

	<p>Comment: Approximately 1,200m² 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 within a SEA-M2.</p>	
F2.19.4 (A50)	<p>Mangrove removal, not otherwise provided for within Historic Heritage Overlay.</p> <p>Comment: Approximately 1,200m² 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 within a Historic Heritage Overlay.</p>	Non-Complying
F2.19.8 (A114)	<p>Underwater blasting, impact and vibratory piling, marine seismic surveys within the GCM Zone.</p> <p>Comment: Installation of temporary piles in the CMA associated with EB3C bridge structures, will utilise impact and/or vibratory piling within the General Coastal Marine Area.</p>	Restricted Discretionary
F2.19.8 (A114)	<p>Underwater blasting, impact and vibratory piling, marine seismic surveys within the SEA-M2 Overlay.</p> <p>Comment: Installation of temporary piles in the CMA associated with EB3C bridge structures, will utilise impact and/or vibratory piling, within a SEA-M2 Overlay.</p>	Restricted Discretionary
F2.19.10 (A133)	<p>Infrastructure coastal marine area structures not otherwise provided for within GCM Zone.</p> <p>Comment: The proposed construction, occupation of the General Coastal Marine Zone for the temporary and permanent bridge structures, stormwater outfalls and reclamation and the use of the infrastructure associated with EB3C require consent.</p>	Discretionary
F2.19.10 (A133)	<p>Infrastructure coastal marine area structures not otherwise provided for within SEA-M2.</p> <p>Comment: The proposed construction, occupation of the CMA which is subject to the SEA-M2 overlay for the temporary and permanent bridge structures, stormwater outfalls and reclamation and the use of the</p>	Discretionary

	<i>infrastructure associated with EB3C require consent.</i>	
F2.19.10 (A133)	<p>Infrastructure coastal marine area structures not otherwise provided for within Historic Heritage Overlay.</p> <p>Comment: <i>The proposed construction, occupation of the CMA which is subject to the Historic Heritage overlay for the temporary and permanent bridge structures, stormwater outfalls and reclamation and the use of the infrastructure associated with EB3C require consent.</i></p>	Discretionary
F2.19.10 (A121)	<p>Construction of coastal marine area structures and buildings unless provided for elsewhere in this table (see table F2.19.8 for the use of the structure) within the General Coastal Marine Zone.</p> <p>Comment: <i>The proposed construction, occupation of the CMA for the temporary and permanent bridge structures, stormwater outfalls and reclamation and the use of the structures for construction of EB3C for more than 40 working days requires consent.</i></p>	Discretionary
F2.19.10 (A121)	<p>Construction of coastal marine area structures and buildings unless provided for elsewhere in this table (see table F2.19.8 for the use of the structure) within the SEA-M2 and Historic Heritage Overlay.</p> <p>Comment: <i>The proposed construction, occupation of the CMA (which is within the SEA-M2 and Historic Heritage Overlay) for the temporary and permanent bridge structures, stormwater outfalls and reclamation and the use of the structures for construction of EB3C for more than 40 working days requires consent.</i></p>	Non-Complying
Streamworks Permit – Section 13(1)		
E3.4.1 (A26)	Any activities not complying with the general permitted activity standards in E3.6.1.1 or the specific activity standards in E3.6.1.10 – E3.6.1.13.	Discretionary
E3.4.1 (A33)	Culverts or fords more than 30m in length when measured parallel to the direction of water flow.	Discretionary

E3.4.1 (A44)	<p>Any activities not complying with the general permitted activity standards in E3.6.1.1 or the specific activity standards in E3.6.1.14 to E3.</p> <p>Comment: <i>Two Stormwater outfalls (MCC_108482 and MCC_988531) do not comply with the Standard E3.6.1.14 1(b) as the length of scour protection exceeds 5m.</i></p>	Discretionary
Groundwater Permit – Section 14		
E7.4.1 (A28)	<p>The diversion of groundwater caused by any excavation, (including trench) or tunnel that does not meet the permitted activity standards or not otherwise listed.</p> <p>Comment:</p> <ul style="list-style-type: none"> • <i>Bridge B does not comply with Standard E7.6.1.10 (6)(b) which requires a minimum separation distance of 10 m from a scheduled Historic Heritage Overlay (HHO)⁶⁵. One of the Bridge B piers (Pier 3) is located within 10m of a scheduled Historic Heritage Overlay, and the ground improvement works (including cut and replacement of native soil for the construction of the embankment associated with Bridge B) it located within 10m of a scheduled Historic Heritage Overlay.</i> • <i>The reinforced embankment for Bridge B includes permanent wick drains which do not comply with Standard E7.6.1.6 (2) as water take will occur for more than 10 days. The wick drains will remain in place permanently.</i> 	Restricted Discretionary
Discharge Permit - Section 15(2A)		
E30.4.1 (A7)	<p>Discharges of contaminants into air, or into water, or onto or into land not meeting controlled activity Standard E30.6.2.1</p> <p>Comment: <i>Both 242 Ti Rākau Drive and 386 Ti Rākau Drive are considered likely to contain elevated levels of contaminants which does not comply with E30.6.1.2 for soil disturbance volumes and E30.6.1.5 (2) for the removal of a fuel storage system. A Detailed Site Investigation (DSI) has not been undertaken. Therefore, consent is required for soil disturbance and removal of fuel storage systems.</i></p>	Discretionary

⁶⁵ Historic Heritage site R11_1263

7.2.3 Resource Consents Required – EB4L

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

Table 7-2 AUP(OP) consents required for EB4L

AUP(OP) Rule	Description	Activity Status
Land-Use Consent - Section 9(2)		
Chapter E26 - Infrastructure		
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><i>Comment: Vegetation clearance is proposed within the riparian areas of Guys Reserve for the construction of temporary and permanent works associated for EB4L. Approximately 3720m² of permanent vegetation clearance and 4210m² of temporary vegetation clearance is required for the construction of EB4L footprint (including a new stormwater outfall) which includes the removal of riparian vegetation in the Guys Reserve.</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 (A102)	<p>Greater than 10,000m² up to 50,000m² earthworks where land has a slope less than 10 degrees outside the Sediment Control Protection Area⁵⁶ other than for maintenance, repair, renewal, minor infrastructure upgrading.</p> <p><i>Comment: The construction of EB4L will require earthworks of approximately 1,150m³ of cut to fill over the EB4L project footprint of approximately 0.9ha. In addition, approximately 21,330m³ of hardfill is proposed to construct retaining walls, the site yards and site access with an additional construction footprint of approximately 1.5ha.</i></p>	Controlled
Streamworks Permit – Section 13(1)		
E3.4.1 (A26)	Any activities not complying with the general permitted activity standards in E3.6.1.1 or the specific activity standards in E3.6.1.10 – E3.6.1.13.	Discretionary
Discharge Permit - Section 15(2A)		

E30.4.1 (A7)	<p>Discharges of contaminants into air, or into water, or onto or into land not meeting controlled activity Standard E30.6.2.1</p> <p><i>Comment: Both 550 Ti Irirangi Drive and 451 Ti Rākau Drive are considered reasonably likely to contain elevated levels of contaminants which does not comply with E30.6.1.2 for soil disturbance volumes. A Detailed Site Investigation (DSI) has not been undertaken. Therefore, consent is required for soil disturbance.</i></p>	Discretionary
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7.2.4 Section 89(2) Applications to territorial authorities for resource consent where land is in coastal marine area

Section 89(2) of the RMA relates to reclaimed land and provides a consent authority with the discretion to hear and decide an application to use the reclaimed land as an application for land use consent, rather than as an application for a coastal permit if:

- a) the activity is an activity which an applicant intends to undertake within the district once the proposed location of the activity has been reclaimed; and
- b) on the date the application is made the proposed location of the activity is still within the CMA.

The applicant considers it appropriate for the busway/legal road and associated embankment structures, which are to be located on reclaimed land that is currently within the CMA, is dealt with under s89(2) of the RMA. It is the applicant’s view that this matter should be dealt with under that section of the RMA, as if the application relates to a section 9(3) land use activity within the Auckland Council district.

The activity status for the use of the reclaimed land is discretionary because the reclaimed land is not zoned, and the activities are therefore “innominate activities” under s87B(1)(a) of the RMA.

The reclamations themselves require a coastal permit under Rule F2.19.1 (A4) under the Activity Table for “Drainage, Reclamation and Declamation” of Chapter F2 (General Marine Zone) of the AUP(OP), as detailed in Table 7-1 above.

7.2.5 Permitted Activities

Schedule 4 of the RMA requires that where an application is relying on a permitted activity as part of the proposal, a description of the permitted activity that demonstrates that it complies with the requirements, conditions and permissions for the permitted activity must be provided.

The identification of permitted activities is important given the role they provide in defining the “permitted baseline” when considering the effects of a resource consent application or NoR. The role of the permitted baseline is further detailed in Section 9.2.

The following permitted activities set out in Table 7-3 are to be relied upon to support the construction and operation of EB3C and EB4L, as well as the road network activities detailed in Section 7.2.1.

Table 7-3 Permitted Activities for EB3C and EB4L

Permitted Activities	
Activity	Rule
Chapter E3 - Lakes, rivers, streams and wetlands	
The operation, use, maintenance and repair of existing structures comply with the standards in E3.6.1.11	E3.4.1 (A21)
Minor upgrades to existing infrastructure related structures complying with the standards in E3.6.1.12	E3.4.1 (A22)
Replacement, upgrading or extension of existing structures complying with the standards in E3.6.1.12	E3.4.1 (A23)
Culverts or fords less than 30m in length when measured parallel to the direction of water flow complying with the standards in E3.6.1.18	E3.4.1 (A32)
Chapter E26 - Infrastructure	
Transportation of people, goods and services	E26.2.3.2 (A68)
Public Amenities	E26.2.3.2 (A70)
Pest Plant Removal	E26.4.3. (A82)
Tree trimming or alteration	E26.4.3 (A83)
Works within the protected root zone that comply with Standard E26.4.5.2	E26.4.3.1 (A87)
Tree alteration or removal of any tree less than 4m in height and/or less than 400mm in girth	E26.4.3.1 (A91)
Earthworks for maintenance, repair, renewal, minor infrastructure upgrading and service connections	E26.5.3.1 (A94) and E26.5.3.2 (A100)
Earthworks up to 2500m ² other than for maintenance, repair, renewal, minor infrastructure upgrading	E26.5.3.1 (A95)
Earthworks up to 2500m ³ other than for maintenance, repair, renewal, minor infrastructure upgrading	E26.5.3.1 (A96)
Chapter E36 – Natural Hazards	
Construction, operation, maintenance, renewal and repair of road network activities within the legal road or road formation width in the coastal erosion hazard area; coastal storm inundation 1 per cent annual exceedance probability (AEP) area; coastal storm inundation 1 per cent AEP plus 1m sea level rise area; overland flow paths; land which may be subject to land instability.	E36.4.1 (A53)
Chapter E8 – Stormwater – Discharge and diversion	

Diversion of stormwater runoff from lawfully established impervious areas directed into an authorised stormwater network or a combined sewer network that complies with Standard E8.6.2.1	E8.4.1 (A1)
Chapter E25 – Noise and Vibration	
Activities that comply with all the relevant permitted activity standards	E25.4.1 (A1)
Chapter E24 - Lighting	
Activities that comply with all the relevant permitted activity standards	E24.4.4 (A1)
Chapter E14 – Air Quality	
Activities meeting the permitted activity standards and not provided for by any other rule	E14.4.1 (A1)
Chapter F2 – Coastal	
Coastal marine area depositing of material where the deposited sediment is extracted from within the same coastal cell: • Maximum of 1500m ³ per 12-month period	F2.19.1 (A7)
Chapter D26 – National Grid Overlay ⁶⁶	
Within the National Grid Yard (Compromised and Uncompromised) - Network Utilities (excluding buildings and structures for irrigation) and electricity generation that connect to the national grid	D26.4.1 (A3)
Within the National Grid Yard (Uncompromised) any structures that do not meet the definition of Building in Chapter J	D26.4.1 (A13A)
Land disturbance that complies with Standards D26.6.1.1(1)(a), D26.6.1.1(1)(b), D26.6.1.1(1)(c) and D26.6.1.1(1)(d)	D26.4.1 (A19)
Within the National Grid Substation Corridor – Network Utilities and Electricity Generation that connects to the National Grid	D26.4.2 (A27)
Roading activities, and network utilities or electricity generation that connects to the National Grid that are above ground or comply with Standard D26.6.1.2(1), and electricity transmission infrastructure in a road carriageway	D26.4.2 (A28)

7.3 National Environmental Standards – EB3C

7.3.1 Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011

The NES-CS applies to land identified as having had an activity or industry described in the HAIL undertaken in it. As detailed in Section 6.15 and Appendix 16, works will occur on land currently

⁶⁶ It should be noted that the AUP(OP)'s Chapter D26 impose consenting requirements under Sections 9(3) and 11 of the RMA. Given that both packages involve a NoR, no resource consents are required under Chapter D26.

occupied by service stations (242 and 386 Tī Rākau Drive). This section of the EB3C works have been identified as occurring on HAIL sites without the prior preparation of a detailed site investigation. A discretionary land use consent is required under Regulation 11 of the NES-CS⁶⁷.

7.3.2 Resource Management (National Environmental Standard for Electricity Transmission Activities) Regulations 2009

The NES-ET sets out a national framework of permissions and consent requirements for activities on existing electricity transmission lines.

No works are proposed as part of this application to existing Transpower assets. In the event that consent is required, a separate resource consent application will be sought by Transpower.

7.3.3 Resource Management (National Environmental Standards for Freshwater) Regulations 2020

The NES-FW sets requirements and standards for activities that pose risks to freshwater and freshwater ecosystems.

As infrastructure works that delivers a service operated by a life utility (i.e., AT) and as a project listed in the Regional Land Transport Plan, EB3C (as part of the overall Project) qualifies as “specified infrastructure in the NES-FW⁶⁸. The Terrestrial and Freshwater Ecological Effects Assessment has identified and mapped natural wetlands for EB3C. There are eleven (11) wetlands; BRW1-BR-W11 which are identified in Burswood Esplanade Reserve, Bard Park Reserve for EB3C.

The following resource consents are required for works associated with specified infrastructure for EB3C:

NES-FW Regulation	Description	Activity Status
Regulation 45(1)	<p>Vegetation clearance within, or within a 10m setback from, a natural wetland is a discretionary activity if it is for the purpose of constructing specified infrastructure.</p> <p>Comment: <i>The construction of EB3C will require vegetation clearance within, or within a 10m setback from a natural inland wetland (Wetland BR-W3 and BR-W4). This requires a discretionary resource consent under Regulation 45 (1) of the NES-FW.</i></p>	Discretionary
Regulation 45(2)	<p>Earthworks or land disturbance within, or within a 10m setback from, a natural wetland is a discretionary activity if it is for the purpose of constructing specified infrastructure.</p> <p>Comment: <i>The construction of EB3C will require earthworks or land disturbance within, or within a 10m setback from, a natural wetland (Wetland BR-W3 and BR-W4). This requires a discretionary</i></p>	Discretionary

⁶⁷ This land use consent is sought under section 9(3) of the RMA.

⁶⁸ Specified infrastructure is defined by the NPS-FW as:

“(a) infrastructure that delivers a service operated by a lifeline utility (as defined in the Civil Defence Emergency Management Act 2002)

(b) regionally significant infrastructure identified as such in a regional policy statement or regional plan...”

NES-FW Regulation	Description	Activity Status
	resource consent under Regulation 45 (2) of the NES-FW.	

7.4 National Environmental Standards – EB4L

7.4.1 Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011

The NES-CS applies to land identified as having had an activity or industry described in the HAIL undertaken in it. As detailed in Section 6.15 and Appendix 16, works will occur on land adjacent to a service station and vehicle testing/repair facilities at 550 Te Irirangi Drive and 451 Tī Rākau Drive. This section of the EB4L works have been identified as occurring on a HAIL site without the prior preparation of a detailed site investigation. A discretionary land use consent is required under Regulation 11 of the NES-CS⁶⁹.

7.4.2 Resource Management (National Environmental Standard for Electricity Transmission Activities) Regulations 2009

The NES-ET sets out a national framework of permissions and consent requirements for activities on existing electricity transmission lines.

No works are proposed as part of this application to existing Transpower assets. In the event that consent is required, a separate resource consent application will be sought by Transpower.

7.4.3 Resource Management (National Environmental Standards for Freshwater) Regulations 2020

The NES-FW sets requirements and standards for activities that pose risks to freshwater and freshwater ecosystems.

As infrastructure works that delivers a service operated by a life utility (i.e., AT) and as a project listed in the Regional Land Transport Plan, EB4L (as part of the overall Project) qualifies as “specified infrastructure in the NES-F⁷⁰”.

The Terrestrial and Freshwater Ecological Effects Assessment has identified and mapped natural wetlands for EB4L. There are two natural wetlands; BR-W1 and Wetland GR-W2 identified in EB4L. Refer to the Terrestrial and Freshwater Ecological Effects Assessment (Appendix 27) for further details.

The following resource consents are required for works associated with specified infrastructure:

NES-FW Regulation	Description	Activity Status
Regulation 45(1)	Vegetation clearance within, or within a 10 m setback from, a natural wetland is a discretionary activity if it is for the purpose of constructing specified infrastructure.	Discretionary

⁶⁹ This land use consent is sought under section 9(3) of the RMA.

⁷⁰ Specified infrastructure is defined by the NPS-FW as:

“(a) infrastructure that delivers a service operated by a lifeline utility (as defined in the Civil Defence Emergency Management Act 2002)

“(b) regionally significant infrastructure identified as such in a regional policy statement or regional plan...”

NES-FW Regulation	Description	Activity Status
	<p><i>Comment: The construction of EB4L will require vegetation clearance within, or within a 10m setback from a natural inland wetland (Wetland BR-W1 and Wetland GR-W2 for EB4L). This requires a discretionary resource consent under Regulation 45 (1) of the NES-FW.</i></p>	
Regulation 45(2)	<p>Earthworks or land disturbance within, or within a 10 m setback from, a natural wetland is a discretionary activity if it is for the purpose of constructing specified infrastructure.</p> <p><i>Comment: The construction of EB4L will require earthworks or land disturbance within, or within a 10m setback from, a natural wetland (Wetland BR-W1 and GR-W2 for EB4L). This requires a discretionary resource consent under Regulation 45 (2) of the NES-FW.</i></p>	Discretionary

7.5 Summary

In addition to the NoR's to designate EB3C and EB4L for busway purposes, all necessary resource consents to authorise the construction, operation and maintenance of EB3C and EB4L are sought from Auckland Council.

Overall, it is considered that the following resource consents are required:

7.5.1 Summary of EB3C Resource Consents

- Regional land use consents for a **discretionary activity**
- District land use consent for a **discretionary activity**
- Coastal permits for a **non-complying activity**
- Stream works permits for a **discretionary activity**
- Water permits for a **restricted discretionary activity**
- A discharge permit for a **restricted discretionary activity**
- s89 consent for construction, operation and maintenance of a road within CMA for a **discretionary activity**.

The reasons for consent are considered together and the overall activity status of EB3C is **non-complying**.

7.5.2 Summary EB4L of Resource Consents

- Regional land use consents for a **discretionary activity**
- District land use consent for a **discretionary activity**
- A stream works permit for a **discretionary activity**
- A discharge permit for a **restricted discretionary activity**.

The reasons for consent are considered together and the overall activity status of EB4L is **discretionary**.

8 Consultation

This chapter details the consultation undertaken by AT and the EBA during development of the EB3C and EB4L design and application material. This has included engagement with mana whenua, elected members, various Auckland Council departments, local community groups, regional advocacy and interest groups, landowners, tenants, and the local residential and business community.

8.1 Introduction

AT and EBA have undertaken extensive community engagement and consultation with partners, various stakeholders, community groups and businesses regarding the proposed works for the Project. There were three objectives of this consultation, which was aligned with the International Association of Public Participation (IAP2) engagement framework:

1. Engage directly impacted property owners on the proposed alignment and for them to meet privately with alliance representatives
2. Inform stakeholders and the community of the proposed alignment, station locations and staging. The Project team highlighted benefits and trade-offs, differences from earlier schemes, options considered, indicative construction phasing, further design and next steps
3. Consult with stakeholders and the community to identify opportunities to maximise access to the busway including walking, cycling and local bus catchments, connections to the stations, crossing points and station functionality.

The Project team worked closely with mana whenua, elected representatives, AC, Howick Local Board, AT's Capital Projects' Accessibility Group (CPAG), diverse cultural and interest groups, business and residents' associations, places of worship, schools and media to promote the consultation programme through their networks.

8.1.1 Auckland Council

Regular meetings have been held between EBA and a range of AC officers, including members of Community Facilities, Healthy Waters, Regulatory Services, and Local Board advisors. AC staff were given detailed briefings on the proposed busway and its potential effects and impacts on the AC's assets, facilities, and community disruptions. A collaborative relationship has been established through working through the design challenges and constraints to reach and develop appropriate mitigation strategies and outcomes.

8.1.2 Community Facilities

Regular monthly meetings have been held between EBA and the AC Community Facilities team, which include Parks Planning, Sports and Recreation, Asset Maintenance officers to discuss the works occurring within AC reserves (including management and mitigation measures). Landowner approval is being sought for the take of land within the park and to undertake the necessary mitigation works within the park catchment.

8.1.3 Healthy Waters

Regular meetings have been held between the Alliance and Healthy Waters' catchment engineers. Contact with Healthy Waters has primarily focused on the Project's stormwater

design, how it will integrate into existing public infrastructure and compliance requirements associated with the NDC.

8.1.4 Regulatory Services/Plans and Places

Meetings have been previously held between EBA and AC's Resource Consent Department via an AC Premium Project Manager. These meetings have also been attended by planners from AC's Plans and Places Department. These meetings have included introducing RMA documentation to AC's planners and specialists, which have enabled potential matters to be addressed prior to formal lodgement. These pre-lodgement meetings have included the sharing of draft documents, discussion of stakeholder engagement results and information requirements for lodgement of the application package.

8.2 Mana whenua

EBA is partnering with mana whenua, regularly meeting with representatives from Ngāti Whanaunga, Ngāi Tai ki Tāmaki, Te Akitai Waiohua, Ngāti Maru, Ngāti Tamaoho, Te Patukikiri, Ngāti Paoa, Ngāti Paoa Trust, Ngāti Te Ata Waiohua, Te Ahiwaru, and Ngāti Tamaterā through the AT and Mana Whenua Southern Forum.

Engagement with mana whenua has taken place on a monthly basis through hui and workshops, both online and in person since EBA was formed in October 2020. Hui have involved presentations from consistent alliance representatives and guest specialists to provide updates and seek input into a broad range of subject matters.

Mana whenua have played a key and valued role in the development of the overall design of the busway and stormwater management approach, along with site investigations, utilities, construction methodologies and the initial development of sustainability and procurement strategies and policies.

Mana whenua expressed support for the provision of high quality and sustainable transport options and investment in a currently underserved area of Tāmaki Makaurau Auckland. Key discussion themes have focussed on opportunities for restoration and education, broader social outcomes, high quality material choices, and opportunities to enhance the environment through stormwater and water quality improvements, substantial planting and canopy cover and enhancement of existing natural features and wildlife habitats.

8.3 Elected Representatives

The elected representatives of the Howick Ward were updated regularly on the Project and advised of the planned consultation activities.

Simeon Brown (MP for Pakuranga) and Christopher Luxon (MP for Botany) were updated each month through their attendance at the Elected Representatives' meetings. They were aware of the planned consultation activities and were equipped to respond to any constituent questions they may have received. Adele White, Howick Local Board Chair and Councillors Sharon Stewart and Paul Young were regularly updated through their attendance at the elected representatives' meetings and at the monthly Howick Local Board meetings.

The Howick Local Board was provided with a presentation each month in confidence by several senior members of EBA, outlining the proposal as it developed during the year, design rationale,

and engagement process. The chair and local board members were aware of the planned consultation activities and were equipped to respond to any community questions. Board members offered to share information with their constituents and facilitate engagement.

AC's Planning Committee was provided with a presentation on the Project in confidence, and EBA representatives met with Councillor Chris Darby (Chair of the Planning Committee) at key stages.

Project information was also shared with the following elected representatives:

- Naisi Chen MP
- Priyanca Radhakrishnan MP
- Jenny Salesa MP
- Mayor of Auckland, Phil Goff
- Councillor Chris Darby
- Councillor Richard Hills
- Councillor Josephine Bartley
- Councillor Desley Simpson
- Maungakiekie Tāmaki Local Board members
- Ōrākei Local Board members

Elected members have expressed their overall support for the Project, and its intended outcomes and benefits.

Most of the Howick Local Board Board's feedback has focused on the Project as a whole, rather than individual consenting packages. Board members have also raised questions about cycling connections, the Project's cost, time frames for delivery, construction impacts and environmental effects. EBA team members will continue to meet regularly with the Howick Local Board to further discuss these matters.

8.4 Government Ministries

Project information and an outline of the consultation methodology and timings was sent to relevant ministry contacts for their dissemination. In addition, Project briefings and workshops were held with staff from Ministry of Education Te Tāhuhu o te Mātauranga, and Kāinga Ora – Homes and Communities, to discuss the proposed scheme in detail.

8.5 Stakeholder Groups

EBA has engaged with regional advocacy groups and stakeholders to provide a Project briefing ahead of public consultation. Virtual meetings were held with GenZero, Greater Auckland, Bike Auckland, Auckland Business Forum and Automobile Association. These meetings raised stakeholder awareness of the Project and provided the opportunity for a two-way conversation about the proposed scheme. The alliance answered various community-related queries during the virtual meetings, preparing advocacy and stakeholder groups with information to share with their networks.

In addition, Project information and an invitation to provide feedback was provided to a wider list of stakeholders including:

- Forest and Bird
- CCS Disability Action
- Royal New Zealand Foundation for the Blind
- National Foundation for the Deaf

- Road Transport Forum
- Road Transport Association
- New Zealand Heavy Haulage Association
- National Road Carriers
- Bus and Coach Association.

8.6 Local Stakeholder Groups

EBA has met with the following local stakeholders to share Project updates and detailed information on the proposed scheme and consultation process:

- Business East Tāmaki⁷¹
- Howick Youth Council
- Pakuranga and Botany Libraries
- Pakuranga and Botany Citizen’s Advice Bureau
- Pakuranga And Howick Budgeting Service
- Howick Residents and Ratepayers Association
- Huntington Park Residents and Ratepayers Association.

EBA has engaged with community leaders in East Auckland’s ethnic communities, including Pakuranga Chinese Association, Asian Safety Education and Promotion Charitable Trust, Korean Positive Ageing Charitable Trust, Chinese Women Association of New Zealand and the Chinese New Settlers Services Trust.

Project information and an invitation to provide feedback was also provided to an extensive stakeholder database including nearby businesses, places of worship, schools and early childhood centres, resident associations, AT’s Capital Projects’ Accessibility Group, sport and leisure groups, aged care providers and other community organisations.

8.7 Education Providers

EBA has briefed Ministry of Education Te Tāhuhu o te Mātauranga, Howick and Pakuranga Principals Association, Kindergarten Association, local schools, kindergartens and childcare facilities such as Piccolo Park Daycare and WonderKids Childcare and Preschool. School principals and associated school-based kindergarten representatives attended Project meetings. Two-way conversations provided an opportunity for the education community to learn about the Project alignment and ask questions, which were predominantly about accessibility once complete.

8.8 Consultation with Burswood Residents

As detailed in the Social Impact Assessment (Appendix 26), consultation with affected Burswood residents via public meetings held at East City Wesleyan Church between November 2021 and April 2022 indicated they were generally in favour of the busway being constructed. However, many strongly opposed the proposed route through Burswood and the impact it would have on their homes, families, and wellbeing. In particular, the community highlighted the need to provide further clarity around the design options that were considered and the rationale for the proposed design of the busway through the Burswood community.

⁷¹ Formerly the Greater East Tāmaki Business Association.

As much of the feedback from the 2021 consultation opposed the proposed section of the busway through Burswood, additional time was taken for further review of the proposed design and to understand the community's feedback for this section.

Between February and June 2022, the engagement team held independently facilitated community information sessions specifically for affected property owners and community members around Burswood. This focused on the proposed section of the busway between Tī Rākau Drive Bridge and Guys Reserve.

Following a review of feedback, the AT Board decision in July 2022 confirmed the proposed alignment for EB3C. Following this decision further public community days at East City Wesleyan Church during evenings and weekends was undertaken. This engagement sought to:

- Provide clear rationale regarding the AT Board's decision
- Provide neighbours (residents and businesses) with opportunity to further discuss their concerns with the Project team
- Acknowledge the difficult process and challenging time it has been for the local community and build a constructive relationship
- Provide clear and timely information to property owners setting expectations about the Project's early site investigation works and construction.

Alongside engagement, Auckland Transport has adopted a proactive property strategy. This has resulted in all residential properties that are required for the project already having agreements in place to be acquired or have already been acquired early to enable homeowners to repurchase before commencement of the EB3C construction.

8.9 Wider Community

In order to engage with the Project's community and to give them opportunity to provide feedback, the Project team:

- Created and publicised the 'Your Guide to the Eastern Busway' brochure and feedback form online, through social media and in printed copy for community members, property owners and tenants in the Howick Ward. Translated versions were available online and could be accessed through a QR code
- Established a 'virtual consultation room' hosted on the Project's webpage for people to interact with the information, including an interactive online map and digital feedback form
- Emailed the 'Your Guide to the Eastern Busway', posters in English and Chinese (Simplified) a feedback form and link to the short Project video to key stakeholders, interest groups and individuals on our customer database
- Generated media releases, proactive local news stories and Our Auckland content about key features of the Project and consultation timeframe
- Created social media posts advertising opportunities for people to provide feedback
- Provided flyers, brochure, feedback forms and prepaid envelopes to four libraries in the Project area from mid-November when they re-opened following an extended lockdown
- Worked with business and residents' associations, places of worship, elected representatives and Howick Local Board to promote the consultation through their networks

- Emailed the 'Your Guide to the Eastern Busway' to previous submitters who provided feedback on the 2018 proposal
- Provided the 'Your Guide to the Eastern Busway' to AT and EBA staff as informal advocates for the Project
- Provided a short video of the proposed alignment on YouTube, the Project website and on social media.

Feedback was able to be provided by:

- Completing an online feedback form, posting on the Social Pinpoint map or comment wall, or by completing a printed form included with the 'Your Guide to the Eastern Busway'
- Visiting a community library and completing a feedback form there, or mailing it back
- Calling the 0800 number and talking directly with one of the team who would assist with completing a feedback form.

8.10 Summary of Consultation

Issues raised during EB3C consultation included:

- Noise levels during the day and night
- Loss of privacy due to double decker buses
- The residential streets being filled with cars left by bus commuters
- Security of properties with more people being around all hours of the day
- How dust, noise and vibration, road closures, wayfinding and the combined impact of these factors on commercial sites would be managed during construction.

Issues raised during EB4L consultation included:

- Maintaining access from Huntington Park community to The Hub
- Provision of safe cycling and walking facilities during evening hours
- Impacts on local streets through on-street parking
- Impacts on Huntington Drive signalisation onto Ti Rākau Drive
- Provision of having more bridge structures to cross Burswood Esplanade Reserve to avoid Ti Rākau Drive on-road alignment
- Connection to the final bus stop location in Botany
- Linkage of bus routes around the catchment to enable more public transportation options.

8.11 Ongoing Engagement

AT proposes to continue its engagement key stakeholders and the wider community as required by the proposed CCP.

9 Assessment of Effects

This chapter provides a comprehensive assessment of EB3C and EB4L's actual and potential environmental effects. This includes separate consideration of effects during its construction and operational phases. This assessment is supported by a number of technical assessments that are attached to this AEE.

Overall, both EB3C and EB4L are considered to have acceptable adverse effects. This is due to the design, consideration of the permitted baseline and the mitigation/management practices proposed.

It is also noted that EB3C and EB4L will generate significant benefits given its role in improving the function of Tāmaki Makaurau Auckland's transport network.

9.1 Introduction

This section of the AEE addresses the actual and potential effects associated with the construction, operation and maintenance of EB3C and EB4L, and is informed by the assessment matters and policy context provided in the relevant sections of the AUP(OP) where appropriate.

The relevant actual and potential environmental effects of EB3C and EB4L are:

- Positive effects
- General construction effects
- Transport
- Landscape and visual
- Open space
- Land Disturbance
- Contaminated land
- Historic heritage/archaeology
- Social impact
- Coastal processes⁷²
- Stormwater and flood management
- Ecological values (terrestrial and freshwater, and marine ecology and coastal avifauna⁷³)
- Arboricultural matters
- Groundwater matters
- Mana whenua values
- Operational traffic noise
- Construction noise and vibration
- Air quality

The sections below provide a summary of the technical reports to support EB3C and EB4L. These reports should be read in conjunction with the AEE. When considering the effects of EB3C and EB4L, the receiving environment consists of:

- The existing environment (as described in Section 6) and the associated effects from lawfully established activities, these being the existing road network, commercial activities (e.g., big box retail) and residential

⁷² Only relevant for EB3C as there are no works in EB4L that are in or adjacent to the CMA.

⁷³ Only relevant for EB3C as there are no works in EB4L that are in or adjacent to the CMA.

- The existing environment as modified by any resource consents granted and likely to be implemented
- The environment as likely to be modified by activities permitted by the AUP(OP).

The assessment of effects is based on the existing environment (and any consented developments) as opposed to the future environment particularly in regard to landscape, urban design and open space effects. This is because a future focussed assessment is fraught with uncertainty given the reliance on theoretical and unconsented developments.

Furthermore, any related assessment of effects of this project against the hypothetical environment (as opposed to the existing environment, as defined by case law to include permitted activities and resource consents likely to be implemented) is difficult to implement and subject to potential inaccuracies and without significant merit. Additionally, the full implementation of urban intensification sought under PC78 and PC80 is many years away with the final form of these provisions unclear at this stage, therefore the assessment of effects undertaken below is based on the existing environment (and any unimplemented approved resource consents).

9.2 Permitted Baseline

Under sections 95D(b), 95E(2)(a) and 104(2) of the RMA, the planning authority may disregard an adverse effect if a rule or national environmental standard permits an activity with that effect. This “permitted baseline” test is commonly employed to assess applications under the RMA (and has been applied to NoRs as well as resource consent assessments), unless unusual or special circumstances apply.

It is considered appropriate that the permitted baseline is applied to the current application, given the busway will be constructed largely within existing road reserve or immediately adjacent to the road reserve. Furthermore, the busway will be declared road in due course, which is particularly relevant to operational matters.

The breakdown of relevant permitted activities, including road network activities, is provided in Section 7.

9.3 Positive Effects– EB3C and EB4L

The Project, including EB3C and EB4L, will deliver significant benefits to the communities of southeast Tāmaki Makaurau/Auckland and the wider region. As detailed in Sections 2, 3 and 1, the Project has been developed in response to transport issues within southeast Tāmaki Makaurau Auckland, to meet projected population growth, reduce regional greenhouse gas emissions and to achieve modal shift goals.

Numerous studies have identified that the Howick Local Board area experiences heavy congestion, with 90,000 vehicles per day (vpd) using the Panmure and Waipuna Bridges⁷⁴. Recent rapid population growth and a heavy dependence on private motor vehicles has put significant strain on the existing road network. EB3C and EB4L, as parts of the Project, will help alleviate some of this congestion. This will principally be by providing improved access to, as well as the performance of, public transport services. When combined with the new cycling and

⁷⁴ Eastern Busway 3C, 4I and 4L Integrated Transport Assessment

walking infrastructure, the Project supports modal shift from private motor vehicles to other transport types. This in turn assists in managing both current and projected future congestion with the wider area's road network. As such, both package's contribution to congestion management will improve travel times, supporting the movement of freight and people.

In addition, the development of the Project has been driven by both previous and projected population growth within southeast Tāmaki Makaurau/Auckland. Pakuranga, Botany and the adjoining suburbs have been identified by the Auckland Plan as being important areas for urban intensification, through both infill housing and whole-site redevelopments. The Project sits between and within these residential growth areas. It also runs through East Tāmaki, a regionally significant employment area. As such, the transport improvements undertaken for EB3C and EB4L supports the connectivity of the employment and residential hubs in southeast Tāmaki Makaurau Auckland.

To elaborate on projected urban population growth, local suburbs, such as Howick and Pakuranga are experiencing high levels of redevelopment. This redevelopment will only grow in intensity through the new medium density residential standards introduced in late 2021 by the New Zealand Government, which are being incorporated into the AUP(OP) by PC78⁷⁵. Approximately 24,000 people are expected to be within a 1km walking catchment from the Project's bus stations upon completion if PC78 is implemented as notified.

Traffic flows from the isthmus are also expected to increase given population growth from brownfield developments like the Tāmaki regeneration programme and the movement of these residents to recreation, education and employment opportunities within southeast Tāmaki Makaurau Auckland⁷⁶. Botany Town Centre is also expected to grow significantly through greater residential intensification and redevelopment, with these residents and businesses reliant on Tī Rākau Drive as a transport connection to the wider region. Growth is also being generated by greenfield developments like Flat Bush, where 1700 ha of land is being urbanised for a population of approximately 40,000 people. Lastly, congestion due to the growth in commercial activity is also anticipated, noting the role that Tī Rākau Drive has in connecting the commercial areas of East Tāmaki and Highbrook to the wider region.

Without the construction of the Project (including EB3C and EB4L) and the provision of improved transport choices (i.e., public and active transport modes), southeast Tāmaki Makaurau Auckland's road network would experience significantly increased congestion⁷⁷. This congestion would in-turn impact both the quality of life for residents and the economic wellbeing of Tāmaki Makaurau Auckland's businesses. The Project will alleviate, in part, projected increases in road congestion.

As mentioned above, the Project also provides increased transport choices for residents and visitors, particularly given the provision of a new offline busway and bus station at Burswood. The dedicated bus lanes and stations will improve the public transport experience for passengers, through reliable travel times and high quality/frequent services and make it more attractive to current private vehicle users. Increased uptake of public transport will also ease congestion and reduce regional greenhouse gas emissions. Similarly, the Project's walking and cycling investments make those transport modes safer and more attractive to users. This will

⁷⁵ PC78 that was notified by AC in August 2022.

⁷⁶ Tāmaki regeneration programme will deliver 10,500 new homes over the next 20 years.

⁷⁷ Table 2: Existing and Future AADT (without project) of the ITA.

also assist in reducing congestion and greenhouse emissions. In addition, these investments will make walking and cycling routes safer for their users. This is a significant benefit, given the number of schools, childcare centres and similar land uses present within the Project area.

The Project will assist in addressing greenhouse gas emissions related to the transport sector by supporting a modal shift from private to public transport through improved public transport reliability and service frequency. The Project will reduce road congestion and thus travel times. This will reduce overall vehicle emissions.

Lastly, the overall positive effect associated with EB3C, EB4L and the wider Project is improved accessibility. Reduced congestion, better public transport, safer walking and new cycling infrastructure will improve the ability for both residents and visitors to access jobs, education, recreation, housing and healthcare.

Given the above, EB3C and EB4L will have significant positive effects for Tāmaki Makaurau Auckland.

9.4 Construction Phase Effects – EB3C

Based on the indicative construction method, construction programme and nature of the works for EB3C, the anticipated construction duration for EB3C will be around approximately 42 months commencing in late 2024. However, the construction duration, staging and targeted completion dates will be subject to obtaining the required RMA approvals, as well as the availability of construction materials and equipment.

Given the scale of the works proposed and the existing urban environment, a range of construction effects have been considered and assessed. The following sub-sections of the AEE will address the following construction related effects:

- Construction transport effects
- Noise and vibration effects
- Erosion and sediment control
- Effects on terrestrial and freshwater ecological values
- Effects on coastal ecological values and coastal processes
- Social effects
- Management of contaminated soils
- Effects from tree works
- Cultural effects
- Historic heritage effects
- Visual and landscape effects.
- Open space effects

The subsections below describe the construction related effects, the proposed mitigation measures relating to the effects and the level of effect remaining after mitigation.

Where relevant, cross referencing will be provided to the discussion of operational phase effects.

9.4.1 Construction Transport Effects

The ITA (Appendix 14) provides significant detail regarding the anticipated transport effects of EB3C during its construction, as well as how works will be phased within the existing active road corridor⁷⁸. The key construction traffic considerations given by the ITA include:

- Generation, timing and routing of heavy vehicles
- Construction effects on road traffic
- Construction Parking requirements
- Effects on pedestrians and cyclists
- Effects on bus services
- Effects on site access and parking
- Effects to safety performance.

To provide context to the following discussion of construction traffic effects, it is important to consider the overarching construction traffic management method proposed by AT. This involves the use of a CTMP, as well as site-specific conditions relating to access and parking. The CTMP, as required by the proposed conditions, must contain the following information to enable its certification by Auckland Council:

- Methods to manage the effects of temporary traffic management activities on traffic;
- Measures to ensure the safety of all transport users
- The estimated numbers, frequencies, routes and timing of construction traffic movements, including any specific non-working or non-movement hours to manage vehicular and pedestrian traffic near educational facilities and childcare facilities or to manage traffic congestion
- Details of public transport route detours, temporary relocation of bus stops, temporary replacement bus stops and consultation with nearby educational facilities and Ministry of Education
- Details on temporary facilities for pedestrians to ensure connectivity if the existing facilities cannot be safely and reasonably maintained
- Details of wayfinding signage for motor vehicle users, public transport users, cyclists and pedestrians
- Site access routes and access points for heavy vehicles, the size and location of parking areas for plant, construction vehicles and the vehicles of workers and visitors
- Identification of detour routes and other methods to ensure the safe management and maintenance of traffic flows, including pedestrians and cyclists on existing roads
- Methods to maintain vehicle access to property and/or private roads where practicable, or to provide alternative access arrangements when it will not be
- Methods to provide for access to commercial sites, including access to those sites' loading/unloading areas
- The management approach to loads on heavy vehicles, including covering loads of fine material, the use of wheel-wash facilities at site exit points and the timely removal of any material deposited or spilled on public roads outside active construction areas
- Methods that will be undertaken to communicate traffic management measures to affected road parties (e.g. residents/public/stakeholders/emergency services) as required by the CCP
- Records of CTMP-related consultation with residents/public/stakeholders/emergency services, including any changes to the CTMP undertaken in response to that consultation and as detailed in the CCP.

⁷⁸ Section 4.2 of the ITA.

9.4.1.1 Effects from Construction Support Areas, Heavy Vehicle Generation, Timing and Routing

The ITA has considered the potential effects generated by Construction Support Areas (CSA's), principally arising from heavy vehicle generation and routing. This is due to the Project's reliance on such vehicles to deliver/remove fill, construction equipment and structure components (e.g., bridge segments). The CSA locations were chosen after considering their proximity to the planned works and possible access routes. Other criteria included their distance from residential areas so as to minimise noise and disruption to residents.

Other smaller facilities (for worker welfare) will be set up as works progress along the alignment. Designated on-site car parking will also be provided within these CSAs, with this parking available to both Project staff and visitors.

The ITA also addresses the potential impacts of the Project on on-street parking. It notes that such parking behaviour will be discouraged by regular briefings to Project staff, inclusion of parking rules in staff inductions and regular monitoring. These measures will help reduce potential conflicts for parking with the local community and users of nearby Council reserves.

The delivery of bulk construction materials and removal of waste will predominantly be via the Burswood Esplanade Reserve transfer station that is part of the CSA shown in Figure 9-1. The associated heavy vehicle movements will be largely restricted to arterial corridors, including Tī Rākau Drive and SEART. These arterial focused routes are shown in Figure 9-2 and are detailed further in Table 9-1. In general, the movements between the CSA and active construction areas will be focused along Burswood Drive (east), Burswood Drive (west), Elderberry Road and Tī Rākau Drive to avoid lower order suburban road corridors.

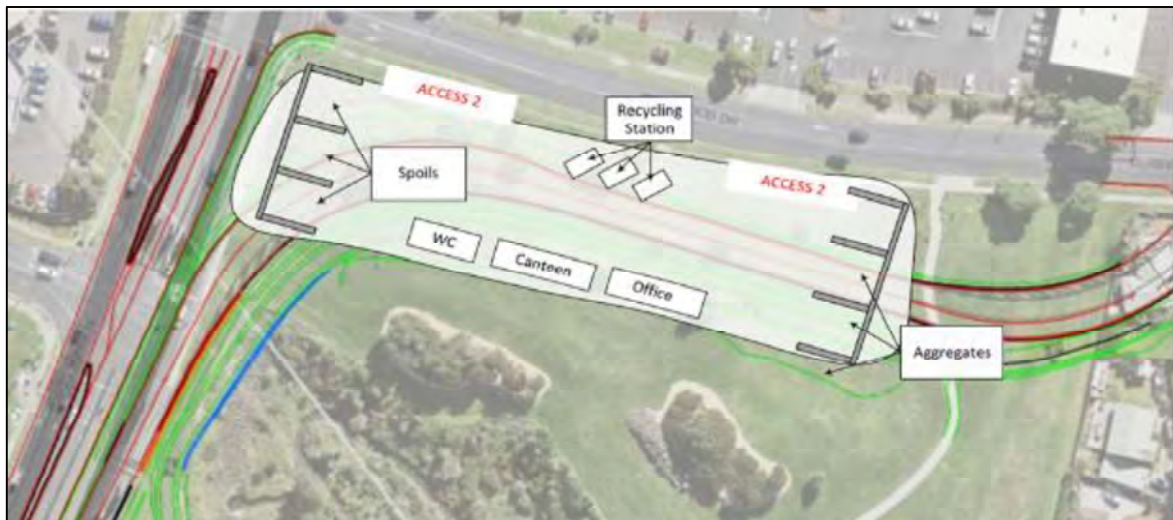


Figure 9-1 Burswood Esplanade Reserve CSA

In addition, there will be deliveries of location specific construction materials, such as retaining wall blocks and bridge beams. These deliveries will be direct to the relevant construction sites, rather than being double handled via the CSA, thereby helping to minimise the overall number of heavy vehicle movements associated with the Project.

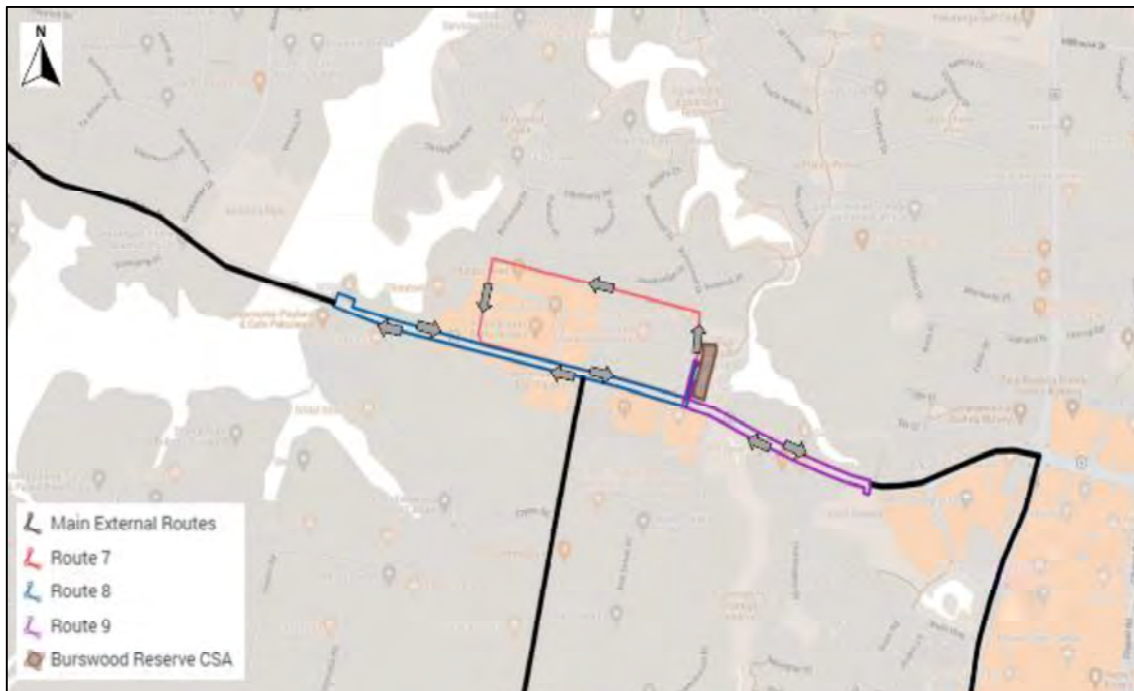


Figure 9-2 Construction Heavy Vehicle Routes

The ITA outlines the anticipated number of vehicle movements per hour for the proposed construction routes (refer Figure 9-1 and Table 9-1 below). The ITA notes that the number of vehicle movements also includes the carting of demolition materials and excess spoil.

Table 9-1 Summary of heavy vehicle movements along Tī Rākau Drive in the EB3C area

Route	Construction Activity	Description	Vehicle Movements [veh/h]
Route 7	EB3C Burswood Busway and Bus Station	Egress from the Burswood transfer station onto Burswood Dr (east) northbound, then through the new busway construction area in Burswood residential area westbound, Burswood Dr (west) southbound, Tī Rākau Dr eastbound, Burswood Dr (east) northbound, return to transfer station.	2
Route 8	EB3C Bridge A, Bridge B and Western Civil works	Egress from Burwood transfer station onto Burswood Dr (east) southbound, then Tī Rākau Dr westbound, right turn into 242 Tī Rākau Dr, left turn out of 242 Tī Rākau Dr, Tī Rākau Dr eastbound, Burswood Dr (east) northbound, return to transfer station.	3

It is anticipated that a range of vehicle sizes and types will be used for the construction activities within the EB3C area. As stated above, bulk deliveries of construction materials to the transfer station, as well as site specific deliveries to other locations, will occur throughout the construction period. In general,

heavy vehicles will include up to 19m truck and trailer units. Smaller vehicles, such as 6-wheeler trucks, will also be used within active construction sites, as well as to shuttle materials between those sites.

Over dimension and overweight deliveries will also occur, albeit on a more infrequent basis. Such deliveries will be focused during low traffic periods, such as night-time hours and will be restricted to appropriate routes along regional and arterial corridors. The Tī Rākau Drive, SEART, Harris Road, and Te Irirangi Drive corridors are well-suited to larger vehicles given their widths and lack of obstructions. Overall, the ITA considers the effects of these types of construction vehicles to the road network are expected to be negligible and can be managed through the CTMP.

In addition to the CSA at Burswood Esplanade Reserve, it is intended to establish a temporary site compound at 242 Tī Rākau Drive upon the closure of the Mobil branded service station (Figure 9-3). The CSA will be used as a satellite office with car parking, as well as a staging area for the construction of Bridge A and other civil works. Access to the CSA will be provided from Tī Rākau Drive, utilising the existing driveway as the entry point. Temporary pavement will be constructed within the existing median to provide a temporary right-turn pocket into the property. This CSA is estimated to be occupied from mid-2024 for an indicative duration of 42 months.



Figure 9-3 242 Tī Rākau Drive CSA

It is expected that three additional SAPs will be established to assist in the construction of the offline busway behind Chinatown, as well as between Burswood Drive (west) and (east). Two of the SAPs will be located along Burswood Drive (west) on either side of the proposed Burswood Drive (west)/Busway intersection. The other SAP will be located at the proposed Burswood Drive (east)/Busway intersection⁷⁹.

⁷⁹ Refer to Figures 44 and 45 of the ITA.

Construction traffic will generally operate from 7:00 to 18:00 on weekdays and 7:00 to 15:00 on Saturdays. As such, construction vehicle movements will be spread throughout standard working hours, avoiding concentrations of construction traffic outside AM and PM peak periods. It is anticipated that some night works will be undertaken to minimise the disruption to the public, businesses and traffic. These night works will be intermittent and will not be continuous in a single location or activity for more than one month. Given these factors the ITA does not anticipate that these traffic movements will generate congestion within the wider road network.

Overall, the ITA considers that the temporary effects of the CSAs, SAPs as well as the more general construction traffic for EB3C can be mitigated and are considered to be negligible or very low. Furthermore, AT have proposed the following conditions to manage any safety conflicts between construction traffic and local schools:

“The Requiring Authority must restrict the movement of heavy construction vehicles in the immediate areas surrounding the local schools detailed in the table below during pickup and drop-off hours.”

<i>School Name</i>	<i>Address</i>	<i>Associated no travel route</i>	<i>Times heavy vehicles must avoid the schools</i>
<i>Pakuranga Intermediate School</i>	<i>43/49 Reeves Road, Pakuranga, Auckland 2010</i>	<i>Reeves Road spanning from William Roberts Road to Gossamer Drive.</i>	<i>8.10am – 9.00am 2.55pm – 3.30pm</i>
<i>Pakuranga Heights School</i>	<i>77 Udys Road, Pakuranga, Auckland 2010</i>	<i>Udys Road spanning from Marriatt Road to Reeves Road.</i>	<i>8.25am – 09.00am 2.55pm – 3.30pm</i>
<i>Saint Kentigern College</i>	<i>130 Pakuranga Road, Pakuranga, Auckland 2010</i>	<i>None – signalised access off main arterial considered low risk.</i>	<i>NA</i>
<i>Edgewater College</i>	<i>32 Edgewater Drive, Pakuranga, Auckland 2010</i>	<i>Edgewater Drive spanning from Snell Place to Raewyn Place.</i>	<i>8.25am – 09.00am 2.55pm – 3.30pm</i>
<i>Anchorage School</i>	<i>16 Swan Crescent, Pakuranga, Auckland 2010</i>	<i>Tiraumea Drive and side streets south-west of Jan Place.</i>	<i>8.25am – 09.00am 2.55pm – 3.30pm</i>
<i>Elm Park School</i>	<i>46 Gossamer Drive, Pakuranga Heights, Auckland 2010</i>	<i>Gossamer Drive spanning from Beechdale Crescent to Pakuranga Road</i>	<i>8.25am – 09.00am 2.55pm – 3.30pm</i>
<i>Riverhills School</i>	<i>13 Waikaremoana Place, Pakuranga Heights, Auckland 2010</i>	<i>Gossamer Drive spanning from Riverhills Avenue to Reeves Road</i>	<i>8.25am – 09.00am 2.55pm – 3.30pm</i>

“The Requiring Authority must ensure that light vehicles associated with the Project (e.g. delivery vehicles and staff private vehicles) are used with care and caution when traversing passed schools.”⁸⁰

Regarding other mitigation, AT propose to control heavy vehicle movements, as well as the operation of the CSA’s and SAPs with the CTMP, while the CCP will address communication of the relevant CTMP measures with stakeholders. The CTMP will be developed in accordance with AT’s proposed conditions and will include management strategies, controls and reporting protocols to address these transport effects.

⁸⁰ The advice note for this condition states:

“This may be achieved by briefing construction staff on the safe use of vehicles, the location of local schools and any road hazards at those locations.”

9.4.1.2 Construction Effects on Road Traffic

This section provides an assessment of effects to road traffic, including general traffic and buses, during construction. As stated in Section 9.4.1.1 above, the effects of the projected construction traffic volumes are expected to be negligible to low and can easily be accommodated within the existing road network.

The majority of EB3C's main works in EB3C will be offline, the exception being the works on Tī Rākau Drive between Burswood Drive (east) and Guys Reserve, as well as the construction of the two new Burswood Drive/Busway intersections. From a traffic modelling perspective, the ITA has identified that these offline works can be undertaken at any time as they are not expected to affect the transport network.

The construction of the two new Burswood Drive/Busway intersections in EB3C is expected to require the closure of one section of Burswood Drive while diverting all residential traffic along the other arm of Burswood Drive in an alternating fashion. Each closure is expected to have an indicative duration of three months.

Modelling was undertaken for the Burswood Drive (west)/Tī Rākau Drive and Burswood Drive (east)/Tī Rākau Drive intersections to show the effect of the alternating diversions. The effects associated with the alternating closure of Burswood Drive (west) and (east) (to occur at different times) is low with a LOS D or better.

A conservative assumption was made that the proposed online works along Tī Rākau Drive in EB3C, between Burswood Drive east and Guys Reserve, would be undertaken simultaneously with the closure of Reeves Road in EB2 and the ongoing construction of the Reeves Road Flyover (RRF). Route travel times were determined using an AIMSUN model, with a 2028 horizon year. Four routes were selected to compare route travel times between the Do-Minimum⁸¹ and EB2/EB3/EB4 Construction Scenario for general traffic as outlined below:

- **Botany to Pakuranga** (Tī Rākau Drive/Chapel Road intersection to Pakuranga Road/Williams Avenue intersection) – both directions
- **Botany to SEART** (Tī Rākau Drive/Te Irirangi Drive intersection to the western abutment on Waipuna Bridge) – both directions
- **Howick to Pakuranga** (Pakuranga Road / Glenmore Road intersection to Pakuranga Road / Williams Avenue intersection) – both directions
- **Howick to SEART** (Pakuranga Road/Glenmore Road intersection to the western abutment on Waipuna Bridge) – both directions.

Travel times from Botany to Pakuranga (both directions), Botany towards SEART (westbound) as well as from Howick to SEART (westbound) are predicted to experience moderate to relatively large increases during the AM peak, compared to the Do-Minimum. Similar increases are expected for the Botany to SEART (westbound) route in the PM peak⁸². This is not unexpected given the following factors (associated with works associated with EB2 and EB3R):

- The addition of two new intersections to the network:
 - Tī Rākau Drive/William Roberts Road
 - Tī Rākau Drive/Aylesbury Street/Palm Avenue

⁸¹ The Do-Minimum scenario includes the existing transport network, without EB2 to EB4L.

⁸² Refer to section 5.2.3 of the ITA for a breakdown of travel times.

- The temporary signalisation of the Pakuranga Road/William Roberts Road intersection
- The closure of Reeves Road, whereby more vehicles are likely to divert to Ti Rākau Drive and Pakuranga Road
- Ongoing construction along Ti Rākau Drive in EB2 (Pakuranga Road to Reeves Road), EB3R (Reeves Road to Gossamer Drive) and EB3C (Burswood Drive east to Guys Reserve)

Ti Rākau Drive is a congested corridor in the existing environment. Given this, the ITA considers it is very likely that redistributing traffic and/or reducing capacity due to road works will lead to increased queues and delays. It is important to note that the AIMSUN models simulate a worst-case scenario. In addition, the models do not account for various changes in travel behaviour that could reduce the predicted delays, such as road users avoiding certain routes or changing their travel times.

Various mitigation options were tested, ranging from traffic signal phasing amendments to delaying specific pieces of the proposed works, to improve travel times. However, this testing indicated that the only alternative to improve general traffic travel times would be temporarily adding more lanes, which would add significant construction costs and delay to the construction programme. This would also generate environmental effects from widening the road corridor, as well as practical difficulties given the existing locations of services and buildings.

Therefore, as part of the conditions to mitigate these effects, the ITA recommends that advanced public communication be undertaken to inform the travelling public of the planned works to enable them to plan their trips accordingly. It is also recommended that public communication and signage be provided during construction, informing road users of the works and potential delays. Public communication may include:

- Advanced Notification
 - Provide early notification about the planned works through local newspapers, radio stations and community websites
- Variable Message Signs (VMS)
 - Install VMSs on major routes leading up to construction areas, advising drivers of alternate routes and expected delays
- Social Media and Online Platforms
 - Utilize social media platforms to reach a wider audience. Regularly post updates about construction progress, closures, and alternative routes
- Email and SMS Alerts
 - Offer an email and/or SMS subscription service where invested individuals can sign up to receive construction updates and traffic alerts
- Public Meetings and Workshops
 - Organise public meetings or workshops before construction begins to explain the project's scope, benefits, and potential traffic impacts
- Community Liaison Officers
 - Appoint community liaison officers as a point of contact for residents, businesses, and commuters to provide timely information and address queries
- Press Releases
 - Issue press releases to local media outlets, highlighting the project's significance and potential impact on traffic. Include information about alternative routes
- Temporary Signage

- Install temporary road signs along alternate routes to guide motorists and ensure they are aware of the recommended detours
- Radio Announcements
 - Partner with local radio stations for regular announcements about construction updates and recommended routes
- Engage Major Freight Movers
 - Communicate with major freight movers through the project area to schedule deliveries outside peak hours.

In turn, these measures could lead to changes in travel behaviour, such as travelling outside the peak periods or using alternative routes. This will be managed through the CTMP. These methods represent best practice and will assist in promoting the changes in travel behaviour as discussed above. These communication and wayfaring practices will form part of the CCP and CTMP, with both these documents required by the proposed condition set.

It is also important to recognise that these increases in travel times are temporary and are typical for transport projects of this scale (i.e., region shaping infrastructure). Furthermore, these levels of delay are predicted to occur during the AM and PM commuter peak hours. Outside of these periods and for most of the day, the transport network will experience lower levels of delay.

Also, the predicted increases in travel times are for the routes across the modelled network. Depending on their origins and destinations (e.g., the commercial areas in EB3C), many motorists will only be travelling on sections of the routes and may not experience the full effect of the predicted travel times.

9.4.1.3 Construction Parking for Support Sites

Construction staff will use construction laydown yards, satellite offices, construction compounds or parking and Site Access Points (SAP's) at the following locations:

- 242 Tī Rākau Drive (Mobil branded Service Station)
- 254 Tī Rākau Drive (Pet Stop)
- Burswood Drive (east) (intersecting with the busway) serves as a SAP
- Burswood Drive (west) (intersecting with the busway) serves as a SAP
- Burswood Esplanade Reserve (serves as a SAP and a construction laydown yard).

These sites have been selected due to their proximity to the planned works and possible access routes. They have also been selected for their distances away from residential areas to minimise noise and disruption to residents. Staff parking provision in laydown yards and SAPs will avoid the need for construction staff and visitors to park on side streets which will be actively discouraged (as required by the CTMP). The operation of these construction compounds and satellite offices will be managed through the CEMP and as detailed in the proposed conditions. Lastly, it is important to note that the construction laydown yards and SAPs will vary throughout the construction phases as active construction areas move along the Project's alignment, with each of these sites' traffic and parking demands appropriately managed through the CTMP.

9.4.1.4 *Effects on Pedestrians and Cyclists*

It is noted that the EB3C area does not currently feature any significant walking and cycling infrastructure, other than footpaths on either side of Tī Rākau Drive, Burswood Drive and the off-road shared cycle path in Burswood Esplanade Reserve. Signalised pedestrian crossings are present at the following intersections:

- Tī Rākau Drive/Trugood Drive western and southern approaches
- Tī Rākau Drive/Burswood Drive (west) northern and eastern approaches
- Tī Rākau Drive/Harris Road western and southern approaches
- Tī Rākau Drive/Burswood Drive (east) northern and eastern approaches
- Tī Rākau Drive/Greenmount Drive southern approach
- Tī Rākau Drive/Huntington Drive southern approach.

AT proposes to maintain existing pedestrian crossings, footpaths and shared paths, like that within Burswood Esplanade Reserve, for the duration of the construction period. If access to these facilities is temporarily disrupted due to construction activities, temporary facilities will be provided to maintain pedestrian and cycling safety. Wayfinding signage will also be provided to direct cyclists and pedestrians to safe pathways where construction is occurring. These measures will be provided for by way of the CTMP and are also addressed by the CCP.

9.4.1.5 *Effects on Bus Services*

Local bus services will also be affected by the construction works. The ITA has undertaken modelling to determine bus travel times in both eastbound and westbound directions at morning and evening peak periods. The following routes were assessed in the model:

- 70 – Botany Town Centre bus station to Ellerslie Panmure Highway/Clare Place intersection
- 351 – Botany Town Centre bus station to Tī Rākau Drive/Harris Road intersection
- 352 – Tī Rākau Drive/Harris Road intersection to Panmure bus station
- 353 – Botany Town Centre bus station to Tī Rākau Drive/Harris Road intersection.

The ITA's modelling results show delays to bus travel times during morning peaks and to some services (Bus Service 70 eastbound and 352 in both directions) during evening peaks. The 351 and 353 services (westbound) are predicted to experience moderate to relatively large increases in travel time during the AM peak. The 352 service (eastbound) is also predicted to experience a relatively large increase in travel time in the PM peak. As noted above, the modelling undertaken for determining bus travel times within EB3C includes traffic delays and diversions associated with concurrent construction of EB2 and EB3R. This includes:

- The addition of two new intersections to the network:
 - Tī Rākau Drive/William Roberts Road
 - Tī Rākau Drive/Aylesbury Street/Palm Avenue

- The closure of Reeves Road, likely causing more vehicles to divert onto Tī Rākau Drive and Pakuranga Road
- The cumulative impacts of construction within and alongside Tī Rākau Drive for EB2 (Pakuranga Road to SEART/Reeves Road), EB3R (Reeves Road/SEART to Gossamer Drive) and EB3C (Burswood Drive (west) to Guys Reserve).

As with general traffic delays, the ITA notes that:

- Tī Rākau Drive is currently a congested corridor and that increases in travel times are an unavoidable aspect of major transport projects when undertaken in active road corridors
- These delays are predicted to occur during the peak hours. Outside of these periods and for most of the day the network will experience lower levels of delay.

Furthermore, the AIMSUN models simulate a worst-case scenario and do not account for various changes in travel behaviour that could reduce the predicted delays. Changes in travel behaviour are also inherent in these types of transport construction projects, including travelling during off-peak hours, exercising flexible working options and alternate route selections. These changes will further reduce the effects associated with bus travel time delays.

The CCP, as required by the proposed conditions, details the public engagement mechanisms that AT will implement during the Project's construction. This could include the use of appropriate on-road messaging and communication to public transport users.

The ITA also notes that there are opportunities to improve bus travel times, including management of travel demand through the provision of site-specific traffic management plans (SSTMPs). Public communication and advanced warning will be given prior to planned works commencing, while signage will be displayed along affected road corridors to inform motorists of the works and potential delays. These measures under the CTMP will influence motorists' travel behaviour and help ameliorate adverse effects on bus travel times. These methods are commonly and successfully employed on other projects within the Auckland Region.

There are a number of school bus routes that will be affected (or require alternative boarding and alighting bus stops) by construction works within EB3C, including:

- S013 – Otara to Edgewater College
- S421 – Burswood to Farm Cove Intermediate, St Marks School and Wakaaranga School.

These school buses will detour along Elderberry Road and/or Torrens Road during the closure of Burswood Drive (east) and (west) intersections. The proposed detour routes are expected to add approximately 2 minutes travel time to the S013 and S421 inbound and outbound services during both the eastern and western Burswood Drive closures. Furthermore, the proposed alternative boarding and alighting bus stops are still expected to be within the recommended 5–10-minute walking catchment for most students in the Burswood area. The ITA notes that these effects are temporary and that when considering the overall construction programme, these temporary closures will be of a short duration. Based on these factors, and with the proposed mitigation measures in place, the ITA considers the temporary effects to these school bus services to be low.

Consultation will be undertaken with the affected schools and AT Metro, as required by the following proposed condition:

“Prior to construction, AT must undertake engagement with Edgewater College, Farm Cove Intermediate, St Marks School and Wakaaranga School to confirm a temporary bus route(s) and bus stops for Bus Services S013 and S421. The agreed outcome of this engagement and any changes must be recorded in the final Construction Traffic Management Plan, which must be submitted to Auckland Council for review before construction commences.”

9.4.1.6 Site Access and Parking

The ITA states that the Project’s construction is expected to be short in duration at any one location within EB3C. Furthermore, where the Project crosses access points, it will be constructed in a manner where there will be at least one operational access point to each commercial site or so that two-way movements can be accommodated within a single access point.

The new busway alignment will intersect Burswood Drive at two locations. The proposed construction methodology is to close each connection point one at a time to enable access through the alternative arm of Burswood Drive. Elderberry Road, which connects Burswood Drive west and Burswood Drive east, provides the option of a short detour route for residents. Residents at the northern end of the peninsula will be able to travel similar distances to exit onto Tī Rākau Drive. The construction of each Burswood Drive/Busway intersection is expected to take three months. Residents will be notified well in advance of the construction works and timeframes, as required by the CCP.

At Chinatown (262 Tī Rākau Drive) and adjoining commercial properties at 219,225,239 and 245 Burswood Drive, the new bidirectional cycleway will cross both access points. As such, the construction of the cycleway will be done in sections to ensure that vehicle ingress and egress can be maintained. Compared to the overall construction programme, the construction of the cycleway in this section of EB3C is expected to be short in duration (indicatively six months). AT has also offered the following conditions to address these access arrangements:

“The Requiring Authority must maintain at least one ingress and egress point at Chinatown (262 Tī Rākau Drive, Burswood) at all times. Any closures to these access points will only be for the construction of the cycleway. The Requiring Authority must advise the owners of the Chinatown site at least 10 days prior to any temporary closures.”

“Requiring Authority must ensure that at least one access point for each of the following properties is provided during construction to enable related ingress and egress movements, unless otherwise agreed with these parties:

- a) 219 Burswood Drive;
- b) 225 Burswood Drive;
- c) 239 Burswood Drive; and
- d) 245 Burswood Drive.

The Requiring Authority must notify the affected parties listed above of the temporary access arrangements at least 10 (ten) working days prior to related construction activities commencing.”

The new offline busway intersection with Burswood Drive east will be near the existing northern access of the Bunnings Botany. The access is currently used by loading vehicles to access the rear end loading area. During the estimated three-month closure of Burswood Drive east to construct the new intersection, the vehicle crossing is expected to be maintained as a left-in right-out only access. As the main regional route for larger sized vehicles (Tī Rākau Drive) is located to the south, most of the demand to and from this access would still be able to use the access during construction. To address this issue, AT has proposed the following condition to maintain access to the site:

“The Requiring Authority must maintain, as a minimum, left-in and right-out only access from Bunnings (320 Tī Rākau Drive) onto Burswood Drive (east) for the duration of EB3C’s construction.”

The new busway will cross both the existing western and the new eastern access points of the Howick and Eastern Bus Depot. The construction of the busway is expected to be completed in stages to ensure that vehicle ingress and egress can be maintained, with at least one access point open at any one time over the eight-month construction duration for the Busway. The existing Gull Botany Downs service station adjoining the Howick and Eastern Bus Depot currently has two vehicle crossings on Tī Rākau Drive. This service station will be closed and incorporated into the Howick and Eastern Bus Depot.

The construction of the Tī Rākau Drive westbound lanes, between Burswood Drive east and Te Koha Road, is expected to require the temporary closure of the accesses between the Amera Place service lane and Tī Rākau Drive (347 and 371 Tī Rākau Drive, 2 and 12 Amera Place). Although the service lane provides access to and from the four properties facing Tī Rākau Drive to the west of Huntington Drive, there are two direct access points to two of these properties (371 Tī Rākau Drive and 2 Amera Place) from Huntington Drive and a rear service lane which will maintain ongoing access to all these four properties. These alternative access points off Huntington Drive will be maintained during construction. The increase in travel distance to these access points is negligible for most demand to and from these properties. These access arrangements are anticipated for the Tī Rākau Drive westbound lane works that are expected to occur for approximately four months, starting in mid-2024. These properties’ owners will be notified in advance of the construction works and timeframes as per the CCP. Given this, the ITA considers that these temporary effects are low.

Overall, the ITA considers that these temporary effects to property accesses are very low, while it also notes that consultation with the property owners and tenants has been occurring and will continue in accordance with the proposed CCP.

In general, parking spaces at existing commercial premises will not be affected. The exception to this is at Chinatown (262 Tī Rākau Drive) and the Howick and Eastern Bus Depot. A portion of land will be acquired from Chinatown by AT to enable the construction of Bridge B and Busway. It is expected that 15 parking spaces would require temporary occupation by construction crews. In addition, the current refuse area, which occupies roughly 30m of the property boundary, would require relocation, resulting in a further temporary loss of an additional 14 parking spaces. In total, 29 parking spaces are expected to be occupied temporarily for an indicative duration of two years.

Based on the current surveyed maximum carparking utilisation of 69%⁸³, 63 spaces are still expected to be unoccupied on a typical weekday or weekend. Therefore, the ITA considers that the carpark has sufficient spare capacity and that the temporary effects to parking are low. Consultation with the property owners and tenants are ongoing. A temporary parking layout, including the relocation of the current refuse area will be developed and agreed with the owners/tenants as per AT’s proposed

⁸³ Page 105, Eastern Busway 3C, 4I and 4L ITA

conditions. The property owners will also be notified well in advance of the construction works and timeframes, as per the CCP.

It is expected that approximately 40 car parking spaces will be temporarily occupied at the Howick and Eastern Bus Depot for construction purposes during construction. However, it is given that the adjoining Gull service station has been acquired and could serve as a temporary carpark to mitigate the loss of parking during construction. Consultation with the property owners and tenants of this property are ongoing and will be notified in advance of the construction works and timeframes. A temporary parking layout will be developed and agreed with the owners/tenants to manage the temporary effects to parking, as required by AT's proposed conditions. Therefore, the temporary effects to parking are expected to be low.

9.4.1.7 Temporary Effects to Safety Performance

The safety and protection of the public, traffic and construction team is paramount, and all site operations will be focused on zero harm to all involved, associated and traveling through the Project area. This will be achieved by the following:

- Traffic management that separates the public/traffic operations, as well as managing and maintaining public and traffic flow entering and exiting the construction operations within the Project area
- Active communications with the local community and public travelling through the construction work zones via the CCP to ensure they will be regularly updated on temporary traffic management operations
- Before each work zone is ready to be opened following construction, an independent safety audit will be completed, and public notifications of the opening and new layouts will be made available.

These safety measures will be in place during construction as required by AT's CTMP condition.

9.4.1.8 Summary of Construction Transport Effects

Overall, the safety of all road users, pedestrians and cyclists will be a key consideration when undertaking the Project's construction activities. Road safety is explicitly stated in AT's proposed CTMP condition and will be provided for through the daily management of EB3C's construction activities.

Travel times from Botany to Pakuranga (both directions), Botany towards SEART (westbound) as well as from Howick to SEART (westbound) are predicted by modelling to experience moderate to relatively large increases during the AM peak, compared to the Do-Minimum. Similar increases are expected for the Botany to SEART (westbound) route in the PM peak. However, these increases in travel times are temporary and are not untypical for region shaping infrastructure projects. Furthermore, these levels of delay are predicted to occur during the AM and PM commuter peak hours. Outside of these periods and for most of the day, the transport network will experience lower levels of delay.

Also, the predicted increases in travel times are for the routes across the modelled network. Depending on their origins and destinations (e.g., the commercial areas in EB3C), many motorists will only be travelling on sections of the routes and may not experience the full effect of the predicted travel times.

The ITA has highlighted that while not all construction effects can be avoided, mitigation and appropriate management will avoid significant effects. This will include clear and timely communication to the community regarding temporary road closures, diversions and potential delays.

Based on these measures and the other controls that will form part of both the CTMP and CCP, the construction transport effects of EB3C will be no more than minor.

9.4.2 Noise

A Construction Noise and Vibration Effects Assessment (Appendix 15) has been undertaken for EB3C. The assessment has included fieldwork, modelling and consideration of the proposed construction methodology in light of potential effects on sensitive receivers (e.g., residential sites in Burswood).

The technical assessment has followed direction from the AUP(OP), specifically Rule E25.6.1(3)⁸⁴. The AUP(OP) also contains noise limits for construction noise, when considering effects on sensitive receivers⁸⁵. These limits are provided below in Table 9-2 and Table 9-3.

Table 9-2 AUP(OP) Noise Limits for Sensitive Receivers

Time of week	Time Period	Maximum noise level (dBA) > 20 weeks	
		L _{eq}	L _{max}
Weekdays	6:30am – 7:30am	55	75
	7:30am – 6:00pm	70	85
	6:00pm – 8:00pm	65	80
	8:00pm – 6:30am	45	75
Saturdays	6:30am – 7:30am	45	75
	7:30am – 6:00pm	70	85
	6:00pm – 8:00pm	45	75
	8:00pm – 6:30am	45	75
Sundays and public holidays	6:30am – 7:30am	45	75
	7:30 am – 6:00pm	55	85
	6:00pm – 8:00pm	45	75
	8:00pm – 6:30am	45	75

Table 9-3 Noise Limits for Non-Sensitive Receivers

Time period	Maximum noise level L _{Aeq} dB > 20
07:30 – 18:00	70
18:00 – 07:30	75

These noise limits have been compared to the potential noise sources during construction, as well as the undertaking of weekend and night-time works. Based on the construction methodology, the likely noise sources that will be present during construction are shown in Table 9-4.

⁸⁴ This rule states that “The noise from any construction activity must be measured and assessed in accordance with the requirements of New Zealand Standard NZS6803:1999 Acoustics – Construction noise”.

⁸⁵ Sensitive receivers include dwellings, medical facilities and schools.

Table 9-4 Construction Noise Sources and Levels

Site Activity	Equipment	Sound power level (dBA SWL)	Noise level dB L _{Aeq}			
			5m	10m	20m	50m
Site establishment (including utility works, demolition and clearing)	6-Wheeler trucks	107	85	79	73	65
	20Tn Excavator with rock breaker attachment	120	98	92	86	78
	Handheld concrete saw/chainsaw	115	93	87	81	73
	10Tn Excavator	107	85	79	73	65
	20Tn Excavator	107	85	79	73	65
	500kg Plate compactor	110	88	82	76	68
Earthworks and civil works	12Tn Steel roller compactor	107	85	79	73	65
	6-Wheeler trucks	107	85	79	73	65
	20T Excavator	107	85	79	73	65
	Mobile crane	106	84	78	72	64
Pavement construction (including surfacing)	6-Wheeler trucks	107	85	79	73	65
	Plate compactor, 500 kg	110	88	82	76	68
	Roller compactor, 12T	107	85	79	73	65
	Handheld concrete saw/chainsaw	115	93	87	81	73
	Bitumen sprayer	101	79	73	67	59
	Grader	99	77	71	65	57
	12Tn Double drum steel roller	107	85	79	73	65
	Concrete mixer truck	107	85	79	73	65
Bridge construction	Impact piling rig	120	98	92	86	78
	Gantry crane	95	73	67	61	53
	Large crawler crane	103	81	75	69	61
	Bored piling rig	111	89	83	77	69
	20T Excavator	107	85	79	73	65
	Concrete pump	103	81	75	69	61
	Concrete mixer truck	107	85	79	73	65
	6-Wheeler trucks	107	85	79	73	65

Using the above-mentioned construction equipment data, modelling was undertaken of EB3C's potential effects. The noise modelling indicates:

- Noise levels at 16 residential and 9 commercial receivers are predicted to exceed the daytime AUP(OP) criteria during the EB3C main works
- Noise levels at 2 commercial receivers are predicted to exceed the daytime AUP(OP) criteria during construction of Bridge A and Bridge B.

It should also be noted that, noise predictions that have been undertaken relate to the level of noise expected at the façades of existing buildings, though noise levels will be lower inside them given the

attenuation provided by their exterior walls. Noise attenuation will be influenced by the façade material, floor layout, locations of bedrooms and living areas, glazing and whether windows are left open or shut.

The residential receivers for the main works predicted exceedances are located at:

- 28 Burswood Drive
- 21 Dulwich Place
- 198 Burswood Drive
- 18 Heathridge Place
- 203 Burswood Drive
- 38 Heathridge Place
- 201 Burswood Drive
- 12 Tullis Place
- 25 Burswood Drive
- 10 Heathridge Place
- 6A Tullis Place
- 27 Burswood Drive
- 196 Burswood Drive
- 2 Torrens Road
- 34 Burswood Drive
- 11 Tullis Place.

The commercial receivers for main works predicted exceedances are located at:

- 245 Tī Rākau Dr
- 5/272 Tī Rākau Drive
- 380 Tī Rākau Drive
- 386 Tī Rākau Drive
- 22 Torrens Road
- 16 Torrens Road
- 1/28 Torrens Road
- 3/28 Torrens Road
- 5/28 Torrens Road.

It should be noted that these effects represent the noisiest possible scenario and are prior to mitigation being undertaken (i.e., no temporary noise barriers).

In addition, the noise assessment identifies that these noise levels will only occur when works are being undertaken as close as possible to receivers. Realistically, noise levels will quickly reduce as the works progress past affected sites and high noise generating activities are completed. Generally, noise levels of this kind can be tolerated, where there is adequate prior notification to sensitive receivers. Such notifications allow these receivers to plan for possible disturbance, as well as provide an opportunity for AT to understand whether any site-specific management measures are required. Such notification will be a key aspect of the Project's CNVMP and the CCP, as detailed in the proposed conditions (Appendix 5). This approach also follows industry best practice and is commonly employed on other infrastructure projects across the region.

Further to the above, the noisiest works are expected to be associated with rock breaking along the length of the Burswood busway section where basalt may be encountered. Works along this section may

involve the use of the concrete saw. It is also possible that the removal of basalt may require blasting. Given this the following conditions have been proposed to manage blasting related effects:

- *“Prior to commencement of production blasts (i.e., blasting that is undertaken as part of the construction process), trial blasts (i.e. preliminary blasts that occur prior to production blasts for the purpose of data acquisition), must be undertaken to determine how adverse effects will be managed and how compliance with Conditions 52, 53 and 54 will be achieved in production blasting. Trial blasts will determine site-specific attenuation characteristics, air overpressure levels and maximum instantaneous charge weight (MIC) thresholds. Outcomes must be documented in a Trial Blasting Report. This Trial Blasting Report must be used for subsequent design of production blasting.*
- *Air overpressure from all blast events must not exceed 120 dB L_{Zpeak} at the facade of any occupied building measured and assessed in accordance with the provisions of the Australian Standard AS 2187.2-2006 Explosives – Storage and use – Use of explosives.*
- *Air overpressure from blast events must not exceed 133 dB L_{Zpeak} at the facade of any unoccupied building measured and assessed in accordance with the provisions of Australian Standard AS 2187.2-2006 Explosives – Storage and use – Use of explosives.*
- *Unless a Schedule is approved under Condition 47 which sets out mitigation and management measures for blasting at specific buildings, including alternative blasting vibration standards at those buildings, vibration from all blasting activities must not exceed the limits set out in “German Industrial Standard DIN 4150-3:1999 Structural vibration – Part 3 Effects of vibration on structures” when measured in accordance with that Standard on any structure not on the same site as where blasting is occurring.*
- *For the purposes of Conditions 51 and 52 a building is deemed to be occupied if there are persons inside only during the blast event (i.e. if the occupants of a dwelling are not inside the dwelling during the blast event then the dwelling is deemed to be unoccupied).*
- *Blasts must be performed at set times during the daytime only, between 9am and 5pm, Monday to Saturday only. The set times for blasting must be set out in the CNVMP, as per Condition 53.*
- *Vibration and air overpressure level predictions must be performed prior to every blast event. If exceedances of the criteria set out in Condition 60 are predicted, then the blasting methodology must be adjusted prior to the blast to ensure the criteria will be complied with. Blasting must not be carried out where overpressure levels are predicted to be above the Project Standards in Conditions 51 and 52 at any building. Blasting must not be carried out where vibration levels are predicted to be above the project standards in Condition 60 at any building.”*

Modelling was also undertaken to identify potential noise levels associated with bridge piling given its potential high noise effects (Table 9-5). This modelling showed that only two commercial sites could be potentially affected by this piling, with all other piling related noise levels predicted to comply at other receivers. As with other high noise generating activities, AT propose to manage these potential noise effects by using a CNVMP and schedules. This approach will also include early engagement with the owner/occupiers of these sites prior to piling.

Table 9-5 Piling Noise Modelling Results

Address	Name	Use	Noise Level, dB L _{Aeq}
245 Tī Rākau Drive	Woodbine Marine Ltd/ AFC Group Holdings Ltd/ AFC Biotechnology Manufacturing Co Ltd	Commercial	74
249 Tī Rākau Drive	Swimart Pool and Spa Services Pakuranga/ Family Boats/ Photofans	Commercial	72

Given the proximity of works to numerous sensitive receivers, including residences within the Burswood community, with the exception of house relocation works, night-time works are not currently planned along the Burswood section of the EB3C alignment. Night works for EB3C are planned along Bridge A and Bridge B, and on the Tī Rākau Drive section of EB3C.

Modelling has been undertaken to predict potential noise effects from night works. This modelling showed that the AUP(OP) night-time noise levels is predicted to be exceeded at:

- 32 residential properties during night-time long weekend works
- 226 residential properties in EB3C during night-time pavement works
- 77 residential properties in EB3C during night-time bridge construction works.

Equipment that may be used during the night works include:

- Pavement works
 - Concrete saw
 - Paver
 - Compaction equipment (7T roller compactor)
 - Excavator
- Concrete pours for bridges
 - Concrete truck
 - Concrete pump
- Long weekend works
 - Excavator with rock breaker attachment
 - Paver
 - Compaction equipment
- Relocation of existing houses
 - Removal trucks.

AT has sought to restrict night-time works to where they cannot practicably take place during the daytime. This includes activities that would otherwise cause significant congestion effects due to lane closures, safety constraints and/or to meet quality assurance requirements. It is likely that residents will only be disturbed for a short-term period where there will be peaks in noise from active construction sites. As the construction works progress along the EB3C alignment, the noise levels will continue to reduce for individual receivers. Regardless, AT will manage these works through a CNVMP, as well as schedules where site-specific measures are required. Communication on these night-works will also be governed through the CCP.

The duration of night works will also be limited where possible, with the use of the noisiest equipment (e.g., concrete saw, rock breaker) being restricted to usage before 10pm (where practicable). The noisiest equipment will only be used if there are no other suitable alternative construction methods. Where this is not practicable, relocation of the worst-affected residential receivers during the night-time will be provided for. The noisiest equipment will not be used in proximity to the Burswood section of the EB3C alignment during night-time hours.

Finally, the Construction Noise and Vibration Effects Assessment (Appendix 15) has considered potential noise effects generated by the construction laydown yards. No receivers are expected to receive noise levels above the daytime construction noise levels during their establishment or daytime operations. While both yards may be operated, at times, during night-time hours, the noise assessment found that while noise levels may be exceeded the level and character of the noise will be similar to that experienced at nearby residential receivers when heavy vehicles pass by on Ti Rākau Drive during the night time hours (10pm – 7am).

These nearby residential receivers are:

- 28 Burswood Drive
- 21 Dulwich Place
- 198 Burswood Drive
- 18 Heathridge Place
- 203 Burswood Drive
- 38 Heathridge Place
- 201 Burswood Drive
- 12 Tullis Place
- 25 Burswood Drive
- 10 Heathridge Place
- 6A Tullis Place
- 27 Burswood Drive
- 196 Burswood Drive
- 2 Torrens Road
- 34 Burswood Drive
- 11 Tullis Place.

Again, the operation of the CSAs will be subject to the CNVMP and schedules (when needed), as well as the CEMP.

In summary, in order to manage noise effects, AT propose to employ a CNVMP, as well as a requirement for site-specific Schedules where the Project's noise standards cannot be met. In addition, there is crossover with the consultation requirements of the CCP to manage potential noise effects on the community. To further elaborate, a range of management measures will be employed, including:

- Managing times of activities to avoid night works and other sensitive times
- Liaising with neighbours to identify any clashes with construction sequencing
- Selecting equipment and methodologies to restrict noise
- Using screening/enclosures/barriers
- Temporary noise barriers
- Employing additional measures and consultation for any night works.

The noise mitigation measures proposed for EB3C have been incorporated into its proposed conditions set which also includes the process for preparing the CNVMP. At a minimum, the CNVMP will include the matters set out under Standard E25.6.29.(5) of the AUP(OP)⁸⁶.

Given the above assessment, the proposed mitigation and further engagement planned, the temporary construction noise effects of EB3C will be no more than minor.

9.4.3 Construction Vibration

The Construction Noise and Vibration Effects Assessment (Appendix 15) details the relevant AUP(OP) vibration standards as they apply to both amenity and building damage⁸⁷, with these standards shown in Table 9-6.

Table 9-6 AUP(OP) Vibration limits in Buildings

Receiver	Period	Peak Particle Velocity (PPV) mm/s
Occupied activity sensitive to noise or vibration	Night-time 10pm to 7am	0.3
	Daytime 7am to 10pm	2.0
Other occupied buildings	At all times	2.0

The AUP(OP) allows under Standard E25.6.30.(1) for any works generating vibration for three days or less between the hours of 7am to 6pm to exceed the limits in Table 9-6, as long as a limit of 5 mm/s peak particle velocity in any axis when measured in the corner of the floor of the storey of interest for multi-storey buildings, or within 500mm of ground floor level at the foundation of a single storey building, is not exceeded. In such circumstances, EBA is required to advise all occupied buildings within 50m of the extent of the works generating vibration in writing no less than three days prior to the vibration-generating works commencing.

Further to the AUP(OP) vibration limits and standards, the Construction Noise and Vibration Effects Assessment has also considered German Standard “DIN 4150-3:1999 – Structural Vibrations: Effects of Vibrations on Structures”, British Standard “(BS) 5228-2: 2009 “Code of practice for noise and vibration control on construction and open sites” and AT’s “Construction Vibration Criteria”. The Construction Noise and Vibration Effects Assessment has applied these standards to the proposed construction methodology, including the equipment detailed in Table 9-7.

⁸⁶ This includes:

- (a) details of the community consultation to be undertaken to advise the occupiers of properties located within 100m of the proposed works of all of the following:
 - (i) the area affected by the work;
 - (ii) why the work is required to be undertaken at night (where relevant);
 - (iii) the times and days when the noise and vibration is likely to be generated;
 - (iv) a contact name and number of the works supervisor who can be contacted if any issues arise; and
 - (v) how noise and vibration complaints will be managed and responded to.
- (b) a description of the works and its duration, anticipated equipment to be used, the processes to be undertaken and the predicted noise and vibration levels;
- (c) identification of the best practicable options that will be undertaken to mitigate and minimise any noise and vibration being produced that is likely to exceed the relevant levels.

⁸⁷ Rule E25.6.30 details these vibration standards.

Table 9-7 Vibration sources and Indicative Emission Radii

Equipment	DIN 4150 short-term emission radii		Daytime amenity criterion (2 mm/s)	Night-time amenity criterion (0.3 mm/s)	
	Commercial (20 mm/s)	Residential (5 mm/s)	Historic/ Vibration sensitive (3 mm/s)		
Roller compactor (12 Tn)	2m	8m	14m	21m	N/A
Roller compactor (7 Tn)	1m	6m	8m	12m	45m
20 Tn excavator	1m	5m	8m	12m	N/A
30 Tn excavator	1m	5m	8m	12m	N/A
Tipper truck	1m	1m	2m	2m	16m
Vibratory plate compactor	1m	1m	2m	3m	21m
Excavator with rock breaking attachment (EB3C only)	2m	7m	12m	18m	N/A
Driven steel tubular piling (EB3C only)	6m	22m	36m	54m	N/A

In general, the worse-case source of vibration will be the roller compactor where any receiver within a 21m radius of the construction area may experience vibration of 2 mm/s inside their property. Whilst at this level building damage is highly unlikely to occur, human perception may result in slight concerns but can generally be tolerated if the activity occurs intermittently and with prior notice. It is also noted that 0.3 mm/s vibration limits could be felt up 140 m from construction areas. Such vibration could be perceivable to occupiers, especially during night-time when other vibration sources (i.e., traffic) is not present.

Modelling undertaken for the Project and based on the methodology/effects above, indicates 15 residential dwellings may experience vibration levels 2 mm/s if a roller compactor is used on the construction boundary in the closest position. Once the compactor is 8 m away from the dwellings, then less than 2 mm/s would be experienced. The Construction Noise and Vibration Effects Assessment also found that no commercial buildings may experience vibration levels above 20 mm/s PPV, exceeding the DIN 4150 commercial building criterion, if a roller compactor is used within 2m of the building. Lastly, all bridge piling for temporary staging of the bridges has been modelled to show compliance with exceedances of DIN 4150's commercial and residential vibration criteria.

However, to address these potential construction vibration effects, AT propose the following measures:

- Managing times of activities to avoid night works and other sensitive times
- Liaising with neighbours so they can work around specific activities
- Operating vibration generating equipment as far from sensitive sites as possible
- Selecting equipment and methodologies to minimise vibration

- Undertaking pre and post works building inspections at properties where the 2 mm/s limit may be exceeded.

As detailed in section 9.4.3, blast specific conditions have been proposed to address the potential effects associated with that activity. In order to address vibration generated from blasting, AT have proposed the following condition (Appendix 5):

- *Prior to commencement of production blasts (i.e., blasting that is undertaken as part of the construction process), trial blasts (i.e. preliminary blasts that occur prior to production blasts for the purpose of data acquisition), must be undertaken to determine how adverse effects will be managed and how compliance with Conditions 50, 51 and 52 will be achieved in production blasting. Trial blasts will determine site-specific attenuation characteristics, air overpressure levels and maximum instantaneous charge weight (MIC) thresholds. Outcomes must be documented in a Trial Blasting Report. This Trial Blasting Report must be used for subsequent design of production blasting.*
- *Air overpressure from all blast events must not exceed 120 dB LZpeak at the facade of any occupied building measured and assessed in accordance with the provisions of the Australian Standard AS 2187.2-2006 Explosives – Storage and use – Use of explosives.*
- *Air overpressure from blast events must not exceed 133 dB LZpeak at the facade of any unoccupied building measured and assessed in accordance with the provisions of Australian Standard AS 2187.2-2006 Explosives – Storage and use – Use of explosives.*
- *Unless a Schedule is approved under Condition 47 which sets out mitigation and management measures for blasting at specific buildings, including alternative blasting vibration standards at those buildings, vibration from all blasting activities must not exceed the limits set out in “German Industrial Standard DIN 4150-3:1999 Structural vibration – Part 3 Effects of vibration on structures” when measured in accordance with that Standard on any structure not on the same site as where blasting is occurring.*
- *For the purposes of Conditions 50 and 51 a building is deemed to be occupied if there are persons inside only during the blast event (i.e. if the occupants of a dwelling are not inside the dwelling during the blast event then the dwelling is deemed to be unoccupied).*
- *Blasts must be performed at a set times during the daytime only, between 9am and 5pm, Monday to Saturday only. The set times for blasting must be set out in the CNVMP, as per Condition 45.*
- *Vibration and air overpressure level predictions must be performed prior to every blast event. If exceedances of the criteria set out in Condition 52 are predicted, then the blasting methodology must be adjusted prior to the blast to ensure the criteria will be complied with. Blasting must not be carried out where overpressure levels are predicted to be above the Project Standards in Conditions 50 and 51 at any building. Blasting must not be carried out where vibration levels are predicted to be above the project standards in Condition 52 at any building.*

Given the above assessment, the proposed mitigation and further engagement planned, the construction vibration effects of EB3C will be no more than minor.

9.4.4 Erosion and Sediment Management

Land disturbance will occur during the following construction activities:

- Site clearance
- Reworking of existing road and hard stand areas
- Construction of new embankments and road corridors
- Construction of the two bridges within the coastal marine area
- Installation of utilities via trenching
- Stormwater outfall construction.

Earthworks are limited consisting of approximately 15,000m³ cut and 17,550m³ fill over an area of 25,000m².

The Erosion and Sediment Control Effects Assessment (Appendix 17) has identified that there is limited environmental risks associated with the planned land disturbance. This is primarily due to the existing flat gradient of much of EB3C's alignment, particularly through Burswood. This reduces the overall quantum of earthworks required and associated potential erosion risk during rainfall events. In addition, many of the work areas will involve reworking existing developed land (paved and buildings) such that subgrades exposed may be non-erodible hardfill. AT has also proposed to stage earthworks, thereby minimising the exposed areas of active earthworks at any one time.

All land disturbance will be undertaken in accordance with GD05. This includes the preparation of an ESCP detailing the specific erosion and sediment control works for each relevant Project stage⁸⁸ (location, dimensions, capacity) in accordance with industry best practice, as well as GD05:

- Preparation of the ESCP by a suitably qualified and experienced person (SQEP)
- Supporting calculations and design drawings
- Details of construction methods
- Monitoring and maintenance requirements
- Catchment boundaries and contour information
- Details relating to the management of exposed areas (e.g., grassing, mulch).

Chemical treatment will be employed, where appropriate. This is also addressed by the proposed conditions, which require the preparation of a chemical treatment management plan (ChTMP). This management plan will be required to detail the chemical treatment set up, as well as include all relevant batch dosing information as part of dewatering operations. Similarly, any related decanting earth bunds (DEBs) will be required to be chemically treated in accordance with that management plan.

In addition, site-specific ESCPs (ssESCPs) will also be prepared, where required. Site specific plans may be required where works are occurring in proximity to sensitive receiving environments, for example the stormwater outfall works. The ssESCPs will be required to include the following details:

⁸⁸ I.e., EB3C.

- Contour information
- Erosion and sediment control measures for the works being undertaken within a particular construction area
- Chemical treatment design and details
- Catchment boundaries of works and devices installed
- Location of the work
- Details of construction methods
- Design criteria, typical and site-specific details of erosion and sediment control
- Design details for managing the treatment, disposal and/or discharge of contaminants (e.g., concrete wash water).

This hierarchy of erosion and sediment control measures is shown in Figure 9-4.

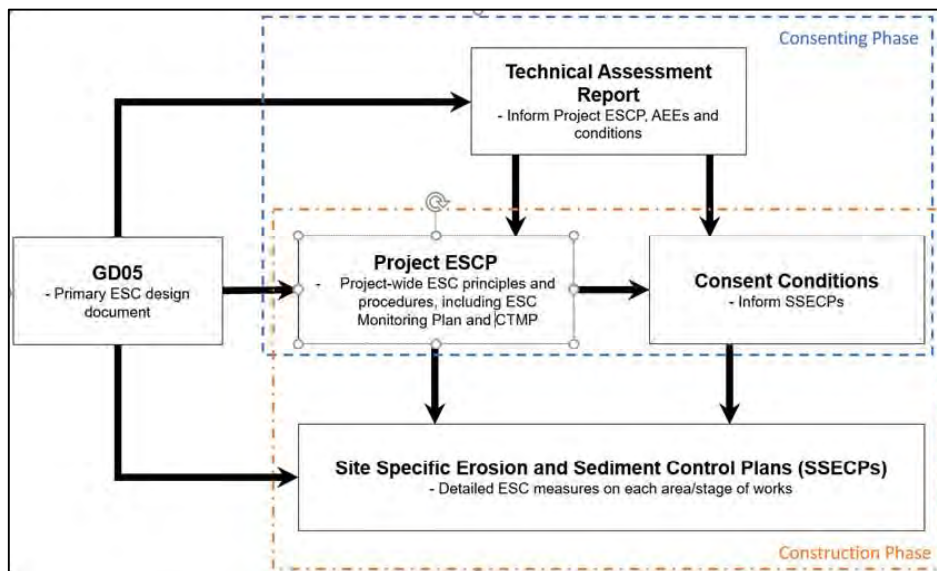


Figure 9-4 Erosion and Sediment Control Management Plan Hierarchy.

Further measures include undertaking progressive staged earthworks and regular inspections of controls. The ESCP will be required to be certified prior to works commencing, as well as on-site certification by a SQEP once installed. In addition, AT have offered a review condition in the conditions set to enable additional erosion and sediment controls to be imposed (if needed).

In addition to the ESCP, other earthworks related measures will be employed. This includes the use of a CLMP to address potential soil contamination, detailed in section 9.4.10.

With respect to dust management, it is not anticipated that a large volume of land disturbance will need to be undertaken due to the flat topography within most parts of the EB3C project area. The exception to this is where the busway runs between Burswood Drive (east) and Guys Reserve, given the fill required to provide an 'at-grade' busway alignment.

As mentioned above, land disturbance will be undertaken in a progressively staged manner which is expected to reduce the amount of dust generated. In addition to this, water trucks will be used to dampen exposed soil areas and stockpiled materials if they are to eventuate (although this is unlikely). Stockpiling will also be minimised to avoid dust generation, while AT propose to undertake regular monitoring of construction areas to ensure appropriate dust management measures have been

employed. Regardless, AT propose the following air quality conditions as part of the EB3C proposed resource consent conditions:

“Discharges of dust must not cause offensive or objectionable effects at any location beyond the boundary of the Site, in the opinion of an enforcement officer when assessed in accordance with the “Good Practice Guide for Assessing and Managing Dust” (Ministry for the Environment, 2016). The Consent Holder must ensure that dust management during the works generally complies with the recommendations of this Good Practice Guide and minimises dust generation as far as practicable. This includes having sufficient water to dampen exposed soil and unsealed areas, and/or other dust suppressing measures detailed by the ESCP, available as necessary.”

“The Consent Holder must undertake targeted community monitoring during all land disturbance activities for the Eastern Busway Project (Package EB3C). This monitoring must include:

- a) *Visual monitoring, such as:*
 - i. *Regular checking of internal and external access road surfaces for tracked dust that requires cleaning;*
 - ii. *Checking the effectiveness and maintenance of truck rumble grids and wheel wash;*
 - iii. *Checking the integrity of shelter fences;*
 - iv. *Inspecting surfaces outside the site boundary near sensitive receptors for signs of dust deposition;*
 - v. *Observing whether there is visible dust suspended in air carrying beyond construction site boundary; and*
 - vi. *Using closed-circuit television (CCTV) monitoring (or similar, potentially connected to the boundary instrumental monitoring to start video recording when alert thresholds are exceeded) of boundaries and/or dust sources.*
- b) *Fenceline instrumental monitoring at the northeast boundary of the main construction zones, such as with Dustrak or SiteHive.”*

“In order to undertake the above detailed monitoring in Condition 31, the Consent Holder must undertake the following:

- a) *Place monitoring equipment downwind of the construction areas under the prevailing wind direction, to the northeast of any construction compounds or construction activities involving earthworks or fill activities with heightened risk of dust emissions;*
- b) *Move monitoring equipment as the construction programme progresses and the locations of dust-generating activities changes;*
- c) *Regularly review monitoring data to assess the effectiveness of dust controls and identify any additional mitigation required; and*
- d) *Ensure the monitor equipment has the capability to send alarms to site managers if dust concentration thresholds are exceeded. These thresholds are to be adjusted and determined on a site-specific basis depending on the sensitivity of the immediate receiving environment.”⁸⁹*

⁸⁹ The advice note for this condition states:

“The air quality monitoring required by Conditions 31 and 32 may be incorporated by the Requiring Authority in the ESCP (Condition 13).”

Based on the above measures and AT's proposed conditions, effects associated with land disturbance within EB3C will be minor.

9.4.5 Effects on Terrestrial Ecological Values

The Terrestrial and Freshwater Ecological Effects Assessment (Appendix 27) sets out the terrestrial ecological values within the EB3C area. As an existing urbanised area and as detailed in Section 6 of the AEE, there is little natural habitat present for native fauna. What habitat that exists is fragmented and subject to competition and predation by introduced species, such as cats. The EB3C area does not have any native bats as confirmed by a bat survey, nor significant numbers of at-risk native birds within a 5km radius. The Terrestrial and Freshwater Ecological Effects Assessment has identified the high likelihood that native lizards will be present. They are most likely to be found at vegetated locations, such as sites identified for stormwater outfall works (i.e., riparian margins).

To address the potential effects on native lizards, a Lizard Management Plan (LMP) will be prepared and implemented during construction. The proposed conditions of consent require the LMP to address the following:

- Details of search methods to be implemented for capturing arboreal and ground-dwelling native lizards prior to any construction activities in any of the prescribed areas within the EB3C works area
- Mechanisms for re-establishing affected lizard habitat
- Locations for the potential release of lizards, including whether a pest control programme for before and after the release of lizards is necessary and, if so, the details of such a control programme
- The methodology for any post-capture release of lizards
- The methodology for captive management of lizards if they are required to be held in captivity.

The management plan also requires the re-establishment of lizard habitat, which will involve new plantings under a Habitat Restoration Plan (HRP) linked to the development of the UDLP. The final location and quantum of new plantings will be determined following further engagement with AC Community Facilities, given that some of these plantings are likely to be undertaken within Council reserves. The HRP will also entail further engagement with mana whenua to ensure cultural values are incorporated. These measures are addressed in AT's proposed conditions (Appendix 5 and Appendix 6).

Further to the LMP, the Terrestrial and Freshwater Ecological Effects Assessment has recommended that vegetation removal is not undertaken during bird nesting season (September to February). Where these months cannot be avoided, the assessment recommends pre-construction nesting bird surveys should occur. This approach will protect any native birds and is required in accordance with the following proposed condition:

“Vegetation must not be removed between 1 September and 28 February (bird nesting season) unless the matters below have been undertaken:

- a) A suitably qualified ecologist (the ‘project ecologist’) has completed a survey at least one week before any vegetation is to be cleared to ensure that there is no active native bird nesting occurring at the time; and*

b) *If any active nests of native birds are recorded within the vegetation scheduled for removal, vegetation clearance may not be undertaken until the birds have finished fledging. The project ecologist must monitor the birds until they have finished fledging and provide written confirmation to the clearance contractor when clearance may commence.”*

In addition, the ecological assessment states that there are potential indirect effects associated with EB3C construction activities, including:

- Dispersal of invasive plant species
- Potential changes to the physiochemical characteristics of local soil conditions
- Increased pesticide use
- Generation of dust.

While the assessment determined that the scale of these indirect effects would be negligible, it is noted that dust management will form part of the ESCP, while any pest plant management will be incorporated into the HRP.

Based on the above measures and the proposed construction methodology, the construction effects on terrestrial ecology will be minor.

9.4.6 Effects on Freshwater Ecological Values

The Terrestrial and Freshwater Ecological Effects Assessment (Appendix 27) sets out the freshwater ecological values within the EB3C area. The assessment has identified that three new or upgraded stormwater outfalls and a new stormwater network connection are located within the riparian extent of local streams and wetlands.

As identified in Section 6, 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 (*Gambusia affinis*) and goldfish (*Carassius auratus*). Two at-risk declining species, include inanga (*Galaxias maculatus*) and longfin eel/tuna (*Anguilla diffebachia*) are found within the Burswood Esplanade Reserve and Guys Reserve.

The Project requires earthworks and vegetation clearance within riparian margins, with the potential to adversely affected the related ecological values. Firstly, regarding earthworks, the total quantum of earthworks in riparian margins has been minimised as far as practicable. However, some earthworks at these locations are unavoidable given the works proposed. Accordingly, AT proposes to use ssESCPs where works are occurring in riparian margins. These management plans will include the erosion and sediment controls that will be employed to avoid the discharge of sediment from active work areas. These ssESCPs will require certification from Auckland Council prior to their implementation and will include bank stabilisation measures. It is noted that vegetation clearance has the potential to destabilise stream banks, as well as remove shading for freshwater bodies. Given this, the landscape, ecological, arboriculture mitigation plans (LEAM) for EB3C include restoration plantings that are focused within affected riparian margins.

Some works for the new and upgraded outfalls will be required within the wetted areas of these freshwater environments. These works have the potential to directly affect native fish and other aquatic species. Given this, AT have proposed the following resource consent conditions:

- A requirement for the preparation of a Native Fish Capture and Relocation Plan (NFCRP), which will require certification by Auckland Council prior to the commencement of the related streamworks
- A requirement for a suitably qualified and experienced freshwater ecologist to identify Fish Spawning Habitat within stream work areas. This will be followed by the preparation of drawings of dam and diversion works and their submission to Auckland Council prior to any works.
- To protect downstream fish (inanga) spawning habitat, streamworks will be prohibited within or downstream of any Fish Spawning Habitat areas during the spawning season (March to June inclusive).
- Unless otherwise agreed in writing by the Council, the construction of the erosion and scour protection and associated streamworks must be completed to the stage of finalised re-vegetation and/or stabilisation of stream beds within a 5-day period from the commencement of the activity.
- All exposed work areas associated with the streamworks, including the bed and banks of the stream and any adjacent overland surface flow paths (for normal flows at the time of year the works are undertaken) must be stabilised at the end of each construction day.
- Any pumps used to dewater the stream will be required to have 3mm mesh screen to prevent fish from entering the pump. Pumps will also be elevated to avoid pumping of sediments from the stream bed.
- All pumps used to dewater the stream must have a 3mm mesh screen to prevent fish from entering the pump and be elevated to avoid pumping of sediments from the stream bed.
- A prohibition on machinery entering the wetted cross section of streambeds. This machinery will also be operated in a manner to avoid the discharge of any hazardous substances (e.g., fuel), from entering streams or wetlands.
- In the event that any discharge occurs, works must cease immediately, and the discharge must be mitigated and/or rectified.
- A restriction on concrete or grout pouring within wetted stream beds.
- The use of construction materials, such as concrete products or grout, must only occur outside the wetted cross section of the bed of the stream. Any mixing of construction materials must occur outside the 100-year floodplain and using methods so that if a spillage does occur it will be contained to avoid it entering the waterbody.

These measures are considered comprehensive and appropriate for the scale of works proposed in proximity or within freshwater environments. The proposed conditions have been developed from those for EB3R, which will aid in consistent implementation of protective measures across the Project. In addition, the proposed landscaping will assist in mitigating the vegetation clearance required within riparian margins.

As such, the freshwater effects arising from EB3C's construction will be minor.

9.4.7 Effects on Coastal Ecological Values

As noted in the Marine Ecology and Coastal Avifauna Effects Assessment (Appendix 28), both temporary and permanent activities are proposed within the coastal environment. This includes work below MHWS (i.e., the CMA), as well as the foreshore and above MHWS. These activities are associated with the two new bridges, two areas of reclamation and stormwater outfall construction.

These activities will require vegetation clearance and the disturbance of soil/sediment. The construction of EB3C's two bridges (Bridge A and B) will involve 812m² (191m² (Bridge A) and 621m² (Bridge B))⁹⁰ permanent occupation of the CMA and 45m² (23m² and 22m² for Bridge A and Bridge B respectively) temporary occupation of the CMA for bridge staging, which is a small proportion of the abundant coastal mangrove wetland habitat within Pakuranga Creek⁹¹. Within the calculation for permanent occupation of Bridge A is 147m² of scour protection, which is yet to be confirmed if it is required.

Vegetation clearance for the permanent Bridges and temporary staging structures in the CMA will be 67m² for Bridge A and 643m² for Bridge B giving a total of 710m². The retaining wall (RW304) will require 4m² of permanent occupation, 70m² of temporary occupation and 70m² of vegetation removal.

In the CMA, two new stormwater outfalls⁹² will be constructed, plus two existing outfalls will be upgraded (MCC_108479, 01A-1, 09-1 and MCC_108409). The four stormwater outfalls⁹³ are located in mangrove habitat within the Project Zone of Influence, as described in the Marine Ecology and Coastal Avifauna Effects Assessment (Appendix 28). The total area of CMA that is predicted to be adversely affected by temporary and permanent occupation for stormwater outfalls/structures is 400m² and 100m², respectively, which the Marine Ecology and Coastal Avifauna Effects Assessment (Appendix 28) considers is a small proportion of the abundant coastal wetland habitat within Pakuranga Creek. Removal of vegetation (including mangroves) is required for the proposed works associated with these outfalls in the CMA due to temporary and permanent occupation of CMA for construction (total of 400m² for construction reducing to 100m² (25m² each) permanent footprint for the outfall structures)⁹⁴.

Overall, these coastal works will be subject to a Coastal Works Management Plan (CWMP), which will require:

- a) *"An outline of the construction programme of the work including construction hours;*
- b) *Confirmation of the construction methodology, including:*
 - i. *Installation of temporary structures*
 - ii. *Details of the scour modelling undertaken and confirmation if scour protection is required around the piles of any bridge structures (and in particular, Tī Rākau Drive Bridge (Bridge A));*
 - iii. *Plans and a methodology for scour protection if modelling determines it is required;*
 - iv. *Plans (including dimensioned cross sections, elevations, and site plans) of any temporary structures in the CMA during the construction;*
 - v. *The piling methodology for the bridge;*
 - vi. *A works methodology to upgrade existing and to construct any new stormwater outfalls;*
 - vii. *Methods to remedy any disturbance resulting from works;*

⁹⁰ This includes 549m² of reclamation (two areas of 211m² and 338m² each), 8m² of piles and 64m² of rip rap.

⁹¹ Table 4, Construction Methodology.

⁹² MCC_108479 is effectively a new outfall construction, as the old outfall will be demolished and removed, and a new outfall will be constructed.

⁹³ This includes two new stormwater outfalls, and upgrades to two existing stormwater outfalls.

⁹⁴ Table 4, Construction Methodology.

- viii. *Methodology for removal of temporary piles associated with temporary access/support and any existing structures if required; and*
 - ix. *Methods for the removal and disposal of mangroves.*
- c) *Site management, including details of:*
- i. *Site access including methods to identify and delineate all entry and exit points to and from the CMA;*
 - ii. *Measures to maintain the construction site in good order;*
 - iii. *Measures for spill management*
 - iv. *Measures for minimising discharges to and remobilisation of sediment in the CMA; and*
 - v. *Site clean-up and remediation following works completion including the replanting of mangroves.*
- d) *Marine and banded rail/moho pererū habitat restoration works as shown on the LEAM plans listed in Condition 1, including:*
- i. *Removal of pest plants from within an area of 5,740m² within the coastal margins of Pakuranga Creek followed by-planting of native coastal edge vegetation that provide suitable habitat for banded rail to nest in, such as rushes and sedges (e.g. oioi (*Apodasmia similis*), sea rush (*Juncus kraussii* subsp. *australiensis*, *Carex secta*, *Carex geminata*, etc)) and coastal shrubs (e.g. saltmarsh ribbonwood (*Plagianthus divaricatus*);*
 - ii. *Removal of rubbish from the coastal environment of Pakuranga Creek (approximately 1,480m² of mangrove habitat and 5,740m² of coastal vegetation);*
 - iii. *Pest plant removal, native planting and rubbish removal described in this Condition 70(d)(i) and (ii) to occur annually for three years post-construction of Bridge A, Bridge B and related embankments;*
 - iv. *Following the completion of planting required by Condition 70(d), maintenance measures to occur for a period of three years.”*

Vegetation clearance will occur within a SEA-M2, primarily affecting mangroves and other coastal margin vegetation (including pest species). This vegetation is not assessed as having any notable biodiversity values despite being located within a SEA-M2 overlay, in part to the common nature of the vegetation affected and the remaining foraging habitat available for native bird species in the wider area. As such, the removal of this vegetation is anticipated to have low to very low overall effect on coastal ecological values.

The piling for temporary bridge staging structures and permanent bridge piles, stormwater outfall vegetation clearance and construction works may result in effective foraging habitat loss resulting from disturbance and displacement. However, given the small, discrete locations of work, temporary nature of construction, the extensive alternative areas of foraging habitat that remain available within the wider area, plus the highly mobile nature of species potentially affected (i.e. ability to move to suitable, alternative habitat if disturbed or displaced), it is considered that potential habitat disturbance and displacement during construction works will have a negligible effect on the majority of coastal avifauna. However, there are potential effects on banded rail/moho pererū. While no birds of this species were observed during ecological field work for the Project, the Marine Ecology and Coastal Avifauna Effects Assessment (Appendix 28) does highlight the importance of mangrove habit for the species and considers that they could occasionally forage in the Zone of Influence of the Project. Given this, AT propose to undertake habitat restoration works, which are shown on the LEAM plans.

These habitat restoration works will occur post-construction and include undertaking landscaping using native vegetation along the coastal fringe of EB3C that are suitable for banded rail to nest in. This landscaping will be maintained by AT for a period of three years (post