

# Waste Futures – Green Island Landfill





## Social Impact Assessment

Dunedin City Council

4 October 2024

→ **The Power of Commitment**



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# 1. Introduction

## 1.1 Background

Dunedin City Council (Council) has embarked on the Waste Futures Programme to develop an improved comprehensive waste management and diverted material system for Ōtepoti Dunedin. The programme is part of Dunedin’s wider commitment to reducing carbon emissions and reducing waste going to landfill. The Waste Futures Programme includes the roll-out of an enhanced kerbside recycling and waste collection service for the city from July 2024. The new service will include collection of food and green waste.

To support the implementation of the new kerbside collection service, Council is planning to make changes to the use of Green Island landfill (GIL) site (location shown in Figure 1) in coming years.

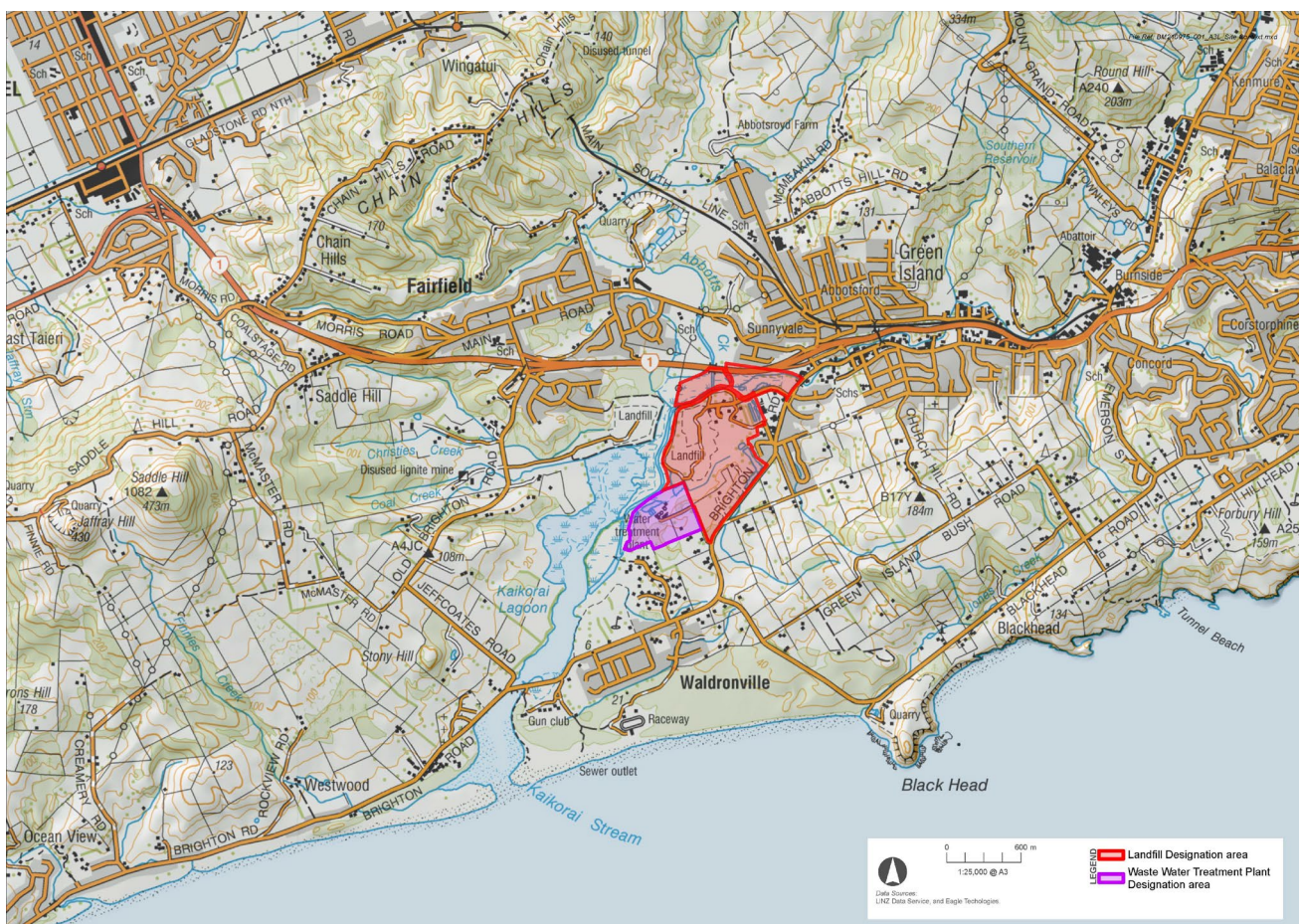


Figure 1 Green Island Landfill Site

The proposed changes include:

- planning for the closure of the Green Island landfill, which is coming to the end of its operational life;
- developing an improved Resource Recovery Park (RRPP) to process recycling, and food and green waste;
- providing new waste transfer facilities to service a new Class 1 landfill currently planned for a site south of Dunedin, at Smooth Hill.

The resource consents for a new Class 1 landfill at Smooth Hill were granted in May 2023. A three-year baseline monitoring programme is now being undertaken as required by the consent, after which time, subject to funding being agreed, construction of the new facility may commence. DCC therefore anticipate the new Class 1 landfill facility will not be able to accept waste until 2028 at the earliest.

In the interim, DCC plans to continue to use Green Island landfill for waste disposal. Based on Dunedin's current waste disposal rates, it is likely the Green Island landfill can keep accepting waste for another six years (until about 2029). Between now and then, and as it continues to fill up, the landfill will be closed and capped in stages. When the landfill closes completely, there will be opportunities for environmental enhancements and public recreational use around the edge of the site. Examples could be planting restoration projects and new walking and biking tracks beside the Kaikorai Estuary. Long term use and public access to the landfill site post closure will be determined in consultation with Te Rūnanga o Ōtākou, the local community and key stakeholders.

The current Otago Regional Council resource consents needed to operate a landfill at Green Island expired in October 2023. DCC have applied to ORC for replacement resource consents to continue to use the landfill until it closes completely, and waste disposal can be transferred to a new landfill facility. The replacement consents relate to ground disturbance, flood defence and discharges to land, water, and air. The site is subject to an operative designation (D658) in the Proposed Second-Generation Dunedin City District Plan (2GP) for the purpose of Landfilling and Associated Refuse Processing Operations and Activities.

The development of the new RRPP and waste transfer facilities at Green Island does not form part of the replacement consent applications. Resource consent applications for the development and operation of the RRPP were submitted separately in March 2024 and are under consideration by ORC.

## 1.2 The resource consent application

The existing ORC resource consents, required to operate a landfill at Green Island, expired in October 2023. Therefore, Council has lodged resource consent applications to ORC for the replacement of the existing resource consents to enable the continued operation, closure, and aftercare of GIL and the existing waste diversion and transfer facilities. This also includes increasing the height of the landfill to the west while remaining within the current landfill footprint. This will provide increased capacity for the disposal of waste until approximately late 2029 depending on actual waste disposal rates. The following resource consents are being sought as part of the application:

- The continued operation of the landfill for the disposal of municipal solid waste, and hazardous waste through to closure.
- Landfill infrastructure improvements including extension of the existing perimeter leachate collection trench along the southern side of the landfill, installation of internal leachate drainage in the landfill, flood and earthquake resilience upgrades of the leachate collection infrastructure, and replacement/additional landfill gas (LFG) flares/engines.
- The continued operation of the waste diversion and transfer facilities until such time as these are replaced by new RRPP facilities.
- Closure of the landfill in approximately December 2029 depending on waste disposal rates. Any remaining open areas of the landfill will be capped and vegetated, final LFG wells installed, and any infrastructure not required for the ongoing aftercare of the landfill removed or modified.
- Ongoing aftercare of the landfill, including continued operation and maintenance of leachate collection, LFG collection/destruction, and stormwater infrastructure; maintenance of the landfill cap; and environmental monitoring in accordance with the conditions of the resource consents.

Separate applications have been lodged for the RRPP to operate at the Green Island landfill.

## 1.3 Purpose of this report

This Social Impact Assessment (SIA) forms part of the suite of technical assessments that has been prepared to support the resource consent application for the continued operation, closure, and aftercare of GIL. The purpose of an SIA is to assess the potential social impacts from the construction and operation of the project.

The SIA has built on work undertaken in preparation of the Interim SIA which was submitted with the resource consent application in March 2023. This SIA has expanded on the interim report by incorporating the findings from each of the relevant technical studies, undertaking a review of similar projects, and considering outcomes from the ongoing community engagement. In addition, it has incorporated information prepared in response to S92 requests received from the ORC peer reviewers.

This SIA includes:

- Overview of the statutory and policy context and how the project will contribute to the Waste Futures Programme objectives;
- Community profile including baseline demographics and social values of the community;.
- Outcomes of ongoing engagement with the community about the landfill post closure and plans for its future public use;
- Assessment of social impacts incorporating findings from the technical studies to identify changes (positive and negative) to peoples fear and aspirations; the local economy, business and employment; amenity and character; social and recreational infrastructure; and health and wellbeing.



## 2. Methodology

### 2.1 Definition of social impact

SIA is the most accepted and recognised framework used in New Zealand and internationally to manage social impacts. The International Association for Impact Assessment defines social impact assessment as:

*'...the processes of analysing, monitoring and managing the intended and unintended social consequences, both positive and negative, of planned interventions (policies, programs, plans, projects) and any social change processes invoked by those interventions' (International Association for Impact Assessment, 2003)*

The definition of a social impact according to Vanclay (2002) is a positive or negative change to one or more of the following:

- i. People's way of life – that is, how they live, work, play and interact with one another on a day-to-day basis.
- ii. Their culture – that is, their shared beliefs, customs, values and language or dialect.
- iii. Their community – its cohesion, stability, character, services and facilities.
- iv. Their political systems – the extent to which people are able to participate in decisions that affect their lives, the level of democratisation that is taking place, and the resources provided for this purpose.
- v. Their environment – the quality of the air and water people use, the availability and quality of the food they eat, the level of hazard or risk, dust and noise they are exposed to, the adequacy of sanitation, their physical safety, and their access to and control over resources.
- vi. Their health and wellbeing – health is a state of complete physical, mental, social and spiritual wellbeing and not merely the absence of disease or infirmity.
- vii. Their personal and property rights – particularly whether people are economically affected, or experience personal disadvantage which may include a violation of their civil liberties.
- viii. Their fears and aspirations – their perceptions about their safety, their fears about the future of their community, and their aspirations for their future and the future of their children.

In addition to assessing social impacts, this report has also considered recreation impacts. A recreation impact is a positive or negative change to recreation activities, recreation facilities and/or recreational values.

Recreation activities are the things people do in their leisure time. Recreation activities are enabled by recreation facilities, including access and resources.

Recreational values are the qualities and characteristics of an area that contribute to people's appreciation of its recreational function, pleasantness, and sense of place i.e., those factors which make recreation activities valuable or desirable.

## 2.2 Impact assessment industry guidelines

This SIA has been prepared in accordance with the following industry accepted guidelines. A complete reference list of documents referred to in this report is also provided in section 12.

- Environmental and Social Impact Assessment Good Practice Statements prepared by Environment Institute of Australian and New Zealand (2013)
- Social Impact Assessment: Guidance for Assessing and Managing the Social Impacts of Projects prepared by the International Association for Impact Assessment (2015)
- People, Place and Environment Series: Social Impact Guide prepared by Waka Kotahi (2016)
- Social Impact Assessment Guidelines for Thriving Regions and Communities (Taylor and Associates, 2022)
- Social Impact Assessment Guideline for State Significant Projects prepared by NSW Department of Planning, Industry and Environment (2021).

## 2.3 Methodology

The methodology outlined below provides an overview of the steps taken to prepare this report. The approach has been developed in accordance with the best practice guidelines outlined in section 2.2. The methodology outlined in Figure 2 and described below has been used to assess the social impacts during both the construction and operation of GIL.

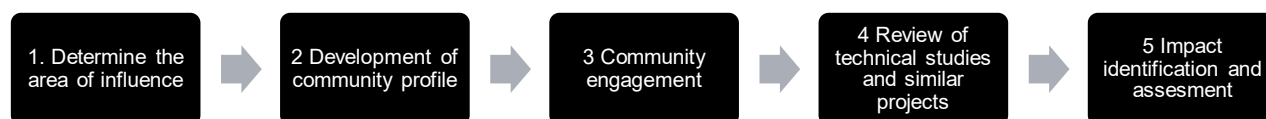


Figure 2 SIA Methodology

### 2.3.1 Determine the area of influence

The project site and its surrounds were analysed to identify the study area. The communities that live and work in this area and those who visit are considered most likely to be impacted by the project. It is acknowledged that social impacts are not necessarily contained within statistical or geographical boundaries, because people travel across such boundaries regularly as part of their lives.

For this reason, the area of influence comprises three areas relative to the level of impact anticipated for the collective population:

- **Local Study Area** - The local study area is determined to be the geographical area where the proposed project may have the highest direct and indirect impacts on surrounding residents and community members (e.g. amenity, access and connectivity, community values). For the purposes of this SIA, the surrounding suburbs of Waldronville, Green Island, Abbotsford and Fairfield have been investigated.
- **District Study Area** - The district study area comprises the territorial authority of Dunedin City, where the proposed project may have some direct and indirect impacts on residents and community members (e.g. amenity, access and connectivity, community values). The project is being undertaken as part of Council's Waste Futures Programme and therefore it will have benefits to the broader District.
- **Regional Study Area** – The local and district study areas have been compared to the Otago Region. This has been considered due to the wider indirect impacts (employment and economy, community values) and environmental regulations within the project context.

## 2.3.2 Development of community profile

The community profile is required to understand the existing social conditions of the areas of impact that may be potentially affected by the project. It provides the basis for predicting and assessing the likely social impacts of the project. The community profile was developed through a review of relevant data sources. The community profile is described with reference to:

- Overview of existing operations of the GIL site, which includes the current conditions of consent, hours of operation and existing site use.
- The demographic profile of the Local Study Area which includes the surrounding suburbs (Waldronville, Green Island, Abbotsford and Fairfield) compared to the wider Dunedin City area and the Otago Region including population, age profile, cultural diversity, income and employment. Detailed demographic information is provided in Appendix A.
- An overview of the Local and District Study Area including description of the existing amenity of the area, economic and business centres, population characteristics, traffic, transport and active transport connectivity, and community infrastructure. Consideration has been given to how the proposed project will impact on either the operation of, or access to, these facilities.
- An audit of social infrastructure that service the Local Study Area was undertaken. The social infrastructure includes; education and childcare facilities, emergency services, open space and recreation facilities, community centres, places of worship, health facilities and local shops. The audit is provided in Appendix B.

## 2.3.3 Community engagement

Engagement with the community on the future of GIL commenced in February 2023 and is ongoing. It includes community engagement on the new RRPP facilities and ideas for the landfill site post-closure.

The purpose of engagement was to understand from the community and stakeholders how they perceive they will be impacted by the plans for the future of the site, including the proposed landfill closure, the new RRPP development and the use of the site post closure. This will enable a deeper understanding of the community's interests, concerns, values, and aspirations for the area and to assist in the identification of potential mitigation and management methods. Engagement includes one-on-one meetings with neighbours, mailing list emails, flyers and appearances at community events.

In addition to engagement undertaken on the future of GIL, a review was undertaken of information available from the community about the impact of current operations at the GIL site.

## 2.3.4 Review of technical studies and similar resource consent applications

The Interim SIA included a scoping assessment that identified potential social impacts that would need to be investigated as part of the preparation of the SIA. The scoping table identified the technical studies and literature (including reports written for other projects) that would need to be investigated to confirm the impacts that have been identified and determine their scale of impact.

For this report, a review has now been undertaken of relevant technical studies that were submitted as part of the GIL resource consent application. Particular focus was given to:

- Air Quality Report, prepared by GHD (Appendix 7 of the resource consent application).
- Landscape, Natural Character and Visual Effects Assessment, prepared by Boffa Miskell (Appendix 13 of the resource consent application).
- Economic Assessment, prepared by GHD (Appendix 14 of the resource consent application).
- Cultural Impact Assessment (CIA), prepared by Aukaha (Appendix 16 of the resource consent application)
- Interim Human Health and Environmental Risk Assessment, prepared by GHD (dated March 2024)

A review was undertaken of Mana Whenua documents, and local Dunedin surveys (summarised in Section 5.4) to broadly understand cultural and community values and aspirations for the area and whether the project aligns with these. In addition, this SIA has reviewed the submissions on, and mitigation methods proposed, for the Smooth Hill Landfill resource consent application to inform the identification of potential/likely social concerns relating to landfills.

In addition to Smooth Hill, a review was undertaken of recent resource consent applications for similar landfill projects. Landfill projects identified as relevant to the GIL application included the RRPP, AB Lime Landfill and Tirohia Landfill. For each of these projects, the resource consent documentation was reviewed, with a focus on the social impacts identified as part of each assessment.

## 2.3.5 Impact identification and assessment

This SIA identifies and assesses the potential social benefits and impacts of the continued operation, closure, and aftercare of GIL. Potential impacts have been identified and described based on an initial scoping of potential impacts, stakeholder and community consultation undertaken, a review of the assessment of effects on the environment (AEE) and technical studies prepared to support the resource consent application for this project, and reports written for other similar projects.

An Assessment of Impacts table has been prepared and provided in Appendix C, it has considered the impact assessment factors as defined in Table 1.

*Table 1 Definitions of the Social Impact Assessment Factors*

Impact assessment factors	Definition
Stakeholders	Community who are impacted, particularly in regard to any potentially vulnerable groups as well as directly or indirectly affected people. Assessment of stakeholders takes into consideration the magnitude ranging from: <ul style="list-style-type: none"> <li>• Many affected – the wider community.</li> <li>• Moderate number – the local community.</li> <li>• Few affected – directly affected owners, occupiers and users of properties.</li> </ul>
Positive/negative	Whether the impact will be positive or negative. In this case whether the option has the potential to mitigate an existing social impact (positive) or create a new impact or exacerbate an existing adverse impact (negative).
Duration	During what phase of the project will the effect occur, such as during construction and therefore it will be a temporary impact, or during operation when the impact could be more permanent or ongoing while GIL continues to operate. The project phase can also include the closure of the landfill.
Likelihood	Likelihood of the impact occurring based on existing evidence. This is on a scale of: <ul style="list-style-type: none"> <li>• Almost certain - Definite or almost definitely expected (e.g. has happened on similar proposals)</li> <li>• Likely - High probability</li> <li>• Possible - Medium probability</li> <li>• Unlikely - Low probability</li> <li>• Rare - Improbable or remote probability</li> </ul>
Consequence of the impact	This relates to the scale of impact (positive or negative). For example: <ul style="list-style-type: none"> <li>• Insignificant – Little noticeable change experienced by people in the locality.</li> <li>• Minor – Mild deterioration/improvement to something that people value highly, either lasting for an extensive time, or affecting a group of people.</li> <li>• Moderate – Noticeable deterioration/improvement to something that people value highly, either lasting for an extensive time, or affecting a group of people.</li> <li>• Major – Substantial deterioration/improvement to something that people value highly, either lasting for an indefinite time, or affecting many people in a widespread area.</li> <li>• Catastrophic – Substantial change experienced in community wellbeing, livelihood, infrastructure, services, health, and/or heritage values; permanent displacement or addition of at least 20% of a community.</li> </ul>

Impact assessment factors	Definition
Impact assessment ratings	<p>Taking all of the above factors into account, impacts have assessed and rated based on the Waka Kotahi Multi-Criteria Assessment risk magnitude scoring system. The following rating scale has been used:</p> <ul style="list-style-type: none"> <li>• Large positive - Major positive impacts resulting in substantial and long term improvement or enhancements to the existing environment that have a social or recreational impact.</li> <li>• Moderate positive - Moderate positive impact, possibly of short, medium, or long term duration. Positive outcome may be in terms of new opportunities and outcomes of enhancement or improvement.</li> <li>• Slight positive - Minimal positive impact, possibly only lasting over the short term. May be confined to a limited area or small population.</li> <li>• Neutral - Neutral – no discernible or predicted positive or negative impact.</li> <li>• Slight negative - Minimal negative impact, possibly only lasting over the short term and definitely able to be managed or mitigated. May be confined to a small area.</li> <li>• Moderate negative - Moderate negative impact. Impacts may be short, medium or long term and are highly likely to respond to mitigation or management actions.</li> <li>• Large negative - Impacts with serious long term and possibly irreversible effect leading to serious damage, degradation or deterioration of the social or recreational environment.</li> </ul>



# 3. Green Island Landfill Site and Current Operations

## 3.1 Site location and surrounds

The GIL site is located at 9 Brighton Road, Green Island. It is located approximately 800 m west of the Green Island town centre, 5.5 km southeast of Mosgiel, and approximately 8.8km by road from Central Dunedin. The total area of the site is 75.6164 ha. The site is generally bound by State Highway 1 to the north, Abbotts Creek and the Kaikorai Estuary to the west, the Green Island Wastewater Treatment Plant (GIWWTP) and Brighton Road to the south, and the Clariton Avenue residential area and Green Island industrial area to the east.

The site is currently designated under the Dunedin City Council Second Generation District Plan (2GP), as Designation D658 (Green Island Landfill – Landfilling and Associated Refuse Processing operations and Activities). An area to the southeast of the landfill, between Weir Street and Brighton Road, south of Clariton Avenue has been rezoned from Rural Zone to the General Residential Zone under Variation 2 of the 2GP. Variation 2 of the 2GP was undertaken in accordance with the National Policy Statement for Urban Development 2020 (NPSUD), and in accordance with the strategic direction of the Dunedin Spatial Plan.

An aerial of the site is provided in Figure 3, which shows the designation boundary, landfill operational area, landfill extent, and the GIWWTP site. The Figure also shows the location of the RRPP site that is subject to a separate resource consent application.



Figure 3 Green Island Landfill Site and Environs

## 3.2 Current use of the site

GIL has been operating since 1954, and with the current level of support facilities and waste transfer station since 1995. It is the only landfill in Dunedin that can accept household waste. The landfill only accepts refuse from commercial operators and public access is restricted. The site contains all the facilities required for the operation of the landfill, including a waste transfer station. There are also existing recycling and green waste processing facilities on site, which are to be redeveloped as part of the proposed RRPP.

The landfill currently operates 7 days per week and is closed only on certain public holidays. The hours during which waste is accepted on site are slightly less than the operating hours to allow landfill staff to prepare and close off the tip face. GIL is operated by approximately 15 staff. Site operating hours are set out in Table 2.

*Table 2 Site Operating Hours*

Hours	Operating Hours	Gate Hours
Monday to Saturday	08:00 – 19:00	08:00 – 17:30
Sunday	09:00 – 19:00	09:00 – 17:30
Christmas Day, Easter Friday, Anzac Day Closed until 1pm	Closed	

The site is accessed from Brighton Road, which is the main road to the suburb of Waldronville, the GIWWTP, and some residential streets of Green Island.

Waste is delivered to GIL or the on-site waste transfer station from local residential and commercial sources in the Dunedin City and environs. All waste deliveries are by road and most will exit SH1 at the Westland Street offramp, to access the 50km/hr Brighton Road. The intersection of Brighton Road and the landfill entrance has existing right and left turning bays to allow turning traffic to pull off and avoid impeding through traffic, with the access road leading directly to the landfill weighbridge and kiosk.

## 4. Statutory and policy context

There are a number of statutory and non-statutory plans and policies that provide high level context for the project. The summaries below describe strategies and policies relevant to this assessment.

### 4.1 Legislation

#### 4.1.1 Resources Management Act 1991 (RMA)

The Resource Management Act 1991 (RMA) is the principal statute for the management of natural resources, including air, soil, freshwater and the coastal marine area. Additionally, the RMA regulates land use and the provision of infrastructure. This assessment has been prepared as part of the applications for resource consent sought under the RMA. As such, the overarching purpose and principles (Part 2) of the RMA have been considered and taken into account when undertaking this assessment. Of particular relevance, from a social perspective, are the following:

- Section 5(2): as part of the definition of “sustainable management”, at the core of the RMA, enabling ‘people and communities to provide for their social, economic and cultural wellbeing and for their health and safety’;
- In achieving the section 5 purpose, all persons exercising functions and powers under the RMA “shall have particular regard to”:
  - Section 7(b): ‘the efficient use and development of natural and physical resources’;
  - Section 7(c): ‘the maintenance and enhancement of amenity values’; and
  - Section 7(f): ‘maintenance and enhancement of the quality of the environment’.

In relation to these section 7 matters, it is noted that this SIA relies on the assessments undertaken by other environmental specialists to inform the assessment of social impacts. This is because while it is acknowledged that the construction and operation of the project involves a variety of environmental effects that have social consequences, separate and specific technical assessments have been completed for these environmental effects and the relevant specialists have considered the social consequences relevant to their discipline.

#### 4.1.2 Waste Minimisation Act

The Waste Minimisation Act 2008 (WMA) is the principal statute for the reduction of waste generation and disposal. Under Section 3, the purpose of the WMA is “*to encourage waste minimisation and a decrease in waste disposal in order to protect the environment from harm; and to provide environmental, social, economic and cultural benefits*”.

The WMA places the responsibility on territorial authorities to promote effective and efficient waste management in their districts. Territorial local authorities are required to adopt a Waste Management and Minimisation Plan (WMMP) that includes methods for reducing waste. Council have prepared a WMMP, as outlined in section 4.3. The WMMP makes reference to the future of the GIL site.

## 4.2 Otago Regional Council Policy Documents

### 4.2.1 Partially Operative Otago Regional Policy Statement 2019

The Partially Operative Otago Regional Policy Statement 2019 (POORPS2019) was declared partially operative on 15 March 2021. The objectives and policies of the POORPS of most relevance to this SIA are outlined in Table 3.

Table 3 Relevant objectives and policies of POORPS2019

Objective	Policy
<p><b>Objective 1.1</b> Otago's resources are used sustainably to promote economic, social, and cultural wellbeing for its people and communities</p>	<p><b>Policy 1.1.1 Economic wellbeing</b> Provide for the economic wellbeing of Otago's people and communities by enabling the resilient and sustainable use and development of natural and physical resources.</p>
	<p><b>Policy 1.1.2 Social and cultural wellbeing and health and safety</b> Provide for the social and cultural wellbeing and health and safety of Otago's people and communities when undertaking the subdivision, use, development and protection of natural and physical resources by all of the following:</p> <ul style="list-style-type: none"> <li>a) Recognising and providing for Kāi Tahu values;</li> <li>b) Taking into account the values of other cultures;</li> <li>c) Taking into account the diverse needs of Otago's people and communities;</li> <li>d) Avoiding significant adverse effects of activities on human health;</li> <li>e) Promoting community resilience and the need to secure resources for the reasonable needs for human wellbeing;</li> <li>f) Promoting good quality and accessible infrastructure and public services.</li> </ul>
<p><b>Objective 2.2</b> Kāi Tahu values, interests and customary resources are recognised and provided for</p>	<p><b>Policy 2.2.1 Kāi Tahu wellbeing</b> Manage the natural environment to support Kāi Tahu wellbeing by all of the following:</p> <ul style="list-style-type: none"> <li>a) Recognising and providing for their customary uses and cultural values in Schedules 1A and B; and,</li> <li>b) Safeguarding the life-supporting capacity of natural resources.</li> </ul>
	<p><b>Policy 2.2.2 Recognising sites of cultural significance</b> Recognise and provide for the protection of wāhi tūpuna, by all of the following:</p> <ul style="list-style-type: none"> <li>a) Avoiding significant adverse effects on those values that contribute to the identified wāhi tūpuna being significant;</li> <li>b) Avoiding, remedying, or mitigating other adverse effects on the identified wāhi tūpuna;</li> <li>c) Managing the identified wāhi tūpuna sites in a culturally appropriate manner.</li> </ul>
<p><b>Objective 4.6</b> Hazardous substances, contaminated land and waste materials do not harm human health or the quality of the environment in Otago</p>	<p><b>Policy 4.6.8 Waste storage, recycling, recovery, treatment and disposal</b> Manage the storage, recycling, recovery, treatment and disposal of waste materials by undertaking all of the following:</p> <ul style="list-style-type: none"> <li>a) Providing for the development of facilities and services for the storage, recycling, recovery, treatment and disposal of waste materials;</li> <li>b) Ensuring the health and safety of people;</li> <li>c) Minimising adverse effects on the environment;</li> <li>d) Minimising risk associated with natural hazard events;</li> <li>e) Restricting the location of activities that may result in reverse sensitivity effects near waste management facilities and services.</li> </ul>

## 4.2.2 Proposed Otago Regional Policy Statement 2021 (Proposed RPS 21)

The Proposed Otago Regional Policy Statement (Proposed RPS 21) was notified on 26 June 2021. With regard to social impacts, the relevant objectives and policies of the Proposed RPS 21 are set out in Table 4.

Table 4 Relevant objectives and policies of Proposed RPS 21

Objective	Policy
<p><b>MW-O1 – Principles of Te Tiriti o Waitangi</b></p> <p>The principles of Te Tiriti o Waitangi are given effect in resource management processes and decisions, utilising a partnership approach between councils and Papatipu Rūnaka to ensure that what is valued by mana whenua is actively protected in the region.</p>	<p><b>MW-P2 – Treaty principles</b></p> <p>Local authorities exercise their functions and powers in accordance with Treaty principles, by:</p> <ol style="list-style-type: none"> <li>1) Recognising the status of Kāi Tahu and facilitating Kāi Tahu involvement in decision-making as a Treaty partner,</li> <li>2) including Kāi Tahu in resource management processes and implementation to the extent desired by mana whenua,</li> <li>3) recognising and providing for Kāi Tahu values and resource management issues, as identified by mana whenua, in resource management decision-making processes and plan implementation,</li> <li>4) recognising and providing for the relationship of Kāi Tahu culture and traditions with their ancestral lands, water, sites, wāhi tapu, and other taoka by ensuring that Kāi Tahu have the ability to identify these relationships and determine how best to express them,</li> <li>5) ensuring that regional and district plans recognise and provide for Kāi Tahu relationships with Statutory Acknowledgement Areas, tōpuni, nohoaka and customary fisheries identified in the NTCSA 1998, including by actively protecting the mauri of these areas,</li> <li>6) having particular regard to the ability of Kāi Tahu to exercise kaitiakitaka,</li> <li>7) actively pursuing opportunities for:               <ol style="list-style-type: none"> <li>a. delegation or transfer of functions to Kāi Tahu, and</li> <li>b. partnership or joint management arrangements, and</li> </ol> </li> <li>8) taking into account iwi management plans when making resource management decisions.</li> </ol> <p><b>MW-P3 – Supporting Kāi Tahu well-being</b></p> <p>The natural environment is managed to support Kāi Tahu well-being by:</p> <ol style="list-style-type: none"> <li>1) protected customary uses, Kāi Tahu values and relationships of Kāi Tahu to resources and areas of significance, and restoring these uses and values where they have been degraded by human activities,</li> <li>2) safeguarding the mauri and life-supporting capacity of natural resources, and</li> <li>3) working with Kāi Tahu to incorporate mātauraka in resource management.</li> </ol>
<p><b>HAZ-CL-O3 – Contaminated land</b></p> <p>Contaminated land and waste materials are managed to protect human health, mana whenua values and the environment in Otago.</p>	<p><b>HAZ-CL-P17 – Disposal of waste materials</b></p> <p>Provide for the development and operation of facilities and services for the storage, recycling, recovery and treatment of waste materials but only for the disposal of waste materials if those materials cannot be recycled, recovered or treated for re-use.</p> <p><b>HAZ-CL-P18 – Waste facilities and services</b></p> <p>When providing for the development of facilities and services for the storage, recycling, recovery, treatment and disposal of waste materials:</p> <ol style="list-style-type: none"> <li>1) avoid adverse effects on the health and safety of people,</li> <li>2) minimise the potential for adverse effects on the environment to occur,</li> <li>3) minimise risk associated with natural hazard events, and</li> <li>4) restrict the establishment of activities that may result in reverse sensitivity effects near waste management facilities and services</li> </ol>



## 4.3 Dunedin City Council Programmes, Plans and Strategies

### 4.3.1 Waste Futures Programme

The Waste Futures Programme has been developed by Council to improve Dunedin's waste system in respect of collection, recycling, reuse and what needs to go to landfill. This initiative aims to achieve zero waste and contribute to reducing Dunedin's net carbon emissions to zero by 2030, supporting the New Zealand Government's direction to work towards a circular economy approach to waste management. The three initiatives that are being addressed by projects under Waste Futures include:

- Kerbside rubbish and recycling collection: introducing organic kerbside collections and replacement of kerbside refuse bags with refuse bins.
- Reviewing our waste goals: Council is required to have a plan for waste reduction and management. The goals are reviewed regularly as directed by the Waste Management and Minimisation Plan.
- Green Island Landfill: the landfill will be closed sometime after 2023, and Council are planning a new landfill at Smooth Hill, as outlined in the 10 year plan.

These projects will assist Council in achieving the following key goals:

- Reducing and effectively managing the city's waste until the city achieves as close to zero waste as possible
- Minimising harmful effects of waste
- Improving how Dunedin manages waste to help the community (e.g. employment, support for and/or industry collaborations that result in reduced waste and/or recovering resources for beneficial use).

### 4.3.2 Waste Minimisation and Management Plan 2020

Council developed the Waste Minimisation and Management Plan 2020 as required by the Waste Minimisation Act 2008. The vision of the plan is *"We have a duty to protect and enhance Dunedin's natural environment and resources for those generations who come after us (mō tatou, mō kā uri ā, muri ake nei)."* The goals include providing infrastructure to meet goals and objectives and minimise the harmful effects of waste. Of relevance to this report is the following target: *Reduce the amount of municipal solid waste disposed to landfill and incineration by at least 50% by 2030 compared to 2015.*

Relevant to this report are the following actions to be taken by Council to meet future demand, as stated in the Waste Minimisation and Management Plan 2020:

- To ensure Dunedin waste disposal facilities remain operational until the expiry of current consents, Council will provide transfer station facilities at Green Island and assess other Dunedin sites for suitability. As discussed in section 1.1, the planning around how Green Island and Smooth Hill will transition has been advanced.
- Organic waste processing facilities – a new ORB will be constructed for the processing of organic waste following the introduction of a new kerbside collection system in 2024.
- Council is preparing for the closure of GIL and will investigate and develop Smooth Hill Landfill to meet the future demand for landfill provision. As discussed in section 1.2, the revised plan is to extend Green Island closure, and, depending on waste volumes, waste acceptance will now likely occur until approximately 2029.
- Council will develop the RRPP, which will continue management of waste and recycling following landfill closure.

### 4.3.3 Te Ao Tūroa – Dunedin’s Environment Strategy 2016-2026

The purpose of Te Ao Tūroa is to:

- set the direction for a future safe from climate change impacts
- improve and maintain the health of Dunedin’s natural environment
- give Dunedin people every opportunity to feel connected to and look after the environment.

Goal 01 of Te Ao Tūroa sets out that “*Dunedin is resilient and carbon zero*”. Part of achieving this goal is through the minimisation of waste to reduce greenhouse gas emissions and to use resources sustainably. Most of Council’s emissions come from GIL. To reduce emissions, Council is focused on a number of initiatives such as minimising household waste and extending recycling collections. Te Ao Tūroa reinforces the aspiration of a zero waste city, which is being taken forward through the Waste Minimisation and Management Plan (refer section 4.3.2).

### 4.3.4 Social Wellbeing Strategy

Dunedin’s Social Wellbeing Strategy 2013-2023 (“the Strategy”) sets out pathways for Council to take a leadership role in improving the social wellbeing of Dunedin residents. The Strategy seeks to provide a vehicle for working towards shared responses and solutions with various communities across Dunedin and with other agencies and organisations. The vision of the Strategy is that “*Dunedin is one of the world’s great small cities. We are a city with connected people, cohesive communities and quality lifestyles for all*”. To achieve this, the Strategy sets out five Strategic Directions. Of relevance to this SIA is Strategic Direction 3: Healthy and Safe People, which includes Council’s responsibility to provide for sanitary disposal of waste for the community.

## 4.4 Iwi Management Plans

### 4.4.1 Kāi Tahu ki Otago Natural Resource Management Plan 2005

The Kai Tahu ki Otago Natural Resource Management Plan 2005 (KTO NRMP 2005) is the principal planning document for Kai Tahu ki Otago (Kai Tahu). The Plan has been developed to:

- Provide information, direction and a framework to achieve a greater understanding of the natural resource values, concerns and issues of Kai Tahu.
- Provide a basis for which Kai Tahu participation in the management of the natural, physical and historic resources of Otago is further developed.
- Provide the basis for, but not substitute, consultation and outline the consultation expectations of Kai Tahu.

The kaupapa of the KTO NRMP 2005 is “Ki Uta Ki Tai (Mountains to the Sea)”, which reflects the Kai Tahu philosophy to natural resource management. This kaupapa emphasises holistic management of the interrelated elements within and between catchments, from the air and atmosphere to the land and the coastal environment, for which implementation will require a collaborative approach.

Green Island is located within the “Otago Harbour” catchment, for which key issues relate to Wai Maori and Wai Tai; Wahi Tapu; Mahika Kai and biodiversity; and cultural landscapes.

# 5. Community profile

In developing the community profile, the SIA has investigated the suburbs most likely to be impacted by the project. The area of influence consists of the Local, District and Regional Study Areas, as described in section 2.3.1. In developing the community profile, this report has focused primarily on the Local Study Area to understand the characteristics of the potentially affected communities including the demographics, social infrastructure, and community aspirations to understand how positive and negative impacts may be perceived or experienced. The characteristics of the Local Study Area are compared to the District and Regional Study Area.

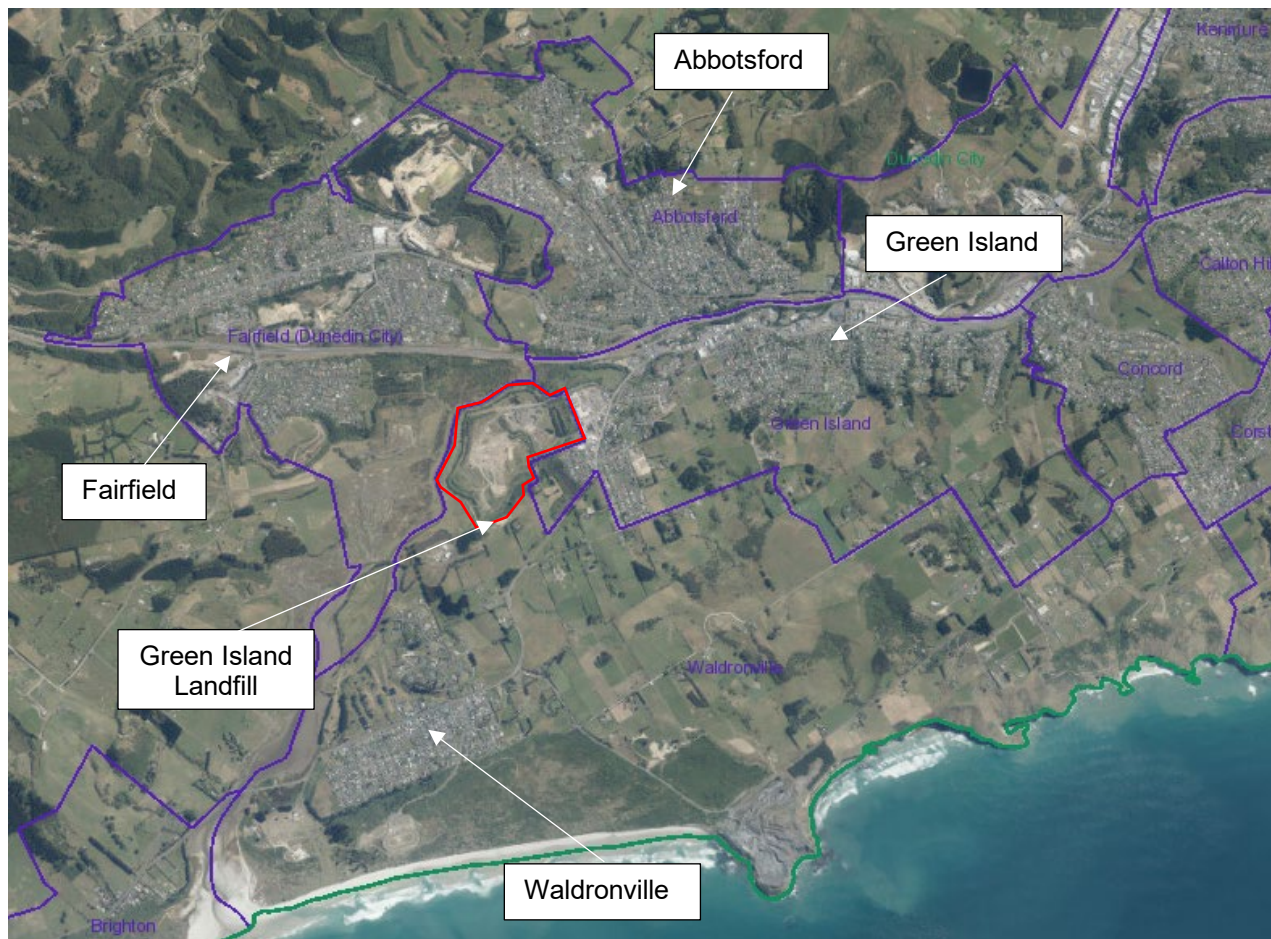


Figure 4 Local area of influence

## 5.1 Surrounding suburbs

There are four suburbs immediately surrounding the GIL site, described in Table 5.

Table 5 Suburb description

Suburb	Detail about the suburb
<b>Green Island</b>	<p>Green Island is the closest residential suburb to the landfill, located to the east of Brighton Road. It is located approximately 6.5 km southwest of the Dunedin CBD and is accessed primarily from State Highway 1.</p> <p>Green Island was established prior to 1863, and its predominant economic activity is a mixture of light and heavy industry. Green Island is well-served, with medical centres, a supermarket, small-scale retail and food outlets. It also contains a church, community centre, parks, early childhood education facilities, and two primary schools, which service the Waldronville and Abbotsford populations. The industrial activity generally sits between State Highway 1 and Main South Road, with residential streets located to the south.</p>

Suburb	Detail about the suburb
<b>Waldronville</b>	Waldronville is located 1.5 km south of the landfill, accessed via Brighton Road. It is 9.3 km from the Dunedin CBD. Established in the 1950s as a commuter suburb, Waldronville is predominantly residential with a range of recreational facilities including golf club, pistol club, speedway, and reserves by Kaikorai Estuary and Blackhead Beach. A quarry operated by Blackhead Quarries is located to the east of Blackhead Beach. Residents access local services and facilities located within the suburb of Green Island.
<b>Abbotsford</b>	The suburb of Abbotsford is located to the north of the GIL site across from State Highway 1. Abbotsford was established prior to 1953, when the Abbotsford School (primary) was established. The suburb is primarily residential, and contains a church, a kindergarten, and recreational facilities. Abbotsford residents utilise the services and facilities in the adjoining suburb of Green Island. Other social infrastructure in Abbotsford is accessed by the population in Green Island. Fulton Hogan sand quarry is sited to the north west of Abbotsford, adjacent to Fairfield.
<b>Fairfield</b>	Fairfield is located to the northwest of GIL and is accessed by Main Road, Main South Road and Old Brighton Road from State Highway 1. A sand quarry operated by Fulton Hogan is located to the northeast, and industrial activities are located along Main Road and Bremner Street. The predominantly residential suburb includes a primary school, Kaupapa Māori immersion school, reserves and recreation facilities, two churches and small stores.

## 5.2 Demographic profile

The following section presents a comparison of demographic statistics between the local, district and regional study areas to gain an understanding of the community characteristics and values. The demographic data has been obtained from Stats NZ 2018 Census place summaries and NZ.Stat, and is based on the usual residential population. For a detailed summary, please see the data in Appendix A.

*Table 6 Population and area of the areas of social influence*

Area of social influence	Area (km <sup>2</sup> )	Population
Local (SA2)	Waldronville	9.54
	Green Island	3.64
	Abbotsford	2.36
	Fairfield	3.96
District (Dunedin City)	3,286.27	126,255
Regional (Otago)	31,186.33	225,186

Dunedin City's population is projected to increase to 141,417 by 2033, with the over 65 years population predicted to be the second-largest group by 2038. This will be a population increase of 12% from 2018.

In terms of age of the population, the suburbs surrounding GIL have a higher median age than the population within the broader Dunedin City Council Area (36.8). The median ages for the four local areas range from 38 in Waldronville to 44.3 years in Fairfield. Waldronville and Abbotsford have higher proportions of population under 15 years (23% and 20% respectively) than the other suburbs, and the Dunedin City district and Otago region. The population over the age of 65 is 16% in Dunedin City and 16% in the Otago region, and 17% in Fairfield. Waldronville has 10% of its population over the age of 65.

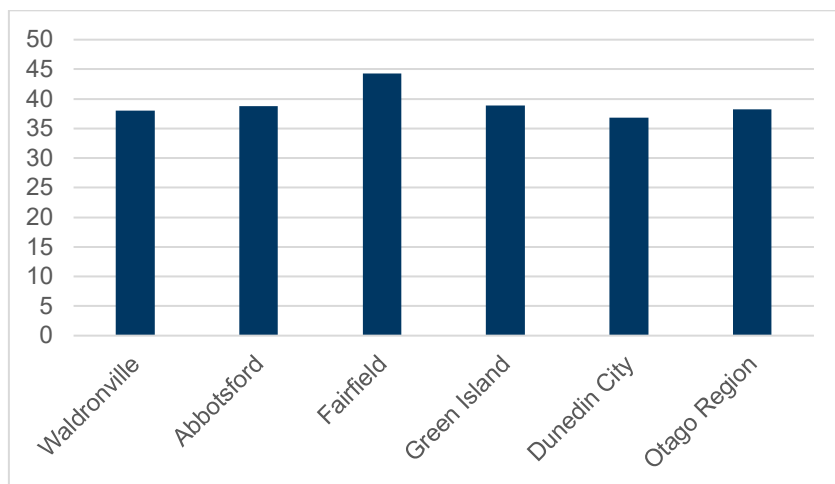


Figure 5 Median age of population in areas of influence

The predominant household composition across Waldronville, Abbotsford and Fairfield are couples with children, with this household type comprising 46%, 55% and 38% of households respectively. In Green Island and Dunedin City, single person households are more prevalent than other family types, comprising 30% of households in both statistical areas. The most prevalent household type for the broader Otago region are couples with no children (36%).

The most common ethnicity amongst Green Island, Waldronville, Fairfield and Abbotsford is NZ European, which makes up a minimum of 91% of the population. In comparison, the NZ European population in Otago and Dunedin City are 87% and 87% respectively. The second largest ethnic group across all population scales is Māori, ranging from 7% in Fairfield to 10% of the population in Green Island.

Employment within the suburbs is higher than Dunedin City or the wider Otago region. This reflects the large student population within Dunedin City. Unemployment ranges from 2% in Fairfield to 4% in Green Island. Employment in 'professional' occupations is most prevalent in Waldronville (23%) and Fairfield (22%), this compares to Dunedin City (26%) and Otago region (20%). In contrast, technician and trade occupations are the most prevalent in Green Island (16%) and Abbotsford (18%). Labourers range from 7% in Waldronville to 13% in Green Island. Machinery operators and drivers are the least prevalent occupation categories across all statistical scales.

For people aged 15 and over, the median incomes in Dunedin City and the Otago region are \$25,500 and \$30,000. These median incomes are lower than the four suburbs in the local study area, which range from \$32,300 in Green Island to \$40,300 in Waldronville. Green Island has the lowest population proportion earning over \$50,000 (28%), compared to Waldronville (40%), Abbotsford (34%) and Fairfield (39%). Over 40% of the Dunedin City population earns less than \$20,000 annually; in comparison, 33% of Green Island's population earns less than \$20,000.

Dwelling ownership within the local areas is relatively high (e.g. Fairfield at 67.8%), compared to Dunedin City (54.0%) and Otago region (52.2%). Rental occupation is highest within Green Island (23.7%) amongst the four suburbs, but is less than the district and regional scales (32.9% and 32.0% respectively). Waldronville has the lowest proportion of households living in rental properties at 5.4%. Of those who rent, the median rent paid is lowest in Green Island at \$250 weekly and highest in Waldronville (\$360), in comparison to the median rents of \$280 in Dunedin City and \$290 in the Otago region. The proportion of population that has remained within the suburbs ranges from 80.9% in the same house for a year in Abbotsford to 74.3% in Green Island. 52.7% of the population in Fairfield has remained in the same residence for five years, while 45.3% in Waldronville have remained in their residences for five years.



## 5.3 Social infrastructure

An audit was undertaken of social infrastructure located within 2 km of GIL in order to understand the potential impacts of the proposal on wellbeing and quality of life of the local residents. Social infrastructure identified included community facilities, education and childcare, emergency services, healthcare, places of worship, supermarkets and open space and recreation facilities. A full list, and map, of social infrastructure is included in Appendix B.

The identification and analysis of these facilities provides an understanding of where the local communities access local services and the potential for the project to impact access to or even the operation of these facilities. Although there is distribution of social infrastructure across the four suburbs surrounding GIL, Green Island is the primary local centre providing a supermarket, two primary schools, a community centre as well as small scale retail and food outlets. Residents in the suburb of Waldronville travel along Brighton Road, in close proximity to GIL site, on a regular basis in order to access services and facilities in Green Island.

Social infrastructure close to GIL site includes two primary schools (Peter Chanel School and Green Island School), two early childcare centres (Crackerjax Early Learning Centre and Green Island Kindergarten), two medical facilities, a supermarket, community garden, and a civic hall. Other social infrastructure in close proximity to the landfill includes Shand Park and the Elwyn Crescent Playground. These facilities have the potential to be directly impacted by the continued operation of the site.

The Kaikorai Estuary is an extensively modified, moderate-sized tidal lagoon. It is listed as an Area of Significant Conservation Value in the 2GP. The surrounding catchment is dominated by pasture (48 percent) and urban areas (21 percent).

As part of the resource consent application, Council proposes to prepare a long-term Vegetation Management and Restoration Plan for the site, which will be prepared in consultation with Te Rūnanga o Ōtākou within 1 year of resource consents being granted. The Vegetation Management and Restoration Plan will set out:

- The routine monitoring and maintenance necessary to promote the health and long-term stability of existing trees.
- Long-term post-closure actions for the replacement of existing trees, incorporating native trees to enhance natural character, landscape, amenity and cultural values.
- Riparian planting and pest management to support restoration of the ecological values of the Kaikorai Estuary, provision of habitat for taoka species and rebalancing of mauri.

## 5.4 Community values

Community values relate to the affinity that the local community has to the area in which they live and work. This affinity contributes to the vision they have for the future of their local area and is important to understand when considering the impact that a proposal could have on their way of life, culture, community and also fears and aspirations. A review has been undertaken of mana whenua documents, and local community surveys in order to gain a high-level understanding of the local community and cultural values.

### 5.4.1 Mana Whenua Values

Council have acknowledged their Treaty of Waitangi responsibilities and are committed to their partnership with mana whenua to provide opportunities for Māori to contribute to decision making processes and have an active role in the City's development. There is an operational partnership with Aukaha Ltd to ensure that mana whenua perspectives and mataawaka views are represented in decisions about the city, its community capacity and natural and physical resources.

Aukaha is a Kāi Tāhu Rūnaka based consultancy that represents five Papatipu Rūnaka across the broader Otago Region. These Rūnaka include the following that have been identified as having an active interest in GIL:

- Te Rūnanga o Ngāi Tahu
- Te Rūnanaga o Ōtākou
- Kāti Huirapa Rūnaka ki Puketeraki

Cultural values are also protected by the Kāi Tahu ki Otago Natural Resource Management Plan 2005 (refer section 4.4.1). The plan covers mana whenua perspectives on issues such as water management, protection of rivers, mahika kai, air and atmosphere, coastal environments, wāhi tapu and cultural landscapes. Effective participation is guaranteed via partnerships with ORC and Council.

The Kaikorai Estuary, Stream and other associated waterways make up an area which has immense traditional significance to mana whenua. Mana whenua seek to restore the estuary and its associated waterways to its traditional state.

## 5.4.2 Greater Green Island Community Survey 2016

The Greater Green Island Community Network (the GGICN) was established in January 2013 including communities within the suburbs of Abbotsford, Fairfield, Green Island and Waldronville. The GGICN was established to support locally led projects and improvements within the Greater Green Island Area. There has been initial engagement with the GGICN as part of the planning for the future of GIL and this will be ongoing. A community survey was undertaken in 2016 to understand community values in each of the local suburbs and to use this information to support local projects. Table 7 provides a summary of findings for each of the suburbs surrounding GIL.

*Table 7 Greater Green Island Community Survey 2016 results*

Suburb	Community value	Key statistics
Green Island	“When you walk into the shopping area, you nearly always meet someone you know, in other words you are not anonymous.”	<ul style="list-style-type: none"> <li>85% know the names of their next-door neighbours</li> <li>96% feel safe walking around the city in the daytime</li> <li>89% say Green Island is a good place to live</li> <li>64% agree and 18% disagree that there are sufficient public spaces for residents to meet and socialise.</li> <li>45% are concerned about vehicles dominating public spaces and streets</li> <li>38% are concerned about ugly or poorly maintained buildings</li> </ul>
Waldronville	“I love how safe it is, my children play on pavements, love walking to the beach and quiet nights. Even like watching the car racing every now and then.”	<ul style="list-style-type: none"> <li>85% know the names of their next-door neighbours</li> <li>96% say Waldronville is a good place to live</li> <li>92% feel safe walking around the city in the daytime</li> <li>24% say the most significant problem for Waldronville is the difficulty for pedestrians or cyclists to get around</li> <li>20% say noise from neighbours is a concern</li> </ul>
Abbotsford	“Friendly people, nice climate, good safe place for kids to play on the street and good schools”	<ul style="list-style-type: none"> <li>80% know the names of their next-door neighbours</li> <li>98% say it is a good place to live</li> <li>84% feel that the quality of life is high</li> <li>69% agree and 14% disagree that there are sufficient public spaces in our neighbourhood for residents to meet and socialise.</li> <li>67% think housing is affordable</li> <li>29% state that the most significant problem for Abbotsford is vehicles dominating public spaces and streets.</li> </ul>
Fairfield	“The people and just far enough away from town to relax but still super quick to get to town, best of both worlds.”	<ul style="list-style-type: none"> <li>87% know the names of their next-door neighbours</li> <li>99% say it is a good place to live</li> <li>99% feel safe walking around the city in the daytime</li> <li>40% agree there are sufficient public spaces to meet and socialise (37% disagree)</li> <li>26% state that the most significant problem for Fairfield are vehicles dominating public spaces and streets</li> </ul>

### 5.4.3 Quality of Life Survey 2020

Council participated in the 2020 Quality of Life survey which was undertaken in the major metropolitan areas of New Zealand. This was a survey of residents' perceptions of quality of life and included questions on topics such as quality of life, built and natural environment, health and wellbeing, crime and safety. The results are used by Council to monitor the city's progress towards its goals.

The survey was conducted in 2020 and involved 675 respondents, 73 were from the Green Island area. Key highlights from the survey relevant to this report are:

- 90% of residents rate their overall quality of life positively. Reasons for quality of life improving or worsening were work related, financial wellbeing, health and wellbeing, and lifestyle.
- 86% of respondents think that Dunedin is a great place to live, but 29% believed that the city is worse compared to 12 months prior to the survey. Community spirit and amenities were believed to have improved, but dissatisfaction with government systems, parking and housing were reasons why Dunedin worsened. Problems noted in Dunedin included traffic, water pollution, noise pollution and air pollution. Of the Green Island respondents, 81% believed that traffic congestion was a problem, 57% believed water pollution is a problem, 24% believed noise pollution was an issue, and 25% believed air pollution was a problem.
- Of the respondents, 76% believe they are in good physical health and 72% believe they are in good mental health.
- 67% of respondents believe a sense of community in their neighbourhood is important, and 54% felt a sense of community.
- 30% of the respondents are confident in the local council's decision making. The same amount believe that the public has an influence on council decision-making.
- Of those employed, 67% are satisfied with their jobs, and 63% are satisfied with their work-life balance.

## 5.5 Summary of community profile

The GIL site sits between the suburbs of Green Island, Fairfield, Waldronville and Abbotsford. Each of these suburbs are small in population accommodating no more than 2,500 residents. Green Island is the primary local centre providing a supermarket and the majority of social infrastructure that services the area. All of the suburbs offer affordable housing south-west of the Dunedin CBD, where it is anticipated most of the residents commute to for work. The suburb closest to GIL, Green Island, has the cheapest rent and also a high level of dwelling ownership. This indicates that people may have moved into the area taking advantage of the cheaper house prices.

The predominant household type is that of couples with children. The area has a semi-rural character, created by the Kaikorai Estuary. Properties are large in size with many offering rural-lifestyle properties. Overall, residents are very happy with where they live, which shows that the operation of GIL has had minimal impact on their lifestyle. 90% of residents rate their overall quality of life positively. Reasons for quality of life improving or worsening were work related, financial wellbeing, health and wellbeing, and lifestyle. Within the suburb of Green Island, 89% say it is a good place to live.

## 6. Community engagement

The following section provides an overview of community engagement undertaken to date on the future of GIL and ideas for the use of the site post closure. In addition, consideration has been given to current impacts of operations of the site on the surrounding community as documented in complaints received about the site.

### 6.1 Review of community complaints on current operations

A review of the site's odour complaint history was undertaken as part of the Air Quality Report. In summary, from July 2017 to August 2022, a total of 145 odour complaints were received in relation to the GIL. The number of complaints per year varied from 2 complaints in 2017 to 49 complaints in 2019. In general, most complaints were attributed to regular on-site operations, while a maximum of 6 complaints per year (in 2019) were attributed to odorous deliveries from wastewater treatment plants. 41 of the complaints did not have an identified source. For many of the complaints, a possible source was identified by Council including turning of the compost, activities at the tip face, the sludge pit, particularly odorous deliveries, LFG, or shut down of the flare and engine.

Most of the complaints (91 of 112 complaints) originated from southeast of the site. 54 of these originated from Clariton Avenue, the nearest residential street to the site. Other complaints from this direction came from Brighton Road (16 complaints), Allen Road (17 complaints), and other streets (4 complaints) within the Green Island suburb.

Other issues were also raised in local media. Traffic queues in Green Island were reported in January 2022 after a weighbridge was temporarily not functioning, which slowed the disposal of rubbish to the landfill (Marshall, 2022). An alert was also sent out in 2016 due to toxic smoke risks arising from a fire at the landfill, which required residents to stay inside (Chamberlain, 2016).

### 6.2 Engagement on the future of Green Island Landfill

Key stakeholder engagement on the future of Green Island landfill started in late 2022 following development of the preferred option for the closure of the landfill. Community engagement commenced in February 2023 and is ongoing as part of DCC's commitment to being a 'good neighbour'.

In addition to engagement on the ongoing operation and eventual closure of the landfill, community engagement also focuses on the overall Waste Futures Programme, including the new kerbside collection service which commenced in July 2024, the proposed new/improved RRPP facilities needed to support the new collection service, and the new Class 1 landfill currently planned at Smooth Hill.

A range of engagement activities have been held throughout 2023 and 2024 including:

- Meetings, site visits and briefings with key stakeholders including:
  - Aukaha and Te Rūnaka o Ōtākou
  - Otago Regional Council (ORC)
  - Dunedin City Councillors
  - Community Boards
  - Greater Green Island Business Association
  - Greater Green Island Community Network (GGICN)
- Regular project information flyers delivered to residential properties in Clariton Avenue, Taylor Street, Wavy Knowes and part of Walton Park
- Online information sessions with DCC staff, project team and residential neighbours

- A series of pop-up information sessions around the Green Island community, including at the Greater Green Island Get Together in September 2023
- One-on-one meetings with residential neighbours
- Open evening tours of the Green Island landfill site, led by DCC staff, with neighbours and interested parties
- Regular updates in the Greater Green Island Community newsletter

Key outcomes from the engagement with the community and stakeholders on the future operation and closure of the Green Island landfill are summarised as follows:

- Community members and stakeholders appreciated being informed about what has happened and responded positively to being kept informed about what was happening at GIL, including plans for closure (in approximately 2029), based on current waste disposal rates.
- There was a high level of interest in the new kerbside collection bin system, including the new bin to collect green and food waste and efforts made by Council to reduce waste and increase diversion of waste from landfill.
- Community members wanted to continue to receive regular updates on the plans for the closure of the Green Island land and the proposed landfill at Smooth Hill
- The community and stakeholders supported the idea that the area around Green Island site could provide recreation opportunities in the future, such as tracks and trails, when the landfill closed.
- There were concerns raised about the health of the Kaikorai Stream and Estuary and whether there were plans to improve the health of the waterway, including action needed to stop illegal dumping of waste.
- Concerns have also been raised regarding the effects to immediate neighbours of the landfill continuing to operate, particularly odour and noise.
- The importance of maintaining the existing screen planting to ensure that views of the ongoing landfill activities are kept to a minimum, whilst also maintaining the existing views to Pukemakamaka Saddle Hill.

The engagement activities and outcomes informed the development of the preferred option for the landfill closure. They also informed the resource consent application and are being considered as part of ongoing work in relation to wider plans for the site, including the RRPP and surrounding environment post closure.

One-on-one engagement with neighbours at Clariton Avenue is also continuing as part of the current operation of the landfill. There are also plans to initiate a Green Island landfill community liaison group (CLG) as part of the Green Island landfill consent application. Membership of the CLG is yet to be confirmed. It is likely to include representatives of key stakeholder and community groups, as well as residents who have expressed an interest in being part of a group as part of the engagement undertaken to date.

# 7. Review of technical studies and similar projects

A review was conducted of technical studies that supported the resource consent application for GIL. In addition, a review was conducted of other recent resource consent applications for similar projects to investigate potential social impacts that would need to be considered for GIL. The following section provides an overview of the documents that were reviewed.

## 7.1 Technical studies that supported the GIL resource consent application

The Interim SIA identified the technical studies that should be reviewed as part of this Social Impact Assessment. Table 8 provides an overview of the technical studies and their relevance to the SIA. More recent reports for the ORB and RRPP have not been reviewed, as these facilities will be subject to separate resource consent applications.

Table 8 Summary of technical reports and relevance to this SIA

Technical Study	Information of relevance to this SIA
Air Quality Report	<p>The air quality report identified a number of impacts that could have an adverse effect on the quality of life of the surrounding community. The impacts and assessment conclusions include:</p> <p><b>Odour assessment</b> - The Green Island (south-east) residential area, particularly Clariton Avenue, is expected to be the most likely receptor cluster to encounter odour due to the proximity to the site and odour complaint history.</p> <p><b>Dust assessment</b> - The greatest potential for nuisance dust to occur from the operation of the landfill is from the acceptance of dusty waste and vehicle movements on unpaved roads. Based on the current operational activities of the landfill, management measures, and FIDOL factors, the air quality report concludes it is unlikely that ongoing operational dust emissions will cause adverse effects beyond the site boundary.</p> <p><b>LFG combustion assessment</b></p> <ul style="list-style-type: none"> <li>• Nitrogen dioxide - there is limited potential for adverse effects on the environment.</li> <li>• Carbon monoxide – the potential for adverse health effects associated with CO emissions is expected to be low.</li> <li>• Particulate matter (PM10) – the potential for adverse health effects associated with PM10 emissions is expected to be low.</li> <li>• Particulate matter (PM2.5) – the potential for adverse health effects associated with PM2.5 emissions is expected to be low.</li> <li>• Sulphur dioxide – there is limited potential for adverse effects on the environment.</li> </ul>
Economic Assessment	<p>The following findings from the economic assessment are of relevance to this SIA in considering the impact the proposal could have on the livelihood of the community.</p> <ul style="list-style-type: none"> <li>• From a Dunedin City perspective, closing GIL in preference for out-of-district disposal will lead to job losses locally as the landfill will no longer be within Dunedin City limits. According to Council, approximately seven to eight staff work at the Green Island site.</li> <li>• While Smooth Hill is unlikely to open before 2027 at the earliest, any delay on that project, given the current labour market and plant and materials shortfalls, could mean that Dunedin is left without a financially responsible landfill option should Smooth Hill not be ready by 2028.</li> <li>• The proposed increase of capacity at GIL will extend the operational life of the site by approximately two more years to provide a buffer for Smooth Hill to be developed, as well as a cost-effective way of dealing with waste in the medium term.</li> <li>• Overall, the continued operation of GIL is considered the most economically cost-effective solution that minimises emissions, road wear-and-tear, congestion, and job losses, also ensuring enough waste disposal capacity is provided to accommodate delays in commissioning the Smooth Hill site.</li> </ul>



Technical Study	Information of relevance to this SIA
Landscape, Natural Character and Visual Effects Assessment	<p>The following findings from the Landscape, Natural Character and Visual Effects Assessment are of relevance to this SIA in considering the impact that the proposal would have on local amenity and place identity.</p> <p><b>Natural Character Effects</b> – The proposed landfill extension will avoid any areas of outstanding natural character. The existing level of natural character at the site is highly modified. The long history of reclamation, drainage and waste disposal has considerably altered biotic and abiotic systems. In this context, any change in natural character within the site will be very low in the context of the established landfill in its broader setting.</p> <p><b>Landscape Effects</b> – the proposed landfill extension will avoid any outstanding natural features and landscapes and highly valued amenity landscapes. Physical change within the landfill footprint during operation will be very low however overall physical landscape effects on landform are assessed as low-moderate adverse effects due to the extent of cut from the extended borrow area. Following closure, with completion of the capping and grassing at the landfill and borrow pit sites, landform effects will be low. Any change in landcover during the operational stages is considered to generate very low adverse effects. Following rehabilitation of the landfill and borrow pit sites with grass and implementation of the Vegetation Management and Restoration Plan, and the gradual increase in ecological connectivity over time, there will be positive landcover effects. The proposal will not appear prominent within views or uncharacteristic within the receiving landscape generating low-moderate adverse landscape character effects during operation. Once works are completed, the form and scale of the landform itself and the pattern of proposed vegetation would appear consistent with the existing rural landscape, generating low adverse effects.</p> <p><b>Visual Effects</b> – visual effects from surrounding private viewing areas will range from very low to low-moderate temporary adverse effects during operation. There is also potential for up to moderate levels of effect to be experienced from a block of land that is zoned residential but not currently built on, approximately 300 m northwest of the site. All such effects will reduce to no more than low once closure is completed. Views from surrounding public vantage points are considered to result in a range of temporary adverse effects from very low to low-moderate, the greater level of effect being experienced at Walton Park. These will reduce to very low adverse effects once closure is completed and grass has fully established.</p>
Cultural Impact Assessment	<p>The CIA provided information on the mana whenua values that have been incorporated into the SIA as part of the fears and aspirations that the community have for the GIL site. Information of particular relevance within the report is as follows:</p> <p><b>Mana whenua values guiding the land</b> – Te Rūnanga o Ōtākou have mana over the GIL site and surrounding area. The takiwā (area) of Te Rūnanga o Ōtākou centres on Ōtākou and extends from Pūhurehu to Te Matau and inland, sharing an interest in the lakes and mountains to the western coast with Rūnaka to the North and South.</p> <p><b>Landscape or areas of significance</b> - The Kaikarae Estuary is part of an integrated cultural landscape for mana whenua:</p> <ul style="list-style-type: none"> <li>• <b>Kaikarae Lagoon</b> - Pakaru is the traditional Māori name for the Kaikarae Lagoon, near the mouth of the Kaikarae stream. Along with Kaikarae, Pakaru was an important kāika mahinga kai for local Kāi Tahu. During the 1879 Smith-Nairn Royal Commission of Inquiry into the Ngāi Tahu land claims, local Ngāi Tahu kaumātua recorded Pakaru as a kāika mahika kai where tuna and pātiki were gathered.</li> <li>• <b>Kaikarae Lagoon and Stream</b> – Kaikarae is associated with the Waitaha explorer Rākaihautū. Upon arriving at Whakatū in the Uruao waka, Rākaihautū divided his people into two groups. His son, Rākihōuia, took one party to explore the coastline, and Rākaihautū led the other party through the interior of Te Waipounamu and down to Murihiku, using his kō named Tūwhakaroria to dig out most of the fresh-water lakes of Te Waipounamu. While travelling back up the island, Rākaihautū and his party stopped at the mouth of a stream to eat, and their food was a seabird known as karae. This particular location and stream was named Kaikarae.</li> <li>• <b>Saddle Hill</b> – Matamata was the kaitiaki of Kāti Māmoe chief Te Rakitauneke and is attributed to carving out the Ōtākou harbour and the Taiari river in search of his lost master when they became separated. The taniwha finally resting where Saddle Hill is now, becoming the peaks Turi-makamaka and Pukemakamaka.</li> </ul> <p><b>Uses of the land that could be impacted or benefitted from the landfill ultimately closing:</b></p> <ul style="list-style-type: none"> <li>• <b>Utu</b> – the closure of GIL provides an opportunity to restore ecological balance to this degraded estuary.</li> <li>• <b>Maumaharataka</b> – the closure of the GIL creates opportunities for interpretation of pūrākau of place, including place names, cultural heritage and narratives associated with the Kaikarae Estuary.</li> </ul>

Technical Study	Information of relevance to this SIA
	<ul style="list-style-type: none"> <li>• <b>Oraka</b> – This value is of significance due to the environmental regeneration of the Kaikarāe Estuary that is both required and proposed following closure of the GIL.</li> <li>• <b>Mahika Kai</b> – the restoration of the mauri of Kaikarāe estuary to provide healthy habitat for mahika kai and taoka species is a long-term vision for Ōtākou whānau. The closure of the GIL is a significant step towards achieving that vision.</li> </ul>
Interim Human Health and Environmental Risk Assessment	The objective of the Human Health and Environmental Risk Assessment was to evaluate whether contamination originating from the site may represent a risk to the human users or the environment of the catchment. The assessment found a number of chemicals including nitrate, zinc, and PFAS in samples both upstream and downstream from the landfill, suggesting contributions from across the catchment, rather than from the Green Island landfill itself. The report concluded that discharges from the site into the receiving environment of the Kaikorai Stream generally represent a low risk to human users of the waterway and the aquatic environment. The report recommends that there be a broader catchment approach to the ongoing monitoring of the contaminants to inform the public about the risks associated with the recreational use and food gathering within the catchment.

## 7.2 Resource Recovery Park Precinct (RRPP) Resource Consent Application

In March 2024, Dunedin City Council lodged a resource consent application for a number of activities associated with the construction and operation of a Resource Recovery Park within the north-eastern corner of GIL, as illustrated in Figure 3.

Proposed new resource recovery facilities for the RRPP include:

- Organic processing facility (OPF) (already in operation) including bunkers and maturation area to support the organic waste kerbside collection;
- Materials recovery facility (MRF) to sort and bale items collected from kerbside mixed recycling bins;
- Bulk waste transfer station (BWTS) to facilitate the compaction and trucking of waste to landfill;

Additional facilities include new glass bunkers, staff offices, parking, and breakrooms and associated access roads and truck parking areas. Several existing facilities are to be retained including the Rummage shop, public drop-off areas and the education centre.

The Otago Regional Council is considering the RRPP consent application and is working through the regulatory consent process, with DCC. A resource consent decision is expected later in 2024.

## 7.3 Smooth Hill Landfill resource consent application

Smooth Hill Landfill will have capacity of 2.94 million cubic metres, which is expected to accommodate 40 years of waste at current disposal rates. It is located 15.5 km southwest from GIL, and 23 km from the Dunedin CBD, as illustrated in Figure 6.



Figure 6 Location of Smooth Hill and Green Island Landfills

In preparing this SIA, consideration has been given to feedback received from the community through submissions received on the Smooth Hill Landfill resource consent application. This feedback has been considered because similar concerns may be expressed by the community in relation to the GIL consent being extended, even though GIL has been operating as a landfill site since 1954. It is also important to consider the development of Smooth Hill within the context of the GIL closure. In accordance with Council’s Waste Minimisation and Management Plan 2020 (section 4.3.2), the Smooth Hill site is being developed to meet the future demand for landfill provision, taking over from GIL after its closure.

ORC publicly notified the resource consent application for the proposed new landfill at Smooth Hill, with submissions open from 18 September 2021 to 15 November 2021. The resource consent application received submissions from 283 individual submitters. Of the submitters, 272 opposed, 9 were neutral, and 2 supported the proposal. Submissions were received from residents or wider Dunedin community members, government representatives, companies, environmental groups, neighbourhood groups, iwi and recreation/hobby groups.

One of the submitters included the Saddle Hill Community Board, who advocated for the community to stop the proposed landfill at Smooth Hill. The Board opposed the proposal for the following reasons:

- A lack of consultation with the community prior to lodgement of the resource consent application;
- Property values, recreational spaces and the local community impacted by the landfill proposal and lack of indication it would be located there;
- Increased risk of bird strike near Dunedin International Airport;
- Potential contamination of Otokia Creek;
- Fire risk;
- Changes to community wellbeing;
- Negative effects on local wildlife;
- Noise pollution from machinery; and
- Seismic vulnerability.

A summary of other concerns raised by the community in submissions received to the Smooth Hill Landfill resource consent application, is provided in Table 9 (Otago Regional Council, 2022).

**Table 9 Concerns raised through submissions on the Smooth Hill Landfill resource consent application**

<b>Theme</b>	<b>Concerns</b>
Air pollution	<ul style="list-style-type: none"> <li>• Contamination from dust</li> <li>• Discharge of odour due to prevailing wind patterns</li> <li>• Discharge of gases</li> </ul>
Property	<ul style="list-style-type: none"> <li>• Loss of property value</li> <li>• Lack of distance between landfill and residences</li> </ul>
Governance	<ul style="list-style-type: none"> <li>• Proposal is not consistent with the Resource Management (National Environmental Standards for Freshwater) Regulations 2020</li> <li>• New landfill does not support Council's commitment of Zero Waste and Carbon Zero by 2030</li> </ul>
Amenity	<ul style="list-style-type: none"> <li>• Visual landscape changes</li> <li>• Loss of amenity in Brighton</li> </ul>
Traffic	<ul style="list-style-type: none"> <li>• Increased traffic/congestion</li> <li>• Concerns about road safety from additional vehicle movement</li> <li>• Improvements in the road network surfaces</li> </ul>
Fire	<ul style="list-style-type: none"> <li>• Risk to adjacent properties</li> <li>• Emission of pollutants</li> </ul>
Community	<ul style="list-style-type: none"> <li>• Economic sustainability and tourism decrease</li> <li>• Loss of quality of life</li> <li>• Impacts on health and wellbeing</li> </ul>
Recreation	<ul style="list-style-type: none"> <li>• Increased traffic/vehicles impacting pedestrians and cyclists</li> <li>• Pollution impacting use of Brighton Bay (beach use, swimming)</li> </ul>
Environmental quality	<ul style="list-style-type: none"> <li>• Impacts on Otokia Creek and Brighton Creek from leachate and runoff</li> <li>• Effects on coastal water quality</li> <li>• Impacts on wetlands and vegetation</li> <li>• Impacts on native bird species</li> <li>• Increased scavenger and pest species</li> <li>• Potential for contamination in a seismic event</li> <li>• Soil contamination</li> </ul>

## 7.4 AB Lime Landfill resource consent application

AB Lime Landfill (also known as the Southland Regional Landfill) operates under a resource consent that enables discharge up to 100,000 tonnes of solid waste per year onto or into land. The site is located approximately 4 km east of the township of Winton, which is 30 km north of Invercargill.

In 2020, a resource consent was submitted to expand the ability of the site to accept waste by removing the 100,000 tonne discharge limit and to accept waste from a wider range of locations and in a majority of circumstances. The application proposed a shift to an effects management based approach, focussing on how to avoid, remedy or mitigate the potential or actual effects through a proposed environmental management framework, rather than having an annual cap on landfill waste able to be accepted.

This resource consent application was reviewed because of its similarities to the GIL proposal, in that the application is to increase the capacity of an existing landfill site. The resource consent, in its assessment of effects on the environment, acknowledged that the potential social effects are minimised by the fact that the landfill has been existing for nearly two decades, and the footprint of the landfill is set to remain consistent as it was when originally consented. The existing consented landfill is part of the environment.

In considering the social impacts of the proposal, the resource consent application stated that the impacts of this proposal were substantially less when compared to the development of a new landfill at a new location. It was considered that any adjustment to amenity values in the vicinity of the landfill had already occurred and the landfill now forms an integrated part of the existing environment.

In considering how this application relates to the GIL proposal, it is noted that the majority of impacts from GIL are also already part of the existing environment.

The AB Lime resource consent application identified the following issues that could affect the amenity of the surrounding neighbourhoods;

- Odour
- Landfill gas emissions
- Noise
- Traffic volumes
- Road safety effects
- Vermin and litter management
- Dust
- Litter spread

The following mitigation measures were recommended in the resource consent application to manage and minimise perceived negative social effects from the operation of the landfill:

- Ongoing consultation with the public through the Community Liaison Committee.
- Education for waste minimisation.
- Improved management and mechanisms for neighbours and authorities to manage complaints, particularly in relation to odour.
- Open communication channels for neighbours and affected parties.

On 17 June 2021, following an Environment Court Hearing, consent was granted subject to conditions. Conditions of relevance to this SIA include the requirement to maintain a record of any complaints relating to odour or dust; and the requirement to prepare and maintain a Landfill Concept, Landscape, Rehabilitation and Aftercare Plan.

## 7.5 Tirohia Landfill

Waste Management NZ Limited (WMNZ) submitted an application to Waikato Regional Council on 18 June 2020 for the development of a new landfill cell at the existing Tirohia Landfill, in Waikato, known as “Phase C”. The Tirohia Landfill is located at 65 Quarry Road, off SH26, at Tirohia approximately 6.5 km south of Paeroa in the Waikato Region.

The Tirohia Landfill has been operating since 2001. WMNZ purchased the site in 2016 from its previous owners and has been working towards improving the operation of the landfill since that time. The existing Tirohia landfill (known as ‘Phase B’) is expected to reach capacity in 2023. The application was to obtain consents to enable the development of a new landfill cell on the same site that will ultimately replace the existing Tirohia Landfill.

This resource consent application was reviewed because of its similarities to the GIL proposal, in that the application is to increase the capacity of an existing landfill site.

Social impacts identified by the consent application included job continuation. By constructing and operating the proposed Tirohia Landfill, Phase C, the jobs that the current facility provides would continue to be required until the new landfill cell is closed and rehabilitated. Identified amenity impacts that could have a social impact included: impacts upon cultural values (Ngati Hako), noise, traffic, litter and vermin and weeds.

This application was declined for a number of reasons, including that the proposal was inconsistent with the objectives of a number of policies in the relevant planning documents. It was also determined that the proposed conditions of consent could not adequately remedy or mitigate the significant and cumulative adverse cultural effects.

A significant difference between this Tirohia Landfill application and GIL is that the application to extend the resource consent for GIL is to provide sufficient time for the Smooth Hill Landfill to be constructed. GIL will only be in operation for four to six years before it is closed.



## 8. Assessment of Impacts

In considering the social impacts of the project, it is important to acknowledge the existing operations of GIL. The site has been operating as a landfill since the 1950s. These operations as outlined in Section 3 have created existing social impacts on the surrounding community, some of which have been documented in Section 6.1. The assessment of the potential social impacts from the continued operation and closure of GIL has focussed on the potential for an increased or decreased impact on the existing and future social environment.

Analysis of the proposal, supporting technical studies and community profile has identified the following key themes with regard to potential impacts. The SIA has identified impacts within each of these themes that could occur during the construction, operation and then landfill closure phases of the project. The key themes are:

- **Health and wellbeing** – Changes in the surrounding environment as a result of the proposal could have an impact on the health and wellbeing of the surrounding population.
- **Economy, businesses and employment** – Impacts on the local and regional economy. Consideration is also given to value of surrounding properties.
- **Amenity and character** – Changes to amenity can impact people's way of life, and what people value about their community including their fear and aspirations for its future.
- **Fears and aspirations** – The community's perceptions about their safety, their fears about the future of their community, and their aspirations for their future and the future of their children.

An Assessment of Impacts table has been provided in Appendix C. The following sections describe in detail the anticipated social impacts.

### 8.1 Health and wellbeing

There is the potential that the proposal will have environmental impacts that would have the indirect consequence of impacting the overall health and wellbeing of the surrounding community. The impacts will vary depending on the phase of the project.

A Human Health and Environmental Risk Assessment (HHERA) was prepared to evaluate whether contamination originating from the site may create a risk to the human users or environment of the catchment. The assessment involves the comparison of chemical concentrations upstream and downstream along Kaikorai Stream to identify site-related contaminants. A number of chemicals including nitrate, zinc, and PFAS were detected in samples both upstream and downstream from the landfill, suggesting contributions from across the catchment. The assessment concluded that discharges from the site into the receiving environment of the Kaikorai Stream generally represent a low risk to human users of the waterway and the aquatic environment.

Closure of GIL will provide an opportunity to restore ecological balance to the Kaikorai Estuary. This has the potential for the waterway to have recreation uses. The SIA supports the recommendation in the HHERA for the catchment-wide monitoring of contaminants so that the community can be informed about risks associated with recreational use and food gathering within the catchment.

The most common complaint from the community regarding the existing operation of the landfill relates to odour being emitted from the site, as documented in section 6.1. This concern was also raised in consultation sessions with the community about the proposal. The increased height and capacity of the landfill has the potential to increase odours being emitted from the site. According to the Air Quality report, it is anticipated that this will most likely impact the residential area southeast of the site along Clariton Avenue, as these are the closest dwellings and residents from these properties have previously made complaints about odours from the site. To mitigate this, the tip face will be developed further west, away from the residential properties. In addition, an odour cannon, as recommended within the Air Quality report will be used during low wind speed conditions to dissipate adverse odours. Odour emission impacts are discussed further below.

It is anticipated that dust particularly from construction activity associated with the raising/extension of the landfill cap will have an adverse impact on health and wellbeing. It has the potential to impact air quality and create a health hazard, particularly for those at risk of respiratory issues including children and elderly residents. Dust suppression measures should be implemented to reduce the generation of dust.

In addition to dust, other construction impacts that have the potential to impact on health include noise and vibration. This has the potential to impact residential properties and businesses within the suburb of Green Island. To minimise impacts, construction works should only occur during regular working hours, and in compliance with the designation noise condition for the site.

Odour emission impacts on the amenity of the surrounding area and has the potential to create a health impact for those with respiratory illness and also by introducing unpleasurable odour into the community; which can induce stress when people are forced to take actions to mitigate the odour (e.g. closing doors and windows, thereby preventing ventilation of homes). Analysis of the gases emitted from the site, as documented in the Air Quality report, has determined that the risk of health impacts is low. The Air Quality report has made recommendations to ensure this is maintained as low risk. These recommendations include:

- Installation of daily and intermediate cover material.
- Permanent capping of the landfill and installation of permanent LFG wells as soon as practicable.
- Installation of intermediate horizontal and vertical LFG wells as the landfill is developed and prior to permanent capping to capture LFG.

There is a risk, as with any landfill site, that vermin such as rats, mice and feral cats can be brought to the site in loads of waste or are attracted by the food source and migrate from surrounding areas. Vermin have the potential to spread disease. In the summer months, flies at the site are also capable of transmitting salmonella and other food-borne diseases. Existing management practices in place at the site, such as covering the site and regular inspections by pest contractors, have reduced the risk of adverse health impacts to the surrounding community, and it is anticipated that these practices will continue.

Once the landfill site closes, the majority of the adverse impacts associated with the operation of the landfill will cease. With appropriate rehabilitation, there will be remediation opportunities for the site. There is the potential for walking tracks and recreation facilities to be established that would enable improved health and wellbeing for the surrounding community. In the Quality of Life Survey 2020, 57% of respondents believed water pollution was a problem, 24% believed noise pollution was an issue, and 25% believed air pollution was a problem. Closure of the GIL site will address some of the concerns raised by the community regarding pollution.

The proposed conditions of consent included as part of the resource consent application include the requirement that a complaint management, investigation and reporting system be maintained by the consent holder. This is required during construction, operation, closure and aftercare of the landfill to record the receipt and management of all complaints, including those regarding odour or dust. All complaints must be investigated, and a response provided to the complainant. The complaints record must be made available to ORC on request. The SIA supports this condition of consent.

In addition to the complaints register, it is proposed that a Green Island Landfill CLG be established as part of the GIL consent application. Membership of the CLG is yet to be confirmed but would likely include representatives of key stakeholder and community groups as well as residents, including those from Clariton Avenue, who have expressed an interest in being part of the group. This SIA supports the establishment of the CLG as a mechanism to manage the adverse impacts from the construction and operation of both GIL and the RRPP.

Overall, within the category of health and wellbeing the impacts of the project are considered to be Slight Negative. This is provided that appropriate mitigation measures are implemented to minimise the adverse impacts.

## **8.2 Economy, businesses and employment**

The population of Dunedin is increasing and additional landfill capacity is required to accommodate the waste anticipated to be generated by the growing number of residents and workers. Although Smooth Hill has been identified as a long-term solution, that site will not be available until 2028 at the earliest. The proposal to which this SIA relates is to increase the capacity of GIL so that the operational life of the site is extended, providing sufficient time for the construction of the Smooth Hill Landfill.

Without an increase in the capacity of GIL, there is a risk that there would be no capacity for the safe disposal of residential and commercial waste in Dunedin. Consequently, there would be significant costs for waste to be transferred to other facilities outside Dunedin. The Economic Assessment investigated three scenarios; build a new landfill, export waste out of Dunedin to other landfills or increase the capacity at GIL. The report concluded

that the most cost-effective solution that minimises emissions, road wear-and-tear, congestion, job losses and site-specific environmental impacts in Dunedin is that resource consent be granted to extend operation beyond October 2023 for the Green Island site, and that capacity be increased to accommodate waste until the commissioning of the Smooth Hill Site.

Approximately seven to eight staff work at GIL. These jobs will be maintained while the site continues to operate as a landfill, and there is the potential for these staff to transfer to the Smooth Hill Landfill once it is constructed as this facility is 15.5 km southwest of the GIL site.

Because GIL is already operating as a landfill, it is anticipated that there would be no impact to property values for the residential dwellings in close proximity to the site. Once GIL has been prepared for closure there is the potential for these dwellings to increase in property value, particularly if the site is rehabilitated to provide improved recreational opportunities. Although this has not been investigated as part of the economic assessment, it is possible that the change in use could have a positive impact on surrounding land values.

Overall, for the category of economy, businesses and employment the social impacts are considered to be Moderate Positive.

### **8.3 Amenity and character**

GIL has been operating since 1954 and is part of the community which has grown since the landfill was established. The proposal is not anticipated to have a significant impact on the amenity of the local area. The proposed extension of the landfill and increase in capacity will avoid any areas of outstanding natural features and landscapes and highly valued amenity landscapes.

The proposed increase in capacity of the landfill has the potential to create a visual impact due to the increased height and/or extent of landfill cap and associated impacts on views to the site. Consultation with the community supported the existing screen planting to ensure that views of the ongoing landfill activities are kept to a minimum, while also maintaining the view to Pukemakamaka Saddle Hill. According to the Landscape and Visual Assessment, the impacts from surrounding private residential viewing areas will range from very low to low moderate impacts during operation.

The visual impacts are anticipated only to be adverse impacts while the landfill is in operation. Once the site has been prepared for closure and the land rehabilitated, views from public vantage points will improve due to regeneration of the site with the covering and replanting, having a positive impact on the area. Consultation with the community supported the idea that the area around the Green Island site could provide recreation opportunities in the future, such as tracks and trails.

Closure of GIL also provides an opportunity to restore ecological balance to the Kaikorai Estuary. For mana whenua, this is an opportunity for the cultural values of the area to be restored through interpretation of pūrākau of place, including place names, cultural heritage and narratives associated with the Kaikorai Estuary. According to the CIA, the restoration of the mauri of Kaikorai estuary to provide healthy habitat for mahika kai and taoka species is a long-term vision for Ōtākou whānau. The closure of GIL is significant step towards achieving that vision.

Restoration of the Kaikorai Estuary is strongly supported by the community. The Dunedin Environment Centre Trust (DECT) began restoring native bush to the land around GIL in 2009. Closure of the landfill will enable the site to be regenerated with planting that will complement the estuary. A long-term Vegetation Management and Restoration Plan for the site will be prepared as part of the proposal. This Plan will be prepared in consultation with Te Rūnanga o Ōtākou within 1 year of resource consents being granted.

Overall, because GIL has been operating as a landfill since 1954 it is anticipated that the proposed increase in capacity of the site will have minimal impact on the amenity and character of the area. This is supported by both the Landscape and Visual Assessment and the CIA. Closure of GIL will have significant benefits enabling the site to be rehabilitated. Restoration of the natural habitat of the site is the long-term vision for Ōtākou whānau.

### **8.4 Fears and aspirations**

For the community, the proposal will provide some certainty for the future of GIL. Closure of the landfill has been anticipated for some time and the consent application will confirm that the site will be closed in approximately 2029..

Feedback from the community obtained through the consultation process demonstrated a high level of support for the site being able to provide recreation opportunities in the future as well as restoration of the Kaikorai Stream and Estuary. The Quality of Life Survey found that of the Green Island respondents, 81% believed that traffic congestion was a problem, 57% believed water pollution is a problem, 24% believed noise pollution was an issue, and 25% believed air pollution was a problem. Closure of the landfill and regeneration of the site for public recreational use will address some of the concerns that emerged from the survey. Consultation with the community supported the idea that the area around the Green Island site could provide recreation opportunities in the future, such as tracks and trails.

The Kaikorai Stream and Estuary, and other associated waterways, make up an area which has immense traditional significance to mana whenua. According to the CIA, the aspiration of Te Rūnanga o Ōtākou is to incorporate mana whenua values and pūrākau associated with the Kaikorai Estuary in a tangible way through restoration of mahika kai and biodiversity values and through design opportunities following closure of the landfill.

In order to achieve the aspirations of Te Rūnanga o Ōtākou, there will need to be a co-design process with mana whenua over the long-term post closure use of the site, including to incorporate mana whenua values and pūrākau associated with the Kaikorai Estuary. The outcomes of this co-design process, including actions for their implementation will be documented in the Landfill Closure Management Plan (LCMP).

For the category of fears and aspirations the impact is assessed as Moderate Positive because of the certainty provided for the closure of the landfill. Ongoing consultation with the community will enable the aspirations for the site to be considered in the long-term future of the site once closure has occurred.

## 9. Recommendations

Throughout the Assessment of Impacts, recommendations have been made regarding mitigation measures that would reduce the potential negative social impacts of the proposal. This SIA supports the recommendations made in the other technical reports including:

- A co-design process should be undertaken with mana whenua over the long-term post closure use of the site, including to incorporate mana whenua values and pūrākau associated with the Kaikorai Estuary. The outcomes of this co-design process, including actions for their implementation should be documented in the LCMP. This was recommended in the CIA.
- Recommendations made in the Air Quality report regarding management of odour, which included;
  - Minimising truck waiting times outside the site;
  - Use of an odour cannon during low wind speed conditions; and
  - The landfill face will be developed further west, away from this receptor cluster.
- Recommendations made in the Air Quality report regarding mitigation of dust, which included:
  - A maximum speed limit of 30km/hr will apply in all areas of the site;
  - Permanent roads on the site and used as part of the day-to-day operations should be sealed and well maintained;
  - Water carts will be used on both sealed and unsealed roads as required during dry periods. Generally visual observation is used to judge the need for water carts;
  - Temporary roads on the landfill will be properly maintained and grated; and
  - Dust generating wastes will be treated as special waste. The customer will be required to dampen down the load prior to delivery to site, and special controls will be implemented at the disposal point (e.g. water sprays, waste pit, etc.).
- Recommendations in the Air Quality report to manage pollution:
  - Installation of daily and intermediate cover material;
  - Permanent capping of the landfill and installation of permanent LFG wells as soon as practicable; and
  - Installation of intermediate horizontal and vertical LFG wells as the landfill is developed and prior to permanent capping to capture LFG.
- Recommendations in the HHERA regarding monitoring of contamination in the waterways:
  - Catchment wide monitoring of contaminants so that the community can be informed about risks associated with recreational use and food gathering within the catchment.
- The condition of consent within the Resource Consent Application that a complaint management, investigation and reporting system be maintained by the consent holder. This is required during construction, operation, closure and aftercare of the landfill to record the receipt and management of all complaints, including those regarding odour or dust. The establishment of a CLG is also supported to provide a mechanism for key stakeholders, community groups and residents to report complaints and adverse impacts of the proposal.

In addition to the above mitigation measures, this SIA recommends the following:

- Construction and operation communication plan that provides surrounding residents with information about when works are commencing.
- Activities onsite are to only occur during approved hours of operation for the Green Island landfill. If it is necessary for activities to occur outside of these hours, communication with neighbouring residents should be undertaken in advance.

- Ongoing engagement with the community with regular updates on the Waste Futures Programme and the development of Smooth Hill. Consultation should be undertaken with the community as part of the GIL closure phase. Engagement can also be undertaken through the CLG.
- Existing pest management practices are maintained, this includes compaction of waste and covering the site as well as regular inspection by pest control contractors.



# 10. Conclusions

Council has embarked on the Waste Futures Programme to develop an improved comprehensive waste management and diverted material system for Ōtepoti Dunedin. This is part of Dunedin's wider commitment to reducing carbon emissions and reducing waste going to landfill. The Waste Futures Programme includes the roll out of an enhanced kerbside recycling and waste collection service for the city from July 2024. The new service will include collection of food and green waste.

To support the implementation of the new kerbside collection service, Council is planning to make changes to the use of GIL in coming years. The proposed changes include planning for the closure of GIL, which is coming to the end of its operational life, and the establishment of a new landfill, currently planned for a site south of Dunedin, at Smooth Hill.

Depending on the time needed to undertake baseline monitoring, prepare management plans, design landfill and supporting infrastructure, and for construction, Council anticipates that the new Smooth Hill landfill will not be able to accept waste until 2028/2029 at the earliest. Therefore, in the interim, Council plans to continue to use GIL for waste disposal.

The existing ORC resource consents, required to operate a landfill at Green Island, expire in October 2023. Therefore, Council has applied to ORC for replacement resource consents to continue to use the landfill until it closes completely, and waste disposal can be transferred to a new landfill facility.

This SIA has investigated the potential social impacts from construction works to increase the capacity of GIL, ongoing operation of GIL and then the process towards its subsequent closure. GIL has been operating since 1954 and is part of the community which has grown since the landfill was established. For this reason, the adverse social impacts during the construction and operation are expected to be minor.

The resource consent application is to increase the capacity of GIL so that the operational life of the site is extended providing sufficient time for the construction of the Smooth Hill Landfill. There will be some minor negative impacts associated with the increase in capacity and operation of GIL, such as continued odour emissions, noise and vibration and minor visual amenity impacts. However, the continued operation of GIL until a new landfill facility is established will enable the continuation of waste services. This means that rubbish disposal for businesses and residents in Dunedin City will be able to continue with minimal impact to their operations and at minimal cost. This is a moderate positive social benefit for the proposal.

Closure of GIL will have significant positive benefits for the community. When the landfill closes completely, there will be opportunities for environmental enhancements and public recreational use around the edge of the site. Examples could be planting restoration projects and new walking and biking tracks beside the Kaikorai Estuary. Long-term use and public access to the landfill site post-closure will be determined in consultation with Te Rūnanga o Ōtākou, the local community and key stakeholders.

The proposal is considered to have an overall social benefit to the community. The negative impacts are considered minor given GIL is an existing operational landfill, and the impacts can be mitigated through implementation of the recommendations made throughout this report.

# 11. Limitations

This report has been prepared by GHD for Dunedin City Council and may only be used and relied on by Dunedin City Council for the purpose agreed between GHD and Dunedin City Council as set out in Section 1 of this report. These purposes include as part of the consent application for the landfill closure and associated resource consent hearings.

GHD otherwise disclaims responsibility to any person other than Dunedin City Council arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

GHD has prepared this report on the basis of information provided by Dunedin City Council and others who provided information to GHD (including Government authorities), which GHD has not independently verified or checked beyond the agreed scope of work. GHD does not accept liability in connection with such unverified information, including errors and omissions in the report which were caused by errors or omissions in that information.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

Specifically, this report does not take into account the effects, implications and consequences of or responses to COVID-19, which is a highly dynamic situation and rapidly changing. These effects, implications, consequences of and responses to COVID-19 may have a material effect on the opinions, conclusions, recommendations, assumptions, qualifications and limitations in this report, and the entire report may be re-examined and revisited in light of COVID-19. Where this report is relied on or used without obtaining this further advice from GHD, to the maximum extent permitted by law, GHD disclaims all liability and responsibility to any person in connection with, arising from or in respect of this report whether such liability arises in contract, tort (including negligence) or under statute. The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in this report. GHD disclaims liability arising from any of the assumptions being incorrect.

## 12. References

- Chamberlain, R. (2016, April 19). Toxic smoke fears in landfill fire (+ video). *Otago Daily Times*. Retrieved from <https://www.odt.co.nz/>
- Colliers. (2021). Bumper development site on offer in Dunedin. Retrieved from <https://www.colliers.co.nz/en-nz/real-estate-news/bumper-development-site-on-offer-in-dunedin>
- Dunedin City Council. (2012). Dunedin Towards 20250 a spatial plan for Dunedin. Retrieved from [https://www.dunedin.govt.nz/\\_\\_data/assets/pdf\\_file/0009/281817/Spatial-Plan-for-Dunedin2.pdf](https://www.dunedin.govt.nz/__data/assets/pdf_file/0009/281817/Spatial-Plan-for-Dunedin2.pdf)
- Dunedin City Council. (2013). Dunedin's Economic Development Strategy: By Dunedin for Dunedin and beyond 2013-2023. Retrieved from [https://www.dunedin.govt.nz/\\_\\_data/assets/pdf\\_file/0008/262997/Dunedins-Economic-Development-Strategy-2013-2023.pdf](https://www.dunedin.govt.nz/__data/assets/pdf_file/0008/262997/Dunedins-Economic-Development-Strategy-2013-2023.pdf)
- Dunedin City Council. (2013). Dunedin's Social Wellbeing Strategy 2013-2023. Retrieved from [https://www.dunedin.govt.nz/\\_\\_data/assets/pdf\\_file/0007/274255/Social-Wellbeing-Strategy.pdf](https://www.dunedin.govt.nz/__data/assets/pdf_file/0007/274255/Social-Wellbeing-Strategy.pdf)
- Dunedin City Council. (2016). Te Ao Tūroa – The Natural World; Dunedin's Environment Strategy 2016-2026. Retrieved from [https://www.dunedin.govt.nz/\\_\\_data/assets/pdf\\_file/0010/618598/Te-Ao-Turoa-The-Natural-World-Dunedins-Environment-Strategy-2016-2026.pdf](https://www.dunedin.govt.nz/__data/assets/pdf_file/0010/618598/Te-Ao-Turoa-The-Natural-World-Dunedins-Environment-Strategy-2016-2026.pdf)
- Dunedin City Council. (2020). Smooth Hill. Retrieved from <https://www.dunedin.govt.nz/council/council-projects/waste-futures/smooth-hill>
- Dunedin City Council. (2020). Waste Minimisation and Management Plan 2020. Retrieved from [https://www.dunedin.govt.nz/\\_\\_data/assets/pdf\\_file/0020/342902/WMMP-Waste-Minimisation-and-Management-Plan-Updated-May-2021-WEB.pdf](https://www.dunedin.govt.nz/__data/assets/pdf_file/0020/342902/WMMP-Waste-Minimisation-and-Management-Plan-Updated-May-2021-WEB.pdf)
- Dunedin City Council. (2021). DCC Smooth Hill Consenting Air Quality Assessment. Retrieved from <https://www.orc.govt.nz/media/10305/application-appendix-10-air-quality-report.pdf>
- Dunedin City Council. Saddle Hill Community Board Community Plan. Retrieved from [https://www.dunedin.govt.nz/\\_\\_data/assets/pdf\\_file/0005/148271/SHCB-Community-Plan-2021-22-Updated-October-2021.pdf](https://www.dunedin.govt.nz/__data/assets/pdf_file/0005/148271/SHCB-Community-Plan-2021-22-Updated-October-2021.pdf)
- Dunedin City Council. (2021). Saddle Hill Community Board public agenda. Retrieved from [https://infocouncil.dunedin.govt.nz/Open/2021/11/SHCB\\_20211118\\_AGN\\_1693\\_AT\\_WEB.htm](https://infocouncil.dunedin.govt.nz/Open/2021/11/SHCB_20211118_AGN_1693_AT_WEB.htm)
- Dunedin City Council. (2021). 10 year plan 2021-31. Retrieved from [https://www.dunedin.govt.nz/\\_\\_data/assets/pdf\\_file/0009/830979/10-Year-Plan-2021-31.pdf](https://www.dunedin.govt.nz/__data/assets/pdf_file/0009/830979/10-Year-Plan-2021-31.pdf)
- Dunedin City Council. (2022). Waste Futures. Retrieved from <https://www.dunedin.govt.nz/council/council-projects/waste-futures>
- Environmental Institute of Australia and New Zealand. (2013). Environmental and social impact assessment good practice statements. Retrieved from <https://www.eianz.org/document/item/2500>
- Jacobs. (2020). AB Lime Limited Landfill Resource Consent Application. Retrieved from <https://www.es.govt.nz/repository/libraries/id:26gi9ayo517q9stt81sd/hierarchy/environment/consents/notified-consents/2021/AB-Lime-Ltd/Application%20documents%20and%20further%20information/Application%20A%20B%20Lime%20Limited%20%28Part%201%29.pdf>
- Kāi Tahu ki Otago. (2005). Kāi Tahu ki Otago Natural Resource Management Plan 2005. Retrieved from <https://www.orc.govt.nz/media/11526/kai-tahu-ki-otago-natural-resources-management-plan-2005.pdf>
- Marshall, A. (2021, December 21). Crying foul over stink coming from landfill. *Otago Daily Times*. Retrieved from <https://www.odt.co.nz/>
- Marshall, A. (2022, January 15). Landfill weighbridge out of action – ‘some delays’ likely. *Otago Daily Times*. Retrieved from <https://www.odt.co.nz/>

NSW Department of Planning and Environment. (2021). Social impact assessment guideline for state significant projects. Retrieved from <https://www.planning.nsw.gov.au/-/media/Files/DPE/Guidelines/Policy-and-legislation/Social-Impact-Assessment/SIA-Guideline.pdf>

NZ Transport Agency. (2016). People, place and environment series: social impact guide. Retrieved from <https://www.nzta.govt.nz/assets/resources/guide-to-assessing-social-impacts-for-state-highway-projects/16-243-People-and-place-state-highway-social-impact-guide-2017-FINAL.pdf>

Otago Regional Council. (2021). Partially Operative Otago Regional Policy Statement 2019. Retrieved from [https://www.orc.govt.nz/media/9658/rps\\_partially-operative\\_2019\\_2021.pdf](https://www.orc.govt.nz/media/9658/rps_partially-operative_2019_2021.pdf)

Otago Regional Council. (2021). Proposed Otago Regional Policy Statement June 2021. Retrieved from <https://www.orc.govt.nz/media/10027/proposed-otago-regional-policy-statement-june-2021.pdf>

Otago Regional Council. (2022). Applicant expert witnesses' comments made at the Hearing in response to issues raised in submitters evidence. Retrieved from <https://www.orc.govt.nz/media/12294/responses-to-submitters-evidence.pdf>

Otago Regional Council. (2022). Summary of submissions. Retrieved from <https://www.orc.govt.nz/media/12261/summary-of-submissions-rm-20280.pdf>

Resource Management Act 1991. Retrieved from <https://www.legislation.govt.nz/act/public/1991/0069/latest/whole.html#DLM230265>

Stacey, P.W. (2022). Statement of Evidence of Peter Warwick Stacey. Retrieved from <https://www.orc.govt.nz/media/12183/09-statement-of-evidence-of-peter-warwick-stacey-signed.pdf>

Stats NZ. (2022). 2018 Census place summaries. Retrieved from <https://www.stats.govt.nz/tools/2018-census-place-summaries/>

Stats NZ. (2022). NZ.Stat. Retrieved from <https://nzdotstat.stats.govt.nz/wbos/Index.aspx#>

Te Rūnanga o Ngāi Tahu. (2022). Kā Huru Manu Atlas. Retrieved from <https://www.kahurumanu.co.nz/atlas>

Tonkin + Taylor. (2020). Tiohia Landfill, Phase C Assessment of Environmental Effects. Retrieved from <https://waikatorc.sharepoint.com/sites/rc-applications/Shared%20Documents/Forms/AllItems.aspx?id=%2Fsites%2Frc%2Dapplications%2FShared%20Documents%2FAPP141959%20Waste%20Mangement%20NZ%20Limited%2FAPP141959%5F%2D%5FTirohia%5FLandfill%2C%5FPhase%5FC%5F%2D%5FAssessment%5Fof%5FEnvironmental%5FEffects%2C%5FTonkin%5Fand%5FTaylor%2C%5FJune%5F2020%5F%28Volume%5F1%29%2Epdf&parent=%2Fsites%2Frc%2Dapplications%2FShared%20Documents%2FAPP141959%20Waste%20Mangement%20NZ%20Limited&p=true&ga=1>

Vanclay, F., Esteves, A. M, Aucamp, I. & Franks, D. M. (2015). Social Impact Assessment: guidance for assessing and managing the social impacts of projects. Retrieved from <https://www.socialimpactassessment.com/documents/IAIA%202015%20Social%20Impact%20Assessment%20guidance%20document.pdf>

Waste Minimisation Act 2008. Retrieved from <https://www.legislation.govt.nz/act/public/2008/0089/latest/whole.html#DLM999802>

# Appendices





# **Appendix A**

## **Demographic Information**

## Population count

Table 10 Population count of the SA2s, district and regional statistical areas

Statistical group	2006	2013	2018
Waldronville	861	1,128	1,299
Abbotsford	2,400	2,496	2,817
Fairfield	2,268	2,415	2,511
Green Island	2,283	2,235	2,319
Dunedin City	118,683	120,249	126,255
Otago Region	193,803	202,470	225,186

## Sex

Table 11 Sex of population of the SA2s, district and regional statistical areas

	Waldronville	Abbotsford	Fairfield	Green Island	Dunedin City	Otago Region
Males	666	1,401	1,263	1,155	60,762	110,970
Females	636	1,413	1,248	1,164	65,490	114,219

## Age distribution

Table 12 Age distribution of the SA2s, district and regional statistical areas

	Waldronville	Abbotsford	Fairfield	Green Island	Dunedin City	Otago Region
Median age	38	38.8	44.3	38.9	36.8	38.2
Under 15	22.9%	19.5%	18.4%	18.8%	15.8%	16.6%
15-29 years	15.7%	18.7%	16.0%	18.4%	26.6%	23.0%
30-64 years	51.9%	47.5%	48.9%	49.1%	41.6%	44.0%
Over 65	9.5%	14.4%	16.8%	15.8%	16.1%	16.5%
Over 85	0.5%	0.01%	1.3%	1.9%	2.2%	2.0%

## Ethnic groups

Table 13 Ethnicity of the populations of the SA2s, district and regional statistical areas

	European	Maori	Pacific peoples	Asian	Middle Eastern/Latin American/African	Other
Waldronville	93.1%	7.9%	0.7%	5.1%	0.5%	1.2%
Abbotsford	93.9%	9.1%	1.6%	2.8%	0.2%	1.1%
Fairfield	93.0%	6.8%	1.1%	4.1%	0.7%	1.0%
Green Island	91.3%	10.3%	2.5%	3.1%	1.6%	1.3%
Dunedin City	86.6%	9.3%	3.2%	7.8%	1.5%	1.4%
Otago Region	86.9%	8.7%	2.7%	7.1%	1.8%	1.4%

## Employment

Table 14 Employment status of the SA2s, district and regional statistical areas

	Employed part-time	Employed full-time	Unemployed	Not in the labour force
Waldronville	58.9%	17.1%	2.1%	22.2%
Abbotsford	56.2%	14.9%	3.0%	25.8%
Fairfield	53.8%	17.5%	2.0%	26.5%
Green Island	52.8%	13.6%	3.8%	29.8%
Dunedin City	43.2%	16.9%	4.3%	35.7%
Otago Region	49.2%	16.2%	3.2%	31.4%

## Occupation

Table 15 Population occupations of the SA2s, district and regional statistical areas

	Managers	Professionals	Technicians and trade workers	Community and personal service workers	Clerical and administrative workers	Sales workers	Machine operators and drivers	Labourers
Waldronville	18.3%	23.4%	15.5%	7.9%	12.3%	9.5%	6.0%	7.1%
Abbotsford	13.4%	15.4%	18.4%	9.1%	13.9%	11.3%	8.2%	10.2%
Fairfield	16.2%	21.5%	14.5%	9.2%	13.5%	9.2%	6.7%	9.0%
Green Island	13.7%	13.5%	16.1%	9.9%	12.7%	11.5%	9.9%	13.0%
Dunedin City	13.7%	25.7%	12.2%	11.7%	11.0%	10.0%	5.0%	10.7%
Otago Region	17.7%	20.2%	13.2%	10.7%	9.8%	9.6%	5.5%	13.2%

## Personal income

Table 16 Personal income of the SA2s, district and regional statistical areas

	Waldronville	Abbotsford	Fairfield	Green Island	Dunedin City	Otago Region
Median	\$40,300	\$36,200	\$38,700	\$32,300	\$25,500	\$30,000
Loss	0.3%	0.4%	0.1%	0.6%	0.5%	0.5%
Zero income	6.3%	4.9%	6.0%	4.6%	5.8%	6.8%
\$1-\$5,000	4.8%	4.0%	4.8%	4.5%	8.5%	5.6%
\$5,001-\$10,000	3.0%	3.3%	3.2%	3.8%	7.1%	4.7%
\$10,001-\$15,000	4.8%	6.3%	4.5%	8.0%	8.1%	6.9%
\$15,001-\$20,000	7.5%	10.1%	10.5%	11.2%	10.6%	9.9%
\$20,001-\$25,000	4.5%	8.2%	7.5%	9.3%	8.9%	8.1%
\$25,001-\$30,000	6.3%	6.1%	5.4%	5.9%	5.7%	5.6%
\$30,001-\$35,000	4.8%	5.2%	4.2%	4.9%	4.7%	4.9%
\$35,001-\$40,000	7.2%	7.3%	4.8%	6.4%	5.2%	5.6%
\$40,001-\$50,000	10.8%	10.8%	9.8%	13.4%	8.7%	9.7%
\$50,001-\$60,000	8.4%	10.1%	9.5%	11.0%	7.2%	8.2%
\$60,001-\$70,000	8.7%	9.1%	8.6%	7.8%	5.6%	6.2%

	Waldronville	Abbotsford	Fairfield	Green Island	Dunedin City	Otago Region
\$70,0001-\$100,000	14.4%	10.6%	13.0%	7.3%	8.2%	9.6%
\$100,001-\$150,000	5.1%	2.9%	6.1%	1.4%	3.4%	4.7%
\$150,001 +	3.0%	0.9%	1.5%	0.3%	1.9%	2.9%

## Dwellings

Table 17 Dwelling status of the SA2s, district and regional statistical areas

	Occupied dwelling	Unoccupied dwelling	Dwelling under construction	Total private dwellings	Occupied non-private dwellings
Waldronville	441	33	3	474	3
Abbotsford	1095	30	3	1128	0
Fairfield	933	33	0	969	0
Green Island	948	54	3	1005	0
Dunedin City	48627	3906	129	52665	369
Otago Region	86838	14256	1032	102123	1062

## Home ownership status

Table 18 Home ownership status of the SA2s, district and regional statistical areas

	Dwelling owned or partly owned	Dwelling not owned and not held in a family trust (rental)	Dwelling held in a family trust
Waldronville	74.1%	5.4%	19.7%
Abbotsford	69.8%	17.9%	12.6%
Fairfield	67.8%	11.3%	20.6%
Green Island	68.4%	23.7%	7.3%
Dunedin City	54.0%	32.9%	13.1%
Otago Region	52.2%	32.0%	15.8%

## Family composition

Table 19 Family composition of the SA2s, district and regional statistical areas

	Waldronville	Abbotsford	Fairfield	Green Island	Dunedin City	Otago Region
Single person households	42	240	144	270	12969	21423
Couple with no children	168	705	345	255	13959	28002
Couple with children	204	1482	351	267	11985	21933
Single parent with children	30	255	81	105	4854	7329

## Median weekly rent paid

Table 20 Median weekly rent of the SA2s, district and regional statistical areas

	2006	2013	2018
<b>Waldronville</b>	\$210	\$270	\$360
<b>Abbotsford</b>	\$170	\$240	\$280
<b>Fairfield</b>	\$190	\$280	\$340
<b>Green Island</b>	\$160	\$230	\$250
<b>Dunedin City</b>	\$190	\$250	\$280
<b>Otago Region</b>	\$180	\$250	\$290

## Average house price (2022)

Table 21 Average house price of the SA2s, district and regional statistical areas

	Price
Waldronville	\$682,000
Abbotsford	\$620,400
Fairfield	\$740,000
Green Island	\$595,000
Dunedin City	\$650,969
Otago Region	\$750,000

## Usual residence

Table 22 Usual residence of the SA2s, district and regional statistical areas

	Same residence (1 year)	Same residence (5 years)
Waldronville	79.0%	45.3%
Abbotsford	80.9%	47.5%
Fairfield	77.8%	52.7%
Green Island	74.3%	47.1%
Dunedin City	65.9%	37.7%
Otago Region	65.2%	34.8%

# Appendix B

**Social infrastructure**

**Table 23 Social infrastructure within 2 km of the Green Island Landfill (Green Island, Waldronville, Abbotsford, Fairfield)**

Social infrastructure	Suburb	Distance from landfill	Potential impact
<b>Community facilities</b>			
Green Island Community Garden	Green Island	905 m	
Janet Cameron Hall		1.05 km	
Green Island Civic Hall		1.20	
Fairfield Community Hall	Fairfield	1.90 km	
Fairfield Scout Hall		1.60 km	
<b>Education and childcare facilities</b>			
St Peter Chanel School	Green Island	900 m	
Crackerjax Early Learning Centre		975 m	
Green Island School		1.15 km	
Green Island Kindergarten		1.25 km	
Otago Playcentre Association	Fairfield	2.0 km	
Fairfield School		1.85 km	
Play & Learn ECE – Fairfield		1.75 km	
Te Kura Kaupapa Maori O Otepoti		995 m	
Abbotsford Kindergarten	Abbotsford	1.10 km	
Abbotsford School		1.15 km	
<b>Emergency services</b>			
Green Island Community Police Station	Green Island	1.40 km	
<b>Medical facilities</b>			
Green island Family Healthcare	Green Island	1.30 km	
Green Island Wellness Centre		1.35 km	
<b>Places of worship</b>			
St Marks	Green Island	1.20 km	
The Lighthouse Baptist Church		1.20 km	
Presbyterian Church	Fairfield	1.75 km	
St Barnabas Anglican Church		1.60 km	
Dunedin Community Baptist Church	Green Island	950 m	
<b>Cemetery</b>			
Green Island Cemetery	Green Island	1.70 km	
Green Park Cemetery	Waldronville	3.20 km	
<b>Supermarkets</b>			
S&B Foods	Green Island	370 m	
FreshChoice Green Island		1.10 km	
<b>Open space and recreation</b>			
Shand Park	Green Island	550 m	
Elwyn Crescent Playground		630 m	
Green Island Memorial Park		1.05 km	
Sunnyvale Park		460 m	
Sunnyvale Sports Centre		610 m	

Green Island Bowling Club		1.50 km		
Island Park Golf Club	Waldronville	1.90 km		
Island Park Reserve		2.00 km		
Otago Pistol Club		2.90 km		
Blackhead Beach		2.50 km		
Beachlands Speedway		2.50 km		
Delta Drive Playground		Fairfield	2.10 km	
Fairfield Skatepark	1.85 km			
Fairplay Street Playground	1.90 km			
Fairfield Bowling Club	1.80 km			
Fairfield Tavern Reserve	1.85 km			
Sunninghurst Reserve	950 m			
Walton Park	1.40 km			
Walton Park Playground	1.40 km			
Matthew Street Playground	Abbotsford		1.55 km	
Green Island Rugby Football Club			1.95 km	
Miller Park		1.80 km		
Severn Street Playground		1.15 km		
Lambert Street Playground		1.65 km		



# **Appendix C**

**Assessment of Impacts table**

Table 24 Assessment of social impacts

Social impact category	Impacts	Stakeholder	Positive/negative	Consequence	Likelihood	Timing and duration	Direct/indirect	Mitigation	Impact rating (post mitigation)	Information from technical study
Amenity and character including culture	Impact on local cultural values	Te Rūnanga o Ōtākou	Positive	Minor	Unlikely	Operation - closure anticipated 2028	Direct	Potential effects on Wai Māori will be managed through the implementation of mitigation measures recommended in the Groundwater Report, Surface Water Report and Ecological Impact Assessment. Potential effects on Mahika Kai and biodiversity values will be mitigated through the development and implementation of a Vegetation Management and Restoration Plan. Potential effects on Wahi Tupuna will be managed through a co-design process with mana whenua to incorporate mana whenua values and purakau associated with the Kaikorai Estuary following closure of the landfill.	Large positive	Wai Maori may be impacted by: <ul style="list-style-type: none"> <li>The water level of the stream decreases when groundwater is abstracted from the leachate collection trench. Change to the natural hydrology is one of many factors that affects mauri and the whakapapa of the waterway.</li> <li>Contaminants from leachate or sediment entering groundwater of surface water would further degrade the mauri of the stream and surrounding area.</li> <li>Monitoring and providing for the impacts of climate change are a key focus for mana whenua. Robust mitigation and monitoring measures are vital to ensure that the landfill does not become inundated by flooding and storm surge.</li> </ul>
Amenity and character including culture	Impact on local cultural values	Te Rūnanga o Ōtākou	Positive	Moderate	Possible	Closure - permanent from 2028	Direct	<p><b>Utu</b> – the closure of GIL provides an opportunity to restore ecological balance to this degraded estuary.</p> <p><b>Maumaharataka</b> – the closure of the GILF creates opportunities for interpretation of pūrākau of place, including place names, cultural heritage and narratives associated with the Kaikorai Estuary.</p> <p><b>Oraka</b> – this value is of significance due to the environmental regeneration of the Kaikorai Estuary that is both required and proposed following closure of the GIL</p>	Large positive	<b>Mahika Kai</b> – the restoration of the mauri of Kaikarae estuary to provide healthy habitat for mahika kai and taoka species is a long-term vision for Ōtākou whānau. The closure of the Green Island Landfill is significant step towards achieving that vision.

Social impact category	Impacts	Stakeholder	Positive/negative	Consequence	Likelihood	Timing and duration	Direct/indirect	Mitigation	Impact rating (post mitigation)	Information from technical study
Amenity and character including culture	Visual impact from increased height and/or extent of landfill cap on views from residential areas towards the site	Local community	Negative	Moderate	Likely	Operation - closure anticipated 2028	Direct	N/A	Slight negative	Visual effects from surrounding private viewing areas will largely range from <i>very low to low-moderate</i> temporary adverse effects during operation. There is also potential for up to <i>moderate</i> levels of effect to be experienced from a block of land that is zoned residential but not currently built on, approximately 300m northwest of the Site. All such effects will reduce to no more than low once closure is completed. Views from surrounding public vantage points are considered to result in a range of temporary adverse effects from <i>very low to low-moderate</i> , the greater level of effect being experienced at Walton Park (VP6). These will reduce to <i>very low adverse</i> effects once closure is completed and grass has fully established.
Amenity and character including culture	Visual impact post closure will change from view of the landfill to a replanted area	Local community	Positive	Moderate	Likely	Closure - permanent from 2028	Direct	Preparation of a long-term Vegetation Management and Restoration Plan for the Kaikorai Estuary, to be prepared on consultation with Te Rūnanga o Ōtākou within 1 year of resource consents being granted. The Vegetation Management and Restoration Plan will set out post-closure actions for the replacement of existing perimeter trees and transition towards native species to enhance amenity values.	Large positive	View of the landfill post closure will change as the site is rehabilitated with natural plantings.
Economy, businesses and employment	Rubbish disposal for businesses and residents in Dunedin City is able to continue with minimal disruption and at minimal cost	Wider community (Dunedin City residents and businesses)	Positive	Major	Likely	Operation - closure anticipated 2028	Direct	N/A	Moderate positive	Additional landfill capacity is needed. While Smooth Hill has been identified as a long-term solution, that will be ready in 2028 at the earliest. The most cost-effective solution that minimises emissions, road wear-and-tear, congestion, job losses and site-specific environmental impacts in Dunedin is that resource consent be granted to extend operation beyond October 2023 for the Green Island site, and that the void there be expanded. This will ensure enough capacity is provided to accommodate delays in commissioning the Smooth Hill site.

Social impact category	Impacts	Stakeholder	Positive/negative	Consequence	Likelihood	Timing and duration	Direct/indirect	Mitigation	Impact rating (post mitigation)	Information from technical study
Economy, businesses and employment	Value of surrounding properties decreases with extended operation of landfill.	Local community	Negative	Moderate	Possible	Operation - closure anticipated 2028	Indirect	N/A	Slight negative	Although not documented in the economic assessment, landfills have an impact on property values. This can be seen with lower rental prices in Green Island the suburb immediately surrounding the site.
Economy, businesses and employment	No loss of employment if GIL continues to operate	Local community	Positive	Moderate	Almost certain	Operation - closure anticipated 2028	Direct	N/A	Slight positive	According to Council approximately eight staff work at GIL. These jobs will be maintained while the site continues to operate as a landfill. There is the potential for these staff to transfer to the Smooth Hill Landfill once it is constructed as this facility is 15.5 km southwest of the GIL site.
Economy, businesses and employment	Value of surrounding properties increases following closure of landfill	Local community	Positive	Moderate	Possible	Closure - permanent from 2028	Indirect	N/A	Slight positive	Regeneration of the site following closure of the landfill will increase property values in the surrounding area, particularly if the site is converted into a recreation facility.
Fears and aspirations	Community have more certainty over timeframes for the Green Island Landfill site including a closure date	Local community	Positive	Minor	Almost certain	Operation - closure anticipated 2028	Direct	Regular communication about the Waste Futures Programme including the closure of GIL and the proposed landfill at Smooth Hill.	Moderate positive	Feedback from the community through engagement is that they would like to be kept informed about what is happening at GIL so that they understand how the site will impact the future of the area.
Fears and aspirations	Extended duration of existing impacts relating to what people value about their community, their fear and aspirations for its future	Local community	Negative	Minor	Likely	Operation - closure anticipated 2028	Direct	Requirement for a complaint management, investigation and reporting system to be maintained by the consent holder. This is required during construction, operation, closure and aftercare of the landfill to record the receipt and management of all complaints, including those regarding odour or dust. All complaints must be investigated, and a response provided to the complainant.	Slight negative	From July 2017 to August 2022, a total of 145 odour complaints were received in relation to the GIL. It is anticipated that some complaints will be made while the site continues to be in operation.
Health and wellbeing	Contamination originating from the landfill may represent a risk to the human users or environment of the catchment.	Local community	Negative	Minor	Likely	Operation - closure anticipated 2028	Direct	Catchment wide monitoring of contaminants so that the community can be informed about risks associated with recreational use and food gathering within the catchment.	Slight negative	The HHERA report concluded that discharges from the site into the receiving environment of the Kaikorai Stream generally represent a low risk to human users of the waterway and the aquatic environment.

Social impact category	Impacts	Stakeholder	Positive/negative	Consequence	Likelihood	Timing and duration	Direct/indirect	Mitigation	Impact rating (post mitigation)	Information from technical study
Health and wellbeing	Odour from continued site operation impacts on general amenity of area. If significant emissions this could have health impacts.	Local community - particularly residential area southeast of the site along Clariton Avenue	Negative	Minor	Likely	Operation - closure anticipated 2028	Direct	<ul style="list-style-type: none"> <li>Minimising truck waiting times outside the site.</li> <li>Use of an odour cannon during low wind speed conditions.</li> <li>The landfill face will be developed further west, away from this receptor cluster.</li> <li>Establishment of CLG to monitor adverse impacts and implement mitigation.</li> </ul>	Slight negative	The Green Island (south-east) residential area, particularly Clariton Avenue, is expected to be the most likely receptor cluster to encounter odour due to the proximity to the site and odour complaint history.
Health and wellbeing	Dust from construction activity associated with raised/extended landfill cap impacts on air quality creating potential health hazard. Dust also impacts visual amenity of surrounding area.	Local community	Negative	Minor	Possible	Construction - temporary	Direct	<p>The following mitigation measures should be implemented at all times:</p> <ul style="list-style-type: none"> <li>A maximum speed limit of 30km/hr will apply in all areas of the site</li> <li>Permanent road on the site and used as part of the day-to-day operations should be sealed and well maintained.</li> <li>Water carts will be used on both sealed and unsealed roads as required during dry periods. Generally visual observation is used to judge the need for water carts.</li> <li>Temporary roads on the landfill will be properly maintained and grated.</li> <li>Dust generating wastes will be treated as special waste. The customer will be required to</li> </ul>	Slight negative	There is the potential during a short period of time where there are more vehicles on site as new cells are developed, or when final capping is being placed. Consequently, during these periods there will be additional dust and exhaust emissions from these vehicles.

Social impact category	Impacts	Stakeholder	Positive/negative	Consequence	Likelihood	Timing and duration	Direct/indirect	Mitigation	Impact rating (post mitigation)	Information from technical study
Health and wellbeing	Dust from continued operation of site and raised/extended landfill cap impacts on air quality creating potential health hazard. Dust also impacts visual amenity of surrounding area.	Local community	Negative	Minor	Possible	Operation - closure anticipated 2028	Direct	<p>dampen down the load prior to delivery to site, and special controls will be implemented at the disposal point (e.g. water sprays, waste pit, etc.)</p> <ul style="list-style-type: none"> <li>A complaint management, investigation and reporting system to be maintained by the consent holder. This is required during construction, operation, closure and aftercare of the landfill to record the receipt and management of all complaints, including those regarding odour or dust.</li> </ul>	Slight negative	<p>The greatest potential for nuisance dust to occur from the operation of the landfill is from the acceptance of dusty waste and vehicle movements on unpaved roads.</p> <p>Based on the operational activities of the landfill, existing impacts, and FIDOL factors, it is unlikely that operational dust emissions will cause any adverse effects beyond the site boundary.</p> <p>There are no known historic complaints in relation to dust, further suggesting that fugitive dust discharges are unlikely to cause adverse effects on the surrounding community</p>
Health and wellbeing	Noise from construction landfill activity associated with raised/extended landfill cap impacts quality of life	Local community	Negative	Minor	Possible	Construction - temporary	Direct	<p>Impacts can be reduced by ensuring all construction works occur during regular working hours.</p> <p>Communication to residents prior to works commencing.</p>	Slight negative	Noise from operation of the landfill carries over into surrounding neighbourhood.
Health and wellbeing	Noise from operational landfill activity associated with raised/extended landfill cap impacts quality of life	Local community	Negative	Minor	Possible	Operation - closure anticipated 2028	Direct	Impacts can be reduced by activity onsite only occurring during the approved hours of operation. Communication to residents prior to works commencing.	Slight negative	Noise from operation of the landfill carries over into surrounding neighbourhood.
Health and wellbeing	Pollution from gases emitted from site has health implications to surrounding community	Local community	Negative	Major	Very unlikely	Operation - closure anticipated 2028	Direct	<p>Mitigation as recommended in the air quality report including:</p> <ul style="list-style-type: none"> <li>Installation of daily and intermediate cover material.</li> <li>Permanent capping of the landfill and installation of permanent LFG wells as soon as practicable.</li> <li>Installation of intermediate horizontal and vertical LFG wells as the landfill is developed and</li> </ul>	Slight negative	<p>From the LFG combustion assessment:</p> <ul style="list-style-type: none"> <li>Nitrogen dioxide - there is limited potential for adverse effects on the environment.</li> <li>Carbon monoxide – the potential for adverse health effects associated with CO emissions is expected to be low.</li> <li>Particulate matter (PM10) – the potential for adverse health effects associated with PM10 emissions is expected to be low.</li> </ul>

Social impact category	Impacts	Stakeholder	Positive/negative	Consequence	Likelihood	Timing and duration	Direct/indirect	Mitigation	Impact rating (post mitigation)	Information from technical study
								prior to permanent capping to capture LFG.		<ul style="list-style-type: none"> <li>Particulate matter (PM2.5) – the potential for adverse health effects associated with PM2.5 emissions is expected to be low.</li> <li>Sulphur dioxide – there is limited potential for adverse effects on the environment.</li> </ul>
Fears and aspirations	Opportunity for the area to be redeveloped for community use by rehabilitating the site as a recreation facility including tracks and trails around the site.	Local community	Positive	Major	Possible	Closure - permanent from 2028	Direct	Long-term use and public access to the landfill site post-closure should be determined in consultation with Te Rūnanga o Ōtākou, the local community and key stakeholders.	Moderate positive	Feedback from the community through engagement is that they liked the idea that the area around Green Island site could provide recreation opportunities in the future, such as tracks and trails, when the landfill closed.
Health and wellbeing	Vermin from the site spread disease	Local community	Negative	Moderate	Possible	Operation - closure anticipated 2028	Direct	Existing management practices in place at the site, such as covering the site and regular inspections by pest contractors, have reduced the risk of adverse health impacts to the surrounding community, it is anticipated that these practices will continue..	Slight negative	Vermin such as rats, mice and feral cats can be brought to the site in loads of waste or are attracted by the food source and migrate from surrounding areas. Vermin can spread disease, cause property destruction, and contaminate food. Flies may become a problem over summer months and are capable of transmitting salmonella and other food-borne diseases.



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