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ENERGY EFFICIENCY REPORT

J1V3 NCC Assessment

Site Address

146-152 Johnston Street, CASINO

Lot and DP

155-158//834821

Client

Momentum Collective

Local Government Area

Richmond Valley

Proposed Development

Commercial Building

Commissioned by

Momentum Collective

Assessment Date

20/12/2023

Reference Number

23120358

DOCUMENT CONTROL

Document and Project Details

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Project Manager:	Duncan Hope
Date of Issue:	20/12/2023
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Synopsis:	This document presents a ESD Assessment Report for a proposed childcare development at 146-152 Johnston Street, CASINO NSW

Client Details

Client:	Momentum Collective
Primary Contact:	--

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1 INTRODUCTION

This Energy Efficiency Assessment Report has been prepared on behalf of Momentum Collective and should be read in conjunction with the plans encompassing Project No. 0197:001 B prepared by PTMA Architecture.

The National Construction Code (NCC) specifies minimum performance standards for the energy efficiency of buildings through the Building Code of Australia (BCA) Volume 1, Section J. To enable flexibility in the architectural design of the building, a Performance Solution has been used to comply with the Performance Requirement - J1P1.

The Assessment Method, 'J1V3 Verification using a reference building' has been used and is an Alternative Solution for the Building Fabric only. As such, a Proposed Building with the proposed fabric has been modelled as part of this approach, to compare against the Reference Building services.

1.1 SITE DESCRIPTION

The site is identified legally as Lots 155-158 in Deposited Plan 834821. It is commonly known as 146-152 Johnston Street, Casino.

Please refer to the below locality plan.

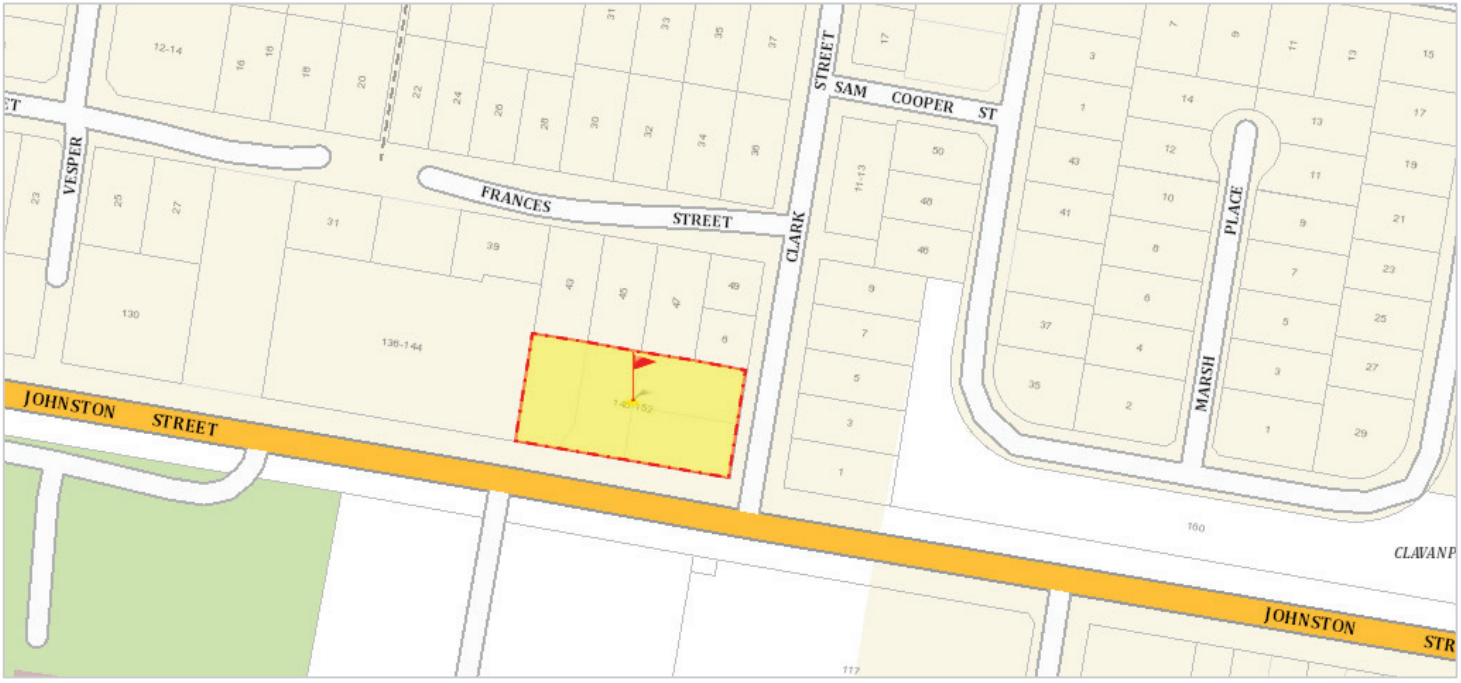

Figure 1 – Locality plan of subject site

1.2 SITE CLIMATIC DETAILS

As per the provisions of the National Construction Code, the subject site is located within Climate Zone 2 – warm humid summer, mild winter.

Passive design features take into account the climate associated with the greater surrounding area as well as the operational requirements for the development. The orientation of the site including solar paths for summer and winter and the prevailing wind directions has been included in the submitted plans.

1.3 PROPOSED DEVELOPMENT

This Development Application seeks to construct a one (1) storey 'healthcare consultancy' building.

The development site has a very slight downward slope from the rear site boundary to the street frontage. As such, the development has been designed to adapt to the sloping topography.

1.4 NATIONAL CONSTRUCTION CODE

This report is based on the Performance Provisions of Section J of the National Construction Code Series Volume 1 - Building Code of Australia, 2022 Edition incorporating the State variations where applicable. Please note that the version of the NCC applicable is the version applicable at the time of the Construction Certificate Application is dated as received by the certifying authority.

The National Construction Code (NCC) 2022 includes mandatory minimum energy performance requirements for buildings in Section J. The objective is to reduce greenhouse gas emissions from future buildings by efficiently using operational energy.

To meet the performance requirement J1P1 of Section J of the NCC, the compliance of the design and function of the building can be demonstrated with the Deemed-To-Satisfy provisions of Section J. Alternatively, achievement of the performance requirements can be demonstrated through Verification Method J1V3.

1.4.1 J1V3 ASSESSMENT – VERIFICATION USING A REFERENCE BUILDING

Under Section J1V3 of Volume 1 of the National Construction Code, compliance with Performance Requirement J1P1 – Energy Use is satisfied via the following method identified in Table 1.

Table 1 - J1V3 requirements

J1V3 – Verification using a Reference Building
a) For a Class 3, 5, 6, 7, 8 or 9 building or common area of a Class 2 building, compliance with J1P1 is verified when— i. it is determined that the annual greenhouse gas emissions of the proposed building are not more than the annual greenhouse gas emissions of a reference building when— A. the proposed building is modelled with the proposed services; and B. the proposed building is modelled with the same services as the reference building; and ii. in the proposed building, a thermal comfort level of between a Predicted Mean Vote of -1 to +1 is achieved across not less than 95% of the floor area of all occupied zones for not less than 98% of the annual hours of operation of the building; and iii. the building complies with the additional requirements in Specification 33.
b) The annual greenhouse gas emissions of the proposed building may be offset by— i. renewable energy generated and used on site; and ii. another process such as reclaimed energy, used on site.
c) The calculation method used for (a) and (b) must comply with— i. ANSI/ASHRAE Standard 140; and ii. Specification 34.

1.4.2 METHODOLOGY

To achieve the above requirements the following steps are required.

Software run 1 determine the annual energy consumption allowance by modelling a reference building which is consistent with the Deemed to Satisfy Provisions compliant building based on the criteria in J1V3.

Software run 2 calculate the theoretical annual energy consumption of the proposed Alternative Solution using either the subject building's criteria or that in Specification 34.

Software run 3 calculate the theoretical annual energy consumption of the proposed Alternative Solution, with the services modelled as if they were the same as that of the reference building.

Dissemination Compare the theoretical annual energy consumption calculated in steps 2 and 3, software runs 2 and 3, to the annual energy consumption allowance calculated in step 1, software run 1, to ensure that in both cases, the annual energy consumption is not more than the allowance, software run 1.

In addition to the above steps, there is a requirement that the proposed building achieves a Predicted Mean Vote of -1 to +1 across not less than 95% of the floor area of the occupied zones for not less than 98% of the annual hours of operation of the building.

1.4.3 MODELLING SOFTWARE

Computer modelling of the proposed building was performed using the Speckel platform to predict the annual mechanical energy consumption requirements for the building. This program uses a dynamic simulation to assess the building envelope response as well as space and surface temperatures, internal loads and energy consumption.

The software platform addresses all the main aspects of thermal modelling such as:

- Energy flow through the building's envelope, including at adiabatic surfaces and thermal storage effects;
- Accurately modelling the performance of the air-conditioning and ventilation systems, including plant and equipment using their energy input ratios, coefficients of performance, or efficiency at full and part load;
- Control strategies, sequencing of plant and equipment, controlled settings and types of controls;
- Relative humidity range; and
- Use of different energy types.

This Energy Simulation analysis has been carried out using the Energy Plus energy simulation developed by the US Department of Energy. Energy Plus development is continually tested using industry standard methods as major builds are completed.

Speckel provides various calculations in line with the National Construction Code 2022 – Volume 1 - Section J Energy Efficiency. These calculations are tested in line with all applicable NCC equations or NCC referenced primary or secondary documents, for them to represent an accurate Performance Solution against the Performance Requirements - J1P1 Energy Use. A

Performance Solution must be shown to comply with the relevant Performance Requirements through one or a combination of Assessment Methods. Speckel is a valid Assessment Method by comparison with the Deemed-to-Satisfy Provisions of each relevant area.

2 BUILDING DESCRIPTION

2.1 BUILDING CLASSIFICATION

The proposed building has been assessed as follows:

Building Class	Level	Description
Class 5	Ground Floor	Office

2.2 BUILDING FABRIC

The materials listed below were used as the basis for this assessment. These materials were determined from the architectural drawings and information provided by the proponent.

Should these materials be altered, it may require a re-assessment of the proposed structure against the deemed to satisfy provisions of the BCA.

Building Element	Construction	Insulation	Comment
External Walls			
Linea Weatherboard Cladding	FC Sheeting on Battens and Timber studs	R2.5 with foil sarking	As per plans
Axon Cladding	FC Sheeting on Battens and Timber studs	R2.5 with foil sarking	As per plans
FC Sheet Walls	FC Sheeting on Battens and Timber studs	R2.5 with foil sarking	As per plans
Internal Walls			
Internal Wall	Plasterboard on studs	Nil	NA
Internal Wall to unconditioned space	Plasterboard on studs	R2.0	NA
Flooring			
Timber Framed	Timber Frame	R2.0	NA
Ceiling			
Plasterboard	Plasterboard	R3.5	NA
Roofing			
Throughout	Metal Sheet	55mm Anticon	Light Colour

2.3 GLAZING

Building Area	Methodology	System U-Value	System SHGC	Generic Description
Windows	WERS	1.80	0.20	Tinted, Double Glazing
Glazed Doors	WERS	1.80	0.20	Tinted, Double Glazing
Internal Windows	WERS	6.60	0.60	Single Clear, Aluminium Framed

2.4 BUILDING SEALING

Building Element	Comment
Entry Doors	Must be self-closing with weather seals
Exhaust Fans	Must have self closing dampers
Bi-Fold Doors	Any bi-fold doors must be interlocked to ensure the air-conditioning system is inactive when these doors are open.
Chimneys and Flues	Must have damper or flap that can be closed to seal the chimneys and flues.
Doors and Windows	Must have seals to restrict air infiltration or the windows must comply with AS 2047
Open Shop Front	Ensuring the last air conditioning outlet is at least 3 meters from the front entrance and all other doors are self-closing.
Roof Lights	A roof light must be sealed when serving a conditioned space and must be constructed with an imperforate ceiling diffuser or a weatherproof seal if it is a roof window, or a readily operable shutter system.
Roof	Minimise air leakage by enclosed or internal lining systems that are close fitting at junctions or sealed by caulking, skirting, architraves, cornices or the like.
Walls	Minimise air leakage by enclosed or internal lining systems that are close fitting at junctions or sealed by caulking, skirting, architraves, cornices or the like.
Floor	Minimise air leakage by enclosed or internal lining systems that are close fitting at junctions or sealed by caulking, skirting, architraves, cornices or the like.

2.5 HOT WATER SUPPLY

Building Element	Comment
Food preparation and sanitary purposes	Must be designed and installed in accordance with Part B2 of NCC Volume Three – Plumbing Code of Australia. Hot Water System specifications is governed by BASIX for Class 2 Buildings in NSW.

2.6 AIR CONDITIONING SYSTEM

Building Element	Comment
Air Conditioning System	Must be designed and installed in accordance with J5 of NCC Volume One. Air-Conditioning specifications are governed by BASIX for Class 2 Buildings in NSW.

2.7 ARTIFICIAL LIGHTING

Building Element	Comment
Artificial Lighting	LED and Fluorescent systems to be utilised. Must be designed and installed in accordance with Part J6 of NCC Volume One.

2.8 FACILITIES FOR ENERGY MONITORING

Monitoring	Comment
Energy Monitoring	Energy meter configured to record the time-of-use consumption of gas and electricity. If the proposed building is more than 2500 m^2 - Provision of energy meters and building monitoring system to store, analyse and review, time-of-use energy consumption data for – (a) Air-conditioning plant, (b) Artificial lighting, (c) Appliance power, (d) Central hot water supply, (e) Internal transport devices, and (f) Other ancillary plant.

2.9 FACILITIES FOR ELECTRIC VEHICLE CHARGING EQUIPMENT

Building Element	Comment
Electric Vehicle Charging Equipment	a carpark associated with a Class 2, 3, 5, 6, 7b, 8 or 9 building must be provided with electrical distribution boards dedicated to electric vehicle charging— (a) in accordance with Table J9D4 in each storey of the carpark; and (b) labelled to indicate use for electric vehicle charging equipment. Electrical distribution boards dedicated to serving electric vehicle charging in a carpark must— (a) be fitted with a charging control system with the ability to manage and schedule charging of electric vehicles in response to total building demand; and (b) when associated with a Class 2 building, have capacity for each circuit to support an electric vehicle charger able to deliver a minimum of 12 kWh from 11:00 pm to 7:00 am daily; and (c) when associated with a Class 5 to 9 building, have capacity for each circuit to support an electric vehicle charger able to deliver a minimum of 12 kWh from 9:00 am to 5:00 pm daily; and (d) when associated with a Class 3 building, have capacity for each circuit to support an electric vehicle charger able to deliver a minimum of 48 kWh from 11:00 pm to 7:00 am daily; and (e) be sized to support the future installation of a 7 kW (32 A) type 2 electric vehicle charger in— (i) 100% of the car parking spaces associated with a Class 2 building; or (ii) 10% of car parking spaces associated with a Class 5 or 6 building; or (iii) 20% of car parking spaces associated with a Class 3, 7b, 8 or 9 building; and (f) contain space of at least 36 mm width of DIN rail per outgoing circuit for individual sub-circuit electricity metering to record electricity use of electric vehicle charging equipment; and (g) be labelled to indicate the use of the space required by (f) is for the future installation of metering equipment. **No requirement for EV Charging as no carpark building is attached**
EV requirements for each storey of a carpark	Carpark spaces per storey for electric vehicles: 0 – 9 → Electrical distribution boards for electric vehicle charging per storey: 0 Carpark spaces per storey for electric vehicles: 10 – 24 → Electrical distribution boards for electric vehicle charging per storey: 1

	25 – 48	2
	49 – 72	3
	73 – 96	4
	97 – 120	5
	121 – 144	6
	145 - 168	7

2.10 FACILITIES FOR SOLAR PHOTOVOLTAIC AND BATTERY SYSTEMS

Building Element	Comment
Solar Photovoltaic and Battery Systems	Must be designed and installed in accordance with J9D5 of the NCC.

3 J1V3 ENERGY MODELLING

3.1 REFERENCE BUILDING

The annual greenhouse gas emissions must be calculated for the reference building in accordance with the following:

a) The reference building must—
   i. comply with Deemed-to-Satisfy Provisions in Parts J1 to J7 of the NCC; and
   ii. have the minimum amount of mechanical ventilation required by Part F4 of the NCC.
b) The external walls must have a solar absorptance of 0.6.
c) The air-conditioning must—
   i. for 98% of the annual hours of operation, achieve temperatures between—
      A. 18°CDB to 25°CDB for conditioned spaces with transitory occupancy; and
      B. subject to (ii), 21°CDB to 24°CDB in all other conditioned spaces; and
   ii. if the proposed building has no mechanically provided cooling or has mixed mode cooling, have the same method of control and control set points for non-mechanical cooling as the proposed building.
d) The infiltration rate in each zone must be—
   i. 0.7 air changes per hour throughout all zones when there is no mechanically supplied outdoor air; and
   ii. 0.35 air changes per hour at all other times.
e) The artificial lighting must achieve the required maximum Illumination power density in Part J6 without applying the control device adjustment factors.
f) Minimum Energy Performance Standards must be applied to services not covered by Parts J5 to J7 of the NCC.

3.2 PROPOSED BUILDING AND REFERENCE BUILDING

The annual greenhouse gas emissions must be calculated for the proposed building and the reference building using the same:

a) General—
   i. annual greenhouse gas emissions calculation method; and
   ii. greenhouse gas emissions factors based on either—
      A. the factors in Table 3a of Specification JVb; or
      B. the current full fuel cycle emissions factors published by the Australian Government, except, where the greenhouse gas intensity of electricity is less than half the greenhouse gas intensity of natural gas—
         (1) electricity is to be weighted as 1; and
         (2) natural gas is to be weighted as 2; and
   iii. location, being either—
      A. the location where the building is to be constructed if appropriate climatic data is available; or
      B. the nearest location with similar climatic conditions, for which climatic data is available; and
   iv. adjacent structures and features; and
   v. orientation; and
   vi. building form, including—
      A. the roof geometry; and
      B. the floor plan; and
      C. the number of storeys; and
      D. the ground to lowest floor arrangements; and

E. the size and location of glazing; and

F. external doors; and

vii. testing standards including for insulation, glazing, water heater and unitary air-conditioning equipment; and

b) Fabric and glazing—

i. quality of insulation installation; and

ii. thermal resistance of air films including any adjustment factors, moisture content of materials and the like; and

iii. dimensions of external, internal and separating walls; and

iv. internal shading devices, their colour and their criteria for operation; and

c) Services—

i. range and type of services and energy sources, other than renewable energy generated on site; and

ii. assumptions and means of calculating the temperature difference across air-conditioning zone boundaries; and

iii. floor coverings and furniture and fittings density; and

iv. internal artificial lighting illumination levels; and

v. internal heat gains including people, lighting, appliances, meals and other electric power loads; and

vi. air-conditioning system configuration and zones; and

vii. profiles for occupancy, air-conditioning, lighting and internal heat gains from people, hot meals, appliances, equipment and heated water supply systems based on—

A. Specification JVc; or

B. NABERS Energy for Offices simulation requirements; or

C. Green Star simulation requirements; or

D. the actual building if—

(1) the operating hours per year are not less than 2 500; or

(2) the daily operating profiles are not listed in Specification JVc; and

viii. supply heated water temperature and rate of use; and

ix. infiltration values, unless the following have been specified—

A. additional sealing provisions to those required by Part J3; and

B. an intended building leakage of less than 10 m3/hr.m2 at 50Pa; and

C. pressure testing to verify achievement of the intended building leakage, in which case the intended building leakage at 50Pa may be converted into a whole building infiltration value for the proposed building infiltration using Tables 4.16 to 4.24 of CIBSE Guide A; and

x. sequencing for water heaters, refrigeration chillers and heat rejection equipment such as cooling towers; and

xi. representation of clothing and metabolic rate of the occupants; and

xii. control of air-conditioning except—

A. (A)the reference building must have variable temperature control for chilled and heated water that modulates the chilled water and heated water temperatures as required to maximise the efficiency of the chiller or boiler operation during periods of low load; and

B. (B)if the controls for the proposed building are not adequately specified or cannot be simulated, the sample control specifications in Appendix B of AIRAH-DA28 must be used; and

xiii. environmental conditions such as ground reflectivity, sky and ground form factors, temperature of external bounding surfaces, air velocities across external surfaces and the like; and

xiv. number, sizes, floors and traffic served by lifts and escalators.

3.3 SERVICES - PROPOSED AND REFERENCE BUILDING

For the modelling of services for the purposes of calculating annual greenhouse gas emissions—

a) system demand and response for all items of plant must be calculated on a not less frequent than hourly basis; and

b) energy usage of all items of plant must be calculated with allowances for—

i. part load performance; and

ii. staging to meet system demand; and

c) energy usage of cooling plant must be calculated with allowances for—

i. the impact of chilled water temperature on chiller efficiency; and

ii. the impact of condenser water temperature on water-cooled plant efficiency; and

iii. the impact of ambient temperature on air-cooled plant efficiency; and

iv. the energy use of primary pumps serving individual chillers; and

v. the energy use of auxiliary equipment, including controls and oil heating for chillers; and

vi. thermal losses in the chilled water system; and

vii. the impact of chilled water temperature on thermal losses in the chilled water system; and

d) energy usage of water heating systems for space heating must be calculated with allowances for—

i. the impact of water temperature on water heater efficiency; and

ii. the energy use of primary or feedwater pumps serving individual water heaters; and

iii. thermal losses in water heating systems; and

iv. the thermal mass of water heating systems, accounting for thermal losses during periods when the system is not operating; and

e) energy usage of fan and pump systems must be calculated with allowances for—

i. the method of capacity regulation; and

ii. the use of either fixed or variable pressure control; and

f) energy usage of pump systems must be calculated with allowances for the system fixed static pressure head; and

g) energy usage of auxiliary equipment associated with co-generation and tri-generation systems, including pumps, cooling towers and jacket heaters, must be calculated; and

h) where the energy usage of the heated water supply for food preparation and sanitary purposes or the energy usage of lifts and escalators is the same in the proposed building and the reference building, they may be omitted from the calculation of both the proposed building and the reference building; and

i) energy use of a lift in a building with more than one classification may be apportioned according to the number of storeys of the part for which the annual greenhouse gas emissions and thermal comfort level are being calculated.

3.4 INTERNAL HEAT LOADS AND OCCUPANCY DENSITY

The internal heat loads applied to both the “reference” and “proposed” models are provided below. The occupancy, lighting and equipment loads have been uniformly distributed throughout the building.

Space	Building Class	Occupancy Density (m^2.person)	Clothing	Air Velocity (m/s)
Commercial Section	9b / 5	15.0	0.7	0.1

3.5 LIGHTING

Lighting power density (W/m^2) is stipulated in each thermal zone, subject to the function and purpose of the space. Internal heat gains for the Reference Building lighting power density are as per NCC 2022 Vol 1 - Table J6.2a.

Space	Building Class	W/m²
Commercial	5 / 9b	3.0

3.6 EQUIPMENT

Equipment density (W/m²) are stipulated in each thermal zone, subject to the function and purpose of the space. Internal heat gains for the Reference and Proposed Reference Building

Space	Building Class	W/m²
Commercial	5 / 9b	15.0

3.7 HVAC SERVICES

The HVAC systems for both the Proposed Building and Reference Building models were simulated in Design Builder software package. In compliance with NCC J1V3, the following temperature bands were adopted for 98% of the plant operation time.

- 18°CDB to 25°CDB for conditioned spaces with transitory occupancy; and
- 21°CDB to 24°CDB in all other conditioned spaces

The mechanical systems for the Reference Building model were simulated with the input parameters in accordance with the DTS Requirements of NCC Part J5. The design heating and cooling COPs is set at 3.5 for Proposed Building HVAC system. The HVAC systems were simulated based on a selected set of monthly design day temperatures and coincident wet bulb temperatures. The part load performance curves adjust the efficiency of the system based on the capacity, as well as the supply air and environmental conditions.

3.8 ONSITE ENERGY GENERATION

Assessment under J1V3 allows the renewable energy generated on-site or the “free” energy derived from another process (e.g. heat from cogeneration) to be deducted from the annual energy consumption of the proposed building. This means that the “annual energy consumption” is the sum of the energy drawn annually from the electrical grid, the gas network or fuel brought in by road transport and not the total of the energy consumed by the services that use energy.

The proposed photovoltaic (PV) system may consist of a minimum total nominal PV system of 18.8kW.

4 RESULTS

The proposed building design was modelled using the Speckel platform. The National Construction Code (NCC) specifies minimum performance standards for the energy efficiency of buildings through the Building Code of Australia (BCA) Volume 1, Section J.

To enable flexibility in the architectural design of the building, a Performance Solution has been used to comply with the Performance Requirement - J1P1.

The Assessment Method, 'J1V3 Verification using a reference building' has been used and is an Alternative Solution for the Building Fabric only. As such, a Proposed Building with the proposed fabric has been modelled as part of this approach, to compare against the Reference Building services.

To meet acceptance criteria, the Proposed Building with the proposed fabric GHG emissions must be no greater than the Reference Building services.

	Reference		Proposed		Difference
Energy	kWh	MJ	kWh	kWh/m²	%
Cooling Electricity	4991.69	21.92	4998.27	21.95	+00.13
Heating Electricity	236.21	1.04	120.87	0.53	-48.83
Fans Electricity	470.16	2.06	467.53	2.05	-0.56
Lights Electricity	4593.36	20.17	3062.24	13.45	-33.33
Equipment Electricity	16836.28	73.93	16836.28	73.93	0.00

The modelling also assessed the overall Green House Gas emissions for the proposed and reference building.

	Proposed (kg CO_2-e)	Reference (kg CO_2-e)	Difference (%)
Emissions	23047.29	11974.57	-48.04

The reduction in green house gas emissions has been achieved by proposing higher performance window systems, reduced lighting power density, improvements in HVAC efficiency and on-site electricity generation via photovoltaics. The predicted outcome is achieved without considering improvements to the lifts and ancillary ventilation systems and the result may be considered conservative.

To meet the acceptance criteria for Thermal Comfort, **95** % of total area across the assessed zones must meet the conditions:

- zone thermal comfort is between -1.0 and 1.0 PMV
- for at least 98 % of hours
- when above 20 % occupancy

A total area of 227.74 m² across 13 zones was assessed, where zones of **100.00** % area achieved the conditions, **meeting** the acceptance criteria.

5 CONCLUSION

The results of this analysis indicate that the proposed measures will reduce the GHG emissions of the proposed building and that the proposed building is compliant with the performance requirements of J1V3

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APPENDIX A

Architectural Plans

north (typical)

1 3D Johnston + Clark St cnr

CASINO T Plan - Drawing Register

Sheet No	Sheet Name	Issue Date
TPL 0-	3D + NOTES	
TPL 0-01	DWG REGISTER + 3D	4 Dec 23
TPL 0-02	3D OVERALL Views	4 Dec 23
TPL 0-03	3D Views Detail - Core + Cluster	4 Dec 23
TPL 0-04	3D Views Detail - CHIFF Entry	4 Dec 23
TPL 0-05	3D Views Detail - Courts + Play	4 Dec 23
TPL 1-	SITE	
TPL 1-01	Site Context	4 Dec 23
TPL 1-02	Site Plan A1	4 Dec 23
TPL 1-03	Site Plan - Levels	4 Dec 23
TPL 1-04	Site Plan - Roof	4 Dec 23
TPL 1-05	Site - Shadow Diagrams (Winter)	4 Dec 23
TPL 1-10	Landscape Concept	4 Dec 23
TPL 1-11	Lscp Part - Clark St Dwy Frontage	4 Dec 23
TPL 1-12	Lscp Part - Cnr Clark + Johnston	4 Dec 23
TPL 1-13	Lscp Part - Johnston Dwy	4 Dec 23
TPL 1-14	Lscp Part - Rear NW	4 Dec 23
TPL 2-	PLANS	
TPL 2-01	Building Plans - CORE GROUND	4 Dec 23
TPL 2-02	Building Plans - CORE UPPER	4 Dec 23
TPL 2-11	CLUSTER 01 (Core+Cluster)	4 Dec 23
TPL 2-21	CLUSTER 02 (CHIFF)	4 Dec 23
TPL 2-22	CLUSTER 03 (CHIFF) Clark St	4 Dec 23
TPL 4-	ELEVATIONS + SECTIONS	
TPL 4-00	KEY Elev+Sect	4 Dec 23
TPL 4-01	Site Elev South - JOHNSTON ST	4 Dec 23
TPL 4-02	Site Elevation East CLARK ST	4 Dec 23
TPL 4-03	Site Elevation East SERVICE STN	4 Dec 23
TPL 4-04	Site Elevation - NORTH	4 Dec 23
TPL 9-	AREAS	
TPL 9-01	SITE AREA Plan - GROUND	4 Dec 23
TPL 9-02	SITE AREA Plan - UPPER	4 Dec 23
TPL 9-03	SITE AREA Plan - ROOF AREAS	4 Dec 23
TPL 9-04	SITE AREA Plan - Landscape	4 Dec 23

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rev no	date	Description
P1	4Dec23	TPLAN prep 4Dec

PROJECT
CHIFF + Core+Cluster

SCALE
0 1 2 3 4 5 10cm
Refer drawings for scale. Original is A3 size. This marker is 10cm at full scale

CLIENT
Momentum Collective
cnr Johnston St + Clark St CASINO

PROJECT NO. 0197:001-B
Dwg Revision P1

SHEET NAME
DWG REGISTER + 3D

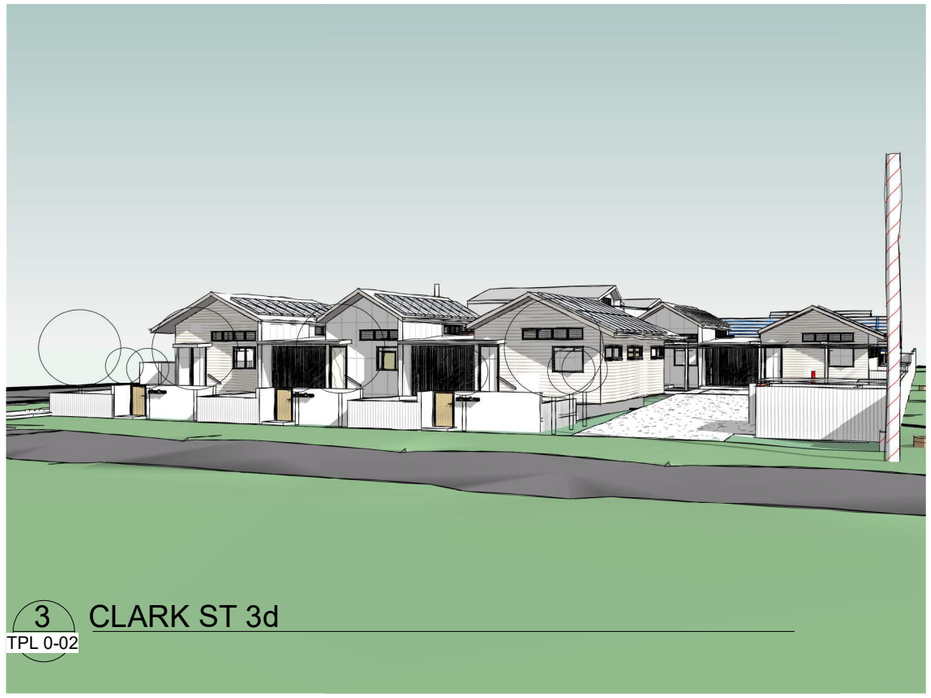
TPL 0-01
DRAWING NO.

ISSUE

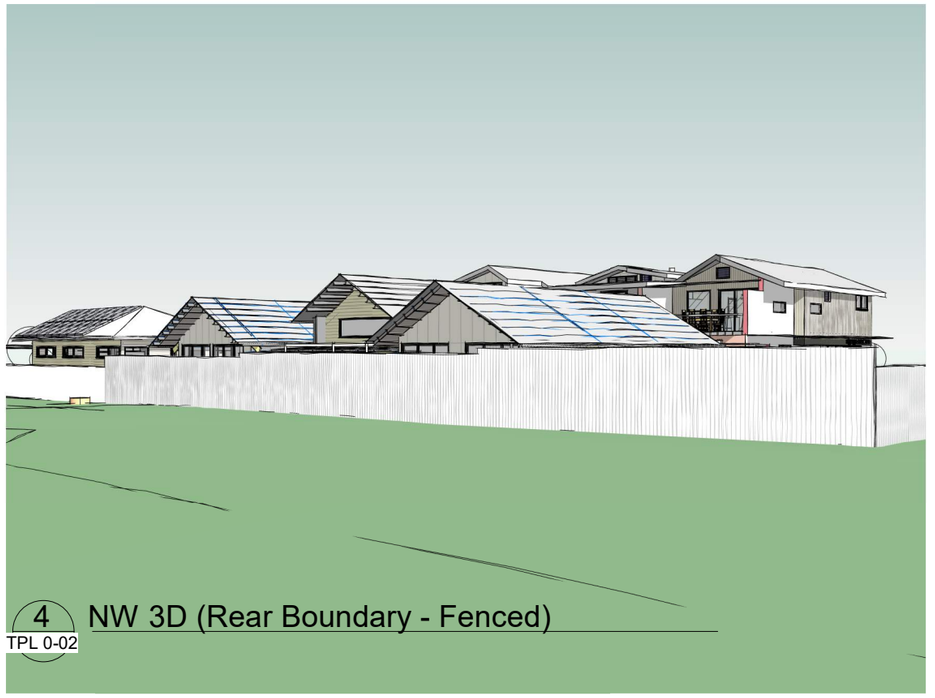
north (typical)

1 JOHNSTON ST 3d
TPL 0-02

2 CNR JOHNSTON+CLARK 3d
TPL 0-02



3 CLARK ST 3d
TPL 0-02



4 NW 3D (Rear Boundary - Fenced)
TPL 0-02

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REV SCHEDULE printed 04/12/2023 9:00:00 AM

rev no	date	Description
P1	4Dec23	TPLAN prep 4Dec

PROJECT
CHIFF + Core+Cluster

SCALE
0 1 2 3 4 5 10cm
Refer drawings for scale. Original is A3 size. This marker is 10cm at full scale

CLIENT
Momentum Collective
cnr Johnston St + Clark St CASINO

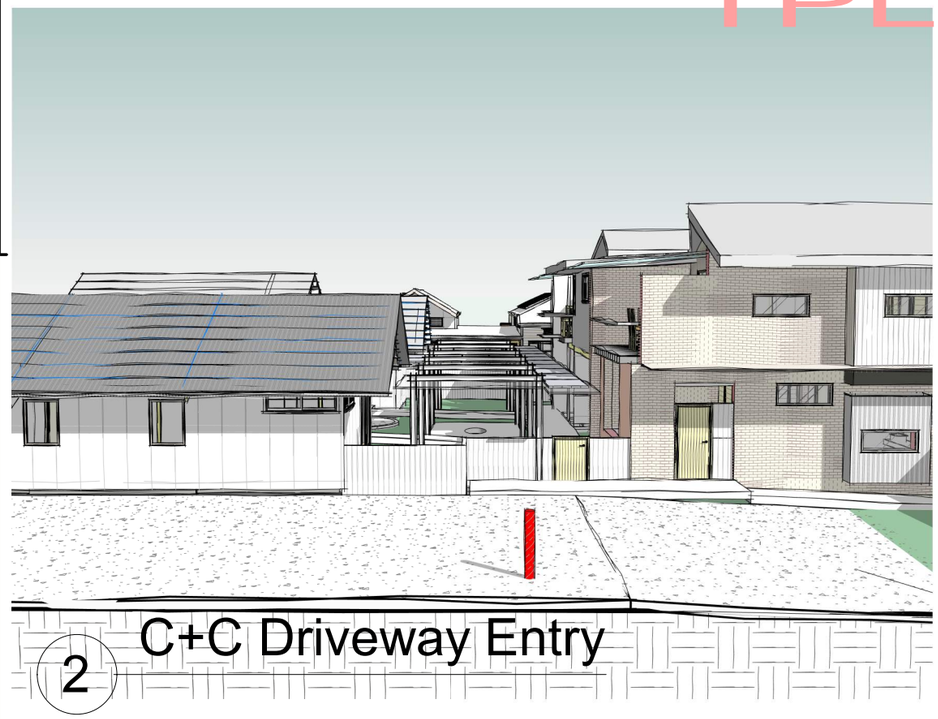
PROJECT NO. 0197:001-B
Dwg Revision P1

SHEET NAME
3D OVERALL Views

TPL 0-02
DRAWING NO.

ISSUE

north (typical)



2 C+C Driveway Entry

1b Landscape Entry

1a Shop Top from Driveway

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CLIENT
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PROJECT NO. 0197:001-B
Dwg Revision P1

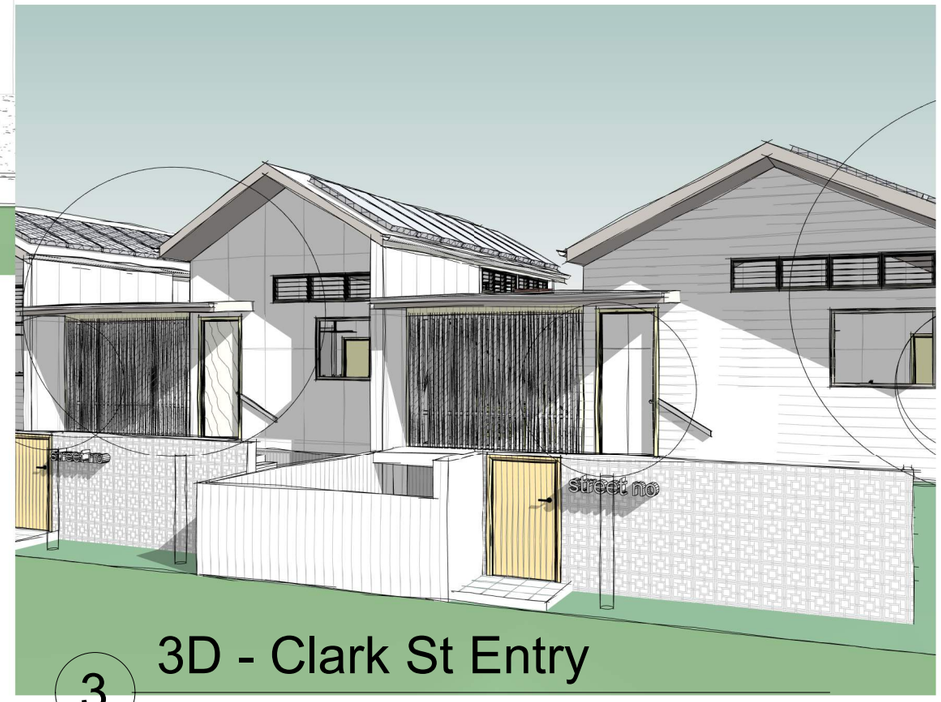
SHEET NAME
3D Views Detail - Core + Cluster

DRAWING NO. TPL 0-03
ISSUE

north (typical)

1 3D - Johnston St Res Entry

2 3D Clark St Dwy Entry



3 3D - Clark St Entry

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rev no	date	Description
P1	4Dec23	TPLAN prep 4Dec

PROJECT
CHIFF + Core+Cluster

SCALE
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CLIENT
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PROJECT NO. 0197:001-B
Dwg Revision P1

SHEET NAME
3D Views Detail - CHIFF Entry

DRAWING NO. TPL 0-04

ISSUE

north (typical)

1 Play Area between Courts

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REV SCHEDULE printed 04/12/2023 9:00:29 AM

rev no	date	Description
P1	4Dec23	TPLAN prep 4Dec

PROJECT
CHIFF + Core+Cluster

SCALE
0 1 2 3 4 5 10cm
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CLIENT
Momentum Collective
cnr Johnston St + Clark St CASINO

PROJECT NO. 0197:001-B
Dwg Revision P1

SHEET NAME
3D Views Detail - Courts + Play

DRAWING NO. TPL 0-05
ISSUE

north (typical)

Johnston Street

1 Site Context Plan

1 : 500

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REV SCHEDULE printed 04/12/2023 9:00:33 AM

rev no	date	Description
P1	4Dec23	TPLAN prep 4Dec

PROJECT
CHIFF + Core+Cluster

SCALE 1 : 500
0 1 2 3 4 5 10cm
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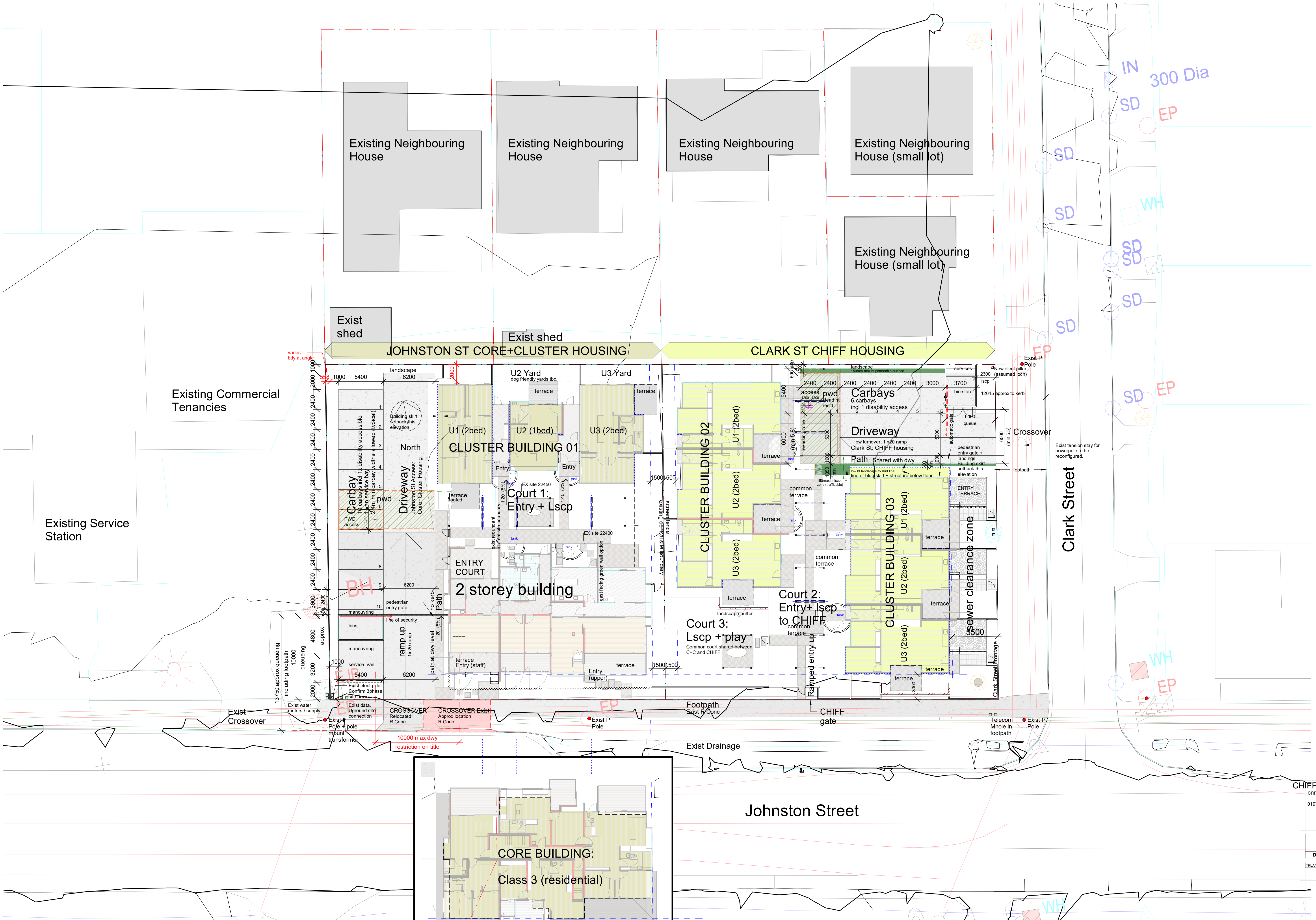
PROJECT NO. 0197:001-B
Dwg Revision P1

SHEET NAME
Site Context

TPL 1-01
DRAWING NO.
ISSUE



2 Uppper Level - Johnston St Core
1 : 200 @ A1 size. A3 is 50% (1:400)

1 SITE PLAN A1
1 : 200 @ A1 size. A3 is 50% (1:400)

Momentum Collective

CHIFF + Core+Cluster
cnr Johnston St + Clark St
CASINO

0197:001-B

TPL 1-02
Site Plan A1

Revision Schedule

Description	No	Date
TPLAN prep 4Dec	P1	4Dec23

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Document Set ID: 1906115
Version: 1, Version Date: 15/02/2024

TPLAN prep 4Dec

north (typical)

Exist shed

JOHNSTON ST CORE+CLUSTER HOUSING

CLARK ST CHIFF HOUSING

EX site 22800

landscape

Building skirt setback this elevation

North

Carbay

Driveway

Johnston St Access: Core+Cluster Housing

Driveway 23.05 max adjacent to building. Fall clear of building edge.

EX site 22700

pwd

PWD access

Max 1in40 crossfall

Minimum accessibility zone hatched (incl to building entries)

DWY RL 23.0max

BH

EJB

EP

EX site 22500

manouvring

line of security

Bin Enclosure + Services

manouvring

service: van

EX site 22050

Pedestrian entry gate. Landings both sides.

no kerb

Path

ramp up 20000 1in20 ramp ramp length

1:20 (5%)

Landing

path at dwy level 1:20 (5%)

EL 22.0-22.1

22000

CROSSOVER Relocated. R Conc

CROSSOVER Exist Approx location R Conc

U2 Yard

Set down from terrace to rear yards for positive overland flow.

U3 Yard

EX site 22500

terrace

U1 (2bed)

U2 (1bed)

U3 (2bed)

CLUSTER BUILDING 01

floor 23.1 minimum

Entry

tank

EX site 22450

Ramped Path RL 23.08 nom

Court 1: Entry + Lscp

terrace roofed

exist redundant internal site boundary

Path RL 23.0 nom

EX site 22400

Step ramp

ENTRY COURT RL 23.08 nom or threshold drainage

TERRACE RL 23.08 nom or threshold drainage

2 storey building

floor 23.1 min

east facing green wall option

terrace Entry (staff)

steps

EX site 22150

Entry (upper)

lscp steps

terrace

EX site 22300

existing central site boundary screen fence

FUTURE screen fence

CLUSTER BUILDING 02

floor 23.0 min

Disability Access this dwelling.

Step ramp + threshold ramp to further detail: 150mm rise required.

terrace

Step ramp + threshold ramp to further detail: disability access not guaranteed this dwelling.

Court 2: Entry+ lscp to CHIFF

Court 3: Lscp + play

Common court shared between C+C and CHIFF

Terrace RL 22.15-22.35 NOM

Disability access to covered area.

Ramped access from CHIFF carpark

Stepped access from C+C only.

Ramp up

Ramped entry up

EX site 22250

landscape

150mm max ht permeable surface

PWD access

pwd

DWY RL 22.85max reversing zone

DWY RL 22.7min

Minimum accessibility zone hatched (incl to building entries)

Carbays

6 carbays incl 1 disability access

services

EX site 21650

bin store

Driveway

18694

low turnover. 1in20 ramp

automatic gate

pedestrian entry gate

Landings at gate

EL 21.8

Crossover

Path : Ramp shared with dwy

low ht landscape to skirt line

line of bldg skirt + structure below floor

1350 min

Path RL 22.85

150max ht lscp zone (trafficable)

Path RL 22.80

Ramped access to rear door

Ramped access to rear door

Path RL 22.60

Path RL 22.35

STEPS

common terrace

Path RL 22.25

Path RL 22.100

CLUSTER BUILDING 03

floor 23.0 min

U1 (2bed)

U2 (2bed)

U3 (2bed)

TERRACE RL 22.3

EX site 21800

up

steps

Landings RL 22.975 TBC for threshold detail

Entry RL 22.975

Retaining integrated to fence

batter landscape bank

Ex Sewer Mhole

EX site 21825

Clark Street Frontage

footpath

CHIFF gate

Footpath Exist R Conc

Exist Drainage

1 Site Levels

1 : 200

Legend:

RL X.XX	Design levels (approx)
EX site Y.YY	Exist Survey (approx)
RL Z.ZZ	Min flood levels

Disability Access Grades to further detail

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rev no	date	Description
P1	4Dec23	TPLAN prep 4Dec

PROJECT
CHIFF + Core+Cluster

CLIENT
Momentum Collective
cnr Johnston St + Clark St CASINO

SHEET NAME
Site Plan - Levels

SCALE 1 : 200

0 1 2 3 4 5 10cm

Refer drawings for scale. Original is A3 size. This marker is 10cm at full scale

PROJECT NO. 0197:001-B

Dwg Revision P1

TPL 1-03
DRAWING NO.

ISSUE

TPLAN prep 4Dec

north (typical)

Solar PV array

Landscape Arbour
mix roof + battens

Solar PV array

Solar PV array

Bin Store Roof

Solar PV array

Solar PV array

Solar PV array

Solar PV array

Solar PV array

Landscape Arbour
mix roof + battens

Solar PV array

Solar PV array

Landscape Arbour
mix roof + battens

BH

Bin Store Roof

EJB

EP

EP

Exist pole mount transformer
to exist power pole

1 Site Roof Plan

1 : 200

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REV SCHEDULE printed 04/12/2023 9:00:39 AM

rev no	date	Description
P1	4Dec23	TPLAN prep 4Dec

PROJECT
CHIFF + Core+Cluster

CLIENT
Momentum Collective
cnr Johnston St + Clark St CASINO

SCALE 1 : 200
0 1 2 3 4 5 10cm
Refer drawings for scale. Original is A3 size. This marker is 10cm at full scale

PROJECT NO. 0197:001-B

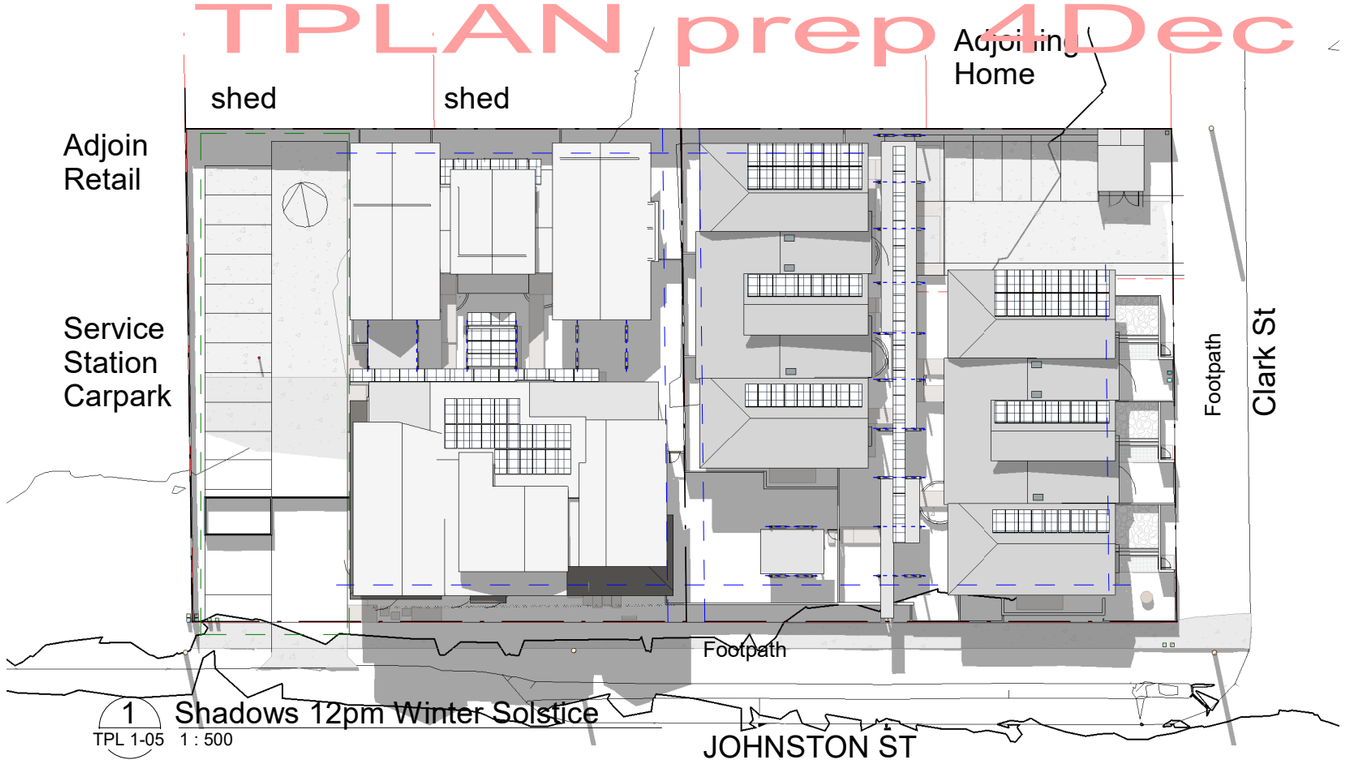
Dwg Revision P1

SHEET NAME
Site Plan - Roof

TPL 1-04
DRAWING NO.

ISSUE

north (typical)



1 Shadows 12pm Winter Solstice
TPL 1-05 1 : 500

2 Shadows 3pm Winter Solstice
TPL 1-05 1 : 500

3 Shadows 9am Winter Solstice
TPL 1-05 1 : 500

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rev no	date	Description
P1	4Dec23	TPLAN prep 4Dec

PROJECT
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SCALE 1 : 500
0 1 2 3 4 5 10cm
Refer drawings for scale. Original is A3 size. This marker is 10cm at full scale

CLIENT
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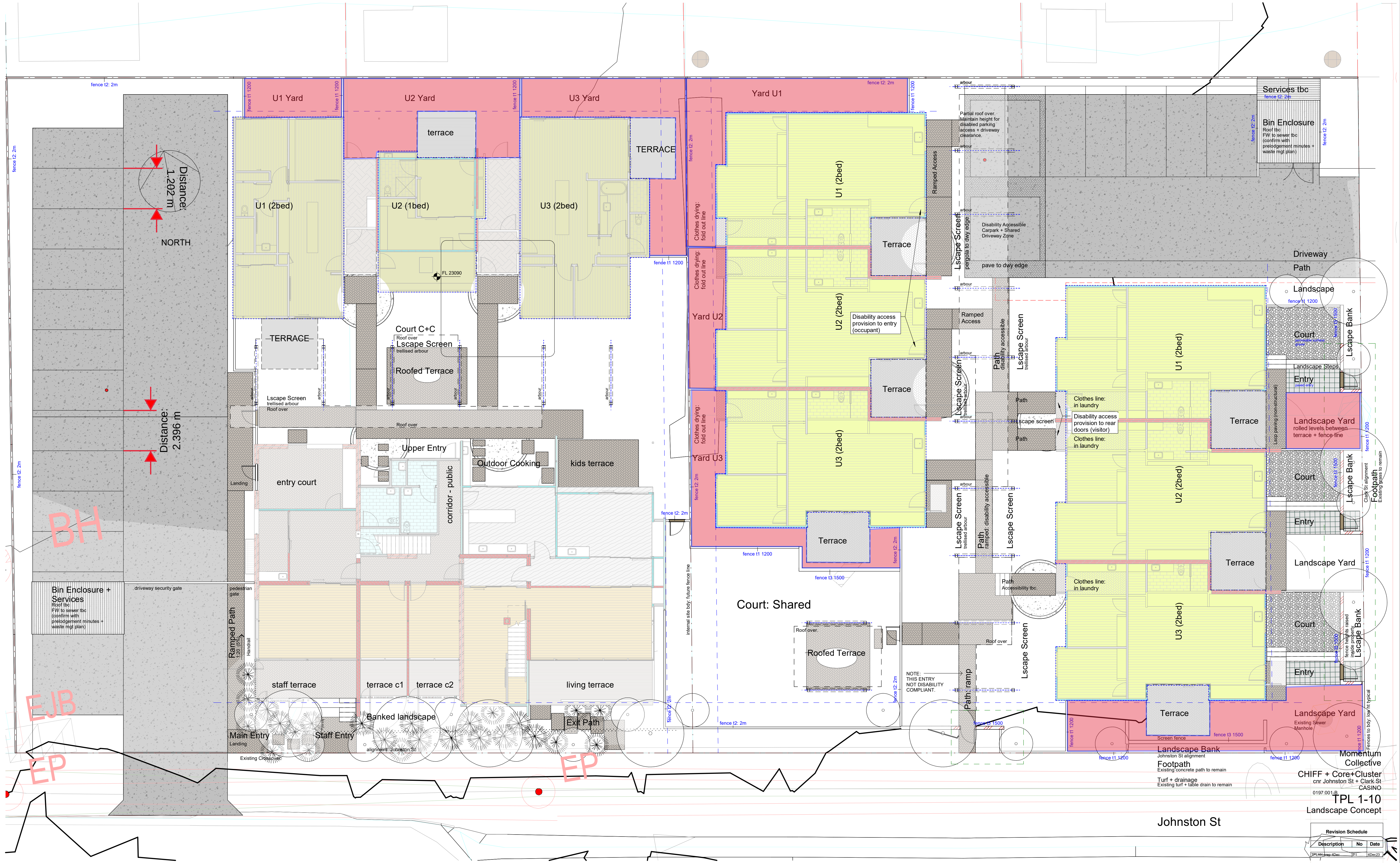
PROJECT NO. 0197:001-B
Dwg Revision P1

SHEET NAME
Site - Shadow Diagrams (Winter)
TPL 1-05
DRAWING NO.
ISSUE



Momentum Collective

CHIFF + Core+Cluster
cnr Johnston St + Clark St
CASINO

0197.001-B

TPL 1-10
Landscape Concept

Revision Schedule		
Description	No	Date

1 TPL 1-10

LANDSCAPE CONCEPT

1 : 100 @ A1 size. A3 is 50% (1:200)

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Document Set ID: 1906115
Version: 1, Version Date: 15/02/2024

TPLAN prep 4Dec

north (typical)

Yard U1

fence t2: 2m

fence t1 1200

arbour

Partial roof over. Maintain height for disabled parking access + driveway clearance.

Services tbc

fence t2: 2m

Bin Enclosure

Roof tbc
FW to sewer tbc
(confirm with prelodgement minutes + waste mgt plan)

fence t2: 2m

fence t2: 2m

U1 (2bed)

Ramped Access

Lscape Screen

pergola to dwy edge

Disability Accessible Carpark + Shared Driveway Zone

pave to dwy edge

Driveway

Path

Clothes drying: fold out line

Terrace

Clothes drying: fold out line

Yard U2

U2 (2bed)

Disability access provision to entry (occupant)

Ramped Access

Path

disability accessible

Lscape Screen

trellised arbour

Landscape

fence t1 1200

Court

permeable surface: gravel

fence t3 1500

Lscape Bank

Landscape Steps

Entry

paved entry

Lscape Screen

trellised arbour

Path

Clothes line: in laundry

Disability access provision to rear doors (visitor)

Lscape screen

Clothes line: in laundry

Path

U1 (2bed)

Terrace

Lscp paving (non-structural)

Landscape Yard

rolled levels between terrace + fence line

Clothes drying: fold out line

Yard U3

U3 (2bed)

Terrace

U2 (2bed)

Court

fence t3 1500

Lscape Bank

fence t1 1200

Clark St alignment

Footpath

nce t2: 2m

2 Part Site Clark Dwy

TPL 1-11 1 : 100

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PROJECT NO. 0197:001-B

Dwg Revision P1

SHEET NAME
Lscp Part - Clark St Dwy Frontage
TPL 1-11
DRAWING NO.

ISSUE

TPLAN prep 4Dec

north (typical)

Clothes drying: fold out line

Yard U3

U3 (2bed)

fence t2: 2m

Terrace

fence t1 1200

fence t3 1500

fence t2: 2m

Court: Shared

arbour

Lscape screen

Path

Disability access provision to rear doors (visitor)

Clothes line: in laundry

Terrace

Landscape Yard
rolled levels between terrace + fence line

fence t1 1200

arbour

Lscape Screen
trellised arbour

Path
ramped: disability accessible

Lscape Screen

U2 (2bed)

Court

fence t3 1500

Lscape Bank

Clark St alignment

Footpath
Existing grass to remain

Entry

Path
Accessibility tbc.

Clothes line: in laundry

Terrace

Landscape Yard

fence t1 1200

internal site bdy: future fence line

Roof over.

Roofed Terrace

fence t2: 2m

NOTE:
THIS ENTRY
NOT DISABILITY
COMPLIANT.

Roof over

Lscape Screen

U3 (2bed)

Court

fence heights raised inside property

Lscape Bank

fence t3 1500

Entry

Path: ramp

fence t2: 2m

fence t3 1500

fence t1 1200

Terrace

Screen fence

fence t3 1500

Landscape Yard

Existing Sewer Manhole

fence t1 1200

Fences to bdy: low ht typical

Landscape Bank
Johnston St alignment

fence t1 1200

fence t1 1200

Footpath
Existing concrete path to remain

Turf + drainage
Existing turf + table drain to remain

1 Part Site - Cnr Clark+Johnston
TPL 1-12 1 : 100

Johnston St

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rev no	date	Description
P1	4Dec23	TPLAN prep 4Dec

PROJECT
CHIFF + Core+Cluster

SCALE 1 : 100
0 1 2 3 4 5 10cm
Refer drawings for scale. Original is A3 size. This marker is 10cm at full scale

CLIENT
Momentum Collective
cnr Johnston St + Clark St CASINO

PROJECT NO. 0197:001-B
Dwg Revision P1

SHEET NAME
Lscp Part - Cnr Clark + Johnston
TPL 1-12
DRAWING NO.
ISSUE

TPLAN prep 4Dec

north (typical)

fence t2: 2m

BH

Bin Enclosure + Services
Roof tbc
FW to sewer tbc
(confirm with prelodgement minutes + waste mgt plan)

driveway security gate

pedestrian gate

Ramped Path
1:20 (5%)

Handrail

Landing

arbour

Lscape Screen
trellised arbour
Roof over

Roofed Terrace

Roof over

Upper Entry

entry court

corridor - public

Outdoor Cooking

kids terrace

fence t2: 2m

internal site bdy: future fence line

1 Part Site - Core + Dwy
TPL 1-13 1 : 100

EJB

staff terrace

terrace c1

terrace c2

living terrace

Banked landscape

Exit Path

Fence t2: 2m

Main Entry
Landing

Staff Entry

alignment: Johnston St

Existing Crossover

EP

EP

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rev no	date	Description
P1	4Dec23	TPLAN prep 4Dec

PROJECT
CHIFF + Core+Cluster

SCALE 1 : 100
10cm
0 1 2 3 4 5
Refer drawings for scale. Original is A3 size. This marker is 10cm at full scale

CLIENT
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cnr Johnston St + Clark St CASINO

PROJECT NO. 0197:001-B
Dwg Revision P1

SHEET NAME
Lscp Part - Johnston Dwy TPL 1-13
DRAWING NO.
ISSUE

TPLAN prep 4Dec

north (typical)

fence t2: 2m

fence t2: 2m

fence t1 1200

fence t1 1200

fence t1 1200

fence t2: 2m

fence t1 1200

fence t2: 2m

U1 Yard

U2 Yard

U3 Yard

terrace

TERRACE

U1 (2bed)

U2 (1bed)

U3 (2bed)

NORTH

FL 23090

Court C+C
Roof over
Lscape Screen
trellised arbour

Roofed Terrace

TERRACE

arbour

arbour

arbour

arbour

arbour

Lscape Screen
trellised arbour
Roof over

Roof over

Upper Entry

Outdoor Cooking

kids terrace

Landing

entry court

corridor - public

1 Part Site - C+C Cluster
TPL 1-14 1 : 100

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rev no	date	Description
P1	4Dec23	TPLAN prep 4Dec

PROJECT
CHIFF + Core+Cluster

SCALE 1 : 100
0 1 2 3 4 5 10cm
Refer drawings for scale. Original is A3 size. This marker is 10cm at full scale

CLIENT
Momentum Collective
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PROJECT NO. 0197:001-B
Dwg Revision P1

SHEET NAME
Lscp Part - Rear NW
TPL 1-14
DRAWING NO.
ISSUE

north (typical)

north

CORE BUILDING

entry court
checkin
waiting + entry
wc pwd
wc pwd
airlock
corridor - public
kitchen + meals
corridor - site
kids space
corridor - secure
staff
consult 1
Consult 2
Conference
living
staff terrace
terrace c1
terrace c2
living terrace

ldy
Bathrm
Bed 2
UNIT 3
Bed 1
Terrace

270
3635
4360
4525
2250
3000
setback zone
4130
3830
1830
1740
5045
7048
4300
1500
1500
6050
2955
3185
3995
7390
704

Landscaped street front
planting to landscape arch

BOUNDARY

1 Ground Floor Level - Core

1 : 100

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rev no	date	Description
P1	4Dec23	TPLAN prep 4Dec

PROJECT
CHIFF + Core+Cluster

SCALE 1 : 100
0 1 2 3 4 5 10cm
Refer drawings for scale. Original is A3 size. This marker is 10cm at full scale

CLIENT
Momentum Collective
cnr Johnston St + Clark St CASINO

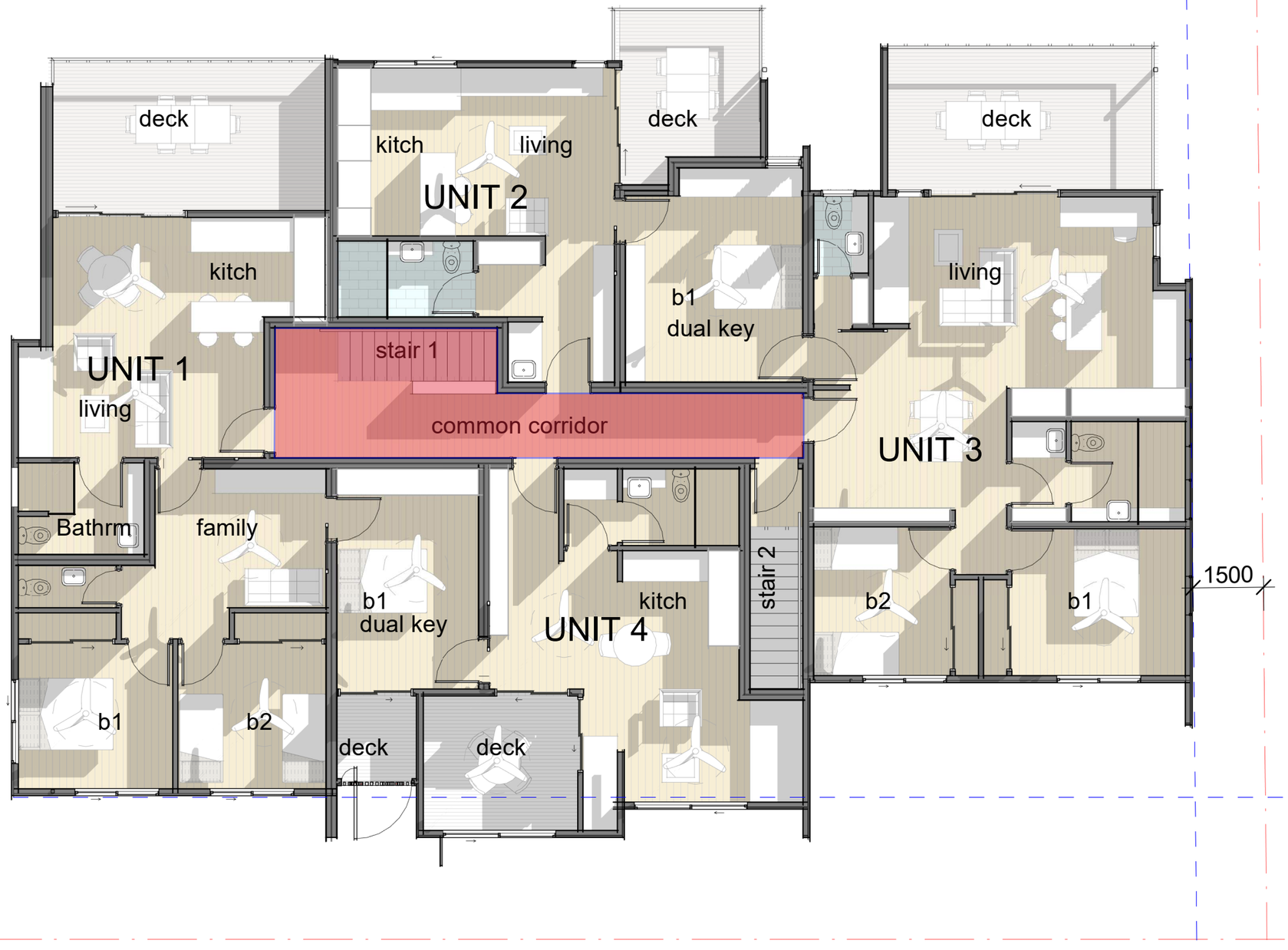
PROJECT NO. 0197:001-B
Dwg Revision P1

SHEET NAME
Building Plans - CORE GROUND

DRAWING NO. TPL 2-01
ISSUE

TPLAN prep 4Dec

north (typical)



1 Upper Floor Level

1 : 100

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rev no	date	Description
P1	4Dec23	TPLAN prep 4Dec

PROJECT
CHIFF + Core+Cluster

SCALE 1 : 100
0 1 2 3 4 5 10cm
Refer drawings for scale. Original is A3 size. This marker is 10cm at full scale

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cnr Johnston St + Clark St CASINO

PROJECT NO. 0197:001-B
Dwg Revision P1

SHEET NAME
Building Plans - CORE UPPER
TPL 2-02
DRAWING NO.
ISSUE

TPLAN prep 4Dec

north (typical)

2000

BED 2
LIVING
robe 2
KITCHEN
UNIT 1
BATH
robe 1
BED 1
DINING
TERRACE

terrace
dry 1/2
bath
high level north facing glazing
bed 1
ldy 1/2
kitch
UNIT 2
ACCESSIBLE UNIT
Layout to further detail
Dual key
entry A
entry
living
entry B
dry 2/3

DINING
LIVING
TERRACE
BATH
LIVING
UNIT 3
ENTRY
BED 1
BED 2

CLUSTER BUILDING

1 Typical Cluster Floor Plan

1 : 100

north

CORE BUILDING

279

entry court
wc pwd
wc pwd

CLUSTER 02 BUILDING

Bed 2
Bed 1
ldy
ldy
Bed 2
Bed 1
ldy
Bed 2
Bed 1

1500
1500

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rev no	date	Description
P1	4Dec23	TPLAN prep 4Dec

PROJECT
CHIFF + Core+Cluster
kitchen + meals
kids space

SCALE 1 : 100
0 1 2 3 4 5 10cm
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PROJECT NO. 0197:001-B
Dwg Revision P1

SHEET NAME
CLUSTER 01 (Core+Cluster) TPL 2-11
DRAWING NO.
ISSUE

TPLAN prep 4Dec

north (typical)

DINING
LIVING
TERRACE
dry 2/3
BATH
LIVING
UNIT 3
ENTRY
entry B
BED 1
BED 2

north

1500
1500

kitchen + meals
kids space

CLUSTER 02 BUILDING

Bed 2
Kitchen
ACCESSIBLE UNIT
Layout to further detail
Living + Dining
UNIT 1
Bed 1
pwd bath
ldy
ldy
Terrace
high level north facing glazing
Kitchen
Bed 2
Living + Dining
ACCESSIBLE UNIT
Layout to further detail
Bed 1
UNIT 2
Terrace
ldy
Bathrm
high level north facing glazing
Bed 2
Kitchen
UNIT 3
Living + Dining
Bed 1
Terrace

1 Cluster Floor Plan - CHIFF
1 : 100

Bed 2
Bed 1
ldy
ldy
Bed 2

CLUSTER 03

north

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rev no	date	Description
P1	4Dec23	TPLAN prep 4Dec

PROJECT
CHIFF + Core+Cluster

SCALE 1 : 100
0 1 2 3 4 5 10cm
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PROJECT NO. 0197:001-B
Dwg Revision P1

SHEET NAME
CLUSTER 02 (CHIFF)
DRAWING NO. TPL 2-21
ISSUE

north (typical)

Terrace

high level north facing glazing

Kitchen

Living + Dining

ACCESSIBLE UNIT
Layout to further detail

UNIT 2

Bathrm

Terrace

high level north facing glazing

Kitchen

UNIT 3

Living + Dining

Terrace

north

CLUSTER 03

Bed 2

Kitchen

Living + Dining

UNIT 1

Bed 1

pwd bath

ldy

ldy

high level north facing glazing

Bed 2

Kitchen

UNIT 2

Living + Dining

Bed 1

ldy

Bathrm

high level north facing glazing

Kitchen

Bed 2

Living + Dining

UNIT 3

Bed 1

5500
setback zone for sewer

Clark St

Entries to Clark St through front courtyards.

No structural building footings in zone

1 Ground Floor - Cluster 03
1 : 100

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rev no	date	description
P1	4Dec23	TPLAN prep 4Dec

PROJECT
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SCALE 1 : 100
0 1 2 3 4 5 10cm
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PROJECT NO. 0197:001-B
Dwg Revision P1

SHEET NAME
CLUSTER 03 (CHIFF) Clark St TPL 2-22
DRAWING NO.
ISSUE

TPLAN prep 4Dec

north (typical)

02 TPL 4-03

03 TPL 4-03

TPL 4-04 01

04 TPL 4-03

02 TPL 4-04

03 TPL 4-01

TPL 4-03 01

02 TPL 4-01

03 TPL 4-04

01 TPL 4-02

Clark Street

02 OD 4-02B

01 OD 4-02B

01 TPL 4-01

02 TPL 4-02

Johnston Street

1 KEY PLAN - Elev + Sections

1 : 200

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rev no	date	Description
P1	4Dec23	TPLAN prep 4Dec

PROJECT
CHIFF + Core+Cluster

SCALE
0 1 2 3 4 5
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CLIENT
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1 : 200
10cm

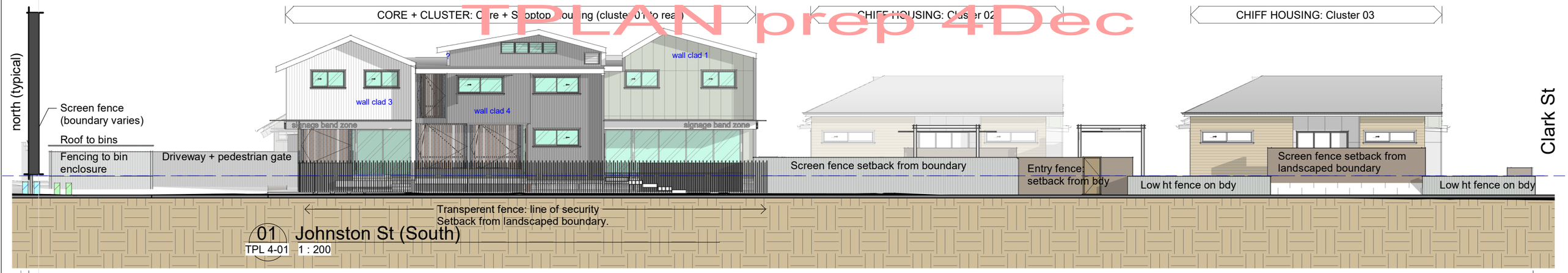
PROJECT NO.
0197:001-B

Dwg Revision
P1

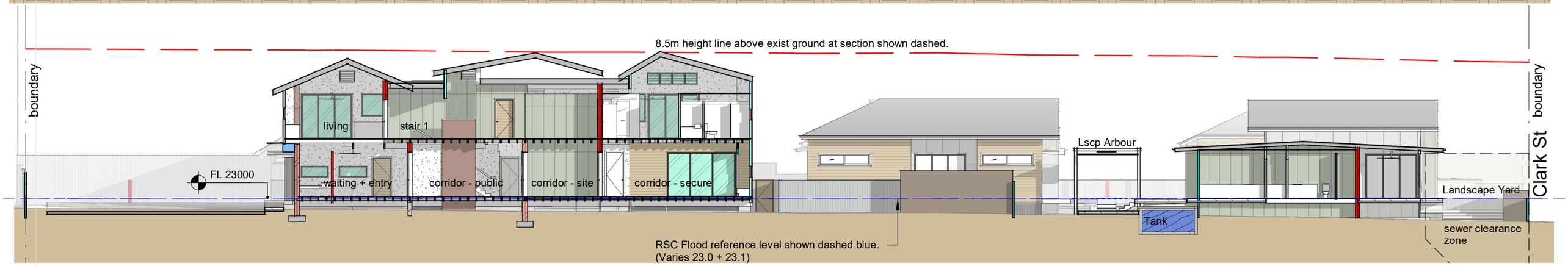
SHEET NAME
KEY Elev+Sect

TPL 4-00
DRAWING NO.

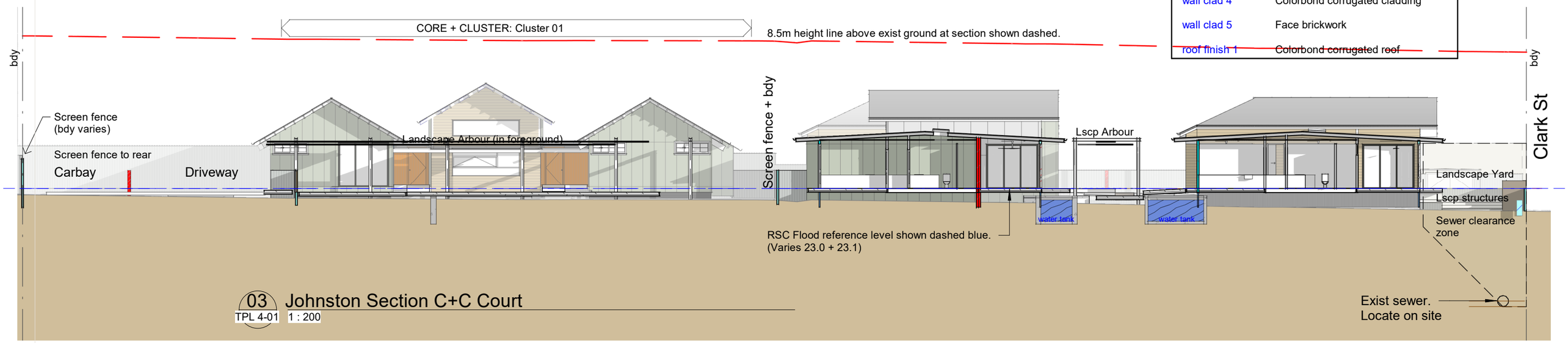
ISSUE



01 Johnston St (South)
TPL 4-01 1 : 200



02 Johnston - Section ShopTop
TPL 4-01 1 : 200



03 Johnston Section C+C Court
TPL 4-01 1 : 200

EXTERNAL FINISHES LEGEND

wall clad 1	Painted cladding: FC sheet
wall clad 2	Painted: FC primline weatherboards
wall clad 3	Painted: FC axon. vertical groove
wall clad 4	Colorbond corrugated cladding
wall clad 5	Face brickwork
roof finish 1	Colorbond corrugated roof

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rev no	date	Description
P1	4Dec23	TPLAN prep 4Dec

PROJECT
CHIFF + Core+Cluster

SCALE As indicated
0 1 2 3 4 5 10cm
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CLIENT
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cnr Johnston St + Clark St CASINO

PROJECT NO. 0197:001-B
Dwg Revision P1

SHEET NAME
Site Elev South - JOHNSTON ST

TPL 4-01
DRAWING NO.

ISSUE

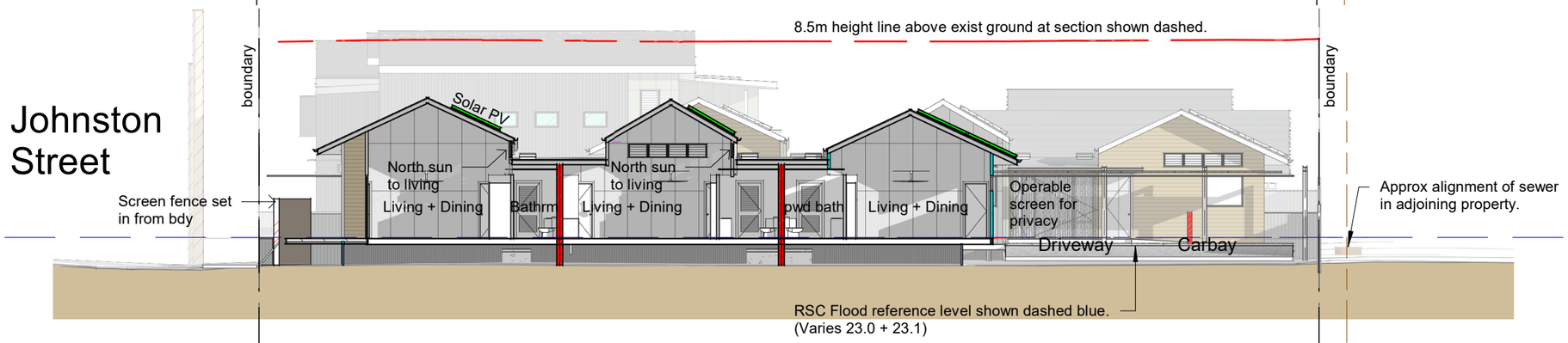
north (typical)

TPLAN prep 4Dec

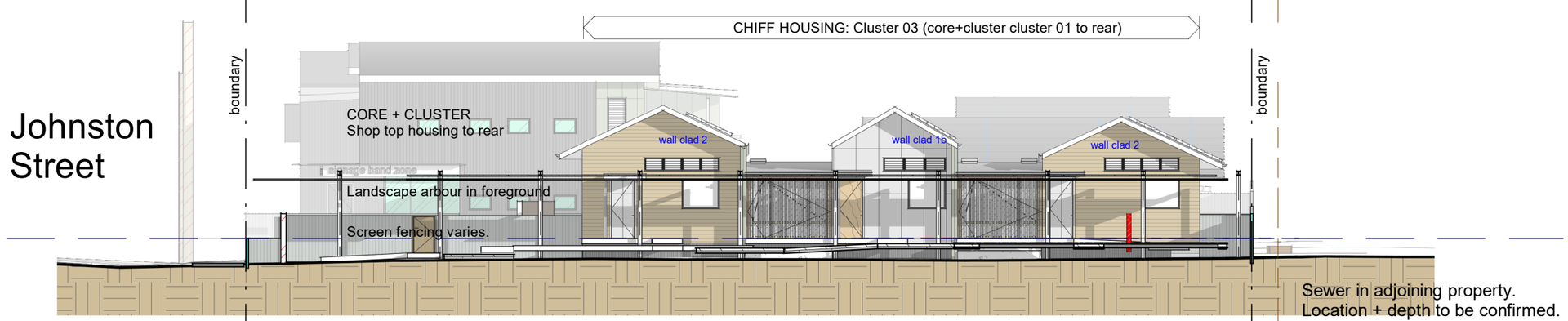
EXTERNAL FINISHES LEGEND

wall clad 1	Painted cladding: FC sheet
wall clad 2	Painted: FC primline weatherboards
wall clad 3	Painted: FC axon. vertical groove
wall clad 4	Colorbond corrugated cladding
wall clad 5	Face brickwork
roof finish 1	Colorbond corrugated roof

01 Clark St Frontage (East)
TPL 4-02 1 : 200



02 Clark Section CHIFF homes
TPL 4-02 1 : 200



03 Clark Section CHIFF Court
TPL 4-02 1 : 200

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rev no	date	Description
P1	4Dec23	TPLAN prep 4Dec

PROJECT
CHIFF + Core+Cluster

SCALE As indicated
0 1 2 3 4 5 10cm
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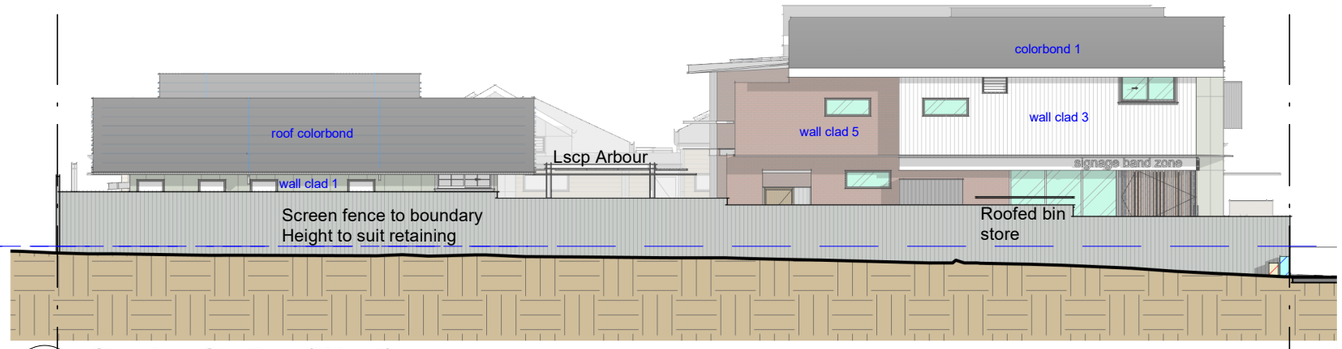
PROJECT NO. 0197:001-B
Dwg Revision P1

SHEET NAME
Site Elevation East CLARK ST
TPL 4-02
DRAWING NO.
ISSUE

north (typical)

CORE + CLUSTER: Cluster 01

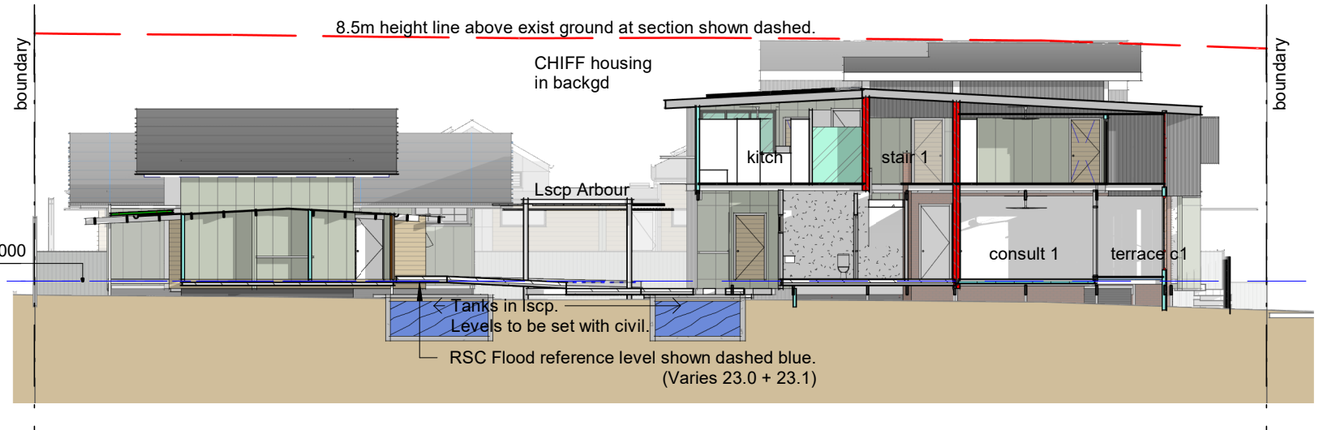
CORE + CLUSTER: Core + Shoptop Housing



Johnston Street

01 Service Station (West)

TPL 4-03 1 : 200



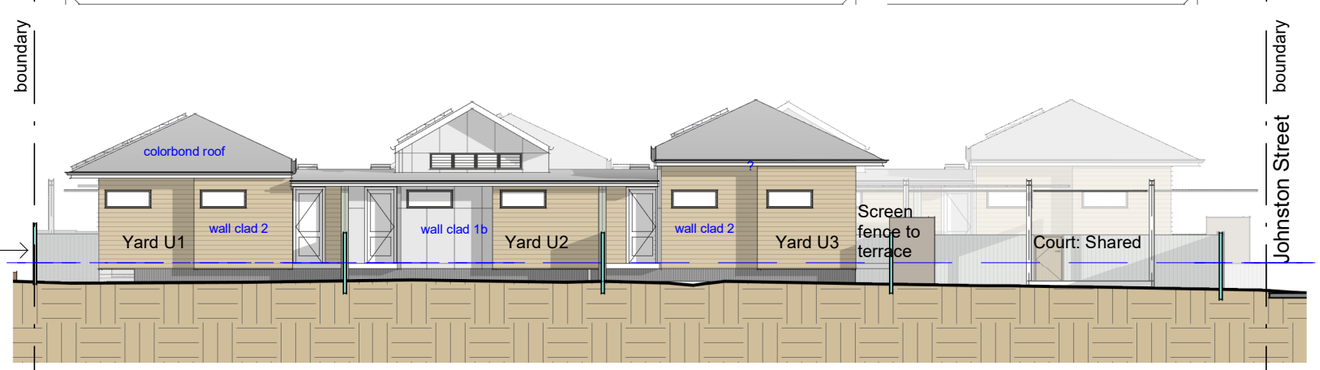
Johnston Street

02 West Section Core+Cluster

TPL 4-03 1 : 200

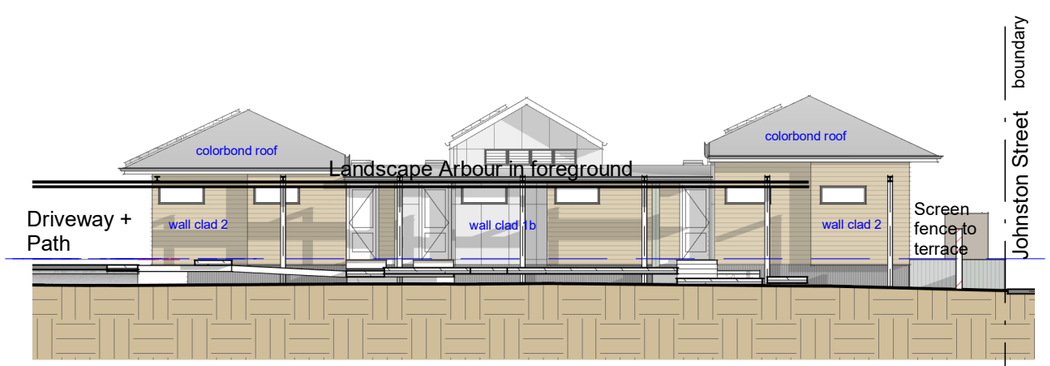
CHIFF HOUSING: Cluster 02

CHIFF HOUSING: Cluster 03 at rear



03 West CHIFF Cluster 02

TPL 4-03 1 : 200



04 West CHIFF Cluster 03

TPL 4-03 1 : 200

EXTERNAL FINISHES LEGEND

wall clad 1	Painted cladding: FC sheet
wall clad 2	Painted: FC primline weatherboards
wall clad 3	Painted: FC axon. vertical groove
wall clad 4	Colorbond corrugated cladding
wall clad 5	Face brickwork
roof finish 1	Colorbond corrugated roof

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rev no	date	Description
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PROJECT
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SCALE As indicated

0 1 2 3 4 5 10cm

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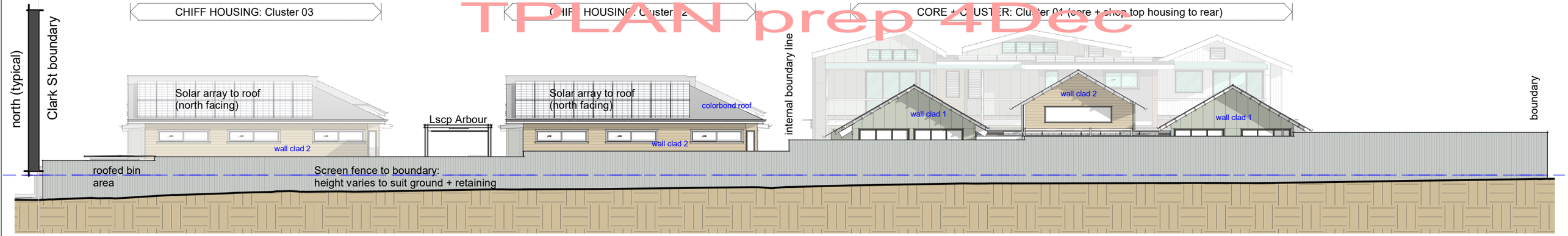
PROJECT NO. 0197:001-B

Dwg Revision P1

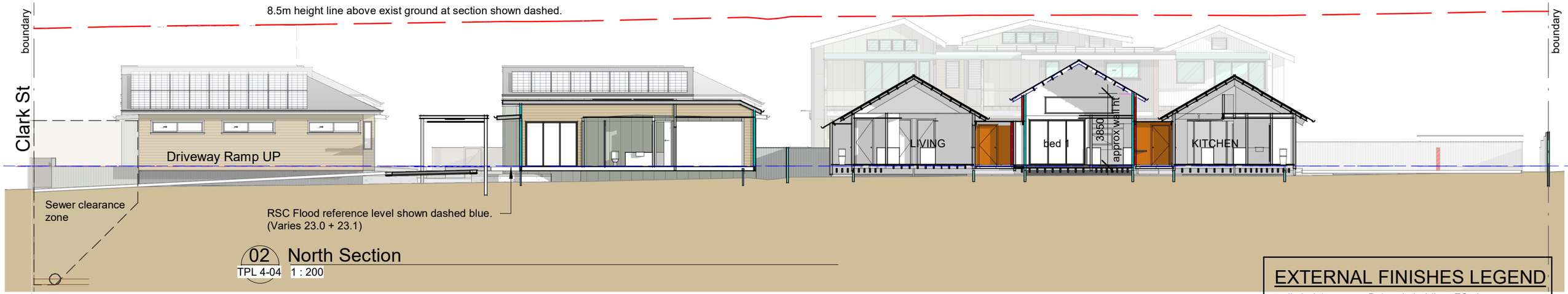
SHEET NAME
Site Elevation East
SERVICE STN

DRAWING NO. TPL 4-03

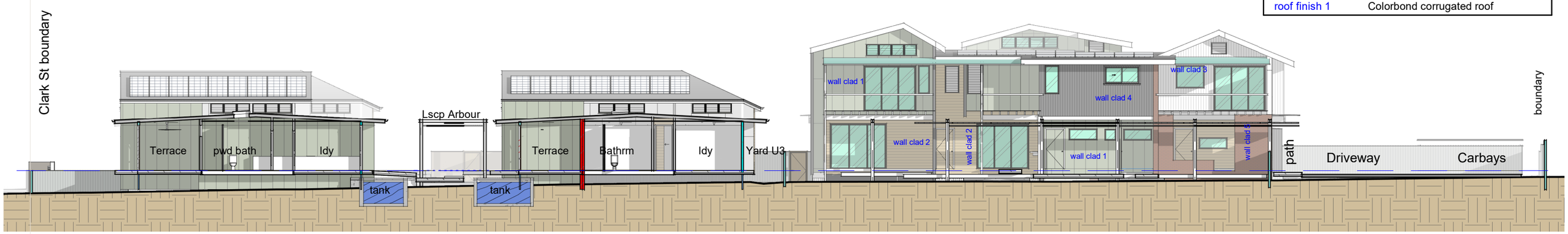
ISSUE



01 Side Boundary (North Elev)
TPL 4-04 1 : 200



02 North Section
TPL 4-04 1 : 200



03 North Sect - ShopTop Elev
TPL 4-04 1 : 200

EXTERNAL FINISHES LEGEND

wall clad 1	Painted cladding: FC sheet
wall clad 2	Painted: FC primline weatherboards
wall clad 3	Painted: FC axon. vertical groove
wall clad 4	Colorbond corrugated cladding
wall clad 5	Face brickwork
roof finish 1	Colorbond corrugated roof

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rev no	date	Description
P1	4Dec23	TPLAN prep 4Dec

PROJECT
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SCALE As indicated
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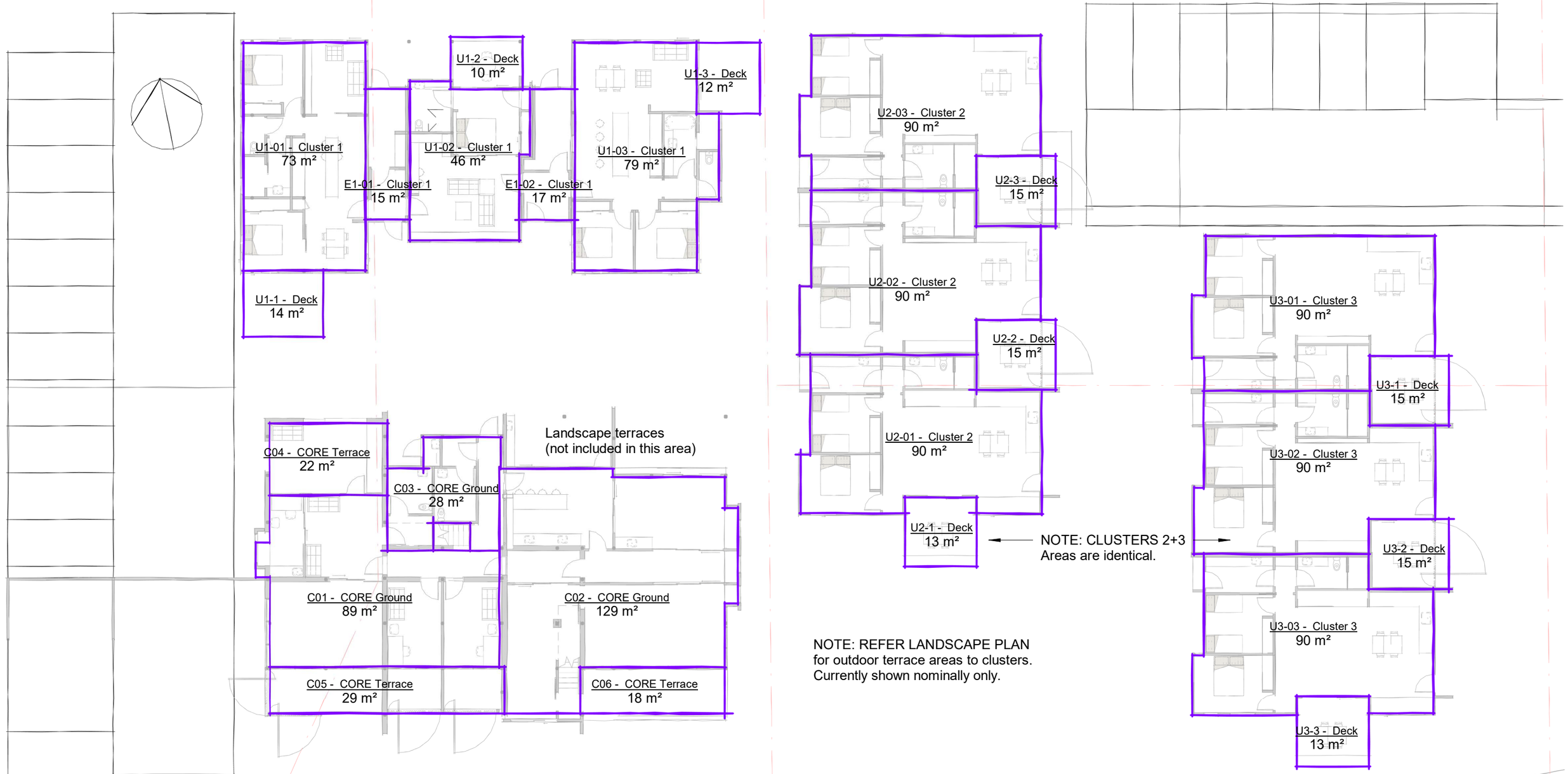
PROJECT NO. 0197:001-B
Dwg Revision P1

SHEET NAME
Site Elevation - NORTH
TPL 4-04
DRAWING NO.
ISSUE

TPLAN prep 4Dec

north (typical)



1 Site Cover (Ext Wall Line)

1 : 200

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rev no	date	Description
P1	4Dec23	TPLAN prep 4Dec

PROJECT
CHIFF + Core+Cluster

SCALE 1 : 200
0 1 2 3 4 5 10cm
Refer drawings for scale. Original is A3 size. This marker is 10cm at full scale

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cnr Johnston St + Clark St CASINO

PROJECT NO. 0197:001-B
Dwg Revision P1

SHEET NAME
SITE AREA Plan - GROUND

TPL 9-01
DRAWING NO.

ISSUE

north (typical)

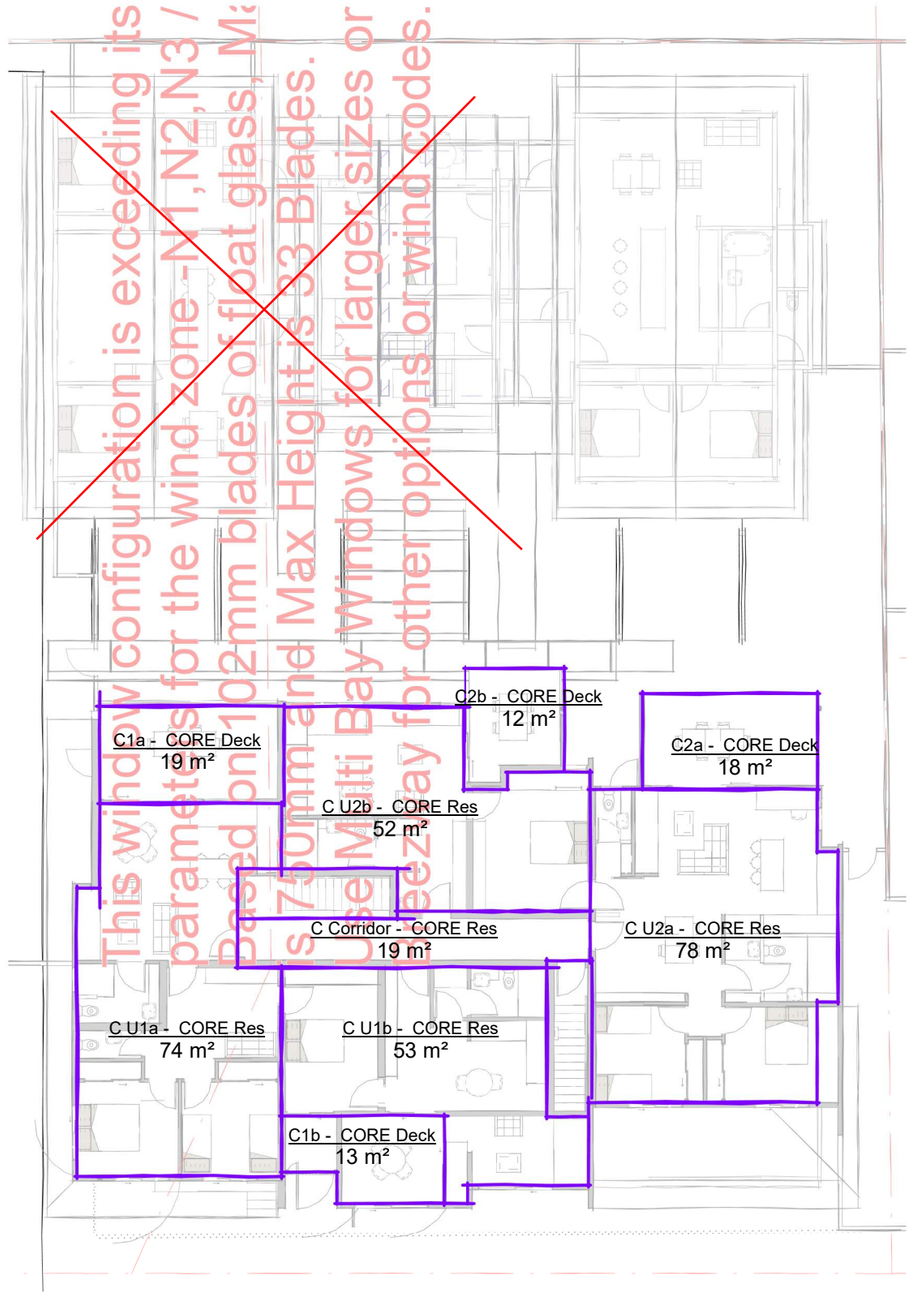
Area Schedule (Gross Building)

Level	No	Name	Area Type	Area
Ground Floor Clark St	U1-01	Cluster 1	Gross Building Area	73 m²
Ground Floor Clark St	U1-02	Cluster 1	Gross Building Area	46 m²
Ground Floor Clark St	U1-03	Cluster 1	Gross Building Area	79 m²
Cluster 1				198 m²
Ground Floor Clark St	U2-01	Cluster 2	Gross Building Area	90 m²
Ground Floor Clark St	U2-02	Cluster 2	Gross Building Area	90 m²
Ground Floor Clark St	U2-03	Cluster 2	Gross Building Area	90 m²
Cluster 2				269 m²
Ground Floor Clark St	U3-01	Cluster 3	Gross Building Area	90 m²
Ground Floor Clark St	U3-02	Cluster 3	Gross Building Area	90 m²
Ground Floor Clark St	U3-03	Cluster 3	Gross Building Area	90 m²
Cluster 3				270 m²
Ground Floor Clark St	C01	CORE Ground	Gross Building Area	89 m²
Ground Floor Clark St	C02	CORE Ground	Gross Building Area	129 m²

Area Schedule (Gross Building)

Level	No	Name	Area Type	Area
Ground Floor Clark St	C03	CORE Ground	Gross Building Area	28 m²
CORE Ground				245 m²
Upper Floor	C Corridor	CORE Res	Gross Building Area	19 m²
Upper Floor	C U1a	CORE Res	Gross Building Area	74 m²
Upper Floor	C U1b	CORE Res	Gross Building Area	53 m²
Upper Floor	C U2a	CORE Res	Gross Building Area	78 m²
Upper Floor	C U2b	CORE Res	Gross Building Area	52 m²
CORE Res				277 m²
Gross Building Area				1259 m²

Level	No	Name	Area Type	Area
Ground Floor Clark St	E1-01	Cluster 1	Exterior Area	15 m²
Ground Floor Clark St	E1-02	Cluster 1	Exterior Area	17 m²
Cluster 1				33 m²
Upper Floor	C1a	CORE Deck	Exterior Area	19 m²
Upper Floor	C1b	CORE Deck	Exterior Area	13 m²
Upper Floor	C2a	CORE Deck	Exterior Area	18 m²
Upper Floor	C2b	CORE Deck	Exterior Area	12 m²
CORE Deck				62 m²
Ground Floor Clark St	C04	CORE Terrace	Exterior Area	22 m²
Ground Floor Clark St	C05	CORE Terrace	Exterior Area	29 m²
Ground Floor Clark St	C06	CORE Terrace	Exterior Area	18 m²
CORE Terrace				69 m²
Ground Floor Clark St	U1-1	Deck	Exterior Area	14 m²
Ground Floor Clark St	U1-2	Deck	Exterior Area	10 m²
Ground Floor Clark St	U1-3	Deck	Exterior Area	12 m²
Ground Floor Clark St	U2-1	Deck	Exterior Area	13 m²
Ground Floor Clark St	U2-2	Deck	Exterior Area	15 m²
Ground Floor Clark St	U2-3	Deck	Exterior Area	15 m²
Ground Floor Clark St	U3-1	Deck	Exterior Area	15 m²
Ground Floor Clark St	U3-2	Deck	Exterior Area	15 m²
Ground Floor Clark St	U3-3	Deck	Exterior Area	13 m²
Deck				121 m²
Exterior Area				286 m²



2 Upper Floor
1 : 200

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REV SCHEDULE printed 04/12/2023 9:01:49 AM

rev no	date	Description
P1	4Dec23	TPLAN prep 4Dec

PROJECT
CHIFF + Core+Cluster

SCALE 1 : 200
0 1 2 3 4 5 10cm
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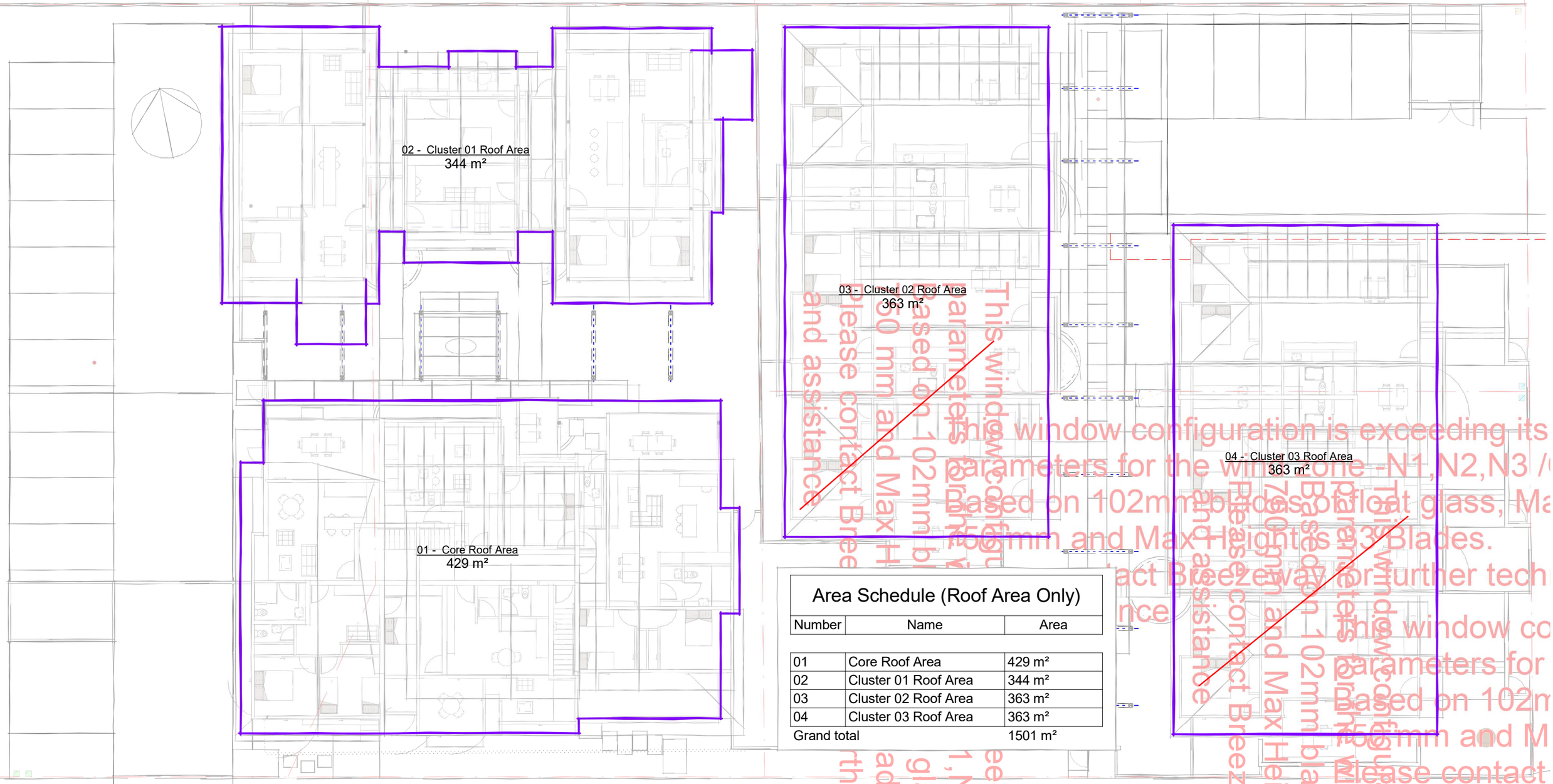
PROJECT NO. 0197:001-B
Dwg Revision P1

SHEET NAME
SITE AREA Plan - UPPER

TPL 9-02
DRAWING NO.
ISSUE

north (typical)



Area Schedule (Roof Area Only)		
Number	Name	Area
01	Core Roof Area	429 m²
02	Cluster 01 Roof Area	344 m²
03	Cluster 02 Roof Area	363 m²
04	Cluster 03 Roof Area	363 m²
Grand total		1501 m²

NOTE TERRACES BEING FINALISED.
Roofed terraces to each dwelling included nominally (location being finalised)
External common shade structures not yet included in roof area calculations. Spill to landscape.

1 Roof Area Plan
1 : 200

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rev no	date	Description
P1	4Dec23	TPLAN prep 4Dec

PROJECT
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SCALE 1 : 200
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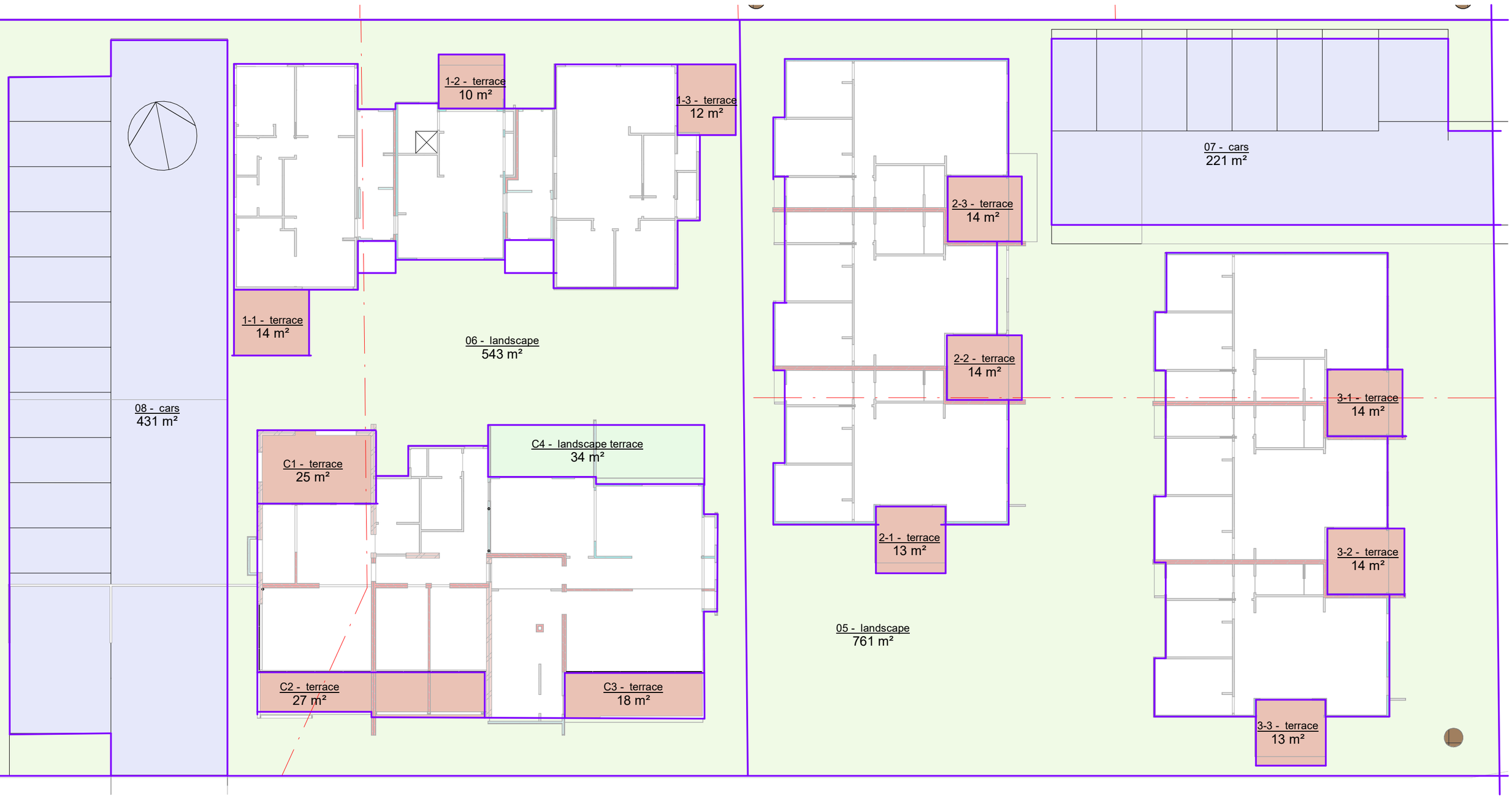
Dwg Revision P1

SHEET NAME
SITE AREA Plan - ROOF AREAS

TPL 9-03
DRAWING NO.
ISSUE

TPLAN prep 4Dec



1 LANDSCAPE areas

1 : 200

SITE AREA FROM TITLE: 3230.1ssqm.

Landscape Area = 543 + 761 = 1281sqm approx
Landscape Area = 1304/3230.1 = 40% approx
Includes common paved areas in landscape.

(excluding landscape terrace, private terraces and driveways).

ptma ARCHITECTURE
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ptmaARCHITECTURE acknowledges the traditional custodians, the Galibal people of the Bundjalung Nation & recognise their continuing connection to land, water & community.
We pay our respect to elders past, present & emerging & extend that respect to all Aboriginal & Torres Strait Islander People.

REV SCHEDULE printed 04/12/2023 9:01:53 AM

rev no	date	Description
P1	4Dec23	TPLAN prep 4Dec

PROJECT
CHIFF + Core+Cluster

SCALE 1 : 200
0 1 2 3 4 5 10cm
Refer drawings for scale. Original is A3 size. This marker is 10cm at full scale

CLIENT
Momentum Collective
cnr Johnston St + Clark St CASINO

PROJECT NO. 0197:001-B
Dwg Revision P1

SHEET NAME
SITE AREA Plan - Landscape
DRAWING NO. TPL 9-04
ISSUE

APPENDIX B

Speckel Assessment Report

J1V3 Building Assessment

National Construction Code 2022 - Volume 1

Project	146-152 Johnston Street CASINO
Address	146-152 Johnston St, Casino NSW 2470, Australia (28.86° S, 153.06° E)
Date	2023-12-20, 01:58 PM
Author	Duncan Hope (Senica Consultancy Group) duncan@senica.com.au
Scope	National Construction Code 2022
Performance Requirements	J1P1 Energy Use
Assessment Process	Verification Method
Building Class	5
Climate Zone	2
Storeys	1
Floor to Floor Height	2700 mm

Using Speckel

Speckel provides various calculations in line with the National Construction Code 2022 - Volume 1 - Section J Energy Efficiency. These calculations are tested in line with all applicable NCC equations or NCC referenced primary or secondary documents, for them to represent an accurate Performance Solution against the Performance Requirements - J1P1 Energy Use. A Performance Solution must be shown to comply with the relevant Performance Requirements through one or a combination of Assessment Methods. Speckel is a valid Assessment Method by comparison with the Deemed-to-Satisfy Provisions of each relevant area.

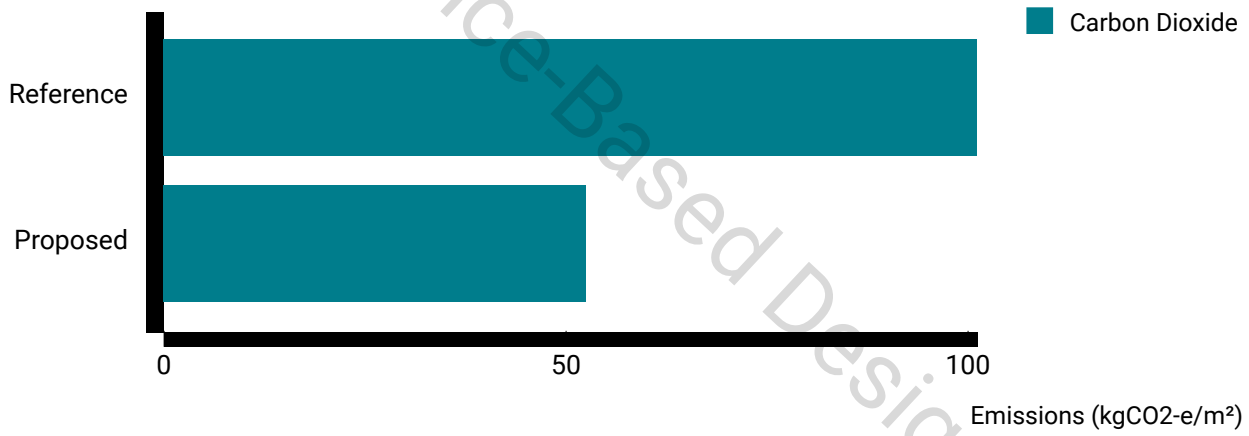
Results

The National Construction Code (NCC) specifies minimum performance standards for the energy efficiency of buildings through the Building Code of Australia (BCA) Volume 1, Section J. To enable flexibility in the architectural design of the building, a Performance Solution has been used to comply with the Performance Requirement - J1P1.

The Assessment Method, 'J1V3 Verification using a reference building' has been used and is an Alternative Solution for the Building Fabric only. As such, a Proposed Building with the proposed fabric has been modelled as part of this approach, to compare against the Reference Building services.

Building Emissions

To meet the acceptance criteria, annual Supplied Energy emissions must be less than **101.20** kgCO2-e/m². Based on a treated floor area of **227.74** m², the simulated building achieved **52.58** kgCO2-e/m², **meeting** the acceptance criteria.



Thermal Comfort

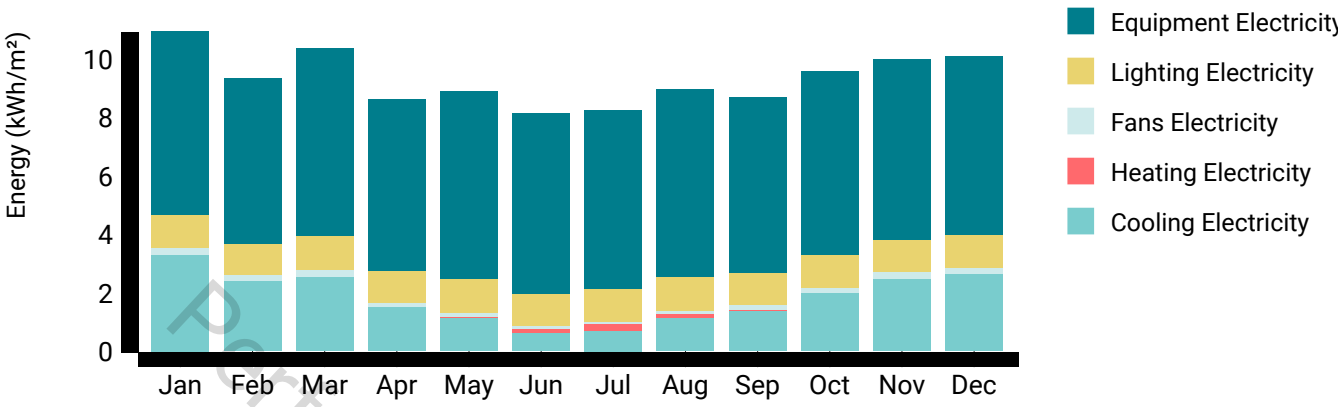
To meet the acceptance criteria, **95** % of total area across the assessed zones must meet the conditions:

- zone thermal comfort is between -1.0 and 1.0 PMV
- for at least 98 % of hours
- when above 20 % occupancy

A total area of 227.74 m² across 13 zones was assessed, where zones of **100.00** % area achieved the conditions, **meeting** the acceptance criteria.

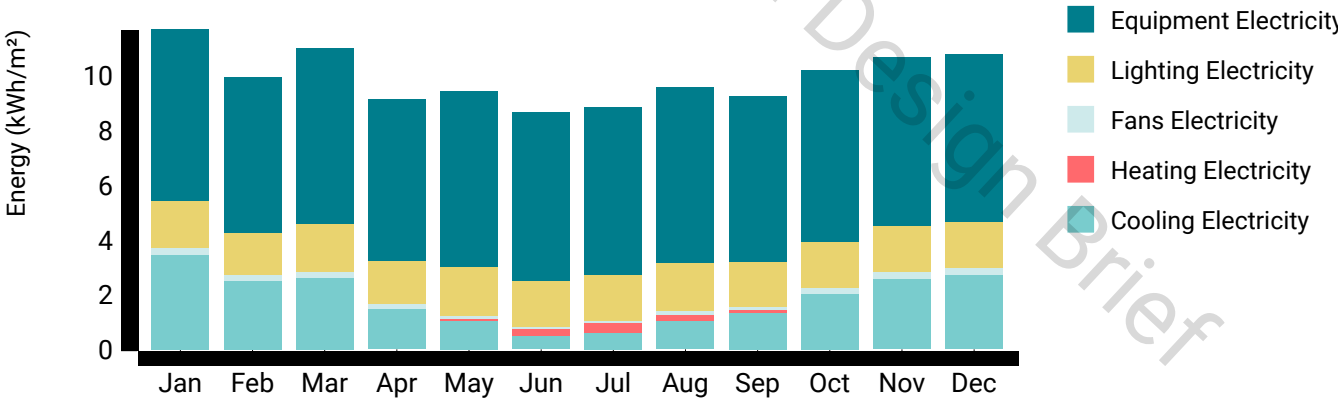
Building Meters

Proposed



Meter	Energy (kWh)	Energy (kWh/m²)	Peak (kW)	Time
Cooling Electricity	4998.27	21.95	5.93	25 Jan 14:00
Heating Electricity	120.87	0.53	5.37	26 Jun 07:15
Fans Electricity	467.53	2.05	0.31	2 Jan 07:30
Lighting Electricity	3062.24	13.45	0.78	2 Jan 09:15
Equipment Electricity	16836.28	73.93	3.90	2 Jan 09:15

Reference



Meter	Energy (kWh)	Energy (kWh/m²)	Peak (kW)	Time
Cooling Electricity	4991.69	21.92	7.11	25 Jan 14:00
Heating Electricity	236.21	1.04	6.41	26 Jun 07:30
Fans Electricity	470.16	2.06	0.34	16 Jan 15:00
Lighting Electricity	4593.36	20.17	1.17	2 Jan 09:15

Meter	Energy (kWh)	Energy (kWh/m²)	Peak (kW)	Time
Equipment Electricity	16836.28	73.93	3.90	2 Jan 09:15

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Version: 1, Version Date: 15/02/2024

Method

Approach

- The National Construction Code (NCC) specifies minimum performance standards for the energy efficiency of buildings through the Building Code of Australia (BCA) Volume 1, Section J.
- To enable flexibility in the architectural design of the building, a Performance Solution has been used to comply with the Performance Requirement - J1P1.
- The Assessment Method, J1V3 verification using a reference building, has been used and is an Alternative Solution for the Building Fabric only. As such, a Proposed Building with the proposed fabric has been modelled as part of this approach to compare against the Reference Building services.
- To meet acceptance criteria, the Proposed Building with the proposed fabric Greenhouse Gas (GHG) emissions must be no greater than the Reference Building services.
- Greenhouse gas emission factors are selected according Vol 1 Specification 34 Modelling Parameters for J1V3 Table S34C3 Greenhouse Gas Emissions Factors (kgCO2-e/GJ). In the case of the ACT, an exception is made where a greenhouse gas emission factor of nil is provided, as the national emission factors are not applied as they do not take into account investments in renewable electricity generation in the National Electricity Market.
- ",
- When the Simulated Shading Multipliers feature is enabled, each window is simulated in EnergyPlus twice, to compare a completely unshaded window, to a window affected by attached shading, building self-shading, and surrounding structures. The multiplier is based on the ratio of shaded versus unshaded annual average external incident solar radiation, limited between 0.0 and 1.0.

Assumptions / Limitations

- Parts J3, J5, J6, J7, J8 and J9 are not part of this assessment.
- Specification 33 Additional requirements - General is only met for provisions (a) General Thermal Construction and (b) for Floor Edge Insulation. All other provisions (c - n) are not part of this assessment.
- Specification 34 Modelling parameters for J1V3 S34C1 Scope, S34C2 Reference building and S34C3 Proposed building and reference building have been used to form the basis of the Method of Assessment.
- S34C4 Services Proposed and Reference Building is not part of this assessment as the minimum performance requirements of the services are not included.
- To ensure the reference building can be calculated, windows are limited to a maximum of 99% window-to-wall ratio (WWR).

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Inputs

The NCC 2022 - Vol 1 contains technical design and construction requirements for all commercial buildings and their associated structures. The following Building Classes have been adopted in this assessment.

Building Class	Wall Area (m²)	Window Area (m²)	Opaque Door (m²)	Floor Area (m²)	Window-Wall Ratio
5	141.33	78.51	3.35	242.31	0.36

Levels

#	Drawing	# Zones	Floor Area (m²)	Wall (m²)	Window (m²)
1	Concept	17	259.7	141.3	78.5

Zones

Level	Zone	Area (m²)	Volume (m³)	Treated Area (m²)
1	1. Living	31.39	78.48	31.39
1	2. Staff	27.74	69.34	27.74
1	3. Conference	27.00	67.49	27.00
1	4. Kids Space	22.85	57.13	22.85
1	5. Kitchen + Meals	21.86	54.66	21.86
1	6. Corridor	19.36	48.39	19.36
1	7. Waiting and entry	17.01	42.54	17.01
1	8. Consult 02	14.12	35.30	14.12
1	9. Corridor - Secure	13.15	32.86	13.15
1	10. Consult 01	13.21	33.02	13.21
1	11. Checkin	9.39	23.48	9.39
1	12. Corridor - Site	6.97	17.43	6.97
1	13. WC powder	5.79	14.47	0.00
1	14. WC Powder	5.39	13.48	0.00
1	15. Airlock	3.69	9.23	3.69
1	16. Vestibule	2.76	6.91	0.00
1	17. Utility	1.35	3.37	0.00

Level	Zone	Area (m²)	Volume (m³)	Treated Area (m²)
		243.02		227.74

Walls

Total System R-values of all walls include the effects of thermal bridging, which are calculated in accordance with AS/NZS 4859.2 and NZ 4214:2006 (as per J4D3 Thermal Construction — General (5)) or are stated values.

For the purpose of the Reference Building, the wall total system R-value of the wall-glazing construction has been calculated in accordance with J4D6 Walls and Glazing and Specification 37 Calculation of U-Value and solar admittance.

Proposed	Title	Class	R-Value (m²K°/W)	Area (m²)
Exposed to Unconditioned	Wall 01 - R2.5	5	2.02	25.93
External	Wall 01 - R2.5	5	2.02	115.39
Reference	**Title**	**Class**	**R-Value (m²K°/W)**	**Area (m²)**
Exposed to Unconditioned	Wall 01 - R2.5	5	2.02	25.93
External	Wall 01 - R2.5	5	2.02	115.39

Floors

Total system R-values of all floors include the effects of thermal bridging are calculated in accordance with AS/NZS 4859.2, NZ 4214:2006 and Section 3.5 of CIBSE Guide A (as per J4D3 Thermal Construction — General (5)) or are stated values

For the purpose of the Reference Building, the floor total system R-value has been assumed in accordance with J4D7 Floors.

Proposed	Title	Class	R-Value (m²K°/W)	Area (m²)
Bottom	Concept	5	3.00	242.31
Reference	**Title**	**Class**	**R-Value (m²K°/W)**	**Area (m²)**
Bottom	Concept	5	2.00	242.31

Windows

Total system U-values of all windows include the effects of thermal bridging at the frame, which are calculated in accordance with ISO 15099, as per J4D3 Thermal Construction — General (5).

For the purpose of the Reference Building, the glazing total system U-value and solar admittance of the wall-glazing construction has been calculated in accordance with J4D6 Walls and Glazing and Specification 37 Calculation of U-Value and solar admittance.

Proposed	Title	Class	U-value	SHGC	Area (m²)
External	Concept	5	1.80	0.20	18.75
External	Concept	5	2.40	0.40	59.76
Reference	Title	Class	U-value	SHGC	Area (m²)
External	Concept	5	4.71	0.32	78.51

Opaque Doors

Proposed	Title	Class	R-Value (m²K°/W)	Area (m²)
Exposed to Unconditioned	Concept	5	0.30	3.35
Reference	Title	Class	R-Value (m²K°/W)	Area (m²)
Exposed to Unconditioned	Concept	5	0.30	3.35

Location and Climate

This development is located at Casino.AP,NSW AUS. The climate file used in all simulations was AUS_NSW_Casino.AP.945730_TMYx.2007-2021, sourced from Climate.OneBuilding, an online repository collated from public sources. http://www.climate.onebuilding.org/.

Renewables

Photovoltaic systems have been nominated for the Proposed Building. They have been placed in the model and are subject to shading from the building, the surrounding site, and from self-shading.

Title	Height (m)	Area (m²)	Surf. Fraction	Efficiency	System Size (kWh)
01	4.0	53.1	0.9	0.2	9.6

Occupants

Occupant density (m²/person) are stipulated in each thermal zone, subject to the function and purpose of the space. Internal heat gains for the Reference and Proposed Reference Building occupant densities are identical.

Space	Building Class	Activity	Occupancy Density	Clothing	Air Velocity (m/s)
Default	5	Office	10.0	0.7	0.1

Lighting

Lighting power density (W/m²) is stipulated in each thermal zone, subject to the function and purpose of the space. Internal heat gains for the Reference Building lighting power density are as per NCC 2019 Vol 1 - Table J6.2a.

Space	Building Class	Space	W/m²
Default	5	Office	3.0

Equipment

Equipment density (W/m²) are stipulated in each thermal zone, subject to the function and purpose of the space. Internal heat gains for the Reference and Proposed Reference Building equipment density are identical.

Space	Building Class	Space	W/m²
Default	5	Office	15.0

Air-Conditioning

As a fabric only assessment, air-condition equipment and mechanical ventilation rates for the Reference and Proposed Building are identical. Minimum mechanical ventilation is required as per Part F6P3 Outdoor air supply.

Thermostat Details

Space	Building Class	Space	Cooling Set Point (°C)	Heating Set Point (°C)
Default	5	Office	24.0	20.0

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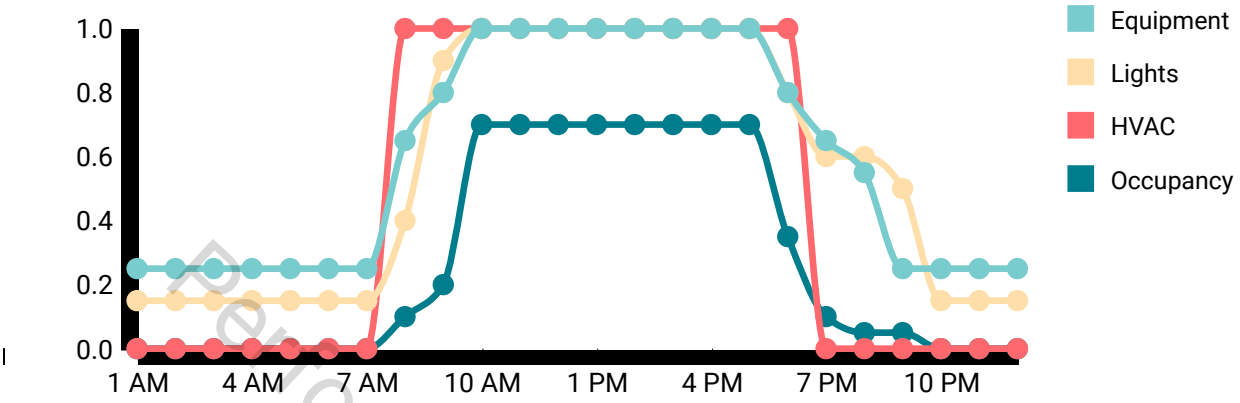
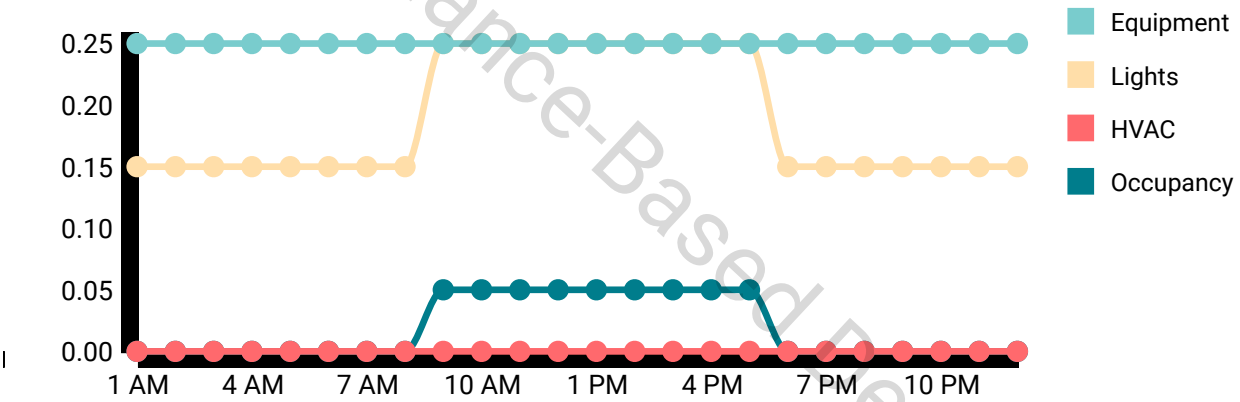
Profiles

Space - Default
Typical Day



Weekend



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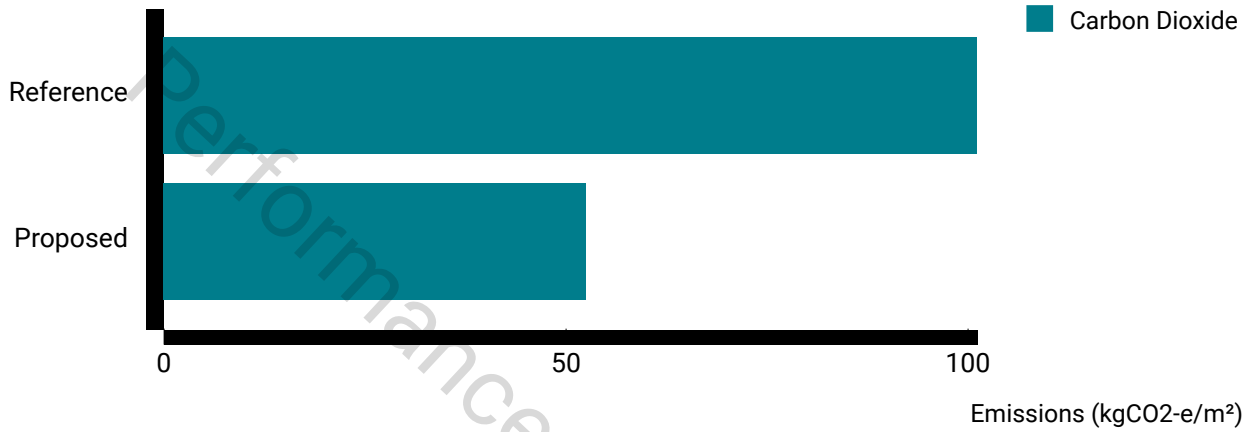
Detailed Results

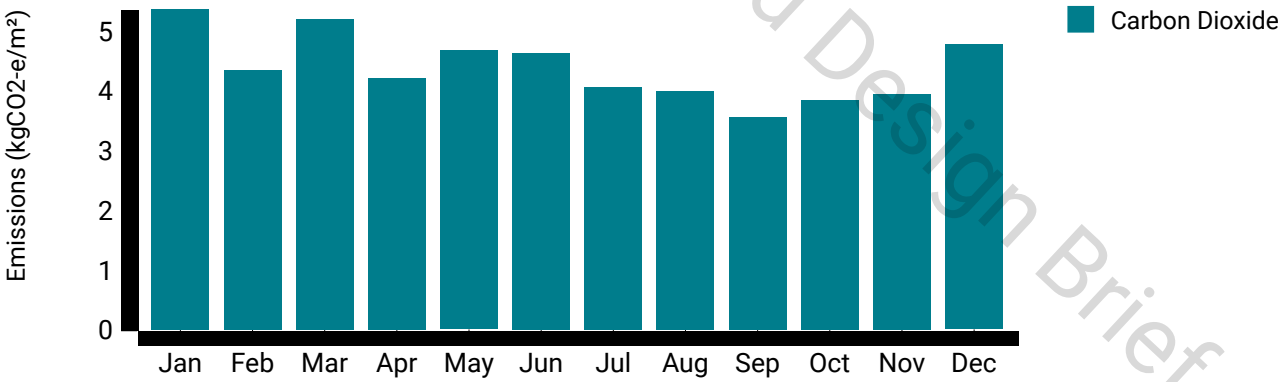
Building Emissions

To meet the acceptance criteria, annual Supplied Energy emissions must be less than **101.20** kgCO2-e/m². Based on a treated floor area of **227.74** m², the simulated building achieved **52.58** kgCO2-e/m², **meeting** the acceptance criteria.



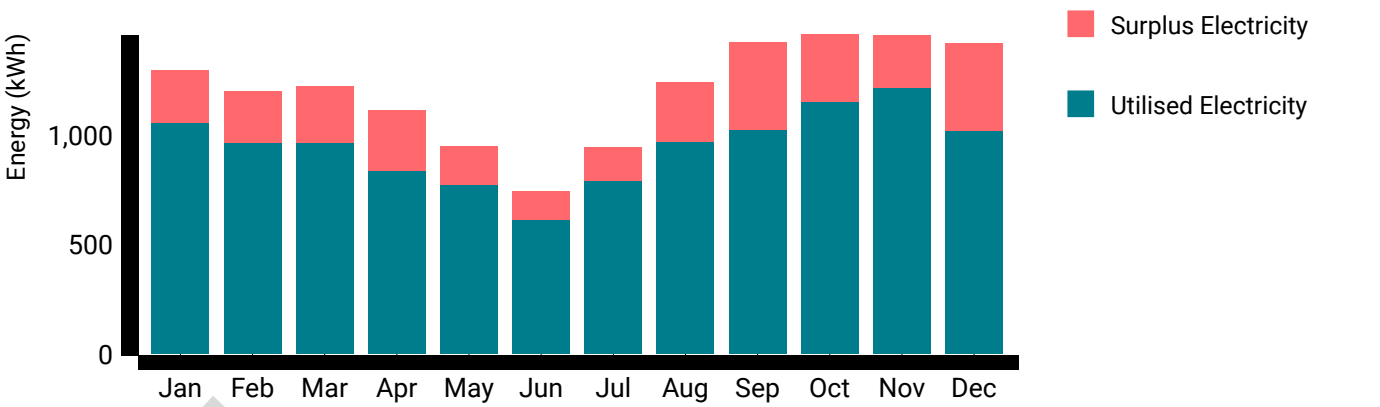
Greenhouse gas emission factors have been nominated as **236.00** kilogram / GJ for electricity , and **51.53** kilogram / GJ for natural gas.

Proposed



Meter	Emissions (kgCO2-e)	Emissions (kgCO2-e/m²)
Emissions	11974.39	52.58

Sources of renewable energy have been nominated for the building. Only the Utilised Electricity is considered against the Electricity Demand of the Building, while Surplus Electricity is not.



Energy	kWh
Produced Electricity	14479.4
Utilised Electricity	11391.0
Purchased Electricity	14094.1
Surplus Electricity	3088.3

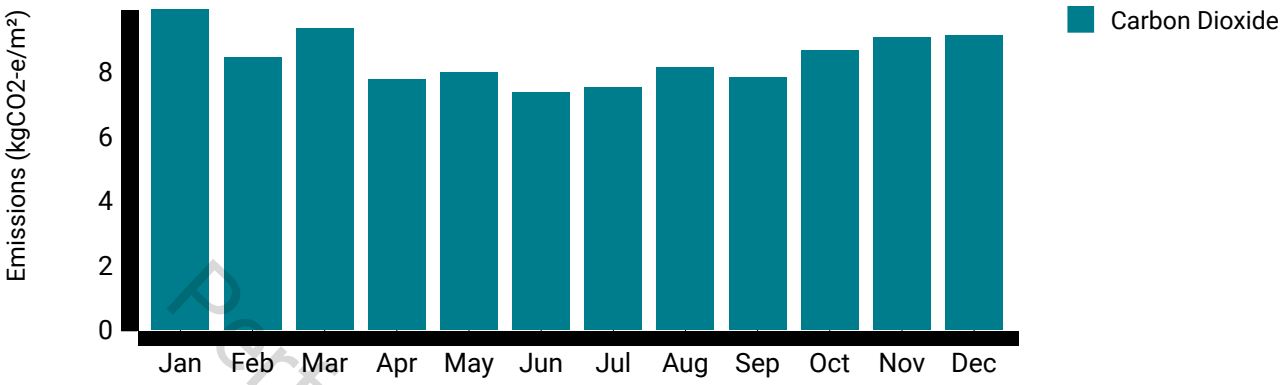
Electricity Purchased

Period	Energy (kWh)	Energy (kWh/m²)	Peak (kW)	Time
Jan	1437.03	6.31	8.43	16 Jan 16:00
Feb	1164.38	5.11	7.72	10 Feb 16:00
Mar	1394.31	6.12	6.96	30 Mar 16:00
Apr	1126.93	4.95	6.53	20 Apr 16:00
May	1252.00	5.50	6.60	25 May 16:00
Jun	1241.15	5.45	7.91	26 Jun 07:15
Jul	1089.94	4.79	7.77	7 Jul 07:15
Aug	1069.98	4.70	6.67	14 Aug 07:15
Sep	952.48	4.18	6.35	8 Sep 16:00
Oct	1028.69	4.52	7.20	5 Oct 16:00
Nov	1058.23	4.65	7.41	16 Nov 16:00
Dec	1279.02	5.62	7.99	11 Dec 16:00
Total	14094.15	61.89	8.43	16 Jan 16:00

Gas Demand

The simulated building did not include Gas Demand.

Reference
The Reference Building simulated results are shown below, which sets the acceptance criteria threshold.



Meter	Emissions (kgCO2-e)	Emissions (kgCO2-e/m²)
Emissions	23047.71	101.20

Electricity Purchased

Period	Energy (kWh)	Energy (kWh/m²)	Peak (kW)	Time
Jan	2661.22	11.69	12.51	25 Jan 14:00
Feb	2264.23	9.94	10.97	9 Feb 14:00
Mar	2506.30	11.01	9.51	15 Mar 14:00
Apr	2079.45	9.13	8.21	20 Apr 15:30
May	2141.76	9.40	7.71	5 May 15:00
Jun	1975.35	8.67	9.67	26 Jun 07:30
Jul	2013.77	8.84	9.51	7 Jul 07:15
Aug	2179.05	9.57	8.53	21 Aug 07:15
Sep	2101.72	9.23	8.46	25 Sep 12:00
Oct	2323.86	10.20	9.98	5 Oct 15:30
Nov	2430.47	10.67	10.69	17 Nov 14:00
Dec	2450.52	10.76	10.80	19 Dec 14:00
Total	27127.70	119.12	12.51	25 Jan 14:00

Gas Demand
The simulated building did not include Gas Demand.

Thermal Comfort

To meet the acceptance criteria, **95** % of total area across the assessed zones must meet the conditions:

- zone thermal comfort is between -1.0 and 1.0 PMV
- for at least 98 % of hours
- when above 20 % occupancy

A total area of 227.74 m² across 13 zones was assessed, where zones of **100.00** % area achieved the conditions, **meeting** the acceptance criteria.

Level	Zone	Area (m²)	Assessed (Hrs)	Pass (Hrs)	Ratio	Pass
1	1. Living	31.39	2340	2332	99.66	✓
1	2. Staff	27.74	2340	2334	99.74	✓
1	3. Conference	27.00	2340	2339	99.96	✓
1	4. Kids Space	22.85	2340	2340	100.00	✓
1	5. Kitchen + Meals	21.86	2340	2340	100.00	✓
1	6. Corridor	19.36	2340	2340	100.00	✓
1	7. Waiting and entry	17.01	2340	2340	100.00	✓
1	8. Consult 02	14.12	2340	2340	100.00	✓
1	9. Corridor - Secure	13.15	2340	2340	100.00	✓
1	10. Consult 01	13.21	2340	2340	100.00	✓
1	11. Checkin	9.39	2340	2337	99.87	✓
1	12. Corridor - Site	6.97	2340	2340	100.00	✓
1	15. Airlock	3.69	2340	2340	100.00	✓
					Pass	✓

Level	Zone	Area (m²)	<-1	-1 to -0.5	-0.5 to 0	0 to 0.5	0.5 to 1	>1
1	1. Living	31.39	0.0	7.0	59.0	816.0	1450.0	8.0
1	2. Staff	27.74	2.0	51.0	120.0	836.0	1327.0	4.0
1	3. Conference	27.00	1.0	35.0	111.0	1453.0	740.0	0.0
1	4. Kids Space	22.85	0.0	9.0	76.0	1328.0	927.0	0.0
1	5. Kitchen + Meals	21.86	0.0	1.0	35.0	1395.0	909.0	0.0

Level	Zone	Area (m²)	<-1	-1 to -0.5	-0.5 to 0	0 to 0.5	0.5 to 1	>1
1	6. Corridor	19.36	0.0	16.0	99.0	2072.0	153.0	0.0
1	7. Waiting and entry	17.01	0.0	34.0	108.0	1488.0	710.0	0.0
1	8. Consult 02	14.12	0.0	36.0	100.0	1198.0	1006.0	0.0
1	9. Corridor - Secure	13.15	0.0	26.0	88.0	1495.0	731.0	0.0
1	10. Consult 01	13.21	0.0	40.0	102.0	1165.0	1033.0	0.0
1	11. Checkin	9.39	3.0	80.0	142.0	745.0	1370.0	0.0
1	12. Corridor - Site	6.97	0.0	19.0	101.0	2204.0	16.0	0.0
1	15. Airlock	3.69	0.0	21.0	116.0	2091.0	112.0	0.0

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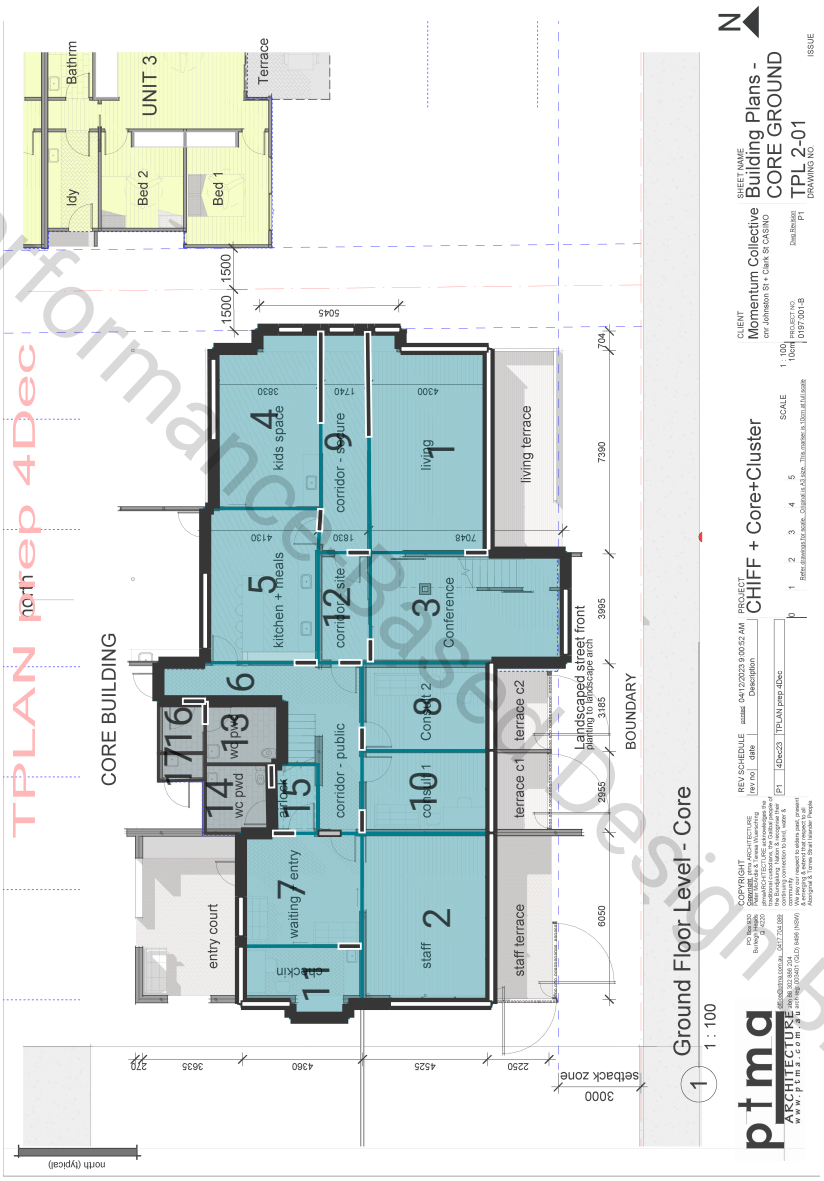
Drawings

Level 1 - Concept



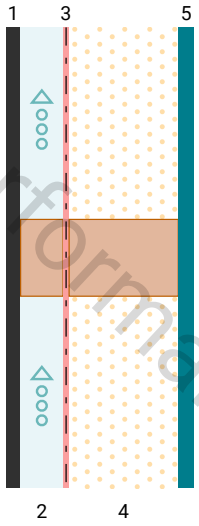
- Thermal Line
- Windows
- Glazed Door
- Opaque Door
- Unconditioned
- Class 5

Envelope

Walls

Wall 01 - R2.5

Layout



Options

Option	Selected
Total Height (mm)	2700
Contact Resistance	No
Cavity Bridging	No

Materials

Layer	Type	Product
1	External Material	Aluminium sheeting
		Material Width: 12 mm
		Conductivity: 210.000 W/(m.K)
2	Bridged Air Cavity	
		Layer Width: 35 mm
		Ventilation Area: 1000 mm² (Slightly Ventilated External)
		Material Positioned: External
		Horizontally-Repeating Framing
		Material - Timber
		Conductivity - 0.16 W/(m.K)
		Horizontal Spacing - 450 mm
		Projection - 35 mm
		Frame Width - 90 mm

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Layer	Type	Product
3	Membrane	DCTech Proctor ProctorWrap™ Commercial Wall (CW) DCTech Proctor
		Layer Width: 0.5 mm
4	Composite	Glass Wool (Wall)
		Material Width: 90 mm
		Conductivity: 0.040 W/(m.K)
		Material Positioned: External
		Stud Framing
		Material - Timber
		Conductivity - 0.16 W/(m.K)
		Horizontal Spacing - 600 mm
		Noggings - 1
		Projection - 90 mm
		Frame Width - 35 mm
		Frame Height - 35 mm
		Nogging Height - 25 mm
5	Internal Material	Gypsum plasterboard
		Material Width: 13 mm
		Conductivity: 0.170 W/(m.K)

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