

Appendix O Traffic

Technical Memorandum

Subject: ARL Transition Project – Transportation Assessment

Reference No: 24113

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1 Introduction

Don McKenzie Consulting Ltd has been engaged by WM New Zealand (“**WMNZ**”) to provide technical assessments to understand the effects from a proposal to reconsent Redvale Landfill, north of Auckland.

Redvale Landfill is currently scheduled to cease accepting waste in December 2028 and due to a delay in the authorisation and establishment of the replacement Auckland Regional Landfill (“**ARL**”) a transition plan is required. The proposal is to continue sending the current residual waste (around 600,000 tonnes per year) to Redvale Landfill, beyond the existing consent limit of December 2028. This would require new resource consents at Redvale Landfill.

To accommodate the on-going placement of waste at Redvale Landfill beyond 2028, the proposed works will involve the following:

- **Revised final surface profile of the existing landfill:** The current final design landfill ground profile varies but is less than 1V:3H across the footprint. That ground profile will be steepened up to a maximum grade of 1V:3H, to allow placement of additional waste within the existing landfill footprint. Bunds, varying in height between 2 and 6 m, will be constructed along the eastern and southern boundaries to accommodate the required additional waste volumes.
- **Class 2 extension:** The landfill is proposed to be extended to the south-west of the current landfill boundary, within the area currently occupied by the of the now decommissioned Managed Fill and Pond 6. The extension will comprise the excavation and lining of a new landfill cell, allowing the acceptance of waste that meets the Class 2 waste acceptance criteria, which will be constructed in a manner similar to the already constructed cells within the current landfill.
- **Relocation of ancillary activities:** the relocation of ancillary activities to allow for the placement of waste.
- **Sediment Retention Ponds:** The removal and filling in of Sediment Retention Pond 6 and the Office Pond while enlarging Pond 1 to capture and treat the stormwater from these catchments.

This memo provides an outline of the initial findings of the Transportation Assessment relating to the external traffic effects arising from of the above changes and continuation of the consented level of generated traffic movement to and from the public road network beyond Redvale Landfill. It has been prepared for inclusion in an application for Ministerial referral of the project under the Fast-track Approvals Act 2024. Specifically, this technical memorandum responds to the requirements under section 3.4 of the Fast-track Approvals Referral Application Form. A full description of the draft proposal is included in the accompanying information attached to the application form for the referral.

2 Summary of findings

WMNZ's Redvale Landfill site lies on the northern side of Dairy Flat Highway ("DFH") at Dairy Flat. It is accessed via a high-standard, rural tee-intersection equipped with a formal tight turning bay for movements into the Landfill Access Road from the east, and a dedicated left turn slip-lane for entry movements from the west.

A condition of the current resource consent limits the total number of daily vehicle movements to and from the landfill. The proposal to date is that the current consent limits of daily vehicle movements to and from the site will not be altered. The daily maximum vehicle movements provided for will therefore remain as a total of 650 vehicle movements per day (inclusive of inbound and outbound movements).

All vehicle access to and from the landfill occurs via Landfill Access Road - a local access road extending from the operational and administration areas of the landfill and connecting to DFH at its eastern end. It primarily serves the access needs of the landfill, with a small number of other activities located towards the eastern end of the road. DFH is a regionally significant arterial route, extending from Albany in the south and to the SH1 Silverdale Interchange in the north. It has a posted speed limit of 80 km/h from the south of the Horseshoe Bush Road intersection through to a point approximately 500m north of Landfill Access Road, where a 60 km/h limit applies over the next 1.7km, before rising again to 80 km/h for the remainder of the DFH route through to Albany Village.

A search was made of New Zealand Transport Agency's ("NZTA") Crash Analysis System for the local section of DFH within 250m of the Landfill Access Road intersection over the five-year reporting period between 2020 and 2024 inclusive, plus the partial records from 2025. As of 10 November 2025, there has been a total of three reported events within the overall search area, neither of which involved any heavy vehicles turning to or from the Landfill, or along Landfill Access Road itself.

The Landfill site is served by a well-designed local access road and a high-standard connection to a classified arterial route enabling safe and effective movements within and beyond Dairy Flat. The connections available from DFH to other arterial routes are generally in the form of high-standard, high-capacity intersections and interchanges with the SH1 motorway system, readily enabling the safe and effective movement of landfill transport vehicles to and from the wider parts of the Auckland region.

This assessment has found that the Landfill-generated traffic accounts for only a small proportion (5-8%) of total traffic carried by the DFH route, so if the Landfill were to cease operations post December 2028 as currently required under the existing consents, there will still be notable volumes of traffic (including heavy traffic) passing through the intersection of Landfill Access Road/DFH and nearby sections of DFH. Any generated heavy traffic activity movement associated with site closure and remediation works within the Landfill site would be generally modest.

Beyond December 2028, the continued operation of Redvale Landfill will involve trucks and other vehicles continuing to access this site at similar levels and frequencies as they do currently. Since the time of the original establishment of the Landfill in 1993, the volume and speed of traffic along Dairy Flat Highway have reduced, and the route's State Highway status has been revoked.

This assessment has confirmed it is unlikely the traffic operations on DFH associated with the additional period for which consent is currently being sought, will approach the levels that existed when Redvale Landfill was first consented, and which have existed since. Overall, the effect of continuing Landfill operations is likely to be **less than minor** in terms of the safety and operational effectiveness of the surrounding area including with respect to other activities such as the Dairy Flat School. Extending the consented Redvale Landfill operation until 2036, is therefore **not** expected to give rise any additional transport issues or effects in terms of vehicle access and transport operations on the adjoining and surrounding parts of the North Auckland road network.

3 Assessment methodology

The methodology adopted to inform the assessment has utilised a combination of on-site inspections,¹ additional traffic surveys undertaken during 2025² and desk-top analysis³ of the transportation effects of the landfill operation. Utilising this methodology and the data collected, considered the following matters:

- The site's existing transport context including current traffic volumes and road safety records;
- The scale and effect of Redvale Landfill's traffic generation;
- Likely future traffic growth in the Dairy Flat area especially along Dairy Flat Highway, and
- An overall assessment of effects of Landfill related traffic on local transport networks.

The area considered for this assessment is shown in Appendix A.

4 Site and project context

A general description of the site and surrounding locality is included in the accompanying information as part of the referral application. The following elements of the site and project are relevant to the transportation assessment:

- The site is positioned with respect to the nearest intersections and arterial/motorway connections as follows:
 - 550m north of the Richards Road/DFH intersection;
 - 1.6km south of the Horseshoe Bush Road/DFH intersection;
 - 2km south of the Kahikatea Flat Road/DFH intersection;
 - 2.8km south of the Wilks Road/DFH intersection, and
 - 4.7km south of the Pine Valley Road/DFH intersection.
- Landfill Access Road leading into the site from Dairy Flat Highway is a public road, managed and maintained by WMNZ. It serves the vehicle access needs of Redvale Landfill (and associated ancillary features) and the Dairy Flat Country Club located towards its eastern end. The posted speed limit on Landfill Access Road is 50km/h over the most part with reductions to 30km/h in the vicinity of the WMNZ administration offices.
- Dairy Flat School is located approximately 100m south of the intersection of Landfill Access Road on the eastern side of Dairy Flat Highway.
- The site has legal road frontage to Horseshoe Bush Road along its northern boundary. However, all vehicle access relating to both landfill operational movements and ancillary activities supporting Redvale Landfill occurs via Landfill Access Road.
- Dairy Flat Highway is a regional arterial route that connects the site to Albany in the south and the State Highway (SH1) Silverdale Motorway Interchange to the north. It has a posted speed limit of 80 km/h from a point south of the Horseshoe Bush Road intersection through to a point approximately 500m north of Landfill Access Road, where a 60 km/h limit applies over the next 1.7km through to approximately Jeffs Road, before rising again to 80 km/h for the remainder of the DFH route through to Albany Village.

¹ Most recent site inspections undertaken on 11 March 2025

² Landfill traffic data supplied by WMNZ relating to calendar year 2024; commissioned traffic counts at Landfill Access Road/DFH intersection on 24 July 2025; commissioned seven-day traffic count on DFH north of landfill access road 23 – 29 July 2025].

³ Desktop assessment and analysis of traffic volumes and effects, undertaken July-September 2025.

Redvale Landfill's site is well-placed to maximise connectivity to appropriately classified arterial transport routes within and beyond Dairy Flat. The connections available to other primary routes serving the Auckland region are in the form of high-standard, high-capacity intersections and grade-separated interchanges enabling safe and effective transport movements to and from the wider parts of the Auckland region.

5 Assessment of potential transportation effects

Based on the proposal and the information available, an initial assessment of potential effects on the transportation network beyond the site has been undertaken and summarised below. These findings are from assessments undertaken to date and will be confirmed at the substantive stage of the application.

5.1 Landfill Access Road Intersection

The cross-section of Dairy Flat Highway in the vicinity of Landfill Access Road typically consists of one 3.5m wide traffic lane in each direction, with sealed shoulders on both sides and separated by a 3.5m wide flush median/right turning bay. A kerbside parking lane is also available along the eastern kerb line of the road (south of Landfill Access Road intersection) for school parents/caregivers, as well as other casual parking.

The intersection of Landfill Access Road with DFH was upgraded prior to the Landfill commencing operations in order to safely accommodate the expected nature and scale of waste-related truck movements. The intersection provides a dedicated right-turn bay for turns towards the landfill, a separate left-turn slip lane for turns from the east, and a flush, painted median connecting the right turn bays for Landfill Access Road and that associated with the Dairy Flat School intersection.

The measured sight distance to the north of the Landfill Access Road intersection is a minimum of 220m and to the south is over 300m. These available sight distances exceed the minimum standards set out in the Austroads Guide⁴ (and as adopted widely by roading authorities through New Zealand including Auckland Transport), and are expected to continue to provide safe, appropriate and adequate driver sight distances to and from the Landfill Access Road in support of the Landfill for the proposed extension period.

5.2 Current Landfill Traffic Generation

Trucks accessing Redvale Landfill are required to be processed via a weighbridge when entering and exiting the landfill. The on-site weighbridge records truck movements and the weight of waste material processed. WMNZ has supplied the weighbridge data for the calendar year 2024 and the following diagram (Figure 1) presents the total daily truck movements (both ways) across each operational day of the year.

The green dotted line in Figure 1 below shows the current truck movements relative to the consent limit of 650 vehicle movement per day.

⁴ Austroads Guide to Road Design Part 4A: Unsignalised and Signalised Intersections (Edition 3.1, Feb 2021) – Table 3.2, RT = 2.0sec, assume design speed 70km/h within a 60km/h posted speed limit

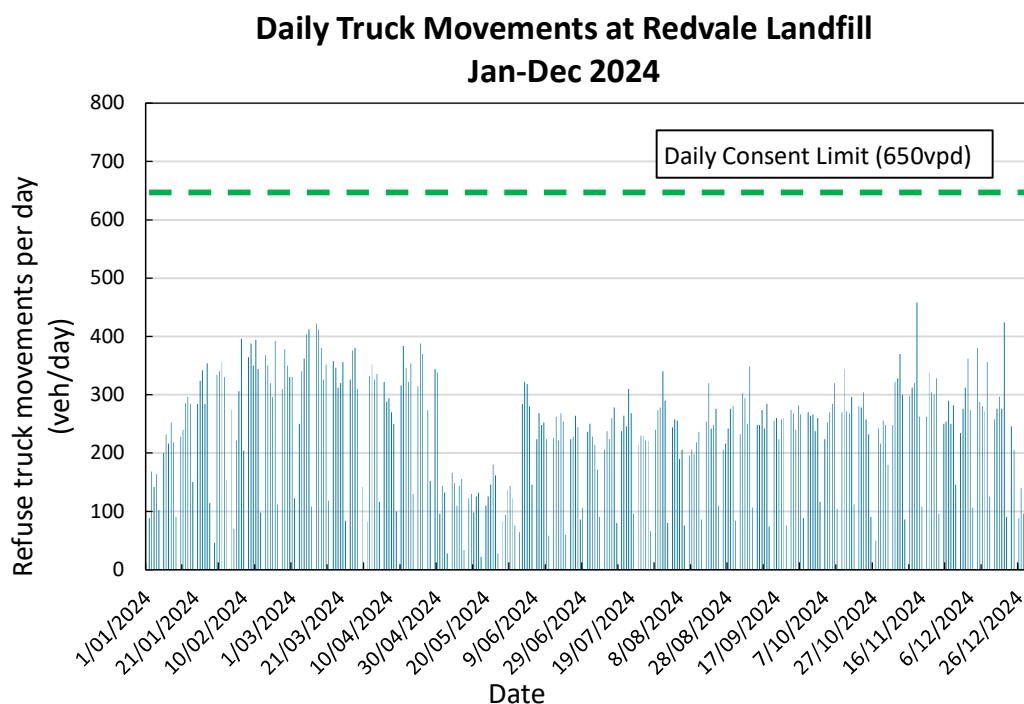


Figure 1: Total Daily Truck Movements (2024 Calendar Year)

The chart demonstrates that Redvale Landfill currently operates well within the 650 daily movements limit – typically below 400 truck movements per day (inclusive of inbound and outbound movements). However, the assessment of effects associated with the consent extension period has considered the consented maximum trip generation of 650 vehicle movements per day (inclusive of both waste trucks and other vehicles).

WMNZ has advised that it does not envisage any notable changes to the daily volume of waste truck movements over the course of the proposed extension period. Accordingly, the carry-over of the consented limit of 650 movements per day allows an appropriate degree of flexibility for Redvale Landfill to accept and process waste should demands alter or at times where waste volumes might be higher, for example, during a natural disaster recovery response. The following assessments have incorporated projection and evaluation of traffic movements up to the consented level.

5.3 Dairy Flat Highway Traffic Counts

A seven-day automatic traffic count was undertaken for Dairy Flat Highway in late July 2025. The key statistics derived from this week-long count included:

- Weekday (two-way) average daily volume of 8,109 vehicles per day (vpd), with a seven-day average of 7,338 vpd;
- The weekday average, two-way peak hour volume was determined as 788 vehicles per hour (vph) in the hour end 5.00pm. During this time, the directional split of traffic along DFH was found to be approximately 67% northbound and 33% southbound;
- The busiest morning peak hour on a weekday was found to occur in the hour ended 9.00am with a two-way volume of 723 vph (with a northbound/southbound split of approximately 47%/53%);

- The two-way volumes on a Saturday generally display a single broad middle of the day peak with a two-way hourly volume of approximately 700 vph in the hour ended 1.00pm.

Such volumes sit well within the ordinary operating capacity of a rural arterial route such as this (typically in the order of at least 2,500 vph both ways), offering appropriate levels of spare traffic-carrying capacity for future growth. The directional patterns demonstrated in the chart show a directional bias slightly greater southbound flows during the morning peak but more significant northbound flows along Dairy Flat Highway during the weekday late afternoon.

5.4 Road Safety

A search was made of NZTA's Crash Analysis System for the local section of DFH within a 500m length of the Landfill Access Road intersection (i.e. 250m to both the north and south of the intersection) over the five-year reporting period between 2020 and 2024 inclusive, plus the partial records from 2025. As of 10 November 2025, there have been three reported events within the overall search area, none of which were associated with heavy vehicles turning to or from the Landfill, or along Landfill Access Road over the period. There is no information available relating to any repeated or specific factors that would adversely affect the continued good road safety record of Landfill Access Road associated with this application.

5.5 Assessment of Generated Traffic Movements

To consider the potential impact of the proposed development on the surrounding road network, consideration has been given to the potential traffic movements that could be expected to be generated by the site both in terms of the current consent applying to Redvale Landfill (until to the end of 2028), and then to consider any effects arising from the extended lifetime of Redvale Landfill operating beyond December 2028 out to 2036. In both cases, assessment has been made with the Landfill operating up to the existing consented maximum of 650 vehicle movements per day.

5.5.1 Period between 2025 and 2028

The operation of Redvale Landfill up to the consented level of vehicle movements will have no change in transport effect on the surrounding transport network over this period (i.e. as of the date of this report through to the endpoint of the current consent in December 2028), with the generated traffic volumes continuing as per existing consent conditions.

5.5.2 Period between 2029 and 2036

From 1 January 2029 through to 2036 (when ARL is anticipated to be ready to accept waste and take over from Redvale Landfill operations), the proposed consent will see the Landfill continuing to operate in terms of the consented traffic movement total (maximum of 650 vehicle movements per day) and attracting waste truck movements as per the existing situation. Over this maximum eight-year period, the ongoing landfilling activities and associated truck movements are expected to have a **less than minor noticeable or measurable effect** on transport capacity or safety of operation of DFH. This conclusion is provided on the basis that there will be no change in the consented maximum of 650 vehicle movements per day. Over this period, there will be natural background growth in traffic activity using DFH taking into account increases in overall vehicle ownership and frequency of travel undertaken by the surrounding community, as well as new developments and changes to the surrounding primary and arterial road networks (such as the consented aspects of the Surf Park development and Silverdale West industrial area). This will have the effect of reducing the net effect of the current consented levels of traffic activity when compared to the surrounding background traffic movements.

In this regard it is noted:

- the proportional contribution of Redvale Landfill-generated traffic movements (representing both trucks and light traffic) is only some 5-8% of the total volumes carried by Dairy Flat Highway, and
- the background growth of total volumes carried by the route over the past 20 years, while Redvale Landfill waste truck volumes have remained approximately constant.

As such, this reflects an incorporation and absorption of the Redvale Landfill activity as part of the established pattern and scale of traffic movements along Dairy Flat Highway and its connections to the wider regional road network. This is consistent with the defined and expected role and functioning of the DFH route as an arterial.

Should the Redvale Landfill stop accepting waste after December 2028 (or if the extended consent period is approved then after 2036), there are expected to be some post-closure site remediation activities, however these are expected to be relatively modest in nature and scale. As such post-closure traffic generation effects would be minimal.

5.6 Future Growth and Changes in Transport Network

There are a number of recently approved projects and developments that form part of the environment against which this assessment has been undertaken:

- Private Plan Change 103 to rezone approximately 107ha land at Silverdale West from Future Urban Zone to Business – Light Industry Zone;
- Supporting Growth Alliance's route protection Notices of Requirement for DFH, a new Rapid Transit Network corridor route from SH1 Northern Motorway to Silverdale, and upgrades to the SH1 Silverdale Interchange, and
- Auckland Surf Park Community (Stage 1) – the staged development of a surf park at 1350 DFH, Silverdale, Auckland. Only this first stage of development has been consented, which includes:
- The construction and operation of a surfing lagoon, restaurant(s), market space, visitor accommodation units (including eco-cabins);
 - a solar farm;
 - a standard data centre, and
 - associated infrastructure, earthworks and landscaping.

These projects have each been supported by various assessments of transportation effects and specific consideration of traffic impact along Dairy Flat Highway – the most comprehensive of which accompanied the Supporting Growth Alliance Notices of Requirement. That assessment predicted via regional transport modelling, that Dairy Flat Highway (Wilks Road and Richards Road) with the various proposed future roading projects in place (such as widening of the DFH to the north of the Redvale Landfill, upgrades to the SH1 Silverdale Interchange and the proposed future Northern Busway extension to the west of SH1), would be carrying approximately 15,700 vpd by 2048. This represents a growth of approximately 6,600 vpd (or +72%) compared with the current daily volume along DFH north of Redvale Landfill.

There is no reason to expect that the traffic volumes expected along the DFH route will rise to these 2048 levels within the period of the extended Redvale Landfill activity being sought. Even applying a conservative 3% per annum rate of growth rate of daily volumes over the period between now and 2036 (8 years @ 3% p.a. = + 24%), the future daily volume along DFH would be in the range of 11,000 – 12,000vpd – still well within available capacity of a rural arterial route such as this.

This level of daily traffic movement would still remain less than the volumes carried by the route when Redvale Landfill was established (when DFH was carrying volumes of approximately 12,000vpd). It is also noted in this context that the current level and intensity of waste truck movements generated to and from the Landfill is at a level of approximately 60% of the consented

maximum level of movements, meaning that the expected performance of the Landfill Access Road/Dairy Flat Highway intersection remains in excess of the level anticipated through the previous consent processes.

5.7 Effects on Surrounding Activity

Neighbouring properties to Redvale Landfill which are considered most likely to be potentially affected by the traffic associated with the continuation of Landfill activities include the Dairy Flat Country Club, Massimo's Cheese Factory and Dairy Flat School. As noted above, the effect of continued vehicle movements to and from the Redvale Landfill will as provided for within the existing consent limits up until December 2028 (when Redvale Landfill is required to cease accepting waste under the current consent), and have formed the baseline of background traffic activity within the surrounding Dairy Flat area over the past 30 years.

Continued Redvale Landfill operations and associated effects on the Dairy Flat Country Club and Massimo's Cheese Factory are expected to be modest based on the established and consented activity already operating along Landfill Access Road. The July 2025 surveyed activity at the Landfill Access Road/DFH intersection showed hourly volumes past the access points to these activities at levels of no more than approximately 100 vehicle movements per hour at peak. At this level, there is ample ability and convenience for movements into and out these accesses, with numerous gaps for traffic to enter and leave the Landfill Access Road carriageway and traffic stream. Neither of these activities are significant generators of vehicle trips, and the trips that are generated are catered for by a public road standard of roadway and access into their site from Landfill Access Road. Vehicles moving to and from these activities are unlikely to significantly overlap or conflict with landfill activity. WMNZ maintains the Landfill Access Road to a high standard benefiting the access movements to and from the Country Club that would otherwise not be the case if the Landfill were to cease.

Landfill traffic does interact with vehicle movements associated with Dairy Flat School. However, as demonstrated in the safety assessment of the past five years, there have been no reported road crashes involving Redvale Landfill vehicles in the vicinity of the intersection (and for 250m either side of the intersection including across the frontage of the school) over this period. The Dairy Flat Highway route remains as the primary, non-motorway arterial route between Albany and Dairy Flat/Silverdale, and the landfill generated movements only contribute a modest proportion to total and heavy traffic movements past the school. The overall, continuing Landfill operations is likely to have a **less than minor effect** on the safety and operational effectiveness of Dairy Flat School and the other activities near the Landfill Access Road intersection with Dairy Flat Highway.

6 Conclusions

The current consent for Redvale Landfill includes a condition limiting the maximum number of vehicle movements associated with landfill operations to no more than 650 vehicle movements per day (inclusive of inbound and outbound vehicle movements). WMNZ proposes to retain the 650 movements per day limit as part of this Project.

This review and initial assessment of the transport aspect of the current and future operation of Redvale Landfill confirms that vehicle access to and from the site via Landfill Access Road and Dairy Flat Highway is appropriate for the size, volume and intensity of vehicles currently generated by the Landfill and up to the level of consented movements currently provided for by the Landfill's existing consent. Total landfill traffic currently represents a small proportion (between 5 and 8%) of the traffic volumes on DFH, and this percentage will continue (or even reduce) over coming years as traffic growth and changes to the surrounding network occurs over the coming decade.

Based on the assessment undertaken, it is concluded that:

- Redvale Landfill’s site has operated in the current location and in the current mode of operation for 30 years;
- It is located adjacent to and served by a regional arterial route (that was previously operated as part of the State Highway network) and provides access to the SH1 motorway system. This arrangement is well-suited to the regional waste management role played by Redvale Landfill;
- The extension of landfilling activities to 2036 will remain within the consented maximum daily limit of waste-transport movements applying through the current consent, and there is no proposal to increase this current daily maximum limit, and
- Continuing Redvale Landfill operation is not expected to bring about any new or additional transportation-related issues in terms of vehicle access, safety or road network performance on the road network serving Redvale Landfill site.

Overall, the transport effects associated with the proposed landfill extension on the safety and operational effectiveness of the DFH route and surrounding activities are expected to be **less than minor**.

7 Applicability

Don McKenzie Consulting Ltd understands and agrees that WMNZ will submit this report to the Environmental Protection Authority in support of a referral application under the Fast-track Approvals Act 2024 for the works described herein, and that the Environmental Protection Authority will rely on this report for the purpose of assessing that application.

Technical memorandum prepared by:



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Authorised for Don McKenzie Consulting Ltd by:



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Document control

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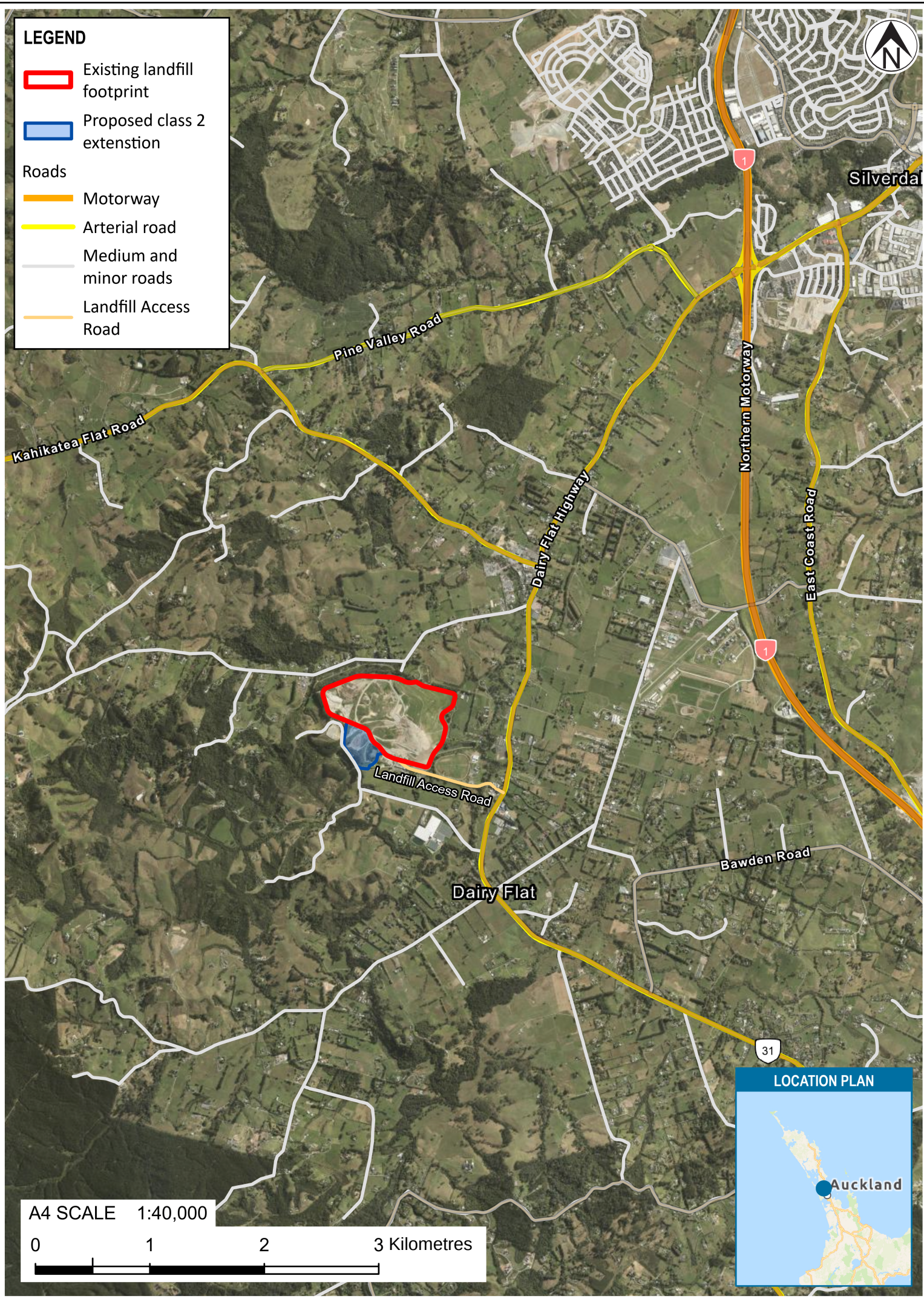
Appendix A Site Transport Context

LEGEND

- Existing landfill footprint
- Proposed class 2 extension

Roads

- Motorway
- Arterial road
- Medium and minor roads
- Landfill Access Road



A4 SCALE 1:40,000

0 1 2 3 Kilometres

LOCATION PLAN

