



TRAFFIC IMPACT ASSESSMENT

Oxford Falls Grammar School
1078 Oxford Falls Road, Oxford Falls

Reference: 19.476r01v03
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TRAFFIX
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1. INTRODUCTION

TRAFFIX has been commissioned by EPM Projects Pty Ltd on behalf of Oxford Falls Grammar School to undertake a traffic impact assessment (TIA) relating to proposed alterations and additions to the campus at 1078 Oxford Falls Road, Oxford Falls. The development is located within the Northern Beaches Council LGA and has been assessed under that Council's controls, as well as relevant State Government policies where appropriate. This TIA forms part of the Review of Environmental Factors (REF) prepared under Part 5 of the EP&A Act.

This report documents the findings of our investigations and should be read in the context of the overall REF documentation. It should also be noted that the proposed works are permitted without consent.

The report is structured as follows:

- ▶ Section 2: Describes the site and its location
- ▶ Section 3: Documents existing traffic conditions
- ▶ Section 4: Describes the proposed development
- ▶ Section 5: Assesses the parking requirements
- ▶ Section 6: Assesses traffic impacts
- ▶ Section 7: Discusses access and internal design aspects
- ▶ Section 8: Presents the overall study conclusions



2. LOCATION AND SITE

The subject site is known as Oxford Falls Grammar School at 1078 Oxford Falls Road, Oxford Falls and is located approximately 15 kilometres north of Sydney CBD. More specifically, it is situated in the northwest corner of the Oxford Falls Road and Dreadnought Road intersection and is legally known as Lot 100 in DP1240806.

The site has an irregular configuration with a total site area of approximately 3.7 hectares. It has an eastern frontage to Oxford Falls Road of 305 metres and a southern frontage to Dreadnought Road of 187 metres. The remaining northern and western boundaries to public recreation areas measure 83 metres and 306 metres, respectively.

A Location Plan is presented in **Figure 1**, with a Site Plan presented in **Figure 2**. Reference should also be made to the Photographic Record presented in **Appendix A**, which provides an appreciation of the general character of roads and other key attributes in proximity to the site.

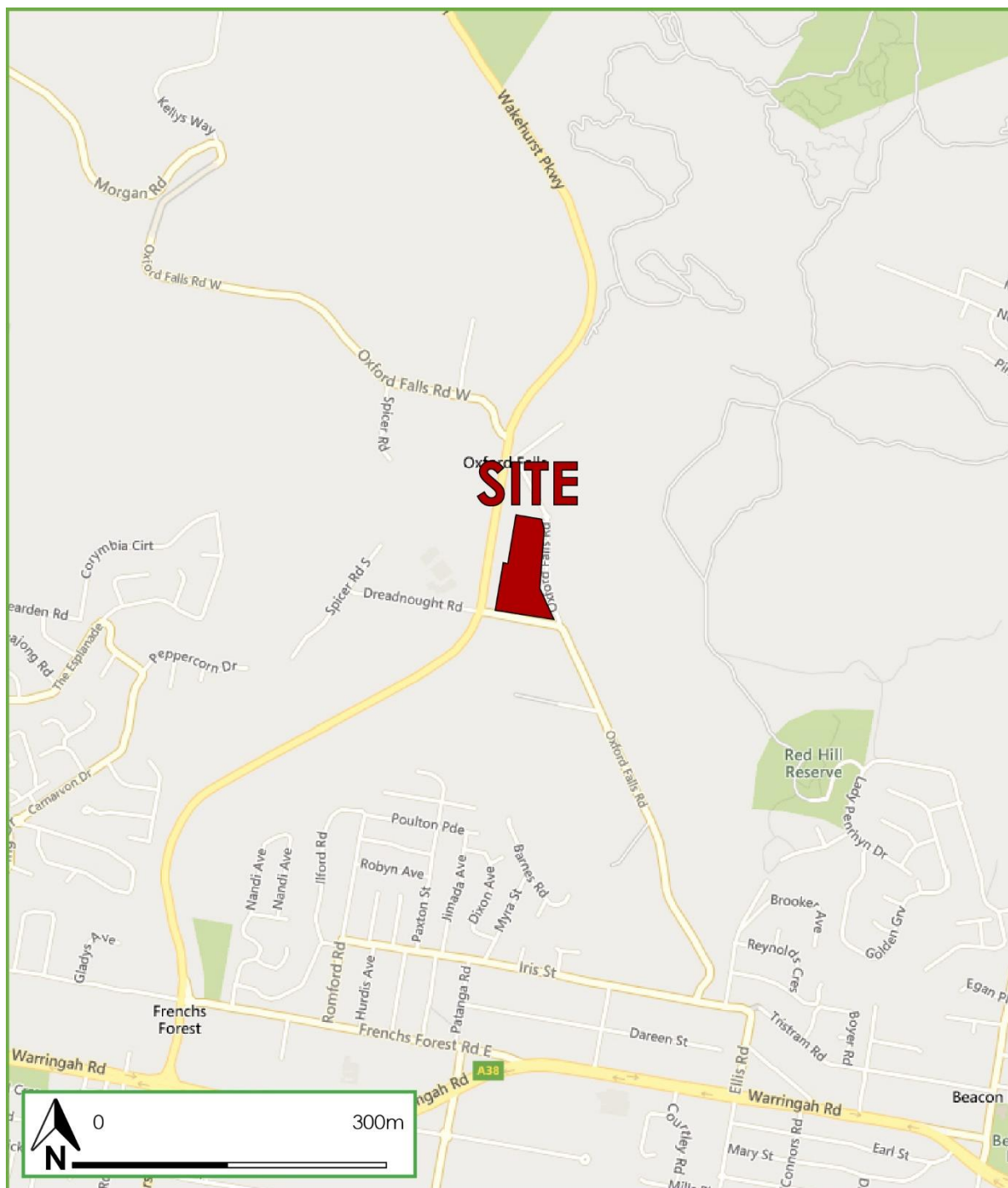


Figure 1: Location Plan



Figure 2: Site Plan



3. EXISTING TRAFFIC CONDITIONS

3.1 Road Network

The road hierarchy in the vicinity of the site is shown in **Figure 3** with the following roads of particular interest:

- ▶ Wakehurst Parkway: an RMS Main Road (MR 397) that traverses north-south between Pittwater Road in the north and Clontarf Street in the south. Within the vicinity of the site, it is subject to 80km/h speed zoning and generally accommodates a single lane of traffic in each direction.
- ▶ Oxford Falls Road: a local road that traverses north-south and is separated into two (2) sections comprising the northern section between Morgan Road and the Wakehurst Parkway and the southern section between Meatworks Avenue and Warringah Road. Within the vicinity of the site, it is subject to 50km/h speed zoning with '40km/h School Zone' applicable during school days. Oxford Falls Road accommodates a single lane of traffic in each direction and permits on-street parking along the frontage of the site.
- ▶ Dreadnought Road: a local road that traverses east-west between Oxford Falls Road in the east and Spicer Road in the west. It is subject to 50km/h speed zoning and accommodates a single lane of traffic in each direction. Dreadnought Road generally permits on-street parking.

It can be seen from Figure 3 that the site is ideally located within the main arterial road serving the region, being the Wakehurst Parkway via Dreadnought Road. In addition, Oxford Falls Road provides an alternate route to the residential catchment in the south. As such, traffic is able to be distributed effectively, thereby reducing traffic impacts.

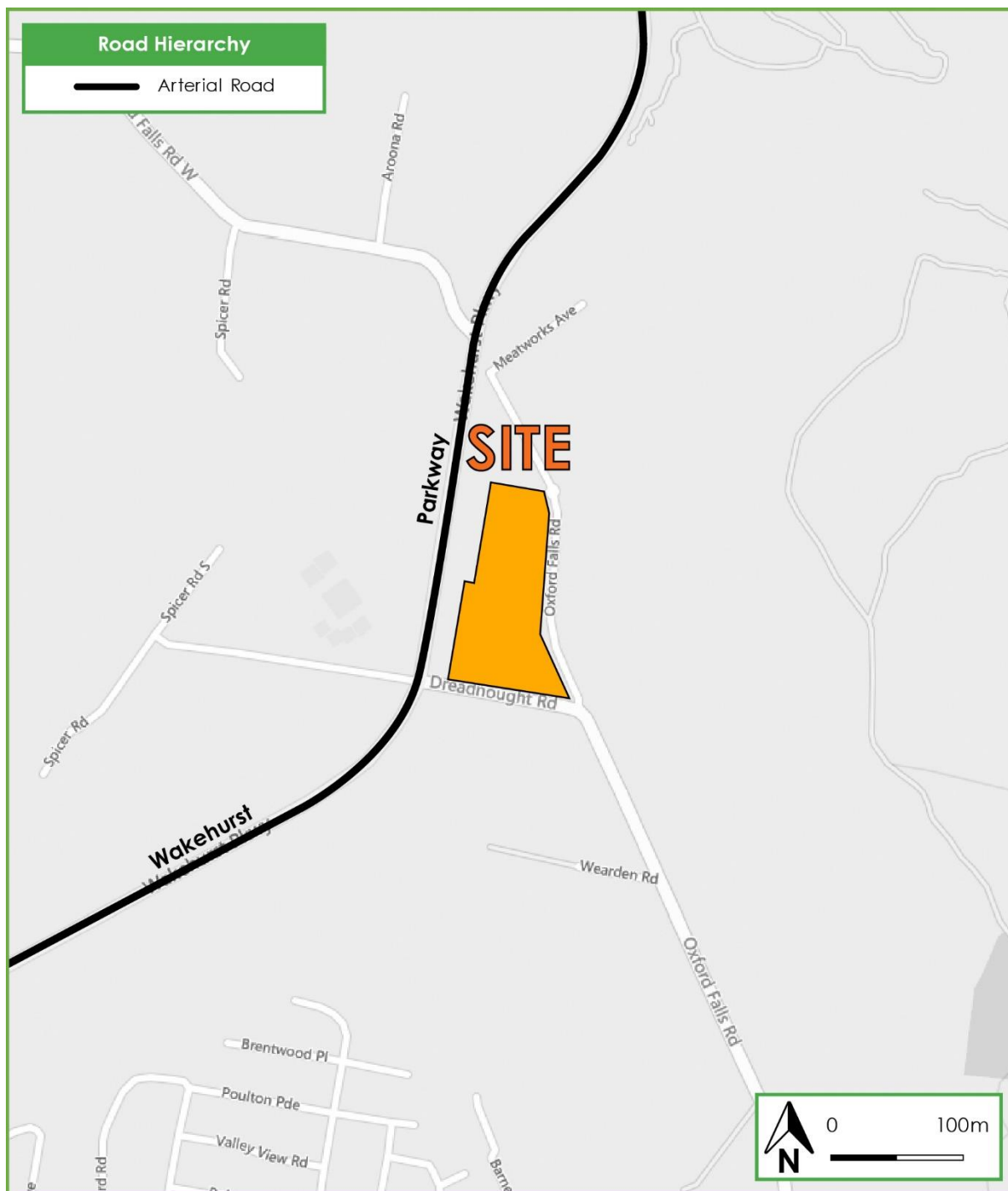


Figure 3: Road Hierarchy



3.2 Existing Parking Provision

3.2.1 Off-Street Parking

The school currently provides approximately 128 off-street parking spaces, situated within the following car parking areas:

Northern Car Park

Accommodates 72 car parking spaces, including a single accessible space, accessible via a combined entry / exit access from the western leg of the Oxford Falls Road roundabout; and

Eastern Car Park

Accommodates 56 car parking spaces, including two (2) accessible spaces, accessible via separate entry / exit access driveways off Oxford Falls Road.

3.2.2 On-Street Parking

There are various on-street parking spaces along the eastern and southern frontages of the site that are available for staff, parents and students. These on-street spaces and associated parking restrictions are summarised below:

Oxford Falls Road (eastern frontage)

'No Stopping' restrictions are applicable along the eastern side of the road, with unrestricted on-street parking generally permitted on the western side, noting the following restrictions:

- ▶ 'No Stopping' between Monday to Friday at 8:30am – 9:30am and 2:30pm – 3:30pm, situated between Dreadnought Road and the existing driveway crossing; and
- ▶ 'No Parking' on School Days at 8:00am – 9:30am, situated between the separated entry and exit driveways of the eastern car park.

Dreadnought Road (southern frontage)

Generally, permits on-street parking along both sides of the road between Oxford Falls Road and the Wakehurst Parkway, noting the following restriction:

- ▶ 'No Parking' on School Days at 7:30am – 9:30am and 2:30pm – 4:00pm, situated on the southern side road, near the Wakehurst Parkway intersection.



4. DESCRIPTION OF PROPOSED DEVELOPMENT

A detailed description of the proposed development is provided in the REF. In summary, the proposed development comprises the following components:

- ▶ Main building works, including the construction of:
 - New ground floor administration building and associated car park for staff with a total provision for 84 car parking spaces; and
 - First floor library.
- ▶ It is noteworthy that the REF seeks no change to staff or student numbers so that the primary purpose is to increase and improve the range of facilities provided to the current school population, while also enhancing the safety and amenity of the school environment.

The parking and traffic impacts arising from the development are discussed in **Section 5** and **Section 6**. Reference should be made to the plans which are presented at reduced scale in **Appendix B**.



5. PARKING REQUIREMENTS

5.1 Car Parking

It is emphasised that this development is permitted without consent and as such, adherence to the Development Control Plan (DCP) is not necessarily required. However, for the purposes of this report, the Warringah DCP 2011 was utilised as a guide and reference point. More specifically, Part H, Appendix 1 of the DCP provides the following advice:

1 space per staff member in attendance, plus as relevant, adequate pick-up/set-down area on site, plus

- Adequate provision of bicycle racks, plus*
- Adequate provision for student parking, plus*
- Provision of bus standing and turning area*

As previously mentioned, the proposal involves no increase to staff or student numbers. As such, the development will generate no increase in parking demand, hence no requirement for additional parking spaces.

Nevertheless, the proposal presents an opportunity to improve the current on-site parking provision. With this in mind, the development proposes an additional 84 staff car parking spaces, equating to a net increase of approximately 66%. These additional spaces are proposed to be located at the ground floor car park, accessible from Dreadnought Road.

In summary, the school proposes to provide a total of 212 car parking spaces (128 existing + 84 additional). As student and staff numbers remain unchanged, this net increase in parking will provide an opportunity to accommodate higher peak demands more effectively and safely within the site. This is clearly a public benefit.

5.2 Motorcycle Parking

The Warringah DCP does not specify motorcycle parking rates or provisions for school developments and as such, no additional (dedicated) motorcycle spaces are proposed. This is considered appropriate, given no increase in the staff and student population. Nevertheless,



it is evident that the significant net increase in car parking is also able to be used by motorcycles.

5.3 Accessible Parking

The Warringah DCP does not specify an accessible parking rate or provision for school developments. As such, the proposed development has been assessed under the Building Code of Australia (BCA). In accordance with the BCA, the development is classified as a 'Class 9b' building which attracts the following accessible parking rate:

1 space per for every 100 car parking spaces or part thereof

Application of this rate to the proposed net increase of 84 car parking spaces, results in a requirement for a single accessible space. In response, the development proposes one (1) accessible parking space within the new ground floor car park, in compliance with the BCA.

5.4 Bicycle Parking

The Warringah DCP, Part C3 (A) provides bicycle parking provisions for educational establishments at the recommended rate of:

1 per 5 students over Year 4 – Protected from weather

As the proposal involves no increase to the student population, application of the above rate results in no requirement for additional bicycle spaces. This is considered appropriate, given the nature of the proposal and lack of bicycle infrastructure in the surrounding streets.

5.5 Refuse Collection and Servicing

The proposal involves no increase to the servicing demands of the school. Accordingly, the development proposes to retain the existing refuse collection and service arrangements, which have been operating sufficiently for the current demands of the school. As such, these existing arrangements are considered acceptable, given the nature and scale of the proposal.



6. TRAFFIC AND TRANSPORT IMPACTS

The proposal involves no increases in the student and staff populations for Oxford Falls Grammar School. Accordingly, the impacts on the surrounding roads of Dreadnought Road and Oxford Falls Road to be negligible impacts given the traffic generating potential of the school will be unchanged. Rather, the proposal would result in the re-distribution of existing traffic movements associated with 84 staff car parking spaces proposed at a new car park on Dreadnought Road. This re-distribution is considered acceptable, given the following:

- ▶ The main pick-up and drop-off areas and pedestrian entrances are situated along Oxford Falls Road. As such, the re-distribution of staff traffic onto Dreadnought Road will increase the safety of pedestrians along the main frontage of the school;
- ▶ The provision of additional off-street parking spaces would increase the availability of on-street parking along Oxford Falls Road and Dreadnought Road, thus considered a greater public benefit;
- ▶ The anticipated traffic increase and proposed vehicular access on Dreadnought Road are envisaged to have negligible impacts, given the lack of pedestrian facilities or footpaths along the southern frontage of the school;
- ▶ SIDRA Intersection modelling has been undertaken at the proposed access location and demonstrates minimal impacts to Dreadnought Road. This is discussed further in **Section 7.2.**

In summary, the proposal is anticipated to result in negligible traffic generation, given no increase to staff and student numbers, with existing traffic being re-distributed onto the surrounding network.



7. ACCESS AND INTERNAL DESIGN ASPECTS

7.1 Vehicular Access

The development proposes a new ground floor level car park with a total provision for 84 staff parking spaces with access to Dreadnought Road, a local road. It will therefore require a Category 1 driveway under AS2890.1 (2004), being a combined entry and exit width of 3.0 to 5.5 metres. In response, the development proposes to utilise an existing driveway crossing measuring approximately 6.6 metres at the boundary and 9.4 metres wide adjoining the road. This access is therefore superior to the minimum requirements of AS2890.1 (2004), thus acceptable.

7.2 SIDRA Modelling

7.2.1 Traffic Surveys

Traffic surveys were undertaken on 25 September 2019, between 7:00am and 9:00am (morning peak period) and 2:00pm and 4:00pm (evening peak period). The traffic volumes in these surveys were used to form the base case volumes for software modelling undertaken to assess the proposed vehicular access on Dreadnought Avenue.

7.2.2 Performance Indicators

The SIDRA Intersection 8 model produces a range of outputs, the most useful of which are the Degree of Saturation (DoS) and Average Vehicle Delay per vehicle (AVD). The AVD is in turn related to a level of service (LoS) criteria. These performance measures can be interpreted using the following explanations:

DoS the DoS is a measure of the operational performance of individual intersections. As both queue length and delay increase rapidly as DoS approaches 1, it is usual to attempt to keep DoS to less than 0.9. When DoS exceeds 0.9 residual queues can be anticipated, as occurs at many major intersections throughout the metropolitan area during peak periods. In this regard, a practical limit at 1.1 can be assumed. For intersections controlled by roundabout or give way/stop control, satisfactory intersection operation is generally indicated by a DoS of 0.8 or less.



AVD the AVD for individual intersections provides a measure of the operational performance of an intersection. In general, levels of acceptability of AVD for individual intersections depend on the time of day (motorists generally accept higher delays during peak commuter periods) and the road system being modelled (motorists are more likely to accept longer delays on side streets than on the main road system).

LoS this is a comparative measure which provides an indication of the operating performance of an intersection as shown in **Table 1** below.

Table 1: Intersection Performance Indicators (RMS)

Level of Service (LoS)	Average Delay per Vehicle (sec/veh)	Traffic Signals, Roundabout	Give Way and Stop Signs
A	Less than 14	Good Operation	Good Operation
B	15 to 28	Good with acceptable delays and spare capacity	Acceptable delays and space capacity
C	29 to 42	Satisfactory	Satisfactory but accident study required
D	42 to 56	Operating near capacity	Near capacity and accident study required
E	57 to 70	At capacity; at signals incidents will cause excessive delays. Roundabouts require other control mode	At capacity and requires other control mode
F	More than 70	Unsatisfactory and requires additional capacity	Unsatisfactory and requires other control mode or major treatment

7.2.3 Model Assumptions

As discussed in **Section 6**, the proposal is anticipated to result in no increase in traffic generation. Accordingly, a conservative assessment was undertaken for the proposed ground floor car park on Dreadnought Road, noting the following assumptions:



- ▶ Morning peak period between 8:00am and 9:00am, with a directional split of 90% in and 10% out.
- ▶ Evening peak period between 3:00pm and 4:00pm, with a directional split of 10% in and 90% out.
- ▶ Inbound and outbound trip distribution, as summarised below:
 - 70% of staff traffic via the Wakehurst Parkway; and
 - 30% of staff traffic via Oxford Falls Road.
- ▶ A conservative increase in staff trip generation being:
 - 84 vehicles per hour during the morning peak period (76 in, 8 out); and
 - 84 vehicles per hour during the evening peak period (8 in, 76 out).

It is emphasised that the above assumptions are based on a highly conservative assessment, with the provision of 84 car parking spaces not expected to generate 84 vehicle trips over the 1 hour peak period. Furthermore, existing staff movements on the surrounding road network were captured in the traffic counts, and these trips have not been discounted from the SIDRA model.

7.2.4 Access Performance

A summary of the modelled results is provided in **Table 2** below. Reference should also be made to the SIDRA outputs provided in **Appendix C**, which provide detailed results for individual lanes and approaches.

Table 2: Proposed Access Performance

Intersection	Control	Scenario	Period	Degree of Saturation	Average Delay (s)	Level of Service
Proposed Access and Dreadnought Road	Give-way	Base + Proposed Access	AM	0.018	10.8	A
			PM	0.097	6.9	A

It can be seen from Table 2 that the proposed access on Dreadnought Road would experience average delays of 10.8 and 6.9 seconds during the morning and evening peak periods, respectively. More importantly, despite this conservative assessment, the analysis identifies a LoS 'A' during both peak periods, with the proposed access at good operation. The right-turn



movement from Dreadnought Road into the driveway access experiences an average delay of 9.8 seconds during the morning peak period (considered worst-case). This is considered a moderate impact with no external upgrades required along Dreadnought Road.

7.3 Internal Design

The ground floor car park complies with the requirements of AS2890.1 (2004) and AS2890.6 (2009), with the following characteristics noteworthy:

7.3.1 Parking Modules

- ▶ Staff car parking spaces have been designed in accordance with AS2890.1 (2004) User Class 1A, being a minimum width of 2.4m and length of 5.4m.
- ▶ Parallel spaces are to be designed in accordance with Figure 2.5 of AS2890.1 (2004).
- ▶ The single accessible parking space has been designed in accordance with AS2890.6 (2009), being a minimum width of 2.4m, length of 5.4m and provide an adjacent shared zone with the same dimensions.
- ▶ All spaces located adjacent to obstructions of greater than 150mm in height are provided with an additional width of 300mm.
- ▶ Dead-end aisles are provided with the required 1.0m aisle extension in accordance with Figure 2.3 of AS2890.1 (2004).

7.3.2 Clear Head Heights

- ▶ A minimum clear head height of 2.2m is to be provided for all areas within the car park as required by AS2890.1 (2004).
- ▶ A minimum clear head height of 2.5m is to be provided above all accessible spaces and shared zones in accordance with AS2890.6 (2009).

7.3.3 Other Considerations

- ▶ All columns are located outside of the parking space design envelope shown in Figure 5.2 of AS2890.1 (2004).



- ▶ A visual splay is to be provided at the access driveway in accordance with Figure 3.3 of AS2890.1 (2004).

7.4 Summary

In summary, the internal configuration of the car park has been designed in accordance with AS2890.1 (2004) and AS2890.6 (2009). It is however envisaged that any minor amendments considered necessary (if any) can be amended during the NCC compliance stage.



8. CONCLUSION

The following is noteworthy:

- ▶ This traffic impact assessment has been undertaken to form part of a REF application under Part 5 of the EP&A Act. The REF relates to proposed alterations and additions to the Oxford Falls Grammar School at 1078 Oxford Falls Road, Oxford Falls. This proposal involves the construction of a new ground floor administration building, first floor library and associated car park with significant additional parking, notwithstanding that the proposal involves no increase to the staff and student populations of the school and is permitted without consent.
- ▶ The proposed development provides an additional 84 staff car parking spaces, including a single accessible parking space at a new ground level car park off Dreadnought Road. These additional car parking spaces are envisaged to better accommodate the current parking demands of the school and in turn, provide a greater public benefit by increasing the availability of on-street parking in the locality.
- ▶ The proposal is anticipated to result in negligible traffic generation, given no increase to staff and student numbers, with existing traffic being re-distributed onto Dreadnought Road. This re-distribution is considered acceptable given the various benefits as discussed.
- ▶ The proposal is envisaged to have negligible impacts on the surrounding road network, given the traffic generating potential of the school will be unchanged. The traffic impacts of the proposed access on Dreadnought Road has been conservatively assessed using SIDRA 8 intersection modelling, resulting in a level of service 'A' during both the morning and evening peak periods. As such, the proposal is anticipated to have negligible traffic impacts, with no external improvements required.
- ▶ The proposed development will enhance the safety and efficiency of the school environment generally, with no adverse traffic planning impacts.

This traffic impact assessment therefore demonstrates that the development is supportable on traffic planning grounds.

APPENDIX A

Photographic Record



View looking northeast from Dreadnought Road towards the subject site.



View looking north from Dreadnought Road towards the proposed access.



View looking east from the subject site along Dreadnought Road.



View looking west from the subject site along Dreadnought Road.

APPENDIX B

Reduced Plans



DRAWING LIST

- REF101 SITE PLAN
REF201 GROUND LEVEL PLAN
REF202 LEVEL 1 PLAN
REF203 ROOF PLAN
REF311 ELEVATIONS - SHEET 1
REF312 ELEVATIONS - SHEET 2
REF321 SECTIONS
REF401 SHADOW DIAGRAMS
REF601 PERSPECTIVES

ABBREVIATIONS

A/C	AIR CONDITIONING	FP	FIRE INDICATOR PANEL	REF	REFRIGERATOR
AFSL	ABOVE STRUCTURAL FLOOR LEVEL	FLR	FLOOR	RA	RETURN AIR
AL	ALUMINIUM	FP	FIBROUS PLASTER	RAO	RADIUS
AO	ACCESS OPENING	FR	FIRE RESISTANCE LEVEL	RC	REINFORCED CONCRETE
AP	ACCESS PANEL	FR	FLOOR FINISH TO SEWER	RCH	RANGE HOOD
AT	ACUSTIC TILE	GALV	GALVANISED	RH	ROBE HOOK
B	BOLLARD	GD	GATED DRAIN	RHS	RECTANGULAR HOLLOW SECTION
BAL	BALUSTRADE	GL	GLAZING	RI	RENDER JOINT (V-JOINT)
BDY	BOUNDARY	GND	GROUND	RL	REDUCED LEVEL
BH	BORERHOLE	GPO	GENERAL PURPOSE (POWER) OUTLET	RSW	RIGHT OF WAY
BHD	BULKHEAD	GR	GRAB RAIL	RS	ROLLER SHUTTER
BK	BRICK	GRANO	GRANOLITHIC	RW	RETAINING WALL
BLG	BUILDING	GRC	GLASS REINFORCED CONCRETE/CEMENT	RWH	RAINWATER HEAD
BLK	BLOCKWORK	GT	GATE	RWO	RAINWATER OUTLET TO STORMWATER
BN	BALUNOSE	GTP	GREASE TRAP	RWP	RAINWATER PIPE
BCE	BRICK-ON-EDGE	HYD	HYDRANT	SA	SUPPLY AIR
BSN	BASIN	HC	HOSE COOK	SC	STEEL COLUMN
BTH	BATH	HMR	HIGH MOISTURE RESISTANT	SCR	SUNSCREEN
BWK	BRICKWORK	HR	HANDRAIL	SCT	SUSPENDED CEILING TILE
BWU	BUILDING WATER UNIT	HTR	HEATER	SD	SEWER DRAIN
CB	CONCRETE BLOCK	HW	HOT WATER	SFL	STRUCTURE FINISHED LEVEL
CCTV	CLOSED CIRCUIT TELEVISION	HND	HARDWOOD	SHB	SHOWER BATH
CD	CLOTHES DRYER	HNU	HOT WATER/LANT	SHR	SHOWER
CFC	COMPRESSED FIBROUS CEMENT	ID	INSIDE DIAMETER	SHS	SQUARE HOLLOW SECTION
CHS	CIRCULAR HOLLOW SECTION	IL	INVERT LEVEL	SK	SKIRTING
CI	CAST IRON	INCL	INCLUDE	SKL	SKYLIGHT
CIP	CAST IRON PIPE	INT	INTERNAL	SKK	SINK
CJ	CONTROL JOINT	IO	INSPECTION OPENING	SP	SEWER PIT
CL	CENTRE LINE	J	JOINT	SPRC	SPECIFICATION
CNR	CLEANER	JT	JOINT	SPL	SPLASHBACK
COL	COLUMN	KB	KERB	SRL	SHOWER ROSE
CONC	CONCRETE	KG	KERB AND GUTTER	SS	STAINLESS STEEL
CP	CHROME-PLATED	KIT	KITCHEN	ST	STONE
CPT	CURB	L	LOUVER	SVP	SEWER VENT PIPE
CPT	CARPET	LDY	LAUNDRY	SW	STORM WATER
CSE	CEMENT RENDER	LS	LOUVER SCREEN	SWP	STORMWATER PIT
CSK	COUNTERSINK	M	MIRROR	T	TILE
CT	COOK TOP	MC	METAL CLADDING	TEL	TELEPHONE
CTR	CENTRE	MDF	MEDIUM DENSITY FIBREBOARD	TGSI	TACTILE INDICATORS
CW	COLD WATER	MP	MISCELLANEOUS	TMB	TIMBER
D	DOOR	MSC	MISCELLANEOUS	TOH	TOP OF HOH
DB	DISTRIBUTION BOARD	MJ	MISCELLANEOUS JOINT	TOK	TOP OF KERB
DF	DRINKING FOUNTAIN	NLM	NELMINE	TOW	TOP OF WALL
DG	DRAIN GROOVE	MO	MOISTURE RESISTANT	TP	TAP
DA	DIAMETER	MR	MOISTURE RESISTANT	TPH	TOILET PAPER HOLDER
DM	DIMENSION	MRS	METAL ROOF SHEETING	TR	TOWEL RAIL
DP	DAMP-PROOF	MS	MILD STEEL	TRZD	TERRAZZO
DPC	DAMP-PROOF COURSE	MSB	MAIN SATCHBOARD	TUB	LAUNDRY TUB
DPN	DAMP-PROOF MEMBRANE	MV	MECHANICAL VENT	TV	TELEVISION
DWG	DRAWING	MW	METALWORK	TYP	TYPICAL
DS	DUCTED SKIRTING	NGL	NATURAL GROUND LEVEL	UGS	UNDERGROUND
DW	DRAIN	NC	NOT IN CONTRACT	US	UNDERSIDE
EA	EACH	ND	NUMBER	UB	UNIVERSAL BEAM
EDE	ELECTRICAL DISTRIBUTION BOARD	NGM	NOMINAL	UC	UNIVERSAL COLUMN
EJ	EXPANSION JOINT	NTS	NOT TO SCALE	URN	URN
EQ	EQUAL	OD	OUTSIDE DIAMETER	V	VINYL
ESB	ELECTRICAL SWITCHBOARD	OF	OVERFLOW/RAINWATER	VB	VANITY BORN
EX	EXISTING (PRIOR TO)	OFC	OFF-FORM CONCRETE	VOS	VERIFY ON SITE
EXT	EXTERNAL	OH	OVERHEAD DOOR	VP	VENT PIPE
F	FIRE GLAZING	OP	OPENING	W	WINDOW
FB	FACE BRICK	OV	OVEN	WB	WEATHERBOARD
FBL	FACE BLOCK	P	PAINT (FINISH)	WC	WATER CLOSET
FCL	FIBROUS CEMENT	PAV	PAVING	WR	WALK-IN ROBE
FCU	FAN COIL UNIT	PB	PLASTERBOARD	WM	WASHING MACHINE
FEN	FENCE	PC	PRECAST CONCRETE	WO	WALL OVEN
FFL	FINISHED FLOOR LEVEL	PES	POSSIBLE BALLAST	WP	WASTE PIPE
FL	FINISHED FLOOR LEVEL	PFC	PARALLEL FLANGE CHANNEL	WPM	WATERPROOF MEMBRANE
FLS	FINISHED GROUND LEVEL	PLY	PLYWOOD	WR	WANDROSE
FHR	FIRE HOSE REEL	PTD	PAPER TOWEL DISPENSER	WS	WALL STIFFENER

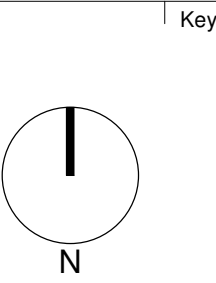
FOR REVIEW OF ENVIRONMENTAL FACTORS

OXFORD FALLS GRAMMAR SCHOOL LIBRARY / ADMIN BUILDING

1078 OXFORD FALLS ROAD
OXFORD FALLS, NSW 2100

Revisions	No.	Date	Description
1	19/12/19	DRAWING	ISSUE TO REF
2	11/03/20		

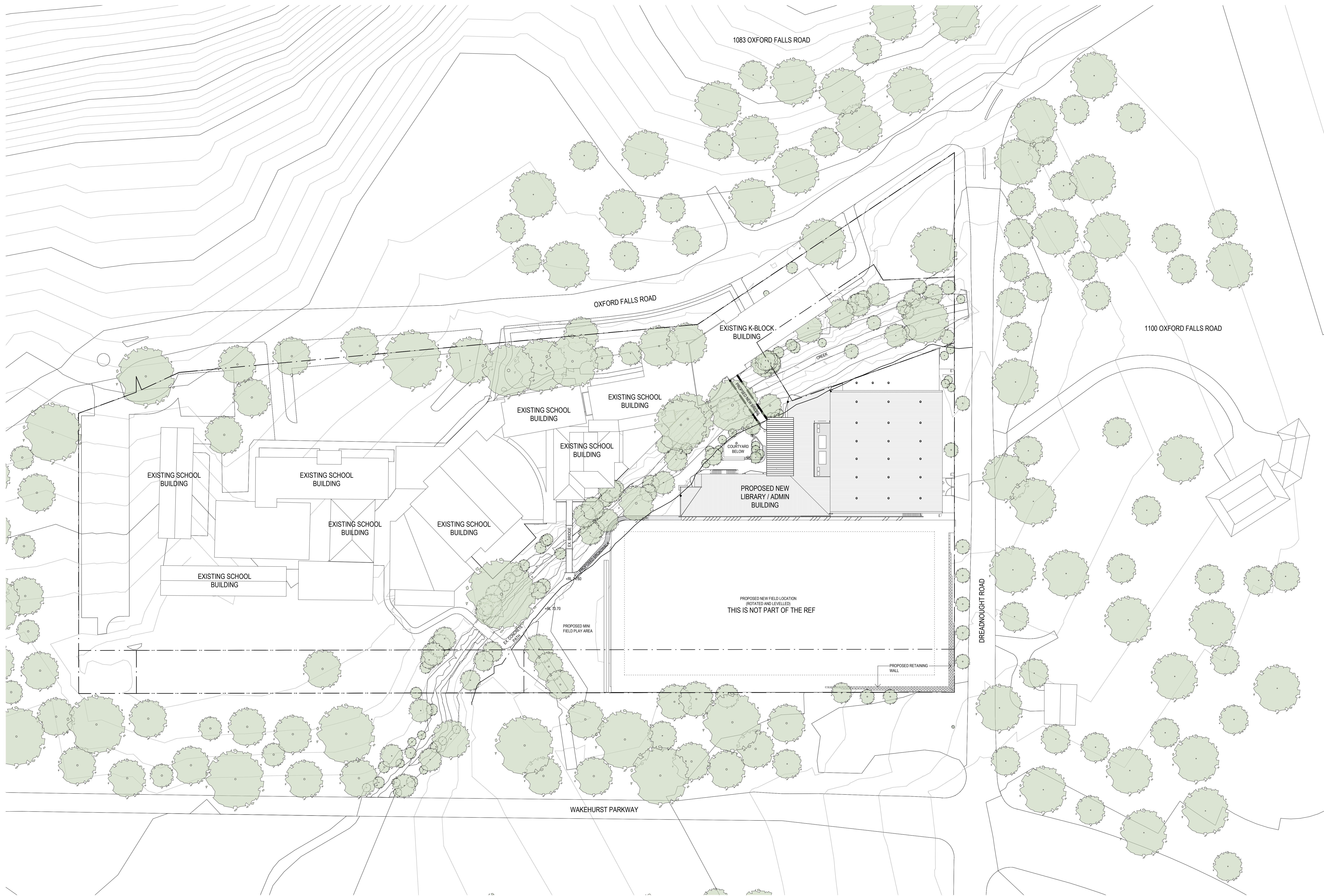
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Approved: JW

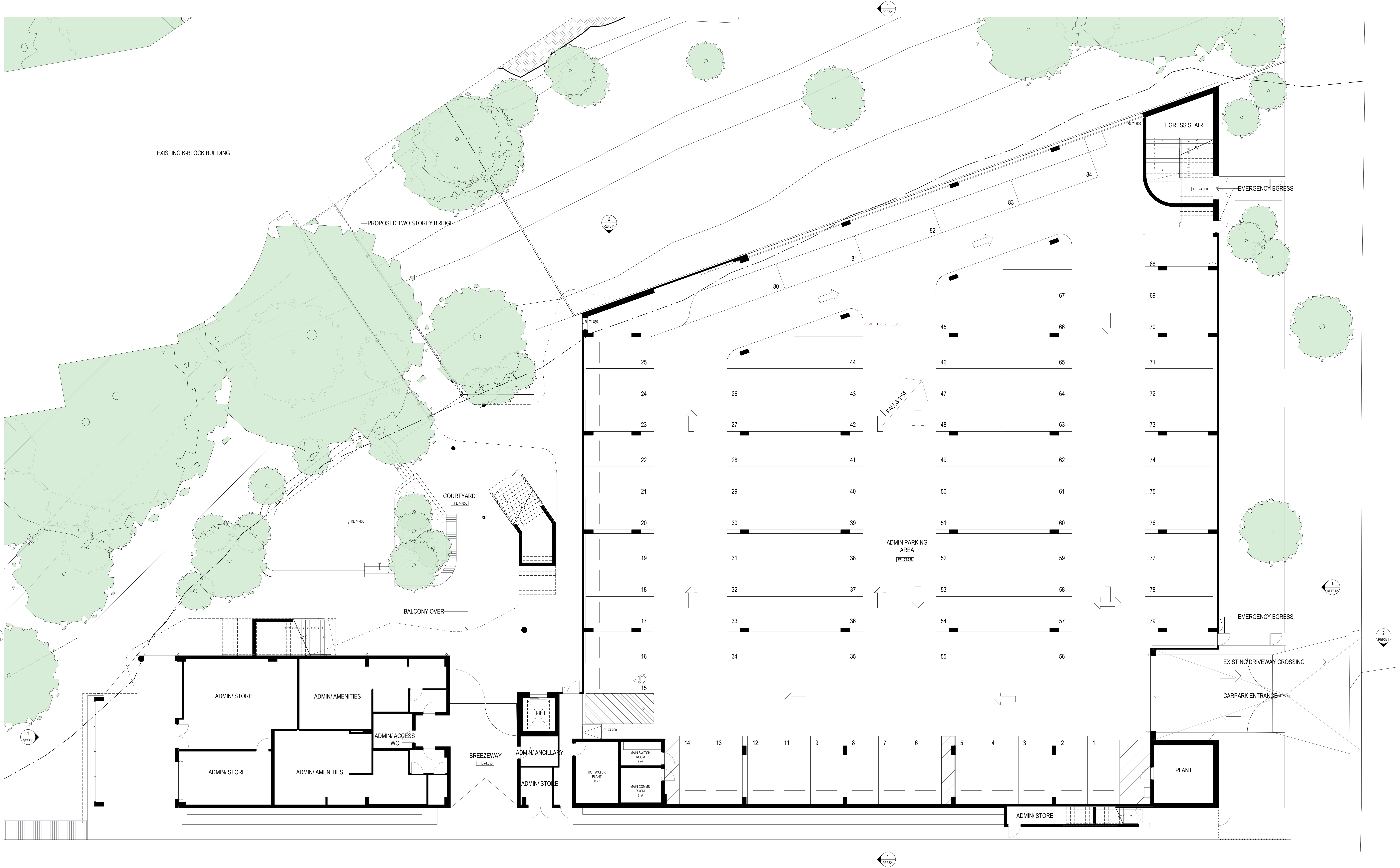


Project:
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1078 OXFORD FALLS ROAD
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Proj. No. 18025

Drawing Title:
COVER SHEET
Project Status:
NOT FOR CONSTRUCTION

Scale:
Drawing No.: REF001
Issue: 2





Revisions	No.	Date	Description	Checked	Approved
3	19/12/19	ISSUE FOR CONSULTANT COORDINATION			
4	19/12/19	SMART REF			
5	11/03/20	ISSUE TO REF			

Client	Architect	Project	Drawing Title	Scale	Drawing No.	Issue
OXFORD FALLS GRAMMAR SCHOOL	AJ+C ALLEN JACK+COTTER	OFGS LIBRARY / ADMIN BUILDING 1078 OXFORD FALLS ROAD OXFORD FALLS, NSW 2100	GROUND LEVEL PLAN	1 : 100 @A0	REF201	5

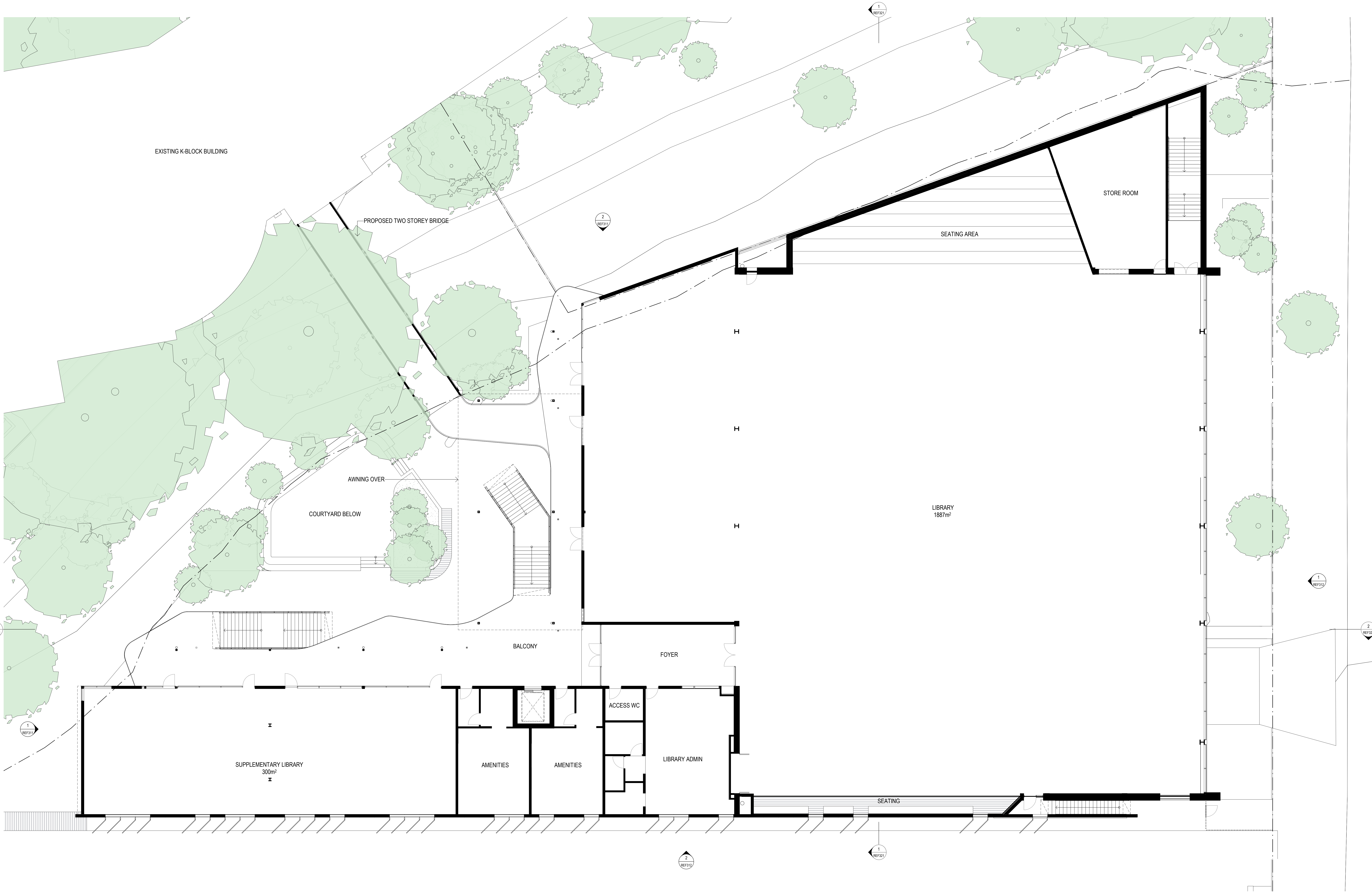
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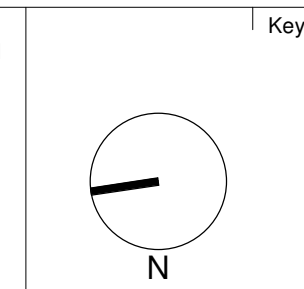
Project Status
NOT FOR CONSTRUCTION

Project Status
NOT FOR CONSTRUCTION



Revisions
No. Date Description
1 11/12/19 ISSUE FOR CONSULTANT COORDINATION
2 19/12/19 DRAFT REF
3 11/03/20 ISSUE TO REF

Checked	Approved
NZ	JW

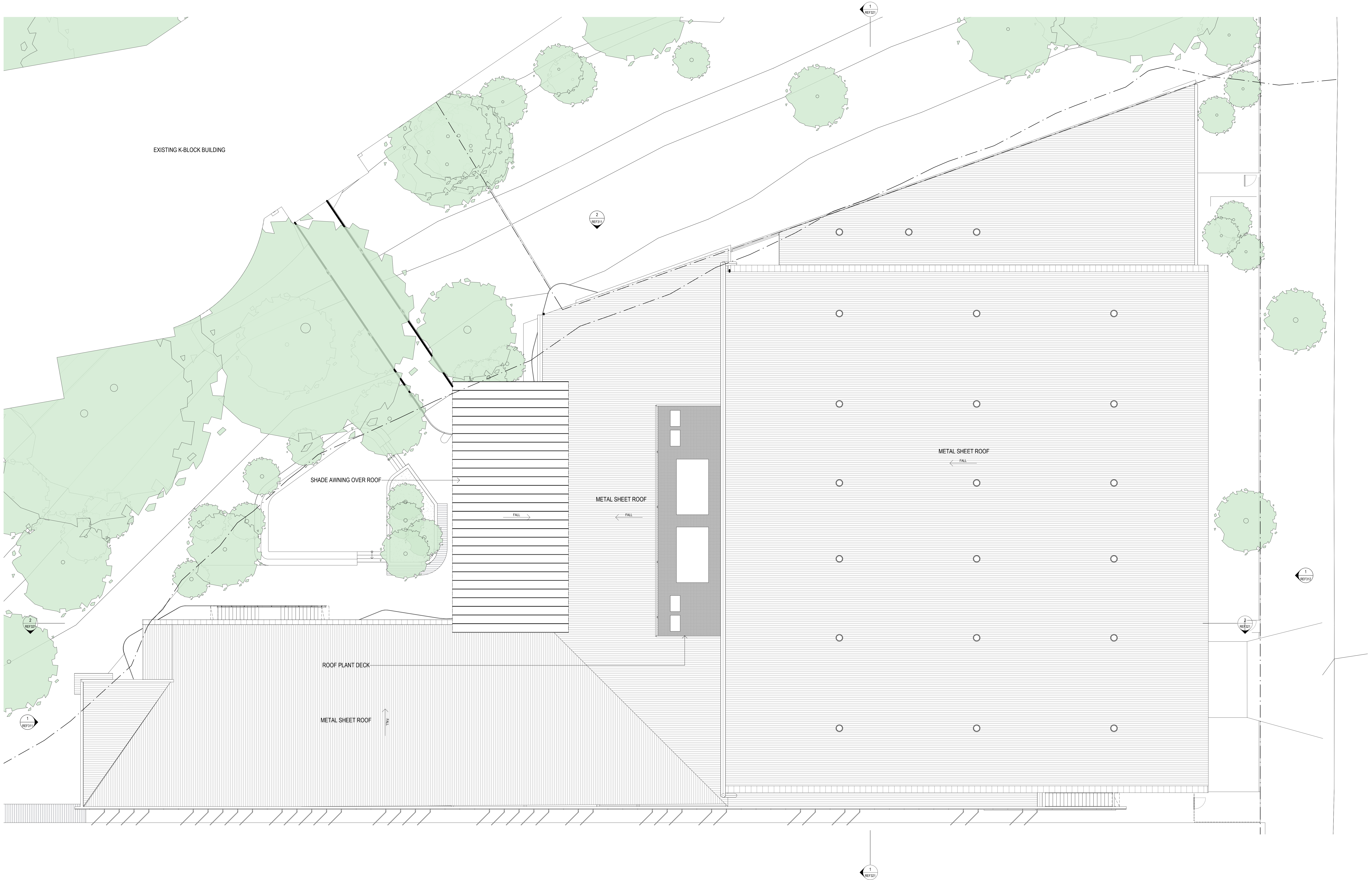


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OXFORD FALLS, NSW 2100
Proj. No. 18025

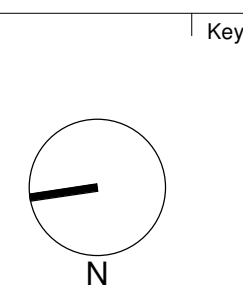
Drawing Title
LEVEL 1 PLAN
Project Status
NOT FOR CONSTRUCTION

Scale
1 : 100 @A0 REF202
Drawing No.
Issue
4



Revisions		
No.	Date	Description
1	19/12/19	DRAFT REF
2	11/03/20	ISSUE TO REF

Checked	Approved
NZ	JW



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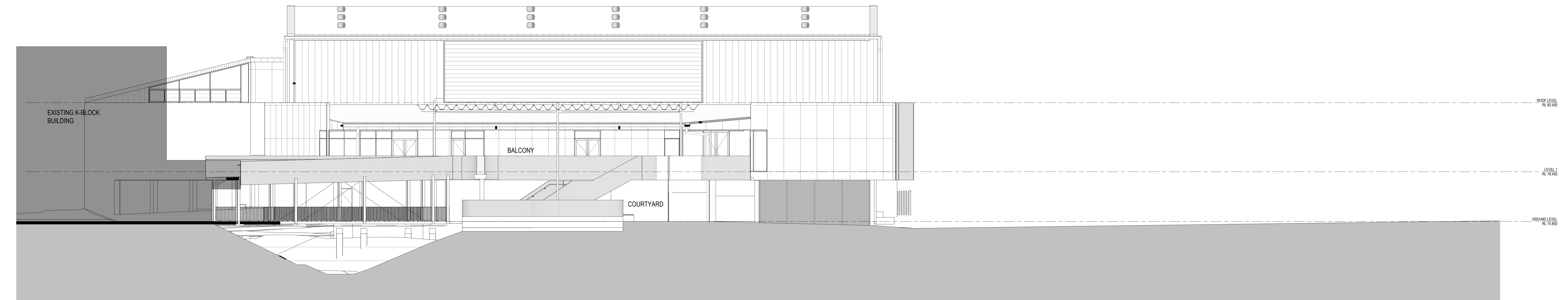
Project
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1078 OXFORD FALLS ROAD
OXFORD FALLS, NSW 2100
Proj. No. 18025

Drawing Title
ROOF PLAN
Project Status
NOT FOR CONSTRUCTION

Scale
1 : 100 @A0 REF203
Drawing No.
2
Issue
2



2 EAST ELEVATION 1:100



1 NORTH ELEVATION 1:100

Revisions	No.	Date	Description	Checked	Approved
1	11/12/19		ISSUE FOR CONSULTANT COORDINATION		
2	19/12/19		DRAWING REF		
3	11/03/20		ISSUE TO REF	NZ	JW

Key

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Drawing Title

ELEVATIONS - SHEET 1

Project Status

NOT FOR CONSTRUCTION

Scale

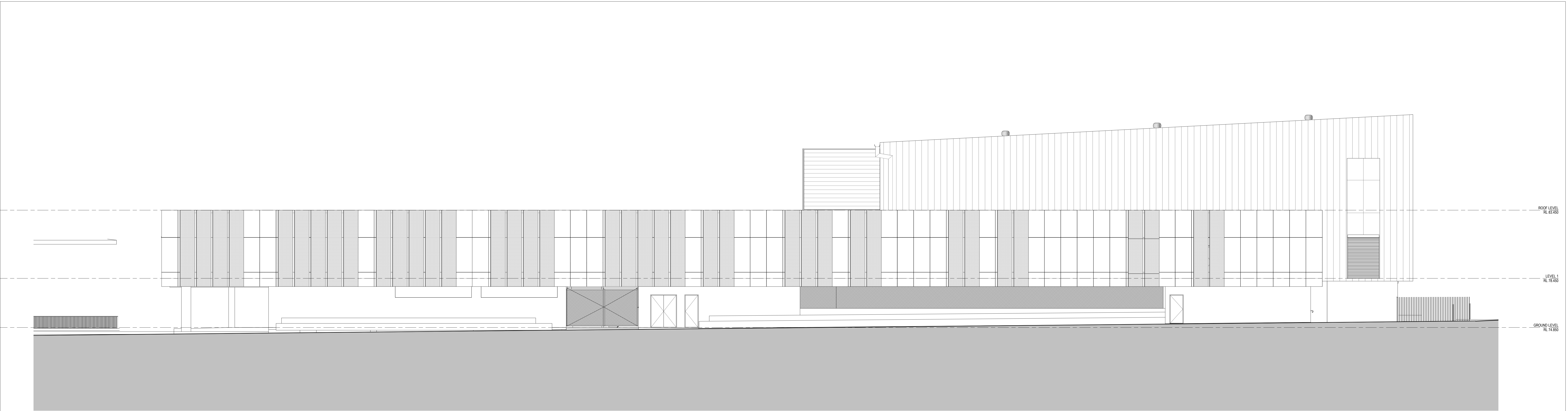
1 : 100 @A0 REF311

Drawing No.

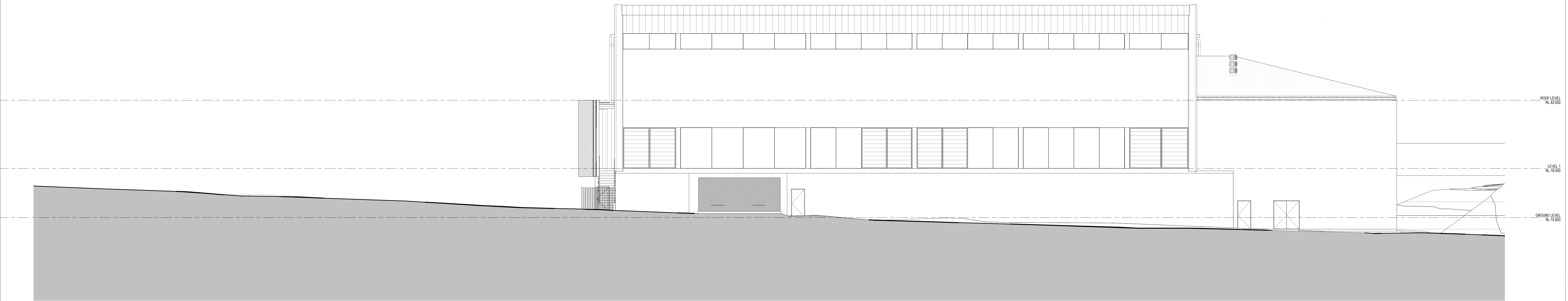
3

Issue

3



2 WEST ELEVATION 1:100



1 SOUTH ELEVATION 1:100

Revisions		Description	Checked	Approved
No.	Date			
1	11/12/19	ISSUE FOR CONSULTANT COORDINATION		
2	19/12/19	ISSUE TO REF		
3	11/03/20	ISSUE TO REF	NZ	JW

Key



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Proj. No. 18025

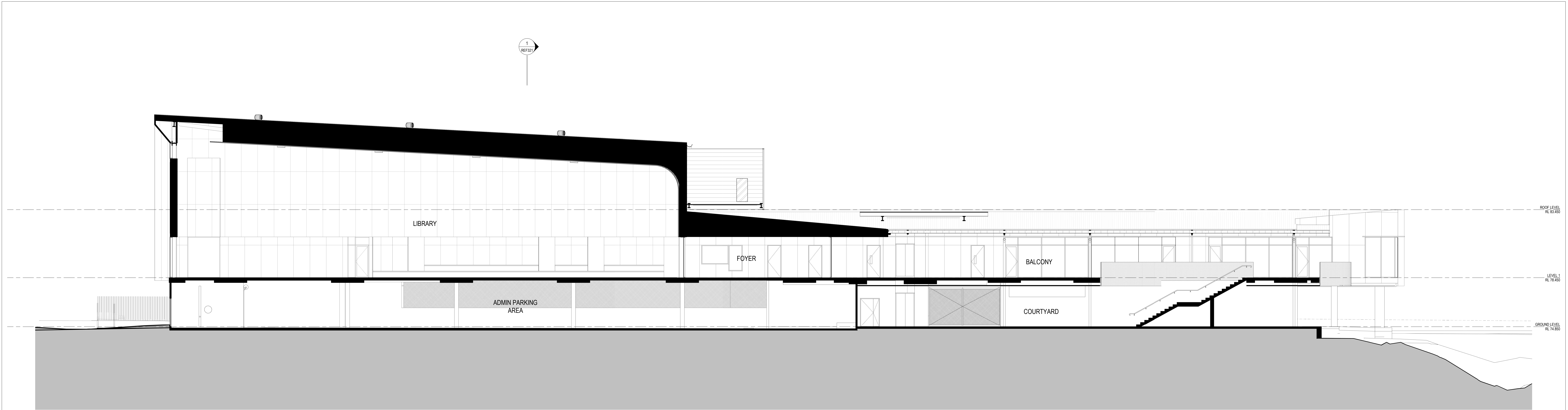
Drawing Title
ELEVATIONS - SHEET 2

Project Status
NOT FOR CONSTRUCTION

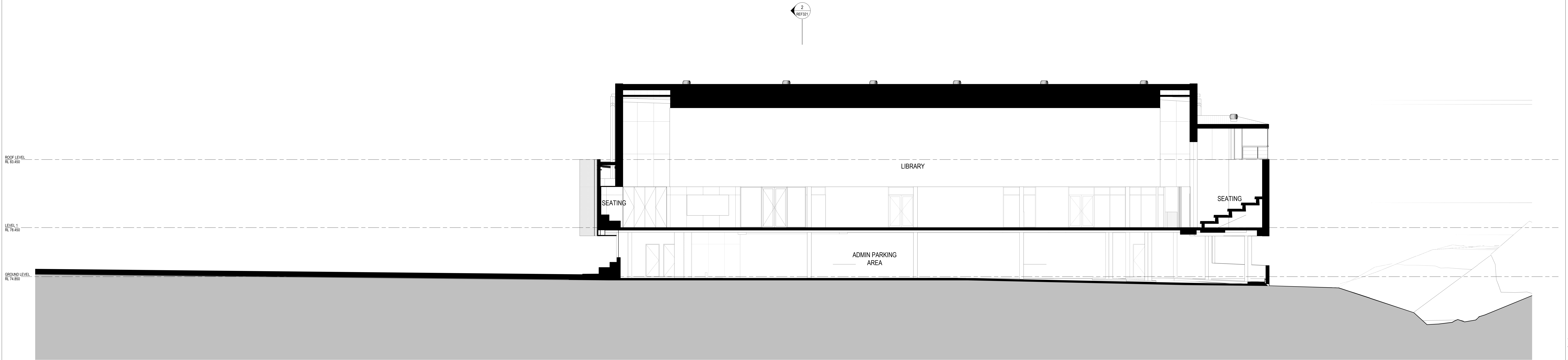
Scale
1:100 @A0

Drawing No.
REF312

Issue
3



2 SECTION A 1:100



1 SECTION B 1:100

Revisions	No.	Date	Description	Checked	Approved
1	11/12/19		ISSUE FOR CONSULTANT COORDINATION		
2	19/12/19		SMART REF		
3	11/03/20		ISSUE TO REF	NZ	JW

Key

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Project

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Proj. No. 18025

Drawing Title

SECTIONS

Project Status

NOT FOR CONSTRUCTION

Scale

1:100 @A0 REF321

Drawing No.

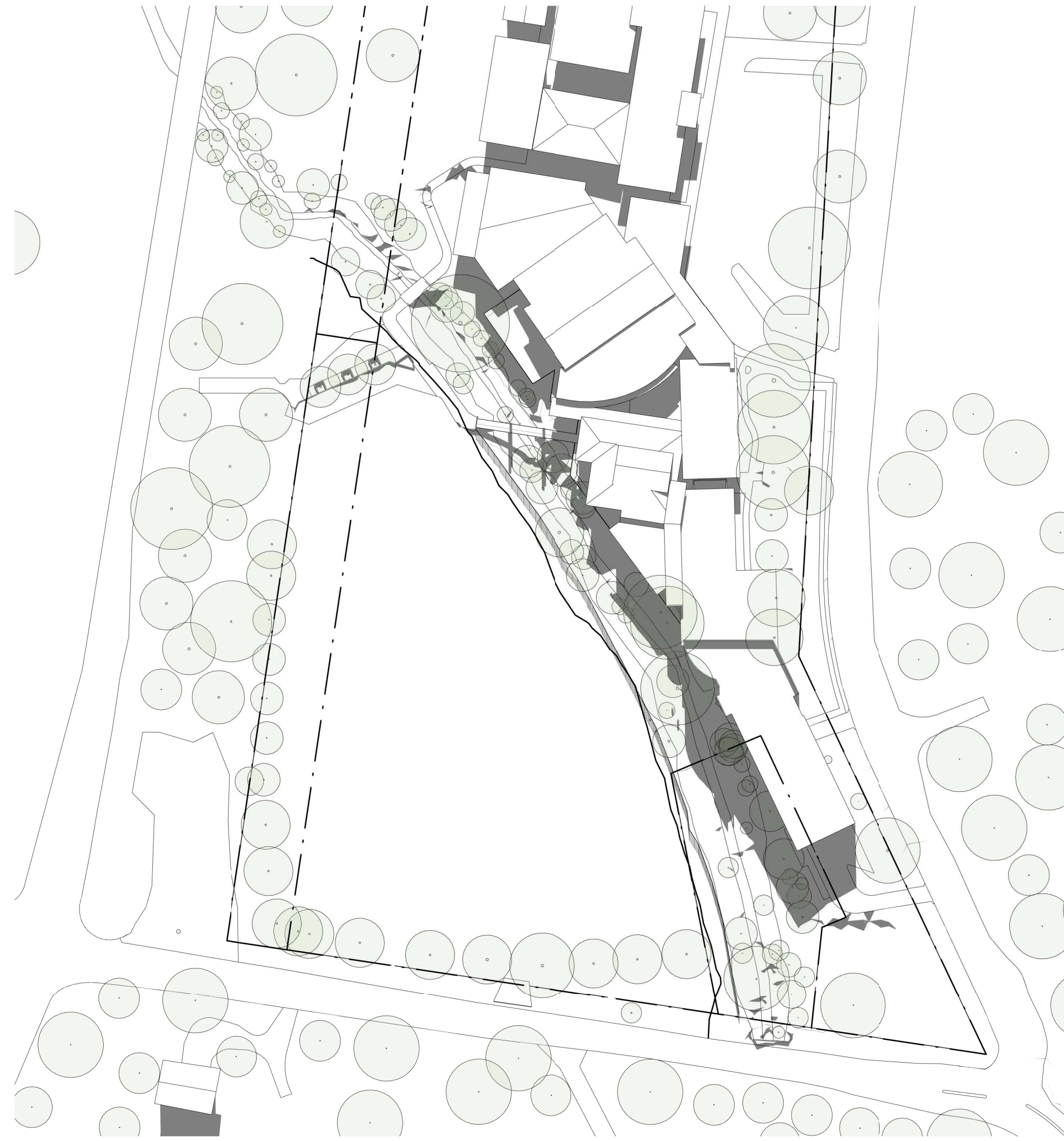
REF321

Issue

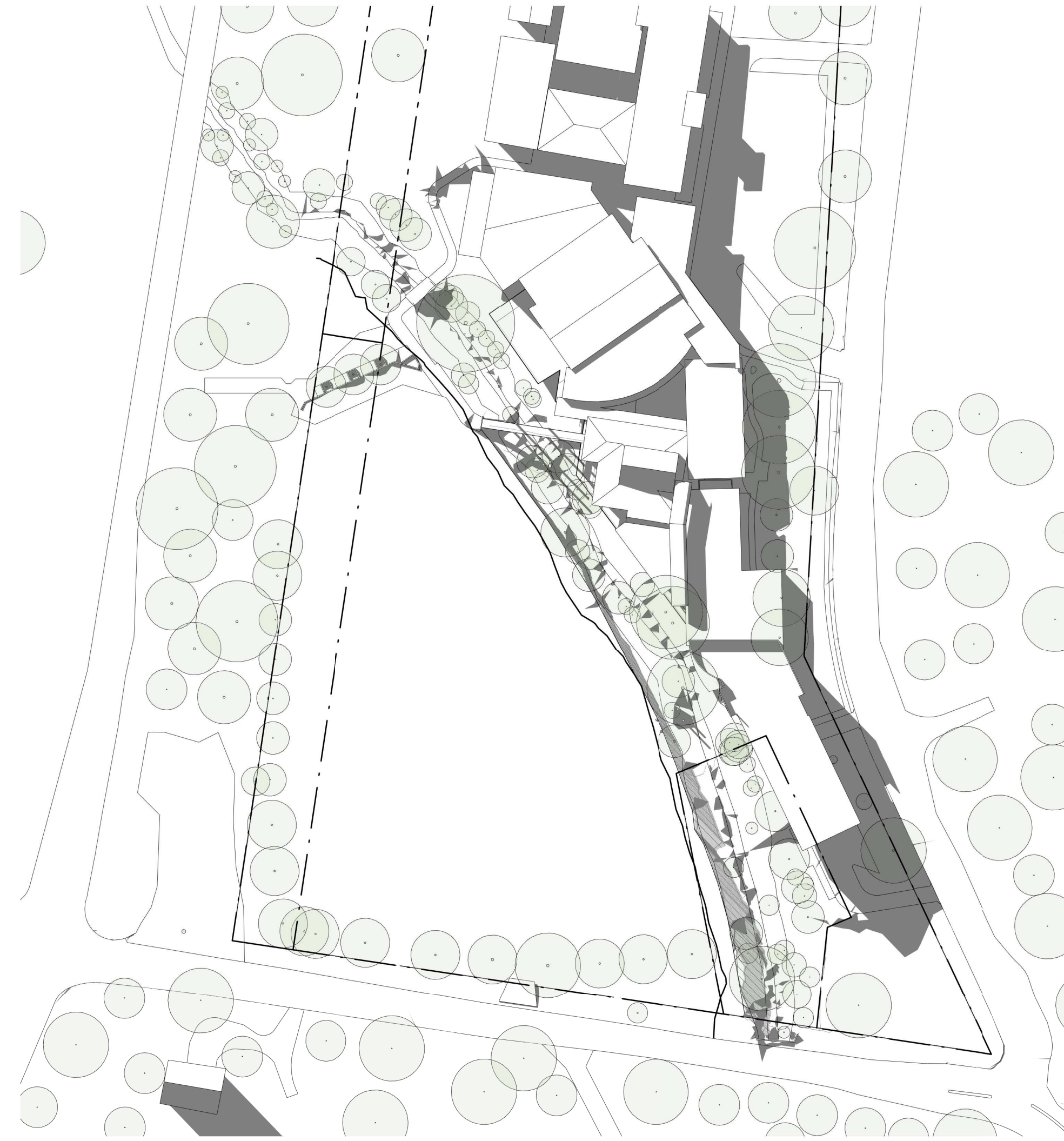
3



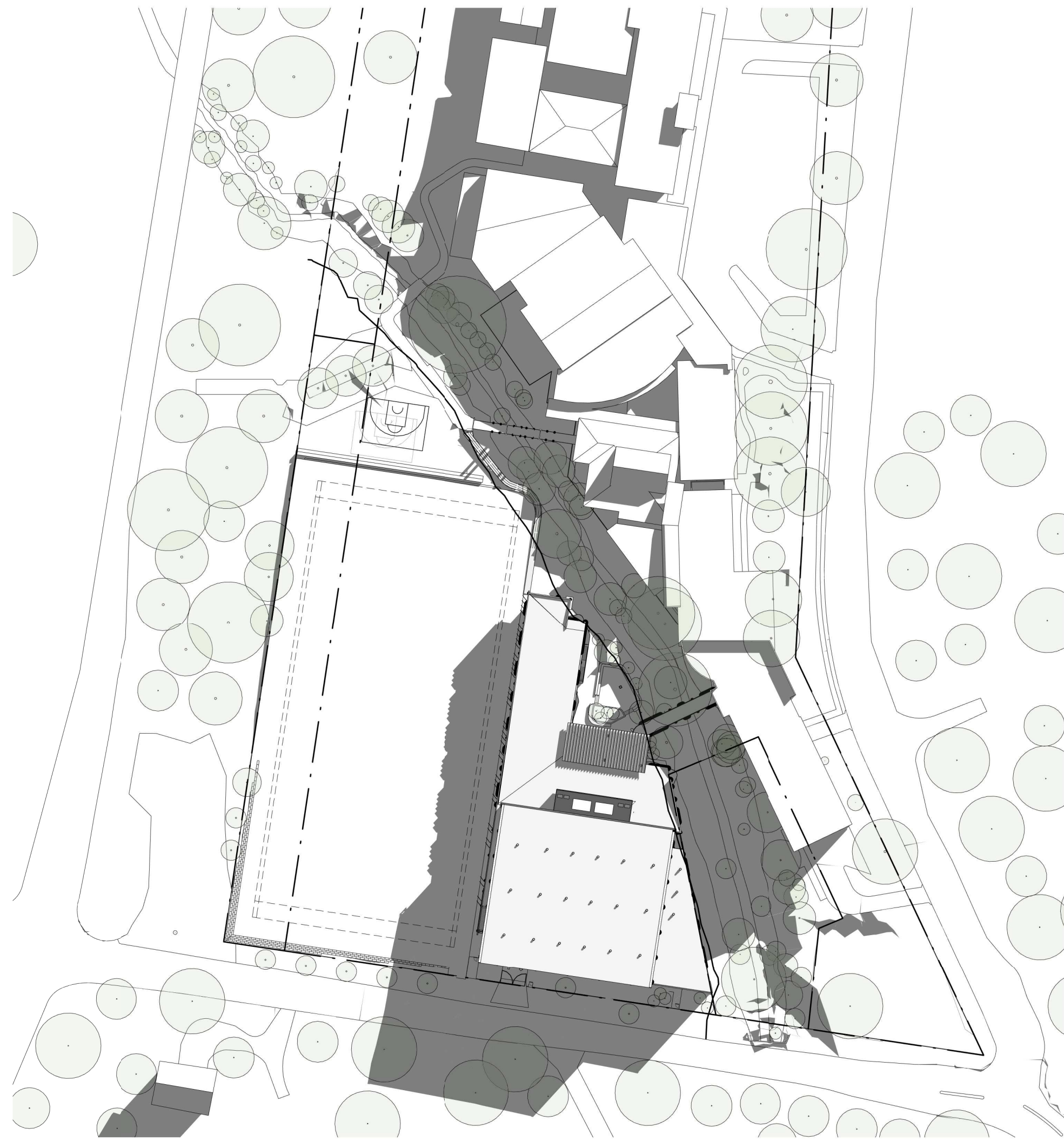
4 EXISTING - JUNE 21 9.00AM
1:1000



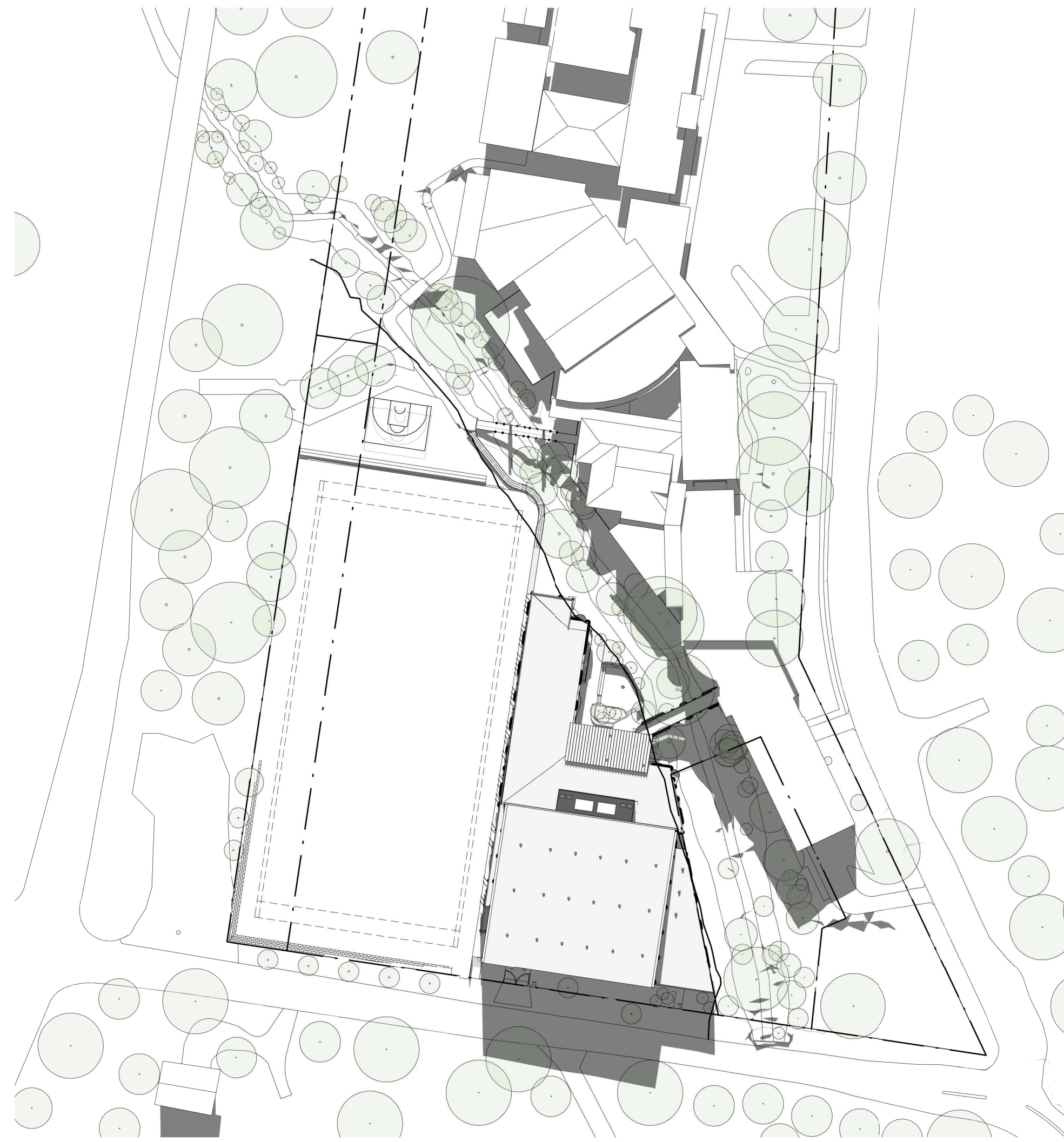
5 EXISTING - JUNE 21 12.00PM
1:1000



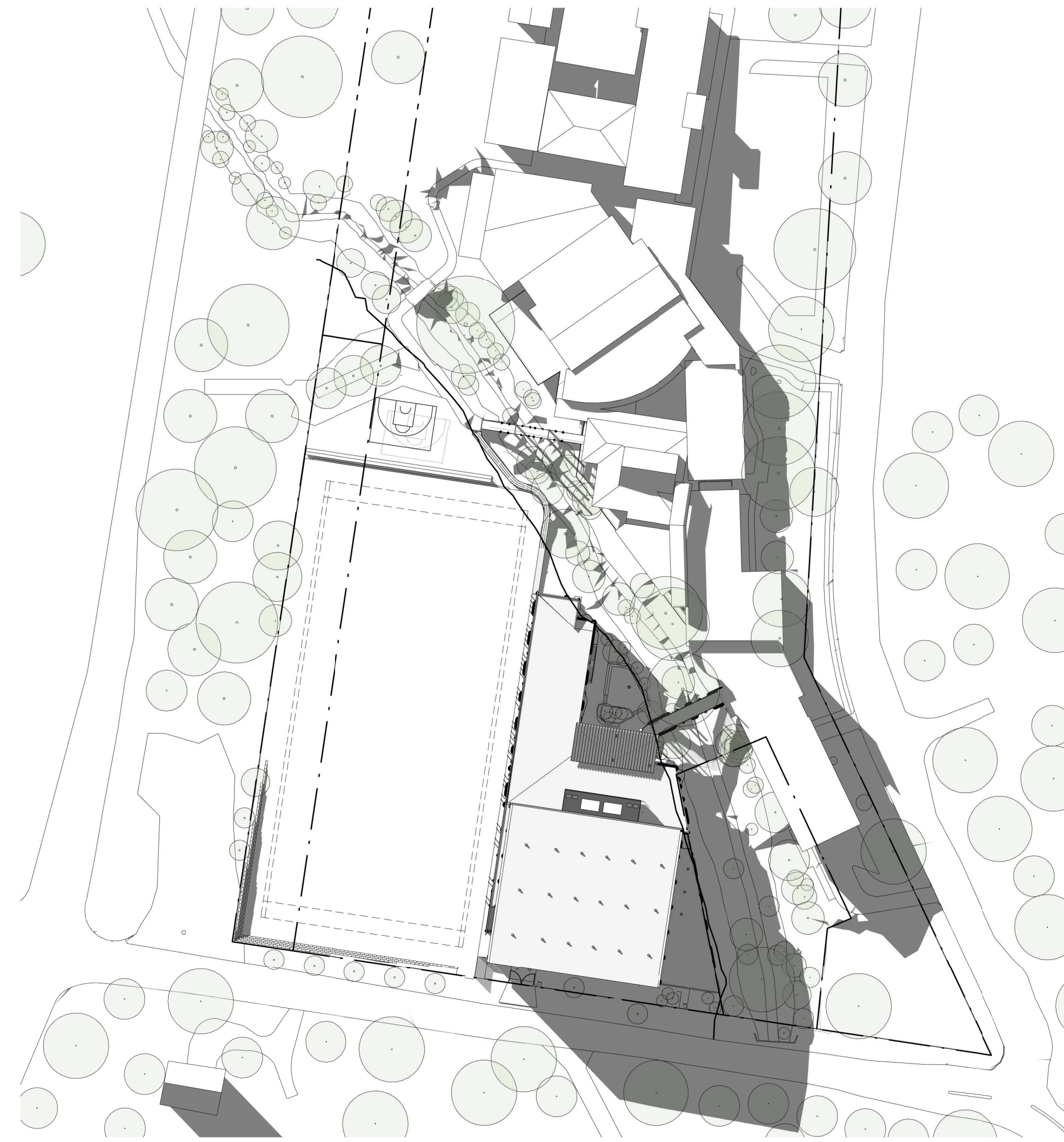
6 EXISTING - JUNE 21 3.00PM
1:1000



1 PROPOSED - JUNE 21 9.00AM
1:1000



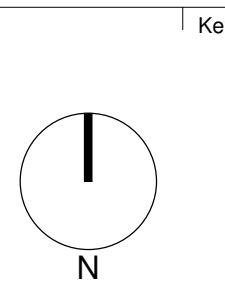
2 PROPOSED - JUNE 21 12.00PM
1:1000



3 PROPOSED - JUNE 21 3.00PM
1:1000

Revisions	No.	Date	Description
	1	19/12/19	DRAWING SET
	2	11/03/20	ISSUE TO REF

Checked	Approved
NZ	JW



Key



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Proj. No. 18025

Drawing Title
SHADOW DIAGRAMS

Project Status
NOT FOR CONSTRUCTION

Scale	Drawing No.	Issue
1:1000 @A0	REF401	2



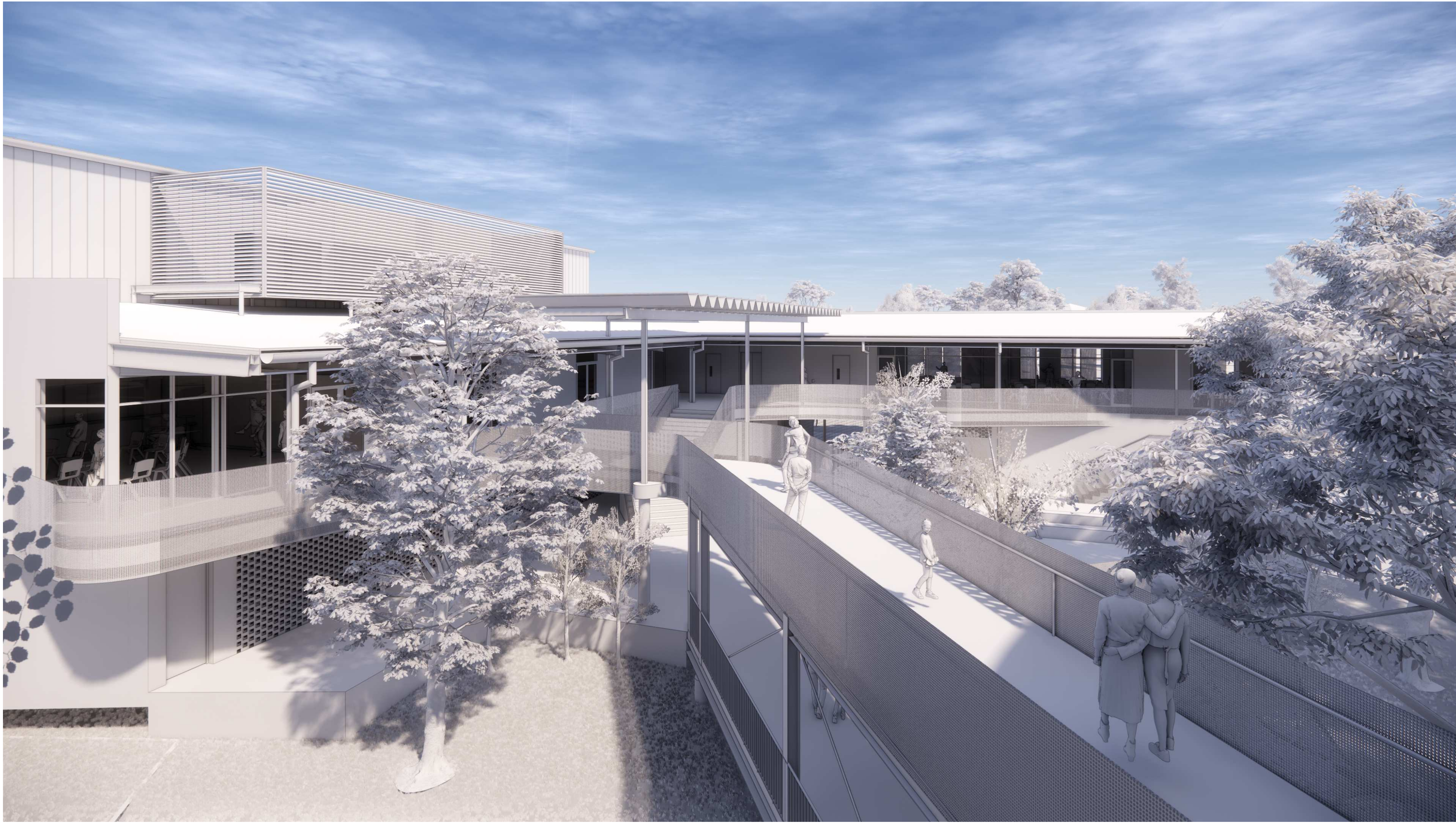
5 PERSPECTIVE FROM PROPOSED FIELD
1:1



1 PERSPECTIVE FROM DREADNOUGHT ROAD
1:1



2 PERSPECTIVE FROM BALCONY TO COURTYARD
1:1



3 PERSPECTIVE FROM K-BLOCK
1:1

Revisions	No.	Date	Description	Checked	Approved
1	19/12/19	19/12/19	DRAWING SET	NZ	JW
2	11/03/20	11/03/20	ISSUE TO REF		

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Proj. No. 18025

Drawing Title
PERSPECTIVES

Project Status
NOT FOR CONSTRUCTION

Scale
Drawing No.
REF601

Issue
2

APPENDIX C

SIDRA Outputs

SITE LAYOUT

▽ Site: 101 [A - Dreadnought Rd x Site Access - FU_AM]

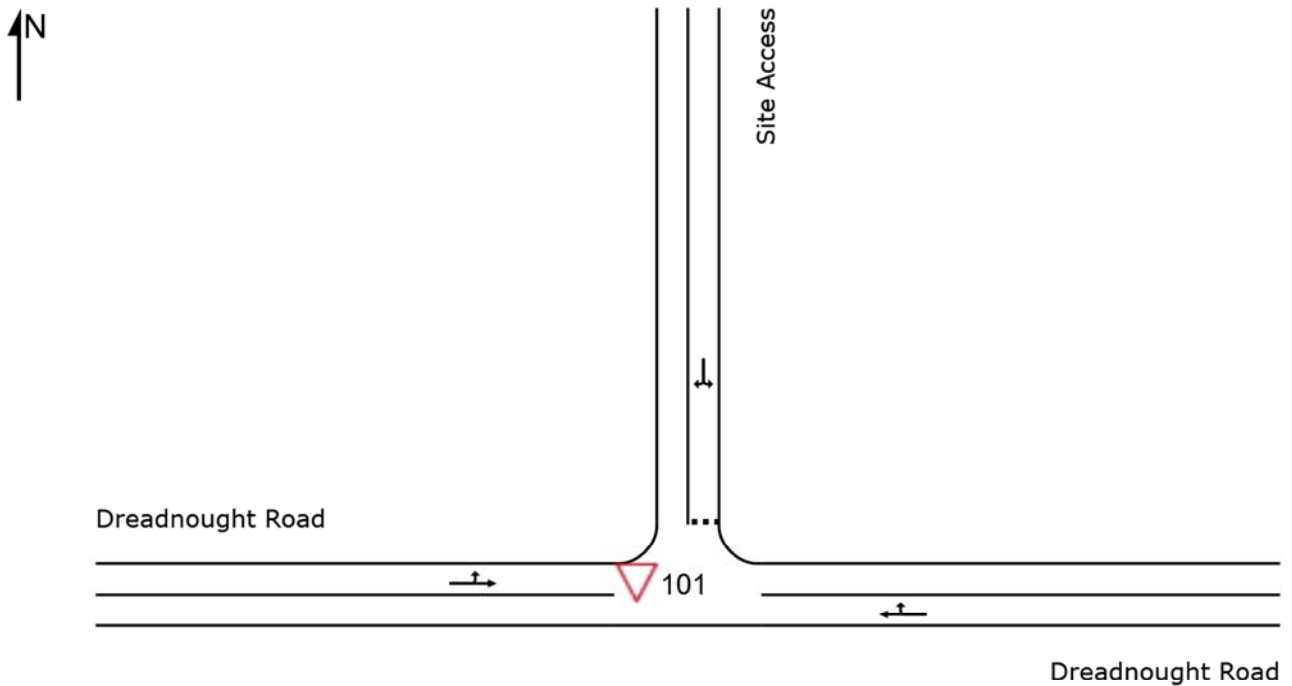
Intersection: Dreadnought Road x Site Access

Period: AM Peak

Scenario: Future

Site Category: (None)

Giveaway / Yield (Two-Way)



SIDRA INTERSECTION 8.0 | Copyright © 2000-2019 Akcelik and Associates Pty Ltd | sidrasolutions.com

Organisation: TRAFFIX PTY LTD | Created: Wednesday, January 15, 2020 9:10:27 AM

Project: T:\Synergy\Projects\19\19.476\Modelling\19.476m01v03 TRAFFIX Access Driveway.sip8

MOVEMENT SUMMARY

▽ Site: 101 [A - Dreadnought Rd x Site Access - FU_AM]

Intersection: Dreadnought Road x Site Access
 Period: AM Peak
 Scenario: Future
 Site Category: (None)
 Giveaway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: Dreadnought Road												
5	T1	545	2.3	0.309	0.4	LOS A	0.4	3.0	0.08	0.03	0.09	56.8
6	R2	23	0.0	0.309	9.8	LOS A	0.4	3.0	0.08	0.03	0.09	44.5
Approach		568	2.2	0.309	0.8	NA	0.4	3.0	0.08	0.03	0.09	56.4
North: Site Access												
7	L2	2	0.0	0.018	6.3	LOS A	0.0	0.3	0.63	0.76	0.63	28.1
9	R2	6	0.0	0.018	10.8	LOS A	0.0	0.3	0.63	0.76	0.63	28.1
Approach		8	0.0	0.018	9.7	LOS A	0.0	0.3	0.63	0.76	0.63	28.1
West: Dreadnought Road												
10	L2	56	0.0	0.343	5.5	LOS A	0.0	0.0	0.00	0.05	0.00	32.1
11	T1	602	2.3	0.343	0.0	LOS A	0.0	0.0	0.00	0.05	0.00	57.9
Approach		658	2.1	0.343	0.5	NA	0.0	0.0	0.00	0.05	0.00	55.0
All Vehicles		1235	2.1	0.343	0.7	NA	0.4	3.0	0.04	0.04	0.05	55.3

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.

MOVEMENT SUMMARY

 **Site: 101 [B - Dreadnought Rd x Site Access - FU_PM]**

Intersection: Dreadnought Road x Site Access
 Period: PM Peak
 Scenario: Future
 Site Category: (None)
 Giveaway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: Dreadnought Road												
5	T1	405	4.7	0.216	0.0	LOS A	0.0	0.1	0.00	0.00	0.00	59.8
6	R2	2	0.0	0.216	6.7	LOS A	0.0	0.1	0.00	0.00	0.00	47.0
Approach		407	4.7	0.216	0.0	NA	0.0	0.1	0.00	0.00	0.00	59.7
North: Site Access												
7	L2	23	0.0	0.097	4.9	LOS A	0.3	2.1	0.38	0.66	0.38	33.4
9	R2	56	0.0	0.097	6.9	LOS A	0.3	2.1	0.38	0.66	0.38	33.0
Approach		79	0.0	0.097	6.3	LOS A	0.3	2.1	0.38	0.66	0.38	33.1
West: Dreadnought Road												
10	L2	6	0.0	0.150	5.5	LOS A	0.0	0.0	0.00	0.01	0.00	32.7
11	T1	275	6.5	0.150	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.4
Approach		281	6.4	0.150	0.1	NA	0.0	0.0	0.00	0.01	0.00	58.6
All Vehicles		767	4.8	0.216	0.7	NA	0.3	2.1	0.04	0.07	0.04	55.7

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.