

# Waitomo District Plan Review

---

Natural Character Assessment Peer Review

FINAL

September 2022

Prepared for Waitomo District Council by

**bridgetgilbert**  
l a n d s c a p e a r c h i t e c t u r e



# Contents

1.0	Executive Summary	1
2.0	Introduction	1
	Scope of Expertise .....	1
	Peer Review Structure .....	2
3.0	WNCS: Methodology	3
4.0	Peer Review Comments	4
	Coastal Environment Delineation.....	4
	Natural Character Evaluation Base Data and Fieldwork .....	11
	Study Structure .....	11
	Evaluation, Thresholds and Ratings .....	12
	WNCS Findings.....	13
5.0	Summary of Recommendations	23

# Figures

Figure 1: Coastal environment line and topographic patterning on the southern side of the Kawhia Harbour.....	5
Figure 2: Coastal environment line and topographic patterning throughout the coastal area north west of Awamarino.....	6
Figure 3: Coastal environment line and topographic patterning throughout the coastal area north west of Waikawau. ....	7
Figure 4: Coastal environment line and topographic patterning in the vicinity of the Waikawau Estuary. ....	8
Figure 5: Coastal environment line and topographic patterning in the vicinity of Marokopa. ....	9
Figure 6: Coastal environment line and topographic patterning in the vicinity of the Taharoa dune lake.....	10
Figure 7: Western portion of the Kawhia coastline and Matauwai Beach .....	14
Figure 8: Parihaki Dune .....	15
Figure 9: Marokopa bush features and dune .....	16
Figure 10: Tapirimoko Point and coast .....	17
Figure 11: Dune and bush features between Ngarupupu Point and Awakino .....	18
Figure 12: Very High (terrestrial) Natural Character area to the east of Tirua Point .....	19
Figure 13: Full extent of the District .....	20
Figure 14: Outstanding Natural Character areas between Urawhitiki Point and Te Waitere .....	21



## 1.0 Executive Summary

- 1.1 BGLA confirms that the natural character assessment methodology articulated in the Waikato Natural Character Study is generally consistent with coastal natural character assessment best practice.
- 1.2 Generally, the findings of the Waikato Natural Character Study with respect to the areas of High, Very High, and Outstanding natural character within the Waitomo District appear to be reasonable, credible, and justified.
- 1.3 A number of detailed recommendations are made in this peer review report that would benefit the application of the findings of the WNCS in the Waitomo District Plan Review process.

## 2.0 Introduction

- 2.1 Waitomo District Council engaged Bridget Gilbert Landscape Architecture Limited (**BGLA**) in November 2017 to undertake a peer review of the Natural Character Study of the Waikato Coastal Environment (March 2016) prepared by Boffa Miskell Limited for Waikato Regional Council (referred to hereafter as the Waikato Natural Character Study (WNCS)).
- 2.2 The purpose of the peer review is to assist Waitomo District Council (WDC) in the preparation of their District Plan Review and consequently meet the obligations of Part II, Section 6(a) of the Resource Management Act 1991.
- 2.3 A peer review is an evaluation of work by another expert with similar competencies. It is not a re-assessment but rather a tool to maintain quality standards, improve performance, and provide credibility.

### Scope of Expertise

- 2.4 BGLA has expertise in landscape architecture and, more specifically, in the evaluation of (some of) the abiotic and experiential aspects of natural character. BGLA also has experience of working with natural scientists in the evaluation of natural character (and landscape) values and in peer reviewing Natural Character Assessments at a district (and regional) scale.
- 2.5 So, whilst this peer review cannot comment on the merits or otherwise of the expert natural science related material in the WNCS, it can comment on the general methodology, and the evaluation of the more general abiotic components and the experiential aspects of natural character.
- 2.6 It is considered that the open and collaborative approach undertaken by BML to engaging with DoC and TDC natural science experts at various stages throughout the study can give confidence that these aspects of the natural character assessment are technically robust.

## Peer Review Structure

2.7 The peer review report is structured as follows:

- a) Provides comment as to whether the **methodology** is consistent with coastal natural character assessment best practice.
- b) Provides **peer review comments**, addressing such matters as: coastal environment delineation; base data and fieldwork; study structure; evaluation/threshold and ratings; and the WNCS findings, including character area descriptions and mapping.
- c) Makes a number of **recommendations**.

2.8 In preparing this peer review report, BGLA has:

- a) visited the whole of the district by car;
- b) reviewed relevant Council GIS datasets on interactive mapping that enables the viewer to interrogate the mapping at a detailed level. Datasets included:
  - i. HVANFLs and SNFLs (*Sourced from WRC*)
  - ii. Conservation Zones (*Sourced from WDC ODP Zoning*)
  - iii. Significant Natural Areas (*Sourced from WDC*)
  - iv. Archaeological Sites (*Sourced from NZ Archaeological Association*)
  - v. Heritage Sites (*Sourced from Heritage NZ*)
  - vi. Geopreservation Sites (*Sourced from Geomarine Research*)
  - vii. Waterbodies (*Sourced from LINZ*)
  - viii. Land Cover Database v4.1 (*Sourced from Landcare Research*)
  - ix. Soils\Land Use Capability (*Sourced from Landcare Research*)
  - x. Geology\Land Use Capability (*Sourced from Landcare Research*)
  - xi. Cultural Sites (*Sourced from WDC*)
  - xii. WRC High and Outstanding Natural Character mapping (*Sourced from V Froude\Pacific Eco-Logic / WRC.*)
  - xiii. Significant Natural Areas (*Sourced from WRC*)
  - xiv. Adjacent ONL mapping (*Sourced from adjacent District Councils*)
  - xv. Current ODP landscape protection areas (*Sourced from WDC*)
  - xvi. Landform 3d Model (Elevation, Slope, Aspect, Ridgeline) (*Sourced from WDC LiDAR contour data*)
  - xvii. Aerial Photos (*Sourced from WDC, NZ Aerial Surveys, LINZ, and Google Earth*)
- c) had discussions with the Boffa Miskell staff who prepared the WNCS.

## 3.0 WNCS: Methodology

3.1 The WNCS report is set out in an organised way that assists an understanding of the process that has been undertaken in the evaluation of the coastal natural character of the region.

3.2 The report is structured as follows:

- The study purpose and approach.
- Discussion of the relationship between natural character and landscape.
- Discussion with respect to the delineation and extent of the coastal environment.
- A definition of coastal natural character.
- Discussion of relevant Environment Court ‘case law’ with respect to the definition and evaluation of ‘naturalness’.
- Explanation of the seven-point rating scale that is used for the evaluation of natural character.
- Discussion of the evaluation ‘process’ in relation to the natural character assessment and including a description of the typical attributes and/or factors that prevail for an area to rate as having high or very high natural character.
- Clarification of the study ‘scale’ (and explaining the four levels, or ‘grains’, of assessment analysis).
- An explanation of the evaluation ‘step’ in the analysis, which includes:
  - Reference to ‘attribute’ and ‘evaluation’ tables as a method to organise data, together with an outline/explanation of the information addressed in each table.
  - Acknowledgement of the overlap between the terrestrial and marine portions of the study area.
  - Clarification on how the experiential aspects of natural character are rated.
  - Acknowledgement that not all human interventions necessarily detract from natural character values.
  - Observations with respect to ratings for the three components of natural character (abiotic, biotic, and experiential) and how they typically interact and influence an overall rating for natural character (at the Level 3 and 4 scales of assessment).
- A description of how the **areas of Outstanding Natural Character** have been evaluated.
- A brief outline of the **Digital Mapping** techniques and **Datasets** relied on to inform the natural character assessment.

## 4.0 Peer Review Comments

### Coastal Environment Delineation

- 4.1 Any assessment of coastal natural character commences with the delineation of the inland extent of the coastal environment.
- 4.2 The WNCS adopted the extent of the coastal environment defined by Waikato Regional Council (WRC) and advises that *“the method, rationale and delineation of the extent of the coastal environment under Policy 1 of the New Zealand Coastal Policy Statement (NZCPS) 2010 does not form part of the study”*.
- 4.3 Typically the inland boundary of the coastal environment coincides with what is commonly referred to as ‘the first dominant ridgeline’. In flatter coastal landscapes (such as dunes and coastal estuaries), the evidence of coastal features (e.g. dunes, coastal species) and processes (e.g. coastal erosion) are key determinants.
- 4.4 Much of the coastline of the Waitomo District is characterised by large-scale, steep coastal cliffs and hill systems (for example: along the southern side of Kawhia Harbour; the stretch of coastline between Kiritehere and Tapirimoko Point; the stretch of coastline south of Ngarupupu Point through to the Awakino). For these areas, it is reasonable to expect that the first dominant ridgeline technique is likely to be the appropriate method for determining the extent of the coastal environment.
- 4.5 In other locations and particularly around bays and lower-lying stretches of the coast (for example in the vicinity of Taharoa, Marokopa, Nukuhakari Bay, Waikawau and Awakino), coastal features and processes should inform the delineation of the inland boundary of the coastal environment.
- 4.6 Reviewing the alignment of the (WRC) coastal environment ‘line’ on the interactive GIS mapping provided by WDC reveals that in some locations the line does not follow any logical geomorphological boundary.
- 4.7 The examples below demonstrate the disparity between the WRC coastal environment line (and therefore the WNCS coastal environment line) and the topographic patterning and/or dune and SNA features.



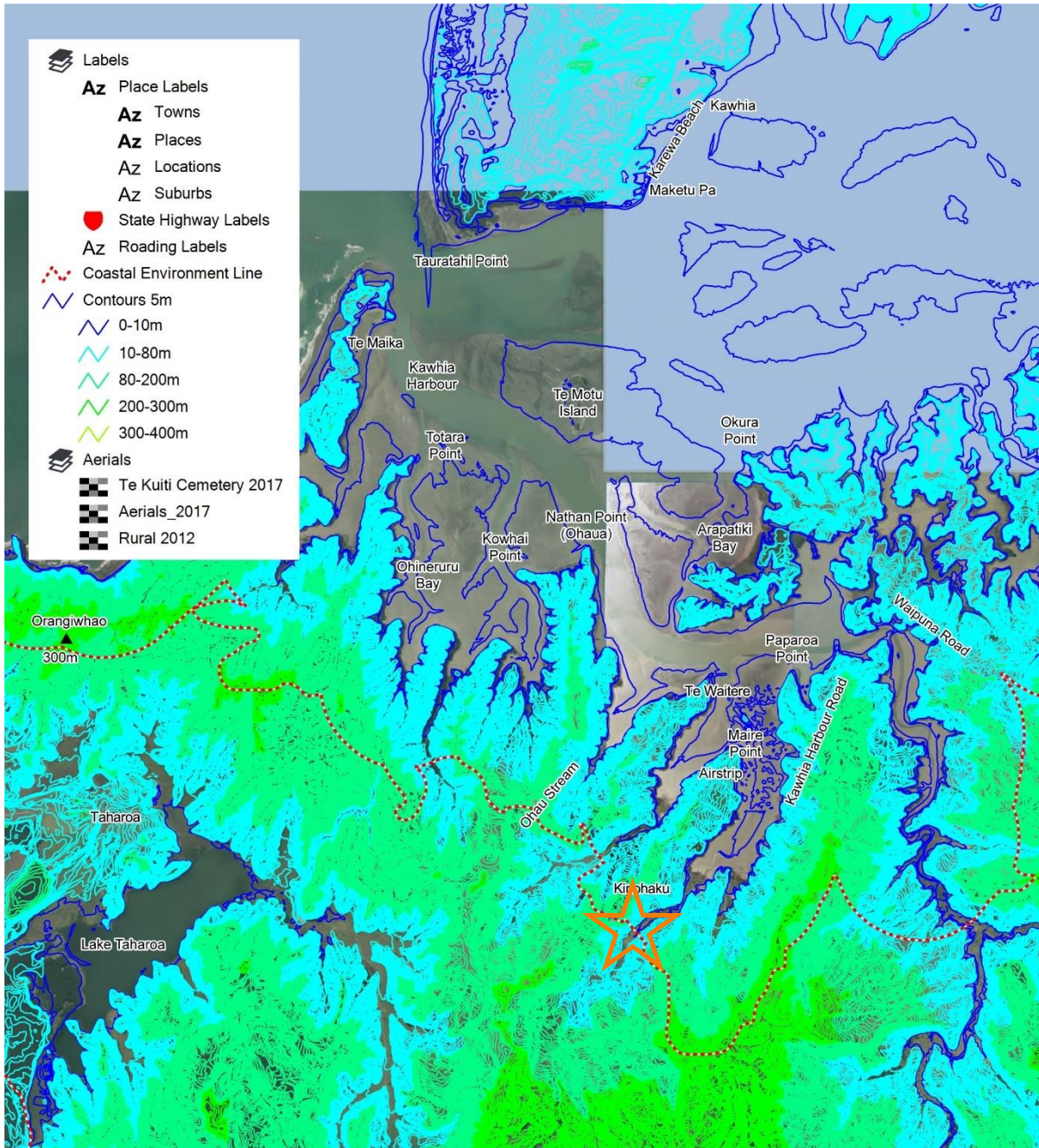


Figure 1: Coastal environment line and topographic patterning on the southern side of the Kawhia Harbour. (NB orange star indicates an example of problematic CE mapping).

Source: <http://waitomo.intramaps.co.nz>

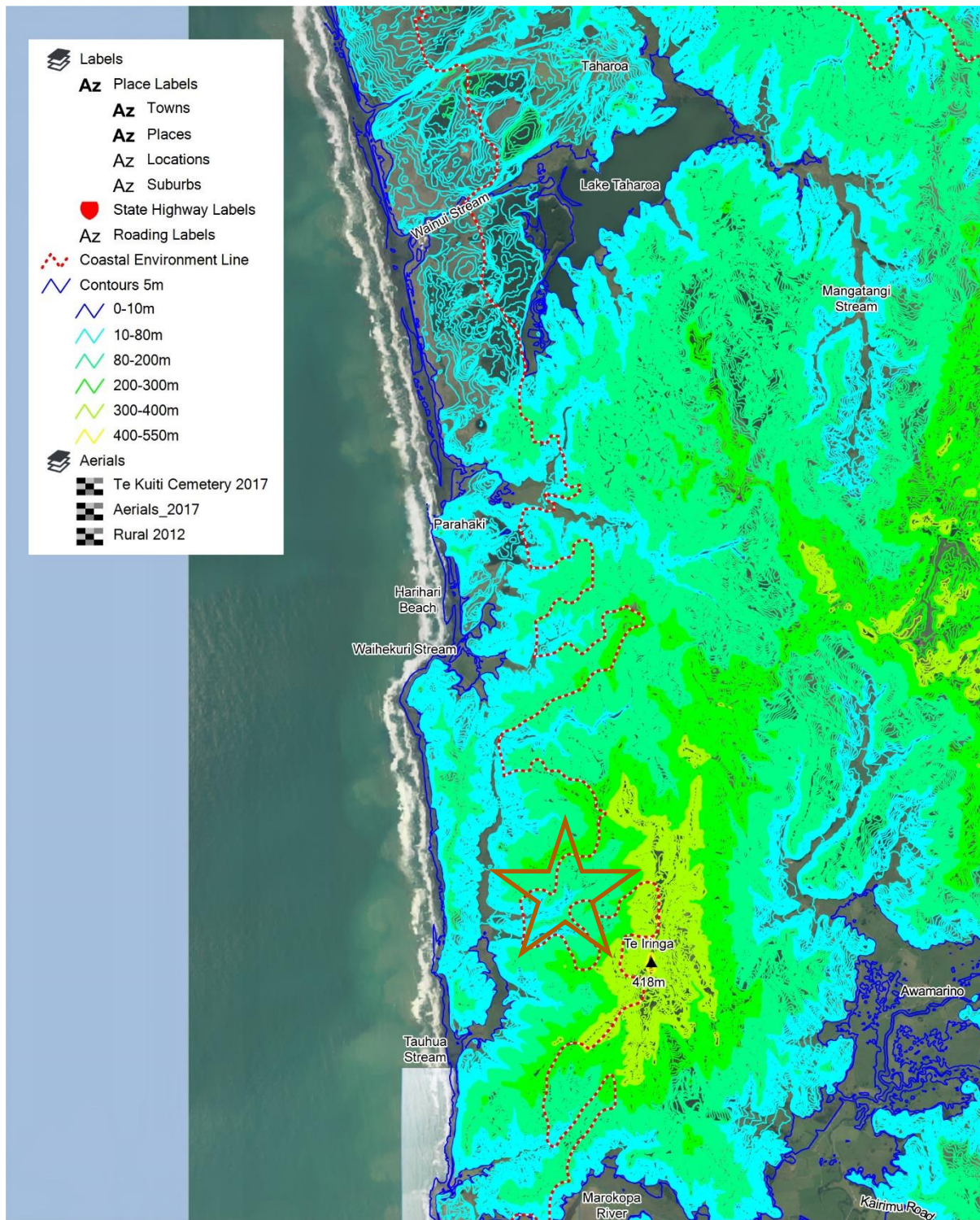


Figure 2: Coastal environment line and topographic patterning throughout the coastal area northwest of Awamarino. (NB orange star indicates an example of problematic CE mapping).  
 Source: <http://waitomo.intramaps.co.nz>

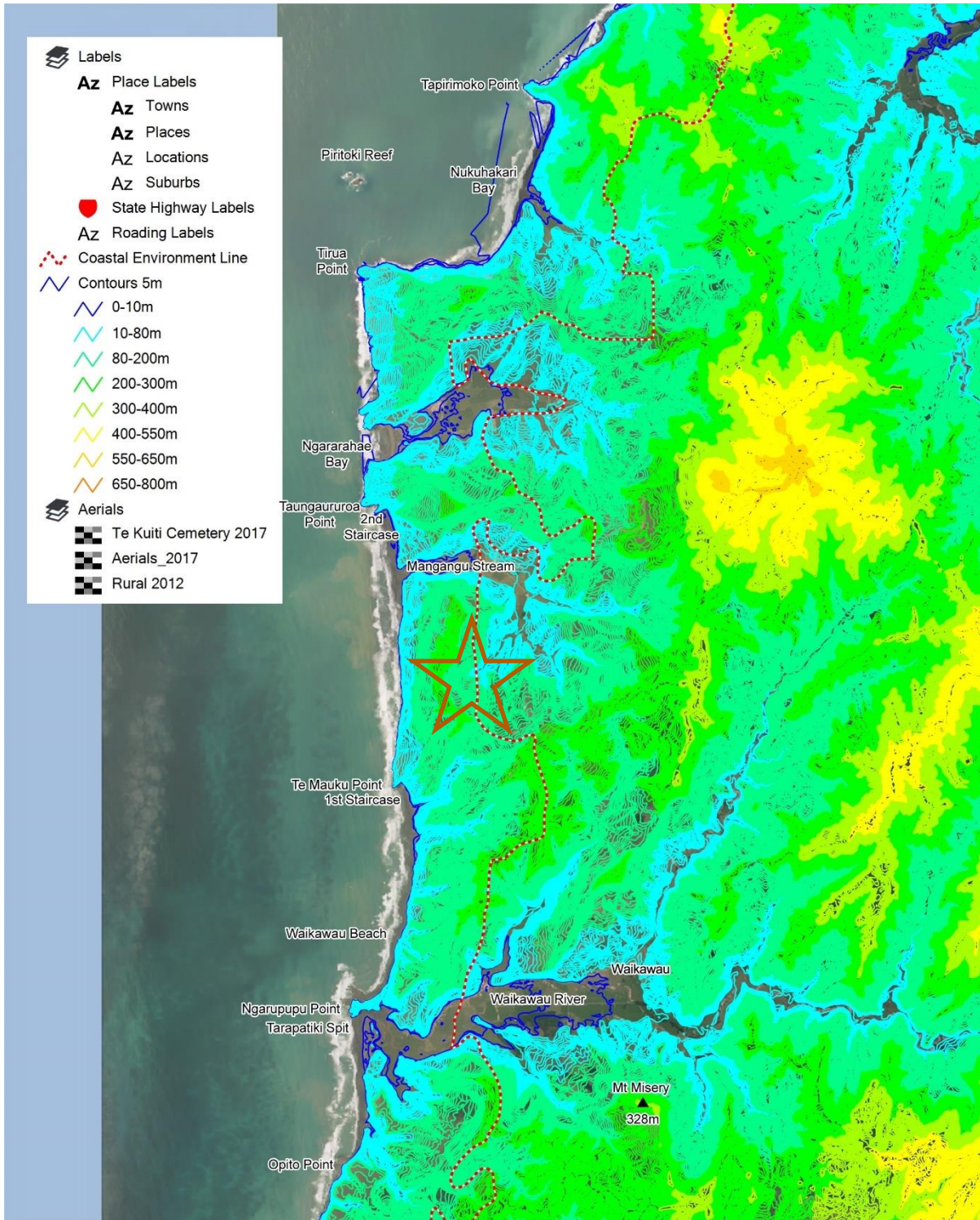


Figure 3: Coastal environment line and topographic patterning throughout the coastal area northwest of Waikawau. (NB orange star indicates an example of problematic CE mapping).  
 Source: <http://waitomo.intramaps.co.nz>

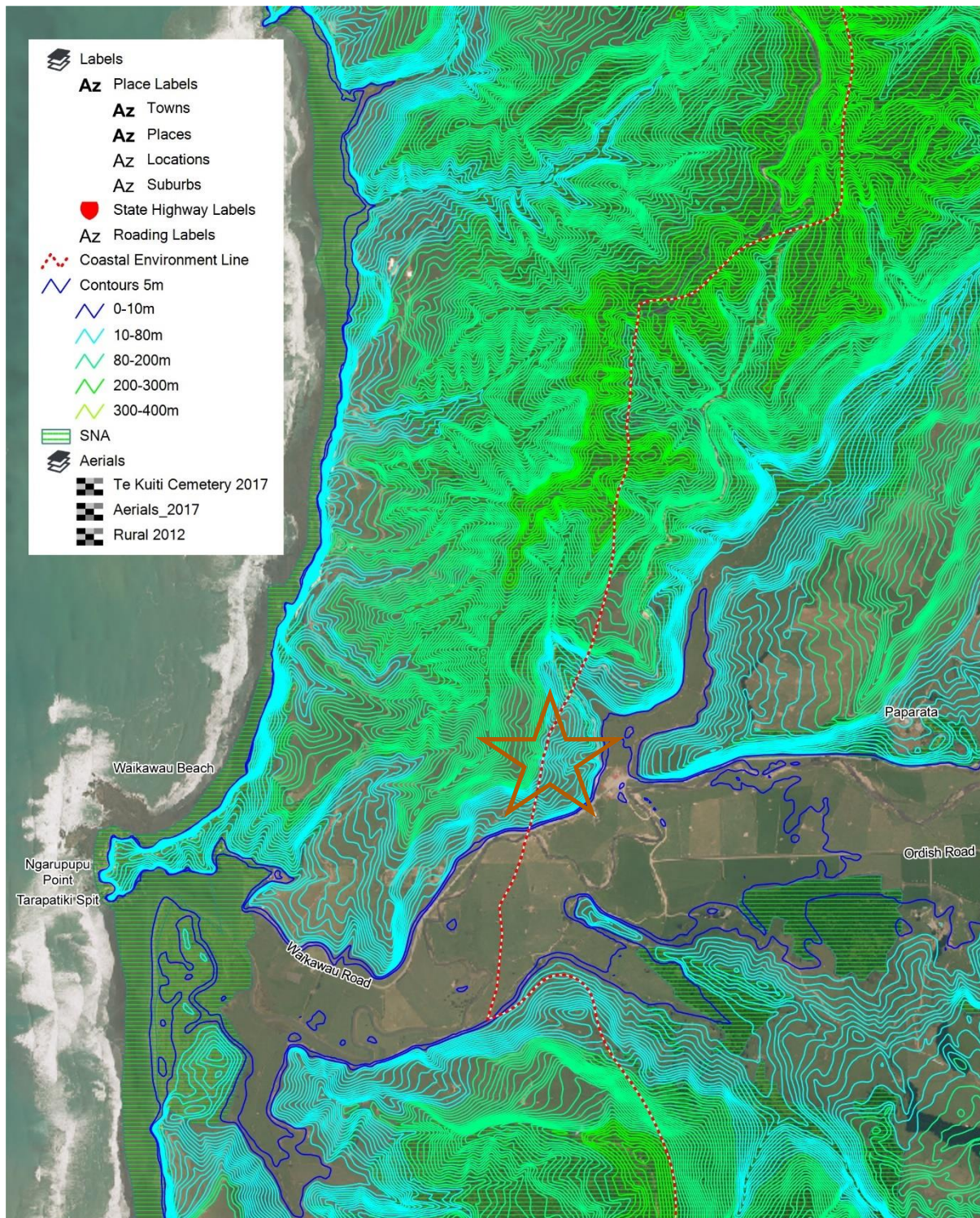


Figure 4: Coastal environment line and topographic patterning in the vicinity of the Waikawau Estuary. (NB orange star indicates an example of problematic CE mapping).  
 Source: <http://waitomo.intramaps.co.nz>

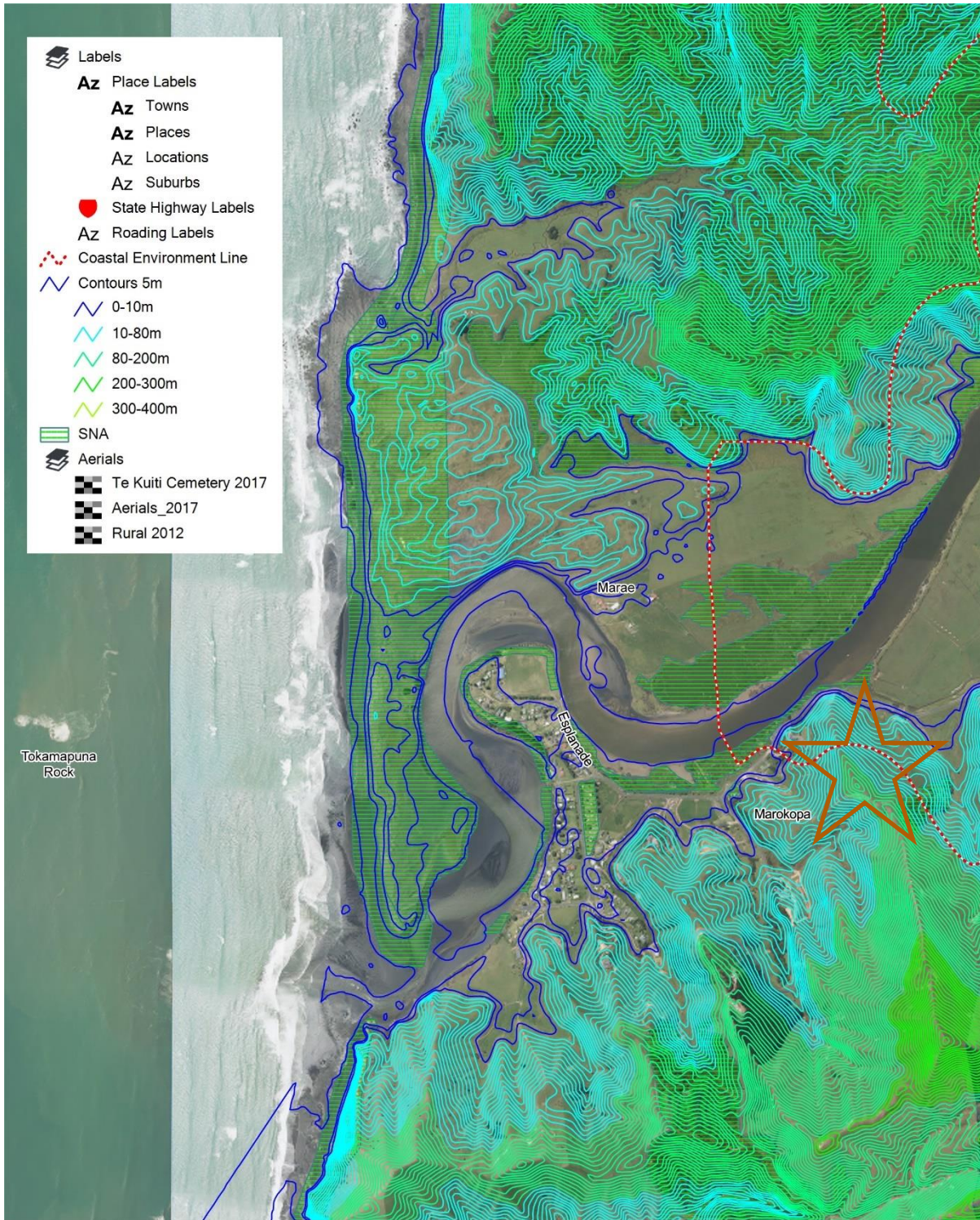


Figure 5: Coastal environment line and topographic patterning in the vicinity of Marokopa. (NB orange star indicates an example of problematic CE mapping).

Source: <http://waitomo.intramaps.co.nz>

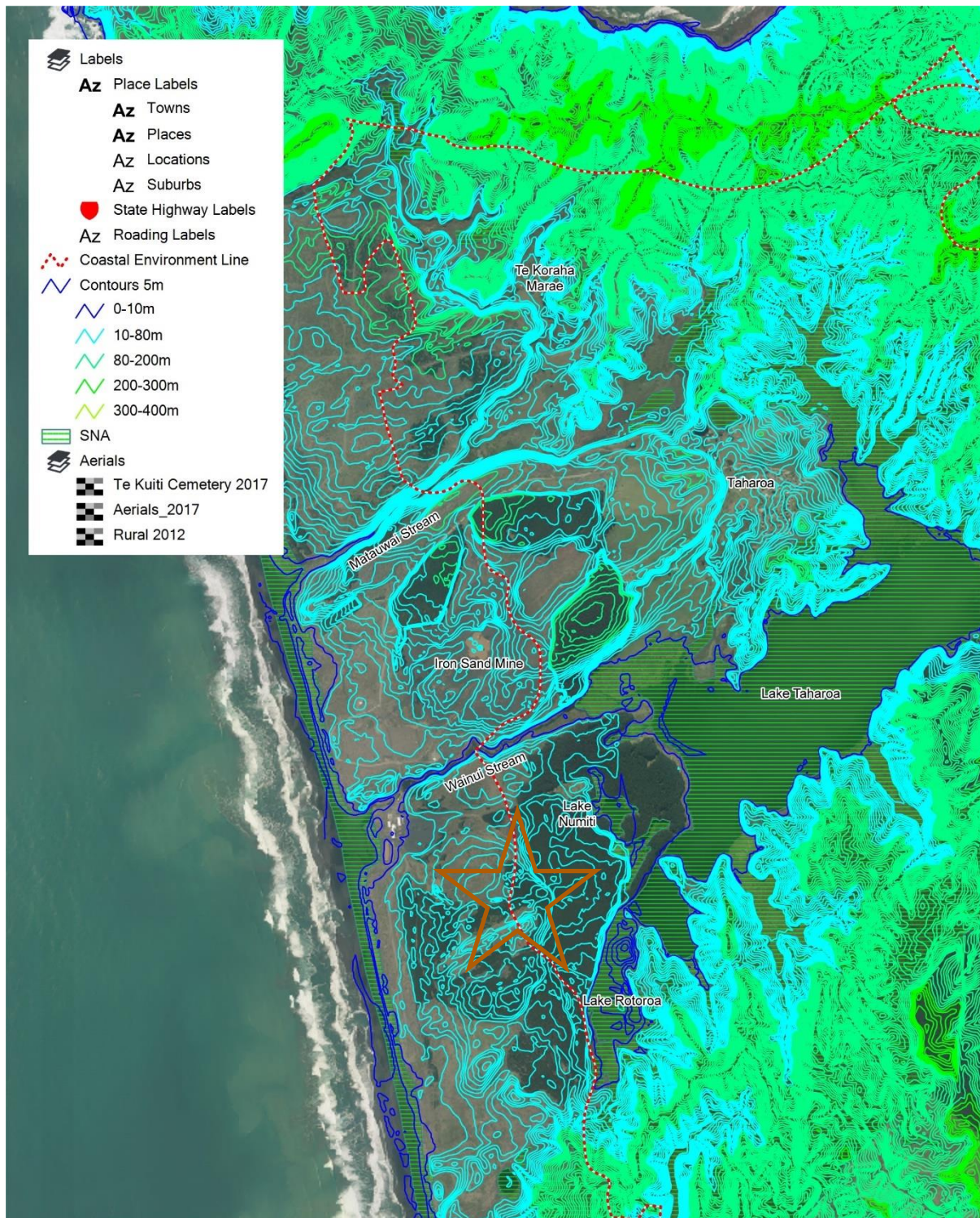


Figure 6: Coastal environment line and topographic patterning in the vicinity of the Taharoa dune lake. (NB orange star indicates an example of problematic CE mapping).  
 Source: <http://waitomo.intramaps.co.nz>

4.8 To an extent, this is to be expected, as it is understood that the WRC work was a desktop exercise only (i.e. it was not ground truthed). It is also likely to have been prepared at a very coarse-grained scale.

- 4.9 The identified disparity (in places) is also consistent with the outcome of the recent Thames Coromandel District Natural Character Study undertaken by Brown Environments in which the WRC coastal environment line was amended in response to a more refined analysis.
- 4.10 As part of the Waitomo District Landscape Study project (undertaken by BGLA in collaboration with Kate Turner, WDC GIS Specialist), the delineation of the CE within the district has been refined to ensure that it corresponds to logical geomorphological features (where possible), and clearly identifies 'other' delineation methods that have been relied on where no such feature exists.
- 4.11 Detailed WDC GIS datasets, including the contour and updated SNA datasets, together with aerial photography, was used to inform the more refined CE 'line'.
- 4.12 Typically, the inland boundary of the coastal environment coincides with what is commonly referred to as 'the first dominant ridgeline'.
- 4.13 In flatter coastal landscapes (such as coastal terraces and coastal estuaries), the evidence of coastal features (e.g. dunes, coastal species) and processes (e.g. coastal erosion) are key determinants. Careful review of the detailed contours and coastal inundation mapping also assisted the delineation of the coastal environment 'line' in these locations.
- 4.14 For completeness, the alignment of the WRC coastal environment 'line' was amended by Waitomo District Council where it did not follow a logical geomorphological boundary and/or showed a disparity between the WRC coastal environment line and coastal features (e.g. dunes), coastal processes (e.g. areas of erosion), or significant natural area features.

### Natural Character Evaluation Base Data and Fieldwork

- 4.15 The WNCS provides a thorough description of the digital and GIS mapping datasets relied on to assist the evaluation of coastal natural character across the region. It would appear that no data from Waitomo District was used in the study, which may explain some of the more unusual findings discussed shortly.
- 4.16 It is understood that the WNCS team visited the coastal area of the region by air only. Whilst this is understandable for a region such as Waikato which has an extensive coastal interface, it is not considered appropriate for a District-level natural character study which should also include ground truthing where practicable.
- 4.17 As outlined earlier, all of the coastal public roads have been visited by the BGLA. (NB BGLA has also viewed the District by air.)

### Study Structure

- 4.18 The WNCS divides the terrestrial coastal environment of the Waitomo District into three distinct areas that display a reasonably homogenous degree of natural character, based on the landform composition, freshwater catchments, land management and landcover. Namely:
  - a) Aotea and Kawhia (the southern part only of this coastal terrestrial area coincides with WDC);
  - b) Marokopa; and
  - c) Awakino.

- 4.19 The study then includes a general description of each area, followed by a description of the key biotic, abiotic, and experiential attributes of natural character. This section of the study is accompanied by panoramic photographs taken from the air.
- 4.20 A summary table is provided for each terrestrial natural character area showing the rating for each attribute and an overall rating for natural character.
- 4.21 This is followed by a table identifying the areas within each terrestrial natural character area that rate as either High or Very High. The key values for each area are listed together with any additional comments.
- 4.22 BGLA considers that this study structure is clear and thorough.

### Evaluation, Thresholds, and Ratings

- 4.23 The WNCS includes an explanation of the evaluation method and thresholds that have been applied in the study.
- 4.24 The criteria applied in the evaluation of natural character are considered to be consistent with best practice and seek to avoid double counting.
- 4.25 Similarly, the inclusion of natural science (ecology) and landscape experts in the evaluation of coastal natural character throughout the western portion of the region is consistent with best practice.
- 4.26 The study acknowledges that no cultural input was provided by iwi. It is understood that this is typical of the majority of natural character assessments throughout the country and is a matter that is currently being debated in other jurisdictions given the quite different approach to the environment that is held by Māori.
- 4.27 BGLA understands that WDC have initiated consultation of the draft natural character mapping and schedules with iwi.
- 4.28 The WNCS applies a seven-point scale ranging from Very Low through to Very High. Such an approach is consistent with best practice.
- 4.29 The study explains that there is a 'weighting' towards biophysical components (i.e. abiotic and biotic factors) over perceptual (experiential). BGLA agrees with this weighting (and the inherent focus on the 'condition' of natural character rather than natural character 'values' implicit in this approach), although acknowledges that there is disagreement across the landscape profession with respect to the appropriateness of this method, with some experts favouring an even weighting between the two, or, in some instances, a greater weighting in favour of experiential attributes.
- 4.30 The WNCS explains that for an area to rate as High or Very High for experiential attributes, their intactness of biotic and abiotic factors needs to be High or Very High with little or no human modification. BGLA agrees with this approach, although notes that no such explanation is provided in relation to the threshold applied for abiotic or biotic characteristics. This is not considered to be a fatal flaw.
- 4.31 The WNCS then assesses at a more refined (or 'local') scale, the areas ranked as High and Very High to determine areas of Outstanding Natural Character (**ONC**). The difficulty with this approach is that a varying level of examination is applied across the three identified areas of natural character: High, Very High, and Outstanding. It is understood that this method has been challenged in other jurisdictions; e.g. South Taranaki. However, for the purposes of WDC District Plan Review process, based on BGLA's knowledge of the district through the Waitomo Landscape Study project, this potential criticism is somewhat academic, as BGLA generally



agrees with the WNCS findings in relation to the location and extent of High, Very High, and Outstanding Natural Character areas within the district, as discussed shortly.

### WNCS Findings

- 4.32 The Waikato Natural Character Study finds that the **Marokopa** and **Awakino coastal terrestrial areas**, overall, rate as having **Moderate** natural character value.
- 4.33 The **Aotea and Kawhia coastal terrestrial area** rates overall as having **High** natural character values.
- 4.34 It would appear that the extent of agricultural and production forestry land uses in the **Marokopa** and **Awakino coastal terrestrial areas** (at over 50% of the area) have been key in their determination as having a **Moderate** natural character rating.
- 4.35 The **Aotea and Kawhia coastal terrestrial area** exhibits a similar level of agricultural and production forestry uses; and it would seem that the quality of the bush features and dune systems (particularly associated with the Aotea Harbour) and natural values of the harbour features themselves have been key in the rating of the area as having **High** natural character.
- 4.36 Within each of these coastal terrestrial areas are discrete pockets of High, Very High, and Outstanding Natural Character as follows.

### High Natural Character

- 4.37 Areas rated as having **High** natural character in the district include:
  - a) the **western portion of Kawhia Harbour coastline**;
  - b) **Matauwai Beach**;
  - c) **Parihaki Dune**;
  - d) **Marokopa Bush**;
  - e) **Marokopa Dune**;
  - f) **Tapirimoko Point and coast**; and
  - g) **a range of coastal dune, bush, and cliff sequences between Ngarupupu Point and Awakino**.
- 4.38 Each of these areas is mapped overleaf.
- 4.39 Areas of **High** natural character comprise relatively intact native bush, dune, or coastal cliff features that display natural processes (coastal erosion, tectonic processes, ecological succession) and convey a sense of remoteness. Typically, the **High** natural character areas are influenced to a relatively minor degree by agricultural land uses around their margins and /or tracks throughout the area.



Figure 7: Western portion of the Kawhia coastline and Matauwai Beach

Source: <http://waitomo.intramaps.co.nz>

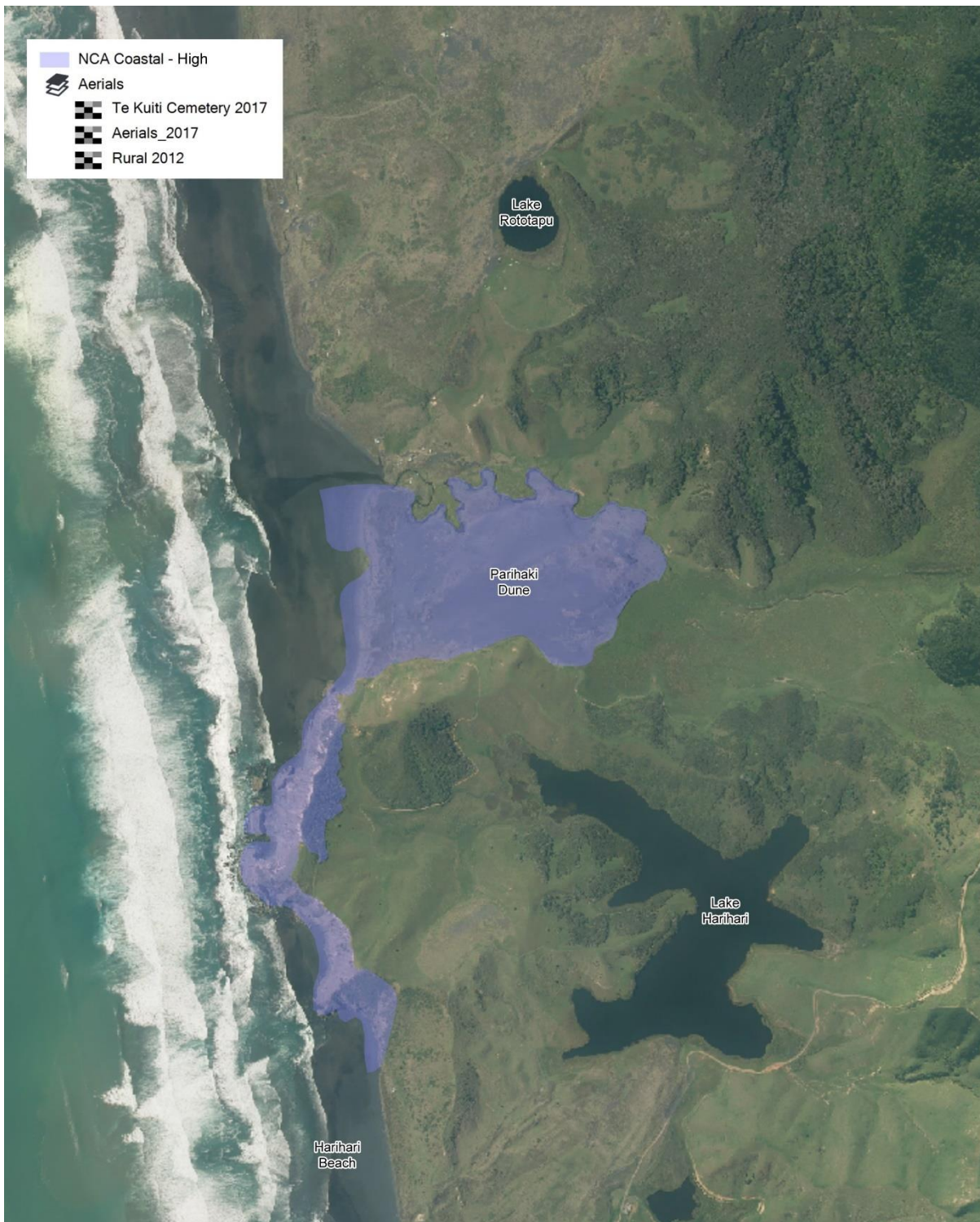


Figure 8: Parihaki Dune  
Source: <http://waitomo.intramaps.co.nz>

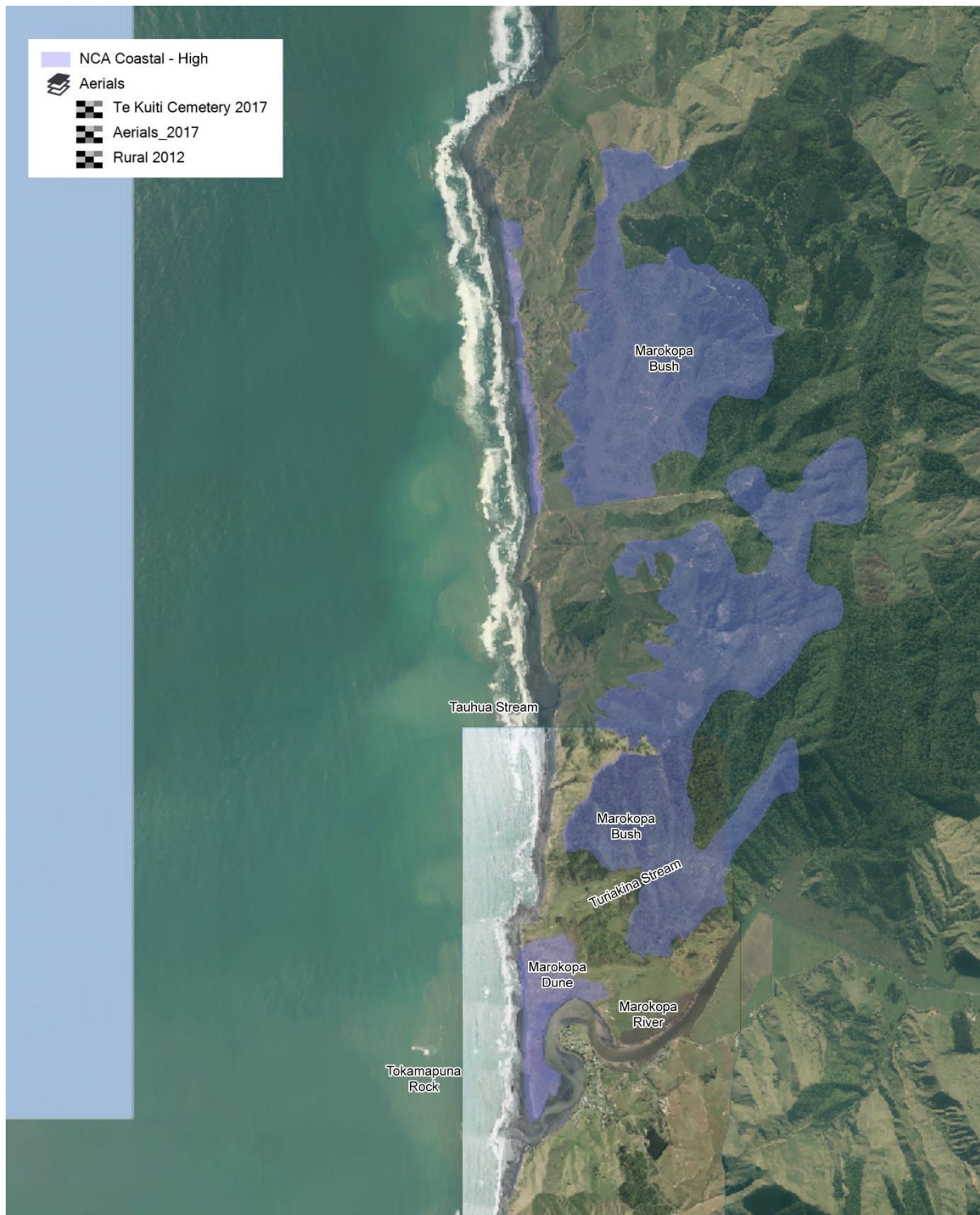


Figure 9: Marokopa bush features and dune  
Source: <http://waitomo.intramaps.co.nz>

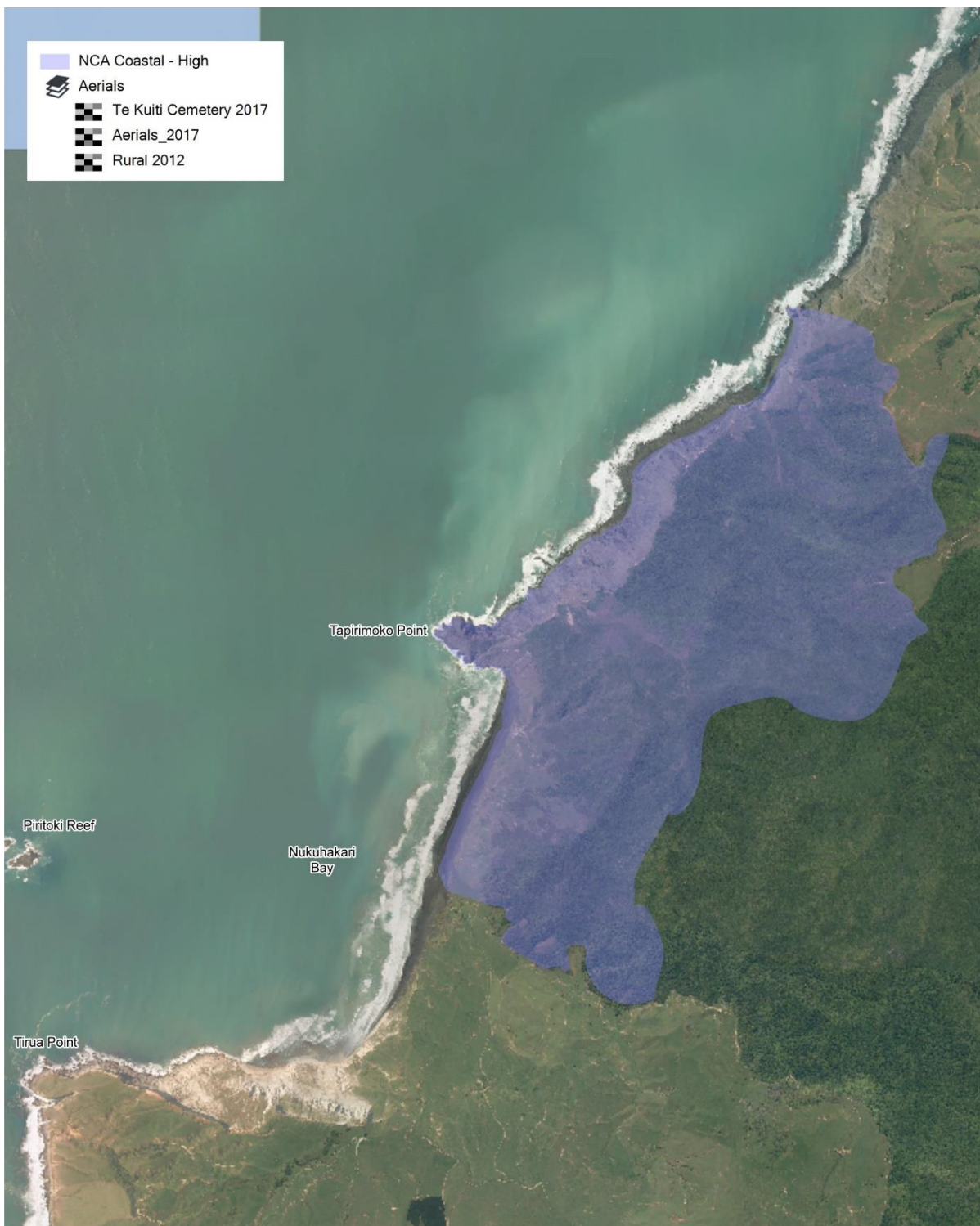


Figure 10: Tapirimoko Point and coast  
Source: <http://waitomo.intramaps.co.nz>

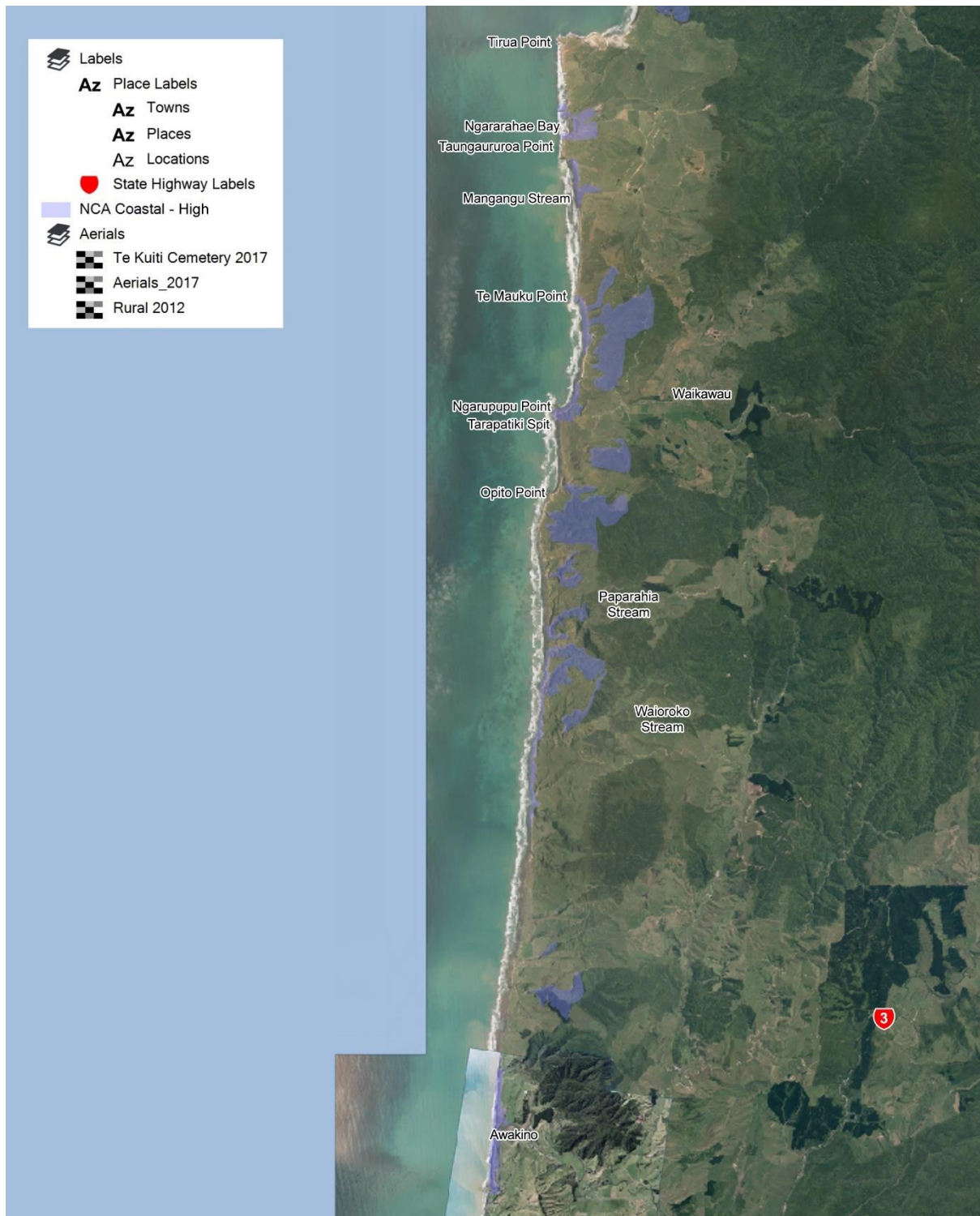


Figure 11: Dune and bush features between Ngarupupu Point and Awakino

Source: <http://waitomo.intramaps.co.nz>

4.40 Some obvious errors are evident; for example, the mapping of the Quarry zoned coastal margins northwest of Taharoa as having **High** natural character. It is the author's expectation that this error is the consequence of the absence of WDC data in the WNCS assessment.

### Very High Natural Character

- 4.41 Terrestrial areas identified as having **Very High** natural character are limited to a relatively small portion of the coastline east of **Tirua Point**. Values identified in the WNCS relate to the highly remote character, intactness of coastal vegetation and dominance of coastal processes associated with the area.

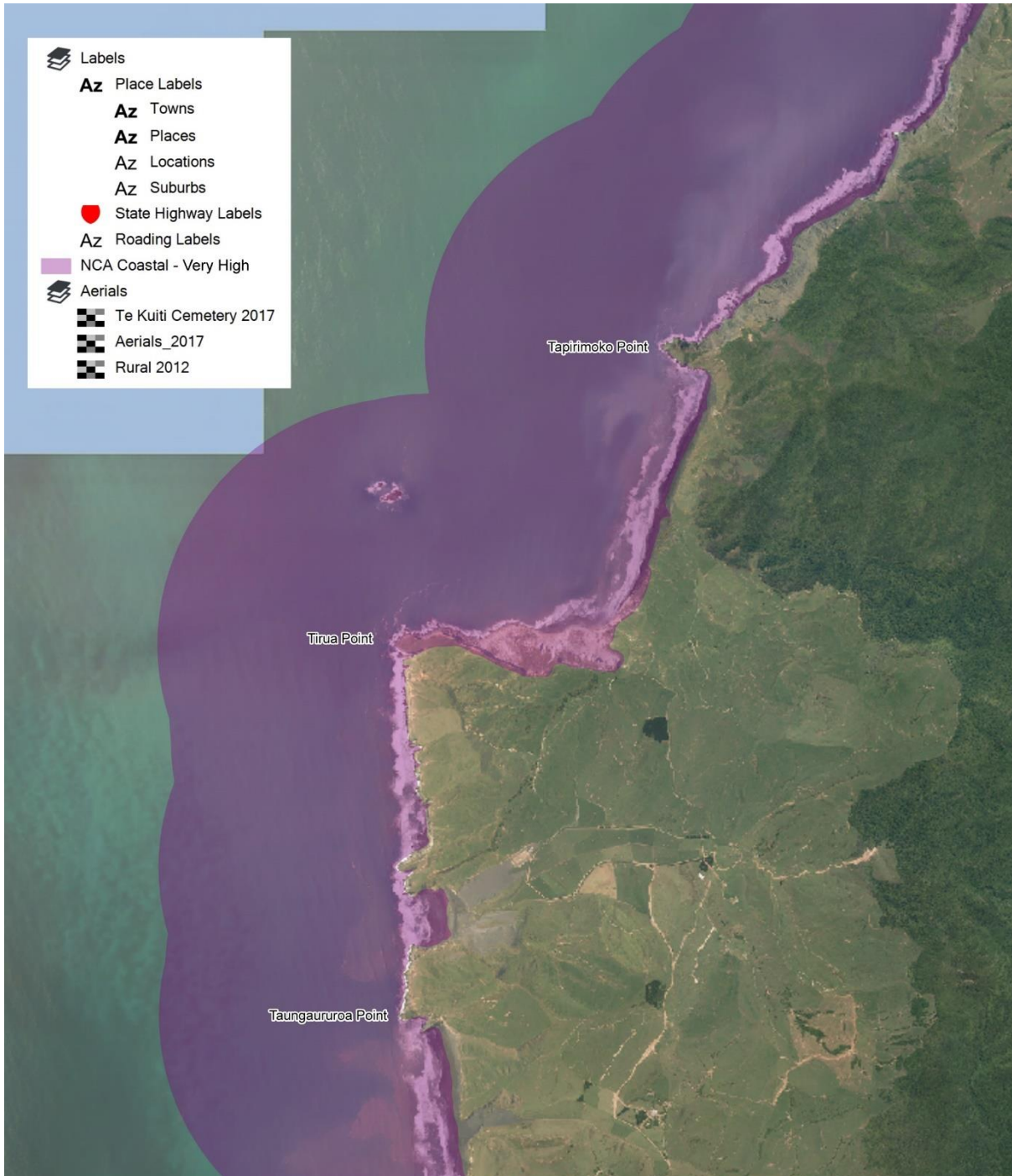


Figure 12: Very High (terrestrial) Natural Character area to the east of Tirua Point (NB the WRC natural character mapping shows High and Very High areas as the same graphic, which makes this WRC sourced mapping excerpt confusing - refer Figure 13 below for a clearer understanding of the limited extent of terrestrial area rated Very High near Tirua Point.)

Source: <http://waitomo.intramaps.co.nz>

4.42 Whilst it is acknowledged that the district-level natural character mapping should not extend out over the CMA, it should be noted that, with the exception of the area around the Taharoa Ironsand Mine, all of the **district's coastline** (including the waters, shoreline, cliffs, sand beaches, reefs, and rocky outcrops) is identified as having **Very High** natural character, largely as a consequence of the very limited human modification. The proximity and spatial connection of this area to the terrestrial coastal environment inevitably influences the character of the latter and will have a bearing on the evaluation of natural character at a district level.

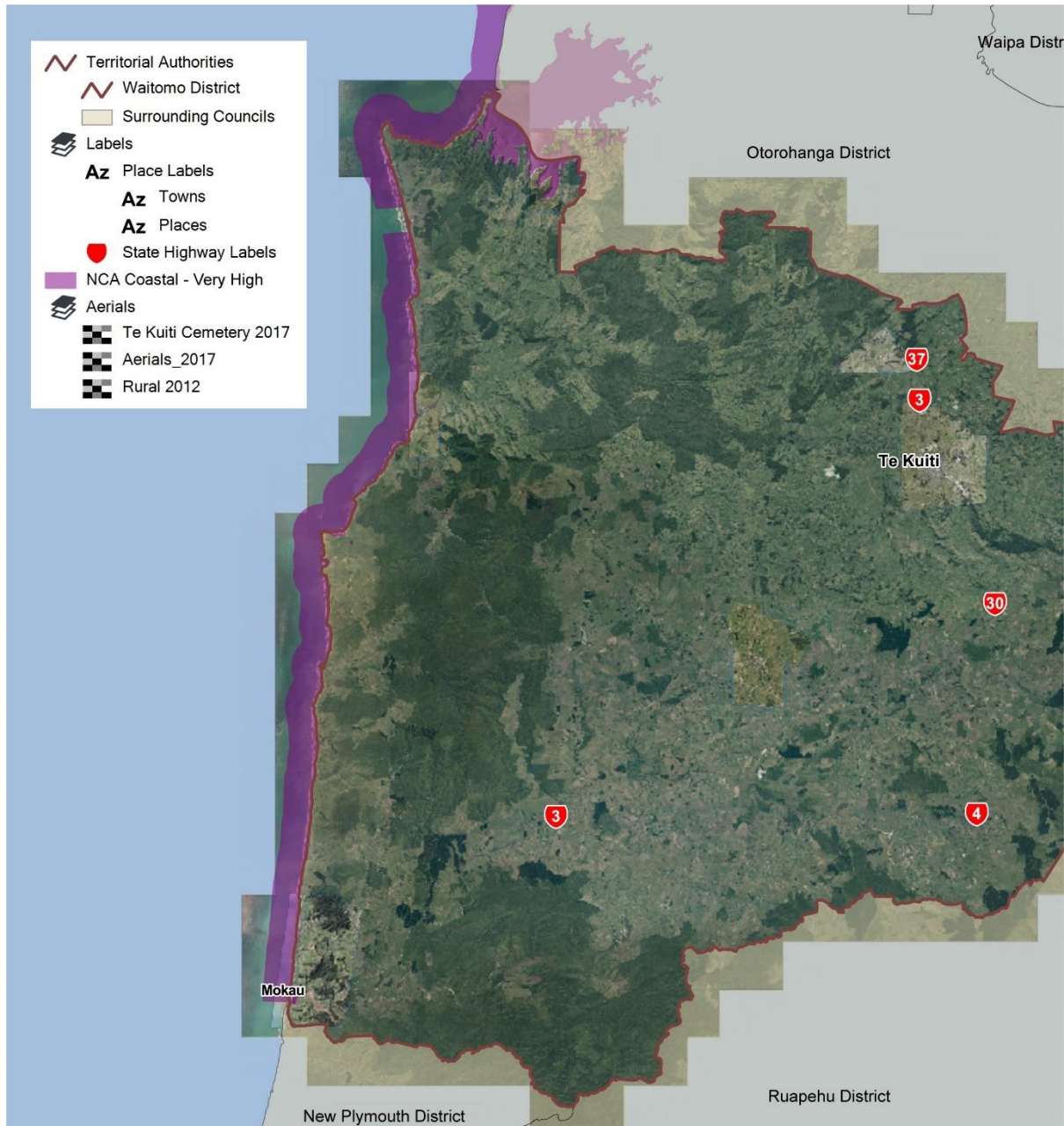


Figure 13: Full extent of the District  
 Source: <http://waitomo.intramaps.co.nz>



### Outstanding Natural Character

- 4.43 The only portion of the district identified to have **Outstanding** natural character relates to the **eastern portion of the coastal environment bordering the south side of the Kawhia Harbour**. Broadly speaking, this corresponds to the native bush-clad, remote and inaccessible, steep hill country with very little evidence of human modification, east of Urawhitiki Point.
- 4.44 It is expected that the integrity of the bold coastal landforms, the scale and quality of the coastal bush features, the sense of remoteness of the area, and the area’s strong connection with the Kawhia Harbour are key factors in the rating of the area as **Outstanding**.

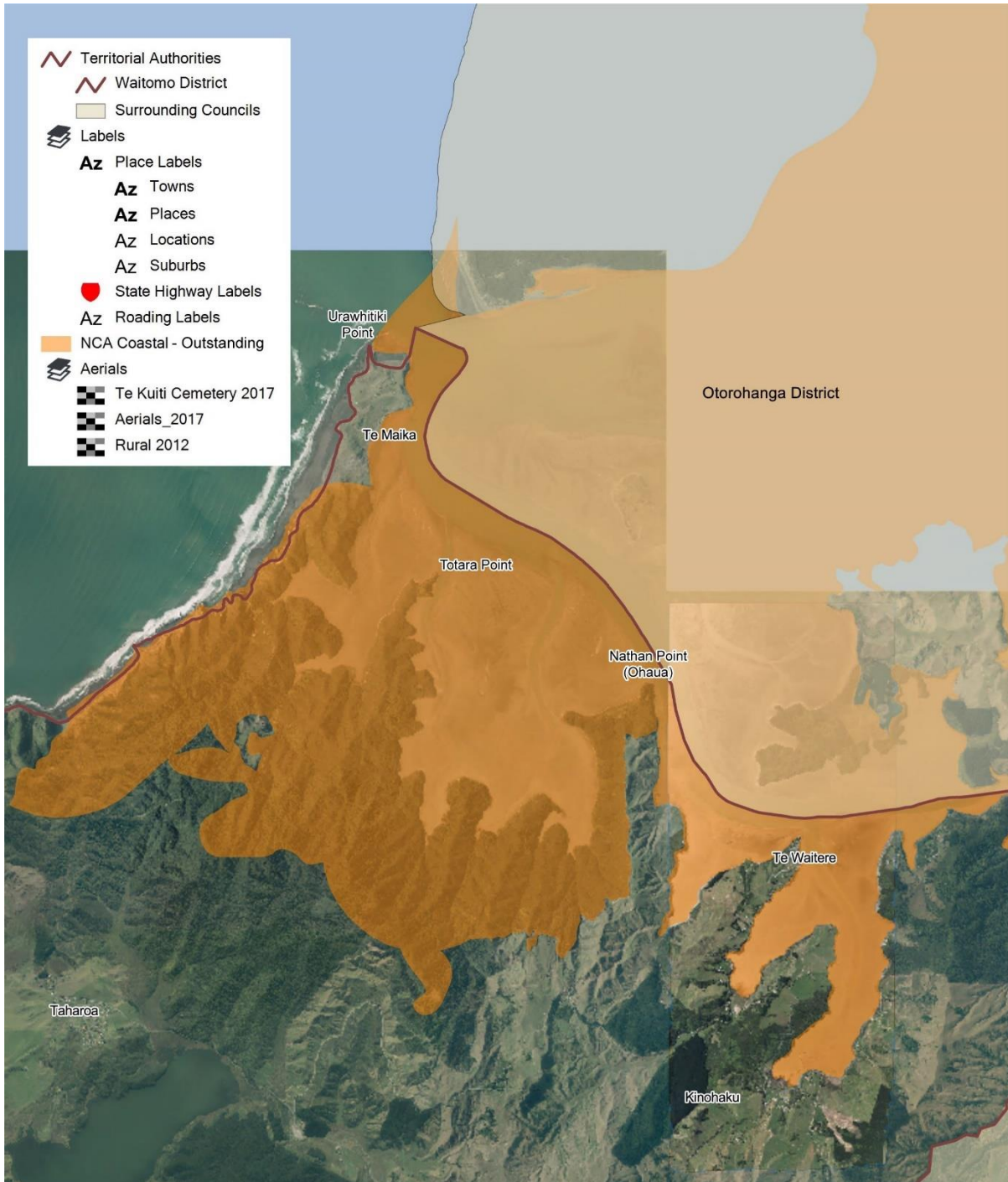


Figure 14: Outstanding Natural Character areas between Urawhitiki Point and Te Waitere

Source: <http://waitomo.intramaps.co.nz>

### **Summary comments in relation to WNCS Findings**

4.45 Overall, BGLA agrees with:

- a) The approach adopted in the WNCS of limiting 'identified' natural character areas to those where natural elements, patterns, and processes are dominant. This necessarily excludes large tracts of farmland, unless the underlying landform is of such a scale, form, and/or character that it overwhelms the land use and landcover mantle.
- b) The fundamental assumption that Outstanding Natural Character areas will display almost no human modification together with high or very high abiotic and/or biotic attributes.
- c) The fundamental assumption that High Natural Character areas will display high or very high abiotic and /or biotic attributes, although there will be a limited influence /tolerance of human modification (albeit at a level where the area remains dominated by the abiotic and/or biotic natural character attributes).
- d) Generally, the identified areas of High, Very High, and Outstanding Natural Character within the Waitomo District as identified in the WNCS.

### **Extent of Coastal Natural Character Mapping**

4.46 As a regional study, the WNCS included consideration of the Coastal Marine Area (CMA). Clearly this falls outside the scope of WDC; and for this reason, all mapping of natural character over the CMA should be excluded from the WDC coastal natural character mapping.

### **'Identified' Natural Character Areas Mapping**

4.47 In some locations, the mapped extent of the 'identified' natural character areas suffers from the difficulties described earlier in relation to the mapping of the coastal environment line (e.g. the Outstanding natural character area corresponding to the eastern portion of the coastal environment bordering the south side of the Kawhia Harbour). As explained earlier, this is no great surprise given the desktop nature and grain of the mapping likely to have been applied in the determination of the coastal environment line at a regional level.

4.48 It would appear that the 'other' boundaries of the High, Very High, and Outstanding natural character areas generally follow logical geomorphological features, which is considered to be technically correct.

4.49 In some places, some minor refinement to the extent of the identified area may be required to better correspond to such boundaries. In the author's opinion, this is to be expected given the large (or relatively coarse) scale of the mapping work that necessarily informed the region-wide natural character assessment.

4.50 If more detailed mapping is required due to the large-scale exercise by WNCS, then it could be carried out via the WDC Intramaps GIS resource.

### **Natural Character Value Schedules**

4.51 The WNCS provides a thorough description of each of the three coastal terrestrial areas, including specific description of the abiotic, biotic, and experiential (or perceptual) aspects of natural character associated with each area.

- 4.52 The areas identified to have High and Very High natural character are recorded in a table with a brief summary of the key values and 'additional comments' where appropriate.
- 4.53 Best practice natural character assessment identifies the key attributes and values that should be protected along with what adverse effects must be avoided (in the case of Outstanding natural character areas) or should be avoided, remedied, or mitigated (in the case of High natural character areas) and what activities might be expected in each. This detail is required to assist the appropriate management of the area under the relevant statutory documents.
- 4.54 Whilst the WNCS provides a useful starting point in this regard, it is necessarily broad-brush given its regional policy statement context. The more focussed policy and specific rules implicit in a District Plan suggest greater detail is required in the description of each 'identified' natural character area to assist plan administration.
- 4.55 Early in the peer review process, BGLA recommended the development of natural character schedules that articulate the key attributes and values that should be protected, along with what adverse effects must be avoided (in the case of Outstanding natural character areas) or should be avoided, remedied, or mitigated (in the case of High and Very High natural character areas), and what activities might be expected in, for each identified natural character area.
- 4.56 BGLA has assisted WDC with the development of natural character schedules for the High/Very High areas of natural character and areas of Outstanding Natural Character, drawing from the technical material in the WNCS, their review of detailed GIS resources, and field survey by land and air.

## 5.0 Summary of Recommendations

- 5.1 It is recommended that:
- a) the CMA should be excluded from the WDC coastal natural character mapping.
  - b) WDC continue to consult with iwi on the draft coastal natural character mapping and assessment work to allow the results of that consultation to be integrated into this aspect of the District Plan Review process.

Bridget Gilbert  
Landscape Architect  
B. Hort. Dip. L.A. ALI ANZILA (Registered)  
M 021 661650 E [bridget@bgla.nz](mailto:bridget@bgla.nz)