



program area summary

levels	total area	residential area	commercial area
P5	4,283	0	4,283
P4	4,135	0	4,135
P3	95	0	95
P2	656	0	656
P1	0	0	0
L1 St. George	571	571	0
L1 Kingsway	2,835	941	1,894
L2	1,456	529	926
L3	1,846	1,846	0
L4	1,928	1,928	0
L5	1,932	1,932	0
L6	1,169	1,169	0
L7	1,138	1,138	0
L8	1,138	1,138	0
L9	1,138	1,138	0
L10	1,138	1,138	0
L11	1,138	1,138	0
L12	1,138	1,138	0
L13	1,138	1,138	0
L14	1,097	1,097	0
roof	140	140	0
total sm (fsr)	30,117 (6.96)	18,126 (4.19)	11,991 (2.77)

fsr

	existing C-2	
floor space ratio	FSR max. (all uses combined)	2.5
	proposed CD-1	
floor space ratio	commercial, office car wash, vehicle storage	2.77
	residential	4.19
	total	6.96
floor space ratio area	commercial, office car wash, vehicle storage	11,991 sm (129,070 sf)
	residential (215 units)	18,126 sm (195,106 sf)
	total	30,117 sm (324,176 sf)

zoning

	existing	proposed
zoning	C-2	CD-1
site area	4,327 sm (46,576 sf)	4,327 sm (46,576 sf)
uses	<ul style="list-style-type: none"><li>commercial: auto dealership, offices, service centre and vehicle storage</li></ul>	<ul style="list-style-type: none"><li>commercial: retail, offices, vehicle storage.</li><li>residential: including 100% secured rental housing with minimum of 20% for moderate income households</li></ul>
building maximum height	1 storey  C-2 District Schedule: 4.6 m max for first 6.1 m from rear property line; 10.7 m max for next 4.6 m; 13.8 m max for remaining portion of site facing street	14 storeys  1.7 m (169') to T.O. south elevator overrun;  48.88 m (160') to T.O. south tower roof vestibule from base surface

parking

	parking bylaw sec 4	required	provided
parking spaces	4.2.5.1 (retail/ office)	46	61
	4.5.B1 (residential)	111	163
		157 (total)	224 (total)
car share spaces			4 (incl.)
EV-ready spaces	100% residential spaces, 10% commercial spaces provided		

loading

	parking bylaw sec 5	required	provided
loading & pick-up/ drop off		3 Class B	1 Class B
		0 Class C	0 Class C
	5.2.1 (residential)	2 Class A	2 Class A
		0 Class B	2 Class B
		0 Class C	0 Class C

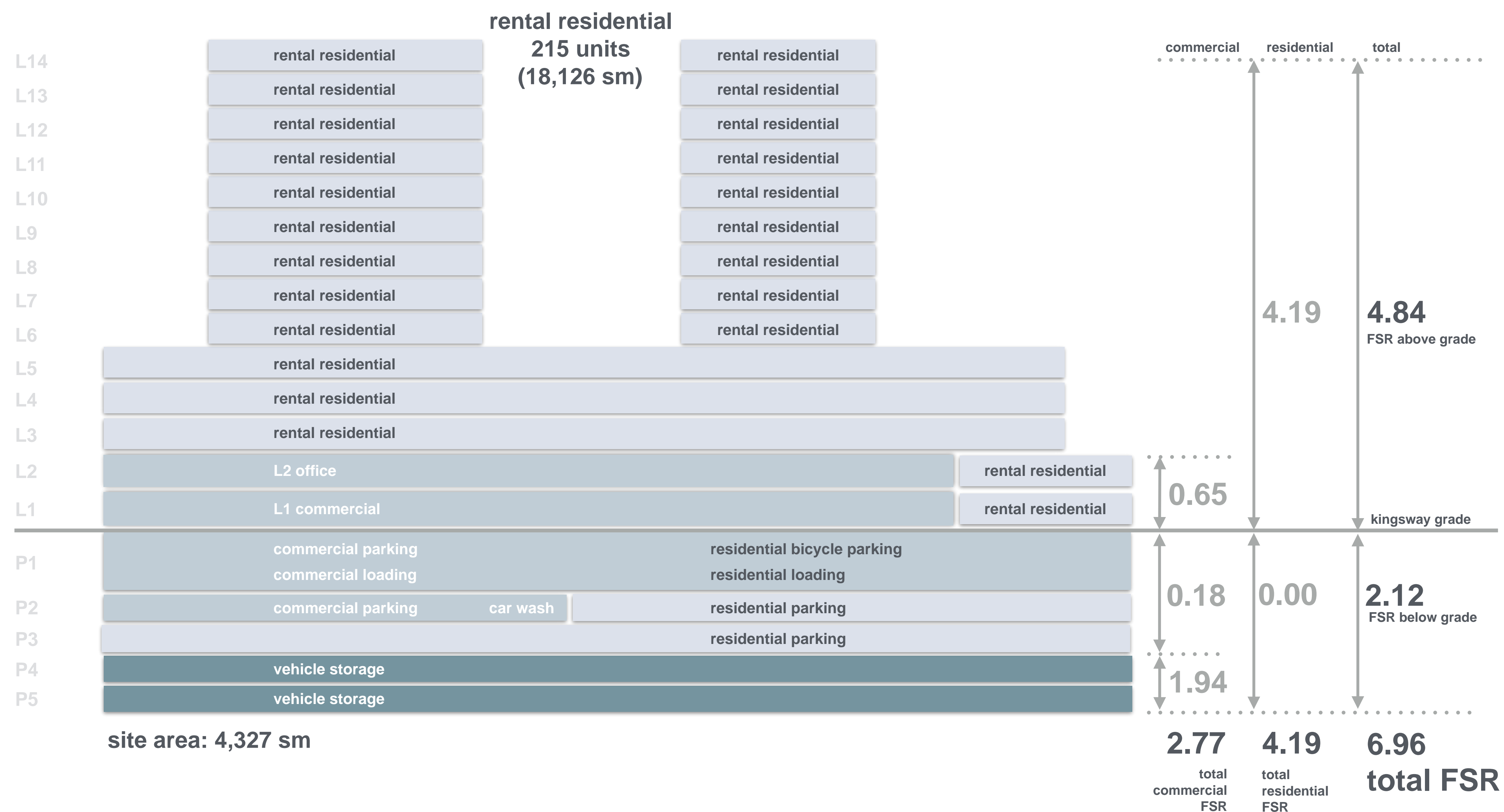
bicycle parking

	parking bylaw sec 6	required	provided
bicycle parking	6.2.5.1/ 6.2.4.1 (retail/ office)	11 Class A	13 Class A
		6 Class B	6 Class B
	6.2.1.2 (residential)	408 Class A	412 Class A
		12 Class B	12 Class B
bicycle sharing			TBD

setbacks note: all setbacks are approximate and exclude projections and overhangs

	existing C-2	proposed
Kingsway front yard setback C-2. 4.4.1(a)(i)(ii)	0.6 m from front property line to a height of 10.7m  2.4 m setback above 10.7m	L1-L2: 1.0 m, 2.9 m L3: 3.6 m, 4.9 m, 6.9 m L4-L5: 3.6 m, 4.9 m, 6.9 m L6-L13: 3.6 m, 4.9 m L14: 3.6 m, 6.9 m
St George Street front yard setback C-2. 4.4.1(a)(i)(ii)	0.6 m from front property line to a height of 10.7m  2.4 m setback above 10.7m	L1-L2: 0.6 m, 2.5 m (commercial) L3-L5: 2.4 m, 4.1 m, 4.3 m L6-L14: 4.1 m
C-2. 4.4.1(b)	within 2.0 m above street grade, min. 0.6 m, average depth shall be 3.7 m	L1-L2: 4.3 m, 4.4 m (townhouses) 6.8 m (at tree)
note: refer to Setbacks Plan for additional information		
north property line side yard setbacks C-2. 4.5.1(b)(i) & 4.5.1(b)(ii)	3.7 m and 10.7 m above fourth storey	L1-L2: 3.1 m L2: 8.7 m (office)  L1-L3: 6.1 m (townhouses) L3-L14: 20.4 m (tower)
north property line rear yard setbacks C-2. 4.6.1(c)(i) & 4.6.1(c)(ii)	3.1 m and 6.1 m for portions of building containing dwelling uses	L1: 3.2 m L3-L14: 7.1 m (tower)
west property line side yard setback (421 Kingsway) C-2. 4.5.1(a)	no side yard is necessary	L1-L5: 0.1 m L6-L14: 12.1 m





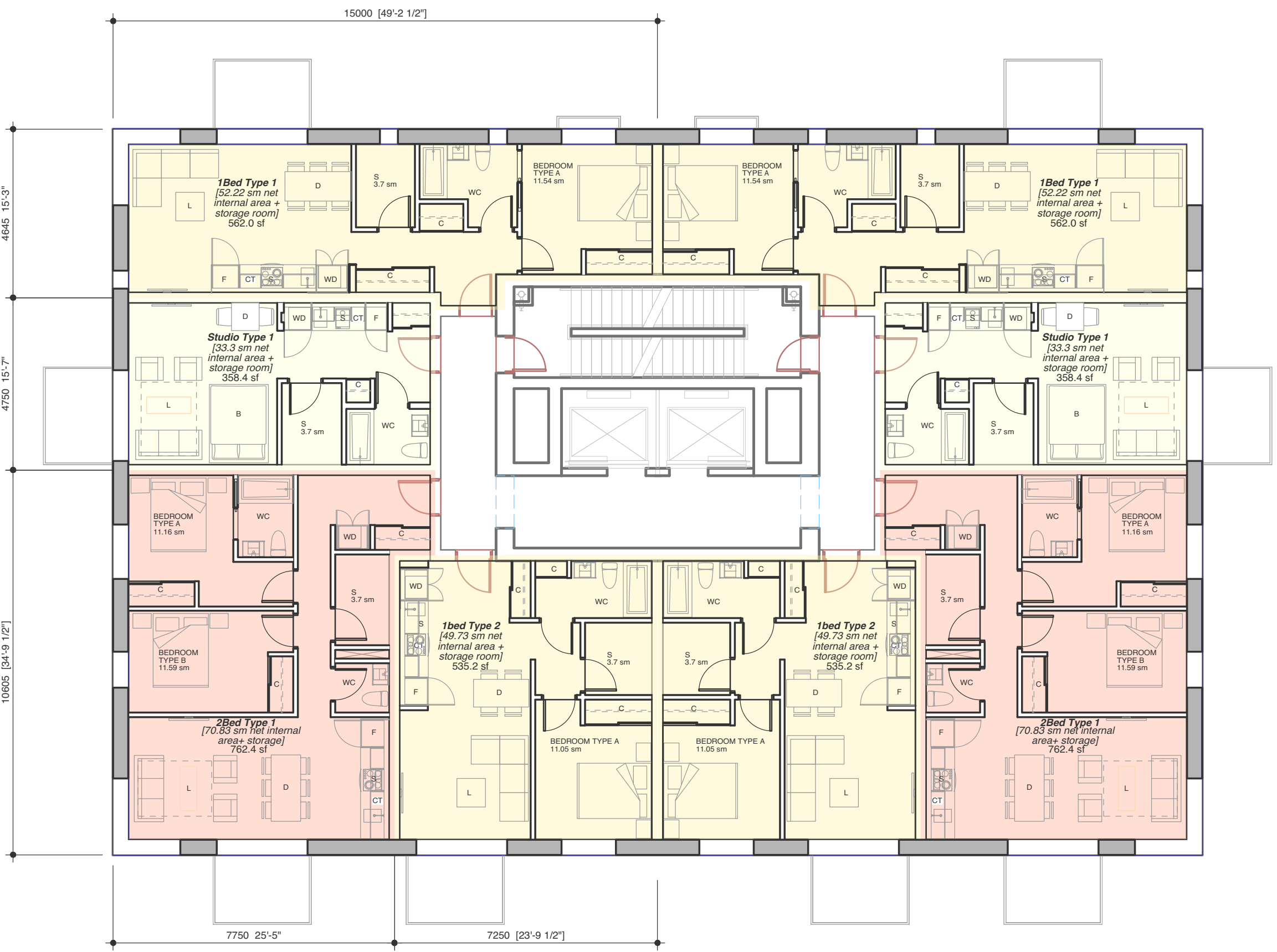
# Moderate Income Rental Housing Public Benefit

The public benefit proposed for the rezoning is the provision of 100% of the residential floor area as secured market rental housing with a minimum of 20% of the residential floor area being made available to moderate income households earning between \$30,000 to \$80,000 per year under the *Moderate Income Rental Housing Pilot Program*.

Currently proposed for the rezoning is the provision for 171 market rental homes and 44 moderate income rental homes, for a total of 215 rental residential homes.

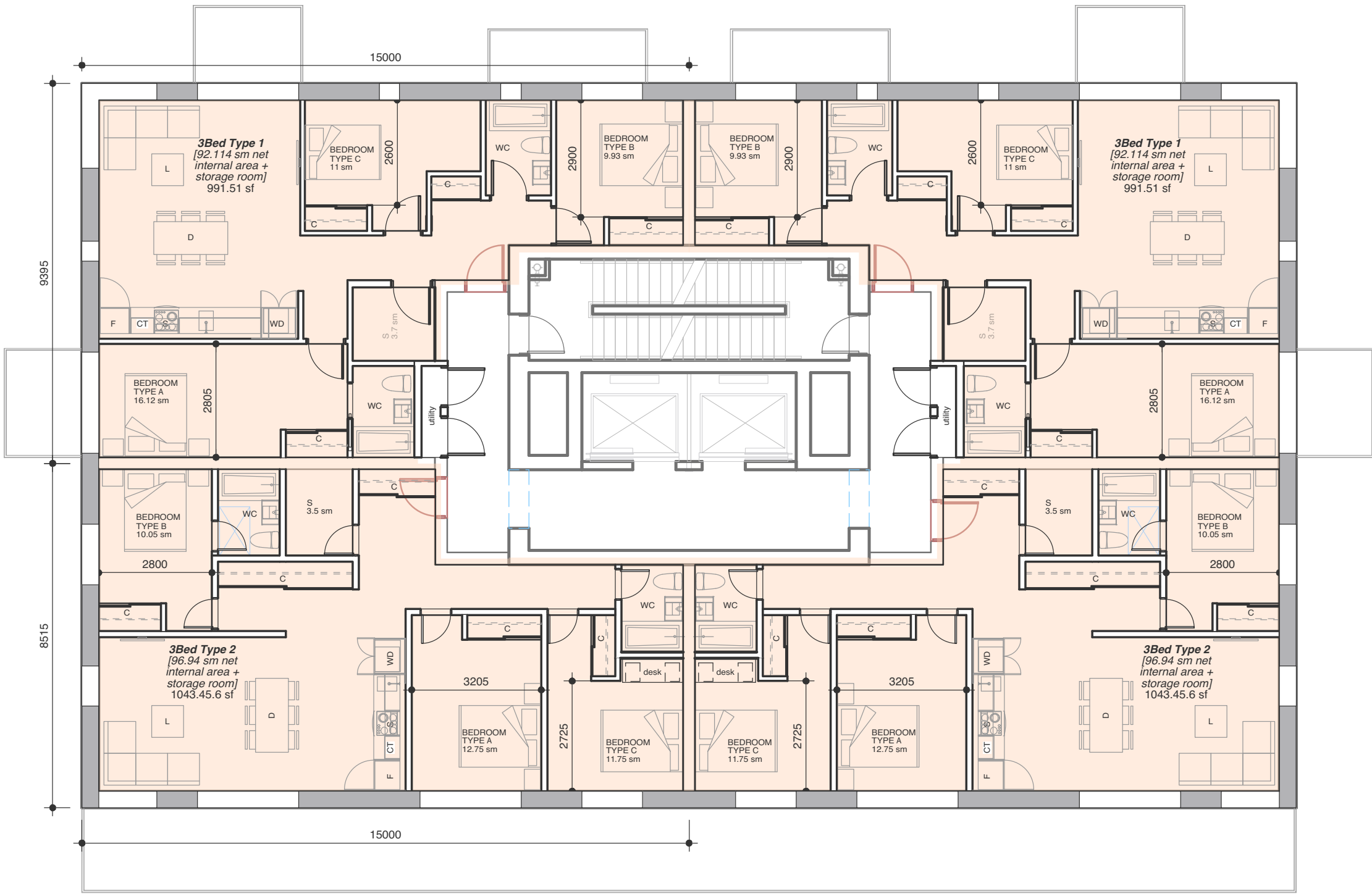
## unit count summary

	market rental housing	moderate income rental housing	total rental housing
studio	43	11	54
1 bedroom	69	17	86
2 bedroom	42	12	54
3 bedroom	17	4	21
total	171	44	215



typical tower unit layout (studio, 1 & 2 bedrooms)

- 3 bed
- 2 bed
- 1 bed
- studio



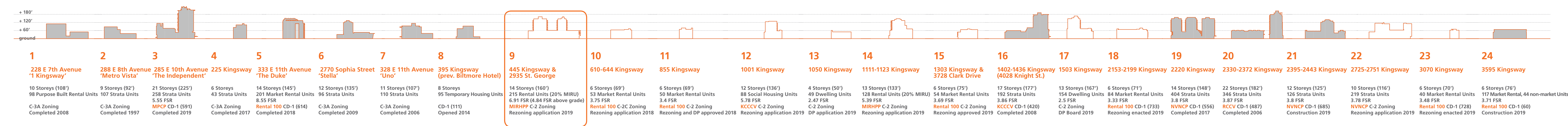
typical tower unit layout (3 bedrooms)

## Moderate Income Rental Housing Pilot Program

445 Kingsway & 2935 St. George Street

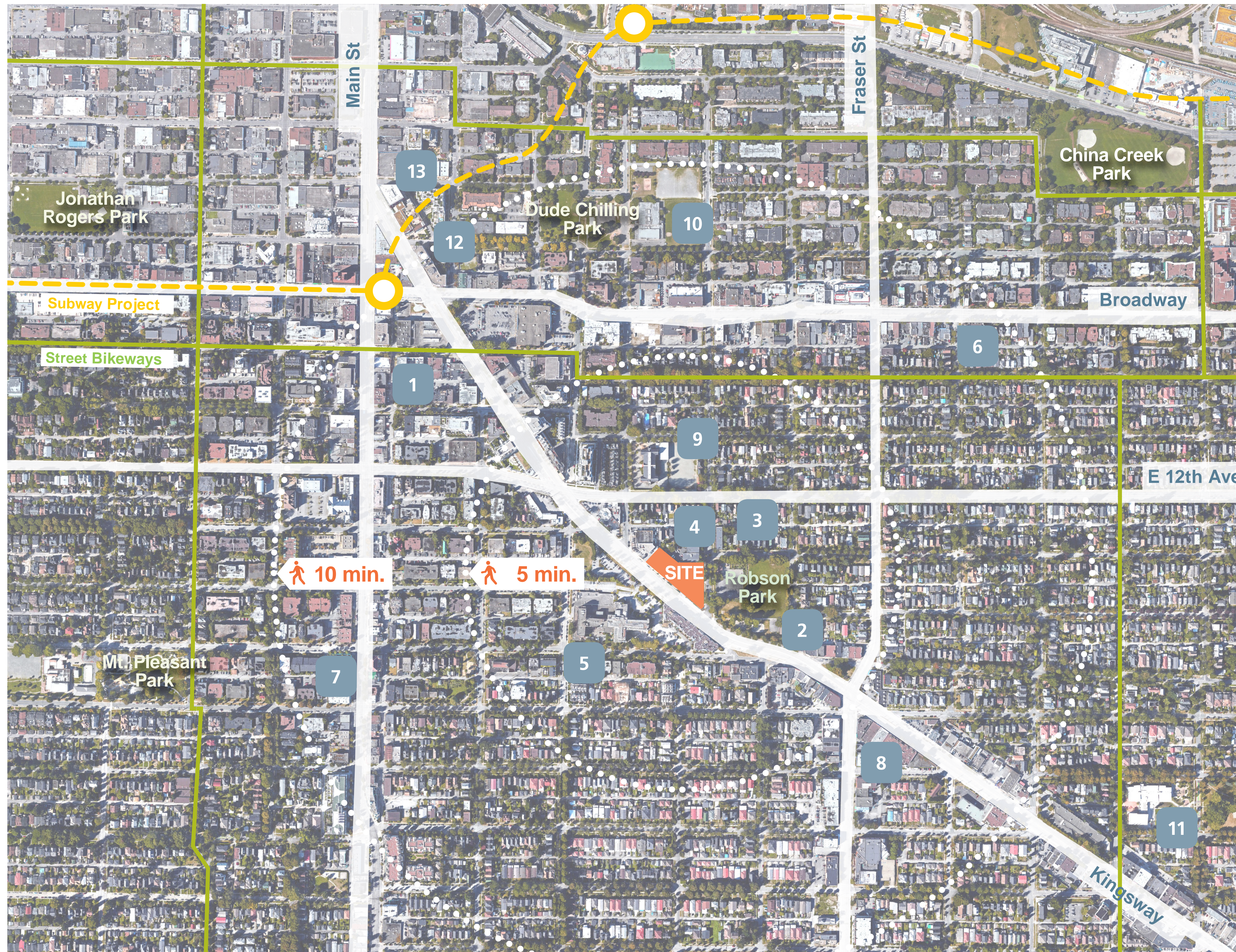
2 October 2019





Note: All figures are approximate and subject to change. Development statistics obtained from CoV zoning and development applications websites, VanMap and Property Viewer





- 1 Uptown Mt. Pleasant
- 2 Robson Park
- 3 Mount Pleasant Family Centre Society
- 4 Kivan Boys & Girls Club of South Coast BC
- 5 Mount Saint Joseph Hospital
- 6 Mt. Pleasant Neighbourhood House
- 7 Main Street services, shops & food stores
- 8 Fraser Street services, shops & food stores
- 9 Florence Nightingale Elementary School
- 10 Mount Pleasant Elementary School
- 11 Charles Dickens Elementary School
- 12 Mount Pleasant Community Centre
- 13 Mount Pleasant Vancouver Public Library

## Moderate Income Rental Housing Pilot Program

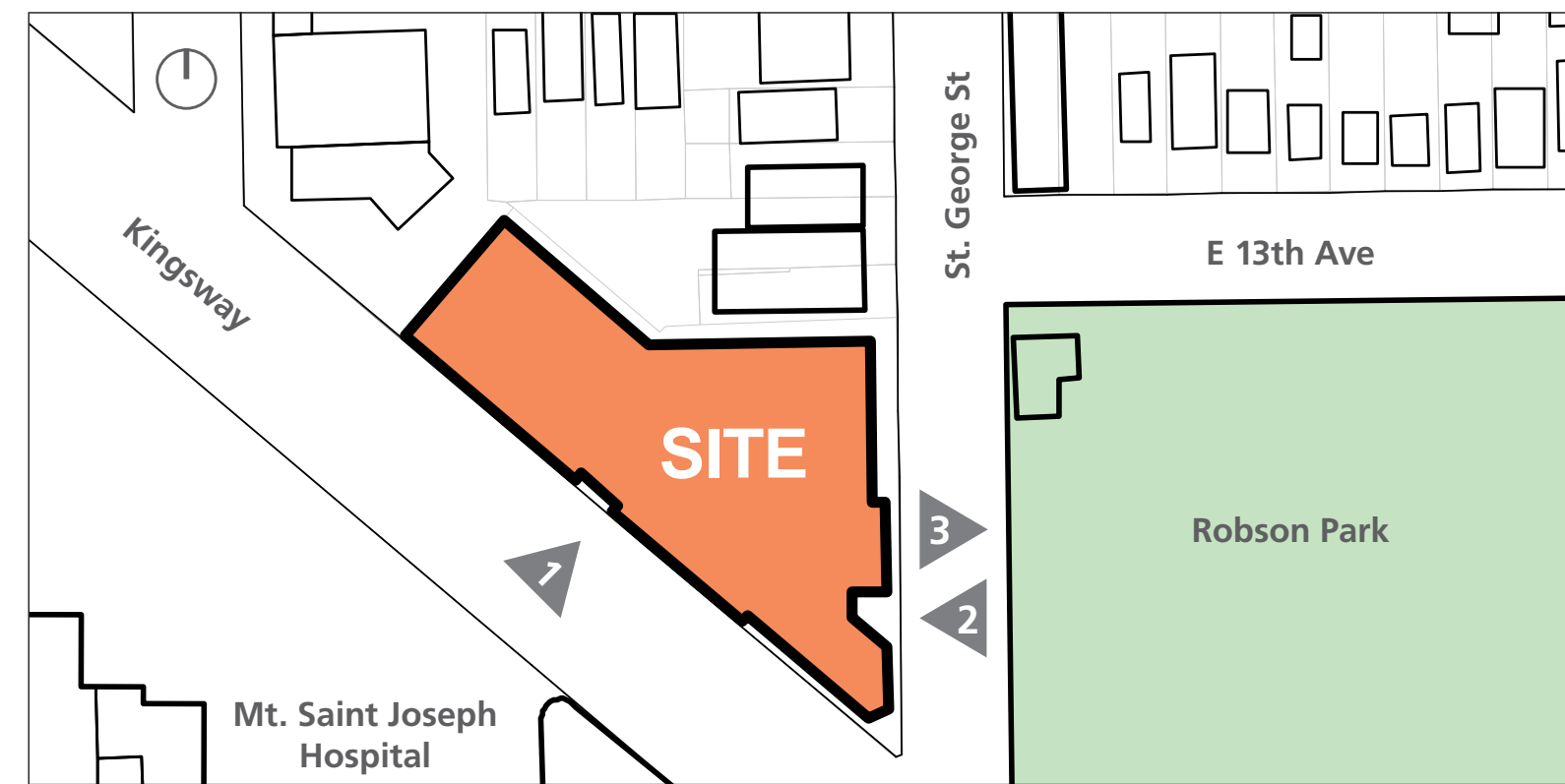
445 Kingsway & 2935 St. George Street



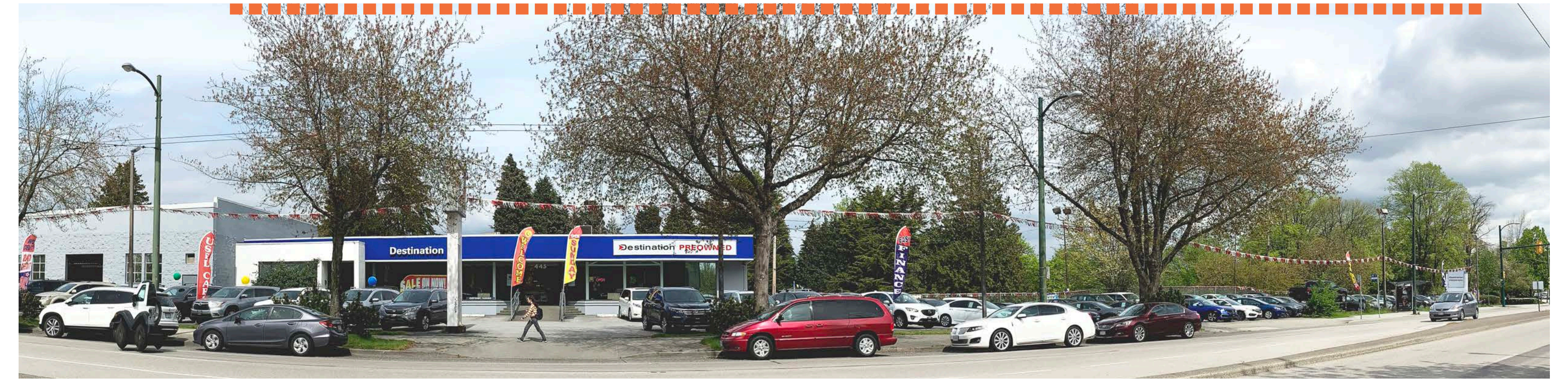
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site & context location **5**





key plan



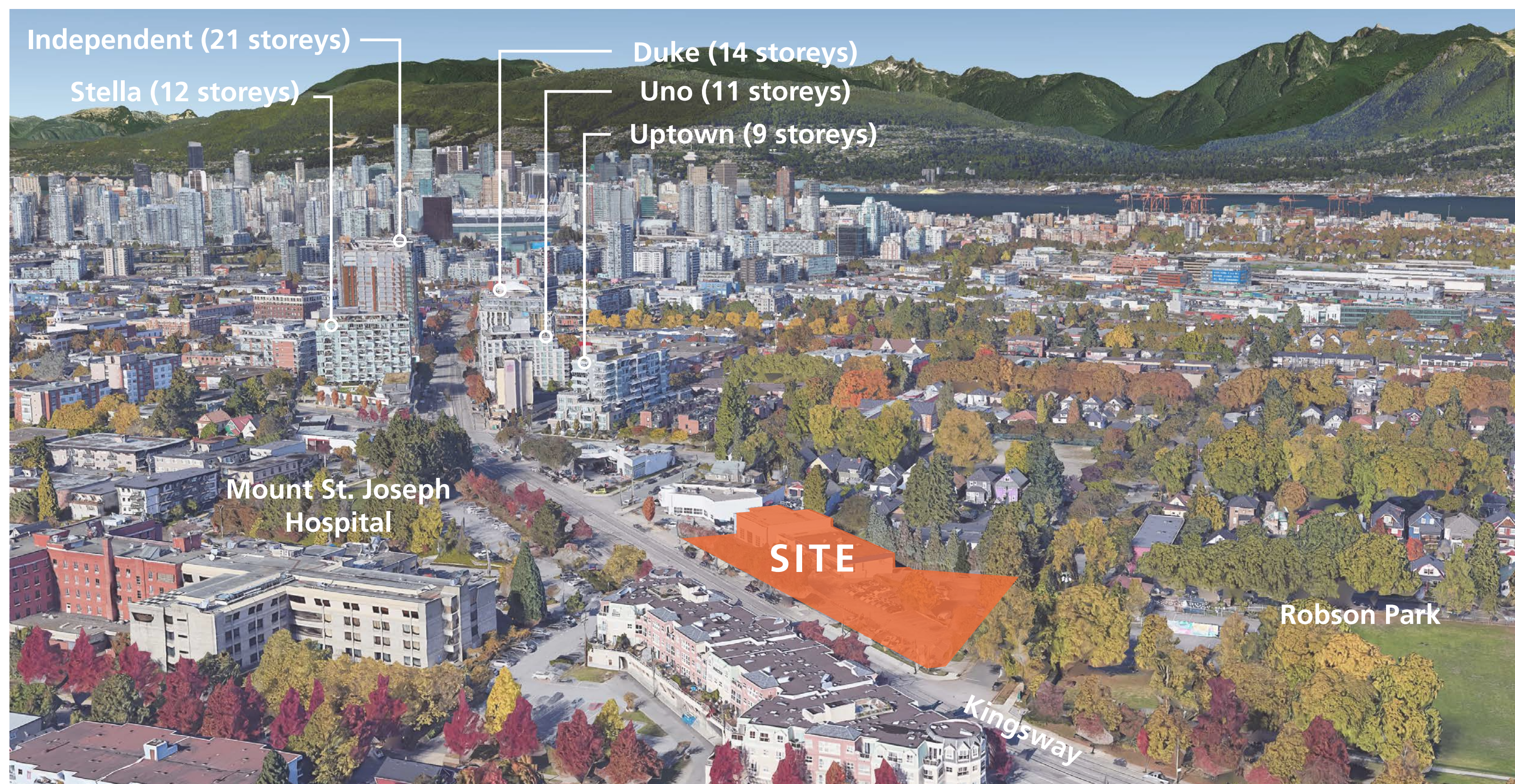
1. view of existing site looking northeast at Kingsway



2. view of existing site looking west at St. George Street



3. view of adjacent Robson Park looking east at St. George Street

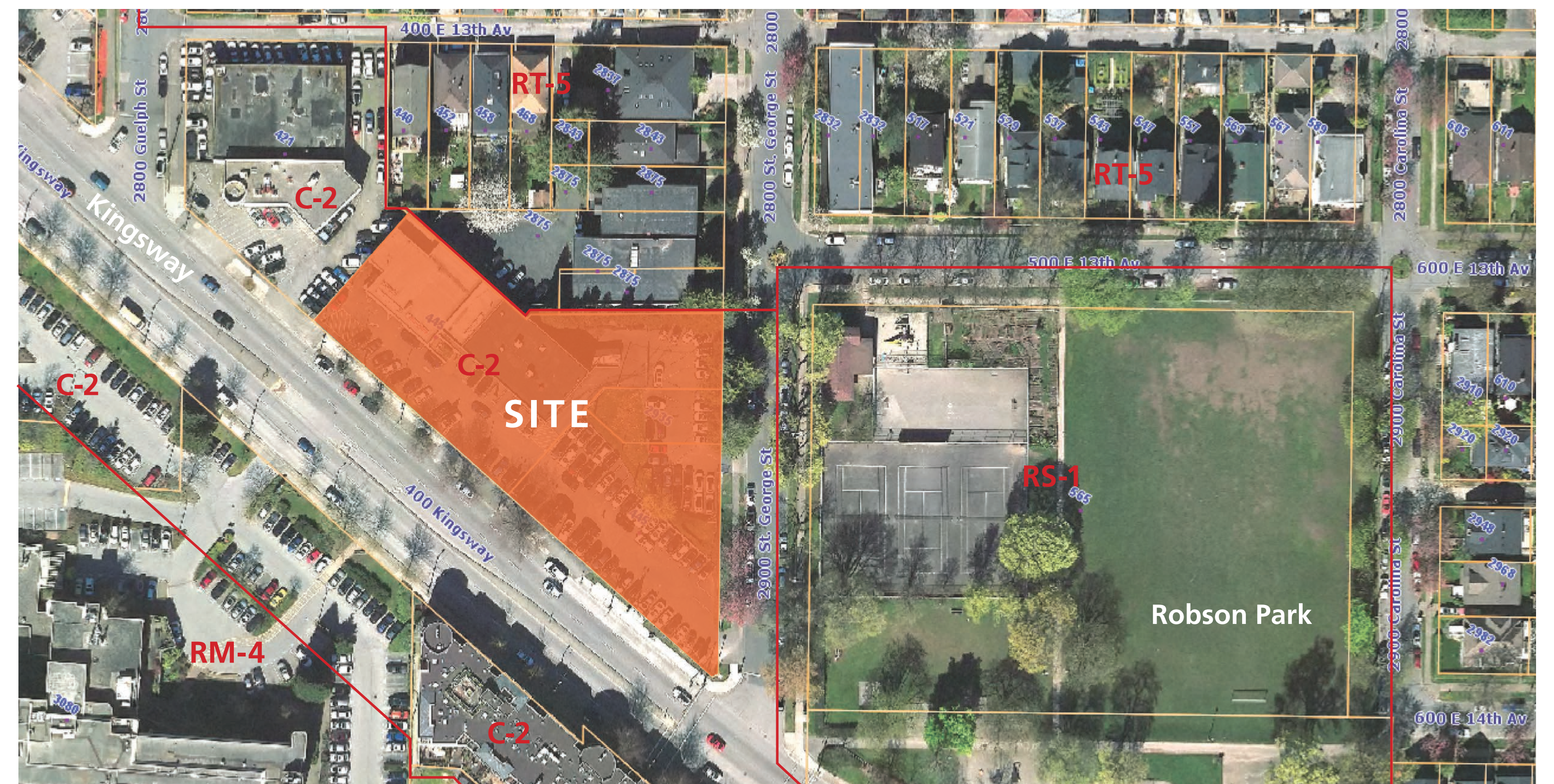


context

## Moderate Income Rental Housing Pilot Program

445 Kingsway & 2935 St. George Street

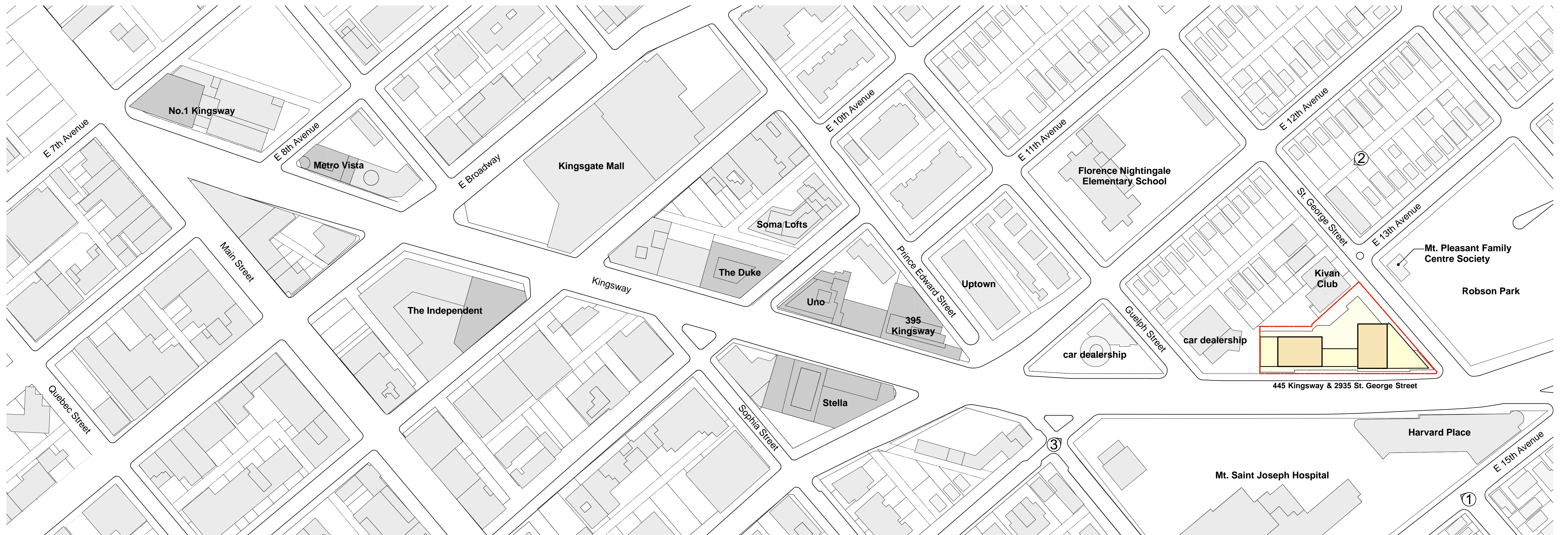
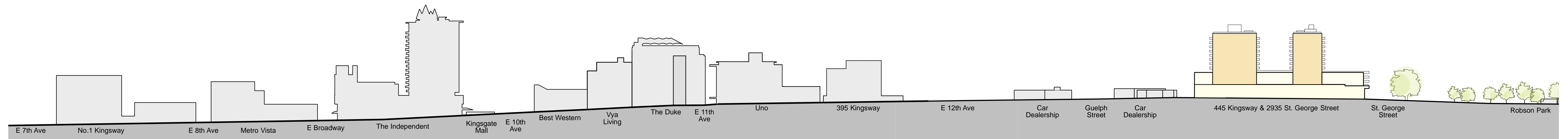
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plan of immediate context

site & context location





context plan and section showing existing development along Kingsway corridor

## Moderate Income Rental Housing Pilot Program

445 Kingsway & 2935 St. George Street



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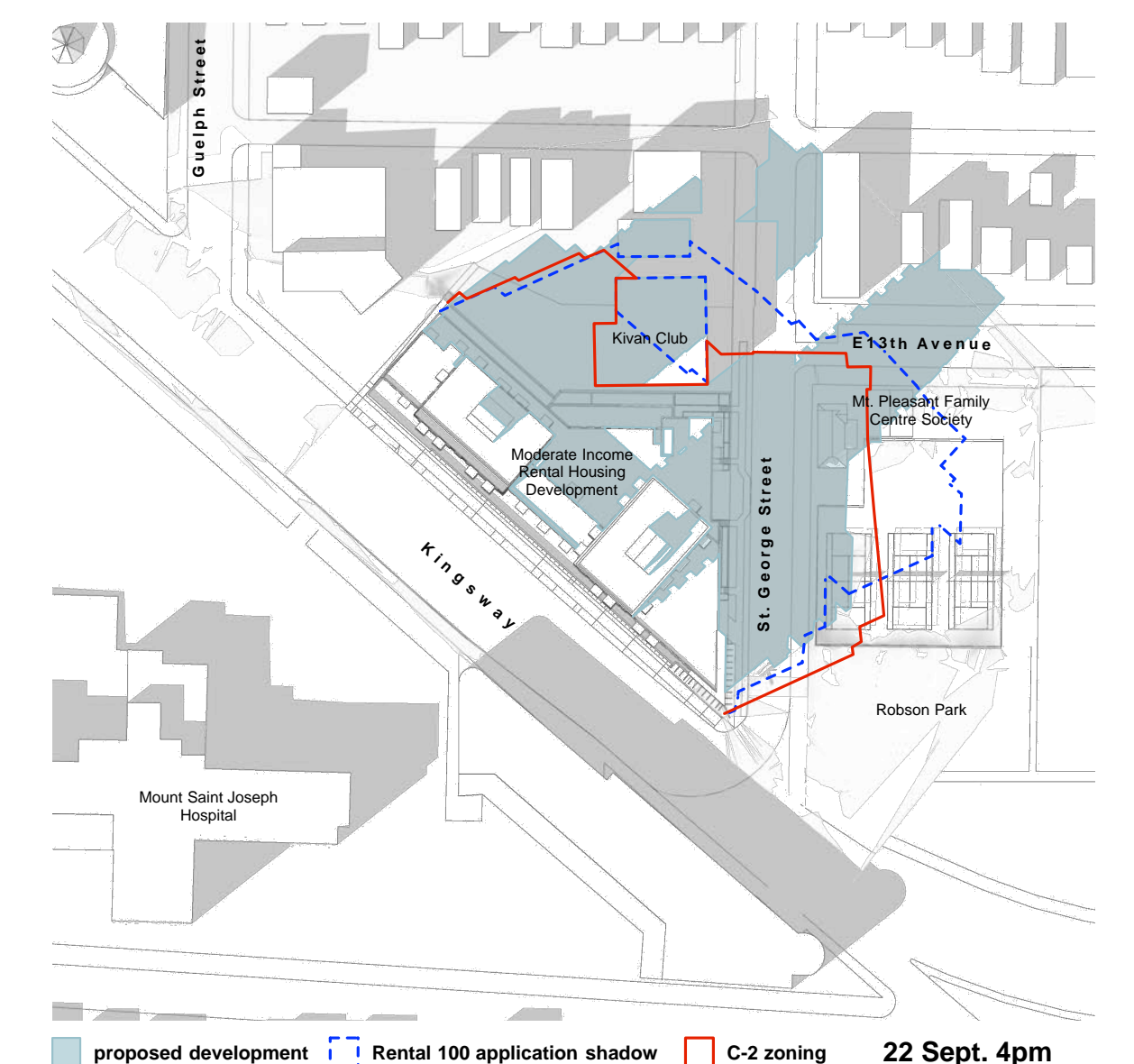
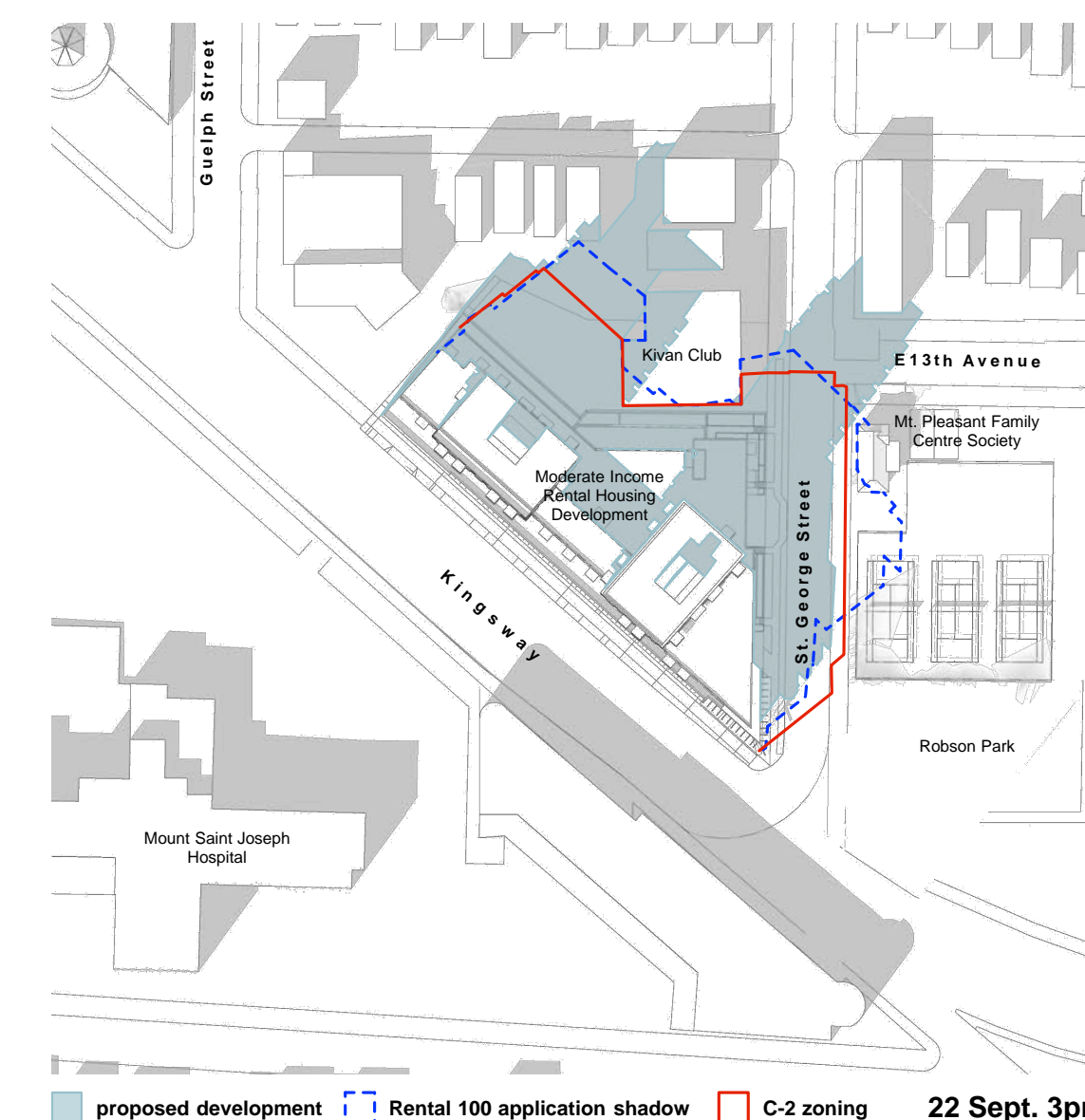
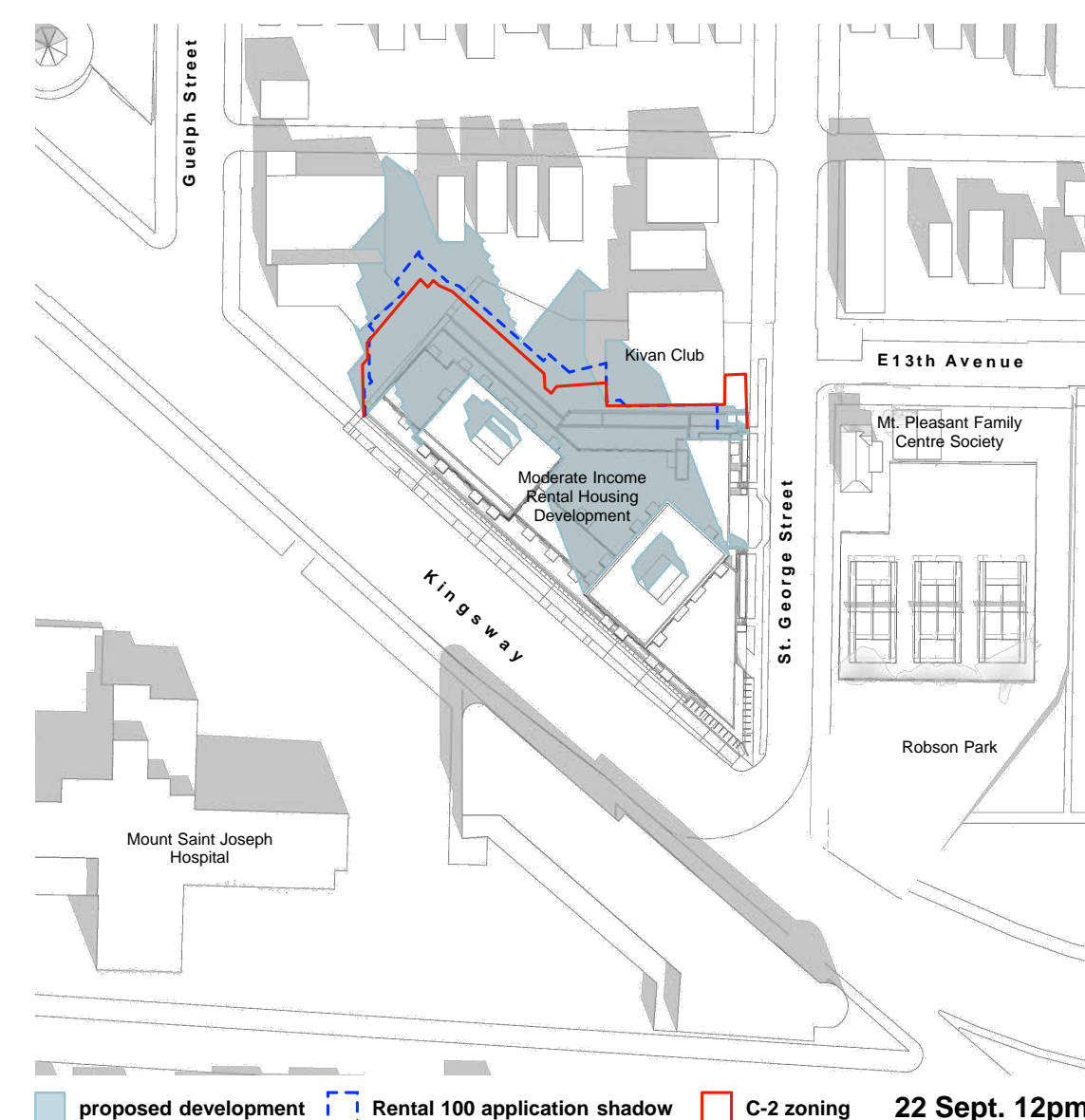
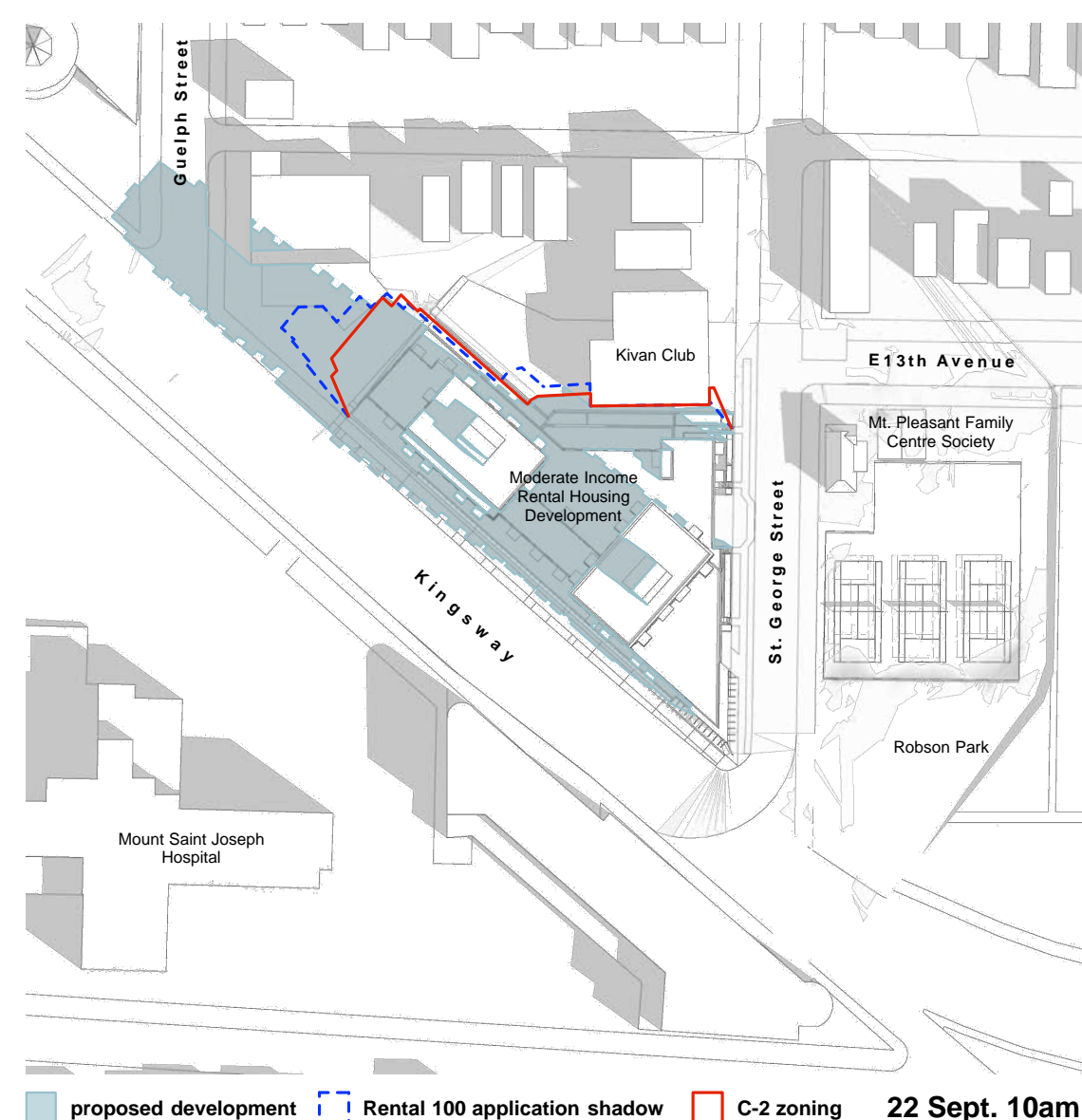
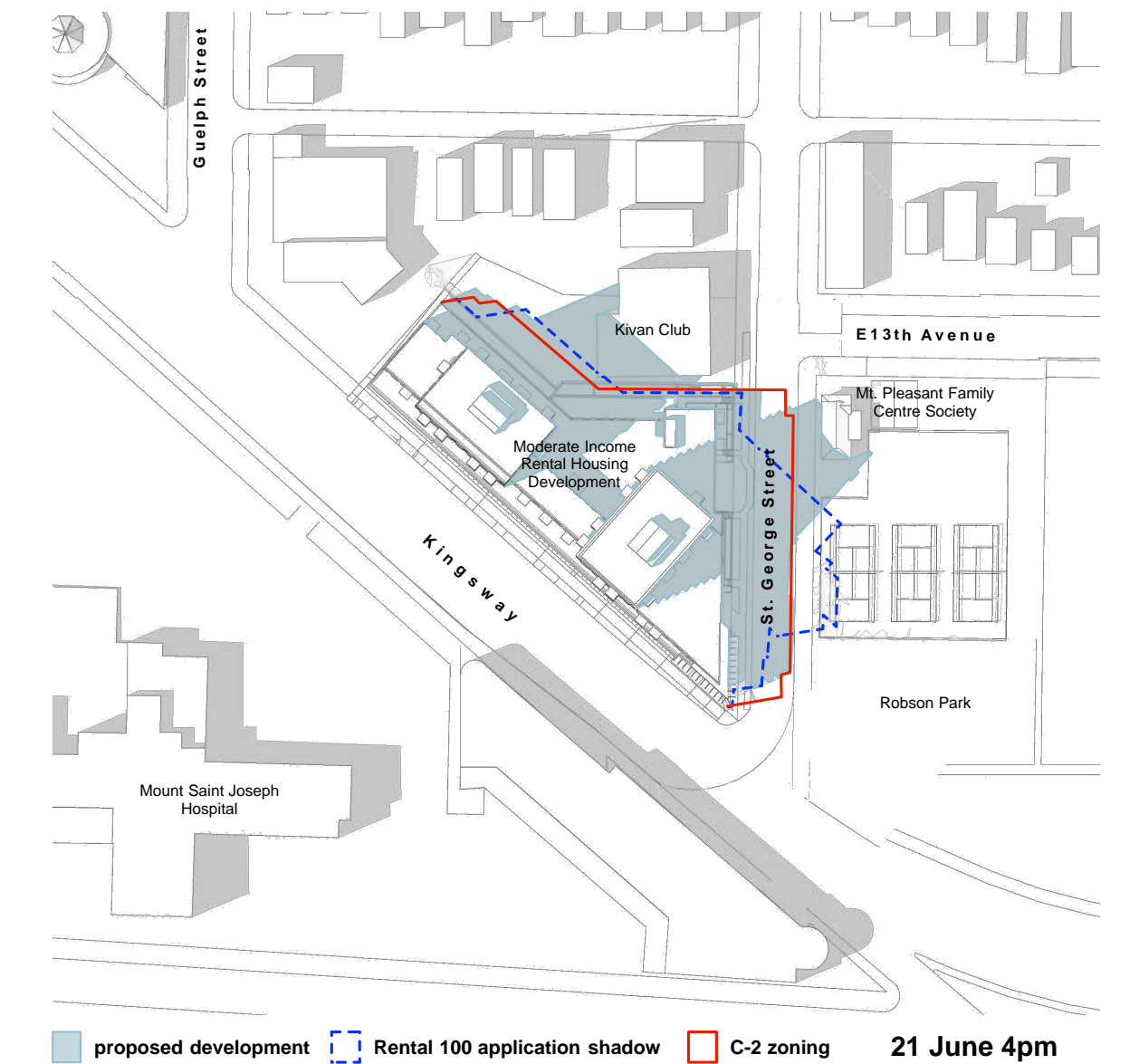
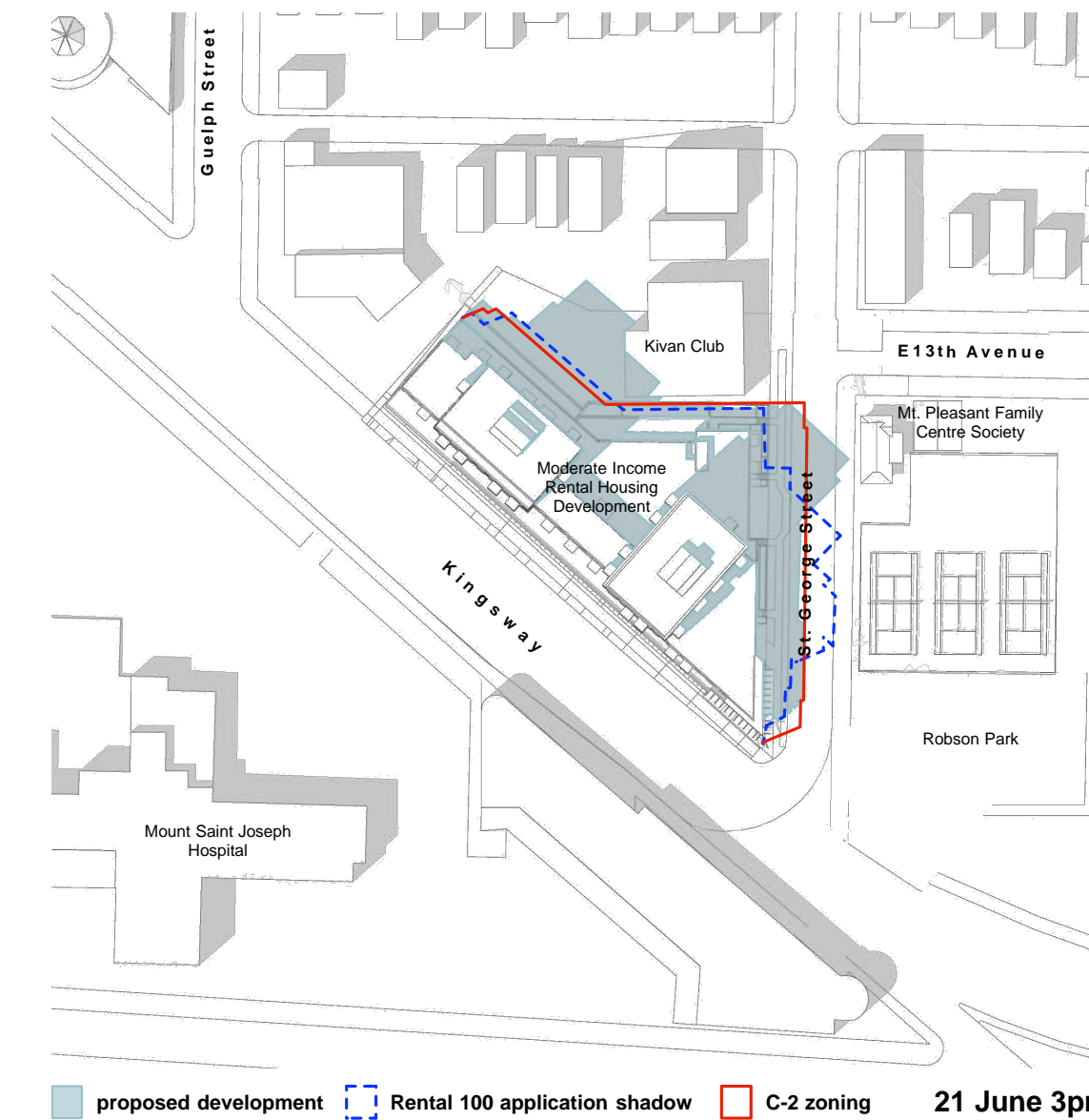
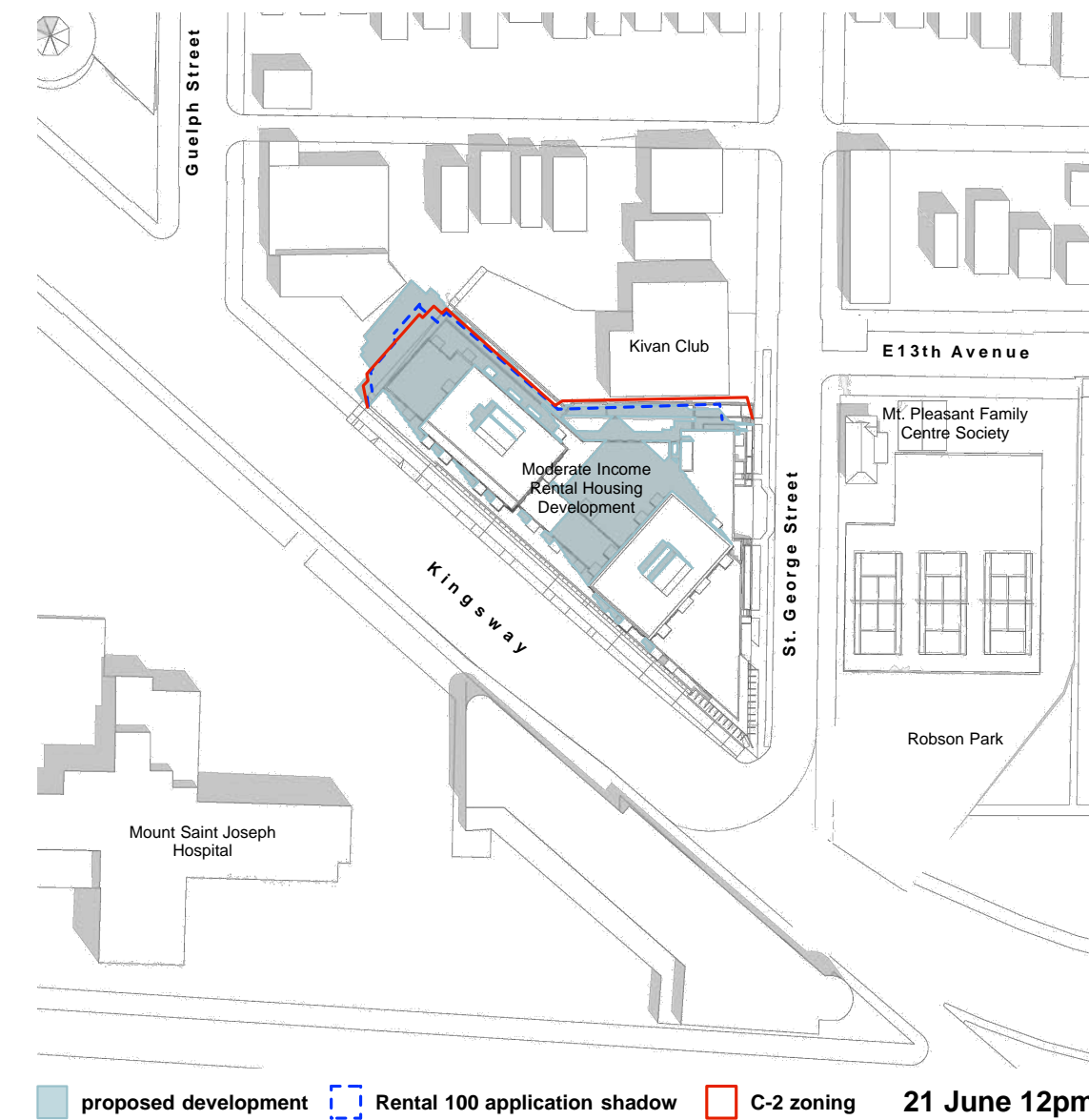
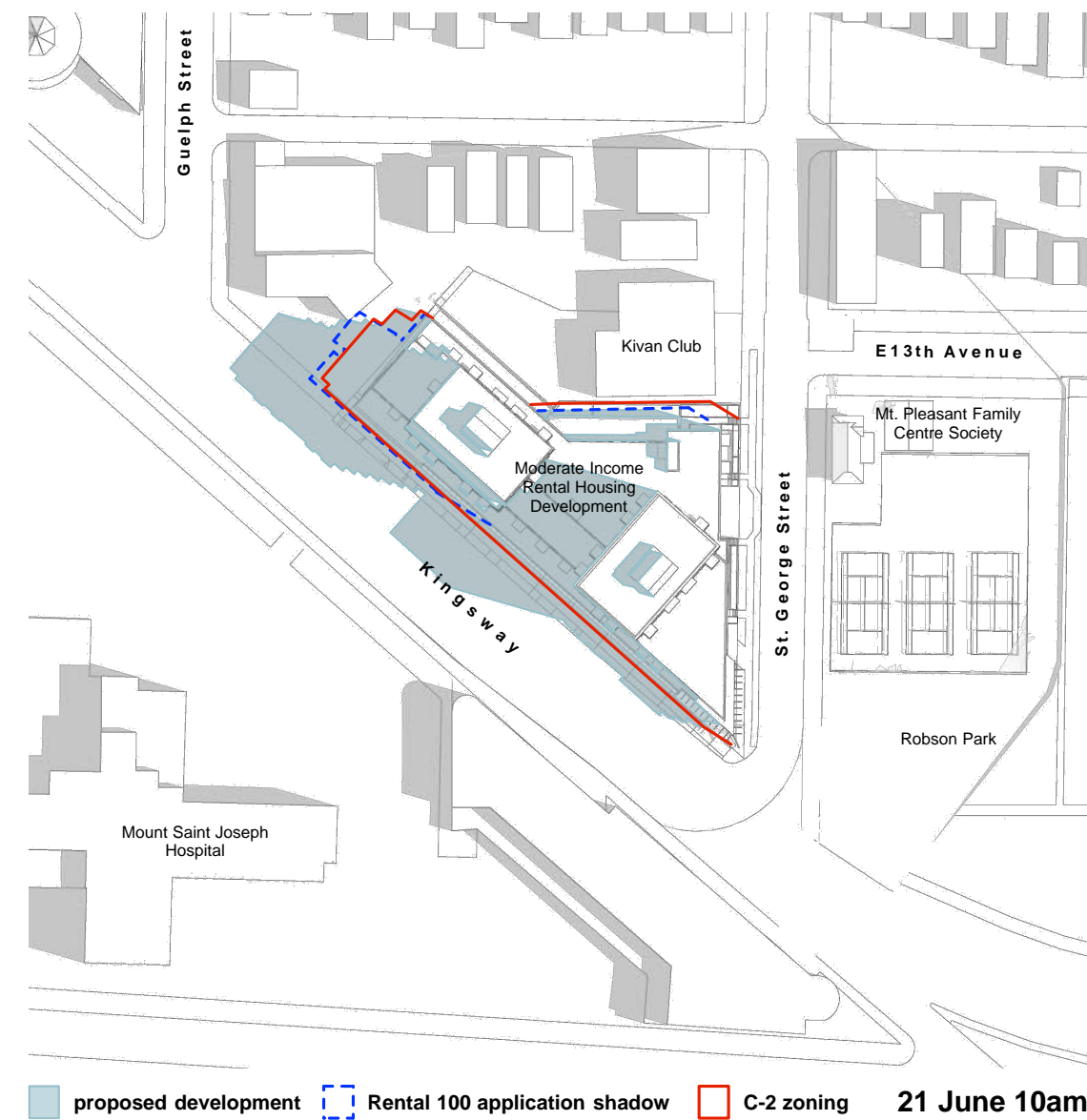
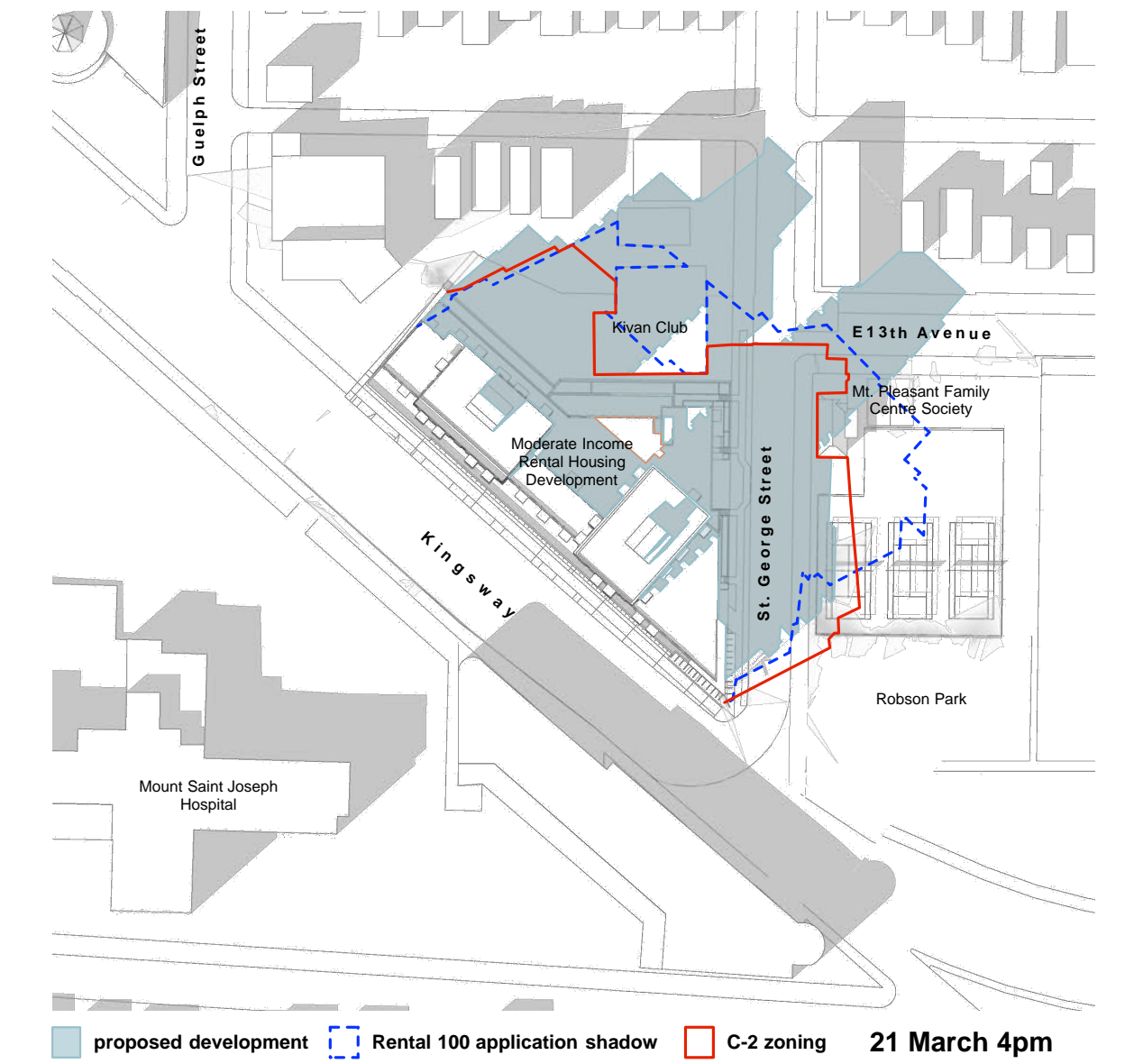
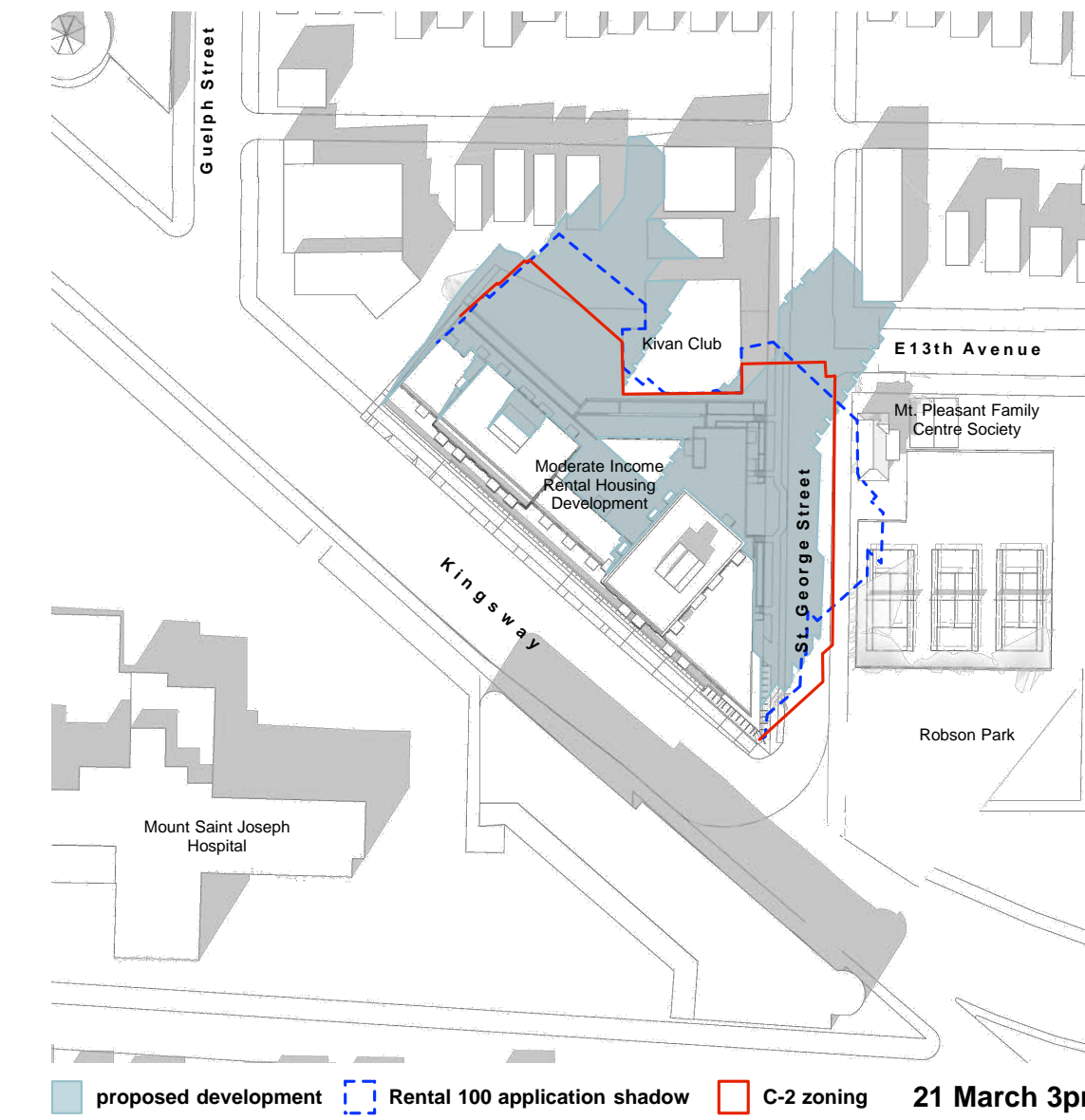
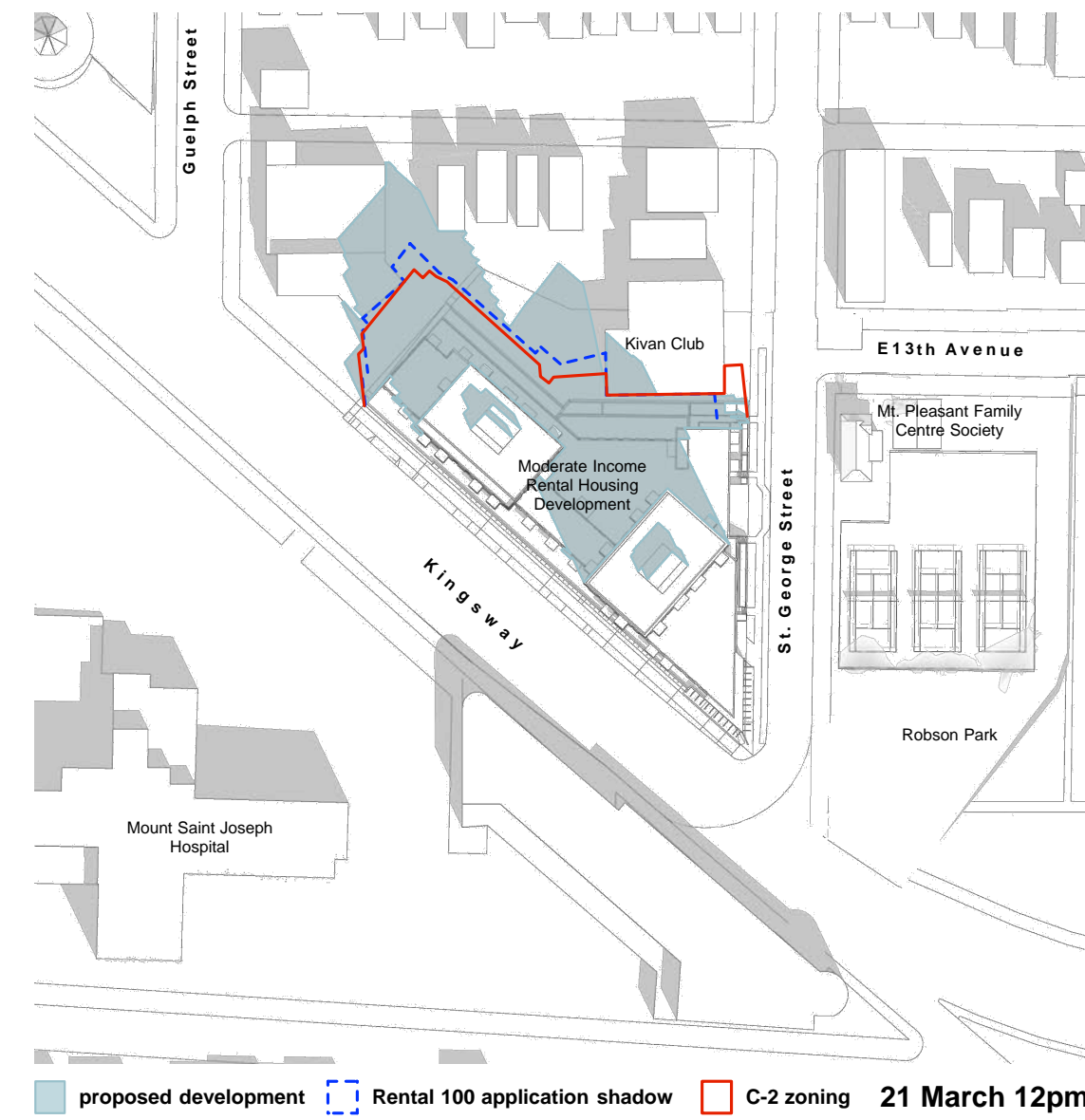
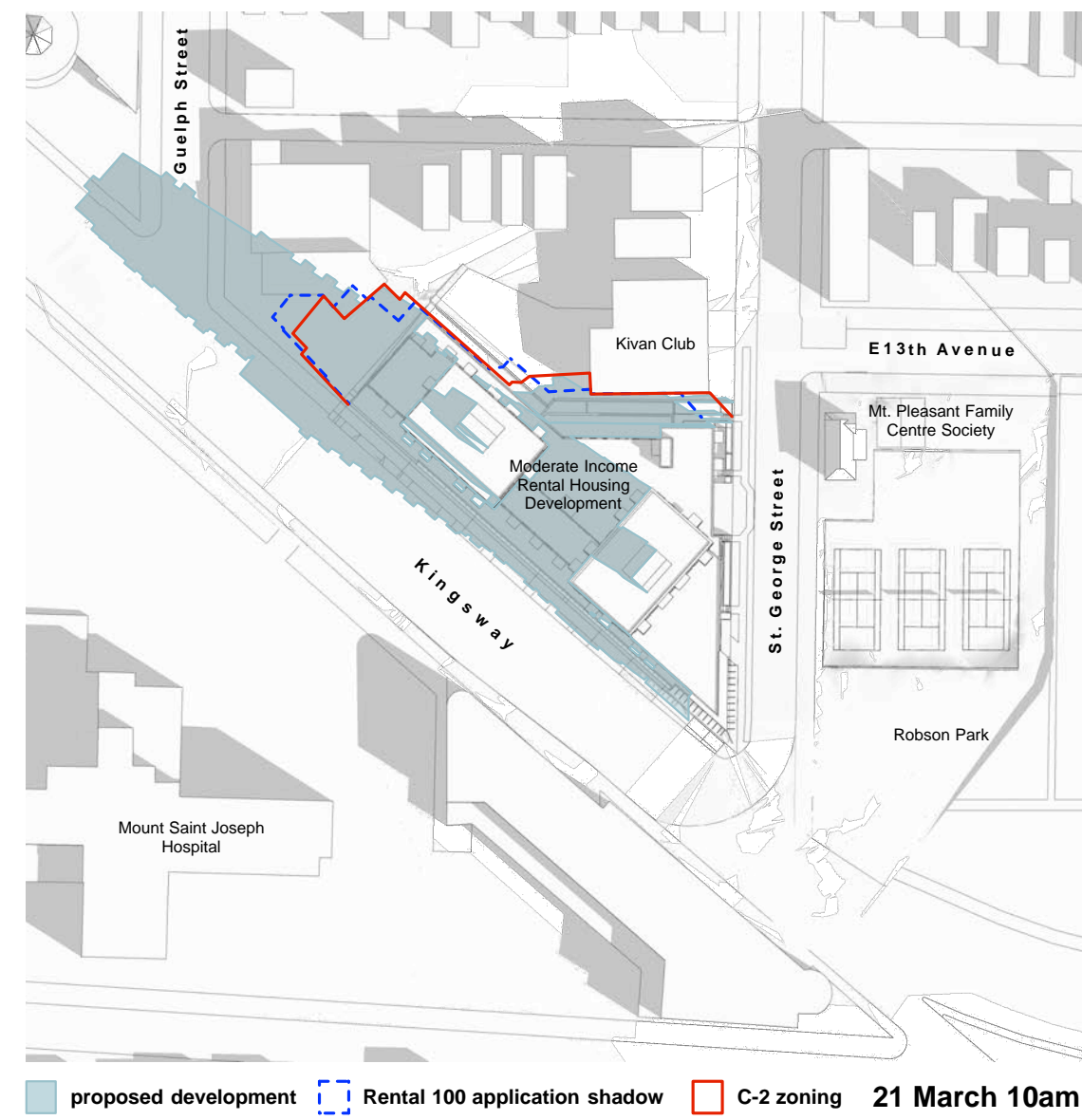
site & context kingsway corridor

7



# Shadow Analysis

The mid-rise towers are spaced 24.2m (79.5') apart for privacy considerations and to reduce shadowing to the neighbouring sites to the north. The southernmost mid-rise tower is rotated 90° to face St. George Street, which reduces shadowing at the park and creates variation of the overall massing. The podium height and massing along St. George Street steps down to the lower height of the neighbouring Kivan Boys and Girls Club further reducing shadowing at the park.



Note: Rental 100 shadow derived from previous Rental 100 application's shadow analysis

## Moderate Income Rental Housing Pilot Program

445 Kingsway & 2935 St. George Street

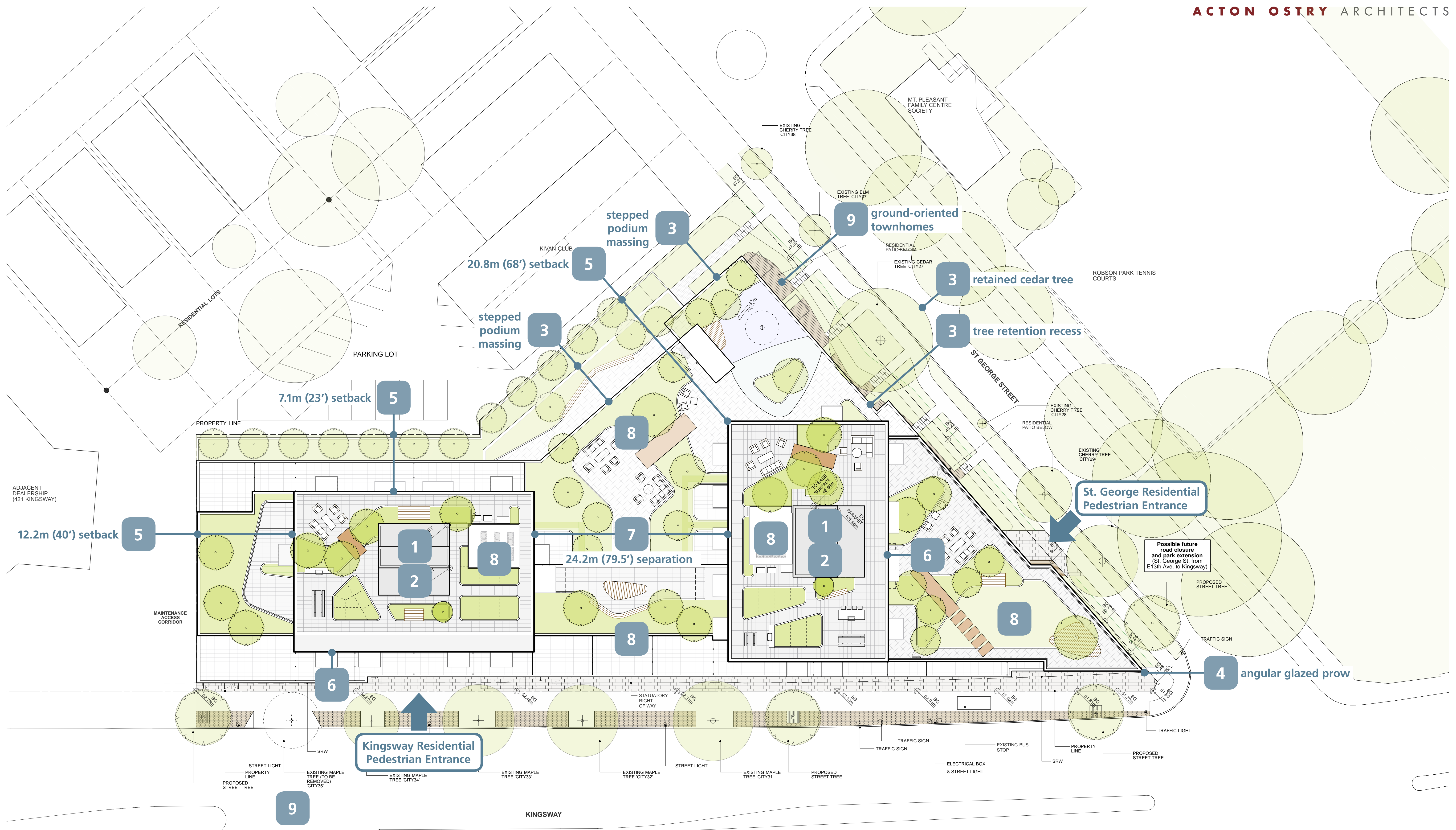


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architectural shadow analysis

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REFER TO ARBORIST REPORT DATED APRIL 15, 2019, UPDATED JUNE 25, 2019

## Moderate Income Rental Housing Pilot Program

445 Kingsway & 2935 St. George Street



2 October 2019

overview design rationale

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# Design Rationale

## 1. Height & Massing

The proposed form of development is a 14-storey, mixed-use building with a 2-storey commercial podium and two 12-storey rental residential mid-rise towers above with an overall building height of 48.88m (160 ft.). The proposed height is in alignment the MIRHPP and with recent 10 to 21-storey mixed-use commercial, market and rental residential developments along the Kingsway corridor

The overall massing features two 12-storey mid-rise tower forms that rise up out of a 3-storey bar of residential use set atop and stepped back from 2-storey commercial podium. There are 2 primary residential entries, one off of St. George Street opposite the park and the other from Kingsway.

## 2. Density

The proposed density above grade is 4.84 FSR, with an additional density of 2.12 FSR proposed below grade for a commercial use carwash and vehicle storage to serve the Kingsway Honda automobile dealership located at Kingsway and East 12th Avenue, for a total density of 6.96 FSR included area.

## 3. Massing - podium

The podium height and massing along St. George Street steps down to the lower height of the neighbouring Kivan Boys and Girls Club. The St. George Street podium is a finer grain massing with ground-oriented residential townhouses and a recess for retention of a large Western Red Cedar.

## 4. Massing - commercial

The commercial massing features a striking, angular glazed prow that wraps the flatiron corner at the intersection of Kingsway and St. George Street. The commercial space along Kingsway features extensive storefront glazing to accommodate a variety of retail sizes and uses.

## 5. Setbacks

The westernmost Kingsway mid-rise tower is located 12.2m (40 ft.) away from the adjacent site to provide a transition to the neighbouring buildings. The mid-rise towers are set back from the north property line 7.1m (23 ft.) and 20.8m (68 ft.). The landscaped setback will provide buffering for the neighbouring properties to the north and enhance livability for rental housing residents through provision of common outdoor amenity spaces above the commercial podium with views to Robson Park and a large Western Red Cedar to be retained at St. George Street.

## 6. Siting & Orientation

Varied massing forms and heights reduce shadowing at Robson Park and neighbouring properties.

The westernmost mid-rise rental tower is oriented toward Kingsway to establish a strong street wall presence along the Kingsway corridor. The southernmost mid-rise tower is rotated 90° to face St. George Street, which reduces shadowing at the park and creates variation of the overall massing. Residential penthouse levels are stepped back for additional articulation and reduction of shadowing.

## 7. Separation

The mid-rise towers are spaced 24.2m (79.5') apart for privacy considerations and to reduce shadowing to the neighbouring sites to the north.

## 8. Outdoor Amenity

The landscaped setbacks will provide buffering for the neighbouring properties to the north and enhance livability for rental housing residents through provision of common outdoor amenity spaces above the commercial podium with views to Robson Park. Levels 3, 6 and roof feature outdoor amenity space oriented toward St. George Street and Robson Park.

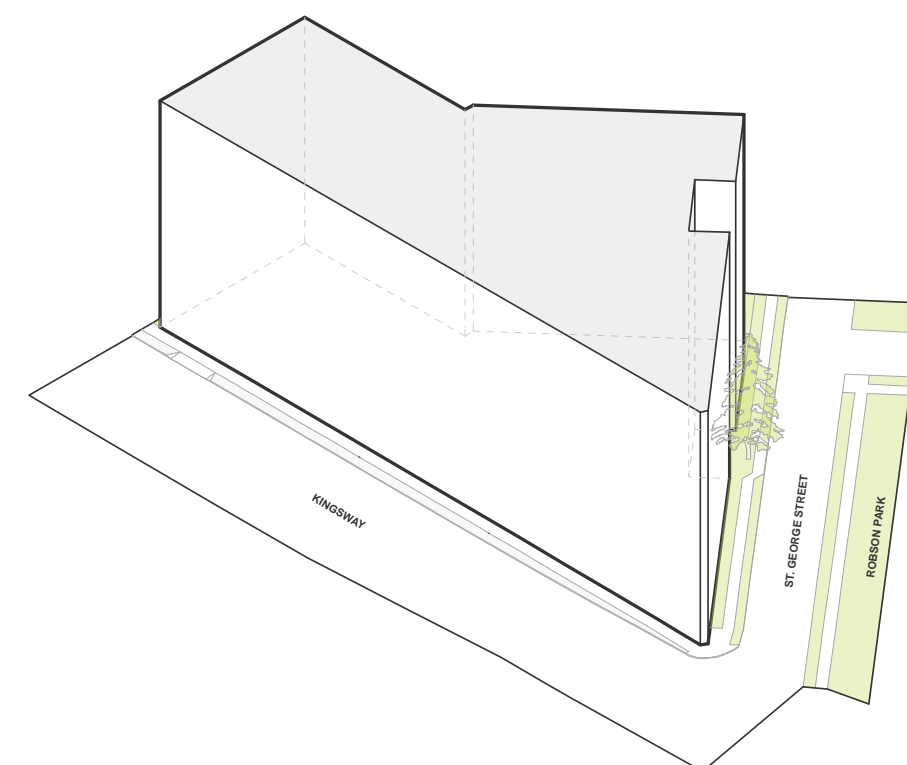
## 9. Parking & Loading

Five levels of underground parkade are proposed. The entry to the underground parkade is located on Kingsway at the southwest corner of the site and will feature a controlled intersection to be aligned with the existing Mount St. Joseph Hospital parking entry.

The location of the parkade access provides increased residential density on St. George Street. In particular, ground-oriented multi-level townhouses directly across from Robson Park.

The rezoning will support a City proposal for alterations to St. George Street to prevent traffic access from the proposed development into the adjacent residential neighbourhood to the north.

### siting & orientation



#### rental density

- maximize rental density within MIRHPP policy height
- retain significant existing tree @ St. George St.

#### setbacks

- substantial upper level setbacks minimize shadowing at park

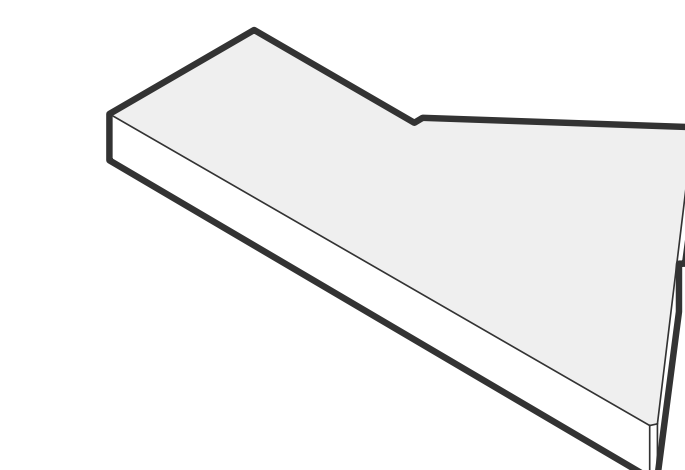
#### Separation

- breakup continuous street wall above 6 storeys
- further reduction of shadowing on neighbouring sites

#### Refinement

- further articulation to respond to the SRW at Kingsway
- further reduction of overlook and shadowing
- refinement of architectural expression

### setbacks & separation



#### commercial base

- continuous retail street frontage

#### residential podium

- setback residential streetwall

#### mid-rise residential

- Kingsway oriented mid-rise residential

#### orientation

- southernmost mid-rise form rotated 90° to minimize shadow in Robson Park and provide variation to massing and form of development

## Moderate Income Rental Housing Pilot Program

445 Kingsway & 2935 St. George Street

2 October 2019

overview design rationale

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aerial view looking northward to 'Uptown' Mount Pleasant



street level view at Kingsway and St. George Street



ground level view looking southward at St. George Street



aerial view looking westward from Robson Park

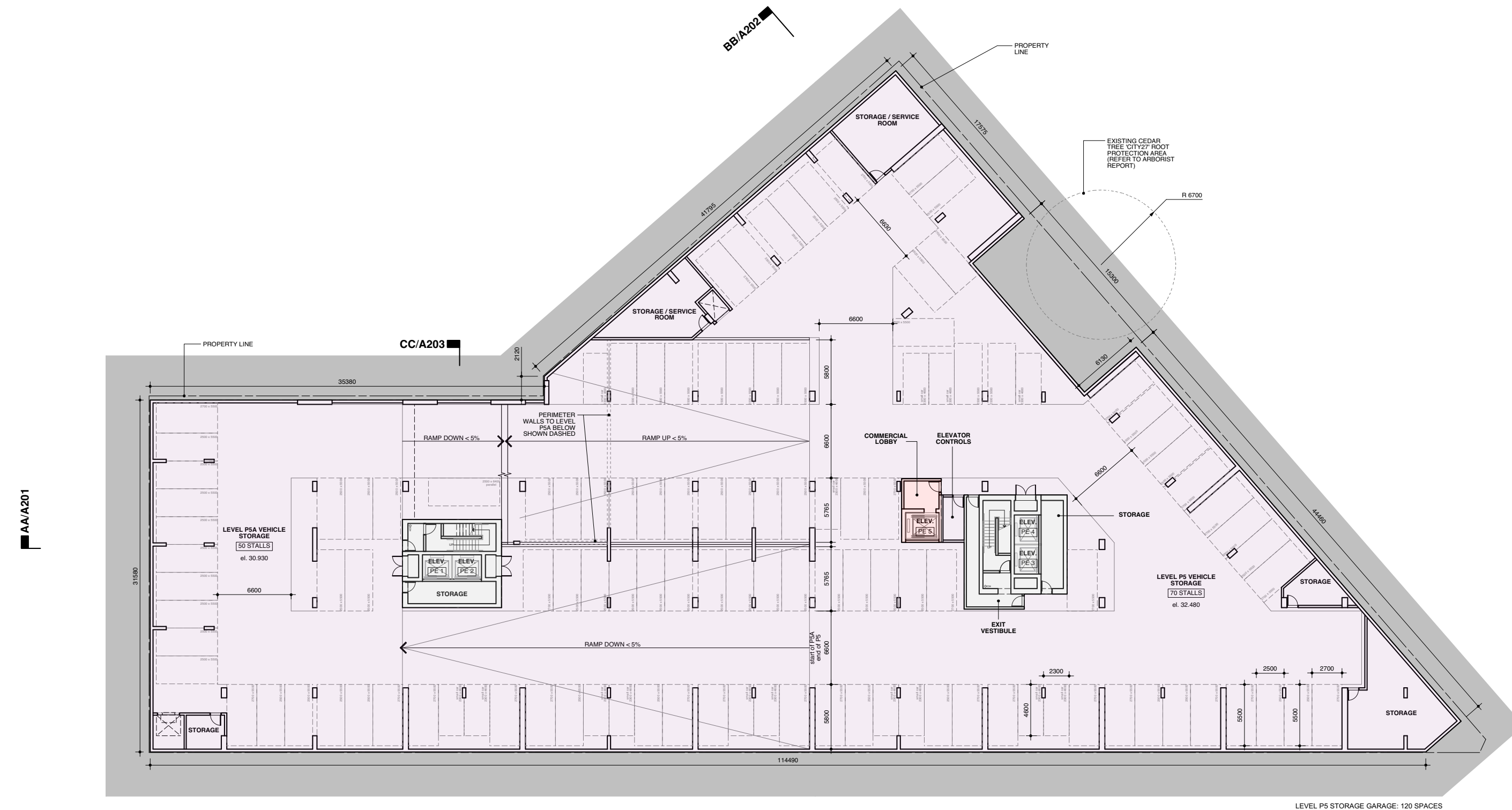
## Moderate Income Rental Housing Pilot Program

445 Kingsway & 2935 St. George Street

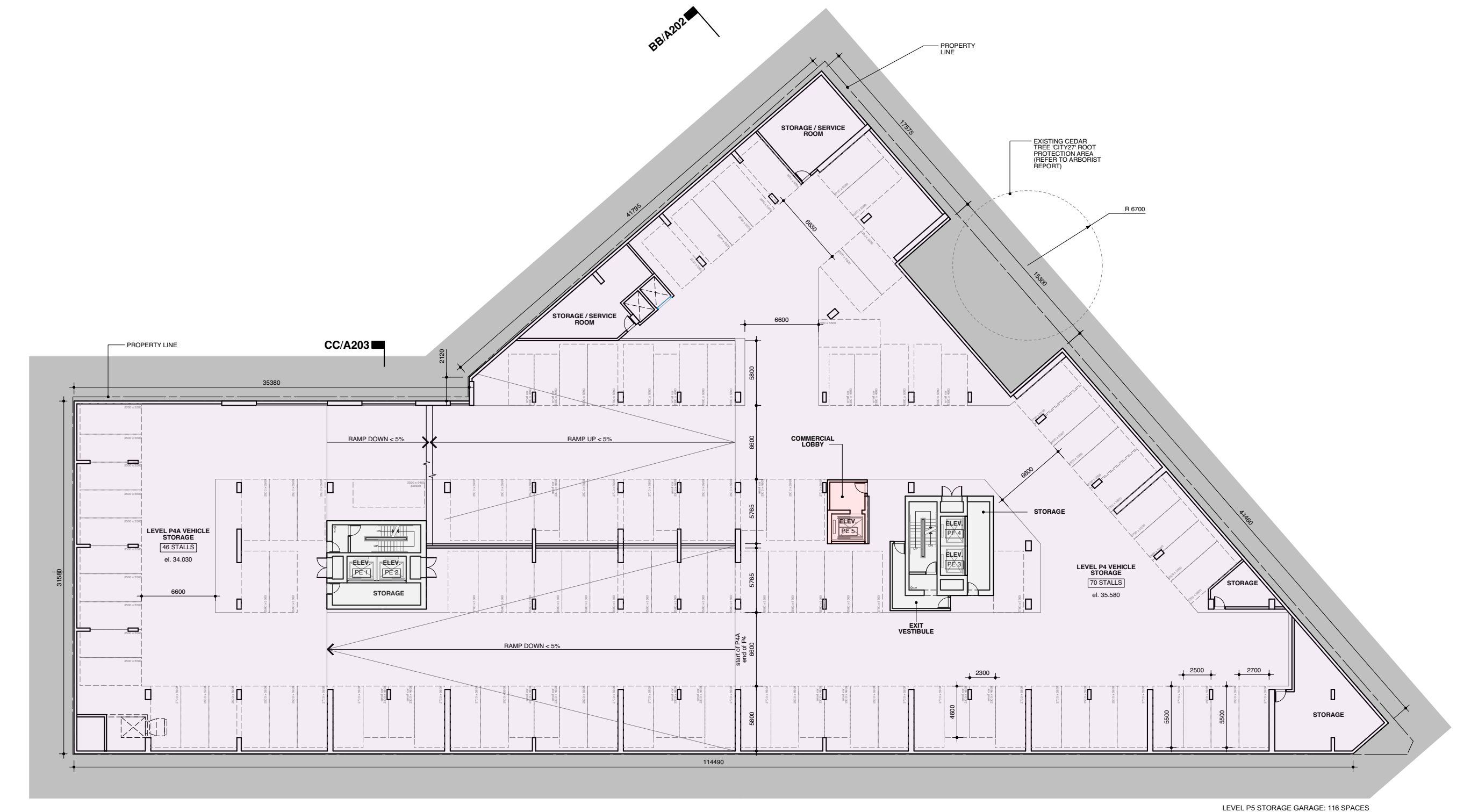
2 October 2019

architectural perspective views

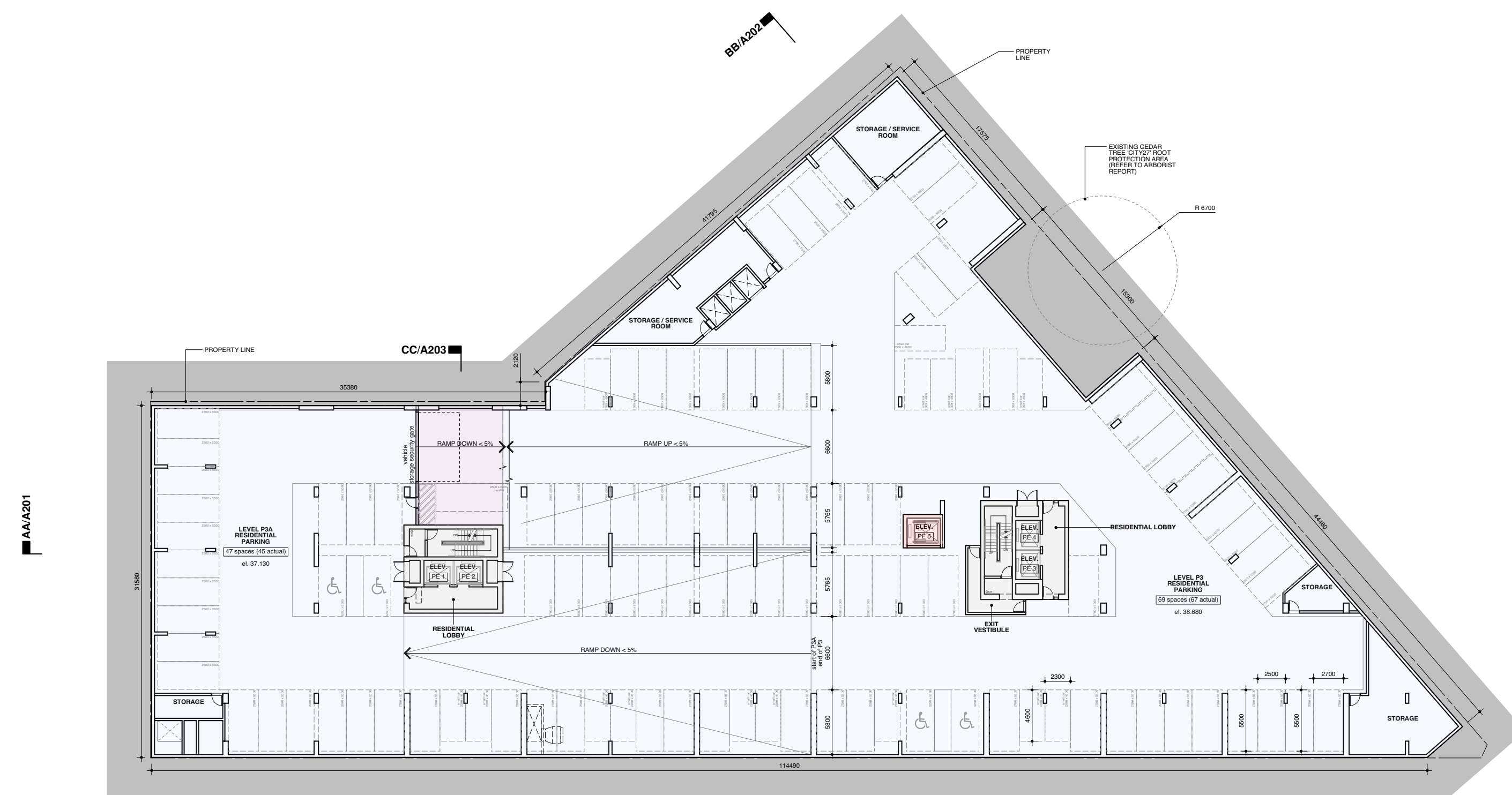




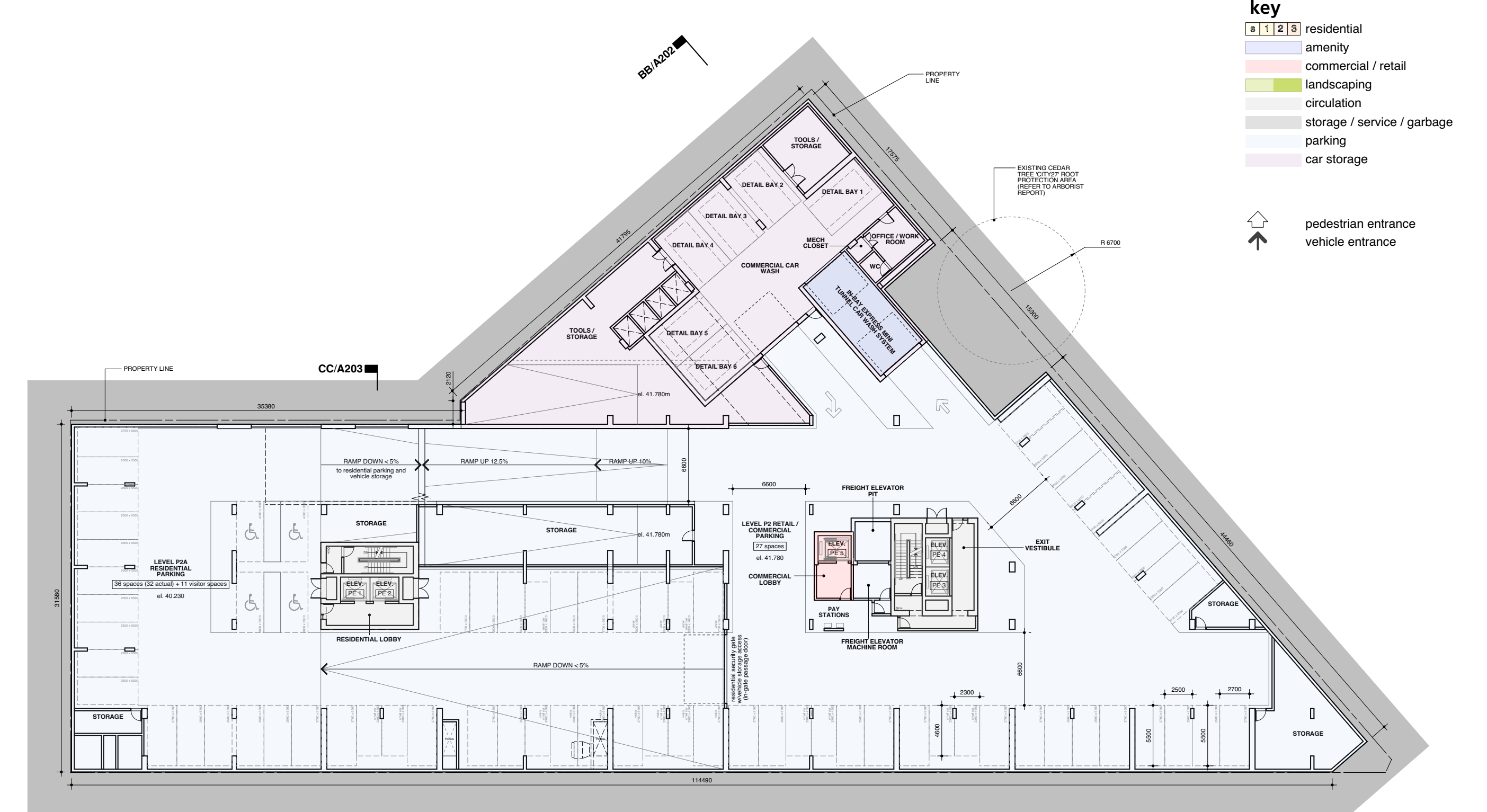
level P5 - commercial vehicle storage



level P4 - commercial vehicle storage



level P3 - rental residential parking

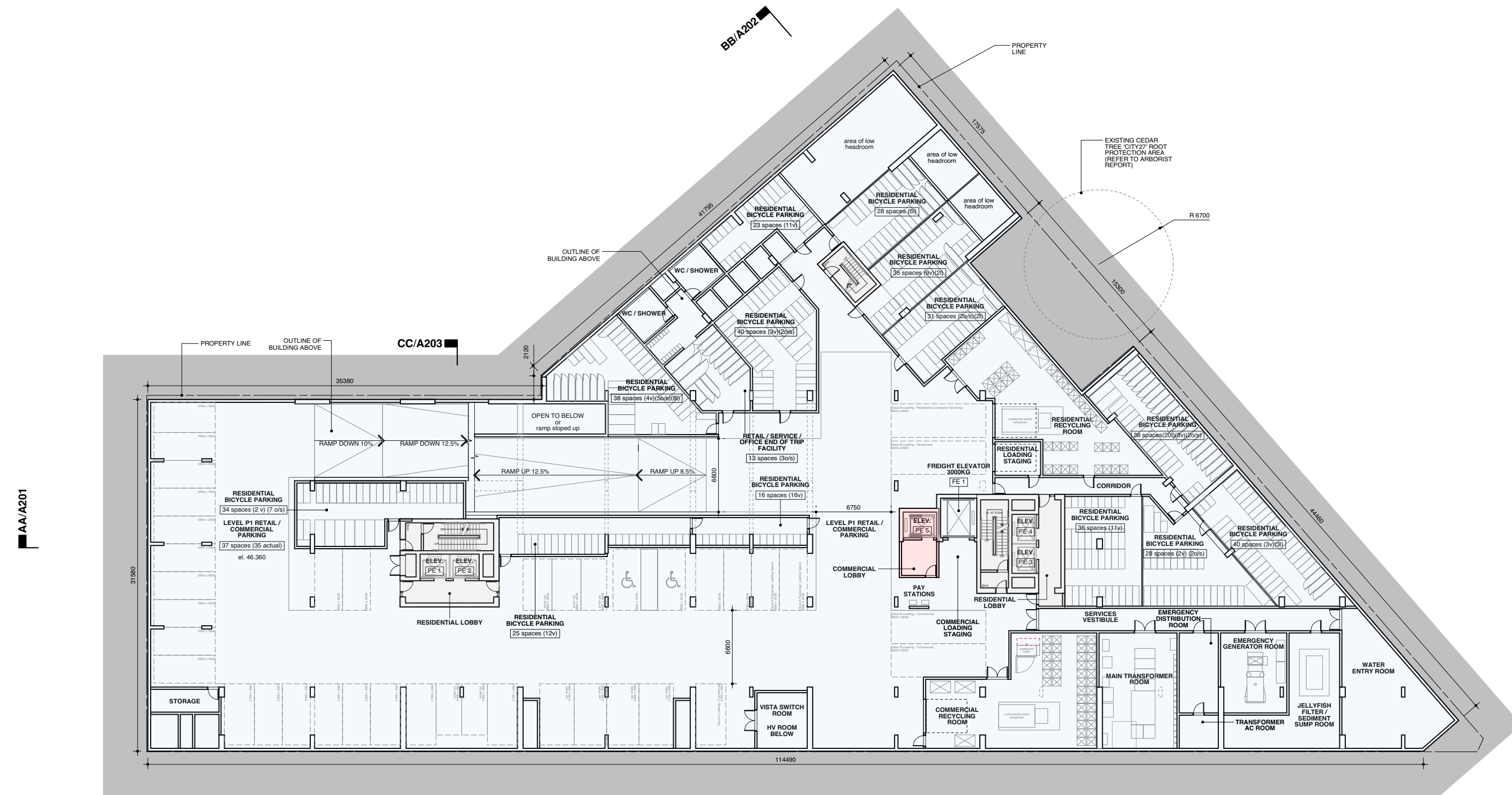


level P2 - rental residential / commercial parking and commercial car wash

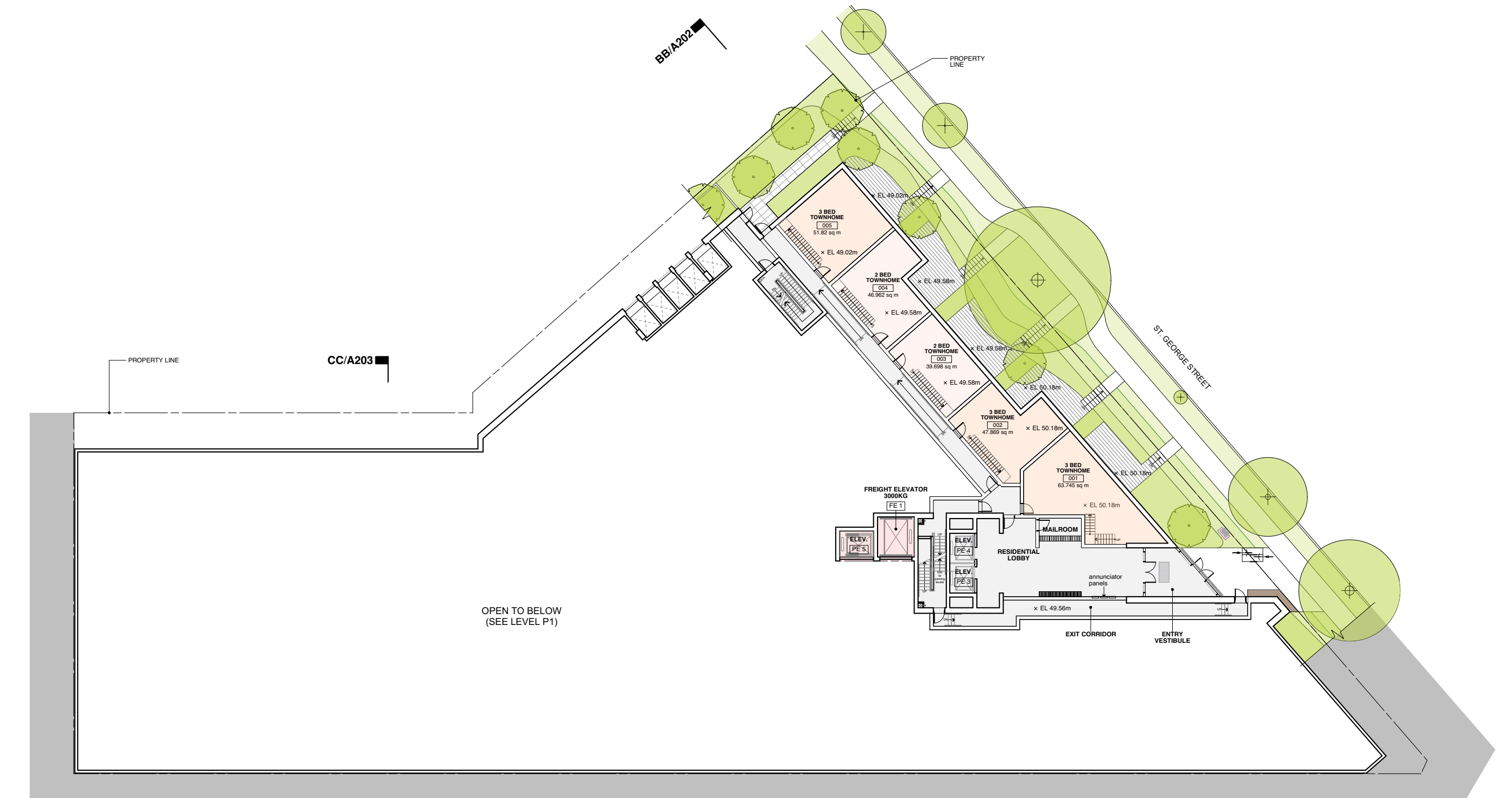
- key**
- 1 residential
  - 2 amenity
  - 3 commercial / retail
  - 4 landscaping
  - 5 circulation
  - 6 storage / service / garbage
  - 7 parking
  - 8 car storage
- pedestrian entrance  
vehicle entrance



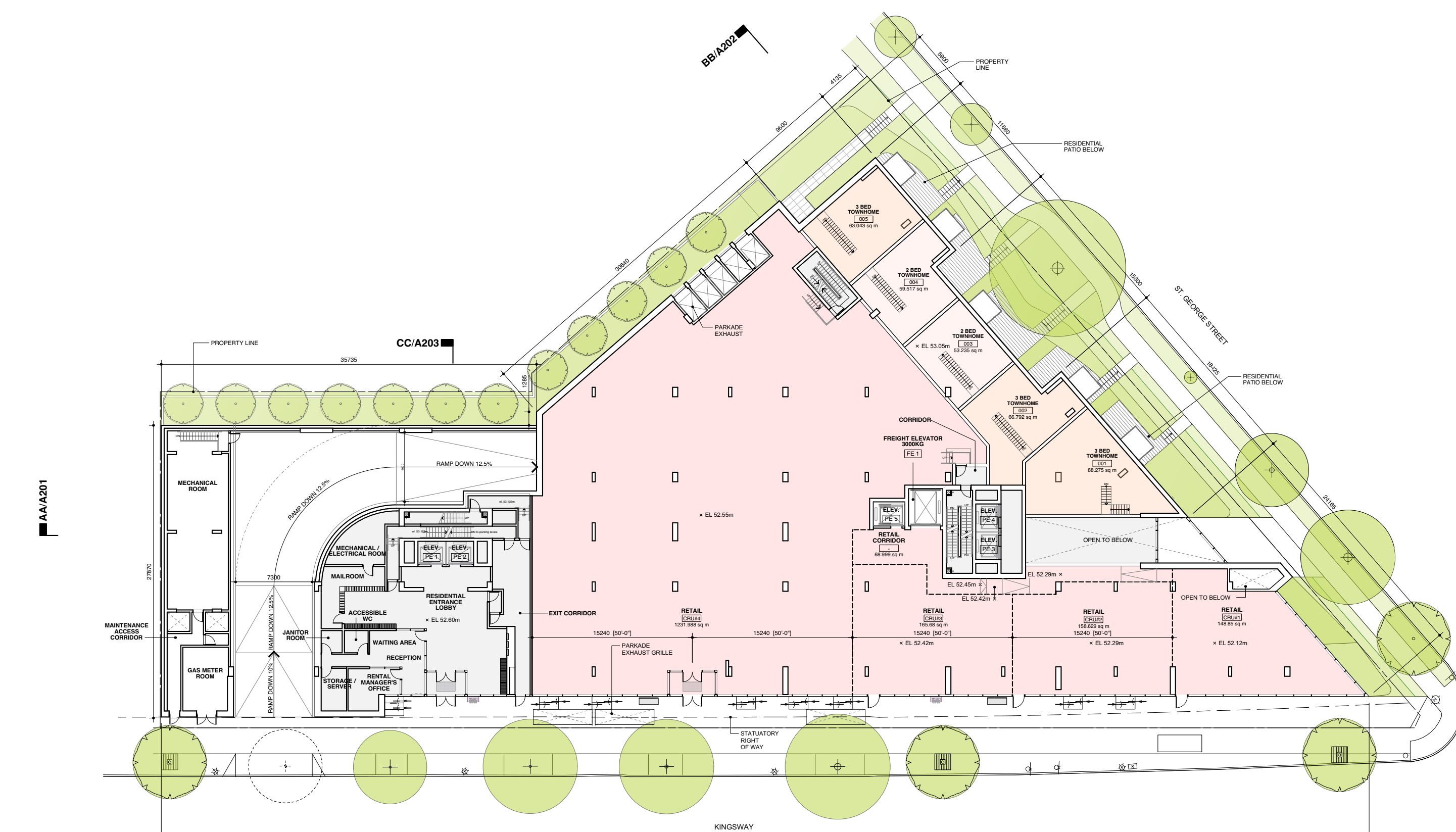




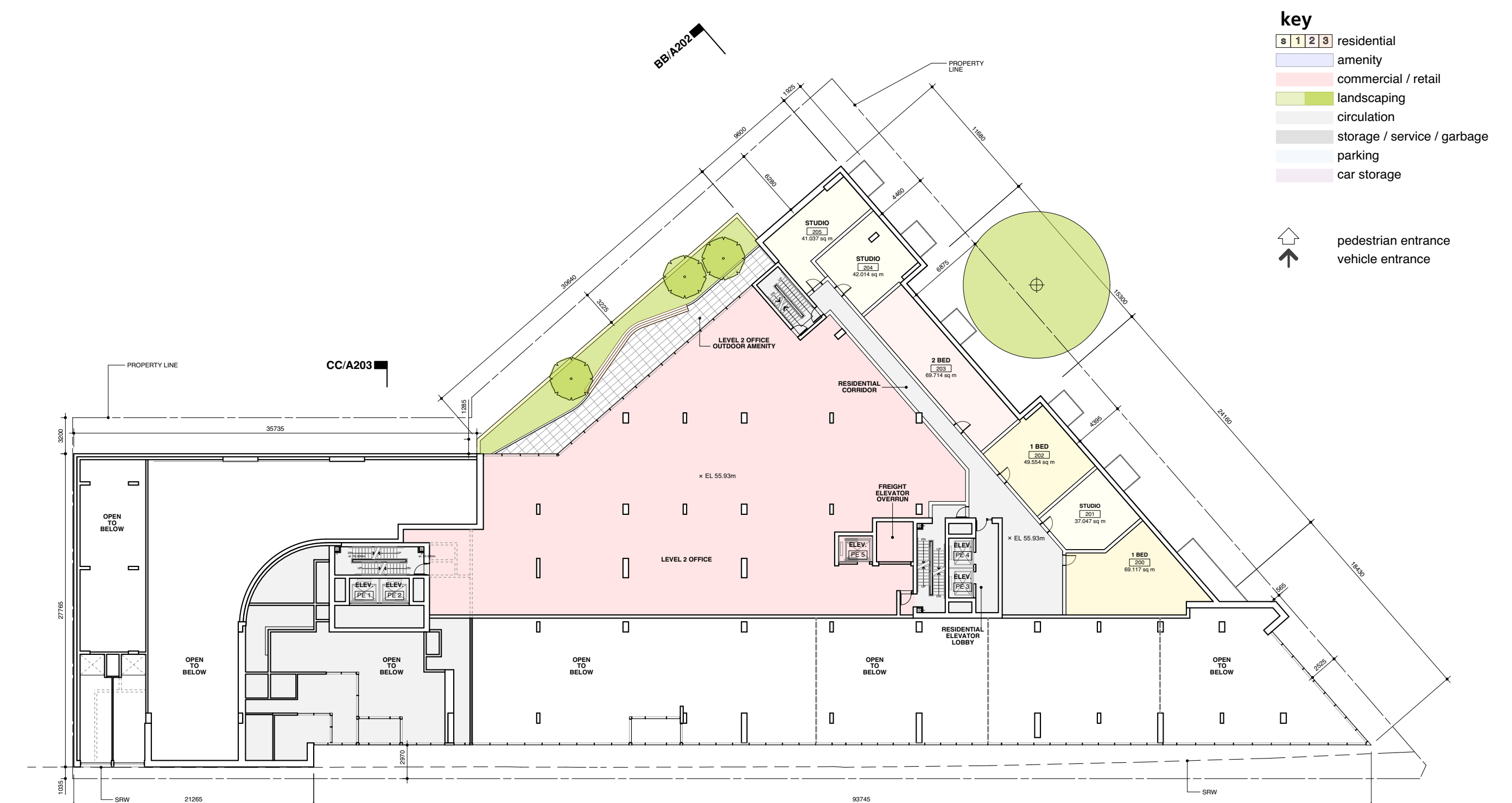
level P1 - commercial parking and loading / rental residential bicycle parking and services



level 1 - St. George Street rental residential entrance



level 1 - Kingsway rental residential and commercial entrance



level 2 - rental residential and office

Moderate Income Rental Housing Pilot Program

445 Kingsway & 2935 St. George Street

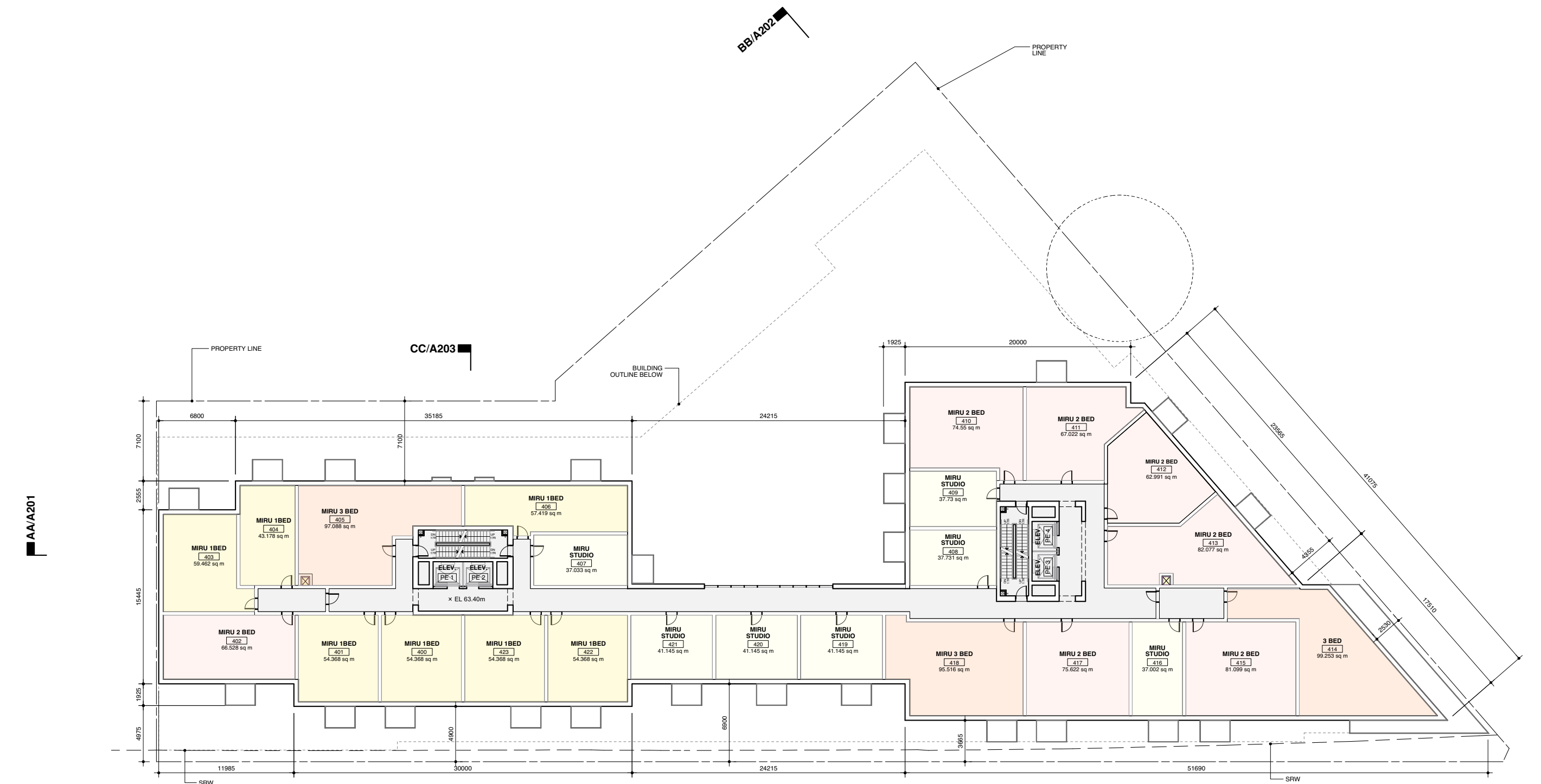


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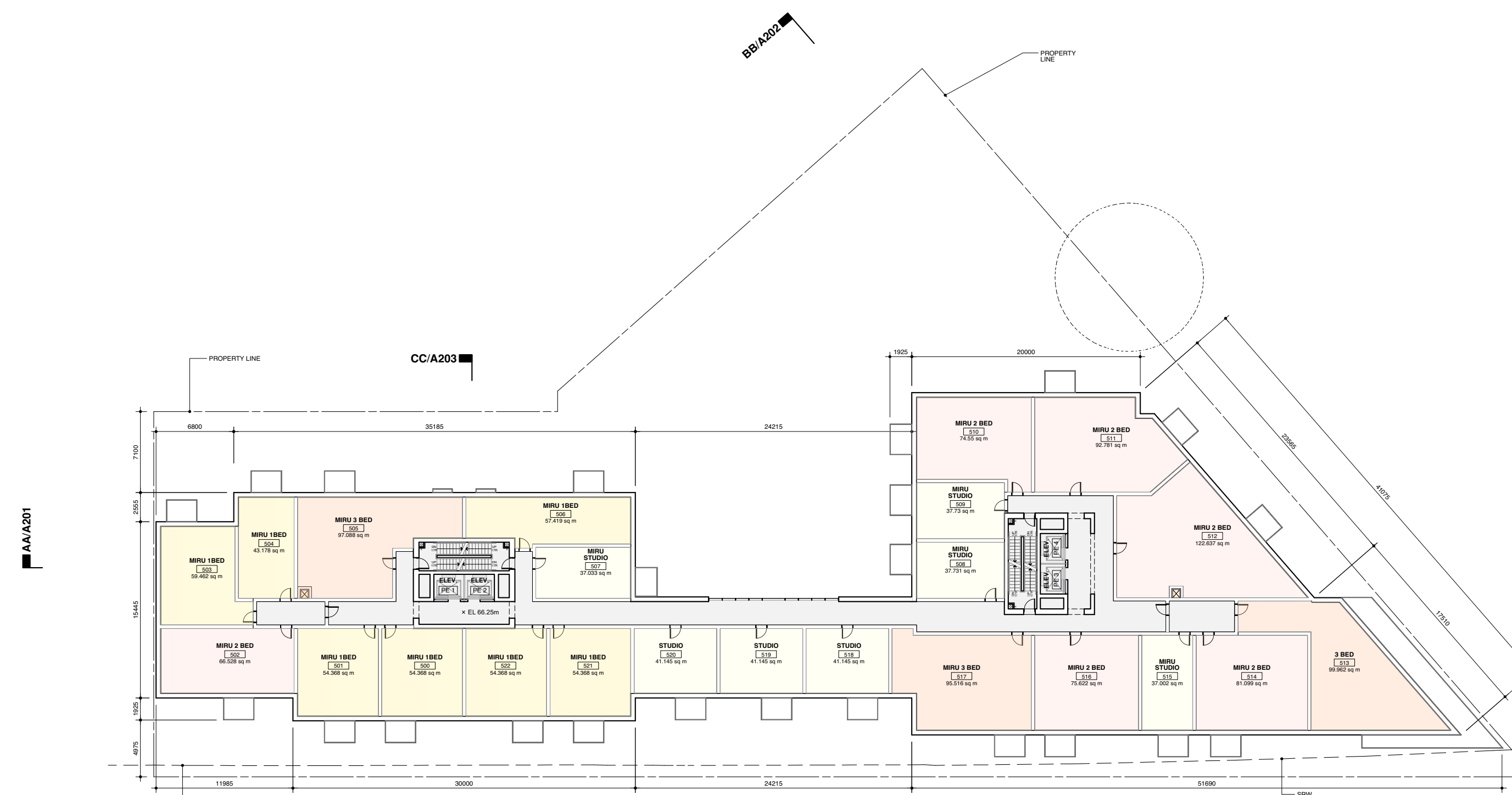




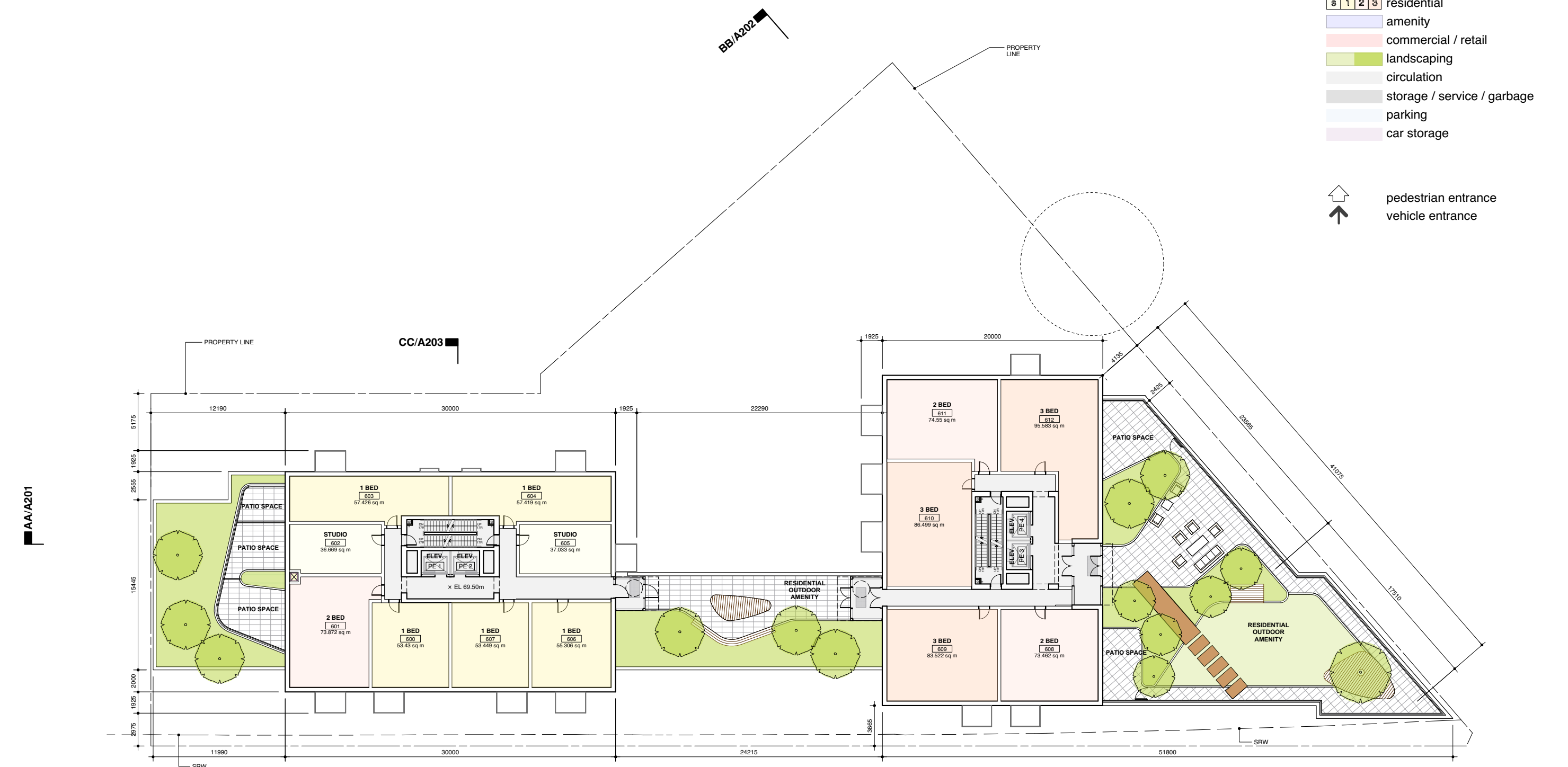
level 3 - rental residential and amenity



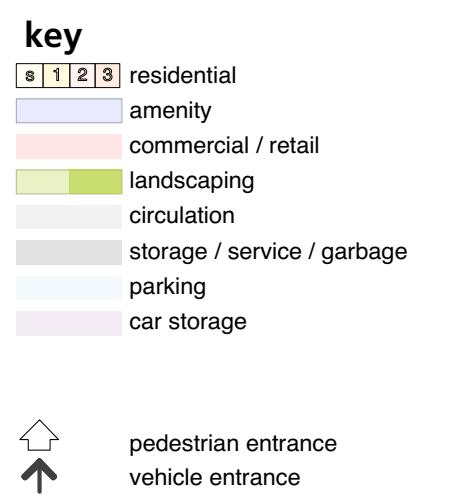
level 4 - rental residential



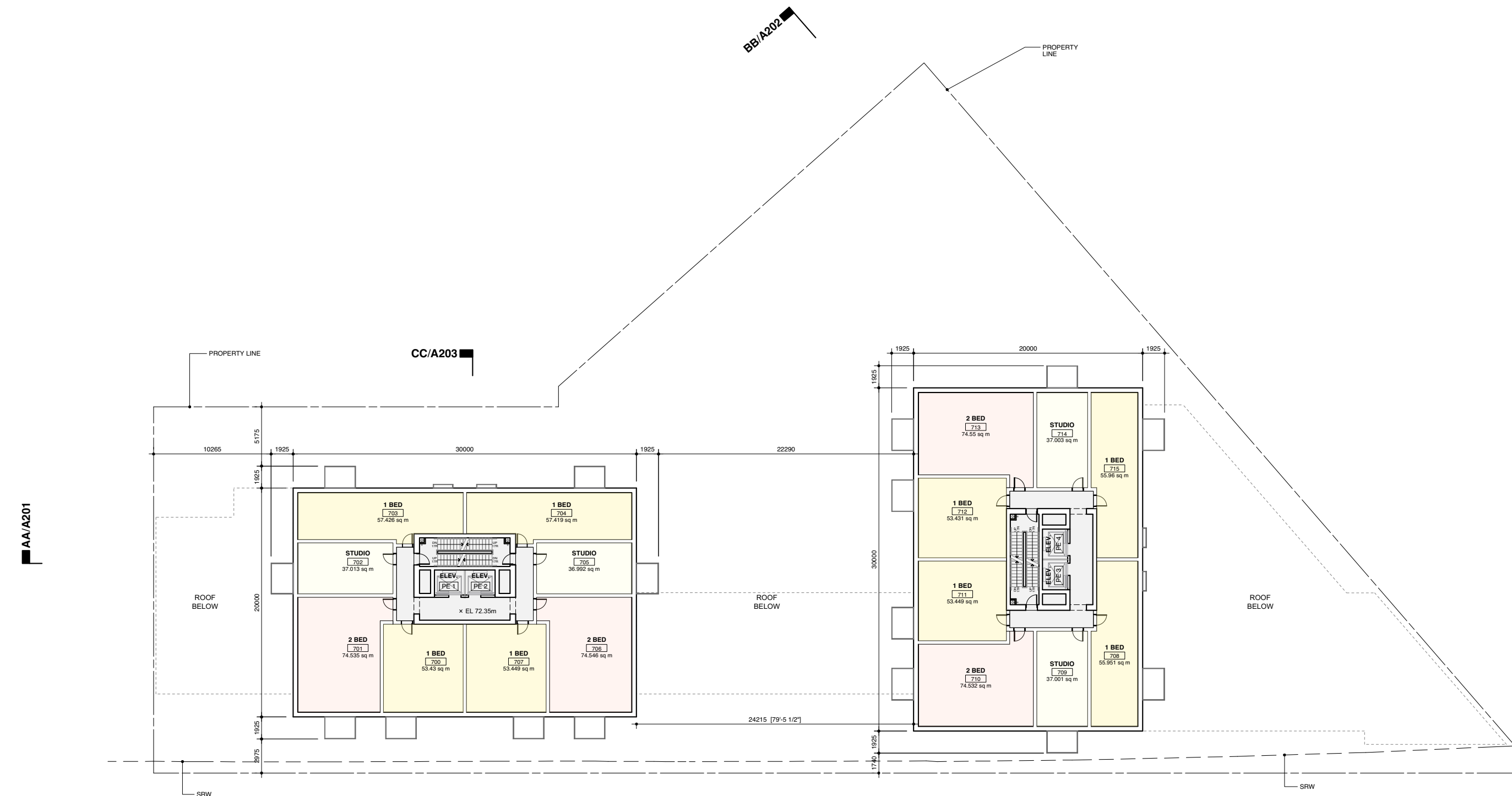
level 5 - rental residential



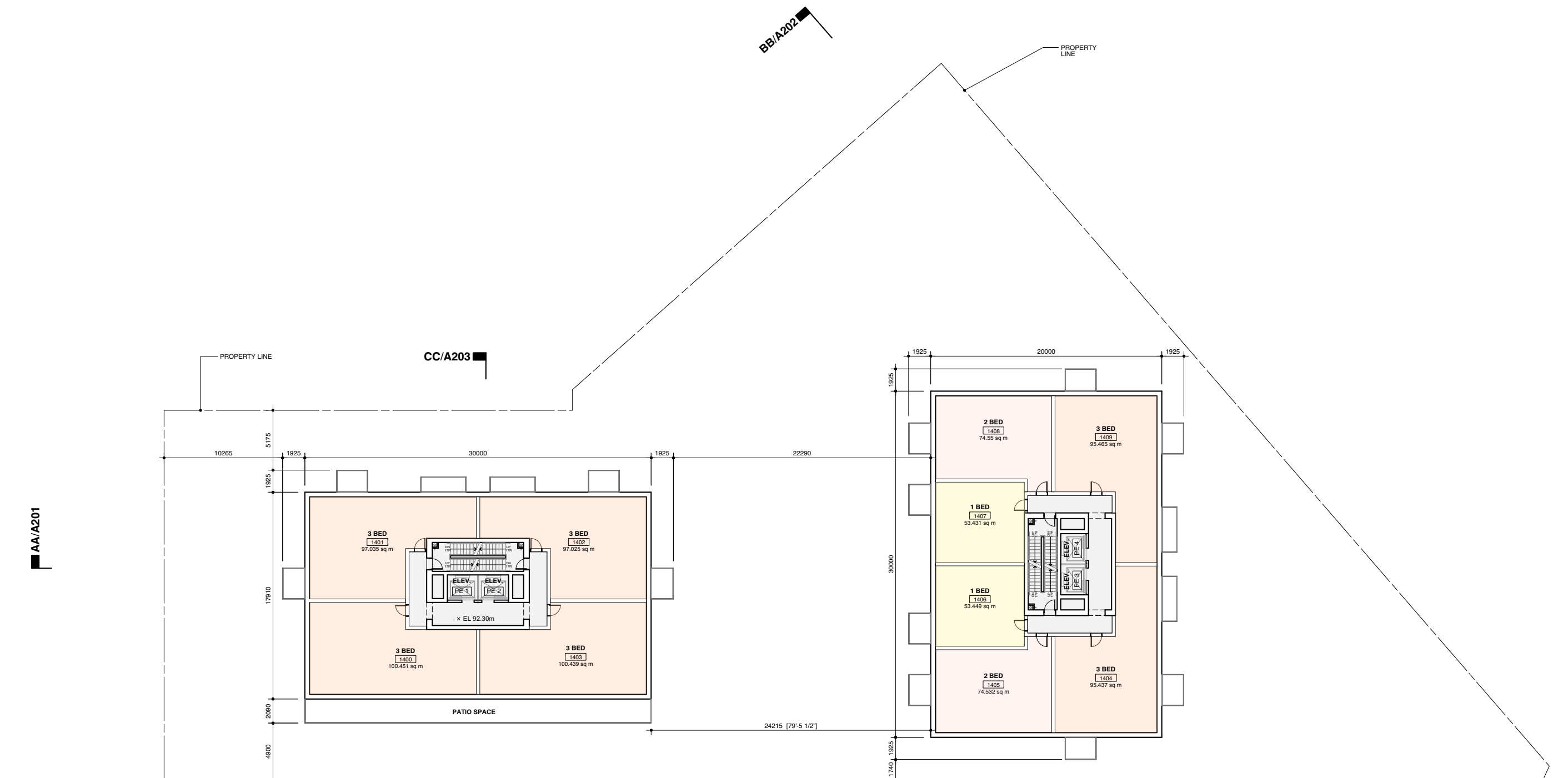
level 6 - rental residential



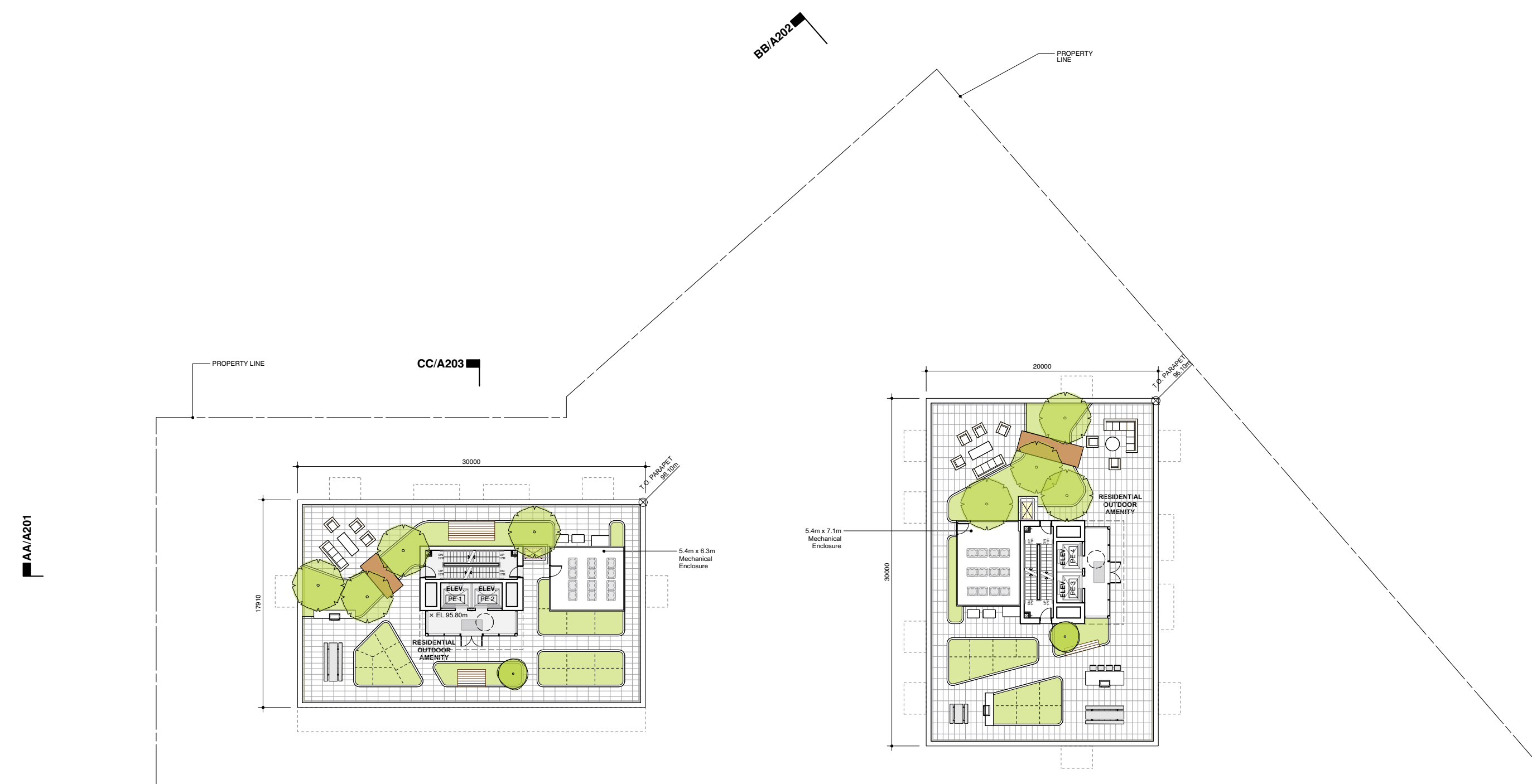




level 7-13 - rental residential



level 14 - rental residential

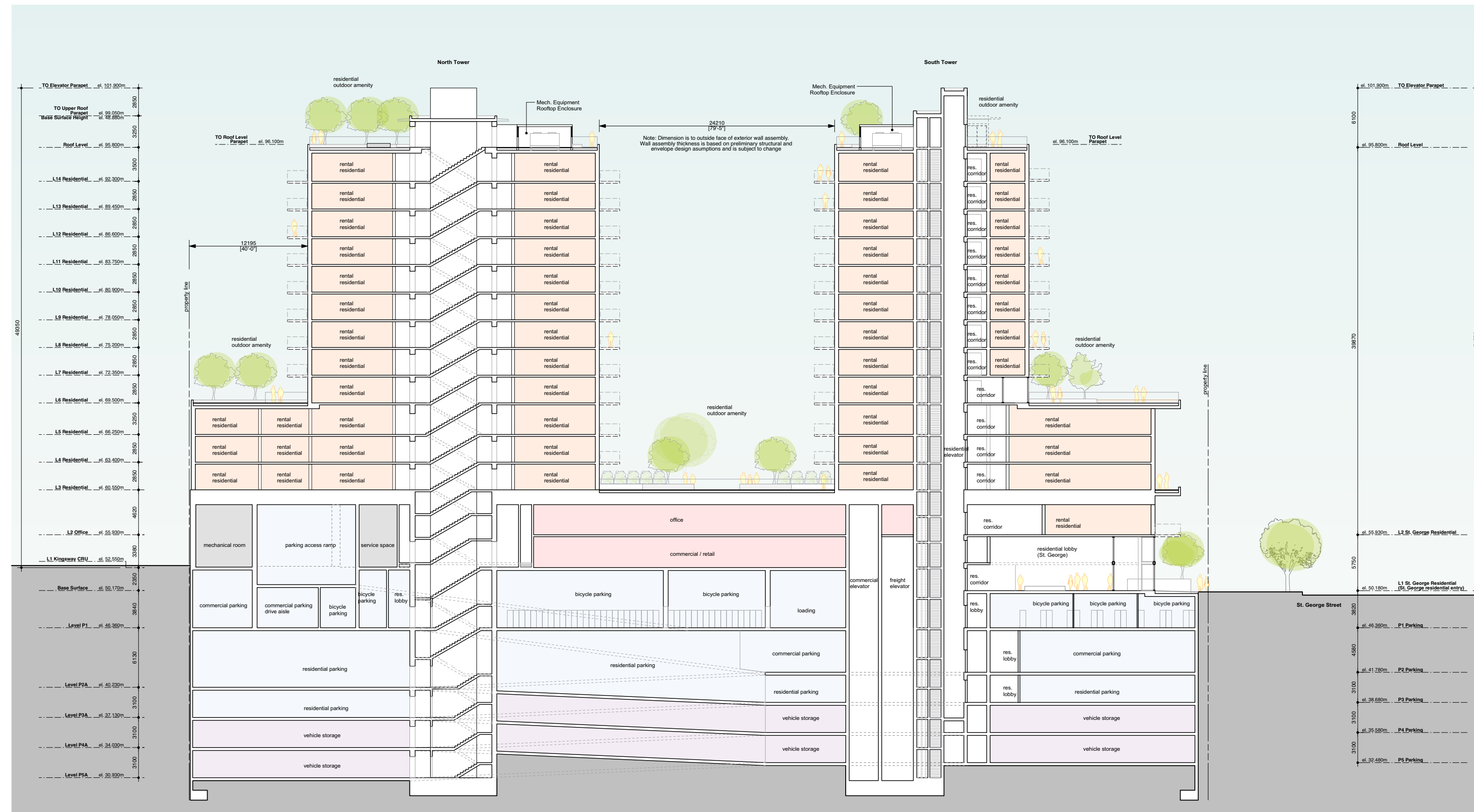


roof level - rental residential

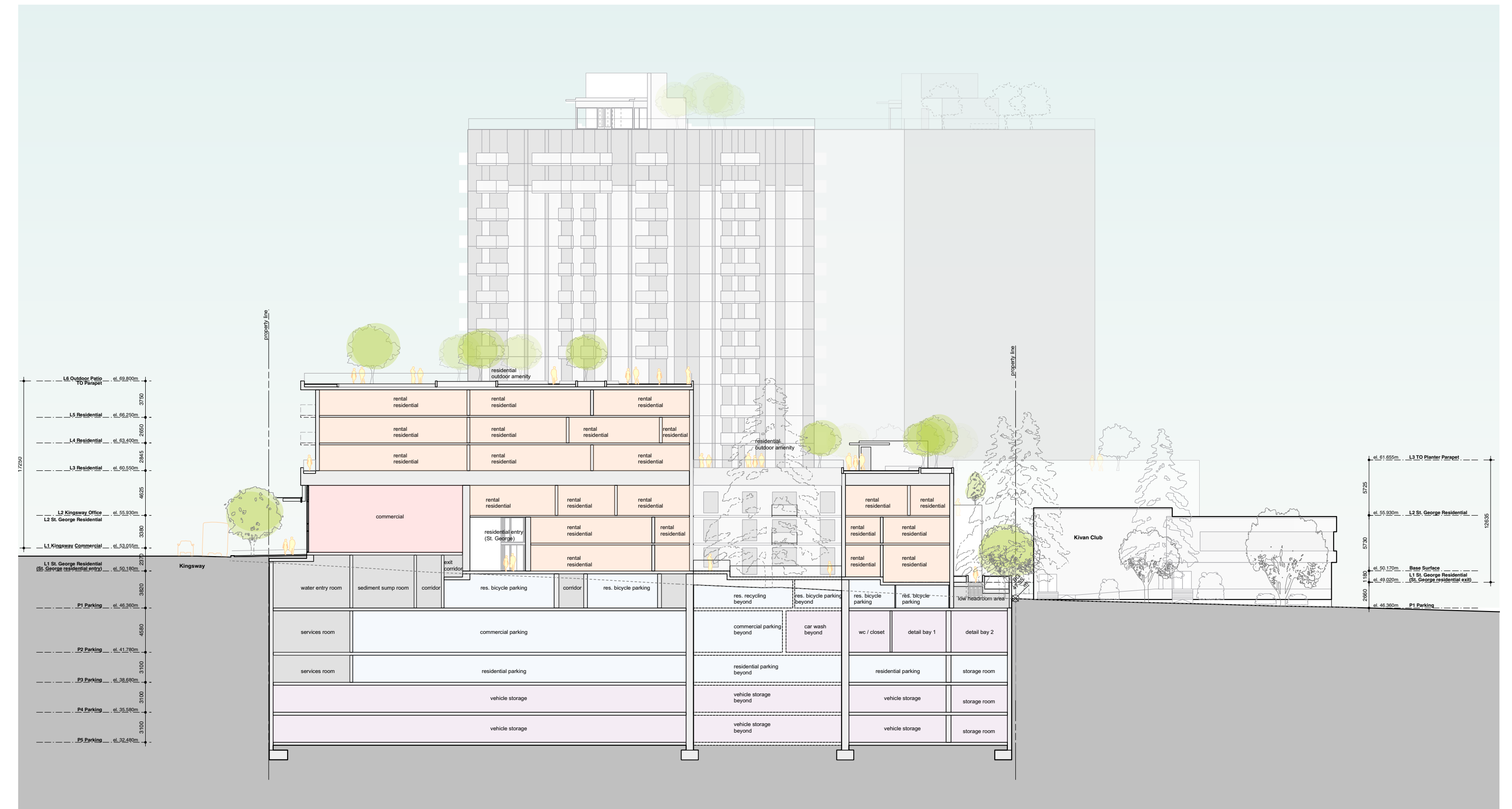


all roof levels

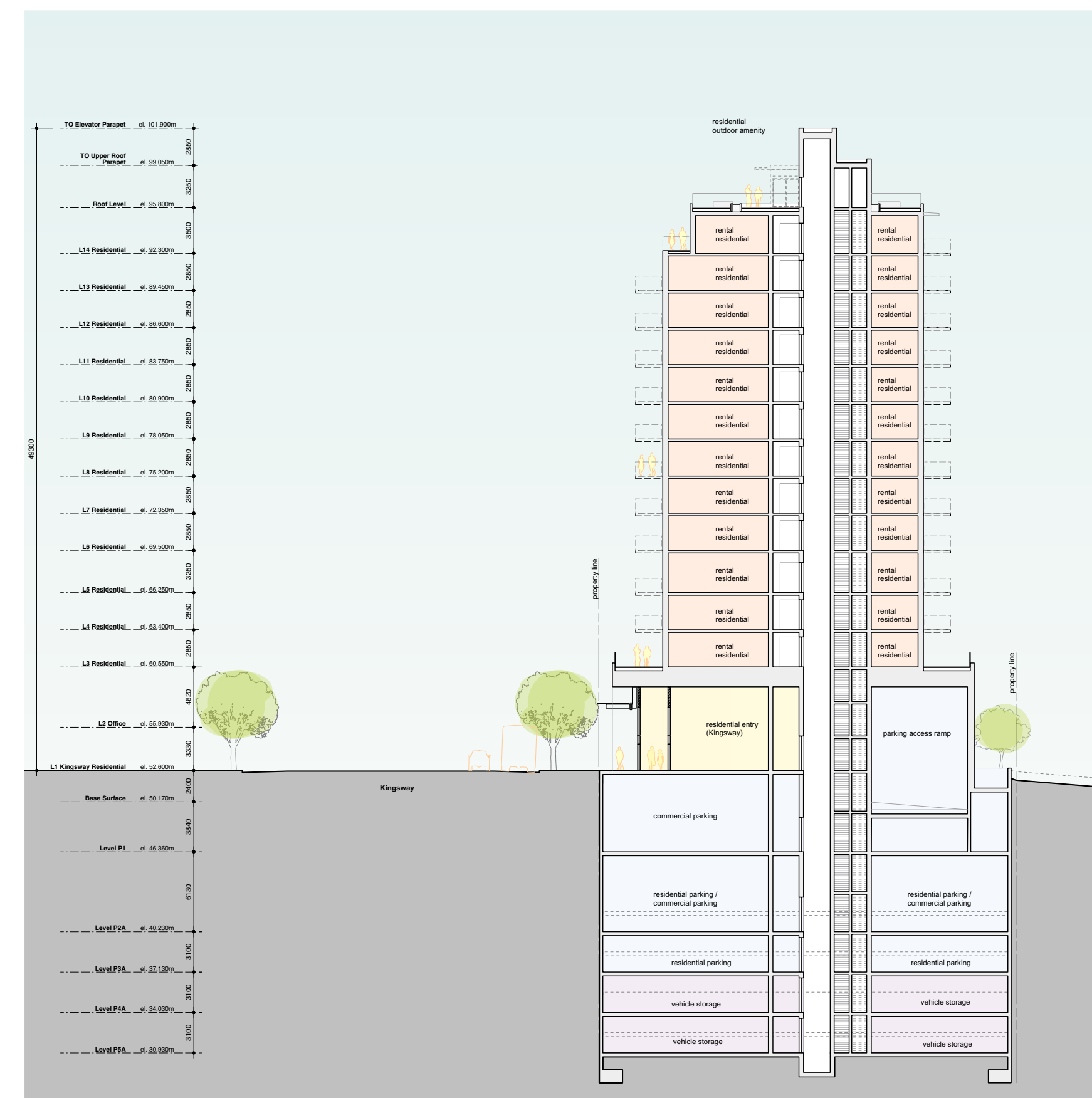




section AA



section BB



section CC

- key**
- 1 residential
  - 2 amenity
  - 3 commercial / retail
  - 4 landscaping
  - 5 circulation
  - 6 storage / service / garbage
  - 7 parking
  - 8 car storage
- pedestrian entrance  
 vehicle entrance





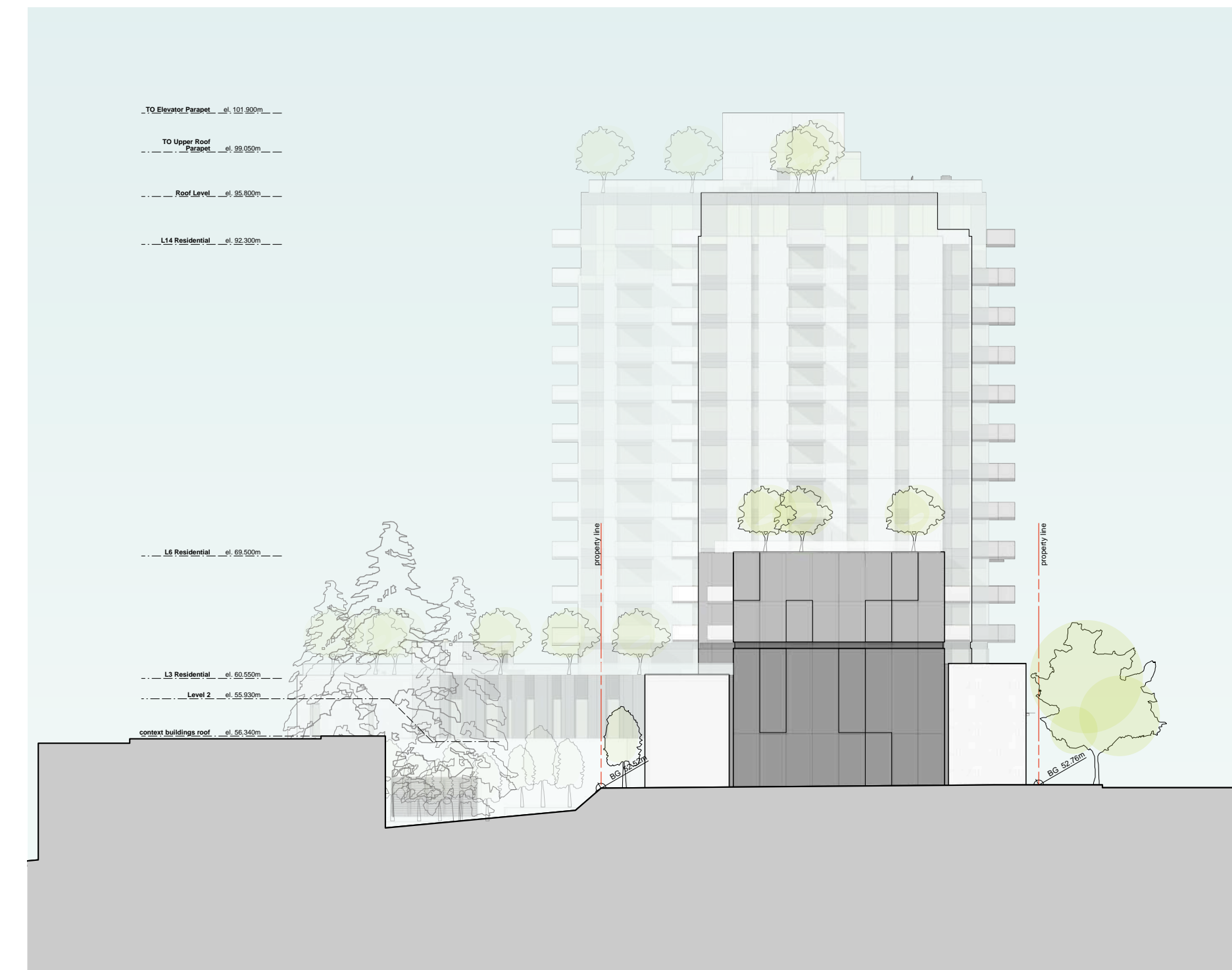
### Kingsway elevation



### St. George elevation



north elevation



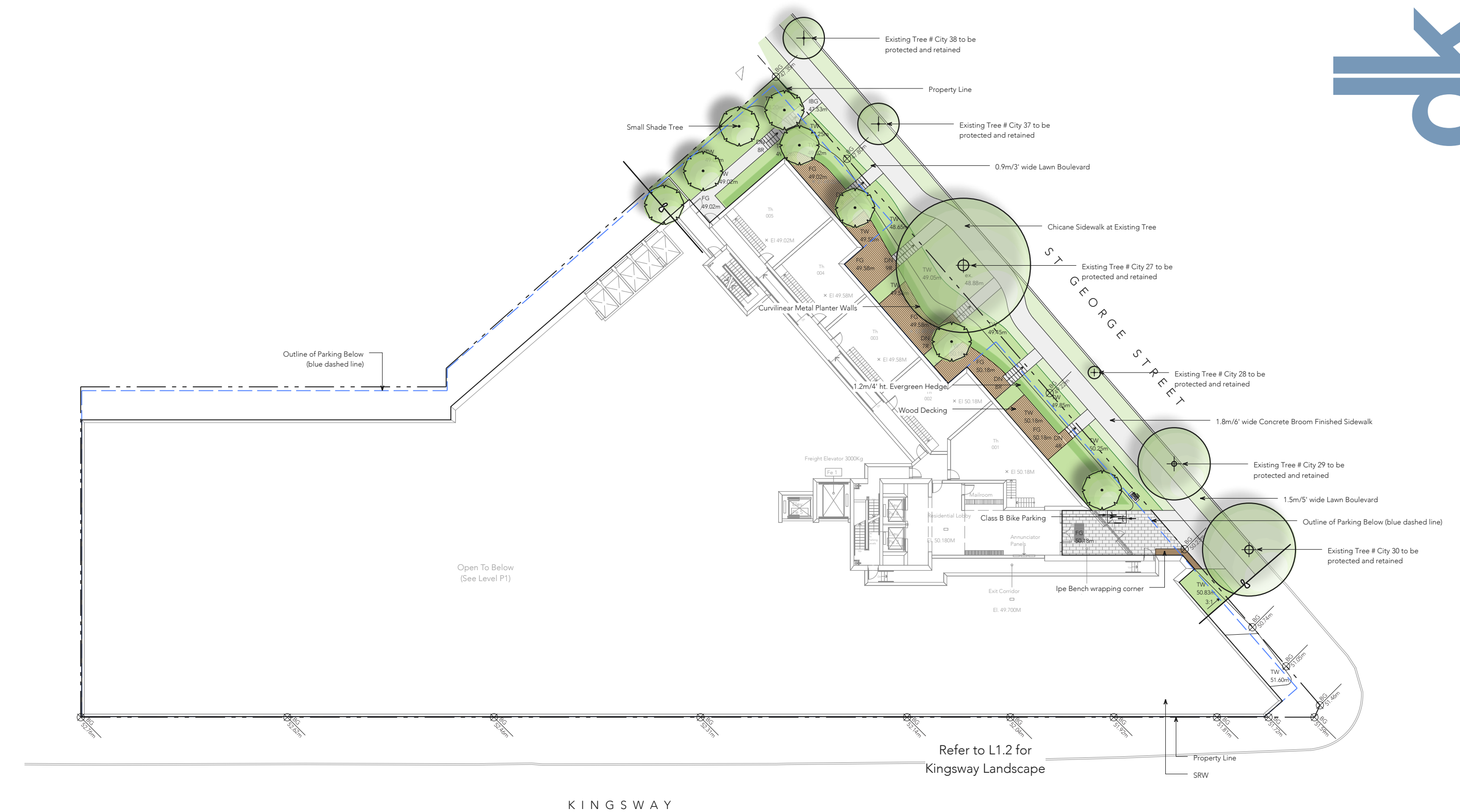
north-west elevation



**The concept provides a variety of outdoor amenity spaces for workers and residents**

Each tower has a rooftop amenity garden. Outdoor dining areas, lounge areas, seating platforms and urban agriculture are proposed. The mechanical equipment has been incorporated into the roof design within a screened architectural enclosure.

Stormwater will be mitigated through the use of deep soil volumes over the suspended slab. Soil depths between 450 – 1200mm are proposed for plant growth and to slow down stormwater.

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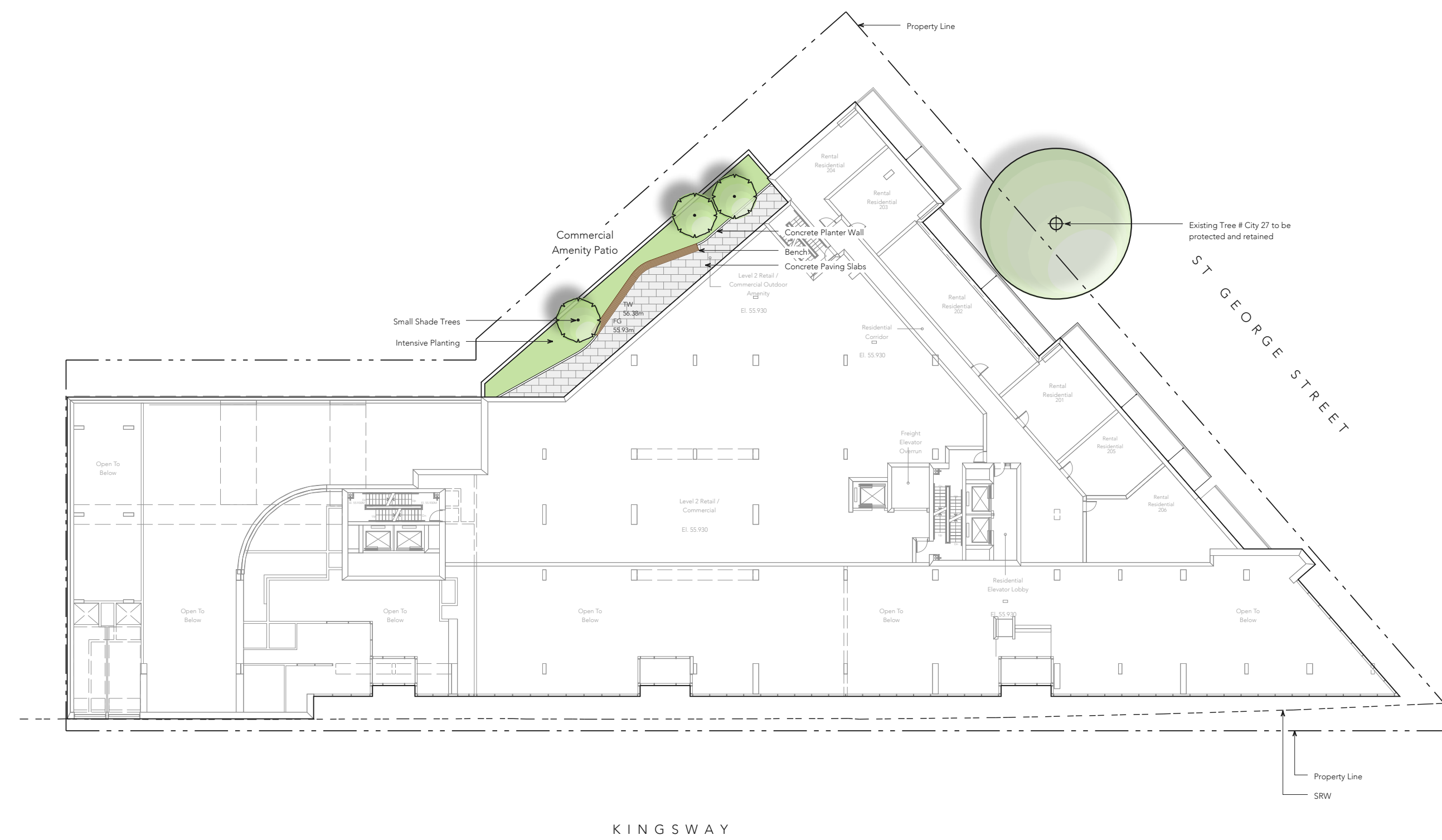
level 1 - Kingsway landscape plan

445 Kingsway & 2935 St. George Street

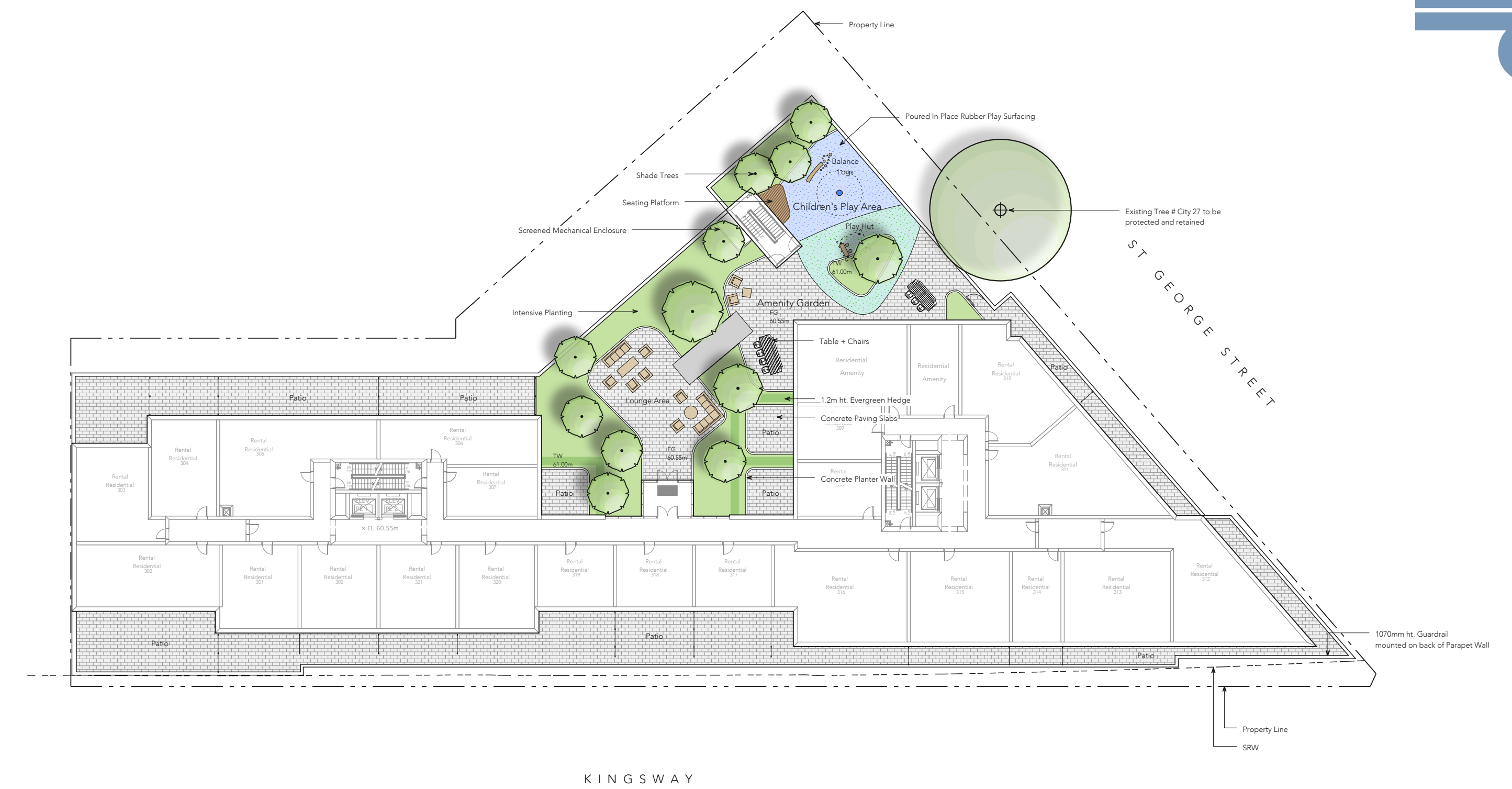


2 October 2019

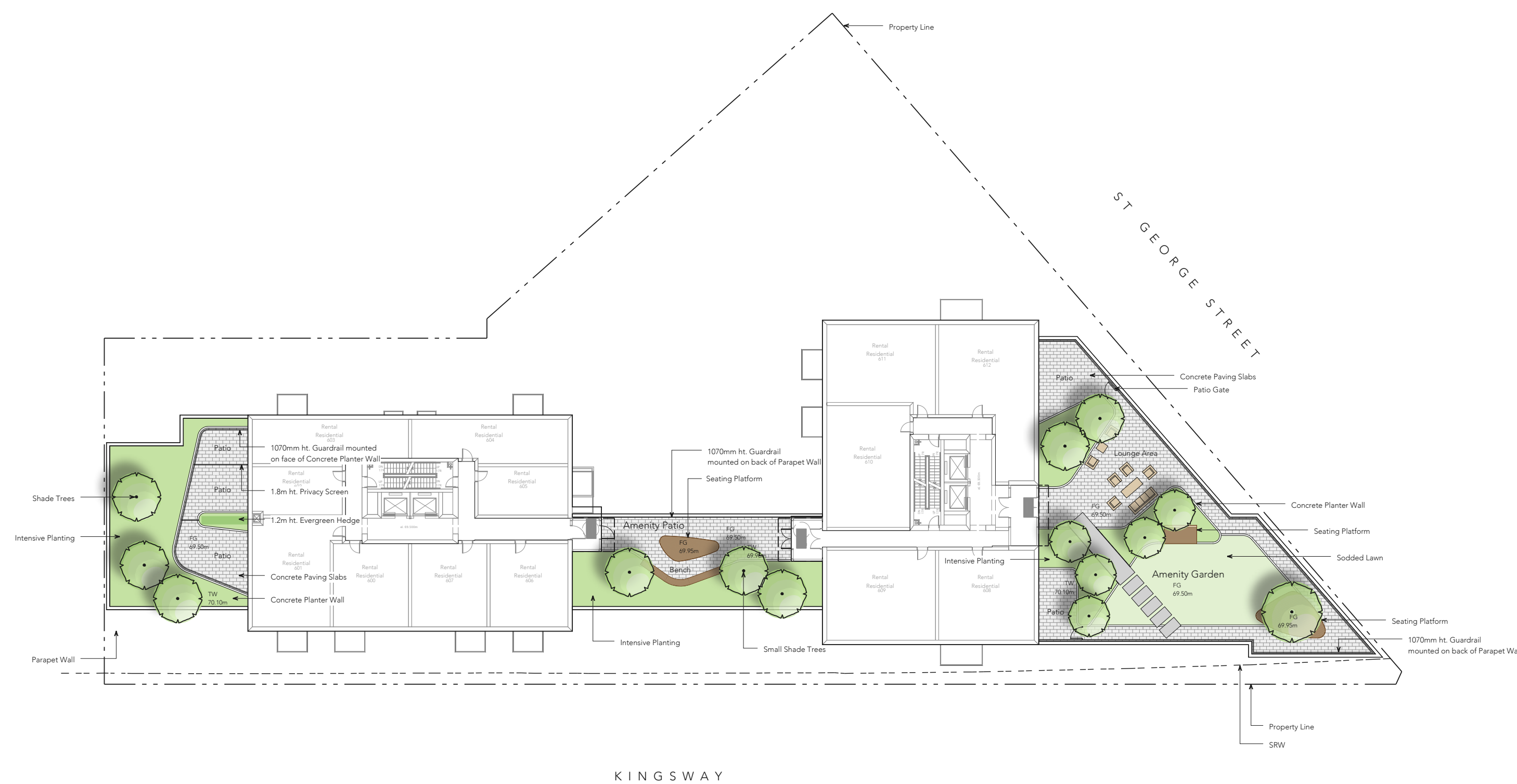




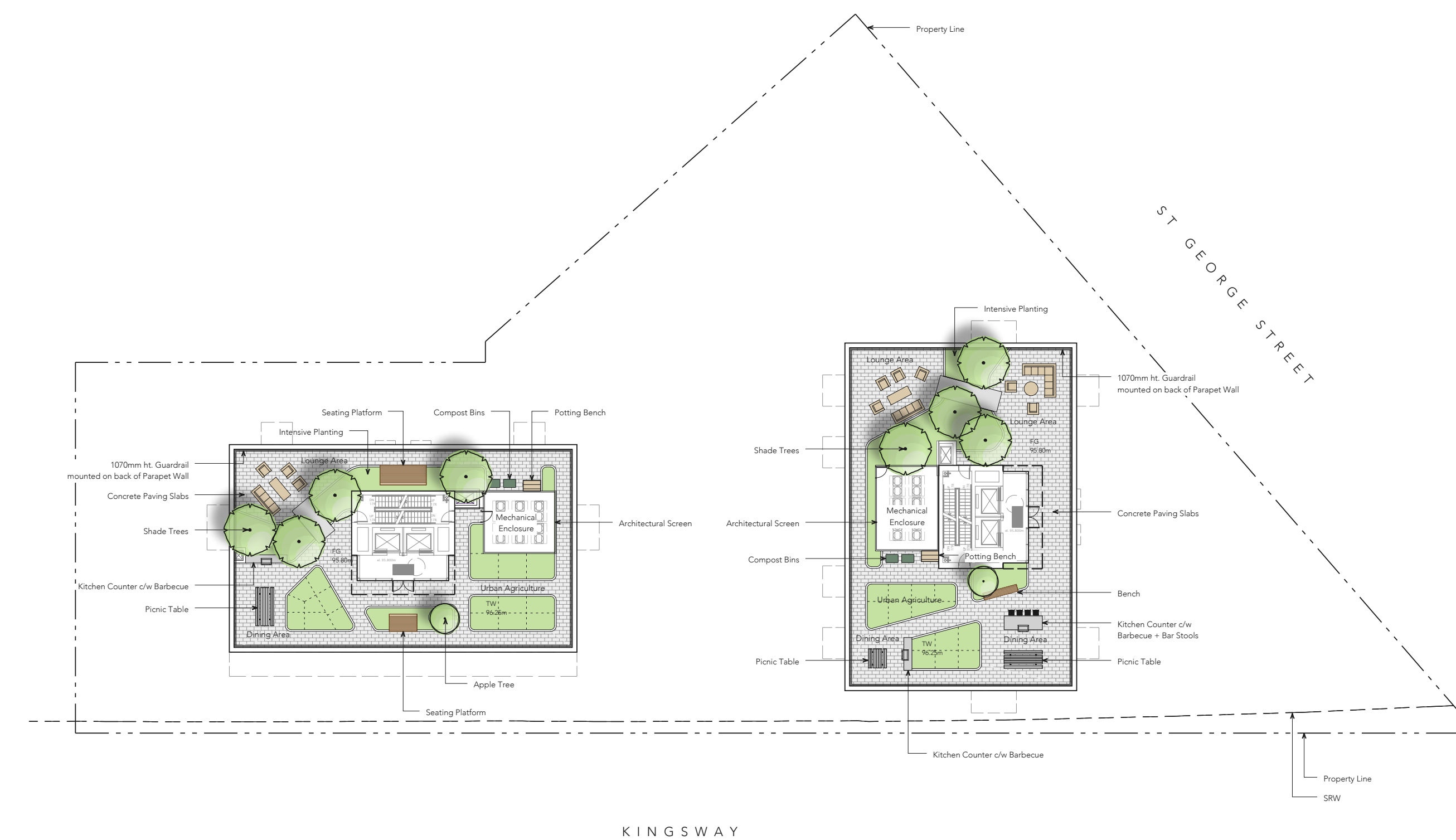
level 2 - landscape plan



level 3 - landscape plan



level 6 - landscape plan



roof level - landscape plan



# Sustainability

## 445 Kingsway will be designed with a broad and ambitious target of environmental and social sustainability

The proposed development pursues the objectives outlined in the *Green Buildings Policy for Rezoning* and showcases principles of sustainable development that support CoV community planning policies and *Greenest City* goals and objectives.

The proposed density and mix of uses combines and locates people close to public outdoor amenity (Robson Park), community services (Kivan Boys and Girls Club, Mt. Pleasant Family Centre Society) transit, shops, jobs, amenities and services, providing an opportunity to reduce the ecological footprint. Locating people near transit contributes to increased transit use, lower dependency on the automobile, and improves the feasibility of increased transit service.

Building energy use will be reduced thereby lowering greenhouse gases, conserving water, reducing waste and providing a multitude of environmental benefits for the community and the city including promotion of sustainable transportation through transit, walking, cycling and car-share programs; greater use of green building materials and processes; higher performance buildings, envelopes and systems and establishing healthier urban ecosystems.

### Low Emissions Green Buildings Path

A high performance building envelope will drive down the building's thermal energy demand, total energy use, and ongoing energy operational costs while mitigating noise from Kingsway traffic.

Centralized and distributed waste heat recovery will be utilized. Using recovered waste heat from commercial space will reduce the overall energy consumption.

Passive design strategies will be investigated, including the use of exterior screening elements.

Multiple roof levels will include green infrastructure for rainwater management, stormwater runoff and provide relief from the urban heat island effect.

Enhanced indoor air quality will be achieved by minimizing Volatile Organic Compounds (VOCs) through building finishes and materials. Spaces will be tested for air quality prior to occupancy regarding newly installed materials.

A life cycle analysis will evaluate which components of the building have the greatest embodied emissions.

A low carbon energy system will follow requirements outlined by the City of Vancouver to lower greenhouse gas emission intensity over its lifetime, contributing to the City of Vancouver's greenest city goal.

Extensive open space for the residence throughout the Level 3 podium, Level 6 common outdoor spaces, and tower roof top areas is currently proposed. The two tower and podium massing design will allow light to feed through the project.

A rainwater re-use strategy is proposed. Captured rainwater will be used for the commercial car wash to be located on site.

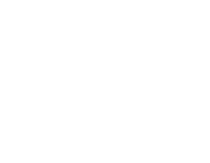
### Moderate Income Rental Housing Pilot Program

445 Kingsway & 2935 St. George Street



## sustainability features

- 1 high performance envelope
- 2 waste heat recovery
- 3 passive design strategies
- 4 green infrastructure
- 5 enhanced indoor air quality
- 6 life cycle analysis
- 7 low carbon energy system
- 8 open space
- 9 novel rain water re-use strategy



#### Energy Performance Limits

Meet or exceed the governing Total Energy Use Intensity (TEUI), Greenhouse Gas Intensity (GHGI) and Thermal Energy Demand Intensity (TEDI) energy performance limits for the entire development through investing in a high performance building envelope, utilizing waste heat recovery, investigating passive design strategies and integrating green infrastructure with the buildings overall form. The design will include high performance mechanical and electrical systems.

#### Enhanced On-Going Building Performance

Include strategies for air tightness testing, enhanced commissioning and energy system sub-metering and reporting in order to improve building performance and provide continuing performance feedback.

#### Refrigerant Emissions & Embodied Energy Emissions

Provide for multiple life cycle assessments of building materials and refrigerants with the goal of committing to a low carbon community.

#### Enhanced Indoor Environmental Quality

Provide an enhanced strategy of verified direct ventilation through the use of waste heat recovery systems that provide outdoor air directly to all occupiable spaces, low emitting materials and indoor air quality testing.

#### Integrated Rainwater Management

Provide enlarged soil depths and water quality 'stormceptors' to promote rainwater infiltration and treatment upstream of the City storm system.

#### Resilient Drinking Water Access

Provide accessible potable water sources throughout the site with the aim of enhancing a livable, resilient and sustainable community.

2 October 2019




## Parking & Loading

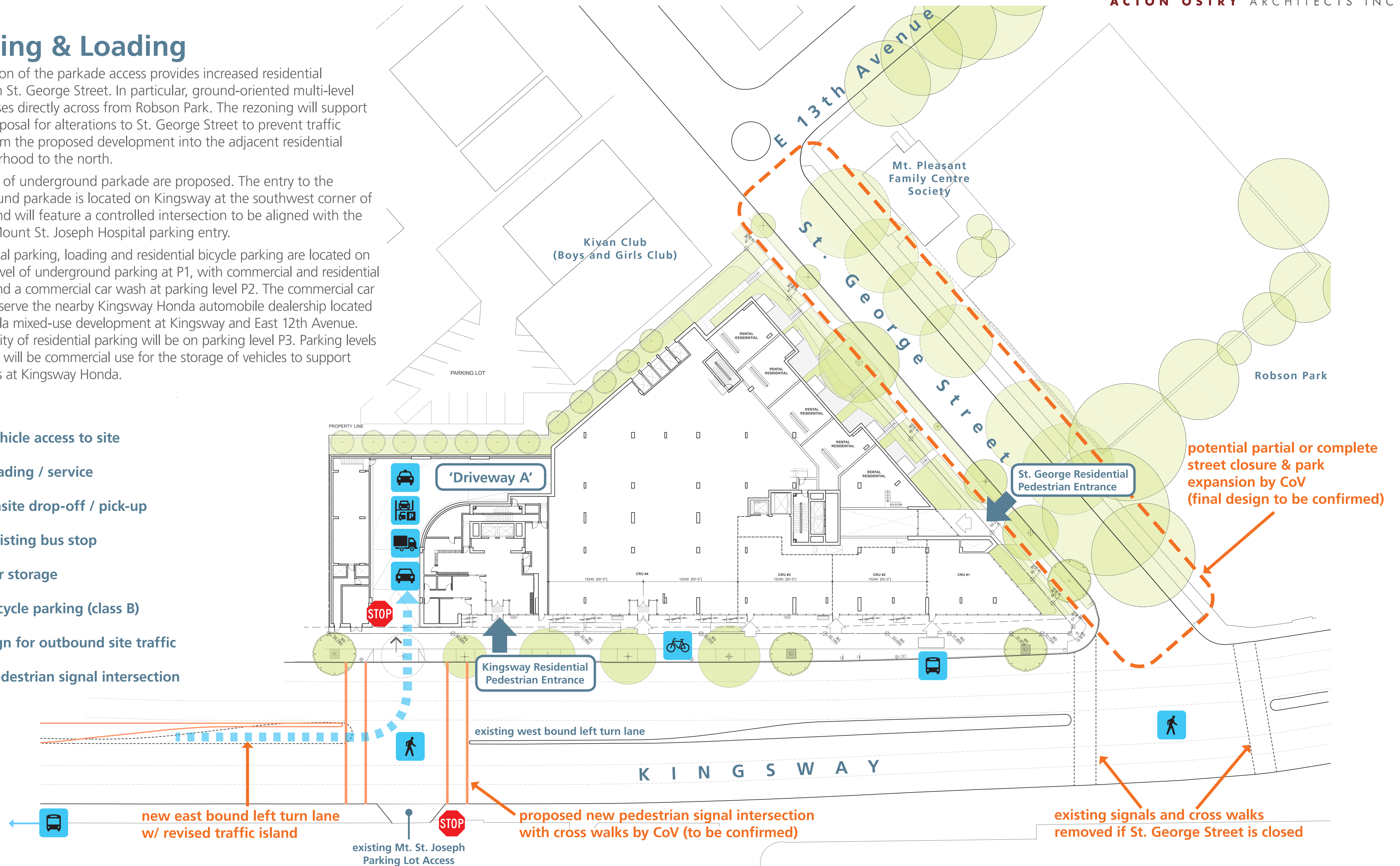
The location of the parkade access provides increased residential density on St. George Street. In particular, ground-oriented multi-level townhouses directly across from Robson Park. The rezoning will support a City proposal for alterations to St. George Street to prevent traffic access from the proposed development into the adjacent residential neighbourhood to the north.

Five levels of underground parkade are proposed. The entry to the underground parkade is located on Kingsway at the southwest corner of the site and will feature a controlled intersection to be aligned with the existing Mount St. Joseph Hospital parking entry.

Commercial parking, loading and residential bicycle parking are located on the first level of underground parking at P1, with commercial and residential parking and a commercial car wash at parking level P2. The commercial car wash will serve the nearby Kingsway Honda automobile dealership located at the Stella mixed-use development at Kingsway and East 12th Avenue. The majority of residential parking will be on parking level P3. Parking levels P4 and P5 will be commercial use for the storage of vehicles to support operations at Kingsway Honda.

### key

-  vehicle access to site
-  loading / service
-  onsite drop-off / pick-up
-  existing bus stop
-  car storage
-  bicycle parking (class B)
-  sign for outbound site traffic
-  pedestrian signal intersection



## Moderate Income Rental Housing Pilot Program

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overview traffic **21**