

generally layered alluvial sediments rather than erosion resistant rock. Susceptibility is dependent on watercourse flow and velocity, side slopes with respect to lithology, presence of any river bank erosion protection work (tree planting or engineered protection) and position with respect to waterbody meanders.

**Erosion Debris Inundation** - Hill country within this Overlay is underlain with soft tertiary age rocks. Mudstone and Alternating Mudstone/Sandstone are prone to surface slip and slump erosion. Susceptibility depends on slope, lithology and vegetation with high ground moisture levels being the usual trigger. Altering the vegetation may not in itself afford a sufficiently high level of long term protection. Development down slope, either close to the toe of such hill country or in valley bottoms is prone to inundation with the soil erosion products. This could be solid material or further out, a high water content slurry. Higher velocity movements impart greater damage.

**Gisborne Periphery Slope Instability** - Bordering the Poverty Bay Flats and Gisborne urban area to the North East and occurring as "caps" to Kaiti Hill and hills to the South East are estuarine Quaternary age beach deposits and lake beds. They tend to be intermingled with mudstone lithology. These are layered deposits of a very variable nature and are very site specific. They include soft sand and tephra deposits prone to severe sheet erosion, gravels (eg. Matokitoki gravels), well-consolidated sand deposits of a sandstone nature and various types of poorly cohesive tephra and clay deposits. The tephra layers may hold considerable water and clay components and may have a very high shrinking and swelling capacity. These layers may impart instability irrespective of the presence of underlaying or overlying stable layers. The potential for deep-seated earthflow erosion precludes secure building development in many areas. This area has been mapped as a Site Caution Overlay.

*Refer to Urban  
and Rural  
planning maps*

**Te Puia Springs** Structural damage to buildings and infrastructure is an on-going problem at Te Puia Springs because of the existence of very large deep-seated earthflows.

**Makorori settlement** - This area is inherently unstable and complicated by a lack of formal stormwater surface drainage with poor subsurface drainage. There is a strong potential for slope failure due to saturation of underlying materials. Detailed hazard assessments were carried out in 1983 & 1984.

The hazard exists in varying degrees according to the location of the sites but could involve:

- landslip or inundation from debris from slopes above; or
- flooding and knock-down through the impetus of storm-driven seas; or
- landslip or collapse of old slip debris through in part saturation, and erosion of the toe by wave action.

**Waimata Riverbank** - A land instability hazard exists in a 285m long bend of the Waimata River bank between Tukura Road and Hinaki Street in the Gisborne urban area. It is a well-developed residential area with the houses constructed close to the edge of the slumped slope. The hazard involves:

- some areas in the river bank with slopes greater than 1 in 2.5 are unstable and may slump when wet or loaded;
- some areas are liable to slump under severe conditions such as cracking and saturation;
- erosion on the outer side of the bend in the river and bed degradation during large floods may also cause the progressive failure of otherwise stable slopes;
- The Overlay identifies an area that includes the immediate hazard area adjacent to the river and a fringe area 15 m parallel and landward of the hazard area.

## 5.12 Policies for Land Instability

14. It shall be recognised that most of the elevated land in the district has the potential for land instability. Developers and the Council shall take this into account when developing sites, considering resource consents or preparing plans under the Act. Council may require further more detailed information, including the preparation of full geotechnical reports. It may require the effects of the hazard to be avoided remedied or mitigated or decline the proposal.
15. Areas particularly at risk from known instability problems shall be identified in this Plan.
16. The Council will recognise that localised instability may occur outside the areas described in Policy 15.
17. It shall be recognised that within the area described as Site Caution Overlay, to the north and east of the Gisborne urban area and at Te Puia Springs, there is significant potential for damage to development due to land instability. In developing plan provisions, and in assessing resource and building consent applications in these areas the Council will have particular regard to the potential for instability.
18. It shall be recognised that within the Makorori Township Land Instability Hazard Overlay building construction, earthworks of any kind, vegetation removal, stormwater and effluent disposal systems all have the potential to cause or increase slope instability and landslip, and that properties are liable to damage from landslip from the higher slopes behind.
19. In developing plan provisions, and in assessing resource and building consent applications for Makorori, the Council will be guided by the following documents:
  - Makorori Beach Township Engineering Geology Report; Kingston Reynolds Thom and Allardice Ltd, December 1983;
  - Makorori Beach Township Geotechnical Report Volume 1 & 2; Kingston Reynolds Thom and Allardice Ltd, April 1986;
  - Report to Cook County Council of 4 December 1986; RDR Elliott, County Manager.
20. It shall be recognised that in and close to the steep bank of the Waimata River between Tukura Rd and Hinaki Street there is a heightened risk of instability affecting property. In particular the following activities should be carefully assessed to ensure they do not increase the risk of landslip:
  - earthworks that may steepen the slope or that may add load on the surface;
  - discharge of stormwater which may saturate or scour the riverbanks;
  - removal of vegetation that is stabilising the river bank;
  - construction of buildings that may add load on the surface or allow water to penetrate the ground.
21. In developing plan provisions, and in assessing resource and building consent applications for the Waimata Riverbank Hazard Overlays, the Council will be guided by the following documents:
  - Waimata River Left Bank Proposed Hazard Zone, Report EW 93/01 Engineering & Works Department, March 1993.

*Refer to Urban  
and Rural  
planning maps*

*Principal reason (14): It is difficult to always be precise in identifying the land at risk as susceptibility factors are very site specific and require detailed risk investigation in consideration of the type of development proposed.*

*Principal reason (15 and 16): Where research or previous experience has identified areas particularly at risk then identification of them will enable informed decision-making by owners, potential owners and consent authorities. Some areas are well recorded but the absence of such information does not imply other areas are free from hazards.*

*Explanation and Principal reason (17): Land instability is a particular hazard in these areas, due to their physical characteristics and their proximity to urban areas. There is a greater demand for new development in these areas compared to most of the district. The overlay acts as a signal to*

*advise the public there may be additional site specific controls required for protection measures or a need to avoid development.*

*Explanation and Principal reason (18): These activities all have the potential to saturate the ground or load it beyond its bearing strength, leading to slope failure. Instability in the area between the housing area and the Highway behind could cause landslip even without further development of the area.*

*Explanation and Principal reason (19): These reports make up a detailed assessment of the natural hazards at Makorori and recommend strategies for dealing with the problems. However in some respects they can be supplemented by more recent knowledge.*

*Explanation and Principal reason (20): These activities have the potential to cause or increase the risk of landslip in this area, and therefore require to be carefully assessed.*

*Explanation and Principal reason (21): The report contains a detailed assessment of the natural hazard and recommends strategies for dealing with the problems.*

*NOTE: See also general policies for natural hazards.*

## **5.13 COASTAL HAZARDS**

### **5.14 Introduction**

Coastal natural hazards include sea and wind erosion, landslip and flooding from the sea and coastal rivers. Except for those parts of the coast made up of volcanic rocks, the entire Gisborne District coastline is subject to one or a combination of these.

#### **Coastal hazard assessment**

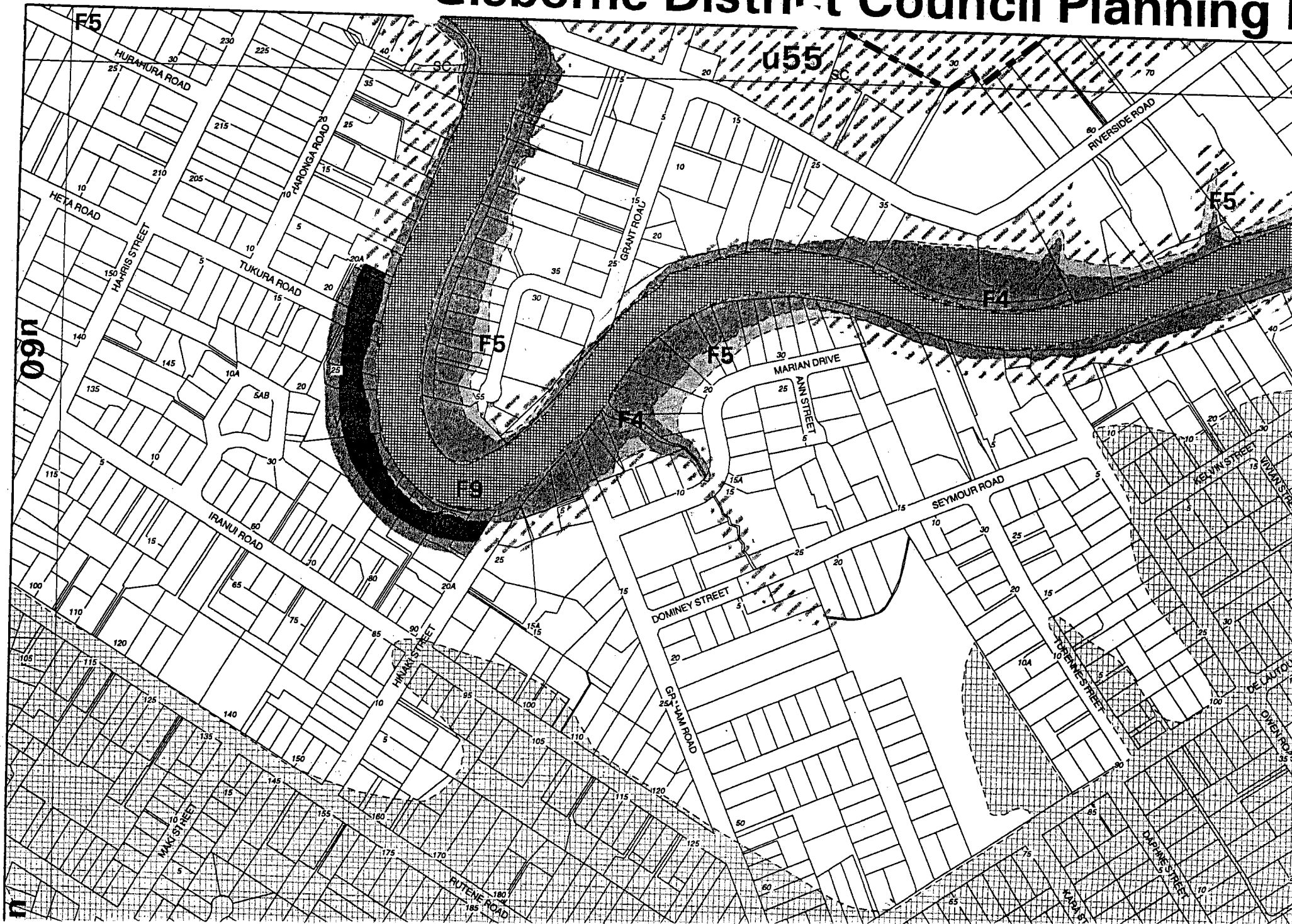
Coastal hazard planning has been used in this District since 1980 for the Waiapu County, and since 1982 for Wainui Beach. It informs the public of the existence and relative intensity of natural hazards and controls any development of land subject to, or likely to be subject to, adverse effects from actual and potential coastal hazards.

In 1994 a coastal hazard assessment programme was established. Coastal hazards were to be assessed in two stages. First an initial assessment of areas sensitive to coastal hazards (ASCH) for medium priority sections of the coast. Secondly a detailed assessment of risk within coastal hazard zones (CHZ) for high priority sections of the coast.

A study was carried out in 1994 as an initial assessment of Areas Sensitive to Coastal Hazards (ASCH) for parts of the Gisborne Districts coastline. The basis for the assessments is a Coastal Hazard Database incorporating a standardised Coastal Sensitivity Index (CSI) technique for ranking sections of the coast with different sensitivities to coastal hazards. CSI's were derived by numerically integrating 8 variables. These are elevation, storm wave run up, gradient, tsunami run-up, lithology, landform, long term trend, and short term fluctuation. The number so obtained was ranked into one of the 5 sensitivity classes ranging from very low, low, medium, high to very high. The results of the study are summarised in a Coastal Hazard database, a summary of natural coastal hazards for each of the coastal areas assessed and the ASCH's delineated on photo maps. These are included in the Regional Coastal Environment Plan and this Plan.

A detailed Coastal Hazard Zone assessment was carried out in 1995 for a 21 km stretch of coastline between the Waipaoa River Mouth and Makorori Point. This assessment process determined the extent of coastal hazards, forecast shoreline positions for the years 2050 and 2100 AD and provided the basis to determine the relative degree of risk by risk zoning. The CHZ was divided into extreme, high and moderate risk zones and a safety buffer zone.

# Gisborne District Council Planning



ASSESSMENT AGED FINANCIAL ENQUIRY

Comments: NO

Assessment No: 08440-001-00-00  
 LOT 2 PT 1 DP 3368

Land Size: 0.2145

Prefix / Number / Suffix Street#  
 24 6400

Dimensions:  
 Instalments: Y Int. Exempt:  
 Rate Zone: 01 DRA 1  
 Land Use: 91 Resid-Single U

24 TUKURA ROAD  
 GISBORNE

Hold Notice: — Non Rateable: —

Ratepayer:  
 MCCARTHY, QUENTIN JOHN  
 MCCARTHY, CAROLYN JOY

Nett Land Value	64000	Rat
Nett Impt.Value	126000	Cod
Nett Capt.Value	190000	10

15 HEATLEY AVENUE  
 PALMERSTON NORTH,

Annual Rates: 0.00 Last Yr: 1904.26

Property Ids  
 126121

	Arrears	Current	Now Due	Balance	
Rates:	0.00	0.00	0.00	0.00	52
Meter:	0.00	0.00	0.00	0.00	68
Scheme:	0.00	0.00	0.00	0.00	70
Total:	0.00	0.00	0.00	0.00	75

[HELP] Enquiry Menu

Enter the Assessment Id.  
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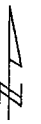
Pt Lot 1 DP 3368

Area 322 sq m

Assessment 084400010000

MCCARTHY, QUENTIN JOHN

MCCARTHY, CAROLYN JOY



Scale 1:750



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