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SYDNEY NSW 2000

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ABN 50 105 256 228

6 April 2020

Mr Jason Maslen
Team Leader, School Infrastructure Assessments
NSW Department of Planning, Industry and Environment
4 Parramatta Square
Parramatta NSW 2124

Dear Jason,

MEADOWBANK EDUCATION AND EMPLOYMENT PRECINCT SCHOOLS PROJECT (SSD-9343) - RESPONSE TO REQUEST FOR ADDITIONAL INFORMAITON

This submission is prepared on behalf of School Infrastructure NSW (SINSW) and includes amended drawings and a revised ESD Report. Design development since lodgement has resulted in minor changes to the drawings:

- Removal of façade protruding boxes
- Change façade material from concrete to ceramic/masonry
- Depth of solar shading reduced, number of vertical solar shading elements increased
- Removal of façade planter box
- Change façade louvre to awning window
- Reduction of building mass and relocate Level 2 outdoor play area
- Relocate/remove egress stair
- Structural column rationalisation
- Alignment of COLAs to landscape at every level
- Replanning of internal layout

The design changes are a positive outcome for the development and do not compromise the intent of the design that GANSW and SDRP have already endorsed. On 13 March 2020 the applicant offered to meet with GANSW and present the changes. GANSW responded that on the basis that changes do not compromise the intent of the design that GANSW and SDRP have already endorsed', there is no need to meet.

The design changes are shown in:

- Appendix A – Design Changes
- Appendix B – Schedule of Changes
- Appendix C - Revised Architectural Drawings

We also provide an updated ESD report (Appendix D) recommends 4 star green star equivalent.

We trust this information satisfies DPIE's request such that the assessment of the application can be finalised.

Please do not hesitate to contact me on 0450 264 097 or aroff@urbis.com.au.

Yours sincerely,

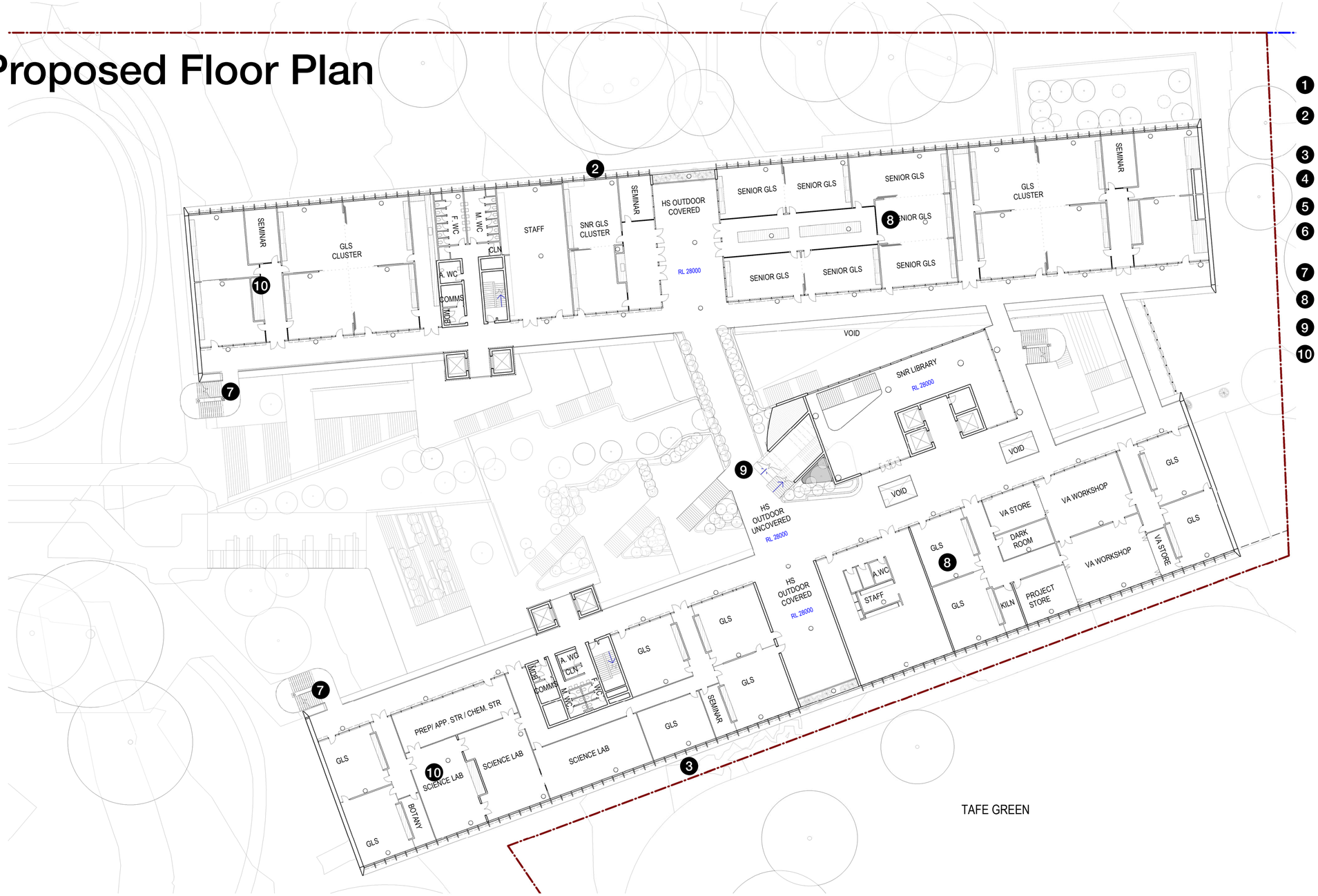
Alaine Roff
Associate Director

Appendix A

SSDA Typical Floor Plan
Changes to existing plan

1. Removal of facade protruding boxes
2. Depth of solar shading reduced, number of vertical solar shading element increased
3. Change facade material from concrete to ceramic/ masonry
4. Removal of facade planter boxes
5. Change facade louvre to awning window
6. Reduce building mass, relocate level 2 outdoor play area
7. Relocate/ remove egress stairs
8. Structural column rationalisation
9. Alignment of COLAs to landscape on every level
10. Replanning of internal layout

Proposed Floor Plan



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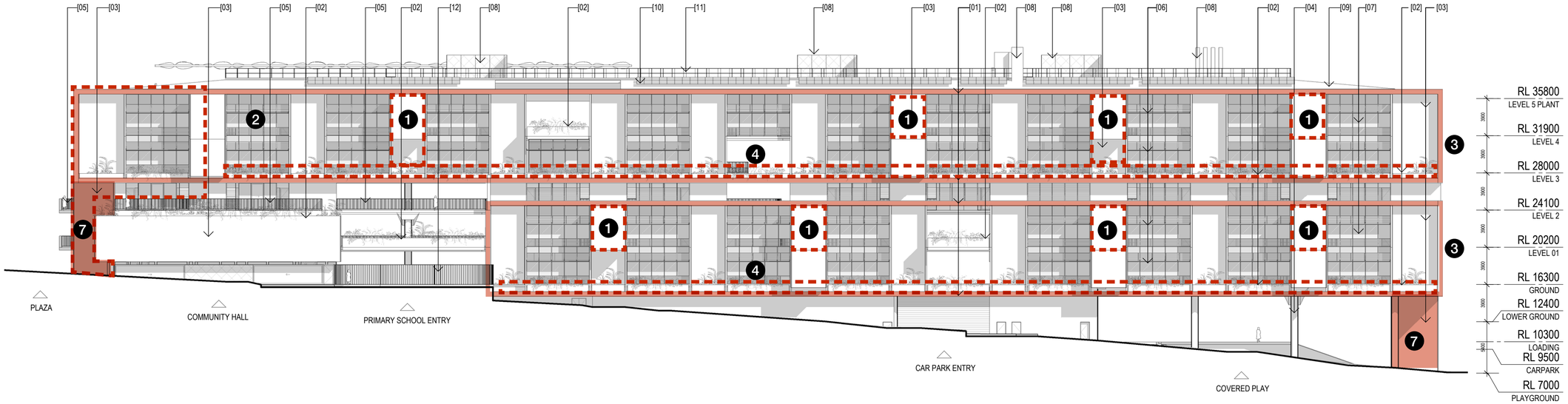
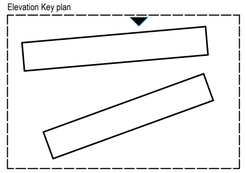
SSDA Rhodes Street Elevation
Changes to existing elevation



Elevation Key plan



LEGEND: MATERIALS

01	CONCRETE
02	PLANTER
03	METAL SCREEN
04	STRUCTURAL COLUMN
05	METAL BALUSTRADE
06	METAL SUN SHADE
07	GLAZING AND SPANDREL
08	FLUES/PLANT
09	METAL ROOF
10	PV PANELS
11	METAL MAINTENANCE PLATFORM & BALUSTRADE
12	METAL FENCE
13	ETFE CANOPY
14	LANDSCAPING

1. Removal of facade protruding boxes
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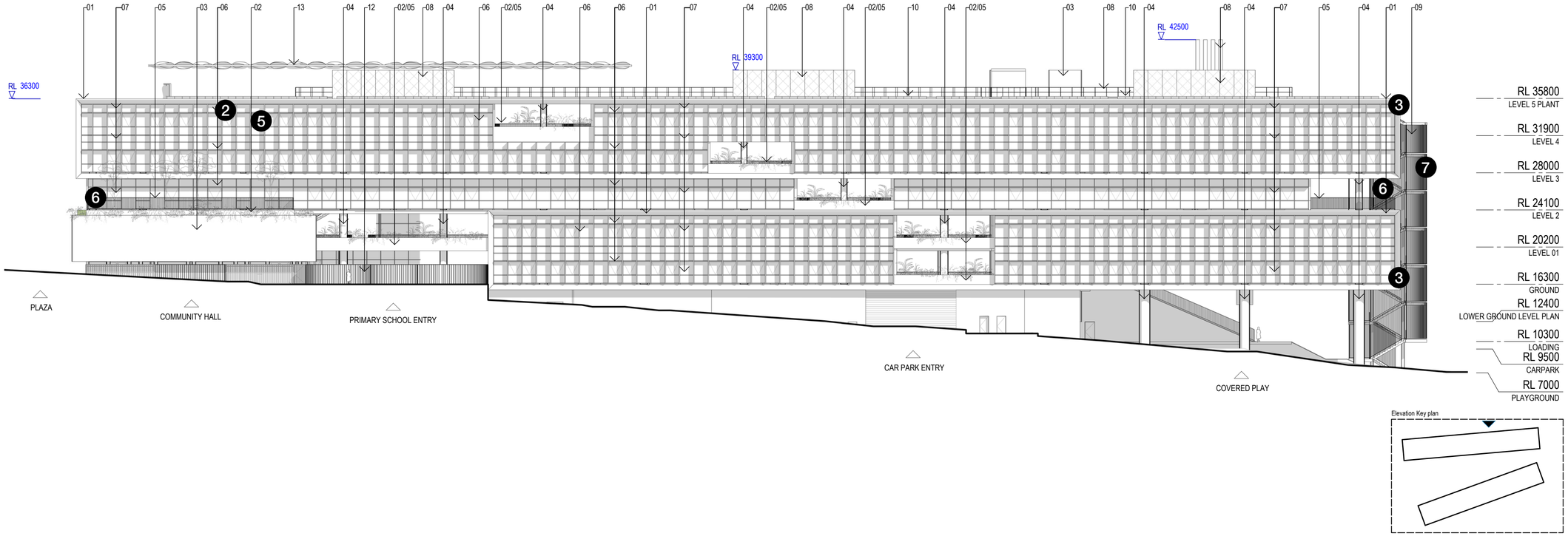
Proposed Rhodes Street Elevation



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Appendix B

Meadowbank Education and Employment Precinct
Schools Project
SSD 18_9343

28TH April 2020

Summary of recent design development

Please read in conjunction with attached drawings.

Item	Summary	Description
01	Removal of façade protruding boxes	The protruding boxes that contained the withdrawal and seminar rooms have been removed to as a product of increasing construction speed. The removal enables the Contractor to reach a weather-tight building. Withdrawal and seminar rooms which previously used this space have been incorporated into internal classroom space in line with current withdrawal room Department of Education preferred configurations. This move also allows for a rationalisation of the classroom layouts within a rationalised grid. The solution also improves leakage risk and maintenance issues for the school.
02	Depth of solar shading reduced, number of vertical solar shading elements increased	The vertical solar shading blades were shortened to a depth of 600mm to allow these to become façade clip on items. This increases construction speed as they can be fitted after the building is enclosed. Due to the shortening of the blades, these are now placed on every mullion to achieve the required solar control. This creates an opportunity to explore a playful and colourful façade expression using these blades.
03	Change façade material from concrete to ceramic/masonry	The façade 'frame' elements, which are the outer larger expressions outlining two levels (levels G to 1 and 3 to 4) have been changed from concrete to a glazed ceramic tile cladding material or a masonry brick material (still under exploration). Using a ceramic/masonry material will provide a rich texture in durable materials which enables the simplification of the short ends of each building wing while maintaining a human-scale tactile façade feel.
04	Removal of façade planter box	The planter boxes along the façade on Ground and Level 3 have been removed and consolidated to the COLAs and the roof over both the Community Hall and the Gym. The planter box removal removes the need to abseil to maintain the plants and allows all plants to be serviced from within the building. This will enable the ability to more easily keep the plants healthy across the lifespan of the building.

05	Change façade louvre to awning window	The louvres across the façade have been changed to awning windows which removes complex moving parts. The ESD strategy remains the same.
06	Reduction of building mass and relocate Level 2 outdoor play area	The rationalisation of the classrooms has led to a space saving. The space saving is expressed by reducing the mass at the western end of the building wings. The outdoor play area at level 2 has been relocated from over the Communal Hall to the western end of the north wing. This helps to express the form at the ends of the buildings to act as two elements with a break in the middle.
07	Relocate/remove egress stair	As a result of the building mass reduction, the egress stairs at the western end of each wing have been moved from being an internal stair at each end of the building to be fully external, simplifying construction and allowing better passive surveillance of the stair. In the western end there is an opportunity to clarify the wayfinding and circulation by removing the two escape stairs and utilising the grand entry stair as a the egress method. This is enabled by providing 'bridges' where the corridor spans across the open volume.
08	Structural column rationalisation	The grid spacing has been rationalised to 10.5m across the entire building, removing the 9m and 7.5m structural grid anomalies on both buildings. The structure now also features cantilevers at both ends of each wing to help express the double volume revised form.
09	Alignment of COLAs to landscape at every level	The alignment of COLAs with central landscaping have been adjusted on every level to encourage student access to the outdoors. This has enabled the rationalisation of classroom types and strengthened the overall guiding concept of aligning COLAs with the central landscape landings.
10	Replanning of internal layout	The internal layouts have been replanned based on a more standardised classroom module with cores also being rationalised creating a more future flexible floor plate. The rationalised planning has enabled the speed of construction necessary to meet the target school opening date and to allow off-site construction of classroom joinery elements.

Appendix C

MEADOWBANK EDUCATION PRECINCT SCHOOLS

SSDA Drawings List	
SHEET NUMBER	**SHEET NAME**
DA000	**DRAWING LIST**
DA101	**PRECINCT PLAN - EXISTING**
DA102	**SITE ANALYSIS PLAN**
DA103	**PRECINCT PLAN - PROPOSED**
DA104	**SITE PLAN**
DA105	**SOLAR STUDIES -JUN 21 - SHEET 01**
DA106	**SOLAR STUDIES - JUN 21 - SHEET 02**
DA107	**NOT USED**
DA108	**SOIL CONTAMINATION REMEDIATION PLAN**
DA200	**PLAYGROUND LEVEL PLAN**
DA201	**CAR PARK LEVEL PLAN**
DA202	**LOWER GROUND FLOOR**
DA203	**GROUND FLOOR PLAN**
DA204	**LEVEL 1 FLOOR PLAN**
DA205	**LEVEL 2 FLOOR PLAN**
DA206	**LEVEL 3 FLOOR PLAN**
DA207	**LEVEL 4 FLOOR PLAN**
DA208	**ROOF PLAN**
DA301	**NORTH & SOUTH BUILDING ELEVATIONS**
DA302	**EAST & WEST ELEVATIONS**
DA303	**INTERNAL BUILDING ELEVATIONAL SECTIONS**
DA304	**SECTIONS SHEET 01**
DA305	**SECTIONS SHEET 02**
DA402	**GFA**

Date generated 20/04/2020 5:03:44 PM

Recent revision history

#	Status	Description	Date
1	Preliminary	Issued for Draft SSDA	09/04/19
2	Preliminary	Preliminary	18/04/19
3	Preliminary	Issued for SSDA Draft	24/05/19
4	Preliminary	Issued for SSDA	04/06/19
5	Preliminary	Issued for SSDA	17/06/19
6	Preliminary	Issued for Coordination	26/09/19
7	Preliminary	SSDA Substitution Plans	20/04/20

Notes & Legend

Contractor must verify all dimensions on site before commencing work or preparing shop drawings. Do not scale drawings.

Project Manager
BLUE VISIONS

HDC & Architectural
WOODS BAGOT

Structural & Civil Engineering
ENSTRUCT

Mechanical Engineering & ESD/Energy Modelling
STEENSEN VARMING

Electrical Engineering
WSP

Hydraulic & Fire Engineering
WARREN SMITH & PARTNERS

Landscape & Heritage
URBIS

Project
MEADOWBANK EDUCATION PRECINCT SCHOOLS
2 Rhodes Street, Meadowbank

Client
NSW GOVERNMENT Education School Infrastructure

Project number
121172

Size check
25mm

Checked CS | Approved GS | Sheet size A1 | Scale

Sheet title
DRAWING LIST

Sheet number
MSP-WB-AR-DA000

Revision
7

Status
PRELIMINARY

Recent revision history

#	Status	Description	Date
1	Preliminary	Issued for Review	29/03/19
2	Preliminary	Issued for Draft SSDA	09/04/19
3	Preliminary	Preliminary	18/04/19
4	Preliminary	Issued for SSDA Draft	24/05/19
5	Preliminary	Issued for SSDA	04/06/19
6	Preliminary	Issued for SSDA	17/06/19
7	Preliminary	SSDA Substitution Plans	20/04/20

Notes & Legend

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LEGEND

SITE BOUNDARY

PRECINCT BOUNDARY

Project Manager
BLUE VISIONS

HDC & Architectural
WOODS BAGOT

Structural & Civil Engineering
ENSTRUCT

Mechanical Engineering & ESD/Energy Modelling
STEENSEN VARMING

Electrical Engineering
WSP

Hydraulic & Fire Engineering
WARREN SMITH & PARTNERS

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Project
MEADOWBANK EDUCATION PRECINCT SCHOOLS
2 Rhodes Street, Meadowbank

Client
NSW GOVERNMENT Education School Infrastructure

Project number
121172

Size check
25mm

Checked	Approved	Sheet size	Scale
CS	GS	A1	As indicated

Sheet title

PRECINCT PLAN - EXISTING

Sheet number
MSP-WB-AR-DA101

Revision
7

Status
PRELIMINARY

Date generated 20/04/2020 5:04:24 PM

Recent revision history

#	Status	Description	Date
1	Preliminary	Issued for Review	29/03/19
2	Preliminary	Issued for Review	05/04/19
3	Preliminary	Issued for Draft SSDA	09/04/19
4	Preliminary	Preliminary	18/04/19
5	Preliminary	Issued for SSDA Draft	24/05/19
6	Preliminary	Issued for SSDA	04/06/19
7	Preliminary	Issued for SSDA	17/06/19
8	Preliminary	SSDA Substitution Plans	20/04/20

Notes & Legend

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LEGEND

- SITE BOUNDARY
- PRECINCT BOUNDARY
- EASEMENT
- PREVAILING WIND DIRECTION

Project Manager
BLUE VISIONS

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WSP

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NSW GOVERNMENT Education School Infrastructure

Project number
121172

Size check
25mm

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CS

Approved
GS

Sheet size
A1

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Sheet title
SITE ANALYSIS PLAN

Sheet number
MSP-WB-AR-DA102

Revision
8

Status
PRELIMINARY

Date generated 20/04/2020 5:05:04 PM

Recent revision history

#	Status	Description	Date
1	Preliminary	Issued for Review	29/03/19
2	Preliminary	Issued for Review	05/04/19
3	Preliminary	Issued for Draft SSDA	09/04/19
4	Preliminary	Preliminary	18/04/19
5	Preliminary	Issued for SSDA Draft	24/05/19
6	Preliminary	Issued for SSDA	04/06/19
7	Preliminary	Issued for SSDA	17/06/19
8	Preliminary	SSDA Substitution Plans	20/04/20

Notes & Legend

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LEGEND

- SITE BOUNDARY
- PRECINCT BOUNDARY
- VEHICULAR ACCESS
- SCHOOL MAIN ENTRANCE
- SCHOOL SECONDARY ENTRANCE
- FENCE

Project Manager
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Mechanical Engineering & ESD/Energy Modelling
STEENSEN VARMING

Electrical Engineering
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MEADOWBANK EDUCATION PRECINCT SCHOOLS
2 Rhodes Street, Meadowbank

Client
NSW GOVERNMENT Education School Infrastructure

Project number
121172

Size check
25mm

Checked	Approved	Sheet size	Scale
CS	GS	A1	As indicated

Sheet title
PRECINCT PLAN - PROPOSED

Sheet number
MSP-WB-AR-DA103

Revision
8

Status
PRELIMINARY

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Recent revision history

#	Status	Description	Date
2	Preliminary	Issued for Review	05/04/19
3	Preliminary	Issued for Draft SSDA	09/04/19
4	Preliminary	Preliminary	18/04/19
5	Preliminary	Issued for Coordination	15/05/19
6	Preliminary	Issued for SSDA Draft	24/05/19
7	Preliminary	Issued for SSDA	04/06/19
8	Preliminary	Issued for SSDA	17/06/19
9	Preliminary	Issued for SSDA	03/10/19
10	Preliminary	Issued for SSDA	24/01/20
11	Preliminary	SSDA Substitution Plans	20/04/20

Notes & Legend

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LEGEND

- SITE BOUNDARY
- PRECINCT BOUNDARY
- INDICATIVE PRIMARY SCHOOL BUS DROP-OFF ZONE
- INDICATIVE HIGH SCHOOL BUS DROP-OFF ZONE
- INDICATIVE KERB PARKING FOR DROP OFF & PICK UP 5 MINS PARKING
- INDICATIVE PEDESTRIAN CROSS
- INDICATIVE SCHOOL CROSS
- VEHICULAR ACCESS
- SCHOOL MAIN ENTRANCE
- SCHOOL SECONDARY ENTRANCE
- FENCE
- INDICATIVE GATE LOCATION

REFER TO LANDSCAPE ARCHITECT'S AND CIVIL ENG'S DRAWINGS FOR EXTERNAL WORKS

Project Manager
BLUE VISIONS

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WOODS BAGOT

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STEENSEN VARMING

Electrical Engineering
WSP

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MEADOWBANK EDUCATION PRECINCT SCHOOLS
2 Rhodes Street, Meadowbank

Client
NSW GOVERNMENT | Education School Infrastructure

Project number
121172

Size check
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SITE PLAN

Sheet number
MSP-WB-AR-DA104

Revision
11

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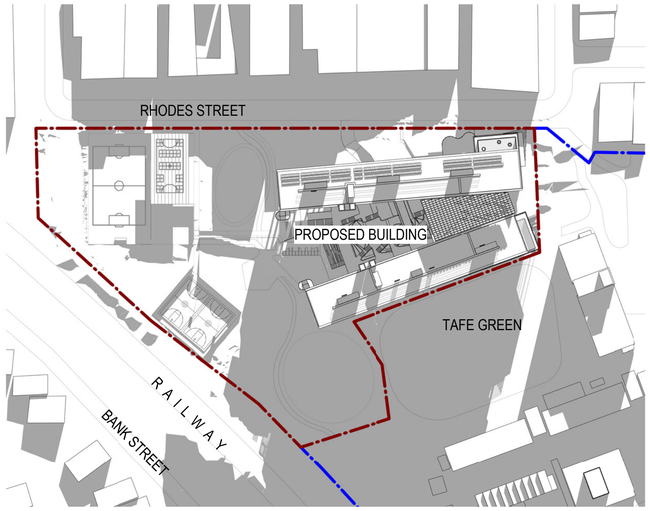

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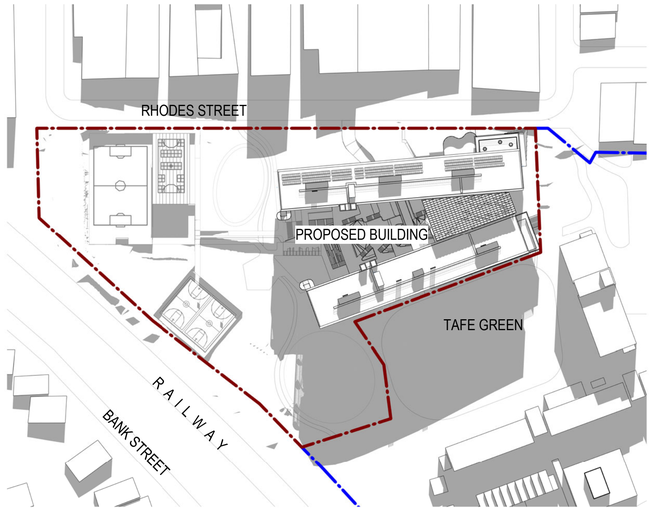

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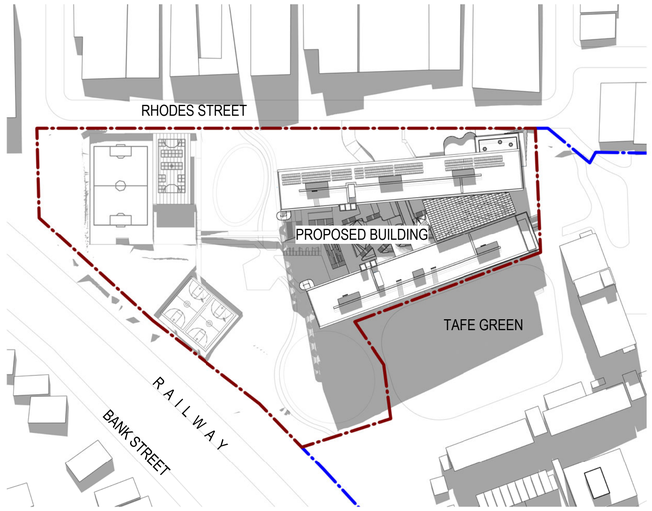

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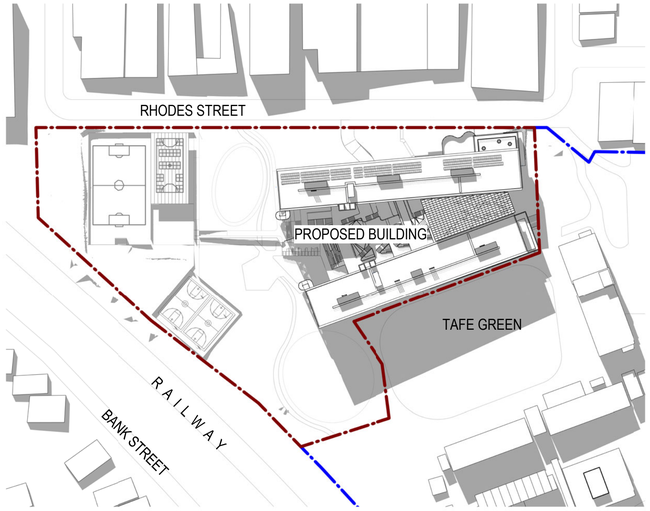

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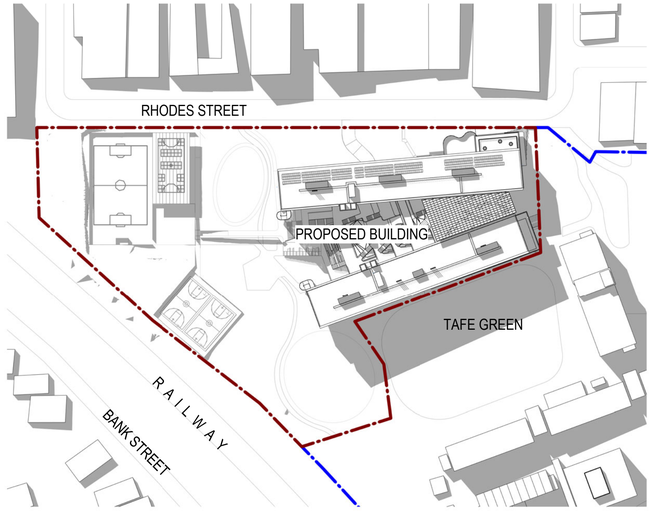

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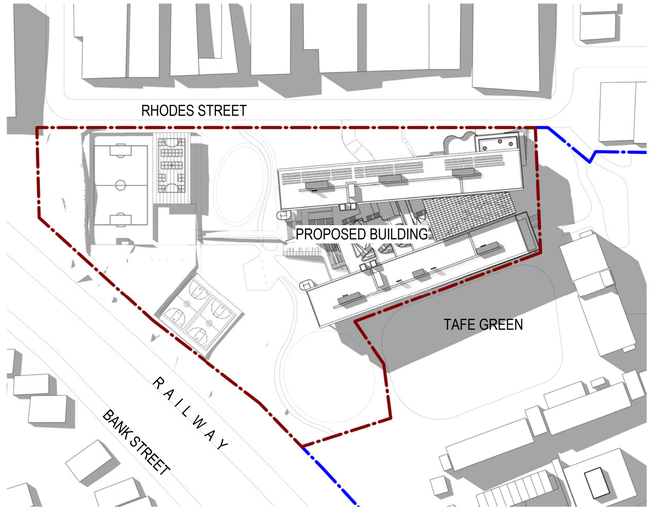

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2	Preliminary	Issued for Review	05/04/19
3	Preliminary	Issued for Draft SSDA	09/04/19
4	Preliminary	Preliminary	18/04/19
5	Preliminary	Issued for SSDA Draft	24/05/19
6	Preliminary	Issued for SSDA	04/06/19
7	Preliminary	Issued for SSDA	17/06/19
8	Preliminary	SSDA Substitution Plans	20/04/20

Notes & Legend

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LEGEND

SITE BOUNDARY

PRECINCT BOUNDARY

Project Manager
BLUE VISIONS

HDC & Architectural
WOODS BAGOT

Structural & Civil Engineering
ENSTRUCT

Mechanical Engineering & ESD/Energy Modelling
STEENSEN VARMING

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WSP

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WARREN SMITH & PARTNERS

Landscape & Heritage
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25mm

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SOLAR STUDIES -JUN 21 - SHEET 01

Sheet number
MSP-WB-AR-DA105

Revision
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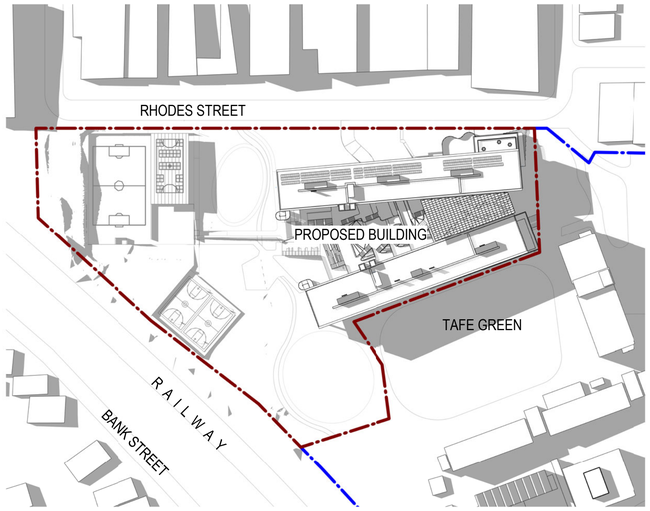

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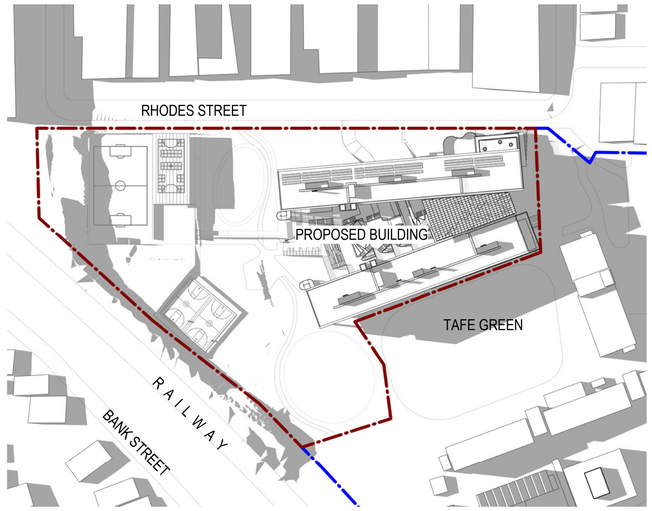

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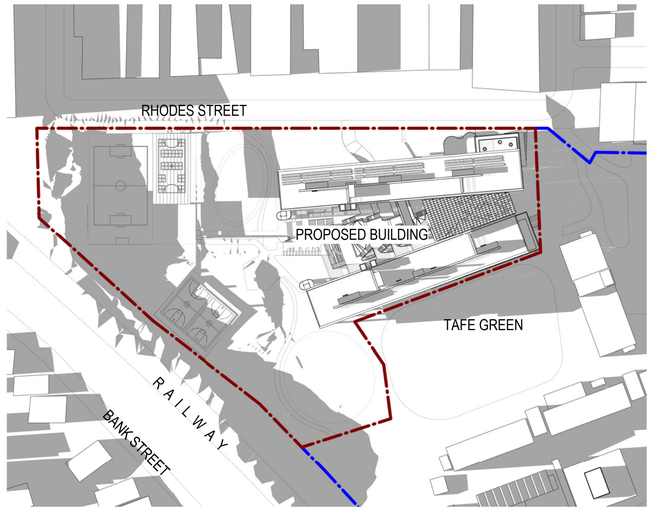

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Recent revision history

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2	Preliminary	Issued for Review	05/04/19
3	Preliminary	Issued for Draft SSDA	09/04/19
4	Preliminary	Preliminary	18/04/19
5	Preliminary	Issued for SSDA Draft	24/05/19
6	Preliminary	Issued for SSDA	04/06/19
7	Preliminary	Issued for SSDA	17/06/19
8	Preliminary	SSDA Substitution Plans	20/04/20

Notes & Legend

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LEGEND

SITE BOUNDARY

PRECINCT BOUNDARY

Project Manager
BLUE VISIONS

HDC & Architectural
WOODS BAGOT

Structural & Civil Engineering
ENSTRUCT

Mechanical Engineering & ESD/Energy Modelling
STEENSEN VARMING

Electrical Engineering
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Hydraulic & Fire Engineering
WARREN SMITH & PARTNERS

Landscape & Heritage
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MEADOWBANK EDUCATION PRECINCT SCHOOLS
2 Rhodes Street, Meadowbank

Client
NSW GOVERNMENT Education School Infrastructure

Project number
121172

Size check
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Sheet title
SOLAR STUDIES - JUN 21 - SHEET 02

Sheet number
MSP-WB-AR-DA106

Revision
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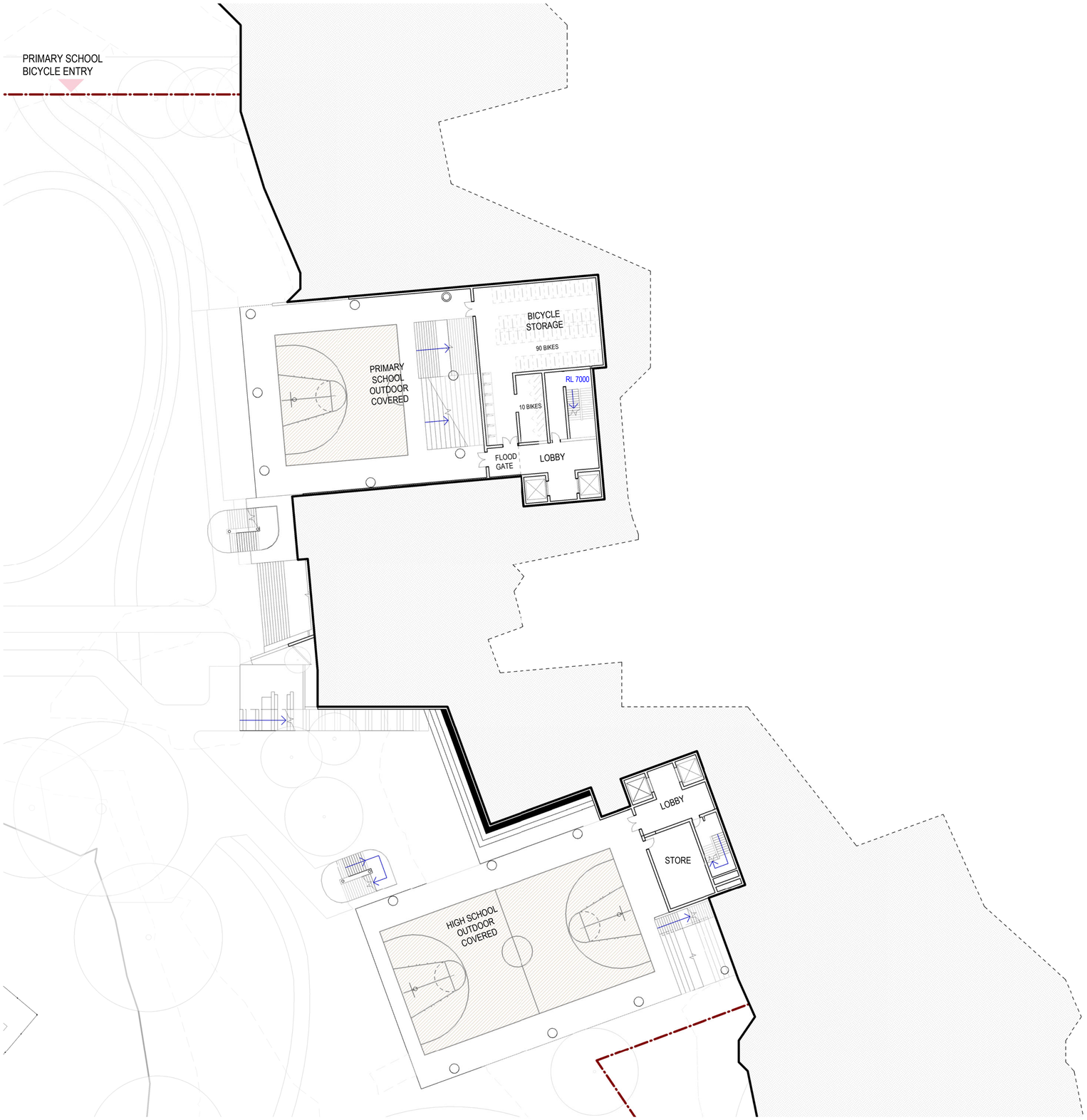

1 PLAYGROUND LEVEL
SCALE 1 : 250

Date generated 20/04/2020 5:11:56 PM

Recent revision history

#	Status	Description	Date
1	Preliminary	Issued for Coordination	15/05/19
2	Preliminary	Issued for SSDA Draft	24/05/19
3	Preliminary	Issued for SSDA	04/06/19
4	Preliminary	Issued for SSDA	17/06/19
5	Preliminary	Work in Progress Draft	9/04/20
6	Preliminary	SSDA Substitution Plans	20/04/20

Notes & Legend

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LEGEND

SITE BOUNDARY

PRECINCT BOUNDARY

LEGEND

AWC	ACCESSIBLE TOILET
FWC	FEMALE TOILET
MWC	MALE TOILET
CAR.ADV	CAREER ADVISOR
CIRC	CIRCULATION
CLN	CLEANERS STORE
COLA	COVERED OUTDOOR LEARNING AREA
DP	DEPUTY PRINCIPAL
EOT	END OF TRIP
GLS	GENERAL LEARNING SPACE
HS	HIGH SCHOOL
IE	INTENSIVE ENGLISH
M	MATERIAL TECHNOLOGIES
PS	PRIMARY SCHOOL
SCI	SCIENCE
SLS	SHARED LEARNING SPACE
SMNR	SEMINAR
SNR	SENIOR LEARNING UNIT
SP	SPECIAL PROGRAM
STR	STORE
VA	VISUAL ARTS
WD	WITHDRAWAL ROOM

Project Manager
BLUE VISIONS

HDC & Architectural
WOODS BAGOT

Structural & Civil Engineering
ENSTRUCT

Mechanical Engineering & ESD/Energy Modelling
STEENSEN VARMING

Electrical Engineering
WSP

Hydraulic & Fire Engineering
WARREN SMITH & PARTNERS

Landscape & Heritage
URBIS

Project
MEADOWBANK EDUCATION PRECINCT SCHOOLS
2 Rhodes Street, Meadowbank

Client
NSW GOVERNMENT Education School Infrastructure

Project number
121172

Size check
25mm

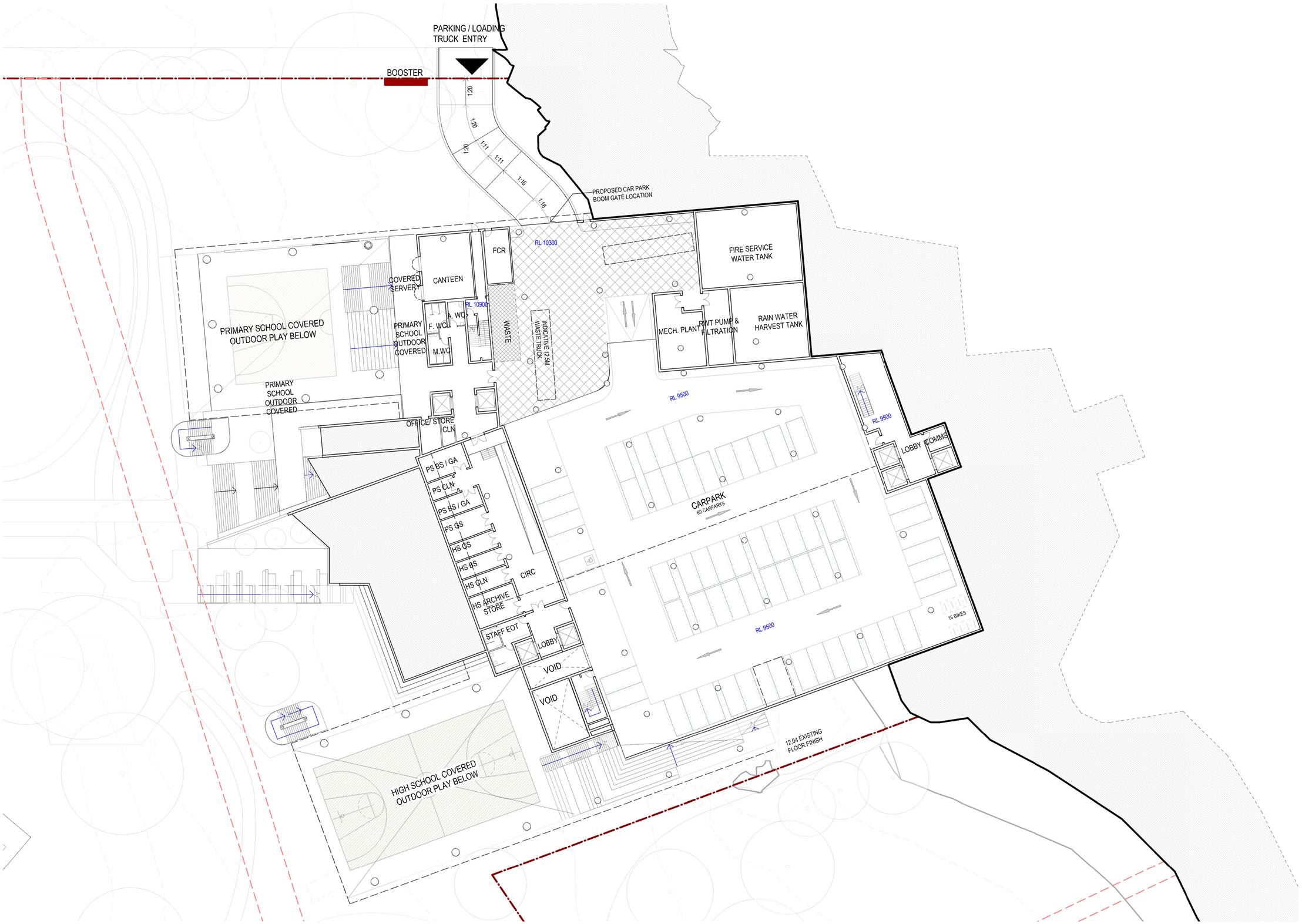
Checked	Approved	Sheet size	Scale
CS	GS	A1	As indicated

Sheet title
PLAYGROUND LEVEL PLAN

Sheet number
MSP-WB-AR-DA200

Revision
6

Status
PRELIMINARY



1 CAR PARK LEVEL
SCALE 1 : 250

Date generated 20/04/2020 5:13:21 PM

Recent revision history

#	Status	Description	Date
1	Preliminary	Issued for Review	29/03/19
2	Preliminary	Issued for Review	05/04/19
3	Preliminary	Issued for Draft SSDA	09/04/19
4	Preliminary	Issued for Coordination	15/05/19
5	Preliminary	Issued for SSDA Draft	24/05/19
6	Preliminary	Issued for SSDA	04/06/19
7	Preliminary	Issued for SSDA	17/06/19
8	Preliminary	Issued for SSDA	31/01/20
9	Preliminary	Work in Progress Draft	9/04/20
10	Preliminary	SSDA Substitution Plans	20/04/20

Notes & Legend

Contractor must verify all dimensions on site before commencing work or preparing shop drawings. Do not scale drawings.

LEGEND

- SITE BOUNDARY
- PRECINCT BOUNDARY
- EASEMENT

LEGEND

AWC	ACCESSIBLE TOILET
FWC	FEMALE TOILET
MWC	MALE TOILET
CAR.ADV	CAREER ADVISOR
CIRC	CIRCULATION
CLN	CLEANERS STORE
COLA	COVERED OUTDOOR LEARNING AREA
DP	DEPUTY PRINCIPAL
EOT	END OF TRIP
GLS	GENERAL LEARNING SPACE
HS	HIGH SCHOOL
IE	INTENSIVE ENGLISH
M	MATERIAL TECHNOLOGIES
PS	PRIMARY SCHOOL
SCI	SCIENCE
SLS	SHARED LEARNING SPACE
SMNR	SEMINAR
SNR	SENIOR LEARNING UNIT
SP	SPECIAL PROGRAM
STR	STORE
VA	VISUAL ARTS
WD	WITHDRAWAL ROOM

Project Manager
BLUE VISIONS

HDC & Architectural
WOODS BAGOT

Structural & Civil Engineering
ENSTRUCT

Mechanical Engineering & ESD/Energy Modelling
STEENSEN VARMING

Electrical Engineering
WSP

Hydraulic & Fire Engineering
WARREN SMITH & PARTNERS

Landscape & Heritage
URBIS

Project
MEADOWBANK EDUCATION PRECINCT SCHOOLS
2 Rhodes Street, Meadowbank

Client
NSW GOVERNMENT Education School Infrastructure

Project number
121172

Size check
25mm

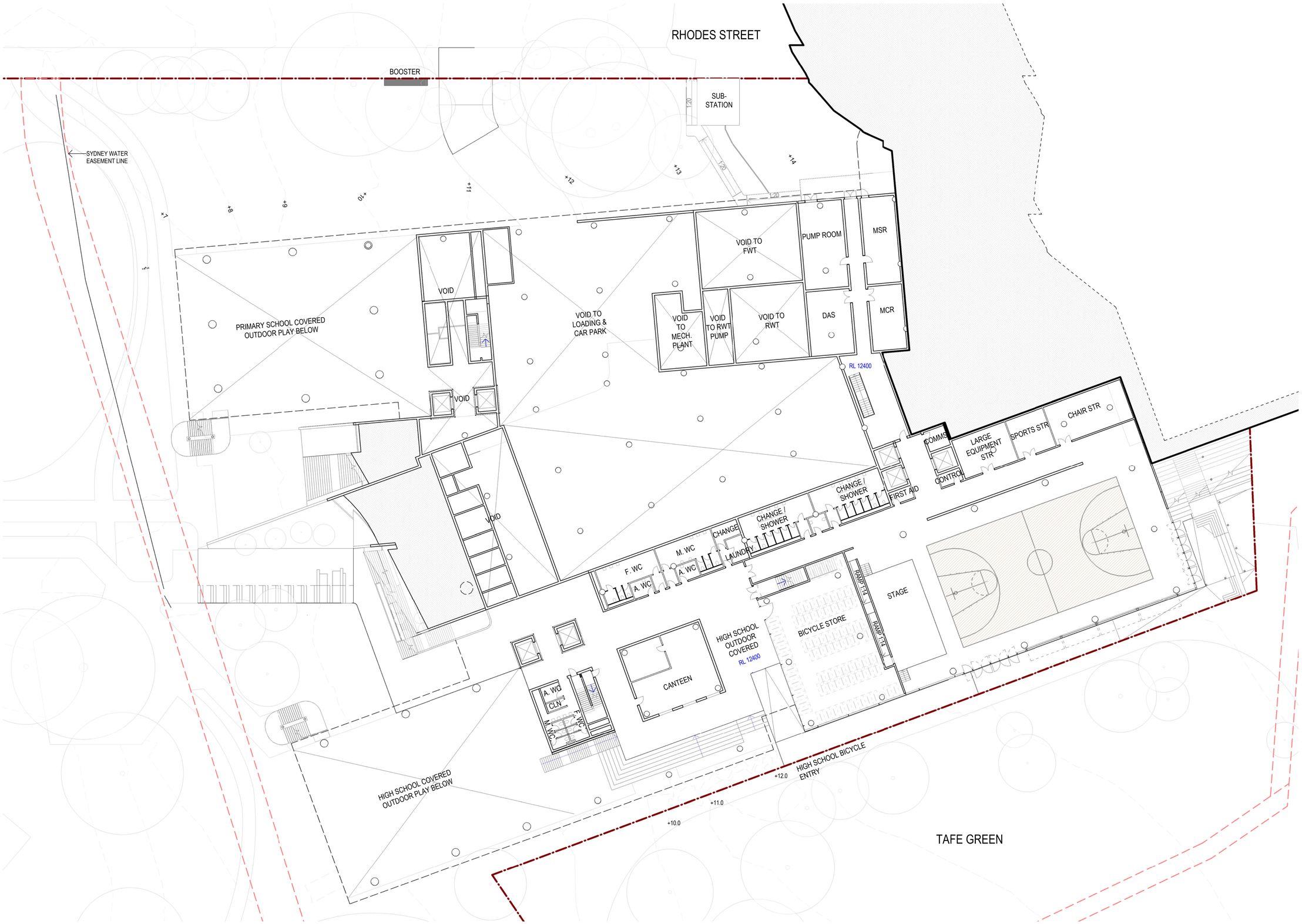
Checked	Approved	Sheet size	Scale
CS	GS	A1	As indicated

Sheet title
CAR PARK LEVEL PLAN

Sheet number
MSP-WB-AR-DA201

Revision
10

Status
PRELIMINARY



1 SSDA_LOWER GROUND GLA

Date generated 20/04/2020 5:14:22 PM

Recent revision history

#	Status	Description	Date
1	Preliminary	Issued for Review	29/03/19
2	Preliminary	Issued for Review	05/04/19
3	Preliminary	Issued for Draft SSDA	09/04/19
4	Preliminary	Issued for Coordination	15/05/19
5	Preliminary	Issued for SSDA Draft	24/05/19
6	Preliminary	Issued for SSDA	04/06/19
7	Preliminary	Issued for SSDA	17/06/19
8	Preliminary	Work in Progress Draft	9/04/20
9	Preliminary	SSDA Substitution Plans	20/04/20

Notes & Legend

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LEGEND

- SITE BOUNDARY
- PRECINCT BOUNDARY
- EASEMENT

LEGEND

AWC	ACCESSIBLE TOILET
FWC	FEMALE TOILET
MWC	MALE TOILET
CAR.ADV	CAREER ADVISOR
CIRC	CIRCULATION
CLN	CLEANERS STORE
COLA	COVERED OUTDOOR LEARNING AREA
DP	DEPUTY PRINCIPAL
EOT	END OF TRIP
GLS	GENERAL LEARNING SPACE
HS	HIGH SCHOOL
IE	INTENSIVE ENGLISH
M	MATERIAL TECHNOLOGIES
PS	PRIMARY SCHOOL
SCI	SCIENCE
SLS	SHARED LEARNING SPACE
SMNR	SEMINAR
SNR	SENIOR LEARNING UNIT
SP	SPECIAL PROGRAM
STR	STORE
VA	VISUAL ARTS
WD	WITHDRAWAL ROOM

Project Manager
BLUE VISIONS

HDC & Architectural
WOODS BAGOT

Structural & Civil Engineering
ENSTRUCT

Mechanical Engineering & ESD/Energy Modelling
STEENSEN VARMING

Electrical Engineering
WSP

Hydraulic & Fire Engineering
WARREN SMITH & PARTNERS

Landscape & Heritage
URBIS

Project
MEADOWBANK EDUCATION PRECINCT SCHOOLS
2 Rhodes Street, Meadowbank

Client
NSW GOVERNMENT Education School Infrastructure

Project number
121172

Size check
25mm

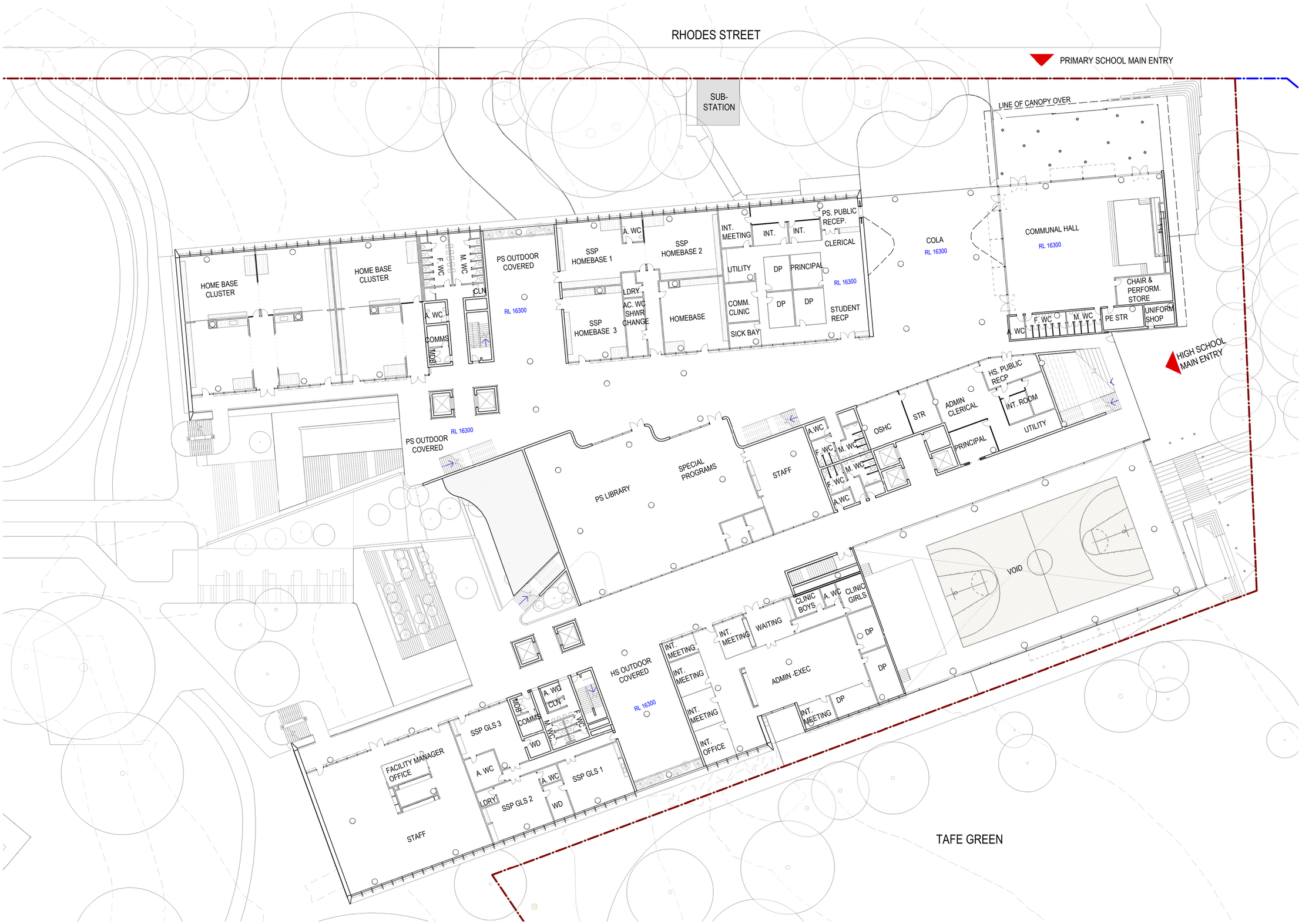
Checked	Approved	Sheet size	Scale
CS	GS	A1	As indicated

Sheet title
LOWER GROUND FLOOR

Sheet number
MSP-WB-AR-DA202

Revision
9

Status
PRELIMINARY



1 GRPOUND LEVEL
SCALE 1 : 250

Date generated 20/04/2020 5:22:45 PM

Recent revision history

#	Status	Description	Date
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2	Preliminary	Issued for Draft SSDA	09/04/19
3	Preliminary	Issued for Coordination	15/05/19
4	Preliminary	Issued for SSDA Draft	24/05/19
5	Preliminary	Issued for SSDA	04/06/19
6	Preliminary	Issued for SSDA	17/06/19
7	Preliminary	Work in Progress Draft	9/04/20
8	Preliminary	SSDA Substitution Plans	20/04/20

Notes & Legend

Contractor must verify all dimensions on site before commencing work or preparing shop drawings. Do not scale drawings.

LEGEND

- SITE BOUNDARY
- PRECINCT BOUNDARY

LEGEND

AWC	ACCESSIBLE TOILET
FWC	FEMALE TOILET
MWC	MALE TOILET
CAR.ADV	CAREER ADVISOR
CIRC	CIRCULATION
CLN	CLEANERS STORE
COLA	COVERED OUTDOOR LEARNING AREA
DP	DEPUTY PRINCIPAL
EOT	END OF TRIP
GLS	GENERAL LEARNING SPACE
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PS	PRIMARY SCHOOL
SCI	SCIENCE
SLS	SHARED LEARNING SPACE
SMNR	SEMINAR
SNR	SENIOR LEARNING UNIT
SP	SPECIAL PROGRAM
STR	STORE
VA	VISUAL ARTS
WD	WITHDRAWAL ROOM

Project Manager
BLUE VISIONS

HDC & Architectural
WOODS BAGOT

Structural & Civil Engineering
ENSTRUCT

Mechanical Engineering & ESD/Energy Modelling
STEENSEN VARMING

Electrical Engineering
WSP

Hydraulic & Fire Engineering
WARREN SMITH & PARTNERS

Landscape & Heritage
URBIS

Project
MEADOWBANK EDUCATION PRECINCT SCHOOLS
2 Rhodes Street, Meadowbank

Client
NSW GOVERNMENT | Education School Infrastructure

Project number
121172

Size check
25mm

Checked	Approved	Sheet size	Scale
CS	GS	A1	As indicated

Sheet title
GROUND FLOOR PLAN

Sheet number
MSP-WB-AR-DA203

Revision
8

Status
PRELIMINARY

1 LEVEL 1
SCALE 1 : 250

Date generated 20/04/2020 5:12:49 PM

Recent revision history

#	Status	Description	Date
1	Preliminary	Issued for Review	29/03/19
2	Preliminary	Issued for Draft SSDA	09/04/19
3	Preliminary	Issued for Coordination	15/05/19
4	Preliminary	Issued for SSDA Draft	24/05/19
5	Preliminary	Issued for SSDA	04/06/19
6	Preliminary	Issued for SSDA	17/06/19
7	Preliminary	Work in Progress Draft	9/04/20
8	Preliminary	SSDA Substitution Plans	20/04/20

Notes & Legend

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LEGEND

SITE BOUNDARY

PRECINCT BOUNDARY

LEGEND

AWC	ACCESSIBLE TOILET
FWC	FEMALE TOILET
MWC	MALE TOILET
CAR.ADV	CAREER ADVISOR
CIRC	CIRCULATION
CLN	CLEANERS STORE
COLA	COVERED OUTDOOR LEARNING AREA
DP	DEPUTY PRINCIPAL
EOT	END OF TRIP
GLS	GENERAL LEARNING SPACE
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SCI	SCIENCE
SLS	SHARED LEARNING SPACE
SMNR	SEMINAR
SNR	SENIOR LEARNING UNIT
SP	SPECIAL PROGRAM
STR	STORE
VA	VISUAL ARTS
WD	WITHDRAWAL ROOM

Project Manager
BLUE VISIONS

HDC & Architectural
WOODS BAGOT

Structural & Civil Engineering
ENSTRUCT

Mechanical Engineering & ESD/Energy Modelling
STEENSEN VARMING

Electrical Engineering
WSP

Hydraulic & Fire Engineering
WARREN SMITH & PARTNERS

Landscape & Heritage
URBIS

Project
MEADOWBANK EDUCATION PRECINCT SCHOOLS
2 Rhodes Street, Meadowbank

Client
NSW GOVERNMENT | Education School Infrastructure

Project number
121172

Size check
25mm

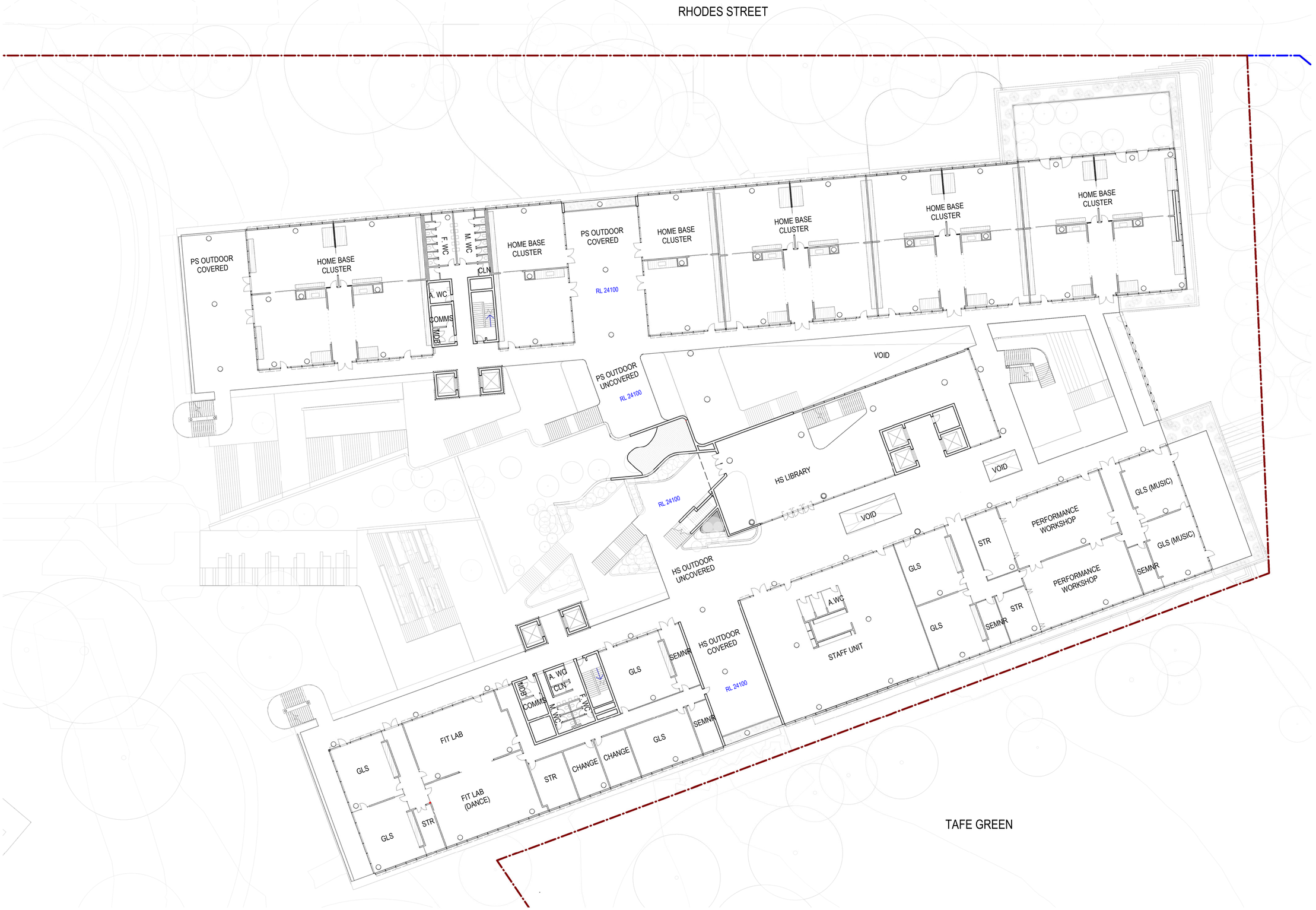
Checked	Approved	Sheet size	Scale
CS	GS	A1	As indicated

Sheet title
LEVEL 1 FLOOR PLAN

Sheet number
MSP-WB-AR-DA204

Revision
8

Status
PRELIMINARY



1 LEVEL 2
SCALE 1 : 250

Date generated 21/04/2020 9:56:33 AM

Recent revision history

#	Status	Description	Date
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2	Preliminary	Issued for Draft SSDA	09/04/19
3	Preliminary	Issued for Coordination	15/05/19
4	Preliminary	Issued for SSDA Draft	24/05/19
5	Preliminary	Issued for SSDA	04/06/19
6	Preliminary	Issued for SSDA	17/06/19
7	Preliminary	Work in Progress Draft	9/04/20
8	Preliminary	SSDA Substitution Plans	20/04/20
9	Preliminary	SSDA Substitution Plans	21/04/20

Notes & Legend

Contractor must verify all dimensions on site before commencing work or preparing shop drawings. Do not scale drawings.

LEGEND

SITE BOUNDARY

PRECINCT BOUNDARY

LEGEND

AWC	ACCESSIBLE TOILET
FWC	FEMALE TOILET
MWC	MALE TOILET
CAR.ADV	CAREER ADVISOR
CIRC	CIRCULATION
CLN	CLEANERS STORE
COLA	COVERED OUTDOOR LEARNING AREA
DP	DEPUTY PRINCIPAL
EOT	END OF TRIP
GLS	GENERAL LEARNING SPACE
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M	MATERIAL TECHNOLOGIES
PS	PRIMARY SCHOOL
SCI	SCIENCE
SLS	SHARED LEARNING SPACE
SMNR	SEMINAR
SNR	SENIOR LEARNING UNIT
SP	SPECIAL PROGRAM
STR	STORE
VA	VISUAL ARTS
WD	WITHDRAWAL ROOM

Project Manager
BLUE VISIONS

HDC & Architectural
WOODS BAGOT

Structural & Civil Engineering
ENSTRUCT

Mechanical Engineering & ESD/Energy Modelling
STEENSEN VARMING

Electrical Engineering
WSP

Hydraulic & Fire Engineering
WARREN SMITH & PARTNERS

Landscape & Heritage
URBIS

Project
MEADOWBANK EDUCATION PRECINCT SCHOOLS
2 Rhodes Street, Meadowbank

Client
NSW GOVERNMENT | Education School Infrastructure

Project number
121172

Size check
25mm

Checked	Approved	Sheet size	Scale
CS	GS	A1	As indicated

Sheet title
LEVEL 2 FLOOR PLAN

Sheet number
MSP-WB-AR-DA205

Revision
9

Status
PRELIMINARY

1 LEVEL 3
SCALE 1 : 250

Date generated 20/04/2020 5:13:39 PM

Recent revision history

#	Status	Description	Date
1	Preliminary	Issued for Review	29/03/19
2	Preliminary	Issued for Draft SSDA	09/04/19
3	Preliminary	Issued for Coordination	15/05/19
4	Preliminary	Issued for SSDA Draft	24/05/19
5	Preliminary	Issued for SSDA	04/06/19
6	Preliminary	Issued for SSDA	17/06/19
7	Preliminary	Work in Progress Draft	9/04/20
8	Preliminary	SSDA Substitution Plans	20/04/20

Notes & Legend

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LEGEND

SITE BOUNDARY

PRECINCT BOUNDARY

LEGEND

AWC	ACCESSIBLE TOILET
FWC	FEMALE TOILET
MWC	MALE TOILET
CAR.ADV	CAREER ADVISOR
CIRC	CIRCULATION
CLN	CLEANERS STORE
COLA	COVERED OUTDOOR LEARNING AREA
DP	DEPUTY PRINCIPAL
EOT	END OF TRIP
GLS	GENERAL LEARNING SPACE
HS	HIGH SCHOOL
IE	INTENSIVE ENGLISH
M	MATERIAL TECHNOLOGIES
PS	PRIMARY SCHOOL
SCI	SCIENCE
SLS	SHARED LEARNING SPACE
SMNR	SEMINAR
SNR	SENIOR LEARNING UNIT
SP	SPECIAL PROGRAM
STR	STORE
VA	VISUAL ARTS
WD	WITHDRAWAL ROOM

Project Manager
BLUE VISIONS

HDC & Architectural
WOODS BAGOT

Structural & Civil Engineering
ENSTRUCT

Mechanical Engineering & ESD/Energy Modelling
STEENSEN VARMING

Electrical Engineering
WSP

Hydraulic & Fire Engineering
WARREN SMITH & PARTNERS

Landscape & Heritage
URBIS

Project
MEADOWBANK EDUCATION PRECINCT SCHOOLS
2 Rhodes Street, Meadowbank

Client
NSW GOVERNMENT Education School Infrastructure

Project number
121172

Size check
25mm

Checked	Approved	Sheet size	Scale
CS	GS	A1	As indicated

Sheet title
LEVEL 3 FLOOR PLAN

Sheet number
MSP-WB-AR-DA206

Revision
8

Status
PRELIMINARY

1 LEVEL 4
SCALE 1 : 250

Date generated 4/21/2020 5:16:15 PM

Recent revision history

#	Status	Description	Date
1	Preliminary	Issued for Review	29/03/19
2	Preliminary	Issued for Draft SSDA	09/04/19
3	Preliminary	Issued for Coordination	15/05/19
4	Preliminary	Issued for SSDA Draft	24/05/19
5	Preliminary	Issued for SSDA	04/06/19
6	Preliminary	Issued for SSDA	17/06/19
7	Preliminary	Work in Progress Draft	9/04/20
8	Preliminary	SSDA Substitution Plans	20/04/20
9	Preliminary	SSDA Substitution Plans	21/04/20

Notes & Legend

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LEGEND

SITE BOUNDARY

PRECINCT BOUNDARY

LEGEND

AWC	ACCESSIBLE TOILET
FWC	FEMALE TOILET
MWC	MALE TOILET
CAR.ADV	CAREER ADVISOR
CIRC	CIRCULATION
CLN	CLEANERS STORE
COLA	COVERED OUTDOOR LEARNING AREA
DP	DEPUTY PRINCIPAL
EOT	END OF TRIP
GLS	GENERAL LEARNING SPACE
HS	HIGH SCHOOL
IE	INTENSIVE ENGLISH
M	MATERIAL TECHNOLOGIES
PS	PRIMARY SCHOOL
SCI	SCIENCE
SLS	SHARED LEARNING SPACE
SMNR	SEMINAR
SNR	SENIOR LEARNING UNIT
SP	SPECIAL PROGRAM
STR	STORE
VA	VISUAL ARTS
WD	WITHDRAWAL ROOM

Project Manager
BLUE VISIONS

HDC & Architectural
WOODS BAGOT

Structural & Civil Engineering
ENSTRUCT

Mechanical Engineering & ESD/Energy Modelling
STEENSEN VARMING

Electrical Engineering
WSP

Hydraulic & Fire Engineering
WARREN SMITH & PARTNERS

Landscape & Heritage
URBIS

Project
MEADOWBANK EDUCATION PRECINCT SCHOOLS
2 Rhodes Street, Meadowbank

Client
NSW GOVERNMENT Education School Infrastructure

Project number
121172

Size check
25mm

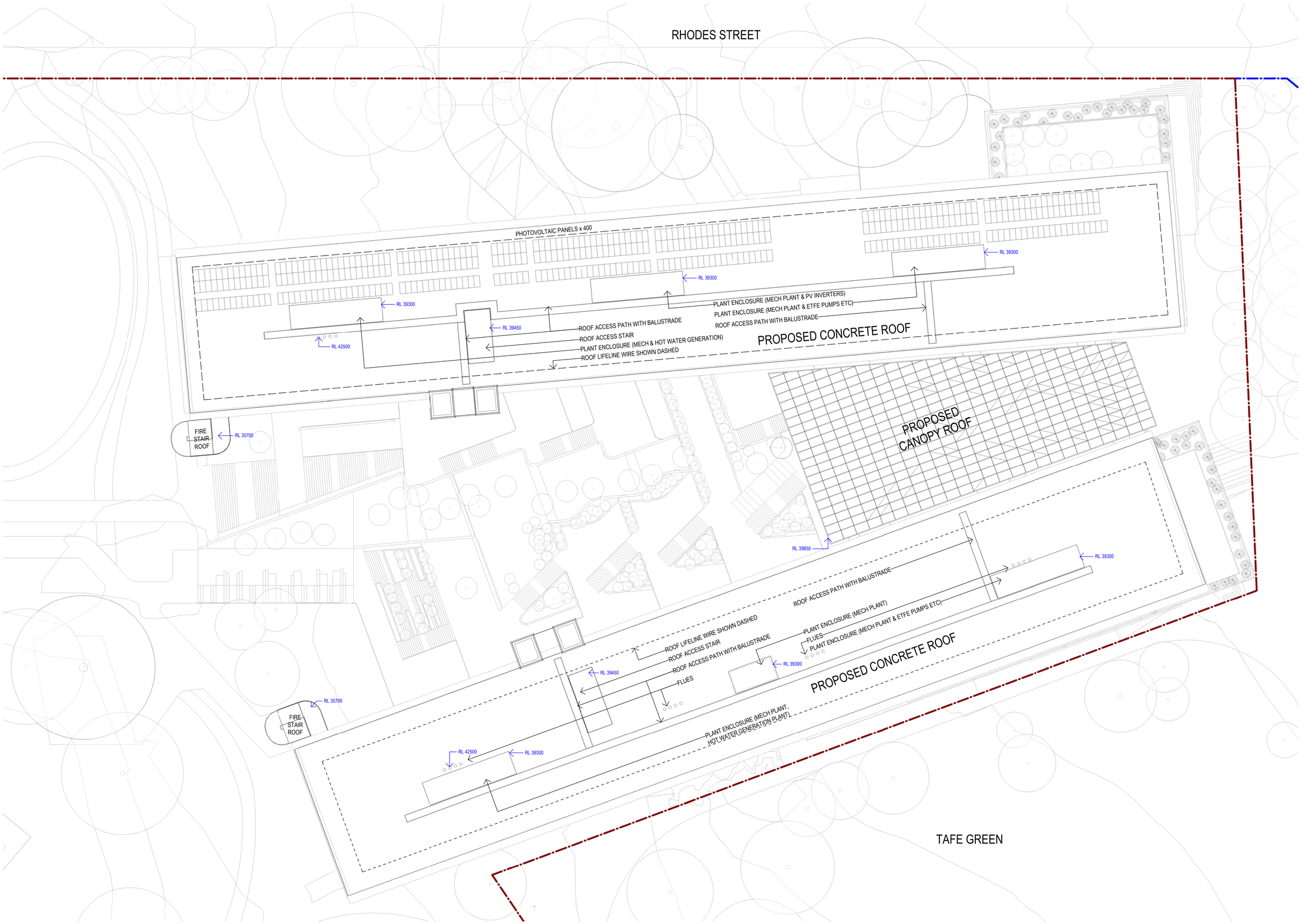
Checked	Approved	Sheet size	Scale
CS	GS	A1	As indicated

Sheet title
LEVEL 4 FLOOR PLAN

Sheet number
MSP-WB-AR-DA207

Revision
9

Status
PRELIMINARY



1 ROOF LEVEL
SCALE 1 : 250

Date generated 4/21/2020 5:16:58 PM

Recent revision history

#	Status	Description	Date
2	Preliminary	Issued for Review	05/04/19
3	Preliminary	Issued for Draft SSDA	09/04/19
4	Preliminary	Issued for Coordination	15/05/19
5	Preliminary	Issued for SSDA Draft	24/05/19
6	Preliminary	Issued for SSDA	04/06/19
7	Preliminary	Issued for SSDA	17/06/19
8	Preliminary	Issued for SSDA	24/01/20
9	Preliminary	Work in Progress Draft	9/04/20
10	Preliminary	SSDA Substitution Plans	20/04/20
11	Preliminary	SSDA Substitution Plans	21/04/20

Notes & Legend

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LEGEND

- SITE BOUNDARY
- PRECINCT BOUNDARY

LEGEND

AWC	ACCESSIBLE TOILET
FWC	FEMALE TOILET
MWC	MALE TOILET
CAR.ADV	CAREER ADVISOR
CIRC	CIRCULATION
CLN	CLEANERS STORE
COLA	COVERED OUTDOOR LEARNING AREA
DP	DEPUTY PRINCIPAL
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SCI	SCIENCE
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SMNR	SEMINAR
SNR	SENIOR LEARNING UNIT
SP	SPECIAL PROGRAM
STR	STORE
VA	VISUAL ARTS
WD	WITHDRAWAL ROOM

Project Manager
BLUE VISIONS

HDC & Architectural
WOODS BAGOT

Structural & Civil Engineering
ENSTRUCT

Mechanical Engineering & ESD/Energy Modelling
STEENSEN VARMING

Electrical Engineering
WSP

Hydraulic & Fire Engineering
WARREN SMITH & PARTNERS

Landscape & Heritage
URBIS

Project
MEADOWBANK EDUCATION PRECINCT SCHOOLS
2 Rhodes Street, Meadowbank

Client
NSW GOVERNMENT Education School Infrastructure

Project number
121172

Size check
25mm

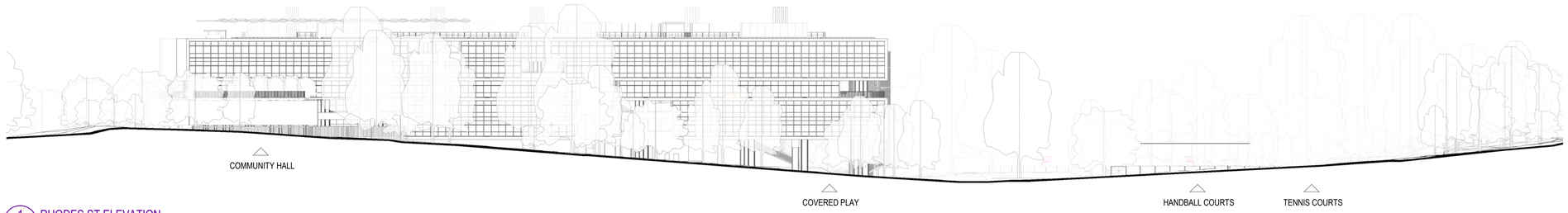
Checked	Approved	Sheet size	Scale
CS	GS	A1	As indicated

Sheet title
ROOF PLAN

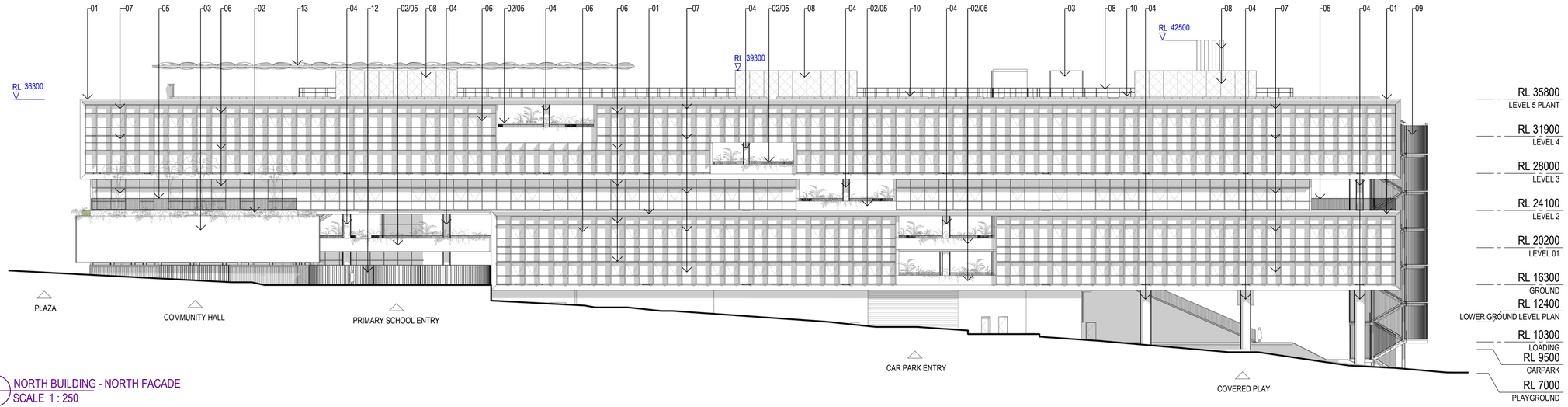
Sheet number
MSP-WB-AR-DA208

Revision
11

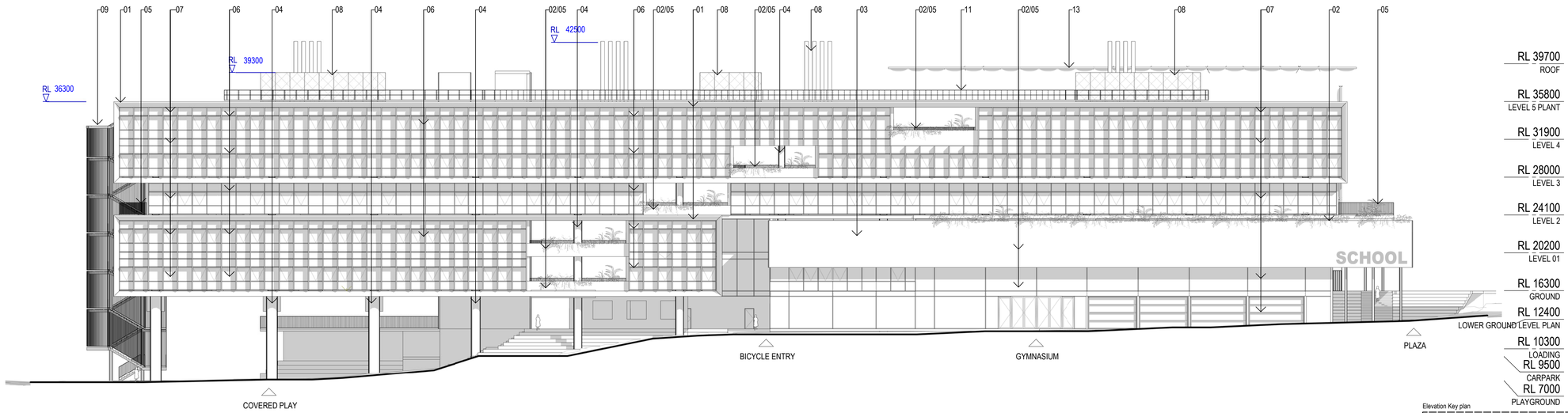
Status
PRELIMINARY



1 RHODES ST ELEVATION
SCALE 1 : 500

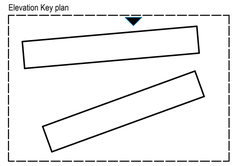


2 NORTH BUILDING - NORTH FACADE
SCALE 1 : 250

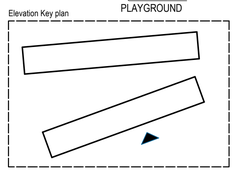


3 SOUTH BUILDING - SOUTH FACADE
SCALE 1 : 250

Elevation Key plan



Elevation Key plan



Date generated 24/04/2020 3:58:39 PM

Recent revision history

#	Status	Description	Date
2	Preliminary	Issued for Draft SSDA	09/04/19
3	Preliminary	Issued for Coordination	15/05/19
4	Preliminary	Issued for SSDA Draft	24/05/19
5	Preliminary	Issued for SSDA	04/06/19
6	Preliminary	Issued for SSDA	17/06/19
7	Preliminary	Issued for SSDA	24/01/20
8	Preliminary	Work in Progress Draft	9/04/20
9	Preliminary	SSDA Substitution Plans	20/04/20
10	Preliminary	SSDA Substitution Plans	21/04/20
11	Preliminary	SSDA Substitution Plans	24/04/20

Notes & Legend

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LEGEND: MATERIALS

01	CERAMIC / MASONRY CLADDING
02	PLANTER
03	PERFORATED METAL SCREEN
04	STRUCTURAL COLUMN
05	METAL BALUSTRADE
06	METAL SUN SHADE
07	GLAZING AND SPANDREL
08	FLUES/PLANT
09	OPEN METAL ROD SCREEN
10	PV PANELS
11	METAL MAINTENANCE PLATFORM & BALUSTRADE
12	METAL FENCE
13	CANOPY
14	LANDSCAPING

Project Manager
BLUE VISIONS

HDC & Architectural
WOODS BAGOT

Structural & Civil Engineering
ENSTRUCT

Mechanical Engineering & ESD/Energy Modelling
STEENSEN VARMING

Electrical Engineering
WSP

Hydraulic & Fire Engineering
WARREN SMITH & PARTNERS

Landscape & Heritage
URBIS

Project
MEADOWBANK EDUCATION PRECINCT SCHOOLS
2 Rhodes Street, Meadowbank

Client
NSW GOVERNMENT Education School Infrastructure

Project number
121172

Size check
25mm

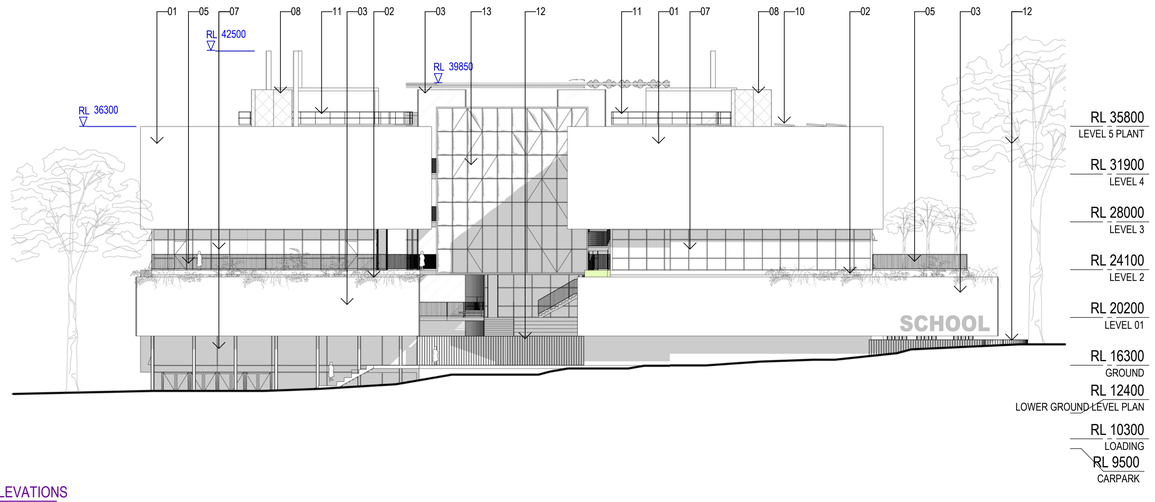
Checked	Approved	Sheet size	Scale
CS	GS	A1	As indicated

Sheet title
NORTH & SOUTH BUILDING ELEVATIONS

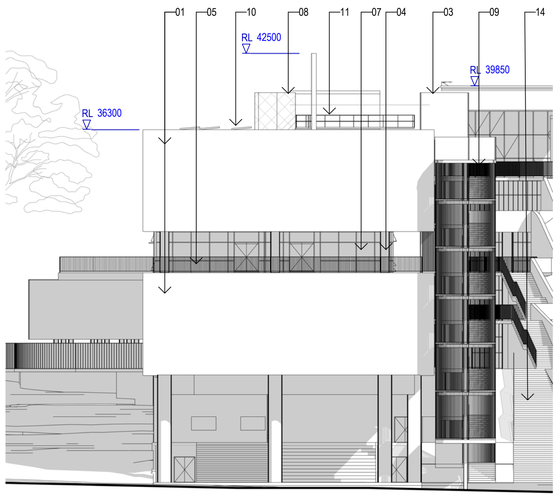
Sheet number
MSP-WB-AR-DA301

Revision
11

Status
PRELIMINARY



2 EAST ELEVATIONS
SCALE 1 : 250



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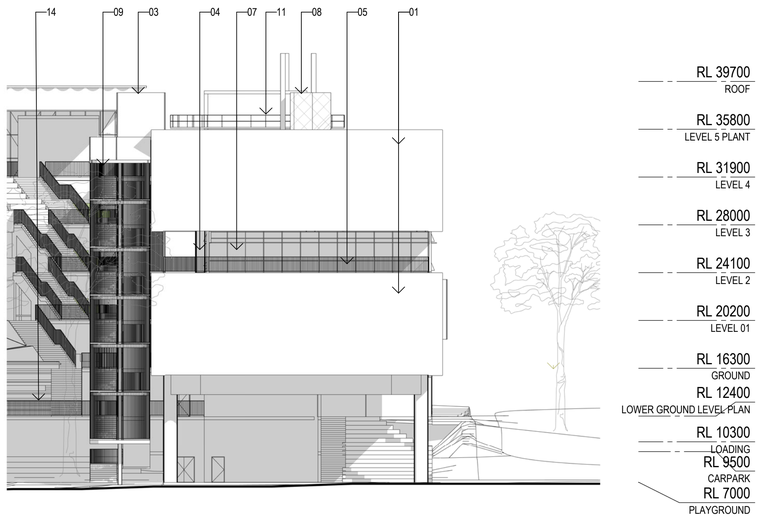
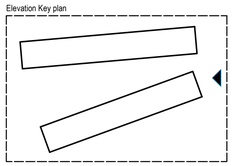


6 WEST ELEVATION_SOUTH WING
SCALE 1 : 250

Elevation Key plan



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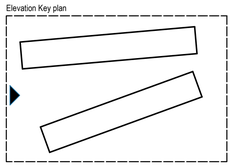

Recent revision history

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1	Preliminary	Issued for Review	29/03/19
2	Preliminary	Issued for Draft SSDA	09/04/19
3	Preliminary	Issued for Coordination	15/05/19
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7	Preliminary	Issued for SSDA	24/01/20
8	Preliminary	Work in Progress Draft	9/04/20
9	Preliminary	SSDA Substitution Plans	20/04/20
10	Preliminary	SSDA Substitution Plans	21/04/20

Notes & Legend

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LEGEND: MATERIALS

01	CERAMIC / MASONRY CLADDING
02	PLANTER
03	PERFORATED METAL SCREEN
04	STRUCTURAL COLUMN
05	METAL BALUSTRADE
06	METAL SUN SHADE
07	GLAZING AND SPANDREL
08	FLUES/PLANT
09	OPEN METAL ROD SCREEN
10	PV PANELS
11	METAL MAINTENANCE PLATFORM & BALUSTRADE
12	METAL FENCE
13	CANOPY
14	LANDSCAPING

Project Manager
BLUE VISIONS

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WOODS BAGOT

Structural & Civil Engineering
ENSTRUCT

Mechanical Engineering & ESD/Energy Modelling
STEENSEN VARMING

Electrical Engineering
WSP

Hydraulic & Fire Engineering
WARREN SMITH & PARTNERS

Landscape & Heritage
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Project
MEADOWBANK EDUCATION PRECINCT SCHOOLS
2 Rhodes Street, Meadowbank

Client
NSW GOVERNMENT Education School Infrastructure

Project number
121172

Size check
25mm

Checked	Approved	Sheet size	Scale
CS	GS	A1	As indicated

Sheet title
EAST & WEST ELEVATIONS

Sheet number
MSP-WB-AR-DA302

Revision
10

Status
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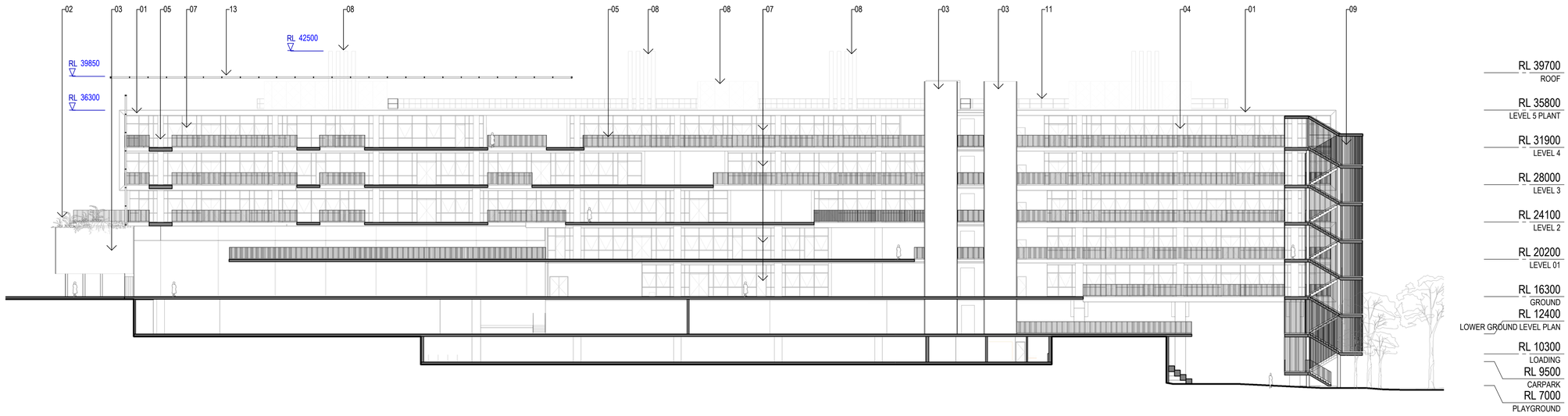

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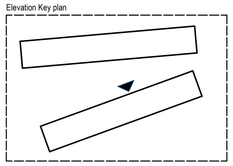
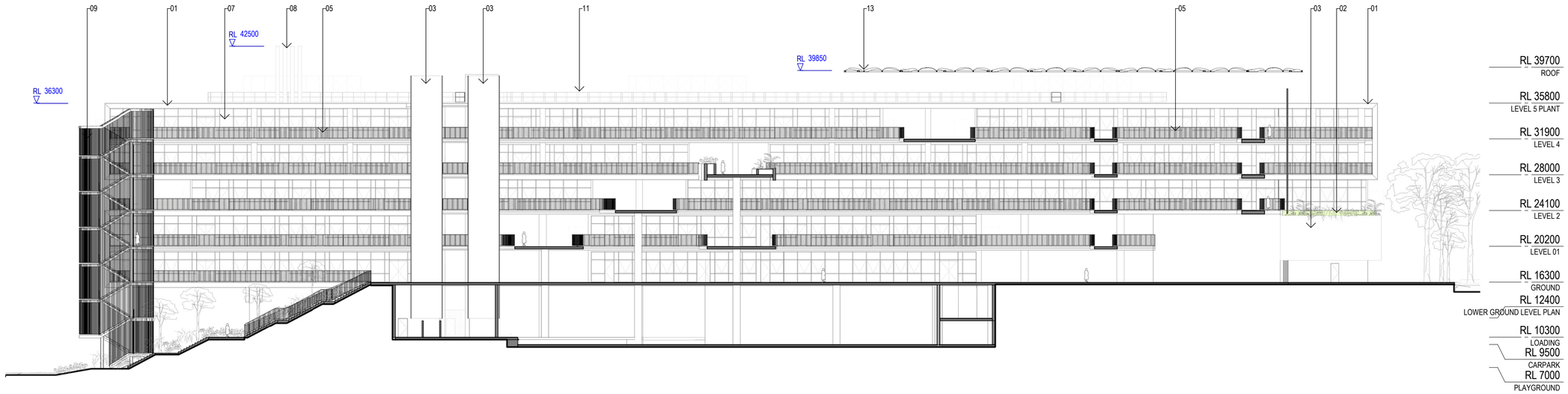
Elevation Key plan





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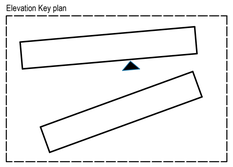
Elevation Key plan



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Project Manager
BLUE VISIONS

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WOODS BAGOT

Structural & Civil Engineering
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25mm

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Sheet title
INTERNAL BUILDING ELEVATIONAL SECTIONS

Sheet number
MSP-WB-AR-DA303

Revision
10

Status
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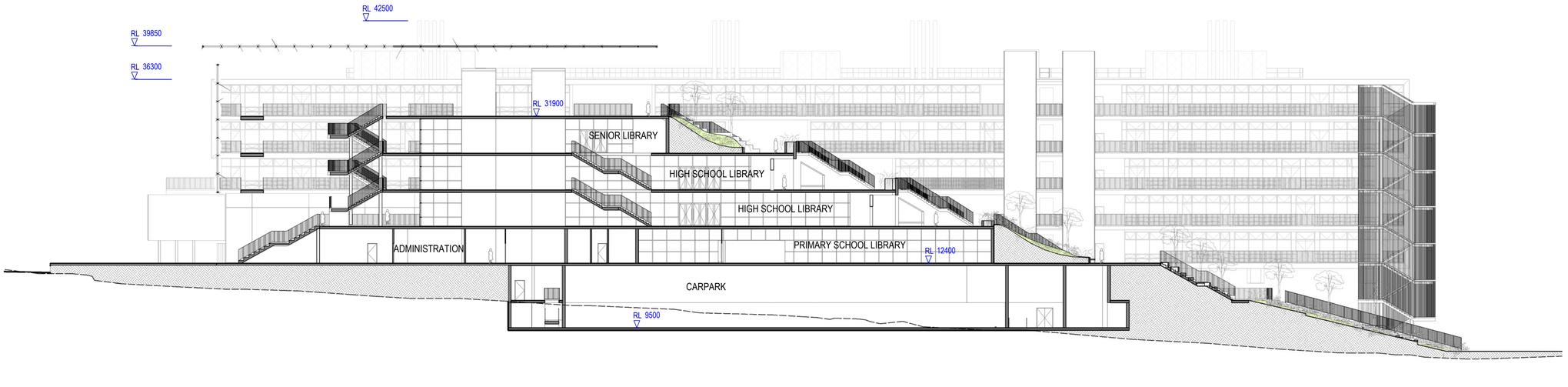

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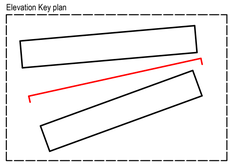

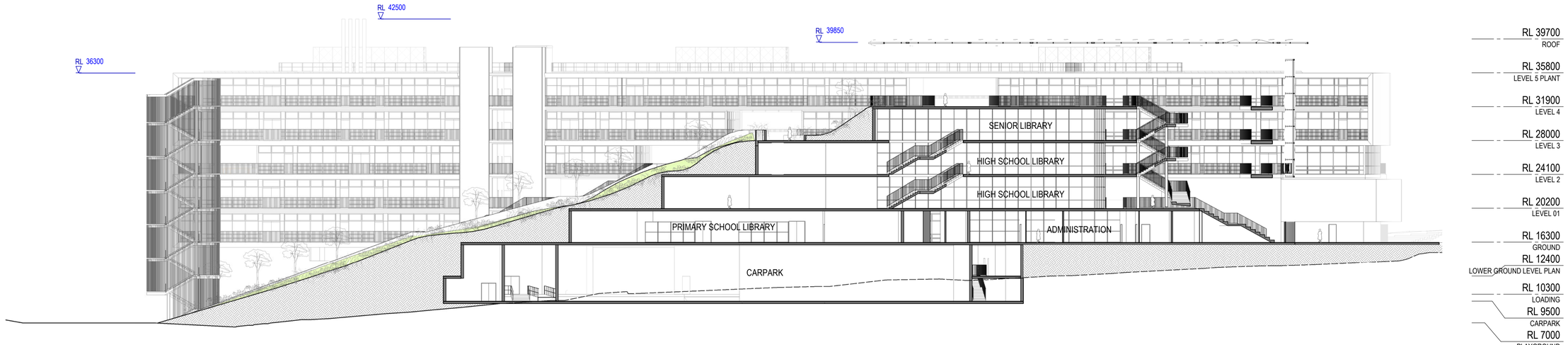

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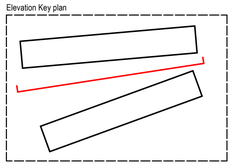

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Notes & Legend

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LEGEND

— — — — — EXISTING EARTH LINE

Project Manager
BLUE VISIONS

HDC & Architectural
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STEENSEN VARMING

Electrical Engineering
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121172

Size check
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Sheet number
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Revision
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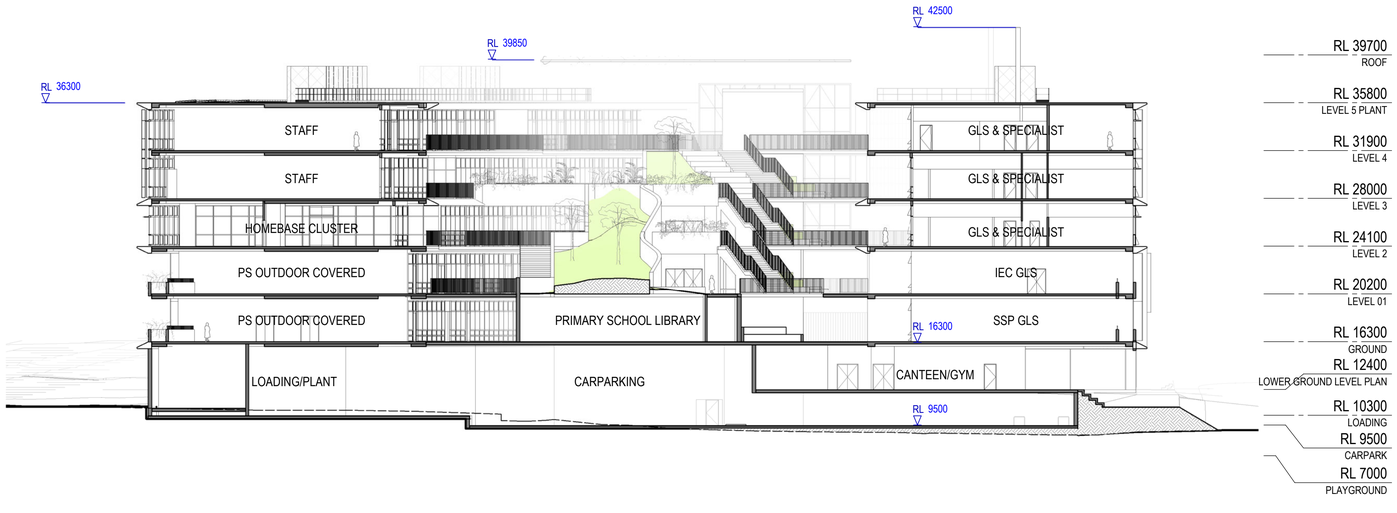

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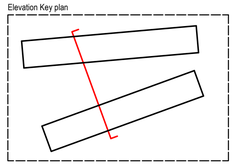

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LEGEND

— — — — — EXISTING EARTH LINE

Project Manager
BLUE VISIONS

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121172

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25mm

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CS	GS	A1	As indicated

Sheet title
OVERALL ELEVATIONS SECTIONS SHEET 02

Sheet number
MSP-WB-AR-DA305

Revision
6

Status
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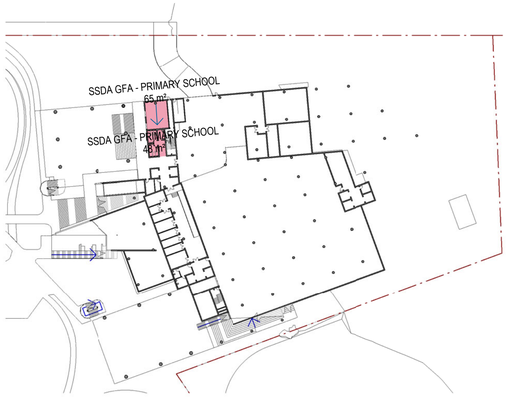

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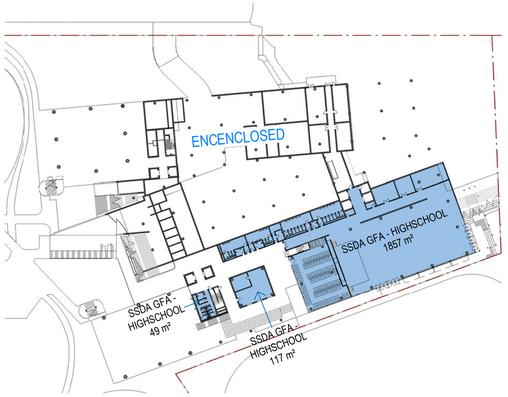

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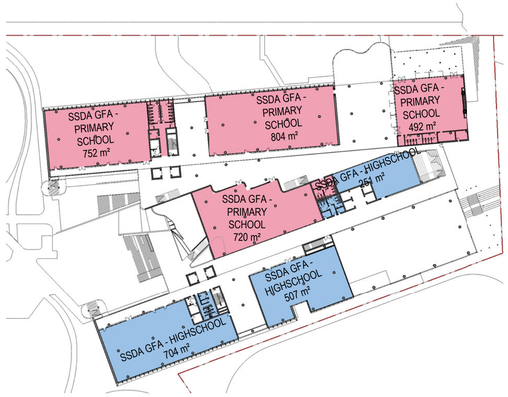

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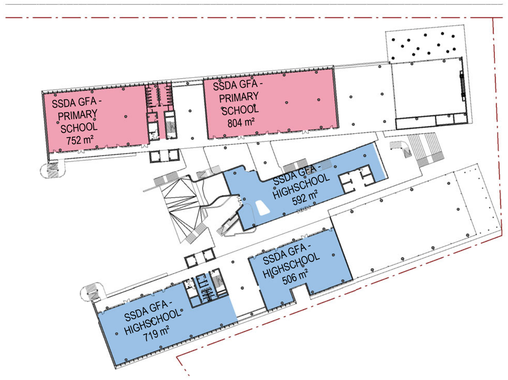
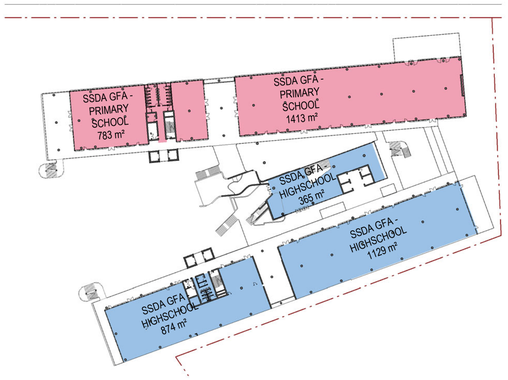


4 LEVEL 01



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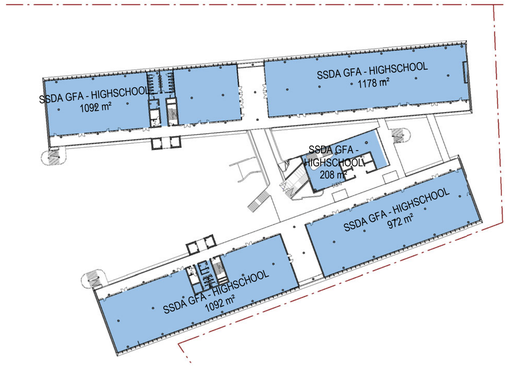

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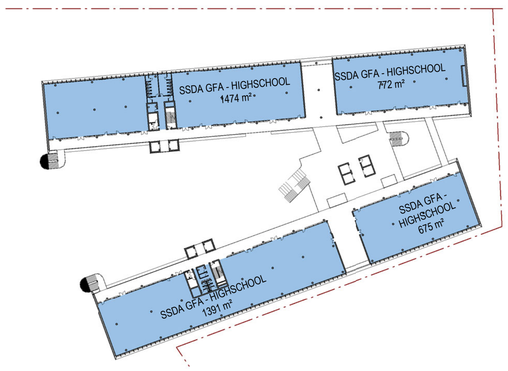

7 LEVEL 4

Area Schedule...

Level	Area
LOADING	113 m²
LOWER GROUND LEVEL PLAN	2023 m²
GROUND	4281 m²
LEVEL 01	3373 m²
LEVEL 2	4564 m²
LEVEL 3	4541 m²
LEVEL 4	4311 m²
	23206 m²

GFA DEFINITION - Extracted from RYDE LEP 2014

Gross floor area means the sum of the floor area of each floor of a building measured from the internal face of external walls, or from the internal face of walls separating the building from any other building, measured at a height of 1.4 metres above the floor, and includes:

(a) the area of a mezzanine, and
(b) habitable rooms in a basement or an attic, and
(c) any shop, auditorium, cinema, and the like, in a basement or attic,

but excludes:
(d) any area for common vertical circulation, such as lifts and stairs, and
(e) any basement:
(i) storage, and
(ii) vehicular access, loading areas, garbage and services, and
(f) plant rooms, lift towers and other areas used exclusively for mechanical services or ducting, and
(g) car parking to meet any requirements of the consent authority (including access to that car parking), and
(h) any space used for the loading or unloading of goods (including access to it), and
(i) terraces and balconies with outer walls less than 1.4 metres high, and
(j) voids above a floor at the level of a storey or storey above.

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3	Preliminary	SSDA Substitution Plans	20/04/20

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Project Manager
BLUE VISIONS

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WOODS BAGOT

Structural & Civil Engineering
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STEENSEN VARMING

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2 Rhodes Street, Meadowbank

Client
NSW GOVERNMENT Education School Infrastructure

Project number 121172
Size check 25mm
Checked Checker
Approved Approver
Sheet size A1
Scale 1 : 1000

Sheet title
GFA

Sheet number DA402
Revision 3
Status

Appendix D

If a building becomes architecture, then it is art. Clearly, if a building is not functionally and technically in order, then it isn't architecture either – it's just a building.
Arne Jacobsen

Mechanical Engineering
Lighting Design
Sustainable Design
Electrical Engineering

Copenhagen
London
Sydney
Hong Kong
New York

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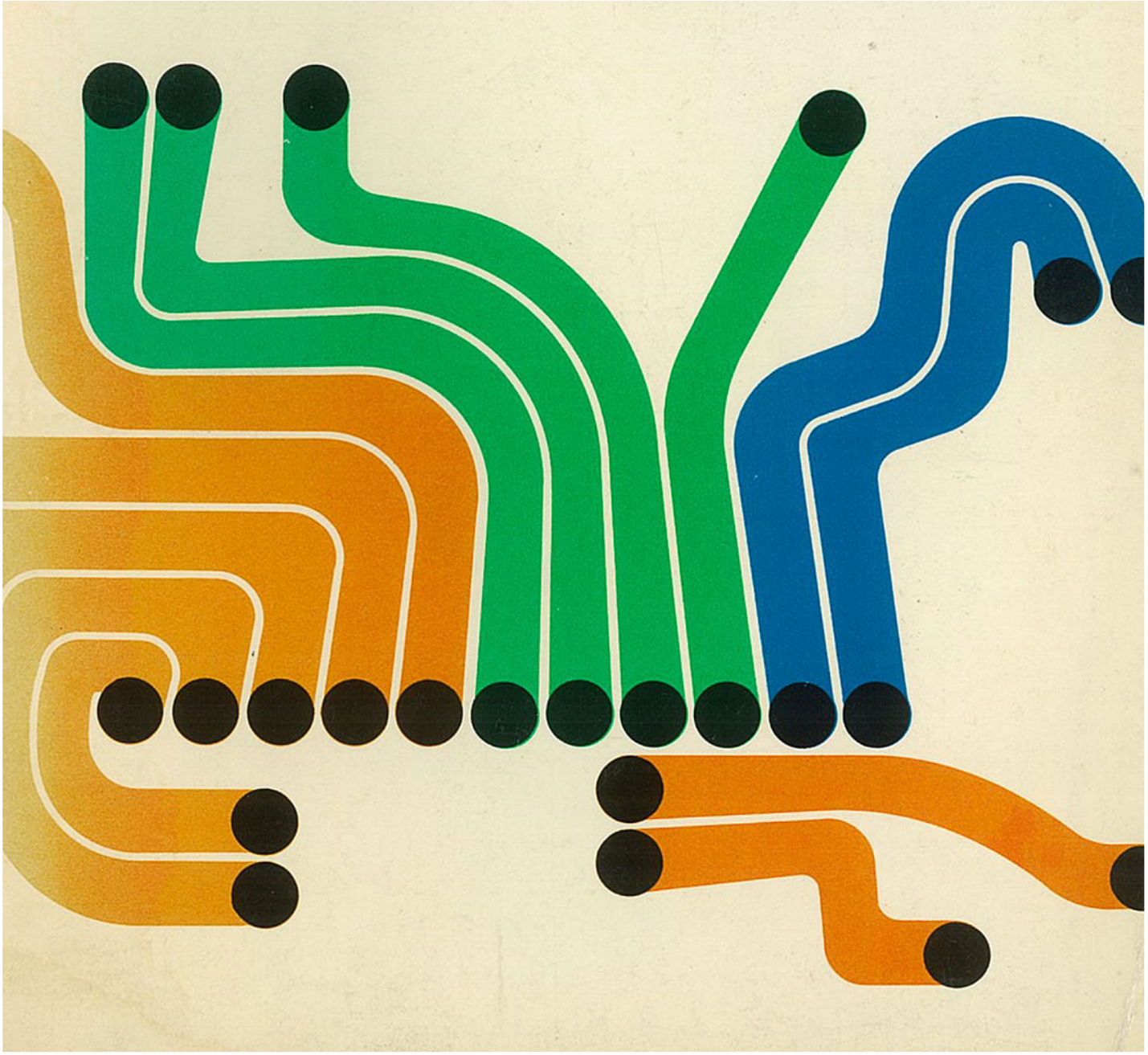
SUSTAINABLE DESIGN

STEENSEN VARMING

Meadowbank Education and Employment Precinct Schools Project: ESD SEARS Report



Document Revision and Status

Date	Rev	Issue	Notes	Checked	Approved
20.07.18	01		DRAFT For comment	GL	
31.07.18	02		Final	AS	CA
24.08.18	03		Final	AS	CA
29.08.18	04		Updated report title	AS	CA
15.03.19	05		Draft for Revised Scheme	GL	
04.04.19	06		Draft for revised Scheme	GL	
18.04.19	07		For SSDA Submission	GL	CA
03.05.19	08		For SSDA Submission	GL	CA
29.05.19	09		For SSDA Submission	GL	CA
10.10.19	10		Project name changed	GL	CA
22.04.20	11		Updated for current scheme	GL	CA
23.04.20	12		Updated for current scheme	GL	CA
24.02.20	13		Updated for current scheme	GL	CA

Sydney April 24th, 2020
Ref. No. 187020 S01

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STEENSEN VARMING

Table of contents

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1.0 Introduction

1.1 Overview

This project seeks to achieve a 4 Star Green Star equivalent rating in line with Green Star principles but does **NOT** seek to achieve a 4 Star Green Star certification.

This ESD SEARs has been prepared by Steensen Varming on behalf of the NSW Department of Education (the Applicant). It accompanies an Environmental Impact Statement (EIS) in support of State Significant Development Application (SSD 18_9343) for the Meadowbank Education and Employment Precinct Schools Project (hereafter referred to as MEEPSP) at 2 Rhodes Street, Meadowbank (the site).

The K-12 MEEPSP will cater for 1,000 primary school students and 1,620 high school students. The proposal seeks consent for:

- A multi-level, multi-purpose, integrated school building with a primary school wing and high school wing. The school building is connected by a centralised library that is embedded into the landscape. The school building contains:
    - Collaborative general and specialist learning hubs, with a combination of enclosed and open spaces;
    - Adaptable classroom home bases;
    - Four level central library, with primary school library located on ground floor and high school library on levels 1 to 3.
    - Laboratories and workshops;
    - Staff workplaces;
    - Canteens;
    - Indoor gymnasium;
    - Multipurpose communal hall;
    - Outdoor learning, play and recreational areas (both covered and uncovered).
- Associated site landscaping and public domain improvements;
- An on-site car park for 60 parking spaces; and
- Construction of ancillary infrastructure and utilities as required.

The purpose of this ESD SEARs report is to summarise the Environmentally Sustainable Design (ESD) initiatives adopted for the MEEPSP, and how the project has addressed the SEARs requirements.

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1.2 Response to SEARs

The ESD SEAR's report is required by the Secretary's Environmental Assessment Requirements (SEARs) for SSD 18_9343. This table identifies the SEARs and relevant reference within this report.

Table 1 – SEARs and Relevant Reference

SEARs Items	**Project Response to DGR**
Detail how ESD principles (as defined in clause 7(4) of Schedule 2 of the Regulation) will be incorporated in the design and ongoing operation phases of the development.	The ESD initiatives proposed for the MEEPSP aims to reduce the environmental impacts typically associated with buildings during the construction and ongoing operation of the building. The project utilises a resource hierarchy approach, with emphasis on avoiding then reduction of energy, water, materials etc. The outcome of the resource hierarchy approach is to ensure the schools aligns with the ecological sustainable development principles of Clause 7(4) of Schedule 2 of the Environmental Planning and Assessment Regulation 2000. Refer to section 4.1 Resource Conservation for the proposed ESD initiatives.
Include a framework for how the future development will be designed to consider and reflect national best practice sustainable building principles to improve environmental performance and reduce ecological impact. This should be based on a materiality assessment and include waste reduction design measures, future proofing, use of sustainable and low-carbon materials, energy and water efficient design (including water sensitive urban design) and technology and use of renewable energy.	The MEEPSP is targeting a 4 Star Green Star rating equivalence in line with Green Star principles. The project will utilise the Green Building Council of Australia's (GBCA) Design and As-built rating tool (DAB) version 1.2. A 4 Star Green Star rating is considered 'Australian excellence' level. The Green Star rating tool is a framework developed by the GBCA, and is categorised in 9 sustainability categories which cover issues such as environmental management, indoor environment quality, energy, water, waste, transport, emissions, ecology and innovation. Refer to section 4.1 Resource Conservation and section 4.1.2 Water conservation and 4.1.4 Emissions for WSUD.
Include preliminary consideration of building performance and mitigation of climate change, including consideration of Green Star Performance.	Building performance will be considered in the design of the MEEPSP. Refer to Section 4.0 for the building performance measures considered to reduce resource consumption and carbon emissions, and impact on climate change. Green Star Performance has been considered in line with the project briefing requirements. The rating tools are similar; however Green Star Performance focuses on the building operation and maintaining a valid certification against the Australian Government's National Carbon Offset Standard for buildings. This requires ongoing measuring, reduction, offsetting and reporting of emissions.

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SEARs Items	Project Response to DGR
Provide a statement regarding how the design of the future development is responsive to the CSIRO projected impacts of climate change. Specifically: ■ hotter days and more frequent heatwave events; ■ extended drought periods; ■ more extreme rainfall events; ■ gustier wind conditions; and ■ how these will inform material selection and social equity aspects (respite/shelter areas).	A climate adaptation study will be undertaken to identify the climate risks in response to the projected impacts. Actions and design strategies will be identified to lower the impacts and the associated risk levels. At the current stage, the MEEPSP proposes the following strategies in response to the CSIRO projected impacts of climate change. **Hotter days and more frequent heatwave events:** ■ Passive building design features to reduce/dampen the effects of increasing temperature, such as solar shading and solar control glazing. ■ The MEEPSP proposes the use of mixed mode ventilation, however acknowledges the impacts of climate change and has proposed the use of air conditioning during peak conditions. This is to ensure that appropriate internal conditions can be achieved and maintained as temperatures continue to rise. ■ Landscaping has also been proposed to reduce urban heat island effect. **Extended drought periods:** ■ Consideration of native low water landscaping to reduce potable water consumption; and ■ Rainwater harvesting and low flow fixtures and fittings. **More extreme rainfall events:** ■ Consideration of increased drainage capacities to reduce flooding of roofs and hard surfaces; and ■ Assessment of design of the building to address post development probable maximum flood (PMF) level. **Gustier wind conditions:** ■ Design of windows and openings with controls to limit the impact of gustier wind conditions for internal spaces; ■ Landscaping to buffer strong winds to outdoor areas. **Material selection:** ■ Use of durable façade materials and materials to improve building thermal performance such as insulation and thermal mass; and ■ Covered/shaded outdoor respite areas.

This report presents a concise summary of the design decisions made during the Schematic design stage, and outlines the key ESD opportunities and initiatives that are likely to be implemented into the MEEPSP. The strategies presented in this report are based on the current architectural schematic design developed by Woods Bagot Architects.

To ensure a sustainable outcome, the following are key strategies being addressed within the proposed design:

- Incorporate a high-performance building envelope, to ensure energy efficiency as well as occupant comfort (including thermal, visual and acoustic comfort);

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- Incorporate appropriate passive and active design strategies to ensure a low-energy as well as low-maintenance design outcome;
- Adopt water sensitive urban design principles; and
- Adopt practices to minimise demolition, construction and operational waste including recycling of demolition and construction waste.

To benchmark the environmental performance of the building, the project will target a 4 Star Green Star Rating equivalence in line with Green Star principles under the GBCA's Design and As-built version 1.2 rating tool.

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2.0 Targets / Benchmarks

In addition to the Secretary's Environmental Assessment Requirements (SEARs), the following environmental targets are aspired by School Infrastructure NSW (SINSW):

- Exceed the requirements of Section-J of the National Construction Code (NCC) for energy-efficiency in building fabric and building services / systems by 10%.
- Target a 4 Star Green Star Rating equivalence in line with Green Star principles under the GBCA's Design and As-built version 1.2 rating tool.

2.1 NCC Section-J

Section-J of the National Construction Code (Previously known as the Building Code of Australia) 2019 relates to "energy efficiency" of buildings". Section J is a minimum performance target for standard buildings, and specifies minimum performance targets known as deemed-to-satisfy (DTS) requirements, for building fabric and services.

The proposed MEEPSP aims to exceed the DTS requirements of Section-J. A JV3 methodology is being applied for the project to demonstrate the improvement beyond DTS by 10%.

2.2 Green Star Design and As-built Rating tool v1.2

The Green Star rating tool is a framework developed by the Green Building Council of Australia (GBCA), and is categorised in 9 sustainability categories which cover issues such as management, indoor environment quality, energy, water, waste, transport, emissions, ecology and innovation.

The MEEPSP is targeting a 4 Star Green Star rating equivalence in line with Green Star principles. MEEPSP will utilise the Green Building Council of Australia's (BCA's) Design and As-built rating tool (DAB) version 1.2. A 4 Star Green Star rating is considered 'Australian excellence' level.

Refer to Section 4.0 for further details in relation to the sustainability measures incorporated in the project.

2.3 Green Star Performance v1.2

The Green Star performance rating tool is an initiative by the Green Building Council of Australia (GBCA), and focuses on the sustainable building operations. Green Star performance is an extension of the Australian Government's National Carbon Offset

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Standard for buildings, and is a certified rating system for projects seeking the Carbon Neutral Certification Trade Mark.

Green Star Performance utilises the same framework as the Design-and-As built rating tool, such as the sustainability categories and similar credits.

Green Star performance offers projects and existing building portfolios a clear framework for measuring, reducing, offsetting and reporting for claiming against the Carbon Neutral Certification Trade Mark.

The key difference between Green Star DAB and Performance is achieving and maintaining a valid carbon neutral claim against the National Carbon Offset Standard for buildings.

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3.0 Sustainability Approach

Sustainable building design involves a holistic and integrated design approach, which builds on an increased awareness of site opportunities, form and function, to encompass and target a broad range of sustainable design initiatives.

For the MEEPSP, the key priorities to support the functional demand i.e. a learning / teaching environment, are as follows:

- The promotion of natural daylight;
- High levels of IAQ (Indoor Air Quality);
- Thermal, Visual and Acoustic comfort;
- Resource conservation (energy, water and waste); and
- The creation of an integrated community resource.

The promotion of natural daylight – There is a direct correlation between access to daylight and student performance, attention, productivity and general wellbeing;

Excellent Indoor Air Quality (IAQ) – In a similar manner to daylight, there is proven correlation between student performance, occupant wellbeing, student attendance and staff retention. Principle strategies include:

- Increased levels of outside air through the promotion of mixed mode or natural ventilation strategies, and increased outdoor air allowances;
- Mould prevention through the avoidance of thermal bridges, condensation and effective strategies in ventilation, odour and pollution control;
- Low pollutant emitting materials selections such as low VOC paints, adhesives, sealants, composite woods etc.

Excellent Thermal, Visual and Acoustic comfort:

- Thermal comfort: To ensure teachers, students and administrators are not subject to unacceptable extremes in temperature as they teach, learn and work;
- Visual comfort: To ensure the quality of light is supportive of visual tasks such as reading and presenting. In design for natural daylight, consideration must be given to daylight uniformity, penetration depth, solar heat ingress and glare control;
- Acoustic comfort: To ensure effective communication can be achieved at all times. Noise from ventilation systems is eliminated, external and internal disruptive noise affecting classrooms is also minimised. The design should aspire to reduce sound reverberation levels to 1.5 seconds or less, HVAC noise to 45dBA or less (40dBA ideal);

Resource conservation (energy, water and waste) – In delivering on the functional demands of an educational building (high levels of daylight, thermal comfort, visual comfort, and IAQ), incurs resource use through the optimisation of these attributes. These are to be supported with minimal consumption of energy and water resources, or the generation of waste and pollution in demolition, construction and operation of the building. Our approach to resource conservation is based on applying a "hierarchy" methodology as outlined in the following sections (See section 4.1).

The creation of an integrated community resource – The Schools can play a role within the local community through the use of shared facilities (library's, auditoriums, sport facilities and open spaces), facilitating events such as farmers markets, community gatherings, and integration of community gardens;

The development of the building and surrounds as a teaching tool – Students develop greater knowledge retention, understanding and awareness, when they have the opportunity to interact directly with their environment through the mediums of touch, sight and feel, compared to the traditional textbook learning.

The above approach has been taken to ensure the ESD strategies proposed meet the SEARs and targets/benchmarks discussed in the previous section (section 4.1).

The following sections provide a high-level overview of the strategies considered.

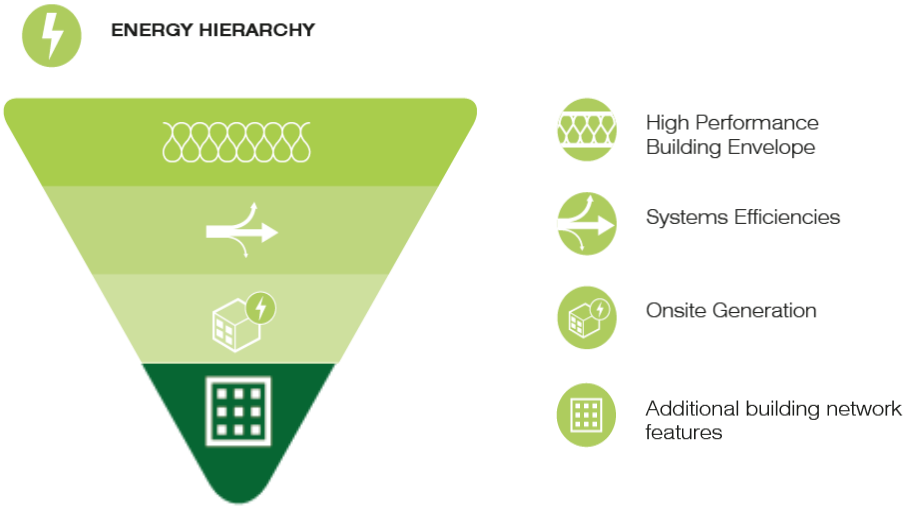
3.1 Resource Conservation

This section provides an overview of the resource conservation measures.

3.1.1 Energy Conservation

The proposed approach to sustainability and energy related systems is based on applying an "energy hierarchy" methodology.

This methodology has the reduction of energy use as its first priority, and then seeks to meet the remaining energy demand by the most efficient means available, before the inclusion of on-site generation and importation of green power.

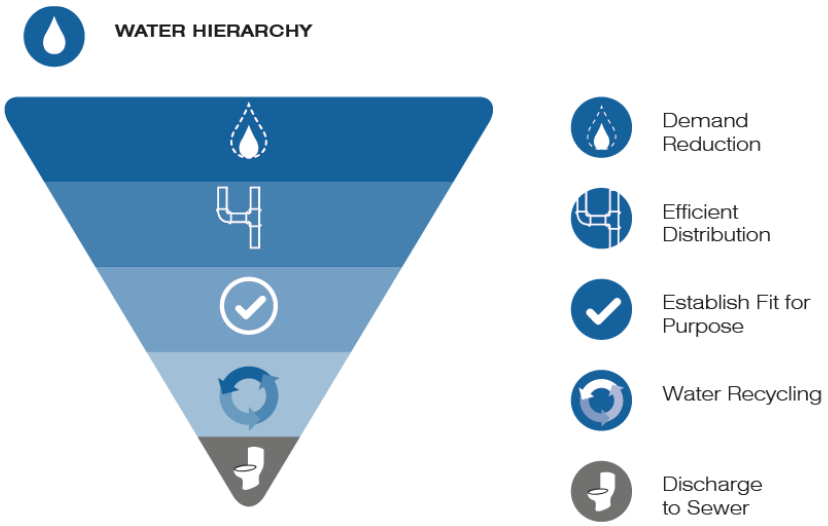


The following energy initiatives have been proposed for the MEEPSP:

- **Building Form** has been designed to with consideration of façade access for greater access to natural daylight and opportunity for natural ventilation.
- **Passive design principles** will be employed to respond to environmental conditions of the building including orientation, solar access, prevailing winds, seasonal and diurnal temperatures changes.
- **A Mixed Mode Ventilation strategy** has been incorporated for improved indoor air quality, whilst also reducing energy consumption associated with air-conditioning. When external and internal conditions are favourable, external windows to each cluster can open to facilitate natural ventilation.
- **Building energy performance improvement -** Energy modelling will be undertaken using the BCA Section J, JV3 energy modelling guidelines. The energy modelling will demonstrate the project achieves a minimum 10% energy reduction against the benchmark standard.
- **Energy efficient LED lighting, zoning, controls and site co-ordination** for both internal and external lighting systems are to be designed.
- **Occupancy controls** will be provided to spaces so that AV, lighting and mechanical systems can be shut down both manually and automatically when unoccupied.
- **A 99 kWp Solar photovoltaic (PV) array** has been proposed and will be located on the roof terrace. Energy generated onsite can be reused onsite.
- **High efficiency HVAC**
- **CO2 monitoring**

3.1.2 Water Conservation

The following hierarchy will be applied, along with the following proposed strategies:



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- **Water efficient fixtures / fittings** will be specified. These include fittings such as taps, showerheads, toilets, zip taps, dishwashers etc certified under the WEL rating scheme;
- **Rainwater Reuse** - Rainwater collection and reuse systems will be incorporated. Reuse options include landscape irrigation and toilet flushing. The rainwater system will at a minimum achieve the following requirements as per the development control plan Part 8.2:
  - A rainwater tank to meet greater than 50% of non-potable water demand; and
  - 80% of the water supply for use within open spaces (including irrigation, ponds, water features etc.) must be provided from sources other than potable water such as rainwater tanks or treated grey-water.

- **Fire Systems test water** will be captured and stored for re-use using in a separate fire services water tank.

3.1.3 Materials

Selection of environmentally preferable materials is a key priority for the project, because building materials consume energy and natural resources during its manufacture and for their transportation to the construction site.

Preference will be given to materials that contain high-recycled content and/or are highly recyclable. The following strategies have been proposed:

- **Use sustainable timber-** timber products used for concrete formwork, structure, wall linings, flooring and joinery will be sourced where possible from reused, post-consumer recycled or FSC-certified, or PEFC certified timber.
- **Steel** – will be specified to meet specific strength grades, energy-reducing manufacturing technologies, and off-site fabrication. Steel will also be sourced with a proportion of the fabricated structural steelwork via a steel contractor accredited by the Environmental Sustainability Charter of the Australian Steel Institute.
- **Recycled concrete** – The project aims to reduce the use of Portland cement through substitutions. Fine and coarse aggregate inputs are to be sourced from manufactured sand or other alternative materials, and the amount of Portland cement will be reduced within the concrete mix.
- **High recycled content or recyclability** – Furniture items with high recycled or recyclability content have been considered.

3.1.4 Emissions

Proposed design aims to ensure reduction of all forms of emissions, including watercourse pollution, light pollution and ozone depletion.

- **Water Sensitive Urban Design (WSUD)** integrates water cycle management with urban planning and design. The aim of WSUD is to manage the impacts of storm

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water run-off from the development to protect and improve waterway health by replicating the natural water cycle.

As part of the WSUD, the development will incorporate rainwater reuse (refer to section 4.1.2) and storm water management.

The storm water drainage system will prevent storm water contamination, control sedimentation and erosion during construction and operation of the building. The storm water treatment system will target reductions for the following pollutants

- Total Suspended Solids (TSS)
- Gross Pollutants (GP)
- Total Nitrogen (TN)
- Total Phosphorous (TP)

On-site Stormwater Detention (OSD) has been considered for the project, however it is expected that the site will not require OSD for the proposed development areas due to the proximity of the open watercourse which the catchment discharges to.

3.1.5 Other Key measures

The following measures have been considered for the schools. These measures are intended to reduce the environmental impacts associated with the construction of new buildings.

- **Environmental Management Plan (EMP)** – The EMP will be developed and implemented for the construction stage, including demolition and excavation, to address environmental, worker health and safety and community risks. The EMP is a project specific plan and developed using State and Federal Guidelines and standards. The main contractor will implement an Environmental Management System certified to the ISO 14001 standard to ensure the objectives of the EMP are met.
- **Site waste management plan**. During the demolition and construction phase, a project-specific site waste management plan (WMP) will be developed and implemented, to reduce recycling of demolition and construction waste.
- **Comprehensive commissioning** – pre-commissioning, commissioning, and quality monitoring for all building services will be carried out.
- **Waste storage** will be provided dedicated to the separation and collection of recyclable waste.
- **Cycle parking and end of trip facilities** – bicycle parking racks, changing and shower facilities and lockers will be provided for staff.
    - Bicycle parking; and
    - End of Trip Facilities.