

## **E36. Natural hazards and flooding**

### **E36.1. Background**

Auckland is affected by natural hazards including:

- those that occur frequently such as flooding, coastal erosion (including the effects of sea level rise), freshwater erosion and land instability; and
- those that occur less frequently such as wildfires, volcanic activity, tsunamis, earthquakes and meteorological hazards such as cyclones, tornados and drought.

All of these hazards can affect people, property and the wider environment.

The risk that these natural hazards pose is made up of factors including:

- the nature, magnitude and extent of the hazard;
- the anticipated frequency or probability of the hazard event occurring; and
- the exposure and vulnerability of the environment to the hazard.

Decisions on how to avoid or mitigate natural hazards can affect not only the subject site but also neighbouring properties and the wider environment, and may unintentionally exacerbate the risk. Risk assessment is a key means to identify and understand risks, and to determine which aspects of risk can be managed through appropriate land use planning tools and development methods. Both current and future risks (including the effects of climate change such as sea level rise) need to be considered.

A flexible risk-based approach has been taken to address the risks associated with natural hazards. A risk management approach applies to existing development and infrastructure while a risk reduction (including avoidance where appropriate) approach applies to development of greenfield land.

The Plan has defined criteria to identify land which may be subject to natural hazards. The Plan requires the use of the best information available to identify greenfield land or land which is proposed for redevelopment which may be subject to natural hazards. This includes hazard maps, databases and reports held by the Council. The level of detail and the quality of this information is variable. This affects the Council's ability to identify and map land that may be subject to natural hazards. At this time, the provisions in the Plan are focussed on the following hazards:

- coastal erosion;
- coastal storm inundation;
- flooding;
- land instability; and
- wildfires.

The Council is working to gather, assess and refine information so that a more comprehensive range of natural hazards can be assessed and, as appropriate, subdivision, use and development can be better managed through provisions in the Plan.

Some risks from events with low probability but high potential impact (e.g. volcanic activity, tsunamis and earthquakes) cannot be addressed through land use planning and may be better addressed through measures put in place by emergency management groups such as Civil Defence. These include education, warning systems and emergency preparedness.

### **E36.2. Objectives**

- (1) Subdivision, use and development outside urban areas does not occur unless the risk of adverse effects to people, property, infrastructure and the environment from natural hazards has been assessed and significant adverse effects are avoided, taking into account the likely long-term effects of climate change.
- (2) Subdivision, use and development, including redevelopment in urban areas, only occurs where the risks of adverse effects from natural hazards to people, buildings, infrastructure and the environment are not increased overall and where practicable are reduced, taking into account the likely long term effects of climate change.
- (3) Subdivision, use and development on rural land for rural uses is managed to ensure that the risks of adverse effects from natural hazards are not increased and where practicable are reduced.
- (4) Where infrastructure has a functional or operational need to locate in a natural hazard area, the risk of adverse effects to other people, property, and the environment shall be assessed and significant adverse effects are sought first to be avoided or, if avoidance is not able to be totally achieved, the residual effects are otherwise mitigated to the extent practicable.
- (5) Subdivision, use and development including redevelopment, is managed to safely maintain the conveyance function of floodplains and overland flow paths.
- (6) Where appropriate, natural features and buffers are used in preference to hard protection structures to manage natural hazards.

### **E36.3. Policies**

#### *General*

- (1) Identify land that may be subject to natural hazards, taking into account the likely effects of climate change, including all of the following:
  - (a) coastal hazards (including coastal erosion and coastal storm inundation, excluding tsunami);
  - (b) flood hazards;
  - (c) land instability; and

- (d) wildfires.
- (2) Investigate other natural hazards to assess whether risks to people, property or the environment should be managed through the Plan or otherwise.
- (3) Consider all of the following, as part of a risk assessment of proposals to subdivide, use or develop land that is subject to natural hazards:
  - (a) the type, frequency and scale of the natural hazard and whether adverse effects on the development will be temporary or permanent;
  - (b) the type of activity being undertaken and its vulnerability to natural hazard events;
  - (c) the consequences of a natural hazard event in relation to the proposed activity;
  - (d) the potential effects on public safety and other property;
  - (e) any exacerbation of an existing natural hazard risk or the emergence of natural hazard risks that previously were not present at the location;
  - (f) whether any building, structure or activity located on land subject to natural hazards near the coast can be relocated in the event of severe coastal erosion, inundation or shoreline retreat;
  - (g) the ability to use non-structural solutions, such as planting or the retention or enhancement of natural landform buffers to avoid, remedy or mitigate hazards, rather than hard protection structures;
  - (h) the design and construction of buildings and structures to mitigate the effects of natural hazards;
  - (i) the effect of structures used to mitigate hazards on landscape values and public access;
  - (j) site layout and management to avoid or mitigate the adverse effects of natural hazards, including access and exit during a natural hazard event; and
  - (k) the duration of consent and how this may limit the exposure for more or less vulnerable activities to the effects of natural hazards including the likely effects of climate change.
- (4) Control subdivision, use and development of land that is subject to natural hazards so that the proposed activity does not increase, and where practicable reduces, risk associated with all of the following adverse effects:
  - (a) accelerating or exacerbating the natural hazard and/or its potential impacts;
  - (b) exposing vulnerable activities to the adverse effects of natural hazards;

- (c) creating a risk to human life; and
- (d) increasing the natural hazard risk to neighbouring properties or infrastructure.

*Coastal hazards (including coastal erosion and coastal storm inundation)*

- (5) Ensure that subdivision, use and development on rural land for rural uses and in existing urban areas subject to coastal hazards avoids or mitigates adverse effects resulting from coastal storm inundation, coastal erosion and sea level rise of 1m through location, design and management.
- (6) Avoid subdivision, use and development in greenfield areas which would result in an increased risk of adverse effects from coastal hazards, taking account of a longer term rise in sea level.
- (7) Ensure that buildings in areas subject to coastal hazards are located and designed to minimise the need for hard protection structures.
- (8) Ensure that when locating any new infrastructure in areas potentially subject to coastal hazards consider, where appropriate, an adaptive management response taking account of a longer term rise in sea level.
- (9) Require habitable areas of new buildings and substantial additions, alterations, modifications or extensions to existing buildings located in coastal storm inundation areas to be above the 1 per cent annual exceedance probability (AEP) coastal storm inundation event including an additional sea level rise of 1m.

*Defences against coastal hazards*

- (10) Avoid the modification, alteration or removal of sand dunes and vegetation on sand dunes which would compromise their function as natural defences for an area subject to coastal hazards and ensure adverse effects on wider coastal processes are avoided or mitigated.
- (11) Consider hard protection works to protect development only where existing natural features will not provide protection from the natural hazard and enhancement of natural defences is not practicable.
- (12) Require hard protection works involving the placement of any material, objects or structures in or on any area located above mean high water springs to be designed and located to avoid, remedy or mitigate adverse environmental effects including all of the following:
  - (a) location of structures as far landward as possible to retain as much natural beach buffer as possible;
  - (b) any likely increase in the coastal hazard, including increased rates of erosion, accretion, subsidence or slippage;
  - (c) undermining of the foundations at the base of the structure;

- (d) erosion in front of, behind or around the ends or down-drift of the structure;
- (e) settlement or loss of foundation material;
- (f) movement or dislodgement of individual structural elements;
- (g) offshore or long-shore loss of sediment from the immediate vicinity;
- (h) long-term adverse visual effects on coastal landscape and amenity values;  
and
- (i) effects on public access.

*Floodplains in urban areas*

- (13) In existing urban areas require new buildings designed to accommodate more vulnerable activities to be located:
  - (a) outside of the 1 per cent annual exceedance probability (AEP) floodplain; or
  - (b) within or above the 1 per cent annual exceedance probability (AEP) floodplain where safe evacuation routes or refuges are provided.
- (14) Require redevelopment of sites where existing more vulnerable activities are located within the 1 per cent annual exceedance probability (AEP) floodplain to address all of the following:
  - (a) minimise risks from flood hazards within the site;
  - (b) minimise the risks from flood hazards to people and property upstream and downstream of the site;
  - (c) remedy or mitigate where practicable or contribute to remedying or mitigating flood hazards in the 1 per cent annual exceedance probability floodplain;
  - (d) location of habitable rooms above flood levels; and
  - (e) provide safe evacuation routes or refuges from buildings and sites.
- (15) Within existing urban areas, enable buildings containing less vulnerable activities to locate in the 1 per cent annual exceedance probability (AEP) floodplains where that activity avoids, remedies or mitigates effects from flood hazards on other properties.

*Floodplains in rural areas*

- (16) In rural areas, avoid where practicable locating buildings accommodating more vulnerable activities in the 1 per cent annual exceedance probability (AEP) floodplain and manage other buildings and structures so that flood hazards are not exacerbated.

*Floodplains in greenfield areas*

- (17) On greenfield land outside of existing urban areas, avoid locating buildings in the 1 per cent annual exceedance probability (AEP) floodplain.
- (18) Enable flood tolerant activities to locate in the 1 per cent annual exceedance probability (AEP) floodplain where these activities do not involve buildings or structures that exacerbate the flood hazard to other properties upstream or downstream of the site.
- (19) Require fences, storage of materials and goods and car parking in the 1 per cent annual exceedance probability (AEP) floodplains to not exacerbate the flood hazard to other properties upstream or downstream of the site.
- (20) Require earthworks within the 1 per cent annual exceedance probability (AEP) floodplain to do all of the following:
  - (a) remedy or mitigate where practicable or contribute to remedying or mitigating flood hazards in the floodplain;
  - (b) not exacerbate flooding experienced by other sites upstream or downstream of the works; and
  - (c) not permanently reduce the conveyance function of the floodplain.

*Floodplains - general*

- (21) Ensure all development in the 1 per cent annual exceedance probability (AEP) floodplain does not increase adverse effects from flood hazards or increased flood depths and velocities, to other properties upstream or downstream of the site.
- (22) Required the storage and containment of hazardous substances in floodplains so that the integrity of the storage method will not be compromised in a flood event.
- (23) Provide for flood mitigation measures which reduce flood-related effects and provide for the reconstruction of culverts and bridges where those measures do not create or exacerbate flooding upstream or downstream or otherwise increase flood hazards.
- (24) Enable the planting and retention of vegetation cover to enhance amenity values, green linkages and ecological values in floodplains as long as it does not create or exacerbate flooding upstream or downstream or otherwise increase flood hazards.
- (25) When considering mitigation of flood hazards where buildings are located in floodplains, promote measures such as use of water resistant materials and flood-proof utility connections to increase resilience to flood damage.
- (26) Construct accessways, including private roads, so that flood hazard risks are not increased.

- (27) Enable the construction and maintenance of flood mitigation works to reduce flood risks to people, property, infrastructure and the environment.
- (28) Take into account any authorised earthworks or drainage infrastructure which avoids, remedies or mitigates flood hazards when assessing proposed subdivision, use or development.

*Overland flow paths*

- (29) Maintain the function of overland flow paths to convey stormwater runoff safely from a site to the receiving environment.
- (30) Require changes to overland flow paths to retain their capacity to pass stormwater flows safely without causing damage to property or the environment.

*Land instability*

- (31) Identify land that may be subject to land instability taking into account all of the following features:
  - (a) proximity to cliffs;
  - (b) steepness of land;
  - (c) geological characteristics; and
  - (d) uncontrolled fill.
- (32) Require risk assessment prior to subdivision, use and development of land subject to instability.
- (33) Locate and design subdivision, use and development first to avoid potential adverse effects arising from risks due to land instability hazards, and, if avoidance is not practicably able to be totally achieved, otherwise to remedy or mitigate residual risks and effects to people, property and the environment resulting from those hazards.

*Wildfire hazards*

- (34) Ensure that plan provisions for subdivision and vegetation management appropriately take into account wildfire hazards.

Note 1

Areas of high wildfire risk may be determined applying the National Rural Fire Authority New Zealand Wildfire Threat Analysis.

*Infrastructure in areas subject to natural hazards*

- (35) Allow for the operation, maintenance, upgrading and construction of infrastructure, in areas subject to natural hazards when:

- (a) infrastructure is functionally or operationally required to locate in hazard areas or it is not reasonably practicable that it be located elsewhere;
- (b) in coastal hazard areas the infrastructure does not significantly increase risk to people, property and the environment, and where risks cannot be avoided, adverse effects are mitigated; and
- (c) in all flood hazard areas risks to people, property and the environment are mitigated to the extent practicable.

**E36.4. Activity table**

Table E36.4.1 Activity table specifies the activity status of land use and development activities pursuant to section 9(3) of the Resource Management Act 1991.

Note 1

Where activities are located in the coastal marine area then see Chapter F Coastal.

**Table E36.4.1 Activity table**

<b>Activity</b>		<b>Activity status</b>
<b>Activities on land which may be subject to coastal erosion</b>		
(A1)	External alterations to buildings which do not increase the gross floor area of the building, on land which may be subject to coastal erosion	P
(A2)	External alterations to buildings which increase the gross floor area of the building on land which may be subject to coastal erosion	RD
(A3)	New structures and buildings (excluding dwellings) ancillary to farming activities with a gross floor area of up to 100m <sup>2</sup> on land which may be subject to coastal erosion Note 1 Structures ancillary to farming activities includes artificial crop protection structures and crop support structures.	P
(A4)	All other buildings and structures on land which may be subject to coastal erosion	RD
(A5)	On-site septic tanks, wastewater treatment and disposal systems, effluent disposal fields, underground storage tanks, water tanks or stormwater pipes or soakage fields on land which may be subject to coastal erosion	RD
<b>Activities on land which may be subject to coastal storm inundation 1 per cent annual exceedance probability (AEP)</b>		
(A6)	External alterations to buildings which do not increase the gross floor area on land which may be subject to coastal storm inundation 1 per cent annual exceedance probability (AEP)	P
(A7)	External alterations to buildings which increase the gross floor area of the building on land which may be subject to coastal storm inundation 1 per cent annual exceedance probability (AEP)	RD
(A8)	New structures and buildings (excluding dwellings) ancillary to farming activities with a gross floor area of up to 100m <sup>2</sup> on land which may be subject to coastal storm inundation 1 per cent annual exceedance probability (AEP) Note 1	P



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	Structures ancillary to farming activities includes artificial crop protection structures and crop support structures.	
(A9)	All other buildings and structures on land which may be subject to coastal storm inundation 1 per cent annual exceedance probability (AEP)	RD
(A10)	On-site septic tanks, wastewater treatment and disposal systems, effluent disposal fields, underground storage tanks, water tanks or stormwater pipes or soakage fields on land which may be subject to coastal storm inundation 1 per cent annual exceedance probability (AEP)	RD
<b>Activities in areas subject to coastal storm inundation 1 per cent annual exceedance probability (AEP) plus 1 metre sea level rise (CSI1)</b>		
(A11)	Additions of habitable rooms up to 25m <sup>2</sup> to existing buildings in areas subject to coastal storm inundation 1 per cent annual exceedance probability (AEP) plus 1m sea level rise (CSI1)	P
(A12)	Habitable rooms in new buildings and additions of habitable rooms (greater than 25m <sup>2</sup> ) to existing buildings in areas subject to coastal storm inundation 1 per cent annual exceedance probability (AEP) plus 1m sea level rise (CSI1) that comply with standard E36.6.1.1	P
(A13)	Habitable rooms in new buildings and additions of habitable rooms (greater than 25m <sup>2</sup> ) to existing buildings in areas subject to coastal storm inundation 1 per cent annual exceedance probability (AEP) plus 1m sea level rise (CSI1) that do not comply with Standard E36.6.1.1	D
<b>Defences against coastal hazards</b>		
(A14)	Beach nourishment	P
(A15)	Dune stabilisation	P
(A16)	Beach nourishment which does not comply with Standard E36.6.1.2	D
(A17)	Dune stabilisation which does not comply with Standard E36.6.1.3	D
(A18)	Modification, alteration or removal of sand dunes and vegetation on sand dunes within 40m of mean high water springs not otherwise provided for	D
(A19)	Repair, maintenance or minor upgrade (which does not increase the area occupied by the structure) of lawfully established hard protection structures landward of mean high water springs that may serve as a defence against coastal erosion or inundation	P
(A20)	Extension (including upgrading that increases the area occupied by the structure) or alteration of existing lawfully established hard protection structures	RD
(A21)	New hard protection structures located landward of the coastal protection yard that may serve as a defence against coastal erosion or inundation	RD
(A22)	Hard protection structures not otherwise provided for	D
<b>Activities in the 1 per cent annual exceedance probability (AEP) floodplain</b>		
(A23)	Fences and walls in the 1 per cent annual exceedance probability (AEP) floodplain	P
(A24)	Surface parking and above ground parking areas in the 1 per cent annual exceedance probability (AEP) floodplain, that comply with Standard E36.6.1.7	P
(A25)	Surface parking areas and above ground parking areas in the 1 per cent annual exceedance probability (AEP) floodplain, that do not comply with Standard E36.6.1.7	C

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(A26)	Below ground parking or parking areas in the 1 per cent annual exceedance probability (AEP) floodplain	RD
(A27)	Maintenance, repair and construction of private roads and accessways in the 1 per cent annual exceedance probability (AEP) floodplain	P
(A28)	Storage of goods and materials in the 1 per cent annual exceedance probability (AEP) floodplain	P
(A29)	Storage of hazardous substances in the 1 per cent annual exceedance probability (AEP) floodplain	RD
(A30)	On-site septic tanks, on-site wastewater treatment and disposal systems and effluent disposal fields in the 1 per cent annual exceedance probability (AEP) floodplain	RD
(A31)	Operation, maintenance, renewal, repair and minor infrastructure upgrading of land drainage works, stormwater management devices and flood mitigation works in the 1 per cent annual exceedance probability (AEP) floodplain	P
(A32)	Construction of stormwater management devices or flood mitigation works that are to be vested in the Council or which are identified in a precinct plan incorporated into the Plan or an approved network discharge consent in the 1 per cent annual exceedance probability (AEP) floodplain	P
(A33)	Construction of other land drainage works, stormwater management devices or flood mitigation works in the 1 per cent annual exceedance probability (AEP) floodplain	RD
(A34)	New structures and buildings (and external alterations to existing buildings) with a gross floor area up to 10m <sup>2</sup> within the 1 per cent annual exceedance probability (AEP) floodplain that comply with standard E36.6.1.9	P
(A35)	New structures and buildings designed to accommodate flood tolerant activities up to 100m <sup>2</sup> gross floor area within the 1 per cent annual exceedance probability (AEP) floodplain	P
(A36)	New structures and buildings (and external alterations to existing buildings) with a gross floor area up to 10m <sup>2</sup> within the 1 per cent annual exceedance probability (AEP) floodplain that do not comply with standard E36.6.1.9	RD
(A37)	All other new structures and buildings (and external alterations to existing buildings) within the 1 per cent annual exceedance probability (AEP) floodplain	RD
(A38)	Use of new buildings to accommodate more vulnerable activities, and changes of use to accommodate more vulnerable activities within existing buildings located within the 1 per cent annual exceedance probability (AEP) floodplain	RD
<b>Activities in overland flow paths</b>		
(A39)	Fences and walls located within or over an overland flow path that do not obstruct the overland flow path	P
(A40)	Flood mitigation works within an overland flow path required to reduce the risk to existing buildings from flooding hazards	P
(A41)	Diverting the entry or exit point, piping or reducing the capacity of any part of an overland flow path	RD
(A42)	Any buildings or other structures, including retaining walls (but excluding permitted fences and walls) located within or over an overland flow path	RD

<b>Activities on land which may be subject to land instability</b>		
(A43)	Buildings and structures on land which may be subject to land instability that comply with Standard E36.6.1.11	P
(A44)	On-site septic tanks, onsite wastewater treatment and disposal systems, effluent disposal fields, underground storage tanks, water tanks or stormwater soakage fields and access ways on land which may be subject to land instability that comply with Standard E36.6.1.12	P
(A45)	On-site septic tanks, wastewater treatment and disposal systems, effluent disposal fields, underground storage tanks, water tanks or stormwater soakage fields, on land which may be subject to land instability that do not comply with Standard E36.6.1.12	RD
(A46)	Storage of hazardous substances on land which may be subject to land instability	RD
(A47)	External alteration to any building, on land which may be subject to land instability which does not increase the gross floor area	P
(A48)	New structures and buildings (excluding dwellings) ancillary to farming activities with a gross floor area up to 100m <sup>2</sup> on land which may be subject to land instability Note 1 Structures ancillary to farming activities includes artificial crop protection structures and crop support structures	P
(A49)	Alterations to existing structures and buildings (excluding dwellings) ancillary to farming activities which do not increase the gross floor area, on land which may be subject to land instability Note 1 Structures ancillary to farming activities includes artificial crop protection structures and crop support structures	P
(A50)	External additions to buildings and to any structures excluding decks under 1.2m high and 20m <sup>2</sup> gross floor area on land which may be subject to land instability	RD
(A51)	All other buildings and structures, on land which may be subject to land instability not otherwise provided for	RD
<b>Infrastructure:</b>		
<ul style="list-style-type: none"> <li>• on land which may be subject to coastal erosion;</li> <li>• on land which may be subject to coastal storm inundation 1 per cent annual exceedance probability (AEP);</li> <li>• in areas subject to coastal storm inundation 1 per cent annual exceedance probability (AEP) plus 1m sea level rise (CSI);</li> <li>• in the 1 per cent annual exceedance probability (AEP) floodplain;</li> <li>• in overland flow paths</li> <li>• infrastructure on land which may be subject to instability</li> </ul>		
(A52)	Operation, maintenance, renewal, repair and minor infrastructure upgrading, of infrastructure in areas listed in the heading above that complies with Standard E36.6.1.13	P
(A53)	Construction, operation, maintenance, renewal and repair of road network activities within the legal road or road formation width in areas listed in the heading above	P
(A54)	Infrastructure within roads or the Strategic Transport Corridor Zone in areas listed in the heading above	P
(A55)	Operation, maintenance, renewal, repair and minor infrastructure upgrading of infrastructure in areas listed in the heading the above that	RD

	do not comply with Standard E36.6.1.13	
(A56)	All other infrastructure in areas listed in the heading above not otherwise provided for	RD

### E36.5. Notification

- (1) An application for resource consent for a controlled activity listed in Table E36.4.1 Activity table will be considered without public or limited notification or the need to obtain written approval from affected parties unless the Council decides that special circumstances exist under section 95A(4) of the Resource Management Act 1991.
- (2) Any application for resource consent for an activity listed in Table E36.4.1 Activity table and which is not listed in E36.5(1) will be subject to the normal tests for notification under the relevant sections of the Resource Management Act 1991.
- (3) When deciding who is an affected person in relation to any activity for the purposes of section 95E of the Resource Management Act 1991 the Council will give specific consideration to those persons listed in Rule C1.13(4).

### E36.6. Standards

#### E36.6.1. Permitted activity standards

Activities listed as a permitted activity in Table E36.4.1 Activity table must comply with the specified permitted activity standards.

*Activities in areas subject to coastal storm inundation 1 per cent annual exceedance probability (AEP) plus 1 metre sea level rise (CS11)*

#### **E36.6.1.1. Habitable rooms in new buildings and additions of habitable rooms (greater than 25m<sup>2</sup>) to existing buildings in areas subject to coastal storm inundation 1 per cent annual exceedance probability (AEP) plus 1m sea level rise (CS11)**

- (1) Finished floor levels of habitable rooms must be above the coastal storm inundation 1 per cent annual exceedance probability (AEP) plus 1 metre sea level rise.

*Defences against coastal hazards*

#### **E36.6.1.2. Beach nourishment**

- (1) Depositing must be for the purpose of:
  - (a) erosion management;
  - (b) beach (including dune system) replenishment or re-contouring;
  - (c) habitat enhancement; or

- (d) depositing of material excavated during stream mouth and stormwater outfall clearance operations.
- (2) Written advice must be given to the council at least 10 working days prior to the work starting.
- (3) Placement of sediment must avoid existing areas of indigenous vegetation and any bird nesting area.
- (4) The deposited material must have similar physical characteristics to the sediment at the location it will be deposited, and must generally be of slightly coarser grain size.
- (5) The deposited sediment must not permanently prevent or hinder public access or prevent or hinder the operation of any existing infrastructure.
- (6) There must be no release of contaminants from equipment being used for the activity.
- (7) All equipment and materials must be removed from the foreshore and seabed on the completion of works or activities.

**E36.6.1.3. Dune stabilisation**

- (1) Dune stabilisation must be for the purpose of:
  - (a) erosion management;
  - (b) beach (including dune system) replenishment or re-contouring;
  - (c) habitat enhancement; or
  - (d) depositing of material excavated during stream mouth and stormwater outfall clearance operations.
- (2) Written advice must be given to the Council at least 10 working days prior to the work starting.
- (3) Placement of sediment must avoid existing areas of indigenous vegetation and any bird nesting area.
- (4) The deposited sediment must not permanently prevent or hinder public access or prevent or hinder the operation of any existing infrastructure.
- (5) There must be no release of contaminants from equipment being used for the activity.
- (6) The reshaped dune toe must not extend seaward of the typical extent of the natural dune toe position, and the seaward slope must lie within the slope range of 1:5 (around 11 degrees) to 1:3 (around 18 degrees).

- (7) Any foreign material; including clay fill or soil material that has been placed on the dune must be removed and lawfully disposed off-site.
- (8) Works must be timed in accordance with favourable weather patterns and, where necessary, carried out in stages to enable planting work to commence immediately to minimise risk of wind erosion.
- (9) Planting of native vegetation must be sourced from the same ecological district and must use plants that are appropriate for the location considering dune form and function.

**E36.6.1.4. The repair, maintenance or minor upgrade (which does not increase the area occupied by the structure) of lawfully established hard protection structures, landward of mean high water springs that may serve as a defence against coastal erosion or inundation**

- (1) The work must maintain the structure or building in a good and safe working condition.
- (2) The work must not use materials which alter the form or external appearance of the structure in more than a minor way.
- (3) The work must not change the area occupied by the structure.

*Activities in the 1 per cent annual exceedance probability (AEP) floodplain*

**E36.6.1.5. Fences and walls in the 1 per cent annual exceedance probability (AEP) floodplain**

- (1) Fences and walls in the 1 per cent annual exceedance probability (AEP) floodplain must be designed to allow for the passage of flood waters where those flood waters exceed 300mm in depth.
- (2) Standard E36.6.1.5(1) above does not apply where the fence and wall design is controlled by a rule or standard elsewhere in the Plan.

Note 1

The following fence designs would comply with Standard E36.6.1.5(1) Fences and walls in the 1 per cent annual exceedance probability (AEP) floodplain:

- post and wire fences and wire mesh fences;
- railing type fences where at least 70 per cent of the surface area of the fence is not solid; or
- solid fences and walls with an opening of sufficient size at flood level that can convey the 1 per cent annual exceedance probability (AEP) flood flow.

**E36.6.1.6. Storage of goods and materials in the 1 per cent annual exceedance probability (AEP) floodplain**

- (1) Goods and materials stored in the 1 per cent annual exceedance probability (AEP) floodplain for longer than 28 consecutive days must:
  - (a) not impede flood flows; and
  - (b) where capable of creating a safety hazard by being shifted by floodwaters, be contained and secured in order to minimise movement in times of floods; and
  - (c) be stored in watertight containers if they are hazardous substances.

**E36.6.1.7. Surface parking areas and above ground parking areas within the 1 per cent annual exceedance probability (AEP) flood plain**

- (1) Surface parking areas and vehicle entry and exit points to above ground parking areas in the 1 per cent annual exceedance probability (AEP) floodplain must be located where the depth of flood waters in a 1 per cent annual exceedance probability (AEP) event does not exceed 200mm above ground level.

**E36.6.1.8. Maintenance, repair and construction of private roads and accessways in the 1 per cent annual exceedance probability (AEP) floodplain**

- (1) Where the road or accessway serves more than two lots, the road or accessway is to be located where the depth of flood waters in a 1 per cent annual exceedance probability (AEP) event does not exceed 200mm above ground level.

**E36.6.1.9. New structures and buildings with a gross floor area of up to 10m<sup>2</sup> within the 1 per cent annual exceedance probability (AEP) floodplain**

- (1) The structure or building is to be located where the depth of flood waters in a 1 per cent annual exceedance probability (AEP) event does not exceed 300mm above ground level.

*Activities in overland flow paths*

**E36.6.1.10. Fences and walls located within or over an overland flow path that do not obstruct the overland flow path**

- (1) Any ponding of floodwater caused by any fence or wall must not extend beyond (upstream of or adjacent to) the site.
- (2) Standard E36.6.1.10(1) above does not apply where the fence and wall design is controlled by a rule or standard elsewhere in the Plan.

Note 1

The following fence designs would comply with Standard E36.6.1.10(1) above:

- (a) post and wire fences and wire mesh fences;
- (b) railing type fences where at least 70 per cent of the surface area of the fence is not solid; or
- (c) solid fences and walls with an opening at ground level sufficient to convey the overland flow.

*Activities on land which may be subject to land instability*

**E36.6.1.11. Buildings and structures on land which may be subject to land instability**

(1) Buildings and structures located on land which may be subject to land instability must be constructed in accordance with:

- (a) a geotechnical completion report or similar professional report, approved by Council; and
- (b) any conditions of resource consent or subdivision consent associated with the site relating to stability or geotechnical matters.

**E36.6.1.12. On-site septic tanks, on-site wastewater treatment and disposal systems, effluent disposal fields, underground storage tanks, water tanks or stormwater soakage fields and accessways on land which may be subject to land instability**

(1) On-site septic tanks, on-site wastewater treatment and disposal systems, effluent disposal fields, underground storage tanks, water tanks or stormwater soakage fields and accessways on land which may be subject to land instability must be constructed in accordance with:

- (a) a geotechnical completion report or similar professional report, approved or endorsed by Council; and
- (b) any conditions of resource consent or subdivision consent associated with the site relating to stability or geotechnical matters.

*Infrastructure:*

- *on land which may be subject to coastal erosion;*
- *on land which may be subject to coastal storm inundation 1 per cent annual exceedance probability (AEP);*
- *in areas subject to coastal storm inundation 1 per cent annual exceedance probability (AEP) plus 1 metre sea level rise (CSI1);*
- *in the 1 per cent annual exceedance probability (AEP) floodplain;*
- *in overland flow paths and*



- *on land which may be subject to instability*

**E36.6.1.13. Operation, maintenance, renewal, repair and minor infrastructure upgrading, of infrastructure in areas listed in the heading above**

(1) Minor infrastructure upgrading of infrastructure must comply with the following (where relevant):

- (a) minor re-alignment, configuration, relocation or replacement of electricity, gas distribution, or telecommunication line, pipe, pole, conductors, cross arms, switches, transformers, cabinets or ancillary structures:
  - (i) that is within 2m of the existing alignment or location; or
  - (ii) that is within 5m of the existing alignment or location when associated with road widening reasons or road safety or electricity clearance reasons.
- (b) alterations and additions to overhead electricity and telecommunication lines on existing poles:
  - (i) do not increase the number of conductors or wires/lines by more than 100 per cent; or
  - (ii) when installing a new low voltage circuit on an existing pole, the total number of new conductors or wires/lines must not exceed 8, consisting specifically of 4 lines for electricity circuit, 1 hot water pilot line, 1 street light line, and 2 for telecommunication purposes. Where the hot water pilot and street light lines are not required, the maximum number of new conductors must not exceed 6;
  - (iii) the provisions in E36.6.1.13(b)(i) and (ii) above exclude service connections and lateral network connections;
  - (iv) include additional cross arms that do not exceed the length of the existing cross arm by more than 100 per cent, up to a maximum of 4m;
  - (v) additional or replacement electricity and telecommunication lines that do not exceed 30mm in diameter;
- (c) the addition or replacement of:
  - (i) earthwires, either overhead or underground, and underground earthgrids, which may contain telecommunication lines, and earthpeaks; or
  - (ii) above-ground insulators on the poles;

- (d) any pole which replaces an existing pole provided that:
  - (i) it must not have a diameter or width that is more than the existing pole's diameter or width at its largest point plus 50 per cent and in the case of double pole 100 per cent, and
  - (ii) it must not have a height greater than 25m;
- (e) modification of an existing pole:
  - (i) only where the mechanical loading requirements make this necessary in order to undertake reconductoring or the reconfiguration of equipment, such as stay wires, anchor blocks, on overhead electricity and telecommunication lines; or
  - (ii) when modifications to structures are required to meet mechanical loading requirements provided that the height and profile of any modified support structures remains the same as existed prior to the improvements;
- (f) the installation of new mid-span electricity poles in existing networks to address clearances in New Zealand Electrical Code of Practice for Electrical Safe Distances NZECP 34:2001;
- (g) an increase in the power carrying or operating capacity, efficiency or security of electricity lines, gas distribution lines and telecommunications lines, where this uses the existing network utility and meets the requirements of E36.6.1.13(c) to (f) above;
- (h) the alteration, replacement or relocation of water, wastewater or stormwater structures (excluding pipes):
  - (i) there must be no more than a 10 per cent increase in the width, length and/or height of the structure;
  - (ii) the structure must be located within the 2m of existing alignment or location;
  - (iii) must not involve a new or relocated outfall structure that discharges to an area outside the influence of the current outfall structure;
- (i) the alterations or replacement of water, wastewater, stormwater, gas pipes provided that:
  - (i) above ground pipes must not exceed 300mm increase in diameter of the pipe;
  - (ii) underground pipes must not exceed a 50 per cent increase in the diameter of the pipe;

- (j) the replacement of any antennae with a new antenna provided that the new antenna does not exceed the maximum dimension of the antenna, or the diameter where it is a dish antenna, by more than 20 per cent, and the overall height of the facility to which the antenna is attached either does not increase or that any height increase is as a result of the antenna size increase only.

### **E36.6.2. Controlled activity standards**

Activities listed as a controlled activity in Table E36.4.1 Activity table must comply with the specified controlled activity standards.

#### **E36.6.2.1. Surface parking areas and above ground parking areas in the 1 per cent annual exceedance probability (AEP) floodplain that do not comply with Standard E36.6.1.7**

- (1) Surface parking areas and above ground parking areas (excluding parking on roads) within the 1 per cent annual exceedance probability (AEP) floodplain:
  - (a) must be located where depth of flood waters in a 1 per cent annual exceedance probability (AEP) event does not exceed 500mm above ground level; and
  - (b) vehicles can be contained within the site during the flood event.

### **E36.7. Assessment – controlled activities**

#### **E36.7.1. Matters of control**

The Council will reserve its control to all the following matters when assessing a controlled activity resource consent application:

- (1) for surface parking areas and above ground parking areas (excluding parking on roads) in the 1 per cent annual exceedance probability (AEP) floodplain:
  - (a) the effects of the location and design of parking;
  - (b) actions necessary to protect people in flood events; and
  - (c) the design of containment structures.

#### **E36.7.2. Assessment criteria**

The Council will consider the relevant assessment criteria for controlled activities from the list below:

- (1) for surface parking areas and above ground parking areas (excluding parking on roads) in the 1 per cent annual exceedance probability (AEP) floodplain:
  - (a) the adequacy of the site design to contain vehicles displaced by flood waters within the site;
  - (b) whether actions are necessary to ensure that people will not be placed in danger during a flood event when parking or retrieving vehicles; and

- (c) the extent to which the containment structures will not result in increased flood hazards upstream or downstream through blockage or displacement of flood waters.

### **E36.8. Assessment – restricted discretionary activities**

#### **E36.8.1. Matters of discretion**

The Council will restrict its discretion to the following matters when assessing a restricted discretionary resource consent application:

##### *Activities on land which may be subject to coastal erosion*

- (1) for external alterations to existing buildings which increase the gross floor area of the building on land which may be subject to coastal erosion; for all other buildings and structures on land which may be subject to coastal erosion; and for on-site septic tanks, wastewater treatment and disposal systems, effluent disposal fields, underground storage tanks, water tanks or stormwater pipes or soakage fields on land which may be subject to coastal erosion:
  - (a) the type of activity being undertaken and its vulnerability to natural hazard events including the consequences of a natural hazard event in relation to more or less vulnerable activities;
  - (b) the likelihood of a natural hazard event occurring and the likely extent of any damage to people, property or the environment taking in to account the likely effects of climate change, including sea level rise;
  - (c) the effects on landscape and other environmental values, associated earthworks and land form modifications;
  - (d) the effects on public access; and
  - (e) the ability to relocate buildings or structures including the proposed duration of occupation of the building or structure within a hazard area, taking into account the long term likely effects of climate change.

##### *Activities on land which may be subject to coastal storm inundation 1 per cent annual exceedance probability (AEP)*

- (2) for external alterations to existing buildings which increase the gross floor area of the building on land which may be subject to coastal storm inundation 1 per cent annual exceedance probability (AEP); for all other buildings and structures on land which may be subject to coastal storm inundation 1 per cent annual exceedance probability (AEP); for on-site septic tanks, wastewater treatment and disposal systems, effluent disposal fields, underground storage tanks, water tanks or stormwater pipes or soakage fields on land which may be subject to coastal storm inundation 1 per cent annual exceedance probability (AEP):

- (a) the type of activity being undertaken and its vulnerability to natural hazard events including the consequences of a natural hazard event in relation to more or less vulnerable activities;
- (b) the likelihood of a natural hazard event occurring and the likely extent of any damage to people, property or the environment taking into account the likely effects of climate change, including sea level rise;
- (c) effects on landscape and other environmental values, associated earthworks and land form modifications;
- (d) effects on public access; and
- (e) the ability to relocate buildings or structures including the proposed duration of occupation of the building or structure within a hazard area, taking into account the long term likely effects of climate change.

*Defences against coastal hazards*

- (3) for the extension (including upgrading that increases the area occupied by the structure) or alteration of existing lawfully established hard protection structures; and for new hard protection structures, located landward of the coastal protection yard that may serve as a defence against coastal erosion or inundation:
  - (a) any relevant management strategy, strategic plan or hazard risk assessment relating to the area where hard protection structures are proposed, including the ability to relocate buildings, structures, infrastructure or land uses which the structure is designed to protect;
  - (b) effects on coastal processes, ecological values, landscape values and visual amenity;
  - (c) effects on public access and safety;
  - (d) effects on existing uses and activities (including other infrastructure);
  - (e) consent duration and monitoring;
  - (f) the operational or functional need for the structure;
  - (g) the design, location and construction including:
    - (i) the ability to locate the structure as far landward as practicable from mean high water springs;
    - (ii) the ability to use, retain or enhance natural defences non-structural solutions in place of hard protection structures;
    - (iii) the ongoing management, maintenance and monitoring of structures;

- (iv) construction or works methods, timing and hours of construction, including any associated earthworks; and
- (v) location, design and materials.

*Activities in the 1 per cent annual exceedance probability (AEP) flood plain*

- (4) for fences and walls in the 1 per cent annual exceedance probability (AEP) floodplain that do not comply with Standard E36.6.1.5:
  - (a) the design of the fence or wall;
  - (b) the effects on flood depth and velocity from the blocking or channelling of water; and
  - (c) the effects of the flood hazard within the site and on other properties upstream or downstream of the site.
- (5) for below ground parking or parking areas in the 1 per cent annual exceedance probability (AEP) floodplain:
  - (a) the effects of the location of the structures and building platforms;
  - (b) the effects of flood hazards on the structural integrity of a building or structure;
  - (c) the effects of storage of outdoor goods and materials;
  - (d) the effects of the location and design of roads, accessways and parking areas;
  - (e) the extent of any associated earthworks;
  - (f) the effects of potential changes in flood depth, velocity and frequency on adjoining sites, including upstream and downstream from buildings and structures;
  - (g) the extent to which methods for long term maintenance of areas affected by flooding, such as easements, are provided;
  - (h) the effects of the use of spaces under buildings; and
  - (i) the effects on the operational or functional needs of network utilities, marine and port activities and electricity generation activities.
- (6) for the storage of hazardous substances in the 1 per cent annual exceedance probability (AEP) floodplain:
  - (a) the location, design and management of facilities where hazardous substances are stored, used or disposed;
  - (b) the potential risk to public health; and
  - (c) the potential contamination of water.

- (7) for on-site septic tanks, on-site wastewater treatment and disposal systems and effluent disposal fields in the 1 per cent annual exceedance probability (AEP) flood plain:
  - (a) the design of the device including flood proofing;
  - (b) the potential risk to public health; and
  - (c) the potential contamination of groundwater.
- (8) for the construction of other land drainage works, stormwater management devices and flood mitigation works in the 1 per cent annual exceedance probability (AEP) floodplain:
  - (a) the effects that the flooding may have on the function of the device including the potential mobilisation of accumulated contaminants.
- (9) for new structures and buildings (and external alterations to existing buildings) with a gross floor area up to 10m<sup>2</sup> within the 1 per cent annual exceedance probability (AEP) floodplain that do not comply with standard E36.6.1.9; and all other new structures and buildings (and external alterations to existing buildings) within the 1 per cent annual exceedance probability (AEP) floodplain:
  - (a) the effects of the location of the structures and building platforms;
  - (b) the effects of flood hazards on the structural integrity of a building or structure;
  - (c) the effects of storage of outdoor goods and materials;
  - (d) the effects of the location and design of roads, accessways and parking areas;
  - (e) the extent of any associated earthworks;
  - (f) the effects of potential changes in flood depth, velocity and frequency on adjoining sites, including upstream and downstream from buildings and structures;
  - (g) the extent to which methods for long term maintenance of areas affected by flooding, such as easements, are provided;
  - (h) the effects of the use of spaces under buildings; and
  - (i) the effects on the operational or functional needs of network utilities, marine and port activities and electricity generation activities.
- (10) for use of new buildings to accommodate more vulnerable activities, and changes of use to accommodate more vulnerable activities within existing buildings located within the 1 per cent annual exceedance probability(AEP) floodplain:

- (a) the type of activity being undertaken and its vulnerability to flood events;
- (b) the likelihood and consequences of a flood event in relation to more vulnerable activities;
- (c) the possible effects on public safety and other property resulting from the proposed development or activity;
- (d) the effects on landscape values, associated earthworks and land form modifications;
- (e) the effects on public access;
- (f) the methods provided to manage activities and uses within the site, including safe egress from buildings and structures or the site and the management of people and property during a flood event;
- (g) any exacerbation of an existing flood hazard or creation of a new flood hazard as a result of the proposed activity or development and possible effects on public safety and other property;
- (h) the proposed use of, necessity for and design of hard engineering solutions to mitigate the hazard;
- (i) the ability to relocate buildings or structures, including the proposed duration of occupation of the buildings or structures, taking into account the long term likely effects of climate change; and
- (j) the ability to design, construct and maintain buildings or structures so that they are resilient to the effects of the hazard.

*Activities in overland flow paths*

- (11) for fences and walls in the 1 per cent annual exceedance probability (AEP) floodplain that do not comply with Standard E36.6.1.10:
  - (a) the design of the fence or wall;
  - (b) the potential impacts on the overland flow path including all of the following:
    - (i) the obstruction of flows;
    - (ii) any change to location and capacity;
    - (iii) any changes in depth and velocity of flow; and
    - (iv) any change to overland flow on the site and on other properties upstream or downstream of the site.
- (12) for diverting the entry or exit point, piping or reducing the capacity in any part of an overland flow path:
  - (a) the potential impacts on the overland flow path including:



- (i) the obstruction of flows; and
  - (ii) any change to location and capacity; and
  - (iii) any changes in depth and velocity of flow; and
  - (iv) any change to overland flow on other properties.
- (b) the provision of alternative overland flow paths;
  - (c) the extent of any associated earthworks; and
  - (d) the extent to which methods for long term maintenance of areas affected by flooding, such as easements, are provided.
- (13) for any buildings or structures including retaining walls (but excluding permitted fences and walls) located within an overland flow path:
- (a) the effects of flooding on the activity proposed, including whether it is a more or less vulnerable activity;
  - (b) the effects on the location of habitable rooms;
  - (c) the extent to which the design of the building provides for safe access and the potential effects of flood hazards on chosen access routes; and
  - (d) the effects on people during a flood event and the ability to avoid, remedy or mitigate these.

*Activities on land which may be subject to land instability*

- (14) for on-site septic tanks, wastewater treatment and disposal systems, effluent disposal fields, underground storage tanks, water tanks or stormwater soakage fields on land which may be subject to land instability that do not comply with permitted activity Standard E36.6.1.12:
- (a) the likely effect of land instability on the design, location and functioning of the device;
  - (b) the potential risk to public health; and
  - (c) the potential for contamination of groundwater.
- (15) for the storage of hazardous substances on land which may be subject to land instability:
- (a) the likely effect of land instability on the design, location and management of facilities where hazardous substances are stored, used or disposed; and
  - (b) the potential risk to public health.
- (16) for external additions to buildings and to any structures excluding decks under 1.2m high and 20m<sup>2</sup> gross floor area on land which may be subject to

instability; and for all other buildings and structures on land which may be subject to land instability not otherwise provided for:

- (a) the type of activity being undertaken and its vulnerability to the potential effects of land instability;
  - (b) the consequences of the potential effects of land instability in relation to more vulnerable activities;
  - (c) the possible effects on public safety and other property resulting from the proposed development or activity;
  - (d) the likelihood of a hazard arising from unstable land event and the likely extent of any damage;
  - (e) the effects on landscape values, associated earthworks and land form modifications;
  - (f) the methods provided to manage activities and uses within the site, including safe egress from buildings and structures and the management of people and property during a hazard event;
  - (g) any exacerbation of an existing land instability hazard or creation of a new land instability hazard as a result of the proposed activity or development and possible effects on public safety and other property;
  - (h) the proposed use of, necessity for and design of hard engineering solutions for land instability hazards;
  - (i) the ability to relocate buildings or structures within a hazard area, including the proposed duration of occupation of the structures or building; and
  - (j) the ability to design, construct and maintain buildings or structures so that they are resilient to land instability hazards.
- (17) for all other infrastructure on land which may be subject to land instability not otherwise provided for:
- (a) the functional and/or operational need to locate within the hazard area;
  - (b) the risk of adverse effects to other people, property and the environment including all of the following:
    - (i) risk to public health and safety;
    - (ii) impacts on landscape values and public access associated with the proposed activity including a need for hard protection structures to be required to protect the utility from land instability hazards;
    - (iii) the management or regulation of other people and property required to mitigate land instability hazard risks resulting from the location of the network utility or infrastructure;

- (iv) the storage or use of hazardous substances in relation to the activity;
- (v) any exacerbation of an existing land instability hazard or creation of a new land instability hazard as a result of the structure;
- (vi) the use of non-structural solutions instead of hard engineering solutions; and
- (vii) the ability to relocate or remove structures.

*Infrastructure:*

- *on land which may be subject to coastal erosion;*
- *on land which may be subject to coastal storm inundation 1 per cent annual exceedance probability (AEP);*
- *in areas subject to coastal storm inundation 1 per cent annual exceedance probability (AEP) plus 1 metre sea level rise (CSI1);*
- *in the 1 per cent annual exceedance probability (AEP) floodplain;*
- *in overland flow paths and*
- *on land which may be subject to instability*

(18) Operation, maintenance, renewal, repair and minor infrastructure upgrading, of infrastructure in areas listed in the heading above that do not comply with Standard E36.6.1.13:

- (a) the functional and/or operational need to locate within the hazard area;
- (b) the risk of adverse effects to other people, property and the environment including all of the following:
  - (i) risk to public health and safety;
  - (ii) impacts on landscape values and public access associated with the proposed activity including a need for hard protection structures to be required to protect the utility from the natural hazard;
  - (iii) the management or regulation of other people and property required to mitigate natural hazard risks resulting from the location of the infrastructure;
  - (iv) the storage or use of hazardous substances in relation to the activity;
  - (v) any exacerbation of an existing natural hazard or creation of a new natural hazard as a result of the structure;
  - (vi) the use of non-structural solutions instead of hard engineering solutions; and
  - (vii) the ability to relocate or remove structures.

**E36.8.2. Assessment criteria**

The Council will consider the relevant assessment criteria for restricted discretionary activities from the list below:

*Activities on land which may be subject to coastal erosion*

- (1) for external alterations to existing buildings which increase the gross floor area of the building on land which may be subject to coastal erosion; for all other buildings and structures on land which may be subject to coastal erosion; and for on-site septic tanks, wastewater treatment and disposal systems, effluent disposal fields, underground storage tanks, water tanks or stormwater pipes or soakage fields on land which may be subject to coastal erosion:
  - (a) the likelihood of a coastal hazard event occurring, its magnitude and duration, the consequences of the event and its effects on public health, safety, property and the environment;
  - (b) the extent to which site specific analysis, such as engineering, stability or flooding reports and its analysis have been undertaken and any other information the Council may have on the site and surrounding land;
  - (c) the extent to which landscape and other environmental values are affected by any works proposed in association with the building or structure or mitigation of the hazard; and
  - (d) the extent to which any building or structure can be relocated in the event of severe coastal erosion or shoreline retreat, taking into account the likely long term effects of climate change.

*Activities on land which may be subject to coastal storm inundation 1 per cent annual exceedance probability (AEP)*

- (2) for external alterations to existing buildings which increase the gross floor area of the building on land which may be subject to coastal storm inundation 1 per cent annual exceedance probability (AEP); for all other buildings and structures on land which may be subject to coastal storm inundation 1 per cent annual exceedance probability (AEP); for on-site septic tanks, wastewater treatment and disposal systems, effluent disposal fields, underground storage tanks, water tanks or stormwater pipes or soakage fields on land which may be subject to coastal storm inundation 1 per cent annual exceedance probability (AEP):
  - (a) the likelihood of a coastal storm inundation hazard event occurring, its magnitude and duration, the consequences of the event and its effects on public health, safety, property and the environment;
  - (b) the extent to which site-specific analysis, such as engineering, stability or flooding reports and its analysis have been undertaken and any other information the Council may have on the site and surrounding land;

- (c) the extent to which landscape and other environmental values are affected by any works proposed in association with the building or structure or mitigation of the hazard; and
- (d) the extent to which any building or structure can be relocated in the event of severe coastal erosion or shoreline retreat, taking into account the likely long term effects of climate change.

*Defences against coastal hazards*

- (3) for the extension (including upgrading that increases the area occupied by the structure) or alteration of existing lawfully established hard protection structures; and for new hard protection structures, located landward of the coastal protection yard that may serve as a defence against coastal erosion or inundation:
  - (a) the extent to which the structure or works for the structure are located and designed to avoid, remedy or mitigate adverse effects;
  - (b) the extent to which the structure avoids, remedies or mitigates effects on public access, including pedestrian access, access to the coastline and access to areas of public open space;
  - (c) the extent of consent duration sought and whether it is necessary for the functional and operational needs of the activity or whether an adaptive management approach can be achieved;
  - (d) the extent of monitoring required to avoid, remedy or mitigate adverse environmental effects;
  - (e) whether the construction works can be undertaken at a time that will avoid or minimise adverse effects on marine mammals, roosting, nesting and feeding areas, and recreational users of the coastal marine area;
  - (f) whether the construction works or methods avoid, remedy or mitigate adverse effects, particularly on water quality and sedimentation;
  - (g) whether the structure is located and designed to avoid, remedy or mitigate adverse effects on the environment; and
  - (h) the extent to which material used are compatible with the surrounding coastal environment and where practicable, with the natural material at the site. This includes texture, colour, composition, grain size, level of contamination and potential for leaching.

*Activities in the 1 per cent annual exceedance probability (AEP) flood plain*

- (4) for fences and walls in the 1 per cent annual exceedance probability (AEP) floodplain that do not comply with Standard E36.6.1.5:

- (a) whether the fence or wall will result in changes to the flood hazard experienced within the site, or on other sites including upstream or downstream of the site;
  - (b) whether the fence or wall will result in changes to flood depths and velocities from the blocking or channelling of flood waters; and
  - (c) the extent to which the fence or wall is necessary to maintain privacy, security, biosecurity or safety of the site or adjoining sites.
- (5) for below ground parking or parking areas in the 1 per cent annual exceedance probability (AEP) floodplain:
- (a) whether the parking area can be located outside of the 1 per cent annual exceedance probability (AEP) floodplain so as not to block or impede the flood hazard;
  - (b) where the parking area cannot be practically located outside or above the floodplain, how the parking areas can be designed and managed to minimise any increase in flood related risks to people and property on site and to other properties upstream or downstream of the site;
  - (c) the extent of potential adverse effects resulting from vehicles being mobilised by a 1 per cent annual exceedance probability (AEP) flood event;
  - (d) whether the building or structure maintains structural integrity during a flood event; and
  - (e) whether site layout and management can avoid hazardous and floatable materials, including cars and other stored items, being carried off the site.
- (6) for the storage of hazardous substances in the 1 per cent annual exceedance probability (AEP) floodplain:
- (a) the extent to which the proposal ensures that hazardous substances stored in flood hazard areas are protected from flooding, spillage and leakage should a flood hazard event occur;
  - (b) the extent of public health hazards that may result from a flood hazard event and how these are proposed to be avoided; and
  - (c) whether groundwater contamination in a flood event can be avoided.
- (7) for on-site septic tanks, on-site wastewater treatment and disposal systems and effluent disposal fields in the 1 per cent annual exceedance probability (AEP) flood plain:
- (a) whether the design of the device impedes flood flows or otherwise increases flood risk upstream or downstream of the site and how such effects can be avoided or mitigated;

- (b) whether the design of the device is resilient to damage from a range of flood events;
  - (c) whether access to the device for maintenance and maintenance plans are provided and the potential effects that may result from the proposed access route;
  - (d) the extent of public health hazards that may result from a flood hazard event and how these are proposed to be avoided; and
  - (e) whether groundwater contamination in a flood event can be avoided.
- (8) for the construction of other land drainage works, stormwater management devices and flood mitigation works in the 1 per cent annual exceedance probability (AEP) floodplain:
- (a) whether the design of and works or devices impede flood flows or otherwise increases flood risk upstream or downstream of the site and how such effects can be avoided or mitigated;
  - (b) whether the design of the works or any device is resilient to damage from a range of flood events; and
  - (c) whether access to the works or device for maintenance and maintenance plans are provided and the potential effects that may result from the proposed access route.
- (9) for new structures and buildings (and external alterations to existing buildings) with a gross floor area up to 10m<sup>2</sup> within the 1 per cent annual exceedance probability (AEP) floodplain that do not comply with standard E36.6.1.9; and all other new structures and buildings and (and external alterations to existing buildings) within the 1 per cent annual exceedance probability (AEP) floodplain:
- (a) whether the building platform can be located outside of the 1 per cent AEP floodplain so as not to block or impede the flood waters;
  - (b) where the building cannot be practically located outside or above the flood plain, how the building can be designed and managed to minimise increase in flood related risks experienced by other properties, including those upstream or downstream such as, maintaining a clear undercroft, allowing for the passage of flood waters;
  - (c) whether buildings likely to be affected by flood waters should be wet proofed or dry proofed to minimise damage to the building and its contents; and
  - (d) site layout and management to avoid hazardous and floatable materials including cars and other stored items being carried off site.

- (10) for new buildings designed to accommodate more vulnerable activities, and changes of use to accommodate more vulnerable activities within existing buildings located within the 1 per cent annual exceedance probability (AEP) floodplain:
- (a) the likelihood of a flood hazard event occurring and its magnitude and duration, and the consequences of the event, its possible effects on public health, safety, property and the environment;
  - (b) the extent to which a flood hazard assessment or mitigation plan addresses methods provided to manage activities or uses within the site;
  - (c) whether sufficient actions can be undertaken to ensure that people will not be placed in danger during a flood event;
  - (d) the extent to which the proposal and any subsequent land use is likely to exacerbate the flood hazard or create a new flood on the subject land and/ or on any adjacent land; and
  - (e) whether the building or structure maintains structural integrity during a flood event.

*Activities in overland flow paths*

- (11) for fences and walls in the 1 per cent annual exceedance probability (AEP) floodplain that do not comply with Standard E36.6.1.10:
- (a) whether the fence or wall will result in changes to the flood hazard experienced within the site, or on other sites including upstream or downstream of the site;
  - (b) whether the fence or wall will result in changes to flood depths and velocities from the blocking or channelling of flood waters; and
  - (c) the extent to which the fence or wall is necessary to maintain privacy, security, biosecurity or safety of the site or adjoining sites.
- (12) for diverting the entry or exit point, piping or reducing the capacity in any part of an overland flow path:
- (a) the extent to which the continuity of the overland flow paths both within the site and upstream and downstream of the site will be maintained;
  - (b) the extent to which and how the effects on other properties from the diversion or alteration of the overland flow path will be avoided or mitigated;
  - (c) the extent to which and how scouring and erosion will be managed;
  - (d) the extent to which and how the proposal will avoid, or mitigate adverse effects on stream ecology;



- (e) the extent of long-term maintenance proposed, ensuring that, when appropriate, an easement in favour of Council is created to limit further changes to the overland flow path; and
- (f) the extent to which design and management measures are proposed to manage risk to a building, its occupants or contents.

*Activities on land which may be subject to land instability*

- (13) for on-site septic tanks, wastewater treatment and disposal systems, effluent disposal fields, underground storage tanks, water tanks or stormwater soakage fields on land which may be subject to land instability that do not comply with permitted activity Standard E36.6.1.12:
  - (a) the extent to which the location, design and functioning of the device would be adversely affected by the land instability hazard and how such effects can be avoided or mitigated;
  - (b) whether the design of the device is resilient to damage from the land instability hazard;
  - (c) whether access to the device for maintenance and maintenance plans are provided and the potential effects that may result from the proposed access route;
  - (d) the extent of public health hazards that may result from the land instability hazard and how these are proposed to be avoided; and
  - (e) whether groundwater contamination from the land instability hazard can be avoided.
- (14) for the storage of hazardous substances on land which may be subject to land instability:
  - (a) the extent to which the proposal ensures that hazardous substances are protected from spillage or leakage should a natural hazard event occur; and
  - (b) the extent of public health hazards that may result from the land instability hazard and how these are proposed to be avoided.
- (15) for external additions to buildings and to any structures excluding decks under 1.2m high and 20m<sup>2</sup> gross floor area on land which may be subject to instability; and for all other buildings and structures on land which may be subject to land instability not otherwise provided for:
  - (a) the likelihood of a land instability hazard event occurring, its magnitude and duration, the consequences of the event and its effects on public health, safety, property and the environment;

- (b) the extent to which site-specific analysis, such as engineering, or stability reports and its analysis have been undertaken and any other information the Council may have on the site and surrounding land;
  - (c) the extent to which landscape and other environmental values are affected by any works proposed in association with the building or structure or mitigation of the hazard; and
  - (d) the extent to which any building or structure can be relocated in the event of a land instability hazard occurring.
- (16) for all other infrastructure on land which may be subject to land instability not otherwise provided for:
- (a) the long-term management, maintenance and monitoring of any mechanisms associated with managing the risk of adverse effects resulting from the placement of infrastructure within a hazard area to other people, property and the environment including the management of hazardous substances;
  - (b) the extent to which residual risks to people, property and the environment resulting from any mitigation measures implemented to manage the hazard;
  - (c) the extent to which an existing hazard is exacerbated or a new hazard is created as a result of the structure;
  - (d) the extent to which the proposal includes non-structural solutions to protect infrastructure from the hazard and resulting adverse effects; and
  - (e) the extent to which landscape values and/ or public access are affected by the proposed structure or structures associated with the mitigation of the hazard.
- (17) for operation, maintenance, renewal, repair and minor infrastructure upgrading of infrastructure on land which may be subject to coastal erosion; or on land which may be subject to coastal storm inundation 1 per cent annual exceedance probability (AEP); or in areas subject to coastal storm inundation 1 per cent annual exceedance probability (AEP) plus 1m sea level rise (CSI1); or in the 1 per cent annual exceedance probability (AEP) floodplain; or in overland flow paths; or on land which may be subject to land instability:
- (a) the long-term management, maintenance and monitoring of any mechanisms associated with managing the risk of adverse effects resulting from the placement of infrastructure within a hazard area to other people, property and the environment including the management of hazardous substances;

- (b) the extent to which residual risks to people, property and the environment resulting from any mitigation measures implemented to manage the hazard;
- (c) the extent to which an existing hazard is exacerbated or a new hazard is created as a result of the structure;
- (d) the extent to which the proposal includes non-structural solutions to protect infrastructure from the hazard and resulting adverse effects; and
- (e) the extent to which landscape values and/ or public access are affected by the proposed structure or structures associated with the mitigation of the hazard.

### **E36.9. Special information requirements**

- (1) A hazard risk assessment must be undertaken when subdivision, use or development requiring resource consent is proposed to be undertaken on land which may be subject to any one or more of the following:
  - (a) coastal erosion;
  - (b) coastal storm inundation 1 per cent annual exceedance probability (AEP);
  - (c) coastal storm inundation 1 per cent annual exceedance probability (AEP) plus 1m seal level rise;
  - (d) coastal hazards;
  - (e) the 1 per cent annual exceedance probability (AEP) floodplain;
  - (f) overland flow paths; or
  - (g) land instability.

The level of information required to be provided should be proportionate to the hazard risk, the nature of the hazard. It should also be appropriate to the scale, nature and location of the development and reflective of the scale of the activity proposed. For coastal hazards this should include a consideration of the effects of climate change over at least a 100 year timeframe.

- (2) A hazard risk assessment report must accompany a resource consent application for the subdivision, use or development referenced in E36.9(1) above and must identify whether the land is or is likely to be subject to coastal erosion; coastal storm inundation 1 per cent annual exceedance probability (AEP); coastal storm inundation 1 per cent annual exceedance probability (AEP) plus 1 metre seal level rise; coastal hazards; the 1 per cent annual exceedance probability (AEP) floodplain; overland flow paths; or land instability, over at least the next 100 years and, if found to be subject to one or more of these hazards, should provide an assessment, which does not

need to duplicate an assessment of environmental effects, which addresses all of the following:

- (a) the type, frequency and scale of the natural hazard and whether adverse effects on the development will be temporary or permanent;
- (b) the type of activity being undertaken and its vulnerability to natural hazard events;
- (c) the consequences of a natural hazard event in relation to the proposed activity and the people likely to be involved in that activity;
- (d) the potential effects on public safety and other property;
- (e) any exacerbation of an existing natural hazard risks or creation of a new natural hazard risks;
- (f) whether any building, structure or activity located on land subject to natural hazards near the coast can be relocated in the event of severe coastal erosion, coastal storm inundation or shoreline retreat;
- (g) the ability to use of non-structural solutions, such as planting or the retention or enhancement of natural landform buffers to avoid, remedy or mitigate the hazard, rather than hard engineering solutions or protection structures;
- (h) the design and construction of buildings and structures to mitigate the effects of natural hazards;
- (i) the effect of structures used to mitigate hazards on landscape values and public access;
- (j) site layout and management to avoid or mitigate the adverse effects of natural hazards, including access and exit during a natural hazard event;
- (k) the duration of consent and how this may limit the exposure for more or less vulnerable activities to the effects of natural hazards including the effects of climate change; and
- (l) any measures and/ or plans proposed to mitigate the natural hazard or the effects of the natural hazard.