

Figure 5-5 Walking and Cycling Option 1a (revised).



Figure 5-6 Walking and Cycling Option 1g

Option 1a considered in this variation is a refinement of the previous option 1a with the inclusion of a separate walking and cycling bridge constructed on the northern side of Tī Rākau Drive Bridge. Options 1b, 1c, and 1e and 1f were discounted by the EBA because of an indirect cycle connection which would require pedestrians and cyclists to navigate a tight turn from the proposed bridge onto 242 Tī Rākau Drive (Mobil service station) and then again onto Tī Rākau Drive. Option 1g would provide for the busway, walking and cycling on a single crossing behind 242 Tī Rākau Drive and connecting behind Chinatown.

#### 5.9.5.2 Feedback from Partners - AC Regulatory Services

The EBA met with the AC Regulatory Services (specifically their Coastal specialists) in June 2022 to discuss the Reference Design, as well as Options 1a and 1g.

Auckland Council’s officers did not identify fatal flaws in these options and commented that bridges are common within Auckland’s coastal areas. They also noted that the design of any bridge option would need to carefully consider the following matters:

- Temporary reclamation
- Sea level rise
- Ecological values, including those associated with mangrove environments and soft soils
- Urban design and visual impacts of new bridge structures.

#### 5.9.5.3 Feedback from Partners - Mana Whenua

EBA discussed the cycleway and all bridge options with mana whenua at a hui in June 2022. Mana whenua requested more time to consider the options and requested to hear from specialists. EBA met further with mana whenua in July 2022, where all the options were presented and a detailed discussion about them with technical specialists was held.

Mana whenua expressed strong feedback during this discussion citing the principles and values of kaitiakitanga (guardianship the environment), manaakitanga (protection of people) and tikanga (doing the right thing) to guide decision making.

In this context, mana whenua stated that these principles are best achieved by retaining the Reference Design, which minimised the impacts to Pakuranga Creek and the neighbouring communities.

#### **5.9.6 MCA Analysis of Walking and Cycling Variations - options 1a and 1g**

As with other portions of EB3C, an MCA was undertaken for the walking and cycling options. The Walking and Cycling Variations 1a and 1g scored similarly to Option 1 (and the original Option 1a). Given the comments from the IPAB, the transport assessor gave a more detailed consideration of the walking and cycling connections as part of this MCA. Overall, the Walking and Cycling Variations 1a and Variation 1g as developed through this second round of the MCA process were similar to each other, with many criteria having no difference or similar scores across the criteria.

No changes were made to the scores given to the Reference Design as part of the first MCA process (described above).

While Variations 1a and 1g addressed issues raised by the IPAB in respect of walking and cycling connections, the Reference Design was strongly preferred in relation to urban design, landscape and visual criteria. It was noted that 1a and 1g scored negatively for similar matters.

A transport assessment for this MCA found that the Reference Design and Variation 1a provides the safest and most connected option for walking and cycling. Variation 1g was considered to introduce safety concerns and reduce opportunity to provide wider connections.

The Reference Design and Variation 1a were assessed similarly as they both provide a very good alignment with good connections to the “Trugood” cycle path located on the southern side of Tī Rākau Drive with the only downside for both being the connection along Burswood Drive west and the potential safety concerns for vehicles turning into and out of driveways across the cycleway. With the cycleway immediately adjacent Tī Rākau Drive for both the Reference Design and Option 1a there would also be good passive surveillance.

The alignment of the cycleway in Variation 1g which is adjacent to the Busway and connects from Gossamer Drive to behind Chinatown potentially introduces CPTED issues, as the cycleway is removed from passive surveillance and there are no opportunities for escape. This was a significant difference between Variation 1g and the Reference Design/Variation 1a.

#### **5.9.7 ALT consideration of Walking and Cycling Variations**

The outcomes of the MCA’s, discussions with AC and further engagement with mana whenua were presented to the ALT in August 2022. In addition, a range of other matters were presented, including property and construction cost, future proofing for other infrastructure and consenting risks.

The ALT accepted the findings of the EBA paper covering the matters detailed above and recommended endorsement of the Reference Design for the Tī Rākau Drive Bridge from IPAB. This recommendation was forthcoming by the IPAB in August 2022 and subsequently communicated to Mobil New Zealand.

## 5.10 Eastern Busway 4 Link Road

As detailed at Section 1.4 of this AEE, EB4L provides a proposed busway connection between Burwood Reserve and Te Irirangi Drive. The busway will run through Guys Reserve and Whaka Maumahara<sup>50</sup> before connecting to Te Irirangi Drive via an upgraded intersection. This relatively small section of the busway will enable bus services to avoid the Te Irirangi Drive/Ti Rākau Drive intersection, aiding the efficient operation of public transport services.

Three link road options were considered for the EB4 stage of the Project. As with the Project’s other packages, the options assessment for EB4L (Appendix 31) was undertaken using a multi-criteria analysis (MCA). This included a range of technical specialists providing input into the process. The methodology used was generally consistent with previous MCAs undertaken for the Project.

### 5.10.1 Link Road Options

#### 5.10.1.1 Link Road Option 1

<p><i>Figure 5-7 Ti Rākau Drive /Te Irirangi Link Road</i></p>	<p>The link road would be positioned in the centre of Ti Rākau Drive and Te Irirangi Drive with the size of the existing intersection between the two roads needing to be increased. Walking and cycling facilities would be provided along both sides of the road. Any widening to accommodate the busway along Ti Rākau Drive would be to the north. The properties impacted are already owned by AC. This link road option is not compatible with Bus Station Option 8.</p>
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#### 5.10.1.2 Link Road Option 2

<p><i>Figure 5-8 Te Koha Drive Link Road</i></p>	<p>This option would provide the busway link in the centre of Ti Rākau Drive from EB3C to the intersection with Te Koha Drive. The busway would use the alignment of Te Koha Drive to link with Te Irirangi Drive. Te Koha Drive would include the busway, vehicle lane in each direction, off road cycle facilities and footpaths. The existing buildings would not be impacted. This link road option is not compatible with Bus Station Option 8.</p>
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<sup>50</sup> Whaka Maumahara is a stormwater reserve at the corner of Te Irirangi Drive and Te Koha Road.

### 5.10.1.3 Link Road Option 3

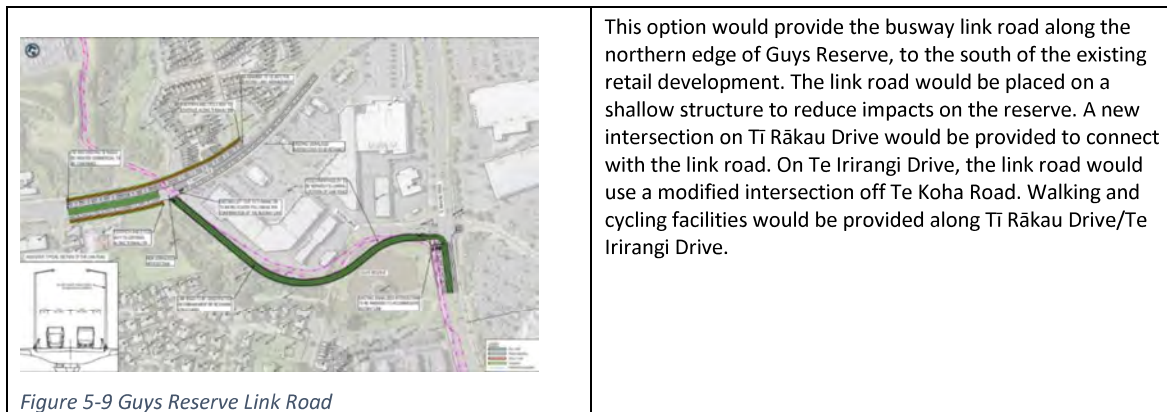


Figure 5-9 Guys Reserve Link Road

## 5.10.2 Assessment of Link Road Options

All options scored positively against the Project objectives and positive impacts of the options were also presented in terms of busway performance and permanent transport effects.

The Guys Reserve option scored more favourably in respect of assessment criteria relating to Busway Operation, temporary transport effects, permanent transport effects, utilities, property and constructability.

The Te Koha option only scored more favourably in respect of landscape criteria as this option does not involve utilising the reserve or require widening of an existing Regional Road.

The Tī Rākau Drive option scored more favourably in respect of ecological impacts, urban design and social impact criteria. It also scored more positively from a legislative and consenting perspective as the option utilises existing transport corridors and developed areas.

Acoustic and vibration, stormwater and visual impacts received neutral scores across the options.

A sensitivity analysis was undertaken which identified the Guys Reserve and Tī Rākau Drive as the best performing across all the weighted categories, being equal, safety, transport, environmental, effects, and cost. The Tī Rākau Option ranked second in all categories except cost.

Notably the Guys Reserve link option scored more positively compared to the other two options in respect of the assessment criteria related to transportation, operation of a busway and construction. The Guys Reserve Link was assessed as being able to provide more reliable travel times as less intersections need to be traversed providing a faster conflict free link with little interface or impact with the road network and resulted in a score of +5 compared to +2 for the other two options. For all options during construction, it was assessed that whilst alternative travel options are available for people to use the Tī Rākau/Te Irirangi option would have a significant impact on the network. This is due to the high volume of traffic using Tī Rākau Drive/Te Irirangi Drive, and the staging of works and revision to intersection arrangements.

Overall, the MCA showed that the options considered did not present significant adverse impacts that could not be consented under the RMA. Mitigation could also be incorporated into the design in most cases to reduce the adverse effects of the options being considered.

Following the MCA workshop and sensitivity analysis EB4L Option 3 emerged as the technically preferred option for EB4 and was approved by the ALT on the 11 March 2021.



## 5.11 Bridge B Design Changes

As part of the process to address the funding challenge of the Project, alternatives that may offer more cost-effective solutions were investigated by the EBA in January 2023. As part of this investigation the EBA considered changing the design of Bridge B between 254 Ti Rākau Drive and Chinatown from a bridge structure to a causeway (a filled embankment along its entire length within Pakuranga Creek).

The causeway design was located on the same alignment as that for the Bridge B (Figure 5-10). That alignment had already been through a full assessment against the Project Objectives as part of the options assessment process and had been determined to be consistent. Therefore, the EBA considered that an embankment using this same alignment would be equally consistent with the objectives.

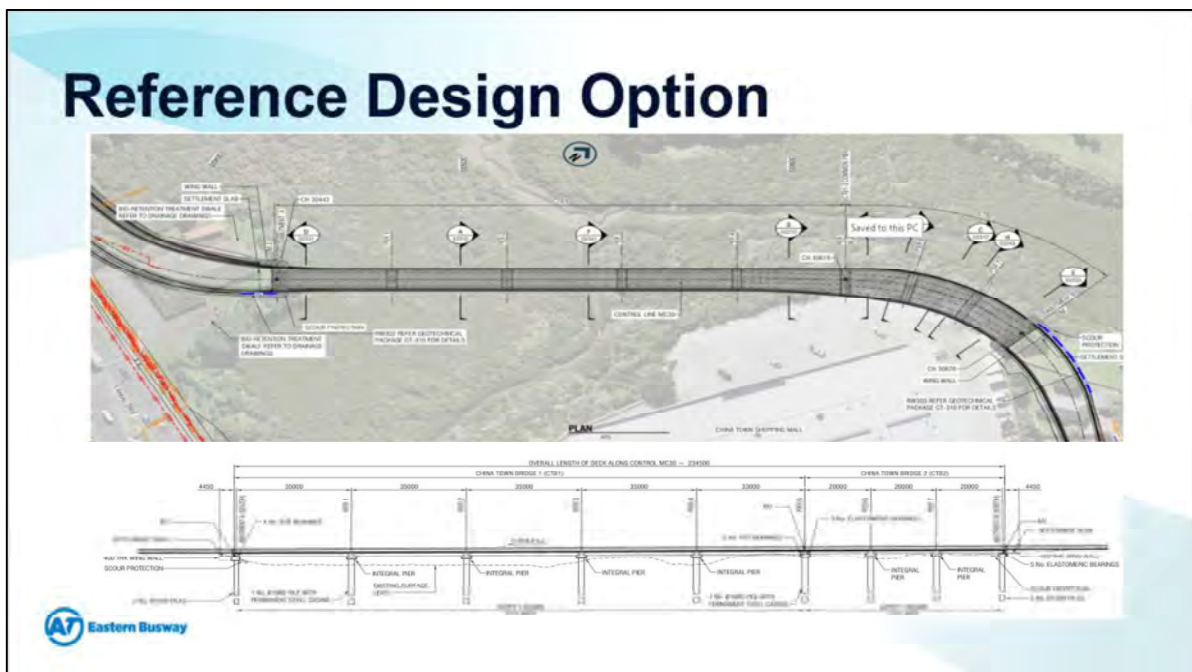


Figure 5-10 Bridge B Reference Design

A workshop was held on the 10 February 2023 by the EBA with the Coastal Processes, Coastal Ecology specialists and with members of the Planning, Design and construction team to discuss the Causeway option. The Technical Specialists did not support the Causeway design as it could have potentially more adverse effects on the CMA than the reference design. This would be due to the Causeway potentially impeding the flow of water within this part of Pakuranga Creek and would require a greater extent of vegetation and habitat removal which could not be mitigated.

A workshop was also held with the EBA Archaeologist on 22 February 2023 to discuss the Causeway Option given the extent of an AUP(OP) Historic Heritage Overlay located in the area. The Archaeologist had concerns over the extent of batter slopes in this area associated with the construction of a Causeway in proximity to the Historic Heritage Overlay and the location of known features within this area.

On the basis of these discussion the Causeway Design was not progressed by the EBA.

A subsequent workshop was held on 12 April 2023 by the EBA with the Coastal Processes, Coastal Ecology and Archaeology specialists and with members of the Planning, Design and Construction Team to discuss a potential embankment option shown in Figure 5-11. This option involved construction of the bridge on a filled embankment, primarily in land zoned land Business Light Industry, but with portions within the CMA and requiring reclamation. The embankment would then connect to a shorter bridge on piers crossing Pakuranga Creek.

# Embankment Option

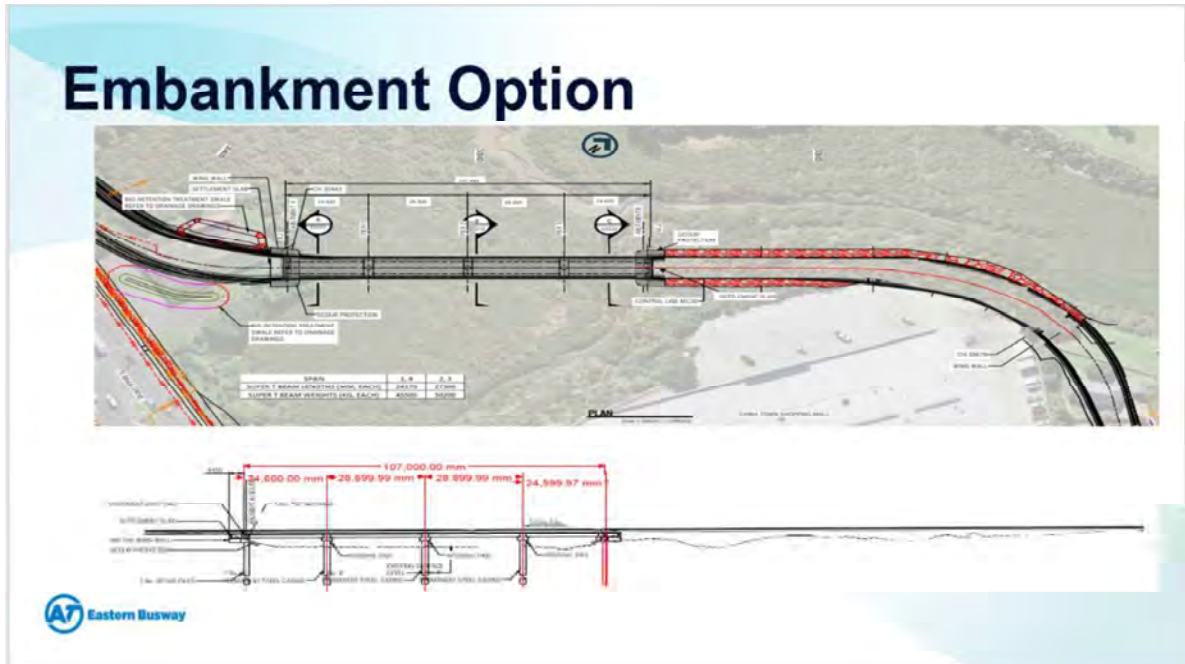


Figure 5-11 Embankment Option Design

Design considerations identified at the workshop included:

- The Reference Design pier design was reduced from 234m in length to 107m in length
- The Embankment Option would allow a reduction in Bridge B's span length from a max of 35m to a max of 29m, thus incorporating lighter beams
- There would be a reduction in temporary works staging over CMA, resulting from the shortening of Bridge B and using lighter beams.
- The engineered earth embankment (i.e. the Embankment Option) measures 127m in length, including ground improvement under the footprint of the structure. For clarity, the Reference Design for Bridge (pier design) measured 234m in length. The proposed embankment option comprises 127m of the bridge located on fill and a further 107m of bridge on piers. This meant that the overall length of the structure between 254 Tī Rākau and China Town at 234m is the same length as the reference design.

The effects of the Embankment Option were considered by the Technical Specialists to be similar to the Reference Design Bridge B design as:

- It was located on the same alignment with no overall reduction in length of the proposed structure
- It is located primarily above MHWS and outside of the tributary streams. Given this, the potential effects on coastal processes (climate change and coastal hazards), such as sea level rise and tsunami were anticipated to be low and the reclamation was unlikely to exacerbate coastal processes (like erosion, accretion and other natural hazards)
- Is located predominantly on land zoned Business Light Industry
- Avoids heritage features
- The additional vegetation clearance required to construct the embankment could be appropriately mitigated by replacement planting on the slopes of the embankment.

The workshop identified that given the location of MHWS and the existing development in the area (i.e. Chinatown), part of the embankment would be required to be in the CMA and require some reclamation. It was also identified that there is insufficient space to build the embankment option without reclamation, so there were no other practical alternative methods for this option. However as stated above, the EBA's technical specialists were of the view that the effects of the embankment (including its reclamation

component) would be similar to that of a bridge option (and less than the Causeway option) and would be able to be appropriately mitigated.

Following this workshop, the views of mana whenua representatives were sought by the EBA at a further workshop on 19 April 2023. Mana whenua representatives were supportive of the proposed embankment given the opportunity to integrate the embankment with the environment through replacement planting and relocating existing planting where possible on the embankment's slopes. Like the bridge design, mana whenua representatives expressed concerns in relation to the following matters:

- Safety of pedestrians if they were able to gain access to the bridge from the Chinatown carpark, as well as rubbish and graffiti on the bridge if pedestrians did manage to gain access.
- Potential for stormwater runoff from bridge
- Opportunities to identify any native species that could be relocated or replicated in the design
- Opportunities to integrate the alignment of the whole of the bridge with the environment
- Archaeology

At its meeting of 15 May 2023 the ALT, following the workshops and discussions held through April, adopted the embankment design and recommended this change to the Project to the PAB on the 23 May 2023. This recommendation was endorsed by the PAB on 29 May 2023. At that meeting the PAB specifically considered, in addition to the ALT's recommendations, the risks associated with potential settlement of the embankment. However, the PAB considered that these risks could be adequately addressed during the design phases of the project.

The embankment design was subsequently adopted by the EBA for further development and assessment.

## 5.12 Assessment of Alternatives Summary

The consideration of alternatives for the AMETI programme has occurred over a long period of time, with multiple assessments of alternatives occurring at different stages throughout the life of the Project. This assessment of alternatives has provided AT with sufficient information to assist it in identifying the preferred alignment and feasible design and construction options for the Eastern Busway and which met the project objectives and the requirements of s171(b) of the RMA. An assessment of s171(b) is provided at Section 11.

The Eastern Transport Corridor (ETC) Recommended Options Report 2004 considered 48 (programme) options and confirmed the alignment of the project corridor. It also confirmed the project as being multi modal with a busway being part of the preferred option.

From 2006 – 2014 the focus changed, with options considered that sought to prioritise public transport. As part of the Recommended Options Report 2007 a total of 64 programme options were considered for the AMETI programme. This included a two-stage approach, with Stage 1 involving a fatal flaw analysis, and Stage 2 involving an in-depth analysis of the options through a MCA process. The preferred option included the RRF and a quality transport network with bus lanes. In 2008 it was identified that there was a need for greater public transport provision to address growth, mode share and accessibility and as a result the RTN (in the form of an urban busway) between Pakuranga and Botany, formed part of the scope of the AMETI programme.

Between 2014 – 2016 the preferred sequencing and timing for delivery was confirmed by AT.

In 2017 FOAs were undertaken for AMETI EBC which included AMETI EB3. Each of the FOAs involved an MCA to determine the preferred option.

Following the establishment of the EBA in 2020, the Specimen design was reviewed and retested. Alternative options were developed for the refinement of the EB3C, Tī Rākau Drive Bridge and the EB4 Link Road. This alternatives assessment involved considering various alignment options for different phases of the Eastern Busway Project against the project objectives and assessment criteria. The assessment was undertaken, with technical assessors providing an assessment of each option in relation to specific criteria. The criteria used was consistent with the criteria used in previous option assessments.

## 6 Existing Environment

*EB3C is characterised by a broad mix of urban land uses, including residential, business and open space zones. Building form is also highly variable, from single-storey family homes to big-box retail. Large infrastructure assets are also present, including a bus depot, a Transpower substation and Three Waters assets. The area is also defined by Pakuranga Creek, a tidal branch of the Tāmaki River, with multiple smaller streams connecting to its main channel.*

*EB4L is predominantly on Council reserve land. The dominant land use is informal recreational activities (e.g., walking), a stormwater pond and stream within Guys Reserve. Within the wider environment, there is a commercial development (known as ‘The Hub’) and Botany Town Centre. Residential areas are also present to the south and southwest.*

*The area also features three arterial corridors, being Tī Rākau Drive, Te Irirangi Drive and Harris Road.*

The following is a description of the existing environment of EB3C and EB4L and its surrounds. The various technical assessments provide specific detail regarding the context of EB3C and EB4L where relevant.

### 6.1 EB3C Wider Setting

EB3C is located within the suburbs of Pakuranga and East Tāmaki in the southeast of Tāmaki Makaurau/Auckland. These suburbs are connected to the wider region by the South-Eastern Highway (SEART), Tī Rākau Drive and Harris Road.

Pakuranga takes its name from Te Pakuranga-rā-hihi, which translates to “battle of the sunlight or battle of the sun’s rays”. This legendary battle occurred at Ōhūiarangi/Pigeon Mountain and was caused by a forbidden love by two patupaiarehe (fairy people of the forest). East Tāmaki situated towards the east of the Tāmaki River is named after Taiki, one of the Tainui crew members. Otaiki is the name of the Tāmaki River entrance. The Tāmaki River was navigated by both the Tainui and Te Arawa waka as part of their discoveries and voyaging of the Waitematā Harbour. The Tāmaki River provided easy access from the Waitematā Harbour to the Manukau Harbour, which gave it strategic significance.

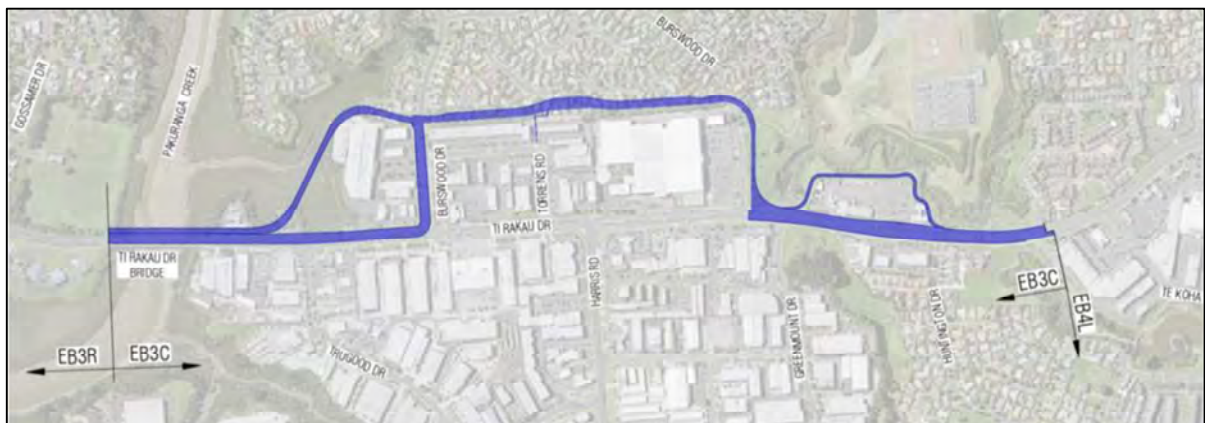


Figure 6-1 General Location of EB3C



The area features a broad mix of land uses oriented towards the arterial corridors of Tī Rākau Drive and Harris Road. To the east of Pakuranga Creek, Tī Rākau Drive is fronted by business zoned properties that are occupied by service stations, big box retail, a bus depot, small commercial premises and professional offices. To the north of Tī Rākau Drive is the Burswood subdivision, a residential development established around Burswood Drive over the past 30 years.

The topography and land use patterns within EB3C are dictated by Pakuranga Creek, a tidal watercourse that feeds the Tāmaki River. The Tāmaki River has experienced degradation from historic land clearance and urban development, but is still an important waterbody for mana whenua, native species, and recreational users. Pakuranga Creek's banks and smaller tributaries are lined with mangroves, while large mud banks are exposed at low tide. The many tributaries of Pakuranga Creek create a peninsula, which is occupied by the Burswood subdivision. These tributaries are themselves often tidal with large areas of mangrove dominated coastal wetland.

To the east of the EB3C area is Botany, a large residential area orientated around Botany Town Centre. To the south is the majority of East Tāmaki, a light industrial area, as well as the residential suburb of Otara. To the west is Pakuranga, while to the north is Highland Park, both of which are predominantly residential neighbourhoods.

## 6.2 EB4L Wider Setting

EB4L is located entirely within the suburb of East Tāmaki in the southeast of Tāmaki Makaurau/Auckland (Figure 6-2). This part of East Tāmaki is connected to the wider region by Tī Rākau Drive and Te Irirangi Drive, both of which are arterial roads.

The area predominantly comprises an AC reserve formed from Guys Reserve and Whaka Maumahara, which are situated towards the rear of a retail area known as 'The Hub'. To the south of the EB4L is a large area of residential housing that was established in the late 1990s/early 2000s. Towards the east of the site is the Botany Town Centre, a large shopping centre that was also developed in the late 1990s/early 2000s.

Towards the north and east of EB4L are the residential suburbs of Botany, Golflands and Dannemora. Southwest of the EB4L area is East Tāmaki, which is a light industrial area. Towards the west and northwest of EB4L lies the suburb of Burswood, which the EB3C portion of the busway will pass through.



Figure 6-2 Eastern Busway 4L Area

### 6.3 EB3C General Site Characteristics

This section provides details of the land uses present within the EB3C alignment. Starting at the western approach of EB3C is Riverhills Park and Pakuranga Creek. Riverhills Park is an established public reserve and is the home ground of Fencibles United AFC. The park features several playing fields, clubrooms for the football club, car parking and floodlights. Currently, views of the park are obscured from Tī Rākau Drive due to vegetation, although it is proposed to remove this vegetation as part of the EB3R works (Figure 6-3)<sup>51</sup>.



Figure 6-3 Riverhills Park looking South towards Tī Rākau Drive

Pakuranga Creek is a branch of the Tāmaki River and is tidally influenced, with large mudbanks and a central channel exposed at low tide. Extensive areas of mangroves are also present within

<sup>51</sup> Resource consents have been sought for this vegetation clearance (AC Reference: BUN60407121).

the Creek's intertidal areas, as shown in Figure 6-4. Pakuranga Creek is crossed by Tī Rākau Drive via a four-lane road bridge, while a Watercare watermain crosses further south via a pipe bridge.



*Figure 6-4 View of Pakuranga Creek*

East of Pakuranga Creek is the industrial section of Burswood. Immediately to the east of the existing road bridge is a Mobil branded service station (242 Tī Rākau Drive), office units and retail stores. As discussed earlier in Section 4, works associated with EB3C will result in the busway traversing through the frontage of the service station and then a retail premise (Pet Stop).

Upon crossing the mangrove coastal wetland to the north of 242 Tī Rākau Drive (Mobil service station) and 254 Tī Rākau Drive (Pet Stop), there are residential dwellings (to the north of the Burswood Industrial area) and a retail business (Chinatown). It is noted that the surrounding area within the light industrial zoned land near the Chinatown retail business and close to the busway alignment includes a range of sites where hospitality businesses have been established.

Bunnings, a large format retail store, is located on Tī Rākau Drive. Towards the eastern portion of EB3C, the Howick and Eastern Bus Depot is located at 380 Tī Rākau Drive and adjacent to the Burswood Esplanade Reserve. Howick and Eastern Buses presently provide bus connections from Howick, Botany and Pakuranga to the Isthmus, as well as charter services. The Burswood Esplanade Reserve at 1R Burswood Drive is a Council reserve and wraps around the northern extent of the Burswood neighbourhood from east to west.

There are walkways within Burswood Esplanade Reserve that leads into the suburb of Golflands, a residential neighbourhood northeast of EB3C. These walkways provide a range of hiking trails within the northern part of Burswood for recreational users.

Towards the eastern side of the EB3C area to the north of Burswood Esplanade Reserve, there is a large Transpower substation (109 Golfland Drive).

The topography of the area largely consists of gently sloping hills in the east, which run down in a westward direction towards the Tāmaki River. There are no significant steep slopes or other types of unstable geology. The landform features a number of estuarine mangrove lined creeks, all of

which ultimately discharge into the Tāmaki River. It is noted that there are no maunga or other AUP(OP) scheduled landscape features within EB3C’s footprint.

## 6.4 EB4L General Site Characteristics

Starting at the western approach to EB4L is the intersection with Tī Rākau Drive. Tī Rākau Drive is an arterial road connecting Botany Town Centre with Pakuranga Town Centre. The area near the intersection with Tī Rākau Drive includes a variety of land uses ranging from residential sites to the north-east and commercial developments towards the south-east, with open space reserve towards the south-west and north-west.

The EB4L alignment passes through Guys Reserve. This AC reserve features walk and cycling paths, large areas of lawn and planted riparian margins. Bordering Guys Reserve is Whaka Maumahara, a stormwater reserve that features a detention pond located within a large depression which is separated by a paper road.

At the eastern extent of the EB4L route is the intersection with Te Irirangi Drive, which is an arterial road having a north-south alignment connecting Botany with Manukau.

## 6.5 EB3C Property Information and Zoning

### 6.5.1 AUP(OP) Zoning

The construction, operation and maintenance of EB3C is within an area that is currently identified as road corridor, reserve land, Coastal Marine Area (CMA), residential and commercial properties. Table 6-1 summarises the property, zoning and property acquisition information for EB3C. Copies of these properties’ Records of Title are provided as Appendix 20.

Table 6-1 Summary of Site information for EB3C

Address	Legal Description	Type of Ownership	Current Zoning under the AUP (OP)	Type of Property Acquisition (e.g., full, partial, temporary)	Property Acquisition Status <sup>52</sup> (e.g., under negotiation, acquired, agreement signed)
168R Gossamer Drive	LOT 108 DP 52077, LOT 106 DP 54705, LOT 2 DP 62030, LOT 1 DP 67262, LOT 104 DP 54705, LOT 3 DP 62030, LOT 109 DP 52077, ALLT 381 PARO Pakuranga, LOT 207 DP 55856, RECLAIMED LAND SO 51501	Auckland Council	Open Space – Sport and Active Recreation Zone	Partial and Temporary Occupation	Under negotiation

<sup>52</sup> The land acquisition status at the time of writing



Address	Legal Description	Type of Ownership	Current Zoning under the AUP (OP)	Type of Property Acquisition (e.g., full, partial, temporary)	Property Acquisition Status <sup>52</sup> (e.g., under negotiation, acquired, agreement signed)
242 Ti Rākau Drive	LOT 1 DP 114548	Private	Business – Light Industry Zone	Full	Under negotiation
254 Ti Rākau Drive	LOT 2 DP 114548	Auckland Council	Business – Light Industry Zone	Full	Acquired
262 Ti Rākau Drive	PT TE WHARAU BLOCK, LOT 4 DP 145524	Private	Coastal – General Coastal Marine Zone and Business – Light Industry Zone	Partial and Temporary Occupation	Under negotiation
207 Burswood Drive	1/3 SH LOT 308 DP 151290, LOT 202 DP 151290	Auckland Council	Residential - Mixed Housing Suburban Zone	Full	Acquired
209 Burswood Drive	1/3 SH LOT 308 DP 151290, LOT 201 DP 151290	Auckland Council	Residential - Mixed Housing Suburban Zone	Full	Acquired
211 Burswood Drive	1/3 SH LOT 308 DP 151290, LOT 200 DP 151290	Private	Residential - Mixed Housing Suburban Zone	Full	Agreement signed
213 Burswood Drive	LOT 199 DP 151290	Auckland Council	Residential - Mixed Housing Suburban Zone	Full	Acquired
200 Burswood Drive	LOT 198 DP 151290	Private	Residential - Mixed Housing Suburban Zone	Full	Agreement signed
24 Tullis Place	LOT 176 DP 152781	Auckland Council	Residential - Mixed Housing Suburban Zone	Full	Acquired
22 Tullis Place	LOT 175 DP 152781	Auckland Council	Residential - Mixed Housing Suburban Zone	Full	Acquired
20 Tullis Place	LOT 174 DP 152781	Auckland Council	Residential - Mixed Housing Suburban Zone	Full	Acquired

Address	Legal Description	Type of Ownership	Current Zoning under the AUP (OP)	Type of Property Acquisition (e.g., full, partial, temporary)	Property Acquisition Status <sup>52</sup> (e.g., under negotiation, acquired, agreement signed)
18 Tullis Place	1/3 SH LOT 314 DP 152782, LOT 173 DP 152782	Auckland Council	Residential - Mixed Housing Suburban Zone	Full	Acquired
16 Tullis Place	1/3 SH LOT 314 DP 152782, LOT 172 DP 152782	Private	Residential - Mixed Housing Suburban Zone	Full	Agreement signed
21 Dulwich Place	1/3 SH LOT 307 DP 152782, LOT 163 DP 152782	Private	Residential - Mixed Housing Suburban Zone	Partial and Temporary Occupation	Acquired
23 Dulwich Place	1/3 SH LOT 307 DP 152782, LOT 162 DP 152782	Auckland Council	Residential - Mixed Housing Suburban Zone	Full	Acquired
25 Dulwich Place	1/3 SH LOT 307 DP 152782, LOT 161 DP 152782	Auckland Council	Residential - Mixed Housing Suburban Zone	Full	Acquired
27 Dulwich Place	LOT 160 DP 152782	Auckland Council	Residential - Mixed Housing Suburban Zone	Full	Acquired
29 Dulwich Place	LOT 159 DP 152782	Auckland Council	Residential - Mixed Housing Suburban Zone	Full	Acquired
31 Dulwich Place	LOT 158 DP 152782	Private	Residential - Mixed Housing Suburban Zone	Full	Agreement signed
33 Dulwich Place	LOT 157 DP 152782	Private	Residential – Mixed Housing Suburban Zone	Full	-
1/33 Dulwich Place	LOT 157 DP 152782, FLAT 1 DP 175893	Auckland Council	Residential - Mixed Housing Suburban Zone	Full	Acquired
2/33 Dulwich Place	LOT 157 DP 152782, FLAT 2 DP 175893	Private	Residential - Mixed Housing Suburban Zone	Full	Agreement signed

Address	Legal Description	Type of Ownership	Current Zoning under the AUP (OP)	Type of Property Acquisition (e.g., full, partial, temporary)	Property Acquisition Status <sup>52</sup> (e.g., under negotiation, acquired, agreement signed)
28 Dulwich Place	LOT 156 DP 152782	Auckland Council	Residential - Mixed Housing Suburban Zone	Full	Acquired
36 Heathridge Place	LOT 76 DP 145325	Auckland Council	Residential – Mixed Housing Suburban Zone	Full	-
1/36 Heathridge Place	LOT 76 DP 145325, FLAT 1 DP 158055	Auckland Council	Residential - Mixed Housing Suburban Zone	Full	Acquired
2/36 Heathridge Place	LOT 76 DP 145325, FLAT 2 DP 163772	Auckland Council	Residential - Mixed Housing Suburban Zone	Full	Acquired
34 Heathridge Place	LOT 75 DP 145325, FLAT 1 DP 157741	Auckland Council	Residential - Mixed Housing Suburban Zone	Full	Acquired
2/34 Heathridge Place	LOT 75 DP 145325, FLAT 2 DP 182698	Auckland Council	Residential - Mixed Housing Suburban Zone	Full	Acquired
32 Heathridge Place	LOT 74 DP 145325	Auckland Council	Residential - Mixed Housing Suburban Zone	Full	Acquired
30 Heathridge Place	LOT 73 DP 145325	Auckland Council	Residential - Mixed Housing Suburban Zone	Full	Acquired
28 Heathridge Place	LOT 72 DP 145325	Auckland Council	Residential - Mixed Housing Suburban Zone	Full	Acquired
26 Heathridge Place	LOT 71 DP 145325	Auckland Council	Residential - Mixed Housing Suburban Zone	Full	Acquired
24 Heathridge Place	LOT 70 DP 145325	Auckland Council	Residential - Mixed Housing Suburban Zone	Full	Acquired

Address	Legal Description	Type of Ownership	Current Zoning under the AUP (OP)	Type of Property Acquisition (e.g., full, partial, temporary)	Property Acquisition Status <sup>52</sup> (e.g., under negotiation, acquired, agreement signed)
22 Heathridge Place	LOT 69 DP 145325	Auckland Council	Residential - Mixed Housing Suburban Zone	Full	Acquired
20 Heathridge Place	LOT 502 DP 145325	Auckland Council	Residential - Mixed Housing Suburban Zone	Full	Acquired
18 Heathridge Place	LOT 501 DP 145324	Private	Residential - Mixed Housing Suburban Zone	Full	Agreement signed
16 Heathridge Place	1/3 SH LOT 216 DP 145324, LOT 500 DP 145324	Auckland Council	Residential - Mixed Housing Suburban Zone	Full	Acquired
14 Heathridge Place	1/3 SH LOT 216 DP 145324, LOT 68 DP 145324	Auckland Council	Residential - Mixed Housing Suburban Zone	Full	Acquired
12 Heathridge Place	1/3 SH LOT 216 DP 145324, LOT 67 DP 145324	Private	Residential - Mixed Housing Suburban Zone	Full	Acquired
32 Burswood Drive	1/2 SH LOT 205 DP 144285, LOT 59 DP 158509	Auckland Council	Residential - Mixed Housing Suburban Zone	Full	Acquired
30 Burswood Drive	1/4 SH LOT 205 DP 144285, LOT 58 DP 144285	Auckland Council	Residential - Mixed Housing Suburban Zone	Full	Acquired
26 Burswood Drive	LOT 56 DP 144285	Auckland Council	Residential - Mixed Housing Suburban Zone	Full	Acquired
23 Burswood Drive	LOT 2 DP 144283	Auckland Council	Residential - Mixed Housing Suburban Zone	Full	Acquired
21 Burswood Drive	LOT 3 DP 562570, 1/3 SH LOT 100 DP 562570	Auckland Council	Residential - Mixed Housing Suburban Zone	Full	Acquired



Address	Legal Description	Type of Ownership	Current Zoning under the AUP (OP)	Type of Property Acquisition (e.g., full, partial, temporary)	Property Acquisition Status <sup>52</sup> (e.g., under negotiation, acquired, agreement signed)
19 Burswood Drive	LOT 2 DP 562570, 1/3 SH LOT 100 DP 562570	Auckland Council	Residential - Mixed Housing Suburban Zone	Full	Acquired
17 Burswood Drive	LOT 1 DP 562570, 1/3 SH LOT 100 DP 562570	Auckland Council	Residential – Mixed Housing Suburban Zone	Full	Acquired
23R Kenwick Place (1R Burswood Drive)	LOT 14 DP 169911	Auckland Council	Open Space - Informal Recreation Zone	Partial and Temporary Occupation	Under negotiation
23R Kenwick Place	LOT 206 DP 144283, LOT 207 DP 144284, LOT 218 DP 145326, LOT 200 DP 144284, LOT 309 DP 156848, LOT 310 DP 156849, PT LOT 13 DP 169911, LOT 102 DP 169465, LOT 102 DP 169467, LOT 102 DP 169468, LOT 108 DP 175332, LOT 109 DP 175333, LOT 110 DP 175335	Auckland Council	Open Space - Informal Recreation Zone	Partial and Temporary Occupation	Under negotiation
400R Tī Rākau Drive	PT LOT 12 DP 169911	Auckland Council	Open Space - Informal Recreation Zone	Partial and Temporary Occupation	Under negotiation
250R Tī Rākau Drive	LOT 3 DP 114548	Auckland Council	Open Space - Conservation Zone	Partial and Temporary Occupation	Under negotiation
252R Tī Rākau Drive	LOT 4 DP 114548	Auckland Council	Open Space - Conservation Zone	Partial and Temporary Occupation	Under negotiation

Address	Legal Description	Type of Ownership	Current Zoning under the AUP (OP)	Type of Property Acquisition (e.g., full, partial, temporary)	Property Acquisition Status <sup>52</sup> (e.g., under negotiation, acquired, agreement signed)
272 Ti Rākau Drive	LOT 2 DP 149122	Private	Business-Light Industry Zone	Temporary occupation only	Under negotiation
320 Ti Rākau Drive	LOT 1 DP 129296, LOT 2 DP 130383, SEC 1 SO 62932, SEC 2 SO 62932, LOT 31 DP 141844	Private	Business-Light Industry Zone	Partial and Temporary Occupation	Under negotiation
28 Torrens Road	LOT 2 DP 323137	Private	Business-Light Industry Zone	Partial and Temporary Occupation	Under negotiation
386 Ti Rākau Drive	LOT 2 DP 327634	Private	Business-Light Industry Zone	Full	Acquired
380 Ti Rākau Drive	LOT 1 DP 327634	Auckland Council	Business-Light Industry Zone	Full	Acquired <sup>53</sup>

The following table summarises the sites above according to their current AUP(OP) zoning:

Table 6-2 Summary of AUP(OP) Zoning Details for EB3C

Current Zone	Description of Locations
Unzoned – Road	All roads
Open Space - Informal Recreation	This applies to the parts of EB3C where reserves are present. This includes Council owned reserves such as Burswood Esplanade Reserve, at the following sites: 23R Kenwick Place 1R Burswood Drive Burswood Esplanade Reserve
Open Space - Conservation	This zone applies to Burswood Esplanade Reserve towards the western part of EB3C adjacent to Pakuranga Creek.
Residential - Mixed Housing Suburban	The residential areas are located to the north of the Burswood Light Industrial zoned land. The following sites are zoned Mixed Housing Suburban: 17-23, 26, 30-32, 200, 207-213 Burswood Drive 16-24 Tullis Place 23-33, 26-28 and 32 Dulwich Place 12-30 and 34-36 Heathridge Place

<sup>53</sup> This site was acquired in 2018.

Current Zone	Description of Locations
Coastal Transition Zone	Relates to Pakuranga Creek
General Coastal Marine Zone	Relates to Pakuranga Creek and Burswood Esplanade Reserve
Business – Light Industry Zone	This is the main zoning along Tī Rākau Drive within the Burswood section of EB3C. The following sites are within this zone: 242 and 254 Tī Rākau Drive

### 6.5.2 Impact of Plan Change 78 on Zoning and Development Standards

Proposed Plan Change 78 was publicly notified on 18 August 2022 with submissions closing on 29 September 2022. This plan change was required by the Resource Management (Enabling Housing Supply and Other Matters) Amendment Act 2021 (Amendment Act) and implements the National Policy Statement on Urban Development (2020) (NPS-UD) and the Medium Density Residential Standards (MDRS). This plan change seeks to:

- Enable more development in the city centre and at least six-storey buildings within walkable catchments from the edge of the City Centre, Metropolitan Centres and Rapid Transit Stops
- Enable development in and around neighborhoods, local and town centres
- Incorporate Medium Density Residential Standards that enable three storey housing in relevant residential zones in urban Auckland
- Provide for qualifying matters to reduce the height and density of development required by the RMA to the extent necessary to accommodate a feature or value that means full intensification is not appropriate.

The intent of the plan change generally aligns with the wider Project objectives as it seeks to provide for residential intensification in the wider Pakuranga, Botany and Burswood area with improved public transport options and service reliability. The Project therefore complements the objectives of the proposed plan change.

In response to the intensification directives of the Amendment Act, Auckland Council also notified Proposed Plan Change 79 (PC79) and Plan Change 80 (PC80) to the AUP(OP).

PC 79 proposes amendments to the transport provisions including managing the impacts of development on Auckland’s Transport network with a focus on pedestrian safety, accessible carparking, loading and heavy vehicle management. The proposed plan change also enables electric vehicle charging facilities and cycle parking. There are no proposed rules in PC79 that would trigger additional resource consents for this proposal. The proposed changes generally align with the project objectives as transport movements will be made more efficient and safer within Burswood, East Tāmaki and Botany, while also providing for cycling infrastructure.

PC80 seeks amendments to the Regional Policy Statement to support PC78. PC80 introduces the concepts of well-functioning urban environments, urban resilience to the effects of climate change and qualifying matters into objectives and policies of the RPS. There are no consent triggers and as noted above, the proposal will complement the changes in PC78, 79 and 80.

## 6.6 EB4L Property Information and Zoning

Works associated with EB4L will be undertaken within the road corridor, reserve land and commercial properties and are listed in Table 6-3 below. Copies of these properties' Records of Title are provided as Appendix 21.

Table 6-3 Summary of Site Information for EB4L

Address	Legal Description	Type of Ownership	Current Zoning under the AUP (OP)	Type of Property Acquisition (e.g. full, partial, temporary)	Property Acquisition Status <sup>54</sup> (e.g. under negotiation, acquired, agreement signed)
181R Guys Road, East Tāmaki	LOT 2 DP 189283	Auckland Council	Open Space – Informal Recreation Zone	Partial and Temporary Occupation	N/A – NoR only
181R Guys Road East Tāmaki Auckland 2013	LOT 180 DP 180654, LOT 181 DP 180654, LOT 182 DP 180654, LOT 180 DP 180655, LOT 181 DP 180655, LOT 182 DP 180655	Auckland Council	Open Space - Conservation Zone  Open Space - Informal Recreation Zone	Partial and Temporary Occupation	N/A – NoR only
204R Guys Road East Tāmaki Auckland 2013	LOT 3 DP 192219	Auckland Council	Open Space - Conservation Zone	Partial and Temporary Occupation	N/A – NoR only
451 Tī Rākau Drive, East Tāmaki	LOT 1 DP 312445	Private	Business – Mixed Use Zone	Temporary Occupation only	N/A – NoR only
588 Chapel Road, Flat Bush <sup>55</sup>	PT LOT 1 DP 192219, LOT 2 DP 207478, PT LOT 1 DP 192219, LOT 2 DP 207478	Private	Business-Metropolitan Centre Zone	Temporary Occupation only <sup>56</sup>	N/A – NoR only

The following table summarises these sites according to their relevant AUP(OP) zoning:

<sup>54</sup> The land acquisition status at the time of writing

<sup>55</sup> Botany Town Centre

<sup>56</sup> Limited to the Intersection works on Town Centre Drive

Table 6-4 AUP(OP) Zoning Details Site

Current Zone	Description of Locations
Unzoned – Road	All roads (intersection of Tī Rākau Drive and the EB4L alignment and the intersection with Te Irirangi Drive with the EB4L alignment)
Business - Mixed Use	The Vehicle Testing New Zealand Limited (VTNZ) site at 451 Tī Rākau Drive
Business-Metropolitan Zone	This extent applies to intersection improvements in Town Centre Drive in Botany Town Centre at 588 Chapel Road, Flat Bush
Open Space - Informal Recreation	Guys Reserve
Open Space – Conservation Zone	This applies to the Guys Reserve and Whaka Maumahara Reserve (including the stormwater pond)

## 6.7 EB3C AUP(OP) Annotations

Table 6-5 sets out the relevant AUP(OP) overlays, controls, and designations for EB3C. These apply within both the road and zones. Further detail regarding these annotations is addressed in the relevant sub-sections of this AEE and is shown in Appendix 33.

Table 6-5 AUP(OP) Annotations Relevant to EB3C

AUP(OP) Annotations	
<b>Overlays</b>	<ul style="list-style-type: none"> <li>Natural Resources: Significant Ecological Areas Overlay - SEA-M2-45b, Marine 2</li> <li>Historic Heritage and Special Character: Historic Heritage Overlay Extent of Place [rcp/dp] - 2114, McCallum's Wharf and Quarry R11_1263</li> <li>Built Environment: Identified Growth Corridor Overlay</li> <li>Infrastructure: National Grid Corridor Overlay - National Grid Substation Corridor</li> <li>Infrastructure: National Grid Corridor Overlay - National Grid Yard Uncompromised</li> <li>Mana Whenua: Sites and Places of Significance to Mana Whenua Overlay [rcp/dp] - 024, Urupā, 1</li> </ul>
<b>Controls</b>	<ul style="list-style-type: none"> <li>Arterial Road (Tī Rākau Drive, Harris Road)</li> <li>Controls: Macroinvertebrate Community Index - Native</li> <li>Controls: Macroinvertebrate Community Index – Urban</li> <li>Controls: Macroinvertebrate Community Index - Rural</li> <li>Height Variation Control – East Tāmaki, 27m</li> <li>Height Variation Control – East Tāmaki, 22.5m</li> <li>Coastal Inundation 1 per cent AEP Plus 1m Control – 1m sea level rise</li> </ul>
<b>Designations</b>	<ul style="list-style-type: none"> <li>Designations: Airspace Restriction Designations - ID 1102, Protection of aeronautical functions - obstacle limitation surfaces, Auckland International Airport Ltd</li> <li>Designation – 8507, Electricity transmission – the construction, operation and maintenance of underground transmission lines comprising of a 220kV cable circuit to convey electricity between Pakuranga and Penrose substations, Designations, Transpower</li> <li>Designations – 8514, Electricity transmission - the ongoing use, maintenance and operation of the Pakuranga Electricity Substation, the development of the substation site as part of the upper North Island Grid Upgrade Project and associated works, and works associated with other upgrade projects, and ancillary activities, Designations, Transpower</li> <li>Designations: Designations - 8516, Electricity transmission - the construction, operation and maintenance of a double circuit underground 220kV cable as part of the upper North Island Grid Upgrade Project, to convey electricity between the Pakuranga Substation and the substation site at Brownhill Road, Whitford, Transpower.</li> </ul>



## 6.8 EB4L AUP(OP) Annotations

Table 6-6 sets out the relevant AUP(OP) overlays, controls, and designations for EB4L. These apply within both the road and zones. Further detail regarding these annotations is addressed in the relevant sub-sections of this AEE and is shown in Appendix 33.

Table 6-6 AUP(OP) Annotations Relevant to E4L

AUP(OP) Annotations	
<b>Overlays</b>	<ul style="list-style-type: none"> <li>N/A</li> </ul>
<b>Controls</b>	<ul style="list-style-type: none"> <li>Arterial Road (Tī Rākau Drive, Te Irirangi Drive)</li> <li>Controls: Macroinvertebrate Community Index – Urban</li> <li>Controls: Macroinvertebrate Community Index - Rural</li> <li>Controls: Height Variation Control - East Tāmaki, 27m</li> </ul>
<b>Designations</b>	<ul style="list-style-type: none"> <li>Designations: Airspace Restriction Designations - ID 1102, Protection of aeronautical functions - obstacle limitation surfaces, Auckland International Airport Ltd</li> <li>Designations: 8516, Electricity transmission - the construction, operation and maintenance of a double circuit underground 220kV cable as part of the upper North Island Grid Upgrade Project, to convey electricity between the Pakuranga Substation and the substation site at Br, Designations, Transpower</li> <li>NOR for Airport to Botany</li> </ul>

## 6.9 EB3C Network Utilities

Table 6-7 sets out the network utility infrastructure present in the EB3C area.

Table 6-7 EB3C Network Utilities

Network Utilities	
<b>Transpower – Overhead Lines</b>	There is an existing Transpower 220 kV aerial transmission line (OTA-PAK-A). It crosses Tī Rākau Drive from the south near the intersection with Greenmount Drive and continues into Burswood Esplanade Reserve and terminates into the Transpower Electrical Substation.
<b>Transpower - Underground</b>	There is an existing Transpower underground cable (Designation 8507), the PAK-PEN-B 220kV within the EB3C site. This cable lies under the east bound traffic lanes along Tī Rākau Drive before turning left into the Burswood Esplanade Reserve and terminating at the Transpower Electrical Substation.
<b>Watercare</b>	Watercare has the following services within the EB3C alignment: <ul style="list-style-type: none"> <li>150mm diameter watermain across the existing Tī Rākau Drive Bridge</li> <li>1070mm Hunua 2 watermain is conveyed across a pipe bridge over Pakuranga Creek</li> <li>Watermain diameters in other parts of the EB3C area range from 100mm, 150 mm, 200mm and 250mm</li> <li>Individual lot connections for watermains range in size from 20mm, 25mm to 50 mm.</li> <li>Wastewater pipe diameters range in size from 100 mm, 150mm and 225mm, while a 600mm diameter wastewater pipe (Botany Branch Sewer) traverses Tī Rākau Drive towards the easternmost extent of EB3C.</li> </ul>
<b>Vector</b>	Vector has several electrical services located within the EB3C alignment. These are located underneath or above ground along the existing footpath/berm on both sides of the roads. Vector also has gas mains that is the MP4 gas main which is located underground. A gas distribution lines is located outside Chinatown (262 Tī Rākau Drive) and extends eastwards down Tī Rākau Drive. Gas distribution lines also extend along Burswood Drive West and Torrens Road.

Network Utilities	
	Vector also has communication lines within the EB3C area which are underground. These are underground cables with pits on the surface of the berms/footpaths.
<b>Vodafone</b>	Vodafone has existing assets within the EB3C area along Tī Rākau Drive, Burswood Drive and Torrens Road.
<b>Chorus</b>	Chorus has existing copper and fibre-based network assets. The majority of these are located underneath existing footpath/berms.

## 6.10 EB4L Network Utilities

Table 6-8 sets out Transpower and Watercare’s infrastructure present in the EB4L area.

Table 6-8 EB4L Network Utilities

Network Utilities	
<b>Transpower – Underground</b>	There are two existing Transpower underground cables (Designation 8516), the BHL-PAK-B 220kV cable and the BHL-PAK-A 220kV cable within the EB4L site. These cables lie under the EB4L alignment, before turning southwards down Te Irirangi Drive.
<b>Watercare</b>	Watercare has the following services within the EB4L alignment: <ul style="list-style-type: none"> <li>• A 700mm diameter watermain traversing through Whaka Maumahara and north and west of the stormwater pond ending near the intersection with Te Irirangi Drive</li> <li>• An individual watermain connection for the VTNZ site is 50mm diameter in size</li> <li>• A 1050mm diameter wastewater pipe bridge over a stream within Guys Reserve transitioning to a 600mm diameter wastewater pipe</li> <li>• Smaller wastewater pipe sizes ranging from 150mm to 300mm and 375mm diameter pipes serving individual sites and units</li> </ul>

## 6.11 EB3C Existing Transport Environment

### 6.11.1 General Traffic

The transport context of the EB3C area is based on a historic car-centric transport typology. The main traffic route through this area is Tī Rākau Drive which is a large multi-lane road corridor. The sites along this route are predominantly commercial and large format retail outlets, with large areas of these sites dedicated to car parking.

The following are identified as arterial roads under the AUP(OP) and as regional arterial roads under the Waka Kotahi One Network Road Classification:

- Tī Rākau Drive
- Harris Road.

Tī Rākau Drive and Harris Road are both over-dimension routes. Trugood Drive is also identified as an arterial road under the One Road Network classification system, but not under the AUP(OP). The other roads located within the immediate area are a mix of collector and access roads. Intersections between the regional arterial roads are signalised, while intersections between regional arterials and lower order roads are signalised where right turning is allowed.

Tī Rākau Drive and Harris Road have posted speed limits of 50km/hr<sup>57</sup>. Given their regional arterial status, their historic use of higher speed limits and their daily traffic volumes, Tī Rākau

<sup>57</sup> The speed limits on these road corridors were reduced to the current limits as part of AT’s Safe Speeds Programme in early 2023.

Drive and Harris Road feature measures to separate opposing traffic such as the use of a flush median and raised medians. These road corridors feature large information signs, multi-lane intersections and other street infrastructure associated with high vehicle volume environments.

The lower order roads feature less road safety and information infrastructure for traffic that will be entering into Ti Rākau Drive. However, for traffic movements that will enter these roads from Ti Rākau Drive, there are measures such as median lines, signalisation and/or left turn only restrictions.

### 6.11.2 Public Transport

Both Pakuranga and Botany town centres act as hubs for bus services for southeast Tāmaki Makaurau/Auckland. While these two centres are outside the EB3C area, there are a collection of bus services that go through the EB3C area. This includes bus services to and from the City Centre, Botany, Panmure, Manukau and Otahuhu. In addition, several school buses run through EB3C.

The bus route numbers and routes are as follows:

Table 6-9 Bus Route Details through EB3C

Route Number	Frequency	Locations Served	Type of Service
70	At least every 15 minutes, 7am-7pm, 7 days a week with lower frequencies early morning and evenings	Botany, Pakuranga, Panmure, Ellerslie, Newmarket, City Centre	Frequent Service
351	Frequency and hours of operation vary	Botany, Highbrook, Otahuhu Town Centre, Otahuhu Station (Monday to Friday only)	Local Service
352	Services operate weekdays only, during morning and afternoon peak	Panmure, Highbrook, East Tāmaki, Manukau	Peak Period Service
353	At least every 30 minutes, 7am-7pm, 7 days a week. Lower frequencies early morning and evenings	Manukau, Preston Road, Springs Road, Harris Road, Botany Town Centre	Connector Service
013 (AM Service)	Departs 7.55am from Otara to Edgewater College	Otara to Edgewater College	School Bus
013 (PM Service)	Departs 3.25pm from Edgewater College	Edgewater College to Otara	School Bus
416 (AM Service)	Departs 7.40am from Botany Town Centre	Botany Town Centre to Sacred Heart College	School Bus



### 6.11.3 Pedestrian and Cyclist Network

Active transport infrastructure includes footpaths (present in most road reserves) and signalised crossings at all intersections with Tī Rākau Drive. There are currently no dedicated cycleways present within the EB3C area.

## 6.12 EB4L Existing Transport Environment

### 6.12.1 General Traffic

As with the EB3C area, the area surrounding the EB4L route has a historically car-centric transport typology. The land adjacent to EB4L can be characterised predominantly by commercial and small-scale retail outlets, as well as an AC reserve. Botany Town Centre is situated at the terminus of the busway and is a major trip generation source within southeast Tāmaki Makaurau/Auckland. Te Koha Road is classified as a secondary collector road. Within the wider area, the road network is generally arranged in a cul-de-sac pattern with access, low volume and secondary collector road classifications. Towards the north and east of the intersection of Te Irirangi Drive and Tī Rākau Drive, there are arterial road and primary collector road classifications along Botany Road, Tarnica Road, Chapel Road and Dannemora Drive.

The Te Koha Road/Te Irirangi Drive and Te Irirangi Drive/Tī Rākau Drive intersections are both signalised. The speed limit along Te Irirangi Drive and Tī Rākau Drive is 50km/hr, with both Tī Rākau Drive and Te Irirangi Drive featuring measures to separate opposing traffic. This includes the use of a flush median and raised medians. These road corridors feature large information signs, multi-lane intersections and other street infrastructure associated with high vehicle volume environments.

### 6.12.2 Public Transport

As mentioned above within the EB3C existing environment description, Botany Town Centre acts as a hub for bus services for southeast Tāmaki Makaurau/Auckland. In addition, the NoRs associated with the Airport to Botany Project were publicly notified on 10 March 2023. That project will improve public transport connections from southeast Tāmaki Makaurau/Auckland to Puhinui and Auckland International Airport.

The bus route numbers and routes are as follows:

Table 6-10 Bus Route Details through EB4L area

Route Number	Frequency	Locations Served	Type of Service
70	At least every 15 minutes, 7am-7pm, 7 days a week with lower frequencies early morning and evenings	Botany, Pakuranga, Panmure, Ellerslie, Newmarket, City Centre	Frequent Service
351	Frequency and hours of operation vary	Botany, Highbrook, Otahuhu Town Centre, Otahuhu Station (Monday to Friday only)	Local Service



Route Number	Frequency	Locations Served	Type of Service
353	At least every 30 minutes, 7am-7pm, 7 days a week. Lower frequencies early morning and evenings	Manukau, Preston Road, Springs Road, Harris Road, Botany Town Centre	Connector Service
733	Frequency and hours of operation vary	Bucklands Beach, Highland Park, Botany	Local Service
72C/M	At least every 15 minutes, 7am-7pm, 7 days a week with lower frequencies early morning and evenings	Howick, Pakuranga Road, Pakuranga, Panmure	Frequent Service
72C	At least every 30 minutes, 7am-7pm, 7 days a week and lower frequencies early morning and evenings.	Botany, Chapel Road, Cook Street, Howick, Pakuranga Road, Panmure	Connector Service
72M	At least every 30 minutes, 7am-7pm, 7 days a week and lower frequencies early morning and evenings	Botany, Millhouse Drive, Meadowland Drive, Howick, Pakuranga Road, Panmure	Connector Service
72X	Service operates weekdays only, during morning and afternoon peak	Botany, Howick, Pakuranga, Panmure, Southern Motorway, City	Peak Period Service
735	Frequency and hours of operation vary	Botany, Millhouse Drive, Cockle Bay, Howick, Macleans Road, Half Moon Bay	Local Service
355	Every 30 minutes, 7am – 7pm, 7 days a week with lower frequencies early morning and evenings	Botany, Kilkenny Drive, Middlefield Drive, Mission Heights, Ormiston, Manukau	Connector Service
35	Every 15 minutes, 7am – 7pm, 7 days a week with lower frequencies early morning and evenings	Botany, Chapel Road, Ormiston, Manukau	Frequent Service
31	Every 15 minutes, 7am – 7pm, 7 days a week with lower frequencies early morning and evenings	Mangere Town Centre, Papatoetoe, Hunters Corner, Otara, Botany	Frequent Service
739	Frequency and hours of operation vary	Maraetai, Beachlands, Whitford, Ormiston, Botany	Local Services

Route Number	Frequency	Locations Served	Type of Service
416 (AM Service)	Departs 7.40am from Botany Town Centre	Botany Town Centre to Sacred Heart College	School Bus
416 (PM Service)	Departs 3.25pm from Sacred Heart College	Sacred Heart College to Botany Town Centre	School Bus
425 (AM Service)	Departs 8:00am from Botany Town Centre	Bucklands Beach, McLeans College	School Bus
425 (PM Service)	Departs 3:15pm from Bucklands Beach Intermediate	Bucklands Beach, McLeans College	School Bus
426 (AM Service)	Departs 7:50am from Botany Town Centre	McLeans College	School Bus
426 (PM Service)	Departs 3:25pm from McLeans College	McLeans College	School Bus
428 (AM Service)	Departs Botany Town Centre at 7:52am	McLeans College	School Bus
428 (PM Service)	Departs from McLeans College at 3:24pm	McLeans College	School Bus
430 (AM Service)	Departs 7:59am from opposite 115 Whitford Road (Stop 6244)	Botany Downs Primary, Howick Intermediate and Owairoa Primary School	School Bus
430 (PM Service)	Departs 3:10pm from Botany Downs Primary	Botany Downs Primary, Howick Intermediate and Owairoa Primary School	School Bus
431 (AM Service)	Departs 8:00am from Botany Town Centre	Howick College, Somerville Intermediate	School Bus
431 (PM Service)	Departs 3:15pm from Somerville Intermediate	Howick College, Somerville Intermediate	School Bus

### 6.12.3 Pedestrian and Cyclist Network

Active transport infrastructure includes footpaths (present on all roads), signalised crossings at the intersection of Tī Rākau Drive/Te Irirangi Drive and Te Irirangi Drive/Te Koha Road. There is a discontinuous cycle lane at the approach to the intersection of Tī Rākau Drive/Te Irirangi Drive.

### 6.13 EB3C Existing Landscape and Visual Values

As noted in the Natural Character, Landscape and Visual Effects Assessment (Appendix 22), EB3C will be constructed in a corridor that is characterised by a variety of land uses, including residential, light industrial and retail. Towards the north of EB3C, residential activity is the predominant land

use, while there are also reserves that are mainly concentrated in the east and west of the Project (including esplanade reserves).

Burswood Esplanade Reserve consists of a 20m strip of land situated along the northern and western edges of EB3C and widens out into a larger reserve space at the eastern end of the Project (Figure 6-6). This reserve is characterised by large, grassed areas that are interspersed with native and exotic riparian planting. Also present are expansive areas of mangrove coastal wetlands within the intertidal zone of the Pakuranga Creek. Smaller areas of riparian planting exist towards the east near the Howick and Eastern Bus Depot, as well as numerous titoki trees.

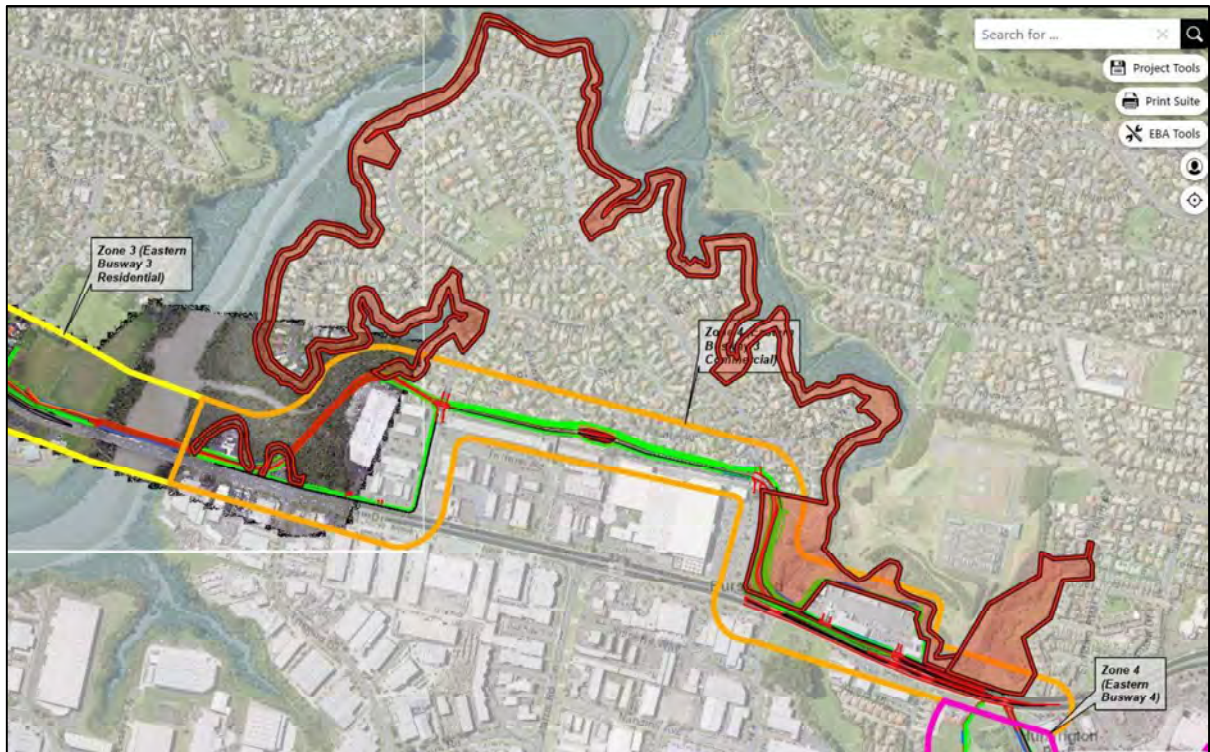


Figure 6-6 Location and extent of Burswood Esplanade Reserve and Bard Place Reserve (highlighted in red)

Bard Place Reserve connects to Burswood Esplanade Reserve to the east of EB3C. It is bound by residential sites and a residential street towards its north and east, while a Transpower substation and Tī Rākau Drive forms its western and southern boundaries respectively. There is also riparian planting along Pakuranga Creek. Bard Place Reserve is itself formed from grassed areas and trees, with minimal public facilities provided (i.e., park benches).

In addition to the above, Tī Rākau Drive features grass berms and a variety of tree species that have been sporadically planted. These species include pōhutukawa (in groups within wide grass berms), *Washingtonia robusta* (Mexican fan palm), *Syagrus romanzoffiana* (queen palm) and *Griselinia littoralis* (pāpāuma).

### 6.14 EB4L Existing Landscape and Visual Values

EB4L will be constructed within a corridor where the predominant land use pattern is associated with commercial or retail activities and within an open space zone.

Guys Reserve is located towards the south of Tī Rākau Drive and is surrounded by residential properties and a kindergarten on its western boundary, while there are commercial sites along its eastern boundary. This reserve comprises of mown edges with a vegetated central portion, with a stream flowing through its centre. Guys Reserve is based around a small stream gully, with sloping banks rising to the adjoining sites. A paper road containing a concrete footpath connects Guys Reserve and Whaka Maumahara. Whaka Maumahara is centred on a stormwater pond and small island, with steeper banks rising to the adjoining roads, The Hub and Guys Reserve.

## 6.15 EB3C Contaminated Land

The following HAIL<sup>58</sup> sites have been identified within the EB3C area (Table 6-11).

Table 6-11 HAIL sites within EB3C Footprint

Site Name	Location	Land Use	Key Contaminants of Concern*
242 Tī Rākau Drive	On proposed busway/cycleway	Mobil Service Station	HAIL category F7- Polycyclic aromatic hydrocarbons (PAH) in coal, lubricating oil, hydrocarbon fuels, benzene, toluene, ethylbenzene and xylenes (BTEX)
245 Burswood Drive	Directly adjacent (west) of proposed cycleway	Best Automotive Clinic, now Auto Super Shoppe Pakuranga	HAIL category F4- Metals and metalloids, solvents, chlorinated solvents, petrol, diesel, lubricating oil, PAHs, urea, ethylene glycol
269 Tī Rākau Drive	Within 200 m (south) of proposed cycleway	Sandvik Materials Technology	HAIL category D5- Solvents, chlorinated solvents, metals and metalloids, lubricating oil, alkalis, acids
279 Tī Rākau Drive	Within 200 m (south-east) of proposed cycleway	Former Timber Storage Yard	HAIL category A18- Chromated copper arsenate (CCA), boron, pentachlorophenol, creosote, solvents, tributyltin, dioxins and difurans, pesticides, synthetic pyrethroids
284 Tī Rākau Drive	Within 200 m (east) of proposed cycleway	Z Service Station	HAIL category F7- PAH in coal, lubricating oil, hydrocarbon fuels, BTEX
380 Tī Rākau Drive	Directly adjacent (north) of proposed busway and directly adjacent (south) of proposed cycleway	Howick and Eastern Bus Depot	HAIL category F8- PAH in coal, lubricating oil, hydrocarbon fuels, BTEX
386 Tī Rākau Drive	On proposed busway and directly adjacent (south) of proposed cycleway	Gull Service Station	HAIL category F7- PAH in coal, lubricating oil, hydrocarbon fuels, BTEX

In addition to the above-mentioned HAIL sites, there is the potential to uncover asbestos contamination. The source of such contamination will likely be older buildings and infrastructure (e.g., asbestos cement pipes) which may be uncovered during demolition works. Similarly, there is potential to disturb lead contaminated soil, with such contamination arising from the historic use of lead-based paints.

<sup>58</sup> The Hazardous Activities and Industries List (HAIL) is a compilation of activities and industries that are considered likely to cause land contamination resulting from hazardous substance use, storage or disposal.

## 6.16 EB4L Contaminated Land

There are adjacent sites to the proposed EB4L alignment which are identified as potential HAIL activity sites. These are summarised below:

Table 6-12 HAIL sites within EB4L Footprint

Site Name	Land Use	HAIL Category
Z Service Station (550 Te Irirangi Drive, Clover Park)	Fuel Station/Service Station	F7 – Services stations including retail or commercial refuelling facilities
Vehicle Testing New Zealand (VTNZ) Botany (451 Tī Rākau Drive, East Tāmaki)	Vehicle Testing	F4 – Motor vehicle workshops
Tyre City – Botany (451 Tī Rākau Drive, East Tāmaki)	Tyre Repairs	F4 - Motor vehicle workshops
Pit Stop – Botany Downs (451 Tī Rākau Drive, East Tāmaki)	Vehicle Testing and Repairs	F4 - Motor vehicle workshops

In addition to the above-mentioned HAIL sites, there is the potential to uncover asbestos contamination and lead contaminated soil.

## 6.17 EB3C and EB4L Air Quality

The Project is located within the Auckland Urban Airshed which runs from Orewa in the North to Papakura and Pukekohe in the South.

There are limited sources of air pollution within the Project area, and the primary sources of air pollution will be from motor vehicle emissions and building heat systems. Meteorological data detailed in the Air Quality Effects Assessment (Appendix 23) indicates that the prevalent wind direction is from the southwest, while northeast, northwest and southeast winds are less prevalent. Minor variations in topographical features exist around waterways and coastal areas which are not considered to have a major impact in the dispersal of air pollutants.

## 6.18 EB3C and EB4L Acoustic Environment

A detailed description of the existing noise environment is provided in the Construction Noise and Vibration Effects Assessment (Appendix 15) and was based on a noise survey to measure the existing noise environment in the EB3C area. The measurements were taken for EB3C at 200 Burswood Drive and 29 Dulwich Place, as well as in Guys Reserve and Tiger Drive for EB4L. The noise sources at 200 Burswood Drive are dominated more by traffic noise, while the noise sources at 29 Dulwich Place relate to natural noise sources. Noise sources at Guys Reserve were



dominated by noise from Tī Rākau Drive and Te Irirangi Drive, with birdsong also dominant. Overall, the EB3C and EB4L noise environment is characterised by road traffic noise from Tī Rākau Drive and Te Irirangi Drive.

This field data was collected in accordance with New Zealand Standards 6801, 6802 and 6806, with the noise levels shown in

Table 6-13.

Table 6-13 Existing Environment Noise Levels

Location	Address	Observations	Noise level
ML1	200 Burswood Drive	Road traffic noise dominant from Tī Rākau Drive	57 dB L <sub>Aeq</sub> (24hr)
ML2	29 Dulwich Place	Road traffic noise dominant from Tī Rākau Drive	49 dB L <sub>Aeq</sub> (24hr)
ML3	Guys Reserve	Road traffic noise dominant from Tī Rākau Drive and Te Irirangi Drive	65 dB L <sub>Aeq</sub> (3hr)
Tiger Drive	76 Tiger Drive	Road traffic noise dominant from Tī Rākau Drive	53 dB L <sub>Aeq</sub> (24hr)

## 6.19 Geotechnical Conditions for EB3C and EB4L

As part of the proposed works, a Groundwater Effects Assessment has been prepared (Appendix 24).

Groundwater levels in the surrounding area are interpreted from six standpipe piezometers installed during the 2021 and 2022 investigations (Table 6-14). Four of these piezometers are screened in Tauranga Group alluvium, one in basalt and one in East Coast Bays Formation (ECBF). The maximum and minimum recorded groundwater levels from these piezometers (from transducer installation to 2 Feb 2023) are presented in

Table 6-15.

Table 6-14 Standpipe Piezometer Summary

Drillhole ID	Collar Elevation [m RL*]	Top of Slotted Screen (m RL)	Base of Slotted Screen (m RL)	Piezometer Base (manual dip) (m RL)	Response Zone (m RL)	Screened Geology
EB21_DH305_p	8.74	3.34	1.34	1.74	3.84 to 0.83	Silty CLAY [Tauranga Group alluvium]
EB21_DH308_P	8.88	-4.12	-6.62	-6.67	-3.42 to -7.12	Highly to slightly weathered SANDSTONE and SILTSTONE [ECBF]
EB21_DH308A_P	8.88	3.38	1.38	1.47	3.88 to 0.88	Silty CLAY and CLAY [Tauranga Group alluvium]

Drillhole ID	Collar Elevation [m RL*]	Top of Slotted Screen (m RL)	Base of Slotted Screen (m RL)	Piezometer Base (manual dip) (m RL)	Response Zone (m RL)	Screened Geology
EB21_DH308B_P	8.88	6.88	4.38	4.41	7.18 to 3.88	Slightly weathered BASALT [Auckland Volcanic Group]
EB21_DH309_P	8.20	6.20	2.25	2.06	6.40 to 1.90	Silty CLAY [Tauranga Group alluvium]
EB21_DH318_P	8.82	4.02	1.02	0.92	4.62-0.52	PEAT with some wood [Tauranga Group alluvium]
EB21_DH319_P	6.61	1.21	0.21	0.06	1.71-(-0.29)	Silty fine SAND with minor organics [Tauranga Group alluvium]
EB21_DH326_P	10.02	5.72	3.22	3.16	6.12-2.72	PEAT [Tauranga Group alluvium]
*Collar elevation was surveyed in Auckland Vertical Datum 2016, taken from the top of the piezometer lid.						

Table 6-15 Maximum and Minimum Recorded Groundwater Levels (from Transducer Installation to 2 Feb 2023)

Drillhole ID	Maximum groundwater level recorded [m RL]	Minimum groundwater level recorded [m RL]
EB21_DH305_p	3.54	2.96
EB21_DH308_P	2.30	2.09
EB21_DH308A_P	5.15	3.83
EB21_DH308B_P	5.50	4.48*
EB21_DH309_P	4.59	4.12
EB21_DH318_P**	7.02	6.89
EB21_DH319_P	4.42	1.93
EB21_DH326_P	6.11	5.63
*The minimum groundwater level cannot exceed the transducer depth as the transducer must be installed below the water level. This value is limited by the transducer depth.		
** Transducer has only recorded for 7 days, 1 March 2023 to 8 March 2023		

## 6.20 EB3C and EB4L Heritage Features

Archaeological surveys were undertaken during the urbanisation of the area in the late 20<sup>th</sup> century, during which archaeological features were identified. Most of these features have subsequently been destroyed due to the development as detailed in the Archaeological Effects Assessment (Appendix 25). However, there may still be sub-surface archaeological features present within the EB3C and EB4L area, such as midden/oven sites. The AUP(OP) identifies the following heritage feature within proximity to the Project:

- Historic Heritage and Special Character: Historic Heritage Overlay Extent of Place [rcp/dp] - 2114, McCallum's Wharf and Quarry R11\_1263 (also known as Donnelly's Quarry).

The Cultural Heritage Inventory (CHI) Database indicates the following features:

Table 6-16 CHI Features within EB3C and EB4L Project areas

Site Name	NZAA Site Number	Site Type	Category
McCallum's wharf and quarry R11-1263 Bluestone quarry, sea wall, wharf and jetties - McCallum's Wharf and Quarry Site (also known as Donnelly's Quarry)	R11-1263	Flaking Floor – Stone Jetty Quarry Wharf	Archaeological Site
Urupa	-	Māori Heritage Area	Māori Heritage Area
-	R11-1512	Midden (Shell)	Archaeological Site
Te Wharau Quarry	R11-1515	Quarry (Historic)	Archaeological Site
-	R11-1513	Stone Alignment	Archaeological Site
-	R11-1511	Midden (Shell)	Archaeological Site
-	R11-1517	Midden (Shell) – Stone Alignments	Archaeological Site
-	R11-1516	Midden (Shell) – Terrace	Archaeological Site
-	R11-2957	Midden	Archaeological Site
Urupa	-	Māori Heritage Area	Māori Heritage Area
Oak Tree	-	Trees	Historic Botanical Site
Guys Homestead - Guy Homestead - Saidia <sup>59</sup> Homestead	R11-2866	Building – Dwelling	Historic Structure
-	R11-2957	Midden	Archaeological Site

## 6.21 EB3C and EB4L Cultural Context

Prior to the colonial period, the Ōtāhuhu (also known as Te Toangakiōtāhuhu and Te Tapotū o Tainui) Portage provided a highly significant access point between the Pacific Ocean and Tasman Sea. This was one kilometre in length and was located at modern-day Portage Road, Otahuhu. This portage was an important transport route for Māori, connecting the Waitematā and

<sup>59</sup> Guys Homestead is also listed as a Category 2 historic place by Heritage New Zealand Pouhere Taonga.

Manukau Harbours, thereby negating the need to travel around Cape Reinga for travel between the west coast, Waikato River and east coast. Also located in the wider area and further up Tāmaki River is Mokoia Pā, which was one of the largest pre-contact Māori populations.

Towards the eastern side of Pakuranga Creek, in the EB3C area, there is a large volcanic field associated with Te Puke o Tara and Mātanginui<sup>60</sup>. Historic urbanisation resulted in the destruction of archaeological materials associated with an extensive stone field system (with growing structures, walls and other horticultural features).

One treaty settlement relates to land within the Project area, being a settlement between Ngāi Tai ki Tāmaki and the Crown in 2018<sup>61</sup>. This settlement includes the provision of a Statutory Acknowledgement Area covering much of the Waitematā Harbour, Hauraki Gulf and Tāmaki River.

There are also claims made under the Marine and Coastal Area (Takutai Moana) Act 2011 (MACAA) for customary marine title within the Project area and are detailed in the table below (in no particular order):

Table 6-17 MACAA Claims

Applicant	Court Reference
Ngaati Tamaoho	MAC-01-03-010
Ngāi Tai ki Tāmaki	MAC-01-02-003
Ngāpuhi-nui-tonu Te Kotahitanga Marae	MAC-01-01-056
Ngāti Kawau and Te Waiariki Korora	MAC-01-01-073
Ngāti Te Ata	MAC-01-02-005
Ngāti Whātua Orakei	MAC-01-02-006
Ihaia Paora, Weka Tuwhera, Gavala Murray, Mahinepua Reserve Trust, Ngāti Ruaiti, Ngati Muri Nagatirumahue, Ngāti Kawau, Ngāti Haiti, Ngaitupango, Nga Puhi, Ngāti Kahu, Te Auopouri	MAC-01-01-023
Ngāti Maru	MAC-01-03-006
Ngāti Taimanawaiti	MAC-01-02-004
Ngāti Tamaterā	MAC-01-03-011
Ngā marae o te takutai moana o Waikato-Tainui	MAC-01-04-014
Ngapuhi nui tonu (Matawhaorua Marae)	MAC-01-01-052
Ngapuhi nui tonu (Taiao Marae)	MAC-01-01-054
Ngāti Whatua o Kaipara	MAC-01-01-093
Te Kaunihera o Te Tai Tokerau	MAC-01-01-133
Te Kawerau ā Maki	MAC-01-02-007
Ngāti Taimanawaiti	CIV-2017-404-000518
Ngāti Whātua Ōrākei Trust	CIV-2017-404-000520
Mahurangi, Ngāti Awa and Ngapuhi	CIV-2017-404-000524
Ngāpuhi-nui-tonu, Ngāti Rahiri, Ngāti Awa, Nga Tahuu and Ngai Tawake	CIV-2017-404-000537
Ngāti Manuhiri	CIV-2017-404-000545
Ngai Tawake	CIV-2017-404-000558

<sup>60</sup> Also known as the East Tāmaki Volcanic Field.

<sup>61</sup> Ngāi Tai ki Tāmaki Claims Settlement Act 2018

Applicant	Court Reference
Te Runanga o Ngāti Whātua	CIV-2017-404-000563
Ngāi Tai ki Tāmaki	CIV-2017-404-000564
Te Taou	CIV-2017-404-000567
Ngāti Te Ata	CIV-2017-404-000569
Te Hikutu Hapū	CIV-2017-404-000570
Ngāti Kawau and Te Waiariki Korora	CIV-2017-485-000398

European settlement began during the 1850's when the Crown started to sell blocks of land for farming, contributing to the alienation of Māori from their whenua. All the land within the Pakuranga Parish had been sold by the Crown except for two allotments that became nature reserves and were subsequently amalgamated. Towards the 1870's quarrying activity began on a portion of this nature reserve.

## 6.22 EB3C Trees

The EB3C area features a range of native and exotic trees spread across public reserves, privately held sites and within road corridors as identified by the Arboricultural Effects Assessment (Appendix 18). There are two hundred and ninety-three trees within the EB3C works area, eighteen of which are in the road reserve, one hundred and fifteen within the open space zones and one hundred and sixty in the business/residential zones.

### 6.22.1 Burswood Esplanade Reserve (west)

The western extent of the Burswood Esplanade Reserve towards the western part of the EB3C area borders the CMA and wraps around two sites which have access off Tī Rākau Drive (242 Tī Rākau Drive and 254 Tī Rākau Drive). This part of the esplanade reserve contains indigenous coastal vegetation characterised by early mature pōhutukawa some of which is contiguous. There is also semi-mature Tī Kōuka (*Cordyline australis*)<sup>62</sup> and several pest species. A portion of the frontage at 262 Tī Rākau Drive, East Tāmaki also contains a group of planted semi-mature native trees, while a group of specimen trees also extend into the Burswood Esplanade Reserve (Figure 6-8).

<sup>62</sup> New Zealand Cabbage Tree





Figure 6-7 Area highlighted around the Mobil service station and pet shop containing indigenous coastal vegetation



Figure 6-8 Frontage of 262 Ti Rākau Drive containing a group of planted native specimen trees

### 6.22.2 Burswood Esplanade Reserve (east)

There are a number of trees within the eastern section of the EB3C area at Burswood Esplanade Reserve. The following tree species are situated within the Burswood Esplanade Reserve:

- Titoki (*Alectryon excelsus*)
- Karaka (*Corynocarpus laevigatus*)
- Puriri (*Vitex lucens*)
- Olive (*Olae europaea*)
- Manuka (*Leptospermum scoparium*)
- Kaihikatea (*Dacrycarpus dacrydioides*)
- Pōhutukawa (*Metrosideros excelsa*)
- Tarata (*Pittosporum eugenioides*)
- Totara (*Podocarpus totara*)
- White birch (*Betula sp.*)
- Hawthorn (*Crataegus monogyna*).

### 6.22.3 Street Trees

There are a small number of street trees located within Burswood Drive, Torrens Road, Greenmount Drive and Heathridge Place. Common species of street trees present include:

- Silk tree (*Albizia julibrissin*)
- Liquidambar (*Liquidambar sp.*)
- Titoki (*Alectryon excelsus*)
- Phoenix palm (*Phoenix sp.*)
- Magnolia grandiflora (*Magnolia grandiflora*)
- Mexican alder (*Alnus jorullensis*).

## 6.23 EB4L Trees

There are a range of native and exotic trees spread across Guys Reserve and Whaka Maumahara. Most of the vegetation within EB4L lies within these two Council owned reserves, however some does fall within the existing paper road.

Within Tī Rākau Drive and Te Irirangi Drive, trees have been planted along the raised median as well as within the berm of these roads. Common tree species within both these road reserves currently include *Washingtonia robusta* (fan palm) and *Metrosideros excelsa* (pōhutukawa).

## 6.24 EB3C Ecology

### 6.24.1 Terrestrial Ecology

The existing environment is highly urbanised with predominantly residential and commercial land uses. Generally, vegetation in the wider EB3C area is limited to private property and maintained roadside berms and reserves.

Terrestrial vegetation along the EB3C alignment as well as adjacent to this comprises of amenity areas, mixed native and exotic roadside shelterbelts and native plantings. Most of this vegetation is grassland (both rank grass and mown lawns) and exotic scrub growing along the existing road corridor.

Planted amenity areas contain native dominated tree land, mixed native and exotic vegetation and exotic dominated tree land. There are areas of mixed vegetation, where the tree canopy is dominated by native species including pōhutukawa (*Metrosideros excelsa*), karaka (*Corynocarpus laevigatus*) and totara (*Podocarpus totara*).

Mixed vegetation, where the tree canopy is dominated with exotic species, includes oak (*Quercus sp.*), eucalyptus (*Eucalyptus sp.*) and ironwood (*Casuarina sp.*) Understory vegetation is generally dominated by exotic weeds and groundcover dominated by tradescantia (*Tradescantia fluminensis*). Unmaintained areas result in rank grasses in understory and edges in areas where mixed vegetation types were predominant. Areas of native plantings include species such as manuka (*Leptospermum scoparium*), tī kōuka/cabbage tree (*Cordyline australis*), karamu (*Coprosma spp.*), harakeke/flax (*Phormium tenax*), taupata (*Coprosma repens*) and pōhutukawa (*Metrosideros excelsa*). The dominant species of rank grassland and mown lawn is kikuyu grass (*Pennisetum clandestinum*) and paspalum grass (*Paspalum sp.*). The terrestrial vegetation within the EB3C area is of low to moderate ecological value.

With respect to avifauna within the EB3C area, only exotic and not threatened avifauna species were observed by the Project's terrestrial ecologist during a site visit undertaken in April 2021. The EB3C area is considered a highly modified environment and the habitat available currently

would likely only support the mobility of urban-adapted bird species. In addition, no bat species have been recorded in the EB3C area.

In terms of herpetofauna, it has been assumed that copper skinks (*Oligosoma aeneum*)<sup>63</sup> are present within the EB3C area as there are areas of vegetation capable of supporting a population. There could be populations within the Pakuranga Creek and Burswood Esplanade Reserve, although a formal survey has not been done.

### 6.24.2 Wetland Ecology

A series of wetlands are present towards the western part of the EB3C area, where there is a tributary of Pakuranga Creek flowing through Burswood Reserve, Bard Park Reserve and Guys Reserve. Eleven wetlands were delineated in Burswood Esplanade Reserve. All the wetlands within Burswood Reserve have been identified as natural inland wetlands under the NPS-FM (2020) and are shown by Figure 6-9.



Figure 6-9 Freshwater Habitats within EB3C

### 6.24.3 Freshwater Ecology

There are three permanent watercourses within the EB3C area (Figure 6-9). They are located within Burswood Esplanade Reserve and Guys Reserve. Two of these permanent streams are tributaries located at Greenmount Reserve and Guys Reserve, which then join the stream within Burswood Esplanade Reserve, ultimately discharging into Pakuranga Creek. Stream Ecological Valuations (SEV) have identified that these freshwater environments have ecological values of poor to moderate (moderate in most parts) in the EB3C area.

Both Pakuranga and Botany Creek are dominated by not-threatened native and exotic species of low ecological value. The not-threatened native species include banded kokopu (*Galaxias fasciatus*), shortfin eel/tuna (*Anguilla dieffenbachia*) and exotic species include mosquitofish

<sup>63</sup> Copper skinks have a “non-threatened” conservation status.



(*Gambusia affinis*) and Goldfish (*Carassius auratus*). Two at-risk declining species, include Īnanga (*Galaxias maculatus*) and longfin eel/tuna (*Anguilla dieffenbachia*) are found within the Burswood Esplanade Reserve and Guys Reserve.

### 6.25 EB4L Ecological Values

Wetlands have been identified within Guys Reserve and are associated with the tributaries of the Pakuranga Creek flowing through the area (Figure 6-10). Two wetlands have been identified within Guys Reserve and are influenced by existing stormwater discharges and are classified as being exotic wetlands. Wetland vegetation includes a mixture of native and exotic species such as Willow weed (*Allium triquetrum*), Buttercup (*Ranunculus repens*) with harakeke/flax (*Phormium tenax*) and Ti Kōuka/cabbage tree (*Cordyline australis*) having been planted around the wetland margins. The wetlands within Guys Reserve are considered to have moderate ecological value.

The stream within Guys Reserve is hard bottomed with fine-silted sediment deposition and shows active erosion. This stream within Guys Reserve has a moderate ecological value with a SEV score of 0.53. Further to this, there may be potential populations of ‘At Risk’ declining species such as Īnanga (*Galaxias maculatus*) and longfin eel/tuna (*Anguilla dieffenbachia*). However, most of the fish species present are either ‘not-threatened’ native or exotic species of low ecological value.

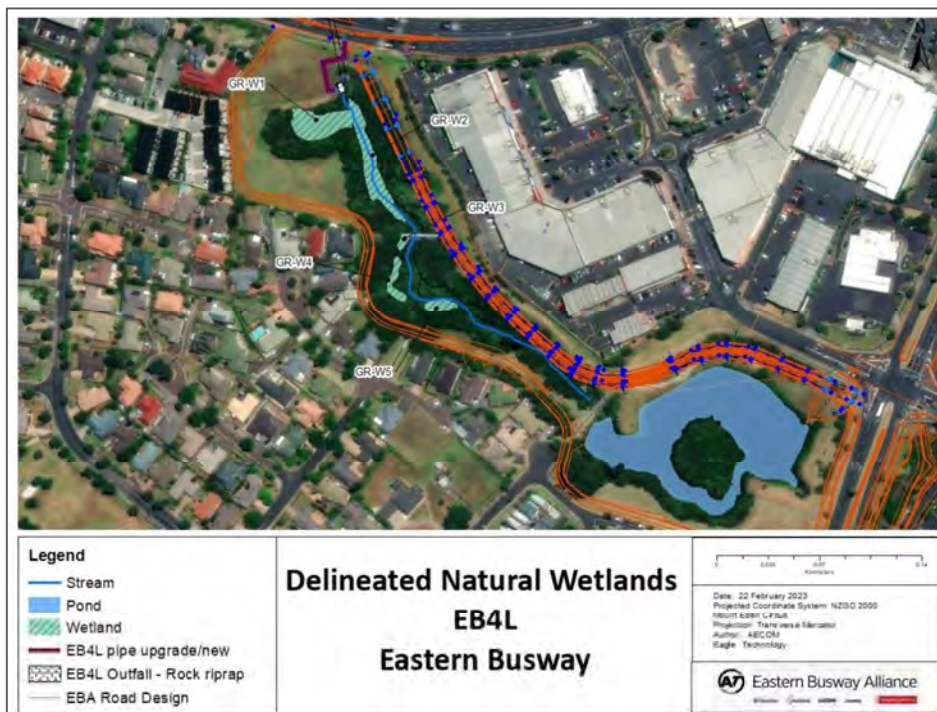


Figure 6-10 Freshwater Habitats within EB4L

### 6.26 Coastal Environment

The following sub-sections detail the geomorphic processes and ecological values of the local coastal environment. These descriptions relate to EB3C given that EB4L is not located within or adjacent to the CMA.

### 6.26.1 Coastal Processes

Pakuranga Creek, as part of the Tāmaki River, is the immediate coastal environment to the EB3C footprint. EB3C crosses Pakuranga Creek at Tī Rākau Drive, where the creek is a shallow tidal channel approximately 180m in width. Most of this area comprises of mangrove vegetation where the spring tidal range is around 2m. Pakuranga Creek is a low energy environment, being exposed to limited wave heights and maximum current velocities of <4m/s in 100-year return period flows.

### 6.26.2 Coastal Ecology

No breeding habitat for avifauna was found within the immediate environment within the Tāmaki River, although the mangroves along Pakuranga Creek are considered to provide foraging habitat for native avifauna. Excluding the mangroves, the coastal and riparian margins predominantly feature exotic pest plants.

Vegetation present within bridge structural locations and stormwater outfalls within the EB3C area includes the following species:

- Mangroves/manawa (*Marina var australisica*)
- Karamu (*Coprosma robusta*)
- Pōhutukawa (*Metrosideros excelsa*)
- Mahoe (*Meliccytus ramiflorus*)
- Red mapou (*Myrsine australis*)
- Cabbage tree (*C. australis*)
- Tree privet (*L. lucidum*)
- Blackberry (*Rubus fruticosus agg*)
- Gorse (*Ulex europaeus*)
- Pampas (*Cortaderia selloana*)
- Convolvulus
- Jasmine (*Parsonsia heterophylla*).



Figure 6-11 Representative Photographs of Outfall Location Vegetation Types

The EB3C saltwater habitat is largely dominated by benthic invertebrates such as oligochaete worms, estuarine gastropods (*Potamopyrgus estuarinus* and *Amphibola crenata*), bivalves and amphipods. Such species and population characteristics are common within mangrove estuarine environments.

There are mangrove seedlings, pneumatophores, and some gastropods (*Potamopyrgus estuarinus*) in sunlight exposed sites where bridge structures would likely be placed, as well as near stormwater outfalls. Mud snail (*Amphibola crenata*) are present at some sites also.

The coastal environment within EB3C is dominated by silt and clay, with a shallow depth of oxygenated sediment. These are common environmental features within upper estuarine depositional environments. The marine sediments in these field investigation locations were also collected for contaminant testing. Several locations were found to have higher than guideline values for zinc, copper and lead. This contamination has likely been caused by urban runoff, including from roads.

It is noted that the Tāmaki River/Pakuranga Creek is utilised by a range of New Zealand resident and migratory shore birds, with the mid-to-lower reaches being particularly important due to the availability of roosting and feeding areas. This includes Significant Ecological Areas (SEAs), which have been identified for their wading bird value. SEA-M1 45a (Pakuranga Creek roost) is a roosting site used by hundreds of wading birds that feed within the Tāmaki River, while SEA-M2 45 w1, SEA-M2-45w2 and SEA-M2-45c provide extensive areas of feeding habitat for wading birds. The EB3C footprint is located within the SEA-Marine 2 Overlay which is described in the AUP (OP) as “Areas are of regional, national or international significance which do not warrant an SEA-M1 identification as they are generally more robust.” The mangrove dominated areas provide (or could provide) primary or secondary habitat for five species (listed below), one of which is the at-risk banded rail (noting that no banded rail was observed during the development of the Marine Ecology and Coastal Avifauna Effects Assessment):

- Banded rail
- White faced heron
- Paradise shelduck
- Sacred kingfisher
- Pūkeko.

The white-faced heron (*not threatened*) was the only coastal species observed within the EB3C project area during site visits.

## 6.27 EB3C Water Quality and Hydrology

There are a variety of hydrological features within the EB3C area. These include overland flow paths (OLFPs) and 1% AEP flood plains. There are also areas that are subject to various coastal inundation scenarios within the Burswood Esplanade Reserve and along the banks of Pakuranga Creek.

OLFPs within EB3C are shown in Figure 6-12:

- OLFP 1 along Ti Rākau Drive from Harris Road towards Trugood Drive, which then crosses Ti Rākau Drive to the CMA on the eastern side of the 254 Ti Rākau Drive



- OLFP2 runs adjacent to Torrens Road towards Burswood Drive then along Burswood Drive to the north and through residential property to the CMA
- OLFP3 from Torrens Road through commercial and residential properties to Heathridge Place
- OLFP4 starts along the back of Bunnings Warehouse and runs across Burswood Drive through residential properties to Burswood Esplanade Reserve
- OLFP5 follows a waterway in the Greenmount Drainage Reserve and crosses Tī Rākau Drive via culvert 12B into Burswood Esplanade Reserve
- OLFP6 follows a waterway in Guys Reserve and crosses Tī Rākau Drive through a culvert 12A into Burswood Esplanade Reserve
- OLFP6 Branch A runs through Greenmount Reserve to and across Tī Rākau Drive into Burswood Esplanade Reserve.



Figure 6-12 EB3C existing overland flow paths

Existing 10-year and 100-year ARI events extents are shown in Figure 6-13 and are similar in depths. It is noted that flood flows across Tī Rākau Drive are extensive, with depths reaching up to 800mm near 254 Tī Rākau Drive.

Outside of these low points, there are large areas of general traffic lanes that have flood depths of between 200 and 605mm. This flooding currently represents potential safety risks to all modes of transport, as well as environmental risks associated with erosion, scouring and deposition of debris. These risks do not relate to insufficient capacity in the road drainage, but rather insufficient capacity in existing catchment-wide drainage.



Figure 6-13 EB3C Base Case 10 and 100-year Flood Extents

### 6.28 EB4L Water Quality and Hydrology

There are hydrological features present within the EB4L area (Figure 6-14). These include OLFPs and 1% AEP floodplains as well as a permanent stream within Guys Reserve. The OLFPs and 1% AEP floodplain largely relate to the presence of the stream in Guys Reserve and the landform surrounding this feature in relation to the surroundings.



Figure 6-14 EB4L Existing 100-year Flood Extents (sourced from Auckland Council Geomaps)



## 7 Reasons for Application

*The construction, operation and maintenance of EB3C and EB4L will require consents under sections 9(1), 9(2), 12(1), 12(2), 12(3), 13(1) 13(2), 14 and 15(2A) of the RMA and the status of consents determined by the relevant provisions of the AUP(OP) and National Environmental Standards.*

*For clarity all consents required for regional matters and under relevant National Environment Standards are sought.*

*Consents for district land use activities (i.e., those under section 9(3) of the RMA) have not been sought given that those activities will be authorised by way of the NoRs. Both packages also rely on a number of permitted activities, which have been identified.*

*EB3C requires resource consent for the following activities:*

- *Earthworks (s9(2))*
- *Vegetation Clearance (s9(2))*
- *Works in the CMA (s 12)*
- *Occupation of the CMA (s 12)*
- *Streamworks (s 13)*
- *Diversion of groundwater (s 14)*
- *Disturbance and discharge of contaminated soil (s 15)*

*Overall, the activity status of EB3C is for a non-complying activity*

*EB4L requires resource consent for the following activities:*

- *Earthworks (s 9(2))*
- *Vegetation Clearance (s 9(2))*
- *Streamworks (s 13)*
- *Disturbance and discharge of contaminated soil (s 15)*

*Overall, the activity status of EB4L is for a discretionary activity.*

### 7.1 Introduction

The proposed works have been assessed against rules contained within the following documents:

- AUP(OP)
- Resource Management (National Environmental Standard for Air Quality) Regulations 2004 (NES-AQ)
- Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011 (NES-CS)
- Resource Management (National Environmental Standard for Electricity Transmission Activities) Regulations 2009 (NES-ETA)
- Resource Management (National Environmental Standards for Freshwater) Regulations 2020 (NES-FW).

An analysis of the relevant rules from the AUP(OP) and the National Environmental Standards is provided in the sections below.

### 7.2 Auckland Unitary Plan – Operative in Part

The AUP(OP) contains both district and regional planning rules, noting that only resource consents associated with regional rules are required given the NoRs.

The road environment within the AUP(OP) is very enabling for roading activities. A road is defined by the AUP(OP) as the same by the Local Government Act 1974. This definition includes ‘every square or place intended for use of the public generally, and every bridge, culvert, drain, ford, gate, building, or other thing belonging thereto or lying upon the line or within the limits thereof’.

### 7.2.1 Road Network Activities

Road network activities are relevant to EB3C and EB4L given their permitted activity status under Rule E26.2.3.2 (A67) under the AUP(OP). This land use activity is important to EB3C and EB4L given the range of works proposed as part of the NoRs that qualify as road network activities.

This includes, but is not limited to the following transport related activities:

- Footpaths, footways and footbridges, bridges for roads, tunnels, retaining walls for roads both above and below the road
- Road verges and berms
- Site access including vehicle crossings
- Road carriageways
- Road pavements
- Cycle facilities
- Road lighting and support structures
- Traffic operation and safety signs, direction signs, road name signs
- Road safety devices including interactive warning signs, road markings, rumble strips, barriers, fences, speed tables and speed cushions, traffic separators, bus friendly vertical deflection devices
- Ancillary equipment and structures associated with public transport systems including seats, shelters, real time information systems and ticketing facilities, bicycle storage and cabinets
- Traffic control devices including traffic islands, pedestrian crossings and roundabouts and intersection controls, traffic and cycle monitoring devices, traffic signals and support structures, cabinets and ancillary equipment associated with traffic signals
- Devices and structures to implement regulatory controls (no-stopping, no-overtaking parking control, bus lane controls, vehicle restrictions) including speed limit and parking restriction signs, parking meters and pay and display kiosks, speed cameras and red light/traffic cameras and on street parking areas
- Road drainage devices including culverts, sub-soils, catch pits, water tables, manholes, inlets, outlets, flumes
- Scour and erosion control devices
- Stormwater management devices including rain gardens, wetlands, stormwater treatment areas and ponds; and noise attenuation walls or fences
- Devices associated with intelligent transport systems including vehicle detection systems (electronic vehicle identification, and infra-red vehicle occupancy counters), lane control signals, ramp signals, variable messaging signs, CCTV cameras, incident detection, emergency telephones, cables and ducting.

## 7.2.2 Resource Consents Required – EB3C

Resource consent is required pursuant to sections 9(2), 12, 13, 14 and 15 the RMA for the reasons (but not limited to) outlined in Table 7-1 below. The activity tables in the overlay, Auckland-wide, zone and precincts specify the activity status for land use and development activities.

Table 7-1 AUP(OP) consents required for EB3C

AUP(OP) Rule	Description	Activity Status
<b>Land-Use Consent - Section 9(2)</b>		
<b>Chapter E26 - Infrastructure</b>		
E26.3.3.1 (A77)	<p>Vegetation alteration or removal that does not comply with Standards E26.3.5.1 to E26.3.5.4.</p> <p><b>Comment:</b> <i>Vegetation clearance is proposed within the coastal areas of Pakuranga Creek, as part of the Tāmaki River. Further vegetation clearance within the riparian areas of the Burswood Esplanade Reserve and Bard Park Reserve for the construction of temporary and permanent works associated for EB3C. The removal of vegetation will also occur within the SEA-M2 overlay.</i></p> <p><i>Approximately 1,200m<sup>2</sup> of coastal vegetation will be removed for the temporary and permanent bridge structures, stormwater outfalls and reclamation.</i></p> <p><i>Approximately 3720m<sup>2</sup> of permanent vegetation clearance and 4210m<sup>2</sup> of temporary vegetation clearance is required for the construction of EB3C footprint (including stormwater outfalls).</i></p> <p><i>Consent is required as vegetation alteration or removal does not comply with Standards E26.3.5.1 to E26.3.5.4.</i></p>	Restricted Discretionary
E26.5.3.2 (A103)	<p>Greater than 50,000m<sup>2</sup> of earthworks where land has a slope less than 10 degrees outside the Sediment Control Protection Area<sup>55</sup> other than for maintenance, repair, renewal, minor infrastructure upgrading.</p> <p><b>Comment:</b> <i>The construction of EB3C will require earthworks of approximately 15,000m<sup>3</sup> of cut and approximately 17,550m<sup>3</sup> of fill, across approximately 2.5 ha within a total Project area of approximately 10 ha (100,000m<sup>3</sup>).</i></p>	Restricted Discretionary

E26.5.3.2 (A107)	<p>Greater than 2,500m<sup>2</sup> within the Sediment Control Protection Area<sup>64</sup> other than for maintenance, repair, renewal, minor infrastructure upgrading.</p> <p><b>Comment:</b></p> <ul style="list-style-type: none"> <li>• <i>The construction of EB3C will require earthworks of approximately 15,000m<sup>3</sup> of cut and approximately 17,550m<sup>3</sup> of fill, across approximately 2.5 ha.</i></li> <li>• <i>Any earthworks proposed 100m either side of Pakuranga Creek is subject to the Sediment Control Protection Area (SCPA).</i></li> <li>• <i>Earthworks are proposed adjacent to the CMA of the Pakuranga Creek (associated with the new and upgraded stormwater outfall structures in the CMA) are within the Sediment Control Protection Area (SCPA). Any works 100m either side of the Pakuranga Creek are also within the SCPA.</i></li> </ul>	Restricted Discretionary
E26.5.3.2 (A117)	<p>Earthworks from 10m<sup>2</sup> to 2500m<sup>2</sup> and from 5m<sup>3</sup> to 2500m<sup>3</sup> within SEA overlay and Historic Heritage Overlay.</p> <p><b>Comment:</b> <i>The construction of temporary and permanent bridge structures, stormwater outfalls and reclamation associated with EB3C will require earthworks within the SEA-M2 overlay and Historic Heritage Overlay.</i></p>	Restricted Discretionary
<b>Coastal Permit – Section 12(1) (2) and/or (3)</b>		
F2.19.1 (A4)	<p>Reclamation or drainage for any of the following:</p> <ul style="list-style-type: none"> <li>• where it is required for the safe and efficient operation or construction of infrastructure within GCM Zone.</li> </ul> <p><b>Comment:</b> <i>Two areas of coastal reclamation are proposed for EB3C and within the General Coastal Marine Zone. This is required for the safe and efficient operation of infrastructure. This includes;</i></p>	Discretionary

<sup>64</sup> Sediment Control Protection Area under the AUP: OP is an area within 100m of the CMA or within 50m of a watercourse or wetland of 1000m<sup>2</sup> or greater.



	<ul style="list-style-type: none"> <li>The proposed reinforced embankment requires a total of approximately 549m<sup>2</sup> of coastal reclamation.</li> </ul> <p>The proposed retaining wall (RW304) between 242 and 254 Tī Rākau Drive will require approximately 4m<sup>2</sup> of coastal reclamation.</p>	
F2.19.1 (A4)	<p>Reclamation or drainage for any of the following:</p> <ul style="list-style-type: none"> <li>where it is required for the safe and efficient operation or construction of infrastructure within Significant Ecological Area-Marine 2 Overlay.</li> </ul> <p><b>Comment:</b> Two areas of coastal reclamation are proposed for EB3C and within the SEA-M2-45b Marine 2 overlay. This is required for the safe and efficient operation of infrastructure. This includes:</p> <ul style="list-style-type: none"> <li>The proposed reinforced embankment requires a total of approximately 549m<sup>2</sup> of coastal reclamation.</li> <li>The proposed retaining wall (RW304) between 242 and 254 Tī Rākau Drive will require approximately 4m<sup>2</sup> of coastal reclamation.</li> </ul>	Non-complying
F2.19.1 (A4)	<p>Reclamation or drainage for any of the following:</p> <ul style="list-style-type: none"> <li>where it is required for the safe and efficient operation or construction of infrastructure within Historic Heritage Overlay.</li> </ul> <p><b>Comment:</b> A small area of coastal reclamation for the proposed reinforced embankment is within the Historic Heritage Overlay. This is required for the safe and efficient operation of infrastructure. This is approximately 12m<sup>2</sup> of coastal reclamation within the Historic Heritage Overlay.</p>	Non-complying
F2.19.4 (A34)	<p>Coastal marine area disturbance that is associated with movement of between 1500m<sup>3</sup> and 10,000m<sup>3</sup> of sediment per 12-month period within the same coastal cell within SEA-M2.</p> <p><b>Comment:</b></p>	Discretionary

	<p><i>The construction of temporary and permanent bridge structures, stormwater outfalls and reclamation associated with EB3C will require disturbance within the CMA and SEA-M2 overlay. Approximately 1,600m<sup>3</sup> of clean granular material will be required to construct the coastal reclamation of Bridge B embankment which is within SEA-M2 overlay.</i></p>	
F2.19.4 (A34)	<p>Coastal marine area disturbance that is associated with movement of between 1500m<sup>3</sup> and 10,000m<sup>3</sup> of sediment per 12-month period within the same coastal cell within Historic Heritage Overlay.</p> <p><b>Comment:</b> <i>The construction of temporary and permanent bridge structures, stormwater outfalls and reclamation associated with EB3C will require disturbance within the coastal marine area and within the Historic Heritage Overlay. Approximately 1,600m<sup>3</sup> of clean granular material will be required to construct the coastal reclamation of Bridge B embankment which is within a Historic Heritage overlay.</i></p>	Non-complying
F2.19.4 (A34)	<p>Coastal marine area disturbance that is associated with movement of between 1500m<sup>3</sup> and 10,000m<sup>3</sup> of sediment per 12-month period within the same coastal cell within the General Coastal Marine Zone.</p> <p><b>Comment:</b> <i>The construction of temporary and permanent bridge structures, stormwater outfalls and reclamation associated with EB3C will require disturbance within the CMA. Approximately 1,600m<sup>3</sup> of clean granular material will be required to construct the coastal reclamation for the Bridge B embankment which is within the General Coastal Marine Zone.</i></p>	Restricted Discretionary
F2.19.4 (A50)	<p>Mangrove removal, not otherwise provided for within GCM Zone.</p> <p><b>Comment:</b> <i>Approximately 1,200m<sup>2</sup> of coastal vegetation will be removed for the temporary and permanent bridge structures, stormwater outfalls and reclamation associated with EB3C. This includes the removal of mangroves in the coastal areas of Pakuranga Creek.</i></p>	Discretionary
F2.19.4 (A50)	<p>Mangrove removal, not otherwise provided for within SEA-M2.</p>	Discretionary