TRAFFIC & PARKING ASSESSMENT

Planning Proposal for 2-4 Tench Avenue, Jamisontown

Winter Sports World

Prepared for: Winter Sports World Pty Ltd

Reference: 0051r01v04

Date: 2/07/2018

PDC Consultants

info@pdcconsultants.com.au | www.pdcconsultants.com.au

+61 2 7900 6514 | Level 5, 104 Commonwealth Street, Surry Hills NSW 2010

Table of Contents

List of Figures

List of Tables

Charts

Appendices

1. Introduction

1.1. Overview

PDC Consultants has been commissioned by Winter Sports World Pty Ltd to undertake a Traffic & Parking Assessment of a Planning Proposal relating to the site at 2-4 Tench Avenue, Jamisontown. The Planning Proposal seeks to increase the building height permitted on-site to allow for a tourist / recreational development having the following characteristics:

- Winter Sports World comprising:
    - 300 metre long indoor ski slope and 80 metre long indoor training slope / snow play area;
    - Ice skating rink;
    - Ice and rock climbing walls;
    - Altitude and gymnasium training facilities;
    - Retail, and food and beverage premises;
    - Administration centre;
- 170 room hotel;
- 1,000 seat function centre / restaurant;
- 2 above-ground car parking areas having a total of 650 car spaces;
- 3 access driveways onto Jamison Road.

The site is located within the Penrith local government area and as such, the development contemplated under the Planning Proposal has been assessed in accordance with the Penrith Local Environmental Plan 2010 and Penrith Development Control Plan 2014.

1.2. Background

From the outset, PDC Consultants note that due to time constraints associated with the Planning Proposal submission date, traffic surveys and modelling of key intersections in the vicinity of the site was unable to be undertaken as part of this Traffic and Parking Assessment. Accordingly, these works will be undertaken as part of a subsequent Traffic Modelling report that shall be prepared by PDC Consultants and submitted to Penrith Council at a later date. The Traffic Modelling report shall assess the traffic impacts of the development on the external road network and identify what upgrades would be required to facilitate the expected increase in traffic volumes.

1.3. Structure of this Report

This report documents the findings of our investigations in relation to the anticipated traffic and parking impacts of the development contemplated following the amendment to the building height, and should be read in the context of the Planning Proposal report prepared separately by Sutherland and Associates Planning. The remainder of this report is structured as follows:

- Section 2: Describes the site and existing traffic and parking conditions in the locality;
- Section 3: Describes the proposed development;
- Section 4: Assesses the parking requirements of the development;
- Section 5: Assesses the traffic generation of the development and expected distribution onto the external road network;
- Section 6: Discusses the proposed access and internal design arrangements;
- Section 7: Presents the overall study conclusions.

1.4. References

In preparing this report, reference has been made to the following guidelines / standards:

- Penrith Local Environmental Plan 2010 (Penrith LEP 2010);
- Penrith Development Control Plan 2014 (Penrith DCP 2014);
- State Environmental Planning Policy (Infrastructure) 2007 (SEPP Infrastructure 2007);
- Disability (Access to Premises – Buildings) Standards 2010 (Disability Standard 2010);
- Australian Standard AS 2890.1-2004, Part 1: Off-Street Car Parking (AS 2890.1);
- Australian Standard AS 2890.2-2002, Part 2: Off-Street Commercial Vehicle Facilities (AS 2890.2);
- Australian Standard AS 2890.3-2015, Part 3: Bicycle Parking Facilities (AS 2890.3);
- RMS Guide to Traffic Generating Development 2002 (RMS Guide);
- RMS Technical Direction TDT 2013/04a - Guide to Traffic Generating Developments, Updated Traffic Surveys (RMS Guide Update).

2. Existing Conditions

2.1. Location and Site

The site is located at 2-4 Tench Avenue, Jamisontown being approximately 2.6 kilometres south-west of Penrith Railway Station and 51 kilometres west of the Sydney CBD. More specifically, it is located on the southern side of Jamison Road and on the eastern side of Tench Avenue. On the other side of Tench Avenue and Jamison Road lies the Nepean River and Cables Wake Park respectively.

The site is irregular in configuration with a total area of 2.34 hectares. It has two (2) street frontages being Jamison Road to the north and Tench Avenue to the west, having lengths of approximately 340 metres and 60 metres respectively. The eastern boundary borders an unformed road reserve, Wilson Lane, having a length of 100 metres. The southern boundary borders a neighbouring residential holiday park known as Nepean Shores by Gateway Lifestyle, having a length of 330 metres.

The site is generally vacant apart from a single residential dwelling being located at the western end of the site. Vehicle access is provided via a single 4.0 metre wide combined entry / exit driveway onto Tench Avenue serving the residential dwelling.

Figures 1 and 2 overleaf provide an appreciation of the site's location in both a broad and local context respectively.

2.2. Road Network

The road hierarchy in the vicinity of the site is shown by **Figure 1** overleaf, with the following roads considered noteworthy:

- M4 Western Motorway: an RMS Freeway that runs in an east-west direction from Concord Road, Strathfield in the east to Great Western Highway, Lapstone in the west. It forms a major east-west corridor between Inner Sydney and the western suburbs, carrying in the order of 5,000 vehicle per hour (two-way) during the morning and afternoon peak periods near the Northern Road. In the vicinity of the site, it is subject to 110km/h speed zoning restrictions and accommodates three (3) lanes of traffic in both directions.

- Mulgoa Road: forms part of an RMS Main Road, MR 155. Mulgoa Road runs in a north-south direction between Penrith in the north and Wallacia in the south. In the vicinity of the site, it is subject to 60km/h speed zoning restrictions and accommodates two (2) lanes of traffic in each direction.

- Jamison Road: an unclassified regional road that runs in an east-west direction between Bringelly Road in the east and Tench Avenue in the west. It is subject to 50km/h speed zoning restrictions and accommodates a single lane of traffic in each direction. Jamison Road accommodates a single lane of traffic in each direction within a 9m wide undivided carriageway, with unformed verges along both sides. A shared cyclist / pedestrian path is provided along the northern side of Jamison Road which connects to additional shared paths located along the eastern side of Nepean River.

- Tench Avenue: a local road that runs in a north-east to south-west direction connecting with Jamison Road in the north-east and Bellevue Road in the south-west. It is subject to 50km/h speed zoning restrictions and accommodates a single lane of traffic in each direction. It is generally subject to 'No Stopping' restrictions along its eastern side, with unrestricted angled (90 degree) parking permitted along its western side.

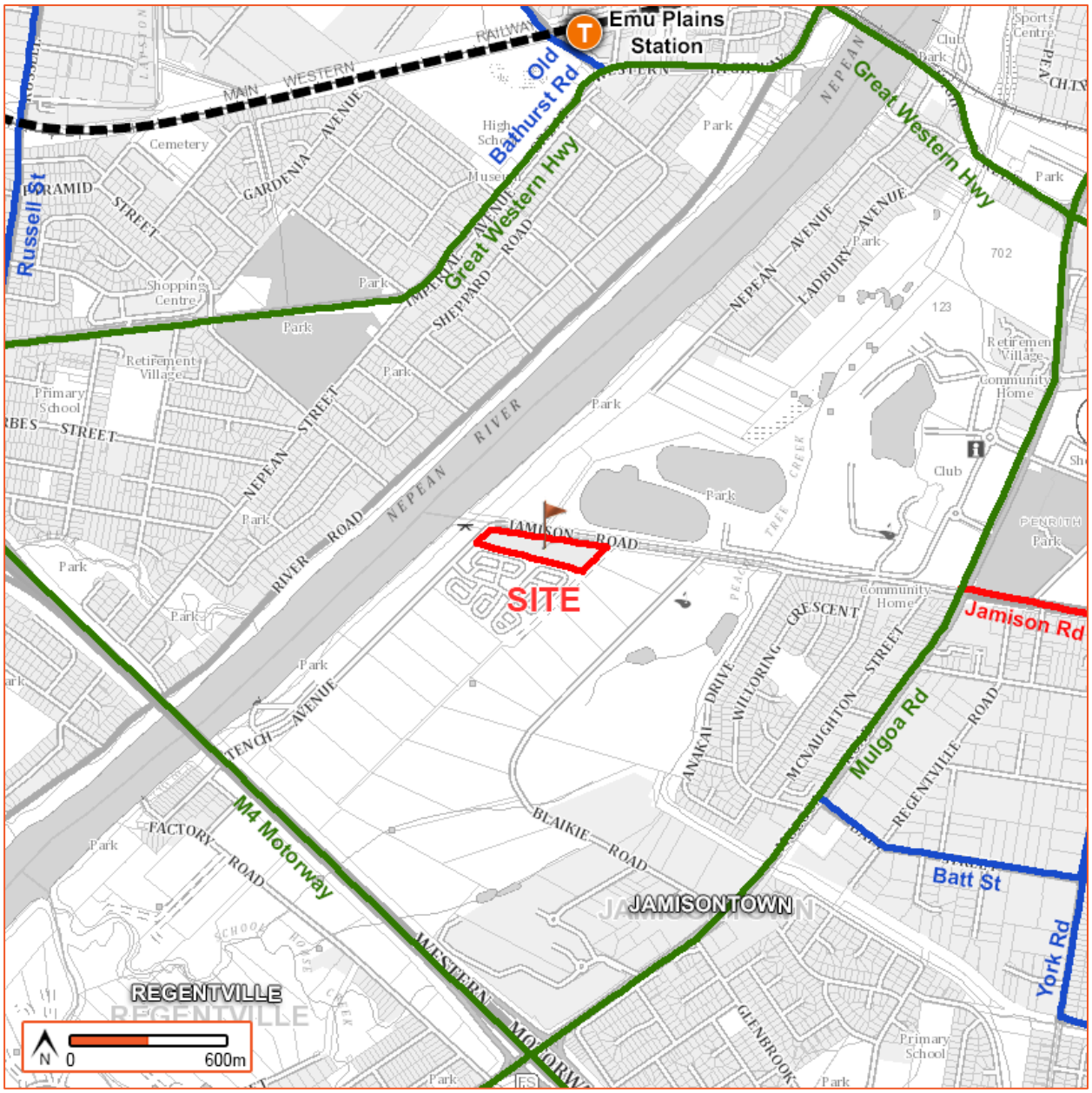


Figure 1: Location & Road Hierarchy Plan

Figure 2: Site Plan

2.3. Active Transport

2.3.1. Bus Services

The Integrated Public Transport Service Planning Guidelines, Sydney Metropolitan Area, states that the walking catchment for metropolitan bus services includes all areas within a 400 metre radius of a bus stop. As can be seen from **Figure 3**, the site is situated within 400 metres of a single bus service, being the 795 which operates along Tench Avenue and runs between Warragamba and Penrith. Accordingly, staff and visitors of the development would be able to readily access this bus stop and connect to the Penrith CBD, including Penrith Railway Station.

A number of additional bus services are accessible within 800 metres of the site as also shown by **Figure 3** including the 781, 797 and 799 services. **Table 1** below shows the notable town centres that are accessible via the abovementioned bus services and the average service headways during peak and off-peak periods.

Additionally, it is expected that Winter Sports World would provide a shuttle bus service for both staff and visitors, providing a direct connection between the development and Penrith Station. It is expected that this would operate on a timetable basis, with increased services provided on weekends and during school holidays.

Table 1: Bus Services

ROUTE NO.	ROUTE (TO / FROM)	ROUTE DECRIPTION	AVERAGE HEADWAY
781	St Mary's to Penrith	Via Glenmore Park	Weekdays: Limited Services Weekends: No Services
795	Warragamba to Penrith	Via Silverdale, Wallacia, Mulgoa, Regentville, Penrith & Kingswood	Weekdays: 40-60 minutes peak only Weekends: 4 services on Saturdays (2-4 hours apart) & 2 services on Sundays (8 hours apart)
797	Penrith to Glenmore Park	Loop Service	Weekdays: 30 minutes all day Weekends: 60 minutes on Saturday & 120 minutes on Sundays
799	Glenmore Park to Penrith	Via Regentville	Weekdays: 30-50 minutes peak / 60 minutes off peak Weekends: 60 minutes on Saturdays & Sundays

2.3.2. Rail Services

The Integrated Public Transport Service Planning Guidelines, Sydney Metropolitan Area, states that the walking catchment for metropolitan railway stations includes all areas within an 800 metre radius of a station. It can be seen from **Figure 3**, that Emu Plains Railway Station is located approximately 1.5 kilometres south of the site, whilst Penrith Railway Station is located approximately 2.6 kilometres north-west of the site. Accordingly, both Stations are located outside of the typical walking catchment area.

Notwithstanding, Penrith Railway Station could be accessed within a 15 minute public bus, 10 minute shuttle bus or 11 minute cycle commute and as such, it is expected that staff and visitors would be able to readily access the Sydney rail network, as shown by **Figure 4**, if necessary.

Penrith Railway Station is serviced by two (2) railway lines, being the T1 North Shore, Northern and Western Line and the Blue Mountains Line. The T1 North Shore, Northern and Western Line is comprised of three (3) separate routes including:

- T1 North Shore and Northern: Berowra to / from City via Gordon, Hornsby to / from City via Macquarie University
- T1 Northern: Epping to / from City via Strathfield
- T1 Western: Emu Plains or Richmond to / from City

The T1 Western Line operates from Penrith Railway Station and the Blue Mountains Line runs in an east-west direction between Bathurst and the Sydney CBD. **Table 2** below shows the notable town centres that are accessible along the abovementioned railway lines and the average service headways during peak and off-peak periods.

Table 2: Rail Services

RAILWAY LINE	NOTABLE TOWN CENTRES ALONG LINE	AVERAGE HEADWAY
T1 Western Line	Penrith, Richmond, Blacktown, Seven Hills, Parramatta, Clyde, Strathfield, Redfern & Sydney CBD	Weekdays: 15 minutes all day Weekends: 15 minutes all day
Blue Mountains Line	Bathurst, Lithgow, Mt Victoria, Katoomba, Springwood, Emu Plains, Penrith, Blacktown, Parramatta, Strathfield & Sydney CBD	Weekdays: 15-30 minutes peak / 60 minutes peak Weekends: 40-60 minutes all day

2.3.3. Cycle Network

Figure 3 also shows that the site has good access to the local cycle path network. It can be seen that both Tench Avenue and Jamison Road accommodate an on-road and off-road cycle path respectively, which connect to the wider cycle network, including an off-road cycle path running parallel to the Nepean River.

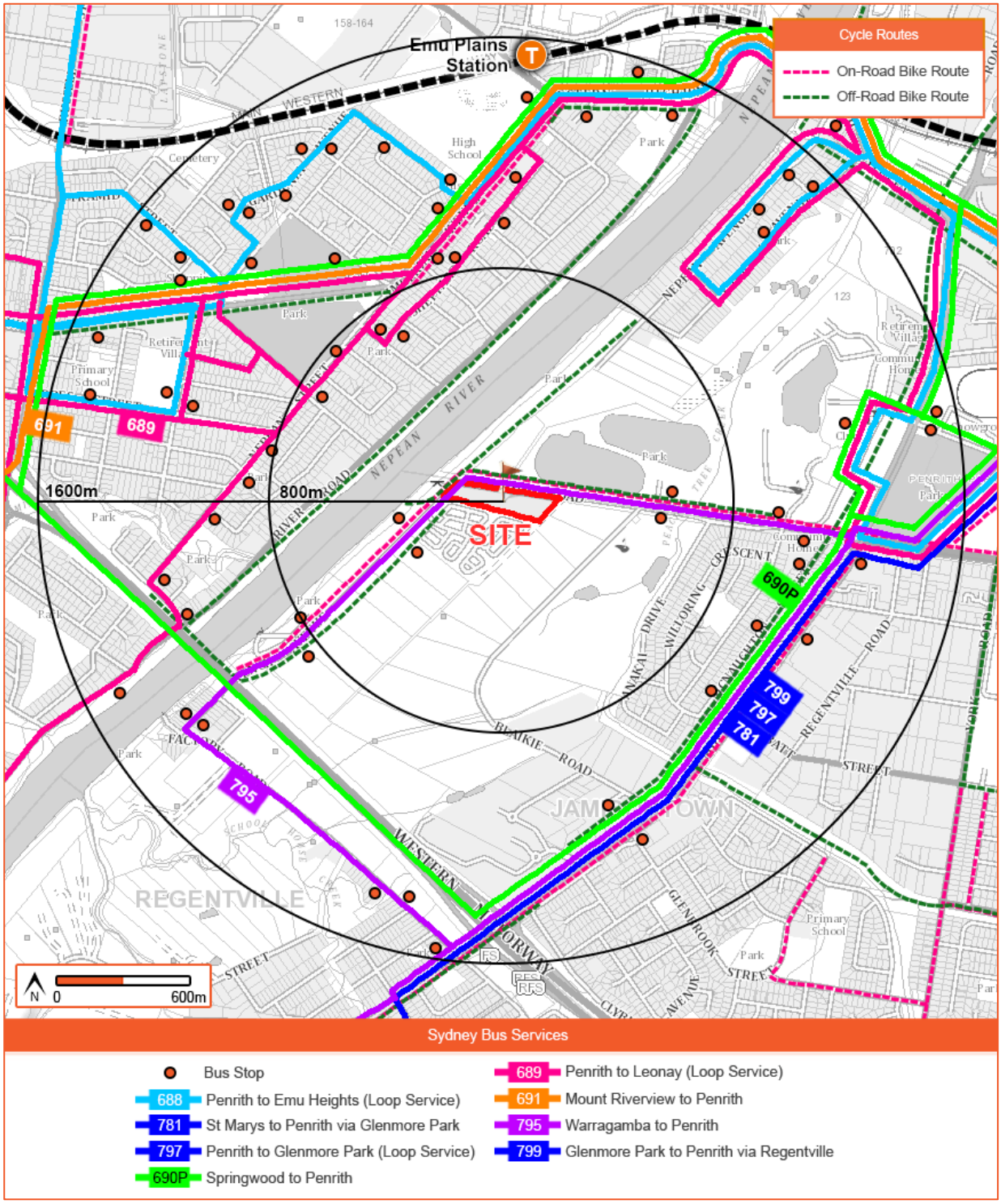


Figure 3: Active Transport Services

Figure 4: Sydney Trains Rail Network - Suburban

2.4. Existing Transport Mode Characteristics

To gain an understanding of the existing modes of transport within the suburbs of Jamisontown and South Penrith, reference was made to the Australian Bureau of Statistics 2016 Census Data. **Chart 1** overleaf shows the travel modes used by residents of Jamisontown and South Penrith, for all journeys to work. **Chart 2** overleaf shows the travel modes used by persons who work within Jamisontown and Southern Penrith, for all journeys to work.

Chart 1: Jamisontown & South Penrith Residents – Travel Mode for Journey to Work

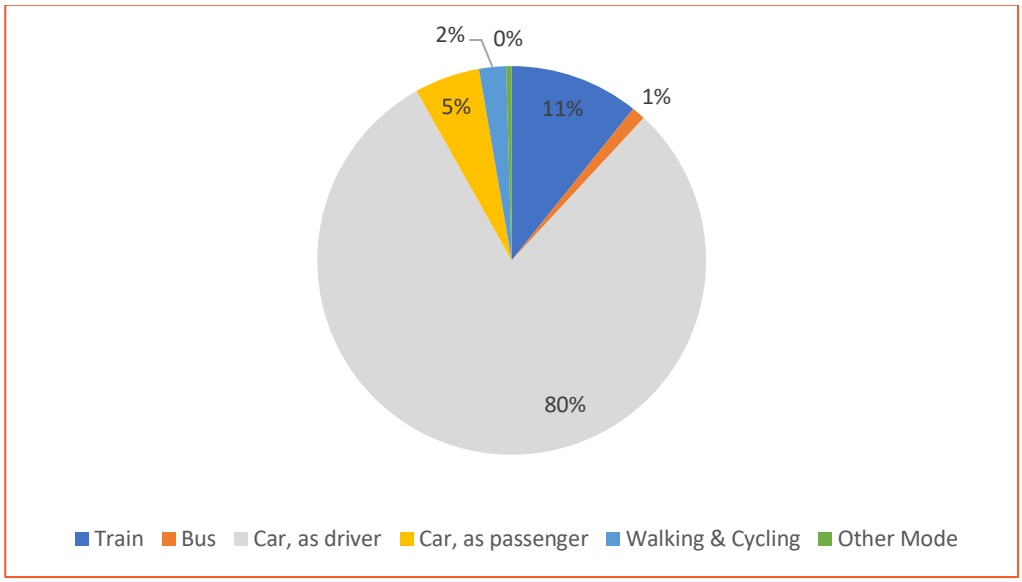
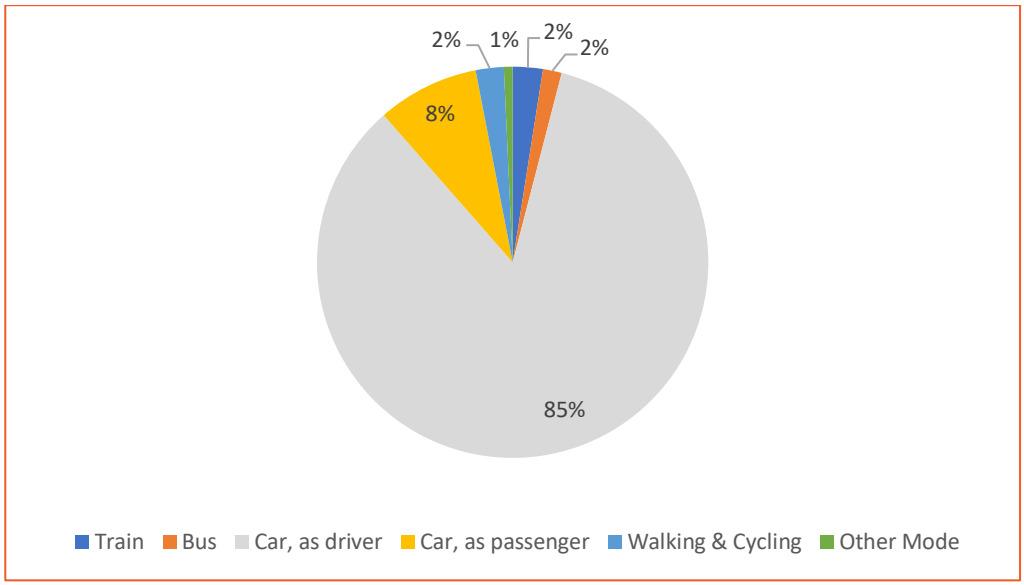


Chart 2: Jamisontown & South Penrith Workers – Travel Mode for Journey to Work



It can be seen from **Chart 1**, that there is a heavy reliance on private car transport for residents of Jamisontown and South Penrith with 85% of residents using private vehicles for journeys to/from work including 80% as 'car drivers' and 5% as 'car passengers'. The remaining 15% of residents use alternative transport modes for journeys to/from work including 11% by train, 5% by walking / cycling and 1% by bus.

Chart 2 shows similar transport modes for workers of Jamisontown and South Penrith with 93% of workers using private vehicles for journeys to/from work including 85% as 'car drivers' and 8% as 'car passengers'. The remaining 7% of workers use alternative transport modes including 2% by train, 2% by walking / cycling, 2% by bus and 1% by other means.

2.5. Existing Traffic Generation

As discussed in Section 2.1 of this report, the site currently accommodates a single residential dwelling with the RMS Guide Update stipulating a trip rate of 0.95 trips / dwelling / hour during the 7-9am (AM) peak period and 0.99 trips / dwelling / hour during the 4-6 (PM) peak period. Application of these rates to the existing single residential dwelling results in the following traffic generation:

- 1 vehicle trip / hour (0 in, 1 out), during the AM peak period
- 1 vehicle trip / hour (1 in, 0 out), during the PM peak period

The above assumes an inbound split of 20 / 80 during the AM peak period noting that most residents would leave for work in the weekday morning and vice versa for the weekday PM peak period. This level of traffic generation is negligible and accordingly, for the purposes of simplifying this report, it has been considered that the existing development does not generate any traffic. The traffic generation of the development contemplated under the Planning Proposal is discussed in Section 5.1 of this report.

3. Development Contemplated Under Planning Proposal

The subject Planning Proposal report prepared by Sutherland and Associates Planning, provides a detailed description of the proposed amendment in building height and development contemplated for the site. In summary, the Planning Proposal seeks to increase the building height permitted on-site to allow for a tourist / recreational development with the following characteristics:

- Winter Sports World comprising:
    - 300 metre long indoor ski slope and 80 metre long indoor training slope / snow play area;
    - Ice skating rink;
    - Ice and rock climbing walls;
    - Altitude and gymnasium training facilities;
    - Retail, and food and beverage premises;
    - Administration centre;
- 170 room hotel;
- 1,000 seat function centre / restaurant;
- 2 above-ground car parking areas having a total of 650 car spaces including:
    - 450 space visitor car park at the eastern end of the site. This shall also incorporate service vehicle parking shared between the various uses proposed;
    - 200 space staff and overflow visitor car park at the western end of the site. This shall also incorporate bus / coach parking facilities.
- Porte-cochere at the western end of the site having capacity for 7 cars/taxis or 2 coaches/buses;
- 3 access driveways onto Jamison Road including:
    - An entry-only driveway serving the porte-cochere and visitor car park;
    - An exit-only driveway serving the porte-cochere and visitor car park;
    - A combined entry / exit driveway serving the staff and overflow visitor car park;

The parking and traffic implications arising from the proposed development are discussed in Sections 4 and 5 respectively. A copy of the preliminary architectural drawings, prepared by Environa Studio, are also included in Appendix A.

4. Parking Requirements

4.1. Car Parking

4.1.1. Winter Sports World

Car Parking Rate

The Winter Sports World component of the development will be the first of its kind in Australia and as would be expected, the Penrith DCP 2014 does not include a relevant car parking rate. Additionally, there is no survey information available of comparable developments in Sydney or Australia, that would otherwise allow for a car parking rate to be determined.

Whilst the Economic Assessment Report prepared by Urbis dated 26th February 2017 references comparable developments, these are located in the United Kingdom, New Zealand, Netherlands and United Arab Emirates. The travel mode characteristics for each of these developments would vary significantly from country-to-country and accordingly, it was considered that these would not be appropriate to survey to allow for a car parking rate to be determined.

Consideration was therefore given to the state significant tourist / recreational development known as Wet 'n' Wild Sydney, which at the time this report was prepared, had been recently constructed in Sydney. Wet 'n' Wild Sydney is located in the suburb of Prospect, being approximately 30 kilometres west of the Sydney CBD and approximately 20 kilometres east of the subject site, and is considered to be comparable to the proposed Winter Sports World, for the following reasons:

- Location: Both sites are located in the Western Sydney region;
- Accessibility: Both sites have limited access to public transport services and have convenient access to the M4 Motorway;
- Targeted demographic: Both developments are family orientated and would generate comparable car occupancy rates;
- Peak Periods: Peak periods associated with both developments would occur on weekends and school holiday periods;

With regard for the above, it is evident that the travel mode characteristics for Winter Sports World would be comparable to that of Wet 'n' Wild Sydney. Reference was therefore made to the Transport and Accessibility Impacts (Construction and Operational) Report, prepared by Arup dated 19th January 2011 (Arup Report) to ascertain travel mode splits and an average car occupancy rate for Winter Sports World. **Table 3** below shows the travel mode splits and car occupancy rates that have been extracted from the Arup Report and adopted for visitors of Winter Sports World.

Table 3: Travel Mode Characteristics and Assumptions for Visitors of Winter Sports World

TRAVEL CHARACTERISTIC	ASSUMPTION
Travel Mode Split	Private Car: 90% Public Transport / Shuttle Bus: 10%
Average Car Occupancy Rate	3.0 persons / car

Whilst the Penrith DCP 2014 does not specify a staff (or visitor) parking rate for tourist / recreation developments, it is evident that a staff parking rate of 1.0 space / 2 employees is consistently adopted throughout the Penrith DCP 2014 for a number of different land uses. It was therefore considered appropriate to adopt this rate for the purposes of assessing the parking demands associated with staff of Winter Sports World.

Attendance Forecasts

Patronage attendance is expected to vary considerably throughout the year and would be influenced by a number of factors such as the day of the week, school holiday periods and seasons of the year. In this regard, the client has provided a schedule of the expected attendance forecasts for a typical weekday, weekend and weekend during school holidays. These forecasts are reproduced in **Table 4** below.

Table 4: Attendance Forecasts for Winter Sports World

SCENARIO	NO. STAFF ON-SITE AT ANY ONE TIME	NO. VISITORS ON-SITE AT ANY ONE TIME	TOTAL NO. PERSONS ON-SITE AT ANY ONE TIME
Weekday – Non-Holiday	65	293	358
Weekend – Non-Holiday	80	333	413
Weekend – School Holidays	106	395	501

As would be expected for a tourist / recreational development, **Table 4** shows that staff and visitor numbers would be their lowest during a typical weekday. These would increase on weekends, and increase further on weekends during school holidays. As discussed below, the attendance forecasts for weekends during the school holiday period have been used for the car parking assessment as this would provide a conservative (worst-case) estimate.

Parking Demand

Having regard for the above, it is evident that the parking demands associated with staff and visitors of Winter Sports World can be determined by applying the relevant parking rates to the attendance forecasts. **Table 5** overleaf the expected parking demand associated with staff and visitors of Winter Sports World.

Table 5: Expected Parking Demand of Winter Sports World

TYPE	NO. ON-SITE AT ANY ONE TIME	% BY CAR	PARKING RATE	EXPECTED PARKING DEMAND
Visitor	395	90%	1.0 space / 3 persons	119
Staff	106	-	1.0 space / 2 staff	53
			TOTAL	***172***

Table 5 shows that the Winter Sports World component of the development is expected to generate a parking demand for 172 car parking spaces. This includes 119 spaces by visitors and 53 spaces by staff.

4.1.2. Hotel & Function Centre

The Penrith DCP 2014 stipulates a minimum car parking rate for both hotel and function centre land uses. In this regard, **Table 6** below shows the applicable car parking rates and parking requirement for the hotel and function centre uses.

Table 6: Car Parking Requirement of Hotel and Function Centre

TYPE	NO.	PARKING RATE	MINIMUM REQUIREMENT
HOTEL			
Visitors	170 rooms	1.0 space / room	174
Manager	2*	1.0 space / manager	
Employee	10*	1.0 space / 6 employees	
FUNCTION CENTRE			
Staff / Visitors	1,000 seats	1.0 space / 3.5 seats or	286
	1,260m^2	1.0 space / 3.5m^2 gross floor area (GFA)	
		TOTAL	***460***

* Note: The number of on-site managers and employees have been assumed.

It is recognised that the Penrith DCP 2014 states that function centres are required to provide parking at a rate of 1.0 space / 3.5 seats or 1.0 space / 3.5m^2 GFA, whichever is greater. With 1,000 seats and 1,260m^2 GFA, the function centre would technically require the provision of 360 car parking spaces, being the greater of the 286 space and 360 space requirements respectively. However, consistent with **Table 6** above, it is considered that the parking requirement for the function centre should be assessed in accordance with the lower rate in this instance, given that a substantial number of persons attending large functions would also be expected to stay at the hotel and perhaps, would also attend Winter Sports World. Accordingly, adoption of the lower parking requirement would ensure that some level of 'parking discount' is taken into consideration rather than effectively double or triple count the parking requirements of persons attending the function centre, hotel and perhaps Winter Sports World.

With regard for the above, it is expected that the function centre and hotel uses would generate a requirement for 460 car parking spaces.

4.1.3. Total Parking Requirement and Proposed Provision

With regard for Sections 4.1.1 and 4.1.2 of this report, it is evident that the proposed development is expected to generate a peak parking demand for some 632 car parking spaces. In response, the development provides a total of 650 car parking spaces and will therefore ensure that all car parking demands are accommodated on-site, with no reliance on on-street parking.

Additionally, it is important to note that the peak demand for 632 car parking spaces would likely only occur on a limited number of occasions per year noting that it would require the Winter Sports World, hotel and function centres uses to simultaneously operate at capacity. Accordingly, it is expected that the typical parking demands associated with the development would be substantially less than 632 parking spaces with ample spare capacity available. Accordingly, the development would be able to accommodate all normal and peak demands on-site.

4.2. Coach & Tourist Bus Parking

Whilst not indicated on the architectural drawings included in Appendix A, the development will provide in the order of 5 coach / bus parking bays within the western car park which is considered an appropriate provision. It is expected that buses / coaches would park in this area when not in use, with all drop-off / pick-up of visitors to occur from the porte-cochere.

4.3. Bicycle Parking

The Penrith DCP 2014 does not stipulate a rate for the provision of bicycle parking for any of the proposed land uses and accordingly, no bicycle parking is required. Notwithstanding, it is recommended that the development provide in the order of 50-100 bicycle parking spaces for use by staff and visitors to promote active modes of transport and noting that the site benefits from good access to the local and broader cycle network.

4.4. Service Vehicle Parking & Waste Collection

Whilst not currently indicated on the preliminary architectural drawings, it is noted that a service vehicle parking area will be provided towards the eastern end of the site. It is considered that in the order of 4 loading bays would be provided to serve the various uses, and designed to accommodate vehicles up to and including a 12.5 metre heavy rigid vehicle (HRV). Waste collection of the development would also occur from these loading bays ensuring that all servicing is undertaken on-site.

The service vehicle parking layout would be designed in accordance with AS 2890.2-2002, with all service vehicles to enter and exit the site in a forward direction.

5. Traffic Impacts

5.1. Trip Generation

5.1.1. Winter Sports World

Period for Assessment

The RMS Guide states that two periods of traffic generation need to be considered when assessing the impacts of traffic generating developments, being:

- The peak activity time of the development itself; and
- The peak activity time of the adjacent road network.

The first of these is generally used as a basis for reviewing the access to the site and driveway design requirements. The second is used to assess the traffic impacts of the development on the external road network.

It is expected that the peak activity time of the external road network will occur during the weekday commuter periods of 7-9am (AM) and 4-6pm (PM) during non-holiday periods. As discussed in Section 4.1.1 of this report, the peak activity time of Winter Sports World will occur on weekends, during the school holiday period. Notwithstanding, background traffic volumes on the external road network are expected to be considerably lower during school holidays and accordingly, it is considered that the traffic assessment should be based on the following periods:

- Weekday AM peak (7-9am), during non-school holiday periods;
- Weekday PM peak (4-6pm), during non-school holiday periods;
- Weekend AM peak (11am-1pm), during non-school holiday periods;

Patron Profiles

The hours of operation of Winter Sports World are expected to be in the order of 6am-11pm, 7 days a week. Similar to the Arup Report, forecast arrival / departure profiles have been estimated for typical weekdays and weekends as shown by **Charts 3 and 4** respectively overleaf.

As shown by **Chart 3**, it is expected that weekdays would see an influx of patrons in the morning, with a higher influx in the afternoons associated with students attending after school and adults after work. **Chart 4** shows that arrival / departures would follow a different trend with most arrival occurring the morning and most departures occurring in the afternoon.

Chart 3: Patronage Profile – Weekdays

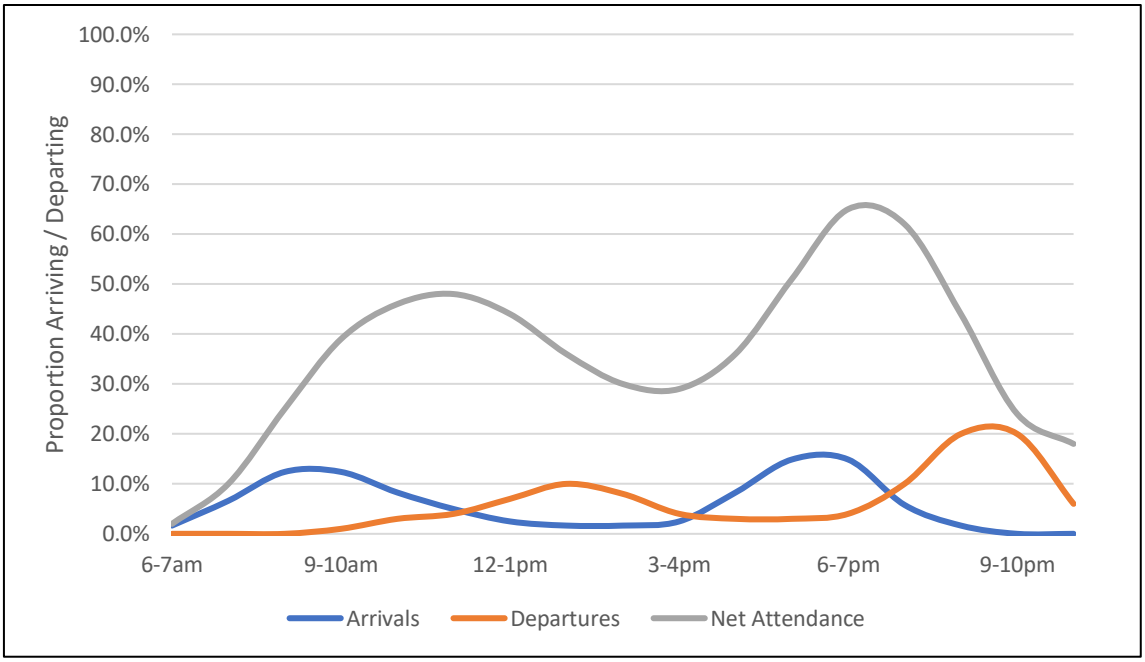


Chart 4: Patronage Profile – Weekends

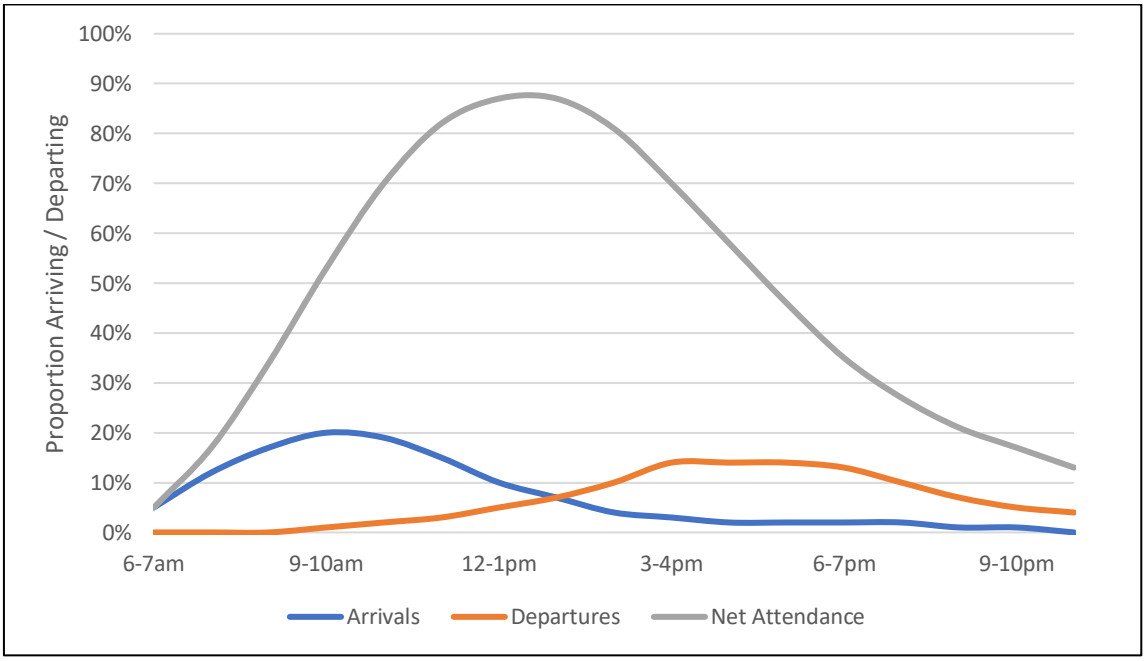


Table 7 below shows the estimated percentage of arrivals / departures during the Weekday AM, Weekday PM and Weekend AM peak periods based on **Charts 3 and 4**.

Table 7: Percentage of Daily Arrivals / Departures - Based on Charts 3 and 4

WEEKDAY AM PEAK		WEEKDAY PM PEAK		WEEKEND AM PEAK	
ARRIVAL	DEPARTURE	ARRIVAL	DEPARTURE	ARRIVAL	DEPARTURE
15%	0%	18%	3%	19%	2%

It is evident from **Table 9** above, that the number of departures during each of the peak periods is expected to be minimal. Notwithstanding, it is considered that the 'arrival' percentages used for the traffic assessment should be increased by approximately 25% for the purposes of a conservative estimate and to take into consideration additional trips associated with the arrival of staff, shuttle buses, taxis etc. Additionally, the 'departure' percentages have been increased to 25% of the corresponding 'arrival' percentages to provide a more conservative estimate. These revised percentages are shown by **Table 8** below.

Table 8: Percentage of Daily Arrivals / Departures - To Be Adopted for Traffic Assessment

WEEKDAY AM PEAK		WEEKDAY PM PEAK		WEEKEND AM PEAK	
ARRIVAL	DEPARTURE	ARRIVAL	DEPARTURE	ARRIVAL	DEPARTURE
20%	5%	25%	7%	25%	7%

Taking into consideration the above and applying this to the peak patron numbers and travel mode / car occupancy rates discussed in Section 4.1.1 of this report, the peak period traffic generation of Winter Sports World can be determined as follows:

- Weekday AM Peak: 27 vehicle trips / hour (22 in, 5 out);
- Weekday PM Peak 34 vehicle trips / hour (27 in, 7 out);
- Weekend AM Peak: 40 vehicle trips / hour (31 in, 9 out).

5.1.2. Hotel

The RMS Guide does not specify a trip generation rate for hotel developments and instead, recommends that this be based upon a survey of a comparable development. Notwithstanding, it is noted that the proposed hotel would be located within an area with limited access to public transport and accordingly, it is considered that this would operate similar to a 'motel', which attract a trip generation rate of 0.4 trips / room / hour during the Weekday AM and Weekday PM peak periods under the RMS Guide. Whilst no Weekend AM rate is stipulated in the RMS Guide, it is expected that the trip generation would be somewhat less and in the order of 0.2 trips / room / hour. Application of the above trip rates to the proposed hotel with 170 rooms, results in the following traffic generation:

- Weekday AM Peak: 68 vehicle trips / hour (27 in, 41 out);
- Weekday PM Peak 68 vehicle trips / hour (41 in, 27 out);
- Weekend AM Peak: 34 vehicle trips / hour (17 in, 17 out).

5.1.3. Function Centre

The RMS Guide does not stipulate a trip generation rate for function centre developments. Accordingly, the expected traffic generation of the development has been based on a 'first principles' approach, which takes into account the total number of on-site car parking spaces provided for the function centre, and the expected time periods at which staff and patrons would depart from and arrive at the site.

No details had been provided on the proposed function centre at the time this report was prepared, although it is expected tha this would operate as a premium event space with a capacity to seat 1,000 patrons and would cater for a range of different events such as:

- Breakfasts / Lunches / Dinners
- Conferences
- Cocktail Receptions

All events would vary in size, duration and occur at different times throughout the week and accordingly, it is difficult to assess the impacts associated with different types of events. Notwithstanding, it was considered that an all-day conference event would have the most impact from a traffic and parking perspective noting that staff and patrons would likely arrive at the function centre during the Weekday AM peak period and depart during the Weekday PM peak period. Most other types of events would likely result in staff and patrons arriving or departing outside of the typical peak periods.

As per Section 4.1.2 of this report, the function centre is expected to generate a peak demand for 286 parking spaces. Based on our experience, it is expected that all 286 car spaces would be occupied during a one hour period during the Weekday AM peak and vacated over a two hour period during the Weekday PM peak. Additionally, an all-day conference held on a weekday would not generate any traffic although for a conservative estimate a generation of 100 vehicle trips / hour has been adopted for the function centre during the Weekend AM peak. Once consideration is given to additional two-way (in / out) trips associated with taxis etc, the peak period traffic generation associated with a 1,000 person event occurring on a weekday is expected to be in the order of:

- Weekday AM Peak: 350 vehicle trips / hour (318 in, 32 out);
- Weekday PM Peak 175 vehicle trips / hour (16 in, 159 out);
- Weekend AM Peak: 100 vehicle trips / hour (50 in, 50 out);

5.1.4. Combined

The total traffic generation of the development during each of the key peak periods is therefore expected to be as follows:

- Weekday AM Peak: 445 vehicle trips / hour (367 in, 78 out);
- Weekday PM Peak 277 vehicle trips / hour (84 in, 193 out);
- Weekend AM Peak: 174 vehicle trips / hour (98 in, 76 out);

It is evident from the above that the proposed development, as a whole, would generate some 445 vehicle trips during the Weekday AM peak period, 277 vehicle trips during the Weekday PM peak and 174 vehicle trips during the Weekend AM peak. It is however emphasised that this level of traffic generation predominately relates to the function centre use and that 1,000 person events would typically only be held on a limited number of occasions per year. Accordingly, the typical traffic generation associated with the development would be substantially less and in the order of 100-150 vehicle trips during each of the above peak periods.

5.2. Traffic Distribution

The development will attract visitors from all over the Greater Sydney Metropolitan region. In this regard, the 2016 Census Data from the Australian Bureau of Statistics was analysed to determine what regions of Sydney visitors would likely travel to / from which could be subsequently used to determine the expected traffic distribution. In this regard, **Table 9** below shows the expected distribution of traffic to all regions of Sydney and the major arterial road that is expected to be utilised for journeys to / from the development.

Table 9: Expected Traffic Distribution

SUB - REGION	PROPORTION OF ALL TRAFFIC	PROPORTION OF ALL TRAFFIC BY APPROACH ROUTE			
		M4 EAST	M4 WEST	THE NORTHERN ROAD	GREAT WESTERN HIGHWAY
Sydney North	14%	0%	0%	4%	10%
Sydney South	20%	20%	0%	0%	0%
Sydney East	13%	13%	0%	0%	0%
Sydney West	26%	15%	5%	0%	6%
Sydney Central	27%	17%	0%	0%	10%
Total	100%	65%	5%	4%	26%

It can be seen from **Table 9** above that a large proportion of visitors would access the development via the M4 Motorway to / from the east of the site, given the site is located in the outer-west region of Sydney. Great Western Highway is expected to be utilised by visitors mainly travelling from Sydney Central and Sydney West, whilst a small proportion of visitors are expected to utilise the M4 Motorway to /from the west of the site and The Northern Road.

Figure 5 overleaf shows the expected increase in traffic volumes during the Weekday AM and Weekday PM peak periods at each of the key intersections near the site including the M4 Motorway On/Off-Ramps / Mulgoa Road, Jamison Road / Mulgoa Road and Great Western highway / Mulgoa Road / High Street, based on the above distributions. **Figure 6** overleaf shows the expected increase in traffic volumes at the same key intersections during the Weekend AM peak period.

5.3. Traffic Impacts and Modelling

As discussed in Section 1.2 of this report, traffic surveys and modelling of key intersections in the vicinity of the site was unable to be undertaken as part of this Traffic and Parking Assessment due to time constraints associated with the Planning Proposal submission date. Accordingly, these works will be undertaken as part of a subsequent Traffic Modelling report that shall be prepared by PDC Consultants and submitted to Penrith Council at a later date. The Traffic Modelling report shall assess the traffic impacts of the development on the external road network including the abovementioned key intersections and identify what upgrades (if any) would be required to facilitate the expected increase in traffic volumes.

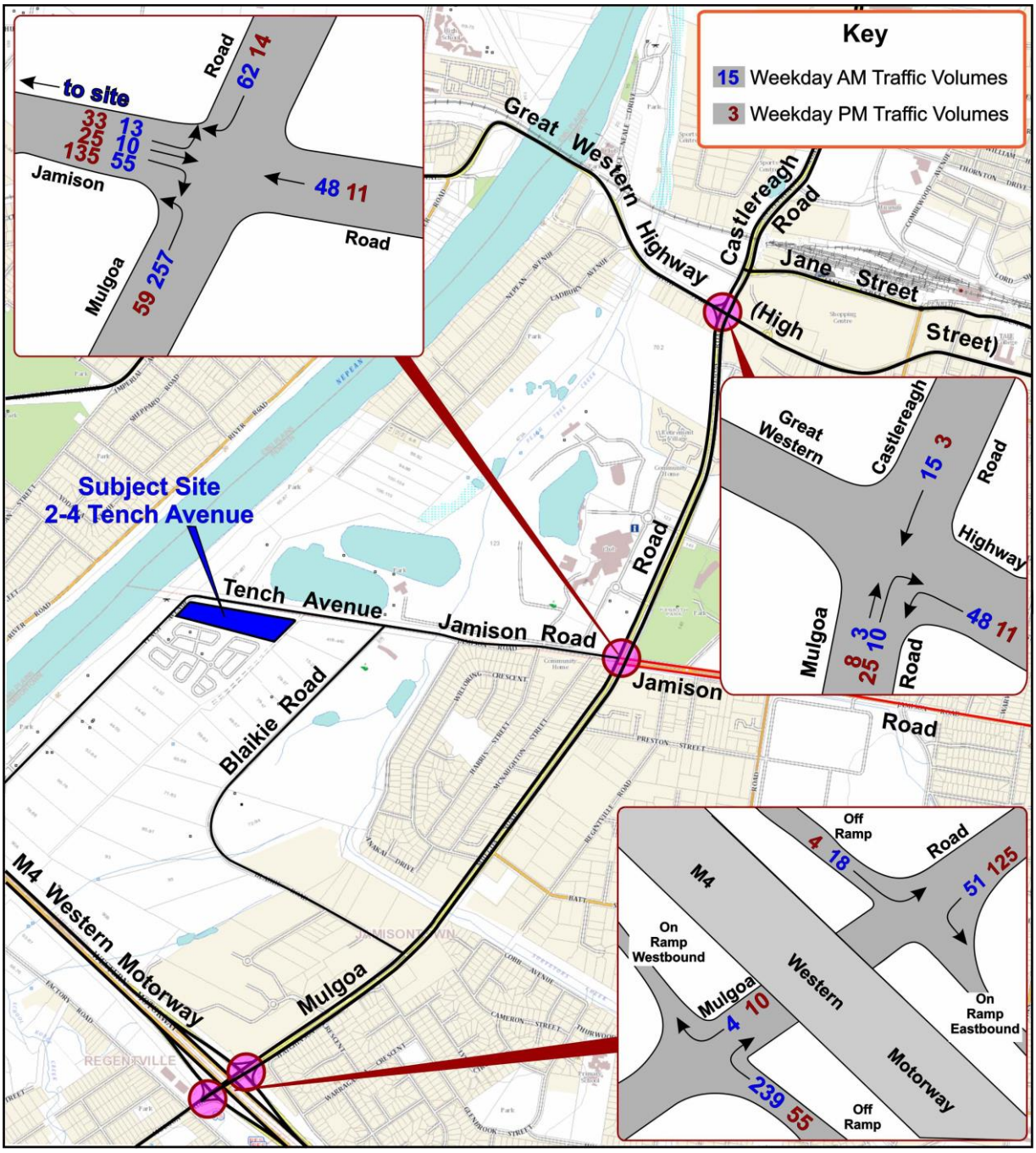


Figure 5: Increase in Traffic Volumes at Key Intersections - Weekdays

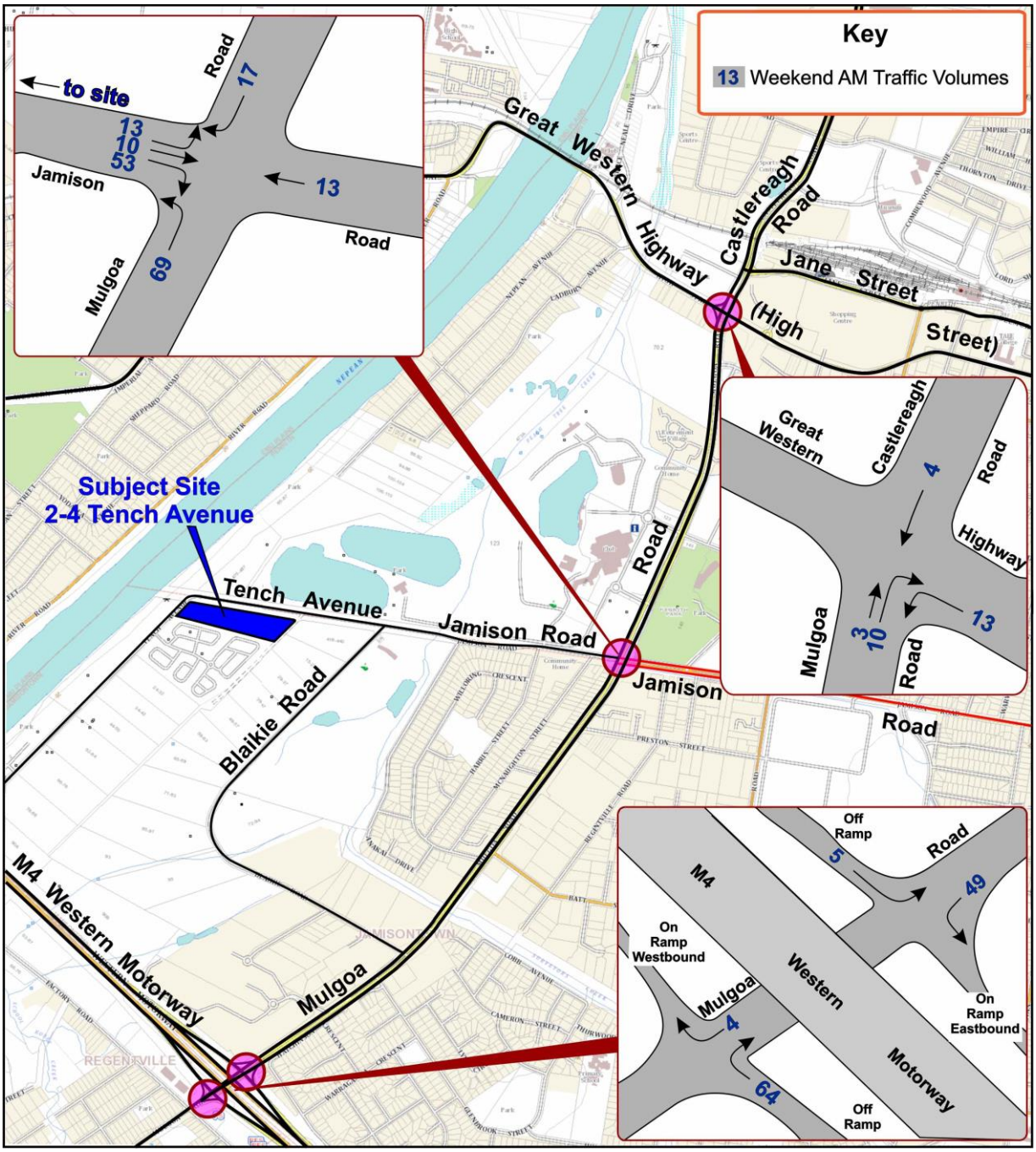


Figure 6: Increase in Traffic Volumes at Key Intersections - Weekends

6. Design Aspects

6.1. Access

All vehicle access to the development would be provided onto Jamison Road and provided in the form of three (3) separate access driveways including:

- An entry-only driveway serving the porte-cochere and visitor car park;
- An exit-only driveway serving the porte-cochere and visitor car park;
- A combined entry / exit driveway serving the staff and overflow visitor car park;

The entry-only and exit-only driveways would be located at the eastern end of the site, whilst the combined entry / exit driveway would be located towards the western end of the site. All driveways would be designed in accordance with AS 2890.1 and AS 2890.2 and accommodate all vehicles up to and including a 14.5 metre long bus / coach, with all entry and exit movements to occur in a forward direction.

Further assessment of the access provisions including swept path analysis, would be undertaken as part of any subsequent development application.

6.2. Internal Design

All internal car, service vehicle and bus / coach parking facilities would be designed in accordance with the relevant requirements of AS 2890.1, AS 2890.2, AS 2890.3 and AS 2890.6.

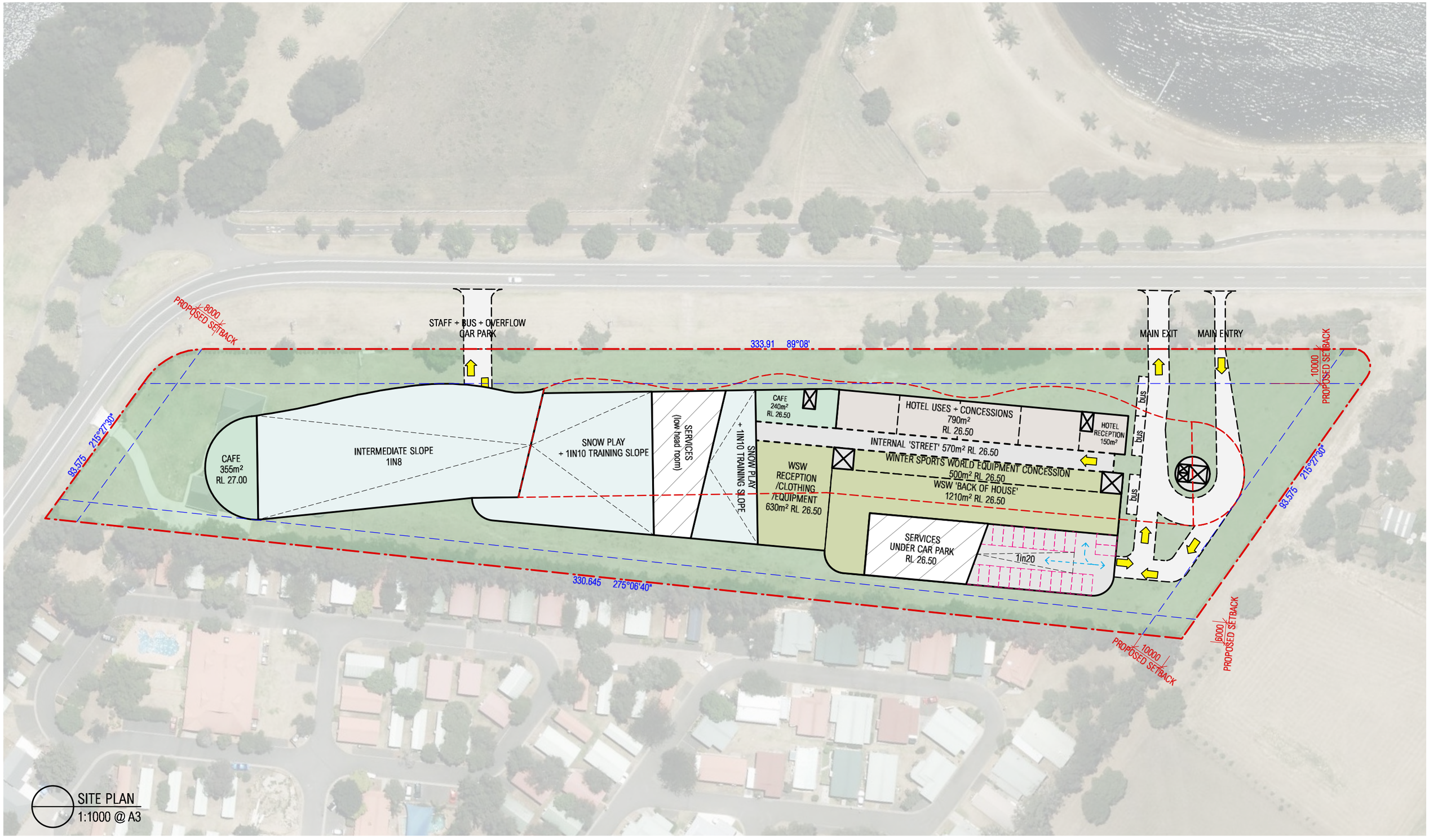
7. Conclusions

In summary:

- PDC Consultants has been commissioned by Winter Sports World Pty Ltd to undertake a Traffic & Parking Assessment of a Planning Proposal relating to the site at 2-4 Tench Avenue, Jamisontown. The Planning Proposal seeks to increase the building height permitted on-site to allow for a tourist / recreational development with the following characteristics:
    - Winter Sports World comprising an indoor ski slope, ice skating rink, ice and rock climbing walls, altitude and gymnasium training facilities, retail, and food and beverage premises and administration centre;
    - 170 room hotel;
    - 1,000 seat function centre / restaurant;
    - 2 above-ground car parking areas having a total of 650 car spaces;
    - 3 access driveways onto Jamison Road.
- The traffic generation assessment confirms that the development will generate some 445 vehicle trips during the Weekday AM peak period, 277 vehicle trips during the Weekday PM peak and 174 vehicle trips during the Weekend AM peak. This is however a conservative estimate and would only be experienced when large all-day conferences are held within the function centre. Accordingly, the typical traffic generation associated with the development would be substantially less and in the order of 100-150 vehicle trips during each of the above peak periods.
- Traffic surveys and modelling of key intersections in the vicinity of the site was unable to be undertaken as part of this Traffic and Parking Assessment due to time constraints associated with the Planning Proposal submission date. Accordingly, these works will be undertaken as part of a subsequent Traffic Modelling report that shall be prepared by PDC Consultants and submitted to Penrith Council at a later date. The Traffic Modelling report shall assess the traffic impacts of the development on the external road network and identify what upgrades (if any) would be required to facilitate the expected increase in traffic volumes.
- The development would generate a peak parking demand for some 632 car parking spaces however this would likely only occur on a limited number of occasions per year as it would require the Winter Sports World, hotel and function centres uses to simultaneously operate at capacity. Accordingly, it is expected that typical parking demands associated with the development would be substantially less than 632 parking spaces with ample spare capacity available. Nevertheless, the development provides a total of 650 car parking spaces ensuring that all normal and peak demands would be accommodated on-site.
- The proposed access and parking arrangements would operate satisfactorily and will be designed in accordance with AS 2890.1, AS 2890.2, AS 2890.3 and AS 2890.6. A detailed assessment of the design including swept path analysis would be undertaken as part of any future development application.

It is therefore concluded that the development is supportable on traffic planning grounds although an additional Traffic Modelling report is required to assess the impacts of the development and the requirement for any future intersection upgrades.

Appendix A



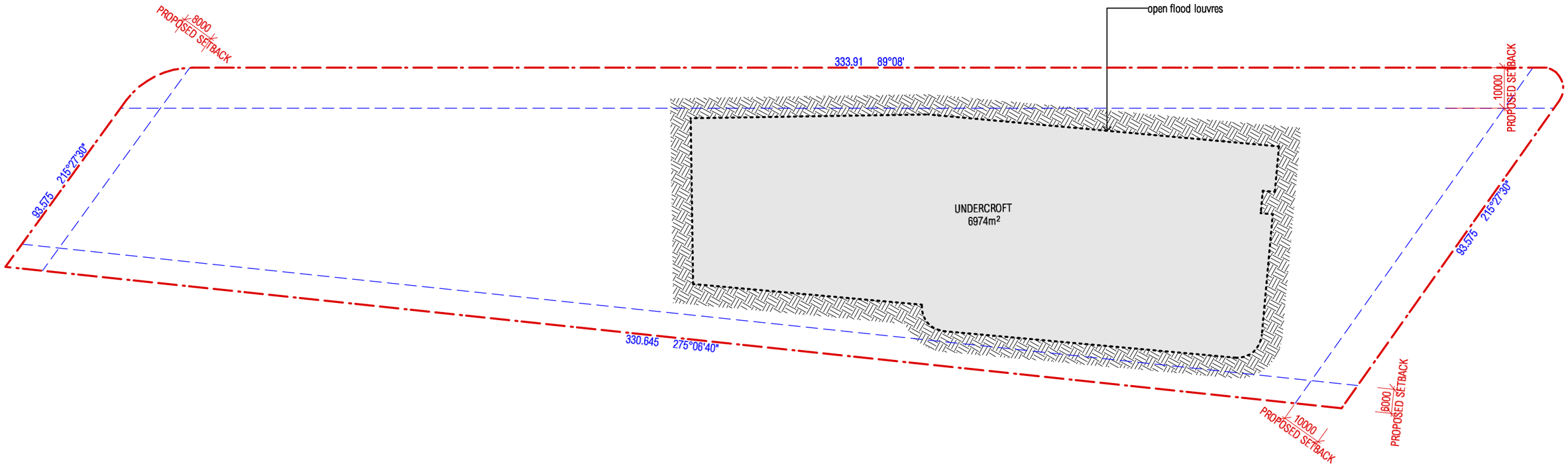
SITE PLAN
1:1000 @ A3

0 10.0 20.0 30.0m

notes	rev	date	amendment	rev	date	amendment
all work to be carried out in accordance with bca, saa codes and conditions of council. measurements in mm's unless noted. use figured dimensions. do not scale drawings. site measure before starting work. refer all discrepancies to the architect.	A	28.06.18	issue to council			

environa studio
224 riley st surry hills 2010
t: 02 9211 0000
w: www.environastudio.com.au
architects registration number 6239

project	location	drawing	stage	project no.	dwg no.
WINTER SPORTS WORLD		SITE PLAN	D.A.	781	030
for/client: WSW winter sports world	at: JAMISONTOWN	drawing: SHEET 1	chkd: TW drwn: OZ	date: 28/06/18	revision: A



UNDERCROFT
1:1000 @ A3

0 10.0 20.0 30.0m

notes

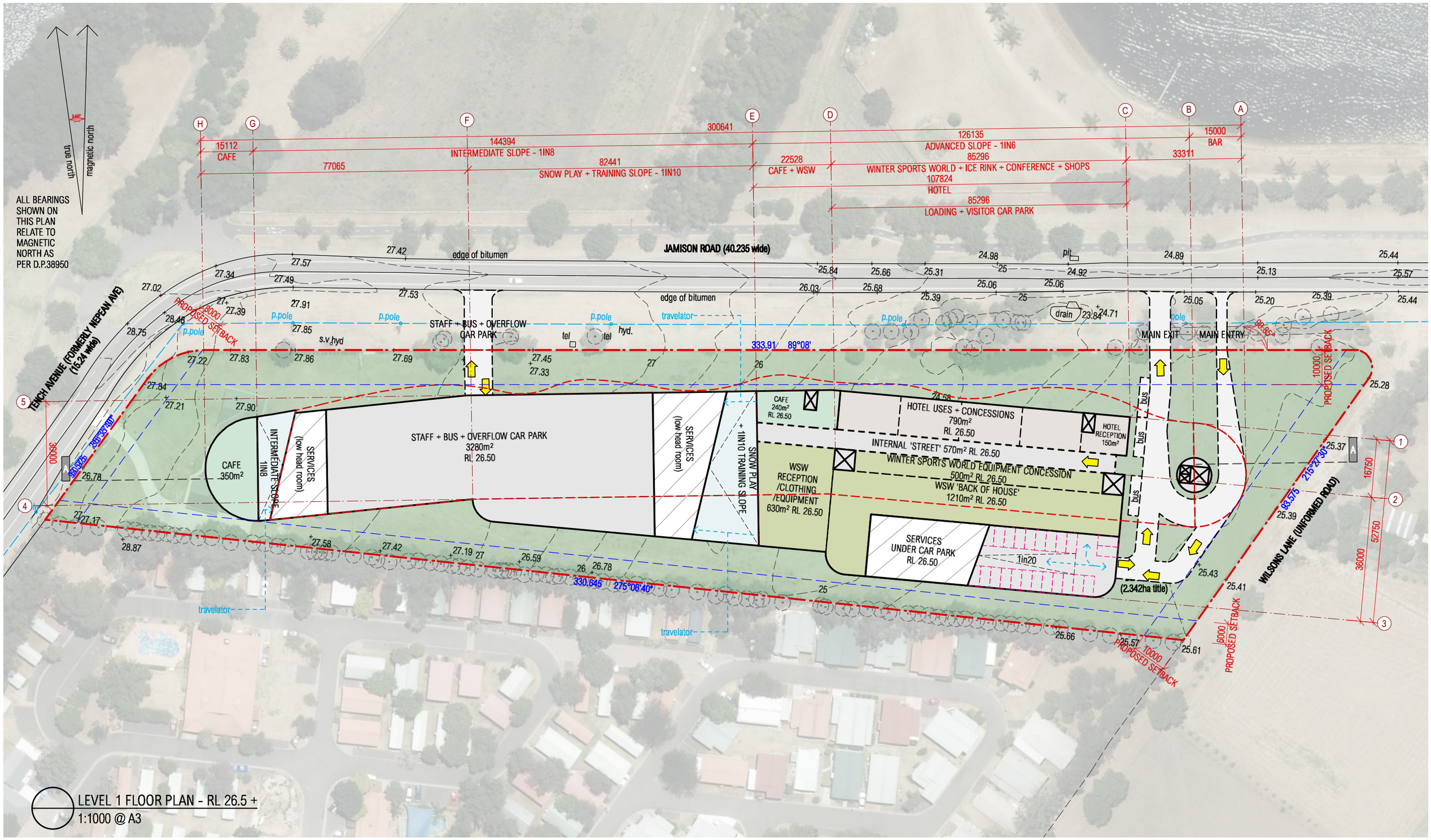
all work to be carried out in accordance with bca, saa codes and conditions of council. measurements in mm's unless noted. use figured dimensions. do not scale drawings. site measure before starting work. refer all discrepancies to the architect.

rev	date	amendment
A	28.06.18	issue to council

rev	date	amendment

environa studio
224 riley st surry hills 2010
t: 02 9211 0000
w: www.environastudio.com.au
architects registration number 6239

project: WINTER SPORTS WORLD	location	drawing: UNDERCROFT	stage: D.A.	project no.: 781	dwg no.: 101
for/client: WSW winter sports world	at: JAMISONTOWN	drawing	chkd: TW drwn: OZ	date: 28/06/18	revision: A

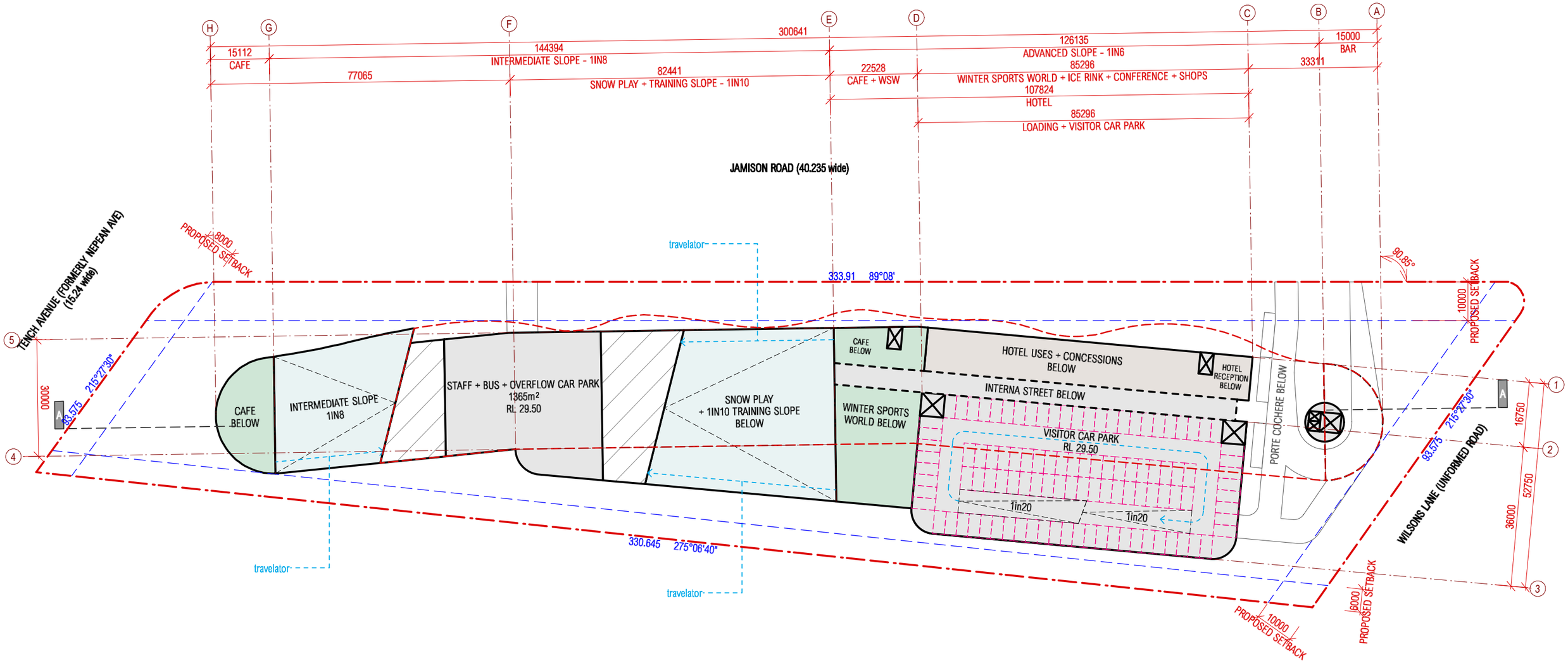


notes	rev	date	amendment	rev	date	amendment
all work to be carried out in accordance with bca, saa codes and conditions of council. measurements in mm's unless noted. use figured dimensions. do not scale drawings. site measure before starting work. refer all discrepancies to the architect.	A	28.06.18	issue to council			

0 10.0 20.0 30.0m

environa studio
224 riley st surry hills 2010
t: 02 9211 0000
w: www.environastudio.com.au
architects registration number 6239

project	location	drawing	stage	project no.	dwg no.
WINTER SPORTS WORLD		LEVEL 1 + RL 26.5 +	D.A.	781	102
for/client: WSW winter sports world	at: JAMISONTOWN	drawing	chkd: TW drwn: OZ	date: 28/06/18	revision: A



LEVEL 2 FLOOR PLAN - RL 29.50
1:1000 @ A3

0 10.0 20.0 30.0m

notes

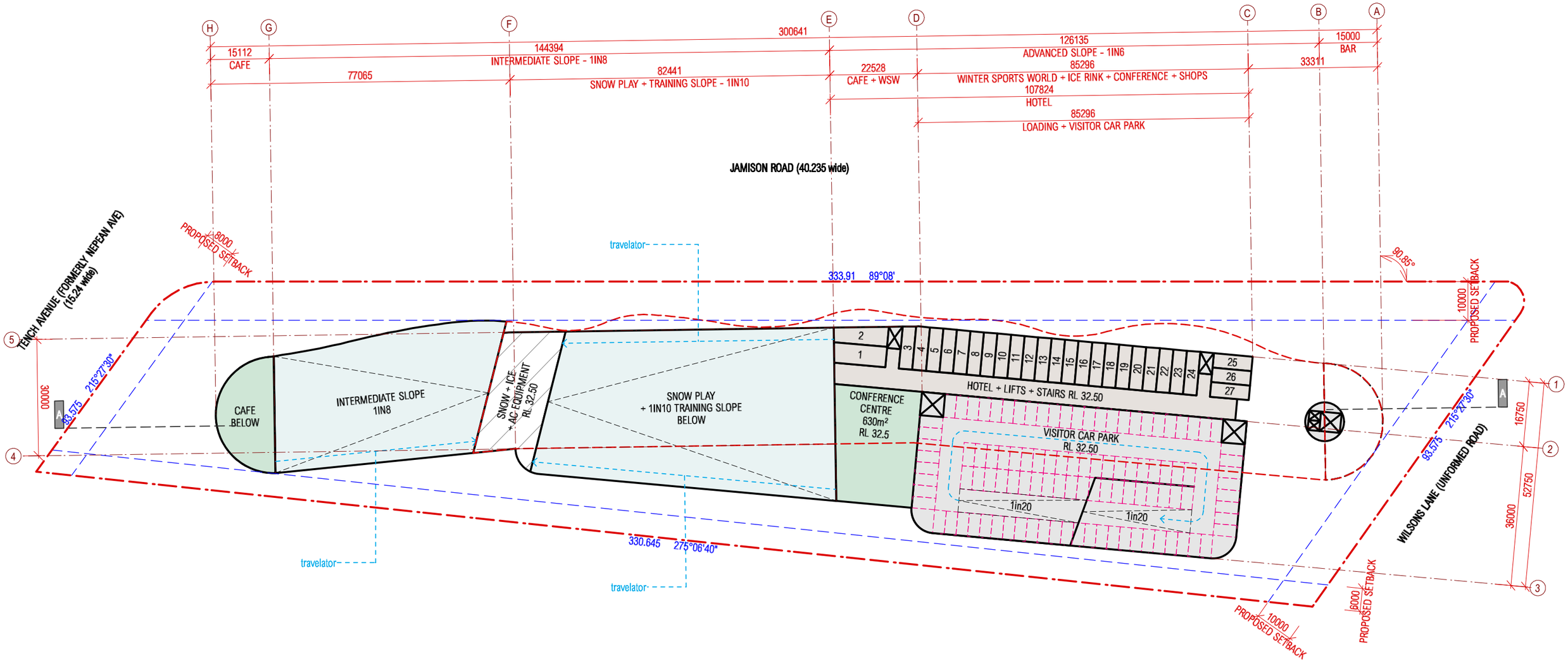
all work to be carried out in accordance with bca, saa codes and conditions of council. measurements in mm's unless noted. use figured dimensions. do not scale drawings. site measure before starting work. refer all discrepancies to the architect.

rev	date	amendment
A	28.06.18	issue to council

rev	date	amendment

environa studio
224 riley st surry hills 2010
t: 02 9211 0000
w: www.environastudio.com.au
architects registration number 6239

project: WINTER SPORTS WORLD	location:	drawing: LEVEL 2 RL 29.50	stage: D.A.		project no.: 781	dwg no.: 103
for/client: wsw winter sports world	at: JAMISONTOWN	drawing:	chkd: TW	drwn: OZ	date: 28/06/18	revision: A



LEVEL 3 FLOOR PLAN - RL 32.50

1:1000 @ A3

0 10.0 20.0 30.0m

notes

all work to be carried out in accordance with bca, saa codes and conditions of council. measurements in mm's unless noted. use figured dimensions. do not scale drawings. site measure before starting work. refer all discrepancies to the architect.

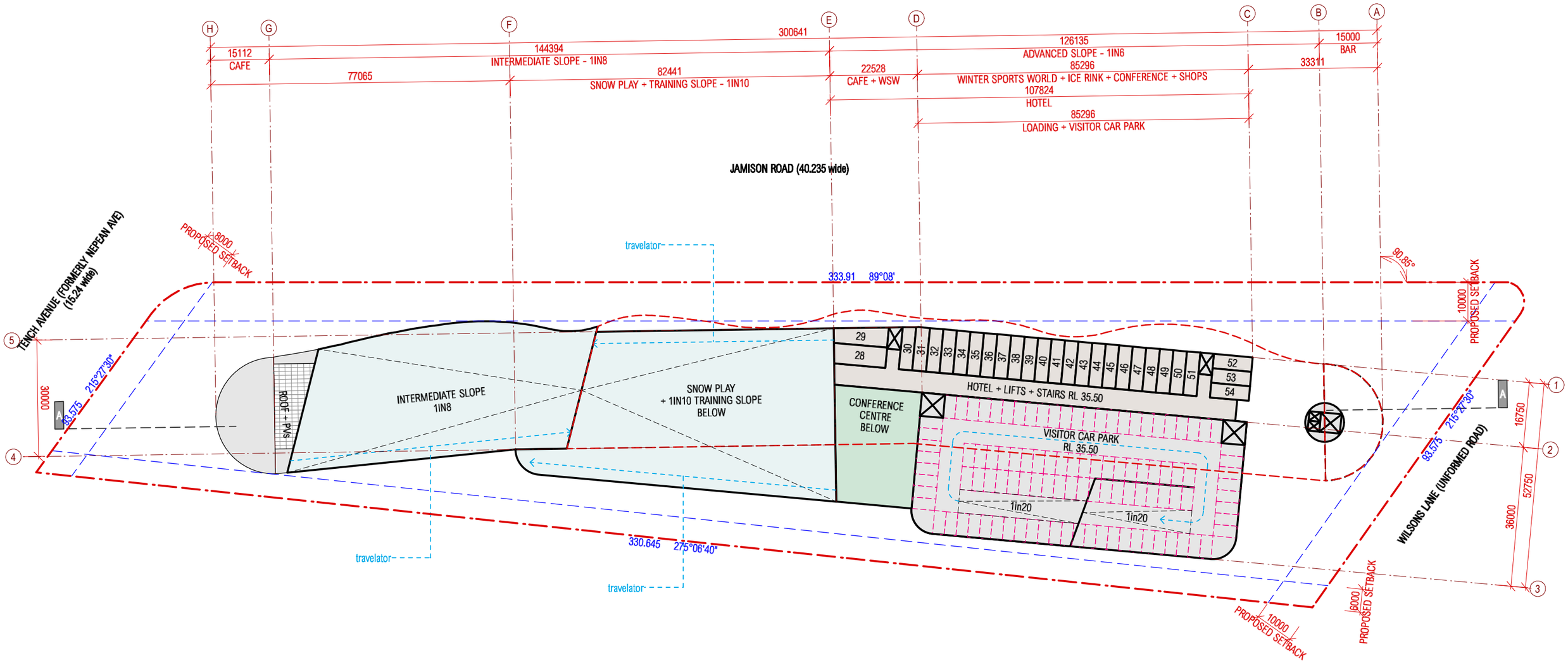
rev	date	amendment
A	28.06.18	issue to council

rev	date	amendment

environa studio
224 riley st surry hills 2010
t: 02 9211 0000
w: www.environastudio.com.au
architects registration number 6239

project	location	drawing	stage	project no.	dwg no.
WINTER SPORTS WORLD		LEVEL 3	D.A.	781	104

for/client	at	drawing	chkd	drwn	date	revision
wsw winter sports world	JAMISONTOWN		TW	OZ	28/06/18	A



LEVEL 4 FLOOR PLAN - RL 35.50

1:1000 @ A3

0 10.0 20.0 30.0m

notes

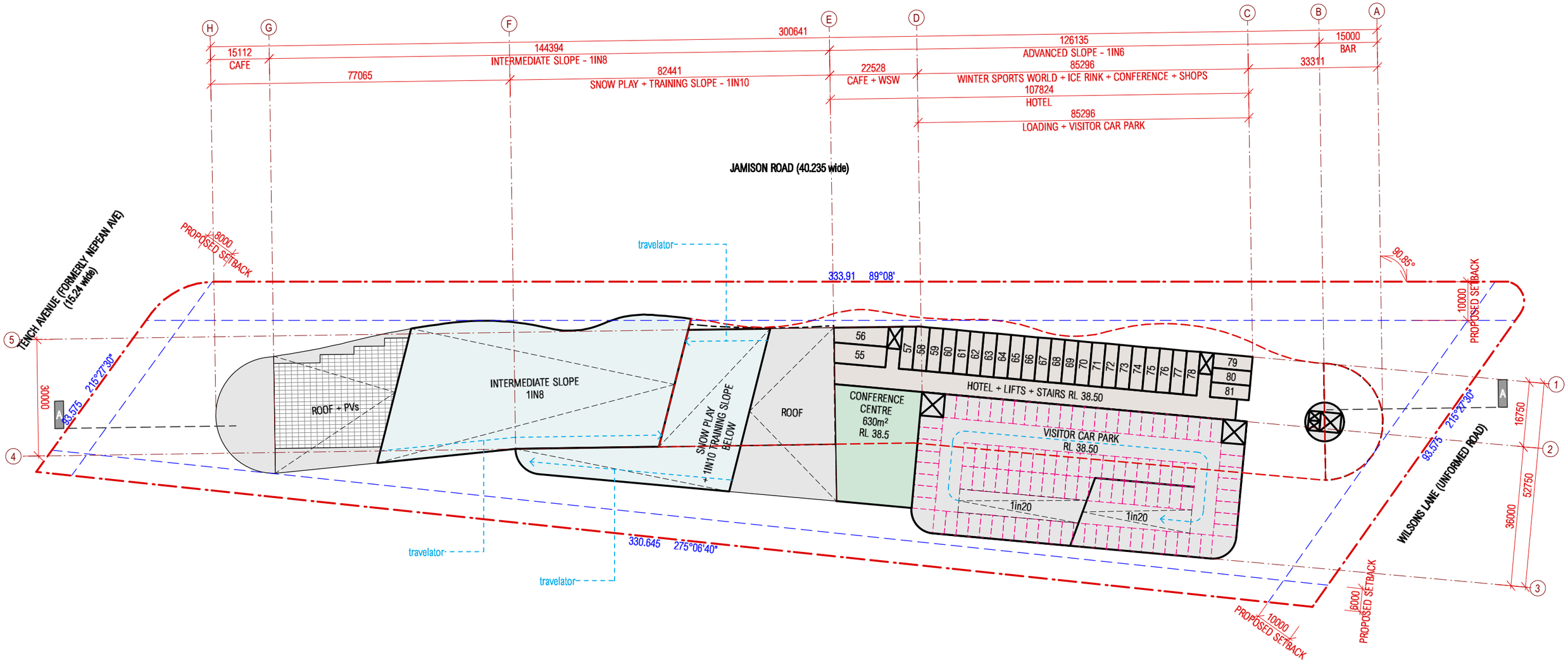
all work to be carried out in accordance with bca, saa codes and conditions of council. measurements in mm's unless noted. use figured dimensions. do not scale drawings. site measure before starting work. refer all discrepancies to the architect.

rev	date	amendment
A	28.06.18	issue to council

rev	date	amendment

environa studio
224 riley st surry hills 2010
t: 02 9211 0000
w: www.environastudio.com.au
architects registration number 6239

project: WINTER SPORTS WORLD	location	drawing: LEVEL 4 RL 35.50	stage: D.A.	project no.: 781	dwg no.: 105
for/client: wsw winter sports world	at: JAMISONTOWN	drawing	chkd: TW drwn: OZ	date: 28/06/18	revision: A



LEVEL 5 FLOOR PLAN - RL 38.50

1:1000 @ A3

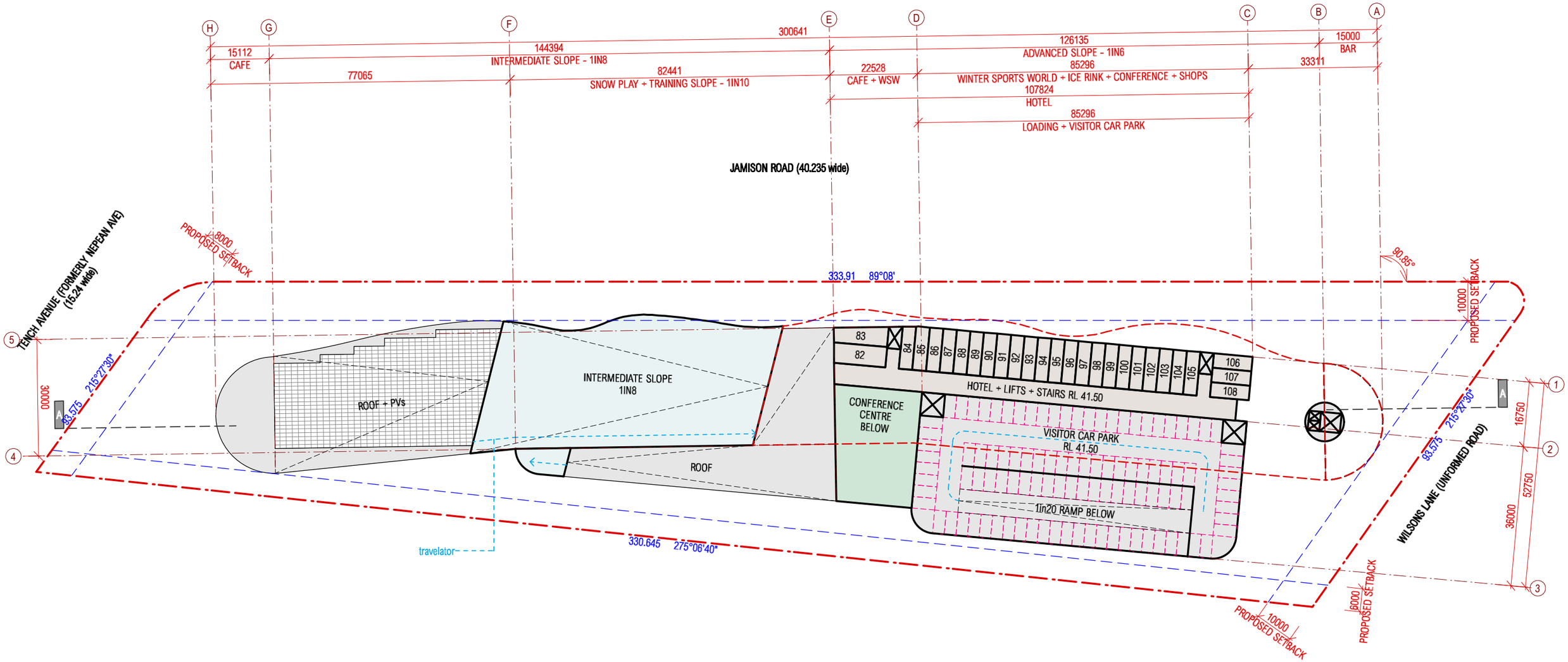
0 10.0 20.0 30.0m

notes	rev	date	amendment	rev	date	amendment
all work to be carried out in accordance with bca, saa codes and conditions of council. measurements in mm's unless noted. use figured dimensions. do not scale drawings. site measure before starting work. refer all discrepancies to the architect.	A	28.06.18	issue to council			

environa studio
224 riley st surry hills 2010
t: 02 9211 0000
w: www.environastudio.com.au
architects registration number 6239

project	location	drawing	stage	project no.	dwg no.
WINTER SPORTS WORLD		LEVEL 5 RL 38.50	D.A.	781	106

for/client	at	drawing	chkd	drwn	date	revision
WSW winter sports world	JAMISONTOWN		TW	OZ	28/06/18	A



LEVEL 6 FLOOR PLAN - RL 41.50

1:1000 @ A3

0 10.0 20.0 30.0m

notes

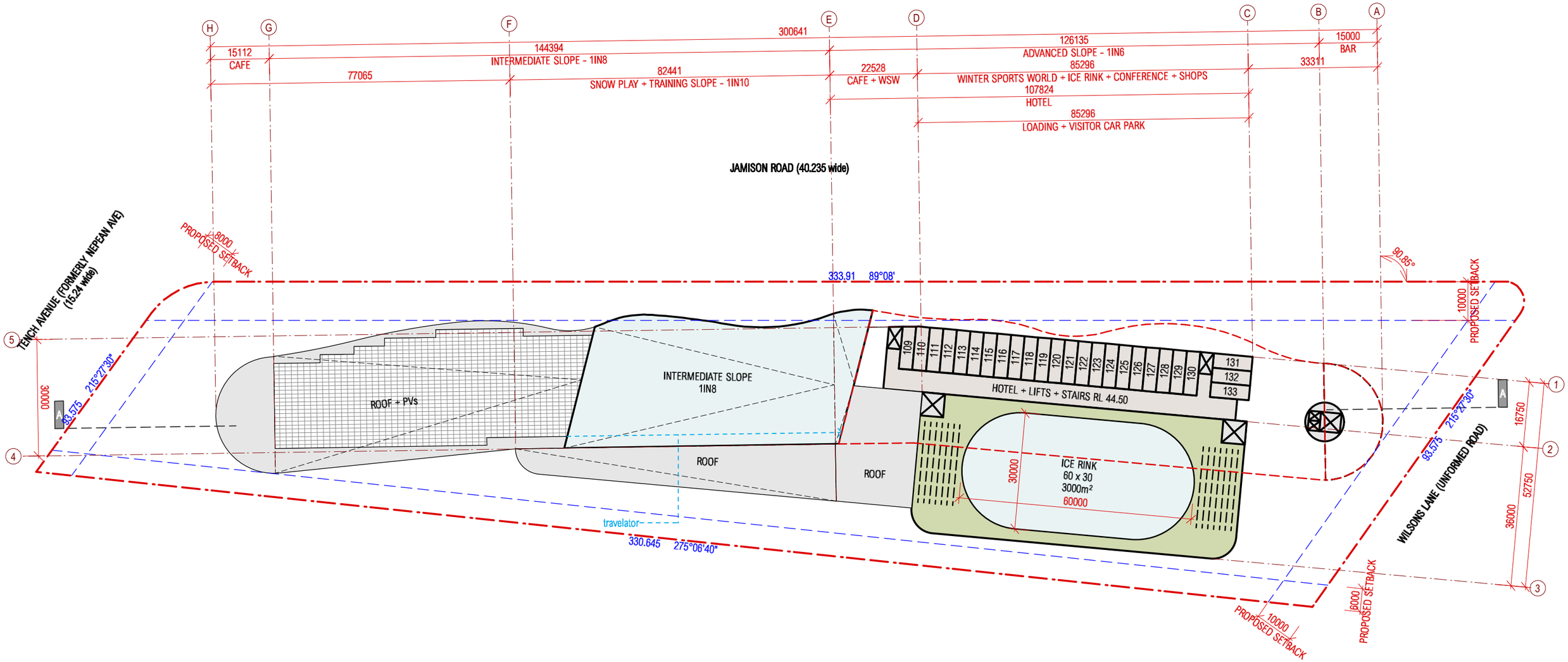
all work to be carried out in accordance with bca, saa codes and conditions of council. measurements in mm's unless noted. use figured dimensions. do not scale drawings. site measure before starting work. refer all discrepancies to the architect.

rev	date	amendment
A	28.06.18	issue to council

rev	date	amendment

environa studio
224 riley st surry hills 2010
t: 02 9211 0000
w: www.environastudio.com.au
architects registration number 6239

project: WINTER SPORTS WORLD	location:	drawing: LEVEL 6 RL 41.50	stage: D.A.	project no.: 781	dwg no.: 107
for/client: wsw winter sports world	at: JAMISONTOWN	drawing:	chkd: TW drwn: OZ	date: 28/06/18	revision: A



LEVEL 7 FLOOR PLAN - RL 44.50

1:1000 @ A3

0 10.0 20.0 30.0m

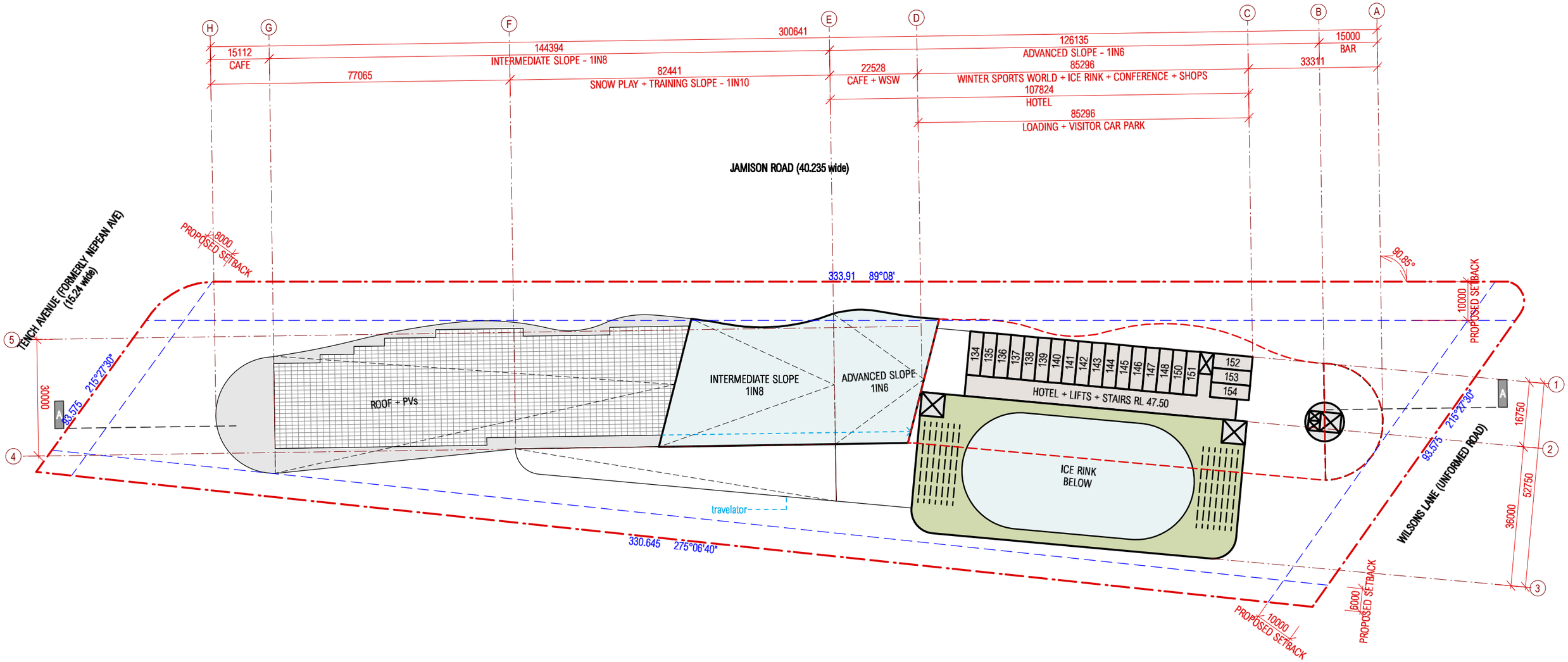
notes

all work to be carried out in accordance with bca, saa codes and conditions of council. measurements in mm's unless noted. use figured dimensions. do not scale drawings. site measure before starting work. refer all discrepancies to the architect.

rev	date	amendment
A	28.06.18	issue to council

environa studio
224 riley st surry hills 2010
t: 02 9211 0000
w: www.environastudio.com.au
architects registration number 6239

project: WINTER SPORTS WORLD	location	drawing: LEVEL 7 RL 44.50	stage: D.A.	project no.: 781	dwg no.: 108	
for/client: wsw winter sports world	at: JAMISONTOWN	drawing	chkd: TW	drwn: OZ	date: 28/06/18	revision: A



LEVEL 8 FLOOR PLAN - RL 47.50

1:1000 @ A3

0 10.0 20.0 30.0m

notes

all work to be carried out in accordance with bca, saa codes and conditions of council. measurements in mm's unless noted. use figured dimensions. do not scale drawings. site measure before starting work. refer all discrepancies to the architect.

rev	date	amendment
A	28.06.18	issue to council

rev	date	amendment

environa studio

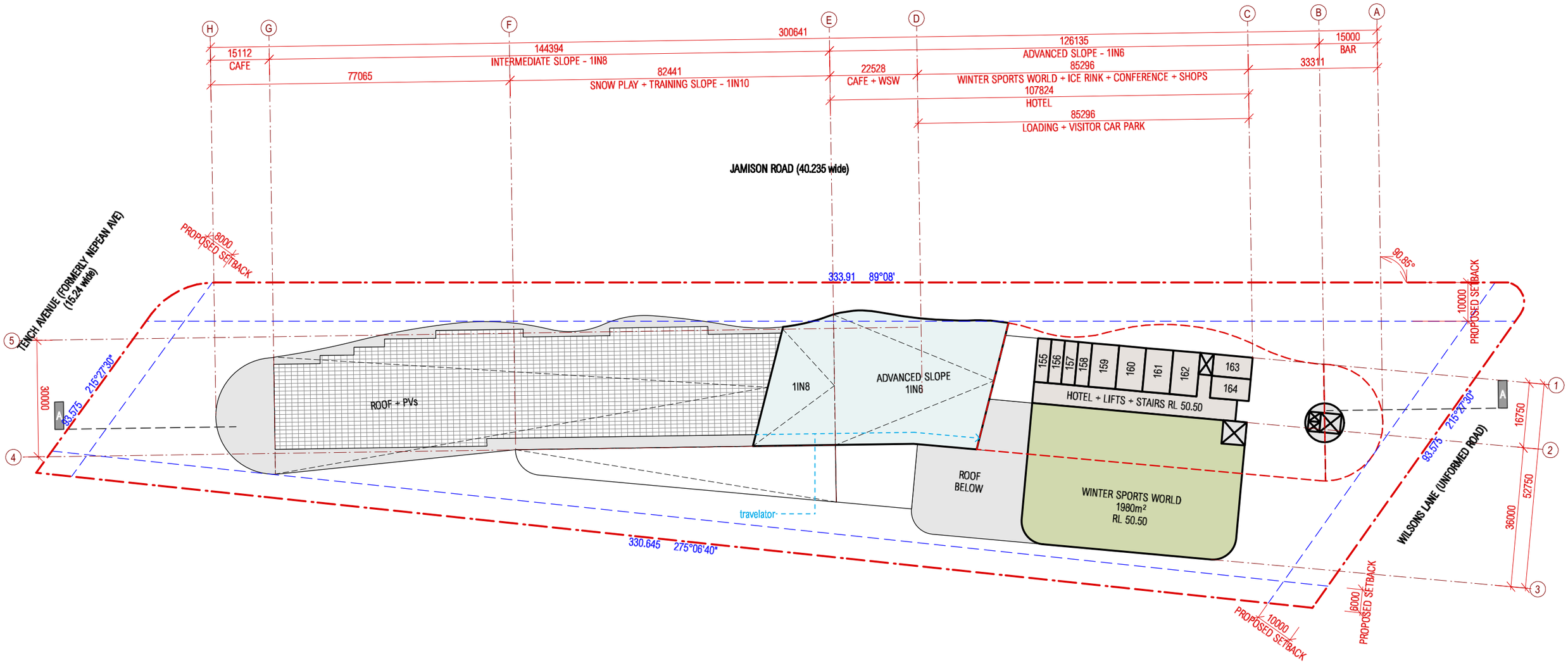
224 riley st surry hills 2010

t: 02 9211 0000

w: www.environastudio.com.au

architects registration number 6239

project: WINTER SPORTS WORLD	location	drawing: LEVEL 8 RL 47.50	stage: D.A.	project no.: 781	dwg no.: 109	
for/client: WSW winter sports world	at: JAMISONTOWN	drawing	chkd: TW	drwn: OZ	date: 28/06/18	revision: A



LEVEL 9 FLOOR PLAN - RL 50.50

1:1000 @ A3

0 10.0 20.0 30.0m

notes

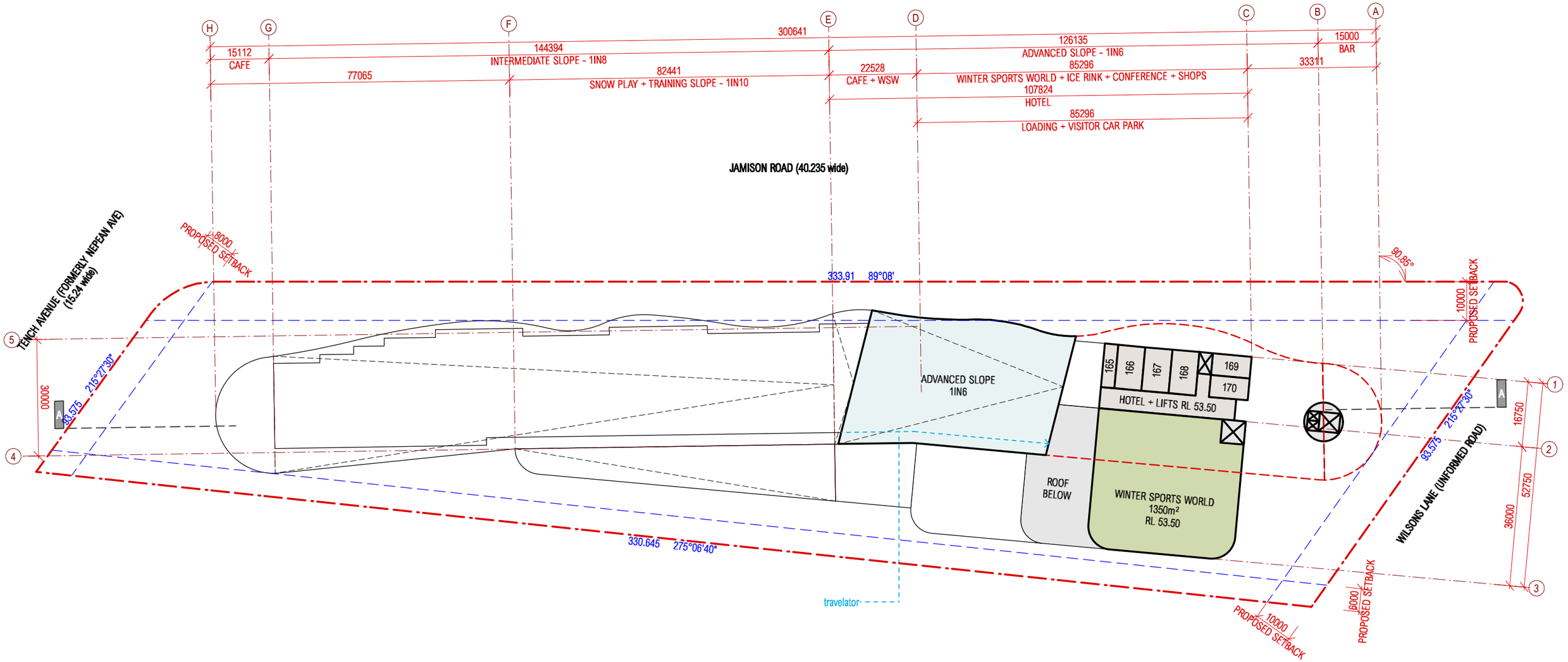
all work to be carried out in accordance with bca, saa codes and conditions of council. measurements in mm's unless noted. use figured dimensions. do not scale drawings. site measure before starting work. refer all discrepancies to the architect.

rev	date	amendment
A	28.06.18	issue to council

rev	date	amendment

environa studio
224 riley st surry hills 2010
t: 02 9211 0000
w: www.environastudio.com.au
architects registration number 6239

project: WINTER SPORTS WORLD	location:	drawing: LEVEL 9 RL 50.50	stage: D.A.	project no.: 781	dwg no.: 110
for/client: wsw winter sports world	at: JAMISONTOWN	drawing:	chkd: TW drwn: OZ	date: 28/06/18	revision: A



LEVEL 10 FLOOR PLAN - RL 53.50

1:1000 @ A3

0 10.0 20.0 30.0m

notes

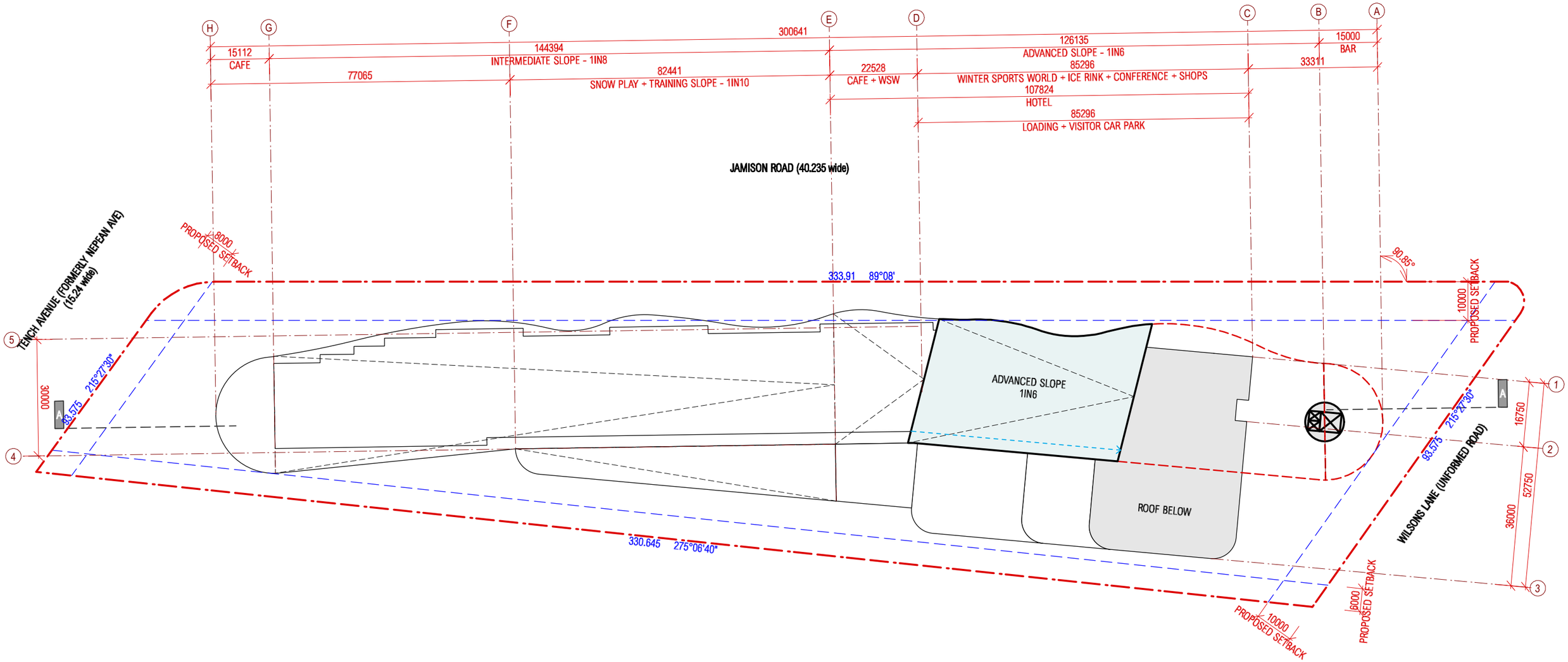
all work to be carried out in accordance with bca, saa codes and conditions of council. measurements in mm's unless noted. use figured dimensions. do not scale drawings. site measure before starting work. refer all discrepancies to the architect.

rev	date	amendment
A	28.06.18	issue to council

rev	date	amendment

environa studio
224 riley st surry hills 2010
t: 02 9211 0000
w: www.environastudio.com.au
architects registration number 6239

project: WINTER SPORTS WORLD	location:	drawing: LEVEL 10 RL 53.50	stage: D.A.	project no.: 781	dwg no.: 111
for/client: WSW winter sports world	at: JAMISONTOWN	drawing:	chkd: TW drwn: OZ	date: 28/06/18	revision: A



LEVEL 11 FLOOR PLAN
1:1000 @ A3

0 10.0 20.0 30.0m

notes

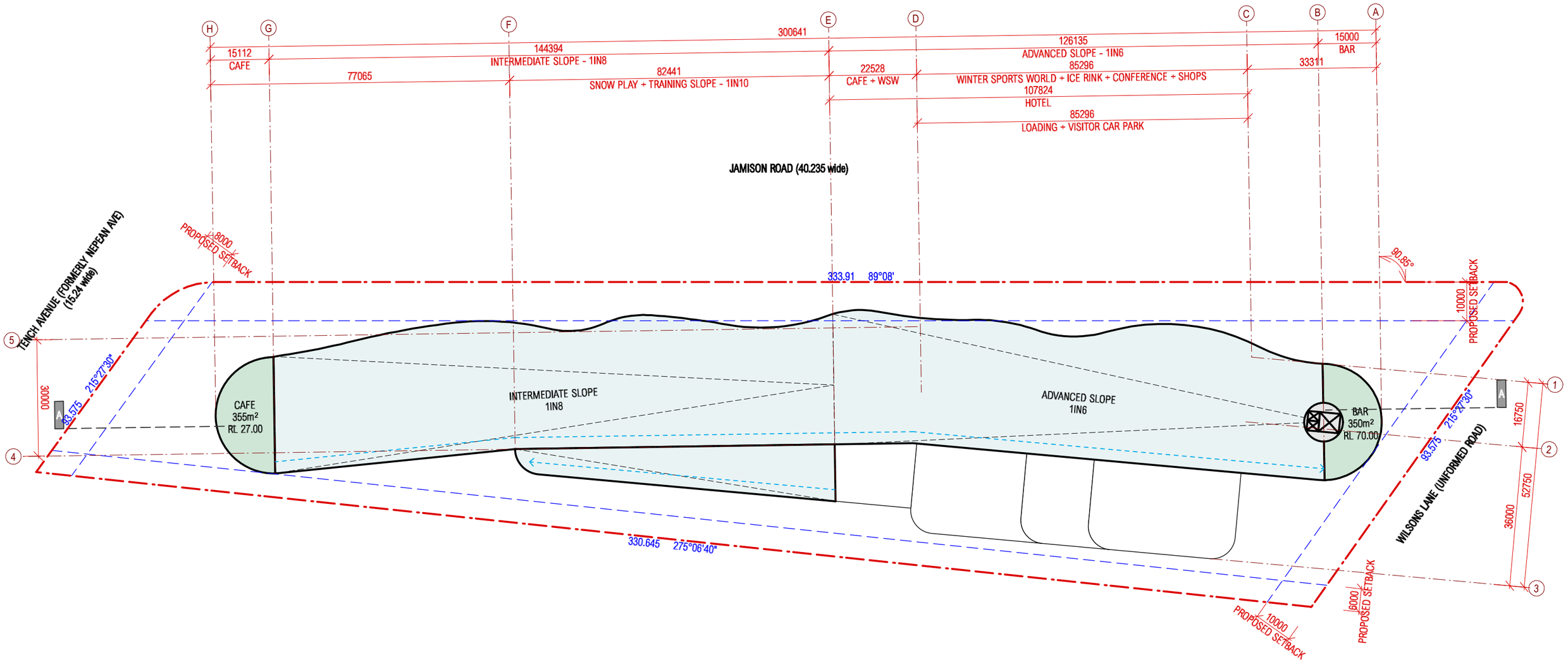
all work to be carried out in accordance with bca, saa codes and conditions of council. measurements in mm's unless noted. use figured dimensions. do not scale drawings. site measure before starting work. refer all discrepancies to the architect.

rev	date	amendment
A	28.06.18	issue to council

rev	date	amendment

environa studio
224 riley st surry hills 2010
t: 02 9211 0000
w: www.environastudio.com.au
architects registration number 6239

project: WINTER SPORTS WORLD	location	drawing: LEVEL 11 RL 56.50	stage: D.A.	project no.: 781	dwg no.: 112
for/client: WSW winter sports world	at: JAMISONTOWN	drawing	chkd: TW drwn: OZ	date: 28/06/18	revision: A



LEVEL 12 FLOOR PLAN - RL 71.00

1:1000 @ A3

0 10.0 20.0 30.0m

notes

all work to be carried out in accordance with bca, saa codes and conditions of council. measurements in mm's unless noted. use figured dimensions. do not scale drawings. site measure before starting work. refer all discrepancies to the architect.

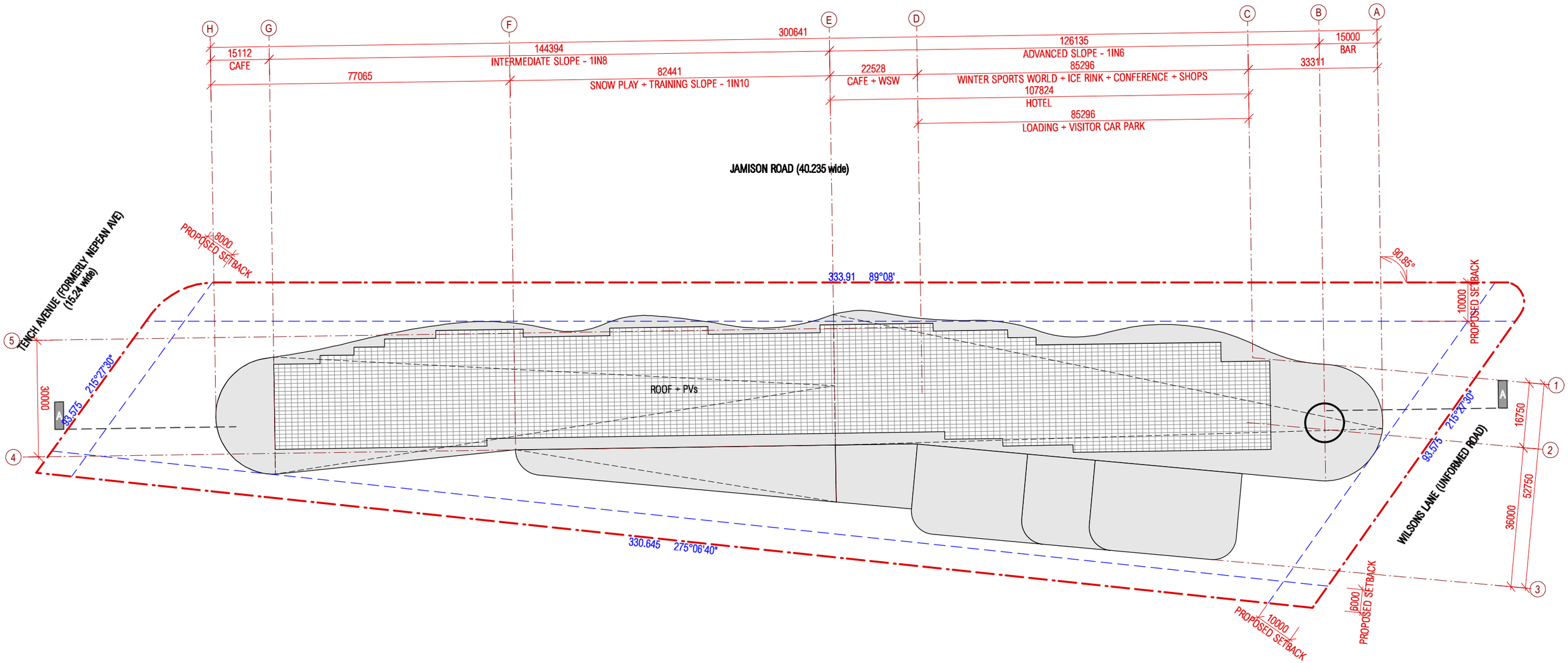
rev	date	amendment
A	28.06.18	issue to council

rev	date	amendment

environa studio
224 riley st surry hills 2010
t: 02 9211 0000
w: www.environastudio.com.au
architects registration number 6239

project	location	drawing	stage	project no.	dwg no.
WINTER SPORTS WORLD		LEVEL 12 RL 71.00	D.A.	781	113

for/client	at	drawing	chkd	drwn	date	revision
WSW winter sports world	JAMISONTOWN		TW	OZ	28/06/18	A



ROOF PLAN
1:1000 @ A3

0 10.0 20.0 30.0m

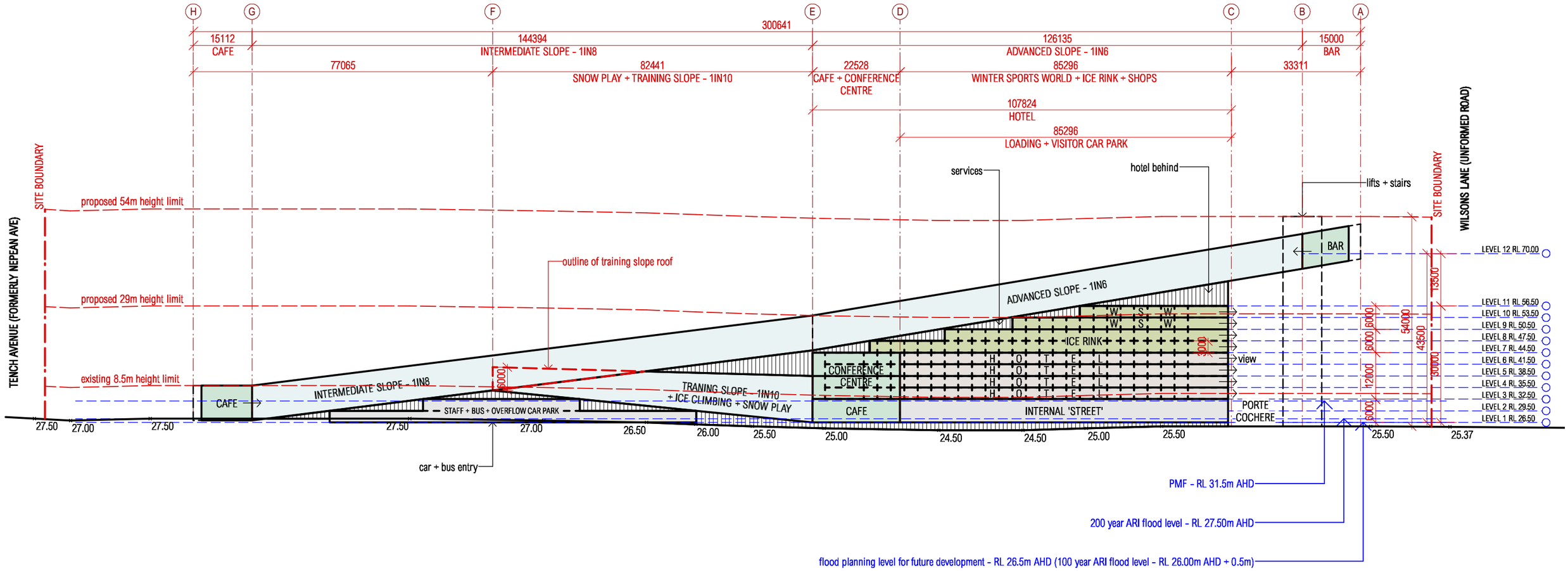
notes

all work to be carried out in accordance with bca, saa codes and conditions of council. measurements in mm's unless noted. use figured dimensions. do not scale drawings. site measure before starting work. refer all discrepancies to the architect.

rev	date	amendment	rev	date	amendment
A	28.06.18	issue to council			

environa studio
224 riley st surry hills 2010
t: 02 9211 0000
w: www.environastudio.com.au
architects registration number 6239

project	location	drawing	stage	project no.	dwg no.
WINTER SPORTS WORLD		ROOF PLAN	D.A.	781	114
for/client: WSW winter sports world	at: JAMISONTOWN	drawing	chkd: TW drwn: OZ	date: 28/06/18	revision: A



SECTION A
1:1000 @ A3

0 10.0 20.0 30.0m

notes

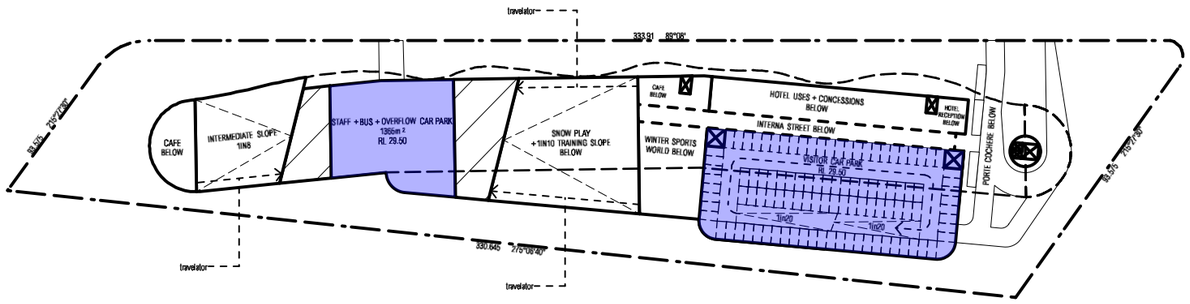
all work to be carried out in accordance with bca, saa codes and conditions of council. measurements in mm's unless noted. use figured dimensions. do not scale drawings. site measure before starting work. refer all discrepancies to the architect.

rev	date	amendment
A	28.06.18	issue to council

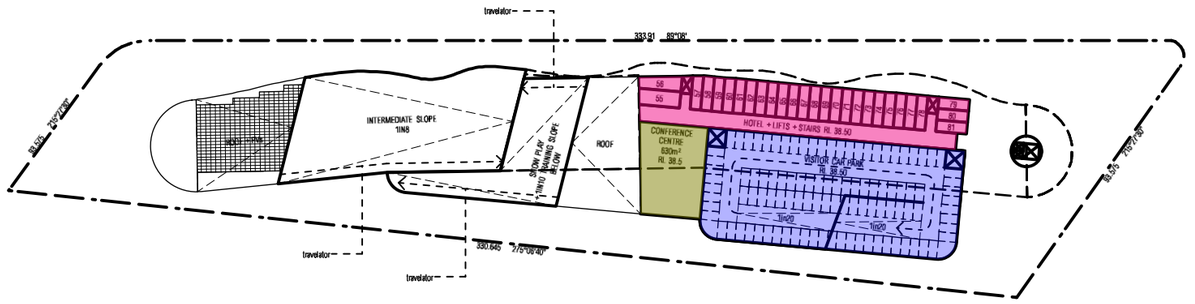
rev	date	amendment

environa studio
224 riley st surry hills 2010
t: 02 9211 0000
w: www.environastudio.com.au
architects registration number 6239

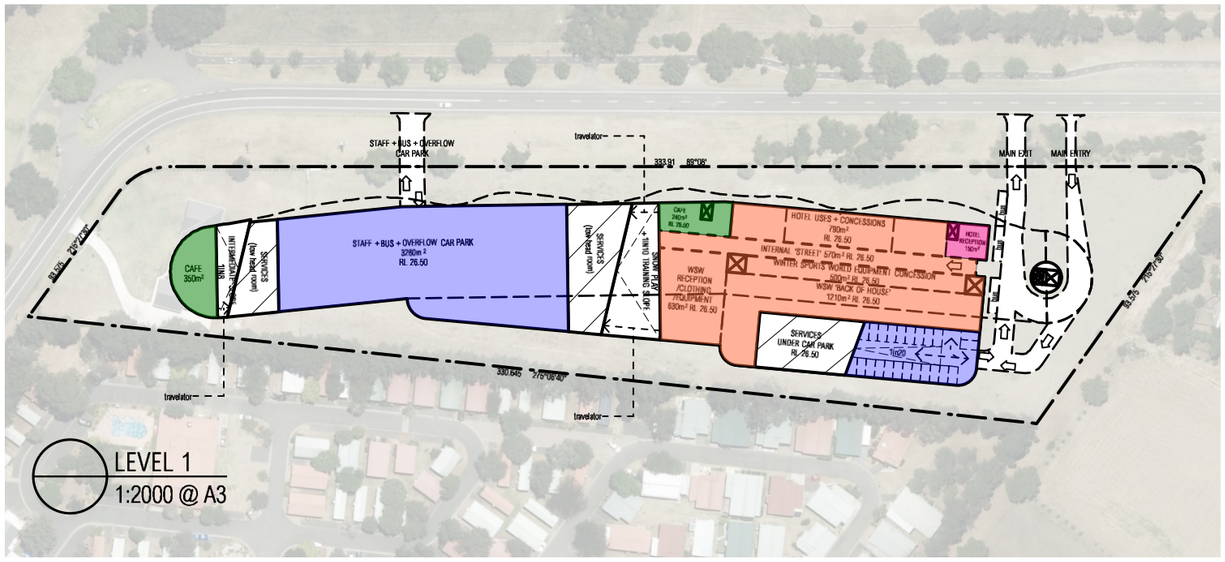
project: WINTER SPORTS WORLD	location	drawing: SECTION A	stage: D.A.	project no.: 781	dwg no.: 120
for/client: wsw winter sports world	at: JAMISONTOWN	drawing	chkd: TW drwn: OZ	date: 28/06/18	revision: A



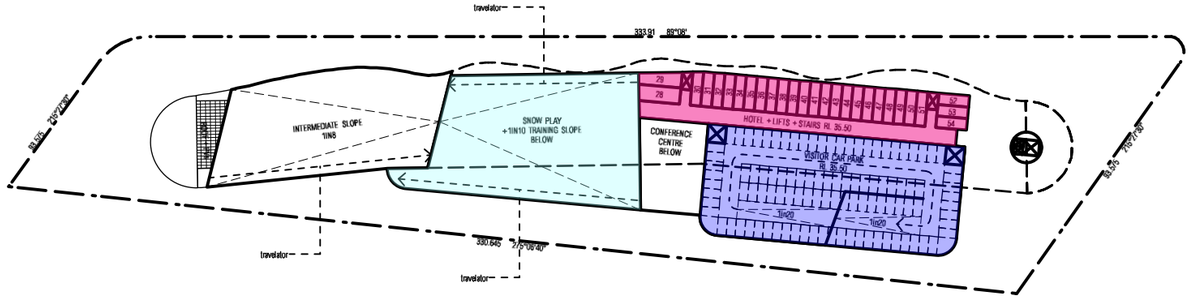
1:2000 @ A3
LEVEL 2



1:2000 @ A3
LEVEL 5

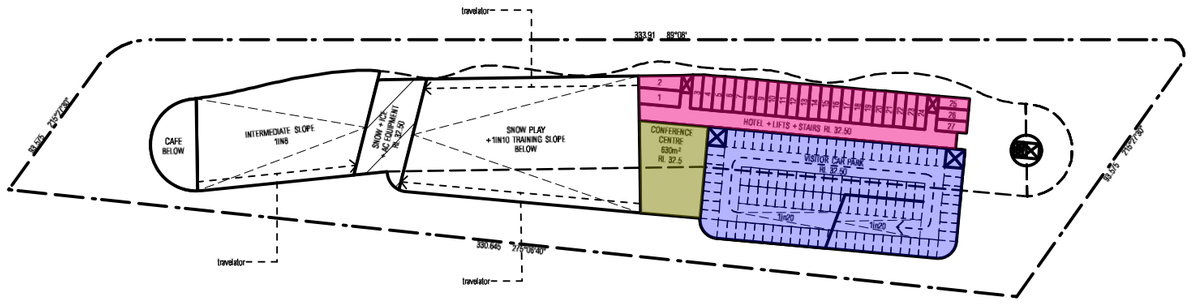


LEVEL 1
1:2000 @ A3



LEVEL 4
1:2000 @ A3

1:2000 @ A3
UNDERCROFT



1:2000 @ A3
LEVEL 3

BASEMENT | CAR PARKING | CAFE + BAR | WINTER SPORTS WORLD | HOTEL
SKI RAMPS + ICE RINK | CONFERENCE CENTRE | LANDSCAPE AREA | DEEP SOIL

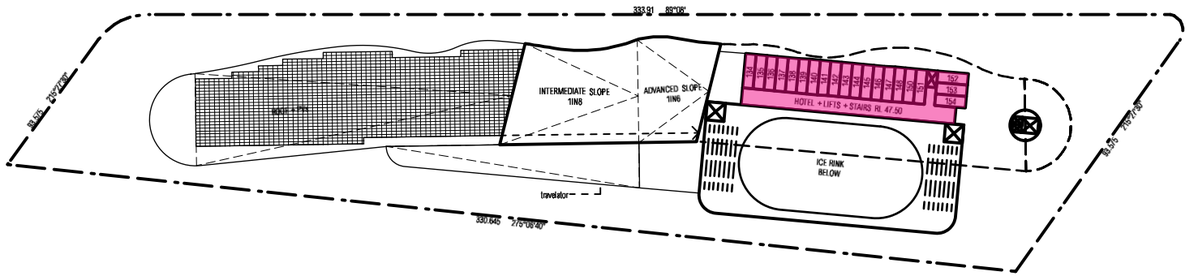
0 10.0 20.0 30.0m

notes
all work to be carried out in accordance with bca, saa codes and conditions of council. measurements in mm's unless noted. use figured dimensions. do not scale drawings. site measure before starting work. refer all discrepancies to the architect.

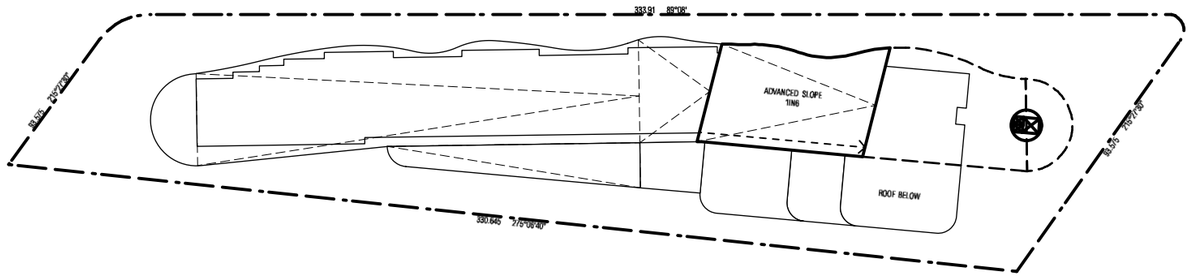
rev	date	amendment
A	28.06.18	issue to council

environa studio
224 riley st surry hills 2010
t: 02 9211 0000
w: www.environastudio.com.au
architects registration number 6239

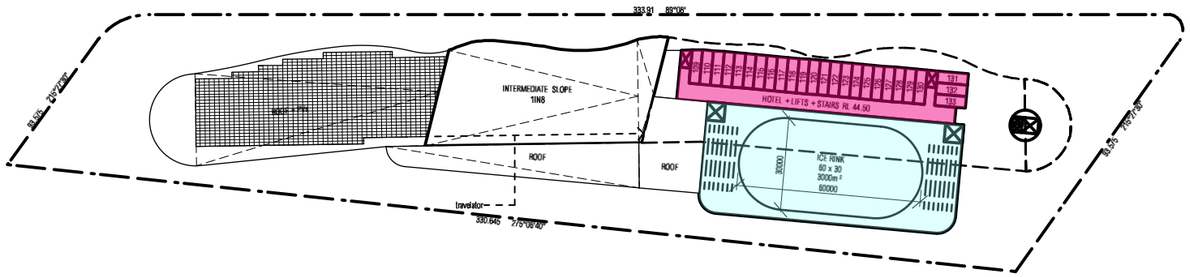
project: WINTER SPORTS WORLD	location	drawing: AREA CALCULATION SUMMARY	stage: D.A.	project no.: 781	dwg no.: 981
for/client: wsw winter sports world	at: JAMISONTOWN	drawing: SHEET 2	chkd: TW drwn: OZ	date: 28/06/18	revision: A



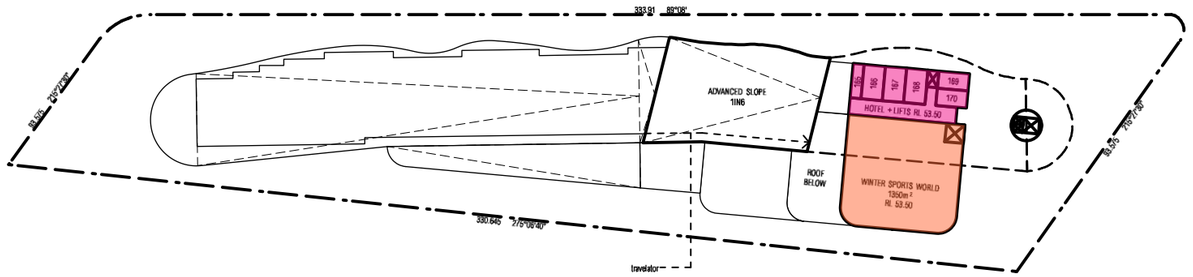
1:2000 @ A3
LEVEL 8



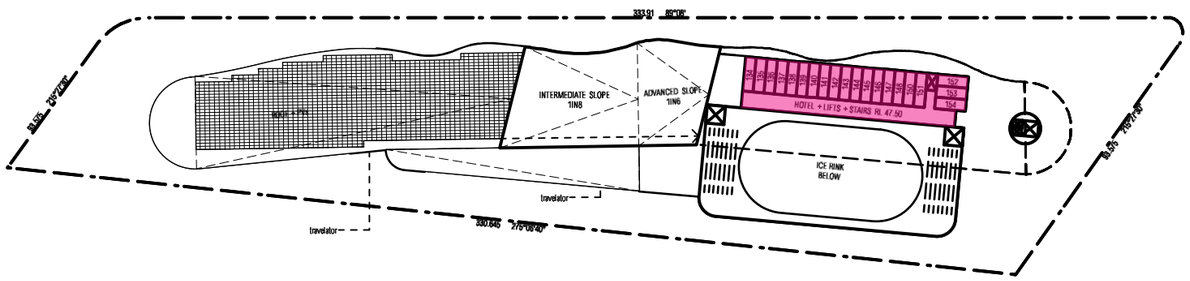
1:2000 @ A3
LEVEL 11



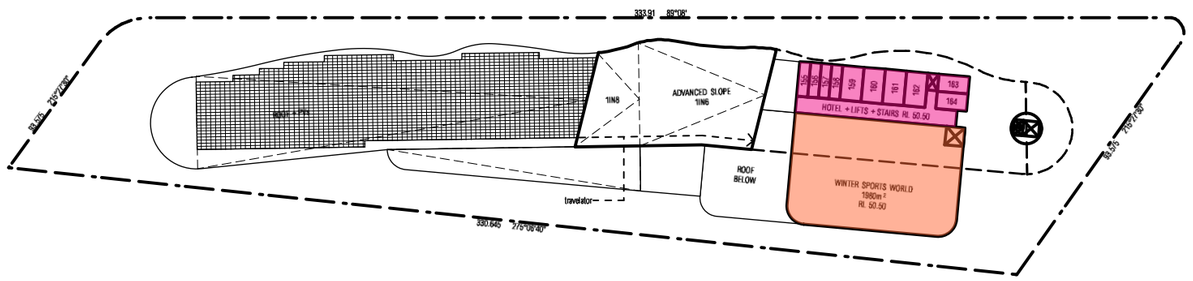
LEVEL 7
1:2000 @ A3



LEVEL 10
1:2000 @ A3



1:2000 @ A3
LEVEL 6



1:2000 @ A3
LEVEL 9

BASEMENT | CAR PARKING | CAFE + BAR | WINTER SPORTS WORLD | HOTEL
SKI RAMPS + ICE RINK | CONFERENCE CENTRE | LANDSCAPE AREA | DEEP SOIL

0 10.0 20.0 30.0m

notes

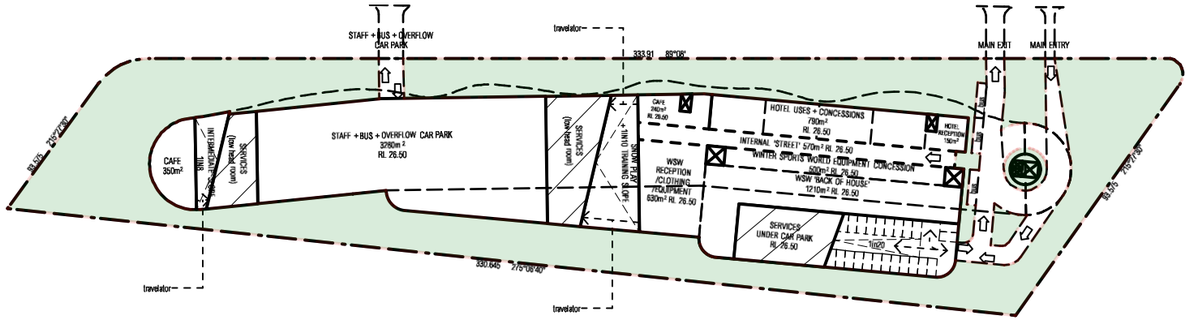
all work to be carried out in accordance with bca, saa codes and conditions of council. measurements in mm's unless noted. use figured dimensions. do not scale drawings. site measure before starting work. refer all discrepancies to the architect.

rev	date	amendment
A	28.06.18	issue to council

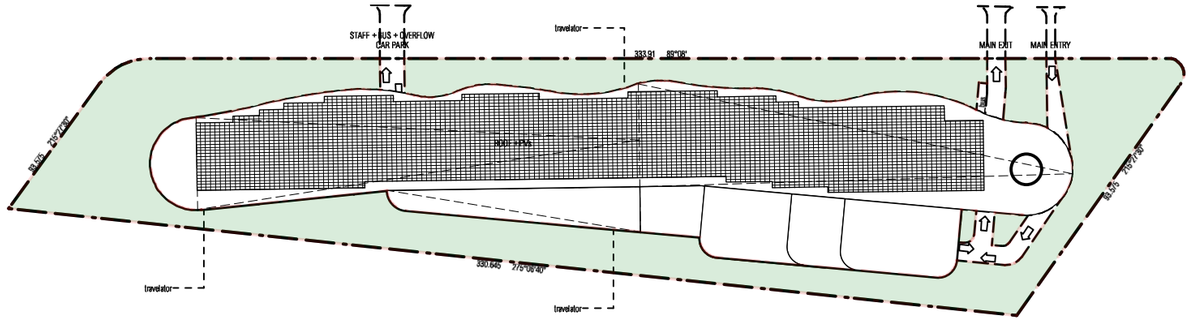
rev	date	amendment

environa studio
224 riley st surry hills 2010
t: 02 9211 0000
w: www.environastudio.com.au
architects registration number 6239

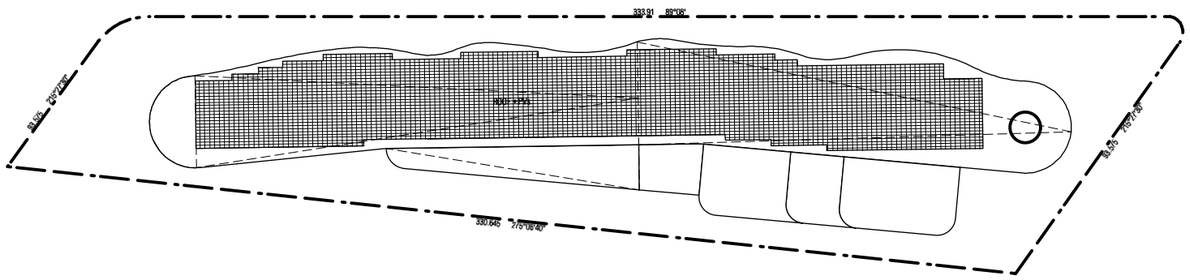
project: WINTER SPORTS WORLD	location:	drawing: AREA CALCULATION SUMMARY	stage: D.A.	project no.: 781	dwg no.: 982
for/client: WSW winter sports world	at: JAMISONTOWN	drawing: SHEET 3	chkd: TW drwn: OZ	date: 28/06/18	revision: A



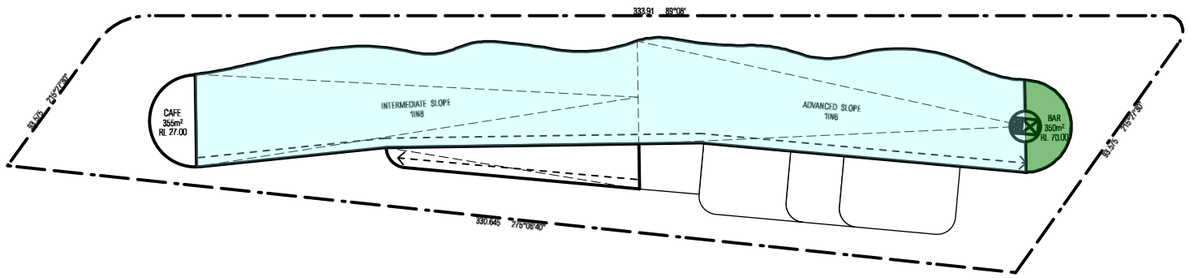
1:2000 @ A3
LANDSCAPE AREA



DEEP SOIL
1:2000 @ A3



ROOF PLAN
1:2000 @ A3



1:2000 @ A3
LEVEL 12

BASEMENT | CAR PARKING | CAFE + BAR | WINTER SPORTS WORLD | HOTEL
SKI RAMPS + ICE RINK | CONFERENCE CENTRE | LANDSCAPE AREA | DEEP SOIL

PROJECT	WINTER SPORTS WORLD										
SITE AREA	24320										
FSR control	N/A										
FSR control area	N/A										
AREA CALCULATION		**WSW**	**HOTEL**	**CAFE**	**CONFERENCE CENTRE**	**SKI RAMPS**	**ICE RINK**	**CAR PARKING**	**BAR**	**TOTAL FLOOR SPACE**	**GFA**
SUBFLOOR SPACE	6975									6975	
LEVEL 1		3717	152	600				712		5181	4469
LEVEL 2								4376		4376	0
LEVEL 3			1760		632			3009		5400	2392
LEVEL 4			1760			2802		3009		7570	4561
LEVEL 5			1760		632			3009		5400	2392
LEVEL 6			1760					3009		4768	1760
LEVEL 7			1555				3009			4564	4564
LEVEL 8			1296							1296	1296
LEVEL 9		1983	913							2896	2896
LEVEL 10		1353	620							1973	1973
LEVEL 11											
LEVEL 12						8882			353	9235	9235
TFS (EXCL BASEMENT)		**7052**	**11575**	**600**	**1264**	**11684**	**3009**	**17122**	**353**	**52659**	
TOTAL FLOOR SPACE	**6975**	**7052**	**11575**	**600**	**1264**	**11684**	**3009**	**17122**	**353**	**59634**	
PROPOSED GFA		**7052**	**11575**	**600**	**1264**	**11684**	**3009**		**353**		**35537**
PROPOSED FSR	**1.461**										
OTHERS										**PROPOSED**	**%**
LANDSCAPE AREA										**11108**	**45.7%**
DEEP SOIL										**10132**	**41.7%**

AREA CALCULATION SUMMARY
NOT TO SCALE

0 10.0 20.0 30.0m

notes
all work to be carried out in accordance with bca, saa codes and conditions of council. measurements in mm's unless noted. use figured dimensions. do not scale drawings. site measure before starting work. refer all discrepancies to the architect.

rev	date	amendment
A	28.06.18	issue to council

rev	date	amendment

environa studio
224 riley st surry hills 2010
t: 02 9211 0000
w: www.environastudio.com.au
architects registration number 6239

project	location	drawing	stage	project no.	dwg no.
WINTER SPORTS WORLD		AREA CALCULATION SUMMARY	D.A.	781	983
for/client: WSW winter sports world	at: JAMISONTOWN	drawing: SHEET 4	chkd: TW drwn: OZ	date: 28/06/18	revision: A