plan No.20 - Hawkesbury Nepean River

Planning Assessment

• Section 4.15 - Evaluation

The proposal has been assessed in accordance with the matters for consideration under Section 4.15 of the *Environmental Planning and Assessment Act 1979*, and having regard to those matters, the following issues have been identified for further consideration:

Section 4.15(1)(a)(i) The provisions of any environmental planning instrument

State Environmental Planning Policy (Affordable Rental Housing) 2009

This application was lodged when State Environmental Planning Policy (Affordable Rental Housing) 2009 was in force. On 26 November 2021, State Environmental Planning Policy (Housing) 2021 (the Housing SEPP) came into force and repealed SEPP ARH. Schedule 7 of the Housing SEPP provides for the provisions of SEPP ARH to continue to apply as the development application had been made, but not yet determined, on or before the commencement date.

Notwithstanding this, consideration should be given to the Housing SEPP given it was a Draft Environmental Planning Instrument at the time of lodgement. Given the Policy was imminent substantial weight should be given to the provisions of the Housing SEPP. The following contains an assessment against both policies.

State Environmental Planning Policy (Affordable Rental Housing) 2009

The assessment below is undertaken against State Environmental Planning Policy (Affordable Rental Housing) 2009.

Division 3 Boarding Houses, applies to the development proposal as it includes construction of a 7 storey, 96 room boarding house for a maximum of 192 lodgers on B4 zoned land.

Clause 29

Clause 29(1) of the Policy prevents refusal of the proposal in relation to density and scale when considered with respect to floor space ratio controls. In this instance, the proposal is below the maximum floor space of 3:1, with no need for the bonus to be applied.

Clause 29(2) of the Policy states:

(2) A consent authority must not refuse consent to development to which this Division applies on any of the following grounds—

(a) building height

if the building height of all proposed buildings is not more than the maximum building height permitted under another environmental planning instrument for any building on the land,

(b) landscaped area

if the landscape treatment of the front setback area is compatible with the streetscape in which the building is located,

(c) solar access

where the development provides for one or more communal living rooms, if at least one of those rooms receives a minimum of 3 hours direct sunlight between 9am and 3pm in mid-winter,

(d) private open space

if at least the following private open space areas are provided (other than the front setback area)—

(i) one area of at least 20 square metres with a minimum dimension of 3 metres is provided for the use of the lodgers,

(ii) if accommodation is provided on site for a boarding house manager—one area of at least 8 square metres with a minimum dimension of 2.5 metres is provided adjacent to that accommodation,

(e) parking

if—

(i) in the case of development carried out by or on behalf of a social housing provider in an accessible area—at least 0.2 parking spaces are provided for each boarding room, and

(ii) in the case of development carried out by or on behalf of a social housing provider not in an accessible area—at least 0.4 parking spaces are provided for each boarding room, and

(iia) in the case of development not carried out by or on behalf of a social housing provider—at least 0.5 parking spaces are provided for each boarding room, and

(iii) in the case of any development—not more than 1 parking space is provided for each person employed in connection with the development and who is resident on site,

(f) accommodation size

if each boarding room has a gross floor area (excluding any area used for the purposes of private kitchen or bathroom facilities) of at least—

(i) 12 square metres in the case of a boarding room intended to be used by a single lodger, or

(ii) 16 square metres in any other case.

With regard to above, the following is noted:

(a) building height - The proposal is assessed to exceed the maximum height control under the LEP. Therefore, the development may be refused on this basis.

(b) landscaped area - The front setback area is deemed to be inadequate with respect to the existing setback pattern of the neighbours and as such the landscaped treatment of the front setback is not assessed to be compatible with the streetscape in which the building is located. Minimal setback area has been provided for landscaping on either frontage. The front setback, being inconsistent with the adjoining neighbour's setback to the east and south, is out of character with the prevailing setback depth in the street and opportunities provided for landscape which might contribute to streetscape character.

The area on Bringelly Rd has a different streetscape and character to Santley Crescent, as outlined below:

- Bringelly Rd is a busier road and more commercial focused. The subject site (2a) has dense mature planting along the frontage and side boundary and the adjoining commercial development to the south (Day Surgery) has established mature street trees.
- Santley Crescent is more residential in nature, tree lined street, landscaped front setbacks being primarily established landscaping (plantings and grass), setbacks approx 7-8m and newer buildings

have reduced setbacks in part down to 4m but only in conjunction with landscaping.

The development will sit substantially forward of adjacent and prevailing landscaped front setbacks within the streetscape which will be retained and enhanced (as anticipated by the applicable controls and objectives) as any re-development occurs within the zone.

The proposal contains a large majority of hardstand to the front setbacks, with limited opportunity for high quality landscaping. Deep soil opportunities are minimal and most planting is occurring within tubs or planters. The landscape plan indicates permeable paving to the majority of both frontages.

The basement driveway location and width will result in the removal of mature vegetation resulting in a cleared site and should be avoided, and more broadly, and also noting existing heat island issues and the number of extreme temperature days Penrith experiences. Tree removal and limited planting contributes to the loss of local character and amenity. The trees and plantings should be retained along the site's frontage.

The two front setbacks are filled with ramping and hardstand and has an adverse impact upon the ability to provide suitable landscaping. The proposal includes permeable paving on the street frontages which does not assist with landscaping or character. The proposal is unacceptable in relation to streetscape, local character fit and amenity.

The development may be refused on this ground.

(c) solar access - The area provided for the main communal living room will receive compliant solar access as assessed to be defined as a communal living room.

(d) private open space - Plans indicate that a private open space area being at least 20sqm with a minimum dimension of 3 meters is provided for the use of lodge, being 57m² with a dimension of 5m and to the north off the communal living room. The provision of private open space for the Manager's Room is of a suitable size being 10m² and 3.6m x 3m.

(e) parking - As the development is not proposed to be carried out by or on behalf of a *social housing provider* as is defined by the Policy, the applicable parking rate for the development is 0.5 spaces for each boarding room. Based on 96 rooms, 48.5 car parking spaces is required and the proposal provides only 36 spaces. The development may be refused on this ground.

(f) accommodation size - The Policy states that a consent authority must not refuse consent to development on the grounds of accommodation size, if each room has a gross floor area, excluding any area used for the purposes of private kitchen or bathroom facilities, of 12sqm for a single room or 16sqm for a double room. The room sizes are acceptable.

Clause 30

Clause 30 states:

(1) A consent authority must not consent to development to which this Division applies unless it is satisfied of each of the following—

- (a) if a boarding house has 5 or more boarding rooms, at least one communal living room will be provided,*
- (b) no boarding room will have a gross floor area (excluding any area used for the purposes of private kitchen or bathroom facilities) of more than 25 square metres,*
- (c) no boarding room will be occupied by more than 2 adult lodgers,*
- (d) adequate bathroom and kitchen facilities will be available within the boarding house for the use of each lodger,*

- (e) if the boarding house has capacity to accommodate 20 or more lodgers, a boarding room or on site dwelling will be provided for a boarding house manager,
- (f) (Repealed)
- (g) if the boarding house is on land zoned primarily for commercial purposes, no part of the ground floor of the boarding house that fronts a street will be used for residential purposes unless another environmental planning instrument permits such a use,
- (h) at least one parking space will be provided for a bicycle, and one will be provided for a motorcycle, for every 5 boarding rooms.

The proposal satisfies the above requirements, with the exception of the number of motorcycle spaces, being 1 space short.

The development must be refused on this ground.

Clause 30A

Clause 30A of the Policy states:

A consent authority must not consent to development to which this Division applies unless it has taken into consideration whether the design of the development is compatible with the character of the local area.

The design of the development is not assessed to be compatible with the character of the local area as it does not achieve a satisfactory level of compliance with the applicable controls and their objectives, and inadequate justification is provided for departures. With regard to future character, the design of the development does not satisfactorily align itself with the desired future character of the area which is anticipated by the applicable controls, noting in particular that the development does not comply with key built form controls contained within Council's DCP, including front and side setbacks, and articulation to the upper level.

The site is also within proximity to numerous existing/approved boarding houses, which indicates there is no need for 96 new rooms as proposed.

Submissions from residents have raised concerns with increased anti-social behaviour and criminal behaviour. The clustering of boarding houses in an area with high levels of crime, raises amenity, safety and security concerns for surrounding residents which have not be resolved by the management measures identified in the Application.

The area is currently undergoing transition and is on the edge of where the B4 zones meets the R3 zone immediately to the east. Importantly, the B4 zone contains a zone objective "*To minimise conflict between land uses within the zone and land uses within adjoining zones*". The proposed design does not achieve this zone objective and ignores the lot layout of the area and wraps around 33 Santley Crescent, isolating that site and creates a negative precedent and unacceptable interface. Further, the zero setbacks and extent of basement impact upon both the commercial and residential adjacent to the site. The proposed setbacks and lack of landscaping results in an unacceptable interface to the residential zone.

The proposal is inconsistent with the provisions of Clause 30A of State Environmental Planning Policy (Affordable Rental Housing) (ARHSEPP) as the design of the development is not compatible with the character of the local area, including the following reasons:

- The proposed design is not compatible with the existing or desired future character of the area as the design exceeds the height limit and fails to provide a suitable setback consistent with the adjoining properties and landscaping provisions of Control 2) f) of Part 5.11 Boarding Houses of PDCP.
- The lack of setback and extent of hard surfaces and issues relating to levels identified above result in

an unacceptable streetscape presentation to both streets.

- The design provides an inappropriate façade presentation to the street and adjoining properties and does not provide a suitable zone transition.
- The use of dark colours (in part) will result in additional heat absorption into the building in summer.
- The bulk, scale and mass that is not sympathetic to surrounding development, the streetscape or adjacent development noting zoning changes to the east.
- The building form provides for a long unbroken mass surrounding the corner isolated allotment with inadequately located landscaping and communal open space areas.
- The building lacks spatial breaks and separation as two separate and individual building forms that suitably present to both street frontages, with inappropriate setbacks and separation.
- The external façade has excessive blank walls and repetitive window arrangements is not an appropriate outcome with respect to streetscape presentation and edge boundary conditions.
- The height variation does not result in a superior outcome for the site.

In recent years the character of this portion of Kingswood has been altered and will continue to be altered by the approval and construction of boarding houses. There is a considered amount of boarding house rooms already approved in the local area and has varying impacts than other medium density residential developments, in particular with regard to their density.

In addition, the Urban Design Review Panel reviewed the proposal and provided comments which reinforces the unsuitability of the proposal with respect to the ARHSEPP Refer to the detailed discussion under "Likely Impacts" heading regarding Urban Design, which reinforces the inadequacies of the proposal.

State Environmental Planning Policy (Housing) 2021

The assessment below is undertaken against State Environmental Planning Policy (Housing) 2021:

Clause 23

Boarding house is permitted on the land given boarding houses are permitted under PLEP.

Clause 24

Clause 24 contains non-discretionary development standards for particular matters relating to development for the purposes of boarding houses that, if complied with, prevent the consent authority from requiring more onerous standards for the matters.

(a) & (b) FSR - the proposal is below the maximum floor space of 3:1, with no need for the bonus to be applied.

(c) R2 & R3 land - N/A

(d) R4 land - N/A

(e) Solar access - Complies as at least 3 hours of direct solar access is provided between 9am and 3pm at mid-winter in at least 1 communal living area.

(f) Boarding House with 6 rooms - N/A

(g) Boarding House with more than 6 rooms - at least 30m² of communal living area plus at least a further 2m² for each boarding room in excess of 6 boarding rooms, minimum dimensions of 3m. The proposal complies, providing a total cumulative area of 210m² and minimum 3m dimensions in both directions (approx 5m x 11.5m).

(h) Communal Open Spaces - total area of at least 20% of the site and minimum dimension of 3m required. An area of communal open space is provided only in the north-east corner of the site, which wraps around the corner of the building. This does not equate to 20% of the site area and is estimated to be approx 9%. Therefore, the development may be refused on this basis.

(i) Parking - for development on land within an accessible area (this site is due to proximity to railway station) 0.2 parking spaces for each boarding room, which equates to 39.2 spaces. The proposal only

provides 36 spaces and the proposal may be refused on these grounds.

Clause 25

Clause 25 contains standards for Boarding Houses which must be met in order for the consent authority to grant consent.

The standards in Clause 25(1) are met, including maximum room size and no more than 2 adult residents per boarding room.

Clause 25(2) requires the design of the boarding house to be compatible with:

- the desirable elements of the character of the local area
- for precincts undergoing transition—the desired future character of the precinct
- if the boarding house has at least 3 storeys—the building will comply with the minimum building separation distances specified in the Apartment Design Guide
- at least 1 motorcycle parking space will be provided for every 5 boarding rooms
- at least 1 bicycle parking space will be provided for each boarding room

As outlined in the detailed discussion below, the proposed development is not considered to be compatible with the character of the local area or provide a suitable transition.

Notably, the proposal has not been designed in accordance with the ADG and a vastly different building would result if compliance was achieved. The Housing SEPP establishes expectations in built form relevant for a boarding house development given the mass, scale and architectural outcome is reflective of a mixed use / residential flat building development and is therefore subject to the same design considerations and contextual integration requirements.

The motorcycle and bicycle spaces provided is well below that of the above requirements.

The standards in Clause 25(2) have not been met and the application should be refused.

Clause 26

The development, if approved, would be required to be used for affordable housing in perpetuity and managed by a registered community housing provider. The application has not nominated a community housing provider, nor made commitments to the use of the boarding house as affordable housing.

Having regard to the above, the proposal would not satisfy the provisions of State Environmental Planning Policy (Housing) 2021 and appropriate weight should be given to the new controls.

State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004

The applicant has submitted a BASIX for a Multi Dwelling Housing development without an alternative assessment being approved for thermal assessment as is required by the BASIX tool for 'large boarding house' which is not consistent with the requirements for achieving sustainability measures as outlined by BASIX and therefore the application is not supportable.

The NSW Government has developed an Alternative Assessment process to be used for 'large boarding houses' (i.e. those designed to accommodate more than 12 people or with a gross floor area of more than 300sqm). The NSW Government through the BASIX requirements has determined that 'large boarding houses' are to assess thermal comfort at the Construction Certificate stage against the Section J requirements of the Building Code of Australia. This requires an additional commitment on the BASIX Certificate, which is currently not provided.

The application is unsupportable under the Policy, noting the BASIX Certificate lodged is for the incorrect housing type - and is BASIX effected development. The required BASIX Certificate is a Multi Dwelling Housing type and must indicate that it is the subject of the 'Alternative Assessment' as a 'large boarding house'.

State Environmental Planning Policy (Infrastructure) 2007

Electricity – substation

Clause 45 of State Environmental Planning Policy (Infrastructure) 2007 relates to electricity and states:

45 Determination of development applications—other development

(1) This clause applies to a development application (or an application for modification of a consent) for development comprising or involving any of the following—

(a) the penetration of ground within 2m of an underground electricity power line or an electricity distribution pole or within 10m of any part of an electricity tower,

(b) development carried out—

(i) within or immediately adjacent to an easement for electricity purposes (whether or not the electricity infrastructure exists), or

(ii) immediately adjacent to an electricity substation, or

(iii) within 5m of an exposed overhead electricity power line,

(c) installation of a swimming pool any part of which is—

(i) within 30m of a structure supporting an overhead electricity transmission line, measured horizontally from the top of the pool to the bottom of the structure at ground level, or

(ii) within 5m of an overhead electricity power line, measured vertically upwards from the top of the pool,

(d) development involving or requiring the placement of power lines underground, unless an agreement with respect to the placement underground of power lines is in force between the electricity supply authority and the council for the land concerned.

(2) Before determining a development application (or an application for modification of a consent) for development to which this clause applies, the consent authority must—

(a) give written notice to the electricity supply authority for the area in which the development is to be carried out, inviting comments about potential safety risks, and

(b) take into consideration any response to the notice that is received within 21 days after the notice is given.

There is no need for any under-grounding or relocation of existing electricity infrastructure. However, the referral is required on the basis of development within 5m of an exposed power pole. A referral was undertaken to Endeavor Energy. Whilst a response has not been received at the time of writing this report, it is not pertinent as this application is recommended for refusal.

Development on Classified Road

Clause 100 of State Environmental Planning Policy (Infrastructure) 2007 relates to development on a classified road. The proposal does not have direct frontage to a classified road. Bringelly Rd feeds directly into the nearby Great Western Highway, which is a classified road.

Traffic Generating Development

Clause 104 of State Environmental Planning Policy (Infrastructure) 2007 relates to road noise and vibration and states:

104 Traffic-generating development

(1) This clause applies to development specified in Column 1 of the Table to Schedule 3 that involves:

- (a) new premises of the relevant size or capacity, or*
- (b) an enlargement or extension of existing premises, being an alteration or addition of the relevant size or capacity.*

(2) In this clause, relevant size or capacity means:

- (a) in relation to development on a site that has direct vehicular or pedestrian access to any road—the size or capacity specified opposite that development in Column 2 of the Table to Schedule 3, or*
- (b) in relation to development on a site that has direct vehicular or pedestrian access to a classified road or to a road that connects to a classified road where the access (measured along the alignment of the connecting road) is within 90m of the connection—the size or capacity specified opposite that development in Column 3 of the Table to Schedule 3.*

(3) Before determining a development application for development to which this clause applies, the consent authority must:

- (a) give written notice of the application to RMS within 7 days after the application is made, and*
- (b) take into consideration:*
 - (i) any submission that RMS provides in response to that notice within 21 days after the notice was given (unless, before the 21 days have passed, RMS advises that it will not be making a submission), and*
 - (ii) the accessibility of the site concerned, including:*
 - (A) the efficiency of movement of people and freight to and from the site and the extent of multi-purpose trips, and*
 - (B) the potential to minimise the need for travel by car and to maximise movement of freight in containers or bulk freight by rail, and*
 - (iii) any potential traffic safety, road congestion or parking implications of the development.*
- (4) The consent authority must give RMS a copy of the determination of the application within 7 days after the determination is made.*

Having regard to Schedule 3, the site is located less than 90m from the connection to The Great Western Highway, which is a classified road. The proposal triggers the requirements for referral under Schedule 3 of the SEPP due to the development containing greater than 50 car parking spaces. The application with referred to Transport for NSW. Whilst a response has not been received at the time of writing this report, it is not pertinent as this application is recommended for refusal.

State Environmental Planning Policy (Western Sydney Aerotropolis) 2020

The subject site is located outside of the Western Sydney Aerotropolis. However, the SEPP (Western Sydney Aerotropolis) 2020 contains a map that relates to wildlife buffer areas. This map is titled the "Wildlife Buffer Zone Map". The map shows that the subject site is within a 'wildlife buffer zone' of the airport.

The Aerotropolis SEPP commenced on 1 October 2020, before the development application was lodged. Consideration has been given to Clause 21 of the SEPP and the proposed development. The objective of Clause 21 is to regulate development on land surrounding the airport site where wildlife may present a risk to the operation of the airport. Certain types of development then trigger the requirements for further consideration under Clause 21. The proposed development, being a form of residential accommodation, is not one of the types of uses that warrant additional consideration under the SEPP with regard to wildlife and the operation of the airport.

The subject site is also identified as being located within the Wind Turbine Buffer and Obstacle Limitation Surface Map. Clause 22 of the SEPP prohibits works including wind turbines, however this form of works are not proposed by this application. Clause 24 of the SEPP relates to development that would penetrate the prescribed air space for the airport and be a 'controlled activity'. The proposed development neither penetrates the prescribed air space, nor is it a controlled activity, therefore not triggering any additional considerations under this clause.

State Environmental Planning Policy No 55—Remediation of Land

As assessment has been undertaken of the application against relevant criteria with State Environmental Planning Policy No. 55—Remediation of Land and the application is considered to be unsatisfactory.

When determining a development application for any development of land, Clause 7 of SEPP 55 requires that Council consider *'whether the land is contaminated'* and *'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'*.

The application indicates that the site appears to have been historically used for residential purposes however no detailed site history was provided to support this statement, nor were any preliminary site investigations provided. The Statement of Environmental Effects refers to a Preliminary Site Investigation (PSI) Report, however this did not form part of the information submitted to Council.

Accordingly, Council cannot be satisfied that the land is suitable for its proposed use.

Sydney Regional Environmental Plan No.20 - Hawkesbury Nepean River

An assessment has been undertaken of the proposed development against the relevant criteria within Sydney Regional Environmental Plan No. 20—Hawkesbury-Nepean River (No. 2—1997) and due to unresolved stormwater issues, the development proposal is in conflict with the Policy. The development application is recommended for refusal.

Local Environmental Plan 2010

Provision	Compliance
Clause 1.2 Aims of the plan	Does not comply - See discussion
Clause 2.3 Permissibility	Complies - See discussion
Clause 2.3 Zone objectives	Does not comply - See discussion
Clause 2.7 Demolition requires development consent	Complies
Clause 4.3 Height of buildings	Does not comply - See discussion
Clause 4.4 Floor Space Ratio	Complies - See discussion
Clause 4.6 Exceptions to development standards	Does not comply - See discussion
Clause 7.1 Earthworks	Does not comply - See discussion
Clause 7.4 Sustainable development	Does not comply - See discussion
Clause 7.6 Salinity	Complies
Clause 7.7 Servicing	Does not comply - See discussion
Clause 7.11 Penrith Health and Education Precinct	Does not comply - See discussion

Clause 1.2 Aims of the plan

The development has been assessed as being contrary to specific aims of the Plan including 1.2(2)(b), (c) and (h) as the development is not assessed to be consistent with Council's vision for Penrith, namely one of a sustainable and prosperous region with harmony of urban and rural qualities and with a strong commitment to healthy and safe communities and environmental protection and enhancement.

The design of the development does not provide a housing type which would meet the emerging needs of Penrith's community and which safeguards residential amenity, and the design of the development does not demonstrate that it incorporates the principles of sustainable development through the delivery of balanced social, economic and environmental outcomes.

Clause 2.3 Permissibility

The proposal is defined as a boarding house and is a permissible form of development in the B4 Mixed Use zone under Penrith Local Environmental Plan 2010 (PLEP), with consent. The development proposal is also permissible within the B4 Mixed Use zone under State Environmental Planning Policy (Affordable Rental Housing) 2009, with consent.

The development is a mixed use development and also contains a Commercial Premises, which is permissible in the B4 zone and is defined as:

commercial premises means any of the following—

- (a) *business premises,*
- (b) *office premises,*
- (c) *retail premises.*

Clause 2.3 Zone objectives

The subject site is located within the B4 Mixed Use zone under Penrith Local Environmental Plan 2010. Objectives of the zone include:

- *To provide a mixture of compatible land uses.*
- *To integrate suitable business, office, residential, retail and other development in accessible locations so as to maximise public transport patronage and encourage walking and cycling.*
- *To minimise conflict between land uses within the zone and land uses within adjoining zones.*
- *To create opportunities to improve public amenity.*
- *To provide a wide range of retail, business, office, residential, community and other suitable land uses.*

Although the development would provide a mix of land uses within the zone, the development proposal is in conflict with core objectives of the zone related to minimise conflicts between zones and within the zone.

The design of the boarding house does not enhance the essential character and identity of the area, in that the built form does not complement qualities of existing character of the area. The proposed design isolates and surrounds the adjoining day surgery and a basement with car lift is also considered to be out of keeping with the area and unnecessarily adds bulk to the building from being elevated in part to accommodate the head height within the basement.

The hardstand area and building footprint on the site, combined with the minimal landscape opportunities and street setbacks and large size of the proposed building with basement, is resulting in an over development of the site with unacceptable levels of site coverage, limited opportunity for meaningful landscaping and it is not demonstrated that a high level of amenity can be achieved for the adjoining residential or commercial properties.

The development does not reflect the desired future character and dwelling densities of the area, in that the proposal is in conflict with key built form and boarding house controls of the Penrith Development Control Plan 2014.

Clause 4.3 Height of buildings

The proposed building exceeds the maximum height limit of 18m. Clause 7.11 of the LEP allows an additional 20% bonus height in the Health & Education Precinct.

The application proposes the use of the bonus height limit stating that the ground and first floor levels exceed 3.5m in height, by using the bonus height afforded through Clause 7.11 the maximum height of the building is therefore 21.6m. As discussed further under Clause 7.11, the architectural plans nominate a floor to floor height of 3.7m in part across the first floor. In consideration of the construction requirements for a slab and servicing between levels it is unclear whether the development is able to achieve the required floor to ceiling height in order to use the bonus provisions.

The proposal has a maximum height of 22.035m which is limited to the lift overrun. The application was not accompanied by a Clause 4.6 variation. The maximum height of building is a development standard and an assessment against the provisions of Clause 4.6 is necessary. These provisions require the consent authority to consider a written request from the applicant justifying the contravention of the development standard, as this hasn't been provided, consent must not be granted.

Notwithstanding, the proposed development is not supported as a superior outcome is not achieved as a result of the height breach, nor is the height the only remaining issue which warrants support. There are significant design and technical issues with the proposed development which warrant a re-design of the proposal and there is opportunity for the height to be resolved through that process.

It is concluded that the application has not demonstrated that compliance with Clause 4.3 is unreasonable or unnecessary in the circumstances, nor that there are sufficient environmental grounds to justify contravening the development standard, for the following reasons:

- The proposed development is inconsistent with the B4 zone objective to minimise conflict between land uses within the zone and land uses within adjoining zones.
- The proposal has excessive bulk and would create an unacceptable transition to the adjoining sites.
- The proposal would cause unacceptable loss of privacy and overshadowing.
- The proposal is not consistent with the existing and desired future character of the locality due to its excessive height and bulky form.
- The proposal would have adverse visual impacts.

Further, Clause 20 of State Environmental Planning Policy (Affordable Rental Housing) 2009 allows for refusal of a proposal where the maximum height controls are exceeded, which is the case in this instance.

Clause 4.4 Floor Space Ratio

The maximum floor space ratio under the LEP is 3:1. The proposed FSR is 2.95:1, which complies.

Clause 4.6 Exceptions to development standards

See discussion under Clause 4.3 Height of building

Clause 7.1 Earthworks

The proposal includes extensive earthworks and excavation to accommodate the two levels of basement and development is proposed up to the side boundary.

The proposed development has not demonstrated that the proposed earthworks will not have a detrimental impact on environmental functions and processes or neighbouring uses and is considered unsatisfactory with respect to Clause 7.1 Earthworks.

Clause 7.4 Sustainable development

Clause 7.4 of PLEP requires the consent authority to have regard to the principles of sustainable development as they relate to the development based on a whole of building approach by considering a number of matters as listed under clause 7.4 (a) through to (j).

It is not considered that the design of the development adequately considers embodied energy in materials, building design and orientation, natural ventilation, or energy efficiency and conservation. Extensive areas of hardstand are proposed, limited opportunity for meaningful landscaping is incorporated in the design and the site coverage and overall building bulk is excessive. Existing vegetation on the site are proposed to be removed and could be retained through a more appropriate compliant design or through simple design changes.

It is also noted that the incorrect BASIX Certificate has been lodged for the development type. Refer also to discussion under SEPP BASIX.

Clause 7.7 Servicing

Whilst water, sewer, electricity and telecommunications are already available to the site and will be utilised in the development, the design of the proposal does not provide suitable servicing with respect to waste management or basement layout.

Clause 7.11 Penrith Health and Education Precinct

The site is located within the Penrith Health and Education Precinct. Clause 7.11 of the LEP states:

(1) The objectives of this clause are as follows—

(a) to encourage a built form that is suitable for both residential and health services facilities,
(b) to encourage adaptive reuse of residential buildings for health services facilities in the Penrith Health and Education Precinct where the residential use within the building ceases in the future.

(2) This clause applies to land identified as “Penrith Health and Education Precinct” on the Clause Application Map.

(3) Despite clause 4.3, development consent may be granted to development on land that exceeds the maximum height shown for that land on the Height of Buildings Map by up to 20% if the floor to ceiling height of both the ground and first floors are equal to or greater than 3.5 metres.

The proposal is contrary to the objectives of the clause in that the built form is not suitable for both residential and health services facility. The bulk and overall design of the proposed development has been deemed unsuitable.

The proposed development seeks to rely on the bonus height provisions of this clause, however, the application has not demonstrated that the floor to ceiling height is equal to or greater than 3.5m. Parts of the first floor have a nominated floor to floor height of 3.7m, in considering the construction requirements for a slab between levels and servicing it has not been demonstrated that the development is able to achieve the required floor to ceiling height necessary in order to grant development consent..

It is also noted that the proposed development also exceeds the 20% bonus height limit, which would ordinarily allow a maximum height of building of 21.6m. The proposal has a maximum height of 22.035m which is not supported.

As such, Clause 7.11 is not satisfied.

Section 4.15(1)(a)(ii) The provisions of any draft environmental planning instrument

Draft State Environmental Planning Policy that is applicable to the proposed development is the Draft Remediation of Land SEPP. The intention of this draft SEPP was to repeal SEPP 55 however the Draft EPI has not progressed since its public exhibition in 2018. The draft provisions do not alter requirements for development to demonstrate that the land is suitable or can be made suitable, and therefore the Draft Instrument has no further considerations beyond what has already been addressed within commentary against SEPP 55 in this report.

This application was lodged on 26 October 2021 when State Environmental Planning Policy (Affordable Rental Housing) 2009 was in force. On 26 November 2021, State Environmental Planning Policy (Housing) 2021 (the Housing SEPP) came into force and repealed SEPP ARH. Schedule 7 of the Housing SEPP provides for the provisions of SEPP ARH to continue to apply as the development application had been made, but not yet determined, on or before the commencement date. Notwithstanding this, consideration should be given to the Housing SEPP given it was a Draft Environmental Planning Instrument at the time of lodgement and imminent. There are a number of provisions contained within the Housing SEPP to which the application does not comply. A substantial change between the policies is the requirement for boarding houses to be provided as affordable housing in perpetuity and managed by a registered community housing provider.

Refer to discussion under SEPP ARH, which also includes an assessment against State Environmental Planning Policy (Housing) 2021.

Section 4.15(1)(a)(iii) The provisions of any development control plan

Development Control Plan 2014

Provision	Compliance
DCP Principles	Does not comply - see Appendix - Development Control Plan Compliance
C1 Site Planning and Design Principles	Does not comply - see Appendix - Development Control Plan Compliance
C2 Vegetation Management	Does not comply - see Appendix - Development Control Plan Compliance
C3 Water Management	Does not comply - see Appendix - Development Control Plan Compliance
C4 Land Management	Does not comply - see Appendix - Development Control Plan Compliance
C5 Waste Management	Does not comply - see Appendix - Development Control Plan Compliance
C6 Landscape Design	Does not comply - see Appendix - Development Control Plan Compliance
C7 Culture and Heritage	N/A
C8 Public Domain	N/A
C9 Advertising and Signage	N/A
C10 Transport, Access and Parking	Does not comply - see Appendix - Development Control Plan Compliance

C11 Subdivision	N/A
C12 Noise and Vibration	Does not comply - see Appendix - Development Control Plan Compliance
C13 Infrastructure and Services	Complies
D2.1 Single Dwellings	N/A
D2.2. Dual Occupancies	N/A
D2.3 Secondary Dwellings	N/A
D2.4 Multi Dwelling Housing	Does not comply - see Appendix - Development Control Plan Compliance
D2.5 Residential Flat Buildings	N/A
D2.6 Non Residential Developments	N/A
D3.1. Bulky Good Retailing	N/A
D3.2. Sex Services Premises	N/A
D3.3. Restricted Premises	N/A
D5.1. Application of Certification System	N/A
D5.2. Child Care Centres	N/A
D5.3. Health Consulting Rooms	N/A
D5.4. Educational Establishments	N/A
D5.5 Parent Friendly Amenities	N/A
D5.6. Places of Public Worship	N/A
D5.7. Vehicle Repair Stations	N/A
D5.8. Cemeteries, Crematoria and Funeral Homes	N/A
D5.9. Extractive Industries	N/A
D5.10 Telecommunication Facilities	N/A
D5.11 Boarding Houses	Does not comply - see Appendix - Development Control Plan Compliance
E12 Penrith Health and Education Precinct	Does not comply - see Appendix - Development Control Plan Compliance

Section 4.15(1)(a)(iiia) The provisions of any planning agreement

There are no planning agreements in place applying to this development proposal.

Section 4.15(1)(a)(iv) The provisions of the regulations

The development application has been notified, exhibited and advertised in accordance with the requirements of the Regulations.

The incorrect BASIX Certificate has been lodged with the application and nominated sustainability commitments are not shown on the DA drawings as is required by, and in opposition to, the Regulations.

A Preliminary Site Investigation (PSI) Report was not submitted to demonstrate the requirements of State Environmental Planning Policy No. 55—Remediation of Land have been met.

Section 4.15(1)(b) The likely impacts of the development

Likely impacts of the proposed development are discussed below:

Urban Design

The proposal was considered by the Urban Design Review Panel on 14 December 2021 and the following issues were raised for consideration in the progression of the development proposal.

- The proposal is not contextual responsive and presents as an overdevelopment of the site with a bulk, scale and mass that is not sympathetic to surrounding development, the streetscape or adjacent development noting zoning changes to the east.
- The building form provides for a long unbroken mass surrounding the corner isolated allotment with inadequately located landscaping and communal open space areas that seeks to utilise necessary built form setbacks for landscaping rather than meaningful congregation spaces.
- The building requires spatial breaks and separation as two separate and individual building forms that suitably present to both street frontages, with setbacks and separation that reflect the requirements within the Apartment Design Guideline. The new State Environmental Planning Policy 2021, whilst potentially not strictly applying to the DA due to savings provisions, still establishes expectations in built form relevant for a boarding house development given the mass, scale and architectural outcome is reflective of a mixed use / residential flat building development and is therefore subject to the same design considerations and contextual integration requirements.
- The proposal comprises the redevelopment capability of the corner allotment with inadequate setback and separation of building form to the boundary to accommodate a built form outcome on the isolated site that is envisaged by the zoning and zone objectives.
- There are territory conflicts at the ground floor with boarding rooms immediate adjoining identified communal open space. At a minimum Boarding Room 5 and 6 require deletion to provide for meaningful open space dimensions and connectivity to the proposed communal room. Further suggestions of communal open space in the setback to Bringelly Road is an inaccurate reflection of what is proposed as this is a built form setback and not useable space as communal open space with quality amenity.
- It is not clear why duplicated lift core infrastructure is proposed for the building fronting Bringelly Road given a maximum of 4 boarding rooms are proposed off the corridor.
- The external façade design with excessive blank walls and repetitive window arrangements is not an appropriate outcome with respect to streetscape presentation and edge boundary conditions.
- The proposed non compliance with the building height limitations within the LEP are also not supported as the objectives of the height standard must be complied with and the exceedance is not associated with a roof top communal open space element in combination with an embellished ground floor offering. Further any proposed clause 4.6 variation must be predicated on demonstration of superior outcome for the site which is not reflected within the proposal given the concerns raised with mass, bulk and scale of the proposed development.
- There are concerning overshadowing impacts that will result for the isolated corner lot and it is considered necessary that the corner lot is incorporated into a new and amended development proposal. Evidence of engagement to acquire this site should be provided and if the site cannot be acquired, a suitable design response to allow for future development capability must be presented which is not considered to be the case by the proposed plans.
- Landscaping is both inadequate and dependent on raised planters with poor deep soil provision across the site. Greater boundary setbacks are required to all side and rear boundaries of the site with a landscape curtilage at basement as well as above ground that allows for deep soil zone tree planting and meaning landscaping outcomes. Further, the minimal landscaped setback areas are further compromised by drainage infrastructure which is not appropriate. The suggestion of deep soil within the plan calculations includes OSD systems and pipework which undermines and erodes the

intentions of this deep soil zone to accommodate canopy cover planting.

- The proposal is considered to be fundamentally unsupportable and it is recommended that that application not be supported as currently lodged.

The comments provided by the UDRP have been considered in the assessment of the proposal and further support the conclusion that the development as proposed is unsuitable and that the Clause 4.6 variation cannot be supported.

Streetscape and Local Character

The proposal will have a negative impact on the existing streetscape and character of the local area. Refer to earlier discussion in this report. The development proposal is inconsistent with controls of the Affordable Rental SEPP, Penrith LEP and Penrith Development Control Plan 2014 (PDCP) which are related to local character, landscaping and urban built form and setbacks. The design is also in contrast to the key built form controls of the PDCP, in that the bulk and scale of the development is not adequately mitigated by landscaping or articulating design elements along its elevations. The design of the boarding house does not enhance the essential character and identity of established residential areas.

Issues have been identified regarding the basement driveway, access ramp design and onsite vehicle turning and waste. Existing vegetation should be retained noting existing heat island issues and the number of extreme temperature days Penrith experiences and they contribute to local character and amenity.

In order to address the outstanding technical issues, there is an opportunity to significantly reduce the overall size and scale of the development and provide vegetation retention and landscaping opportunities.

These issues on their own and cumulatively have the ability to impact upon streetscape and local character.

Residential Amenity

Issues have been identified by the UDRP regarding meaningful open space. The outdoor amenity of the proposed communal spaces could be improved and will impact the comfort, health and well being of future occupants.

The application should be refused as the development will result in unacceptable impacts upon the amenity of the adjoining properties, in particular regarding the unacceptable separation and interface with the existing adjoining and future likely development, as well as the transition between zones.

Vegetation & Landscaping

The application will result in the loss of all of the established vegetation on the site to provide a clear development site. Council's Landscape Architect has reviewed the proposal and advised that it is unacceptable for the following reasons:

- New planting opportunities are provided for replacement planting.
- The design has not considered landscape and other green infrastructure on equal terms with grey infrastructure. It is built form dominant and lacking green space and greening. It is inconsistent with the standard delivered in other similar developments.
- There is opportunity for community green roof spaces for residents, which may include community gardens, recreation and gathering spaces and cooling.
- There are 7 trees to be removed. There is insufficient quantity of replacement trees planted and

replacement canopy area. The Greener Places Guide requires 25% canopy cover for this type of development.

- Some proposed species are not suited to the conditions created such as native banksias in shaded spaces.
- The 3m wide corner of deep soil is 'leftover' space from a basement layout and it is small, isolated and reliant on adjoining deep soil to have any meaningful impact. It does little to contribute to the amenity of the community open space.
- On Santley Cr, the front setback is dominated by pavement and the design does not take advantage of the deep soil planting opportunity.
- Given Bringelly Rd is a higher order road, it is a more appropriate frontage (west facing) than Santley Cr (south facing) for deep soil and canopy, which would benefit both streetscape amenity and cooling.

Specific comment is provided regarding key aspect of the landscape design:

Private open spaces:

- The common open space area is considered poor amenity with clothes lines in proximity to recreation spaces (BBQ and seating)
- Some landscaped areas are difficult to access for maintenance, some relying on access through rooms. If maintenance is reliant on the resident to undertake, then long term viability of planting cannot be assured.

Eastern boundary:

- Landscaping is split between deep soil (1m wide) and podium and the rootzone volume for plants is much reduced. The deep soil area is further compromised with underground stormwater drainage infrastructure, limiting the type and size of plants possible there. Raised planters would be so narrow that species choice would be very limited.
- Plant species planted along this building frontage should be reducing the bulk, scale and height of the built form for visual amenity and screening of the blank wall. Both the narrow setback as well as compromised ground conditions could only deliver small shrubs up to say 1.2m. Without this landscaping, the amenity of residents from the adjacent property is significantly compromised.
- It is unclear without cross sections through open spaces attached to the Manager's Room and Rooms 002-004 how the podium, deck and natural ground levels interface and how these narrow spaces will provide amenity to residents.

Bringelly Rd frontage:

Planting is proposed in 'tubs' (pre-fabricated planters) on podium. The tub sizes are estimated to be less than 1m in any width – this size cannot sustain the 8x3m tree species proposed. It is realistic to expect a small tree or shrub might survive in this soil volume, say a tree reaching 2-3m in height, which does not provide acceptable streetscape and frontage amenity nor shading and cooling. Irrigation to tubs is noted as being documented in a later stage, however it is unclear how irrigation is achievable given the podium conditions.

Public domain:

- Should be provided in accordance with Council's adopted and online Public Domain Manual (PDM)(currently awaiting Council review) and current streetscape upgrade project which is nearing commencement of construction
- Upgrade of street light poles and luminaires as well as undergrounding of overhead power should be included. Undergrounding of power would ideally involve the wires that cross Bringelly Rd. It is not

clear where the light pole on Santley Cr is physically located in relation to the side boundary ie. Which property would be responsible for the upgrade.

- Proposed street tree (Santley Cr) is Brush Box which is unsuitable given the overhead wires. An alternative species is to be agreed with PCC. Brush Box is a suitable species if power is undergrounded. Street tree planting details are not in accordance with Councils PDM and not viable.

Traffic, Parking, Access and Maneuvering

Council's Engineers raised issues with respect to the following:

- Insufficient information is provided with regard to the proposed driveway longsection. As advised in pre-lodgement, the access ramp to the underground basement shall be 300mm above the top of kerb level in Santley Crescent. The driveway longsection shall be extended to the kerbline and clearly demonstrate this requirement.
- Insufficient information has been provided to demonstrate satisfactory turning on-site. It appears as though a swept path analysis may have been addressed in the Appendices of the Traffic Report, however these seem to be missing. Turning paths shall be determined for the largest service vehicle of the development, for vehicles turning at the end of aisles and for vehicles accessing car parking spaces.
- The application proposes 36 parking spaces for the boarding house, noting that boarding houses already receive reduction rate, therefore, a further reduction is not acceptable, the applicant shall comply with the SEPP requirement for parking spaces number. Further to note is that Bringelly Road and Santley Crescent is in close proximity to the Nepean hospital and to busy commercial/shops where on-street parking are in high demand.
- Swept path shall be provided for the largest vehicle accessing the site while clearing all objects as per AS2890.1 and the Pernith DPC C10.
- All vehicles shall enter and exit the parking spaces/site in a forward direction with no more than 3 point turn - especially for space #14 (Basement 2)
- Parking spaces envelop shall demonstrate that vehicles doors are cleared of any obstruction such as columns especially spaces #2 (Basement 1)
- Stop wheel are needed for all parking spaces especially for # C1, C2, C3, C8, C9 within Basement 1, and for parking spaces # 12, 13 within Basement 2
- The proposed car lift is not supported.

Stormwater

Insufficient information has been provided to demonstrate compliance with Council's Stormwater Drainage Specification for Building Developments. As requested in pre-lodgement, the application shall demonstrate that downstream stormwater systems have adequate capacity to accommodate stormwater flows generated from the development. In accordance with Council's Specification, the maximum discharge to the kerb at any single point shall be 25L/s for 10% AEP storm events. Where this cannot be met, on-site stormwater detention will be provided to reduce stormwater flows.

Solar Access Impacts

The shadow diagrams indicate an unacceptable level of overshadowing of 33 Santley Crescent at all times of the day, which extend to other properties further beyond the road at various items of day.

Social and Economic Impacts

The proposal was referred to Council's Social Planner who has not raised any significant objections to the boarding house development. However, it has been identified that there are significant non-compliances

and amenity impacts.

The application is accompanied by a social impact assessment. However, the application has provided inadequate information to enable determination of the application as it has not established that the Site is suitable for development of the proposed boarding house given the clustering of boarding houses in the locality. The Site is located in a locality which already has a large number of approved/existing boarding houses containing a total of well in excess of 200 boarding rooms and is subject to other applications for boarding houses. The locality is also identified as a high crime area.

Waste impacts

This application was accompanied by a waste management plan, which was deemed inadequate. The design of waste storage and collection is inadequate. The waste room is of inadequate dimension to satisfactorily provide for the storage of the required bins and issues have also been identified with turning of vehicles and clearances.

Air quality/odour impacts

Given the proposed use, it is not anticipated this development will generate any adverse ongoing air quality or odour impacts. Air quality impacts during the demolition and construction phases of the development can be managed through the conditions of consent, should consent for this development be granted.

Noise and Privacy Impacts

The development proposal does not adequately demonstrate a package of measures to mitigate against negative privacy and amenity impacts. Side setbacks are minimal and inadequate area is provided for landscape screening. The length of the building and the extent of the upper level will result in negative overbearing and overlooking impacts on neighbouring sites.

The submitted Acoustic Report is not satisfactory. It is also raised that noise impacts during the operational phase of the development, and specifically the use of open or communal areas, have only been partially addressed and that the recommended Acoustic attenuation measures are not noted on plans. The proposal is thus unsupportable having regard to noise and privacy impacts.

The Acoustical Report provides a Noise Impact Assessment (NIA) based on the architectural plans submitted and dated February 2021 and the following comments are provided:

- The Acoustic Report/Noise Impact Assessment (NIA) does not address noise associated with waste collection or service deliveries. The Waste Management Plan (WMP) states there will be 2 recycling and 2 waste service collections weekly all of which will be undertaken by private contractors with collection services occurring from a loading bay adjacent to the RWSA using a rear loading SRV vehicle. The WMP states that 'all services will be carried out, outside of normal business hours between 5.00am and 7.00am on each collection day, when there is minimal pedestrian and vehicular activity so as to minimise the impact of collections on the amenity of the area'. The NIA is required to assess noise associated with waste collection services and is to clearly detail and assess the noise impacts to receivers within the development itself as well as impacts to nearby receivers located on properties surrounding the site. The NIA is to detail and assess the location, hours and frequency of waste collection services and is to provide recommendations to minimize noise impacts and ensure compliance with established criteria is achievable.
- The NIA does not discuss noise from commercial tenancies within the proposed development and the application generally does not nominate proposed tenancy uses. Confirmation is required as to

whether the commercial tenancy uses are to be approved under this development application, and if so, what uses are proposed, or whether use of the commercial premises will be subject to future separate development applications where noise impact assessment for the commercial units will be undertaken as part of those future applications. If approval of specific uses within the commercial tenancies is sought under this application, a noise impact assessment of the commercial tenancies will be required.

- Noise from use of the loading dock is required to be assessed in the NIA even if specific commercial tenancies are not known at this stage. Indicative data should be provided, along with any noise mitigation recommendations, to ensure use of the loading dock can comply with established noise criteria.
- The NIA does not specifically assess vehicle noise associated with the proposed development in terms of Section 3.4.1 of the NSW Road Noise Policy. The NIA is required to address the Road Noise Policy in terms of increase to existing traffic noise demonstrating that an increase by more than 2dBA above the 'no build option' will not occur.
- Clarification is required regarding Tables 12 and 13 of the NIA in terms of which scenario each table (12 and 13) relates. Confirmation is required as to whether the night-time predicted levels presented in Table 12 relate to scenario 1 from Table 9 and whether the day-time predictions presented in Table 13 relate to scenario 2 from Table 9. The NIA is to confirm the noise levels associated with each scenario in Table 9 and across all periods (day, evening and night). The NIA is to detail noise levels at receivers without mitigation measures and with mitigation measures, informing as to the noise reduction provided by proposed fencing.
- The NIA and Plan of Management are to each be consistent and confirm the maximum occupancy of the communal areas (both indoor and outdoor) and across all time periods (day, evening and night). The NIA is based upon a maximum of 98 boarders using communal space (comprising 52 outdoors and 46 indoors) during the day and, it is assumed, evening. The Plan of Management is to demonstrate that this maximum occupancy rate can be satisfactorily supervised and achieved, including prohibition of use of the outdoor communal space after 10pm.
- Confirmation is required as to whether all mechanical plant and equipment including condenser units for air-conditioning will be located in the basement. Where plant and equipment may be located on the roof or external to the basement level, acoustic indicative assessment data is required to demonstrate compliance with established noise criteria is achievable.
- The proposed arrangement to permit a maximum of 10 persons in the outdoor communal area up until 11pm on Friday and Saturday nights is considered complicated and potentially difficult to supervise particularly as the resident caretaker's contact hours are listed in the Plan Of Management as being between 8am and 6pm Monday to Saturday. It is the recommendation of Council's Environment Team that the outdoor communal area not be used after 10pm on any day. Accordingly, the Plan of Management is to be revised to reflect that the outdoor communal area will not be used after 10pm.
- Confirmation of the maximum occupancy rate.

As such, the proposal is unacceptable in terms of noise impacts.

Local Government (General) Regulations

Room furnishings

The statement of environmental effects states that the owners will not be providing any mattresses or bed sheets / blankets. Under the Local Government Act, boarding houses which provide long term accommodation (over 7 days) must provide each room with minimum furnishings. These are listed in Schedule 1 of the regulation and must include:

- An adequate number of beds, each provided with a mattress and pillow and an adequate supply of clean blankets or equivalent bed clothing;
- Adequate storage space; and
- blinds, curtains or similar devices to screen windows for privacy.

Laundry Facilities

The plans indicate that the laundry will be equipped with 7 machines. It is unclear how many of these are washing machines or dryers, however, this is inadequate for the number of lodgers proposed. There needs to be at least one 8.5kg capacity washing machine and one domestic dryer for every 12 residents. As the maximum number of boarders is proposed to be 184, the applicant must provide at least 16 washing machines (with an 8.5kg capacity) and at least 16 domestic dryers.

Furthermore, 30m of outdoor drying space in the form of clothes lines (fixed or retractable) needs to be provided. This results in a total of 460m of clothes line space for the number of occupants.

Plan of Management

The Plan of Management submitted with this application is considered to be unsatisfactory. The Plan of Management (PoM) for the boarding house does not address the following:

- The plan of management also needs to be amended to include the frequency of cleaning and how they intend to deal with pest management including bed bugs, detailed room furnishings and so on.
- the boarding house staffing arrangements, including the location or 24 hour contact details of any on-site manager, off-site manager or resident caretaker, who has overall responsibility for the operation, administration, cleanliness, maintenance and fire safety of the premises
- plans outlining the occupancy rate for each sleeping room, room furnishings, provisions of communal areas and facilities, and access and facilities for people with a disability
- waste minimisation the servicing of 'sharps' and sanitary napkin receptacles
- professional cleaning and pest and vermin control arrangements, which, at a minimum, should include the weekly professional cleaning of shared facilities such as kitchens and bathrooms
- management of any communal kitchen including rules of use and cleaning and schedules
- safety and security measures, including:
 - i. perimeter lighting;
 - ii. surveillance or security camera systems;
 - iii. fencing and secure gates;
 - iv. room and access key arrangements; and
 - v. a landline telephone for residents to ring emergency services;
- internal signage, including:
 - i. the name and contact number of the property caretaker or manager;
 - ii. emergency contact numbers for essential services;
 - iii. house rules;
 - iv. a copy of the annual fire safety statement and current fire safety schedule; and
 - v. floor plans that will be permanently fixed to the inside of the door of each bedroom to indicate the available emergency egress routes from the respective bedroom
- A pest management program must also be added to the Plan of Management including details of:
 - i. frequency of pest service
 - ii. maintenance and cleaning

- iii. area of service
- iv. time of service
- v. sighting of pests and a response plan
- vi. reporting
- vii. methods of treatment
- viii. approved products and chemicals
 - Specific consideration in the plan needs to be given to bed bugs particularly in regard to monitoring and a response plan should they be identified.
 - The plan shall clearly indicate how, and in what timeframe, pests can be eradicated and what measures will be put in place to prevent the further harbourage of pests.
 - Minimum room furnishings
 - The Plan of Management should include a minimum room furnishing list and include detail on the condition of furnishing and process of replacing furnishing when required, such as how and when a resident can have a mattress replaced.
 - Contents of the room must include:
 - i. bed and bed size
 - ii. wardrobe
 - iii. mirror
 - iv. table and chair
 - v. night light
 - vi. waste container
 - vii. curtains or blinds;
 - viii. phone line
 - ix. microwave
 - x. refrigerator
 - Cleaning Schedule
 - A cleaning and sanitation program should be developed including written cleaning schedules and cleaning procedures.
 - The schedule and procedures must cover all areas external to occupied resident's rooms but should include the room clean when a room is vacated.
 - The following must be addresses in the procedures:
 - i. how cleaning and sanitising is conducted,
 - ii. frequency of cleaning and sanitising,
 - iii. use of chemicals,
 - iv. cleaning chemical and sanitising solution strengths,
 - v. Record keeping of cleaning and sanitising and signing off on cleaning and sanitising.

Section 4.15(1)(c)The suitability of the site for the development

The site is considered to be unsuitable for the following reasons:

- The cumulative impacts of the proposal by clustering of boarding houses in the area is unacceptable.
- The design of the building is not compatible with, or complementary to the existing or future desired character or landscaping of the local area.
- The development proposal does not adequately demonstrate that negative impacts related to bulk, scale, privacy, overshadowing, noise, waste, parking and character are adequately mitigated against or addressed by the design.
- The applicant has not satisfactorily addressed site suitability and SEPP 55.
- The design of the boarding house on the site is not acceptable in terms of internal and external residential amenity and having regard to the sustainability of the development and vegetation removal.

Section 4.15(1)(d) Any Submissions

Community Consultation

Between 15 November 2021 to 29 November 2021, the Application was advertised and notified to adjoining and nearby residences. Fifteen (15) individual submissions were received. The following issues were raised:

Issue Raised

Comment

Amenity:

- Overlooking
- Overshadowing and loss of sunlight
- Inadequate setbacks from boundaries
- Loss of outlook from adjoining properties
- Excessive density
- Overbearing development, too large
- Privacy loss

The impacts of the development on amenity, and the design of the development including the proposed setbacks, bulk and lack of landscaping have been considered and the application is being recommended for Refusal based on these reasons, and others.

Parking & Traffic:

- Traffic impacts
- Overflow parking on street
- Construction traffic issues

It is agreed that there is a high demand for parking in the area and as SEPP ARH allows for a 0.5 car space per boarding room and on this basis, inadequate car parking has been provided for the development.

Other concerns have been raised by Council's Traffic Engineer regarding the ramp and basement movements.

Safety:

- Loss of feeling of safety
- Potential safety issues when walking to school and train or to the nearby playground
- Criminal activities and drug and alcohol issues
- Inappropriately located near a Pub
- Impacts from other operational boarding houses have been experienced first hand and don;t want that here
- Need to protect existing residents in the area

The clustering of boarding houses in an area with high levels of crime and close proximity to a Pub and schools raises amenity, safety and security concerns for surrounding residents which have not be resolved by the management measures identified in the Application.

<p>Neighbouring Development:</p> <ul style="list-style-type: none"> - The development, in particular excavation and building up to the boundary, restricts opportunities on neighbouring land - Future residents will likely complain about overshadowing from the future development to the north, which is unavoidable and requires greater setbacks 	<p>Geotechnical issues and excavation stability are genuine concerns for the neighbouring properties. The application lacks details of the intended outcome in this regard.</p>
<p>Noise:</p> <ul style="list-style-type: none"> - Impact of noise from boarding house 	<p>It is agreed that noise levels may have an impact on existing levels of amenity. Council's Environmental Health officers have raised issues with the applicant's Acoustic Assessment. The application is recommended for Refusal on a range of matters.</p>
<p>Social Impacts:</p> <ul style="list-style-type: none"> - Concern in relation to type of residents of boarding house - Residents with social and medical problems are housed without adequate support services or specialist trained manager - Drug and crime issues. - Will create disharmony in the community. - Need to protect existing residents in the area. 	<p>The development proposal was referred to Council's Social Planner who has identified a need for diverse forms of affordable rental housing, notwithstanding the application is recommended for Refusal.</p> <p>The application has provided inadequate information to enable determination of the application as it has not established that the Site is suitable for development of the proposed boarding house given the clustering of boarding houses in the locality, nor on-site management</p>
<p>Affordable Accommodation:</p> <ul style="list-style-type: none"> - Doesn't get used as approved. - Need more affordable housing for families. 	<p>Changes have been made in the new Housing SEPP to provide greater control over use and operation of boarding houses.</p> <p>It is agreed that more affordable housing is required for families, however this application is for a Boarding House which limits the occupants to two per room.</p>
<p>Character:</p> <ul style="list-style-type: none"> - 7 storeys is too large - Out of character with the area - Cluster of boarding houses changing area into a ghetto. 	<p>The assessment by Council Officers agrees that the proposed boarding house is not compatible with the desired character of the area and that the bulk and scale and overall size of the development is excessive.</p>
<p>Previous Refusal:</p> <ul style="list-style-type: none"> - DA 16/1289 was previously refused on the site and reason remain relevant. 	<p>A residential flat building was refused on 31 Santley Crescent for reason including Urban Design, Height, Waste, Water Sensitive Urban Design and Geotechnical matters. These issues appear to remain relevant in this current application.</p>

Inconsistencies in documents

Inconsistencies in the submitted documentation, or lack of details, has been identified during the assessment and forms a reason for refusal.

Referrals

The application was referred to the following stakeholders and their comments have formed part of the assessment:

Referral Body	Comments Received
Building Surveyor	No objections - subject to conditions
Development Engineer	Not supported
Landscape Architect	Not supported
Environmental - Environmental management	Not supported
Environmental - Public Health	Not supported
Waste Services	Not supported
Traffic Engineer	Not supported
Social Planning	Not supported

Section 4.15(1)(e) The public interest

The proposed development is not considered to be in the public interest for the following reasons:

- The proposal is assessed to be contrary to the aims and zone objectives of Penrith Local Environmental Plan 2010;
- The proposal is non-compliant with key clauses of State Environmental Planning Policy (Affordable Rental Housing) 2009, resulting in a development which will have unacceptable impacts upon the future residents of the boarding house, the adjoining residents and the overall area.
- The application has not suitably addressed site suitability and State Environmental Planning Policy No. 55 - Remediation of Land.
- The proposal has adverse impacts upon adjoining properties and the surrounding area.

It is for the above reasoning that approval of the development application would not be in the public interest.

Conclusion

The development application has been assessed against the applicable environmental planning instruments, including State Environmental Planning Policy (Affordable Rental Housing) 2009 and Penrith Local Environmental Plan 2010, and the proposal does not satisfy the aims, objectives and specific provisions of these policies.

In its current form, the proposal will have a negative impact on the surrounding character of the area, specifically the setbacks and general design of the development. The proposal is not compatible with local character and is not representative of the future desired character of the area, as defined by Penrith Local Environmental Plan 2010 and the Penrith Development Control Plan 2014.

The development application was submitted with insufficient information in particular related to BASIX, acoustics, urban design, parking, landscaping, contamination and site context.

Support for this application would set an undesirable precedent in the locality, particularly given the incompatibility of the design with the applicable controls of the Penrith Development Control Plan 2014. The building design is not site responsive and does not comply with key development standards which are directly resulting in unacceptable negative impacts in the locality, and is not in the public interest.

It is for the above reasoning that the development application is not worthy of support.

Recommendation

1. That DA 21/0788 for a Seven Storey Mixed Use Development including Ground & First Floor Commercial Tenancies, Boarding House including 96 Boarding Rooms & Manager's Room & Two (2) Levels of Basement Car Parking, at 31 Santley Crescent and 2a Bringelly Road, Kingswood be Refused for the attached reasons; and
2. That those making submissions are notified of the determination.

CONDITIONS

Refusal

1 **X Special 01 (Refusal under Section 78A(9) of EPA Act 1979)**

The application is not satisfactory for the purpose of Section 4.15(1)(a)(i) of the Environmental Planning and Assessment Act 1979 as the proposal is inconsistent with the provisions of Penrith Local Environmental Plan 2010 as follows:

(a) The proposal is inconsistent with Clause 1.2, Aims of Plan, and the objectives of the B4 Mixed Use zone, in particular that the development proposal does not minimise conflicts between zones and within the zone.

(b) The proposed building exceeds the maximum height limit under Clause 4.3 Height of Buildings and Clause 7.11 Penrith Health & Education Precinct.

(c) The application was not accompanied by a written request as required by Clause 4.6 in relation to the contravention of Clause 4.3 and 7.11.

(d) The proposed development has not demonstrated that the proposed earthworks will not have a detrimental impact on environmental functions and processes or neighbouring uses and is considered unsatisfactory with respect to Clause 7.1 Earthworks.

(e) The proposal is unsatisfactory having regard to the principles of sustainable development under Clause 7.4 Sustainable development.

(f) The design of the proposal does not provide suitable servicing as required by Clause 7.7 Servicing.

(g) The proposal is contrary to the objectives of Clause 7.11 in that the built form is not suitable for both residential and health services facility and the height exceeds the maximum height limit permitted under Clause 7.11.

2 **X Special 02 (Refusal under Section 4.15(1)(a)(i) of EPA Act 1979)**

The application is not satisfactory for the purpose of Section 4.15(1)(a)(i) of the Environmental Planning and Assessment Act 1979 as the proposal has not satisfied the provisions of Clause 7 of the provisions of State Environmental Planning Policy No. 55 - Remediation of Land.

3 **X Special 03 (Refusal under Section 4.15(1)(a)(i) of EPA Act 1979)**

The application is not satisfactory for the purpose of Section 4.15(1)(a)(i) of the Environmental Planning and Assessment Act 1979 as the proposal is inconsistent with the provisions of State Environmental Planning Policy (Affordable Rental Housing) 2009, specifically Clauses 29, 30 and 30A as the development application:

- Exceeds the maximum building height control.
- Does not satisfy the minimum landscaped area controls.
- Does not satisfy the minimum car parking provisions.
- Does not satisfy the minimum motorcycle provisions.
- Does not suitably respond to the local character of the area in terms of urban design and transition between zones and to adjoining development.

4 [X Special 04 \(Refusal under Section 4.15\(1\)\(a\)\(ii\) of EPA Act 1979\)](#)

The application is not satisfactory for the purpose of Section 4.15(1)(a)(ii) of the *Environmental Planning and Assessment Act 1979* as the provisions of State Environmental Planning Policy (Housing) 2021 (the Housing SEPP) have not been addressed given it was a Draft Environmental Planning Instrument at the time of lodgement.

5 [X Special 05 \(Refusal under Section 79C\(1\)\(a\)\(iia\) of EPA Act 1979\)](#)

The development application is not satisfactory for the purpose of Section 4.15(1)(a)(iii) of the Environmental Planning and Assessment Act 1979, as the proposal is inconsistent with the following provisions of Penrith Development Control Plan 2014:

- DCP Principle
- C1 Site Planning and Design Principles;
- C2 Vegetation Management;
- C3 Water Management;
- C4 Land Management;
- C5 Waste Management;
- C6 Landscape Design;
- C10 Transport, Access and Parking;
- C12 Noise & Vibration;
- Part D2 Residential Development;
- Part D5, Section 5.11 Boarding houses; and
- Part E12 Penrith Health & Education Precinct

6 [X Special 06 \(Refusal under Section 4.15\(1\)\(a\)\(iv\) of EPA Act 1979\)](#)

The development application is not satisfactory for the purpose of Section 4.15(1)(a)(i) and 4.15(1)(iv) of the Environmental Planning and Assessment Act 1979, State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004 and Clause 50 of the Environmental Planning and Assessment Regulation 2000 in that the application was not accompanied by a BASIX Certificate relevant to the type of development proposed.

7 [X Special 07 \(Refusal under Section 4.15\(1\)\(b\) of EPA Act 1979\)](#)

The development application is not satisfactory for the purpose of Section 4.15(1)(b) of the Environmental Planning and Assessment Act 1979 in terms of the likely impacts of that development including those related to:

- (i) unsatisfactory urban design, streetscape and local character impacts;
- (ii) unsatisfactory noise and amenity impacts;
- (iii) unsatisfactory traffic, parking, access and maneuvering provision;
- (iv) unsatisfactory external and internal amenity;
- (v) unsatisfactory sustainability considerations;
- (vi) inadequate landscaping provision and setbacks; and
- (viii) inadequate Operational Plan of Management.

8 [X Special 08 \(Refusal under Section 4.15\(1\)\(c\) of EPA Act 1979\)](#)

The application is not satisfactory for the purpose of Section 4.15(1)(c) of the Environmental Planning and Assessment Act 1979 as the site is not suitable for the proposed development. The size of the site and dimensions of the site create limitations to the driveway gradient, turning area and waste management. The proposed development removes all existing vegetation and does not propose a suitable landscape design treatment.

9 **X Special 9 (Refusal under Section 4.15(1)(d) of EPA Act 1979)**

The application is not satisfactory for the purpose of Section 4.15(1)(d) and 4.15(e) of the Environmental Planning and Assessment Act 1979 due to matters raised in submissions and the public interest with respect to impacts of the development on residential amenity, local character, changing nature of the area and privacy.

Appendix - Development Control Plan Compliance

Development Control Plan 2014

Part B - DCP Principles

The development proposal is considered to be contrary to the principles, commitments and objectives of the Penrith Development Control Plan 2014 (DCP) in particular, the proposal does not enable communities to minimise their ecological footprint or promote sustainable production and consumption through appropriate use of environmentally sound technologies and effective demand management.

Due to the location, orientation and size and design of the development, the building will be exposed to high levels of direct solar access and inadequate shade is provided to reduce the thermal loading, which will be retained in the summer months.

The submitted BASIX Certificate is identified as being for a multi dwelling housing development and is not accompanied by the the required 'alternative assessment' for Large boarding Houses certificate and Section J compliance report.

Part C - City-wide Controls

Section C1 Site Planning and Design Principles

Clause 1.2.2 Built form - Energy Efficiency and Conservation

This section of the DCP states that "*buildings should be designed on passive solar design principals which respond to orientation to maximise the northern aspect and solar access in the cooler periods; reduce overheating in summer and promote solar gain in winter; and ensure there is adequate cross flow of air by utilising natural ventilation, resulting in a reduction in the use of mechanical ventilation and/or air-conditioning systems*".

The design of the building does not facilitate sufficient opportunity for natural cross flow ventilation and is positioned and orientated such that the thermal load in summer will result in overheating and poor internal amenity and thermal comfort for lodgers.

The incorrect BASIX Certificate was lodged for the development type, refer to discussions under SEPP BASIX.

Clause 1.2.3 Building Form - Height, Bulk and Scale

The proposal fails to demonstrate how the development is compatible, comparable or complementary with the bulk and scale of adjacent development, or provide a suitable transition to the adjoining development. The development proposal does not demonstrate an acceptable level of compliance with the applicable key built and urban form controls under the DCP, their objectives or with the objectives of the R3 zone.

Proposed setbacks and separation distances do not adequately mitigate against negative and unacceptable amenity impacts such as privacy (visual and acoustic), overbearing and impacts on local streetscape and landscape character.

Section C2 Vegetation Management

The development will result in the loss of all vegetation from the site.

Section C4 Land Management

No contamination assessment has been carried out for the development. See comments under SEPP 55 section of the report.

Section C5 Waste Management

Unsatisfactory waste arrangements are proposed with the waste room and bulky store being

inadequate in size.

Section C6 Landscape Design

Clause 6.1.3 Neighbourhood Amenity and Character

The proposal does not comply with the requirements of the DCP as follows:

- The landscape proposal does not enhance the amenity and visual quality of the site.
- The bulk and scale of the building is not moderated by the use of landscaped elements such as for screening or shade provision.
- The development does not make any contribution to the streetscape by way of the design of structures or landscaping.
- The design of landscaping works do not ensure that the development integrates into and enhances the existing landscape character through either setbacks, materials selection, architectural character or vegetation selection/placement.
- Unnecessary tree removal, which is considered unavoidable.

Clause 6.1.4 Site Amenity

The DCP states that landscape design should seek to screen development, particularly from the sides and rear of an allotment and shrubs and small trees should be used to screen service areas and block unwanted views that reduce privacy. The proposal does not adequately demonstrate an acceptable level of compliance is achievable. The proposed level of site coverage is excessive and areas of landscaping minimal resulting in no meaningful contribution to amenity, local character or streetscape presence.

A 7 storey building is a new feature in this area and the design is not appropriate for the site in terms of amenity impacts.

Section C10 Transport, Access and Parking

Car parking requirements are set by State Environmental Planning Policy (Affordable rental Housing) 2009 [SEPP ARH] and are not compliant.

Council's development engineers have raised objection to the proposed ramp to the basement and maneuvering / vehicles passing, as well as the proposed car lift to move vehicles between the two basement levels.

The proposal does not comply with the general objectives of Section C10(A)(b) and (c) in that traffic safety impacts of the proposal are not minimised as residents could be forced to reverse out of the rear parking area and onto the street if there are no spaces available. Other implications of the design of the driveway and car parking hard stand, the development will negatively impact roadway safety, including pedestrian safety.

For the above reasoning the proposal is found to be contrary to the road safety controls at C10.2(B)(2)(a),(d) and (e) and the Parking objectives and controls at 10.5.1(B)(a),(b),(e),(f) and (C)(5)(i) and (k).

D2 Residential Development

Section 5.11 of the Penrith DCP states at Clause C. Controls, (2)(h) that a boarding house proposal of a scale similar to a multi dwelling housing development should comply with the controls and objectives for Multi Dwelling Housing within this DCP. It is assessed that the proposed development is not of a scale similar to multi dwelling housing owing to the proposed height and size of the building and number of domiciles proposed, the nature and density of activities related to the proposed use and the bulk and site coverage of the design which contribute to an overall unacceptable scale.

Noting also that the NSW Government does not accept Single Dwelling BASIX Certificates for 'Large Boarding Houses', which it defines as those being capable of accommodating more than 12 boarders or is greater than 300sqm in floor area. The proposal is defined as a 'Large boarding house'.

As is required by the DCP an assessment has been made of the proposal having regard to the controls and objectives for multi dwelling housing.

Clause 2.4.2 Preferred Configuration for New Dwellings

Objectives for the clause include that new multi dwelling housing should adopt key features of established suburban design, and that dwellings and their entrances and private courtyards look towards the street, or the rear boundary.

The design of the proposed does not adopt key features of established suburban design such as articulated and stepped floor plates both in plan and in elevation, an upper level floor plate which is notably smaller than the ground floor plate, and a building which is in a garden setting surrounded by generous landscaping, with deep set landscaped set backs. There is a significant amount of built form on the site, which is still visible from the street and does not assist with integrating the large size of the building onto the surrounding area.

Clause 2.4.3 Development Site

Objectives of the clause include to identify planning and design options that are appropriate to the shape and size of each development lot, and to the location of neighbouring buildings, and to identify planning and design responses that address impacts on surrounding streetscapes.

The design of the development is not site responsive. The scale of the development does not sit comfortably, wrapping the corner allotment and with minimal setbacks and landscaping. The front setback DCP requirement is to be the average of the setback of the immediate neighbours, which has not been achieved and will result in an overbearing development which will detract from the streetscape character of the local area. This building is forward considerably beyond the adjoining neighbours. It would be expected that if this front setback to the two streets is supported, that there would be ample room for a landscaped rear and side setback to be provided. This is not proposed and large areas of hard stand and ramp to the basement is provided with inadequate landscaping.

Clause 2.4.4 Urban Form

The development proposal is in opposition to the control at 2.4.4(3) which states that applicant's are to avoid "gun-barrel" style development with long rows of attached dwellings, long straight driveways and rows of uniform width garden courtyards by (a) breaking buildings into separate blocks no longer than 20m; (b) provide "open space corridors" between buildings at least 4m wide across each site; (c) a combination of garden areas and parking courtyards; or (d) open parking spaces that are lined by an avenue of shady, overhanging trees; (e) along common driveways, step the alignment of buildings, and / or their external walls plus eaves;; and (f) at the head of common driveways, a distinctive building or landscaped feature should terminate the vista from the street.

The design of the development does not comply with (3) or (3)(a), (b), (c), (d), (e) or (f) above. Inadequate landscape buffer is provided between the driveway and the boundary of the site, or between the driveway and the boarding house.

The design of the development appears to be excessive given the inclusion of a basement on an irregular shaped site with narrow frontages, which pushes the building out of the ground in part. The corresponding associated impacts by way of resulting retaining walls, visual impact from ramp, inadequate landscaping to screen the built form, ramping and car lift, all indicate that the proposal is an overdevelopment.

Clause 2.4.5 Front and Rear Setbacks

The proposal does not comply with the front setback requirement which states that the front setback is to be either average the setbacks of the immediate neighbours; or a minimum of 5.5m, whichever is the greater dimension.

The rear setback does not meet the DCP requirement and contains the ramp to the basement. Limited opportunity is available for meaningful landscaping.

Clause 2.4.6 Building Envelope and Side Setbacks

The proposal does not comply with the objectives and controls of the clause in that inadequate landscaped separation is provided between neighbouring dwellings. The design of the development does not comply with control at (B)(6) which requires reasonable separation and landscaping between neighbouring buildings, consistent with the other sections of the DCP. Refer to discussion under Section 5.11 of the DCP for applicable side setback controls.

This development introduces a far more intensive design than two single dwellings currently, with up to 192 residents and as such greater separation to adjoining dwellings is required.

Clause 2.4.8 Landscaped Area

The proposal does not comply with the objectives and controls of this clause. No effective separation is provided between neighbouring development which may provide for healthy growth of new trees and shrubs, that may provide a green outlook for residents, and the minimal and non-compliant front setback will not allow for a front garden that will contribute to an attractive streetscape.

Clause 2.4.12 Building Design

The development proposal is contrary to the controls of the clause, in that the design does not effectively mitigate against bulk through the use of a variety of materials, articulating elements such as stepped walls, projections in the ground floor plan, rooms that extend beyond the upper storey, attached verandahs and pergolas.

Clause 2.4.13 Energy Efficiency

The development proposal does not adequately employ design techniques to reduce thermal loads and allow for effective solar shading.

Clause 2.4.16 Garden Design

(B) Controls (1)(a) through (e) requires that the rear boundary setback should provide private garden courtyards, a corridor of habitat, a green backdrop that is visible from the street, an interlocking canopy of low to medium-height trees and shrubs. The rear setback is dominated by zero setbacks, hardstand and basement ramp and has no areas being of a scale sufficient in area to accommodate medium trees or shrub planting, or that would contribute to a corridor of canopy trees or that would provide for a green outlook.

The control at (B)(2) and (3) require that the development provide for small to medium height canopy trees for sun-shading and privacy separation between dwellings and within the verges to any common driveway and hedges fronting windows to any dwellings. The design of the development provides inadequate landscape buffer against the building and adjacent to the driveway and provides very limited buffer planting along the side boundary.

Clause 2.4.19 Visual and Acoustic Privacy and Outlook

The development proposal has not adequately demonstrated that the package of measures proposed to prevent privacy (visual and acoustic) impacts is acceptable. The common open space area is located directly opposite rooms of neighbouring residences (to the south) with no ability for

landscaping to provide a buffer. The acoustic report does not address the location of the communal open space.

D5 Other Land Uses

The proposal is not considered to be acceptable having regard to the objectives and controls of the DCP including those of Chapter 5.11 Boarding houses.

In relation to Chapter 5.11 the following is noted:

- The proposal is not supportable as the design is not considered to be compatible with the local character, the future desired character of the area, and does not provide suitable amenity for tenants as is required by section 5.11(B) objectives.
- The proposal does not comply with section 5.11(2)(c) as the design does not have a sympathetic relationship with adjoining development nor transition in heights. Insufficient side boundary planting is provided as a buffer to the neighbouring developments, and the front setback is non-compliant, resulting in the development sitting significantly forward of neighbouring developments adjacent and in the vicinity of the site.
- The proposal is not compliant with the required side and front setbacks provided in table D5.3 of the Chapter which requires a front setback being the average of the immediate neighbours.

Clause C(2)(h) requires that a boarding house proposal of a scale similar to a multi dwelling housing development should comply with the controls and objectives for Multi Dwelling Housing within the DCP. An assessment of the proposal has been undertaken against the applicable section of the DCP. Refer to Section D2 of the DCP section of this assessment report.

E12 Penrith Health and Education Precinct

The proposal has been assessed against the applicable provisions of Part E12, Penrith Health and Education Precinct of the Penrith Development Control Plan 2014 and non compliance identified in a number of instances. Compliance with particular sections is discussed in the table below:

Requirement	Proposed	Compliances/Discussion
Provision of flexible floor areas and layouts to the ground and first floor to accommodate a range of commercial uses	The ground and first floor will provide for commercial uses	Yes
Floor to ceiling heights for an applicant seeking to take advantage of the additional building height incentives prescribed by LEP 2010 1. 3.5m on the ground and first floor; and 2. 2.7m on the upper floors	Ground floor: 4m First floor: 3m Upper floors: 2.7m	Yes
Non-residential buildings greater than 12m in height are to have a maximum depth of 25m	The proposal is provided with a depth of well in excess of 25m.	No
Ground floor of mixed use to have 75% commercial frontage	Bringelly Rd complies.	Yes
All points of an office floor should be no more than 10m from a source of daylight (e.g. window, atria or light wells)	Tenancies 002 & 102 have marginal non-compliances.	No

Minimum site width of 24m required.	Both frontages are well below this requirement.	No
Separate commercial and residential entrances required.	Separate entrances proposed.	Yes
Large unrelieved expanses of wall or building mass will not be supported and should be broken up by the use of suitable building articulation, fenestration or alternate architectural enhancements	The proposal is provided with a blank walls in part and are not considered to have been appropriately broken up.	No
Side and Rear setback requirement for non-residential uses: <ul style="list-style-type: none"> ● Up to 12m / 0m setback ● 12m to 24m / 6m setback 	The lower levels have a zero setback and this increases on the upper levels to 3m.	No
Site Coverage: 75% of site	>75% site coverage provided.	No
Deep soil zone: 10% of site area	<10% deep soil zone provided.	No
Building faces are to be articulated so that they address the street and add visual interest	The proposed design is considered unacceptable.	No
External walls should be constructed of high quality and durable materials and finishes with 'self cleaning' attributes, such as face brickwork, rendered brickwork, stone, concrete and glass	The proposed design is considered unacceptable.	No
Active frontage uses are defined as one or a combination of the following, at street level: <ol style="list-style-type: none"> 1. An entrance to a retail premises; 2. A shop front; 3. Glazed entries to commercial and residential lobbies occupying less than 50% of the street frontage, to a maximum of 12m frontage; 4. A café or restaurant if accompanied by an entry from the street; 5. Active office uses, such as a reception, if visible from the street, and 6. A public building, if accompanied by an entry 	The proposed design is considered acceptable.	Yes Please refer to discussion below.

Given it is a mixed development, it is difficult in some instances to strictly apply the boarding house controls.

The following commentary is provided on the areas of non-compliance or additional design discussion points identified within the above table:

Precinct

The objective of the Precinct is to promote high quality architectural excellence and provide a mix of commercial and medical related uses.

As such, the residential land use was not envisaged on this site and as detailed elsewhere in this report, the building is not

considered to be of high quality urban design or excellence.

Non-residential building depth

Building depth restrictions are generally provided to commercial buildings to assist in allowing appropriate access to natural light and ventilation especially to upper levels, while also reducing any adverse effects that a built form may have in regard to a visual impact when viewed from the public domain. The development will provide for commercial uses to 2 levels with predominant glazing via windows provided to Bringelly Rd.

When measured from either street, the depth of the building is considerably in excess of the DCP requirement.

The development has identified a nil boundary setback provided to the northern elevation with an assumed intention of a future development being provided directly adjoining to the north of the subject site. This nil setback is not considered consistent with the future desired building configuration layout for this part of the Nepean Health Precinct, and has the potential to impact upon development of adjoining properties or existing buildings.

Blank wall presentation

As the proposed development is provided with a nil boundary setback to the northern elevation, this has in turn provided for a large amount of building mass to this façade. Other elevations have also been provided with blank walls in part or limited windows and articulation.

Noting the mixture of architectural features and colours proposed, the building is not considered to provide for an appropriate presentation to allow for architectural interest when viewed from either the public domain or the existing adjoining lots, not in keeping with the primary residential land uses adjoining.

Side setback

Penrith DCP controls have identified for a built form from 12m to 24m in height, that a 6m building setback is required to be provided to all boundaries. In this regard, the side and rear setbacks are non-compliant with a nil setback.

The provision of a nil setback to the northern boundary is not considered an unacceptable design outcome in this instance noting the commercial zoned nature of the subject site and its surrounds which generally do allow for nil setbacks to side boundaries. However, the remainder of the site should respect the adjoining residential land uses and provide a good separation and transition.

Deep soil zone & Landscape Design

The proposal has been provided with a non compliant deep soil area, which is created via the provision of a nil building setbacks. The deep soil zone does not allow for the location of mature tree planting with a large canopy, or landscaping in general.

Articulation of building faces / external building appearance

The proposal will provide for a prominent presentation to both street frontages. The urban design of the building is considered unacceptable, as detailed earlier in this report.

Site Width

Both frontages are well below the minimum width of 24m specified in the DCP, being 16m wide to Bringelly Rd and 20m wide to Santley Crescent.

Active Frontage

It is noted that Bringelly Rd frontage is identified as an active street frontages under Part E12 of the Penrith DCP. There is opportunity for improvement in the overall design of the building.

Commercial Frontage

The proposal incorporates appropriate commercial frontage to Bringelly Rd frontage and provides a separate entrance than the residential component and safety measures.

Proposed Commercial & Boarding House at 31 Santley Crescent & 2A Bringelly Road Kingswood NSW

Gus Fares Architects PL



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1 Bringelly Street View

2 Santley Crs Street View

Issue	Description	Date
A	DA Submission	Oct 21

Client
Mr Rashid Bhuiyan

Project
Commercial & Boarding House at
31 Santley Crescent &
2A Bringelly Rd
Kingswood NSW

Cover Page

FOR DA ONLY

Project number 2020-22

Date Feb 2021

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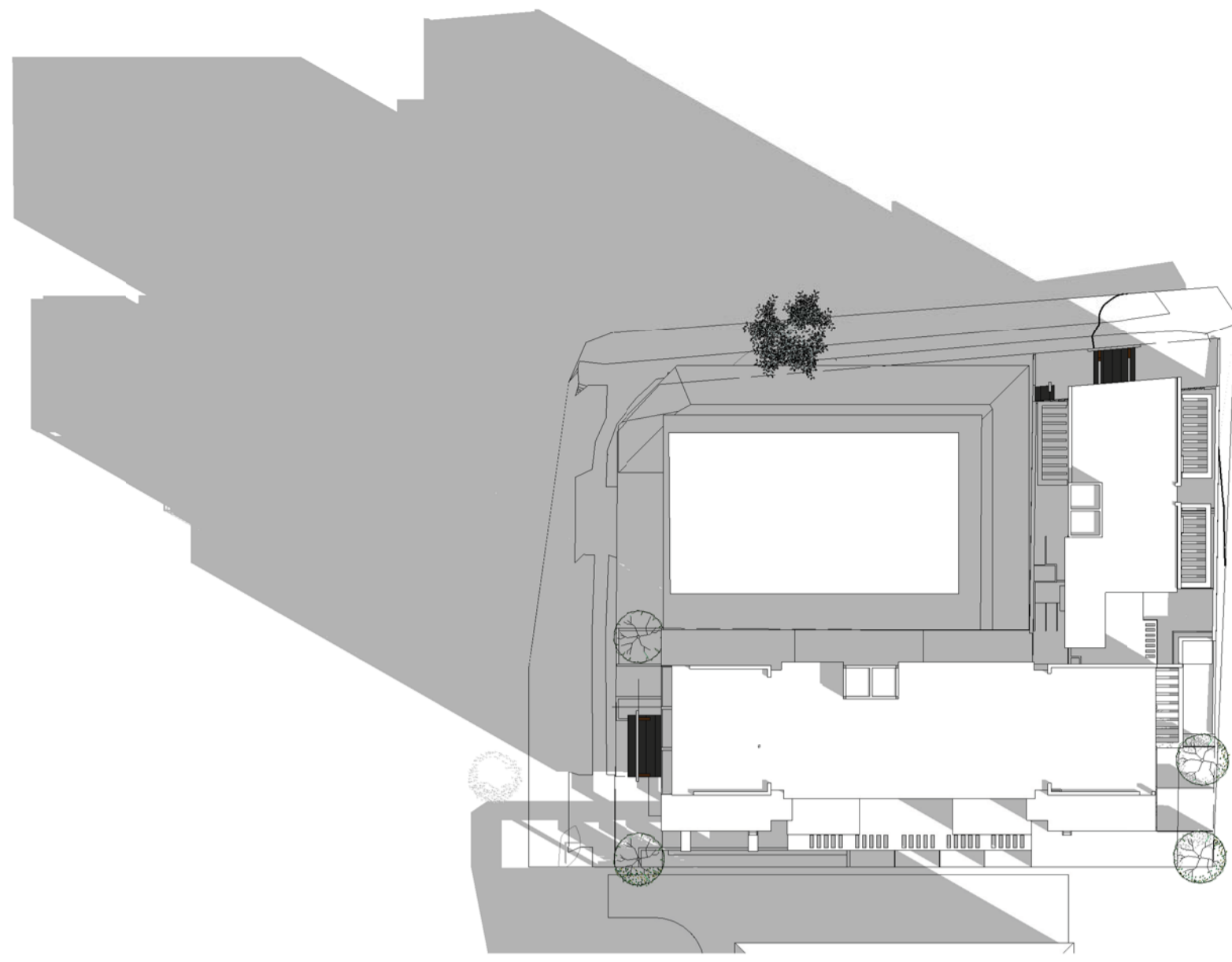
Checked by Gus Fares

A000

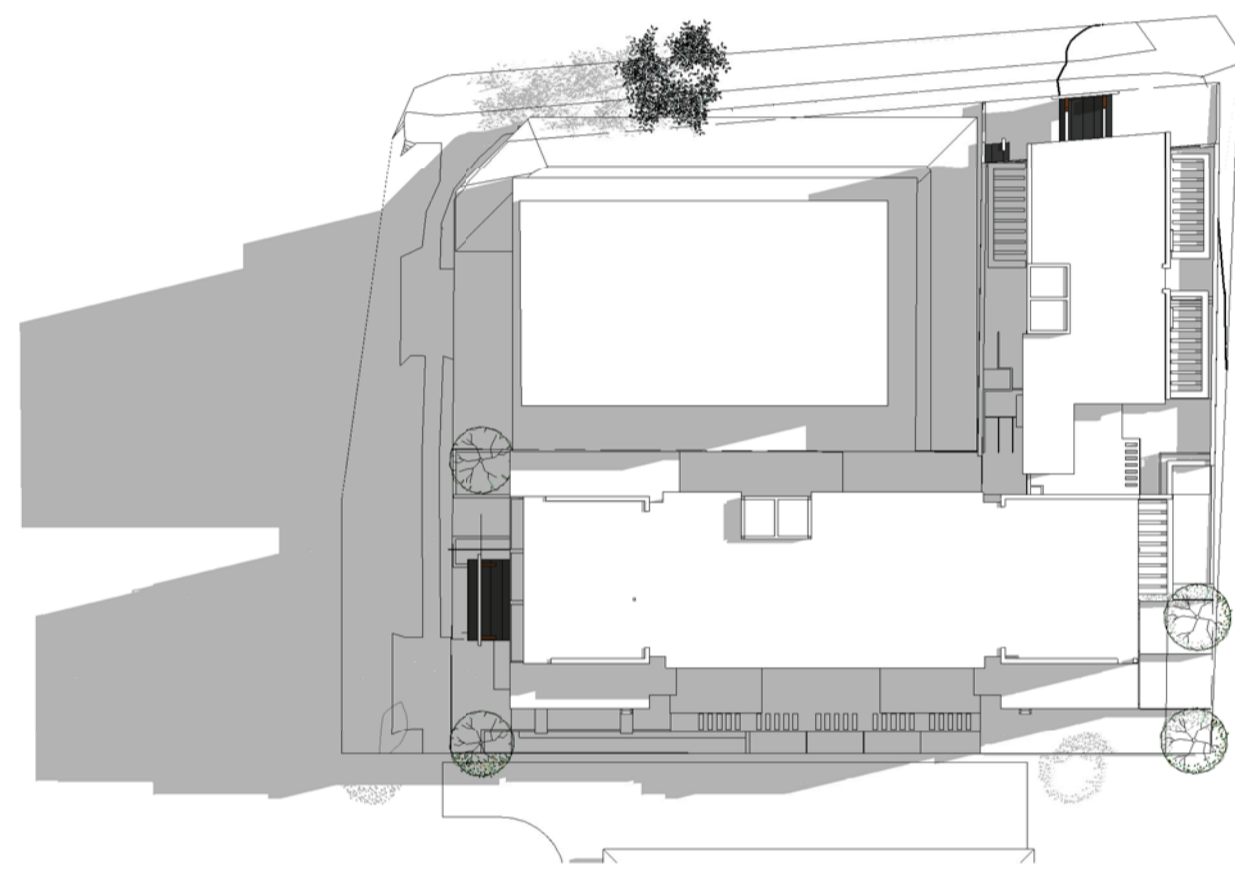
Scale Drawing : DA Issue A



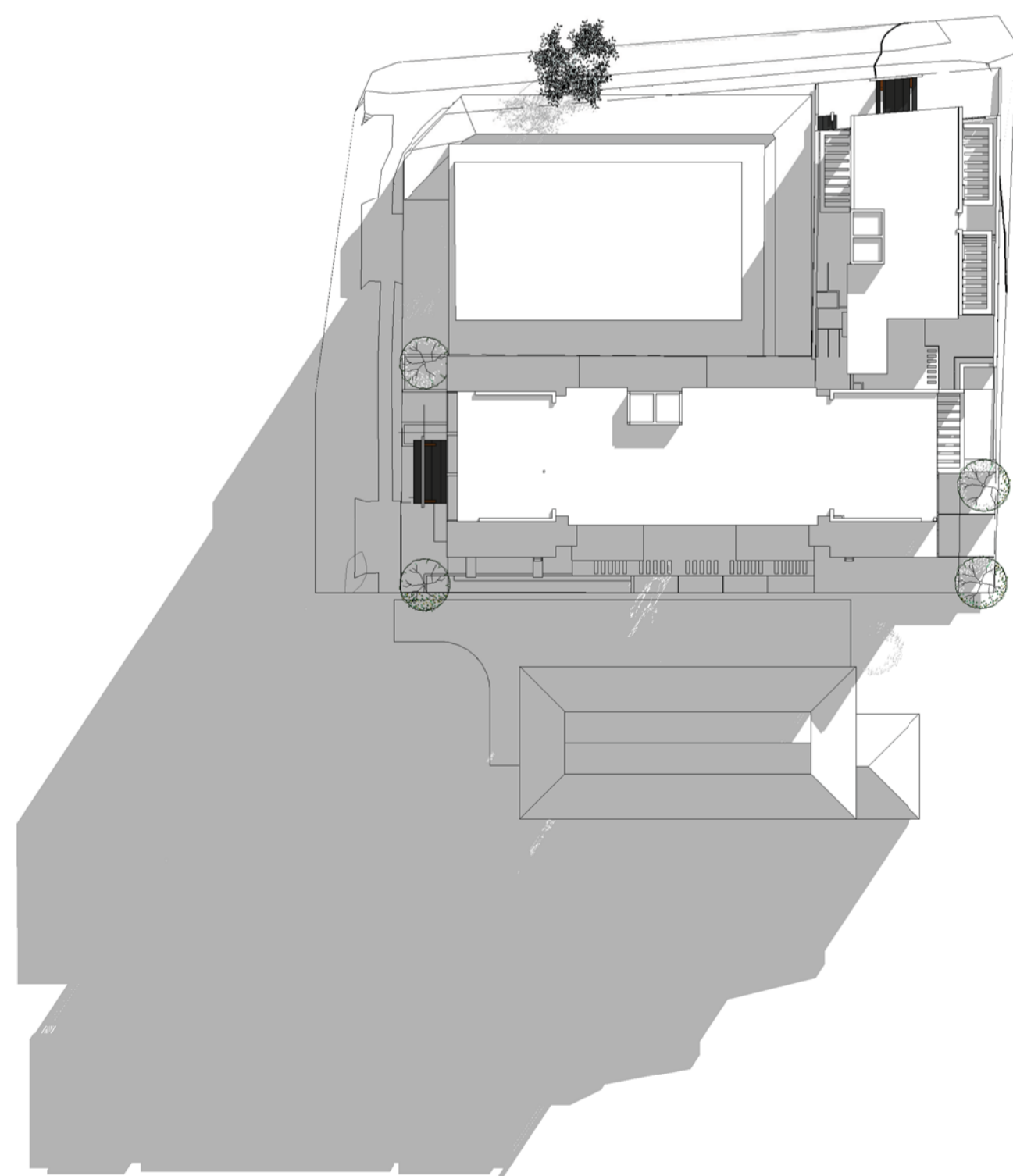
21/10/2021 3:45:12 PM



4 Mid- Winter 9am
1 : 500



5 Mid- Winter 12pm
1 : 500



6 Mid- Winter 3pm
1 : 500



General Information	
Council	Penrith City Council
Project Address	31 Santley Crescent & 2A Bringelly Road Kingswood
Site area	1380 m ²
Maximum allowable FSR	3:1
Maximum allowable GFA	4140 m ²
Heritage	N/A
HOB	21.6 m (20% HOB Bonus)
Zoning	B4
Site Frontage	Santley Crescent - 20.12 m/Bringelly Road - 15.49 m
Deep Soil	N/A
Landscaping	N/A
Communal Open Space	20 m ²

Proposal			
	Single	Double	Commercial
Room Numbers	8	88	324 m ²
Accessible Room	BCA Requirement - 5		
Proposed GFA	4083 m ²		
Proposed FSR	2.95 : 1		
Carpark (Boarding House)	30 Car Spaces (Incl 2 Disabled)		
Carpark (Commercial)	10 Car Spaces (Incl 1 Disabled)		
Carpark (Carshare)	2 Car Spaces		
	42 Total Car Spaces		
Carpark (Shared area)	3 Accessible carpark		
Motorcycle	1 Space/5 Room		
Bicycle Racks	21		
Deep Soil	172 m ²		
Landscape	172 m ²		
Communal Open Space	104 m ²		
Communal Living Room	120 m ²		

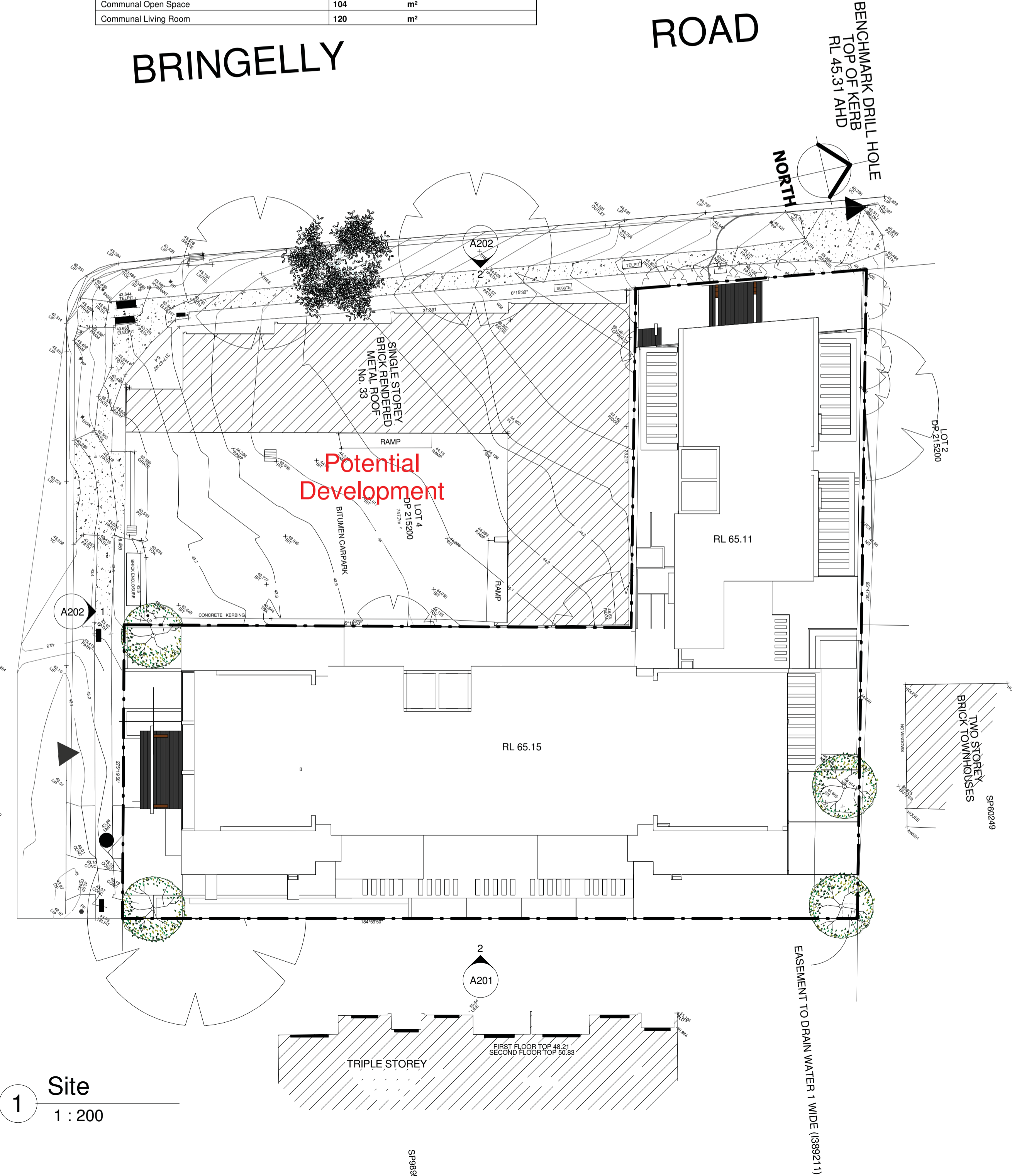
31 Santley Crescent, Kingswood SUMMARY OF BASIX COMMITMENTS			
This is a summary of the BASIX Commitments as detailed in the BASIX Certificate. Refer to the CURRENT BASIX Certificate for Complete details.			
WATER COMMITMENTS			
Fixtures			
Alternative Water – None			
Fixtures			
4 Star Shower Heads	4 Star Toilet	4 Star Kitchen Taps	4 Star Basin Taps
THERMAL COMFORT COMMITMENTS – Refer to Section J Report			
ENERGY COMMITMENTS			
Hot Water	Gas Instantaneous 4 star		
Cooling	Living	None	
System	Bedrooms	None	
Heating	Living	None	
System	Bedrooms	None	
Ventilation	Bathrooms	Fan ducted to roof/facade	Manual on/off
	Kitchen	Fan ducted to roof/facade	Manual on/off
	Laundry	Not Applicable	
Natural Lighting	Window/Skylight in Kitchen	As Drawn	
	Window/Skylight in Bathrooms/Toilets	As Drawn	
Artificial Lighting	Number of bedrooms	All	Dedicated
	Number of Living/Dining rooms	All	Dedicated
(Primarily lit by fluoro or LED)	Kitchen	Yes	Dedicated
	All Bathrooms/Toilets	Yes	Dedicated
	Laundry	Yes	Dedicated
	All Hallways	Yes	Dedicated
OTHER COMMITMENTS			
Outdoor clothes line	No	Indoor or sheltered clothes drying line	
Stove/Oven	Electric cooktop, electric oven		
Other	"Well ventilated" refrigerator space		

BRINGELLY

ROAD

SANTLEY

CRESCENT



1 Site
1 : 200

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Issue	Description	Date
A	DA Submission	Oct 21

Client
Mr Rashid Bhuiyan

Project
Commercial & Boarding House at
31 Santley Crescent &
2A Bringelly Rd
Kingswood NSW

Site Information & Shadow Diagrams

FOR DA ONLY

Project number 2020-22

Date Feb 2021

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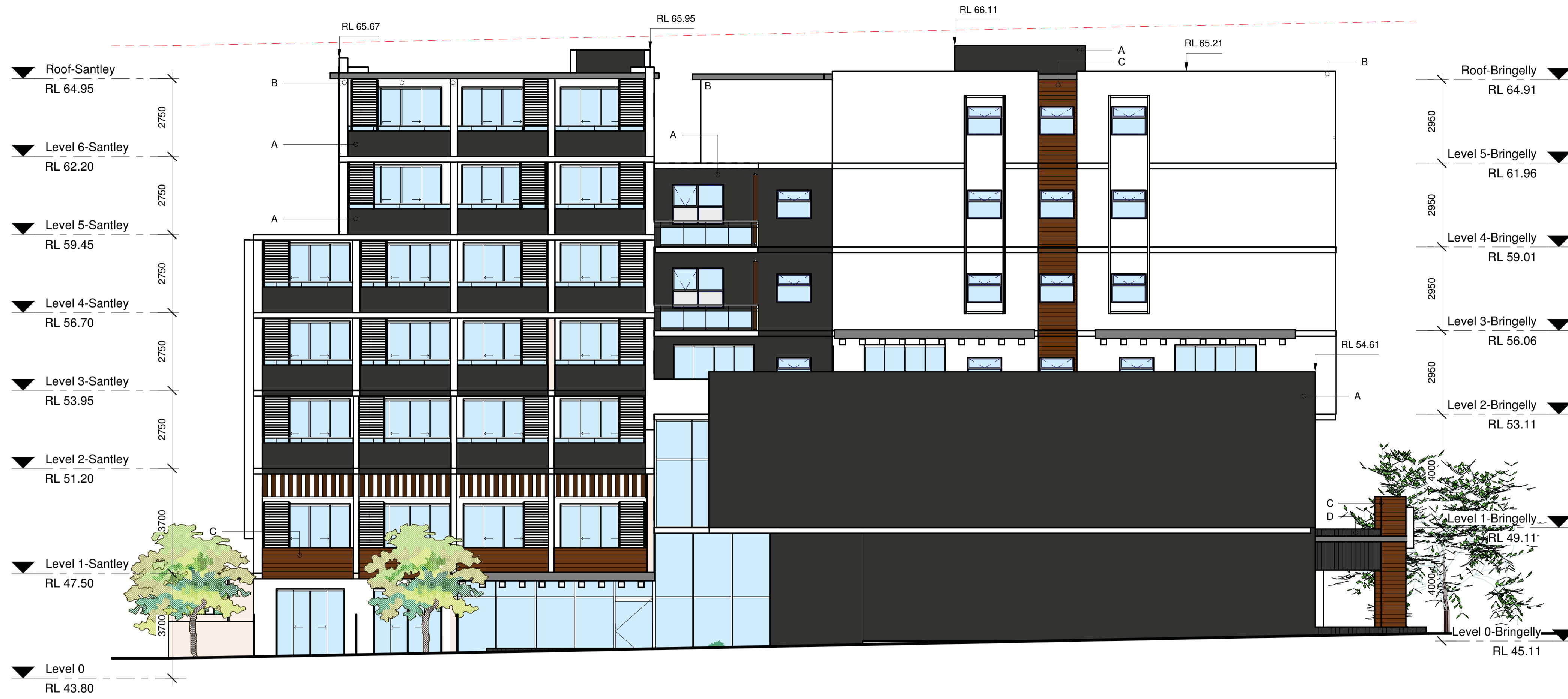
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A001

Scale As indicated Drawing : DA Issue A

Schedule of Finishes

- A Render and Paint
Dulux Paint - Domino
or Similar
- B Render and Paint
Dulux Paint - Vivid White
or Similar
- C Timber Look Cladding - Non-
combustible
Western Red Cedar Finish
or Similar
- D Painted Fibre Cement
James Harden - Axon Cladding
or Similar



1 North Elevation
1 : 100



2 East Elevation
1 : 100



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Issue	Description	Date
A	DA Submission	Oct 21

Client
Mr Rashid Bhuiyan

Project
**Commercial & Boarding House at
31 Santley Crescent &
2A Bringelly Rd
Kingswood NSW**

Elevations

FOR DA ONLY

Project number: 2020-22
Date: Feb 2021

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Checked by: Gus Fares

A201

Scale: As indicated | Drawing: DA | Issue: A



Schedule of Finishes

- A Render and Paint
Dulux Paint - Domino
or Similar
- B Render and Paint
Dulux Paint - Vivid White
or Similar
- C Timber Look Cladding - Non-
combustible
Western Red Cedar Finish
or Similar
- D Painted Fibre Cement
James Harden - Axon Cladding
or Similar



1 South Elevation
1 : 100



2 West Elevation
1 : 100



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Issue	Description	Date
A	DA Submission	Oct 21

Client
Mr Rashid Bhuiyan

Project
Commercial & Boarding House at
31 Santley Crescent &
2A Bringelly Rd
Kingswood NSW

Elevations

FOR DA ONLY

Project number 2020-22

Date Feb 2021

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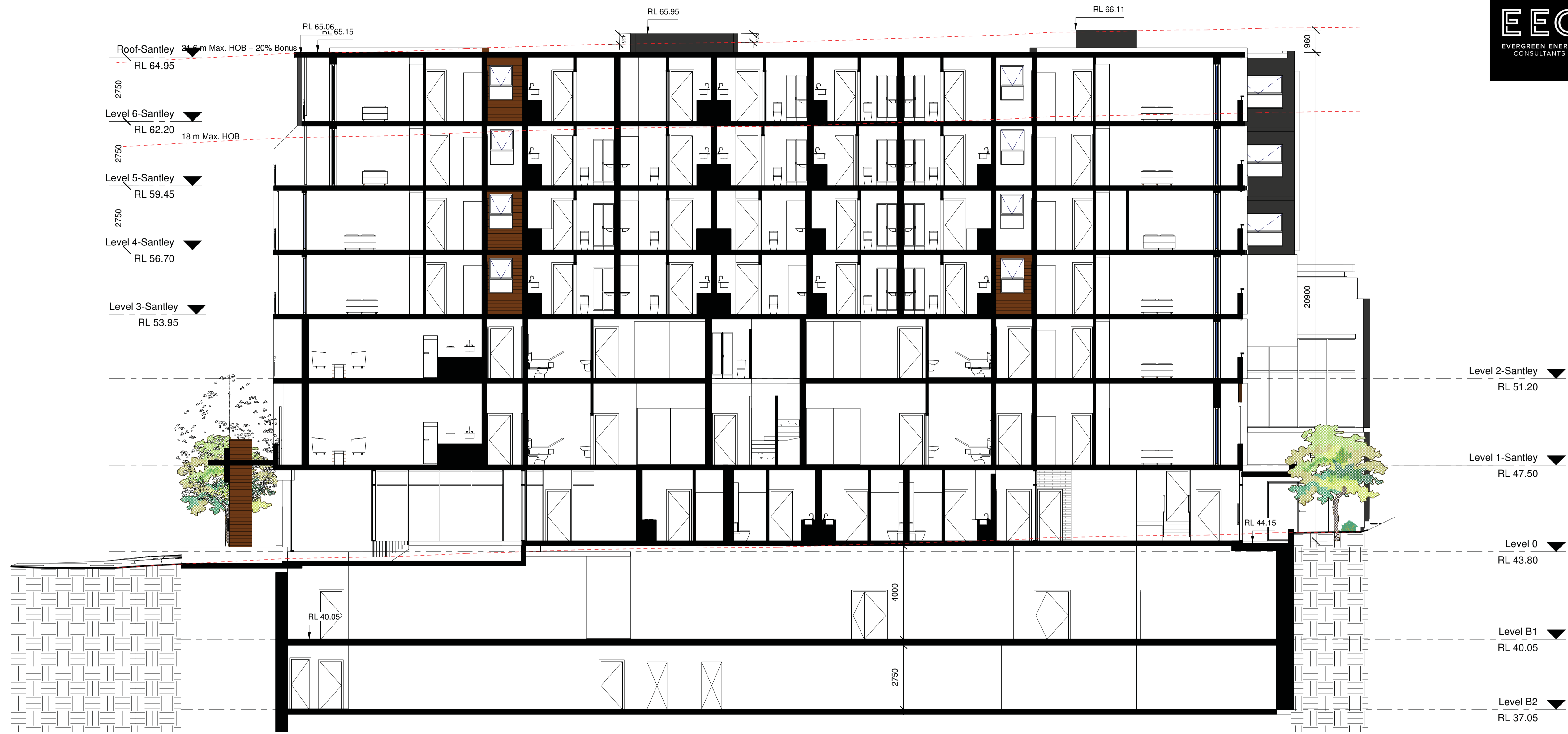
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A202

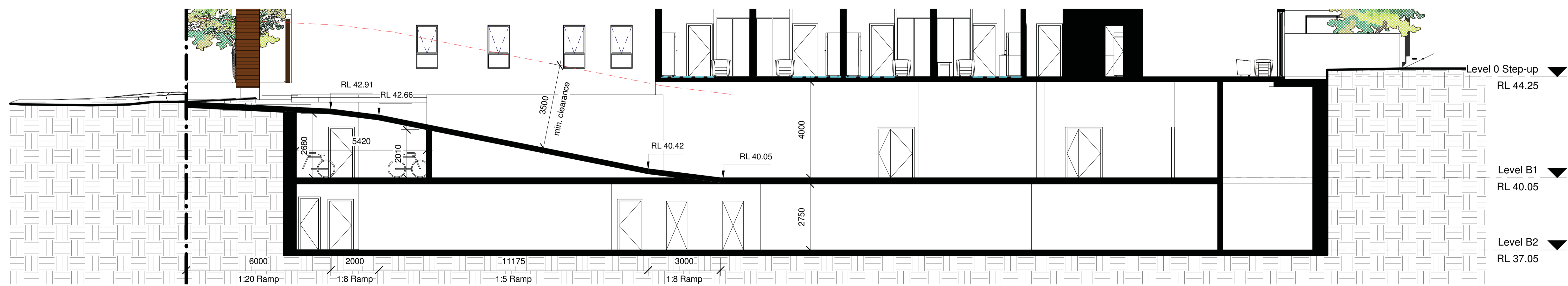
Scale As indicated Drawing: DA Issue A

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2 Section X-X
 1 : 100



1 Driveway Section
 1 : 100

Issue	Description	Date
A	DA Submission	Oct 21

Client
Mr Rashid Bhuiyan

Project
**Commercial & Boarding House at
 31 Santley Crescent &
 2A Bringelly Rd
 Kingswood NSW**

Section		
FOR	DA	ONLY
Project number	2020-22	
Date	Feb 2021	
Drawn by	SL	Printed 21/10/2021 3:46:16 PM
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A203		
Scale	Drawing :	Issue
1 : 100	DA	A



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Issue	Description	Date
A	DA Submission	Oct 21

Client
Mr Rashid Bhuiyan

Project
Commercial & Boarding House at
31 Santley Crescent &
2A Bringelly Rd
Kingswood NSW

HOB Compliance Diagram

FOR DA ONLY

Project number 2020-22

Date Feb 2021

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A204

Scale 1:1 Drawing: DA Issue A





1 Sun Eye View-01-9AM @ 21/06



2 Sun Eye View-02-10AM @ 21/06



3 Sun Eye View-03-11AM @ 21/06



4 Sun Eye View-04-12PM @ 21/06



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Issue	Description	Date
A	DA Submission	Oct 21

Client
Mr Rashid Bhuiyan

Project
Commercial & Boarding House at
31 Santley Crescent &
2A Bringelly Rd
Kingswood NSW

Sun Eye Views 1

FOR DA ONLY

Project number 2020-22

Date Feb 2021

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A301

Scale Drawing : Issue
DA A





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1 Sun Eye View-05-1PM @ 21/06



2 Sun Eye View-06-2PM @ 21/06



3 Sun Eye View-07-3PM @ 21/06

Issue	Description	Date
A	DA Submission	Oct 21

Client
Mr Rashid Bhuiyan

Project
Commercial & Boarding House at
31 Santley Crescent &
2A Bringelly Rd
Kingswood NSW

Sun Eye Views 2

FOR DA ONLY

Project number 2020-22

Date Feb 2021

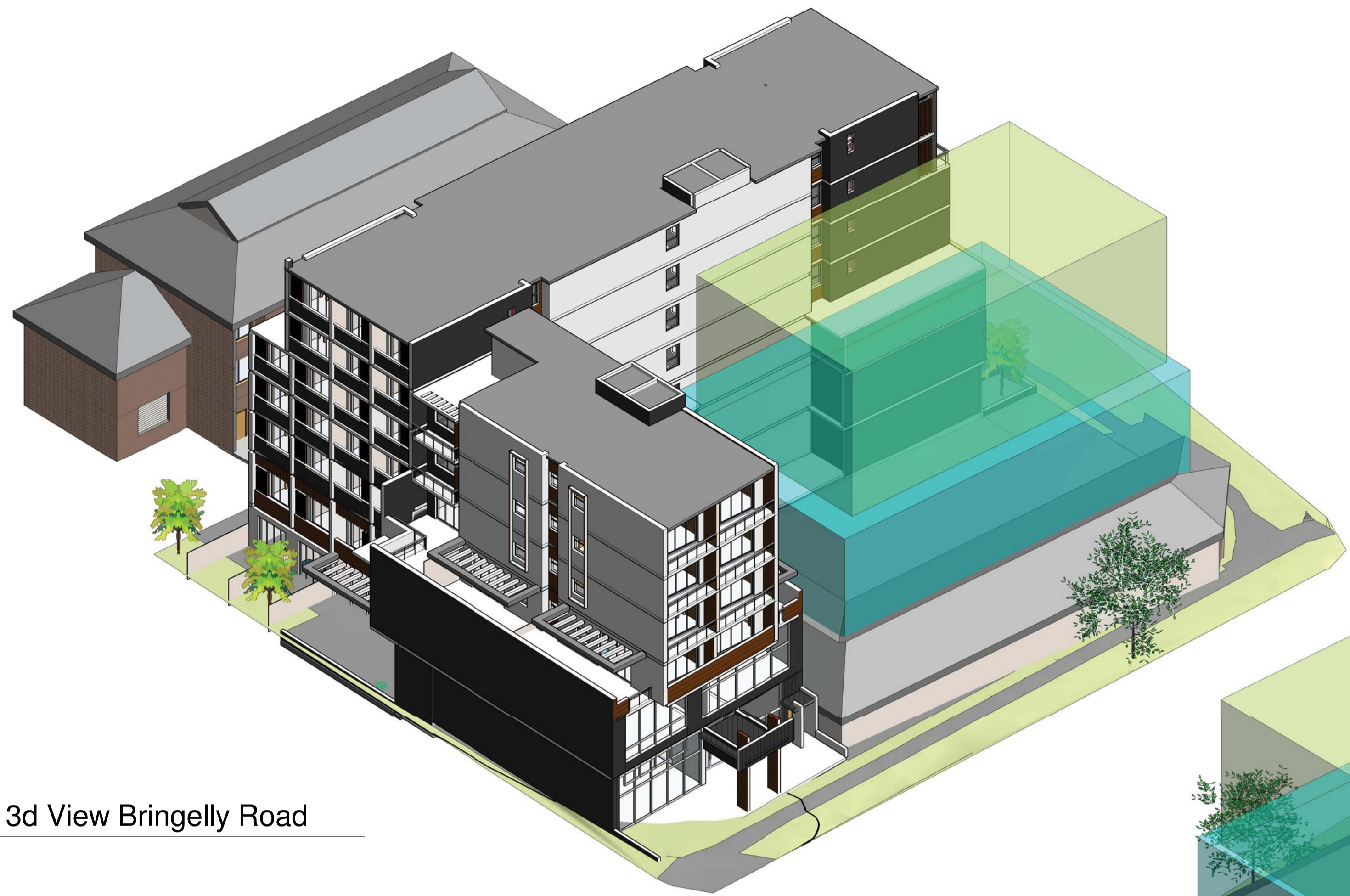
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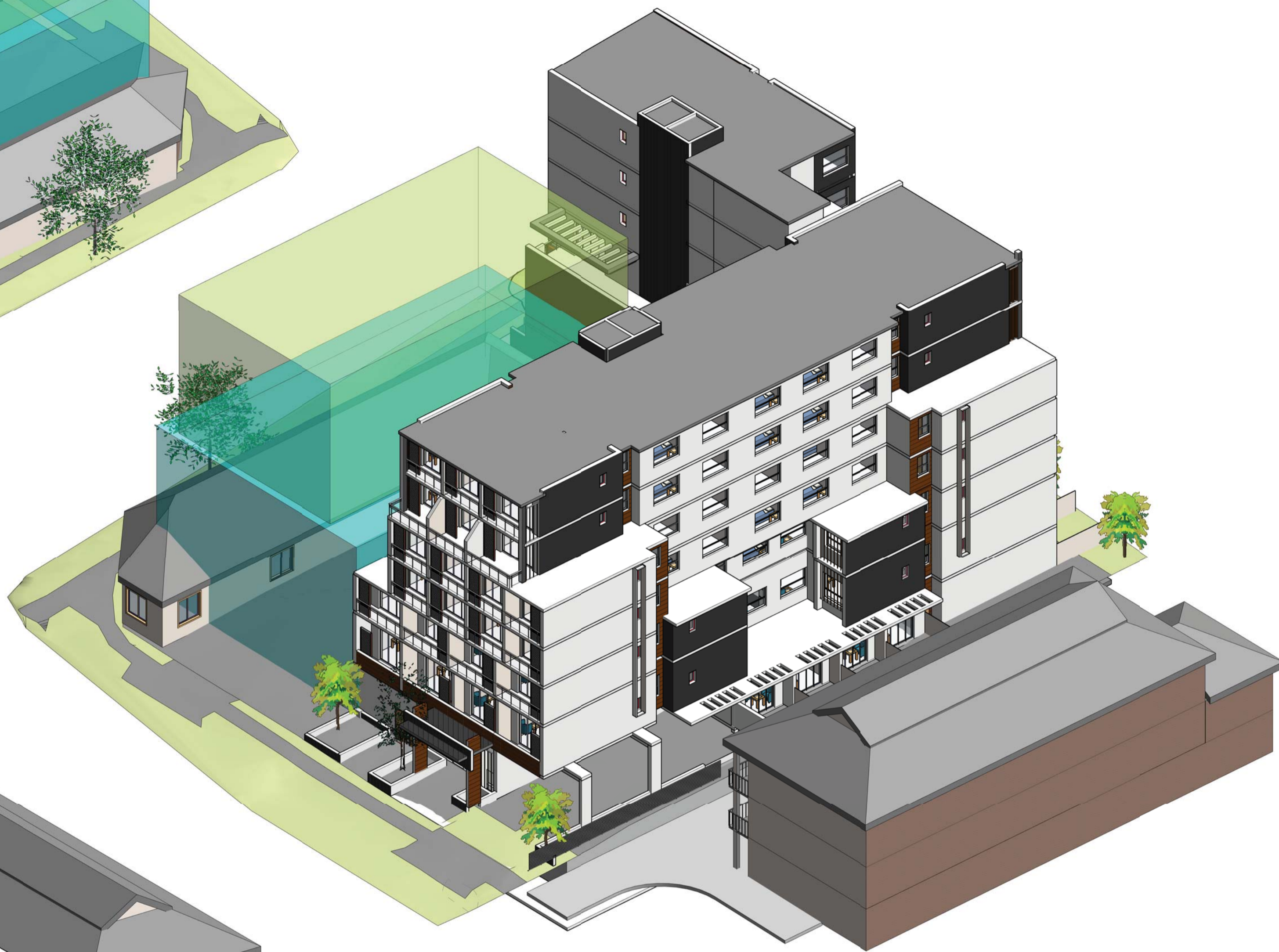
A302

Scale Drawing : DA Issue A

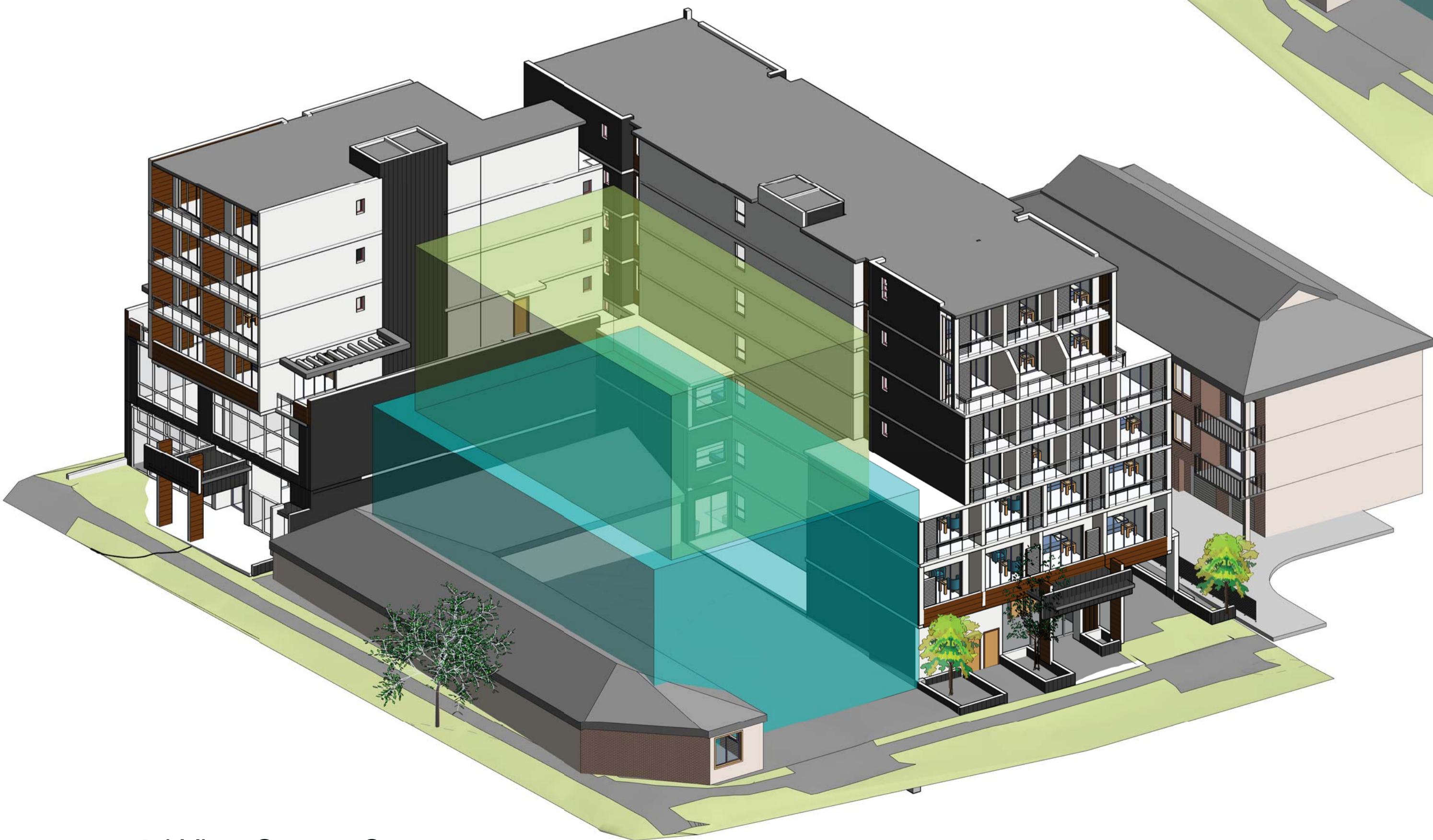




1 3d View Bringelly Road



2 3d View Santley Crescent



3 3d View Streets Corner



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A	DA Submission	Oct 21

Client
Mr Rashid Bhuiyan

Project
Commercial & Boarding House at
31 Santley Crescent &
2A Bringelly Rd
Kingswood NSW

3D Views

FOR	DA	ONLY
Project number	2020-22	
Date	Feb 2021	

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A401		
Scale	Drawing : DA	Issue A





1 Entry From Bringelly Road



2 Entry from Santley Crs

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Issue	Description	Date
A	DA Submission	Oct 21

Client
Mr Rashid Bhuiyan

Project
Commercial & Boarding House at
31 Santley Crescent &
2A Bringelly Rd
Kingswood NSW

Perspectives

FOR DA ONLY

Project number 2020-22

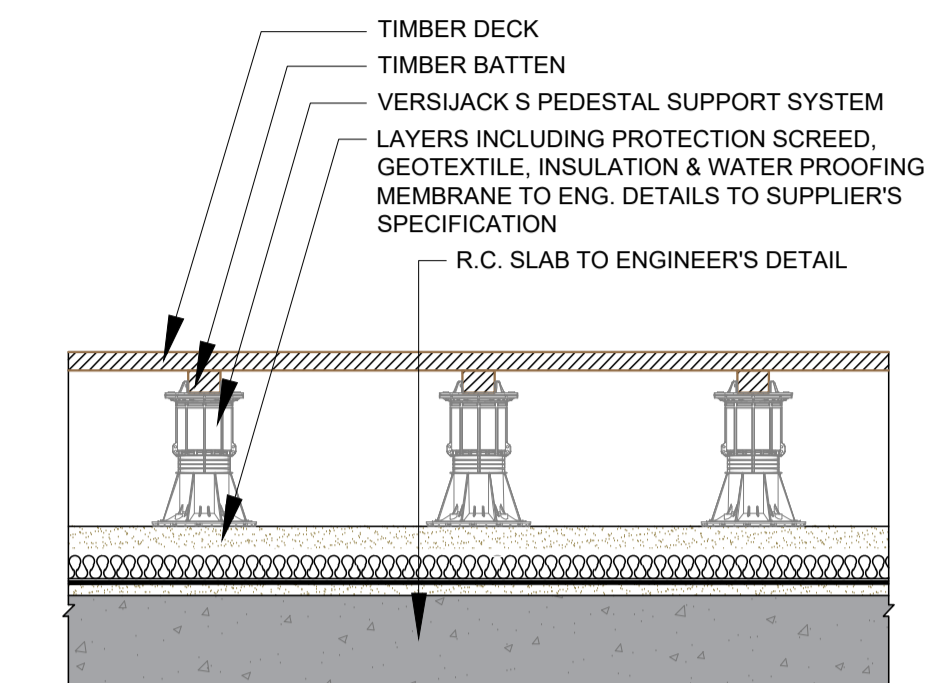
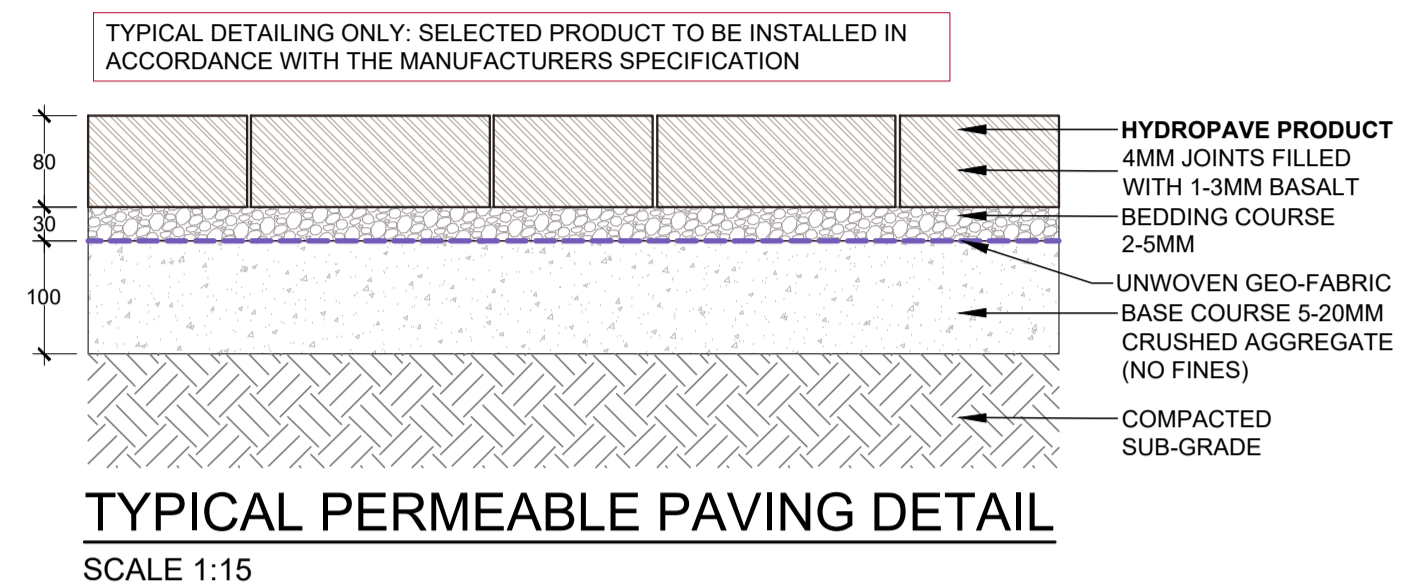
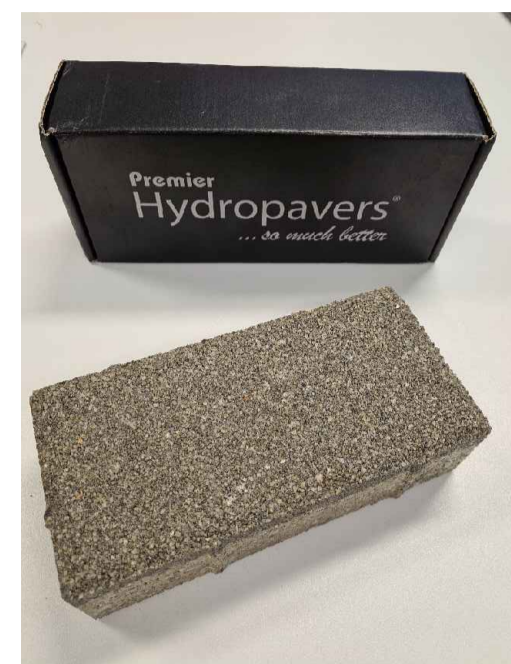
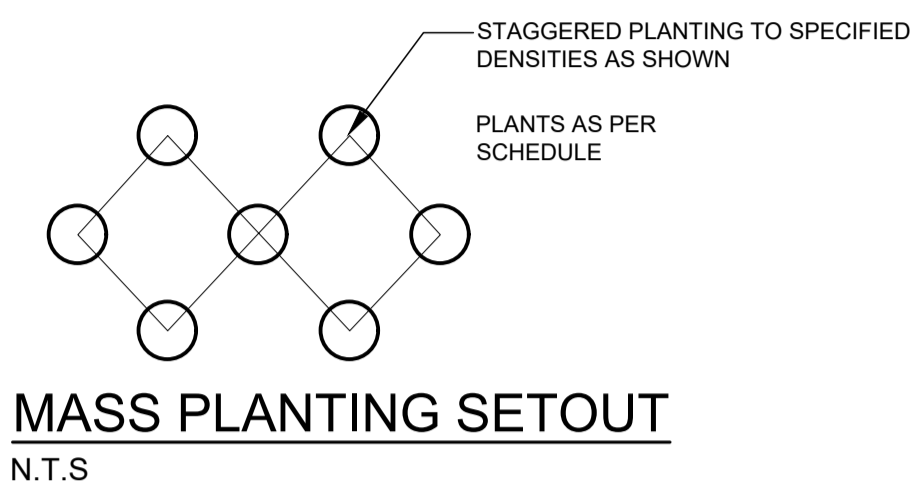
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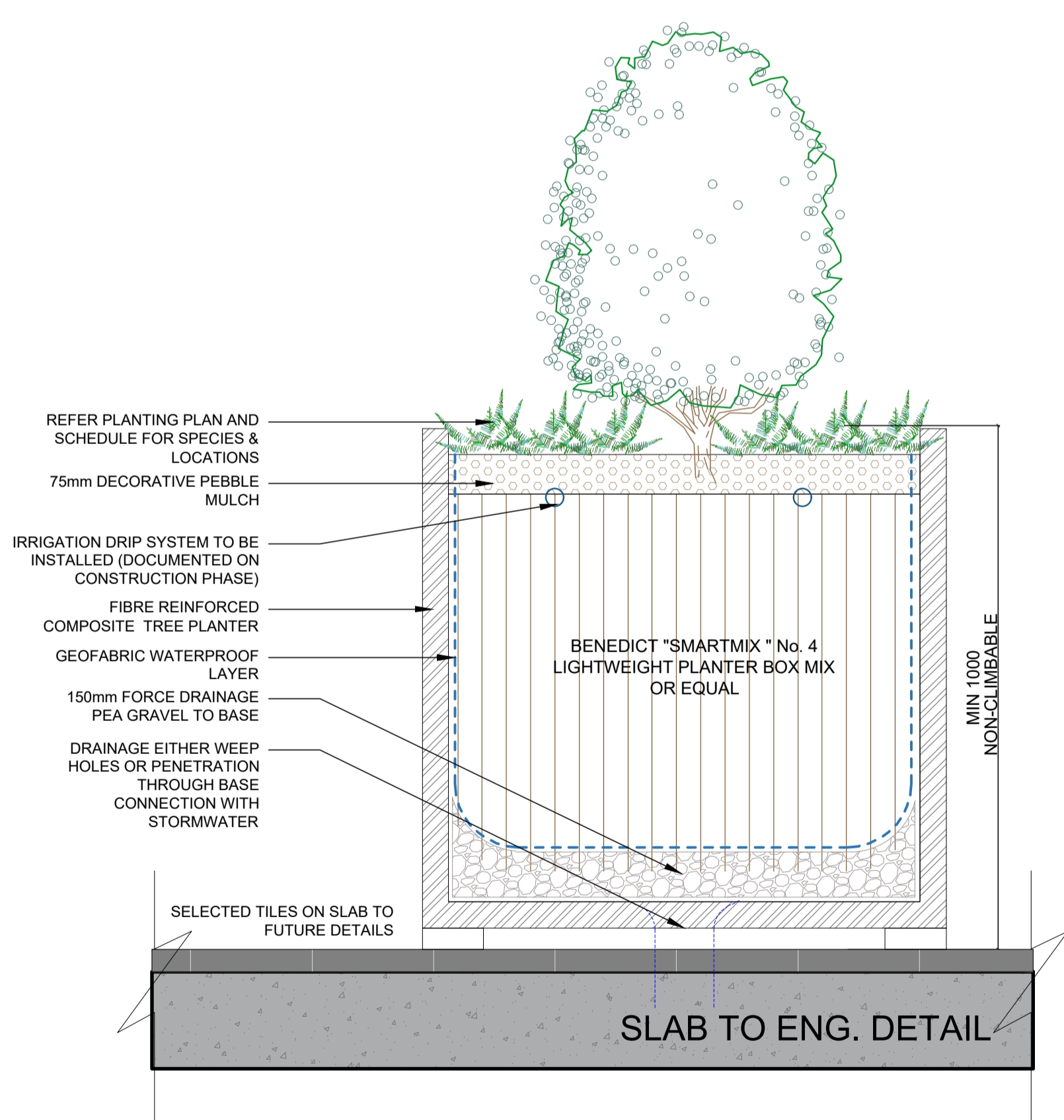
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A402

Scale Drawing : DA Issue A



TIMBER DECKING DETAIL
SCALE 1:20



PRE-FABRICATED TREE PLANTER ON SLAB
SCALE 1:10

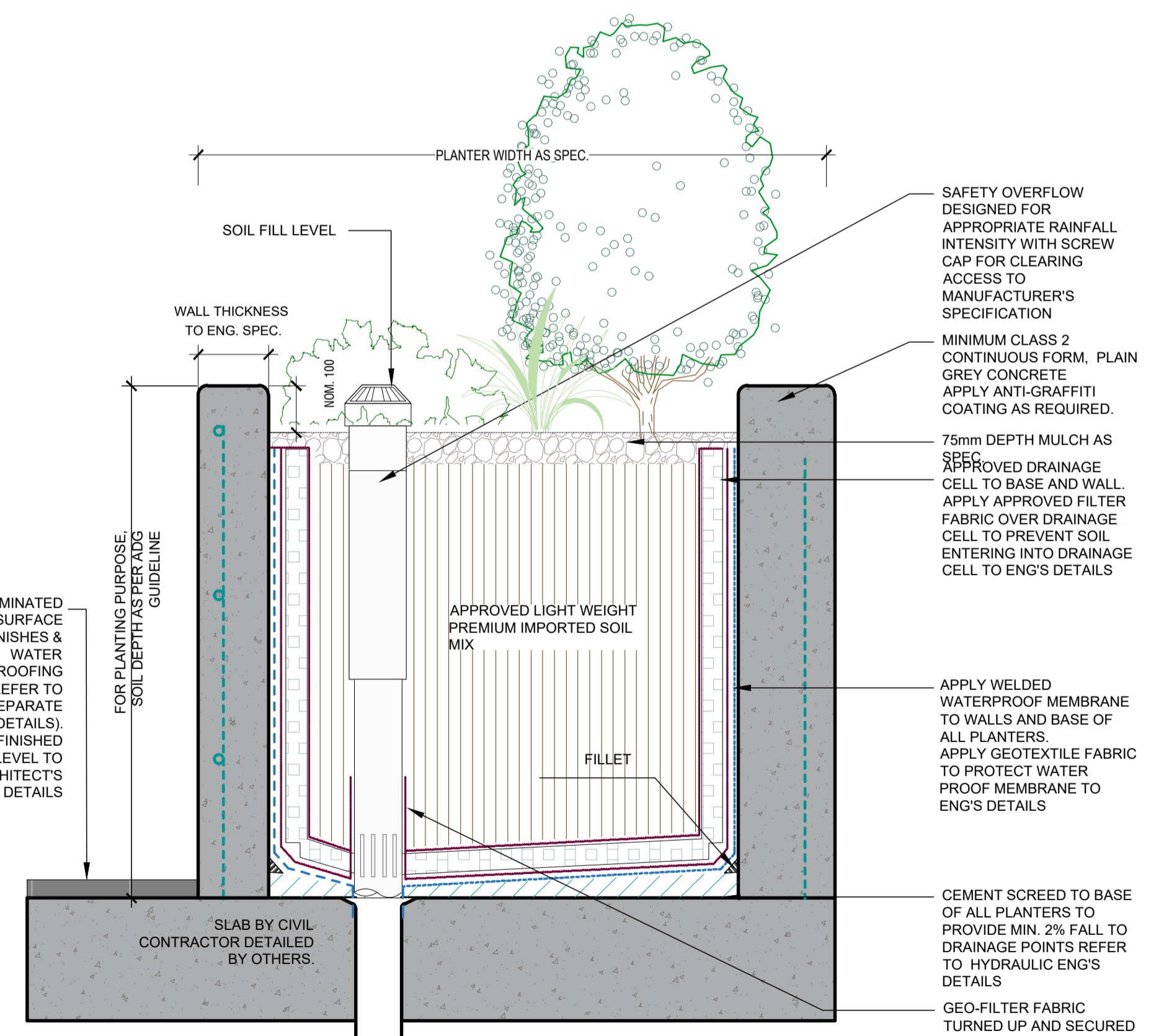


OVERFLOW (TO SUPPLIER'S SPECIFICATION)

NOTE (BCA COMPLIANCE). WHERE NO EXTERNAL BALUSTRADE IS PROPOSED, THE INTERNAL PLANTER WALL FACE MUST BE NON-CLIMBABLE TO A HEIGHT TO MEET AS & BCA COMPLIANCE.

NOTE (DRAINAGE & WATER PROOFING). DRAINAGE PITS AND LAYOUT TO BE NOMINATED BY HYDRAULIC ENGINEER TO WORK WITH STRUCTURAL DESIGN AND LANDSCAPE. THE WATERPROOFING, APPROVED DRAINAGE CELL AND SPECIFIED GEOFABRIC LAYER IN THIS DETAIL ARE INDICATIVE ONLY AND SHOULD BE DETAILED BY THE RELEVANT PROFESSIONAL ENGINEER FOR CONSTRUCTION.

UNDER THE CONSTRUCTION PRACTITIONER BILL, STRUCTURAL WATER-PROOFING SHALL BE DOCUMENTED BY A HYDRAULIC ENGINEER



INSITU CONCRETE PLANTER ON SLAB DETAIL
SCALE: 1:10

GENERAL NOTE:
Figured dimensions take preference to scale readings. Verify all dimensions on site. If any dimension is found to be incorrect, please contact the architect immediately. All dimensions are in millimeters unless otherwise stated.
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ARCHITECT:
GUS FARES ARCHITECTS

LANDSCAPE ARCHITECT:
Concept Landscape Architects
Sull 101, 506 Miller Street, CAMMERAY NSW 2062
Phone: 9922 5312
Fax: 8209 4962
Mobile: 0413 981 151
www.concept.net.au
enquiries@concept.net.au

COUNCIL	REV	DATE	NOTATION/AMENDMENT
PENRITH	A	23.9.2021	Preliminary plan prepared for review
	B	22.10.2021	Preliminary plan prepared for review

CLIENT:
RASHID

PROJECT:
PROPOSED BOARDING HOUSE DEVELOPMENT
31 SANTLEY CRES & 2A BRINGELLY RD
KINGSWOOD

TITLE:
DETAILS

DWG No: LPDA 22 - 116
PAGE NUMBER: 4

STATUS: DEVELOPMENT APPLICATION	
SCALE: AS SHOWN @ A1	DATE: OCT 2021
DRAWN: R.H	CHECKED: R.F

**Architectural and
Urban Planning Statement**

**For a
Mixed Use Development
Commercial and boarding House**

AT

**31 Santley Crescent & 2A Bringelly Road
Kingswood**

UNDER AHSEPP2009

Date: 21 October 2021

1 THE PROPOSAL

This statement has been prepared as part of the supporting documentation for a Development Application in relation to a mixed-use development with commercial and boarding rooms pursuant to ARHSEPP 2009 at 31 Santley Crescent & 2A Bringelly Road, Kingswood, being Lot 5 DP 215200 and Lot 3 DP 215200 respectively.

The development proposal is for 2 connected buildings above two levels of basement car parking. The proposal consists of the following:

- 96 boarding rooms, 8 single rooms and 88 double rooms
- 1 Manager's Room
- 1 Manager's Office
- 324 m² of commercial space.
- 2 Common Rooms
- 42 parking spaces contained in 2 levels of basement plus 20 Motorcycles and 21 Bicycles
- Podium level open spaces.

2 SITE AND CONTEXT

The subject sites are located within an established residential area within the Penrith Health and Education Precinct and is zoned as B4 – Mixed use Development per the LEP 2010 maps and backing to commercial shops and Club on Great western Highway.

The surrounding locality of the site is predominately characterised by low to medium and higher residential density developments and commercial shops and club, ranging from small houses within the adjoining R2 & R3 zoned areas, to medium height storey apartment blocks; Noting that the area contains a mixture of built forms and densities, Development is argued to provide an appropriate 'fit' to accommodate the future 'city' character and development of the neighbourhood.

The building can be accessed by pedestrians on the ground level via entrances on both Santley Crescent and Bringelly Road. The vehicular access for the basement and loading area is located on Santley Crescent for safe access.

3 DOMINANT LOCAL CHARACTER

The dominant Character on Santley Crescent is Residential Flat buildings built in the seventies and the nineties, with some odd residential houses from the post war era. Whilst on Bringelly Road looking from Great Western Highway, the dominant is Character is commercial shops with a club opposite the Kingswood Train Station and with some residential houses built in the post war era.

The area looks behind in development at this moment, future development such as this proposal would bring more life to both streets as the site faces both street in an L shaped building.

4 FUTURE DESIRED CHARACTER

The site is within an established residential area within the Penrith Health and Education Precinct;

The zoning is B4 and therefore the close vicinity of the site would be a Mixed-use, commercial and residential, and due to the proximity to transport such as the Train Station cross the road on Great western Highway and the regular bus services Penrith west bound and east bound to Parramatta, makes the location very suitable for a mixed Boarding House and Commercial. And would fit perfectly with the future desired development on a high rise building of 6-7 storeys.

5 BUILDING DESIGN

5.1 BUILT FORM AND SCALE

The proposed development is a 5-6 storey Boarding House under the Affordable Housing SEPP 2009 (new Generation) over some 324sqm of gross commercial/ retail area with 96 rooms boarding house with a 2-storey basement carpark, comprising of commercial/retail areas on ground level and 2 levels above on Bringelly Road with Boarding units above. The articulation of the built form is contemporary in style and is visually pleasant from the streetscape. The building facades are broken by the treatment of balconies, stairwells, and the staggering of walls to add depth to the overall building form.

The site is identified as having a maximum buildings height of 21.6m including 20% bonus. The scale of the development being 5-6 storeys marginally exceeds the regulated building height imposed by the LEP on the lift overrun and some parapet walls. With reference to the justification and arguments expressed within the supporting Statement of Environmental Effects; It is therefore argued that the development seeks to utilise the permissible height limit to maximise residential development within close proximity to public transport, infrastructure services and amenities.

G U S F A R E S A R C H I T E C T S P L

ABN 53112691237

www.gfares.com Email:gus@gfares.com Nominated Architect Ghassan Fares NSWARB 5808

It is noted that the proposed development demonstrates compliance with the majority of regulations prescribed within the Penrith Local Environmental Plan and the Development Control Plan and the Affordable housing SEPP in exemption the number of Car spaces and is subject to merit based assessment which is argued that is not necessary.

The composition of building elemental textures, choice of materials and colours reflect the use of the internal design and the structure of the building (refer to Architectural Plans submitted). The façades of the building clearly define the base and the top and the articulation of the balconies enrich the façade with a sense of scale and proportion. A variety of opening types are used to create patterns and rhythm to the building and further reflects the building use. It is argued that the proposed development responds to the context it is sited within as the building form has been articulated to address both the desired future street frontages.

The roof design of the proposed building responds to the environment and the context. It is noted that the roof form is well integrated into the overall design and performance of the building. In addition to this, balconies, feature walls and complementary architectural elements have been articulated to enhance visual interest of each of the respective streetscapes.

In summary, these design features are intended to give a variety and richness to the proposed built form. Generally, Boarding units are set well back from balcony edges to add to the articulation of the built form. Selected non-reflective glazed balustrade panels and feature balcony details further intended to accentuate building facades.

5.2 DENSITY

Highlighting the need for an increase in accessible affordable housing supply and to work towards strategies outlined within relevant Metropolitan Plans, this development provides a variety of appropriate 'housing choices' to accommodate both the existing and projected demographics of the area.

Drawing upon the conceptual ideologies associated with the 'compact city', it is noted that the subject site and proposed development contributes towards the provision of new housing stock to assist in accommodating the large increase in population growth within Sydney within 'urban infill areas'. The density proposed by this application is argued as suitable within the B4 Zone and is appropriate to the subject site and context, meeting the current market demands for Transport orientated housing stock (TOD) – where the subject site is approximately 100m away from Kingswood Station

5.3 SUSTAINABILITY & WASTE

A separate Waste Management Plan is included with the DA Submission covering the proposed clearance of existing site structures, and the control of building waste throughout the Construction Phase and after completion.

To reduce reliance of mechanical heating/cooling to an absolute minimum through features such as cross ventilation.

A separate BASIX Report covering Residential Units will accompany this in the Development Application stage.

5.4 AMENITY

All rooms meet the Affordable Housing SEPP2009 requirements and are intended to respond to both the local housing market expectations as well as the internal and external amenity for residents and neighbours. Designing each unit to meet the appropriate room dimensions and shape, access to natural ventilation, solar access, privacy, and open space; this development not only complies and achieves the objectives outlined within State and Local legislature but also provides flexibility in adaptable housing stock to meet the demands of both future and current social groups and the need for rental properties.

With reference to the Architectural Plans submitted with this application, the proposed building demonstrates the address towards user needs, current and future demographic trends, and the useability of spaces. This is further highlighted within the Site Analysis and Contextual Plans submitted, illustrating the proximity of the site to neighbouring shops and amenities; as the location, urban structure and neighbourhood scale is approximately 2 minutes (100m walking distance) from Kingwood Station, Restaurants, Public Services, Amenity and Westfield Shopping Centre in Penrith.

Illustrating an ease of access and useability for all age and social groups; Rooms have been designed to influence both internal and external amenities – to implicate positive living environments and user well-being. Mostly generous double rooms (88 rooms) and rooms facing the streets have been designed with direct access onto outdoor balconies, with the intent to maximise natural daylight and promote natural ventilation.

5.5 SAFETY, SECURITY AND PRIVACY

The proposed development is noted to demonstrate the optimisation in the safety and security of both residents and the public domain.

The utilisation of this strategy, where all public and communal spaces accommodate views onto the public domain generates opportunities to maximise passive surveillance to assist the prevention in crime activities that occur in dark and non-visible areas. In addition to this, the positioning of

balconies on upper levels has also been located to maximise residential on-looking for crime prevention of the surrounding locality of the development.

This statement also highlights that all external areas of the site and development proposed will tailor views onto the surrounding streets; particularly relating to Bringelly Road and Santley Crescent, which will be overseen by the orientation of the external balconies and/or windows. This will provide opportunities for passive surveillance onto the surrounding streets and domain to prevent crime and maximise the safety of both residents and members of the public. The proposed basement car park will be secured by a 'swipe card' or similar, with roller door access for car entry as well as suitable lighting for night time use. The intercom and CCTV proposed will facilitate further reinforcement of the safety and security of the building.

Similarly, the proposition of low-level lighting will be integrated into the landscaped areas surrounding the buildings– with particular provision towards door way accessible areas. In addition to this front access doors to entry corridors will feature unit intercoms, with a 'timed' switch to ensure safety at night.

5.6 AESTHETICS

The streets façades have been designed to give a consistent and pleasing appearance to the streetscape, whilst providing an aesthetically pleasing mix in texture and building finishes cuing visual interest on the intersection.

Alignments of external walls have deliberately been broken up to achieve varying elevations in order to give distinctive features to the building whilst achieving a balanced composition of elements, which reflect the internal layout and structure of the development. In addition to these attributes, the articulation in balconies and roof spaces also reduces the bulk of the building whilst reflecting and appropriate 'fit' in neighbourhood character of the local area. It is argued that the proposed development will provide an additional 'richness', providing variety in building form and an interesting composition that demonstrates an appropriate response to both the existing and future character of Kingswood.

5 COMMENTS

The proposed development is designed to be in character and suited to the type and scale of the desired future character of the area. The design of the development will complement the character of the neighbourhood in terms of its facades, height, bulk and scale, building forms, materials, texture and colour - meeting State Legislature, Affordable Housing SEPP2009 as well as the objectives of the Penrith Local Government Plans and relevant Development Control Plans (DCP) including the Penrith Health and Education Precinct.

Integrated as a Transport Orientated Development, approximately 100m to Kingswood Railway Station; the proposed development has been designed in to address appropriate measures to militate against noise nuisances and air pollution which reduces user amenity.

This application is considered to be suitable and appropriate for the subject site. Noting the careful and sensitive articulation of the building towards its context, it is argued that the development is well-designed and will not adversely impact, to any unreasonable extent, the amenity of the area in terms of noise, privacy, car parking, traffic generation and solar access, but rather, provide a development that will be within the environmental capacity of the existing and likely future environment.

This development will not compromise privacy to existing or likely future residents despite the reduction in some areas of the setback requirements as required under the SEPP65 (which is not relevant to this application). It is envisaged that in order to provide a unified street frontage, pattern and increase pedestrian interaction with the proposed commercial spaces located on the ground floor of the development, the reduction in setbacks in some areas are justified within the Statement of Environmental Effects, is necessary to achieve the desired building outcome.

Supplementary to the formerly outlined attributes, adequate security lighting and security system will also be installed to ensure the safety of the residents. In addition to security and lighting, the crime prevention will be mitigated through strategies of passive surveillance from balconies and openings that overlook street frontages. The use of solid doors, steel locks and hardware will also discourage illegal access to the proposed units, whilst the high-quality building materials and finishes will resist the attraction of graffiti.

As illustrated within the Architectural Plans submitted, the vehicular entrance to the basement car park is accessible via Santley Crescent, which will provide 42 car parking spaces for residents, commercial/ retail, and visitors. It is noted that the closest bus stop is located approximately 100m away from the proposed development with a Train station.

7 IN SUMMARY

The proposed development is compatible with the State Environmental Planning Policy Affordable Housing and is considered to add through it is cutting edge design approach, a positive addition to both the surrounding and to the neighbouring properties. It is considered that the proposed development will satisfy the relevant Objectives of State policies in which a high-quality new Generation boarding House and commercial mixed development will be created on the subject site.

Ghassan Fares RAIA

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BCA report
Proposed mixed use development

31 Santley Cres & 2A Bringelly Rd Kingswood

Reference: Santley (31) 21 Oct 2021

21 October 2021

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1 Acronyms and terms

1.1.1 I use the following acronyms in this report:

- (a) BCA - Building Code of Australia 2019 Amendment 1
- (b) CC - Construction certificate, being approval to commence building work
- (c) DTS - Deemed to satisfy
- (d) FRL - Fire resistance level as defined in BCA

1.1.2 I use the following terms in this report:

- (a) Compliance declaration - As defined in the DBP Act
- (b) DBP Act - Design & Building Practitioners Act 2020
- (c) Design compliance declaration - As defined in the DBP Act
- (d) DTS Solution - Prescriptive method of BCA compliance
- (e) Performance Requirements - BCA level of performance to be satisfied
- (f) Performance Solution - A method of complying with the BCA
- (g) Planning Act - NSW Environmental Planning & Assessment Act
- (h) Planning Regulation - NSW Environmental Planning & Assessment Regulation
- (i) Proposed building - Proposed building at 31 Santley Cres & 2A Bringelly Rd Kingswood
- (j) Registered practitioner - As defined in the DBP Act
- (k) Regulated design - As defined in the DBP Act
- (l) Relevant plans - A000/A, A001/A, A100/A, A101/A, A102/A, A103/A, A104/A, A105/A, A106/A, A107/A, A201/A, A202/A, A203/A and A204/A by Gus Fares Architects
- (m) Stair A - Fire isolated exit serving upper storeys
- (n) Stair B - Fire isolated exit serving upper storeys
- (o) Stair C - Fire isolated exit serving upper storeys

2 Executive summary

- 2.1.1 My name is Michael Wynn-Jones and I am the author of this report.
- 2.1.2 I have prepared this report with respect to the **proposed building** as at 31 Santley Cres & 2A Bringelly Rd Kingswood.
- 2.1.3 This report demonstrates that a high level review of the proposal as depicted in the **relevant plans** reveals that the proposed building is capable of complying with the **BCA**, and refers to **Performance Solutions** that will form part of the **CC**.
- 2.1.4 This report is not a **compliance declaration** and has not been prepared by a **registered practitioner**.
- 2.1.5 The relevant plans are not **regulated designs**.

Michael Wynn-Jones

Building surveyor—unrestricted (NSW)
(formerly an A1 Accredited Certifier - Building Surveying Grade 1)

for Michael Wynn-Jones & Associates

3 Introduction

3.1 Background

3.1.1 This report provides a high level review of the extent to which the proposed building work is capable of complying with the BCA. The report has been prepared to form part of the relevant Development Application.

3.2 Compliance with BCA

3.2.1 The **Planning Act** requires that building work for the proposed building must comply with the BCA, and must not commence until a CC is issued for the work.

3.2.2 BCA compliance can be achieved by complying with **DTS Solutions**, formulating a Performance Solution, or by a combination of both.

3.2.3 A reference to a Section, Part or clause in this report is a reference to a DTS Solution, except as otherwise noted. A reference to a Performance Solution is a reference to a Performance Solution that will be submitted with the CC application.

3.3 Exclusions

3.3.1 This report:

- (a) Is limited to a high level review of the extent to which the proposed building work depicted in the relevant plans is capable of complying with the BCA.
- (b) Does not address compliance with:
 - (i) Council's policies, BASIX, or the Disability Discrimination Act.
 - (ii) Section B (Structure), Part D3 (access for people with a disability), F2.4 (Accessible facilities), Part F6 (Condensation Management), Part G1 (Minor structures), Part G2 (Boilers, vessels, heating appliances, fireplaces, chimneys/flues) or Section J (Energy efficiency) of the BCA.
- (c) Is not a **compliance declaration**.

3.4 Building classification

3.4.1 The proposed building will contain a Class 7a carpark, Class 5 offices, a Class 3 boarding house, and an outdoor occupiable area on the second floor associated with the Class 3.

3.4.2 The common room adjacent the manager's office on the Ground floor is considered Class 3 even though it is likely 'of a public nature' (Class 9b), as it is ancillary to the Class 3 use (A6.0). The office on the Ground floor is considered Class 3 as it is not of a public nature, and forms an integral part of the Class 3.

3.4.3 For the purposes of this report the communal living on the Ground floor is considered Class 3 as it does not present to be of a public nature, and is considered an integral part of the Class 3. The final classification of the common room, manager's office and communal living will need to be confirmed at the construction certificate stage.

4 Fire resistance (Section C)

4.1 Fire Resisting Construction (Part C1)

- 4.1.1 The proposed building will have a rise in storeys or more than 4, an effective height not more than 25 m¹, and is required to be Type A construction where compliance with the DTS Solutions is proposed (C1.2 and Table C1.1).
- 4.1.2 Details demonstrating compliance for any lightweight construction will form part of the CC application (C1.8).
- 4.1.3 External walls will be non-combustible as required. The architect has advised that the proposal is for external walls to comprise a Hebel wall system with non-combustible insulation and sarking. Details demonstrating compliance will form part of the CC application (C1.9).
- 4.1.4 Details for fire hazard properties, including for the proposed membrane to the outdoor occupiable area will be provided with CC application (C1.10 & G6.2).
- 4.1.5 The requirements for the 'performance of external walls in fire' and 'fire-protected timber' do not apply (C1.11 & C1.13).
- 4.1.6 The requirements for ancillary elements apply. The architect has advised that the only ancillary elements will be fixed vertical louvres which will likely be aluminium. Details demonstrating compliance will form part of the CC application (C1.14).
- 4.1.7 The architect has advised that the proposed loadbearing elements, including the roof, will be concrete (Spec.C1.1).
- 4.1.8 The proposal is for the fire isolated exit shafts and fire isolated occupant lift shafts to be enclosed at the top and bottom by construction having an FRL not less than that required for the walls of a non-loadbearing shaft in the same building. Details demonstrating compliance will form part of the CC application (CI 2.7 Spec C1.1).
- 4.1.9 The architect has advised that 3 sides of vehicle lift will be enclosed in a fire resisting shaft. The vehicle lift will be subject to a Performance Solution addressing the extent to which the vehicle lift is required to be fire separated from the remainder of the building.
- 4.1.10 The proposal is for the FRLs to comply with the DTS Solutions (Table 3 Spec. C1.1), except where a Performance Solution demonstrates that FRLs can be reduced.
- 4.1.11 The DTS Solutions require that the walls bounding the Class 3 units and the public corridors serving the Class 3 achieve a FRL, and that the openings therein, including doorways, are protected. This requires that the walls separating the communal living, common room and managers office from the public corridor will need to achieve a FRL, and that openings therein will require protection. This will likely be addressed by a Performance Solution allowing the glazing to be retained and protected by drenchers or similar.

¹ Basement 2 has not counted for the purposes of determining the rise in storeys.

- 4.1.12 The non-loadbearing parts of the proposed external walls are not required to achieve a FRL, except to the extent addressed in 4.3.1 and 4.3.2 below.
- 4.1.13 No common walls are required or proposed (Table 3 Spec. C1.1), and details for required shafts will form part of the CC application.
- 4.1.14 No roof lights are required or proposed (Cl 3.6, Spec C1.1).
- 4.1.15 The concessions for internal columns and walls, open spectator stands and indoor sports stadiums, carparks and Class 3 buildings do not apply (Clauses 3.7 to 3.10 in Spec C1.1 respectively).
- 4.1.16 The extent to which the proposed building elements will comply with Part C1 and Specification C1.1 has not been addressed in this report.

4.2 Compartmentation and Separation (Part C2)

- 4.2.1 The Class 7a is not subject to the floor area and volume limitations as the carpark will be protected by a sprinkler system, the Class 3 is not subject to the limitations, and the Class 5 will comply with the limitations (Table C2.2 and C2.2).
- 4.2.2 The requirements/concessions for large isolated buildings (C2.3/C2.4).
- 4.2.3 The vertical separation of openings in external walls is not required, as the architect has advised that the whole building will be protected by a sprinkler system complying with AS 2118.1-2017 (C2.6).
- 4.2.4 Separation of classes in the same by fire walls is required except where the building is subject to the Performance Solution referred to in 4.1.10 above, or the FRLs comply with the FRLs required for the Class 5 (C2.7).
- 4.2.5 Fire separation of classes in the same storey is required except where the building work is subject to the Performance Solution referred to in 4.1.10 above (C2.8).
- 4.2.6 Fire separation of classes in different storeys is required except where the building work is subject to the Performance Solution referred to in 4.1.10 above (C2.9).
- 4.2.7 The proposal is for the lifts to be separated from the remainder of the building by enclosure in a shaft achieving the required FRL, except to the extent that the vehicle lift is subject to the Performance Solution referred 4.1.9 above.
- 4.2.8 No stairway will be in the same shaft as a lift (C2.11).
- 4.2.9 The requirements for the separation of equipment apply. The extent of compliance has not been determined in preparing this report. Details are to be shown on the relevant plans forming part of the CC application (C2.12).
- 4.2.10 The requirements for an electricity supply system may apply. The extent of compliance has not been determined in preparing this report (C2.13).
- 4.2.11 Smoke doors are required in all Class 3 residential public corridors as the corridors are more than 40 m in length (C2.14).
- 4.2.12 The extent to which the proposed building will comply with Part C2 and Specification C1.1 has not been fully addressed in this report.

4.3 Protection of Openings (Part C3)

- 4.3.1 A Performance Solution will likely address the extent to which openings in an external wall exposed to and less than 3 m from side or rear boundary will need to be protected (C3.2 and C3.4).
- 4.3.2 Separation of external walls and associated openings in different fire compartments (being the Class 3 fire compartment and the Class 5 fire compartment) is required except where the building work is subject to the Performance Solution referred to in 4.1.10 above (C3.3).
- 4.3.3 The opening in the carpark floor for the vehicle lift will need to be subject to a Performance Solution as the lift is otherwise required to be in a fire resisting shaft.
- 4.3.4 The requirements for the protection of doorways in fire walls and for horizontal exits apply except where the building work is subject to the Performance Solution referred to in 4.1.10 above (C3.5 and C3.6).
- 4.3.5 Doorways opening to fire-isolated exits will be protected by -/60/30 fire doors that are self-closing (C3.8).
- 4.3.6 Penetrations in fire-isolated exit will be limited to those permitted (C3.9).
- 4.3.7 Openings in fire-isolated occupant lift shafts will be limited to doorways protected by -/60/- fire doors, and a lift call panel, indicator panel or other panel backed by construction having an FRL of not less than -/60/60 if it exceeds 35 000 mm² (C3.10).
- 4.3.8 The architect has advised that a doorway in the Class 3 will be protected by a self-closing -/60/30 fire door if it provides access from a sole-occupancy unit to a public corridor, public lobby, or the like (C3.11).
- 4.3.9 Openings in floors and ceilings for services will comply where the floor or ceiling is required to be fire resisting (C3.12). An opening in a wall providing access to a ventilating, pipe, garbage or other service shaft will be protected (C3.13).
- 4.3.10 An electrical, electronic, plumbing, mechanical ventilation, air-conditioning or other service penetrating a building required to have an FRL with respect to integrity or insulation will be protected (C3.15).
- 4.3.11 Construction joints, spaces and the like in and between building elements required to be fire-resisting with respect to integrity and insulation will be protected in a manner identical with a prototype tested in accordance with AS1530.4 to achieve the required FRL (C3.16).
- 4.3.12 The Performance Solution referred 4.1.9 above will address the extent to which openings to the vehicle lift will need to be protected.
- 4.3.13 The architect has advised that there is no proposal or requirement for columns to be protected with lightweight construction to achieve an FRL (C3.17).
- 4.3.14 The extent to which the detailed design will comply with Part C3 has not been fully addressed in this report as it is not included in the relevant plans.

5 Means of egress (Section D)

5.1 Provision for Escape (Part D1)

- 5.1.1 At least one exit is required and proposed from each storey, including the outdoor occupiable area (D1.2).
- 5.1.2 The basement carpark will be served by 2 exits are required, as egress from the storey involves a vertical rise within the building of more than 1.5 m (D1.2).
- 5.1.3 The proposed exits (Stair A, Stair B and Stair C) serving the Class 3, Class 5 and outdoor occupiable area will be fire isolated as required (D1.3).
- 5.1.4 The proposed exit stairs serving the Class 7a will be fire isolated as required by the relevant fire and life safety Performance Solutions (D1.3).
- 5.1.5 The proposed travel distance from the following areas to an exit will comply (D1.4):
- (a) The Class 3 residential:
 - (i) < 12 m from a unit door to a single exit on upper storeys
 - (ii) <20 m from a point on a floor not in a sole-occupancy unit to an exit or from a point at which travel in different directions to 2 exits is available.
 - (iii) <20 m from a point on a floor of the outdoor occupiable area to an exit
 - (b) The Class 5 commercial:
 - (i) < 20 m from the worst point on the floor to an exit.
- 5.1.6 A Performance Solution will demonstrate that travel to the exits serving the Class 7a carpark complies even though some points on a floor are more than 20 m from an exit, and from a point from which travel in different directions is available (D1.4).
- 5.1.7 The proposed distance between required alternative exits will comply (D1.5).
- 5.1.8 The proposed exit width (not less than 750 mm for doors and not less than 1 m for the public corridors, including the occupiable outdoor area, will comply (D1.6).
- 5.1.9 The proposed exit width for the stairs will need to be modified as required to ensure that the width measured clear of all obstructions is not less than 1 m (D1.6).
- 5.1.10 The proposed store on the Ground floor opening into the fire corridor can't open directly into the corridor (D1.7). Please refer to the corridor as a fire isolated exit passageway.

- 5.1.11 The proposal is to connect **Stair B** with **Stair C** at the First floor so that people using Stair B (which terminates at the First floor) can access Stair B to egress to Bringelly Rd. This proposed exit system will be subject to a Performance Solution as the DTS Solution:
- (a) Requires that each fire-isolated stairway or ramp must provide independent egress from each storey served and discharge directly, or by way of its own fire-isolated passageway to a suitable egress point (D1.7 (b)).
 - (b) Limits access to a required fire-isolated exit in the same storey to no more than 2 access doorways (D1.7 (c)).
- 5.1.12 No external stairways or ramps in lieu of fire-isolated exits are required or proposed (D1.8).
- 5.1.13 The requirements for travel by internal non-fire-isolated stairways or ramps do not apply (D1.9).
- 5.1.14 The proposed exits will not be blocked at the point of discharge (D1.10).
- 5.1.15 The paths of travel to the public road are proposed to be not less than 1 m wide as required (D1.10).
- 5.1.16 The discharge point of the alternative exits referred to in 5.1.15 above are located as far apart as practical (D1.10).
- 5.1.17 The plans will need to be modified to show that the external paths of travel referred to in 5.1.15 above will have a gradient not steeper than 1:8 at any part, or not steeper than 1:14 if required by Part D3 (D1.10).
- 5.1.18 No horizontal exits are required or proposed (D1.11).
- 5.1.19 No non-required stairways, ramps or escalators are required or proposed (D1.12).
- 5.1.20 The extent to which the detailed design will comply with Part D1 has not been addressed in this report as it is not included in the relevant plans.
- 5.1.21 Compliance with Part D1 should be detailed in plans consistent with a regulated design.
- 5.2 Construction of exits (Part D2)**
- 5.2.1 The architect has advised that the stairways forming part of the fire isolated exits will be non-combustible concrete. The structural plans submitted with the CC application will demonstrate that the stair and shaft is designed so that any local failure will not cause structural damage to, or impair the fire-resistance of, the shaft (D2.2).
- 5.2.2 The architect has advised that the proposed non-fire-isolated stairways and ramps will be concrete (D2.3).
- 5.2.3 The proposed fire isolated passageway discharging to Bringelly Road will be subject to a Performance Solution as it connects with and serves the stair flight rising from the carpark, Stair C (which serves the upper levels), and the exit doors serving Ground floor (D2.4).

- 5.2.4 No open access ramps and balconies are required or proposed (D2.5), no smoke lobbies are required or proposed (D2.6), and installations in exits and paths of travel must comply, including the occupiable outdoor area. The extent of compliance will be determined when the CC application stage (D2.7).
- 5.2.5 The proposed store on Level B2 located below a flight to the proposed Southwest fire-isolated exit will not be in the same fire resisting shaft as the exit. No other enclosure of space is proposed under stairs or ramps (D2.8).
- 5.2.6 The requirements for the width of required stairways and ramps do not apply (D2.9).
- 5.2.7 No fire-isolated ramp is required or proposed (D2.10).
- 5.2.8 The extent to which the slip-resistance classification applies to any proposed internal or external ramps has not been addressed in this report (D2.10).
- 5.2.9 No fire-isolated passageway is required or proposed (D2.11).
- 5.2.10 No part of a roof is required to be, or proposed as, open space (D2.12).
- 5.2.11 Whilst the extent to which goings and risers (D2.13), landings (D2.14) and thresholds (D2.15) has not been addressed in preparing this report the proposal is to comply.
- 5.2.12 Whilst the extent to which the proposed barriers will comply has not been addressed in preparing this report, it is recommended that the proposed barriers are modified to ensure barriers, except in fire isolated exits:
- (a) Are not less than 1 m high when measured vertically from the surface beneath, except that for stairways the height must be measured above the nosing line of the stair treads.
 - (b) Do not allow a 125 mm sphere is able to pass through any opening.
 - (c) Do not have horizontal or near horizontal elements between 150 mm and 760 mm above the floor facilitate climbing where the floor is more than 4 m above the surface beneath (D2.16).
- 5.2.13 Details are required to show the location and height of the proposed barriers in the fire isolated exit (D2.16), and the proposed handrails. (D2.17).
- 5.2.14 It appears that no fixed platforms, walkways, stairways or ladders are required (D2.18).
- 5.2.15 The following exit doors discharging to Bringelly Rd are proposed to swing in the direction of egress as required:
- (a) The door serving the fire isolated exit passageway
 - (b) The door serving the commercial lobby (D2.19).

- 5.2.16 The proposal is for swinging doors in a required exit or forming part of a required exit to comply as required (D2.20).
- 5.2.17 The proposal is for a door in a required exit, forming part of a required exit or in the path of travel to a required exit to be readily openable without a key from the side that faces a person seeking egress (D2.21).
- 5.2.18 The requirements for re-entry from fire-isolated exits do not apply as the building has an effective height not more than 25 m (D2.22).
- 5.2.19 The proposal is for a sign, to alert persons that the operation of certain doors must not be impaired, to be installed where it can readily be seen on, or adjacent to—
- (a) a required fire door providing direct access to a fire-isolated exit.
 - (b) The doors leading from a fire isolated exit to a road or open space, on each side of the doors (D2.23).
- 5.2.20 Window openings in bedrooms in the Class 3 must be protected. The extent to which the protection will comply has not been addressed in this report as the method of achieving compliance is not provided in the relevant plans (D2.24).
- 5.2.21 A barrier with a height not less than 865 mm above the floor is required to an openable window:
- (a) Referred to in 5.2.4 above in the building when a child resistant release mechanism is required by D2.24 (b)(ii)(C) in the bedrooms in the Class 3; and
 - (b) In any other part of the building where the floor below the window is 4 m or more above the surface beneath.
- 5.2.22 A barrier referred to in 5.2.21 above, except where in fire-isolated stairways, fire isolated ramps and other areas used primarily for emergency purposes, excluding external stairways and external ramps, must not:
- (a) permit a 125 mm sphere to pass through it; and
 - (b) have any horizontal or near horizontal elements between 150 mm and 760 mm above the floor that facilitate climbing.
- 5.2.23 A barrier required by 5.2.21 above in fire-isolated stairways, fire isolated ramps and other areas used primarily for emergency purposes, excluding external stairways and external ramps, must not permit a 300 mm sphere to pass through it.
- 5.2.24 The extent to which the window protection will comply has not been addressed in this report (D2.24).
- 5.2.25 The concessions for timber stairways do not apply as the architect has advised that no timber stairs are proposed (D2.25).

6 Services and Equipment (Section E)

6.1 Fire Fighting Equipment (Part E1)

- 6.1.1 The proposed building must be served by a fire hydrant system as the total floor area exceeds 500 m² (E1.3). This will require a fire hydrant in the fire isolated exits at each storey, an internal or external hydrant pumphouse, and a fire hydrant booster.
- 6.1.2 The hydrant pumphouse located on the Ground floor has accessed has access to open space via a fire-isolated passage.
- 6.1.3 The proposal is for the Class 7a carpark to be served by a hose reel located not more than 4 m from an exit as required. The DTS Solutions do not require that any other part of the proposed building is served by fire hose reels (E1.4).
- 6.1.4 The proposal is to provide a sprinkler system complying with AS 2118.1-2017 throughout the whole building, including the outdoor occupiable area as required, as the building contains a Class 3 portion, and has a rise in storeys of 4 or more and an effective height not more than 25 m (E1.5).
- 6.1.5 The proposal is for portable fire extinguishers to be provided as required, including to the outdoor occupiable area as required (E1.6).
- 6.1.6 No fire control centre is required or proposed (E1.8).

6.2 Smoke hazard management (Part E2)

- 6.2.1 The proposed fire isolated exits are not required to be served by an automatic air pressurisation system or open access ramps or balconies, except to the extent required by a fire and life safety Performance Solution (Table E2.2a).
- 6.2.2 The proposal is for the Class 3 part to be provided with an automatic smoke detection and alarm system complying with Specification E2.2a as required, except to the extent varied by the fire and life safety Performance Solutions (Table E2.2a).
- 6.2.3 The proposal is for the smoke hazard management for the Class 5 and Class 7a to be subject to a Performance Solution as the DTS Solution for the Class 5 and Class 7a as the Class 3, Class 5 and Class 7a is served by the same fire isolated exit ², and in any case as an automatic smoke detection and alarm system complying with Specification E2.2a is likely to be inappropriate for the Class 7a.
- 6.2.4 The Class 7a carpark is required to be served by a mechanical ventilation system. A Performance Solution may demonstrate that jet fans will be a suitable method of mechanical ventilation (F4.11).
- 6.2.5 The proposal is for the smoke hazard management system to incorporate a building occupant warning system. The final design of the system may be subject to the fire and life safety Performance Solution (clause 7 Specification E2.2).

² The following is the most appropriate DTS Solution for the Class 5 and Class 7a in Specification E2.2a for buildings not more than 25 m in effective height where a required fire-isolated stairway serving the Class 3 also serves the Class 5 and Class 7a:
The Class 5 and 7a must be provided with:

- an automatic smoke detection & alarm system complying with Spec E2.2a, or
- a sprinkler system (other than a FPAA101D or FPAA101H system) complying with Specification E1.5

6.3 Lift installation (Part E3)

- 6.3.1 The architect has advised that the proposed occupant lifts can provide for a stretcher facility (600 mm wide x 2000 mm long x 1400 mm high above the floor level) as required as the proposed occupant lifts will serve storeys above an effective height of 12 m (E3.2).
- 6.3.2 The proposal is to provide a warning against use of lifts in fire as required (E3.3).
- 6.3.3 No emergency occupant lift is required or proposed as the building has an effective height not more than 25 m (E3.4).
- 6.3.4 The proposal is for access and egress to and from occupant and vehicle liftwell landings to comply as required (E3.5).
- 6.3.5 The proposal is for fire service controls as required as the occupant lifts will serve a storey above an effective height of 12 m (E3.7). The extent to which the vehicle lift will need similar controls will be subject to the fire and life safety Performance Solutions.
- 6.3.6 The extent to which fire service recall control switches are required will need to be determined by an appropriately qualified person as part of the CC application (E3.9).
- 6.3.7 The extent to which a lift car fire service drive control switch is required will need to be determined by an appropriately qualified person as part of the CC application (E3.10).

6.4 Emergency lighting, exit signs & warning systems (Part E4)

- 6.4.1 The proposal is for emergency lighting and exit signs to be provided to the whole building and the outdoor occupiable area as required (E4.2 to E4.8).
- 6.4.2 No sound or intercom system for emergency purposes is required or proposed (E4.9) as the architect has advised that no part of the building will be used for accommodation for the aged, children or people with a disability, or as a residential care building (as defined in the BCA).

7 Health and amenity (Section F)

7.1 Damp and Weatherproofing (Part F1)

- 7.1.1 The proposal is for damp and weatherproofing to comply (Part F1).
- 7.1.2 The requirements for damp and weatherproofing have not been assessed in preparing this report (Part F1).
- 7.1.3 Details demonstrating the extent to which the damp and weatherproofing weatherproof are required to be developed and submitted with the CC application. It should be noted that there are no DTS Solutions for the weatherproofing of external walls (F1.0).

7.2 Sanitary facilities (Part F2)

- 7.2.1 The architect has advised that each Class 3 sole occupancy unit will be served by a shower or bath, a closet pan and washbasin as required.
- 7.2.2 The Class 3 will be served by laundry facilities notwithstanding that these facilities are not required.
- 7.2.3 Some Class 3 sole occupancy units will be served by a kitchen notwithstanding that kitchens are not required (F2.1).
- 7.2.4 The proposal is for the sanitary facilities for the Class 5 to comply.
- 7.2.5 A review of the floor area of the Class 5 sole occupancy units reveals that the total number of persons deemed to be accommodated (Table D1.13) in the Class 5 is ~ 17 males and ~17 females.
- 7.2.6 The proposed sanitary facilities for the Class 5 will comply as required, subject to at least 1 of the unisex facilities required for people with a disability be counted once for each sex (F2.2 and F2.3).
- 7.2.7 The proposal is for the construction of sanitary compartments to comply (F2.5).
- 7.2.8 No accessible adult change facility is required or proposed (F2.9).

7.3 Room heights (Part F3)

7.3.1 The proposal is for the following internal heights to comply as required:

- (a) ≥ 2.4 m to a habitable room except a kitchen.
- (b) ≥ 2.1 m to a kitchen, laundry, bathroom, corridor, passageway or the like.
- (c) ≥ 2.4 m to a medical suite except a space referred to in 7.3.1(b)).
- (d) ≥ 2.1 m to a store room, garage, or car parking area.
- (e) ≥ 2 m measured vertically above a stairway, ramp, landing or the like.

7.3.2 The extent of compliance has not been determined in preparing this report.

7.4 Light and ventilation (Part F4)

7.4.1 The proposal is for the following to comply as required, not including the carpark:

- (a) Natural light to habitable rooms (F4.1).
- (b) Artificial light to all areas including the outdoor occupiable area (F4.4).
- (c) Natural ventilation to habitable rooms (F4.6).
- (d) A combination of natural and artificial ventilation to all other areas (F4.5).

7.4.2 The extent of compliance has not been determined in preparing this report.

7.4.3 The Class 7a carpark is required to be served by a mechanical ventilation system. A Performance Solution may demonstrate that jet fans will be a suitable method of mechanical ventilation (F4.11).

7.4.4 The proposal is for sanitary compartments not to open directly into:

- (a) a kitchen or pantry; or
- (b) a public dining room or restaurant; or
- (c) a dormitory in a Class 3 building; or
- (d) a room used for public assembly; or
- (e) a workplace normally occupied by more than one person (F4.8).

7.4.5 The proposal is for sanitary compartments not permitted to open directly into the spaces referred to in 7.4.4 above to comply as required (F4.9).

7.4.6 The architect has advised that no commercial kitchen is proposed (F4.12).

7.5 Sound transmission and insulation (Part F5)

7.5.1 The proposal is for the sound insulation rating to comply as required for a floor:

- (a) Serving the Class 3;
- (b) Separating the Class 3 from:
 - (i) The Class 5; and
 - (ii) The outdoor occupiable area (F5.3 and F5.4).

7.5.2 The proposal is for the sound insulation rating to comply as required for a wall:

- (a) Separating Class 3 sole-occupancy units; and
- (b) Separating a Class 3 sole-occupancy unit from a plant room, lift shaft, stairway, public corridor, public lobby or the like (F5.5).

7.5.3 The proposal is for a wall in the Class 3 to be of discontinuous construction (F5.3(b)) if it separates:

- (a) a bathroom, sanitary compartment, laundry or kitchen in one Class 3 sole-occupancy unit from a habitable room (other than a kitchen) in an adjoining unit; or
- (b) a Class 3 sole-occupancy unit from a plant room or lift shaft.

(The relevant plans will need to be amended to make is clear that discontinuous construction is proposed for the walls separating a Class 3 unit from other spaces).

7.5.4 The proposal is for any duct, soil, waste or water supply pipe, including a duct or pipe that is located in a wall or floor cavity, serves or passes through more than one sole-occupancy unit, to be separated from the rooms of any sole occupancy by construction with an $R_w + C_{tr}$ (airborne) not less than:

- (a) 40 if the adjacent room is a habitable room (other than a kitchen); or
- (b) 25 if the adjacent room is a kitchen or non-habitable room.

7.5.5 The location of the ducts and services referred to in 7.5.4 above must be shown on the relevant plans.

8 Ancillary provisions

8.1 Part G1 – Part G5 (Various)

8.1.1 Part G1 (Minor structures and components) and Part G2 (Boilers, pressure vessels, heating appliances, fireplaces, chimneys and flues) are not addressed in this report.

8.1.2 Part G3 (Atrium construction) does not apply as no atrium is proposed or required.

8.1.3 Part G4 (Construction in alpine areas) does not apply as the proposed building will not be in an alpine area.

8.1.4 Part G5 (Construction in bushfire prone areas) is not addressed in this report.

8.2 Part G6 (Occupiable outdoor areas)

8.2.1 The requirements for the outdoor occupiable area apply to the proposed building and are addressed in the various Sections of this report.

9 Appendix A (About Michael Wynn-Jones)

- Michael refined his skills and knowledge for 13 years as a Local Government Building Surveyor in Western Sydney, and in 1993 established a Building Regulations consulting company and became a 'building academic' at Western Sydney University.
- From 1996 to 2008 Michael devoted his time equally between academia and consulting and helped develop, lectured in, and was eventually the Head of Program for, separate Post Graduate courses in 'Building Surveying', 'Fire Engineering' and 'Bushfire prone areas' at Western Sydney University.
- He has been teaching building regulations courses through the UTS Centre for Local Government since 1995, worked with CSIRO in 1995 and 1996 on fire code reform projects resulting in the first Fire Engineering Guidelines, and assisted the NSW State Government with the introduction of private certification in 1997.
- After leaving Western Sydney University in 2008 he devoted most of his energy to consulting and assisted with the introduction of the Building Surveying major at the University of Newcastle (in his role as conjoint Professor).
- Michael has assisted the NSW State Government on various projects, including the complying development codes, the Federal Premises Standards in NSW, a review of fire safety systems, and private certification. He is a co-author of one of the original private sector accreditation schemes later administered by State Government, was appointed to the State Government Board (formerly the Building Professionals Board) in 2008, and for some of that time was Deputy President.
- Michael has been registered at the highest level in NSW as a building surveyor (unrestricted) or equivalent (an A1 private certifier) since 1997.
- Michael's relevant qualifications, accreditations and details are as follows:
 - MAppSc (Fire Safety Design), Western Sydney University (WSU), 1996
 - BAppSc (Building Surveying), Hons, Uni of Technology Sydney (UTS), 1986
 - AssDip AppSc (Health & Building Surveying), TAFE, Sydney (1988)
 - Building surveyor (unrestricted) or equivalent (NSW) (since 1997)
 - Qualified Principal Building Surveyor and Fire Engineer
 - Conjoint Professor, Arch/Built Environment, Newcastle Uni (2010 to 2015)
 - Associate, Centre for Local Govt, Uni of Technology, Sydney (Since 2005)
 - Building Professionals Board member (2008 to June 2013)
 - Deputy President of the Building Professionals Board (2011 to June 2013)
 - Fellow, Aust. Institute of Building (Since 2011; member since 2011)
 - Fellow, Aust. Institute of Building Surveyors (Since 2012; member since 1980)



END OF REPORT

Dana Bina Pty Ltd &
Midpoint Investments Pty Ltd

Geotechnical Investigation Report

Proposed Development at:
31 Santley Crescent & 2A Bringelly Road
Kingswood NSW 2747

G21551-1

29th September 2021

Report Distribution

Geotechnical Investigation Report

Address: 31 Santley Crescent & 2A Bringelly Road Kingswood NSW 2747

GCA Report No.: G21551-1

Date: 29th September 2021

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1. INTRODUCTION

1.1 Background

This geotechnical engineering report presents the results of a geotechnical investigation undertaken by Geotechnical Consultants Australia Pty Ltd (GCA) for a proposed development at No. 31 Santley Crescent and No. 2A Bringelly Road Kingswood NSW 2747 (the site). The investigation was commissioned by Dana Bina Pty Ltd & Midpoint Investments Pty Ltd (the client) and was carried out on the 13th September 2021.

The purpose of the investigation was to assess the subsurface conditions over the site at the selected borehole testing locations (where accessible and feasible), and provide necessary recommendations from a geotechnical perspective for the proposed development.

The findings presented in this report are based on our subsurface investigation, laboratory testing results and our experience with subsurface conditions in the area. This report presents our assessment of the geotechnical conditions and has been prepared to provide geotechnical advice and recommendations to assist in the preparation of preliminary designs and construction of the ground structures for the proposed development.

For your review, **Appendix A** contains a document prepared by GCA entitled "Important Information About Your Geotechnical Report", which summarises the general limitations, responsibilities and use of geotechnical engineering reports.

1.2 Proposed Development

Information provided by the client indicates the proposed development comprises demolition of the existing infrastructures onsite, followed by construction of a multi-storey boarding house building, overlying two (2) to three (3) basement levels.

The Finished Floor Levels (FFL)s of the proposed developments basement and ground floor levels are set to be at Reduced Levels (RL)s of:

- Basement 3 level: RL34.50m to RL34.80m Australian Height Datum (AHD).
- Basement 2 level: RL37.50m to RL37.80m AHD.
- Basement 1 level: RL40.50m to RL40.80m AHD.
- Ground floor level: RL43.50m to RL44.45m AHD.

Based on this information and the existing site levels and topography, maximum excavation depths varying from approximately 6.5m to 9.7m (varying throughout) are expected to be required for construction of the proposed development. Locally deeper excavations for the proposed lift shafts, and building footings and service trenches are also projected to be required as part of the planned development.

It should be noted that excavation depths are expected to vary across the site and are inferred off the proposed development FFLs shown on the architectural drawings and existing levels, referenced in Section 1.3 below.

1.3 Provided Information

The following relevant information was provided to GCA prior to the site investigation and during preparation of this report:

- Architectural drawings prepared by Gus Fares Architects, titled "Proposed Boarding House at 31 Santley Crescent & 2A Bringelly Rd Kingswood NSW", referenced project No. 2020-22 and included drawing nos. A001, A101, to A106 inclusive, A202 and A302.

1.4 Geotechnical Assessment Objectives

The objective of the geotechnical investigation was to assess the site surface and subsurface conditions at the selected borehole testing locations within the site (where accessible and feasible), and to provide professional geotechnical advice and recommendations on the following based on requirements provided to GCA by the client:

- General assessment of any potential geotechnical issues that may affect any surrounding infrastructures, buildings, council assets, etc., along with the proposed development.
- Excavation conditions and recommendations on excavation methods in soils and rocks to restrict any ground vibrations.
- Recommendations on suitable shoring (retention) systems for the site.
- Design parameters based on the ground conditions within the site, for retaining walls, cantilever shoring walls and propped shoring.
- Recommendations on suitable foundation types and design for the site.
- End bearing capacities and shaft adhesion for shallow and deep foundations based on the ground conditions within the site (for ultimate limit state and serviceability loads).
- Groundwater levels which may be determined during the geotechnical investigation and during an additional site visit for groundwater level measurements, along with the effects on the proposed development construction.
- Recommendations on groundwater maintenance and limiting.
- Preliminary subsoil class for earthquake design for the site in accordance with Australian Standards (AS) 1170.4-2007.
- Preliminary aggressivity and salinity assessment within the site based on laboratory testing results at the selected borehole locations.
- General geotechnical advice on site preparation, filling and subgrade preparation.

1.5 Scope of Works

Fieldwork for the geotechnical investigation was undertaken by an experienced geotechnical engineer, following in general the guidelines outlined in AS 1726-2017. The scope of works included:

- Submit and review Dial Before You Dig (DBYD) plans and any other plans provided by the client on existing buried services within the site.
- Service locating carried out using electromagnetic detection equipment to ensure the area is free of any underground services at the selected borehole testing locations.
- Review of site plans and drawings to determine appropriate testing locations (where accessible and feasible), and identify any relevant features of the site.
- Machine drilling of three (3) boreholes at selected locations within the site (where accessible and feasible) by a specialised track mounted drilling rig, using solid flight augers equipped with a 'Tungsten Carbide' (TC) bit, and identified as boreholes BH1 to BH3 inclusive. The drilling rig is owned and operated by a specialist subcontractor.
 - The boreholes were drilled to varying practical TC bit refusal depths of approximately 7.0m to 7.7m below the existing ground level within the site (bgl).
 - Following auger termination in borehole BH1, drilling commenced using NMLC diamond coring technique to the final depth outlined in Table 1 below.
- Installation of one (1) standpipe piezometer, identified as GW1 and installed to a depth of approximately 14.1m bgl (RL30.4m AHD) in borehole BH1. The standpipe piezometer was installed for groundwater measurements and any future groundwater monitoring which may be required.
 - The approximate locations of the boreholes and standpipe piezometer are shown on **Figure 1, Appendix B** of this report
- Collection of soil and rock samples during drilling for the following laboratory testing required:

- Laboratory testing by a National Association of Testing Authorities, Australia (NATA) accredited laboratory (ALS Environmental) on four (4) selected samples collected during drilling of the boreholes to determine the pH, chloride and sulphate content, and electrical conductivity of the selected samples. Laboratory analysis was undertaken for the purpose of a preliminary aggressivity and salinity assessment within the site.
- Rock cores recovered from borehole BH1 were boxed, logged and sent to our affiliate NATA accredited laboratory, Geologic Solutions Group Pty Ltd (Geologic Solutions), for rock strength testing to estimate the point load strength index (I_{s50}) values. The rock core photographs and laboratory point load test results certificates are presented in **Appendix E** and **Appendix F**, respectively.
- Preparation of this geotechnical engineering report.

Table 1. Approximate Borehole Drilling Depths

Borehole ID	Augering Depth/Thickness (m bgl)	NMLC Diamond Coring Technique Depth/Thickness (m bgl)	Total Borehole Depth (m bgl)
BH1	0.0 – 7.7	7.7 – 14.11	14.11
BH2	0.0 – 7.5	–	7.5
BH3	0.0 – 7.0	–	7.0

1.6 Constraints

The discussions and recommendations provided in this report have been based on the results obtained during borehole drilling at the approximate testing locations within the site (where accessible and feasible). It is recommended that further geotechnical inspections should be carried out during construction to confirm the subsurface conditions across the site and foundation bearing capacities have been achieved.

Consideration should be given to additional machine drilled boreholes and rock strength testing following demolition of existing onsite infrastructures, in order to confirm the ground conditions and estimated rock strength underlying the site, and to help assist in final designs of the proposed development. This recommendation should be confirmed by the project geotechnical engineer and structural engineer during/following design stages of the proposed development.

2. SITE DESCRIPTION

2.1 Overall Site Description

The overall site description and its surrounding are presented in Table 2 below.

Table 2. Overall Site Description and Site Surroundings

Information	Details
Overall Site Location	The site comprises amalgamation of two (2) properties, being No. 31 Santley Crescent and No. 2A Bringelly Road, and located within a residential area approximately 60m south of the Great Western Highway.
Site Address	31 Santley Crescent & 2A Bringelly Road Kingswood NSW 2747
Approximate Site Area¹	1,350m ²
Local Government Authority	Penrith City Council
Site Description	At the time of the investigation, a residential dwelling was present within each property, accompanied by associated concrete pavements and detached sheds. The remaining area of the site was covered in grass, vegetation and some mature trees scattered throughout.
Approximate Distances to Nearest Watercourses (i.e. rivers, lakes, creeks, etc.)	<ul style="list-style-type: none"> • Werrington Creek – 750m east of the site. • Unnamed Stream – 80m south-east and 150m south-west of the site.
Site Surroundings	The site is located within an area of residential use and is bounded by: <ul style="list-style-type: none"> • Residential properties at No. 2 Bringelly Road and No. 176 Great Western Highway to the north. • Residential property at No. 29 Santley Crescent to the east. • Santley Crescent carriageway and commercial property at No. 33 Santley Crescent to the south. • Bringelly Road thoroughfare to the west.

¹Site area is approximate and obtained from the architectural drawings referenced in Section 1.3.

2.2 Topography

The local and site topography generally falls towards the south to south-east. Levels within the site vary from approximately RL43.4m to RL45.2m AHD.

It should be noted that the site topography, levels and slopes are approximate and based off the architectural drawings referenced in Section 1.3, observations made during the investigation and reference to NSW Six Maps (<https://maps.six.nsw.gov.au/>). The actual topography in areas inaccessible during the site investigation, including areas under the existing infrastructures, along with the site and local topography and levels are expected to vary from those outlined in this report.

2.3 Regional Geology

Information obtained on the local regional subsurface conditions, referenced from the Department of Mineral Resources, Penrith 1:100,000 Geological Series Sheet 9030 Edition 1, dated 1991, by the Geological Survey of New South Wales, indicates the site is located within a geological region generally underlain by Bringelly Shale (Rwb) of the Wianamatta Group. The Bringelly Shale (Rwb) typically comprises "shale, carbonaceous claystone, claystone, laminite, fine to medium grained lithic sandstone, rare coal and tuff".

The site is also situated approximately 330m north-west of a geological boundary/region generally underlain by Quaternary Aged Holocene Deposits (Qal). The Quaternary Aged Holocene Deposits (Qal) typically comprise "fine grained sand, silt and clay".

Furthermore, reference made to MinView by the State of New South Wales through Regional NSW 2021 indicates the site is positioned within a geological region underlain by Shale (Twib).

A review of the regional maps by the NSW Government Environment and Heritage indicates the site is generally located within the Luddenham (lu) landscape group which is largely recognised by undulating low hills on Wianamatta Group shales, often associated with Minchinbury sandstone. Soils of the Luddenham group typically have water erosion hazard, localised steep slopes, mass movement hazard, shallow soils, surface movement potential, impermeable highly plastic subsoil and are moderately reactive. Local reliefs are approximately 50m to 80m and slopes of approximately 5% to 20% in gradient. Soils of the Luddenham group are generally neutral (pH 7.0) to strongly (pH 4.0) acidic.

The site is also noted to be approximately 280m north-west of the South Creek (sc) landscape group. The South Creek (sc) landscape group is generally recognised by floodplains, valley flats and drainage depressions of the channels on the Cumberland Plain, which are usually flat with incised channels and mainly cleared. Soils of the South Creek group typically have flood hazard, seasonal waterlogging, localised permanently high water tables, localised water erosion hazard and localised surface movement potential. Soils of the South Creek group are also generally neutral (pH 7.0) to extremely (pH 3.0) acidic.

The Luddenham (lu) and South Creek (sc) landscape group reports are attached in **Appendix I**.

3. SUBSURFACE CONDITIONS AND ASSESSMENT RESULTS

3.1 Stratigraphy

A summary of the surface and subsurface conditions from across the site during this geotechnical investigation are summarised in Table 3 below and are interpreted from the assessment results. It should be noted that Table 3 presents a summary of the overall site conditions and reference should be made to the detailed engineering borehole logs presented in **Appendix D**, in conjunction with the geotechnical explanatory notes detailed in **Appendix C**. Rock description has been based on Pells P.J.N, Mostyn G. & Walker B.F. Foundations on Sandstone and Shale in the Sydney Region, Australian Geomechanics Journal, December 1998.

It should be noted that estimated rock strengths assessed by observation during auger penetration resistance in the boreholes are approximate and variances should be expected throughout the site. In addition, estimated rock strengths are also estimated from the point load strength index (Is_{50}) carried out at the selected depths within the boreholes, and are also expected to vary throughout the site. It is worth noting that auger penetration within various bedrock formations vary from each drilling rig, and estimated rock strength variances across the site are expected.

Due to the variable ground conditions throughout the site, it is recommended that confirmation of the subsurface materials be carried out during construction, and by additional borehole drilling and rock strength testing. It should also be noted that ground conditions within the site are expected to differ from those encountered and inferred in this report, since no geotechnical or geological exploration program, no matter how comprehensive, can reveal and identify all subsurface conditions underlying the site.

Based on the geotechnical investigation at the selected testing location, along with our experience and observations made within the site and local region, it is inferred that bedrock of variable composition, strength and weathering is underlying majority of the site area at varying depths of approximately 3.2m to 5.0m bgl.

Furthermore, assessment of the underlying soils indicates the possibility of variable composition and consistency/strength natural soils to be present throughout the site.

Table 3. Summary of Subsurface Conditions

Unit	Unit Type	Description	Borehole ID	BH1	BH2	BH3
			Estimated Consistency/ Strength	Depth/Thickness of Unit (m bgl)		
Approximate RL at Borehole Location (m AHD)				RL44.5	RL45.1	RL43.5
1	Fill	Clayey SILT, medium to high plasticity clay, gravel inclusions.	N/A	0.0 – 0.5	0.0 – 0.2	0.0 – 0.5
2	Residual Soils	Silty CLAY, medium to high plasticity, gravel inclusions.	Firm to stiff, very stiff with depth	0.5 – 4.0	0.2 – 3.2	0.5 – 3.2
		Shaly CLAY, low plasticity, interbedded shale.	Very stiff to hard	4.0 – 5.0	3.2 – 4.0	–
3	Class V Shale ¹	SHALE, clay seams, with silt, extremely to highly weathered.	EL	5.0 – 6.8	4.0 – 5.2	3.2 – 4.6
			VL	6.8 – 7.7	5.2 – 6.3	4.6 – 6.6
4	Class IV Shale ¹	SHALE, clay seams, interbedded laminite, highly to slightly weathered.	L	7.7 – 14.11	6.3 – 7.5	6.6 – 7.0
			L – M (or better) ²		7.5	7.0
			M		–	–

¹Confirmation of the underlying bedrock composition, class, depth and estimated strength should be made by further borehole drilling and rock strength testing, and during construction by inspection and appropriate testing (i.e. spoon testing, rock strength testing, etc.).

²Higher estimated strength and/or class bedrock (i.e. low to medium estimated strength, or better) is inferred to be present below the auger refusal depth indicated in Table 3. This is based on high auger resistance during drilling and reference to the rock core samples recovered during the NMLC process in borehole BH1 below the auger high TC bit resistance depth. Confirmation should be made by a geotechnical engineer by further borehole drilling and rock strength testing.

Notes:

- N/A = Not Applicable, EL = Extremely Low estimated strength, VL = Very Low estimated strength, L = Low estimated strength, M = Medium estimated strength, H = High estimated strength.
- Rock strengths are based on observations made during auger penetration resistance at the time of drilling and point load strength index (I_{s50}) carried out at selected depths within the boreholes.
- Confirmation of the actual composition, continuity, strength and depth of the underlying bedrock should be carried out by a geotechnical engineer by additional borehole drilling and rock strength testing, and by inspection during construction.
- Ground conditions are expected to vary across the site and should be confirmed by a geotechnical engineer, predominately in areas unobserved during the geotechnical investigation.

It is worth noting the presence of core loss layers and fractured zones within the underlying shale bedrock which were encountered during drilling of borehole BH1 at varying depths throughout (refer to the detailed engineering borehole logs).

These layers along with extremely weathered zones should not be precluded across the site, predominately at locations and depths not assessed during the geotechnical investigation. Precaution should be taken during construction and at bulk excavation level as these layers are not suitable as founding materials for the proposed development.

3.2 Groundwater

No groundwater was encountered or observed during and shortly after drilling (<30 minutes) of the boreholes to a maximum depth of approximately 7.7m bgl (BH1). Water introduced during the NMLC coring process in borehole BH1 from below the auger termination depth at approximately 7.7m bgl further precluded any groundwater level indications

Following completion of drilling in borehole BH1, a standpipe piezometer (GW1) was installed to a depth of about 14.1m bgl (RL30.4m AHD).

After installation of the standpipe piezometer, water generated during the NMLC coring process which was present in the standpipe piezometer was purged using a bailer. It should be noted that although all efforts were made to purge all of the water present within the standpipe piezometer completely, the possibility of groundwater being present at lower depths should not be precluded.

Groundwater measurements carried out on the 22nd September 2021 within standpipe piezometer GW1 indicated groundwater levels to be present at a depth of approximately 1.2m bgl, at the measured location and at the time of the measurement.

Subsequent to the groundwater measurement on the 22nd September 2021, water within the standpipe piezometer was purged using a bailer to a depth of approximately 10.5m bgl. An additional groundwater measurement was carried out after a period of approximately 15 minutes and indicated the groundwater level within the standpipe piezometer to gradually rise to a depth of about 9.6m bgl.

Thus, based on information available at the time of the investigation and position of the site in the local region, groundwater which may be present within the site is expected to be in the form of seepage through the voids within the underlying fill material and through the pore spaces between particles of unconsolidated natural soils, or through networks of fractures and solution openings in consolidated bedrock underlying the site (subject to confirmation).

It should be noted that groundwater levels have the potential to elevate during daily or seasonal influences such as tidal fluctuations, heavy rainfall, damaged services, flooding, etc., and moisture content within soils may be influenced by events within the site and adjoining properties. Groundwater monitoring should be carried out prior to and during construction to assess any groundwater inflow throughout the excavation areas. We note that no provision was made for longer term groundwater monitoring within the site and it would be prudent to allow for this.

Where groundwater conditions vary from those outlined in this report, GCA should be contacted for further advice.

4. LABORATORY TEST RESULTS

4.1 Aggressivity and Salinity

Four (4) selected samples were sent to a NATA accredited testing laboratory, ALS Environmental, to determine the pH, chloride and sulphate content, and electrical conductivity of the samples. A summary of the laboratory tests results is provided in Table 4 below, with laboratory certificates presented in **Appendix G** of this report.

Table 4. Summary of Laboratory Test Results (Aggressivity and Salinity)

Borehole ID		BH1	BH2	BH2	BH3
Approximate Depth (m bgl)		1.9 – 2.0	3.2 – 3.3	4.4 – 4.5	6.9 – 7.0
Strata Type		Natural Soils	Natural Soils	Bedrock	Bedrock
Aggressivity and Salinity	pH	5.7	7.1	7.6	8.6
	Moisture Content (%)	14.3	13.0	10.2	8.5
	Chloride (mg/kg)	440	1,000	970	600
	Sulphate SO ₄ (mg/kg)	150	140	150	100
Electrical Conductivity (µS/cm)	EC (µS/cm)	372	652	663	472
	EC (dS/m)	0.372	0.652	0.663	0.472
	Multiplication Factor ¹	8	8	15	15
	Saturation Extract E _{Ce} (dS/m)	2.98	5.22	9.95	7.08

¹Multiplication factor obtained from NSW Government, Catchment Management Authority, "Calculating Electrical Conductivity and Salinity" and Department of Natural Resources (DNR) publication "Site Investigations for Urban Salinity" – 2002.

4.2 Rock Samples

A total of six (6) samples selected from the collected rock cores from borehole BH1 were tested by our affiliate NATA accredited laboratory, Geologic Solutions, for diametral and axial point load strength index (I_{s50}). The results are outlined in Table 5 below with the indicative approximate rock strengths.

Table 5. Point Load Index (I_{s50}) Laboratory Test Results

Borehole ID	Approximate Testing Depth (m bgl)	Point Load Index (I_{s50})		Approximate Indicative Strength
		Diametral (MPa)	Axial (MPa)	
BH1	7.85	0.28	1.46	High
	8.88	0.08	0.20	Low
	9.60	1.20	0.99	Medium
	10.05	0.24	1.21	High
	11.63	0.01	0.01	Extremely Low
	12.78	0.14	0.39	Medium
	13.33	0.39	0.44	Medium

Test results ranged between a point load index (I_{s50}) from 0.01MPa to 1.46MPa for diametral testing and from 0.01MPa to 1.24MPa for axial testing.

It is noted that variable higher strength rock bands (and possible softer rock bands) are expected to be encountered within the underlying bedrock throughout the site, and at locations and depths not assessed during the geotechnical investigation. This should not be precluded during construction. The point load test results laboratory certificates are presented in **Appendix F**.

5. GEOTECHNICAL ASSESSMENT AND RECOMMENDATIONS

5.1 Dilapidation Survey

It is recommended that prior to demolition, excavation and construction, a detailed dilapidation survey be carried out on all adjacent buildings, structures, council assets, road reserves and infrastructures that fall within the “zone of influence” of the proposed excavation and vicinity of the proposed development. A dilapidation survey will record the condition of existing defects prior to any works being carried out within the site. Preparation of a dilapidation report should constitute as a “Hold Point”.

5.2 General Geotechnical Issues

The following aspects have been considered main geotechnical issues for the proposed development:

- Preliminary aggressivity and salinity assessment.
- Excavation conditions.
- Groundwater management.
- Stability of excavation and retention of adjoining properties and infrastructures.
- Preliminary site earthquake classification.
- Foundations.

Based on results of our assessment, a summary of the geotechnical aspects above and recommendations for construction and designs are presented below.

5.3 Preliminary Aggressivity and Salinity Assessment

In accordance to AS 2159-2009 “Piling – Design and Installation” (as outlined in Table 6 below), the results of the laboratory tests and introduction of a multiplication factor for electrical conductivity on the selected samples pH, chloride and sulphate content, and electrical conductivity indicates the following classification:

Table 6. Aggressivity and Salinity Reference Table

Reference	Element Type	High Perm. Soils	Low Perm. Soils	pH	Chloride (mg/kg)	Sulphate SO ₄ (mg/kg)
AS 2159-2009	Concrete Elements	Mild	Non	>5.5	N/A	<5,000
		Moderately	Mild	4.5 – 5.5		5,000 – 10,000
		Severely	Moderately	4.0 – 4.5		10,000 – 20,000
		Very Severely	Severely	<4.0		>20,000
	Steel Elements	Non	Non	>5.0	<5,000	N/A
		Mild	Non	4.0 – 5.0	5,000 – 20,000	
		Moderately	Mild	3.0 – 4.0	20,000 – 50,000	
		Severely	Moderately	<3.0	>50,000	
Dry Salinity 1993	Electrical Conductivity Saturation Extract ECe (dS/m) value range, based on an introduction of a multiplication factor from DNR publication.			Non-Saline <2 Slightly Saline 2 – 4 Moderately Saline 4 – 8 Very Saline 8 – 16 Highly Saline >16		

- Underlying natural soils (from boreholes BH1 and BH2):
 - **Non** aggressive for buried steel structural elements in low and high permeability soils.
 - **Non** aggressive for buried concrete structural elements in low permeability soils.
 - **Mildly** aggressive for buried concrete structural elements in high permeability soils.
 - Electrical conductivity of saturated extract (ECe) ranging from approximately 2.99ds/m to 5.22ds/m, indicating generally “**moderately**” saline natural soils underlying the site.

- Underlying bedrock (from boreholes BH2 and BH3):
 - **Non** aggressive for buried steel structural elements in low and high permeability soils.
 - **Non** aggressive for buried concrete structural elements in low permeability soils.
 - **Mildly** aggressive for buried concrete structural elements in high permeability soils.
 - Electrical conductivity of saturated extract (ECe) ranging from approximately 7.08ds/m to 9.95ds/m, indicating generally “**very**” saline bedrock underlying the site.

It should be noted that soil aggressivity and salinity may vary throughout the site and is based on testing at the selected borehole locations to the maximum depths indicated, in conjunction with multiplication factors for electrical conductivity, as described above. Ground conditions and soil aggressivity and salinity are expected to vary across the site as discussed in this report since no geotechnical or geological exploration program, no matter how comprehensive, can reveal and identify all subsurface conditions underlying the site.

Consideration should be given to additional machine drilled boreholes and laboratory testing following demolition of existing onsite infrastructures, in order to confirm the findings presented above.

5.4 Inspection Pits and Underpinning

Consideration should be given to inspection pits carried out for the existing adjacent buildings and infrastructures, particularly where they fall within the “zone of influence” (obtained by drawing a line 45° above horizontal from the base of the proposed basement level walls) of the proposed development. This should be carried out prior to any demolition, excavation or construction activities, and will provide an assessment of the existing foundations of the adjacent buildings.

The assessment of the adjacent building footings should include assessment of the underlying soils, which will determine the need for additional support such as underpinning prior to the design of the retention system, installation of shoring piles, demolition, or excavation and construction activities.

An excavation monitoring report/plan should be implemented for the subject site prior to excavation and construction activities (mainly for adjoining infrastructures and road reserves).

5.5 Excavation

Maximum excavation depths varying from approximately 6.5m to 9.7m (varying throughout) are expected to be required for construction of the proposed development. Locally deeper excavations for the proposed lift shafts, and building footings and service trenches are also projected to be required as part of the planned development.

Based on this information and existing ground conditions as encountered during the geotechnical investigation, it is anticipated that excavations will extend through Unit 1 (fill) to Unit 4 (Class IV Shale) inclusive, throughout majority of the proposed development area, as discussed in Section 3 above (depending on the actual amount of excavation required).

The possibility for encountering higher estimated strength and/or class bedrock should not be precluded during excavation, predominately in areas and at depths not assessed during the geotechnical investigation. Estimated bedrock strength variances and higher strength rock bands are expected across the site area.

Consultation should be made with subcontractors to discuss the feasibility and capability of machinery for the proposed development for the existing site conditions.

5.5.1 Excavation Assessment

Excavation through softer soils and extremely low to low estimated strength bedrock should be feasible using conventional earth moving excavators, typically medium to large hydraulic excavators. Smaller sized excavators may encounter difficulty in high strength bands of soils and rocks which may be encountered. Where high strengths bands are encountered, rock breaking or ripping should be allowed for. Removal of the existing pavements and associated infrastructures within the site are also expected to require larger excavators and rock breaking and ripping.

Excavation of medium to higher estimated strength bedrock which is anticipated to be encountered throughout excavation works within the site would necessitate higher capacity excavators, bulldozers or similar, for effective removal of the rock. This excavation will require the use of heavy ripping and rock breaking equipment or vibratory rock breaking equipment. Furthermore, excavation for the proposed lift shafts, and building footings and service trenches may require the use of heavy ripping and rock breaking equipment or vibratory rock breaking equipment, with the possibility of rock saw cutting.

Should rock hammering be used for the excavation in the underlying bedrock, excavation should be carried out away from the adjoining structures, with vibrations transmitted being monitored to maintain vibrations within acceptable limits. Rock saw cutting should be carried out (where required), around the perimeter of excavations, prior to any rock breaking commencing.

Demolition, excavation and construction activities (or the like) will generate both vibration and noise, predominately whilst being carried out within the underlying bedrock. Vibration control measures should be considered as part of the construction process, mainly where excavations are expected to be conducted within the underlying bedrock of higher estimated strength and vicinity of adjoining infrastructures.

All excavation works should be carried out in accordance with the NSW WorkCover code of practice for excavation work.

5.6 Vibration Monitoring and Controls

Particular care will be required to ensure that adjacent buildings and infrastructures (i.e. road reserves, buildings, etc.), are not damaged during demolition, excavation and construction activities (or the like) due to excessive vibrations. Therefore, appropriate excavation and construction methods should be adopted which will limit ground vibrations to limits not exceeding the following maximum Peak Particle Velocity (PPV) for adjacent structures, as outlined in AS 2187.2-2006:

- Sensitive and/or historical structures – **2mm/sec**
- Residential and/or low rise structures – **5mm/sec**
- Unreinforced and/or brick structures – **10mm/sec**
- Reinforced and/or steel structures – **25mm/sec**
- Commercial and/or industrial buildings – **25mm/sec**

In order to reduce resonant frequencies, rock hammers should be used in short bursts, and oriented away from the site boundaries and adjoining structures, and into the proposed excavation area.

Vibrations transmitted by the use of rock hammers are unacceptable and not recommended. To minimise vibration transmission to any adjoining infrastructures, and to ensure vibration limits remain within acceptable limits, rock saw cutting using a conventional excavator with a mounted rock saw (or similar) should be carried out as part of excavation prior to any rock breaking commencing.

Although rock hammering is unacceptable and not recommended, if necessary during excavation, it is recommended that hammering be carried out horizontally along pre-cut rock boulders or blocks provided by rock saw cutting, and should remain within limits acceptable. This should be monitored at all times during excavation.

The effectiveness of all the above-mentioned approaches must be confirmed by the results of vibration monitoring. The limits of 5mm/sec and 10mm/sec are expected to be achievable if rock breaker equipment or other excavations are restricted to the values indicated in Table 7 below.

Table 7. Rock Breaking Equipment Recommendations

Distance From Adjoining Structures (m)	Maximum PPV 5mm/sec		Maximum PPV 10mm/sec ¹	
	Equipment	Operating Limit (Maximum Capacity %)	Equipment	Operating Limit (Maximum Capacity %)
1.5 to 2.5	Jack Hammer Only (hand operated)	100	300kg Rock Hammer	50
2.5 to 5.0	300kg Rock Hammer	50	300kg Rock Hammer	100
			600kg Rock Hammer	50
5.0 to 10.0	300kg Rock Hammer	100	600kg Rock Hammer	100
	600kg Rock Hammer	50	900kg Rock Hammer	50

¹Vibration monitoring is recommended for the use of a maximum PPV of 10mm/sec.

A vibration monitoring plan is recommended to be considered/developed to monitor construction activities and their effects on adjoining infrastructures, mainly where excavations are expected to be conducted within the underlying bedrock of higher estimated strength and vicinity of adjoining infrastructures.

A vibration monitoring plan may be carried out attended or unattended. An unattended vibration monitoring must be fitted with alarms in the form of strobe lights, sirens or live alerts sent to the vibration monitoring supervisor, which are activated when the vibration limit is exceeded. If adopted/considered, consultation should be made with appropriate subcontractors/consultants for the installation of vibration monitoring instruments.

A geotechnical engineer should be contacted immediately if vibrations during construction or in adjacent structures exceed the values outlined above and work should immediately cease. Rock excavation methodology should also consider acceptable noise limits as per the "Interim Construction Noise Guideline" (NSW EPA). It is recommended a dilapidation report be carried out prior to any excavation or construction, as discussed in Section 5.1. This should be considered a "Hold Point".

5.7 Groundwater Management

Based on the geotechnical investigation and groundwater measurements carried out within the site (summarised in Section 3.2), *inferred* groundwater seepage which may be encountered during construction is anticipated to be above the proposed basement FFLs.

It should be noted that no provision was made for longer term groundwater monitoring within the site and the presence of groundwater should not be precluded during construction and in the long-term design life of the proposed building. It should also be noted that these groundwater levels have the potential to elevate during daily or seasonal influences such as tidal fluctuations, heavy rainfall, damaged services, flooding, etc.

Thus, we expect any groundwater inflow within the site to be in the form of seepage through the voids within the underlying soils and through the defects (such as bedding planes, joints, etc.) in the underlying weathered bedrock (subject to confirmation prior to construction). Seepage may also occur within the excavation areas through the fill material, and at the fill/natural soils and natural soils/bedrock interfaces, predominately following heavy rain.

The rate of flow which may enter the excavation may initially be rapid, but is expected to decrease over time as the voids in the natural soils and defects in the underlying bedrock are drained, and local water ingress decreases. As noted, groundwater levels are subject to fluctuations on a daily and seasonal basis, and the potential for groundwater to enter the excavation as moderate to rapid seepage should be considered as part of the long term design life of the building. The amount of seepage into the excavation will also depend on the shoring system being adopted.

Therefore, on the basis that groundwater within the site is in the form of seepage, consideration should be given to precautionary drainage measures including (not limited to):

- A conventional sump and pump system which may be used both during construction and for permanent groundwater control below the basement level floor slab.
- Drainage installed around the perimeter of the basement level behind all retaining walls, and below the slab. This drainage should be connected to a sump and pump out system and discharged into the stormwater system (which may require council approval).
- Collection trenches or pipes and stormwater pits may be installed in conjunction with the above method, and connected to the building stormwater system.

Where a suitable drainage system has not been implemented or provided for the proposed development to collect and remove any groundwater, consideration may also be given to waterproofing of the basement level walls and slabs, with allowance given for nominal hydrostatic uplift.

It is recommended that groundwater levels and recharge rates within the standpipe piezometer are monitored prior to construction in order to confirm approximate groundwater levels and nature of groundwater within the site, as outlined in this report. A groundwater inflow assessment should be carried out to determine approximate inflow flow rates and permeability of the underlying soils and bedrock, where groundwater levels are expected to be above the proposed basement FFLs.

In addition, it is recommended that test pits are carried out by a suitable excavator within the site following demolition of the existing infrastructures and prior to construction in order to confirm and monitor groundwater levels and inflow rates which may be intercepted during construction within the excavation areas.

This assessment should be carried through to ensure a suitable drainage and retention system has been implemented for the proposed development, as discussed in Section 5.8 below and to provide confirmation of the hydrogeological characteristics prior to construction.

Groundwater monitoring of seepage should also be implemented during the excavation stage to confirm the capacity of the drainage system and groundwater entering the excavation area. This should be monitored by the project geotechnical engineer, in conjunction with the project stormwater engineer.

5.8 Excavation Stability

Maximum excavation depths are expected to vary within the site from approximately 6.5m to 9.7m for construction of the proposed development. Locally deeper excavations for the proposed lift shafts, and building footings and service trenches are also projected to be required as part of the planned development.

Based on the ground conditions within the site, the total depth of excavation and the extent of the basement level walls to the site boundaries and adjoining infrastructures, it is critical from geotechnical perspective to maintain the stability of the adjacent structures and infrastructures during demolition, excavation and construction.

5.8.1 Excavation Retention Support Systems

Based on the proposed development, assessment of the subsurface conditions within the site and potential for elevated groundwater, adjoining properties and infrastructures, and extent of excavation varying across the site, it is assessed that the use of temporary or permanent batter slopes are not suitable for the proposed development, and consideration should be given to a suitable retention system such as a soldier pile wall solution, with piles sufficiently embedded into appropriate strength and competent shale bedrock underlying the site, and concrete and reinforcement infill panels for the support of the excavation and soils.

Closer spaced piles are recommended and may be required to reduce lateral movements particularly where adjacent infrastructures, such as buildings or pavements and road reserves are located near the excavation, and to prevent the collapse of loose/soft fill in-situ materials and natural soils (i.e. sandy soils), and weathered bedrock. Pile spacing should be analysed and designed by the project structural engineer and should consider horizontal pressures due to surcharge loads from adjacent infrastructures (i.e. buildings, road reserves, etc.), and long term loadings.

The use of a more rigid retention system such as a cast in-situ contiguous pile wall solution should also be considered to reduce the lateral movements and risk of potential damage to adjacent infrastructures (i.e. buildings, infrastructures, adjacent road reserves, etc.). This option should also be adopted where excessive surcharges are adjacent to the proposed excavation and to meet acceptable deflection criteria, or where loose/soft soils are required to be retained, or where there is a potential for undermining of any adjoining building/infrastructures (refer to Section 5.4).

All piles should be sufficiently embedded into appropriate strength and competent shale bedrock underlying the site, and should be inspected and approved by a suitably qualified geotechnical engineer. The piles should not be founded into any soft/weak bands/layers (i.e. clay seams and/or extremely weathered/fractured zones) underlying the site and encountered during borehole drilling. Furthermore, the retention system should be carefully selected by the project structural engineer, with all structural elements also inspected and approved by a suitably qualified structural engineer.

It should be noted that groundwater inflow may pass through shoring pile gaps during excavation. This may be controlled by the installation of strip drains behind the retention system connected to the buildings stormwater system. Shotcreting or localised grouting may also be used in weak areas of the retention system, predominately where groundwater seepage and loose/soft soils are visible. Shoring design should take into consideration both short term (during construction) and permanent conditions, along with surcharge loading and footing loads from adjacent infrastructures.

Where groundwater is deemed to be relatively high and permeability rates are excessive, it is recommended that consideration be given to a contiguous pile wall with strip drains installed behind the piles and shotcreting in weak areas susceptible to groundwater inflow. This should be confirmed by measures discussed in Section 5.7 of this report.

The design of the retaining walls will depend on the method of construction being adopted. Common methods include (not limited to):

- Top-down construction.
- Bottom-up construction.
- Staged excavation and installation of props and/or partial berms.

In cases where anchoring is impractical, other temporary support for the adopted shoring system should be considered. This may include the staged excavation and installation of temporary berms or props in front of the retaining walls.

If considered, the shoring wall can be designed using the recommended design parameters provided in Section 5.8.2. Bulk excavation and foundations (including pile installations) should be supervised, monitored and inspected by a geotechnical engineer, with all structural elements of the development by a structural engineer. Inspections should be considered as "Hold Points" to the project.

5.8.2 Design Parameters (Earth Pressures)

Excavation pressures acting on the support will depend on a number of factors including external forces from surcharge loading, the stiffness of the support, varying groundwater levels within the site, and the construction sequence of the proposed development. Therefore, the following parameters may be used for the design of temporary and permanent retaining walls at the subject site:

- A triangular earth pressure distribution may be adopted for derivation of active pressures where a simple support system (i.e. cantilevered wall or propped/anchored wall with only one row of props/anchors are required) is adopted. Cantilevered walls are typically less than 2.5m in height, and should ensure deflections remain within tolerable limits.
 - Flexible retaining structures (i.e. cantilevered walls or walls with only one row of anchors), should be based on active lateral earth pressure. "At rest" earth pressure coefficient should be considered to limit the horizontal deformation of the retaining structure. Lateral active (or at rest) and passive earth pressures for cantilever walls or walls with only one row of anchors may be determined as follows:

Lateral active or "at rest" earth pressure:

$$P_a = K \gamma H - 2c\sqrt{K}$$

Passive earth pressure:

$$P_p = K_p \gamma H + 2c\sqrt{K_p}$$

- Where lateral deflection exceeds tolerable limits, or where two or more rows of anchors are required, the retention/shoring system should be designed as a braced structure. This more complex support system should utilise advanced numerical analysis tools such as WALLAP or PLAXIS which can ensure deflections in the walls remain within tolerable limits and to model the sequence of anchor installation and excavation. For braced retaining walls, a uniform lateral earth pressure should be adopted as follows:

Active earth pressure:

$$P_a = 0.65 K \gamma H$$

Where:

- P_a = Active (or at rest) Earth Pressure (kN/m²)
- P_p = Passive Earth Pressure (kN/m²)
- γ = Bulk density (kN/m³)
- K = Coefficient of Earth Pressure (K_a or K_o)
- K_p = Coefficient of Passive Earth Pressure
- H = Retained height (m)
- c = Effective Cohesion (kN/m²)

- Support systems and retaining structures 'should be designed to withstand hydrostatic pressures, lateral earth pressures and earthquake pressures (if applicable). The applied surcharge loads in their "zone of influence" should also be considered as part of the design, where the "zone of influence" may be obtained by drawing a line 45° above horizontal from the base of the proposed basement level walls.

Support system designed using the earth pressure approach may be based on the parameters given in Table 8 below for soils and rock horizons underlying the site. Table 8 also provides preliminary coefficients of lateral earth pressure for the soils and rock horizons encountered in the site. These are based on fully drained conditions and that the ground behind the retention walls is horizontal.

Where higher estimated strength bedrock is encountered during construction, GCA should be contacted for further advice.

Table 8. Preliminary Geotechnical Design Parameters

Material	Fill (Unit 1)	Residual Soils (Unit 2)	Class V Shale (Unit 3) ^{3, 5}	Class IV Shale (Unit 4) ^{3, 5}
Unit Weight (kN/m ³) ⁴	16	18	21	22
Effective Cohesion c' (kPa)	0	5	20	50
Angle of Friction ϕ' (°)	24	24	26	28
Modulus of Elasticity E_{sh} (MPa)	3	12	50	150
Earth Pressure Coefficient At Rest K_o^1	0.59	0.59	0.56	0.53
Earth Pressure Coefficient Active K_a^2	0.42	0.42	0.39	0.36
Earth Pressure Coefficient Passive K_p^2	2.37	2.37	2.56	2.77
Poisson Ratio ν	0.4	0.35	0.3	0.3

¹Earth pressure coefficient at rest (K_o) can be calculated using Jacky's equation.

²Earth pressure coefficient of active (K_a) and passive (K_p) can be calculated using Rankine's or Coulomb's equation.

³The values for rock assume no defects or adverse dipping is present in the bedrock and shale bedrock underlies the entire site area. All excavation rock faces should be inspected on a regular basis by an experienced engineering geologist and/or geotechnical engineer.

⁴Above groundwater levels.

⁵Subject to confirmation by a geotechnical engineer by additional borehole drilling and rock strength testing, and during construction by inspection.

Notes:

- For undrained (temporary) clay soils, higher earth pressures ($K=1$) will apply.

5.8.3 Ground Anchors

The basement floor slabs are considered to be incorporated into the long term design of the construction and will provide permanent restraints to the walls (as a bracing system). Anchors are therefore considered to be temporary, however, it may be necessary to incorporate the temporary anchors into the finished work of the development to control deflections.

Anchors which extend outside the site boundaries and which are adopted for the development should have permission from adjacent property owners and/or relevant authorities (i.e. RMS asset, adjoining properties, etc.). The design of excavation support should be carried out by a suitably qualified and experienced structural or civil engineer. Anchors should be embedded into the underlying rock, and requirements for rock support should be inspected/approved by a geotechnical engineer during excavation.

Preliminary allowable bond stresses may be adopted for temporary anchors as detailed in Table 9 below.

Table 9. Preliminary Allowable Bond Stresses for Temporary Anchors

Unit Type/Material	Allowable Bond Stress (kPa)
Class V Shale (Unit 3)	50
Class IV Shale (Unit 4)	100

The parameters provided in Table 9 assume that the drilled holes are clean and adequately flushed. The following should also be noted during anchor design and construction:

- Anchor ground interaction and overall stability.
- Anchor bond length of at least 3.0m behind the "active" zone of the excavation.
- Permanent anchors must have appropriate corrosion provisions for longevity.
- "Lift-off" tests should be carried out to confirm the anchor capacities.
- Anchors should be proof loaded to at least 1.33 times their design working loads prior to being locked off at working loads. This should constitute as a "Hold Point".

5.9 Preliminary Earthquake Site Risk Classification

In accordance with AS 1170.4-2007 and based on assessment of the material encountered during this investigation and proposed development, the recommended earthquake design parameters for the proposed development site are as follows:

- Subsoil Class: "**Shallow Soil Site**" (Class C_e).
- Earthquake Hazard Factor (Z): **0.08** (for Sydney).

5.10 Foundations

Following excavation depths to the FFLs of the proposed development and based on the boreholes carried out within the site, we expect varying ground conditions comprising predominately shale bedrock of variable estimated strength and weathering to be exposed at bulk level excavation.

The possibility for encountering higher estimated strength bedrock in areas of deeper excavation across the site should not be precluded, providing the ground conditions are confirmed by a geotechnical engineer by additional borehole drilling and rock strength testing, and during construction by inspection.

Variable composition and consistency/strength natural soils and fill material are likely to result in total and differential settlement under working load, and not adequately support shallow foundations for the proposed development within the site. Removal of the fill material within the proposed development area should be carried out prior to construction of the proposed building foundation system.

It is noted that ground conditions within the site is expected to differ from those encountered and inferred in this report, since no geotechnical or geological exploration program, no matter how comprehensive, can reveal and identify all subsurface conditions underlying the site. It is therefore recommended that confirmation of the underlying ground conditions be confirmed by a geotechnical engineer prior to construction by additional borehole drilling and rock strength testing, and during construction by inspection.

5.10.1 Geotechnical Assessment

Based on the proposed development and assessment of the subsurface conditions within the site, a suitable foundation system comprising shallow foundations typically containing pad and/or strip footings constructed on consistent and competent shale bedrock underlying the site are likely to be adopted for the proposed development.

Shallow foundations should include local slab thickening to support internal walls and columns. The use of settlement reduction piles with increased socket depths may also be considered in order to increase the resistance against lateral loading induced by earthquake or winds, and to achieve higher bearing capacities than at the proposed developments FFLs.

Installation of piles (where adopted) should be complemented by inspections carried out by a geotechnical engineer during construction. The actual depth and embedment of the piles should be assessed by the project structural engineer with all structural elements of the proposed development also inspected and approved by a suitably qualified structural engineer.

Confirmation of the actual subsurface conditions underlying the proposed development area should be made by a geotechnical engineer during construction to confirm the preliminary allowable bearing capacities have been achieved. Foundations should not be founded on any soft/ weak bands (i.e. clay seams and/or extremely weathered/fractured zones) underlying the site and encountered during drilling. Consultation should be made with specialist subcontractors to discuss the feasibility of piles for the existing ground conditions.

It should be noted that due to the potential variable bedrock conditions throughout the site following bulk excavation and underlying the proposed development, precaution should be taken for the design of the building foundation system taking into consideration the preliminary geotechnical design parameters in Table 10 below.

Higher allowable bearing capacities may be considered and justified subject to confirmation by inspection during construction, and by additional borehole drilling and rock strength testing. Where higher estimated strength bedrock is encountered during construction, GCA should be contacted to re-assess the preliminary allowable bearing capacities provided in this report. Adoption of higher preliminary

bearing capacities for the design of the proposed development outlined in Table 10 should be confirmed by a geotechnical engineer, as discussed in this report.

Given the potential for variable ground conditions and soil reactivity across the site, it is recommended that all foundations are constructed on consistent and competent bedrock throughout, in order to provide uniform support and reduce the potential for differential settlements. This could be attained by strip or pad footings where the suitable bearing capacity is achieved or exposed at bulk level excavation, and pile foundations elsewhere. Reference should be made to the estimated levels of the subsurface conditions outlined in this report, and compared to the final bulk excavation levels across the site.

Installation of piles may be required where the axial and working loads transmitted through the building walls and columns exceed the bearing pressure of the bedrock exposed at the proposed developments FFLs. These should be socketed into consistent and appropriate bedrock underlying the site. For cases where resistance against lateral loading induced by earthquakes or winds, and to achieve higher bearing capacities, piles may also be required.

Piles sufficiently socketed into higher strength bedrock may achieve higher allowable bearing capacities, subject to confirmation by a geotechnical engineer by additional borehole drilling and rock strength testing, or by inspection during construction.

Where higher estimated strength bedrock is present within the site, or where ground conditions vary from those encountered during the geotechnical investigation, GCA should be contacted for further advice.

Table 10 provides preliminary recommended geotechnical design parameters.

Table 10. Preliminary Recommended Geotechnical Design Parameters

Unit Type/Material	Maximum Allowable (Serviceability) Values (kPa)		
	End Bearing Pressure ¹	Shaft Adhesion (Compression)	Shaft Adhesion (Tension)
Fill (Unit 1)	N/A	N/A	N/A
Residual Soils (Unit 2)	N/A	N/A	N/A
Class V Shale (Unit 3) ²	700	50	25
Class IV Shale (Unit 4) ^{2, 3}	1,000	100	50

¹Minimum embedment of 0.4m for shallow foundations and 0.5m for deep foundations. Assumes the presence of shale bedrock underlying the entire site area.

²The composition, class, depth and estimated strength of the underlying bedrock material should be confirmed prior to construction by further borehole drilling and rock strength testing, and during construction by inspection.

³Subject to confirmation by a geotechnical engineer during construction by appropriate testing (i.e. spoon testing, rock strength testing, etc.).

Notes:

- Higher allowable bearing capacities may be attained for higher estimated strength rock assessed and confirmed by a geotechnical engineer.
- All shaft adhesion parameters are based on adequately clean and rough sockets of category "R2", or better.
- N/A = Not Applicable. Not recommended for the proposed development.
- It is recommended that geotechnical inspections on the foundations are completed by a geotechnical engineer to determine the material and confirm the required bearing capacity has been achieved.

Footings designed using ultimate values and limit state design will need to consider serviceability which usually governs designs in these cases. For pile designs, a basic geotechnical reduction factor (Φ_{gb}) should be calculated by the structural engineer from AS 2159-2009, taking into consideration the design, installation method and associated risk rating. Furthermore, the design structural engineer should check both 'piston' pull-out and 'cone' pull-out mechanics in accordance with AS 4678-2002.

5.10.2 Geotechnical Comments

Bearing capacity and settlement behaviour varies according to foundation depth, shape and dimensions. Consultation should be made with specialist subcontractors to discuss the feasibility of piles for the existing site conditions. It should be noted that higher bearing capacities may be justified for the proposed foundations subject to confirmation by inspection during construction, and by additional borehole drilling and rock strength testing.

Specific geotechnical advice should be obtained for footing designs and end bearing capacities, and design of the foundation system (shallow and pile foundations) should be carried out in accordance with AS 2870-2011 and AS 2159-2009. It is also recommended that reference is made to the recommendations provided by CSIRO "Guide to Home Owners on Foundation Maintenance and Footing Performance", attached as **Appendix H**.

Foundations located within the "zone of influence" of any services or sensitive structures should be supported by a piled foundation. The depths of the piles should extend below the "zone of influence" and should ignore any shaft adhesion. Appropriate measures should be taken to ensure that any services or sensitive structures located within the "zone of influence" of the proposed development are not damaged during and following construction.

It is recommended that suitable drainage and the use of impermeable surfaces be implemented as a precaution as part of the design and construction of the proposed development in order to divert surface water away from the building, and help eliminate or minimise surface water infiltration to minimise moisture within the soils. Although trees and vegetation are considered to contribute to the stability of the site, we recommend that planting of trees around the development area (i.e. in close proximity to the proposed building foundations) be limited as they can also affect moisture changes within the soil and cause significant displacement/damage within the building foundations by extensive tree root system movement.

The design and construction of the foundations should take into consideration the potential of flooding. All foundation excavations should be free of any loose debris and wet soils, and if groundwater seepage or runoff is encountered dewatering should be carried out prior to pouring concrete in the foundations. Due to the possibility of groundwater being encountered and possible groundwater seepage during installation of bored piles within the site, it is recommended that consideration be given to other piling methods such as Continuous Flight Auger (CFA) piles.

Shaft adhesion may be applied to socketed piles adopted for foundations provided the socketed shaft lengths conform to appropriate classes of bedrock (subject to confirmation) in accordance with Pells et al, and shaft sidewall cleanliness and roughness are to acceptable levels. Shaft adhesion should be ignored or reduced within socket lengths that are smeared or fail to satisfy cleanliness requirements (i.e. at least 80%). It is recommended that where piles penetrate expansive soils present within the site, which are susceptible to shrink and swell due to daily and seasonal moisture, shaft adhesion be ignored due to the potential of shrinkage cracking. Pile inspections should be complemented by downhole CCTV camera.

We recommend that geotechnical inspections of foundations be completed by an experienced geotechnical engineer to determine that the designed socket materials have been reached and the required bearing capacity has been achieved. The geotechnical engineer should also determine any variations between the boreholes carried out and inspected locations. Inspections should be carried out in dewatered foundations for a more accurate examination, and inspections should be carried out under satisfactory WHS requirements. Geotechnical inspections for verification capacities of the foundations should constitute as a "Hold Point".

5.11 Filling

Where filling is required, the following recommended compaction targets should be considered:

- Place horizontal loose layers not more than 150mm thickness over the prepared subgrade.
- Compact to a minimum dry density ratio not less than 98% of the maximum dry density for the building platforms.
- The moisture content during compaction should be maintained at $\pm 2\%$ of the Optimal Moisture Content (OMC).
- The upper 150mm of the subgrade should be compacted to a dry density ratio not less than 100% of the maximum dry density.

Any soils which are imported onto the site for the purpose of filling and compaction of the excavated areas should be free of deleterious materials and contamination. The imported soils should also include appropriate validation documentation in accordance with current regulatory authority requirements. The design and construction of earthworks should be carried out in accordance with AS 3798-2007 and AS 1289. Inspections of the prepared subgrade should be carried out by a geotechnical engineer, and should include proof rolling as a minimum. These inspections should be established as "Hold Points".

5.12 Subgrade Preparation

The following are general recommendations on subgrade preparation for earthworks, slab on ground constructions and pavements:

- Remove existing fill and topsoil, including all materials which are unsuitable from the site.
- Excavate natural soils and rock.
 - Excavated material may be used for engineered fill.
 - Rock may be used for subgrade material underlying pavements.
- Any natural soils (predominately clayey soils) exposed at the bulk excavation level should be treated and have a moisture condition of 2% OMC. This should be followed by proof rolling and compaction of the upper 150mm layer.
 - Any soft or loose areas should be removed and replaced with engineered or approved fill material.
- Any rock exposed at the bulk excavation level should be clear of any deleterious materials (and free of loose or softened materials). As a guideline, remove an additional 150mm from the bulk excavation level.
- Ensure the foundations and excavated areas are free of water prior to concrete pouring.
- Areas which show visible heaving under compaction or proof rolling should be excavated at least 300mm and replaced with engineered or approved fill, and compacted to a minimum dry density ratio not less than 98% of the maximum dry density.

6. ADDITIONAL GEOTECHNICAL RECOMMENDATIONS

Furthermore, following completion of the geotechnical investigation and report, GCA recommends the following additional work to be carried out:

- Dilapidation survey report on adjacent properties and infrastructures.
- Monitoring and supervision of excavations within the site.
- The composition, class, depth and estimated strength of the underlying bedrock material should be confirmed prior to construction by further borehole drilling and rock strength testing, and during construction by inspection and appropriate testing (i.e. spoon testing, rock strength testing, etc.), predominately in areas and at depths not assessed during the geotechnical investigation.
- Geotechnical inspections of exposed materials at bulk level excavation.
- Geotechnical inspections of shoring wall piles installations.
- Geotechnical inspections of foundations (shallow and pile foundations) to confirm the preliminary bearing capacities have been achieved.
- Monitoring of any groundwater inflows into the excavation areas within the site.
- Provision for longer term groundwater monitoring within the site.
- Classification of all excavated material transported from the site.
- A meeting to be carried out to discuss any geotechnical issues and inspection requirements.
- Final architectural and structural design drawings are provided to GCA for further assessment.

7. LIMITATIONS

Geotechnical Consultants Australia Pty Ltd (GCA) has based its geotechnical assessment on available information obtained prior and during the site inspection/investigation. The geotechnical assessment and recommendations provided in this report, along with the surface, subsurface and geotechnical conditions are limited to the inspection and test areas during the site inspection/investigation, and then only to the depths investigated at the time the work was carried out. Subsurface conditions can change abruptly, and may occur after GCA's field testing has been completed.

It is recommended that if for any reason, the site surface, subsurface and geotechnical conditions (including groundwater conditions) encountered during the site inspection/investigation vary substantially during construction, and from GCA's recommendations and conclusions, GCA should be contacted immediately for further testing and advice. This may be carried out as necessary, and a review of recommendations and conclusions may be provided at additional fees. GCA's advice and accuracy may be limited by undetected variations in ground conditions between sampling locations.

GCA does not accept any liability for any varying site conditions which have not been observed, and were out of the inspection or test areas, or accessible during the time of the investigation. This report and any associated information and documentations have been prepared solely for **Dana Bina Pty Ltd & Midpoint Investments Pty Ltd**, and any misinterpretations or reliances by third parties of this report shall be at their own risk. Any legal or other liabilities resulting from the use of this report by other parties can not be religated to GCA.

This report should be read in full, including all conclusions and recommendations. Consultation should be made to GCA for any misunderstandings or misinterpretations of this report.

For and behalf of

Geotechnical Consultants Australia Pty Ltd (GCA)

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Geotechnical Engineer

Director

8. REFERENCES

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- AS 3600-2018 Concrete Structures. Standards Australia.
- AS 1726-2017 Geotechnical Site Investigation. Standards Australia.
- AS 1170.4-2007 Structural Design Actions – Part 4: Earthquake Actions in Australia. Standards Australia.
- AS 3798-2007 Guidelines on Earthworks for Commercial and Residential Developments. Standards Australia.
- AS 1289 Methods for Testing Soils for Engineering Purposes. Standards Australia.
- AS 2870-2011 Residential Slabs and Footings. Standards Australia.
- AS 2159-2009 Piling - Design and Installation. Standards Australia.
- AS 4678-2002 Earth Retaining Structures. Standards Australia.
- AS 2187.2-2006 Explosive Storage and Use, Part 2: Use of Explosives. Standards Australia.
- NSW WorkCover "Code of Practice – Excavation Work" (July 2015).
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- NSW Government Environment and Heritage, Soil and Land Information, Penrith 1:100,000 Soil Landscape Series Sheet 9030lu.
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- MinView. State of New South Wales through Regional NSW 2021.
- Department of Natural Resources (DNR) publication "Site Investigations for Urban Salinity" – 2002.
- NSW Government, Catchment Management Authority, "Calculating Electrical Conductivity and Salinity".
- NSW Planning Portal.
- NSW Six Maps.
- eSPADE NSW Environment & Heritage.

APPENDIX A

Important Information About Your Geotechnical Report

This geotechnical report has been prepared based on the scopes outlined in the project proposal. The works carried out by Geotechnical Consultants Australia Pty Ltd (GCA), have limitations during the site investigation, and may be affected by a number of factors. Please read the geotechnical investigation report in conjunction with this "Important Information About Your Geotechnical Report".

Geotechnical Services Are Performed for Specific Projects, Clients and Purposes.

Due to the fact that each geotechnical investigation is unique and varies from sites, each geotechnical report is unique, and is prepared solely for the client. A geotechnical report may satisfy the needs of structural engineer, where it will not for a civil engineer or construction contractor. No one except the client should rely on the geotechnical report without first conferring with the specific geotechnical consultant who prepared the report. The report is prepared for the contemplated project or original purpose of the investigation. No one should apply this report to any other or similar project.

Reading The Full Report.

Do not read selected elements of the report or tables/figures only. Serious problems have occurred because those relying on the specially prepared geotechnical investigation report did not read it all in full context.

The Geotechnical Report is Based on a Unique Set of Project And Specific Factors.

When preparing a geotechnical report, the geotechnical engineering consultant considers a number of unique factors for the specific project. These typically include:

- Clients objectives, goals and risk management preferences;
- The general proposed development or nature of the structure involved (size, location, etc.); and
- Future planned or existing site improvements (parking lots, roads, underground services, etc.);

Care should be taken into identifying the reason of the geotechnical report, where you should not rely on a geotechnical engineering report that was:

- Not prepared for your project;
- Not prepared for the specific site;
- Not prepared for you;
- Does not take into consideration any important changes made to the project; or
- Was carried out prior to any new infrastructure on your subject site.

Typical changes that can affect the reliability of an existing geotechnical investigation report include those that affect:

- The function of the proposed structure, where it may change from one basement level to two basement levels, or from a light structure to a heavy loaded structure;
- Location, size, elevation or configuration of the proposed development;
- Changes in the structural design occur; or
- The owner of the proposed development/project has changed.

The geotechnical engineer of the project should always be notified of any changes – even minor – and be asked to evaluate if this has any impact. GCA does not accept responsibility or liability for problems that occur because its report did not consider developments which it was not informed of.

Subsurface Conditions Can Change

This report is based on conditions that existed at the time of the investigation, at the locations of the subsurface tests (i.e. boreholes) carried out during the site investigation. Subsurface conditions can be affected and modified by a number of factors including, but not limited to, the passage of time, man-made influences such as construction on or adjacent to the site, by natural forces such as floods, groundwater fluctuations or earthquakes. GCA should be contacted prior to submitting its report to determine if any further testing may be required. A minor amount of additional testing may prevent any major problems.

Geotechnical Findings Are Professional Opinions

Results of subsurface conditions are limited only to the points where the subsurface tests were carried out, or where samples were collected. The field and laboratory data is analysed and reviewed by a geotechnical engineer, who then applies their professional experience and recommendations about the site's subsurface conditions. Despite investigation, the actual subsurface conditions may differ – in some cases significantly – from the results presented in the geotechnical investigation report, since no subsurface exploration program, no matter how comprehensive, can reveal all subsurface anomalies and details.

Therefore, the recommendations in this report can only be used as preliminary. Retaining GCA as your geotechnical consultants on your project to provide construction observations is the most effective method of managing the risks associated with unanticipated subsurface conditions.

Geotechnical Report's Recommendations Are Not Final

Because geotechnical engineers provide recommendations based on experience and judgement, you should not overrely on the recommendations provided – they are not final. Only by observing the actual subsurface conditions revealed during construction may a geotechnical engineer finalise their recommendations. GCA does not assume responsibility or liability for the report's recommendations if no additional observations or testing is carried out.

Geotechnical Report's Are Subject to Misinterpretations

The project geotechnical engineer should consult with appropriate members of the design team following submission of the report. You should review your design teams plans and drawings, in conjunction with the geotechnical report to ensure they have all be incorporated. Due to many issues arising from misinterpretation of geotechnical reports between design teams and building contractors, GCA should participate in pre-construction meetings, and provide adequate construction observations.

Engineering Borehole Logs And Data Should Not be Redrawn

Geotechnical engineers prepare final borehole and testing logs, figure, etc. based on results and interpretation of field logs and laboratory data following the site investigation. The logs, figure, etc. provided in the geotechnical report should never be redrawn or altered for inclusion in any other documents from this report, included architectural or other design drawings.

Providing The Full Geotechnical Report For Guidance

The project design teams, subcontractors and building contractors should have a copy of the full geotechnical investigation report to help prevent any costly issues. This should be prefaced with a clearly written letter of transmittal. The letter should clearly advise the aforementioned that the report was prepared for proposed development/project requirements, and the report accuracy is limited. The letter should also encourage them to confer with GCA, and/or carry out further testing as may be required. Providing the report to your project team will help share the financial responsibilities stemming from any unanticipated issues or conditions in the site.



Understanding Limitation Provisions

As some clients, contractors and design professionals do not recognise geotechnical engineering is much broader and less exact than other engineering disciplines, this creates unrealistic expectations that lead to claims, disputes and other disappointments. As part of the geotechnical report, (in most cases) a 'limitations' explanatory provision is included, outlining the geotechnical engineers' limitations for your project – with the geotechnical engineers responsibilities to help other reduce their own. This should be read closely as part of your report.


Other Limitations

GCA will not be liable to revise or update the report to take into account any events or circumstances (seen or unforeseen), or any fact occurring or becoming apparent after the date of the report. This report is the subject of copyright and shall not be reproduced either totally or in part without the express permission of GCA. The report should not be used if there have been changes to the project, without first consulting with GCA to assess if the report's recommendations are still valid. GCA does not accept any responsibility for problems that occur due to project changes which have not been consulted.

APPENDIX B

Legend:		Approximate Borehole Location
		Approximate Borehole/Standpipe Piezometer Location



	Figure 1 Site Plan	Geotechnical Investigation	Drawn: GA/PG	
	Job No.: G21551-1	Dana Bina Pty Ltd & Midpoint Investments Pty Ltd	Date: 29/09/2021	
	31 Santley Crescent & 2A Bringelly Road Kingswood NSW 2747	Scale: NTS		

APPENDIX C

Explanation of Notes, Abbreviations and Terms Used on Borehole and Test Pit Reports

DRILLING/EXCAVATION METHOD

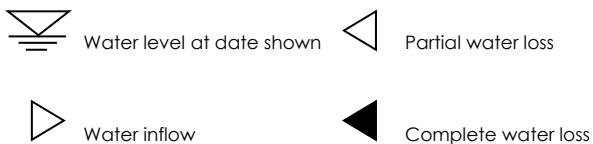
Method	Description
AS	Auger Screwing
BH	Backhoe
CT	Cable Tool Rig
EE	Existing Excavation/Cutting
EX	Excavator
HA	Hand Auger
HQ	Diamond Core – 63mm
JET	Jetting
NMLC	Diamond Core – 52mm
NQ	Diamond Core – 47mm
PT	Push Tube
RAB	Rotary Air Blast
RB	Rotary Blade
RT	Rotary Tricone Bit
TC	Auger TC Bit
V	Auger V Bit
WB	Washbore
DT	Diatube
CC	Concrete Coring

PENETRATION/EXCAVATION RESISTANCE

These assessments are subjective and dependant on many factors including the equipment weight, power, condition of the drilling tools or excavation, and the experience of the operator.

- L **Low Resistance.** Rapid penetration possible with little effort from the equipment used.
- M **Medium Resistance.** Excavation possible at an acceptable rate with moderate effort required from the equipment used.
- H **High Resistance.** Further penetration is possible at a slow rate and required significant effort from the equipment.
- R **Refusal or Practical Refusal.** No further progress possible within the risk of damage or excessive wear to the equipment used.

WATER



Groundwater not observed: The observation of groundwater, whether present or not, was not possible due to drilling water, surface seepage or cave in of the borehole/test pit.

Groundwater not encountered: No free-flowing (springs or seepage) was intercepted, although the soil may be moist due to capillary water. Water may be observed in low permeable soils if the test pits/boreholes had been left open for at least 12-24 hours.

MOISTURE CONDITION (AS 1726-2017)

- Dry - Cohesive soils are friable or powdery
Cohesionless soil grains are free-running
- Moist - Soil feels cool, darkened in colour
Cohesive soils can be moulded
Cohesionless soil grains tend to adhere
- Wet - Cohesive soils usually weakened
Free water forms on hands when handling

For cohesive soils the following codes may also be used:

- MC>PL Moisture Content greater than the Plastic Limit.
- MC~PL Moisture Content near the Plastic Limit.
- MC<PL Moisture Content less than the Plastic Limit.

SAMPLING AND TESTING

Sample	Description
B	Bulk Disturbed Sample
DS	Disturbed Sample
Jar	Jar Sample
SPT*	Standard Penetration Test
U50	Undisturbed Sample – 50mm
U75	Undisturbed Sample – 75mm

*SPT (4, 7, 11 N=18). 4, 7, 11 = Blows per 150mm. N= Blows per 300mm penetration following 150mm sealing. SPT (30/80mm). Where practical refusal occurs, the blows and penetration for that interval is recorded.

ROCK QUALITY

The fracture spacing is shown where applicable and the Rock Quality Designation (RQD) or Total Core Recovery (TCR) is given where:

$$\text{TCR (\%)} = \frac{\text{length of core recovered}}{\text{length of core run}}$$

$$\text{RQD (\%)} = \frac{\text{sum of axial lengths of core > 100mm long}}{\text{length of core run}}$$

ROCK STRENGTH TEST RESULTS

- Diametral Point Load Index test
- Axial Point Load Index test

SOIL ORIGINS

It is often difficult to accurately determine the origin of a soil. Soils can generally be classified as:

- **Residual soils:** derived from in-situ weathering of the underlying rock (see "rock material weathering" below).
- **Transported soils:** formed somewhere else and transported by nature to the site.
- **Filling:** moved/placed by man.

Transported soils may be further subdivided into:

- **Alluvium/alluvial:** river deposits.
- **Lacustrine:** lake deposits.
- **Aeolian:** wind deposits.
- **Littoral:** beach deposits.
- **Estuarine:** tidal river deposits.
- **Talus:** scree or coarse colluvium.
- **Slopewash or colluvium/colluvial:** transported downslope by gravity assisted by water. Often includes angular rock fragments and boulders.

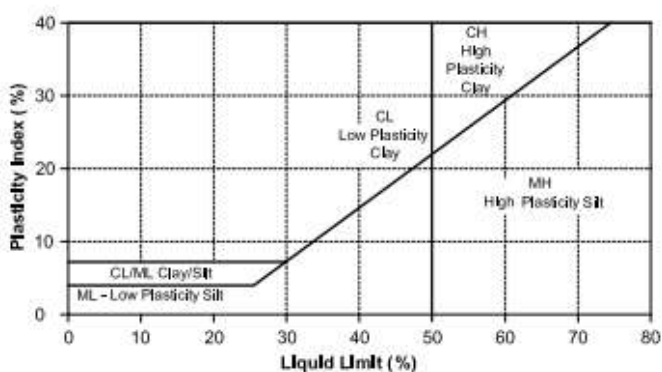
Method and Terms for Soil and Rock Descriptions Used on Borehole and Test Pit Reports

Soil and Rock is classified and described in reports of boreholes and test pits using the preferred method given in AS 1726-2017, Appendix A. The material properties are assessed in the field by visual/tactile methods. The appropriate symbols in the Unified Soil Classification are selected on the result of visual examination, field tests and available laboratory tests, such as, sieve analysis, liquid limit and plasticity index.

COHESIONLESS SOILS PARTICLE SIZE DESCRIPTIVE TERMS

Name	Subdivision	Size
Boulders		>200mm
Cobbles		63mm to 200mm
Gravel	coarse	20mm to 63mm
	medium	6mm to 20mm
	fine	2.36mm to 6mm
Sand	coarse	600µm to 2.36mm
	medium	200µm to 600µm
	fine	75µm to 200µm

PLASTICITY PROPERTIES



COHESIVE SOILS – CONSISTENCY (AS 1726-2017)

Strength	Symbol	Undrained Shear Strength, c_u (kPa)
Very Soft	VS	< 12
Soft	S	12 to 25
Firm	F	25 to 50
Stiff	St	50 to 100
Very Stiff	VSt	100 to 200
Hard	H	> 200
Friable	Fr	Easily crumbled or broken into small pieces by hand

PLASTICITY

Description of Plasticity	LL (%)
Low	<35
Medium	35 to 50
High	>50

COHESIONLESS SOILS - RELATIVE DENSITY

Term	Symbol	Density Index	N Value (blows/0.3 m)
Very Loose	VL	0 to 15	0 to 4
Loose	L	15 to 35	4 to 10
Medium Dense	MD	35 to 65	10 to 30
Dense	D	65 to 85	30 to 50
Very Dense	VD	>85	>50

UNIFIED SOIL CLASSIFICATION

USC Symbol	Description
GW	Well graded gravel
GP	Poorly graded gravel
GM	Silty gravel
GC	Clayey gravel
SW	Well graded sand
SP	Poorly graded sand
SM	Silty sand
SC	Clayey sand
ML	Silt of low plasticity
CL	Clay of low plasticity
OL	Organic soil of low plasticity
MH	Silt of high plasticity
CH	Clay of high plasticity
OH	Organic soil of high plasticity
Pt	Peaty Soil

ROCK MATERIAL WEATHERING

Symbol	Term	Definition
RS	Residual Soil	Soil definition on extremely weathered rock; the mass structure and substance are no longer evident; there is a large change in volume but the soil has not been significantly transported
EW	Extremely Weathered	Rock is weathered to such an extent that it has 'soil' properties, i.e. It either disintegrates or can be remoulded in water
HW	Highly Weathered	The rock substance is affected by weathering to the extent that limonite staining or bleaching affects the whole rock substance and other signs of chemical or physical decomposition are evident. Porosity and strength is usually decreased compared to the fresh rock. The colour and strength of the fresh rock is no longer recognisable.
MW	Moderately Weathered	The whole of the rock substance is discoloured, usually by iron staining or bleaching, to the extent that the colour of the fresh rock is no longer recognisable
SW	Slightly Weathered	Rock is slightly discoloured but shows little or no change of strength from fresh rock
FR	Fresh	Rock shows no sign of decomposition or staining

ROCK STRENGTH (AS 1726-2017 and ISRM)

Term	Symbol	Point Load Index $IS_{(50)}$ (MPa)
Extremely Low	EL	<0.03
Very Low	VL	0.03 to 0.1
Low	L	0.1 to 0.3
Medium	M	0.3 to 1
High	H	1 to 3
Very High	VH	3 to 10
Extremely High	EH	>10

ABBREVIATIONS FOR DEFECT TYPES AND DESCRIPTIONS

Term	Defect Spacing	Bedding
Extremely closely spaced	<6mm	Thinly Laminated
	6mm to 20mm	Laminated
Very closely spaced	20mm to 60mm	Very Thin
Closely spaced	0.06m to 0.2m	Thin
Moderately widely spaced	0.2m to 0.6m	Medium
Widely spaced	0.6m to 2m	Thick
Very widely spaced	>2m	Very Thick

Type	Definition
B	Bedding
J	Joint
HJ	Horizontal to Sub-Horizontal Joint
VJ	Vertical to Sub-Vertical Joint
F	Fault
Cle	Cleavage
SZ	Shear Zone
SM	Shear Seam
FZ	Fractured Zone
CZ	Crushed Zone
CS	Crushed Seam
MB	Mechanical Break
HB	Handling Break

Planarity	Roughness
P – Planar	C – Clean
Ir – Irregular	Cl – Clay
St – Stepped	VR – Very Rough
U – Undulating	R – Rough
	S – Smooth
	Sl – Slickensides
	Po – Polished
	Fe – Iron

Coating or Infill	Description
Clean (C)	No visible coating or infilling
Stain	No visible coating or infilling but surfaces are discoloured by mineral staining
Veneer	A visible coating or infilling of soil or mineral substance but usually unable to be measured (<1mm). If discontinuous over the plane, patchy veneer
Coating	A visible coating or infilling of soil or mineral substance, >1mm thick. Describe composition and thickness
Iron (Fe)	Iron Staining or Infill.

APPENDIX D

CLIENT Dana Bina Pty Ltd & Midpoint Investments Pty Ltd **PROJECT NAME** Geotechnical Investigation
PROJECT NUMBER G21551-1 **PROJECT LOCATION** 31 Santley Cresnet & 2A Bringelly Road Kingswood N

DATE STARTED 13/9/21 **COMPLETED** 13/9/21 **R.L. SURFACE** 44.5 **DATUM** m AHD
DRILLING CONTRACTOR BG Drilling Pty Ltd **SLOPE** 90° **BEARING** ---
EQUIPMENT Track Mounted Drilling Rig **HOLE LOCATION** Refer To Site Plan (Figure 1) For Test Locations
HOLE SIZE 100mm Diameter **LOGGED BY** GA **CHECKED BY** JN

NOTES RL To The Top Of The Borehole & Depths Of The Subsurface Conditions Are Approximate

Method	Water	Well Details	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Additional Observations
ADT		Not Encountered During Drilling	44.0	0.5			Clayey SILT, brown to dark brown, high plasticity clay, with fine gravel, grass rootlets, moist.		FILL
			43.5	1.0		CI-CH	Silty CLAY, medium to high plasticity, brown to brownish orange, some fine to medium gravel, moist.		RESIDUAL SOILS
			43.0	1.5		CI-CH	Silty CLAY, medium to high plasticity, brown to pale reddish brown, grey laminations, some fine to coarse gravel, moist.		
			42.5	2.0				DS	
			42.0	2.5					
			41.5	3.0		CI-CH	Silty CLAY, medium to high plasticity, grey to pale grey, reddish brown laminations, some fine gravel, moist.		
			41.0	3.5		CI-CH	Silty CLAY, medium to high plasticity, brown to pale brown, grey laminations, some fine gravel, moist.		
			40.5	4.0		CL	Shaly CLAY, low plasticity, grey to dark grey, interbedded shale, moist.		
			40.0	4.5					
			39.5	5.0					

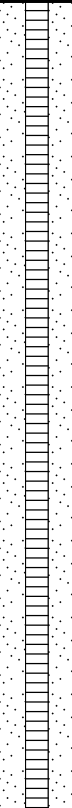

BOREHOLE / TEST PIT BOREHOLE LOGS.GPJ GINT STD AUSTRALIA GDT 29/9/21



CLIENT Dana Bina Pty Ltd & Midpoint Investments Pty Ltd **PROJECT NAME** Geotechnical Investigation
PROJECT NUMBER G21551-1 **PROJECT LOCATION** 31 Santley Crescent & 2A Bringelly Road Kingswood N

DATE STARTED 13/9/21 **COMPLETED** 13/9/21 **R.L. SURFACE** 44.5 **DATUM** m AHD
DRILLING CONTRACTOR BG Drilling Pty Ltd **SLOPE** 90° **BEARING** ---
EQUIPMENT Track Mounted Drilling Rig **HOLE LOCATION** Refer To Site Plan (Figure 1) For Test Locations
HOLE SIZE 100mm Diameter **LOGGED BY** GA **CHECKED BY** JN

NOTES RL To The Top Of The Borehole & Depths Of The Subsurface Conditions Are Approximate

Method	Water	Well Details	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Additional Observations
ADT			39.0	5.5			SHALE, grey, brown, clay seams, with silt, extremely weathered, extremely low estimated strength, moist.		BEDROCK
			38.5	6.0			grey laminations from 6.0m bgl.		
			38.0	6.5					
			37.5	7.0			SHALE, grey, clay seams, with silt, highly weathered, very low estimated strength, moist.		
			37.0	7.5					TC bit refusal at 7.7m bgl.
							Borehole BH1 continued as cored hole		
			36.5	8.0					
			36.0	8.5					
			35.5	9.0					
			35.0	9.5					
			34.5	10.0					

BOREHOLE / TEST PIT BOREHOLE LOGS.GPJ GINT STD AUSTRALIA GDT 29/9/21

CLIENT Dana Bina Pty Ltd & Midpoint Investments Pty Ltd PROJECT NAME Geotechnical Investigation
 PROJECT NUMBER G21551-1 PROJECT LOCATION 31 Santley Cresnet & 2A Bringelly Road Kingswood N

DATE STARTED 13/9/21 COMPLETED 13/9/21 R.L. SURFACE 44.5 DATUM m AHD
 DRILLING CONTRACTOR BG Drilling Pty Ltd SLOPE 90° BEARING ---
 EQUIPMENT Track Mounted Drilling Rig HOLE LOCATION Refer To Site Plan (Figure 1) For Test Locations
 HOLE SIZE 100mm Diameter LOGGED BY GA CHECKED BY JN

NOTES RL To The Top Of The Borehole & Depths Of The Subsurface Conditions Are Approximate

Method	Water	Well Details	RL (m)	Depth (m)	Graphic Log	Material Description	Weathering	Estimated Strength					Is ₍₅₀₎ MPa D- diam- etral A- axial	RQD %	Defect Spacing mm	Defect Description															
								EL	VL	J	M	H					VH	EH													
			39.0	5.5																											
			38.5	6.0																											
			38.0	6.5																											
			37.5	7.0																											
			37.0	7.5																											
						Continued from non-cored borehole																									
NMLC			36.5	8.0		SHALE, grey to dark grey, interbedded pale grey laminite.	SW						47			7.80m, J, S, C, U, 5 deg															
			36.0	8.5		Core Loss 300m	EW																								
			35.5	9.0		SHALE, grey to dark grey, interbedded pale grey laminite.	SW																								
			35.0	9.5																											
			34.5	10.0																											

CORED BOREHOLE LOGS.GPJ GINT STD AUSTRALIA.GDT 29/9/21

CLIENT Dana Bina Pty Ltd & Midpoint Investments Pty Ltd PROJECT NAME Geotechnical Investigation
 PROJECT NUMBER G21551-1 PROJECT LOCATION 31 Santley Cresnet & 2A Bringelly Road Kingswood N
 DATE STARTED 13/9/21 COMPLETED 13/9/21 R.L. SURFACE 44.5 DATUM m AHD
 DRILLING CONTRACTOR BG Drilling Pty Ltd SLOPE 90° BEARING ---
 EQUIPMENT Track Mounted Drilling Rig HOLE LOCATION Refer To Site Plan (Figure 1) For Test Locations
 HOLE SIZE 100mm Diameter LOGGED BY GA CHECKED BY JN
 NOTES RL To The Top Of The Borehole & Depths Of The Subsurface Conditions Are Approximate

Method	Water	Well Details	RL (m)	Depth (m)	Graphic Log	Material Description	Weathering	Estimated Strength					Is ₍₅₀₎ MPa D- diam- etral A- axial	RQD %	Defect Spacing mm	Defect Description																																																																				
								EL	VL	J	M	H					VEH	EH																																																																		
NMLC			34.0	10.5		SHALE, grey to dark grey, interbedded pale grey laminite. (continued)	SW					D A 1.21 0.24	48		9.94m, J, S, C, U, 5 deg 10.00m, J, S, C, U, 5 deg 10.08m, HB 10.11m, FZ, 60mm 10.24m, J, S, C, U, 5 deg 10.25m, J, S, C, U, 5 deg 10.35m, J, S, C, U, 5 deg 10.46m, J, S, C, U, 5 deg 10.61m, J, S, C, U, 5 deg 10.65m, J, S, C, U, 5 deg 10.71m, B, S, C, U, 5 deg 10.76m, B, S, C, U, 5 deg 11.00m, J, S, C, U, 5 deg 11.07m, J, S, C, U, 5 deg 11.12m, J, S, C, U, 5 deg 11.24m, J, S, C, U, 5 deg 11.27m, J, S, C, Cu, 5-15 deg 11.31m, FZ, 50mm 11.41m, J, S, Cl, U, 5 deg 11.57m, J, S, Cl, U, 5 deg 11.61m, J, S, C, U, 5 deg 11.63m, J, S, C, U, 5 deg 11.67m, J, S, Cl, U, 5 deg 11.75m, J, S, Cl, U, 5-10 deg 11.77m, J, S, Cl, U, 5 deg 11.89m, B, S, Cl, U, 5 deg 11.92m, Core Loss, 290mm																																																																					
																33.5	11.0	MW/HW				D A 0.01 0.01	50																																																													
																									33.0	11.5	EW	Core Loss 700m			32																																																					
																																	32.5	12.0	SW	SHALE, grey to dark grey, interbedded pale grey laminite.	SW		D A 0.12 0.14	29		12.77m, HB 12.81, FZ, 40mm 12.92, FZ, 80mm 13.06m, J, S, C, U, 5 deg 13.09m, J, S, C, U, 5 deg 13.14m, J, S, C, U, 5 deg 13.20m, J, S, C, U, 5 deg 13.26m, J, S, C, U, 5 deg 13.38m, J, S, C, U, 5 deg 13.38m, J, S, Cl, U, 5 deg 13.50m, J, S, C, U, 5-10 deg 13.56m, Core Loss, 290mm																																										
																																											32.0	12.5	MW/HW																																							
																																																			31.5	13.0	EW	Core Loss 290m																														
																																																											31.0	13.5	SW	SHALE, grey to dark grey, interbedded pale grey laminite.	SW				14.00m, HB 14.06, HB																	
																																																																				30.5	14.0															
																																																																												30.0	14.5		BH1 terminated at 14.11m					

CORED BOREHOLE LOGS.GPJ GINT STD AUSTRALIA.GDT 29/9/21

CLIENT Dana Bina Pty Ltd & Midpoint Investments Pty Ltd **PROJECT NAME** Geotechnical Investigation
PROJECT NUMBER G21551-1 **PROJECT LOCATION** 31 Santley Cresnet & 2A Bringelly Road Kingswood N
DATE STARTED 13/9/21 **COMPLETED** 13/9/21 **R.L. SURFACE** 45.1 **DATUM** m AHD
DRILLING CONTRACTOR BG Drilling Pty Ltd **SLOPE** 90° **BEARING** ---
EQUIPMENT Track Mounted Drilling Rig **HOLE LOCATION** Refer To Site Plan (Figure 1) For Test Locations
HOLE SIZE 100mm Diameter **LOGGED BY** GA **CHECKED BY** JN
NOTES RL To The Top Of The Borehole & Depths Of The Subsurface Conditions Are Approximate

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Additional Observations	
ADT	Not Encountered During Drilling	45.0	0.0			Clayey SILT, brown to dark brown, medium plasticity clay, some fine gravel, grass rootlets, moist.		FILL	
			0.5		CI-CH	Silty CLAY, medium to high plasticity, brown to brownish orange, some fine gravel, moist, estimated firm.		RESIDUAL SOILS	
		44.5				grey laminations from 0.8m bgl.			
		44.0	1.0						
			1.5			CI-CH	Silty CLAY, medium to high plasticity, brown to pale brown, grey to pale grey, some fine gravel, moist, estimated firm.		
		43.5						SPT 8, 5, 4 N=9	
			2.0			CI-CH	Silty CLAY, medium to high plasticity, grey to pale grey, reddish brown laminations, some fine gravel, moist, estimated firm.		
		43.0							
			2.5			CI-CH	Silty CLAY, medium to high plasticity, brown to pale brown, grey to pale grey, some fine gravel, moist, estimated stiff.		
		42.5							
	3.0						SPT 11, 25/70 Bouncing/DS		
42.0									
	3.5				CL	Shaly CLAY, low plasticity, grey to dark grey, interbedded shale, moist, estimated hard.			
41.5									
	4.0					SHALE, grey, brown, clay seams, with silt, extremely weathered, extremely low estimated strength, moist.		BEDROCK	
41.0									
	4.5						DS		
40.5									
	5.0								

BOREHOLE / TEST PIT BOREHOLE LOGS.GPJ GINT STD AUSTRALIA GDT 29/9/21



CLIENT Dana Bina Pty Ltd & Midpoint Investments Pty Ltd PROJECT NAME Geotechnical Investigation
 PROJECT NUMBER G21551-1 PROJECT LOCATION 31 Santley Cresnet & 2A Bringelly Road Kingswood N
 DATE STARTED 13/9/21 COMPLETED 13/9/21 R.L. SURFACE 45.1 DATUM m AHD
 DRILLING CONTRACTOR BG Drilling Pty Ltd SLOPE 90° BEARING ---
 EQUIPMENT Track Mounted Drilling Rig HOLE LOCATION Refer To Site Plan (Figure 1) For Test Locations
 HOLE SIZE 100mm Diameter LOGGED BY GA CHECKED BY JN
 NOTES RL To The Top Of The Borehole & Depths Of The Subsurface Conditions Are Approximate

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Additional Observations
ADT		40.0				SHALE, grey, brown, clay seams, with silt, extremely weathered, extremely low estimated strength, moist. <i>(continued)</i>		
		39.5	5.5			SHALE, grey, some clay seams, with silt, highly weathered, very low estimated strength, moist.		
		39.0	6.0			SHALE, grey, with silt, moderately weathered, low estimated strength, moist.		
		38.5	6.5					
		38.0	7.0					
		37.5	7.5			inferred low to medium estimated strength (or better) from 7.5m bgl. Borehole BH2 terminated at 7.5m		TC bit refusal at 7.5m bgl.
		37.0	8.0					
		36.5	8.5					
		36.0	9.0					
		35.5	9.5					
			10.0					

BOREHOLE / TEST PIT BOREHOLE LOGS.GPJ GINT STD AUSTRALIA GDT 29/9/21

CLIENT Dana Bina Pty Ltd & Midpoint Investments Pty Ltd **PROJECT NAME** Geotechnical Investigation
PROJECT NUMBER G21551-1 **PROJECT LOCATION** 31 Santley Cresnet & 2A Bringelly Road Kingswood N

DATE STARTED 13/9/21 **COMPLETED** 13/9/21 **R.L. SURFACE** 43.5 **DATUM** m AHD
DRILLING CONTRACTOR BG Drilling Pty Ltd **SLOPE** 90° **BEARING** ---
EQUIPMENT Track Mounted Drilling Rig **HOLE LOCATION** Refer To Site Plan (Figure 1) For Test Locations
HOLE SIZE 100mm Diameter **LOGGED BY** GA **CHECKED BY** JN

NOTES RL To The Top Of The Borehole & Depths Of The Subsurface Conditions Are Approximate

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Additional Observations
Not Encountered During Drilling		43.0	0.5			Clayey SILT, brown to dark brown, medium plasticity clay, some fine gravel, grass rootlets, moist.		FILL
		42.5	1.0		CI-CH	Silty CLAY, medium to high plasticity, brown to reddish brown, grey to pale grey, moist.		RESIDUAL SOILS
		42.0	1.5		CI-CH	Silty CLAY, medium to high plasticity, brown to reddish brown, some fine gravel, moist.		
		41.5	2.0		CI-CH	Silty CLAY, medium to high plasticity, grey to pale grey, reddish brown laminations, some fine gravel, moist.		
		41.0	2.5					
		40.5	3.0					
	40.0	3.5				SHALE, brown, grey, clay seams, with silt, extremely weathered, extremely low estimated strength, moist.		BEDROCK
	39.5	4.0						
	39.0	4.5				SHALE, brown, grey, some clay seams, with silt, highly weathered, very low estimated strength, moist.		
	38.5	5.0						

BOREHOLE / TEST PIT BOREHOLE LOGS.GPJ GINT STD AUSTRALIA GDT 29/9/21



CLIENT Dana Bina Pty Ltd & Midpoint Investments Pty Ltd **PROJECT NAME** Geotechnical Investigation
PROJECT NUMBER G21551-1 **PROJECT LOCATION** 31 Santley Crescent & 2A Bringelly Road Kingswood N

DATE STARTED 13/9/21 **COMPLETED** 13/9/21 **R.L. SURFACE** 43.5 **DATUM** m AHD
DRILLING CONTRACTOR BG Drilling Pty Ltd **SLOPE** 90° **BEARING** ---
EQUIPMENT Track Mounted Drilling Rig **HOLE LOCATION** Refer To Site Plan (Figure 1) For Test Locations
HOLE SIZE 100mm Diameter **LOGGED BY** GA **CHECKED BY** JN

NOTES RL To The Top Of The Borehole & Depths Of The Subsurface Conditions Are Approximate

Method	Water	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Additional Observations
		38.0	5.5			SHALE, brown, grey, some clay seams, with silt, highly weathered, very low estimated strength, moist. <i>(continued)</i>		
		37.5	6.0					
		37.0	6.5					
		36.5	7.0			SHALE, grey, with silt, moderately weathered, low estimated strength, moist.	DS	TC bit refusal at 7.0m bgl.
		36.0	7.5			inferred low to medium estimated strength at 7.0m bgl. Borehole BH3 terminated at 7m		
		35.5	8.0					
		35.0	8.5					
		34.5	9.0					
		34.0	9.5					
		33.5	10.0					

BOREHOLE / TEST PIT BOREHOLE LOGS.GPJ GINT STD AUSTRALIA GDT 29/9/21

APPENDIX E

BOREHOLE BH1 CORING STARTS FROM 7.7m to 14.11m bgl



	Geotechnical Investigation	Borehole Core Box Photographs
	Dana Bina Pty Ltd & Midpoint Investments Pty Ltd	Job No.: G21551-1
	31 Santley Crescent & 2A Bringelly Road Kingswood NSW 2747	Date: 29/09/2021

APPENDIX F



Unit 3 /112 Fairfield Street, Fairfield East NSW 2165

www.geo-logic.com.au

ABN: 57 621 548 294

PH: 0402 597 452

Email: samer@geo-logic.com.au

Point Load Strength Index

TEST METHOD: AS4133.4.1

Client:	Geotechnical Consultants Australia P/L
Project :	Materials Testing
Location:	Kingswood NSW
Project No.	L662
Date Reported:	21/09/2021
Report No.	L662-Rev1
Sample Procedure	*Sampled By Client: Core Samples Supplied

Sample Number	BH1	BH1	BH1	BH1	BH1
Sample Depth (m)	7.85	8.88	9.60	10.05	11.63
Date Sampled	13/09/2021	13/09/2021	13/09/2021	13/09/2021	13/09/2021
Sample Description/ Rock Type	Shale - Black	Shale - Black	Shale - Black	Shale - Black	Shale - Black
Sample size when received	Approx 50mm X 100mm Cylinder	Approx 50mm X 100mm Cylinder	Approx 50mm X 100mm Cylinder	Approx 50mm X 100mm Cylinder	Approx 50mm X 100mm Cylinder
Test Type	Diametral	Diametral	Diametral	Diametral	Diametral
Is - (Mpa)	0.27	0.08	1.18	0.24	0.01
Is(50) - (Mpa)	0.28	0.08	1.20	0.24	0.01
Moisture Condition	Moist	Moist	Moist	Moist	Moist
Test Type	Axial	Axial	Axial	Axial	Axial
Is - (Mpa)	1.46	0.19	1.00	1.28	0.01
Is(50) - (Mpa)	1.46	0.20	0.99	1.21	0.01
Moisture Condition	Moist	Moist	Moist	Moist	Moist
Sample Weakness Description	N/A	N/A	N/A	N/A	N/A
Sample Storage History	Sealed Bag	Sealed Bag	Sealed Bag	Sealed Bag	Sealed Bag
Date Tested	20/09/2021	20/09/2021	20/09/2021	20/09/2021	20/09/2021

NOTES:	<p>All equipment used in testing process has been calibrated by a NATA accredited laboratory.</p>	Laboratory Approved Signatory: Samer Ghanem
		Date: 21/09/2021
		Sign:



Unit 3 /112 Fairfield Street, Fairfield East NSW 2165

www.geo-logic.com.au

ABN: 57 621 548 294

PH: 0402 597 452


Email: samer@geo-logic.com.au

Point Load Strength Index

TEST METHOD: AS4133.4.1

Client:	Geotechnical Consultants Australia P/L
Project :	Materials Testing
Location:	Kingswood NSW
Project No.	L662
Date Reported:	21/09/2021
Report No.	L519-Rev1
Sample Procedure	*Sampled By Client: Core Samples Supplied

Sample Number	BH1	BH1			
Sample Depth (m)	12.78	13.33			
Date Sampled	13/09/2021	13/09/2021			
Sample Description/ Rock Type	Sandstone	Sandstone			
Sample size when received	Approx 50mm X 100mm Cylinder	Approx 50mm X 100mm Cylinder			
Test Type	Diametral	Diametral			
Is - (Mpa)	0.14	0.39			
Is(50) - (Mpa)	0.14	0.39			
Moisture Condition	Moist	Moist			
Test Type	Axial	Axial			
Is - (Mpa)	0.11	0.44			
Is(50) - (Mpa)	0.12	0.44			
Moisture Condition	Moist	Moist			
Sample Weakness Description	N/A	N/A			
Sample Storage History	Sealed Bag	Sealed Bag			
Date Tested	20/09/2021	20/09/2021			

NOTES:	<p>All equipment used in testing process has been calibrated by a NATA accredited laboratory.</p>	Laboratory Approved Signatory: Samer Ghanem
		<p>Date: 21/09/2021</p> <p>Sign: </p>

APPENDIX G

CERTIFICATE OF ANALYSIS

Work Order : **ES2133385**
Client : **GEOTECHNICAL CONSULTANTS AUSTRALIA**
Contact : **JOE NADER**
Address : Suite 5, 5-7 Villiers Street
 Parramatta NSW 2151

Telephone : ----
Project : G21551-1 Geotechnical Investigation
Order number : ----
C-O-C number : ----
Sampler : George A
Site : 31 Santley Crescent & 2A Bringelly Road Kingswood NSW 2747
Quote number : EN/333
No. of samples received : 4
No. of samples analysed : 4

Page : 1 of 2
Laboratory : Environmental Division Sydney
Contact : Customer Services ES
Address : 277-289 Woodpark Road Smithfield NSW Australia 2164

Telephone : +61-2-8784 8555
Date Samples Received : 15-Sep-2021 12:00
Date Analysis Commenced : 20-Sep-2021
Issue Date : 28-Sep-2021 12:59



Accreditation No. 825
 Accredited for compliance with
 ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Ankit Joshi	Inorganic Chemist	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW



General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
 LOR = Limit of reporting
 ^ = This result is computed from individual analyte detections at or above the level of reporting
 ø = ALS is not NATA accredited for these tests.
 ~ = Indicates an estimated value.

- ED045G: The presence of Thiocyanate, Thiosulfate and Sulfite can positively contribute to the Chloride result, thereby may bias higher than expected. Results should be scrutinised accordingly.

Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Sample ID

				BH1 1.9m-2.0m	BH2 3.2m-3.3m	BH2 4.4m-4.5m	BH3 6.9m-7.0m	----
Sampling date / time				13-Sep-2021 00:00	13-Sep-2021 00:00	13-Sep-2021 00:00	13-Sep-2021 00:00	----
Compound	CAS Number	LOR	Unit	ES2133385-001	ES2133385-002	ES2133385-003	ES2133385-004	-----
				Result	Result	Result	Result	----
EA002: pH 1:5 (Soils)								
pH Value	----	0.1	pH Unit	5.7	7.1	7.6	8.6	----
EA010: Conductivity (1:5)								
Electrical Conductivity @ 25°C	----	1	µS/cm	372	652	663	472	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	14.3	13.0	10.2	8.5	----
ED040S : Soluble Sulfate by ICPAES								
Sulfate as SO4 2-	14808-79-8	10	mg/kg	150	140	150	100	----
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	10	mg/kg	440	1000	970	600	----

QUALITY CONTROL REPORT

Work Order	: ES2133385	Page	: 1 of 3
Client	: GEOTECHNICAL CONSULTANTS AUSTRALIA	Laboratory	: Environmental Division Sydney
Contact	: JOE NADER	Contact	: Customer Services ES
Address	: Suite 5, 5-7 Villiers Street Parramatta NSW 2151	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: G21551-1 Geotechnical Investigation	Date Samples Received	: 15-Sep-2021
Order number	: ----	Date Analysis Commenced	: 20-Sep-2021
C-O-C number	: ----	Issue Date	: 28-Sep-2021
Sampler	: George A		
Site	: 31 Santley Crescent & 2A Bringelly Road Kingswood NSW 2747		
Quote number	: EN/333		
No. of samples received	: 4		
No. of samples analysed	: 4		



This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Ankit Joshi	Inorganic Chemist	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Ivan Taylor	Analyst	Sydney Inorganics, Smithfield, NSW



General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :
 Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
 CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
 LOR = Limit of reporting
 RPD = Relative Percentage Difference
 # = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EA002: pH 1:5 (Soils) (QC Lot: 3910245)									
ES2133801-015	Anonymous	EA002: pH Value	----	0.1	pH Unit	6.9	6.1	11.4	0% - 20%
ES2133385-001	BH1 1.9m-2.0m	EA002: pH Value	----	0.1	pH Unit	5.7	5.6	0.0	0% - 20%
EA010: Conductivity (1:5) (QC Lot: 3910247)									
ES2133801-015	Anonymous	EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	481	422	13.1	0% - 20%
ES2133385-001	BH1 1.9m-2.0m	EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	372	361	3.0	0% - 20%
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 3913015)									
ES2133385-002	BH2 3.2m-3.3m	EA055: Moisture Content	----	0.1	%	13.0	13.2	1.4	0% - 50%
ED040S: Soluble Major Anions (QC Lot: 3910246)									
ES2133385-001	BH1 1.9m-2.0m	ED040S: Sulfate as SO ₄ 2-	14808-79-8	10	mg/kg	150	140	0.0	0% - 50%
ED045G: Chloride by Discrete Analyser (QC Lot: 3910248)									
ES2133385-001	BH1 1.9m-2.0m	ED045G: Chloride	16887-00-6	10	mg/kg	440	430	3.1	0% - 20%



Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
				Result	Spike	Spike Recovery (%)	Acceptable Limits (%)	
					Concentration	LCS	Low	High
EA010: Conductivity (1:5) (QCLot: 3910247)								
EA010: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	1412 µS/cm	99.7	92.0	108
ED040S: Soluble Major Anions (QCLot: 3910246)								
ED040S: Sulfate as SO4 2-	14808-79-8	10	mg/kg	<10	750 mg/kg	92.0	80.0	120
ED045G: Chloride by Discrete Analyser (QCLot: 3910248)								
ED045G: Chloride	16887-00-6	10	mg/kg	<10	250 mg/kg	102	75.0	125
				<10	5000 mg/kg	94.8	79.0	117

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report			
				Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Concentration	MS	Low	High
ED045G: Chloride by Discrete Analyser (QCLot: 3910248)							
ES2133385-001	BH1 1.9m-2.0m	ED045G: Chloride	16887-00-6	250 mg/kg	100	70.0	130

APPENDIX H

Foundation Maintenance and Footing Performance: A Homeowner's Guide



CSIRO

BTF 18
replaces
Information
Sheet 10/91

Buildings can and often do move. This movement can be up, down, lateral or rotational. The fundamental cause of movement in buildings can usually be related to one or more problems in the foundation soil. It is important for the homeowner to identify the soil type in order to ascertain the measures that should be put in place in order to ensure that problems in the foundation soil can be prevented, thus protecting against building movement.

This Building Technology File is designed to identify causes of soil-related building movement, and to suggest methods of prevention of resultant cracking in buildings.

Soil Types

The types of soils usually present under the topsoil in land zoned for residential buildings can be split into two approximate groups – granular and clay. Quite often, foundation soil is a mixture of both types. The general problems associated with soils having granular content are usually caused by erosion. Clay soils are subject to saturation and swell/shrink problems.

Classifications for a given area can generally be obtained by application to the local authority, but these are sometimes unreliable and if there is doubt, a geotechnical report should be commissioned. As most buildings suffering movement problems are founded on clay soils, there is an emphasis on classification of soils according to the amount of swell and shrinkage they experience with variations of water content. The table below is Table 2.1 from AS 2870, the Residential Slab and Footing Code.

Causes of Movement

Settlement due to construction

There are two types of settlement that occur as a result of construction:

- Immediate settlement occurs when a building is first placed on its foundation soil, as a result of compaction of the soil under the weight of the structure. The cohesive quality of clay soil mitigates against this, but granular (particularly sandy) soil is susceptible.
- Consolidation settlement is a feature of clay soil and may take place because of the expulsion of moisture from the soil or because of the soil's lack of resistance to local compressive or shear stresses. This will usually take place during the first few months after construction, but has been known to take many years in exceptional cases.

These problems are the province of the builder and should be taken into consideration as part of the preparation of the site for construction. Building Technology File 19 (BTF 19) deals with these problems.

Erosion

All soils are prone to erosion, but sandy soil is particularly susceptible to being washed away. Even clay with a sand component of say 10% or more can suffer from erosion.

Saturation

This is particularly a problem in clay soils. Saturation creates a bog-like suspension of the soil that causes it to lose virtually all of its bearing capacity. To a lesser degree, sand is affected by saturation because saturated sand may undergo a reduction in volume – particularly imported sand fill for bedding and blinding layers. However, this usually occurs as immediate settlement and should normally be the province of the builder.

Seasonal swelling and shrinkage of soil

All clays react to the presence of water by slowly absorbing it, making the soil increase in volume (see table below). The degree of increase varies considerably between different clays, as does the degree of decrease during the subsequent drying out caused by fair weather periods. Because of the low absorption and expulsion rate, this phenomenon will not usually be noticeable unless there are prolonged rainy or dry periods, usually of weeks or months, depending on the land and soil characteristics.

The swelling of soil creates an upward force on the footings of the building, and shrinkage creates subsidence that takes away the support needed by the footing to retain equilibrium.

Shear failure

This phenomenon occurs when the foundation soil does not have sufficient strength to support the weight of the footing. There are two major post-construction causes:

- Significant load increase.
- Reduction of lateral support of the soil under the footing due to erosion or excavation.
- In clay soil, shear failure can be caused by saturation of the soil adjacent to or under the footing.

GENERAL DEFINITIONS OF SITE CLASSES

Class	Foundation
A	Most sand and rock sites with little or no ground movement from moisture changes
S	Slightly reactive clay sites with only slight ground movement from moisture changes
M	Moderately reactive clay or silt sites, which can experience moderate ground movement from moisture changes
H	Highly reactive clay sites, which can experience high ground movement from moisture changes
E	Extremely reactive sites, which can experience extreme ground movement from moisture changes
A to P	Filled sites
P	Sites which include soft soils, such as soft clay or silt or loose sands; landslip; mine subsidence; collapsing soils; soils subject to erosion; reactive sites subject to abnormal moisture conditions or sites which cannot be classified otherwise

Tree root growth

Trees and shrubs that are allowed to grow in the vicinity of footings can cause foundation soil movement in two ways:

- Roots that grow under footings may increase in cross-sectional size, exerting upward pressure on footings.
- Roots in the vicinity of footings will absorb much of the moisture in the foundation soil, causing shrinkage or subsidence.

Unevenness of Movement

The types of ground movement described above usually occur unevenly throughout the building's foundation soil. Settlement due to construction tends to be uneven because of:

- Differing compaction of foundation soil prior to construction.
- Differing moisture content of foundation soil prior to construction.

Movement due to non-construction causes is usually more uneven still. Erosion can undermine a footing that traverses the flow or can create the conditions for shear failure by eroding soil adjacent to a footing that runs in the same direction as the flow.

Saturation of clay foundation soil may occur where subfloor walls create a dam that makes water pond. It can also occur wherever there is a source of water near footings in clay soil. This leads to a severe reduction in the strength of the soil which may create local shear failure.

Seasonal swelling and shrinkage of clay soil affects the perimeter of the building first, then gradually spreads to the interior. The swelling process will usually begin at the uphill extreme of the building, or on the weather side where the land is flat. Swelling gradually reaches the interior soil as absorption continues. Shrinkage usually begins where the sun's heat is greatest.

Effects of Uneven Soil Movement on Structures

Erosion and saturation

Erosion removes the support from under footings, tending to create subsidence of the part of the structure under which it occurs. Brickwork walls will resist the stress created by this removal of support by bridging the gap or cantilevering until the bricks or the mortar bedding fail. Older masonry has little resistance. Evidence of failure varies according to circumstances and symptoms may include:

- Step cracking in the mortar beds in the body of the wall or above/below openings such as doors or windows.
- Vertical cracking in the bricks (usually but not necessarily in line with the vertical beds or perpend).

Isolated piers affected by erosion or saturation of foundations will eventually lose contact with the bearers they support and may tilt or fall over. The floors that have lost this support will become bouncy, sometimes rattling ornaments etc.

Seasonal swelling/shrinkage in clay

Swelling foundation soil due to rainy periods first lifts the most exposed extremities of the footing system, then the remainder of the perimeter footings while gradually permeating inside the building footprint to lift internal footings. This swelling first tends to create a dish effect, because the external footings are pushed higher than the internal ones.

The first noticeable symptom may be that the floor appears slightly dished. This is often accompanied by some doors binding on the floor or the door head, together with some cracking of cornice mitres. In buildings with timber flooring supported by bearers and joists, the floor can be bouncy. Externally there may be visible dishing of the hip or ridge lines.

As the moisture absorption process completes its journey to the innermost areas of the building, the internal footings will rise. If the spread of moisture is roughly even, it may be that the symptoms will temporarily disappear, but it is more likely that swelling will be uneven, creating a difference rather than a disappearance in symptoms. In buildings with timber flooring supported by bearers and joists, the isolated piers will rise more easily than the strip footings or piers under walls, creating noticeable doming of flooring.

Trees can cause shrinkage and damage



As the weather pattern changes and the soil begins to dry out, the external footings will be first affected, beginning with the locations where the sun's effect is strongest. This has the effect of lowering the external footings. The doming is accentuated and cracking reduces or disappears where it occurred because of dishing, but other cracks open up. The roof lines may become convex.

Doming and dishing are also affected by weather in other ways. In areas where warm, wet summers and cooler dry winters prevail, water migration tends to be toward the interior and doming will be accentuated, whereas where summers are dry and winters are cold and wet, migration tends to be toward the exterior and the underlying propensity is toward dishing.

Movement caused by tree roots

In general, growing roots will exert an upward pressure on footings, whereas soil subject to drying because of tree or shrub roots will tend to remove support from under footings by inducing shrinkage.

Complications caused by the structure itself

Most forces that the soil causes to be exerted on structures are vertical – i.e. either up or down. However, because these forces are seldom spread evenly around the footings, and because the building resists uneven movement because of its rigidity, forces are exerted from one part of the building to another. The net result of all these forces is usually rotational. This resultant force often complicates the diagnosis because the visible symptoms do not simply reflect the original cause. A common symptom is binding of doors on the vertical member of the frame.

Effects on full masonry structures

Brickwork will resist cracking where it can. It will attempt to span areas that lose support because of subsided foundations or raised points. It is therefore usual to see cracking at weak points, such as openings for windows or doors.

In the event of construction settlement, cracking will usually remain unchanged after the process of settlement has ceased.

With local shear or erosion, cracking will usually continue to develop until the original cause has been remedied, or until the subsidence has completely neutralised the affected portion of footing and the structure has stabilised on other footings that remain effective.

In the case of swell/shrink effects, the brickwork will in some cases return to its original position after completion of a cycle, however it is more likely that the rotational effect will not be exactly reversed, and it is also usual that brickwork will settle in its new position and will resist the forces trying to return it to its original position. This means that in a case where swelling takes place after construction and cracking occurs, the cracking is likely to at least partly remain after the shrink segment of the cycle is complete. Thus, each time the cycle is repeated, the likelihood is that the cracking will become wider until the sections of brickwork become virtually independent.

With repeated cycles, once the cracking is established, if there is no other complication, it is normal for the incidence of cracking to stabilise, as the building has the articulation it needs to cope with the problem. This is by no means always the case, however, and monitoring of cracks in walls and floors should always be treated seriously.

Upheaval caused by growth of tree roots under footings is not a simple vertical shear stress. There is a tendency for the root to also exert lateral forces that attempt to separate sections of brickwork after initial cracking has occurred.

The normal structural arrangement is that the inner leaf of brickwork in the external walls and at least some of the internal walls (depending on the roof type) comprise the load-bearing structure on which any upper floors, ceilings and the roof are supported. In these cases, it is internally visible cracking that should be the main focus of attention, however there are a few examples of dwellings whose external leaf of masonry plays some supporting role, so this should be checked if there is any doubt. In any case, externally visible cracking is important as a guide to stresses on the structure generally, and it should also be remembered that the external walls must be capable of supporting themselves.

Effects on framed structures

Timber or steel framed buildings are less likely to exhibit cracking due to swell/shrink than masonry buildings because of their flexibility. Also, the doming/dishing effects tend to be lower because of the lighter weight of walls. The main risks to framed buildings are encountered because of the isolated pier footings used under walls. Where erosion or saturation cause a footing to fall away, this can double the span which a wall must bridge. This additional stress can create cracking in wall linings, particularly where there is a weak point in the structure caused by a door or window opening. It is, however, unlikely that framed structures will be so stressed as to suffer serious damage without first exhibiting some or all of the above symptoms for a considerable period. The same warning period should apply in the case of upheaval. It should be noted, however, that where framed buildings are supported by strip footings there is only one leaf of brickwork and therefore the externally visible walls are the supporting structure for the building. In this case, the subfloor masonry walls can be expected to behave as full brickwork walls.

Effects on brick veneer structures

Because the load-bearing structure of a brick veneer building is the frame that makes up the interior leaf of the external walls plus perhaps the internal walls, depending on the type of roof, the building can be expected to behave as a framed structure, except that the external masonry will behave in a similar way to the external leaf of a full masonry structure.

Water Service and Drainage

Where a water service pipe, a sewer or stormwater drainage pipe is in the vicinity of a building, a water leak can cause erosion, swelling or saturation of susceptible soil. Even a minuscule leak can be enough to saturate a clay foundation. A leaking tap near a building can have the same effect. In addition, trenches containing pipes can become watercourses even though backfilled, particularly where broken rubble is used as fill. Water that runs along these trenches can be responsible for serious erosion, interstrata seepage into subfloor areas and saturation.

Pipe leakage and trench water flows also encourage tree and shrub roots to the source of water, complicating and exacerbating the problem.

Poor roof plumbing can result in large volumes of rainwater being concentrated in a small area of soil:

- Incorrect falls in roof guttering may result in overflows, as may gutters blocked with leaves etc.

- Corroded guttering or downpipes can spill water to ground.
- Downpipes not positively connected to a proper stormwater collection system will direct a concentration of water to soil that is directly adjacent to footings, sometimes causing large-scale problems such as erosion, saturation and migration of water under the building.

Seriousness of Cracking

In general, most cracking found in masonry walls is a cosmetic nuisance only and can be kept in repair or even ignored. The table below is a reproduction of Table C1 of AS 2870.

AS 2870 also publishes figures relating to cracking in concrete floors, however because wall cracking will usually reach the critical point significantly earlier than cracking in slabs, this table is not reproduced here.

Prevention/Cure

Plumbing

Where building movement is caused by water service, roof plumbing, sewer or stormwater failure, the remedy is to repair the problem. It is prudent, however, to consider also rerouting pipes away from the building where possible, and relocating taps to positions where any leakage will not direct water to the building vicinity. Even where gully traps are present, there is sometimes sufficient spill to create erosion or saturation, particularly in modern installations using smaller diameter PVC fixtures. Indeed, some gully traps are not situated directly under the taps that are installed to charge them, with the result that water from the tap may enter the backfilled trench that houses the sewer piping. If the trench has been poorly backfilled, the water will either pond or flow along the bottom of the trench. As these trenches usually run alongside the footings and can be at a similar depth, it is not hard to see how any water that is thus directed into a trench can easily affect the foundation's ability to support footings or even gain entry to the subfloor area.

Ground drainage

In all soils there is the capacity for water to travel on the surface and below it. Surface water flows can be established by inspection during and after heavy or prolonged rain. If necessary, a grated drain system connected to the stormwater collection system is usually an easy solution.

It is, however, sometimes necessary when attempting to prevent water migration that testing be carried out to establish watertable height and subsoil water flows. This subject is referred to in BTF 19 and may properly be regarded as an area for an expert consultant.

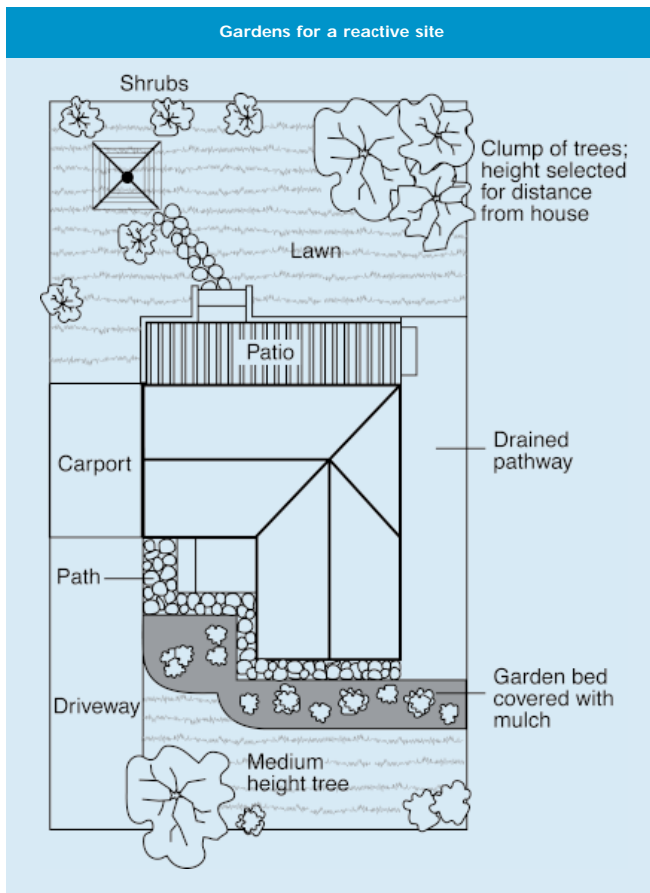
Protection of the building perimeter

It is essential to remember that the soil that affects footings extends well beyond the actual building line. Watering of garden plants, shrubs and trees causes some of the most serious water problems.

For this reason, particularly where problems exist or are likely to occur, it is recommended that an apron of paving be installed around as much of the building perimeter as necessary. This paving

CLASSIFICATION OF DAMAGE WITH REFERENCE TO WALLS

Description of typical damage and required repair	Approximate crack width limit (see Note 3)	Damage category
Hairline cracks	<0.1 mm	0
Fine cracks which do not need repair	<1 mm	1
Cracks noticeable but easily filled. Doors and windows stick slightly	<5 mm	2
Cracks can be repaired and possibly a small amount of wall will need to be replaced. Doors and windows stick. Service pipes can fracture. Weathertightness often impaired	5–15 mm (or a number of cracks 3 mm or more in one group)	3
Extensive repair work involving breaking-out and replacing sections of walls, especially over doors and windows. Window and door frames distort. Walls lean or bulge noticeably, some loss of bearing in beams. Service pipes disrupted	15–25 mm but also depend on number of cracks	4



- Water that is transmitted into masonry, metal or timber building elements causes damage and/or decay to those elements.
- High subfloor humidity and moisture content create an ideal environment for various pests, including termites and spiders.
- Where high moisture levels are transmitted to the flooring and walls, an increase in the dust mite count can ensue within the living areas. Dust mites, as well as dampness in general, can be a health hazard to inhabitants, particularly those who are abnormally susceptible to respiratory ailments.

The garden

The ideal vegetation layout is to have lawn or plants that require only light watering immediately adjacent to the drainage or paving edge, then more demanding plants, shrubs and trees spread out in that order.

Overwatering due to misuse of automatic watering systems is a common cause of saturation and water migration under footings. If it is necessary to use these systems, it is important to remove garden beds to a completely safe distance from buildings.

Existing trees

Where a tree is causing a problem of soil drying or there is the existence or threat of upheaval of footings, if the offending roots are subsidiary and their removal will not significantly damage the tree, they should be severed and a concrete or metal barrier placed vertically in the soil to prevent future root growth in the direction of the building. If it is not possible to remove the relevant roots without damage to the tree, an application to remove the tree should be made to the local authority. A prudent plan is to transplant likely offenders before they become a problem.

Information on trees, plants and shrubs

State departments overseeing agriculture can give information regarding root patterns, volume of water needed and safe distance from buildings of most species. Botanic gardens are also sources of information. For information on plant roots and drains, see Building Technology File 17.

Excavation

Excavation around footings must be properly engineered. Soil supporting footings can only be safely excavated at an angle that allows the soil under the footing to remain stable. This angle is called the angle of repose (or friction) and varies significantly between soil types and conditions. Removal of soil within the angle of repose will cause subsidence.

Remediation

Where erosion has occurred that has washed away soil adjacent to footings, soil of the same classification should be introduced and compacted to the same density. Where footings have been undermined, augmentation or other specialist work may be required. Remediation of footings and foundations is generally the realm of a specialist consultant.

Where isolated footings rise and fall because of swell/shrink effect, the homeowner may be tempted to alleviate floor bounce by filling the gap that has appeared between the bearer and the pier with blocking. The danger here is that when the next swell segment of the cycle occurs, the extra blocking will push the floor up into an accentuated dome and may also cause local shear failure in the soil. If it is necessary to use blocking, it should be by a pair of fine wedges and monitoring should be carried out fortnightly.

This BTF was prepared by John Lewer FAIB, MIAMA, Partner, Construction Diagnosis.

should extend outwards a minimum of 900 mm (more in highly reactive soil) and should have a minimum fall away from the building of 1:60. The finished paving should be no less than 100 mm below brick vent bases.

It is prudent to relocate drainage pipes away from this paving, if possible, to avoid complications from future leakage. If this is not practical, earthenware pipes should be replaced by PVC and backfilling should be of the same soil type as the surrounding soil and compacted to the same density.

Except in areas where freezing of water is an issue, it is wise to remove taps in the building area and relocate them well away from the building – preferably not uphill from it (see BTF 19).

It may be desirable to install a grated drain at the outside edge of the paving on the uphill side of the building. If subsoil drainage is needed this can be installed under the surface drain.

Condensation

In buildings with a subfloor void such as where bearers and joists support flooring, insufficient ventilation creates ideal conditions for condensation, particularly where there is little clearance between the floor and the ground. Condensation adds to the moisture already present in the subfloor and significantly slows the process of drying out. Installation of an adequate subfloor ventilation system, either natural or mechanical, is desirable.

Warning: Although this Building Technology File deals with cracking in buildings, it should be said that subfloor moisture can result in the development of other problems, notably:

The information in this and other issues in the series was derived from various sources and was believed to be correct when published.

The information is advisory. It is provided in good faith and not claimed to be an exhaustive treatment of the relevant subject.

Further professional advice needs to be obtained before taking any action based on the information provided.

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APPENDIX I



Landscape—undulating to rolling low hills on Wianamatta Group shales, often associated with Minchinbury Sandstone. Local relief 50–80 m, slopes 5–20%. Narrow ridges, hillcrests and valleys. Extensively cleared tall open forest (wet sclerophyll forest).

Soils—shallow (<100 cm) dark Podzolic Soils (Dd3.51) or massive Earthy Clays (Uf6.71) on crests; moderately deep (70–150 cm) Red Podzolic Soils (Dr2.11, Dr2.41, Dr3.11) on upper slopes; moderately deep (<150 cm) Yellow Podzolic Soils (Dy4.22) and Prairie Soils (Gn3.26) on lower slopes and drainage lines.

Limitations—water erosion hazard, localised steep slopes, localised mass movement hazard, localised shallow soils, localised surface movement potential; localised impermeable highly plastic subsoil, moderately reactive.

LOCATION

This unit occurs mainly towards the south and west in the Cumberland Lowland. Good examples can be found on the dissected ridges running from Denham Court north to Cecil Park. Another major occurrence lies east of the Nepean River, south of Penrith. A smaller area is found near Luddenham and minor examples occur in the north bordering the Hawkesbury Sandstone units on the Homsby Plateau.

LANDSCAPE

Geology

This soil landscape is underlain by Wianamatta Group Ashfield Shale and Bringelly Shale formations. The Ashfield Shale consists of laminite and dark grey shale. Bringelly Shale consists of shale, calcareous claystone, and laminite. Between these two shale members is the Minchinbury Sandstone consisting of fine to medium-grained lithic quartz sandstone.

Topography

Low rolling to steep low hills. Local relief 50–120 m, slopes 5–20%. Convex narrow (20–300 m) ridges and hillcrests grade into moderately inclined sideslopes with narrow concave drainage lines. Moderately inclined slopes of 10–15% are the dominant landform elements.

Vegetation

Extensively cleared open forest (dry sclerophyll forest). Dominant tree species include *Eucalyptus maculata* (spotted gum) and *E. moluccana* (grey box). Lesser occurrences of *E. fibrosa* (broad-leaved ironbark), *E. crebra* (narrow-leaved ironbark), *E. tereticornis* (forest red gum) and *E. longifolia* (woollybutt) occur. Understorey shrub species include *Bursaria spinosa* (blackthorn), *Breynia oblongifolia* (coffee bush), *Allocasuarina torulosa* (forest oak), *Acacia implexa* (hickory) and *Clerodendrum tomentosum* (hairy clerodendrum). Grasses are commonly *Aristida vagans* (speargrass), *Entolasia marginata* (bordered panic), *Eragrostis leptostachya* (paddock lovegrass) and *Themeda australis* (kangaroo grass) (Benson, 1981). Examples of natural vegetation can be found near Werombi and Floxton Park.

Landuse

Grazing is the dominant landuse over much of this soil landscape. Examples are found east of Bents Basin and south west of Bringelly. Low density housing occurs at West Floxton and Mulgoa. Increasing pressure for home-sites is resulting in more areas of this landscape changing from semi-rural to suburban land use.

Existing Erosion

Minor gully erosion is evident along unpaved roads. Moderate sheet erosion occurs on disturbed areas (e.g. cultivated lands). Small areas of moderate to severe sheet erosion occur in overgrazed paddocks on many hobby farms. Evidence of previous erosion is commonplace, especially where eroded topsoil has been deposited against fences.

Associated Soil Landscapes

Small unmapped areas of Picton (**pn**) soil landscape occur on steeper slopes especially those facing south and east. Blacktown (**bt**) soil landscape is also associated with Luddenham soil landscape.

SOILS

Dominant Soil Materials

lu1 – Friable dark brown loam.

This is a dark brown, friable loam, silt loam or silty clay loam with moderate to strong structure and porous rough-faced ped fabric. This material occurs as topsoil (A1 horizon).

Peds are commonly subangular blocky to polyhedral, 2–10 mm in size and are rough-faced and porous. In uncompacted soils these peds break down readily to very small crumbs. Surface condition is distinctly friable but may become hardsetting when compacted and dry. Colour is dark brown (10YR 3/3, 7.5YR 3/3) but can range from brownish black (5YR 3/1) to brown (10YR 4/4). This material is occasionally water repellent. The pH varies from moderately acid (pH 5.0) to slightly acid (pH 6.5). A few small, subrounded-rounded weakly weathered shale fragments occur. Roots are common to 10 cm becoming fewer with increasing depth. Charcoal fragments occur occasionally.

lu2 – Hardsetting brown clay loam.

This is a clay loam to fine sandy clay loam with an apedal massive or weakly pedal structure and

an earthy or porous, rough-faced ped fabric. This material occurs as an A2 horizon and is occasionally hardsetting when exposed at the surface.

Peds, when present, are sub-angular blocky, 10–50 mm in size, and are rough faced and porous. Otherwise this material has apedal massive structure with an earthy porous fabric. Colour is brown (7.5YR 4/4) but can range between dull yellowish brown (10YR 5/4) and reddish brown (5YR 4/6). The pH varies between strongly acid (pH 4.0) and slightly acid (pH 6.5). Shale rock fragments, charcoal fragments and roots are present.

lu3— Whole coloured, strongly pedal clay.

This is a medium clay with strong structure and smooth-faced, dense ped fabric. It occurs as subsoil (B horizon).

Texture is commonly medium clay but can range from silty clay to heavy clay. The peds are sub-angular blocky or polyhedral and range in size from 5–20 mm. They are smooth-faced and dense. Cutans are also present. Colour is reddish brown (5YR 4/6–8) and can range from bright reddish brown (2.5YR 4/8) to bright yellowish brown (10YR 6/6). The pH varies from strongly acid (pH 4.0) to moderately acid (pH 5.5). Shale rock fragments are common. Roots are rare and charcoal fragments are absent.

lu4— Mottled grey plastic clay.

This is a grey, mottled, medium clay with strongly pedal structure and dense, smooth-ped fabric. It occurs as deep subsoil.

Texture ranges to heavy clay. The peds are usually sub-angular blocky, 10–20 mm in size, and are smooth-faced and dense. These can be broken down easily to smaller (2–5 mm) polyhedral peds. Colour is usually light grey (10YR 7/1) but ranges to light reddish grey (2.5YR 7/1). Yellow and red mottles are common. It is usually moist and is very plastic. The pH varies from strongly acid (pH 4.0) to moderately acid (pH 5.5). Shale rock fragments and gravels are common. Roots are rare, and other inclusions are absent.

lu5— Apedal brown sandy clay.

This is an apedal massive brown, sandy clay to light clay with dense earthy fabric. It occurs as subsoil (B horizon).

Occasionally weak subangular blocky or polyhedral structure is evident. Colour is usually brown (7.5YR 4/4–6) but ranges from dull reddish brown (5YR 4/4) to dull yellowish brown (10YR 5/4). This material is moderately acid (pH 5.0) to neutral (pH 7.0). Roots are common. Up to 10% of the volume may be small (2–6 mm) angular, well weathered shale fragments. Charcoal and other inclusions do not occur.

Associated Soil Materials

Greyish brown loamy or clayey sand.

This material occurs on lower slopes and in drainage lines as a shallow (<50 cm) surface material. It has a neutral pH (pH 7.0) and frequently contains small amounts of gravels 2–20 mm and charcoal fragments.

Occurrence and Relationships

Crests. Up to 10 cm of friable dark brown loam (**lu1**) overlies <40 cm sandy clay (**lu5**) which usually directly overlies deeply weathering shale bedrock. The boundary between materials is sharp to clear. Total soil depth <40 cm [dark Podzolic Soils (Dd3.51)]. In some places **lu1** is not present [massive earthy clays (Uf6.71)]. More rarely **lu1** and **lu5** overlie >200 cm mottled grey

plastic clays (**lu4**). Boundaries between soil materials are sharp to clear. Total soil depth >200 cm [Yellow Podzolic Soils (Dy2.21)].

Upper slopes and mid-slopes. Sandy clay (**lu1**) is rare but <10 cm may occur on surface. Up to 40 cm of clay loam (**lu2**) overlies >50 cm medium or heavy clay (**lu3**) which overlies <90 cm of grey mottled clay (**lu4**) [Red Podzolic Soils (Dr2.11), Yellow Podzolic Soils (Dy3.51, Gn3.71)]. Where underlying lithology is Minchinbury Sandstone up to 60 cm **lu5** occurs between **lu2** and **lu3**. In this instance **lu4** does not often occur. Total soil depth >100 cm. Boundaries between soil materials are generally clear but can be gradual [Red Podzolic Soils (Dr2.41, Dr3.11), Chocolate Soils (Db3.11)].

Lower slopes and drainage lines. Up to 50 cm of loamy sand overlies >100 cm sandy clay (**lu5**) [yellow podzolic soils (Dy4.22)]. In other locations up to 40 cm clay loam (**lu2**) overlies <50 cm sandy clay (**lu5**) and >100 cm whole-coloured medium clay (**lu3**). This is occasionally underlain by >150 cm mottled grey plastic clay (**lu4**) [prairie soils (Gn3.26)]. The boundaries between materials are clear or, less often, gradual. Total soil depth >200 cm.

LIMITATIONS TO DEVELOPMENT

Soil Limitations

- lu1** High erodibility
Stoniness (localised)
- lu2** Very hardsetting surface
Stoniness (localised)
Low available water capacity
- lu3** Low wet strength
Low permeability (localised)
Low fertility
High shrink-swell (localised)
Low available water capacity
- lu4** Low wet strength
Low permeability
Low available water capacity
Stoniness
Low fertility
High shrink-swell (localised)
- lu5** Low wet strength
Low fertility
High shrink-swell (localised)
Very high aluminium toxicity
Low available water capacity

Fertility

The general fertility is low to moderate. The topsoil (**lu1**) has moderate fertility with high available water capacity, moderate amounts of organic matter, and moderate nutrient status. **lu2** normally has low to moderate fertility with low available water capacity, moderate organic matter content, low CEC, and intrinsically low nutrient status. All the other soil materials have low fertility with low available water capacities, moderate CEC and generally low nitrogen and very low phosphorus levels (**lu3–lu5**).

Erodibility

lu1 and **lu2** have moderate erodibility as they have moderate organic matter percentage, have stable aggregates and are well graded. All the other soil materials are moderately erodible as they are finely graded with relatively stable aggregates. **lu3–lu5** clays may be locally dispersible and, in those circumstances, should be considered highly erodible.

Erosion Hazard

The erosion hazard for non-concentrated flows ranges from moderate to very high. The calculated soil loss for the first twelve months of urban development ranges up to 135 t/ha for topsoil and up to 97 t/ha for exposed subsoil. The erosion hazard for concentrated flows is high to very high.

Surface Movement Potential

Moderately reactive soil materials. Soils are deep and have high clay content. Clay often has low to moderate shrink-swell potential. Tall trees are common on this landscape.

Landscape Limitations

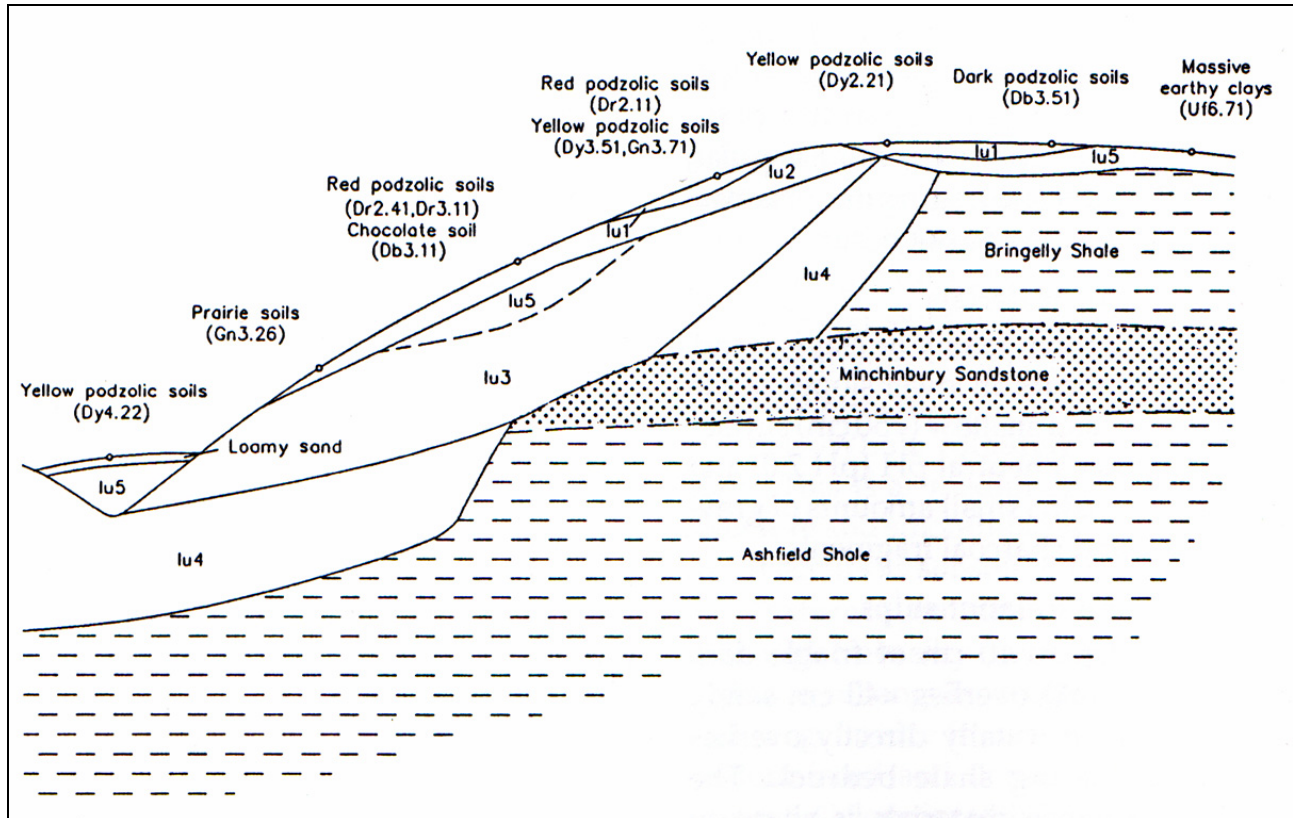
Water erosion hazard, steep slopes (localised), mass movement hazard (localised), shallow soils (localised), surface movement potential (localised).

Urban Capability

Low to moderate capability for urban development.

Rural Capability

Land generally capable of being grazed and regularly cultivated.



Distribution diagram of the Luddenham soil landscape showing the occurrence and relationship of dominant soil materials.



Landscape—floodplains, valley flats and drainage depressions of the channels on the Cumberland Plain. Usually flat with incised channels; mainly cleared.

Soils—often very deep layered sediments over bedrock or relict soils. Where pedogenesis has occurred Structured Plastic Clays (Uf6.13) or Structured Loams (Um6.1) in and immediately adjacent to drainage lines; Red and Yellow Podzolic Soils (Dr5.11, Dy2.41, Dr2.21) are most common terraces with small areas of Structured Grey Clays (Gn4.54), leached clays (Uf4.42) and Yellow Solodic Soils (Dy4.42, Dy5.23).

Limitations—flood hazard, seasonal waterlogging, localised permanently high watertables, localised water erosion hazard, localised surface movement potential.

LOCATION

This soil landscape comprises the present active floodplain of many drainage networks of the Cumberland Plain. This includes the South Creek, Eastern Creek, Ricabys Creek and Prospect Creek systems. Typical profiles and landscape can be seen on South Creek between Bringelly Road and Elizabeth Drive.

LANDSCAPE

Geology

Quaternary alluvium derived from Wianamatta Group shales and Hawkesbury Sandstone.

Topography

Flat to gently sloping alluvial plain with occasional terraces or levees providing low relief. Slopes <5%. Local relief <10m.

Vegetation

The vegetation of this soil landscape reflects its frequent inundation. Common tree species include *Angophora subvelutina* (broad-leaved apple), *Eucalyptus amplifolia* (cabbage gum) and *Casuarina glauca* (swamp oak). Still water species such as *Eleocharis sphacelata* (tall spike rush), *Juncus usitatus* and *Polygonum* spp. occur where channels are silted up. On more elevated streambanks a tall shrubland of *Melaleuca* spp. (paperbarks) and *Leptospermum* spp. (tea trees) may occur. However, much of this soil landscape has been previously cleared and is now dominated by exotic species such as *Rubus vulgaris* (blackberry) and other weeds.

Landuse

Most of this land is reserved for recreational use (playing fields, parks and reserves) or left unused. Some areas in the Prospect Creek system have been altered to provide lakes and dryland recreation space.

Existing Erosion

This is a dynamic soil landscape; there are many areas of erosion and deposition. Streambank erosion and sheet erosion of floodplains are common. In depositional phases streams may be partially or completely blocked by sedimentation or vegetated bars.

Associated Soil Landscapes

Small areas of Bakers Lagoon (**ba**) soil landscape occur in areas of interrupted drainage.

SOILS

Dominant Soil Materials

sc1 – Brown apedal single-grained loam.

This is a brown sandy loam to sandy clay loam with generally apedal single-grained structure and porous earthy fabric. It commonly occurs as topsoil (A horizon).

Colours range from dull reddish brown (5YR 4/3) to dull yellowish brown (10YR 4/3). This material is usually moderately acid (pH 5.5) but varies from strongly acid (pH 4.5) to slightly acid (pH 6.5). Small (2–6 mm) angular or rounded gravels may occur. Roots are abundant in surface layers, charcoal and other inclusions do not occur.

sc2 – Dull brown clay loam.

This is a hardsetting dull brown clay loam to fine sandy clay loam, usually with apedal massive structure and porous earthy fabric. It occurs as topsoil (A horizon).

Occasionally, weak structure occurs with small (2–5mm) rough-faced subangular blocky peds. Colour is usually dull brown (7.5YR 5/4) but has a range from greyish brown (5YR 4/2) to yellowish brown (10YR 5/6). pH varies from moderately acid (pH 5.5) to neutral (pH 7.0). Stones and other inclusions do not occur, and roots are rarely found.

sc3 – Bright brown clay.

This is a bright brown light to medium clay with strongly pedal structure and dense smooth-faced ped fabric. This material usually occurs as subsoil (B horizon).

Occasionally this material contains sufficient fine sand to reach the texture grade of sandy clay. Peds are smooth-faced angular blocky or polyhedral and 20–50 mm in size. This material is generally whole-coloured ranging from reddish brown (5YR 4/8) to bright yellowish brown (10YR 5/1). Mottles, when they do occur, are yellow or grey and occupy up to 15% of the volume

of the material. pH is highly variable, ranging from extremely acid (pH 3.0) to neutral (pH 7.0). Roots are only present where this material occurs as topsoil. There is no charcoal but small (2–20 mm) subrounded or subangular gravels may make up to 50% of the volume.

Associated Soil Materials

Dark brown sand. This material is a sandy layer which occurs on the surface as splay deposits in some swales. Texture ranges from sand to clayey sand. It is apedal single-grained and depth varies from 50–100 cm. It is highly erodible and has a pH range of 5.0 to 6.0.

Occurrence and Relationships

In channel. Variable depth sandy clay loam (**sc1**) over bright brown mottled medium clay (**sc3**) [Brown and Yellow Podzolic Soils (Dy3.51, Db2.21, Dy4.42, Dy3.11, Db2.41)]. Soil materials reoccur down through the soils in layers which can sometimes be related to major flood events. Smaller events either remove, or remove and replace, surface material. Sedimentation has a greater influence than pedogenesis in this environment.

Near channel. 30–50 cm friable to loose sandy loam (**sc1**) overlies 15 cm apedal massive clay loam (**sc2**), and 70 cm of light-medium clay (**sc3**). Swales are sometimes filled by sand splays [Structured Plastic Clays (Uf6.12) or Structured Loams (Um6.1)].

Low terrace. 2–50 cm sandy clay loam (**sc1**) overlies 15 cm apedal massive clay loam (**sc2**) and 60–85 cm whole-coloured medium to heavy clay (sometimes medium textured sandy clay) (**sc3**) [Red and Yellow Podzolic Soils (Dr5.11, Dr2.21, Dy141)].

High terrace. Up to 190 cm of stratified clay (light to medium) (**sc3**) over shale bedrock [leached clays (Uf4.43)].

LIMITATIONS TO DEVELOPMENT

Soil Limitations

- sc1** High erodibility
- sc2** High erodibility (localised)
Hardsetting surface
Strongly acid
Low fertility
- sc3** Shrink-swell potential (localised)
Stoniness (localised)
Very high erodibility
Saline
Low fertility

Fertility

General fertility is low. The surface soil material (**sc1**) has low CEC and low nitrogen and phosphorus. It is moderately acid and has low available water capacity. **sc2** also has low CEC with very low nitrogen and phosphorus. It is strongly acid and has a potential for a low level of aluminium toxicity. The deep subsoil material (**sc3**) has a high CEC and high intrinsic nutrient storage but is sodic and saline in some locations.

Erodibility

The erodibility of these soil materials is high. The topsoil (**sc1**) is moderately dispersible and has more than 50% fine sand, but it contains moderate amounts of organic matter. The subsoils (**sc2**,

sc3) have high fine sand and silt fractions with a very low percentage of organic matter.

Erosion Hazard

The erosion hazard for South Creek soil landscape is potentially very high to extreme. This is an active floodplain and is presently being reworked by fluvial processes. Apparent stability is probably short term. Streambank and gully erosion are common results of concentrated flow.

Surface Movement Potential

Generally low. Soils are often deep with high clay content. Subsoil materials are moderately reactive in some locations, while surface soils are generally stable.

Landscape Limitations

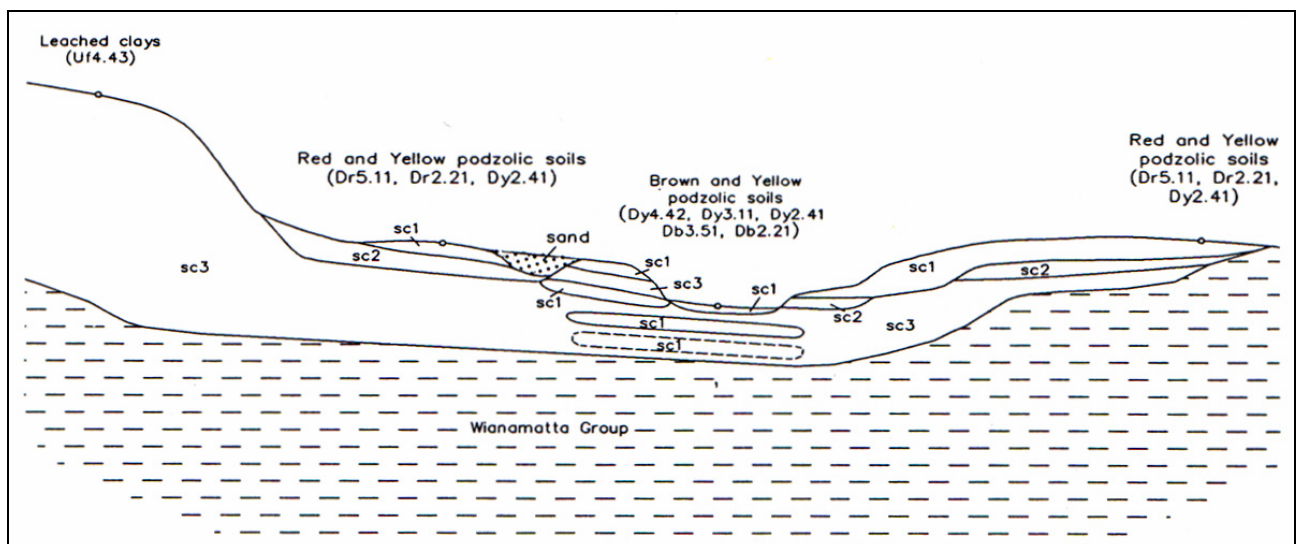
Flood hazard, seasonal waterlogging, permanently high watertables (localised), water erosion hazard (localised), surface movement potential (localised).

Urban Capability

Not capable of urban development due to flood hazard.

Rural Capability

Capable of supporting both grazing and regular cultivation.



Distribution diagram of the South Creek soil landscape showing the occurrence and relationship of dominant soil materials.

Plan of Management

Boarding House

ADDRESS:

31 Santley Crs & 2A Bringelly Road Kingswood NSW

Date: 5 October 2021

Architects: Gus Fares Architect Pty Ltd

Issue A

1. INTRODUCTION

This Plan of Management (PoM) provides directions and controls on the use and management of the Boarding House. The directions and controls are to be strictly adhered to in the operation of the Boarding House, to ensure compliance with the conditions of Development Consent and health and amenity requirements for both the occupants and surrounding residents.

The Plan of Management refers to the plans prepared by Gus Fares Architects Pty Ltd for The Development Application for the proposed Boarding House at 31 Santley Crescent and 2A Bringelly Road Kingswood NSW.

The Boarding House is to be managed by an On-site Manager who will be familiar with the content of this Plan of Management.

2. PURPOSE

The primary purpose of this Plan of Management (PoM) is to ensure the proposed boarding house maintains a high level of amenity for the neighbouring properties and for all residents living in the premises. Its objectives are:

- a. To minimise disturbance to residents and neighbours.
- b. To provide a procedure to receive and resolve complaints.
- c. To maintain the internal and external appearance and cleanliness of the premises.
- d. To ensure a person (being the manager) is readily contactable to assist in the ongoing implementation of this Plan of Management.
- e. To ensure the use of the premises will be controlled by the PoM, and that the PoM is enforceable.
- f. To ensure that the premises will be operated in strict accordance with the conditions of development consent.
- g. To give effect to the occupancy principles under the Boarding House Act.

h. To make provision for this plan to be amended from time to time with the approval of the Council in order to facilitate timely and responsive operational changes that will improve residential amenity within and external to the site.

3. DEFINITIONS

- a. **Building:** means the building or buildings erected on the land known as 31 Santley Crescent & 2A Bringelly Road Kingswood in the State of NSW
- b. **Business:** means the operation of the building/s as a Boarding House.
- c. **Common Room:** means the room identified as the common living room on the approved plans.
- d. **Common Areas:** means the hallways and stairs as identified on the approved plans.
- e. **Common Open Space Area:** means the external communal area as identified on the approved plans.
- f. **Council:** means Penrith City Council
- g. **Boarder/Lodger:** means a person having the benefit of the use a nominated bedroom and common rooms/area within the building.
- h. **Manager:** means the Resident Manager engaged by the business proprietors who resides on the premises 24/7 as his/her primary residence during his/her employment.
- i. **Owner:** means the registered proprietor/s of the building.
- j. **Room:** means that part of the building occupied and used by a border/lodger.
- k. **House Rules:** means an attached insertion to the lease for internal boarding house rules that govern the occupation of the premises.

4. THE MANAGER'S ROLE DUTY & QUALIFICATIONS

4.1 The proprietor/s shall engage an in-house Resident Manager.

4.2 The Manager shall:

- a. Be contactable between the hours of 8am and 6pm Monday to Saturday inclusive; (and on Emergency Calls Only after hours)

- b. Oversee all Lodgers' concerns
- c. Enforce the minimum occupancy period
- d. Organise the cleaning and maintenance of the common areas and common open space areas.
- e. Enforce the maximum occupancy levels
- f. Provide lodgers with appropriate information prior to the commencement of occupation
- g. Carry out inspections on a regular basis at a minimum of once every 3 months to ensure that the building is maintained in a clean and tidy condition and that all facilities and fittings are appropriately maintained
- h. Record all inspections in a log book which must be made available to Council upon request
- i. Organise the waste collection and the facility need for the site, and the ongoing storage and collection of waste on-site including transfer of waste to and from collection points for the waste collection services as required, and regular cleaning of bins/waste storage areas/rooms
- j. Maintain an incident register
- k. Maintain the electrical circuits to a safe standard
- l. Notify the Council in writing within 1 month of any change in the management and provide contact details for the new management.
- m. Prepare and maintain complaints register of neighbouring residents
- n. Inform Council and Police for any illegal activities or complaints

- o. Provide a sign that contains the phone number to be displayed at the front of the premises, any entry points to the site, common areas and office areas for emergency services and others.
- p. Provide contact details to Police and Council
- q. Make sure that the Boarding House internal rules known as “House Rules” are adhered to by all occupants.
- r. the Manager’s duty is to check the fire safety equipment and features to in good order and within the expiry dates and call the fire professionals for a regular periodic check.

4.2 The Manager qualifications:

The Manager should have enough education and knowledge and training to oversee the signing of the lease agreements, the social and know how skill to deal with the tenants in a positive way and able to resolve any conflicts between the tenants and/or the neighbours.

5. MAXIMUM NUMBER OF LODGERS

5.1 The maximum number of lodgers in the building at any time is strictly 184 including 1 manager

5.2 The Boarding room are divided into the followings:

-All Rooms with a living area of 16-25 sqm are suitable for 2 persons:
(88 Rooms x2) =176 Persons (including 1 manager)

-All Rooms with a living area of 12-15.9sqm are suitable for 1 person:
(8 Rooms x1) =8 Persons

It is the Manager’s responsibility is to ensure that the number of lodgers is not exceeded at any given time.

6. MINIMISING IMPACT ON RESIDENTS

So, as to minimise impact on the residents of adjoining premises as well as residents of the building, The following rules are to apply:

- a. Lodgers are required to sign an agreement upon commencement of their stay to abide by the “House Rules” including the consequences of breaking the rules
- b. No loud music or television noise or any noise of any sort is permitted after 10pm
- c. No parties are to be held on-site at any time; however small gathering is permitted as long as all visitors leave before 10pm (noise rule applies)
- d. No visitors permitted after 10pm
- e. No Illegal activities of any sort will be tolerated on the premises; The police will be called immediately if caught; leases will be terminated if charged and found guilty.
- f. All visitors should be required to sign in and out of the boarding house
- g. No use of the outdoor areas is permitted after 10pm on Sunday to Thursdays and after 11pm on Friday and Saturday
- h. No smoking within the premises or in areas which may affect the amenity of other residents of the boarding house or of residents of neighbouring properties.
- i. Lodgers are required to provide management with personal details, including next of kin details, for emergency purposes. These details are to be kept in the management office for the duration of lodger’s stay.

7. DISPLAY OF THE “HOUSE RULES”

The “House Rules” are to be attached to all leases and signed by all occupants and a copy is displayed on the premises and a copy is retained by the Manager; The Manager’s duty is to enforce the House Rules

The House Rules details the followings:

- a. **Smoking:** No smoking is strictly not permitted in any Boarding Room and common areas; Smoking could trigger the smoke alarm and could cause harm to other lodgers.
- b. **Visitors Policy:** No visitors in boarding Rooms after 10pm; All visitors should leave the premises before 10pm.
- c. **Signing In/out:** All visitors are required to sign in and out of the boarding house
- d. **Parties:** No parties are to be held on-site at any time
- e. **Disruption:** To minimise disruption to other residents or other residents of neighbouring properties use of common open space area is not permitted after 10pm and noise level is to be kept to a minimum
- f. **Time of Usage of Common Areas:** Common rooms and areas are not to be used after 10pm on Sunday to Thursday and 11pm on Friday and Saturday. Lodgers to be considerate to adjoining neighbours and other residents of the boarding house and to keep noise levels to a minimum.
- g. **Emergency:** Emergency contact numbers, including essential services, fire, ambulance, police and utilities such as gas, electricity, plumbing and the like to be displayed on the premises
- h. **Drinking:** Alcohol is permitted within the premises as long as the Lodgers adhere to responsible drinking policy and take precautions whilst drinking with others and not leave any drinks unattended

- i. **Drugs:** Illegal drugs are not permitted within the premises. If caught with illegal drugs, responsible Lodgers will be reported to the police and lease agreement could be terminated with no compensation if charged and found guilty.
- j. **Smoke Alarms:** Rules relating to smoke alarms and the responsibility of the lodgers to pay costs if they trigger a false alarm and due to smoking inside the premises or due to negligence that causes the fire brigade to attend the premises.

The “House rules” will be updated regularly to consider any emerging situation.

The “House Rules” will be attached to all leases and should be signed by all Lodgers to confirm understanding of these rules before entering any lease.

The House rules are enforceable by the Boarding Houses; Lodgers who do not adhere to the House Rules can have their leases terminated and are liable to any damages caused to the premises and other Lodgers.

8. FIRE SAFETY

Due to Fire hazards and health hazards; The No Smoking Policy applies to all the premises including rooms and common areas.

All fire safety features within the building are to be regularly maintained in accordance with any statutory requirements; the Manager’s duty is to organise the fire safety equipment’s and features in good order and within the expiry dates.

A copy of the annual fire safety statement and current fire safety schedule for the premises must be prominently displayed in the reception area.

A floor plan must be permanently fixed to the inside of the door of each sleeping room to indicate the available emergency egress routes from the respective sleeping room.

All residents are to be made aware of the fire safety features of the building and what to do in the event of an emergency.

The Manager should explain to all Lodgers the procedures and the safe evacuation of the building in case of a fire alarm and not to return to the building until the Fire Brigade gives them clearance.

9. CLEANING AND MAINTENANCE

The subject premises are to be maintained in a safe and healthy condition.

The manager should engage a professional cleaning team to maintain the common areas.

In addition all boarders are to be made aware, upon their entering into an agreement to occupy, of their responsibilities in relation to the maintenance and cleaning of their rooms.

Further, the common open space areas are to be maintained in a neat and orderly manner. This will require twice/month garden maintenance during spring and summer and once/month garden maintenance during autumn and winter.

10. BOARDER/LODGER INFORMATION

All boarders are to be made aware of the contents and their obligations under approved Plan of Management. In this regard:

- A full copy of the approved Plan of Management is to be permanently supplied and retained in each boarding room and each common area.
- A copy of the approved Plan of Management is to be made available to every boarder.

- The House Rules will be signed upon signing the lease and will be displayed/or a copy retained by the Manager and every boarder should agree to abide by the rules.

11. REGISTRATION OF THE BOARDING HOUSE

The boarding house will be registered by the owners with the NSW Fair Trading within the first month of occupation in accordance with the Laws, and all leases are to comply with the NSW Fair Trading regulations in regards of terms and conditions, conflict resolution, tribunal, and bonds etc...

For more information, the owners need to contact the NSW Fair Trading on 143220 or check information on the website www.fairtrading.nsw.gov.au

12. BOARDING HOUSE FURNITURE AND FACILITIES

Supply of furniture to the private rooms is not essential; however, if the owners decided to furnish the rooms the furniture will consist of the followings:

Each boarding room will be provided with:

- one double bed (no mattress)
- One desk/table & 1 or 2 chairs

The following facilities will be provided to lodgers in every room:

- Clothes storage facility of 1m³ or greater
- Window furnishing/blind
- Phone line (not including access to provider)
- Internet/data line (not including access to provider)

The followings are not supplied by owner:

- Kitchen utensils
- Mattresses
- Bed sheets, bed covers and pillows/pillow cases
- Detergents, cleaning agents
- Cleaning equipment such as brooms; buckets and vacuum cleaner etc...

The Furniture of the common rooms is essential; the followings apply to common rooms:

- a. The common living room is to be provided with sofas, a kitchenette with a sink, water kettle and a microwave, a dining table with chairs.
- b. Available stackable 180 chairs in storage to be used in case of lodgers/manager's meetings.
- c. A broom, bucket and mop are to be kept in the laundry for use by lodgers as necessary.

13. WASTE MANAGEMENT & RECYCLING

Residents of the facility are to be encouraged where possible to take advantage of Council's waste and recycling facilities. It is the responsibility of the boarder to sort garbage and place it in the appropriate receptacles.

The Boarding House is equipped with 2 garbage shuts (separating general waste and recyclables)

The manager is responsible for the collection arrangements, including making sure that the waste containers are placed adjacent to the kerb on the day of collection and removed back onto the property promptly after collection, and including the servicing of special waste such as "sharps" and/or sanitary napkin receptacles. Where receptacles are provided for the disposal of sanitary napkins, these are to be serviced and readily cleaned on a regular basis.

Collection responsibilities of the manager include all regular garbage, recycling, and green waste collection services, as well as household cleanup collection, ensuring goods for collection are managed in accordance with Council's collection requirements (information available on Council's website).

14. SAFETY & SECURITY

The following matters are to be provided within the property:

- Internal signage indicating the manager and emergency contact numbers such plumbers and electricians and emergency 000 calls.
- Contact details of the manager of the premises should be provided to police and Council; these details also need to be placed at the front of the premises; any entry points to the site, common areas and office areas for emergency services and others
- A Contact number for external complaints should be provided to nearby residents. This number should also be placed on all entry points to the site
- Emergency contact numbers for essential services including fire, ambulance, police and utilities such as gas, electricity, plumbing and the like.
- Perimeter lighting.
- The entrance door, doors from boarding rooms to balconies and each boarding room shall be fitted with keylocks
- Individual room keys (a master key is to be maintained by the manager and made available to the fire brigade).
- CCTV with 24 hours recording (with record up to 28days) in all common areas.

15. DISPUTES, COMPLAINTS AND RESOLUTIONS

The boarding house encourages active participation from the community in the ongoing operation of the business. A Complaint Management System will be developed to support a positive relationship between the Boarding House and its surrounding community.

The Resident Manager will be available, either in person or by phone, to deal with any complaints as to the operation and management of the premises. Phone contact details for the Resident Manager are to be displayed at the entrance to the boarding house, on a sign that can be clearly read from the adjacent footpath.

The details of the contact person in respect of all inquiries or complaints in relation to the premises is the Resident Manager.

The Resident Manager is responsible for recording all complaints, including complaints from residents, in a Complaints Register.

When receiving any complaints from community members the Resident Manager will provide advice that the complaint may also be reported to Penrith City Council and the NSW Police department.

Complaints about noise will be attended to immediately. The Resident Manager will rectify the situation immediately and take all reasonable steps to prevent future occurrences. The Resident Manager will follow up by contacting the individual who made the complaint about noise to verify that the problem has been resolved.

The Complaints Register will contain:

- a. Complaint date and time
- b. Name of person/Police/Council officer making the complaint
- c. Contact details
- d. Nature of the complaint
- e. Action taken (by whom and when)
- f. Outcome and/or further action required

The Complaint Register must be updated within 24 hours of a complaint being made.

All complaints will be addressed by the management within 24 hours of notification.

The Complaints Register will be made available for inspection by the Police and/or Council upon request.

Management of the Boarding House will regularly review the Complaints Register and where appropriate amend the operating procedures to minimise any negative impacts of the boarding house residents and members of the surrounding community.

The Boarding house will be registered with the NSW Department of Fair Trading prior to occupation of the premises.

All tenants will be provided with a Tenancy Agreement with a minimum lease of 6 months; the Tenants will pay the minimum of 4 weeks Bond to be deposited in Bond Board as per the Residential Tenancies Act 2010

In any unresolved dispute between tenants and the landlords/operators can be referred to The NSW Civil and Administrative Tribunal (NCAT) which is the main forum for resolving residential tenancy disputes between landlords and tenants

The tenants' and owners' rights and duties are reserved under the Residential Tenancies Act 2010.

Any complaint should be given in writing to the manager.

The manager should attend to resolve any issue the tenant have in a timely manner within reasons.

The manager should respond to any complaints from neighbours or Council immediately and without delay.

The Resident Manager will convene at least quarterly meetings with residents to discuss any issues or problems that may need to be resolved. These meetings will be recorded in a Residents' Meeting Minutes Register and all issues raised by these meetings will be recorded in the Minutes.

In the event of a dispute between residents, the Resident Manager will attempt to negotiate a resolution between the involved residents. If the dispute cannot be resolved, then the Resident Manager will make an interim determination regarding the dispute, and this resolution will be binding on the residents.

If any resident is not satisfied with the Resident Manager's interim determination, the matter can be referred to Community Justice Centre for mediation or arbitration. The Resident Manager will amend the interim determination in line with the recommendations of the Community Justice Centre.

Disputes in relation to the Occupancy Agreement will be resolved in accordance with Clause 9 of the Standard Occupancy Agreement which states that either party may apply to the NSW Civil and Administrative Tribunal (NCAT) to resolve a dispute about the Occupancy Agreement.

In the event of a dispute with an external party, the Resident Manager will initially attempt to resolve the dispute. If the dispute cannot be resolved, then the matter will be referred to the owner. If the dispute still cannot be resolved, the owner will refer the matter to the Community Justice Centre for mediation or arbitration.

The Manager will be trained to resolve any disputes with the residents and between the residents; the manager will follow the following procedure to resolve disputes:

- a) Actively listen to the complaints
- b) Try to find a reasonable solution to resolve the issue with the residents or between the residents
- c) Actively try to stop any action that could lead to violence
- d) Act very calmly without aggression to dissipate any aggressive reaction
- e) Refer the matter to the Police in case of any aggressive behaviour

16. Vehicles/Bikes/Motorbikes Parking's

Bicycles and motor bikes parking are available.

A Go Get Car (or any Car Share facility) will be available on site.

Vehicles shall be always parked legally and within the marked spaces and as specified by the manager.

Spaces will remain common and will not be allocated to individual bedrooms
There is no overnight visitor's parking.

Disabled parking is to remain exclusively for any disabled person who lives in any of the Adaptable Rooms. The manager could allow any other residents to use disabled parking only in case no disabled person occupy any of the accessible Rooms.

17. Liaison with Neighbours

The Boarding house will have a Policy of "Living in Harmony with the neighbours"

Neighbours' complaints will be taking very seriously by the manager/owners

The management will address to any neighbours' complaints immediately to mitigate any impact on them.

The residents will always be reminded to adhere to the "House Rules" in this Plan of management to maintain a good relationship with the neighbour; residents who ignore the House Rules will be given only 1 warning, repeat of the same offence by the same residents will result in evacuation order.

Any misconduct that affects the neighbouring properties and their tenants will not be tolerated.

The manager will display on the notice board at the main entry of building any news or orders and any complaints from neighbours or council or from other tenants within the boarding house.

Offenders will be warned directly verbally and in writing.

This Boarding House Management Plan will be provided to Council and the Department of Fair Trading at request.

[END OF PLAN OF MANAGEMENT]

SOCIAL IMPACT ASSESSMENT

Mixed-use Development

Commercial & Boarding House

31 Santley Crescent and 2A Bringelly Road, Kingswood

10 October 2021

Prepared by Chapman Planning Pty Ltd



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Preface

Chapman Planning has been engaged by Danabina Pty Ltd to prepare this Social Impact Assessment (SIA) for the proposed mixed-use development, including 96 room boarding house, at 31 Santley Crescent and 2A Bringelly Road, Kingswood.

In preparing this report, Chapman Planning Pty Ltd has used and relied on data, plans and information provided by others as detailed in this document. Unless otherwise stated, the accuracy and completeness of the information provided to Chapman Planning Pty Ltd for purposes of preparing this Social Impact Assessment has not been independently verified.

This assessment has relied on the following architectural plans:

- *Architectural plans numbered A001 – A202 dated February 2021 prepared by Gus Fares Architects, and*
- *Plan of Management dated 5 October 2021 prepared by Gus Fares Architects.*

Penrith City Council does not provide local guidelines for the preparation of a Social Impact Assessment. However, relevant principles are outlined in the Council's Development Control Plan (DCP) (2014), which require social impacts of proposed interventions to be considered for the benefit of existing and future communities. This Social Impact Assessment includes the following general scope:

- A review of mapping programs to review the site and locality.
- Review of proposed development – Architectural plans prepared by Gus Fares Architects.
- Review of demographic data and cultural trends in the immediate and extended locality.
- Review of existing and proposed social infrastructure in the immediate and extended locality.
- General liaison with relevant staff from Penrith City Council.

1. Introduction and Description

This Social Impact Assessment has been prepared for Danabina Pty Ltd with regard to the proposed mixed-use development including boarding house located at 31 Santley Crescent and 2A Bringelly Road Kingswood. The property is legally described as Lots 3 and 5 in DP 215200.

The development proposal is for the construction of a 5 – 6 storey mixed use development, including: a 96-room boarding house, 6 commercial spaces across the Ground and First floors, one (1) manager's room, office and meeting room, a communal laundry, a communal living room (87m²) opening to communal open space (57m²), with basement and at-grade parking for 39 cars, 20 motorbikes and 20 bicycles, storage cages, and associated landscaping.

The boarding house will accommodate a maximum of 184 lodgers including an on-site manager and the development application is made under the *State Environmental Planning Policy (Affordable Rental Housing) 2009*.

The subject site is located approximately 150 meters south of the Kingswood Railway Station. The location of the subject site, 31 Santley Crescent and 2A Bringelly Road, Kingswood, and its positioning in its broader context is shown in the figure below:



Figure 1 – Aerial photograph of subject site.

The subject site is located within the catchment of the Nepean Hospital, Western Sydney University and the Kingswood railway station.



Figure 2 – Aerial photograph of the locality.

2. Accommodation & Commercial

The boarding house has the capacity to accommodate up to 184 people including an on-site boarding house manager. There are 8 single rooms, and 96 double rooms designed to accommodate two (2) lodgers. The room sizes are:

- Single rooms: 12m² - 15m² (excluding the kitchen and bathroom), and
- Double rooms: 16m² – 25m² (excluding the kitchen and bathroom).

Each room has been designed with an individual kitchen and bathroom.

Rooms 012, 014 at the first floor, and rooms 026, 027 at the second floor, are accessible rooms sized 22-25m².

The communal living room is located at the north-eastern corner of the ground floor and includes access to a communal open space and shared laundry. Access to the basement parking and storage is provided by stairs and a lift core central to the building.

The development includes 324m² of commercial (retail) space across 2 spaces on the ground floor and 4 spaces on the first floor. These spaces are between 35m² and 83m². All commercial spaces face Bringelly Road.

3. Policy Context

The *State Environmental Planning Policy (Affordable Rental Housing) 2009* was introduced to increase the supply and diversity of affordable rental and social housing throughout NSW.

The Affordable Housing SEPP fact sheet, published by the NSW Department of Planning and Infrastructure, provides the following key pieces of information regarding affordable housing and the demonstrated need for affordable housing.

Why do we need affordable housing?

Throughout NSW there is a strong need for a range of affordable housing options amongst the community. This is reflected in figures which show that in February 2010 there were over 47,000 people in NSW on waiting lists for suitable housing accommodation. It is essential that government at all levels, private industry and the non-government sector work in partnership towards finding innovative ways to provide more affordable housing.

What is affordable rental housing?

Affordable rental housing is housing for very low, low and moderate income earning households. These are currently households with an annual income of up to about \$80,000. This includes people who have no place to live, people on low and moderate incomes and key workers who need to live close to their employment.

The specified aims of the Affordable Housing SEPP are listed as:

The aims of this Policy are as follows:

- (a) to provide a consistent planning regime for the provision of affordable rental housing,*
- (b) to facilitate the effective delivery of new affordable rental housing by providing incentives by way of expanded zoning permissibility, floor space ratio bonuses and non-discretionary development standards,*
- (c) to facilitate the retention and mitigate the loss of existing affordable rental housing,*
- (d) to employ a balanced approach between obligations for retaining and mitigating the loss of existing affordable rental housing, and incentives for the development of new affordable rental housing,*
- (e) to facilitate an expanded role for not-for-profit-providers of affordable rental housing,*
- (f) to support local business centres by providing affordable rental housing for workers close to places of work,*
- (g) to facilitate the development of housing for the homeless and other disadvantaged people who may require support services, including group homes and supportive accommodation.*

The proposed boarding house meets the provision of the SEPP through the construction of a boarding house including 96 boarding rooms to accommodate a maximum of 180 lodgers in an area located close to Kingswood and Penrith town centres.

The 2016 census data on the ABS website includes the following median weekly household incomes and median weekly rents:

- Kingswood (State Suburb):
 - Income: \$1229 per week.
 - Rent: \$325 per week.
- Penrith (LGA):
 - Income: \$1332 per week.
 - Rent: \$370 per week.

Clause 6 of SEPP - Affordable Rental Housing 2009 defines affordable housing as:

affordable housing means housing for very low income households, low income households or moderate income households, being such households as are prescribed by the regulations or as are provided for in an environmental planning instrument.

(1) In this Policy, a household is taken to be a very low income household, low income household or moderate income household if the household—

(a) has a gross income that is less than 120 per cent of the median household income for the time being for the Greater Sydney (Greater Capital City Statistical Area) (according to the Australian Bureau of Statistics) and pays no more than 30 per cent of that gross income in rent, or

(b) is eligible to occupy rental accommodation under the National Rental Affordability Scheme and pays no more rent than that which would be charged if the household were to occupy rental accommodation under that scheme.

4. Relevant Strategies and Policies

The following section of this Social Impact Assessment provides a brief review of the relevant strategic documents to determine how the proposal relates to the future direction of City of Penrith LGA. The following strategic documents have been reviewed:

- A Plan for Growing Sydney (2014)
- A Metropolis of Three Cities (2018)
- Penrith Local Strategic Planning Statement (2020)

A Plan for Growing Sydney (2014)

A Plan for Growing Sydney (2014) acts as one of the NSW government's key strategic planning documents and sets out future directions for the development of Sydney. One of the key directions of the plan is to accelerate urban renewal across

Sydney – providing homes closer to jobs and expanding the existing strategic centres.

The plan identifies Penrith as a strategic centre for jobs and services for outer suburban communities. Action 1.7.4 provides the government will recognise Penrith as one of several important regional city centres for additional housing, employment and services benefiting the local area and the Northwest Growth Centre.

The plan further identifies Penrith as being within the West Subregion, along with the Blue Mountains and Hawkesbury. Importantly in this subregion:

Badgerys Creek Airport will be a catalyst for significant new investment in infrastructure and jobs in the subregion. Along with new supporting transport infrastructure, the airport will greatly enhance national and international connections. Penrith will be a focus for housing and jobs growth, particularly in professional services, health and education.

One of the key identified priorities for the sub-region in Penrith is to work with council to provide capacity for additional mixed-use development, including offices, retail, services and housing.

The proposed mixed-use development is consistent with the strategic priorities identified in A Plan for Growing Sydney (2014), and the Penrith LGA in particular.

A Metropolis of Three Cities (2018)

The strategic plan “A Metropolis of Three Cities” is a plan developed by the Greater Sydney Commission to rebalance greater Sydney into three primary centres with jobs, services, and public places evenly located throughout the greater metropolitan area. The plan envisions Greater Sydney as a ‘city of three cities,’ with Penrith part of the Western Parkland City. The plan builds on the 30-minute city concept, where residents have access to jobs, homes and services within 30 minutes travel time.

The plan further identifies Penrith as a metropolitan city, and the area from Greater Penrith to Eastern Creek is identified as a growth area, which can contribute to a connected, vibrant Western Parkland City with more homes, jobs, services and open space.

The metropolis of three cities plan identifies 10 key directions, including “Housing the city” with potential indicators and objectives as below:



Housing the city
Giving people housing choices

Potential indicators*: Increased housing completions (by type), Number of councils that implement Affordable Rental Housing Target Schemes

Objective 10: Greater housing supply

Objective 11: Housing is more diverse and affordable

The plan states:

A range of housing types, tenures and price points will be needed to meet demand. This refers to all types of houses, apartments, terraces and villas; to different tenures including dwellings that are owned outright, mortgaged or rented; to homes occupied by single people, families and groups.

A range of housing types provides for the needs of the community at different stages of life and caters for diverse household types. It means that as people age they can move into smaller homes and age in their own neighbourhoods, while young adults leaving home can stay close to their families and communities.

The proposed boarding house is consistent with this direction – being affordable housing within a major centre, in proximity to transport and employment opportunities. The boarding house adds to housing availability and increases housing choice within the locality to add to the range of tenure types and improve availability of housing for lower income earners, and those requiring more flexible forms of accommodation.

Penrith Local Strategic Planning Statement (2020)

Penrith City Council's Local Strategic Planning Statement (LSPS), Planning for a Brighter Future, sets out the 20-year vision for land use in Penrith Local Government Area (LGA).

The statement recognises greater housing diversity as key to supporting the area's growth:

Current residents love Penrith and want to stay while new people want to live here, driving demand for new and denser housing development. People are looking for different types of homes, so we need to plan for smaller and more diverse housing.

The statement contains 21 planning priorities, including (3) Provide new homes to meet the diverse needs of our growing community, and (4) Improve the affordability of housing. Relevantly, the plan acknowledges:

We need compact homes that are accessible and easy to maintain, apartments close to shops and services, and moderately-sized homes for smaller families.

The proposed boarding house is consistent with the aims and objectives of this statement through contributing to the diversity of accommodation options, in proximity to transport and employment opportunities.

5. Community Profile

The following provides an overview of the demographic and households characteristics of the Penrith Local Government Area (Penrith LGA), sourced from the Australian Bureau of Statistics 2016 Census.

- In the 2016 Census, there were 196,066 people in Penrith LGA. Of these 49.4% were male and 50.6% were female. Aboriginal and/or Torres Strait Islander people made up 3.9% of the population.
- The median age of people in Penrith LGA was 34 years. Children aged 0 - 14 years made up 21.1% of the population and people aged 65 years and over made up 11.7% of the population.
- Of people in Penrith LGA aged 15 years and over, 47.3% were married and 12.3% were either divorced or separated.
- In Penrith LGA, of people aged 15 years and over, 47.4% of people were in a registered marriage and 10.3% were in a de facto marriage.
- In Penrith LGA, 30.8% of people were attending an educational institution. Of these, 29.6% were in primary school, 21.9% in secondary school and 18.2% in a tertiary or technical institution.
- In Penrith LGA, 72.4% of people were born in Australia. The most common countries of birth were England 3.1%, New Zealand 2.0%, Philippines 1.9%, India 1.9% and Malta 0.6%.
- The most common responses for religion in Penrith LGA were Catholic 32.1%, No Religion, so described 21.1%, Anglican 18.4%, Not stated 8.3% and Christian, nfd 2.3%. In Penrith LGA, Christianity was the largest religious group reported overall (69.9%) (this figure excludes not stated responses).
- There were 100,604 people who reported being in the labour force in the week before Census night in Penrith LGA. Of these 63.9% were employed full time, 25.6% were employed part-time and 5.7% were unemployed.
- The median weekly personal income for people aged 15 years and over in Penrith LGA was \$728.
- Of occupied private dwellings in Penrith LGA, 81.5% were separate houses, 11.8% were semi-detached, row or terrace houses, townhouses etc. 6.0% were flat or apartments and 0.4% were other dwellings.

- In Penrith LGA, of occupied private dwellings 2.0% had 1 bedroom, 10.2% had 2 bedrooms and 45.8% had 3 bedrooms. The average number of bedrooms per occupied private dwelling was 3.4. The average household size was 2.9 people.
- The median weekly rent was \$370 and the average monthly mortgage repayments were \$2000.

The population of Penrith LGA will experience significant growth within the next 15 years, noting the strategic planning documents identify Penrith as a strategic centre for growth. It is anticipated by 2036 the Penrith LGA will be home to 260,000 people.

In the Penrith LGA, 12.2% of households are in housing stress (that is, the household is in the lowest 40% of household incomes and is paying more than 30% of their gross weekly income on rent/ mortgage payments). In Kingswood specifically, 17.7% of households are in housing stress, including 32.2% of households that rent.¹ This demonstrates there is likely high demand for smaller, affordable rental housing in the area. This is reflected in Penrith City Councils Community Profile (2018), which states:

Local forecast data showing population growth, declining household sizes and an increase in lone households suggests that the need and demand for smaller, higher density dwellings in the Penrith area will continue.

6. Key Social Infrastructure

The following section provides an overview of the key social infrastructure currently available in Kingswood, Penrith LGA and surrounding suburbs. The audit is limited to facilities that would be of direct benefit to the incoming residential population of the proposed development.

Health Services

- The Quarter – Penrith’s Education and Health District
- Matilda Health Care (0.5km)
- Somserset Private Hospital (0.7km)
- Nepean Hospital & Emergency Room (1.0km)
- Nepean Mental Health Centre (1.0km)

Tertiary Education Institutions

- The Quarter – Penrith’s Education and Health District
- University of Sydney Nepean Clinical School (1.0km)
- Western Sydney University, Penrith Campus (1.2km)
- TAFE NSW Nepean Kingswood (1.7km)
- TAFE NSW Nepean Penrith (2.5km)

Public Transport

- Kingswood Station (0.15km)

¹ Penrith City Council – Community Profile 2018
Social Impact Statement – 31 Santley Crescent and 2A Bringelly Road, Kingswood

- Bus Routes 770, 774, 775, 776, 781, 789 in proximity

Community Facilities

- Kingswood Post Office (0.1km)
- Kingswood Neighborhood Centre (0.3km)
- Kingswood Sports Club (0.3km)
- Nepean Police Station (2.0km)
- Penrith Library (3.1km)

Open Space

- Doug Rennie Field (0.2km)
- Wainwright Park (0.3km)
- Chapman Gardens and Ovals (0.5km)
- Peppermint Reserve (1.0km)
- Werrington Lakes (1.7km)

Retail Facilities and Banks

The retail stretch of the Great Western Highway in Kingswood is 0.1km walking distance from the site and provides a range of retail outlets including food and banking. In addition, local cafes, and take away food outlets are within walking distance of the site. The site's proximity to Nepean Hospital means it is well-serviced by transport and retail offerings.

Further, the site is proximate to Penrith retail and amenities.

7. Community Identity and Connectedness

There is often a lack of understanding in local communities of the people likely to be accommodated in affordable rental housing. Local opposition is often most acute for low-rise infill housing (including boarding houses) in areas adjoining low density residential houses.

This is frequently based on a misunderstanding of the types of people that qualify to occupy affordable rental housing. This can lead to local resident opposition to new affordable housing proposals as they object to "social housing" occupants in their area, because of perceived social issues and potential for impacts on property values.

However, demand for boarding house developments is driven by a much wider potential resident group than that typically associated with Social Housing. This includes single women, students, contractors, couples and young working people in the process of saving for a house - with these persons not on a sufficiently low income to qualify for Government social housing. Developers have indicated that reasonable rents, lease flexibility and accessible locations are typically the main housing priorities for people seeking this type of accommodation.

The development proposal may lead to local resident opposition as a result of its nature, however the realistic impacts of the proposal are to provide accommodation for key workers, young workers and young couples particularly those seeking lower

rental levels in order to offset lower incomes or to facilitate savings to enable aspirational home ownership in the future.

8. Health and Wellbeing

Kingswood has high residential amenity with access to a wide range of local facilities and amenities. The proposal is a suitable form of development for the B4 mixed-use zone and would not discernibly impact on the existing amenity and character of the locality.

The subject site includes open space, a communal living area, suitable parking arrangements, and individual kitchens and bathrooms. The subject site is located within the catchment of several community facilities such as parks, tertiary education options, and hospitals, and is within walking distance to bus routes and a major train station which provides access to surrounding centres.

9. Local Economy and Employment

The development proposal is likely to attract working age tenants who are in receipt of a market based income. The site's proximity to major health and education providers such as Nepean Hospital and Western Sydney University will assist in access to employment. The site is well-serviced by transport options which will provide further access to employment opportunities.

The labour force participation rate refers to the proportion of the population over 15 years of age that are employed or actively looking for work. Analysis of 2016 census data shows there were 100,604 people who reported being in the labour force in the week before Census night in Penrith LGA. Of these 69.3% were employed full time, 25.6% were employed part-time and 5.7% were unemployed. The median weekly personal income for people aged 15 years and over in Penrith LGA (C) was \$728.

The development includes commercial space that will help satisfy retail demand from the increased population that is anticipated for this area in the short-medium term.

10. Needs of Population Groups

The need for increased housing supply and diversity across Sydney is expressed in all strategic planning documents for the greater Sydney region, and Penrith LGA in particular.

The boarding house adds to the available housing stock in the locality with the provision of 96 boarding rooms providing a unique form of flexible medium-long term accommodation at a lower price point than traditional residential dwellings. The accommodation will provide for students, young professionals and contract workers who only wish to rent a small room and for whom long term residential lease agreements are not appropriate.

The proposed boarding house development will cater for a variety of socio-economic groups. This will ensure that Penrith LGA maintains its existing social diversity and housing choice, affordability and social mix.

The Penrith Community Profile 2018 estimates the following population growth for Kingswood between 2016 and 2036 of +3,702.

FORECAST POPULATION BY SUBURB						
AREA	2016	2021	2026	2031	2036	TOTAL CHANGE BETWEEN 2016 AND 2036
Penrith City	201,404	219,315	232,754	245,683	258,195	+56,791
Caddens	1,068	3,163	3,634	3,549	3,456	+2,389
Cambridge Park	6,889	6,999	7,078	7,262	7,515	+626
Claremont Meadows	4,920	5,006	4,938	4,932	4,955	+35
Colyton	8,600	8,616	8,701	8,867	9,091	+491
Cranebrook	16,268	15,900	15,780	15,789	15,939	-329
Emu Heights	3,362	3,258	3,273	3,302	3,349	-13
Emu Plains	8,621	8,909	9,137	9,371	9,643	+1,022
Erskine Park	6,595	6,463	6,502	6,621	6,807	+212
Glenmore Park	23,679	24,949	24,402	24,038	23,815	+136
Jamisontown	5,614	5,991	6,219	6,563	7,003	+1,389
Kingswood	10,026	11,937	12,789	13,217	13,728	+3,702
Leonay	2,583	2,558	2,612	2,670	2,790	+207
Llandilo - Berkshire Park	3,894	3,925	3,971	3,997	4,016	+122
Londonderry - Castlereagh - Agnes Banks	5,704	5,736	5,814	5,935	6,062	+358
North St Marys	4,040	4,163	4,213	4,335	4,446	+406
Orchard Hills - Rural South	5,057	5,069	4,974	4,931	4,922	-134
Oxley Park	3,076	3,215	3,349	3,511	3,669	+593
Penrith	13,630	16,920	20,493	24,805	28,613	+14,983
Penrith Lakes	13	1,012	4,934	9,579	13,779	+13,766
Regentville - Mulgoa - Wallacia	4,071	4,589	4,690	4,796	4,913	+842
South Penrith	12,070	12,041	12,250	12,616	13,040	+970
St Clair	20,377	20,182	20,136	20,127	20,244	-133
St Marys	12,739	14,329	15,644	16,953	18,157	+5,417
Jordan Springs	5,317	9,446	11,134	10,918	10,634	+5,317
Werrington	4,158	5,874	7,022	7,831	8,207	+4,049
Werrington Downs - Werrington County - Cambridge Gardens	9,033	9,064	9,066	9,169	9,402	+369

Figure 3 – Population growth between 2016 and 2036. Source Penrith Community Profile 2018.

11. Assessment of Social Impacts and Responses

This section provides an assessment of the potential social impacts arising from the proposal including the relative equity of these impacts. The policy review, demographic analysis and the social infrastructure audit are drawn upon to provide a deeper understanding of the potential social changes resultant from the proposal. This section also outlines any mitigation measures implemented in response to potential negative social impacts.

Community Consultation

The development proposal has been implemented on this site as a response to government policy documents, and metropolitan strategy documents identifying the need for housing and affordable housing across Sydney, specifically in strategic centres close to employment opportunities. The site is located within a B4 - mixed-use zone under the Penrith LEP 2010 and has been designed to meet the provisions of *SEPP (Affordable Rental Housing) 2009*.

The community will be notified of the development proposal during the notification period of the development application assessment process.

Housing Affordability and Housing Choice

In Penrith LGA, the primary housing stock consists of separate houses of 3+ bedrooms, with limited options for single persons, low-income earners, or those incapable of committing to a long-term lease. Only 6% of dwellings in Penrith LGA are flats or apartments, compared to 19.9% in NSW generally.

The proposal responds to the housing affordability problems faced by residents in the area by providing a housing option specifically targeted towards lower income persons and those unable to commit to long-term lease. The proposed development is likely to have a positive social impact by increasing the provision of low-cost rental housing within the LGA.

The proposed land use can be considered both appropriate and timely, as it aligns with both the Council's strategic directions expressed within the Penrith LSPS and the Greater Sydney Commissions' plan, which both aim to promote diverse and affordable housing options and increase densities within established centres.

Availability of Social Infrastructure

Both local and regional strategic planning documents promote the development of housing in areas with established social infrastructure and in proximity to public transport. The review of the relevant social infrastructure has indicated the Kingswood and wider Penrith locality is well serviced by medical facilities of varying scales, education, employment options and speciality shops and has ample public transport and access to amenities.

Safety and Security

The proposal has been designed to minimise real and perceived feelings of safety that may be experienced by incoming residents.

The site has dual-street frontage and access to both Santley Crescent and Bringelly Road. Controlled access to the proposal will be ensured through the provision of security cards to residents of the boarding house with a locked entrance gate. Street frontages and common areas, including the entry, communal areas, will include appropriate lighting and receive passive surveillance from the boarding rooms.

Cumulative Impact of Boarding Houses

A method to determine the relative level of socio-economic advantage and disadvantage of an area is through the application of the ABS Socio-Economic Indexes for Areas (SEIFA) indicator. SEIFA ranks SA1 areas (the smaller geographical area for which data is collected by the ABS) in NSW according to relative socio-economic advantage and disadvantage. A low SEIFA score for an area indicates that a high proportion of relatively disadvantaged people reside in an area. The SA1 area where the subject site is located has a SEIFA decile of 5 out of 10. This rank indicates the SA1 sits within the middle of the index score distribution and, generally speaking, has average levels of social and economic disadvantage.

Given the medium SEIFA ranking of the SA1 area surrounding the site, the boarding house will serve to provide accommodation to a range of people including the socially disadvantaged, as well as students, single employed persons and those seeking short-medium term accommodation.

Moreover, the proposed boarding house can be considered a new generation boarding house. New generation boarding houses operate in a different manner to traditional boarding houses and therefore attract a different tenant profile, with occupants tending to be young 'key workers' or professionals. New generation boarding houses are self-contained and designed with individual bathroom and kitchen facilities. The proposed development can be considered a new generation boarding house and therefore is likely to attract occupants with lower levels of social economic disadvantage than traditional boarding houses.

Management and Upkeep of the Premises

Local communities may have negative perceptions regarding boarding houses and associate this development form with anti-social behaviour. As outlined, this boarding house is a 'new generation' boarding house and therefore unlikely to generate anti-social behaviour beyond that of a more traditional residential development. Notwithstanding, a number of measures should be implemented to discourage anti-social behaviour.

It is recommended that the Plan of Management outline the ways in which the boarding house manager will ensure high amenity standards are maintained.

Residential Amenity

Ensuring residential amenity for the residents of the boarding house and adjoining residents of residential flat buildings is an important consideration that should be integrated into the proposal.

The acoustic and privacy impacts from the boarding house are consistent with the surrounding development noting the B4 mixed-use zoning.

The proposal include fenestration on the northern, eastern, southern, and western elevations and access at both the southern and western elevations, providing

passive surveillance of the public domain and casual surveillance of communal areas within the site.

12. Conclusion

A social impact assessment for the proposed mixed-use development at 31 Santley Crescent and 2A Bringelly Road, Kingswood, has been undertaken.

The proposed development is anticipated to result in the following positive social benefits:

- contribute to the provision of housing for low to moderate income households who are financially excluded from the existing housing market within the LGA;
- meets the demand for flexible and affordable boarding house-style accommodation in the LGA;
- encourage housing diversity by providing a dwelling type suitable for single person and small households;
- provide housing in an area well serviced by public transport and social infrastructure;
- provide housing choice within the catchment of the Nepean Hospital and Western Sydney University,
- encourage development and uplift in housing stock within the B4 mixed-use zone; and
- promote the growth of The Quarter, Penrith's education and health district, by providing greater housing stock and diversity in proximity to the hospital and university.

To encourage the positive benefits from the proposed development, the following mitigation measures are suggested:

- The Plan of Management should stipulate the boarding house manager's responsibilities to facilitate general upkeep of the premises to minimise real or perceived perceptions of anti-social behaviour.

The proposal responds to the housing affordability problems faced by low to moderate income households, by providing a more affordable housing option. Further, the proposal provides a suitable housing option for single persons, students and contract workers, a demographic that is not catered for in the available housing stock. The proposal can be considered appropriate and timely, as the proposed land use aligns with Council's strategic directions and will be capable of accommodating the needs of the local population.



Minto Planning Services

Town Planning Consultants

**STATEMENT OF
ENVIRONMENTAL EFFECTS**

**PROPOSED MIXED USE BOARDING HOUSE DEVELOPMENT
PURSUANT TO SEPP (AFFORDABLE RENTAL HOUSING) 2009**

31 SANTLEY CRESCENT & 2A BRINGELLY ROAD, KINGSWOOD

**On behalf of
Dana Bina P/L & Midpoint Investments P/L**

October 2021

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STATEMENT OF ENVIRONMENTAL EFFECTS

PROPOSED MIXED USE BOARDING HOUSE DEVELOPMENT PURSUANT TO SEPP (AFFORDABLE RENTAL HOUSING) 2009

31 Santley Crescent & 2A Bringelly Road, Kingswood

Prepared under instructions from

Gus Fares Architects



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1. INTRODUCTION

This Statement of Environmental Effects accompanies a Development Application lodged on behalf of Dana Bina P/L & Midpoint Investments P/L. The proposal seeks approval for the construction of a mixed use boarding house development comprising ground and first floor commercial premises and a 96 room boarding house and basement parking upon land at 31 Santley Crescent & 2A Bringelly Road, Kingswood.

The subject application is made pursuant to the provisions of both the Penrith Local Environmental Plan and State Environmental Planning Policy (Affordable Rental Housing) 2009 and which apply to the subject land.

For the purposes of this assessment the following documents are considered to be relevant to this proposal:

- *Environmental Planning & Assessment Act 1979*
- *State Environmental Planning Policy No 55 - Remediation of Land*
- *State Environmental Planning Policy (Affordable Rental Housing) 2009*
- *Penrith Local Environmental Plan 2010*
- *Penrith Development Control Plan 2014*

Additional information to support this application includes:

- Survey Plan prepared by Sydney Registered Surveyors, Ref. No. 2676 Stantley, Sheet 1 of 1, Amendment B and dated 21/12/2020.
- Architectural Plans and Shadow Diagrams prepared by Gus Fares Architects, Drawing No. A000 to A302, Issue A and dated Oct 2021.
- Architectural and Urban Planning Statement prepared by Gus Fares Architects P/L and dated 21/10/2021.
- Landscape Plans prepared by Conzept Landscape Architects, Drawing No. LPDA22-116, Pages 1 to 4, Revision B and dated 22/10/21.
- Stormwater Management Plans prepared by Capital Engineering Consultants P/L, Project No. SW21299, Drawing No's SWDP001 to SWDP030, Revision A and dated 21/10/2021.
- Traffic Impact Assessment Report prepared by PDC Consultants, Ref. No. 0444r01v01, Version 01 and dated 14/10/2021.
- Acoustic Report prepared by Koikas Acoustics P/L, Project No. 5052, Version 1 and dated 11/10/2021.
- Geotechnical Report prepared by Geotechnical Consultants Australia Pty Ltd, Report No. G21551-1 and dated 29/09/2021.
- Preliminary Site Investigation Report prepared by Geotechnical Consultants Australia, Report No. E21185-1 and dated 23/09/2021.
- Access Report and Design Certificate prepared by Vista Access Architects P/L, Ref No. 21335, Issue A and dated 21/10/2021.

- BCA Report prepared by Michael Wynn-Jones & Associates, Reference No. Santley (31) 21 Oct 2021 and dated 21/10/2021.
- BASIX Certificate No. 1244577M and dated 21/10/21.
- Plan of Management prepared by Gus Fares Architects P/L, Issue A and dated 5/10/2021.
- Social Impact Assessment prepared by Chapman Planning P/L and dated 10/10/2021.
- Waste Management Plan prepared by Dickens Solutions, Reference No. 21196 and dated 21/10/2021.
- Quantity Surveyors Cost Report prepared by Construction Consultants, Job Code Q21C124 and dated 27/09/2021.

This Statement describes the subject site and the surrounding area, together with the relevant planning controls and policies relating to the site and the type of development proposed. It provides an assessment of the proposed development against the heads of consideration as set out in Section 4.15 of the Environmental Planning and Assessment Act 1979.

As a result of that assessment, it is concluded that the development of the site in the manner proposed is considered to be acceptable and is worthy of the support of the Council.

2. THE SITE

The subject site comprises 2 parcels of land known as 31 Santley Crescent and 2A Bringelly Road, Kingswood.

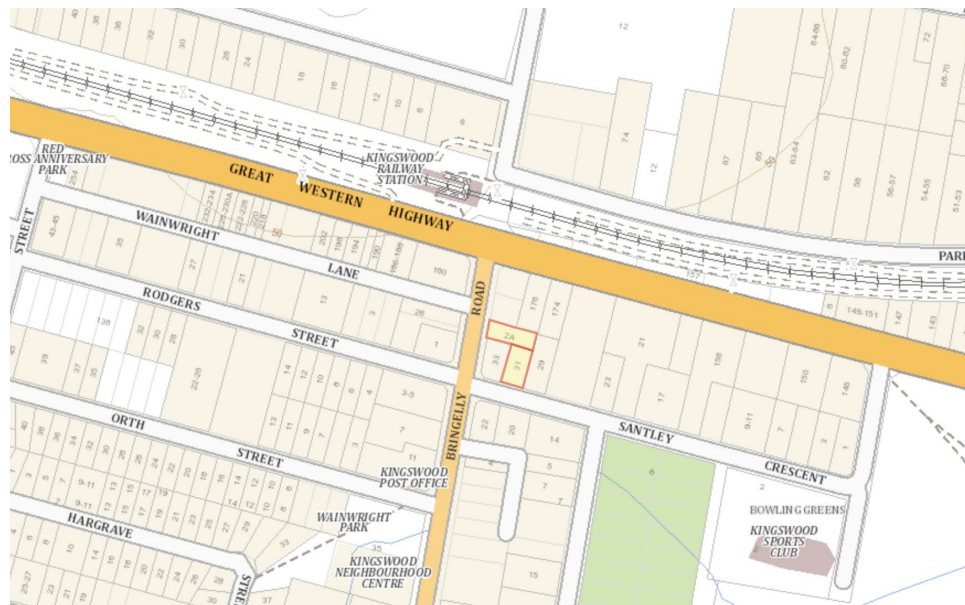
A full description of the development site is detailed below:

Land parcel	Property description	Site area
31 Santley Crescent	Lot 5 in DP 215200	693.6m ² (by survey)
2A Bringelly Road	Lot 3 in DP 215200	690.8m ² (by survey)

The subject site once consolidated will result in an irregular shaped allotment with a site area of 1,384.4m².

The development site will have a frontage to Santley Crescent of 20.115m and a frontage of 15.849m to Bringelly Road. The Santley Crescent frontage will provide vehicular access to the site.

The site location is depicted in the following street map extract.



Site Location Map

The subject site is a gently sloping allotment having a minor fall from the north west boundary along Bringelly Road (RL 45.31) through to the front south east corner in Santley Crescent (RL 43.26). The total fall over the site is 2.05m. It is understood that currently all collected surface water is dealt with on-site and drained both to the easement located in the north eastern rear portion of the site and to the street drainage system in Santley Crescent.

Existing development currently located upon the property comprises the following:

31 Santley Crescent, Kingswood

Currently erected upon this property is a single storey brick dwelling house with tiled roof. The dwelling is located towards the southern portion on the site and slightly towards the eastern side boundary.

Vehicular access to the property is via a single driveway located in the south eastern corner and enters from Santley Crescent.

The existing dwelling house is not heritage listed and is not considered to have any heritage significance which would prevent its proposed demolition.

2A Bringelly Road, Kingswood

Currently erected upon this property is a single storey fibro dwelling house with a metal roof and a detached fibro garage. The dwelling is located towards the western portion on the site and slightly towards the southern side boundary. The detached garage is located to the rear of the dwelling within the north eastern portion.

Vehicular access to the property is via a single width gravel and concrete driveway accessed from Bringelly Road.

The existing dwelling house is not heritage listed and is not considered to have any heritage significance which would prevent its proposed demolition.

An easement for drainage, 1.0m wide, is identified within the north eastern corner of the site.

Infrastructure located adjacent to the frontages of the site includes a concrete pedestrian pathway, streetlights and drainage and infrastructure pits.

Vegetation located upon the site is generally comprised of grasses and small shrubs together with some trees. It is considered that the proposal will not result in any unreasonable tree impacts.



The subject property as viewed from Santley Crescent



The subject property as viewed from Bringelly Road



An aerial view of the subject site

3. THE SURROUNDING ENVIRONMENT

The subject site has a frontage to both Santley Crescent and Bringelly Road, Kingswood. Surrounding properties comprise of a combination of commercial premises together with high density residential uses comprising of multi dwelling housing and residential flat buildings. The existing built forms are of varying ages and support a range of building typologies.

Properties which front the Bringelly Road portion of the site are zoned B4 - Mixed Use (consistent with the subject site) and support a range of shop top housing developments of varying ages together with commercial uses. Properties which front Santley Crescent to the east of the site are zoned R4 - High Density Residential and support a range of multi-dwelling and residential flat buildings typically two and three storeys in height.

The adjoining property at No. 33 Santley Crescent currently supports a single storey brick building with a tile roof. The building is currently utilised as a medical centre known as the 'Marie Stopes Penrith Day Surgery'. An open on grade parking area adjoins the Santley crescent boundary of the subject site.

The subject site is located within the vicinity of a number of bus services and the Kingswood railway station.

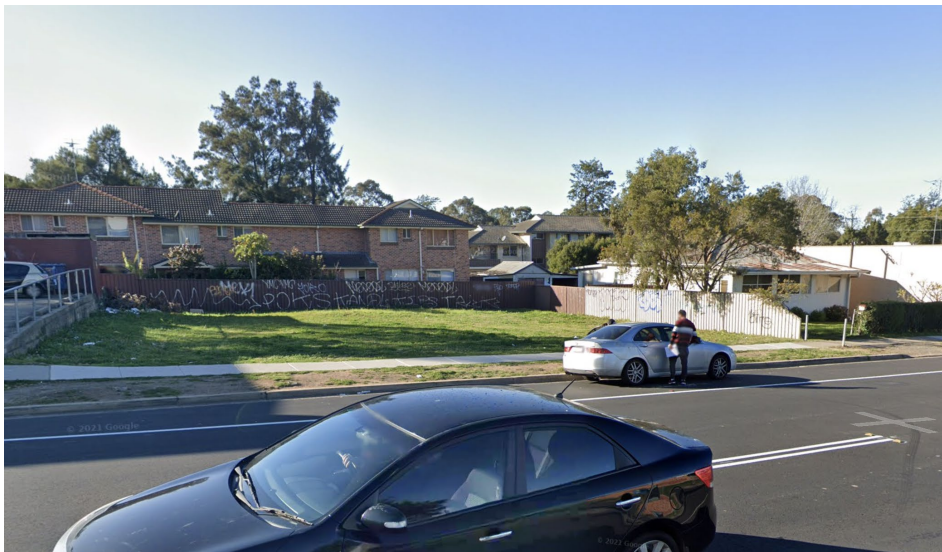
The relationship of the subject property to the adjoining properties and surrounding locality is depicted in the following photographs.



The adjoining property (33 Santley Crescent) as viewed from the street.



The adjoining property (29 Santley Crescent) as viewed from the street.



The site and adjoining vacant property (2 Bringelly Road) as viewed from the street



An aerial view of the subject site and surrounding locality

4. THE PROPOSAL

The proposal seeks approval for the demolition of the existing structures followed by the construction of a new mixed use development upon the subject site. The building will comprise 96 boarding rooms (including caretakers' room) and common spaces for residents pursuant to SEPP (Affordable Rental Housing) 2009 together with six commercial spaces pursuant to the Penrith Local Environmental Plan 2010.

The proposal seeks to demolish the sites existing structures and construct a seven-storey boarding house with two levels of basement carparking. The proposed six commercial spaces are located on the ground and first floor and accessed via the Bringelly Road frontage and entrance.

Building Configuration

The building configuration of the proposed mixed-use building is to comprise of the following:

- Basement 2: Car lift, vehicular parking for 31 cars (boarding house) and 12 motorcycles, 3 services rooms, 9 storage cages, stairs and lifts.
- Basement 1: Car lift, vehicular parking for 14 cars (3 for boarding house including 2 disabled space, 2 car shares spaces and 9 commercial spaces including 1 disabled space), 7 motorcycle spaces and 21 bicycle spaces, commercial and boarding room bin storage room, boarding room bin storage room, bulk waste storage, truck area, stairs and lifts.
- Ground Floor: 2 commercial tenancies, 2 lobbies and lifts, fire corridor, 2 platform lifts, bathroom facilities, 3 storage areas, 2 pedestrian access points, services room, waste chute, letter boxes, boarding house common room, managers office, communal living room, communal laundry, 6 boarding rooms (each with kitchenette and bathroom) and caretakers' room and open space.
- Level 1: 4 commercial tenancies, bathroom facilities, 14 boarding rooms (each with a kitchenette and bathroom) and stairs & lifts.
- Level 2: 17 boarding rooms (each with a kitchenette and bathroom) and stairs & lifts.
- Levels 3 & 4: 17 boarding rooms (each with a kitchenette and bathroom), cleaners room and stairs & lifts.

- Level 5: 14 boarding rooms (each with a kitchenette and bathroom), roof terrace and stairs & lift.
- Level 6: 11 boarding rooms (each with a kitchenette and bathroom), services room and stairs & lifts.

The proposed rooms are proposed to be capable of being occupied by up to 2 persons. As previously identified each room will contain its own ensuite and kitchenette and will have a floor area excluding the bathroom and kitchen of a minimum of 16m² for a two person rooms. No boarding room has an area greater than the maximum permitted 25m².

A proposed communal room which is located on the ground floor will be available for use for small gatherings. A communal area of open space is located adjacent to the communal room. A secondary meeting room is located adjacent to the Santley Crescent entrance and is also available for resident use.

External Finishes

The proposed development is considered to be of a modern high-quality architectural design comprising of significant articulation and modulation and includes a combination of building finishes including rendered and painted surfaces and timber look and painted cladding. It is considered that these elements in combination will provide for a high-quality visual outcome for the site.

Setbacks

The proposal is provided with the following setbacks

- Front Setback (Bringelly Road):**
- 0m to basement
 - 4m to external wall of the building.

- Front Setback (Santley Crescent):**
- 3.995m to basement
 - 4.295m to external wall of the ground floor.

- Western Side Setback:**
- 0m to basement, ground, first floor and second floor
 - Setback ranging from 2.935m for third floor to sixth floor
 - Setback ranging from 0m to 3.0m for Level 1 and 2.

- Eastern Side Setback:**
- 1.0m to basement
 - 3.0m to ground floor.

- Southern Side Setback:**
- 0m to basement, ground and first floor.
 - 3.0m to levels two through six.
- Rear Setback:**
- Setback ranging from 0m to 3m to basement
 - Setback ranging from 0m to 5.195m to ground floor.
 - Setback ranging from 3m to 5.130m to upper floors.

The proposed setbacks are considered to be responsive to the setbacks provided to surrounding and adjoining development and are generally consistent with those required for a mixed use development within the B4 - Mixed Use Zone.

Vehicular Access

Vehicular access to the proposed basement is to be via a new driveway and crossing located in the south eastern corner of the site and will be accessed via Santley Crescent. The driveway leads to Basement Level 1 whilst a mechanical car lift provides access between Basement Level 1 and Basement Level 2. The basement has been configured so as to allow all vehicles to enter and exit the site in a forward direction. The two levels of basement provide parking for 45 cars (including 3 accessible spaces and 2 carshare spaces). In addition, the basement provides parking for 19 motorcycles and 21 bicycles.

The design of the basement has been reviewed by PDC Consultants and is considered to comply with the relevant Australian Standards.

Disability Access

The proposal is provided with a series of internal passenger lifts and platform lifts.

The provision of the proposed lifts will ensure that disabled persons access is provided throughout the development and to all common facilities associated with the proposal including the basement, communal living room and communal outdoor open space together with the six accessible units.

Vista Access Architects have prepared an Access Report to demonstrate compliance with the provisions of the Disability (Access to Premises) Standard 2010 as well as the provisions of the relevant Australian Standards and BCA.

Stormwater Disposal

The proposal also provides for stormwater to be collected in pits and directed to the existing drainage pipe within the 1m wide drainage easement which is located in the rear corner of the site and to the street in Santley Crescent via an on-site stormwater detention system. Retained water is to be used for garden watering and toilet flushing in accordance with the requirements of the accompanying BASIX Certificate.

Waste Management

The development will provide the following waste storage facilities in Basement Level 1:

Communal Waste Room:	4 x 1100L mobile bins (waste) 4 x 1100L mobile bins (recycling)
Commercial Waste Room:	2 x 1100L mobile bins (waste) 1 x 1100L mobile bins (recycling)

A private contractor will be engaged to collect the boarding house waste and recycling twice per week and the commercial bins once per week.

A Waste Management Plan has been prepared by Dickens Solutions which details estimated volumes, collection of waste and movement and transportation of bins.

Development Data

The development indices associated with the proposal are detailed below:

Site Area	1,384.4m²
Gross Floor Area	4,083m²
Floor Space Ratio	2.95:1

5. ZONING AND DEVELOPMENT CONTROLS

The proposed development is identified as development permissible with the consent of the Council under the provisions of the Environmental Planning and Assessment Act 1979 and the provisions of the State Environmental Planning Policy (Affordable Rental Housing) 2009.

The following is an assessment of the proposal against the relevant provisions of the Act, the SEPP and the relevant planning instruments and policies of Penrith City Council.

5.1 State Environmental Planning Policy No 55 - Remediation of Land

A Stage 1 Preliminary Site Investigation was carried out by Geotechnical Consultants Australia, in accordance with the following objectives:

- *Assess the potential for contamination to be present at the site, arising from past and present land use activities;*
- *Provide advice on whether the site is suitable, in the context of land contamination, for the proposed land use scenario; and*
- *Provide recommendations for supplementary investigations, contamination management, or remedial works.*

An extract from the conclusion of their report is provided below and which it is considered demonstrates compliance with the requirements of SEPP 55.

Based on the site investigation and analytical results, GCA considers that the potential for significant contamination of soil and groundwater to be low. Therefore, GCA finds that the site is suitable for the proposed development, providing that the recommendations within Section 14 below are implemented.

It is therefore considered that the subject site is suitable for residential use and complies with the requirements of SEPP No. 55.

5.2 State Environmental Planning Policy (Affordable Rental Housing) 2009

The Affordable Rental Housing SEPP came into effect in 2009 and seeks to encourage the provision of Affordable Rental Housing including Boarding Houses.

The aims of the SEPP are as follows:

- (a) to provide a consistent planning regime for the provision of affordable rental housing,*
- (b) to facilitate the effective delivery of new affordable rental housing by providing incentives by way of expanded zoning permissibility, floor space ratio bonuses and non-discretionary development standards,*
- (c) to facilitate the retention and mitigate the loss of existing affordable rental housing,*
- (d) to employ a balanced approach between obligations for retaining and mitigating the loss of existing affordable rental housing, and incentives for the development of new affordable rental housing,*
- (e) to facilitate an expanded role for not-for-profit-providers of affordable rental housing,*
- (f) to support local business centres by providing affordable rental housing for workers close to places of work,*
- (g) to facilitate the development of housing for the homeless and other disadvantaged people who may require support services, including group homes and supportive accommodation.*

The proposal seeks to rely upon the provisions of Division 3 of the SEPP and which relates to Boarding Houses.

The following is an assessment of the proposal against the applicable provisions of the SEPP.

Division 3 - Boarding Houses

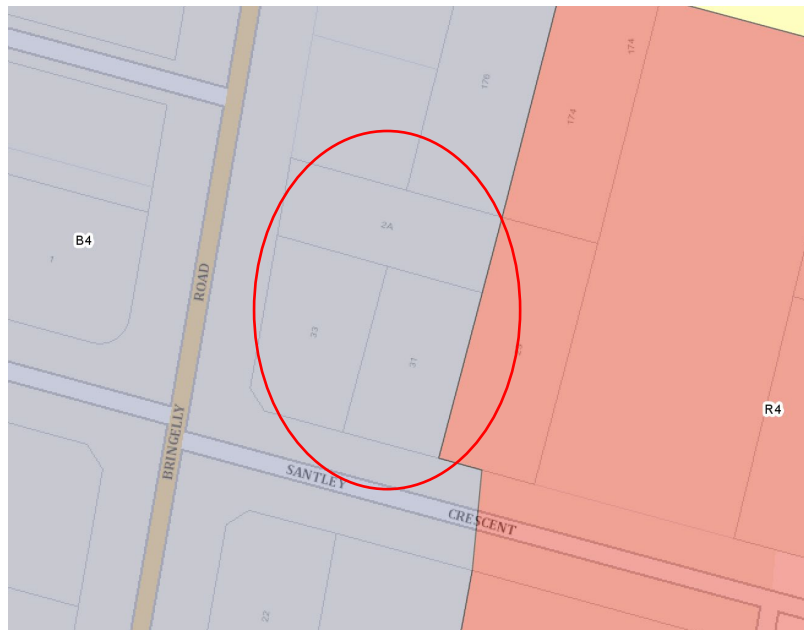
Clause 26 - Land to which Division Applies

Clause 26 states that this Division applies to any land within any of the following land use zones or equivalent land use zones:

- a) Zone R1 - General Residential*
- b) Zone R2 - Low Density Residential*
- c) Zone R3 - Medium Density Residential*
- d) Zone B4 - Mixed Use*
- e) Zone B1 - Neighbourhood Centre*
- f) Zone B2 - Local Centre*
- g) Zone B4 - Mixed Use*

The subject site is zoned B4 - Mixed Use under the Penrith Local Environmental Plan 2010.

On the basis of the above the proposal is considered to satisfy the requirements of Clause 26 and is therefore a permissible use upon the subject site.



Extract of Council Zoning Map

Clause 27 - Development to which Division applies

The subject site is zoned B4 - Mixed Use under the provisions of the Penrith Local Environmental Plan 2010 and as such the proposal is not subject to the provisions of Clause 27.

Clause 28 - Development may be carried out with Consent

In accordance with this section of the SEPP the Consent of Council is sought for the proposed development.

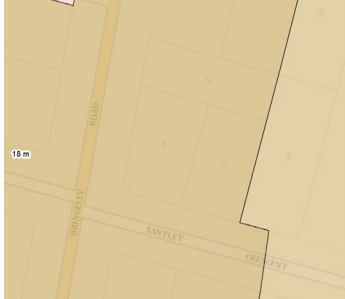
Clause 29 - Standards that Cannot be Used to Refuse Consent

Clause 29 provides standards that cannot be used to refuse an application. The standards are not required to be achieved in all cases but rather they provide thresholds that, if met, cannot be used as reasons to refuse an application. The proposal seeks a variation to the height and parking standards applicable to the site and the proposal.

The proposal complies in all other respects.

The following is an assessment of the proposal against the requirements of this section of the SEPP.

Clause	Requirement	Proposal	Compliance
<p>Clause 29 1(c)</p>	<p>If the development is on land within a zone in which residential flat buildings are permitted and the land does not contain a heritage item that is identified in an environmental planning instrument or an interim heritage order or on the State Heritage Register—the existing maximum floor space ratio for any form of residential accommodation permitted on the land, plus—</p> <p>(i) 0.5:1, if the existing maximum floor space ratio is 2.5:1 or less, or</p> <p>(ii) 20% of the existing maximum floor space ratio, if the existing maximum floor space ratio is greater than 2.5:1.</p> <div> </div> <p>Extract from Council Floor Space Map</p>	<p>Residential flat buildings are permissible in the B4 zone.</p> <p>The land does not contain a heritage item.</p> <p>The existing maximum floor space ratio is 3:1 plus a 20% bonus is permitted.</p> <p>The proposed FSR is 2.95:1</p>	<p>Complies.</p>
<p>Clause 29(2)(a) - Building Height</p>	<p>Maximum building height as permitted under another environmental planning instrument. The maximum height of a building permissible upon the land under the Penrith LEP 2010 is 18m. Pursuant to Clause 7.11</p>	<p>As detailed on the architectural plans the building has a maximum height of approximately 22.035m.</p>	<p>See comments below.</p>

	<p>of the PLEP the maximum building height can exceed 18m by up to 20% being a maximum of 21.6m.</p>  <p>Extract of Council Height Map</p>		
<p>Clause 29(2)(b) - Landscaped Area</p>	<p>The landscape treatment of the front setback area is to be compatible with the streetscape in which the building is located.</p>	<p>Landscaping is not required to be incorporated into the front setback within the B4 - Mixed Use zone. Landscaping within the front setback area to Santley Crescent is considered to be compatible with the streetscape.</p>	<p>Complies</p>
<p>Clause 29(2)(c) - Solar Access</p>	<p>Minimum of 3 hours solar access to at least one communal living room.</p>	<p>The proposed communal living area are located on the ground floor will achieve 3 hours direct sunlight.</p>	<p>Complies</p>
<p>Clause 29(2)(d) - Private Open Space</p>	<p>1. One area for lodgers having a min. area of 20m² and a min. dimension of 3m.</p>	<p>The proposal is provided with a communal open space area which is accessible from ground floor and which has an area of approximately 86m² and which</p>	<p>Complies</p>

	<p>2. One area for caretaker having a min. area of 8m² and a min. dimension of 2.5m.</p>	<p>complies with the minimum requirements of the SEPP.</p> <p>The proposed caretaker's room (Managers Room) is provided with a courtyard area having an area of 10m² and which complies with the minimum requirements of the SEPP.</p>	
<p>Clause 29(2)(e) - Parking</p>	<p>For development not carried out by or on behalf of a social housing provider at least 0.5 spaces for each room and not more than 1 space for each employee.</p>	<p>The proposal provides for a total of 96 boarding rooms excluding the caretakers room. This equates to a minimum of 48 spaces. The proposal provides for 36 car parking spaces including 2 disabled persons car spaces and 2 carshare spaces associated with the boarding house.</p>	<p>See comments below.</p>
<p>Clause 29(2)(f) - Accommodation Size</p>	<p>Each boarding room is to have a gross floor area (excl. any kitchen or bathroom) of at least:</p> <ol style="list-style-type: none"> 1. 12m² - single room 2. 16m² - in any other case. 	<p>The proposal provides for 96 rooms capable of being occupied by up to two persons. Each of these rooms complies with the minimum area requirements.</p>	<p>Complies.</p>

Building Height

The proposal exceeds the Building Height provisions of the LEP.

Relevant to this issue are a number of recent decisions of the Land & Environment Court of NSW. Whilst the cases have largely referred to matters under SEPP (Housing for Older People or People with a Disability) 2004 they are relevant in that both instruments contain similarly worded provisions in relation to building Height.

In these matters Building height is referred to by the Land & Environment Court as ‘do not refuse provisions’ whereby consent cannot be refused whereby compliance is achieved.

In circumstances where compliance has not been achieved the Court has held that it is open for the consent authority to grant consent where:

1. The aims of the SEPP have been satisfied.
2. That the proposal satisfies Clause 30A of the SEPP, in that it is compatible with the locality.

Specific reference is made to *Parsanejad v Ku-ring-gai Council* [2020] NSWLEC 1130 which states:

This is because irrespective of compliance with a specific “do not refuse” standard, I am satisfied following assessment that the extent, scale and form of development proposed is acceptable on merit.

Importantly, the approach adopted by the Court has held that:

1. Compliance with the requirements of Council’s LEP control is not required.
2. A Clause 4.6 submission is not required.

The proposed boarding house is considered to satisfy the aims of the SEPP in that:

- It will facilitate delivery of a new boarding house containing 96 boarding rooms plus 1 caretakers room.
- The proposal seeks to provide for the provision of the proposed boarding rooms by reliance upon height bonuses and in this case, non-discretionary development standards.
- The proposal will not result in the loss of existing affordable rental housing.
- The proposal will support the local business centre by providing affordable rental housing for workers close to places of work, and in particular the local tourism and hospitality industries.

It is also considered that the proposal satisfies Clause 30A of the SEPP based upon the detailed character assessment provided as part of the assessment of Clause 30A, below.

Parking

The proposal provides for 36 car parking spaces (including 2 accessible spaces and 2 carshare spaces) associated with the boarding house within the two basement levels proposed.

Based on the provisions of the SEPP the proposal is required to provide for 48 car parking spaces associated with the boarding house and as such results in a non-compliance.

The minimum parking rate standard is not a mandatory requirement and is not a rate that must be adhered to for all boarding house developments, rather a rate that is considered appropriate to accommodate car parking for boarding house developments regardless of site conditions, nature of use and location. On this basis it is considered that for a boarding house development proposing a rate below the SEPP provisions a merit-based assessment of the site should be undertaken.

A detailed justification is provided in the Traffic Impact Assessment Report accompanying this application.

That report within its conclusion, in part states that:

The proposed boarding house component of the development requires 48 car spaces under the SEPP ARH 2009. In response, the development provides a total of 31 car parking spaces including two (2) spaces for car share vehicles. Research obtained by car share provider suggests that each car share vehicle can replace up to 12 private cars, which would result in an effective parking provision of some 55 car parking spaces for the boarding house component of the development. The parking provision would ensure that compliance is effectively achieved with the SEPP ARH 2009. Additionally, several justifications are provided within Section 4.1.2.

On this basis it is considered that the aims of the SEPP have been satisfied and that the proposed car parking is acceptable in the circumstances of this case.

Clause 30 - Standards for Boarding Houses

Clause 30(1) states that a consent authority must not consent to development to which this division applies unless it is satisfied of each of the following.

The following is an assessment of the proposal against each of the nominated standards.

- (a) *if a boarding house has 5 or more boarding rooms, at least one communal living room will be provided,*

Comment

The proposal contains a total of 96 boarding rooms plus 1 caretakers' room and provides for 2 communal rooms in accordance with this requirement together with an area of communal open space.

The proposed communal living rooms are considered to be sized commensurate with the number of boarding rooms.

- (b) *no boarding room will have a gross floor area (excluding any area used for the purposes of private kitchen or bathroom facilities) of more than 25 square metres,*

Comment

The maximum individual room size less bathroom and kitchen areas proposed by the development is 25m² which complies with the requirements of this provision.

- (c) *no boarding room will be occupied by more than 2 adult lodgers,*

Comment

The maximum proposed occupancy for any room is 2 adult lodgers as detailed within the accompanying Plan of Management and which complies with the requirements of this provision.

- (d) *adequate bathroom and kitchen facilities will be available within the boarding house for the use of each lodger,*

Comment

The proposal provides for a kitchen and bathroom within each boarding room.

- (e) *if the boarding house has capacity to accommodate 20 or more lodgers, a boarding room or on site dwelling will be provided for a boarding house manager,*

Comment

The proposal proposes a maximum population of 184 persons and accordingly provides for an on-site boarding house manager/caretaker in accordance with the requirements of this provision.

- (f) *Repealed*

- (g) *if the boarding house is on land zoned primarily for commercial purposes, no part of the ground floor of the boarding house that fronts a street will be used for residential purposes unless another environmental planning instrument permits such a use,*

Comment

The subject site is zoned B4 - Mixed Use under the provisions of the Penrith Local Environmental Plan 2010 with residential accommodation permitted with consent. The proposal provides for a combination of ground floor commercial and residential uses.

- (h) *at least one parking space will be provided for a bicycle, and one will be provided for a motorcycle, for every 5 boarding rooms.*

Comment

The proposal provides for a total of 96 boarding rooms plus 1 caretakers room which equates to 19 motorcycle spaces and 19 bicycle spaces. The proposal provides for 19 motorbike parking spaces in accordance with this requirement together with a bicycle spaces capable of storing up to 21 bicycles. The proposal therefore complies with the requirements of this provision.

Clause 30A - Character of Local Area

Clause 30A of the SEPP states that:

A consent authority must not consent to development to which this Division applies unless it has taken into consideration whether the design of the development is compatible with the character of the local area.

In responding to this requirement it is submitted that in determining compatibility that consistent with the approach adopted by the Land & Environment Court in *Project Venture Management v Pittwater Council NSWLEC 191* that compatibility in terms of character is not about sameness but rather is about the ability for development to exist in harmony.

The site is identified as being located in the 'Commercial Mixed Use' precinct within the Hospital Precinct Character Area located in Kingswood.

An excerpt from the DCP provides the following description of the locality:

This precinct includes the existing shopping strip located adjacent to the Great Western Highway, Wainwright Lane located to the south and the northern end of Bringelly Road. The location of the existing retail strip adjacent to the Great Western Highway offers businesses high visibility as well as strong public transport linkages as a result of the proximity to the Kingswood Railway station. There are existing pedestrian linkages from the station to the Nepean Hospital which will be reinforced to ensure pedestrian safety and comfort. Additional linkages will be encouraged to provide a more direct route for pedestrians and cyclists.

Development in this area will be required to respond to potential impacts to amenity caused by the proximity to major transport corridors through building design, layout and materials. Mixed use developments will provide active ground floor uses and high quality building and public domain design outcomes to create a comfortable pedestrian environment that reduces the noise and traffic impacts. The ground floor tenancies will accommodate retail businesses. The lot orientation of this area may require applicants to demonstrate adequate solar access can be provided to the public domain. Consistent landscape treatment will be provided along the Great Western Highway.

Bringelly Road will provide the second tier of development opportunities south of the primary commercial and retail strip. The reduced building heights and generous pedestrian verges in this part of the precinct will allow for a more human scale streetscape that is supportive of active uses that encourage the community to gather and enjoy the public domain. High order landscaping elements will be incorporated on the Bringelly Road/ Northern Road intersection to create an embellished eastern gateway to the Hospital Precinct.

Bringelly Road is largely developed with medium density residential dwellings in the form of residential flats and two storey townhouses. There is opportunity for this area to adopt a higher density residential form along Rodgers Street and Bringelly Road.

The north western part of the Commercial Precinct offers three frontages to the Great Western Highway, Parker Street and Barber Avenue and is a major gateway site to the whole Hospital Precinct. Development within this part of the precinct will be encouraged to incorporate high quality architectural design standards and landscaping, fitting for its location as the gateway to the Hospital Precinct.

An Architectural and Urban Planning Statement has been prepared by Gus Fares Architects and forms part of the information accompanying the application. It is considered that when read in conjunction with this statement that the proposed development is *capable* of existing in harmony with the surrounding area.

It is my opinion that the proposal does provide for a development which is compatible with the existing and future character of the local area. In this regard the proposal provides for the following:

- Seven storey mixed use building with commercial uses to the ground and first floor with a frontage to Bringelly Road and boarding house development to all levels.
- The building form is consistent with the B4 mixed use zoning and provides for active uses to the ground floor frontage to Bringelly Road.

In addition to the proposed built form it is considered that the proposal will not result in any unreasonable amenity impacts particularly in relation to a loss of privacy or overshadowing.

On the basis of the above it is my opinion that the proposal provides for a design of development which is compatible with the character of the local area in accordance with Clause 30A of the SEPP.

Summary

As can be seen from this assessment the proposal is considered to achieve appropriate compliance with the applicable development controls with any variations being consistent with the outcomes envisaged and permitted by the SEPP.

It is my opinion that the development will still provide for development which is compatible with the existing and desired character of the area.

It is submitted that the proposal will provide for a building form consistent with that anticipated by the controls particularly having regard to its appearance and proposed high quality design.

For all of these reasons it is my opinion that the design of the development is compatible with the character of the local area.

Based upon the above assessment it is my opinion that the proposed boarding house satisfies the requirements of the SEPP (Affordable Rental Housing) 2009.

5.3 State Environmental Planning Policy No.65 - Design Quality of Residential Apartment Development

Pursuant to the operation of Clause 4(4) of SEPP No.65, the SEPP does not apply to a boarding house.

It is therefore submitted that the Apartment Design Guide similarly does not apply to the proposed boarding house.

5.4 Penrith Local Environmental Plan 2010

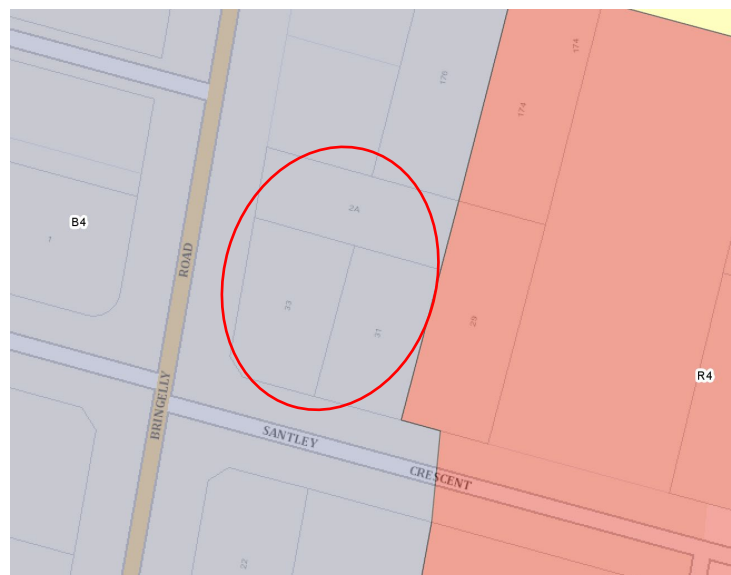
The subject land is zoned B4 - Mixed Use under the provisions of the Penrith Local Environmental Plan 2010.

The objectives for development within the B4 zone are:

- *To provide a mixture of compatible land uses.*
- *To integrate suitable business, office, residential, retail and other development in accessible locations so as to maximise public transport patronage and encourage walking and cycling.*
- *To minimise conflict between land uses within the zone and land uses within adjoining zones.*
- *To create opportunities to improve public amenity.*
- *To provide a wide range of retail, business, office, residential, community and other suitable land uses.*

Commercial premises and boarding houses are permissible with the consent of Council under the B4 - Mixed Use zone.

Each use proposed within the mixed use development is considered to be consistent with the above objectives.



Extract from Council Zoning Map

The following provisions of the Penrith Local Environmental Plan 2010 are considered to be applicable to the subject site.

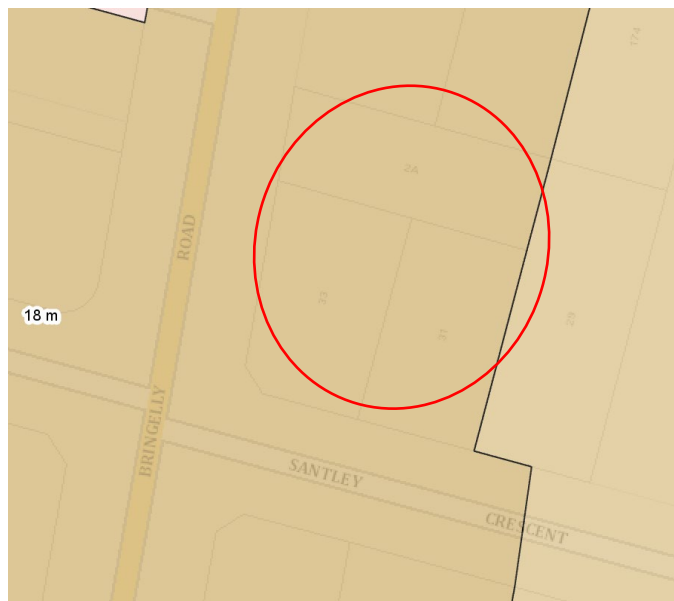
Clause 4.3 - Height of Buildings

The subject site is located within Building Height Area “Q1” and is ordinarily subject to a maximum building height control of 18m.

Pursuant to Clause 7.11 of the LEP the site is located within the Penrith Health & Education Precinct. The clause provides that if the floor to ceiling heights of both the ground and first floor are equal to or greater than 3.5m then the maximum height of the building can exceed the maximum height in Clause 4.3 by up to 20%. Therefore, on this basis the proposal is subject to a maximum height of 21.6m.

The proposal as detailed on the accompanying plans has a maximum height of approximately 22.035m measured to the top of the lift overrun and is therefore inconsistent with this requirement.

In response to this inconsistency reference is made to the applicable 'do not refuse provision' of the SEPP (Clause 29(2)(a)) and which it is submitted prevails over this LEP requirement. Consistent with the recent decisions of the Court it is submitted that a merit assessment is applicable in this instance.

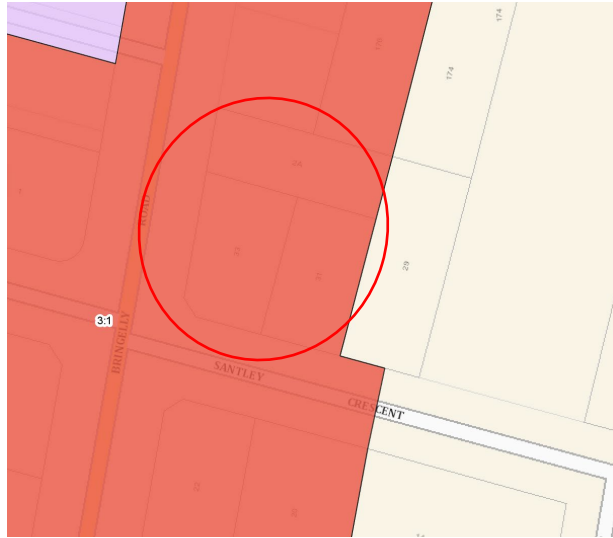


Extract of Council Height of Buildings Map

Clause 4.4 - Floor Space Ratio

The subject site is located within the "V" floor space area zone and as such is ordinarily subject to a maximum FSR of 3:1.

The proposal provides for a total floor area of 4,081m² or 2.95:1 which complies with this requirement.

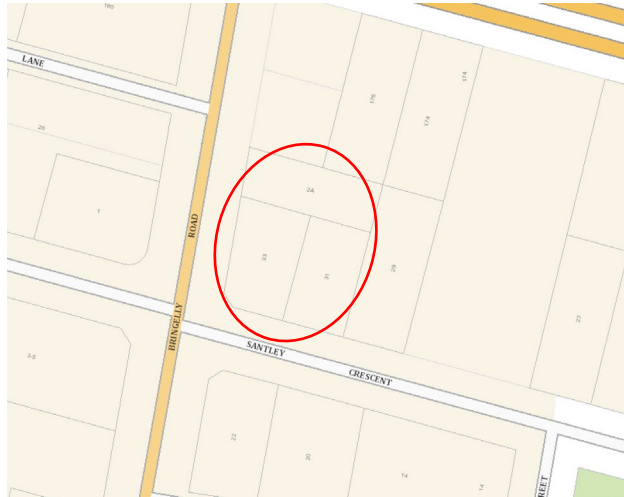


Extract from Council Floor Space Ratio Map

Clause 5.10 - Heritage Conservation

The subject property is not identified as a heritage item and is not located within a Heritage Conservation Area.

On this basis the proposal is considered to satisfy the requirements of Clause 5.10 of the LEP.



Extract from Council's Heritage Map

Clause 7.1 - Earthworks

The proposal seeks approval to excavate the site to provide for two levels of basement parking. A Geotechnical Report has been prepared by Geotechnical Consultants Australia and forms part of the information that accompanies this application.

On this basis the proposal is considered to satisfy the requirements of this Clause of the LEP.

Clause 7.4 - Sustainable Development

The proposed development has regard to the principles of sustainable development and which are based on a “whole of building” approach.

A BASIX Certificate has been issued and forms part of the information accompanying this application. It is considered that the supporting documentation when read in conjunction with this statement demonstrates that sustainable development principles have been incorporated.

Clause 7.8 - Active Street Frontages

The subject site known as 2A Bringelly Road is identified as “active street frontages’. In this regard all premises on the ground floor facing Bringelly Road must be used for the purpose of a business or retail premises.

The Architectural Plans prepared by Gus Fares Architects identifies that the portion of the development facing Bringelly Road consists of commercial premises and satisfies this clause of the LEP.

Clause 7.11 - Penrith Health & Education Precinct

The site is identified as located in the Penrith Health & Education Precinct and is encouraged to utilise a built form that is suitable for both residential and health services facilities. The clause provides that if the floor to ceiling heights of both the ground & first floor are equal or greater than 3.5m then the maximum height of the building can exceed the maximum height in Clause 4.3 by up to 20%.

It is considered that the proposed building having a built form suitable for residential and health services facilities and consisting of a floor to floor height to the ground and first floor of a minimum of 3.7m is consistent with this Clause and is therefore capable of exceeding the maximum height in Clause 4.3 by up to 20%.

Summary

There are no other provisions of the LEP which it is considered are relevant to the proposal.

It is my opinion based upon this assessment that the proposal achieves appropriate compliance with the aims and objectives and the prescriptive requirements of the LEP and is therefore worthy of the support of the Council.

5.5 Penrith Development Control Plan

Council's Development Control Plan applies to all forms of development with Part D5 and E12 being specifically applicable to the proposed development.

An assessment of the proposal against the applicable provisions of the DCP has been undertaken and the following comments are made.

Part C1 - Site Planning and Design Principles

A site analysis plan has been prepared and forms part of the architectural plans accompanying this application. It is considered that this plan in conjunction with the site survey plan and supporting reports when read in conjunction with this Statement of Environmental Effects satisfies the requirements of the Council for a site analysis.

A BASIX Certificate has been prepared in support of the proposal and forms part of the documentation accompanying this application.

The proposal provides for energy conservation measures in accordance with the requirements of BASIX and complies with Section J of the NCC.

Part C2 - Vegetation Management

Vegetation located upon the site is generally comprised of grasses and small shrubs together with some trees. It is considered that the proposal will not result in any unreasonable tree impacts.

Part C3 - Water Management

The subject site is a gently sloping allotment having a minor fall from the north west boundary along Bringelly Road (RL 45.31) through to the front south east corner in Santley Crescent (RL 43.26).

The proposal also provides for stormwater to be collected in pits and directed to the existing drainage pipe within the 1m wide drainage easement which is located in the rear corner of the site and to the street in Santley Crescent via an on-site stormwater detention system. Retained water is to be used for garden watering and toilet flushing in accordance with the requirements of the accompanying BASIX Certificate.

Part C4 - Land Management

Erosion and sedimentation controls are incorporated in the Stormwater Management Plans.

Part C5 - Waste Management

A Waste Management Plan has been prepared in support of the proposal by Dickens Solutions and forms part of the information accompanying this application.

Part C6 - Landscape Design

A Landscape Plan has been prepared by Conzept Landscape Architects and is included as part of the documentation accompanying this application.

Part C10 - Transport, Access and Parking

The accompanying Traffic Impact Assessment Report prepared by PDC Consultants has assessed the vehicular and pedestrian access arrangements, parking provisions, internal circulation and manoeuvrability of the proposal.

Part D5 - Boarding Houses

D5.11 - Boarding Houses		
Section	Control	Proposal
2) Built Form, Street Impact and Appearance	<p>a) The entrance to the boarding house must be in a prominent position addressing the street.</p> <p>b) New boarding houses must not reduce the achievement of access to a minimum of 3 hours sunlight in the main living area and in at least 50% of private open space between 9am and 3pm on 21 June for adjoining properties.</p> <p>c) Boarding houses must be designed to have a sympathetic relationship with adjoining development.</p> <p>d) Proposals must demonstrate that neighbourhood amenity will not be adversely impacted by factors such as noise and privacy.</p> <p>e) There must be no basement encroachments to setbacks either above or below ground.</p>	<p>Complies.</p> <p>Refer to accompanying Shadow Diagrams. Complies.</p> <p>Complies. Refer to accompanying Architectural and Urban Planning Statement prepared by Gus Fares Architects.</p> <p>Refer to Acoustic Report prepared by Koikas Acoustics.</p> <p>Non-compliance. Refer to accompanying</p>


	<p>f) Minimum setbacks for boarding houses in R2 and R3 Zones and residential flat buildings or high density mixed use development are provided in table D5.3. The intent of this control is to ensure consistency with local character by replicating streetscape patterns of buildings and private gardens in established neighbourhoods, which have visual and symbolic richness that are valued by their community</p>	<p>Geotechnical Report and in support of the basement excavation. The site is zoned B4 and is not likely to result in any adverse impacts upon neighbouring properties as a result of the zero setback to the basements.</p> <p>N/A.</p>
<p>3) Compatibility with Streetscape in the Front Setback</p>	<p>In order to be compatible with the streetscape, boarding houses must supply the following elements within the front setback, in addition to complying with other relevant Landscape Design controls in this DCP and Built form, streetscape impact and appearance controls in this section:</p> <p>a) A minimum of 18m² deep soil area must be provided to support larger plants and trees used to soften the form of the building and provide shade. Deep soil areas are to be a minimum width and length of 3m. Deep soil zone may form part of the landscaped area calculation.</p> <p>b) A watering system that does not rely on lodgers to maintain plantings.</p>	<p>Complies. Refer to accompanying Landscape Plans.</p>
<p>4) Tenant Amenity, Safety and Privacy Boarding houses are to maintain a high level of resident amenity, safety and privacy by ensuring:</p>	<p>a) communal spaces including laundry, bathroom, waste facilities, private open space, kitchen and living areas are accessible to all lodgers;</p> <p>b) if over 10 boarding rooms are supplied, 10% of the total number of dwellings (rounded up) must be accessible;</p> <p>f) Communal kitchen facilities must be provided with a minimum area of:</p> <p>a. 7m² for up to 6 lodgers, b. or 11m² for more than 6, up to 12 lodgers. c. A minimum of 15m² will be provided above 12 lodgers, plus 1m² for each additional lodger over 12; or all bedrooms shall contain kitchenette</p>	<p>Refer to accompanying Access Report in support of the proposal.</p> <p>All units are provided with a kitchenette.</p>

	<p>facilities with a fridge, adequate cupboards and shelves and a microwave. For fire safety reasons no other cooking appliances are permitted.</p> <p>g) Common rooms must be provided at a minimum rate of 2m² per lodger, or a minimum of 13m² where there are fewer than 6 lodgers. Common rooms do not include circulation space or laundry, bathroom, waste and kitchen facilities.</p>	<p>A communal living room of 86m² and a separate Common Room of 24m² is provided for on the ground floor and complies with this requirement.</p>
<p>5) Visual and Acoustic Amenity Impacts</p>	<p>Boarding houses are to provide:</p> <p>a) bedrooms separate from significant noise sources;</p> <p>b) sound insulation between bedrooms to provide reasonable amenity;</p> <p>c) communal areas and bedroom windows away from the main living area or bedroom windows of any adjacent buildings; and</p> <p>d) screen fencing, plantings, and acoustic barriers in appropriate locations</p>	<p>Refer to Acoustic Report together with Architectural Plans demonstrating compliance with this section of the DCP.</p>
<p>7) Plan of Management</p>	<p>An operating 'Plan of Management' is to be submitted with each development application for a boarding house (including new and existing boarding houses). The Plan of Management is to include, but is not limited to:</p> <p>a. boarding house staffing arrangements, including the location of 24/7 contact details for any on-site manager or resident caretaker, who has overall responsibility for the operation, administration, cleanliness, maintenance and fire safety of the premises;</p> <p>b. house rules and how they will be publicised to residents, including details of:</p> <p>i. guest behaviour;</p> <p>ii. activities and noise;</p> <p>iii. visitor policy;</p> <p>iv. the use of alcohol and/or drugs;</p> <p>v. cleaning of communal spaces following use, and</p> <p>vi. location of smoking area.</p> <p>c. plans outlining the occupancy rate for each sleeping room, room furnishings, provisions of communal areas and facilities, and access and facilities for people with disabilities;</p>	<p>Refer to accompany Plan of Management and Social Impact Assessment.</p>


	<p>d. measures to minimise unreasonable impact to the habitable areas of adjoining properties, including the management of communal open spaces, which, for boarding houses within residential areas or where adjoining sites contain residential activities, should be restricted to 10pm;</p> <p>e. waste minimisation, recycling and collection arrangements are to be identified;</p> <p>f. maintenance strategy including, but not limited to:</p> <ul style="list-style-type: none"> i. monthly gardening and pruning of vegetation; ii. pest management plan; iii. cleaning and sanitation program including end of lease arrangements; iv. quarterly external clean and graffiti removal; v. waste management plan; and vi. indicative arrangements for council officer's 12 month inspection, required under the Boarding House Act 2012. <p>g. internal signage arrangements, including:</p> <ul style="list-style-type: none"> i. the name and contact number of the property caretaker or manager; ii. emergency contact numbers for essential services; iii. house rules; iv. a copy of the annual fire safety statement and current fire safety schedule; v. floor plans that will be permanently fixed to the inside of the door of each sleeping room which indicate the available emergency egress routes from the respective sleeping room; and vi. information on local social services. <p>h. minimum lease period with conditions including:</p> <ul style="list-style-type: none"> i. resident agreement to comply with boarding house rules; ii. minimum lease period of 3 months; and iii. 6 and 12 month rental terms available. <ul style="list-style-type: none"> i. a social impact assessment; j. a complaint register that is available for inspection by Council; k. indicative arrangements for Council monitoring and review of required management actions; and l. any further relevant considerations. Council may request further information to be provided. 	
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Part E12 - Penrith Health and Education Precinct

E12 - Part A Hospital Precinct		
Section	Control	Proposal
12.2.1 Mixed use development controls	<p>1) Mixed use developments are to provide flexible floor areas and layouts to both the ground and first floor of buildings to accommodate a range of commercial uses.</p> <p>2) Standard floor to ceiling heights apply for mixed-use developments in accordance with the Building Code of Australia and the Residential Flat Design Code. However, where an applicant is seeking to take advantage of the additional building height incentives prescribed by LEP 2010, the following floor to ceiling heights apply: a) 3.5m on the ground and first floor; and b) 2.7m on the upper floors These floor to ceiling heights must be applied to the entire floor in order to be granted the height bonus. To demonstrate that 2.7m floor to ceiling heights can be achieved (allowing for recessed lighting) a minimum floor to floor height of 3.1m is to be provided.</p> <p>3) Where it is proposed to vary the height of building controls to take advantage of the height incentives, applicants are to consult Council early in the design process.</p> <p>4) The commercial and residential activities of the building are to have separate service provision, such as loading docks, lobbies and lift access, defined parking areas, garbage storage and servicing.</p> <p>5) Mixed use developments are to provide commercial frontage (retail/business/office premises) as a part of the development as shown in Figure E12.3 for the ground and first floors. Variation may be considered to this control in order to provide adaptable housing.</p> <p>6) The ground floor of a mixed use development is to provide a minimum of 75% commercial frontage.</p> <p>7) A minimum site width of 24m is required for any mixed use development.</p>	<p>Complies</p> <p>Complies.</p> <p>Noted.</p> <p>Complies. Refer to Architectural Plans.</p> <p>Complies. Commercial uses are provided to Bringelly Road frontage to the ground and first floors.</p> <p>Complies in relation to Bringelly Road frontage.</p> <p>Non-compliance. Proposal provides for a frontage to Bringelly Road and Santley Crescent. It is considered</p>

		that when combined the overall width of these frontages satisfies the requirement.								
<p>12.3.1. Street alignment, building height and setbacks</p>	<p>1) Street building alignments are to be provided as specified in Figure E12.4. Figure E12.4 Street setbacks</p>  <p>2) Minor projections into front building lines and setbacks for sun shading devices, entry awnings and cornices are permissible.</p> <p>3) Building height will generally be restricted to a maximum podium height of 2-4 storeys addressing the main streets, with any additional storeys set back.</p> <p>4) Developments located within the Residential Edge Precinct must step down in height and demonstrate that the development does not adversely impact on the adjoining residential area in terms of visual amenity or overshadowing.</p>	<p>Complies with minimum 4m setback to Bringelly Road.</p> <p>Noted.</p> <p>Complies. Upper floors are setback.</p> <p>Refer to Architectural and Urban Planning Statement prepared by Gus Fares Architects</p>								
<p>12.3.3. Boundary setbacks and building separation</p>	<p>1) The minimum side and rear building setbacks for non-residential uses are specified in Table E12.1.</p> <p>Table E12.1 Side and rear setback requirements</p> <table border="1"> <thead> <tr> <th>Building height and use</th> <th>Minimum Side and Rear Setback</th> </tr> </thead> <tbody> <tr> <td>Non-residential uses:</td> <td></td> </tr> <tr> <td>- up to 12m</td> <td>0 m</td> </tr> <tr> <td>- 12m to 24m</td> <td>6 m</td> </tr> </tbody> </table> <p>3) Minimum separation distances for buildings within a site and between adjoining sites for buildings are: Up to four storeys (approximately 12m):</p> <ul style="list-style-type: none"> • 9m between habitable and non-habitable • 6m between non-habitable 	Building height and use	Minimum Side and Rear Setback	Non-residential uses:		- up to 12m	0 m	- 12m to 24m	6 m	<p>Complies.</p> <p>It is considered that the design of the rooms being</p>
Building height and use	Minimum Side and Rear Setback									
Non-residential uses:										
- up to 12m	0 m									
- 12m to 24m	6 m									

	<p>Five to eight storeys (approximately 25m)</p> <ul style="list-style-type: none"> • 12m between habitable and non-habitable • 9m between non-habitable rooms 	<p>orientated to the street and not consisting of windows to the bedroom (1st & 2nd floors) is likely to reduce any adverse impacts on the adjoining properties. The upper floors being 3rd to 6th are further setback to avoid overlooking.</p>									
12.3.4. Site coverage and deep soil zones	<p>1) Open space must be provided equivalent to 25% of the total site area.</p> <p>2) The maximum site cover and minimum deep soil zone for development is specified in Table E12.2:</p> <p>Table E12.2 Maximum site cover and minimum deep soil zone</p> <table border="1"> <thead> <tr> <th>Character Area</th> <th>Maximum Site Cover</th> <th>Minimum Deep Soil Zone (% of Site Area)</th> </tr> </thead> <tbody> <tr> <td>Commercial Mixed Use and Medical Mixed Use</td> <td>75%</td> <td>10%</td> </tr> <tr> <td>Residential Edge</td> <td>50%</td> <td>15%</td> </tr> </tbody> </table> <p>3) The deep soil zone is to be provided in one continuous block. If multiple deep soil zones are provided, they must have a minimum dimension (in any direction) of 6m.</p> <p>6) No structures, works or excavations that may restrict vegetation growth are permitted in deep soil zones (including, but not limited to, car parking, hard paving, patios, decks and drying areas).</p>	Character Area	Maximum Site Cover	Minimum Deep Soil Zone (% of Site Area)	Commercial Mixed Use and Medical Mixed Use	75%	10%	Residential Edge	50%	15%	<p>The proposal provides for communal open space of 104m².</p> <p>Provisions of the SEPP (ARH) in relation to private open space prevail to the extent of the inconsistency.</p> <p>Complies.</p> <p>Generally complies.</p>
Character Area	Maximum Site Cover	Minimum Deep Soil Zone (% of Site Area)									
Commercial Mixed Use and Medical Mixed Use	75%	10%									
Residential Edge	50%	15%									
12.4.1 Public domain	<p>All public domain works within the Hospital Precinct shall be undertaken in accordance with the provisions of Penrith City Council’s “Kingswood Public Domain Manual” (2013) and the other relevant parts of this DCP.</p>	<p>Noted.</p>									
12.4.2.2 Active street frontages and address	<p>1) Active frontage uses are defined as one or a combination of the following, at street level:</p> <p>a) An entrance to retail premises;</p> <p>b) A shop front;</p>	<p>Complies.</p>									

	<p>c) Glazed entries to commercial and residential lobbies occupying less than 50% of the street frontage, to a maximum of 12m frontage; d) A café or restaurant if accompanied by an entry from the street; e) Active office uses, such as a reception, if visible from the street; and f) A public building, if accompanied by an entry.</p> <p>2) Active street fronts are to be located at the ground level of all buildings located in those areas as shown in Figure E12.7.</p> <p>Figure E12.7 Active Street Frontages</p>  <p>3) Ground floor active street frontage uses are to be at the same level as the adjoining footpath and must be directly accessible from the street.</p> <p>5) Street address is defined as entries, lobbies, and habitable rooms with full height to a minimum of 2.1m clear glazing to the street.</p> <p>7) Commercial entries are to be separate to residential entries and are to address the primary street frontage.</p> <p>8) Large developments should provide multiple entrances including an entrance on each street frontage leading to separate cores.</p> <p>9) Residential buildings are to provide not less than 65% of the lot width as street address.</p>	<p>Complies in relation to Bringelly Road. Santley Crescent frontage relates to the entrance to the boarding house component.</p> <p>Complies.</p> <p>Complies.</p> <p>Complies.</p> <p>N/A</p> <p>Complies.</p>
<p>12.4.3 Car Parking</p>	<p>3) Proposals for basement parking areas are to be accompanied with a geotechnical report, prepared by an appropriately qualified professional, and any other supporting information.</p> <p>4) Basement car parking should be located directly under building footprints to maximise opportunities for deep soil areas unless the structure can be designed to support mature plants and deep root plants.</p>	<p>Refer to accompanying Geotechnical Report prepared by Geotechnical Consultants Australia.</p> <p>Generally complies.</p>

	7) Car parking layouts are to comply with the relevant Australian Standards.	Refer to the accompanying Traffic Report.
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Conclusion

The proposal is considered to achieve appropriate compliance with the aims and objectives together with the prescriptive requirements of the Penrith Development Control Plan and is therefore worthy of the support of the Council.

6. SECTION 4.15 ASSESSMENT

Environmental Planning Instruments - Section 4.15(1)(a)

The subject site is zoned B4 - Mixed Use under the provisions of the Penrith Local Environmental Plan 2010. The construction of a new commercial & boarding house development upon land within the B4 zone is permissible under both the provisions of State Environmental Planning Policy (Affordable Rental Housing) 2009 and the Penrith LEP 2010 with the consent of Council.

The proposal has been assessed against the objectives and provisions of the SEPP as detailed within this report and the proposal was found to appropriately satisfy the requirements of that Policy subject to a merit assessment of the 'do not refuse provisions'. The proposal has also been assessed against the applicable requirements of the Council including the LEP and DCP.

Draft Environmental Planning Instruments - Section 4.15(1)(a)(ii)

The Draft SEPP (Housing) 2021 applies to the proposal. The SEPP has recently been publicly exhibited.

Pursuant to Clause 2 of Schedule 6 of the SEPP, the provisions of the Draft SEPP do not apply to a development application made, but not yet determined, on or before the repeal day.

On this basis the Draft SEPP is not applicable to the subject application.

There are no other environmental planning instruments or draft environmental planning instruments, which are applicable to the proposal and which have not been addressed within this report.

Impacts of the Development - Section 4.15(1)(b)

It is not considered that the proposal will result in any unreasonable impacts upon the adjoining properties or the character of the surrounding area beyond that envisaged by the enabling legislation. The proposal involves the construction of a new residential development of a height, bulk and scale which is compatible with the existing and desired character of the surrounding locality.

A detailed Plan of Management has been prepared for the operation and on-going management of the Boarding House. It is considered that compliance with the requirements of that document will assist in ensuring that the proposal does not unreasonably impact upon the amenity of adjoining properties or the locality.

Suitability of the Site - Section 4.15(1)(c)

The construction of a new mixed use building including a commercial & boarding house development upon land zoned B4 under Penrith LEP 2010 is permissible with the consent of Council under the provisions of SEPP (Affordable Rental Housing).

Other factors which demonstrate the site's suitability for such a development include:

1. The site's proximity to public transport.
2. The site's proximity to areas of open space.
3. The proposal's compatibility with existing and proposed use mix the locality.

It is not considered that there will be any adverse impacts as a result of the proposal not contemplated by the enabling legislation and as such the subject site is considered suitable for the proposed development.

Public Interest - Section 4.15(1)(e)

It is my opinion that the proposal is in the public interest as it seeks to provide for a form of housing specifically designed for the Affordable Rental Housing market together with a ground floor and first floor commercial component in a site well suited to this form of development and in a manner which will not unreasonably impact upon the amenity of adjoining properties or upon the character of the surrounding locality.

7. CONCLUSION

The proposed development is development permissible with the consent of the Council under the terms of the Environmental Planning and Assessment Act 1979 and has been assessed against the requirements of Section 4.15 of the Act and SEPP (Affordable Rental Housing) 2009. In this regard it is considered that this Statement of Environmental Effects has demonstrated that the proposal appropriately satisfies the aims and objectives as well as the applicable prescriptive requirements of the above controls.

It is therefore considered that the proposed construction of a new mixed use building to provide for a commercial & boarding house development containing 96 rooms including a caretaker's room and basement car parking upon land at 31 Santley Crescent & 2A Bringelly Road, Kingswood is worthy of the support of Council.

Andrew Minto
Graduate Diploma (Urban & Regional Planning), Associate Diploma (Health & Building Surveying). MPIA.
MINTO PLANNING SERVICES PTY LTD
October 2021

PROPOSED MIXED USE DEVELOPMENT AT 31 SANTLEY CRES, 2A BRINGELLY RD, KINGSWOOD NSW STORMWATER DRAINAGE PLAN

LEGEND	
DP ●	DOWNPIPE
	STORMWATER LINE
	STORMWATER LINE DRAINING TO RWT
	OVER FLOW PIPE
	SUBSOIL LINE
	STORMWATER RISING MAIN
	EXISTING STORMWATER LINE
	AUTHORITY STORMWATER LINE
	HIGH LEVEL STORMWATER LINE
	AUTHORITY SEWER LINE
	AUTHORITY WATER LINE
	AUTHORITY GAS LINE
	AUTHORITY ELECTRICITY LINE
	AUTHORITY FIBRE OPTIC LINE
	AUTHORITY COMMS LINE
	FENCE LINE
	GRATED SURFACE INLET PIT
	GRATED SURFACE INLET PIT WITH ENVIROPOD INSERT
	JUNCTION PIT
	KERB INLET PIT
	EXISTING GRATED SURFACE INLET PIT
	GRATED TRENCH DRAIN
	EXISTING JUNCTION PIT
	EXISTING KERB INLET PIT
	EXISTING TELSTRA PIT
	EXISTING HYDRANT
	EXISTING STOP VALVE
	EXISTING GAS VALVE
	EXISTING POWER POLE
	EXISTING BOUNDARY TRAP

LEGEND	
FF ●	FIRST FLUSH
	EXISTING SEWER MANHOLE
	OVERLAND FLOW PATH
RWO ●	RAINWATER OUTLET
PS ●	PIPE STAND
CO ●	CLEAR OUT POINT
DDO ●	DISH DRAIN OUTLET
PD ●	PLANTER DRAIN
	CAPPING
	PIT TAG/NUMBER
RH	RAINHEAD
	DOWNPIPE DROP
	NON RETURN VALVE
	WALL PENETRATION
	DOWNPIPE SPREADER
	WARNING LIGHT
0.00 ●	SPOT LEVELS
	BENCHMARK



DIAL BEFORE YOU DIG SHOULD BE CONTACTED PRIOR TO ANY EXCAVATION ON SITE
 TM: TRADE MARK OF THE ASSOCIATION OF DIAL BEFORE YOU DIG SERVICES LTD. USED UNDER LICENSE.

SERVICES SHOWN ON PLAN ARE INDICATIVE, EXACT DEPTH AND LOCATION TO BE CONFIRMED ONSITE. CONTRACTOR TO CARRY OUT DIAL BEFORE YOU DIG APPLICATION AND ENGAGE A REGISTERED SURVEYOR TO PEG OUT ALL EXISTING SERVICES PRIOR TO ANY WORK COMMENCING ONSITE.

DRAWING REGISTER		
NUMBER	NAME	REVISION
SWDP001	TITLE PAGE, NOTES & DETAILS SHEET	A
SWDP010	BASEMENT 2 STORMWATER LAYOUT	A
SWDP011	BASEMENT 1 STORMWATER LAYOUT	A
SWDP020	GROUND FLOOR PLAN, NOTES & DETAILS	A
SWDP021	STORMWATER DRAINAGE DETAILS 1	A
SWDP022	STORMWATER DRAINAGE DETAILS 2	A
SWDP023	WSUD, MUSIC MODELLING CALCULATIONS & DETAILS	A
SWDP030	EROSION AND SEDIMENT CONTROL PLAN, NOTES & DETAILS	A

DRAINAGE NOTES:

ALL PIPES TO BE LAID ON 75mm SAND BED WITH THE BARRELS FULLY SUPPORTED
 100mm AND 150mm DIAMETER PIPES TO BE LAID ON MINIMUM 1% GRADE
 MINIMUM DEPTH OF COVER FOR PIPES NOT SUBJECT TO VEHICULAR LOADING TO BE 300mm
 ALL DRAINAGE PIPES LAID UNDER PAVEMENT SHALL BE REINFORCED CONCRETE WITH RUBBER RING JOINTS
 BACKFILL TRENCHES WITH COMPACTED SAND OR APPROVED AGGREGATE MATERIAL
 ALL PITS TO HAVE 600x600mm INTERNAL DIMENSIONS (U.N.O.)
 SILT ARRESTORS TO HAVE 900x900mm INTERNAL DIMENSIONS
 HEAVY DUTY GRATES AND COVERS ARE TO BE PROVIDED IN TRAFFICABLE AREAS
 PIT GRATE TO BE TYPE WELDLK OR APPROVED EQUIVALENT
 ALL PITS SHALL BE PROVIDED WITH A LOCKING CLIP
 ALL PITS SHALL BE MAINTAINED REGULARLY
 TOP OF BENCHING SHALL BE TO THE HALF OF THE OUTLET PIPE DIAMETER
 MAXIMUM FRONT ENTRY PIPE: -
 STRAIGHT ENTRY - ø750
 SKEW ENTRY 45° - ø525
 ø100 SUBSOIL DRAINAGE PIPE 3000mm LONG WRAPPED IN FABRIC SOCK TO BE PROVIDED ADJACENT TO INLET PIPES
 COMPRESSIVE STRENGTH f_c FOR CAST IN SITU CONCRETE TO BE A MINIMUM OF 20MPa AT 28 DAYS
 PROVIDE CLEANING EYES TO ALL DOWNPIPES NOT DIRECTLY CONNECTED TO PITS
 ISOLATED JOINTS TO BE PROVIDED TO ISOLATE CONCRETE PAVEMENTS FROM PITS
 ALL TRENCH GRATES PROVIDED SHALL HAVE A MINIMUM CLEAR WIDTH OF 200mm
 STORMWATER DRAINAGE CONNECTIONS TO THE MAIN SYSTEM SHALL BE TO THE REQUIREMENTS AND THE SATISFACTION OF LOCAL COUNCIL

ABBREVIATIONS:

ø or DIA	DIAMETER
CBR	CALIFORNIA BEARING RATIO
CH	CHAINAGE
CL	CENTER LINE
CO	CLEAR OUT
DD	DISH DRAIN
DDO	DISH DRAIN OUTLET
DEJ	DOWELLED EXPANSION JOINT
DGB	DENSE GRADED BASECOURSE
DGS	DENSE GRADED SUB-BASE
DP	DOWNPIPE
e	EXISTING
FFL	FINISHED FLOOR LEVEL
OTD	GRATED TRENCH DRAIN
GSP	GRATED SURFACE INLET PIT
HYD	HYDRANT
IJ	ISOLATING JOINT
IK	INTEGRAL KERB
IL	INVERT LEVEL
IP	INTERSECTION POINT
KIP	KERB INLET PIT
KO	KERB ONLY
K&G	KERB & GUTTER
KR	KERB RETURN
LS	LONGITUDINAL SECTION
NGL	NATURAL GROUND LEVEL
OFF	OVERLAND FLOW PATH
OSD	ON-SITE DETENTION
R	RADIUS
RCP	REINFORCED CONCRETE PIPE
RK	ROLL KERB & GUTTER
RL	REDUCED LEVEL
RW	RETAINING WALL
RWT	RAINWATER TANK
SJ	SAWN CONTROL JOINT
SMH	SEWER MAN HOLE
SW	STORMWATER
SWP	STORMWATER PIT
SWRM	STORMWATER RISING MAIN
SWS	STORMWATER SUMP
SV	STOP VALVE
TOK	TOP OF KERB
TOW	TOP OF WALL
TWL	TOP WATER LEVEL
TP	TANGENT POINT
UPVC	UNPLASTICISED POLYVINYL CHLORIDE
UNO	UNLESS NOTED OTHERWISE
WPJ	WEAKENED PLANE JOINT
FF	FIRST FLUSH DEVICE
TYP	TYPICAL
BM	BENCH MARK

STORMWATER PIPE BEDDING/PAVING NOTES:

WHERE TRENCH BASE IS ROCK A MINIMUM OF 75mm BEDDING TO BE PROVIDED UNDER PIPE COLLARS.

STORMWATER PIPE BEDDING DETAIL TO BE IN ACCORDANCE WITH LOCAL COUNCIL REQUIREMENTS. BEDDING DETAILS TO BE CONFIRMED UPON EXCAVATION & PRIOR TO INSTALLATION OF PIPEWORK.

FOOTPATH REINSTATEMENT NOTES:

REMOVE ALL SAND FILL WITHIN THE FOOTPATH AREA TO THE EXISTING SUBGRADE.

SUPPORT ALL AUTHORITY SERVICES TO STRUCTURAL ENGINEERS DETAILS DURING EXCAVATION.

REINSTATE FOOTPATH SUBGRADE.

THE CONTRACTOR SHALL PROVIDE CERTIFICATION OF COMPACTION FROM A NATA REGISTERED TESTING AUTHORITY. MINIMUM THREE TESTS PER LAYER AS FOLLOWS:
 SELECT FILL 95% MODIFIED
 SELECT FILL (LESS THAN 300mm BELOW BASE COURSE) 98% MODIFIED
 BASE COURSE 100% MODIFIED

EROSION & SEDIMENT CONTROL NOTES:

PROVIDE SILT FENCE/HAY BAIL BARRIERS TO THE LOW SIDE OF ALL EXPOSED EARTH EXCAVATIONS (TYPICAL).

ISOLATE EXISTING STORMWATER PITS WITH HAY BALES TO FILTER ALL INCOMING FLOWS.

DO NOT STOCK PILE EXCAVATED MATERIAL ON THE ROAD WAY.

SURVEY

THE EXISTING SITE CONDITIONS SHOWN ON THE FOLLOWING DRAWINGS HAVE BEEN INVESTIGATED BY OTHERS, BEING REGISTERED SURVEYORS. THE INFORMATION IS SHOWN TO PROVIDE A BASIS FOR DESIGN. CAPITAL ENGINEERING CONSULTANTS DOES NOT GUARANTEE THE ACCURACY OR COMPLETENESS OF THE SURVEY BASE OR ITS SUITABILITY AS A BASIS FOR CONSTRUCTION DRAW.

SHOULD DISCREPANCIES BE ENCOUNTERED DURING CONSTRUCTION BETWEEN THE SURVEY DATA AND ACTUAL FIELD DATA, CONTACT CAPITAL ENGINEERING CONSULTANTS.

ADOPT DATUM A.H.D AS PER OTHERS.

IT IS THE BUILDERS RESPONSIBILITY TO MAKE SURE ALL SURVEY MARKS TO BE PRESERVED AT ALL COST.

Rev.	Description	By.	Chk.	App.	Date
A	ISSUED FOR DA SUBMISSION	M.W.	R.F.	P.E.	21/10/2021

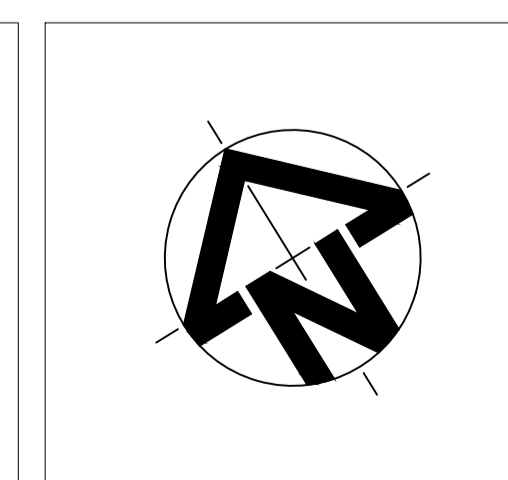


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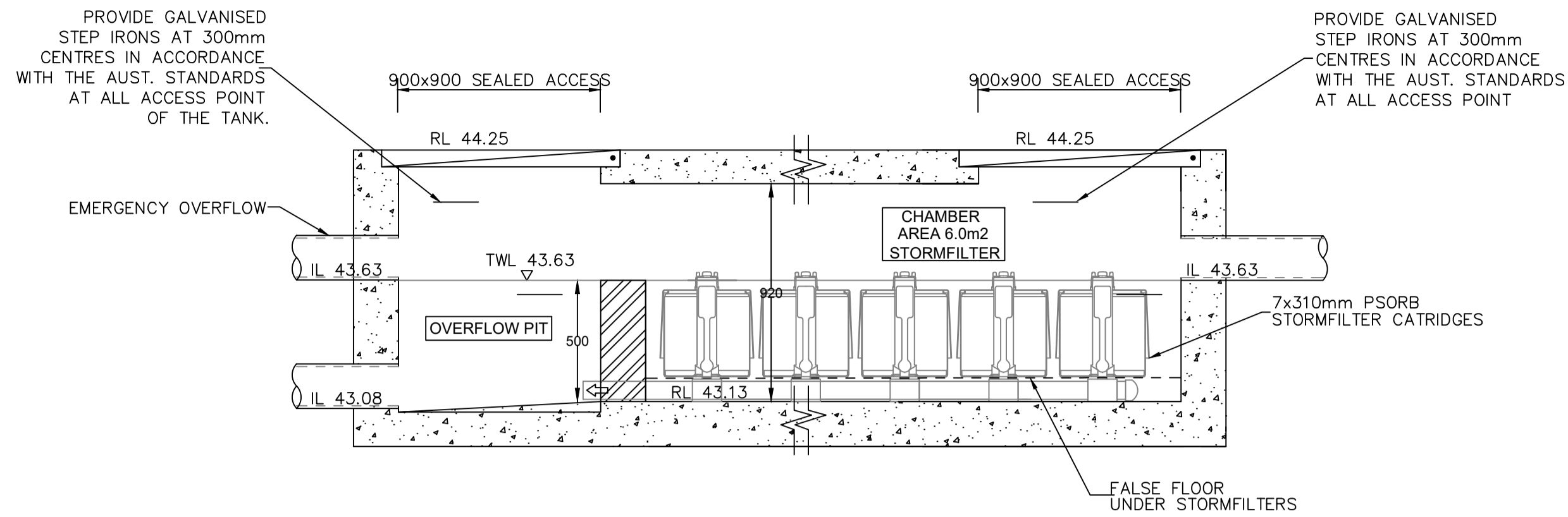
Project
**31 SANTLEY CRES & 2A BRINGELLY RD
KINGSWOOD, NSW**

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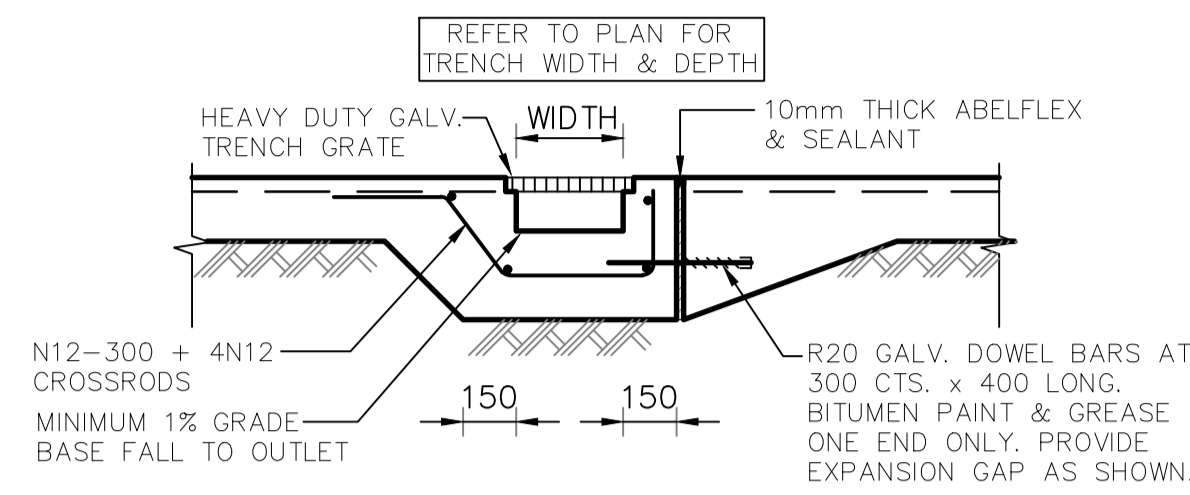
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**TITLE PAGE, NOTES AND
DETAILS SHEET**



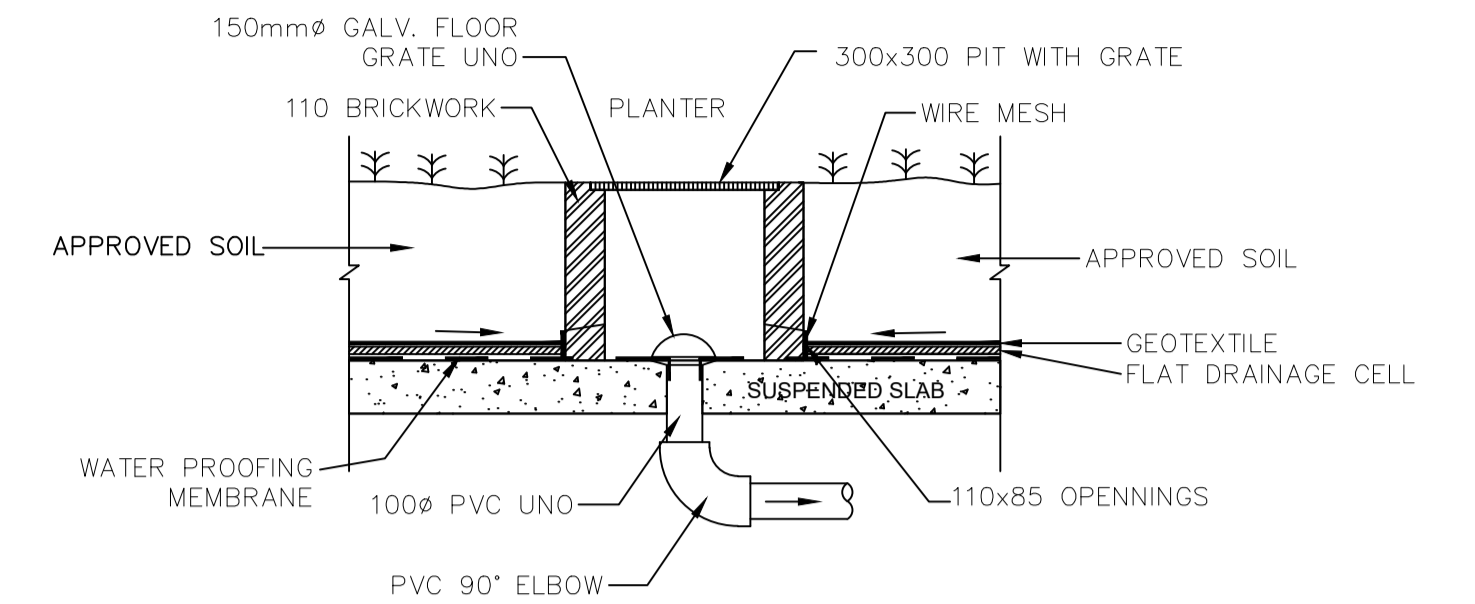
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FOR CLIENT REVIEW					P.E.	
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Scale 1:100	Date 01/10/2020	Project Number SW21299	Drawing Number SWDP001	Revision A		



SECTION (A) THROUGH WSUD TANK
SCALE 1:20



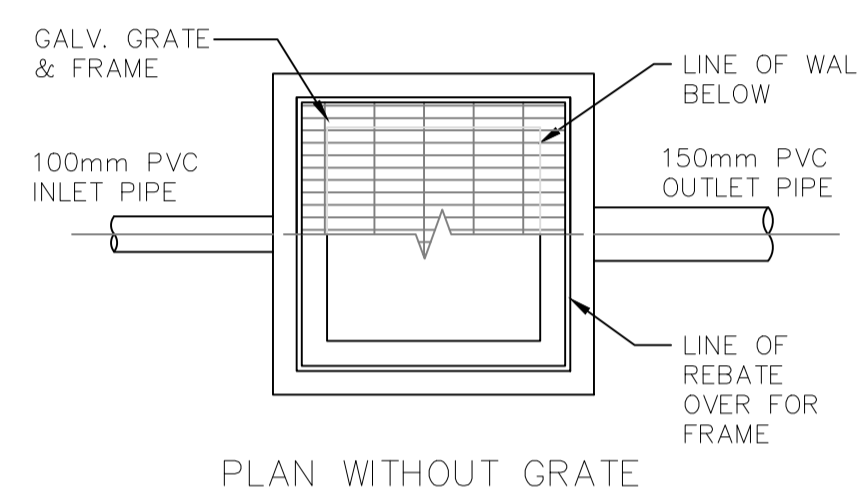
GRADED DRAIN DETAIL
SCALE: 1:20



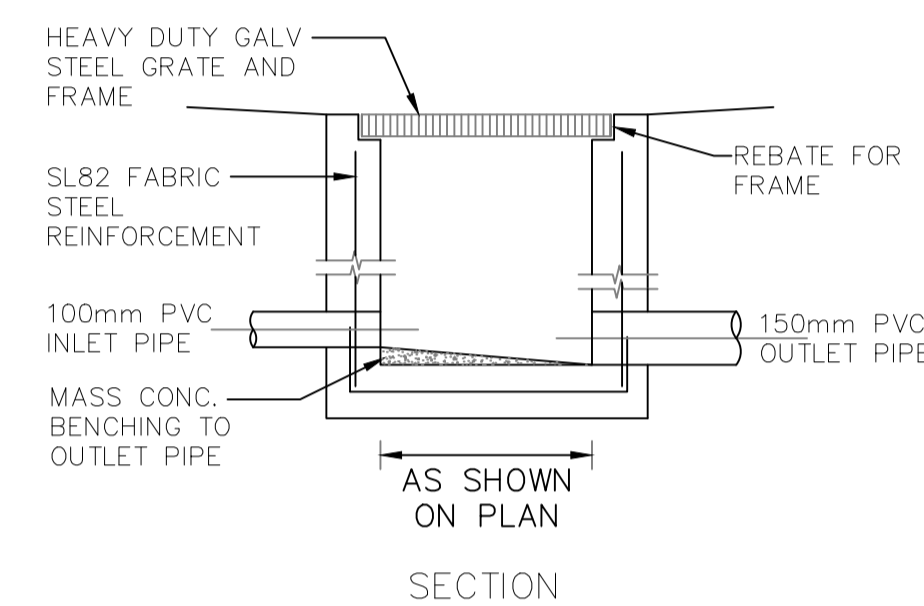
TYPICAL PLANTER DRAINAGE DETAIL
SCALE 1:10

CONTACT OCEAN PROTECT PRIOR TO TANK CONSTRUCTION. SHOP DRAWING WILL BE PROVIDED BY OCEAN PROTECT WITH RELEVANT DETAILS INCLUDING CARTRIDGE CHAMBER ARRANGEMENT
PH:1300 354 722
www.oceanprotect.com.au

WSUD TREATMENT TANK:
AREA (4.85x1.17m) = 5.67 Sq.m
TOP WATER LEVEL = 43.63 AHD
AVG DEPTH = 495 mm
NO. STORMFILTER CARTRIDGES = 7 310PSORB
WSUD DETAILS AS PER MUSIC MODEL
CONFIGURATION TO MANUFACTURER SPEC.

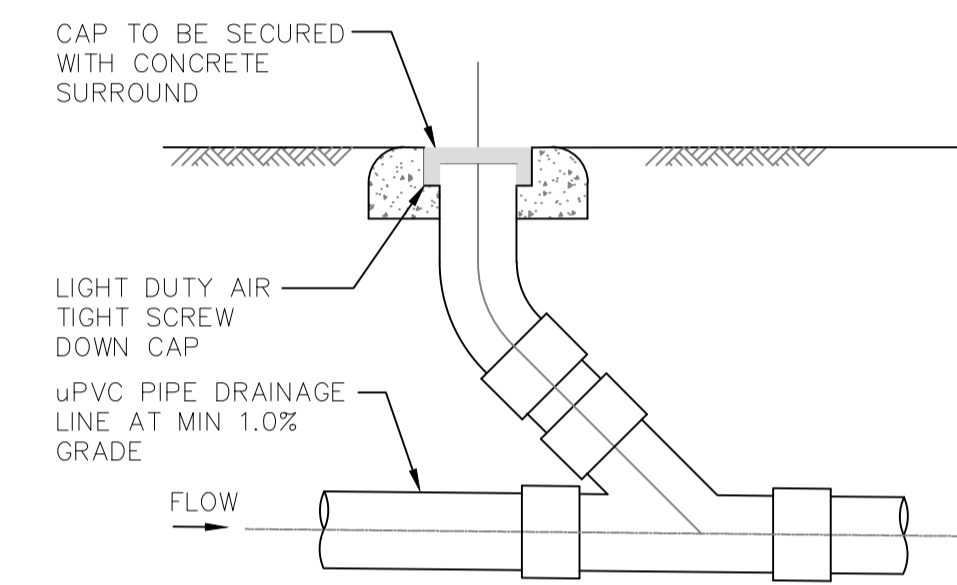


PLAN WITHOUT GRATE

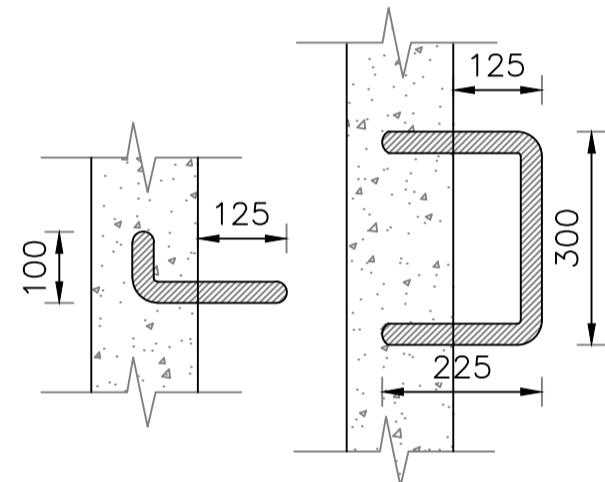


SECTION

TYPICAL GRADED INLET PIT DETAIL
SCALE: 1:20



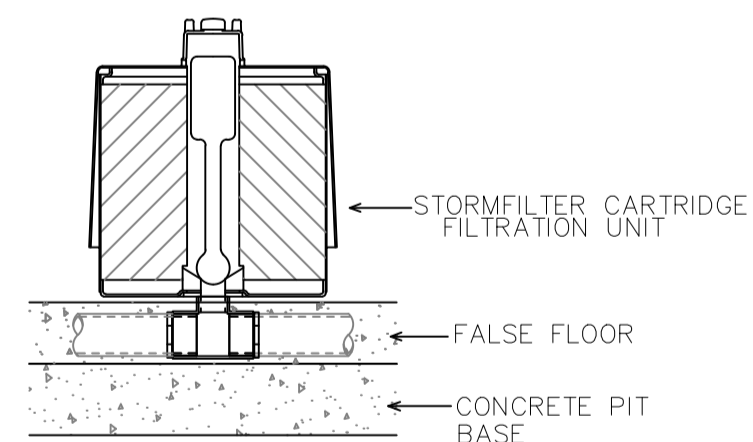
TYPICAL CLEAR-OUT DETAIL
SCALE 1:10



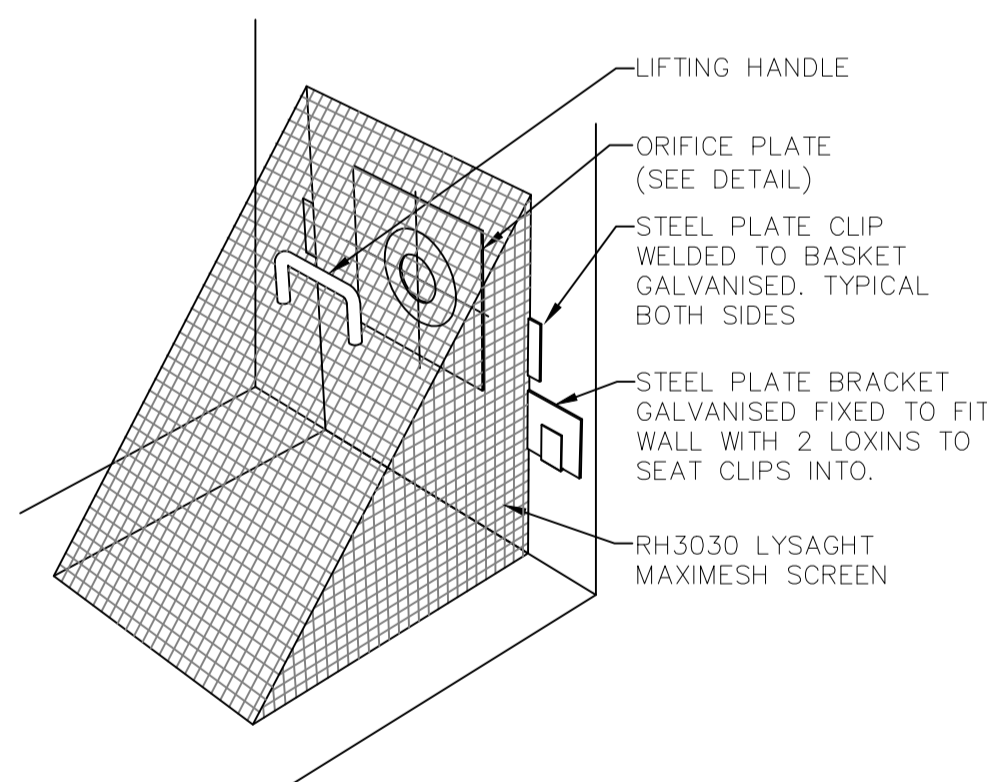
STEP IRON DETAIL
SCALE: 1:10



CONFINED SPACE SIGN
NOT TO SCALE



STORMFILTER CARTRIDGE DETAIL
SCALE 1:10



TRASH SCREEN DETAIL
NOT TO SCALE

SPS 200MM SQ. VARI-LEVEL VERTICAL DRAIN 100MM OUTLET

SPECIFICATION CODES:
Q200S4/C (POLISHED 304 STAINLESS STEEL, CI LOWER BODY)

HIGH-HEEL FRIENDLY PATTERN (9MM GAPS)

HEIGHT ADJUSTMENT MIN: 50MM MAX: 70MM

TYPICAL APPLICATION

ADJUSTABLE HINGED GRATE ASSEMBLY

WEED SLOTS (3 X PLACES)

OPTIONAL COUPLING CONNECTION

PUSH-IN CONNECTION (SPECIFY -RI)

MEMBRANE FLANGE 235#

FOR FLOW RATE DATA PLEASE REFER TO APPENDIX

SPECIALITY PLUMBING SUPPLIES PTY LTD
TEL: (02) 9417 1900 FAX: (02) 9417 0108 E-MAIL: INFO@SPSDRAINS.COM.AU

SPS TRUFLO RWO WITH FLAT GRATE & MEMBRANE CLAMP 100MM OUTLET

SPECIFICATION CODES:
T1A100F2 (CI BODY, ALUMINIUM FLAT GRATE & MEMBRANE RING)
T1B100F2 (CI BODY, BRONZE FLAT GRATE & MEMBRANE RING)
T1A100F2 (ALL-BRONZE ASSEMBLY)

SUGGESTED APPLICATION: MEMBRANED FLOORS OR ROOFS WITH NO FURTHER TOPPING, EG PLANTER BOXES, PLANT ROOMS, ROOF DECKS.

MEMBRANE RING FASTENS TO BODY INDEPENDENTLY OF GRATE TO ALLOW ACCESS TO SUMP WITHOUT BREAKING MEMBRANE SEAL.

LOAD CLASS A - AS 3996-2006

INTEGRAL PUDDLE FLANGE WITH WEED HOLES 4 X PLACES

MEMBRANE

C-SERIES PVC IN-PVC ADAPTER (SUFFIX 'T')

OPTIONAL COUPLING CONNECTOR (SUFFIX 'P')

Dimensions (mm)

N.B	A	B	C	D	E	F	G
100	280	240	103	108	28	45	25
150	380	340	151	156	38	57	30

FOR FLOW RATE DATA PLEASE REFER TO APPENDIX

SPECIALITY PLUMBING SUPPLIES PTY LTD
TEL: (02) 9417 1900 FAX: (02) 9417 0108 E-MAIL: INFO@SPSDRAINS.COM.AU

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capital engineering consultants

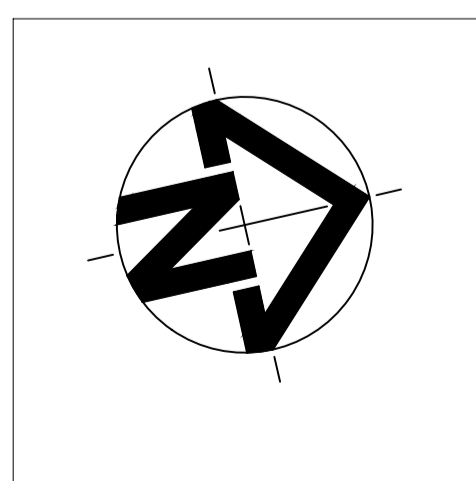
8 Buller Street,
North Parramatta 2151
Ph: (02) 9630 0121
Fax: (02) 9630 0132
info@capitalengineering.com.au
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Title
STORMWATER DETAILS 1



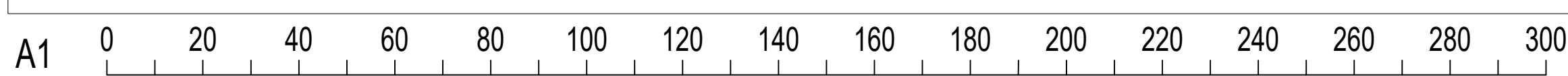
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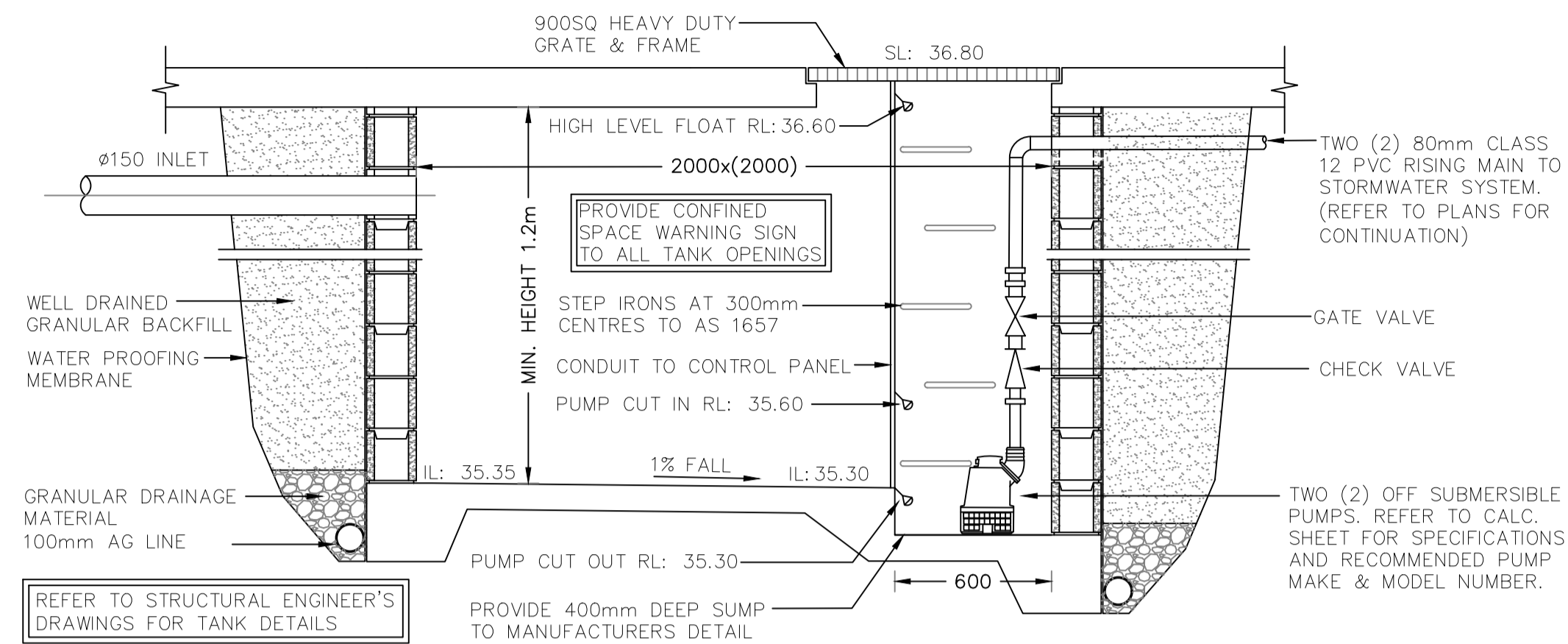
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Scale 1:100	Date 01/10/2021	Project Number SW21299	Drawing Number SWDP021	Revision A

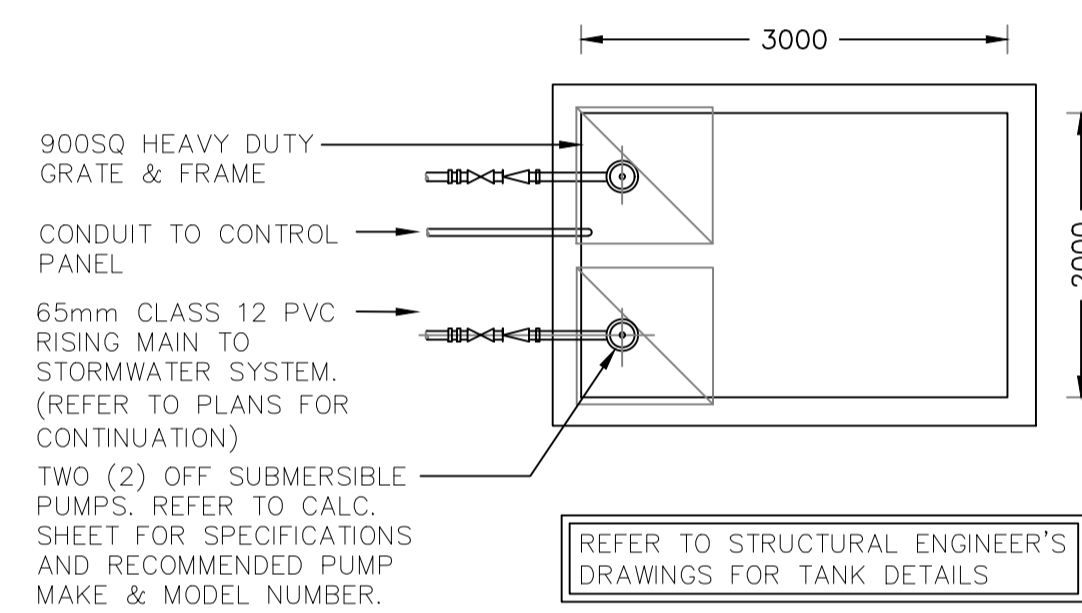
Approved
P.E.

PAUL EL-BAYEH - DIRECTOR
B.E., M.E., FIEAust, CPEng, NER, RPEQ

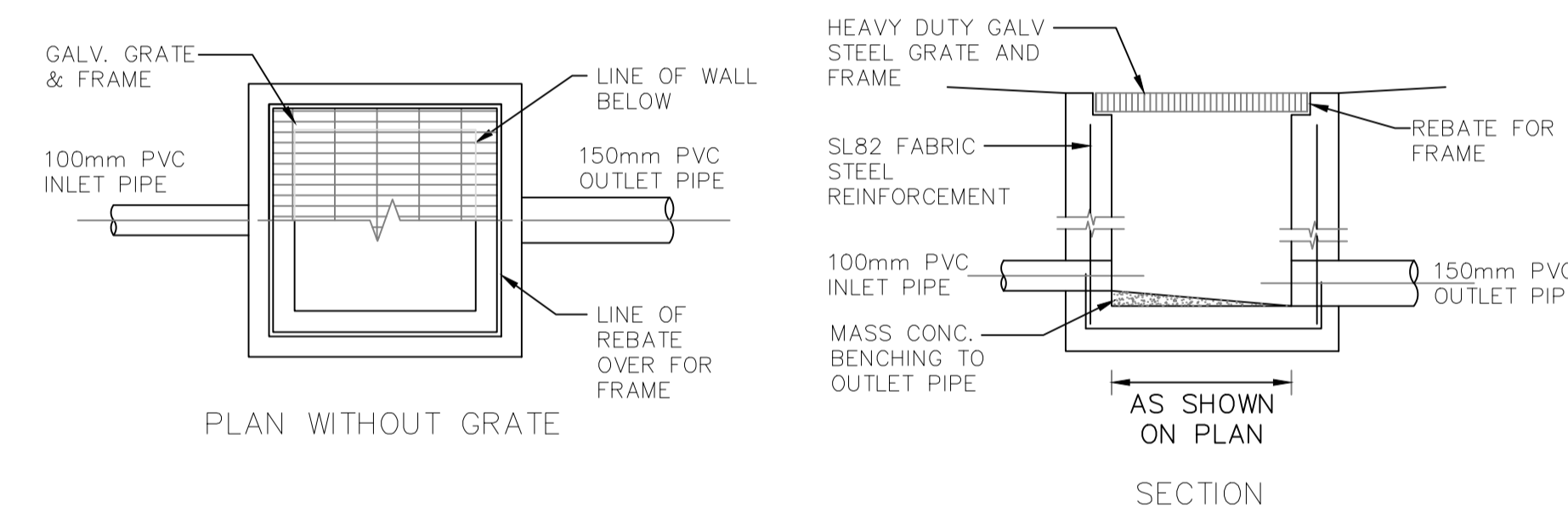




PUMP-OUT TANK SECTION DETAIL
SCALE N.T.S.



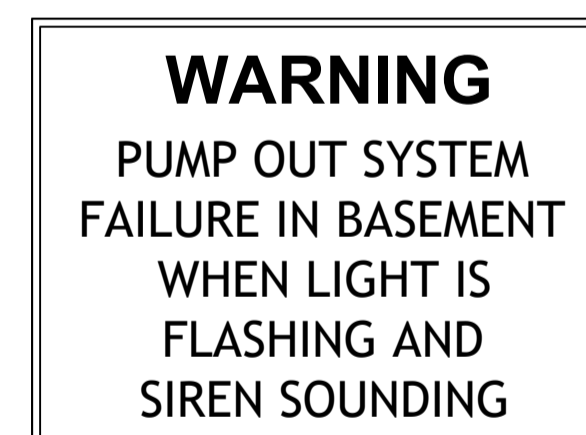
PUMP-OUT TANK PLAN DETAIL
SCALE 1:50



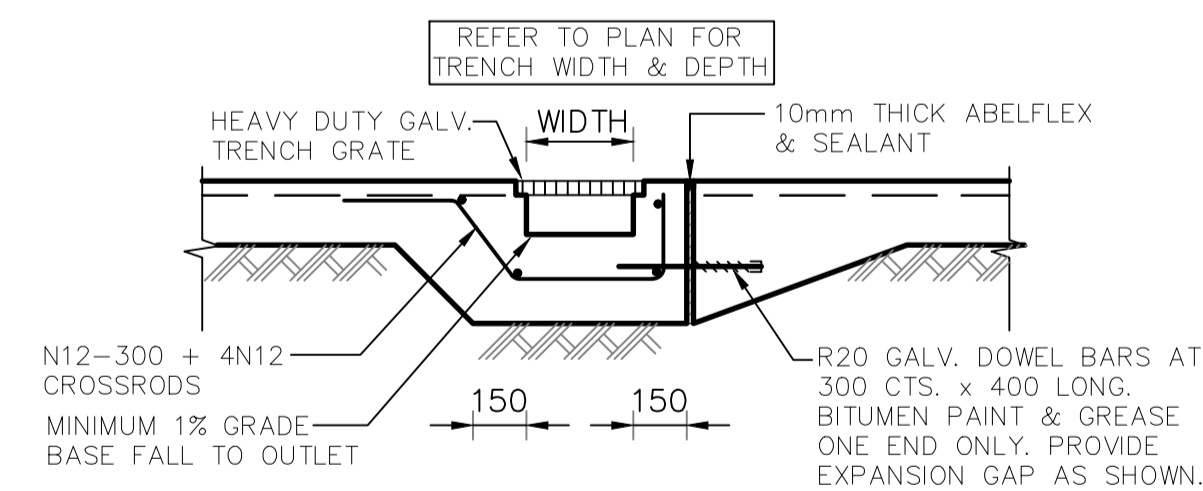
TYPICAL GRATED INLET PIT DETAIL
SCALE: 1:20



CONFINED SPACE SIGN
NOT TO SCALE



PUMP FAILURE WARNING SIGN
NOT TO SCALE



GRATED DRAIN DETAIL
SCALE: 1:20

KEY NOTES:

- INSTALL STEP IRONS FOR EASE OF ACCESS DURING MAINTENANCE OF PUMP OUT CONTROL PIT TO COUNCIL SATISFACTION.
- INSTALL CONFINED SPACE SIGN ABOVE PUMP OUT PIT FOR PUBLIC AWARENESS AND WARNING.
- ALL STORMWATER PIPES ARE Ø100mm uPVC AND SLOPING @ 1.0% U.N.O (TYP).
- ALL BUILDING AND HYDRAULIC SERVICES TO BE PROPERLY CO-ORDINATED WITH STORMWATER PIPES AND ENSURE NO CLASHES ARE PRESENT DURING CONSTRUCTION (TYP).
- STORMWATER PIPE ARRANGEMENT TO BE CO-ORDINATED WITH STRUCTURAL SLAB AND BEAMS WHERE REQUIRED (TYP).

STANDARD PUMP OUT DESIGN NOTES:

- THE PUMP OUT SYSTEM SHALL BE DESIGNED TO BE OPERATED IN THE FOLLOWING MANNER: -
- i). THE PUMPS SHALL BE PROGRAMMED TO WORK ALTERNATELY TO ALLOW BOTH PUMPS TO HAVE AN EQUAL OPERATION LOAD AND PUMP LIFE.
- ii). A FLOAT SHALL BE PROVIDED TO ENSURE THAT THE MINIMUM REQUIRED WATER LEVEL IS MAINTAINED WITHIN THE SUMP AREA OF THE BELOW GROUND TANK. IN THIS REGARD THIS FLOAT WILL FUNCTION AS AN OFF SWITCH FOR THE PUMPS AT THE MINIMUM WATER LEVEL. THE SAME FLOAT SHALL BE SET TO TURN ONE OF THE PUMPS ON UPON THE WATER LEVEL IN THE TANK RISING TO APPROXIMATELY 300MM ABOVE THE MINIMUM WATER LEVEL. THE PUMP SHALL OPERATE UNTIL THE TANK IS DRAINED TO THE MINIMUM WATER LEVEL.
- iii). A SECOND FLOAT SHALL BE PROVIDED AT A HIGH LEVEL, WHICH IS APPROXIMATELY THE ROOF LEVEL OF THE BELOW GROUND TANK. THIS FLOAT SHALL START THE OTHER PUMP THAT IS NOT OPERATING AND ACTIVATE THE ALARM.
- iv). AN ALARM SYSTEM SHALL BE PROVIDED WITH A FLASHING STROBELIGHT AND A PUMP FAILURE WARNING SIGN WHICH ARE TO BE LOCATED AT THE DRIVEWAY ENTRANCE TO THE BASEMENT LEVEL. THE ALARM SYSTEM SHALL BE PROVIDED WITH A BATTERY BACK-UP IN CASE OF POWER FAILURE.
- v). A CONFINED SPACE DANGER SIGN SHALL BE PROVIDED AT ALL ACCESS POINTS TO THE PUMP OUT STORAGE TANK IN ACCORDANCE WITH THE UPPER PARRAMATTA RIVER CATCHMENT TRUST OSD HANDBOOK.

Rev.	Description	By.	Chk.	App.	Date
A	ISSUED FOR DA SUBMISSION	M.W.	R.F.	P.E.	21/10/2021

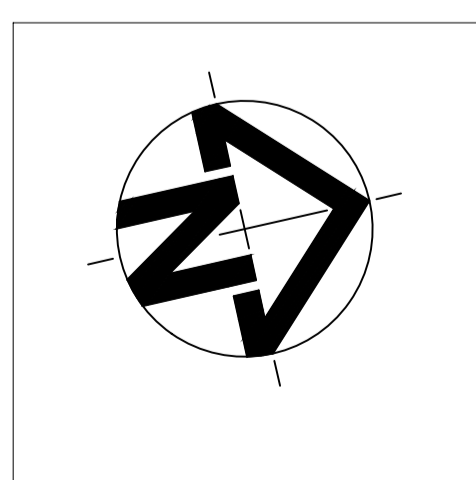
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Project
**31 SANTLEY CRES & 2A BRINGELLY RD
KINGSWOOD, NSW**

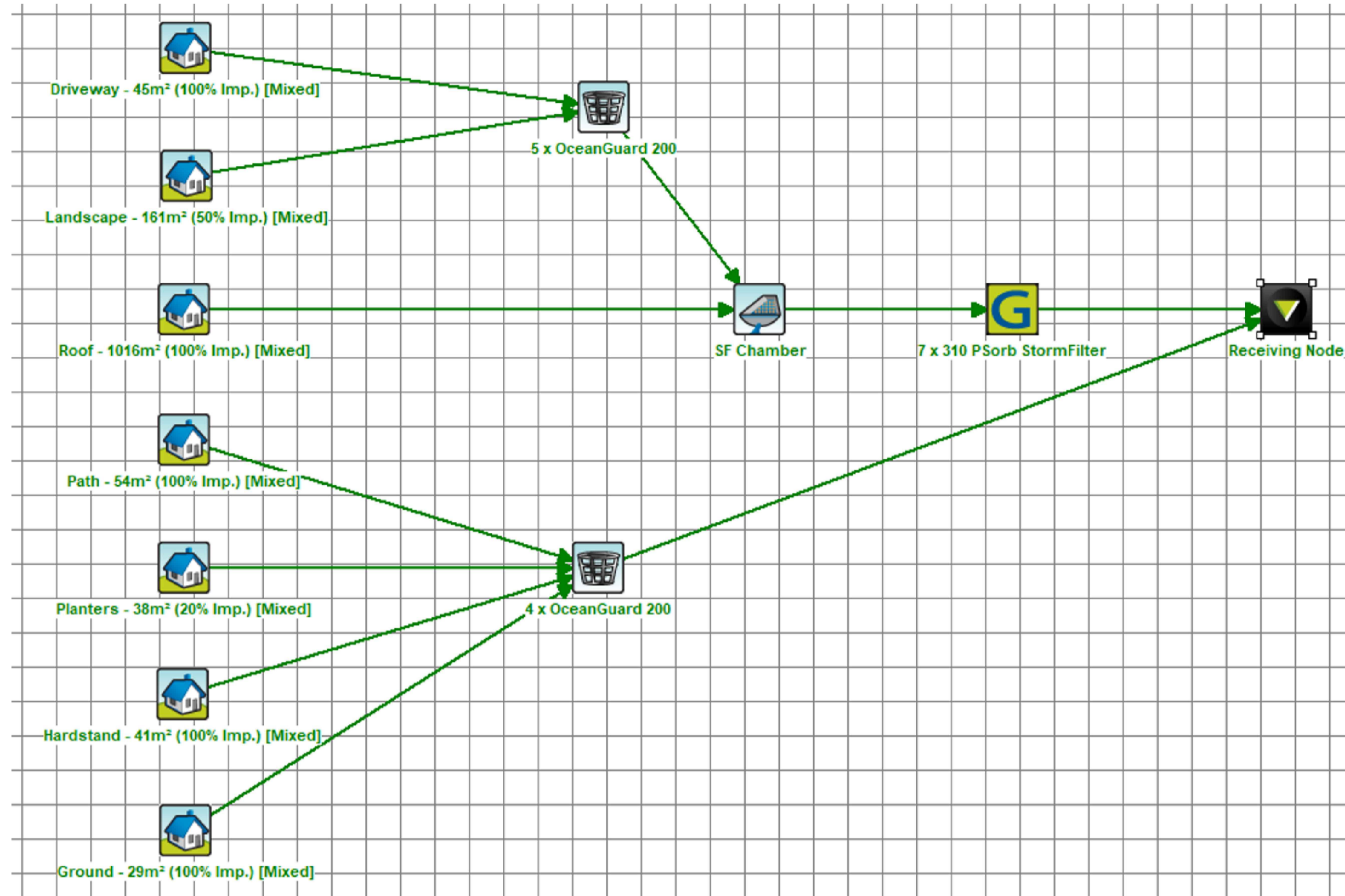
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Title
STORMWATER DETAILS 2



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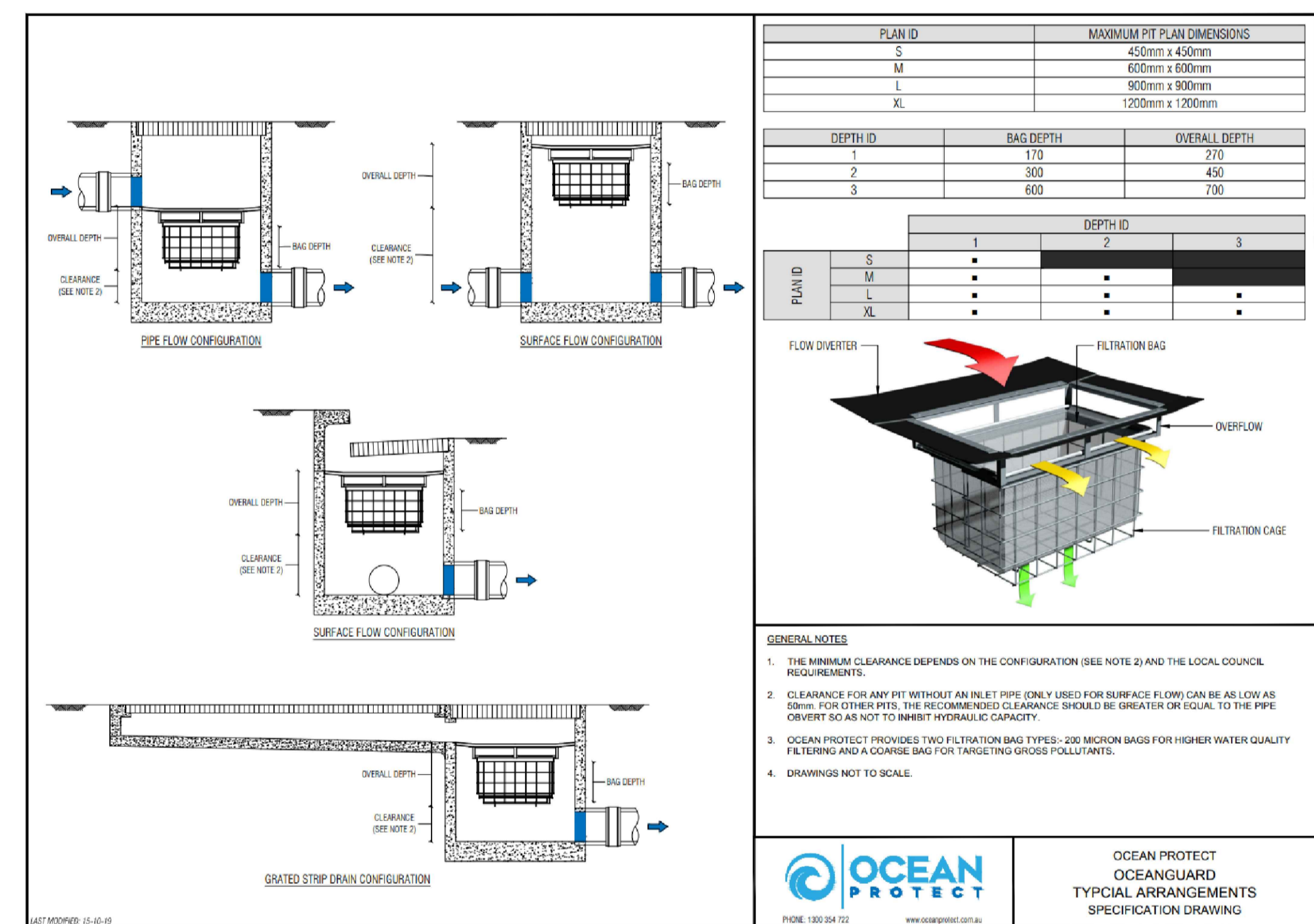
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Drawing Number SWDP022	Revision A



MUSIC LINK CHART

	Sources	Residual Load	% Reduction
Flow (ML/yr)	0.766	0.766	0
Total Suspended Solids (kg/yr)	50.6	7.59	85
Total Phosphorus (kg/yr)	0.148	0.0489	66.9
Total Nitrogen (kg/yr)	1.7	0.931	45.1
Gross Pollutants (kg/yr)	21.8	0	100

MUSIC LINK OUTPUT



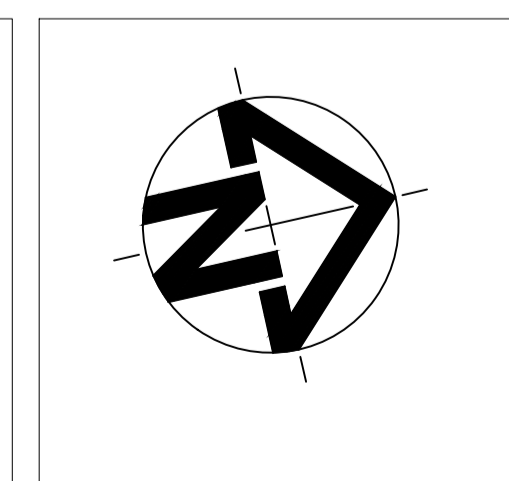
OCEANGUARD DETAILS

Rev.	Description	By.	Chk.	App.	Date
A	ISSUED FOR DA SUBMISSION	M.W.	R.F.	P.E.	21/10/2021



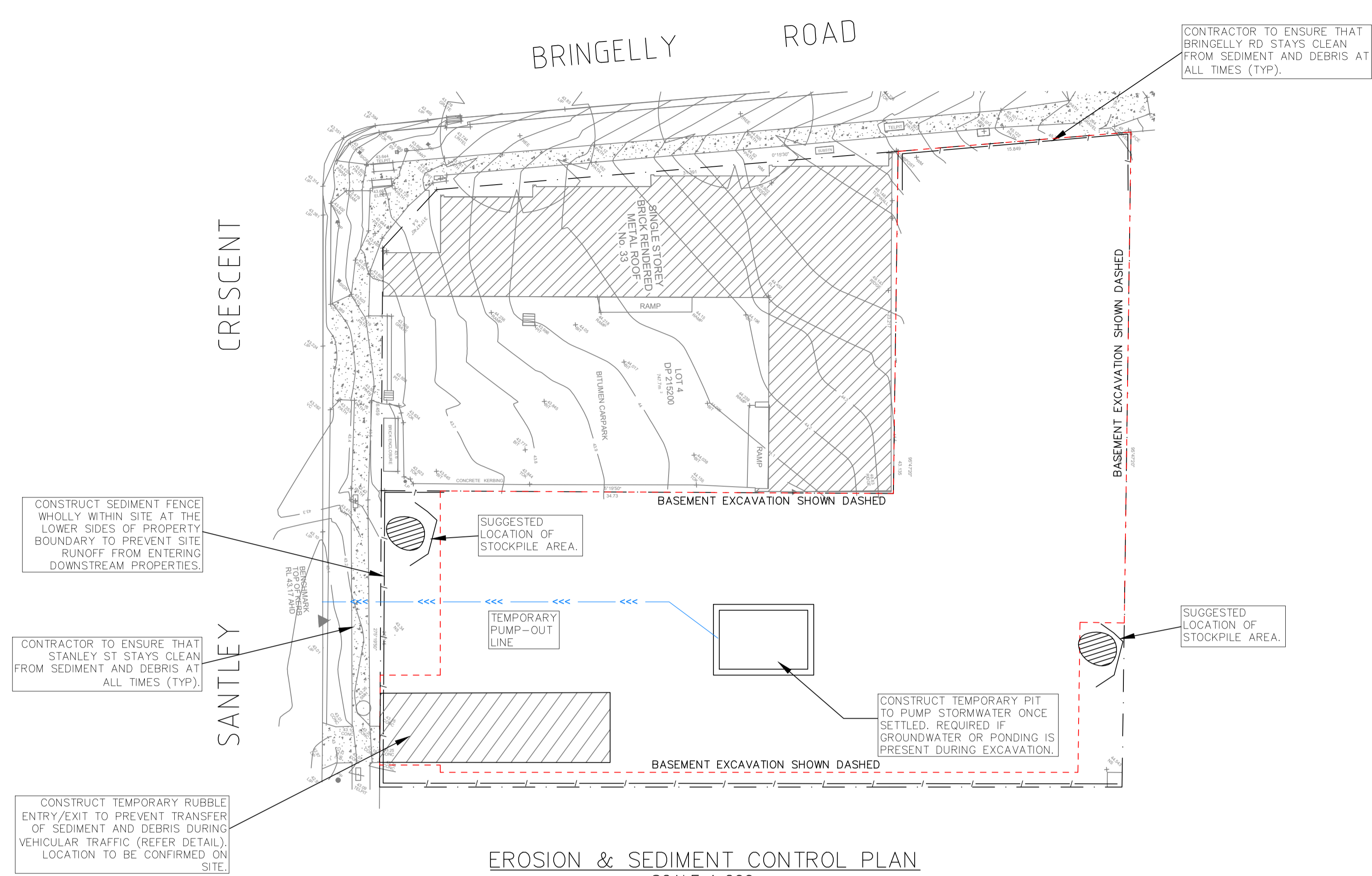
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Title
MUSIC MODEL & DETAILS

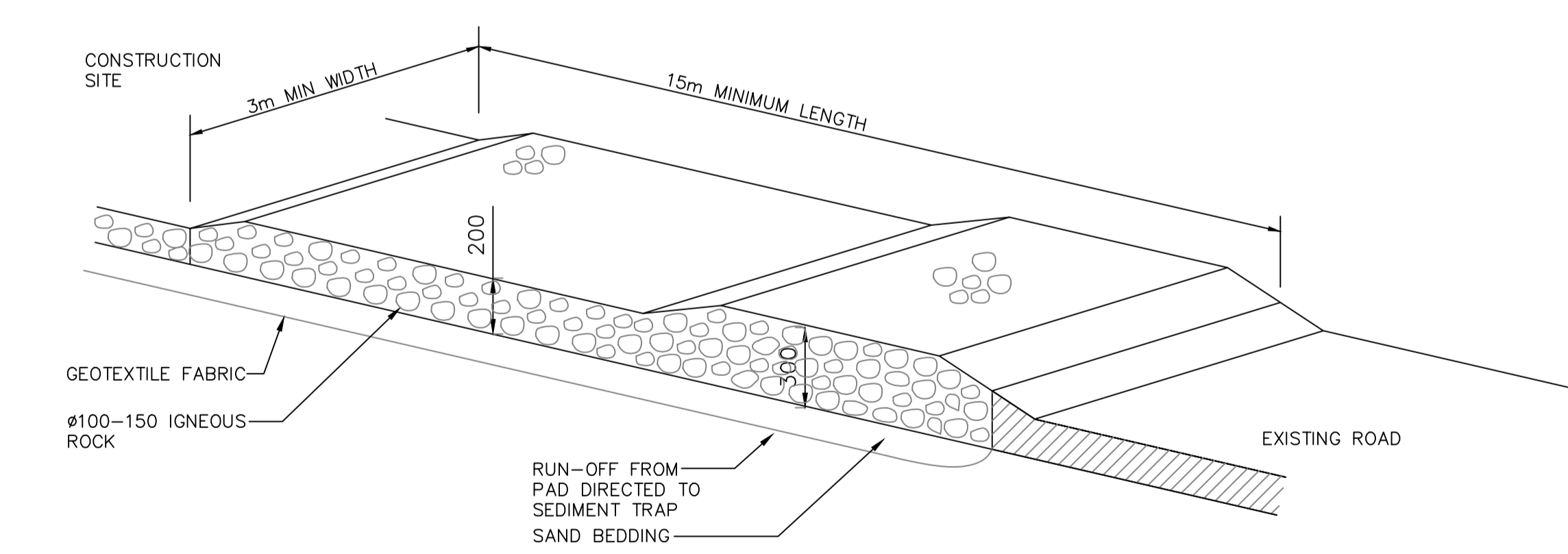


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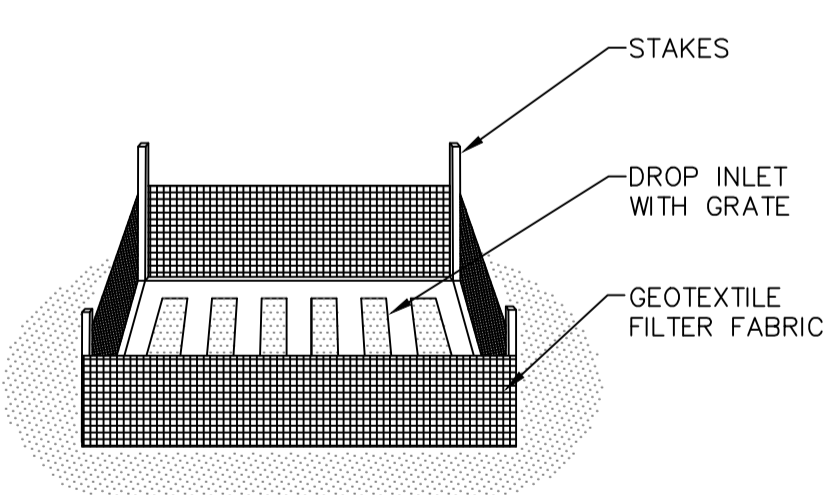
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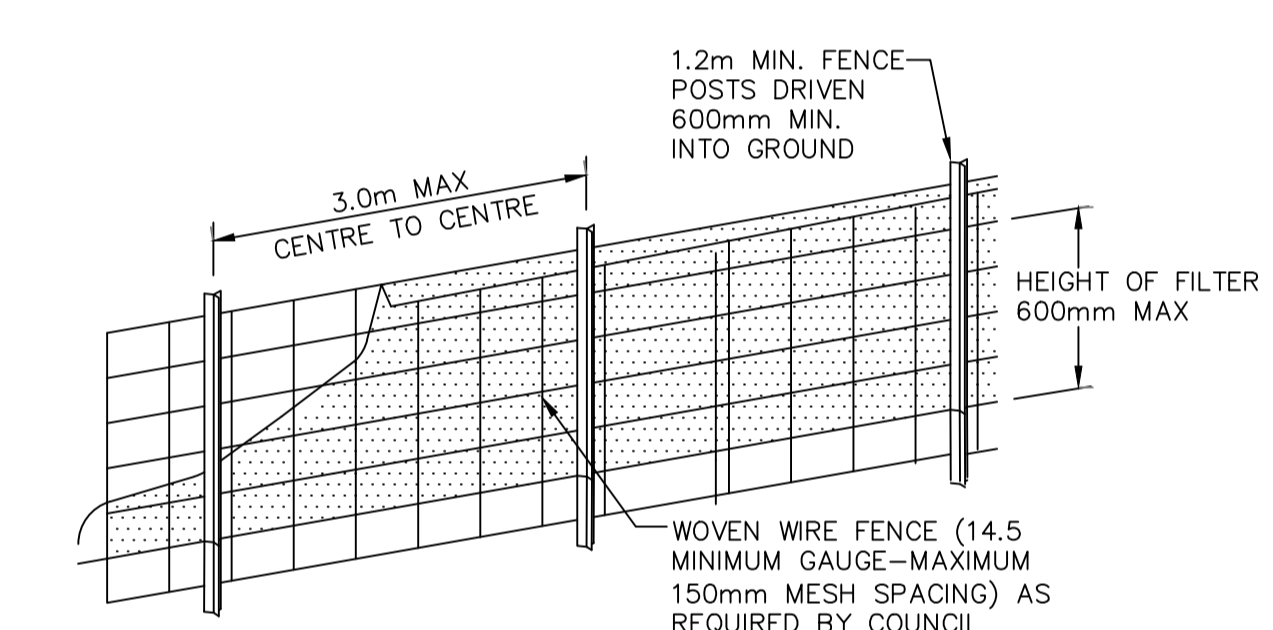
EROSION & SEDIMENT CONTROL PLAN
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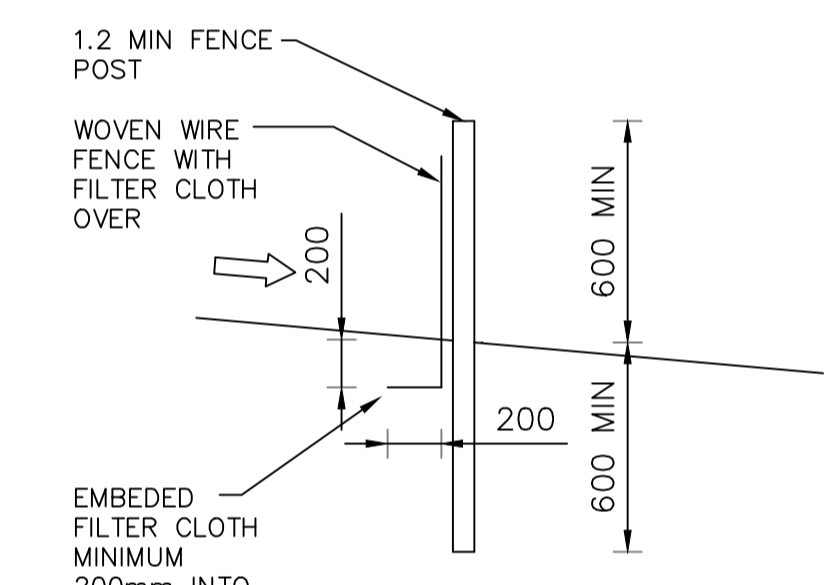
TEMPORARY CONSTRUCTION EXIT (RUBBLE ALTERNATIVE)
NOT TO SCALE



SUMP SEDIMENT TRAP DETAIL
NOT TO SCALE

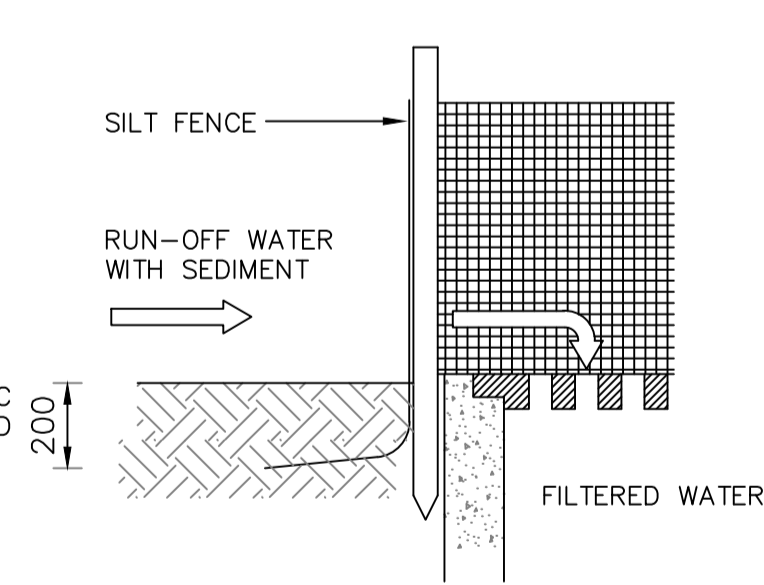


DIAGRAMMATIC VIEW

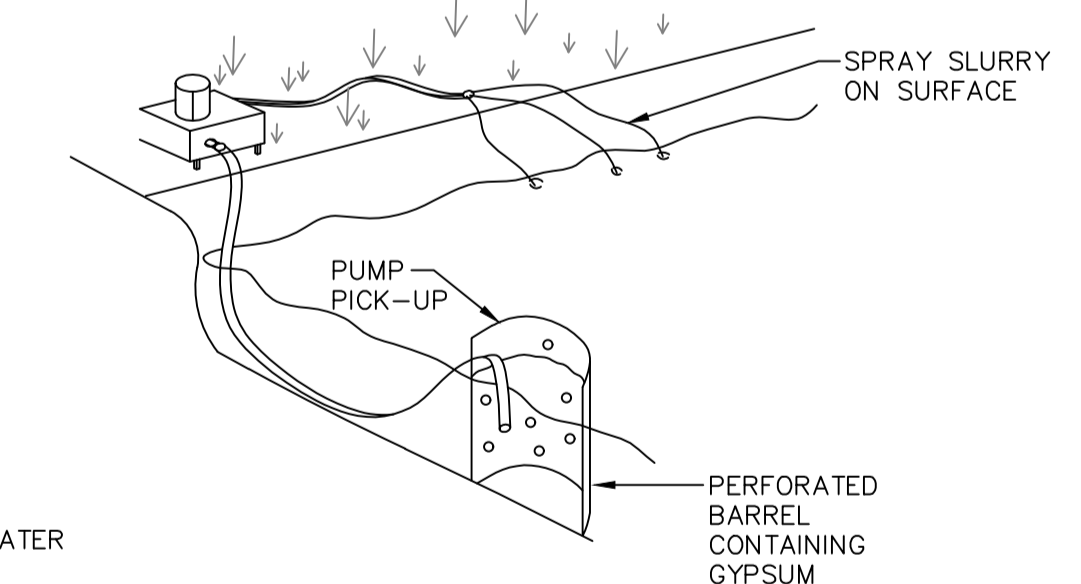


TYPICAL SECTION

SEDIMENT FENCE DETAIL
NOT TO SCALE



FLOCCULATION DETAIL
NOT TO SCALE



- NOTE:
1. FLOCCULATION TO BE USED IF WATER IS NOT CLEAR (ie. SEDIMENT GREATER THAN 50 mg/L) PRIOR TO DISCHARGING FROM TEMPORARY PUMP OUT
 2. FOR RATES & AGENTS SEE APPENDIX E OF NEW SOUTH WALES DEPARTMENT OF HOUSING "MANAGING URBAN STORMWATER SOILS & CONSTRUCTION".

EROSION CONTROL

BEFORE EARTHWORKS CAN COMMENCE THE EROSION & SEDIMENT CONTROL MEASURES MUST BE IN PLACE.

DURING THE CONSTRUCTION PERIOD, THESE CONTROL MEASURES WILL NEED TO BE INSPECTED & MAINTAINED REGULARLY, ESPECIALLY AFTER STORM EVENTS, BY THE CONTRACTOR.

ALL WORK IS TO BE CARRIED OUT TO PREVENT EROSION, CONTAMINATION & SEDIMENTATION OF THE STORAGE SITE, SURROUNDING AREAS & DRAINAGE SYSTEMS.

MINIMIZE DISTURBED AREA COVERED WITH NATURAL VEGETATION. ONLY THOSE AREAS DIRECTLY REQUIRED FOR CONSTRUCTION ARE TO BE DISTURBED.

ISOLATE EXISTING STORMWATER PITS WITH STRAW BALES OR SILT TRAPS TO FILTER ALL INCOMING FLOWS.

DO NOT STOCKPILE EXCAVATED MATERIAL ON THE ROAD WAY.

DIVERT CLEAN WATER FROM UNDISTURBED AREAS AROUND THE WORKING AREAS.

CONSTRUCTION ENTRY/EXIT SHALL BE VIA THE LOCATION NOTED ON THE DRAWING. CONTRACTOR SHALL ENSURE ALL DROPPABLE SOIL & SEDIMENT IS REMOVED PRIOR TO CONSTRUCTION TRAFFIC EXITING SITE. CONTRACTOR SHALL ENSURE ALL CONSTRUCTION TRAFFIC ENTERING AND LEAVING THE SITE DO SO IN A FORWARD DIRECTION.

ADOPT TEMPORARY MEASURES AS MAY BE NECESSARY FOR EROSION & SEDIMENT CONTROL, INCLUDING BUT NOT LIMITED TO THE FOLLOWING:

- DRAINS: TEMPORARY DRAINS AND CATCH DRAINS.
- SPREADER BANKS OR OTHER STRUCTURES: TO DISPERSE CONCENTRATED RUNOFF.
- SILT TRAPS: CONSTRUCTION AND MAINTENANCE OF SILT TRAPS TO PREVENT DISCHARGE OF SCOURED MATERIAL TO DOWNSTREAM AREAS.

AFTER RAIN, INSPECT, CLEAN, AND REPAIR IF REQUIRED, TEMPORARY EROSION & SEDIMENT CONTROL MEASURES.

REMOVE TEMPORARY EROSION & SEDIMENT CONTROL MEASURES WHEN THEY ARE NO LONGER REQUIRED.

COMPLY WITH THE REQUIREMENTS OF LANDCOM'S MANAGING URBAN STORMWATER - SOIL AND CONSTRUCTION 'THE BLUE BOOK' LATEST EDITION

THE EROSION & SEDIMENT CONTROL PLAN PROVIDED IS ONLY INDICATIVE. THE CONTRACTOR SHOULD PREPARE A DETAILED ESCP SUITABLE FOR THE SPECIFIC SITE CONDITIONS

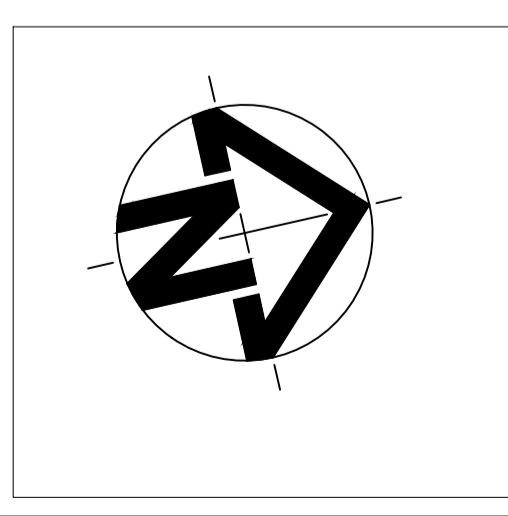
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Client
DANABINA PTY LTD & MID POINT INVT.

Project
**31 SANTLEY CRES & 2A BRINGELLY RD
KINGSWOOD, NSW**

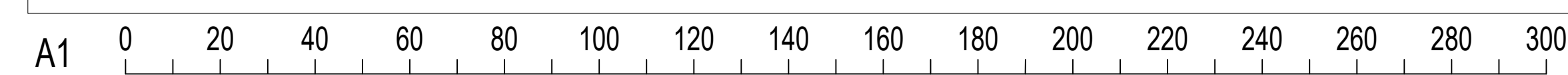
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Title
**EROSION & SEDIMENT
CONTROL PLAN**



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Approved	
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Drawing Number SWDP030	Revision A





TRAFFIC IMPACT ASSESSMENT

31 Santley Crescent & 2A Bringelly Road, Kingswood

PREPARED FOR:

Danabina P/L & Midpoint Investments P/L

REFERENCE:

0444r01v01

DATE:

14/10/2021



TRAFFIC IMPACT ASSESSMENT

31 Santley Crescent & 2A Bringelly Road, Kingswood

Prepared for: Danabina P/L & Midpoint Investments P/L
ABN: 52 760 603 505
ABN: 87 629 413 529

Reference: 0444r01v01

Date: 14/10/2021

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Revision History

VERSION	DATE	PREPARED	REVIEWED	APPROVED	SIGNED
01	12/10/2021	Maria Mulholland	Julius Boncato	Paul Corbett	

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Appendices

Appendix A	Architectural Drawings
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1. Introduction

1.1. Overview

PDC Consultants has been commissioned by Danabina P/L & Midpoint Investments P/L to undertake a traffic impact assessment of a Development Application (DA) relating to the proposed mixed-use development for the site at 31 Santley Crescent & 2A Bringelly Road, Kingswood. Specifically, the DA proposes the demolition of the existing buildings and construction of a seven-storey mixed-use development consisting of:

- 95 boarding rooms, a manager's room and a communal room
- 342m² of retail gross floor area (GFA);
- Two (2) basement levels accommodating a total of 43 car parking spaces, including two (2) carshare spaces
- One mechanical car lift for travel between Basement Level 1 & 2.
- 5.5 metre wide entry / exit driveway onto Santley Crescent

Having regard for the above, it is evident that development is not of a scale that requires referral of the DA to Transport for New South Wales (TfNSW), under the provisions of the State Environmental Planning Policy (Infrastructure) 2007.

The site is located in the Penrith City Council local government area and therefore, the proposed development has been assessed in accordance with the Penrith Development Control Plan 2014 and Local Environmental Plan 2010.

1.2. Structure of this Report

This report documents the findings of our investigations in relation to the anticipated traffic and parking impacts of the proposed development and should be read in the context of the Statement of Environmental Effects (SEE), prepared separately by Minto Planning Services. The remainder of this report is structured as follows:

- Section 2: Describes the site and existing traffic and parking conditions in the locality;
- Section 3: Describes the proposed development;
- Section 4: Assesses the parking requirements of the development;
- Section 5: Describes the components of a Green Travel Plan;
- Section 6: Assesses the traffic impacts of the development;
- Section 7: Discusses the proposed access and internal design arrangements;
- Section 8: Presents the overall study conclusions.

1.3. References

In preparing this report, reference has been made to the following guidelines / standards:

- Penrith Local Environmental Plan 2010 (Penrith LEP 2010);
- Penrith Development Control Plan 2014 (Penrith DCP 2014);
- State Environmental Planning Policy (Infrastructure) 2007 (SEPP Infrastructure 2007);
- Disability (Access to Premises -Buildings) Standards 2010 (Disability Standard 2010);
- Australian Standard AS 2890.1-2004, Part 1: Off-Street Car Parking (AS 2890.1);
- Australian Standard AS 2890.2-2018, Part 2: Off-Street Commercial Vehicle Facilities (AS 2890.2);
- Australian Standard AS 2890.3-2015, Part 3: Bicycle Parking Facilities (AS 2890.3);
- Australian Standard AS 2890.6-2009, Part 6: Off-Street Parking for People with Disabilities (AS 2890.6);
- RMS¹ Guide to Traffic Generating Development 2002 (RMS Guide);
- RMS¹ Technical Direction TDT 2013/04a - Guide to Traffic Generating Developments, Updated Traffic Surveys (RMS Guide Update).

¹ Roads and Maritime Services (RMS) has joined with TfNSW, with reference to Roads and Maritime now taken legally to automatically mean TfNSW

2. Existing Conditions

2.1. Location and Site

The site is located at 31 Santley Crescent & 2A Bringelly Road, Kingswood, being approximately 68 kilometres north-west of the Sydney CBD and 160 metres southeast of Kingswood Railway Station. More specifically, the site is bound between Santley Crescent to the south and Bringelly Road to the west.

The site is comprised of two (2) separate lots, formally identified as Lot 3, DP 215200 and Lot 5, DP 215200. The site is irregular in configuration with a total area of approximately 1,393m². It has two (2) street frontages, being Santley Crescent to the south having a length of 21 metres and Bringelly Road to the west, having a length of 16 metres. Given the configuration of the site the western boundary also borders a medical facility, having a length of 3 metres. The northern boundary borders both a residential flat building and vacant land with lengths of 19 metres and 26 metres respectively. The eastern boundary borders a residential flat building with a length of 51 metres.

The site currently accommodates two (2) residential dwellings (i.e. one dwelling per lot) with two (2) 3.0 metre vehicle access onto Santley Crescent and 2A Bringelly Road. **Figures 1 and 2** overleaf provide an appreciation of the site's location in both a local and broad context respectively.

2.2. Road Network

The road hierarchy in the vicinity of the site is shown by **Figure 2**, with the following roads considered noteworthy:

- **Great Western Highway:** a major TfNSW arterial road (HW 5), that runs in an east-west direction forming part of the link between the Sydney CBD in the east and Bathurst in the west. In the vicinity of the site, Great Western Highway runs adjacent to the T1 and Blue Mountains Railway Line and is subject to 60km/h speed zoning restrictions. It accommodates three (3) lanes of traffic in each direction within a 26 metre divided carriageway. No stopping parking restrictions are also enforced along both kerbsides in close proximity to the site.
- **Santley Crescent:** a local road that runs in a west to north-east direction between Bringelly Road in the west and connects with Great Western Highway in the north-east. It is subject to 50km/hr speed zoning and carries a single lane of traffic in either direction within an undivided carriageway of width 11.0 metres. Santley Crescent also permits unrestricted parallel parking along both kerbsides within the vicinity of the site.
- **Bringelly Road:** a local road that runs in both a north-south direction, intersecting Great Western Highway in the north and Parker Street to the south. Near the site, it is subject to 50km/hr speed zoning and carries a single lane of traffic in either direction within an undivided carriageway of width 16.0 metres. Bringelly Road permits ½ P parking between 8:30am-6:00pm Monday to Friday and 8:30am-12:20pm on Saturdays along both kerbsides.

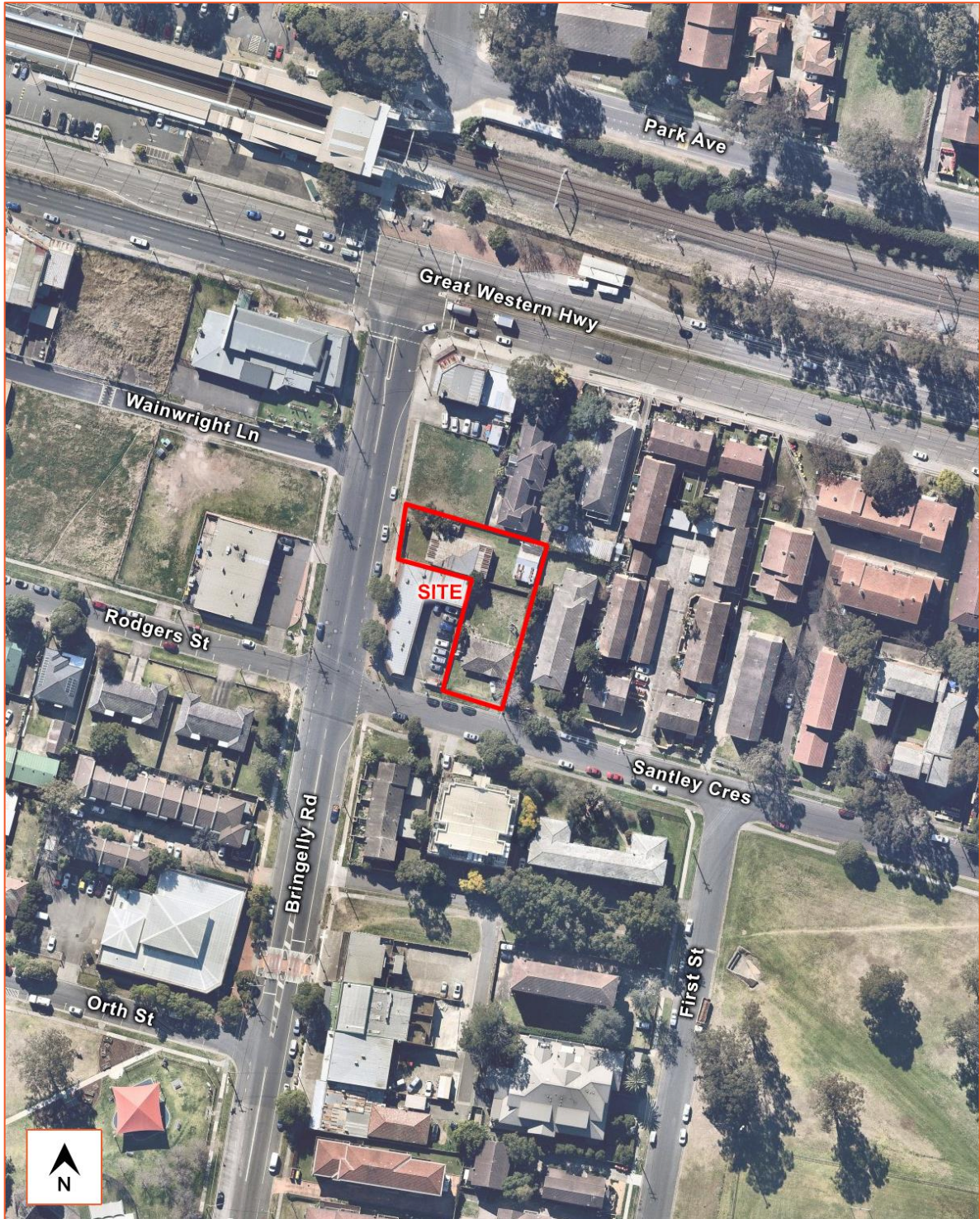


Figure 1: Site Plan

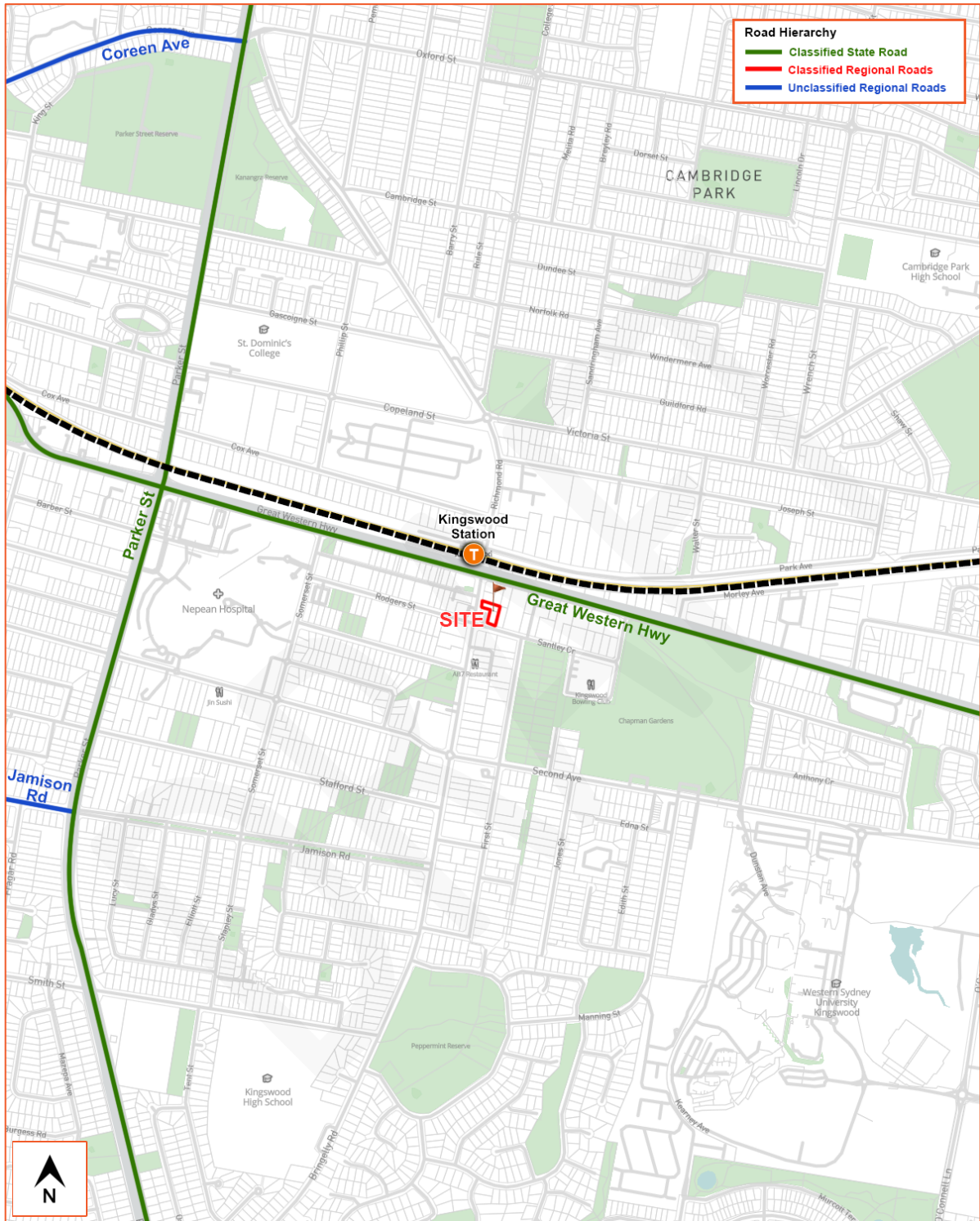


Figure 2: Location & Road Hierarchy Plan

2.3. Public & Active Transport

2.3.1. Bus Services

The Integrated Public Transport Service Planning Guidelines, Sydney Metropolitan Area, states that the walking catchment for metropolitan bus services includes all areas within a 400-metre radius of a bus stop. As can be seen from **Figure 3**, the site is situated within 50 metres of bus stops operating along Great Western Highway and 400 metres of bus stops operating along Second Avenue and accordingly, staff, residents and visitors of the proposed development would also have convenient access to the public bus services. **Table 1** below shows the notable town centres that are accessible via these bus services and the average service headways during peak and off-peak periods.

Table 1: Bus Services

ROUTE NO.	ROUTE (TO / FROM)	ROUTE DESCRIPTION	AVERAGE HEADWAY
677	Richmond to Penrith via Londonderry	Via Londonderry, Cambridge Gardens	Weekdays: 1 hour AM and PM school services Weekends: 2 hours
770	Mount Druitt to Penrith via St Marys	Via Colyton, St Marys, Claremont Meadows, Kingswood	Weekdays: 30 minutes all day Weekends: 1 hour
774	Mount Druitt to Penrith via Nepean Hospital	Via Oxley Park, St Marys, Claremont Meadows, Caddens, Kingswood	Weekdays: 20 minutes all day Weekends: 1 hour
775	Mount Druitt to Penrith via Erskine Park	Via Erskine Park, St Marys, Kingswood	Weekdays: 10-15 minutes all day Weekends: 30 minutes
776	Mount Druitt to Penrith via St Clair	Via St Clair, St Marys, Kingswood	Weekdays: 15 minutes all day Weekends: 30 minutes
780	Mount Druitt to Penrith via Ropes Crossing	Via Whalan, Emerton, Lethbridge Park, Ropes Crossing, Werrington Country, Cambridge Park	Weekdays: 30 minutes all day Weekends: 1 hour
785	Werrington to Penrith via Cambridge Park	Via Cambridge Park	Weekdays: 1 hour all day Weekends: 1 hour
N70	Penrith to City Town Hall (Night Service)	Via Kingswood, Claremonth Meadows, St Marys, Oxley Park, Rooty Hill, Doonside, Marayong, Blacktown, Seven Hills, Pedle Hill, Wentworthville	Weekdays: 4 services Weekends: 4 services

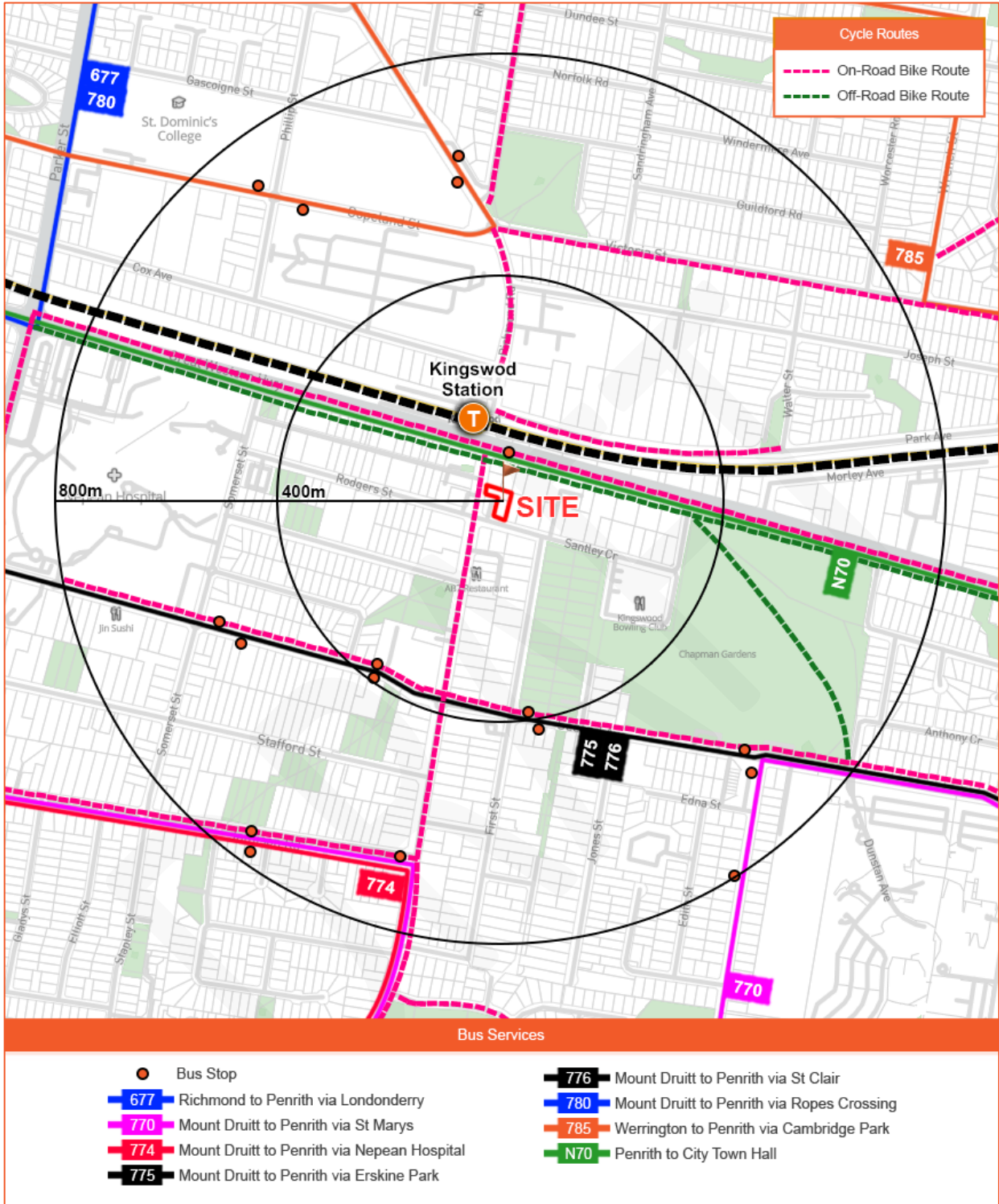


Figure 3: Public & Active Transport Services

2.3.2. Rail Services

The Integrated Public Transport Service Planning Guidelines, Sydney Metropolitan Area, states that the walking catchment for metropolitan railway stations includes all areas within an 800-metre radius of a station. It can be seen from **Figure 3** that Kingswood Railway Station is located 160 metres north of the site and hence, falls well within the typical walking catchment area. Accordingly, staff, residents and visitors of the proposed development would have convenient access the Sydney rail network, as shown by **Figure 4**.

Kingswood Railway Station is serviced by two (2) railway lines, being the T1 Western Line and Blue Mountains Line. **Table 2** below shows the notable town centres that are accessible along the both the T1 Western Line and Blue Mountains Line and the average service headways during peak and off-peak periods.

Table 2: Rail Services

RAILWAY LINE	NOTABLE TOWN CENTRES ALONG LINE	AVERAGE HEADWAY
T1 Western Line	Penrith, St Marys, Blacktown, Seven Hills, Parramatta, Strathfield, Redfern & Sydney CBD	Weekdays: 15 minutes all day Weekends: 15 minutes all day
Blue Mountains Line	Bathurst, Lithgow, Mt Victoria, Katoomba, Springwood, Penrith, Blacktown, Parramatta, Strathfield & Sydney CBD	Weekdays: 15-30 minutes peak / 1 hour off peak Weekends: 40 minutes to 1 hour all day

2.3.3. Cycle Network

Figure 3 shows that the site has excellent access to the local bicycle network with on-road and off-road cycle paths provided along the western kerbside of Great Western Highway that connects to Chapman Gardens, west of the site. Additionally, on-road cycle paths are also provided along Bringelly Road and Second Avenue to the west and south of the site respectively, which provide connections to the wider bicycle network.

2.4. Existing Traffic Generation

As discussed in Section 2.1 of this report, the site currently accommodates two (2) residential dwellings. The RMS Guide Update recommends application of a peak period traffic generation rate of 0.95 trips per dwelling during the 7-9am (AM) peak period and 0.99 trips per dwelling during the 4-6pm (PM) peak period. Application of these rates to the two (2) existing dwellings results in the following traffic generation:

- 2 vehicle trips / hour (0 in, 2 out), during the AM peak period;
- 2 vehicle trips / hour (2 in, 0 out), during the PM peak period.

The above assumes a 20% inbound and 80% outbound distribution during the AM peak period noting that residents would typically depart the site for work in the morning, and vice versa for the weekday PM peak period. Notwithstanding, it is considered that the most relevant use of the above is to determine the net change in traffic generation as a result of the proposed development, as is discussed in Section 6.1 of this report.



Figure 4: Sydney Trains Rail Network – Suburban

3. Proposed Development

A detailed description of the proposed development for which approval is now sought, is outlined in the Statement of Environmental Effects prepared separately by Minto Planning Services. In summary, the subject application relates to the demolition of all existing buildings and construction of a 6-storey mixed-use development consisting of:

- 95 boarding rooms;
- One (1) manager's room;
- One (1) communal room;
- 342m² of commercial GFA including:
 - 119m² on the ground floor;
 - 223m² on the first floor;
- Two (2) basement levels accommodating a total of 43 car parking spaces, with the following arrangements:
 - Nine (9) commercial car spaces;
 - Two (2) car share spaces;
 - 32 boarding house car spaces;
- A single service bay suitable for a 6.4m Small Rigid Vehicle (SRV) design vehicle located on Basement Level 1;
- One mechanical car lift for travel between Basement Level 1 & 2;
- 5.5-metre-wide entry / exit driveway onto Santley Crescent.

The parking and traffic implications arising from the proposed development are discussed in Sections 4 and 5, respectively. A copy of the relevant architectural drawings, prepared by Gus Fares Architects, are also included in **Appendix A**.

4. Parking Requirements

4.1. Car Parking

4.1.1. Commercial

The car parking requirement for the commercial component of the development has been assessed in accordance with the Penrith DCP 2014. **Table 3** below shows the minimum car parking requirement under the applicable 'business and office premises' car parking rate, and the proposed provision in response.

Table 3: Commercial Car Parking Requirement & Provision

TYPE	GFA.	DCP PARKING RATE	DCP REQUIREMENT	PARKING PROVISION
Commercial	342m ²	1.0 space / 40m ² GFA	9	9
TOTAL			9	9

It is evident from **Table 3** that the commercial component of the development requires a minimum of nine (9) car parking spaces under application of the Penrith DCP 2014. In response, nine (9) car spaces are provided for the commercial component of the development on Basement Level 1 which complies with the Penrith DCP 2014 and is considered an acceptable level of provision. **Please indicate 9 commercial car spaces on the plans.**

4.1.2. Boarding House

Clause 29(2)(e) of the SEPP ARH 2009 outlines the following car parking rates for boarding house developments:

(2) A consent authority must not refuse consent to development to which this Division applies on any of the following grounds:

(e) parking

if:

(i) in the case of development carried out by or on behalf of a social housing provider in an accessible area—at least 0.2 parking spaces are provided for each boarding room, and

(ii) in the case of development carried out by or on behalf of a social housing provider not in an accessible area—at least 0.4 parking spaces are provided for each boarding room, and

(iia) in the case of development not carried out by or on behalf of a social housing provider—at least 0.5 parking spaces are provided for each boarding room, and

(iii) in the case of any development—not more than 1 parking space is provided for each person employed in connection with the development and who is resident on site.

The application is not being carried out by or on behalf of a social housing provider and accordingly, the parking rates under Clause 29(2)(e)(iia) and Clause 29(2)(e)(iii) of the SEPP ARH 2009 are required to be adopted for the development.

Additionally, the Penrith DCP 2014 does not provide a car parking rate for boarding house developments. This development is therefore assessed solely under the relevant requirements of SEPP ARH 2009. **Table 4** below shows the car parking requirement for the boarding house component of the development based on the applicable car parking rates under the SEPP ARH 2009.

Table 4: Boarding House Car Parking Requirement & Provision

TYPE	NO.	SEPP PARKING RATE	SEPP REQUIREMENT	PARKING PROVISION
Resident	95	0.5 spaces / room	48	31
Manager	1	Max. 1.0 space / manager	0	0
TOTAL			48	31

It is evident from **Table 4** that the SEPP ARH 2009 requires the development to provide 48 car parking spaces, for the proposed boarding house component of the development. In response, the development provides a total of 31 car parking spaces, resulting in a theoretical shortfall of 17 car parking spaces against the SEPP ARH 2009. Whilst this level of provision does not satisfy the SEPP ARH 2009, it is considered that the provision is acceptable and adequate to accommodate the parking demands of the development in the circumstances for the following reasons:

Please allocate 32 car spaces to the boarding house component.

Carshare

- As identified within **Appendix A**, the development will allocate two (2) car spaces for car share vehicles. Research obtained by a car share provider suggests that each car share vehicle can replace up to 12 private cars, which would result in an effective parking provision of some 55 car parking spaces for the boarding house component of the development. The parking provision would ensure that compliance is effectively achieved with the SEPP ARH 2009.

Penrith DCP 2014 Parking Objectives & SEPP ARH 2009 Provisions

- The Penrith DCP 2014 outlines the following justification for developments with reduced levels of car parking:

C 10.5.1 Parking

4) Waiver or Reduction of Parking Spaces

- a) Council has the discretion to waive or reduce the number of car spaces required for a particular site if the reduced provision can be justified in a Traffic Impact Statement, in terms of:
 - i) Proximity to public transport nodes;
 - ii) Opportunity to share parking with another use; or
 - iii) An empirical assessment of car parking.

With regard for the above, the proposed development satisfies one (1) of the items from the Penrith DCP 2014 as the site is excellently serviced by public transport, with bus stops located within 50 metres of along Great Western Highway and Kingswood Railway Station located within 160 metres of the site. It is therefore considered acceptable that the proposed development should be considered for a reduction in parking spaces.

- It is reiterated that the SEPP ARH 2009 does not stipulate a development standard for car parking but rather a “cannot be refused if complied with” requirement. Accordingly, Council may grant consent for the development on a merit-based assessment and taking into consideration the accessibility of the site to public transport services and amenities as is further discussed below.

Public and Active Transport

- The resident parking rate specified under Clause 29(2)(e)(ia) of the SEPP ARH 2009 is a generic rate that is required to be adopted for all boarding house developments proposed throughout NSW, and does not include any discounts for sites that are well served by public transport services and / or are expected to generate reduced parking demands such as the proposed development.
- As discussed in Section 2.3 of this report, the site benefits from excellent access to public transport services, Staff, residents and visitors of the proposed development would have access to convenient and frequent public transport services.

Proximity to Amenities

- The site is favourably sited on the fringe of Kingswood town centre which is well within walking distance from the site. Being within close proximity provides residents with access to a range of social, civic, retail, medical and educational services within Kingswood.
- Specifically, as indicated on **Figure 5** the site is located within walking distance to Nepean Hospital, Western Sydney University, and Nepean TAFE. **Figure 5** overleaf details the walking locations of these developments in relation to the proposed development site, and the estimated walking distance and time to the amenities.
- Accordingly, being in walking distance to these amenities and services reduces the requirement for car journeys and removes incentive for residents of the site to own a car.

Green Travel Plan

- As is discussed in further detail in Section 5 of this report, it is recommended that a Green Travel Plan (GTP) be prepared for the development. The GTP shall influence the travel behaviour of residents away from the use of private vehicles towards more efficient modes of transport including active transport such as walking and cycling; public transport such as metro, rail and bus services, and car share services.

Bicycle & Motorcycle Parking

- As is discussed in further detail in Sections 4.3 and 4.4 of this report, the development will provide on-site bicycle and motorcycle parking facilities in accordance with the SEPP ARH 2009. These facilities will complement the on-site car parking to provide a sustainable transport outcome for the site that encourages the use of alternative transport modes and a reduction in the use of private vehicles.

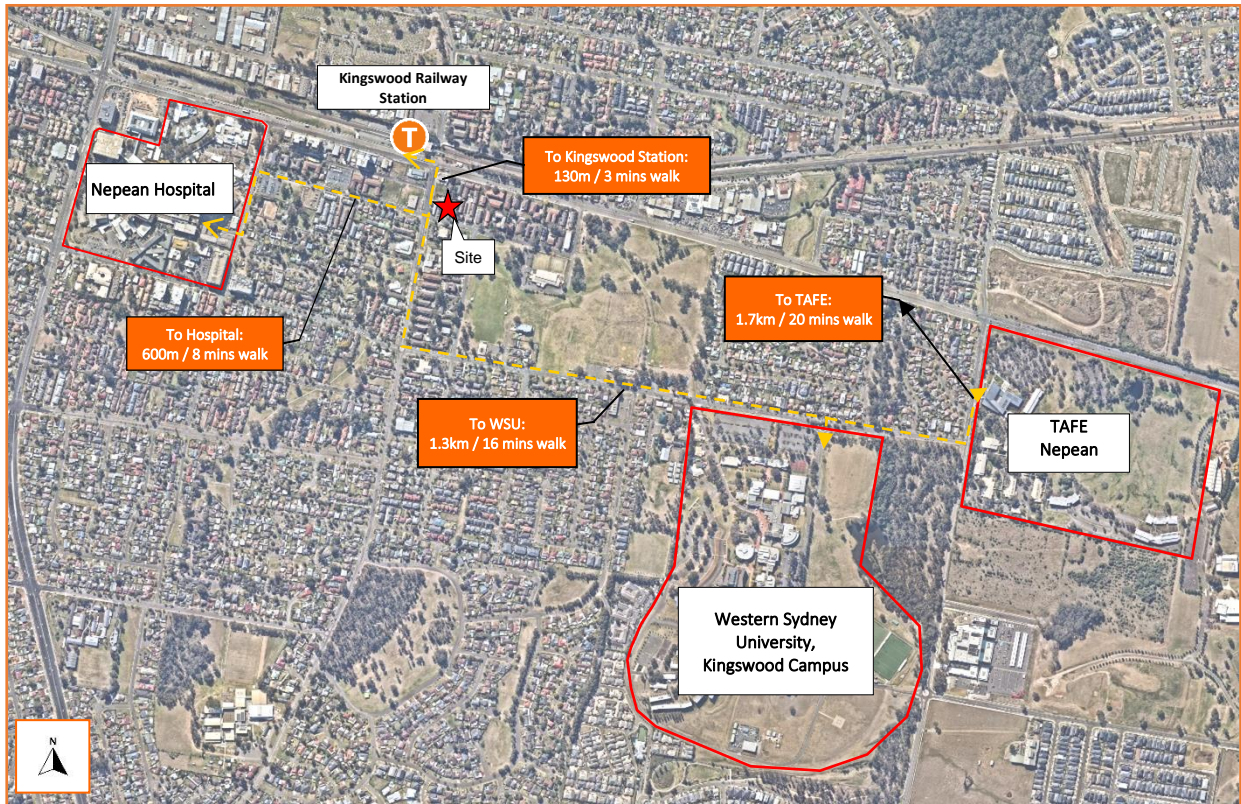


Figure 5: Location and Distance from Amenities

4.2. Accessible Car Parking

Consultation with the Applicant's access consultant has confirmed that the development is required to provide a minimum of three (3) accessible car parking spaces. In response, the development provides three (3) accessible car parking spaces in accordance with the access consultants requirements, and this is considered an acceptable level of provision.

4.3. Motorcycle Parking

It is noteworthy to mention the Penrith DCP 2014 does not provide motorcycle parking requirements for commercial or boarding house developments. Therefore, the proposed development has not provided any motorcycle parking spaces for the proposed commercial component of the development and has assessed the boarding house motorcycle provisions against the requirements of SEPP ARH 2009.

Clause 30(1)(h) of the SEPP ARH 2009 stipulate minimum motorcycle parking rates. **Table 5** below shows the minimum motorcycle parking requirement for the development and the proposed parking provision in response.

Table 5: Motorcycle Parking Requirement & Provision

TYPE	NO.	SEPP PARKING RATE	SEPP REQUIREMENT	PARKING PROVISION
Boarding House	95	0.2 space / room	19	19
TOTAL			19	19

It is evident from **Table 5** that the proposed development requires a minimum of 19 motorcycle spaces under the SEPP ARH 2009. In response, the development provides a total of 19 motorcycle spaces within Basement Level 1 & 2. This complies with the requirements the SEPP ARH 2009 and is therefore considered acceptable. **Indicate 19 motorcycles on the plans.**

4.4. Bicycle Parking

Both the Penrith DCP 2014 and Clause 30(1)(h) of the SEPP ARH 2009 stipulate minimum bicycle parking rates. **Table 6** shows the minimum bicycle parking requirement for the development and the proposed parking provision in response.

Table 6: Bicycle Parking Requirement & Provision

TYPE	NO.	SEPP PARKING RATE	DCP PARKING RATE ¹	SEPP REQUIREMENT	DCP REQUIREMENT	PARKING PROVISION
Boarding House	95 rooms	0.2 space / room	5-10% / room for residents and 3-5% / room for visitors	19	8-14	19
Commercial	10 Staff	-	5-10% / staff for residents and 3-5% / staff for visitors	-	2	2
TOTAL				19	10-14	21

¹ Assessed in accordance with the rates within the 'Planning Guidelines for Walking and Cycling' (NSW Government 2004) as stipulated within the Penrith DCP 2004.

It is evident from **Table 6** that the proposed development requires a minimum of 19 bicycle spaces under the SEPP ARH 2009 and 10-14 bicycle spaces under the Penrith DCP 2014. In response, the development provides a total of 21 bicycle spaces, comprising of 19 residential bicycle spaces and two (2) commercial bicycle spaces and therefore complies with the requirements of the SEPP ARH 2009 and the Penrith DCP 2014. **Indicate 21 bikes on the plans.**

4.5. Service Vehicle Parking

The service vehicle parking requirement for the proposed development has been assessed in accordance with Table C10.3 of the Penrith DCP 2014. **Table 7** below shows the minimum service vehicle parking rates applicable to the proposed development.

Table 7: Service Vehicle Parking Requirement & Provision

TYPE	NO. / AREA	DCP PARKING RATE	MINIMUM REQUIREMENT	PARKING PROVISION
Commercial	342m ² GFA	MRV for Site Area up to 1,500m ²	1	1
TOTAL			1	1

**The Penrith DCP 2014 does not stipulate a service vehicle rate for boarding house developments.*

It is evident from **Table 7** that the proposed development is required to provide an on-site service vehicle space suitable for a Medium Rigid Vehicle (MRV). In response, the proposed development provides a single on-site service bay which will accommodate a 6.4 metre long SRV, with a head height of 3.5 metres. Whilst the provision does not satisfy the dimensions of a MRV vehicle a SRV vehicle is considered acceptable given that the development will generate a moderate demand for service vehicle parking and the scale of a SRV vehicle will be sufficient. It is noteworthy to mention, the RMS Guide stipulates 1 truck space / 4000m² commercial GFA. It is therefore anticipated that the commercial component of the development will generate negligible servicing demands and if so, they will be no greater than a SRV.

Waste collection of the development will occur within the provided service vehicle bay and will be collected by a private contractor using a 6.4 metre Small Rigid Vehicle (SRV). To facilitate waste collection, a caretaker will be responsible for transferring bins from the holding room in Basement 1 to the waste collection area prior to collection being undertaken, and for promptly returning the bins to the holding room following collection. This arrangement is considered acceptable and will ensure that the waste can be collected safely and efficiently, whilst also being consistent with the existing development and numerous other comparable developments in the area.

The proposed service vehicle parking and waste collection arrangements are therefore considered acceptable and will not result in any change to the existing reliance on on-street parking.

5. Green Travel Plan

A GTP is a travel demand management tool to promote the use of active and public transport to / from developments. The primary purpose of the GTP is to coordinate a site-wide approach to influence the travel behaviour of residents and visitors away from the use of private vehicles towards more efficient modes of transport including active transport such as walking and cycling; public transport such as metro, train and bus services; and car-pooling and car sharing.

A GTP generally includes a Transport Access Guide, in the form of a map / brochure, illustrating the available modes of transport available including, but not limited to, the following:

- Bus routes, stops and a table of services;
- Rail / Metro stations and a table of services;
- Bicycle network and the location of any on-site bicycle parking facilities;
- Location of on-site car share vehicles/pods and other car share vehicles/pods within the vicinity of the site;
- Relevant transport related mobile phone applications and websites such as TripView, Opal Travel, Uber and OLA.

With regard to the above, the GTP will ensure that staff, residents and visitors are aware of the public transport services and infrastructure within the site's locality and encourage the use of these services for journeys to / from the development.

6. Traffic Impacts

6.1. Trip Generation

6.1.1. Boarding House

Neither of the RMS Guide or RMS Guide Update policies include traffic generation rates for boarding house developments. Reference was therefore made to the medium-density residential trip rates outlined in the RMS Guide, noting that the traffic generation of such developments would be somewhat comparable to a boarding house development. In this regard, it is noted that the RMS Guide recommends application of a peak period traffic generation rate of 0.4 trips / dwelling for a studio apartment, which attract a car parking rate of 1.0 car space / dwelling during AM and PM peak periods.

Conversely, the SEPP ARH 2009 requires car parking to be provided at a rate of only 0.5 car spaces / boarding room, or 50% of that required under the RMS Guide for a studio apartment. Accordingly, a peak period traffic generation rate of 0.2 trips / boarding room can be derived for boarding house developments. Application of this rate to the 95 boarding rooms proposed results in the following peak period traffic generation:

- 19 vehicle trips / hour (3 in, 16 out), during the AM peak period;
- 19 vehicle trips / hour (16 in, 3 out), during the PM peak period.

6.1.2. Commercial

The RMS¹ Guide Update recommends application of a peak period traffic generation rate of 1.6 trips / 100m² GFA during the AM peak period and 1.2 trips / 100m² GFA during the PM peak period, for commercial developments. Application of these rates to the 342m² GFA proposed, results in the following peak period traffic generation:

- 5 vehicle trips / hour (3 in, 2 out), during the AM peak period;
- 4 vehicle trips / hour (1 in, 3 out), during the PM peak period.

6.1.3. Combined

The total traffic generation of the proposed development is therefore expected to be in the order of:

- 24 vehicle trips / hour (6 in, 18 out), during the AM peak period;
- 23 vehicle trips / hour (17 in, 6 out), during the PM peak period.

The above is not a net increase in traffic generation, as it does not take into consideration the generation of the existing development. In this regard, the net increase in traffic generation as a result of the proposed development is expected to be as follows:

- 22 vehicle trips / hour (6 in, 16 out), during the AM peak period;
- 21 vehicle trips / hour (15 in, 6 out), during the PM peak period.

6.2. Traffic Impacts

The proposed development will result in a net increase in traffic generation of 22 vehicle trips / hour during the weekday AM and 21 vehicle trips / hour during PM peak period. This equates to a maximum of one additional vehicle trip every three (3) minutes in both peak periods, which is expected to have minimum impact on the performance of the external road network, and accordingly no external improvements will be required to facilitate the development.

Furthermore, computer modelling techniques available to analyse intersection performances are not sensitive to such small changes in traffic volumes and hence, such an assessment is not considered to be required. The traffic impacts of the proposed development are therefore considered acceptable.

The traffic impacts of the proposed development are therefore considered acceptable and no external improvements will be required to facilitate the development

7. Design Aspects

7.1. Access

With 42 car parking spaces of User Class 1A, the proposed development requires a Category 1 Driveway under Table 3.1 of AS 2890.1, being a combined entry / exit driveway of width 3.0 metres to 5.5 metres. In response, the development proposes a 5.5 metre combined entry / exit driveway onto Stanley Crescent with 300mm kerbs on both sides and therefore complies with the requirements of AS 2890.1.

The proposed arrangements have also been assessed using swept path analysis which confirms compliance with AS 2890.1, and that the proposed access arrangements will operate safely and efficiently. The results of this analysis are included in **Appendix B** for reference.

In summary, the proposed access arrangements are considered acceptable and comply with the relevant requirements of AS 2890.1.

7.2. Internal Design

The proposed internal parking arrangements comply with the relevant requirements of AS 2890.1, AS 2890.2, AS 2890.3 and AS 2890.6, with the following design aspects considered noteworthy:

7.2.1. Roadway / Ramp

- The driveway has a maximum grade of 5% (1 in 20) for the first 6 metres inside the property boundary and this generally complies with the requirements of Clause 3.3 of AS 2890.1.
- The vehicular ramps have a maximum grade of 20% (1 in 5) with 2.0 metre transitions of 12.5% (1 in 8) provided at both ends, thereby satisfying Clause 2.5.3 of AS 2890.1, and are acceptable for access by the proposed waste collection vehicle.
- The vehicular ramp from Ground Floor to Basement 1 has a width of 5.5 metres between kerbs at the property boundary. This arrangement will accommodate two-lane, two-way traffic flow as demonstrated by the swept path analysis results included in **Appendix B**, complies with AS 2890.1 and is considered acceptable.

7.2.2. Car Lift

- The car lift will accommodate vehicle travel between the Basement Level 1 and Basement Level 2 and will have internal dimensions of 3.7 metres in width and 6 metres in length, which is sufficient to accommodate all vehicles up to and including a B99 Design Vehicle.

- Vehicle movements in / out of the car lift on each parking level has been assessed using swept path analysis. The results included as **Appendix B** confirm compliance is achieved with AS 2890.1, and that the proposed car lift arrangement will operate safely and efficiently.
- The car lift is provided in lieu of a conventional ramp due to the irregular configuration and narrow width of the site. These constraints limit the ability to achieve a feasible parking layout using a conventional ramp between the levels and accordingly it is considered that a car lift is the most appropriate solution for the site.

7.2.3. Parking Modules

- All commercial car parking spaces are provided in accordance with the User Class 2 requirements of AS 2890.1, having a minimum space width of 2.5 metres and length of 5.4 metres, with a minimum aisle width of 6.1 metres.
- All boarding house car parking spaces are provided in accordance with the User Class 1A requirements of AS 2890.1, having a minimum space width of 2.4 metres and length of 5.4 metres, with a minimum aisle width of 6.1 metres.
- The parallel parking spaces have minimum space width of 2.5 metres and length of 6.5 metres, with a minimum aisle width of 6.45 metres
- All accessible car parking spaces are provided with a minimum space width of 2.4 metres and length of 5.4 metres, with a minimum aisle width of 6.1 metres. Additionally, these spaces are located immediately adjacent to a 2.4 metre wide and 5.4 metre long shared area, thereby satisfying the requirements of AS 2890.6.
- All walls / columns are located outside of the space design envelope, as required under Figure 5.2 of AS 2890.1.
- A 1.0 metre blind aisle extension has been provided beyond the last parking spaces, in accordance with Figure 2.3 of AS 2890.1.

7.2.4. Service/Loading Area

- The loading bay has a width of 4.0 metres and length of 7.0 metres. This exceeds the requirements stated within Table 4.1 of AS2890.2. The proposed service/waste collection area is considered to be acceptable.
- Given the constraints of the site the proposed loading bay is located within the most suitable and efficient location within Basement Level 1 ensuring that vehicles up to a SRV vehicle can enter / exit the site in a forward direction with minimal turning manoeuvres. Swept path analysis results included in **Appendix B**, ensure the loading bay complies with AS 2890.2 and is considered acceptable.
- Given the low trip generations of the site it is incredibly unlikely a vehicle will enter the site at the same time a SRV vehicle is reversing into the loading bay. Nevertheless, it is noted that waste collection and deliveries will be completed outside peak traffic times i.e. AM & PM peaks when residents are leaving and returning to / from work to ensure there are no vehicle conflicts.

- In the unlikely event a vehicle enters the site at the same time a truck is reversing there is sufficient sight distance along the ramp for an entering vehicle to see a SRV vehicle reversing into the loading bay. It is therefore anticipated they will wait at the top of the ramp until the truck is parked. Further traffic management and safety measures can also be implemented prior to the DA Approval if required by Council.

7.2.5. Head Heights

- A clear head height of 3.5 metres is provided above all traffic circulation and car parking areas within Basement Level 1 in accordance with Table 2.1 of AS2890.2.
- A minimum clear head height of 2.5 metres is required above the accessible car parking space and shared areas, in accordance with Clause 2.4 of AS 2890.6.
- A clear head height of 2.2 metres is provided above all traffic circulation and car parking areas within Basement Level 2 accordance with Clause 5.3.1 of AS 2890.1.

7.2.6. Other Design Aspects

- A 2.5 metre by 2.0 metre visual splay is provided on the egress side of the car park driveway, at the property boundary, in accordance with Figure 3.3 of AS 2890.1. This area is to be kept clear of all vertical obstructions with a height greater than 0.6 metres.
- All commercial car parking spaces are provided on Basement Level 1 ensuring the staff and visitors are not required to use the mechanical car lift.
- All bicycle parking spaces are provided as Security Level B facilities, in accordance with AS 2890.3.
- All motorcycle spaces are provided in accordance with Clause 2.4.7 of AS 2890.1.

In summary, the internal parking arrangements have been designed in accordance with AS 2890.1, AS 2890.2, AS 2890.3 and AS 2890.6. Any minor amendments considered necessary (if any) can be dealt with prior to the release of a Construction Certificate.

8. Conclusions

In summary:

- PDC Consultants has been commissioned by Danabina P/L & Midpoint Investments P/L to undertake a traffic impact assessment of a Development Application (DA) relating to the proposed mixed-use development for the site at 31 Santley Crescent & 2A Bringelly Road, Kingswood. Specifically, the DA proposes the demolition of the existing buildings and construction of a seven-storey mixed-use development consisting of:
 - 95 boarding rooms, a manager's room and a communal room
 - 342m² of retail gross floor area (GFA);
 - Two (2) basement levels accommodating a total of 42 car parking spaces including two (2) car share spaces;
 - One mechanical car lift for travel between Basement Level 1 & 2;
 - 5.5 metre wide entry / exit driveway onto Santley Crescent;
- The traffic generation assessment confirms that the development will generate a total of 24 vehicle trips / hour during the weekday AM peak period and 23 vehicle trips / hour during the weekday PM peak period. However, once the traffic generation of the existing development is taken into consideration, it is evident that the proposed development would result in a net increase in traffic generation of 22 vehicle trips / hour during the weekday AM peak period and 21 vehicle trips / hour during the weekday PM peak periods. This equates to a maximum of one additional vehicle trip every three minutes and will have minimal material impact on the performance of the external road network or on key intersections in the locality and accordingly, no external improvements will be required to facilitate the development. The traffic impacts of the proposed development are therefore considered acceptable.
- The proposed boarding house component of the development requires 48 car spaces under the SEPP ARH 2009. In response, the development provides a total of 31 car parking spaces including two (2) spaces for car share vehicles. Research obtained by car share provider suggests that each car share vehicle can replace up to 12 private cars, which would result in an effective parking provision of some 55 car parking spaces for the boarding house component of the development. The parking provision would ensure that compliance is effectively achieved with the SEPP ARH 2009. Additionally, several justifications are provided within Section 4.1.2.
- The proposed commercial floor space generates a requirement for nine (9) car parking spaces under the Penrith DCP 2014. The development provides nine (9) commercial car spaces and therefore complies with Penrith DCP 2014.
- The proposed development requires a minimum of 19 bicycle spaces under the SEPP ARH 2009 and 10-14 bicycle spaces under the Penrith DCP 2014. In response, the development provides a total of 21 bicycle spaces within the basement levels comprising of 19 residential bicycle spaces and two (2) commercial bicycle spaces and therefore complies with the requirements of the SEPP ARH 2009 and the Penrith DCP 2014.
- The proposed access and internal parking arrangements comply with the relevant requirements of AS 2890.1, AS2890.2, AS 2890.3 and AS 2890.6.



Appendix A

DRAFT



Appendix B

DRAFT

PDC CONSULTANTS
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DICKENS SOLUTIONS

(REF 21196)

WASTE MANAGEMENT PLAN

GUS FARES ARCHITECTS
(MR R BHUIYAN & MR M HAWATT)

PROPOSED MIXED RESIDENTIAL
(BOARDING HOUSE) & COMMERCIAL
DEVELOPMENT

@
31 STANTLEY ST & 2 BRINGELLY RD
KINGSWOOD

OCTOBER 2021

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PART 1 – OVERVIEW AND PROPOSAL

1.1 INTRODUCTION

This Waste Management Plan (WMP) is an operational plan that describes in detail the manner in which all waste and other materials resulting from the demolition, construction and on-going use of the building on the site are to be dealt with.

The aims and objectives of this WMP are to: -

- a) Satisfy all State and Local Government regulatory controls regarding waste management and minimisation practices;
- b) Promote the use of recyclable materials in the excavation, demolition, construction and on-going operation of the building;
- c) Maximise waste reduction, material separation, and resource recovery in all stages of the development; and,
- d) Ensure the design of waste and recycling storage facilities are of an adequate size, appropriate for the intended use of the building, hygienic with safe and manoeuvrable access, and that services are provided efficiently and effectively.

The land on which the development is proposed is located within the Penrith City LGA.

This WMP is prepared in accordance with: -

- Penrith Local Environmental Plan 2010,
- Penrith DCP 2014,
- All Conditions of Consent to be issued under the approved DA,
- The Better Practice Guide for Resource Recovery in Residential Buildings published by the NSW EPA (August 2019), and,
- The objective of ensuring that all waste management facilities and collection services will provide an outcome that will be efficient, as well as promoting the principles of health, safety, and convenience.

This Waste Management Plan (WMP) has been prepared for a Development Application submitted to Penrith City Council for the construction of a seven (7) storey building of mixed residential and commercial components at 30 Stantley Street and 3 Bringelly Road, Kingswood, comprising of:

- The demolition of existing structures,
- 97 x rooms (26 singles and 71 doubles) – 168 occupants,
- Three ground floor commercial units with a combined floor area of 314sqm,
- Two (2) basement levels, and,
- Associated infrastructure,

This Waste Management Plan and is dated 21 October 2021.

1.2 PROJECT & PROPERTY DESCRIPTION

This Waste Management Plan (WMP) has been specifically designed for the development described below: -

DESCRIPTION	Mixed Use House Development.
PROPERTY DESCRIPTION	The development is to be constructed over three (3) existing allotments at: - Lot 5, in DP215200, 31 Stantley St, - Lot 4, in DP215200, 33 Stantley St, and, - Lot 3, in DP215200, 2A Bringelly Rd, Kingswood
STREET ADDRESS	31-33 Stantley Street & 2A Bringelly Road, Kingswood
DIMENSIONS	Refer to Survey & Site Plan
AREA	2,117.7sqm (Approx.)
LGA	Penrith City
ZONING	Zone R1 – General Residential
PLANNING INSTRUMENTS	- Penrith LEP 2010 - Penrith DCP 2014

The site is located over three (3) contiguous allotments of land on the south-eastern corner of Stantley Crescent and Bringelly Road, Kingswood, a short distance south of the Kingswood Railway and station and the main western suburban rail line.

The site is situated within the Kingswood town centre, in an area characterised by a mix of low and medium density, and commercial development, with the Western Sydney University precinct a short distance south-east.

The land is zoned R1 – General Residential and is currently occupied by a single story timber framed fibro dwelling, single storey building used as a medical centre, and a single storey brick and tile dwelling – all of which will be demolished to make way for the proposed development.

The Penrith city centre and railway station is 1km south-west of the site, with the Nepean River a short distance further west.

1.3 APPLICANTS DETAILS

APPLICANT	Mr R Bhuiyan & Mr M Hawatt
------------------	---------------------------------------

1.4 PROPOSAL

The proposal involves the construction of a seven (7) storey building of mixed residential and commercial components, comprising of:

- The demolition of existing structures,
- 97 x rooms (26 singles and 71 doubles) – 168 occupants,
- Three ground floor commercial units with a combined floor area of 314sqm,
- Two (2) basement levels, and,
- Associated infrastructure.

Egress from the development will be onto Stantley Crescent on the south-eastern frontage of the site.

As the proposed development incorporates both residential and commercial component, separate arrangements will be made for each component.

A garbage chute has been incorporated into the building design for the residential boarding house component of the building only. The chute system will be a dual chute for the reception of both waste and recycling material. All waste chute infrastructure and waste storage facilities areas are located in Basement 1 of the building.

All waste and recycling services to the development will be provided from within the site.

Council's waste and recycling collection contractor will provide all services.

A Commercial Waste Storage Area (CWSA) is provided for the commercial component of the building and is also located in Basement 1.

A licensed private waste and recycling collection contractor will provide all commercial waste and recycling services to the commercial unit.

The site is currently occupied by:

- 2A Bringelly Road - a single storey timber framed fibro dwelling, with an iron roof, detached timber framed fibro garage, gravel driveway, concrete paving, some trees and small shrubs, front and rear grassed areas, metal, timber and brick (wall) fencing,
- 33 Stantley Crescent - a single storey rendered brick building with a tiled roof, currently used as a medical centre, bitumen car park and driveway, concrete paving, metal, iron and brick fencing, and,
- 31 Stantley Crescent - a single storey timber framed weatherboard dwelling, front veranda with a tiled roof, attached garage, detached shed, concrete driveway and paving, some trees and small shrubs, front and rear grassed areas, and metal perimeter fencing.

The project consists of:

- The demolition of the existing dwelling and all other structures on the site.
- The excavation of the site,
- The construction of the building; and,
- The provision and installation of associated infrastructure, including drainage works, and services.

PART 2 – DEMOLITION

2.1 GENERAL PROVISIONS

The proposed development involves the demolition of the existing buildings and other improvements on the site and the construction of a seven (7) storey building of mixed residential and commercial components.

It is recognised that Sydney has an ever-increasing waste problem, and this practice is not sustainable. In alignment with current NSW waste management legislation, this WMP aims, where possible, to promote waste avoidance, reuse and the recycling of material, particularly during the course of demolition, excavation and construction works.

All waste materials generated from these activities will be dealt with this Part (Part 2) of this WMP, and all materials sourced will be disposed of in accordance with the information provided in Part 2.2 on pages 6, 7, 8, 9,10, 11 and 12 of this WMP.

All materials used in the demolition of the existing building, the excavation of the site, the construction works involved in the proposed development, and the provision and installation of all required infrastructure and services, shall be recycled, transported, reused or disposed of in accordance with these provisions, and the requirements of the Protection of the Environment Operations Act (1997).

Approved receptacles of an appropriate size will be located on site for the collection of food scraps, beverage containers, and other waste generated on site by workers.

2.2 BUILDINGS TO BE DEMOLISHED

Current structures on the site include

- 2A Bringelly Road - a single storey timber framed fibro dwelling, with an iron roof, detached timber framed fibro garage, gravel driveway, concrete paving, some trees and small shrubs, front and rear grassed areas, metal, timber and brick (wall) fencing,
- 33 Stantley Crescent - a single storey rendered brick building with a tiled roof, currently used as a medical centre, bitumen car park and driveway, concrete paving, metal, iron and brick fencing, and,
- 31 Stantley Crescent - a single storey timber framed weatherboard dwelling, front veranda with a tiled roof, attached garage, detached shed, concrete driveway and paving, some trees and small shrubs, front and rear grassed areas, and metal perimeter fencing.

All buildings and structures are to be demolished.

2.3 MANAGEMENT OF HAZARDOUS MATERIALS

Due to the age and construction of the existing buildings on the site, there is reasonable potential for hazardous building materials to be present in the buildings to be demolished. Accordingly, the generation, storage, treatment, and the disposal of hazardous waste (including asbestos) will be conducted in accordance with relevant waste legislation administered by the NSW EPA and any applicable WH&S legislation administered by Work Cover NSW.

All friable and non-friable asbestos-containing material shall be handled and disposed

of off-site at an EPA licensed waste facility by an EPA licensed contractor in accordance with the requirements of the Protection of the Environment Operations (Waste) Regulation 2014 and the Waste Classifications Guidelines – Part 1 ‘Classifying Waste (EPA 2014) and any other instrument as amended.

All friable hazardous waste arising from the demolition process shall be removed and disposed of in accordance with the requirements of Work Cover NSW and the EPA, and with the provisions of:

- a) Work Health and Safety Act 2011,
- b) NSW Protection of the Environment Operations Act 1997 (NSW), and,
- c) NSW Department of Environment and Climate Change Environmental Guidelines; Assessment, Classification and Management of Liquide and Non-Liquid Wastes.

2.4 RECYCLING, REUSE & DISPOSAL DETAILS

The following details prescribe the manner in which all materials surplus to the construction of the building will be dealt with, and includes: -

- a) An estimate of the types and volumes of waste and recyclables to be generated;
- b) A site plan showing sorting and storage areas for construction waste and vehicle access to these areas (see Part 2.3 of this Plan);
- c) How demolished, excavated and other materials surplus to requirements will be reused or recycled and where residual wastes will be disposed (see below); and,
- d) The total percentage of construction waste that will be reused or recycled.

1. Excavated Materials

Volume / Weight	740 cubic metres / 1,258 Tonnes
On Site Reuse	Yes. Keep and reuse for topsoil or as required. (Excavated Materials are only to be used if the material is not contaminated or has been remediated in accordance with any requirements specified by any Environmental Consultancy engaged to carry out any contamination assessment of excavated material).
Percentage Reused or Recycled	To be determined (see above comments)
Off Site Destination	Suez Eastern Creek Resource Recovery Park, Wallgrove Road, Eastern Creek. Tel 8887 6112 or, Blacktown Waste Services, 920 Richmond Road, Marsden Park. Tel 9835 4544 or, Bingo Industries, 3-5 Duck Street, Auburn (Tel 1300 424 646).

2. Green Waste

Volume / Weight	120 cubic metres / 18 Tonnes
On Site Reuse	To be separated. Chipped and stored on site for re-use in landscaping.
Percentage Reused or Recycled	90%
Off Site Destination	Suez Eastern Creel Resource Recovery Park, Wallgrove Road, Eastern Creek. Tel 8887 6112 or, Blacktown Waste Services, 920 Richmond Road, Marsden Park. Tel 9835 4544 or, Bingo Industries, 3-5 Duck Street, Auburn (Tel 1300 424 646).

3. Bricks

Volume / Weight	100 cubic metres / 100 Tonnes
On Site Reuse	Crush and reuse as drainage backfill. Crushed and used as aggregate.
Percentage Reused or Recycle	75% - 90%
Off Site Destination	Suez Eastern Creel Resource Recovery Park, Wallgrove Road, Eastern Creek. Tel 8887 6112 or, Blacktown Waste Services, 920 Richmond Road, Marsden Park. Tel 9835 4544 or, Bingo Industries, 3-5 Duck Street, Auburn (Tel 1300 424 646).

4. Concrete, Bitumen, etc.

Volume / Weight	125 cubic metres / 300 Tonnes
On Site Reuse	Crushed and used as aggregate, drainage backfill.
Percentage Reused or Recycled	60% - 75%
Off Site Destination	Suez Eastern Creel Resource Recovery Park, Wallgrove Road, Eastern Creek. Tel 8887 6112 or, Blacktown Waste Services, 920 Richmond Road, Marsden Park. Tel 9835 4544 or, Other approved facility

5. Timber

Volume / Weight	70 cubic metres / 28 Tonnes
On Site Reuse	Nil – all to be disposed of or processed off-site.
Percentage Reused or Recycled	65% - 90%
Off Site Destination	Suez Eastern Creel Resource Recovery Park, Wallgrove Road, Eastern Creek. Tel 8887 6112 or, Blacktown Waste Services, 920 Richmond Road, Marsden Park. Tel 9835 4544 or, Bingo Industries, 3-5 Duck Street, Auburn (Tel 1300 424 646).

6. Plasterboard & Fibro

Volume / Weight	50 cubic metres / 17.5 Tonnes
On Site Reuse	Nil – all material to be processed off-site.
Percentage Reused or Recycled	To be determined
Off Site Destination	Suez Eastern Creel Resource Recovery Park, Wallgrove Road, Eastern Creek. Tel 8887 6112 or, Blacktown Waste Services, 920 Richmond Road, Marsden Park. Tel 9835 4544 or, Bingo Industries, 3-5 Duck Street, Auburn (Tel 1300 424 646), or, Other approved facility

7. Metals / Steel / Guttering & Downpipes

Volume / Weight	60 cubic metres / 20 Tonnes
On Site Reuse	No
Percentage Reused or Recycled	60 – 90%
Off Site Destination	Suez Eastern Creel Resource Recovery Park, Wallgrove Road, Eastern Creek. Tel 8887 6112 or, Blacktown Waste Services, 920 Richmond Road, Marsden Park. Tel 9835 4544 or, Bingo Industries, 3-5 Duck Street, Auburn (Tel 1300 424 646).

8. Roof Tiles / Tiles

Volume / Weight	50 cubic metres / 37.5 Tonnes
On Site Reuse	Broken up and used as fill.
Percentage Reused or Recycled	80% - 90%
Off Site Destination	Suez Eastern Creel Resource Recovery Park, Wallgrove Road, Eastern Creek. Tel 8887 6112 or, Blacktown Waste Services, 920 Richmond Road, Marsden Park. Tel 9835 4544 or, Bingo Industries, 3-5 Duck Street, Auburn (Tel 1300 424 646).

9. Plastics

Volume / Weight	15 cubic metres / 6 Tonne
On Site Reuse	Nil
Percentage Reused or Recycled	80% - 95%
Off Site Destination	Suez Eastern Creel Resource Recovery Park, Wallgrove Road, Eastern Creek. Tel 8887 6112 or, Blacktown Waste Services, 920 Richmond Road, Marsden Park. Tel 9835 4544 or, Bingo Industries, 3-5 Duck Street, Auburn (Tel 1300 424 646).

10. Glass, Electrical & Light Fittings, PC items, Drainage Materials

Volume / Weight	60 cubic metres / 21 Tonne
On Site Reuse	No
Percentage Reused or Recycled	70% - 90%
Off Site Destination	Suez Eastern Creel Resource Recovery Park, Wallgrove Road, Eastern Creek. Tel 8887 6112 or, Blacktown Waste Services, 920 Richmond Road, Marsden Park. Tel 9835 4544 or, Bingo Industries, 3-5 Duck Street, Auburn (Tel 1300 424 646).

11. Fixture & Fittings (Doors Fittings, Other Fixtures, etc.)

Volume	60 cubic metres / 21 Tonne
On Site Reuse	Nil – all to be processed off-site.
Percentage Reused or Recycle	80% - 90%
Off Site Destination	Suez Eastern Creel Resource Recovery Park, Wallgrove Road, Eastern Creek. Tel 8887 6112 or, Blacktown Waste Services, 920 Richmond Road, Marsden Park. Tel 9835 4544 or, Bingo Industries, 3-5 Duck Street, Auburn (Tel 1300 424 646).

12. Residual Waste

Volume / Weight	145 cubic metres / 145 Tonnes
On Site Reuse	No
Off Site Destination	Suez Eastern Creel Resource Recovery Park, Wallgrove Road, Eastern Creek. Tel 8887 6112 or, Blacktown Waste Services, 920 Richmond Road, Marsden Park. Tel 9835 4544 or, Bingo Industries, 3-5 Duck Street, Auburn (Tel 1300 424 646). or, other authorised facility
Notes on calculation of volume of residual waste	<ol style="list-style-type: none"> 1. In calculating the amount of residual waste produced from the demolition of all buildings on site, it is estimated that approximately 10% of it, will be residual waste. 2. As all of the materials vary in weight per volume, a figure of 1 cubic metre of material is equal to 1 tonne in weight has been used.

It is noted that the quantities of materials detailed in this section (Part 2.2) are estimates only, based on current industry standards and quantity analysis, and may vary due to the prevailing nature of work activities and constraints, weather conditions, and any other unforeseeable activities associated with the demolition and excavation activities, and the construction of the buildings, which are beyond the control of the developer, including but not being limited to theft, accidents, and other acts of misadventure.

The facilities and agencies that have been nominated to receive the materials listed above have been identified within the NSW waste industry as being a facility or agency that will accept the materials specified in each respective table. The developer understands that any costs associated with the transportation and receipt of these materials will be their responsibility.

The appointed contractor is under no obligation to use any nominated facility or agency, but should any alternative arrangements be made, it will be the developers' responsibility to ensure that all demolished materials removed from the site are disposed of, or processed, appropriately.

The developer will keep a written record of all documentation associated with the transportation, disposal and processing of all materials excess to the construction of the building.

Additionally, every effort will be made to reduce and minimise the amount of building materials excess to requirements.

2.3 DEMOLITION – ON SITE STORAGE OF MATERIALS

During the construction of the buildings, an area will be set aside on the site as a compound for the on-site storage of materials prior to their removal from the site. This compound will provide for: -

- Material sorting;
- Segregation of materials that may be hazardous and which will be required to be disposed of;
- Recovery equipment, such as concrete crushers, chippers, and skip bins;
- Material storage; and,
- Access for transport equipment.

Appropriate vehicular access will be provided on and off site, and to the compound, to enable the efficient removal of reusable, recyclables, and waste materials.

Prior to the commencement of works, the developer will provide Council with a 'Site Plan for the On-Site Storage of Materials at Construction'. This plan will show in detail the location of each area within the compound, set aside for the segregated storage of all materials involved in the demolition of all buildings on the site.

2.4 DEMOLITION – EXCAVATED MATERIAL

All excavated material removed from the site, as a result of any activities associated with the construction of the building, must be classified in accordance with the Department of Environment, Climate Change and Water NSW Waste Classification Guidelines prior to removal, transportation and disposal to an approved waste management facility. All relevant details must be reported to the PCA.

PART 3 – CONSTRUCTION

3.1 CONSTRUCTION – GENERALLY

Upon completion of all demolition works, construction of the building will commence with the excavation of the site for the basement levels of the building. All materials sourced from these activities will be disposed of in accordance with the information provided in Part 3.2 on pages 13, 14, 15, 16, 17 and 18 of this WMP.

Additionally, all materials used in the construction of the building that are not required to be incorporated into it, shall be recycled, reused or disposed of in accordance with these provisions, and the requirements of the Protection of the Environment Operations Act (1997). It will be the developer's overall responsibility to ensure compliance in this regard.

Mobile Bins of an appropriate size will be located on site for the collection of food scraps, beverage containers, and other waste generated on site by workers.

3.2 CONSTRUCTION – RECYCLING, REUSE & DISPOSAL DETAILS

The following details prescribe the manner in which all materials surplus to the construction of the building will be dealt with, and includes: -

1. An estimate of the types and volumes of waste and recyclables to be generated;
2. A site plan showing sorting and storage areas for construction waste and vehicle access to these areas (see Part 3.3 of this Plan);
3. How excavated and other materials surplus to construction will be reused or recycled and where residual wastes will be disposed (see below); and,
4. The total percentage of construction waste that will be reused or recycled.

1. Excavated Materials

Volume / Weight	12,000 cubic metres / 20,400 Tonnes (Basement excavation)
On Site Reuse	Yes. Keep and reuse topsoil for landscaping. Shore on site. Use some for support of retaining walls (Excavated Materials are only to be used if the material is not contaminated or has been remediated in accordance with any requirements specified by any Environmental Consultancy engaged to carry out any contamination assessment of excavated material).
Percentage Reused or Recycled	To be determined (see above comments)
Off Site Destination	To an approved Agency – excavated materials may need to be assessed to determine the quality of the material to ensure that all excavated material will be acceptable to the designated receival authority.

2. Bricks

Volume / Weight	5 cubic metres / 5 Tonnes
On Site Reuse	Clean and remove lime mortar from bricks. Re-use in new footings. Broken bricks for internal walls. Crush and reuse as drainage backfill. Crushed and used as aggregate.
Percentage Reused or Recycle	75% - 90%
Off Site Destination	Suez Eastern Creel Resource Recovery Park, Wallgrove Road, Eastern Creek. Tel 8887 6112 or, Blacktown Waste Services, 920 Richmond Road, Marsden Park. Tel 9835 4544 or, Bingo Industries, 3-5 Duck Street, Auburn (Tel 1300 424 646).

3. Concrete

Volume / Weight	2.5 cubic metres / 6 Tonnes
On Site Reuse	Existing driveway to be retained during construction. Crushed and used as aggregate, drainage backfill.
Percentage Reused or Recycled	60% - 75%
Off Site Destination	Suez Eastern Creel Resource Recovery Park, Wallgrove Road, Eastern Creek. Tel 8887 6112 or, Blacktown Waste Services, 920 Richmond Road, Marsden Park. Tel 9835 4544 or, Bingo Industries, 3-5 Duck Street, Auburn (Tel 1300 424 646).

4. Timber

Volume / Weight	5 cubic metres / 2 Tonnes
On Site Reuse	Re-use for formwork and studwork, and for landscaping
Percentage Reused or Recycled	65% - 90%
Off Site Destination	Bingo Industries, 3-5 Duck Street, Auburn (Tel 1300 424 646) or, Hallinan's Recycling Centre, 37 Lee Holm Road, St. Marys (Tel 02 9833 0883)

5. Plasterboard & Fibro

Volume / Weight	2.5 cubic metres / 0.75 Tonnes
On Site Reuse	Nil – All to be processed off-site.
Percentage Reused or Recycled	To be determined
Off Site Destination	Suez Eastern Creel Resource Recovery Park, Wallgrove Road, Eastern Creek. Tel 8887 6112 or, Blacktown Waste Services, 920 Richmond Road, Marsden Park. Tel 9835 4544 or, Bingo Industries, 3-5 Duck Street, Auburn (Tel 1300 424 646) or, other authorised facility.

6. Metals / Steel / Guttering & Downpipes

Volume / Weight	5 cubic metres / 1.5 Tonnes
On Site Reuse	No
Percentage Reused or Recycled	60 – 90%
Off Site Destination	Bingo Industries, 3-5 Duck Street, Auburn (Tel 1300 424 646) or, Boral Recycling, 3 Thackeray Street, Camelia (Tel 9529 4424) or, Hallinan's Recycling Centre, 37 Lee Holm Road, St. Marys (Tel 02 9833 0883), or, Jacobson Metaland, 62-70 Silverwater Road, Silverwater (Tel 02 9748 2487)

7. Roof Tiles / Tiles

Volume / Weight	2 cubic metres / 1.5 Tonnes
On Site Reuse	Broken up and used as fill.
Percentage Reused or Recycled	80% - 90%
Off Site Destination	Obsolete Tiles, 3 South Street, Rydalmere. (Tel 02 9684 6333) or, Hallinan's Recycling Centre, 37 Lee Holm Road, St. Marys (Tel 02 9833 0883) or, Bingo Industries, 3-5 Duck Street, Auburn (Tel 1300 424 646)

8. Plastics

Volume / Weight	3 cubic metres / 0.5 Tonne
On Site Reuse	Nil
Percentage Reused or Recycled	80% - 95%
Off Site Destination	Bingo Industries, 3-5 Duck Street, Auburn (Tel 1300 424 646) or, Boral Recycling, 3 Thackeray Street, Camelia (Tel 9529 4424) or, Hallinan's Recycling Centre, 37 Lee Holm Road, St. Marys (Tel 02 9833 0883), or Jacobson Metaland, 62-70 Silverwater Road, Silverwater (Tel 02 9748 2487) or, Recycle Works, 45 Parramatta Road, Annandale (Tel 02 9517 2711)

9. Glass, Electrical & Light Fittings, PC items

Volume / Weight	4 cubic metres / 1.5 Tonne
On Site Reuse	No
Percentage Reused or Recycled	70% - 90%
Off Site Destination	To an approved agency, or agencies.

10. Fixture & Fittings (Doors Fittings, Other Fixtures, etc.)

Volume	5 cubic metres / 1.7 Tonnes
On Site Reuse	Broken up and used as fill.
Percentage Reused or Recycle	80% - 90%
Off Site Destination	Recycle Works, 45 Parramatta Road, Annandale (Tel 02 9517 2711)

11. Pallets

Volume / Weight	12.5 cubic metres / 4 Tonne
On Site Reuse	No
Percentage Reused or Recycle	90% - 100%
Off Site Destination	To an approved agency, or agencies, for reuse and resale.

12. Residual Waste

Volume / Weight	1,250 cubic metres / 1,250 Tonnes
On Site Reuse	No
Off Site Destination	Suez Eastern Creel Resource Recovery Park, Wallgrove Road, Eastern Creek. Tel 8887 6112 or, Blacktown Waste Services, 920 Richmond Road, Marsden Park. Tel 9835 4544 or, Bingo Industries, 3-5 Duck Street, Auburn (Tel 1300 424 646) or, other authorised facility
Notes on calculation of volume of residual waste	<ol style="list-style-type: none"> 1. In calculating the amount of residual waste produced from the demolition of all buildings on site, it is estimated that approximately 10% of it, will be residual waste. 2. As all of the materials vary in weight per volume, a figure of 1 cubic metre of material is equal to 1 tonne in weight has been used.

It is noted that the quantities of materials detailed in this section (Part 3.2) are estimates only, based on current industry standards and quantity analysis, and may vary due to the prevailing nature of construction constraints, weather conditions, and any other unforeseeable activities associated with the construction of the building, which are beyond the control of the developer, including but not being limited to theft, accidents, and other acts of misadventure.

The facilities and agencies that have been nominated to receive the materials listed above have been identified within the NSW waste industry as being a facility or agency that will accept the materials specified in each respective table.

The developer understands that any costs associated with the transportation and receipt of all materials will be their responsibility.

The developer is under no obligation to use any nominated facility or agency, but should any alternative arrangements be made, it will be the developers' responsibility to ensure that all demolished materials removed from the site are disposed of, or processed, appropriately.

The developer will keep a written record of all documentation associated with the transportation, disposal and processing of all materials excess to the construction of the building.

Additionally, during the construction of the building, every effort will be made to reduce and minimise the amount of building materials excess to construction.

3.3 CONSTRUCTION – ON SITE STORAGE OF MATERIALS

During the construction of the buildings, an area will be set aside on the site as a compound for the on-site storage of materials prior to their removal from the site. This compound will provide for: -

- Material sorting;
- Segregation of materials that may be hazardous and which will be required to be disposed of;
- Recovery equipment, such as concrete crushers, chippers, and skip bins;
- Material storage; and,
- Access for transport equipment.

Appropriate vehicular access will be provided on and off site, and to the compound, to enable the efficient removal of reusable, recyclables, and waste materials.

Prior to the commencement of construction works, the developer will provide Council with a 'Site Plan for the On-Site Storage of Materials at Construction'. This plan will show in detail the location of each area within the compound, set aside for the segregated storage of all materials involved in the demolition of all buildings on the site.

3.4 CONSTRUCTION – EXCAVATED MATERIAL

All excavated material removed from the site, as a result of any activities associated with the construction of the building, must be classified in accordance with the Department of Environment, Climate Change and Water NSW Waste Classification Guidelines prior to removal, transportation and disposal to an approved waste management facility.

All relevant details must be reported to the PCA.

PART 4 – GARBAGE CHUTE SYSTEM

4.1 DESIGN REQUIREMENTS

A garbage chute has been incorporated into the building design for the residential boarding house component of the building only. The chute system will be a dual chute for the reception of both waste and recycling material. All waste chute infrastructure and waste storage facilities areas are located in Basement 1 of the building.

Each Garbage Chute System will contain two (2) separate chutes: -

- one for the reception and transfer of waste; and,
- one for the reception and transfer of recyclables.

All waste deposited into the waste chutes will discharge into 1100 mobile bins placed onto a two (2) bin mechanically operated linear track system in the respective bin/chute room in located in Basement 1 as indicated on the Architectural Drawings.

All recyclable material deposited into the recycling chutes will discharge into 1100 mobile bins placed onto a two (2) bin mechanically operated linear track system in the Residential Waste Storage Area (RWSA) located in Basement 1 as indicated on the Architectural Drawings.

Each chute will be located adjacent to one another in a 'Chute Compartment'. Chute compartments will be located on each residential floor of the building.

At a minimum each Garbage and Recycling Chute System will be designed to meet the following requirements: -

1. Chutes and service openings must be constructed of metal or other smooth faced, durable, fire resistant and impervious material of non-corrosive nature.
2. Chutes will be cylindrical in section with a minimal internal diameter of 500 mm. The diameter around each chute will be a minimum width of 750 mm to allow for infrastructure fittings, such as fixing brackets and noise insulation.
3. Chutes will be vertical without bends or "off-sets" (except for the chute outlets) and not be reduced in diameter.
4. The waste chute will terminate in the Residential Waste Storage Area (RWSA) Located in Basement 1 and discharge all waste into an 1100-litre receptacle placed onto the 2 Bin Linear track system.
5. The recycling chute will terminate in the Residential Waste Storage Area (RWSA) located in Basement 1 and discharge all recyclable material into an 1100-litre receptacle placed onto the 2 Bin Linear track system.
6. The Chute and service openings must be capable of being easily cleaned.
7. Chutes must be ventilated to ensure that air does not flow from the chute through any service opening.
8. The Garbage Chute systems must comply with the relative provisions of the Building Code of Australia, and relevant Australian Standards (e.g., AS1530.4-2005).
9. All Linear Bin Systems will be designed, manufactured and installed in accordance with relevant Australian Standards and to manufacturers specifications.

4.2 WASTE CHUTE SYSTEM

A 'Chute Compartment' is provided to floor level of the building. Each chute compartment is located off the main lobby, on the northern side of the two (2) lifts.

The two (2) chutes will be installed in a fire rated chute compartment. Each chute will be fire separated in accordance with the relative provisions of the BCA.

Residents will deposit waste material into the chute inlet hopper, labelled 'Waste Chute – Reception of Garbage Only'. Waste from the chute outlet will fall directly into the middle bin on a 2 x 1100 litre mobile waste bin linear track system located under the Waste Chute Outlet in the RWSA which is located in Basement 1 as indicated on the Architectural Drawings.

Based on Council's waste generation rates (90-litres of space per unit per week), it is anticipated that the 97 rooms will generate 8,730-litres of waste per week, or 1,247.15-litres per day.

The capacity of the two (2) full 1100-litre bins on the track system is 2,200-litres. The chutes will be inspected at least one (1) time every day in order to ensure that waste receptacles will be removed when full.

Representatives of the Owners Corporation will monitor all activities associated with the use and operation of the chute system, the depositing of waste into it, and the operation of the linear track system, in order to ensure that there will be no spillage as a result of these activities, and that the system operates effectively.

Representatives of the Owners Corporation will be responsible for transferring full 1100-litre waste bins from the under the chutes into the waste bin storage area of the RWSA.

4.3 RECYCLING CHUTE

Residents will deposit waste material into the chute inlet hopper, labelled 'Recycling Chute – Reception of Recycling Material Only'. Recycling material from the chute outlet will fall directly into the middle bin on a 3 x 1100 litre mobile recycling bin linear track system located under the Recycling Chute Outlet in the RWSA which is located in Basement 1 as indicated on the Architectural Drawings.

Based on Council's recycling generation rates (90-litres of space per unit per week), it is anticipated that the 97 rooms will generate 8,730-litres of recycling per week, or 1,247.15-litres per day.

The capacity of the two (2) full 1100-litre bins on the track system is 2,200-litres. The chutes will be inspected at least one (1) time every day in order to ensure that recycling receptacles will be removed when full.

Representatives of the Owners Corporation will monitor all activities associated with the use and operation of the chute system, the depositing of recycling material into it, and the operation of the linear track system, in order to ensure that there will be no spillage as a result of these activities, and that the system operates effectively.

Representatives of the Owners Corporation will be responsible for transferring full 1100-litre recycling bins from under the chutes, into the recycling bin storage of the RWSA.

4.4 LINEAR BIN TRACK SYSTEM

The Linear Track System is to be designed, manufactured and installed strictly in accordance with applicable Australian Standards and to manufacturers specifications. The systems are to be monitored and serviced on a regular basis.

Any breakdowns or system malfunctions are to be attended to and addressed immediately. In the event of any system breakdown, the Owners Corporation shall make immediate alternative arrangements to ensure that there is no disruption to the provision of scheduled waste and recycling services, and that any spillage from the bins is removed and cleaned up immediately.

As required by the provisions of Section 3.5.2 of Council's 'Residential Flat Building Waste Management Guideline', sufficient space is provided around the linear tracks (900mm on the sides and 1.8m at the end) to allow for maintenance of the system and the movement of bins on and off the tracks.

4.5 ON GOING MANAGEMENT & MAINTENANCE OF CHUTE SYSTEM

The Owners Corporation will be responsible for all issues associated with the on-going management and maintenance of the Garbage Chute Systems.

These activities will include, but not be limited, to the following: -

1. Displaying signage indicating appropriate use of all waste management systems, including what is and what is not recyclable.
2. Educating residents in the correct use of the chute, and the need to keep bulky items out of the chute systems.
3. Providing regular maintenance, including cleaning and unblocking chutes.
4. Regular inspection of the Garbage Chute Compartments, the Garbage Chute Outlet Compartments, and the Bin Rooms to ensure that all waste and recyclables are managed appropriately.
5. Educating residents in the correct use of each chute, to ensure that waste material is not deposited into the recycling chute, and that recycling material is not placed into the waste chute.

In accordance with Council requirements, the following infrastructure will be incorporated into the design of all chute rooms: -

1. Suitable door access for the service of bins;
2. Where roller doors are provided, an additional service door will be provided inclusive of an Abloy key system;
3. All floors will be finished with a non-slip and smooth and even surface covered at all intersections;
4. The floor will be graded to a central drainage point connected to the sewer;
5. The room will be fully enclosed and roofed with a minimum internal room height in accordance with the BCA 2016
6. The room is to be provided with an adequate supply of water through a centralised mixing valve with hose cock; and.
7. Incorporation of adequate light and ventilation to meet the requirements of the BCA 2016.

PART 5 – ON GOING USE OF BUILDING

5.1 OBJECTIVES

1. To ensure that the storage, amenity, and management of waste is sufficient to meet the needs of the development.
2. To ensure that all waste management activities are carried out effectively and efficiently, and in a manner that promotes the principles of health, safety, and convenience.
3. To promote waste minimisation practices.

5.2 ASSUMPTIONS

In preparing this proposal, the following assumptions have been made: -

1. The proposal involves the construction of a seven (7) storey building of mixed residential and commercial components.
2. The residential component comprises of 97 x boarding house rooms (26 singles and 71 doubles) – 168 occupants.
3. The commercial component contains two (2) x ground floor commercial units and three (3) on Level 1 with a combined floor area of 314sqm.
4. For the boarding house component, a dedicated Residential Waste Storage Area (RWSA) is provided for the storage of all waste and recycling bins allocated for all 97 rooms.
5. The RWSA is located on the eastern side of the basement as indicated on the Architectural Drawings.
6. For the Boarding House component of the development, the following provisions will apply:
 - a) All waste material will be stored for servicing in 4 x 1100-litre mobile bins,
 - b) All recycling material will be stored for servicing in 4 x 1100-litre mobile bins,
 - c) All waste services will be provided two (2) days per week.
 - d) All recycling services will be provided two (2) days per week
 - e) The number and size of bins have been calculated from information provided by Penrith City Council in relation to waste and recycling generation rates as they are applied to Boarding House developments.
 - f) All waste, recycling, and green waste services will take place from a loading bay located next to the WSA
 - g) Due to limitations on the ceiling height under the first floor level (2.5m), the loading bay has been designed to accommodate a rear loading SRV collection vehicle.
 - h) As the Boarding House is classified as a commercial development, all waste and recycling services will be provided by a private licensed waste and recycling collection contractor.
7. For the Commercial component of the development, the following provisions will apply:
 - a) A Commercial Waste Storage Area (CWSA) is provided for the storage of all waste and recycling bins allocated for the three (3) commercial units.
 - b) The CWSA is located on the eastern side of the basement as indicated on the Architectural Drawings,
 - c) All waste material will be stored for servicing in 2 x 1100-litre mobile bins,
 - d) All recycling material will be stored for servicing in 2 x 1100-litre mobile bins,
 - e) All waste services will be provided once (1) per week.

- f) All recycling services will be provided once (1) per week
 - g) The number and size of bins have been calculated from information provided by Penrith City Council in relation to waste and recycling generation rates as they are applied to commercial land use activities.
 - h) All waste, commercial waste and recycling services will take place from a loading bay located next to the WSA
 - i) All commercial waste and recycling services will be provided by a private licensed waste and recycling collection contractor.
8. The Owners Corporation shall appoint a Building Manager whose responsibilities will include ensuring all waste management activities are carried out in accordance with this WMP.

5.3 WASTE HANDLING & MANAGEMENT

All boarding house occupants will be responsible for depositing their waste and recycling material into the appropriate bins.

All waste is to be placed in the red lidded waste bins. All recyclable material is to be placed in the yellow lidded recycling bins.

All waste and recyclables should be appropriately bagged or wrapped prior to being deposited into the designated bin.

Appropriate signage will be erected in the WSA to assist the occupants of the building in placing their waste and recyclables into the appropriate bins.

5.4 WASTE & RECYCLING – SERVICE REQUIREMENTS

All waste and recycling materials will be stored in approved receptacles of an appropriate size as specified in this WMP.

The lids of the bins shall be closed at all times to reduce litter, stormwater pollution, odour, and vermin.

The Council in general requires that colour coded receptacle lids that distinguish each service component are to be provided: -

- Waste Service – Red Lidded receptacle;
- Recycling Service – Yellow Lidded receptacle; and,
- Green Waste – Green Lidded receptacle.

5.5 RESIDENTIAL WASTE & RECYCLING – SERVICE ARRANGEMENTS

The following table (Table 1) specifies the criteria for waste and recycling generation rates (as specified by Penrith City Council) based on advice from Council Officers and from information contained in Council's Multi-Unit Dwellings Waste Management Guidelines:

- Waste – 120 litres of bin space per room per week;
- Recycling – 120 litres of bin space per unit per week; and,
- Green Waste – Optional service – No service (see page 24).

Due to the minimal amount of external green space, all green waste generated from the use and occupation of the building will be disposed of by a professional landscape contractor.

For Boarding House establishments Council applies a discount rate of 75% for both waste and recycling, because they consider generation rates are less intense than for traditional forms of multi-unit housing.

TABLE 1 – WASTE & RECYCLING GENERATION RATES

SERVICE TYPE	ROOMS	BIN SPACE PER RM	BIN DISCOUNT RATE	TOTAL SPACE REQUIRED	BINS SIZE	SERVICES PER WEEK	BINS REQ'D	BINS PROVIDED
Waste	97	120	75%	8,730	1100	2	3.97	4
Recycling	97	120	75%	8,730	1100	2	3.97	4

The following table (Table 2) specifies the proposed bin servicing requirements for the building and is based on the above waste and recycling generation rates: -

TABLE 2 – PROPOSED SERVICING ARRANGEMENTS

WASTE	RECYCLING
4 x 1100 litre bins Two (2) Services per Week	4 x 1100-litre bins Two (2) Services per Week

5.6 PROVISION OF RESIDENTIAL WASTE & RECYCLING SERVICES

5.6.1 Waste and Recycling Collection Service Provider Details

All waste and recycling services will be provided by a licensed private contractor

5.6.2 Details of Mobile Containers

In relation to the size and design of the waste and recycling mobile bins, the following technical information is provided: -

CONTAINER TYPE	HEIGHT (metres)	DEPTH (metres)	WIDTH (metres)
1100-litre mobile container	1.470	1.245	1.370

5.6.3 Waste & Recycling Requirements

Waste and recycling requirements are provided in the table below.

TABLE 3 – RESIDENTIAL WASTE & RECYCLING SERVICES

SERVICE	NUMBER OF CONTAINERS	COLLECTION FREQUENCY
Waste Service	4 x 1100-litre mobile containers	Two (2) Services per Week
Recycling Service	4 x 1100-litre mobile containers	Two (2) Services per Week

5.6.4 Location, Design, and Construction of Residential Waste Storage Area

The main Residential Waste Storage Area (RWSA) is located on the eastern side of the ground floor level of the building.

The RWSA will be an enclosed rectangular structure, measuring 7.0m x 5.0m, with a floor area of approximately 35.0sqm. Within its confines will be the following:

- The 2 x 1100-litre linear track waste chute system,
- The 2 x 1100-litre linear track recycling chute,
- Storage space for 2 x 1100-litre mobile waste bins, and,
- Storage space for 2 x 1100-litre recycling bins.

A secondary WSA will also be provided for the storage of 2 x 1100-litre waste bins and 2 x 1100-litre recycling bins. It is located next to the Commercial Waste Storage Area (CWSA) as indicated on the Architectural Drawings.

5.6.5 Collection Area / Loading Bay

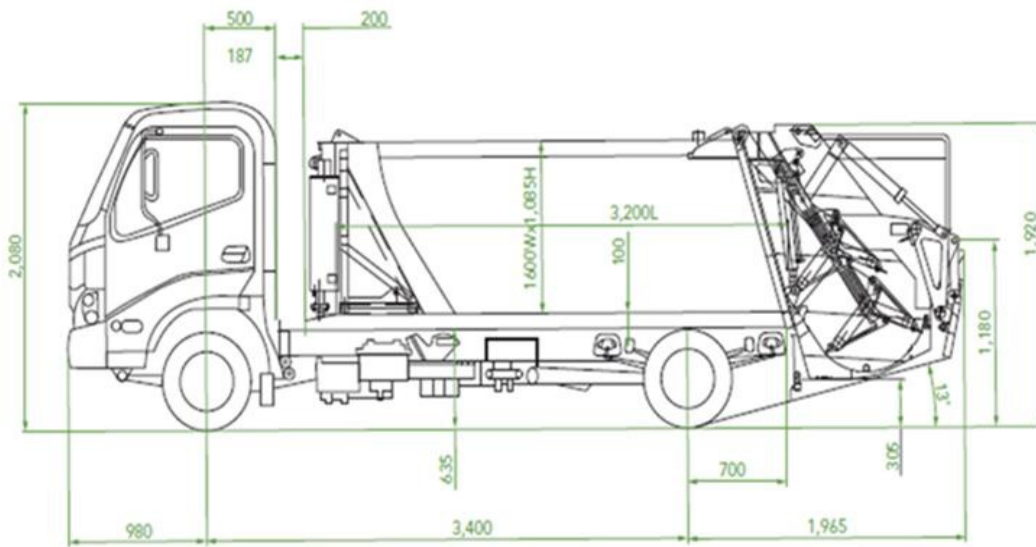
All waste and recycling collection services will be provided from a loading bay located adjacent to the RWSA. The loading bay has been designed to accommodate arear loading SRV with the following (approximate) design specifications:

- Length – 6.4m,
- Height – 2.2m (maximum), and,
- Width – 2.5m.

Due to the design of the building, it is not possible for Council's collection vehicle to access the basement, as such all residential waste and recycling services to the development will be provided by a licensed private waste and recycling collection vehicle using a rear loading SRV collection vehicle.

Based on industry sources, it is understood that there are a number of private waste and recycling collection contractors who have resources, including SRV's, and who would be willing to provide these services to the development.

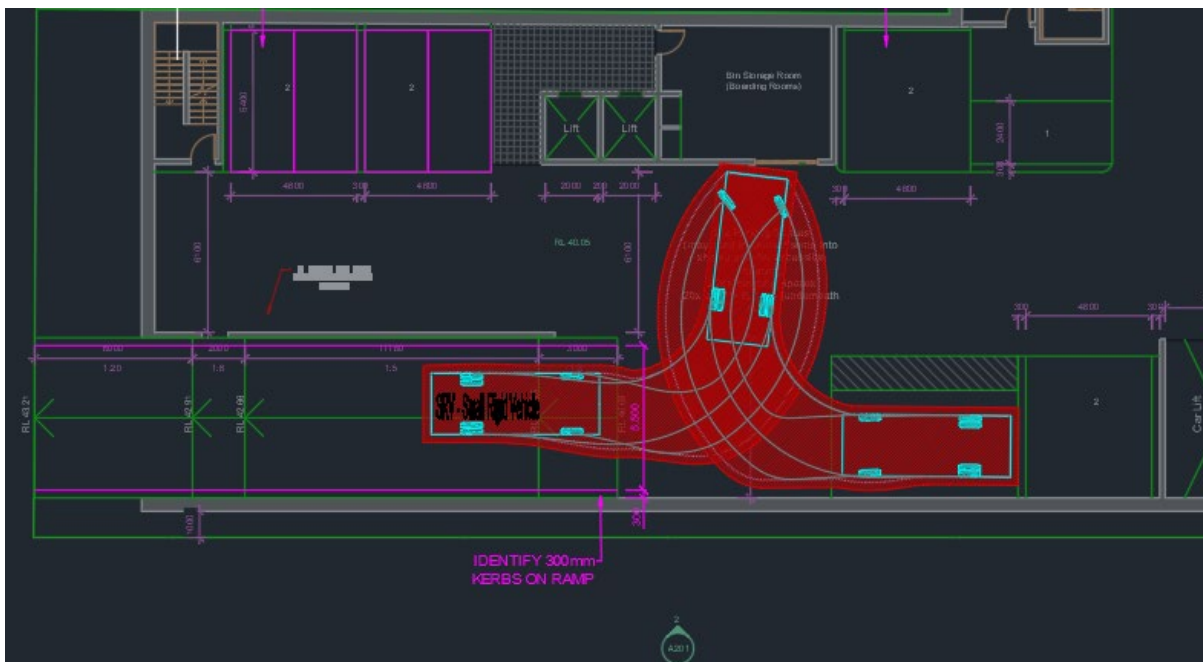
An example of a typical SRV is provided below.



All services will be carried out, outside of normal business hours between 5.00am and 7.00am on each collection day, when there is minimal pedestrian and vehicular activity so as to minimise the impact of collections on the amenity of the area.

A Traffic Management Report provided by PDC Consultants submitted with the DA Package has provided the following statement in regard to the proposal:

1. Given the low trip generation of the site we propose this manoeuvre is most practical. Waste collection will be completed outside peak traffic times i.e., AM & PM peaks when residents are leaving and returning to / from work.
2. In the unlikely event a vehicle enters the site at the same time a truck is reversing there is sufficient sight distance for the vehicle to see and wait on the ramp until the truck is parked. We can provide a little more detail in our report, however we are happy to support this reverse manoeuvre.



SWEPT PATH DETAILS

5.6.6 Servicing Arrangements – Waste Collections

All waste services will be provided by a licensed private waste and recycling collection contractor. All waste collections will take place from the loading bay as detailed in Part 5.6.5 on pages 25 and 26.

The waste bins will be presented for servicing by the contractor's representative and returned to the RWSA, as soon as serving has been completed.

The waste bins will be serviced two (2) days per week on days to be determined.

All 4 x 1100-litre waste bins will be serviced on each collection day.

5.6.7 Servicing Arrangements – Recycling Collections

All recycling services will be provided by a licensed private waste and recycling collection contractor. All recycling collections will take place from the loading bay as detailed in Part 5.6.5 on pages 25 and 26.

The recycling bins will be presented for servicing by the contractor's representative and returned to the RWSA, as soon as serving has been completed.

The recycling bins will be serviced two (2) days per week on days to be determined.

All 4 x 1100-litre recycling bins will be serviced on each collection day.

5.7 GREEN WASTE

Due to the minimal amount of external green space, all green waste generated from the use and occupation of the building will be disposed of by a professional landscape contractor.

5.8 BULKY WASTE AREA

As required by Council, a bulky waste storage area will be provided. The area is located adjacent to the Waste Storage Area as indicated on the Architectural Drawings. It has an area of 12.0sqm. The doorway to the Bulky Waste Area will be 1.5m in width.

5.9 COMMERCIAL WASTE & RECYCLING SERVICES

5.9.1 Details of Commercial Land Uses

Details of the commercial units are provided in the table below.

TABLE 3 – COMMERCIAL UNITS

TENANCY	PROPOSED USE	LOCATION	FLOOR AREA (Sqm)
Commercial 1	To be Determined	Ground Floor	214
Commercial 2	To be Determined	Ground Floor	150
Commercial 3	To be Determined	Ground Floor	170

Notwithstanding the fact that the use of each unit has yet to be determined, for the purposes of this WMP it will be assumed that they will be used as follows:

- Commercial 1 – Retail shop (no food),
- Commercial 2 – Professional Office,
- Commercial 3 – Takeaway Café, and,

5.9.2 Waste & Recycling Generation Rates

The Table below (Table 4) details the waste and recycling generation rates for the land uses proposed. These rates have been obtained from the EPA's Better Practice Waste Management Guide as Council's guidelines do not provide for Waste and Recycling Generation Rates for commercial land use activities.

TABLE 4 – WASTE & RECYCLING GENERATION RATES FOR COMMERCIAL LAND USE ACTIVITIES

SERVICE	LAND USE	WASTE & RECYCLING GENERATION RATES
Waste	Retail (No Food)	50 litres of waste per 100sqm of floor area per day – more than 100sqm
Recycling	Retail (No Food)	100 litres of recyclables per 100sqm of floor area per day
Waste	Office	10 litres of waste per 100sqm of floor area per day
Recycling	Office	15 litres of recyclables per 100sqm of floor area per day
Waste	Takeaway Food Shop	120 litres of waste per 100sqm of floor area per day
Recycling	Takeaway Food Shop	60 litres of recyclables per 100sqm of floor area per day

5.9.3 Commercial Waste Service Requirements

The following table (Table 5) specifies the criteria for waste generation rates (as specified in Part 5.8.2.

TABLE 5 – COMMERCIAL WASTE GENERATION RATES & SERVICE REQUIREMENTS

DESCRIPTION	UNIT 1 Retail (No Food)	UNIT 2 Office	UNIT 3 Takeaway Café
Waste Generation Rate	50L/100sqm Floor Area/Day	10L/100sqm Floor Area/Day	120L/100sqm Floor
Total Floor Area	214sqm	150sqm	170sqm
Waste Generation/Week	50 x 214 / 100 x 6 (Days)	10 x 150 / 100 x 6 (Days)	120 x 170 / 100 x 7 (Days)
Space Required/Week	642.00	90.00	1,428.00
TOTAL SPACE REQUIRED ALL UNITS	2,160.00-litres of Space to be serviced per Week		
SERVICE REQUIREMENTS	(2,200-Litres of Space Serviced per Week) 2 x 1100-litre waste bins – serviced one (1) day per week		

It is considered that the most efficient, economic and practical method of providing waste services to all units would be to have one (1) service provider doing all

services.

It is considered that the above arrangements would comply with all service requirements. All commercial waste services will be provided by a licensed private waste contractor.

Commercial arrangements for the provision of all waste services are to take place generally, in accordance with the abovementioned provisions.

If the Owners Corporation chooses to enter into individual arrangements with each tenant, where different service providers are used for each or some of the units in unison, all waste services would need to be provided in an appropriate number of waste bins and at such frequencies to meet the waste generation rates specified above.

Alternate bins sizes and, or collection frequencies, may be employed to achieve these rates. However, appropriate records are to be maintained to ensure that all service requirements are achieved.

All commercial waste services are to be undertaken in a manner that will not adversely impact on the principles of health, safety or convenience.

A Service Agreement will be entered into between the Owners Corporation and the appointed Contractor describing the manner in which all commercial waste services will be provided. A copy of this agreement will be provided to the Council upon request.

5.9.4 Commercial Recycling Service Requirements

The following table (Table 6) specifies the criteria for recycling generation rates (as specified in Part 5.8.2.

TABLE 6 – COMMERCIAL RECYCLING GENERATION RATES & SERVICE REQUIREMENTS

DESCRIPTION	UNIT 1 Retail (No Food)	UNIT 2 Office	UNIT 3 Takeaway Café
Recycling Generation Rate	100L/100sqm Floor Area/Day	15L/100sqm Floor Area/Day	60L/100sqm Floor
Total Floor Area	214sqm	150sqm	170sqm
Recycling Generation/Week	100 x 214 / 100 x 6 (Days)	15 x 150 / 100 x 6 (Days)	60 x 170 / 100 x 7 (Days)
Space Required/Week	1,284.00	135.00	714.00
TOTAL SPACE REQUIRED ALL UNITS	2,133.00-litres of Space to be serviced per Week		
SERVICE REQUIREMENTS	(2,200-Litres of Space Serviced per Week) 2 x 1100-litre recycling bins – serviced one (1) day per week		

It is considered that the most efficient, economic and practical method of providing recycling services to all units would be to have one (1) service provider doing all services.

It is considered that the above arrangements would comply with all service requirements. All commercial recycling services will be provided by a licensed private waste contractor.

Commercial arrangements for the provision of all recycling services are to take place generally, in accordance with the abovementioned provisions.

If the Owners Corporation chooses to enter into individual arrangements with each tenant, where different service providers are used for each or some of the units in unison, all recycling services would need to be provided in an appropriate number of waste bins and at such frequencies to meet the recycling generation rates specified above.

Alternate bins sizes and, or collection frequencies, may be employed to achieve these rates. However, appropriate records are to be maintained to ensure that all service requirements are achieved.

All commercial recycling services are to be undertaken in a manner that will not adversely impact on the principles of health, safety or convenience.

A Service Agreement will be entered into between the Owners Corporation and the appointed Contractor describing the manner in which all commercial recycling services will be provided. A copy of this agreement will be provided to the Council.

5.9.5 Storage of Commercial Waste and Recycling Bins

A Commercial Waste Storage Area (CWSA), is provided for the storage of all waste and recycling bins associated with the use and occupation of all commercial and retail units within the complex.

The Commercial WSA is located on the ground floor as indicated on the Architectural Drawings. It is an enclosed structure, measuring 4.50m x 2.67m with an area of 12sqm, and will provide space for:

- 2 x 1100-litre waste bins, and,
- 2 x 1100-litre recycling bins.

All waste and recycling material derived from all commercial units will be stored within the confines of the CWSA at all times.

The Owners Corporation will be responsible for ensuring that all commercial waste and recycling services are undertaken in an efficient manner that will promote the principles of health, safety and convenience and not impact negatively on the amenity of the complex and its surrounds.

5.9.6 Provision of Commercial Waste and Recycling Services

All commercial waste and recycling services will be provided by a licensed private waste and recycling collection contractor, using a rear loading collection vehicle, that will enable all collections to be carried out effectively and efficiently, and in a manner that will aim not impact negatively on the principles of health, safety or convenience.

All services are to be undertaken in an efficient manner that will promote the principles of health, safety and convenience and not impact negatively on the amenity of the complex and its surrounds.

All services will be provided from the loading bay as indicated on the Architectural Drawings. All waste and recycling bins will be returned to the CWSA immediately after they have been serviced.

5.10 ON GOING OPERATION, USE & MAINTENANCE OF WASTE MANAGEMENT FACILITIES

All waste management facilities will be maintained in a clean and hygienic condition that will promote the principles of health, safety and convenience.

In order to achieve these objectives, the following facilities and devices will be required: -

1. The walls and floors of the Waste Storage Area is to be constructed of smooth faced masonry or concrete, and all walls will be painted with light coloured and washable paint.
2. The junction between all floors and walls will be coved and sealed up to 100mm above the floor level, in order to eliminate the build-up of dirt and grime.
3. Appropriate washing facilities will be provided to the WSA.
4. The WSA will be washed and cleaned on a regular basis.
5. All mobile bins will be washed and cleaned on a regular basis.
6. All electrical equipment, including the provision of lighting, will be installed in accordance with the relevant Australian Standards.
7. Natural and mechanical ventilation will be required to be installed within all waste storage facilities in accordance with the relative provisions of the Building Code of Australia.
8. Appropriate signage will be displayed clearly identifying waste and recycling bins and the WSA.
9. Appropriate signage will be erected within the WSA, providing instruction on how to use waste and recycling facilities, including what is and what is not recyclable.
10. The Owners Corporation will be responsible for ensuring that all waste and recyclable matter and materials are placed and stored within the appropriate containers provided.

PART 5 – SUMMARY

5.1 SUMMARY

In summarising this proposal, the following information is provided:

1. This Waste Management Plan (WMP) has been developed and documented in accordance with the Penrith City Council's Waste Management DCP.
2. The number and size of bins have been calculated from information provided by Penrith City Council and from the Council's Waste Management DCP Appendix F5 'Technical Information – Waste and Recycling Generation Rates' (Table F5.8), page F5-34.
3. As the use and operation of a boarding house is considered a commercial enterprise, all waste and recycling services will be provided by a licensed private waste collection contractor.
4. The Owners Corporation will be responsible for ensuring that all on-going waste management activities are carried out in accordance with the provisions of this Waste Management Plan.
5. The WMP aims to promote the use of recyclable materials in the excavation, demolition, construction and on-going operation of the building;
6. The WMP aims to ensure the design of waste and recycling storage facilities are of an adequate size, appropriate for the intended use of the building, hygienic with safe and manoeuvrable access.
7. The WMP aims to ensure that the provision of waste and recycling services to the completed buildings are carried out in an efficient manner, which will promote the principles of health, safety and convenience.

This is a unique development with a unique set of arrangements for its waste management activities.

The measures set out in this WMP aim to demonstrate that all such activities will be carried out effectively and efficiently, in a healthy, safe and convenient manner, to acceptable community standards, and to the requirements of Penrith City Council.
