

MOOREBANK LOGISTICS PARK

MOOREBANK PRECINCT WEST - STAGE 2

URBAN DESIGN DEVELOPMENT REPORT

REVISION 6 / MARCH 2021

SIMTA | SYDNEY
INTERMODAL
TERMINAL
ALLIANCE

TACTICAL
GROUP

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MOOREBANK

LOGISTICS PARK

MOOREBANK PRECINCT WEST STAGE 2

URBAN DESIGN DEVELOPMENT REPORT

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GLOSSARY

1% AEP	Annual Exceedance Probability
ARI	Average Reoccurrence Interval
BITRE	Bureau of Infrastructure, Transport and Regional Economics
EIS	Environmental Impact Statement The Environmental Impact Statement titled Moorebank Precinct West - Stage 2 Proposal Environmental Impact Statement - (SSD16-7709), prepared by Arcadis, dated October 2016
EMSP	Environment Management System's Plan
ESD	Ecologically Sustainable Development
GANSW	Government Architect of New South Wales
GPT	Gross Pollutant Trap
IMT	Intermodal Terminal a location for the interchange of freight between one mode of transport and another
MPE	Moorebank Precinct East Refers to the following developments: - Moorebank Intermodal Precinct East - Stage 1 (SSD 6766) - Moorebank Intermodal Precinct East - Stage 2 (SSD 7628)
MPW	Moorebank Precinct West Refers to the following developments: - Moorebank Intermodal Precinct West - Concept Proposal & Stage 1 Early Works (SSD 5066) - Moorebank Intermodal Precinct West - Stage 2 (SSD 7709) - any subsequent modifications associated with the above developments
NCC	National Construction Code
OSD	On-Site Detention
SIMTA	Sydney Intermodal Terminal Alliance
SDDR	Stormwater Development Design Report
SSD	State Significant Development
tCO2e	Tonnes of Carbon Dioxide equivalent
TEU	Twenty-foot Equivalent Units Twenty-foot equivalent unit container
UHIMS	Urban Heat Island Mitigation Strategy
WSUD	Water Sensitive Urban Design



01

URBAN DESIGN DEVELOPMENT REPORT
INTRODUCTION

1.1 EXECUTIVE SUMMARY

The Moorebank Precinct West Stage 2 represents a milestone in the development of SIMTA's Moorebank Logistics Park, a logistics and warehousing facility which will act as a key component of the future of NSW logistics and freight transport, reducing demand for containerised freight via road, creating jobs and related economic benefits in South-West Sydney, and reducing industry carbon emissions.

This Urban Design Development Report aims to establish a set of detailed objectives and indicative design parameters, performance benchmarks and minimum standards for the development of the site, creating a facility which is efficient in its intended operations while responding to local and regional requirements, including the amenity of neighbouring residential areas. The development will integrate into surrounding land uses and existing developments through use of considered structures and design, the existing landform and vegetation, to create a facility that is not only a vital infrastructure link, but is also an employment generating, functional and environmentally sustainable amenity that serves the broader community.

These objectives will be achieved by, where possible, incorporating best practice ecologically sustainable design initiatives, water sensitive urban design including water storage and reuse, urban heat island mitigation strategies, landscape design sympathetic to the surrounding vegetation, as well as a range of passive and active measures employed in the design of buildings and logistics operations.

This report has been compiled to support the design in accordance with the Conditions of Consent, as set out in the approved Development Application (SSD 7709) issued by the Independent Planning Commission, as required under Condition B52. Compliance with the conditions will result in a development that will showcase industrial architecture and logistics design, coupled with leading technology and sustainable initiatives, unified by high quality urban and streetscape elements set around a considered and consistent framework of appropriately proportioned buildings, public domain and extensive landscaping.



FIGURE 1.1 - Regional Context Plan

1.2 BACKGROUND

Reid Campbell have been appointed by SIMTA to develop an Urban Design Development Report for the proposed Moorebank Intermodal Terminal Facility Development.

This report has been developed to address and provide detailed objectives for the design and operations of the development and define place specific Urban Design Principles, incorporating those outlined in the conditions of consent, specifically responding to the key issues:

- **B48 – Urban Heat Island Mitigation**
- **B49 – Ecologically Sustainable Development (ESD)**
- **B57 – Landscape Design**

The design documentation included as part of, and supporting, this report has been prepared at a concept stage, per Condition B54.

The Project site is centred on an approximately 220 hectare (ha) area of Commonwealth-owned land previously occupied by the Department of Defence School of Military Engineering (SME) and other minor Defence units. The Project site is adjacent to the Southern Sydney Freight Line (SSFL), the East Hills Rail Line, the M5 Motorway and Moorebank Avenue.

The Project involves the development of an intermodal freight terminal facility at Moorebank in south-west Sydney, linked to the interstate rail network. The Project includes associated commercial infrastructure (warehousing), a rail link connecting the Project site to the (SSFL) and road entry via a connection point to Moorebank Avenue. The Project proponent is Sydney Intermodal Terminal Alliance (SIMTA).

An Intermodal Terminal (IMT) is a location for the interchange of freight between one mode of transport and another. The Project is intended to interchange freight between road and rail, and service freight movements to and from Sydney’s west and south-west.

Sydney’s need for additional interstate IMT infrastructure is driven by the following:

- Continued strong growth in containerised freight, with throughput at Port Botany, a critical gateway for the movement of national freight, forecast to increase by 72.4% by 2032-33 (BITRE, Containerised and non-containerised trade through Australian Ports to 2032-33, December 2014), creating a bottleneck. As a result, more freight needs to be moved to and from Port Botany by rail;
- Capacity constraints within the current and planned IMT network in Sydney as well as limited land zoned and service land available for the development of industrial facilities in the greater Sydney region;
- Heavy road congestion around Port Botany and on the M5 Motorway, which is projected to worsen with the anticipated growth in freight, creating high social and environmental costs for the state.

The above issues are expected to have significant economic and environmental impacts associated with road congestion in the Sydney GMA (Greater Metropolitan Area), and will add substantial costs to the national and regional freight supply chain. The Moorebank IMT would handle a significant proportion of the expected growth in containerised freight, including increased rail freight, thereby responding to and alleviating Sydney’s increasing road congestion, particularly along the M4 and M5. The Project is well located, considering two-thirds of container freight from Port Botany is bound for Western Sydney.

The project includes development of warehousing facilities adjacent to the IMT site, enabling immediate packing and unpacking of containers, and loading onto road vehicles and interstate freight rail for dispersion, improving the efficiency of the logistics supply chain for locally destined goods, thereby supporting the cost competitiveness of rail transport against road.

Overall, it is envisaged the Project would boost the role of the national rail freight network’s role in moving goods through the Sydney region, with potential



1.3 SOCIAL, ENVIRONMENTAL AND ECONOMIC BENEFITS

The Development is expected to act as a strategic contribution to the Greater Sydney metropolitan area, generating a number of economic, social and environmental benefits for the community and economy, of which the key strategic urban design benefits are:

- 1. The removal of heavy vehicles from the inner-urban area of Greater Sydney and a corresponding improvement in the urban environment.
- 2. The improved ecological biodiversity and water way health of a valuable Green Grid connection along the George’s River.
- 3. Reduction in industry Greenhouse Gas emissions compared to a “No Build” scenario over a forty year period (Arcadis, MLP Sustainability Strategy Summary Report, 14 July 2017).

These key strategic urban design benefits are further aided by the following social, environmental and economic benefits which act as drivers for the development:

- Social**
- Reducing road traffic and associated noise along key road freight routes between Moorebank and Port Botany and interstate;
 - Creation of jobs locally within the fast growing South-West Sydney district;
 - Reduced costs associated with road damage, congestion and accidents;
- Environmental**
- Reduced road congestion: up to 3,000 fewer truck journeys every day once the terminal is operating at capacity, equating to 1.05 million less truck journeys per year, with an estimated annual abatement of more than 110,000 tCO2 in transport-related emissions, by moving freight by rail rather than road;
 - Projected reduction in greenhouse gas emissions of over 2.4 million tCO2-e over forty years (based on a comparison of a “No Build” and “Tier 2 Improved Efficiency” Scenario);
 - The installation of a 12-30MW solar array to warehouse roofing (across both East and West precincts), reducing operational energy costs, as part of the Clean Energy Finance Corporation investment agreement;
- Economic**
- \$11 billion in economic benefits over a 30-year operational period for the Project, including \$120 million a year for the South-Western Sydney economy, through improved productivity; reduced operating costs and job creation;
 - Enabling the efficient movement of freight around Australia, considering expected growth of interstate freight;
 - 6,800 jobs created, between construction and long term operation of the facility.

The development of the Project is intended to increase intermodal capacity in Sydney, and would have a number of flow-on benefits across the freight sector and the NSW economy. By providing increased intermodal capacity in Sydney, it is envisaged the unit costs of transporting containers by rail for these markets would be reduced, and this would lead to an increase in the share of freight movements by rail.

The Project, by providing increased intermodal capacity in South-Western Sydney and increasing the share of freight movement by rail, creates a number of benefits and key contributions for the local community, freight sector and state economy. This Document aims to outline the Urban Design strategies the finer grain detail of integrating the human scale with the bulk and mass infrastructure. The following report therefore is written in the context of this relationship, striving to promote best practices where possible, with respect to the greater overarching objectives that must be met for the benefits above to be realised.



FIGURE 1.2 - SIMTA economic projections for Moorebank Logistics Park Public information available from SIMTA)

1.4 DEVELOPMENT VISION

The broad vision for SIMTA's project is to create a high quality IMT with associated warehousing, distribution and support facilities, taking advantage of the Site's strategic position and catchment relevance.

The development, through the implementation of the Urban Design Principles outlined in this document, will aim to integrate into surrounding land uses and existing developments, creating a high quality urban place through considered structures and a strong landscape character, whilst maintaining the flexibility required to accommodate the varying future tenant and market demands of a facility that is not only a vital infrastructure link, but also an employment generating, functional and environmentally sustainable hub servicing the broader community.

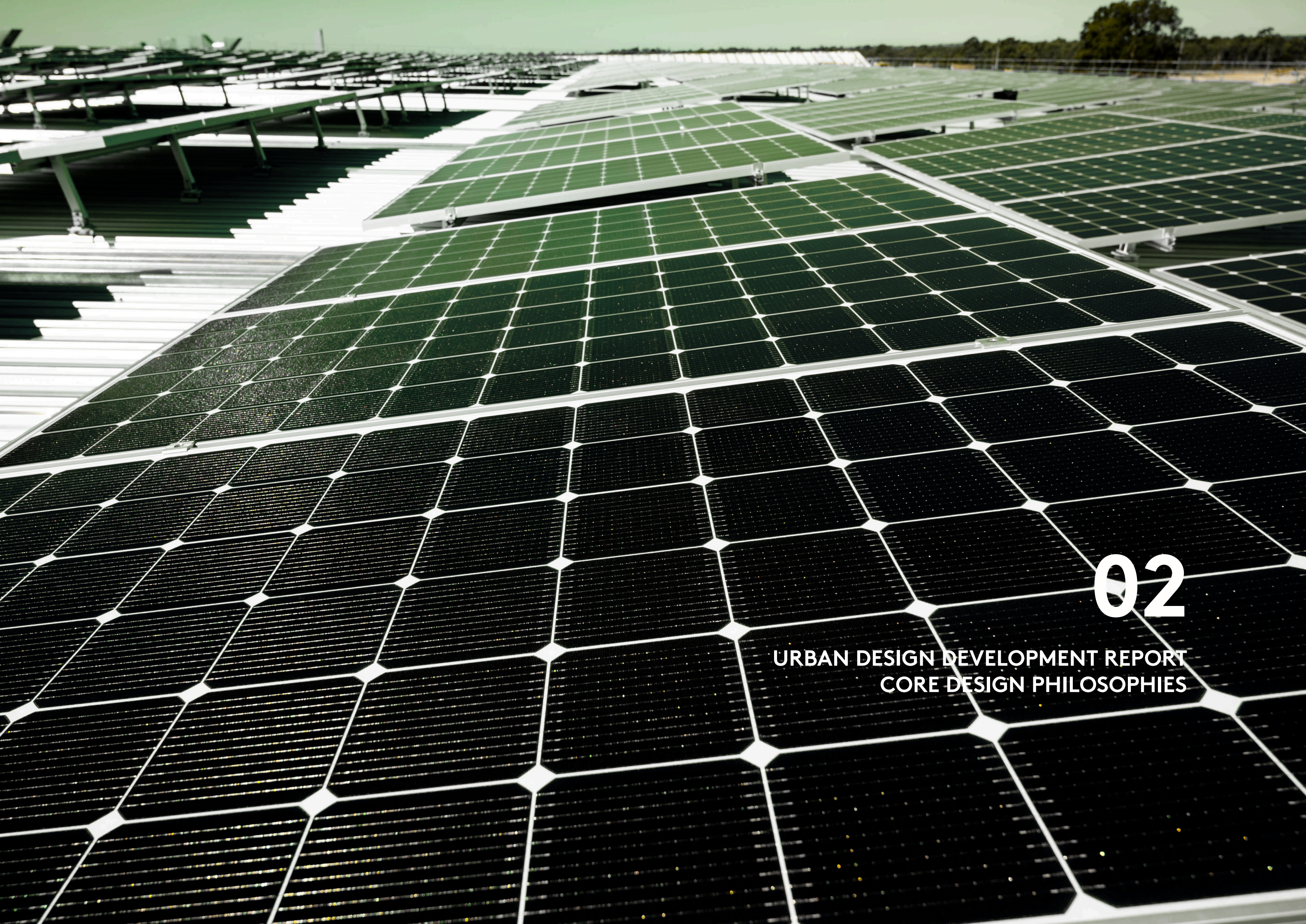
An integral part of SIMTA's vision is to integrate wherever possible, the design and planning principles of documents and concepts outlined in the GANSW Better Placed, Greener Spaces, and Green Grid documentation with that of the design. The intended high quality design practices and sustainable thinking aims to create a facility and places that are synonymous with these philosophies wherever achievable.

1.5 COMPLIANCE MATRIX

Refer to the Table of Compliance Matrix (Appendix 4.1) for conditions of consent and where these can be found in relation to relevant documentation.



FIGURE 1.3 - East precinct Display Suite landscape treatment.



02

URBAN DESIGN DEVELOPMENT REPORT
CORE DESIGN PHILOSOPHIES

2.1 CONCEPT MASTERPLAN

The vision for the SIMTA design is intended to shape the planning, design and management of the future development, including all components of the Intermodal Terminal Facility described in section 1.1. The broad vision of the SIMTA design is to:

- Develop an IMT that is a vital infrastructure component for Sydney's future economic and productivity growth, connected through a well-considered Rail Link to the Southern Sydney Freight Line (SSFL);
- Develop an intelligently designed built-environment, providing a high-quality employment zone to attract businesses and job creating industries, incorporating best practice design and sustainability measures, creating a strong integration with adjacent industry, land use, and the local community;
- Create an employment area with adjacent naturally vegetated areas that will respond to the *Sydney Green Grid*, that also has a strong urban character and sense of place;
- Encourage visual and access links to allow integration with existing local industrial areas and other land uses;
- Manage the water cycle and incorporate Water Sensitive Urban Design principles and practices where possible, to mitigate impact and improve amenity of Georges River as part of Sydney's Hydrological Grid;
- Incorporate best practice environmental planning and design, particularly techniques for conserving the consumption of energy and water in all buildings, ancillary facilities and operating structures, including the control and/or mitigation of noise and emissions;
- Provide visual connections between public domain and vegetation/drainage corridors;
- Provide a high level of safety and security to the development as well as the community populating surrounding lands;
- Create a well-connected and legible street network;
- Incorporate quality development where businesses enjoy high levels of accessibility and are supported by an attractive public domain and amenity that is functional, pedestrian friendly and efficient; and
- Encourage the provision of transport links.

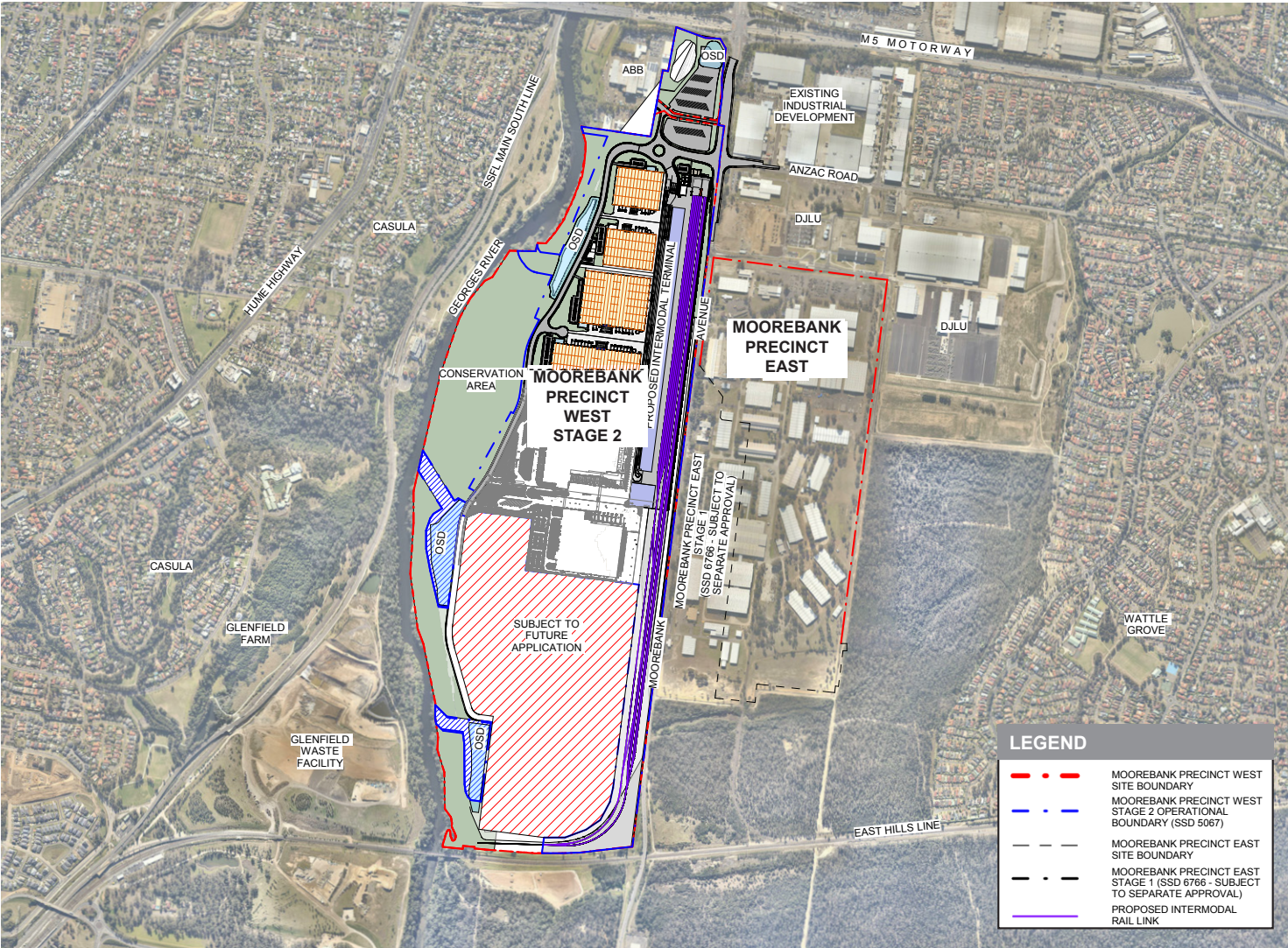


FIGURE 2.1 - MPW Masterplan overlay on satellite image of site

NTS

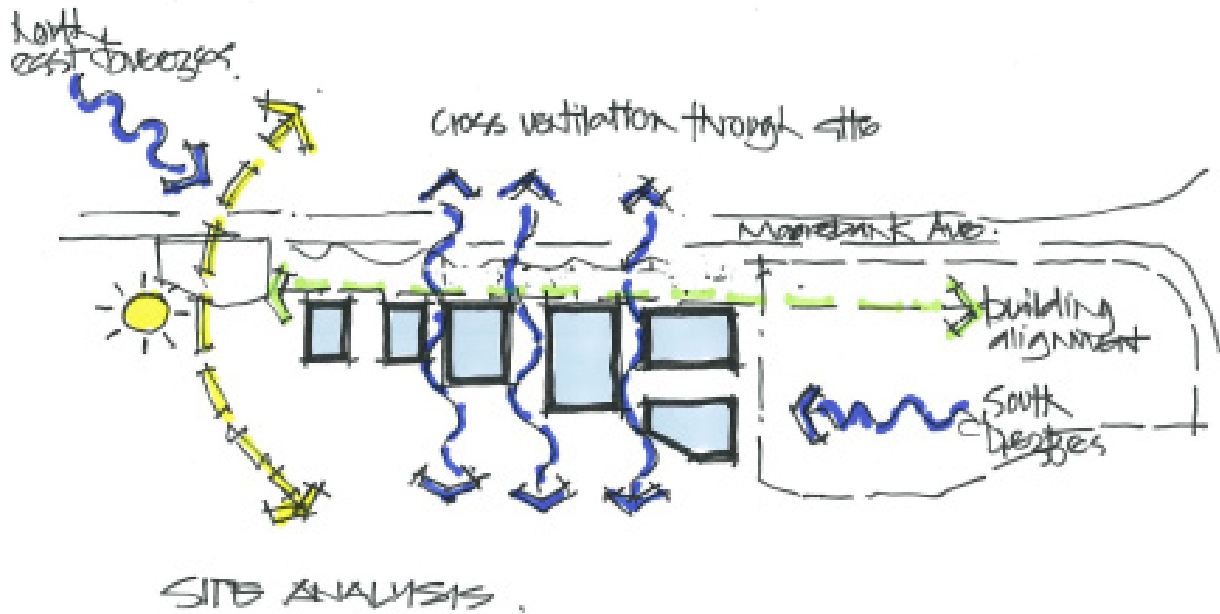


FIGURE 2.2 - MPW Site Analysis sketch displaying building siting, and ventilation corridors along warehouse frontages.

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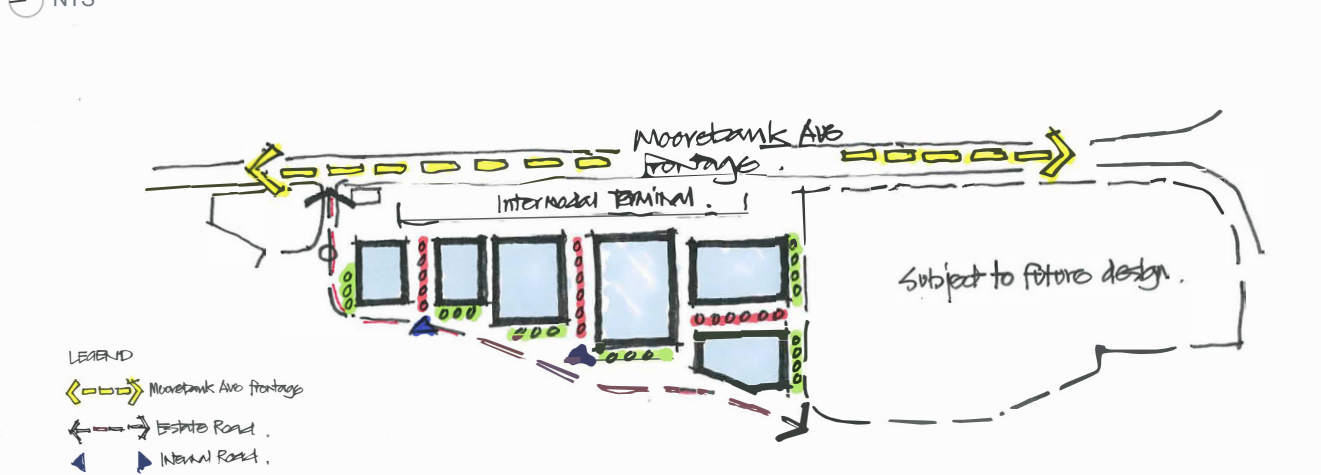


FIGURE 2.3 - MPW access strategy.

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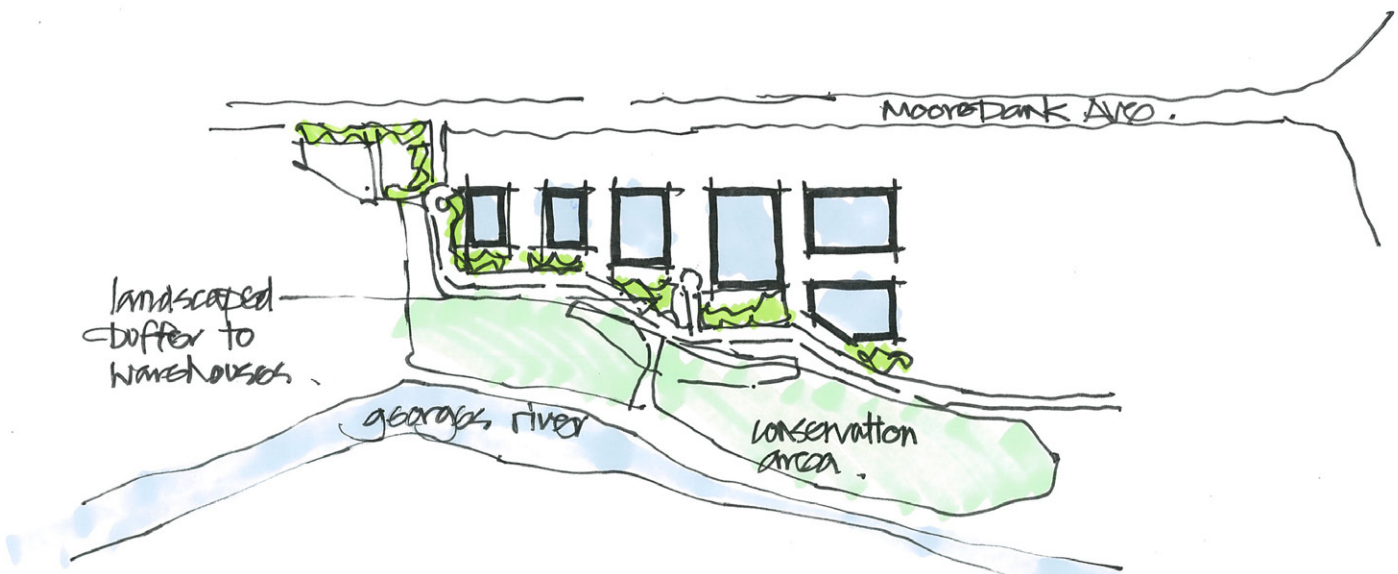


FIGURE 2.4 - Landscape and ecological corridor diagram.

NTS

2.2 (B48) URBAN HEAT ISLAND MITIGATION

The development will be designed and operated to assist in meeting Urban Heat Island Mitigation principles and achieve a decrease in overall site temperature in comparison to neighbouring industrial developments.

The Urban Heat Island (UHI) effect refers to heat generated from building materials absorbing the sun's heat and radiating this heat amongst the surrounding area.

SIMTA's Urban Heat Island Mitigation Strategy (UHIMS) has been developed for the entire MPW Stage 2 site. A more detailed UHIMS report has been prepared by Integral Group, dated 03.03.2021, which is available in Appendix 4.4.

Design Vision

Through considered design initiatives the development aims to reduce overall site temperatures in comparison to neighbouring industrial developments, reducing electricity consumption and increasing worker and public amenity via environmentally efficient means. This Project aims to contribute to State-wide objectives of cooling the Western Sydney via a combination of landscaping design, cool building technologies and methodologies of design.

Design Principles

The general principles included in Integral Group's UHIMS report are:

- Ample shade tree planting and vegetation ground cover;
- Use of 'cool' building and paving materials with high albedo surfaces;
- Green spaces;
- Energy efficient building design (4-star Green Star equivalent);
- WSUD – Refer to Section 3.9.

The Urban Heat Island Effect is a major concern for all significant developments, as it can drastically increase operating costs and reduce amenity. The Urban Heat Island Mitigations Strategies, as shown in Integral Group's UHIMS Report, will achieve a reduction in ground temperature of 4°C, compared to neighbouring industrial developments, complying with condition B48.

Flood Plot Data Interpretation (Refer Figure 2.6)

Flood plot charts have been used by Integral Group to display the comparison between air temperatures of two scenarios per chart (see Figure 2.6). The charts show the temperature at each hour of every day during the year of the first scenario, relative to the second scenario – acting as a control. When the hour is coloured blue, this represents a cooler temperature for the first scenario, while a red colour represents a warmer temperature. The more blue seen through the middle of the chart (6am-6pm) the cooler the first scenario (in this case, the MPW site) is in comparison to the second scenario.

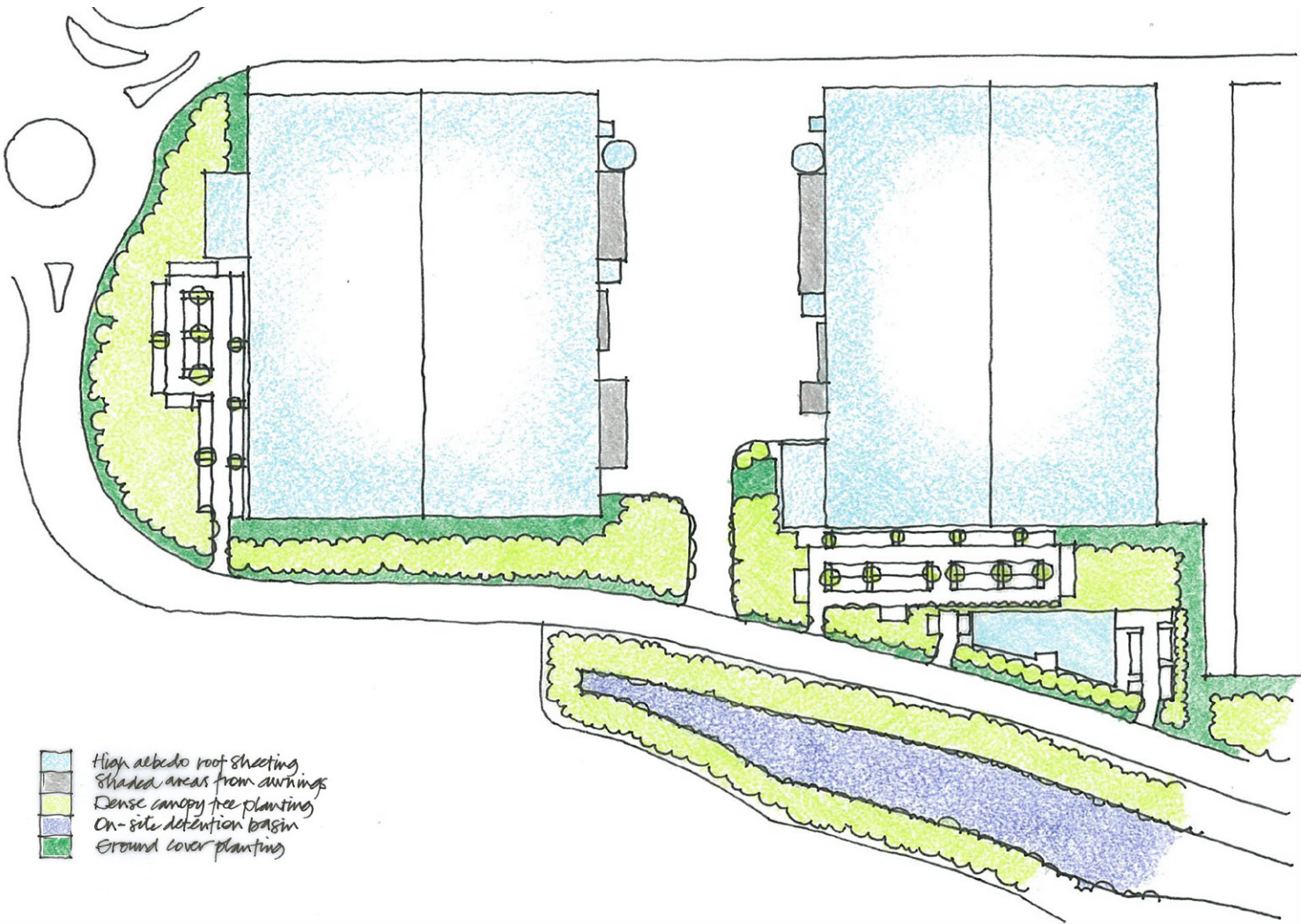


FIGURE 2.5 - Spatialised UHIMS diagram showing high albedo surfaces, landscaping and WSUD.

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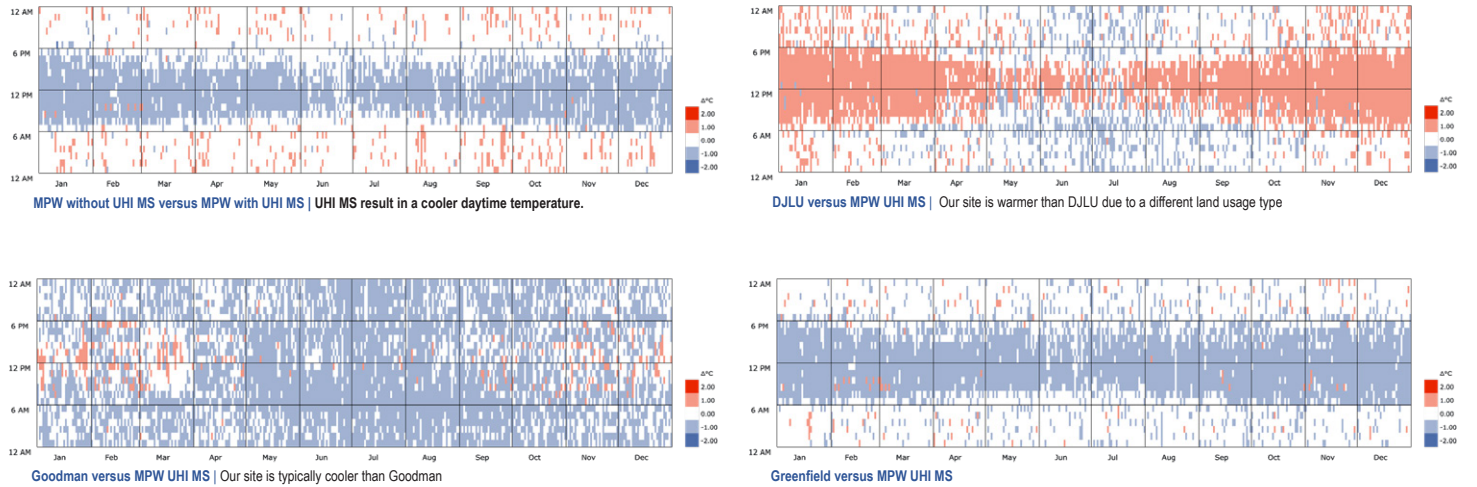


FIGURE 2.6 - Flood plot diagrams referenced from Integral Group's UHIMS Report (Integral Group)

2.3 (B49) ECOLOGICALLY SUSTAINABLE DEVELOPMENT

Australia's National Strategy for Ecologically Sustainable Development (1992) defines ecologically sustainable development as: 'using, conserving and enhancing the community's resources so that ecological processes, on which life depends, are maintained, and the total quality of life, now and in the future, can be increased'.

Design Vision

The Project will utilise ESD principles throughout the development life-cycle through integration of economic, environmental and social considerations in project decision making. Well designed and planned buildings, promotion of energy efficient equipment, sustainable practices and operations, and intelligent waste minimisation and recycling will combine to reduce energy and resource consumption within the development.

Design Principles

Passive solar design

- Where layout planning permits, building orientations have been designed to utilise considered solar access principles;
- Warehouses have been oriented where feasible with the overall development requirements to face internally, mitigating noise pollution, and with roofs oriented to support solar capture from the Northern sun;
- Office buildings will be designed and oriented where feasible and reasonably practicable to take advantage of Northern solar aspects;
- Building design will aim to incorporate overhanging eaves and awnings to reduce midday sun penetrating the building to reduce UV and heat absorption, whilst allowing the winter sun to and warm the building;
- Warehousing will utilise similar principles where feasible and reasonably practicable, via initiatives such as cooling through cross ventilation (as per below) and balancing of openings to promote air flow;
- Use of awnings for shading and cooling of working spaces and protection of openings from harsh weather. See Figure 2.9 for shading installed at the Moorebank Eastern Precinct.

Use of energy efficient plant and equipment

- To be compliant with SIMTA's internal Environment Management System's Plan;
- Will be addressed in more detail per tenant requirements.

Use of renewable energy sources

- Solar panels are to be installed for the warehouses where feasible and reasonably practical, with a minimum coverage of 30% of roof surface area being sought;
- The solar panels will be visually unobtrusive, likely to be installed on the available roof space of the warehouses;
- See Figure 2.8 for an example of these installations at the Moorebank Eastern Precinct.

Cross-ventilation

- Cross ventilation will be an objective of the site layout via promotion of open spaces between buildings, permeable facades (openings and vents) and select orientation considerate of overall site layout (see Figure 2.7).

Selection of materials with lower energy manufacturing requirements where feasible and reasonable, including recycled materials.

- Co-located concrete crushing plant to reuse demolished materials as aggregate;
- Consideration made to low embodied energy materials as part of the CEFC agreement;
- As part of the Sustainability Initiatives of the CEFC Agreement, material substitution and composition may result in savings of up to 500,000 tonnes of concrete and 55,000 tonnes of steel (Arcadis, MLP Sustainability Strategy Summary Report, 14 July 2017);
- Long span timber, as a structural material, was considered to replace steel in some instances, however was determined as not viable due to engineering deficiencies created at the scale of the development and the intensive operational requirements imposed by the industrial use.

Use of locally sourced materials to reduce impacts associated with transport where practicable.

- Importation of site fill from local sources as an environmentally sustainable initiative (e.g. Westconnex Projects circa 20km distance) is an improvement to the base case (e.g. quarry sourced fill, typically approximately 100km).

Rainwater capture and reuse

- All buildings are to be provided with water recycling and reuse tanks;
- Stormwater collection, on-site detention systems and overland flow paths to mitigate on-site and localised flooding as per engineer's specifications and requirements under the consent.

Water efficient fixtures and fittings promotion

- All tap fittings and irrigation systems to be fitted with efficient tap fittings to help minimise water use throughout the development where possible.

Waste minimisation and recycling

- Working with end users to promote and develop best practice in their operations.

Remediation

- The development reinstates previously contaminated Defence land, and reconstitutes it for industrial and commercial uses, generating employment and environmental benefits.

Green Star Certification

- Warehouse design, construction and operation to utilise energy efficient building design (4-star Green Star equivalent).

ISCA Certification

- The development will register for a 'design' and 'as-built' rating under the Infrastructure Council of Australia (ISCA) rating tool for development infrastructure.

Ecologically Sustainable Development is a key component of an efficient and sustainable development. The ESD principles outlined above will have a major impact on the future of the development, and will help it to perform as an example of sustainable industrial design through reduced energy and resource consumption during construction and operation.

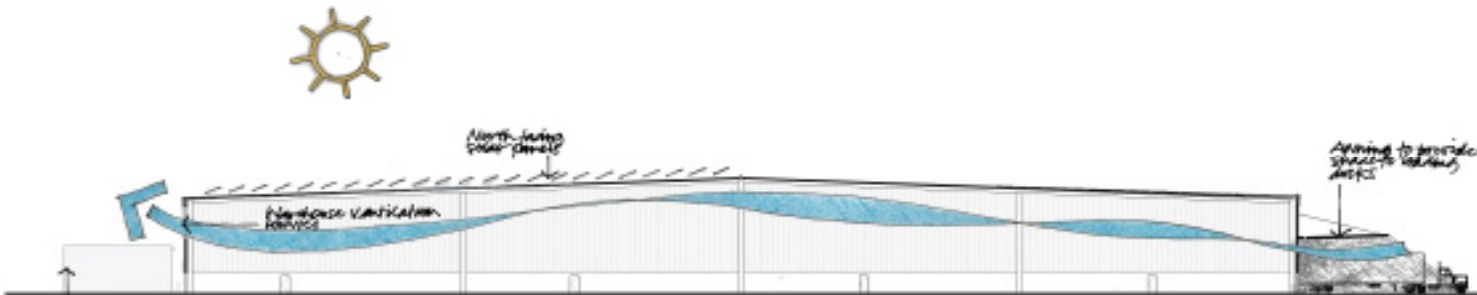


FIGURE 2.7 - Cross ventilation diagram showing passive ventilation and solar design, indicative solar panels and rainwater tank.



FIGURE 2.8 - Solar Panels installed at development East Warehouse 1. Alone, this installation generates 4,800MWh per year, or the equivalent of powering more than 7,300 homes.



FIGURE 2.9 - Example of a South facing dock and large awning for shading at development East Warehouse 1.

2.4 (B57) LANDSCAPE DESIGN

The landscape philosophies for the design have been developed by GroundInk Landscape Architects in response to the Conditions of Consent, and this report should be read in conjunction with their design information. Detailed Landscape Drawings and Design Report at Appendix 4.3.

Design Vision

SIMTA's development recognises the existing natural landscape attributes of the site and surrounding area and seeks to integrate components of the development to improve and enhance these where possible.

The development seeks to recognise and incorporate the principles outlined in the following documents:

- *Better Placed* (NSW Government Architect, May 2017);
- *Greener Places* (NSW Government Architect, Draft, October 2017);
- *Green Grid* (Tyrell Studio and NSW Government Architect, March 2017) prepared for the Department of Planning and Environment;
- *Western Sydney District Plan* (Greater Sydney Commission, March 2018).

The key provisions of the Site's landscape design are:

- Provide for visitor and worker amenity;
- Visually integrate the built form with the existing waterways and bushland;
- Integrate the existing ecology with the stormwater system design set out in the revised stormwater design drawings (condition B4);
- Mitigate the visual impacts of buildings and infrastructure through urban tree canopy provision;
- Provide a working environment safe from projected flood levels.

Design Principles

Native Species

- Use of native species to blend proposed landscaping in the development with that of the existing area;
- Promote native fauna natural habitats;
- Blend the site into the surrounding bushland;
- The Southern fill area will be topsoiled and hydro-seeded with native grasses.

Interconnected Greenways

- Cycle paths and walkways connecting workplaces through public space to recreational areas and bushland.

Green Streets

- Tree planting and landscaping along roads, further detailed in Section 2.4;
- Linking landscape features to built-form creating a uniform development and considered urban environment that integrates with the landscaping.

Urban Tree Canopy

- Providing planting of canopy trees as per conditions B64 and B68(b);
- Utilising canopy trees to mitigate visual impacts of buildings and infrastructure.
- Landscaped areas, including canopy trees, between loading docks were considered as part of the design to further integrate the warehouses and landscaping. However due to the operational nature of the development, and industry standard tenant safety requirements for employees, assessments found this not to be a viable strategy and therefore have not been included. The project's expert landscape consultants have instead focused on implementing quality landscaping that avoids insularity and tokenistic approaches to integration, promoting quality and connectivity instead.

The development is located within Sydney's South-West Green Grid District, and though the site is not included as part of any priority precinct, the design is intended to support connection of the Eastern side of the George's River to the potential focus area of the Casula foreshore link, providing an improved amenity connection for the greater South-Western Sydney area.

The landscape design serves to integrate the development with the surrounding environment by using tree, shrub and groundcover species that are local to the area to create ecological opportunities and links to the surrounding context, and providing amenity for both users and neighbouring residences. The proposed tree planting has been designed with the intent of creating a uniform canopy cover throughout the area. Proposed plant species have been selected for their site-suitability with many species selected from Liverpool City Council's recommended plant list.

Inclusion of OSDs

The design seeks support from the Independent Peer Review for condition **B68(a)** with regards to On-Site Detention basins, and their exclusion from landscape calculations. The design intends to include OSD-5 within these calculations given its proximity, adjacent the relevant warehousing area included in this application, and presents the following benefits as a result:

- Being included within landscape calculations, the OSD will have to adhere to the same conditions and requirements;
- Increased treatment in the form of trees and planting will improve visual amenity, allowing the OSDs to act as a visual buffer to neighbouring sensitive receivers;
- Integration of the biodiversity area ecological corridor with the development as a public amenity through quality landscape treatment.

OSD-3, 4, 6 and 8 do not contribute directly to the amenity and landscape integration of the MPW Stage 2 warehouse area, and as such shall be considered is subsequent stages of development, where co-located with areas relevant to urban amenity.

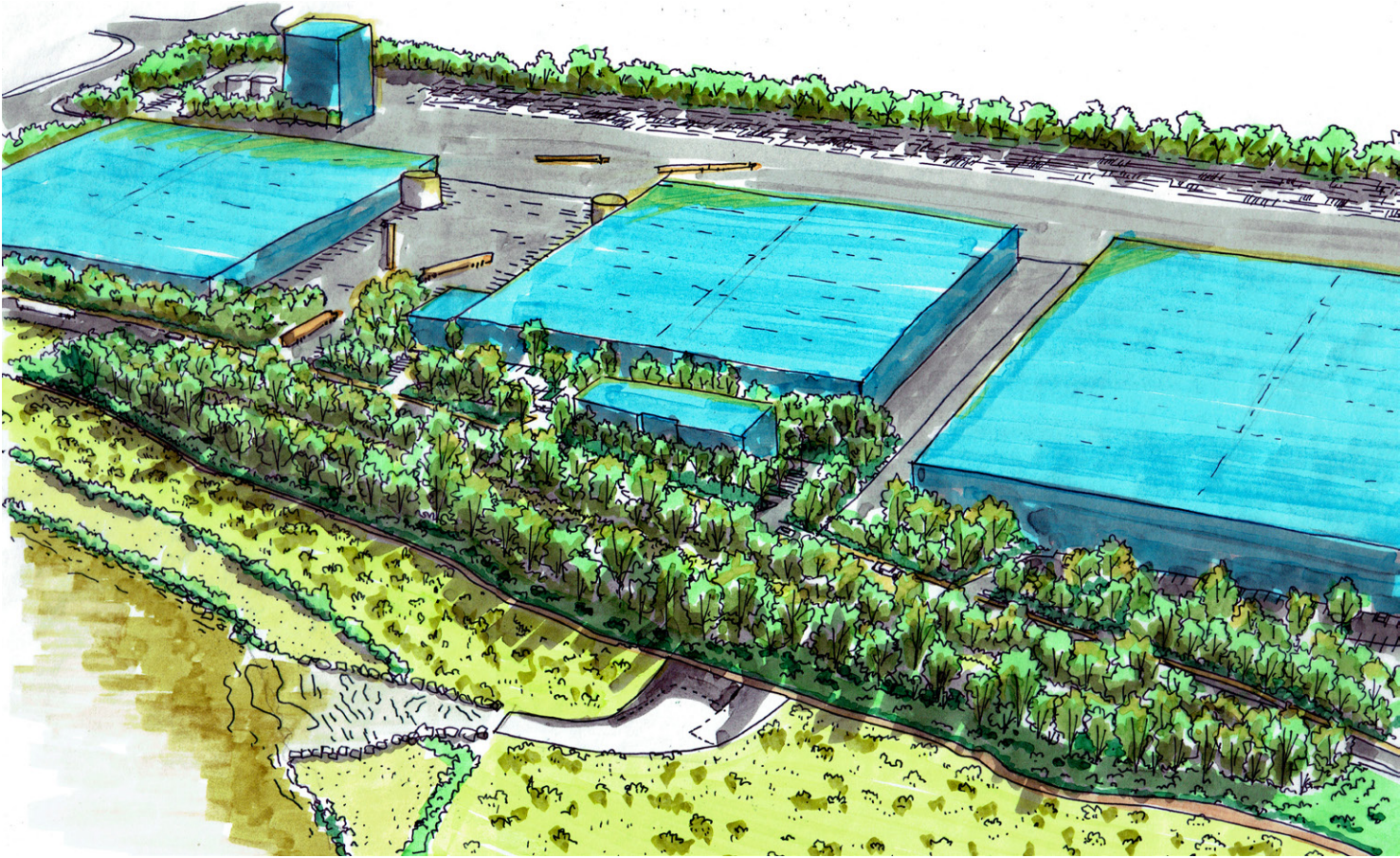


FIGURE 2.10 - Preliminary landscape concept design sketch - OSD and outlet in foreground.



FIGURE 2.11 - Selection of local plant species to be included in landscape treatment (Ground Ink).

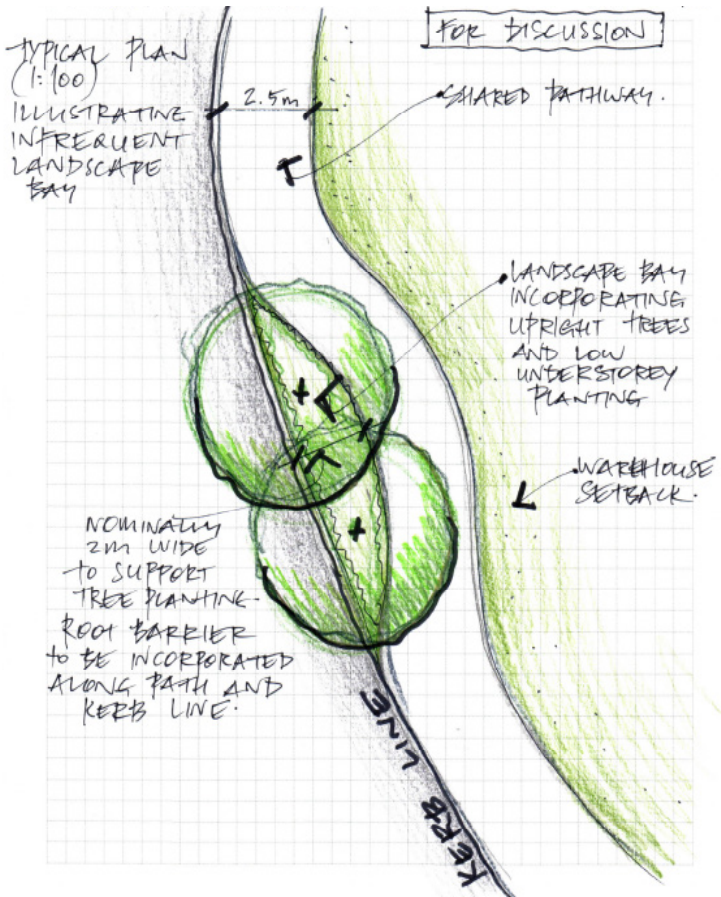


FIGURE 2.12 - Preliminary design sketch of landscape bays within meandering path.



DANGER
Please do not cross the road
when the red light is on.

03

URBAN DESIGN DEVELOPMENT REPORT
BUILDING AND ESTATE URBAN DESIGN PRINCIPLES

3.1 INDUSTRIAL DEVELOPMENT & INTERMODAL TERMINAL

The overarching purpose of the development is to produce an IMT with associated commercial infrastructure. The industrial developments will be reserved for tenants with high levels of import/export of goods. These warehouses will be serviced by separate access roads, reducing overflow to the precinct internal roads.

Design Vision

- An attractive site comprised of buildings with high level architectural treatment, creating a better place to work and utilise;
- Using intelligent design, reduce the bulk and massing of industrial buildings, thereby providing a high level of user and environmental amenity within the site;
- Reduce congestion inefficiencies on Sydney's arterial roads and motorways;
- An accessible, legible and connected industrial site.

Design Principles

The development is currently at a concept stage of design, and is subject to tenant refinements. The Design Principles listed throughout this document will guide the prospective design teams to realise the vision for the development.

Parking

The warehouse and office land uses have been designed to allow for the following parking requirements, which are outlined in the EIS and align with Roads and Maritime recommendations:

- Warehouse – 1/300m²
- Office – 1/40m²
- Retail – 1/20m²

Car parking will include landscape bays every 6-8 bays, or alternative carpark landscaping (such as linear planting between rows of car parking) to provide adequate shade, as required under Condition B68(c).

Parking is shown indicatively, and detailed design will include compliance with the relevant codes, as listed in Condition B86.

Truck Access

The warehouses, internal road, and access roads have been designed to allow for Super B-Doubles, A-Doubles and commercial vehicles related to the industrial function of the estate, increasing flexibility of use per tenant requirements, and planning for longevity of infrastructure.

Container Wash-Down Facility

The Container Wash-Down Facility has been indicatively located on the Architectural drawings. Detailed design will include compliance with the relevant conditions (B187).

3.2 FREIGHT VILLAGE

A range of ancillary support facilities to meet the needs of employees and visitors are proposed within SIMTA's site, in an 800m² building and associated parking/landscaping referred to as the 'Freight Village'.

While these facilities will principally cater for staff and visitors to the intermodal facility, it is intended that they may also be accessible and available to the wider community.

The ancillary facilities are anticipated to include:

- Site management and security offices;
- Retail and business service centre, potentially including a convenience store, bank, and post office;
- Meeting rooms/conference facilities available for hire by individual tenants;
- Sleeping facilities for drivers;
- A café/restaurant.

The composition of these facilities will be based on demand and will be privately operated by individual tenants. The Freight Village will receive architectural treatment which will allow it to stand out as a significant place within the precinct, while also providing a relatable scale to the user, relative to the bulk of the surrounding industrial buildings.

Heritage Items

A selection of heritage items have been identified and recommended for adaptive re-use and reinterpretation on the site (Liberty Industrial, Moorebank Intermodal Terminal: Options for Mitigation Report, 8 December 2016). It is not yet possible to confirm the exact location, orientation or configuration of these items, examples including the STRARCH Hangar and CUST Hut, however it has been considered to re-use, display or reinterpret them in the Freight Village, where they will have maximum exposure to the majority of users of the site.

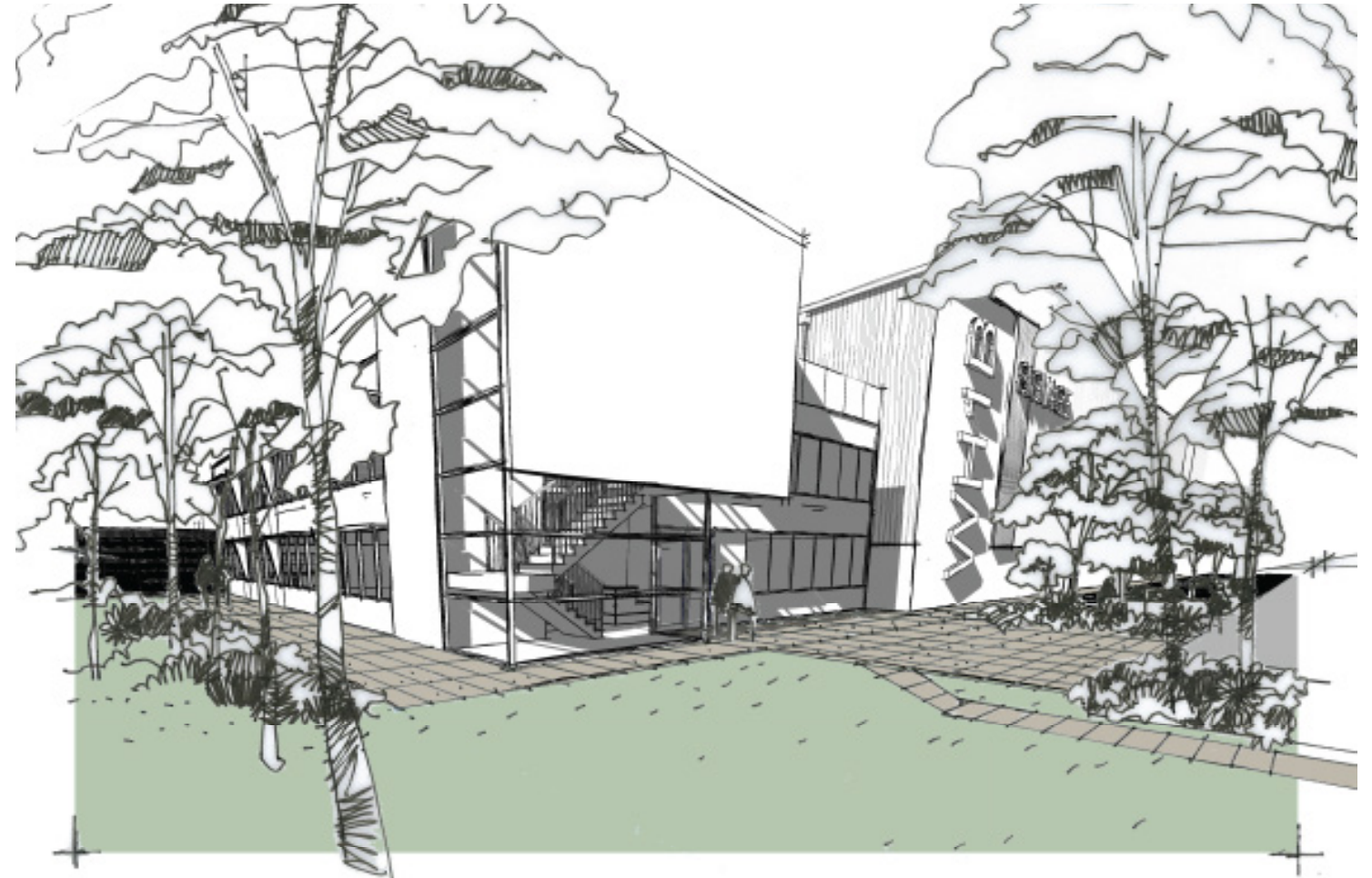
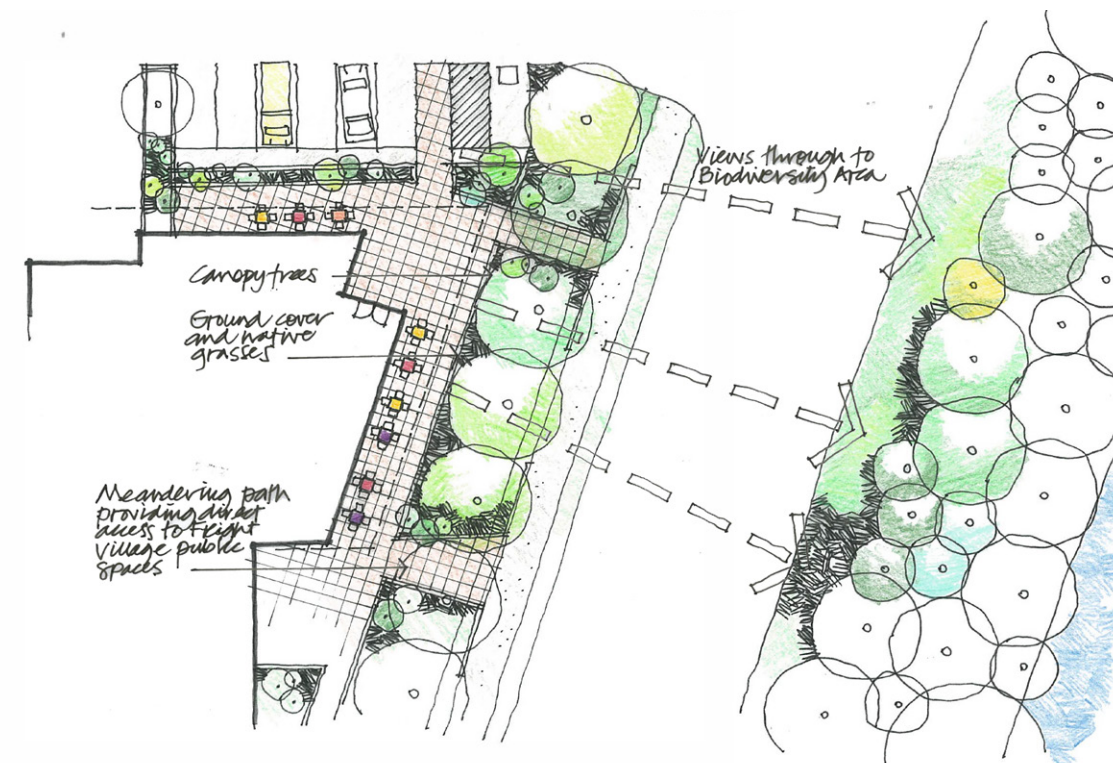


FIGURE 3.1 - Concept sketch of site landscaping at office entrance.



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FIGURE 3.2 - Preliminary Freight Village sketch plan displaying potential landscape treatment and visual amenity to the ecological corridor.

3.3 STREETSCAPE & PUBLIC INTERFACE

Streetscape design initiatives aim to ensure appropriate scale, placement and character of elements throughout primary interface areas. The streetscape architecture will be developed with a focus on areas of SIMTA's site that will have a positive impact on the presentation of the overall development. These areas will primarily include the Moorebank Avenue frontage, the main Estate Road, Internal roads, a number of bio-retention basins (where visible), and boundary and buffer zones. Building and built form architecture at key frontages will display high quality architectural treatments.

Design Vision

The streetscape and public interface have been designed in such a way that they align with the principles of the *Sydney Green Grid* and *Greener Places*, complemented by the Site's landscape design principles. The streetscape and public interfaces of the development will align with these principles by:

- Maintaining access to open spaces where practical and safe;
- Promoting active living, by providing landscaped cycle ways and walkways;
- Conservation and maintenance of existing natural environments; and
- Utilising OSD's as visual connectors for the development.

Design Principles

Moorebank Avenue Frontage

- Scale and visual screening, and a buffer zone along the IMT boundary will be a key design considerations which will be addressed primarily through the landscape concept for the Moorebank Avenue frontage as demonstrated in the EIS;
- The site entrance at Moorebank Avenue, for the purpose of facilitating the primary access driveway into the site, includes a variation to the 18m setback, to be agreed to by the Planning Secretary per Condition B63(a) (Refer Appendix 4.2 - PIWW-RCG-AR-DWG-0191 for details).
- The access road wrapping the locomotive traverser has setbacks at the North and South corners of approximately 3.1m and 9.2m respectively, with the traverser itself setback at least 7.2m and 13.2m (Refer to PIWW-RCG-AR-DWG-0191 in Appendix 4.2 for details);
- The locomotive traverser is in-ground infrastructure, which would have little visual impact on the streetscape. Vegetation screening within the landscape area detailed above would further mitigate any possible visual impact.
- To compensate for loss of landscape setback at the Northern end of the IMT, increased landscaping has been applied along the extent of the Eastern boundary to maintain an 18m average, as specified in the *MPW Stage 2 - Response to Submissions Report* (Arcadis, July 2017)(Refer to PIWW-RCG-AR-DWG-0100/0101 in Appendix 4.2 for details);
- Key nodal points along Moorebank Avenue, specifically at vehicle entry zones will include feature planting to highlight the arrival experience and embellish the native planting character established elsewhere along the road frontage.

Internal Roads (Estate Road and Internal Roads)

- Consistent with the planting proposed to the Moorebank Avenue frontage and the boundary and buffer zones, the proposed landscape design to the internal access road will consist predominantly of endemic canopy trees of Eucalyptus species and uniform dense screen planting of native shrubs and ground covers at lower levels;
- Screening of buildings, shade provisions to pedestrian areas and visual diversity and interest will be paramount in species selection, placement and density.

Bio-retention Basins

- Whilst achieving the primary function for any requirement for water filtration and bio-retention, the planting proposed to the basins are to remain consistent with the overarching site wide objectives of uniform species use, endemic planting character, native landscape language and a variety of experiences and visual amenity from sites across the George's River.

Boundary Treatment

- The landscape planting proposed to the development boundaries shall be consistent with the endemic surrounding bushland species, evident locally, and in doing so provide a strong and unifying tree canopy structure that links the site holistically and provides the essential scale of planting necessary to compliment the developments built form.

The streetscape and public interface has been designed to align with the *Sydney Green Grid* and *Greener Places* documents. Maintaining access to open spaces, promoting landscaped cycle/walkways and maintaining existing natural environments through intelligent architectural treatment and landscape



FIGURE 3.3 - Indicative sketch perspective of landscape treatment and amenity along Moorebank Avenue frontage (MPW IMT shown on right hand side of the road).

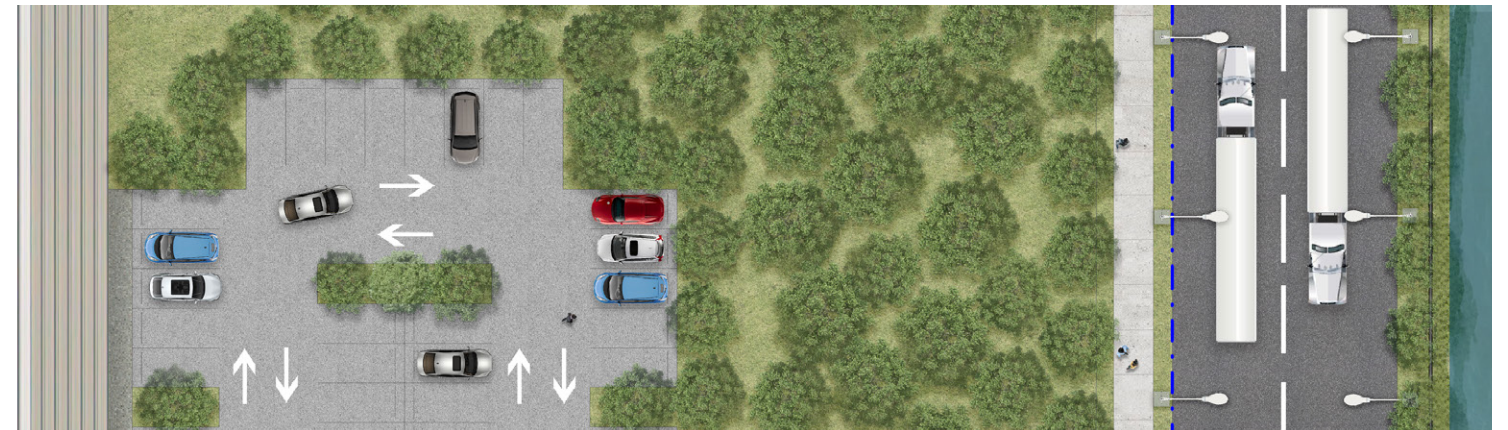


FIGURE 3.4 - Section and plan showing landscape treatment in warehouse lot boundary and along Estate Road corridor.

3.4 ACCESS STRATEGY & ROAD CONNECTIVITY

SIMTA's site has a frontage onto Moorebank Avenue, with primary access provided via an intersection at the location of the existing Anzac Road/Moorebank Avenue intersection.

SIMTA's design includes a road network that will support the various land uses on the site, including an Intermodal Terminal, Warehouse and Distribution Facilities, and supporting administration, amenity and other general uses in a zone known as the 'Freight Village'.

The following access strategy has been adopted:

- The Northern access point on Moorebank Avenue will be the key site access. A new signalled intersection is proposed with full access permitting all movements; and
- Access to buildings and facilities within the Western Precinct will be via this intersection and a series of internal roads as described below.

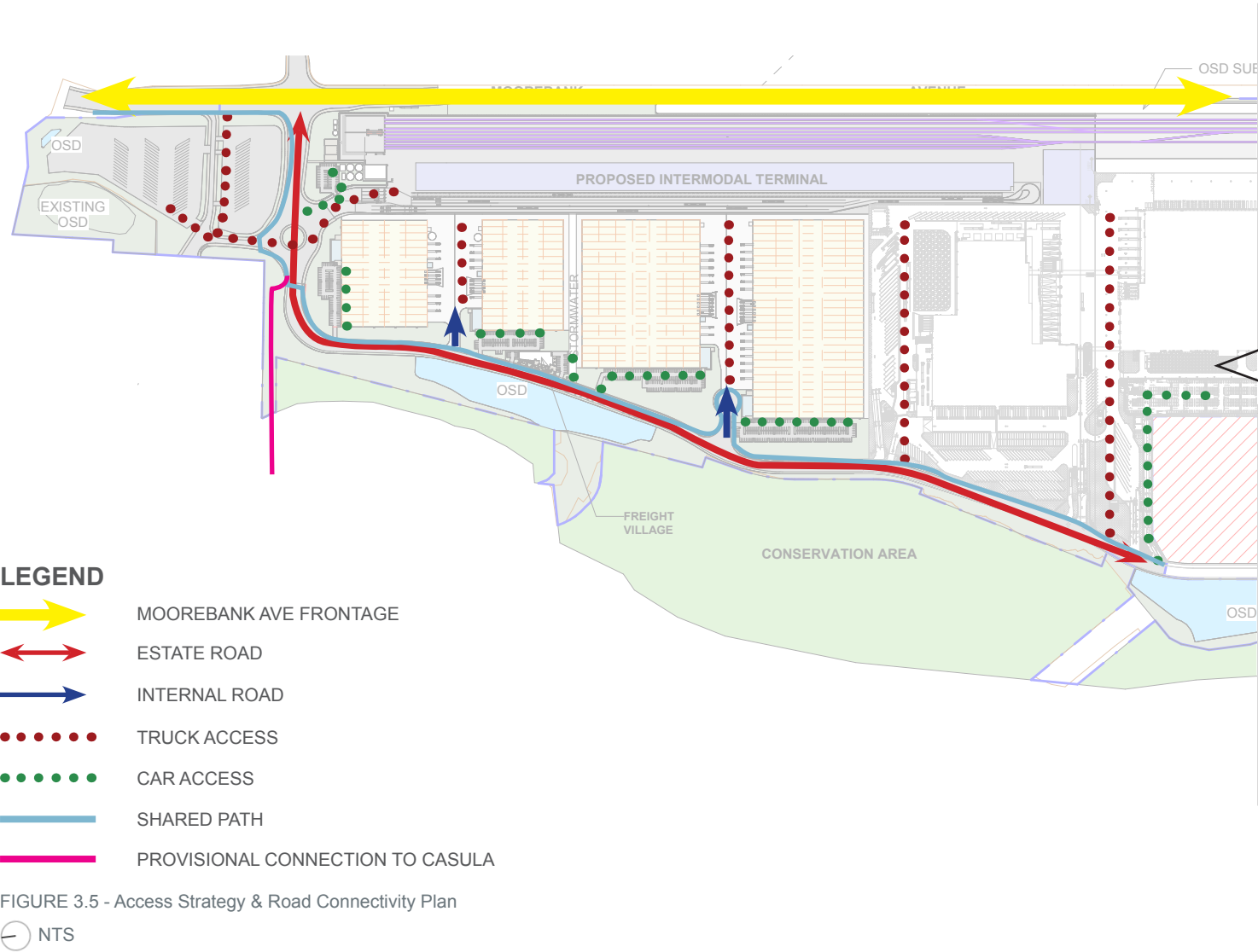
The main access points into SIMTA's site are proposed to comply with emergency services requirements.

The proposed road network comprises the following:

- **Moorebank Avenue Frontage:** The major connection to the SIMTA site for vehicular access as well as pedestrian and cyclist entry and exit;
- **Estate Road:** The major access road into the SIMTA site with a 22m road reserve, including a single carriageway of two dedicated 7m wide traffic lanes, integrated pedestrian and bicycle path and landscape buffer;
- **Internal Roads:** Service roads for heavy vehicles to access warehouse and distribution facilities with a 14m road reserve and a 3m integrated pedestrian and bicycle path and landscape strip on either side.

As indicated in the *Sydney Green Grid* and *Greener Places* documents, interconnecting open spaces and built environments is important for encouraging healthy living and improved working environments. A pedestrian and cycling network will be included in the detailed planning of the site and a provision for shared pedestrian and cycle paths within the Estate Road and Internal Road reserves. Additionally, provision for future connections to the Casula Railway Station via the Estate Road shared cycle path have been considered to promote connectivity to the local area.

The proposed internal road layout has been designed to provide maximum flexibility to lot layouts, simple and safe access to facilities and a coherent and considered hierarchy to integrate with the urban design philosophies of the precinct.



3.5 BUILDING SITING & SETBACKS

A key element in maintaining visual character is the visibility of the development when viewed from the public domain. The streetscape is an important and prominent interface within the development between built form, landscaped areas, open space and the roads themselves. The proposed design principles for building siting and setback in this regards have been prepared in consideration of local planning policies and the intended varied nature of uses across the site.

Design Vision

- To define building envelopes within each land use type by specifying minimum setbacks consistent with local planning policy;
- Provide attractive streetscapes and quality landscaped settings around the built form;
- To permit where practical, setbacks to be integrated within landscaped areas, assuming the integration of environmentally sustainable measures and streetscape elements to achieve a satisfactory level of attractiveness from the view of the public domain;
- Provide an appropriate visual presentation of the built form with respect to bulk and scale; and
- Clearly define and reinforce public domain areas through the integration of sufficient amenity and landscaping with natural vegetation.

Design Principles

The following setbacks shall apply:

- 18m of the front property boundary to Moorebank Avenue, excluding at the Anzac Road/Moorebank Avenue Interchange (see Section 3.3 for details);
- 5m of the front property boundary to the Estate Road;
- 2.5m of the front property boundary from Internal Roads; and
- Statutory setbacks as mandated by NCC shall apply where possible with non-compliances addressed on a case-by-case basis.

Office Siting

- Offices have been sited to maximise a Northern aspect where achievable;
- To mitigate the bulk scale of warehouse built forms from the street frontage, offices have been sited adjacent to access routes, providing a “stepping stone” of scale.

Warehouse Siting

- Warehouses have been sited so they’re primary operational functions are internally facing, to mitigate adverse effects on the amenity of the rest of the development and neighbouring sensitive receivers;
- Where achievable, docks have been located to face North or South which, when combined with appropriate shading, minimises direct sunlight to external operational areas;
- Warehouses have been sited away from the Estate Road where achievable, to minimise bulk and scale at the street frontage.

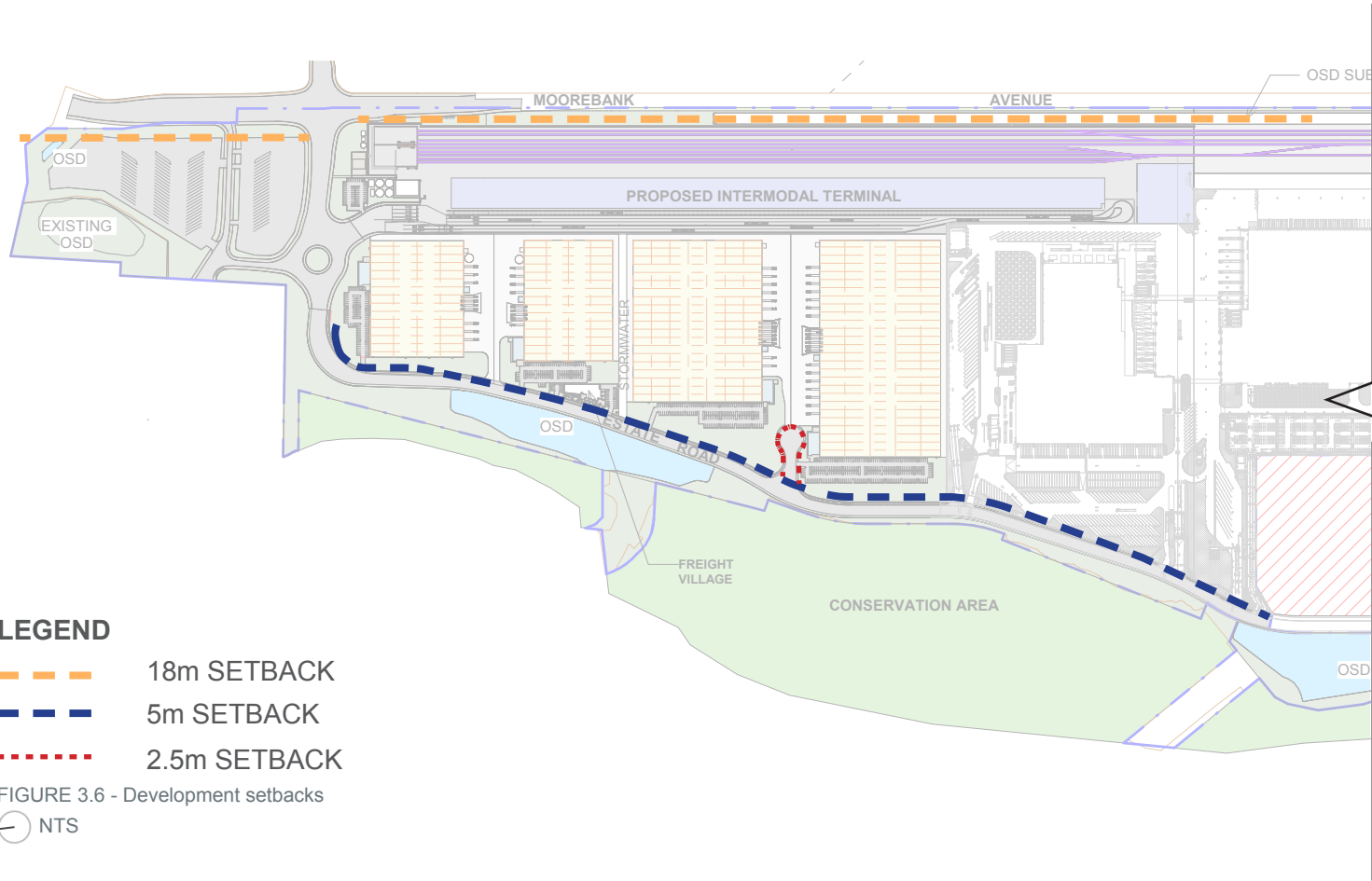


FIGURE 3.7 - Preliminary sketch displaying building setback strategy to mitigate the bulk form of industrial buildings at the street frontage.

3.6 BUILDING MATERIAL & DESIGN

Better Placed (May 2017) developed by GANSW covers a number of principles that focus on enhancing the urban environment to create better places, spaces and buildings. These, as well as industry standard and architect driven principles, aim to establish the precincts design vision.

Design Vision

- To establish a system for building quality and uniformity along major internal roads and public interfaces;
- To promote a whole-of-development consideration to visual attractiveness, quality, environment and safety;
- To encourage the use of various building materials that create visual appeal and interest through well considered facade articulation; and
- To establish a colour palette that is suitable for purpose and integrates with the existing site character and natural environment.

Design Principles

All buildings on the site will receive similar high quality treatment in facades and finishes, including warehouses and adjacent offices and dock offices, terminal facilities and the Freight Village.

The warehouse planning provided in the Architectural drawings (appendix 4.2) are provided as an indicative guide. The precinct Design Vision will guide future design teams, and the designs will likely carry a degree of variation dependent on future tenant requirements. The exact size and layout will be finessed to align with market demand and any subsequent detail design will be covered in future applications.

Articulation

- Prominent building facades fronting public interface areas and main internal roads may consist of a variety of building materials and colours. Preliminary design includes facades which consist of a base structure of dado panel precast with metal cladding above, utilising alternating colours and cladding material orientation to visually break up the warehouse bulk;
- Provide visual relief in façade design and elemental articulation where there is significant visual exposure from adjoining sites and the public domain;
- Building forms are to be articulated using roofs and eaves, articulation to long walls and promoting an attractive public interface and reduction of bulk and scale.

Colour Selections

- Where possible, buildings will follow a development colour palette, unless tenant corporate colours can be used to highlight entries or building focal points without detracting from the stated objectives;
- The dominance of materials will be softened over time when landscaping is expected to be at full maturity;
- The use of precast paneling provides a neutrally coloured appearance to the development and a sense of balance, framing and bordering more irregular and varying patterns on the metal sheeting above. This neutralizing will be encouraged in building design using whites, greys and darker highlighting tones;
- Materials will be chosen to comply with the precinct UHIMS, and will be specified during Construction Certificate submissions.

Building Materials

- Building materials will reflect the robustness of industrial and business park developments, i.e. concrete and steel;
- Office area and Freight Village external facades will vary in material palette, but generally could include such combinations as precast concrete panels, fibre cement sheet wall cladding and prefinished aluminium cladding with performance glazing in aluminium framing;
- Highlight features sparingly introduced to either accentuate key aspects or blend corporate branding initiatives with architectural designs may include use of products such as natural timber, stones, bricks etc;
- As noted in 2.3 – Ecologically Sustainable Design, long span timber has been considered for warehouse design, however it has been determined as not being a viable option.

Focal Points

- High quality materials should be used at building entry or focal points to create better visual amenity and promote user wayfinding; and

Recycled Materials

- Materials that are recycled or considered of high environmental sustainability standard are encouraged to be used where practical and possible;
- Refer to 2.3 – Ecologically Sustainable Design for further information on principles guiding recycled materials.

Shading

- Buildings should provide effective sun shading to windows, wall surfaces and building entries through the use of design elements such as overhang eaves and awnings;

Access

- Office and staff parking are given separate entrances from warehouse loading docks where possible to create a safe working environment and help reduce and breakdown the visual impact to the site. These will be complemented with landscape treatments and will be facilitated by ancillary staff amenities;
- Pedestrian and vehicle access points shall be well lit;
- Office entrances should face, or be visible from, the Estate Road.
- Documentation will be provided to the Certifying Authority to confirm compliance, in regards to access, with the Disability Discrimination Act 1992, and relevant Australian Standards and the Building Code of Australia (BCA/NCC) - to be detailed during detailed design.

SIMTA will seek to maintain a high quality of architecture when developing each individual tenancy, using articulation, materiality colour, focal points, shading and access. The aim will be to create a high quality environment for the precinct with uniform design presence, not only with the built form, but via the landscaped elements and how the built form and landscaping are read in conjunction with one another.

Documentation will be provided to the Certifying Authority to confirm that all buildings will be designed and constructed, including external walls, in accordance with the relevant requirements of the BCA/NCC - to be detailed during detailed design.



FIGURE 3.8 - Industrial building design displaying the outlined design principles.

3.7 SCREENING & FENCING

The design includes a vision to create a visual flow of spaces and land use, however, there is a responsibility to create a safe space for all users of the facility, through separation of spaces via fencing and screening. ‘Safer by design’ principles have also contributed to the design of fencing and screening in the public domain. Refer to 3.10 for further details.

Design Vision

- Creating a separation between public use domain and private commercial space using lightweight and unobtrusive fencing and screening;
- Providing an audio-visual break from the bulk infrastructure and warehousing for public amenities and adjacent residential zones.

Design Principles

Site Fencing

- Light weight palisade fencing to create a physical, but not visual, barrier between public domain and the industrial activities on tenant lots;
- Palisade fencing should be selected to be visually unobtrusive, yet create the required barrier, refer Figure 3.8 for examples.
- Perimeter and OSD basin fences higher than 1.2m, as part of detailed design, are to be transparent and dark in colour, but not constructed of chain wire, to provide visual amenity per Condition B69.

Lightweight Screens

- Visual barriers comprising of lightweight louvre screening, or slat fencing, will be used to separate visually obtrusive areas (such as waste holding and plant equipment) from the rest of the development. Refer Figure 3.8 for examples.

Retaining Walls

- Materials and colours must be of a natural appearance, and incorporate landscaping, per Condition B73.

The proposed screening and fencing will create separation between public and private use within the precinct, and an audio-visual break between the industrial zones, and public amenities and neighbouring residences, while remaining unobtrusive through intelligent material selection and design, and maintaining a safe space for users of the facility.

Noise Wall

Condition B129 (and B74) requires the development to include a 5m high noise wall along the Western boundary of the Estate Road. This report has received qualified endorsement from the Independent Peer Review Report to exclude this requirement, citing the following:

- The noise wall forms a solid barrier between the areas of visual and urban amenity and nodal points of the development with that of the bio-diversity area and the landscaped detention basins, effectively eradicating these potential benefits;
- The treatment of the OSDs, if included as part of landscape area, will include canopy trees and medium ground cover, which will provide visual amenity in place of the wall;
- Refer to the Independent Peer Review Report (Appendix 4.5) for further details.

From an urban design perspective, it is recommended that the design not include a noise wall, as required by the Conditions of Consent.



FIGURE 3.9 - Industrial design fencing, retaining and noise wall examples.

3.8 SIGNAGE & WAYFINDING

Signage and lighting throughout the entire development will be a critical component of achieving a consistent identity and address, but will also be paramount to ensure safety, security and efficient way finding at all hours of operations.

Design Vision

- To provide adequate signage and lighting throughout the development to enhance the quality and experience of the occupants and users, particularly with regard to open space, public domain and general amenity;
- Develop a uniquely identifiable, marketable and appropriate character for SIMTA's site through the creation of signage packages both precinct-wide and by land use;
- Use of signage that promotes and enhances safety, security and efficient way-finding for pedestrians, cyclists and vehicles at all hours of operation;
- Use of signage that actively contributes to the safety and amenity of the entire estate, and is sympathetic to any natural and modified landscape and vegetation during the day time and night time; and
- Use of signage that is of a high quality of design and construction, and considers longevity and environmental sustainability where possible.

Design Principles

- Operational Lighting and Signage will comply with Conditions B76, B77 and B78, and will be detailed during Construction Certificate;
- Built forms such as offices and warehouses will act as wayfinding nodes through the use of distinct colour and design, see Figure 3.11;
- Signage within each land use precinct will be designed to integrate with building scale and relevant access and egress areas;
- Freestanding signage will be integrated within landscape where possible;
- Lighting is to be designed and managed to mitigate light spill impacts on fauna, habitat and any adjoining developments or residences, but must be maintained to a level sufficient for operational standards and site safety;
- Design and lux of any internal or spot lighting shall be designed to avoid off-site or traffic safety impacts such as reflection and glare; and
- Signage fronting Moorebank Avenue is to be designed to complement the architectural character of the built form, the landscape treatments, the sites natural character, and to provide a unique SIMTA identity.

The design includes uniquely identifiable signage and wayfinding, to achieve a consistent identity for the precinct, and ensuring safe, secure and efficient wayfinding at all hours of operation. Integrated and managed signage and lighting will mitigate light spill and increase the amenity for all users of the development, and neighbouring residences, through considered sustainable design.

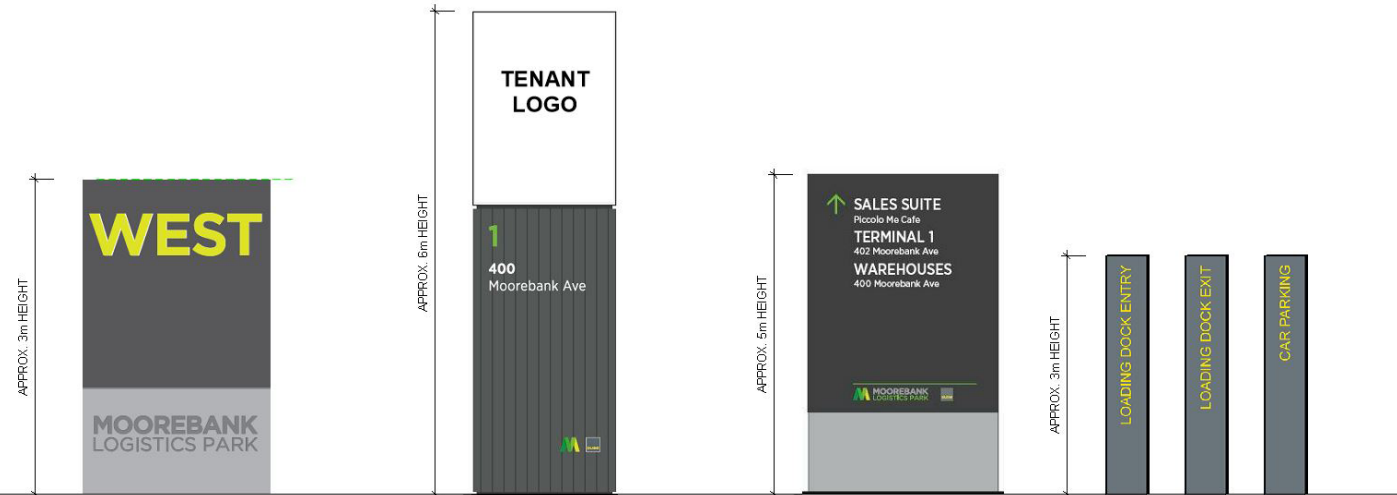


FIGURE 3.10 - Indicative signage elevations. Refer to Appendix 4.2 for Signage Location Plan.



FIGURE 3.11 - Sketch images of indicative wayfinding strategy, using offices and tenant colours as wayfinding nodes.

3.9 WATER SENSITIVE URBAN DESIGN

A number of water sensitive urban design initiatives are proposed to be implemented as part of SIMTA's development to ensure that any set treatment targets are met.

Design Vision

The design aims to, as much as possible, mitigate water consumption, run-off and pollution commonly associated with large developments. The design includes proposals to meet the following:

- Reduced water consumption;
- Minimising run-off pollution into the George's River;
- Extended on site detention to deal with 1:100 year rainfall.

Refer to the relevant sections of the Stormwater Development Design Report by Costin Roe for detailed Stormwater Management Objectives and technical details.

Design Principles

Stormwater Quantity Management (Refer to SDDR Section 4)

- Mitigating the impact of urban development on existing drainage system by limiting post-development discharge within the receiving waters to the pre-development peak, and to ensure no affectation of upstream, downstream or adjacent properties, as per the consent conditions;
- Attenuation of stormwater runoff from the development is proposed to be managed via a series of measures including detention tanks and open basins provided in strategic locations for each of the development catchments;
- Sizing of the basin systems has been completed using DRAINS modelling software in accordance with the Liverpool City Council Policy for the 1 in 1-year ARI to 1 in 100-year ARI storms for various durations.

Stormwater Quality Management (Refer to SDDR Section 5)

- Water quality and pollution reduction are achieved through a treatment train of proprietary gross pollutant traps and natural bio-retention systems (see Figure 3.13);
- Gross Pollutant Traps serve as pre-treatment for removal of course/medium solids;
- GPT's have been included as part of the Stormwater design at the inlet to each OSD. Refer Figure 3.12 and Civil Engineers design for further details;
- Bio-retention cells will be included in each On-Site Detention Basin, allowing water to receive nutrient treatment via a filtration media.

Frequent Flow Management

- Targeting post development duration of stream forming flows between 3.5-5.0 times the pre-development duration using a Stream Erosion Index.

Flood Management and Large Rainfall Events

- All buildings are sited 500mm above the 1% AEP design flood level of the Georges River;
- Flood storage compensation has been provided where filling in localised pre-developed flood affected areas occurs;
- Stormwater detention measures have been included to manage pre and post development runoff (Refer SDDR Section 4);
- Overland flow paths to manage runoff in large storm events have been made including achieving at least 150mm freeboard to building levels from the flow paths.

Rainwater Re-use

- Rainwater tanks will be included in the design for each warehouse, the freight village, and the IMT;
- Rainwater tanks may be used to collect roof water from the site's warehouses and stored to meet demand for irrigation, internal non-potable uses and the container wash down facility;
- Rainwater tanks also provide stormwater treatment through settling and harvesting in addition to their main purpose of providing alternative source of water for non-potable water uses.

Integrated Landscaping

- The landscape design will integrate with the stormwater systems and drainage infrastructure to maximise visual amenity.

The stormwater infrastructure has been designed to target pollutants and mitigate potential adverse impacts on the natural water cycle and receiving waters of the developments stormwater design, as well to maximise rainwater re-use, through a myriad of intelligent design decisions. Refer to Costin Roe's Stormwater Development Design Report and design drawings for further information on compliance with conditions and detailed design.

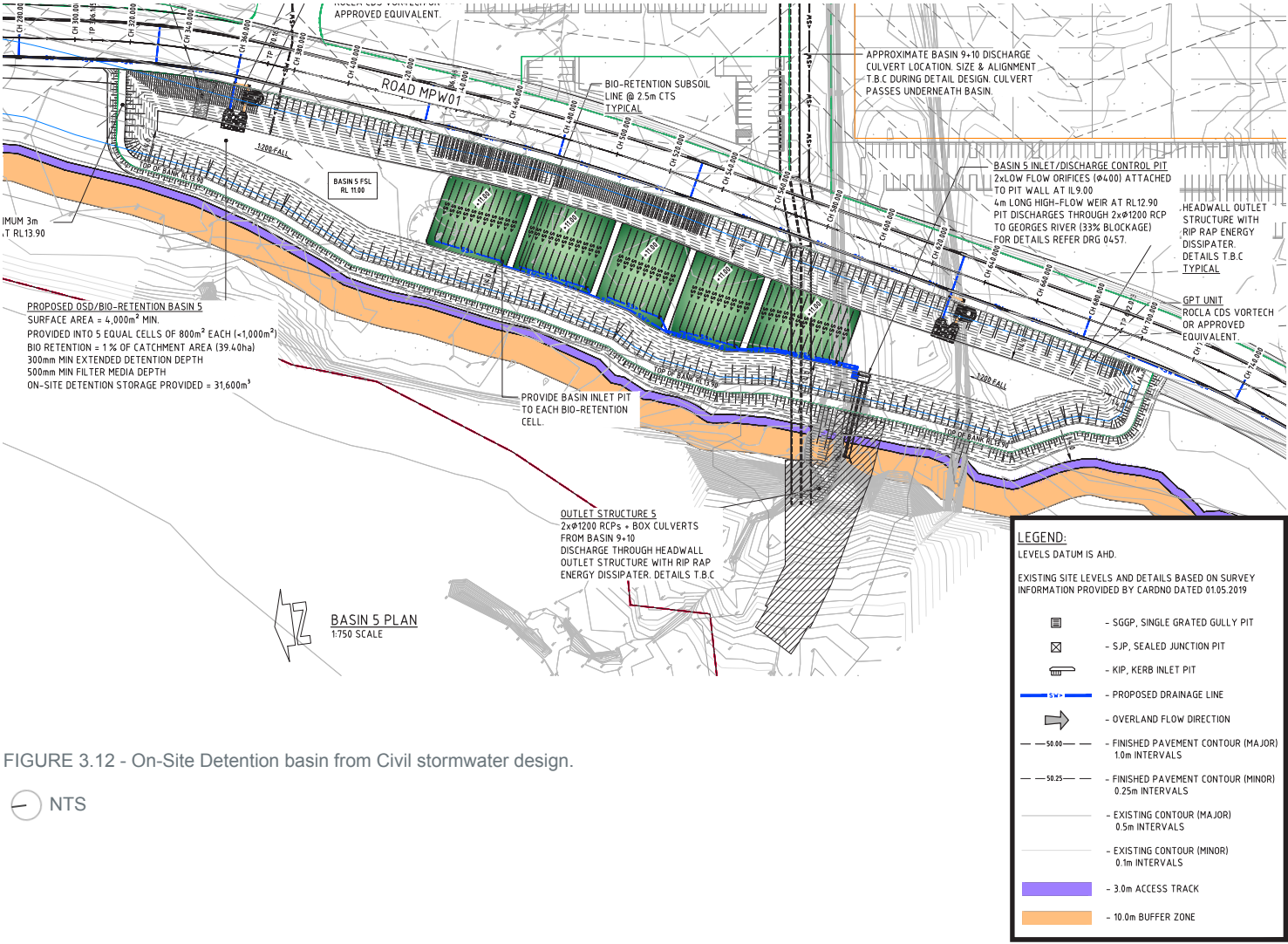


FIGURE 3.12 - On-Site Detention basin from Civil stormwater design.

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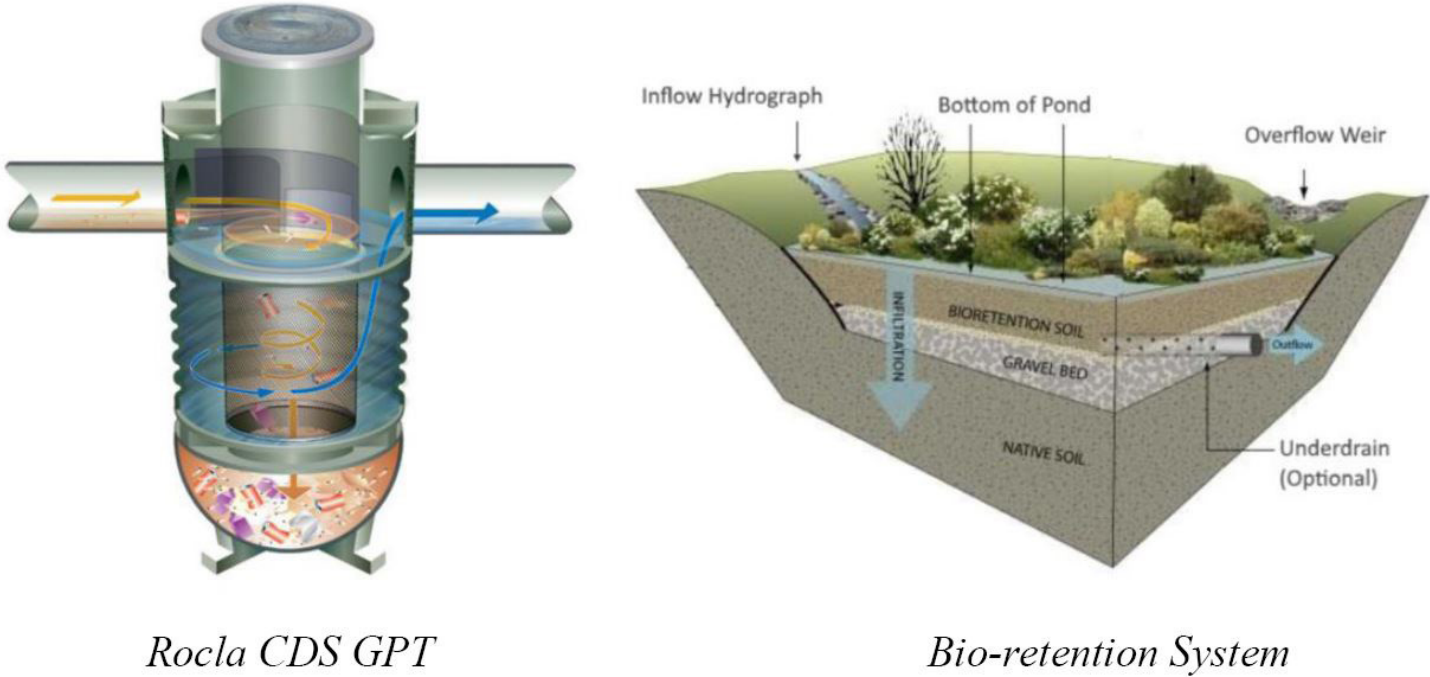


FIGURE 3.13 - Typical treatment measures as detailed in SIMTA's SDDR, Section 5.3.

3.10 OPEN SPACE AND PUBLIC DOMAIN

In consideration of the scale of the proposed development, an important element will be the quality of open space and public domain areas and their integration with other land uses.

Although the detailed layout and design of open space and public domain areas will be the subject of any future application, this section is intended to describe the vision for public spaces to ensure appropriateness of the future design and integration with operational facilities on SIMTA's site.

Design Vision

- To provide high quality public open space and public domain areas in and around prominent internal developments;
- To emphasise clear road networks and the interface between land uses;
- To integrate public open spaces and landscape with natural vegetation and water sensitive urban design;
- To create a 'business park' or 'campus' experience throughout the site, while maintaining the security provisions of a bonded site;
- Develop a framework that is flexible whilst controlling consistency of quality and scale of public spaces as the development evolves in the future;
- Provide safe and efficient circulation for pedestrian, cyclists and vehicles;
- Promote a high quality landscape corridor along streetscapes.

Design Principles

- High quality landscape treatments should be applied to Moorebank Avenue and all internal roads;
- Water sensitive urban design principles should be integrated within landscape zones where possible;
- Consider where appropriate the use of acoustic buffers between built form and public/open spaces;
- Separate all heavy traffic from main employee parking zones for developments on the site;
- Provide safe and secure public access through the development, integrating with the Green and Hydrological Grids;
- Utilise the OSD's as a form of landscaping to improve the amenity of the site;
- Utilise 'safer by design' principles in line with NSW Police 'Crime Prevention Through Environmental Design' strategies to minimise the likelihood of crime and increase user safety.

The quality of public domain and open space within the development will be managed through future applications, to be integrated with the operational facilities of the site while providing a high quality and safe environment. The design principles outlined provide an appropriate guideline for the development of a safe, efficient and high quality industrial precinct



FIGURE 3.14 - Development East Display Suite outdoor space, an example of the integration of public domain.



FIGURE 3.15 - Sketch design of MPW Freight Village with outdoor public domain amenity and visual connection to the Bio-diversity Area.

3.11 SUSTAINABILITY

The development will use a large amount of resources during construction, as well as energy during operation. It is therefore imperative that intelligent sustainable practices are utilised to minimise that resource usage, and mitigate its effects.

The design principles outlined in 2.2 Urban Heat Island Mitigation and 2.3 Ecological Sustainable Design will be adhered to throughout building and estate design.

Warehouse 1 in the Moorebank East Precinct, tenanted by Target, can be used as an example of the high level of renewable energy inclusion in the design. The 3MW project is among the largest roof-mounted solar arrays in the world, and is expected to deliver 4800MWh of energy per year, the equivalent of powering more than 7300 homes. Warehouses on the East and West precinct together will have installed on them the equivalent of a 12-30MW solar array.

Design Vision

- Achieve the completion of the development, minimising resource input where possible;
- Reduce operational resource costs through intelligent design and decision making.

Design Principles

Energy

- As recommended by the UHIMS, solar panels will be installed for the warehouses, where practicable. The solar panels will be visually unobtrusive, installed only on the available North facing roof space of the warehouses and within the approved building height restrictions;
- Warehouses will be designed as to give maximum access to the Northern sun, maximising solar panel efficiency.

Water

- All principles outlined in 2.3 Ecologically Sustainable Design, and 3.9 Water Sensitive Urban Design in regards to water are to be adhered to;
- OSDs have been designed and sited as part of the Stormwater Management Plan to maintain the volume of site water entering the George's River, while controlling its intensity;
- Rainwater tanks are required to meet the water conservation controls set by Liverpool Council's Liverpool Development Control Plan (2008) for development in Moorebank Defence Lands and also to satisfy sustainability building requirements.

Waste

- The development will work with end users to develop strategies of best practice to minimise waste;
- Each facet of the facility should be effectively designed to minimise construction waste during staging;
- Tenancies will be encouraged to promote efficient and sustainable waste segregation practices, in line with corporate initiatives implemented in modern industry;
- As noted in 2.3 - Ecologically Sustainable Development, resource waste will be minimised during construction by recycling demolished material as aggregate, and utilising fill from local sources.

The design includes a variety of principles with the aim of minimising resource input during both construction and operation. These principles outlined tie in with the core design philosophies of the Conditions of Consent - UHIMS, ESD and Landscape Design, and will reduce energy consumption during construction, and produce energy for the precinct through the usage of solar panels, reduce water usage through recycling, and reduce waste through sustainable practice and operation. These sustainable principles align with the objectives of the Conditions of Consent.



FIGURE 3.16 - Solar Panels installed at Development East Warehouse 1.



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