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Memorandum

To	**Prepared for GPT Operator Pty Ltd and GPPT Operator Pty Ltd**	From	**Yaser Al Mafraji**
Copy	**Dawn Carol**	Reference	**253427**
Date	**2023-06-28**	Pages (including this page)	**6**
Subject	**Technical Note-Respond to RTS Comments on Cockle Bay Redevelopment TIA**		

1 Introduction

This technical note was developed to address the road & planning authorities comments raised on the Response for Submission RTS SSD 9978934. includes the following:

- Updated Port-Cochere capacity analysis to include a PM peak scenario
- Updated swept path analysis for the improved loading dock geometry, and Porte-Cochere

2 Porte-Cochere demand forecast

The proposed porte-cochere design shown in Figure 1 provides 6 bays, a dedicated lane to access porte-cochere and a dedicated through lane to prevent any potential queuing as shown in Figure 1below.

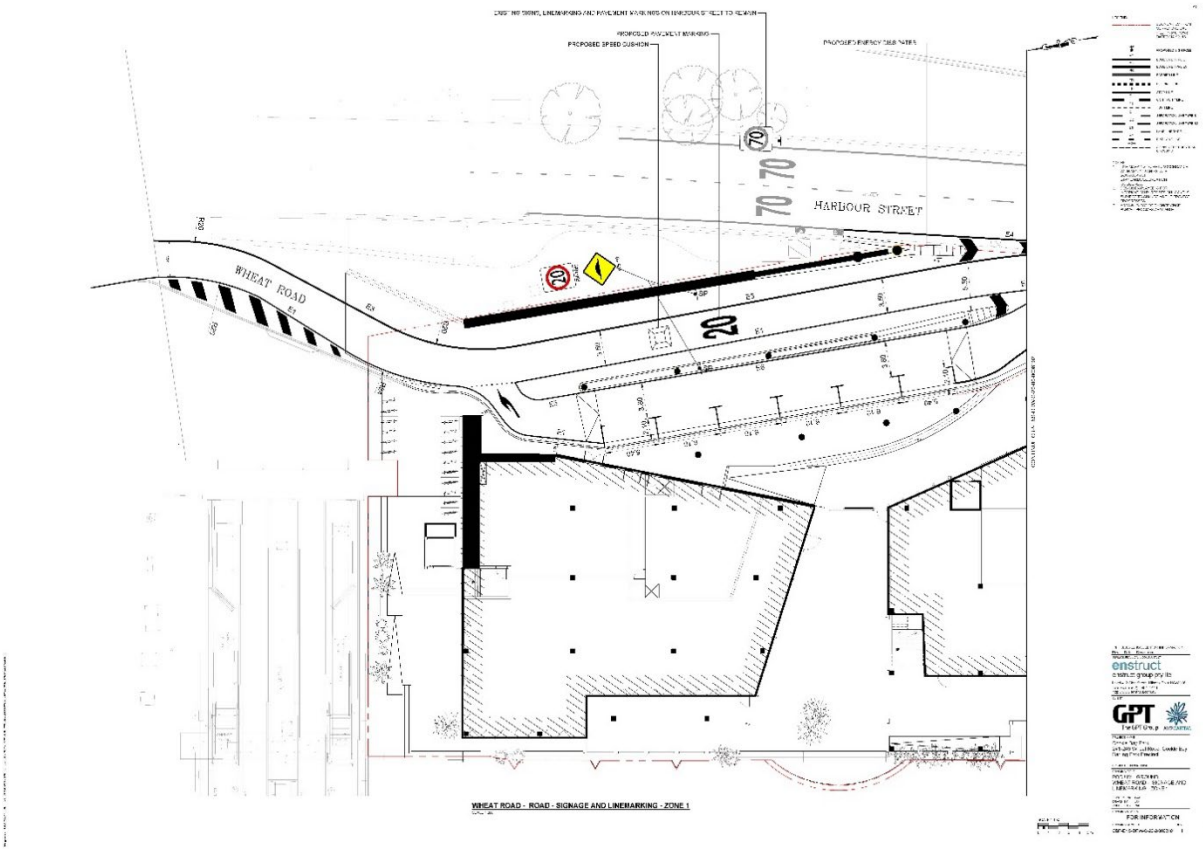


Figure 1 Porte-Cochere Layout

The porte-cochere will service the commercial and the retail development and it's designed to accommodate a stretch limousine vehicle, and no bus pick up or drops off provided within the porte-cochere. The bypass lane designed to accommodate bus movement to maintain bus access to the neighbouring developments.

The office tower will operate during normal business hours 8am-6pm while the retail hours are likely to be 10am-10pm or later.

It's anticipated the peak the trips generated by the commercial tower are likely to take place during the network AM peak represented by staff arrival.

The following assumptions were considered to determine the number of vehicle trips specifically accessing the Cockle Bay Park redevelopment porte-cochere during the AM peak hour:

- No change in mode share demand for car users as a passenger since 2016 Census – 2.5%[1] of commuters in the Sydney SA3 area accessing the site will use taxi or rideshare via the drop-off area
- Commuters to Cockle Bay Park as a vehicle passenger during the AM peak are intended to access the commercial services (office) part of the development.
- Utilisation rate of 1 person per 10m^2 NLA
- Building occupancy of 70%
- No long stay parking permitted within the drop off area

Based on a commercial Net Lettable Area (NLA) surface of circa 64,000m^2, there will be 4,480 people accessing the building[2]. As evidenced by the ABS 2016 Census data 2.5% of commuters travel to work via vehicle as passenger (taxi and ride share).

It was determined that during the busiest 15 minute period of the AM peak, approximately 11 vehicles will utilise the porte-cochere. This could grow to 13 vehicles, assuming a future taxi/ rideshare mode-share of 3%, instead of 2.5%.

Staff departure time is likely to start between 3pm and 6pm therefore a lower demand on the pickup drop of area is anticipated. Taking a conservative approach, the AM peak scenario detailed previously can be adopted for the pm peak.

In general, the average vehicle dwell time at a pickup/drop off areas (porte-cochere) is around 5 minutes per vehicle therefore, the proposed design of 6 bays allows for 18 vehicles every 15 minutes (72 vehicle per hour), which exceeds the calculated demand.

The retail development consists of 80% food and beverage outlets which are likely to operate at different hours to the commercial tower 10am-10pm and the retail peak demand will fall outside the commercial and road network peak hours.

[1] Based on a decrease on the car usage to 8.8%, car users as a passenger in the area would decrease to 1.25%. However, we have assumed maintaining of the car usage to reflect the potential increase due to the nature and location of the building.
[2] It should be noted that Arup pedestrian study estimated 3,480, 4,800, 3,070 and 18,000 total number of people using the tower during the AM, mid-day, PM peaks and across the day respectively. These include various transport modes. This exercise aims to prove the operation of the drop-off area following a conservative approach.

To calculate the demand generated by the retail development the following methodology was used:

The traffic generation rates were adopted from the RTA *Guide to Traffic Generating Developments V2.2 2002* and the *Guide to Traffic Generating Developments Updated Traffic Surveys Technical Direction TST 2013/04a* document.

It is noted that the retail component will comprise of both shops and restaurants, and the traffic generating rate are reproduced below:

- Restaurant: Evening peak hour vehicle trips = 5 per 100 m^2 gross floor area (GFA)
- Shopping centres: Peak hour vehicle trips = 7.6 m^2 per 100 m^2 per gross leasable floor area (GLFA)

To perform a conservative analysis, both of the above traffic rates were applied and the higher traffic generation value was adopted. The above traffic rates were applied to the retail GFA of 12,100m^2, the GLFA was assumed to be 90% of the retail GFA, equating to 10,890 m^2. As such, the peak hour traffic generation utilising the restaurant and shopping centre rates are 605 vehicles per hour (vph) and 828 vph respectively. it was assumed that the peak 15-minute period would account for 30% of the higher peak hour traffic of 828 vph, thereby equating to 248 trips.

To determine the taxi / rideshare traffic, reference was made to the Independent Pricing and Regulatory Tribunal of NSW's (IPART) commissioned *2022 Point-to-Point Transport Survey Report* which captures the use of point-to-point transport use across Metropolitan Sydney, Other Urban Areas (Newcastle, Wollongong, Gosford, and Wyong) and the rest of NSW. The survey shows that across Metropolitan Sydney, the pick-up / drop off percentage at a shop or shopping centre are as follows:

- Taxi pick-up = 8%
- Taxi drops off = 7%
- Rideshare pick-up = 5%
- Rideshare drop off = 5%

A conservative average of 8% was taken and applied to the 15-minute peak period traffic of 248 vph. As such taxi / ridesharing traffic would create a drop-off / pick up demand of 20 vehicles per 15-minutes. Over 6 bays, this equates to approximately 3 vehicles per bay per 15 minutes.

The development located within walking distance to major transport hubs and no onsite parking provided on site, and patrons will bear this in mind when travelling to the proposed development.

To ensure the porte-cochere is operating efficiently during peak hours, parking restriction and parking enforcement are required which will be developed in the future stages of the project design.

3 Swept Path Analysis

Vehicles menaover checks for the dock internal layout, access driveways and the porte-cochere were conducted by developing swept path analysis using AutoCAD software and provided in Appendix A of this technical note (SKE-T1-01 TO 18). All swept path analysis was completed in accordance with AS2890.2 showing vehicles ingress and egress in forward gear with manoeuvring clearances of 300mm on both sides of the vehicle in accordance with section 5.4 of the above mentioned standard.

The access to the loading dock is 7.19m wide to allow for a two-way vehicles access during the dock operational hours.

Coach buses egressing from the Ribbon development will use the proposed Left in/out access into Harbour Street, a swept path analysis was completed for the anticipated movement as shown in

Figure 2 and provided in Appendix A, which indicate the geometry is sufficient for the movement with around 3m gab behind the bus which will allow for another vehicle to pass without blocking the access to Cockle Bay loading dock.

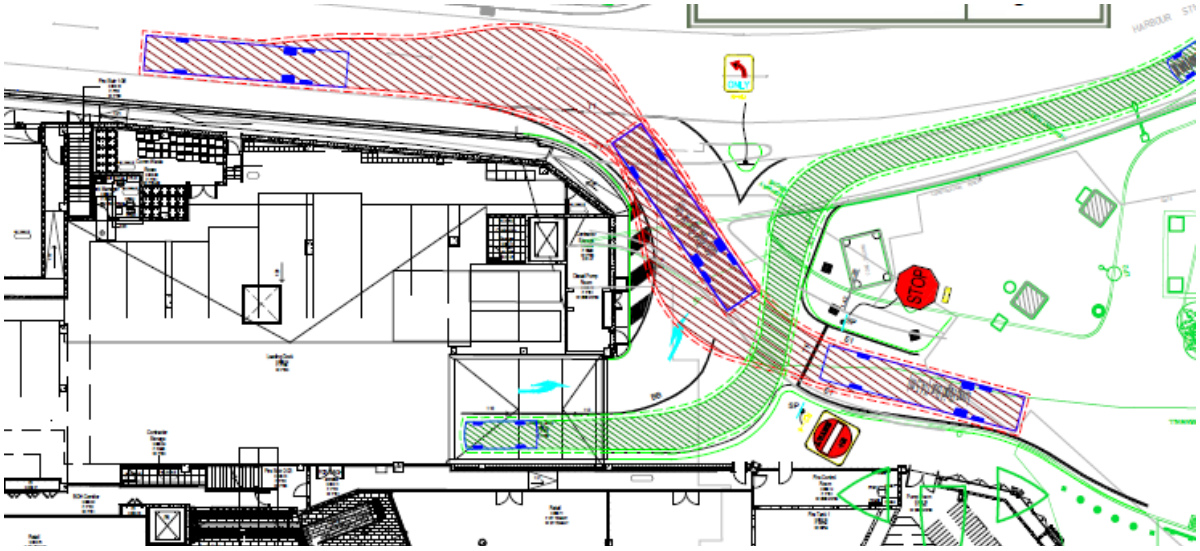


Figure 2 14.5m Rigid Bus Swept Path movement

All waste compactor movement shown in Figure 3 and Appendix A (SKE-T1-09 to12) will take place outside the dock operational hours to ensure no other vehicles are using the dock and to prevent any conflicting movements on constrains to the dock capacity.

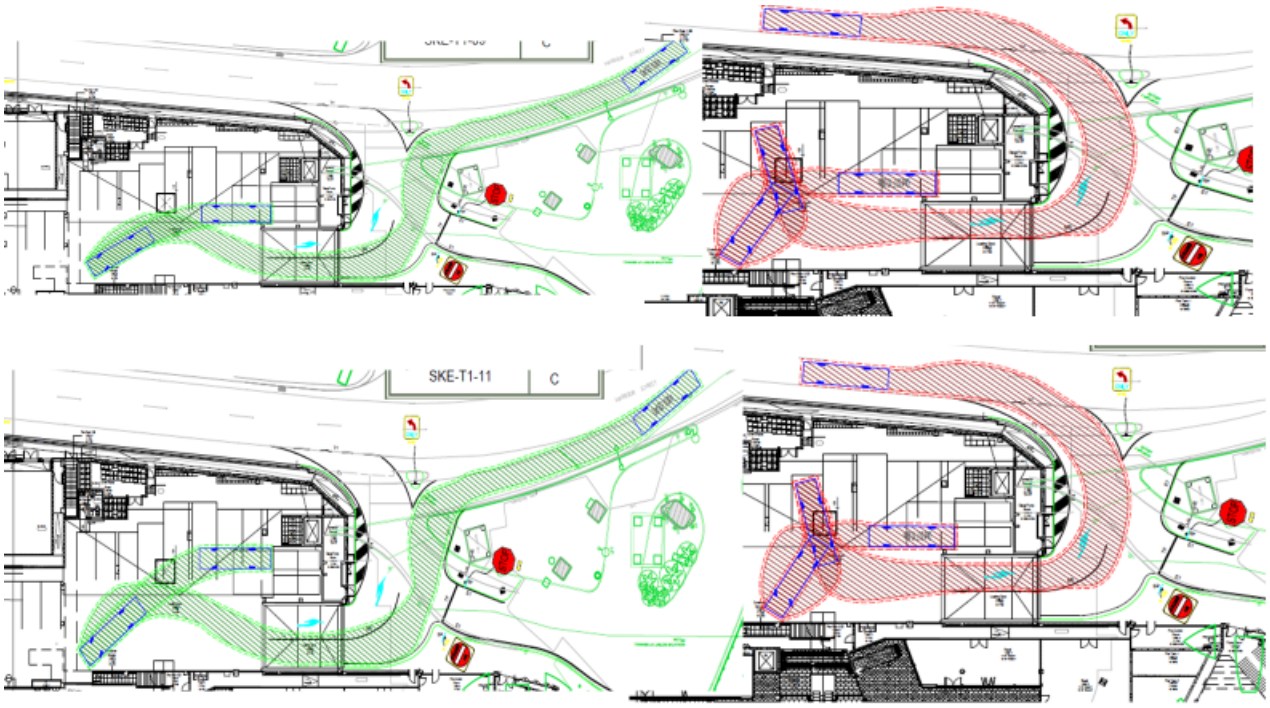


Figure 3 Waste Vehicle Movement

4 Summary

- The revised loading dock design and access geometry alleviate any concerns associated with vehicles manoeuvring and potential loading dock operation to impact on Wheat Rd or the Ribbon development as demonstrated by swept path analysis provided in Appendix A of this note. In developing the swept paths, a manoeuvring clearances of 300mm was added on both sides of the vehicle in accordance with section 5.4 of AS2890.2 to demonstrate compliance safety and efficiency.
- The widened dock entry improves vehicles manoeuvring and eliminate clearances overlap as demonstrated in the swept path analysis.
- The Loading dock capacity analysis was developed in accordance with industry standards, the dock capacity of 14 bays exceeds the calculated demand of the peak hour operation of 13 bays. This results indicate the capacity of the dock is sufficient for the development demand with the assumption of a dock management plan to be developed in the next design phase of the project taking into consideration the core principles and assumptions of the capacity analysis which are:
  - The hours of operation (14hrs)
  - The use booking system
  - The employment of a dock manager on site to ensure dwell times are adhered to and the dock is operating safely and efficiently
- Waste collection will be completed outside the dock operation hours and waste to be collected by 10m long light rigid vehicle.
- The provided number of drop off spaces in the porte-cochere is sufficient for the demand generated by the commercial tower during the network peaks , while the retail drop off demand are likely to fall outside the peak period considering the retail operation hours. The proposed porte-cochere design provides a bypass lane to prevent minimise queuing likelihood and potential impacts on Wheat Road. The swept path analysis for the porte-cochere in Appendix A (SKE-T1-13 to 18) show the geometry of the porte-cochere and the bypass lane is sufficient for the intended design vehicles and no overlap with structures or road furniture was observed. Also parking restriction and enforcement will ensure the porte-cochere operate efficiently and safely throughout the day.

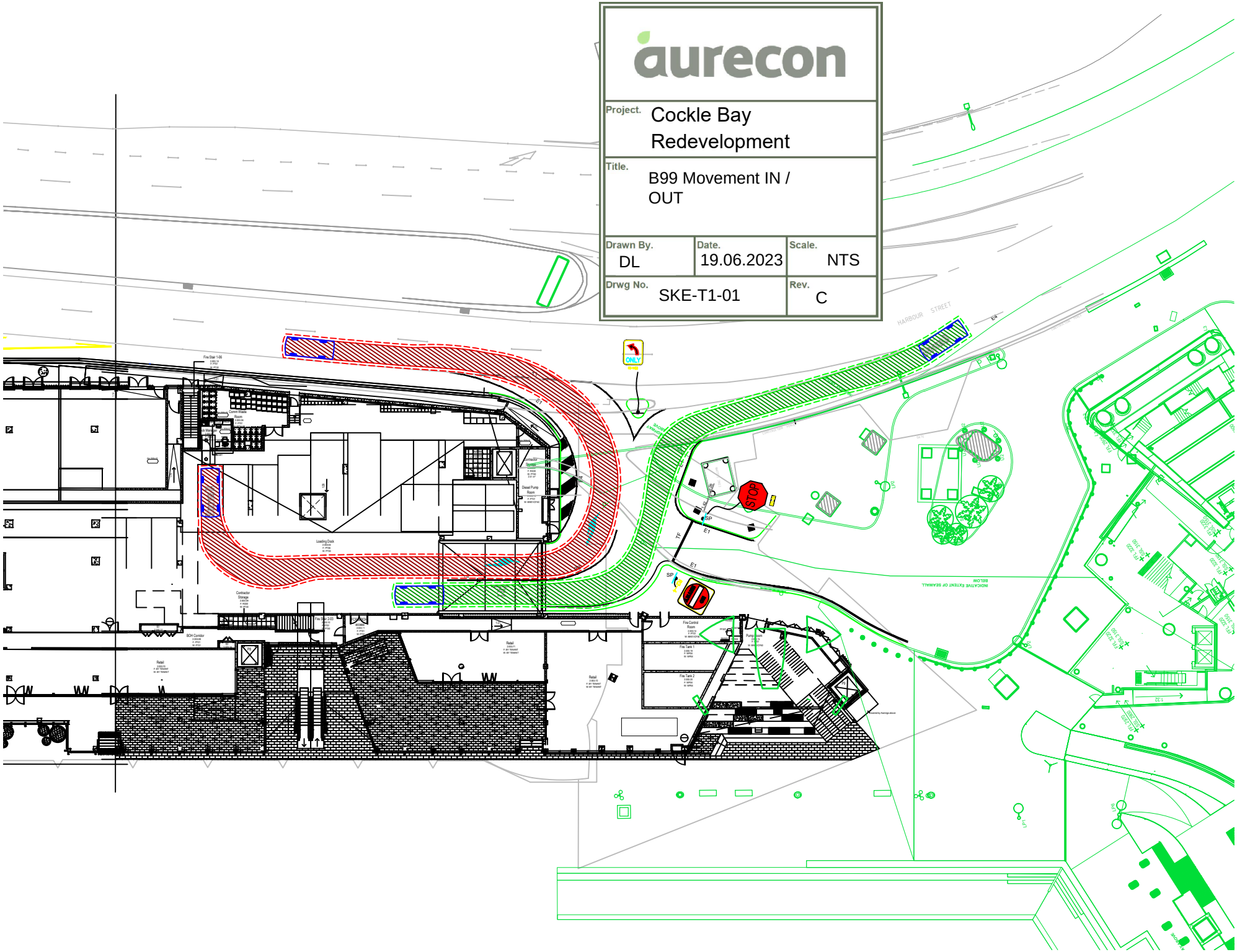
Appendix A – Swept Path Analysis

aurecon

Project.	Cockle Bay Redevelopment
Title.	B99 Movement IN / OUT

Drawn By.	Date.	Scale.
DL	19.06.2023	NTS

Drwg No.	Rev.
SKE-T1-01	C



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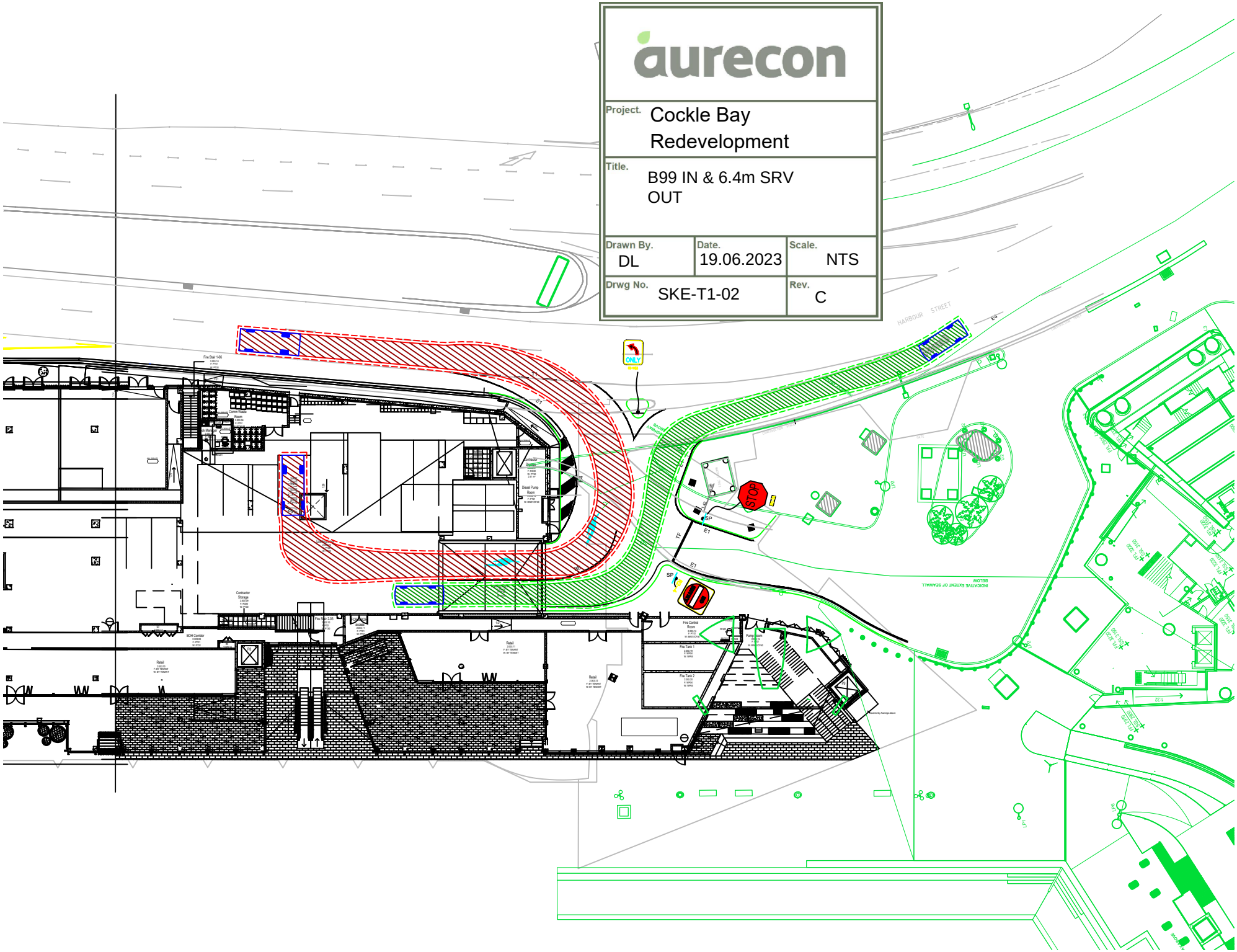
Project.	Cockle Bay Redevelopment
Title.	B99 IN & 6.4m SRV OUT

Drawn By.	Date.	Scale.
DL	19.06.2023	NTS

Drwg No.	Rev.
SKE-T1-02	C



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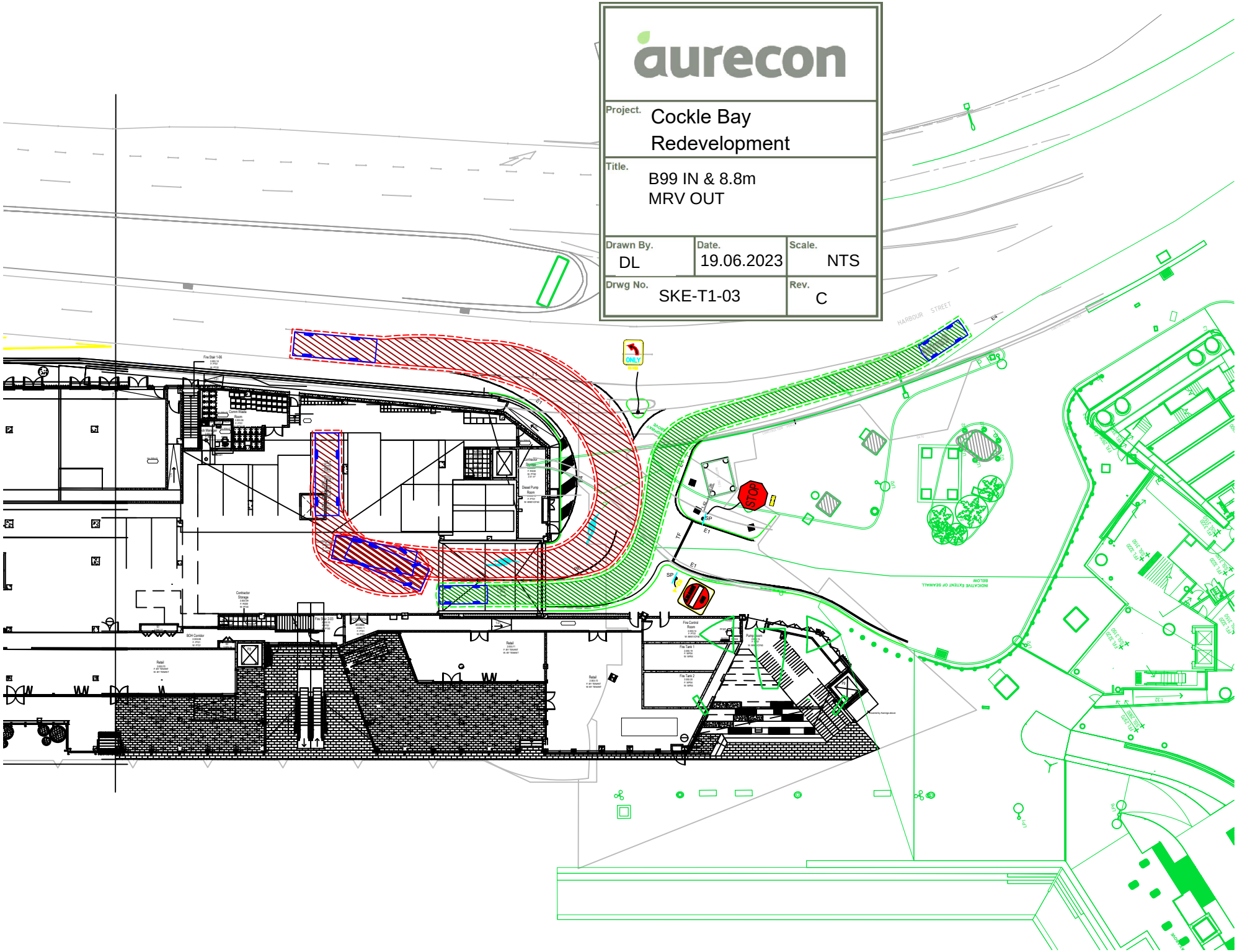
Project.	Cockle Bay Redevelopment
Title.	B99 IN & 8.8m MRV OUT

Drawn By.	Date.	Scale.
DL	19.06.2023	NTS
Drwg No. SKE-T1-03		Rev. C

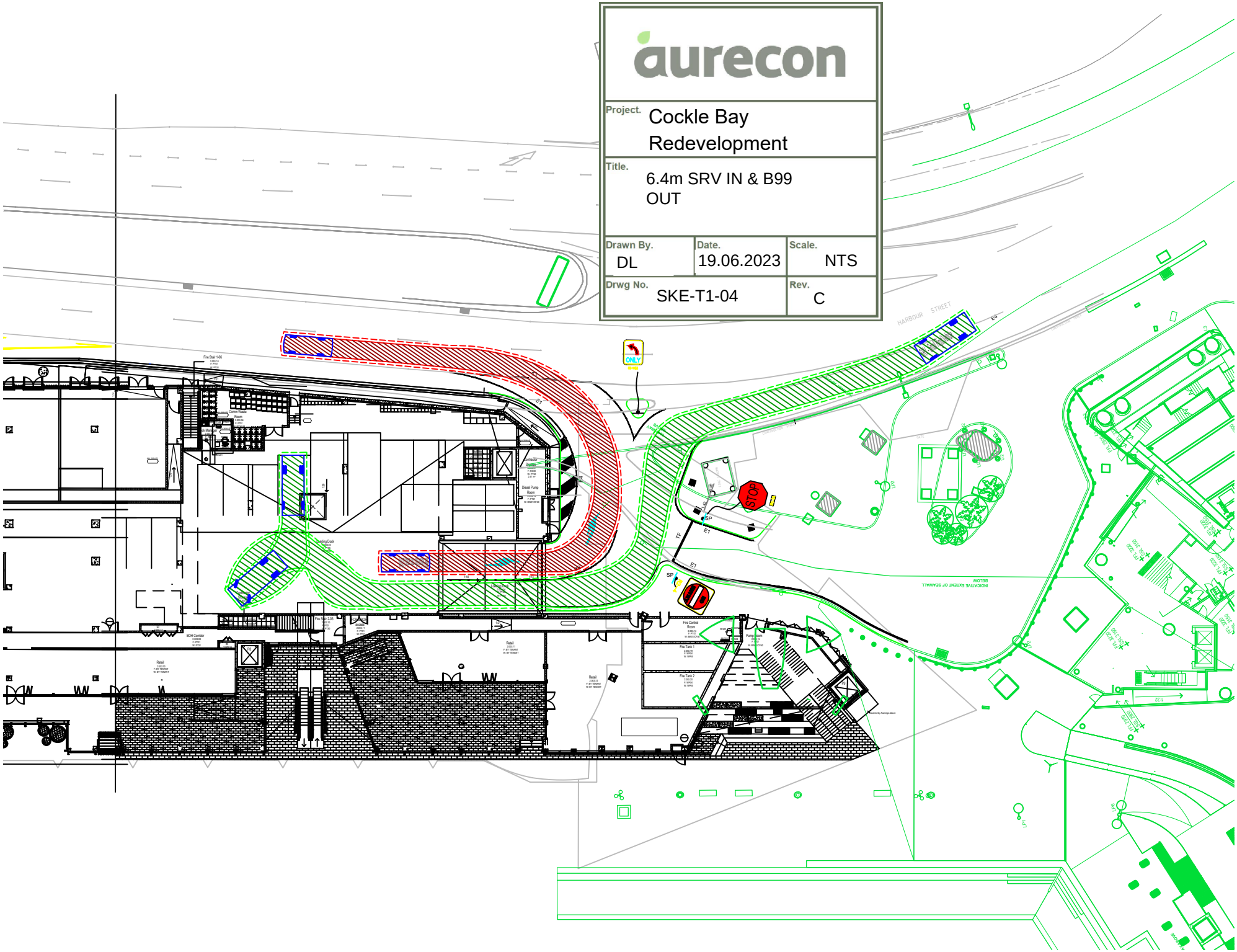


aurecon

Project.	Cockle Bay Redevelopment
Title.	6.4m SRV IN & B99 OUT

Drawn By.	Date.	Scale.
DL	19.06.2023	NTS

Drwg No.	Rev.
SKE-T1-04	C



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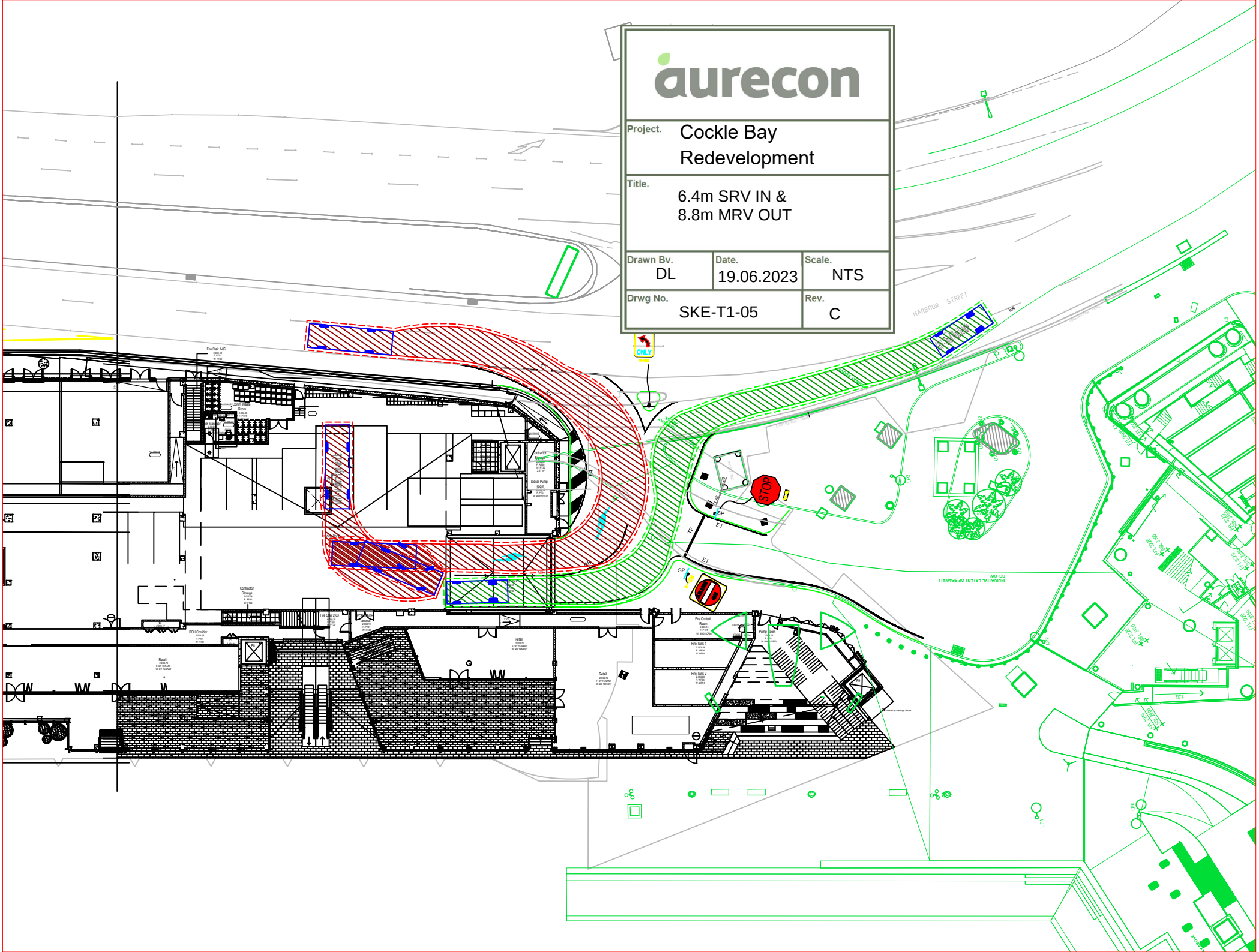
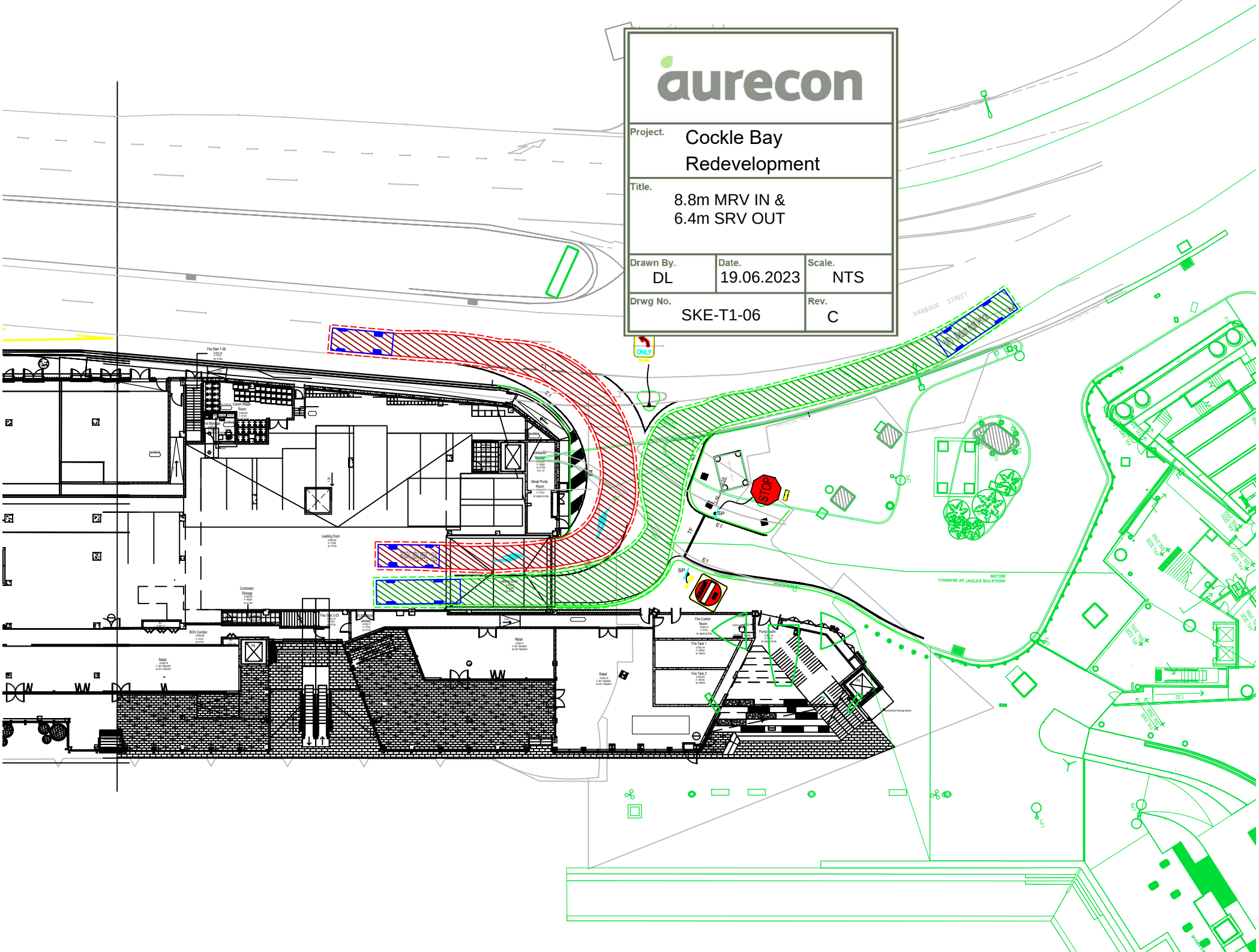
Project.	Cockle Bay Redevelopment
Title.	6.4m SRV IN & 8.8m MRV OUT

Drawn Bv.	Date.	Scale.
DL	19.06.2023	NTS
Drwg No.		Rev.
SKE-T1-05		C



aurecon

Project.	Cockle Bay Redevelopment	
Title.	8.8m MRV IN & 6.4m SRV OUT	
Drawn By. DL	Date. 19.06.2023	Scale. NTS
Drwg No. SKE-T1-06		Rev. C



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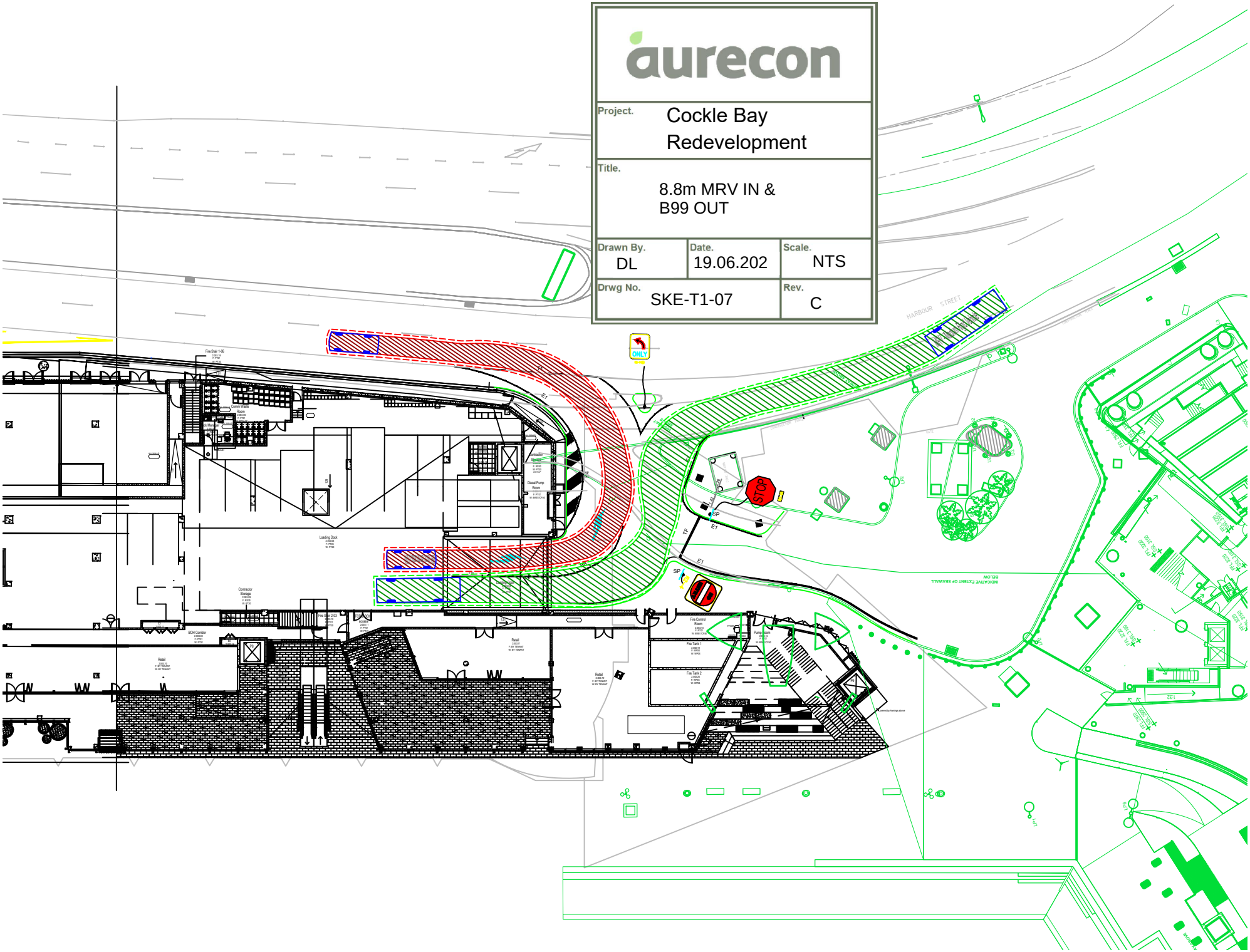
Project.	Cockle Bay Redevelopment	
Title.	8.8m MRV IN & B99 OUT	
Drawn By. DL	Date. 19.06.202	Scale. NTS
Drwg No. SKE-T1-07		Rev. C



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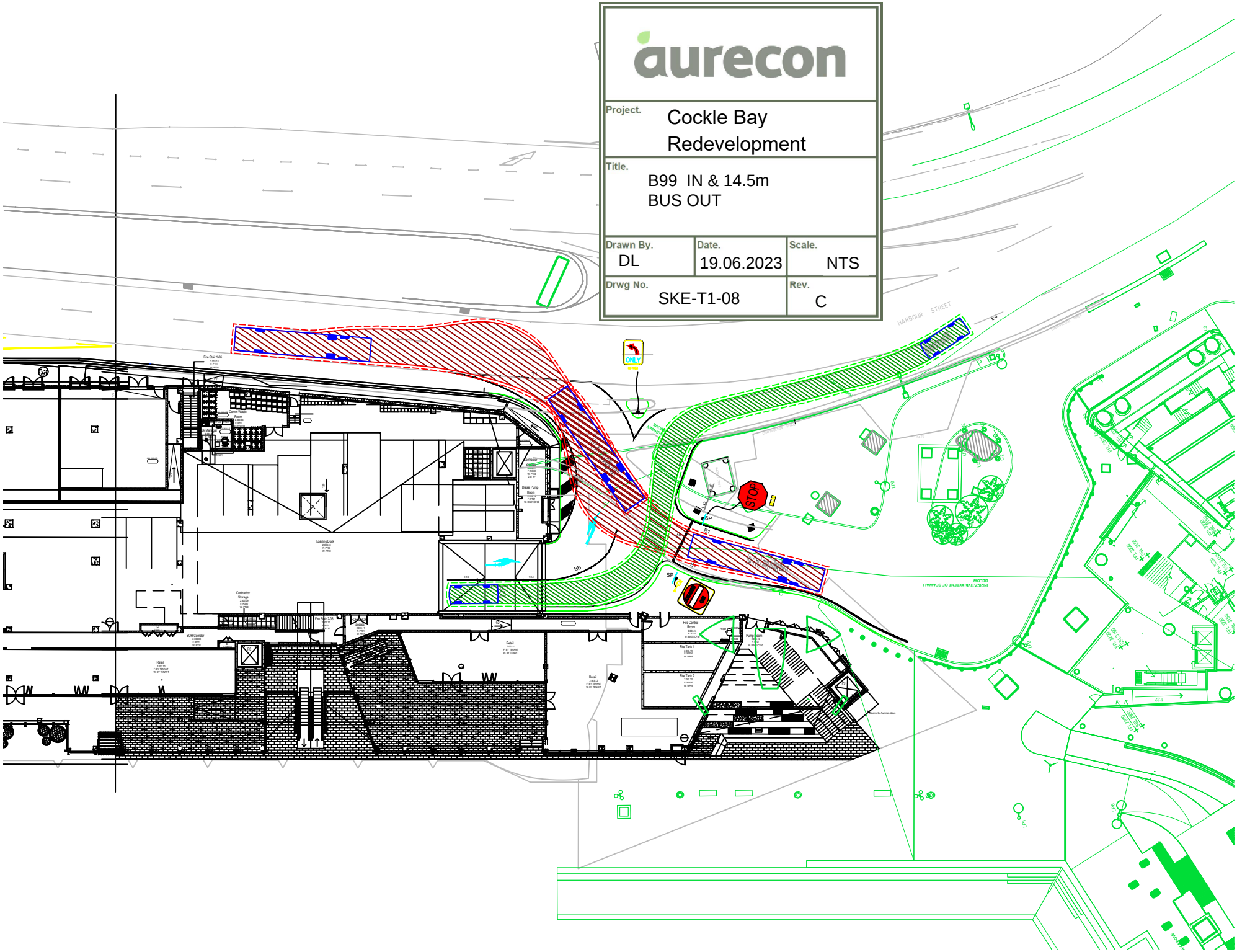
Project.	Cockle Bay Redevelopment
Title.	B99 IN & 14.5m BUS OUT
Drawn By.	DL
Date.	19.06.2023
Scale.	NTS
Drwg No.	SKE-T1-08
Rev.	C



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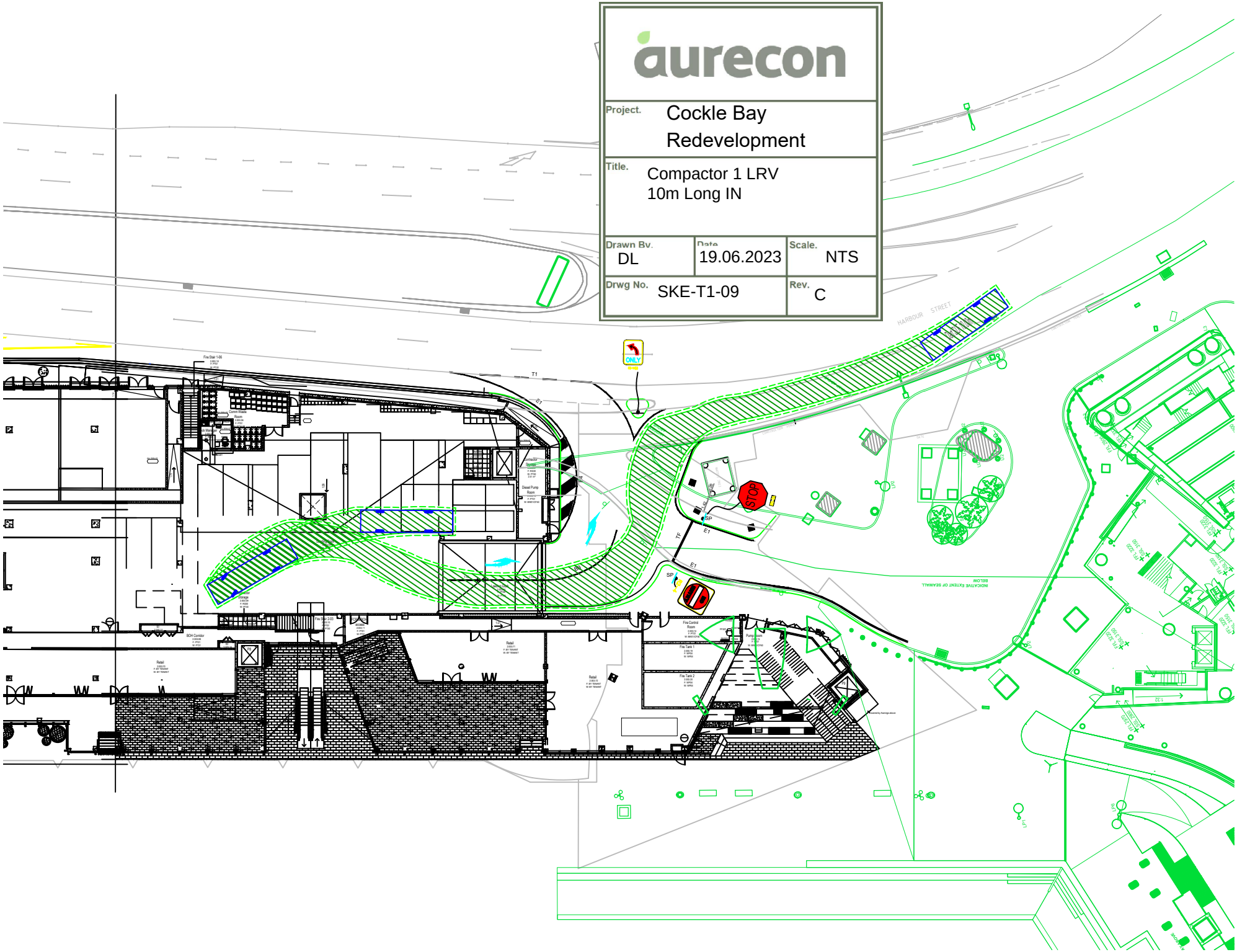
Project.	Cockle Bay Redevelopment
Title.	Compactor 1 LRV 10m Long IN
Drawn By.	DL
Date	19.06.2023
Scale.	NTS
Drwg No.	SKE-T1-09
Rev.	C



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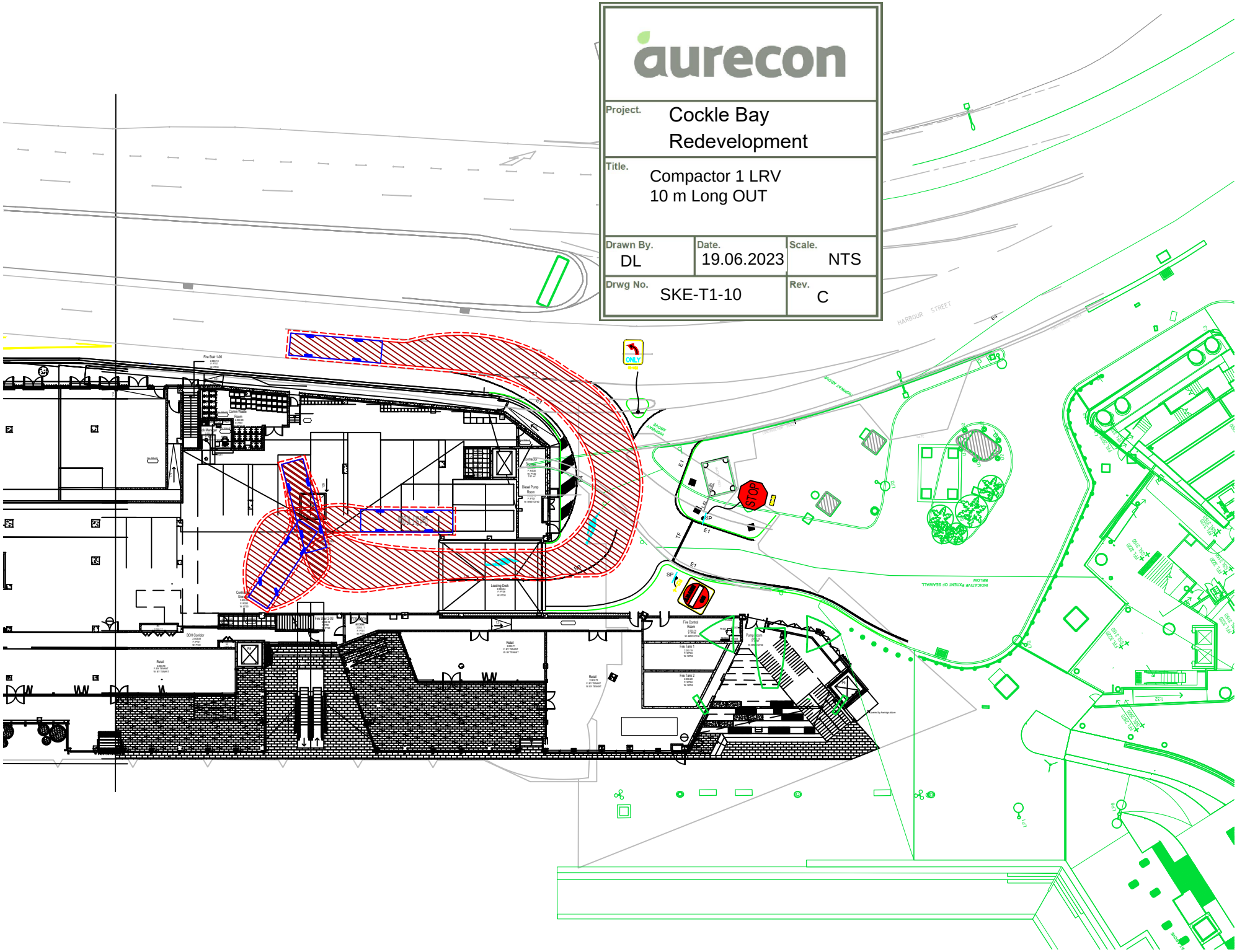
Project.	Cockle Bay Redevelopment
Title.	Compactor 1 LRV 10 m Long OUT

Drawn By.	Date.	Scale.
DL	19.06.2023	NTS

Drwg No.	Rev.
SKE-T1-10	C



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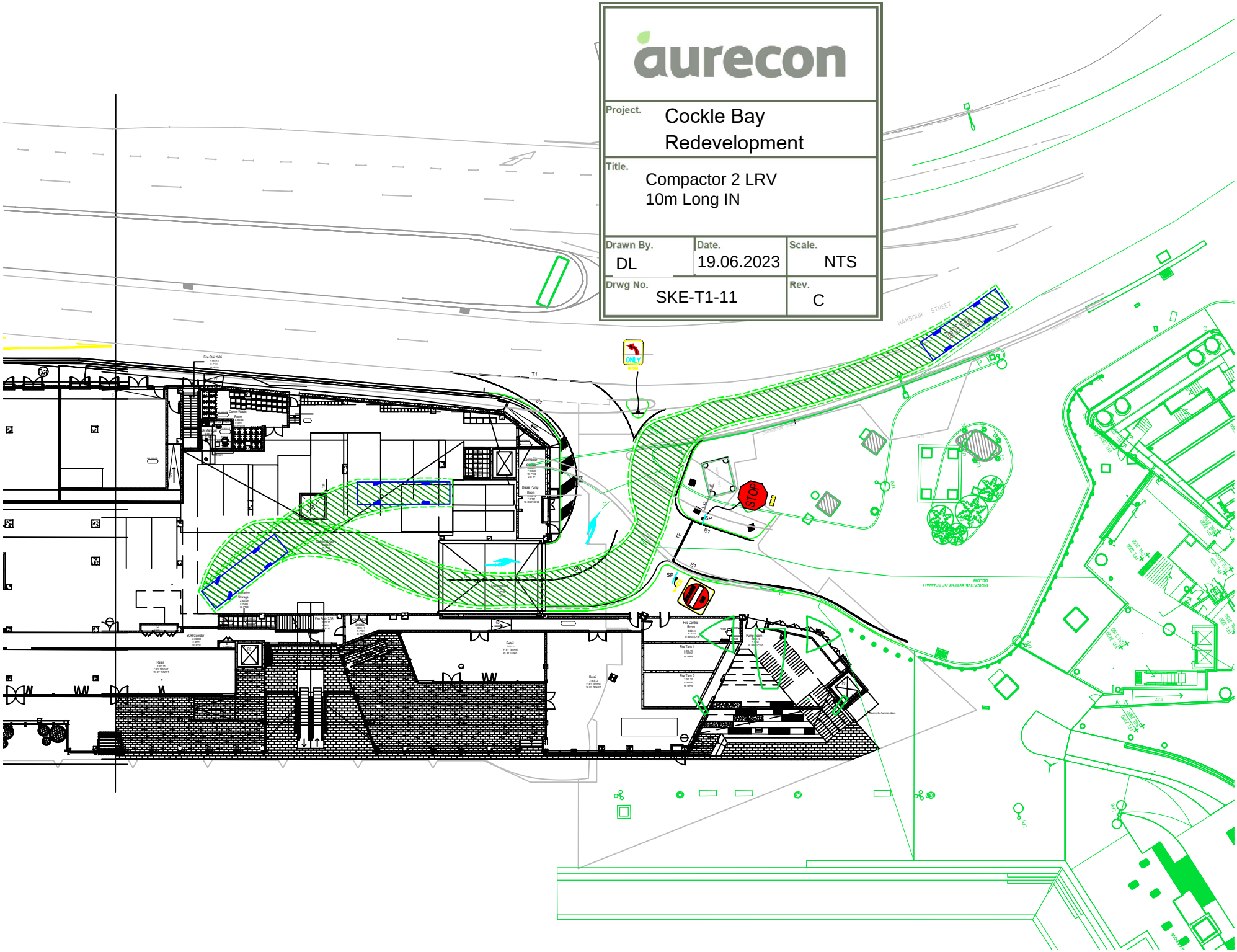
Project.	Cockle Bay Redevelopment
Title.	Compactor 2 LRV 10m Long IN
Drawn By.	DL
Date.	19.06.2023
Scale.	NTS
Drwg No.	SKE-T1-11
Rev.	C



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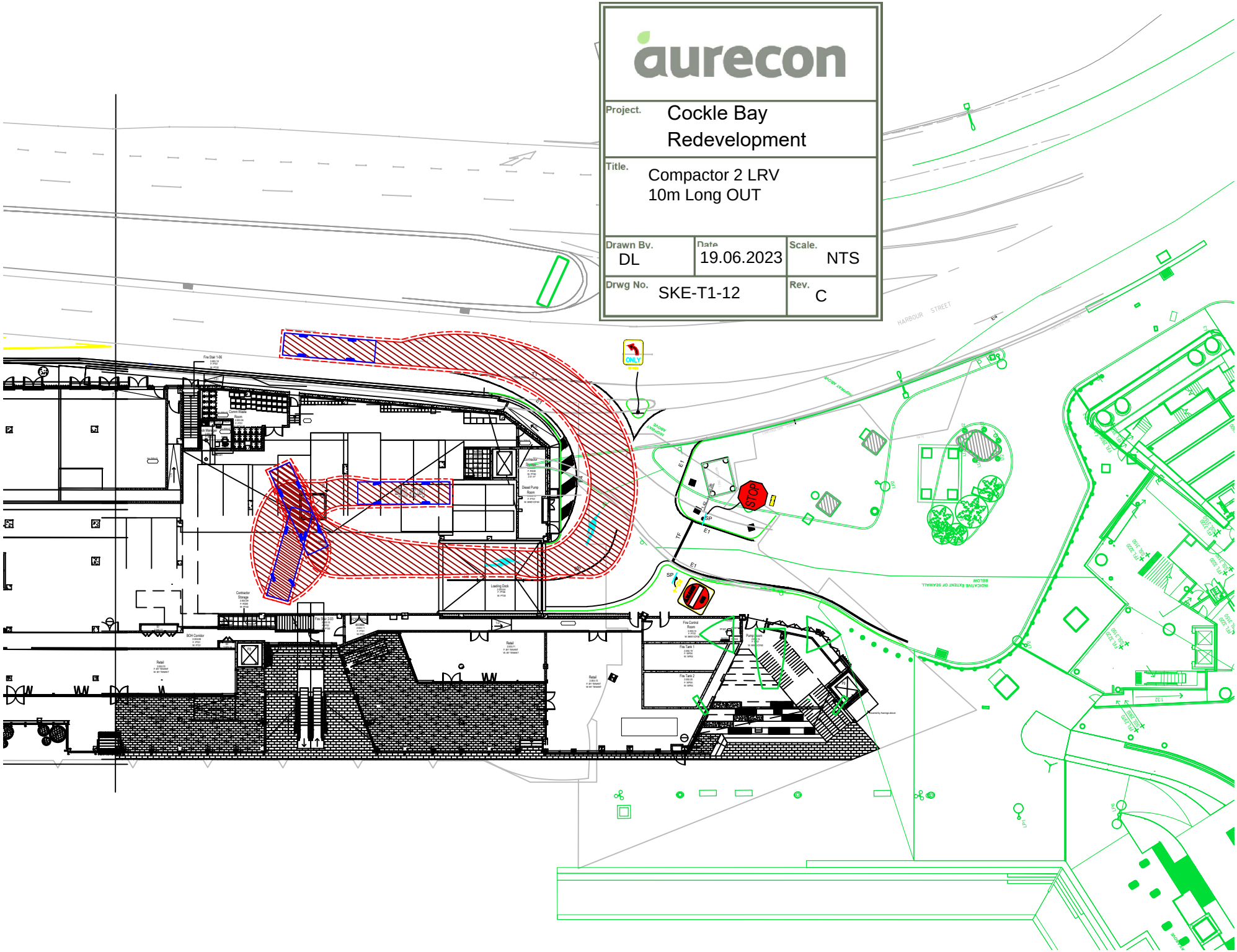
Project.	Cockle Bay Redevelopment	
Title.	Compactor 2 LRV 10m Long OUT	
Drawn By. DL	Date 19.06.2023	Scale. NTS
Drwg No. SKE-T1-12		Rev. C



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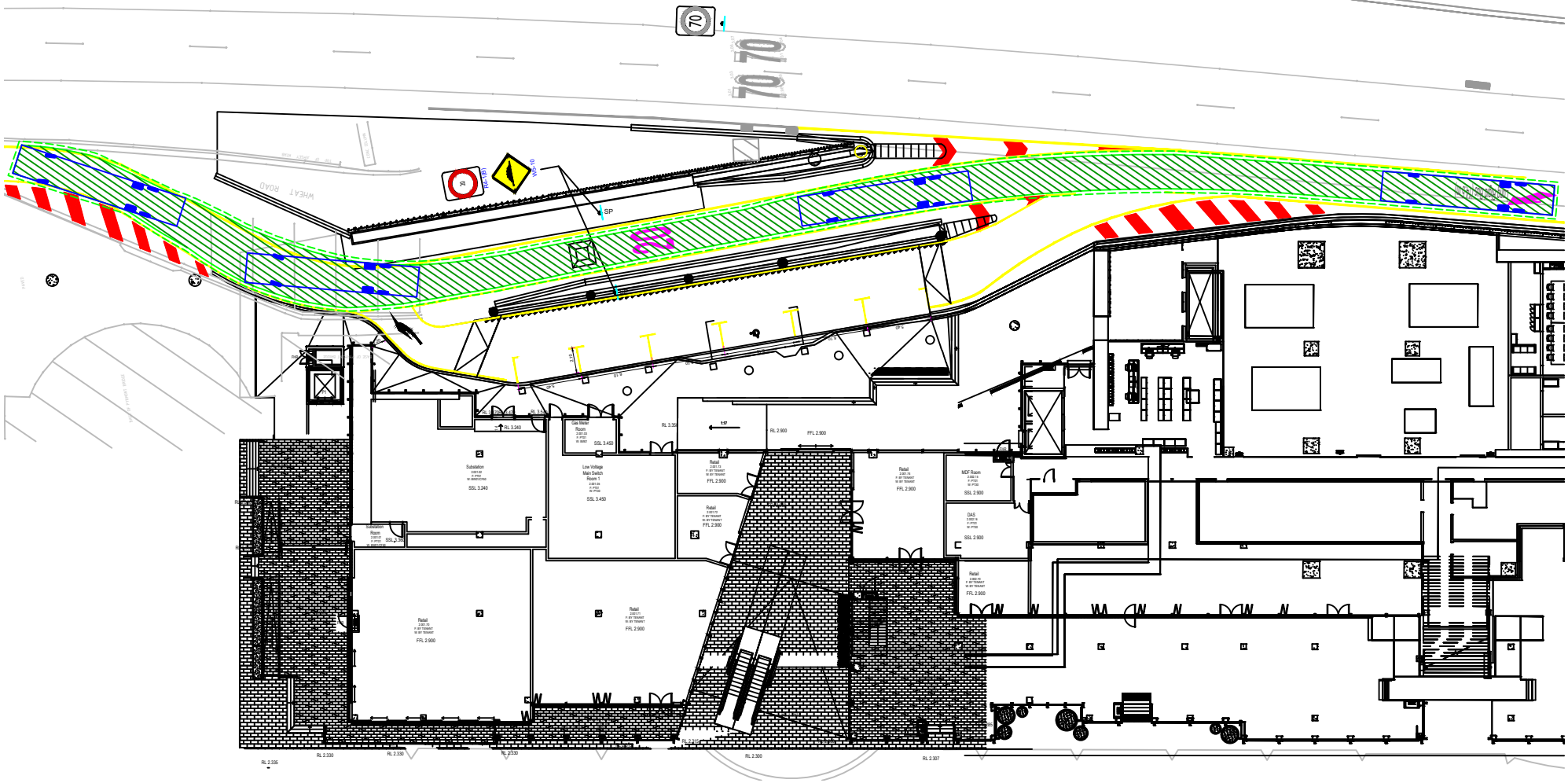
Project.	Cockle Bay Redevelopment
Title.	14.5m BUS Through Movement

Drawn By.	Date.	Scale.
DL	19.06.2023	NTS

Drwg No.	Rev.
SKE-T1-13	C



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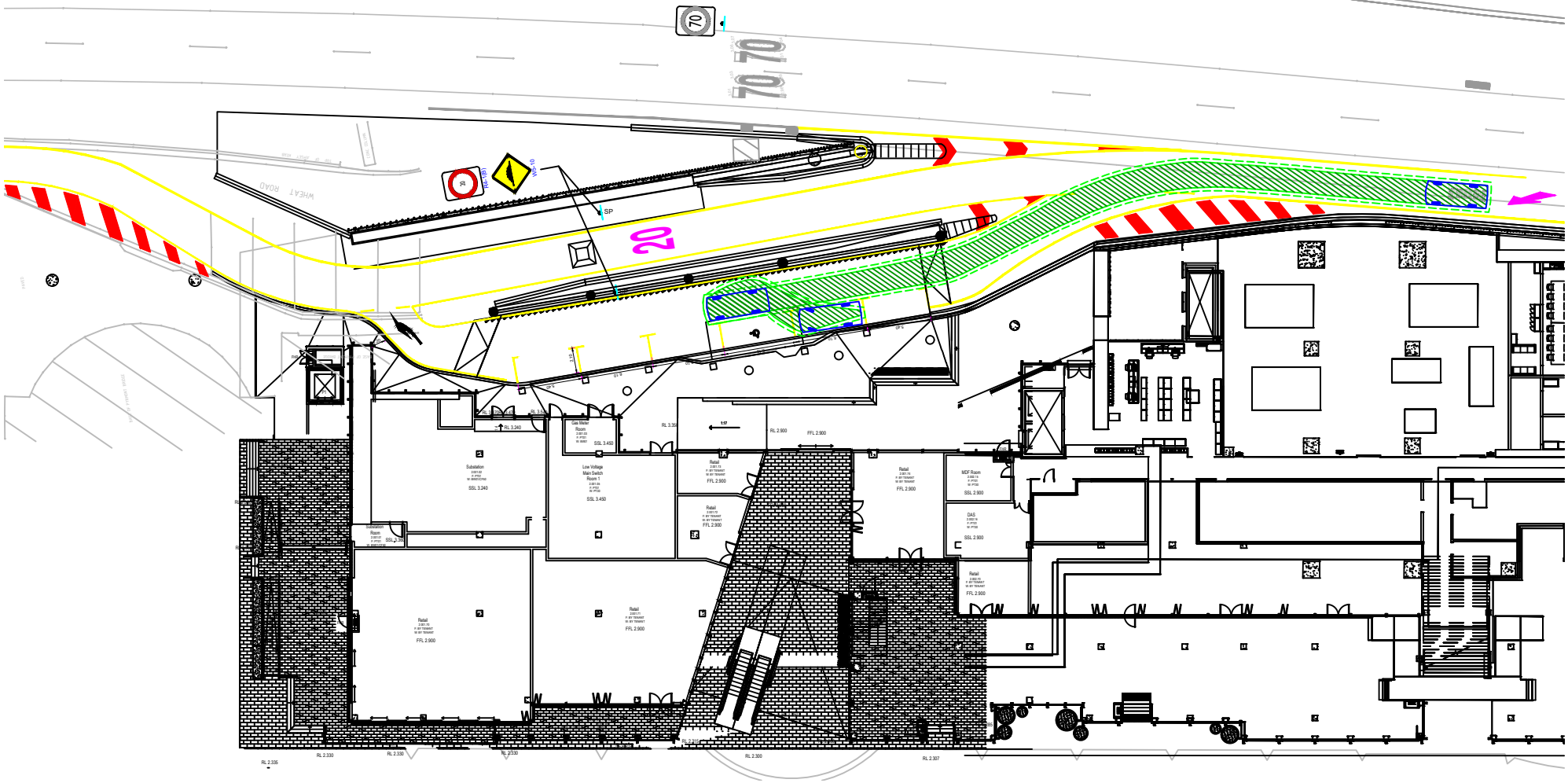
Project.	Cockle Bay Redevelopment
Title.	B99 IN Movement
Drawn By.	DL
Date.	19.06.2023
Scale.	NTS
Drwg No.	SKE-T1-14
Rev.	C



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Project.	Cockle Bay Redevelopment	
Title.	B99 OUT Movement	
Drawn By. DL	Date. 19.06.2023	Scale. NTS
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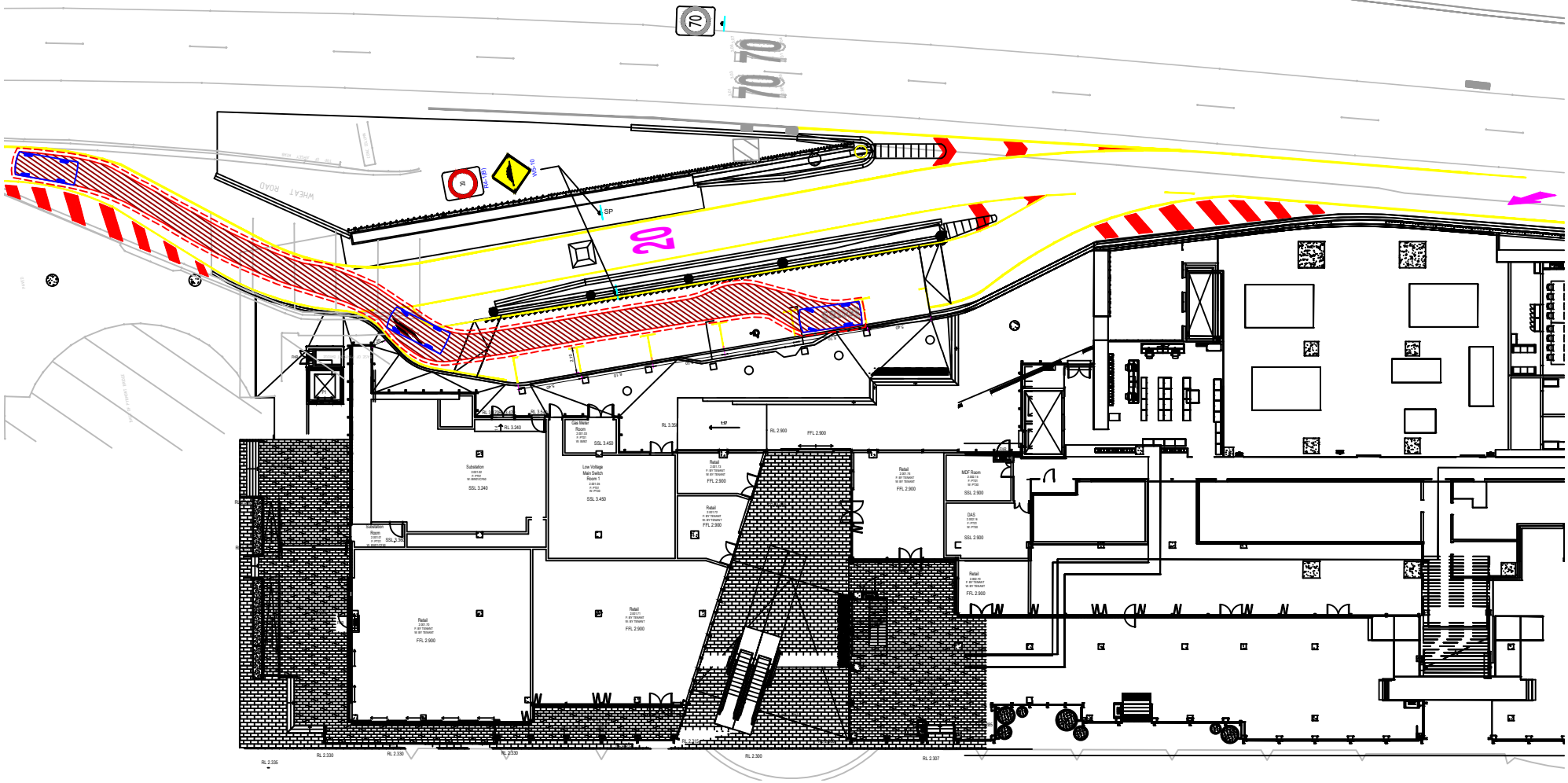

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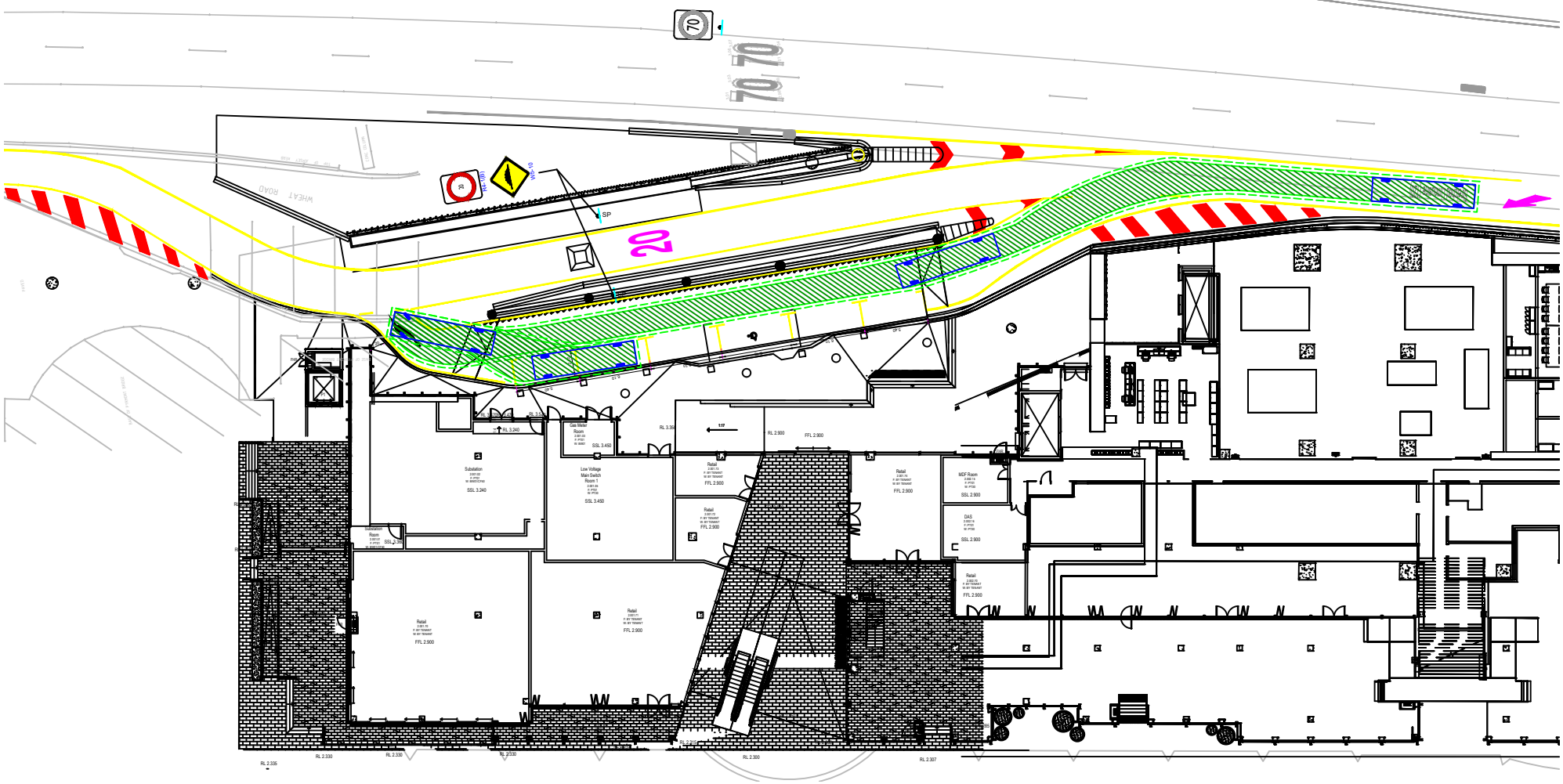
Project.	Cockle Bay Redevelopment
Title.	Stretched Limo Reversing Into Parking Area

Drawn By.	Date	Scale.
DL	19.06.2023	NTS

Drwg No.	Rev.
SKE-T1-16	C



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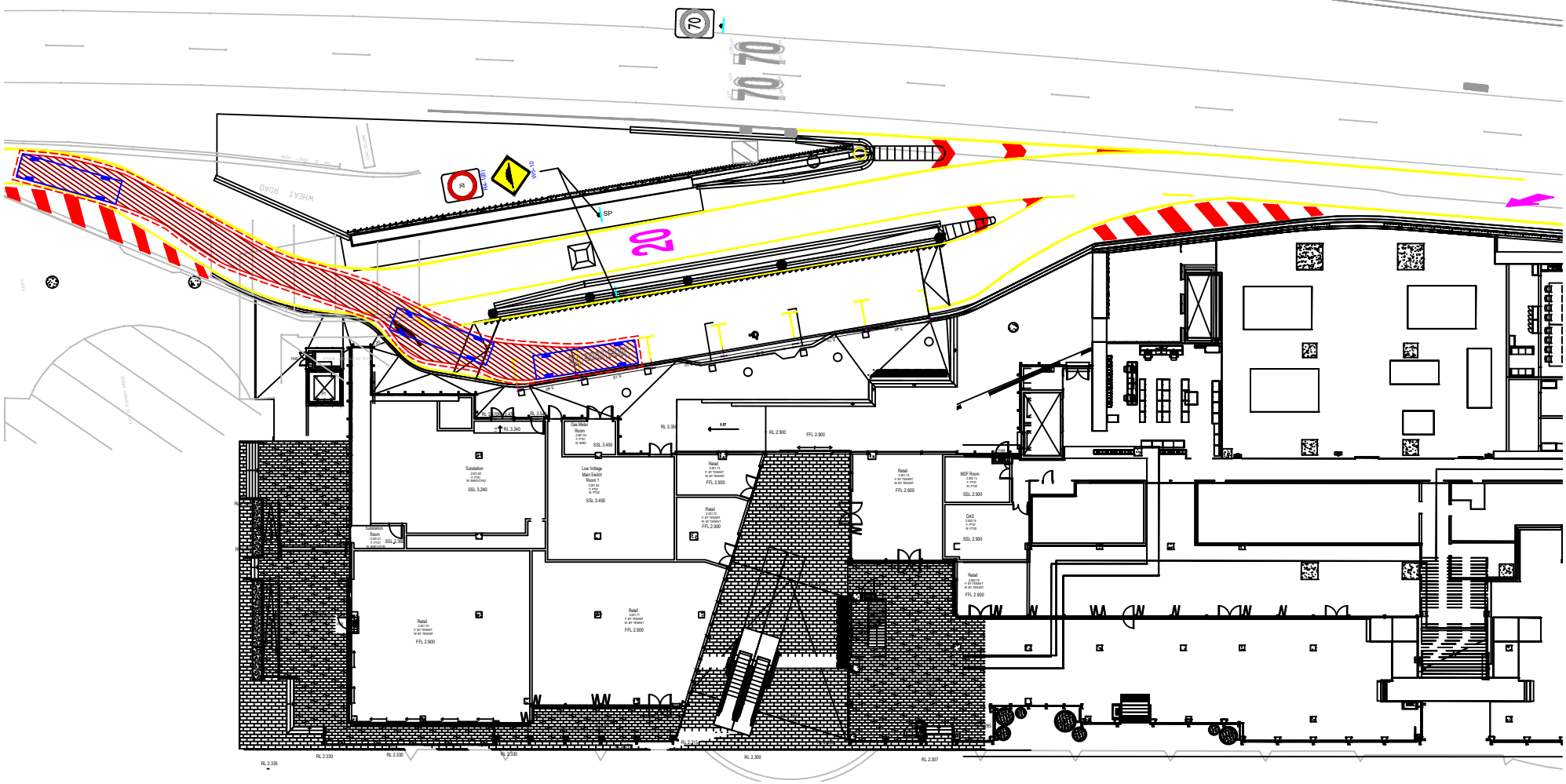
Project.	Cockle Bay Redevelopment
Title.	Stretched Limo Exiting from Parking Area
Drawn By.	DL
Date.	19.06.2023
Scale.	NTS
Drwg No.	SKE-T1-17
Rev.	C



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Project.	Cockle Bay Redevelopment
Title.	Stretched Limo Through Movement

Drawn By.	Date.	Scale.
DL	19.06.2023	NTS

Drwg No.	Rev.
SKE-T1-18	C