

## Memo 19 December 2014

To: Phill Reid – Planning Manager – Auckland Unitary Plan Independent Hearings Panel

From: John Duguid – Unitary Plan Manager – Auckland Council

---

Subject: **PAUP non-statutory GIS map layers**

1. This memo is prepared in response to your memo dated 4 December 2014, in which you requested that the council provide to the Panel:
  - (a) its justification for the legality or otherwise of the use of non-statutory information layers provided in the GIS maps which link directly to rule and consent requirements in the plan text; and
  - (b) a detailed outline of the methodology, research, studies, analysis and mapping work undertaken, to establish the need for and accuracy of all of the non-statutory layers in the GIS maps.
2. The legal submission included as **Attachment 1** addresses the first part of the request. The memo itself addresses the second.
3. We have endeavoured to respond to the memorandum in a succinct manner. This may result in the Panel requiring further information, submissions and/or detail which we would, of course be happy to provide if necessary.
4. The non-statutory GIS layers of the PAUP contain the following information:
  - (a) Addresses
  - (b) Flood Hazards
  - (c) Hauraki Gulf Marine Park
  - (d) Indicative Coastline
  - (e) Auckland Council Boards
  - (f) Macroinvertebrate Community Index
  - (g) Māori Land
  - (h) Soil Types
  - (i) Treaty Settlement Alert Layer

5. Taking each layer in turn:

(a) Addresses

- (i) This layer is sourced from the main Auckland Council GIS viewer<sup>[1]</sup> and is based on the ratings data the council has on its records. It has been included to assist readers of the PAUP to easily identify property addresses. There are no specific rules that refer to street addresses.

(b) Flood Hazards

- (i) These layers are sourced largely from Aerial Laser Survey (**LiDAR**) along with hydrological and hydraulic modelling of a catchment. This is detailed in the memorandum from Council's Flood Planning Team Manager, Nick Brown, included as **Attachment 2** to this memo.
- (ii) The Flood Hazard layers displayed in the non-statutory layers have been generated over a long period of time. The majority of the flood hazards in the Auckland Region have been mapped post LiDAR information becoming available (2005/2006).
- (iii) The LiDAR survey generated spot heights at a spacing of 1 spot height every 1.5m<sup>2</sup>. The accuracy of this survey, was required to be plus or minus 100mm on the vertical axis and plus or minus 300mm in the horizontal axes. The raw LiDAR data was then processed to remove artificial high points such as buildings or trees to produce a digital terrain model. The resulting digital terrain model was then used as the basis for the mapping of the flood hazard layers. This terrain data used in the flood hazard analysis includes all of the surface features or infrastructure (whether designed to convey surface water or not) captured by the LiDAR survey.
- (iv) Subsequently more detailed surveys were carried out to support the various modelling studies in particular to confirm: floor levels; pipe or culvert levels; stream channel cross-sections and areas under trees with limited LiDAR coverage.
- (v) There are rules in the PAUP that refer to various flood hazards. The attached legal submission addresses the legality of references to flood hazards in the PAUP and the link to this particular non-statutory layer.

(c) Hauraki Gulf Marine Park (**HGMP**)

- (i) This layer is created from data compiled from Environment Waikato, Waikato District and Thames-Coromandel District Councils. It is used to determine the drainage catchment for the Hauraki Gulf and from that the boundary for the Hauraki Gulf Marine Park. It reflects the spatial extent of the HGMP. It has been included to assist readers of the PAUP to identify the spatial extent of the HGMP as a result of the statutory link between the Resource Management Act 1991 and the Hauraki Gulf Marine Park Act 2000 (Section 9), and due to the fact that the HGMP is referred to in assessment criteria (Rule H.4.14.1.3.2(2)(f)(ii) – Long Bay precinct) and policies (Policy 11(b) in C.5.15.1 – Water quality and integrated management and Policy 3 in D.5.1.2 – The depositing and disposal of material in the General Coastal Marine zone) contained in the PAUP.

---

<sup>[1]</sup> <http://maps.aucklandcouncil.govt.nz/aucklandcouncilviewer/>

(d) Indicative Coastline

- (i) There are no specific rules that refer to the Indicative Coastline, only to Mean High Water Springs (**MHWS**).
- (ii) This layer is sourced from a study commissioned by the council and undertaken by the National Institute of Water and Atmospheric Research Limited (**NIWA**). The report, entitled "Development of an updated Coastal Marine Area boundary for the Auckland Region" (dated July 2012) is included as **Attachment 3** to this memo.
- (iii) The methodology used by NIWA for the mapping of the Indicative Coastline (calculating the level equalled or exceeded by the largest 10% of all high tides (MHWS-10) using available tide-gauge records and hydrodynamic numerical models in combination with LIDAR aerial scanning) is set out in the executive summary to the NIWA report at page 7.
- (iv) The methodology selected by NIWA was considered against a range of options. The assessment and rationale for the selection of the chosen methodology is set out in the internal council document entitled "Unitary Plan - Coastline and Coastal Marine Area" attached as **Attachment 4** to this memo.
- (v) It is noted in the introduction to the Coastal zones in the PAUP (D5) that

*"The MHWS boundary has not been surveyed for Auckland, as it has a dynamic and varying location. The indicative coastline shown on the maps is an approximate representation of MHWS-10, which is the level equalled or exceeded by the largest 10 per cent of all high tides. Where the line crosses a river mouth and the CMA boundary has been defined by agreement between the council and Department of Conservation, the CMA boundary at river mouths is indicated on the maps and detailed in Appendix 6.4.*

*As a jurisdictional boundary, the exact location of MHWS needs to be defined on a case-by-case basis. Where activities are close to the indicative coastline, a site-specific survey will be required to determine the location of MHWS and the actual CMA boundary. If a site-specific survey determines that MHWS is not located in the position shown on the maps, the zone of the adjacent land or CMA applies."*

- (vi) Both Land Information New Zealand (LINZ) and case law<sup>1</sup> acknowledge that, at a regional scale, no single definitive method can be used to establish a natural boundary like MHWS which defines the boundary between the Coastal Marine Area (CMA) and land. For the PAUP however, the council determined that an indicative coastline is required to provide a planning boundary that closely approximates the position of the MHWS. This indicative coastline allows for the visual representation of the boundary between land and coastal environments and their associated zones, precincts and overlays in the planning maps.
- (vii) The indicative coastline shown on the planning maps is intended to assist in determining whether a detailed site specific MHWS survey is required. Where activities are in close proximity to, or overlap the indicative coastline, a specific survey would be required to determine the location of MHWS and

<sup>1</sup> *Auckland Regional Council v A V Hastings* ENC Auckland A130/2000, 6 November 2000.

the actual CMA boundary. This approach takes into consideration guidance from LINZ and Environment Court decisions.

- (e) Auckland Council Boards
  - (i) This layer shows the boundaries of the Auckland Council Local Board areas. It has been included to assist readers of the PAUP to find out which Local Board area a property is located in. There are no specific rules that refer to local board areas.
- (f) Macroinvertebrate Community Index (**MCI**)
  - (i) This layer is a geospatial representation of Appendix 5.6 of the PAUP text, Map 1: Macroinvertebrate community index for landuse types. The different land use types (exotic, native, rural, urban) for determining MCI guideline values have been mapped and given a spatial extent, however the council acknowledges the information is currently incomplete, in that the different land use types are not shown in the non-statutory GIS layer. The layer should ideally include this additional information.
  - (ii) The MCI is a measure for monitoring and reporting on stream health and is included as a non-statutory layer as the MCI is referred to in the objectives, policies and assessment criteria contained in the PAUP. There are no specific rules that refer to the MCI.
- (g) Māori Land
  - (i) This layer is sourced from the Māori Land Court. It has been included as a guide to the location of Maori Land which is subject to Te Ture Whenua Māori Land Act 1993. There are rules in the PAUP that refer to Maori land. The attached legal submission addresses the legality of references to Māori Land in the PAUP and the link to this particular non-statutory overlay. The attached memo from Jym Clark in **Attachment 5** documents the information used to create this layer.
- (h) Soil Types
  - (i) This layer is sourced from the 1990s and was developed by the former Auckland Regional Council. There is very limited information regarding the research undertaken to prepare this data. There is one rule in the PAUP that refers to the various soil types included in the layer (Rule H.4.10 rural production discharges), being the discharge of dairy effluent, nitrogenous fertiliser or nitrogen discharges. The attached legal submission addresses the legality of references to soil types in the PAUP and the link to this particular non-statutory layer.
- (i) Treaty Settlement Alert Layer
  - (i) This layer is sourced from the Office of Treaty Settlements. It has been included as a guide to land subject to claims and settlements between Iwi Authorities and the Crown. There are rules in the PAUP that refer to Treaty Settlement Land. The attached legal submission addresses the legality of references to Treaty Settlement Land and the link to this particular non-statutory layer. The memo from Jym Clark documents the information used to create this layer.