ANNEXURE 13: URBAN AND LANDSCAPE DESIGN GUIDELINES

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CAPE WINELANDS AIRPORT (CWA)

CAPE TOWN

CAPE WINELANDS AIRPORT (CWA), CAPE TOWN

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URBAN DESIGN GUIDELINES & LANDSCAPE DESIGN GUIDELINES

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1. Introduction

WHAT IS GOOD URBAN DESIGN? WHAT IS THE VALUE OF AN AIRPORT CITY URBAN DESIGN FRAMEWORK?

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1.1 PROJECT CONTEXT

1.1 Project Vision

The Cape Winelands Aiport is a mixed-use industrial development situated within the Northern Planning District of the City of Cape Town. The development is located approximately 12km from the Durbanville central business node and east of the N7, north of the N1 and east of the R300.

The Cape Winelands Airport development consists of a series of integrated precincts which include the airport terminal, airport airside, general aviation, services and agricultural precincts. Together these precincts are envisioned to establish a high-quality, cohesive built environment that reflects a unified identity. This design approach prioritizes architectural excellence that supports aesthetic quality, ecological restoration, climate responsiveness development and long-term sustainability, while delivering a vibrant and engaging experience for vistors. The precincts are conceived as interconnected environments that seamlessly integrate built form, movement networks, public interfaces and the surrounding natural environment.



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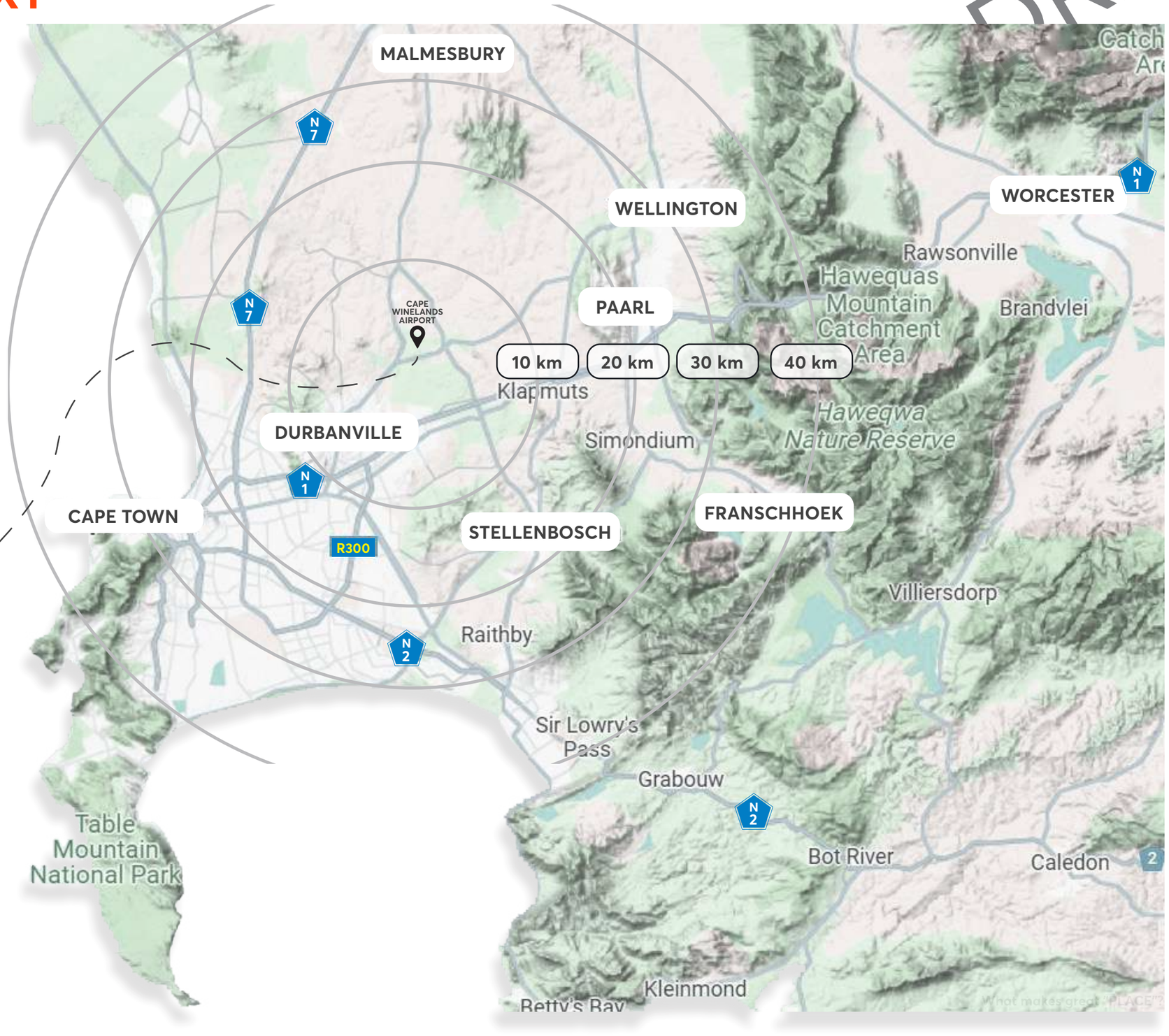
1.1 PROJECT CONTEXT

Locality

Positioned 30km outside Cape Town CBD, 20km from Stellenbosch and 20km from Paarl, within the picturesque Winelands and Swartland agricultural regions of the Western Cape Province, CWA is strategically placed to capitalize on the continuous growth and expansion of one of the 3 major economic regions of South Africa.

The Western Cape province in South Africa is experiencing economic growth, with projections indicating a 0.9% growth in 2025 and 1.4% in 2026. The province's economy has rebounded from the pandemic, with a low unemployment rate of 19.6% and job growth of 12.4% since pre-pandemic levels, according to Western Cape Government's statistics. The Finance sector is a major contributor to this growth, along with Transport and Community Services. The province's government WCG, is actively working to create a prosperous environment for businesses and communities.





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1.1 PROJECT CONTEXT

Site Context

The setting of a site or area, including factors such as traffic, activities and land uses as well as landscape and built form. A detailed analysis of the features of a site or area (including land uses, built and natural environment, and social and physical characteristics) serves as the basis for an urban design framework.

In other words, it is crucial that the design framework and design language is a considered response to it's environment, embedding into and contributing to existing systems.









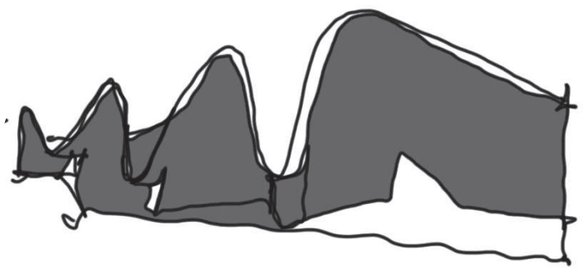




The broader Winelands area, with its layered tapestry of vineyards, orchards, and mountainous fynbos, offers a rich visual and cultural vocabulary—informing an airport experience that feels rooted, textured, and uniquely of the winelands. Inspired by the natural contours of the terrain, the design evokes the image of a vine-covered hill or the swell of a wine barrel partially unearthed.

At the same time, the landscape itself is in transition—evolving from an agricultural setting towards a resilient and sustainable urban environment. This transformation informs the design approach, where the character and rhythms of the natural landscape are reinterpreted through a contemporary urban language. The airport becomes part of this evolving landscape: connecting the agricultural heritage of the Winelands with a future shaped by sustainable development, integrated landscape systems, and a more resilient relationship between the built and natural environment.

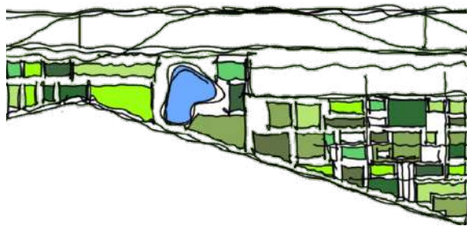














1.1 PROJECT CONTEXT

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Urban Design Compliance Matrix Table

CITY URBAN DESIGN POLICY OBJECTIVE	POLICY INTENT / REQUIREMENT	CWA URBAN DESIGN RESPONSE	CWA UDF REFERENCE	STATUS
1. Legible spatial structure	Development should establish a clear and understandable spatial structure through the integration of movement networks, built form, public spaces, natural systems and green infrastructure.	The CWA UDF establishes a clear spatial structure through a hierarchy of places, nodes, streets, movement routes, open spaces and development precincts. The framework integrates the airport with surrounding agricultural, ecological and landscape systems. Legibility is reinforced through movement hierarchies, landmarks, nodes, strategic views, landscape structure and coordinated wayfinding.	Places & Connections; Legibility; Hierarchy; Nodes; Permeability; Spatial Framework & Design Controls; Green Infrastructure.	Compliant / Addressed
2. Quality open space & placemaking	Development should provide high-quality, accessible and usable public spaces that encourage social interaction, activity, comfort and a strong sense of place.	The CWA UDF establishes a connected public realm consisting of plazas, forecourts, landscaped spaces, pedestrian routes and nodes. The Park Plaza and terminal forecourt provide important spaces for arrival, gathering, movement and interaction. Landscape, seating, shading and planting contribute to comfort and reinforce the identity of the airport.	Placemaking; Public Realm; People's Place; Places & Connections; Public Open Space Networks; Green Streets.	Compliant / Addressed
3. Safety & wellbeing	Development should create safe, comfortable and well-managed environments through appropriate spatial definition, visibility, natural surveillance, lighting and access control.	Safety is addressed through clear spatial boundaries, controlled access between public, restricted and operational areas, visible movement routes, active frontages and natural surveillance. Lighting, landscape design and spatial definition contribute to a safe and comfortable environment.	Defensible Space; Eyes on the Street; Active Frontages; Lighting; Movement & Access Control; No-Go Zones.	Compliant / Addressed
4. Streets, movement & connectivity	Movement networks should provide safe, convenient and legible connections between destinations, prioritising pedestrians and supporting a range of movement modes.	The CWA UDF establishes a hierarchy of vehicular, pedestrian and operational movement networks. Pedestrian movement is supported through continuous routes, defined crossings and direct connections between parking, drop-off areas and terminal entrances. Provision is also made for future public transport integration.	Mobility; Accessibility; Walkability & NMT; Places & Connections; Transport Framework; Wayfinding.	Compliant / Addressed
5. Diversity & adaptability	Development should promote diversity, intensity and adaptability through a mixture of uses, spaces, activities, building forms and user experiences.	The Airport City concept supports a mixed-use environment incorporating aviation, commercial, hospitality, retail, logistics and complementary uses. Mixed-use clusters and integrated development around key nodes allow the airport to function as a destination beyond aviation. Phasing allows the framework to adapt to future growth and changing requirements.	Diversity; Adaptability; Mixed-Use Clusters; Airport City Concept; Phasing; Form-Based Code.	Compliant / Addressed
6. Positive interfaces	Building edges and interfaces with streets and public spaces should be active, attractive, safe and pedestrian-oriented.	The CWA UDF promotes active and visually connected building edges through entrances, glazing, landscape, seating and pedestrian-oriented forecourts. Terminal frontages are designed to remain safe, walkable and unobstructed. Landscape buffers provide appropriate transitions between built development, infrastructure and the surrounding landscape.	Active Frontages; Edge Conditions & Transitions; Places & Connections; Public Realm; Architectural Guidelines.	Compliant / Addressed
7. Informality	Development should recognise opportunities for informal economic activity and provide appropriate spaces for informal trading and related activities where appropriate.	The CWA UDF promotes a diverse Airport City environment incorporating commercial activity, local products, small businesses, retail and public spaces. However, the current framework does not provide detailed spatial provisions specifically for informal trading. This should be considered during detailed precinct and public-realm design.	Diversity; Placemaking; Public Realm; Mixed-Use Clusters; Commercial Diversity.	Partially addressed / Further development required
8. Natural environment & green open space	Development should protect and integrate natural systems, ecological networks and green open spaces while improving environmental performance and resilience.	The CWA UDF places significant emphasis on ecological protection, rehabilitation and green infrastructure. Biodiversity areas, ecological corridors, drainage systems and biodiversity offset areas inform the spatial framework. Sustainable drainage, stormwater management, indigenous planting, ecological restoration and biodiversity offsetting are incorporated into the development strategy.	Natural Systems; Biodiversity; No-Go Zones; Green Infrastructure; Green Streets; Sustainable Development; Stormwater.	Compliant / Addressed
9. Heritage, character & identity	Development should respond to the character, history, cultural landscape and natural features of its context, reinforcing local identity and sense of place.	The CWA UDF responds directly to the Cape Winelands context through its landscape character, agricultural patterns, cultural heritage and aviation history. The design language draws from vineyards, agricultural landscapes, mountain ranges, local materials and landscape typologies. Important views, scenic routes and heritage patterns are incorporated into the spatial and landscape framework.	Identity in Context; Heritage; Landscape Character; Strategic Views & Vistas; Architectural Guidelines; Materiality & Finishes	Compliant / Addressed

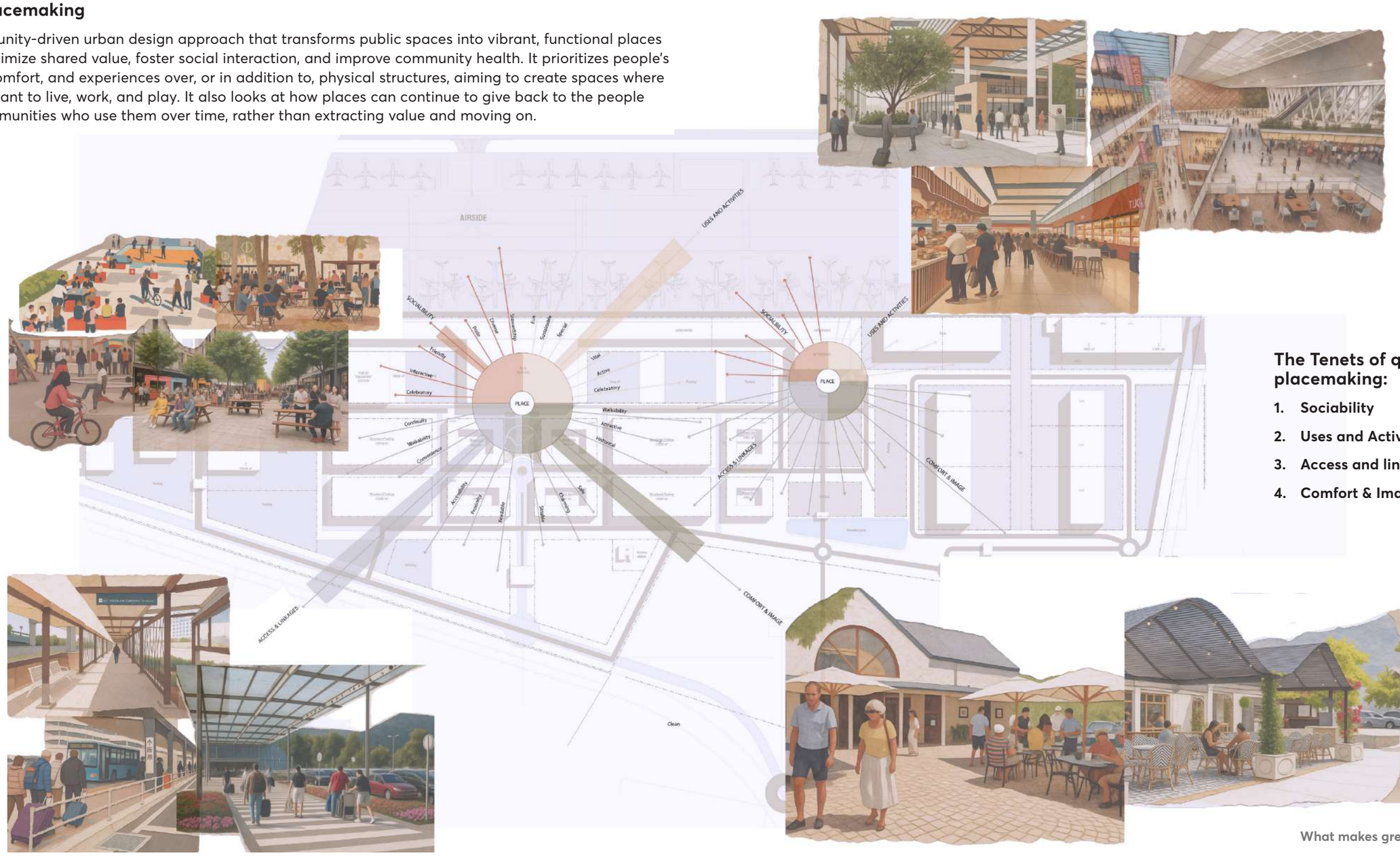
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1.2 VOCABULARY

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1.2.1 Placemaking

a Community-driven urban design approach that transforms public spaces into vibrant, functional places that maximize shared value, foster social interaction, and improve community health. It prioritizes people's needs, comfort, and experiences over, or in addition to, physical structures, aiming to create spaces where people want to live, work, and play. It also looks at how places can continue to give back to the people and communities who use them over time, rather than extracting value and moving on.



The Tenets of quality placemaking:

1. **Sociability**
2. **Uses and Activities**
3. **Access and linkages**
4. **Comfort & Image**

What makes great "PLACE"?

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1.2.2 Scale

The impression of a building when seen in relation to its surroundings, or the size of parts of a building or its details, particularly as experienced in relation to the size of a person. Sometimes it is the total dimensions of a building which give it its sense of scale: at other times it is the size of the elements and the way they are combined.

Softening scale and defining space through planting and recessed lines



To encourage walking and to create spaces in which people feel comfortable, any publicly accessible spaces must be visually satisfactory to the pedestrian. This means that spaces must be visually comfortable in terms of their height-to-width ratio, their balance of static and dynamic spaces and their visual length.

There must also be sufficient visual interest within the planes of the enclosing buildings to engage the eye. Repetition of similar building forms should be avoided, except where formal spaces are being created and there is compensatory detailed design enrichment.

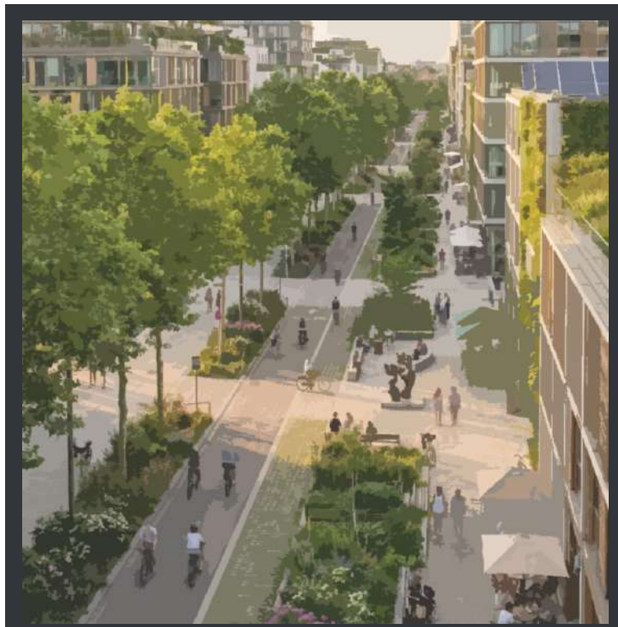


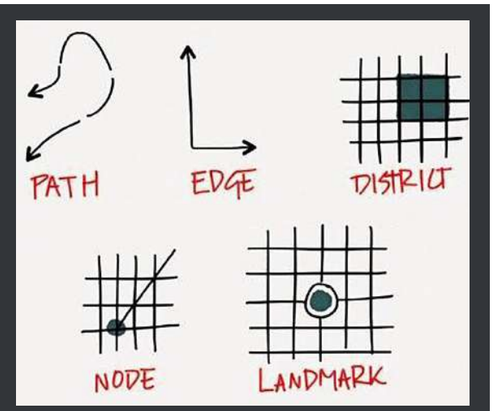
Spaces can be precieved as uncomfortably imposing or vast if design measures aren't taken to speak to the pedestrian scale

Munich Airport Hotel

1.2.3 Legibility

The degree to which a place can be easily understood and traversed. That is to say, how easily people can understand and mentally map a city's layout through its physical form, making it easy to read, find, and move around. Spaces need to be easy to get to, easy to enter, and easy to navigate on foot.







Key Elements of urban legibility:

- Paths: Streets, sidewalks, and transit routes that facilitate movement.
- Nodes: Focal points or gathering places, such as plazas or intersections.
- Landmarks: Distinctive buildings, sculptures, or physical features used for reference.
- Edges: Linear boundaries like rivers, walls, or shorelines that delineate areas.
- Districts: Distinct, medium-to-large scale sections of the city

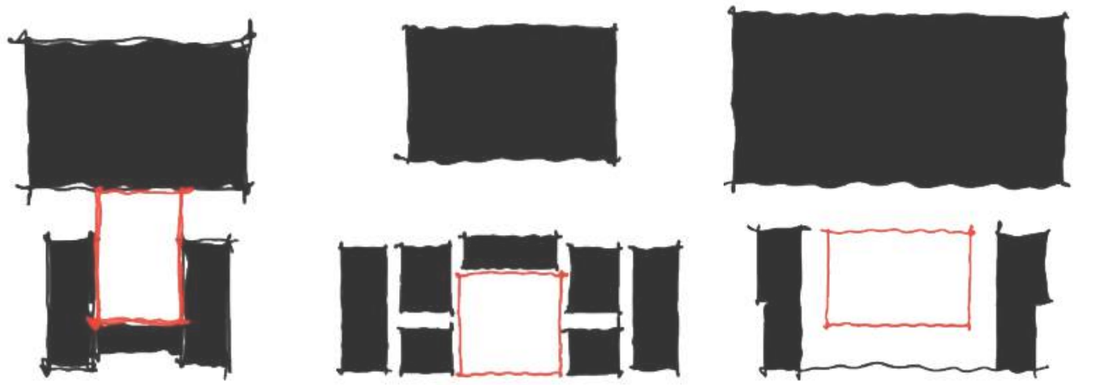
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1.2.4 Enclosure

Enclosure refers to the extent to which buildings, walls, trees, and other vertical items frame a street and public space, to create a sense of defined space. This is particularly important in the creation of urban squares, city plazas and streetscapes.



Munich Airport
H/W ratio 1:7

Berlin Airport
H/W ratio 1:6

Florianopolis Airport
H/W ratio 1:4.5

Good proportions for a public square space balances the width of the open space with the height of the surrounding structures. By aspiring for the following height to width ratios, a comfortable, human-centric environment is created:

- Minor streets Max 1:1.5
- Typical streets Max 1:3
- Public squares/ Plazas Max 1:5

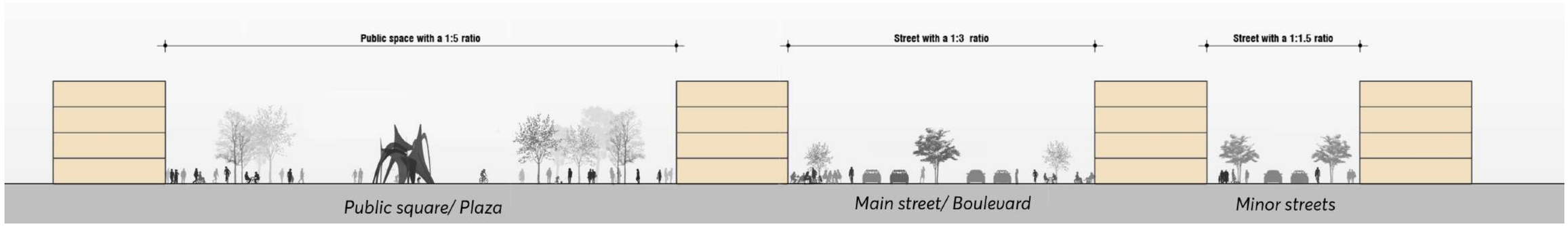
This also promotes the spatial hierarchy of the environment, allowing users to understand the nature of the space they are in in relation to the entire urban framework.

The Problem of Over-wide Spaces

A space accommodating a vehicular road will inevitably be wider than the ideal, and the pedestrian will perceive such spaces as over-wide. A static space of this width (such as a market square) would, however, not appear over-wide, due to its limited length. This effect can also be created by the design of buildings which command and at least partially enclose the space.

Another solution is to treat each street frontage as a more or less unbroken wall or edge, with the footway hugging the built frontage to give a sense of shelter. A further solution is to sub-divide the width of the street by rows of trees to create three parallel spaces, i.e. two footways and the carriageway. In such cases, greater fragmentation of the frontage may be allowed, as this would be concealed by the trees.not appear over-wide, due to its limited length.

Federation Square, Melbourne



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1.2.5 Desire lines

An imaginary circulation/ travel line linking facilities or places which people would intuitively take if free from obstacles and diversions.



Observing "Desire lines" and designing circulation accordingly.

These circulation routes are examples of "user-generated" urbanism, and provide important information on routes favoured by pedestrians. To enhance mobility and connections, designers can take cues from these travel lines in planning circulation.



1.2.6 Urban grain

The pattern of the arrangement and size of buildings and their plots in a settlement; and the degree to which an area's pattern of street-blocks and street junctions is respectively small and frequent, or large and infrequent.



Maps of well known cities by french artist Armelle Caron, illustrating block size, organisation and urban texture.

Fine grain refers to the number of distinct constructions and uses per unit of land. The higher this number the finer the grain of the urban fabric. The variety and rhythm of the urban experience created by a fine subdivision of the blocks into many small plots is what creates interesting urban environments.

Finer grained urban frameworks have

- More walkability
- More permeability
- More resillience and adaptability
- Diverse ownership

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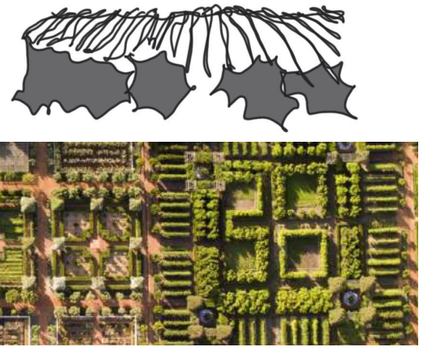
1.2 VOCABULARY

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1.2.7 Vernacular

The way in which ordinary buildings were built in a particular place, making use of local styles, techniques and materials and responding to local economic and social conditions.













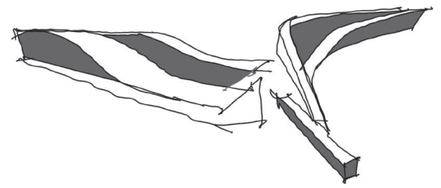


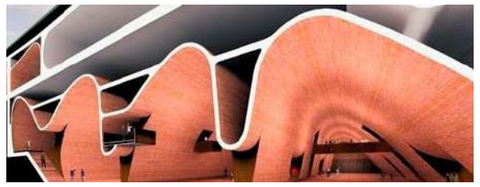
The urban framework must seek to reflect the local sense of place and introduce sound design precedents for the future by referencing the history of the site's development and use, referencing parts of the collective identity of the environment, and incorporating elements of the underlying landscape patterns.











The architecture of the Winelands Airport is envisioned as a sculptural form that appears to rise organically from the ground—a gentle curve that blurs the boundary between landscape and structure.

Passenger movement through the airport involves distinct processes, each with unique spatial needs. Architecture can reflect these transitions through contrasts—low/high, airy/dense, focused/relaxed. Familiar typologies like caves, gardens, courtyards, and terraces evoke moods and functions that guide the journey.







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1.2 VOCABULARY

a Concise explanation of relevant urban design terms

1.2.8 Form-based code

Form-based codes are a variety of development regulations that departs significantly from the land use control approach of most zoning codes. While traditional zoning codes focus first on the use of land, form-based codes prioritize the form of buildings, based on the belief that the form of buildings is more important than the use in determining community character.



Guiding development by form instead of zoning

Form-based codes address the relationship between building facades and the public realm, the form and mass of buildings in relation to one another, and the scale and types of streets and blocks. The approved zoning permits a wide range of uses and flexibility.

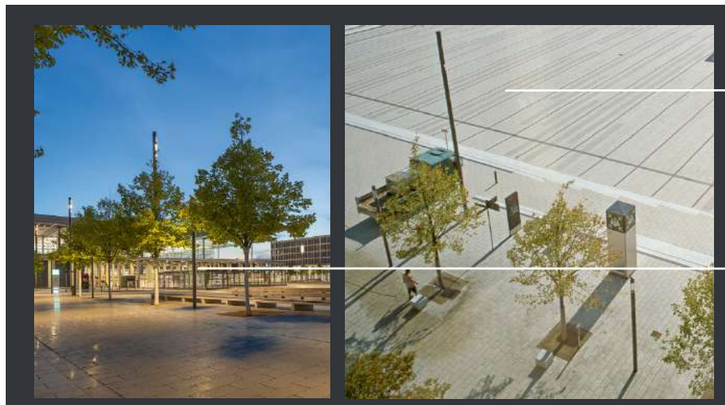


Unlike conventional zoning, which focuses on what happens inside a building, FBCs use detailed design standards and graphics to ensure the final building fits the desired uniform community character.

Form-based codes address the relationship between building facades and the public realm, the form and mass of buildings in relation to one another, and the scale and types of streets and blocks

1.2.9 Wayfinding

a Comprehensive system of environmental cues, signage, maps, and architectural elements that help people orient themselves, navigate, and understand a, city, town, or complex space.



A coordinated signage system supported by consistent paving and landscape alignment enhances legibility. Directional signs, tree avenues and ground plane changes work together to structure movement and orientation.

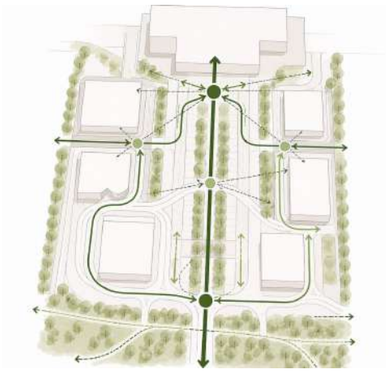
Tree-lined pedestrian routes and integrated lighting establish clear directional movement. Linear planting reinforces spatial order while guiding users intuitively toward terminal entrances.

Berlin Brandenburg Airport, Germany

Wayfinding is achieved through the integration of landscape, paving and signage into a unified system. Movement is guided through linear elements such as tree avenues, lighting and surface changes, supported by clear visual cues and consistent spatial hierarchy. This approach reduces reliance on signage alone and enhances intuitive navigation.

Primary and secondary pedestrian routes are structured by landscape elements. Tree avenues, crossings and linear movement paths define direction, while nodes mark key decision points.





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1.2 VOCABULARY

a Concise explanation of relevant urban design terms

1.2.10 Accessibility

The ability of people to move round an area and to reach places and facilities, including elderly and disabled people, those with young children and those encumbered with luggage or shopping.



Berlin Brandenburg Airport, Germany

Pedestrian movement is prioritised through continuous surface treatment across vehicular routes. Changes in paving and clear crossings establish safe and legible connections between forecourt spaces and terminal entrances.



Florianopolis Airport, Brazil and Munich Airport, Germany

Parking areas are directly linked to pedestrian pathways leading to the terminal. Clear transitions between vehicular and pedestrian zones ensure efficient and intuitive access

A layered access system integrates pedestrian, vehicular and airside movement. Distinct zones ensure operational efficiency while maintaining clear separation between public and restricted areas.

Accessibility is structured through a clear hierarchy of movement networks that integrate pedestrian, vehicular and operational flows.

Landscape and paving is used to prioritise pedestrian routes while maintaining functional efficiency.

Direct, legible connections between parking, drop-off and terminal spaces.

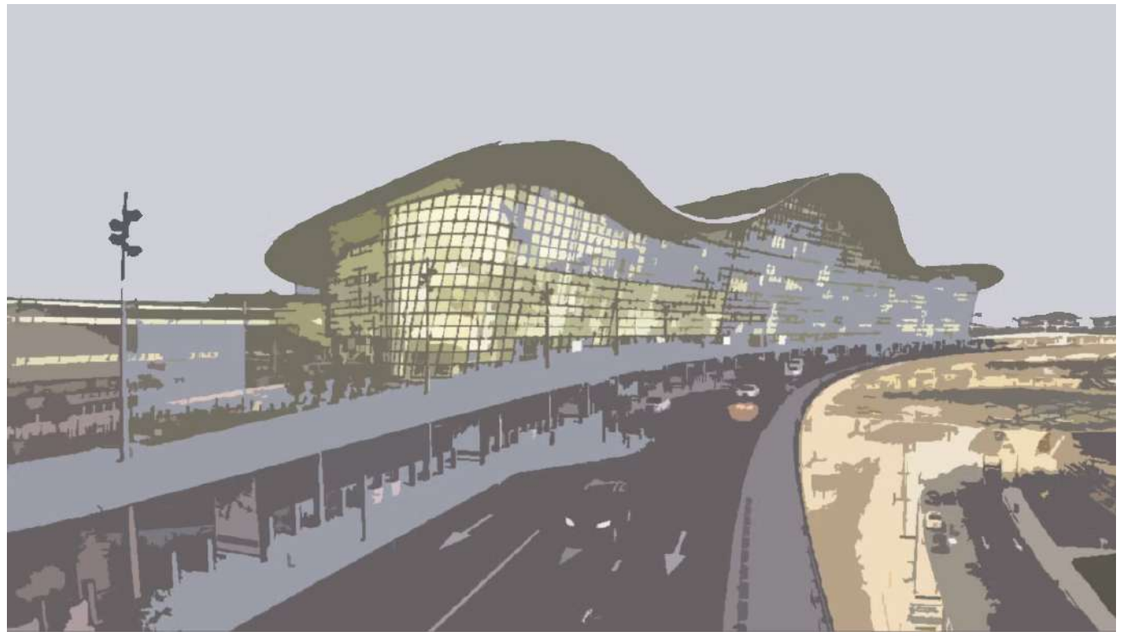
Representing movement networks across different user groups, including pedestrians, vehicles and restricted airside circulation.

Primary routes connect key destinations, while controlled zones indicate limited access areas. Universal access is considered through continuous pathways and inclusive movement systems.



1.2.11 Landmark

A building or structure that stands out from its background by virtue of height, size or some other aspect of design. It serves as a marker for navigation and lends to the identity of a place.



Zayed Airport, Abu-Dhabi

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1.2 VOCABULARY

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1.2.12 Node

a Place where activity and routes are concentrated often used as a synonym for junction.

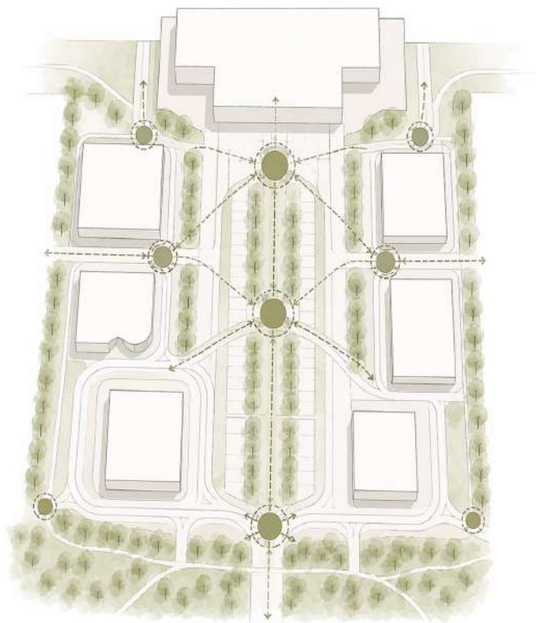


A central courtyard space organises movement through a hierarchy of nodes. Vegetation and spatial framing guide users from larger gathering spaces to more defined entry points.

Entrance spaces are defined through seating, planting and spatial thresholds. Landscape buffers separate movement routes from areas of pause, creating comfortable transition zones.

Human-scaled seating areas at building edges create informal nodes that support waiting, gathering and social interaction within the arrival sequence.

Berlin Bradenburg Airport, Germany & Florianopolis Airport, Brazil



Nodes function as key points of orientation, gathering and transition within the spatial network.

They are defined through landscape, seating and changes in spatial scale, allowing users to pause, orientate and move between destinations.

A clear hierarchy of nodes supports legibility and enhances the overall user experience.

Identifying primary and secondary gathering points across the site where larger nodes represent major destinations or intersections, while smaller nodes indicate localised points of pause. Connections between nodes illustrate movement patterns and spatial relationships.

1.2.13 Hierarchy

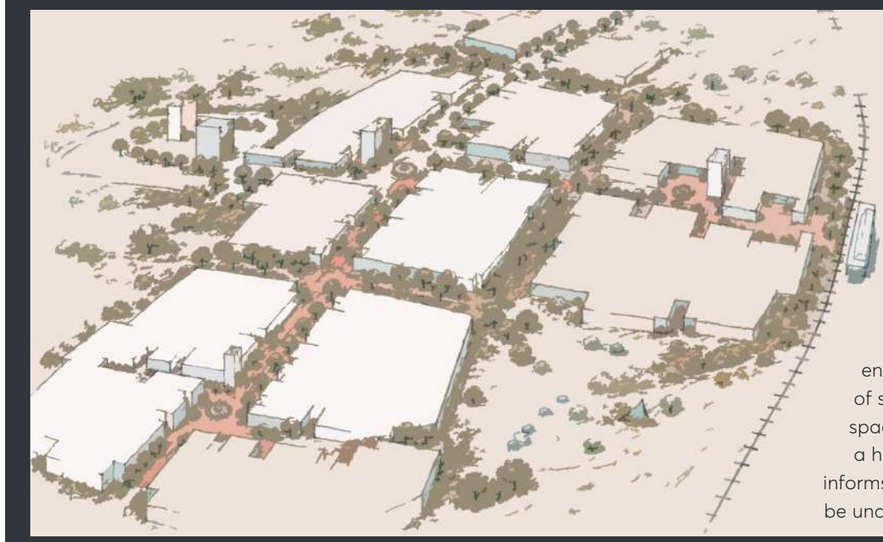
The systematic organization and ranking of elements—such as streets, spaces, buildings, and land uses—based on their importance, function, and scale to create a legible and ordered environment.



Hierarchy of connected open urban spaces (Barcelona)



Hierarchy of minor streets, main streets and boulevards (Paris)



a Well designed urban environment is comprised of series of interconnected spaces and routes, forming a hierarchical system that informs the user how it should be understood and navigated

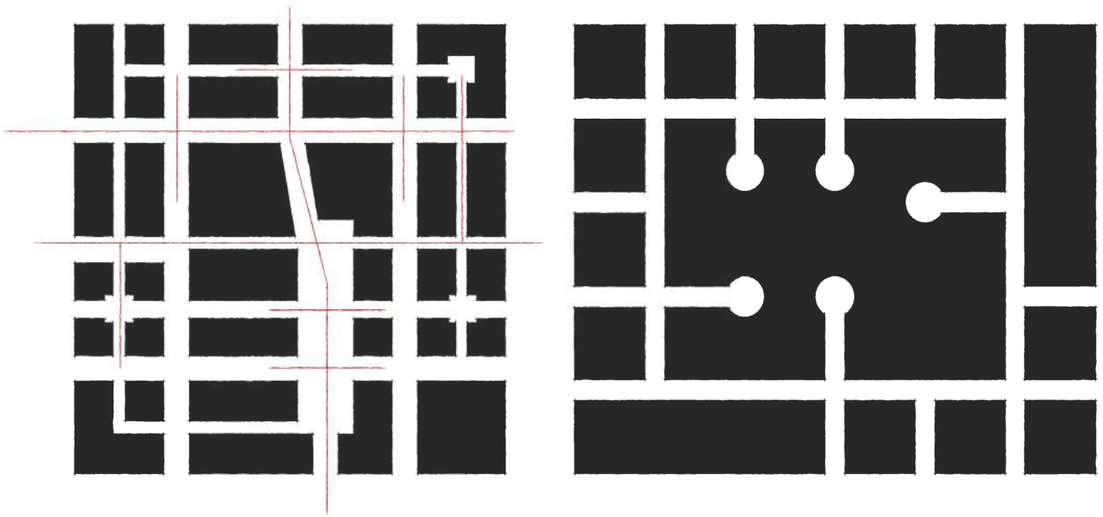
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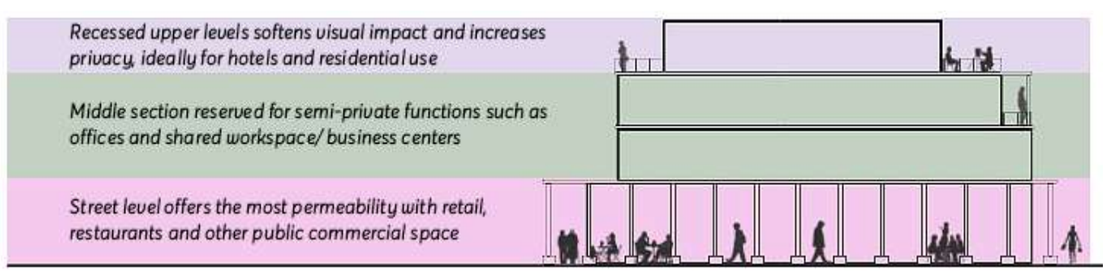
1.2.14 Permeability

The degree to which an area has a variety of pleasant, convenient and safe routes through it.



Permeable city blocks provide the user with choice of circulation routes , with visual connections to other routes, places and landmarks.

Designing the urban framework as more permeable creates a smooth transition with intermediary spaces between what is considered public and private space. It creates intrigue and interest for the urban dweller, and prevents the walled off/ podium effect where city blocks become imposing and alienating.

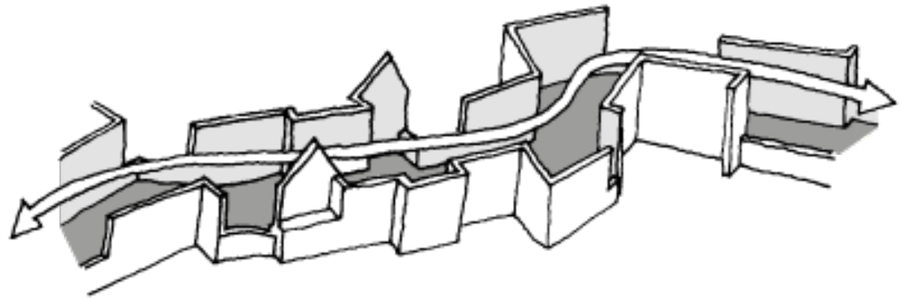


Continuity of Route

The continuity of a pedestrian route needs to be emphasised by minimising breaks in the built frontage. Gaps for road junctions and similar should be sited so as to have as little impact as possible on the visual continuity of the streetscape.

The route should be a unifying element, tying groups of buildings together and making its whole length a composition in itself. However, such a route will still require a variety of spaces along its length if it is to provide satisfactory diversity of spatial experience.

In addition, developments should offer the flexibility to adapt or 'customise' parts of dwellings or frontages (such as the colour of front doors or rendered surfaces) so as to aid the wayfinding for the both the ageing population and those with dementia.



A close-knit pattern of connected urban streets and spaces produces a variety of benefits:

- Travel distance between origin and destination for local journeys is minimised.
- Encourages the establishment of fine-grain mixed-use.
- Creates a more sociable and safer public realm.
- Supports the use of cycling and walking.
- Supports the formation and use of a central hub at the core of larger development

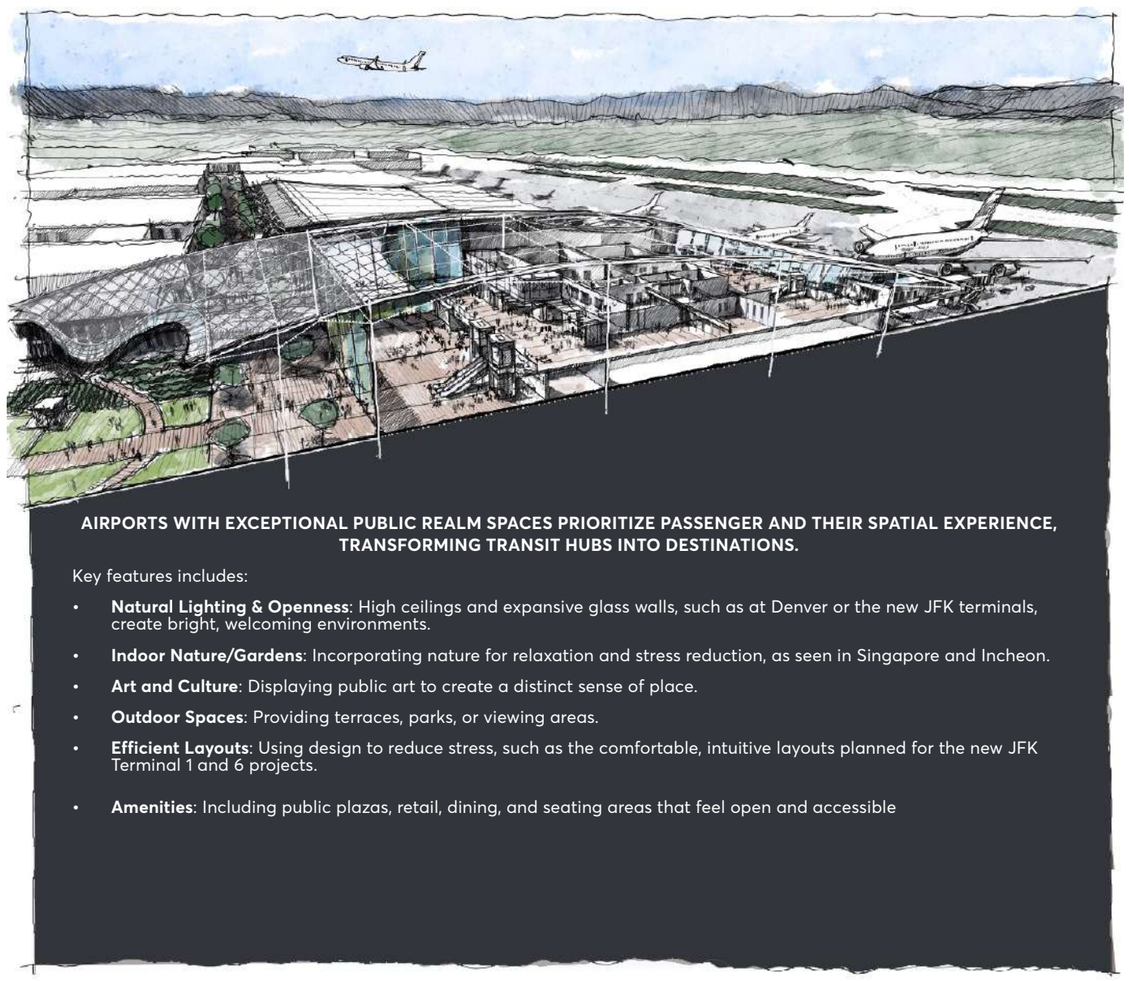
DRAFT

1.2 VOCABULARY

a Concise explanation of relevant urban design terms

1.2.15 Public realm

Passenger/Public Realm is defined as any area which is accessible to the public. A high quality design and sense of place is vital to creating an environment where people want to visit, work and use. That is to say parts of the airport city (whether publicly or privately owned) that are available, without charge, for everyone to use or see, including streets, squares and parks.



AIRPORTS WITH EXCEPTIONAL PUBLIC REALM SPACES PRIORITIZE PASSENGER AND THEIR SPATIAL EXPERIENCE, TRANSFORMING TRANSIT HUBS INTO DESTINATIONS.

Key features includes:

- **Natural Lighting & Openness**: High ceilings and expansive glass walls, such as at Denver or the new JFK terminals, create bright, welcoming environments.
- **Indoor Nature/Gardens**: Incorporating nature for relaxation and stress reduction, as seen in Singapore and Incheon.
- **Art and Culture**: Displaying public art to create a distinct sense of place.
- **Outdoor Spaces**: Providing terraces, parks, or viewing areas.
- **Efficient Layouts**: Using design to reduce stress, such as the comfortable, intuitive layouts planned for the new JFK Terminal 1 and 6 projects.
- **Amenities**: Including public plazas, retail, dining, and seating areas that feel open and accessible





Berlin Bradenburg Airport, Germany





Florianopolis Airport, Brazil

The forecourt space functions as a transitional public realm between the city and terminal. Large open areas accommodate movement while maintaining visual clarity and accessibility.

Outdoor seating areas are integrated within landscaped courtyards, providing shaded, comfortable spaces for users to gather and wait.

Pedestrian routes are activated through adjacent seating and landscape elements, reinforcing the public interface at building entrances.

The public realm is structured as a network of accessible, comfortable and adaptable spaces that support both movement and occupation.

Landscape elements such as planting and seating enhance usability while reinforcing spatial identity.

These spaces act as extensions of the terminal environment and contribute to a human-centred experience.

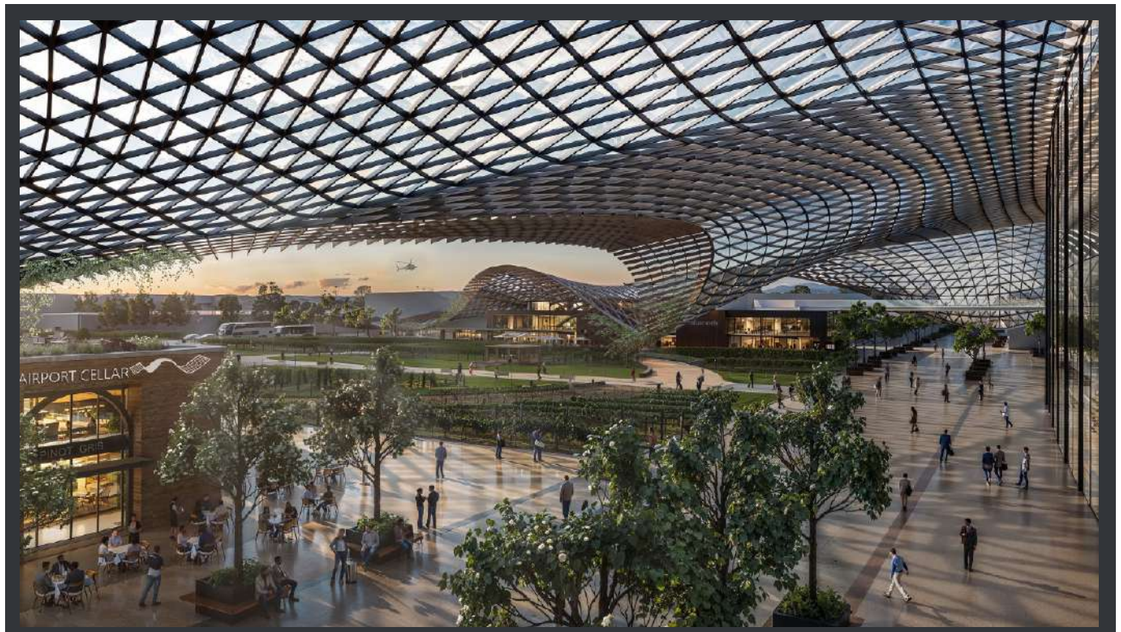
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1.2 VOCABULARY

a Concise explanation of relevant urban design terms

1.2.16 People's place

a User-centric public space designed to foster community, interaction, and a strong sense of identity, rather than just facilitating the movement of traffic.





Sundance square, Fort Worth, Texas

1.2.17 Sight lines

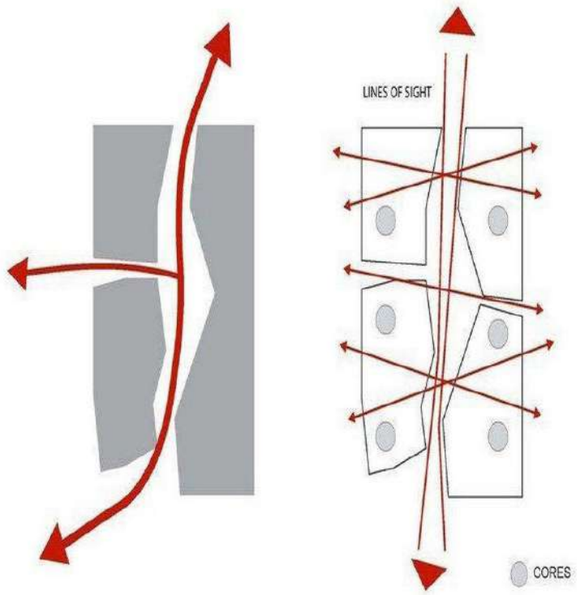
The line of sight from a travelling vehicle or person. Sight lines will help to determine how fast vehicles are likely to move and how safe other road users are likely to be.



Clear sightlines are maintained through structured planting and open forecourt design. Tree alignment reinforces spatial order without obstructing views toward the terminal.

Visual connections between interior and exterior spaces enhance orientation. Transparent facades and open landscapes allow uninterrupted views toward surrounding features.

Berlin Bradenburg Airport, Germany and Florianopolis Airport, Brazil



Sightlines are critical for orientation, safety and spatial clarity.

Open views toward key destinations, supported by controlled planting and spatial alignment, allow users to navigate intuitively.

Visual connections between spaces strengthen the relationship between built form and landscape.

Sightlines are illustrated through directional lines indicating visibility between key points. These connections highlight visual corridors and reinforce orientation across the site.

DRAFT

1.2 VOCABULARY

a Concise explanation of relevant urban design terms

1.2.18 Strategic views/ vistas

The line of sight from a particular point to an important landmark or skyline. Also known as Key view. a "Vista" is an enclosed/ framed view of visual importance.



View over vineyards with Table Mountain in the distance



View of the Hawequas Mountains from the Cape Winelands

1.2.19 Sustainable development

Defined by the Brundtland Commission (1987, and quoted in PPG1) as 'Development which meets present needs without compromising the ability of future generations to achieve their own needs and aspirations'. The UK's strategy for sustainable development "A better quality of life" was published in May 1999 and highlights the need for environmental improvement, social justice and economic success to go hand-in-hand.



Walkable, people-focused public spaces



Sustainable water management



Biodiversity / indigenous planting



Renewable energy / solar infrastructure

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1.3 PHILOSOPHY

The values and aspirations that guide our decision making

1.3.1 Form supports function

PHILOSOPHY

We deliver sustainable architecture with a long-term positive impact for society. We focus on the health and wellbeing of the users of our buildings, in addition to the building's climate footprint and the economic sustainability for our client. We do our best to integrate sustainability in every area of our business with a holistic strategy focused on projects, partnerships, continuing education and our own carbon footprint.

Our urban designers and planners develop resilient solutions that address the health of both people and the planet. Focusing on human needs, without jeopardizing access to nature, allows us to achieve liveable and attractive cities for all.

Cities are complex systems that are under constant urban and demographic change – and it is important to understand that a healthy city requires a holistic approach to be truly successful. We work towards creating regenerative cities that are resilient to environmental, societal and economic challenges and promote wellbeing for its residents and visitors

Our preliminary approach for the Cape Winelands Airport focuses on creating a regionally inspired, sustainable, and passenger-centric facility. We aim to deliver a functional yet iconic airport that enhances the region's global appeal. This document serves as a foundation for further refinement and collaboration with stakeholders.

This summary encapsulates our initial thoughts, key design ideas, and rough concepts, setting the foundation for a comprehensive, forward-thinking proposal that aligns with the project's goals and stakeholder expectations

Our approach follows a structured, phased methodology—from inception to delivery—rooted in a deep understanding of airport operations, urban dynamics, and real estate development. Each project is guided by a flexible framework that evolves with local conditions, stakeholder input, and future mobility trends. We begin with context: analyzing the physical, economic, and cultural setting of each site. We study the social behavior of visitors and residents, the architectural language of the region, and the economic strengths of the surrounding area. This informs how we organize spaces, define uses, and create a unique sense of place around the terminal.

1.4 AIMS/PURPOSE

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1.4.1 What we wish to achieve with the development

We design Airport Cities as multi-functional urban districts—accessible, lively, and grounded in the human experience. Our vision includes:

- Walkable and Human-Scaled Environments
- People-first layouts with generous sidewalks, pedestrian boulevards, and inviting public spaces that encourage interaction and ease of movement.
- High-Quality Outdoor Experiences
- Well-shaded plazas, landscape-integrated seating areas, water features, and microclimates that promote comfort and encourage quality dwell time.
- Commercial Diversity—Big and Small
- A curated mix of international brands, regional products, and local crafts. We deliberately try to integrate small businesses to reflect local culture and foster economic inclusion.
- Green Space and Native Landscaping
- We create green corridors, pocket parks, and biodiversity zones, using drought-tolerant and site-specific vegetation, like wine, to ensure ecological sensitivity and lower maintenance.
- Sustainable Material Use
- Emphasis on low-embodied carbon construction, reuse of materials where possible, and integration of renewable energy and water harvesting systems.
- Vertiports and Advanced Mobility
- We plan for tomorrow—embedding vertiport-ready zones, EV infrastructure, and seamless multimodal transport links as part of the masterplan from the start.
- Mixed-Use Clusters and Integrated Logistics
- Carefully zoned business parks, logistics hubs, and hospitality nodes that reinforce the airport's economic function while contributing to its urban character.

Design Intent and Identity

Although we approach planning with a proven methodology, we shape each Airport City according to its own story. For example, a region known for winemaking may find its expression in plaza layouts, architectural motifs, or the inclusion of local wine cellars and tasting lounges. In other contexts, floriculture, textiles, or food production might inspire the retail strategy and public realm design. By anchoring the design in the local identity, we aim to turn the airport into a destination beyond aviation—a place people visit even when they're not flying. This supports tourism, strengthens regional pride, and increases economic resilience.

Sustainability as a Foundational Principle

Sustainability is not an added feature—it is the foundation. Our Airport Cities aim to meet the highest international standards such as LEED or local green ratings. We integrate:

- Renewable energy systems (solar, thermal, passive strategies)
- Water-sensitive urban design and recycling systems
- Efficient mobility concepts to reduce emissions
- Compact, mixed-use development patterns that reduce land take

Our Airport City planning philosophy is built around people, place, and performance. It merges efficient transport infrastructure with rich urban experiences. It supports long-term growth while celebrating the uniqueness of each region. At its best, an Airport City becomes a platform for innovation, a generator of jobs and investment, and a meaningful civic landmark.

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2. Site Analysis

THE SITE, AND HOW IT INFORMS DESIGN DECISIONS

amd.sigma
strategic airport development

Boogertman + Partners

2.1 THE SITE

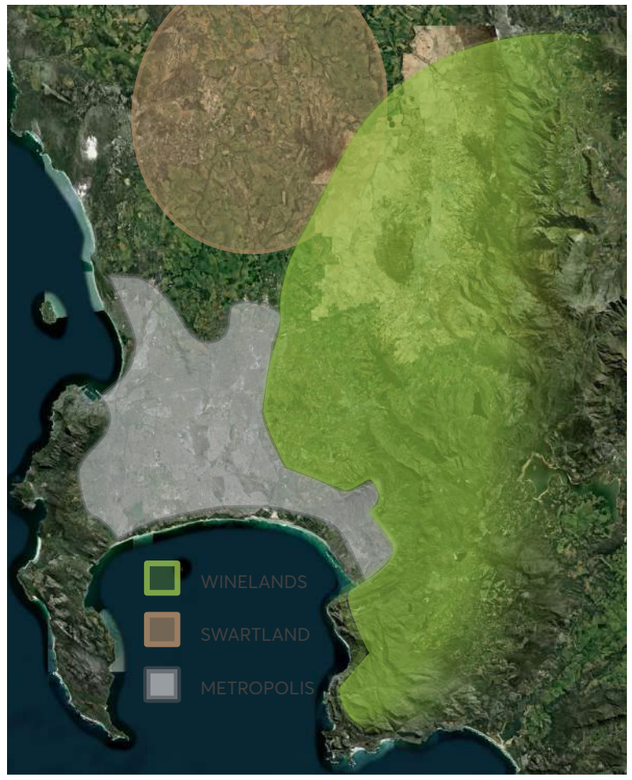
The Site

Mountains/ History/ Colour/ Form/ Texture/ Space/ Structure

The Cape Winelands, a renowned wine-producing region in South Africa's Western Cape, is celebrated for its scenic beauty, Cape Dutch architecture, and award-winning wines. Nestled between the West Coast and Overberg, it features a Mediterranean climate and diverse landscapes. The Cape Fold Mountains shape the region's soil and wine character, while autumn brings vibrant hues of red, orange, and gold to its vineyards. Quaint towns reflect French Huguenot heritage, and the area is considered South Africa's gourmet capital. To the north, the Swartland region—known for its wheat fields and wines—adds contrast with its fertile plains and striking dark vegetation.

Legibility

Scenic landscapes enhance legibility, helping people understand and navigate a space with ease and comfort. Flying over the Cape Winelands reveals breathtaking views of vineyards, rolling hills, and landmarks like Table Mountain and the Hottentots Holland Mountains. Passengers enjoy dramatic cliffs, city skylines, and striking natural beauty from above. This aerial experience often complements ground-level activities like wine tasting, scenic drives, or fly-in safaris, offering a unique and memorable way to explore the region.







THE WINELANDS



THE SWARTLAND



THE CITY OF CAPE TOWN





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2.1 THE SITE

Site Photos



The photographic survey captures the broader spatial, visual and cultural landscape surrounding the Cape Winelands Airport site.

The images reveal a landscape charaterised by expansive agricultural fields, long horizontal views toward the surrounding moutain ranges (Paarl Mountain, Simonsberg, Paardeberg, Meerendal and Table Mountain) and the strong rural identity shaped by farming, aviation activity and the surrounding landscape.

The landscape reflects a strong rural and agricultural identity with the existing airfield embedded within a productive cultural landscape, shaped by farming, movement corridor and long standing aviation activity. Existing vegetation patterns, tree avenues, windbreaks and cultivated fields contribute significantly to the sense of place and visual continuity of the area.

The site also exists within a transitional peri-urban condition, positioned between the rural and agricultural landscapes of the Cape Winelands.

Site photographs capture this evolution, where the established agricultural setting and aviation infrastructure meet emerging urban development associated with Greenville.

VISUAL CLUTTER



SCENIC AGRICULTURE



FARM WERF



SITE VIEWS



FISANTEKRAAL



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2.2 ANALYSIS

2.2.1 Connectivity and Infrastructure

The Cape Winelands Airport is located conveniently between Cape Town and West Coast Municipality, Paarl, Wellington and Stellenbosch with efficient connectivity through the national highway network(N1). The national road (N7) from Cape Town City, runs to the north up the West Coast towards Malmesbury, which is also located within 30km range to the north-west.

Cape Winelands Airport has the unique potential to cater to the passenger, cargo and agro-processing markets, not only to the Cape Town Metropole region, but also to the regional towns surrounding it, and the greater Boland region.

It is centrally located within the prosperous Western Cape hinterland areas, and has the potential to be the economic hub which connects this greater region. This airport will also act as an alternate for Cape Town International Airport.

The main access to the site is from R302 (Klipheuwel Road), R304 (Koelenhof Road) and R312 (Lichtenburg Road), which form part of the surrounding road network serving the airport. Planned road infrastructure will provide additional connectivity as the area develops, subject to public funding, infrastructure planning and land acquisition processes. The proposed access arrangments and traffic distribution for the airport development are addressed in the Cape Winelands airport Transport Impact Assessment (TIA) and should be read in conjunction with these guidelines.

The R302 road will connect the airport to Durbanville. This is a town which is part of the greater Cape Town Metropolitan area. It is a semi-rural residential suburb on the north-eastern outskirts of the metropolis, surrounded by farms producing wine and wheat. The distribution of the airport related traffic across the surrounding road network is addressed in the (TIA).

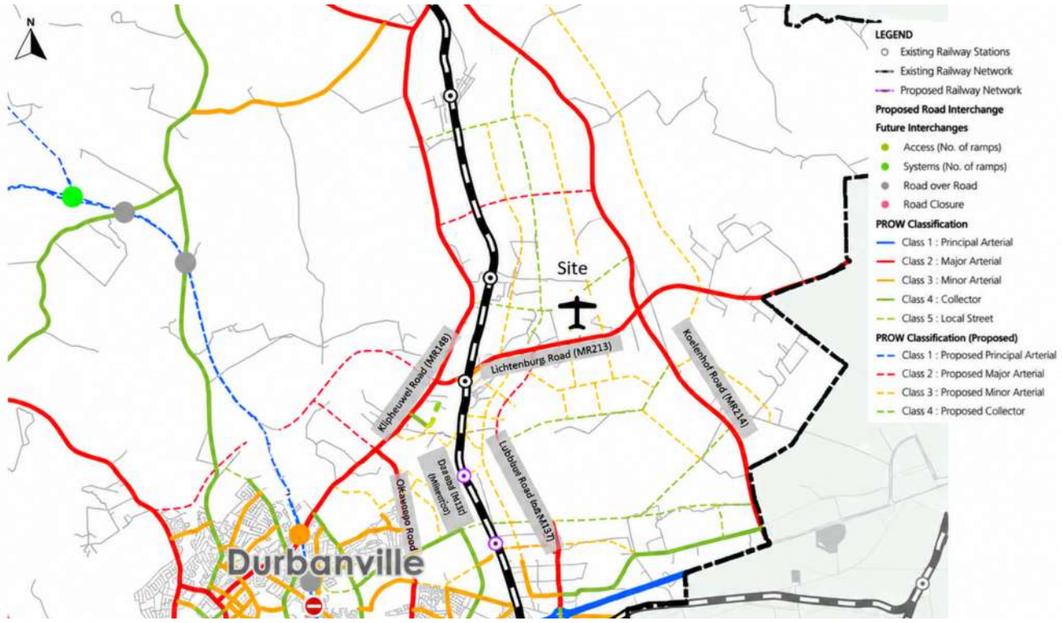
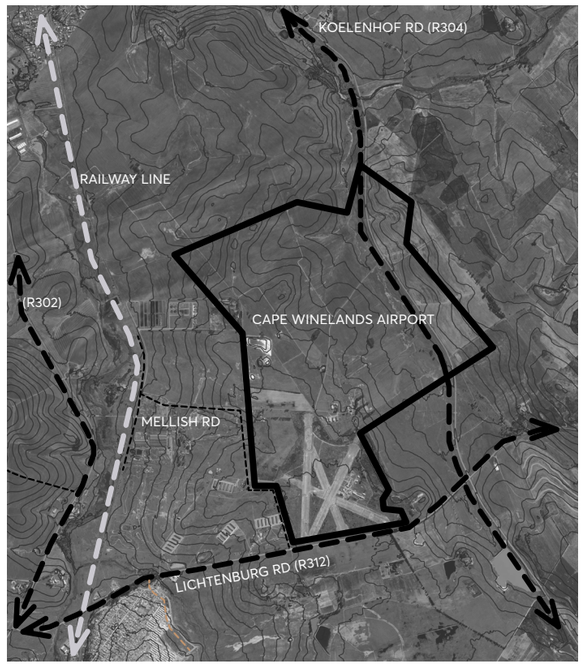


Figure 1: Roads and Railway Network

2.2.2 Transport



Proposed transport framework retaining the existing Mellish Road alignment to support spatial continuity, landscape buffering, and optimal airport masterplan configuration.



The airport is currently accessed primarily via Mellish Road and Lichtenburg Road, which connect the site to the wider regional transport network. Existing infrastructure largely reflects rural and agricultural traffic conditions; however, future airport expansion will increase movement demands and require appropriate transport upgrades.

Proposed interventions include upgraded intersections, access roads and internal circulation systems intended to strengthen regional connectivity while integrating the airport into the broader metropolitan movement framework.

The surrounding agricultural landscape provides opportunities for future transport infrastructure, landscape integration and buffering, while maintaining appropriate spatial separation between movement infrastructure and aviation operations. This open landscape context allows the movement network to evolve alongside the airport while supporting a clear relationship between infrastructure, landscape and future development.

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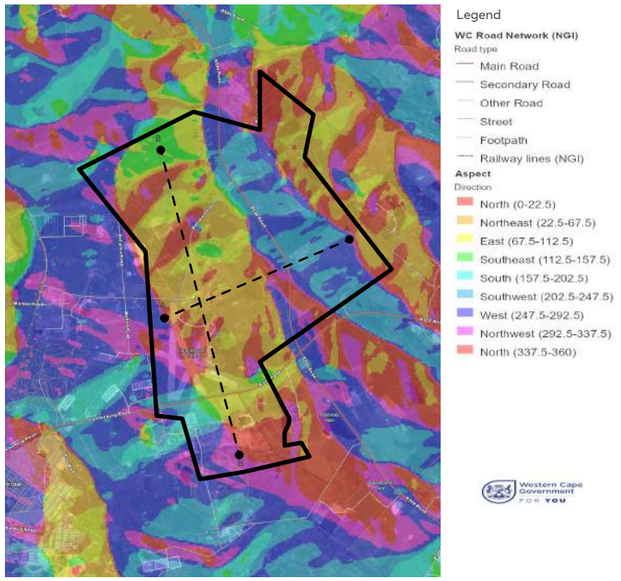
2.2 ANALYSIS

2.2.3 Topography

The site is characterised by predominantly flat terrain, which was a key determining factor in its original selection as an airfield. The longitudinal gradient across the proposed runway alignment is less than 1%. This exceptional flatness is a rare spatial condition within the metropolitan region and is critical for aviation safety, runway design and operational efficiency. Thus making the site highly suitable for airport expansion.

The wider landscape is characterised by gently undulating plain, shallow drainage corridors and distant mountain systems. These surrounding landforms contribute to the regional identity and scenic quality of the landscape.

At a landscape scale the flat terrain creates a visually open environment with long horizontal views across the site, increasing visibility of future infrastructure and also influences the hydrological performance. Limited natural gradients reduce runoff velocity and increase dependence on engineered stormwater managemebt systems, retention landscpes and Sustainable Urban Drainage Systems.



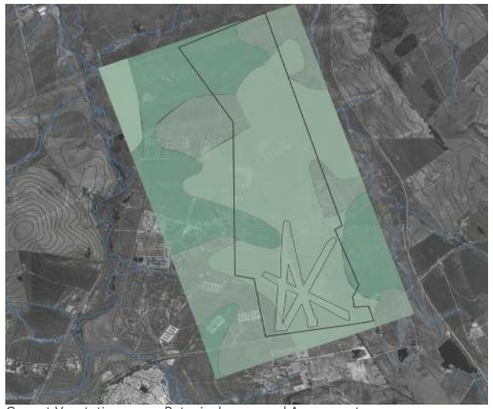




2.2.4 Natural Systems

At the Cape Winelands Airport, natural systems are shaped by the interaction between ecological remnants, agricutural transformation, hydrological processes and broader regional biodiversity systems. Ecologically, the site includes areas identified as Critical Biodiversity Areas, particularly in the south-eastern parts and contains remnants of Swartland Renosterveld vegetation. These systems form part of a wider ecological network that requires mitigation and offset strategies to accommodate development. Overtime extensive agricultural cultivation, mining, invasive species and other land uses transformed the landscape. The sites natural systems is not defined by pristine wilderness conditions but fragmented ecological landscapes embeded within a productive agricultural matrix.

Hydrologically, the landscape is influenced less by major river systems and more by shallow drainage patterns and sub-surface water movement associated with the flat terrain. Slow drainage conditions reinforce the need for integrated stormwater systems, retention landscapes, wetlands and blue-green infrastucture to improve resilience, reducing flood risk and enhancing environmental performance within the future airport framework.



Current Vegetation as per Botanical on ground Assessment



Agricultural Precinct

Through mapping and sectional analysis, a clear relationship emerges between the underlying geology, topography and historic vegetation systems of the site. The section illustrates how Swartland Shale Renosterveld and Swartland Granite Renosterveld historically occupied the landscape, in response to soil and geological conditions, creating a diverse mosaic of lowland vegetation communities.

Today much of this vegetation has been transformed through agricultural activity and landscape modification leaving only fragmented remnants of these endangered ecosystems.



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2.2 ANALYSIS

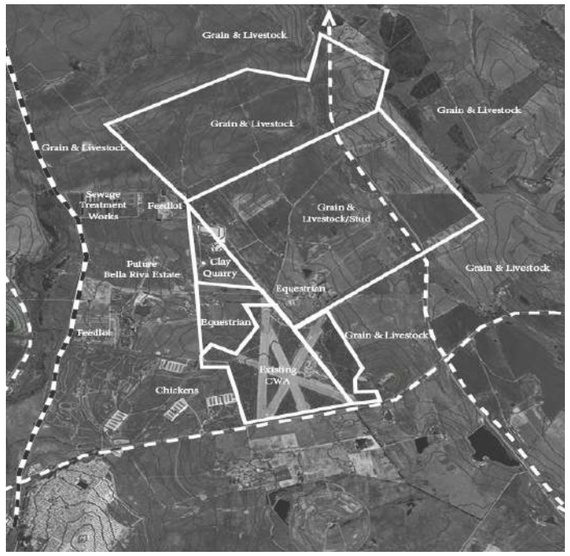
2.2.5 Places

The airport site sits within a layered and evolving landscape, where productive agricultural systems, ecological remnants, aviation infrastructure and emerging urban development intersect. The surrounding landscape is characterised by cultivated farmland, grazing areas, farm werfs, windbreak planting and established movement corridors, reinforcing the agricultural identity of the northern Cape metropolitan edge.

The site is not located within a designated cultural landscape, but is positioned between the Durbanville Hills and Agter-Paarl/Paardeberg cultural landscapes. These surrounding landscapes contribute to the broader sense of place through their scenic qualities, agricultural heritage and long-standing patterns of farming and rural occupation.

The emerging urban development of Greenville Garden City, together with the established airport and surrounding movement network, contributes to a changing spatial relationship between the rural landscape and expanding urban edge. This positions the airport as a potential infrastructural and movement node, connecting the surrounding landscape systems and creating a new point of arrival into the Cape Winelands.

Established during World War II, the airfield represents a historic aviation landscape that has remained in continuous use for decades. Future development therefore builds upon an existing aviation presence, while creating an opportunity for the airport to become a distinctive gateway between agriculture, cultural landscapes, infrastructure and emerging urban development.



Legend

Agricultural	General Business	Special Open Space
Agricultural Transport 2	General Industrial	Rural
Agricultural & Road	General Residential:	Single Residential:
Agricultural Industrial	General Residential	Single Residential: Incremental
Agricultural & Community: Local	Mixed Use	Transport Use
	Public Open Space	Public Road & Public Parking

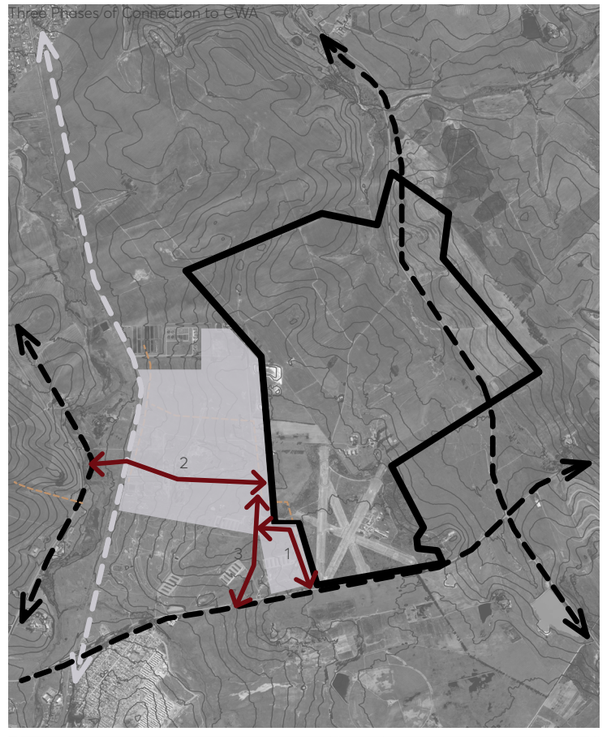


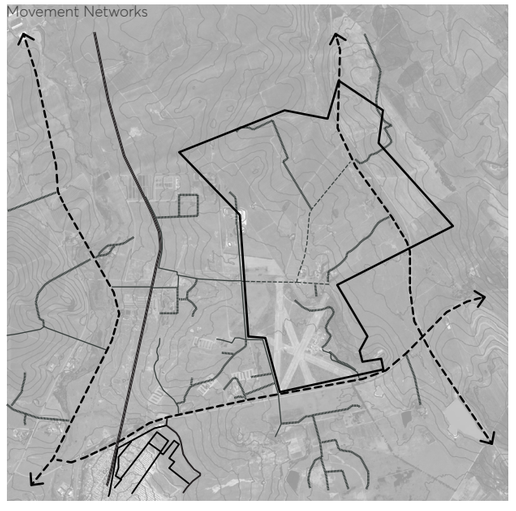


2.2.6 Connections

The site benefits from strong regional connectivity due to its relationship with key movement corridors including the R304 and R312 routes. These corridors connect the airport to Stellenbosch, Paarl, Malmesbury, Durbanville and the broader Cape metropolitan region, strengthening the airport's strategic accessibility and regional role.

The R312 (Lichtenburg Road) is particularly significant as both a transport corridor, contributing to the experiential quality and visual sensitivity of the surrounding landscape. Existing movement systems within the site are currently structured around rural roads including Mellish Road and Lichtenburg Road, which primarily support agricultural and aviation-related traffic. Although regional accessibility is strong, local connectivity remains relatively limited due to the rural nature of the surrounding road network. Future development will therefore require upgraded intersections, road realignments, and new mobility connections capable of accommodating increased movement volumes associated with airport expansion. Beyond physical accessibility, the airport also occupies a strategically advantageous position outside Cape Town International Airport's controlled airspace and beyond the densely urbanised metropolitan footprint. This spatial separation strengthens operational efficiency while maintaining strong regional accessibility to surrounding municipalities and economic centres.





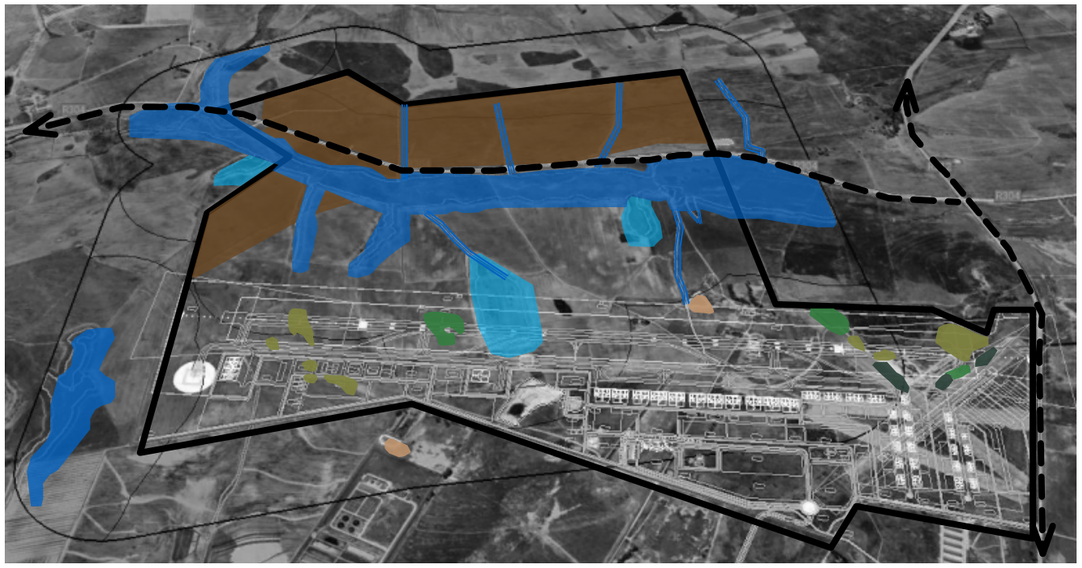


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2.2 ANALYSIS

2.2.7 No-go-zones

The site contains overlapping environmental, visual, agricultural and aviation-related constraints that inform areas unsuitable for intensive development. Remnant vegetation and areas of identified ecological sensitivity require careful consideration, alongside visual, agricultural and aviation constraints. Where existing vegetation and landscape features can be retained, these should contribute to the broader landscape structure where appropriate. Biodiversity offset areas are shown separately and relate specifically to unavoidable impacts identified through the approved biodiversity offset framework. These areas should be protected and managed in accordance with the Biodiversity Offset Report and applicable environmental authorisation conditions.



Legend

- Gehydrological No-go Area
- Channelled Valley Bottom Wetland
- Seep Wetland
- Botanical Very High
- Botanical High
- Botanical Medium
- Artificial Impoundment
- Agricultural Drain



Very High Sensitivity

Remnant Koffieklip Vegetation



High Sensitivity

Critically Endangered Species



Medium-High Sensitivity

Diverse Bulbs & Annuals

2.2.8 Biodiversity Offset & Species Conservation

Further guidance on ecological compensation, biodiversity offsets and long-term habitat management is provided in reference document *Cape Winelands Airport Biodiversity Offset Report (Botha, 2025)*, which should be read alongside the Botanical Impact Assessment and other environmental specialist studies. As impacts on Critically Endangered Swartland Renosterveld cannot be entirely avoided, the biodiversity offset strategy provides for the protection and long-term management of identified offset areas, supported by habitat restoration, invasive alien clearing, species rescue and relocation, ecological connectivity and ongoing monitoring. A minimum of 89 ha of equivalent renosterveld habitat has been identified to offset unavoidable impacts, with Hercules Pilaar recognised as the preferred offset site. These measures will support the conservation of Species of Conservation Concern, strengthen ecological connectivity and contribute to the long-term resilience of critically endangered renosterveld ecosystems.





Babiana odorata



Gladiolus watsonius



Lampranthus leptaleon



Metalasia octoflora



Muraltia macropetala



Restio rigoratus



Xiphotheca lanceolata



Podalyria microphylla



Leucospermum grandiflorum



Drosanthemum hispifolium



Leucadendron verticillatum



Ficinia sp.

2.2 ANALYSIS

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2.2.9 Environmental

The environmental condition of the site reflects a highly transformed agricultural landscape interspersed with fragmented ecological remnants, disturbed mining areas and existing aviation infrastructure. Approximately 93% of the broader study area has undergone significant transformation through agriculture, extractive land uses, invasive vegetation and infrastructural development, resulting in generally low ecological sensitivity across much of the site.

Despite this transformation, ecologically important remnants remain, particularly in areas supporting Critically Endangered renosterveld vegetation and Species of Conservation Concern. These remnants contribute substantially to regional biodiversity value and require long-term protection, rehabilitation and ecological management.

The environmental framework therefore extends beyond simple mitigation and focuses on opportunities for ecological restoration, invasive species removal, biodiversity offsetting, indigenous planting systems and the integration of ecological infrastructure within the broader spatial structure of the airport development. Sustainable drainage systems, stormwater retention landscapes and green infrastructure interventions will also play an important role in improving resilience and environmental performance across the site.

Aircraft noise has also been considered as part of the environmental assessment. The Noise Impact Assessment (DDA Environmental Engineers, 2025) models Day-Night Noise Rating Level (LRdn) contours for different airport operational scenarios. These contours are presented for contextual purposes to illustrate the relationship between the airport and the surrounding noise environment. The assessment indicates that aircraft noise does not present a significant constraint to the proposed spatial development framework.



Grazing Land & Windbreaks

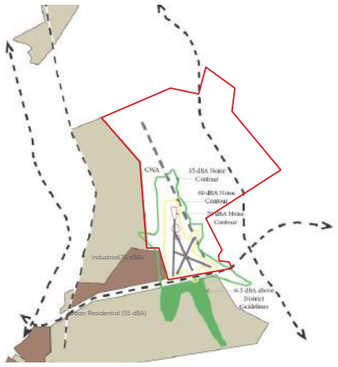


Relatively Flat Topography



Undulating Plains

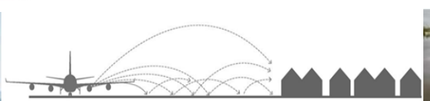
Scenario 1: Existing Runways at Full Capacity – Day-Night Noise Rating Level (LRdn) relative to SANS 10103 District Guidelines

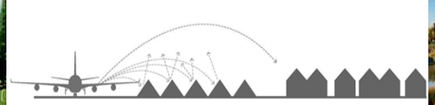


Scenario 2: New Runway in Operational Year – Day-Night Noise Rating Level (LRdn)









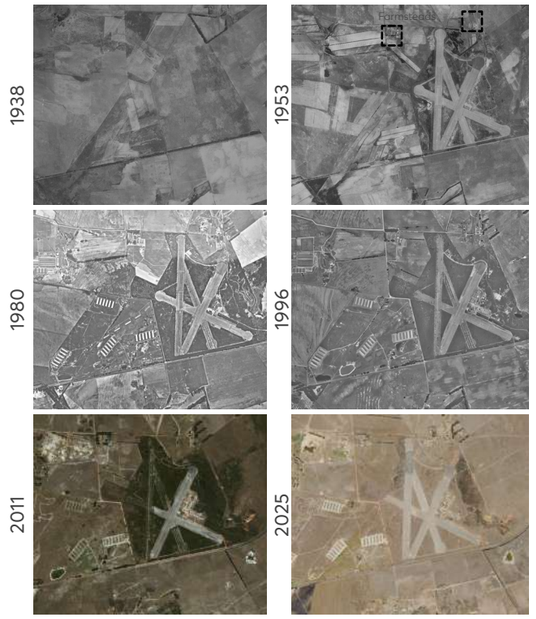




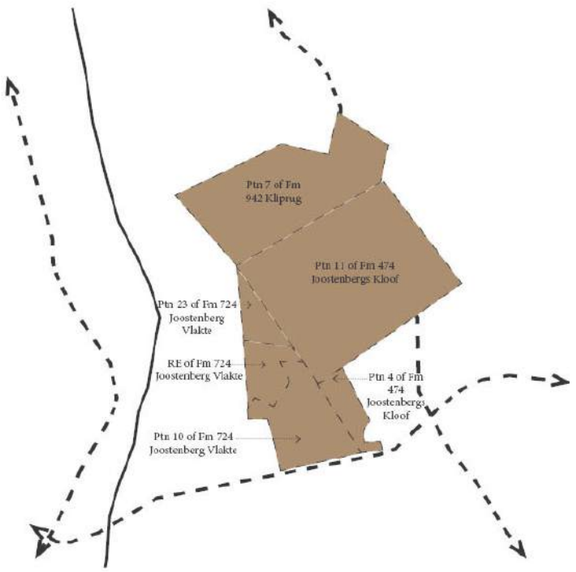
2.2.10 Heritage

The site forms part of the broader Agterpaarl/Paardeberg cultural landscape within the Cape Winelands and northern rural context of Cape Town. While the surrounding landscape contributes to the character of the area, the HIA indicates that archaeological sensitivity is low and that the affected farmsteads are generally not conservation worthy. The existing airport dates to a WWII-era airfield; however, the HIA finds that the remaining wartime structures have limited heritage significance and do not require conservation.
The key heritage consideration is therefore the relationship between future airport development and the surrounding cultural landscape, particularly its visual character, landscape patterns and important views. The HIA and VIA support the development subject to appropriate mitigation.

Future development should respond sensitively through appropriate scale, siting, landscape treatment, boundary interfaces, lighting and visual mitigation. The Landscape Master Plan should address tree planting and management, irrigation and stormwater, fencing, signage and lighting.



Cadastral Entities Comprising the Site



Existing Farmstead Character

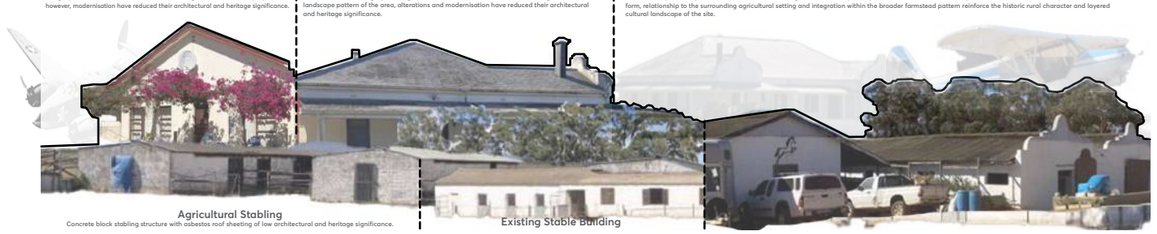
Farmstead consisting of mid-20th century farmhouse visible on 1953 aerial imagery. Structures contribute to historical agricultural landscape patterns however, modernisation have reduced their architectural and heritage significance.

Existing Farmstead Character

The farmstead consists of a mid-20th century farmhouse and associated outbuildings visible on the 1953 aerial imagery. Although the structures contribute to the historical agricultural landscape pattern of the area, alterations and modernisation have reduced their architectural and heritage significance.

Cape Revival Stables

The stable buildings exhibit elements of Cape Revival architectural character and are likely to date to the inter-war period. The structures contribute to the historical rural landscape identity of the area and reflect earlier agricultural development patterns associated with the Cape Winelands cultural landscape. Their architectural form, relationship to the surrounding agricultural setting and integration within the broader farmstead pattern reinforce the historic rural character and layered cultural landscape of the site.



Agricultural Stabling

Concrete block stabling structure with asbestos roof sheeting of low architectural and heritage significance.

Existing Stable Building

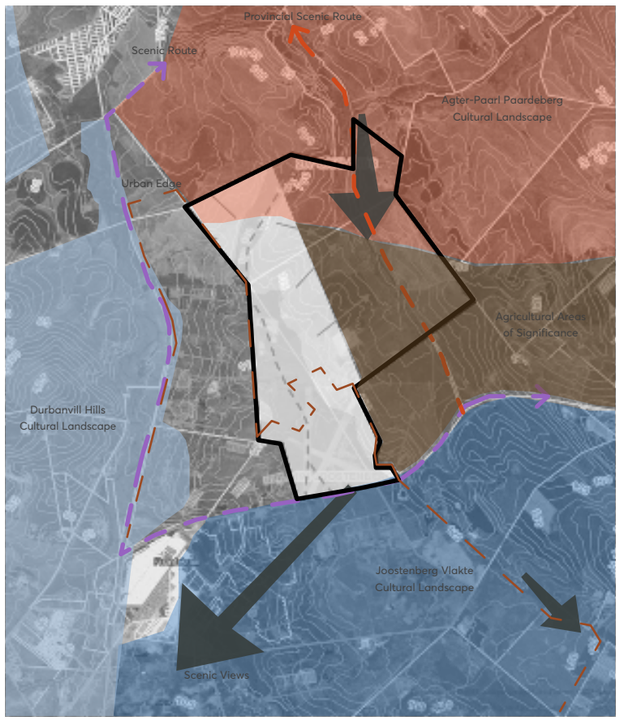
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2.2 ANALYSIS

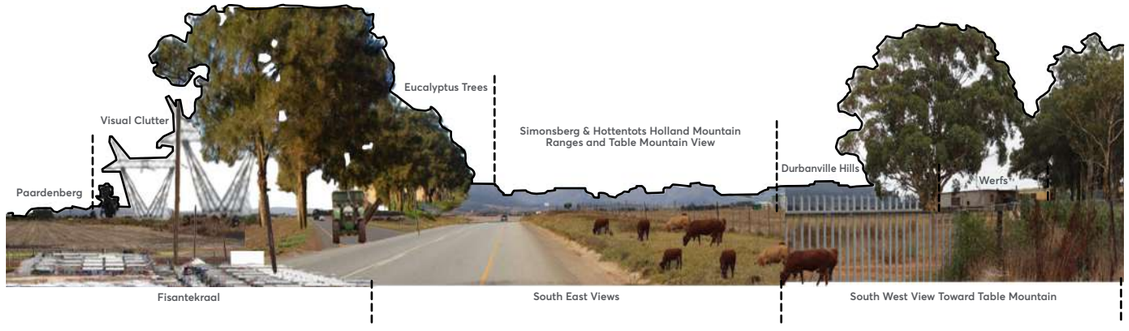
2.2.11 Visual Impact

The visual character of the site is strongly influenced by its relatively open and predominantly horizontal landscape structure with remnant vegetation, existing infrastructure and the airport runway forming distinct components within the wider landscape. The surrounding mountain ranges and broad views across the landscape contribute to the site's sense of openness and provide important visual context, while existing aviation and extractive infrastructure introduce more functional and fragmented elements. The visual environment is also changing as development extends towards the airport, particularly along the southern and western interfaces. The airport should therefore be considered as part of a transitioning landscape rather than an isolated rural setting.

Future development should respond to this changing context through coherent building form, landscape structure, carefully considered edges, view corridors, vegetation and public interfaces. Landscape and urban design interventions should strengthen visual integration and legibility while retaining meaningful landscape qualities and ensuring that new development is appropriately responsive to its wider visual setting.







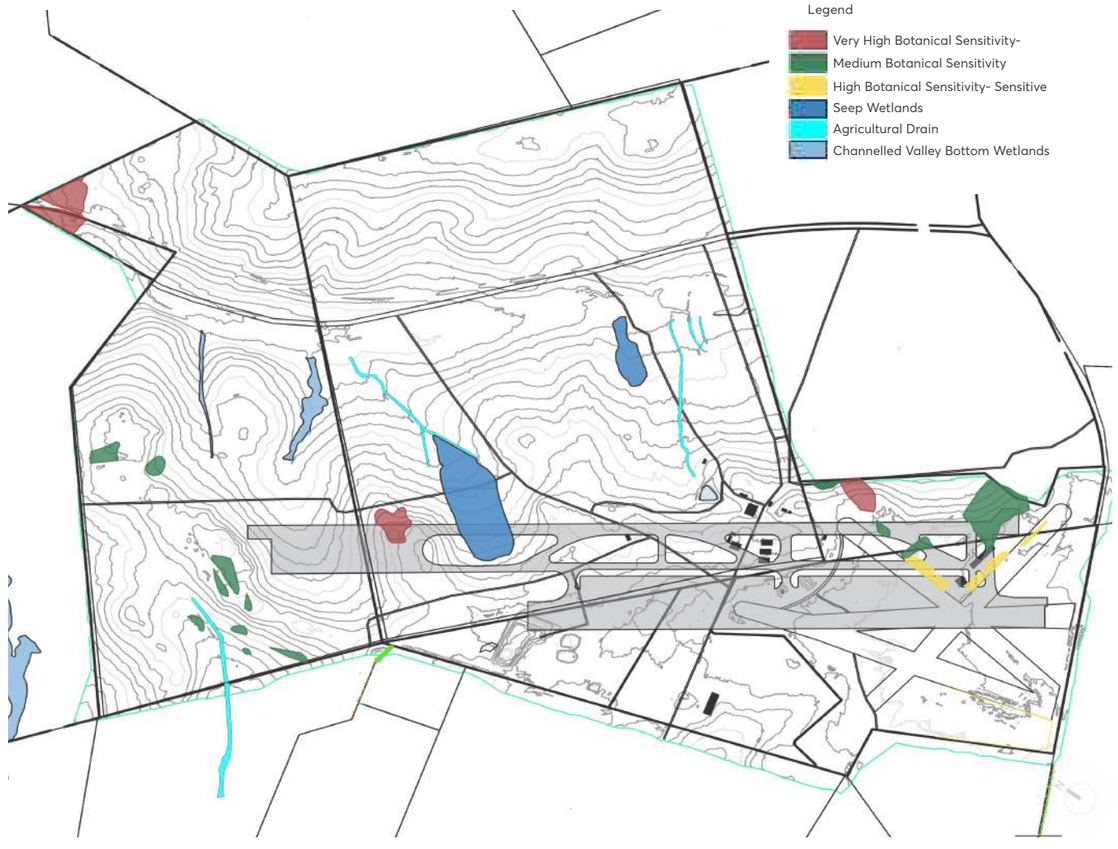
2.2.12 Site Survey

The site survey reveals a large and spatially complex landscape composed of agricultural land, ecological remnants, existing aviation infrastructure, disturbed mining areas and scattered rural structures. Existing airport-related infrastructure includes hangars, maintenance facilities, runways, flight schools and operational aviation spaces that have established a strong aviation identity within the landscape over several decades.

The surrounding landscape is characterised by cultivated fields, grazing areas, farm werfs, rural roads, windbreak planting and fragmented patches of remnant indigenous vegetation. Existing movement systems are structured primarily around Mellish Road and Lichtenburg Road, which connect the site to surrounding settlements and regional transport routes.

The survey further identifies extensive visual openness across the site, with broad horizontal views and strong visual connections toward surrounding mountain ranges. Simultaneously, varying levels of disturbance associated with agriculture, mining, invasive vegetation, and infrastructure development are evident throughout the landscape.

These existing conditions collectively establish the ecological, spatial, visual and cultural framework informing future development opportunities and constraints



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2.2 ANALYSIS

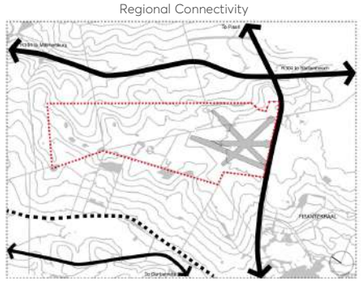
2.2.13 Site Analysis

The site analysis identifies the airport landscape as a strategic interface between infrastructure, productive agricultural systems, ecological remnants and urban expansion pressures. One of the site's most significant characteristics is its exceptionally flat terrain, which provides highly favourable conditions for aviation infrastructure and allows for the development of a full-length Code F runway with limited earthworks and minimal terrain manipulation.

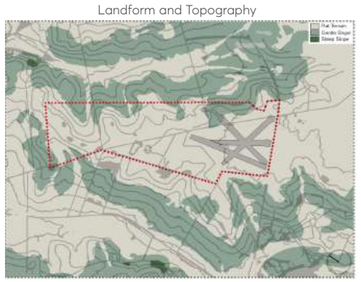
Its proximity to Cape Town, Stellenbosch, Paarl and surrounding regional economic centres further strengthens its strategic importance as a secondary airport capable of supporting regional connectivity, economic development and future aviation demand. Existing aviation rights and long-standing airport operations reinforce the suitability of the site for continued aviation-related development.

At the same time, the analysis identifies several environmental and landscape sensitivities including remnant renosterveld systems, scenic route interfaces, visual exposure, cultural landscape significance and ecological fragmentation. The site must therefore be understood as both highly strategic and environmentally sensitive, requiring careful integration between infrastructure, ecology, landscape character, and regional spatial systems.

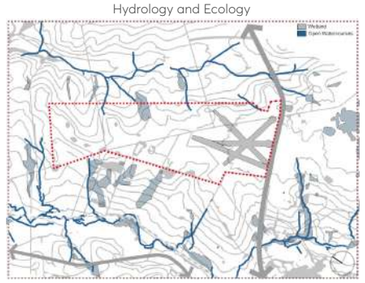
Regional Connectivity



Landform and Topography



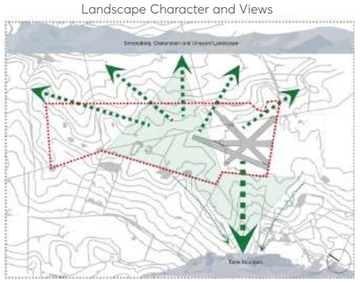
Hydrology and Ecology



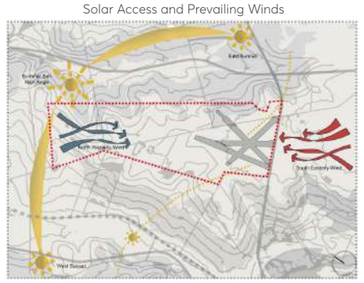
Agricultural Landscape



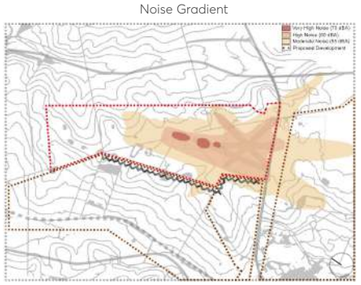
Landscape Character and Views



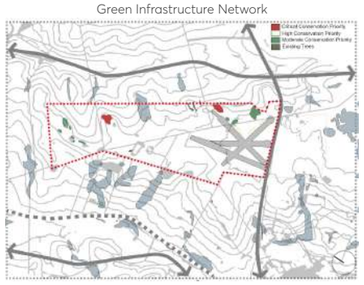
Solar Access and Prevailing Winds



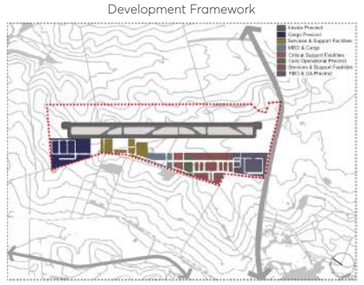
Noise Gradient



Green Infrastructure Network



Development Framework



2.2.14 Site Evaluation

The site evaluation identifies the Cape Winelands Airport site as highly suitable for airport expansion, due to its combination of physical, operational and spatial advantages. Its exceptionally flat terrain, favourable runway orientation, regional accessibility and established aviation use distinguish the site from alternative airport locations within the metropolitan region.

Large portions of the landscape have already been transformed through agriculture, mining and aviation-related activity, creating opportunities to concentrate development within previously disturbed and less sensitive areas. This allows development pressure to be managed while limiting impacts on remaining ecological systems.

The site is nevertheless subject to important constraints relating to biodiversity, visual impact, scenic landscape protection, cultural heritage and aviation noise. These constraints require careful consideration through spatial planning, environmental management and integrated landscape design, rather than preventing development altogether. Overall, the site represents the only viable location capable of accommodating a secondary airport within the Cape metropolitan area, while balancing operational requirements with environmental and landscape sensitivities.



2.3 OPPORTUNITIES AND CONSTRAINTS

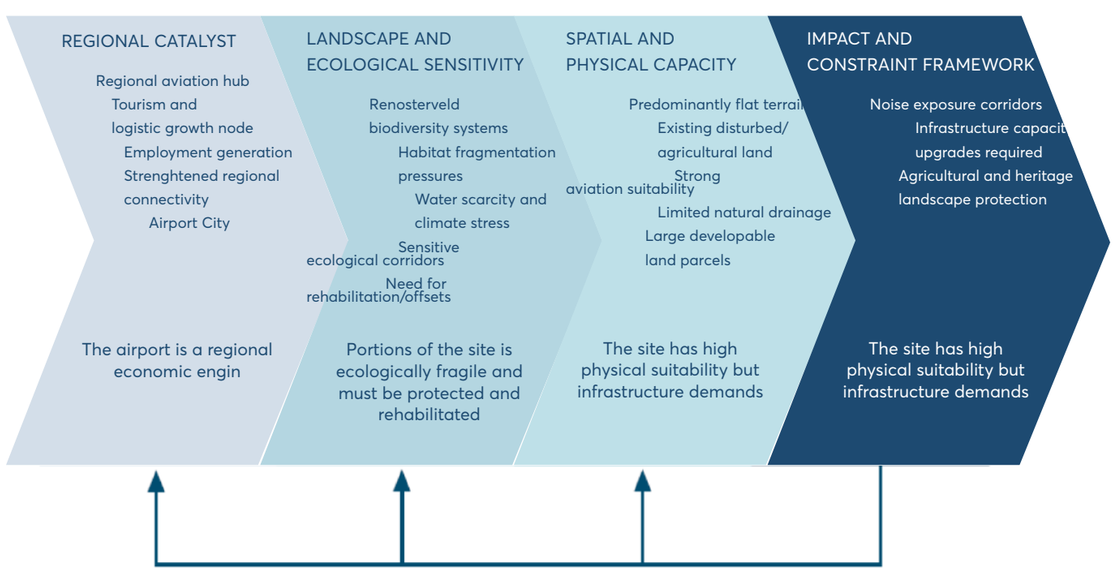
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2.3.1 Site Sensitivities

The Cape Winelands region is charaterised by a changing environmental development context shaped by climate conditions, water availability, agricultural land use and ongoing urban growth. Future growth within the Cape Winelands should respond to these conditions through efficient infrastructure, sustainable resource management and integrated landscape planning.

Climate change and increasing pressures on water resources, reinforces the importance of water-sensitive design, drought tolerant planting and efficient infrastructure systems. Continued development and land transformation within the broader region requires careful coordintion between ecological systems, infrastructure and future urban growth.

Addressing these conditions requires an integrated approach to development that incorporates sustainable water management, climate responsive design, responsible land use planning and the efficient use of existing infrastructure.



2.3.2 Unique challenges and positive potential of the site

Strategic Development Potential:

The proposed expansion of the Cape Winelands Airport presents significant regional development opportunities capable of strenthening economic growth, regional connectivity, tourism, logistics and employment opportunities within the northern metropolitan region. The airport has potential to function as a catalytic urban and economic node while reinforcing broader regional infrastructure networks and investment opportunities.

Opportunites

- Potential to establish a significant regional aviation and economic hub
- Creation of employment opportunities during construction and operational phases.
- Strengthening regional tourism and business connectivity.
- Opportunity for airport-related commercial, logistics, hospitality, and industrial development.
- Potential future implementation of airport city and aerotropolis principles.
- Increased investment potential within the surrounding region.
- Opportunity to improve regional infrastructure and transport networks.
- Existing aviation rights and infrastructure reduce the need for entirely new airport development elsewhere.

Constraints

- Large-scale development will require careful coordination with surrounding and future land uses.
- Development must align with regional spatial planning frameworks.
- Significant infrastructure upgrades may be required to support increased development intensity.
- Future growth must be strategically structured to avoid fragmented or uncontrolled development.
- Coordination between aviation operations, commercial development, logistics and future urban expansion will be required.

2.3 OPPORTUNITIES AND CONSTRAINTS

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2.3.2 Unique challenges and positive potential of the site

Biodiversity

The site includes fragmented remnants of indigenous vegetation systems associated with the Swartland Renosterveld Bioregion. While substantial portions of the broader site have been already transformed through agriculture, mining and existing aviation activities, remaining areas of ecological sensitivity requires consideration within future spatial planning and landscape design.

The botanical assesment identifies that much of the site has already been disturbed and is of relatively low botanical sensitivity, while smaller areas of higher sensitivity contain important remnants of threatened vegetation and species conservation concern. These areas form an important consideration in determining the spatial structure and developable extent of the precinct.

Opportunities

- Development is being directed towards previously transformed areas, with indigenous planting already being integrated into the broader landscape framework.
- Opportunity to reinforce ecological connections through precinct open space system.
- Alien vegetation clearing and appropriate landscape management can improve ecological functioning and landscape quality.
- Indigenous rehabilitation planting can contribute to the character and identity of the wider landscape.

Constraints

- Presence of Medium, High and Very High botanical sensitivity areas requires appropriate consideration during detailed planning and implementation.
- Development activities may require, search, rescue and relocation of identified plant species in accordance with approved environmental requirements.
- Ongoing coordination between development, landscape implementation and environmental management will be required.
- Sensitive ecological considerations must be integrated into detailed site planning and construction processes.

Geomorphology

The sites geomorphology is characterised predominantly by broad, low-relief terrain with minimal slope variation, creating favourable conditions for aviation infrastructure and large scale spatial development.

Opportunities

- Flat terrain supports efficient runway development and aviation operations.
- Limited slope variation reduces extensive earthworks requirements.
- Open terrain allows for flexible spatial planning and infrastructure integration.
- Opportunity to establish clear movement systems and integrated stormwater infrastructure.
- Existing disturbed quarry areas may provide opportunities for landscape rehabilitation and adaptive reuse.

Constraints

- Flat terrain limits efficient natural drainage and increased reliance on engineered stormwater systems.
- Limited topograhic variation provides relatively little natural screening of larger builidings and infrastructure.
- Existing disturbed landforms may require stabilisation and integration into future development.
- Wind exposure across open terrain may influence building orientation, public space design and plant strategies.

Visual Impact

The airport occupies a highly visible location within a changing northern metropolitan landscape. The surrounding context includes agricultural land and peri-urban development, existing infrastructure and areas identified for future commercial and industrial growth. The character of the area is therefore transitional, requiring future development to establish a coherent relationship between airport infrastructure, surrounding development and the broader Cape Winelands landscape.

The visual impact assessment identifies a number of visual landscape considerations within the broader receiving environment. At the same time, the future development context will increasingly include urban, commercial and industrial development, particularly around principal access areas to the airport.

Opportunities

- Opportunity to establish a distinctive and coherent airport gateway within the northern metropolitan region.
- Reinforce strong landscape-led identity across future development.
- Indigenous planting and landscape buffers can improve visual integration with infrastructure and built form.
- Opportunity to frame important mountain views and establish meaningful visual corridors.
- Coordinated architecture, landscape and infrastructure can create a recognisable sense of place.
- Future development provides an opportunity to establish coherent transitions between aviation, commercial, industrial and landscape environments.

Constraints

- Airport infrastructure and associated development will create substantial visual change within the evolving northern metropolitan landscape.
- Flat terrain increases visibility of buildings, lighting and infrastructure.
- Uncoordinated signage, lighting and infrastructure may contribute to visual clutter.
- The scale and appearance of future development must be carefully managed to avoid overly fragmented or visually incoherant environments.

2.3 OPPORTUNITIES AND CONSTRAINTS

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2.3.2 Unique challenges and positive potential of the site

Developable Land

Large portions of the site have already undergone transformation through agriculture, mining and existing aviation activities, creating opportunities for development within previously disturbed areas. The extent of the site also provides flexibility for phased development and long-term expansion of airport related activities.

Opportunities

- Existing disturbed land provides opportunities to accomodate development within transformed areas.
- Large site extent supports phased and flexible development.
- Opportunity to integrate open space systems with development and infrastructure.
- Existing aviation infrastructure strengthens futures development feasibility.
- Sufficient land availability for long-term airport expansion and associated development.

Constraints

- Identified botanical conservation areas according to the EIA reduce the effective developable footprint.
- Noise corridors influence compatible surrounding land uses.
- Obstacle limitation surfaces impose aviation related spatial restrictions.
- Development sequencing will need to coordinate airport operations with future commercial, logistics and industrial growth.

Noise Impact

The sites location outside dense urban areas provides an opportunity to appropriately integrate aviation activities within the surrounding landscape. Aircraft operations and future airport expansion have been considered as part of the broader spatial and land-use planning framework.

Opportunities

- Noise contours can inform long-term spatial and land-use planning.
- Airport related development can be appropriately integrated with aviation operations.
- Spatial planning can respond to aircraft movement patterns and operational requirements.

Constraints

- No areas within the assessed site exceed 70dB and no specific noise constraints have been identified.

Connectivity and Transport

The site benefits from strong regional accessibility through its relationship to major transport corridors and its strategic position within the region. Future development provides an opportunity to strengthen regional mobilty and establish improved connections.

Opportunities

- Strong regional road connectivity to Cape Town, Paarl, Stellenbosch and Malmesbury.
- Opportunity to strengthen regional mobility and accessibility and integration with broader public transport systems.
- Existing regional infrastructure supports economic growth potential.
- Potential to establish integrated pedestrian, cycle, public transport and vehicular movement systems.

Constraints

- Existing roads have limited capacity and infrastructure upgrades and road realignment will be required
- Increased traffic will require careful management at key intersections and access points.
- Future development to coordinate airport access and infrastructure to avoid visual and spatial fragmentation.

Heritage and Cultural Landscape

The site is positioned between the Durbanville Hills and Agter-Paarl/Paardeberg cultural landscape zones identified within the MSDF, rather than being located within a designated cultural landscape itself. The surrounding agricultural patterns, landscape character and aviation history provide important contextual references that can inform the future identity of the airport precinct. Future development should draw from these qualities through a contemporary response rather than replicate historic forms.

Opportunities

- Strengthen the airports sense of place through its position between surrounding cultural landscape zones.
- Intepret local landscape and cultural characteristics through contemporary architecture and public space.
- Build on the sites aviation history to establish a distinctive gateway to the Cape Winelands.

Constraints

- Development should respond sensitively to the visual and landscape character of the surrounding cultural landscape zones.
- Development at landscape interfaces requires appropriate scale, materiality and landscape treatment
- Poorly coordinated development could weaken the relationship between the airport precinct and its broader landscape context.

2.4 PRECEDENT STUDIES

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2.4.1 Florianopolis International Airport

Landscape and Landside Precedent Analysis

The redevelopment of Florianópolis International Airport provides a strong precedent for the proposed Cape Winelands Airport as it demonstrates how airport infrastructure can be integrated into the surrounding landscape rather than functioning as an isolated transport object.

The project responds carefully to movement, climate, ecology and regional identity through open spatial planning, integrated planting, framed views and strong pedestrian connectivity. The airport reinforces the surrounding landscape character through low horizontal architectural forms, visual openness and large public forecourts.

This approach is highly relevant to the Cape Winelands context where agricultural openness, mountain views and landscape continuity are defining spatial qualities. The precedent demonstrates how controlled building heights, integrated landscape buffers, indigenous planting and preservation of visual corridors can reduce visual intrusion while strengthening regional identity.

A key success of the airport is its pedestrian-focused landside environment. Large shaded forecourts, seating areas, planting beds and clear movement systems create comfortable civic arrival spaces rather than purely functional drop-off zones. Landscape elements assist with circulation, orientation and passenger experience while strengthening the identity of the airport as a regional gateway and tourism destination.

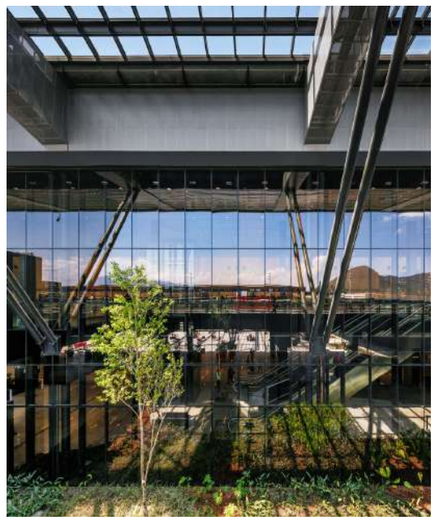
The airport also responds effectively to climate through shaded walkways, canopy structures, open-air transitional spaces and integrated planting systems. Landscape is used environmentally to reduce heat gain, soften hard infrastructure and improve comfort. This reinforces the importance of climate-responsive design, drought-tolerant planting, waterwise systems and Sustainable Urban Drainage Systems (SUDS) within the Cape Winelands Airport framework.

One of the most significant qualities of the precedent is its strong horizontal expression. The terminal sits low within the landscape, maintaining sky visibility, scenic views and visual continuity. This is particularly relevant to the visually sensitive Durbanville Hills and surrounding agricultural landscape where large infrastructure can easily dominate the environment.

Overall, the precedent demonstrates how landscape can function as an organising element for movement, ecology, public space and regional identity. The airport reflects its local setting rather than becoming interchangeable global infrastructure, supporting the Cape Winelands Airport vision of a landscape-led regional gateway.













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2.4 PRECEDENT STUDIES

2.4.2 First Flight Auckland International Airport

Landscape and Landside Precedent Analysis

The Auckland Airport First Flight project is a valuable precedent for the proposed Cape Winelands Airport because the landscape becomes the primary driver of the arrival experience. Rather than relying solely on architecture, the project uses landform, planting, ecological systems and cultural narratives to create a strong sense of place and regional identity.

A key strength of the precedent is its reflection of New Zealand's cultural and environmental identity through references to Māori stonefield landscapes, indigenous vegetation and agricultural patterns. The airport landscape becomes representative of the region rather than generic transport infrastructure. This strongly relates to the Cape Winelands context where vineyard geometries, renosterveld ecology, mountain ranges and agricultural landscapes form a distinct regional character.

The project also demonstrates how sculpted landforms can function as both landscape and infrastructure. Earth berms and stone mounds structure movement, frame views, soften infrastructure and assist with stormwater management. These elements support ecological performance while improving the visual integration of the airport within the landscape. This is particularly relevant to the Cape Winelands Airport where stormwater sensitivity, visual openness and disturbed landscapes are important spatial conditions.

Another important aspect is the integration of ecological systems into the operational framework of the airport. Landscape systems are used for stormwater management, planting restoration and environmental rehabilitation rather than only visual beautification. This reinforces the importance of multifunctional landscapes, indigenous planting and water-sensitive design strategies within the Cape Winelands context.

The project further emphasises movement choreography and arrival experience. Landscape sequencing, planting structure and framed views guide movement dynamically through the precinct and create a memorable gateway experience. This is highly relevant to the Cape Winelands Airport where scenic agricultural routes and mountain views already define the approach to the site.

An important lesson from the precedent is that the landscape operates at multiple scales. Large geometric landforms and planting patterns are visible from aircraft and surrounding routes, while smaller-scale planting and material details enhance the pedestrian experience. This demonstrates the importance of visual legibility and spatial coherence across the broader Cape Winelands Cultural Landscape.

Overall, the precedent shows how contemporary airport infrastructure can remain rooted in local cultural and ecological systems through landscape design. Rather than replicating historical forms directly, the project abstracts landscape patterns and regional characteristics into a contemporary airport environment that strengthens identity, environmental performance and arrival experience.











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3.Principles & Guidelines

PRINCIPLES THAT INFORM THE CREATION OF THE URBAN DESIGN CONCEPT AND MASTER PLAN

amd.sigma
strategic airport development

Boogertman Partners

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3.1 PHILOSOPHICAL PRINCIPLES

Principles that inform the creation of the urban design concept

3.1.1 Places and Connections

Within the Cape Winelands Airport we look at places/nodes and circulation lines connecting them. The places are defined within the precinct from landside to airside from parking or drop-off, intermediated and final control points, curio shops and the end destination on airside waiting zones before boarding.

- Circulation routes and drop off system is efficient and simple
- Park/ Plaza drop-off/ pick up still provides short travelling distances with covered walkways
- Terminal frontage is safe, walkable and unobstructed
- The first impression as travellers arrive at or exit the terminal is a lush, contextually landscaped public space
- Terminal frontage blends seamlessly with surrounding mixed use frontages (retail/ hotels/ restaurants etc.)
- Short term parking at departure and arrival zones flank the terminal and public transport station, providing convenient and quick access, with simple wayfinding.
- By not centering single car transport systems, we encourage the shift from car dominance to human-centered design, future-proofing the airport for public transport systems.





3.1.2 The "Greater Public Good"

Defined as the **maximization of net socio-economic benefits, regional connectivity, and long-term sustainable development** that outweighs the localized negative impacts, such as noise, environmental disruption, or land acquisition. It involves balancing the interests of the broader public (global/national) with those of the local community to create prosperity, such as jobs and economic growth.

Key Dimensions of "The Greater Good" for Airports:

- Economic Catalyst (Macro-Economy): International airports function as "new harbours" of growth, stimulating trade, attracting foreign investment (10% increase in connectivity 4.7% increase in FDI), and generating significant tax revenue for the state.
- Employment and Wealth Creation: They act as anchor infrastructure that creates large-scale direct employment within the airport, plus substantial indirect and induced jobs in surrounding areas (e.g., 40,000–50,000 jobs per major commercial airport).
- Regional Connectivity and Social Mobility: They provide essential linkages to global markets, vital for tourism, logistics, and in some cases, humanitarian aid and medical supply delivery.
- Sustainable and Efficient Infrastructure: Modern definitions require that the airport is designed efficiently, safely, and with environmental mitigation (green energy, waste reduction) to ensure long-term, responsible growth.
- Transformation into "Aerotropoli": The shift towards airport cities that integrate business, residential, and transport networks to enhance regional competitiveness.

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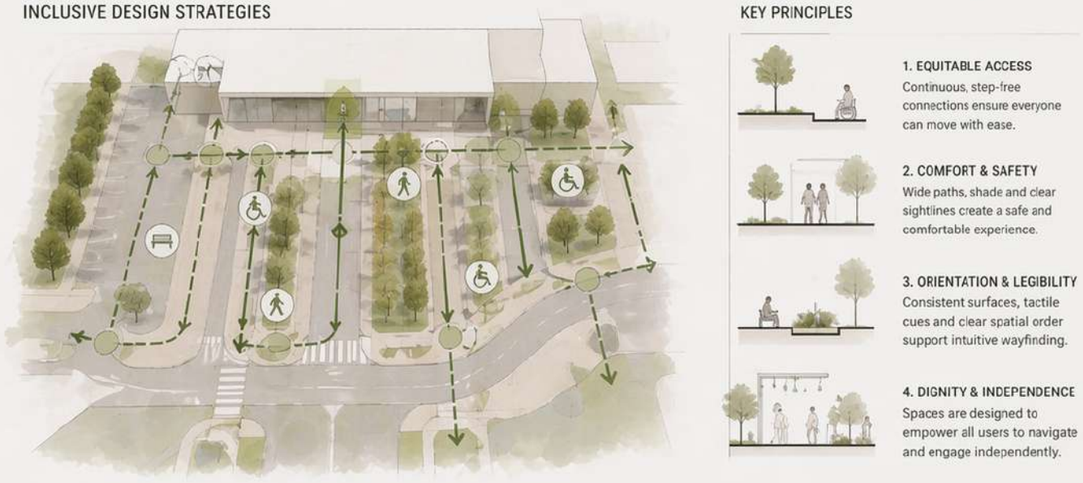
3.1 PHILOSOPHICAL PRINCIPLES

Principles that inform the creation of the urban design concept

3.1.3 Inclusive spaces

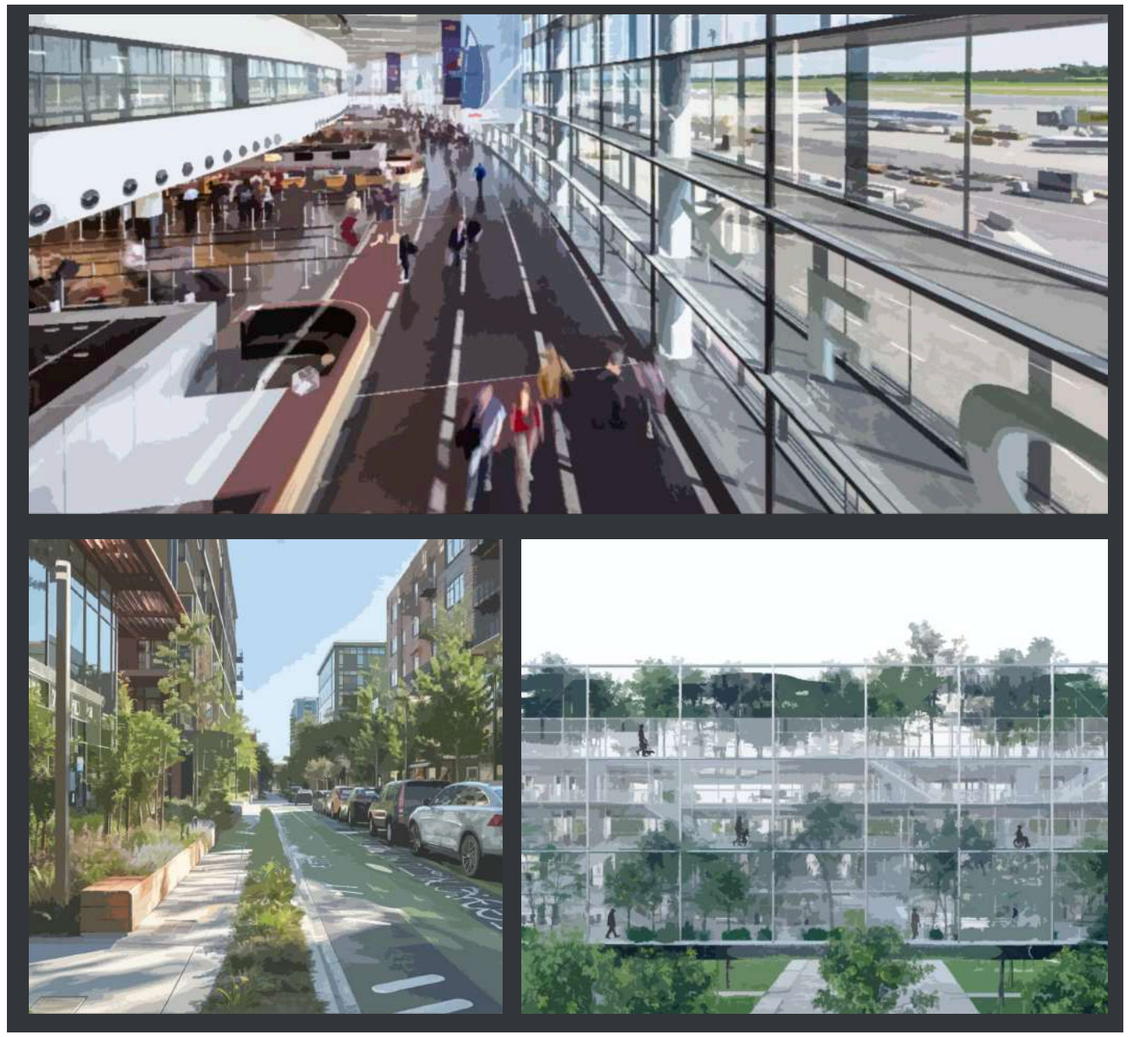
Intentionally designed environments must be accessible, welcoming and usable by people of all ages, abilities and backgrounds. Universal access, safety, comfort and legibility are prioritised to ensure that all users can navigate and experience the airport environment with ease and dignity.





3.1.4 Mobility

For an airport up to international standards, mobility must be exceptionally accessible, safe, and allowing seamless movement of passengers, particularly Persons with Reduced Mobility (PRM), through terminals and onto aircraft, alongside the efficient transfer of passenger baggage and equipment. It includes mandatory assistance services, specialized infrastructure (ramps, lifts), and regulatory compliance.



3.1 PHILOSOPHICAL PRINCIPLES

Principles that inform the creation of the urban design concept

3.1.5 Holistic Design

The design must integrate architecture, landscape, infrastructure and operations into a unified system. Environmental, social, economic and functional aspects are considered together to create a cohesive, efficient and resilient development.

Airside, landside and surrounding developments are planned as interconnected systems. Movement, infrastructure, land use and landscape are coordinated to ensure seamless functionality and long-term adaptability.

3.1.6 Identity in the Context

Identity in the context of urban design is vital because it connects people to a specific place, fostering a sense of belonging, community pride, and ownership.

The development responds to the unique character of the Cape Winelands by drawing from its landscapes, agricultural patterns and cultural heritage. This creates a strong sense of place that is recognisable, authentic and rooted in its surroundings.

3.1.7 Multiplicity of Scale

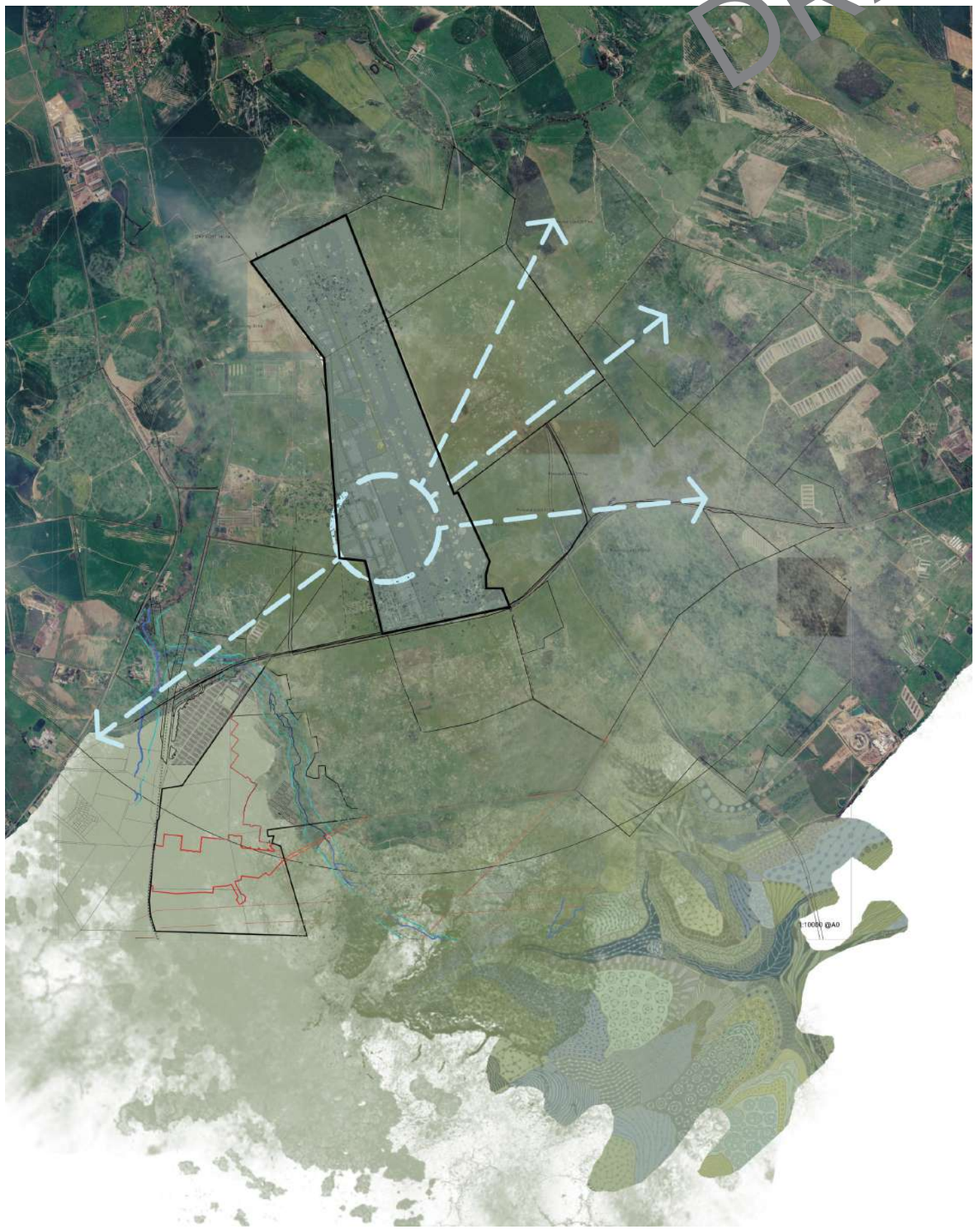
Design considers multiple scales from regional connectivity to human experience. Large infrastructure is balanced with human-scale elements to ensure comfort, legibility and spatial coherence across all precincts.

3.1.8 Heritage - *Bridging the past and the future in the present*

Natural, agricultural and cultural heritage are preserved and celebrated. Design reinforces historical patterns, local materials and landscape typologies to maintain continuity with the past while accommodating future growth.

3.1.10 Integrative planning- *All stakeholders matter equally*

Integrative urban planning, involving all stakeholders, align diverse interests, foster local ownership, and address complex urban challenges, such as climate change and economic inequality, more effectively.



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3.1 PHILOSOPHICAL PRINCIPLES

Principles that inform the creation of the urban design concept

3.1.9 Sustainability, Innovation and technology

Sustainability at Cape Winelands Airport is understood as an integrated approach to people, nature, infrastructure and long-term airport performance. The landscape, public realm, buildings, infrastructure and operational systems should work together to reduce environmental impacts, strengthen resilience, support human wellbeing and establish a distinctive sense of place.

The sustainability vision is supported through a coordinated framework of environmental stewardship, responsible resource use, resilient infrastructure, healthy places, good governance and ongoing innovation.

Sustainability objectives should be considered from planning and design through construction, operation, maintenance and future adaptation.

Five Stewardship Domains:

Custodians of the Air:

The airport should minimise impacts associated with atmospheric emissions and the acoustic environment through responsible infrastructure, efficient systems, appropriate landscape buffering and climate-responsive design. Landscape and urban design should contribute to a comfortable and legible environment while responding to noise, dust, wind and other environmental conditions.

Custodians of the Land:

Development should recognise the ecological and material footprint of the airport precinct. Landscape interventions should enhance appropriate open spaces, protect sensitive environmental areas, support biodiversity and promote responsible soil, material and land management. Indigenous planting, ecological rehabilitation and the careful integration of built and natural systems should form part of the wider landscape response.

Custodians of the Water:

Water should be treated as a strategic resource and resilience commitment. Landscape and infrastructure design should reduce potable water demand, support water-sensitive urban design, manage stormwater responsibly and promote efficient irrigation. Drainage, planting, soil and hard landscape systems should be designed as an interconnected water-management network rather than as separate interventions.

Custodians of the Communuty:

The airport precinct should provide a safe, accessible and healthy environment for passengers, workers and visitors. Public spaces, pedestrian routes, landscape, wayfinding, shading and amenities should contribute to comfort, inclusivity, connectivity and a strong sense of place. Landscape should support both everyday functionality and the experience of arrival at the airport.

Custodians of Commitment:

Sustainability should be embedded through coordinated governance, implementation, monitoring and reporting. Design intentions should be translated into measurable requirements and carried through subsequent planning, detailed design, construction and operational stages. Environmental management, design review and ongoing performance monitoring should support the long-term delivery of the airport's sustainability objectives.

SUSTAINABILITY THROUGHOUT THE PROJECT LIFECYCLE

PLAN

Establish sustainability objectives, environmental constraints, infrastructure requirements and performance targets at precinct and development-planning level.

DESIGN

Translate sustainability objectives into integrated landscape, urban design, architectural, water, movement, lighting and infrastructure responses.

CONSTRUCT

Protect environmental resources and implement approved sustainability measures through responsible construction practices, material selection, soil management, waste management and environmental controls.

OPERATE

Manage the precinct to maintain environmental performance, landscape quality, resource efficiency, safety and user comfort throughout its operational life.

MONITOR

Measure performance, review implementation and adapt management approaches where required to support continual improvement.



For CWA, sustainability is not a separate layer applied after design. It is a design principle that should shape how the precinct responds to its landscape, climate, water, ecology, movement, people and operational requirements.

3.1 PHILOSOPHICAL PRINCIPLES

Principles that inform the creation of the urban design concept

Sustainability Design Responses

A range of integrated design responses will support CWA's sustainability vision, with landscape and urban design providing an important interface between environmental performance, airport operations and the experience of the precinct.

Landscape & Ecology

Create a landscape framework that strengthens CWA's relationship with its natural setting. Prioritise indigenous planting, ecological enhancement and biodiversity, while allowing landscape to perform functional roles such as shade, screening, erosion control and microclimate moderation.

Water

Treat water as a strategic resource and resilience asset. Integrate water-sensitive landscape and urban systems that reduce demand, manage stormwater and support the long-term health of the precinct.

Energy & Carbon

Reduce energy demand and carbon impacts through passive, efficient and renewable design approaches. Integrate landscape, buildings and infrastructure to support a lower-carbon airport.

Climate & Resilience

Design for the Cape Winelands climate through shade, planting, water management and resilient landscape systems. Create comfortable environments that can adapt to changing climatic and operational conditions.

Material & Waste

Use durable, contextual and responsibly sourced materials that support long-term value and reduce environmental impact. Design for resource efficiency, reuse and reduced waste across the precinct.

People & Place

Create healthy, inclusive and connected places that enhance the experience of passengers, visitors and staff. Use landscape, movement, shade, materials and spatial character to establish a distinctive CWA sense of place.

Lighting

Use lighting to create safe, legible and comfortable environments while protecting the night-time landscape. Integrate efficient, carefully directed lighting with the public realm and airport's operational requirements.

Innovation & Technology

Embrace innovation where it can improve environmental performance, resilience and airport operations. Use technology, monitoring and data to support informed decision-making and continual improvement.



Sustainability objectives are supported through a combination of precinct-scale planning, building-level performance and broader environmental performance pathways. The framework should allow sustainability principles to be embedded consistently across the airport while recognising the different scales and operational requirements of each development component.

PRECINCT

Green Star SA Sustainable Precincts (SUP): Establishes a precinct-scale framework for sustainable development, addressing environmental performance, liveability, economic prosperity, governance and innovation.

PUBLIC-FACING & COMMERCIAL BUILDINGS

Green Star SA New Build v2: Supports sustainable performance of public-facing and commercial buildings through integrated design, resource efficiency, healthy environments and responsible construction.

NON-PUBLIC-FACING BUILDINGS

EDGE: Provides a performance pathway for applicable non-public-facing buildings, supporting resource efficiency and reduced environmental impacts.

PERFORMANCE PATHWAYS

GBCSA Net Zero: Provides pathways addressing carbon, water, waste and ecology as longer-term performance objectives.



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3.1 PHILOSOPHICAL PRINCIPLES

Principles that inform the creation of the urban design concept

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3.1.11 Diversity

A mix of uses, spaces and experiences is encouraged to support economic activity, social interaction and a vibrant environment. Diversity strengthens resilience and enhances user experience. By prioritizing social equity and inclusion, cities can ensure that all residents have the opportunity to thrive and contribute to the community.



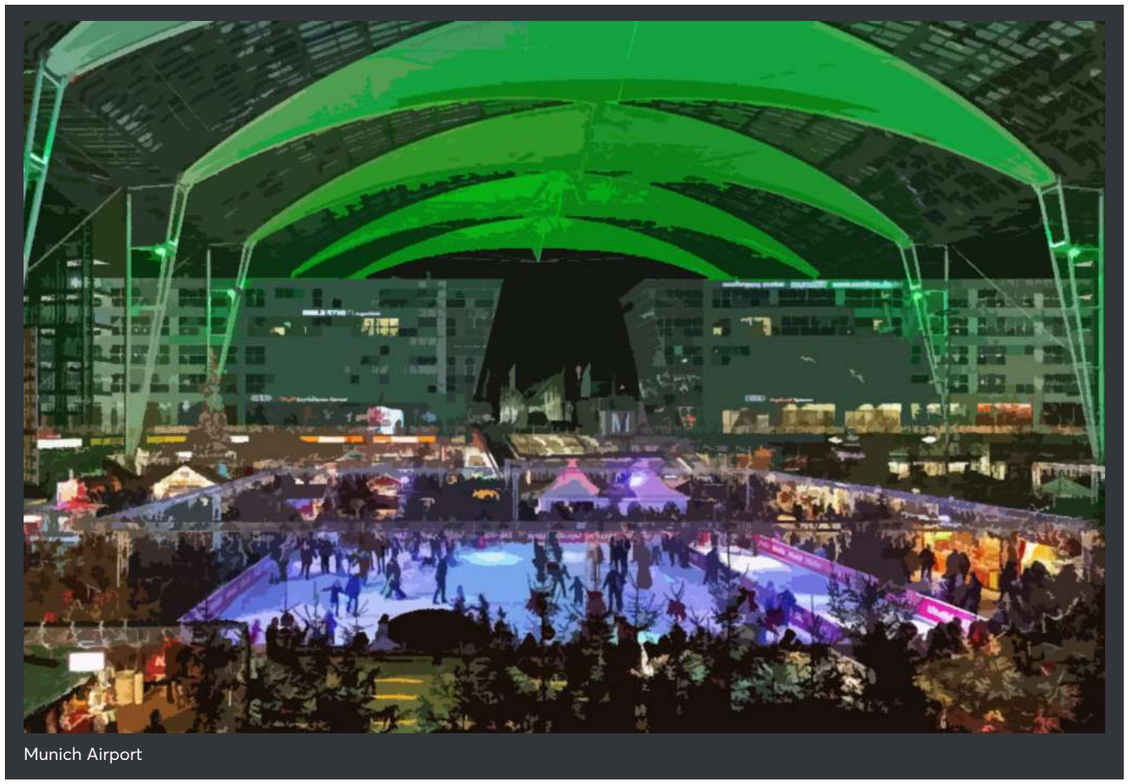




3.1.12 Human- centric Design

Design that prioritises human comfort, safety and experience. Walkability, shading, intuitive navigation and spatial quality are fundamental to creating environments that support daily use and wellbeing.

Architecture has long been understood as a powerful tool for shaping the physical environment and social dynamics within it. However, its potential to foster social equity is often overlooked. Empathy-driven design invites architects to approach their work not only as creators of space but as facilitators of human connection and community well-being. This approach centers on understanding people's lived experiences, struggles, and aspirations — particularly marginalized communities — and responding to their needs through thoughtful, inclusive architecture. It goes beyond aesthetics and functionality, instead focusing on creating spaces fostering dignity, accessibility, and social equity. By prioritizing empathy, architects can design environments that uplift communities, address disparities, and create inclusive spaces that promote positive societal change in a tangible, human-centered way.



Munich Airport

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3.2 PRACTICAL GUIDELINES

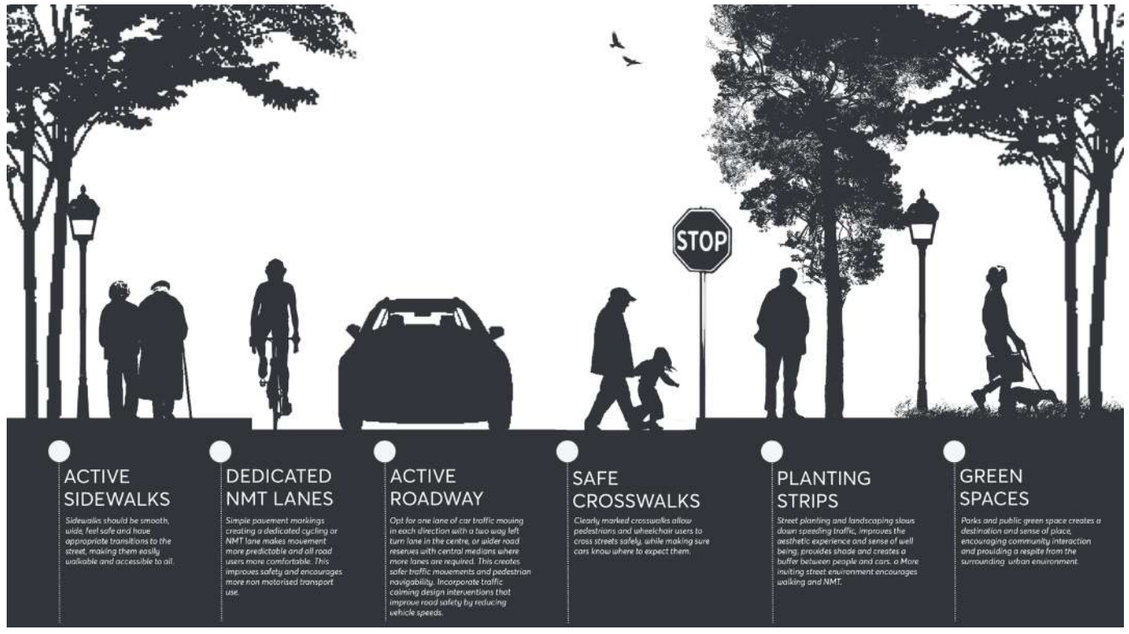
Principles that inform the creation of the urban design concept

3.2.1 Green streets

Streets integrate planting, stormwater systems and shading to improve microclimate, reduce heat and enhance visual quality while supporting pedestrian movement.

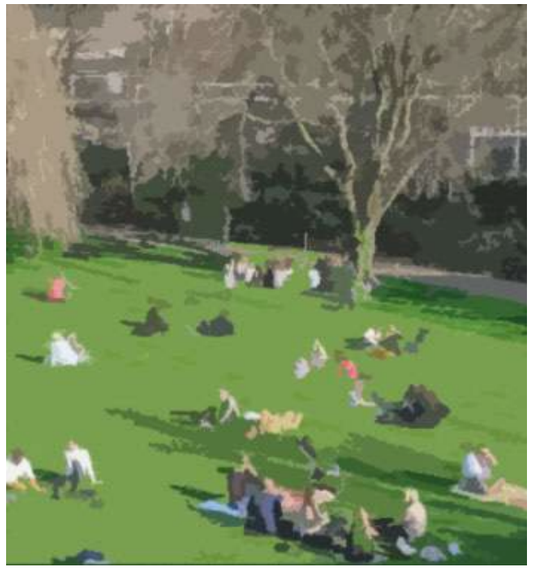






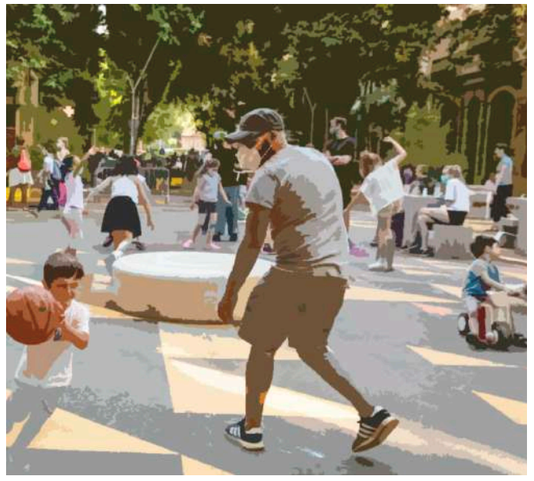
3.2.2 Public Open Space Networks

A connected network of accessible spaces that support recreation, social interaction and ecological function, contributing to overall spatial quality and wellbeing.











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3.2 PRACTICAL GUIDELINES

Principles that inform the creation of the urban design concept

3.2.3 Defensible Space

Spaces are designed to enhance safety through clear boundaries, visibility and controlled access, reducing opportunities for crime and improving user confidence.







3.2.4 "Eyes on the Street"

Active uses, transparent edges and frequent human presence provide natural surveillance, improving safety and activation of public spaces.







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3.2 PRACTICAL GUIDELINES

Principles that inform the creation of the urban design concept

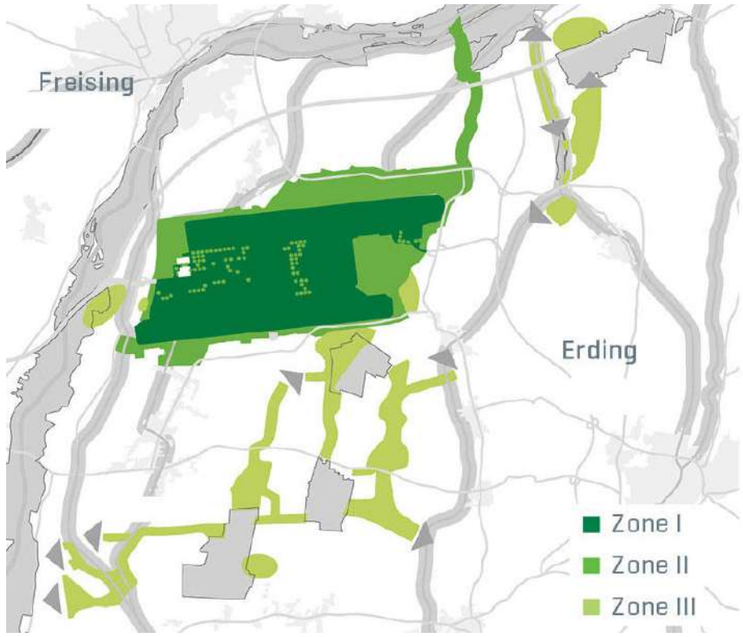
3.2.5 Internal Walkability and Non-motorised Transport

Safe, continuous and legible pedestrian and non-motorized transport networks should be prioritised within the airport precinct, supporting internal movement while maintaining controlled access from outside the airport.



3.2.6 No-Go Zones

Sensitive ecological or operational areas are protected through clear demarcation and restricted access to prevent disturbance and ensure safety.





Munich Airport Zoning

Zone 1: Airport Operational Core This zone includes the primary airport infrastructure such as runways, buildings and internal roads. Undeveloped areas are designed as high-quality green spaces with extensive tree planting and diverse vegetation, contributing to ecological value and form part of a broader environmental system, including habitats linked to surrounding conservation areas.

Zone 2: Peripheral Green Buffer
A structured, vegetated green belt surrounds the airport, creating a buffer between airport operations and adjacent settlements or agricultural land. This zone helps integrate the built environment into the surrounding landscape while mitigating visual and environmental impacts.

Zone 3: Ecological Compensation Areas
This zone is dedicated to environmental compensation and restoration. Landscapes are planned and managed in accordance with environmental regulations to offset development impacts.

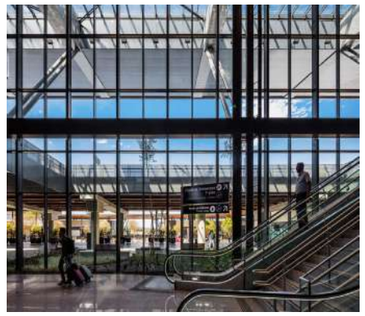
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3.2 PRACTICAL GUIDELINES

Principles that inform the creation of the urban design concept

3.2.7 Active Frontages

Building edges engage with the public realm through entrances, glazing and activity, creating lively and interactive street environments.












3.2.8 Monitoring and Evaluation

Ongoing assessment of environmental performance, safety and functionality ensures that the development continues to meet design and operational objectives.






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4.Spatial Framework & Design Controls

SHAPING THE BIGGER PICTURE—GIVING DESIGN IT'S FORM AND DISCIPLINE

amd.sigma
strategic airport development

Boogertman + Partners

4.1 THE FRAMEWORK

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4.1.1 DESIGN CONTROL & DEVELOPMENT GUIDELINES

The guidelines contained herein introduce users to the Cape Winelands Airport and outline the manner in which design standards for each precinct are to be maintained and developments implemented.

This document is intended to assist in the preparation of building plans by establishing specific guidelines and requirements. The purpose of these guidelines is to provide assurance that the overall development character and quality will be maintained to the ultimate benefit of all users and investors. It is considered fundamental that compliance with this development control manual will promote enhanced investment and support the vision of 'The Greenest Airport' through smart material selection, ecological restoration, water-wise systems and resilient landscapes.

DESIGN CONTROL PROCESS

The design control process for the Cape Winelands Airport is implemented through co-operation and collaboration between the airport authority, developers, professional consultants and the City of Cape Town.

The owners, tenants and developers are required to comply with applicable City of Cape Town municipal by-laws, provincial and national legislation, Civil Aviation Authority requirements and other relevant statutory regulations. This process does not exempt any party from obtaining the necessary approvals, permits and certificates from the City of Cape Town. Any amendments to these Urban Design Guidelines shall be subject to the applicable City of Cape Town approval processes and requirements.

PRECINCT DESIGN CONCEPT

The Cape Winelands Airport is situated within a landscape characterised by surrounding mountain ranges, fynbos-rich plains and agricultural landscapes, which together form the visual and ecological context of the airport. As such, the landscape contributes to the user experience, grounding the airport within its context and shaping its identity.

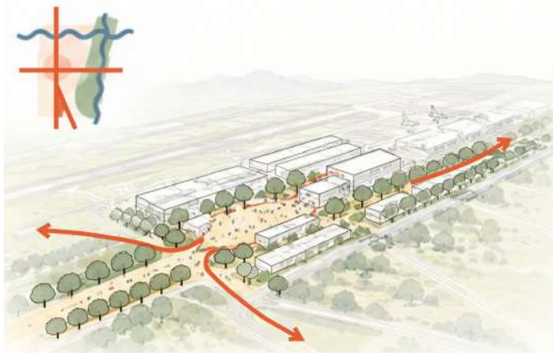
The Cape Winelands Airport is to be developed in accordance with New Urbanism (airport urbanism) design principles, with the aim of creating people-centred and walkable environments that respond to specific needs and aspirations. The development will comprise well-connected, safe precincts that embrace sustainable design principles.

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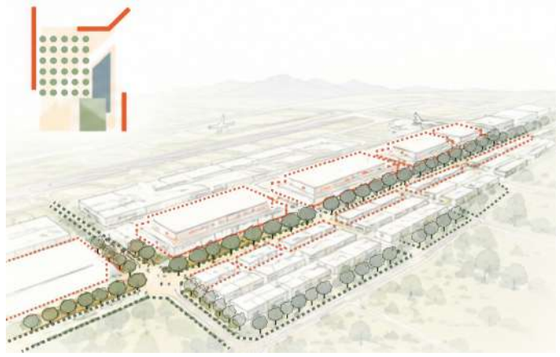
4.1 THE FRAMEWORK

4.1.2 VISUAL SUMMARY

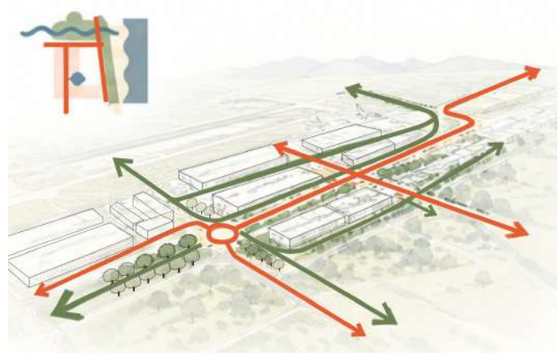
Greater Public Good
Balance economic growth, environmental stewardship and a high-quality public environment. As an international gateway, it should provide a safe, welcoming and efficient arrival experience while supporting regional connectivity. Sustainable design, responsible land use and high-quality public spaces should create lasting value for users, neighbouring communities and the surrounding landscape.



A Unified Airport Environment
Function as a cohesive and integrated environment where buildings, landscapes and public spaces contribute to a consistent sense of place. A coordinated design language should provide continuity across all precincts while accommodating different operational requirements and future phases of development. This approach should reinforce the airport's identity.



Integration and Connectivity
Function as an integrated environment where buildings, landscape, transport infrastructure and public spaces work together to support efficient movement and connectivity. Development should promote clear circulation, universal accessibility and logical connections between precincts while balancing public accessibility with the operational and security requirements of an international airport.



Identity, Context and Placemaking
Establish a distinctive identity that responds to the unique character of the Cape Winelands. Development should draw inspiration from the surrounding landscape through high-quality architecture, locally appropriate materials and indigenous planting to create a memorable sense of arrival. Public spaces should reinforce the airport's identity while creating an attractive, legible and welcoming environment.

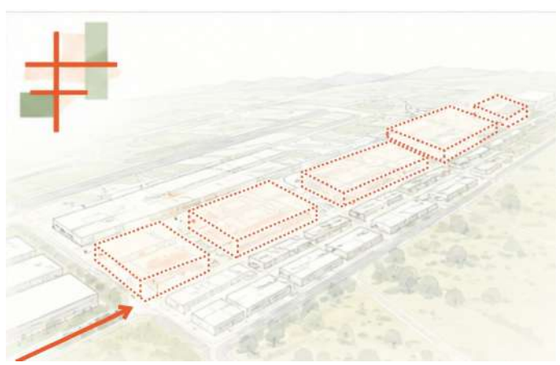


Resilience and Sustainability
Promote environmental resilience through sustainable design that responds to climate change and supports long-term operational performance. Development should integrate water-sensitive urban design, indigenous planting, biodiversity enhancement and efficient resource management to create a resilient and adaptable airport landscape.



Movement Public Space

Adaptability and Phased Growth
Support flexible and phased development while maintaining a cohesive and high-quality environment. Future expansion should reinforce the established urban design framework, with interim landscape treatments ensuring undeveloped areas contribute positively to the airport's identity and landscape character. time.



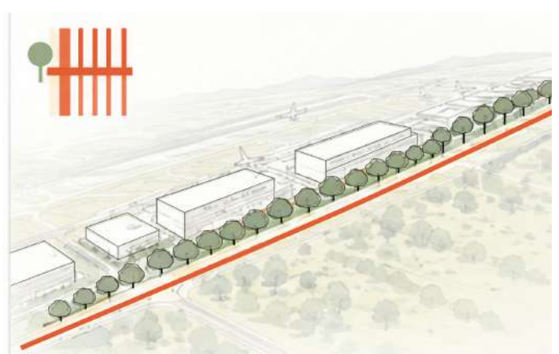
Green Infrastructure Water Systems

Clear Structure & Legibility
Establish a clear and legible urban structure that supports intuitive movement and wayfinding across all precincts. Buildings, public spaces, landscape and transport networks should be organised to create a coherent hierarchy that enhances accessibility, orientation and operational efficiency. A consistent spatial framework should guide future development and reinforce the airport's identity.



Future Growth Gateway Buffer

Positive Interfaces & Boundaries
Create positive and well-defined interfaces that balance public accessibility with operational safety and security. Boundary treatments, entrances, fencing, walls and landscape should contribute to a welcoming and cohesive public realm while responding appropriately to the functional requirements of an international airport.



4.2 URBAN DESIGN

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4.1.3 URBAN DESIGN VISION

The Cape Winelands Airport should establish a distinctive, landscape-led aerotropolis that responds to its rural setting, agricultural heritage, ecological systems and regional identity. The development should not function as an isolated airport complex, but as an integrated extension of the Cape Winelands landscape, establishing a high-quality environment for movement, arrival, work, hospitality, commerce and future development.

The urban structure should be guided by a strong relationship between landscape, movement, public space, architecture and infrastructure. The surrounding mountains, agricultural landscape, natural systems and existing landscape character should remain important components of the visual and spatial experience of the airport.

The urban design approach should establish a coherent framework within which individual precincts and developments can evolve over time. While different precincts may accommodate different uses and architectural expressions, they should contribute to a consistent CWA identity through the treatment of streets, public spaces, landscape, boundaries, materials, lighting and building interfaces.

The airport should be experienced as a sequence rather than as a single destination. Arrival should progress through the surrounding landscape, gateway routes, landscaped approaches, entrance structures, public spaces and ultimately the terminal environment. This sequence should establish a strong sense of arrival and reinforce the airport's role as a gateway to the Cape Winelands.

Landscape-Led Urban Structure

Landscape should form one of the primary structuring elements of the CWA urban environment. Existing natural systems, topography, wetlands, drainage patterns, vegetation and important landscape views should inform the placement and character of development.

The urban structure should respond to the existing landform rather than attempting to impose a uniform development pattern across the site. Development should be concentrated within appropriate developable areas while natural systems, ecological buffers and visually sensitive areas are retained and incorporated into the broader open-space structure.

The relationship between development and landscape should remain visible throughout the airport. Green corridors, planted streets, landscaped setbacks, public spaces and ecological systems should provide continuity between individual precincts and reinforce the relationship between the airport and its surrounding agricultural landscape.

The landscape structure should also assist in managing stormwater through the incorporation of planted swales, attenuation areas, permeable surfaces and other water-sensitive urban design interventions where appropriate. Stormwater systems should be integrated into the public realm and landscape wherever possible rather than being treated solely as engineering infrastructure.

Movement and Connectivity

The movement network should establish a clear hierarchy between regional routes, the airport boulevard, collector roads, local access roads, service routes and internal pedestrian networks.

The airport boulevard and principal arrival routes should provide a strong sense of arrival and establish the primary public face of the development. Road infrastructure should be designed as part of the public realm, with landscape, pedestrian movement, street trees, lighting and boundary treatments considered together rather than as separate systems.

Internal Pedestrian and Non-Motorised Movement

Pedestrian movement should be safe, legible, accessible and continuous within the airport precinct. Pedestrian routes should be physically and visually connected to public spaces, building entrances, internal transport facilities, parking areas and landscape corridors. Pedestrian crossings should be clearly defined and appropriately raised or differentiated where they intersect with vehicular routes.

Non-motorised transport should be accommodated within the internal movement network, with appropriate routes and secure facilities provided at key destinations. Landscape-enhanced pedestrian and non-motorised transport corridors should contribute to internal connectivity, comfort and the identity of the airport.

Service and logistics movement should be appropriately separated from primary passenger and pedestrian environments where operational requirements demand it. Service infrastructure should nevertheless be designed to contribute to the overall quality of the urban environment where it is visible from public areas.

Streets and Public Realm

Streets should be treated as important components of the public realm rather than solely as movement infrastructure. Their design should integrate carriageways, pedestrian routes, planting, lighting, drainage, parking, boundary treatments and building interfaces.

Primary streets should establish a consistent landscape character through avenue planting, appropriate street furniture, coordinated lighting and high-quality pedestrian surfaces. Street trees should be used to reinforce spatial definition, provide shade and establish a legible hierarchy between major and minor routes.

The public realm should be human-scaled, particularly around passenger, hospitality, commercial and mixed-use areas. Buildings should address streets and public spaces through entrances, glazing, colonnades, planting and active edges rather than presenting blank or inactive façades.Spaces interfacing with public walkways, plazas and building edges should create active and inviting environments. Boundary walls, fences and landscape treatments should contribute positively to the pedestrian experience and should not create long stretches of visually inactive frontage.

Public Spaces and Placemaking

Public spaces should form a connected system of arrival spaces, plazas, courtyards, landscaped pedestrian routes and informal gathering areas. Their character should be informed by the Cape Winelands landscape and should incorporate appropriate planting, shade, seating, paving and water-sensitive landscape elements.

The design of public spaces should respond to their particular function and location while maintaining a consistent CWA identity. Primary arrival spaces should be formal and clearly structured, while smaller public spaces within commercial, hospitality and future residential precincts may adopt a more informal landscape character.

Landscape should be used to frame views, provide shade, define movement routes and integrate buildings into their surroundings. Hard landscape elements should be balanced with planting so that public spaces remain visually connected to the broader landscape.

Gateways and Arrival Sequence

The airport should establish a clear hierarchy of gateways corresponding to their operational and public significance. The primary gateway should function as the principal arrival experience and should combine architecture, landscape, signage, paving, lighting and movement into a coordinated composition.

Secondary entrances should maintain the same architectural and landscape language at a smaller scale, while service and logistics entrances should prioritise operational efficiency and security without compromising the visual quality of publicly visible areas.

The arrival sequence should be reinforced through landscaped verges, avenue planting, feature boundary treatments, entrance structures and clearly identifiable wayfinding. Primary gateway areas should incorporate sufficient vehicle stacking, clearly separated arrival and departure lanes, pedestrian connections, bicycle facilities and sheltered movement between transport set-down areas and the terminal. The primary gateway should incorporate a landscaped forecourt, feature paving and low-water indigenous planting. Where appropriate, feature elements may draw from local materials such as sandstone, gabions and timber to reinforce the regional identity of the airport.

Boundaries and interfaces

Boundaries should be considered as part of the public realm and should contribute to the character of the airport rather than functioning solely as security infrastructure. A tiered approach to boundary treatment should respond to different levels of security, land use and public interface. Aviation security fencing should meet the required SACAA, NASP and ICAO standards, while internal commercial, logistics, residential and amenity boundaries should adopt more permeable and landscape-integrated treatments appropriate to their context. Public-facing boundaries should incorporate planting wherever possible. No hard wall or fence should be experienced as an isolated element

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4.1.3 URBAN DESIGN VISION

without an appropriate landscape response.

Primary boundary walls along the airport boulevard and R44/R304 gateway should establish a strong public face through the use of natural stone, rendered masonry, articulated piers, appropriate capping and continuous planting. Internal boundaries may use quality brick, rendered masonry, railing or welded-panel fencing according to their function. Security infrastructure should be integrated with landscape and architecture wherever possible, ensuring that necessary security measures do not unnecessarily compromise the quality of the public realm.

Urban Form and Development Intensity

Development should respond to the capacity and character of the site and should avoid creating a visually continuous urban mass that overwhelms the surrounding landscape. Buildings should generally maintain a controlled scale and strong horizontal expression, with building height and massing carefully considered in relation to surrounding topography and views. Important landscape and mountain views should be retained where identified through the relevant visual assessment and site analysis. Development should be positioned and articulated to maintain visual permeability and to allow the surrounding landscape to remain an important component of the airport experience.

The urban structure should allow for future development and intensification while maintaining the integrity of the overall landscape and movement framework.

Infrastructure and Utilities

Infrastructure should be integrated into the urban and landscape structure from the outset. Utility structures, substations, generators, service yards, waste facilities and other operational infrastructure should not be visually exposed where they can be appropriately screened. Visible infrastructure should be designed as part of the architectural and landscape language of the airport. Screening should use a combination of architecture, planting and appropriate materials rather than relying solely on high solid walls.

Conventional industrial construction should be carefully considered in public-facing locations. Service, logistics and maintenance buildings should demonstrate appropriate architectural quality and should not rely on visually unresolved corrugated structures or exposed infrastructure.

Sustainability and Resource Efficiency

Sustainability should be embedded within the urban structure and public realm. The development should incorporate energy-efficient infrastructure, renewable energy opportunities, responsible material sourcing, water conservation and water-sensitive urban design.

Permeable surfaces should be used where appropriate. Planted swales and landscape-based stormwater systems should be preferred where feasible, allowing stormwater infrastructure to contribute to the ecological and visual quality of the site.

Lighting should be energy efficient and carefully controlled to minimise unnecessary energy consumption, glare, skyglow and light spill into the surrounding rural and ecological landscape.

The urban environment should support walking, provide shade and thermal comfort, and incorporate indigenous, drought-tolerant planting appropriate to the local climate.

Security and access

Different precincts should respond appropriately to varying levels of public accessibility and operational security through a coordinated hierarchy of building interfaces, boundary treatments and controlled access points. Visually permeable fencing, such as ClearVu or similar security fencing, should be preferred along publicly visible edges where security requirements permit, maintaining visual connection between the airport and its surroundings. Solid walls or enhanced security barriers may be used where required for operational, safety, screening or security purposes, including around restricted or sensitive facilities such as the tank farm. Boundary treatments should be integrated with landscape and architectural elements to maintain a consistent airport character.

Lighting design

Please refer to:

- Section 4.3.2 (Lighting Design Principles) in this document
- *CAPE WINELANDS AIRPORT SITE LIGHTING FRAMEWORK REPORT, CF SELKIRK; SJ KELLY; GR SELKIRK*

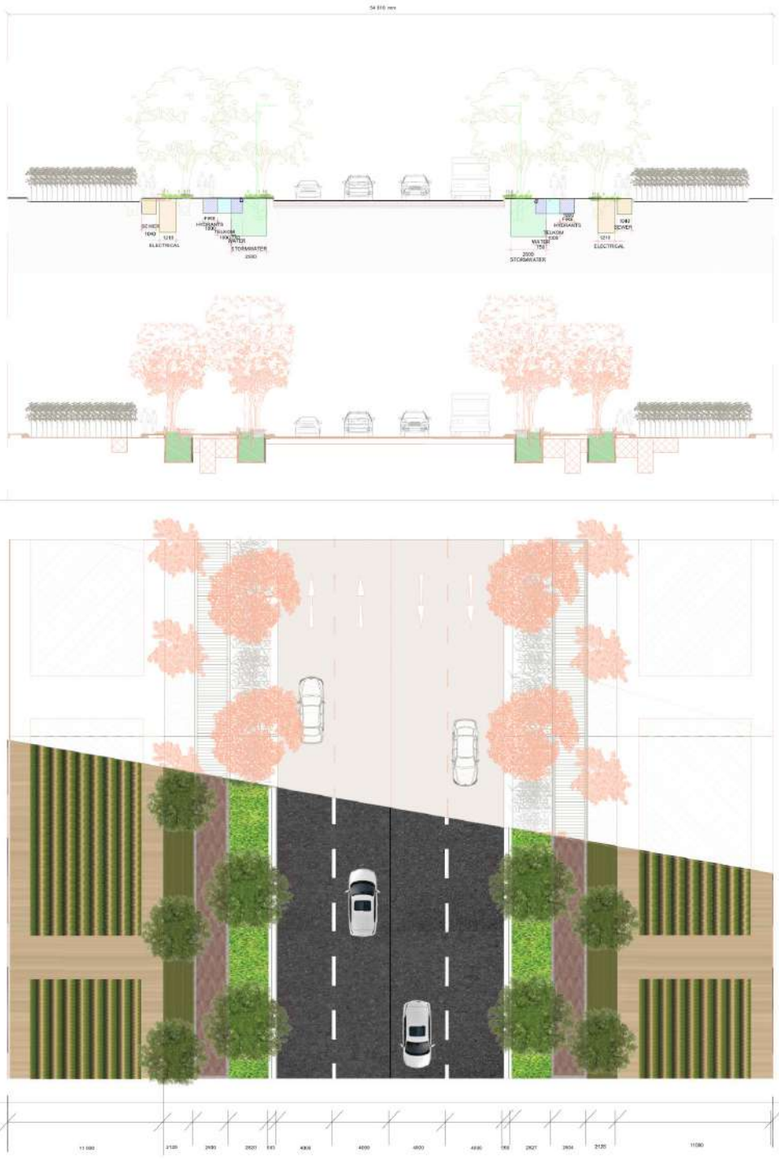




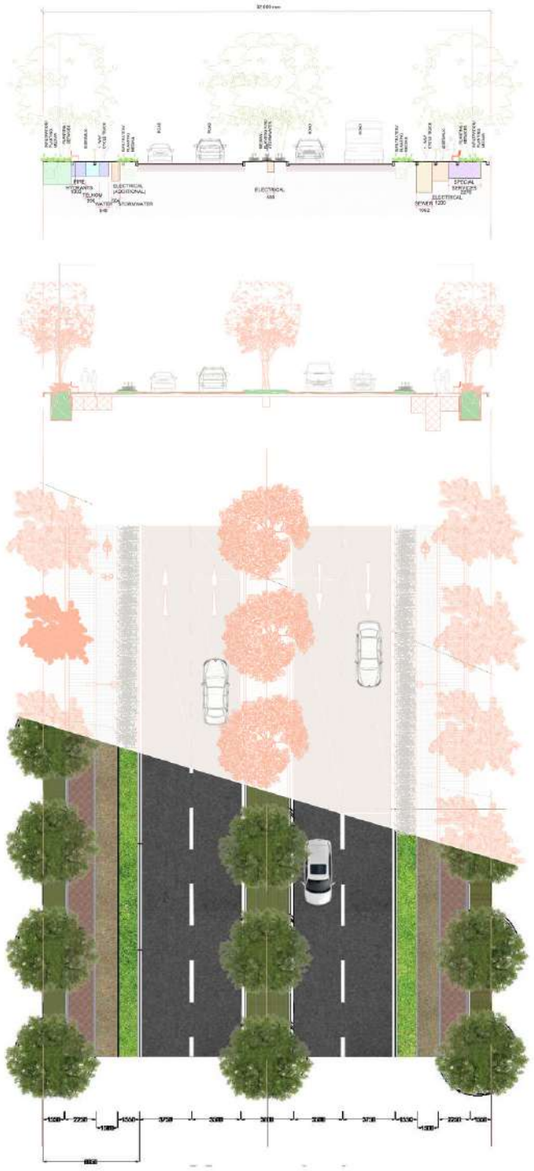
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4.2 URBAN DESIGN

4.1.4 STREETSCAPE



54 m internal road allocation

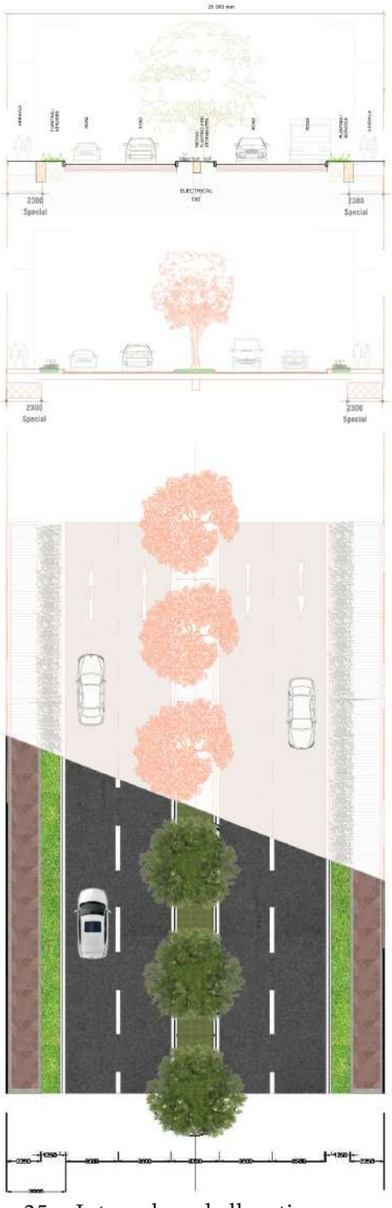


32 m internal road allocation

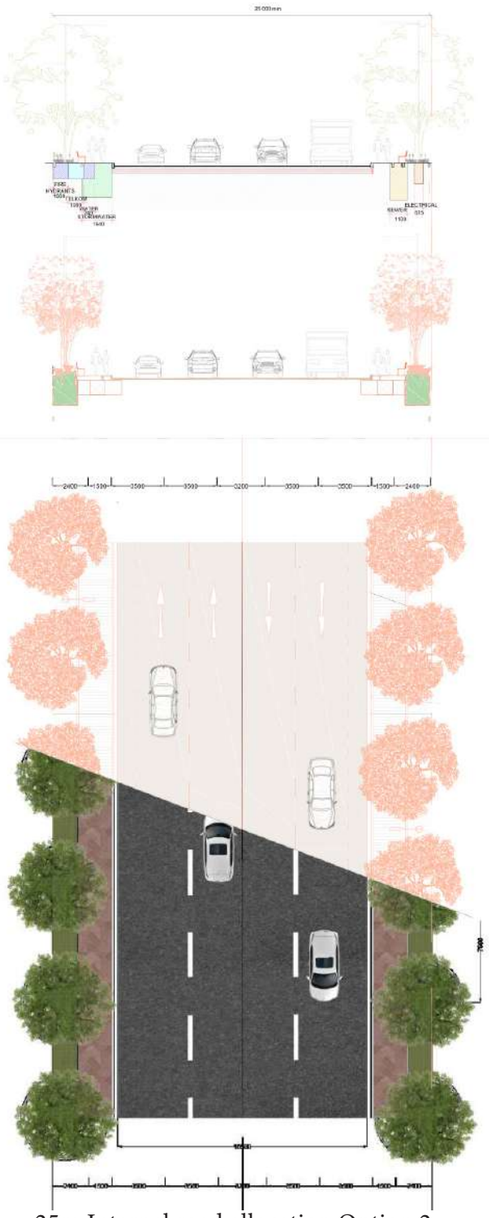
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4.2 URBAN DESIGN

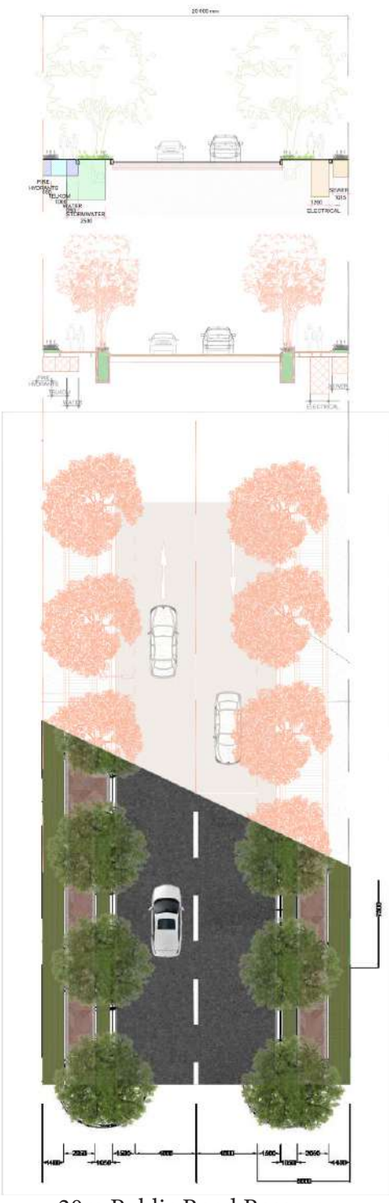
4.1.4 STREETSCAPE



25m Internal road allocation



25m Internal road allocation Option 2



20m Public Road Reserve

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4.2 URBAN DESIGN

4.2.1 ARCHITECTURAL IDENTITY

Gateways and Entrances

The airport should operate as a civic and tourism gateway to the Cape Winelands, with arrival expressed through a carefully coordinated sequence of landscape, public space, architecture, movement and views.

The entrance hierarchy should distinguish between primary passenger gateways, secondary passenger and hospitality access, service and logistics entrances, and emergency access. Each entrance should respond to its operational role while maintaining the overall CWA architectural language.

Primary and secondary entrance structures should incorporate colonnades or extended roof eaves to provide shelter and create a covered arrival experience consistent with the terminal architecture and drawing from the Cape tradition of stoeps, colonnades and loggias.

Primary gateway structures should incorporate appropriate gatehouse architecture, feature paving, signage, landscaped forecourts and covered arrival areas. Gatehouses should provide appropriate glazing and observation panels, accessible pedestrian connections and architectural finishes drawn from the approved CWA palette.

Secondary entrances should incorporate appropriately scaled gatehouses, feature landscape elements such as planted gabion walls or sandstone piers, and integrated signage and security systems.

Public Interfaces

Spaces interfacing with public walkways, plazas and building edges should establish active, interactive and inviting environments. Buildings should address public spaces through entrances, glazing, colonnades, planting and sheltered areas rather than blank service edges. Boundary walls and fences should contribute to the quality of the pedestrian environment.

Public-facing structures should incorporate appropriate weather protection, particularly along important pedestrian routes and arrival areas. Covered walkways and colonnades should be used to establish continuity between buildings and public spaces.

Service, Logistics and Utility Structures

Service structures, logistics facilities, maintenance buildings, plant rooms and other operational infrastructure should be treated as part of the overall architectural environment.

Their functional nature should not result in visually poor-quality or unresolved structures. Conventional industrial construction should be elevated through appropriate proportion, materiality, roof forms, screening, planting and architectural detailing.

Plain corrugated iron, exposed service infrastructure and visually dominant utility structures should not be used where they are visible from public areas. Standing-seam metal cladding, architectural panels, masonry, render, timber screening and landscape buffers should be considered where appropriate.

Back-of-house areas, service yards, plant rooms and waste facilities should be appropriately screened from public roads and pedestrian routes.

Boundary Architecture

Boundary walls and fences should be considered part of the public face of the development and should contribute to the character and experience of the airport. Primary boundary walls along the airport boulevard and R44/ R304 gateways should draw from the local material palette, including natural Cape sandstone, rendered masonry and warm Western Cape tones. Where walls are required, exposed natural sandstone plinths, articulated piers, appropriate capping and rendered upper sections should be combined with continuous planting. Long uninterrupted wall faces should be avoided, with planting, articulation, feature panels or approved interpretive elements used to break down the scale of the boundary. Internal precinct walls may use quality brick, rendered masonry or other approved materials and should be articulated to avoid monotonous repetition.Retaining walls should be designed as integrated landscape and civil engineering elements. Gabions, dry-stacked sandstone, planted crib walls and terraced solutions should be preferred where appropriate. Larger retaining structures should incorporate architectural cladding or vegetation and should not expose raw shotcrete or unfinished concrete to public areas.

Fencing and Security

Fencing throughout the airport precinct should reconcile the strict security and safety requirements of an international aerodrome with the design ambition of establishing a high-quality aerotropolis.A tiered fencing approach should therefore be applied. Tier 1 aviation security perimeter fencing should meet applicable SACAA, NASP and ICAO requirements and physically separate restricted airside from non-restricted landside environments. Tier 2 fencing should be used for commercial and logistics precincts, parking compounds, service yards and similar areas. Welded panel fencing should be preferred over standard chain-link fencing in publicly visible locations and should be integrated with landscape buffers. Tier 3 fencing should define residential, amenity, greenway and pedestrian-priority areas and should remain visually permeable. Raw galvanised chain-link fencing, visible barbed or razor wire, corrugated iron, IBR sheeting, fibre-cement fencing panels and visually poor fencing should not be used without specific approval. Temporary fencing on strict approval.

Sustainable Architecture

Sustainability should be embedded within the architectural design of the airport. Buildings and public structures should incorporate energy-efficient systems, renewable and responsibly sourced materials, natural ventilation, optimal natural daylight, water-saving technologies and appropriate green-building targets. Gatehouse, entrance canopy and other suitable roofs should be designed to accommodate solar photovoltaic systems. Rainwater harvesting should be considered for gatehouse and canopy roofs, with harvested water used for irrigation where feasible. Sustainability should be embedded within the architectural design of the airport. Buildings and public structures should incorporate energy-efficient systems, renewable and responsibly sourced materials, natural ventilation, optimal natural daylight, water-saving technologies and appropriate green-building targets. Gatehouse, entrance canopy and other suitable roofs should be designed to accommodate solar photovoltaic systems. Rainwater harvesting should be considered for gatehouse and canopy roofs, with harvested water used for irrigation where feasible.

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4.2 URBAN DESIGN

4.2.1 ARCHITECTURAL IDENTITY

The architectural identity of the Cape Winelands Airport should establish a distinctive contemporary regional character that responds to the landscape, climate, agricultural heritage and cultural identity of the Cape Winelands. Architecture should interpret these qualities in a contemporary and understated manner, creating a strong sense of arrival and a memorable gateway to the Winelands. The architectural language should be contemporary, regional, landscape-led, climate-responsive and human-scaled, with strong horizontal expression, controlled heights and visually permeable edges that allow the surrounding landscape to remain prominent.

The airport's identity should be established through a coherent architectural language across the precinct, rather than a single iconic building. Consistent proportions, roofscape, materiality, landscape, public space and movement should contribute to a unified character.

Contemporary Regional Architecture

The architectural character should be contemporary while drawing inspiration from the established architectural language of the Cape Winelands. Historical Cape Dutch or vernacular architecture should not be directly reproduced. Instead, regional qualities should be abstracted and reinterpreted through proportion, materiality, roof forms, courtyards, colonnades, generous overhangs and sheltered outdoor spaces.

A restrained architectural palette should establish a coherent identity across the airport while allowing individual buildings to retain their own character. Contemporary architecture should feel connected to its location rather than interchangeable with airports elsewhere. Boundary structures, entrance treatments and publicly visible infrastructure should similarly embody a contemporary design language that combines innovation with timeless quality. Temporary, ad hoc or purely utilitarian solutions should be avoided in prominent public locations.

Building Form and Roofscape

Buildings should generally be low-rise and horizontally proportioned, maintaining visual openness and limiting the visual dominance of airport infrastructure within the surrounding landscape.The roofscape should be considered an integral component of the architectural identity and treated as a fifth façade. Roof forms should reinterpret the pitched roofs, generous overhangs and sheltered architectural language associated with the Cape Winelands while responding to solar orientation, climate and building function.

Gatehouses, entrance canopies and screen walls should receive the same level of architectural consideration as primary building façades. Flat or unresolved roof edges on prominent public-facing structures should be avoided.

Generous roof eaves, covered walkways, verandas, colonnades and sheltered courtyards should be incorporated where appropriate to provide shade and weather protection and to establish a consistent architectural rhythm throughout the precinct.

Materiality and Local Character

Materiality should be a fundamental component of the CWA architectural identity, using a restrained palette of robust, natural and locally responsive materials that reinforce the connection to the Cape Winelands.

Stone, timber, textured masonry and natural finishes should establish a sense of permanence while reflecting the agricultural and architectural character of the region. The intention should be to translate the tactile qualities, colours and material character of the Winelands into a contemporary architectural language rather than imitate historic architecture.

Cape blue stone and Peninsula Formation sandstone should be used for prominent walls, entrance piers, forecourts and retaining walls, with Western Cape quarry-sourced stone prioritised where practical. Buff-toned clay face brick may be used in commercial and logistics precincts, while rendered masonry should use quality finishes suited to the Western Cape climate.

Contemporary materials such as Corten steel, powder-coated steel, aluminium, standing-seam metal roofing, timber and structural glass may be incorporated where appropriate. Timber should be responsibly sourced, while highly reflective glazing and visually discordant finishes should be avoided.

The overall colour palette should draw from the Cape Winelands and include Cape White, Fisantekraal Stone, Winelands Terracotta, Vineyard Charcoal, Valley Sage, Aviation Bronze, Boland Blue and CWA Lime, with Corten used selectively where specified.

Climate-Responsive and Human-Scaled Architecture

Architecture should respond directly to the Cape Winelands climate by creating comfortable transitions between buildings and the surrounding landscape.

Colonnades, verandas, covered walkways, deep roof overhangs, shaded courtyards and planted outdoor spaces should form part of the architectural language wherever appropriate. These elements should provide shade and weather protection while creating active pedestrian-oriented edges and opportunities for social interaction.

Natural ventilation and daylight should be incorporated where appropriate. Gatehouses and similar enclosed structures should provide opportunities for passive cross-ventilation through operable louvres or openable glazing. Buildings should prioritise energy efficiency, appropriate solar control, natural light and reduced operational energy demand.

Landscape as an Extension of Architecture

Landscape should be considered an integral extension of architecture rather than a secondary layer of visual enhancement. Buildings, public spaces, boundaries, entrances and landscape should form a continuous system that responds to the surrounding agricultural and ecological character. Vineyard geometries, indigenous vegetation, natural landforms and the broader Winelands landscape may be abstracted into planting patterns, paving, courtyards, public spaces and building interfaces. Landscape should assist in organising movement, framing views, integrating infrastructure and reinforcing regional identity.

Public-facing structures should incorporate planting and landscape into their interfaces. Boundary walls and fences should positively contribute to the pedestrian experience, with greenery, pedestrian paths and shaded spaces used to soften built edges and create inviting environments.

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4.2 URBAN DESIGN

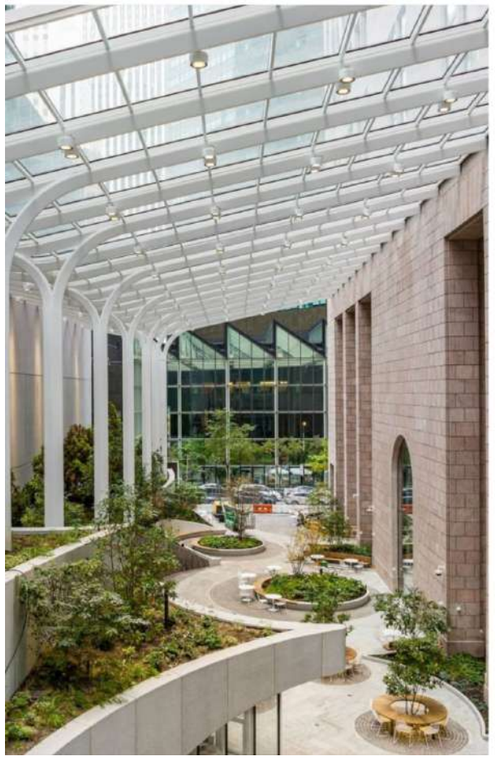
4.2.2 ARCHITECTURAL CHARACTER - TERMINALS



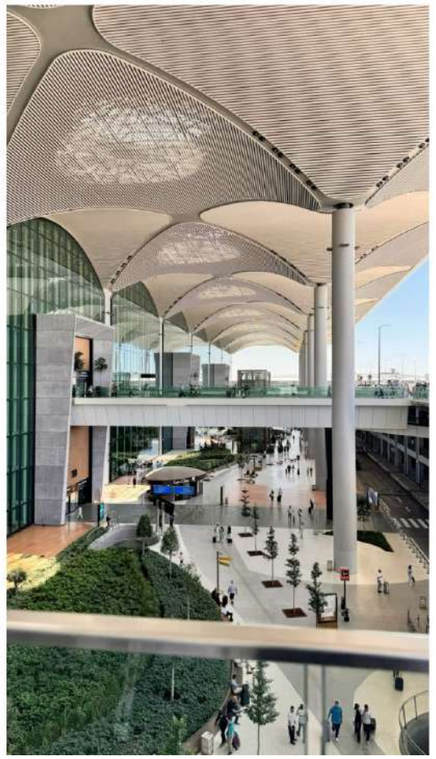


















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4.2 URBAN DESIGN

4.2.2 ARCHITECTURAL CHARACTER - TERMINALS





















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4.2 URBAN DESIGN

4.2.2 ARCHITECTURAL CHARACTER - TERMINALS

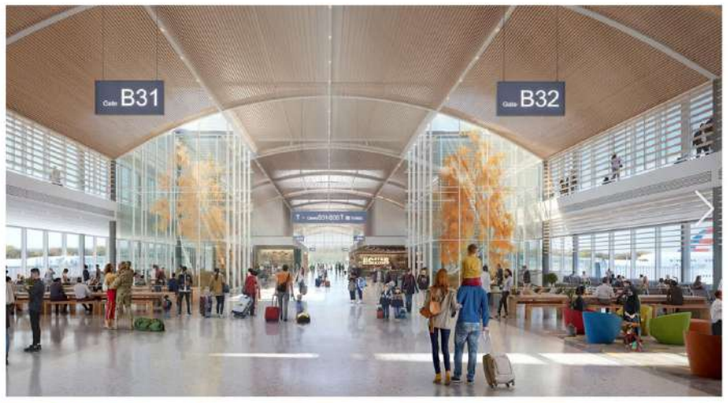




















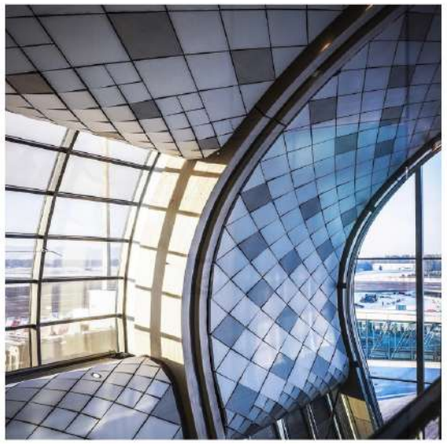


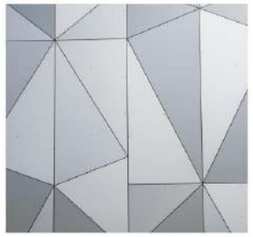


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4.2 URBAN DESIGN

4.2.2 ARCHITECTURAL CHARACTER - TERMINALS











Colour Palette






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4.2 URBAN DESIGN

4.2.2 ARCHITECTURAL CHARACTER - TERMINALS









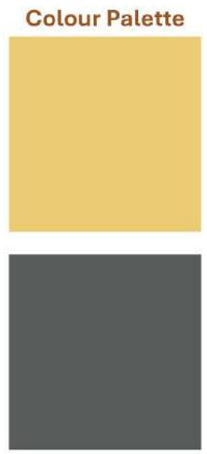






















AHAH01 | V1 | CAPE WINELANDS AIRPORT

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4.2 URBAN DESIGN

4.2.2 ARCHITECTURAL CHARACTER - OPERATIONAL

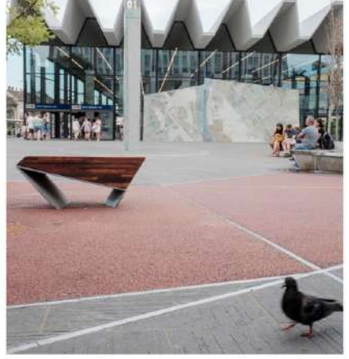












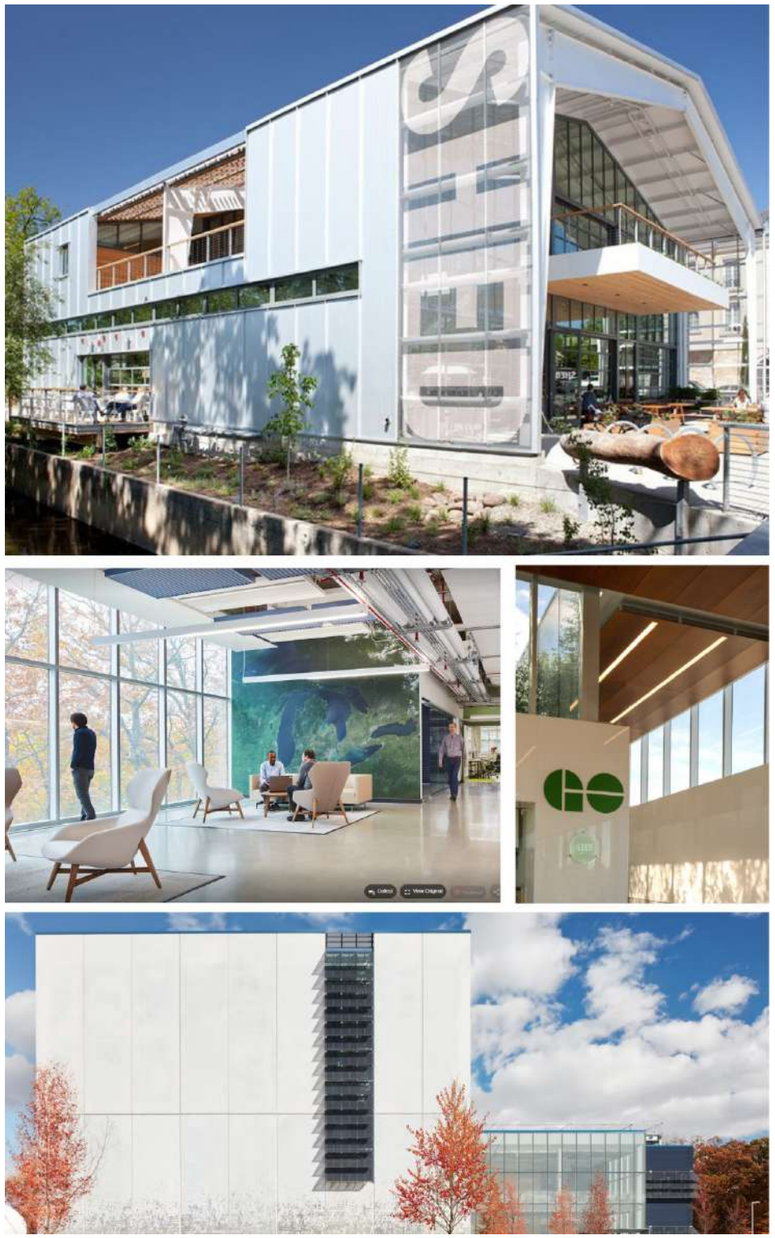


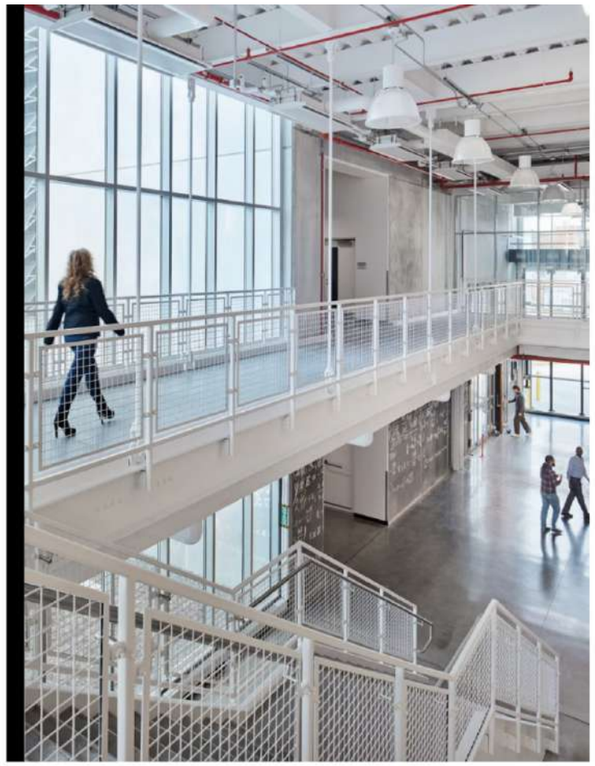



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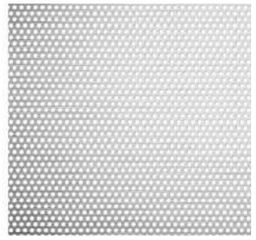
4.2.2 ARCHITECTURAL CHARACTER - OPERATIONAL



















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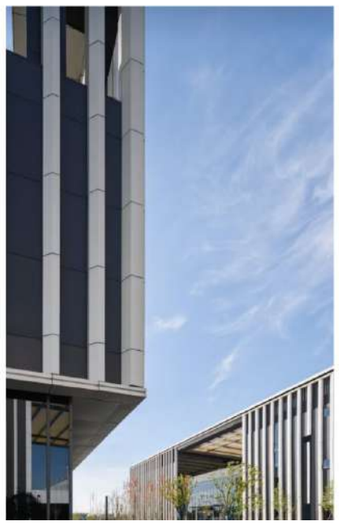
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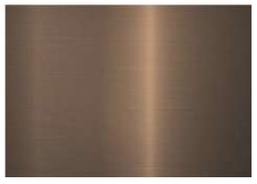












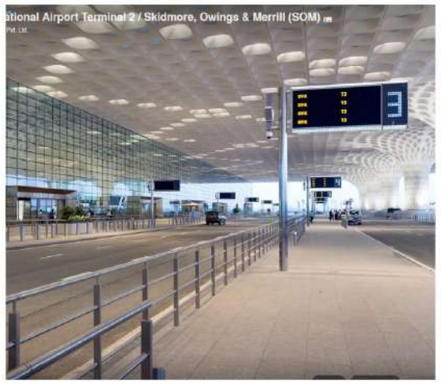
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4.2 URBAN DESIGN

4.2.2 ARCHITECTURAL CHARACTER - TRANSPORT



















4.2 URBAN DESIGN

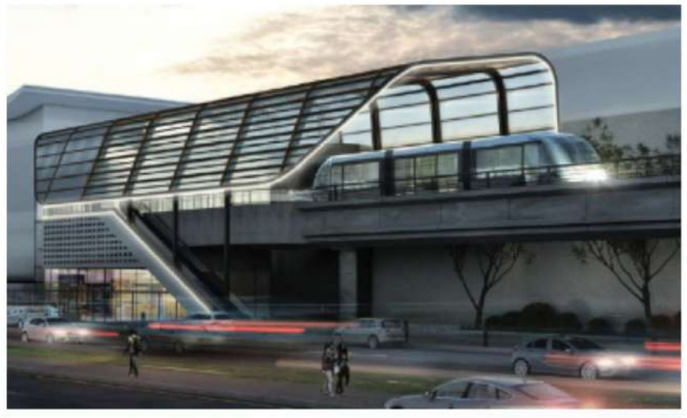
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4.2.2 ARCHITECTURAL CHARACTER - TRANSPORT













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4.2 URBAN DESIGN

4.2.2 ARCHITECTURAL CHARACTER - PARKING



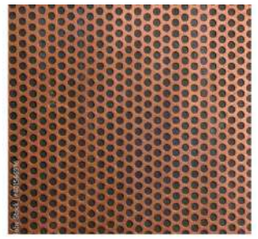


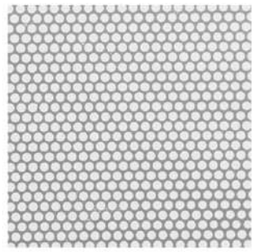




Colour Palette









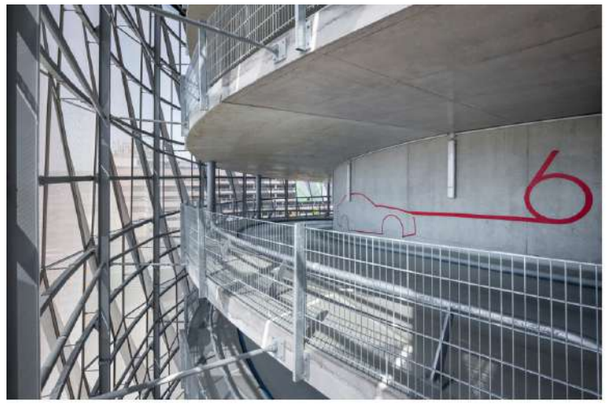


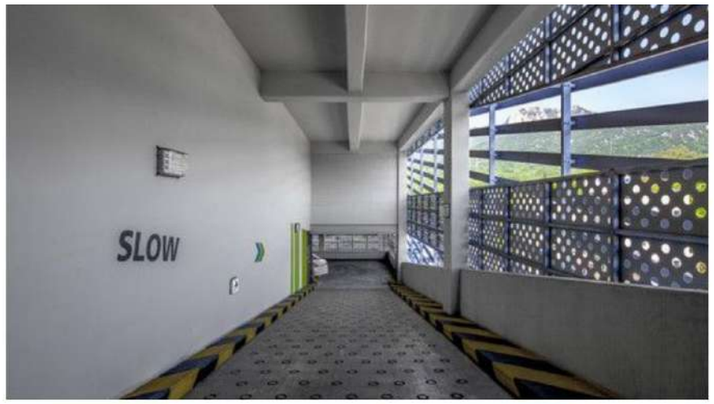


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4.2 URBAN DESIGN

4.2.2 ARCHITECTURAL CHARACTER - PARKING













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4.2 URBAN DESIGN

4.2.2 ARCHITECTURAL CHARACTER - MIXED USE & HOSPITALITY



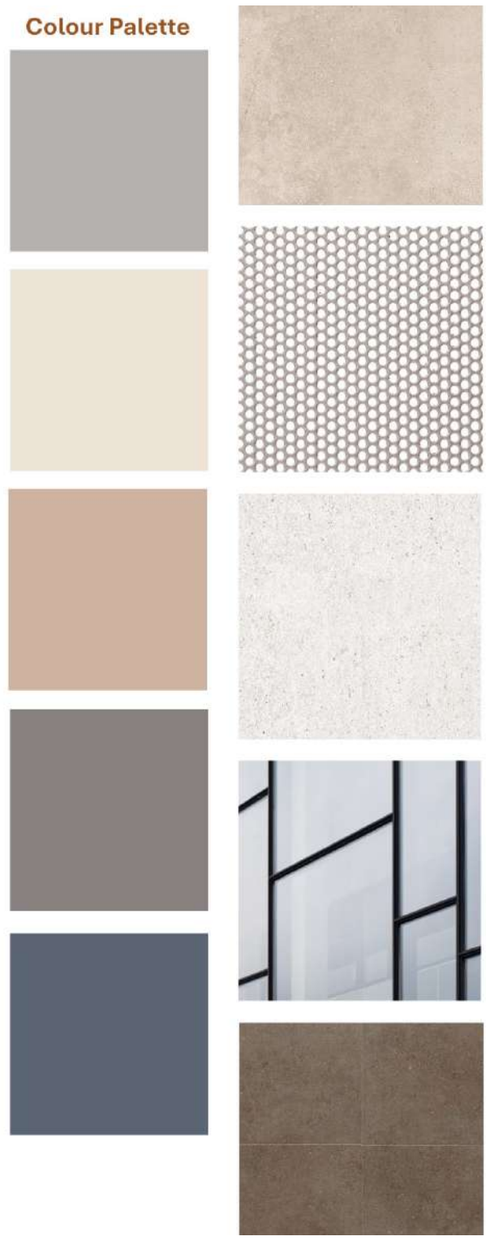










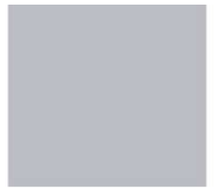
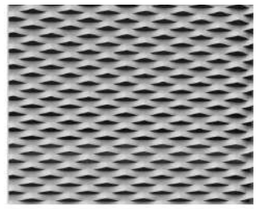


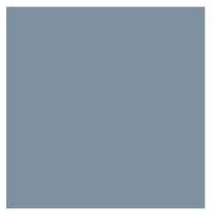
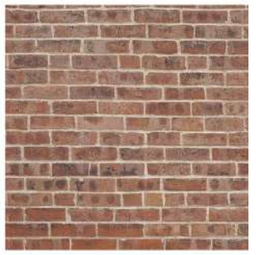
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4.2 URBAN DESIGN

4.2.2 ARCHITECTURAL CHARACTER - MIXED USE & HOSPITALITY












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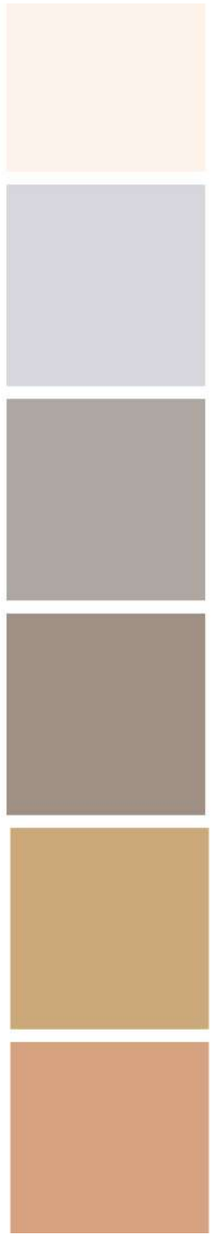
4.2.2 ARCHITECTURAL CHARACTER - MIXED USE & HOSPITALITY













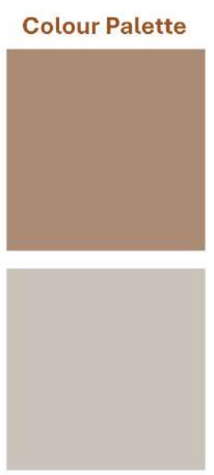
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4.2.2 ARCHITECTURAL CHARACTER - MIXED USE & HOSPITALITY

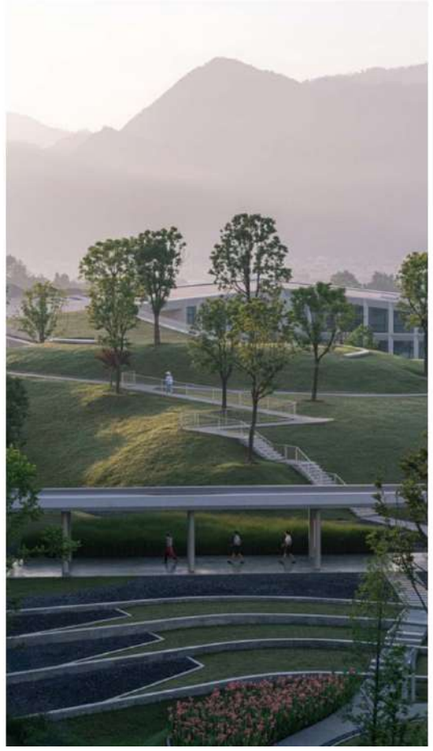


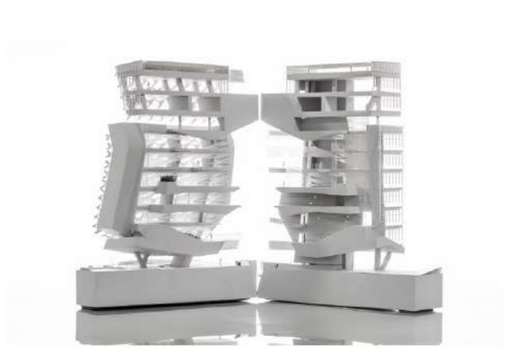
























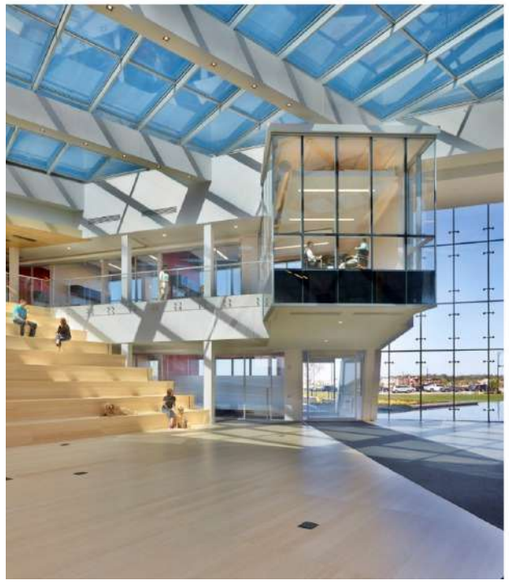
4.2 URBAN DESIGN

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4.2.2 ARCHITECTURAL CHARACTER - MUSEUM











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4.2 URBAN DESIGN

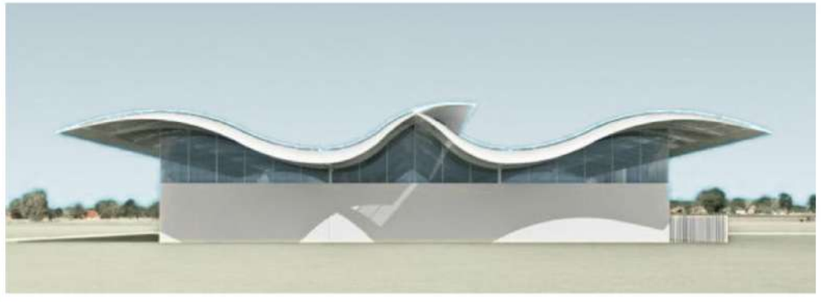
4.2.2 ARCHITECTURAL CHARACTER - GENERAL AVIATION EXTERIOR























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4.2 URBAN DESIGN

4.2.2 ARCHITECTURAL CHARACTER - GENERAL AVIATION INTERIOR

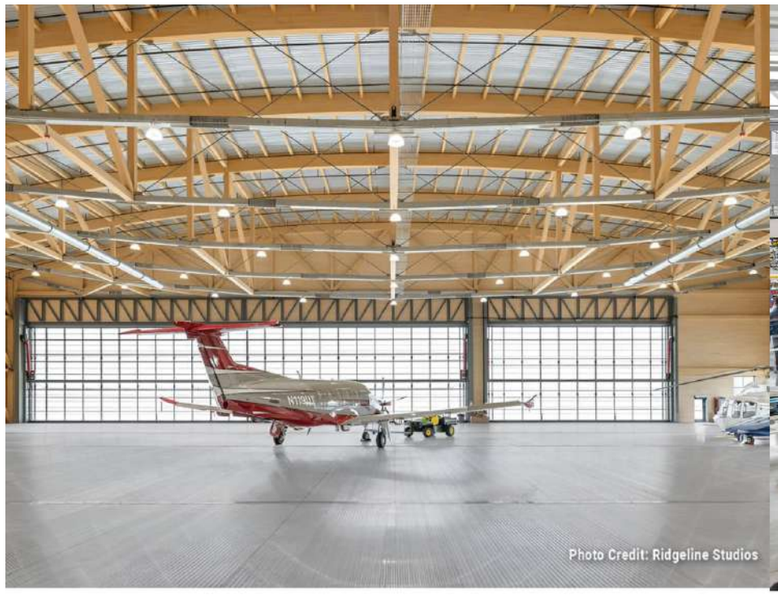


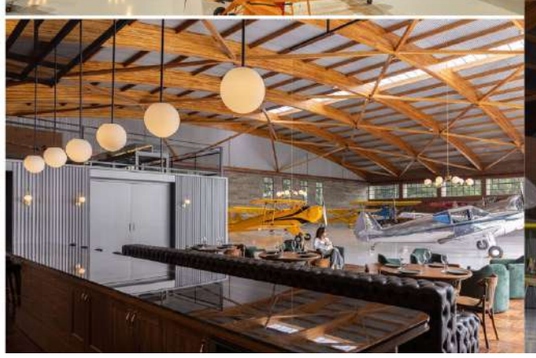


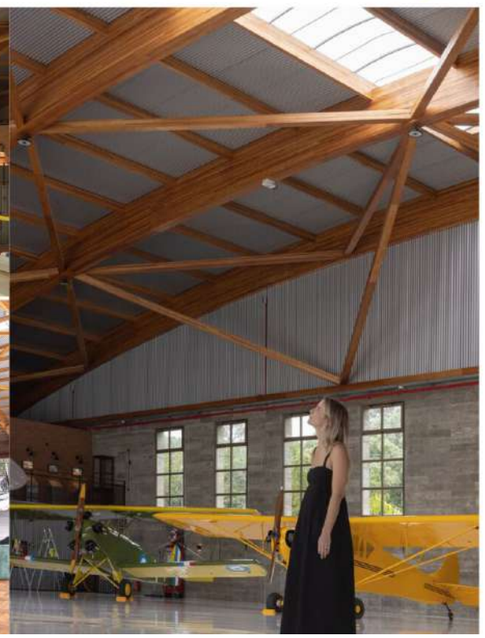
Photo Credit: Ridgeline Studios











Material Palette









4.2 URBAN DESIGN

4.2.2 GATEWAY AND ENTRANCE ILLUSTRATIONS



HIGH RISK - SECURITY CHECK POINT



MEDIUM RISK - SECURITY CHECK POINT



MEDIUM RISK - SECURITY CHECK POINT



LOW RISK - SECURITY CHECK POINT



LOW RISK - SECURITY CHECK POINT



LOW RISK - SECURITY CHECK POINT

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4.2 URBAN DESIGN

4.2.2 SECURITY & ACCESS HIERARCHY DIAGRAM



4.2 URBAN DESIGN

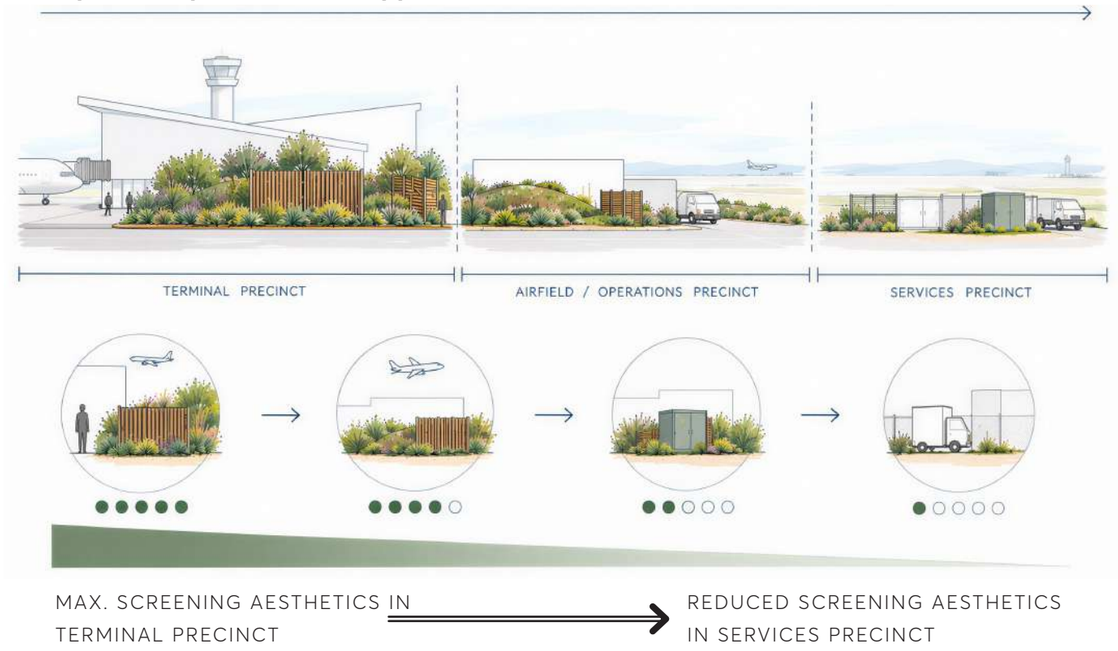
4.2.2 SERVICES & UTILITY SCREENING

Concealed Utilities and Services - Applicable especially to Terminal Precinct

Application

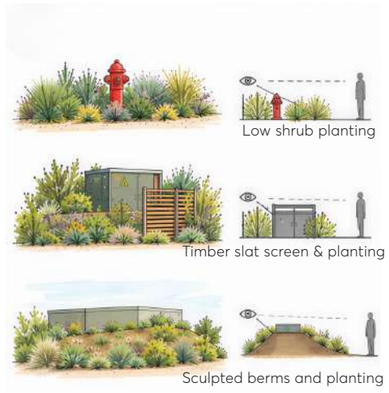
It is proposed that the utlities and services required for the succesfull functioning of the aiport precinct, be concealed in plain site whilst ensuring safe ease of access for maintenance and repairs but simultaneously screening these vital services to ensure that they are succesfully integrated within the greater urban scheme and design aesthetic.

Proposed Implementation Approach



Screening of airport utilities should be scaled to their visual impact and location, using planting, sculptural berms and timber slat screens to integrate practical infrastructure into the landscape. Solutions should remain robust, low-maintenance and fully accessible for operations, maintenance and emergency services while meeting airport safety and clearance requirements. Greater visual screening should be prioritised in passenger-facing areas, with the level of intervention reducing towards operational and service precincts where public visibility is lower, creating a functional airport that remains visually cohesive and attractive.

SERVICES & UTILITIES SCREENING PRINCIPLES



1. Screening According to Scale

- Match the screening intervention to the size and visual impact of the utility — from low shrub planting around fire hydrants to physical screens or berms around larger electrical kiosks and service infrastructure.



2. Integrate with the Landscape

- Screening should feel like part of the overall airport landscape character, using indigenous planting, sculptural berms or well-designed architectural screens rather than ad-hoc concealment.



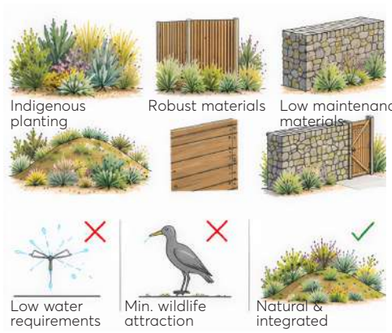
3. Maintain Operational Access

- All screening must allow clear access for inspection, maintenance and emergency services, with appropriate gates, openings, setbacks or removable elements where required.



4. Prioritise Airport Safety

- Screening must comply with all relevant airport safety, security, visibility, clearance and obstacle-height requirements, ensuring that utilities remain identifiable and accessible where necessary.



5. Use Practical, Robust Solutions

- Select durable, low-maintenance materials and planting suited to the airport environment. Avoid solutions that create unnecessary irrigation, maintenance or wildlife-attraction requirements.



6. Create a Consistent Visual Language

- Use a coordinated palette of planting, berms, screens, gabions, stone and other landscape elements so that small utilities are discreetly integrated rather than appearing as standalone infrastructure.

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4.2 URBAN DESIGN

4.2.2 SERVICES & UTILITY SCREENING

Landscape Specific Applications

Tree Canopies

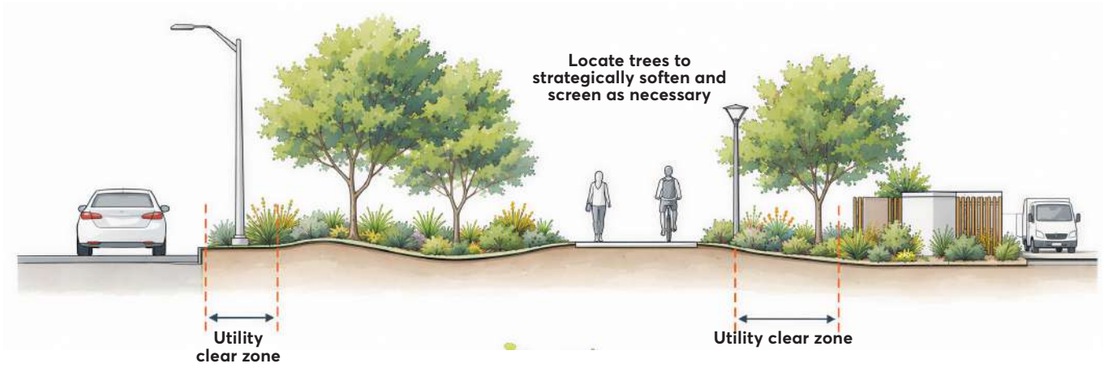
Strategic placement of trees can effectively screen eye-level services and utilities from visitors approaching the terminal, while simultaneously reinforcing the character and quality of the surrounding landscape.

Proposed Implementation Approach



Screening must balance visual concealment with operational access. Planting and other screening elements should be set back sufficiently from utility infrastructure to provide adequate maintenance clearance, while avoiding solutions that could damage utilities or require unnecessary removal of established landscaping.

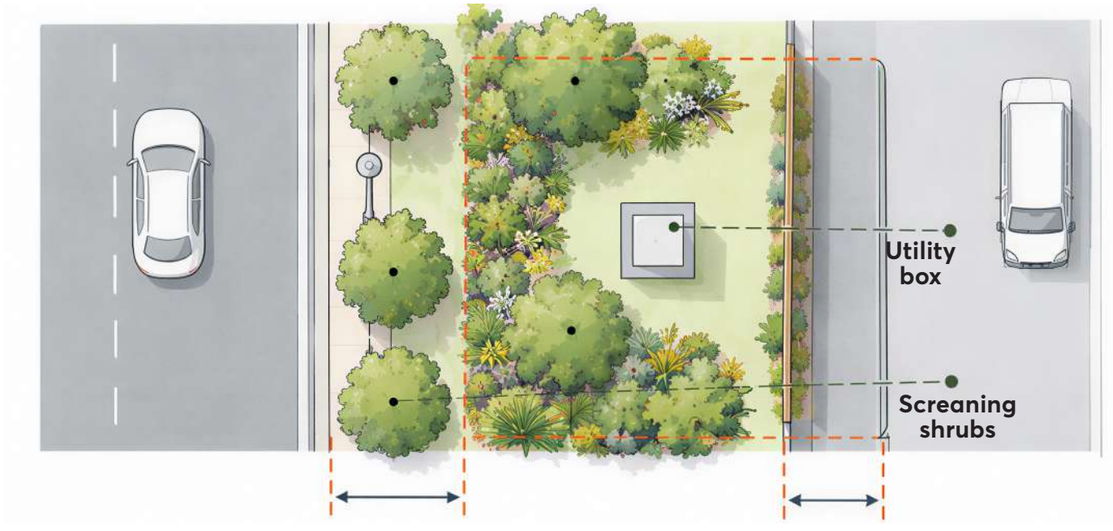
PRINCIPLES APPLIED IN PEDESTRIAN AND MAIN ROUTE AREAS



Underground utilities should be protected through clearly defined clear zones and easements, coordinated with the relevant utility providers. These areas should remain free of trees, structures and other permanent elements to allow safe maintenance, repairs and emergency access.

Aboveground utility infrastructure should be visually screened and integrated into the landscape, particularly where visible from roads and pedestrian areas. Evergreen planting, timber slat screens or other appropriate landscape treatments can be used to reduce the visual impact while maintaining the overall landscape character.

PRINCIPLES - SERVICES/UTILITIES LOCATED WITHING TERMINAL PRECINCT



4.3 Landscape

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4.3.1 LANDSCAPE VISION

Landscape should be one of the defining elements of the Cape Winelands Airport and should establish a strong relationship between the development and its surrounding agricultural, ecological and scenic landscape. The landscape approach should move beyond decorative planting and establish an integrated system of ecology, stormwater, movement, public space, arrival, identity and visual integration. The airport landscape should reinforce the character of the Cape Winelands through indigenous planting, natural landforms, locally appropriate materials, structured planting patterns and carefully considered transitions between built and natural environments. The objective should be to create an airport that feels embedded within the landscape rather than imposed upon it.

Landscape Character and Regional Identity

The landscape character should respond to the broader Cape Winelands setting and the site's agricultural and ecological context. Indigenous vegetation, fynbos, restios, bulbous plants, trees and appropriate groundcovers should be used to establish a strong regional identity. Planting should be informed by local ecological conditions, water availability, soil characteristics and the relevant environmental assessments. The surrounding agricultural landscape and vineyard geometries may be abstracted into planting patterns, linear landscape structures, avenues and public-space arrangements without directly reproducing agricultural forms. The landscape palette should remain restrained and cohesive, using species and materials that reinforce the broader CWA architectural identity.

Ecological Integration

Landscape planning should respond to the site's ecological systems and identified environmental sensitivities.Existing natural systems, wetlands, drainage corridors, vegetation communities and ecological buffers should be protected and incorporated into the broader landscape framework wherever possible. Development should avoid unnecessary disturbance of sensitive ecological areas and should respect identified no-go areas and conservation priorities. The landscape structure should create connections between retained natural areas and the wider open-space network. Indigenous planting should be prioritised in areas where ecological restoration or habitat enhancement is appropriate. Landscape design should be informed by the relevant botanical, biodiversity, freshwater and environmental assessment recommendations.

Natural Systems and Stormwater

Water should be treated as both an ecological system and an important component of the landscape structure. The landscape should support the site's natural drainage patterns and incorporate stormwater management into public spaces, road reserves, landscape buffers and open spaces. Planted swales, attenuation areas, infiltration areas and other landscape-based stormwater interventions should be used where site conditions allow. These systems should be integrated into the landscape rather than treated as isolated engineering infrastructure. Permeable paving should be used where appropriate within pedestrian plazas, parking areas and other suitable surfaces. Rainwater harvesting from gatehouses, canopies and other appropriate structures should be considered for irrigation of entrance and boundary landscapes.

Landscape and stormwater infrastructure should work together to reduce runoff, support infiltration where appropriate, improve water quality and contribute to the ecological character of the airport.

Because the Cape Winelands Airport landscape shall be planned and managed to minimize the creation of habitats and landscape features that may attract birds and other wildlife hazardous to aircraft operation, minimizing open water attractants is of critical imprtance.

Planting Strategy

Planting should be predominantly indigenous, drought-tolerant and appropriate to the local environmental conditions. Low-water fynbos, restios, indigenous grasses, bulbs, shrubs and appropriate tree species should establish the primary planting palette. Planting should be selected according to microclimate, soil, water availability, exposure and intended function rather than applied uniformly across the site.Entrance areas and primary public spaces may incorporate more structured planting, while ecological corridors, landscape buffers and peripheral areas should adopt a more naturalistic character.

Planting should contribute to spatial definition, shade, screening, visual integration, ecological value and seasonal interest.

Trees and Avenue Planting

Trees should be used strategically to establish hierarchy along primary routes, provide shade to pedestrian areas, frame important views and integrate development into the landscape. Avenue planting should be used along major collector and airport boulevard routes where appropriate. Tree species should be selected for their suitability to the local climate, soil and water conditions and should not compromise aviation safety or sightlines.Tree planting should be coordinated with underground services, lighting, pedestrian movement and vehicle visibility.

Entrances and Arrival Landscape

Landscape should form an integral part of the arrival sequence. The primary gateway should incorporate a high-quality landscaped forecourt with structured indigenous planting, feature paving, appropriate trees and low-water planting. Plant medians should use indigenous species such as restios, agapanthus and suitable Leucadendron species where appropriate to the site conditions and approved landscape palette.

Landscape should frame views towards the terminal and gateway structures, provide shade and soften hard infrastructure. Planting should be used to reinforce pedestrian routes and clearly define vehicle and pedestrian movement.

Secondary entrances should use a more restrained landscape approach while maintaining the overall CWA identity. Feature elements such as planted gabion walls, sandstone piers and planted colonnades may be incorporated where appropriate.

Boundary Landscape

Landscape should be integrated with all public-facing boundary treatments.

No hard wall or fence should be experienced without an appropriate planting response wherever site conditions permit. Planting should soften the scale of walls and

4.3 Landscape

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4.3.1 LANDSCAPE VISION

planting strips using appropriate indigenous species. Long wall faces should be interrupted by planting, landscape features or architectural articulation.Tier 2 fences adjacent to public roads and open spaces should incorporate landscape buffers or planter zones. Screening planting should be used around service yards, logistics areas, waste facilities and other operational infrastructure.

Public Realm ad Open Space

Landscape should structure and enrich the public realm through plazas, courtyards, pedestrian routes, greenways and informal gathering spaces. Public spaces should incorporate shade, seating, planting, appropriate paving and clear pedestrian connections. The balance between hard and soft landscape should respond to the function and intensity of each space. Landscape should assist in creating comfortable pedestrian environments and should provide opportunities for informal social interaction and gathering. Where appropriate, water-sensitive landscape features may become part of public spaces, provided they are compatible with airport safety, maintenance and environmental requirements.

Pedestrian and Bicycle Landscape

Pedestrian and bicycle routes should be integrated into a continuous landscape network.Pedestrian corridors should be clearly defined, shaded where appropriate and separated from vehicular movement. Planting should contribute to wayfinding and spatial definition without compromising visibility or security. Bicycle routes should connect key destinations and should incorporate secure, covered bicycle parking at appropriate facilities. Landscape-enhanced movement corridors should establish a consistent character across the airport and strengthen connections between individual precincts.

Landscape Buffers and Setbacks

Landscape setbacks should provide visual separation between development and major movement routes while contributing to the overall green structure of the airport. The airport boulevard should incorporate an appropriately scaled planted verge and pedestrian route within the required setback. Collector roads should incorporate planted verges, boundary treatments and avenue trees, while access roads should use smaller planter buffers appropriate to their scale. Along public provincial roads, wider landscape buffers should incorporate planting and, where appropriate, landform or berming to reduce visual impact and reinforce the transition between airport development and the surrounding rural landscape. Setbacks should not become residual spaces for parking, open storage, equipment or unscreened utilities.

Retaining Walls and Landform

The landscape should respond sensitively to the site's topography and avoid unnecessary visual disruption of natural landform. Cut slopes should be preferred over large vertical retaining walls where ground conditions permit. Where retaining structures are required, they should be integrated into the landscape through terracing, planting, gabions, dry-stacked sandstone or planted crib systems. Walls exceeding approximately 1.5 m in height should be terraced where feasible, with planted shelves used to reduce their apparent scale. Larger retaining structures should receive appropriate architectural treatment and landscape integration. Disturbed slopes should be stabilised and revegetated using appropriate indigenous groundcovers or local fynbos species.

Screening and Service Areas

Landscape should contribute to the screening of service yards, waste enclosures, plant rooms, parking structures and other operational areas. Screening should use a combination of architectural walls, fencing, trees, shrubs and vertical planting where appropriate. Green walls or vertical planting systems may be considered on long public-facing screen walls where appropriate irrigation and maintenance can be provided. Screening should not compromise security, visibility, pedestrian safety or airport operational requirements.

Landscape Lighting

Landscape lighting should support safe movement, wayfinding and the night-time identity of the airport, while being sensitively integrated with planting, landscape features and ecological interfaces. Lighting within landscape areas should be limited to areas where required, with particular care taken to minimise light spill onto vegetation, ecological areas and the surrounding landscape. Low-level lighting should be used along pedestrian routes and landscape paths where practicable. Feature lighting of significant trees, gateway structures and selected landscape elements may be used selectively, with warm-colour light preferred and illumination carefully controlled. Landscape lighting shall be coordinated with the airport-wide lighting strategy, visual mitigation requirements and applicable aerodrome lighting requirements.

Materials and Landscape Elements

Landscape materials should reinforce the CWA architectural palette. Natural Cape stone and sandstone should be used for feature walls, retaining structures, steps, paving and landscape elements where appropriate. Granite setts or cobbles may be used for feature areas, while concrete block paving and exposed concrete may be used in secondary or service environments. Timber may be incorporated into hospitality, public-space and residential landscape elements where appropriate, with responsibly sourced and FSC-certified timber preferred. Street furniture, bollards, railings, planter edges and other landscape elements should adopt a coordinated material and colour palette and should contribute to the overall CWA identity.

Sustainable Landscape Design

Landscape design should prioritise water conservation, ecological value, resource efficiency and long-term maintenance. Drought-tolerant indigenous planting should be prioritised, with irrigation designed efficiently and limited to areas where establishment or landscape function requires it. Rainwater harvesting, permeable paving, planted swales, infiltration areas and other water-sensitive systems should be incorporated where appropriate. Local and responsibly sourced materials should be prioritised and landscape design should consider lifecycle maintenance requirements.

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4.3 Landscape

4.3.2 LANDSCAPE CHARACTER

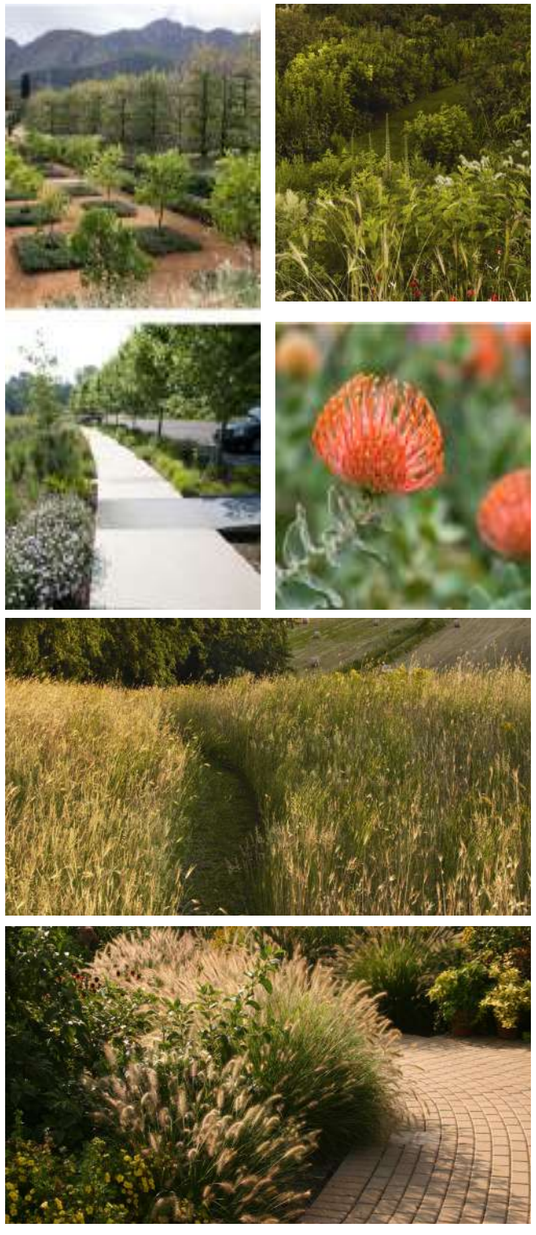
The Cape Winelands Airport should establish a unified identity through the integration of urban structure, architecture and landscape rather than through isolated design interventions.

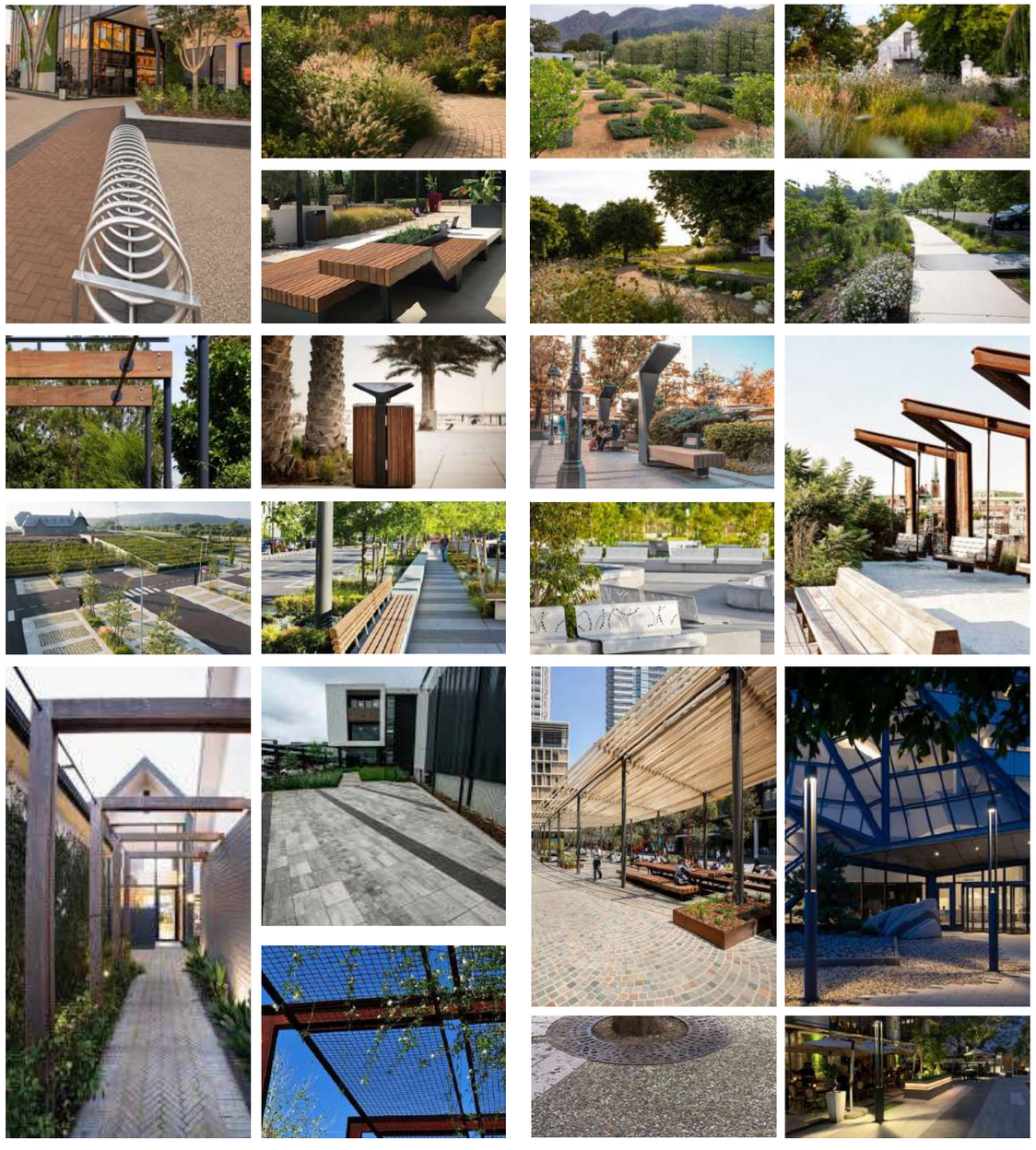
The urban structure should provide a clear framework for movement, public space, development and ecological systems. Architecture should establish a contemporary regional language through building form, roofscape, materiality, climate response and human-scaled interfaces. Landscape should connect these elements to the broader Cape Winelands environment through indigenous planting, ecological systems, stormwater management, public space and visual integration.

Together, these principles should establish an airport that is:

Contemporary + Regional + Landscape-led + Climate-responsive + Human-scaled + Sustainable + Distinctive

The Cape Winelands Airport should ultimately feel of the Cape Winelands rather than simply located within it. Its identity should emerge through the relationship between the surrounding landscape, natural systems, agricultural heritage, public realm, architecture, infrastructure and movement, creating a contemporary airport environment that functions as both an international transport facility and a memorable gateway to the region.

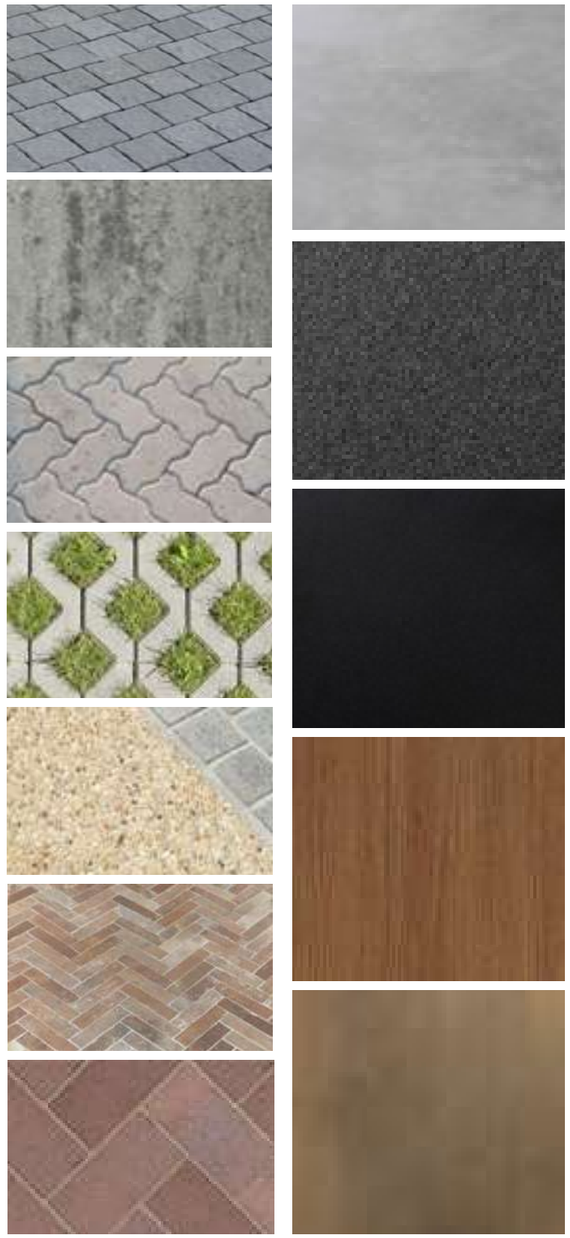




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4.3 Landscape

4.3.3 HARD LANDSCAPE MATERIALITY



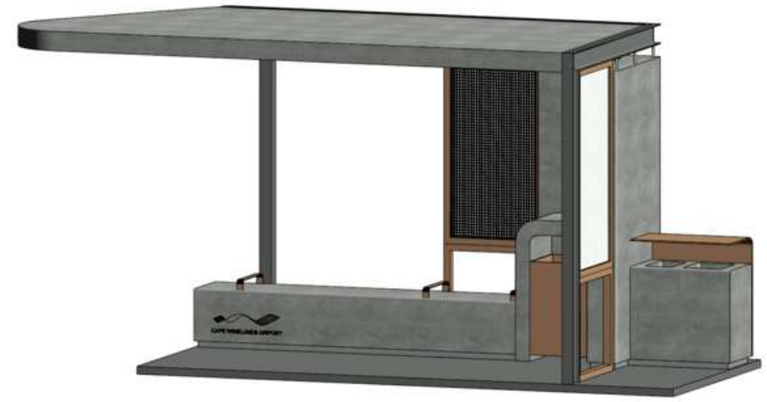






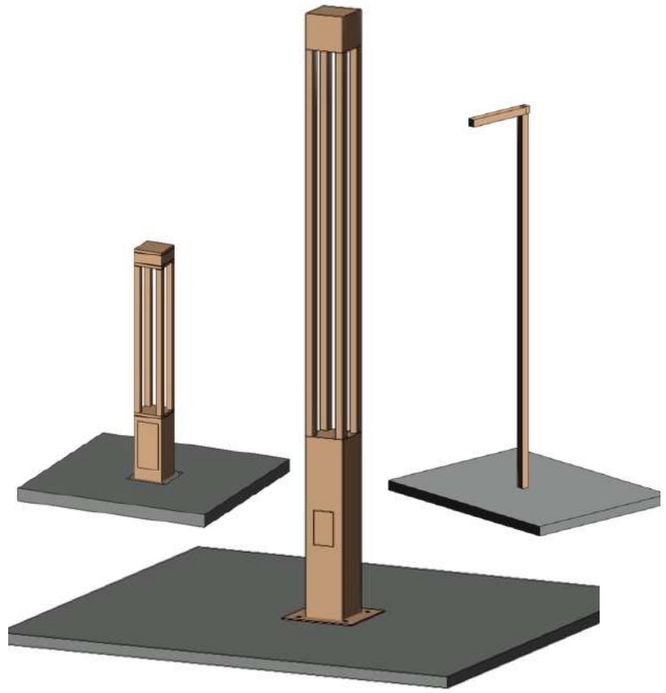








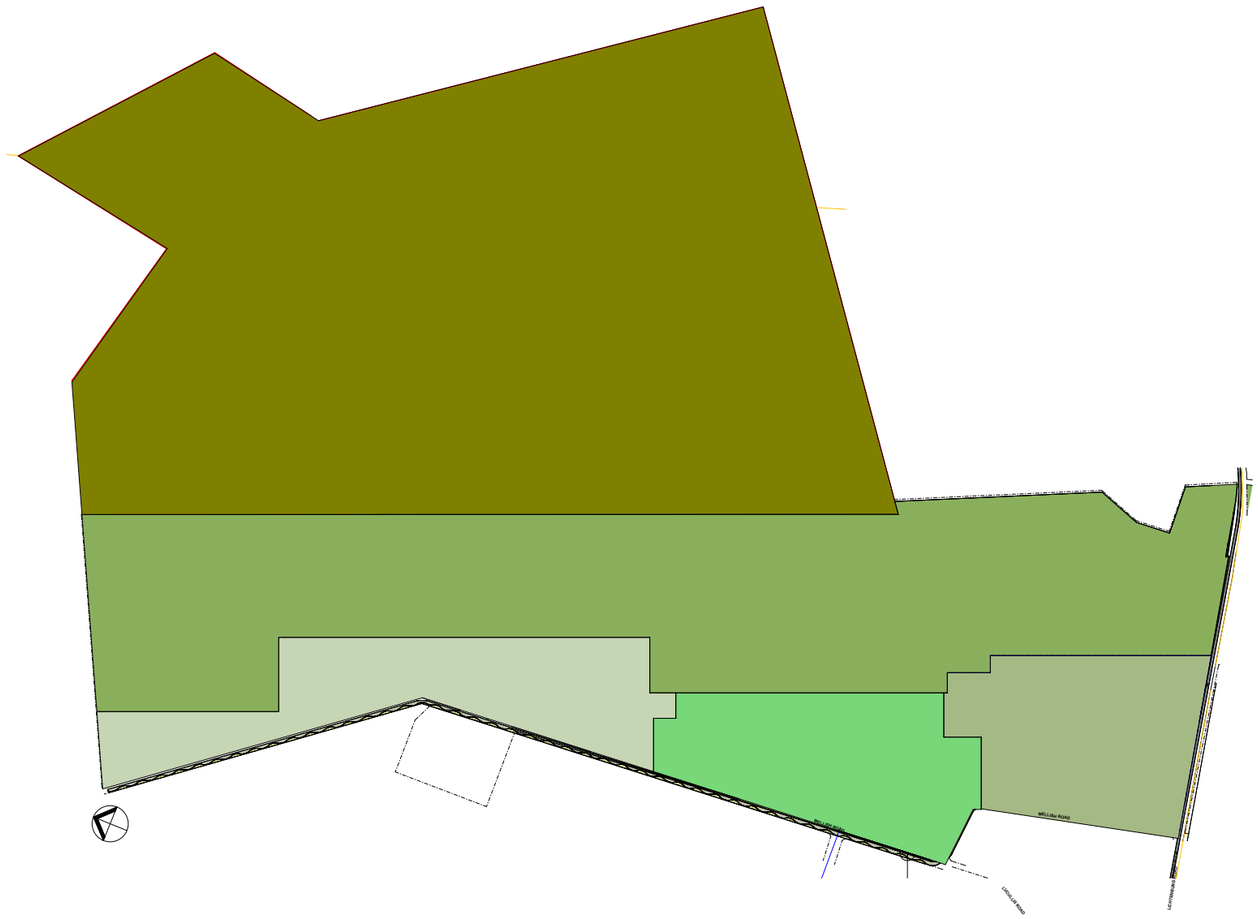




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4.3 Landscape

4.3.3 VEGETATION ZONES



KEY :

VEGETATION ZONES

VEGETATION ZONE 1: AIRSIDE VYGIE PLATEAU
a. Hydroseeded areas: Indigenous and Local Indigenous Sand fynbos and Renosterveld at the airport airside precinct, Species limited to 700mm in maximum height.
b. Vygie and annual/perennial fynbos ground cover species at the airport airside precinct: various species limited to 200mm in maximum height to comply with the frangibility requirements of ICAO – trial and testing species list to be built on through operational establishment period (heat resistance, engine force resistant).
c. Vygie and annual/perennial fynbos ground cover species at the airport airside precinct: various species limited to 300mm in maximum height to comply with the frangibility requirements of ICAO – trial and testing species list will be continuously developed throughout the operational establishment period

VEGETATION ZONE 2: LOW MAINTENANCE AND TEMPORARY PLANTING
a. Tree clusters at the services precinct and general aviation precinct.
b. Boundary/verge trees at the services precinct, airport terminal precinct, and general aviation precinct.
c. Indigenous and Local Indigenous Sand fynbos and renosterveld rehabilitation planting at the services precinct.
d. Lawn areas at landside precincts (Airport Terminal Precinct, Services precinct, General Aviation precinct) away from airside precinct.

VEGETATION ZONE 3: LOW MAINTENANCE AND NURSERY POCKETS
a. Indigenous shrub & groundcover planting at the airport terminal precinct and general aviation precinct

VEGETATION ZONE 4: LANDSIDE CURATED GARDENS
a. Manicured garden space
b. Conservation gardens – curated by the Stellenbosch Botanical Gardens Curatorship programme (Plant list to be compiled by Stellenbosch Botanical Gardens team)
c. Indigenous shrubs and groundcovers with berms/mounds at the airport terminal precinct
d. Trees and paved cut-out areas at the airport terminal
e. Parking area trees and planting at Airport Terminal Precinct
f. Planted Berms at the Airport Terminal Precinct
g. Ornamental Vineyards at the Airport Terminal Precinct.
h. Green roofs at the Airport Terminal Precinct.

SUB-VEGETATION ZONE 5: AGRICULTURAL PRECINCT
a. Retain/conserve vegetation matrix as long as possible
b. Rehabilitation of offset wetland areas as per rehabilitation plan.
c. Protect an buffer watercourses and wetlands.
d. Maintain remaining agricultural areas.

SUB-VEGETATION ZONE 6: INTERNAL ROAD RESERVE MANICURED VEGETATION ZONE
(In Airport Landside Precinct, Airport General Aviation Precinct and Airport Services Precinct)
a. Indigenous shrub & groundcover planting at the airport terminal precinct and general aviation precinct
b. Suitable exotic tree species (non-reproductive hosts for the Polyphagous Shot Hole Borer (PSHB))

SUB-VEGETATION ZONE 7: OPEN GROUND ZONES (After Earthworks – stabilization strategy and Dust Management Plan)
(In Airport Landside Precinct, Airport General Aviation Precinct and Airport Services Precinct)
a. Indigenous and Local Indigenous Sand fynbos and renosterveld rehabilitation hydroseed and planting at all exposed earthworks sites.

SUB-VEGETATION ZONE 8: AQUATIC ZONES as per Stormwater Master Plan and Final designs
(In Airport Landside Precinct, Airport General Aviation Precinct and Airport Services Precinct)
a. Stormwater Zone
b. Attenuation ponds
c. Rain gardens
d. Wetlands
e. Siltation pond zone
f. Quarry retrofitting into attenuation pond strategy

PLEASE NOTE :

Following the commencement of earthworks anticipated from end April 2027, all disturbed and exposed areas not immediately required for subsequent construction shall be progressively rehabilitated within 4–5 months of disturbance, using locally indigenous and suitable pioneer species (no grasses) selected for rapid establishment, erosion and soil stabilisation, drought tolerance and relatively low fire susceptibility. The temporary rehabilitation planting shall be designed as a managed, low-fuel landscape, avoiding extensive continuous stands of highly combustible vegetation and incorporating appropriate separation, thinning and maintenance zones where required. Dead, dry or excessive combustible vegetation shall be removed as part of routine maintenance, and firebreaks or defensible areas shall be maintained where required by the applicable City of Cape Town requirements. The rehabilitated areas shall be managed through the subsequent construction period to maintain vegetative cover and minimise fire risk, with the planting strategy progressively integrated into the permanent landscape where appropriate prior to the anticipated opening of the Cape Winelands Airport in 2029.

4.3 Landscape

4.3.4 LANDSCAPE PLANTING PALETTE

To be finalised as part of ongoing study by multidisciplinary team to ensure a sustainable mix suitable for the various airport zones. The following schedule serves as a working plant list to be trialled and tested.

The CWA development occurs at the intersection of multiple renosterveld and lowland fynbos vegetation types in various stages of degradation. The plant species list will be evaluated and refined as part of a biophysical & ecological restoration study by suitably qualified botanists, to motivate the inclusion of suitable, functional, locally-endemic species in various zones.

Following the commencement of earthworks, all disturbed and exposed areas are not immediately required for subsequent construction shall be progressively rehabilitated within 4–5 months of disturbance, using locally indigenous and suitable pioneer species (no grasses) selected for rapid establishment, erosion and soil stabilisation, drought tolerance and relatively low fire susceptibility. The temporary rehabilitation planting shall be designed as a managed, low-fuel landscape, avoiding extensive continuous stands of highly combustible vegetation and incorporating appropriate separation, thinning and maintenance zones where required. Dead, dry or excessive combustible vegetation shall be removed as part of routine maintenance, and firebreaks or defensible areas shall be maintained where required by the applicable City of Cape Town requirements. The rehabilitated areas shall be managed through the subsequent construction period to maintain vegetative cover and minimise fire risk, with the planting strategy progressively integrated into the permanent landscape where appropriate prior to the anticipated opening of the Cape Winelands Airport in 2029.

AIRSIDE VYGIE PLATEAU

(200–300 mm maximum height)

- *Pharnaceum lanatum* — Woolly Pharnaceum
- *Crassula flava* — Yellow Stonecrop
- *Indigofera procumbens* — Trailing Indigo
- *Othonna heterophylla* — Hairy Baboon-cabbage
- *Lampranthus stenotus* — Bushy Lampranthus
- *Cheilanthes capensis* — Cape Lip Fern
- *Ficinia brevifolia* — Short-leaved Ficinia
- *Ruschia pauciflora* — Few-flowered Ruschia
- *Pelargonium vicifolium* — Vine-leaved Pelargonium
- *Muraltia origanoides* — Oregano-leaved Muraltia
- *Muraltia trinervia* — Three-nerved Muraltia
- *Lampranthus filicaulis* — Thread-stem Lampranthus
- *Lampranthus dilutus* — Dilute Lampranthus
- *Nenax hirta* — Hairy Nenax
- *Lampranthus sociorum* — Companion Lampranthus
- *Crassula capensis* — Cape Crassula
- *Erepsia hallii* — Hall's Erepsia
- *Lampranthus scaber* — Rough Lampranthus
- *Ruschia klipbergensis* — Klipberg Ruschia
- *Haemanthus pumilio* — Dwarf Paintbrush

(300–500 mm maximum height)

- *Diastella proteoides* — Flats Silkypuff
- *Serruria glomerata* — Cluster Spiderhead
- *Aspalathus callosa* — Honeybush Capegorse
- *Chrysanthemoides incana* — Grey Bietou
- *Metalasia pulchella* — Beautiful Blombush
- *Phylica parvifolia* — Small-leaved Phylica
- *Polpoda capensis* — Cape Polpoda
- *Edmondia sesamoides* — Cape Edelweiss
- *Helichrysum tinctum* — Tinted Everlasting
- *Aspalathus variegata* — Variegated Capegorse
- *Serruria aemula* — False Marsh Spiderhead
- *Helichrysum teretifolium* — Needle-leaved Everlasting
- *Marasmodes polyphylla* — Many-leaved Marasmodes
- *Lotononis complanata* — Flattened Lotononis
- *Erepsia ramosa* — Branched Erepsia
- *Indigofera triquetra* — Three-angled Indigo
- *Drosanthemum asperulum* — Rough Dewflower
- *Ruschia serrulata* — Serrated Ruschia
- *Anthospermum galioides* — Galium-like Anthospermum
- *Chironia baccifera* — Christmas Berry
- *Erica paniculata* — Paniculate Heath
- *Helichrysum crispum* — Crisped Everlasting
- *Cotula turbinata* — Stinking Mayweed
- *Hebenstretia paarlensis* — Paarl Hebenstretia
- *Stachys aethiopica* — African Hedge Nettle
- *Lampranthus citrinus* — Yellow-flowered Lampranthus
- *Phyllobolus suffruticosus* — Shrubby Phyllobolus
- *Watsonia humilis* — Dwarf Watsonia
- (700 mm maximum height)
- *Serruria foeniculacea* — Fennel-leaved Spiderhead
- *Galenia secunda* — Mat Galenia
- *Aspalathus varians* — Variable Cape Gorse
- *Mohria caffrorum* — African Lace Fern
- *Aspalathus rectistyla* — Straight-styled Cape Gorse
- *Agathosma marifolia* — Sea-leaf Buchu
- *Muraltia macropetala* — Large-petalled Muraltia
- *Marasmodes oligocephala* — Sparse-headed Marasmodes

LOW MAINTENANCE AND TEMPORARY PLANTING

- *Celtis africana* — White Stinkwood
- *Ekebergia capensis* — Cape Ash
- *Searsia pendulina* — White Karee
- *Sideroxylon inerme* — White Milkwood
- *Afrocarpus latifolius* — Real Yellowwood
- *Syzygium cordatum* — Waterberry
- *Dodonaea angustifolia* — Sand Olive
- *Ekebergia capensis* — Cape Ash
- *Athanasia parviflora* — Small-flowered Athanasia
- *Chrysanthemoides incana* — Grey Bietou
- *Felicia amelloides* — Blue Marguerite
- *Felicia filifolia* — Thread-leaved Felicia
- *Metalasia muricata* — White Bristle Bush
- *Salvia chamelaeagnea* — Rough Blue Sage
- *Salvia africana-lutea* — Brown Afrikan Sage
- *Dymondia margaretae* — Dymondia / Silver Carpet
- *Geranium incanum* — Carpet Geranium
- *Aptenia cordifolia* — Baby Sun Rose
- *Arctotis stoechadifolia* — Silver Arctotis
- *Lampranthus spp.* — Vygie

LOW MAINTENANCE AND NURSERY POCKETS

- *Pelargonium graveolens* — Rose-scented Geranium
- *Felicia amelloides* — Blue Marguerite
- *Eriocephalus africanus* — Wild Rosemary
- *Coleonema album* — Confetti Bush
- *Leucadendron salignum* — Common Sunshine Conebush
- *Gazania rigens var. leucolaena* — Trailing Gazania
- *Helichrysum petiolare* — Silver Bush
- *Geranium incanum* — Carpet Geranium
- *Plumbago auriculata* — Cape Leadwort

4.3 Landscape

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4.3.4 LANDSCAPE PLANTING PALETTE

To be finalised as part of ongoing study by multidisciplinary team to ensure a sustainable mix suitable for the various airport zones. The following schedule serves as a working plant list to be trialled and tested.

LANDSIDE CURATED GARDENS

- *Agathosma capensis* — Spicy Buchu
- *Coleonema album* — Confetti Bush
- *Eriocephalus africanus* — Wild Rosemary
- *Felicia amelloides* — Blue Marguerite
- *Tecoma capensis* — Cape Honeysuckle
- *Leonotis leonurus* — Wild Dagga / Lion's Tail
- *Pelargonium graveolens* — Rose-scented Geranium
- *Plumbago auriculata* — Cape Leadwort
- *Leucospermum cordifolium* — Pincushion Protea
- *Leucadendron argenteum* — Silver Tree
- *Freylinia lanceolata* — Honey Bell Bush
- *Stoebe plumosa* — Silver Stoebe
- *Phylica ericoides* — Heath Phylica
- *Metalasia muricata* — White Bristle Bush
- *Helichrysum petiolare* — Silver Bush
- *Helichrysum patulum* — Honey Everlasting
- *Helichrysum cymosum* — Gold Carpet
- *Leucadendron salignum* — Common Sunshine Conebush
- *Geranium incanum* — Carpet Geranium
- *Aptenia cordifolia* — Baby Sun Rose
- *Gazania rigens* — Trailing Gazania
- *Afrocarpus latifolius* — Outeniqua Yellowwood
- *Apodytes dimidiata* — White Pear
- *Celtis africana* — White Stinkwood
- *Diospyros whyteana* — Bladdernut
- *Ekebergia capensis* — Cape Ash
- *Ilex mitis* — Cape Holly
- *Nuxia floribunda* — Forest Elder
- *Searsia pendulina* — White Karee
- *Sideroxylon inerme* — White Milkwood
- *Syzygium cordatum* — Waterberry
- *Syzygium guineense* — Water Pear
- *Dodonaea angustifolia* — Sand Olive
- *Scabiosa columbaria* — Wild Scabious
- *Cotyledon orbiculata* — Pig's Ear
- *Portulacaria afra* — Spekboom
- *Lampranthus spp.* — Vygies
- *Aptenia cordifolia* — Baby Sun Rose

STORMWATER ZONE

- *Pelargonium ternifolium* — Three-leaved Pelargonium
- *Lobelia anceps* — Blue Lobelia
- *Cotula coronopifolia* — Water Buttons / Marsh Buttons
- *Erica cerinthoides* — Fire Heath
- *Leucadendron stellare* — Star-shaped Conebush
- *Leucadendron thymifolium* — Thyme-leaved Conebush
- *Isolepis fluitans* — Floating Clubrush
- *Monopsis lutea* – Yellow Lobelia

INTERNAL ROAD RESERVE

(MANICURED VEGETATION ZONE)

- *Quercus nigra* — Water Oak
- *Ekebergia capensis* — Cape Ash
- *Celtis africana* — White Stinkwood
- *Ceratonia siliqua* — Carob
- *Afrocarpus latifolius* — Real Yellowwood
- *Carissa 'Green Carpet'* — Dwarf Num-num
- *Gazania spp.* — Gazanias
- *Crassula multicava* — Fairy Crassula
- *Plectranthus neochilus* — Lobster Flower
- *Plectranthus spp.* — Spurflowers
- *Plectranthus fruticosus* — Spurflower

OPEN GROUND ZONES (After Earthworks – stabilization strategy)

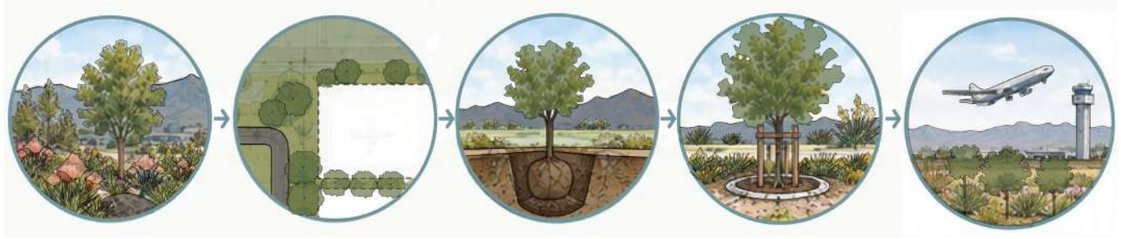
- *Athanasia paruiflora* — Small-flowered Athanasia
- *Chrysanthemoides incana* — Grey Bietou
- *Felicia amelloides* — Blue Marguerite
- *Felicia filifolia* — Thread-leaved Felicia
- *Euryops pectinatus* — Golden Daisy Bush
- *Euryops virgineus* — Virginian Euryops
- *Metalasia muricata* — White Bristle Bush
- *Salvia chamelaeagnea* — Rough Blue Sage
- *Salvia africana-lutea* — Brown Afrikan Sage
- *Geranium incanum* — Carpet Geranium
- *Dymondia margaretae* — Dymondia / Silver Carpet
- *Arctotis stoechadifolia* — Silver Arctotis
- *Aptenia cordifolia* — Baby Sun Rose
- *Lampranthus spp.* — Vygies
- *Cotyledon orbiculata* — Pig's Ear
- *Buddleja saligna* — False Olive
- *Plumbago auriculata* — Cape Leadwort
- *Eriocephalus africanus* — Wild Rosemary
- *Stoebe plumosa* — Silver Stoebe
- *Drosanthemum asperulum* — Rough Dewflower
- *Ruschia spp.* — Ruschias
- *Searsia laevigata* — Smooth Karee
- *Athanasia trifurcata* — Three-forked Athanasia
- *Metalasia densa* — Dense Metalasia
- *Otholobium hirtum* — Hairy Otholobium
- *Lobostemon fruticosus* — Shrubby Lobostemon

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4.3 Landscape

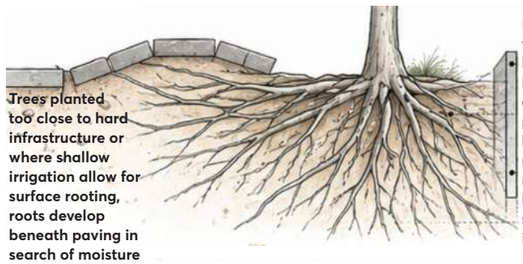
4.3.5 TREE PLANTING PRINCIPLES

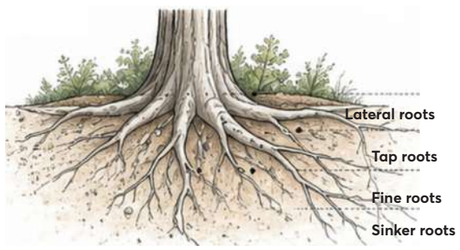
A considered approach to tree planting that ensures long-term tree health, protects infrastructure, supports waterwise landscapes and remains compatible with aviation operations and wildlife hazard management. Read in conjunction with the Tree Planting Methodology Addendum for detailed planting requirements.

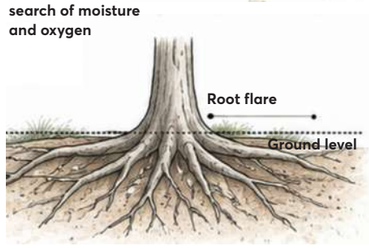


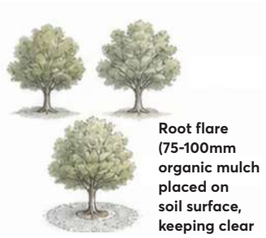
SELECT LOCATE PLANT ESTABLISH MONITOR

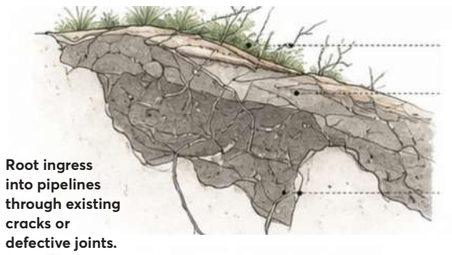
ROOT MANAGEMENT & INFRASTRUCTURE

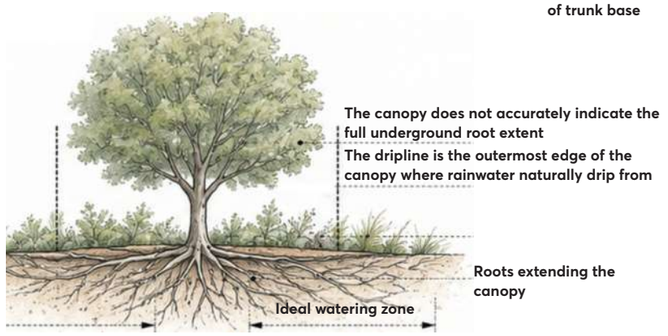


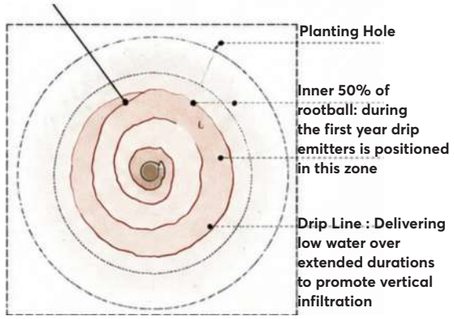




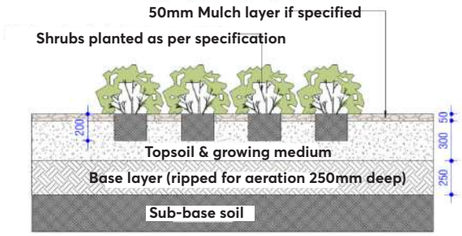


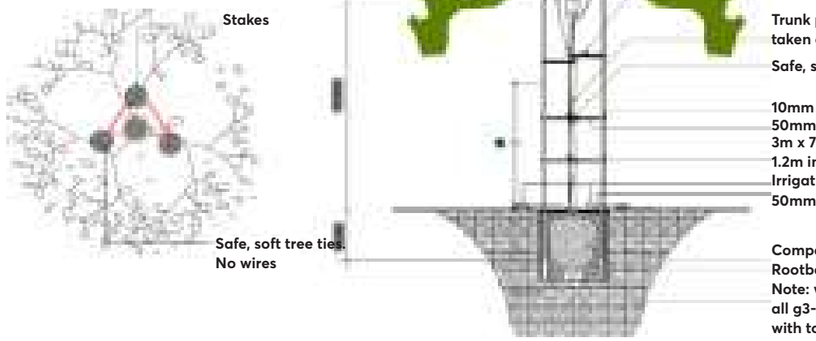


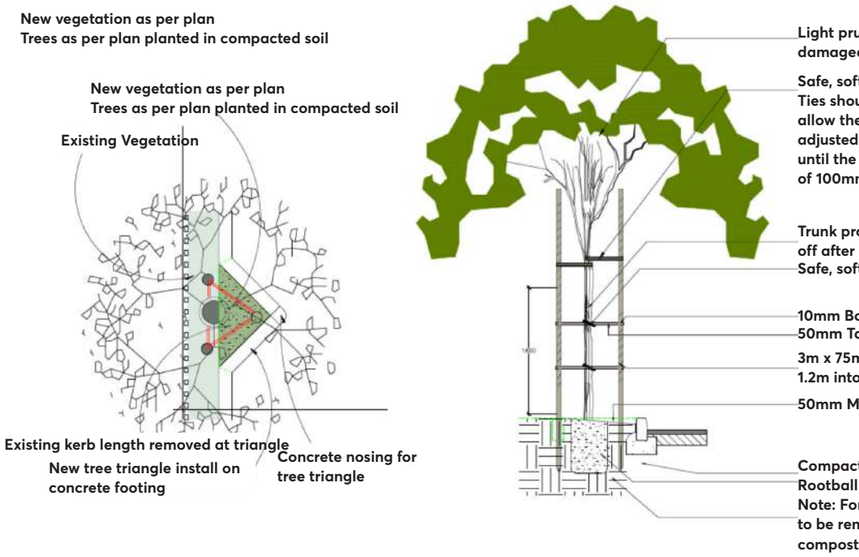




TYPICAL TREE & PLANTING DETAILS







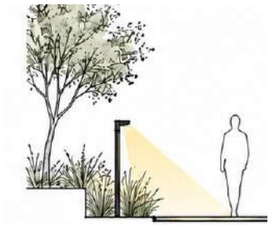
4.3 Landscape

4.3.6 LANDSCAPE LIGHTING DESIGN

Lighting Design Intention

The landscape lighting design should be intentional, revealing routes, defining spaces, supporting safety and creating a sense of arrival, whilst adhering to standard airport lighting principles and requirements. Please also reference document: *CAPE WINELANDS AIRPORT SITE LIGHTING FRAMEWORK REPORT, CF SELKIRK; SJ KELLY; GR SELKIRK*

4.3.7 Lighting Design Principles

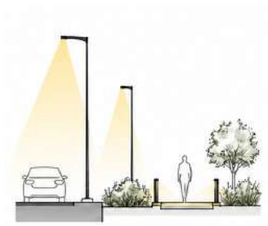


a. Subtle and Purposeful

-Low, warm luminance (3000K)

-Avoid light spill

-Light only what is needed

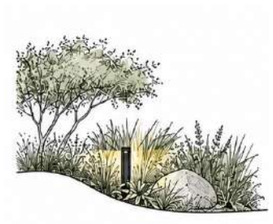


b. Lighting Hierarchy

-High level street lights

-Mid level pedestrian lights

- Low level walkway/seating lights

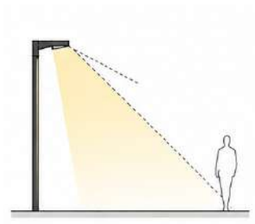


c. Integrated Design

-Luminaires *hidden* in planting

-Follow landscape forms

-Colours/materials complimentary to design language



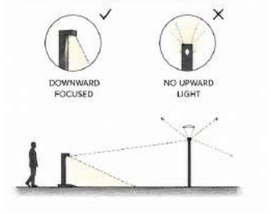
d. Airport Regulations

-Adhere to 36° cut off line

-No upward lighting

-Avoid sky glow



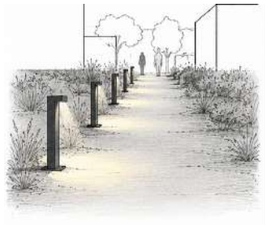


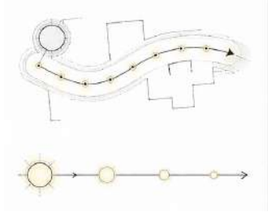
e. Responsible Design

-Motion/time controls

-Full cut-off luminaires

-Protect night sky and wild life





f. Promote Wayfinding

-Clear routes

-Consistent lighting language

-Identify key destinations



DOWNWARD LIGHT

Glare controlled functional lighting



SOLID CONSTRUCTION

Thick aluminium body built to last



PRACTICAL & STABLE

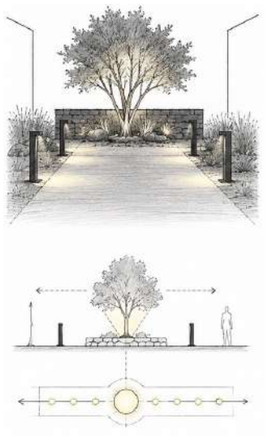
Wide base for maximum stability

g. Robust & Practical

-Simple design fixtures

-Robust materials & finishes

-Robust fixing and placement details



h. Sense of Place

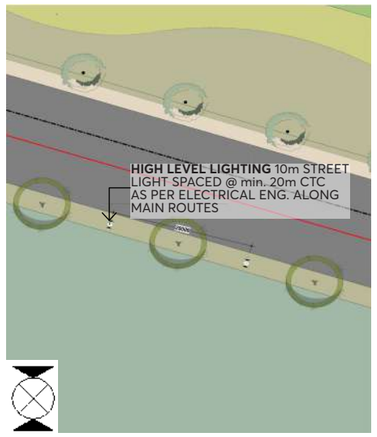
- Distinctive arrival experience

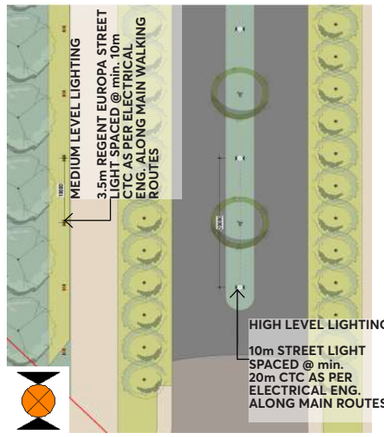
-Clarity, safety and efficiency

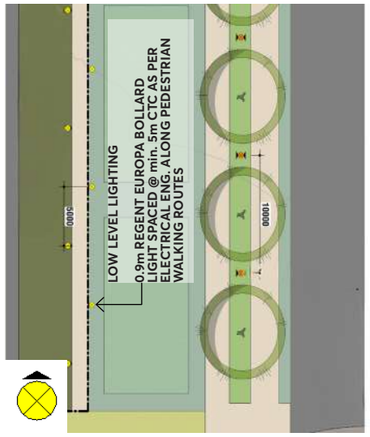
-Warm, calm, welcoming

Lighting Design Typologies

The landscape lighting design should be intentional, revealing routes, defining spaces, supporting safety and creating a sense of arrival, whilst adhering to standard airport lighting principles and requirements







Proposed Lighting Products

HIGH LEVEL STREET LIGHTING



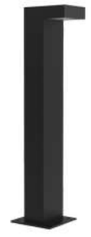
Beka Schreder Solar Street Lights or similar as per electrical engineers

LOW LEVEL STREET LIGHTING



3.5m Regent Europa Street Light or similar approved

BOLLARD LIGHTING



0.9m Regent Europa Bollard Light or similar approved

Lighting Masterplan Diagram



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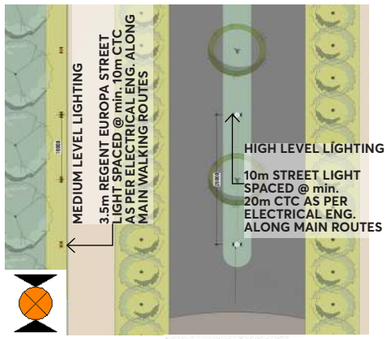
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Proposed Lighting Specifications for Review

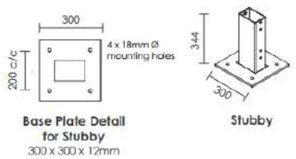
LOW LEVEL STREET



3.5m Regent Europa Street Light or similar approved



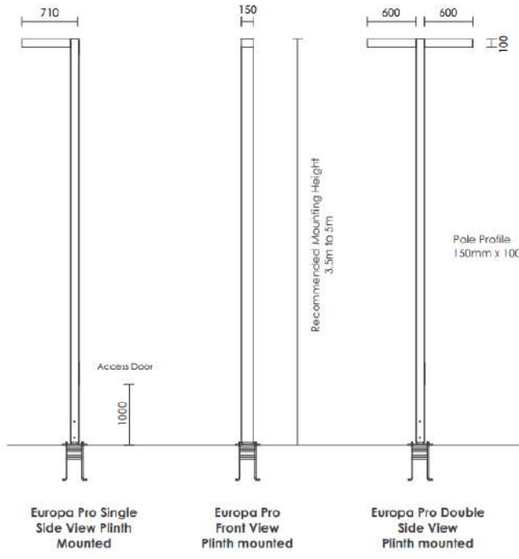




Base Plate Detail for Stubby
300 x 300 x 12mm

Stubby

No. LED's		64 LED's				128 LED's			
LED CURRENT (mA)	COLOUR TEMP (K)	NOMINAL WATTAGE (W)	SYSTEM WATTAGE (W)	NOMINAL FLUX (lm)	SYSTEM FLUX (lm)	NOMINAL WATTAGE (W)	SYSTEM WATTAGE (W)	NOMINAL FLUX (lm)	SYSTEM FLUX (lm)
700mA	4000K	32W	35W	6602 lm	5416 lm	65W	68W	13230 lm	10623 lm
1050mA		48W	54W	9441 lm	7797 lm	-	-	-	-



Europa Pro Single Side View Plinth Mounted

Europa Pro Front View Plinth mounted

Europa Pro Double Side View Plinth mounted

SPECIFICATIONS

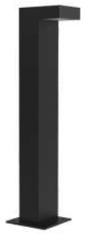
HOUSING : Extruded aluminium.
LIGHT SOURCE : The fitting is designed to operate a range of LED's up to 68W.
LUMEN MAINTENANCE : L90B10 >110 000 @ 25° Ta.
COLOUR TEMPERATURE : 3000K or 4000K.
DIFFUSER : Toughened glass or high impact acrylic offering added protection for optical lenses.
LENSES : Modular optical lenses. Material PMMA.
Various lens options available for different applications, allowing for custom solutions.
FINISH : Powder coated.
MOUNTING : Post mounted - vertical post.
Recommended mounting height 3.5m to 5m. Rectangular pole option 100 x 150mm pole.
CONTROL GEAR : The electronic power supply is suitable for operation with a 220 - 240 volts. 50 hertz single phase.
Incorporating an electronic trip connector protector with surge protection 6 KV. Additional removable inline surge arrester 10 KV.
FASTENERS : All external screws are stainless steel. Cable glands are SABS approved to insulate IP67 ingress protection.
GASKET : Gaskets are manufactured from post cured silicone rubber material. Silicone gaskets perform in a wide temperature range -40° C to +200° C.
INGRESS PROTECTION : IP 65.
OPERATING TEMPERATURE : (Ta) ≤ 35° C.
WEIGHT : Europa Pro Single - 6 Kg total including control gear.
Europa Pro 15 Single - 6.5 Kg total including control gear.
WINDAGE : Max. projected areas for mounting
Europa Single Head - 0.06 m² Europa Double Head - 0.12 m²
ADDITIONAL OPTIONAL FEATURES :
LIGHTING CONTROL : Bluetooth module
DAYLIGHT SWITCH: Photocell can be incorporated.
DIMMING: Optional stepDIM available on request.

APPLICATION AREAS

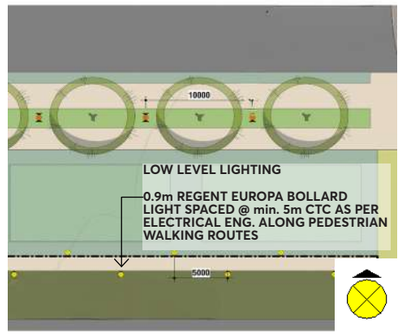
Indoor or outdoor application.
Asymmetrical distribution.
Group A4 | B & C class road lighting.
Parking areas.
Parks and gardens.
Residential areas.
Squares and plazas.



BOLLARD LIGHTING

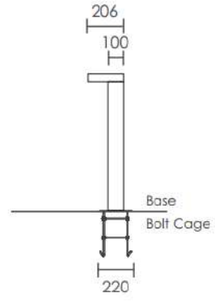


0.9m Regent Europa Bollard Light or similar approved

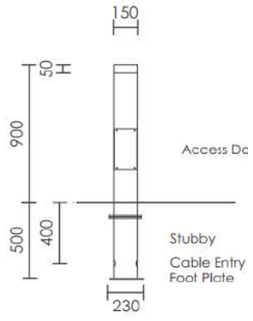


SPECIFICATIONS

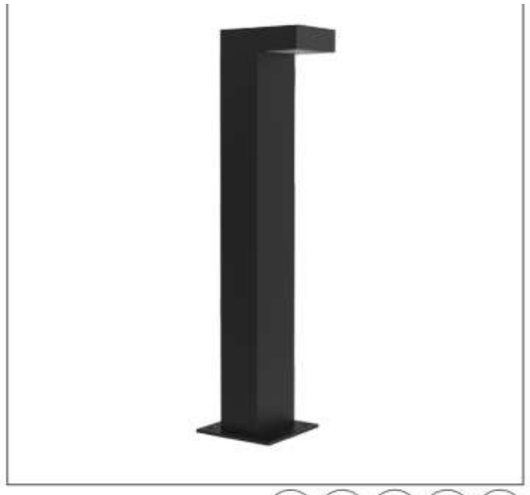
HOUSING : LM 6 die cast aluminium and extruded aluminium.
LIGHT SOURCE : The fitting is designed to operate a LED up to 11W.
DIFFUSER : Tempered glass clear.
LENSES : Modular optical lenses. Material PMMA.
Various lens options available for different applications, allowing for custom solutions.
FINISH : Powder coated.
MOUNTING : Plinth mounted or buried.
ACCESSORIES : Must be specified when ordering.
Available accessories - Access door, MCB and bolt cage.
CONTROL GEAR : Electronic or magnetic control gear. The electronic supply is suitable for operation with 220 – 240 volts - 50 hertz single phase.
FASTENERS : All external screws are stainless steel.
GASKET : Silicone sponge gasket.
INGRESS PROTECTION : IP65.
OPERATING TEMPERATURE : (Ta) ≤ 35° C.
WEIGHT : 8 Kg.
WINDAGE : Max. projected areas for mounting 0.122m².
FEATURES : Surge arrester to protect LED supply.



Front View Plinth Mounted



Side View Buried





APPLICATION AREAS

Indoor or outdoor application.
Asymmetrical distribution.
Parks and gardens.
Pedestrian walkways.
Building entrances.
Parking areas.



LIGHT SOURCE

LED Samsung LH351B

LED CURRENT (mA)	NOMINAL WATTAGE (W)	SYSTEM WATTAGE (W)	COLOUR TEMP (K)	NOMINAL FLUX (lm)
700mA	8W	11W	4000K	1435 lm
			3000K	1334 lm

The environmental conditions of the installation will impact the efficiency of the LED's.
Due to the continual advancement in LED technology the type of LED is subject to change.

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Proposed Feature Lighting Specifications for Review

STRATEGICALLY PLACED FEATURE LIGHTING IN KEY AREAS

0.9m Regent Iris Bollard or similar approved

MODEL NUMBER

IRIS

SPECIFICATIONS

HOUSING : LM 6 die cast aluminium and extruded aluminium.
LIGHT SOURCE : The fitting is designed to operate a LED up to 15W.
DIFFUSER : Tempered glass.
FINISH : Powder coated.
MOUNTING : Plinth mounted or buried.
ACCESSORIES : Must be specified when ordering.
Available accessories - Access door and bolt cage.
CONTROL GEAR : 220V - Direct to mains.
FASTENERS : All external screws are stainless steel.
GASKET : Silicone sponge gasket.
INGRESS PROTECTION : IP54.
OPERATING TEMPERATURE : (Ta) ≤ 35° C.
WEIGHT : 6.5 Kg.
WINDAGE : Max. projected areas for mounting 0.1412m².
FEATURES : Surge arrester to protect LED supply.



surTECH

LIGHT SOURCE

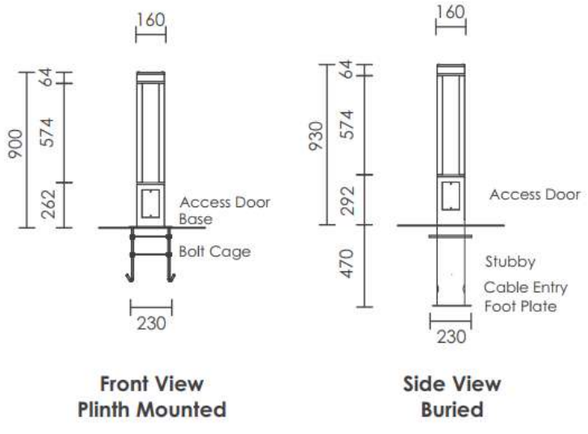
LED COB 220V

VOLTAGE (V)	NOMINAL WATTAGE (W)	COLOUR TEMP (K)	NOMINAL FLUX (lm)
220V	15W	4000K	2456 lm
		3000K	2284 lm

APPLICATION AREAS

Indoor or outdoor application.
Symmetrical distribution.
Parks and gardens.
Pedestrian walkways.
Building entrances.
Parking areas.





Front View
Plinth Mounted

Side View
Buried

STRATEGICALLY PLACED FEATURE LIGHTING IN KEY AREAS

3m Regent Iris Street Light or similar approved



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MODEL NUMBER

IRIS

SPECIFICATIONS

HOUSING : LM 6 die cast aluminium and extruded aluminium.
LIGHT SOURCE : The fitting is designed to operate a range of LED's up to 42W.
DIFFUSER : Tempered glass.
REFLECTOR : 93% efficiency. Precision-molded from high grade PC UL94 HB rated material with operating rating -40°C to +100°C.
FINISH : Powder coated.
MOUNTING : Plinth mounted.
ACCESSORIES : Access door, MCB and bolt cage.
CONTROL GEAR : Electronic control gear. The electronic power supply is suitable for operation with a 220 - 240 volts. 50 hertz single phase. Constant current driver for LED.
FASTENERS : All external screws are stainless steel.
GASKET : Post cured silicone sponge and EPDM gaskets.
INGRESS PROTECTION : IP65.
OPERATING TEMPERATURE : (Ta) ≤ 35° C.
WINDAGE : Max. projected areas for mounting - 0.38m².
WEIGHT : 20 Kg including control gear.
FEATURES : Surge arrester to protect LED supply.

APPLICATION AREAS

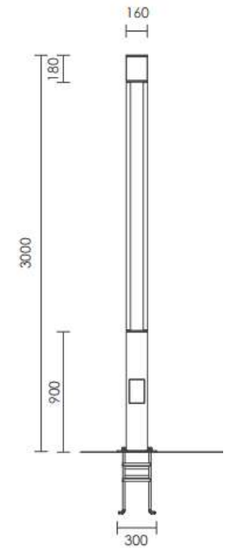
Indoor or outdoor application.
Symmetrical distribution.
Public areas.
Parks and gardens.
Squares and plazas.



LIGHT SOURCE

LED COB 17mm

LED CURRENT (mA)	SYSTEM WATTAGE (W)	NOMINAL WATTAGE (W)	COLOUR TEMP (K)	NOMINAL FLUX (lm)
700mA	27W	25W	4000K	4326 lm
			3000K	4118 lm
1050mA	40W	38W	4000K	6137 lm
			3000K	5807 lm



Iris 3m
Plinth Mounted

4.3 Landscape

4.3.7 FUTURE DEVELOPMENT

Temporary Landscape Treatment Plan and Philosophy

Application

a. Phasing philosophy

b. Phasing and site diagram - To be Finalised

c. Approved plant list for temporary planted areas – wildlife management strategy as per specialist



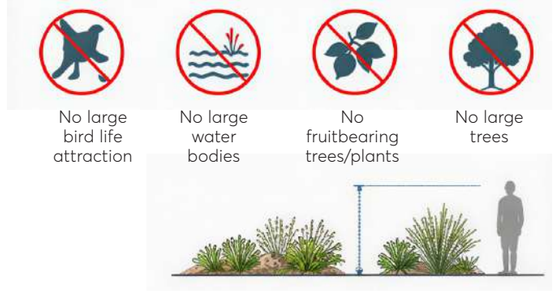
Maintain a clear interface between rehabilitated areas, construction zones and operational landscapes, allowing the landscape to progressively transition without requiring costly re-landscaping at every development phase.

Phasing Philosophy











1. Rehabilitate & Stabilise

- Immediate rehabilitation of relevant areas following construction
- Focus on topsoil recovery, erosion control and rapid groundcover establishment.
- Application of appropriate hydroseeding mixes containing seeds from pre-approved plant list that don't attract large wildlife species.

2. Temporary Landscapes as Assets

- Treat undeveloped land as a managed temporary, low cost landscape
- Establish simple, repeatable landscape treatments across development parcels — such as seeded fynbos matrix, controlled mowing regimes and defined maintenance edges, creating a consistent landscape character throughout the airport's development period
- Maintenance should be scheduled around construction access and future development timelines.

3. Low Impact, Indigenous Landscape

- Prioritise indigenous, drought-tolerant and low-growing vegetation suited to the Cape Winelands climate and soils.
- Planting should require minimal irrigation, fertilisation and on-going horticultural intervention once established.
- Species selection should consider growth height, density, fruiting, seed production and flowering characteristics, avoiding vegetation that could become excessively dense or provide significant food/habitat resources for wildlife.
- Vegetation should be easy to remove during new construction phases (re-use plant specimens in new landscapes where possible)

4. Airport Safe Ecology

- Rehabilitation must be balanced with airport wildlife-hazard management and applicable aviation safety requirements.
- Temporary landscapes should remain relatively open, low and visually predictable, avoiding dense woodland, water bodies, wetland conditions, fruiting vegetation or other features that may attract birds and wildlife.
- Vegetation heights, mowing frequencies and planting strategies should be coordinated with the airport's operational safety and wildlife-management protocols.

5. Design for Transition

- Design every temporary landscape intervention to be phased, maintainable and ultimately reversible.
- Establish vegetation treatments that can tolerate several years of interim use but can be efficiently removed or adapted when a development parcel is activated.
- Maintain clear interfaces between rehabilitated areas, construction zones and operational landscapes, allowing the landscape to progressively transition.

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4.3 Landscape

4.3.8 SOIL MANAGEMENT & LANDSCAPE ESTABLISHMENT

Application

The soil management approach guides the careful handling, retention and reuse of the sites valuable topsoil resource during construction and landscape establishment. It supports the protection of sensitive areas, minimizes environmental impacrs and ensures that disturbed areas are rehabilitated to a stable, functional and ecologically appropriate landscape, in line with the Cape WInelands Character and the airports operational requirements.

THE SOIL JOURNEY



IDENTIFY & PROTECT	HARVEST	STORE	REUSE	ESTABLISH
Delineate sensitive areas and identify suitable topsoil	Carefully strip and separate topsoil (+/- 100-300mm)	Stockpile in designated areas and protect from erosion	Reapply in landscape areas and prepare receiving surfaces	Implement planting/ seeding strategies and monitor sucess



Rehabilitation with indigenous planting



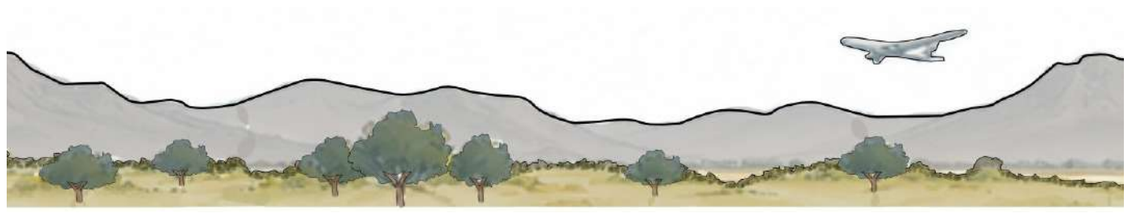
Designated topsoil stockpile



Established landscape

Healthy Soils Support Resilient Landscapes, Biodiversity & a Sustainable Airport Environment

PROTECT · RETAIN · REUSE · REHABILITATE · SUSTAIN



KEY PRINCIPLES



PROTECT SENSITIVE AREAS

- Identify and mark sensitive ecological areas
- Avoid unecessary disturbance and compaction
- Coordinate with ecological specialists
- Restrict construction access to approved areas



HARVEST CAREFULLY

- Strip and retain suitable topsoil (+/- 100-300mm)
- Keep topsoil and subsoil separate
- Use appropriate equipment and methods
- Time harvesting to suitable conditions



STORE RESPONSIBILY

- Stockpile in designated areas
- Protect from erosion, compaction and contamination
- Minimize storage duration
- Keep free from invasive species



REUSE ON SITE

- Reapply harvested topsoil in landscape areas
- Prepare receiving areas appropriately
- Avoid unnecessary compaction
- Use soil in areas compatible with proposed planting and operational requirements



ESTABLISH AND MAINTAIN

- Implement the approved landscape plan
- Use indigenous, locally appropriate and non-invasive species
- Control fertilizer use
- Ensure erosion and stormwater measures are in place
- Maintain and monitor until vegetation is established

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4.3 Landscape

4.3.9 WILDLIFE HAZARD PROTECTION & MITIGATION

Purpose

The Cape Winelands Airport landscape shall be planned and managed to minimize the creation of habitats and landscape features that may attract birds and other wildlife hazardous to aircraft operations, whilst supporting ecological, visual and operational objectives.

A LOW-ATTRACTANT LANDSCAPE JOURNEY



PLAN	CONSTRUCT	LANDSCAPE	MAINTAIN	SUSTAIN
Consider wildlife risks from the outset	Avoid creating temporary attractants	Use indigenous, low-attractant planting	Manage and monitor adaptively	A safer, more resilient aiport environment

KEY OUTCOMES

REDUCED BIRD STRIKE RISK	BIODIVERSE INDIGENOUS LANDSCAPES	NO UNNECESSARY STANDING WATER	A RESILIENT AND SUSTAINABLE AIRPORT



KEY PRINCIPLES













PLANT INDIGENOUS SPECIES

- Use indigenous, locally appropriate and non-invasive species
- Avoid species that produce attractant fruit, seed or dense nesting habitat
- Support biodiversity while remaining compatible with aviation safety
- Controlled heights (inner aviation 200-300mm & hydroseeded areas 700mm)

AVOID LAWNS AND SHORT GRASS

- Eliminate extensive lawn and conventional turf areas
- Avoid short grass within aviation-sensitive areas
- Minimize irrigation and do not maintain permanently wet conditions

MINIMIZE WATER ATTRACTANTS

- Avoid permanent and temporary open water bodies
- Design stormwater systems to drain efficiently
- No ornamental ponds or islands
- Minimize retention time and prevent unintended ponding

MANAGE WASTE AND FOOD SOURCES

- Prevent access to refuse, food and organic waste
- Keep waste storage areas enclosed and secure
- Maintain good housekeeping during construction and operation
- Avoid agricultural activities and livestock within development areas

AVOID ROOSTING AND PERCHING OPPORTUNITIES

- Avoid structures that provide roosting or perching sites
- Eliminate islands within water management features
- Assess unavoidable structures for wildlife hazard implications

MANAGE DURING CONSTRUCTION AND REHABILITATE

- Prevent standing water and stabilize exposed soil
- Use appropriate hydroseeding and erosion control
- Rehabilitate disturbed areas with salvaged topsoil
- Monitor and adapt management based on wildlife activity

4.3 Landscape

4.3.10 STORMWATER SENSITIVE DESIGN

Accomodating and Treating Storm Water in the Landscape

Application

The over arching landscape storm water design principles establish a water-sensitive landscape approach in which rainfall is slowed, captured, filtered, stored and safely conveyed through a carefully integrated landscape system. This approach promotes stormwater infrastructure that supports airport safety, water efficiency, ecological performance and landscape character, while working with natural the topography and minimising reliance on conventional underground drainage infrastructure.

THE STORM WATER JOURNEY



SLOW → CAPTURE → FILTER → STORE & CONTROL → INFILTRATE & DISPERSE

Implementation



Kerb Storm water Inlets



Parking Area Swales

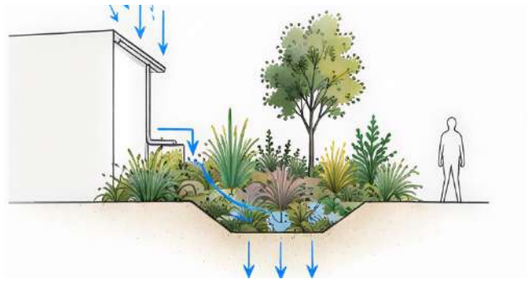


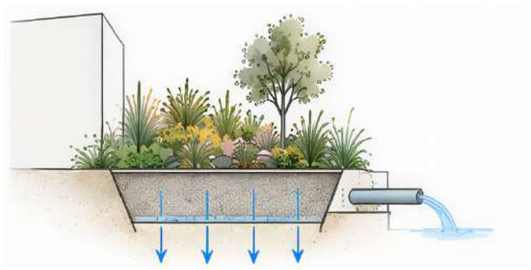
Grassblock - Infiltration

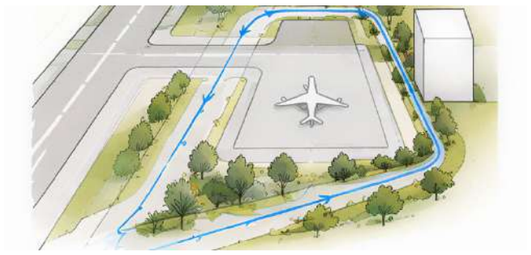
Designing a landscape that not only accommodates best storm water management practices but also ensures protection of airport infrastructure and functionality of outdoor spaces during the rain season

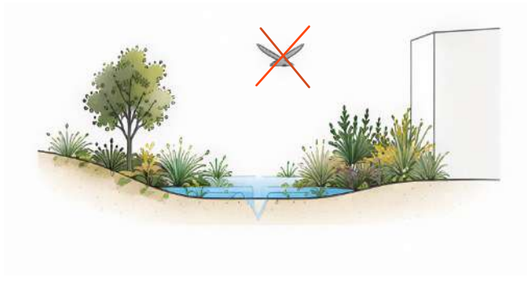
HEALTHIER LANDSCAPES • SAFER OPERATIONS • MORE RESILIENT OUTDOOR AIRPORT SPACES

Landscape Storm Water Management Philosophy











1. Slow, capture & Infiltrate Water at Source

- Manage rainfall as close as possible to where it lands, reducing runoff velocity and avoiding unnecessary reliance on underground infrastructure.
- Use planted swales, rain gardens, planted depressions, terraces, temporary attenuation areas, permeable surfaces and infiltration areas where appropriate, in accordance with airport regulations.
- Design systems around existing levels and natural flow paths to slow, disperse and infiltrate water, preventing erosion and minimising run-off.

2. Filter, Store & Treat Water through the Landscape

- Utilise landscape as first line of stormwater treatment prior to entering formal drainage infrastructure/the receiving environment.
- Vegetation/soils and engineered filtration systems should remove sediment, pollutants and debris, while detention spaces provide temporary storage and controlled release during storm events.
- All proposed interventions to prioritise protection of airport infrastructure and compliance to airport regulations whilst applying best practice in landscape storm water management.

3. Controlled Flow & Protected Infrastructure

- Landscape stormwater systems to provide a clear and controlled route for water, including safe overflow during events exceeding the design capacity.
- Drainage systems to be put in place to prevent uncontrolled ponding, flooding or water accumulation around runways, taxiways, aprons, buildings, roads and critical services, while remaining fully compatible with the airport's engineered drainage network.

4. Waterwise Landscapes, Safe for Wildlife

- Select robust, predominantly indigenous Western Cape species suited to the moisture conditions of each landscape zone and capable of tolerating periodic inundation where required.
- Planting should be water-wise and low-maintenance, avoiding unnecessary dependence on permanent irrigation.
- Stormwater landscapes should also minimise persistent standing water, open-water habitat and vegetation conditions that may attract birds or other wildlife, recognising the particular wildlife-hazard and bird-strike considerations of an airport.

5. Integrated Storm Water Design

- Stormwater infrastructure designed as an integrated and visible component of the landscape, rather than treated as leftover engineering infrastructure.
- Swales, channels, attenuation areas, detention spaces and permeable surfaces designed to positively contribute to the spatial quality, ecological function and visual character of the landscape.
- Where feasible, protect or restore natural drainage corridors and existing topographic flow paths, while only introducing infiltration where soil conditions, groundwater conditions and airport requirements permit.

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5. References & Annexures

5.1 REFERENCES

LIST OF SPECIALIST DOCUMENTS TO BE COMPILED FOR SUBMISSION

TBC

5.2 FIGURES LIST

5.3 APPENDICES

- APPENDIX A ..... Draft Landscape Maintenance Specification – Cape Winelands Airport

amd.sigma
strategic airport development

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