

Pump Station 23 - Watercare

Hillsborough

NATURAL CHARACTER, LANDSCAPE AND VISUAL ASSESSMENT REPORT

October 2022

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CONTENTS

| | |
|---|----|
| INTRODUCTION | 4 |
| METHODOLOGY | 4 |
| DESCRIPTION OF THE EXISTING ENVIRONMENT | 6 |
| DESCRIPTION OF THE PROPOSAL | 10 |
| PLANNING CONTEXT | 11 |
| ASSESSMENT OF EFFECTS | 18 |
| Natural Character Effects | 19 |
| Landscape and Character Effects | 25 |
| Visual Amenity | 26 |
| CONCLUSIONS | 32 |

Appendix A – Landscape Related Provisions

Appendix B – Graphic Attachments (*refer separate document*)

INTRODUCTION

- 1 Isthmus Group Ltd (IGL) has been engaged by Watercare Services Ltd to provide landscape design advice and undertake an assessment of the landscape, natural character and visual amenity effects arising from the proposed ecological enhancements at Pump Station 23 (PS 23), located at 39 Frederick Street, Hillsborough (“the site”).
- 2 The purpose of this report is to undertake an evaluation of the existing landscape, natural character and visual amenity values of the area and to assess the effects of the proposal on those values.

METHODOLOGY

- 3 The following methodology has been used to assess the site, the broad physical context, the proposal and its natural character, landscape and visual effects:
 - A desktop review of the site, relevant documents and relevant statutory provisions;
 - Site visit to Hillsborough Bay, and the surrounding coastal roads and pathways from which the site can be viewed. Two site visits were undertaken on 5 July 2022 and 27 July 2022. Photographs were taken during the site visits, included within **Appendix B – Graphic Attachments**;
 - A description of the existing landscape context of Hillsborough Bay and the coastline around the site. The description includes reference to the existing land uses of the site and the local harbour setting which have an effect on the landscape and natural character of the waters of the Manukau Harbour;
 - An analysis of the natural character attributes and values of the site and the surrounding area;
 - An analysis of the landscape character and values of the site and of the surrounding area;
 - An assessment of the visibility of the proposal from land and harbour-based viewpoints;
 - An assessment of the potential natural character effects of the proposal on the site and on the wider context;

- An assessment of the potential landscape effects of the proposal on the site and on the wider context;
 - An assessment of the potential visual effects of the proposal on the site and on the wider context;
- 4 An assessment of effects on landscape character and visual amenity is included within this report, referring to a rating scale for the value. To be consistent with the ratings of the values described, in relation to potential effects, the same seven-point scale (below) is used to achieve a level of standardisation¹. Words are used in preference to numbers to reduce the likelihood of using 'scores' in a formulaic way.
- 5 Comparisons of how adverse value ratings relate to the RMA terminology of 'less than minor', 'minor' and 'more than minor', and the New Zealand Coastal Policy Statement (NZCPS) terminology of 'Significant' are also provided.

| Adverse Effect Rating | Very Low | Low | Moderate – low | Moderate | Moderate – high | High | Very high |
|-----------------------|-----------------|-----|----------------|-----------------|-----------------|-------------|-----------|
| RMA terminology | Less than Minor | | Minor | More than Minor | | | |
| NZCPS terminology | | | | | | Significant | |

- 6 Change in a landscape does not in itself mean that a proposal will result in an effect.

“Change itself is not an effect: landscapes change constantly. It is the implications of change for a landscape’s values that is the effect.”²

- 7 The nature of effects can be **Adverse** (negative) or **Beneficial** (positive). An assessment of effects combines both value ratings (Very Low – Very High) and nature of effects (Adverse, Positive).
- An adverse effect relates to an activity which results in a reduction in landscape and / or visual amenity values; in this circumstance the RMA terminology of 'less than minor', 'minor' and 'more than minor' is applied.
 - A positive effect relates to an activity which enhances landscape and / or visual amenity values through restoration and / or provision of positive elements or features.

¹ The scale is symmetrical around 'moderate'. The scale is based on the recommended NZILA Best Practice Guide and is consistent with the Te Tangi a te Manu: Aotearoa New Zealand Landscape Assessment Guidelines'.

² Refer 6.03 - Te Tangi a te Manu: Aotearoa New Zealand Landscape Assessment Guidelines'

- 8 Where a proposal will result in a change, but that change will have no effect on the characteristics or values of a particular landscape or view, a nature of effect rating of 'neutral' will be provided.
- 9 The assessment methodology is based on **Te Tangi A Te Manu Aotearoa New Zealand Landscape Assessment Guidelines** Tuia Pito Ora New Zealand Institute of Landscape Architects, July 2022.
- 10 The methodology section above sets out a series of 'steps' that have been taken to assess the relevant natural character, landscape and visual effects of the proposal on the receiving environment. The list is provided for completeness to set out the key matters that have been taken into consideration. The detailed description of the work undertaken is contained under the relevant headings throughout the report.

DESCRIPTION OF THE EXISTING ENVIRONMENT

- 11 The author has undertaken two site visits, with photographs taken at land and harbour locations. These are included as Viewpoints 1 – 5 within **Appendix B - Graphic Attachments** and provide a visual representation of the site and its context.

Description of the site's localised setting (Hillsborough Bay)

- 12 Hillsborough Bay is a south-east facing bay on the northern side of the Manukau Harbour, west of the Southwestern motorway (SH20). The site is located centrally within Hillsborough Bay.
- 13 Hillsborough Bay is a highly modified harbour edge landscape on the southern edge of Hillsborough, Auckland. The bay is defined to the east by Taumanu Reserve and SH20, and to the southwest by Taylors Bay and headland. The headland to the southwest of the site includes the Bluff Terrace, identified as an Outstanding Natural Feature (ONF) within the Auckland Unitary Plan. The headland is approximately 400m from the site.
- 14 The western part of the bay (to the west of and including the site) is characterised by gradually rising topography and includes a thin grassy landing which connects Taylors Bay reserve to existing residential development to the west of the site. Due to the lower-level topography, the western part of the bay is more accessible and includes a more active interface along the harbour edge, with private wharves, boat ramps and harbour edge structures being commonplace.
- 15 In contrast, the eastern part of the bay (to the east of the site) is characterised by a steeper vegetated escarpment, with residential development located at the top of the escarpment having limited access to the harbour edge.

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- 16 The easternmost part of Hillsborough Bay includes an existing coastal walkway (raised boardwalk structure), which traverses the harbour edge between Taumanu Reserve and Rendcomb Place. The raised boardwalk also provides access to the harbour and a shallow sandy beach at the base of the escarpment to the east of the site.
- 17 Hillsborough Bay, alongside other bays around the edges of Manukau Harbour has a shallow harbour floor, which exposes sand-flats, soft mud and some areas of sandstone reef at low tide³. The mud-flats are accessible but infrequently used.
- 18 The Waikowhai Coastal Reserves Walkway is a recently consented (Application Reference: BUN60309339) boardwalk which will traverse the harbour edge immediately south of the site, connecting the existing boardwalk at Rendcomb Place in the east to Taylors Bay Reserve in the west. The location of the future boardwalk relative to the temporary construction platform for PS23 is illustrated in Figure 1 below.

Figure 1: Approved plans for the Waikowhai Coastal Reserves Walkway, prepared by Beca.



- 19 Two transmission lines traverse Hillsborough Bay (110kV and 220kV), supported by 6 transmission towers in the harbour between Taylors Bay and Taumanu Reserve. The transmission lines and towers are notable dominant features within the setting of Hillsborough Bay.
- 20 Overall, Hillsborough Bay is a highly modified landscape, characterised by residential, infrastructure and recreational uses. The extent of development in the area detracts from the naturalness and remoteness of the bay, with modification including:

³

Collectively referred to as 'mud-flats' throughout the remainder of this assessment.

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- Residential development and ancillary buildings along the harbour edge.
- Multiple jetties, wharves and boat ramps, notably to the west of the site.
- Existing overhead transmission lines and towers which traverse the harbour.
- An existing and consented raised boardwalk which traverses the harbour edge.
- Land reclamation along the harbour edge, including within the PS23 site.
- Increased sediment inputs from upstream, within the coastal marine environment. Sediment inputs are typically related to earthworks, erosion, intensive land uses and vegetation clearance.⁴

Description of the site and its immediate setting

- 21 The site is located on the harbour edge and is accessed from Frederick Street to the north-west.
- 22 PS23 is defined to the north, east and west by established residential development. Properties are located on rising landform and have open views across the site to the wider harbour setting to the south. A stream outflow is located immediately northwest of the site, which includes an area of established native and exotic tree and shrub planting.
- 23 The site is currently under construction to install PS23; the second shaft site for the main Central Interceptor tunnel route. At the time of this assessment, the site includes construction machinery and multiple temporary structures, including a temporary construction platform which is located across the existing harbour edge and into Hillsborough Bay.

⁴

Refer Paragraph 5.3.3 – PS 23 Assessment of Ecological Effects, prepared by Tonkin and Taylor

Figure 2: Photograph of PS23 construction including temporary construction platform, 5 July 2022.



- 24 Once construction is complete, the temporary construction platform will be dismantled, and the harbour edge will be re-instated in accordance with the reinstatement plan. The reinstatement plan is included as Figure 3 – Appendix B Graphic Attachments and includes:
- Replacement tree planting (3no. trees along the harbour edge, 5no. trees along the eastern site boundary / access track).
 - Low-level planting including riparian, bank and general planting across the site.
 - Ecological enhancements and habitat creation including rock and log habitat, and a bird roosting area. Rock habitats are to be constructed from basalt to be in keeping with the existing coastal character of the area.
 - A seawall along the harbour edge.
- 25 The site reinstatement plan and the consented Waikowhai Coastal Reserves Walkway inform the 'consented baseline' of the site in which to assess the proposal. For the purpose of this assessment, and whilst acknowledging the temporary construction work currently on site, the consented baseline (and therefore existing environment) includes the reinstated site design and coastal walkway.

Visual Catchment

- 26 The visual catchment of the site includes:
- Residential properties within the immediate setting of the site, to the north, east and west, including: 2/25, 27, 29, 33, 33A, 3/41, 45B and 47B Frederick Street.
 - The mud-flats and harbour waters within Hillsborough Bay (including the consented Waikowhai Coastal Reserves Walkway).
 - Longer distance views within the wider setting of the site, including Taylors Bay, Taumanu Reserve, surrounding residences and the central waters of the Manukau Harbour.
- 27 The site and its local setting are illustrated on **Figures 1-2** within **Appendix B Graphic Attachments**.

DESCRIPTION OF THE PROPOSAL

- 28 The proposal is to provide additional ecological and landscape enhancement around Pump Station 23, over and above the reinstatement plan required by designation 9466 which is yet to be implemented (however, informs the existing environment). The inland design of the reinstatement plan will remain unchanged, with the proposed additional enhancements located in the southern part of the site, along the harbour edge.
- 29 The proposed landscape and ecological design has been carefully considered to provide a more naturalistic harbour edge than the current design, and includes additional ecological enhancements within the surrounds of the pump station including the establishment of a permanent high-tide bird roost area for shorebirds. The design seeks to achieve a more appropriate and natural rehabilitation of the coastal edge, giving effect to Policy 14⁵ of the New Zealand Coastal Policy Statement.
- 30 The proposed site plans are included within the package of drawings prepared by Isthmus which accompany this application and includes:
- Additional saltmarsh planting along the harbour edge.
 - A rock platform and sill to provide a more appropriate harbour edge to the site and maintain the coastal character of Hillsborough Bay.
 - A bird roosting area to the west of the pump station.

⁵

In reference to the restoration of natural character

- A grouping of approximately twenty-two timber poles to provide perching spaces for birds.
- 31 The proposal includes the deposition of material within the Coastal Marine Area (CMA) and will alter the existing harbour edge by approximately 17m at its widest point to provide a more naturalistic interface between the site and the Manukau Harbour. The proposed alteration of the harbour edge will result in the loss of an area of mud-flats which is below the temporary work platform.
- 32 The proposed design seeks to provide a more naturalistic, appropriate and ecologically diverse treatment to the harbour edge of the site than is currently achieved in the reinstatement plan.

PLANNING CONTEXT

- 33 This section of the report highlights the provisions most relevant to natural character, landscape and visual matters. A full assessment of the proposal against statutory and non-statutory provisions is provided in the AEE document prepared by Tonkin and Taylor.
- 34 The proposal has been assessed against Part 2 of the Resource Management Act 1991 (RMA) and the relevant provisions of the New Zealand Coastal Policy Statement (2010) and the Auckland Unitary Plan.

Resource Management Act 1991

- 35 With regard to Part 2 of the RMA, the relevant provisions are within section 6: Matters of National Importance and section 7: Other Matters.

Section 6⁶

"In achieving the purpose of this Act, all persons exercising functions and powers under it, in relation to managing the use, development, and protection of natural and physical resources, shall recognise and provide for the following matters of national importance:"

- *s6(a) - The preservation of the natural character of the coastal environment (including the coastal marine area), and the protection of them from inappropriate subdivision, use, and development*
- *s6(d) - The maintenance and enhancement of public access to and along the coastal marine area, lakes, and rivers*

⁶

Due to the distance between the site and any Outstanding Natural Features and landscapes, s6(b) has not been considered.

Section 7

"In achieving the purpose of this Act, all persons exercising functions and powers under it, in relation to managing the use, development, and protection of natural and physical resources, shall have particular regard to:"

- *s7(c) - The maintenance and enhancement of amenity values.*
- *s7(f) - Maintenance and enhancement of the quality of the environment.*

New Zealand Coastal Policy Statement (NZCPS)⁷

36 The objectives and policies of the NZCPS address the management of the coastal environment, which the site is within. The provisions of the NZCPS are relevant to this assessment under the RMA.

37 **Objective 2** seeks to (emphasis added):

*"...**preserve the natural character** of the coastal environment and protect natural features and landscape values through:*

- *recognising the characteristics and qualities that contribute to **natural character**, natural features and **landscape values** and their location and distribution;*
- *identifying those areas where various forms of subdivision, use, and development would be inappropriate and **protecting** them from such activities; and*
- *encouraging **restoration** of the coastal environment."*⁸

38 The policies of the NZCPS that are relevant⁹ include:

- **Policy 1** - The extent and characteristics of the coastal environment
- **Policy 6** - Activities in the coastal environment
- **Policy 13** - The preservation of natural character
- **Policy 14** - The restoration of natural character
- **Policy 15** - The protection of natural features and natural landscapes and the avoidance of effects on outstanding features and landscapes

⁷ Full excerpts of the NZCPS Policies are included within Appendix A - Landscape Related Policy.

⁸ Objective 2 of the New Zealand Coastal Policy Statement (2010)

⁹ From a landscape, visual and natural character perspective.

- 39 The detail of the specific policies¹⁰ of the NZCPS as they relate to the assessment of the proposal are addressed in the assessment of the landscape and natural character values, later within this report.

Auckland Unitary Plan (AUP)¹¹

- 40 The site is not subject to any environmental overlays under the AUP (e.g. significant natural areas, areas of outstanding or high natural character or outstanding natural features and landscape overlay).
- 41 The coastal environment includes the CMA, the foreshore, seabed and coastal water and the air above the water seawards to twelve nautical miles and a landward area. An indicative coastal environment is defined by maps in the AUP.
- 42 The site is located on the harbour edge, mud-flats and CMA and is, therefore, within the coastal environment. The coastal environment is described within Chapter B8 of the AUP. An overview of the relevant¹² objectives and policies of Chapter B8 are outlined below (emphasis added).
- **Objective B8.2.1(3)** - Where practicable, in the coastal environment areas with degraded natural character are **restored or rehabilitated** and areas of high and outstanding natural character are enhanced
 - **Policy B8.2.2(4)** - **Avoid significant adverse effects** and avoid, remedy or mitigate other adverse **effects on natural character** of the coastal environment not identified as outstanding natural character and high natural character from inappropriate subdivision, use and development.
- 43 Chapter E18 of the AUP describes the Natural Character of the Coastal Environment. An overview of the relevant¹³ objectives and policies of Chapter E18 are outlined below (emphasis added).
- **Objective E18.2(1)** - The natural characteristics and qualities that contribute to the natural character of the coastal environment are **maintained** while providing for subdivision, use and development.
 - **Objective E18.2(2)** - Where practical the **natural character values** of the coastal environment are **restored or rehabilitated**.
 - **Policy E18.3(3)** - Manage the effects of subdivision, use and development in the coastal environment to **avoid significant adverse effects**, and avoid, remedy or mitigate other adverse effects, on the characteristics

¹⁰ Outlined in full within Appendix A.

¹¹ Full excerpts of the AUP Objective Policies are included within Appendix A – Landscape Related Policy.

¹² From a landscape, visual and natural character perspective.

¹³ From a landscape, visual and natural character perspective.

and qualities that contribute to **natural character values**, taking into account:

- a) the location, scale and design of the proposed subdivision, use or development;
 - b) the extent of anthropogenic changes to landform, vegetation, coastal processes and water movement;
 - c) the presence or absence of structures, buildings or infrastructure;
 - d) the temporary or permanent nature of any adverse effects
 - e) the physical and visual integrity of the area, and the natural processes of the location;
 - f) the intactness of any areas of significant vegetation, and vegetative patterns;
 - g) the physical, visual and experiential values that contribute significantly to the wilderness and scenic values of the area;
 - h) the integrity of landforms, geological features and associated natural processes, including sensitive landforms such as ridgelines, headlands, peninsulas, cliffs, dunes, wetlands, reefs, freshwater springs, streams, rivers and surf breaks;
 - i) the natural characteristics and qualities that exist or operate across mean high water spring and land in the coastal environment, including processes of sediment transport, patterns of erosion and deposition, substrate composition and movement of biota, including between marine and freshwater environments; and
 - j) the functional or operational need for infrastructure to be located in a particular area.
- **Policy E18.3(4)** - Promote land use practices and restoration activities that will restore or rehabilitate natural character values.

44 Chapter *E19 Natural features and natural landscapes in the coastal environment* of the AUP gives effect to Policy 15(b) of the NZCPS and is relevant to this application. An overview of the relevant¹⁴ objectives and policies of Chapter E18 are outlined below (emphasis added).

¹⁴

From a landscape, visual and natural character perspective.

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- **Objective E19.2(1)** - The characteristics and qualities of natural landscapes and natural features which have particular values, provide a sense of place or identity, or have high amenity value, are maintained while providing for subdivision, use and development in the coastal environment.
- **Policy E19.3(2)** - Manage the effects of subdivision, use and development in the coastal environment to **avoid significant adverse effects**, and avoid, remedy or mitigate other adverse effects on the characteristics and qualities of **natural landscapes and natural features** which have particular values, provide a sense of place or identity, or have high amenity values, taking into account:
 - a) the location, scale and design of the proposed subdivision, use or development;
 - b) the extent of anthropogenic changes to the natural characteristics and qualities;
 - c) the presence or absence of structures, buildings or infrastructure;
 - d) the temporary or permanent nature of any adverse effects;
 - e) the physical and visual integrity and the natural processes of the location;
 - f) the intactness of any areas of significant vegetation, and vegetative patterns;
 - g) the physical, visual and aesthetic values that contribute significantly to the natural landscape's values;
 - h) the integrity of landforms, geological features and associated natural processes, including sensitive landforms such as ridgelines, headlands, peninsulas, cliffs, dunes, wetlands, reefs, freshwater springs, streams, rivers and surf breaks; and
 - i) the functional or operational need for infrastructure to be located in a particular area.

45 The Manukau Harbour is located within the General Coastal Marine Zone, which is described within Chapter F2 of the AUP.

46 The proposed ecological and landscape enhancements will require the deposition of material (rocks and growing medium), as such Section F2.3: *Depositing and disposal of material* has been considered.

47 An overview of the relevant¹⁵ objectives and policies of the AUP are outlined below (emphasis added).

- **Objective F2.3.2(1)** - Depositing of material in the coastal marine area is undertaken in **appropriate locations** to provide for public benefit including erosion management or **habitat enhancement** and the beneficial use of dredged material.
- **Objective F2.3.2(3)** - The **adverse effects** from the disposal of material, particularly any contaminated material, are **minimised**, where reasonably practicable, or **otherwise avoided, remedied or mitigated**.
- **Policy F2.2.2(7)** - **Avoid significant adverse effects** from the disposal of material, other than the disposal of material in approved reclamations and determine the appropriateness of proposals by taking into account all of the following:
 - a) the volume of material;
 - b) the degree of contamination and resulting effects on water quality, sediment quality and ecology;
 - c) the presence of harmful aquatic organisms in the material to be disposed of and the risk of introducing these into areas where they are not present;
 - d) the **sensitivity of the receiving environment**, with particular reference to **natural character** and ecological values;
 - e) the public use of the area;
 - f) the characteristics of the disposal area, with particular reference to the potential for contaminants to be released from the area, and the potential for re-suspension of the material;
 - g) the disposal technique, and for dredged material, the water content or solidity of the material at the time of disposal;
 - h) available alternative disposal techniques, including stabilisation, use as mudcrete, or disposing of the material on land; and
 - i) the other matters contained in Schedule 3 of the Resource Management (Marine Pollution) Regulations 1998.

48 The proposed landscape and ecological enhancement design includes a grouping of timber poles which will be piled into the harbour floor, as such,

¹⁵

From a landscape, visual and natural character perspective.

Section F2.16: *Structures* has been considered. An overview of the relevant¹⁶ objectives and policies of Chapter F2.16 are outlined below (emphasis added).

- **Objective F2.16.2(3)** - Structures are appropriately located and designed to **minimise adverse effects** on the ecological, **natural character, landscape**, natural features, historic heritage and Mana Whenua values of the coastal marine area, and avoid to the extent practicable the risk of being adversely affected by coastal hazards.
- **Policy F2.16.3(7)** – Require structures in the Coastal – General Coastal Marine Zone to be located to **minimise**:
 - a) impacts on other coastal activities, including activities provided for in zones or resource consents;
 - b) adverse effects on recreational use, including popular anchorage areas;
 - c) adverse effects on public access to and along the coastal marine area
 - d) **visual impacts**, particularly in areas sensitive to effects such as headlands or the outer edges of enclosed bays, as seen from both land and water;
 - e) the size of the structure, including its size in relation to wharves and jetties and consider providing for partial rather than all-tide access, unless this is not a practicable option given the function and frequency of use;
 - f) the risk of being affected by coastal hazards including sea level rise;
 - g) the need for dredging, including ongoing dredging to maintain water access; and
 - h) adverse effects on scheduled sites and places of significance to Mana Whenua
- **Policy F2.16.3(8)** - Require structures to be designed to:
 - a) be the minimum size reasonably necessary to provide for the proposed use;
 - b) be multi-purpose where practicable and where it will not conflict with operational or safety requirements;

¹⁶

From a landscape, visual and natural character perspective.

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- c) **minimise impacts on natural character** and **amenity values** and generally fit with the **character** of any existing built elements, including in the use of materials and colours having regard to safety requirements;
 - d) not increase rates of coastal erosion;
 - e) and take into account dynamic coastal processes, including the expected effects of climate change and sea level rise
- **Policy F2.16.3(9)** - Have regard to the value of **retaining the natural character** of areas where structures are absent, taking into account the area's uniqueness and value because of the absence of structures.
- 49 The landward part of the site is located within the Open Space – Informal Recreation Zone, with the harbour edge located within the Coastal – Coastal Transition Zone.
- 50 The wider site area is subject to two designations:
- 9440 - Wastewater Purposes – Trunk Pump Station, Watercare Services Ltd.
 - 9466 – Construction, Operation and Maintenance of Wastewater Infrastructure, Watercare Services Ltd.

ASSESSMENT OF EFFECTS

- 51 The following section assesses the proposal and its level of potential effects and appropriateness in this setting. The main **Natural Character**, **Landscape Character** and **Visual Amenity** issues considered are:
- a) ***Natural Character effects:***
 - i. *Biotic attributes;*
 - ii. *Abiotic attributes; and,*
 - iii. *Experiential attributes.*
 - b) ***Landscape Character effects:***
 - i. *Effects on character from the surrounding landscape and harbour setting.*
 - c) ***Visual Amenity effects of the proposal in relation to:***
 - i. *Public viewpoints within the immediate and local setting of the site; including:*
 - a) *Users of the mud-flats and consented Waikowhai Coastal Reserves Walkway to the south of the site.*

- b) *Views from Taylors Bay to the south.*
- c) *Views from Taumanu Reserve and the coastal walkway to the east.*
- ii. *Private viewpoints within the immediate setting of the site.*

Natural Character Effects

- 52 The site is located on the harbour edge, with landscape and ecological enhancements proposed across the harbour mud-flats. Under s6(a) of the RMA this makes the consideration of natural character matters relevant to this assessment.
- 53 Policy 13 of the NZCPS determines that natural character includes the following matters:
- a) *natural elements, processes and patterns;*
 - b) *biophysical, ecological, geological and geomorphological aspects;*
 - c) *natural landforms such as headlands, peninsulas, cliffs, dunes, wetlands, reefs, freshwater springs and surf breaks;*
 - d) *the natural movement of water and sediment;*
 - e) *the natural darkness of the night sky;*
 - f) *places or areas that are wild or scenic;*
 - g) *a range of natural character from pristine to modified; and*
 - h) *experiential attributes, including the sounds and smell of the sea; and their context or setting.*
- 54 Te Tangi a te Manu Aotearoa New Zealand Landscape Assessment Guidelines includes an interpretation of natural character:
- ‘Natural character is the distinct combination of an area’s natural characteristics and qualities, including degree of naturalness.’¹⁷*
- 55 Natural character is not defined in the RMA nor the NZCPS; however, NZCPS Policy 13 Guidance Note¹⁸ (page 24) defines ‘natural character’ as:

¹⁷ Refer Chapter 9 Natural Character, Paragraph 9.4, Te Tangi A Te Manu Aotearoa New Zealand Landscape Assessment Guidelines.

¹⁸ Produced by the Department of Conservation.

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‘Natural character is the term used to describe the natural elements of all coastal environments. The degree or level of natural character within an environment depends on:

- 1. The extent to which the natural elements, patterns and processes¹⁹ occur; and*
- 2. The nature and extent of modification to the ecosystems and landscape/seascape.*
- 3. The degree of natural character is highest where there is least modification.*
- 4. The effect of different types of modification upon natural character varies with context and may be perceived differently by different parts of the community’*

56 Furthermore, at workshops organised by the Department of Conservation in 2012 the following was added to the above definition of natural character:

“Policy 13(2) makes it clear that natural character includes all natural aspects of the land and sea, including the underlying ecological, hydrological and geomorphological processes that shape landforms (including underwater features) and the natural movements of water and sediment. Natural character also includes aspects of the environment that affect human experience including the natural darkness of the night sky, the sounds and smell of the coast, and the context and setting of natural places.”

57 This definition of natural character is consistent with Te Tangi a te Manu, is widely used and has been accepted by the Environment Court. It is the definition adopted for use in this assessment.

58 The aspects or factors that contribute to natural character attributes are generally separated into three broad types:

¹⁹ For the purposes of interpreting the NZCPS 2010 Policy 13.2, ‘elements, patterns and processes’ means: biophysical, ecological, geological and geomorphological aspects; natural landforms such as headlands, peninsulas, cliffs, dunes, wetlands, reefs, freshwater springs and surf breaks; and the natural movement of water and sediment.

- The **biotic** factors, such as the ecological aspects contained in Policy 13;
- The **abiotic** factors, such as the geological/natural landforms; and
- The **experiential** factors, or the human components.

59 The highest level of natural character occurs where there has been the least amount of modification from the original natural state.

60 Hillsborough Bay is a highly modified landscape and harbour environment and includes residential development, coastal walkways, overhead transmission lines and towers, wharves, jetties, and boat ramps. The site itself is also currently under construction and includes a temporary building platform, however it is acknowledged that this does not inform the existing environment of the site.

61 The consented baseline and existing environment of the site itself is informed by the reinstatement plan required by designation 9466.

Biotic Attributes

62 Pump Station 23 is located on an area of reclaimed land on the coastal edge of Hillsborough Bay. The localised setting of the site is a highly modified landscape with development located along the full length of the Bay.

63 There are no Significant Ecological Areas within the site or within a 100m radius of Pump Station 23.²⁰

64 Manukau Harbour provides habitat to a high diversity of coastal avifauna species including nationally 'threatened' and 'at risk' species. Intertidal habitats adjacent to the site provide effective foraging habitat for coastal avifauna, and the Pump Station was used as a roost site prior to the temporary works platform construction works.²¹

65 The intertidal area within the immediate context of the site is comprised of sand flats, soft mud and areas of exposed sandstone reef.

- Sandstone reefs generally support a diverse species assemblage including sea snails, seaweeds, sponges, crabs and shrimps, bivalves, polychaete worms, amphipods, chitons, echinoderms, sea squirts, barnacles, anemones and fish.²²

²⁰ Refer Para 5.1 – PS 23 Assessment of Ecological Effects, prepared by Tonkin and Taylor

²¹ Refer Para 5.1 – PS 23 Assessment of Ecological Effects, prepared by Tonkin and Taylor

²² Refer Para 5.3.1 – PS 23 Assessment of Ecological Effects, prepared by Tonkin and Taylor

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- Firm muddy fine sand flats are common in the Auckland region and are highly productive (TP127, 1999). Sand flats support high diversity of intertidal organisms dependent on tidal level, including bivalves (i.e. shellfish), gastropods and polychaete worms (TP127, 1999).²³
- Soft mud habitat is typically found in the upper arms of estuaries. Fauna diversity is relatively low within intertidal soft mud habitats due to the shallow redox layer; species inhabiting these areas are typically limited to mud crabs and mud snails.²⁴

- 66 The Ecological Assessment describes that infauna invertebrate samples have been collected from six locations in the CMA adjacent to the site for the initial assessment of ecological effects (Boffa Miskell Limited, 2012). The results of the samples suggest that the benthic community within the survey area was dominated by polychaetes, amphipods, gastropods and decapods. No rare or threatened species were identified in the infauna samples.²⁵
- 67 The coastal environment of the site is considered to have very high ecological value for coastal birds due to the presence of 18 species observed during site walkovers and identified through an ecological desktop assessment. As described within the Ecological Assessment, observations include two species that are classified as 'Threatened – nationally vulnerable' and ten species that are 'At Risk'.²⁶
- 68 Temporary disturbance effects on coastal birds are anticipated during the proposed ecological enhancement works, limited to the project footprint. Works will take place outside high tide, at which point coastal birds will predominantly be found foraging in the intertidal soft mud habitat, down to the mean low water mark. The low water mark is approximately 250 – 300 m from the proposed footprint.²⁷ The magnitude of effect on foraging habitat for coastal birds is assessed within the Ecological Assessment as being negligible, with the overall level of ecological effect being low (net gain).
- 69 Overall, ecological effects will largely be avoided, remedied or mitigated to ensure an overall ecological No Net Loss as a result of the ecological enhancement works. The proposal will result in **Low** positive effects on the biotic attributes of the site and the immediate setting of Hillsborough Bay.

Abiotic Attributes

- 70 The geology and landform of the site and the wider Hillsborough area has been modified through continued and extensive development, including residential,

²³ Refer Para 5.3.2 – PS 23 Assessment of Ecological Effects, prepared by Tonkin and Taylor
²⁴ Refer Para 5.3.3 – PS 23 Assessment of Ecological Effects, prepared by Tonkin and Taylor
²⁵ Refer Para 5.6.1 – PS 23 Assessment of Ecological Effects, prepared by Tonkin and Taylor
²⁶ Refer Para 5.11.2 – PS 23 Assessment of Ecological Effects, prepared by Tonkin and Taylor
²⁷ Refer Para 6.4.2.1 – PS 23 Assessment of Ecological Effects, prepared by Tonkin and Taylor

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infrastructure (roading, wastewater and electrical) and recreational (Taumanu Reserve and coastal walkways). The site itself is located on reclaimed land and is a highly modified landscape, currently characterised by the ongoing construction and drilling works for the Pump Station 23 Central Interceptor tunnel route.

- 71 As described above, the intertidal area within the immediate context of the site is comprised of sand flats, soft mud and areas of exposed sandstone reef. Firm muddy fine sand flats and sandstone reefs generally support a diverse species assemblage and are highly productive. Soft mud supports a relatively low fauna diversity and originate as a result of increased sediment inputs from upstream, typically related to earthworks, erosion, intensive land uses (such as horticulture) or vegetation clearance. Intertidal soft mud is present within the CMA, beginning approximately 50 m offshore.²⁸
- 72 The underlying geology of the site and wider Hillsborough area is characterised by alternating sandstone and mudstone with variable volcanic content (volcanic-poor lower in the sequence and mixed volcanic content) and interbedded volcanoclastic grit beds. The Hillsborough area is also characterised by mainly alluvial sediments including swamp / peat deposits.²⁹
- 73 The proposal includes the deposition of material along the harbour edge, which includes basalt rocks and growing medium. The deposition of material will result in further modification to the harbour edge, however the intent of the proposal is to rehabilitate this part of the coastline to provide a more naturalistic appearance and formation.
- 74 The consented seawall which informs the existing environment of the site (but is yet to be constructed) will be replaced with a shallow gradient rock sill and platform.
- 75 The proposed roosting posts will require some localised disturbance to the seabed / harbour floor to install, however abiotic effects will be limited to the areas of harbour floor immediately surrounding the pole locations and the displacement of the soft material will re-settle with the following tidal cycles.
- 76 Overall, the proposal will result **Very Low** adverse effects on the abiotic attributes of the site and the immediate Hillsborough Bay setting.

Experiential Attributes

- 77 The experiential aspects of the natural character of the site are recognised through the use of the harbour waters, mud-flats and [consented, but not yet

²⁸

Refer Para 5.3.3 – PS 23 Assessment of Ecological Effects, prepared by Tonkin and Taylor

²⁹

As illustrated within the Auckland Geological and Nuclear Sciences Geological Map (Map 3, published 2001).

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constructed] walkway to the south of the site and residences within the immediate setting of the site.

- 78 The existing environment and setting of the site is a modified landscape and coastal edge which detracts from the naturalness and remoteness of the area.
- 79 The (consented) reinstatement of the site includes a seawall along the south-eastern boundary of the designation, with the existing pump station overhanging the harbour edge. The south-western boundary of the designation is defined by lower shrub and replacement tree planting.
- 80 The proposal will result in the deposition of material in the CMA, however, the design of the proposal includes the rehabilitation the harbour edge, providing a more naturalistic appearance. The proposal includes additional planting and a shallow gradient basalt rock formation which will be consistent with the appearance of the existing harbour edge to the west of the site. The proposed additional planting will provide a transition and degree of separation between the pumpstation building and the wider harbour setting to the south.
- 81 The proposed roosting posts will introduce a grouping of visible structures along the harbour edge, however the overall design of the site will result in a more naturalistic appearance to the edge of the pumpstation. Overall, the proposal will result in **Neutral** effects on the experiential attributes of the site and the immediate Hillsborough Bay setting. The proposal will introduce a change to the experiential attributes of the site, however the nature of that change will not result in any adverse or positive effect.
- 82 Overall, the proposal will result in **Neutral** effects on the natural character of Hillsborough Bay for the following reasons:
- Ecological effects will be largely avoided, remediated or mitigated to ensure an overall gain in ecological enhancement of the site, resulting in positive effects on the biotic attributes of the site.
 - The proposal includes the deposition of material into the CMA and installation of roosting posts which will result in further modification to the harbour edge and floor.
 - The intent of the proposal is to provide an overall ecological enhancement of the site, and to rehabilitate the harbour edge, providing a more naturalistic appearance.
 - Overall, the proposal will result in a change to the natural character of Hillsborough Bay, however the nature of that change is will not result in an overall adverse or positive effect.

Landscape and Character Effects

83 The methodology for assessing the effects of an activity or development on landscape character requires a four-stage process:

- I. Definition of 'landscape';
- II. Analysis of landscape characteristics;
- III. Overall synthesis (or appraisal) of landscape character; and
- IV. Assessment of effects of an activity or change on those characteristics.

'While landscape draws strands from diverse sources (natural sciences, humanities, cultural perspectives), it is perceived and experienced as a unified phenomenon. It is an integrated whole. It is more than a summary of data – the whole is greater than the sum of the parts.

The current professional practice of conceptualising 'landscape' as the overlap of its physical, associative, and perceptual dimensions'³⁰

84 The site and the localised setting of Hillsborough Bay includes:

- **Physical** aspects (its geomorphology, ecological communities and processes) of the water and the surrounding land;
- **Perceptual** aspects (the vividness and memorability of the landscape features); and,
- **Associative** aspects, including such meanings as the historical connections to the harbour edge.

85 The physical aspects and values of Hillsborough Bay are described above, with a detailed assessment of natural character values tailored towards the attributes of the coastal environment and the coastal marine area of the site.

86 As described above, the landscape and seascape values of Hillsborough Bay are diminished due to the highly modified landscape and harbour setting which includes residential, infrastructure and recreational developments and uses.

87 The proposal includes the deposition of material along the harbour edge which will result in a physical change to the landscape, albeit limited to a short section of Hillsborough Bay. The harbour floor around the site will be disturbed

³⁰

Te Tangi a te Manu: Aotearoa New Zealand Landscape Assessment Guidelines', [final draft subject to final editing, graphic design, illustrations, approved by Tuia Pito Ora/NZILA 5 May 2021]. Paragraphs 4.21 – 4.22

by the proposal, however it is currently subject to temporary works and is a modified landscape.

- 88 The proposal includes the enhancement of the consented reinstatement plan of the site to provide a more naturalistic and ecologically responsive design to the harbour edge. The proposal will have a **Very Low** (adverse) effect on the physical attributes of the site and Hillsborough Bay.
- 89 When considering perceptual attributes, the proposed alterations to the reinstatement plan will assist in integrating the site and the Pump Station into the landscape and coastal edge. The proposed design has been tailored to be in keeping with the established coastal character of the area, which includes basalt rock sills and additional planting.
- 90 The proposal will have a **Low** (positive) effect on the perceptual attributes of the site and Hillsborough Bay.
- 91 Due to the nature of the proposal, the landscape and ecological enhancements will result in **Neutral** effects on associative values.
- 92 Considered in relation to the physical, perceptual and associative aspects of landscape attributes, the overall effect of the proposal on the existing landscape values of the site and Hillsborough Bay will be **Neutral** for the following reasons:
- The landscape and seascape values of Hillsborough Bay are diminished due to the highly modified landscape and harbour setting.
 - The proposal includes the landscape and ecological enhancement of the site, with the design being tailored to reflect the established coastal character of the area.
 - Associative values will remain unchanged.
 - The proposal will result in a physical and perceptual change to the landscape character of Hillsborough Bay, however the landscape values and characteristics of the bay will remain unchanged.

Visual Amenity

- 93 The author has undertaken two site visits, with viewpoint photographs taken from land and harbour edge locations. These are included as **Viewpoints 1 – 5** within **Appendix B - Graphic Attachments** and provide visual illustrations of the setting and context of the site.

- 94 The potential viewing audiences are identified as:
- i. Public viewpoints within the immediate and local setting of the site; including:*
 - a) Users of the mud-flats and consented Waikowhai Coastal Reserves Walkway to the south of the site.*
 - b) Views from Taylors Bay to the south.*
 - c) Views from Taumanu Reserve and the coastal walkway to the east.*
 - ii. Residences immediately north and west of the site.*

Views from the mud-flats and consented Waikowhai Coastal Reserves Walkway

- 95 The proposed ecological and landscape enhancements are to be implemented along the harbour edge and across an area of mud-flats to the south of Pump Station 23, within the footprint of the temporary works platform which is currently visible on site.
- 96 The consented Waikowhai Coastal Reserves Walkway traverses the harbour edge and will be located approximately 5m to the south of the proposed enhancement works at its closest point. The typical elevation for the walkway will be approximately 3.5m above the harbour floor, with elevated views across the site being available. The introduction of the walkway along the harbour edge will likely result in the reduction of pedestrian movement within the mud-flats.
- 97 Viewpoints 2 and 3 are at the mud-flats to the south west and east of the site respectively and broadly align with the location of the consented walkway (albeit, lower in elevation). From these locations, the site is seen within the context of a developed harbour edge and bay which includes residential development, overhead transmission lines and towers, and private wharves, jetties and boat ramps. Once constructed, the walkway itself will also contribute to the developed character of Hillsborough Bay.
- 98 The proposed ecological and landscape enhancements at PS23 will include a more naturalistic and appropriate harbour edge to the site than achieved in the current design. The proposed enhancement works include additional salt-marsh planting and shallow gradient rock sills which will assist in visually integrating the pump station site into the harbour edge and will achieve a more naturalistic appearance and design.
- 99 It is anticipated that the proposed enhancement works will be visible along the full length of the consented walkway, however the proposal will be most

apparent on the sections of the walkway which are located within the closest proximity to the site.

- 100 The proposed enhancements will be visible and located closer in proximity to the consented walkway, however, the enhancements will be seen in place of the existing (consented) remediation works and will result in a more naturalistic appearance to the harbour edge.
- 101 Overall, the proposal will result in **Very Low** positive effects on the visual amenity of views from the mud-flats and the consented Waikowhai Coastal Reserves Walkway for the following reasons:
- It is anticipated that the proposed enhancement works will be visible along the full length of the consented walkway.
 - The proposed works will be seen in place of the consented reinstatement works.
 - The proposed enhancements have been designed to be naturalistic in appearance and will assist in the visual integration of the existing site infrastructure into the coastal environment.

Views from Taylors Bay to the south.

- 102 Taylors Bay is located approximately 300m to the south of the site and includes a grassy reserve, small sandy beach, play area and parking court. Viewpoint 1 is taken at the eastern part of the sandy beach and is representative of views from Taylors Bay.
- 103 From this location, views of the proposed enhancement works will be largely contained by the consented Waikowhai Coastal Reserves Walkway which traverses the harbour edge. Views of the proposed planting and rock sill may be available, seen beyond and below the raised boardwalk structure.
- 104 The proposal includes the rehabilitation of the harbour edge and additional planting and rock formations. Where visible, the proposal will be seen as a visually recessive and naturalistic section of the bay.
- 105 Overall, the proposal will result in **Neutral** effects on visual amenity from Taylors Bay, for the following reasons:
- The proposal will be seen beyond the consented Waikowhai Coastal Reserves Walkway which will largely obscure views of the site.
 - Where visible, the proposal's naturalistic design will ensure that it is seen as a recessive and natural part of the bay.

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- The proposal will result in a perceptible change in the environment, however the characteristics and qualities of the view will remain unchanged.

Views from Taumanu Reserve and the coastal walkway to the east.

- 106 Taumanu Reserve is located approximately 850m to the east of the site at its closest point. An existing coastal walkway connects Taumanu Reserve to Rendcomb Place and is located approximately 400m from the site at its closest point.
- 107 Viewpoints 4 and 5 are at the existing coastal walkway and Taumanu Reserve respectively and are representative of views from the east of the site.
- 108 In views from the east, the consented Waikowhai Coastal Reserves Walkway will largely obscure views of the site. Where views are available, they will be seen at distance and beyond and below the raised boardwalk structure. Due to the naturalistic design of the enhancement works, the proposal will be visually recessive and appear as a natural section of the broader setting of Hillsborough Bay.
- 109 Overall, the proposal will result in **Neutral** effects on visual amenity from Taumanu Reserve and the coastal walkway to the east of the site, for the following reasons:
- The proposal will be seen at distance and beyond the consented Waikowhai Coastal Reserves Walkway which will largely obscure views of the site.
 - Where visible, the proposal's naturalistic design will ensure that it is seen as a recessive and natural part of the bay.
 - The proposal will result in a perceptible change in the environment, however the characteristics and qualities of the view will remain unchanged.

Residences immediately north and west of the site.

- 110 The site is located on the harbour edge, on the southern edge of Hillsborough. Residential development is located immediately to the north and west of the PS23 site. The visual catchment of the site from residences is limited to those properties within closest proximity³¹, as assessed in Table 1 below.

³¹

As illustrated in Figure 2 – Appendix B Graphic Attachments

Table 1: Overview of Effects

| Property | Description | Effect |
|---|--|---|
| 2/25 Frederick Street | Located to the south-west of the site. Open views across the site and to the wider setting of the Manukau Harbour to the south. Proposal will be seen against the backdrop of the Pump Station site and the planting to be implemented as part of the consented reinstatement plan. Saltmarsh planting is proposed to the east and south of the pump station and will assist in 'anchoring' the pumpstation into the environment. | Low adverse (less than minor) |
| 27 Frederick Street and 29 Frederick Street | Located to the west of the site. Properties are located on elevated landform. Open views across the site to the Manukau Harbour to the south. The proposal will be seen within the context of the planting to be implemented as part of the reinstatement plan and in the foreground of the consented Waikowhai Coastal Reserves Walkway. | Very Low adverse |
| 33 Frederick Street | Located to the north-west of the site. Property is set behind 33A Frederick Street and views of the site are largely contained. Where views are available, the proposal will be seen within the context of reinstatement planting and in the foreground of the consented Waikowhai Coastal Reserves Walkway. | Neutral |
| 33A Frederick Street | Located to the north-west of the site. Property is located at a lower elevation with open views towards the Manukau Harbour. The proposal will be partly obscured by reinstatement planting, however the western part of the proposal, including the proposed roosting area will be visible, seen within the context of the consented planting. Where visible, the proposal will be seen in the foreground of the consented Waikowhai Coastal Reserves Walkway. The proposed saltmarsh planting will provide a backdrop to the pump station, and once mature will assist in integrating the infrastructure into the environment. | Low adverse (less than minor) |
| 3/41 Frederick Street | Located immediately north of the PS23 site. Property is located on elevated landform with views across the site towards the Manukau Harbour. The proposal will be largely obscured by the reinstatement planting along the PS23 access road. | Neutral |
| 45B Frederick Street and | Located to the north-east of the site. Properties are located on rising landform. Views of the proposal | Neutral |

| | | |
|----------------------|---|--|
| 47B Frederick Street | will be available, seen beyond the reinstatement planting and within the context of the consented Waikowhai Coastal Reserves Walkway. | |
|----------------------|---|--|

- 111 When considering views from residences to the north and west of the site, the proposed works will be seen within the context of the consented Waikowhai Coastal Reserves Walkway and the reinstatement planting within the PS23 site.
- 112 Most residences are located on rising landform and have broad open views across the Manukau Harbour. The proposal will be located in the foreground of these views and set into the harbour edge.
- 113 The naturalistic design of the enhancement works will ensure that the proposal will be visually recessive and appear as a natural section of the harbour edge.
- 114 Overall, the proposal will result in no more than **Low** adverse (less than minor) effects on the visual amenity of residences to the north and west of the site.
- 115 Longer distance views of the site may be available from properties located on the Taylors Bay Headland, or south of the Manukau Harbour at Māngere Bridge. From these locations, the proposal will be a barely perceptible feature within the wider context of Hillsborough Bay and will be seen beyond the consented Waikowhai Coastal Reserves Walkway. The proposal will result in **Neutral** effects on the visual amenity of residences within the wider context of the site.

Table 2: Overview of Effects

| | |
|--|-------------------------------|
| Biotic Effects on Hillsborough Bay | Low (positive) |
| Abiotic Effects on Hillsborough Bay | Very Low (adverse) |
| Experiential Effects on Hillsborough Bay | Neutral |
| Overall Effects on the Natural Character of Hillsborough Bay | Neutral |
| Effects on the Landscape Character of Hillsborough Bay | Neutral |
| Effects on the Visual Amenity from the mud-flats and the consented Waikowhai Coastal Reserves Walkway | Very Low (positive) |
| Effects on the Visual Amenity from Taylors Bay to the south | Neutral |
| Effects on the Visual Amenity from Taumanu Reserve and the coastal walkway to the east | Neutral |

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| | |
|---|---|
| Effects on the Visual Amenity from residences immediately north and west of the site | No more than Low (<i>adverse</i>) (<i>less than minor</i>) |
| Effects on the Visual Amenity from residences within the wider context of the site | Neutral |

CONCLUSIONS

- 116 The site is located on the edge of the Manukau Harbour, immediately south of the Watercare Pump Station 23.
- 117 The proposal is to provide additional ecological and landscape enhancement around Pump Station 23, over and above the consented reinstatement plan of the site which is yet to be implemented.
- 118 The site is not located within any specific landscape, ecological or natural character overlay and there are no known values that require protection.
- 119 The overall effects of the proposal on the natural character values of Hillsborough Bay are **Neutral**.
- 120 The overall effects of the proposal on the landscape values of Hillsborough Bay are **Neutral**.
- 121 The effects of the proposal on the visual amenity values of the area are predominantly **Neutral**, however range from **Very Low** (positive) to **Low** (adverse) (less than minor).
- 122 The site is well suited for the proposal and any natural character, landscape character and visual amenity effects arising from the proposal on the receiving environment are acceptable.

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September 2022

Appendix A – Landscape Related Provisions

New Zealand Coastal Policy Statement (2010). (Emphasis added)**Policy 1** - Extent and characteristics of the coastal environment

- 1) *“Recognise that the extent and **characteristics** of the **coastal environment** vary from region to region and locality to locality; and the issues that arise may have different effects in different localities.*
- 2) *Recognise that the **coastal environment includes**:*
 - a. *the coastal marine area;*
 - b. *islands within the coastal marine area;*
 - c. *areas where coastal processes, influences or qualities are significant, including coastal lakes, lagoons, tidal estuaries, saltmarshes, coastal wetlands, and the margins of these;*
 - d. *areas at risk from coastal hazards;*
 - e. *coastal vegetation and the habitat of indigenous coastal species including migratory birds;*
 - f. ***elements and features that contribute to the natural character, landscape, visual qualities or amenity values;***
 - g. *items of cultural and historic heritage in the coastal marine area or on the coast;*
 - h. *inter-related coastal marine and terrestrial systems, including the intertidal zone; and*
 - i. *physical resources and built facilities, including infrastructure, that have modified the coastal environment.”³²*

Policy 6 - Activities in the coastal environment

- 1) *“In relation to the **coastal environment**:*
 - a. *recognise that the provision of infrastructure, the supply and transport of energy including the generation and transmission of electricity, and the extraction of minerals are activities important to the social, economic and cultural well-being of people and communities;*
 - b. *consider the rate at which built development and the associated public infrastructure should be enabled to provide for the reasonably foreseeable*

³² Policy 1 of the New Zealand Coastal Policy Statement (2010)

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needs of population growth without compromising the other values of the coastal environment;

- c. encourage the consolidation of existing coastal settlements and urban areas where this will contribute to the avoidance or mitigation of sprawling or sporadic patterns of settlement and urban growth;*
- d. recognise tangata whenua needs for papakāinga, marae and associated developments and make appropriate provision for them;*
- e. consider where and how built development on land should be controlled so that it does not compromise activities of national or regional importance that have a functional need to locate and operate in the coastal marine area;*
- f. consider where development that **maintains** the **character** of the existing built environment should be **encouraged**, and where **development** resulting in a **change in character** would be acceptable;*
- g. take into account the potential of renewable resources in the coastal environment, such as energy from wind, waves, currents and tides, to meet the reasonably foreseeable needs of future generations;*
- h. consider how adverse **visual impacts** of development can be **avoided** in areas sensitive to such effects, such as headlands and prominent ridgelines, and as far as practicable and reasonable apply controls or conditions to avoid those effects;*
- i. set back development from the coastal marine area and other water bodies, where practicable and reasonable, to **protect** the **natural character**, open space, public access and amenity values of the coastal environment; and*
- j. where appropriate, buffer areas and sites of significant indigenous biological diversity, or historic heritage value.*

2) Additionally, in relation to the coastal marine area:

- a. recognise potential contributions to the social, economic and cultural wellbeing of people and communities from use and development of the coastal marine area, including the potential for renewable marine energy to contribute to meeting the energy needs of future generations:*
- b. recognise the need to maintain and enhance the public open space and recreation qualities and values of the coastal marine area;*

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- c. *recognise that there are activities that have a functional need to be located in the coastal marine area, and provide for those activities in appropriate places;*
- d. *recognise that activities that do not have a functional need for location in the coastal marine area generally should not be located there; and*
- e. *promote the efficient use of occupied space, including by:*
 - i. *requiring that structures be made available for public or multiple use wherever reasonable and practicable;*
 - ii. *requiring the removal of any abandoned or redundant structure that has no heritage, amenity or reuse value; and*
 - iii. *considering whether consent conditions should be applied to ensure that space occupied for an activity is used for that purpose effectively and without unreasonable delay”³³*

Policy 13 Preservation of natural character

- 1) *“To **preserve the natural character** of the coastal environment and to protect it from inappropriate subdivision, use, and development:*
 - a. *avoid adverse effects of activities on natural character in areas of the coastal environment with outstanding natural character; and*
 - b. ***avoid significant adverse effects** and avoid, remedy or mitigate other adverse effects of activities on **natural character** in all other areas of the coastal environment;*
including by:
 - c. *assessing the natural character of the coastal environment of the region or district, by mapping or otherwise identifying at least areas of high natural character; and*
 - d. *ensuring that regional policy statements, and plans, identify areas where preserving natural character requires objectives, policies and rules, and include those provisions.*
- 2) *Recognise that **natural character** is not the same as **natural features** and **landscapes** or **amenity values** and may include matters such as:*
 - a. *natural elements, processes and patterns;*

³³ Policy 6 of the New Zealand Coastal Policy Statement (2010)

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- b. *biophysical, ecological, geological and geomorphological aspects;*
- c. *natural landforms such as headlands, peninsulas, cliffs, dunes, wetlands, reefs, freshwater springs and surf breaks;*
- d. *the natural movement of water and sediment;*
- e. *the natural darkness of the night sky;*
- f. *places or areas that are wild or scenic;*
- g. *a range of natural character from pristine to modified; and*
- h. *experiential attributes, including the sounds and smell of the sea; and their context or setting.”³⁴*

Policy 14 Restoration of natural character

*“Promote **restoration** or **rehabilitation** of the **natural character** of the **coastal environment**, including by:*

- b. *identifying areas and opportunities for restoration or rehabilitation;*
- c. *providing policies, rules and other methods directed at restoration or rehabilitation in regional policy statements, and plans;*
- d. *where practicable, imposing or reviewing restoration or rehabilitation conditions on resource consents and designations, including for the continuation of activities; and recognising that where degraded areas of the coastal environment require restoration or rehabilitation, possible approaches include:*
 - i. ***restoring indigenous habitats and ecosystems, using local genetic stock where practicable; or***
 - ii. ***encouraging natural regeneration of indigenous species, recognising the need for effective weed and animal pest management; or***
 - iii. ***creating or enhancing habitat for indigenous species; or***
 - iv. ***rehabilitating dunes and other **natural coastal features** or processes, including saline wetlands and **intertidal saltmarsh**; or***
 - v. ***restoring and protecting riparian and intertidal margins; or***
 - vi. ***reducing or eliminating discharges of contaminants; or***

³⁴ Policy 13 of the New Zealand Coastal Policy Statement (2010)

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- vii. *removing redundant structures and materials that have been assessed to have minimal heritage or amenity values and when the removal is authorised by required permits, including an archaeological authority under the Historic Places Act 1993; or*
- viii. *restoring cultural landscape features; or*
- ix. *redesign of structures that interfere with ecosystem processes; or*
- x. *decommissioning or restoring historic landfill and other contaminated sites which are, or have the potential to, leach material into the coastal marine area.*³⁵

Policy 15 Natural features and natural landscapes

*“To **protect the natural features and natural landscapes** (including seascapes) of the **coastal environment** from inappropriate subdivision, use, and development:*

- a. *avoid adverse effects of activities on outstanding natural features and outstanding natural landscapes in the coastal environment; and*
- b. *avoid significant adverse effects and avoid, remedy, or mitigate other adverse effects of activities on other natural features and natural landscapes in the coastal environment; including by:*
- c. *identifying and assessing the natural features and natural landscapes of the coastal environment of the region or district, at minimum by land typing, soil characterisation and landscape characterisation and having regard to:*
 - i. *natural science factors, including geological, topographical, ecological and dynamic components;*
 - ii. *the presence of water including in seas, lakes, rivers and streams;*
 - iii. *legibility or expressiveness—how obviously the feature or landscape demonstrates its formative processes;*
 - iv. *aesthetic values including memorability and naturalness;*
 - v. *vegetation (native and exotic);*
 - vi. *transient values, including presence of wildlife or other values at certain times of the day or year;*
 - vii. *whether the values are shared and recognised;*

³⁵ Policy 14 of the New Zealand Coastal Policy Statement (2010)

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- viii. cultural and spiritual values for tangata whenua, identified by working, as far as practicable, in accordance with tikanga Māori; including their expression as cultural landscapes and features;*
- ix. historical and heritage associations; and*
- x. wild or scenic values;*
- d. ensuring that regional policy statements, and plans, map or otherwise identify areas where the protection of natural features and natural landscapes requires objectives, policies and rules; and*
- e. including the objectives, policies and rules required by (d) in plans.”³⁶*

³⁶ Policy 15 of the New Zealand Coastal Policy Statement (2010)

Appendix B - GRAPHIC ATTACHMENTS (refer separate document)

Pump Station 23

Watercare

Appendix B - Graphic Attachments

October 2022

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**Land.
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| Document record | | | | |
|-----------------|----------|--------|----|----------|
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Contents

| | |
|--------------------------------------|----|
| Figure 1 - Site Location Plan | 4 |
| Figure 2 - Site Plan | 5 |
| Figure 3 - Reinstatement Plan | 6 |
| Figure 4 - Proposed Site Layout Plan | 7 |
| Figure 5 - Viewpoint Location Plan | 8 |
| Viewpoint 1 | 10 |
| Viewpoint 2 | 12 |
| Viewpoint 3 | 14 |
| Viewpoint 4 | 16 |
| Viewpoint 5 | 18 |
| Methodology | 21 |



Figure 1 - Site Location Plan

- Site location
- Designation boundary
Note: Landscape and ecological enhancements are proposed outside (south) of the designation boundary.
- Consented Waikowhai Coastal Reserves Walkway

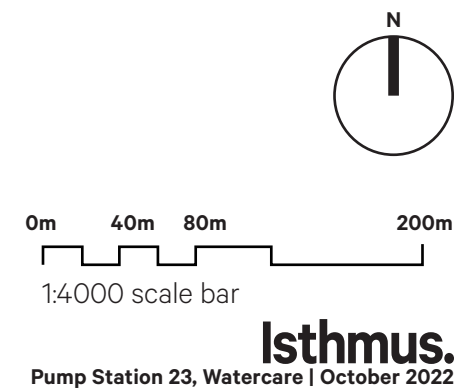
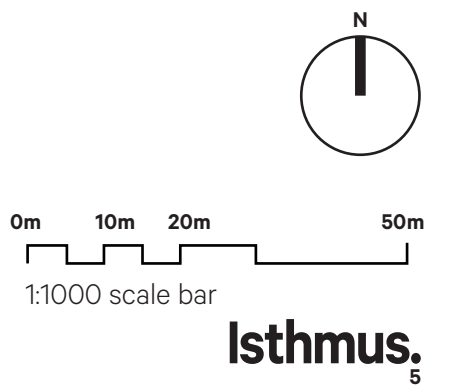
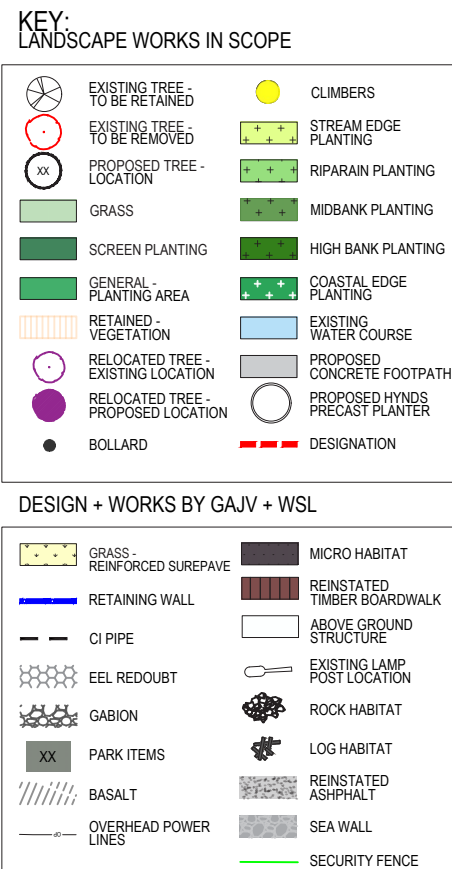


Figure 2 - Site Plan

- Designation boundary and approximate extent of the existing harbour edge
Note: Landscape and ecological enhancements are proposed outside (south) of the designation boundary.
- Approximate extent of Temporary Construction Platform for current PS23 works
- Approximate extent of Consented Waikowhai Coastal Reserves Walkway





Drawing reference CI-Environment - 2013436.101 Issue 3

0m 5m 10m 25m

1:500 scale bar

N

Isthmus.

Pump Station 23, Watercare | October 2022



| | | | | | | | | | | | | | | | | |
|-----|----------------------------------|------|-----|------|----------------------|------|--------|----------------------------|--|--|-------|---------|------------------|---|-----|---|
| 1 | DRAFT CONSENT LEVEL DESIGN ISSUE | COVA | CHK | DATE | DESIGNED | COVA | Aug.22 | DRAWING STATUS | CLIENT | WATERCARE SERVICES LIMITED | | | | | | |
| | | | | | DESIGN CHECKED | COVA | Aug.22 | DRAFT CONSENT LEVEL DESIGN | PROJECT | PUMP STATION 23 ECOLOGICAL ENHANCEMENT | | | | | | |
| | | | | | DRAWING CHECKED | | | | TITLE | ECOLOGICAL ENHANCEMENT WORKS | | | | | | |
| | | | | | NOT FOR CONSTRUCTION | | | | THIS DRAWING IS NOT TO BE USED FOR CONSTRUCTION PURPOSES UNLESS SIGNED AS APPROVED | | | | PROPOSED LAYOUT | | | |
| | | | | | | | | | | Isthmus. | | | | | | |
| REV | DESCRIPTION | CAD | CHK | DATE | APPROVED | DATE | | | | SCALE (A3) | 1:500 | DWG No. | 1015172.1600-002 | 7 | REV | 1 |



Figure 5 - Viewpoint Location Plan

- Site location
- Consented Waikowhai Coastal Reserves Walkway
- Viewpoint Location



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Viewpoint 1

View from Taylors Bay.



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Original Photo Simon Button | 50mm | DSLR Nikon D800 | 2:43pm 27 July 2022
Reading distance for correct scale: 400mm
Field of View Approximately 110 ° horizontal (across 2 x A3 pages) & 34 ° vertical

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11



Viewpoint 2

View looking north from the mud-flats, proximate to the location of the consented walkway.



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Original Photo Simon Button | 50mm | DSLR Nikon D800 | 2:37pm 27 July 2022

Reading distance for correct scale: 400mm

Field of View Approximately 110 ° horizontal (across 2 x A3 pages) & 34 ° vertical

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Viewpoint 3

View looking west from the mud-flats, proximate to the location of the consented walkway.



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Original Photo Simon Button | 50mm | DSLR Nikon D800 | 2:34pm 27 July 2022
Reading distance for correct scale: 400mm
Field of View Approximately 110 ° horizontal (across 2 x A3 pages) & 34 ° vertical

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Viewpoint 4

View looking east from existing coastal boardwalk.



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Original Photo Simon Button | 50mm | DSLR Nikon D800 | 2:24pm 27 July 2022
Reading distance for correct scale: 400mm
Field of View Approximately 110 ° horizontal (across 2 x A3 pages) & 34 ° vertical

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17



Viewpoint 5

View from Taumanu Reserve.



Original Photo Simon Button | 50mm | DSLR Nikon D800 | 2:24pm 27 July 2022
Reading distance for correct scale: 400mm
Field of View Approximately 110 ° horizontal (across 2 x A3 pages) & 34 ° vertical

Photosimulation Methodology Statement

- Photos were taken with a fixed lens on DSLR camera. Locations were fixed using a handheld GPS unit with accuracy of 5m. Reference points in the landscape were also located to assist referencing of photo to digital terrain model.
- A sequence of photos was taken from each viewpoint and stitched to form panoramas. Photos were overlapped by approximately 30% and edges cropped prior to stitching to eliminate edge distortion.
- A digital model was created incorporating 3D models of the proposed development. Computer images were generated within the digital model from the same locations as the photos. The image was overlaid and aligned with the photo using reference points and visual matching. (Photos were imported in RAW format to avoid degradation of the image, requiring resizing to match the computer image).
- The wire-frame was then switched off leaving the proposed development in its correct location and scale relative to the photo. Lower parts of the proposed development were erased using Photoshop software where they would be behind foreground topography or vegetation.
- The time and weather when the photo was taken was entered to the programme in order to replicate lighting conditions.
- The completed photomontage is presented over two pages:
 - The photos are produced to replicate correct scale at the nominated reading distance (in this case 400mm).
 - Each photomontage is printed across two facing pages to illustrate a field of view of approximately 110° at a reading distance of 400mm. This approximates the field of human binocular vision. (But not peripheral vision which extends to approximately 200°)

Notes on use of Photosimulations:

- The Photosimulations are a useful tool but they cannot precisely reproduce real life for the following reasons:
 - 2D Photography flattens an image compared to binocular vision.
 - Photography is static, whereas the human vision can scan and remember information.
 - Photographs are passive, whereas the eye seeks out detail.
 - The human eye can see more contrast than can be reproduced through photography.
 - Physical resolution of photography and printing is less than that of the human eye.

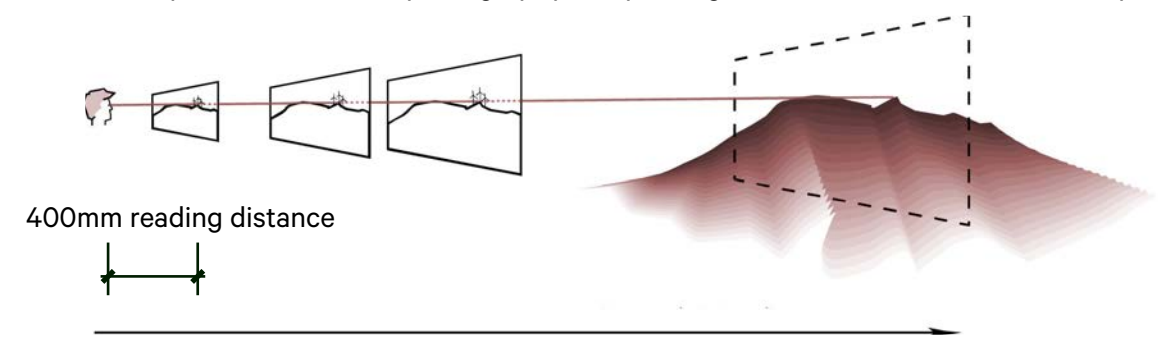


Figure 01: The relationship between reading distance and real life scale.

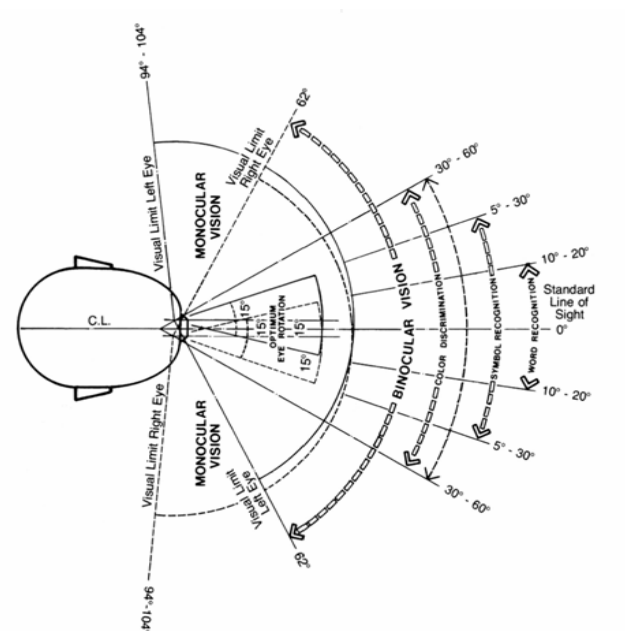


Figure 02: Binocular vision is approximately 124°. Field of view is approximately 110° across 2 x A3 pages at correct scale image for 400mm reading distance (vertical field of view is approximately 33°)



Figure 03: Comparison of 35mm lens and 50mm lens

Two images from the same location. With 35mm and 50mm lenses perspective is influenced by field of view, not by lens focal length. The overlaid portion is identical.