

PLAN CHANGE 14 TO THE WAIPĀ DISTRICT PLAN

MANGAONE PRECINCT

Urban Design Statement

FONTERRA LIMITED

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FOR PLAN CHANGE 14 SUBMISSION

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1 INTRODUCTION

1.1 PROJECT DESCRIPTION

Plan Change 14 (PC14) to the Waipā District Plan seeks to rezone 79.2ha of rural zoned land from Rural to Industrial zone. The rezoning proposal is intended to enable the future development of the land, which is identified for urbanisation as part of Waipā's C10 Growth Cell (that has an area of 165ha).

The majority of this land, an area of approximately 71.4ha, is the Bardowie Farm, held by Fonterra Limited (Fonterra) and utilised for farming and dairy factory wastewater irrigation. This area, known as the Mangaone Precinct Structure Plan Area, is intended to enable development of industrial activity, especially large-format warehousing and light manufacturing, including associated roading and open space.

The Mangaone Precinct plan change proposal includes a Structure Plan package that incorporates a Structure Plan map (refer Appendix A), supporting technical documents and a number of new planning provisions, informed by the Design Principles and Guidelines Package included at Appendix B. The Design Principles and Guidelines Package describes the development outcomes intended for the Mangaone Precinct Structure Plan Area. This includes upgrades to the wider transport network, stormwater management, landscaping outcomes and the creation of a reserve centred around the Mangaone Stream.

1.2 PURPOSE

Urban Design forms part of the overall multidisciplinary project team, which comprises the following disciplines. Each have prepared technical reports in support of PC14.

- Surveying (Harrison Grierson)
- Civil Engineering (Harrison Grierson)
- Stormwater Engineering (Harrison Grierson)
- Landscape Architecture (Harrison Grierson)
- Project Management (Harrison Grierson)
- Freshwater and Terrestrial Ecology (RMA Ecology)

- Economics (Property Economics)
- Geotechnical and Environmental (Soil & Rock)
- Hydrogeological (Beca)
- Planning (Mitchell Daysh)
- Archaeology (Sian Keith Archaeology)
- Transportation (Stantec/Boffa Miskell)
- Cultural (Te Hira)

Urban Design's key role in this project has been to receive, discuss and synthesise these technical inputs, and the intent of other stakeholders, into a Structure Plan and Design Guidelines package. The process followed in undertaking this work is outlined below:

- We visited the site, reviewed existing technical information and material pertaining to the land.
- We identified and recorded key issues, opportunities, and constraints to future development of the Mangaone Precinct Structure Plan Area.
- We prepared plans, diagrams and other material as required for public and key stakeholder (Council and Iwi) consultation processes (meetings, phone calls and hui).
- We prepared and developed a draft preliminary masterplan to identify urban design 'Key Moves', design principles and guidelines.
- We reviewed and synthesised all technical investigations and reporting undertaken by project team specialists, including all project team, client, and key stakeholder consultation.
- We prepared drawing to support the PC14 submission, including context plans, zoning plan and cross sections/diagrams.
- We informed, tested, and recommended design-related planning provisions such as rules, development standards and assessment criteria.
- We developed Design Principles and Design Guidelines (Appendix B) to inform the work by others to create or amend planning provisions within the Waipā District Plan.

1.3 BACKGROUND TO PLAN CHANGE 14

The Mangaone Precinct Structure Plan Area is located north of Cambridge close to the Waikato Expressway. It is located within the C10 Growth Cell and has an area of 105ha that has been identified for industrial development beyond 2035.

Directly bordering the Mangaone Precinct Structure Plan Area is the Bardowie Industrial Precinct (which is also within the C10 Growth Cell) but is a 56ha area identified and approved as part of PC11 for industrial development between now and 2035.

The Mangaone Precinct has a land area of 79.2ha (in which 71.4ha of this is owned by Fonterra, and the remaining 7.8ha is owned by Bardowie Investments Ltd). If approved, PC14 would expand the industrial land area within the C10 Growth Cell to a total of about 135 hectares.

The Hamilton-Waikato Metropolitan Spatial Plan (HWMSP) has identified Hautapu as a 'strategic industrial area' due to its proximity to Cambridge and the Waikato Expressway. The Hautapu Industrial growth area is considered an important economic anchor for the area.

Although the HWMSP's timeframe does not anticipate development until 2035, PC14 proposes to bring the timeframe forward by 11 years (though noting that physical development and occupation of the industrial site would be expected to occur within 4-5 years of Plan Change approval, therefore likely no earlier than 2028). High market demand for large-format industrial land, and anticipated uptake is the key justification given for bringing forward the planning timeframe from the HWMSP estimate. This justification is supported in the Economic Assessment report by Property Economics (May 2023).

The proposed rezoning of this land, and the elements provided through a Structure Plan, are required to accord with the Regional Policy Statement. Appendices AP11 and AP14 provide some guiding principles and expectations that are relevant for consideration during this project.

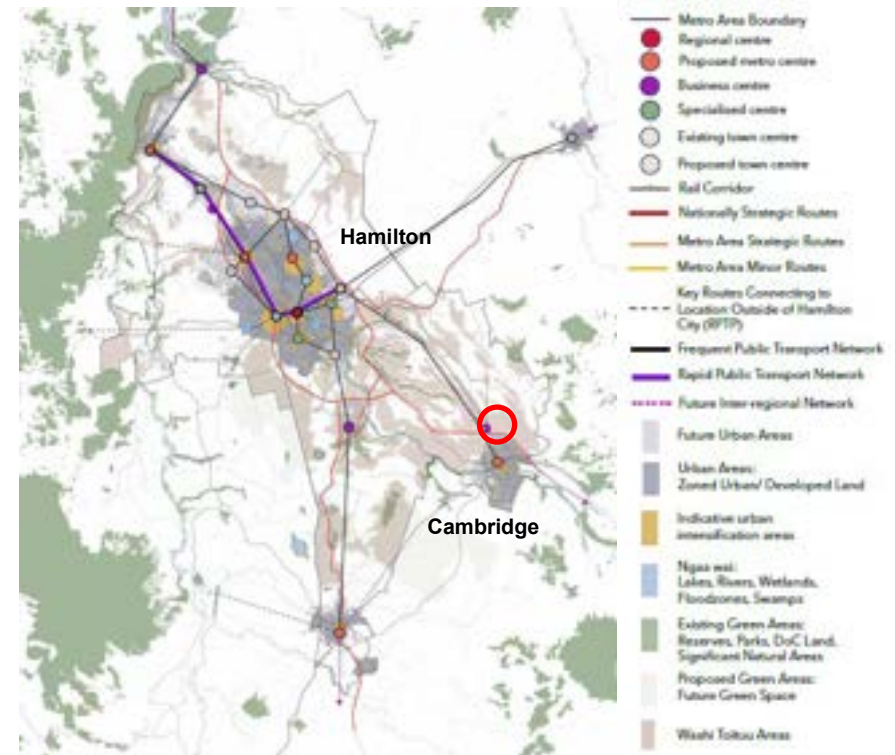


Fig 1. Hamilton-Waikato Metropolitan Spatial Plan Map (site location circled in red)

2 CONTEXT ASSESSMENT

2.1 LOCATION

- The Mangaone Precinct is located north of Cambridge and State Highway 1. It is a 6-minute drive / 15-minute cycle to Cambridge town centre.
- The Mangaone Precinct is a 20-minute drive to Hamilton via SH1 (Waikato Expressway), from the intersection of Victoria and Laurent Road.
- The Mangaone Precinct is located east of the current Hautapu Industrial Area and Hautapu Fonterra Factory.
- Land to the north and east of the Mangaone Precinct is predominantly rural for a significant distance. A small number of rural dwellings are clustered along Swayne Road, Appleby Road and Zig Zag Road, directly east of the Mangaone Precinct. Appleby Road connects Cambridge east residential development with the site via cycle connection.
- The Mangaone Stream flows west through the Mangaone Precinct and continues via several natural and modified watercourses to the wider regional network, leading to Tamahere Reserve, Mangaonua Stream and eventually the Waikato River.



Fig 2. Neighbourhood Context Plan

2.2 SITE PHYSICAL CONTEXT

- The Mangaone Stream runs through the northern section of the Mangaone Precinct with several natural inland wetlands (meeting NPS-FM classification) located on either side of the stream.
- The eastern side of the Mangaone Precinct along the Mangaone Stream environment consists of higher quality stream with native planting that was recently enhanced, through revegetation, by Fonterra.
- The Mangaone Precinct is primarily flat with a consistent grade falling towards the Mangaone Stream. The topography steepens towards the banks of the stream where it reflects current and historic flood plain and wetland areas.
- The Mangaone Precinct is bordered by Zig Zag Road (north), and Swayne Road (east) – both are rural roads with no footpaths and have a rural character. Swayne Road has several rural residential properties with dwellings that are close to Swayne Road.
- High voltage electricity transmission lines / pylons are located in the northeast corner of the Mangaone Precinct crossing over Swayne Road and Zig Zag Road.
- Smaller electricity distribution lines are located through the centre of the Mangaone Precinct.
- Architectural Glass Products (AGP) to the west of the Mangaone Precinct is a significant building within the C10 Growth Cell and can be seen clearly from State Highway 1. The modern building houses a factory producing glass for aluminium doors and windows.



Fig 3. Site Physical Context Plan

2.3 SITE REGULATORY CONTEXT

- The Mangaone Precinct is currently zoned Rural Zone under the Waipā District Plan, with land to the north and east also zoned Rural Zone.
- The Bardowie Investments Ltd and Shoof Properties Ltd located west of the Mangaone Precinct are zoned Industrial Zone and a proposed 'Campus Hub' has been identified under PC11 within the Bardowie Industrial Precinct.
- Swayne House located on the east side of the Mangaone Precinct, is identified as a Category C Heritage building under the Waipā District Plan.
- The Mangaone Precinct is located with the C10 Growth Cell which is an area of Cambridge that has been identified for industrial development.

We note that, whilst PC14 seeks to rezone 79.18ha of land from Rural to Industrial Zone, the proposed Mangaone Precinct Structure Plan and provisions only apply to the 71ha of land at Bardowie Farm owned by Fonterra (i.e. it excludes the Kiwifruit Block). This 71ha area is referred to in this report as the Mangaone Precinct Structure Plan Area.



Fig 4. Site Regulatory Context Plan

3 DESIGN PROCESS

3.1 PROJECT VISION AND THE URBAN DESIGN BRIEF

The project team's vision for the Mangaone Precinct is "To champion the development of an appealing, high-quality industrial and business park, fostering an enduring and robust legacy while facilitating the establishment of a new public reserve dedicated to preserving and enhancing the Mangaone Stream."

The vision also informed some key design principles that guide the direction of the Structure Plan. They are:

1. To establish an attractive place for industrial activities to thrive with buildings that are of contemporary style and design and with landscaping that provides high amenity for those that work in the precinct.
2. To establish an industrial area that is accessible, visually attractive and complements the established character and landscape qualities of the Cambridge area.
3. To protect and enhance the Mangaone Stream, natural wetlands and their margins.
4. To manage the interface between industrial subdivision and development within the Mangaone Precinct Structure Plan area and the Rural Zone.
5. To integrate stormwater management and treatment with road design and with the cultural, ecological and amenity values of the Mangaone Stream Reserve.
6. To provide a safe, efficient, convenient and flexible transport network to support industrial development and connect well with the surrounding network of Waipā District

3.2 OUTCOMES OF CONSULTATION

3.2.1 KEY DRIVERS FROM CONSULTATION WITH COUNCIL

- Transport resilience around Swayne and Zig Zag Roads is identified as a strategic priority.

- Achieve strong amenity values within the development, especially relating to colour and material choice for buildings, and vegetation within streetscapes.
- The planning provisions for the Mangaone Precinct should provide clear direction of outcomes for developers and be easy for Council staff to administer.
- Detailed design outcomes, such as providing for high amenity frontages to industrial lots, site layout characteristics responding to active frontages and quality landscaping, and the ongoing maintenance of a tidy appearance, are appropriate within a Design Guidelines document. These are best supported by a combination of rules in PC14 and private covenants facilitated by the developer of the industrial precinct.

3.2.2 KEY DRIVERS FROM CONSULTATION WITH BARDOWIE INVESTMENTS

- Inclusion in the Mangaone Precinct of the southern portion of land known as the Kiwifruit Block.
- Alignment of the collector road at the site's western boundary.

3.2.3 KEY DRIVERS FROM CONSULTATION WITH MANA WHENUA

- Balancing the objectives of industrial progress with the preservation of heritage elements distributed across the site and region.
- The Mangaone Stream holds significant cultural importance and its connection to the Waikato River has implications for the provisions outlined in Te Ture Whaimana. The name of the Precinct reflects this.
- Ensuring preservation and respectful treatment of the Mangaone Stream and through a comprehensive understanding and integration of cultural and environmental considerations within provisions.
- Encouraging the use of Māori cultural design principles and the integration of local Māori artists, cultural interpretation, storytelling, and educational displays.

3.2.4 KEY DRIVERS FROM CONSULTATION WITH OTHER STAKEHOLDERS

- Providing for a future road connection through to the Henmar Trust/Bourke Farm.
- Protecting the character of Swayne Road in relation to rural residential properties on its eastern edge.

3.3 KEY URBAN DESIGN OPPORTUNITIES AND CONSTRAINTS

We collated and mapped key opportunities and constraints to development, highlighted through technical assessments. Our urban design review has highlighted what may affect the design and layout of the Mangaone Precinct Structure Plan.

3.3.1 SUMMARY OF URBAN DESIGN CONSTRAINTS

- The Mangaone Stream and riparian area separate the north and south sections of the Mangaone Precinct. Flood plain areas and natural wetlands located along the edges of the stream further restrict developable land.
- The rural-residential properties along Swayne Road require specific treatment to maintain its character and amenity values. Light vehicle traffic only should access the Mangaone Precinct Structure Plan Area from Swayne Road. Landscaping features should also reflect the rural nature of the road and minimise shading or significant increases to vehicle traffic.
- Transport connections to the Kiwifruit Block and the Bardowie Industrial Precinct (AGP factory) site to the west are not available due to the owner's restrictions.
- One connection point for a collector road has been identified on the C10 Growth Cell masterplan and must be provided.
- The land northwest of the Mangaone Precinct (the Bourke Farm owned by Henmar Trust) is not intended to be developed as part of the Mangaone Precinct and will remain as a rural property. A future roading connection to this property is required, as well as a buffer planting strip along the common boundary.
- Vehicle access at the southeast corner of the Mangaone Precinct Structure Plan Area is restricted. Any intersection with Swayne Road must be greater than 100m north of the expressway.
- The electricity transmission corridor restricts some activities from occurring within 12m of the lines and pylons.
- The heritage protected Swaynes House requires consideration around its demolition, relocation, or protection.

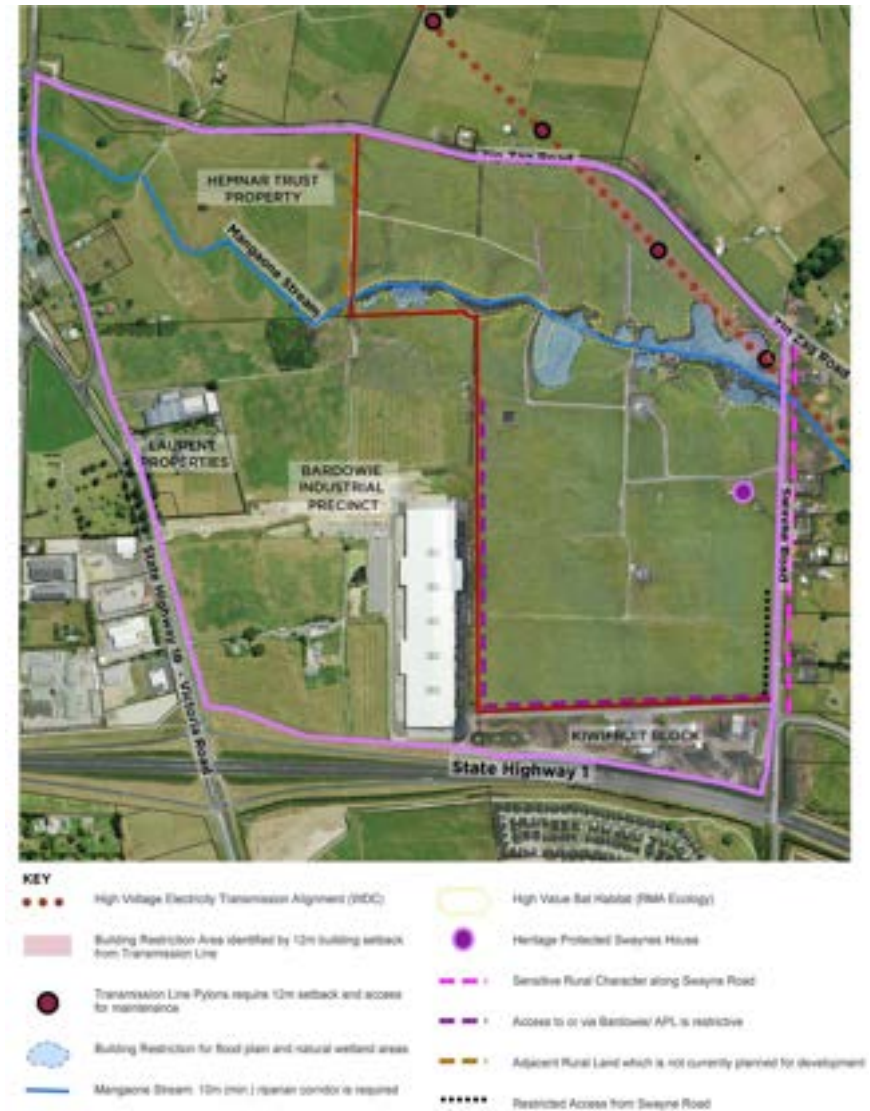


Fig 5: Site Constraints Plan

3.3.2 SUMMARY OF URBAN DESIGN OPPORTUNITIES

- The Mangaone Stream and its margins offer significant natural, and recreational amenity opportunities that can be enhanced through the creation of a reserve. This could incorporate all wetlands (and future stormwater ponds), pedestrian and cycle routes, and encompass the land required for bat habitat management (including areas to buffer the mapped high value habitat).
- A stormwater investigation (Harrison Grierson) has identified that opportunities for stormwater basin locations along the stream interface could be identified to form a public reserve.
- Three existing rural stream crossings could be retained for informal access (walking, cycling). One location for new vehicular bridge has been identified, centrally-positioned to connect the northern and southern parts of the Mangaone Precinct Structure Plan Area.
- Existing indigenous planting provides a valuable ecological environment, as well as landscape and visual amenity.
- A primary road access point has been identified on the western boundary of the Mangaone Precinct Structure Plan Area from the Bardowie Industrial Precinct to the west. The alignment is consistent with the latest Masterplan prepared for the C10 Growth Cell by Waipā District Council.
- A connection into the Mangaone Precinct Structure Plan Area from Swayne Road near the southeast corner of the site would limit the number of industrial vehicle movements along Swayne Road, thus preserving rural-residential and public amenity. To further reduce traffic-related effects, this entrance could be designed to restrict heavy trucks.
- Extensions to the existing rural cycling network from Appleby Road could be obtained via Swayne Road, which is a recreational cycle route. The Mangaone Stream Reserve could become a recreational area connecting trails through to the Bardowie Industrial Precinct, and beyond.
- Swaynes House could be repurposed for commercial use as part of future industrial development. This could involve re-locating it to a nearby site more suited to its future function.

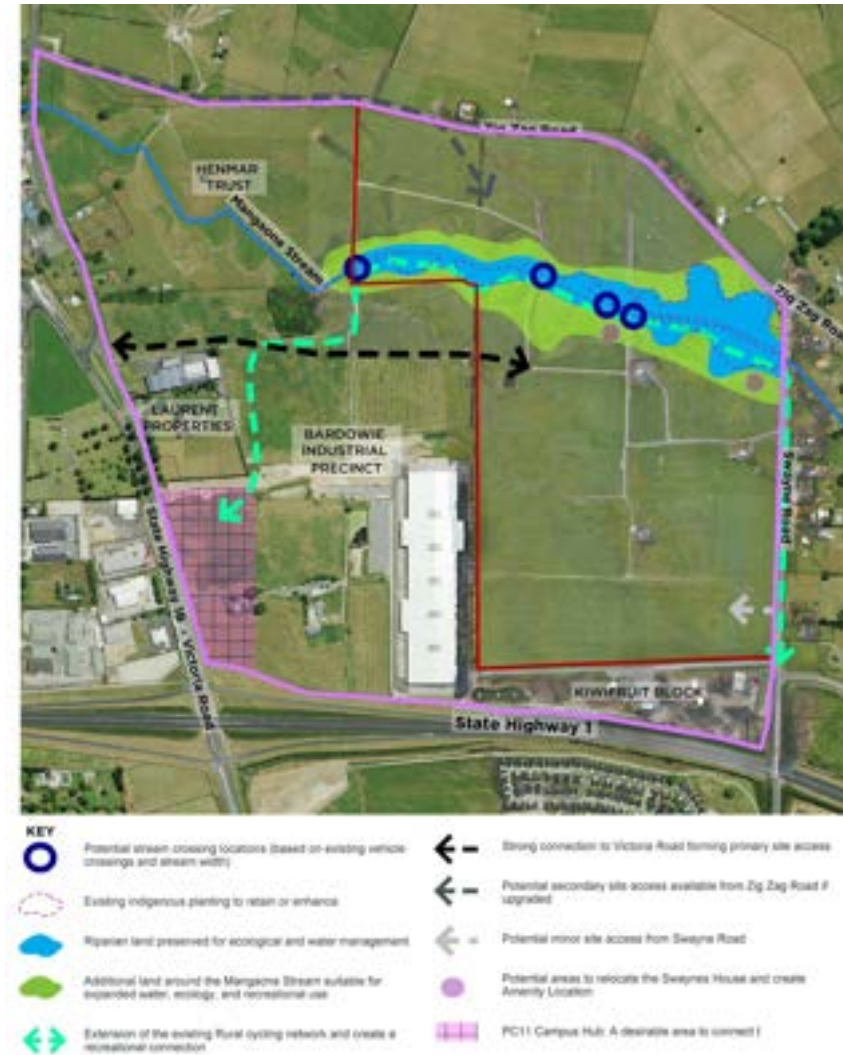


Fig 6. Site Opportunities Plan

3.4 STRUCTURE PLAN DEVELOPMENT

The urban design opportunities and constraints outlined above were considered within the design and, once socialised with the wider project team, were summarised as the Design Key Moves Diagram (Fig. 7). The key moves illustrate desirable urban design outcomes and form the basis for the layout of the Mangaone Precinct Structure Plan.

The Mangaone Precinct Structure Plan (refer to Appendix A), as well as the Mangaone Precinct provisions, covers the Mangaone Precinct Structure Plan Area only (i.e. the land owned by Fonterra, and excludes the Kiwifruit Block). The purpose of the Structure Plan is to identify the critical elements of the design, especially those that relate to regulatory policy or standards.

The Structure Plan is intended to be simple to administer and assumes only one type of proposed Industrial Zone. The Mangaone Precinct Structure Plan identifies the core infrastructure and design features that are required to enable development within the Mangaone Precinct Structure Plan Area. It supports flexibility within industrial development and is designed to work alongside our comprehensive package of Design Principles and Guidelines (refer to Appendix B).

The Design Guidelines promote good design and amenity outcomes and manage built form, and bulk and location, especially at the interfaces between private and public space. These outcomes are not necessarily incorporated into the District Plan but are important to create a high quality amenity at the time activity is establishing, and ongoing thereafter.

3.5 REFINEMENT AND TESTING THROUGH A MASTERPLAN

Design and development outcomes have been considered at a finer grain than what is shown on the Structure Plan. A range of aspects were considered such as different lot sizes and industrial activity types, stormwater and earthworks, a retail mix for the Central Focal Area, and access through the site. We undertook an iterative process to optimise the design for different layouts and feasible development options, thereby ensuring that the Structure Plan provides a good balance of flexibility in its layout, with key items (such as roading) identified with greater certainty.

Supporting this approach were a number of 3D design diagrams that were used to test visual effects and refine standards and guidelines related to the anticipated built form, landscape, and engineering outcomes.

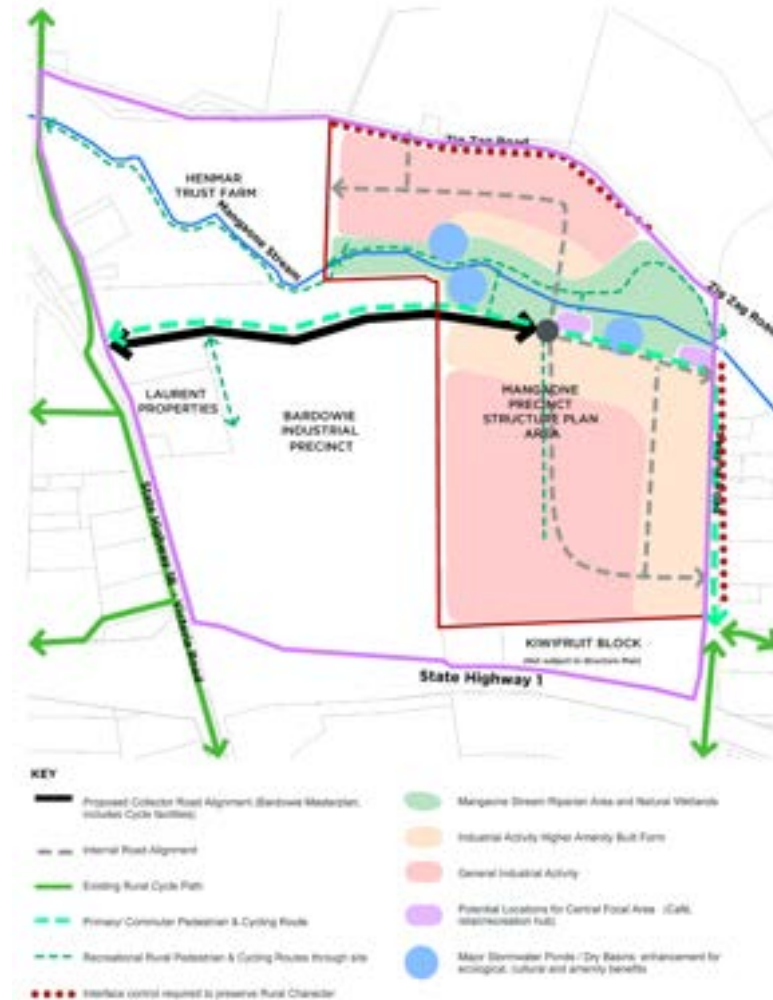


Fig 7. Design Key Moves Diagram

3.6 DESIGN PRINCIPLES AND GUIDELINES

The Mangaone Precinct Design Principles and Guidelines document (Appendix B) was developed to give an overview of design vision, the process, and the outcomes as they relate to future development within the Mangaone Precinct Structure Plan Area.

Our goal was to implement a Design Guideline package which would enable flexibility of industrial activity types and scales, while addressing the most important and beneficial urban design aspects – these occur at boundary interfaces, site frontages, and public spaces within the development.

It is likely that the developer of the Mangaone Precinct would adopt the Guidelines through a private covenant, so that they can be administered long-term. The Design Principles and Guidelines were also co-developed with, and used to inform the following:

- Permitted activity performance standards for permitted activities in the Industrial zone (Mangaone Precinct Structure Plan Area only).
- Matters for consideration and linked assessment criteria where a consent is triggered by an infringement of the permitted activity performance standards for the Industrial zone (Mangaone Precinct Structure Plan Area only).
- Assessment criteria for Restricted Discretionary Activities and Discretionary Activity (both land use and subdivision activities).

Design Guidelines provide some context to future developers and end-users (industrial tenants) of the Precinct, and are able to address greater detail within specific design outcomes sought within the development. These include style of signage and fencing, building form and site layout and plant species. They also cover some of the key activities encouraged within the development, including the proposed Mangaone Stream Reserve and the Stormwater functionality of the site.

The proposed Mangaone Precinct provisions, particularly those relating to landscaping, building and site layout, and signage, have been developed based on some of the Design Principles and Guidelines. All subdivision and development is intended to be in general accordance with the Mangaone Precinct Structure Plan map. Where Design Guidelines overlap with District Plan provisions, care has been taken to ensure that the

guidelines are consistent with provisions and do not contravene any Objectives or Policies of the Waipā District Plan.

Several of the Mangaone Precinct Structure Plan Area's Design Principles and Guidelines are based upon existing guidelines and standards adopted in Hautapu and Bardowie Industrial Precincts.

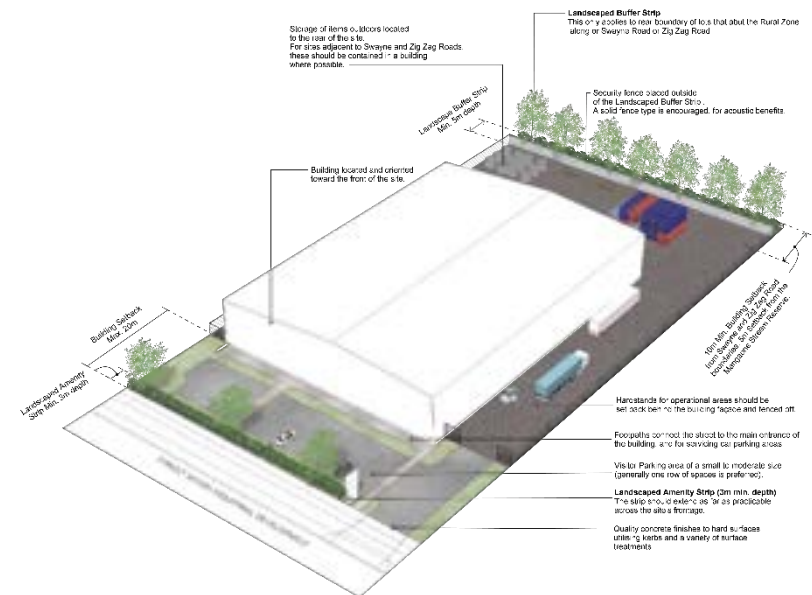


Fig 8. Example graphics from the Design Principles and Guidelines document (Site Layout and Landscaping)

4 DESIGN RESPONSE



Fig 9. Structure Plan with numbered labels referencing key urban design elements (described in this section). Full-scale plan provided at Appendix A.

4.1 STRUCTURE PLAN AND ZONING

The key urban design elements incorporated within the Mangaone Precinct Structure Plan are described (and numbered on the plan) as follows:

1. Future Reserve – Stream environment, and indicative walking and cycling path.

The Structure Plan confirms the presence of the Mangaone Stream within the Mangaone Precinct and its surrounding riparian reserve environment.

The Structure Plan also identifies a broader area for the 'Mangaone Stream Reserve' that has been designed to be refined and confirmed (and vested) at a later time. It is proposed to be initially zoned as Industrial. This approach seeks to make the reserve flexible to accommodate stormwater devices, flood plain, riparian and wetland areas as the boundaries of these are confirmed through detailed design at resource consent stage. The reserve area follows the alignment of the Mangaone Stream and its extent accounts for probable locations and areas of stormwater ponds required to service the Mangaone Precinct Structure Plan Area, as well as accommodating natural wetlands with adequate setbacks, and a rural walking and cycle network.

2. Central Focal Area Overlay

The Structure Plan confirms the potential for, and the location of, a small-scale commercial/retail area. This is enabled through an overlay that is located centrally to the Mangaone Precinct at a key intersection location.

Within the Central Focal Area a mix of retail and hospitality functions should be enabled to attract a higher quality of industrial activities to the precinct and improve the lifestyles of workers and visitors. Similar to the reserve area, the Central Focal Area would consist of an underlying Industrial zone to ensure flexibility for the future end-use. However, industrial activities should only establish in the Central Focal Area if it can be demonstrated that, once fully developed, there is no demand for small-scale retail/ancillary uses that will serve the day-to-day needs of business and workers in the Mangaone Precinct Structure Plan Area.

3. Transportation

The proposed road alignments (proposed as part of the Mangaone Precinct Structure Plan provisions and Design Principles and Guidelines) and hierarchy consists of five road types. Road alignments are shown on the Structure Plan as indicative. Key connections beyond the site are also identified. The road hierarchy seeks to confirm the position of a collector road while retaining some flexibility for minor/ local roads and cycleways.

The Mangaone Precinct Structure Plan also shows locations for intersections to be upgraded in future with roundabouts. These will meet the wider strategic transport needs for the Hautapu and Cambridge area and are informed by the Integrated Transportation Assessment.

Primary and secondary pedestrian and cycle routes are identified and expected to be delivered alongside roading and reserve provision.

The proposed Local Road, cross sections, and swales have been informed by stormwater management and earthworks design requirements.

4. Interface Treatments

Landscaped buffer strips and building setbacks are identified and provided for with appropriate cross sections. These are critical to integrating development within the Mangaone Precinct Structure Plan Area with its context and are supported through planning provisions. They are located around the external boundaries of the site and at reserve edges.



Fig 10. Mangaone Stream environment

4.2 MANGAONE STREAM ENVIRONMENT

A significant local purpose reserve of approximately 16ha is intended to be created around the Mangaone Stream. This is indicated on the Mangaone Precinct Structure Plan as the Mangaone Stream Reserve. This comprises the riparian environment plus associated wetlands, stormwater detention basins, and walkways/cycle paths. A key benefit of this singular large area, as opposed to numerous smaller areas being provided, is that it can offer significantly improved ecological value (such as high value bat habitat), managed efficiently through public ownership. A larger reserve would also become a recognised place within the Waipā District and identified as a public space, with a high cultural presence in the community. Design Guidelines address the interfaces with this reserve, the spacing providing for a natural edge that mitigates against the effects of industrial activity.

Another key objective in forming this reserve is to respect the existing natural amenity and cultural significance of the Mangaone Stream environment. Through collaboration with mana whenua, the applicant team understands that the protection and enhancement of the stream is a responsibility of this Plan Change process, and one of its key principles. Ongoing collaboration with mana whenua and the local community could further strengthen the quality and significance of the reserve area, enhanced through detailed landscaping, wayfinding and storytelling opportunities.

The efficient management of stormwater devices and natural wetlands was undertaken with a comprehensive and holistic view of the entire catchment so that a functional and staged approach to stormwater management is achieved.

We anticipate this reserve will establish a quality environment with a unique sense of place, extending its impact beyond the C10 Growth Cell and contributing to the ecology, cultural landscape, and amenity values of the wider Hautapu and Cambridge areas.

4.3 THE CENTRAL FOCAL AREA

An approximately 0.3 ha area for retail or commercial services activities, known as the Central Focal Area, is located adjacent to the Mangaone Stream Reserve, centrally located within the Mangaone Precinct Structure Plan Area.

The Central Focal Area is intended to provide a focal point within the development, where passing trade supports a retail and hospitality function within a walkable catchment. We envisage the Central Focal Area to comprise a small number of day-to-day retail and food and beverage activities to serve local industrial workers and occasional visitors. Retail activities should be small in scale and market catchment, so as not to compete or conflict with the role of the Cambridge retail centre or other centres. Accordingly, trade retail and bulk retail is recommended to be specifically excluded from the Central Focal Area.

The Central Focal Area will create a feature for the Mangaone Precinct Structure Plan Area and increase its overall amenity by providing social amenity for the workforce. A strong sense of place and legibility could be formed through the design integration of the Central Focal Area with its surrounding environment, including the Mangaone Stream Reserve. Meeting the needs of employees within the Mangaone Precinct Structure Plan Area can also facilitate efficiency, reduce travel time and reinforce a sense of place, value and character.

The decision to locate the Central Focal Area centrally within the Mangaone Precinct Structure Plan Area supports strong connectivity and convenience for Industrial Zone employees. The overlay is situated on the corner of the indicative collector road and a probable crossing point over the Mangaone Stream, and will therefore be easily accessible. Locating the Central Focal Area centrally also discourages the general public from accessing the location regularly, as there is no direct connection to Swayne or Zig Zag Road. This is intended to reduce the risk of services drawing trade away from the Cambridge town centre.

The opportunity for the Central Focal Area to interact with the public interface was a key feature in locating it adjacent to the Mangaone Stream Reserve. The proximity to the reserve could largely benefit certain retail, food and beverage activities and draw people to the space encouraging further use of the reserve's walking and cycling network.

4.4 SWAYNE AND ZIG ZAG ROAD INTEGRATION

These two existing rural roads define the northern and eastern edges of the Mangaone Precinct Structure Plan Area and have a specific character and use (including rural-residential activity) that is generally incompatible with industrial development. The Mangaone Precinct Structure Plan seeks to avoid industrial development accessing or fronting directly to Swayne or Zig Zag Roads (except for the two key entry points to the development).

Our aim, consistent with feedback received from Waipā District Council, is to maintain the rural nature of Swayne Road. To achieve this, the number of access points from Swayne Road into the proposed industrial zone have been limited to one location, near the southeast corner of the Mangaone Precinct Structure Plan Area, and one along Zig Zag Road to the north. The southern connection point is intended to allow only light passenger vehicles (i.e. no heavy trucks) to use it.

Specific boundary treatment proposed along rural interfaces will demarcate industrial development while supporting the rural character. The proposed new planning provisions and design guidelines have been developed in collaboration with the project Landscape Architect. These include building height restrictions, building colour and signage, setback requirements, specific fencing styles, and landscape buffer planting of a significant scale.

The potential for effects arising from industrial activity, specifically noise, visual effects from large buildings, traffic and light pollution, has been addressed through proposed rules, permitted activity performance standards and assessment criteria that may be used by Council to assess resource consent applications.

From the outside of the Mangaone Precinct Structure Plan Area, the anticipated character will be defined by tall trees (especially adopting a formal style common to the Cambridge area), a formalised post and rail fence, and a formal hedge. Buildings are treated with a dark and recessive colour palette, with setbacks preventing the buildings from dominating the streetscape (trees at maturity will be the dominant form visible to people using the streets). Building signage and other paraphernalia are also proposed to be restricted within the Mangaone Precinct Structure Plan Area, especially at the rural and Mangaone Stream Reserve interfaces. These measures will help to integrate the development with the surrounding environment and contribute to unique sense of place.

4.5 URBAN FORM AND BLOCK LAYOUT

The Mangaone Precinct Structure Plan Map (refer to Appendix A) includes a simple and functional road and urban block layout.

The landholding is divided into northern and southern parts by the Mangaone Stream. North of the Stream, the roads and site boundaries will be irregular in shape, with a slightly steeper topography. The southern part of the Structure Plan Area is very flat and its rectangular shape provides for a linear grid pattern of roading and subdivision.

The key roading layout depicted in the Structure Plan supports typical lot dimensions of approximately 120m -150m deep and 100m wide. These are suitable for large-format industrial lots (intended for 'dry' activities such as warehousing, logistics and light manufacturing). The roading layout offers flexibility to future subdivision to respond to opportunities for a variety of industrial activity sizes and types.

All future industrial lots within the Structure Plan Area should be oriented to internal roads, meaning their main entrance and building frontage would not face or connect directly to surrounding rural land (i.e. Swayne and Zig Zag Roads), or toward adjacent neighbouring land (e.g. AGP). Together with the landscaping and building design outcomes promoted through the Design Principles and Guidelines, this approach seeks to achieve a self-contained, business park-like environment for the Mangaone Precinct Structure Plan Area.

The Mangaone Stream Reserve sits adjacent to the main thoroughfare (Collector Road). This spatial relationship is intentional to provide amenity and a sense of place for the future development. Future lots fronting the Reserve would benefit from opportunities to create amenity for their businesses, while meeting standards relating to building setback, advertising, noise generation and building colour schemes. The reserve area on the Structure Plan has been indicatively sized, with space allocated for stormwater management, natural wetlands and associated pathways, bat habitat ecology and, where desirable, screening vegetation to industrial lots may be provided within the Reserve. These elements would be confirmed and detailed under a Mangaone Stream Reserve Management Plan, administered by Waipā District Council.

4.6 MOVEMENT HIERARCHY AND CONNECTIONS TO NEIGHBOURS

A key road network and entry points have been proposed through a combination of transportation, urban design, and civil engineering inputs. The Structure Plan avoids any unnecessary utilisation of Swayne and Zig Zag Road for industrial traffic. Entry points to the road network are located at the outskirts of the Mangaone Precinct Structure Plan Area where they do not unnecessarily urbanise Swayne or Zig Zag Road. Key entrances formed at the proposed collector road (connecting to Victoria Rd, forming the main entry point to the development) and with Zig Zag Road to the north. Identifying these locations will provide legible gateways into the Mangaone Precinct Structure Plan Area.

Five typical road layouts for industrial roads (refer to Figs 11a-e and Section 4 of the Design Guidelines) are proposed for the Structure Plan Area. The types comprise a collector road, a local road (with swale), a local road, a minor road, and a rural road (partial upgrade). They contain the required elements for a safe, well-functioning and attractive industrial environment.

The collector road is the primary road in the proposed hierarchy and forms an edge to the Mangaone Stream, near the centre of the Mangaone Precinct Structure Plan Area. To align with the Bardowie masterplan layout, the collector road was located north of the existing AGP building.

Two north-south aligned roads south of the Mangaone Stream incorporate swales to convey water toward the future stormwater management areas that will be accommodated within the Mangaone Stream Reserve. The stormwater function of these roads is key to their alignment, in addition to supporting strong legibility and sight lines towards the reserve, and accommodating convenient cycle routes.

One road crossing of the Mangaone Stream Reserve is indicated (there are currently three farm track crossings). This is centralised within the Structure Plan to create a character surrounding the stream and Central Focal Area.

Key vehicle movements are aimed to direct traffic towards the collector road with less reliance on the Zig Zag and Swayne Road access points. The Zig Zag Road entrance will primarily service the northern section of the Mangaone Precinct Structure Plan Area and enable some flexibility in phasing of development.

Fig 11a below: Collector Road (showing Mangaone Stream interface)



Fig 11d below: Rural Road – Partial Upgrade



Fig 11b below: Local Road with Swale



Fig 11e below: Minor Accessway (for light vehicle traffic only)

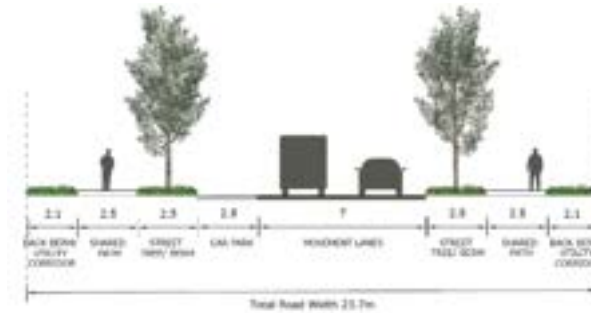


Fig 11c below: Local Road



4.7 ACTIVE MODES (CYCLING AND WALKING NETWORK)

Cycling is a popular form of active transportation within the wider Cambridge area. It was important, therefore, that cycling opportunities are incorporated for employees and visitors to the Mangaone Precinct Structure Plan Area and associated industrial and open space land.

A primary and secondary walking and cycle network has been proposed in the Mangaone Precinct Structure Plan, both within street typologies and as a network of paths through the proposed Mangaone Stream Reserve.

Commuter cyclists would be provided with a safe and efficient network through the site via shared paths on the collector and local roads. These are located on edges adjacent stormwater devices where less vehicle crossings are expected, to improve safety. The primary network is also intended to increase accessibility to the Central Focal Area and Mangaone Stream Reserve Area enabling active transport methods for workers.

The secondary network would consist of shared walking and cycling paths through the Mangaone Stream Reserve with access to Swayne Road and Zig Zag Roads. It is anticipated this would connect to the existing rural cycle route and proposed cycle route identified under the Waipā District Plan. This would form a walkable industrial precinct whilst being inclusive to the wider community through granting public access to the proposed Reserve. Through these features, The Mangaone Precinct will encourage a safe and well-connected cycle and pedestrian network which connects to the wider neighbourhood with easily accessible and clearly marked pathways.

4.8 ELECTRICITY TRANSMISSION LINES AND CORRIDOR

A transmission corridor crossing the Mangaone Precinct Structure Plan Area's northeastern corner will restrict the potential for buildings to be located beneath the lines and pylons (and to an assumed 12m setback on each side). Relevant electrical codes of practice will apply where subdivision and development is proposed in close proximity to Transpower infrastructure.

The Mangaone Precinct Structure Plan road layout anticipates some subdivision in close proximity to the transmission lines. The indicative block sizes provided by the roading layout could result in suitable built

form and landscaping outcomes, such as development of buildings on either side of the corridor with vehicle parking below.

4.9 SWAYNES HOUSE

Swaynes House is a historic homestead built by farmers from the Swayne Family.

The building is considered a Category C heritage item under the Waipā District Plan meaning that it is of significance to the community. Its demolition or relocation would be classified as a discretionary activity under Sections 22.4.1 (i) and (j) of the Waipā District Plan.

Industrial development proposed within the Mangaone Precinct Structure Plan Area would alter the landscape surrounding the homestead and so a strategy for its management will be required at resource consent application stage. Possible options include relocating the building for reuse within the Mangaone Precinct Structure Plan Area (for instance within the Central Focal Area) or taking the building offsite, demolition, or retaining the building in its current location.



Fig 12 – Swaynes House

4.10 LANDSCAPE BUFFER INTERFACE TREATMENTS

Two types of interface treatments are specified for the edges of Mangaone Precinct Structure Plan Area. These are landscape buffer strips and building setbacks. These can be applied in combination with each other.

The purpose of the interfaces is to provide a strong visual boundary to the development (identifying it as an industrial precinct distinct from the surrounding rural land), while also ensuring that the amenity values of the surrounding landscape (which relates to both rural residential and rural activities, and the wider character of the area) are supported and maintained as far as practicable.

Landscape buffer strips (5m depth) are proposed along the boundaries of Swayne and Zig Zag Roads to protect the amenity values of public space and the rural environment surrounding the Mangaone Precinct Structure Plan Area. The purpose of the buffer strip, especially along Swayne Road, is to protect the residential amenity and character of the road, which is appropriate to maintaining the rural nature of the area.

A landscape buffer strip (3m depth) is also proposed along the western boundary of the Mangaone Precinct where it adjoins land (the Bourke Farm) that is within the C10 Growth Cell but is not intended to be zoned Industrial at this time.

Several options for the buffer strips were considered during our design process to determine the optimum outcome for the Mangaone Precinct and the surrounding environment. This has also been informed heavily by the Landscape Visual Assessment (Harrison Grierson) and by consultation feedback from property owners at Swayne Road, in particular.

Industrial development of the scale anticipated for the Mangaone Precinct Structure Plan Area is inherently difficult to screen or obscure from wide views, due to its large scale-built form. A full screening option would incorporate planting that visually blocks the interface, but presents a dominant feature in itself. Softening the edge would be a preferred design approach and utilises a combination of fencing, hedges, and trees to provide a layered and attractive frontage. In combination with the building setback/height restrictions this will provide a suitable interface to maintain rural character.

To support the wider character values of the Waipā District, the plant species, fence styles and colour palette adopted (and referenced in the

Design Guidelines) are consistent with Cambridge, for example the regularly spaced trees, hedgerows, and post-and-rail fencing. The 2.5m hedge, evergreen large-canopy-forming trees (at a minimum spacing of 10m centres), and screening to residents is anticipated (and supported by digital modelling) to be adequate in protecting the visual amenity of Swayne Road.

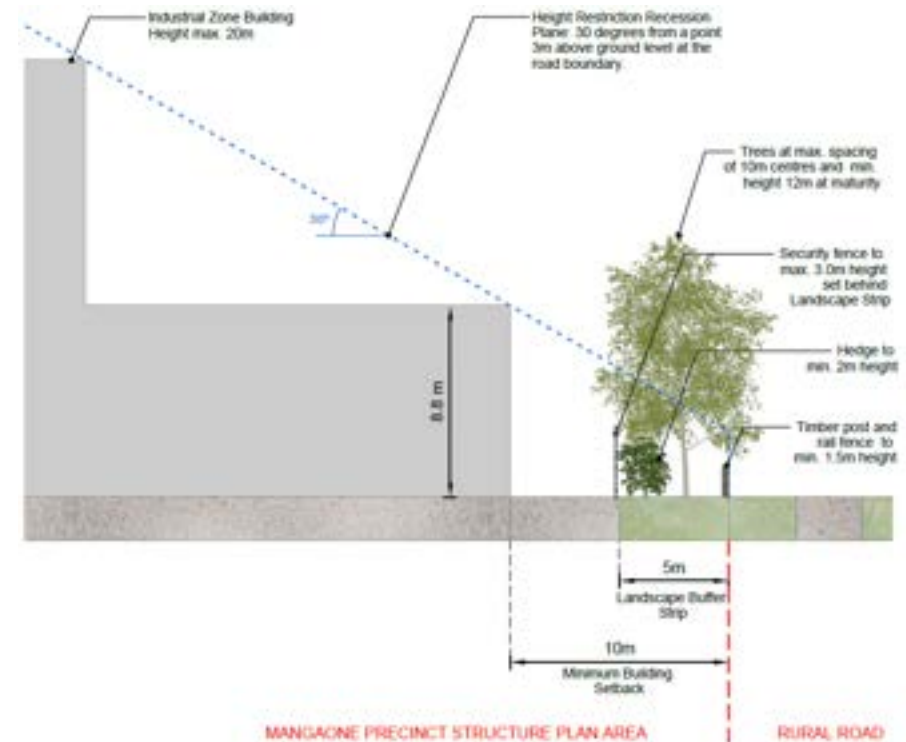


Fig 13 - Diagram from Waipā District Plan showing buffer controls for development adjacent to rural environment.

4.11 PLANNING PROVISIONS

The proposed Mangaone Precinct incorporates unique planning provisions that have been developed specifically for the Mangaone Precinct Structure Plan Area to respond to identified opportunities and constraints and to acknowledge site context. An urban design review was conducted of the existing provisions that apply to other zones and structure planned areas within Waipā, as well as similar developments within other districts. This review helped to identify key design aspects to seek control over, through new or amended policies, rules, standards, assessment criteria and Design Guidelines.

Urban design input to, and testing of, specific provisions has been undertaken alongside the development of the Design Principles and Guidelines. Guidelines have been interpreted by Planners (Mitchell Daysh) and formatted for incorporation into the District Plan, either through rules (performance standards), or as assessment criteria under Section 21 of the Waipā District Plan, and as Design Principles in a new Appendix S27 for the Mangaone Precinct Structure Plan Area.

The following urban design themes are proposed through new objectives and policies and/or other planning provisions:

- For development to occur in general accordance with the layout depicted on the Mangaone Precinct Structure Plan.
- The development of a Central Focal Area with a reserve and retail activities and commercial services that principally meet the needs of workers.
- Within the Mangaone Precinct Structure Plan Area, enable industrial development whilst protecting and enhancing the ecological, cultural and amenity values of the Mangaone Stream and natural wetlands.
- Buffer treatments and building setbacks from Zig Zag and Swayne Roads to protect amenity values within surrounding rural areas.
- For landscaping on industrial lots to be delivered in general accordance with the design guidelines.

The following urban design inputs to rules and performance standards are proposed for the Mangaone Precinct:

- The Mangaone Stream Reserve is enabled through the Structure Plan and supported by a proposed rule that enables the provision of suitable activities (stormwater management, native planting, public amenities, and walkways) within the reserve area, while strongly discouraging any other activities.
- The Central Focal Area has been enabled through an overlay on the Structure Plan and supported by a rule that permits small-scale retail shops and activities to service the Mangaone Precinct area. It also discourages industrial activity from establishing in the overlay.
- Minimum building setback from Zig Zag Road and Swayne Roads boundaries is 10m, to protect residential/rural character. This enables buildings to be located a reasonable distance from the boundary, and in doing so protects character and visual amenity while also encouraging yard/storage activities behind industrial lots to be contained within the building. The ability for industrial development to directly access Swayne or Zig Zag Roads is also restricted through a Vehicle Access Restriction.
- Minimum building setback from the Mangaone Stream Reserve area is 5m, to protect the amenity values of the Mangaone Stream natural environment. This rule does not apply to roads and associated roading and/or stormwater infrastructure.
- Height Control requiring a 30-degree height recession plane taken from a point 3m above ground level at the road boundary restricting building scale adjacent to Swayne and Zig Zag Roads. This balances building height within the development (up to 20m) while reducing building height and bulk where it would be visible from nearby dwellings and from rural areas.
- Landscape Buffer Strips, including a 5m buffer strip adjacent to Swayne and Zig Zag Roads to ensure a softened, landscaped edge to the development and protect the character values of the rural and residential activity.
- Revise signage restrictions to the height at which signage can be displayed on building facades, and restrict the display of signage along Zig Zag and Swayne Roads. A consistent signage strategy

across the development is encouraged. Pou (markers) and gateway signage are enabled.

- A new public reserve centred around the Mangaone Stream has been included as a matter to be addressed through a Development Agreement or Management Plan prior to any subdivision or industrial development of the Mangaone Precinct Structure Plan Area.
- Lighting standards have been amended to protect residential dwellings from light spill, and in relation to the Mangaone Stream area, to address bat habitat and movement.
- Amenity within the Mangaone Precinct Structure Plan Area is also provided for through a Landscape Amenity Strip (3m depth) which incorporates consistent landscaping themes.

The administration of these planning provisions, and the Structure Plan by Waipā District Council will ensure that key urban design outcomes are achieved, despite any future changes in ownership of the site.

Ongoing administration of the Guidelines through a private agreement (i.e. a review panel, development agreement or covenant) would enable all future development to engage with the urban design process and deliver positive design outcomes within the detailed delivery of sites, buildings, signage and landscaping.

Land covenants are expected to govern the details of the ongoing operation of land and buildings, including maintenance and other responsibilities for industrial operators. These fall outside the scope of this Plan Change process.

4.12 ONGOING DEVELOPMENT

Subdivision and development of the Mangaone Precinct Structure Plan Area is anticipated to follow a staged approach. Flexibility in staging has been assumed since past evidence from Plan Changes such as Bardowie Industrial Precinct (PC11) and Hautapu Industrial Area (PC6) have shown that delivery of land can be significantly affected by enabling works and by demand generated by key industrial operators (such as AGP).

Enabling works in this development would be comprised of key roads, and the Mangaone Stream stormwater network. Fonterra has already begun natural planting within the riparian environment and that is now reaching maturity.

Once the development of industrial lots occurs, the developer is anticipated to adopt and administer the Design Principles and Guidelines package (provided at Appendix B). Design Guidelines are typically enhanced through private agreements and covenants forming part of the subdivision and land sales process.

5 CONCLUSION

The urban design process undertaken for the Mangaone Precinct Structure Plan Area is technically robust and demonstrates an appropriate level of urban design input for a project of this scale and nature.

Development of the Mangaone Precinct Structure Plan involved input by stakeholders and specialist technical consultants. This input has been informative and productive in terms of design issues identified. The client, Fonterra, has led stakeholder engagement to date, including with mana whenua, and neighbouring landowners.

The project design brief calls for flexibility in the future development staging, ownership and size of industrial lots created. This aspect is beneficial since development is able to respond as needs arise – the 5-hectare AGP manufacturing facility is evidence of the large potential scale of development possible for this location. Flexibility in future activity types and lot sizes is enabled through the layout of the Mangaone Precinct Structure Plan, and can lead to positive urban design outcomes, providing that the effects (particularly those on the wider public) are appropriately managed.

The Design Principles and Guidelines provide context and inform the detailed design outcomes within the future development. They have been effective at informing proposed statutory provisions, and would continue to be effective when implemented through a private covenant which provides for ongoing review and management of the Precinct outside of the statutory planning methods.

The design outcomes anticipated for the Mangaone Precinct Structure Plan Area will, overall, be positive. The key features that will enable a well-functioning urban environment in future are:

- The Mangaone Stream Reserve will establish a new public asset for the community and represents an opportunity for significant enhancement to the natural and cultural landscape in this location.
- The Central Focal Area will provide for high-amenity outcomes within the Mangaone Precinct Structure Plan Area by providing for complementary services and facilities serving the day-to-day needs

of workers and by encouraging quality industrial operations to establish in this location.

- The Mangaone Precinct Structure Plan map, along with the Design Principles and Guidelines package, encourages detailed design outcomes appropriate for the Mangaone Precinct Structure Plan Area and the context of the surrounding area. These can be utilised as a framework for guiding for all future development proposals.
- The character of surrounding rural areas has been respected through unique landscape and building design response.

Overall, this proposal incorporates good quality urban design outcomes that will establish the fundamental aspects that enable future development to become a successful and positive part of the Waipā community in years to come.

6 LIMITATIONS

6.1 GENERAL

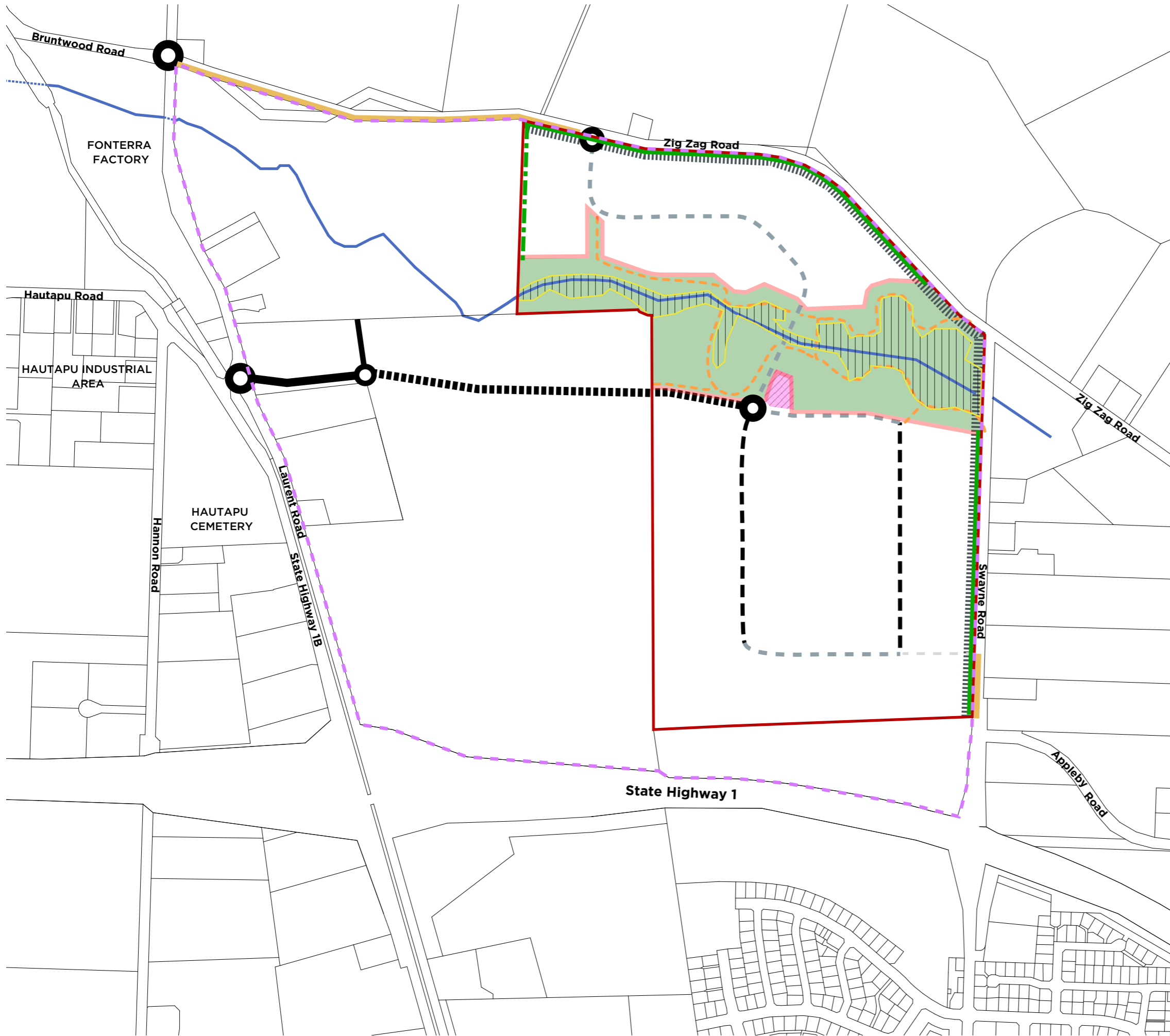
This report is for the use by Fonterra Limited only, and should not be used or relied upon by any other person or entity or for any other project.

This report has been prepared for the particular project described to us and its extent is limited to the scope of work agreed between the client and Harrison Grierson Consultants Limited. No responsibility is accepted by Harrison Grierson Consultants Limited or its directors, servants, agents, staff, or employees for the accuracy of information provided by third parties and/or the use of any part of this report in any other context or for any other purposes.

APPENDIX A:

MANGAONE PRECINCT STRUCTURE PLAN





- KEY**
- Proposed Mangaone Precinct Structure Plan Area Boundary
 - C10 Growth Cell Boundary
 - Existing Parcel Boundaries
 - Mangaone Stream
 - Mangaone Stream Reserve
Area to incorporate Cultural, Ecological and Stormwater management functions.
 - Mangaone Stream Reserve Building Setback: 5m
 - High Value Bat Habitat
 - Central Focal Area
 - Roundabout Location
 - Collector Road Alignment
 - Local Road with Swale Alignment
 - Local Road Alignment
 - Minor Road (light vehicles only)
 - Rural Road - Partial Upgrade
 - Vehicle Access Restriction (VAR) Applies
 - Walking & Cycling Path
 - Landscape / Planted Buffer Strip: 5m
 - Landscape / Planted Buffer Strip: 3m

Note:
The scale and location of all features shown above are indicative and subject to refinement through Resource Consent.

MANGAONE PRECINCT STRUCTURE PLAN

SCALE: 1:7500 at A3
 CLIENT: Fonterra Limited
 PROJECT: HAUTAPU PLAN CHANGE 14
 DATE: 9 May 2024
 STATUS: For Plan Change Submission



APPENDIX B:

MANGAONE PRECINCT STRUCTURE PLAN AREA DESIGN PRINCIPLES AND GUIDELINES





MANGAONE PRECINCT

STRUCTURE PLAN AREA



**HARRISON
GRIERSON**

—
DESIGN PRINCIPLES
AND GUIDELINES

DOCUMENT INFORMATION

CLIENT	Fonterra (New Zealand) Limited
PROJECT NAME	Plan Change 14 Hautapu
PROJECT NO.	A2313738.00
DOCUMENT	MANGAONE PRECINCT STRUCTURE PLAN AREA: DESIGN PRINCIPLES AND GUIDELINES
DATE OF ISSUE	09 May 2024
STATUS	Final - For Plan Change 14 Submission
ORIGINATORS	FERGUS MCARTHUR - URBAN DESIGNER SAM COLES - TECHNICAL DIRECTOR - URBAN DESIGN designstudio@harrisingrierson.com
REVIEWED	SAM COLES TECHNICAL DIRECTOR - URBAN DESIGN
APPROVED FOR ISSUE	PHIL COMER TECHNICAL DIRECTOR - PLANNING

1.0 INTRODUCTION TO HAUTAPU

Site Location and Context

Future industrial growth in Hautapu is supported by the Waikato Expressway (State Highway 1). The Mangaone Precinct is located a 20 minute drive from Hamilton Airport via the Expressway. Cambridge Town Centre is a six minute drive or 15-minutes by bicycle.

The Mangaone Stream flows west through the area and continues to Tamahere Reserve, the Mangaharakeke Stream and, eventually, the Waikato River.

The Cultural Landscape

Mana whenua status is held by Ngāti Hauā and Ngāti Korokī Kahukura who, through their representatives, have confirmed the importance of cultural values being upheld as part of the development of this site. The future development should encompass aspects of Mauri Tu (Environmental Health), Mahi Toi (Creative Expression), Tohu (Cultural Landscape).

European cultural values are represented in the landscape and urban form adopted across the wider Cambridge area. This includes the rural environment, which has a long tradition of pastoral use, centred around the Hautapu dairy factory. The selection of landscaping within this development, for example, will reflect the aesthetic style established through much of Cambridge and its rural hinterland.

The Natural Landscape

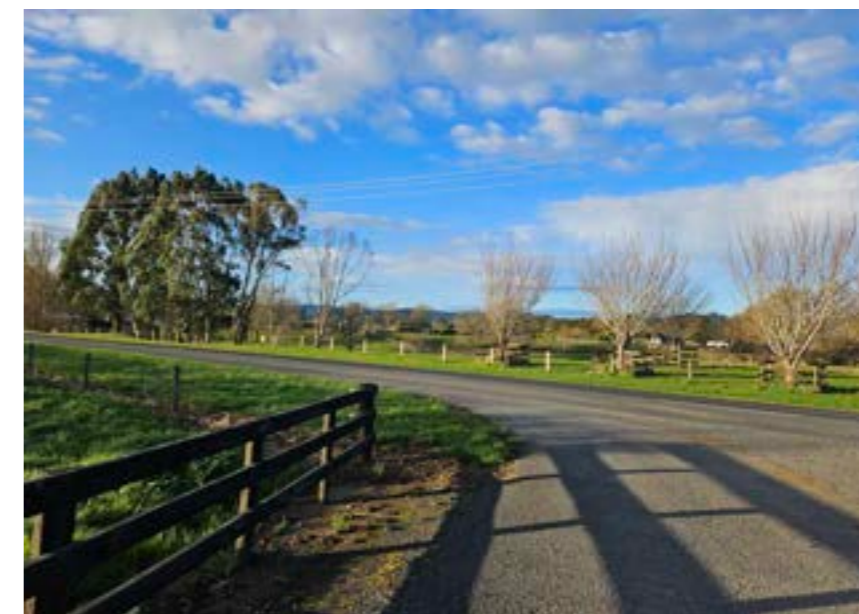
The Mangaone Precinct Structure Plan Area is located within the Waikato Basin, which is surrounded by hills formed by volcanic and faulting activities along with erosion from the Waikato River. Within the basin, the landform is characterised by large relatively flat extents of farmland and gentle rolling hills.

Views to the volcanic cones of Maungatautari, Pirongia and Kakepuku are noted as important features of the wider site context.

The Waikato River, its tributaries and the significant maunga in the area are all home to native flora and fauna species which are valued by mana whenua and the local community. Pockets of regenerating native vegetation are valued for the habitats they provide. The protected native bat, pekapeka, utilises mature vegetation for foraging - particularly along riparian corridors. Continued protection of the natural environment and its landscape character within Waikato is important. Ecological value can be enhanced within an industrial development through the vegetation provided in all spaces and, in particular, through the creation of the Mangaone Stream Reserve.



The existing Hautapu industrial area, as viewed from the Waikato Expressway at Peak Road overpass.



A typical street scene within the rural environment surrounding the existing Hautapu industrial area.



Laurent Road and Shoof industrial property as seen from Victoria Road.



The existing Mangaone Stream environment.

2.0 OUR VISION

Project Vision Statement

Our project team has prepared a vision statement to affirm the values guiding the creation of the Mangaone Precinct Structure Plan and its subsequent development. The vision statement is:

"To champion the development of a regionally-significant industrial park, establishing a legacy of enduring social, cultural, economic and environmental wellbeing, while facilitating a new public reserve dedicated to preserving and enhancing the Mangaone Stream."

Design Principles

- 1) Further to the vision statement, we have developed the following principles to inspire future development of the land.
- 2) To establish an attractive place for industrial activities to thrive with buildings that are of contemporary style and design and with landscaping that provides high amenity for those that work in the precinct.
- 3) To establish an industrial area that is accessible, visually attractive and complements the established character and landscape qualities of the Cambridge area.
- 4) To protect and enhance the Mangaone Stream, natural wetlands and their margins.
- 5) To manage the interface between industrial subdivision and development within the Mangaone Precinct Structure Plan Area and the Rural zone.
- 6) To integrate stormwater management and treatment with road design and with the cultural, ecological and amenity values of the proposed Mangaone Stream Reserve.
- 7) To provide a safe, functional and convenient transport network that integrates with its strategic transport context and supports freight vehicles as well as active modes of travel.

Project Stakeholders

Our team, led by Fonterra, have worked alongside the following groups who have generously participated in this process:

- Waikato Regional Council,
- Waipā District Council,
- Mana whenua, Ngāti Hauā and Ngāti Korokī Kahukura,
- Waikato River Authority,
- Local Strategic Growth Alliance.

Our Consultant Project Team

- Planning - Mitchell Daysh
- Urban Design - Harrison Grierson
- Landscape Architecture - Harrison Grierson
- Transportation Engineering - Stantec New Zealand
- Civil Engineering - Harrison Grierson
- Market Economics - Property Economics
- Hydrogeology - Beca
- Ecology - RMA Ecology
- Geotechnical and Environmental Engineering - Soil & Rock
- Survey - Harrison Grierson
- Archaeology - Sian Keith Archaeology



A walking and cycling path network is envisaged for the site, similar to paths in other areas of Cambridge.



The Mangaone Precinct Structure Plan aims to reflect a Cambridge local aesthetic style through street landscaping and along the edges of the rural environment.



Design Guidelines encourage a high amenity environment for a wide range of industrial activity types.

3.0 ABOUT THE PLAN CHANGE

Mangaone Precinct

The Mangaone Precinct Area is 79.2 hectares in size and is located at Hautapu, adjacent to the Bardowie Industrial Precinct.

The land has been identified for development since 2012 as part of the C10 industrial growth cell which includes the 59 hectare Bardowie Investments Limited (now underway) and the Bourke Farm (future development area).

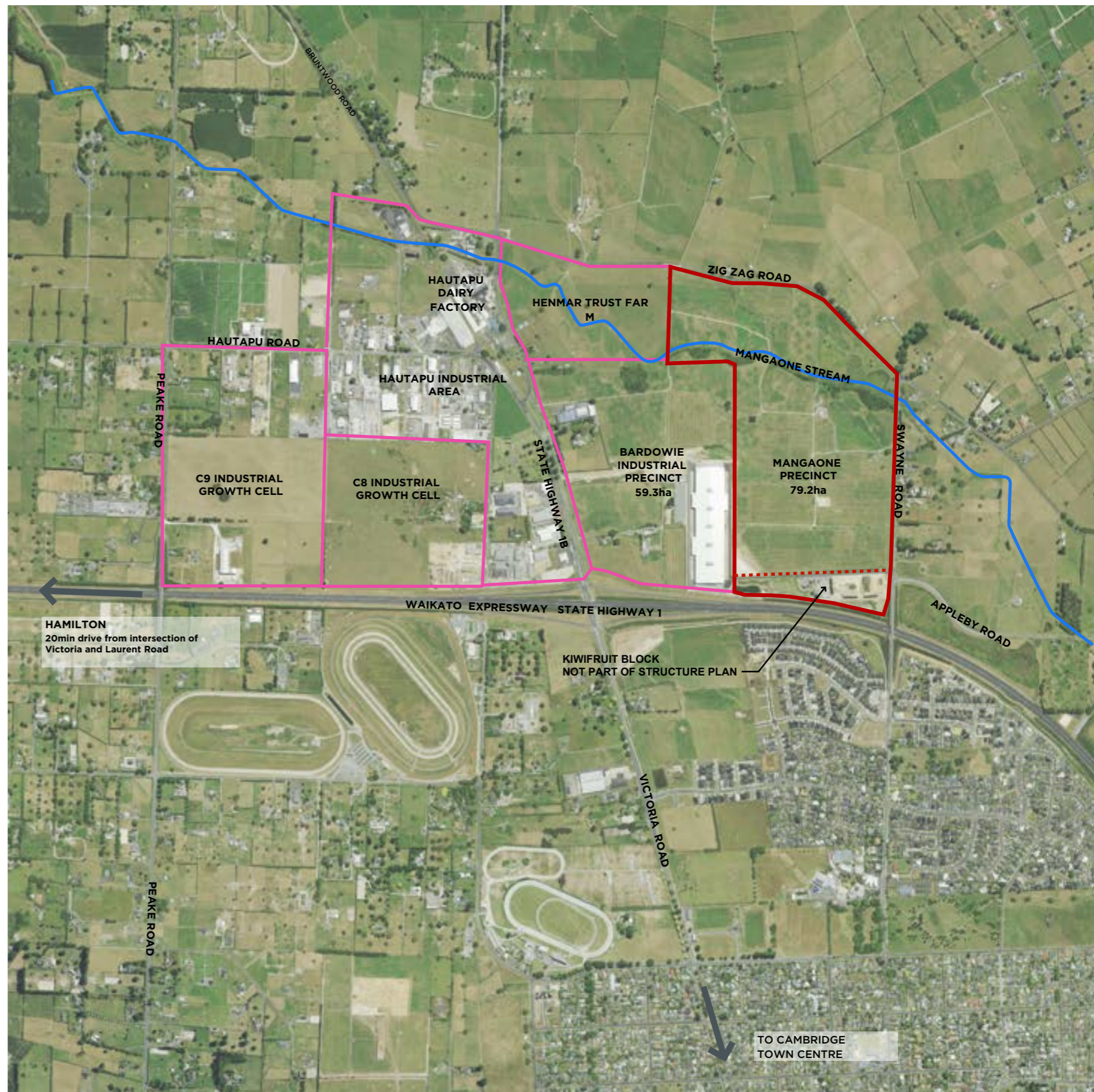
The land covered by the Structure Plan Map and Design Principles and Guidelines is the 71.4ha Fonterra farm portion of the Plan Change 14 Area. This does not include the land known as the Kiwifruit Block.

The Structure Plan

The Mangaone Precinct Structure Plan package identifies the key design elements that are required to enable industrial development to occur in a manner that respects its local context. The Structure Plan was developed through detailed technical work and in consultation with the community.

The Structure Plan map is deliberately simple and assumes only one type of Industrial Zone is to be provided. The map identifies the core features that are required to enable development. The Mangaone Precinct supports flexibility within industrial activity and is designed to work alongside Design Guidelines.

Design Guidelines support the Structure Plan providing extra detail about the design outcomes sought for industrial activity and its relationship with public space. They also address key issues around amenity and management. They are recognised as an important way to promote desirable outcomes within the future business and industrial park.

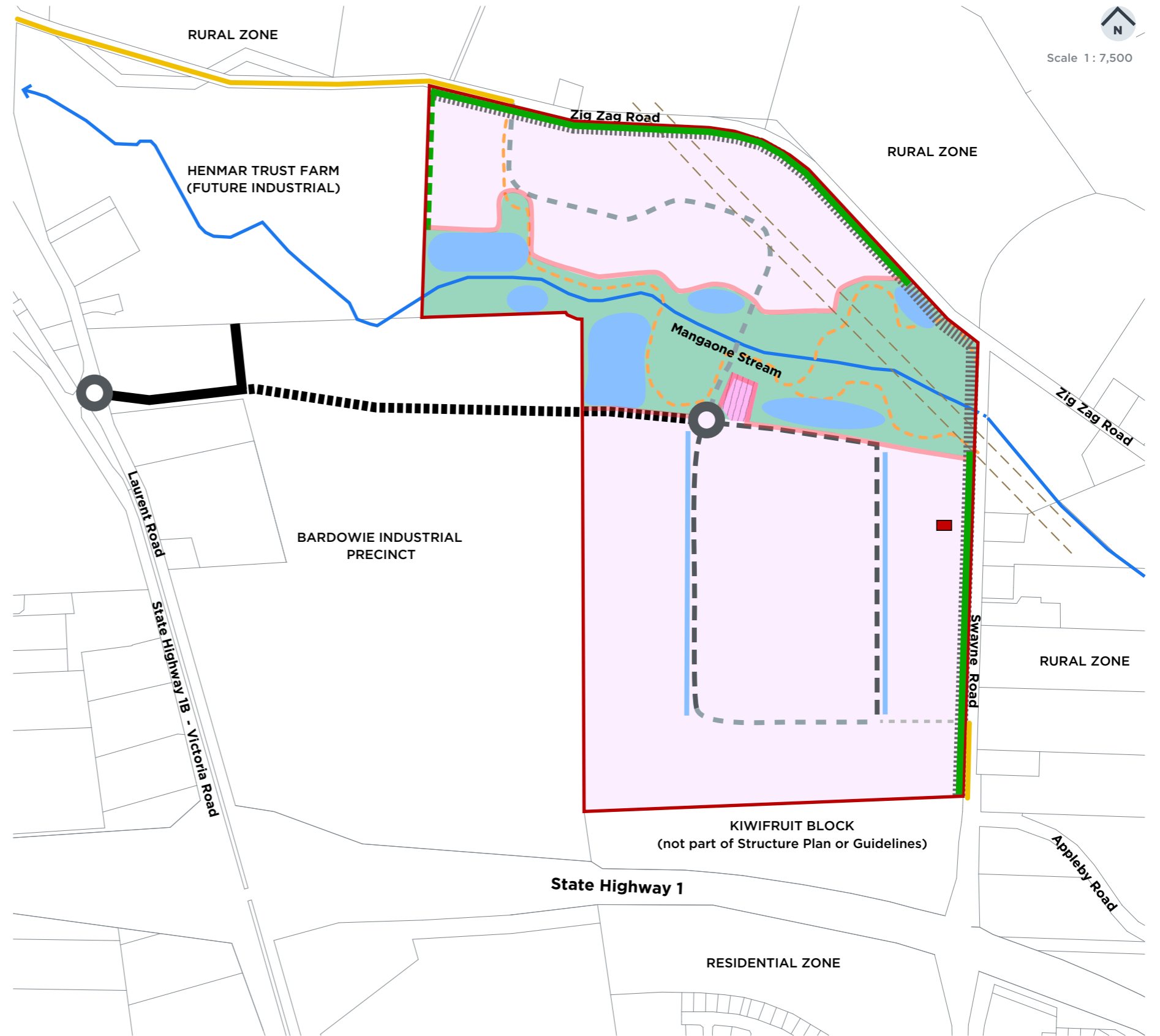


4.0 OUR DESIGN GUIDELINES

The Design Guidelines introduce key design themes and provide some context to the development outcomes sought for the Mangaone Precinct Structure Plan Area. They are presented in topics that address the different phases of development, from overall subdivision, through to detailed site layout and building design. Developers are encouraged to apply these guidelines when determining a suitable location and design for an activity.

The Waipa District Plan includes rules and performance standards for subdivision, development and activities within the Industrial Zone, those relating to Signage and Transportation. Whether or not a resource consent is required, we encourage all development within the Mangaone Precinct to adopt the outcomes portrayed within these Design Guidelines.

Guideline 4.1	Mangaone Stream Reserve	
	Mangaone Stream	
	Reserve Area	
	Walking & Cycling Path	
	5m Building Setback to Reserve	
Guideline 4.2	Stormwater Management and Treatment	
	Stormwater Management Ponds	
	Swales	
Guideline 4.3	Key Activities	
	Central Focal Area	
	Swaynes House	
Guideline 4.4	Infrastructure	
Electricity Transmission Corridor		
Guideline 4.5	Street Design	
	Collector Road	
	Local With Swale	
	Local Road	
	Minor Road	
	Rural Road - Partial Upgrade	
	Future Roundabout	
Vehicle Access Restriction		
Guideline 4.6	Site Layout and Landscaping	
	Landscaped Buffer Strip	
Guideline 4.7	Building Design	
	Building Design - Industrial Zone	
Guideline 5.0	Recommended Tree and Plant Species	



DESIGN GUIDELINE 4.1

RESERVE AND ECOLOGY

Mangaone Stream Reserve

The Mangaone Stream runs from east to west through the Mangaone Precinct, creating a natural focal point within the development. The stream will be enhanced through development (including within future development to the west) into a public reserve that provides significant cultural, water, ecology and recreational functions.

A number of natural wetlands, flood plains and regenerating native bush areas sit next to the stream. These enhance the stream environment by providing ecology and stormwater management benefits as well as offering an attractive feature within the development.

Guidelines for development of the Mangaone Stream Reserve:

- 1) The Mangaone Stream Reserve will be established through subdivision, generally within the area identified on the Structure Plan.
- 2) Design of the Reserve should include Council and Mana Whenua engagement.
- 3) The Reserve should seek to include all significant public and communal stormwater basins and recreational trails.
- 4) Following development, the reserve land and assets will vest with Council.
- 5) Industrial activity within close proximity of the Reserve should adopt a high quality boundary treatment including attractive fencing and, where practical, pedestrian accessways joining into the reserve area.
- 6) Potentially contaminating and high-noise generating activities should not be located in close proximity to the reserve, to protect ecological and amenity values.
- 7) To maintain public amenity values, any advertising and prominent building signs facing the Reserve should be avoided.
- 8) Light spill into the Reserve from buildings and operational areas should be minimised.

Vegetation Recommended for The Mangaone Stream Reserve:

The planting guide of the 'Maungatautari ecological district' with a focus on 'Lowland terraces planting zone' species should be used along with ecologist and mana whenua review.

Refer to the 'Wetland Planting Guide' by Waikato Regional Council for wetland species.

Planting within the High Value Bat Habitat area shown on the Structure Plan map may require specific ecological input.

Recommended plant species lists are provided at Guideline 5.0.

Recreational Paths and Cycleways

Hautapu and Cambridge are cycle-friendly places where people utilise the rural roads as well as a growing network of formal and informal recreational trails. These provide health and wellness benefits, and a convenient and affordable way to travel between home and employment.

The Mangaone Precinct Structure Plan Area supports various modes of travel (including walking, cycling and micro-mobility devices) through the provision of cycle facilities and shared paths. These are associated with key roads and within the Mangaone Stream Reserve. Horse riding is also a potential activity for paths within the Reserve.

Guidelines for development of Recreational Paths and Cycleways:

- 1) Promote active modes of transport through the shared path and cycle facilities shown on the Structure Plan and in the Road Layouts (refer to Guideline 4.4).
- 2) Cycleways should be clearly marked and particular care is needed in their design with respect to heavy vehicle movements. Clear sightlines, markings and, where possible, physical buffering of cyclists from the road carriageway and industrial activity, should be provided.
- 3) Paths should connect into and expand the network (current and future) on Swayne Road, Zig Zag Road, Appleby Road, and other surrounding routes. Connections into neighbouring properties are encouraged.



Indicative Spatial Extents - Reserve and Recreational Paths and Cycleways



Positive examples of Te Aranga Urban Design concepts; Pou, texturing, storytelling.



Wetland area located south of State Highway 1 with pedestrian and cycle access from Victoria Road.

DESIGN GUIDELINE 4.2

STORMWATER MANAGEMENT AND TREATMENT

Stormwater Management

Stormwater management devices, including ponds, swales and soakage basins are required for flood mitigation and to support the health of the Mangaone Stream catchment. They may be located in public land (as communal devices), or on private lots associated with specific industrial activities. All devices should be designed and constructed with a comprehensive and holistic view of the entire catchment so that a functional and staged approach to stormwater management is achieved.

Guidelines for Stormwater Management:

- 1) Communal stormwater devices should be designed with a naturalistic shape and attractive, densely-planted appearance, to integrate with the shape of the natural wetlands and riparian ecological areas.
- 2) Recreational cycling paths (which may double as maintenance tracks) are encouraged to be provided around the edges of stormwater ponds or basins. This is an efficient and attractive way of providing recreational benefits to the Mangaone Precinct Structure Plan Area.
- 3) The recommended on-lot stormwater management solution is a rain garden within the front yard area of the lot. The size required for this will be specific to the site and impervious area, as well as ground soakage characteristics.
- 4) Native plantings, landscaping and infrastructure associated with stormwater devices, should be provided and maintained to a tidy and attractive standard.
- 5) Neighbouring sites are encouraged to adopt similar designs as each other for a consistent and efficient outcome that is visually appealing.
- 6) Stormwater tanks are encouraged for water re-use only (otherwise a raingarden is preferred). Tanks and associated equipment should be located either below ground or to the rear of the site.

Swales

Swales should be provided in association with roading (refer to Guideline 4.4). They convey water from industrial land and road areas toward stormwater near the Mangaone Stream. Swales control stormwater runoff during high rainfall events, and help to improve water quality.

Within the Structure Plan Area, swales should adopt an attractive appearance and provide plentiful vegetation for amenity and ecological benefits.

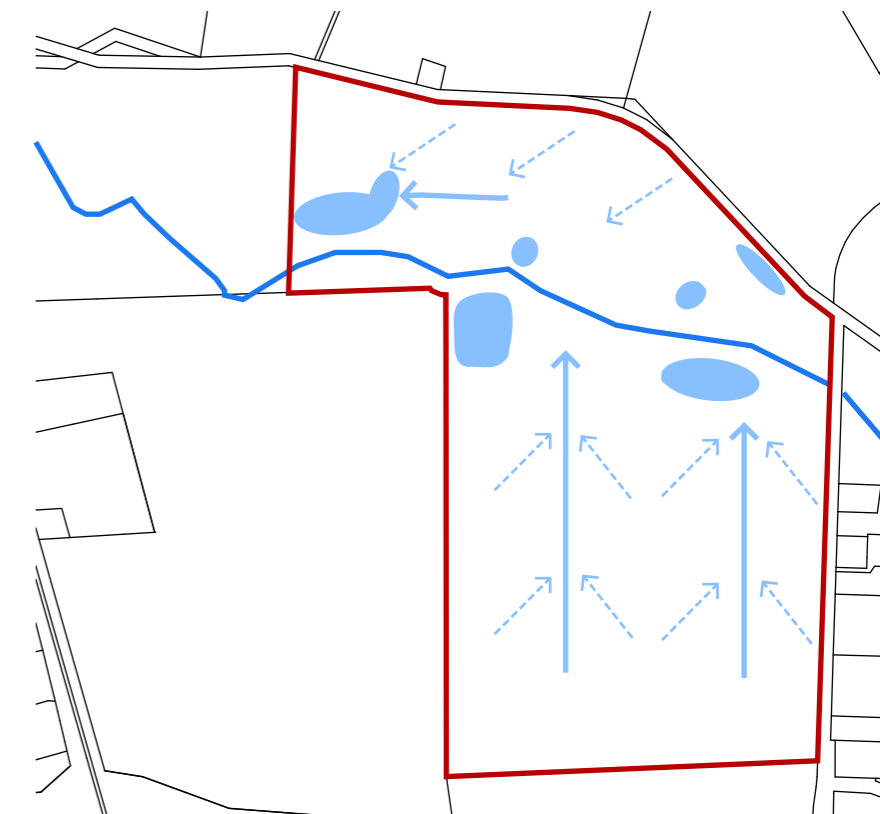
Small pedestrian bridges over swales could be provided to enhance connectivity and amenity values.



An attractive swale design located in Bardowie Industrial Precinct.



Recently constructed stormwater pond located in Bardowie Industrial Precinct.



Indicative Spatial Extents - Stormwater Ponds and flow paths

Vegetation Species Recommended for Stormwater Devices and their Margins

- *Astelia grandis*
- *Carex virgata*
- *Carex geminata*
- *Machaerina rubiginosa*
- *Ficinia nodosa*

Refer to the 'Wetland Planting Guide' by Waikato Regional Council for wetland species, and include the use of trees for providing variety, shade and amenity value.

DESIGN GUIDELINE 4.3

KEY ACTIVITIES

Industrial Activities

A wide range of light to medium industrial activities are encouraged within the Mangaone Precinct Structure Plan area, including warehousing, manufacturing, and innovation and advanced technology activities.

Specific activities within industrial sites are managed through the District Plan, and supported by the following guidelines, which aim to protect the amenity values and functionality of the wider environment.

Building and Site Layout guidelines (Guidelines 4.5 and 4.6) address some of the specific effects arising from industrial operations. The following guidelines apply to the type of industrial activity:

- 1) Activities should be located where there are no direct adverse effects on their neighbours. Ideally, activities of a similar nature should be located together within a development.
- 2) Discharges of particulates or offensive odors to the air should be avoided.
- 3) Yard-based activities (including equipment and vehicle sales) should be set behind buildings where possible. Activities should not be visible from existing rural roads or promote trade toward these roads through signage or display of goods.
- 4) Storage and lockup facilities should be screened by landscaping and include security provisions. Security fencing along the front boundary shall be set back and screened with vegetation to reduce its visual impact.
- 5) Waste management or processing activities should be fully screened from all public views. Activities should pro-actively manage the potential effects of pests and odours.
- 6) Activities that generate dust, including any stockpiling or handling of dry goods, should be contained within a building. Sites where these activities must take place outdoors should adopt dust containment measures, such as a buffer of tall trees and hedges.
- 7) High traffic generating activities such as vehicle parking facilities, refuelling stations and vehicle testing, should be located where traffic movements do not impact safety (including cyclist and pedestrian safety), congestion (near intersections) or amenity.
- 8) To protect amenity, industrial activities within 100m of residential or rural zoned land, and adjacent to the Mangaone Stream Reserve, should be managed. Reduced hours of operation, restrictions on lighting and vehicle movements and noise may be appropriate to manage potential effects.
- 9) Activity on land adjacent to the proposed Reserve or stormwater management areas may give rise to adverse environmental effects, especially due to runoff. Operations involving handling of loose materials, liquids or dust in yard areas, and storage of chemicals, fuels, vehicles or machinery should avoid or mitigate the risk of accidental spillage, or contamination of stormwater runoff.

Central Focal Area

The Mangaone Precinct Structure Plan encourages a vibrant community for workers. The Central Focal Area enables range of small-scale retail and services to meet the daily needs of the industrial development within the Structure Plan area.

The Central Focal area has been located centrally within the Structure Plan Area on key transport routes, and in close proximity to the Mangaone Stream Reserve. This location offers strong levels of visibility and amenity.

Guidelines for the Central Focal Area:

- 1) Businesses within the Central Focal Area should cater primarily to the employees of the Mangaone Precinct Structure Plan Area. Retailing and services offered to the wider public are not appropriate as these would draw trade away from the Cambridge town centre.
- 2) Businesses within the Central Focal Area should include strong visual and physical connections with adjacent streets and public spaces and recreational paths, to create an attractive location for people to visit and spend time in.
- 3) Car parking and cycle parking is to be provided within the Central Focal Area. All pathways and parking facilities are to be accessible.
- 4) Advertising should be minimised in scale and number. Large-format advertising and illuminated signage are strongly discouraged.
- 5) All signage, landscaping, fencing and hard surface finishes within and surrounding the Central Focal Area should adopt a tidy and high quality appearance.



Indicative Spatial Extents - Central Focal Area and Swaynes House

Swaynes House

Swaynes House is a homestead built by the Swayne Family, which historically farmed the land. Industrial development will alter the landscape surrounding the homestead, which is Category C heritage place, and so a strategy for its management is required.

Guidelines for development near Swaynes House:

- 1) Development within 50m of the homestead should be designed to be complementary to the Swaynes House environment. Landscaped buffer planting around the edges of industrial development may be adopted.
- 2) To provide public awareness of Swaynes House, sightlines between streets and the homestead should be provided, potentially through gaps in planting, fencing and buildings.
- 3) The relocation of Swaynes House to the Central Focal Area, and/or repurposing as a commercial premises, could be undertaken if physically practicable and supported by Waipā District Council.

DESIGN GUIDELINE 4.4

STREET DESIGN

Five types of roads have been selected for the Mangaone Precinct Structure Plan Area and reflect a hierarchy of transport functions. These are supported by appropriate layouts (indicated in the following diagrams) that provide for a safe, well-functioning, and attractive movement network.

Specific transport design proposals would be reviewed by Council through the consenting process.

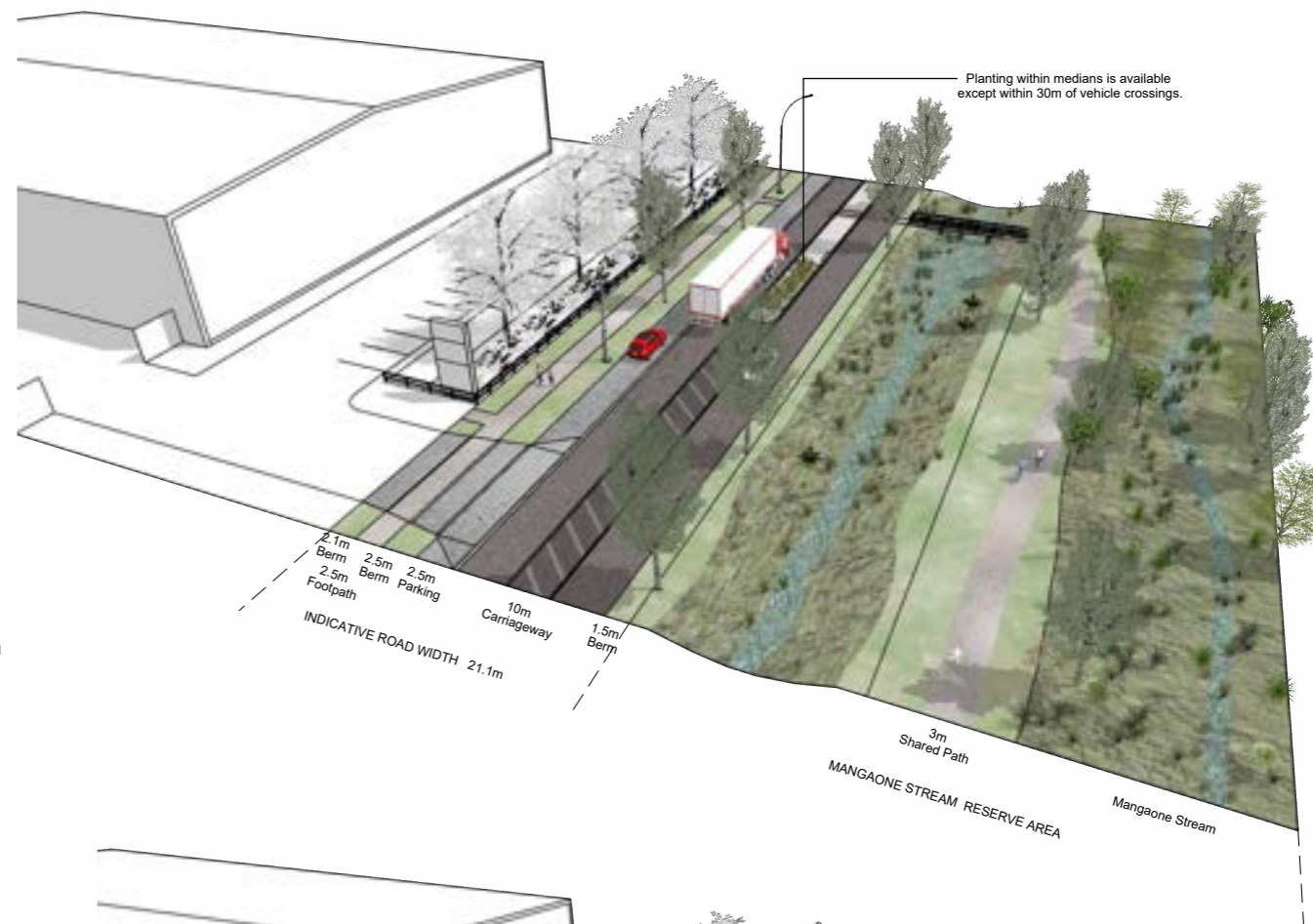
General Transport Guidelines:

- 1) Transport routes should provide connectivity across the Industrial Zone. Design of roading and walkways near the edges of a development should be coordinated and aligned between neighbouring properties.
- 2) All roads offer footpaths and cycle facilities so that workers and visitors alike can travel safely through the industrial park. These should be provided on private lanes and driveways as well as public roads.
- 3) A safe and legible pedestrian and cycle path network should be achieved, which connects to the wider area through easily accessible and clearly marked routes.
- 4) Street trees provide important amenity, environmental and safety benefits to the development. They should be provided on all streets, planted at regular spacings and reflect the Cambridge rural aesthetic. Large specimens with formed canopies (to enable sightlines for motorists and cyclists) should be planted, and properly maintained.
- 5) Roadside swales are designed to treat convey stormwater runoff from key roads and development associated with the Structure Plan Area. They should be designed in accordance with Council standards and consider wider connections into ponds and surrounding infrastructure.
- 6) Swales should promote natural amenity to the road and integrate quality landscaping to help shape a cohesive business park environment. They are to promote a naturalistic appearance and heavily planted with native groundcover and shrub species appropriate to the conditions. The vegetation is important to provide desirable amenity and ecological benefits.
- 7) Place-specific road naming should be adopted, to reflect local and cultural stories and historical references.
- 8) Pedestrian crossings are encouraged to be provided in locations where footpaths and cycling paths intersect. This includes locations adjacent to the Central Focal Area and the Mangaone Stream Reserve.

COLLECTOR ROAD

The Collector Road type provides a key movement corridor for larger numbers of vehicles, of all types as well as pedestrians and cyclists. It is also intended to serve as an attractive, reserve-edge route that welcomes people to the new development.

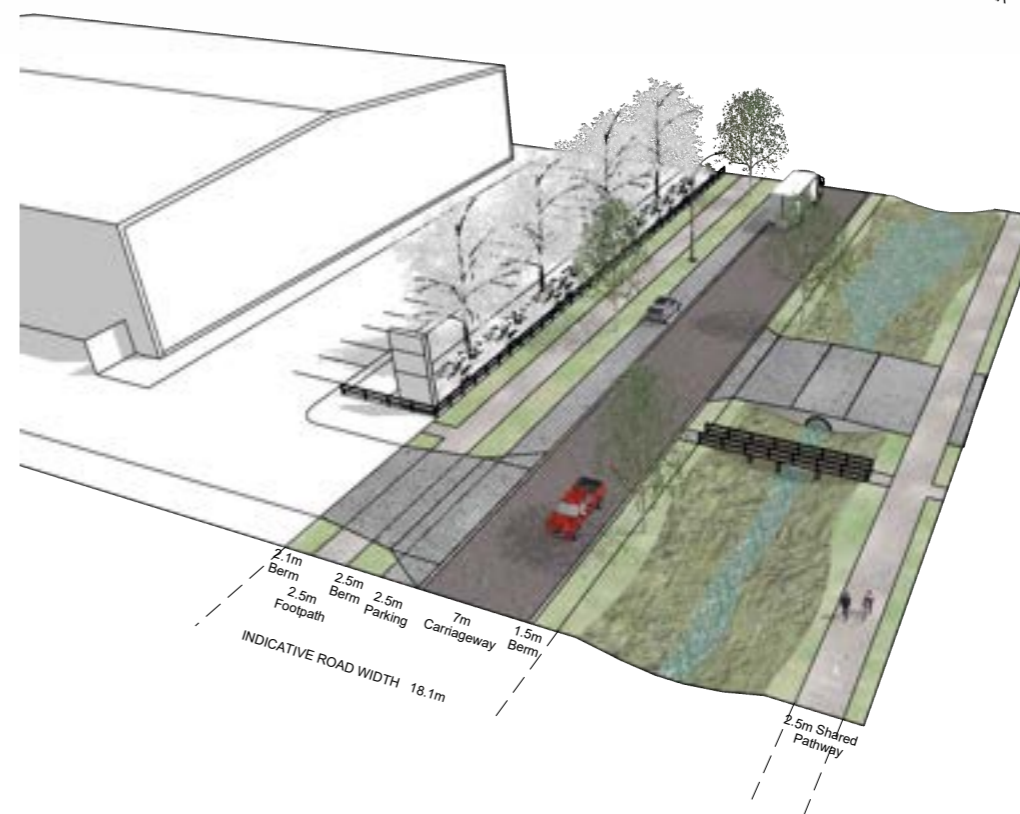
- 1) Vehicle through-movement is prioritised over individual site access. Vehicle crossings, if required, should be placed on the Local Road where available.
- 2) Vehicle crossings should be minimised on the edge with the swale, and if necessary, two vehicle crossings should be combined into one, to reduce impacts on stormwater flow.
- 3) Safe pedestrian access should be provided separately to accessways for heavy vehicles.
- 4) Pedestrian crossing opportunities should be located at 200m spacings or less, and aligned with key pedestrian desire lines, including those within the Mangaone Stream Reserve Area.



LOCAL ROAD - WITH SWALE

This Local Road type is a simple street arrangement that provides for property access and basic pedestrian movement. The Swales are integral to stormwater management within the Mangaone Stream Structural Plan Area. They would direct flow toward stormwater basins located near the Mangaone Stream Reserve.

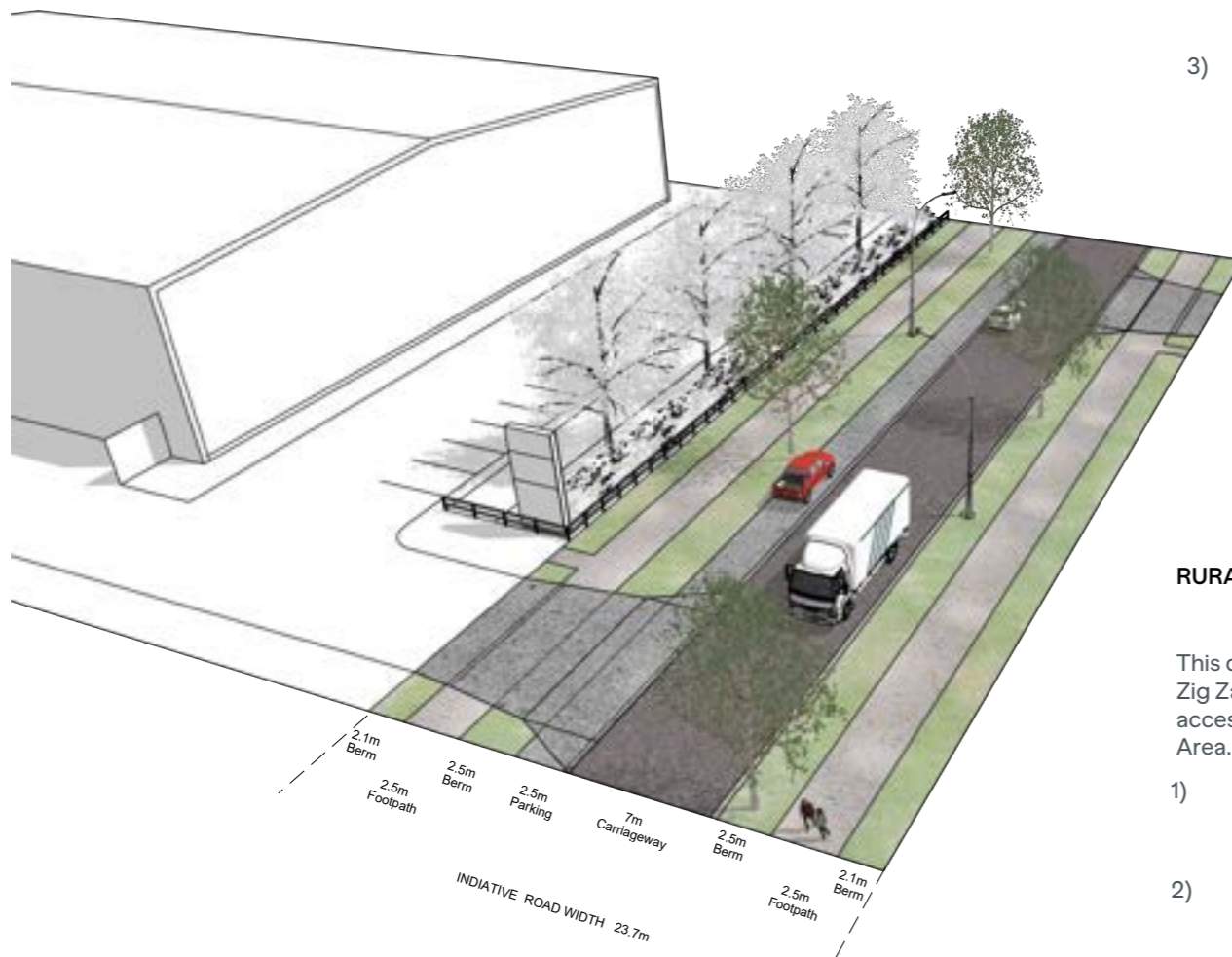
- 1) Vehicle crossings should be minimised on the edge with the swale and, if necessary, two crossings should be combined into one to reduce impacts on stormwater flow.
- 2) Pedestrian accessways should be separated from accessways for heavy vehicles.
- 3) The dimensions of the swale will vary according to Stormwater Management Plan requirements and the location within the catchment. Areas closer to the Mangaone Stream are likely to require wider swales than those further away.
- 4) Pedestrian access across the swale should be provided approximately every 200m or aligned with pedestrian desire lines. Pedestrian crossings incorporating footbridges should be considered for these locations.



LOCAL ROAD

This road type is intended for short connections with low traffic flows and limited through-traffic.

- 1) Cycle lanes or shared paths are optional and would be required only where the road would form a connection to the primary walking and cycling network.
- 2) Street trees are the preferred form of amenity.
- 3) Car parking is encouraged to be located down one edge (to minimise overall road reserve width). Car parking lanes or bays should be clearly marked.

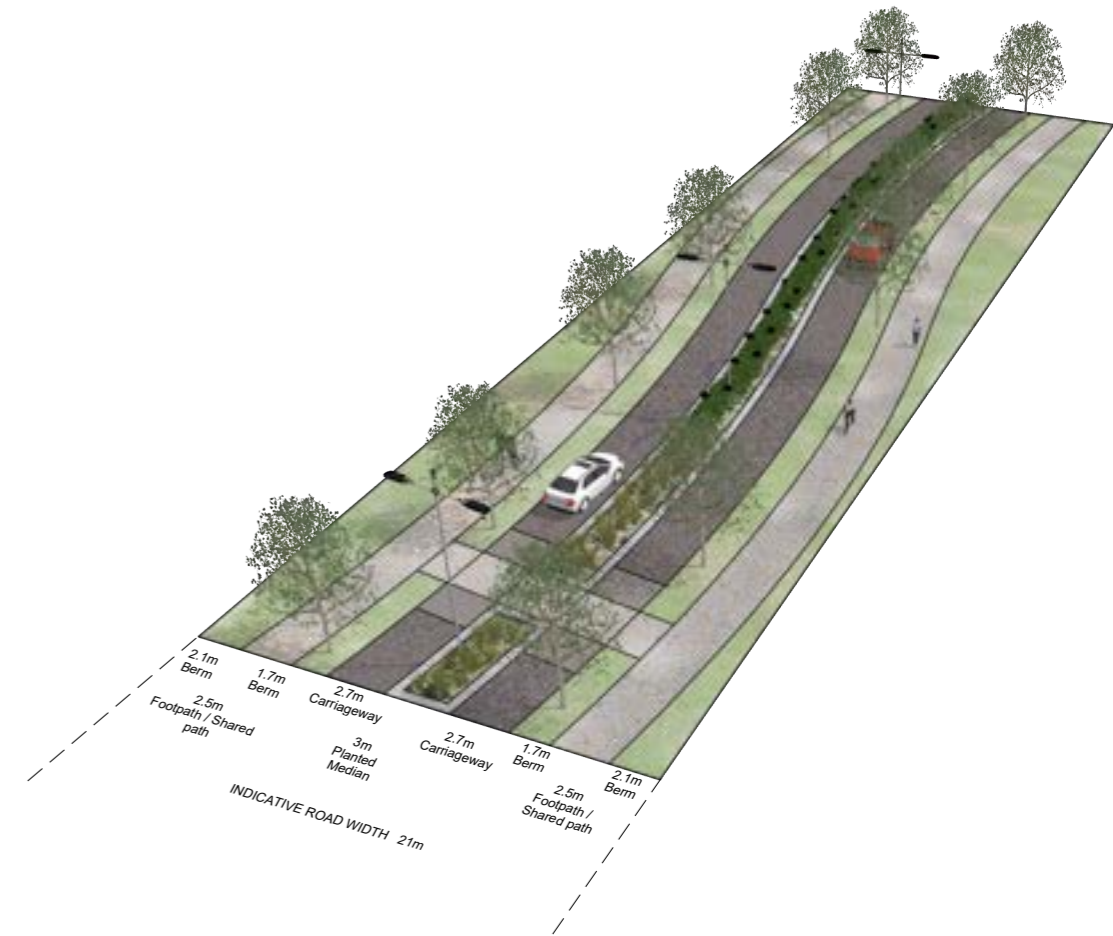


MINOR ROAD

This road type is intended for short connections with low traffic flows.

The flow of traffic is restricted to light vehicles only (no heavy trucks). This is to ensure that freight utilises the proposed Collector Road network, rather than the surrounding rural roads.

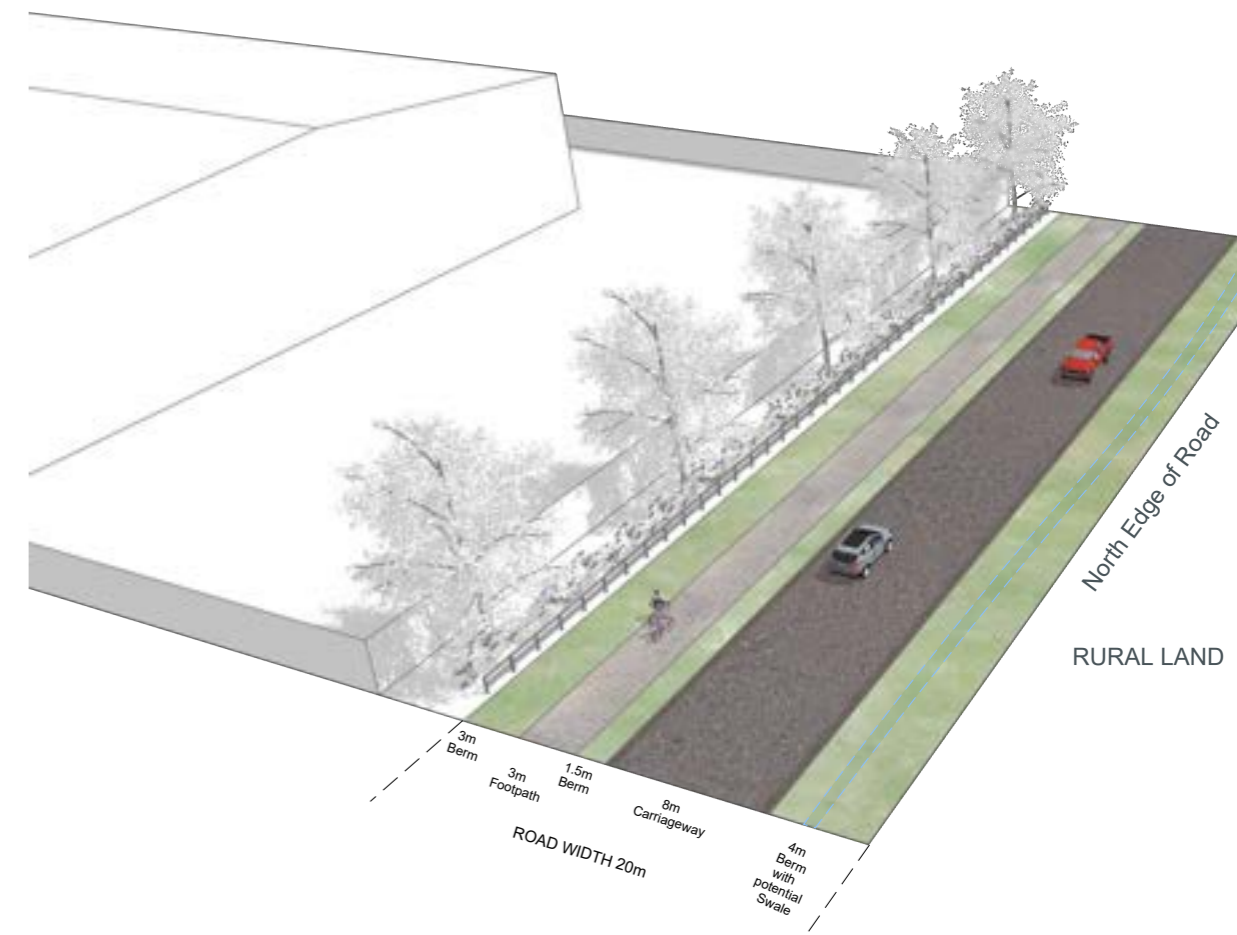
- 1) Curved geometry and traffic calming devices should be utilised to prevent heavy vehicles from using this road.
- 2) Shared paths should be provided. They are intended to form connections between the Mangaone Precinct Structure Plan Area's walking and cycling network and rural roads.
- 3) Sight lines between Swayne Road and the Industrial Zone should be intentionally restricted by closely-spaced tree canopies, low planting within the median, and through the curvature of the road.



RURAL ROAD (PARTIAL UPGRADE)

This diagram reflects the anticipated upgrades for Zig Zag Road and Swayne Road to enable vehicle access into the Mangaone Precinct Structure Plan Area.

- 1) Any existing hedges within the legal road corridor should be retained following road upgrades, where practicable.
- 2) Landscape Buffer Strip within adjacent industrial land should be integrated with Rural Road upgrade design to mitigate the visual amenity effects of industrial development within the Mangaone Precinct Structure Plan area when viewed from the surrounding rural area.
- 3) Lighting poles are likely to be required near intersections only.
- 4) Intersections should be treated with landscaping and designed to be visually attractive and appropriate to the rural context.



DESIGN GUIDELINE 4.5

SITE LAYOUT AND LANDSCAPING

The Mangaone Precinct Structure Plan Area seeks to achieve a consistent and high quality appearance for all development. This is particularly important along the frontage of sites, buildings, streets, and areas adjacent to reserves or the surrounding rural environment. The following guidelines aim for a consistent landscaping and building character for these important interfaces, while enabling a higher degree of design flexibility within the industrial lots.

- 1) To establish a safe, consistent and attractive environment for staff and visitors, the site layout should adopt a principle of placing buildings near the front boundary of the site (within 20m). Open yards, loading docks and operational areas should be located toward the side or rear yards. Where this is not achievable, a higher standard of landscaping quality, including screening vegetation, within front yards would be appropriate.
- 2) All development should promote a safe environment for pedestrians and cyclists. This should include separation of footpaths from vehicular accessways or operational areas.
- 3) Vehicles should be able to enter and leave the site in a forwards direction, through providing suitable turning areas within the site.
- 4) The frontage of the site (between the building and any adjacent road) within the Mangaone Precinct Structure Plan Area should be allocated for pedestrian access, visitor and staff car parking, and landscaping developed and maintained to a high standard of amenity.
- 5) The site frontage area should be formed with high quality surface finishes such as paving or concrete with oxide and exposed aggregate finishes for walkways, concrete for vehicle crossings and asphaltic concrete for parking and operational areas.
- 6) Consistent fencing style is important for amenity and a tidy appearance and to ensure legibility over public and private land. A timber post and rail fence (complementing the Cambridge rural aesthetic) should be provided along all site boundaries between the building and the street.
- 7) To create a high quality and consistent appearance for all development within the Mangaone Precinct Structure Plan Area, Landscaped Amenity Strips are required on all sites to a depth of at least 3m set back from front (road) boundaries. A corner site would require a landscape strip along more than one boundary.
- 8) Landscape Buffer Strips, to a minimum of 5m depth adjacent to rural roads, are required to be established prior to operation of industrial activity. It is the responsibility of the operator to maintain all landscaping and hard surfaces to a high standard and repair any damage promptly.
- 9) To protect the ecological value of the Mangaone Stream a minimum 5m building setback is required for lots adjoining the Mangaone Stream Reserve. We encourage some activation of the Reserve through building design and quality landscaping and fencing along this frontage.

LANDSCAPED AMENITY STRIP

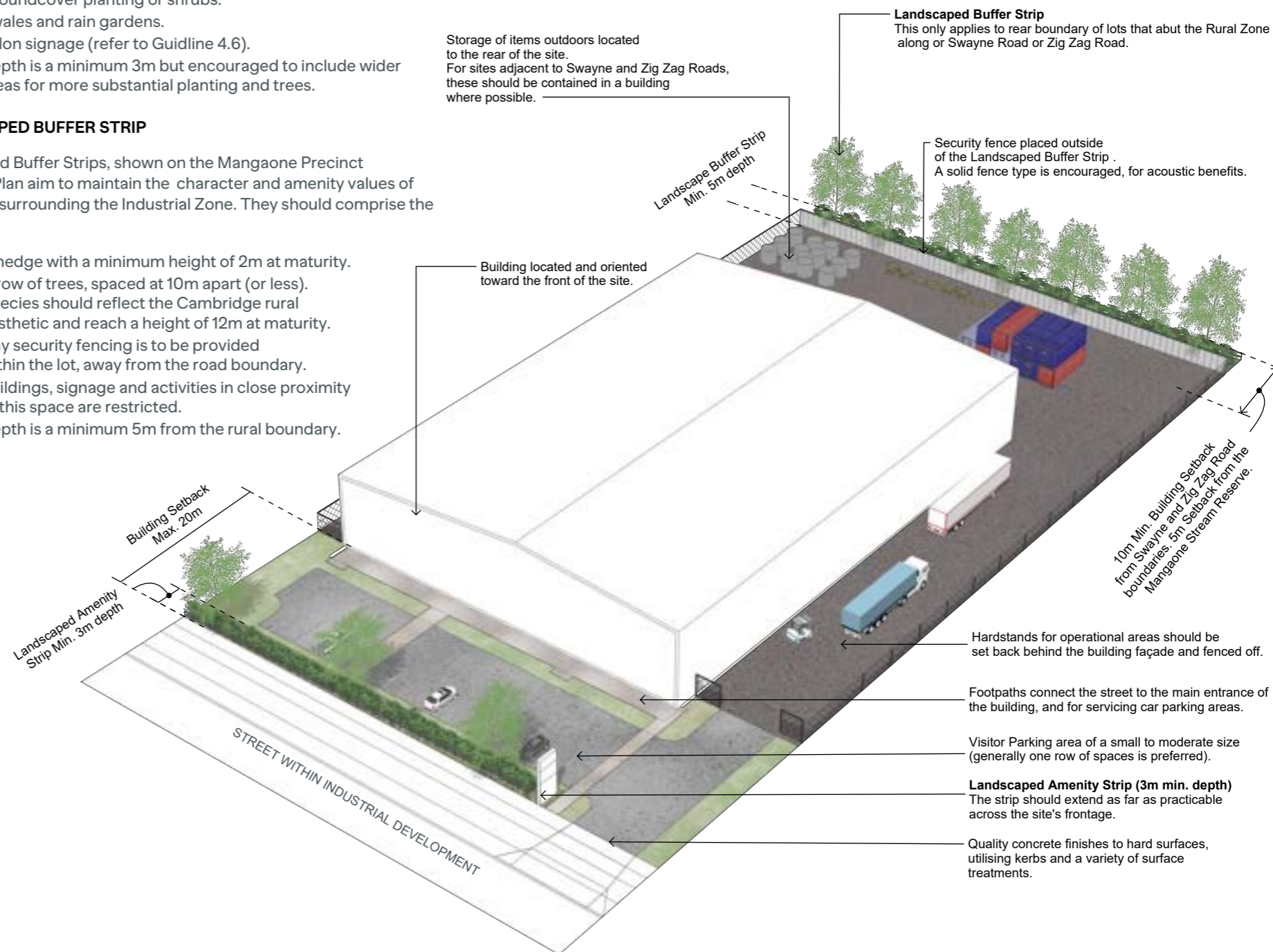
These areas sit adjacent to front (road) boundaries and provide amenity and character for the Industrial area. Strips should comprise the following items:

- A hedge parallel to the boundary to approx. 1.5m height.
- A row of specimen trees at regular spacings of 20m or less.
- Groundcover planting or shrubs.
- Swales and rain gardens.
- Pylon signage (refer to Guideline 4.6).
- Depth is a minimum 3m but encouraged to include wider areas for more substantial planting and trees.

LANDSCAPED BUFFER STRIP

Landscaped Buffer Strips, shown on the Mangaone Precinct Structure Plan aim to maintain the character and amenity values of rural areas surrounding the Industrial Zone. They should comprise the following:

- A hedge with a minimum height of 2m at maturity.
- A row of trees, spaced at 10m apart (or less). Species should reflect the Cambridge rural aesthetic and reach a height of 12m at maturity.
- Any security fencing is to be provided within the lot, away from the road boundary.
- Buildings, signage and activities in close proximity to this space are restricted.
- Depth is a minimum 5m from the rural boundary.



DESIGN GUIDELINE 4.6

BUILDING DESIGN

The Mangaone Precinct Structure Plan Area provides for a high degree of flexibility over built form to recognise the diverse range of industrial activities that may establish there. The guidelines below relate to the parts of the buildings and structures that may be viewed by the public, including views from rural areas and the distant Maungakawa hills.

Building height is controlled through District Plan standards and is a maximum of 20m. Buildings and structures within the Electricity Transmission Corridor are heavily restricted (refer to the Waipā District Plan for information).

- 1) Building facades oriented toward streets or reserves should achieve the highest standard of architectural design within the development.
- 2) The building's front façade should extend across the site as far as practicable to enclose or visually screen any internal operational areas, loading docks or plant and equipment.
- 3) The building cladding type shall be a high quality material, such as the following.
 - textured or honed concrete
 - timber boards
 - metal tile
 - mesh screening, metal slats and louvres
 - tray-profile painted steel sheet
 - dark tinted or black back-painted glass

The following materials are considered lower quality and not appropriate:

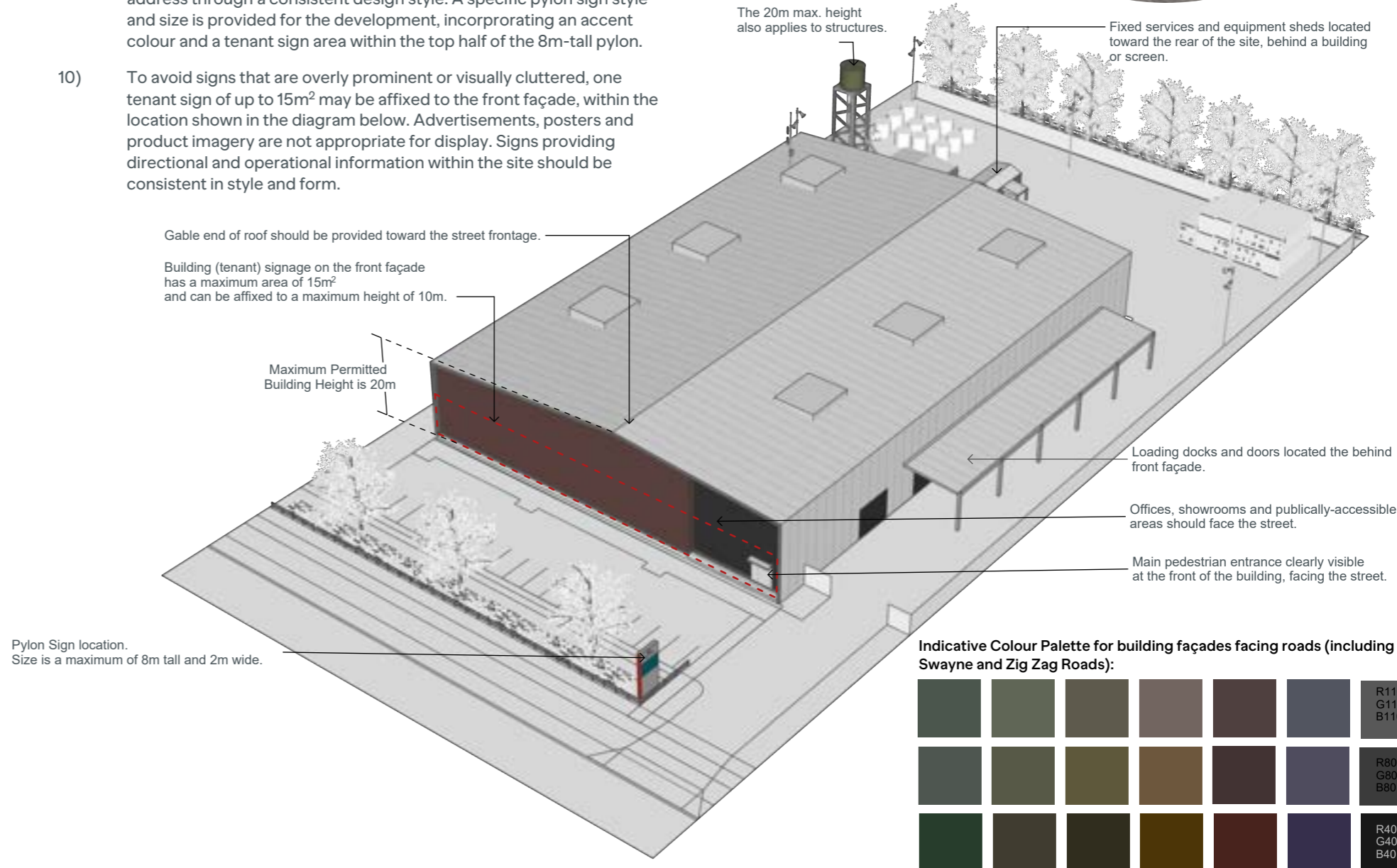
- unfinished concrete
 - plywood or composite timber panels
 - unpainted or silver/grey-coloured metal
 - trapezoidal profile or corrugated metal sheet
 - boldly-coloured or mirrored glazing
 - timber trellis
- 4) To reduce the visual bulk of buildings when viewed from adjacent streets, two varieties of cladding style are appropriate where flat facades have a width of 20m or more. Accent colours and materials are also acceptable for building edges, rooflines, entranceways, etc.
 - 5) To facilitate a modern appearance that highlights vegetation, colours applied to main building facades should adopt a dark, neutral and recessive tone. A indicative colour palette is provided (and is similar to BS5252 Chart categories B25-29). This should also be applied to facades facing Swayne Road, Zig Zag Road and the Managone Stream Cultural Reserve.
 - 6) To maintain a tidy overall appearance, all building services including drainage, ventilation units, chimneys, antennae, water tanks and maintenance areas shall be discreetly designed and where possible located away from public view. Rooftop services should be hidden within a shroud or behind a screen or parapet.

- 7) Roof forms should generally be of a low pitch, sloping down toward the side or rear boundary of the site. To avoid light reflectivity effects on properties at the Maungakawa hills, roof colour and materials shall achieve a light reflectance value of less than 70%.
- 8) To protect amenity values of rural and residential areas, the District Plan provisions require building setbacks (10m from boundary) and recession angles (45 degrees from boundary) along Swayne and Zig Zag Roads. These apply to structures and stored goods, as well as buildings.

Signage:

- 9) Pylon signs should be located near entrances display tenancy and address through a consistent design style. A specific pylon sign style and size is provided for the development, incorporating an accent colour and a tenant sign area within the top half of the 8m-tall pylon.
- 10) To avoid signs that are overly prominent or visually cluttered, one tenant sign of up to 15m² may be affixed to the front façade, within the location shown in the diagram below. Advertisements, posters and product imagery are not appropriate for display. Signs providing directional and operational information within the site should be consistent in style and form.

Pylon Sign Concept:



Indicative Colour Palette for building façades facing roads (including Swayne and Zig Zag Roads):

					R110 G110 B110
					R80 G80 B80
					R40 G40 B40

DESIGN GUIDELINE 5.0

RECOMMENDED TREE AND PLANT SPECIES SELECTION

Wetland and Reserve Planting

The planting guide of the 'Maungatautari ecological district' with a focus on 'Lowland terraces planting zone' species should be used along with ecologist and mana whenua review.

Refer to the 'Wetland Planting Guide' by Waikato Regional Council for wetland species.

Planting within the High Value Bat Habitat area on the Mangaone Precinct Structure Plan may require specific ecological input.

Involvement of Mana Whenua

Freshwater and indigenous fauna and flora have high spiritual, social and cultural value to mana whenua. Working together can ensure that valuable traditional knowledge is utilised in the selection of plant species and the design and establishment of planting environments.

Understanding the history and significance of the area can better improve work practices and care onsite.

Restorative planting provided at completion of the development stages will improve stability in surrounding soils and minimise impacts to the Stream.

Where practicable plants required for wetlands and swales to manage stormwater should be sourced locally.

Street Trees

- Acer species (Maple)
- Alectryon excelsus (Titoki)
- Alnus species (Alder)
- Carpinus species (Hornbeam)
- Cercis canadensis species (Forest Pansy / Hearts of Gold)
- Cornus species (Dogwood)
- Dacrycarpus dacrydioides (Kahikatea)
- Dacrydium cupressinum (Rimu)
- Fagus Sylvania 'Dawyck Green' (Upright Green Beech)
- Fagus Sylvania 'Dawyck Purple' (Upright Purple Beech)
- Fraxinus excelsior 'Green Glow' (European Ash)
- Liriodendron tulipifera (Tulip Tree)
- Liquidambar 'Gum Ball'
- Magnolia species
- Michelia species
- Platanus species (London Plane)
- Podocarpus gracilior (Fern Pine)
- Quercus species (Oak)
- Tila cordata (Small leaved lime)
- Ulmus species (Elm)

Low Street planting and Amenity Planting

- Coprosma 'Black cloud' and 'Poor Knights',
- Dietes species
- Phormium 'Little Gem'
- Phormium 'surfer'
- Hebe species
- Libertia species

Landscape Buffer Strips

Trees:

Native (Aotearoa Character)

- Dacrycarpus dacrydioides (Kahikatea),
- Dacrycarpus cupressinum (Rimu),
- Phyllocladus trichomanoides (Tanekaha),
- Plagianthus regius (Ribbonwood).

Exotic (Cambridge Character)

- Acer 'October Glory',
- Carpinus 'Fastigiata',
- Liriodendron tulipifera,
- Populus 'Crows Nest',
- Quercus robur 'Fastigiata.'

Hedges:

- Corokia species,
- Griselinia species,
- Coprosma species,
- Pittosporum species.



Images below and below-left - Anticipated style of planting within streets and stormwater basins





HG

