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Decision Required	

Report to: Environment & Planning Subcommittee

Meeting Date: Wednesday, 10 October 2012

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Subject: Tasman District Council, Broadsea Ave Erosion
Protection Structure - RM110150 and RM110096

1. SUMMARY OF PROPOSAL AND BACKGROUND

Location of application: Ruby Bay Esplanade Reserve (Tait Street, Ruby Bay) and Common Marine and Coastal Area as defined by the Marine & Coastal Area (Takatai Moana) Act 2011

Location co-ordinates: 2517512E 5996666N (NZGD) North Western extent
2517774E 5996347N (NZGD) South Eastern extent

Ruby Bay Esplanade Reserve

Legal description: Lot 30 DP 6775

Certificate of title: 1B/1103

Valuation number: 1938013701

The Tasman District Council has applied to retain and undertake ongoing maintenance of an existing rock revetment structure at Ruby Bay. The revetment and associated wing walls extend for approximately 427 metres from the northern end of Tait Street (Number 9) to the ramp at the southern end of Chaytor Reserve as shown in Figure 1 below.

Prior to the existing rock revetment being built the residents along Broadsea Avenue had built a series of small bund walls using logs and clay spoil (See Photographs 1 and 2). As each bund wall was eroded away following storm events (including Cyclone Drena in 1997 - See Photograph 2) it was located a little further landward of its original position. In June 2000 the Broadsea Avenue property owners applied for land use consent to install a rock revetment to protect a rebuilt clay bank, the remaining reserve behind the bank and their properties. That application was initially declined by Council.



Figure 1 - Extent of existing revetment



Photograph 1 - Coastal margin prior to construction of the revetment



Photograph 2 - Overtopping of constructed clay bank during Cyclone Drena

The decision was appealed, however, following discussions with the appellants, resource consent was subsequently granted by consent order, with the duration of consent limited to 10 years. The rock revetment was constructed in 2001 and extends for approximately 427 metres from the northern end of Tait Street to just north of the ramp at the southern end of Chaytor Reserve. The revetment has a crest height of between 4.0 and 4.5m above mean sea level (amsl) , being an average height above ground level of 1.6 metres on its landward margin and between 2.5 and 3.0 metres above the current foreshore on its seaward margin (See Photograph 3).

The consent for the present revetment lapsed on 22 August 2011. The Tasman District Council has applied for resource consents to provide for the ongoing occupation of the coastal marine area and to retain and undertake ongoing maintenance of the existing rock revetment for a period expiring on 23 March 2044. This aligns with the term of a suite of consents including a coastal permit for a Restricted Coastal Activity (SAR-05-6201-15) granted by the Minister of Conservation in June 2009 for the rock revetment to the south (adjoining what is locally known as the Old Mill Walkway). A copy of those decisions is included in Appendix 1.



Photograph 3 - Existing rock revetment

2. STATUS OF APPLICATION

Zoning: Coastal Marine Area
Open Space Zone

Areas: Coastal Environment Area
Land Disturbance Area 1

Activity	Relevant permitted rule	Applicable rule	Status
Continued occupation and disturbance of the common marine and coastal area for the purposes of retaining and undertaking ongoing maintenance of an existing 427 metre long rock revetment	25.1.5E	25.1.7	Discretionary
Retain and undertake ongoing maintenance of an existing rock revetment within an Open Space Zone	17.9.2.1	17.9.2.2	Discretionary

Overall the proposal is a Discretionary Activity.

At the time the application was lodged (15 February 2011) there were no additional consents required. However, Plan Change 22 was notified on 26th February 2011 and introduced an additional consent requirement for coastal protection structures in the coastal risk area as follows:

Activity	Relevant permitted rule	Applicable rule	Status
Construction or alteration of a coastal protection structure in a coastal risk area (Effective as of 31 March 2012)	18.9.2.1	18.9.2.3	<p>Restricted Discretionary Activity.</p> <p>The matters to which Council has restricted its discretion under this rule are:</p> <p>(1) The extent of negative and positive effects on adjoining properties, natural environment and coastal processes;</p> <p>(2) The finished appearance of the works, including buildings and land;</p> <p>(3) Any effects on access to the coastline; and</p> <p>(4) Any effects on recreation.</p>

Decisions on submissions have been made and notified under clause 10(4) Schedule 1 of the Resource Management Act 1991 (RMA).

In accordance with section 88A of the RMA the applications are required to be processed, considered and decided as applications for the types of activities at the time the application was first lodged. However, regard is required to be given to the changes introduced.

3. NOTIFICATION AND SUBMISSIONS

3.1 Written Approvals

No written approvals were supplied with the application.

3.2 Notification

The applications were publicly notified on 27 August 2012 and submissions closed on 23 September 2012. A total of 6 submissions were received.

3.3 Submissions

Submissions in support

Submitter	Reasons	Heard?
Grant Rutledge	Generally supports the application. He submits that the boat ramp at Chaytor Reserve should be made available for public use, with two rocks at the bottom marked to allow safe access.	No

Submitter	Reasons	Heard?
Bruce Gilkison	Submits that any future works be limited to maintenance of the existing structure and that no extension be permitted onto the beach which would restrict public access	No
Tiakina te Taiao Ltd	<p>Support the concept of the rock walls as they exist and the improvements to be made to this section of the foreshore.</p> <p>Accept that the foreshore has been substantially modified and the natural character has been lost.</p> <p>The maintenance work will ensure the walls physical and visual enhancement and will not involve much disturbance.</p> <p>Although there is no archaeological site in close proximity to the wall, there are other sites along this section of the coast where there was coastal settlement, and there is always potential for further finds. They request that any consent be subject to an “accidental discovery” condition</p>	No
Devin & Charmaine Gallagher	<p>Supports the retention and ongoing maintenance of the rock revetment and the granting of consents subject to a number of matters being addressed including:</p> <p>(i) consistency in the term of consent and the standard of construction and maintenance with the rock revetment immediately to the south (Old Mill Walkway);</p> <p>(ii) providing for ongoing maintenance and any further improvements in the structure for the duration of the consent should they become necessary;</p> <p>(iii) further investigation into the provision of stormwater flow paths and works to address effects identified; and</p> <p>(iv) further investigation into the cause of erosion with review conditions to allow for appropriate responses following the investigations.</p>	Yes

Submissions in opposition

Submitter	Reasons	Heard?
Nelson/Tasman Branch Forest and Bird	Requests that Council plan to relocate the households which adjoin the coastline at Ruby Bay. The submission identifies the effects of hard rock protection and its impact on coastal birds, public access, natural character, landscape and	Yes

Submitter	Reasons	Heard?
	<p>recreation.</p> <p>The submission requests that the application be declined and Council pursue a sensible, long term solution to the problem</p>	
<p>Friends of Nelson Haven & Tasman Bay Inc</p>	<p>Submit that the original consent was for a seawall which was temporary and of no specific design</p> <p>The assessment of the integrity of the structure in the application does not provide the high degree certainty required for the Council given the duration applied for.</p> <p>There is no consideration given to the effects of climate change or assessment of the actual or potential effects.</p> <p>Public access will not be enhanced by this proposal.</p> <p>The progressive and on-going construction of sea walls, rock protection works and other structures will continue to degrade the amenity values, character and physical beauty of the Ruby bay coastline.</p> <p>Planned retreat is the only sensible solution to the continuing effects of nature.</p> <p>The proposal does not meet the requirements of the RMA, the sustainable management of natural and physical resources nor the objectives and policies of the NZCPS.</p> <p>The submission requests that Council decline the application or limit the term of the consents to no more than 5 years</p>	<p>Yes</p>

The submitters whose properties are located in the vicinity of the application site are shown in Appendix 2.

3.4 Comments on Submissions

Submissions from nearby residents and Iwi generally support the retention of the existing revetment. However, they differ slightly with respect to its ongoing maintenance. Devin and Charmain Gallagher support further improvements (which I understand to imply enlargement) to the structure if required during the term of the consent. Mr Gilkison does not support any improvements which would encroach further onto the foreshore.

Mr Rutledge's submission makes reference to the provision of boat access via the ramp to the south of Chaytor Reserve. This was authorised by the previous suite of consents and is not part of this application.

Nelson/Tasman Branch Forest and Bird and the Friends of Nelson Haven & Tasman Bay Inc both oppose the retention of the revetment in principle. However, the Friends submit that if the application is not declined consents could be granted for a limited period while longer term solutions are pursued.

4. STATUTORY CONSIDERATIONS

Section 104

A decision on these applications must be made under Section 104 of the Act. The matters for the Council to address are:

- Part 2 (Sections 5, 6, 7 and 8)
- Effects on the environment (positive and negative)
- Objectives and Policies of the Tasman Resource Management Plan
- The New Zealand Coastal Policy Statement 2010 (NZCPS)

Section 105 is not applicable to the coastal permit application as no reclamation is proposed.

5. SECTIONS 6, 7 AND 8

The following matters are most relevant to this application:

Matters of national importance

- S.6(a) the preservation of the natural character of the coastal environment (including the coastal marine area), wetlands, and lakes and rivers and their margins, and the protection of them from inappropriate subdivision, use, and development.
- S.6(d) the maintenance and enhancement of public access to and along the coastal marine area, lakes, and rivers.

Other matters

- S.7(b) the efficient use and development of natural and physical resources.
- S.7(c) the maintenance and enhancement of amenity values.
- S.7(d) intrinsic values of ecosystems.
- S.7(f) maintenance and enhancement of the quality of the environment.
- S.7(g) any finite characteristics of natural and physical resources.
- S.7(i) the effects of climate change.

Treaty of Waitangi

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 take into account the principles of the Treaty of Waitangi (Te Tiriti o Waitangi).

6. KEY ISSUES

The key issues are:

- (a) Coastal Hazard Management;
- (b) Public access to and along the foreshore;
- (c) Amenity and natural character of the coastal marine area;
- (d) Effects on the hydrodynamic environment; and
- (e) Stormwater management.

6.1 Key Issue 1 - Coastal Hazard Management

Broadsea Ave is part of a low-lying coastal plain that has accreted in front of abandoned sea cliffs as a result of long shore drift since the sea rose to its present level approximately 6,000 years ago. Although a considerable volume of sand and gravel has accumulated to form the Mapua-Ruby Bay coastal plain, cadastral and aerial photographic records indicate that the Ruby Bay coastline has been subject to a persistent long term erosional trend for at least 100 years.

The predecessor of the Tasman District Council approved the subdivision of land that was, and continues to be, at risk from coastal erosion (in the absence of the rock revetment) and periodic inundation during storm events.

Prior to Plan Change 22 the properties to the west of the existing revetment were zoned Rural 1, this was changed to residential closed. However, the zoning is subject to an appeal.

The driver behind the construction and ongoing maintenance of these, and other ad hoc structures along this coastline, was the desire to protect development from the historically high levels of coastal retreat (up to and exceeding 1 metre per year) and the long term persistent erosion trend that has been evident since at least 1912.

Expert evidence included in the application anticipates that sea level rise at Ruby Bay is expected to be in the order of 0.2 - 0.3 metres over the next 33 years (the duration of the consent sought). This is expected to result in a higher wave energy environment, with consequent lowering of beach levels in front of any revetment and an increase in the frequency of wave overtopping events. In order to manage this increasing risk, the maintenance of the existing revetments will be needed unless retreat and relocation of existing built development and Council infrastructure occurs or other coastal management adaption option is planned for and undertaken in the meantime.

The application states that higher sea levels, in combination with anticipated ongoing erosion forces acting on this shoreline, mean that maintenance of the revetment will also be required over the period of consent sought. Maintenance works are proposed

to be carried out as required, as part of the asset's ongoing monitoring and maintenance programme. The revetment profile in the application indicates a deeper toe embedment depth than the existing toe (down to RL -1.2 m) for remediated sections of revetment. This is provided in order to allow for lower beach levels anticipated over the consent period applied for.

The expert evidence accompanying the application also states that in addition to higher wave energy and lower beach levels, climate change is also expected to increase the frequency of overtopping events for a revetment at its current crest level. This in turn is likely to increase the rate of erosion of the clay crest and landward slope of the revetment. As maintenance works are carried out, it is proposed to armour the exposed earth bund at the crest with rock to reduce the risk of this erosion.

The Memorandum of Consent which preceded the grant of consent for the existing structure required Council to undertake an investigation and assess the full range of options available for the long term management of the coastal erosion and inundation hazards at Ruby Bay. The study was undertaken and the preferred options outlined in subsequent reports (Attached in Appendix 3 is the final report - Refer to section 4.0 onwards. The earlier study referred to in that report T&T 2002 is available if required).

The report recommended short term protection of the shoreline via rock revetment and an appropriate maintenance programme, in combination with a longer term beach renourishment strategy. The report identified that the key constraint for the long-term beach renourishment management option was having access to a viable local source of gravel, and set out a timeframe for identifying a gravel source and carrying out renourishment works.

The application states that an appropriate and economic source of suitable gravel for renourishment works has not been found to date and that the application is for the retention of the existing rock revetment structure as part of a longer term strategy rather than as an alternative to other options.

It is expected that further wave and coastal process data will be progressively collected and higher resolution coastal hydrodynamic modelling capabilities developed in order to refine assessment of seawater inundation risks in various climate projections and coastal management scenarios.

Council has also notified Plan Change 22 (PC 22) which has introduced policies to manage growth in areas vulnerable to coastal hazards. Council's Long Term Plan states the following:

“Urban development along coastal margins, coastal erosion and potential sea level inundation associated with climate change all increase the demand for coastal protection works. There is also increasing demand for coastal structures that enhance recreational access to coastal areas. Council is planning to maintain existing coastal protection works and recreational assets, but it is not planning to provide any increased levels of protection to properties or new recreational assets. Council is also developing resource management policies to manage growth in coastal hazard areas to reduce the likelihood of further areas being developed that could be at risk from inundation from the sea and the need for coastal protection works for these areas.”

The following objectives and policies in the Tasman Resource Management Plan (TRMP) are relevant to this issue:

Policy 13.1.3.4 - To avoid or mitigate adverse effects of the interactions between natural hazards and the subdivision, use and development of land.

Policy 21.2.3.4 - To require that utility structures or facilities in the coastal marine area are proposed only after a comparative evaluation is undertaken of the effects of alternative sites or routes for such utilities, including on land not in the coastal marine area.

Policy 13.1.3.7 - To maintain or consider the need for protection works to mitigate natural hazard risk where:

- (a) there are substantial capital works or infrastructure at risk; or*
- (b) it is impracticable to relocate assets; or*
- (c) it is an inefficient use of resources to allow natural processes to take their course; or*
- (d) protection works will be effective and economic; or*
- (e) protection works will not generate further adverse effects on the environment, or transfer effects to another location.*

Policy 21.4.3.1 - To avoid impediments to natural coastal processes except where a community need (such as the need to protect a physical resource of significance to the community) outweighs adverse effects on the natural environment.

Policy 21.4.3.4 - To investigate and monitor current natural coastal processes.

In the absence of alternative economically viable options at present, the maintenance of the existing revetment will mitigate the coastal erosion hazard. There are substantial capital works and infrastructure at risk and it is currently impracticable to relocate the assets and would be an inefficient use of resources to let natural processes take their course in the absence of the present revetment.

With respect to Policy 21.1.3.3, there is little doubt that the continued presence and ongoing maintenance of the structure is required to protect existing built development and Council infrastructure to the rear and that there are no other alternative locations which would achieve the same protection.

With respect to Policy 21.2.3.4, an assessment of alternative options for coastal hazard management has been undertaken and a preferred option identified. However, the preferred option has been found to be impracticable due to the difficulty and cost of sourcing appropriate renourishment material.

The most relevant policy is 21.4.3.1 which recognises that impediments to natural coastal processes should be avoided except where a community need (such as the need to protect a physical resource of significance to the community) outweighs adverse effects on the natural environment.

The following objectives and policies in the New Zealand Coastal Policy Statement 2010 (NZCPS) are considered to be most relevant to this issue:

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.

The application site is similar to only a few other locations in the Tasman District where existing development and infrastructure would be at immediate risk if the existing structure is removed, as there is very little to no buffer available to enable natural coastal processes to continue without impacting developments. The site is

also in a location that has been experiencing ongoing coastal erosion and persistent shoreline retreat since at least the early part of the 20th century.

Policy 25 (Subdivision, use, and development in areas of coastal hazard risk) - In areas potentially affected by coastal hazards over at least the next 100 years:

- (a) avoid increasing the risk of social, environmental and economic harm from coastal hazards;*
- (b) avoid redevelopment, or change in land use, that would increase the risk of adverse effects from coastal hazards;*
- (c) encourage redevelopment, or change in land use, where that would reduce the risk of adverse effects from coastal hazards, including managed retreat by relocation or removal of existing structures or their abandonment in extreme circumstances, and designing for relocatability or recoverability from hazard events;*
- (d) encourage the location of infrastructure away from areas of hazard risk where practicable;*
- (e) discourage hard protection structures and promote the use of alternatives to them, including natural defences; and*
- (f) consider the potential effects of tsunamis and how to avoid or mitigate them.*

Policy 27 (Strategies for protecting significant existing development from coastal hazard risk)

(1) In areas of significant existing development likely to be affected by coastal hazards, the range of options for reducing coastal hazard risk that should be assessed includes:

- (a) promoting and identifying long-term sustainable risk reduction approaches including the relocation or removal of existing development or structures at risk;*
- (b) identifying the consequences of potential strategic options relative to the option of 'do-nothing';*
- (c) recognising that hard protection structures may be the only practical means to protect existing infrastructure of national or regional importance, to sustain the potential of built physical resources to meet the reasonably foreseeable needs of future generations;*
- (d) recognising and considering the environmental and social costs of permitting hard protection structures to protect private property; and*
- (e) identifying and planning for transition mechanisms and timeframes for moving to more sustainable approaches.*

(2) In evaluating options under (1):

- (a) focus on approaches to risk management that reduce the need for hard protection structures and similar engineering interventions;*
- (b) take into account the nature of the coastal hazard risk and how it might change over at least a 100-year timeframe, including the expected effects of climate change; and*
- (c) evaluate the likely costs and benefits of any proposed coastal hazard risk reduction options.*

(3) Where hard protection structures are considered to be necessary, ensure that the form and location of any structures are designed to minimise adverse effects on the coastal environment.

(4) Hard protection structures, where considered necessary to protect private assets, should not be located on public land if there is no significant public or environmental benefit in doing so.

The continued presence of the revetment will avoid increasing the risk of social and economic harm from coastal hazards for the duration of the consent. At present the use of “softer” alternatives or combination approaches to hard protection structures is not considered viable due to the lack of a sufficiently wide buffer, the prevailing erosional trend and the availability and cost of material for beach renourishment works.

The environmental and social costs of retaining the existing structure have been recognised and considered in the circumstances and are not assessed as being sufficiently adverse when considered alongside the adverse effects of removing the structure if consent is declined (which is at present understood to be the only other option available).

Policy 27 (4) states that hard protection structures, where considered necessary to protect private assets, should not be located on public land if there is no significant public or environmental benefit in doing so. However, in this case, in addition to protecting private and Council assets, retaining the existing revetment will provide for and protect public access to and along the esplanade reserve behind the structure at all states of the tide.

6.2 Key Issue 2 - Public access to and along the foreshore

The construction of isolated individual private protection works since the 1970's and other rock revetments since early 2000 have resulted in the presence of a continuous hard structural presence adjoining much of the Ruby Bay/Mapua coastline. The most obvious consequence of this has been the adverse effects on the natural character of the coastline and public access to and along the foreshore at higher states of the tide cycle. These effects are an unavoidable consequence of their presence and will continue as long as the existing structures remain.

The adverse effects of retaining the rock revetment on public access to and along the foreshore are partly mitigated by the protection provided to the esplanade reserve and walkway immediately behind the structure. However, it is anticipated that in the absence of any other complimentary measures such as a renourishment programme or a protective barrier offshore, further lowering of the beach in front of the revetment is likely.

The following objectives and policies in the TRMP are relevant to this issue:

Policy 14.1.3.7 - To identify, acquire, and manage land, including esplanade reserves and road reserves, to facilitate public access to water bodies and the coast.

Policy 14.2.3.1 - To maintain and where necessary improve the quality of reserves, open space and public recreational facilities.

Policy 14.2.3.4 - To identify and protect areas that are important for informal low key recreation and community activities.

Objective 21.6.2 - Maintenance and enhancement of public access in the coastal marine area, including public passage or navigation:

- (a) while preserving natural character, and maintaining ecosystems, heritage, and amenity values; and*
- (b) without undue hazard or loss of enjoyment as a result of private occupation or use of coastal marine space.*

Policy 21.6.3.1 - To avoid, remedy or mitigate adverse effects of facilities for access to and from the coastal marine area.

Although further beach lowering is likely to further compromise high tide access along the beach, retaining and maintaining the existing revetment will ensure that the esplanade reserve to the rear of the revetment is protected. This will provide for public access adjoining the coastal marine area at all states of the tide for the duration of the consent.

The following objectives and policies in the NZCPS are considered to be most relevant to this issue:

Policy 18 (Public open space) - Recognise the need for public open space within and adjacent to the coastal marine area, for public use and appreciation including active and passive recreation, and provide for such public open space.

Public access to and along the beach (coastal marine area) will continue to be provided for much of the tide cycle and when not available, will be preserved by the continued presence and protection of the esplanade reserve to the rear.

6.3 Key Issue 3 - Amenity and natural character of the coastal marine area;

The adverse effects of retaining and maintaining the existing revetment on the natural character of the coastline are difficult to avoid, or mitigate, unless the revetment is removed and a natural beach profile restored. This is not considered to be a viable option in the circumstances as this will expose the existing built development to very significant risk of material damage as a result of coastal erosion and inundation. In addition, the removal of this revetment would leave significantly longer rock revetments remaining to the north and south of the site that would not only continue to have effects on the environment, but may themselves suffer from adverse effects such as end effects. Removal of the revetment would also increase inundation risk of the land behind the remaining revetments. Any assessment of effects needs to be considered in this context. Added to this the immediate area has already lost much of its original natural character due to past residential subdivision and development and opportunities to restore the natural character are limited.

The following objectives and policies in the TRMP are relevant to this issue:

Policy 21.1.3.3 - To restrict the placement of structures in or along the coastal marine area to those for which a coastal location is necessary and whose presence does not detract from the natural character of the locality, including the natural character of adjoining land.

Policy 21.2.3.3 - To avoid, remedy or mitigate adverse effects of structures or works in the coastal marine area, for any purpose, on:

- (a) *natural character;*
- (b) *natural coastal processes and patterns;*
- (c) *coastal habitats and ecosystems, particularly those supporting rare or endangered indigenous or migratory species, or nationally or internationally significant natural ecosystems;*
- (d) *public access to coastal marine space;*
- (e) *visual amenity and landscapes or seascapes;*
- (f) *navigational safety;*
- (g) *historic and cultural values.*

Policy 21.3.3.1 - To allow structures or physical modifications in the coastal marine area only where the effect on the natural components of landscape and seascape values of the area, including any contribution to any likely cumulative effect, is limited in extent and is consistent with the existing degree of landscape and seascape modification.

With respect to Policy 21.2.3.3 and 21.3.3.1, it is difficult to avoid, or mitigate, the adverse effects of the structure on the natural character, visual amenity, landscape, natural coastal processes and ecosystems. While there will be ongoing adverse effects on the coastal environment, it is considered that these are not significantly adverse in the context. The natural character of this part of the coast has already been compromised by existing protection works and urban development.

6.4 Key Issue 4 - Effects on the hydrodynamic environment

The effects of retaining the rock revetment on the hydrodynamic environment (and as a consequence the foreshore) are well recognised, the most notable being the lowering of the beach profile in front of the revetment. The applicant has anticipated this and has included provision for a deeper toe embedment depth as a component of the ongoing maintenance of the structure over the duration of the consent. I understand that the lowering of the beach profile in front of the revetment can only be avoided by undertaking either beach renourishment or additional structures such as a protective barrier offshore, neither of which is proposed as part of this application.

Any adverse end effects resulting from the ongoing presence of the structure have been mitigated partly by the design of the existing structure (including a deeper toe embedment depth) and the construction of, and transition to, the rock revetment adjoining the Old Mill Walkway to the south.

6.5 Key Issue 5 - Stormwater management

The ongoing presence of the rock revetment will continue to have a potential influence on the management of stormwater from the catchment, and on flooding risk arising from seawater overtopping the structure during storm events.

In the case of rainfall runoff, incident rainfall in the catchment behind the revetment drains to the coast via several stormwater pipe outfalls. Unless and until there is a blockage or insufficient capacity in the pipe network, the revetment does not impact on rainfall runoff to the coast until the revetment begins to act as a dam, preventing runoff to the coast overland.

This is a very low probability circumstance at this location. This is because significant components of the stormwater infrastructure have recently been upgraded in the vicinity of Tait Street, including the pipe capacity and outfall structure. This upgrade better accommodates existing stormwater and has built a degree of resilience to future sea level rise and storm events into the stormwater infrastructure within the catchment.

In the case of seawater inundation of the land behind the revetment, this will occur when the revetment is in place on occasions where the revetment is overtopped. When this occurs, seawater can only return to the coast via the stormwater pipe network. This network has purpose-built inlet structures in Tait St and Chaytor Reserve for surface water entry. If these are blocked by water-borne debris, then seawater inundation of the land in the immediate vicinity of Broadsea Ave increases

(as occurred during Cyclone Drena in Jan 1997). In these circumstances, the presence of the revetment can become adverse due to the impounding effect preventing the return of seawater to the coast.

The adverse effect of the revetment acting to prevent seawater return to the coast needs to be compared to the potential for seawater inundation effects on the land in the absence of the revetment. In this case, wave run-up and inundation of the land behind during a storm event will cause significant inundation of the land immediately behind the coastal margin. Seawater inundation could occur to a much more significant degree in the absence of a revetment than would occur behind a revetment acting as a dam. Extensive inundation of the hinterland behind the revetment constructed a little to the south of Broadsea Ave occurred during Cyclone Drena, when the revetment failed by overtopping and then breaching.

On balance, it is considered that limited seawater inundation and potential impoundment of this water behind a revetment will have lesser adverse effect on the land and property in the vicinity than would occur if the revetment was removed. Careful management of stormwater outfalls as well as appropriate crest height for the revetment will continue to be needed and existing challenges are likely to increase with sea level rise for the duration of any consent.

Chaytor Reserve was re-contoured to improve stormwater drainage as part of the Old Mill Walkway works. The work enabled runoff from the reserve and its catchment (including the overland flow path within the esplanade reserve behind the revetment) to collect at the grated inlet above the existing stormwater outfall pipe. The assessment provided with the application states that the overland flow path and outlet structure is expected to have sufficient capacity for design events within the consent period being sought. However, there remains management challenges with the inlet structures which have partially blocked in the past during storm events when water over topping the revetment structure either mobilises or deposits significant quantities of debris into these inlet areas.

The ramp at the southern end of Chaytor Reserve is shown in the plans attached to the decisions in Appendix 2. It was partly intended to act as a secondary flow path for stormwater and seawater to return to the coast, but does not fulfil that function very effectively at present principally due to the height of the crest of the ramp. These two matters are associated with but are somewhat separate issues to the consent being considered. This matter needs to be addressed via compliance with the conditions of the consents for the ramp and outlet and in conjunction with the ongoing management of stormwater within the wider catchment.

Part II Matters

The application is considered to be consistent with Part II of the Act. Section 5 outlines its purpose which is to promote the sustainable management of natural and physical resources. In the absence of a suitable and economic source of gravel and the prohibitive cost of obtaining the large volume of gravel required at commercial rates, the ongoing presence of the wall will enable the community of interest to continue to provide for their social, economic, and cultural wellbeing and for their health and safety while:

- a) Sustaining the potential of the natural and physical resources to meet the reasonably foreseeable needs of future generations; and
- b) Safeguarding the life-supporting capacity of air, water, soil, and ecosystems; and
- c) Avoiding, remedying, or mitigating any adverse effects of activities on the environment

The relevant principles outlined in Sections 6, 7 and 8 of the Act have been taken into account and it is considered that granting consent achieves the purpose and principles of the Act.

It is considered that in this particular circumstance retaining and maintaining the existing revetment is appropriate. The legacy of past subdivision has left limited options for the management of coastal hazards in the short to medium term.

The natural character of this coastline has been significantly compromised by existing urban development and the coastal works already in place. While there will be ongoing effects on natural character at the site, the overall character of this part of the coast will largely remain unchanged and the ability to mitigate that via conditions of consent is limited.

The revetment will protect public access to and along the coast. Although it is inevitable that there is, and will continue to be, some loss of high tide access along the beach, access along the top of and to the rear of the revetment will remain.

The revetment will provide a significant degree of protection from the effects of climate change for the duration of the consent.

The protection of historic heritage in terms of Section 6(f) can be addressed via the proposed condition requiring that work shall cease if archaeological or heritage sites (including taonga or koiwi) are discovered, and a relevant Historic Places Trust approval required before works recommence.

7. SUMMARY OF KEY ISSUES

In summary, retaining the revetment is justified by a community need, alternative responses to hazard risk mitigation are impractical, impose a high community cost, or have greater adverse effects on the environment. The activity will not cause or exacerbate adverse effects on other properties in the vicinity, public access to and along the foreshore will be maintained and other adverse effects of the work are avoided, remedied or mitigated.

A period of 33 years was requested by the applicant. It is recommended that consents be granted for a period of 32 years in order to coincide with the expiry date for the adjoining suite of consents for the Old Mill Walkway to the south.

8. SECTION 5 AND RECOMMENDATION

Weighing up all of the relevant considerations in Section 5 of the Act, I consider that a grant of consent **would** promote the sustainable management of natural and physical resources and, on balance, I **RECOMMEND** that the application(s) be **GRANTED**, subject to conditions.

9. CONDITIONS, ADVICE NOTES, PLANS

CONDITIONS

1. The coastal permit (RM110096) and land use consent (RM110150) shall expire on 23 March 2044.
2. When the consents expire, or in the event of the structure becoming redundant or no longer fit for purpose, the Consent Holder shall take all necessary steps to either remove the structure, or incorporate the structure or the materials used in its construction in a replacement authorised structure or other work.

Conditions applying to all consents

3. The Consent Holder shall ensure that the maintenance of the structure shall be undertaken in general accordance with the documentation submitted with the applications lodged by Planning Consultant Keith Heather (with further information provided by Mr Reinen-Hamill, Senior Coastal Engineer of Tonkin and Taylor) on behalf of Tasman District Council and with Plans A and B attached to these consents. Notwithstanding this if there are any inconsistencies between this information and the conditions of consent, the conditions of consent shall prevail.
4. The Consent Holder shall ensure that all contractors undertaking maintenance works are made aware of the conditions of these consents and shall ensure compliance with the conditions.
5. The conditions of the consents may be reviewed in accordance with Sections 128 of the Act at any time during the exercise of these consents for the purposes of:
 - a) dealing with, or requiring the applicant to adopt the best practicable option to remove or reduce any adverse effect on the environment arising from the exercise of the consents;
 - b) taking into account uncertainties such as predicted sea level rise, climatic changes and beach accretion or erosion, all of which may influence the operation or sustainability of the structure;
 - c) revising the beach profile monitoring programme;
 - d) to deal with any other adverse effect on the environment on which the exercise of these consents may have an influence; and/or
 - e) requiring compliance with the requirements of any relevant operative regional plan, national environmental standard, or Act of Parliament

6. The Consent Holder shall advise Council's Co-ordinator Compliance Monitoring (Carl Cheeseman, telephone (03) 543 8436) at least seven days prior to undertaking any maintenance works authorised by these consents so monitoring of conditions can be programmed.
7. The Consent Holder shall at all times maintain the structure in a sound, safe and competent condition in general accordance with Plan B attached. The Consent Holder shall notify the Environment and Planning Manager of Council at the earliest opportunity after any storm event or occurrence where any part of the structure is damaged, or any situation that may result in a hazard to the public. The Consent Holder shall undertake such remedial works as may be necessary, or as directed by the Environment and Planning Manager of Council to repair and retain the revetment in a competent and safe condition.
8. The Consent Holder shall, within one week following any maintenance works, remedy all or any damage and disturbance to the reserve and beach that may have been caused and return these areas to their pre-maintenance state as far as practicable.
9. In the event of Maori archaeological sites (eg shell midden, hangi or ovens, garden soils, pit depressions, occupation evidence, burials, taonga) or koiwi (human remains) being uncovered during maintenance works, activities in the vicinity of the discovery shall cease. The Consent Holder shall then consult with the New Zealand Historic Places Trust's Central Regional Office (PO Box 19173 Wellington, phone (04) 801 5088, fax (04) 802 5180), and shall not recommence works in the area of the discovery until the relevant Historic Places Trust approvals to damage, destroy or modify such sites have been obtained.

Advice Note: The discovery of any pre-1900 archaeological site (Maori or non-Maori) which is subject to the provisions of the Historic Places Act needs an application to the Historic Places Trust for an authority to damage, destroy or modify the site.

Maintenance construction management

10. Prior to any maintenance activities being undertaken the Consent Holder shall erect Advice Notices at the car park at the end of Tait Street and at Chaytor Reserve. These notices shall provide warning of the maintenance activities noting any precautions that should be taken, as well as advising the period(s) during which these activities will be occurring and when public access shall be restricted. The notices shall be erected at least 10 working days prior to the commencement of the works and shall remain in place for the duration of the works before being removed on completion of the works.
11. The design and construction of any maintenance works shall be carried out under the supervision of a chartered professional engineer with appropriate experience in coastal structures engineering.
12. The structure shall be maintained so that it has a maximum batter slope of 2H:1V and in a manner that provides a relatively regular, tightly interlocking face. Any new rock material placed as part of the works shall be laid on a graded and shaped face of competent, compacted material over which is laid a geotextile cloth fabric of

suitable grading. Any maintenance of the toe of the revetment (including fabric placement) shall ensure that it is embedded to a depth no higher than RL -1.2 m, in the manner shown on the Plan B attached to this consent. The fabric and placed rock shall extend to and terminate at or above the general level of the land immediately behind the revetment, and in such a manner as to prevent washout of sand material behind/beneath the fabric. The geotextile fabric shall be appropriately placed and anchored to ground to prevent material being lost from beneath or behind the fabric through wave action or seawater inundation. The rock material shall be placed in such a manner (e.g. on a bed of suitably graded granular material placed on the fabric) so as to prevent puncturing or tearing of the fabric.

13. Any maintenance works shall ensure that the revetment continues to tie into the existing rock revetment to the south in such a manner so as to result in a smooth and continuous transition that minimises end effect erosion.
14. Any maintenance works below mean high water springs shall occur at such stages of the tide so as to not occur within, or be impacted or affected by, the ebb and flow of seawater and shall be undertaken in segments of approximately 5-15 metres.
15. All machinery entering or working in the coastal marine area shall be cleaned prior to arrival on site to remove weeds or seeds that may establish in the coastal marine area margin, or may enter the estuarine environment.
16. Any vehicle movements along the foreshore which may be required from time to time shall be restricted to the smallest area practicable.
17. The Consent Holder shall ensure that unimpeded public access to Chaytor Reserve and along the esplanade reserve or adjacent beach is maintained to the greatest extent practicable during maintenance works, with the exception of such construction times and areas where safety of the public would be endangered as a result of the works in progress.
18. If the Consent Holder needs to stop maintenance work for whatever reason the site shall be left in a neat, secure and tidy condition until work recommences.
19. Any new rock material used in the maintenance of the structure shall be of a similar colouration and texture to that used in the existing structure.
20. Rock material placed as part of the maintenance of the structure shall be placed in such a manner so as to prevent puncturing or tearing of the underlying geotextile layer. If the material is punctured the hole must be repaired or the material replaced.
21. All imported fill and rock revetment material used in the maintenance of the structure shall be sufficiently clean prior to placement so as to not leach contaminants into the coastal marine area.
22. Any maintenance shall occur at such stages of the tide so as to not occur within, or be impacted or affected by, the ebb and flow of seawater. Any disturbance of the foreshore that occurs in the course of repair or maintenance works shall be limited

to only that area required to successfully embed the toe of the revetment and shall be subject to the approval of the Council's Co-ordinator Compliance Monitoring.

23. Maintenance works shall not take place between the hours of 1900 and 0700. No works shall be undertaken on Sundays or Public Holidays.
24. The Consent Holder shall not exceed the recommended upper noise limits as described in the New Zealand Construction Noise Standard NZS 6803:1999 Acoustics - Construction Noise.
25. The Consent Holder shall ensure that all machinery is maintained and operated in such a manner so as to minimise to the greatest extent practicable any spillage of fuel, oil and similar contaminants to water or land, particularly during machinery refuelling, servicing and maintenance. Maintenance, refuelling and lubrication of machinery shall not be carried out within 20 metres of the coastal marine area or any surface water body. Spillage of contaminants into any watercourse or onto land shall be remediated so that no residual potential for contamination of land and surface or sea water occurs. If a spill of more than 20 litres of fuel or other hazardous substance occurs, the Consent Holder shall immediately inform the Council's Co-ordinator Compliance Monitoring. The Consent Holder shall ensure that all contractors working under this consent are informed of this requirement.

Monitoring

26. The Consent Holder shall employ a suitably qualified and experienced coastal engineer or scientist to undertake beach profile survey monitoring, either by detailed GPS beach survey or profile survey at a minimum of three regularly spaced locations between the northern end of Tait Street and the southern end of Chaytor Reserve. Profile surveys shall be undertaken within six months from the date of consent being granted and thereafter no less than annually.
27. In addition, beach profile or GPS surveys shall be undertaken as soon as possible (but within two weeks) after a significant storm event, as requested by the Council's Environment & Planning Manager or his/her delegated agent. Each survey profile shall extend from the rear boundary of the Broadsea Ave Esplanade Reserve to a point on the intertidal platform a minimum of 100 metres seaward of the toe of the main beach slope. This monitoring shall be complied and reviewed by an experienced coastal engineer or scientist on an annual basis and a short report summarising the observed trends over the year shall be provided to the Council's Environment & Planning Manager.

ADVICE NOTES

1. Any matters not referred to in the application for resource consents or otherwise covered in the consent conditions must comply with the Tasman Resource Management Plan and the Resource Management Act 1991.
2. The Consent Holder shall meet the requirements of Council with regard to all Health and Building Bylaws, Regulations and Acts.
4. All reporting required by Council shall be made in the first instance to the Co-ordinator Compliance Monitoring.

5. Pursuant to Section 36 of the Resource Management Act 1991, the Consent Holder shall meet the reasonable costs associated with the monitoring of this consent. Costs can be minimised by consistently complying with the conditions of this consent, thereby reducing the frequency of Council visits.
6. The Consent Holder is reminded that they may apply at any time under Section 127 of the Act to have any condition of this consent changed except that which specifies the expiry date of this consent.
7. Plans attached to this consent are (reduced) copies and therefore will not be to scale and may be difficult to read. Originals of the plans referred to are available for viewing at the Richmond office of the Council. Copies of the Council Standards and documents referred to in this consent are available for viewing at the Richmond office of the Council.



Rosalind Squire
Consent Planner, Coastal



Eric Verstappen
Resource Scientist - Rivers & Coast

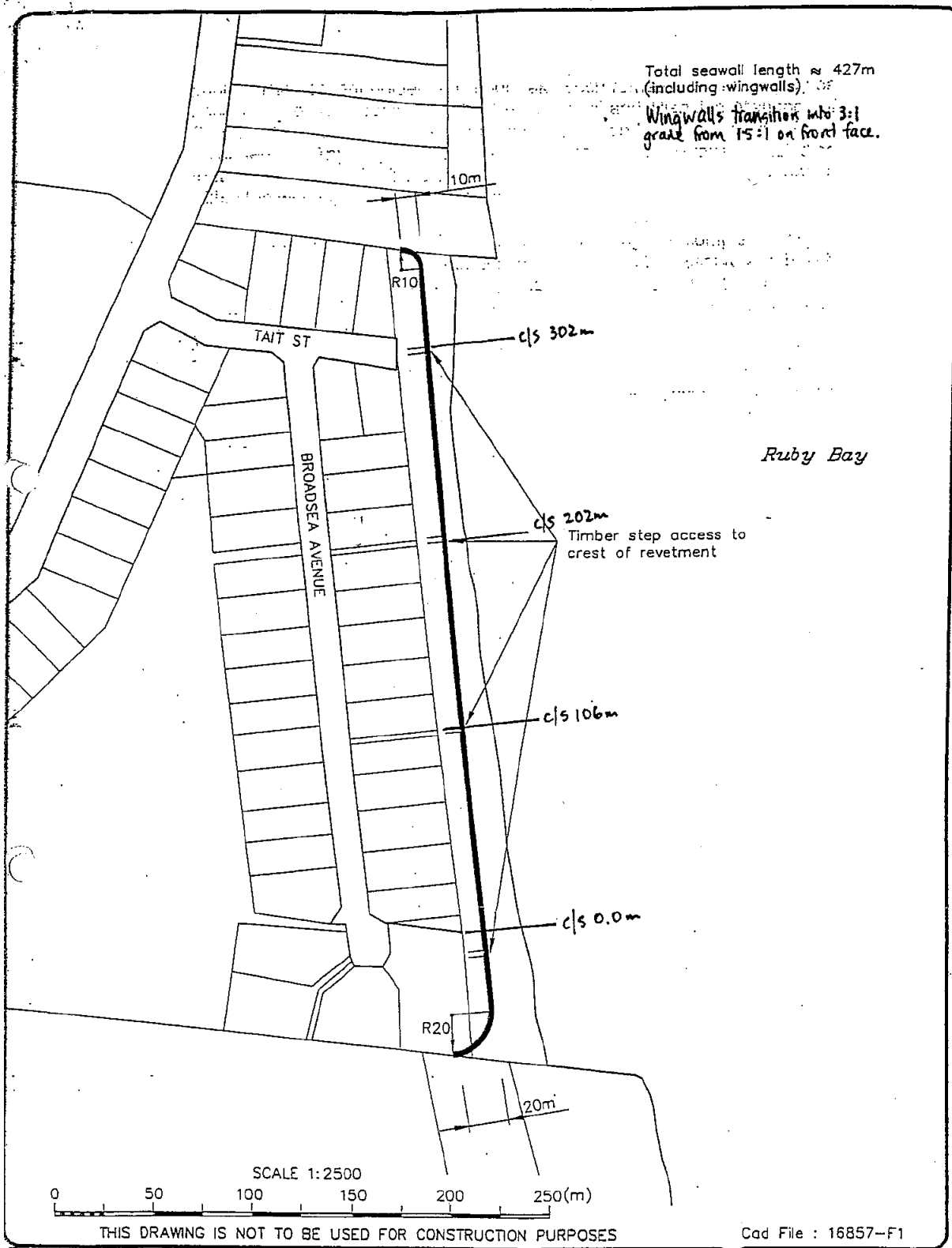
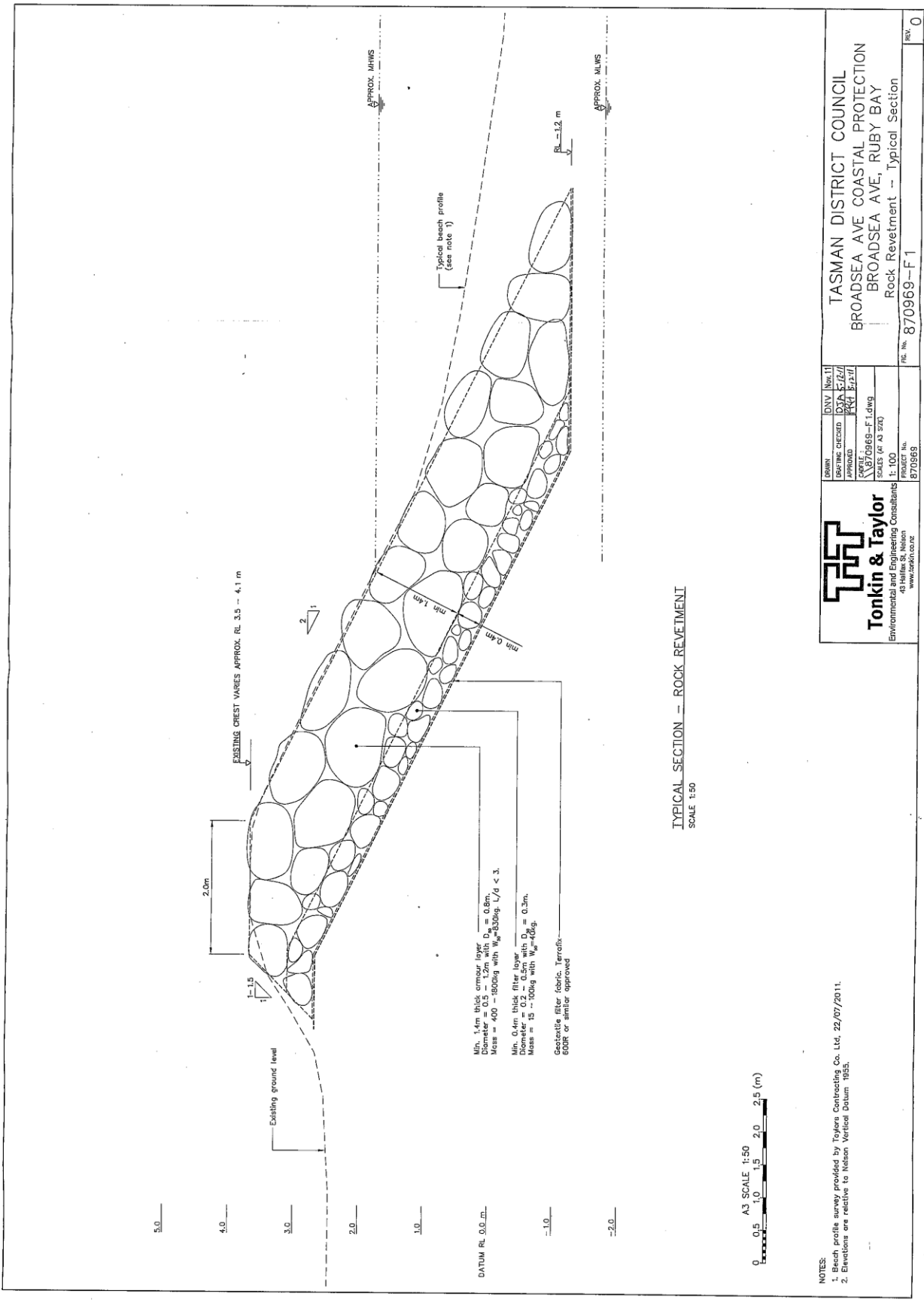


FIGURE 1: GENERAL LOCATION OF ROCK REVETMENT

Plan B Typical Cross Section - Broadsea Ave Rock Revetment



Appendix 1
RM080953, RM080893, RM080894, RM080954, RM080954

Appendix 2
Location of Submitters Properties



