PENRITH
CITY COUNCIL

MAJOR ASSESSMENT REPORT

Application number:	DA20/0423
Proposed development:	Alterations and Additions to an Existing Dwelling and Change of Use to a Community Facility with Associated Car Parking & On-Site Waste Water Management System
Property address:	682 Castlereagh Road, AGNES BANKS NSW 2753
Property description:	Lot 2 DP 252556
Date received:	13 July 2020
Assessing officer	James Heathcote
Zoning:	RU1 Primary Production - LEP 2010
Class of building:	Class 9b
Recommendations:	Refuse

Executive Summary

Council is in receipt of a development application for the alterations and additions to an existing dwelling and change of use to a community facility with associated car parking and on-site waste water management (OSSM) system at 682 Castlereagh Road, Agnes Banks NSW 2753.

The subject site is zoned RU1 Primary Production under Penrith Local Environmental Plan (LEP) 2010. The proposal has been lodged as a 'Community Facility', which is a permissible land use in the RU1 zone with consent. However, an assessment of the application has found that there may be components of the development that would categorise the development as a 'Place of Public Worship' which is prohibited in the zone.

The operators of the proposed community centre are Vaishnav Sangh (VS) of Sydney, which is a not-for-profit organisation and registered charity, who state their main objective being to serve the cultural, educational and welfare needs of the Indian-Australian community. VS of Sydney state that their organisation celebrates key festivals and events, conduct educational classes and participates in cultural activities; and further state that they are looking to establish a permanent base where they can expand and continue to provide their services to the community

Key issues identified for the proposed development and site include:

- Planning permissibility is unclear, with the use being potentially prohibited in the zone,
- Non-compliance with Penrith LEP zone objectives,
- Non-compliance with built form, character and amenity controls under Penrith Development Control Plan (DCP) 2014,
- Visual and acoustic amenity impacts,
- Traffic generation, congestion and inappropriate on-site parking provision,
- Lack of information provided in the Plan of Management,
- Lack of information provided pertaining to the proposed OSSM system,
- The proposed raingarden and associated infrastructure has not demonstrated compliance with Council's Water Sensitive Urban Design (WSUD) policy.

The application was advertised in the Western Weekender on the 30 July 2020 and further advertised and exhibited locally until the 17 August 2020. The application was also notified to 36 adjoining and nearby properties between 3 August and 17 August 2020, in accordance with the relevant legislation. During this period 29 unique submissions were received in response, 1 of which supported the proposal and 28 of which objected to the proposal. Due to the number of unique submissions made objecting to the development, this application is referred to the Local Planning Panel for determination in accordance with the Local Planning Panels Direction - Development Applications dated 23 February 2018.

An assessment under Section 4.15 of the Environmental Planning and Assessment Act 1979 has been undertaken and the application is recommended for refusal.

Site & Surrounds

Properties of the Site:
The subject site is located on the corner of Castlereagh Road and Kooringal Drive. The site has an area of 2.024 Hectares, with an approximate 30m frontage to Castlereagh Road and an approximately 250m frontage to Kooringal Drive in Agnes Banks. Kooringal Drive is a no through road that runs north-west from the subject site, approximately 1km in length, which connects with Coolamon Road, which is approximately 180m in length.

The site is currently occupied by an existing dwelling, associated outbuildings and structure, a swimming pool, and is surrounded by well established and mature bushes, shrubs and trees. The surrounding area is characterised by rural-residential and agricultural land. The subject site is classified as bushfire prone land, is flood affected, and includes a drainage easement 13m wide (DP 252556) along the southern boundary, fronting Kooringal Drive.

The subject site is not listed as a heritage item, conservation area or archaeological site under Schedule 5 Environmental Heritage of Penrith LEP 2010. However, the subject site is in proximity to the following heritage listed sites:

- Item 261: Castlereagh Road Alignment - 25m south-east of site (adjoining).
- Item 012: Federation farmhouse and trees - 706 Castlereagh Road, Agnes Banks - 240m south-west of site.
- Item 010: Tyreel Dwelling and Barn - 626-652 Castlereagh Road, Agnes Banks - 220m north-east of site.
- Item 008 'Chestnut', dwelling, slab cottage and trees & Item 006 'Osbourne' homestead, barn, outbuildings and plantings - 568-600 Castlereagh Road, Agnes Banks - 730m north-east of site.
- Item 015 Agnes Banks Reserve - Multiple properties including 2 Geebung Close, Agnes Banks, 36-62 Rickards Road, Agnes Banks, Agnes Banks Nature Reserve - 165m south-east of site.

The site is located approximately 815m south-east from the Nepean River. The site is located approximately 14.5km north of Penrith central business district.

Site History:

- DA20/0423 - Subject application.
- PL19/0060 - Indian community facility.
- DC18/0573 - Concerns regarding a large number of car and people gathering at the property and the noise that is caused.
- DA18/0366 - Alterations and additions to existing dwelling and change of use to a community facility with associated car parking, children's play facilities, volley ball court, viewing platform and monument #WITHDRAWN.
- PL17/0053 - Community facility.
- PL12/0153 - Dual occupancy.
- BA950526 - One room addition.
- BA017552 - Garages/carports - attached brick.

Restrictions on the Land (Lot 2 DP 252556):

- Deposited plan on Council records reviewed.
- 13m wide drainage easement noted on the plan.
- No restrictions included with DP.

Proposal

The proposed development includes the following:

- Alterations and additions to an existing dwelling;
- Change of use to a community facility;
- Construction of a 4.16m high unenclosed awning, covering an area of approximately 470sqm.
- On-site waste infrastructure for bin storage;
- Stair lift access into the community facility,
- 2 x car parking areas, and associated driveways, that cover an area of 1800sqm in area.
- Site drainage, rain-garden (for storm water treatment) and on-site waste water management system with effluent disposal areas.
- A 2.1m high colourbond fence for an approximate length of 147m along the northern boundary; and a connecting 1.8m high colourbond fence for an approximate length of 159m along the rest of the northern boundary toward the dam at the rear of the site.

Plans that apply

- Local Environmental Plan 2010 (Amendment 4)
- Development Control Plan 2014
- State Environmental Planning Policy (Infrastructure) 2007
- State Environmental Planning Policy No 55—Remediation of Land
- Sydney Regional Environmental Plan No.20 - Hawkesbury Nepean River

Planning Assessment

- ### Section 4.14 - Bushfire prone land assessment

  In accordance with Section 4.14(1)(a) of the Environmental Planning and Assessment Act 1979, the consent authority, being Council, is to be satisfied that the development conforms to the specifications and requirements of the NSW Rural Fire Service document, *Planning for Bush Fire Protection*.

  The application was supported by a Bushfire Assessment Report, prepared by Firefront Bushfire Consulting, dated 27 August 2017, which states that the proposed development and building is located within well-manageable land with all surrounding land in close proximity to the site having a good history of on-going maintenance by adjoining neighbours. It was noted that, with the exception of the small pocket of woodland located 28m from the adjoining boundary to the north, there is no considerable clumps of vegetation located within 140m from the subject building. It was also noted that the development was assessed as reaching no more than a Bush Fire Attack Level rating of BAL 12.5.

  Council's own assessment, in assessing the report from the applicant and checking the distance of vegetation from the site and proposed building envelope, agrees with this assessment as it aligns with the applicable parameters.

  Whilst the development appears to meet the specifications and requirements of "Planning for Bushfire Protection" December 2006, and to the applicable Bush Fire Attack Level in accordance with AS 3959-2009 "Construction of Buildings in Bushfire-prone areas", and the requirements of Section 4.14 of the Act have been satisfactorily addressed, the recommendation of refusal for the proposed development is made relating to other matters mentioned throughout this report.

  The application was not required to be referred to NSW Rural Fire Services as the application is not integrated development under the Rural Fires Act 1997.

- ### Section 4.15 - Evaluation

  The development 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 development is considered unsatisfactory as detailed below:

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

State Environmental Planning Policy (Infrastructure) 2007

State Environmental Planning Policy (Infrastructure) 2007, Schedule 3 Traffic-generating development to be referred to Roads and Maritime Services, now known as Transport for NSW (TfNSW) specifies development 'for any other purpose' where a site has access to a road (generally), generating 200 or more motor vehicles per hour, or a site with access to a classified road within 90m, generating 50 or more motor vehicles per hour.

The application has indicated less than 200 vehicles per hour being generated, with the Traffic Impact Study, prepared by Henson Consulting dated 9 February 2018, including that traffic generation of the subject site and development was estimated as having a peak of 10 vehicles per hour in the peak direction on a non-event day and 74 vehicles per hour in the peak direction on an event day.

Furthermore, Castlereagh Road (particularly where the subject site intersects) is a regional road and not a state road. This detail has also been confirmed with Council's Traffic Engineering team.

As such, referral to TfNSW is not required in this instance.

State Environmental Planning Policy No 55—Remediation of Land

State Environmental Planning Policy No 55 - Remediation of Land (SEPP 55) aims to provide a framework for the assessment, management and remediation of contaminated land throughout the state. Clause 7(1) of SEPP 55 requires a consent authority to be satisfied that the site is suitable for the proposed development, or can be made suitable prior to the determination of the application.

The site is zoned and purposed for RU1 Zone purposes, which is unchanged as a result of the proposed development. There is no recorded history of any contaminating activities occurring on the site. Review of historical aerial imagery has confirmed the use of the site for rural-residential use, with no agricultural land use activities occurring on the site.

As such, the application has satisfactorily addressed the considerations of SEPP 55.

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 although the development proposal is not in conflict with the Policy, the development application is recommended for refusal based on other matters.

Local Environmental Plan 2010 (Amendment 4)

Provision	Compliance
Clause 1.2 Aims of the plan	Does not comply - See discussion
Clause 2.3 Permissibility	Does not comply - See discussion
Clause 2.3 Zone objectives	Does not comply - See discussion
Clause 4.3 Height of buildings	Complies - See discussion
Clause 4.4 Floor Space Ratio	N/A
Clause 5.10 Heritage conservation	N/A
Clause 7.2 Flood planning	Complies - See discussion
Clause 7.5 Protection of scenic character and landscape values	Does not comply - See discussion
Clause 7.7 Servicing	Does not comply - See discussion

Clause 1.2 Aims of the plan

Clause 1.2(1) states that Penrith LEP 2010 aims to make local environmental planning provisions for land in Penrith in accordance with the relevant standard environmental planning instrument under section 3.20 of the Act.

Clause 1.2(2) specifies particular aims of Penrith LEP 2010, including the following most applicable aims:

(b) To promote development that is consistent with the 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,

(c) To accommodate and support Penrith's future population growth by providing a diversity of housing types, in areas well located with regard to services, facilities and transport, that meet the current and emerging needs of Penrith's communities and safeguard residential amenity,

(e) To reinforce Penrith's urban growth limits by allowing rural living opportunities where they will promote the intrinsic rural values and functions of Penrith's rural lands and the social well-being of its rural communities,

(f) To protect and enhance the environmental values and heritage of Penrith, including places of historical, aesthetic, architectural, natural, cultural, visual and Aboriginal significance,

(h) To ensure that development incorporates the principles of sustainable development through the delivery of balanced social, economic and environmental outcomes, and that development is designed in a way that assists in reducing and adapting to the likely impacts of climate change.

As demonstrated throughout this report the development does not satisfy the aims of the plan. The development is not of a scale appropriate for a rural zone and does not safeguard the amenity of adjoining rural-residential sites. Additionally, the application has not demonstrated that the use of the site is permitted in the zone.

In consideration of the above, and as further discussed throughout this report, the proposal does not deliver balanced social, economic and environmental outcomes, and therefore is not consistent with the aims of Penrith LEP 2010.

Clause 2.3 Permissibility

The subject site is zoned RU1 Primary Production under Penrith LEP 2010. The application has been lodged as a 'Community Facility', which is permitted with consent in the zone.

Concerns with categorising the development as a community facility and not as a place of public worship have been raised with VS of Sydney in both pre-lodgement meetings and throughout the assessment of the previous development application on the site. The most recent pre-lodgement advice requested that the application include detailed information that clearly addresses the specific activities the group propose to hold at the subject site. This should include; type of event, expected number of people at each event; frequency of event; operating hours for each event; and nature of activities (for example, outdoor picnics, indoor meetings, dances with music, and the like).

The submitted Statement of Environmental Effects states:

"the proposal is not a place of worship as no religious worship or congregation of a religious group (the two characterising activities identified under the place of public worship Penrith LEP 2010 definition) is proposed. This application is furthermore not considered to be an educational establishment as it does not provide any formal education when an educational establishment means 'a building or place used for education (including teaching), being: (a) a school, or (b) a tertiary institution, including a university or a TAFE establishment that provides formal education and is constituted by or under an Act'".

The definition of a place of public worship is:

'a building or place used for the purpose of religious worship by a congregation or religious group, whether or not the building or place is also used for counselling, social events, instruction or religious training'

The distinguishing features of a place of public worship compared to a community facility is that the

purpose of the facility is for religious worship by a congregation or a religious group.

Inconsistencies within the documentation lodged and proposed annual events indicates there may be activities on the site which involve religious worship and the congregation of a religious group which would categorise the development as a place of public worship.

The Vaishnav Sangh of Sydney is a group of Vaishnava devotees who practise the Pushti Marg faith. Pushti Marg is a sub tradition of Vaishnavism which is a Hindu denomination and the name given to the faith and practices of Hindus who hold Vishnu and other gods and goddesses, such as Krishna, as supreme deities. (Information provided in the development application references the website of Vaishnav Sangh of Sydney and Vaishnav Sangh of NSW which has been used to source some of this information).

The list of annual scheduled events to be held approximately 12 times per year and attracting over 200 patrons are, in part, Indian religious festivals. For example, Holi Festival of Colour and Diwali Festival of Lights are both celebrated religious Hindu events.

The application has not detailed the nature of the activities in order for Council to be satisfied that they are not based on the Hindu faith or other Indian Religious denomination. (See Figures 1 & 2 below, as submitted by the applicant).

Figure 1. Frequency of Use and Purpose of Proposed Community Facility

	Weekdays (once to twice)	**Weekends**	**Event Days (Approximately 12 times per year)**
Number of People	Up to 15	Up to 50	Up to 200
Time	Mostly between 5pm - 7pm	Between 12pm - 7pm	Between 2pm - 7pm / Event time 4pm - 7pm
Purpose	Admin work, maintenance, event preparation	Volunteers meeting, admin work, site preparation, rehearsal	Community attendance, dramas, dance, singing, celebrating community events

Figure 2. Expected Annual Schedule of Events

Month	**Event**
January	Kite Flying Festival
February	Festival of Flowers
March	Holi - Festival of Colours
April	Annual Funding Raising Event - Held at another larger external venue
May	Music, Drama and Cultural Presentation
June	Sports Day - venue varies and possibly held externally
July	Cultural Gujrati music and dance performance for children
August	Independence Day celebrations
September	Garba Dance
October	Diwali - Festival of lights
November	Food Festival
December	Annual Picnic day

The scale of the proposed outdoor area appears disproportionate to the activities listed as being undertaken on a weekly basis, which according to the submitted SEE are administration work, volunteer meetings and event preparation/rehearsals. The outdoor area is approximately 470m² in size. The scale of the outdoor area indicates that this space may be used frequently by a large congregation.

The previous application included a room which was to hold up to 84 statues, the use of statues in Indian culture is generally associated with the religious worshipping activities of Hinduism. The current application has removed the statue notation and indicates this room to be used as a ‘donatives display area’. The description of the development and activities listed does not detail what a donatives areas is or what activities are to be undertaken within this area of the development. The provision of this space suggests that the facility is designed to be used for regular worship. Further there are three other rooms which have

no known use.

In consideration of the above, the application has not demonstrated that the activities on the site do not involve religious worship by a congregation or a religious group, therefore it cannot be established with certainty that the development is defined as a community facility.

Clause 2.3 Zone objectives

The objectives of the RU1 Primary Production zone include:

- To encourage sustainable primary industry production by maintaining and enhancing the natural resource base.
- To encourage diversity in primary industry enterprises and systems appropriate for the area.
- To minimise the fragmentation and alienation of resource lands.
- To minimise conflict between land uses within this zone and land uses within adjoining zones.
- To protect and enhance the existing agricultural landscape character of the land.
- To ensure development is compatible with the environmental capabilities of the land and does not unreasonably increase the demand for public services or public facilities.
- To preserve and improve natural resources through appropriate land management practices.

The proposal does not minimise conflict between land uses within the RU1 zone, nor protect or enhance the existing agricultural landscape character of the land, largely due to the proposed traffic and congestion impacts, acoustical impacts and visual impacts imposed by the development. The application has not demonstrated that the proposed use is compatible with the environmental capabilities of the land for events of up to 200 people, in consideration of effluent disposal, water usage (no consultation with Sydney Water) and the like.

Clause 4.3 Height of buildings

There is no set maximum building height for the subject site and area. Please see the Penrith Development Control Plan 2014 Part D section of this report for more information.

Clause 7.2 Flood planning

See discussion under the C3 Water Management section of this report for more information.

Clause 7.5 Protection of scenic character and landscape values

The subject site is identified as "Land with scenic and landscape values" on the Scenic and Landscape Values Map, as per Clause 7.5(2) of Penrith LEP 2010.

Clause 7.5 (3) states that development consent must not be granted for any development on land to which this clause applies unless the consent authority is satisfied that measures will be taken, including in relation to the location and design of the development, to minimise the visual impact of the development from major roads and other public places.

The proposal includes construction of a 2.1m high colourbond fence along the northern boundary of the site for a length of 147m. This colourbond fence continues for half of the northern boundary to the rear of the site at a height for 1.8m at a length of 159m. The proposal also includes construction of a 4.1m high open-design awning that covers an area of approximately 470sqm of area. The proposal also includes 2 x parking areas that cover approximately 1,800sqm in area, includes removal of grassed areas and includes removal of some mature vegetation. One of these parking areas was advised to be relocated to the rear of the site through previous prelodgement advice from Council.

The subject site and area is zoned RU1 and is characterised by rural-residential and agricultural development, which is in close proximity to the Nepean River.

As such, in accordance with Clause 7.5(3) of Penrith LEP 2010, Council is not satisfied that measures have been taken in relation to the location and design of the development to minimise the visual impact of the development from Castlereagh Road, nor from Kooringal Drive, within Agnes Banks of Penrith LGA.

Clause 7.7 Servicing

See discussion under the C13 Infrastructure and Services section of this report for more information.

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

Draft Environment State Environmental Planning Policy

The Draft Environment SEPP was exhibited from 31 October 2017 to 31 January 2018. This consolidated SEPP proposes to simplify the planning rules for a number of water catchments, waterways, urban bushland, and Willandra Lakes World Heritage Property.

Changes proposed include consolidating a total of seven existing SEPPs being:

- *State Environmental Planning Policy No. 19 – Bushland in Urban Areas*
- *State Environmental Planning Policy (Sydney Drinking Water Catchment) 2011*
- *State Environmental Planning Policy No. 50 – Canal Estate Development*
- *Greater Metropolitan Regional Environmental Plan No. 2 – Georges River Catchment*
- *Sydney Regional Environmental Plan No. 20 – Hawkesbury-Nepean River (No.2-1997)*
- *Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005*
- *Willandra Lakes Regional Environmental Plan No. 1 – World Heritage Property*

It is noted that the proposed changes to State Environmental Planning Policy No 19 – Bushland in Urban Areas (SEPP 19) are not considered to impact the proposed development. In addition, the amendments to Sydney Regional Environmental Plan No 20 – Hawkesbury – Nepean River (No. 2 – 1997) do not impact the proposed development. In this regard, the proposal is not inconsistent with the provisions of this Draft Instrument.

Draft Remediation of Land SEPP

The Department of Planning and Environment has announced a Draft Remediation of Land SEPP, which will repeal and replace the current State Environmental Planning Policy No 55—Remediation of Land.
The proposed new land remediation SEPP will:

- Provide a state-wide planning framework for the remediation of land,
- Maintain the objectives and reinforce those aspects of the existing framework that have worked well,
- Require planning authorities to consider the potential for land to be contaminated when determining development applications and rezoning land,
- Clearly list the remediation works that require development consent, and
- Introduce certification and operational requirements for remediation works that can be undertaken without development consent.

It is also proposed that it will transfer the requirements to consider contamination when rezoning land to a direction under Section 9.1 of the Environmental Planning and Assessment Act 1979.

Whilst the proposed SEPP will retain the key operational framework of SEPP 55, it will adopt a more modern approach to the management of contaminated land. Noting the above, the Draft SEPP will not alter or affect the findings in respect to contamination of the site.

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	Complies - see Appendix - Development Control Plan Compliance
C4 Land Management	Complies
C5 Waste Management	Complies
C6 Landscape Design	Does not comply - see Appendix - Development Control Plan Compliance
C7 Culture and Heritage	Does not comply - see Appendix - Development Control Plan Compliance
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	Does not comply - see Appendix - Development Control Plan Compliance
D1.1. Rural Character	Does not comply - see Appendix - Development Control Plan Compliance
D1.2. Rural Dwellings and Outbuildings	Does not comply - see Appendix - Development Control Plan Compliance
D1.3. Farm buildings	N/A
D1.4 Agricultural Development	N/A
D1.5. Non-Agricultural Development	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 applicable to the site or development.

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

The regulations have been considered during assessment of the application. Please see discussion under the Building Surveyor Referral section of this report for more information.

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

Visual Impact and Local Character

The proposal to construct a long 1.8m to 2.1m colourbond fence across the entire northern boundary of the site would negatively impact on the rural and scenic value of the area. Furthermore, the 2 x parking areas (approximately 1,800sqm in area) and construction of a 4.1m high awning covering approximately 470sqm in area would further detract from the rural and scenic values that are characteristic of the RU1 zone and the Agnes Banks area.

Noise and Privacy Impacts

The proposal does not adequately demonstrate measures to mitigate against negative privacy and amenity impacts, nor does it consider the impact of proposed activities to occur on neighbouring dwellings which are in close proximity to the development. See discussion under the C12 Noise and Vibration section of this report for more information.

Traffic Congestion, Hazard and Parking

The proposal has not provided sufficient on-site parking areas, nor sufficient space for overflow parking, which is likely to result in on-street car parking that would lead to potential traffic congestion and increase of hazards to other users of Kooringal Drive and Castlereagh Road. See discussion under the C10 Transport, Access and Parking for more information.

Social and Economic Impacts

The advertising/notification period organised by Council for the application resulted in 28 objection submissions being received raising many concerns to the development, largely surrounding many of the environmental impacts addressed throughout this report. As such, the proposed development has the potential to generate many social and economic impacts in the vicinity of the site and area. See the Submissions section of this report for more information.

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

The site is unsuitable for the proposed development for the following reasons:

- The proposed use has not satisfactorily demonstrated permissibility as a community facility, nor demonstrated that the proposal has achieved the objectives of the RU1 zone.
- The design of the development and its presentation to the street is not considered to be compatible with, nor complementary to, the character of the local area or the future desired character of the area.
- The proposal does not adequately demonstrate that impacts related to local character, streetscape presentation, scale, noise and amenity adequately mitigated against nor addressed through the design of the community facility.

Section 4.15(1)(d) Any Submissions

Community Consultation

The application was advertised in the Western Weekender on the 30 July 2020 and further advertised and exhibited until the 17 August 2020. The application was also notified to 36 adjoining and nearby properties between 3 August and 17 August 2020, in accordance with the relevant legislation. During this period 29 unique submissions were received in response, 1 of which supported the proposal and 28 of which objected to the proposal. Due to the number of unique submissions made objecting to the development, this application is referred for determination by the Local Planning Panel.

The following issues were raised in the submissions received with feedback commentary detailed below (in no particular order):

Issue Raised	Comments

1. Impact to Wetland and Wildlife The proposal will destroy the natural wetland and associated wildlife, due to run-off from the development into a dam at the rear of the site.	Concern is raised by many objectors that the additional stormwater and OSSM effluent run-off generated by the proposal will contaminate the dam at the rear of the property, which drains through to the Nepean River. As mentioned previously in this report, the proposal includes a raingarden for stormwater treatment, as well as effluent disposal areas positioned toward a portion of the site where the land slopes toward the small dam at the rear of the advice. Advice from Council's Waterways and Environmental Management teams have confirmed that, subject to these measures being designed in accordance with Council's specifications, and subject to compliance with conditions should consent be granted for the proposal, there is no expected contaminants that are likely to occur to the nearby wetland as a result of the proposed development. It is noted that impact to local wildlife has not been considered by Council during assessment of the application due to key matters of concern being raised (as discussed throughout the report).
2. Traffic, Congestion, Parking and Hazard The proposed events with 200 people attending will be a traffic hazard, including added traffic and congestion.	Assessment of the application has considered that the amount of onsite parking is not enough with a maximum of 200 people attending the site, with no overflow parking being provided for the site. Overflow parking does not appear possible on the subject site due to the proposed rain-garden, OSSM disposal areas and topography of the site, amongst other site restrictions. As a result, it is likely that any overflow parking would occur along Kooringal Drive, which is a rural road with no kerb and gutter, which cannot accommodate such parking occurring. Such overflow parking would also introduce congestion and hazards to other users of Kooringal Drive. See discussion under the C10 Transport, Access and Parking section of this report for more information.
3. Misleading application - Place of Public Worship The application is misleading and is actually pursuing a public place of worship.	There is inconsistency between the plans and documentation submitted for the application that raises concern in terms of permissibility and the land use definition of the proposal (as per Penrith LEP 2010). See discussion under the Permissibility section of this report for more information.
4. Suitability of Site The area is for private dwellings and the proposal should be in a more suitable area.	Given the visual impacts, noise impacts and traffic, congestion and parking impacts associated with the proposed development, and how these affect neighbouring properties that mostly include private rural-residential dwellings, there is valid concern regarding the suitability of the proposal on the subject site.
5. Noise Impact The noise impact from the proposed events would be enormous for a quiet residential area.	Amplified music, dancing, singing and the like is not addressed as generating significant noise in the submitted Acoustic Report. Given the proposed cultural activities and events to occur on the site, and the open (non-enclosed) nature of the proposed awning that would accommodate such activities, these aspects are considered to generate significant acoustical impact to adjoining neighbours to the site, and others in the nearby area. See discussion under the C12 Noise and Vibration section of the report for more information.

6. Nuisance to Neighbours, Council and Police The proposal would result in many complaints made by local residents, which would have flow on impacts on local Council and local Police services.	Acoustical impacts and traffic impacts, which are likely to cause nuisance to adjoining neighbours and any resulting complaints made to local authorities, are amongst the main considerations of concern for the proposal.
7. Closure of Castlereagh Road for Events Castlereagh is often closed for different events that occur in the area. How would this work in relation to the operation of the proposed community centre.	Any road closures for events would be considered at the time that requests are made, at the discretion of the relevant authority, whether Council or Transport for NSW.
8. No Need for another Community Centre If a community centre is required, there is already Castlereagh Community Centre.	It is acknowledged that Castlereagh Community Centre is not far from the subject site/area. However, a 'Community Facility' is permitted in the RU1 zone with consent. Assessment under Section 4.15 of the Act determines whether such development is suitable for a particular site, and it is unlikely to be refused based on that fact alone, being the presence of other community centres in the area.
9. Inconsistent with Penrith LEP and Zone Objectives The proposal does not align with many clause of Penrith LEP, nor the objectives of the RU1 zone.	Concern is raised with the proposal not aligning with provisions of the LEP, including zone objectives. See discussion under the LEP section of this report for more information.
10.Visual Impact of Proposal The proposed noise barriers are not in keeping with the rural character of the area.	The approximately 300m long, 1.8-2.1m high colourbond noise barriers are assessed as creating a significant visual impact to the scenic landscape values and character of the area.

11. No Street Lights Along Kooringal Drive There is no street lighting along Kooringal Drive, which may have safety and security issues relating to the community centre.	It is noted that Kooringal Drive is a small rural road with no kerb and gutter infrastructure nor street lighting. Further to this, no lighting is shown on the plans in car park areas or other areas for public use. Given the traffic, congestion and parking concerns for the application, and liklihood of the development's reliance on on-street parking, which is not supported, there are many potential safety and security issues with the proposal in its current state.
12. Impact to Heritage The proposal does not respect the heritage significance of the Agnes Banks area.	There are many heritage listed items located in the vicinity of the subject site, which is contributes to the importance of the proposal aligning with rural character through its scale and design. See discussion under the C7 Culture and Heritage section of this report for more information.
13. Relevance of a Volley Ball Court Some documentation makes reference to a volley ball court going on the site. How does this fit into rural character.	The inclusion of a volleyball court is not apparent on the submitted plans. However, this is another detail that causes concern for the consistency of plans and documentation regarding inclusion of matters referenced in the previous development application (that was withdrawn), also raising concerns surrounding permissibility, rural character and the like.
14. Frequency of Meetings/Events - Future Growth Concerns Looking up the organisation online indicates more meetings than stated in the application. Will future growth of the community centre and its associated events grow beyond what is stated by the application.	If consent was given to the proposal, it is likely that conditions of consent would be recommended in limiting the number of attendees to the site, noise generation and management, hours of operation and the like. If compliance with conditions of consent did not occur, Council would intervene with any applicable regulatory action. However, it is also noted that in the meantime, neighbouring properties are likely to be negatively impacted as a result in terms of additional amenity considerations.

15. Example of Other Cultural Community Centres The application refers to similar cultural community centres. However, these are not located in rural zones.	The application gives several examples of similar cultural community facilities in the Sydney Area. These have been reviewed and listed as follows: • Croatian Community Centre: This is located in St Johns Park, in a R2/RE2 zone and includes a church. • Dalmacija Sydney Croatian Club: This is located in Terry Hills, in a RU4/RE1 zone and is surrounded by other commercial uses, with minimal sensitive receivers in close proximity to the site. • Greek Orthodox Community: This is located in a B8 Zone in Sydney City CBD. • The Australian Lebanese Christian Federation: This is located in Punchbowl, in a R2 zone, however, its a residential address and the website indicates that events occur at other venues. It is assessed that these examples are not comparable to the subject site and proposal in that they are not based in a rural-residential and agricultural context, present different stuctural forms from which their activities would take place, and do not appear to have the same impacts to sensitive receivers as the subject application does.
16. Land Value in the Area Many objectors are concerned that the proposal would decrease land values in the area due to the environmental impacts generated by the development.	Land values are not of concern to Council's assessment of the subject application. Assessment of the proposed development is done in accordance with the requirements of relevant planning legislation.

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
Environmental - Environmental management	Not supported
Environmental - Waterways	Not supported
Traffic Engineer	No objection subject to conditions
Community Safety Officer	No objections - subject to conditions
Social Planning	No objections

Building Surveyor

The subject application was referred to Council's Building team, who assessed the application, initially noting that a pre-lodgement meeting (PL19/0060) was held and some building issues were raised, which included:

- The requirement of an access report relating to the stair lift.
- Submission of a BCA Section J report.
- The proposed new awning and existing building may require hydrant and hose reel protection. It was advised that a BCA report by a building building consultant be provided at the DA submission addressing these requirements and that a "Performance Solution" could be formulated.

In the subject application, the applicant submitted the following:

- An Access report stating that access via ramps would be impracticable due to the levels of the site

and the proposal as presented would comply with the BCA.

- A Section J report advising the proposal is capable of complying with the BCA.
- That the requirement for hydrants and hose reels be deferred for review to the CC application stage.

The Building team considered that the need or otherwise for hydrants/hose reels will be determined by what the classification of the awning is considered as. If it is considered as a Class 10a then hydrants/hose reels would not be required due to the floor area.

It was noted that at this point a Construction Certificate (CC) has not been applied for and it will be the responsibility of the certifying authority issuing the CC to determine compliance of the above issues and other BCA requirements. In this case a "Performance Solution" may be provided.
As such, no objection was raised by Council's Building team subject to the recommended building conditions being included should consent be granted.

Community Safety Officer
The application was referred to Council's Community Safety Coordinator, who noted that the applicant provided some general comments regarding how the developments design incorporates CPTED principles, and recommended that the following changes occur to further enhance the safety and security of all users and minimise any potential crime risk:

- The internal floor plan within the main building does not provide good access and visual connectivity throughout the facility. The entrances to the building and various internal facilities (administration room, library etc.) must be clearly defined and signposted to ensure they can be seen and identified from the surrounding outdoor public spaces and adjacent buildings.
- That the Management Plan for the facility be revised to include details of security measures being implemented and dispute resolution procedures for the facility.

Development Engineer
The application was referred to Council's Development Engineering team, who identified that the property is impacted by the 1% AEP overland flow flood event based on Council's Overland Flow Flood Overview Study 2006 and the 1% AEP mainstream flood event based on Council's Nepean River Flood Study 2018. The existing building and the proposed development are situated outside and above the flood planning area (1% AEP flood event + 0.5m freeboard) for both the overland flow and mainstream flood events. As such, Council's Development Engineering team are satisfied the flood related development controls within the DCP have been adequately addressed.

However, the following matters of concern were also raised by Council's Engineering team:

1. There is a difference in the finished surface level of carpark area 1 on the architectural, landscape and stormwater concept plans. The plan sets must be consistent with each other.
2. All parking spaces must allow for full opening of vehicle doors in accordance AS2890.1 for User Class 2 with a minimum space width of 2.5m.
3. All parking areas must be sealed and constructed of hard standing material in accordance with Penrith DCP 2014 [although this raises visual impact concern from a Planning perspective].
4. Carpark area 1 is situated approximately 1.0m above the proposed raingarden adjacent to the carpark area. A retaining wall with an approximate height of 1.0m is proposed along the carpark and raingarden interface. Barrier protection is required on the western side of carpark 1 due to the difference in levels between the proposed raingarden and carpark area.
5. The parking aisle width of carpark 2 must be indicated on the plans in accordance with AS2890.1.
6. The proposed 1.8m high colorbond fencing on the northern boundary is located within the extent of the 1% AEP overland flowpath. The colorbond fencing must be replaced with an open style fencing for a distance of 75m from the north-western corner of the property.

As a result of the above, Council's Development Engineering team do not support the subject application. It should be noted that the above was not requested to be resolved by the applicant due to other matters of concern with the development of which this report recommends a refusal determination of the application.

Environmental - Environmental management

See discussion under the C12 Noise and Vibration and C13 Infrastructure and Services section of this report for more information.

Environmental - Waterways

The subject application was referred to Council's Waterways team, who noted that the application includes a raingarden (for stormwater treatment) and rainwater tank. However, assessed that insufficient detail was provided to demonstrate compliance with Council's Water Sensitive Urban Design Policy (WSUD).

Based on a review of the information, for the application to be supportable in this regard, additional information would be required, including:

• Provision of a WSUD Strategy prepared in accordance with Council's WSUD Technical Guidelines,
• Electronic version of the Music modelling,
• Revised concept plans which are prepared in accordance with Council's WSUD Technical guidelines. (e.g. details on vegetation as per Council's technical guidelines), underdrainage pipes not to be installed in a filter sock and are to be a rigid slotted pipes),
• Details of water conservation commitments as outlined Section 3.1 of Council's WSUD Policy.

Note: Reference should be made to Council's WSUD Technical Guidelines, which includes details to inform what is required to be provided in support of an application.

Based on the lack of information be provided as listed above, the application is not supported by Council's Waterways team.

Social Planning

Council's Social Planning team commented that, while community facilities are an important component of social infrastructure by providing meeting places for community groups to address social needs, they also raised concerns relating to the following:

- Inconsistency in the plans submitted that result in the proposed use, whether for a 'community facility' or 'place of public worship' being unclear.
- The Plan of Management submitted not addressing what process will be used to handle complaints from neighbours.
- That the driveway and car-parking areas should consider Council's Cooling the City Strategy 2016, regarding water permeability of paved surfaces and solar reflectivity, and the use of lighter coloured materials for external surfaces (such the roof).

Traffic Engineer

See discussion under the C10 Transport, Access and Parking section of this report for more information.

Section 4.15(1)(e)The public interest

The proposed development is contrary to the aims, and zone objectives, of Penrith LEP 2010. The proposed development does not comply with key clauses of Penrith DCP 2014, including those related to compatibility with local character and development standards related to noise generation and management, onsite parking provision and visual impact.

The proposal does not comply with the provisions of Chapter C City-wide Controls or Chapter D1 Rural Land Uses of Penrith DCP 2014, in particular those requiring the design of the development to be compatible with the context of the site and to have regard to the site analysis. Further, the proposed character and scale of the development is not compliant with the applicable built form controls detailed under the section.

It is for the above reasoning that approval of the development application would not be in the public interest and would also set an undesirable precedent in the locality.

Section 94 - Developer Contributions Plans

Given that the report is recommending a refusal determination, Section 7.11's and Section 7.12's do not apply in this instance.

Conclusion

In assessing this proposal against several state planning policies, Penrith Local Environmental Plan 2010 and Penrith Development Control Plan 2014, the proposal does not satisfy the various aims, objectives and provisions of these policies. Support for the application would set an undesirable precedent as the proposal has not demonstrated compliance with the relevant provisions. The application is therefore not worthy of support.

Recommendation

That DA20/0423 for the alterations and additions to an existing dwelling and change of use to a community facility with associated car parking & on-site waste water management system at 682 Castlereagh Road, Agnes Banks NSW 2753, be refused subject to the attached reasons for refusal.

CONDITIONS

Refusal

1 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 as the proposal has not demonstrated that the proposed development is permitted in the zone and that the associated structures contribute to the objectives of the RU1 Primary Production Zone of Penrith Local Environmental Plan 2010.

2 X Special 04 (Refusal under Section 4.15(1)(a)(iii) of EPA Act 1979)
The application is not satisfactory for the purpose of Section 4.15(1)(a)(iii) of the Environmental Planning and Assessment Act as the proposal is inconsistent with the following provisions of Penrith Development Control Plan 2014:

- B - DCP Principles,
- C1 Site Planning and Design Principles,
- C2 Vegetation Management,
- C3 Water Management,
- C6 Landscape Design,
- C7 Culture and Heritage,
- C10 Transport, Access and Parking,
- C12 Noise and Vibration,
- C13 Infrastructure and Services,
- D1.1 Rural Character,
  D1.2 Rural Dwelling and Outbuildings,
- D1.5 Non-Agricultural Development.

3 X Special 07 (Refusal under Section 4.15(1)(b) of EPA Act 1979)
The application is not satisfactory for the purpose of Section 4.15(1)(b) of the Environmental Planning and Assessment Act in terms of:

- Visual impact and local character,
- Noise and privacy impacts,
- Traffic congestion, hazard and parking,
- Social and economic impacts.

4 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 as the site is not suitable for the proposed development due to:

- The proposed use has not satisfactorily demonstrated permissibility as a 'Community Facility', nor demonstrated that the proposal has achieved the objectives of the RU1 zone.
- The design of the development and its streetscape presentation is not considered to be compatible with, nor complementary to, the character of the local area or the future desired character of the area.
- The proposal does not adequately demonstrate that impacts related to local character, streetscape presentation, scale, noise and amenity is adequately mitigated against nor addressed through the design of the development.

5 X Special 10 (Refusal under Section 4.15(1)(e) of EPA Act 1979)
The application is not satisfactory for the purpose of Section 4.15(1)(e) of the Environmental Planning and Assessment Act as the proposal is not in the public interest.

Appendix - Development Control Plan Compliance

Development Control Plan 2014

Part B - DCP Principles

The proposed development is contrary to the principles, commitments and objectives of the DCP. The proposal does not recognise and build on the distinctive characteristics of cities, including their human and cultural values, history and natural systems (Principle 6, Part B of Penrith DCP 2014). Clause 1.2(Principle 6)(A) references the provisions that protect the scenic and landscape character of Penrith [LGA] as being fundamental to this principle.

As explored further through the Part C and Part D Chapter sections of this report, the proposal includes both uses and physical structures/works that do not protect the scenic and landscape character of the Agnes Banks area, nor those who occupy the area. As such, the proposal is contrary to Principle 6.

Part C - City-wide Controls

C1 Site Planning and Design Principles

Clause 1.1.2(A) references particular locations in Penrith LGA that are visible from major roads and other public places and have important scenic and landscape values, as identified on the Penrith LEP 2010 Scenic and Landscape Values Map and affects the subject site (See Figure C1.1 of the Chapter for the visual representation). This Clause further states that key considerations for site analysis and the planning process is minimising likely visual impact as a result of new development.

Clause 1.2 includes applicable design principles in minimising visual impact, including:

- (b)(i) Ensuring the development is designed on a 'whole of building' approach by responding to the site's context, desired scale and character of an area, and minimising impacts on key views, scenic values and rural character; and
- (b)(iii) minimising likely bulk and scale impacts of a building/structure.

The proposal has not considered a 'whole of building' approach, as the proposed awning does not relate seamlessly with the existing dwelling i.e. there is not a continued roof-line that makes the awning appear as part of the dwelling, nor is the awning separated from the existing dwelling to appear detached. Rather, the awning reaches the same height of the top ridge-line of the existing dwelling roof, but is positioned directly against the lowest part of the existing dwelling roof. As well as covering a large area (approximately 470sqm), the resulting design and appearance of the proposed awning does not contribute positively to the site's context, desired scale nor character of the area. Also the proposed awning, and proposed colourbond fencing along the northern boundary, is likely to impact on key view and scenic values, with rural land and the Nepean River between the north and western perspectives (both from the site and from Kooringal Drive).

C2 Vegetation Management

Objectives of this Chapter include:

- Clause 2.1(B)(d) protecting and enhancing biodiversity corridors, landscape character and scenic values of the City [and LGA],
- Clause 2.1(B)(f) preserving the amenity of the City [and LGA] through the preservation of trees and other vegetation, and
- Clause 2.1(B)(g) preserving existing trees and other vegetation where possible during the planning, design, development and construction process.

The proposal includes the removal of at least 3 trees (as identified in the 'Landscape Plan'), and provision of a hardstand parking area around several other trees. Review of aerial imagery and a site inspection conducted on the 11 August 2020 identified that there are several trees in the front setback area of the site, where one of the two parking areas are proposed, that appear to be of healthy and mature appearance. No Arboricultural Report has been submitted to support the tree removal. Furthermore, it is noted that prelodgement advice by Council (PL19/0060) given for the proposal and site made reference to concern for the car parking area closest to the front corner of the site (within the front setback) which disturbs an area currently undeveloped and containing landscaping. It was recommended to be relocated as a result, which it has not

and as a result trees are proposed for removal. Whilst it is acknowledged that additional planting and screening is proposed around this parking area, it appears that consideration has not been made as per the objectives of this Chapter, in that the preservation of trees and other vegetation is not proposed during the planning and design process. Furthermore, as no aboricultural assessment has been done for the site and proposal, it is unclear whether appropriate separation distances have been provided for the trees in close proximity to the car park toward the front setback, in accordance with relevant Australian Standards. If hardstand areas are being implemented too close to trees, this has the potential to damage root zones and impact on the health of the tree, which would not be preserving trees and other vegetation through the development and construction process.

As such, the proposal does not satisfy the requirements of Chapter C2.

C3 Water Management

The property is impacted by the 1% Annual Exceedance Probability (AEP) overland flow flood event, based on Council's Overland Flow Flood Overview Study 2006 and the 1% AEP mainstream flood event based on Council's Nepean River Flood Study 2018. The existing building and the proposed development are situated outside and above the flood planning area (1% AEP flood event + 0.5m freeboard) for both the overland flow and mainstream flood events. Council's Development Engineering team reviewed the site and proposal and is satisfied that the flood related development controls within the DCP have been adequately addressed.

Furthermore, a rain-garden and rainwater tank is proposed in the application. However, insufficient detail is provided to demonstrate compliance with Council's WSUD Policy. Based on a review of the information from Council's Waterways team, additional information would be required including:

- WSUD Strategy prepared in accordance with Council's WSUD Technical Guidelines.
- Electronic version of the Music modelling.
- Revised concept plans which are prepared in accordance with Council's WSUD Technical guidelines.
- Details of water conservation commitments as outlined Section 3.1 of Council's WSUD Policy.

As such, in consideration of the above, the requirements of Chapter C3 have not been satisfied.

C6 Landscape Design

Clause 6.1.2(8)(b) states that where existing vegetation is to be retained, that vegetation must be protected from soil compaction, root, trunk and limb damage, soil contamination and changes in surface levels that affect the health of the vegetation. As noted in the C2 section of this report, no arboricultural report supports this application, and the plans indicates some tree removal through a proposed hardstand parking area with other trees nearby being retained. No distance to the trees being retained have been provided and, as such, no certainty is provided as to the proper retention of nearby trees in accordance with the relevant standards.

As such, the requirements of Chapter C6 have not been satisfied.

C7 Culture and Heritage

The subject site is in proximity to several heritage listed items as per Schedule 5 of Penrith LEP 2010, as referenced in the Site and Surrounds section of this report.

Clause 7.1.5(A) of this Chapter states that a development in the vicinity of a heritage item or conservation area must be assessed to determine whether it will have any impact on the significance and visual setting of that item or area. This Chapter also references Heritage Impact Statements being lodged for applications in the vicinity of heritage items.

Whilst the submission of a Heritage Impact Statement is considered onerous for the subject application, the amount of nearby heritage listed items signifies the importance for development to achieve rural character and landscape values through the land use, scale and design proposed. As mentioned throughout the report, the proposal includes fencing, awning additions

and excessive car parking areas that do no align with the scenic landscape values nor rural character of surrounding properties.

As such, the proposal does align with the provisions of Chapter C7.

C10 Transport, Access and Parking
The application was supported by a Traffic Impact Study, prepared by Henson Consulting, dated February 2018, and addendum letter also from Henson Consulting dated 24 June 2020. These documents were assessed by Council's Traffic Engineering team, who had no objection to the proposed parking, access and circulation, and traffic generation as a result of the development, subject to conditions and assuming that the information provided by the Traffic study is correct.

Notwithstanding, it is considered that this amount of onsite parking is not enough with a maximum of 200 people attending the site and no overflow parking being provided for the site. Further to this, the separation of on-site parking areas does not assist in appropriate traffic management during large events.

Overflow parking does not appear possible on the subject site due to the proposed raingarden, OSSM disposal areas and the topography of the site, amongst other site restrictions. As a result, it is likely that any overflow parking would occur along Kooringal Drive, which is a rural road with no kerb and gutter, which cannot accommodate such parking occurring. This overflow parking would also introduce congestion and hazards to other users of Kooringal Drive.

On-street parking has previously occurred along Kooringal Drive as noted through objections received for the application, and also noted through previous Council Compliance team action that occurred on the site.

As such, it is unlikely that an onsite parking provision could be resolved based on the number of attendees expected for the community facility during scheduled events. The proposal does not satisfy the requirements of Chapter C10.

C12 Noise and Vibration
The general objective of this Chapter is to ensure that future development that generates noise or vibration does not adversely affect the amenity of surrounding land uses.

The application was supported by an Acoustic Report, prepared by Acoustic, Vibration & Noise Pty Ltd, reference 2018-508 and dated 12 June 2020. In this report, amplified music, dancing, singing and the like is not addressed as generating significant noise. Given the proposed cultural activities and events to occur on the site, and the open (non-enclosed) nature of the proposed awning that would accommodate such activities, these aspects are considered to generate significant acoustical impact to adjoining neighbours to the site, and others in the nearby area.

The acoustic report recommends a significant amount of sound barrier fencing to reduce noise impact. The sound barrier is not supported due to visual impacts.

Council's Environment Team reviewed the Acoustic Report and noted a technical matter, where the report identifies a noise exceedance of 3dB(A) when patrons are entering and leaving the premises. The report recommends using an usher to mitigate the noise impacts. Council cannot regulate nor enforce such a recommendation and, therefore, this is not a suitable noise mitigation method.

As such, the proposal does not satisfy the requirements of Chapter C12.

C13 Infrastructure and Services
Clause 13.3(B) includes objectives for On-site Sewage and Wastewater Management systems that reflect those for Council's On-Site Sewage Management and Greywater Reuse Policy, in the proper management of such systems that do no negatively impact on occupiers of a site or adjoining properties.

The application was supported by a Wastewater report, prepared by Envirotech, reference REF-17-4422 and dated 18 July 2017, which detailed the proposed installation of a commercial sewage treatment plant designed to treat effluent at a daily rate of 1750L per day, which would dispose of treat effluent into an absorption bed of a suitable size (as assessed).

Note: Many objectors raised concern that the amount of effluent and stormwater run-off from the proposal could potentially contaminate the dam at the rear of the property, which in turn could lead to contaminants reaching the Nepean River and beyond. This matter was discussed with Council's Environment team who stated that it is very unlikely that stormwater and effluent run-off would contaminate the dam at the rear of the site as there is a 100m buffer distance between the disposal areas and the dam. This exceeds Council's minimum requirement of 60m, as per the above mentioned Policy. It was further noted that should the absorption bed fail in the future, the likelihood of the dam becoming contaminated is still very low.

Council's Environment Team reviewed the proposed sewage treatment plant, and whilst the waste water report's recommendations are satisfactory, further information is required to clarify the treatment process, including the system specifications for the proposed tanks.

As such, the proposal has yet to satisfy the requirements of Chapter C13.

D1 Rural Land Uses

1.1 Rural Character

Clause 1.1(B) & (C) refer to objectives and controls that include preserving the rural character of the City of Penrith, and that all development should seek to retain and protect the scenic, landscape and rural character of the Penrith LGA. Where relevant, applicants are required to provide more detail studies including, but not limited to, a Visual Impact Assessment.

First, the proposal includes, in addition to alterations to the existing dwelling, construction of a 306m long colourbond fence, ranging from 1.8m to 2.1m in height (50/50 distribution) along the entire northern boundary of the site. Boundary fencing in the area is characterised by low, open style rural fencing.

Second, the proposal includes construction of a 4.1m high awning, covering an approximate 470sqm area, to be positioned directly against the existing dwelling. Only standard architectural plans (such as site plans, floor plans and elevations) have been provided, with no 3D perspective provided to illustrate the resulting appearance of the development. Based on the standard architectural plans submitted, it is unclear whether the design of the large awning relates to the architectural form, and the awning being of a design, bulk and scale beyond its rural-residential context.

Third, the proposal includes 2 x hardstand parking areas for 65 parking spaces that covers approximately 1,800sqm in area. One of these areas is within the front setback area of the site and requires the removal of some mature vegetation to accomodate the parking area.

The above aspects for the proposal are reflective of development that is suited to Zones where more commercial development is likely to occur and be supported. The design and scale of the development does not preserve the rural character of the Agnes Banks area, nor does it retain/protect the scenic, landscape and rural character of the area.

Therefore, the proposal does not comply with Clause 1.1 of Chapter D1 of Penrith DCP 2014.

1.2 Rural Dwelling and Outbuildings

Clause 1.2(A) states that all development [in rural areas] should take into account the inherent rural character of a locality and be responsive to that character and local landscape qualities. Outbuildings are also an integral part of rural life and activities, and includes carports, gazebos and the like (including awnings). Although the proposal is for the change of use from a dwelling to a 'community facility', the site includes an existing dwelling, and therefore in the interest of maintaining the rural character of the development and site, the controls for rural dwellings and associated development should be considered.

Concern is raised for the proposal with regard to the following controls for this section:

- Clause 1.2.1(B)(2)(e) states that all roof line and ridge lines should reflect the setting of the dwelling, incorporating simple shapes to step a building down with a sloping site or level change. The proposed 4.1m high awning is proposed to be directly against another awning attached to the existing dwelling. Whilst the ridge-line of the top of the awning and dwelling are the same height, the portion of the dwelling roof-line that abuts the awning is approximately 1m lower than the edge of the awning. As such, the awning does not reflect, nor respect, the setting of the dwelling, and rather imposes a structure that towers over the rural dwelling.
- Clause 1.2.4(2)(a) states that the design of dwellings and associated structures should be sympathetic to the rural character of the area. Given the concerns raised under 1.1 Rural Character, the design of the associated structures around the existing dwelling is assessed as not being sympathetic to the rural character of the area.

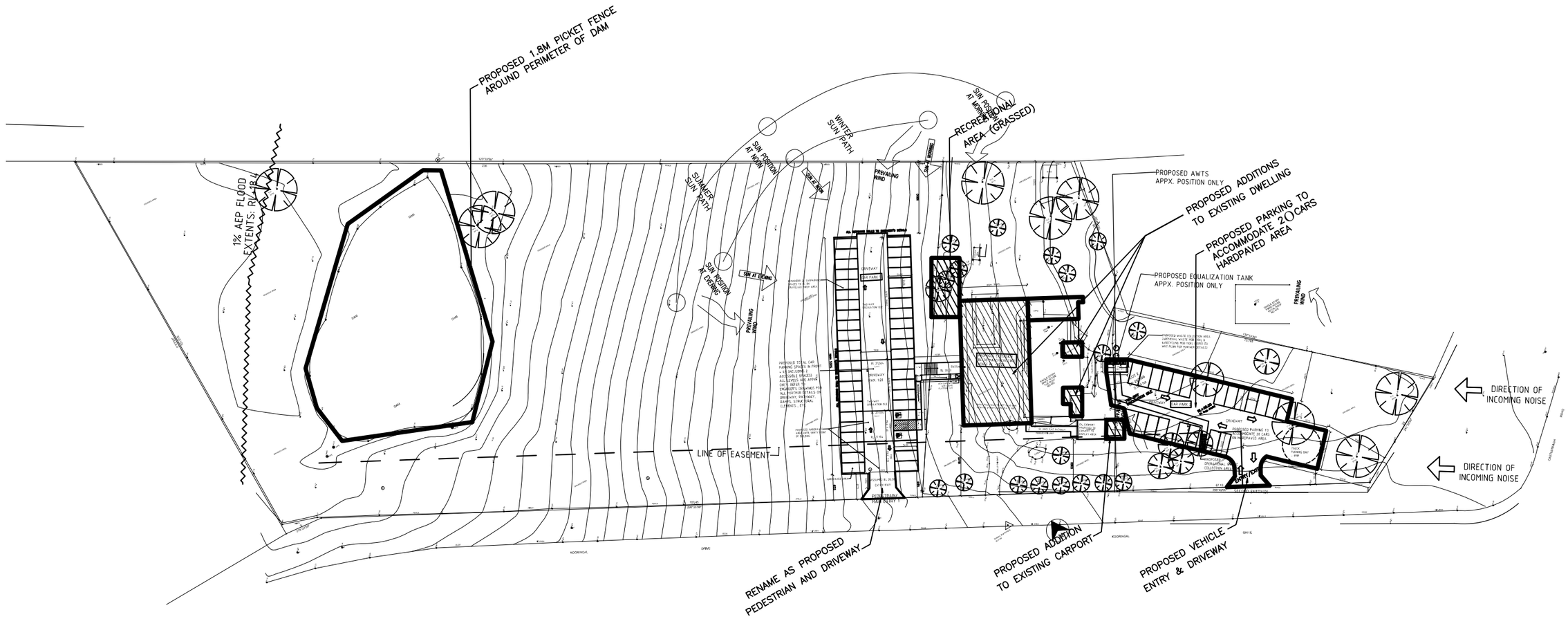
As such, the proposal does not satisfy the provisions of these controls.

1.5 Non-Agricultural Development

Clause 1.5.1(1)(a) states that non-agricultural development must demonstrate that (i) there will be no significant visual impacts from either the main activity or associated activities on the rural area or adjacent properties and that (ii) the development will achieve noise control standards established by relevant authorities. As mentioned above, the extensive amount of colourbond fencing, awning and car parking areas will have a cumulatively negative impact to the scenic landscape values for the area, which is characterised by rural-residential, agricultural development, with the Nepean River nearby to the north-west and Agnes Banks Nature Reserve nearby to the south.

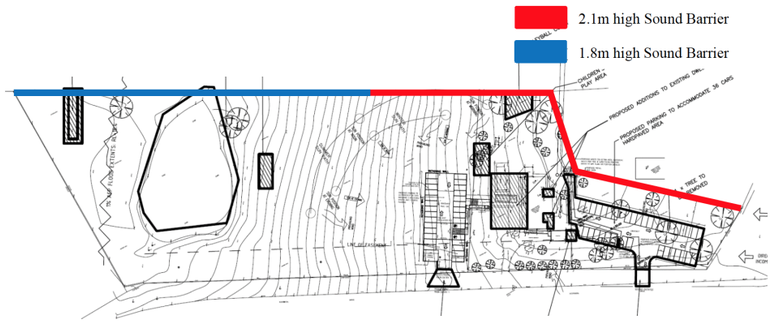
Clause 1.5.1(2)(a) states that structures associated with any use shall be designed with regard to the rural character of the area and the form and scale of buildings on rural land surrounding the site and that (b) bulky buildings of industrial character are not favourable. Rural land surrounding the site includes neighbouring properties where predominantly rural-residential dwellings and agricultural land uses are scattered across the landscape. Whilst there are some farm sheds that are of a comparable scale to the proposed awning for the subject site, these fit into their context of agricultural activities that occur on these sites. The adjoining properties, and other nearby in the area, do not include any extensive hardstand car parking areas, nor extensively long colourbond boundary fencing, nor large 470sqm awnings attached to dwellings, all of which are of a design and scale more suited to commercial/industrial sites.

As such, the the proposal is not assessed as aligning with the provisions for non-agricultural development.



SITE PLAN 1:1000

SITE ANALYSIS PLAN

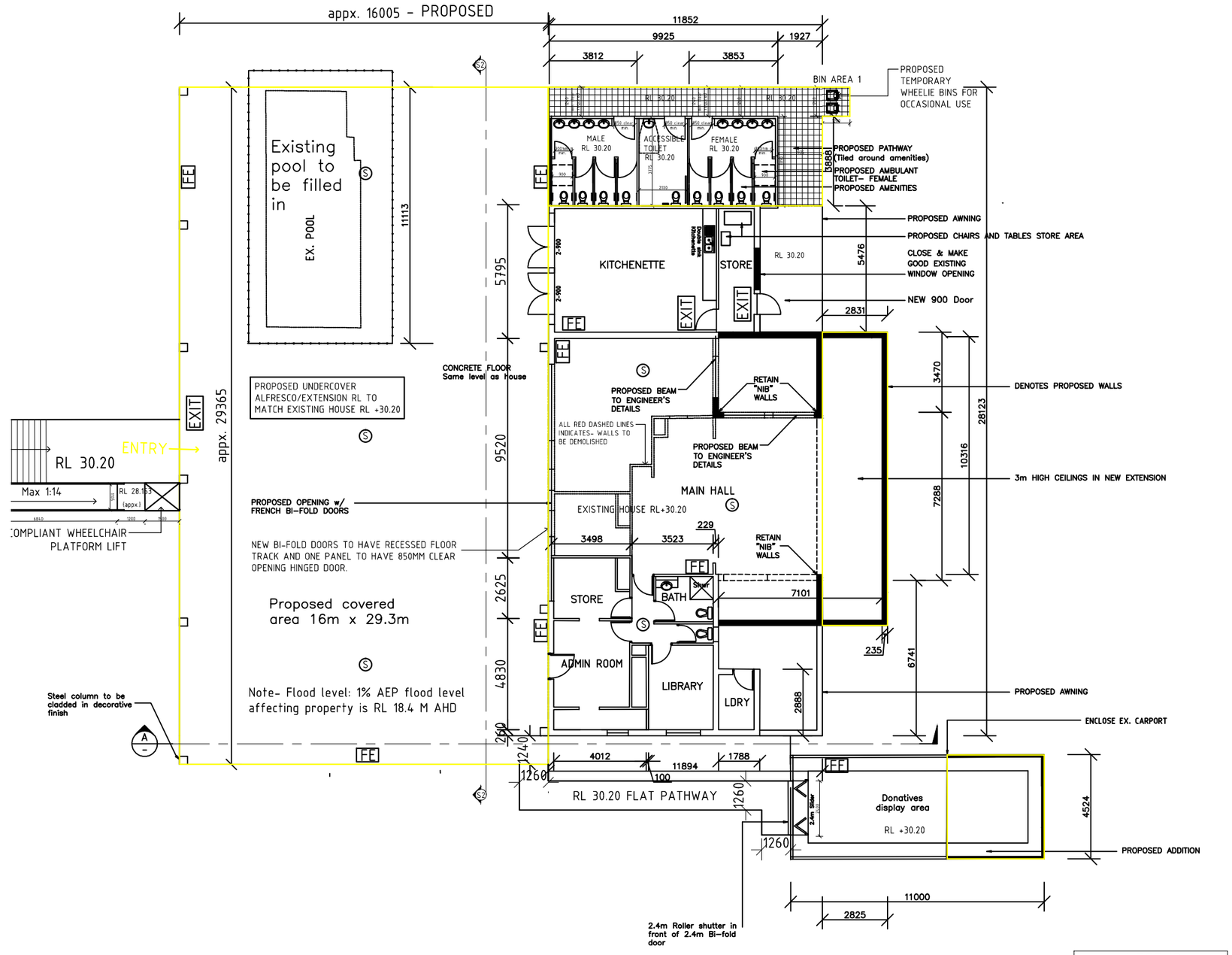


Proposed colorbond fence in accordance with acoustic report recommendation.

GENERAL NOTES

- ALL DRAWINGS ARE PREPARED BASED ON THE SUPPLIED INFORMATION BY THE CLIENT AND ARE BASED ON PROVIDED PREVIOUS SET OF DRAWINGS DONE BY OTHER PROFESSIONALS. DESIGN BY RJV DISCLAIMS ACCURACY OF ALL DRAWINGS AT ALL TIMES. VERIFY DIMENSIONS AND COMPLIANCE ON SITE PRIOR TO START OF ANY WORKS.
- SMOKE DETECTORS TO BE INSTALLED AS PER BCA REQUIREMENTS.
- ALL LAND LEVELS ARE APPROXIMATE ONLY BASED ON SURVEY PLAN. VERIFY COMPLIANCE PRIOR TO START OF ANY WORKS.
- ALL REVISED DIMENSIONS & LAND LEVELS ARE APPROXIMATE ONLY. REFER TO ENGINEERING DRAWINGS FOR FURTHER DETAILS.
- DRAWINGS TO BE READ IN CONJUNCTION WITH THE SPECIFICATIONS AND STRUCTURAL ENGINEERS DRAWINGS. VERIFY ALL DIMENSIONS ON SITE PRIOR TO CONSTRUCTION.

DRAWN BY	NOTES	NOTES	AMENDMENTS	DRAWING DETAILS		PROJECT DETAILS
DESIGN by RJV Drafting Services	• Drawings are not be scaled. • All dimensions, levels, sewer and stromwater invert levels, doors and window sizes & styles, to be checked and verified by builder on site prior to commencement of any work and prior to ordering any materials. • Drawings to be read in conjunction with the specifications and structural engineers drawings. • All work has to be carried out to meet all requirements of the Building Code of Australia, local council DCP and LEP's, relevant	Australian Standards and any other relevant authorities. • All structural work including Slabs, walls, beams, roof etc are indicative only and have to be constructed according to a qualified structural engineers drawings. • Sizes of doors and windows indicate wall opening sizes. • All BASIX requirements need to be followed. • Provide smoke detectors as per BCA requirements. • The drawing has been made as directed by the client. • 'DESIGN by RJV' is not liable for any copyright breach.	20-11-18 - Amended Drawings for Council approvals 18-05-20 - Amended Drawings for Council approvals	SITE PLAN- SITE ANALYSIS PLAN		PROJECT: CULTURAL CENTER LOCATION: 682 CASTLEREAGH ROAD, AGNES BANK, NSW
				DATE: 20/11/2018	DWG NO: D 1	APPLICANT: VAISHNAV SANGH OF SYDNEY
EMAIL: designbyrjv@outlook.com				SCALE: AS SPECIFIED	SHEET SIZE: A3	CONTACT NO.: --



LEGEND
S - SMOKE DETECTOR
FE - FIRE EXITINGUISHER
EXIT- FIRE EXITS

FLOOR PLAN 1:500

GENERAL NOTES

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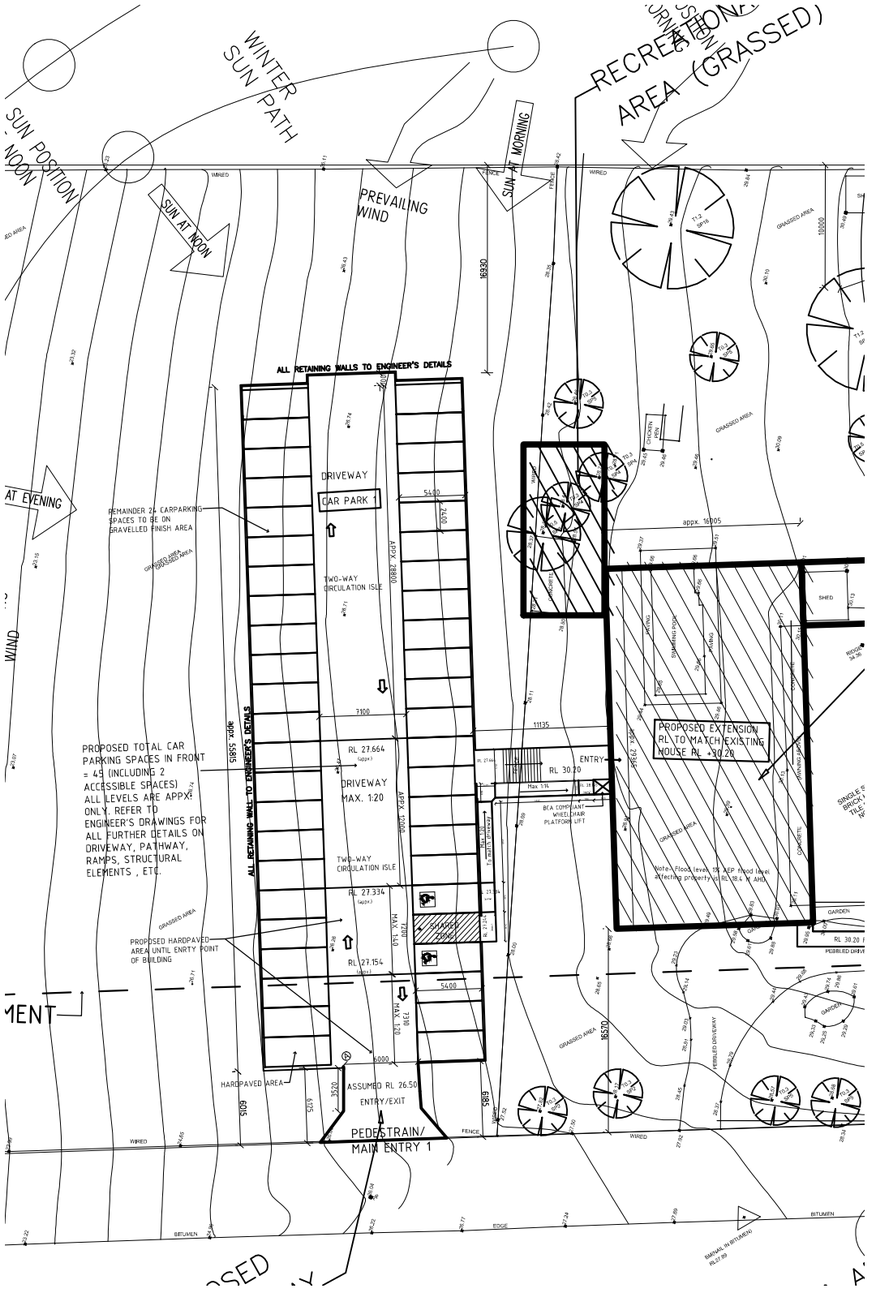
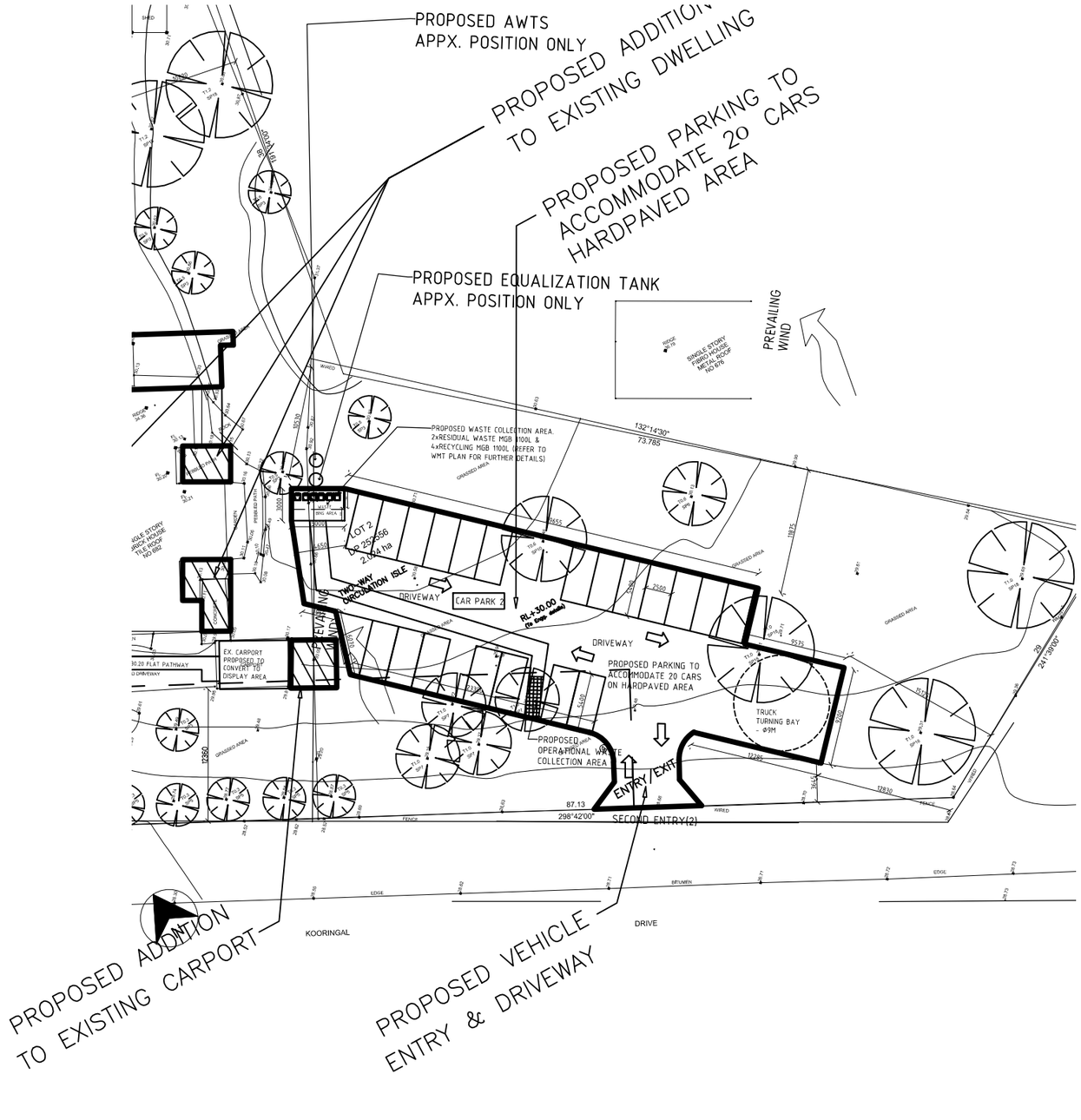
EMAIL: designbyrjv@outlook.com				DATE: 20/11/2018	DWG NO: D 2	APPLICANT: VAISHNAV SANGH OF SYDNEY
				SCALE: AS SPECIFIED	SHEET SIZE: A3	CONTACT NO.: --



CAR PARK 1 (FRONT)- FLOOR PLAN 1:500



CAR PARK 2 (REAR)- FLOOR PLAN 1:500

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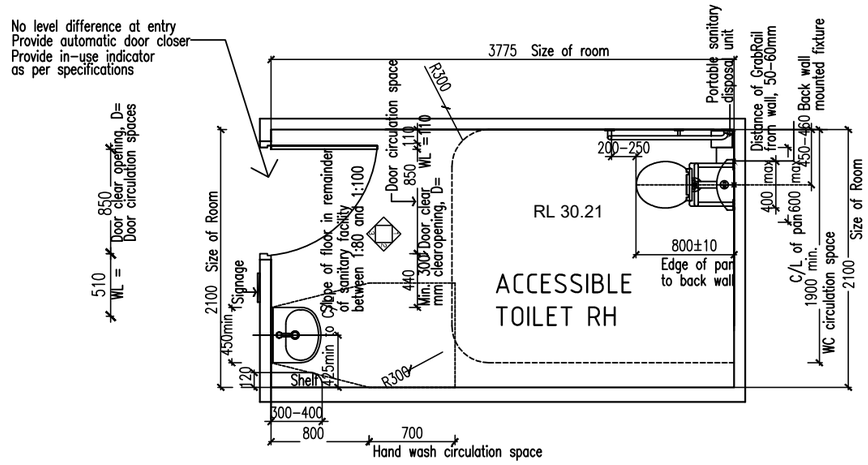
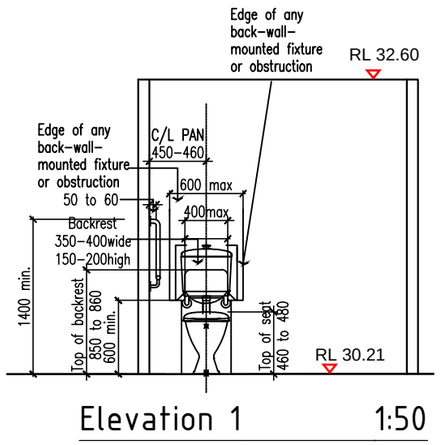
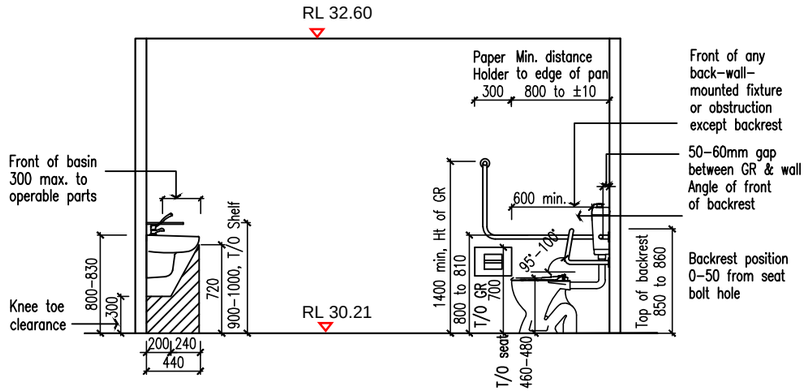
EMAIL: designbyrjv@outlook.com				DATE: 20/11/2018	DWG NO: D 3	APPLICANT: VAISHNAV SANGH OF SYDNEY
				SCALE: AS SPECIFIED	SHEET SIZE: A3	CONTACT NO.: --



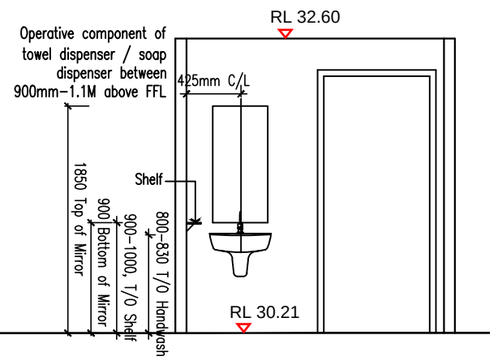
Accesible Toilet- Floor plan 1:50



Elevation 1 1:50



Elevation 2 1:50



Elevation 3 1:50

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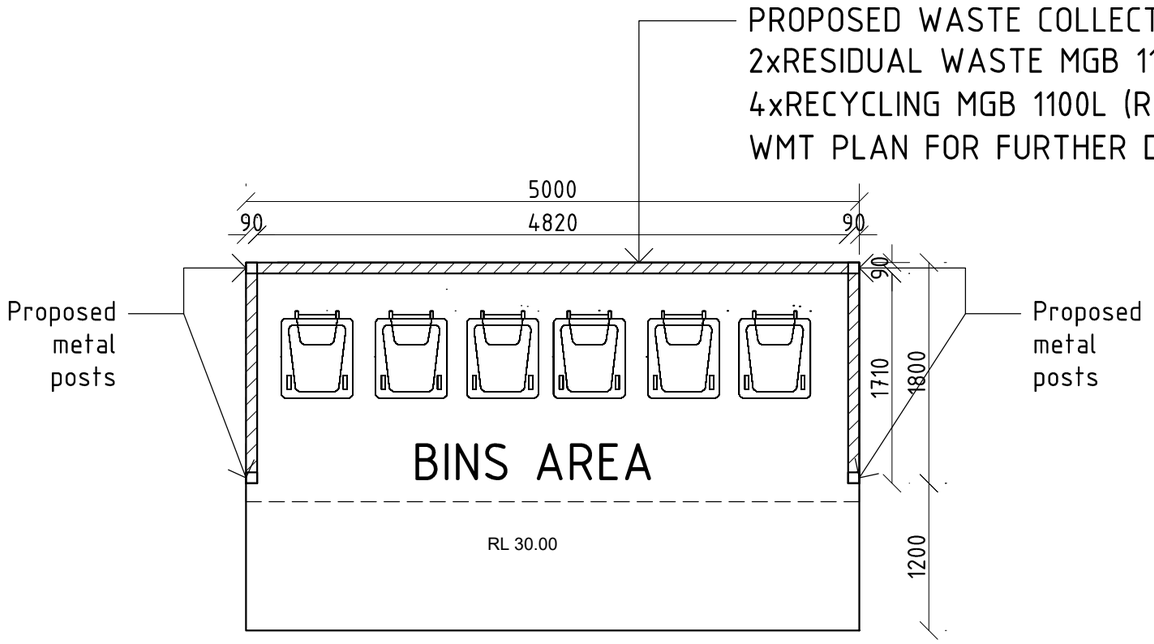
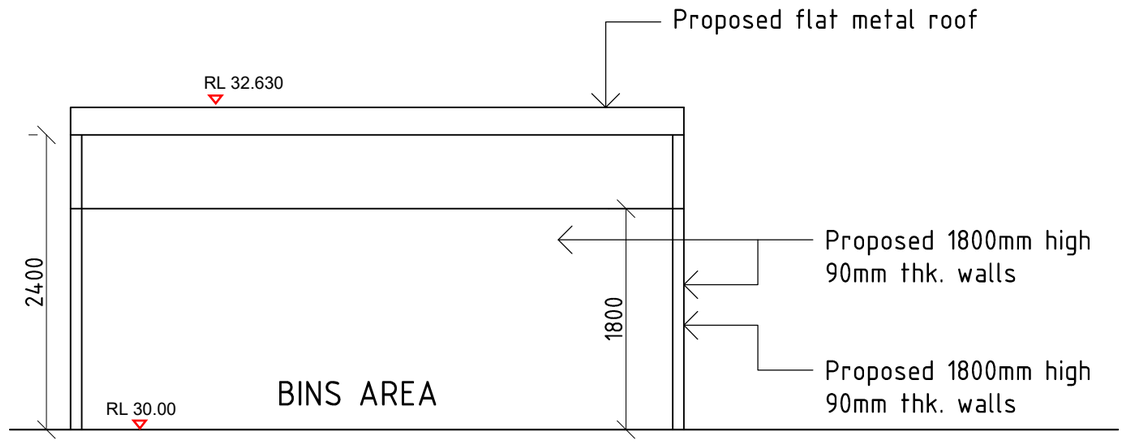
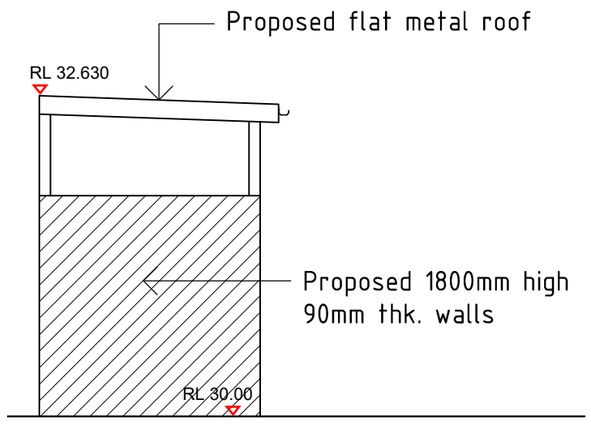
EMAIL: designbyrjv@outlook.com				DATE: 20/11/2018	DWG NO: D 4	
				SCALE: AS SPECIFIED	SHEET SIZE: A3	



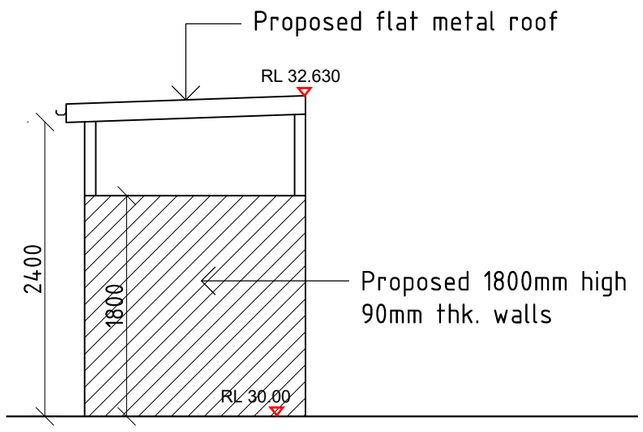
BIN AREA 2- FLOOR PLAN 1:50



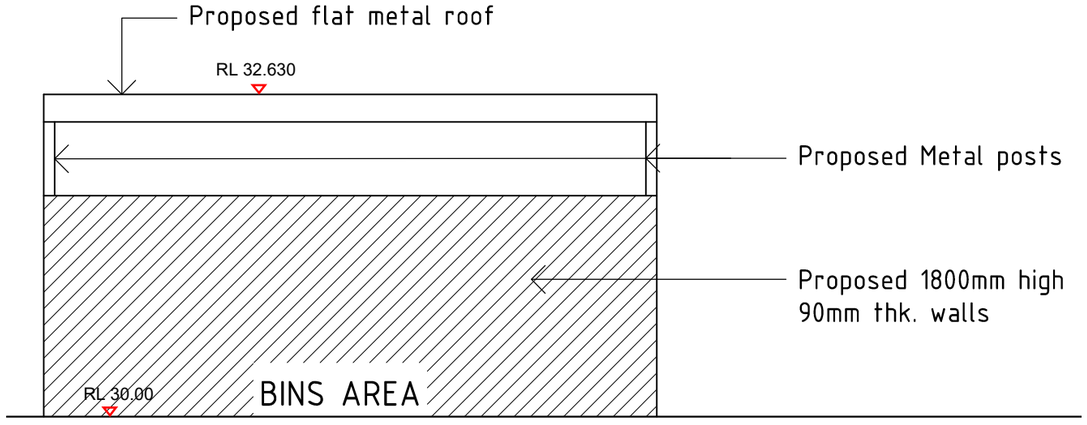
BIN AREA 2- FRONT ELEVATION 1:50



BIN AREA 2- SIDE ELEVATION 1:50



BIN AREA 2- SIDE ELEVATION 1:50



BIN AREA 2- REAR ELEVATION 1:50

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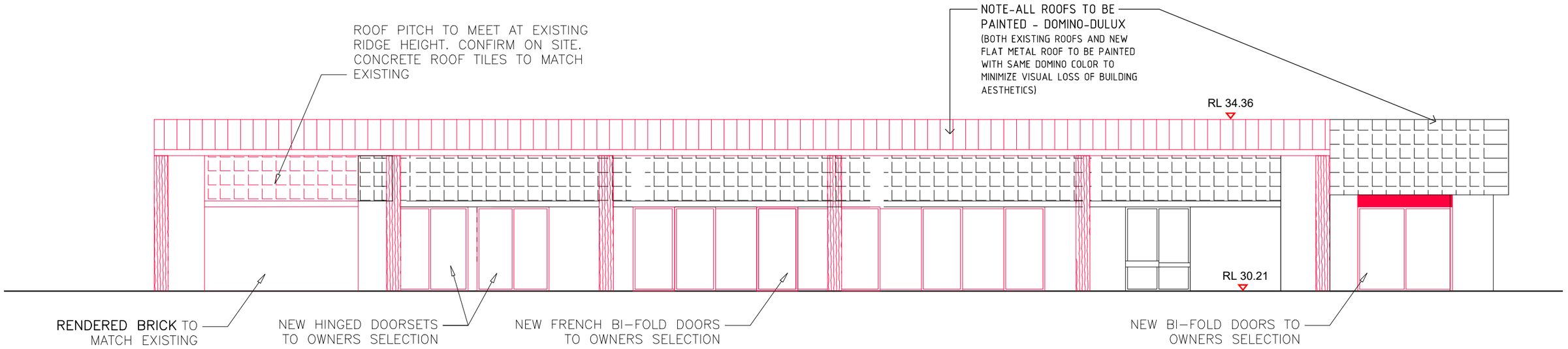
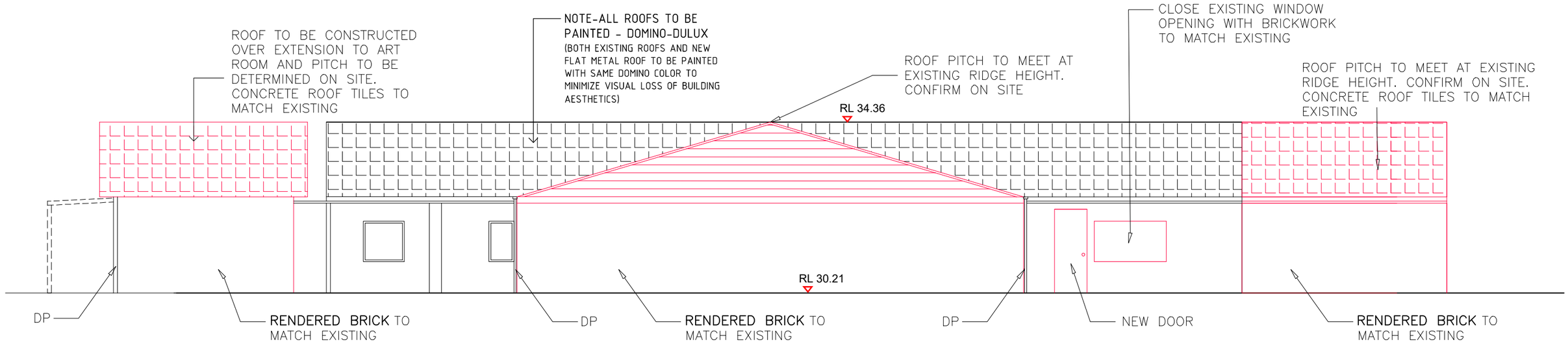
				DATE: 20/11/2018	DWG NO: D 5	
EMAIL: designbyrjv@outlook.com				SCALE: AS SPECIFIED	SHEET SIZE: A3	APPLICANT: VAISHNAV SANGH OF SYDNEY CONTACT NO.: --



NORTH-WEST/FRONT ELEVATION 1:100



SOUTH-EAST/REAR ELEVATION 1:100

FINISHES SCHEDULE

Hog Bristle — EXTERNAL WALLS - CLADDED WALL FINISH PAINTED WITH HOG BRISTLE - DULUX. ALL EXISTING EXTERNAL WALLS PROPOSED TO BE RENDERED WITH SAME PAINT FINISH.

NEW WINDOWS AND DOORS - TO BE PAINTED IN MONUMENT (CHARCOAL GREY)-DULUX

Domino — ROOF TO BE PAINTED - DOMINO-DULUX
NOTE-ALL EXISTING ROOFS AND NEW FLAT METAL ROOF TO BE PAINTED WITH SAME DOMINO COLOR TO MINIMIZE VISUAL LOSS OF BUILDING AESTHETICS)

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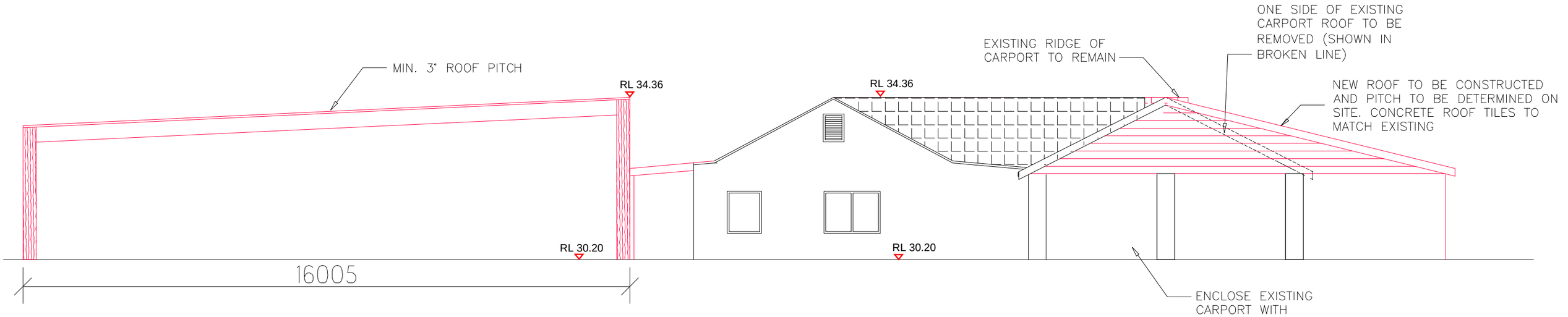
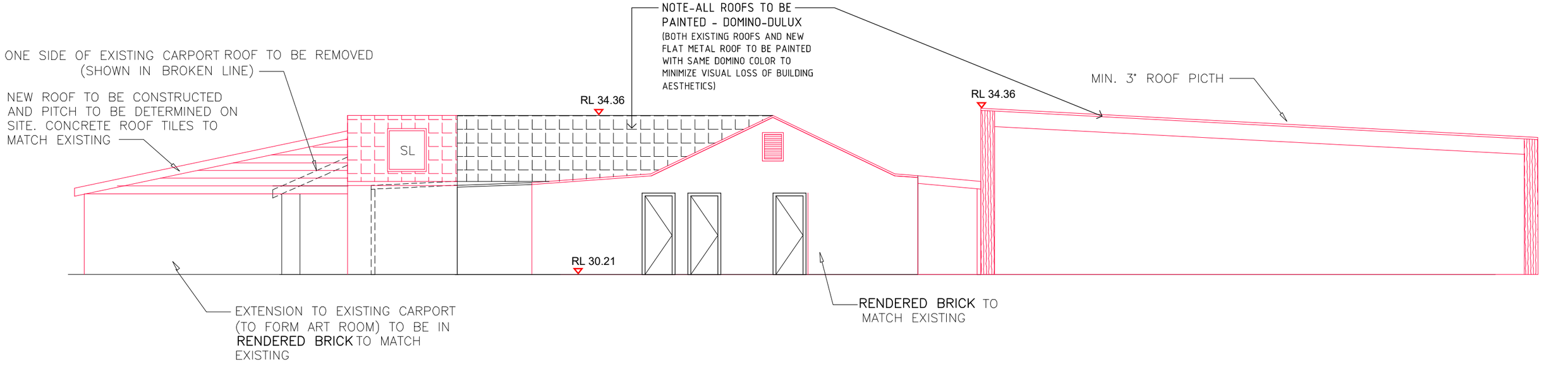
EMAIL: designbyrjv@outlook.com				DATE: 20/11/2018	DWG NO: D 6	
				SCALE: AS SPECIFIED	SHEET SIZE: A3	



SOUTH-WEST ELEVATION 1:100



NORTH-EAST ELEVATION 1:100

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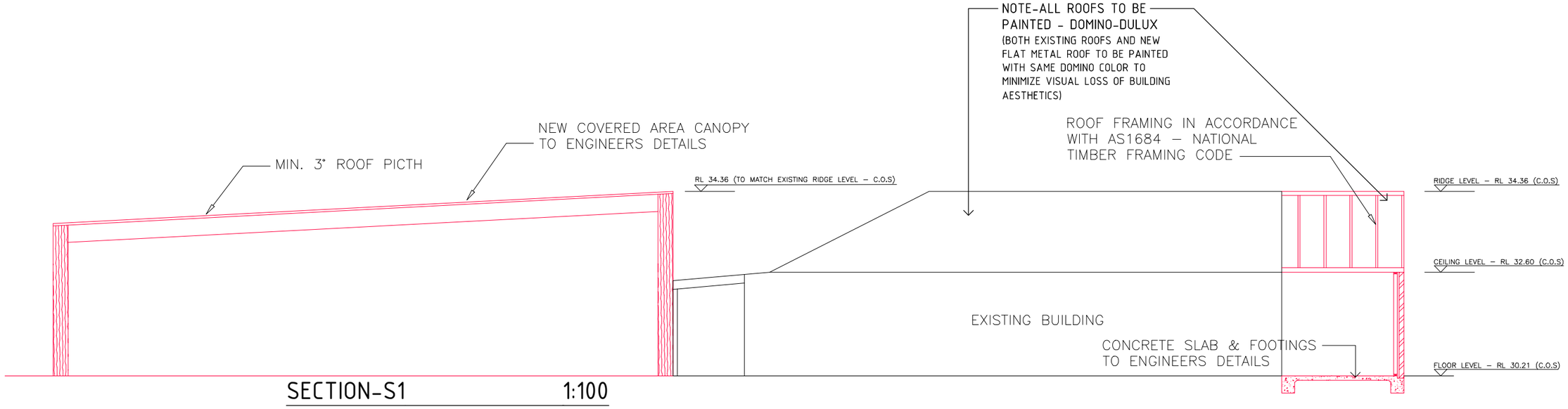
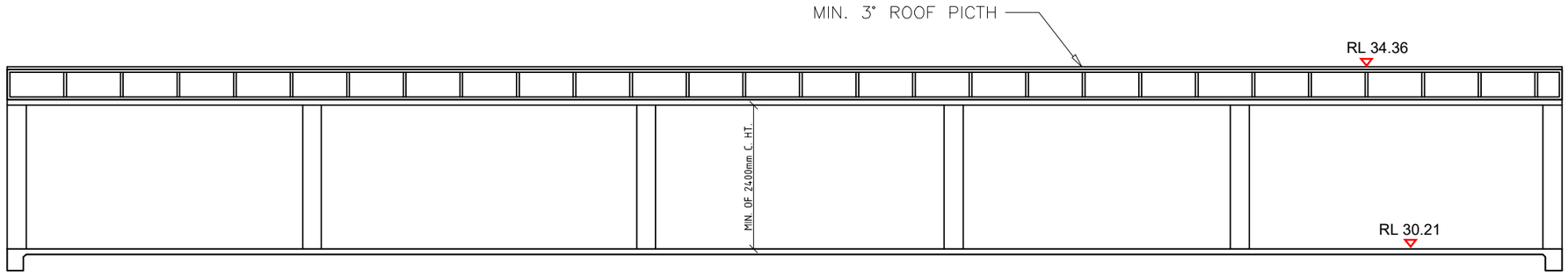
EMAIL: designbyrjv@outlook.com				DATE: 20/11/2018	DWG NO: D 7	
				SCALE: AS SPECIFIED	SHEET SIZE: A3	



SECTION-S1 1:100



SECTION-S2 1:100

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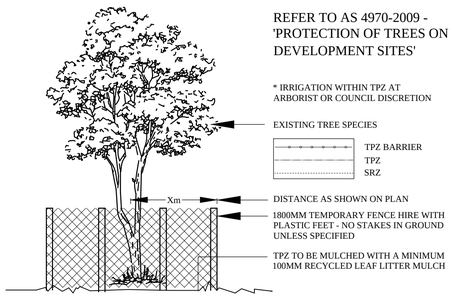
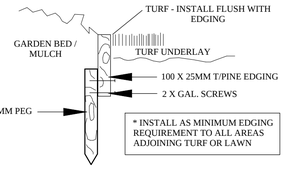
EMAIL: designbyrjv@outlook.com				DATE: 20/11/2018	DWG NO: D 8	
				SCALE: AS SPECIFIED	SHEET SIZE: A3	



TYPICAL TREE PROTECTION DETAIL - (NTS)

(IF NO ARBORIST REPORT REQUIRED)



TYPICAL EDGING (NTS)

PLANT SCHEDULE

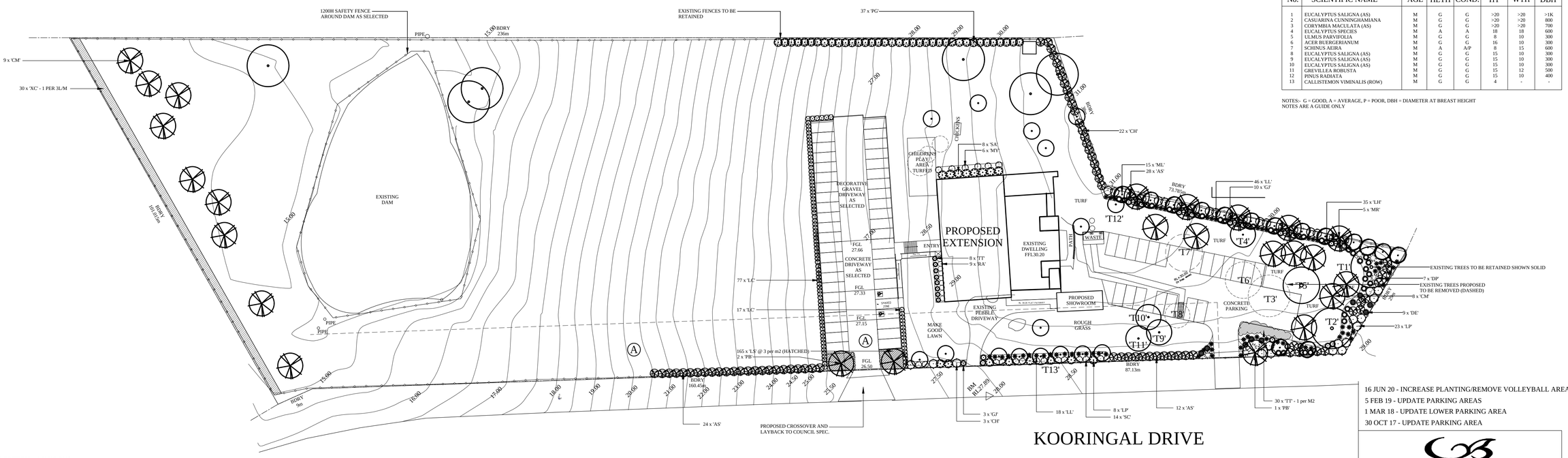
BOTANIC NAME	KEY	QTY	POT SIZE	HT (M)
TREES				
CORYMBIA MACULATA (SPOTTED GUM)*	CM	14	45L	10+
PYRUS 'BRADFORD' (FLOWERING PEAR)	PB	3	45L	5-10
MELALEUCA LINARIFOLIA (SNOW IN SUMMER)*	ML	15	45L	5-10
SHRUBS				
ACMENA 'SUBLIME' (LILLY PILLY)*	AS	64	200MM	3-5
TRACHELOSPERMUM TRICOLOUR	TT	38	150MM	GC
DORYANTHES EXCELSA (GYMEA LILY)*	DE	9	200MM	1.5
DORYANTHES PALMERI (GIANT SPEAR LILY)*	DP	7	200MM	2
GREVILLEA JUNIPERIANA (GREVILLEA)*	GJ	13	200MM	1.5
LEPTOSPERMUM PETERSONII (LEMON SCENTED TEA TREE)*	LP	31	200MM	4
LIRIOPE 'SAMANTHA' (LIRIOPE)	LS	165	150MM	0.3
LOMANDRA HYSTRIX (FLOWERING MAT RUSH)*	LH	25	150MM	1.5
LOMANDRA LONGIFOLIA (MAT RUSH)*	LL	64	150MM	1.2
MELALEUCA 'GREEN REVOLUTION' (PAPERBARK)*	MR	5	200MM	3
LEPTOSPERMUM 'CARDWELL' (TEA TREE)*	LC	94	200MM	1
MYOPORUM PARVIFOLIUM (CREEPING BOOBIALLA)*	MY	8	150MM	0.1
PHOTINIA GLABRA 'RUBENS' (PHOTINIA)	PG	37	200MM	2.5
RAPHIOLEPSIS 'APPLE BLOSSOM'	RA	9	150MM	1.5
SYZYGIUM 'AUSSIE COPPER' (LILLY PILLY)*	SA	8	200MM	3
XYLOSMA CONGESTUM	XC	30	200MM	3-5
CALLISTEMON 'HANNAH RAY' (BOTTLEBRUSH)*	CH	25	200MM	3
SPIREA CANTONIENSIS (MAY BUSH)	SC	14	200MM	2

* = NATIVE SPECIES

SCHEDULE OF EXISTING TREES

No.	SCIENTIFIC NAME	AGE	HLTH	COND.	HT	WTH	DBH
1	EUCALYPTUS SALIGNA (AS)	M	G	G	>20	>20	>1K
2	CASUARINA CUNNINGHAMIANA	M	G	G	>20	>20	800
3	CORYMBIA MACULATA (AS)	M	G	G	>20	>20	700
4	EUCALYPTUS SPECIES	M	A	A	18	18	600
5	ULMUS PARVIFOLIA	M	G	G	8	10	300
6	ACER BUERGERIANUM	M	G	G	16	10	300
7	SCHINUS AEIRA	M	A	A/P	8	15	600
8	EUCALYPTUS SALIGNA (AS)	M	G	G	15	10	300
9	EUCALYPTUS SALIGNA (AS)	M	G	G	15	10	300
10	EUCALYPTUS SALIGNA (AS)	M	G	G	15	10	300
11	GREVILLEA ROBUSTA	M	G	G	15	12	500
12	PINUS RADIATA	M	G	G	15	10	400
13	CALLISTEMON VIMINALIS (ROW)	M	G	G	4	-	-

NOTES:- G = GOOD, A = AVERAGE, P = POOR, DBH = DIAMETER AT BREAST HEIGHT
NOTES ARE A GUIDE ONLY



KOORINGAL DRIVE

TYPICAL PLANT SELECTION CRITERIA - AS2303-2015
'TREE STOCK FOR LANDSCAPE USE' FOR FULL SPEC.

ENSURE GOOD HEALTH AND VIGOUR. ENSURE FREEDOM FROM PESTS, DISEASES AND INJURY.

SPECIMENS SHOULD BE SELF SUPPORTING AT TIME OF PLANTING - STAKING ONLY TO BE USED WHEN NECESSARY- 1 GROWING SEASON MAX.

ENSURE EVIDENCE OF STEM TAPER - (INCREASE IN CALIPER DOWN THE STEM).

PRUNING:-
*ENSURE CLEAN STEM HEIGHT DOES NOT EXCEED 40% OF PLANT HEIGHT.
*ENSURE CUTS ARE AT BRANCH COLLAR ARE CLEAN WITH NO TEARS.

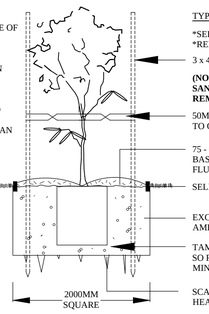
ENSURE APICAL DOMINANCE FOR TREES WITH TYPICAL EXCURRENT FORM - LEADER DEVIATION <15%.

ENSURE GOOD CROWN SYMMETRY AND SOUND STEM JUNCTIONS - NO INCLUDED BARK.

ENSURE SPECIMENS / BATCHES ARE CLEARLY LABELED - NOTING SPECIES CULTIVAR / VARIETY.

ENSURE SPECIMENS ARE FREE OF GIRDLING AND SUCKERING ROOTS.

ENSURE TRUNK POSITION IS WITHIN 10% OF POT CENTRE. IF TREE IS GRAFTED ENSURE SCION AND ROOTSTOCK ARE SOUND.



TYPICAL PLANTING CRITERIA

*SEEK ADVICE BEFORE SUBSTITUTING SPECIES
*REPLACEMENTS TO BE MADE WITHIN 12 MONTHS

3 x 40MM HARDWOOD STAKES AS REQUIRED. DON'T PIERCE ROOT BALL

(NOTE:- ONLY REQUIRED IN WINDY ENVIRONMENTS, VERY SANDY SOIL AND VERY WET CLAY - IF STAKING REQUIRED - REMOVE AS SOON AS PRACTICALLY POSSIBLE).

50MM WIDE JUTE WEBBING - TWIST ONCE AND GAL. STAPLE TO OUTSIDE OF STAKE. ENSURE TREE HAS AMPLE MOVEMENT

75 - 100MM SELECTED MULCH - DISH AROUND BASE OF TRUNK. TOP OF ROOT BALL TO FINISH FLUSH WITH TOP OF SOIL

SELECTED EDGING - REFER TO DETAIL

EXCAVATE HOLE AND INCORPORATE SOIL AMENDMENTS TO 30% MAX. IF REQUIRED.

TAMP SOIL GENTLY AROUND AND BENEATH ROOT BALL SO ROOT BALL DOES NOT MOVE - WATER WEEKLY FOR MINIMUM 4 WEEKS TO ESTABLISH.

SCARIFY SUB SOIL AND SIDES TO 100MM MINIMUM IN HEAVY CLAY SOILS. MAY BE REQUIRED TO MOUND PLANT.

45-75LTR TYPICAL PLANTING (NTS)

REFER TO HYDRAULICS ENGINEERS PLAN FOR OSD / DWARF WALL DETAILS - MULCH OSD WITH NON FLOATABLE DECORATIVE GRAVEL.
ALL FINISHED GROUND LEVELS AS PER HYDRAULICS ENGINEERS DETAILS.

GENERAL NOTES:-

* LANDSCAPE CONTRACTOR TO CHECK DA CONDITIONS AND STAMPED LANDSCAPE PLAN BEFORE COMMENCING WORKS TO ENSURE NO ADDITIONS / AMENDMENTS TO PLAN.
* GARDEN BEDS IN OSD BASIN TO CONSIST OF NON FLOATABLE DECORATIVE GRAVEL.
* REFER TO HYDRAULICS ENGINEERS PLAN FOR OSD DETAILS / FINAL LEVELS.
* MULCHED PLANTING BEDS TO BE A MINIMUM DEPTH OF 75MM AS SELECTED.
* CONTRACTORS RESPONSIBILITY TO CHECK AND ADJUST SOIL pH AS REQUIRED.
* PROVIDE TIMBER EDGE AS A MINIMUM BENEATH FENCING / GATES TO DEFINE TURF AND GARDEN BEDS / PATHWAYS. EDGING TO BE PROVIDED TO ALL AREAS WHERE DIFFERING MATERIALS MEET, ie TURF / GARDEN, TURF / GRAVEL PATH ETC.
* WEED MAT BENEATH GRAVEL PATHWAYS REQUIRED TO LIMIT MUD TRACKING.
* PREMIUM ORGANIC GARDEN MIX TO BE USED.
* ALL PLANTS TO BE HEALTHY AND VIGOROUS.
* CONTRACTOR TO MAKE GOOD TURF ON NATURE STRIP POST CONSTRUCTION.
* DO NOT SCALE ARCHITECTURAL SETOUT FROM LANDSCAPE DRAWING.
* EXISTING TREE SPREAD APPROXIMATE ONLY. REFER TO TREE REPORT WHEN APPLICABLE.
* SITE SURVEY PROVIDED BY OTHERS.
* BUFFALO TURF PREFERRED OVER KIKUYU.

ALL FENCING SURROUNDING THE POOL / OSD BASIN ARE TO COMPLY WITH THE SWIMMING POOLS ACT 1992 AND AS.1926.1-2012

STREET TREES AND TURF TO BE PROTECTED DURING CONSTRUCTION (NOT SHOWN ON CONTOUR PLANS PROVIDED). ANY DAMAGE TO TURF AND STREET TREE TO BE RECTIFIED AS PART OF THE LANDSCAPE WORKS. THE METHODS OF TREE PROTECTION SHALL COMPLY WITH AUSTRALIAN STANDARD 4970-2009 – 'PROTECTION OF TREES ON DEVELOPMENT SITES' (IF NO DETAILED ARBORICULTURAL IMPACT REPORT IS REQUIRED).

NOTE:- MONACO DESIGNS PL RESERVES THE RIGHT NOT TO UNDERTAKE NOR SUPPLY CERTIFICATION FOR OCCUPATION CERTIFICATE.
NOTE:- TO AID COMPLIANCE WITH BASIX LEGISLATION, PLANTS (WHERE APPLICABLE) HAVE BEEN SELECTED FROM THE LOCAL CITY COUNCIL / SHIRE PLANT LISTS.
NOTE:- LOCATION OF SEWER MAINS / LINES, WATER PIPES, UNDERGROUND ELECTRICITY AND OTHER SERVICES MUST BE OBTAINED PRIOR TO COMMENCEMENT OF ANY WORK ON SITE. DIAL BEFORE YOU DIG 1100.

CONTRACTORS NOTE:- CALCULATED AREAS DETERMINED BY CAD AND HAVE BEEN ROUNDED UP FOR USE AS A GUIDE ONLY. ALLOW STANDARD PERCENTAGES FOR CUTTING AND WASTAGE. CONFIRM DIMENSIONS AND NUMBERS PRIOR TO QUOTING / ORDERING.

DIAL 1100 BEFORE YOU DIG

16 JUN 20 - INCREASE PLANTING/REMOVE VOLLEYBALL AREA
5 FEB 19 - UPDATE PARKING AREAS
1 MAR 18 - UPDATE LOWER PARKING AREA
30 OCT 17 - UPDATE PARKING AREA

MONACO DESIGNS PL
14 York Street, Glenbrook NSW, 2773
ph & fax: 0247395136 mb: 0409123200
email: paul@monaco.net.au

PROJECT:
PROPOSED CULTURAL CENTRE

ADDRESS:
682 CASTLREAGH ROAD,
AGNES BANKS

CLIENT:
C/o- MR RICK SHAH

TITLE: DA
LANDSCAPE CONCEPT

DATE:	SCALE:	SHEET No:
25 MAY 17	1 : 500 - A1	1 OF 1
JOB No.	DRAWN:	
4675	CJ / PM	

TREE REPORTS
LANDSCAPE PLANS
VEGETATION MANAGEMENT PLANS

ACOUSTIC, VIBRATION & NOISE Pty Ltd
Suite 2B, 34 Macmahon St, Hurstville NSW 2220 ABN: 22 615 582 002
Phone: 9793 1393 Email: info@acousticsolutions.com.au

Acoustic Report
-For Community Facility -

For proposed development at

No. 682 Castlereagh Road, Agnes Bank

Prepared By: Domeniki Tsagaris (M.I.E. Aust), B.E.(UNSW)
Australian Acoustical Society (Sub).
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Australian Acoustical Society (Member).

Date: June 12th, 2020
Reference No.: 2018-508

DOCUMENT CONTROL

Date	*Revision History*	*Prepared By:*	*Reviewed and Authorised by:*
04/02/2019	Initial Report	Domeniki Tsagaris	Moussa Zaioor
12/06/2020	Final Report	Domeniki Tsagaris	Moussa Zaioor

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1.0 Scope of Work

Acoustic, Vibration & Noise Solutions Pt Ltd was commissioned to investigate the environmental noise impact of the proposed alterations and additions to the existing Community Facility located at No. 682 Castlereagh Road, Agnes Bank (Figure 1 – Site Location) on the local environment; in accordance with Penrith City Council's requirements and relevant Australian Standards/Policies.

The following assessment will be prepared in conjunction with the Architectural Plans by Architectural Plans by Design by RJV and Statement of Environmental Effects by Corona Project.

This commission involves the following:

- Inspect the site and environs.
- Measure the background noise levels at critical locations and times.
- Establish acceptable noise level criterion.
- Quantify noise emissions from the proposed alterations & additions to the existing Community Facility
- Calculate the level of noise emission, taking into account building envelope
- Transmission loss, screen walls and distance attenuation.
- Provide in principle noise control recommendations (if necessary).
- Prepare an Environmental and Construction Noise Impact Report.

Figure 1 - Site Location

2.0 General Description and Environment

The proposed development is for the Community Facility for the Vaishnav Sangh of Sydney which is used to conduct regular educational and cultural activities for the Indian community as well as celebrate key festivals with the community and provide an educational service to children and youth.

The Community Facility will be open seven days a week. Community site users will attend the site:

- Monday –Friday with a maximum of 50 people between 5:00pm and 7:00pm.
- Saturday and Sunday with 50-100 people between 12:00pm-7:00pm
- Event Days is a regular monthly event with 200 people attending, approximately 12 times per year.

Administrative staff will be present on site at any time during the day. The number of staff is as follow;

- Monday - Friday with a maximum of 5 staff members,
- Saturday and Sunday with a maximum of 7 staff members.

The Community Facility will include the following (Figure 2 – Site Plan)

- Administrative room,
- Male and female bathrooms,
- Kitchen with storage room,
- Art room,
- Library,
- Children's play area, and
- Volleyball court.

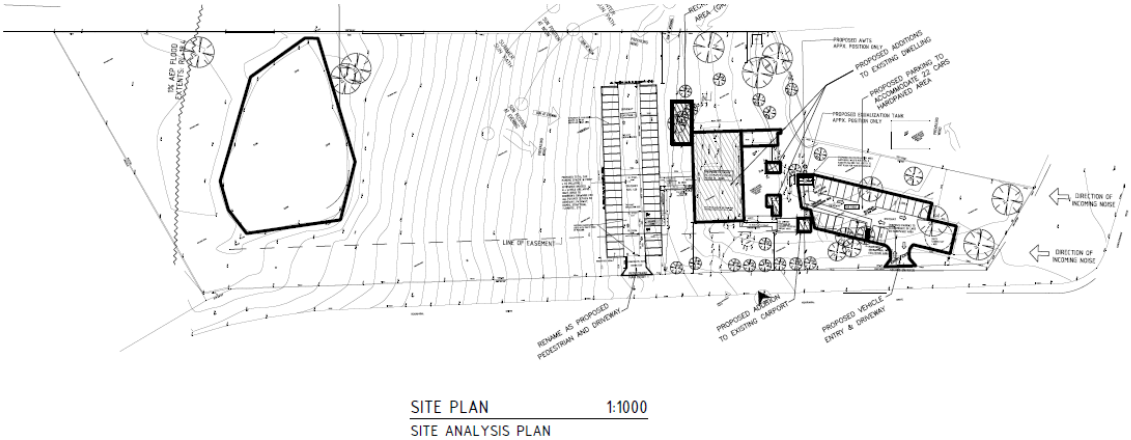


Figure 2 - Site Plan

The Community Facility's proposed extension to the existing dwelling and proposed car park is located at the rear of an existing residential property. The Community Facility proposal a new carpark to the front of the site and to undergo alterations and additions to accommodate a maximum of 200 attendees and an additional 36 car spaces, as per architectural plans by RJV.

The proposed Community Facility is located within a rural/residential area. Residential properties with associated farmland located south east and east of the site at No. 676-680 Castlereagh Road and No. No.674 Castlereagh Road, respectively (Figure 3- Nearest Residential Receivers).

The nearest residential receiver that may be affected by the use of the proposed Community Facility are located directly south east the site at No. 676-680 Castlereagh Road, Agnes Bank as shown in Figure 3. Other potential residential receiver is located east of the site at No.674 Castlereagh Road, Agnes Bank. For the purpose of this report, the nearest residential receiver will be the residential property located south east of the site at No. 676-680 Castlereagh Road, Agnes Bank due to its close proximity to the proposed carpark.

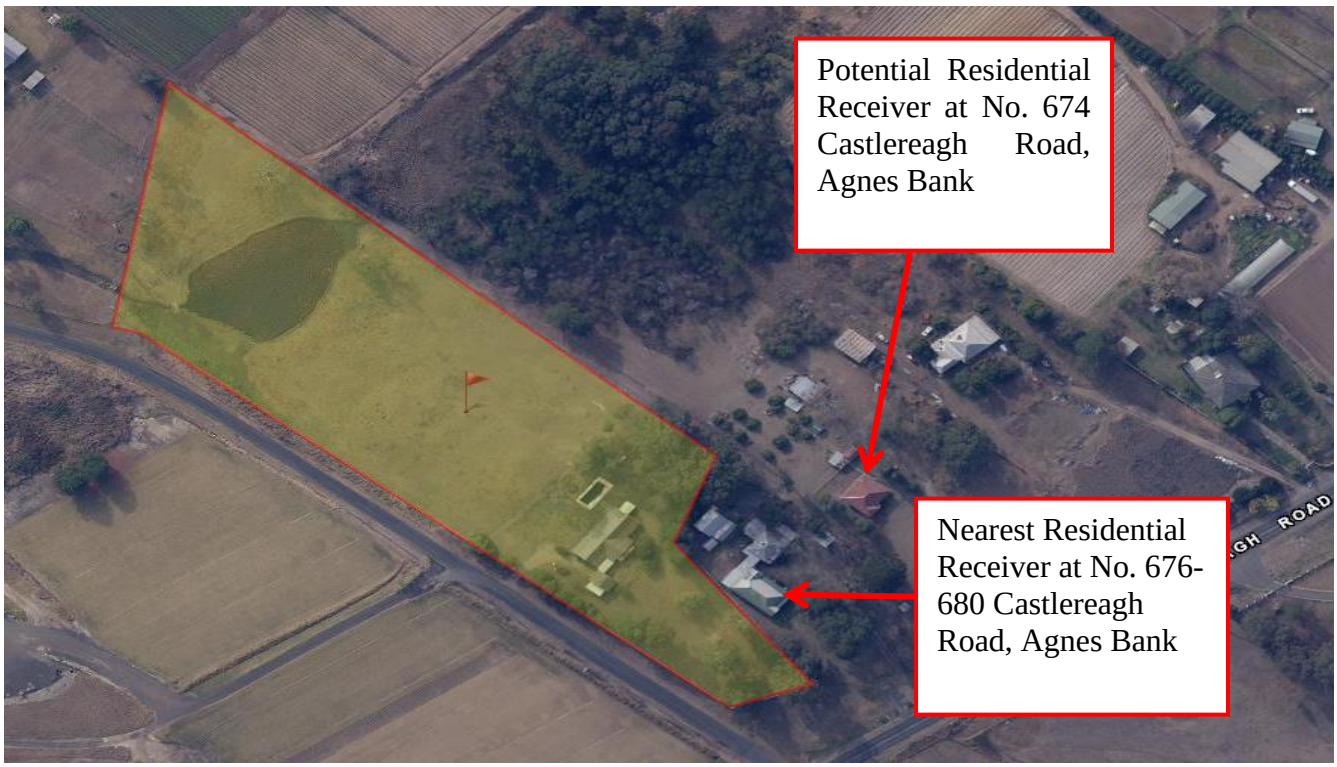


Figure 3 – Nearest Residential Receivers

3.0 Operational Activities

Major noise producing activities at the Community Facility have been considered below:

- Vehicles arriving and departing the site,
- Attendees arriving and departing the site,
- Indoor activities,
- Outdoor activities, and
- Mechanical plant and Equipment.

The main activities held at the Community Facility are cultural activities, celebrations and educational classes. The proposed extension and conversion of the Community Facility will accommodate for a maximum of 200 attendees.

The number of car spaces from the existing car park and the proposed car park are as follow:

- Sixty-three (63) car spaces
- Two (2) mobility parking
- One (1) minibus parking

Hence the main source of noise from the proposed Community Facility will be from vehicles entering and existing the on-site car parks and from attendees outside as they arrive/exist the proposed facility.

4.0 ACOUSTIC DESCRIPTORS

Maximum Noise Level (L_{Amax}) – The maximum noise level over a sample period is the maximum level, measured on fast response, during the sample period.

L_{A1} – The L_{A1} level is the noise level which is exceeded for 1% of the sample period. During the sample period, the noise level is below the L_{A1} level for 99% of the time.

L_{A10} – The L_{A10} level is the noise level which is exceeded for 10% of the sample period. During the sample period, the noise level is below the L_{A10} level for 90% of the time. The L_{A10} is a common noise descriptor for environmental noise and road traffic noise.

L_{Aeq} – The equivalent continuous sound level (L_{Aeq}) is the energy average of the varying noise over the sample period and is equivalent to the level of a constant noise which contains the same energy as the varying noise environment. This measure is also a common measure of environmental noise and road traffic noise.

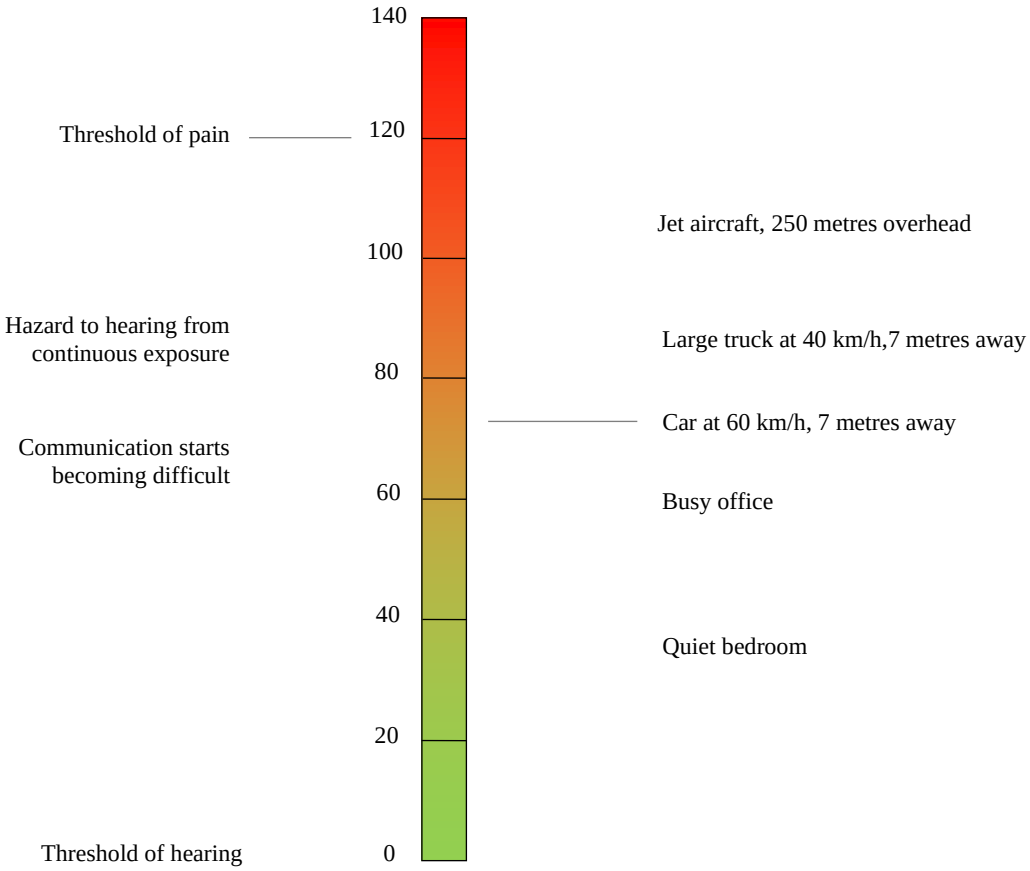
L_{A50} – The L_{A50} level is the noise level which is exceeded for 50% of the sample period. During the sample period, the noise level is below the L_{A50} level for 50% of the time.

L_{A90} – The L_{A90} level is the noise level which is exceeded for 90% of the sample period. During the sample period, the noise level is below the L_{A90} level for 10% of the time. This measure is commonly referred to as the background noise level.

ABL – The Assessment Background Level is the single figure background level representing each assessment period (daytime, evening and night time) for each day. It is determined by calculating the 10th percentile (lowest 10th percent) background level (L_{A90}) for each period.

RBL – The Rating Background Level for each period is the median value of the ABL values for the period over all of the days measured. There is therefore an RBL value for each period – daytime, evening and night time.

The level of common sounds on the dB(A) scale as the figure below:



5.0 Noise SURVEY and Instrumentation

On the 23rd of January an engineer from this office went to the above address and carried out noise measurements for noise levels at the proposed building line facing Castlereagh Road Points A (Figure 4 - Noise Reading Location). The unattended environment noise monitoring was conducted for seven (7) days from Wednesday 23rd January to Wednesday 30th January, 2019. All sound pressure levels are rounded to the nearest whole decibel. All measurements were taken in accordance with the Australian Standards AS 1055 "*Acoustics- Description and Measurements of Environmental Noise*".

The noise survey was conducted to determine a conservative reading of the existing day and evening noise levels [15hrs- 7:00 -22:00] $L_{(A90,\ 15\ minutes\ [1hr])}$ and $L_{(Aeq,\ 15\ minutes\ [1\ hr])}$ and to determine a conservative reading of existing night and early morning noise levels [9hrs-22:00-7:00] $L_{(A90,\ 15\ minutes\ [1hr])}$ and $L_{(Aeq,\ 15\ minutes\ [1\ hr])}$.

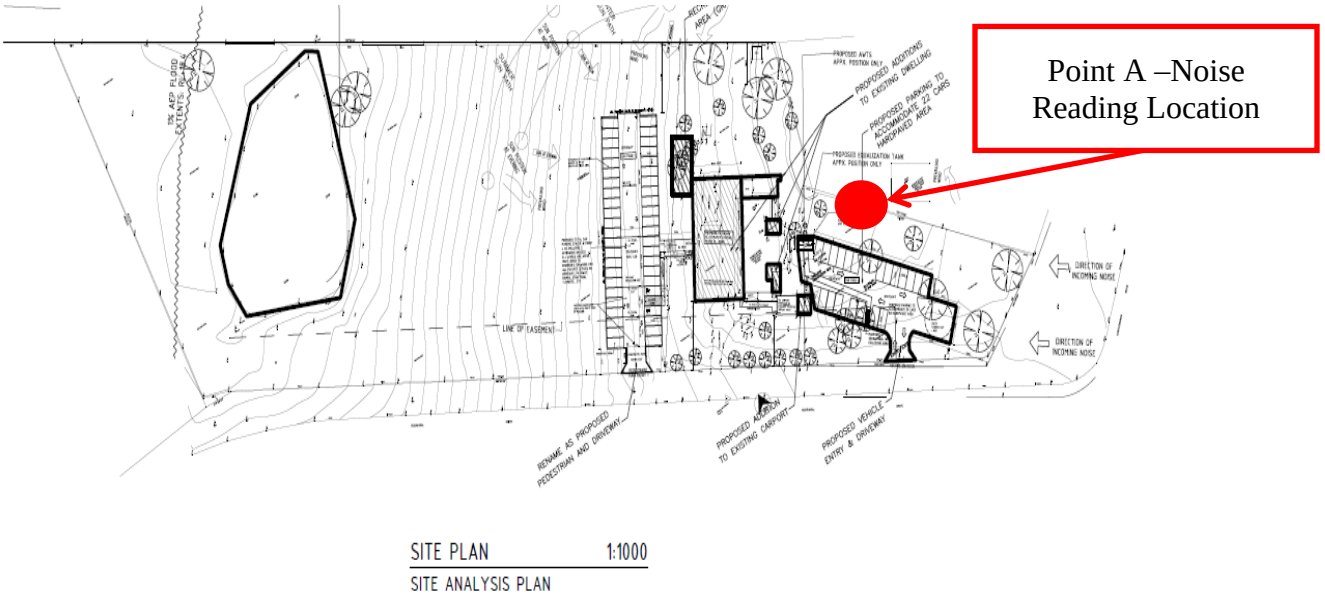


Figure 4 - Noise Reading Location

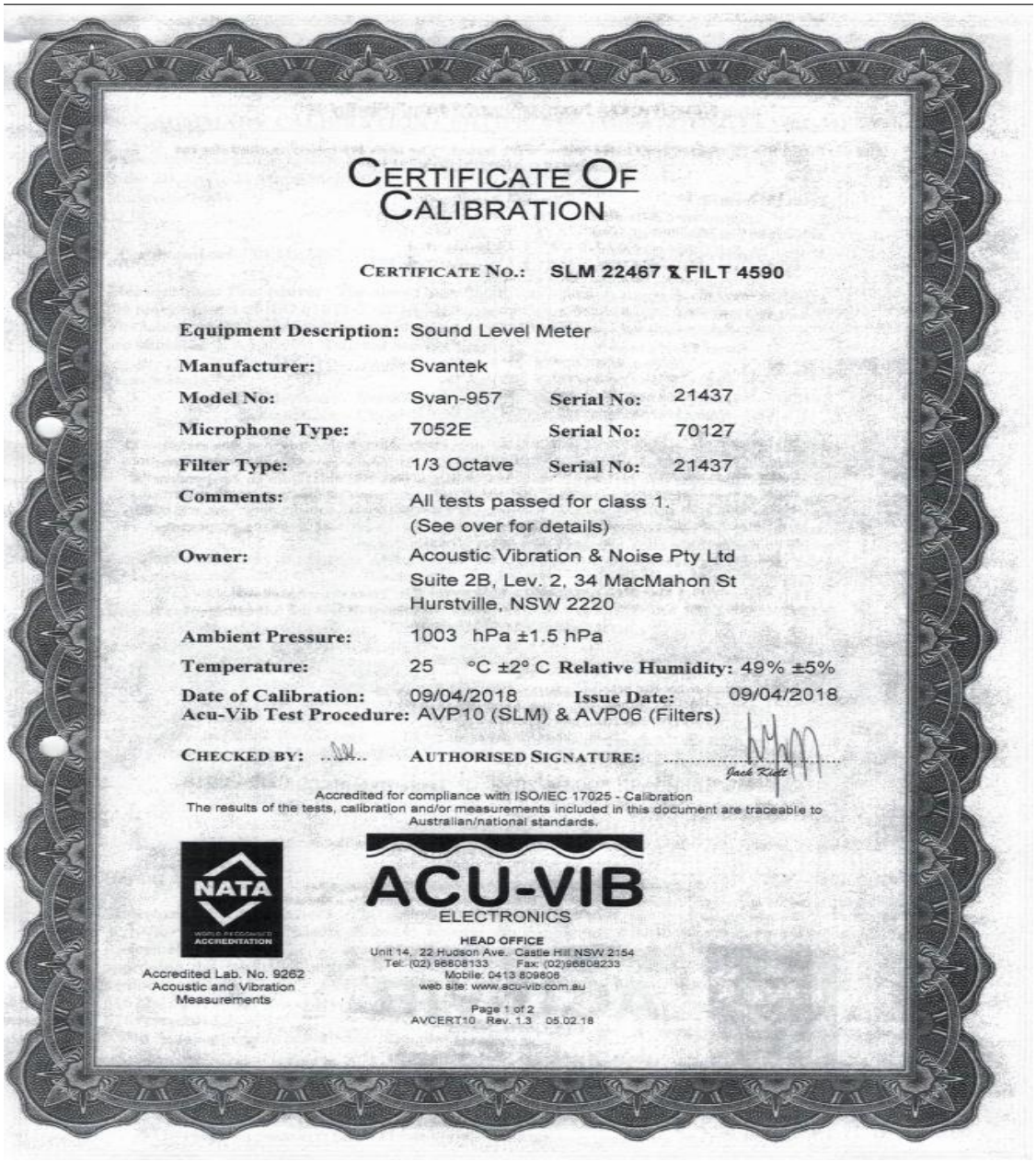
The measurement procedure and the equipment used for the noise survey are described below. All sound pressure levels are rounded to the nearest whole decibel. All sound level measurements and analysis carried throughout this report are carried with Svantek 957 Noise and vibration level meter (Figure 5- Calibration Certificate) which has the following features:

- Type 1 sound level measurements meeting IEC 61672:2002
- General vibration measurements (acceleration, velocity and displacement) and HVM meeting ISO 8041:2005 standard
- Three parallel independent profiles
- 1/1 and 1/3 octave real time analysis
- Acoustic dose meter function
- FFT real time analysis (1920 lines in up to 22.4 kHz band)
- Reverberation Time measurements (RT 60)
- Advanced Data Logger including spectra logging
- USB Memory Stick providing almost unlimited logging capacity
- Time domain signal recording
- Advanced trigger and alarm functions
- USB 1.1 Host & Client interfaces (real time PC "front end" application supported)
- RS 232 and IrDA interfaces
- Modbus protocol

Machine was calibrated prior to reading. Any noise readings affected by strong wind or rain have been disregarded. The Full Average Statistical Noise Parameters $\mathbf{L_{(Aeq,\ 15\ minutes)}}$, $\mathbf{L_{(A90,\ 15\ minutes)}}$, $\mathbf{L_{(A10,\ 15\ minutes)}}$, $\mathbf{L_{(A1,\ 15\ minutes)}}$ are presented in Figure 6 – Noise Survey. A Summary of those readings is presented in the table below:

Table 5.1 –Summary of Noise Survey Results 23rd January – 30th January, 2019

Point A-Time	$\mathbf{L_{Aep}}$ dB(A)	**RBL** dB(A)
Day Time (7:00am-6:00pm)	46	37
Evening Time (6:00pm-10:00pm)	41	34
Night time (10:00pm-7:00am)	39	33



CERTIFICATE OF CALIBRATION

CERTIFICATE NO.: SLM 22467 & FILT 4590

Equipment Description:	Sound Level Meter		
Manufacturer:	Svantek		
Model No:	Svan-957	**Serial No:**	21437
Microphone Type:	7052E	**Serial No:**	70127
Filter Type:	1/3 Octave	**Serial No:**	21437
Comments:	All tests passed for class 1. (See over for details)		
Owner:	Acoustic Vibration & Noise Pty Ltd Suite 2B, Lev. 2, 34 MacMahon St Hurstville, NSW 2220		
Ambient Pressure:	1003 hPa ±1.5 hPa		
Temperature:	25 °C ±2° C	**Relative Humidity:**	49% ±5%
Date of Calibration:	09/04/2018	**Issue Date:**	09/04/2018

Acu-Vib Test Procedure: AVP10 (SLM) & AVP06 (Filters)

CHECKED BY: ...MM... **AUTHORISED SIGNATURE:** .....Jack Kidz.....

Accredited for compliance with ISO/IEC 17025 - Calibration
The results of the tests, calibration and/or measurements included in this document are traceable to Australian/national standards.

NATA
WORLD RECOGNISED ACCREDITATION

Accredited Lab. No. 9262
Acoustic and Vibration Measurements

ACU-VIB
ELECTRONICS

HEAD OFFICE
Unit 14, 22 Hudson Ave. Castle Hill NSW 2154
Tel: (02) 96808133 Fax: (02)96808233
Mobile: 0413 809808
web site: www.acu-vib.com.au

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AVCERT10 Rev. 1.3 05.02.18

Figure 5 - Calibration Certificate

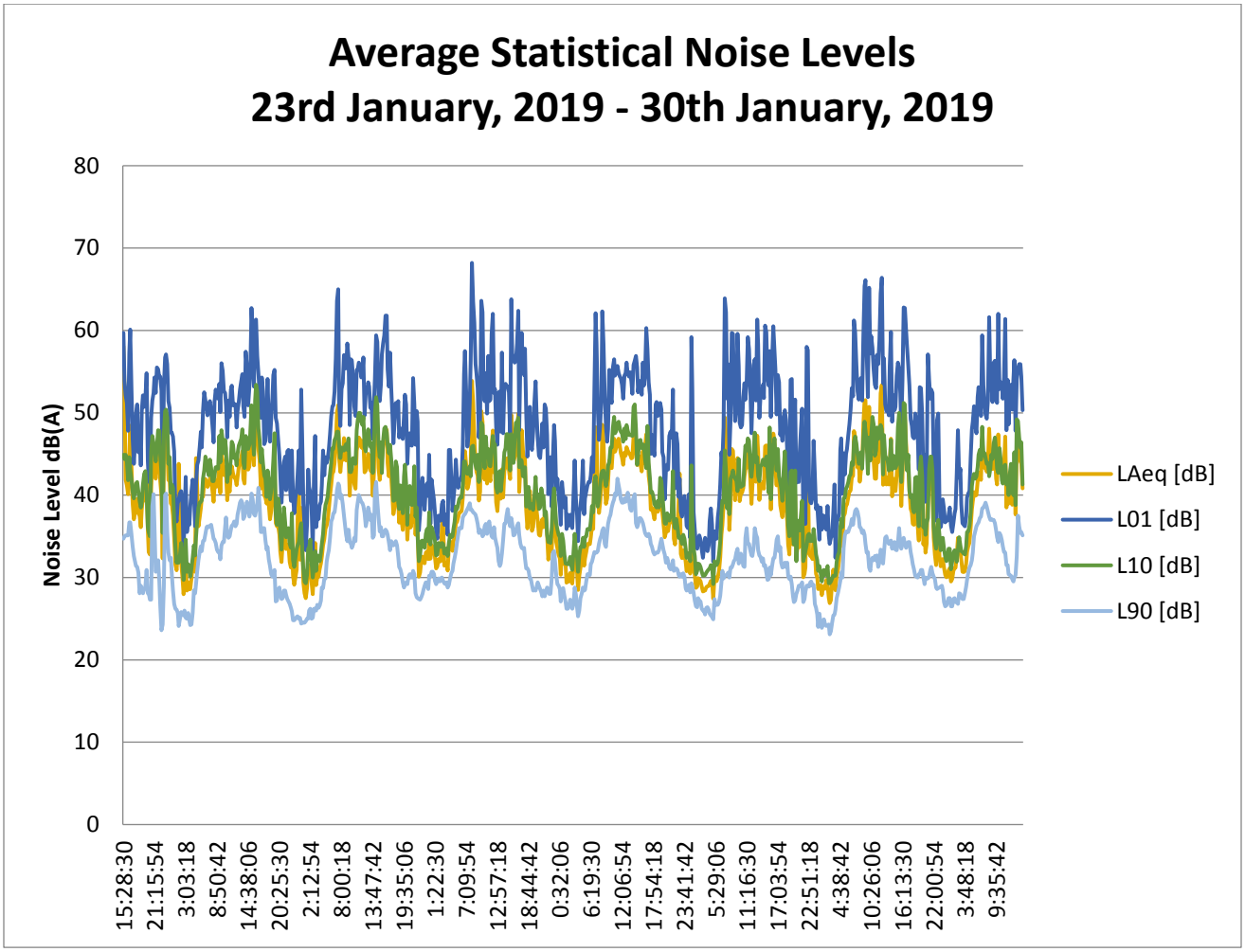

Figure 6 - Noise Survey

6.0 ACCEPTABLE NOISE LEVEL FROM PROPOSED DEVELOPMENT

6.1 Noise GUIDE for Local Government

The Department of Environment and Conservation (NSW) published the amended *Noise Guide for Local Government* in October 2010. The policy is specifically aimed at assessing noise from light industry, shops, entertainment, public buildings, air conditioners, pool pumps and other noise sources in residential areas.

The appropriate regulatory authority (Local Council) may, by notice in writing given to such a person, prohibit the person from causing, permitting or allowing:

1. any specified activity to be carried on at the premises, or
2. any specified article to be used or operated at the premises.

or both, in such a manner as to cause the emission from the premises, at all times or on specified days, or between specified times on all days or on specified days, of noise that, when measured at any specified point (whether within or outside the premises,) is in excess of a specified level.

It is an offence to contravene a noise control notice. Prior to being issued with a noise control notice, no offence has been committed.

The Protection of the Environment Operations Act 1997 defines "Offensive Noise" as noise:

1. (a) that, by reason of its level, nature, character or quality, or the time at which it is made, or any other circumstances:
2. (i) is harmful to (or is likely to be harmful to) a person who is outside the premises from which it is emitted, or
3. (ii) interferes unreasonably with (or is likely to interfere unreasonably with) the comfort or repose of a person who is outside the premises from which it is emitted, or
2. (b) that is of a level, nature, character or quality prescribed by the regulations or that is made at a time, or in other circumstances prescribed by the regulation.

6.2 NSW Noise Policy for Industry (2017)

The above policy seeks to promote environmental well-being through preventing and minimizing noise by providing a frame work and process for deriving noise limits conditions for consent and licenses.

The Noise Policy for Industry 2017 recommends two separate noise criteria to be considered, the Intrusive Noise Criteria and the Amenity Noise Criteria. A project noise trigger level being the lowest of the amenity and the intrusiveness noise level is then determined.

If the predicted noise level L_{Aeq} from the proposed project exceeds the noise trigger level, then noise mitigation is required. The extent of any 'reasonable and feasible' noise mitigation required whether at the source or along the noise path is to ensure that the predicted noise level L_{Aeq} from the project at the boundary of most affected residential receiver is not greater than the noise trigger level.

6.2.1 Amenity Noise Criteria

The amenity noise levels presented for different residential categories are presented in Table 2.2 of the Noise Policy for Industry 2017. These levels are introduced as guidance for appropriate noise levels in residential areas surrounding industrial areas.

For the proposed development at No. 682 Castlereagh Road, Agnes Bank the recommended amenity noise levels are presented in table 6.2.1 below:

Table 6.2.1- Recommended Amenity Noise levels

TYPE OF RECIEVER	AREA	TIME PERIOD	RECOMMENDED Leq NOISE LEVEL, dB(A)
Residence	Suburban	Day	55
		Evening	45
		Night	40

Where a noise source contains certain characteristics such as tonality, impulsiveness, intermittency, irregularity or dominant low-frequency content, a correction is to be applied which is to be added to the measured or predicted noise levels at the receiver, before comparison with the criteria. Shown below are the correction factors that are to be applied:

Table 6.2.1.2 – Modifying Factor Corrections as per Fact Sheet C (Noise Policy for Industry 2017)

FACTOR	CORRECTION
Tonal Noise	+ 5 dB
Low Frequency Noise	+ 5 dB
Impulsive Noise	Apply difference in measured fast and impulse response levels, as the correction, up to a maximum of 5 dB.
Intermittent Noise	+ 5 dB

According to Section 2.4 of the above policy, the project amenity noise level is determined as follows:

Project amenity noise level for industrial developments = recommended amenity noise level (Table 2.2) minus 5 dB(A)

To convert from a period level to a 15 minute level, a plus 3 is added as per section 2.2 of the policy.

Therefore, the project amenity noise level for the proposed development at No. 682 Castlereagh Road, Agnes Bank is as follows:

Daytime: 55- 5+ 3=53 dB(A)
Evening: 45 -5+ 3=43 dB(A)
Night-time: 40- 5+ 3=38 dB(A)

6.2.2 Intrusiveness Noise Criteria

Section 2.2.1 of the Noise Guide for Local Government states that a noise source is generally considered to be intrusive if the noise from the source when measured over a 15-minute period exceeds the background noise by more than 5 dB(A). Similarly, The Noise Policy for Industry in Section 2.3 summarizes the intrusive criteria as below:

$L_{Aeq,15\,minute} \leq$ rating background level plus 5

While the background noise level known as $LA_{90,15\ minutes}$ is the Noise exceeded 90% percent of a time period over which annoyance reactions may occur (taken to be 15 minutes). The RBL is defined as the overall single-figure $L_{A90,15\ minutes}$ background level representing each assessment period (day/evening/night) over the whole monitoring period.

For the short-term method, the rating background noise level is simply the lowest measured LAF90,15min level.

For the long-term method, the rating background noise level is defined as the median value of:

- all the day assessment background levels over the monitoring period for the day
- all the evening assessment background levels over the monitoring period for the evening, or
- all the night assessment background levels over the monitoring period for the night.

Therefore, the acceptable L_{eq} noise intrusiveness criterion for the proposed development during the day & night is as follows:

Daytime: **37 + 5 = 42** **dB(A)**
Evening: **34 + 5 = 39** **dB(A)**
Night-time: **33 + 5 = 38** **dB(A)**

6.2.3 Project Noise Trigger Level

A summary of intrusiveness and amenity noise levels as determined in sections 6.2.1 & 6.2.2 are shown in table 6.2.3 below:

Table 6.2.3 - Summary of Intrusiveness and project amenity noise levels

Period	Intrusiveness Noise Level dB(A)	Project Amenity Noise level dB(A)
Day Time (7:00am-6:00pm)	42	53
Evening Time (6:00pm-10: am)	39	43
Night & Early Morning (10:00pm – 7:00am)	38	48

The project noise trigger level is the lower (that is, the most stringent) value of the amenity and intrusiveness noise levels for the day, evening and night time. Therefore, the project noise trigger levels for the proposed development are as shown below

Daytime: $L_{Aeq,15\ min}$ **42 dB(A)**
Evening: $L_{Aeq,15\ min}$ **39 dB(A)**
Night-time: $L_{Aeq,15\ min}$ **38 dB(A)**

The proposed Community Facility and its activities including all mechanical plant will not exceed the project noise trigger level at the most sensitive location, provided all noise control recommendations in Section 8.0 are adhered to.

6.3 Road Traffic Noise Criteria

The proposed Community Facility will also need to comply with the criteria of the NSW Road Noise Policy, for the potential impact of additional traffic that may be generated by the development, on nearby residential developments.

Table 3 in Section 2.3.1 of the NSW Road Noise Policy, sets out traffic noise assessment criteria as follows:

Table 6.3 – NSW Road Noise Policy Traffic Noise Criteria

Road Category	Type of Project/land Use	Assessment Criteria –dB(A)	
		Day (7am-10pm)	Night (10pm-7am)

Local Roads	Existing Residences affected by **additional traffic** on existing local roads general by land use developments	LAeq (1 hour) 55 (external)	LAeq (1 hour) 50 (external)

6.4 Interim Construction Noise Guideline

People react to noise from construction will depend on the time of day that works are undertaken. Residents are usually most annoyed by work at night-time as it has the potential to disturb sleep. Noise from work on evenings, Saturday afternoons, Sundays and public holidays can also be annoying to most residents as it may interrupt leisure activities.

Section 4, Table 2 of the above criteria sets out management levels for noise at residences and how they are to be applied. Restrictions to the hours of construction may apply to activities that generate noise at residences above the 'highly noise affected' noise management level.

Table 6.4 – Noise at Residences Using Quantitative Assessment

Time of Day	Management level LAeq (15 min)	How to apply
Recommended standard hours: Monday to Friday 7 am to 6 pm Saturday 8 am to 1 pm No work on Sundays or public holidays	Noise affected RBL + 10 dB Day: 7am-6pm (37+10 = **47dB(A)**)	The noise affected level represents the point above which there may be some community reaction to noise. • Where the predicted or measured LAeq (15 min) is greater than the noise affected level, the proponent should apply all feasible and reasonable work practices to meet the noise affected level. • The proponent should also inform all potentially impacted residents of the nature of works to be carried out, the expected noise levels and duration, as well as contact details.
	Highly noise affected 75 dB(A)	The highly noise affected level represents the point above which there may be strong community reaction to noise. • Where noise is above this level, the relevant authority (consent, determining or regulatory) may require respite periods by restricting the hours that the very noisy activities can occur, taking into account: 1. times identified by the community when they are less sensitive to noise (such as before and after school for works near schools, or mid-morning or mid-afternoon for

		works near residences 2. if the community is prepared to accept a longer period of construction in exchange for restrictions on construction times.
Outside recommended standard hours	Noise affected RBL + 5 dB Evening:6pm-10pm (34+5=**39dB(A))** Night:10pm-7am (33+5 = **38 dB(A)**)	• A strong justification would typically be required for works outside the recommended standard hours. • The proponent should apply all feasible and reasonable work practices to meet the noise affected level. • Where all feasible and reasonable practices have been applied and noise is more than 5 dB(A) above the noise affected level, the proponent should negotiate with the community.

The proposed construction of the car park and extension of the Community Facility does not require heavy equipment and large construction work such as pile drilling/hammering. Construction is to be done within the recommended standard hours listed in the Interim Construction Noise Guidelines. Noise emitted from construction work must comply with the specific management levels of the Interim Construction Noise Guidelines Section 4 Table 2.

7.0 PREDICTED NOISE FOR COMMUNITY FACILITY

As stated in Section 3 of this report noise levels from the proposed facility are classifies into the following main noise source:

- Vehicles arriving and departing the site,
- Attendees arriving and departing the site,
- Indoor activities,
- Outdoor activities, and
- Mechanical plant and Equipment.

7.1 Vehicles Arriving and Departing the Site

The proposed car park located at the eastern boundary of the site will accommodate for thirty-six (36) car spaces. While, the proposed alteration to the existing car park located at the southern boundary of the site will accommodate for thirty (30) car spaces and one (1) minibus parking. Access to both car parks will be from Kooringal Drive.

As previously mentioned in Section 2 of this report, the operations of the Community Facility is as follow

- Non-event Day: Administrative duties staff will be attending the site during the week, and their work hours: Mon-Fri - 5 people (max.) Sat/Sun -7 people

(max.); timings – any time during the day. Community site uses attend the site: Mon-Fri - 15 persons between 5pm-7 pm. Sat-Sun – maximum 50 people between noon-7 pm.

- Event Day: is represented by a regular monthly event - 200 persons attending fortnightly, approximately 12 times per year, with peak arrivals and departures outside the am and pm on-road peak hours.

As per the Transport Impact Study by Henson Consulting, the generated traffic volumes from the operations of the Community Facility are predicted in Table 7.1.1. It assumes that staff will arrive in morning peak hours and depart in the evening peak hour, while event attendees are estimated to arrive one hour before the event and depart one hour after the event. Additional, the following traffic generation rates are estimated based on the car occupancy of one (1) staff member per car and three (3) attendees per car for events.

Table 7.1.1 – Subject Site Traffic Generation (Peak Hour)

		Staff				Other attendees				Total
		persons	car occup	prop peak	cars/h	persons	car opp	prop peak	cars/h	veh/h
Non-event day										
arrival peak	in	5	1	1	5	15	3	1	5	10
	out	0	1	1	0	0	3	1	0	0
departure peak	in	0	1	1	0	0	3	1	0	0
	out	5	1	1	5	15	3	1	5	10
Event day										
arrival peak	in	7	1	1	7	200	3	1	67	74
	out	0	1	1	0	0	3	1	0	0
departure peak	in	0	1	1	0	0	3	1	0	0
	out	7	1	1	7	200	3	1	67	74
Event day with 2.5 safety factor to allow for short term 5-minute peaks within the peak hour										
arrival peak	in	7	1	1	7	200			167	174
	out	0	1	1	0	0			0	0
departure peak	in	0	1	1	0	0			0	0
	out	7	1	1	7	200			167	174

Car park noises typically may comprise of people talking, car radios and car doors, with the loudest activity being the noise produced by closing car doors.

Table 7.1.2 – Car Park Noise Source Levels

Car Park Noise Source	Average Sound Power Level, dB(A)
Car Door Closing	91
Car Starting	91
Car Accelerating	91
Car Moving	85
Minibus	87

The predicted noise levels due to vehicles arriving and departing the site will be governed by existing background noise levels from Castlereagh Road and the surrounding residential/rural activities. Distance attenuation loss has also been taken into consideration when making our prediction, as well as recommendations made in this report.

As the proposed car park is located at the eastern boundary of the site, the nearest residential receiver at No. 676-680 Castlereagh Road, will be the most potential affected receiver. The Predicted noise levels from vehicles arriving and departing the proposed car park to the most affected residential receiver at No. No. 676-680 Castlereagh Road is presented in Table 7.1.3.

Table 7.1.3 – Predicted Noise Levels from Vehicles Arriving & Departing the Car Park at No. 676-680 Castlereagh Road, Agnes Bank

Activity	Expected Max Leq dB(A) at No. 676-680 Castlereagh Road	Complies with the NSW Noise Policy for Industry		
		Day (7am-6pm)	Evening (6pm-10pm)	Night (10pm-7am)
Non-event day – arrival and departure peak	29	Yes (<42 db(A))	Yes (<39 db(A))	N/A
Event day – arrival and departure peak	39.7 ~ 40	Yes (<42 db(A))	* No (>39 db(A))	N/A

Note that the community Facility will not be operating past 7:00pm (See Section 2 of this report), therefore complies with the NSW Noise Policy for Industry during the night Period

***** The noise levels at the front boundary of No. 676-680 Castlereagh Road, Agnes Bank complies with Table 3 in Section 2.3.1 of the NSW Road Noise Policy. The sound pressure level increase at the boundary of No. 676-680 Castlereagh Road, as a result of cars arriving and departing the car park is 1.7 dB which is negligible and is not detected by a human ear as indicated in the table below.

Table 7.1.3 – Perceived Changes to the Human Ear

Change in Sound Level	Perceived Changes to the Human Ear
± 1dB	Not perceptible
± 2dB	Hardly perceptible
± 3dB	Threshold of perception

± 5dB	Clearly noticeable
± 10dB	Twice (or half) as Loud

7.2 Attendees Arriving, Departing and Congregating

As previously mention, the Community Facility will be operating from Monday to Friday between 5:00pm-7:00pm to accommodate for 15 people, Saturday and Sunday between 12:00pm-7:00pm with an expectancy of 50 attendees and Event days that occur monthly with a maximum of 200 attendees.

Major noise source associated when attendees of the Community Facility congregate in the proposed car park upon arrival and departure as well as undertake outdoor activities such as outdoor celebrations, children playing in the designated play area and on the volley ball court.

Table 7.2.1 Noise Produced in Conversation

Descriptor	Mean Sound Level dB(A)	Standard Deviation dB(A)
Casual Speech	52	± 5
Normal Speech	58	± 5
Raised Speech	65	± 7
Loud Speech	74	± 9
Shouting	82	± 9

Due to the close proximity of the proposed car park located adjacent to the east boundary of the site, the nearest receiver at No. 676-680 Castlereagh Road will be the most potentially affected by attendees outside the car park.

The calculations were made in the Table 7.2.2 assumes that vocal noise will be casual-normal speech and that approximately 30% of attendees are speaking at the same time. Due to the stop-start nature of conversation and due to the many different directions that speakers would be facing, the likely LAeq speech noise levels would be as follows, provided the recommendations in Section 8.0 of this report are adhered to.

Table 7.2.2 – Predicted Noise Levels from attendees upon arriving and departing the carpark at No. 676-680 Castlereagh Road, Agnes Bank

Activity	Expected Max Leq dB(A) at No. 676-680 Castlereagh Road	Complies with the NSW Noise Policy for Industry		
		Day (7am-6pm)	Evening (6pm-10pm)	Night (10pm-7am)
Non-event day – arrival peak and departure peak with maximum 15 attendees	31	Yes (< 42 dB(A))	Yes (< 39 dB(A))	N/A
Non-event day – arrival peak and departure peak with maximum 100 attendees	38	Yes (< 42 dB(A))	Yes (< 39 dB(A))	N/A
Event day – arrival peak and departure peak with maximum 200 attendees	41	Yes (< 42 dB(A))	**No (>38 dB(A))**	N/A

Note that the community Facility will not be operating past 7:00pm (See Section 2 of this report), therefore complies with the NSW Noise Policy for Industry during the night Period

It is recommended that there is no talking in the proposed car park area. However this may pose as a difficultly, it is suggested that staff usher attendees in an orderly fashion upon arrival and departure to control and limit the amount of talking in the carpark.

7.3 Proposed Mechanical Plant & Equipment

A range of mechanical plant, equipment and ventilation will be included in the proposed Community Facility at No. 682 Castlereagh Road, Agnes Bank, such as air-conditioning units, Kitchen Exhausts and Toilet Exhausts. Noise emitted by the use of the proposed mechanical plant is assessed by the NSW Noise Policy for Industry 2017 and Council conditions/requirements.

Typical noise levels for air-condition and exhaust fans are presented in Table 7.3.1.

Table 7.3.1 –Typical Mechanical Plant Leq Sound Power Levels

FREQUENCY [Hz]	63	125	250	500	1000	2000	4000	8000	dBA
Typical Kitchen Exhaust fan	59	59	57	68	65	64	56	49	**70**
Typical Bathroom Exhaust fan	54	54	62	63	60	59	51	44	**65**
Typical A/C Condensing Unit	71	69	67	61	58	54	47	44	**64**

As the proposed development is still in the initial application stage, we recommend that further acoustic assessment is carried out when the development has been approved and Mechanical Services plans have been prepared for our review. However, provided recommendations in Section 8.5 of this report are adhered to, all proposed mechanical plant and equipment is likely to comply with the criteria of the Noise Policy and Council Conditions.

8.0 NOISE CONTROL RECOMMENDATIONS

8.1 Management of Proposed Community Facility

Attendees must be informed of the nearest residential noise receivers and the importance of minimizing indoor and outdoor noise produced.

It is recommended that administrative staff usher attendees upon arrival and departure especial during Event Days when maximum attendance is expected to ensure that attendees enter and leave the site in an orderly fashion and ensure that farewells and greets occur inside the facility.

8.2 Signs

Signs reminding attendees to minimise noise at all times shall be installed at entry and exit points of the proposed Community Facility and car park area. It is advised that the signs be provided in several languages to accommodate the different language needs of members of the community.

8.3 Operation of Windows & Doors

All operable windows and doors located in the proposed Community Facility are to be closed during hours of operation (see Section 2 for operating hours).

8.4 Construction Work

Construction work must be done between the following hours;

- Monday to Friday: 7:00am to 6:00pm
- Saturday: 8:00am to 1:00pm
- No work is to be completed on Sunday and on public holidays.

All noise emitted from construction work must comply with Section 4 Table 2 of the Interim Construction Noise Guidelines.

8.5 Mechanical Plant & Equipment

As previously mentioned, we recommend acoustic assessment of all proposed Mechanical Plant & Equipment once the development has been approved and Mechanical Services Plans have been prepared.

In general, we recommend that all new external air-conditioning units are to be acoustically enclosed or set away by more than 3.0m from any boundary.

8.6 Sound Barrier

We recommend that a 2.1 metre high Sound Barrier is installed on the eastern boundaries of the site, adjacent to the nearest residential receivers at No. 676-680 Castlereagh Road, Agnes Bank (Figure 7 – Sound Barrier Location). The gap-free barrier is to be of lapped & capped timber, colourbond or masonry construction, to a height of 2.1 metres.

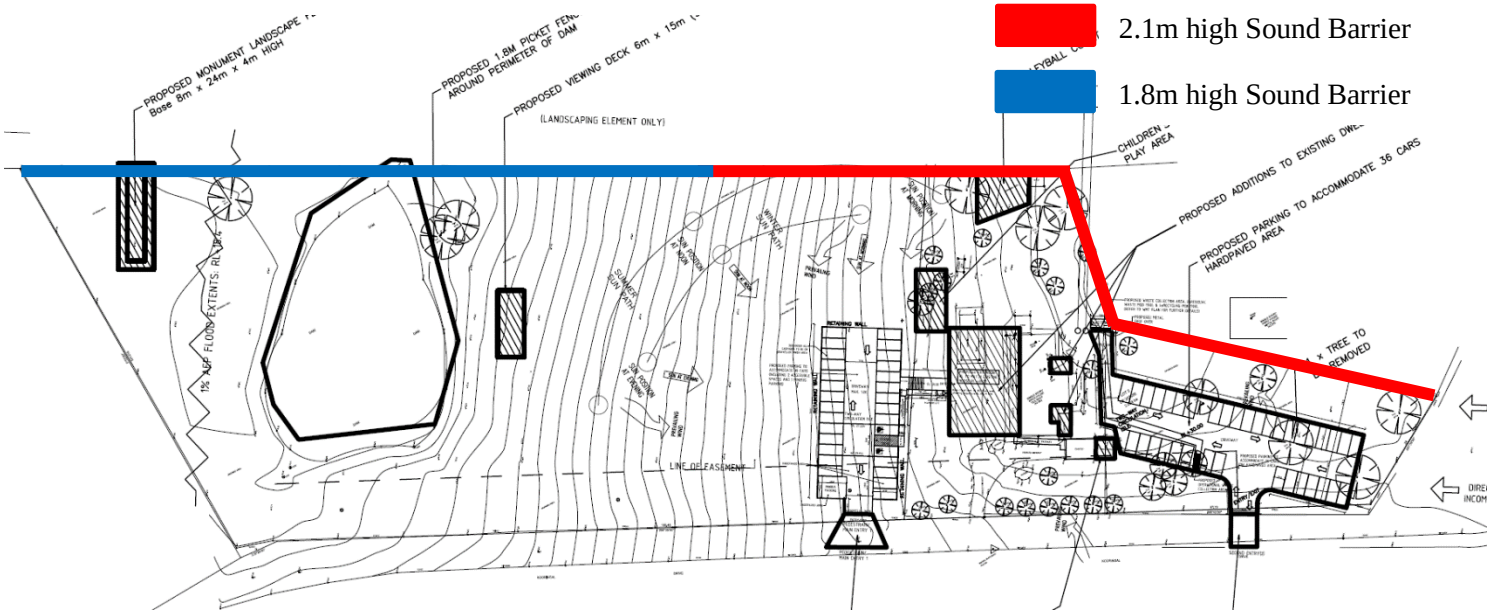

Figure 7– Sound Barrier Location

8.7 Noise Management Plan

A Noise Management Plan should be implemented and should include the following:

- Install a contact number at the front of the Community Facility so that complaints regarding the centre operation can be made.
- Implement a complaint handling procedure. If a noise complaint is received the complaint should be recorded on a Complaint Form. The Complaint Form should contain the following:
    - Name and address of the Complainant
    - Time and date the Complaint was received
    - The nature of the complaint and the time/date the noise was heard
    - The name of the employee that received the complaint
    - Actions taken to investigate the complaint and the summary of the results of the investigation
    - Indication of what was occurring at the time the noise was happening (if applicable)
    - Required remedial action (if applicable)

- Validation of the remedial action
- Summary of feedback to the complaint

Also a permanent register of complaints should be held on the premises, which shall be reviewed monthly by attendees to ensure all complaints are being responded to. All complaints received shall be reported to management with initial action/investigation commencing within 7 days. The complaint should also be notified of the results and actions arising from the investigation.

9.0 DISCUSSION & CONCLUSION

Acoustic, Vibration & Noise Pty Ltd have taken background noise level measurements at the most noise sensitive locations near the proposed Community Facility at No. 682 Castlereagh Road, Agnes Bank. The levels of noise emission from the proposed Community Facility have been calculated and quantified using reliable test data.

Provided the noise controls as recommended in Section 8.0 of this report are fully implemented, we are confident that the noise emission levels will be controlled and not exceed the criteria outlined in Section 6.0 of this report and will satisfy the conditions/requirements of Council.

Should you require further explanations, please do not hesitate to contact us.

Yours Sincerely,

M. Zaioor
M.S. Eng'g Sci. (UNSW).
M.I.E.(Aust), CPEng
Australian Acoustical Society (Member)

Corona Projects

Development Application

STATEMENT OF ENVIRONMENTAL EFFECTS

Change of Use to Community Facility
with Associated Alterations and Additions

682 Castlereagh Road, Agnes Banks

July 2020

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PROJECT DETAILS

Client:	Vaishnav Sangh of Sydney
Subject land:	682 Castlereagh Road, Agnes Banks
Lot Description:	Lot 2, DP 252556
Proposed development:	Change of Use to Community Facility with Associated Alterations and Additions
The report is prepared by	Emma Rogerson Bachelor of Architecture and Environments (USYD)
The report is reviewed by	Crystal Pan Bachelor of Design in Architecture (UTS)
Project Code:	J000481

I certify that the contents of the Statement of Environmental Effects to the best of my knowledge, has been prepared as follows:

- In accordance with Section 4.12 of the Environmental Planning and Assessment Act 1979 and Clause 50 of the Environmental Planning and Assessment Regulation 2000;
- The statement contains all available information that is relevant to the environmental impact assessment of the proposed development;
- To the best of my knowledge the information contained in this report is neither false nor misleading.

Quality Management

	Name	Date	Signature
Prepared by	**Emma Rogerson**	07/07/2020	
Checked by	**Crystal Pan**	08/07/2020	
Approved for issue by	**Emma Rogerson**	08/07/2020	

1.0 INTRODUCTION

This Statement of Environmental Effects has been prepared for Vaishnav Sangh of Sydney to accompany a Development Application (DA) to Penrith Council for the change of use to community facility with associated alterations and additions at 682 Castlereagh Road, Agnes Banks.

More specifically, the proposed development comprises the change of use from residential dwelling to community facility with associated building and external works including the addition of new landscaping, in-fill of swimming pool, construction of car park and building extension. No signage is proposed.

The proposal is permissible with consent and is suitable for the site and the area. The proposal has been designed to relate to its site and to the streetscape in terms of appearance, envelope, setbacks, bulk and scale. The proposal will operate without any significant impact to the amenity of neighbouring properties.

This statement assesses any numeric non-compliance as acceptable on merit, resulting in no adverse impacts and in compliance with all relevant DCP and LEP objectives.

The purpose of this SEE is to:

- Describe the site to which the application applies and its context;
- Describe the proposed development
- Describe the legislative framework against which the application is to be assessed and determined; and
- Provide an assessment of the environmental impacts in accordance with the Section 4.15 of the EP&A Act 1979.

This Statement has been prepared in reference to the following:

Document	Author TBA	Date TBA
Architectural Plans	Design by RJV	July 2020
Acoustic Report	Acoustic, Vibration and Noise	June 2020
Access Report	Vista Access Architects	December 2017
Access Letter	Vista Access Architects	May 2020
Bushfire Hazard Report	Firefront Bushfire Consulting	August 2017
Econocycle Quotation	Econocycle	August 2017
Flood Level Enquiry	Penrith Council	April 2016
Landscape Plan	Monaco Designs	June 2020
Management Handbook	Vaishnav Sangh of Sydney	June 2020
Not for Profit Certificate	ACNC	-
Previous VS Sydney Events	Vaishnav Sangh of Sydney	April 2020

Pre-DA Meeting Advice	Penrith City Council	September 2019
Site Investigation	EnviroTech	March 2020
Stormwater Concept Plan	WaterDesign	June 2020
Survey	East Coast Positioning	May 2016
Section J Report	Dural Group	May 2020
Traffic Impact Study	Henson Consulting	Feb/Nov 2018
Traffic Study Addendum Letter	Henson Consulting	June 2020
VS Sydney Profile	Vaishnav Sangh of Sydney	April 2020
Waste Management Plan	EnviroTech	April 2020
Wastewater Explanation Document	Corona Projects	June 2020
(On-Site) Wastewater Management Plan	EnviroTech	July 2017

2.0 SITE ANALYSIS & CONTEXT

2.1 The Site

The site is located at 682 Castlereagh Road and is legally described Lot 2 in Deposited Plan 252556. The site is located on the corner of Castlereagh Road and Kooringal Drive.

Figure 1 – Site locality map (Google Maps)

Figure 2 – Aerial map (SIX Maps)

The site is irregular with a total area of 2.02 hectares by survey, with a 29-metre street frontage to Castlereagh Road. The southern side boundary measures 247.58 metres and the northern side boundary measures 236 metres. The rear boundary measures 101.015 metres. The site falls from the street towards the rear by approximately 15 metres. The built-upon portion of the site is relatively flat.

The site currently contains a single storey brick building with a tiled roof. The building contains one residential premises. The front and rear of the site is landscaped with shrubs and grass. Vehicular access is available from Kooringal Drive.

The land is zoned RU1 under the provisions of Penrith Local Environmental Plan 2010 (PLEP 2010). The site is not identified as a Heritage Item, nor is it located within a Heritage Conservation Area (HCA). A portion does adjoin Castlereagh Road, a Heritage Item, but the property is not considered as a contributory item.

Figure 3 – Subject site as viewed from Castlereagh Road (Google Maps, November 2019)

Figure 4 – Subject site as viewed from Kooringal Drive (Google Maps, November 2019)

Figure 5 – Existing main building (Corona Projects, 2020)

Figure 6 – Existing vehicle entry (Corona Projects, 2020)

Figure 7 – Rear of site viewed from Kooringal Drive (Corona Projects, 2020)

2.2 The Locality

The site is located within a rural area of Agnes Banks. The locality comprises a mix of agricultural and residential development of buildings heights typically of one storey. The site adjoins residential properties to its east and south-east at No. 674 and No. 676-680 Castlereagh Road. The property located to the west of the development site at No. 686-692 Castlereagh Road is being used for turf production, with no residential component. Other neighbouring properties are substantially distanced from the site, given the large lot sizes, reducing the risk of any impact.

2.3 Connectivity and Public Transport

The site is located within the suburb of Agnes Banks and has access to public transport. Bus stops are located directly outside the site, along Castlereagh Road which are currently serviced by the bus route 678. The 678 bus route connects the site to Penrith, the proposed centre of the Western

Parkland City under the strategic Greater Sydney Regional Plan. This bus route also facilitates access to the site from Richmond Station in under 10 minutes.

Figure 8 – 678 Route Map (Moovit, 2020)

2.4 Development History

A search on Council's DA Tracker returned the following results for development applications associated with the site:

- Withdrawn DA18/0366 - Community Facility - Alterations and Additions to an Existing Dwelling and Change of Use to a Community Facility with Associated Car Parking, Children's Play Facilities, Volley Ball Court, Viewing Platform and Monument.
- CDP13/0488 – Swimming Pool.

3.0 THE PROPOSAL

3.1 Overview

The Development Application proposes the change of use from residential dwelling to community facility with associated building and external works including the addition of new landscaping, in-fill of swimming pool, construction of car parks and building extension. No signage is proposed. High quality Colorbond sound barrier fencing will also be implemented.

The proposal has been designed to relate to its site and to the streetscape in relation to appearance, envelope, setbacks, bulk and scale. The contemporary design utilises high quality materials and detailing to present an unobtrusive visual outcome for the adjoining Heritage Item and locality. The development will be commensurate in height and scale with other buildings along Castlereagh Road.

Please refer to plans prepared by Design by RJV.

3.2 Development Configuration

The proposed development comprises the following:

Level	Use
Ground Floor	Main Hall
	Administration Room
	Library
	Laundry
	Store Room
	Kitchenette
	Toilets (Female, Male and Accessible)
Outside	Car Park
	Donatives Display Room
	Covered Alfresco Space
	New Tiling
	Wheelie Bin Storage
	Landscape Screening

Ground Floor

The ground floor of the premises is being predominantly retained, with amendments including, but not limited to, the extension of Main Hall space and the addition of new bi-fold and standard doors.

Outside

External changes include the in-fill of swimming pool, addition of new covered alfresco space and external tiling. A new carpark will mitigate any parking concerns and landscaping will assist to allow the changes to blend with the existing development and retain the natural character of the area.

3.3 Numerical Overview

A brief numerical overview of the development parameters for the proposed development is included in the following table

Table 1: Key development components

Component	Proposal
Site area	2.02 ha
Gross Floor Area	666m²

Floor Space Ratio	0.03:1
Height	1 storey
Boundary setbacks • Side (north east) • Side (Kooringal Dr)	 11.875m 16.570m
Landscaped Area	17,100m²
Car spaces	65 (including 2 accessible)

3.4 Community Facility Summary and Operational Plan of Management

Please refer to *VS Sydney Profile, Previous VS Sydney Events* and *Management Handbook* supplementary document for further detail on the below.

Items	Details
Community facility name	Vaishnav Sangh of Sydney
Signage details	No signage is proposed under this application. This will assist the development to blend with the surrounding landscape setting.
Who are Vaishnav Sangh of Sydney and what do they do?	Vaishnav Sangh of Sydney are a not-for-profit organisation established in Sydney in 2001. A copy of the Not-for-Profit Certificate is submitted alongside this application. Their main objective is to be a Service of Excellence within our community, and in particular the Indian Australian community. Their vision is to promote a strong, vibrant, secular and multicultural relationship between the Indian and Australian communities. Similar groups for other ethnic communities include the Australian Chinese Community Association of NSW, the Croatian Community Centre, the Dalmacija Sydney Croatian Club and the Greek Orthodox Community, for example.
Nature of the group	The group has an inclusive and family-friendly nature with events suitable for all ages and capabilities.
Examples of activities/events held at other sites	Examples of activities held at other sites include picnics and cultural drama and dance performances. More examples are detailed within the *Previous VS Sydney Events* document supplied.
Frequency and Purpose of use.	See activity schedule below. More detail, including festivities and special events are provided in the *VS Sydney Profile* document supplied.

	WEEKDAYS (once to twice)	WEEKENDS	EVENT DAYS (12 times/year approx..)
No. of people	Up to 15	Up to 50	Up to 200
Time	Mostly between 5pm - 7 pm	Between 12pm to 7 pm	Between 2pm - 7 pm / Event time 4pm - 7pm
Purpose	Admin work, maintenance event preparation	Volunteers meeting, admin. work, site preparation, rehearsal	Community attendance, dramas, dance, singing, celebrating community events

Expected number of people on site at any given time	Maximum 200 – no more than once per month.
Waste disposal and collection arrangement	The waste bins, shown on the architectural plans, are proposed to be wheeled by a staff member each week to the eastern-most

	vehicle entry/driveway for collection by the Council along Kooringal Drive. This carpark area provides adequate turning space and events will be organised to avoid conflict with collection times. Refer to *Waste Management Plan and Operational Management Plan* for further information.
Travel/parking arrangement	Most patrons are expected to drive to the community facility. An on-site carpark can cater for 66 cars, including 2 accessible spaces.
Proposed noise sources and reduction measures	Refer to Acoustic Report prepared by Acoustic, Vibration and Noise Pty Ltd.
Access for disabled customers	Disabled access is available via an external platform lift providing access from the carpark to the main building.
Toilet facilities, including disabled toilet	The premises will have separate male, female and ambulant facilities.
Complaint management	Complaints will be directed to the 7 committee members. Contact details are available within the *Management Handbook* document supplied.
Emergency procedures	Detailed within *Management Handbook* document supplied. A comprehensive evacuation plan will be prepared at the Construction Certificate Stage.
Cleaning and Maintenance	The premises will be thoroughly cleaned by staff on a regular basis and will be consistently kept tidy during operational hours. Additional cleaning will be carried out after each event held at the premises. A pest control inspection of the premise will be carried out regularly.
Wastewater Monitoring, Review and Management.	The OWMP will be reviewed every 5 – 19 years, where practical, to remain contemporary. In the case of a system failure, porta-loos will be implemented until the AWTS be repaired. Odour will be managed with adequate setbacks from sensitive areas and frequent maintenance. Health and safety will be ensured by only engaging suitably qualified contractors to service and tend to the wastewater system.

3.5 Pre-DA Meeting Response

On 11 September 2019 a Pre-DA meeting, PL19/0060, was had. All issues raised have been addressed in the following ways:

Feedback	Action
Clarify “community facility” use.	Completed - Refer to Part 4.1.4 of this report.
Demonstrate compliance with RU1 objectives.	Completed - Refer to Part 4.1.4 of this report.
Retain and enhance landscaping within setbacks. Keep both front setbacks as unbuilt.	Completed – Refer to plans demonstrating landscaping along all relevant setbacks.
Delete landscaped monument and viewing deck.	Completed – Refer to plans demonstrating deletion of monument and viewing deck.
Provide a robust operational plan of management.	Completed – Refer to Part 3 of this report.
Address SEPP 55 and submit either a Phase 1 or Phase 2 Site Investigation.	Completed – Refer to Part 4.1.1 of this report and *Site Investigation Report* submitted.

Provide Waste Management Plan. It should include quantities, storage locations and removal as well as vehicular access for collection.	Completed – Refer to *Waste Management Plan* submitted alongside this application.
Detail water quality, noise, dust, air quality and sediment & erosion control within SEE and plans.	Completed – Refer to Part 4.2 of this report.
Provide an Acoustic Report. Noise mitigation measures should be shown on the plans.	Completed – Refer to Acoustic Report.
Provide a Wastewater Assessment Report and an Operational Wastewater Management Plan.	Completed – Refer to the *Wastewater Explanation* report for detail on how the *On-site Wastewater Management Report* and *Econocycle Quotation* satisfy Councils requirement.
Provide a Stormwater Plan. The Plan needs to demonstrate that downstream stormwater systems have adequate capacity to accommodate new stormwater flows from the development.	Completed – Refer to *Stormwater Plan.*
All plans for the site must have levels and details to AHD.	Completed – Refer to Architectural Plans.
Demonstrate compatibility with the State Government Floodplain Development Manual and Councils LEP and DCP for Flood Liable Lands.	Only fencing around the rear dam and the colorbond acoustic screening is located within the flood affected portion of the site. All other building works are not flood affected.
Provide a Water Sensitive Urban Design Strategy. The Strategy should address water conservation, water quality, water quantity, and operation and maintenance.	Completed – Refer to *Stormwater Plan.*
Provide a Traffic and Parking Statement.	Completed – Refer to *Traffic Impact Study, Addendum* and plans.
Implement a gradient ramp instead of a stair lift.	Acceptable upon merit– Refer to *Access Letter*.
Provide a Section J Report.	Completed – Refer to *Section J Report.*
Ensure roofed rear space has fire hydrant and hose reel coverage.	Deferred Matter – Refer to Part 4.3.1

4.0 STATUTORY PLANNING FRAMEWORK AND ENVIRONMENTAL ASSESSMENT

This Chapter provides an environmental assessment in accordance with Section 4.15 of the Environmental Planning and Assessment Act 1979.

4.1 Statutory and Policy Compliance

The relevant matters for consideration under Section 4.15(a) of the EP&A Act, 1979, are identified as:

- State Environmental Planning Policy No. 55 – Remediation of Land
- State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004
- Penrith Local Environmental Plan 2010
- Penrith Development Control Plan 2014

The primary statutory document that relates to the subject site and the proposed development is Penrith Local Environmental Plan 2010. The primary non-statutory plan relating to the subject site and the proposed development is Penrith Development Control Plan 2014.

4.1.1 State Environmental Planning Policy No. 55 – Remediation of Land

This Policy is to provide for a state-wide planning approach to the remediation of contaminated land. Subject to Clause 7, considerations should be given to the suitability of land in terms of contamination.

The subject site has a long history of being used for the rural residential or pet supply business purposes. There is no evidence to suggest that any activities listed under Table 1 of the Contaminated Land Planning Guidelines have been undertaken, however, a Site Investigation Report has still been prepared and submitted alongside this application to confirm suitability of land.

4.1.2 State Environmental Planning Policy (Infrastructure) 2007

An RMS referral for this development, considered to be similar to a *Place of Assembly,* is not required as access to the site is not gained from a classified road and 200 or more vehicles are not expected to travel to the site at any one time, supported by the *Transport Impact Study* prepared by Henson Consulting.

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

SEPP (BASIX) 2004 does not apply to the proposed development as the proposal is not residential. Despite this, a Section J Report is submitted with the application and confirms that the proposal will comply with energy efficiency requirements for the commercial development.

4.1.4 Penrith Local Environmental Plan 2010

The development complies with the provisions of Penrith Local Environmental Plan 2010 (PLEP 2010).

Zoning and permissibility

The site is located in Zone RU1 – Primary Production.

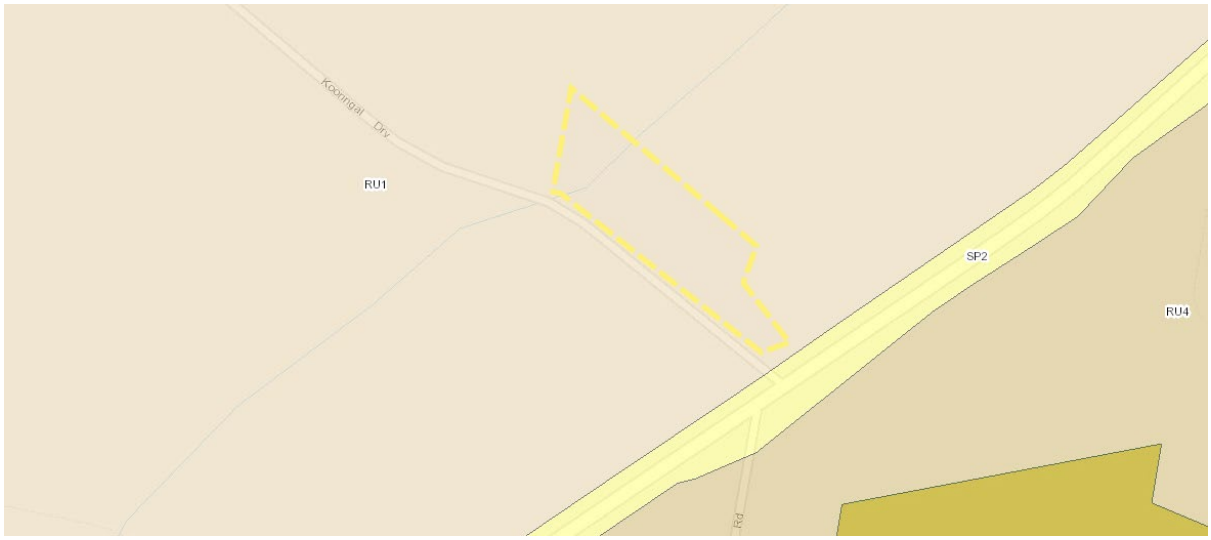


Figure 9 – Land Zoning Map (NSW Planning Portal)

The development is identified to be a *community facility*, which is permitted with consent in the RU1 zone. A *community facility* means a building or place: (a) owned or controlled by a public authority or non-profit community organisation, and (b) used for the physical, social, cultural or intellectual development or welfare of the community, but does not include an educational establishment, hospital, retail premises, place of public worship or residential accommodation.

The proposal is not a place of worship as no religious worship or congregation of a religious group, (the two characterising activities identified under the *place of public worship* PLEP 2010 definition) is proposed. The Vaishnav Sangh of Sydney is a not-for-profit organisation, whose subject Development Application is for a community facility as it is for cultural development use and is a registered charity (refer to attached certificate). More information can be found within the *VS Sydney Profile* document submitted alongside this application. “St Marys Corner” community centre is an existing example.

This application is furthermore not considered to be an *educational establishment* as it does not provide any formal education when an *educational establishment* means “a building or place used for education (including teaching), being: (a) a school, or (b) a tertiary institution, including a university or a TAFE establishment that provides formal education and is constituted by or under an Act.”

The objectives of the RU1 zone are:

a) *To encourage sustainable primary industry production by maintaining and enhancing the natural resource base.*
b) *To encourage diversity in primary industry enterprises and systems appropriate for the area.*
c) *To minimise the fragmentation and alienation of resource lands.*
d) *To minimise conflict between land uses within this zone and land uses within adjoining zones.*
e) *To protect and enhance the existing agricultural landscape character of the land.*

f) To ensure development is compatible with the environmental capabilities of the land and does not unreasonably increase the demand for public services or public facilities.

g) To preserve and improve natural resources through appropriate land management practices.

The proposed development will provide a community facility premise that will be capable of a range of community and cultural uses that will complement the existing uses within the locality of Agnes Banks. The objectives of the RU1 are met as follows:

a) The development will maintain and enhance the natural resource base of the area by the increasing landscaping along all setbacks in the form of substantial screening.
b) The proposal does not limit any future primary industry enterprise or systems from utilising the site.
c) The fragmentation and alienation of resource lands is not caused by this development as no subdivision or large-scale development is proposed, and this site is not identified as resource sensitive by the Natural Resources Sensitivity Land Map by the PLEP 2010.
d) Conflict between land uses in this zone and adjoining ones is avoided by the seamless integration of the subject development, by way of landscape screening to mask non-characteristic elements on site and by providing adequate parking to avoid traffic impacts.
e) The agricultural landscape character of the land is supported by the retention of a substantial portion of landscaping and addition of landscape screening along setbacks.
f) An unreasonable increase in demand for public services or facilities is not produced by the development as the site has adequate existing access to electricity, telephone and reticulated water services are available, and an on-site waste disposal is proposed.
g) Natural resources are preserved and improved by way of landscape celebration and screening additions. This site is not identified as resource sensitive by the Natural Resources Sensitivity Land Map by the PLEP 2010

Clause 4.3 Height of Buildings

The Height of Building Map does not stipulate a maximum permissible height for the development site. Regardless, in order to protect the existing character of the site and wider locality, proposal does not include any increase in height above the existing highest ridge line. All new roof additions have been positioned lower so that they are viewed subservient to the original structure.

Clause 4.4 Floor Space Ratio

The Floor Space Ratio Map does not stipulate a maximum permissible Floor Space Ratio for the development site.

Clause 5.10 Heritage Conservation

The site is not identified as a Heritage Item, nor is it located within a Heritage Conservation Area (HCA). A portion does adjoin Castlereagh Road, a local Heritage Item, but the property is not considered as a contributory item.

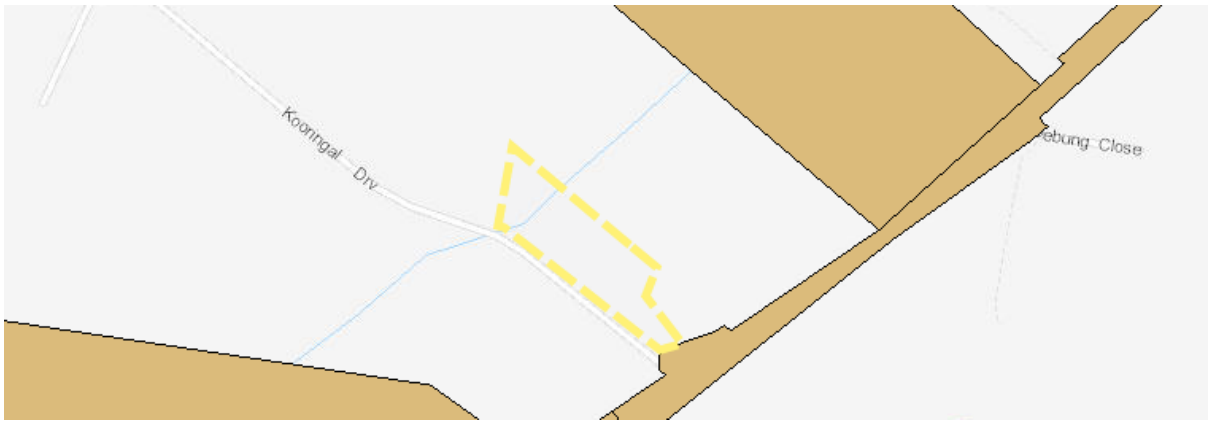


Figure 10 – Heritage Map (NSW Planning Portal)

Clause 7.5 Scenic Character and Landscape Values

The Scenic and Landscape Values Map identifies this site as scenic and landscape value protected land. The minor nature of the proposed works and inclusion of increased landscape screening along setbacks minimises visual impacts from both Castlereagh Road and Kooringal Drive. Refer to Appendix A for a Visual Impact Assessment which highlights the way in which the development upholds the scenic character and landscape values of the site.

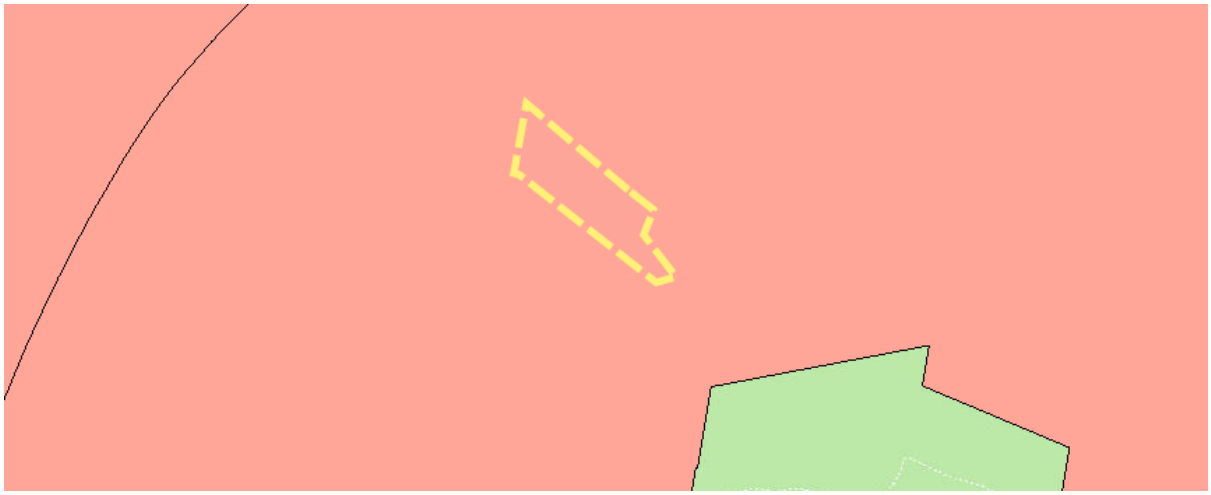


Figure 11 – Scenic Protection Lan (NSW Planning Portal)

Bushfire Prone Land

The Bushfire Prone Land Map identifies the majority of the property to be within Vegetation Category 2 with a small portion along the northern corner to be of Vegetation Buffer classification. A Bushfire

Hazard Assessment Report has therefore been prepared by Firefront Bushfire Consulting to assess the suitability of the proposed development on site.

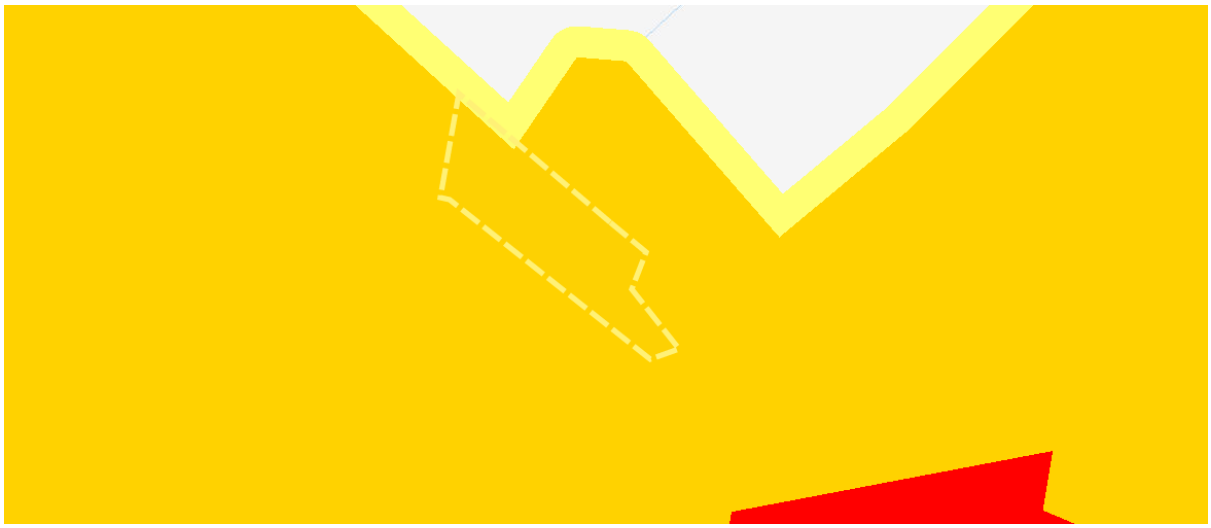


Figure 12 – Bushfire Prone Land Map (NSW Planning Portal)

4.1.5 Penrith Development Control Plan 2014

The development achieves a high level of compliance with the provisions of Penrith Development Control Plan 2014.

Control		Comment	Compliance
C1 – SITE PLANNING AND DESIGN PRINCIPLES			
1.1 Site Planning			
1	New proposals on land identified in the LEP Scenic and Landscape Values Map are to submit a visual impact assessment with their development application.	A Visual Impact Assessment has been submitted.	Yes
1.2 Design Principles			
1.2.3 Building Form – Height, Bulk and Scale			
a	Context: An applicant must demonstrate how all proposed buildings are consistent with the height, bulk and scale of adjacent buildings and buildings of a similar type and use.	The proposed alterations and additions retain the existing buildings single storey and modest form and scale.	Yes
b	Character: An applicant must demonstrate how any building's height, bulk and scale will avoid or minimise negative impacts on an area's landscape, scenic or rural character taking into account the topography of the area, the surrounding landscape and views to and from the site.	The sites existing landscape character is retained by the celebration and enhancement of landscaping on site, specifically in the form of landscape screening along boundaries. Refer to landscape plan and Appendix A – View Impact Assessment.	Yes
c	Articulation: Where the dimension of the building is 20m or more, an applicant must demonstrate how the building or surface has been articulated (either through built form or materials) to minimise impact on bulk and scale.	The building on site is articulated by way of various room extrusions and entry detailing. Bi-fold doors provide relief to any larger building panels and minimise bulk and scale impacts.	Yes

Control		Comment	Compliance
d	Overshadowing: Building locations, height and setbacks should seek to minimise any additional overshadowing of adjacent buildings and/or public spaces where there would be a significant reduction in amenity for users of those buildings or spaces.	Overshadowing is reduced by retaining the small scale, single storey height and substantial setbacks between neighbouring properties.	Yes
e	Setbacks/Separations: Buildings should be sufficiently set back from property boundaries and other buildings to:	-	-
i	Maintain consistency with the street context and streetscape character, especially street/front setbacks.	The proposal shows consistency with the established setbacks, with indiscernible or no change from existing.	Yes
ii	Maximise visual and acoustic privacy, especially for sensitive land uses.	Visual and acoustic privacy is achieved by way of retaining substantial setbacks between other properties and the public domain, by the installation of additional landscape screening and by reasonably restricting hours of operation/use.	Yes
iii	Maximise deep root planting areas that will support landscape and significant tree plantings integrated with the built form, enhancing the streetscape character and reducing a building's visual impact and scale.	Deep root planting areas are maximised by the retainment of the majority of these areas on site. The addition of landscape screening assists to adhere to the landscape character.	Yes
iv	Maximise permeable surface areas for stormwater management.	Permeable surface areas are maximised by keep as much of the site as practical landscaped.	Yes
v	Minimise overshadowing.	Overshadowing is minimised by retaining the one-storey development height and substantial setbacks between other properties and the public domain.	Yes
g	Roof Design: The roof is an important architectural element of any building and: i) the shape and form of the roof should respond to its surrounding context and minimise visual impact from any key viewpoints; and ii) should consider opportunities for incorporating 'green roofs'.	Any roofing and awning additions are of the same colouring as the existing roof style. There is no opportunity to install a 'green roof' due to the small scale of the development.	Yes
1.2.4 Responding to the Site's Topography and Landform			
b	Any built form should be located, oriented and designed to minimise excavation, cut and fill in accordance with the requirements of the Land Management Section of this Plan.	New building elements are restricted to existing flatter terrain on site as much as possible to reduce the need for earthworks.	Yes
1.2.5 Safety and Security (Principles of Crime Prevention through Environmental Design)			
-	The following relevant developments will generally be referred to the Police: Large recreational facilities and community facilities such as community centres.	This application will be referred to the Police by Council during the DA assessment stage.	Yes
1	Natural Surveillance must be considered and achieved.	This is achieved in the following ways: By positioning building openings towards the carpark, entry ways and the street and producing sightlines	Yes

Control		Comment	Compliance
		between these spaces; The installation of both standard and sensor lighting in relevant areas, such as the carpark, and main entryways; Maintaining landscaping often to avoid overgrown obstructions.	
2	Access Control must be considered and achieved.	This is achieved in the following ways: Clear street numbering, driveway entry and egress ways, and clear pedestrian paths that channel pedestrians to the entrance of the community facility; Vegetation barriers are proposed along Castlereagh Road, a portion of Kooringal Drive, and with the adjoining property to the north east. Public spaces provide spaces that attract people to gather.	Yes
3	Territorial Reinforcement must be considered and achieved.	The subject site has distinct fencing to separate the boundaries between the public road and the community facility. Spaces within the facility are clearly defined.	Yes
4	Space Management must be considered and achieved.	The building will be maintained by regularly inspecting and rectifying any maintenance issues such as painting and cleaning. In the unlikely event of graffiti, this will be removed within 24 hours.	Yes
1.2.6 Maximising Access and Adaptability			
-	Development applications for areas that involve frequent public use should consider the below Principles of Universal Design: 1. Equitable use. 2. Flexibility in use 3. Simple and intuitive use 4. Perceptible information 5. Tolerance for error 6. Low physical effort 7. Size and space for approach and use	Refer to Access Report submitted alongside this application.	Yes
C2 – VEGETATION MANAGEMENT			
2.1 Preservation of Trees and Vegetation			
6a	The siting and layout of a development should consider, at the initial concept stage, the location of trees and other vegetation and favour their retention.	The development has been sited to reduce the number of trees impacted and required for removal as far as practical.	Yes
6f	An application is required to address the effect of the proposed development on existing vegetation, the landscape character and the scenic quality of the locality.	This is discussed at various points within this report. Refer to Appendix A – View Impact Assessment.	Yes
6l	Wherever trees or vegetation are removed, an equal or greater number of replacement trees that grow to a similar or greater height or canopy should, where practical, be incorporated into the landscaping design of the new development.	Landscape screening is proposed which assists to replace any landscaping removed. Refer to Appendix A – View Impact Assessment.	Yes
2.3 Bushfire Management			

Control		Comment	Compliance
1a	If land is identified as 'bushfire prone land' on the Bushfire Prone Land Map, then any development application on that land must address the bush fire protection measures set out in the document 'Planning for Bushfire Protection 2006 (PBP)	Refer to Bushfire Impact Assessment report submitted alongside this application which confirms compliance with PBP.	Yes
C3 – WATER MANAGEMENT			
-	This development is required to meet Water Sensitive Urban Design (WSUD) Water Conservation 5(a) performance criteria.	Refer to Stormwater Concept Plan submitted alongside this application demonstrating compliance.	Yes
3.3 Watercourses, Wetlands and Riparian Corridors			
1	If any activities/land uses are proposed near a watercourse, the Water Management Act 2000 may apply and you may be required to seek a Controlled Activity Approval from the Office of Water.	The only development proposed within 40m of the watercourse on site is the 1.8m fencing around the dam.	Yes
3.5 Flood Planning			
a	Where relevant, a comprehensive flood study is to be submitted with the development.	The Flood Level Enquiry, submitted along this application, identifies the 1% AEP flood level to be 18.4AHD on this site. All buildings and areas commonly used by people are located well above this and the 0.5m freeboard.	Yes
b	The applicant shall be required to demonstrate to the satisfaction of Council (on the basis of a qualified consultant report) that: i) The development will not increase the flood hazard or risk to other properties; ii) N/A; iii) N/A iv) The buildings are sited in the optimum position to avoid flood waters and allow safe flood access for evacuation; v) The proposed redevelopment will not expose any resident to unacceptable levels of risk or any property to unreasonable damage; vi) N/A		Yes
3.6 Stormwater Management and Drainage			
a	The development of any lot should take into account the existing drainage patterns of the area, including any localised ponding, and whether the proposed development is likely to affect: i) Access to the site; ii) Drainage on adjoining properties; iii) Localised nuisance flooding on adjoining properties; and iv) Natural overland flow or drainage paths.	Stormwater will be collected for reuse on site, with overflow directed to a grassy swale within the property boundary. Refer to Stormwater Concept Plan.	Yes
C4 – LAND MANAGEMENT			
4.1 Earthworks			
a	Any development application that proposes earthworks and therefore changes to the levels of a site, is required to clearly address the following in the Statement of Environmental Effects or a Geotechnical Report Land Management i) The location and extent of the earthworks on the site; ii) Justification for the need to change the land levels in terms of the overall development; iii) Any other impacts from the changed land levels as a consequence of the earthworks.	Proposed earthworks are of a minor nature and are required to accommodate for a suitable car parking scheme, critical to the amenity of the subject site and its neighbours regarding traffic flow and parking availability. The earthworks do not result in any adverse impact.	Yes
4.2 Landfill			
a	Imported fill shall not include putrescible waste (i.e. waste that breaks down) or building material.	A small amount of fill will be required to fill in the swimming pool. This fill	Yes

Control		Comment	Compliance
	Clean fill including soil, sand or virgin excavated natural material (VENM) is generally acceptable.	will be sourced from a reputable supplier, and this requirement can be conditioned to the consent.	
b	The filled area shall be drained to Council's satisfaction and not impact upon the drainage characteristics of other properties in the catchment area.		Yes
4.3 Erosion and Sediment Control Plan			
-	Consideration must be made for the treatment of erosion and sediment control.	Refer to Waste Management Plan submitted alongside this application.	Yes
4.4. Contaminated Lands			
1	Any application must provide appropriate information relating to past, present and proposed land uses.	Refer to SEPP 55 discussion in Part 4.1.1 of this report.	Yes
3	3) Council may require any site investigation report or similar information submitted in support of an application to be referred to a site auditor for an independent review.	Refer to Site Investigation Report submitted alongside this application.	Yes
C5 – WASTE MANAGEMENT			
-	Applicants are to submit a Waste Management Plan when lodging a development application.	Refer to Waste Management Plan submitted alongside this application.	Yes
C6 – LANDSCAPE DESIGN			
-	Select low water/low maintenance plants, including drought tolerant species; Planting native or indigenous plants; Using irrigation systems that utilise drip irrigation systems; Using recycled and biodegradable products in the landscape design; Using quality, long lasting materials; Minimise soil erosion; Avoid excavation and filling; Conserve site soil; Bushfire resistant species; Minimise impervious surfaces; Consider neighbourhood amenity and character Retaining walls must be masonry or concrete, timber retaining walls are not permitted.	Refer to Landscape Plan submitted alongside this application.	Yes
C10 – TRANSPORT, ACCESS AND PARKING			
10.1 Transport and Land Use			
1	A Transport Management and Accessibility Plan (TMAP) is to be prepared for all significant developments.	Refer to Traffic Impact Study and Statement by Henson Consulting submitted alongside this application.	Yes
10.2 Traffic Management and Safety			
-	Traffic studies may be required for some developments. Check with Council about whether a traffic report is required to support your proposal.	Refer to Traffic Impact Study and Statement by Henson Consulting submitted alongside this application.	Yes
10.3 Key Transport Corridors – Castlereagh Road is identified as a Key Transport Corridor			
1	Character of Key Transport Corridors: a) Applicants need to ensure that the proposed development is in character with each of the key transport corridors. b) Access driveways and development in proximity to the key transport corridors need to protect the landscape character and any heritage values, and ensure traffic safety.	Refer to Traffic Impact Study and Statement by Henson Consulting submitted alongside this application. The landscape character is retained by the proposal as the frontage along Castlereagh Road is being retained.	Yes
2	Development Setbacks from Transport Corridors	The building is setback by more than 30m from Castlereagh Road and	Yes

Control		Comment	Compliance
	b) A minimum setback of 30m is required from all other key transport corridors where development is proposed in rural or environmental zones.	vehicular access is from a secondary street.	
10.5 Parking, Access and Driveways			
a	Parking provided on site is to meet AS 2890 and where appropriate, AS 1428.	Refer to Traffic Impact Study and Statement by Henson Consulting submitted alongside this application which demonstrates that the proposal is adequate regarding parking, access and driveways.	Yes
b	On-site parking is required in accordance with Table C10.2. If no parking rates are listed for the specific use, then the applicant should demonstrate that adequate parking is provided.		Yes
10.6 Pedestrian Connections			
1	Footpaths should have ramps at all kerb corners for wheelchairs and pram access and cater for all people with diverse abilities in line with current Australian Standards.	Refer to Access Report submitted alongside this application.	Yes
6	A durable, non-slip surface and even paving is to be designed and constructed for minimum maintenance. Continuous pathways, uninterrupted by variations in surface material must be provided.		Yes
C13 – INFRASTRUCTURE AND SERVICES			
13.2 Utilities and Service Provision			
a	Any site analysis should address the existing and proposed provision of services/utilities to a property and whether there is satisfactory capacity to address the required demand of the proposal.	Connections for telecoms, electricity and reticulated water are established.	Yes
13.3 On Site Sewerage Management			
a	Approvals are required for the installation and operation of all new OSSM systems. Installation and operational approvals will initially be assessed together.	Refer to Operational Wastewater Management Plan and Wastewater Assessment Report submitted alongside this application.	Yes
b	The installation and operation of OSSM systems are to be in accordance with Council's On-Site Sewage Management and Greywater Reuse Policy.		Yes
c	A Wastewater Assessment Report is required to be submitted with an application for the installation of a new domestic OSSM system when the criteria of Council's On-Site Sewage Management and Greywater Reuse Policy have been met.		Yes
d	A Wastewater Assessment Report is also required with an application for all commercial systems, in accordance with Council's On-Site Sewage Management and Greywater Reuse Policy.		Yes
D1 – RURAL LAND USES			
1.1 Rural Character			
1	To preserve the rural character of the City of Penrith, all major development should seek to retain and protect the scenic, landscape and rural character of the City (where the relevant land uses are permissible within the zone and in accordance with the controls in Penrith LEP 2010 and this DCP).	Refer to Visual Impact Assessment submitted alongside this application.	Yes

4.2 Impacts of the Development

As noted in the above assessment against the provisions of the relevant Environmental Planning Instruments and Development Control Plan, the development is of a reasonable scale and nature, and does not present unreasonable environmental, social and economic impacts.

Impacts on Natural and Built Environment

The integrative nature of the physical works with existing development on site results in no adverse impacts for the natural and built environment. The single-storey nature of the development and substantial setbacks from neighbouring properties results in no solar access, view loss or privacy concerns.

The development involves the removal minor landscaping at the front of the site for car-parking space which is considered to be of an acceptable environmental impact as the majority of landscaping on site is retained, landscape screening is introduced along boundary setbacks and the overall natural character of the site and locality is not altered.

Figures 13 – 19 highlight the effectiveness of the additional landscape screening.

Figures 13 and 14 – Existing Vs Proposed view from Cnr of Castlereagh Road and Kooringal Drive

Figure 15 - Proposed view from Cnr of Castlereagh Road and Kooringal Drive

Figures 16 and 17 – Existing Vs Proposed view from Castlereagh Road

Figures 18 and 19 – Existing Vs Proposed view from Kooringal Drive

Impacts during Construction

Refer to Waste Management Plan for Environmental Management considerations including noise, water quality, dust, air quality and sediment and erosion control during the construction phase.

Social and Economic Impacts

The proposal does not engender any negative social or economic outputs. The development increases the amenity of the property by the infill of underutilised and high maintenance swimming pool, and building alterations and additions which maximise the ability for both individuals and larger groups to enjoy the site without disturbing surrounding properties. The building works do not sterilise the site, in fact, they create flexible, high quality spaces that can be used by residential and commercial uses in the future. The development will thus also upgrade the presentation of the site to the street and improve aesthetic quality of the streetscape through the increased landscape screening along external boundaries.

The community facility proposal will allow the Indian Australian community to continue making valuable contributions to wider society, and support their vision and objectives. Some of these examples include:

a. Many Indians have and also considering locating to this municipality to be closer to the community centre.
b. The centre will utilize local services and businesses, which brings economic prosperity to the region.
c. Vaishnav Sangh has & will continue to undertake and assist in activities such as local blood donation, charity and food drives, fund raising for specific local programs.
d. To bring communities closer together & with the assistance of the local council; Vaishnav Sangh can offer services to schools & residents as required - such as celebrating/partaking in Harmony Day and key Indian (Diwali, Holi) & Australian (Australia Day, ANZAC day) cultural events
e. With their team of volunteers, Vaishnav Sangh of Sydney would be keen to assist the local community as required.

4.3 Suitability of the Site

The subject site is considered suitable in size and shape to accommodate the community facility development. The proposal does not introduce any incompatible uses to the site. The works are permissible under the RU1 zone.

4.3.1 Access to Services

The site is located within an established area with access to services and public transport. As the site is within an established area, electricity, telephone, and water services are readily available to the subject site. Sewer services are proposed under this development.

It is acknowledged that fire hydrant and hose reel coverage is typically required to be provided in accordance with the BCA for Class 9B structures, however, the client would like to ask that compliance with this be specifically waived given the minor nature of the additional physical works proposed and the substantial financial cost for the not-for-profit charity to implement the hydrant and reel coverage. If Council does not grant a waiver, it is requested that this matter be deferred for address at the Construction Certificate stage.

4.3.2 Parking and Access

The on-site parking provided complies with the parking requirements as prescribed by PDCP 2010. It provides a logical and considered approach to the provision of off-street car parking. The impacts arising as a result of the likely traffic generated by the proposal have been considered in the Traffic Impact Study and Statement prepared by Henson Consulting submitted separately with this application. The design and layout of on-site parking and vehicle access/egress is compliant with AS2890.1. As per Henson Consulting, the revised scheme “provides even better queuing length to and from the car parking. This will further improve an already good operation.”

Site access has been considered in the Access Report and Letter prepared by Vista Access Architects who state that the inclusion of an access ramp, as per Councils request, is “excessive (due to the site constraints) and will not suit a person who requires use of a manual wheelchair”. For this reason, the lift in lieu of ramps for this site is recommended.

4.3.3. Hazards

The site is in an area recognised by Council as being subject to flooding and bushfire. The proposed development is not likely to increase the likelihood of such hazards occurring and is considered appropriate in this instance.

A Flood Level Enquiry document has been obtained from the engineering department of Penrith Council dated 19 April 2016 which confirms that the “mainstream 1% AEP flood level affecting the above property is estimated to be RL18.4m AHD” and that “property less than 0.5m above the 1% AEP level is subject to Penrith Development Control Plan 2014 Section C3.5 Flood Planning”. All development is located more than 0.5m above the 1% AEP so no further consideration is required.

A Bushfire Hazard Assessment report has been prepared by Firefront Bushfire Consulting dated August 2017 which states that the development can achieve the performance criteria of Planning for Bushfire Protection 2006.

The proposal is considered satisfactory in this regard.

4.4 The Public Interest

The proposal is considered to be in the public interest due to its positive visual outcome on the streetscape and additional environmental, social and economic impacts.

The proposed development has been designed to relate to the size, shape and context of the site and has been designed in accordance with the desired future character for development in the area.

The proposal seeks to provide a community development that makes efficient use of space on the site in a prime location that is currently underutilised. In addition, the proposal has been designed to minimise as far as practical any adverse effects on existing and future neighbouring properties. The proposal is consistent with the applicable LEP and DCP provisions except where identified and justified in this Statement of Environmental Effects. Accordingly, the proposed development is considered to be in the public interest.

5.0 CONCLUSION

The Statement of Environmental Effects (SEE) has been prepared to consider the environmental, social and economic impacts of the community facility development at 682 Castlereagh Road, Agnes Banks. The report has addressed the applicable policies and plans, and has provided an environmental assessment in accordance with Section 4.15 of the Environmental Planning and Assessment Act 1979.

The application proposes a permissible development within the subject site locality. The proposal incorporates appropriate design considerations to minimise any adverse impacts on the natural and built environment, and the amenity of the surrounding neighbourhood.

Given the benefits of the development and compliance with the relevant policies and plans, we conclude that the proposed development at 682 Castlereagh Road, Agnes Banks as described in this application is reasonable and supportable, and worthy of approval by Penrith Council.

Appendix A – Visual Impact Assessment

The Scenic and Landscape Values Map identifies this site as scenic and landscape value protected land. The minor nature of the proposed works and inclusion of increased landscape screening along setbacks minimises visual impacts from both Castlereagh Road and Kooringal Drive, as well as neighbouring properties.

The purpose of this Visual Impact Assessment is to demonstrate that the proposed development of a community facility at 682 Castlereagh Road, Agnes Banks, is consistent with Cl 7.5 of the Penrith LEP 2010 and Penrith Development Control Plan 2014 (Site Planning and Design Principles and Cl 4.13 of Appendix F3).

The subject site is an existing rural residential property identified on the Scenic and Landscape Values map. The significant view from the property is to the northwest, towards the Nepean River and Blue Mountains National Park. Photos 1 – 12 show demonstrate this rural character and view.

The proposed development protects, maintains, and enhances the existing views to the Nepean River and The Blue Mountains National Park. The elevation of the site and sloping topography contribute to minimising visual impacts. The modest scale of the proposed built form is compatible with the existing single-storey dwelling and remains well below the mapped maximum building height for the site. The bulk and scale of the proposal are significantly less than those of surrounding agricultural structures; thus, the proposal is considered consistent with the surrounding character of the area.

Visual impacts of the proposal are minimised from both Castlereagh Road and Kooringal Drive by using landscaping screens around the parking areas. Additional landscaped screening is also proposed along boundary areas considered to be sensitive due to their proximity to neighbouring buildings on adjoining lots. The proposed development will continue to present to the street as a single-storey dwelling.

The additional roofing structure will be open on three sides and feature a roof height of less than that of the existing building on site. This allows the new additions to be viewed subservient to the original structures on site, and retain view corridors.

Photo 1 – Castlereagh Road looking southwest

Photo 4 – The subject site from Kooringal Drive

Photo 2 – Castlereagh Road looking northeast

Photo 5 – The existing house and pool

Photo 3 – The subject site from Castlereagh Road

Photo 6 – The existing house

Photo 7 – The existing entry

Photo 10 – View to south—Castlereagh Road

Photo 8 – View to the west

Photo 11 – View to the north—adjoining property

Photo 9 – View to the northwest

Photo 12 – View from the dam looking east

Penrith Local Environmental Plan 2010 Consideration –

Clause 7.5 Protection of scenic character and landscape values.

(3) Development consent must not be granted for any development on land to which this clause applies unless the consent authority is satisfied that measures will be taken, including in relation to the location and design of the development, to minimise the visual impact of the development from major roads and other public places.

Comment: As detailed within the architectural plans, the additions are of a modest scale and assist to retain the existing single-storey, low density nature of structures on site. Landscaped screening and the careful placement of new additions subservient to existing development will assist to minimise any visual impact from adjoining streets as well as neighbouring properties.

Penrith Development Control Plan 2014 Consideration –

Chapter C1 – Site Planning and Design Principles

Control		Comment	Compliance
1.1 Site Planning			
-	Site Analysis – Site analysis involves looking at the features of the site and the immediate surrounding area and, where possible, presenting the information in a diagrammatical plan(s). It includes the site and the immediate context – usually up to 50m or 100m in any direction from the site (depending on the scale of development, the proposed land use and its impacts). Site analysis should include plan and section drawings of the existing features of the site at the same scale as the site and landscape plan. That plan should include the following minimum elements: the site's dimensions and areas; north point and the site's orientation (e.g. solar access); topography (with 0.5m to 1m contours); road and pedestrian access points; services and infrastructure (e.g. electricity poles, stormwater drainage lines, natural drainage, kerb crossings and easements); rights of way; views to and from the site (more detail is provided below); site overland flows and drainage patterns; geotechnical characteristics of the site and suitability for development; location of site in relation to shops, community facilities and transport; heritage items on site or on adjoining properties; form and character of adjacent and opposite buildings in the streetscape, including both sides of any street that the development fronts; location and use of any existing buildings or built features on the site; location and important characteristics of adjacent public, communal and private open spaces; location of significant vegetation on the site; location of any significant noise sources on and in the vicinity of the site; and assessment of site contamination and/or remediation.	Refer to Architectural drawing set for site analysis and relevant details.	Yes
1.2 Key Areas with Scenic and Landscape Values - B. Principles			

The following key principles should be addressed in a visual impact assessment to minimise the visual impact of the development and protect areas with high scenic and landscape values:			
	Protect and enhance the visual diversity and scenic quality of gateways and view sheds within the City of Penrith, including detailed, mid and long-range views;	The proposed development protects, maintains, and enhances the existing views to the Nepean River and The Blue Mountains National Park.	Yes
	Protect and enhance the key regional natural features that contribute to the character of Penrith as a City, including the Blue Mountains escarpment, the Nepean River, other riparian corridors and bushland reserves;		Yes
	Protect, maintain and enhance other important natural features, including ridgelines, hillsides, watercourses and riparian corridors, vegetation and landform;		Yes
	Protect, maintain and enhance backdrops and settings that contribute to the local identity;		Yes
	Protect, maintain and enhance views and vistas from vantage points, including main road corridors and other public places;		Yes
	Conserve and enhance historic landscapes, properties and their curtilages;		Yes
	Plan and site new development to enhance local identity. Development is to effectively integrate with the surrounding landscape so that any change as a result of the new development does not compromise the character of the landscape. Issues such as context, scale, size, built form and height, setbacks/buffers, landform, structural space (private and public), streetscape, vegetation and infrastructure are to be addressed;	The bulk and scale of the proposal are significantly less than those of surrounding agricultural structures; thus, the proposal is considered consistent with the principles of Cl 1.2.	Yes
	Strengthen local identity through consistency and/or compatibility of design. Design development to take into account issues such as scale, form, line, colour, texture, lighting, existing vegetation, open space and landscaping;		Yes
	Use vegetation to frame scenic views, provide interest or change, define new space, provide backdrops and visually connect all other elements within the setting;	Vegetation screening guides access routes and promotes views of relevant vistas.	Yes
	At gateways, reinforce the distinct experience of arrival or passing from one landscape character type to the next, through legible site planning and design.	Landscape character is retained.	N/A
C. Controls			
1	New proposals on land identified in the LEP Scenic and Landscape Values Map (including gateway sites) or on land zoned E1 National Parks and Nature Reserves or E2 Environmental Conservation, are to submit a visual impact assessment with their development application. This assessment involves describing, analysing and evaluating the visual impacts of the proposed development, and identifying measures to minimise the impacts and ensure the development is sympathetic to the scenic and landscape character of the area.	Refer to this Appendix.	Yes
2	A town planner can prepare this visual impact assessment.	A town planner has prepared this visual impact assessment.	Yes

Clause 4.13 of Appendix F3

Control		Comment	Compliance
4.13 Visual Impact Assessment			
-	New proposals on land identified in the LEP on the Scenic and Landscape Values Map or on land zoned E1 National Parks and Nature Reserves or E2 Environmental Conservation are required to submit a Visual Impact Assessment (VIA) with their development application. Depending on the nature of the development, the VIA is to be prepared by either the designer of the development or a suitably experienced and qualified professional.	This assessment has been prepared by a town planner.	Yes
1	Baseline Study – Describe and map the existing visual landscape character and determine the objectives for managing visual landscape character. Refer to Penrith City Council's "Landscape Character Strategy" (2006). Describe and map the site and surroundings, taking into consideration existing features such as: the natural landscape (e.g. ridgelines, hillsides, slopes, watercourses and vegetation); the built form (e.g. buildings and structures, roads and other infrastructure); and land use patterns (e.g. in rural areas, existing agricultural patterns and scale).	The existing landscape is characterised by working farms and rural residential land uses. The elevated topography provides a broad vista of the Nepean River flats and Blue Mountains National Park beyond. The subject site slopes to the northwest and has a dam on its lower northwestern boundary. An existing single-storey dwelling house and ancillary structures are on the site. The property is bound by both Castlereagh Road and Kooringal Drive.	Yes
2	Describe the proposed development: a) Analyse, describe and illustrate the main visual components of the proposed development, particularly elements likely to be visible; b) Describe what different development options (e.g. siting options, different building designs (including orientation, form, colours and materials) and landscape designs) have been considered; c) Provide plans showing locations and the extent of major visual features. Include elevations of buildings and other major structures, showing elements such as height, colours and proposed materials; and d) Where appropriate, include a projected timeline describing changes to the proposed development over a period of time.	The development proposal is for a community facility. The visual component of the proposal is an extension to the rear of the existing dwelling. The ridge level of the extension does not exceed the height of the existing dwelling. Building colours and form will match those of the existing building. Refer to design drawings submitted alongside this report.	Yes
3	3) Identify and evaluate the potential visual impacts: a) Identify the views and likely viewers affected; b) Identify and describe the likely changes to the visual landscape character and views; and	The proposed development protects, maintains, and enhances the existing views to the Nepean River and The Blue Mountains National Park. The elevation of the site and design which respects the sloping topography contribute to minimising visual impacts.	Yes

	c) Evaluate the impacts showing the relationship between 'sensitivity' of the affected landscape (the extent to which the landscape is able to accommodate the type and scale of development without adverse effect on character or value) and 'magnitude' of the impact (a combination of extent, scale and duration of any impact).	The modest scale of the proposed built form is compatible with the existing single-storey dwelling and remains well below the mapped maximum building height for the site. The bulk and scale of the proposal are significantly less than those of surrounding agricultural structures; thus, the proposal is considered consistent with the character and scale of the area.	
4	4) Demonstrate visual mitigation measures: a) Determine whether or not the proposed development meets the objectives for managing visual landscape character established in step a) above; b) Identify measures that reduce the negative impacts and facilitate the positive impacts (e.g. layout; choice of site level; reduced proportions; reflectivity of colour of materials; articulation; extent of cut and fill; visual buffers; and extent of vegetation removed and retained); and c) Demonstrate a commitment to implementation of the measures and, where relevant, submit a contingency plan should mitigation not be successful.	Significant views will not be affected by the proposed development. Mitigation measures proposed include maintaining the existing ridge height, and using building colours and styles to match the existing building and landscaping.	Yes
5	Provide a diagrammatic 'summary drawing' to show how all mitigation measures work together in response to the development. Submission Material for VIA 1 and 2.	Refer to design drawings submitted alongside this report.	Yes

PROPOSED CULTURAL COMMUNITY CENTRE
682 CASTLEREAGH ROAD, AGNES BANKS
STORMWATER MANAGEMENT CONCEPT DESIGN

LEGEND

	DENOTES ON-SITE DETENTION TANK
	DENOTES ON-SITE RAINWATER REUSE TANK
	DENOTES RAINGARDEN SYSTEM
SW	DENOTES 100mm DIA. STORMWATER/SURFACE WATER SYSTEM PIPE AT 1% MIN. GRADE U.N.O.
RW	DENOTES 100mm DIA. FULLY SEALED CHARGED PIPE RAINWATER SYSTEM U.N.O.
RW - 150	DENOTES CHARGED RAINWATER PIPE AND DIA. WHEN PIPE EXCEEDS 100mm DIA.
SW - 150	DENOTES STORMWATER/SURFACE WATER PIPE AND DIA. WHEN PIPE EXCEEDS 100mm DIA.
RM - 65	DENOTES RISING MAIN AND PIPE DIA. U.N.O.
SS - 100	DENOTES SUBSOIL DRAINAGE LINE AND DIA. WRAPPED IN GEOFABRIC U.N.O.
DP	DENOTES DOWNPIPE
IO	DENOTES INSPECTION OPENING WITH SCREW DOWN LID AT FINISHED SURFACE LEVEL
CO	DENOTES INSPECTION OPENING WITH SCREW DOWN LID AT FINISHED SURFACE LEVEL FOR SYSTEM FLUSHING PURPOSES
	STORMWATER PIT - SOLID COVER
	STORMWATER PIT - GRATED INLET
	DENOTES GRATED DRAIN

SHEET INDEX

COVER SHEET AND NOTES	SHEET SW1
STORMWATER MANAGEMENT PLAN	SHEET SW2
BIO-RETENTION / RAINGARDEN DETAILS	SHEET SW3
RAINWATER REUSE TANK SYSTEM DETAILS	SHEET SW4

DIAL BEFORE YOU DIG

DIAL BEFORE YOU DIG www.1100.com.au

IMPORTANT: THE CONTRACTOR IS TO MAINTAIN A CURRENT SET OF "DIAL BEFORE YOU DIG" DRAWINGS ON SITE AT ALL TIMES.

GENERAL DRAINAGE NOTES

1. ALL WORK SHALL BE CARRIED OUT IN ACCORDANCE WITH THE LOCAL COUNCIL'S RELEVANT SPECIFICATIONS AND/OR STORMWATER CODE. ANY DISCREPANCY VARIATION OR ADDITIONAL WORK SHALL BE APPROVED BY THE PRINCIPAL CERTIFIER.
2. ALL SERVICES SHALL BE VERIFIED ON SITE PRIOR TO COMMENCEMENT OF WORK.
3. DIAL BEFORE YOU DIG SHALL BE CONTACTED PRIOR TO COMMENCEMENT.
4. ALL DRAINAGE PIPEWORK AND PLUMBING SHALL BE INSTALLED BY A CERTIFIED PLUMBER IN ACCORDANCE WITH THE AUSTRALIAN STANDARDS AS3500 AND COUNCIL REQUIREMENTS.
5. ALL DRAINAGE PIPES ARE TO BE SEWER GRADE UNLESS NOTED OTHERWISE.
6. ALL COVERS, GRATES AND FRAMES ARE TO BE CLASS C HEAVY DUTY WHERE SUBJECT TO VEHICULAR TRAFFIC.
7. ALL COVERS, GRATES AND FRAMES ARE TO BE CLASS A MEDIUM DUTY WHERE SUBJECT TO PEDESTRIAN TRAFFIC OR IN LANDSCAPE AREAS.
8. COUNCIL PERMIT/APPROVAL SHALL BE OBTAINED PRIOR TO WORKS ON COUNCIL LAND AND CONNECTION TO COUNCIL SYSTEM.
9. ALL PIPE BENDS TO BE FITTED WITH AN INSPECTION OPENING.

RAINWATER TANK NOTES

1. THE TANK SHALL NOT BE LOCATED OVER A WATER OR SEWER MAIN UNLESS IT IS INSTALLED IN ACCORDANCE WITH THE REGULATORY AUTHORITY REQUIREMENTS
2. ABOVE GROUND TANKS SHALL BE LOCATED AT LEAST 100 MM FROM ANY POTABLE WATER SUPPLY PIPE AND AT LEAST 300 MM FOR BELOW GROUND TANKS.
3. ALL PLUMBING WORK SHALL BE CARRIED OUT BY A LICENSED PLUMBER IN ACCORDANCE WITH SYDNEY WATER REQUIREMENTS AND COUNCIL REGULATIONS.
4. ALL INLETS SHALL BE SCREENED OR FILTERED TO PREVENT THE ENTRY OF FOREIGN MATTER OR CREATURES.
5. REUSE PUMP TO BE INSTALLED BY A LICENSED PLUMBER AND ELECTRICIAN TO SYDNEY WATER REQUIREMENTS
6. A SIGN SHALL BE AFFIXED TO THE RAINWATER TANK AND ALL APERTURES CLEARLY STATING THAT THE WATER IN THE TANK IS RAINWATER
7. NOISE EMISSIONS FROM ANY PUMP SHALL MEET COUNCIL'S REQUIREMENTS.
8. WATER RETAINED FOR INDOOR HOUSEHOLD USE SHALL BE AUGMENTED BY MAINS WATER SUPPLY AND APPROVAL OBTAINED BY SYDNEY WATER.
9. WHERE RETAINED WATER IS AUGMENTED BY MAINS WATER SUPPLY A BACKFLOW PREVENTION DEVICE AND FLOW RESTRICTOR SHALL BE INSTALLED IN ACCORDANCE WITH AS 3500 AND SYDNEY WATER REQUIREMENTS.
10. ALL INLETS SHALL BE FITTED WITH A FIRST FLUSH DEVICE PRIOR TO DISCHARGING TO THE RAINWATER TANK.
11. THE INDIRECT CONNECTION TO MAINS WATER SUPPLY SHALL HAVE A VISIBLE AIR GAP IN ACCORDANCE WITH AS 3500.

EROSION & SEDIMENT CONTROL NOTES

1. ALL SEDIMENT CONTROL DEVICES ARE TO BE CONSTRUCTED, PLACED AND MAINTAINED IN ACCORDANCE WITH LOCAL REGULATORY AUTHORITY SPECIFICATION AND THE EROSION AND SEDIMENT CONTROL PLAN.
2. NO CONSTRUCTION IS TO COMMENCE UNTIL ALL EROSION AND SEDIMENT CONTROL MEASURES ARE IN PLACE.
3. ALL PERIMETER AND SILTATION CONTROL MEASURES ARE TO BE PLACED PRIOR TO ANY EARTHWORKS AND CLEARING TAKES PLACE.
4. FILTRATION BUFFER ZONES ARE TO BE FENCED OFF AND ACCESS PROHIBITED TO ALL PLANT AND MACHINERY.
5. ALL SEDIMENT TRAPPNG DEVICES ARE TO BE INSPECTED AFTER ALL STORMS FOR STRUCTURAL DAMAGE OR CLOGGING TRAPPED MATERIAL TO BE REMOVED.
6. ALL TOP SOIL IS TO BE STOCKPILED ON SITE FOR REUSE. MEASURES ARE TO BE APPLIED TO PREVENT EROSION OF STOCKPILES.
7. NO DISTURBED AREAS SHALL REMAIN DENUDED LONGER THAN 14 DAYS.
8. NO MORE THAN 150 METRES OF TRENCH IS TO BE OPEN AT ANY TIME.
9. ALL FOOTPATHS BERMS AND BATTER, AD SITE REGRADING AREAS ARE TO BE TOPSOILED WITH MINIMUM 200MM OF SELECTED TOPSOIL.
10. DUST CONTROL MEASURES SHALL BE IMPLEMENTED CONTINUOUSLY DURING CONSTRUCTION WORKS.
11. ALL SITE ACCESS TO BE ACHIEVED FROM DESIGNATED SITE ACCESS PROTECTED BY THE INSTALLATION OF AN APPROVED CONSTRUCTION ENTRY / EXIT RAMP. THIS ENTRY / EXIT RAMP IS TO BE REGULARLY MAINTAINED TO ENSURE ITS EFFECTIVENESS.
12. STREET SWEEPING SHALL BE UNDERTAKEN AS REQUIRED ALONG THE STREET PROPERTY FRONTAGE DURING AND AFTER THE EXCAVATION AND CONSTRUCTION OF THE PROPOSED WORKS UNTIL THE SITE IS FULLY ESTABLISHED.
13. TO PREVENT POLLUTION OF ANY WATERCOURSE AND STREET DRAINAGE SYSTEM THE LOCAL REGULATORY AUTHORITY SHALL BE NOTIFIED AT LEAST 2 DAYS PRIOR TO THE INTENTION TO COMMENCE WORKS FOR COUNCIL TO INSPECT EROSION AND SEDIMENT CONTROL DEVICES WHERE NECESSARY.

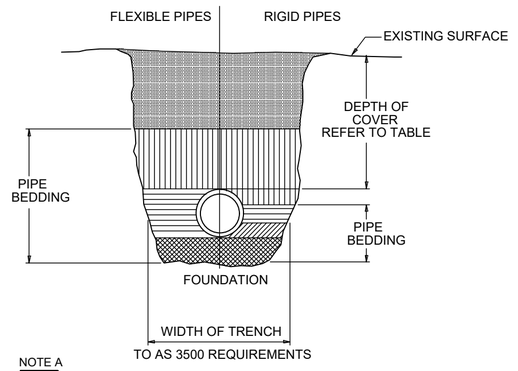
MINIMUM PIPE COVER
(FROM FINISHED SURFACE TO TOP OF PIPE)

LOCATION	MINIMUM COVER (mm) CAST / DUCTILE IRON OR GALV STEEL	AUTHORISED PRODUCTS (*)
1. NOT SUBJECT TO VEHICULAR LOADING:		
A. WITHOUT PAVEMENT:		
i. FOR SINGLE DWELLINGS -	0	100
ii. OTHER THAN SINGLE DWELLINGS -	0	300
B. WITH PAVEMENT OF BRICK/UNREINFORCED CONCRETE -	0 (**)	50 (**)
2. SUBJECT TO VEHICULAR LOADING:		
A. OTHER THAN ROADS:		
i. WITHOUT PAVEMENT -	300	450
ii. WITH PAVEMENT OF:		
- REINF. CONC. FOR HEAVY VEHICLES -	0 (** #)	100 (** #)
- BRICK/UNREINF. CONC LIGHT VEHICLES -	0 (** #)	75 (** #)
B. ROADS		
i. SEALED	300	500 (#)
ii. UNSEALED	300	500 (#)
3. SUBJECT TO CONSTRUCTION VEHICLES OR IN EMBANKMENT CONDITIONS	300	500 (#)

(*) INCLUDES OVERLAY ABOVE THE TOP OF THE PIPE OF NOT LESS THAN 50mm THICK
(**) BELOW THE UNDERSIDE OF THE PAVEMENT
(#) SUBJECT TO COMPLIANCE WITH AS1762, AS2033, AS/NZS 2566.1, AS3725 OR AS 4060

LEGEND - TRENCH BACKFILL

SYMBOL	FLEXIBLE PIPES	RIGID PIPES
	BACKFILL	
	PIPE OVERLAY	
	PIPE SIDE SUPPORT	SIDE ZONE
	–	HAUNCH ZONE
	PIPE UNDERLAY	BED ZONE



NOTE A
STORMWATER DRAINS CONSTRUCTED OF OTHER THAN CAST IRON, DUCTILE IRON OR GALVANISED STEEL HAVING COVER LESS THAN THAT SPECIFIED IN TABLE SHALL BE COVERED WITH AT LEAST 50mm OVERLAY AND SHALL BE PAVED WITH AT LEAST
(a) 100mm THICKNESS OF REINFORCED CONCRETE WHERE SUBJECT TO HEAVY VEHICULAR LOADING

WATERDESIGN
CIVIL ENGINEERS
1 FLAME TREE PLACE
CHERRYBROOK NSW 2126
MOBILE: 0417 671646
EMAIL: waterdes@bigpond.net.au
ABN: 77 928 166 729

CLIENT NAME: VAISHNAV SANGH

PROJECT TITLE: CULTURAL COMMUNITY CENTRE 682 CASTLEREAGH ROAD AGNES BANKS NSW

DRAWING TITLE: COVER SHEET AND NOTES

DRAWN: A.L
DATE: 22.06.2020
JOB No: 2020-032
APPROVED BY: Andrew Lam MIEAust 2338558 B.E. Civil (Hons)
DWG NO: SW1
no. IN SET: 4

No.	REVISION / ISSUE DESCRIPTION	DATE

PENRITH COUNCIL STORMWATER REQUIREMENTS

THE STORMWATER MANAGEMENT SYSTEM HAS BEEN DESIGNED IN ACCORDANCE WITH PENRITH COUNCIL'S DCP 2014 PART C3 WATER MANAGEMENT AND WSUD TECHNICAL GUIDELINES

LAND USE - OTHER DEVELOPMENT NOT LISTED

ON-SITE DETENTION REQUIREMENTS

ON-SITE DETENTION IS EXEMPT FOR THIS DEVELOPMENT AS THE SITE IS LOCATED IN A CATCHMENT ON-SITE DETENTION IS NOT MANDATORY

WATER CONSERVATION REQUIREMENTS

RAINWATER REUSE TANK PROVIDED - 15,000 LITRES
BASED ON DEMAND FOR LANDSCAPE IRRIGATION AND TOILET FLUSHING

WATER QUALITY DEEMED TO COMPLY PROVISIONS

SITE IMPERVIOUS AREA (m2) 2,814
BYPASS IMPERVIOUS AREA (m2) 0
MINIMUM RAINGARDEN AREA REQUIRED (m2) 46.4
(200mm EXTENDED DETENTION DEPTH - 1.65 %)
RAINGARDEN AREA PROVIDED (m2) 49.5

www.dialbeforeyoudig.com.au
DIAL 1100 BEFORE YOU DIG
DIAL BEFORE YOU DIG SHOULD BE CONTACTED PRIOR TO ANY EXCAVATION ON SITE

0 10m
SCALE 1:250 @ A2

CONSTRUCT A RAINGARDEN IN ACCORDANCE WITH PENRITH CITY COUNCIL'S WATER SENSITIVE URBAN DESIGN TECHNICAL GUIDELINES (REFER TO DRAWING No. SW3 FOR DETAILS)
BASE DIMENSIONS - 45.0m (L) x 1.1m (W)
RAINGARDEN BASE RL 25.000
TOP WATER LEVEL RL 25.200
EXTENDED DETENTION DEPTH - 0.2m

PROVIDE 15,000 LITRE BELOW GROUND RAINWATER TANK BY GRAF PLATIN XL TANKS OR SIMILAR TO LOCAL COUNCIL AND SYDNEY WATER REQUIREMENTS
DIMENSIONS - 7.500 (L) x 2.250 (W) x 1.250 (H)
NOTE: THE RAINWATER TANK SHALL BE CONNECTED FOR REUSE IN ACCORDANCE WITH THE COUNCIL REQUIREMENTS FOR GARDEN IRRIGATION AND TOILET FLUSHING

NOTE: EXISTING ROOF DRAINAGE

ALL DOWNPIPES COLLECTING ROOF WATER FROM THE EXISTING DWELLING SHALL BE DIVERTED AND CONNECTED TO THE NEW STORMWATER PIPES DRAINING TO THE NEW RAINWATER TANK

NOTE:

ROAD OPENING PERMIT TO BE OBTAINED FROM COUNCIL PRIOR TO COMMENCEMENT OF ANY WORK IN THE ROAD RESERVE

NOTE:- TREE PRESERVATION

IT IS THE CONTRACTORS RESPONSIBILITY TO OBTAIN ANY APPROVALS NECESSARY FROM LOCAL COUNCIL PRIOR TO TO ANY WORKS COMMENCING WITH RESPECT TO THE POTENTIAL IMPACT ON ANY TREES FOR ANY WORKS SHOW ON THIS DRAWING

PIT 7 - 450 x 450
SURCHARGE PIT
GRATE RL 25.00
PIPE INLET IL 24.60

PIT 8 - 600 x 600
OVERFLOW PIT
GRATE RL 25.20
PIPE INLET IL 24.37
PIPE OULET IL 24.35

DISCHARGE STORMWATER INTO A 30 METRE LENGTH SUBSOIL DRAIN LEVEL SPREADER DISPERSION SYSTEM

CONSTRUCT 150 HIGH SLOTTED KERB ALONG RAINGARDEN ONLY
ALL OTHER SIDES TO HAVE 150 HIGH INTEGRAL KERB

PIT 6 - 450 x 450
SURCHARGE PIT
GRATE RL 25.00
PIPE INLET IL 24.60

CAR PARK AREA 1
RL 26.800

PROPOSED OUTDOOR UNDERCOVER AREA
RL 30.20

CULTURAL COMMUNITY CENTRE
FFL 30.20

WASTE BIN AREA
RL 30.20

DONATIVES DISPLAY AREA
RL 30.20

CAR PARK AREA 2
CONSTRUCT 150 HIGH INTEGRAL KERB AROUND PERIMETER AND DIRECT SURFACE RUNOFF TO INLET PITS

PIT 1 - 450 x 450
SURFACE INLET PIT
GRATE RL 30.00
PIPE OULET IL 29.50

PIT 2 - 450 x 450
SURFACE INLET PIT
GRATE RL 29.80
PIPE INLET IL 29.30
PIPE OULET IL 29.28

PIT 3 - 450 x 450
SURFACE INLET PIT
GRATE RL 29.60
PIPE INLET IL 29.10
PIPE OULET IL 29.08

PIT 4 - 450 x 450
SURFACE INLET PIT
GRATE RL 29.40
PIPE INLET IL 28.90
PIPE OULET IL 28.60

PIT 5 - 450 x 450
SURFACE INLET PIT
GRATE RL 29.00
PIPE OULET IL 28.60

300 wide GRATED TRENCH DRAIN
PIPE OUTLET IL 25.60

300 wide GRATED TRENCH DRAIN
PIPE OUTLET IL 28.20

SW - 100
SW - 150 @ 10%
SW - 150 @ 2%
SW - 225 @ 3%
RWT - 150 (CHARGED)

LOT 2
DP 252556
2.024 ha.

132°14'30"
73.785

87.13
298°42'00"

RL 26.350
RL 26.420
RL 26.680
RL 26.980
RL 27.244

KOORINGAL DRIVE

BNKNAIL IN BITUMEN RL27.89

WATERDESIGN
CIVIL ENGINEERS
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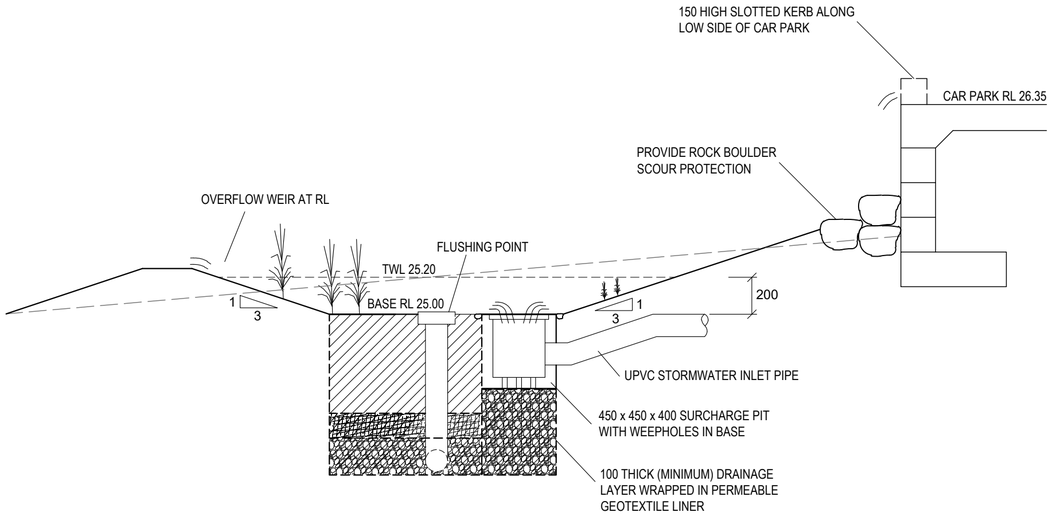
CLIENT NAME: VAISHNAV SANGH

PROJECT TITLE: CULTURAL COMMUNITY CENTRE
682 CASTLEREAGH ROAD
AGNES BANKS NSW

DRAWING TITLE: STORMWATER MANAGEMENT PLAN

DRAWN: A.L
DATE: 22.06.2020
JOB No: 2020-032
APPROVED BY: Andrew Lam MIEAust 2338558 B.E. Civil (Hons)
DWG NO: SW2
no. IN SET: 4

No.	REVISION / ISSUE DESCRIPTION	DATE



RAINGARDEN SECTION C - C

NOT TO SCALE

LANDSCAPE DEVELOPMENTS – MAINTENANCE CHECKLIST

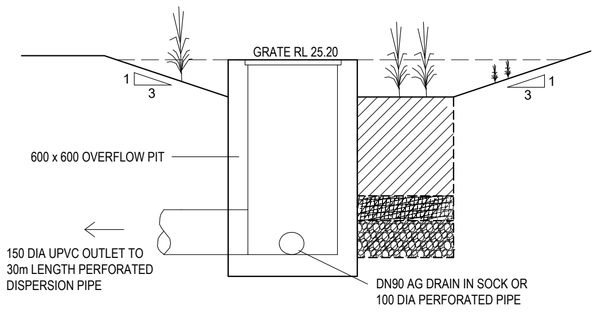
Landscaped areas in the site are to be inspected and maintained to ensure that any damaged vegetation is repaired / replaced, mulch is applied and reapplied as required, watering / irrigation is practiced appropriately and as needed and any surface erosion or scouring identified and repaired.

ITEM INSPECTED	CHECKED		MAINTENANCE NEEDED		INSPECTION FREQUENCY
	Y	N	Y	N	
PLANT SURVIVAL					
Dead plants identified and replaced					3M
Alternate species used if soil moisture unsuitable					3M
IRRIGATION SYSTEM CHECK					
Plants show no evidence of moisture stress					3M
Repair / replace any damaged components					
Adjust irrigation program if necessary					3M
DRAINAGE PATTERN					
Subsurface drainage required to prevent waterlogging					3M
Modification to surface drainage required to direct stormwater to planted areas					3M

Bioretention Systems – MAINTENANCE CHECKLIST

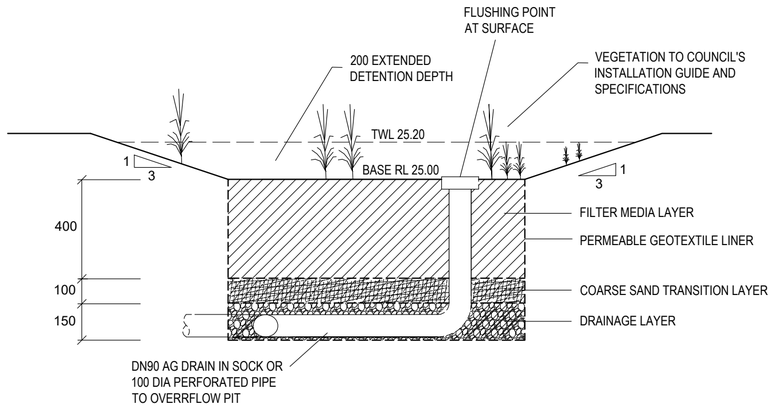
Frequent maintenance and removal of fine clogging particles is essential to extend filter media life and reduce long–term replacement costs. Maintenance is to ensure flow to–and–through systems, maintenance of surface vegetation, prevent weed growth or vegetation overgrowth, remove accumulated sediment and debris.

ITEM INSPECTED	CHECKED		MAINTENANCE NEEDED		INSPECTION FREQUENCY
	Y	N	Y	N	
DEBRIS CLEANOUT					
Surface clear of drebris					6M
Inlet area clear of debris					6M
Overflow clear of debris					6M
SURFACE VEGETATION					
Vegetation condition					6M
Vegetation trimming / maintenance					6M
Weed infestation					6M
Evidence of erosion					6M
DEWATERING					
Bioretention dewatering between storms					6M
Top soil layer require replacement?					6M
Entire filter media require replacement?					6M
OUTLET / OVERFLOW CHANNEL OR PIT					
Pit, grate, weir or outlet condition					A
Evidence of cracking or spalling of concrete structures					A
Evidence of erosion in downstream channel					A



RAINGARDEN SECTION A - A

NOT TO SCALE



RAINGARDEN SECTION B - B

NOT TO SCALE

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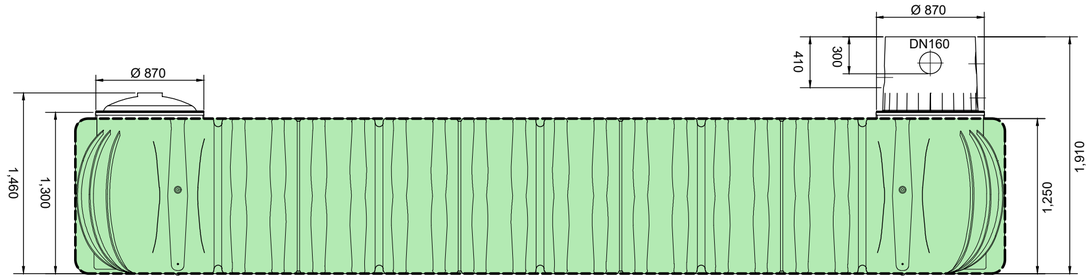
PROJECT TITLE: CULTURAL COMMUNITY CENTRE
682 CASTLEREAGH ROAD
AGNES BANKS NSW

DRAWING TITLE: BIO-RETENTION / RAINGARDEN DETAILS

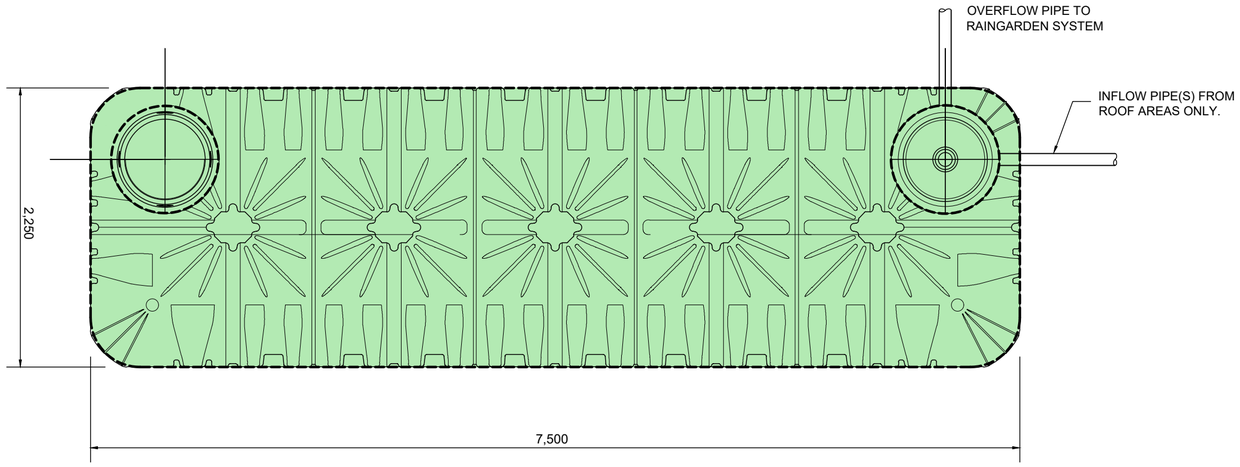
DRAWN: A.L
DATE: 22.06.2020
JOB No: 2020-032
APPROVED BY: Andrew Lam
MIEAust 2338558
B.E. Civil (Hons)
DWG NO: SW3
no. IN SET 4

No.	REVISION / ISSUE DESCRIPTION	DATE



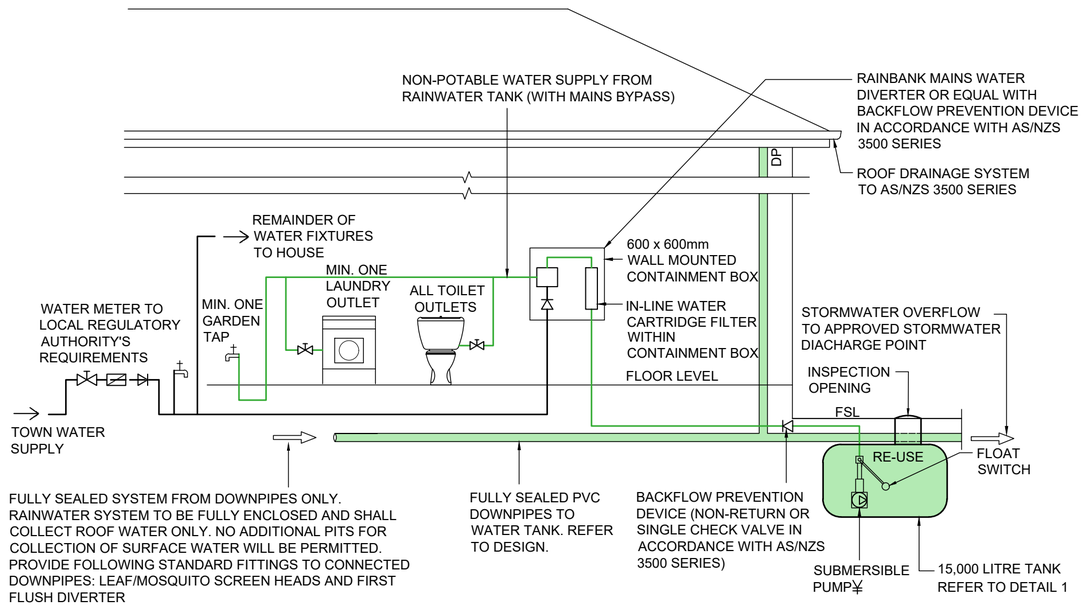
PLATIN GRAF XL BELOW GROUND RAINWATER TANK ELEVATION

NOT TO SCALE



PLATIN GRAF XL BELOW GROUND RAINWATER TANK PLAN

NOT TO SCALE



BELOW GROUND RAINWATER TANK SCHENATIC LAYOUT

NOT TO SCALE

TYPICAL WARNING SIGN

SCALE N.T.S

* EVERY EXTERNAL SUPPLY OUTLET FROM RAINWATER RE-USE TANK TO BE LABELED WITH METALLIC WARNING SIGN

RAINWATER TANKS IN DETENTION/RETENTION SYSTEMS – MAINTENANCE CHECKLIST

Regular maintenance shall include clean–out of First flush devices and control pits, removal of leaves and debris from inlet & outlet leaf guards and litter/orifice screens, and clean–out of downpipes and gutters. Rainwater tanks and detention systems are to be inspected and maintained to ensure no sediment and debris accumulates on the base/floor of impedes outlet orifices.

ITEM INSPECTED	CHECKED		MAINTENANCE NEEDED		INSPECTION FREQUENCY
	Y	N	Y	N	
FIRST FLUSH DEVICE / CONTROL PITS					
clear of debris and not blocked					2M
DEBRIS CLEANOUT					
Basin/tank surfaces clear of debris					6M
Inlet & outlets areas clear of debris					6M
Overflow pipe/weirs clear of debris					6M
INLET SCREENS					
Leaves and debris on surface					6M
ROOF GUTTERS & DOWNPIPES					
Leaves and debris in gutters					6M
SEDIMENT LEVEL IN TANK					
Sediment level					6M
Presence of debris					6M
TANK/DETENTION STRUCTURES					
Check for corrosion					2A
Check footings					2A
Check access grates					6M
OUTLET PIPES & ORIFICES					
Evidence of blockages					A
Pipe conditions					A
Orifice plate condition					A

GROSS POLLUTANT TRAPS/SILT ARRESTORS– MAINTENANCE CHECKLIST

To be inspected and maintained regularly, particularly after major storm events for accumulation of debris and sediment. Routine maintenance ensures trapping efficiency and prevents remobilisation of debris and sediment that can occur when GPTs/Silt Arrestors are over storage capacity. Smaller GPTs/Silt Arrestors may be serviced via manual handling and removal whilst larger systems may require vacuum clean–out or mechanically assisted basket/net removal. Clean–out & maintenance shall be conducted outside of rain predicted periods.

ITEM INSPECTED	CHECKED		MAINTENANCE NEEDED		INSPECTION FREQUENCY
	Y	N	Y	N	
FIRST FLUSH DEVICE / CONTROL PITS					
clear of debris and not blocked					2M
DEBRIS CLEANOUT					
Basin/tank surfaces clear of debris					6M
Inlet & outlets areas clear of debris					6M
Overflow pipe/weirs clear of debris					6M
INLET SCREENS					
Leaves and debris on surface					6M
ROOF GUTTERS & DOWNPIPES					
Leaves and debris in gutters					6M
SEDIMENT LEVEL IN TANK					
Sediment level					6M
Presence of debris					6M
TANK/DETENTION STRUCTURES					
Check for corrosion					2A
Check footings					2A
Check access grates					6M
OUTLET PIPES & ORIFICES					
Evidence of blockages					A
Pipe conditions					A
Orifice plate condition					A

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CLIENT NAME: VAISHNAV SANGH

PROJECT TITLE: CULTURAL COMMUNITY CENTRE 682 CASTLEREAGH ROAD AGNES BANKS NSW

DRAWING TITLE: RAINWATER REUSE TANK SYSTEM DETAILS

DRAWN: A.L

DATE: 22.06.2020

JOB No: 2020-032

APPROVED BY: Andrew Lam MIEAust 2338558 B.E. Civil (Hons)

DWG NO: SW4

no. IN SET: 4

No.	REVISION / ISSUE DESCRIPTION	DATE

Vraj Sydney Pty Ltd

Proposed Development, 682 Castlereagh Road, Agnes Bank.

Transport Impact Study

February 2018

Henson Consulting

Document Verification

Job title:	682 Castlereagh Road, Agnes Bank	Job number 2017154
Document title:	Transport Impact Study	
Approved:	Colin Henson, FPIA, MIEAust, CPEng, MITE	
Date and Version:	09 February 2018	Issue

Disclaimer:

This report takes into account the particular instructions and requirements of our client. It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party

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1 Introduction

1.1 Scope of Report

Henson Consulting was commissioned by Vraj Sydney Pty Ltd in 2017 to undertake a traffic and transport assessment and advice for the proposed development of a site at 682 Castlereagh Road, Agnes Bank, about sixty kilometres east of the Sydney city centre.

This report was prepared to address the issues being considered in the planning stage of the project, to support a Development Application (DA) to the Penrith City Council (Council), and meets the requirement of the traffic and parking report required by the Penrith Development Control Plan (DCP).

This Transport Impact Study (TIS) and report was prepared with reference to traffic impact assessment as required by the RMS NSW Guide to Traffic Generating Developments, and other relevant Australian Standards and controls.

1.2 Existing Studies and Reports and Guidelines

Existing studies and reports include area studies by Council and the RMS NSW on some nearby roads, and a range of NSW Government departments. The key transport guidelines taken into account in this study include:

- Austroads Guidelines
- Guidelines to Traffic Generating Developments, RMS NSW
- Australian Standard AS/NZS 2890.1 – 2004 Parking facilities Part 1: Off-street car parking
- Australian Standard AS 2890.2 – 2002 Off-Street Parking Part 2: Commercial vehicle facilities.
- Australian Standard AS 2890.3 – 2013 Parking Facilities Part 3: Bicycle Parking Facilities
- Australian Standard AS 2890.5 – 1993 On Street Parking
- Australian Standard AS 2890.6 – 1993 Off Street Parking Facilities for people with disabilities.
- Penrith DCP 2014, particularly C10 Transport Access and Parking
- NSW Environmental Planning and Assessments Act, 1979 and SEPPs.
- 'Planning Guidelines for Walking and Cycling', Department of Infrastructure, Planning and Natural Resources December 2004.

1.3 Key Issues and Objectives

This TIS specifically considered the following issues and recognises the role of traffic within a broader transport system that includes public transport, walking and cycling:

(a) The accessibility of the site by a range of transport modes including car, public transport, walking and cycling;

(b) The ability of the public transport network to service the site in the peak and off peak and weekend periods;

(c) Mode share targets;

(d) Means of minimising travel demand by car and maximising the share of travel by other modes including public transport, cycling and walking, or car share;

(e) Compliance with the requirements of the LEP and DCP;

(f) A justification of car parking provision and site servicing arrangements in accordance with the objectives of the LEP and DCP;

(g) The proposed allocation of parking;

(h) Access for the mobility impaired;

(i) Estimates of trip generation by the development and the impacts of trips generated by the development on the road network and other movement systems;

(j) Means of accommodating and integrating trips generated by the development including necessary improvements to public transport services, pedestrian systems, bicycle routes, and the road network;

(k) Means of mitigating any adverse impacts of the development on movement systems;

(l) Means of improving access to the site having regard to vehicular, pedestrian, cycle and public transport access;

(m) Impacts on and means of improving pedestrian accessibility to public transport, shops, schools, open spaces, community centres and the like.

(n) Means of improving access to public transport include the provision of subsidised public transport, improving the quality and safety pedestrian access to public transport, improving bus shelters and the like;

(o) Impacts on and means of improving pedestrian safety;

(p) Availability of on street parking and potential on street parking controls to discourage commuting and parking demand generated by the development.

1.4 Penrith DCP

The Penrith DCP 2014 specifically refers to:

A. Objectives

a) To provide safe and efficient travel routes for all vehicles in the Penrith LGA;

b) To reduce the number of vehicle and pedestrian accidents per capita;

c) To ensure the safety of cyclists, pedestrians and passing traffic during construction of development;

d) To cater for current and future growth of vehicle traffic usage;

e) To encourage the orderly and economic provision of road and intersection works;

f) To ensure that existing roads and intersections are upgraded to provide a satisfactory level of service consistent with the volume and nature of traffic generated by the proposed development; and

g) To avoid new direct access to and from arterial, sub-arterial and other major roads.

B. Controls

1) Traffic Studies

a) Development applications for major development proposals should be accompanied by an appropriate Traffic Report (see Appendix F3 – Submission Requirements). The Traffic Report should detail the assessed impact of projected pedestrian and vehicular traffic associated with the proposal, with recommendations on the extent and nature of the traffic facilities necessary to preserve or improve the safety and efficiency of the adjacent road system.

b) A Traffic Report must be provided for applications required to be referred to the Roads and Maritime Services (RMS) under Column 2 and a Traffic Impact Statement for Column 3 of SEPP (Infrastructure) 2007.

c) Depending on the scale, type and nature of the use proposed, Council may determine that a Traffic Report or Traffic Impact Statement is required for certain development which is not listed under Column 2 or 3 of SEPP (Infrastructure) 2007.

d) Any Traffic Report or Traffic Impact Statement is required to address the following issues:

i) The objectives of this section relating to transport and land use;

ii) The objectives of this section relating to traffic management and safety;

iii) The objectives and controls of this section relating to traffic generating developments; and

iv) The issues set out in Appendix F3 – Submission Requirements of this DCP.

e) Any development identified in Schedule 3 of State Environmental Planning Policy (Infrastructure) 2007 is either referred to RMS (Column 2 developments) or Council's Local Traffic Development Committee (Column 3 developments) for assessment and conditions as required.

2) Road Safety

a) Each development should demonstrate how it will:

i) Provide safe entry and exit for vehicles and pedestrians which reflect the proposed land use, and the operating speed and character of the road;

ii) Minimise the potential for vehicular/pedestrian conflicts, providing protection for pedestrians where necessary;

iii) Not restrict traffic flow or create a hazard to traffic on roads in the vicinity of the development;

iv) Provide suitable off-street parking facilities to accommodate vehicles generated by the development; and

v) Identify the need, where apparent, for any additional on-street traffic facilities or road works which may be required to maintain the safe and efficient movement of vehicles and pedestrians.

b) Where feasible, vehicle access for developments should be from service roads/lanes.

c) The design of direct vehicular access to developments should consider the traffic impacts on the surrounding road network. This may require the provision of deceleration, acceleration, right turn lanes and road widening, as necessary.

d) Provision must be made for all vehicles to enter and leave properties in a forward direction other than for single dwellings.

e) The layout and design of parking areas must minimise vehicle to pedestrian impacts, especially where heavy vehicle access to loading docks is proposed.

3) Traffic Generating Development

a) New access points off arterial, sub arterial or other major roads is to be avoided where alternate access opportunities exist.

b) Any development identified in Schedule 3 of State Environmental Planning Policy (Infrastructure) 2007 is either referred to RMS (Column 2 developments) or Council's Local Traffic Development Committee (Column 3 developments) for assessment and conditions as required.

2 Existing Conditions

2.1 Site Location

The 5-hectare site is located in Agnes Bank, approximately 70 kilometres by road west of the Sydney CBD, 8kilometres south of Richmond centre, and 16 kilometres north of Penrith centre, as shown in the following figures. Agnes Banks is near a boundary between Penrith Council to the south and Hawkesbury Council to the north.

Figure 1: Regional location

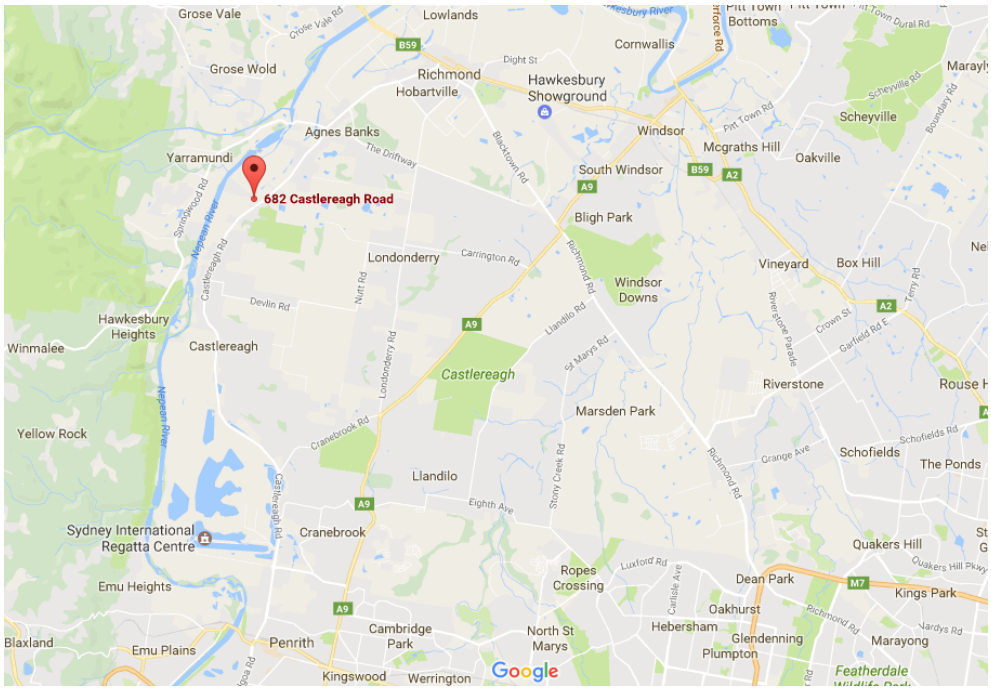
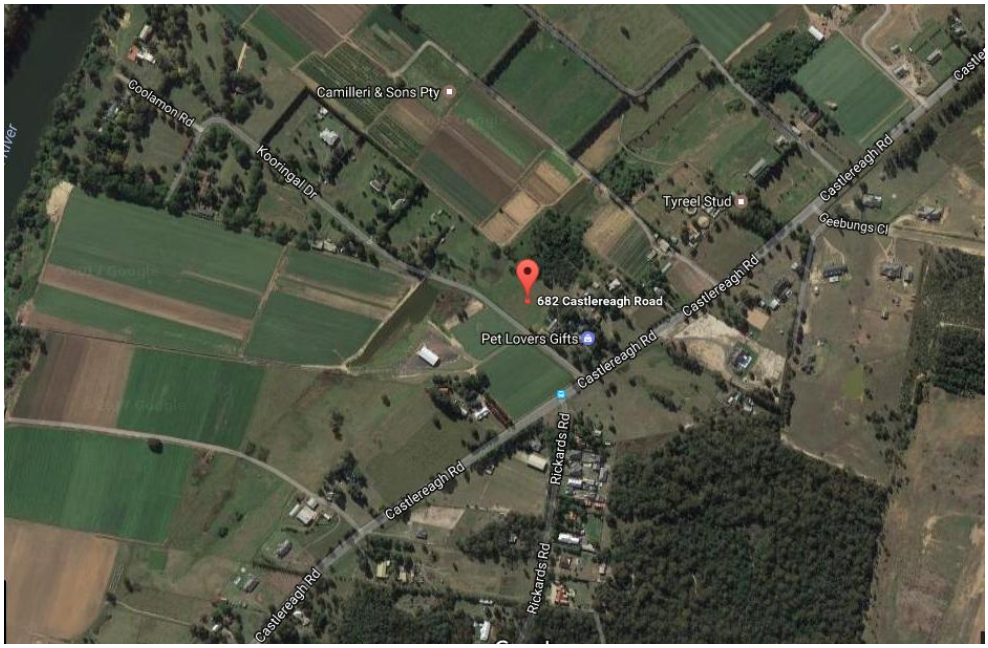


Figure 2: Site Location



2.2 Description of the Site

The approximately rectangular site fronts Castlereagh Road to the east, Kooringal Drive to the south, rural property to the north and west, with the Hawkesbury River to the west. The site is predominantly rural uses, with a house and associated buildings, that has previously been used as base for pet supplies business.

Surrounding land uses are generally semi-rural, with horse studs, turf farms, agriculture and small holdings. Penrith Lakes and Sydney International Regatta Centre are to the south and Agnes Banks and Richmond township to the north. Nepean Raceway is located at 112 Rickards Road to the east.

2.3 Road Hierarchy

Classified roads[1] are roads that, although owned by the City, are under the control of the NSW RMS because of their function as part of the Regional and/or State traffic network.

- Castlereagh Road (Main Road) 80km/h
- Kooringal Drive (Local) 60km/h
- Rickards Road (Major Local) 60km/h

2.4 Roads

Castlereagh Road (Main Road No. 630) is a two-lane road with some widenings at intersections, classified in part south of Cranebrook Road as a State Road. Regional Road 2109 from Cranebrook Road (MR630) at Cranebrook via Castlereagh Road Deviation and Castlereagh Road to Springwood Road (MR570) at Agnes Banks. State Road 630: from Jane Street (Great Western Highway HW5) at Penrith via Castlereagh Road, then via second ramp to Cranebrook Road, and Cranebrook Road to The Northern Road (MR154) at Llandilo, then from the Northern Road at Llandilo via Londonderry Road and Paget Street to Lennox Street (MR537) at Richmond. State Roads are managed and financed by RMS NSW.

The road is one lane in each direction with a marked centreline and edge lines on an approximately 7m wide pavement with up to 2m wide unpaved shoulders that are used for parking and run-off for passing right turning vehicles near driveways and intersections. There are bus stops south of the subject site. There is localised street lighting at intersections.

[1] DCP figure 2.1

Figure 3: looking south, from Castlereagh Road fronting the subject site, Kooringal Drive on to the west and Rickards Road to the east.

Kooringal Drive is a local road approximately 6m wide pavement with one traffic lanes in each direction, no road markings and a grassed shoulder on each side.

Rickards Road is a local road approximately 5 m wide pavement with no road markings is one lane in each direction.

2.5 Intersections

The intersection of Castlereagh Road and Kooringal Drive is a T junction, with implied priority to the through road. There are no Stop or Give Way signs currently in place.

The intersection of Castlereagh Road and Rickards Road is a T junction staggered 58m south of Kooringal Drive, with signed Give Way priority to the through road.

The subject site has a major driveway 123 m west of Castlereagh Road, and two minor residential driveways off Castlereagh Road 48m and 88m m north of the Kooringal Road.

2.6 Demographics and Mode Split

Figure 4: Existing Mode Share[2]

Mode/ Percentage Split	Penrith LGA	Hawkesbury LGA	Greater Sydney Average
Car, as driver	55	61	54%
Car, as passenger	25	25	5%
Walked only	12	7	4%
Bicycle/other mode			1%
Bus	3	3	5%
Train	4	3	9%
Other	1	1	22%
Total	100%	100%	100%

[2] Source: BTS, Key Transport Indicators1 by Local Government Area of Residence (LGA) and Subregion, 2011/12

The data suggest that the proportion of workers driving or as passengers to work is higher than Sydney averages. The walked-only mode share is higher than average and public transport usage is lower than average.

2.7 Transport and Traffic conditions

Typical traffic flows are reproduced in the following table.

Figure 5: Existing Weekday Vehicle Volumes[3]

Annual Average Daily Traffic	**AADT**	**AADT**	**AADT**	**AADT**	**ADT[4]**
Year/intersection	1993	1999	2005	2008	2017
Castlereagh Road north of Devlins Road		5543	5618	-	
Castlereagh Road MR155, Agnes Banks south of the Driftway	4484	6194	8605	9108	
Rickards Road , north of Devlins Road	243			-	
Castlereagh Road north of Kooringal Drive					7044
Kooringal Drive west of Castlereagh Road					149

Vehicular traffic growth in the local area appears relatively modest. The following data shows that the predominant peaks on Castlereagh Road are northbound in the mornings and southbound in the afternoons. Traffic flows on Kooringal Drive are less than 200 vehicles per day. There are less than one percent heavy vehicles on these roads. The 85th percentile speed on Castlereagh Road is approximately 83km/h and on Kooringal Drive is approximately 55km/h, slightly above the posted speed limits. The weekday morning vehicular peak hour occurs between 8am and 9am and the weekday evening vehicular peak hour occurs between 5pm and 6pm.

[3] Source: RMS

[4] Matrix Traffic Counts for Henson Consulting, March 2017

Figure 6: Traffic Data for Castlereagh Road and Kooringal Drive

Job No	N3044
Client	Henson Consulting
Site	Castelreagh Rd - north of Kooringal Drv
Location	Castlereagh
Site No	2
Start Date	1-Mar-17
Description	Volume Summary
Direction	NB

Menu

MATRIX Traffic and Transport Data

Hour Starting	Day of Week							W'Day Ave	7 Day Ave
	Mon	Tue	Wed	Thu	Fri	Sat	Sun		
	6-Mar	7-Mar	1-Mar	2-Mar	3-Mar	4-Mar	5-Mar		
AM Peak	378	426	406	406	380	300	276		
PM Peak	265	253	238	271	260	251	251	**3678**	**3450**
0:00	9	8	9	10	15	15	20	10	12
1:00	2	5	2	7	4	13	13	4	7
2:00	8	5	4	2	5	9	7	5	6
3:00	13	17	14	16	18	5	13	16	14
4:00	54	47	48	43	44	17	7	47	37
5:00	124	132	139	127	110	43	20	126	99
6:00	250	261	228	235	246	68	36	244	189
7:00	378	426	406	406	380	126	50	399	310
8:00	370	376	385	378	352	196	139	372	314
9:00	244	233	263	287	277	238	212	261	251
10:00	200	183	215	211	239	291	249	210	227
11:00	187	215	212	204	209	300	276	205	229
12:00	178	189	198	200	208	251	245	195	210
13:00	178	211	164	180	189	242	251	184	202
14:00	225	253	225	230	260	212	222	239	232
15:00	250	235	238	271	227	187	201	244	230
16:00	265	248	236	254	215	169	169	244	222
17:00	233	220	202	258	209	172	153	224	207
18:00	146	146	160	181	166	156	118	160	153
19:00	90	94	98	118	92	114	74	98	97
20:00	74	78	71	83	69	84	72	75	76
21:00	60	86	42	44	61	83	51	59	61
22:00	29	31	37	27	57	65	33	36	40
23:00	16	21	12	18	37	54	20	21	25
Total	3583	3720	3608	3790	3689	3110	2651	3678	3450

7-19	2854	2935	2904	3060	2931	2540	2285	2937	2787
6-22	3328	3454	3343	3540	3399	2889	2518	3413	3210
6-24	3373	3506	3392	3585	3493	3008	2571	3470	3275
0-24	3583	3720	3608	3790	3689	3110	2651	3678	3450

Job No	N3044
Client	Henson Consulting
Site	Castelreagh Rd - north of Kooringal Drv
Location	Castlereagh
Site No	2
Start Date	1-Mar-17
Description	Volume Summary
Direction	SB

Menu

MATRIX Traffic and Transport Data

Hour Starting	Day of Week							W'Day Ave	7 Day Ave
	Mon	Tue	Wed	Thu	Fri	Sat	Sun		
	6-Mar	7-Mar	1-Mar	2-Mar	3-Mar	4-Mar	5-Mar		
AM Peak	212	198	232	233	214	253	196		
PM Peak	453	440	453	447	402	310	282	**3838**	**3594**
0:00	10	13	14	10	18	32	58	13	22
1:00	9	7	4	6	7	8	20	7	9
2:00	1	3	8	4	5	17	14	4	7
3:00	3	6	6	6	9	13	7	6	7
4:00	16	18	10	15	17	6	4	15	12
5:00	58	62	48	62	58	24	19	58	47
6:00	137	134	114	115	117	35	28	123	97
7:00	192	198	156	175	193	68	54	183	148
8:00	212	197	232	233	213	92	64	217	178
9:00	169	187	170	169	169	157	116	173	162
10:00	181	172	163	176	166	174	153	172	169
11:00	184	180	187	180	214	253	196	189	199
12:00	189	221	208	228	220	270	264	213	229
13:00	216	227	238	210	267	310	282	232	250
14:00	255	262	297	273	344	288	263	286	283
15:00	367	341	380	338	402	306	266	366	343
16:00	453	378	379	421	402	283	272	407	370
17:00	434	440	453	447	391	246	216	433	375
18:00	264	277	263	293	249	159	126	269	233
19:00	149	172	123	192	137	132	89	155	142
20:00	119	122	96	151	111	97	81	120	111
21:00	64	102	109	143	83	119	74	100	99
22:00	47	57	46	70	93	87	37	63	62
23:00	27	21	29	40	61	78	15	36	39
Total	3756	3797	3733	3957	3946	3254	2718	3838	3594

7-19	3116	3080	3126	3143	3230	2606	2272	3139	2939
6-22	3585	3610	3568	3744	3678	2989	2544	3637	3388
6-24	3659	3688	3643	3854	3832	3154	2596	3735	3489
0-24	3756	3797	3733	3957	3946	3254	2718	3838	3594

Job No	N3044
Client	Henson Consulting
Site	Kooringal Drv - west of Castelreagh Rd
Location	Castlereagh
Site No	1
Start Date	1-Mar-17
Description	Volume Summary
Direction	WB

Menu

MATRIX Traffic and Transport Data

Hour Starting	Day of Week							W'Day Ave	7 Day Ave
	Mon	Tue	Wed	Thu	Fri	Sat	Sun		
	6-Mar	7-Mar	1-Mar	2-Mar	3-Mar	4-Mar	5-Mar		
AM Peak	8	5	7	6	8	6	8		
PM Peak	10	13	9	9	12	9	6	**80**	**75**
0:00	0	0	0	0	2	2	3	0	1
1:00	0	0	0	1	0	0	0	0	0
2:00	0	0	0	0	0	0	0	0	0
3:00	0	0	0	0	0	0	0	0	0
4:00	1	1	0	1	4	0	0	1	1
5:00	0	0	1	0	0	0	1	0	0
6:00	1	1	1	0	0	0	0	1	0
7:00	2	2	2	2	2	0	0	2	1
8:00	7	3	2	0	3	2	2	3	3
9:00	6	3	7	5	1	6	1	4	4
10:00	8	1	7	5	7	4	2	6	5
11:00	8	5	3	6	8	4	8	6	6
12:00	9	3	5	6	11	9	6	7	7
13:00	10	4	2	8	5	4	6	6	6
14:00	9	7	6	5	2	8	6	6	6
15:00	5	6	8	6	7	8	4	6	6
16:00	3	7	5	4	3	5	4	4	4
17:00	8	13	9	8	12	3	4	10	8
18:00	5	7	9	9	5	0	1	7	5
19:00	3	4	4	4	3	0	3	4	3
20:00	4	1	2	4	6	2	2	3	3
21:00	3	2	0	4	1	5	1	2	2
22:00	0	3	2	0	0	2	3	1	1
23:00	0	0	0	1	0	0	0	0	0
Total	92	73	75	79	82	64	57	80	75

7-19	80	61	65	64	66	53	44	67	62
6-22	91	69	72	76	76	60	50	77	71
6-24	91	72	74	77	76	62	53	78	72
0-24	92	73	75	79	82	64	57	80	75

Job No	N3044
Client	Henson Consulting
Site	Kooringal Drv - west of Castelreagh Rd
Location	Castlereagh
Site No	1
Start Date	1-Mar-17
Description	Volume Summary
Direction	EB

Menu

MATRIX Traffic and Transport Data

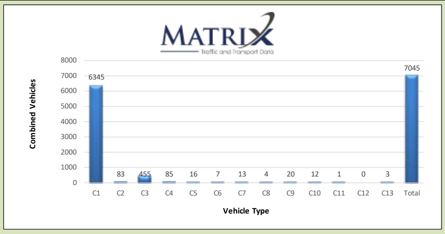
Hour Starting	Day of Week							W'Day Ave	7 Day Ave
	Mon	Tue	Wed	Thu	Fri	Sat	Sun		
	6-Mar	7-Mar	1-Mar	2-Mar	3-Mar	4-Mar	5-Mar		
AM Peak	13	15	12	10	9	8	5		
PM Peak	8	11	11	11	8	10	7	**80**	**74**
0:00	0	0	0	0	0	0	2	0	0
1:00	0	0	0	0	0	0	0	0	0
2:00	0	0	0	0	0	0	0	0	0
3:00	0	0	0	0	0	0	0	0	0
4:00	2	2	1	2	3	0	0	2	1
5:00	2	1	1	2	4	2	0	2	2
6:00	8	5	6	3	7	1	2	6	5
7:00	6	5	3	9	4	3	4	5	5
8:00	8	15	12	10	9	3	5	11	9
9:00	3	3	5	5	5	8	2	4	4
10:00	6	0	9	2	4	6	4	4	4
11:00	13	3	7	6	9	8	5	8	7
12:00	8	2	3	4	3	5	5	4	4
13:00	6	5	3	8	8	4	4	6	5
14:00	5	11	11	11	3	1	5	8	7
15:00	5	1	4	6	6	7	1	4	4
16:00	5	4	3	2	2	10	3	3	4
17:00	2	4	2	5	6	2	1	4	3
18:00	3	6	0	2	1	1	3	2	2
19:00	5	6	1	3	3	4	7	4	4
20:00	3	0	1	2	2	0	2	2	1
21:00	0	0	1	1	1	1	0	1	1
22:00	0	0	0	0	0	0	0	0	0
23:00	0	0	0	0	0	0	0	0	0
Total	90	73	73	83	80	66	55	80	74

7-19	70	59	62	70	60	58	42	64	60
6-22	86	70	71	79	73	64	53	76	71
6-24	86	70	71	79	73	64	53	76	71
0-24	90	73	73	83	80	66	55	80	74

Job No	N3044
Client	Henson Consulting
Site	Castelreagh Rd - north of Kooringal Drv
Location	Castlereagh
Site No	2
Start Date	1-Mar-17
Day	7 Day Ave
Description	Class Summary
Classification	AustRoads94
Select Site	2. Castelreagh Rd - north of Kooringal Drv
Select Day	7 Day Ave

Menu

Class Summary		C	NB	SB
Light	Class 1	**90%**	91%	89%
	Class 2	**1%**	1%	1%
Medium	Class 3	**6%**	6%	7%
	Class 4	**1%**	1%	2%
	Class 5	**0%**	0%	0%
Heavy	Class 6	**0%**	0%	0%
	Class 7	**0%**	0%	0%
	Class 8	**0%**	0%	0%
	Class 9	**0%**	0%	0%
	Class 10	**0%**	0%	0%
	Class 11	**0%**	0%	0%
	Class 12	**0%**	0%	0%
U/C	Class 13	**0%**	0%	0%

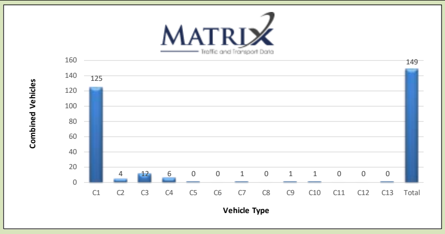


Hour Starting	NB														SB														COMBINED													
	C1 Short	C2 Short Towing	C3 2 axle Truck or bus	C4 3 Axle Truck or Bus	C5 4 or 5 Axle Truck	C6 3 axle Articulated	C7 4 Axle Articulated	C8 5 Axle Articulated	C9 6 Axle Articulated	C10 B Double	C11 Double Road Train	C12 Triple Road Train	C13 Unclassifiable	**Total**	C1 Short	C2 Short Towing	C3 2 axle Truck or bus	C4 3 Axle Truck or Bus	C5 4 or 5 Axle Truck	C6 3 axle Articulated	C7 4 Axle Articulated	C8 5 Axle Articulated	C9 6 Axle Articulated	C10 B Double	C11 Double Road Train	C12 Triple Road Train	C13 Unclassifiable	**Total**	C1 Short	C2 Short Towing	C3 2 axle Truck or bus	C4 3 Axle Truck or Bus	C5 4 or 5 Axle Truck	C6 3 axle Articulated	C7 4 Axle Articulated	C8 5 Axle Articulated	C9 6 Axle Articulated	C10 B Double	C11 Double Road Train	C12 Triple Road Train	C13 Unclassifiable	**Total**
0:00	11	0	1	0	0	0	0	0	0	0	0	0	0	**12**	21	0	1	0	0	0	0	0	0	0	0	0	0	**22**	32	0	2	0	0	0	0	0	0	0	0	0	0	**34**
1:00	6	0	1	0	0	0	0	0	0	0	0	0	0	**7**	8	0	1	0	0	0	0	0	0	0	0	0	0	**9**	13	0	2	0	0	0	0	0	0	0	0	0	0	**15**
2:00	5	0	1	0	0	0	0	0	0	0	0	0	0	**6**	7	0	1	0	0	0	0	0	0	0	0	0	0	**7**	11	0	1	0	0	0	0	0	0	0	0	0	0	**13**
3:00	11	0	2	0	0	0	0	0	0	0	0	0	0	**14**	6	0	1	0	0	0	0	0	0	0	0	0	0	**7**	18	0	3	0	0	0	0	0	0	0	0	0	0	**21**
4:00	29	1	4	1	0	0	0	0	1	0	0	0	0	**37**	11	0	1	0	0	0	0	0	0	0	0	0	0	**12**	39	1	5	2	1	0	0	0	2	0	0	0	0	**49**
5:00	84	2	10	2	0	0	0	0	1	0	0	0	0	**99**	41	0	4	1	0	0	0	0	0	0	0	0	0	**47**	125	2	14	3	1	0	0	0	1	1	0	0	0	**147**
6:00	167	2	16	1	1	1	1	0	0	0	0	0	0	**189**	79	1	10	3	1	0	1	0	0	1	0	0	0	**97**	246	3	26	4	2	1	1	0	1	1	0	0	0	**286**
7:00	287	4	16	1	0	0	1	0	0	0	0	0	0	**310**	128	2	12	3	1	0	0	0	0	1	0	0	1	**148**	415	6	29	4	1	0	1	0	0	1	0	0	1	**458**
8:00	286	5	18	1	1	1	0	0	1	1	0	0	0	**314**	157	2	13	3	1	0	0	0	1	0	0	0	0	**178**	442	7	31	4	1	1	0	1	2	1	0	0	0	**491**
9:00	226	5	15	1	1	0	0	1	1	0	0	0	0	**251**	142	3	12	2	1	0	0	0	0	1	0	0	0	**162**	368	8	28	3	1	1	1	1	1	1	0	0	0	**413**
10:00	207	4	14	1	0	0	0	0	0	0	0	0	0	**227**	145	3	15	3	0	0	1	0	1	1	0	0	0	**169**	352	7	29	3	1	0	1	0	1	1	0	0	0	**396**
11:00	210	2	14	2	0	0	0	0	0	0	0	0	0	**229**	176	4	15	2	1	0	0	0	1	0	0	0	0	**199**	386	6	29	4	1	0	0	0	1	1	0	0	0	**428**
12:00	188	2	14	3	1	0	0	0	2	0	0	0	0	**210**	203	3	16	4	1	1	0	0	1	0	0	0	0	**229**	391	4	30	7	2	1	1	0	2	0	0	0	0	**438**
13:00	183	3	13	1	1	0	0	0	1	0	0	0	0	**202**	224	3	17	4	0	0	0	0	1	1	0	0	0	**250**	406	6	29	5	1	0	1	0	1	1	0	0	0	**452**
14:00	213	2	13	2	0	0	1	0	0	1	0	0	0	**232**	250	3	20	7	1	0	1	0	1	1	0	0	0	**283**	463	6	33	9	1	0	1	0	1	1	0	0	0	**516**
15:00	209	3	14	1	0	0	0	0	1	0	0	0	0	**230**	307	3	23	6	0	0	1	0	0	1	0	0	0	**343**	517	6	38	7	0	0	1	0	2	1	0	0	0	**573**
16:00	201	3	15	1	0	0	0	0	1	0	0	0	0	**222**	335	4	22	6	0	0	1	0	1	0	0	0	0	**370**	536	7	37	7	1	1	1	0	2	0	0	0	0	**592**
17:00	191	3	11	1	0	0	1	0	0	0	0	0	0	**207**	341	3	23	5	1	0	1	0	1	1	0	0	0	**375**	531	6	34	6	1	0	1	1	1	1	0	0	0	**582**
18:00	143	2	7	1	0	0	1	0	0	0	0	0	0	**153**	215	1	13	3	0	0	0	0	0	0	0	0	0	**233**	358	3	20	3	0	0	1	0	0	0	0	0	0	**386**
19:00	91	1	4	0	0	0	0	0	0	0	0	0	0	**97**	127	1	10	2	0	0	0	0	0	0	0	0	0	**142**	218	3	14	3	0	1	0	0	0	0	0	0	0	**239**
20:00	72	1	2	0	0	0	0	0	0	0	0	0	0	**76**	102	0	5	3	0	0	0	0	0	0	0	0	0	**111**	174	1	8	3	0	0	0	0	0	0	0	0	0	**187**
21:00	56	0	4	0	1	0	0	0	0	0	0	0	0	**61**	90	1	6	3	0	0	0	0	0	0	0	0	0	**99**	146	1	9	3	1	0	0	0	0	0	0	0	0	**160**
22:00	38	0	1	0	0	0	0	0	0	0	0	0	0	**40**	58	0	2	2	0	0	0	0	0	0	0	0	0	**62**	96	1	4	2	0	0	0	0	0	0	0	0	0	**102**
23:00	24	0	1	0	0	0	0	0	0	0	0	0	0	**25**	36	0	1	1	0	0	0	0	0	0	0	0	0	**39**	60	0	3	1	0	0	0	0	0	0	0	0	0	**64**
Total	3136	45	210	21	7	4	7	3	11	4	1	0	2	**3450**	3209	38	244	64	9	4	6	1	9	8	1	0	1	**3594**	6345	83	455	85	16	7	13	4	20	12	1	0	3	**7045**

Job No	N3044
Client	Henson Consulting
Site	Kooringal Drv - west of Castelreagh Rd
Location	Castlereagh
Site No	1
Start Date	1-Mar-17
Day	7 Day Ave
Description	Class Summary
Classification	AustRoads94
Select Site	1. Kooringal Drv - west of Castelreagh Rd
Select Day	7 Day Ave

Menu

Class Summary		C	EB	WB
Light	Class 1	**84%**	83%	84%
	Class 2	**3%**	3%	3%
Medium	Class 3	**8%**	9%	7%
	Class 4	**4%**	3%	4%
	Class 5	**0%**	0%	0%
Heavy	Class 6	**0%**	0%	0%
	Class 7	**1%**	1%	1%
	Class 8	**0%**	0%	0%
	Class 9	**0%**	0%	0%
	Class 10	**0%**	0%	0%
	Class 11	**0%**	0%	0%
	Class 12	**0%**	0%	0%
U/C	Class 13	**0%**	0%	0%

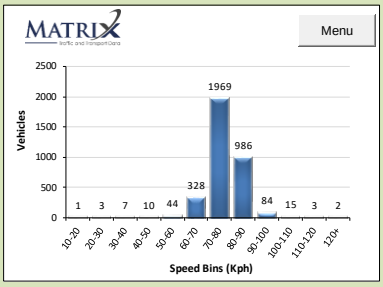


Hour Starting	EB														WB														COMBINED													
	C1 Short	C2 Short Towing	C3 2 axle Truck or bus	C4 3 Axle Truck or Bus	C5 4 or 5 Axle Truck	C6 3 axle Articulated	C7 4 Axle Articulated	C8 5 Axle Articulated	C9 6 Axle Articulated	C10 B Double	C11 Double Road Train	C12 Triple Road Train	C13 Unclassifiable	**Total**	C1 Short	C2 Short Towing	C3 2 axle Truck or bus	C4 3 Axle Truck or Bus	C5 4 or 5 Axle Truck	C6 3 axle Articulated	C7 4 Axle Articulated	C8 5 Axle Articulated	C9 6 Axle Articulated	C10 B Double	C11 Double Road Train	C12 Triple Road Train	C13 Unclassifiable	**Total**	C1 Short	C2 Short Towing	C3 2 axle Truck or bus	C4 3 Axle Truck or Bus	C5 4 or 5 Axle Truck	C6 3 axle Articulated	C7 4 Axle Articulated	C8 5 Axle Articulated	C9 6 Axle Articulated	C10 B Double	C11 Double Road Train	C12 Triple Road Train	C13 Unclassifiable	**Total**
0:00	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**	1	0	0	0	0	0	0	0	0	0	0	0	0	**1**	1	0	0	0	0	0	0	0	0	0	0	0	0	**1**
1:00	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
2:00	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
3:00	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
4:00	1	0	0	0	0	0	0	0	0	0	0	0	0	**1**	1	0	0	0	0	0	0	0	0	0	0	0	0	**1**	2	0	0	1	0	0	0	0	0	0	0	0	0	**2**
5:00	1	0	0	0	0	0	0	0	0	0	0	0	0	**2**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**	1	0	0	0	0	0	0	0	0	0	0	0	0	**2**
6:00	4	0	1	0	0	0	0	0	0	0	0	0	0	**5**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**	4	0	1	0	0	0	0	0	0	0	0	0	0	**5**
7:00	4	0	1	0	0	0	0	0	0	0	0	0	0	**5**	1	0	0	0	0	0	0	0	0	0	0	0	0	**1**	5	0	1	0	0	0	0	0	0	0	0	0	0	**6**
8:00	8	1	0	0	0	0	0	0	0	0	0	0	0	**9**	2	0	0	0	0	0	0	0	0	0	0	0	0	**3**	10	1	1	0	0	0	0	0	0	0	0	0	0	**12**
9:00	4	0	0	0	0	0	0	0	0	0	0	0	0	**4**	4	0	0	0	0	0	0	0	0	0	0	0	0	**4**	8	0	0	0	0	0	0	0	0	0	0	0	0	**9**
10:00	4	0	0	0	0	0	0	0	0	0	0	0	0	**4**	4	0	0	0	0	0	0	0	0	0	0	0	0	**5**	8	0	0	1	0	0	0	0	0	0	0	0	0	**9**
11:00	6	0	1	1	0	0	0	0	0	0	0	0	0	**7**	5	1	0	0	0	0	0	0	0	0	0	0	0	**6**	11	1	1	1	0	0	0	0	0	0	0	0	0	**13**
12:00	4	0	0	0	0	0	0	0	0	0	0	0	0	**4**	5	0	0	1	0	0	0	0	0	0	0	0	0	**7**	9	1	0	1	0	0	0	0	0	0	0	0	0	**11**
13:00	4	0	0	0	0	0	0	0	0	0	0	0	0	**5**	5	0	0	0	0	0	0	0	0	0	0	0	0	**6**	9	0	1	1	0	0	0	0	0	0	0	0	0	**11**
14:00	5	0	1	0	0	0	0	0	0	0	0	0	0	**7**	5	0	1	0	0	0	0	0	0	0	0	0	0	**6**	11	0	1	0	0	0	0	0	0	0	0	0	0	**13**
15:00	3	0	1	0	0	0	0	0	0	0	0	0	0	**4**	5	0	1	0	0	0	0	0	0	0	0	0	0	**6**	8	0	2	0	0	0	0	0	0	0	0	0	0	**11**
16:00	3	0	0	0	0	0	0	0	0	0	0	0	0	**4**	4	0	0	0	0	0	0	0	0	0	0	0	0	**4**	7	0	1	0	0	0	0	0	0	0	0	0	0	**9**
17:00	3	0	0	0	0	0	0	0	0	0	0	0	0	**3**	7	0	0	0	0	0	0	0	0	0	0	0	0	**8**	10	0	0	0	0	0	0	0	0	0	0	0	0	**11**
18:00	2	0	0	0	0	0	0	0	0	0	0	0	0	**2**	5	0	1	0	0	0	0	0	0	0	0	0	0	**5**	6	0	1	0	0	0	0	0	0	0	0	0	0	**7**
19:00	3	0	1	0	0	0	0	0	0	0	0	0	0	**4**	3	0	0	0	0	0	0	0	0	0	0	0	0	**3**	6	0	1	0	0	0	0	0	0	0	0	0	0	**7**
20:00	1	0	0	0	0	0	0	0	0	0	0	0	0	**1**	3	0	0	0	0	0	0	0	0	0	0	0	0	**3**	4	0	0	0	0	0	0	0	0	0	0	0	0	**4**
21:00	1	0	0	0	0	0	0	0	0	0	0	0	0	**1**	2	0	0	0	0	0	0	0	0	0	0	0	0	**2**	3	0	0	0	0	0	0	0	0	0	0	0	0	**3**
22:00	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**	1	0	0	0	0	0	0	0	0	0	0	0	0	**1**	1	0	0	0	0	0	0	0	0	0	0	0	0	**1**
23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total	62	2	6	3	0	0	0	0	0	0	0	0	0	**74**	63	2	5	3	0	0	0	0	0	0	0	0	0	**75**	125	4	12	6	0	0	1	0	1	1	0	0	0	**149**

Job No	N3044
Client	Henson Consulting
Site	Castelreagh Rd - north of Kooringal Drv
Location	Castlereagh
Site No	2
Start Date	1-Mar-17
Day	7 Day Ave
Direction	NB
Description	Speed Summary

Select Site: 2. Castelreagh Rd - north of Kooringal Drv

Select Day: 7 Day Ave Select Direction: NB



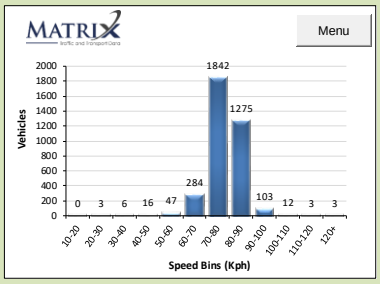
Bin Summary	
10-20	0.0%
20-30	0.1%
30-40	0.2%
40-50	0.3%
50-60	1.3%
60-70	9.5%
70-80	57.1%
80-90	28.6%
90-100	2.4%
100-110	0.4%
110-120	0.1%
120+	0.0%
77.3	**83.0**

Hour	Vehicle Speed Bins (kph)												Speed	
Starting	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100	100-110	110-120	120+	Ave	85%ile
0:00	0	0	0	0	0	2	6	4	0	0	0	0	77.9	83.2
1:00	0	0	0	0	0	1	4	1	0	0	0	0	78.5	78.3
2:00	0	0	0	0	0	1	2	3	1	0	0	0	81.4	0
3:00	0	0	0	0	0	2	5	5	1	0	0	0	78.9	87.3
4:00	0	0	0	0	0	1	14	17	3	1	0	0	80.7	88.5
5:00	0	0	0	0	0	4	40	47	7	2	0	0	81.1	87.3
6:00	0	0	0	0	0	9	107	66	6	1	1	0	79.3	84.9
7:00	0	0	1	1	2	13	183	103	5	2	0	0	78.2	83.6
8:00	0	0	2	1	2	25	188	92	4	1	0	0	77.2	82.6
9:00	0	1	0	1	2	22	152	68	4	1	0	0	77.2	82.4
10:00	0	0	0	1	3	19	139	61	3	0	0	0	76.8	82.4
11:00	0	0	0	1	4	24	141	55	4	0	0	0	76.3	82.0
12:00	0	0	1	1	3	17	124	58	5	1	0	0	77.1	82.7
13:00	0	0	0	1	1	18	124	52	5	1	0	0	77.2	82.5
14:00	0	0	0	1	3	27	138	58	4	0	0	0	76.3	82.1
15:00	0	0	0	0	4	30	132	58	4	0	0	0	76.3	82.6
16:00	0	0	1	0	5	33	126	51	5	0	0	0	75.6	81.6
17:00	0	0	0	1	6	26	113	55	5	1	0	0	76.5	82.5
18:00	0	0	0	0	1	14	78	52	7	1	0	0	78.7	84.4
19:00	0	0	0	0	2	11	50	29	4	0	0	0	77.4	83.8
20:00	0	0	0	0	2	11	42	18	3	1	0	0	76.4	82.7
21:00	0	0	0	0	2	8	33	16	2	0	0	0	76.4	83.5
22:00	0	0	0	0	1	8	19	9	2	0	0	0	77.1	83.1
23:00	0	0	0	0	1	2	12	8	2	0	0	0	79.7	85.4
Total	1	3	7	10	44	328	1969	986	84	15	3	2	77.3	83.0

Job No	N3044
Client	Henson Consulting
Site	Castelreagh Rd - north of Kooringal Drv
Location	Castlereagh
Site No	2
Start Date	1-Mar-17
Day	7 Day Ave
Direction	SB
Description	Speed Summary

Select Site: 2. Castelreagh Rd - north of Kooringal Drv

Select Day: 7 Day Ave Select Direction: SB



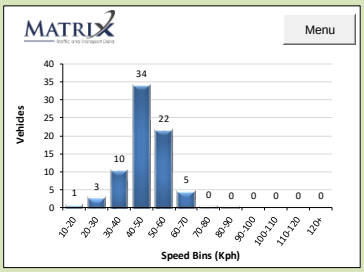
Bin Summary	
10-20	0.0%
20-30	0.1%
30-40	0.2%
40-50	0.5%
50-60	1.3%
60-70	7.9%
70-80	51.2%
80-90	35.5%
90-100	2.9%
100-110	0.3%
110-120	0.1%
120+	0.1%
78.1	**83.9**

Hour	Vehicle Speed Bins (kph)												Speed	
Starting	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100	100-110	110-120	120+	Ave	85%ile
0:00	0	0	0	0	0	1	9	10	1	1	0	0	82.4	89.1
1:00	0	0	0	0	0	1	4	3	0	0	0	0	80.5	85.3
2:00	0	0	0	0	0	1	2	3	1	1	0	0	86.2	90.0
3:00	0	0	0	0	0	1	3	3	0	0	0	0	77.7	88.6
4:00	0	0	0	0	0	1	3	5	2	0	0	0	78.4	90.7
5:00	0	0	0	0	1	3	17	22	3	0	0	0	79.7	86.2
6:00	0	0	1	0	2	10	40	38	5	1	0	0	77.6	85.7
7:00	0	0	1	1	3	10	64	61	7	1	0	0	78.9	85.7
8:00	0	0	1	2	4	14	84	65	7	0	0	0	77.7	84.0
9:00	0	0	1	0	2	11	82	62	4	0	0	0	77.9	83.8
10:00	0	0	0	1	2	13	87	60	4	1	0	0	77.9	83.8
11:00	0	1	0	2	4	16	104	68	4	0	0	0	77.3	83.5
12:00	0	0	0	1	2	15	126	79	5	0	0	0	78.3	83.4
13:00	0	0	0	2	3	19	137	83	6	0	0	0	77.6	83.3
14:00	0	0	0	1	3	20	157	96	4	0	0	0	77.9	83.2
15:00	0	0	1	2	5	21	196	113	5	1	0	0	77.7	83.2
16:00	0	0	0	1	5	45	190	121	7	0	0	0	77.3	82.8
17:00	0	0	0	1	3	33	195	138	5	1	0	0	78.1	83.1
18:00	0	0	0	0	1	11	108	102	9	1	0	0	79.8	85.2
19:00	0	0	0	1	2	12	73	47	6	1	0	0	78.4	84.4
20:00	0	0	0	0	1	9	62	33	4	1	0	0	78.3	84.1
21:00	0	0	0	1	3	10	46	34	3	1	0	0	77.8	84.1
22:00	0	0	0	0	0	5	33	18	4	1	0	0	79.5	85.7
23:00	0	0	0	0	0	2	18	11	5	1	1	0	82.4	91.4
Total	0	3	6	16	47	284	1842	1275	103	12	3	3	78.1	83.9

Job No	N3044
Client	Henson Consulting
Site	Kooringal Drv - west of Castlereagh Rd
Location	Castlereagh
Site No	1
Start Date	1-Mar-17
Day	7 Day Ave
Direction	WB
Description	Speed Summary

Select Site: 1. Kooringal Drv - west of Castlereagh Rd

Select Day: 7 Day Ave Select Direction: WB



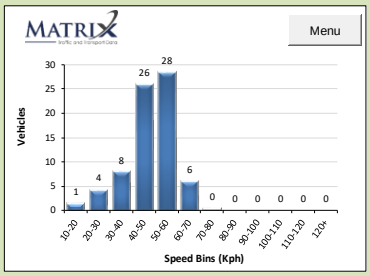
Bin Summary	
10-20	1.1%
20-30	3.6%
30-40	13.8%
40-50	45.6%
50-60	28.9%
60-70	6.1%
70-80	0.6%
80-90	0.2%
90-100	0.0%
100-110	0.0%
110-120	0.0%
120+	0.0%
46.6	52.0

Hour	Vehicle Speed Bins (kph)												Speed	
Starting	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100	100-110	110-120	120+	Ave	85%ile
0:00	0	0	0	0	0	0	0	0	0	0	0	0	53.3	0
1:00	0	0	0	0	0	0	0	0	0	0	0	0	68.7	0
2:00	0	0	0	0	0	0	0	0	0	0	0	0		0
3:00	0	0	0	0	0	0	0	0	0	0	0	0		0
4:00	0	0	0	0	1	0	0	0	0	0	0	0	53.2	0
5:00	0	0	0	0	0	0	0	0	0	0	0	0	55.2	0
6:00	0	0	0	0	0	0	0	0	0	0	0	0	48.7	0
7:00	0	0	0	1	0	0	0	0	0	0	0	0	47.1	0
8:00	0	0	1	1	1	0	0	0	0	0	0	0	44.5	0
9:00	0	0	1	1	2	0	0	0	0	0	0	0	48.1	0
10:00	0	0	1	2	1	0	0	0	0	0	0	0	46.1	0
11:00	0	0	1	2	2	0	0	0	0	0	0	0	46.2	0
12:00	0	0	1	3	1	0	0	0	0	0	0	0	42.2	47.9
13:00	0	0	1	3	2	0	0	0	0	0	0	0	45.0	0
14:00	0	0	1	2	2	1	0	0	0	0	0	0	47.6	0
15:00	0	0	1	3	2	0	0	0	0	0	0	0	46.6	0
16:00	0	0	0	2	1	0	0	0	0	0	0	0	47.0	0
17:00	0	0	1	5	2	0	0	0	0	0	0	0	47.6	55.5
18:00	0	0	0	2	2	0	0	0	0	0	0	0	46.2	0
19:00	0	0	0	1	1	0	0	0	0	0	0	0	45.9	0
20:00	0	0	0	1	1	0	0	0	0	0	0	0	47.5	0
21:00	0	0	0	1	1	0	0	0	0	0	0	0	47.8	0
22:00	0	0	0	1	1	0	0	0	0	0	0	0	50.4	0
23:00	0	0	0	0	0	0	0	0	0	0	0	0	60.5	0
Total	1	3	10	34	22	5	0	0	0	0	0	0	46.6	52.0

Job No	N3044
Client	Henson Consulting
Site	Kooringal Drv - west of Castlereagh Rd
Location	Castlereagh
Site No	1
Start Date	1-Mar-17
Day	7 Day Ave
Direction	EB
Description	Speed Summary

Select Site: 1. Kooringal Drv - west of Castlereagh Rd

Select Day: 7 Day Ave Select Direction: EB



Bin Summary	
10-20	1.9%
20-30	5.8%
30-40	10.6%
40-50	34.8%
50-60	38.3%
60-70	8.1%
70-80	0.6%
80-90	0.0%
90-100	0.0%
100-110	0.0%
110-120	0.0%
120+	0.0%
47.6	55.8

Hour	Vehicle Speed Bins (kph)												Speed	
Starting	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100	100-110	110-120	120+	Ave	85%ile
0:00	0	0	0	0	0	0	0	0	0	0	0	0	53.1	0
1:00	0	0	0	0	0	0	0	0	0	0	0	0		0
2:00	0	0	0	0	0	0	0	0	0	0	0	0		0
3:00	0	0	0	0	0	0	0	0	0	0	0	0		0
4:00	0	0	0	0	1	0	0	0	0	0	0	0	53.4	0
5:00	0	0	0	0	1	1	0	0	0	0	0	0	55.0	0
6:00	0	0	0	2	1	0	0	0	0	0	0	0	48.6	0
7:00	0	0	0	2	2	1	0	0	0	0	0	0	50.9	0
8:00	0	1	1	4	3	1	0	0	0	0	0	0	46.9	55.8
9:00	0	0	1	1	2	0	0	0	0	0	0	0	48.6	0
10:00	0	0	1	1	2	0	0	0	0	0	0	0	45.6	0
11:00	0	1	1	2	3	1	0	0	0	0	0	0	46.8	56.9
12:00	0	0	0	1	2	0	0	0	0	0	0	0	50.6	0
13:00	0	0	1	2	2	0	0	0	0	0	0	0	44.1	0
14:00	0	1	1	2	3	1	0	0	0	0	0	0	49.3	54.7
15:00	0	0	1	2	1	0	0	0	0	0	0	0	37.3	0
16:00	0	0	0	2	1	0	0	0	0	0	0	0	47.1	0
17:00	0	0	0	1	1	0	0	0	0	0	0	0	47.3	0
18:00	0	0	0	1	1	0	0	0	0	0	0	0	44.6	0
19:00	0	0	0	1	1	1	0	0	0	0	0	0	51.3	0
20:00	0	0	0	1	1	0	0	0	0	0	0	0	51.7	0
21:00	0	0	0	1	0	0	0	0	0	0	0	0	46.8	0
22:00	0	0	0	0	0	0	0	0	0	0	0	0		0
23:00	0	0	0	0	0	0	0	0	0	0	0	0		0
Total	1	4	8	26	28	6	0	0	0	0	0	0	47.6	55.8

2.8 Existing traffic generation

The existing site comprises two detached dwellings with up to 4 cars observed parked on the property. There is no nearby kerbside parking. By observation, the subject site currently generates up to 4 car trips in the peak hour.

Figure 7: Subject site existing vehicle traffic flows on typical weekday

Hour starting:	Vehicles in	Vehicles out	Total Vehicles
8.00 a.m.	1	3	4
17.00 p.m.	3	1	4

2.9 Bus and Taxi

There are bus stops on Castlereagh Road approximately 60m south of the subject site. The majority of the buses in the area operate along Castlereagh Road including service #678 Penrith to Richmond, approximately 30 minutes from Penrith Railway Station and 20 minutes from Richmond Railway Station.

Figure 8: Bus Services [5]

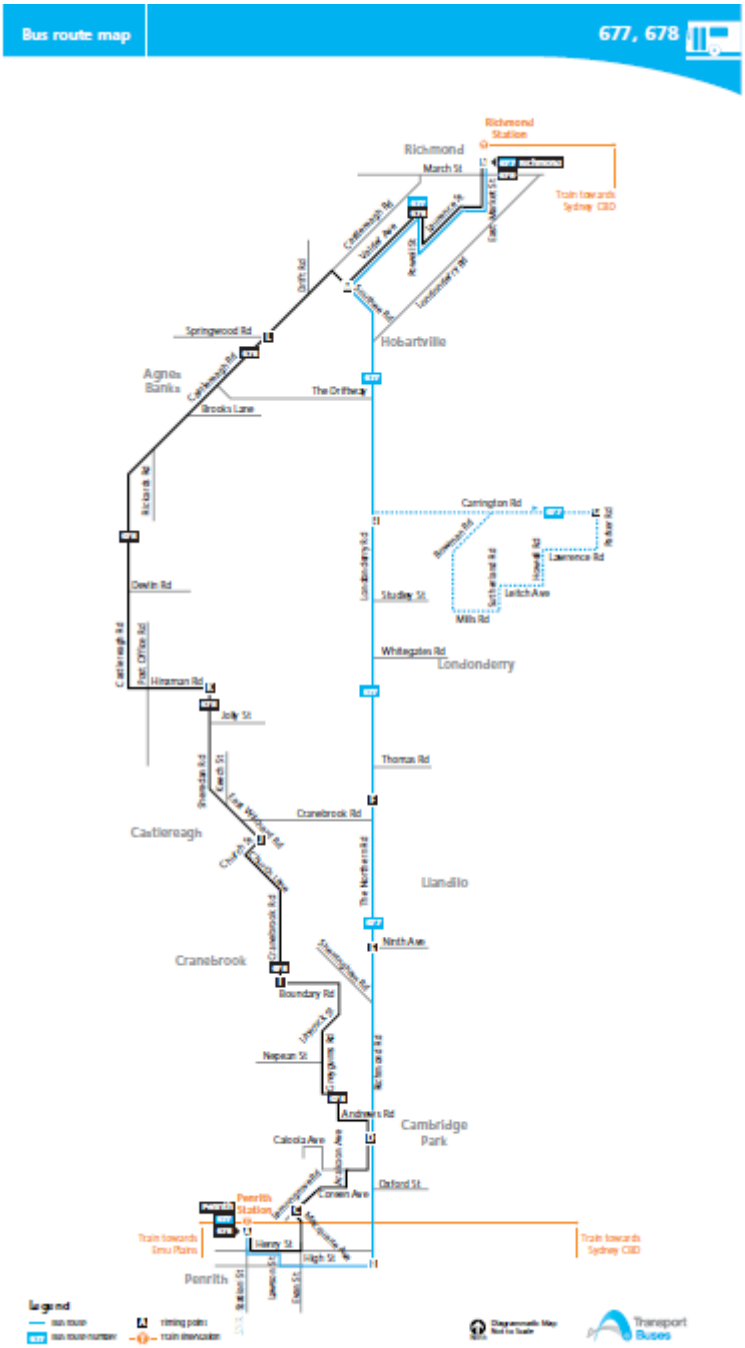
	Weekdays	Saturday
First Bus		
Penrith Interchange	06:40	08:19
Last Bus		
Penrith Interchange	17:25	15:49
Frequency		
peak	30-60 mins	2 trips
off peak	1 trip	

Weekday peak hour bus frequency is between 30 - 60 minutes depending on the direction of travel. Frequency is poor off-peak and during the weekends and public holidays. The Figure below illustrates the bus routes in the area.

Taxis are not widely available in the area.

[5] Extract from TfNSW bus website

Figure 9: Bus routes near the subject site



2.10 Train

Rail Stations are also shown in the above map. The site is outside walking distance and easy cycling distance of stations, but is within kiss-and–ride or park-and–ride distance of good frequent metropolitan train services at Penrith station and 10 minute /8km drive to Richmond station.

2.11 Pedestrians

Pedestrian path connections in the area are not provided. Walking is along the carriageway, the shoulder or verge.

2.12 Bicycles

Bicycles were not observed to be widely used to and within the relatively flat site and surrounds. The area and subject site are outside the catchment of the Penrith Bike Plan[6]. The Hawkesbury Mobility Plan [7] concentrates on the urban areas of Richmond and other centres. The local area is however reasonably flat and conducive to cycling for keen cyclists.

2.13 On-street car parking

There is no significant on-street parking observed along roads near the subject site.

2.14 Road Safety

RMS records[8] indicate that there is no unusual concentration of crashes around the subject site.

[6] Sub Regional Bike Planning Study – Penrith; GTA 2009
[7] GTA 2010
[8] Crashstats 2010 -2013

3 Proposed Development

3.1 The Development

The DA is seeking approval for a proposed cultural centre including:

- Excavation and site preparation works
- Addition to existing residential building
- Monument Landscape Feature and viewing platform
- At-grade on-site car parking accessed via a two-way level driveway off Kooringal Drive 150m west of Castlereagh Road, and at grade car parking for cars accessed via a two-way driveway off Kooringal Drive 60m west of Castlereagh Road. This is a total of 64 car spaces and 1 minibus space (including visitor spaces, two of which are accessible disabled parking spaces).
- Two upgraded paved driveways a minimum of 5.5m wide off Kooringal Drive to the parking areas
- No dedicated delivery truck and coach/bus parking is provided, but there is space for up to one 12.5m long standard Heavy Rigid Vehicle truck/bus to be provided within the car park at off-peak delivery times when the car park is underutilised.
- Additional parking exists for overflow parking on open space within the site. This overflow parking is not expected to be required to be used. No overflow parking will be required on-street.
- Footpaths and pedestrian accesses.
- Associated landscaping and open space.

The subject proposal is described in scheme drawings by Intercapital Consultants. The proposed driveways are designed to suit the road frontage, and is a beneficial reduction from the existing site driveway/crossovers on the busier and higher speed Castlereagh Road.

The driveways have less than 1 in 20 grades for at least the first 6m before the property line, have adequate queueing within the site, and are wide enough to provide adequate sight distance triangles from the driver's eye to vehicles and to pedestrians on the footpath.

Service vehicle access would be via the car parks mainly for utilities and small vans is envisaged to be relatively minor and associated with repairs and cleaning. and an occasional truck or bus up to a heavy goods vehicle.

Pedestrian and bike access to the building is via the perimeter public road and crossings to the parking areas.

3.2 Hours of operation

The car parks will be open at all times but will mostly be used in daylight hours.

3.3 Design vehicles

The design vehicle for the car park is the Australian Standards AS2890.1 Off Street Car Parking B99 vehicle (99th percentile vehicle represented by a very large car or Ford Transit Van medium wheelbase van) to public parking. The design vehicle to service waste is likely to be the AS2890.2 Medium Rigid Vehicle (MRV garbage truck 8.8 m long) and occasional HRV Truck/Bus (12.5m long). The driveways and parking areas will accommodate these vehicles and turning paths.

3.4 Analysis of projected queuing at entrances

Sufficient parking and traffic management elements are provided on site to avoid queuing at the entrance. There will not be key card/intercom access control and will be no expected delay to vehicles including bicycles entering the site.

All parking spaces and circulation aisles generally comply with AS 2890.1 – 2004 off street car parking, bike parking, and other standards.

3.5 Other local development

Cumulative traffic impact assessment addressed in Section 4 considered some 5 percent traffic growth from nearby future development, such as site redevelopments and the Penrith Lakes proposals. No major redevelopment that will significantly affect local traffic in the short term has been identified.

3.6 Current and proposed road works and transport management works

Discussions with Council and RMS officers did not indicate any major proposed immediate transport network works. In the longer-term transport in the area will be influenced by the development over wider areas.

4 Assessment of Proposed Development

4.1 Managing Transport Demand

The DCP emphasises managing the transport demand that is generated by a development to encourage more sustainable transport options. 'Managing Transport Demand' refers to the measures taken which minimise the need to travel and the length of trips, particularly by cars, and also encourages travel by more sustainable modes of transport (DIPNR, Integrating Land Use and Transport, 2001).

4.2 Traffic generation during design periods

Based on discussions and data[9] provided by the proponent, the following representative scenarios were developed as a basis for traffic analysis:

Non-event Day: Administrative duties staff will be attending the site during the week, and their work hours: Mon-Fri - 5 people (max.) Sat/Sun -7 people (max.); timings – any time during the day. Community site uses attend the site: Mon-Fri - 15 persons between 5pm-7 pm. Sat-Sun - 50 to100 people between noon-7 pm.

Event Day: is represented by a regular fortnightly event - 200 persons attending fortnightly, approximately 25 times per year, with peak arrivals and departures outside the am and pm on-road peak hours.

There are no traffic generation data on these types of events in the Sydney area. The following traffic generation rates are therefore estimated from first principles and in discussion with the proposed operators of the development. They are based on conservative (worst case) estimates as follows:

- a car occupancy of 1.0 staff member per car
- 3.0 people per car for events[10], based on Henson Consulting experience of sporting events, and the likely attendance of families with children in their car.
- 100% of staff arrive in morning peak hour and depart in the evening peak hour
- 100% of event attendees arrive in one hour before the event and depart in one hour after the event.

Note these vehicle occupancy data allow for some mini-buses/passenger vehicles and the occasional bus in the overall mix of traffic attending special events. Two representative scenarios have been analysed as follows:

- the busiest **Non-event Day**, effectively the busiest non-event day on a Friday, when background weekday traffic is higher than weekend background traffic; and

[9] Emails from Mr. Rick Shah of 30 January 2017 and 30 March 2017, and 27 October 2017

[10] RMS Guide to Traffic Generating Developments specify 2.3 persons per car for markets and 2.2 persons per car for restaurants.

- **Event Day** when the Event Day traffic is overlaid on a Friday when background weekday traffic is higher than weekend background traffic.

(Note that event traffic generally arrives and departs outside the on-street peak hours but have been very conservatively (worst case) assumed to coincide with the on-street peak hours and factored by a multiple of 2.5 safety factor to allow for short-term 5-minute peaks within the peak hour for Sidra analysis purposes.)

Figure 10: Subject site traffic generation (peak hour)

		Staff				Other attendees				Total
		persons	car occup	prop peak	cars/h	persons	car opp	prop peak	cars/h	veh/h
Non-event day										
arrival peak	in	5	1	1	5	15	3	1	5	10
	out	0	1	1	0	0	3	1	0	0
departure peak	in	0	1	1	0	0	3	1	0	0
	out	5	1	1	5	15	3	1	5	10
Event day										
arrival peak	in	7	1	1	7	200	3	1	67	74
	out	0	1	1	0	0	3	1	0	0
departure peak	in	0	1	1	0	0	3	1	0	0
	out	7	1	1	7	200	3	1	67	74
Event day with 2.5 safety factor to allow for short term 5-minute peaks within the peak hour										
arrival peak	in	7	1	1	7	200			167	174
	out	0	1	1	0	0			0	0
departure peak	in	0	1	1	0	0			0	0
	out	7	1	1	7	200			167	174

4.3 Pedestrian generation and movements

Pedestrian generation from the development will be able to circulate within the extensive pathways that exist within the site.

4.4 Traffic Distribution and Assignment

The distribution of traffic as shown in the Appendix to and from the site to surrounding areas of Sydney was estimated from a range of sources. The study was on the basis of 25% of traffic distributed to each of the north, south, east and west based on Journey to Work Census data and data from the NSWTI Transport Data Centre. That equates to a 50% split each way along Castlereagh Road.

4.5 Background Traffic Growth

Traffic in Sydney has been growing in recent years at less than 2% per year, and passengers through Sydney Airport[11] at 2.9% per year and 4.2% to 2029. The surface transport task in Sydney is projected to grow passenger kilometres at a compound annual growth rate of 0.9 per cent per year from 2010 to 2056. Combined with local site developments outlined above, a background growth factor of 5% was added to all existing background traffic flows as a basis for analysing the future traffic flows with the subject development.

[11] Sydney Airport Master Plan, SACL

4.6 Impact of Generated Traffic

The vehicular trips generated by the development during the on-street peak hours will distribute across the access network. The peak hour levels of traffic generated, and the inter-peak arrival and departure of vehicles to the site will be well provided for by the grid network and its connections to the main road access system, supplemented by walking, cycling and public transport facilities.

Intersections were analysed by the Sidra intersection modelling program. The results of the intersection modelling for vehicles and pedestrians are tabulated below. Summary SIDRA outputs and Explanatory Notes are attached in the Appendices.

The very small deterioration of intersection performance was mostly related to the assumed growth in background traffic, not related to the subject development - the additional traffic from the subject development had a negligible effect. Intersections are calculated to operate at acceptable levels of service in future with background growth and the proposed development. Pedestrian levels of service will not be changed.

Thus, the road network and pedestrian network is capable of accommodating the proposed development and cumulative traffic impacts are acceptable.

Figure 11: Summary of Intersection Analysis – Vehicles

Intersection	Peak hour	Level of Service Existing	Level of Service with subject development on Non -event Day	Level of Service with subject development on Event Day
Castlereagh Road/Kooringal Drive[12]	a.m.	A	A	A
	p.m.	A	A	A
Site Driveway/Kooringal Drive[13]	a.m.	A	A	A
	p.m.	A	A	A

[12] Sidra Analysis - see Appendix for summary files

[13] By inspection

4.7 Intersection Control

The warrants for upgrading the intersection of Castlereagh Road and Kooringal Drive were considered.

Physical road improvements should be built to accommodate traffic during the 30th busiest hour of a facility. This 30th hour typically occurs during the weekday evening peak hour. Since the site would mostly be used in Non-event Day mode most days, event traffic would not extend to the 30th busiest hour. This means temporary traffic control measures would be sufficient and should be used to manage traffic at the site's access if required, not physical and permanent measures such as traffic signals or turn lanes.

A decision as to whether a STOP sign or a GIVE WAY sign is required is based on sight distance requirements for drivers on the minor road approach as shown in Austroads Figure 3.2, reproduced from AS1742.2:

STOP signs should normally be installed only where justified on the basis of sight distance requirements, otherwise the signs will lose 'credibility' and their effectiveness in general will be compromised.

Austroads Figure 3.2 shows sight distance restrictions requiring the use of Stop signs. For a major road speed of 80km/h, a clear sight distance with no permanent sight obstruction requires a distance along the major road of 65m from a viewpoint 3m back from the edge of the through lane. This is satisfied on the subject site, and therefore a STOP sign is not warranted.

Austroads Road Design Guide Part 4a[14] with a design speed less than 100km/h in areas including urban fringe and slower rural roads is shown in Figure 4.9(b) for a major road volume of 600 v/h in peak and a right or left turn volume less than 5 v/h shows that a basic urban right (BAR) or left turn (BAL) arrangement is acceptable. No auxiliary lanes or channelization is needed.

AUL and CHL auxiliary lane treatments may cause dangerous misunderstandings between the nearby staggered junctions with Rickards Road and bus stops: drivers using auxiliary lanes to pass at speed turning vehicle drivers may be confused with drivers slowing to turn left at the next T junction or stop. It is considered safer to leave the junction as existing.

4.8 Parking policy

The car parking rates are not specified for a festival use. The Penrith DCP for places of worship requires one car parking space per 4 seats. On that basis, an Event Day attendance of 200 people requires 50 car spaces. This is considered adequate.

[14] ARDG 4A 2010.

Figure 12: Parking Space Demand and Provision and compliance

Activity on site	People Attending	Car Parking required	Car parking provided on-site[15]	Overflow car parking
Non-event Day	30	30	64	0
Event Day	200	50	64	0
Complies?			Yes	Yes

4.9 Effects on Public Transport, walking and cycling

The subject site and locality is served by public transport via bus services that stop near the site, within an easy walk to the site. The proposal will have no adverse impact on existing railway stations, bus stops and operation of buses in the area, and will act to potentially increase public transport patronage.

The subject site and locality is accessible by foot walking along roadsides if required.

Bike parking[16] will be available at the subject site. Streets in the adjacent street network are suited to cycling, although some cyclists may be deterred from using some roads that carry higher traffic volumes.

4.10 Safety

The design provides adequate sight distances and circulation for the safe access and movement of residents and visitors, and passing pedestrians, cyclists, and vehicular traffic.

[15] Including accessible/disabled parking spaces

[16] Penrith DCP bike parking rates refer to the NSW Guidelines for Walking and Cycling 2004: Table 1 for Place of assembly or worship requires long term parking for 3%-5% of staff and short-term parking for 5%-10% of staff. With 5 staff, this requires less than one bike parking space.

5 Conclusions

The key conclusions of this Transport Impact Study are:

- A range of events and transport scenarios were considered. The busiest day during a typical Non-event Day and typical Event Day were analysed. Since the site only hosts a limited number of events per year, and most event traffic is outside the on-road peak hours, event traffic would not extend to the 30th busiest hour. No physical and permanent measures or upgrades such as such as traffic signals or turn lanes are required.
- Event operations could, if required, be monitored and video recorded during events to evaluate the need for further control. If considered necessary, traffic control services could be provided by the venue to erect temporary advance warning signs, manage parking and monitor traffic during events.
- The site is suited to the proposed use from a transport perspective.
- Parking provision and layout, circulation and access are generally designed in accordance with the relevant Australian Standards and traffic engineering principles.
- Traffic generated by the proposed development can be accommodated at acceptable levels of service without adversely affecting traffic, pedestrian, bicycle or bus network efficiency on the existing road and path network.
- Access points for pedestrians, cyclists, and vehicles are suitable and concentrated on the Kooringal Drive local side road in accordance with road hierarchy considerations. The proposed operation can be appropriately managed and have no significant impact on amenity.
- There will be no adverse effects on the safety of any road users including public transport, pedestrians and cyclists.

The proposed development is in accordance with Penrith DCP, including:

i) Provide safe entry and exit for vehicles and pedestrians which reflect the proposed land use, and the operating speed and character of the road;

ii) Minimise the potential for vehicular/pedestrian conflicts, providing protection for pedestrians where necessary;

iii) Not restrict traffic flow or create a hazard to traffic on roads in the vicinity of the development;

iv) Provide suitable off-street parking facilities to accommodate vehicles generated by the development; and

v) Not require any additional on-street traffic facilities or road works to maintain the safe and efficient movement of vehicles and pedestrians.

a) New access points off arterial, sub arterial or other major roads is avoided.

b) Vehicle access for developments is from service roads/lanes.

c) The design of direct vehicular access to developments has considered the traffic impacts on the surrounding road network. This does not require the provision of deceleration, acceleration, right turn lanes and road widening.

d) Provision is made for all vehicles to enter and leave properties in a forward direction.

e) The layout and design of parking areas minimises vehicle to pedestrian impacts, including where heavy vehicle access is proposed.

6 Appendix: Traffic Analysis

6.1 Turning Movements

Intersection name	Existing a.m.					Base					Generated by Development					Future = Base + Gen by Development				
Non-event day						5 % total growth over existing					25% each of NSEW									
Kooringal/Castlereagh Road			1	216	0			0	1	227	0	0			5			0	6	227	0	0
		5				0		5	0	0	0	0						5	0	0	0	0
		0				0		0	0	0	0	0						0	0	0	0	0
		6				0		6	0	0	0	0						6	0	0	0	0
			2	367	0			0	2	385	0	0			5			0	7	385	0	0
Kooringal /Subject site Driveway			0	0	3			0	0	0	3	0						0	0	0	3	0
	0					1		0	0	0	0	1					10	0	0	0	0	11
	8					2		8	0	0	0	2						8	0	0	0	2
	0					0		0	0	0	0	0						0	0	0	0	0
			0	0	0			0	0	0	0	0						0	0	0	0	0
Event day x 2.5 factor																						
Kooringal/Castlereagh Road			1	216	0			0	1	227	0	0			87			0	88	227	0	0
		5				0		5	0	0	0	0						5	0	0	0	0
		0				0		0	0	0	0	0						0	0	0	0	0
		6				0		6	0	0	0	0						6	0	0	0	0
			2	367	0			0	2	385	0	0			87			0	89	385	0	0
Kooringal /Subject site Driveway			0	0	3			0	0	0	3	0						0	0	0	3	0
	0					1		0	0	0	0	1					174	0	0	0	0	175
	8					2		8	0	0	0	2						8	0	0	0	2
	0					0		0	0	0	0	0						0	0	0	0	0
			0	0	0			0	0	0	0	0						0	0	0	0	0
Key to turns (north approach to top of page)		Right		Through	Left																	
	Left					Right																
	Through					Through																
	Right					Left																
		Left		Through	Right																	

Intersection name	Existing p.m.					Base					Generated by Development					Future = Base + Gen by Development				
Non-event day						5 % total growth over existing					25% each of NSEW									
Kooringal/Castlereagh Road			5	428	0			0	5	449	0	0						0	5	449	0	0
	2					0		2	0	0	0	0			5			7	0	0	0	0
	0					0		0	0	0	0	0						0	0	0	0	0
	2					0		2	0	0	0	0			5			7	0	0	0	0
			5	242	0			0	5	254	0	0						0	5	254	0	0
Kooringal /Subject site Driveway			0	0	1			0	0	0	1	0					10	0	0	0	11	0
	0					3		0	0	0	0	3						0	0	0	0	3
	3					7		3	0	0	0	7						3	0	0	0	7
	0					0		0	0	0	0	0						0	0	0	0	0
			0	0	0			0	0	0	0	0						0	0	0	0	0
Event Day x 2.5 factor																						
Kooringal/Castlereagh Road			5	428	0			0	5	449	0	0						0	5	449	0	0
	2					0		2	0	0	0	0			87			89	0	0	0	0
	0					0		0	0	0	0	0						0	0	0	0	0
	2					0		2	0	0	0	0			87			89	0	0	0	0
			5	242	0			0	5	254	0	0						0	5	254	0	0
Kooringal /Subject site Driveway			0	0	1			0	0	0	1	0					174	0	0	0	175	0
	0					3		0	0	0	0	3						0	0	0	0	3
	3					7		3	0	0	0	7						3	0	0	0	7
	0					0		0	0	0	0	0						0	0	0	0	0
			0	0	0			0	0	0	0	0						0	0	0	0	0
Key to turns (north approach to top of page)		Right		Through	Left																	
	Left					Right																
	Through					Through																
	Right					Left																
		Left		Through	Right																	

6.2 SIDRA Analysis

LANE LEVEL OF SERVICE

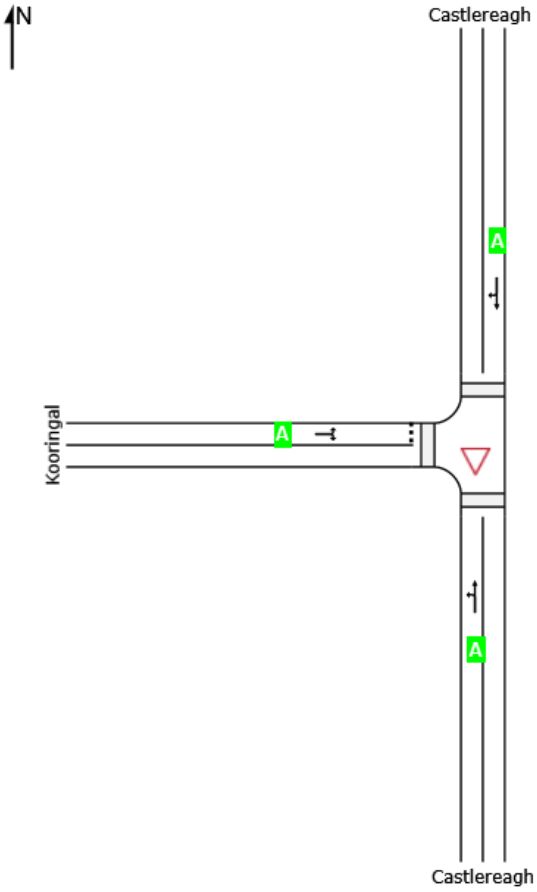
Lane Level of Service

Site: 101 [Castlereagh Road /Kooringal Drive a.m. Existing]

Existing
Giveway / Yield (Two-Way)

All Movement Classes

	South	North	West	Intersection
LOS	NA	NA	A	NA



Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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Project: E:\HC\Projects\2017154 Castlereagh Road\SIDRA\Castlereagh-Kooringal Nov 2017.sip7

MOVEMENT SUMMARY

Site: 101 [Castlereagh Road /Kooringal Drive a.m. Existing]

Existing
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Castlereagh											
1	L2	2	5.0	0.207	9.5	LOS A	0.0	0.2	0.01	0.00	72.3
2	T1	386	5.0	0.207	0.0	LOS A	0.0	0.2	0.01	0.00	79.9
Approach		388	5.0	0.207	0.1	NA	0.0	0.2	0.01	0.00	79.8
North: Castlereagh											
8	T1	227	5.0	0.121	0.0	LOS A	0.0	0.1	0.01	0.00	79.9
9	R2	1	5.0	0.121	8.4	LOS A	0.0	0.1	0.01	0.00	71.7
Approach		228	5.0	0.121	0.1	NA	0.0	0.1	0.01	0.00	79.9
West: Kooringal											
10	L2	5	5.0	0.014	7.0	LOS A	0.0	0.3	0.45	0.65	51.7
12	R2	6	5.0	0.014	8.5	LOS A	0.0	0.3	0.45	0.65	51.2
Approach		12	5.0	0.014	7.8	LOS A	0.0	0.3	0.45	0.65	51.4
All Vehicles		628	5.0	0.207	0.2	NA	0.0	0.3	0.02	0.02	79.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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LANE LEVEL OF SERVICE

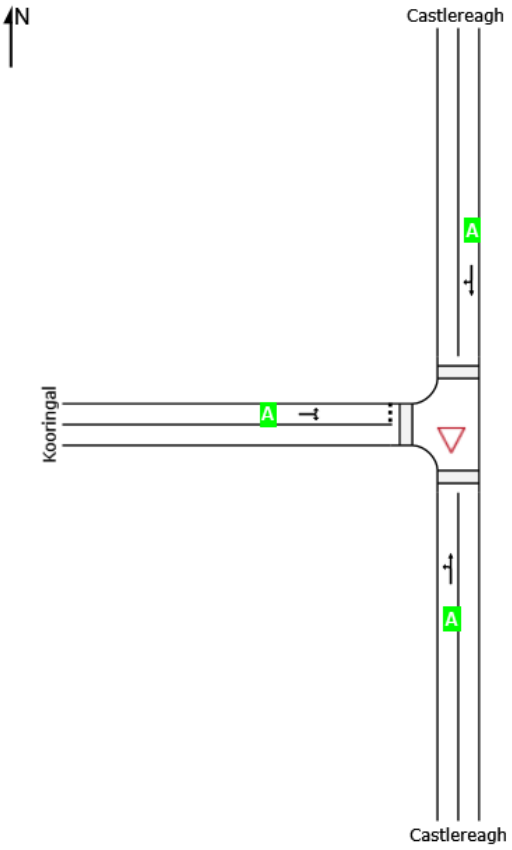
Lane Level of Service

Site: 101 [Castlereagh Road /Kooringal Drive a.m. Non Event day]

Existing plus non event traffic
Giveway / Yield (Two-Way)

All Movement Classes

	South	North	West	Intersection
LOS	NA	NA	A	NA



Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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MOVEMENT SUMMARY

Site: 101 [Castlereagh Road /Kooringal Drive a.m. Non Event day]

Existing plus non event traffic
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Castlereagh											
1	L2	7	5.0	0.223	9.8	LOS A	0.1	0.8	0.03	0.01	72.1
2	T1	405	5.0	0.223	0.1	LOS A	0.1	0.8	0.03	0.01	79.5
Approach		413	5.0	0.223	0.3	NA	0.1	0.8	0.03	0.01	79.4
North: Castlereagh											
8	T1	239	5.0	0.132	0.1	LOS A	0.1	0.5	0.03	0.02	79.4
9	R2	6	5.0	0.132	8.6	LOS A	0.1	0.5	0.03	0.02	71.3
Approach		245	5.0	0.132	0.3	NA	0.1	0.5	0.03	0.02	79.2
West: Kooringal											
10	L2	5	5.0	0.015	7.1	LOS A	0.0	0.4	0.46	0.66	51.6
12	R2	6	5.0	0.015	8.8	LOS A	0.0	0.4	0.46	0.66	51.1
Approach		12	5.0	0.015	8.0	LOS A	0.0	0.4	0.46	0.66	51.3
All Vehicles		669	5.0	0.223	0.4	NA	0.1	0.8	0.04	0.02	78.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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LANE LEVEL OF SERVICE

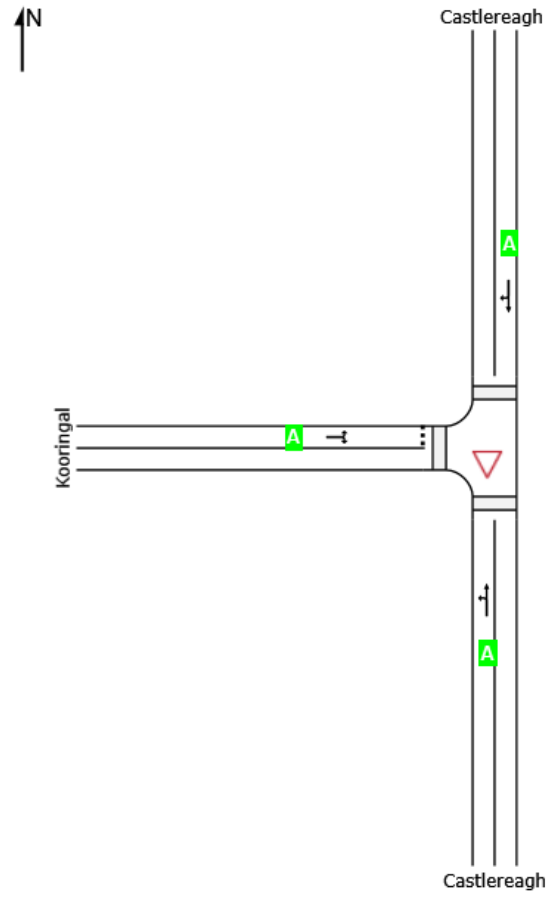
Lane Level of Service

Site: 101 [Castlereagh Road /Kooringal Drive a.m. Event Day factored by 2.5]

Existing plus Event Day factored by 2.5
Giveway / Yield (Two-Way)

All Movement Classes

	South	North	West	Intersection
LOS	NA	NA	A	NA



Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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MOVEMENT SUMMARY

Site: 101 [Castlereagh Road /Kooringal Drive a.m. Event Day factored by 2.5]

Existing plus Event Day factored by 2.5
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Castlereagh											
1	L2	94	5.0	0.322	10.1	LOS A	1.4	10.2	0.27	0.14	68.7
2	T1	405	5.0	0.322	1.1	LOS A	1.4	10.2	0.27	0.14	75.4
Approach		499	5.0	0.322	2.8	NA	1.4	10.2	0.27	0.14	74.0
North: Castlereagh											
8	T1	239	5.0	0.219	1.3	LOS A	1.0	7.1	0.37	0.21	74.1
9	R2	93	5.0	0.219	9.4	LOS A	1.0	7.1	0.37	0.21	67.0
Approach		332	5.0	0.219	3.6	NA	1.0	7.1	0.37	0.21	71.9
West: Kooringal											
10	L2	5	5.0	0.017	7.1	LOS A	0.1	0.4	0.49	0.68	51.1
12	R2	6	5.0	0.017	9.9	LOS A	0.1	0.4	0.49	0.68	50.6
Approach		12	5.0	0.017	8.6	LOS A	0.1	0.4	0.49	0.68	50.8
All Vehicles		842	5.0	0.322	3.2	NA	1.4	10.2	0.31	0.17	72.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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LANE LEVEL OF SERVICE

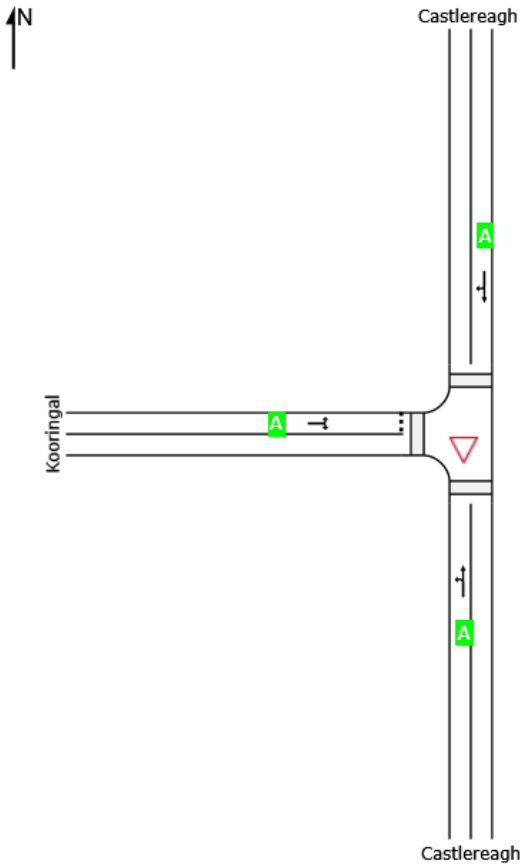
Lane Level of Service

Site: 101 [Castlereagh Road /Kooringal Drive p.m. Existing]

Existing
Giveway / Yield (Two-Way)

All Movement Classes

	South	North	West	Intersection
LOS	NA	NA	A	NA



Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
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SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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Project: E:\HC\Projects\2017154 Castlereagh Road\SIDRA\Castlereagh-Kooringal Nov 2017.sip7

MOVEMENT SUMMARY

Site: 101 [Castlereagh Road /Kooringal Drive p.m. Existing]

Existing
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Castlereagh											
1	L2	5	5.0	0.140	8.4	LOS A	0.1	0.4	0.02	0.01	72.1
2	T1	255	5.0	0.140	0.0	LOS A	0.1	0.4	0.02	0.01	79.6
Approach		260	5.0	0.140	0.2	NA	0.1	0.4	0.02	0.01	79.4
North: Castlereagh											
8	T1	451	5.0	0.243	0.0	LOS A	0.1	0.4	0.01	0.01	79.8
9	R2	5	5.0	0.243	7.9	LOS A	0.1	0.4	0.01	0.01	71.6
Approach		456	5.0	0.243	0.1	NA	0.1	0.4	0.01	0.01	79.7
West: Kooringal											
10	L2	2	5.0	0.005	6.4	LOS A	0.0	0.1	0.40	0.60	51.7
12	R2	2	5.0	0.005	9.2	LOS A	0.0	0.1	0.40	0.60	51.2
Approach		4	5.0	0.005	7.8	LOS A	0.0	0.1	0.40	0.60	51.5
All Vehicles		720	5.0	0.243	0.2	NA	0.1	0.4	0.02	0.01	79.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Project: E:\HC\Projects\2017154 Castlereagh Road\SIDRA\Castlereagh-Kooringal Nov 2017.sip7

LANE LEVEL OF SERVICE

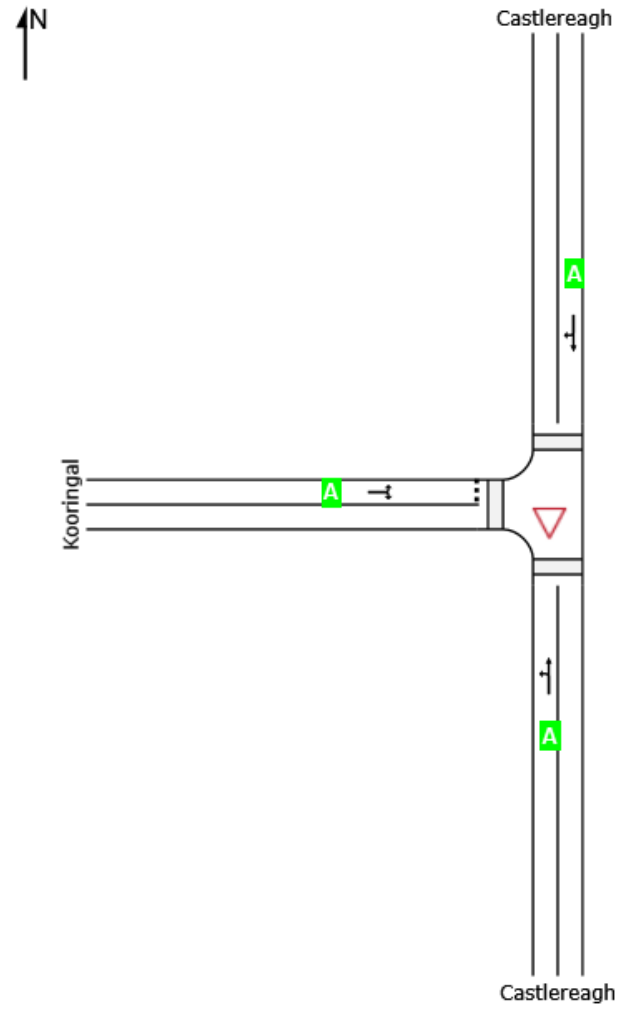
Lane Level of Service

Site: 101 [Castlereagh Road /Kooringal Drive p.m. Non Event]

Existing plus non-event traffic
Giveway / Yield (Two-Way)

All Movement Classes

	South	North	West	Intersection
LOS	NA	NA	A	NA



Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
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MOVEMENT SUMMARY

Site: 101 [Castlereagh Road /Kooringal Drive p.m. Non Event]

Existing plus non-event traffic
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Castlereagh											
1	L2	5	5.0	0.147	8.5	LOS A	0.1	0.4	0.02	0.01	72.1
2	T1	267	5.0	0.147	0.0	LOS A	0.1	0.4	0.02	0.01	79.6
Approach		273	5.0	0.147	0.2	NA	0.1	0.4	0.02	0.01	79.4
North: Castlereagh											
8	T1	473	5.0	0.254	0.0	LOS A	0.1	0.4	0.01	0.01	79.8
9	R2	5	5.0	0.254	8.0	LOS A	0.1	0.4	0.01	0.01	71.6
Approach		478	5.0	0.254	0.1	NA	0.1	0.4	0.01	0.01	79.7
West: Kooringal											
10	L2	7	5.0	0.019	6.5	LOS A	0.1	0.5	0.41	0.64	51.5
12	R2	7	5.0	0.019	9.7	LOS A	0.1	0.5	0.41	0.64	51.0
Approach		15	5.0	0.019	8.1	LOS A	0.1	0.5	0.41	0.64	51.3
All Vehicles		765	5.0	0.254	0.3	NA	0.1	0.5	0.02	0.02	78.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
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SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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LANE LEVEL OF SERVICE

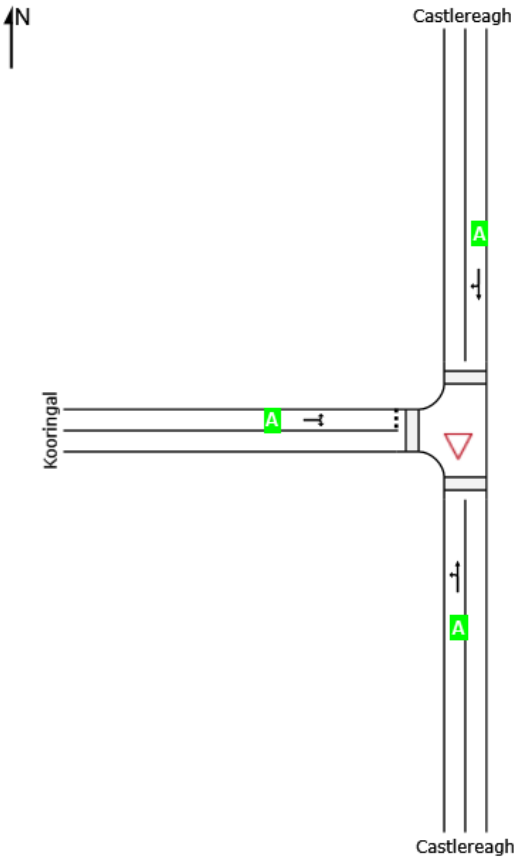
Lane Level of Service

Site: 101 [Castlereagh Road /Kooringal Drive p.m. Event Day factored by 2.5]

Existing plus Event Day factored by 2.5
Giveway / Yield (Two-Way)

All Movement Classes

	South	North	West	Intersection
LOS	NA	NA	A	NA



Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
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Project: E:\HC\Projects\2017154 Castlereagh Road\SIDRA\Castlereagh-Kooringal Nov 2017.sip7

MOVEMENT SUMMARY

Site: 101 [Castlereagh Road /Kooringal Drive p.m. Event Day factored by 2.5]

Existing plus Event Day factored by 2.5
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Castlereagh											
1	L2	5	5.0	0.147	8.5	LOS A	0.1	0.4	0.02	0.01	72.1
2	T1	267	5.0	0.147	0.0	LOS A	0.1	0.4	0.02	0.01	79.6
Approach		273	5.0	0.147	0.2	NA	0.1	0.4	0.02	0.01	79.4
North: Castlereagh											
8	T1	473	5.0	0.254	0.0	LOS A	0.1	0.4	0.01	0.01	79.8
9	R2	5	5.0	0.254	8.0	LOS A	0.1	0.4	0.01	0.01	71.6
Approach		478	5.0	0.254	0.1	NA	0.1	0.4	0.01	0.01	79.7
West: Kooringal											
10	L2	94	5.0	0.244	6.7	LOS A	0.9	6.6	0.46	0.71	51.1
12	R2	94	5.0	0.244	10.6	LOS A	0.9	6.6	0.46	0.71	50.6
Approach		187	5.0	0.244	8.7	LOS A	0.9	6.6	0.46	0.71	50.9
All Vehicles		938	5.0	0.254	1.8	NA	0.9	6.6	0.10	0.15	71.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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7 Appendix: Explanatory notes

Description and Classification Methods

Glossary and descriptions are generally in accordance with the recommendations of Australian Standards AS 1348-1986.

Term	Definition
access control control of access	1. Preventing vehicles and people crossing property lines by means of barriers or regulations. 2. Arranging matters so that vehicles and people have access at predetermined locations.
amenity	That element in the layout and operation of town and country which makes for a comfortable and pleasant life rather than a mere existence. It relates also to the preservation of such characteristics of a neighbourhood as make it pleasing in appearance to both the passer-by as well as to the resident and those across the road.
assignment traffic assignment	Process of allocating trips onto existing or planned routes available on the road or public transport network. Assignment may be based on one or more factors known to influence route selection, e.g. Travel time, distance, cost.
at-grade crossing level crossing	Crossing at the same level, such as a railway crossing which is at the same level as a road, or a normal road intersection.
base case	System that would exist without the introduction of the changes proposed in the project being analysed.
calibration	Process of determining the parameters of the mathematical travel models so that these models simulate observed travel patterns as accurately as possible.
capacity	Maximum flow of trains, vehicles, passengers or goods that can be accommodated in a transport system in a specified period.
road capacity	Maximum number of vehicles or pedestrians that can pass over a given section of a lane, road or footpath in one direction (or in both directions for a two-lane or three-lane road) during a given time period under prevailing road and traffic conditions. It is the maximum rate of flow that has a reasonable expectation of occurring. In the absence of a time modifier, capacity is an hourly volume. The capacity would not normally be exceeded without changing one or more of the conditions that prevail. In expressing capacity, it is essential to state the prevailing road and traffic conditions under which the capacity is applicable.
census collector's district (abbreviation **CCD**)	Unit of area for which each census collector is responsible for collecting information. CCDs are the smallest individual areas for which basic land use and population data are available in Australia.
central business district (abbreviation **CBD**)	Dominant area of business and commercial activity within a given area. CBDs are characterised by high density office and retail development, large numbers of pedestrians and vehicles, and a heavy demand for parking. Also known as central activities district (CAD).
centroid	Assumed point in a traffic zone that represents the origin or destination of all trips to or from the zone. Generally, the weighted centre of trip ends rather than a geometric centre of the zonal area.
commercial vehicle	Road vehicle constructed specifically to convey goods, passengers or burden in the course of trade or business.
cordon	Imaginary line drawn around a given study area at which traffic counts and interviews may be taken.
desire line	Straight line joining two centroids and showing the desired direction of travel.
distribution	Process by which the number of trips between zones is estimated. The distribution may be measured or be estimated by a growth factor process or by a synthetic model such as a gravity model.
85th Percentile	Value of variable characteristic of individuals in a population, possessed by at or below 85 per cent of that population.
elasticity	Ratio of the change in demand for a commodity to the change in price of that commodity. In transport, a high ratio is termed elastic while a low ratio is termed inelastic.
grade separation	The separation of road, rail or other traffic so that crossing movements which would otherwise conflict are effected at different elevations.
journey	Movement involving one or more trips, e.g.: (a) a 'journey-to-work', which could involve a direct trip to work or an intermediate stop for some other but secondary purpose; (b) an 'origin-to-origin' journey, which could involve several trips, each for a particular purpose. Home-to-home journeys have also been termed 'tours'.
model	Mathematical description of a situation which uses data on past and present conditions to make predictions about the effects of changes.
passenger car unit equivalent car unit	Measure involving the conversion of different types of vehicles into their equivalent passenger cars in terms of operating characteristics.
public transport	Service by bus, rail, taxi or other means which provides transport to the public on a regular basis for payment of a prescribed fare.

Term	Definition
road hierarchy	Grading of roads according to increasing or decreasing importance of their traffic carrying or other function.
screenline	Imaginary line which splits a study area into two parts. Usually located along railway lines or rivers to minimise the number of crossing points.
sight distance	The distance measured along the carriageway over which objects of defined height are visible to a driver.
traffic	movement between locations of persons, goods and information by means of mechanical, electrical or personal methods.
base traffic	That traffic already present on a facility, or that traffic unlikely to be affected by design changes.
by-passable traffic	That traffic which can be diverted from a particular road or area because drivers do not wish to stop on that road or in that area.
local by-passable traffic	Term normally used to refer to short distance traffic that can be diverted, usually at the expense of increased distance, not increased time.
through by-passable traffic	Term normally used to refer to longer distance traffic that can be diverted without significant time or distance penalties.
converted traffic	Component of traffic which has changed its mode of travel, e.g. from train to car.
diverted traffic	Component of traffic which has changed its route but not its origin, destination, or mode of travel.
generated traffic	1. Traffic created by a new or improved facility as distinct from traffic which is diverted to a facility and normal traffic increase. 2. Traffic created by changes in land use.
induced traffic	Additional traffic resulting from some improvement in a road or in traffic arrangements.
potential traffic	Total volume which would move between two terminals assuming ideal travelling conditions.
shifted traffic	Component of traffic whose desire lines have been shifted because of change of origin or destination.
suppressed traffic	Reduction in traffic volume resulting from a change in traffic arrangements.
trip	1. One-way movement from one place to another for a particular purpose (*see also* **journey**). Note: Care is required in applying this general definition. In particular, the definition of 'purpose' will affect the way in which person, vehicle or commodity movements are classified into trips. In travel surveys, the 'purpose' set often includes 'change mode' and 'serve passenger', thus making a trip correspond to a movement by only one mode. Movements for these purposes have been varyingly called 'legs', 'segments', or 'unlinked trips', in transport planning practice. For analyses, trips are often 'linked', thus making a trip embrace more than one mode and/or lower order purpose. 2. In public vehicle operations: the movement by one vehicle or unit in one direction from the start of a route to the end of it.
external trip	Trip which starts or ends outside the study area.
through trip	Trip which starts and ends outside the study area, but which passes through the study area.
internal trip`	Trip which starts and ends in the study area.
linked trip	One-way movement from one place to another for a specific purpose, involving more than one mode of travel.
trip distribution	1. The geographical distribution of trips. 2. Process by which the total number of trips is converted to individual zone-to-zone movements.
vehicle hours of travel (abbreviation **VHT**)	Total vehicle hours of travel over a road segment or number of road segments for a certain period, usually a specified year.
vehicle kilometres of travel (abbreviation **VKT**)	Total vehicle kilometres of travel over a road segment or number of road segments for a certain period, usually a specified year.
volume	Number of persons, vehicles or pedestrians passing a given point in a specified period of time.

Field surveys have been used to assess conditions. Unless specifically stated otherwise, these assessments have been transferred directly to the record sheets and not modified. Field descriptions may therefore be used as an independent estimate of conditions which can be correlated with other data.

AUSTROADS Design Vehicle Classification (AUSTROADS/SAA, 1995)

Bicycles		see Austroads Part 13	
Motorcycles		see Austroads Part 13	
Car/van - 85th percentile car,	99th percentile car	5.0 metres long	2 axles
Service vehicle		8.8 metres long	2 axles
Single unit truck/bus		12.5 metres long	3 axles
Long rigid bus		14.5 metres long	3 axles
Articulated bus		19.0 metres long	4 axles
Prime mover and semi-trailer		19.0 metres long	6 axles
Prime mover and long semi-trailer		25.0 metres long	6 axles
B-Double		25.0 metres long	9 axles
Road train		36.0 – 53.0 metres long	11-16 axles

Levels of Service

- **Level of Service A** is a condition of free flow in which individual drivers are virtually unaffected by the presence of others in the traffic stream. Freedom to select desired speeds and to manoeuvre within the traffic stream is extremely high, and the general level of comfort and convenience provided is excellent.
- **Level of Service B** is in the zone of stable flow and drivers still have reasonable freedom to select their desired speed and to manoeuvre within the traffic stream, although the general level of comfort and convenience is a little less than with level of service A.
- **Level of Service C** is also in the zone of stable flow, but most drivers are restricted to some extent in their freedom to select their desired speed and to manoeuvre within the traffic stream. The general level of comfort and convenience declines noticeably at this level.
- **Level of Service D** is close to the limit of stable flow and is approaching unstable flow. All drivers are severely restricted in their freedom to select their desired speed and to manoeuvre within the traffic stream. The general level of comfort and convenience is poor, and small increases in traffic flow will generally cause operational problems.
- **Level of Service E** occurs when traffic volumes are at or close to capacity, and there is virtually no freedom to select desired speeds or to manoeuvre within the traffic stream. Flow is unstable and minor disturbances within the traffic stream will cause break-down.
- **Level of Service F** is the zone of forced flow. With it, the amount of traffic approaching the point under consideration exceeds that which can pass it. Flow break-down occurs, and queuing and delays result.

Degree of Saturation: The DS is another measure of the operational performance of individual intersections. As both queue length and delay increase rapidly as DS approaches 1.0, it is usual to attempt to keep DS to less than 0.9. Values of DS in the order of 0.7 generally represent satisfactory intersection operation. When DS exceeds 0.9 residual queues can be anticipated.

Road Classification

Broad Classification

Arterial Roads	Freeways	Those roads with full access control and grade separated intersections, whose primary function is to service large traffic movements.
	Primary Arterial Roads	Those arterial roads whose main function is to form the principal avenue of communication for metropolitan traffic movement not catered for by freeways.
	Secondary Arterial Roads	Those roads which supplement the Primary Arterial Roads in providing for through traffic movement, to an individually determined limit that is sensitive to both roadway characteristics and abutting land users.
Local Roads	Collector Roads	Those non arterial or 'intermediate' roads which distribute traffic between the arterial roads and the local street system, which provide local connection between arterial roads and which provide access to abutting property. It is the collector road, which mixes the basic functions of carrying traffic – often at excessive speed – and serving as a local residential street, that is the generator of many of the problems encountered in traffic management in Local Traffic Areas.
	Local Access Streets	Those streets, not being arterials or collectors, whose main (traffic) function is to provide access to abutting property.

Source: Austroads Part 10, 1988

Classification of Residential Streets

Access Street	Access Place	The lowest order of street providing access to sites without any traffic generated by sites in other streets. Target maximum speed 15 km/h. Indicative traffic volume 300 vpd.

	Local Street	Access streets are generally streets where the residential environment is dominant, traffic is subservient, speed and volume are low and pedestrians and cycle movements are facilitated. Target maximum speed 40 km/h. Indicative traffic volume <200 vpd.
Collector Streets	Minor Collector	The collector street collects traffic from access streets and carries higher volumes of traffic. A reasonable level of residential amenity and safety is maintained by restricting traffic volumes and vehicle speeds. Vehicle speeds are controlled by street alignment, intersection design and, in some cases, by speed control measures. Target maximum speed 50 km/h. Indicative traffic volume <3000 vpd.
	Major Collector	The major collector is generally short and connects the collector street with the road corridor network. Fronting development should still be encouraged, but with siting conditions which ensure acceptable amenity and safety. Target maximum speed 60 km/h. Indicative traffic volume <6000 vpd.

Source: AMCORD 1995, Element 1.3 Street Networks

Road management between Roads and Maritime Services (replacing Roads and Traffic Authority) and councils in NSW provides for three categories of road: State, Regional and Local. Refer to NSW Road Management Arrangements for more details. **Legal Class** The Roads Act 1993 provides for roads to be classified as Freeways, Controlled Access Roads, Tollways, State Highways, Main Roads, Secondary Roads, Tourist Roads, Transitways and State Works. The classification of a road empowers Roads and Maritime Services (replacing Roads and Traffic Authority) to exercise broad authority over some, or all, aspects of legally classified roads and to provide financial assistance to councils. **Administrative Class To** simplify administration of the various legal road classes, the roads in which Roads and Maritime Services (replacing Roads and Traffic Authority) has an interest and council roads are grouped into a three tier administrative classification system of State, Regional and Local Roads. The schedule of roads classified under the Roads Act 1993 and of State and Regional Roads is on the RMS website.

June 24, 2020

Vraj Sydney Pty Ltd,
c/- Binah By Design
PO Box 3142
Liverpool Westfield
NSW, 2170, AUSTRALIA
C/- Mr Rick Shah, Project Manager

Dear Sirs:

Proposed Community Facility, 682 Castlereagh Road, Agnes Bank, NSW (Lot 2 DP 252556)

Addendum Traffic and Parking Statement

Introduction

This Addendum Traffic and Parking Statement statement addresses the differences between the Original Plan proposal and the Revised Plan proposal, and addresses the issues raised by Penrith Council in a Pre-lodgement Advice for the above development (Council Ref PL19/0060 dated 11 September 2019).

Original Plan

The acceptability of the traffic and queueing operation with the proposed subject development was established in the DA traffic report: Transport Impact Study, by Henson Consulting, dated February 2018 (TIS 2018).

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Revised Plan

The revised plans #D1 to #D8 by Design By RJV amendment dated 18/5/2020 moved the bulk of the on-site parking spaces further west within the site, further away from the Castlereagh Road intersection. The plan now has a reduced 20 car spaces in Car Park #2 accessed via a driveway to Kooringal Drive 60m west of Castlereagh Road, and an increased 45 car spaces in Car Park #1 (including 2 accessible spaces) accessed via a driveway to Kooringal Drive 150m west of Castlereagh Road.

Moving the bulk of car parking activity further west away from Castlereagh Road therefore provides even better queuing length to and from the car parking. This will further improve an already good operation, as demonstrated for the Original Plan.

Addendum *issues raised by Council (shown in italics)* and response

1: In particular, the proposed car parking area closest to the corner will disturb an area of the site that is currently unbuilt upon and contains landscaping. I would suggest that this car parking area is relocated in its entirety to an area of the site which is already cleared of vegetation and is setback from property boundaries. You should also consolidate the driveways as this will again limit disturbance to the street frontage. You will need to consider the slope of the land should you move the carpark towards the middle of the site. High retaining walls are also likely to be problematic from a visual perspective so you will need to consider this, as well as whether additional landscaping and tiered retaining walls (designed as planter boxes) would assist.

Relocating the car parking in its entirety was investigated by Henson Consulting via three alternative car parking and servicing options. However the client considered that the options required excessive site area, earthworks and high retaining walls with a visual impact. Reducing the number of driveways from two to one was also investigated but required an additional internal circulation road to link the parking areas, which would further increase the environmental impacts on the desired green visual buffer. The proposed two driveways will mostly serve different staff, servicing, and visitor functions and are not considered excessive.

2. The proposal should include a Traffic and Parking Statement that may reference previous DA traffic reports and includes addressing compliance with the Penrith Development Control Plan (DCP) C5, C10, D5, Australian Standard AS2890.1, AS 2890.2, AS 2890.6, other relevant guides of best practice and include advice and plans.

The Revised Plan is designed in accordance with best practice traffic engineering,

including the above references, and as detailed below.

This Traffic and Parking Statement is based on the TIS 2018, which remains relevant to the wider issues of the Revised Plan.

3. The impact of traffic generated by the development on Kooringal Drive and the intersection of Kooringal Drive / Castlereagh Road. This should include a review of the suitability of the existing driveway access to Kooringal Drive for compliance with Austroads/Roads and Maritime Services driveway intersection geometry requirements, vehicle turning movements and driver sight distances;

Traffic generation of the subject site was estimated in the TIS 2018 as a peak of 10 vehicles per hour in the peak direction on a Non-event Day and 74 vehicles per hour in the peak direction on an Event Day.

Section 4.6 demonstrated that the driveways and intersections operated at a high level of service (LOS A), and therefore had acceptable capacity and acceptable delays, as shown in the following table.

Figure 1: Summary of Intersection Analysis – Vehicles

Intersection	Peak hour	Level of Service (LOS) Existing	Level of Service with subject development on Non -event Day	Level of Service with subject development on Event Day
Castlereagh Road/Kooringal Drive	a.m.	A	A	A
	p.m.	A	A	A
Site Driveway/Kooringal Drive	a.m.	A	A	A
	p.m.	A	A	A

The SIDRA intersections analysis in the Appendix of that report showed that the 95th-percentile queue (i.e. not exceeded for 95% of the peak hour) is less than 2 vehicles long on all intersection approaches, even with a Factor of Safety of 2.5 times the peak hour volume to represent the peak 5 minutes.

Thus, the report demonstrated that the forecast queueing is also acceptable.

The RMS Guide to Traffic Generating Developments Section 6.2 states that direct access

across the boundary with a major road is to be avoided where possible. Revised Plan appropriately proposes access off the minor frontage road, Kooringal Drive.

Access driveway layouts and locations are referred by RMS to AS2890.1 and comply with the Section 3.2 required access driveway widths and access driveway locations from intersections.

Sight distances to driveways are referred by RMS to AS2890.1 sight distance requirement at access driveways where Figure 3.2 requires for the designated 60 km/h Kooringal Drive a stopping sight distance of 65m, which is available at both driveways.

4. The proposed number of staff and visitors and assessment of the required parking numbers in accordance with Council DCP C10 or other examples of similar facilities;

The number of staff and visitors, required parking spaces, and examples of similar facilities is addressed in TIS 2018 Section 4.2 and 4.8.

5. It is suggested that driveway access at Kooringal Drive be preferably reduced to one access driveway to the western section of the site and that the car park have a circulating aisle arrangement around the car park rather than a dead-end arrangement;

This was investigated in design development options, using RMS recommended minimum circulation road widths for two-way traffic for over 50 parking spaces and service bays of 6.0-6.5m wide. It was concluded that a circulation road would further increase the environmental impacts on the desired green visual buffer and loss of site area. The proposed parking arrangement is considered acceptable for the number of vehicles involved. The proposed two driveways will serve different staff, servicing, and visitor functions and is not considered excessive.

6. Access and car parking locations, dimensions, car park, accessible parking, loading areas , turning swept paths for both cars, possible mini buses and waste collection vehicles and other service vehicles to enter and leave in a forward direction and to manoeuvre on site with desirably no service or medium heavy vehicle reversing or any unavoidable heavy vehicle reversing restricted to loading areas away from the car parking and public areas are requested to be addressed;

Parking and loading areas have been designed in accordance with AS2890.1, AS2890.2, AS2890.3, and AS2890.6. Service vehicle or medium heavy vehicle visitation to the site will be infrequent, no separate service area is warranted, and some reversing within the car park area is considered acceptable. Examples demonstrating acceptable turning paths are appended to this Statement.

7. Provision of car park drop off / pick up area arrangements as close as possible to the building access; Provision of accessible car parking, kerb ramps and accessible paths of travel to the building. It is suggested that consideration be given to relocating the accessible parking to allow a graded access to the building without the need for an undesirable wheelchair platform lift and extensive ramping;

The walk from the furthest car space to the building is less than 50 m and is therefore considered close and acceptable. Accessible paths of travel will be addressed by the Access Consultant.

8. Car parking space dimensions and arrangements for either wheel stops or allowance for vehicle overhang at kerbs with complying clearances to complying footpath widths;

Wheel stops will be installed in in each parking space in accordance with AS2890.1 Section 2.4.5.4

9. Separate pedestrian access pathways from the buildings, car park spaces and drop off / pick up area that are clear of manoeuvring vehicles in the car park;

Separate pedestrian access pathways are not considered necessary in the car parks of this small scale and in the absence of long aisles or high vehicle speeds.

10. The layout of the parking area should allow for safe access for service and emergency vehicles, including waste service vehicles, possible mini-buses, ambulances, delivery and maintenance vehicles and allow manoeuvring areas clear of conflicts with car park vehicles and pedestrians;

The layout is considered adequate for the number of cars, service and emergency vehicles, and pedestrians expected to use the facility at peak and off-peak times.

11. Sight distance requirements and driveway widths are to be met in accordance with AS 2890.1, AS2890.2 and Council requirements. This is to include the requirements set out in AS 2890.1 Figure 3.2 Sight Distance Requirements at Driveways and Figure 3.3 Minimum Sight Lines for Pedestrian Safety;

The revised plan complies with these requirements. Adequate clear sightlines are proposed within the sight triangles at the driveways (in accordance with AS2890.1 Figure 3.3) and within the site and the verge area between the property line and the carriageway which is clear of trees and other obstructions.

12. The required sight lines around the driveway entrance and exit are not to be compromised by street trees, landscaping, fencing or signposting;

Complies, as above

13. All car spaces are to be sealed/line marked and dedicated for the parking of vehicles only and not be used for storage of materials/products/waste materials etc.

Complies.

Conclusion

We therefore conclude that the proposed Revised Design will operate safely for all road users and site users, and at a high level of service with negligible queuing and negligible delays. Entry and exit traffic from the subject site car parking will not adversely affect the main traffic flow along Castlereagh Road, or traffic flow along Kooringal Drive.

Should you have any questions, please contact the undersigned on telephone 0408 249 743.

Yours sincerely

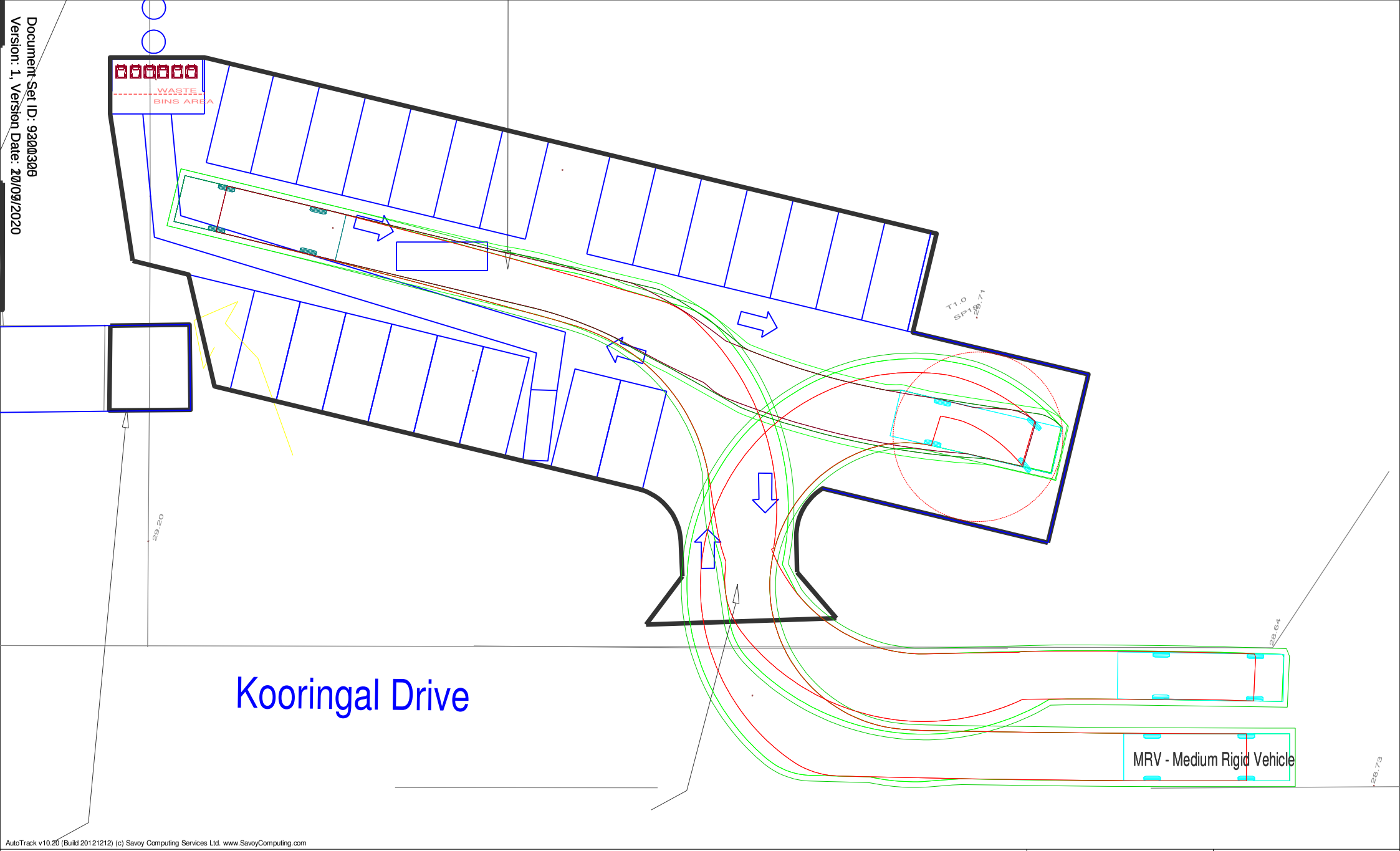
Colin Henson

MIE Aust, CPEng, Fellow PIA, MITE.

Principal

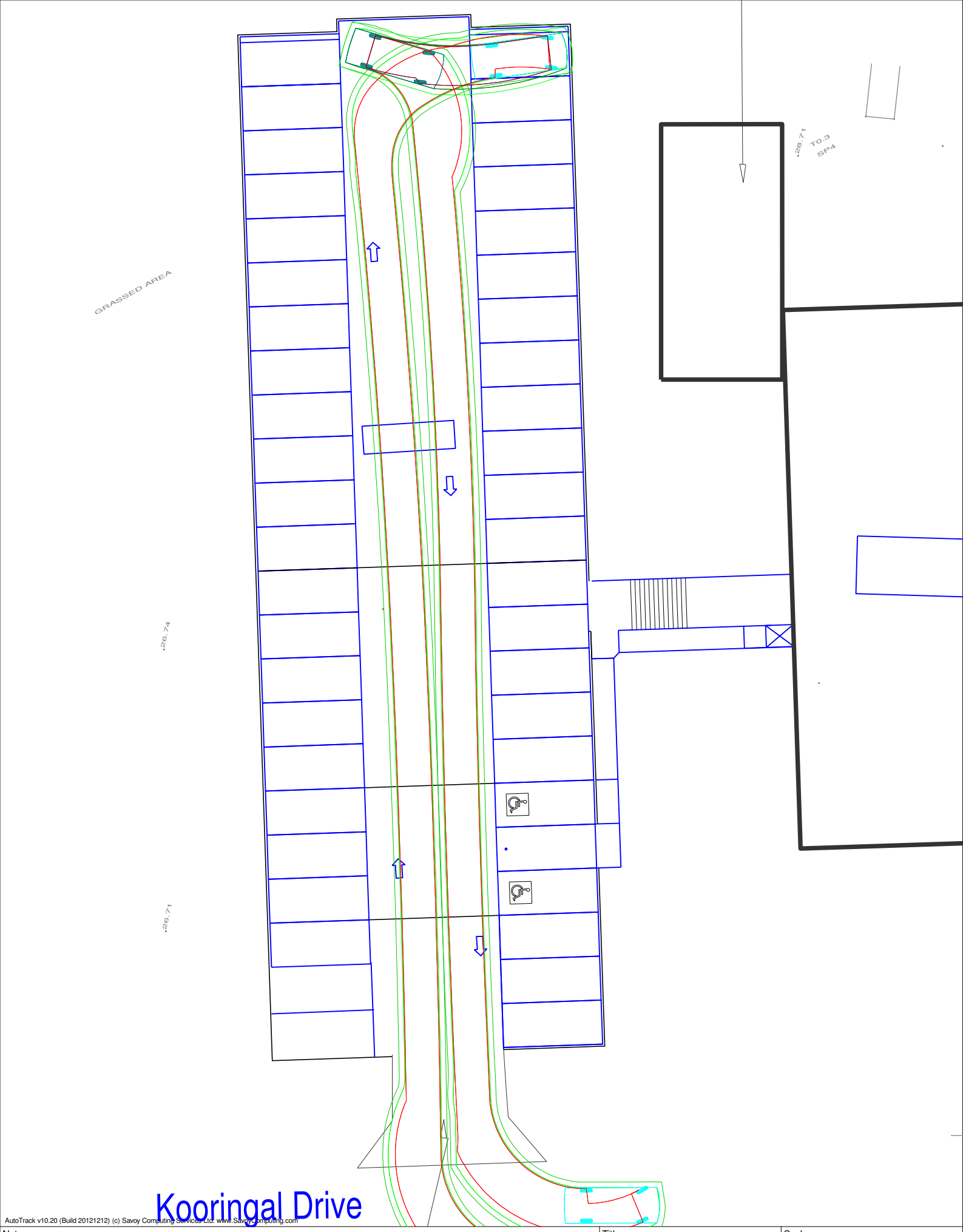
Henson Consulting

(Encl: Vehicle turning path diagrams #0030 and #0032.)



Notes:
Swept turn paths for Medium Rigid Vehicle (MRV)/ Garbage Truck of 8.8m long,
In accordance with AS2890.2, on a minimum turning path of 10m to the outside wheel.

Title: Haveli, Castlereagh Road HRV turn in and out Garbage Truck	Scale: 1:250
	Date: 24/06/2020
	Prepared: Henson Consulting
Client: Haveli	Checked: CCH
	Dwg No: 0030



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Notes:
Swept turn paths for Minibus based on B99 car (99.8 th percentile such as Ford Transit Van),
In accordance with AS2890.2, on a minimum turning path of 6.3m to the outside wheel.

Title:
Haveli, Castlereagh Road
Minibus turn in and out
B99 Car or Minibus

Client:
Haveli

Scale: 1:250
Date: 24/06/2020
Prepared: Henson Consulting
Checked: CCH
Dwg No: 0032