SUMMATION

Smith Street BTR Project

Sustainable Design Assessment Report

Prepared for: Architectus

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Executive Summary

This document has been prepared to outline the sustainability initiatives that are being considered for inclusion in the Smith Street Project located in Highgate.

It is recognised that this project is considered "public works" with the responsible planning authority being Department of Planning, Lands and Heritage (DPLH). As such, the following guideline is acknowledged as applicable to the site and this strategy incorporates the sustainability requirements outlined therein:

- WA Design Guideline SPP 7.3 - Residential Design Codes, Volume 2

Specific references to sustainability include Section 4.15 – Energy Efficiency with the following criteria:

- Element Objectives - O4.15.1 Reduce energy consumption and greenhouse gas emissions from the development.
- Acceptable Outcomes - A4.15.1 (a) Incorporate **at least one significant energy efficiency** initiative within the development that exceeds minimum practice

It is confirmed this project has exceeded the above requirement and includes numerous Energy Efficiency as well as other broader sustainability features. Summary of the key sustainability initiatives targeted for the project are outlined below:

- Energy Efficiency Features
  - Passive Design & Efficiency Features including natural ventilation, natural light, thermal massing and high-performance facades.
  - 7.5 Star Average NatHERS rating (exceeds minimum compliance by 1.5 stars)
  - Electrification of hot water, cooking and space heating services
  - Large Scale solar PV system
  - Heat Island Mitigation
- Broader Sustainability Features
  - Vehicle Use Modal Shift -Bike and Scooter Parking
  - Future Provision for EV Charging infrastructure
  - Native and water wise landscaping species selection
  - Social Benefits
    - Social and Affordable Housing offering including NDIS Apartments
    - Community Gardens
    - Shaded nature play area
    - Edible garden and community use roof terrace
  - Water efficient fittings and fixtures
  - Construction Waste Recycling
  - Waste Management Plan
  - Energy and Water Metering and Monitoring
  - Effective Stormwater Management

Refer to Section 2 for further discussion of the proposed initiatives.

Summation Pty Ltd has been engaged as the sustainability consultants for the project and will be responsible for the delivery of the sustainability objectives. The sustainability team for this project will be led by Prasanna Suraweera, who is a Director with Summation and a Green Star Accredited Professional with over 20 years of experience in delivery of sustainable developments. It is confirmed that Summation has been engaged prior to concept planning stage and will be involved in and contribute until project completion.

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Abbreviations/Glossary

Abbreviation	Description
ESD	Environmentally Sustainable Design
GBCA	Green Building Council of Australia
GSAP	Green Star Accredited Professional
KPI	Key Performance Indicators
EOT	End of Trip
NCC	National Construction Code
BMS	Building Management System

1 Introduction

1.1 Project Background

The proposed Smith Street BTR project is located in Highgate, WA. The site location is shown in Figure 1 below.

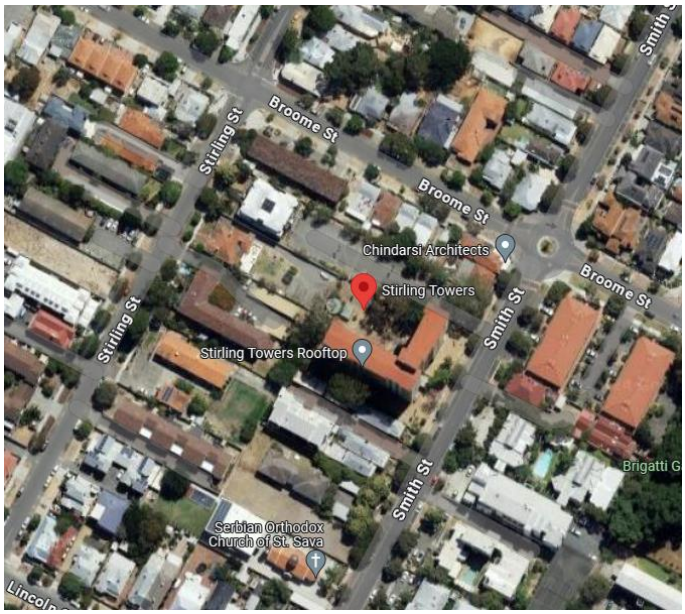

Figure 1 – Site Location and Context

The project consists of a mixture of social and affordable housing and Overnight Onsite Assistance (OOA) accommodation with a total of 109 units. A summary of the expected project yields are as follows:

- Social Housing – 78 units
- Affordable Housing – 22 units
- Overnight Onsite Assistance apartments – 2 units

1.2 Disclaimer

This report provides high level guidance regarding the sustainability commitments targeted for this project and the preliminary strategies and initiatives to be adopted therein.

The purpose of this report is to articulate the sustainability initiatives being committed by the project. Due care has been taken to ensure the initiatives are coordinated and achievable for the project, however, note that the specific strategies mentioned in this report are indicative and may evolve throughout the futures stages of design.

1.3 Deliverables

The specific deliverables/commitments for each milestone are confirmed below:

- **Development Application Deliverables:**
  - Sustainable Design Assessment Report – This report
- **Working Drawing (Building Permit) Phase Deliverables:**
  - Updated Sustainable Design Assessment Report.
- **Post Practical Completion Phase Deliverables:**
  - Final Sustainable Design Assessment Report including confirmation the targeted initiatives have been delivered.

2 Proposed Initiatives

2.1 Summary of Initiatives

A summary and discussion of the key initiatives proposed are outlined below:

- Energy Efficiency Features
    - Passive Design & Efficiency Features including natural ventilation, natural light, thermal massing and high-performance facades.
    - 7.5 Star Average NatHERS rating (exceeds minimum compliance by 1.5 stars)
    - Electrification of hot water, cooking and space heating services
    - Large Scale solar PV system
    - Heat Island Mitigation
- Broader Sustainability Features
    - Vehicle Use Modal Shift -Bike and Scooter Parking
    - Future Provision for EV Charging infrastructure
    - Native and water wise landscaping species selection
    - Social Benefits
        - Social and Affordable Housing offering including NDIS Apartments
        - Extensive landscape areas for biophilic connection and social connection
            - Community Gardens
            - Shaded nature play area
            - Edible garden and community use roof terrace
    - Water efficient fittings and fixtures
    - Construction Waste Recycling
    - Waste Management Plan
    - Energy and Water Metering and Monitoring
    - Effective Stormwater Management

2.2 Passive Design & Efficiency

Energy efficiency requires combination of high-performance building envelope together with efficient servicing strategy. The following fundamental concepts will be considered in the design of Smith Street Project:

- Passive design elements, including low window to wall ratio and massing – due to the site orientation, fixed shading devices become ineffective. Therefore, the project has chosen to target a low window to wall ratio to achieve a reasonable balance between amenity with efficiency.
- High performance envelope including high-performance low ‘e’ single -glazing systems.
- Electric instantaneous hot water systems which eliminate storage and pipe losses
- LED lighting throughout for light quality and efficiency
- 7.5 Star Average NatHERS rating (exceeds minimum compliance by 1.5 stars)

2.3 Water Efficiency

Water efficiency will be targeted through the selection of suitable fittings and fixtures. The following initiatives will be targeted:

- All fittings and appliances have at least a minimum star rating of 4 Stars in accordance with the Australian Government's Water Efficiency Labelling and Standards (WELS) scheme.
- 5 Star rated dual flush toilets in accordance with the WELS scheme.

2.4 Large Scale Solar PV

Provision of renewables is critical to the sustainability performance of buildings. It is a key initiative for reducing carbon emissions and will also provide operating cost benefits.

The Smith Street project has nominated an approximate total of 1,225sqm of roof area which has been allocated for Solar PV. The commitment is to install a grid integrated Solar PV array with a capacity of 100KW, with an expected yield of ~150,000KWHrs/annum. The expected carbon savings are 81,000 kgCO2e/annum.

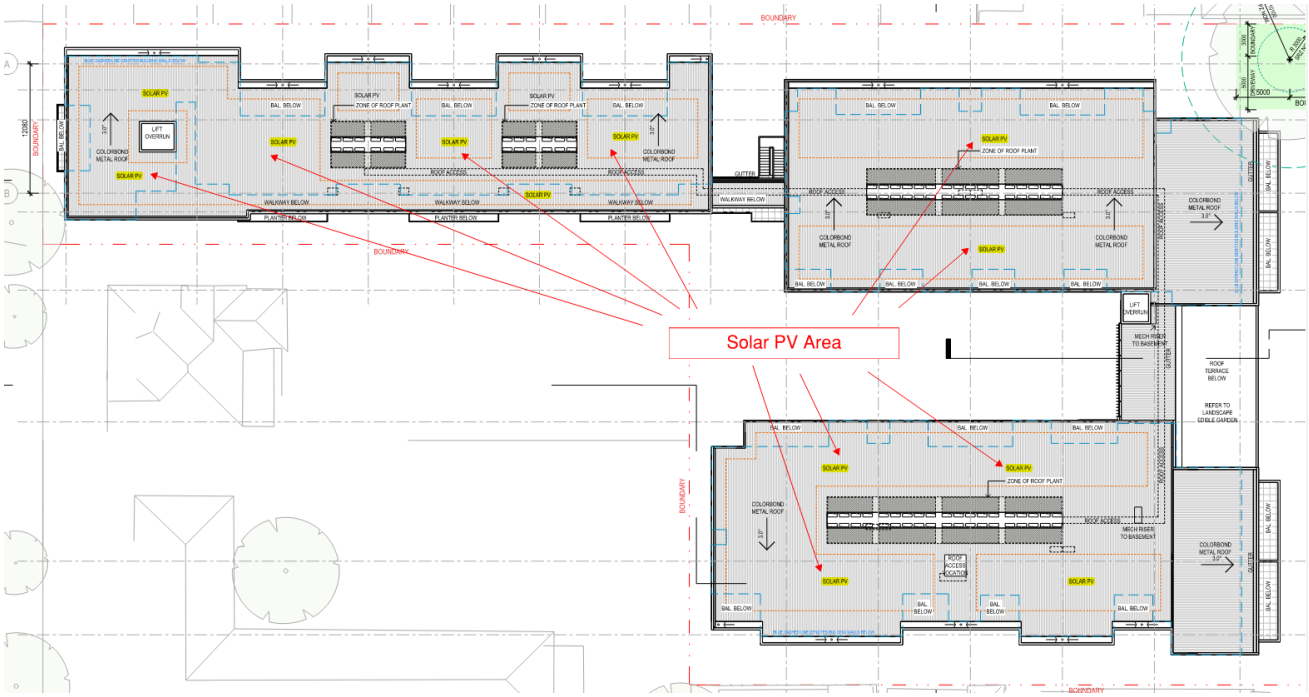

Figure 2 – Allocated Roof Area for Solar PV

2.5 Electrification – Hot Water, Space Heating and Cooking

Electrification is a key strategy for ongoing emissions improvement as the electricity grid continues to improve its carbon intensity. This is due to the ongoing 'greening' of the grid as the additional renewable's capacity is realised. As an example, over the past 15 years, the grid emissions have improved by approximately 40% to 50% on the South-West Interconnected System (SWIS). This trend is expected to continue with further investment into renewable projects planned for the SWIS.

By having all services and energy demands electrified, this project is well placed to achieve ongoing savings in carbon emissions alongside the grid.

2.6 Effective Stormwater Management

Storm water management plan will be completed, with due consideration for reducing pollution runoff from the development.

2.7 Heat Island Mitigation

The external colour of roof and landscape elements can have significant impact on the local microclimate, specifically temperature. Dark surfaces will absorb heat and can increase ambient temperatures by 5+ degrees. Light coloured roofs and surfaces will assist in minimising this impact, along with landscaped areas.

The Smith Street Project will adopt this strategy to minimise its impact on the local microclimate.

2.8 Construction Waste Recycling

A minimum 90% of all construction waste will be diverted from landfill including ongoing monthly reporting. This will be specified in the Head Contractor obligations and in line with current industry best practice.

2.9 Waste Management Plan

A Waste Management Plan will be developed with intention to maximise operational waste recycling. Appropriate waste sorting area has been determined based on the expected throughput of each waste streams, these have been located on the ground floor with safe efficient access by occupants and waste vehicles. Specific waste streams targeted include the following:

- General
- Comingled Recycling
- Food Organics and Garden Organics (FOGO)

Refer to the Waste Management Plan for further details.

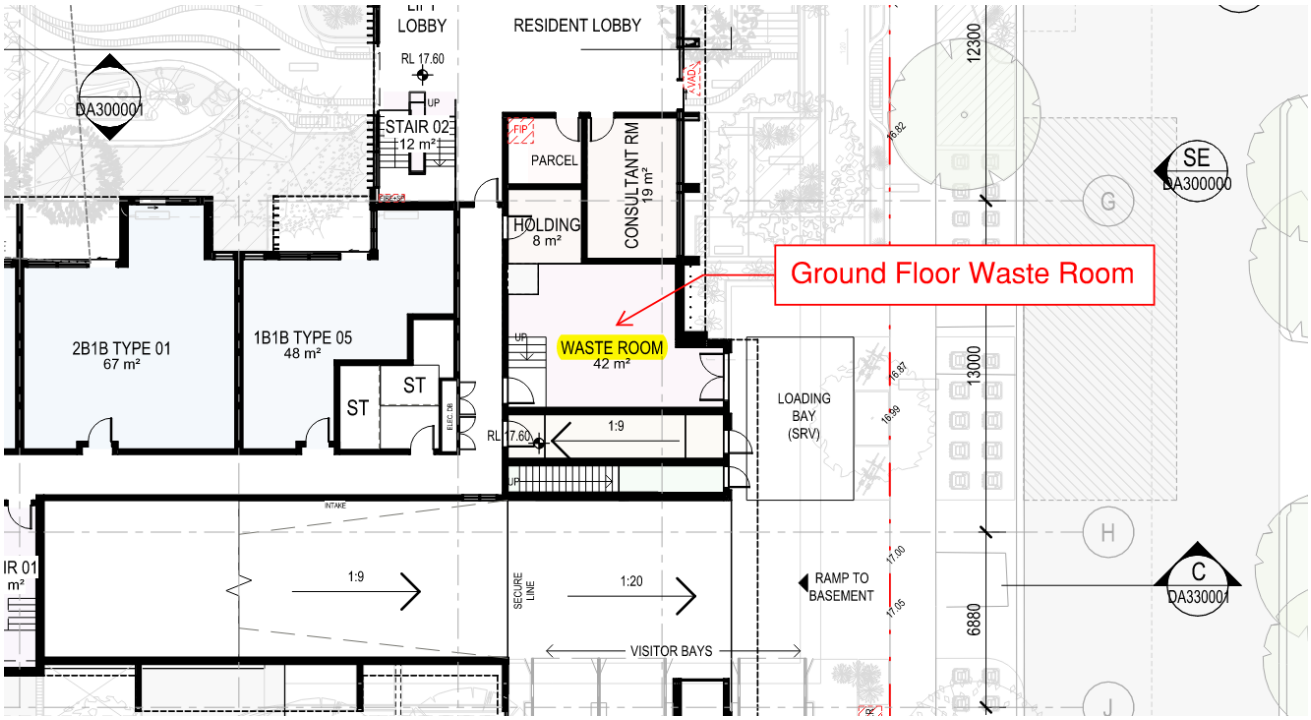

Figure 3 – Waste Storage Area including Recycling

2.10 Sustainable Landscaping

This project has a strong focus of landscape amenity which provides significant sustainability, social and phycological benefits. Access to nature and biophilia is a proven strategy for health and well-being of people and when combined with native and water wise species selection, this provides an strong sustainability benefit. Key features provided in this project include:

- Native and water wise landscaping species selection
- Extensive landscape areas for biophilic connection and social connection
  - Community Gardens
  - Shaded nature play area
  - Edible garden and community use roof terrace

Refer to extracts of Landscape Designs in Figure 4 and Figure 5 for details.

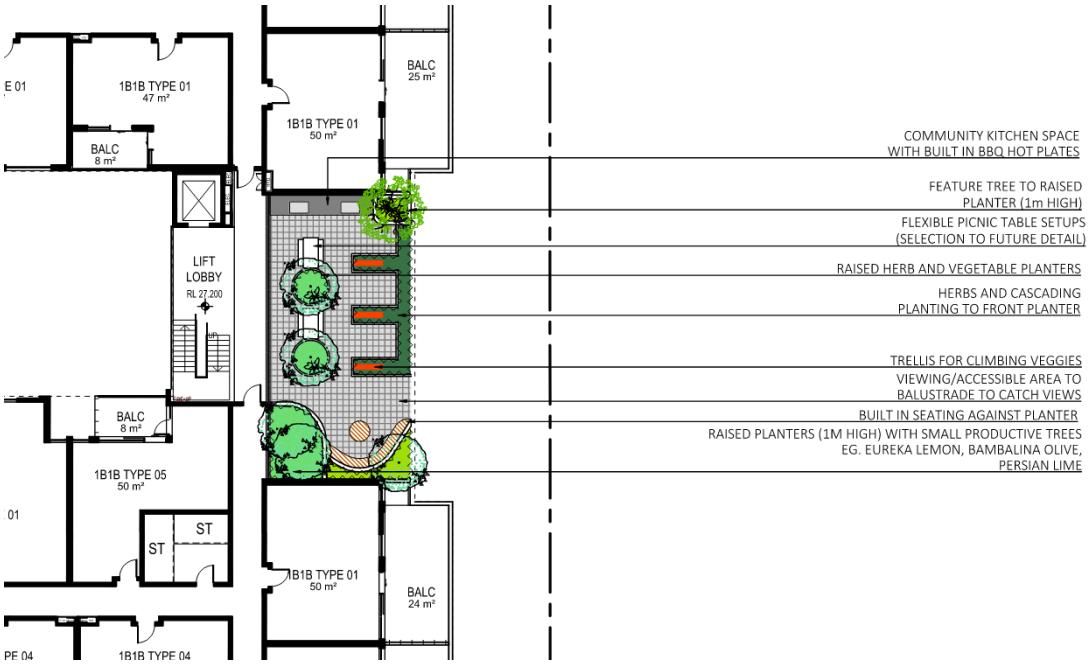

Figure 4 – Level 3 Edible Garden and Community Use Roof Terrace

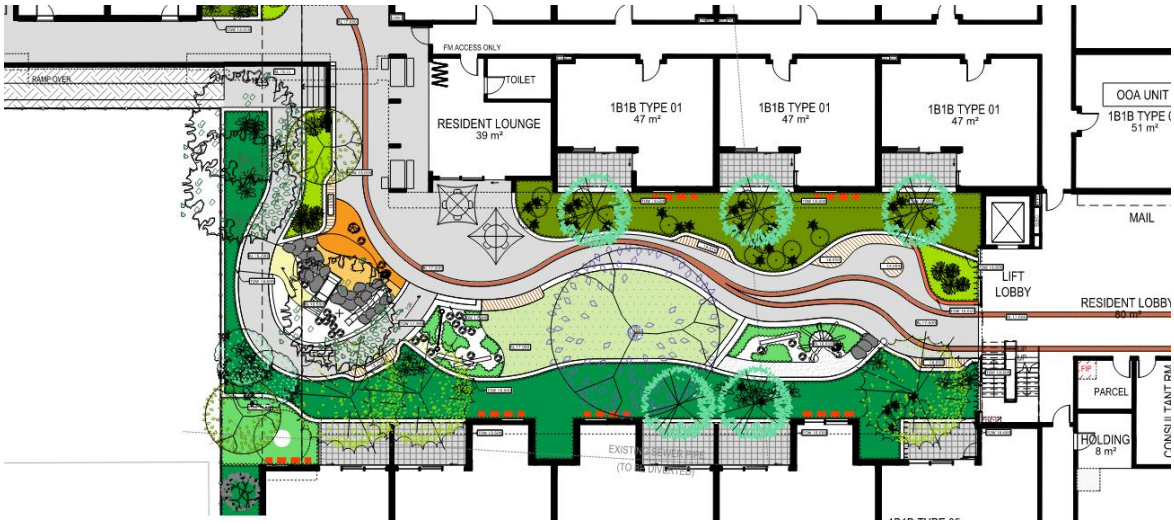

Figure 5 – Community Gardens

2.11 Promoting EV Transition – Future EV Charging Infrastructure

The Electric Vehicle transition is a key strategy for reducing global emissions. Facilitating the EV transition for projects such as the Smith Street project involve provision of nominated charging bays to ensure residents have easy access to charging infrastructure should they wish to adopt EV.

The project commitment includes for the following:

- Future Provision for 6 charging bays, namely switchboard spatial, capacity and conduits.
- Chargers to be installed based on occupant demand, including loan management software.

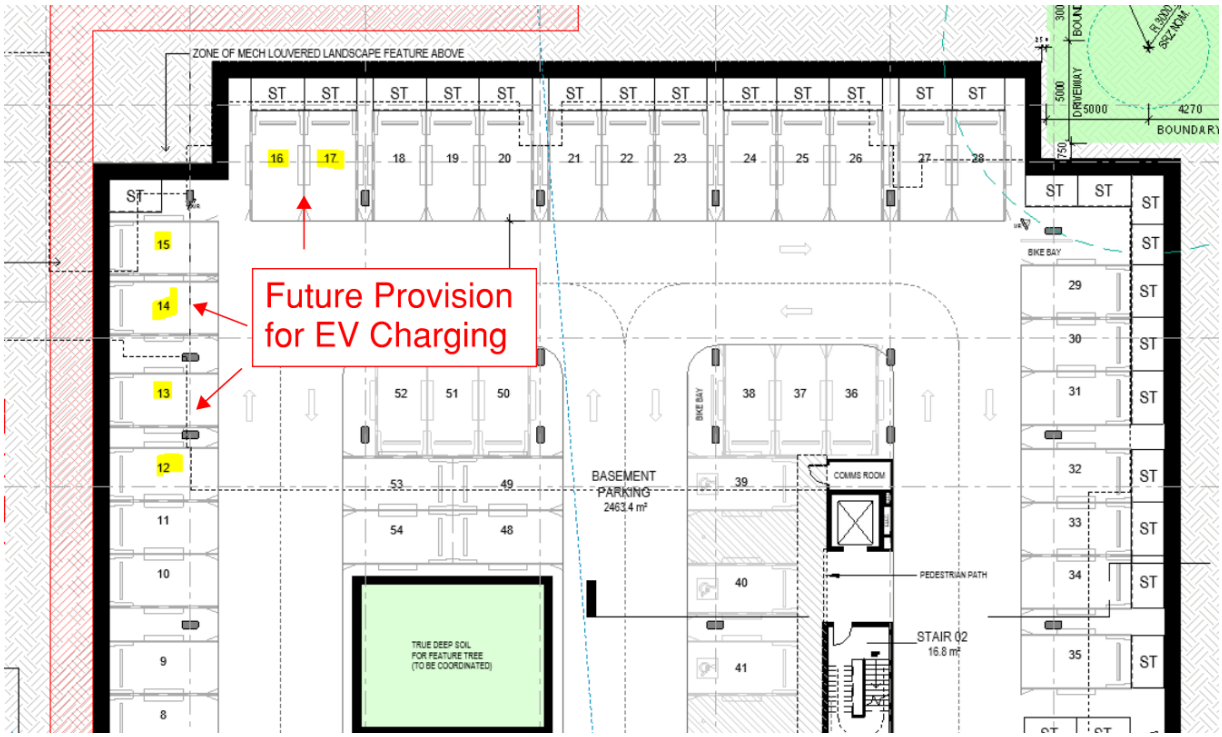

Figure 6 – Provision for Future EV Charging Bays

2.12 Vehicle Use Modal Shift -Bike and Scooter Parking

Reducing reliance on vehicle use is a key strategy for a low emission future. Provision of bike and scooter parking facilities will also promote healthy activities for occupants. Smith Street project will include provisions for these facilities to promote this modal shift.

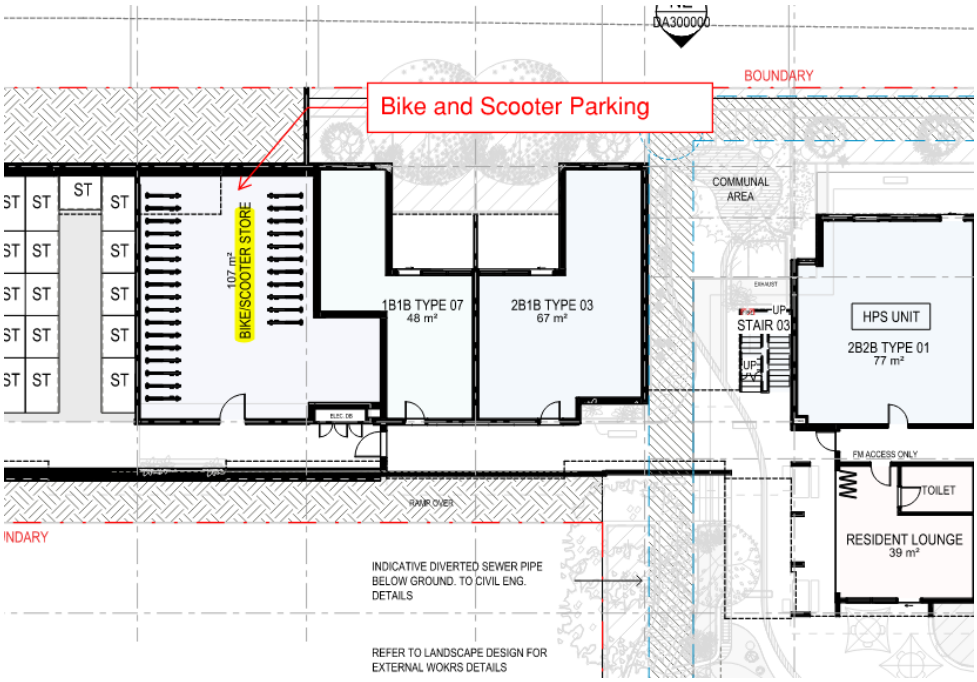

Figure 7 – Bike and Scooter Parking Facilities

2.13 Energy and Water Metering and Monitoring

Effective metering and monitoring are essential criteria to ensure the facility performance is optimised during the operations phase. To enable this, extensive metering and monitoring systems will be provided for all major end uses of energy and water consumption. This data collected from the metering system will be made available for the residents. This will facilitate tracking of performance, identification of anomalies as well as assist in fault finding and tuning.

This is in keeping with the requirements of the NCC Section J requirements.

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