# APPENDIX

A ARCHITECTURAL DRAWINGS
B SCHEDULES
C LANDSCAPE DRAWINGS
D SHADOW DIAGRAMS
E SEPP65
F ESD STATEMENT
G MODEL PHOTOS

# A ARCHITECTURAL DRAWINGS

**COVER SHEET**
**LOCATION PLAN**
**SITE ANALYSIS**
**SITE PLAN**
**FLOOR PLANS**
**ELEVATIONS**
**TYPICAL CROSS SECTIONS**
**UNIT TYPES**
**SURVEY**

# B SCHEDULES

**GROSS FLOOR AREA**
**NET SALEABLE AREA**
**CAR PARKING**
**ACCOMMODATION MIX**

SCHEDULES
APPENDIX

| FLOOR SPACE | | |
|---|---|---|
| SITE AREA | 4,119 | |
| TOTAL GFA | 29,022 | |
| FLOOR SPACE RATIO | 7.05 | :1 |

| LEVEL | GFA[1] | NSA[2] | | | | CARSPACES | | | MIX | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | RESIDENTIAL | RETAIL | COMMERCIAL | TOTAL | RESIDENTIAL | RETAIL | TOTAL | S/1B | 2B | 3B | TOTAL |
| **B3** | 7 | | | | 0 | 93 | | 93 | | | | 0 |
| **B2** | 5 | | | | 0 | 93 | | 93 | | | | 0 |
| **B1** | 5 | | | | 0 | 10 | 79 | 89 | | | | 0 |
| **LG** | 1,941 | | 1,979 | | 1,979 | | | 0 | | | | 0 |
| **G** | 2,221 | | 1,950 | | 1,950 | | | 0 | | | | 0 |
| **1** | 1,892 | 1,263 | 327 | | 1,590 | | | 0 | 5 | 11 | | 16 |
| **2** | 1,892 | 1,591 | | | 1,591 | | | 0 | 5 | 18 | | 23 |
| **3** | 1,945 | 1,714 | | | 1,714 | | | 0 | 7 | 11 | | 18 |
| **4** | 1,691 | 1,420 | | | 1,420 | | | 0 | 7 | 12 | | 19 |
| **5** | 1,691 | 1,440 | | | 1,440 | | | 0 | 6 | 12 | | 18 |
| **6** | 1,691 | 1,446 | | | 1,446 | | | 0 | 6 | 13 | | 19 |
| **7** | 1,584 | 1,242 | | | 1,242 | | | 0 | 4 | 12 | | 16 |
| **8** | 1,584 | 1,358 | | | 1,358 | | | 0 | 3 | 14 | | 17 |
| **9** | 1,584 | 1,347 | | | 1,347 | | | 0 | 3 | 13 | | 16 |
| **10** | 1,680 | 1,423 | | | 1,423 | | | 0 | 6 | 10 | 2 | 18 |
| **11** | 1,680 | 1,434 | | | 1,434 | | | 0 | 5 | 10 | 2 | 17 |
| **12** | 1,680 | 1,438 | | | 1,438 | | | 0 | 5 | 11 | 2 | 18 |
| **13** | 1,416 | 1,205 | | | 1,205 | | | 0 | 4 | 7 | 2 | 13 |
| **14** | 1,416 | 1,200 | | | 1,200 | | | 0 | 4 | 9 | 2 | 15 |
| **15** | 1,416 | 1,208 | | | 1,208 | | | 0 | 4 | 8 | 2 | 14 |
| **TOTAL** | **29,022** | **20,729** | **4,256** | **0** | **24,985** | **196** | **79** | **275** | **74** | **171** | **12** | **257** |
| | | | | | | | | | **29%** | **67%** | **5%** | **100%** |
| | | | | | | | | | | | | **TARGET** |

| NOTES | |
|---|---|
| 1 | GFA is the gross floor area as defined in the standard LEP template |
| 2 | NSA is the nett salable area excluding circulation and dividing walls |

# C LANDSCAPE DRAWINGS

**STREETSCAPE**
**COMMUNAL COURTYARD**
**LEVEL 4 SKY GARDENS**
**LEVEL 7 SKY GARDENS**
**LEVEL 10 SKY GARDENS**
**LEVEL 13 ROOF TOP COMMUNAL GARDEN**
**ROOF**
**PLANT PALETTE**

LANDSCAPE DRAWINGS
APPENDIX

# D SHADOW DIAGRAMS

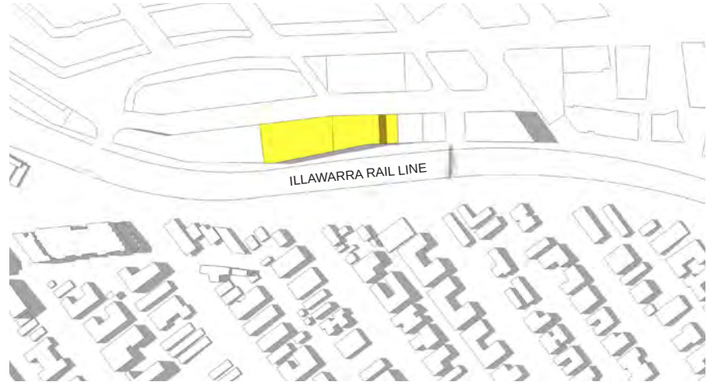
**SUMMER SOLSTICE (DECEMEBER 21)**
**EQUINOX (MARCH 21/SEPTEMBER 21)**
**WINTER SOLSTICE (JUNE 21)**
**SHADOW ANALYSIS**

SHADOW DIAGRAM

## SUMMER SOLSTICE (DECEMEBER 21) :
## DRAFT HURSTVILLE LEP 2010


9AM


12PM




3PM

## PROPOSED

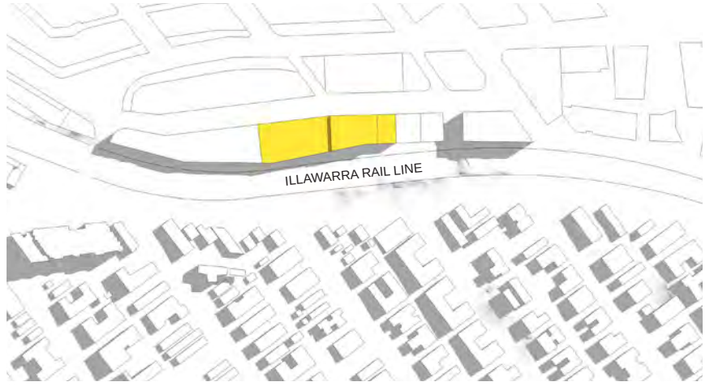

9AM


12PM


3PM

SHADOW DIAGRAMS

**EQUINOX (MARCH 21/SEPTEMBER 21):**
**DRAFT HURSTVILLE LEP 2010**



9AM

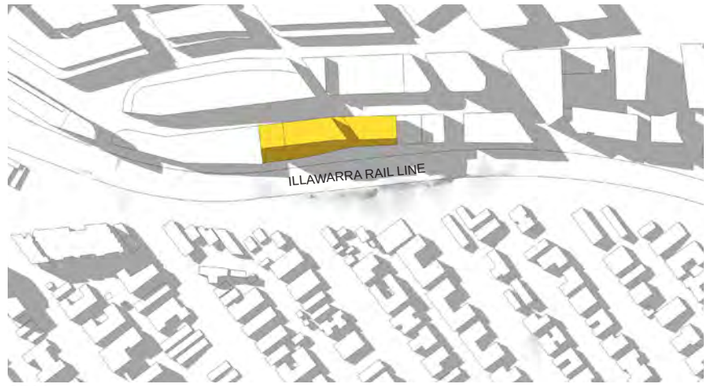
12PM

3PM

**PROPOSED**

9AM

12PM



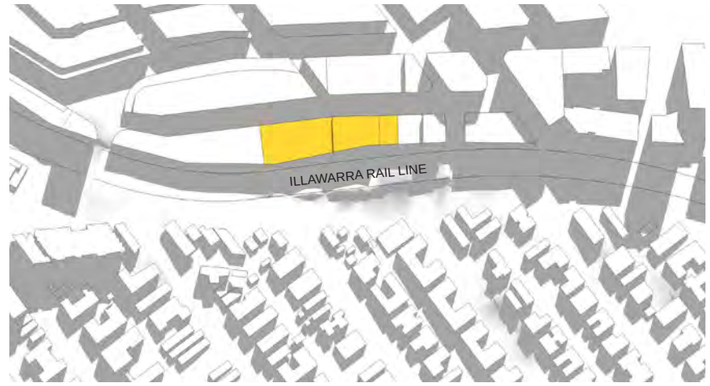
3PM

SHADOW DIAGRAMS

## WINTER SOLSTICE (JUNE 21):
## DRAFT HURSTVILLE LEP 2010

9AM

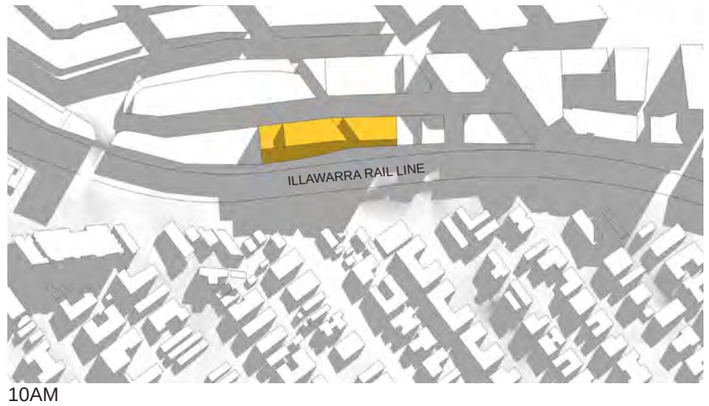
10AM



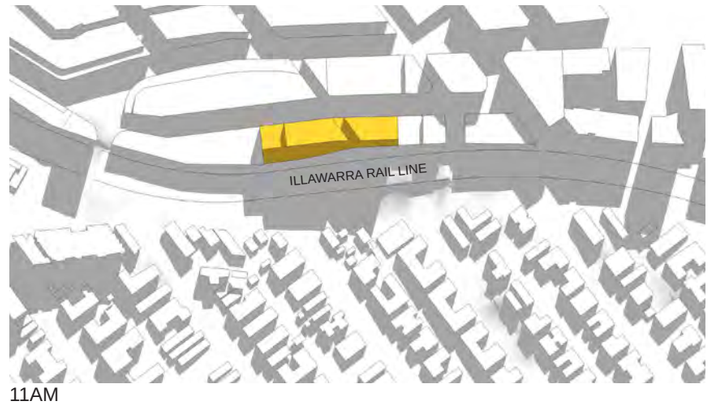
11AM

## PROPOSED

9AM

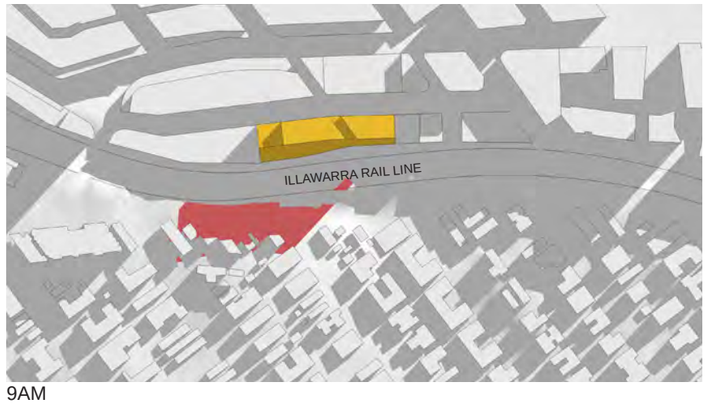


10AM

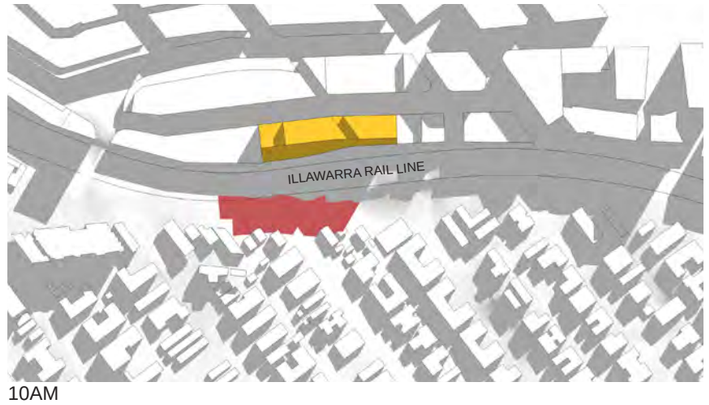


11AM

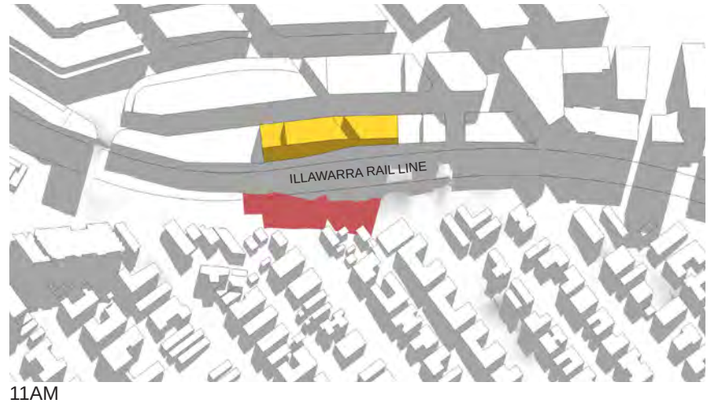
## COMPARISON



9AM



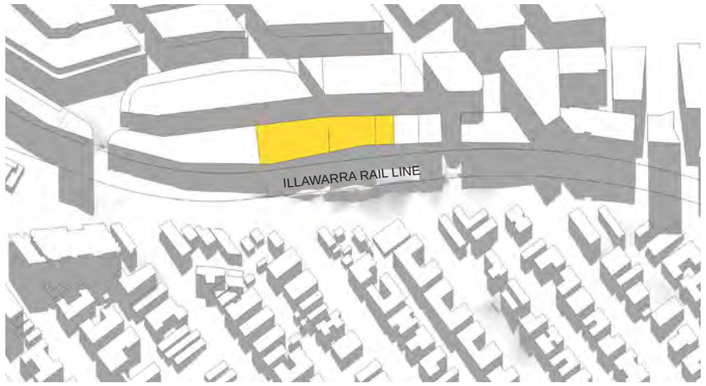
10AM



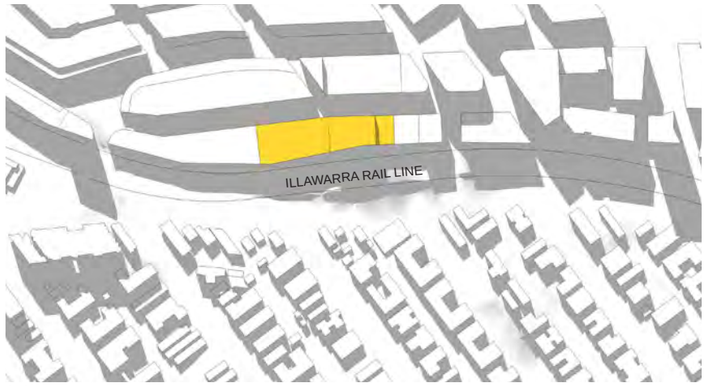
11AM

SHADOW DIAGRAMS

**WINTER SOLSTICE (JUNE 21):**
**DRAFT HURSTVILLE LEP 2010**



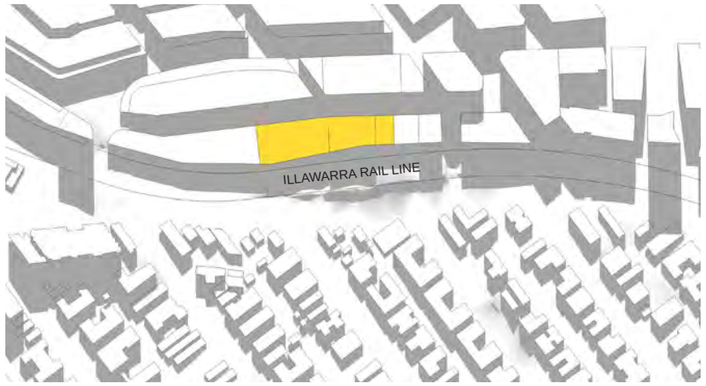
12PM



1PM

2PM

**PROPOSED**



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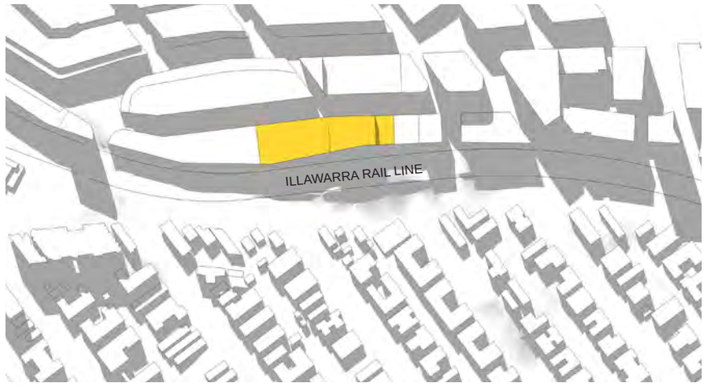
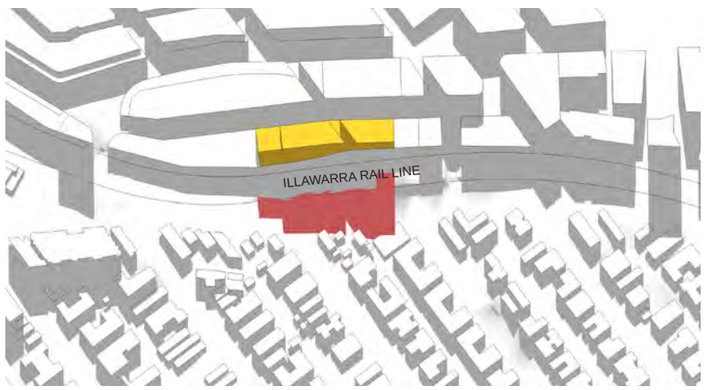


1PM

2PM

**COMPARISON**



12PM

1PM

2PM

SHADOW DIAGRAMS

## WINTER SOLSTICE (JUNE 21): DRAFT HURSTVILLE LEP 2010


3PM

## PROPOSED


3PM

## COMPARISON


3PM

## SHADOW ANALYSIS

Shadow diagrams from the proposed building were prepared at 9am, 12 noon and 3pm on 21 December (summer solstice) and 22 September (spring equinox); and 9am, 10am, 11am, 12noon, 1am, 2am and 3pm on 21 June (winter solstice).

The affect of the proposed building shadow was studied on neighbouring properties in Kogarah - facing Railway Parade, from Empress Street to Woids Avenue; facing Empress Street, Burraneer Close, back to Empress Lane; and facing St Georges Parade, Bellevue Parade, Woids Avenue, Noble Street and Illawarra Street.

The properties comprise a commercial swimming and fitness centre, 2 - 4 storey residential flat buildings and single storey dwellings. The primary open space comprises mainly projecting balconies from living areas of the residential flat buildings and rear yards of the dwellings. Due to the orientation of the street and block grid, balconies are generally orientated to the street, to the north, north-west, north-east and south-west.

### PERFORAMCE CRITERIA AND DESIGN SOLUTIONS

The performance criteria and design solutions for solar access for the neighbouring properties to the south are setout in the Kogarah Development Guidelines (KDG) Section 3: General Controls, Item 3.10 Solar Access. Relevant items are as follows:

**Performance Criteria**

Item 1. Building design and location minimises adverse impacts on the overshadowing of neighbouring buildings and primary open space areas.

**Design Solutions**

Item (c) Where the neighbouring properties are affected by overshadowing at least 50% of the neighbouring existing principal open space or windows to the main living areas must receive a minimum of 3 hours sunlight between 9am-3pm on 21 June

Item (d) Shadow diagrams are to be submitted for the 21 June and the Spring Equinox.

Item (e) Shadow diagrams are required to show the impact of the proposal on the sunlight to the open space of neighbouring properties, Existing overshadowing by fences, roof overhangs and changes in level should also be reflected in the diagrams.

### SHADOW AFFECTS

Shadow diagrams at 9am, 12noon and 3pm on 21 December (summer solstice) indicate that the shadow from the proposed building falls on the courtyard of the subject site and does not affect the existing principal open space or windows to the main living areas of the neighbouring properties to the south in Kogarah.

Shadow diagrams at 9am, 12noon and 3pm on 22 September (spring equinox) indicate that the shadow from the proposed building falls on the courtyard of the subject site and the Illawarra Rail Corridor and does not affect the existing principal open space or windows to the main living areas of the neighbouring properties to the south in Kogarah.

Shadow diagrams at 9am, 10am, 11am, 12noon, 1pm, 2pm and 3pm on 21 June (winter solstice) indicate that the shadow from the proposed building falls on the courtyard of the subject site, the Illawarra Rail Corridor and the Railway Parade public reservation and, at various times of the day on neighbouring properties facing Railway Parade, from Empress Street to Woids Avenue; facing Empress Street, Burraneer Close, back to Empress Lane; and facing St Georges Parade, Bellevue Parade, Woids Avenue, Noble Street and Illawarra Street.

The existing principal open space or windows to the main living areas of the affected properties currently receive varying amounts of solar access, from the north-east (morning), north (day) or north-west (afternoon). Many properties currently receive less than 3 hours due to their orientation to the south-west. A detailed review of the shadow impacts on 21 June (winter solstice) from the proposed building at one hour intervals between 9am and 3pm indicates that all affected neighbouring properties will either continue to receive 3 hours of solar access where this currently exists, or will not loose any solar access where there is currently less than 3 hours of solar access.

# E SEPP65

**DESIGN VERIFICATION STATEMENT**
**SEPP65 COMPLIANCE**
**SEPP65 ARCHITECTURAL STATEMENT**

SEPP65
APPENDIX

## DESIGN VERIFICATION STATEMENT

STANISIC ASSOCIATES **ARCHITECTS**

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info@stanisic.com.au

10 December 2010

Director General
NSW Department of Planning
Metropolitan Projects
GPO Box 39
SYDNEY NSW 2001
Attention: Michael Woodland

**CONCEPT PLAN FOR A MIXED USE RESIDENTIAL DEVELOPMENT**
**21-35 TREACY STREET, HURSTVILLE**
**DESIGN VERIFICATION STATEMENT**

In accordance with Clause 50(1A) of the Environmental Planning and Assessment Regulations 2000, I, Frank Stanisic am a qualified architect for the purposes of State Environmental Planning Policy No 65 – Design Quality of Residential Flat Development.

I verify that the residential flat development, as shown in Architectural Drawings CD 01 - 39 dated 10 December 2010, was designed under my instruction with regard to Part 2 of the State Environmental Planning Policy No 65 – Design Quality of Residential Flat Development.

Yours faithfully
**STANISIC ASSOCIATES**

**FRANK STANISIC**
**DIRECTOR**

Frank Stanisic Architects Pty Ltd ABN 11002633481
Frank Stanisic NSW Registration Board No 4480

SEPP65

## SEPP65 COMPLIANCE

The proposal is a 5 to 16 storey mixed use residential development comprising 258 dwellings and 4,258sqm retail. Most dwellings are orientated to the north to optimise solar access and cross flow. South facing dwellings have wintergardens.

The following is an overview of compliance with the Residential Flat Design Code ‘rules of thumb’ requirements:

### BUILDING HEIGHTS

The proposal has been considered through detailed analysis of the environmental impacts of the development on its surrounding and immediate neighbours. Detailed massing studies and form options, site, shadow and traffic analysis have been undertaken. This process has informed the environmental design and performance of the development to optimise the efficiency, amenity, orientation and aspect of the dwelling design.

The building varies in height from 15 to 55 metres (5 to 16 storeys) with residential dwellings being located on all levels above the ground floor that is activated by retail.

### BUILDING DEPTH

The dwelling depth has been optimised through maximising the number of dwellings with cross flow or corner ventilation, using the slender building form and increased perimeter of the building slot. The dual aspect apartments are a maximum of 16 metres deep, the single frontage apartments are a maximum of 10 metres deep, with a maximum of 8 metres depth for daylight to habitable rooms.

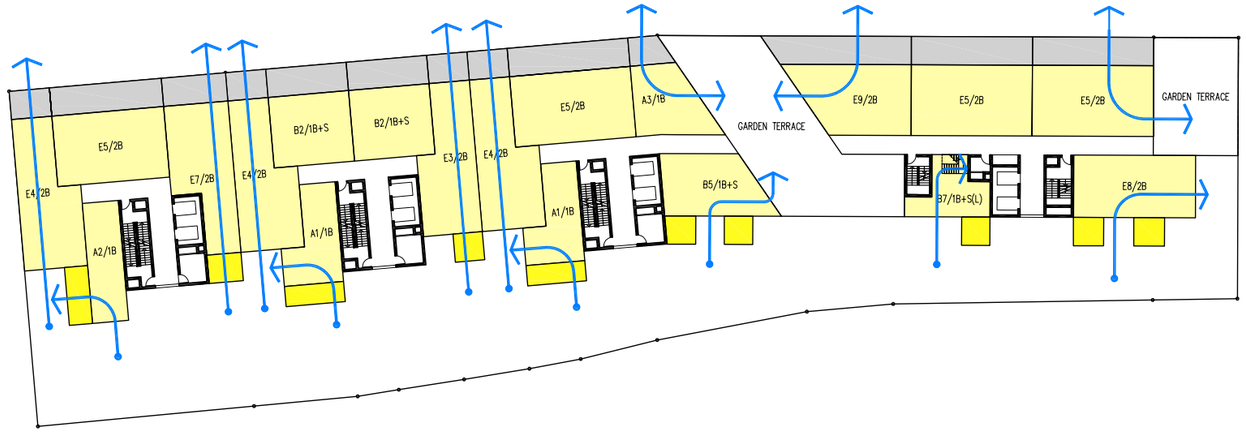
### BUILDING SEPARATION

The building is developed as two interlinked towers to decrease its mass and bulk and to optimise the perimeter for light and ventilation. The separation between towers is 8.5 metres. The bounding walls of the slot have windows for mainly bathrooms and kitchens.

### STREET SETBACKS

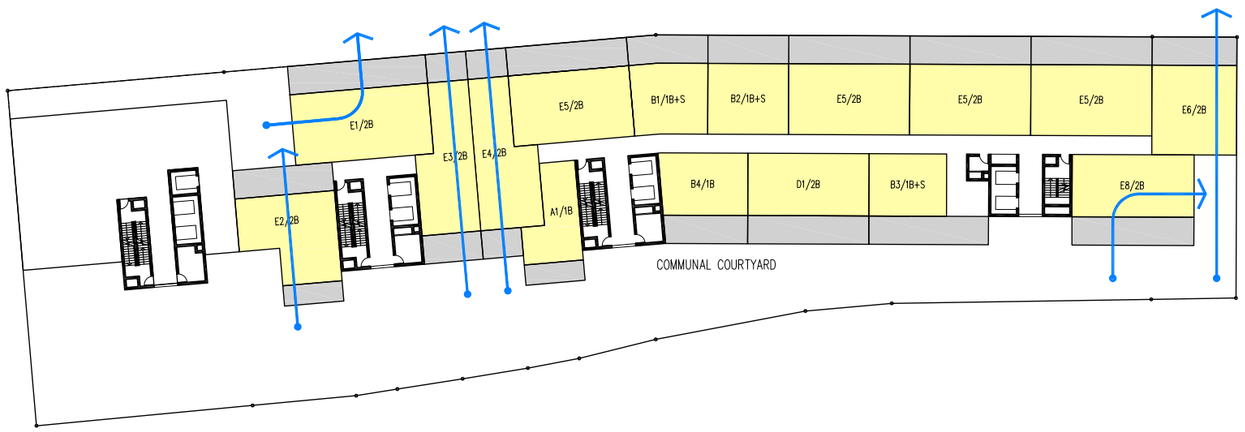
The slender building form is located at the block edge on Treacy Street, without podium or expressed street wall setbacks, responding to the narrow site and the street type. Treacy Street is a secondary street in the Hurstville City Centre and its simple planar definition contrasts with the stepped street wall section of Forest Road, the main street of the Hurstville Town Centre that supplements the existing shop top forms.

The building form is set back from the southern site boundary to define a raised podium courtyard which interfaces with the rail corridor. The podium and basement car park is set back 1m on the southern boundary from the railway corridor for maintenance access.



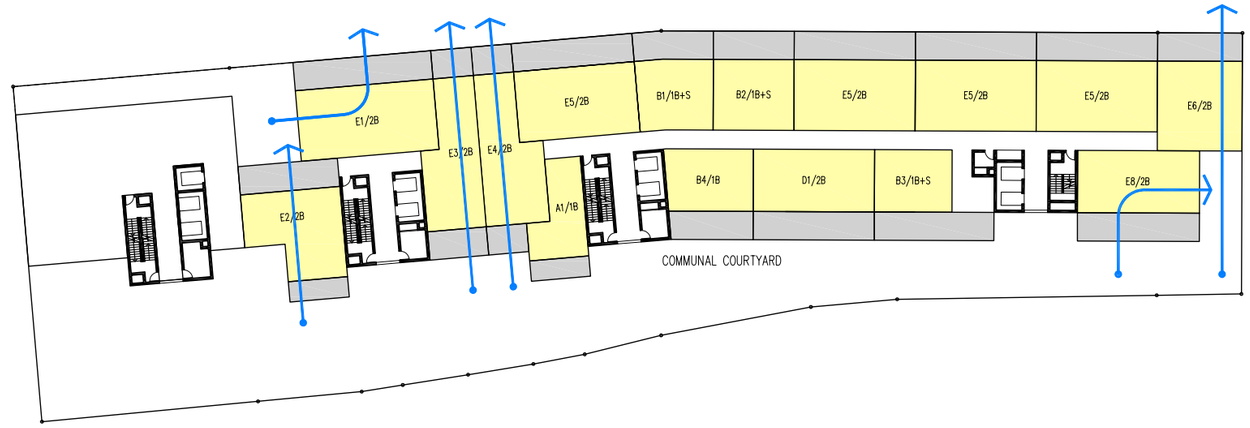

LEVELS 4-6


LEVELS 2-3

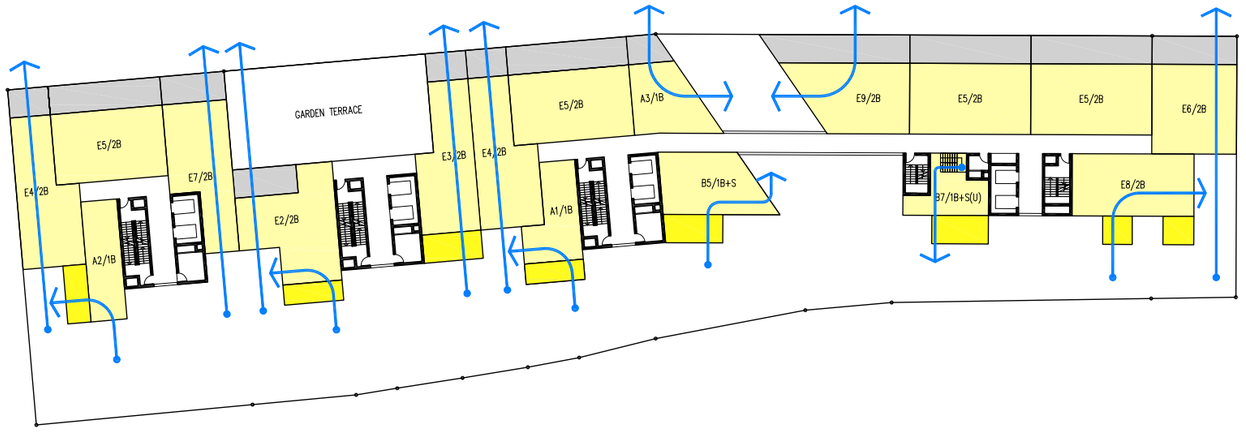



LEVEL 1

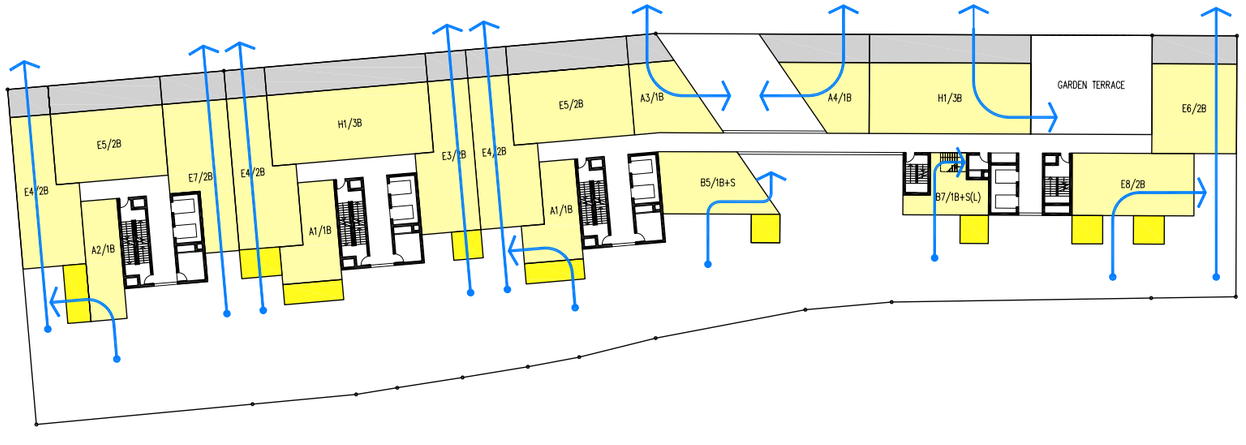
SEPP65




LEVELS 13-15




LEVELS 10-12




LEVELS 7-9

**SIDE SETBACKS**

The building is built up its 'short' side boundaries to the west and east. A recess, a sky terrace, is used to adjust the scale of the building to the neighbouring, 4 storey residential flat building on the east elevation. The building height is reduced from 55m (16 storeys) to 45 metres (13 storeys) on the west elevation, anticipating a building of similar height on the Council car park site. The rear setback to the Illawarra Rail line varies from 6 to 10 metres.

**OPEN SPACE**

Each dwelling has access to a secure private open space, such as a balcony, terrace or court, with a minimum area of 6sqm for 1 bedroom, 8sqm for 2 bedrooms and 12sqm for 3 bedrooms, with a minimum depth of 2m. Most dwellings have considerably more private open space than the minimum. South facing private open space is provided in the form of wintergardens enclosed by multi-folding glass panels.

The green spaces comprise a podium courtyard, sky gardens and roof gardens. The main podium communal courtyard functions as space of conversation and meetings for residents and contains planting, seating, gravel pathways and a water element. The sky gardens are 'green roofs' with succulents and provide a social network of breakout spaces over the height of the building. The lower roof garden is the main external communal meeting space with BBQ and canopies, adjacent to a community room. The upper roof garden is both a green roof with succulent planting and an energy farm for solar collectors for heating hot water and photovoltaic panels for common area lighting.

**PLANTING**

An extensive upgrade of the public domain is proposed. Refer to the Landscape Design Statement and Plans.

**VISUAL PRIVACY**

The metal screen to the north elevation optimises both internal and external privacy while optimising access to natural daylight, ventilation and views.

**PEDESTRIAN ACCESS**

Pedestrian access is only from Treacy Street as the rear elevation backs onto the Illawarra Rail Line. Access to the car park is from lifts and fire stairs located within the residential lobbies. Pedestrian access has been optimised by minimising the extent of vehicle pedestrian crossings on Treacy Street.

Compliance with the relevant accessibility standards has been used as a basis for accessibility access to the building. Adaptable dwellings have been provided.

SEPP65

**VEHICLE ACCESS**

The vehicle entry for residential and retail basement car parking is situated at the eastern end of Treacy Street.

**APARTMENT LAYOUTS**

The accommodation consists of 258 dwellings suited to a variety of lifestyles. The dwelling mix is 74 x 1 beds (29%), 172 x 2 beds (67%) and 12 x 3 beds (5%), all in single or double level plans; and 26 (10%) adaptable dwellings.

Many dwellings have studies and media alcoves. The residential floors have minimum ceiling heights to living rooms of 2.7 metres and 2.4 metres to non-habitable rooms. The floor to floor height is generally 3.1 metres

Each dwelling has access to a secure private open space, such as a balcony, terrace or court, with a minimum area of 6sqm for 1 bedroom, 8sqm for 2 bedrooms and 12sqm for 3 bedrooms, and with a minimum depth of 2m. Most dwellings have considerably more private open space than the minimum. South facing private open space is provided in the form of wintergardens.

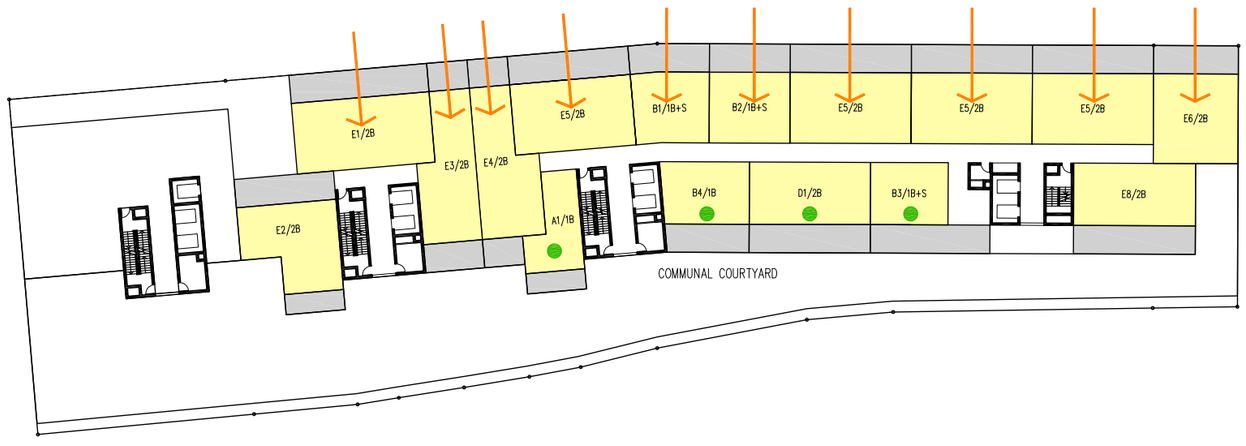
The dual aspect dwellings are a maximum of 16 metres deep, the single frontage dwellings are a maximum of 10 metres deep, with habitable rooms a maximum of 8 metres deep for daylight.

The building is organised around multiple access cores to animate the street, reduce long corridors and give flexibility of staging. There are four access cores with double lifts and fire stairs, accessed at ground level from Treacy Street and the basement car parks. Levels 2 and 3 are designed with cross over planning to increase the number of cross ventilation dwellings

The total internal storage is 6cum for 1 bedroom, 8cum for 2 bedrooms and 10cum for 3 bedrooms, with 50% of the required storage space provided in storage cages in the basement.


LEVELS 4-6


LEVELS 2-3




LEVEL 1

SEPP65


LEVELS 13-15


LEVELS 10-12


LEVELS 7-9

| LEVEL | MIX | SEPP 65 COMPLIANCE | | |
|---|---|---|---|---|
| | TOTAL | VENTILATION | SOLAR ACESS | SOUTH FACING |
| B5 | 0 | | | |
| B4 | 0 | | | |
| B3 | 0 | | | |
| B2 | 0 | | | |
| B1 | 0 | | | |
| LG | 0 | | | |
| G | 0 | | | |
| 1 | 16 | 7 | 10 | 4 |
| 2 | 17 | 9 | 13 | 3 |
| 3 | 23 | 16 | 19 | 2 |
| 4 | 18 | 13 | 13 | 2 |
| 5 | 19 | 14 | 13 | 2 |
| 6 | 18 | 13 | 13 | 2 |
| 7 | 17 | 13 | 12 | 1 |
| 8 | 16 | 12 | 12 | 1 |
| 9 | 17 | 13 | 12 | 1 |
| 10 | 18 | 14 | 12 | 2 |
| 11 | 18 | 14 | 12 | 2 |
| 12 | 17 | 14 | 12 | 2 |
| 13 | 14 | 10 | 9 | 1 |
| 14 | 14 | 10 | 9 | 1 |
| 15 | 15 | 11 | 9 | 0 |
| **TOTAL** | 257 | **183** | **180** | **26** |
| | | **71%** | **70%** | **10%** |
| **TARGET** | | 155 | 180 | 26 |
| | | 60% | 70% | 10% |

**LEGEND**

- CROSS VENTILATION
- SUN ACCESS - MIN 3 HOURS OF SUNLIGHT ACHIEVED
- SUN ACCESS LEVEL ABOVE - MIN 3 HOURS OF SUNLIGHT ACHIEVED
- SOUTH FACING UNITS
- SOUTH FACING UNITS ABOVE

SEPP65

# SEPP65 ARCHITECTURAL STATEMENT

## PRINCIPLE 1: CONTEXT

*"Good design responds and contributes to its context which can be defined as the key natural and built features of the area."*

The design of the proposed mixed use residential development at 21-35 Treacy Street contributes to its context by responding to existing buildings and future built forms of the Hurstville City Centre as defined in the Draft Hurstville LEP (Hurstville City Centre) 2010 (DHLEP-HCC).

The site consists of 5 individual commercial properties and has an area of approximately 4,119sqm. It is a mid-block site and roughly rectangular in shape with a depth ranging from 28m to 36m. It has a 130m frontage to Treacy Street to the north and tapering frontage to the rail corridor of the Illawarra Rail line, immediately to the south. It is bounded by an existing four storey masonry flat building to the east and Council hard stand car park to the west.

The site lots are occupied by an automotive showroom, service centre and hardstand area, warehouses and light industrial factories. The site falls approximately 4 metres from west to east. The northern frontage overlooks the Hurstville City Centre and the southern frontage overlooks Kogarah. The site is located on the southern boundary of Hurstville City Centre. The Illawarra Rail line is a strongly defining, linear edge to the Hurstville Town Centre. The proposed built form consists of a slender linear form that emphasizes the built edge along the railway line and defines the southern edge of the Hurstville City Centre.

The surrounding uses are an untidy mix of residential, shops, commercial and factories to the north in Hurstville, and detached dwellings and residential flat buildings to the south in Kogarah. The surrounding built form consists of an untidy mix of 1 to 3 storey factories, offices and shops to the north, 4 storey flat buildings to the east, 10 to 13 storey residential flat buildings to the east on the former Amcor/Containers site and a mix of 1 and 2 storey detached dwellings and 3 and 4 storey residential flat buildings to the south.

## PRINCIPLE 2: SCALE

*"Good design provides an appropriate scale in terms of bulk and height that suits the scale of the street and the surrounding buildings."*

The bulk and height of the proposed building has been designed to complement the scale of the future surrounding buildings as defined in the DHLEP-HCC. The design proposal for the residential building and retail has emerged from a close and detailed contextual analysis of the existing and future urban form, streetscape and environmental impacts.

The slender building form is aligned to Treacy Street, setting back at street level to create a human scale. The ground level is activated with shops, retail court and multiple apartment lobbies.

The slender building form above the street has been bisected with a slot and carefully placed surface recesses to reduce its visual bulk and respond to the scale of the existing and future context. The building slot is aligned with the visual axis of Alfred and Bellevue Streets, visually connecting Hurstville and Kogarah, the two side sides of the rail corridor.

The proposed building heights are 15, 45 and 55 metres (4, 13 and 16 storeys) compared to 15 and 23 metres (4 and 7 storeys) in the DHLEP-HCC. The building height has been determined by contextual relationships, to minimise the overshadowing of dwellings to the south in Kogarah and sit comfortably within the proposed existing and future built edge along the rail corridor.

The maximum building heights for the site, identified as part of block 29 in the current Hurstville City Council (Hurstville Town Centre Volume 2) DCP No 2, is 7 storeys if a view corridor is created as an extension of Alfred Street through to the rail line between two new seven storey buildings; and the maximum FSR of 4.0:1 for residential and 3.6:1 for commercial. If no view corridor is created the maximum building height reduces to 4 storeys.

## PRINCPLE 3: BUILT FORM

*"Good design achieves an appropriate built form for a site and the building's purpose, in terms of building alignments, proportions, building type and manipulation of building elements."*

The built form is appropriate to the adjacent future residential developments, contributing to the character of the streetscape and providing internal amenity and outlook.

The green spaces comprise a podium courtyard, sky gardens and roof gardens. The main podium communal courtyard functions as space of conversation and meetings for residents and contains planting, seating, gravel pathways and a water element. The sky gardens are 'green roofs' with succulents and provide a social network of breakout spaces over the height of the building. The lower roof garden is the main external communal meeting space with BBQ and canopies, adjacent to a community room. The upper roof garden is both a green roof with succulent planting and an energy farm for solar collectors for heating hot water and photovoltaic panels for common area lighting.

The development has a hybrid form that is a unique fusion of three form types: the urban street wall, slab and towers. This hybrid form is cut with a slot into two roughly equal parts and perforated with recesses to break down its visual bulk and mass. Connecting bridges between the two towers are evident in the slot and allow views out, along the visual axis. The recesses in the north and east facades of the building mediate between the scale of the slab form and the adjoining context while retaining the urban scale of the building in the Hurstville City Centre.

The form is located at the block edge of Treacy Street, without podium or expressed street wall setbacks. The building form responds to the narrow site with a depth ranging from 28m to 36m and the street type. Treacy Street is a secondary street in the Hurstville City Centre and its simple planar definition contrasts with the proposed stepped street wall section of Forest Road, the main street of the Hurstville City Centre proposed in the in the DHLEP-HCC.

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## PRINCPLE 4: DENSITY

*'Good design has density appropriate to the site and its context, in terms of floor space yield or number of units or residents'*

The dwelling density is appropriate for the site and its future urban context. The proposed floor space ratio (FSR) is 7.0:1 (29,036sqm GFA) compared to a maximum 3.0:1 and 4.0:1 FSR for components of the site in the DHLEP-HCC. The height is 4 to 16 storeys for components of the site compared to 15 and 23 metres (4 and 7 storeys) in the DHLEP-HCC.

The development has 258 dwellings on a site area of 4,119sqm giving a net dwelling density equivalent to 626 dwellings per hectare. The development has the potential to increase housing affordability and availability by 257 dwellings and assist in supporting the State's objective of increasing housing in town centres.

The dwelling density is sustainable due to the location of the site adjacent to Hurstville Rail station that is within 400m or 5 minutes walk from the site and frequent buses on Forest Road. The site is well serviced with utilities such as sewer, water, gas and electricity.

## PRINCPLE 5: RESOURCE, ENERGY AND WATER EFFICIENCY

*"Good design makes efficient use of natural resources, energy and water throughout its full life cycle, including construction."*

The design makes efficient use of natural resources, energy and water throughout its full cycle, including construction. It will meet the benchmarks of 25% energy reduction and 40% water reduction set out in the Building and Sustainability Index (BASIX).

Energy efficient building response is developed through extensive passive design and sun control elements. The building design is characterised by exceptional and dynamic qualities of space, natural light, air flow and solar access to achieve high personal comfort and low energy consumption.

The street elevation to Treacy Street to the north is fitted with a metal 'jacket' with fixed and folding panels, that is placed over balconies and windows. The 'jacket' is a second skin, an environmental filter that screens the living areas and bedrooms from the hot sun in summer and reduces heat loss in winter. The south elevation to the Illawarra Railway corridor is a 'pixelated' glass wall and has winter gardens enclosed by multi-folding glass panels that reduce noise from the trains and heat loss in winter.

The building is organised around multiple access cores to give flexibility of staging and reduce long corridors. There are four cores with double lifts and fire stairs, accessed at ground level from Treacy Street and the basement car park.

Most living areas and main balconies are located on the north façade to capture the solar access. The south facing living rooms have winter gardens enclosed in multi-folding glass which reduce heat loss and noise from the trains to the south. Many of the apartments are dual aspect, with cross flow or corner natural ventilation. The building slot at the end of Alfred Street also increases the perimeter of the building and increasing light and ventilation into apartments

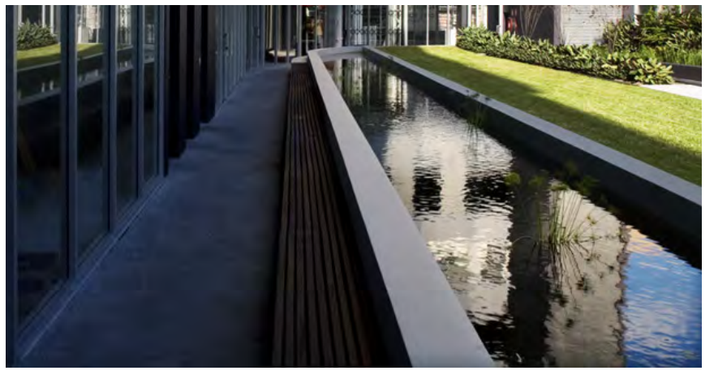
A site-based, water retention system has been incorporated into the development. It comprises a concrete storage tank and filtration and pump unit in the basement car park that is used to recycle roof and ground rainwater for the irrigation of courtyard planting.

The building will have energy efficient appliances, fittings and services such as water reduction showerheads, dual flush toilets, gas cook tops and microwaves.

Overall the project has 71% dwellings that are cross or corner naturally ventilated (cf 60% minimum RFDC), 70% dwellings with 3 hour solar access (cf 70% minimum RFDC), and 10% south facing dwellings (cf 10% maximum RFDC).

All dwellings will be fitted with energy efficient, reverse cycle, split AC systems consisting of a single condenser unit and multiple fan coil units. Individual controls in each room and the ability to run one room of the entire dwelling reduces energy consumption.

Waste and recycling facilities are provided in the basement with recycling trays on each residential floor.



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## PRINCPLE 6: LANDSCAPE

*"Good design recognises that together landscape and buildings operate as an integrated and sustainable system, resulting in greater aesthetic and amenity for both the residents and or the public domain."*

The communal open space and building have been designed as an integrated and sustainable system, resulting in greater aesthetic quality and amenity for both residents and the adjoining public domain (refer to Landscape Architect's Design Statement and Plans).

The green spaces comprise a podium courtyard, sky gardens and roof gardens. The main podium communal courtyard functions as space of conversation and meetings for residents and contains planting, seating, gravel pathways and a water element. The sky gardens are 'green roofs' with succulents and provide a social network of breakout spaces over the height of the building. The lower roof garden is the main external communal meeting space with BBQ and canopies, adjacent to a community room. The upper roof garden is both a green roof with succulent planting and an energy farm for solar collectors for heating hot water and photovoltaic panels for common area lighting.

Public domain improvements are generally in accordance with the Hurstville Public Domain Guidelines for Treacy Street. The footpath adjacent to the building will be paved in asphalt with banding and a back edge in pavers. Street trees are planted on the footpath. Refer to Landscape Architect's Design Statement and Plans.

## PRINCPLE 7: AMENITY

*"Good design provides amenity through the physical, spatial, and environmental quality of a development."*

The architectural design provides amenity through the physical, spatial and environmental qualities of the development. The dwellings have been designed to achieve access to sunlight, natural ventilation, visual and acoustic privacy, storage, indoor and outdoor space, efficient layouts, service areas, outlook and ease of access and mobility for all ages.

The accommodation consists of 257 dwellings suited to a variety of lifestyles. The dwelling mix is 73 x 1 bedrooms (29%), 172 x 2 bedrooms (67%) and 12 x 3 bedrooms (5%), all in single or double level plans; and 26 (10%) adaptable dwellings have been provided.

Many dwellings have studies and media alcoves. The minimum ceiling height of living rooms is 2.7m, the floor to floor height is generally 3.0m. Each dwelling has access to a secure private open space, such as a balcony, terrace or court, with a minimum area of 6sqm for 1 bedroom and 8sqm for 2 bedrooms with a minimum depth of 2m. Most dwellings have considerably more private open space than the minimum. Southern facing private open space is provided in the form of winter gardens.

Covered and secure parking is provided for residents and visitors adopting a 'minimalist' approach to encourage public transport usage, and innovative parking management. There are a total of 264 residential car parking spaces over three basement car parking levels –1 space per 2 bedrooms, 2 tandem spaces per 3 bedrooms and no spaces for 1 bedroom dwellings. Residential visitor parking is doubled up with retail parking. The residential parking includes 26 accessible resident car spaces - one space for every adaptable dwelling. An additional carwash space has been provided.

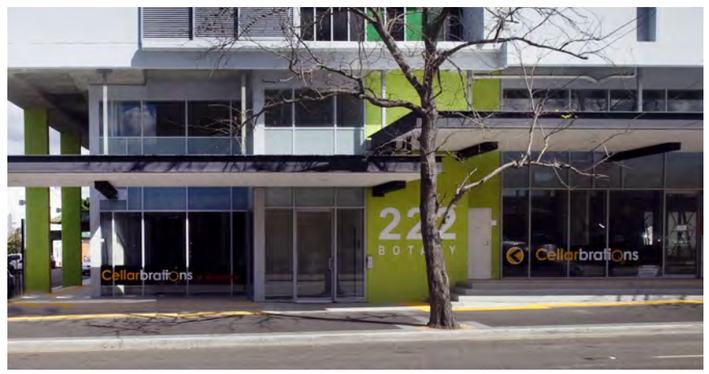
## PRINCPLE 8: SAFETY AND SECURITY

*"Good design optimises safety and security, both internal to the development and for the public domain."*

The design of the buildings optimises safety and security, of both the development and the public domain. Safety and security has also been considered in accordance with CPTED principles of surveillance, access, territorial reinforcement and space management.

The safety of the public is enhanced by the dwelling design that improves casual surveillance of the street by orientating living rooms to Treacy Street. The safety and security of residents and visitors to buildings is enhanced by locating the access to lobbies directly from the street. The communal courtyard is overlooked by bedrooms.

Controlled vehicular access to the project is provided by secured car park access from Treacy Street with direct access from the car park to the main lobbies for residents, the audio intercom system at the main entries and the car park entry to communicate with residents, and key card access for residents.



## PRINCPLE 9: SOCIAL DIMENSIONS

*"Good Design responds to the social context and needs of the local community in terms of lifestyles, affordability and access to social facilities."*

The design responds to the social context and needs of the local community in terms of lifestyle and affordability.

The site is within the Hurstville Town Centre which is heavily serviced with public transport in the form of rail and buses. Facilities needed to support mixed-use developments such as childcare, schools, health care, supermarkets, educational and leisure are all in close proximity.

The development will have exceptional pedestrian amenity with accessible access to all levels of the building. The site is located adjacent to Forest Road, a main street of the Hurstville Town Centre, lined with shops and restaurants.

The residential lobbies can be easily accessed either from Treacy Street or the basement car park.

The development has a positive social benefit through the inclusion of a diverse dwelling mix of 1, 2 and 3 bedroom dwellings that will reinforce the urban life of the area.  The total number of 258 dwellings includes 26 adaptable dwellings (10%).

## PRINCPLE 10: AESTHETICS

*"Quality aesthetics require the appropriate composition of building elements, texture and colours and reflect the use, internal design and structure of the development."*

The building has a modern aesthetic that expresses the aspirations of the project and its spirit of innovation and environmental excellence. The expression of the elevations responds to many factors including site, sun control, construction, technology and apartment amenity.

The development presents a unique opportunity to create an aesthetic based on environmental and urban design principles, untainted by sentimentality and contextual gestures. The appearance of the building avoids the overused expression of cellular, crate-like elements. Special attention has been given to the composition of building elements and materiality.

The building appearance primarily emphasizes its dual orientation: to the sunny north over the Hurstville City Centre and the cooler south over Kogarah. The street elevation to Treacy Street to the north is fitted with a metal 'jacket' with fixed and folding panels, that is placed over balconies and windows. The 'jacket' is a second skin, an environmental filter that screens the living areas and bedrooms from the hot sun in summer and reduces heat loss in winter. The south elevation to the Illawarra Railway corridor is a 'pixelated' glass wall and has wintergardens enclosed by multi-folding glass panels that reduce noise from the trains and heat loss in winter. Both elevations will have a kinetic appearance that reflects the occupation of the dwellings by residents.

The metal 'jacket' will have a prefinished silver/ or silver/gold colour. The side walls of the main slot and northern recesses are emphasized with vivid colours such as green, yellow and orange that reflect the golden colours of the sun and green of the landscape. The glass to the south will be clear or translucent, with fritting for privacy and light control.

# F ESD STATEMENT

**OBJECTIVE/ AIM**
**GREEN STAR STRATEGIES**
**CONCLUSION**

ESD STATEMENT

## ESD STATEMENT

Strategies are based on Green Star Strategies for a 4-Star and 5-Star Rating prepared by CUNDALL for mixed use/residential development at 301-303 Botany Road, Zetland.

### 1. OBJECTIVE/ AIM

The proposed development at 21-35 Treacy Street has been reviewed against the Green Star Multi-unit Residential (v1) rating tool to determine the initiatives required to achieve a Green Star rating. A strategy has been devised to achieve a 4 -Star Star (delete) and a 5-Star Star rating against the Green Star Scheme.

### 2. GREEN STAR STRATEGIES

The following outline the strategies to achieve a 4-Star Green Star rating as well as two different options to achieve 5-Stars: an energy option and a water/ material option.

### 2.1 'BEST PRACTICE' 4-STAR RATING

Strategies required to achieve a 4-Star Green Star Rating or 'Best Practice' are listed below. To achieve this rating a minimum of 45 credits is required to be achieved, plus a reasonable margin to allow for assessment by the GBCA as well as potential modifications during detailed design or construction.

**Management**

**Building Commissioning and Tuning**
Commission and tune all relevant building services at completion to ensure optimum efficiency and environmental benefits are achieved, Demonstrate reporting and handover.

**Environmental Management Plan (EMP)**
Implement a comprehensive EMP for demolition and construction work.

**Waste Management**
The Contractor is to recycle 80% of all construction waste.

**Metering**
Provide sub-metering for all major energy and water uses and metering for individual dwellings with effective monitoring, including water, electricity, gas and hot water (if central system).

**Indoor Environmental Quality**

**Volatile Organic Compounds (VOCs and Formaldehydes**
Specify low VOC paints, flooring, sealants/adhesives and wall/ceiling coverings as well as low formaldehyde engineered wood products.

**Lighting levels**
Ensure that sufficient light levels (300lux) are provided to kitchen sinks, cook tops and vanity basins.

**Internal Noise Levels**
Acoustic treatment to maintain low noise levels in habitable rooms with advice from a qualified acoustic engineer.

**Natural Ventilation**
At least 60% dual aspect, cross-ventilation apartments.

**Energy**

**BASIX Energy**
Achieve 30% reduction on greenhouse gas emissions through efficient common area lighting and ventilation, high star-rating appliances and fluorescent apartment lighting, 4.5-Star zoned AC and strategies outlined with solar hot water.

**Good passive design**
Low-e laminate glazing, shading and good insulation levels for all units.

**Efficiency Controls for occupied areas**
Provide shutdown switch for AC and lighting in unoccupied dwellings, motion sensors for common areas.

**Transport**

**Fuel efficient vehicles**
10% parking spaces provided or small/hybrid vehicles and 5% for mopeds/ motorcycles.

**Car sharing Scheme**
Implement a formal car sharing scheme with 5% of car parking spaces allocated to it.

**Minimising parking**
Provide no greater than 10% above minimum car parking requirement for the site.

**Trip reduction**
Ensure that the development provides at least 5 amenities to residents, which may include convenience stores, ATMs, restaurants, supermarket, etc.

**Cycling Facilities**
Provide secure bicycle cages at a rate of 1 per unit and visitor bicycle racks at a rate of 1 per 4 units.

**Water**

**Rainwater**
Provide a rainwater harvesting system to supply toilet flushing and irrigation systems.

**Efficient Fittings and Fixtures**
All taps, toilets and showers have a low water usage.

**Cooling Systems**
Air-cooled plant only.

**Appliances**
Dishwasher and clothes washing machines have a water efficiency ratings within 1 star of the highest rating.

**Materials**

**Waste Recycling facilities**
Provide accessible and adequately sized storage room for separation and storage or recycables. Provide compost facilities.

**Recycled Concrete**
Minimum 30% of cement is replaced with an industrial waste product, 20% of structural and 100% of non-structural aggregate is recycled.

Recycled steel
At least 60% of steel comes from an accredited steel contractor.

**PVC**
30% of product complies with the Best Practice Guidelines for PVC.

**Timber**
95% of timber is certified or reused.

**Joinery**
Use 50% GECA Certified joinery.

**Emissions**

**Low Ozone Depletion Potential (ODP0 Refrigerants)**
Specify refrigerants that have zero ODP.

**Low-ODP Insulation**
Specify insulation products that have zero ODP in manufacture and composition.

**Gross Pollution Traps**
For stormwater quality control.

**External Light Pollution**
No external lights have an upward light output ration of greater than 5%. All lights comply with AS4282.

**GREEN STAR POINTS (WEIGHTED) 48 POINTS**

## 2.2 'AUSTRALIAN EXCELLENCE' 5-STAR RATING: ENERGY OPTION

Strategies required to increase to a 5-Star Green Star Rating or 'Australian Excellence' are listed below, with a focus on energy strategies. To achieve this rating, a minimum of 60 credit is required to be achieve) plus margins). The strategies are additional to those outlined in the 4-Star case (Section 2.1).

**Management**

**Smart Metering**
Provide smart metering for each dwelling, monitoring electricity, water and gas use.

**Indoor Environmental Quality**

**Thermal Comfort**
Keep heating and cooling loads below 30MJ/sqm/annumfor each dwelling, through high performance glazing with extra shading, insulation and moderate window sizes, etc.

**Dwelling Ventilation**
Provide a dedicated 'trickle ventilation' opening to each apartment.

**Tri-generation**
Utilise on-site tri-generation to provide base building electricity, domestic hot water, space heating and cooling (in lieu of solar hot water).

**Energy Efficient Appliances**
Install refrigerators, washing machines, clothes dryers and dishwashers within 1 star of the top energy-efficiency rating.

**Transport**
Further minimised parking
Provide no greater than the minimum car parking requirement for the site.

**Trip reduction**
Ensure that there are at least 10 amenities within 400m walking distance of residents, which may include convenience store, ATMs, restaurants supermarket, etc.

**Land use and ecology**

**Communal Facilities**
Provide at least 25% of the total site area as common garden, with nine of the listed facilities included: composting facilities, worm farm, communal garden plots, outdoor gym, playground, shaded areas, BBQ, outdoor dining areas, seating, etc.

**GREEN STAR POINTS** **64 POINTS**

## 2.3 'AUSTRALIAN EXCELLENCE' 5-STAR RATING: WATER AND MATERIAL OPTION

Strategies required to increase the rating to a 5-Star Green Star Rating or 'Australian Excellence' are listed below, with a focus on water and material strategies. To achieve this rating, a minimum of 60 credit is required to be achieve) plus margins, not currently included in the below). The strategies are additional to those outlined in the 4-Star case (Section 2.1).

**Energy**

**Photovoltaics**
Install PV system to offset 5% of site emissions.

**Transport**

**Further minimised parking**
Provide no greater than the minimum car parking requirements for the site.

**Trip reduction**
Ensure that there are at least 10 amenities within 400m walking distance of residents, which may include convenience stores, ATM's, restaurants, supermarkets, etc.

**Water**

**Wastewater**
On-site wastewater treatment supplies all toilet flushing, clothes washing and irrigation systems.

**Fire System Testing**
Capture and reuse all water used in fire system test maintenance and drain-downs.

**Materials**

**Additional Waster Recycling Facilities**
In addition to the waste water storage room and compost facilities, provide a waste recycling chute and room for storage of discarded oversized items such as furniture.

**Internal Walls and Flooring**
All internal walls and flooring materials have a reduced environmental impacts (eg GECA certification) according to Green Star calculators.

Increased Recycled Concrete
Minimum 60% of cement is replaced with an industrial waste product, 20% of structural and 100% of non-structural aggregate is recycled.

**PVC**
60% of product complies with the Best Practice Guidelines for PVC.

**Recycled Materials**
1% of contract value is spent on recycled/reused materials (excluding concrete and steel which are covered above)

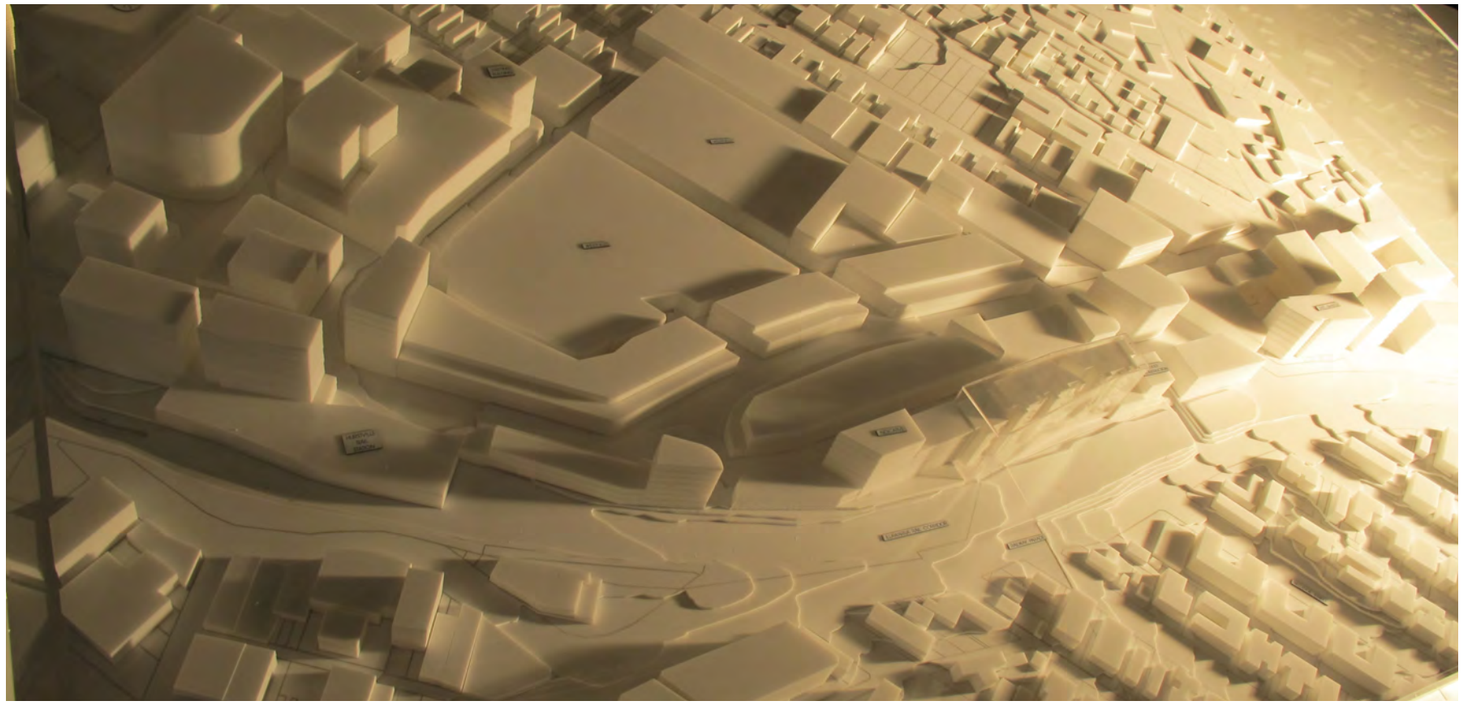
**GREEN STAR POINTS** **60 POINTS**

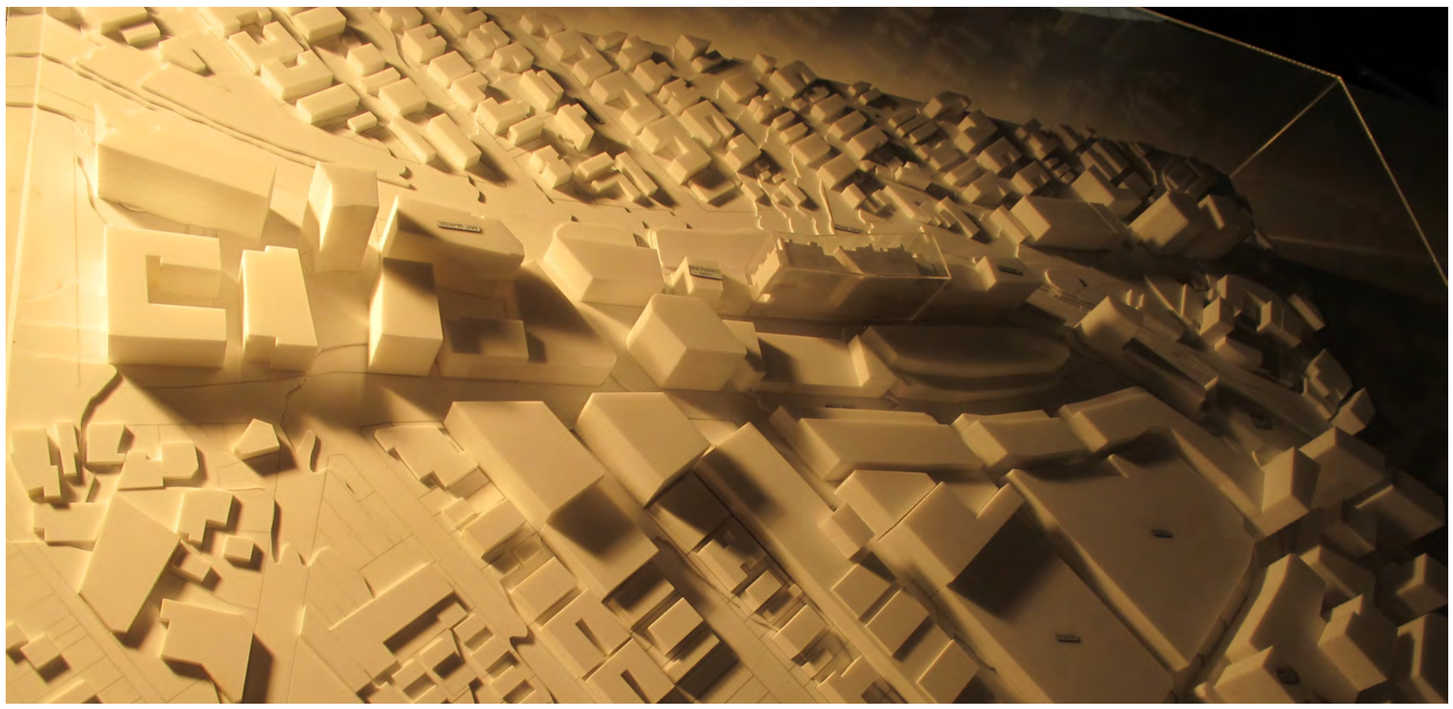
## 3. CONCLUSION

Based on the above strategies a 4-Star or 5-Star rating under the Green Star Scheme is achievable for the project, however the strategies outlined will require confirmation from the design and development team. Once a strategy has been determined, details will be developed regarding each strategy for incorporation into the design documentation.

# G MODEL PHOTOS

# MODEL PHOTOS





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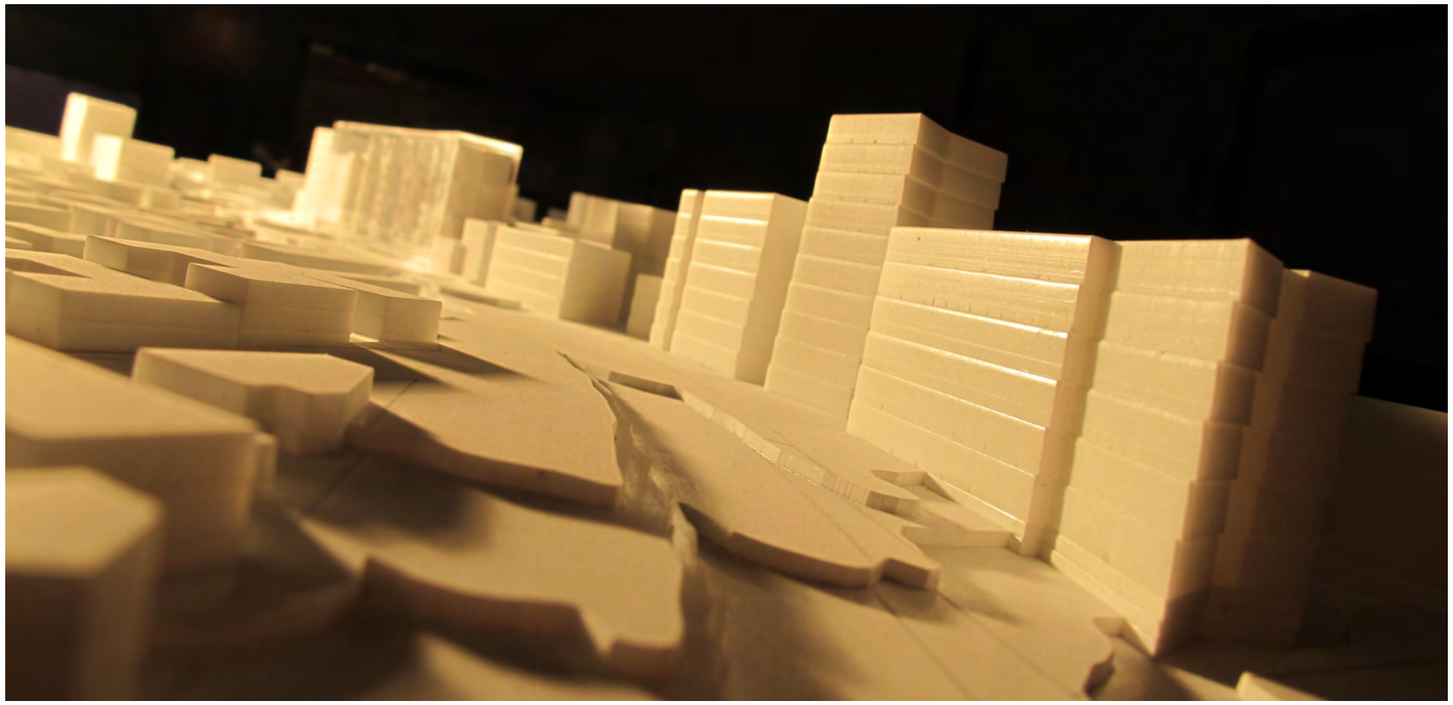

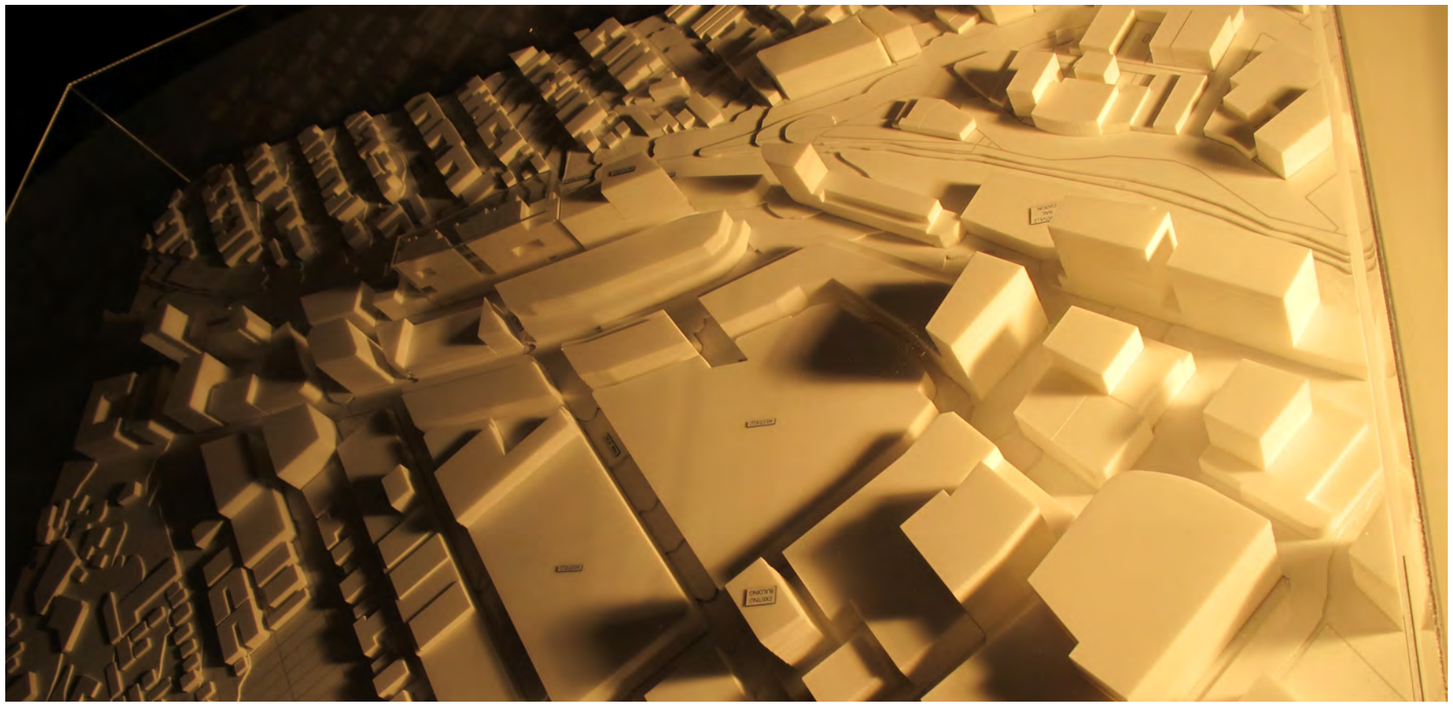

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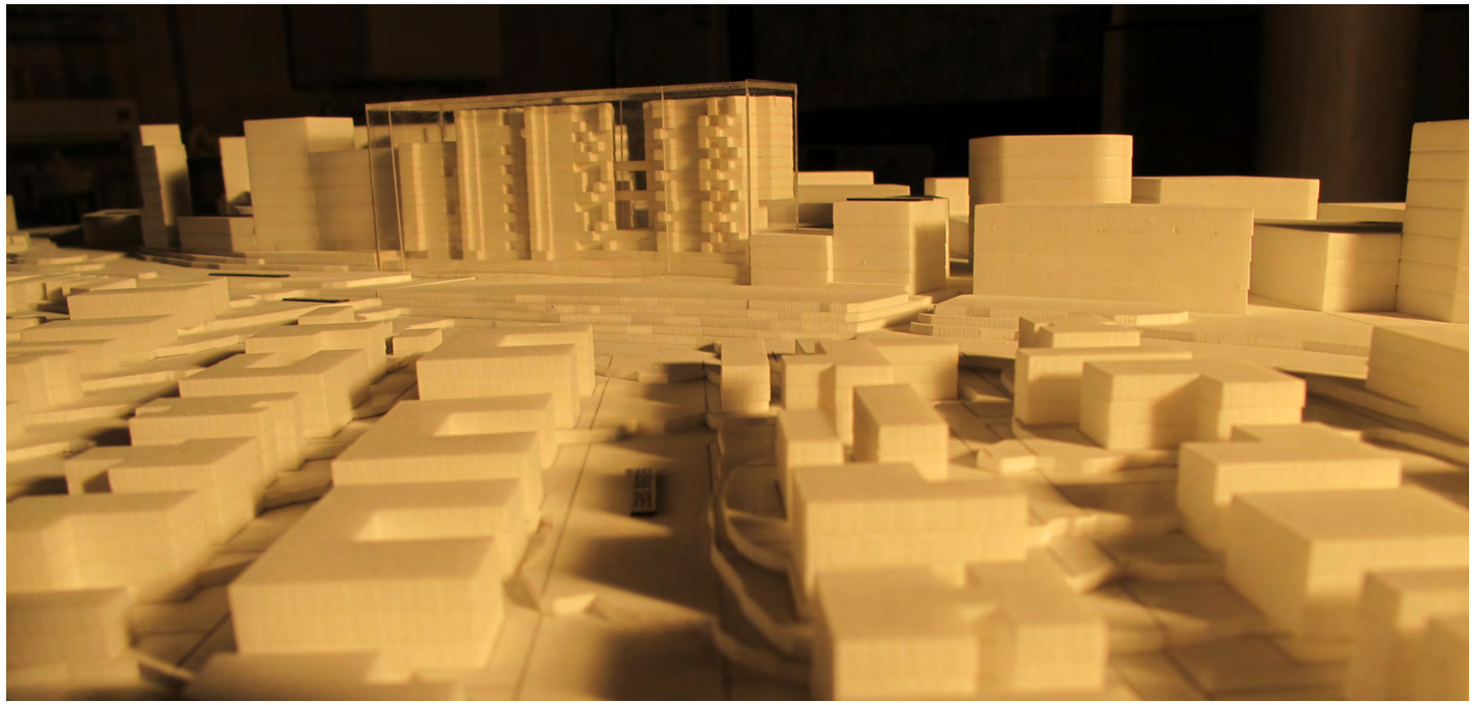

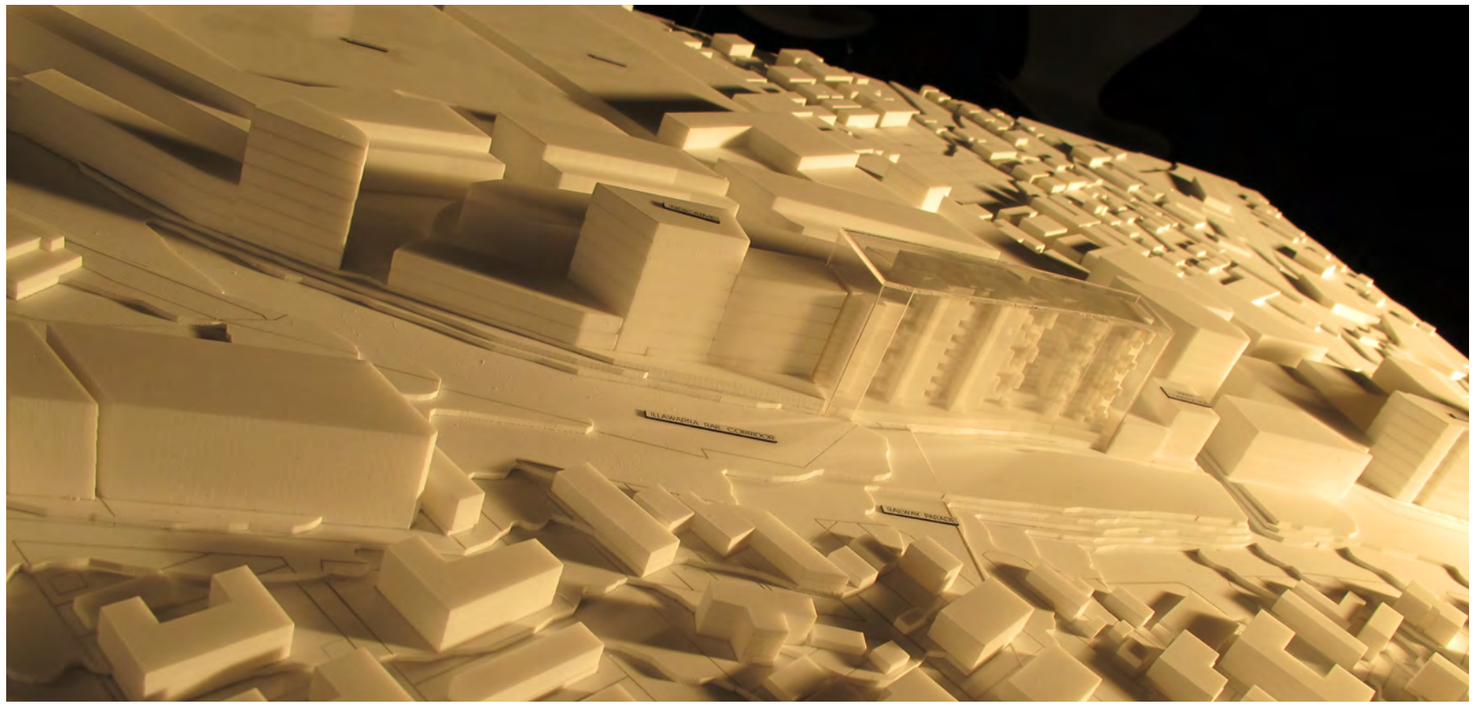

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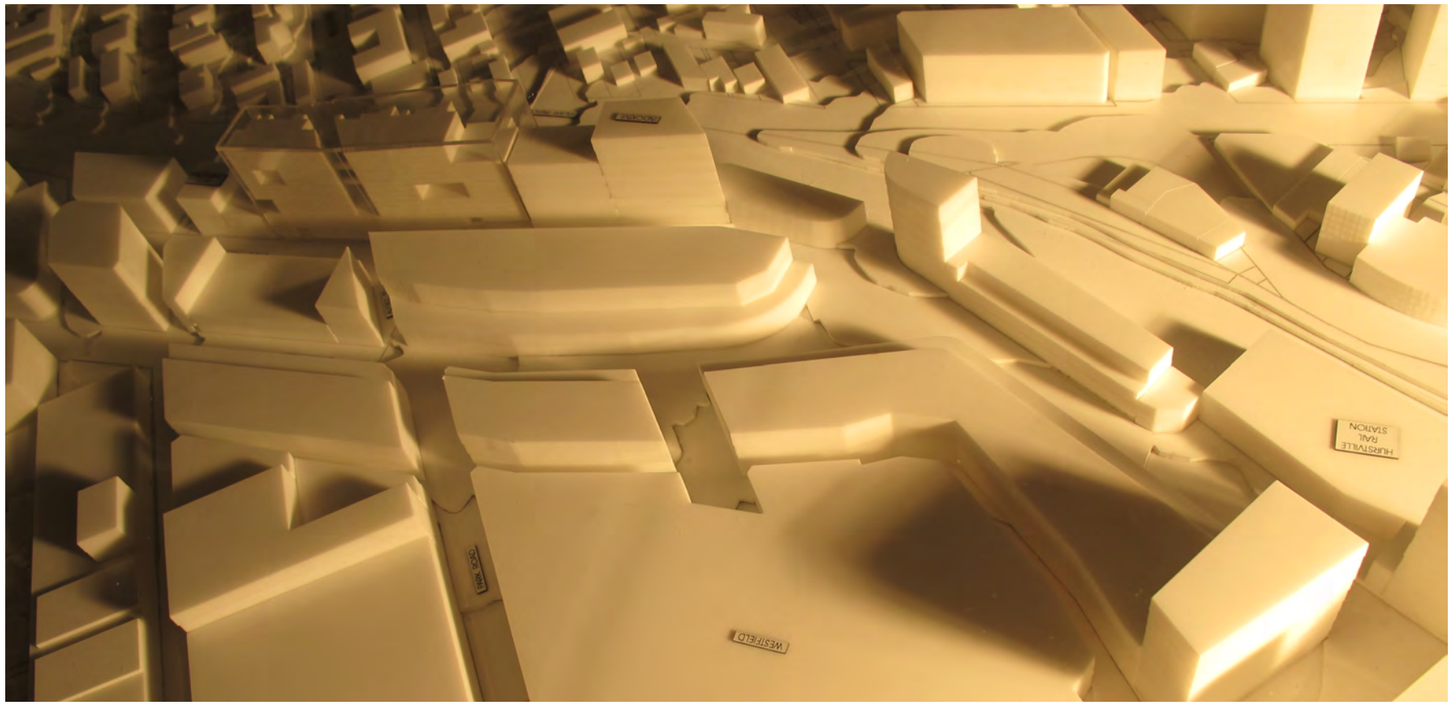


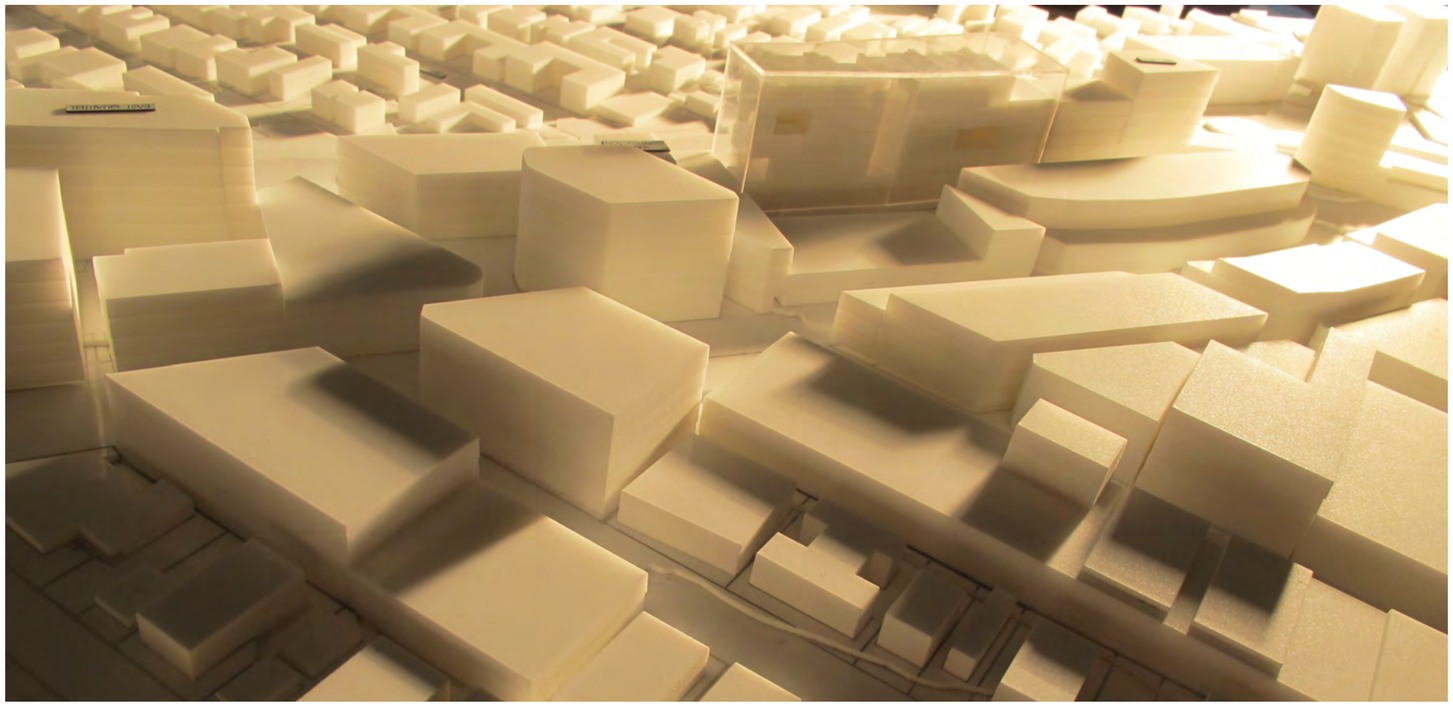

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