Appendix S5 - Hautapu Industrial Structure Plan, Urban Design and Landscape Guidelines

S5.1 Introduction

S5.1.1 The Hautapu Industrial Structure Plan is an update of an earlier 2008 structure plan and reflects the changes that have occurred since then, notably the completion of the Waikato Expressway – Cambridge Section; the Waipa 2050 and FutureProof Growth Strategies; and the review of the Waipa District Plan. The structure plan and accompanying design and landscape guidelines provide the framework for managing industrial development within this area, which is anticipated to be the primary industrial node for Cambridge.

S5.1.2 The purpose for updating the structure plan is to enable Council to plan and fund required infrastructure to appropriately service this industrial area, and consequently to provide a framework for development proposals. A relevant structure plan for this area is an essential tool in avoiding piecemeal development by providing a high-level enabling framework. This report and supplementary technical reports offer detail for necessary infrastructure and establishes an associated planning context for how the implementation of the structure plan is to be managed.

S5.1.3 The structure plan area is defined by land east of Peake Road, ~~south of Hautapu Road~~ *[PC17]* west of Victoria Road and north of the Waikato Expressway (State Highway 1). The structure plan area does not include the existing industrial land to the north of the area. The structure plan area is approximately ~~100~~ 132 hectares in size. *[PC17]* It does not include the area east of Victoria Road that is within the Deferred Industrial Zone. Existing activities in the structure plan area include agricultural, large lot residential, and light industrial and commercial premises. The majority of this land is currently undeveloped greenfield land.

S5.1.4 The philosophy behind the structure plan is to enable light to medium industry, including dairy and equine industries, avoiding the impacts associated with heavy industry. This is to be consistent with the character of Cambridge. Amenity is particularly important as the location is considered to be a gateway to Cambridge from the north, while simultaneously being an ideal location due to proximity with significant transportation routes.

S5.1.5 The principles guiding the Hautapu Industrial Structure Plan are as follows:

(a) An industrial area that is readily accessible, visually attractive and which has a character that embodies Cambridge's heritage and landscape (a sense of place);

(b) Maximisation of multi-purpose reserve network opportunities;

(c) Low impact design is encouraged (in terms of both stormwater and built form – particularly when viewed from gateway areas);

(d) A local transport network that is fully integrated with the regional transport network;

(e) A central focal area for public open space and provision of local commercial amenities; and

(f) Flexibility around the staging and sequencing of development.

S5.1.6 The Hautapu Industrial Structure Plan provides information for developers to ensure their development meets infrastructure requirements in a coordinated and sustainable manner to avoid complications in the future, and to enable development to be managed in an integrated approach to achieve the best outcome for developers, Council and communities. In formulating the structure plan, specific studies for urban design and landscaping, stormwater,

water and wastewater, and transportation have been undertaken. There is appropriate allocation in the water network to service the Hautapu Industrial Structure Plan area. Water supply and demand will assume 'dry industry' and a ratio of 30 FTE's (full time equivalent employees) per hectare occupancy. *[PC17]*

S5.1.7 The staging of development in the structure plan area has been divided into defined 'areas' that are available for development. These areas have been segmented according to the services that need to be put in place before the site can be occupied by a development. The areas have no definite order or sequence for development, which provides for an element of flexibility. In order to develop a site within the structure plan area, a development proposal will need to demonstrate compliance with the Waipa District Plan, including in respect of infrastructure provision.

S5.2 Urban Design and Landscape Guidelines

S5.2.1 The structure plan provides design guidelines to steer the quality of development and ensure that intended urban design outcomes are achieved. The structure plan also outlines the infrastructure that is required to service the parcels of land, in particular what services are required to be constructed by developers and those provided by Council. Main trunk connections for water, wastewater, a stormwater outlet and cycleway connections are intended to be provided by Council i.e. essentially the core infrastructure to 'unlock' the growth cell. Within the growth cell infrastructure such as roading, stormwater management and reticulation will need to be provided as part of each development, but within the overall framework outlined.

S5.2.2 The purpose of these design guidelines is to provide guidance for future development within the Hautapu Industrial Zone, such that development can be designed to minimise any potential adverse visual and landscape effects as a result of future development.

S5.2.3 The following provisions outline guidelines for the future industrial development within the Hautapu Industrial Structure Plan area. While the Cambridge area is known for its gardens and pastoral setting at the heart of the Waikato Region, it is also recognised that there is a need to provide for industrial land use as part of the area's economy. These guidelines form part of the Hautapu Industrial Structure Plan and support guidelines set out in Section 7 (Industrial Zone) of the Waipa District Plan.

S5.2.4 The following overarching Design Objective has been developed to frame the design principles and provide clear direction in relation to the aspirations for the future growth area:

Hautapu Design Objective:
To promote an industrial and business environment that is safe and attractive for all users, and minimizes adverse visual effects on the surrounding rural environment and public places.

S5.2.5 To assist in achieving the vision, there are six key areas that future development at Hautapu should respond to, as outlined within these guidelines:

(a) Site Responsive Design

(b) Access and Movement

(c) Building Layout

(d) Built Form

(e) Landscaping

(f) Central Focal Area

S5.2.6 Objectives and guidelines are outlined under each of these headings. The objectives are overarching design statements that the development should seek to achieve. The specific guidelines are provided to identify potential design solutions that will achieve the overarching design objectives.

S5.2.7 The Structure Plan diagrams and design guidelines follow.

S5.3 Site Responsive Design

S5.3.1 Site and Context Assessment

S5.3.1.1 Design Objectives

(a) To ensure that new development responds to the its context and reinforces its rural character setting.

(b) To retain 'locating' views across and out of the site.

S5.3.1.2 Design Guidelines

(a) A site analysis should be undertaken at the beginning of, and to inform, the design process. The analysis should include:

(i) Surrounding land uses - existing and proposed future uses.

(ii) Existing and future transport networks - road, pedestrian and cycle paths, and public transport.

(iii) Built form, character and heights of surrounding buildings.

(iv) Areas of vegetation.

(v) Predominant landscape and cultural heritage character of the area.

(vi) Understanding of drainage systems both within and beyond the site.

(vii) Views and outlook.

(viii) Climatic conditions including solar access and prevailing winds.

(b) As far as possible, retain open vistas of Mt Pirongia when viewed from Hautapu Cemetery, and vistas of Mt Maungatautari when viewed from properties on Peake Road.

Figure 1: Existing views to a wider setting.

Figure 2: Adjoining cemetery - understanding site interfaces is important so that development can integrate appropriately with its immediate context.

S5.4 Access and Movement

S5.4.1 Pedestrian and Cyclist Network

S5.4.1.1 Design Objectives

(a) To facilitate safe and easy access for pedestrians and cyclists to, from and within the industrial area.

(b) To provide good quality walking and cycling facilities within the industrial area.

S5.4.1.2 Design Guidelines

(a) Provide for clearly defined pedestrian and cyclist routes in and around the industrial area.

(b) Maintain clear sight lines at pedestrian and cycling crossings.

(c) Design driveway access to minimise vehicle and pedestrian / cyclist conflicts by maintaining clear sight-lines between the exiting or entering vehicle and pedestrians.

(d) Provide secure bicycle storage that is close to building entrances, to assist in increasing accessibility and provide passive surveillance.

Figure 3: Example of a clearly defined pedestrian entry with good pedestrian links and visitor parking to the front of the building.

Figure 4: A good example of a pedestrian crossing within an industrial environment.

S5.4.2 Vehicle Movement

S5.4.2.1 Design Objectives

(a) To provide safe, convenient and efficient access for all vehicles to and from the industrial area.

(b) To minimise the impacts of traffic on the surrounding area.

(c) To provide access and car parking arrangements that are logical and legible to visitors and employees.

(d) To minimise the impacts of crossing points on pedestrians and cyclists.

S5.4.2.2 Design Guidelines

(a) Developments should be designed to allow all vehicles to enter and exit a site in a forward motion. Turning areas will be provided for larger vehicles where necessary.

(b) All access points should have clear sight-lines, enabling vehicles to enter and exit safely and efficiently.

S5.4.3 Loading and Servicing

S5.4.3.1 Design Objectives

(a) To provide safe and efficient loading and servicing areas for all sites.

(b) To minimise the visual impact of loading bays and service areas when viewed from surrounding public areas.

S5.4.3.2 Design Guidelines

(a) Loading areas should be located to the rear or side of the site away from the street frontage. Refer Figure 5.

(b) Loading areas should be where practical, separated from vehicle access routes.

(c) Loading areas should be designed to allow unobstructed vehicle access and provide appropriate turning areas and allow for sufficient and safe collection of waste materials.

(d) Provide storage and loading areas of sufficient size and dimensions to avoid the use of car parks for temporary storage of goods.

(e) Boundary treatment should provide adequate screening of the loading and service areas from the surrounding streets, including the Waikato Expressway.

S5.4.4 Car Parking Layout and Design

S5.4.4.1 Design Objectives

(a) To provide sufficient car parking for the needs of the business.

(b) To provide an environment where parking is not perceived as the dominant element from the street and other public areas.

(c) To provide safe and efficient access within car parks for all users.

(d) To provide safe accessible car parking for local amenities.

S5.4.4.2 Design Guidelines

(a) Visitor spaces should be clearly distinguished with suitable signage or markings.

(b) Visitor and staff parking areas should be located adjacent to areas of the building that are commonly accessed, and a pedestrian pathway should be provided to the entrance of the building.

(c) Visitor parking should be located in a separate location from operational areas such as truck manoeuvring areas, and external storage areas.

(d) Where visible from the street or public area, large car parking areas should be broken up through high quality landscaped treatments (refer Figure 7).

(e) Car parking areas should be designed with a regular grid of shade trees, of a suitable species. Refer to Attachment B for a list of appropriate species.

(f) Carparking should include safe pedestrian links, designed to provide access for all users.

(g) Provide on-street car parking (including disabled car parking) adjacent to public open space and amenities, e.g. adjacent to the central focus area as illustrated on within the structure plan.

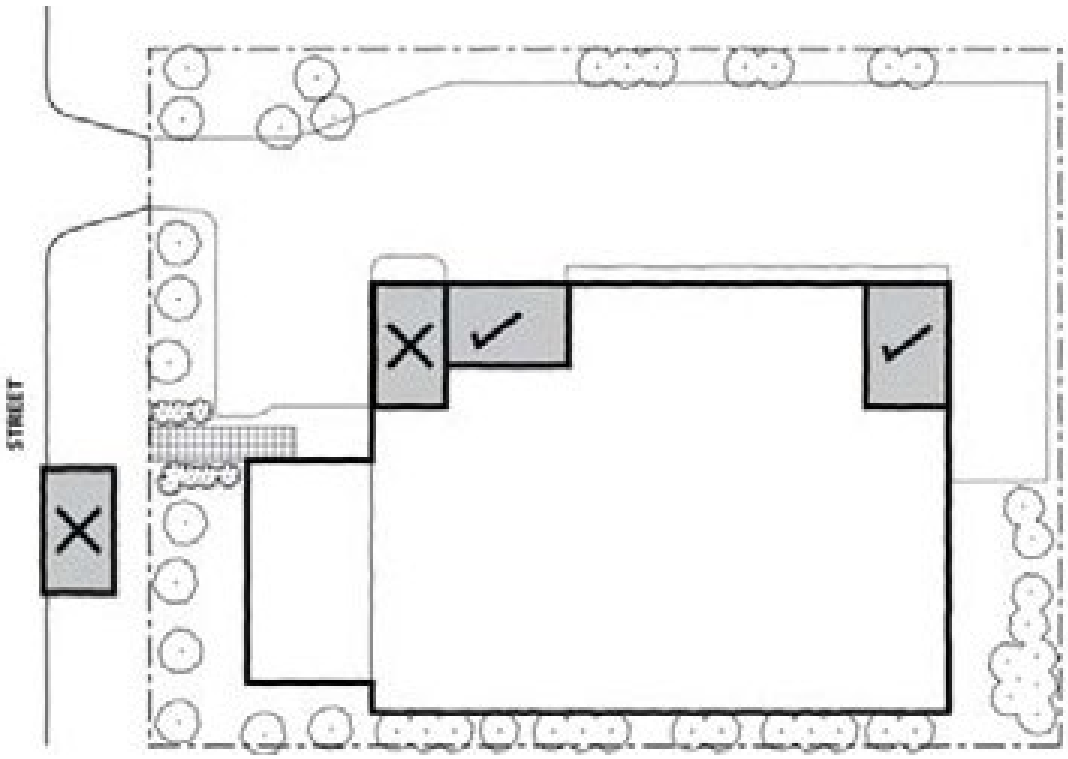


Figure 5: Recommended locations of loading and servicing areas.

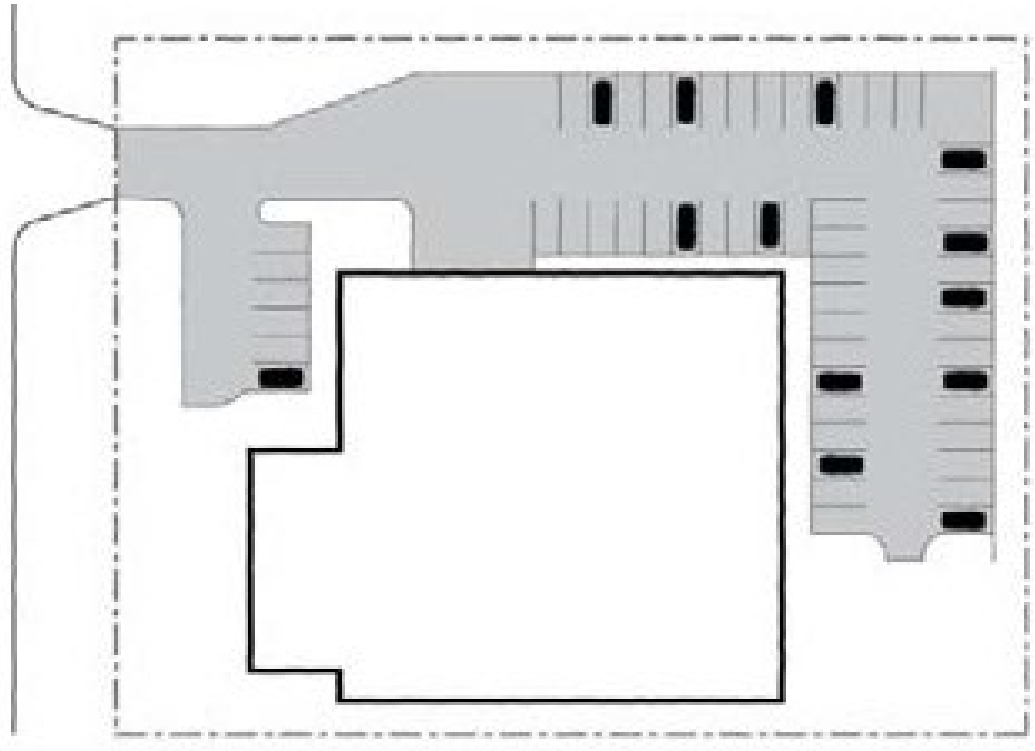


Figure 6: Car parking areas to the side and rear of the building should be a design outcome.

Figure 7: Landscaping helps minimise the visual impact of the car park, breaking up the large areas of asphalt. Added environmental benefits include less storm-water runoff, increased amenity and shade for parked cars.

S5.5 Building Layout

S5.5.1 Setbacks

S5.5.1.1 Design Objectives

(a) To provide a clear and legible front entrance that is visible from the street.

(b) To site buildings so they provide adequate space for landscaping and reduce visual impacts on surrounding public areas (including roads).

S5.5.1.2 Design Guidelines

(a) Building setbacks should be no less than 3 metres along Hannon Road (south of the cemetery) and within the 'Existing Industrial' area to the north-east of the site. Refer Attachment A.

(b) Building setbacks along Hautapu Road and Peake Road and along external boundaries of the ~~'Future~~ 'Industrial Zone' *[PC17]* area are to be setback 15 metres. Refer Attachment A.

(c) Buildings along the southern boundary adjacent to the Waikato Expressway should be designed to provide visual interest and minimise the potential to be dominant when viewed from the public realm.

(d) Front setbacks should be landscaped in accordance with the guidelines set out in Section S5.7 Landscaping, and should not be used to store goods, materials or waste.

(e) Building setbacks from internal road boundaries shall be 5m. *[PC17]*

Figure 8: A clear and legible front entrance with a glass facade that provides passive surveillance of the car park. A change in surface treatment highlights where the pedestrian footpath leads to the entrance across the car park.

S5.6 Built Form

S5.6.1 Street Address

S5.6.1.1 Design Objectives

(a) To provide buildings that are easy for visitors and workers to locate.

(b) To create an attractive setting for industrial buildings that support a range of movements, connections and enable safe pedestrian / cyclist access where appropriate.

(c) To provide passive surveillance of surrounding public spaces.

S5.6.1.2 Design Guidelines

(a) Avoid blank, unarticulated walls along the front façades. Provide planting where this is unavoidable.

S5.6.2 Building Design

S5.6.2.1 Design Objectives

(a) To reinforce the rural character of the local area through appropriate built form and landscape elements.

(b) To provide buildings that facilitate visual interest and variety in form and appearance.

(c) To provide practical building forms that meet the purpose of the industry or business.

S5.6.2.2 Design Guidelines

(a) Avoid excessive blank walls.

(b) Large expanses of building walls that are visible from the street should be broken up or otherwise detailed to reduce the scale and increase interest.

(c) Use simple, orthogonal forms that are broken up by contrasting materials, colours and textures.

S5.6.3 Material Finishes and Colours

S5.6.3.1 Design Objectives

(a) To provide colours, materials and finishes that are compatible with the rural character of the Cambridge area.

(b) To provide a co-ordinated palette of colours, materials and finishes.

(c) To provide materials that are durable and robust.

S5.6.3.2 Design Guidelines

(a) Utilise materials that reinforce the rural character such as corrugated iron, timber and textured concrete. Avoid large undifferentiated façade areas of plain concrete.

(b) Utilise a mix of materials and colours particularly within the visible façades, to provide articulation to the buildings and visual interest to the street.

Figure 9: This development incorporates good pedestrian links, high quality amenity landscaping and good passive surveillance around the building.

Figure 10: This building provides good street address and passive surveillance with its large glazed façade.

Figure 11: Coloured concrete panels and glazed facade help break up the scale of the building.

Figure 12: Varying setbacks and a mix of neutral coloured façades help reduce the dominance of the building.

S5.6.4 Building Heights

S5.6.4.1 Design Objectives

(a) To provide buildings that are appropriately scaled to maintain key views from surrounding areas.

(b) To provide industrial and office buildings that have minimal impact on the surrounding area.

S5.6.4.2 Design Guidelines

(a) Any building within 100m of State Highway 1 Waikato Expressway, Victoria Road or Hautapu Cemetery shall be designed to take into account potential visual effects on these public spaces including overshadowing, impacts on key views and outlook, and visual dominance.

(b) Building heights should respond appropriately to the surrounding area, and incorporate lower elements towards the street to relate to the pedestrian scale.

(c) Taller elements of the building should be recessed from the street.

(d) Buildings should not generally overshadow public footpaths or public open space.

Figure 13: An example of simple, non-bulky roof form that represents the industrial building character.

Figure 14: Low pitched gabled roof forms are an important element of the industrial character.

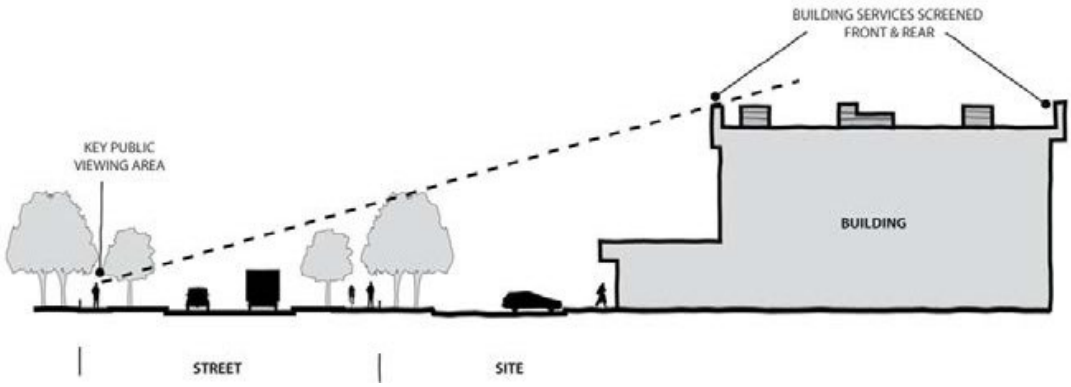


Figure 15: Utilising roof forms to screen building infrastructure.

S5.6.5 Roof Forms

S5.6.5.1 Design Objectives

(a) To integrate the roof form into the overall design of the building.

(b) To ensure roof forms reflect the industrial function of the building.

(c) To avoid clutter on the roof.

S5.6.5.2 Design Guidelines

(a) Roof forms should generally be of a low pitch unless necessitated by the particular industry function. Avoid bulky or highly detailed roof forms.

(b) Utilise roof forms to differentiate between the various elements of the building. This could include the transition between the office / sales area through to the larger shed behind.

(c) Building infrastructure which is located on the roof including air conditioning units, plant room, lift motor etc. is to be screened from adjoining streets and areas.

S5.6.6 Signage and Advertising

S5.6.6.1 Design Objectives

(a) To provide for the identification of businesses in a way that maintains the character and amenity of the street.

(b) To ensure signage is informative and co-ordinated in a way that enables customers to easily locate the industry or business and determine its services.

S5.6.6.2 Design Guidelines

(a) Directional signage should be provided within sites to delineate entries and exits, staff and visitor parking, office /reception areas, and loading areas. Directional signage within the site should be consistent in style and form (refer Figure 16).

(b) Signage attached to front fences and temporary A-Frame signage on footpaths should be avoided.

(c) Signage which directs vehicles to parking and servicing areas should be clearly visible and unobstructed by building features or landscaping.

(d) All signs should be high quality and low maintenance.

(e) Sign colours should be a similar colour to those used in buildings, with allowance for no more than 50% of the sign coverage to include corporate colours and logos.

(f) Free standing tenant signs may be placed at locations near entry driveways.

(g) Building mounted signs should be limited to a of maximum one per tenant (refer Figures 17, 18 and 19).

Figure 16: Siting of design of detached signage.

Figure 17: This sign is located in a clearly identifiable position on the building face and at an appropriate size and scale.

S5.7 Landscaping

S5.7.1 Landscape Design

S5.7.1.1 Design Objectives

(a) To provide landscape design that responds to the characteristics and qualities of the area.

(b) To provide high quality landscaping that enhances the setting of buildings.

(c) To provide low maintenance landscaping.

(d) To provide landscape design that promotes sustainable stormwater management.

S5.7.1.2 Design Guidelines

Landscaped setbacks

(a) Where not covered by these design guidelines , the amenity planting strip will consist of a combination of ground-covers (i.e. shrubs and/or grass) and trees.

(b) Where appropriate, drainage management measures are to be integrated into the amenity strips.

(c) Landscaping in rear setbacks should be provided if the rear of the site adjoins or is visible from a public street.

Street tree planting

(d) Amenity street tree planting at ~~30m~~ 12m *[PC17]* maximum spacings should be provided along Peake Road, Hautapu Road and along parts of Hannon Road and Victoria Road (refer to Attachment A).

Species selection

(e) Species should be selected to integrate with the surrounding landscape character and connect and integrate with the landscape of adjoining sites where appropriate.

(f) Landscape areas should be planted with species that are low maintenance and hardy. Species selection should generally provide an emphasis on native and indigenous plants that are appropriate to the site and landscape character of the area (refer to Attachment B).

Figure 18: Quality landscaping of the site boundaries improves site amenity. The linearity of this landscaping treatment is ideal for a swale.

Figure 19: This landscaping example is effective in screening and also providing an attractive element to the streetscape.

Figure 20: Landscape treatment may include a variety of planting to soften the built form.

Figure 21: Landscape planting, in accordance with the preferred planting schedule, may be as simple as a grass setback with regularly planted trees.

Car park landscaping

(g) A landscape strip of at least 1 metre should be provided to separate car parks from side and rear boundaries.

(h) Landscaped areas should be separated from vehicle access through the use of kerbs, wheel stoppers, or raised edging to ensure the maintenance of vegetation.

(i) Use water sensitive urban design techniques to treat storm-water run-off from car parks and passively irrigate vegetation (refer Figure 22).

Staff Amenity Areas

(j) Where provided for or where the features of a site or proposal make it feasible or necessary, functional outdoor staff areas should be located to take advantage of northern aspect, connection to internal staff meals areas, and be landscaped with shade trees and seating (refer Figure 23).

Establishment and Maintenance

(k) Provide for the ongoing maintenance of landscaped areas and generally utilise low maintenance and durable landscaping techniques.

Figure 22: Well designed quality landscaping of a staff car park adjacent to an industrial building improves its amenity.

Figure 23: An example of a high quality amenity space that can be used by both visitors and staff.

S5.7.2 Fencing

S5.7.2.1 Design Objectives

(a) To ensure the front boundary treatment contributes positively to the appearance of the streetscape and clearly delineates the public and private realms.

(b) To ensure fencing provides for adequate site security.

(c) To ensure fencing is co-ordinated with the design of the building and landscaping.

S5.7.2.2 Design Guidelines

(a) Fencing along the front boundary should generally be avoided. Utilise landscaping to delineate the front property boundary. If security fencing is a requirement, it should be setback from the road boundary behind the planting buffer strip (as shown in Figure 27).

(b) Where fencing is proposed but not required for security purposes, fencing should be:

  (i) Unobtrusive and be less than standard height.

  (ii) Allow clear views between the street and the business.

  (iii) Use materials and colours appropriate to the location, and building and landscape design.

  (iv) Avoid the use of high and/or solid structures / materials.

(c) If security fencing is required, it should have a high degree of transparency and be constructed with black plastic coated chain link wire or black steel post style. Provide landscaping around the fencing to soften the visual impact and avoid the use of razor or barbed wire fencing.

(d) If security fencing is required along the front boundary, it should be provided at or behind the building line to enable stronger visual and physical connection between the street and building entries.

(e) Where screen fencing is required, it should be designed to integrate with the materials and colours utilised throughout the site.

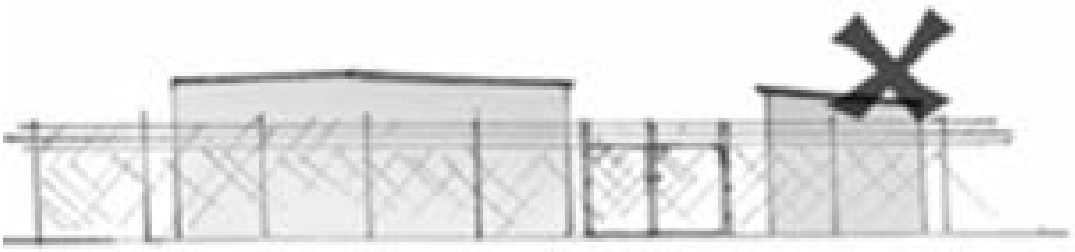


Figure 24: Boundary treatment with no landscaping.

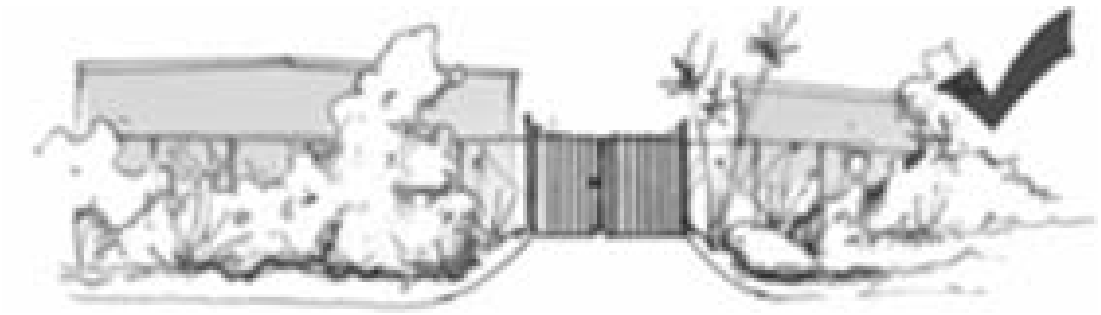


Figure 25: Boundary treatment with good landscaping.

S5.8 Central Focal Area

S5.8.1.1 Design Objectives

(a) To maximise safety, accessibility and attractiveness of the Central Focal Area.

(b) To provide landscape design that promotes sustainable stormwater management. commercial activities that provide for everyday needs of employees and visitors.

(c) To provide safe, accessible public open space for use by local employees and visitors (refer to Figure 26).

S5.8.1.2 Design Guidelines

(a) Through an integrated design approach, provide for a mix of uses within the Central Focal Area including a mix of commercial and public amenities, e.g:

  (i) Local commercial amenities such as a dairy, bakery, café or similar activities.

  (ii) Open space including a mix of informal playing fields, exercise equipment and/or passive recreation facilities, e.g. seating and picnic benches.

(b) Where appropriate, integrate open space and amenities with adjoining stormwater elements such as ponds and swales, such as could contribute to the amenity outcomes for the Central Focal Area.

(c) Provide for a comprehensive approach to landscaping throughout the Central Focal Area, taking into account Attachment B: Recommended Species Selection, as well as CPTED principles.

(d) Enable passive surveillance that contributes to the safety and amenity of the Central Focal Area by ensuring that commercial amenities and adjoining activities face on to open space and public activities, and by avoiding fencing and dense vegetation along boundaries of the public area.

(e) Provide for public cycle and vehicle parking opportunities, including disabled parking, within the Central Focal Area.

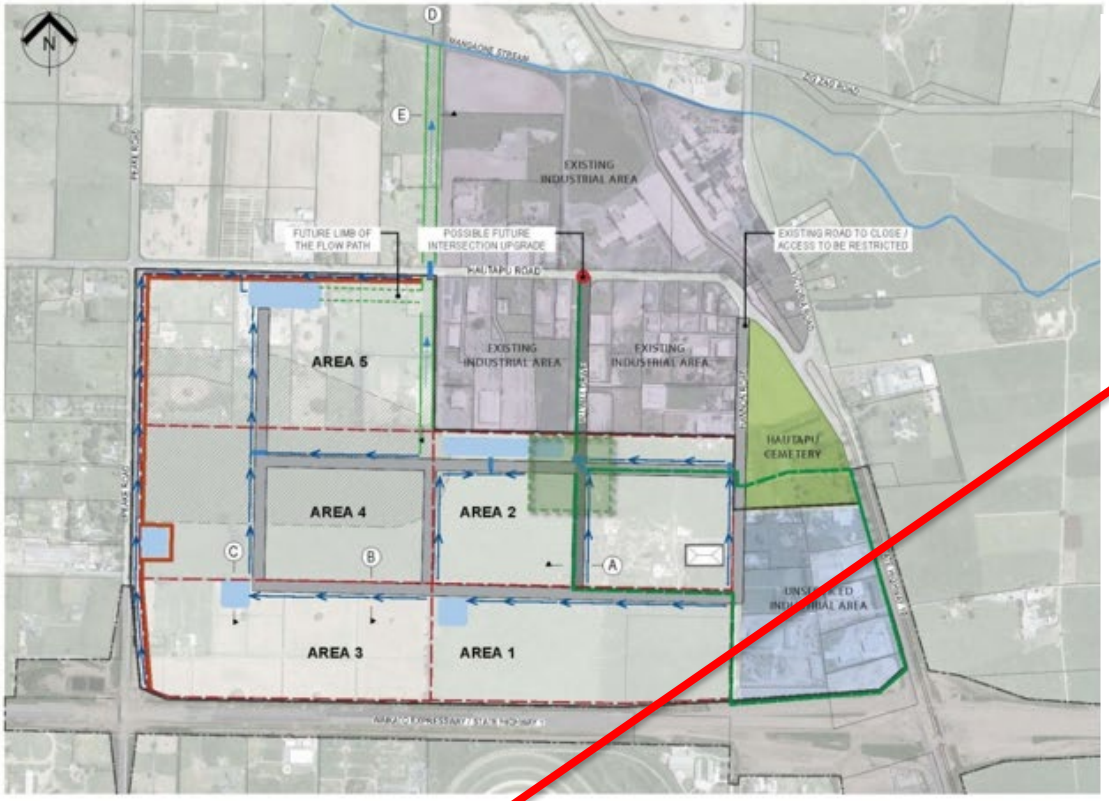
(f) Commercial amenities should be designed to be of a 'human scale' through appropriate scale, detailing and modulation.

(g) Suitable signage indicating way finding information and amenities should be used to complement the area.

Figure 26: Local neighbourhood outdoor gym example, Havelock North (source: stuff.co.nz).

Figure 27: Indicative cross section illustrating integrated approach between Central Focal Area activities.

S5.9 Hautapu Structure Plan



KEY

- STRUCTURE PLAN AREA
- POST & RAIL FENCE
- AREA1 AREAS
- EXISTING INDUSTRIAL AREA
- UNSERVICED INDUSTRIAL AREA
- CEMETERY
- CENTRAL FOCAL AREA (INDICATIVE SIZE)
- HANNON HOMESTEAD
- COLLECTOR ROAD (ALLWILL DRIVE)
- INDICATIVE LOCAL ROAD
- CYCLE / PEDESTRIAN PATH
- A REFER TO CROSS SECTIONS
- INDICATIVE SOAKAGE AREA
- SECONDARY FLOW CHANNEL
- SWALE
- ZONE OF SOILS POTENTIALLY UNSUITABLE FOR SOAKAGE
- CULVERT
- POSSIBLE FUTURE INTERSECTION UPGRADE

HAUTAPU STRUCTURE PLAN

HAUTAPU STRUCTURE PLAN

ITEMS TO GIVE EFFECT TO THE STRUCTURE PLAN:

ROADS & ACCESS

- THE EXISTING HANNON ROAD INTERSECTION TO CLOSE OR BE RESTRICTED TO EXISTING DEVELOPMENT ONLY BEYOND THE DEVELOPMENT OF:
  - THE UNSERVICED INDUSTRIAL AREA
  - 5HA OF ADDITIONAL LAND.
- THE HANNON ROAD NORTH EASTERN ACCESS WILL BE TO A NEW INTERSECTION POTENTIALLY IN THE LAND SET ASIDE FOR THE EXTENSION OF HAUTAPU CEMETERY. ONCE COMPLETED AND OPENED, THE RESTRICTION ABOVE CAN BE LIFTED.
- ALL ROADS TO BE DESIGNED IN ACCORDANCE WITH THE ATTACHED CROSS SECTIONS.
- NO INDIVIDUAL ACCESS TO PEAKE ROAD
- AN UPGRADE TO THE INTERSECTION OF ALLWILL DRIVE / HAUTAPU ROAD MAYBE REQUIRED IN THE FUTURE DEPENDING ON THE NATURE AND LEVEL OF TRAFFIC GENERATED FROM THE DEVELOPMENT. THIS MAY INCLUDE THE NEED FOR A ROUNDABOUT.

STORMWATER

- SOAKAGE DISPOSAL OF ALL OF THE 2YR ARI STORM (UP TO 72HRS)
- TREATMENT OF RUNOFF IN ACCORDANCE WITH TP10.
- PRIMARY DRAINAGE CAPACITY FOR A 10YR ARI STORM.
- NO INCREASE IN VOLUME DISCHARGED IN THE 10YR ARI STORM.
- SECONDARY FLOW PATHS ALONG ROAD CORRIDORS FOR A 100YR ARI STORM.
- PEAK FLOW ATTENUATION IN A 100YR ARI STORM (TO 80% OF EXISTING).
- ON-LOT MANAGEMENT OF STORMWATER SEPARATE TO THE ROAD CORRIDOR.

WATER SUPPLY

- RETICULATED NETWORK TO BE PROVIDED.
- INSTALLATION OF A 375MM MAIN FROM WATKINS ROAD RESERVOIR.
- NZFS FIRE FIGHTING DEMANDS OF W5 OR LESS TO BE MET BY RETICULATED SYSTEM.
- ON-SITE STORAGE REQUIREMENTS OF W6 OR MORE.

WASTEWATER

- RETICULATED NETWORK TO BE PROVIDED VIA A SERIES OF PUMPING STATIONS.
- CONNECTION REQUIRED TO THE MANHOLE AT VICTORIA/TAYLOR STREET INTERSECTION.

LANDSCAPING AMENITY

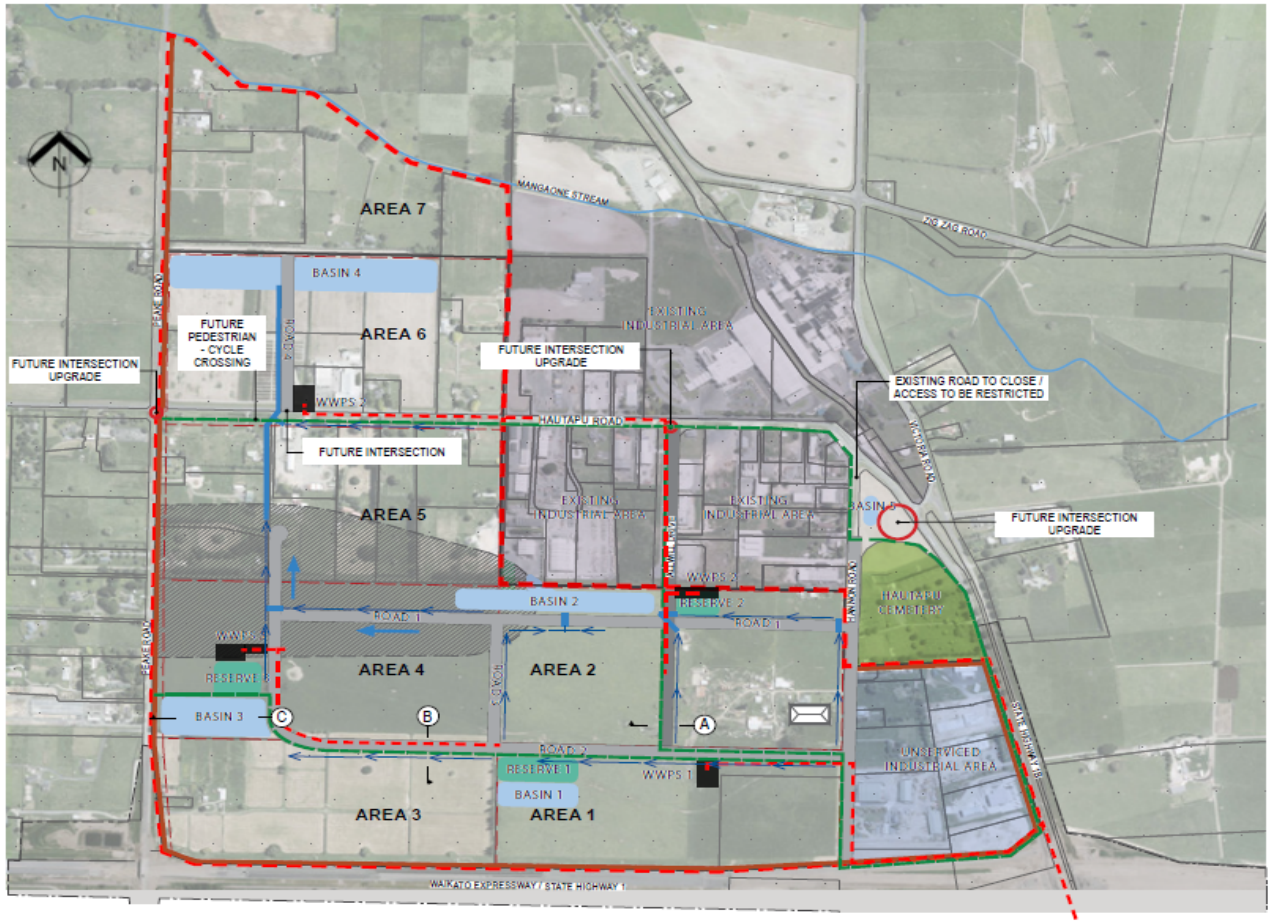
- POST & RAIL FENCE TO BE PROVIDED ON STRUCTURE PLAN AREA PERIMETER SITES.
- LANDSCAPING TO BE AS PER SECTION 6 OF THE DESIGN GUIDELINES.
- OFF-ROAD CYCLING PATH TO BE PROVIDED TO CONNECT VICTORIA ROAD TO THE CENTRAL FOCAL AREA.
- DEVELOPMENT WITHIN AREA 2 SHALL PROVIDE A RESERVE OF APPROXIMATELY 2500m², WITH THE RESERVE TO BE ON THE CORNER OF THE ALLWILL DRIVE EXTENSION AND ONE OTHER INTERNAL HAUTAPU ROAD TO BE DEVELOPED.
- HANNON HOMESTEAD TO BE RETAINED.

CENTRAL FOCAL AREA, BUILDING AND SITE LAYOUT

- CENTRAL FOCAL AREA, CAR PARKING, BUILDING LAYOUT AND DESIGN TO BE DESIGNED IN ACCORDANCE WITH THE DESIGN GUIDELINES.

SCALE 0 100 200 300 400 500m

FEBRUARY 2019
ORIGINAL SIZE: A3
SHEET 1 OF 6



ITEMS TO GIVE EFFECT TO THE STRUCTURE PLAN:

ROADS & ACCESS

- HANNON ROAD INTERSECTION TO CLOSE FOLLOWING OPENING OF THE PLANNED VICTORIA ROAD / HAUTAPU ROAD ROUNDABOUT.
- HAUTAPU ROAD, HANNON ROAD TO ALWILL DR, INCLUDING ALLWILL DRIVE SIGNALS, TO BE UPGRADED PRIOR TO ALWILL DRIVE CONNECTION WITH ROAD 1 OR DEVELOPMENT WITHIN AREA 6 (WHICHEVER COMES FIRST), UNLESS SUITABLE SAFETY IMPROVEMENTS FOR ACTIVE MODE CONNECTIVITY TO AREA 1-5 AND 6 CAN BE DEMONSTRATED TO BE PROVIDED BY ALTERNATIVE MEANS, TO THE SATISFACTION OF THE TRANSPORTATION ENGINEERING MANAGER, WAIPA DC.
- HAUTAPU ROAD, ALLWILL DRIVE TO PEAKE ROAD, INCLUDING PEAKE ROAD INTERSECTION IMPROVEMENTS, TO BE UPGRADED PRIOR TO DEVELOPMENT WITHIN AREA 6.
- A RIGHT-TURN BAY AND PEDESTRIAN/CYCLE CROSSING TO BE ESTABLISHED AT THE HAUTAPU ROAD / ROAD 4 INTERSECTION PRIOR TO DEVELOPMENT WITHIN AREA 6.
- NO INDIVIDUAL ACCESS TO PEAKE ROAD.
- CYCLE WAY TO BE CONSTRUCTED FROM VICTORIA ROAD THROUGH AREAS 1 AND 3 TO PEAKE ROAD AS SHARED PATH. TREATMENT REQUIRED AT VEHICLE CROSSINGS ALONG ROUTE TO ALERT TO ALERT VEHICLES TO CYCLISTS ON PATH.
- INTERSECTION UPGRADE HAUTAPU ROAD AND SH1B / VICTORIA STREET REFER TO GREY MATTER DESIGNS REF# ECM10796019.

STORMWATER

- ON-LOT TREATMENT AND DISPOSAL REQUIRED FOR RUNOFF UP TO AND
- INCLUDING 24-HR, 10% AEP EVENTS.
- PRIMARY NETWORK (SWALE) CAPACITY FOR 10% AEP EVENTS. SECONDARY
- NETWORK (ROAD CORRIDOR) FOR 1% AEP EVENTS.
- BASIN CAPACITY FAR 72-HR, 1% AEP EVENTS WITH NO SOAKAGE ALLOWANCE.
- BASIN UNDER DRAINAGE MATRIX REQUIRED TO MINIMISE EFFECTS FROM SILT
- DEPOSITION IN THE BASIN

WATER SUPPLY

- RETICULATED NETWORK TO BE PROVIDED.
- INSTALLATION OF DN375 MAIN REQUIRED PRIOR TO DEVELOPMENT.
- STAGED NETWORK MAY ONLY ACHIEVE FW2 LEVEL OF SERVICE. COMPLETED NETWORK WILL ACHIEVE FW3. HIGHER RISK USES MUST PROVIDE APPROPRIATE SOLUTIONS TO MEET FIRE FIGHTING REQUIREMENTS.

WASTEWATER

- GRAVITY SEWER NETWORK REQUIRED THROUGHOUT, DISCHARGING TO WW PUMP STATIONS.
- PS-1 REQUIRED WITH AREA 1 DEVELOPMENT. SUBSEQUENT PUMP STATIONS TO DISCHARGE INTO GRAVITY NETWORK SERVING PS-1.
- PS-1 RISING MAIN TO DISCHARGE TO TAYLOR STREET WW PUMP STATION.

LANDSCAPING AMENITY

- 4M PLANTING STRIP TO FACE WAIKATO EXPRESSWAY.
- PEAKE ROAD, HAUTAPU ROAD, NORTH END OF HANNON ROAD AND VICTORIA ROAD TO PROVIDE 5M LANDSCAPE AMENITY PLANTING STRIP AND AMENITY TREE PLANTING AT APPROX 30M INTERVALS.
- PLANTING STRIP ON PEAKE ROAD TO BE VESTED WITH COUNCIL
- NOISE BUNDS REQUIRED ON PEAKE ROAD AND HAUTAPU ROAD.
- THREE RESERVES TO BE PROVIDED IN LOCATIONS IDENTIFIED. ALLOWANCE TO BE MADE FOR LIMITED CAFE(S) AND/OR LUNCH BAR(S) ADJACENT TO PARKS.

BUILDING AND SITE LAYOUT

- CAR PARKING, BUILDING LAYOUT AND DESIGN, LANDSCAPING ETC ON LOTS, TO BE IN ACCORDANCE WITH THE DESIGN GUIDELINES.

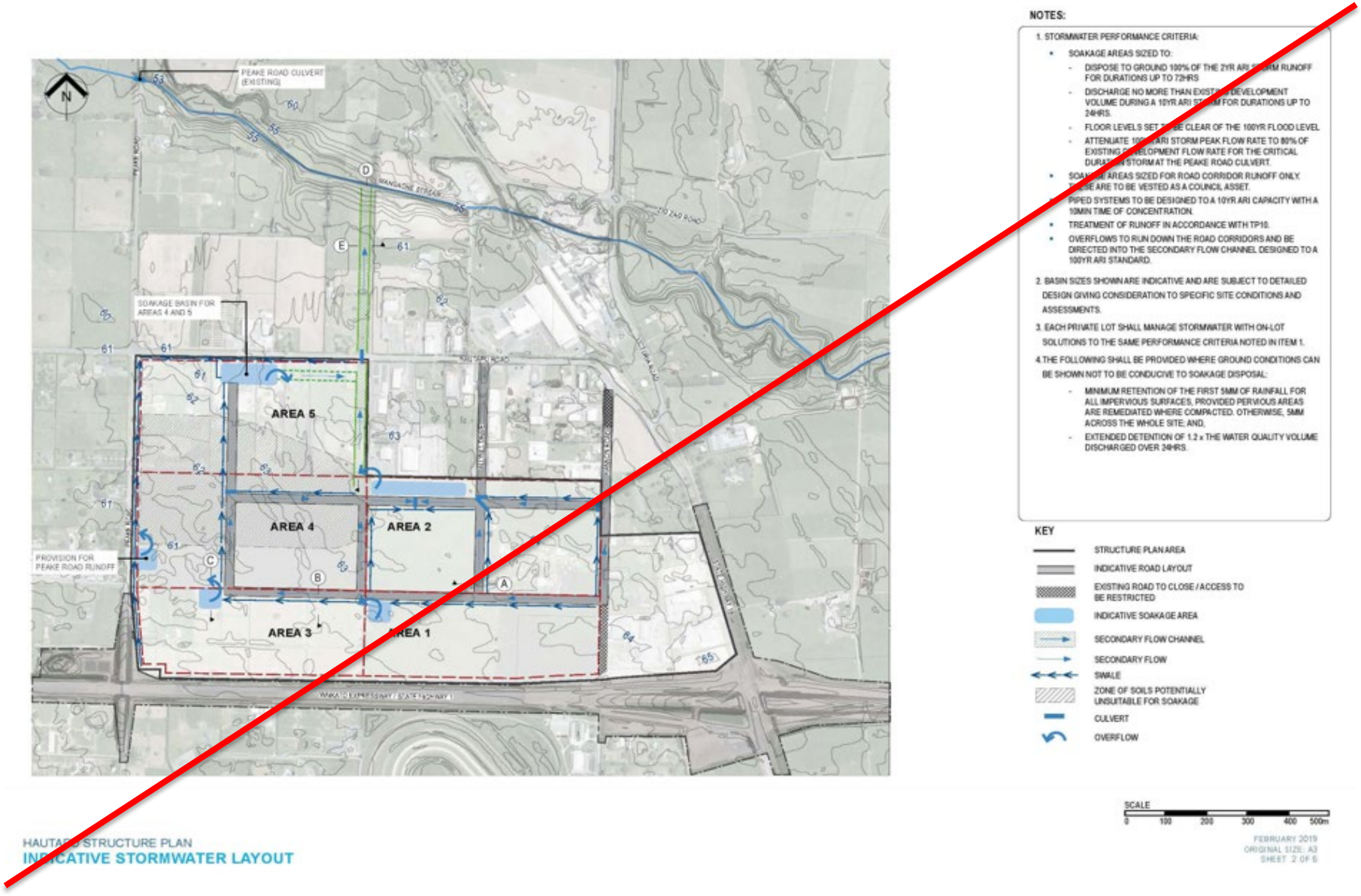
SCALE
0 100 200 300 400 500m

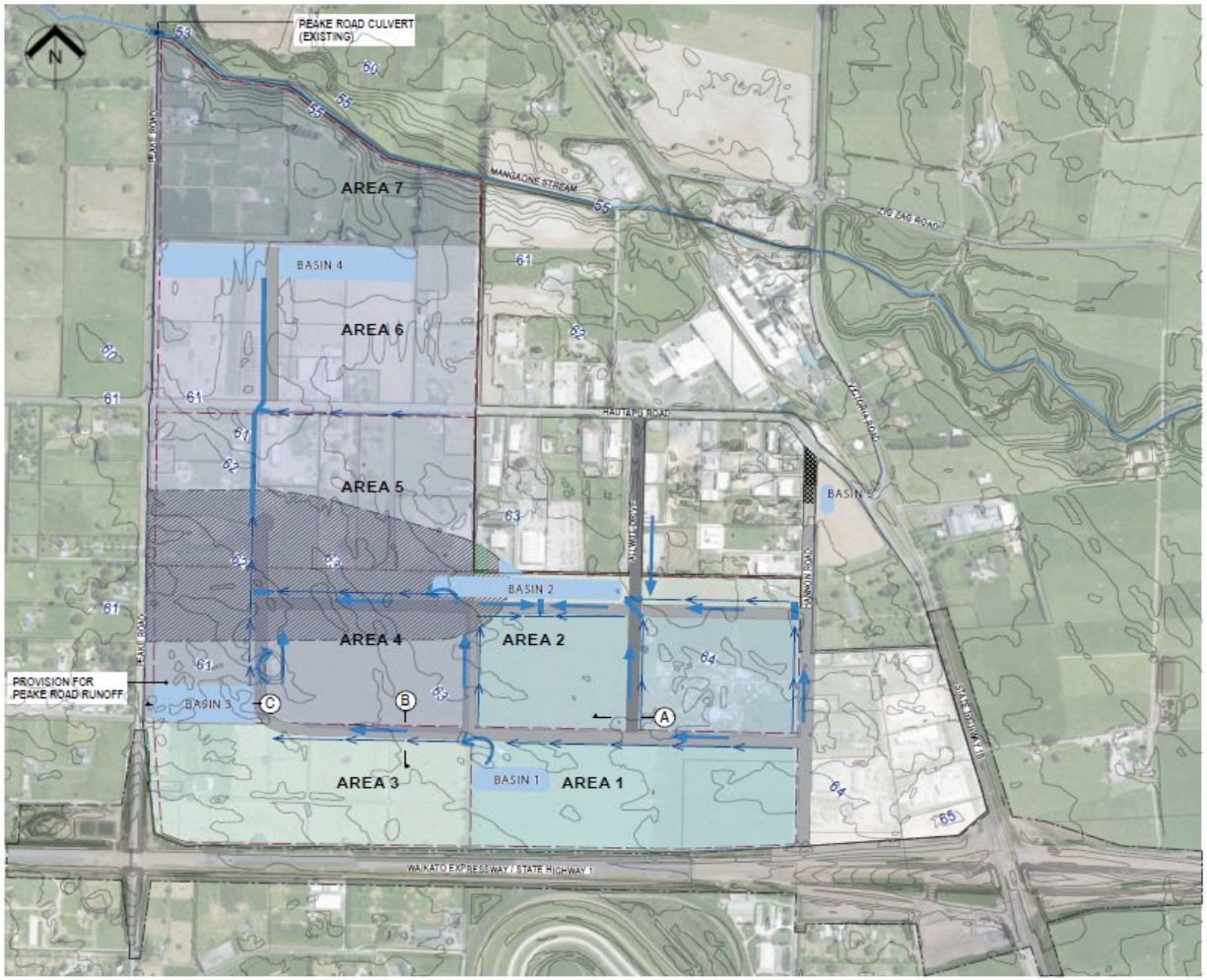
AUGUST 2023
ORIGINAL SIZE: A3
SHEET 1 OF 5

HAUTAPU STRUCTURE PLAN
HAUTAPU STRUCTURE PLAN

Decisions Version as at 10 August 2023

S5.10 Indicative Stormwater Layout





NOTES:

1. STORMWATER PERFORMANCE CRITERIA:
   - SOAKAGE AREAS SIZED TO:
     - DISPOSE TO GROUND 100% OF THE 2YR ARI STORM RUNOFF FOR DURATIONS UP TO 72HRS
     - DISCHARGE NO MORE THAN EXISTING DEVELOPMENT VOLUME DURING A 10YR ARI STORM FOR DURATIONS UP TO 24HRS.
     - FLOOR LEVELS SET TO BE CLEAR OF THE 100YR FLOOD LEVEL
     - ATTENUATE 100YR ARI STORM PEAK FLOW RATE TO 80% OF EXISTING DEVELOPMENT FLOW RATE FOR THE CRITICAL DURATION STORM AT THE PEAKE ROAD CULVERT.
   - SOAKAGE AREAS SIZED FOR ROAD CORRIDOR RUNOFF ONLY. THESE ARE TO BE VESTED AS A COUNCIL ASSET.
   - PIPED SYSTEMS TO BE DESIGNED TO A 10YR ARI CAPACITY WITH A 10MIN TIME OF CONCENTRATION.
   - TREATMENT OF RUNOFF IN ACCORDANCE WITH TP10.
   - OVERFLOWS TO RUN DOWN THE ROAD CORRIDORS AND BE DIRECTED INTO THE SECONDARY FLOW CHANNEL DESIGNED TO A 100YR ARI STANDARD.
2. BASIN SIZES SHOWN ARE INDICATIVE AND ARE SUBJECT TO DETAILED DESIGN GIVING CONSIDERATION TO SPECIFIC SITE CONDITIONS AND ASSESSMENTS.
3. EACH PRIVATE LOT SHALL MANAGE STORMWATER WITH ON-LOT SOLUTIONS TO THE SAME PERFORMANCE CRITERIA NOTED IN ITEM 1.
4. THE FOLLOWING SHALL BE PROVIDED WHERE GROUND CONDITIONS CAN BE SHOWN NOT TO BE CONDUCIVE TO SOAKAGE DISPOSAL:
   - MINIMUM RETENTION OF THE FIRST 5MM OF RAINFALL FOR ALL IMPERVIOUS SURFACES, PROVIDED PERVIOUS AREAS ARE REMEDIATED WHERE COMPACTED. OTHERWISE, 5MM ACROSS THE WHOLE SITE; AND,
   - EXTENDED DETENTION OF 1.2 x THE WATER QUALITY VOLUME DISCHARGED OVER 24HRS.

Indicative stormwater layout does not cater for development in Area 7

KEY

- STRUCTURE PLAN AREA
- INDICATIVE ROAD LAYOUT
- EXISTING ROAD TO CLOSE / ACCESS TO BE RESTRICTED
- SOAKAGE BASIN
- SECONDARY FLOW CHANNEL
- SECONDARY FLOW
- SWALE
- ZONE OF SOILS POTENTIALLY UNSUITABLE FOR SOAKAGE
- CULVERT
- OVERFLOW

BASIN 1	AREA 1 CATCHMENT	BASIN 2	AREA 2 CATCHMENT
BASIN 3	AREA 3 CATCHMENT	BASIN 4	AREA 4, 5, & 6 CATCHMENT

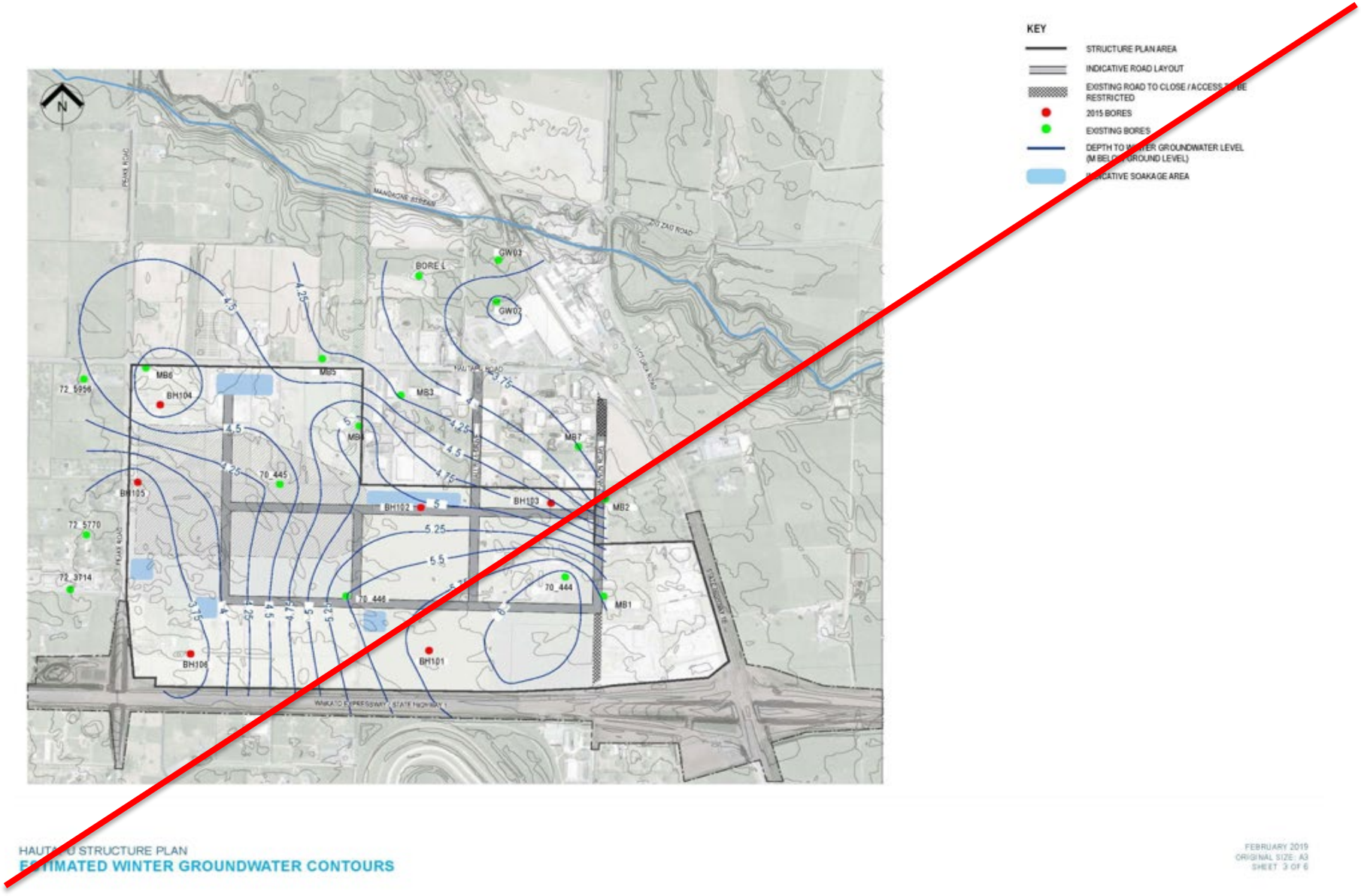
SCALE 0 100 200 300 400 500m

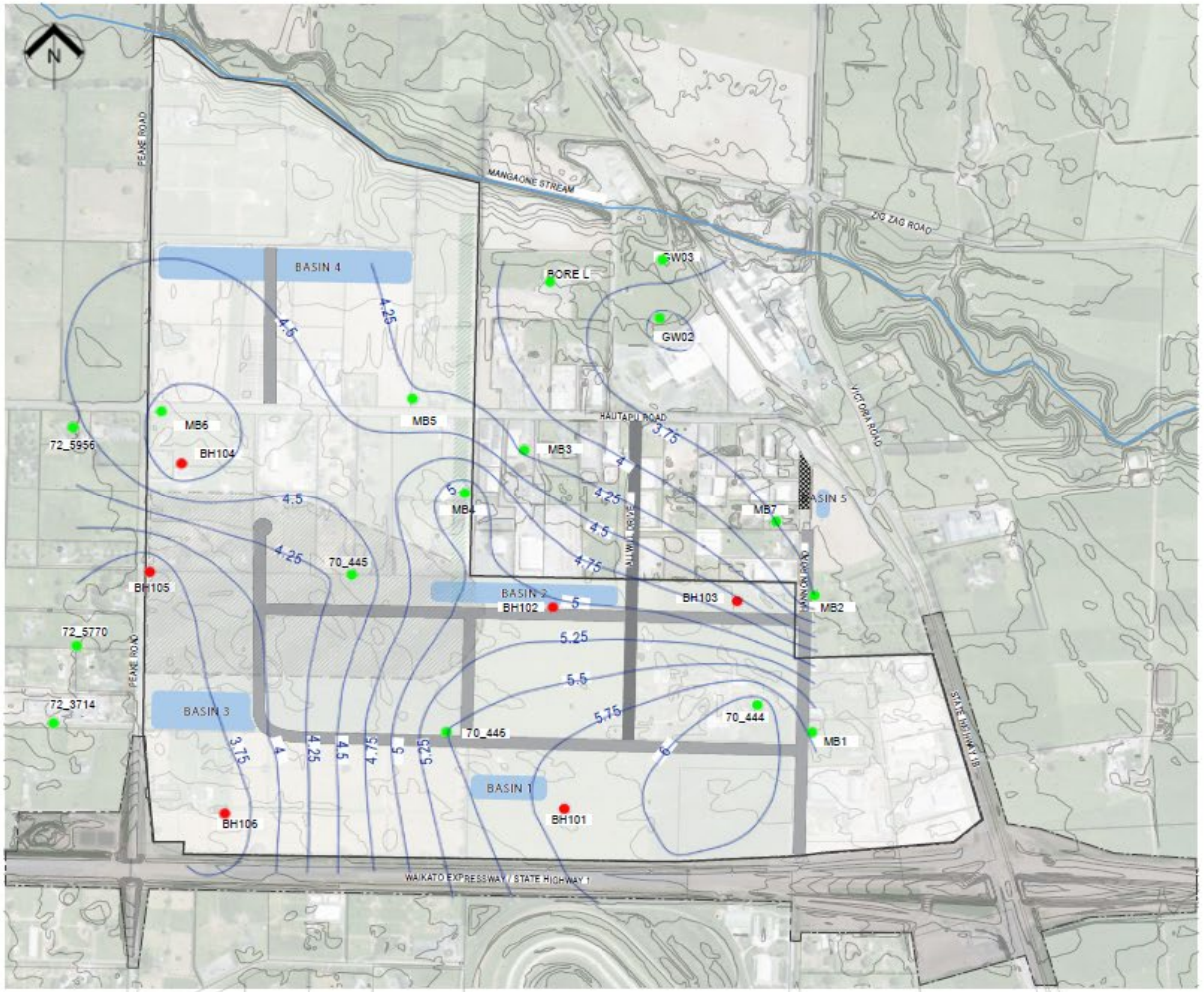
Decisions Version as at 10 August 2023

HAUTAPU STRUCTURE PLAN
INDICATIVE STORMWATER LAYOUT

AUGUST 2023
ORIGINAL SIZE: A3
SHEET 2 OF 5

S5.11 Estimated Winter Groundwater Contours



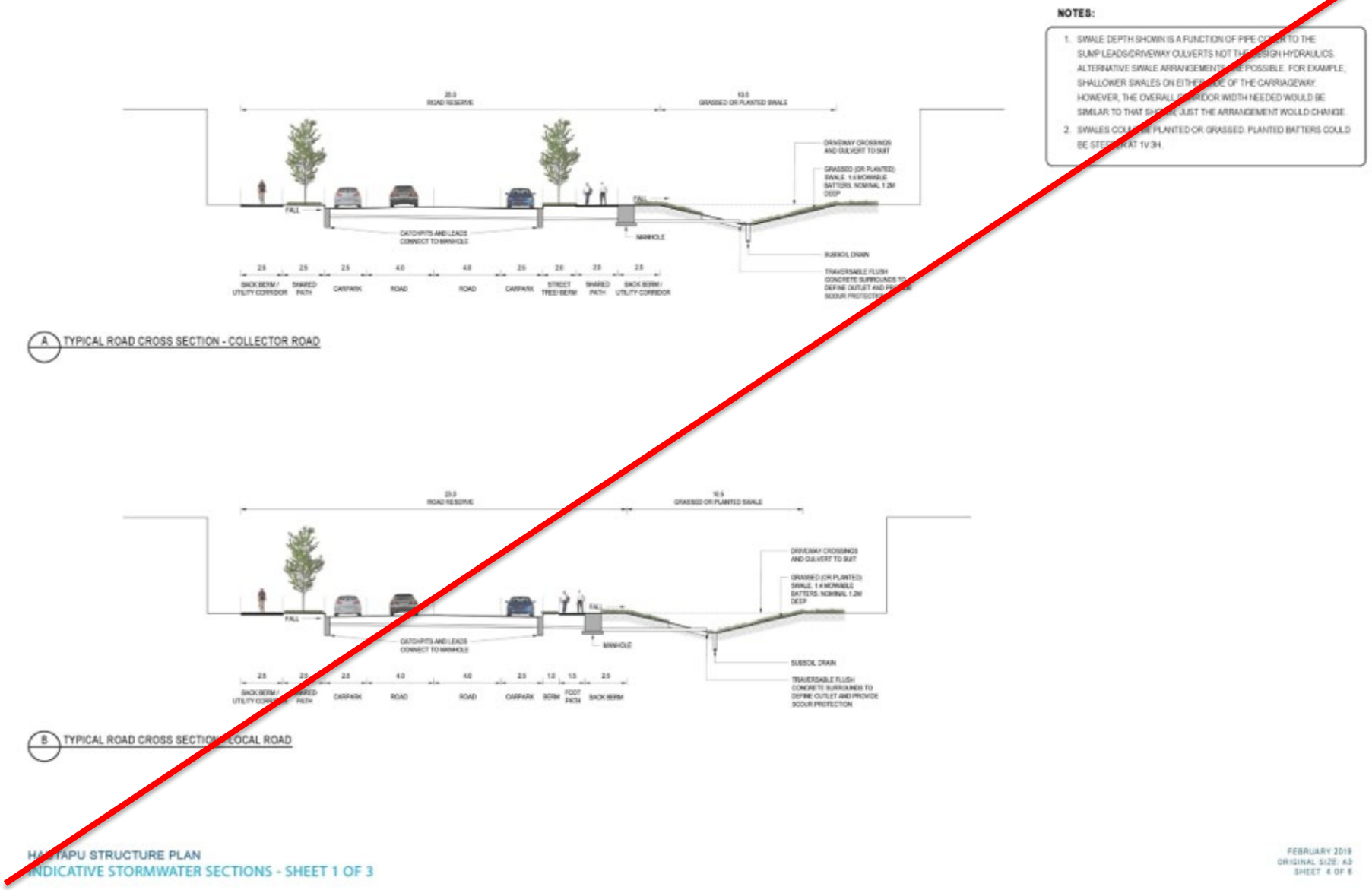


HAUTAPU STRUCTURE PLAN
ESTIMATED WINTER GROUNDWATER CONTOURS

Decisions Version as at 10 August 2023

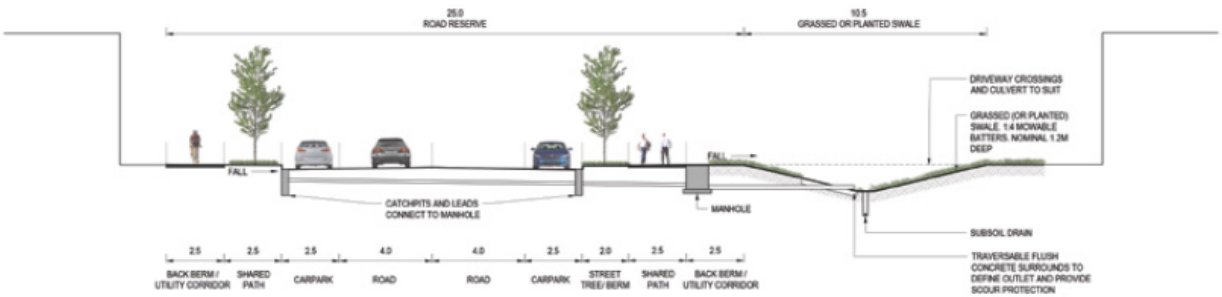
AUGUST 2023
ORIGINAL SIZE: A3
SHEET 3 OF 5

S5.12 Indicative Stormwater Sections – Sheet 1 of ~~3~~2 *[PC17]*

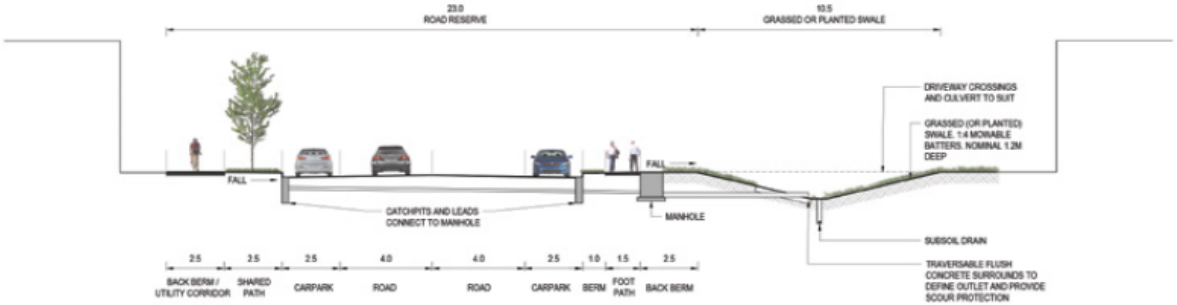


NOTES:

1. SWALE DEPTH SHOWN IS A FUNCTION OF PIPE COVER TO THE SUMP LEADS/DRIVEWAY CULVERTS NOT THE DESIGN HYDRAULICS. ALTERNATIVE SWALE ARRANGEMENTS ARE POSSIBLE. FOR EXAMPLE, SHALLOWER SWALES ON EITHER SIDE OF THE CARRIAGEWAY. HOWEVER, THE OVERALL CORRIDOR WIDTH NEEDED WOULD BE SIMILAR TO THAT SHOWN, JUST THE ARRANGEMENT WOULD CHANGE.
2. SWALES COULD BE PLANTED OR GRASSED. PLANTED BATTERS COULD BE STEEPER AT 1V:3H.



A TYPICAL ROAD CROSS SECTION - COLLECTOR ROAD



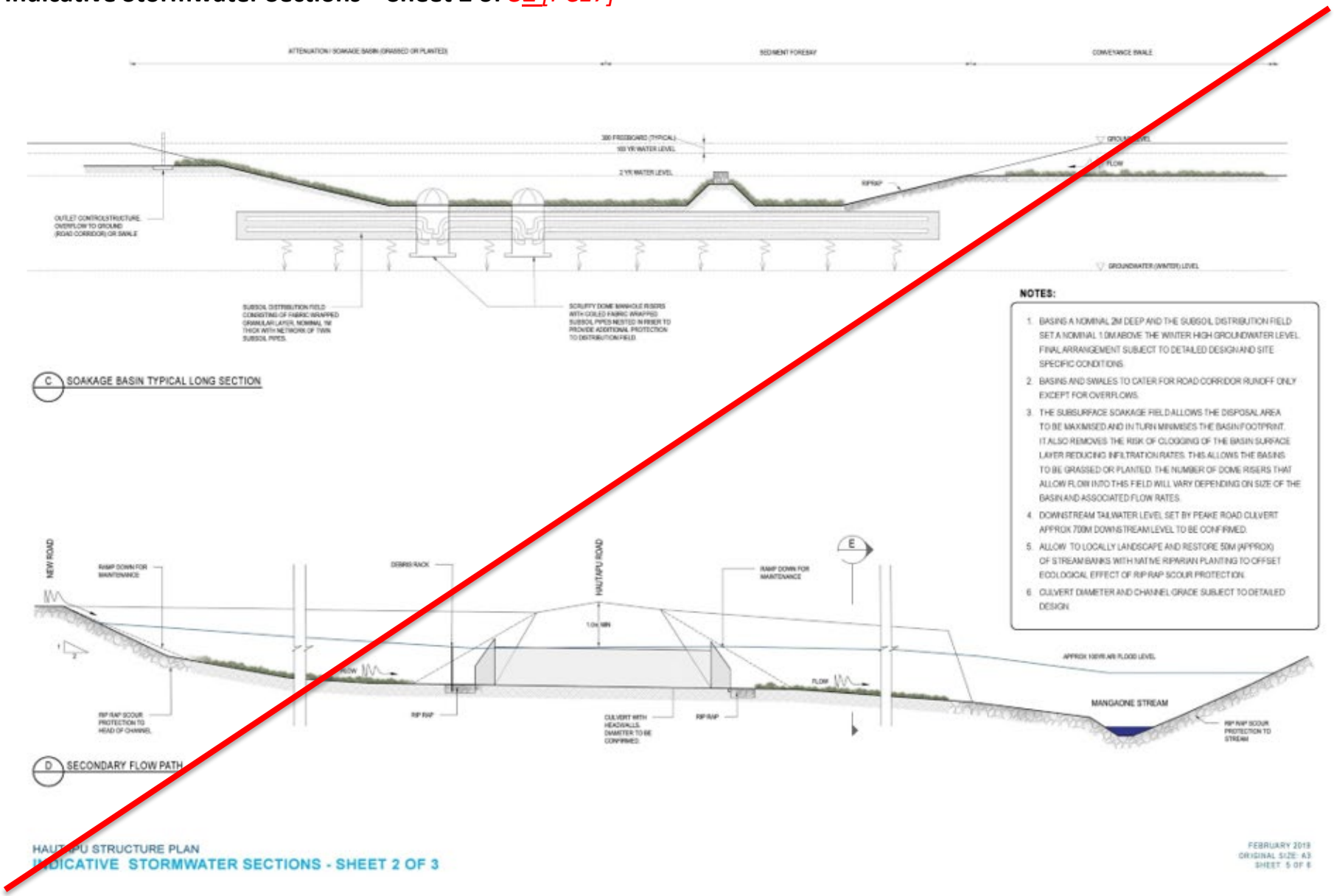
B TYPICAL ROAD CROSS SECTION - LOCAL ROAD

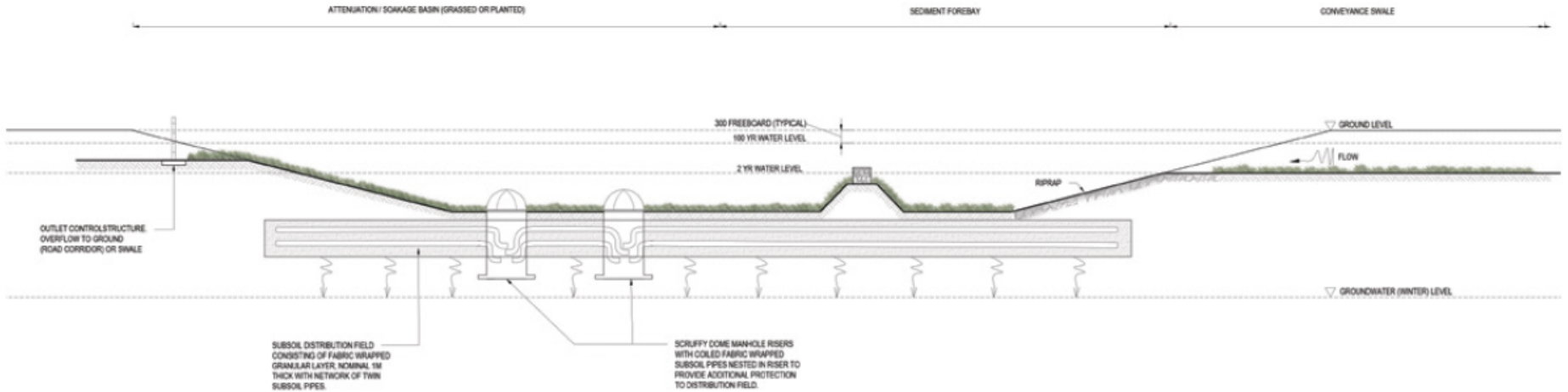
HAUTAPU STRUCTURE PLAN
INDICATIVE STORMWATER SECTIONS - SHEET 1 OF 2

Decisions Version as at 10 August 2023

AUGUST 2023
ORIGINAL SIZE: A3
SHEET 4 OF 5

Indicative Stormwater Sections – Sheet 2 of ~~3~~2 *[PC17]*





C SOAKAGE BASIN TYPICAL LONG SECTION

NOTES:

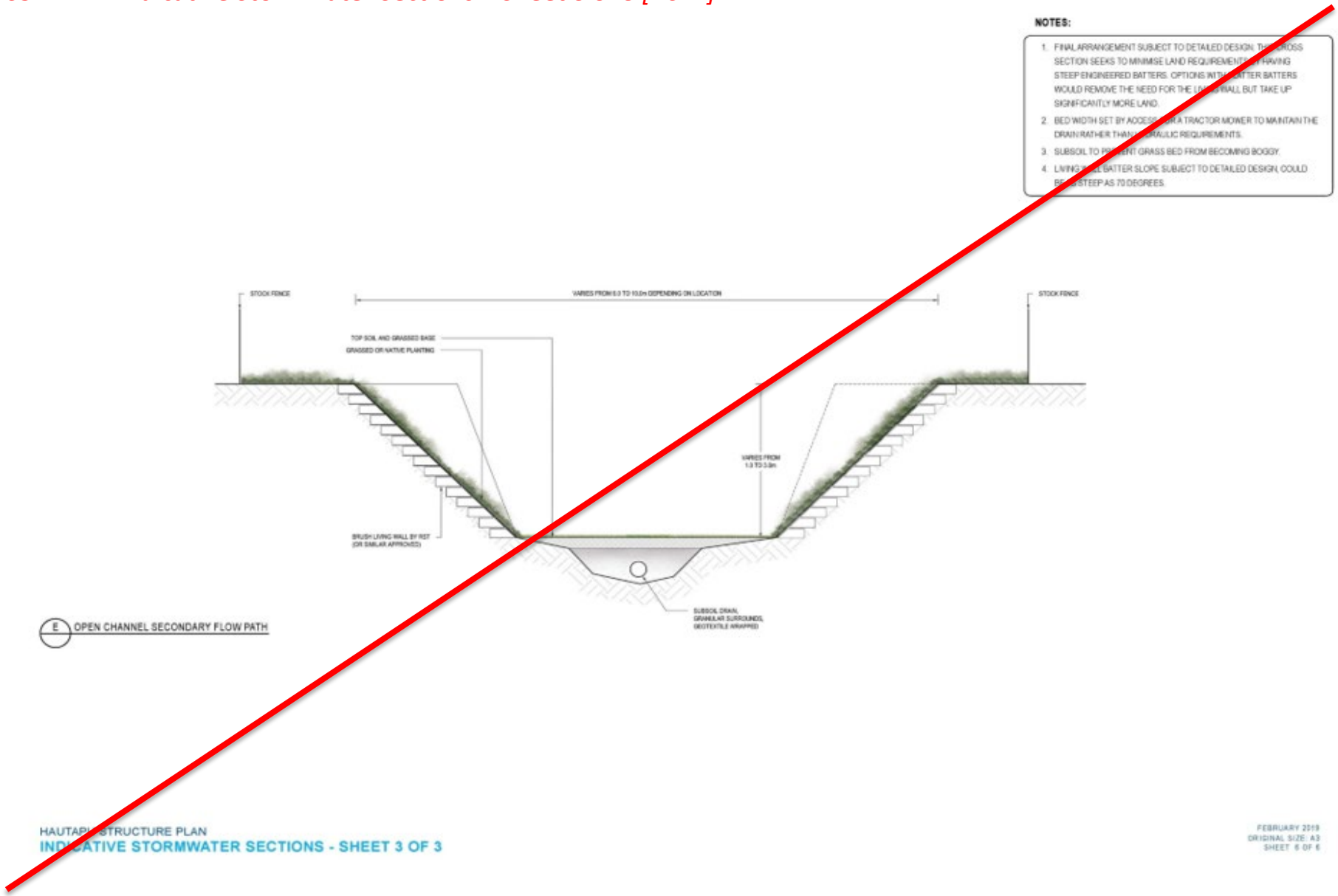
1. BASINS A NOMINAL 2M DEEP AND THE SUBSOIL DISTRIBUTION FIELD SET A NOMINAL 1.0M ABOVE THE WINTER HIGH GROUNDWATER LEVEL. FINAL ARRANGEMENT SUBJECT TO DETAILED DESIGN AND SITE SPECIFIC CONDITIONS.
2. BASINS AND SWALES TO CATER FOR ROAD CORRIDOR RUNOFF ONLY EXCEPT FOR OVERFLOWS.
3. THE SUBSURFACE SOAKAGE FIELD ALLOWS THE DISPOSAL AREA TO BE MAXIMISED AND IN TURN MINIMISES THE BASIN FOOTPRINT. IT ALSO REMOVES THE RISK OF CLOGGING OF THE BASIN SURFACE LAYER REDUCING INFILTRATION RATES. THIS ALLOWS THE BASINS TO BE GRASSED OR PLANTED. THE NUMBER OF DOME RISERS THAT ALLOW FLOW INTO THIS FIELD WILL VARY DEPENDING ON SIZE OF THE BASIN AND ASSOCIATED FLOW RATES.
4. DOWNSTREAM TAILWATER LEVEL SET BY PEAKE ROAD CULVERT APPROX 700M DOWNSTREAM LEVEL TO BE CONFIRMED.
5. ALLOW TO LOCALLY LANDSCAPE AND RESTORE 50M (APPROX) OF STREAM BANKS WITH NATIVE RIPARIAN PLANTING TO OFFSET ECOLOGICAL EFFECT OF RIP RAP SCOUR PROTECTION.
6. CULVERT DIAMETER AND CHANNEL GRADE SUBJECT TO DETAILED DESIGN.
7. FINAL ARRANGEMENT SUBJECT TO DETAILED DESIGN. THIS CROSS SECTION SEEKS TO MINIMISE LAND REQUIREMENTS BY HAVING STEEP ENGINEERED BATTERS. OPTIONS WITH FLATTER BATTERS WOULD REMOVE THE NEED FOR THE LIVING WALL BUT TAKE UP SIGNIFICANTLY MORE LAND.
8. BED WIDTH SET BY ACCESS FOR A TRACTOR MOWER TO MAINTAIN THE DRAIN RATHER THAN HYDRAULIC REQUIREMENTS.
9. SUBSOIL TO PREVENT GRASS BED FROM BECOMING BOGGY.
10. LIVING WALL BATTER SLOPE SUBJECT TO DETAILED DESIGN, COULD BE AS STEEP AS 70 DEGREES.

HAUTAPU STRUCTURE PLAN
INDICATIVE STORMWATER SECTIONS - SHEET 2 OF 2

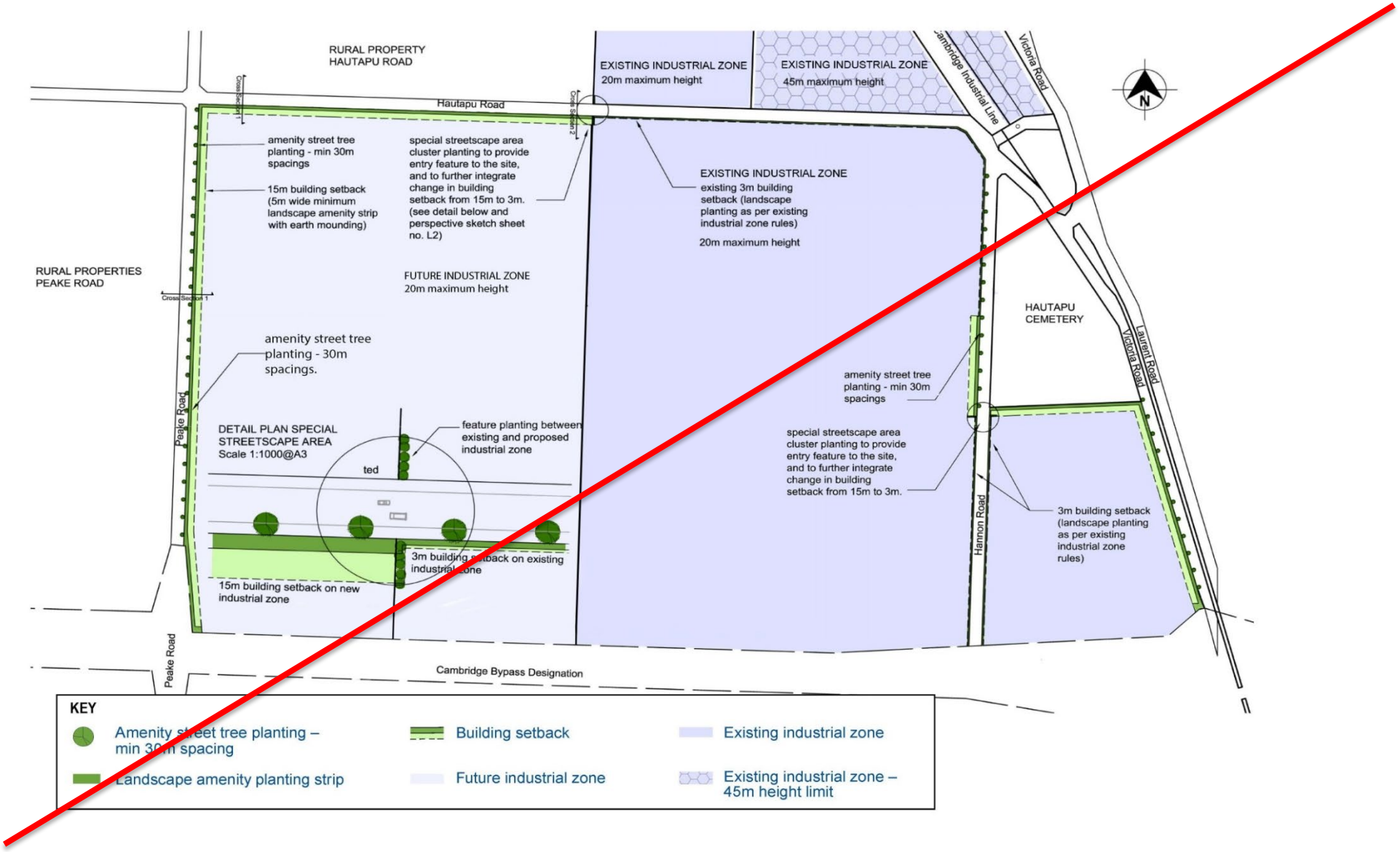
Decisions Version as at 10 August 2023

AUGUST 2023
ORIGINAL SIZE: A3
SHEET 5 OF 5

~~S5.14 Indicative Stormwater Sections – Sheet 3 of 3~~ *[PC17]*



Attachment A: Perimeter Boundary Treatment




N
MANGAONE STREAM
PEAKE ROAD
AMENITY STREET TREE PLANTING - MAXIMUM 12m SPACING
EXISTING INDUSTRIAL ZONE 45m HEIGHT LIMIT
HAUTAPU ROAD
15m BUILDING SETBACK (5m WIDE MINIMUM LANDSCAPE AMENITY STRIP WITH EARTH MOUNDING)
FUTURE INDUSTRIAL ZONE
ALLWILL DRIVE
VICTORIA ROAD
3m BUILDING SETBACK ON EXISTING INDUSTRIAL ZONE
AMENITY STREET TREE PLANTING - MAXIMUM 12m SPACING
HANSEN ROAD
HAUTAPU CEMETERY
AMENITY STREET TREE PLANTING - MAXIMUM 12m SPACING
SPECIAL STREETSCAPE AREA CLUSTER PLANTING TO PROVIDE ENTRY FEATURE TO THE SITE AND FURTHER INTEGRATE CHANGE IN BUILDING SETBACK FROM 15m TO 3m. (SEE DETAIL PAN SPECIAL STREETSCAPE AREA)
STATE HIGHWAY 1B
3M BUILDING SETBACK (LANDSCAPE PLANTING AS PER EXISTING INDUSTRIAL RULES)
WAIKATO EXPRESSWAY / STATE HIGHWAY 1
DETAIL PLAN
SPECIAL STREETSCAPE AREA
SCALE - 1:1,000 @ A3
FEATURE PLANTING BETWEEN EXISTING AND PROPOSED INDUSTRIAL ZONES
3m BUILDING SETBACK ON EXISTING INDUSTRIAL ZONE
15m BUILDING SETBACK ON EXISTING INDUSTRIAL ZONE
KEY
AMENITY STREET TREE PLANTING - MIN 12m SPACING
LANDSCAPE AMENITY PLANTING STRIP
BUILDING SET BACK
HAUTAPU CEMETERY
UNSERVICED INDUSTRIAL AREA
EXISTING INDUSTRIAL AREA
EXISTING INDUSTRIAL AREA - 45m HEIGHT LIMIT
HAUTAPU STRUCTURE PLAN
INDICATIVE PLANTING LAYOUT
SCALE
0 100 200 300 400 500m

Attachment B: Recommended Species Selection

LANDSCAPE BUFFER PLANTING:

Botanical Name (mature height in brackets)	Common Name	Size After 10 Years
Tall Species		
Dacrycarpus dacrydioides	Kahikatea	7x4m (40m)
Dacrydium cupressinum	Rimu	6x3m (30m)
Laurelia novae-zelandae	Pukatea	6x4m (30m)
Podocarpus totara	Totara	6x4m (20m)
Alnus glutinosa	Common Alder (exotic)	8x6m (15m)
Casuarina cunninghamiana	River She Oak (exotic)	8x5m (15m)
Fraxinus excelsior	Common Ash (exotic)	15x10m (20m)
Populus nigra 'Italica'	Lombardy Poplar (exotic)	9x2.5 (30m)
Taxodium distichum	Swamp Cypress (exotic)	7x4m (25m)
Medium Trees		
Cordyline australis	Cabbage Tree	6x2m (10m)
Elaeocarpus dentatus	Hinau	3x2m (10m)
Hoheria sexstylosa	Lacebark	5x3m (8m)
Pittosporum spp	Pittosporum	5x3m (8m)
Pseudopanax spp	Lancewood/Five finger	3x3m (5m)
Sophora tetraptera	Kowhai	4.5x3m (10m)
Shrubs		
Cortaderia toetoe	Toe Toe	2x2m
Corokia spp	Korokio	1.5x1m
Eleocharis spacelata	Great spike rush	1x1m
Griselinia littoralis	Kapuka	3x2m
Hebe speciosa	Showy Hebe	1.5x1m
Myrtus bullata	Ramarama	2.5x1.5m
Phormium tenax	Flax	2x2m

PUBLIC ROAD AND STREETSCAPE PLANTING:

Botanical Name	Common Name	Size After 10 Years
Street Trees		
Acer platanoides	Norway Maple	9x6m
Aesculus hippocastanum	Horse Chestnut	15x10m
Gleditsia triacanthos	Honey Locust	4x3m
Fagus sylvatica	European Beech	10x6m
Fraxinus excelsior	European Ash	15x10m
Ginkgo biloba	Maidenhair Tree	7x4m
Koelreuteria paniculata	Golden Rain Tree	6x3m
Liquidambar styraciflua	American Sweet Gum	7x5m
Liriodendron tulipifera	Tulip Tree	10x6m
Paulownia tomentose	Umbrella Tree	8x6m
Platanus x acerifolia	London Plane	8x6m
Quercus palustris	Pin Oak	8x6m
Tilia cordata	Small Leaved Lime	15x8m
Ulmus glabra	Elm	9x6m