Before the Hearings Panel

In the Matter of	the Resource Management Act 1991
And	
In the Matter of	the Proposed Marlborough Environment Plan
And	
In the Matter of	Hearing Block 2 (Topic 6 – Indigenous Biodiversity)

Errata and amendments to the Section 42A report of Marlborough District Council Environmental Scientists Peter Hamill and Dr Steve Urlich.

Errata and additions

Paragraph 57 bullet point 1 – Format change to show the addition that is suggested

- It is Mr Hamill's view that the addition of freshwater to the provision will ensure that all environments are treated equally and consistently. **He recommends that the wording is amended to**: *"When assessing whether wetlands, marine, freshwater or terrestrial ecosystems, habitats and areas have significant indigenous biodiversity value, the following criteria will be used:*
- It is Dr Urlich's view that *coastal* should now also be added to Mr Hamill's amendment to the heading of Policy 8.1.1 and Appendix 3 [see also Paragraph 75, bullet point 2 for Appendix 3]", so that it now reads "coastal marine".

Paragraph 59 bullet point 1 – Errata

- Dr Urlich states that the significance thresholds in Policy 8.1.1 are more ~~less~~ stringent than the Department of Conservation 2017 guidelines for assessment significant ecological values in terrestrial environments, which just require a Medium rating for at least one of 5 ~~7~~ criteria.

Paragraph 59 bullet point 3 – Addition of Mr Hamill's Name

- Dr Urlich and Mr Hamill **recommend that the requirement be retained for the one of the first four criteria must rank High or Medium be retained.**

Paragraph 75.3 – Additional comment

Mr Hamill states that as a consequential change of agreeing to the submission is that to provide consistency that "Biogeographic Area" be added to the Size and Shape Criteria.

Dr Urlich disagrees with Mr Hamill, as the Expert Panel has been using different wording in its Size criterion. This is because the Panel compares size relative to other similar habitats and does not use the cohesive term. This is because habitat types differ in the area at which they may be significant (e.g., rhodolith beds at 10ha would be large but a 10ha horse mussel bed may be small) [Para 75.5].

Paragraph 75.4 –further clarification.

- Mr Hamill agrees that the addition of the word cohesive to the **H** definition would provide consistency with the definitions of M; and L: and provide more clarity and therefore **supports in part the change to Appendix 3.** (See Paragraph 77.4 amendments).
- Dr Urlich notes that the Expert Panel has not seen this as relevant to coastal marine environment (see 75.3 above).

Paragraph 77.3 - Mr Hamill states that as a consequential change of agreeing to the submission is that to provide consistency that "Biogeographic Area" be added to the Rarity Criteria.

Paragraph 77.4 – Addition of recommended wording change for this management criteria.

- Mr Hamill agrees that sites may be significant that are not compact in shape and it is recommended that the word compact should be deleted and the wording for the Shape and Size criteria changed to the following :

  The site is significant if it is moderate to large in size and is physically ~~compact or~~ cohesive.

  H: The site is large in size for the region or ecological district and is ~~compact in shape~~ cohesive.

  M: The site is moderate in size for the region or ecological district and is ~~compact in shape~~ cohesive; or the site is relatively large but not very ~~compact or~~ cohesive.

  L: The site is small in size for the region or ecological district, or the site is moderate in size but not at all ~~compact or~~ cohesive.

- Dr Urlich sees this as not relevant to coastal marine environment (see 75.3 and 75.4 above and has the criterion changed as follows (his changes are underlined, Mr Hamill's changes are in blue):

  The site is significant if it is moderate to large in size and is physically ~~compact or~~ cohesive. For the coastal marine environment, the site is significant if it is moderate to large relative to other habitats or communities of its type in the biogeographic area

  H: The site is large in size for the region or ecological district and is ~~compact in shape~~ cohesive. For the coastal marine environment, the site is large in size relative to other habitats or communities of its type in the biogeographic area.

  M: The site is moderate in size for the region or ecological district and is ~~compact in shape~~ cohesive; or the site is relatively large but not very ~~compact or~~ cohesive. For the coastal marine environment, the site is moderate in size relative to other habitats or communities of its type in the biogeographic area

  L: The site is small in size for the region or ecological district, or the site is moderate in size but not at all ~~compact or~~ cohesive. For the coastal marine environment, the site is small relative to other habitats or communities of its type in the biogeographic area.

- .Mr Hamill notes that size and shape criterion is not one of the four which determine significance.

Suggested Amendments – Policy 8.1.1

Those suggested changes shaded blue are the views of Peter Hamill. Those shaded yellow are the views of Dr Steve Urlich. Both Dr Urlich and Mr Hamill agree with changes that are not highlighted.

Dr Urlich notes that the Ecologically Significant Marine Sites Expert Panel has not been using criterion (g) in Policy 8.1.1 below. He observes that criterion (h) as worded currently applies to the coastal marine environment, and should be distinguished as such. There are other amendments to the headings for criteria (c), (e) and (f) for coastal marine environment.

He does not support Mr Hamill that a new criterion (i) be inserted as there is no ecological justification and in his view conflates s6e matters with section 6c assessments [para 60,s42A Report].

Identification of sites, areas and habitats with significant indigenous biodiversity value

Policy 8.1.1 – When assessing whether wetlands, freshwater, coastal marine or terrestrial ecosystems, habitats and areas have significant indigenous biodiversity value, the following criteria will be used:

(a) representativeness;

(b) rarity;

(c) diversity and pattern; [diversity only for coastal marine]

(d) distinctiveness;

(e) size and shape; [size only for coastal marine]

(f) connectivity/ecological context; [connectivity only for coastal marine]

(g) sustainability; [wetlands, freshwater or terrestrial only]

(h) adjacent catchment modifications, [coastal marine only]

(i) cultural and kaitiaki values. [wetlands, freshwater or terrestrial only]

For a site to be considered significant, one of the first four criteria (representativeness, rarity, diversity and pattern (diversity only in the coastal marine environment) or distinctiveness~~/special ecological characteristics~~) must rank medium or high.

To determine whether a site is significant for the purposes of Section 6(c) of the RMA, an assessment needs to be made by the Council or others against consistently applied criteria. The criteria identified in this policy (further explained in Appendix 3a and 3b), have been used by the Council previously to identify and encourage opportunities for the conservation of natural features on private land in Marlborough and will enable assessments to be made in the future where none have occurred to date. The same criteria have also been used in identifying wetlands of significance in Marlborough but not ~~and~~ in identifying areas in the coastal and marine area with significant indigenous biodiversity value.

Suggested Amendments – Appendix 3

Dr Urlich agrees with submitter Hemphill [648.048] that Appendix 3 should be reformatted and revised for clarity. This is because he is of the view that significance criteria for the coastal marine environment are significantly different enough to warrant a standalone set of descriptors for each criterion. This is a more efficient and effective outcome in his view and it provides greater clarity and ease of interpretation.

Dr Urlich notes that since 2011 the Expert Panel have also been using almost all the criteria in 8.1.1 (except the sustainability criterion) but with important wording differences to those in Appendix 3 as notified in 2016. This is a point made by Andrew Baxter in evidence for the Department of Conservation.

He has determined that the cause were administrative errors in attempting to transcribe the Expert Panel criteria into Appendix 3, resulting in a complex cornucopia of criteria wording between quite different ecological and biogeochemical environments; i.e., terrestrial vs marine.

Dr Urlich has identified differences in the **Rarity**, **Diversity, Size** and **Connectivity** criteria between the Expert Panel and Appendix 3.

- The **Rarity** omits the word "habitats" in Appendix 3, which may have had issues for seabird sites, estuaries and marine mammal areas. Fortunately, there are no SMS in the 2011 publication which solely rely on a Medium or High in Rarity criterion to be assessed as significant. However, this may not be the case for future assessments.
- The **Size** criterion in 8.1.1 requires an assessment of compactness and cohesiveness. The 2011 SMS publication does not. It requires an assessment relative to other habitats.
- The **Connectivity** criterion in Appendix 3 mentions "natural areas", whereas the 2011 SMS publication refers to "significant sites". This is an important difference as the whole of CMA is a "natural area" as it is publicly held as the commons. The preamble descriptors also differ substantially between the versions, although whether this is a material difference is debatable.
- Policy 8.1.1 requires the **Sustainability** criterion to be used for coastal marine, but it hasn't been. In reality this doesn't make a material difference as it is not one of the first four significance criteria. The **Sustainability** criterion does not appear in the 2011 SMS publication.
- The High category within the **Diversity** criterion in Appendix 3 uses the words "unusually high" diversity of species and ecosystems but the 2011 Publication uses "high diversity". It is not clear how to define "unusually high" as opposed to "high"; further if something is not unusually high, it defaults to "moderate diversity", so there is no category for solely "high diversity". This is not the case for the 2011 publication, and the Expert Panel has not used the Appendix 3 wording in its assessments.
- That the Expert Panel use the word "known" preceding "ecological feature" in the **Distinctiveness** criterion as information is incomplete in the coastal marine environment as opposed to the terrestrial and wetland environments where information is much more complete, and remote sensing techniques are available and more powerful than in the coastal marine environment.

Dr Urlich advises that the transcription errors mean that the Expert Panel may need to reassess all significant sites to the criteria in Appendix 3 as notified if the coastal and marine criteria are not revised and reformatted into a separate appendix. He suggests this would avoid a costly and inefficient outcome.

He notes the Expert Panel role provided to Council for the coastal marine environment. This ensures a robust and transparent process for assessment of candidate sites for significance. He is unable to support changes to the criteria without the Expert Panel having the opportunity to scrutinise the suggested changes.

Accordingly, he recommends Appendix 3 be split into two: Appendix3a to cover ecological significance criteria for terrestrial, freshwater and wetland environments; and Appendix 3b to cover coastal marine ecological significance criteria.

In the following pages, Dr Urlich has set out two options: **Option A** which continues to bundle all the criteria for all environments together; and **Option B** which separates out the terrestrial, wetland and freshwater environments from coastal and marine. This is Dr Urlich's preferred option.

Option A

Suggested changes shaded blue are the views of Peter Hamill. Those shaded yellow are Dr Steve Urlich's. Note Mr Hamill hasn't suggested any wording for the Cultural and Kaitiaki Values criterion that he supports including in Policy 8.1.1.

Appendix 3 Ecological Significance Criteria for terrestrial, freshwater, wetland, and coastal ~~l~~ marine environments

The following provides explanations or guidelines for the application of ecological significance criteria in the assessment of sites. The coastal marine criteria have been developed and revised by an Expert Panel funded by the Marlborough District Council and the Department of Conservation.

Note: The ecological criteria are intended to be applied by suitably qualified and experienced ecologists in their field of expertise.

An Ecological District is defined as a local part of New Zealand where the topographical, geological, climatic, soils and biological features produce a characteristic landscape and range of biological communities (Identified in Map xx)

Rankings within each criterion are: **H** = High (which can be thought of as outstanding).; **M** = Medium (which is highly significant) and; **L** = Low (which is more representative or typical of ecosystems that pre-dated human disturbance). ~~They~~ Criterion scores collectively contribute to an overall ranking~~, indicating~~ and indicate the reasons for a site's ~~the degree of~~ significance. For a site to be considered significant, one of the first four criteria (representativeness, rarity, diversity and pattern (diversity only for the coastal marine environment) or distinctiveness) must rank **M** or **H**.

Representativeness

~~1.~~ Indigenous vegetation or habitat of indigenous fauna that is representative, typical or characteristic of the natural diversity of the relevant ecological district. This can include degraded examples where they are some of the best remaining examples of their type, or represent all that remains of indigenous biodiversity in some areas.

~~2.~~ Indigenous vegetation or habitat of indigenous fauna that is a relatively large example of its type within the relevant ecological district.

~~3.~~ Additionally for the coastal marine area the site is significant if it contains biological features (habitat, species, community) that represent a good example within the biogeographic area.

H: The site contains one of the best examples of the characteristic ecosystem types in the region or ecological district; and in the coastal marine environment the site contains the best example of its type known from the ~~or~~ biogeographic area ~~for sites within the coastal marine area~~.

M: The site contains one of the better examples, but not the best, of the characteristic ecosystem types in the region or ecological district; and in the coastal marine environment the site contains one of the better examples, but not the best, of its type known from the ~~or~~ biogeographic area ~~for sites within the coastal marine area~~.

L: The site contains an example, but not one of the better or best, of the characteristic ecosystem types in the region or ecological district; and in the coastal marine environment the site contains an example, but not one of the better of best, of its type known from the ~~or~~ biogeographic area ~~for sites within the coastal marine area.~~

Rarity

~~4.~~ Indigenous vegetation or habitat of indigenous fauna that has been reduced to less than 20% of its former extent in Marlborough, or relevant ~~land environment,~~ ecological district, ~~or biogeographic area,~~ or freshwater environment.

~~5.~~ Indigenous vegetation or habitat of indigenous fauna that supports an indigenous species that is threatened, at risk, or uncommon, nationally or within the relevant ecological district ~~or biogeographic area for sites within the coastal marine area~~.

~~6.~~ The site contains indigenous vegetation or an indigenous species that is endemic to Marlborough or that are at distributional limits within Marlborough (for Terrestrial, Wetland and Freshwater environments).

For the coastal marine environment, the site is significant if it contains flora and fauna listed as nationally threatened, nationally endangered, nationally vulnerable, or in serious decline. The site is also considered significant if it supports flora and fauna that are sparse, locally endemic, or at an extreme in their national distribution. The site is also significant if it supports a habitat or habitats or community assemblages that are rare nationally, regionally or within the biogeographic area.

H: The site contains nationally threatened or rare flora, fauna or communities; or the site contains several examples of regionally or locally threatened or rare flora, fauna or communities. For the coastal marine environment the site contains a nationally important species, habitat or community; or the site contains several species, habitats or communities that are threatened within the biogeographic area.

M: The site contains one or a few regionally or locally (but not nationally) threatened or rare flora, fauna or communities. For the coastal marine environment the site contains one or a few species, habitats or communities that are threatened but not nationally, or contains rare or uncommon species, habitats or communities within the biogeographic area.

L: The site is not known to contain flora, fauna or communities that are threatened or rare in the ecological district or biogeographic area, regionally or nationally.

Diversity and pattern (Diversity only for coastal marine environment)

~~7.~~ Indigenous vegetation or habitat of indigenous fauna that contains a high diversity of indigenous ecosystem or habitat types, indigenous taxa, or has changes in species composition reflecting the existence of diverse natural features or ecological gradients. The site is an important feeding area for indigenous species in the terrestrial, wetland and freshwater environments.

For the coastal marine environment, the site is significant if it contains a range of species and habitat types notable for their complexity (i.e. diversity of species, habitat, community).

H: The site contains an ~~unusually~~ high diversity of species and ecosystem types.

M: The site contains a moderate diversity of species and ecosystem types.

L: The site contains a relatively low diversity of species and ecosystem types.

Distinctiveness

~~8.~~ Indigenous vegetation or an association of indigenous species that is distinctive, of restricted occurrence, occurs within an originally rare ecosystem, or has developed as a result of an unusual environmental factor or combinations of factors.

For the coastal marine environment, the site is significant if it contains ecological features (e.g., species, habitats, communities) that are outstanding or unique nationally, in the region, or in the biogeographic area.

H: The site contains any ecological feature that is unique nationally, in the region or in the ecological district or in the biogeographic area; or it contains several such features that are outstanding regionally or in the ecological district or biogeographic area.

M: The site contains any ecological feature~~s~~ that ~~are~~ is notable or unusual but not outstanding or unique nationally, in the region or in the ecological district or in the biogeographic area.

L: The site contains no ecological features that are outstanding or unique nationally, in the region or in the ecological district or in the biogeographic area; i.e. the ecological features are typical rather than distinctive or special.

Size and shape (Size only for the coastal marine environment)

~~9.~~ The site is significant if it is moderate to large in size and is physically ~~compact or~~ cohesive.

For the coastal marine environment, the site is significant if it is moderate to large relative to other habitats or communities of its type in the biogeographic area

H: The site is large in size for the region or ecological district and is ~~compact in shape~~ cohesive. For the coastal marine environment, the site is large in size relative to other habitats or communities of its type in the biogeographic area.

M: The site is moderate in size for the region or ecological district and is ~~compact in shape~~ cohesive; or the site is relatively large but not very ~~compact or~~ cohesive. For the coastal marine environment, the site is moderate in size relative to other habitats or communities of its type in the biogeographic area

L: The site is small in size for the region or ecological district, or the site is moderate in size but not at all ~~compact or~~ cohesive. For the coastal marine environment, the site is small relative to other habitats or communities of its type in the biogeographic area.

Connectivity/ecological context (Connectivity only for coastal marine environment)

~~10. 1~~Vegetation or habitat of indigenous fauna that provides or contributes to an important ecological linkage or network, or provides an important buffering function.

~~11.~~ A wetland which plays an important hydrological, biological or ecological role in the natural functioning of a river or coastal system.

~~12.~~ Indigenous vegetation or habitat of indigenous fauna that provides important habitat (including refuges from predation, or key habitat for feeding, breeding, or resting) for indigenous species, either seasonally or permanently.

For the coastal marine environment, the site is significant if it is adjacent to, or close to other significant marine, freshwater or terrestrial areas or the site is sufficiently close to other sites of its kind to enable biological interchange (e.g. larval transport, settlement of juveniles).

H: The site is close or well connected to a large natural area or several other natural areas. For the coastal marine environment, the site is near or well connected to a large significant site or several other significant sites.

M: The site is in the vicinity of other natural areas but only partially connected to them or at an appreciable distance. For the coastal marine environment, the site is near other significant sites but only partially connected to them or at an appreciable distance.

L: The site is very isolated from other natural areas. For the coastal marine environment, the site is isolated from other significant sites.

Sustainability (Terrestrial, wetland and freshwater environments only)

~~13.~~ The site is significant if it is ecologically resilient, i.e. its natural ecological integrity and processes (functioning) are largely self-sustaining.

H: The site can maintain its ecological integrity and processes with minimal human assistance.

M: The site requires some but not much human assistance to maintain its ecological integrity and processes.

L: The site requires much human assistance to maintain its ecological integrity and processes.

Adjacent catchment modification in respect of significant sites within the coastal marine area

~~14.~~ Catchments that drain large tracts of land can lead to high sediment loading into adjacent marine areas. A site in the coastal marine area is significant if the adjacent catchment is >400 ha and clad in relatively mature native vegetative cover resulting in a long term stable environment with markedly reduced sediment and contaminant run-off compared to developed or modified catchments.

H: The site is dominated by an adjacent land catchment area with stable and relatively mature native vegetation (>400ha) that is legally protected.

M: The site is dominated by an adjacent land catchment area with stable and relatively mature native vegetation (>400ha) with partial or no legal protection.

L: The site is surrounded by an adjacent land catchment area (>400ha) that is farmed, highly modified or has limited relatively mature vegetative cover.

N/A The site is little influence by catchment effects (e.g. offshore site, current swept site).

Cultural and Kaitiaki Values (Terrestrial, wetland and freshwater environments only)

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Option B

Suggested underlined changes in Appendix 3a are Mr Hamill's; ~~strikethroughs~~ are Dr Urlich's (except the numbering in the preamble of each criterion). Note Mr Hamill hasn't suggested any wording for the Cultural Values criterion at this time.

Appendix 3a - Ecological Significance Criteria for terrestrial, freshwater, and wetland ~~and coastal marine~~ environments

The following provides explanations or guidelines for the application of ecological significance criteria in the assessment of sites.

Note: The ecological criteria are intended to be applied by suitably qualified and experienced ecologists in their field of expertise.

An Ecological District is defined as a local part of New Zealand where the topographical, geological, climatic, soils and biological features produce a characteristic landscape and range of biological communities (Identified in Map xx)

Rankings within each criterion are: **H** = High; **M** = Medium; **L** = Low. They collectively contribute to an overall ranking, indicating the degree of significance. For a site to be considered significant, one of the first four criteria (representativeness, rarity, diversity and pattern or distinctiveness) must rank **M** or **H**.

Representativeness

~~1.~~ Indigenous vegetation or habitat of indigenous fauna that is representative, typical or characteristic of the natural diversity of the relevant ecological district. This can include degraded examples where they are some of the best remaining examples of their type, or represent all that remains of indigenous biodiversity in some areas.

~~2.~~ Indigenous vegetation or habitat of indigenous fauna that is a relatively large example of its type within the relevant ecological district.

~~3. Additionally for the coastal marine area the site is significant if it contains biological features (habitat, species, community) that represent a good example within the biogeographic area~~.

H: The site contains one of the best examples of the characteristic ecosystem types in the region or ecological district ~~or biogeographic area for sites within the coastal marine area~~.

M: The site contains one of the better examples, but not the best, of the characteristic ecosystem types in the region or ecological district ~~or biogeographic area for sites within the coastal marine area~~.

L: The site contains an example, but not one of the better or best, of the characteristic ecosystem types in the region or ecological district ~~or biogeographic area for sites within the coastal marine area~~.

Rarity

~~4.~~ Indigenous vegetation or habitat of indigenous fauna that has been reduced to less than 20% of its former extent in Marlborough, or relevant ~~land environment,~~ ecological district, or freshwater environment.

~~5.~~ Indigenous vegetation or habitat of indigenous fauna that supports an indigenous species that is threatened, at risk, or uncommon, nationally or within the relevant ecological district ~~or biogeographic area for sites within the coastal marine area~~.

~~6.~~ The site contains indigenous vegetation or an indigenous species that is endemic to Marlborough or that are at distributional limits within Marlborough.

H: The site contains nationally threatened or rare flora, fauna or communities; or the site contains several examples of regionally or locally threatened or rare flora, fauna or communities.

M: The site contains one or a few regionally or locally (but not nationally) threatened or rare flora, fauna or communities.

L: The site is not known to contain flora, fauna or communities that are threatened or rare in the ecological district ~~or biogeographic area~~, regionally or nationally.

Diversity and pattern

~~7.~~ Indigenous vegetation or habitat of indigenous fauna that contains a high diversity of indigenous ecosystem or habitat types, indigenous taxa, or has changes in species composition reflecting the existence of diverse natural features or ecological gradients. <u>The site is an important feeding area for indigenous species.</u>

H: The site contains an unusually high diversity of species and ecosystem types.

M: The site contains a moderate diversity of species and ecosystem types.

L: The site contains a relatively low diversity of species and ecosystem types.

Distinctiveness

~~8.~~ Indigenous vegetation or an association of indigenous species that is distinctive, of restricted occurrence, occurs within an originally rare ecosystem, or has developed as a result of an unusual environmental factor or combinations of factors.

H: The site contains any ecological feature that is unique nationally, in the region or in the ecological district; or it contains several such features that are outstanding regionally or in the ecological district ~~or biogeographic area~~.

M: The site contains ecological features that are notable or unusual but not outstanding or unique nationally, in the region or in the ecological district or biogeographic area.

L: The site contains no ecological features that are outstanding or unique nationally, in the region or in the ecological district or biogeographic area; i.e. the ecological features are typical rather than distinctive or special.

Size and shape

~~9.~~ The site is significant if it is moderate to large in size and is physically ~~compact or~~ cohesive.

H: The site is large in size for the region or ecological district and is ~~compact in shape~~ <u>cohesive</u>.

M: The site is moderate in size for the region or ecological district and is ~~compact in shape~~ <u>cohesive</u>; or the site is relatively large but not very ~~compact or~~ cohesive.

L: The site is small in size for the region or ecological district, or the site is moderate in size but not at all ~~compact or~~ cohesive.

Connectivity/ecological context

~~10.~~ ~~1~~Vegetation or habitat of indigenous fauna that provides or contributes to an important ecological linkage or network, or provides an important buffering function.

~~11.~~ A wetland which plays an important hydrological, biological or ecological role in the natural functioning of a river ~~or coastal~~ system.

~~12.~~ Indigenous vegetation or habitat of indigenous fauna that provides important habitat (including refuges from predation, or key habitat for feeding, breeding, or resting) for indigenous species, either seasonally or permanently.

H: The site is close or well connected to a large natural area or several other natural areas.

M: The site is in the vicinity of other natural areas but only partially connected to them or at an appreciable distance.

L: The site is very isolated from other natural areas.

Sustainability

~~13.~~ The site is significant if it is ecologically resilient, i.e. its natural ecological integrity and processes (functioning) are largely self-sustaining.

H: The site can maintain its ecological integrity and processes with minimal human assistance.

M: The site requires some but not much human assistance to maintain its ecological integrity and processes.

L: The site requires much human assistance to maintain its ecological integrity and processes.

~~**Adjacent catchment modification in respect of significant sites within the coastal marine area**~~

~~**14.** Catchments that drain large tracts of land can lead to high sediment loading into adjacent marine areas. A site in the coastal marine area is significant if the adjacent catchment is >400 ha and clad in~~ relatively mature native vegetative cover resulting in a long term stable environment with markedly reduced sediment and contaminant run-off compared to developed or modified catchments.

H: The site is dominated by an adjacent land catchment area with stable and relatively mature native vegetation (>400ha) that is legally protected.

M: The site is dominated by an adjacent land catchment area with stable and relatively mature native vegetation (>400ha) with partial or no legal protection.

L: The site is surrounded by an adjacent land catchment area (>400ha) that is farmed, highly modified or has limited relatively mature vegetative cover.

Cultural and Kaitiaki Values

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Suggested underlined and ~~strikethrough~~ changes in Appendix 3b are Dr Urlich's

Appendix 3b - Ecological Significance Criteria for the coastal marine environment

The following provides explanations or guidelines for the application of ecological significance criteria in the assessment of sites. These have been developed and revised by an Expert Panel funded by the Marlborough District Council and the Department of Conservation.

Note: The ecological criteria are intended to be applied by suitably qualified and experienced ecologists in their field of expertise.

Rankings within each criterion are: **H** = High (which can be thought of as outstanding).; **M** = Medium (which is highly significant) and; **L** = Low (which is more representative or typical of ecosystems that pre-dated human disturbance). ~~They~~ Criterion scores collectively contribute to an overall ranking~~, indicating~~ and indicate the reasons for a site's ~~the degree of~~ significance. For a site to be considered significant, one of the first four criteria (representativeness, rarity, diversity ~~and pattern~~ or distinctiveness) must rank **M** or **H**.

Representativeness

~~1. Indigenous vegetation or habitat of indigenous fauna that is representative, typical or characteristic of the natural diversity of the relevant ecological district. This can include degraded examples where they are some of the best remaining examples of their type, or represent all that remains of indigenous biodiversity in some areas.~~

~~2. Indigenous vegetation or habitat of indigenous fauna that is a relatively large example of its type within the relevant ecological district.~~

~~3. Additionally for the coastal marine area~~ ~~t~~ The site is significant if it contains biological features (habitat, species, community) that represent a good example within the biogeographic area.

H: The site contains ~~one of~~ the best example~~s~~ of ~~the characteristic ecosystem~~ its type~~s~~ ~~in the region or ecological district or~~ known from the biogeographic area ~~for sites within the coastal marine area~~.

M: The site contains one of the better examples, but not the best, of ~~the characteristic ecosystem~~ its type~~s~~ ~~in the region or ecological district or~~ known from the biogeographic area ~~for sites within the coastal marine area~~.

L: The site contains an example, but not one of the better or best, of ~~the characteristic ecosystem~~ its type~~s in the region or ecological district or~~ known from the biogeographic area ~~for sites within the coastal marine area~~.

Rarity

~~4. Indigenous vegetation or habitat of indigenous fauna that has been reduced to less than 20% of its former extent in Marlborough, or relevant land environment, ecological district, or biogeographic area, or freshwater environment.~~

~~5. Indigenous vegetation or habitat of indigenous fauna that supports an indigenous species that is threatened, at risk, or uncommon, nationally or within the relevant ecological district or biogeographic area for sites within the coastal marine area.~~

~~6. The site contains indigenous vegetation or an indigenous species that is endemic to Marlborough or that are at distributional limits within Marlborough~~.

The site is significant if it contains flora and fauna listed as nationally threatened, nationally endangered, nationally vulnerable, or in serious decline. The site is also considered significant if it supports flora and fauna that are sparse, locally endemic, or at an extreme in their national distribution. The site is also

significant if it supports a habitat or habitats or community assemblages that are rare nationally, regionally or within the biogeographic area.

H: The site contains a nationally important species, habitat or community ~~threatened or rare flora, fauna or communities~~; or the site contains ~~several examples of regionally or locally threatened or rare flora, fauna~~ several species, habitats or communities that are threatened within the biogeographic area.

M: The site contains one or a few ~~regionally or locally (but not nationally) threatened or rare flora, fauna~~ species, habitats or communities that are threatened but not nationally, or contains rare or uncommon species, habitats or communities within the biogeographic area.

L: The site is not known to contain flora, fauna or communities that are threatened or rare in the ~~ecological district or~~ biogeographic area, regionally or nationally.

Diversity ~~and pattern~~

~~7. Indigenous vegetation or habitat of indigenous fauna that contains a high diversity of indigenous ecosystem or habitat types, indigenous taxa, or has changes in species composition reflecting the existence of diverse natural features or ecological gradients.~~ The site is significant if it contains a range of species and habitat types notable for their complexity (i.e. diversity of species, habitat, community).

H: The site contains an ~~unusually~~ high diversity of species and ecosystem types.

M: The site contains a moderate diversity of species and ecosystem types.

L: The site contains a relatively low diversity of species and ecosystem types.

Distinctiveness

~~8. Indigenous vegetation or an association of indigenous species that is distinctive, of restricted occurrence, occurs within an originally rare ecosystem, or has developed as a result of an unusual environmental factor or combinations of factors.~~ The site is significant if it contains ecological features (e.g., species, habitats, communities) that are outstanding or unique nationally, in the region, or in the biogeographic area.

H: The site contains any ecological feature that is unique nationally, in the region ~~or in the ecological district~~ or in the biogeographic area; or it contains several ~~such~~ features that are outstanding regionally or in the ~~ecological district or~~ biogeographic area.

M: The site contains any ecological feature~~s~~ that ~~are~~ is notable or unusual but not outstanding or unique nationally, in the region ~~or in the ecological district~~ or in the biogeographic area.

L: The site contains no known ecological features that are outstanding or unique nationally, in the region ~~or in the ecological district~~ or in the biogeographic area~~;~~ (i.e. ~~the~~ ecological features that are typical rather than distinctive) ~~or special~~.

Size ~~and shape~~

~~9.~~ The site is significant if it is moderate to large relative to other habitats or communities of its type in the biogeographic area ~~in size and is physically compact or cohesive~~.

H: The site is large in size relative to other habitats or communities of its type in the biogeographic area ~~for the region or ecological district and is~~ ~~compact in shape~~.

M: The site is moderate in size relative to other habitats or communities of its type in the biogeographic area ~~for the region or ecological district and is compact in shape; or the site is relatively large but not very compact or cohesive~~.

L: The site is small relative to other habitats or communities of its type in the biogeographic area ~~in size for the region or ecological district, or the site is moderate in size but not at all cohesive~~.

Connectivity~~/ecological context~~

~~10. 1Vegetation or habitat of indigenous fauna that provides or contributes to an important ecological linkage or network, or provides an important buffering function.~~

~~11. A wetland which plays an important hydrological, biological or ecological role in the natural functioning of a river or coastal system.~~

~~12. Indigenous vegetation or habitat of indigenous fauna that provides important habitat (including refuges from predation, or key habitat for feeding, breeding, or resting) for indigenous species, either seasonally or permanently.~~

The site is significant if it is adjacent to, or close to other significant marine, freshwater or terrestrial areas or the site is sufficiently close to other sites of its kind to enable biological interchange (e.g. larval transport, settlement of juveniles).

H: The site is ~~close~~ near or well connected to a large ~~natural area~~ significant site or several other ~~natural areas~~ significant sites.

M: The site is ~~in the vicinity of~~ near other ~~natural areas~~ significant sites but only partially connected to them or at an appreciable distance.

L: The site is ~~very~~ isolated from other significant sites ~~natural areas~~.

~~Sustainability~~

~~13. The site is significant if it is ecologically resilient, i.e. its natural ecological integrity and processes (functioning) are largely self-sustaining.~~

~~**H:** The site can maintain its ecological integrity and processes with minimal human assistance.~~

~~**M**: The site requires some but not much human assistance to maintain its ecological integrity and processes.~~

~~**L:** The site requires much human assistance to maintain its ecological integrity and processes.~~

Adjacent catchment modification ~~in respect of significant sites within the coastal marine area~~

~~14.~~ Catchments that drain large tracts of land can lead to high sediment loading into adjacent marine areas. A site in the coastal marine area is significant if the adjacent catchment is >400 ha and clad in relatively mature native vegetative cover resulting in a long term stable environment with markedly reduced sediment and contaminant run-off compared to developed or modified catchments.

H: The site is dominated by an adjacent land catchment area with stable and relatively mature native vegetation (>400ha) that is legally protected.

M: The site is dominated by an adjacent land catchment area with stable and relatively mature native vegetation (>400ha) with partial or no legal protection.

L: The site is surrounded by an adjacent land catchment area (>400ha) that is farmed, highly modified or has limited relatively mature vegetative cover.

N/A: The site is little influence by catchment effects (e.g. offshore site, current swept site).