22. **Landscape and visual**

The Landscape and Visual Assessment Report provides an assessment of landscape and visual effects and analyses the physical effects of the Project. It considers the character and quality of the existing environment and landscape and amenity values, with specific regard to natural character. The Report also assesses the nature and extent of visual effects on the main audiences within the receiving environment.

The policy context for the Project area, a description of the existing environment and an explanation of the methodology used to assess potential landscape and visual effects are provided in the Landscape and Visual Assessment Report. The following is a summary of the issues and potential effects identified in that Report. This summary and the Report subsequently inform the recommended mitigation contained in Section 28 and will inform the Project conditions.

### 22.1 Landscape and visual effects assessment

The potential landscape and visual effects of the Project as they relate to the RMA are:

- Effects on the natural character of wetlands and rivers and their margins;
- Effects on outstanding natural features and landscapes;
- Effects on visual amenity values;
- Effects on the quality of the environment (biophysical aspects of the landscape); and
- Landscape effects during construction.

The Landscape and Visual Assessment Report has considered the effects of the Project on three interrelated components – biophysical, visual amenity and landscape/natural character. Specific effects during the construction phase of the Project and proposed mitigation measures are also evaluated.

Visual simulations of the indicative alignment from selected viewpoints have been used to inform the assessment of landscape and visual effects. The simulations are included in the LV set of drawings in Volume 4.

For the purposes of assessing landscape and visual effects, the landscape within the Project area has been divided into character areas with a readily distinguishable landscape character. These landscape character areas are areas within the landscape that display a relatively homogenous and consistent landscape character. Their edges are determined by changes in landscape character, which often correspond to changes in land use or natural boundaries such as catchments, prominent landforms (eg ridgelines) or water bodies.

An assessment of the actual and potential effects of the Project within each of these landscape character areas is presented in the following sections. Effects have been rated on a five-point scale\(^{125}\), namely negligible, low, moderate, high and significant.

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\(^{125}\) Refer Landscape and Visual Assessment Report Section 2.7.
22.1.1 Pūhoi

The Pūhoi landscape character area extends from the northern portals of the Johnstone’s Hill Tunnels to the vegetated escarpment north of Pūhoi Road.

Key attributes of the Pūhoi landscape character area are:

- Pūhoi River with its estuarine and intertidal influences;
- Residential settlement pattern;
- Enclosing hill country landform following discrete landscape sub-units;
- River valley flats;
- Intermix of pasture and scattered vegetation with pockets of indigenous vegetation;
- Cultural heritage values; and
- Influence of the existing SH1 and Johnstone’s Hill tunnels.

The existing environment, natural character and landscape values for this landscape character area are described in detail in Section 5 of the Landscape and Visual Assessment Report.

(a) Biophysical effects

The indicative alignment necessitates some significant earthworks to negotiate the localised ridge and gully systems, including cut slopes and fill embankments. Two large viaducts will span Okahu Creek and Pūhoi Road/Pūhoi River. Although the hill country is not highly sensitive, the earthworks and structures will result in considerable disruption to the existing natural landform in this area.

Vegetation removal will be limited to localised clearance of riparian vegetation on the river and wetland margins and removal of some native and exotic tree species scattered through areas of pasture, as outlined in Section 5 of the Terrestrial Ecology Assessment Report.

(b) Visual amenity effects

Although the landform and existing vegetation will provide some visual containment of the motorway, large sections of the carriageway and extensive areas of earthworks will be visible from SH1, the Hibiscus Coast Highway and the areas to the east. The most visible areas will be the southern tie-in at the Johnstone’s Hill tunnels, from the Hibiscus Coast Highway and where the alignment crosses the Pūhoi River flats and enters the hill country to the north.

In this area the large cutting will cause high adverse visual effects for motorists on SH1 and users of the new motorway, particularly during construction. However, their views will be transient and brief.

Within this landscape character area there is a small, permanent local residential audience clustered around Pūhoi Close and at Billings Road. For residents of Pūhoi Close, the new motorway will have a high level of effect on the visual amenity of the area. Their current rural outlook will be replaced by views towards the 300m long viaduct crossing the Pūhoi River and Pūhoi Road.

SH1 already has an influence on the character of this area. Regardless, the cumulative effects of the two alignments will reinforce the transport function as a main component of the landscape
character locally. The proximity of the new motorway will present a significant visual intrusion, further decreasing the remaining levels of rural amenity for the residential population. Existing vegetation will assist in partially screening views and mitigation planting could be undertaken to minimise potential adverse effects.

(c) Landscape and natural character effects

The main landscape sensitivity in the Pūhoi landscape character area is associated with the river tributaries and wetland areas, which will be spanned by viaduct structures across Okahu Inlet and the Pūhoi River. While these structures will present an imposition upon the natural character of these areas, they will reduce the physical effects to the landscape considerably by spanning rather than culverting these waterways.

The Landscape team considers the implications of the alignment on ONL 44 (Mahurangi–Waiwera, as described in Section 4.3.1 of this AEE) to be low as the indicative alignment skirts along the periphery of the delineated area near the Pūhoi River. The natural character and landscape values of this area are already significantly modified by the existing SH1 and Johnstone’s Hill tunnels.

(d) Summary of effects – Pūhoi

Overall, the Landscape team considers the landscape and visual effects of the highway on this area to be high. These effects will be particularly pronounced during the construction stage due to the extent of earthworks and exposed cut slopes.

Following suitable mitigation measures, these effects will be reduced to a moderate level over 3-5 years as the cut slopes, fill embankments and MSE slopes take on more natural appearances through weathering and revegetation.

The visual effects for the residents in Pūhoi Close will be high until the mitigation planting between the viaduct and the residential area has become established and views towards the viaduct are progressively screened.

22.1.2 Hungry Creek

The Hungry Creek landscape character area extends from the vegetated escarpment north of Pūhoi Road to immediately west of Mahurangi Road West.

Key attributes of the Hungry Creek landscape character area are:

- Exotic pine forested landscape traversed with forestry tracks;
- Scattered and sparse residential settlement pattern;
- Physical proximity to the existing SH1; and
- Contrasting and more natural characteristics to the east of SH1.

The existing environment, natural character and landscape values for this landscape character area are described in detail in Section 5 of the Landscape and Visual Assessment Report.
(a) Biophysical effects

The new motorway will pass perpendicular across the grain of the land through this landscape character area. Due to the relatively complex landform of the low hill country the Project will necessitate a significant amount of earthworks in the form of a continuous sequence of cut slopes, fill embankments and large retaining structures in the vicinity of Hungry Creek. The construction works will require the removal of sizable areas of the existing exotic pine forest and associated vegetation. This landscape character area has a relatively low sensitivity to these effects due to the degraded landscape character and quality.

(b) Visual amenity effects

The permanent residential audience is limited to several properties along the eastern side of SH1 and three properties within the proposed designation, which will be unoccupied and are likely to be removed during construction. For most of this section, the alignment will be largely contained by the existing landform and vegetation for many of the residents to the east of SH1 and for users of SH1 itself. However, SH1 users will have views of slopes and a steep embankment, particularly for southbound vehicles. These glimpses will be brief and transitory.

The design anticipates MSE walls, which are hydroseeded following construction, resulting in a green vegetated wall which will minimise adverse effects associated with hard constructed retaining walls.

(c) Landscape / natural character effects

The main natural character effects are associated with the culverting of a number of watercourses. As the alignment extends through predominantly exotic forestry, the effects on natural character will be low.

(d) Summary of effects – Hungry Creek

The landscape and visual effects of the Project on this landscape character area during and immediately following construction are likely to be in the moderate to high range. Following suitable mitigation measures, these effects could be reduced to a low level over a short time period (approximately 3-5 years) as the cut slopes, fill embankments and MSE walls take on more natural appearances through weathering and revegetation.

22.1.3 Schedewys Hill

The Schedewys Hill landscape character area extends from where the alignment emerges from the forested hill country to the west of Mahurangi West Road through to Moirs Hill.

Key attributes of the Schedewys Hill landscape character area are:

- Open rolling pasture on undulating slopes;
- Scattered vegetation pattern;
- Exotic pine forested landscape traversed with forestry tracks;
- Scattered and sparse residential settlement pattern;
- Physical proximity to the existing SH1; and
Contrasting and more natural characteristics to the east of SH1.

The existing environment, natural character and landscape values for this landscape character area are described in detail in Section 5 of the Landscape and Visual Assessment Report.

(a) Biophysical effects

The main physical changes to the landscape will result from the earthworks in the south and combination of earthworks and vegetation removal in the more elevated sections to the north. Neither of these landscape sub-units is particularly sensitive in landscape terms. Although very exposed to the surrounding countryside, the low undulating farmland in the southern section has the capacity to readily assimilate the proposed earthworks in the vicinity, which will have a low effect on the natural character of the landform in this area.

The elevated section of the alignment that ascends the hillside to the north will require significant cuts and several large embankments. The 33m box cutting immediately to the south of Moirs Hill Road will also be significant.

This area is also not particularly sensitive to the proposed effects of the earthworks and vegetation clearance. The visual diversity created by the existing variable vegetation patterns offers a reasonably high capacity to accommodate the consequential physical and visual change.

(b) Visual amenity effects

The most affected audience of the indicative alignment will be the residents of the two landholdings in the vicinity of Mahurangi West Road between the alignment and SH1. Even though the existing SH1 is an established part of the local character, for these residents, the effects of being surrounded by the two alignments will result in a reduction in rural amenity values. Visual amenity effects for these residents will be high. The Landscape team considers the two landholdings on the eastern side of SH1 will be less affected, due to distance and the existing SH1 in the foreground. Visual amenity effects for these residents will be moderate.

The large box cutting immediately to the south of Moirs Hill Road will not be visible from most of the surrounding area and views will be restricted largely to those from the alignment. The Hikauae Bridge and Schedewys Hill Viaduct will be visible from parts of SH1 in the vicinity of Mahurangi West Road and from elevated locations immediately to the east of the motorway.

The main visual effects of the Project will be during and soon after construction. These effects will diminish quickly once pasture and vegetation in the disturbed areas re-establish. Though the alignment will form a distinctive band running over the landscape, it will not be overly intrusive or incongruous given the scale, modified character and unexceptional qualities of this landscape character area.

(c) Landscape / natural character effects

The natural character in this area is not high. It is characterised by the farming and forestry activities, which have significantly altered natural patterns and processes within this landscape
character area. As the alignment extends through predominantly exotic forestry and grazed pasture, the effects on natural character will be low.

(d) Summary of effects – Schedewys Hill

The effects will reduce to low to moderate over 3-5 years as the cut slopes and fill embankments ‘mature’ through weathering and revegetation. The visual amenity effects for the residents of the two land holdings in the vicinity of Mahurangi West Road between the Project and the existing SH1 will be high. Mitigation planting within the designation area would reduce these effects over time.

22.1.4 Moirs Hill North

The Moirs Hill North landscape character area extends from Moirs Hill Road through the forested area towards Perry Road.

Key attributes of the Moirs Hill North landscape character area are:

- Exotic pine forested landscape traversed with forestry tracks;
- Scattered and sparse residential settlement pattern;
- Elevated views; and
- Physical proximity to Pohuehue Scenic Reserve.

The existing environment, natural character and landscape values for this landscape character area are described in detail in Section 5 of the Landscape and Visual Assessment Report.

(a) Biophysical effects

The biophysical effects through this landscape character area will be high due to the extensive earthworks and modification to the existing landform. Small retaining walls or MSE slopes will be required along parts of the Moirs Hill Road alignment. However, due to the low landscape quality and modified level of natural character, the landscape associated with the alignment in this landscape character area has a high capacity to accommodate the change associated with the Project.

(b) Visual amenity effects

The visual effects of the motorway through much of this landscape character area will be well contained locally due to the landform and forestry, and there will be limited opportunities to view the motorway from SH1. The main visual effects will be to several residential properties along the ridge of Moirs Hill Road who will gain views towards parts of the alignment. These views will be highly variable as the alignment is cut into the complex landform.

(c) Landscape / natural character effects

The extensive exotic forestry has significantly degraded the natural character values of this area. The alignment extends entirely through the pine forest and the effects on natural character will be low. The main natural character effects are associated with the culverting of a number of watercourses. The spoil disposal areas provided within the proposed designation will also necessitate the culverting or diversion of watercourses.
The Project will not adversely affect the landscape and natural character values of the Pohuehue Reserve ONL or SNA as it is physically and visually separated from these areas by the intervening ridgeline.

(d) Summary of effects – Moirs Hill North

The landscape and visual effects of the Project on this landscape character area would be low to moderate due to the relatively low landscape quality and modified level of natural character. With the implementation of mitigation these effects could be reduced to low.

22.1.5 Perry Road

In the Perry Road landscape character area, the alignment emerges from the forested hill country to the southern abutment of a viaduct into the river valley occupied by the right branch of the Mahurangi River. The alignment in this landscape character includes the Perry Road Viaduct and the Kauri Eco Viaduct.

Key attributes of the Perry Road landscape character area are:

- The Mahurangi River and riparian vegetation;
- Remnant mature and regenerating vegetation;
- River valley landform surrounded by rolling hill country;
- Rural-residential settlement pattern interspersed with pastoral activities; and
- Compartmentalised landscape defined by shelterbelts and specimen tree plantings.

The existing environment, natural character and landscape values for this landscape character area are described in detail in Section 5 of the Landscape and Visual Assessment Report.

(a) Biophysical effects

This landscape character area is highly sensitive in landscape and visual terms. The construction of the motorway will bisect the valley, existing stands of indigenous vegetation and areas of pasture. Although the alignment avoids the main cluster of the settlement associated with Perry Road, it will have high biophysical effects in the southern part of the landscape character area.

The indicative alignment just clips the large area of mature indigenous bush, including kauri, immediately northwest of Genesis Aquaculture, through the construction of the Kauri Eco Viaduct.

(b) Visual amenity effects

This area will require extensive earthworks that will cause considerable disruption to the local landform and result in high visual effects for the local residential population. The Project will have a high effect on the rural amenity values of the area, and will change the landscape character of the valley. Such effects will be exacerbated by the enclosure and intimate scale of the landscape locally.
(c) Landscape / natural character effects

The existing natural character values will be adversely affected in this area by extensive earthworks, alteration to landform, stream culverting and removal of mature indigenous bush. The close proximity to the residential settlement will degrade the landscape character and amenity values of the area.

The portion of ONL 43 affected by the indicative alignment is an appendage of the West Mahurangi Harbour ONL, which extends inland in the vicinity of Perry Road. The effects on this immediate area will be moderate due to the removal of the indigenous vegetation to the west of Genesis Aquaculture. However, the alignment will have low effects on the integrity of the overall ONL due to the small portion affected.

(d) Summary of effects – Perry Road

The landscape and visual effects for this landscape character area will be high. Although landscape mitigation offers the potential for some amelioration over time, the effects will remain moderate to high.

22.1.6 Wyllie / Woodcocks

Within the Wyllie / Woodcocks landscape character area the motorway crosses the flat expanse in the vicinity of the confluence of the Left Branch and Right Branch of the Mahurangi River.

Key attributes of the Wyllie / Woodcocks landscape character area are:

- Flat and open pastoral landscape bisected by the Mahurangi River tributaries;
- Rising foothills to the west;
- Scattered vegetation patterns with shelterbelts, riparian vegetation, exotic forestry and specimen trees; and
- Rural-residential settlement pattern interspersed with pastoral activities.

The existing environment, natural character and landscape values for this landscape character area are described in detail in Section 5 of the Landscape and Visual Assessment Report.

(a) Biophysical effects

Although open and exposed, the sensitivity of this modified rural landscape character area is relatively low. The indicative alignment will fragment the existing productive land units and alter the character and reduce the rural amenity of the area. The Project can be accommodated without significant adverse effects to the overall character and quality of the landscape.

(b) Visual amenity effects

For the local residential population and users of nearby roads, the alignment will become a distinctive visual feature traversing the flat, open landscape on a raised embankment. However, its visual integration will be assisted by the low-lying landform, and further by suitable mitigation planting within the proposed designation.
(c) **Landscape / natural character effects**

The alignment will have a low effect on the natural character values of the area. The main effects on natural character will relate to the culverting of a tributary to the Mahurangi River and several small watercourses. The landscape fill areas to the south of Woodcocks Road would assist the assimilation of the alignment into the surrounding pastoral land.

(d) **Summary of effects – Wyllie / Woodcocks**

The Landscape team considers the landscape and visual effects of the Project on this landscape character area will be low to moderate during the construction of the motorway on the raised embankment. The implementation of mitigation measures will reduce these effects to low during the operational phase and the Project will integrate into the existing open rural character of the setting, which has the ability to accommodate the development.

22.1.7 **SH1 Link**

North of the Woodcocks Road/Carran Road intersection, the alignment heads in a north-easterly direction from Woodcocks Road, where it departs from the flat open farmland along a cut through a south facing slope adjacent to the Mahurangi River floodplain. The alignment then heads along the base and lower northern slopes of a narrow valley before connecting to SH1 between Hudson Road and Kaipara Flats Road.

The existing environment, natural character and landscape values for this landscape character area are described in detail in Section 5 of the Landscape and Visual Assessment Report.

(a) **Biophysical effects**

The construction of the Project through this landscape character area will not require any significant modification to the landform, removal of vegetation or impact on any other notable landscape features. Also, due to the predominantly rural character of the area and its proximity to Warkworth and the existing SH1, the motorway will assimilate into the landscape, which exhibits a capacity to accommodate the type of change the Project will bring.

(b) **Visual amenity effects**

The location of the alignment in combination with the surrounding landform will limit the visibility of the motorway from much of the surrounding area. Those most sensitive to any visual effects generated by the Project are the nearby residents in the vicinity of the alignment, particularly those with properties accessed off Viv Davie-Martin Drive. However, most of this audience is located in elevated locations with views out across the wider landscape.

The Project will have a moderate to high impact on the existing rural amenity values for this permanent but very small and localised audience as it will become a distinctive visual feature traversing the valley floor and gently undulating slopes.
(c) **Landscape / Natural character**

The natural character values of this area have been diminished to a large degree by farming and settlement activities and the proximity of the area to the existing SH1. The alignment will have a low to moderate effect on the landscape quality and natural character of the area.

(d) **Summary of effects – SH1 Link**

The Landscape team considers the landscape and visual effects of the Project on this landscape character area to be moderate to high during and immediately following construction for approximately five residential properties on the northern side of Viv Davie-Martin Drive.

The main effects in this character area relate to the visual amenity. Following mitigation, the overall landscape and visual effects will reduce to moderate.

Where the new alignment coincides with SH1, it will add cumulatively to the established effects, although such areas generally have a greater ability to accommodate the Project than less modified areas.

### 22.2 Construction effects

The route selection process for the indicative alignment has sought to minimise potential adverse construction effects of the Project. However, the visual change and contrast caused by modification to the landform and the contrast between exposed earthworks and the surrounding areas of pasture and vegetation during construction will be unavoidable.

Areas with high existing natural character and landscape values, exposure to the existing SH1 or established rural residential populations will be the most affected by construction activities. The Pūhoi Sector and the Perry Road Sector in particular will be most affected during construction.

The effects will be generated by:

- large scale earthworks;
- vegetation removal; and
- general construction activity, noise, dust and nuisance.

Biophysical landscape effects during the construction stage of the Project will include alteration to streams and watercourses, vegetation clearance and potential sedimentation of waterways. Landscape amenity effects will result from the extent and exposure of earthworks and construction activity including noise, dust and lighting. Visual amenity effects will result from vegetation clearance and earthworks.

Effects during construction are relatively short-term and are regarded by the Landscape team as temporary effects. The effects will be mitigated progressively following completion of each stage of works.

In addition to route selection, construction effects can be alleviated by forward planning, particularly where there are specific effects on local populations. Such pre-emptive mitigation prior to or during construction may include:
the establishment of strategic screen planting within the designation;
the construction of permanent or temporary bunding; and
sequential rehabilitation of motorway verges and adjacent areas of pasture and vegetation immediately following completion of construction.

Post construction, the enduring effects of the motorway will be the modification of the rural character and amenity values. Well-considered specific mitigation will assist considerably in ameliorating such effects.

22.3 Overall landscape and visual effects assessment

While a project of this nature and scale will inevitably have adverse landscape and visual effects, the process of route selection has meant that the indicative alignment largely avoids the most sensitive landscapes in this part of the region. In some areas there will be high landscape and visual effects during both the construction and operation of the Project. However, a best practice approach has been taken to avoid adverse effects as far as possible.

The Project will introduce changes to the various landscape character areas along the route including the Pūhoi River and estuary. However, the majority of the route traverses landscapes already highly modified by farming and forestry activities, and the existing SH1.

The Project’s adverse effects on natural character are limited, given the modified nature of the route. Adverse effects on natural character have been reduced through the use of bridges and viaducts across the Okahu Inlet, Pūhoi River, tributaries of the Mahurangi River, and the Mahurangi River mainstem. The most extensive areas of earthworks are largely restricted to existing areas of exotic forestry.

The most significant changes and resultant effects on visual amenity will arise from large scale earthworks, retaining walls, bridges and viaducts. These effects will be more prominent in areas where there is a permanent residential population, including Pūhoi Close, Perry Road and Viv Davie-Martin Drive.

The main visual effects of the Project will occur during and soon after construction. These effects will diminish over approximately three to five years once pasture and vegetation in the disturbed areas re-establishes, and the cut faces take on a more weathered appearance, as experienced with the NGTR.

Where avoidance of all adverse effects has not been practicable, the Landscape team has recommended a number of mitigation measures (refer to Section 22.4 of this AEE).

Through the detailed design and OPW processes, the design of the motorway, in conjunction with well-considered planting, will provide scope to reduce many of the temporary construction effects and the operational effects of the Project within a short time period.

22.4 Recommendations and mitigation

The process of route selection has meant that the indicative alignment largely avoids the most sensitive landscapes in this part of the region. However, due to the challenging terrain and the
rural lifestyle settlement in some parts of the Project area, some effects on the landscape and local populations are unavoidable.

In the Sectors where high landscape and visual effects are anticipated, suitable mitigation is fundamental to achieving integration of the motorway into the landscape setting. Although the motorway will alter the local landscape character, appropriate mitigation can enable ‘fit’ within the landscape to ensure that the Project may co-exist comfortably with the natural elements, rural production and patterns of settlement.

Well-designed mitigation techniques can successfully integrate highways into the landscape and minimise any potential adverse effects of construction and ongoing operation. A number of mitigation measures are proposed for the Project. These include:

- Construction of cut slopes and fill embankments to provide more natural integration with the surrounding landform;
- Appropriate surface treatment of cut slopes – grassing, hydroseeding, revegetation or naturally exposed rock face;
- Revegetation of fill embankments where practicable;
- Contouring of spoil disposal sites and integration with adjoining landforms;
- Well-designed bridges and viaducts to reduce the physical and visual effects on the wetland and river flat areas;
- Retention of existing vegetation and extensive planting between the highway alignment and the existing SH1 in areas where the new alignment is not contained by the landform, to provide screening and visual integration; and
- Extensive planting based on established vegetation patterns along the alignment to integrate the highway and screen it from the residential settlement areas, including early permanent planting to proactively mitigate visual effects.

A more detailed description of the proposed mitigation measures is provided in Section 7 of the Landscape and Visual Assessment Report and Section 28 of this AEE. I support these proposed measures as being an appropriate response to the Project’s potential adverse landscape and visual effects, and to mitigate those effects.