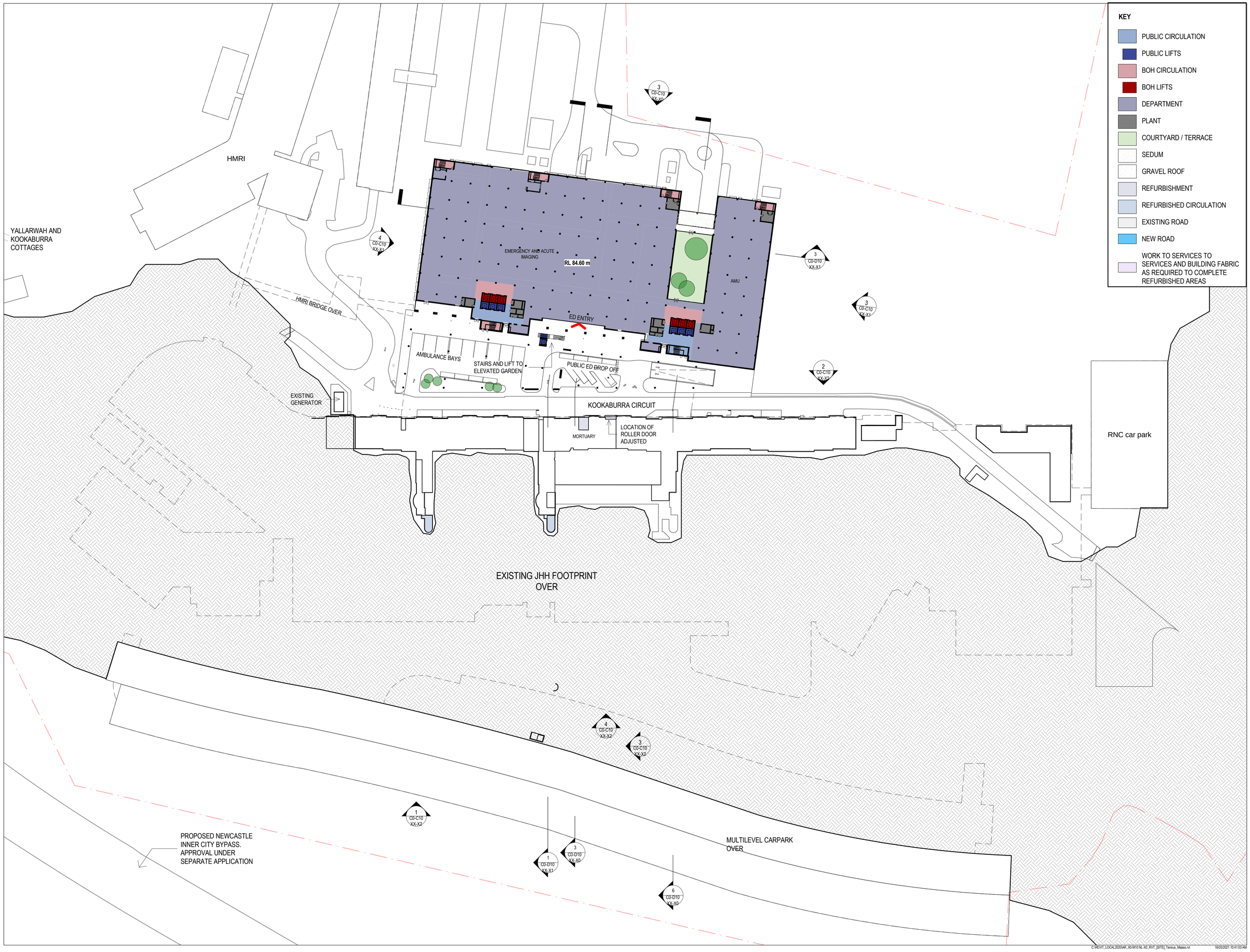


KEY

- PUBLIC CIRCULATION
- PUBLIC LIFTS
- BOH CIRCULATION
- BOH LIFTS
- DEPARTMENT
- PLANT
- COURTYARD / TERRACE
- SEDUM
- GRAVEL ROOF
- REFURBISHMENT
- REFURBISHED CIRCULATION
- EXISTING ROAD
- NEW ROAD
- WORK TO SERVICES TO SERVICES AND BUILDING FABRIC AS REQUIRED TO COMPLETE REFURBISHED AREAS

C:\REVIT_LOCAL\2020\AR_ND-M10 NL-X0_RVT_[SITE]_Tarsus_Maass.rvt 16/03/2021 10:41:03 AM

BVN

NSW ARCHITECTS REGISTRATION BOARD / NOMINATED ARCHITECTS

6501 ABBIE GALVIN
5356 NIKOTSCHKA TITCHKOSKY
7115 JULIAN ASHTON
7053 MATTHEW BLAIR
7151 PHILLIP ROSSINGTON
4937 JAMES GROSE

Telephone +61 2 8297 7200
Facsimile +61 2 8297 7299
www.bvn.com.au

NOTE

CONTRACTOR TO CHECK AND VERIFY ALL DIMENSIONS ON SITE PRIOR TO COMMENCEMENT OF WORK OR PREPARATION OF SHOP DRAWINGS. DO NOT SCALE THIS DRAWING

ISSUE	DATE	FOR
1	16-02-2021	DRAFT
2	22-02-2021	ENG. BACKGROUNDS
3	05-03-2021	FOR INFORMATION
4	16-03-2021	FOR INFORMATION

PROJECT MANAGER
TSA MANAGEMENT
TEL: 02 9276 1400

ARCHITECT
BVN
TEL: 02 8297 7200

STRUCTURAL & CIVIL CONSULTANT
NORTHROP ENGINEERS
TEL: 02 4943 1777

ELECTRICAL & MECHANICAL CONSULTANT
STEESEN VARMING PTY LTD
TEL: 02 9967 2200

HYDRAULIC & WET FIRE CONSULTANT
WARREN SMITH & PARTNERS
TEL: 02 9299 1312

LANDSCAPE CONSULTANT
URBIS LANDSCAPE
TEL: 02 8233 9900

CLIENT

NSW GOVERNMENT Health Infrastructure

HEALTH INFRASTRUCTURE, NSW

CLIENT NUMBER

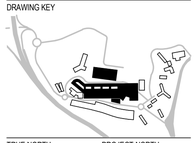
PROJECT

JOHN HUNTER HEALTH & INNOVATION PRECINCT
Lookout Rd, New Lambton Heights
NSW 2305

BVN PROJECT NUMBER

1904010

DRAWING KEY



TRUE NORTH PROJECT NORTH

GRAPHIC SCALE

0 15000 37500

SCALE

1 : 750@A1 1:1500 @ A3

STATUS

DRAWING
SSDA

LEVEL 00 FLOOR PLAN

AR_ C0-B10 L0-00 ISSUE 4

KEY

- PUBLIC CIRCULATION
- PUBLIC LIFTS
- BOH CIRCULATION
- BOH LIFTS
- DEPARTMENT
- PLANT
- COURTYARD / TERRACE
- SEDUM
- GRAVEL ROOF
- REFURBISHMENT
- REFURBISHED CIRCULATION
- EXISTING ROAD
- NEW ROAD
- WORK TO SERVICES TO SERVICES AND BUILDING FABRIC AS REQUIRED TO COMPLETE REFURBISHED AREAS

BVN

NSW ARCHITECTS REGISTRATION BOARD / NOMINATED ARCHITECTS
6501 ABBIE GALVIN
5356 NIKOTSCHKA TITCHKOSKY
7115 JULIAN ASHTON
7053 MATTHEW BLAIR
7151 PHILLIP ROSSINGTON
4937 JAMES GROSE

Telephone +61 2 8297 7200
Facsimile +61 2 8297 7299
www.bvn.com.au

NOTE

CONTRACTOR TO CHECK AND VERIFY ALL DIMENSIONS ON SITE PRIOR TO COMMENCEMENT OF WORK OR PREPARATION OF SHOP DRAWINGS. DO NOT SCALE THIS DRAWING

ISSUE	DATE	FOR
1	16-02-2021	DRAFT
2	22-02-2021	ENG. BACKGROUNDS
3	05-03-2021	FOR INFORMATION
4	09-03-2021	FOR INFORMATION
5	16-03-2021	FOR INFORMATION

PROJECT MANAGER
TSA MANAGEMENT
TEL: 02 9276 1400

ARCHITECT
BVN
TEL: 02 8297 7200

STRUCTURAL & CIVIL CONSULTANT
NORTHROP ENGINEERS
TEL: 02 4943 1777

ELECTRICAL & MECHANICAL CONSULTANT
STEESEN VARMING PTY LTD
TEL: 02 9967 2200

HYDRAULIC & WET FIRE CONSULTANT
WARREN SMITH & PARTNERS
TEL: 02 9299 1312

LANDSCAPE CONSULTANT
URBIS LANDSCAPE
TEL: 02 8233 9900

CLIENT
NSW GOVERNMENT Health Infrastructure
HEALTH INFRASTRUCTURE, NSW

CLIENT NUMBER

PROJECT

JOHN HUNTER HEALTH & INNOVATION PRECINCT
Lookout Rd, New Lambton Heights
NSW 2305

BVN PROJECT NUMBER
1904010

DRAWING KEY

TRUE NORTH PROJECT NORTH

GRAPHIC SCALE
0 15000 37500

SCALE
1 : 750@A1 1:1500 @ A3

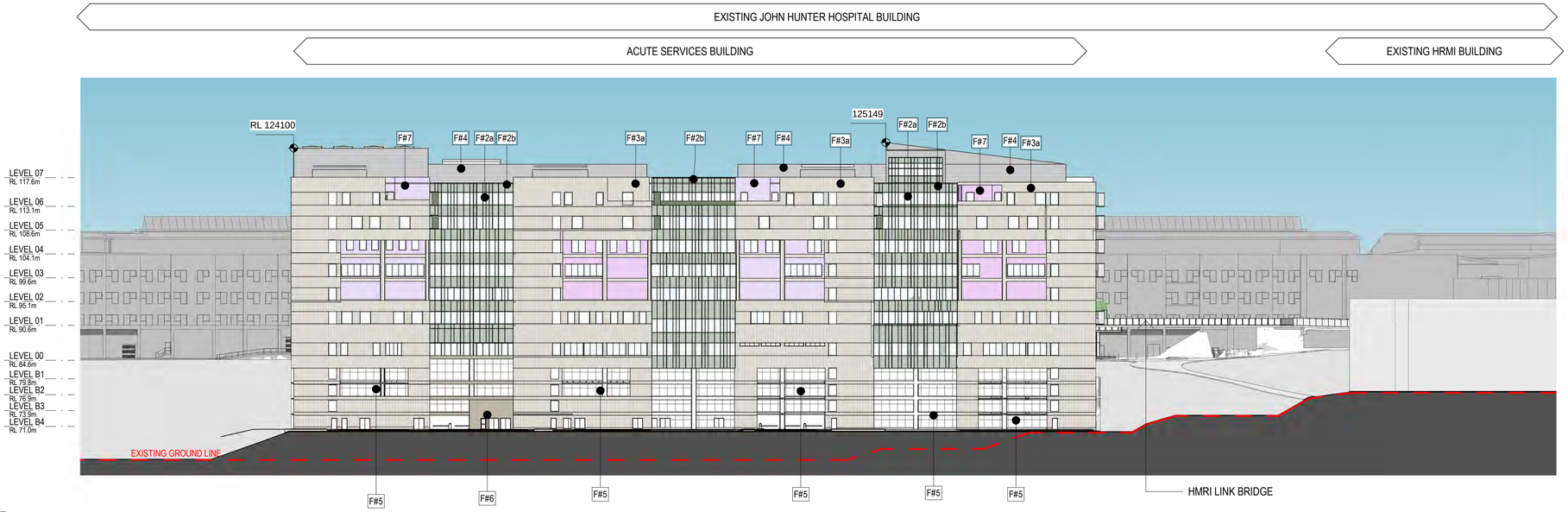
STATUS

DRAWING
SSDA

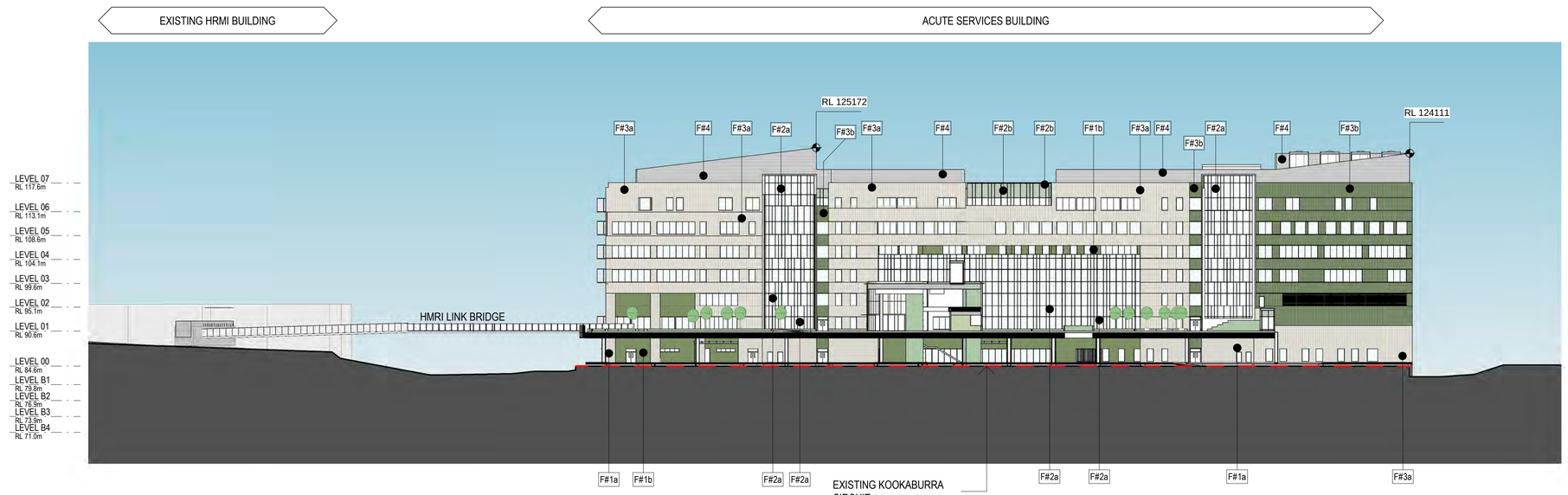
LEVEL 2 FLOOR PLAN

ISSUE
AR_ C0-B10 L2-00 5

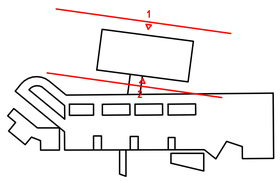
C:\REVIT_LOCAL\2020\AR_XS-M10 NL-X0_RVT_[SITE]_Tersus_Maass.rvt 16/03/2021 10:42:19 AM



3 C0-B10 B1-00 ACUTE SERVICES BUILDING NORTH ELEVATION



4 C0-B10 B1-00 ACUTE SERVICES BUILDING SOUTH ELEVATION



CODE	DESCRIPTION
F#1a	Feature Finish
F#1b	Feature Finish
F#2a	High performance glazing - low-e coated clear vision glass - expressed mullions - anodised aluminium
F#2b	Aluminium spandrels - expressed mullions - anodised aluminium
F#3a	Metal A Standing Seam cladding - module to suit building grid
F#3b	Metal B Flat panel cladding - expressed joints - module to suit building grid
F#4	Metal D -Standing Seam cladding
F#5	Carpark Façade A -flexible SS bridge safety mesh for ventilation

CODE	DESCRIPTION
F#6	Carpark Façade B - Precast concrete
F#7	CFC Cladding - Panelised system cfc system with stained mineralised paint system - Expressed joints filled with sealant
F#8	Glass
F#9	Folded perforated aluminium panels of varies width - Transluscent glazed panels with varied widths
F#10	Intergral colour insitu concrete - class 2 off form concrete - integral pigment for full depth of colour
F#11	Insitu Concrete -Stained Finish

BVN

NSW ARCHITECTS REGISTRATION BOARD / NOMINATED ARCHITECTS
6501 ABBIE GALVIN
5356 NIKOTSCHKA TITCHKOSKY
7115 JULIAN ASHTON
7053 MATTHEW BLAIR
7151 PHILLIP ROSSINGTON
4937 JAMES GROSE

Telephone +61 2 8297 7200
Facsimile +61 2 8297 7299
www.bvn.com.au

NOTE
CONTRACTOR TO CHECK AND VERIFY ALL DIMENSIONS ON SITE PRIOR TO COMMENCEMENT OF WORK OR PREPARATION OF SHOP DRAWINGS. DO NOT SCALE THIS DRAWING

ISSUE	DATE	FOR
1	16-02-2021	DRAFT
2	22-02-2021	ENG. BACKGROUNDS
3	09-03-2021	FOR INFORMATION
4	10-03-2021	FOR INFORMATION
5	15-03-2021	FOR INFORMATION

PROJECT MANAGER
TSA MANAGEMENT
TEL: 02 9276 1400

ARCHITECT
BVN
TEL: 02 8297 7200

STRUCTURAL & CIVIL CONSULTANT
NORTHROP ENGINEERS
TEL: 02 4943 1777

ELECTRICAL & MECHANICAL CONSULTANT
STEESEN VARMING PTY LTD
TEL: 02 9967 2200

HYDRAULIC & WET FIRE CONSULTANT
WARREN SMITH & PARTNERS
TEL: 02 9299 1312

LANDSCAPE CONSULTANT
URBIS LANDSCAPE
TEL: 02 8233 9900

CLIENT
NSW GOVERNMENT Health Infrastructure
HEALTH INFRASTRUCTURE, NSW

CLIENT NUMBER

PROJECT
JOHN HUNTER HEALTH & INNOVATION PRECINCT
Lookout Rd, New Lambton Heights NSW 2305

BVN PROJECT NUMBER
1904010

DRAWING KEY

GRAPHIC SCALE
0 10000 25000

SCALE
1 : 500@A1 1:1000 @ A3

STATUS

DRAWING
SSDA

ELEVATIONS ACUTE SERVICES BUILDING

AR_ C0-C10 XX-X0

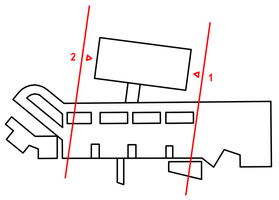
ISSUE 5

ENTRY CANOPY | EXISTING JOHN HUNTER HOSPITAL BUILDING | LINK | ACUTE SERVICES BUILDING

3 C0-B10 B1-00 ACUTE SERVICES BUILDING EAST ELEVATION

ACUTE SERVICES BUILDING | LINK | EXISTING JOHN HUNTER HOSPITAL BUILDING | ENTRY CANOPY

4 C0-B10 B1-00 ACUTE SERVICES BUILDING WEST ELEVATION



CODE	DESCRIPTION
F#1a	Feature Finish
F#1b	Feature Finish
F#2a	High performance glazing - low-e coated clear vision glass - expressed mullions - anodised aluminium
F#2b	Aluminium spandrels - expressed mullions - anodised aluminium
F#3a	Metal A Standing Seam cladding - module to suit building grid
F#3b	Metal B Flat panel cladding - expressed joints - module to suit building grid
F#4	Metal D -Standing Seam cladding
F#5	Carpark Façade A -flexible SS bridge safety mesh for ventilation

CODE	DESCRIPTION
F#6	Carpark Façade B - Precast concrete
F#7	CFC Cladding - Panelised system cfc system with stained mineralised paint system - Expressed joints filled with sealant
F#8	Glass
F#9	Folded perforated aluminium panels of varies width - Transluscent glazed panels with varied widths
F#10	Intergral colour insitu concrete - class 2 off form concrete - integral pigment for full depth of colour
F#11	Insitu Concrete -Stained Finish

BVN

NSW ARCHITECTS REGISTRATION BOARD / NOMINATED ARCHITECTS
6501 ABBIE GALVIN
5356 NIKOTSCHKA TITCHKOSKY
7115 JULIAN ASHTON
7053 MATTHEW BLAIR
7151 PHILLIP ROSSINGTON
4937 JAMES GROSE

Telephone +61 2 8297 7200
Facsimile +61 2 8297 7299
www.bvn.com.au

NOTE
CONTRACTOR TO CHECK AND VERIFY ALL DIMENSIONS ON SITE PRIOR TO COMMENCEMENT OF WORK OR PREPARATION OF SHOP DRAWINGS. DO NOT SCALE THIS DRAWING

ISSUE	DATE	FOR
1	16-02-2021	DRAFT
2	22-02-2021	ENG. BACKGROUNDS
3	09-03-2021	FOR INFORMATION
4	10-03-2021	FOR INFORMATION
5	15-03-2021	FOR INFORMATION

PROJECT MANAGER
TSA MANAGEMENT
TEL: 02 9276 1400

ARCHITECT
BVN
TEL: 02 8297 7200

STRUCTURAL & CIVIL CONSULTANT
NORTHROP ENGINEERS
TEL: 02 4943 1777

ELECTRICAL & MECHANICAL CONSULTANT
STEESEN VARMING PTY LTD
TEL: 02 9967 2200

HYDRAULIC & WET FIRE CONSULTANT
WARREN SMITH & PARTNERS
TEL: 02 9299 1312

LANDSCAPE CONSULTANT
URBIS LANDSCAPE
TEL: 02 8233 9900

CLIENT
NSW GOVERNMENT Health Infrastructure
HEALTH INFRASTRUCTURE, NSW

CLIENT NUMBER

PROJECT
JOHN HUNTER HEALTH & INNOVATION PRECINCT
Lookout Rd, New Lambton Heights
NSW 2305

BVN PROJECT NUMBER
1904010

DRAWING KEY

GRAPHIC SCALE
0 10000 25000

SCALE
1 : 500@A1 1:1000 @ A3

STATUS

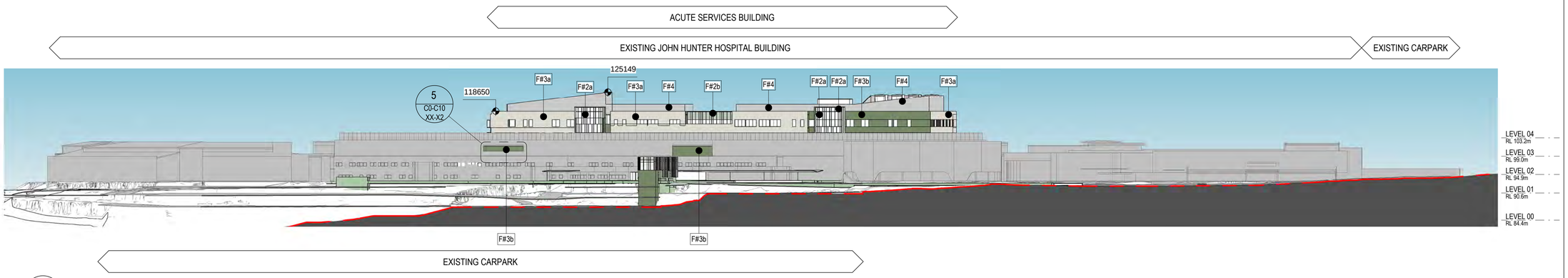
DRAWING
SSDA

ELEVATIONS ACUTE SERVICES BUILDING

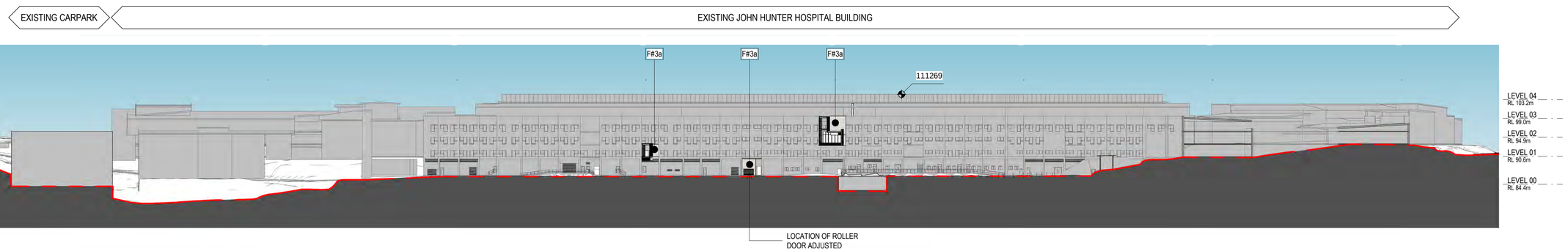
AR_ C0-C10 XX-X1

ISSUE 5

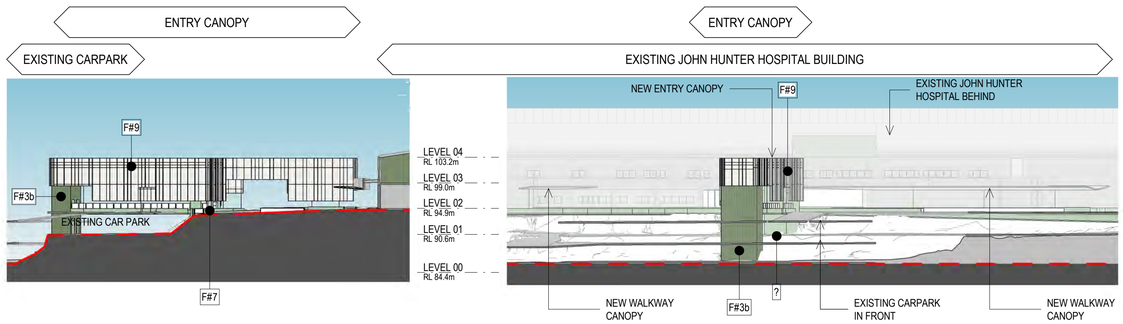
C:\REVIT_LOCAL\2020\AR_X0-M10 NL-X0_RVT_[SITE]_sam_lingard.rvt 15/03/2021 5:49:39 PM



1 C0-B10 B1-00 — JOHN HUNTER HOSPITAL SOUTH ELEVATION
1 : 750

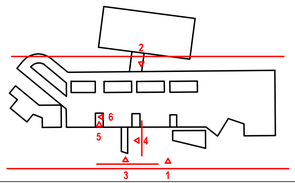


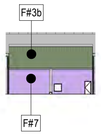
2 C0-B10 B1-00 — JOHN HUNTER HOSPITAL NORTH ELEVATION
1 : 750

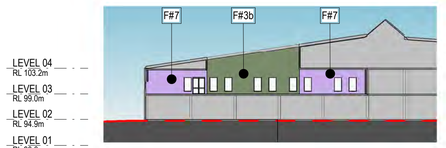


3 C0-B10 B1-00 — JOHN HUNTER HOSPITAL CANOPY EAST ELEVATION
1 : 500

4 C0-B10 B1-00 — JOHN HUNTER HOSPITAL CANOPY NORTH ELEVATION
1 : 500







5 C0-B10 L2-00 — JOHN HUNTER HOSPITAL COURTYARD NORTH ELEVATION
1 : 500

6 C0-B10 L1-00 — JOHN HUNTER HOSPITAL COURTYARD WEST ELEVATION
1 : 500

CODE	DESCRIPTION
F#1a	Feature Finish
F#1b	Feature Finish
F#2a	High performance glazing - low-e coated clear vision glass - expressed mullions - anodised aluminium
F#2b	Aluminium spandrels - expressed mullions - anodised aluminium
F#3a	Metal A Standing Seam cladding - module to suit building grid
F#3b	Metal B Flat panel cladding - expressed joints - module to suit building grid
F#4	Metal D -Standing Seam cladding
F#5	Carpark Façade A -flexible SS bridge safety mesh for ventilation

CODE	DESCRIPTION
F#6	Carpark Façade B - Precast concrete
F#7	CFC Cladding - Panelised system cfc system with stained mineralised paint system - Expressed joints filled with sealant
F#8	Glass
F#9	Folded perforated aluminium panels of varies width - Transluscent glazed panels with varied widths
F#10	Intergral colour insitu concrete - class 2 off form concrete - integral pigment for full depth of colour
F#11	Insitu Concrete -Stained Finish

BVN

NSW ARCHITECTS REGISTRATION BOARD / NOMINATED ARCHITECTS
6501 ABBIE GALVIN
5098 NINOTSCHKA TITCHKOSKY
7115 JULIAN ASHTON
7353 MATTHEW BLAIR
7151 PHILLIP ROSSINGTON
4937 JAMES GROSE

Telephone +61 2 8297 7200
Facsimile +61 2 8297 7299
www.bvn.com.au

NOTE
CONTRACTOR TO CHECK AND VERIFY ALL DIMENSIONS ON SITE PRIOR TO COMMENCEMENT OF WORK OR PREPARATION OF SHOP DRAWINGS. DO NOT SCALE THIS DRAWING

ISSUE	DATE	FOR
1	16-02-2021	DRAFT
2	22-02-2021	ENG. BACKGROUNDS
3	09-03-2021	FOR INFORMATION
4	16-03-2021	FOR INFORMATION

PROJECT MANAGER
TSA MANAGEMENT
TEL: 02 9276 1400

ARCHITECT
BVN
TEL: 02 8297 7200

STRUCTURAL & CIVIL CONSULTANT
NORTHROP ENGINEERS
TEL: 02 4943 1777

ELECTRICAL & MECHANICAL CONSULTANT
STEESEN VARMING PTY LTD
TEL: 02 9967 2200

HYDRAULIC & WET FIRE CONSULTANT
WARREN SMITH & PARTNERS
TEL: 02 9299 1312

LANDSCAPE CONSULTANT
URBIS LANDSCAPE
TEL: 02 8233 9900

CLIENT
NSW GOVERNMENT Health Infrastructure
HEALTH INFRASTRUCTURE, NSW

CLIENT NUMBER

PROJECT
JOHN HUNTER HEALTH & INNOVATION PRECINCT
Lookout Rd, New Lambton Heights
NSW 2305

BVN PROJECT NUMBER
1904010

DRAWING KEY

GRAPHIC SCALE
0 15000 37500

SCALE
As indicated@A1

STATUS

DRAWING
SSDA

ELEVATIONS - JOHN HUNTER HOSPITAL

ISSUE
AR_ C0-C10 XX-X2 4

Appendix B: AHIMS Search Results

AHIMS Web Services (AWS)
Search Result

Purchase Order/Reference : 1940 JHH

Client Service ID : 545423

Stuart Greville

21 Costata Crescent
Adamstown New South Wales 2289

Attention: Stuart Greville

Email: sgreville@bigpond.com

Date: 26 October 2020

Dear Sir or Madam:

AHIMS Web Service search for the following area at Lat, Long From : -32.9235, 151.6921 - Lat, Long To : -32.9206, 151.6967 with a Buffer of 50 meters, conducted by Stuart Greville on 26 October 2020.

The context area of your search is shown in the map below. Please note that the map does not accurately display the exact boundaries of the search as defined in the paragraph above. The map is to be used for general reference purposes only.

A search of the Office of the Environment and Heritage AHIMS Web Services (Aboriginal Heritage Information Management System) has shown that:

0	Aboriginal sites are recorded in or near the above location.
0	Aboriginal places have been declared in or near the above location. *

If your search shows Aboriginal sites or places what should you do?

- You must do an extensive search if AHIMS has shown that there are Aboriginal sites or places recorded in the search area.
- If you are checking AHIMS as a part of your due diligence, refer to the next steps of the Due Diligence Code of practice.
- You can get further information about Aboriginal places by looking at the gazettal notice that declared it. Aboriginal places gazetted after 2001 are available on the NSW Government Gazette (http://www.nsw.gov.au/gazette) website. Gazettal notices published prior to 2001 can be obtained from Office of Environment and Heritage's Aboriginal Heritage Information Unit upon request

Important information about your AHIMS search

- The information derived from the AHIMS search is only to be used for the purpose for which it was requested. It is not be made available to the public.
- AHIMS records information about Aboriginal sites that have been provided to Office of Environment and Heritage and Aboriginal places that have been declared by the Minister;
- Information recorded on AHIMS may vary in its accuracy and may not be up to date .Location details are recorded as grid references and it is important to note that there may be errors or omissions in these recordings,
- Some parts of New South Wales have not been investigated in detail and there may be fewer records of Aboriginal sites in those areas. These areas may contain Aboriginal sites which are not recorded on AHIMS.
- Aboriginal objects are protected under the National Parks and Wildlife Act 1974 even if they are not recorded as a site on AHIMS.
- This search can form part of your due diligence and remains valid for 12 months.

3 Marist Place, Parramatta NSW 2150
Locked Bag 5020 Parramatta NSW 2220
Tel: (02) 9585 6380 Fax: (02) 9873 8599

ABN 30 841 387 271
Email: ahims@environment.nsw.gov.au
Web: www.environment.nsw.gov.au

Appendix C: NBC Bushfire Attack Assessor V4.1 Results

NBC Bushfire Attack Assessment Report V4.1

AS3959 (2018) Appendix B - Detailed Method 2

Print Date: 2/03/2021 **Assessment Date:** 29/10/2020

Site Street Address: 1940 JHHI Acute Services Building, New Lambton Heights

Assessor: Stuart Greville; Bushfire Planning Australia

Local Government Area: Newcastle **Alpine Area:** No

Equations Used

Transmissivity: Fuss and Hammins, 2002
Flame Length: RFS PBP, 2001/Vesta/Catchpole
Rate of Fire Spread: Noble et al., 1980
Radiant Heat: Drysdale, 1985; Sullivan et al., 2003; Tan et al., 2005
Peak Elevation of Receiver: Tan et al., 2005
Peak Flame Angle: Tan et al., 2005

Run Description: T01 (detention basin)

Vegetation Information

Vegetation Type:	Grassland		
Vegetation Group:	Grassland		
Vegetation Slope:	0 Degrees	**Vegetation Slope Type:**	Downslope
Surface Fuel Load(t/ha):	6	**Overall Fuel Load(t/ha):**	6
Vegetation Height(m):	0	Only Applicable to Shrub/Scrub and Vesta	

Site Information

Site Slope	0 Degrees	**Site Slope Type:**	Downslope
Elevation of Receiver(m)	Default	**APZ/Separation(m):**	54

Fire Inputs

Veg./Flame Width(m):	100	**Flame Temp(K):**	1200

Calculation Parameters

Flame Emissivity:	95	**Relative Humidity(%):**	25
Heat of Combustion(kJ/kg	18600	**Ambient Temp(K):**	308
Moisture Factor:	5	**FDI:**	130

Program Outputs

Level of Construction:	BAL 12.5	**Peak Elevation of Receiver(m):**	4.28
Radiant Heat(kW/m2):	5.49	**Flame Angle (degrees):**	83
Flame Length(m):	8.63	**Maximum View Factor:**	0.064
Rate Of Spread (km/h):	16.9	**Inner Protection Area(m):**	54
Transmissivity:	0.774	**Outer Protection Area(m):**	0
Fire Intensity(kW/m):	52390		

BAL Thresholds

	BAL-40:	BAL-29:	BAL-19:	BAL-12.5:	10 kw/m2:	Elevation of Receiver:
Asset Protection Zone(m):	0	0	0	0	0	0

Run Description: T01 (north - including detention basin)

Vegetation Information

Vegetation Type: Hunter Macleay DSF

Vegetation Group: Dry Sclerophyll Forests (Shrub/Grass)

Vegetation Slope: 5.2 Degrees

Vegetation Slope Type: Downslope

Surface Fuel Load(t/ha): 14

Overall Fuel Load(t/ha): 24.6

Vegetation Height(m): 0.9

Only Applicable to Shrub/Scrub and Vesta

Site Information

Site Slope 0 Degrees

Site Slope Type: Downslope

Elevation of Receiver(m) Default

APZ/Separation(m): 61

Fire Inputs

Veg./Flame Width(m): 100

Flame Temp(K): 1200

Calculation Parameters

Flame Emissivity: 95

Relative Humidity(%): 25

Heat of Combustion(kJ/kg 18600

Ambient Temp(K): 308

Moisture Factor: 5

FDI: 100

Program Outputs

Level of Construction: BAL 12.5

Peak Elevation of Receiver(m): 9.05

Radiant Heat(kW/m2): 9.9

Flame Angle (degrees): 77

Flame Length(m): 18.59

Maximum View Factor: 0.116

Rate Of Spread (km/h): 2.41

Inner Protection Area(m): 51

Transmissivity: 0.767

Outer Protection Area(m): 10

Fire Intensity(kW/m): 30569

BAL Thresholds

	BAL-40:	BAL-29:	BAL-19:	BAL-12.5:	10 kw/m2:	Elevation of Receiver:
Asset Protection Zone(m):	22	27	40	53	61	6

Run Description:	T02 (north, north-east from creekline)

Vegetation Information

Vegetation Type:	Hunter Macleay DSF		
Vegetation Group:	Dry Sclerophyll Forests (Shrub/Grass)		
Vegetation Slope:	5.9 Degrees	**Vegetation Slope Type:**	Downslope
Surface Fuel Load(t/ha):	14	**Overall Fuel Load(t/ha):**	24.6
Vegetation Height(m):	0.9	Only Applicable to Shrub/Scrub and Vesta	

Site Information

Site Slope	0 Degrees	**Site Slope Type:**	Downslope
Elevation of Receiver(m)	Default	**APZ/Separation(m):**	63

Fire Inputs

Veg./Flame Width(m):	100	**Flame Temp(K):**	1200

Calculation Parameters

Flame Emissivity:	95	**Relative Humidity(%):**	25
Heat of Combustion(kJ/kg	18600	**Ambient Temp(K):**	308
Moisture Factor:	5	**FDI:**	100

Program Outputs

Level of Construction:	BAL 12.5	**Peak Elevation of Receiver(m):**	9.43
Radiant Heat(kW/m2):	9.8	**Flame Angle (degrees):**	77
Flame Length(m):	19.36	**Maximum View Factor:**	0.115
Rate Of Spread (km/h):	2.52	**Inner Protection Area(m):**	53
Transmissivity:	0.765	**Outer Protection Area(m):**	10
Fire Intensity(kW/m):	32082		

BAL Thresholds

	BAL-40:	BAL-29:	BAL-19:	BAL-12.5:	10 kw/m2:	Elevation of Receiver:
Asset Protection Zone(m):	23	29	41	54	63	6

Run Description: T03 (north east - opposite gully)

Vegetation Information

Vegetation Type: Hunter Macleay DSF

Vegetation Group: Dry Sclerophyll Forests (Shrub/Grass)

Vegetation Slope: 6.6 Degrees

Vegetation Slope Type: Upslope

Surface Fuel Load(t/ha): 14

Overall Fuel Load(t/ha): 24.6

Vegetation Height(m): 0.9

Only Applicable to Shrub/Scrub and Vesta

Site Information

Site Slope 0 Degrees

Site Slope Type: Downslope

Elevation of Receiver(m) Default

APZ/Separation(m): 40

Fire Inputs

Veg./Flame Width(m): 100

Flame Temp(K): 1200

Calculation Parameters

Flame Emissivity: 95

Relative Humidity(%): 25

Heat of Combustion(kJ/kg 18600

Ambient Temp(K): 308

Moisture Factor: 5

FDI: 100

Program Outputs

Level of Construction: BAL 12.5

Peak Elevation of Receiver(m): 4.88

Radiant Heat(kW/m2): 9.7

Flame Angle (degrees): 81

Flame Length(m): 9.88

Maximum View Factor: 0.109

Rate Of Spread (km/h): 1.07

Inner Protection Area(m): 33

Transmissivity: 0.795

Outer Protection Area(m): 7

Fire Intensity(kW/m): 13542

BAL Thresholds

	BAL-40:	BAL-29:	BAL-19:	BAL-12.5:	10 kw/m2:	Elevation of Receiver:
Asset Protection Zone(m):	12	16	24	32	39	6

Run Description: T04 (east - opposite gully)

Vegetation Information

Vegetation Type: Hunter Macleay DSF

Vegetation Group: Dry Sclerophyll Forests (Shrub/Grass)

Vegetation Slope: 8.6 Degrees

Vegetation Slope Type: Upslope

Surface Fuel Load(t/ha): 14

Overall Fuel Load(t/ha): 24.6

Vegetation Height(m): 0.9

Only Applicable to Shrub/Scrub and Vesta

Site Information

Site Slope 4 Degrees

Site Slope Type: Upslope

Elevation of Receiver(m) Default

APZ/Separation(m): 38

Fire Inputs

Veg./Flame Width(m): 100

Flame Temp(K): 1200

Calculation Parameters

Flame Emissivity: 95

Relative Humidity(%): 25

Heat of Combustion(kJ/kg 18600

Ambient Temp(K): 308

Moisture Factor: 5

FDI: 100

Program Outputs

Level of Construction: BAL 12.5

Peak Elevation of Receiver(m): 7.05

Radiant Heat(kW/m2): 9.58

Flame Angle (degrees): 78

Flame Length(m): 8.98

Maximum View Factor: 0.107

Rate Of Spread (km/h): 0.93

Inner Protection Area(m): 31

Transmissivity: 0.799

Outer Protection Area(m): 7

Fire Intensity(kW/m): 11796

BAL Thresholds

	BAL-40:	BAL-29:	BAL-19:	BAL-12.5:	10 kw/m2:	Elevation of Receiver:
Asset Protection Zone(m):	12	15	22	31	37	6

Run Description: T5 (east across gully)

Vegetation Information

Vegetation Type: Hunter Macleay DSF

Vegetation Group: Dry Sclerophyll Forests (Shrub/Grass)

Vegetation Slope: 5 Degrees

Vegetation Slope Type: Upslope

Surface Fuel Load(t/ha): 14

Overall Fuel Load(t/ha): 24.6

Vegetation Height(m): 0.9

Only Applicable to Shrub/Scrub and Vesta

Site Information

Site Slope 0 Degrees

Site Slope Type: Downslope

Elevation of Receiver(m) Default

APZ/Separation(m): 42

Fire Inputs

Veg./Flame Width(m): 100

Flame Temp(K): 1200

Calculation Parameters

Flame Emissivity: 95

Relative Humidity(%): 25

Heat of Combustion(kJ/kg 18600

Ambient Temp(K): 308

Moisture Factor: 5

FDI: 100

Program Outputs

Level of Construction: BAL 12.5

Peak Elevation of Receiver(m): 5.28

Radiant Heat(kW/m2): 9.82

Flame Angle (degrees): 81

Flame Length(m): 10.69

Maximum View Factor: 0.111

Rate Of Spread (km/h): 1.19

Inner Protection Area(m): 35

Transmissivity: 0.792

Outer Protection Area(m): 7

Fire Intensity(kW/m): 15122

BAL Thresholds

	BAL-40:	BAL-29:	BAL-19:	BAL-12.5:	10 kw/m2:	Elevation of Receiver:
Asset Protection Zone(m):	13	18	26	36	42	6

Run Description:	T6 (south east towards existing fire trail)

Vegetation Information

Vegetation Type:	Hunter Macleay DSF		
Vegetation Group:	Dry Sclerophyll Forests (Shrub/Grass)		
Vegetation Slope:	7.4 Degrees	**Vegetation Slope Type:**	Downslope
Surface Fuel Load(t/ha):	14	**Overall Fuel Load(t/ha):**	24.6
Vegetation Height(m):	0.9	Only Applicable to Shrub/Scrub and Vesta	

Site Information

Site Slope	0 Degrees	**Site Slope Type:**	Downslope
Elevation of Receiver(m)	Default	**APZ/Separation(m):**	66

Fire Inputs

Veg./Flame Width(m):	100	**Flame Temp(K):**	1200

Calculation Parameters

Flame Emissivity:	95	**Relative Humidity(%):**	25
Heat of Combustion(kJ/kg	18600	**Ambient Temp(K):**	308
Moisture Factor:	5	**FDI:**	100

Program Outputs

Level of Construction:	BAL 12.5	**Peak Elevation of Receiver(m):**	10.26
Radiant Heat(kW/m2):	9.96	**Flame Angle (degrees):**	76
Flame Length(m):	21.15	**Maximum View Factor:**	0.117
Rate Of Spread (km/h):	2.8	**Inner Protection Area(m):**	55
Transmissivity:	0.762	**Outer Protection Area(m):**	11
Fire Intensity(kW/m):	35580		

BAL Thresholds

	BAL-40:	BAL-29:	BAL-19:	BAL-12.5:	10 kw/m2:	Elevation of Receiver:
Asset Protection Zone(m):	24	32	43	57	66	6

Run Description:	T7 - South of fire trail/ construction road		
Vegetation Information			
Vegetation Type:	Hunter Macleay DSF		
Vegetation Group:	Dry Sclerophyll Forests (Shrub/Grass)		
Vegetation Slope:	1.1 Degrees	**Vegetation Slope Type:**	Downslope
Surface Fuel Load(t/ha):	14	**Overall Fuel Load(t/ha):**	24.6
Vegetation Height(m):	0.9	Only Applicable to Shrub/Scrub and Vesta	
Site Information			
Site Slope	0 Degrees	**Site Slope Type:**	Downslope
Elevation of Receiver(m)	Default	**APZ/Separation(m):**	52
Fire Inputs			
Veg./Flame Width(m):	100	**Flame Temp(K):**	1200
Calculation Parameters			
Flame Emissivity:	95	**Relative Humidity(%):**	25
Heat of Combustion(kJ/kg	18600	**Ambient Temp(K):**	308
Moisture Factor:	5	**FDI:**	100
Program Outputs			
Level of Construction:	BAL 12.5	**Peak Elevation of Receiver(m):**	7.23
Radiant Heat(kW/m2):	9.99	**Flame Angle (degrees):**	79
Flame Length(m):	14.73	**Maximum View Factor:**	0.115
Rate Of Spread (km/h):	1.81	**Inner Protection Area(m):**	43
Transmissivity:	0.777	**Outer Protection Area(m):**	9
Fire Intensity(kW/m):	23037		

BAL Thresholds

	BAL-40:	BAL-29:	BAL-19:	BAL-12.5:	10 kw/m2:	Elevation of Receiver:
Asset Protection Zone(m):	18	24	33	45	52	6

Appendix D: Planning for Bushfire Protection 2019 – Compliance Table

Table 1: Aims and Objectives of Planning for Bushfire Protection 2019

Objectives	Satisfied	Comment
➢ Afford buildings and their occupants protection from exposure to a bush fire	✓	It is unlikely that any occupants of the proposed ASB will be directly exposed to a prolonged bushfire attack as the pedestrian evacuation routes are all directed away from the hazard. Notwithstanding, the building will be constructed in accordance with BAL-12.5 which will also enable occupants to safely shelter within the proposed building. Any vehicles evacuating the car park are also able to utilise the Kookaburra Circuit exit and exit the JHHC away from the bushfire hazard.
➢ Provide for a defendable space to be located around buildings	✓	The proposed ASB is provided with an APZ up to 61m from the northern elevation. Furthermore, a new road and fire trail provide defendable space and separation from the bushfire hazard to the north.
➢ Provide appropriate separation between a hazard and buildings, which, in combination with other measures, prevent the likely fire spread to buildings	✓	The site is separated from the Category 1 bushfire prone vegetation by an APZ up to 61m from the proposed ASB. Whilst the closest hazard to the north is separated from the larger landscape scale hazards to the north west, the immediate hazard is still ~5 hectares and potentially could support a fully developed bushfire. In combination with the APZ, roads and other infrastructure including stormwater basins will actively reduce the rate of spread of an approaching bushfire from the north.
➢ Ensure that safe operational access and egress for emergency service personnel and residents is available	✓	Multiple pedestrian and vehicle egress paths are available to the occupants of the ASB (and JHHC). Although the preference for the Primary Response is likely to shelter many of the occupants within the multiple buildings on the JHHC; including the proposed ASB, the new road internal road network and interchange with the Newcastle Inner City Bypass will significantly improve the traffic circulation throughout the JHHC. There will be 3 direct public road access points to the JHHC in addition to a fire trail network that provides additional access to the bushfire hazardous vegetation for hazard management activities and operational firefighting.
➢ Provide for ongoing management and maintenance of BPMs	✓	The JHHC is identified on the Newcastle Bush Fire Risk Management Plan (NBFRMP) as the second highest risk asset. Accordingly, an extensive list of bushfire mitigation measures are already in place for the JHHC. The proposed ASB will provide additional mitigation measures, and the associated improvements and augmentation to the existing internal road network will significantly improve the existing and proposed bushfire protection measures. The responsibility authority for maintaining the bushfire mitigation measures recommended for the proposed ASB will be HNELHD.
➢ Ensure that utility services are adequate to meet the needs of firefighters	✓	The proposed ASB and associated works includes all essential utility services to meet the needs of firefighters; including a reliable water supply.

Table 2: Performance Criteria and Acceptable Solutions for SFPP Developments (Chapter 6 PBP 2019)

Intent of Measure	Performance Criteria	Acceptable Solution	Complies	Comment
6.8.1 ASSET PROTECTION ZONES Table 6.8a To provide suitable building design, construction and sufficient space to ensure that radiant heat levels at buildings does not exceed critical limits for firefighters and other emergency services personnel undertaking operations, including supporting or evacuating occupants.	Radiant heat levels of greater than 10kW/m^2 (1200K) are not experienced at any part of the building.	The building is provided with an APZ in accordance with Table A1.12.1. in Appendix 1.	✓	The proposed ASB is directly connected to the existing JHH. To the west is the HMRI building and adjoining carpark. The bushfire hazard is located to the north and north-east. A APZ of variable depth has been provided to ensure no part of the proposed ASB will be exposed to greater than 10kW/m^2. The required APZ was calculated using Method 2 of AS3959-2018 and was found to be a minimum of 50m and up to 61m. In some areas the APZ extends even further. The APZ comprises public roads, fire trails, low-threat vegetation within stormwater infrastructure (basins) and landscaped curtilage.
	APZ maintenance is practical, soil stability is not compromised and the potential for crown fires is negated.	The APZ is not located on lands with a slope exceeding 18°	✓	All APZs are located on land with slopes 7° or less.
	APZs are managed and maintained to prevent the spread of a fire towards the building. The APZ is provided in perpetuity.	The APZ is managed in accordance with the requirements of Appendix 4 of PBP 2019 and is wholly within the boundaries of the development site.	✓	There are no exceptional circumstances that would require an APZ to be located external to the development site. There is sufficient managed land (and reduced threat vegetation) between the proposed ASB and the hazard to avoid requiring an APZ on adjoining private land.
		Mechanisms are in place to provide for the maintenance of the APZ over the life of the development.	✓	The manager (HNELHD) of the property will be responsible to maintain the recommended APZs.
		Other structures located within the APZ need to be located further than 6m from the refuge building.	✓	Any ancillary structures to the ASB will be greater than 6m from the primary structure.
LANDSCAPING	Landscaping is designed and managed to minimise flame contact and radiant heat to buildings, and the potential for	Landscaping is in accordance with APZ standards (see Appendix 4).	✓ **N/A**	The project Landscape Architects have been provided with the RFS guidelines for landscaping. Accordingly, all proposed landscaping has

Intent of Measure	Performance Criteria	Acceptable Solution	Complies	Comment
	wind-driven embers to cause ignitions.	Fencing is constructed in accordance with section 7.6.		been designed in accordance with PBP 2019 requirements for landscaping and the APZ standards. No new fences will be constructed in the immediate vicinity of the proposed ASB.
CONSTRUCTION	The proposed building can withstand bush fire attack in the form of wind, smoke, embers, radiant heat and flame contact.	A construction level of BAL-12.5 under AS3959 or NASH and Table 6.8a is applied	✓	The proposed ASB will be constructed in accordance with Section 3 and 5 of AS3959-2018; being BAL-12.5.
6.8.2 **ACCESS** **Table 6.8b** To provide safe operational access for emergency services personnel in suppressing a bush fire, while residents are accessing or egressing an area. **FIREFIGHTING VEHICLES**	Firefighting vehicles are provided with safe all weather access to structures and hazard vegetation.	SFPP access roads are two-wheel drive, all-weather roads	✓	A new internal network of roads will be constructed throughout the site; including a new northern road will provide direct access to the Newcastle Inner City Bypass.
		Access is provided to all structures and hazard vegetation.	✓	
		Traffic management devices are constructed to not prohibit access by emergency services vehicles.	✓	
		Access roads must provide suitable turning areas in accordance with Appendix 3.	✓	
ACCESS ROAD CAPACITY	The capacity of access roads is adequate for firefighting vehicles.	The capacity of road surfaces and any bridges/ causeways is sufficient to carry fully loaded firefighting vehicles (up to 23 tonnes); bridges and causeways are to clearly indicate load rating.	✓	All new roads will have sufficient capacity to carry fully loaded fire fighting vehicles.
ACCESS TO WATER	There is appropriate access to water supply.	Hydrants ae located outside of parking reserves and road carriageways to ensure accessibility to reticulated water for fire suppression.	✓	A new water supply main will be located within the defendable space and multiple hydrants will be located directly to the north of the proposed ASB.
		Hydrants are provided in accordance with AS2419.1:2005	✓	
		There is suitable access for Category 1 fire appliance to within 4m of the static water supply where no reticulated supply is available.	✓	
PERIMETER ROADS	Perimeter access roads are designed to allow safe access and egress for medium rigid firefighting vehicles while occupants are evacuating as well as providing a safe operational environment for emergency service personnel	There are two-way sealed roads.	✓	The new internal road network; whilst not strictly perimeter roads, provide wide and open road carriageways that are buffered by a low fuel load vegetated buffer (10m either side of the road reserve).
		8m carriageway width kerb to kerb.	✓	
		Hydrants are to be located clear of parking areas.	✓	

Intent of Measure	Performance Criteria	Acceptable Solution	Complies	Comment
	during firefighting and emergency management on the interface.	There are through roads, and these are linked to the internal road system at an interval of no greater than 500m.	✓	All roads are 8m wide or greater, are two-way and have multiple connections to various areas of the JHHC. Whilst the new road network is being constructed as part of the ASB, they will greatly improve the safety and traffic movement throughout the entire JHHC.
		Curves of roads have a minimum inner radius of 6m.	✓	
		The maximum grade road is 15° and average grade is 10°.	✓	
		The road crossfall does not exceed 3°.	✓	
		A minimum vertical clearance of 4m to any overhanging obstructions, including tree branches; and	✓	
NON-PERIMETER ROADS	Non-perimeter access roads are designed to allow safe access and egress for medium rigid firefighting vehicles while occupants are evacuating.	Minimum 5.5m width kerb to kerb.	✓	The new roads may be considered non-perimeter roads as they do not adjoin a property boundary (perimeter), however they are designed in accordance with the requirements for Perimeter Roads.
		Parking is provided outside of the carriageway.	✓	
		Hydrants are to be located clear of parking areas.	✓	
		There are through roads, and these are linked to the internal road system at an interval of no greater than 500m.	✓	
		Curves of roads have a minimum inner radius of 6m.	✓	
		The maximum grade road is 15° and average grade is 10°.	✓	
		The road crossfall does not exceed 3°.	✓	
		A minimum vertical clearance of 4m to any overhanging obstructions, including tree branches; and	✓	
6.8.3 SERVICES Table 6.8c To provide adequate services for water for the protection of buildings during and after the passage of a bushfire, and not to locate gas and electricity so as not to contribute to the risk of fire to a building.	A water supply is provided for firefighting purposes	Reticulated water is to be provided to the development, where available	✓	A reticulated water supply is provided.
		A static water supply is provided where no reticulated water is available	**N/A**	
	Water supplies are located at regular intervals	Fire hydrant spacing, design and sizing comply with AS2419.1:2005;	✓	A series of fire hydrants will be located on the northern side of the proposed ASB.
		Hydrants are not located within any road carriageway;	✓	

Intent of Measure	Performance Criteria	Acceptable Solution	Complies	Comment
WATER	The water supply is accessible and reliable for firefighting operations	Reticulated water supply to SFPPs uses a ring main system for areas with perimeter roads.	**N/A**	The existing water supply ring main will be augmented to include the proposed ASB.
	Flows and pressures are appropriate	Fire hydrant flows and pressures comply with AS2419.1:2005.	✓	
	The integrity of the water supply is maintained	All above ground water service pipes are metal, including and up to any taps.	**N/A**	
ELECTRICITY	Location of electricity services limits the possibility of ignition of surrounding bushland or the fabric of buildings.	Where practicable, electrical transmission lines are underground.	✓	An existing underground electricity service is provided to the site.
		Where overhead electrical transmission lines are proposed as follows: - lines are installed with short pole spacing (30 metres), unless crossing gullies, gorges or riparian areas; and - no part of a tree is closer to a power line than the distance set out in accordance with the specifications in ISSC3 Guideline for Managing Vegetation Near Power Lines	**N/A**	
GAS	Location of gas services will not lead to ignition of surrounding bushland or the fabric of buildings.	Reticulated or bottled gas is installed and maintained in accordance with AS 1596:2014 and the requirements of relevant authorities, metal piping is to be used.	✓ **Able to comply**	
		All fixed gas cylinders are kept clear of all flammable materials to a distance of 10 metres and shielded on the hazard side;	✓	All tanked gas stored on site will be sited and secured with appropriate shielded from the bushfire hazard.
		Connections to and from gas cylinders are metal:	✓	
		Polymer-sheathed flexible gas supply lines are not used; and	✓	

Intent of Measure	Performance Criteria	Acceptable Solution	Complies	Comment
		Above-ground gas service pipes are metal, including and up to any outlets.	✓	
6.8.4 **EMERGENCY MANAGEMENT PLANNING** **Table 6.8d** To provide suitable emergency and evacuation arrangements for occupants of SFPP developments	A bush fire emergency and evacuation management plan is prepared.	Bush fire emergency management and evacuation plan is prepared consistent with the: ❑ the NSW RFS document: A Guide to Developing a Bush Fire Emergency Management and Evacuation Plan; and ❑ AS3745:2010 Planning for emergencies in facilities.	✓ **Able to comply**	A Bushfire Management Plan is recommended to be prepared for the new use of the existing building. Alternatively, the existing BMP will need to be updated to address the new additions including the ASB and the improved road network.
		The emergency and evacuation management plan should include a mechanism for the early relocation of occupants.	✓ **Able to comply**	
	Appropriate and adequate management arrangements are established for consultation and implementation of the bush fire emergency and evacuation management plan.	An Emergency Planning Committee is established to consult with residents and staff in developing and implementing an Emergency Procedures Manual.	✓ **Able to comply**	Where required, consultation with staff and residents will be undertaken during the preparation of the Bushfire Management Plan.
		Detailed plans of all emergency assembly areas including 'on-site' and 'off-site' arrangements as started in AS3745 are clearly displayed, and an annual (as a minimum) trial emergency evacuation is conducted.	✓ **Able to comply**	