7. PROPOSED PLAN CHANGE 32 – WAIMAKARIRI STOPBANK FLOODPLAIN LAND USE CONTROLS

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PURPOSE OF REPORT

1. This report discusses Christchurch City Council initiated Proposed Plan Change 32 – Waimakariri Stopbank Floodplain Land Use Controls and seeks that the plan change and the associated section 32 assessment be accepted by the Council for public notification.

EXECUTIVE SUMMARY

2. The purpose of the plan change is to prevent unnecessary risk to life and property within the Waimakariri Stopbank Floodplain in the event of a primary stopbank breach. A locality map is included as **Attachment A.**

3. Proposed Plan Change 32 (**Attachments B, C and D**) has been developed as a joint project with the Canterbury Regional Council (ECan). The plan change will introduce additional land use controls in the City Plan in respect of the Waimakariri Stopbank Floodplain (WSFP), the area between the primary and secondary stopbanks. The plan change is aimed at complementing ECan's Waimakairiri Flood Protection Project, which includes construction of new sections of the secondary stopbank to the south of the river, and upgrading of existing sections of both the primary and secondary stopbanks.

4. The City Plan currently recognises a threat to the City from flooding of the Waimakariri River at a policy level, but does not include any specific rules to mitigate the flood hazard within this floodplain, despite Variation 48 – Management of the Flood Hazard in Christchurch. Variation 48 was proposed in 2003 and covers the Lower Styx, Avon and Heathcote floodplains and also some low lying coastal areas such as Redcliffs and Sumner. The Variation requires increased minimum floor levels in identified flood management areas.

5. ECan submitted on Variation 48 seeking that the City Plan show the proposed Waimakariri secondary stopbank on the Planning Maps and include land use controls on the floodplain. Council rejected that submission for reasons of scope and detail, but noted that when resource consents had been obtained by ECan for the secondary stopbank (as they were in July 2009), it saw merit in the proposal for flood management rules between the two Waimakariri stopbanks. ECan appealed this and other aspects of the Variation 48 decision. The rest of the Variation 48 appeals and appeal topics have been heard by the Environment Court and determined, and a consent order on outstanding rule matters is currently being processed by the Court.

6. The part of ECan's Variation 48 appeal relating to the Waimakariri floodplain was adjourned while this plan change was being developed. In discussion with Ecan as to process, Ecan has stated that they will hold their position on land use controls on the Waimakariri floodplain via their normal right of submission and appeal on Plan Change 32 once it is notified. This means that Ecan have now agreed that the remaining part of their appeal on Variation 48 will be withdrawn once Plan Change 32 is notified.

7. The plan change requires resource consents for new dwellings and other habitable buildings in "high risk" areas of the floodplain, as non-complying activities, and in the rest of the floodplain as restricted discretionary activities, with discretion limited to consideration of flooding issues including the setting of floor levels. It also restricts all new activities within specified stopbank setbacks.

FINANCIAL IMPLICATIONS

8. The plan change has been included in the work programme for the current and forthcoming financial years as a priority item to resolve Variation 48 appeals, but has a low net cost to Council as flood modelling and most of the mapping has been carried out by ECan. As with all plan changes, there will be hearing and possibly appeal costs.

Do the Recommendations of this Report Align with 2009-19 LTCCP budgets?

9. As above.

LEGAL CONSIDERATIONS

10. A full legal review of Plan Change 32 was not considered necessary by officers, as the approach and rules follow a similar format to the rules in Variation 48. which were confirmed by the Court in its 2009 decision on that Variation. A legal opinion was however requested because of uncertainty as to whether or not the words "protects or relates to water" in section 86B(3)(a) of the Resource Management Act 1991 (RMA) result in the rules in proposed Plan Change 32 having immediate legal effect. There is currently no case law on this point, but the opinion suggests that rather than relating to the water resource, the rules in the plan change relate to and are for the purpose of protecting people and property from the natural hazard of flooding, and therefore do not have immediate legal effect.

11. This means that in the ordinary course of events, the rules in the plan change would have effect at the point that a Council decision on submissions on the rules is publicly notified under clause 10(4) Schedule 1. Section 86B of the RMA also provides that Council can resolve that rules have legal effect only once the plan change becomes operative. This is the replacement provision for the pre-2009 section 20, which was used to defer the effect of Variation 48 until it becomes operative. In this case it is not considered that it is necessary to defer the effect of Proposed Plan Change 32 for this long. This is because the administrative implications of the plan change are considerably less than for Variation 48, as far fewer properties are affected. In addition, filling the gaps in the existing secondary stopbank at the eastern end of the stopbank near the State Highway One bridge back towards the airport, thereby slightly increasing the potential depth and duration of flooding in this area in the event of a breach scenario, is projected to occur within the next three years.

ALIGNMENT WITH LTCCP AND ACTIVITY MANAGEMENT PLANS

12. Aligns with Activity Management Plan for 2009-2019 LTCCP – Activity 1.3 District Plan: Prioritised programme of plan changes is prepared and approved by the Council on an annual basis.

ALIGNMENT WITH STRATEGIES

13. Aligns with the Surface Water Strategy and Draft Climate Change Strategy.

CONSULTATION FULFILMENT

14. Consultation has been undertaken with affected agencies and larger landowners. A consultation brochure was sent to all owners and occupiers and an information meeting held, and written and verbal feedback received.

STAFF RECOMMENDATION

It is recommended that the Committee recommends to the Council that it:

(a) Adopt Proposed Plan Change 32 - Waimakariri Stopbank Floodplain Land Use Controls for the purposes of public notification pursuant to the First Schedule of the Resource Management Act 1991.

(b) Adopt the related section 32 assessment for the purposes of public notification pursuant to the First Schedule of the Resource Management Act 1991.

BACKGROUND (THE ISSUES)

15. Proposed Plan Change 32 is a Christchurch City Council led plan change which has been developed as a joint project with ECan. The plan change will introduce additional land use controls in the City Plan in respect of the Waimakariri Stopbank Floodplain (WSFP), which is the area located between the primary and secondary stopbanks.(see map at **Attachment A**). The plan change is aimed at complementing ECan's Waimakairiri Flood Protection Project, which includes construction of new sections of the secondary stopbank to the south of the river, and upgrading of existing sections of both the primary and secondary stopbanks, to improve the level of flood protection.

16. The City Plan does not currently include any specific rules to mitigate the flood hazard within this floodplain, despite Variation 48 – Management of the Flood Hazard in Christchurch. Variation 48 was proposed in 2003 and covers the Lower Styx, Avon and Heathcote floodplains and also some low lying coastal areas such as Redcliffs and Sumner. The Variation requires increased minimum floor levels in identified flood management areas. ECan submitted on that variation seeking that it be expanded so that the City Plan show the proposed Waimakariri secondary stopbank on the Planning Maps, and include controls on the circumstances where residential units and resort hotels could establish on the Waimakariri floodplain. This followed their 1995 withdrawal of the former Waimakariri River Flood Management Regional Plan because of local authority opposition to the land use controls contained within it.

17. The Council Panel in its decision on ECan's submission on Variation 48 in 2006, rejected that submission for reasons of scope and detail, but noted that when resource consents had been obtained for the secondary stopbank (as they were in July 2009), that they saw merit in the proposal for flood management rules between the two stopbanks. ECan appealed several matters in the Variation 48 decision. Most of the Variation 48 appeals were heard by the Environment Court in 2008, but the part of ECan's appeal relating to the Waimakariri floodplain was adjourned pending notification of a plan change to deal with the issue. A consent order relating to the other outstanding rule matters on Variation 48 is currently being processed by the Court, making the notification of Proposed Plan Change 32 one of the last steps in the lengthy process of making Variation 48 operative.

18. In discussion with Ecan as to process, Ecan have stated that they will hold their position on land use controls on the Waimakariri floodplain via their normal right of submission and appeal on Plan Change 32 once it is notified. This means that Ecan have now agreed that the remaining part of their appeal on Variation 48 will be withdrawn once Plan Change 32 is notified.

19. The effect of completing the secondary stopbank is to contain floodwaters within the land between the primary and secondary stopbanks and return them to the main river via the Otukaikino outlet near the Waimakariri River bridge, so as to prevent flows from entering urban Christchurch. The design standard for the primary stopbank is to contain a 1:500 year flood event, but breaches are possible in an event below this size, for example due to bank and berm erosion. The secondary stopbank is designed to ensure that floodwaters resulting from an up to 1:10,000 year flood event overwhelming the primary flood protection system, are contained within the floodplain.

20. In arriving at this design standard, ECan modelled two flood flow events, 5100m^3/sec (500 year) and 6500m^3 (10,000 year). The modelling indicated that even without any improvements to the stopbank systems, much of the WSFP is inundated under both flood flow events. However, improvements planned for the secondary stopbank increase the depth and duration of flood events in the stopbank floodplain, with these increases in depth and duration varying across the floodplain. Regardless of the presence or absence of the secondary stopbank, the WSFP is inundated to depths ranging from 0-1 metre in the Templars Island area (the western end of the floodplain) and up to 3 metres in the Lower Coutts Island area (the eastern end of the floodplain). This means that even without the completion of the Waimakariri Flood Protection Project, there is a significant risk to people and property within parts of the floodplain, but with the project, this risk is slightly increased. The greatest increases in depth are in the Lower Coutts Island area just upstream and downstream of Dickeys Road. In addition, the velocity of any floodwaters resulting from a breakout scenario within the stopbanks would typically be higher than in other flood hazard areas of the City.

THE OBJECTIVE

21. The purpose of this plan change is to prevent unnecessary risk to human life and property within the Waimakariri Stopbank Floodplain in the event of a primary stopbank breach. A locality map is included as **Attachment A.**

THE OPTIONS

22. Three main options are considered in the section 32 assessment, as well as sub-options within these. The primary options are:

    (a) Do nothing;
    (b) Non-regulatory methods; or
    (c) Regulatory options.

Do Nothing

23. "Do nothing" would mean relying on current City Plan rules including open space and rural zoning, landownership patterns (a significant portion of the area is publicly owned e.g. by ECan) and the Council's ability to set minimum floor levels under the Building Act 2004. The existing City Plan provisions, which do not include any rules to mitigate the flood hazard within this floodplain, are not considered to effectively implement the City Plan natural hazard objective and policies. These include:

    Objective 2.5: "To avoid or mitigate the actual or potential adverse effects of loss or damage to life, property, or other parts of the environment from natural hazards"; and

    Policy 2.5.2: "To avoid any increased risk of adverse effects on property, wellbeing and safety from natural hazards by limiting the scale and density of development, which is within an area subject to moderate to high risk of damage from natural hazards…"

    Further, this option does not resolve the outstanding ECan appeal against Variation 48.

Non-Regulatory Methods

24. Non–regulatory methods could include:

    - Education, insurance and warning systems;
    - Increasing the river channel capacity by increased gravel extraction; and
    - Additional flood protection works.

25. Education, insurance as an economic instrument to signal the cost of development in particular locations, and warning systems vary in their effectiveness over time and there is a limit to the level of damages able to be prevented. Increased gravel extraction has been proposed by some people as a method of lowering the river bed level and increasing channel capacity, thereby avoiding the impact of land use controls. However ECan advise that while gravel extraction is important for channel maintenance, using it to lower the bed of the river would potentially have adverse effects on flood protection structures as it could increase the risk of scour, erosion and undermining of structures within the river bed such as bridge supports and power pylons. ECan have also advised that additional flood protection works over and above those consented (e.g. in the Dickeys Road area) do not appear to be an effective or economic option.

Regulatory Options

26. Regulatory options could include:

    - Minimum floor levels for residential buildings;
    - Requiring resource consent for residential buildings in high hazard areas;
    - Stopbank setbacks; and
    - Earthwork controls.

27. Minimum floor levels for residential buildings:
An economic report (part of **Attachment D**) was commissioned to assess the economic effects of flood damage and to consider a range of potential floor level requirements for residential units within the stopbank floodplain. The report examined the implications of flood damage for several flood events, namely the 4300 cumec (200 year ARI), 4730 cumec (450 year ARI)**3** and the 6500 cumec (10,000 year ARI) events, and compares these to the 'base case' – ie the cost and damages to a residential unit required to be built to the Building Act 2004 standard (50 year ARI) only.

28. The economic report demonstrated that for the area upstream of Dickeys Road, all scenarios are better than the base case Building Act 2004 50 year ARI standard, but in terms of overall net benefit, the use of a 200 year flood event in setting floor levels is the most efficient and would significantly reduce total damage, while not being unreasonably expensive to achieve. This is consistent with the floor level selected for other flood management areas within Christchurch, and has a degree of conservatism built in as the odds of a breakout occurring in combination with a 200 year flood are less than 1:200.

29. However for the area downstream of Dickeys Road, the base case 50 year ARI is the most efficient option for this area, as the high costs of preventing damage from such flooding due largely to the depth of such flooding make it "uneconomic" to require raised floor levels. The question then is how best to implement the City Plan's natural hazards objectives and policies in the Dickeys Road area. An alternative is to require consent for residential buildings in high hazard areas (see discussion below at paragraph 31).

30. Discussion of Regulatory Methods:

It is not possible to use a performance standard requiring a certain floor level (if the standard is met then consent is not required) because modelling by return period means the floor level is subject to change depending on the frequency of floods that do occur. Also floor levels required differ significantly from one part of this large floodplain to another. The Council does not at present hold the detailed modelling information of the various breakout scenarios and staff will still need to seek ECan advice on individual development proposals. For these reasons it is considered that the resource consent process (restricted discretionary activity status) is the most appropriate method to assess proposed sites and floor level conditions. Minimum floor levels are already set within this area under the Building Act 2004 at a 1:50 year standard, but this is not considered adequate for the level of hazard which exists here.

31. Resource Consent for Residential Buildings in High Hazard Areas:

For the area downstream of Dickeys Road where significantly higher floor levels would be required, it was considered important that the level of hazard be examined as well as the economic assessment. ECan produced "hazard category" maps for the floodplain. High hazard areas were defined. These are critical flood depths and velocities which can damage structures and harm people. These hazard maps show a reasonably large area of land south and east of the Groynes which is a high hazard area, including some of the Rural 4 land upstream of Dickeys Road as well as overflow channels/waterways across the whole floodplain. These are largely the same areas where it was uneconomic to construct dwellings, with the addition of some areas where dwellings should be avoided due to significant risk to human life during flood events.

32. The use of prohibited activity status in these areas was considered but rejected as there may be rare circumstances in which the construction of a building is appropriate on a particular site given particular mitigation measures. Prohibited activity status would prevent the ability to have such a proposal considered. The proposal is that residential buildings should be subject to non-complying activity status in the most "at risk" areas.

33. Non-residential buildings e.g. those for farming and recreation are not proposed to be covered by a resource consent requirement as the risk to these buildings is primarily an economic one rather than a matter of risk to human life, and it is considered that landowners should not be

[3] This event can be referred to either the 450 year or 500 year event and these terms are effectively used interchangeably.

unnecessarily constrained in making permitted rural use of their property. However the Planning Maps will show high hazard areas (see **Attachment C**).

Stopbank Setbacks and Earthwork Controls:

34. The City Plan currently contains a rule stating that any building within 100 metres of the primary stopbank centreline shall be a non-complying activity. This is to reduce the risk to life from deep and fast moving floodwaters close to the stopbank in the event of a breach. Given the level and type of risk, it is considered appropriate to extend the building setback from the primary stopbank to also cover earthworks and filling to protect the structural integrity of the stopbank and reduce diversionary effects.

35. Flooding could also result in high water depths and velocities against the secondary stopbank, but secondary stopbank failure is highly unlikely and additional development in high hazard areas which includes some areas close to the secondary stopbank, would in any case be restricted by the resource consent proposed above. As there is no breach scenario, a setback on the inner side of the secondary stopbank would be for purposes of ensuring that the structural integrity of the bank is not compromised by human activities. Advice from ECan engineers is that excavation too close to the stopbank could cause undermining of the stopbank foundations, stopbank slumping or erosion and structures or earthfill too close to the stopbank could cause local flood level increase and stopbank overtopping.

36. The risk of breach of the secondary stopbank is lower than for the primary stopbank. This means that a requirement for restricted discretionary resource consent for all buildings, earthworks and filling within 50 metres of the inner side of the secondary stopbank would represent a precautionary approach. In the remainder of the floodplain further away from the stopbanks, there appears to be little likelihood of displacement of floodwaters due to filling and excavation, because of the large size of the floodplain. The filling and excavation rules which already apply in the zones in question are seen as adequate here.

37. Exclusions from the Plan Change:

The Open Space 3D zone around Clearwater area is excluded from the plan change because specific flood mitigation provisions have already been included within the City Plan for this area through Variation 93. There is an exception in the City Plan rules from the secondary stopbank setback for the wraparound stopbank around the Isaacs quarry, as Issacs have a resource consent for a lesser setback in respect of quarrying activity.

THE PREFERRED OPTION

38. The preferred option is option (c) Regulatory methods, with an approach which combines three of the regulatory sub-options discussed above. These are:

(a) New dwellings and other habitable buildings in “high risk” areas would require a non-complying activity resource consent.

(b) Elsewhere within the floodplain new dwellings and other habitable buildings would require a restricted discretionary activity resource consent, with conditions likely to be set requiring a floor level based on a 200-year flood event plus freeboard.

(c) Filling and excavation would become non-complying within 100 metres of the primary stopbank (buildings are already non-complying in this setback) and filling, excavation and all new buildings would become restricted discretionary within 50 metres of the inner side of the secondary stopbank.

CONSULTATION

39. Plan Change 32 and proposed rules have been discussed with the New Zealand Transport Agency (in respect of the Western Belfast bypass, which crosses the secondary stopbank and passes through part of the floodplain), Christchurch International Airport Limited and

Isaacs Construction Ltd. The plan change was discussed in broad outline with the Fendalton/Waimairi and Shirley/Papanui Community Boards in December 2009. In late January 2010 a consultation brochure with a request for feedback was sent out to all the owners and occupiers in the floodplain. A consultation and information meeting was held for landowners and occupiers in mid February 2010, with 29 people attending, representing 18 properties. Written and verbal feedback was received from some of these people as well as from owners and occupiers of five other properties. This means that the owners or occupiers of 23 or a third of the 69 properties in the floodplain (excluding Clearwater) have actively participated in this consultation.

40. While all attempts have been made to distinguish between the secondary stopbank project being undertaken by ECan, and Proposed Plan Change 32 which introduces additional land use controls for the floodplain in respect of flood hazard, some landowners are still aggrieved by the secondary stopbank project itself, despite the fact that consents have now been granted for that project and there have been no appeals.

41. While there has been general support for raising floor levels and for keeping development out of high hazard areas, a few landowners are concerned that an additional constraint such as the identification of high hazard areas will further restrict their subdivision aspirations (in reality already restricted by the existing zoning). There has also been some concern about the prospect of additional resource consents being required, particularly in respect to the secondary stopbank setback, as this affects nearly all new activities in this setback, with only small scale exemptions. The original proposal taken out to consultation was for a 100 metre setback from the secondary stopbank and non-complying activity status, and the modification of this to a 50 metre setback and restricted discretionary status, based on further consideration of the level and types of risk, should go some way to reducing these concerns.