



AGENDA

CATCHMENT OPERATIONS COMMITTEE

Wednesday, 14 December 2011 at 10.00am

Notice is given of a meeting of Horizons Regional Council to be held on
Wednesday 14 December, 2011 at 10.00am in the Tararua Room,
Horizons Regional Council offices,
11-15 Victoria Avenue, Palmerston North.

Business to be discussed includes:

- § River and Drainage Engineering Report
- § Lower Manawatu Scheme Upgrade
Mitigation of Effects in the Taonui Basin
- § Lower Manawatu Scheme – City Reach Project
Flood Protection at Turitea Campus
- § Whanganui River – Lower Reaches Channel Management
- § Infrastructural Asset Management Plans
- § River and Drainage Scheme Audits
- § Sustainable Land Use Initiative (SLUI)

**RECOMMENDATIONS IN REPORTS ARE NOT
COUNCIL POLICY UNTIL ADOPTED BY COUNCIL**

NEWS EMBARGO

Items in this agenda may be subject to amendment or withdrawal at the meeting. Items are embargoed until two days before the date of the meeting.

Reporters who do not attend the meetings should seek confirmation of the agenda material or proceedings from the Chief Executive prior to any media reports.

for further information regarding this agenda, please contact:
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8.	Lower Manawatu Scheme – City Reach Project Flood Protection at Turitea Campus <i>Report No: 11-220</i>	39
9.	Whanganui River – Lower Reaches Channel Management <i>Report No: 11-223</i> <i>Annex A – Whanganui South Spit: A Review of Erosion and Protection Measures and Proposed Repair Programme</i>	43 47
10.	Infrastructural Asset Management Plans <i>Report No: 11-218</i>	63
11.	River and Drainage Scheme Audits <i>Report No: 11-222</i>	67
12.	Sustainable Land Use Initiative (SLUI) <i>Report No. 11-215</i> <i>Annex A – SLUI Overview Map – Target Farms & Priorities</i> <i>Annex B – SLUI Overview Map – Plan Progress</i> <i>Annex C – SLUI Overview Map – Implementation Progress</i>	69 72 73 74
13.	Members’ Questions	

M J McCartney
CHIEF EXECUTIVE



Minutes of the sixth meeting, eighth triennium, of the Catchment Operations Committee of Horizons Regional Council held in the Tararua Room, Regional House, 11-15 Victoria Avenue, Palmerston North at 10.06am on Wednesday 12 October 2011.

PRESENT Crs MC Guy (Chairman), JJ Barrow, LR Burnell (from 10.06am), GL Cox, EB Gordon (ex officio) (from 10.06am), PW Rieger, RG Walker JP (from 10.06am to 2.35pm).

IN ATTENDANCE Group Manager Operations Mr AD Cook
Secretary Ms GA McRae

ALSO PRESENT Crs VJF Chettleburgh (from 10.06am to 11.26am, 2.05pm to 3.30pm), CI Sheldon (from 10.25am), MW Plowman, and JJ White.

At various times during the meeting:

Mr C Mitchell (Group Manager Environmental Management), Mr J Foxall (Southern Area Engineer), Mr I McMahon (Senior Engineering Officer), Mr G Cooper (Environmental Manager - Land), Ms A Roehler (Communications Advisor), Crs Kelly, Linklater and McCann (Palmerston North City Council), and a member of the public.

APOLOGIES

There were no apologies.

LATE ITEMS

There were no late items.

The Chair advised that a presentation would be made to the Committee about the Whirikino stopbank failure judgment and an update on the Whanganui River Stage two consultation process. He advised that Item 8 would be taken first for the convenience of interested parties in the public gallery. There were no objections.

CONFIRMATION OF MINUTES

COP 11-46

Moved

Rieger/Walker

that the Minutes of the meeting of the Catchment Operations Committee meeting held on Tuesday 9 August 2011, be confirmed as a correct record.

CARRIED

MEMBERS' CONFLICT OF INTEREST

Cr Plowman made a statement advising that he had a possible conflict of interest in respect of Item 13, Report No. 11-185, Splitrock Station, – Protection Mechanisms for Larger Scale Grants and Incentives. He stated that his interest was non-pecuniary and had come about as a result of

his tender for part of the wider property being discussed in this report. He wished to clarify for his colleagues that interest did not relate to the planted areas under discussion.

PUBLIC SPEAKING RIGHTS

There were no requests for public speaking rights.

LOWER MANAWATU SCHEME – CITY REACH PROJECT FLOOD PROTECTION AT TURITEA CAMPUS

Report No. 11-176

This item sought the Committee's endorsement of a proposal to undertake flood protection works at the Turitea Science Campus, for inclusion in Council's Draft 2012-22 Long Term Plan (LTP). The item was introduced by the Group Manager Operations (GMO) who outlined the proposal including the physical works proposed and the extension of the City Reach project to fund the project.

Cr Sheldon joined the meeting at 10.25am

There was general support around the table about the advantages of the project but some concern about how it would be funded and the rates burden it might pose. Questions about capital valuation in the area were answered, with the understanding that the area under discussion had great economic benefit to the region but did not have a high capital valuation. Discussion extended into whether the project could be 'rated in advance' but Councillors were reminded by the Chair of the Committee that a significant building project was about to take place on the site, subject to the flood protection work going ahead. There was wide support that alternative funding mechanisms be examined to try to impose a more realistic proportion of project costs on the directly benefiting properties at Turitea.

Based on the discussion had by the Committee an amended resolution was moved by Councillor Rieger that included an additional item (d) for the GMO to explore options for a rating differential to aid the funding of the project. Further discussion saw an amendment to resolution (b) stipulating agreement was 'in principle', and resolution (e) was accepted by the mover and seconder with no objections from the Committee, requesting that the GMO report back to the Committee with funding recommendations.

COP 11-47

Moved

Rieger/Burnell

that the Committee recommends that Council:

- a. **receives** the information in Report No. 11-176;
- b. **endorses, in principle, the proposal to extend the Lower Manawatu Scheme City Reach Project to provide 0.2% AEP flood protection to the Turitea Science Campus, with the extension to be funded by way of increased loans and an extension of the present Palmerston North Special Project rating area;**
- c. **requests** the Chief Executive to obtain confirmation of support for the proposal from Turitea property owners, prior to its presentation to the City Reach Working Party and inclusion in the Draft LTP;

- d. **requests** the Group Manager Operations to explore options for a rating differential on the Turitea Campus to compensate for the existing low property valuations; and
- e. **requests** the Group Manager Operations to report back to Council with recommendations for funding.

RIVER AND DRAINAGE ENGINEERING REPORT

Report No. 11-179

This item reported on progress with river and drainage activities for the two month period 1 August to 30 September 2011. The Group Manager Operations (GMO) presented two videos made by field staff showing recent works completed or underway in the City Reach project, Ashhurst Stream Scheme and at the Kopane Bridge.

The Councillors moved through the item page by page seeking clarification on the various activities and projects and sections outlined in the report. Discussion included progress in the study of the Foxton Loop, stormwater outlets in Whanganui, gravel erosion in the South East Ruahine scheme and others. Cr White requested that a map be provided showing the progress in the Ashhurst scheme and the GMO agreed to provide this information after the lunch-break.

Cr Chettleburgh left the meeting at 11.26am

COP 11-48

Moved

Guy/Burnell

that the Committee recommends that Council:

- a. **receives** and acknowledges the information contained in Report No. 11-179;
- b. **notes** that a Schedule of Works Completed is available for inspection.

CARRIED

TE KAWAU DRAINAGE SCHEME – CULVERT INSPECTION

Report No. 11-177

This item informed the Committee of the outcome of a recent programme of closed circuit television (CCTV) inspections of floodgated culverts under the Sluggish Main Drain stopbanks within the Te Kawau Drainage Scheme. CCTV footage was presented by the Group Manager Operations (GMO) and Mr Foxall (Area Engineer Southern) identifying significant problems that were not currently programmed for repair. It was highlighted to Councillors that as the problems had now been identified there was a responsibility to take action, and that the Scheme ratepayers needed to be consulted on how they wished to fund and proceed with repairs.

Councillors discussed the extent of the damage to the pipes and asked whether it could be expected that other culverts in the region would have equal amounts of damage in need of repair. Officers expressed that while there would be other culverts in need of repair they believed that the Te Kawau Drainage Scheme was one of the worst case scenarios due to the construction materials involved. Possibilities for repair were also discussed including collared concrete piping and internal PVC piping.

COP 11-49**Moved****Walker/Cox**

that the Committee recommends that Council:

- a. **receives** the information contained in Report No. 11-177;
- b. **notes** that the findings of the culvert investigation, together with funding implications, will be discussed with the Scheme Liaison Committee and that funding provision will ultimately be made through the 2012-22 Long Term Plan.

CARRIED

The meeting adjourned at 12.08pm.

The meeting reconvened at 1.00pm.

On reconvening a brief presentation was made by Mr McMahon (Senior Engineering Officer) (as requested earlier during discussion of Item 6, Report No. 11-179), updating them on the progress made in the Ashhurst Stream Scheme. He used aerial maps to indicate where works were taking place and clarified questions about the limitations of the scheme.

LOWER MANAWATU SCHEME – RURAL FLOOD PROTECTION UPGRADE PROJECT KOPANE BRIDGE REPLACEMENT

Report No. 11-178

This item proposed for the Committee's consideration a format for the official opening of the new Kopane Bridge. The item was presented by the Group Manager Operations (GMO) who noted that the construction of the Kopane Bridge was a significant and tangible milestone of progress in the Lower Manawatu Scheme. It was questioned as to whether there was any support in the community for an opening ceremony and the GMO confirmed that the suggestion had come from within the community. There was general support for the idea and it was proposed that this be used as an opportunity to reiterate the importance of the flood protection measures with the community.

COP 11-51**Moved****Burnell/Gordon**

that the Committee recommends that Council:

- a. **receives** the information contained in Report No. 11-178;
- b. **agrees** with the concept of a formal opening ceremony for the new Kopane bridge; and
- c. **instructs** the Chief Executive to confirm arrangements.

CARRIED

INFRASTRUCTURAL ASSET MANAGEMENT PLANS

Report No. 11-180

This item informed the Committee of progress with the preparation of a fifth generation of Asset Management Plans (AMP), and tabled for discussion a draft version of the AMP (Part A) that set out the asset management policies that are commonly applied across all Schemes, together with

two typical Scheme specific AMPs that detailed the Scheme specific policies and practices applicable for those Schemes. The item was introduced by the Group Manager Operations (GMO) in the absence of Mr Paul Joseph who was not present due to illness. The GMO spoke about the importance of the plans as Horizons were the custodians of significant community-owned infrastructure and must meet their duty of care in respect of those assets. He noted that the final budget and funding forecast figures had not been entered as these were not yet finalised.

Concerns were raised by Councillors about the legibility of some of the appendices, specifically pages 137-142, 197-205, and 254-266. The GMO apologised and said that while they were not material to the decision being made today, legible copies could be made available to anyone who requested them. He assured Councillors the problem would be fixed prior to the final documents being printed.

Councillors asked specific questions about information in the example documents provided. It was noted that asset management planning was a difficult issue to try and engage the community as it was often seen as quite 'dry'; however a greater effort would be made this year to obtain input to the process from the respective scheme liaison committees.

COP 11-52

Moved

Barrow/Rieger

that the Committee recommends that Council:

- a. **receives** the information in Report No. 11-180;
- b. **endorses** the Part A and sample Part B Asset Management Plans for the purpose of stakeholder consultation;
- c. **notes** that consultation around levels of service in particular and plan composition in general will be undertaken through Scheme Liaison Committees; and
- d. **notes** that final draft plans will be presented to Council for adoption in December.

CARRIED

WHIRIKINO STOPBANK FAILURE - PRESENTATION

In response to a prior request by Councillors, the Group Manager Operations (GMO) made a presentation on the recent High Court judgement on *Eastern Agriculture Ltd/Everleigh Farming Ltd. v. Horizons Regional Council* regarding the Whirikino Stopbank Failure in 2004.

Cr Chettleburgh returned to the meeting at 2.05pm

The GMO outlined the background to the legal action, the stopbank design and mode of failure, and the plaintiff's claim. He took the Committee through the key issues identified by the Court and the findings in the judgement. He discussed with Councillors what the implications of the findings were for Council and proposed action that may need to be taken in the future.

It was noted that the decision was still in its appeal period.

LOWER WHANGANUI RIVER FLOOD PROTECTION - UPDATE

An update was provided to the Committee by the Chair of Catchment Operations about a Lower Whanganui Scheme Working Party meeting held earlier in the week with a focus on stage two of the flood protection upgrade project. Cr Guy informed Councillors that the group would meet again in about four weeks to work on ideas for consultation. In the meantime the Council intended to meet and discuss the scheme with people at the Putiki Marae.

It was noted by Councillors that they hoped the consultation garnered better feedback than previous attempts had done and that communication should be with both directly affected parties and all those within the Wanganui District boundary.

Cr Walker left the meeting at 2.35pm

SUSTAINABLE LAND USE INITIATIVE – STRATEGIC PLAN 2011-12

Report No. 11-182

This item presented to Members the Sustainable Land Use Initiative (SLUI) – Strategic Plan for 2011-12. The report was presented by the Group Manager, Environmental Management (GMEM).

There was significant discussion around the voluntary nature of the programme and whether this contributed to its success. The GMEM reiterated that it was a voluntary programme and was considered successful by staff. There was no intention to make participation mandatory. A question was raised about whether the work done in the SLUI programme was within Horizon's mandate or whether it would be more appropriately dealt with at a district/city council level.

Following discussion an amended recommendation was moved and seconded instructing the GMEM to investigate and report on methods of accelerating implementation of SLUI.

COP 11-53

Moved

Guy/Barrow

that the Committee recommends that Council:

- a. **receives** the Sustainable Land Use Initiative (SLUI) – Strategic Plan 2011-12; and
- b. **instructs** the Group Manager Environmental Management to investigate and report on methods of accelerating implementation of the Sustainable Land Use Initiative.

CARRIED

SUSTAINABLE LAND USE INITIATIVE (SLUI)

Report No. 11-175

This report updated Members of the progress on Council's Sustainable Land Use Initiative (SLUI). The report was presented by the Group Manager, Environmental Management (GMEM).

The GMEM answered questions of clarification.

COP 11-54**Moved****Rieger/Barrow**

that the Committee recommends that Council:

- a. **receives** the information in Report No. 11-175 and Annexes.

CARRIED

PROTECTION MECHANISMS FOR LARGER SCALE GRANTS AND INCENTIVES

Report No. 11-185

This report provided Members with a background to larger scale and grants and incentives provided as part of the Sustainable Land Use Initiative (SLUI) and to outline the mechanisms that are available to protect any financial or physical contribution made as part of these grant or incentive initiatives. The item was presented by the Group Manager, Environmental Management (GMEM). He provided background information on the Splitrock Station venture in which Horizons had found itself an unsecured creditor and discussed the mechanisms that could be used in the future to avoid this.

An amended resolution was moved and seconded which included details of the mechanisms being endorsed and to give reference that it was only larger projects that would be subject to these mechanisms (where a financial threshold is triggered).

COP 11-55**Moved****Cox/Gordon**

that the Committee recommends that Council:

- a. **receives** the information in Report No. 11-185;
- b. **endorses** the introduction of new financial protection mechanisms being a personal property securities register and/or a registered second mortgage, whereby Horizons secures any grants or cash paid in advance by way of a Register of Financial Interest where a financial threshold is likely to be triggered.

CARRIED

MEMBERS' QUESTIONS

Councillor McKellar requested further information about the source of information relayed in the Auditor-General's *Managing Freshwater Quality – Challenges for Regional Councils* report. His specific concern related to point 4.55, p 55: "Horizons Regional Council also notes that its primary non-regulatory programme for addressing sedimentation entering water from hill country (the Sustainable Land Use Initiative) might be less effective because the programme is voluntary". Officers undertook to try and provide him with that information.

The meeting closed at 3.30pm.

Confirmed

GROUP MANAGER OPERATIONS

CHAIRMAN

A Significant decision? If Yes	No
Do recommendations meet Significance Policy (contained within the LTCCP)	

Item No: 6
Date: 14/12/2011
Report No: 11-221
File No: OMS 15 41

RIVER AND DRAINAGE ENGINEERING REPORT

PURPOSE

1. The purpose of this item is to report on progress with river and drainage activities for the three month period 1 October – 30 November 2011.

FINANCIAL IMPACT

2. Funding provision for all activities reported on in this item is included in the 2011-12 Annual Plan under the River and Drainage Schemes Activity.

COMMUNITY ENGAGEMENT

3. Various matters contained in this item either have been or will be communicated with Scheme ratepayers through their respective Scheme Liaison Committees. As necessary, other issues will be the subject of media releases.

BACKGROUND

4. The primary focus during the period has been the completion of draft Asset Management Plans (AMPs) for 28 Schemes and the presentation of those to the respective Scheme Liaison Committees. A large component of this work has been the development of detailed Scheme budgets for the next three years and financial forecasts for the next 10 years. Despite the very tight timeframe as dictated by the Long Term Plan (LTP) process, critical deadlines were met and some valuable feedback was received. A separate agenda item discusses that process and seeks the Committee's endorsement of the Draft AMPs for inclusion in the Draft LTP.
5. Despite the unfavourable weather experienced over much of the period, a good start has been made with agreed maintenance programmes across many Schemes. The impetus will obviously build up with these programmes over the next two or three months.
6. A considerable amount of preparatory work was completed in respect of the large number of capital works projects planned for the approaching construction season. The first two or three tenders have been advertised and there has been a pleasing response to those, indicating that there is not a lot of civil construction work available and that a competitive market can be expected, at least for the early part of the season. It is therefore, imperative that as much work as possible is advertised for tender over the next two months.
7. The resignation of the recently appointed area Engineer (Northern) has been particularly disappointing and is yet again another chapter in the on-going saga of recruitment challenge around this particular position. An interim arrangement is in place that will maintain an adequate level of service, albeit with a reduced workforce and undesirable load on other staff. It is anticipated that a recruitment programme will be initiated again in the New Year.

8. The Plaintiffs in the Whirikino Stopbank Breach Trial have lodged an appeal to the High Court judgement delivered on 7 September. The appeal is focussed on the factual findings of the High Court. We are advised that Appellate Courts are generally reluctant to overturn factual findings. It is understood that it could be up to 12 months before the case is heard by the Court of Appeal.
9. A considerable amount of effort has continued to be applied in preparing for reconvening the Hearing for consents to divert additional flood water into the Taonui Basin. The only significant outstanding task to be addressed before a final information capsule is forwarded to the Hearing Commissioners is the property-by-property assessment of effects, based on the new 'before and after' flood analyses that were the subject of Milestone No's 1 and 2 Reports. We have been successful in engaging an agricultural economist with considerable experience and credibility in this type of work and we can be confident that robust information will be presented at the Hearing. It is anticipated that the final information will be forwarded to the Commissioners by the end of February.
10. Further progress has been made and meetings held in respect of the proposed Manawatu River channel realignment adjacent to Anzac Park Cliffs. Re-survey of the channel as a pre-requisite to undertaking detailed design and work methodology development work, as required for the consent application, has identified a considerable increase in erosion and resulting cliff retreat since 2005. Project estimates will be revised once the design details are finalised and that information, together with an update on consent application and general project matters will be provided at the February meeting of the Committee.
11. Following the Council meeting held on 29 November, when it was agreed that the main thrust of consultation for Lower Whanganui River Scheme Stage 2 capital works should not commence until the New Year, staff have revised the consultation programme. It has been decided that the newsletter will now be individually mailed to reach households on 16 January and that feedback will be received up until 6 February. Editorial coverage will commence in the week preceding the newsletter distribution and will extend over the three week feedback period. A public meeting will be held on or about 19 January and a stall at the River Traders' Market will be arranged during the feedback period. A Lower Whanganui River Scheme Working Party meeting will then be held in the week commencing 13 February to consider the feedback and make a recommendation for Council's consideration at its meeting on 16 February.
12. As previously advised, a proposed formal opening of the new bridge at Kopane in early December had to be postponed on account of project delays resulting from inclement weather. The opening is now scheduled for Saturday 4 February and Ian McKelvie, the retiring Manawatu District Mayor and newly elected MP for Rangitikei has confirmed his availability on that date. Further details will be made available in due course.

ASSET MANAGEMENT

13. The asset management team has been fully engaged with the three yearly revisions of all 28 AMPs. These plans were completed on schedule and were issued as a draft to their respective Scheme Liaison Committee members. Meetings were subsequently held with Area Engineers to hear Scheme Liaison Committee members' feedback. The plans were well received and had been read and understood by most Scheme Liaison Committee members. A common concern from the Committees was the reduced level of asset insurance for the 2011-12 year and the target levels for financial reserves. The plans have been revised to reflect the feedback from the Scheme Liaison Committees.
14. A separate agenda item presents the Plans for adoption for inclusion as part of the 2012-22 LTP.

SCHEME REVIEWS AND AUDITS

TARINGAMOTU RIVER MANAGEMENT PROPOSAL

15. Council, at its meeting in October, adopted the recommendations of a Special Hearing Committee as regards the establishment of a new vegetation and channel management Scheme for the Taringamotu River. Subsequently, a letter has been sent to all submitters and to riparian owners, advising them of the outcome of the submissions Hearing process. Information was also provided as regards the opportunity to make further submissions on the proposed Scheme through the statutory Draft LTP process.

FOXTON EAST DRAINAGE SCHEME AUDIT

16. Initial scoping and data gathering was completed for the scheduled audit of the Foxton East Drainage Scheme. It is anticipated that the audit findings will be available for the February committee meeting.

UPPER MANAWATU SCHEME AUDIT

17. A full review of the Upper Manawatu/Lower Mangahao Scheme was undertaken between 1997 and 1999. Since then, there have been some significant changes in Scheme objectives. For the period between 2000 and 2004 the Scheme provided only a minimal level of service. Subsequently, the Scheme has returned to a full service, with an amended rating system and has functioned very well. However, given the changes that have occurred and the time elapsed since the last review, it is timely that an audit be undertaken and provision has been made in the 2011-12 Scheme budget accordingly. John Philpott and Associates have commenced the audit and it is anticipated that a report will be available for the Committee's consideration in February 2012.

SOUTH EAST RUAHINES SCHEME AUDIT

18. The South East Ruahines Scheme was last reviewed in 2003. Arising from that review was a recommendation that some substantial capital improvements be completed over a period of seven years. Those works have all been completed and the Scheme has settled into a maintenance phase. It is now an opportune time to take stock of what has been achieved through that capital programme and to confirm that current Scheme management and funding are appropriate for the next five to ten years. Provision has been made in the Scheme budget for 2011-12 for an audit. Again, John Philpott and Associates have commenced the audit and it is anticipated that a report will be available for the Committee's consideration in February 2012.

DESIGN AND INVESTIGATIONS

WHANGANUI FLOOD RISK AND MITIGATION OPTIONS

19. The detailed investigation of flooding issues in the Ngatarua Stream has not progressed, as it is awaiting inputs requested from Wanganui District Council (WDC) staff. This work is not directly related to the flood risk from the Lower Whanganui River, but has been raised as an important matter to be addressed and Horizons Regional Council (HRC) has agreed to assist in progressing the matter to a solution.
20. Phase One design for both Putiki and Anzac Parade flood risk areas has been critically reviewed. The flood risks in the 50 and 200-year floods have been carefully documented and mapped to enable the public to make informed assessments of these risks. In this regard there are 80 houses that will flood in the 200-year flood at Anzac Parade, some to depths of 2.0 m above floor level (and exclusive of freeboard provision). There are

18 houses and one community building that will flood to greater than 1.5 m above floor level.

21. The biggest flood in recent memory was the 30-year flood in 1990. This overtopped stopbanks at Kowhai Park and entered properties at Anzac Parade. The flood frequency analysis is a robust assessment and indeed there is no doubt that the rarer floods will flood to considerable depths in houses. Whilst the Lower Whanganui River has not had a large flood since the 70-year flood in 1940, it will indeed have its turn. The magnitude of actual risk cannot be understated. However, this is not to say at all that the project will proceed, simply that the risks should be understood.
22. The alignment of the stopbank option through Kowhai Park will be subject to a detailed botanical impact assessment, to mitigate any adverse impacts. This assessment is underway.
23. Alternative options are being looked at. For example the cost of removal of the 80 houses plus the cost of acquiring land and providing services is likely to range between \$6 and \$8 million. To this must be added the immense social disruption. The capital cost of this option would be significantly more than the stopbank option costing \$4 million. Another alternative to be costed is raising Anzac Avenue. Again this option will be expensive.
24. The impact of the completed Balgownie Stopbank on flood levels elsewhere was reassessed. An independent analysis confirmed that the flood levels are estimated to be raised by just 11 mm in a 200-year flood. This is because the size of the Balgownie flood compartment is very small relative to the volume of the flood hydrograph. Furthermore, the depths in the Lower Whanganui River are almost an order of magnitude more than those through Balgownie (pre-stopbank) and velocities more than an order of magnitude greater than those through Balgownie. Thus there is no possible impact on the state of the erosion protection structures on the South Spit.
25. The impact of the South Spit Overflow Weir was also re-examined. To summarise the weir has a net effect of lowering flood levels in the 200-year flood by a maximum of 450 mm opposite Balgownie, 350 mm at Putiki and 150 mm at Anzac Parade. The weir would cost at least \$1.5 million and only reduce stopbank costs by \$50,000. Thus the total cost would increase by \$1.45 million
26. There is an immense movement of sand by the South Spit and there would be consequent, serious problems in keeping sand out of overland flow path. It is extremely unlikely that this solution would provide the required benefit when needed and thus currently confidence in the option is low. The option would likely require detailed physical modelling if it were to be progressed further in the future.

TAONU BASIN

27. Before the Taonui Basin Hearing can be reconvened, the major remaining task is a property by property assessment of effects on farming operations. An agricultural economist has been engaged to carry out the work. He in turn has engaged a local agricultural consultant, to interview farmers property by property.
28. A pre-requisite for this assessment is a number of very detailed maps, showing durations of flooding for a range of flood sizes. The maps required are more detailed than those in the Milestone No. 2 Report.
29. Six maps are required, each for a different flood size, with the range between 50% AEP (2-year) and 0.5% AEP (200-year). Four different zones have to be shown on each map, corresponding to the area flooded for up to three days, between three and five days,

between five and eight days, and for more than eight days. The maps have to show how these zones change between the baseline case, and the case where the Lower Manawatu Scheme (LMS) upgrade and all mitigation works have been completed.

30. Significant additional analysis was required to provide the base information for the maps that are now being generated by the GIS team. The base information consists of ponded water levels for each flood size, for each duration, for each of up to four separate basins, and for the baseline case compared with the LMS upgrade plus drainage mitigation works.
31. Most of the levels for the larger floods had already been generated for the Milestone No. 2 Report. However, some additional modeling was needed for the 10% AEP and 50% AEP events. Modeling of the basin topography for simulation of the larger floods was coarse and approximate. This was quite adequate for the large volumes of water in the large floods, but was inadequate for the smaller floods. A more detailed model was set up, using LiDAR data for the topography, as well as better definition of the spillway crests and the existing culverts. An additional benefit of this modeling is that the benefits of the proposed new 7.5 cumec pump can be demonstrated in more detail than previously possible.

KOPANE BRIDGE

32. Design levels and alignments were finalized for the stopbank upgrade work required to link the new Kopane bridge formation into the existing upgraded stopbanks both upstream and downstream of the bridge. In accordance with earlier decisions, those 'link banks' will be constructed to the pre-2004 1% Annual Exceedance probability standard. Significant design work also went into the rock linings at the bridge abutments, with a review of this design required after poor site conditions were encountered. Fortunately, the reviewed design does not materially increase costs.

RANGITIKEI RIVER

33. Further design advice was given in respect of a significant erosion problem that threatens the integrity of the Rangitikei River stopbank at Parewanui. A previous design was modified to optimise the use of concrete rubble and thereby minimise costs, without compromising protection standard. Tenders have subsequently been called for the work.

ANZAC PARK CLIFFS

34. Detailed design work has progressed in relation to the proposed Manawatu River channel realignment work at Anzac Park cliffs. The design must reflect the significant retreat of the cliff since preliminary investigation and design was undertaken in February 2008. The final design details are required as part of the consent application currently being prepared.

STANSELLS DRAIN CULVERT DESIGN

35. A peer review of the Stansells Drain design was completed by the Manager Investigations and Design. The principal findings of this review are:
 - The design flows in the Wheeler report are accurate. The 5-year design flow of 17 cumecs is confirmed.
 - A single 1200 mm box culvert is incredibly undersized for carrying flows from a catchment of eight square kilometres, with headwaters in the foothills of the Tararua Ranges. The current culvert can only carry a maximum of six cumecs. To carry just the

5-year flow would require a velocity ranging 10 to 12 m/s; far above the accepted maximum of 5 m/s.

- Whatever culvert upgrade is proposed it is likely that there will be some restriction to flow from the concurrent flow in the Mangaore Stream. However, the current undersized culvert seriously restricts the opportunity to release flows in the early and post-peak stages of the flood.
- Duplicating the culvert provides far more opportunity to reduce ponding in Stansells Drain. The discharge doubles and the head required for the same discharge markedly reduces. For example six cumecs would discharge at a head of 0.4 m rather than 1.5 m (for a single culvert).
- The alternative of a 450 l/s pump provides just under one-tenth of the capacity of the proposed additional culvert.
- The 450 l/s pump thus would not provide anywhere near the required capacity to materially reduce ponding. To have any impact would require a significantly larger and much higher capital cost pump.
- A final recommendation arising from the review was to install a 1.5 m diameter circular culvert instead of the box culvert. These culverts are readily available, at a similar cost and have a slightly greater flow capacity.

MANAWATU DRAINAGE

36. The draft technical brief for a new pump station at Burkes floodgates has been prepared. Once that has been reviewed, it will be used as the basis of design/build contract documentation. It is proposed that such documentation be prepared by suitably qualified consultant engineers early next year and that tenders for the substantial design and construction project then be sought.

WAIKAWA TO HOKIO COASTAL HAZARDS

37. There has been no progress made during the period as regards the investigation of coastal hazards along the Waikawa-Hokio coast. The company engaged to produce the pre-requisite Digital Terrain Model (DTM), Hawkeye UAV Limited, has been unable to meet its contract commitments to date. It is understood that they have recently re-flown the area and the data is due imminently. Once that data is available, the coastal hazard consultants (Tonkin & Taylor Ltd and Coastal Systems Ltd) have indicated the project can be expeditiously recommenced. It is anticipated that the entire project and peer review can be completed within six weeks of receipt of the DTM.

FOXTON LOOP

38. Instrumentation was installed and the collection of sedimentation data over a full Spring tide was completed. This work had to be delayed until there were sufficient daylight hours to safely complete the work during a spring tide. Multiple measurements were taken at various locations over the full tidal cycle.
39. The data recorded is currently being loaded into the computer model and initial model runs will follow. The findings will be presented at the next meeting of the Catchment Operations Committee. The remaining data collection required is sedimentation data during a flood event.

REGULATORY ADVICE

40. With the construction season upon us, a substantial amount of specialist advice on flood risks and technical reports for consent applications, re-zonings and subdivisions has

been requested during this reporting period. Recent rainfall events also added to the list of tasks. There were 35 recorded substantive matters, including:

- Technical assessment of two small bridge applications and associated works.
- Technical assessment and advice on a ford on the Taringamotu River.
- Advice on protection works at Echolands (on a difficult, steep and constricted site), Aokautere and AgResearch.
- Assessment of gravel in three locations – one being the Rangitikei River in the degradation zone and the other two in the Kawhatau Stream and Taringamotu River. The quantity applied for in the Rangitikei River was in accordance with previous agreements on the cutbacks in that reach of the river.
- A meeting was also held with all five extraction companies in the Mangarere Road to Rewa reach of the Rangitikei River. This reach is overall slightly aggraded and agreement was reached on the path forward to ensure the Proposed One Plan policy was met.
- Advice on the Foxton seawall monitoring report.
- Advice on two sections of the WDC cycleway along Somme Parade.
- Two significant subdivision assessments and several minor ones involving both individual buildings and multiple lot subdivisions. This included assisting Horowhenua District Council (HDC) with identifying and mitigating effects on the Makamako Road, Levin development.
- Several substantive compliance issues including flooding issues near Levin, the impacts of the Manawatu Gorge slip and other landowner complaints.
- Advice to Manawatu District Council (MDC) on stormwater runoff from a proposed industrial development in Turners Road, Feilding.
- Continued comment to Palmerston North City Council (PNCC) on several matters relating to future urban growth options plus provision of data for their over-design rainfall flooding assessment for Palmerston North.
- Advice to Planning and attendance at mediation on several Proposed One Plan issues. These were all satisfactorily resolved.

DESIGN ADVICE

41. Significant design advice has continued to be given to Operations Group project and scheme management staff and other departmental staff in relation to several matters. This included:
- Final design of rock riprap protection on the Mangatainoka River at the Fonterra location. This is a difficult design due to the scale of the erosion experienced and major overflows from upstream that would cross the protection works when they re-enter the river – unless specifically excluded by an upstream stopbank. The final design has made provision in the rock lining for the re-entrant flows. Excluding the upstream overflows, would have meant a redistribution of flows in the Mangatainoka River and may have directed erosion elsewhere;
 - Detailed survey and design of protection works for two erosion sites on the Lower Manawatu River. These sites are at Landcorp (near the 12 mile cross-section) and Seymours (immediately upstream of the 22 mile cross-section). The sites both suffered erosion in the September 2010 floods.
 - Detailed survey and design for the Patching's site on the Oroua River. Again, this site suffered erosion in the September 2010 flood.
42. Assistance was also given to Catchment Investigations with an audit of the detailed evaluation of floodplain mapping proposals for Feilding Township and adjacent rural areas.

CENTRAL AREA

GENERAL

43. Weather conditions over the reporting period have been extremely unsettled. This has made ground conditions at a number of work sites unsuitable for stockpiling of rock and operation of heavy machinery.
44. The stopbank raising and upgrade contract works at Albert Street on the City Reach Project are on hold and will need to wait until drier ground conditions exist.
45. Also delayed because of the ground conditions, is completion of flood damage repairs resulting from the September 2010 floods. To date, 100 sites have had various repairs including tied tree protection, concrete riprap, rock riprap, timber walls, and earth stopbank reinstatement.
46. Work was completed at five erosion sites adjacent to the haul Road upstream of Higgins aggregate depot on Te Matai Road.
47. Reinstatement works at a further five erosion sites will complete all outstanding damage repairs from the September 2010 floods. These sites, involving a mix of insurance and capital works are planned to be completed in the New Year.
48. Peak flow at the Teachers' College recorder site for the period was 750 cumecs (3.57 m stage) on 10 November. There were four other small freshes over the 2 m stage height with flows around 300 cumecs.
49. The Makino Stream at Reids Line recorded 2.019 m (22.2 cumecs) on 19 October. Localised high intensity rainfall caused a very rapid rise in stream levels and triggered the mobilization of a gate closing crew. However, the stream ultimately peaked approximately 500 mm below the gate closing threshold and receded quickly.
50. The Mangaone Stream also experienced a number of high flows, with a peak of 2.58 m recorded at Milson Line on 29 October.
51. Other rivers within the Scheme all experienced elevated flows with some minor bank erosion noted.
52. The LMS Scheme Liaison Committee met on 24 November 2011, primarily to discuss the draft AMPs, but also to consider the 2011-12 works programme and budget. The LMS manages assets with a replacement value exceeding \$168 million.

LOWER MANAWATU SCHEME

53. Works undertaken on the various rivers within the Scheme during this period include the following:

MANAWATU RIVER

54. Scheduled seasonal maintenance work including inspection and clearing of many Scheme floodgates, drain cleaning, including the Blackmore and Goodman Badger Drains, stopbank repairs and mowing were completed. Further mowing will be undertaken prior to Christmas to leave stopbanks and walkways in a tidy condition over the holiday period.

55. Approximately 2000 willow poles were machine planted, 1400 poles were hand planted and a total of 330 m of edge planting was layered at several sites from Foxton through to Raukawa Road.
56. Vegetation clearance was undertaken over 900 m of river bank and 2 km of fencing was either erected or repaired across seven sites.
57. Repairs to concrete riprap linings were undertaken, with 30 tonnes placed at Foxton Beach, and a minor damage repaired at Stacey's Road. A culvert on Himitangi Block Road was repaired with the placement of rock riprap to prevent future scouring of the culvert outlet.
58. No river bend maintenance (layering of willow trees) was undertaken in this reporting period; work is expected to start in early December.
59. Mechanical mulching of 500 m of willow regrowth was completed at Jamieson's property at 88.5 km on the left bank of the Manawatu River.
60. All other river bends on the Manawatu River have been inspected for willow regrowth in preparation for a spray programme scheduled to commence in December.
61. Concrete riprap linings at five sites were repaired adjacent to the haul road at Higgins aggregate plant on Te Matai Road. The total distance of the repair works was 120 m with approximately 980 m³ of concrete placed.
62. Similar works at two sites on the Manawatu and one on the Oroua, are still to be undertaken to complete the insured reinstatement works resulting from September 2010 flood event.
63. Machine cleaning of the Blackmore Drain was undertaken, along with the completion of the Goodman Badger drain above Napier Road.

OROUA RIVER

64. Tree removal from the Oroua River stopbank over a length of 250 m was undertaken at Kuhne's property at river distance 29.3 km.
65. Channel obstructions were removed from the Reesby property at river distance 21.6 km and at AgResearch at 18.0 km.
66. Concrete riprap was placed in erosion sites on the Oroua River over a total length of 372 m.
67. Erosion protection works were undertaken at B Frecklington's property at 25.0 km on the true left bank. This work included gravel redistribution and the construction of three concrete groynes.

MANGAONE STREAM

68. A number of recent minor freshes in the Mangaone have caused bank slumping and the stripping of unconsolidated fill behind new timber retaining walls. Repairs will be undertaken as soon as weather and ground conditions improve.
69. Programmed stopbank mowing and associated spraying work was carried out within the Palmerston North City reach. A further mow is expected before Christmas period.

MAKINO STREAM

- 70. One hundred tonnes of concrete riprap has been placed over a length of 40 m behind Cotton's Funeral Home.
- 71. At Patching's property located at 1.8 km on the right bank, 106 tonnes of rock was placed over a 10 m length of river bank. This work was undertaken with the landowner paying for the rock and the Scheme meeting placement and associated channel maintenance costs.

MANGAORE STREAM

- 72. Design work has been completed and planning is progressing for the installation of a new culvert under the Mangaore stopbank to provide improved outlet from Stansells Drain. The work is estimated to cost \$65,000, including stopbank upgrading over a section of 100 m which will be completed at the same time.
- 73. Some erosion of the right bank at William's property necessitated a repair involving the placement of concrete riprap over 20 m and some clearing of vegetation to increase channel capacity.

MOUTOA FLOODWAY

- 74. All lateral floodgates through the floodway were inspected and maintenance work undertaken as required.
- 75. General scheduled maintenance of the main gates structure and control tower building was completed. The burglar alarm was repaired after a lightning strike in the area caused an electrical surge affecting electrical equipment across the wider Moutoa area.

STONEY CREEK, KARA STREAM and MANGAPUKATEA STREAM

- 76. Stopbanks and floodgates were inspected and minor maintenance completed as required.

LOWER MANAWATU SCHEME – CITY REACH PROJECT

- 77. The largest project to be completed during the 2011-12 year is the raising of the stopbank over a distance of approximately 1.54 km between Albert Street and Fitzherbert Avenue.
- 78. Construction of the first section, being a 360 m length of 'planterbox' wall immediately upstream of the Fitzherbert Avenue Bridge and adjacent to Centennial Drive, has been commenced. The alternative design has been adopted to avoid disturbance of a line of existing specimen trees along the existing stopbank that would result if it were to be raised in the conventional manner. This alternative design consists of twin timber retaining walls, spaced 3 m apart, with the area between to be back-filled with compacted soil up to the design height. A similar structure has been utilised on the Whanganui River at Balgownie.
- 79. This construction starts at the vehicular access ramp upstream of the Fitzherbert bridge and extends to the first access ramp upstream of the Teachers' College river gauge site – approximately 363 m. The timber retaining walls have been completed. The earthworks i.e. backfill between walls, will be completed when suitable weather conditions allow.

80. Surveys, drawings, and design for the raising and upgrading of the 1180 m length of stopbank from Albert Street through the Manawatu Golf Club, to link with the above mentioned 'planterbox' wall have all been completed and land entry agreement with the Golf Club has been achieved.
81. A tender was publicly advertised in September for the supply and placement of 22,320 cubic metres of suitable material for the works. Six tenders were received by the closing date of 10 October 2011. The contract was subsequently awarded to Stringfellows Construction Ltd of Palmerston North for the tendered sum of \$399,990.00. The start of the physical works has been delayed due to continual rain and very wet ground conditions.
82. Separate works to raise the Albert Street extension road over the previously upgraded stopbank by 450 mm have been completed.
83. A number of meetings and discussions have been held and are continuing to take place with various parties and landowners in relation to the proposed re-alignment of the Manawatu River at the base of the Anzac Park Cliff.

LOWER KIWITEA STREAM SCHEME

84. A Scheme Liaison Committee meeting was held at Cheltenham on 17 November to discuss the new AMPs for this Scheme. Also briefly discussed were the state of the Scheme finances and the 2011-12 work programme.

ASHHURST SCHEME STREAM

85. The only maintenance work required within the Scheme over this reporting period was the mulching of a length (180 m) of overgrown hedge, adjacent to the stream edge.
86. However capital works have progressed in respect of the programmed upgrade of flood protection for the residential and industrial areas of Ashhurst Township. In particular, construction work has been completed as follows:
- At the Edmond property at 1.75 km LB, downstream of Mulgrave Street, where a 37 m long concrete floodwall and associated site works were completed.
 - At the Lloyd property, 2.66 km LB, adjacent to Winchester Street, where vegetation was mulched along the line of the proposed stopbank (240 m).
87. Preparatory work including site surveys, detailed design, drawings and land obtaining entry agreement has progressed in relation to all sites where outstanding works are to be undertaken during the current construction season. Competitive prices will be sought for those works over the next few weeks.
88. On-site meetings have been held with the PNCC staff regarding works they have undertaken to complete in relation to the flood protection. These include raising the level of Custom Street in the vicinity of the Ashhurst Stream crossing, installing a new box culvert under Oxford Street, and installing new culverts in roadside drains in Mulgrave Street and North Street.

LOWER MANAWATU SCHEME RURAL FLOOD PROTECTION UPGRADE PROJECT

KOPANE BRIDGE REPLACEMENT

89. Work is progressing according largely to schedule for the Rongotea Road realignment, however four weeks of wet weather during October effectively stopped haulage of bulk fill

material for the embankment. This delay is disappointing after the rapid progress that was achieved during previous months and would have allowed for a practical completion date well before Christmas. The contractor has been able to move some material with the use of dumpers loaded by excavator however this process is much slower than using self-loading motor scrapers which have been unable to operate in the wet conditions.

90. The Traffic Management Plan which permits one-way traffic movement across the new bridge has been extended into December. Two-way traffic movement is expected to commence no later than 9 December and road sealing is anticipated to have been completed by mid-December, subject to suitable weather conditions.
91. Construction of the rock linings at the bridge abutments has been completed on the right bank and work is well advanced on the left bank.
92. Discussions have been held with MDC officers to plan for a smooth hand-over of both the completed bridge asset and maintenance responsibility for the new section of Rongotea Road carriageway.

LINK BANKS AT KOPANE

93. A tender in respect of the stopbank upgrades required to link the new road embankment into the existing upgraded stopbanks both upstream and downstream of the bridge has been advertised with tenders to close on 17 November. The tender document stipulates a contract start date once practical completion of the Kopane Bridge construction project has been achieved to avoid conflict between the two activities on site.
94. Building and resource consent documentation has now been completed for the relocation of the Palmerston North Gun Club clubroom building on the downstream left bank, as a pre-requisite to constructing the link bank. This has involved a protracted negotiation process due to the Gun Club's concern at the loss of available parking space caused by the stopbank realignment. Both the Gun Club and the landowner have now signed their approval on the building and resource consent documents which have been lodged with MDC. The club building will ultimately be located on top of the new section of stopbank.
95. Building and resource consent documentation has also been approved by the owner of the downstream right bank property for the demolition and replacement of three existing equipment sheds. The current position of these sheds interferes with the proposed stopbank alignment. Compensation agreement has also been reached in respect of this item of work.
96. Based on initial conversations with MDC planning staff, no significant difficulties are anticipated in respect of these various approval processes.

PAIAKA ROAD STOPBANK UPGRADE

97. Survey and design work has been completed in respect of a 70 m length of stopbank set-back on the left bank of the Manawatu River at Paiaka Road. This section requires realignment due to erosion encroaching to within two metres of the toe of the existing bank. Contract works are programmed to be carried out in January 2012.

NORTHERN AREA

GENERAL

98. Weather conditions during October and November have generally been unsettled with October being particularly wet and warmer temperatures, showers and strong winds

being experienced in November. Elevated flows were frequently experienced in a number of rivers with the Rangitikei and Whanganui Rivers reaching their first trigger warning levels of 4 m at Mangaweka (three occasions) and 6 m at Pipiriki respectively. With elevated river levels certain types of river works, particularly those involving the cartage of materials off-road, have been delayed.

99. Scheme Liaison Committee meetings were held during late November for the Upper Whanganui, Turakina, Pakihi, Porewa, Tutaenui, Rangitikei and Pohangina – Oroua Schemes. Although attendances have ranged from poor to good the feedback has been generally positive with helpful discussions on the individual Schemes' activities. The draft AMPs have been presented and discussed and all Scheme Liaison Committees have endorsed the level of service that each Scheme has agreed from the most recent Scheme Reviews.
100. During this period of unsettled weather all Scheme planting programmes have been completed and some progress has been made on programmed bank protection work and vegetation management. Outstanding flood damage work is mainly in the Rangitikei River Scheme and work is about to recommence on specific rockwork sites. Some design work and contract documentation is required on the larger sites before physical works are commenced.

RANGITIKEI RIVER CONTROL SCHEME

101. Maintenance works including layering 1025 m of willows, installing 80 m of tree bank protection work, spraying 17 km of pest plants, spraying 3 ha of regrowth on beaches, clearing 2 ha of beach vegetation, inspection of all flood gates in the Parewanui area and repair of a flood gate winch at Tangimoana, has been completed. A high priority is being given to widening the river fairways through vegetation clearance, as recommended in the recent Scheme Review, and this work has already commenced.
102. Tenders have been received and a contract should be awarded in early December for construction of a rock lining at river distance 7.7 km adjacent to Flockhouse Farms where the true right bank has eroded to within 25 m of the stopbank. The 100 m rock lining will incorporate a large amount of demolition concrete sourced from Flockhouse Farms.
103. Arising from the September 2010 flood event there has now been \$205,000 of insured flood damage work completed at six sites, from an estimated total of \$955,000 of damage to insured assets. A further \$68,700 of non-insured flood damage was completed last financial year. Approval of a total loss adjusted claim of \$684,500 for damage to Rangitikei Scheme assets has now been confirmed by our insurers. This leaves approximately \$270,000 of insured flood damage repairs that will not be funded by insurance but will require a drawdown on Scheme reserve funds. All outstanding scoping reports have been submitted to the Loss Adjustor as requested but some of those will need to be amended when designs have been completed and firm estimates of costs prepared.

FLOOD PROTECTION UPGRADE PROJECT

104. Some final tidy up work is in progress in relation to the Tangimoana stopbank upgrade. This includes re-grassing the crest and batters of some sections of stop bank, installing some "knee breaker" and other miscellaneous fencing, and installing retainer walls at the end of the stopbanks on Tangimoana Beach Road.
105. A resource consent application is currently being prepared for upgrading the remaining 6 km of the Parewanui stopbank, which includes the extension of six culverts ranging between 150 mm and 1500 mm diameter. It is proposed to extend all of those culverts

within one contract this season and work is well advanced with the necessary design and contract documentation.

106. Weather permitting, the pipework through the stopbank for the Tangimoana pump station will be installed in early December. The switchboard has been installed with final power connections to be made when pipe work installation has been completed. Completion of the project will resolve a long-standing stormwater egress problem for the Township and negate the requirement to bring in portable pumps for flood relief.

POHANGINA-OROUA RIVER CONTROL SCHEME

107. Although there have been a number of freshes in both the Oroua and Pohangina Rivers during this reporting period, levels have been generally low with the highest being 2.2 m at Mais Reach recording site on the 25 November. Inspections indicate that there has been no further significant flood damage.
108. With all willow pole planting in the Scheme areas and Totara Reserve now completed, the focus has turned to channel maintenance and bank erosion protection work. A total of 330 m of tree bank protection work, being partly landowner funded, was completed on five separate properties. Other Scheme work completed on the Oroua River included planting 1180 willow poles and clearing 4.3 ha of vegetation over a 2 km reach. On the Pohangina River, 1050 willow poles were planted, 50 m of willows were layered and 200 m of channel clearance was completed.
109. At Totara Reserve a large amount of vegetation and debris which was causing bank erosion and channel braiding was removed from the channel.

Gravel extractions under the Scheme's global consent during October-November were:

- Pohangina – 15,000 m³
- Oroua – 3,500 m³

110. A meeting of the Scheme Liaison Committee had an average attendance but there was an air of confidence that the Scheme is being both managed effectively and that the approach adopted by the Scheme of private funding of 60% of the bank erosion work is working well. Members considered that the Scheme has made good progress since this novel regime was introduced three years ago.

UPPER WHANGANUI RIVER MANAGEMENT SCHEME

111. Good progress has been made during this period with the mechanical cleaning of 215 m of drains, the removal for sale of 10 loads of poplar logs, rock repairs at two sites, clearance of vegetation from 100 m of stopbank and the erection of 100 m of fencing at the same site.
112. Revised "As Built" survey drawings for a recently completed rock lining contract just downstream of the Matapuna Bridge have been received and all outstanding contract issues have been resolved.
113. Difficulties are being experienced over agreement on royalties for gravel extraction by two contractors who have expressed interest in the extraction work. Staff are endeavoring to reconcile the matter to ensure channel management work is not put in jeopardy.
114. Following positive support from both the Scheme Liaison Committee and from Ruapehu District Council (RDC), a proposal for the extension of the Scheme to include the lower

reaches of the Ongarue River within Taumarunui Township, has been included in the Draft LTP.

115. Survey work has commenced for programmed rock lining works downstream of the Matapuna water intake. This will be followed up with design work, plans and contract documentation, with physical works to be undertaken during the summer low-flow period.

MATARAWA FLOOD CONTROL SCHEME

116. Despite unsettled weather, no ponding was recorded in any of the dams. All dams were inspected and any necessary maintenance was attended to. Maintenance work including the poisoning of encroaching willow growth was completed on Bardell Drain.

WHANGAEHU MANGAWHERO RIVER MANAGEMENT SCHEME

117. Work has recently commenced with two large poplar harvests in the kiwi fruit orchard area, as part of the vegetation clearance/management programme. Progress has been made with the Cooper Coolpac Kiwi Fruit Orchard owner with agreement being reached to aerial spray willow regrowth in that area. This will save the Scheme about \$30,000 compared with alternative clearance methods. It is hoped that all willow clearing will be completed for the Scheme this year as it is the final year of programmed major capital expenditure. The only work completed during the period was planting and releasing of 200 flax plants.
118. By agreement no Scheme Liaison Committee meeting was held at this time.

LOWER WHANGANUI VEGETATION MANAGEMENT AND FLOOD PROTECTION PROGRAMME

119. Works undertaken during the period included the monthly maintenance at Upokongaro Jetty, clearing 530 m of willow, releasing 3200 shrubs in the Balgownie area and releasing shrubs over 400 m in the Mateongaonga and Upokongaro areas.
120. Monthly inspections were completed for the 3.2 km of Balgownie flood protection works. All stopbanks were mown, walkway edges and fence lines were sprayed, damaged bollards were replaced and silt and debris was removed from one gated culvert outlet
121. An area immediately downstream of the Sailing Club and in the vicinity of the boat ramp has been leveled and surfaced with compacted lime rock.
122. Discussions have been held with WDC staff and with Sailing Club personnel regarding fly dumping in the vicinity of the club facilities. Various options are being considered for addressing this undesirable behavior.
123. A flood barrier erection training session was held for Wanganui based Horizons Environmental Management staff, who have undertaken to provide that emergency response service on a 24/7 basis. A total of 10 staff have been trained and a minimum of four staff are required to erect the two barriers at Q-West and at the Sailing Club, on receipt of an advance flood warning.
124. All components of the 3.2 km of the capital flood protection works at Balgownie have now been completed.

HAUNUI DRAINAGE SCHEME, FOREST ROAD DRAINAGE SCHEME, TUTAENUI SCHEME, POREWA VALLEY SCHEME, TURAKINA RIVER SCHEME, PAKIHI SCHEME

125. There was no work undertaken within these six Schemes during the period.

EASTERN AREA

GENERAL

126. A higher than normal rainfall over the last two months has caused flooding in most Scheme rivers. This high rainfall has made paddocks very wet making access to work sites difficult and has slowed progress on programmed bank protection works. Fortunately, the good start in August and September has meant that we are still on track to completing the season's works programme.
127. Willow is now in full leaf and as such the focus of much of the Scheme works has been tied tree works, willow layering and mulching.
128. One of the highest rainfall totals recorded in the Eastern catchments during this two month period was well over 700 mm, this was recorded at the Upper Mangahao hydro recording site in the Tararua Ranges. This is twice the rainfall that fell during the previous two months.
129. A considerable amount of staff time was assigned to preparing for and attending Scheme Liaison Committee meetings. The primary purpose of these meetings was for discussion around recently revised AMPs. This process went well with plenty of constructive feedback which will result in minor changes to some AMPs. Generally, the feedback was about the need to make sure emergency reserve funds are sufficient given the position of Scheme insurance since the Christchurch earthquake.
130. A delay in the awarding of the Papatawa Road realignment contract by NZTA has meant that while there is a huge interest in any gravel available under our Scheme consents, nothing has been taken as yet.
131. Staff have responded to a number of requests for advice regarding planting and channel alignments that have arisen from the Clean Streams and SLUI work initiated by the GEM department.
132. A number of landowners have sought advice around the extraction of small quantities of gravel extraction as they look to tidy up their properties after the winter or plan farm improvements over the approaching summer months.

AKITIO SCHEME

133. Staff are currently spending time visiting a number of sites to monitor the effectiveness of last year's willow poisoning while also investigating and monitoring any debris build-up. These investigations help to further develop the current season's works programme which currently focuses on willow spraying to be completed in late summer.

EASTERN MANAWATU SCHEME

134. Staff are currently spending time visiting a number of sites to monitor the effectiveness of last year's willow poisoning while also investigating and monitoring any debris build-up. Work has recently been completed to remove a debris dam before programmed works could potentially exacerbate that blockage. The main focus for this season's works programme is to spray the final un-treated reach of the works area.

MANGATAINOKA SCHEME

135. The current works programme includes both programmed maintenance works and a number of flood damage repairs. The total expected works expenditure for the Mangatainoka Scheme in 2011-12 is just under \$1 million with over half of this to be spent on the nine sites which are at least partially covered by flood damage insurance.
136. The vast majority of insurance scopes and quotes have been submitted to the loss adjuster for approval with the exception of two jobs on the Makakahi River.
137. Consistent poor weather has impeded progress on some of the initial planned works with river levels remaining slightly too high for work to progress efficiently. As a result one job has had to be brought to a stable but incomplete condition and postponed until the river drops to a suitable level. Contractors have been moved to more accessible jobs in the interim.
138. Design work has been completed for two large rock linings that are to be constructed shortly and competitive prices will be sought for those shortly. Because the second lining is only partially insured, staff are currently working with the loss adjuster to clarify funding before the project can progress any further.
139. Staff have been working closely with contractors who extracted around 800 m³ of gravel during October, and have continued working with contractors who plan to extract more gravel over the next few months.
140. An application has been lodged for consent to aerially spray problematic willow and weed growth on beaches throughout the Scheme. This will allow inside-bends to be cleared of the foliage that encourages the deposition of gravels and debris. The accumulation of gravels and debris causes the channel to narrow, forcing flood waters to the more vulnerable outside bend. This application is currently being assessed by the consents and science teams and it is anticipated that following the required notification period the consent will be granted around Christmas time so that works can be undertaken during late summer.

SOUTH EASTERN RUAHINE SCHEME

141. Bank protection works are well under way and ahead of schedule. Good progress was made during the drier period in streams not valued for trout spawning. Work to promote the release of gravel has been undertaken in three gravel reserves. This is designed to maintain their respective bed levels downstream of the reserves. In addition a large amount of willow maintenance in the form of mulching has been undertaken.
142. Willow mulching is a new technique for this Scheme and already the benefit of opening the channel for flood flows is obvious. Up until now much of the shrubby willow has been small enough not to congest the stream. By mulching the willow, the channel is opened up leaving the stump and roots alive to hold the bank together. We expect that because the stump will sprout again we will need to re-mulch in five to seven year rotations.
143. Only a small amount of gravel has been extracted recently, however as referred to above demand is likely to increase in the coming months.

IHURAU SCHEME

144. An audit of the Ihurau Scheme was completed and the findings were reported to Council in August. Subsequently, Councilors and staff have met with key stakeholders to discuss those findings. Feedback in respect of the various findings/recommendations has been as follows:

Recommendation 1:

145. *“Channel Management: Staff to prepare a full inspection of the stream and prepare a long-term programme and implement as funding permits”.* Ratepayers were relatively happy with the performance of the channel however, they did feel that there were two reaches within the existing Scheme works area that were too narrow, holding water up and causing flooding. They felt that there could be room for some mechanical clearing of accumulated silt within the current works budget but were also prepared for a small rates increase over several years to help fund these works if needed. Staff have agreed to investigate the cost of such work, liaise with landowners, and report back to the ratepayer group.

Recommendation 2:

146. *“River Channel Downstream of Alfredton: That consideration is given to the inclusion of the stream channel downstream of Alfredton into the Scheme with the appropriate extension and modification of the rating system”.* All ratepayers were interested in the congestion being addressed, but thought that given there are only three ratepayers in the congested reach that undertaking the works through an Environmental Grant may be an easier way to address the issue. Staff recently met with the three landowners directly affected by Recommendation 2. They were all interested in being included in an Environmental Grant application to spray the problematic willow regrowth through their part of the river. Staff are working with spraying contractors to find the most economical way of treating the problem. Subject to agreement being reached around methodology and costs, and subject to a successful application for environmental grant assistance, work is most likely to commence in late summer when the chemical would be most effective on the trees.

Recommendation 3:

147. *“Rating Classification: That consideration is given to the correction of the errors that have developed in the rating system referred to in section 8”.* The ratepayers supported this minor correction to re-include “Contributor” land that had been left off the rating map. It appears that this occurred during the reorganisation of the Regional boundaries, in which whole properties that straddled the boundary were removed by accident. The necessary changes will be made prior to the striking of rates in 2012-13.

TAWATAIA - MANGAONE SCHEME

148. The Scheme suffered no significant damage through winter or spring, and while there is still the potential for damaging weather in the coming months the Scheme is in good health and staff are preparing to undertake general maintenance works as programmed.
149. Consultation around the findings of the Tawataia – Mangaone Audit regarding the detention dam spillway upgrade is complete and staff now look forward to construction. This is to be completed in accordance with Option 4, which involves widening the spillway into the true right bank. The cost of all work is able to be accommodated within the Scheme credit balance and works are expected to commence later in the year when weather permits.

UPPER MANAWATU – LOWER MANGAHAO SCHEME

150. This season’s works are well under way although the weather over the last two months has slowed progress. The three remaining rock linings to be repaired as part of the September 2010 flood damage insurance claim are programmed to be completed early in the summer when paddocks are dry and rock cartage/stockpiling operations can be efficiently undertaken.

151. Only a small amount of gravel has been extracted recently however, work is about to resume on two large roading projects and contractors are again interested in any gravel that requires removal for river management purposes
152. Staff have submitted an application for consent to aurally spray problematic willow and weed growth on beaches throughout the Scheme. This will allow inside bends to be cleared of the foliage that encourages the deposition of gravels and debris. This application is currently being assessed by the consents and science teams and it is anticipated that following the required notification period the consent will be granted around Christmas time so that works can be undertaken during late summer.

MANGAROA STREAM CATCHMENT PROJECT

153. Work to complete this project involving fencing and planting 6.5 km of the Mangaroa Stream, are well ahead of target with 5 km now complete. Staff have organised a small amount of work to be completed in the coming months and this will see six of the seven properties completed.

SOUTHERN AREA

GENERAL

154. Persistent rainfall over the last two months has resulted in saturated soil conditions, high ground water tables and elevated drain levels throughout the area. A particularly heavy rainfall event in early November caused significant surface flooding around the Koputaroa, Ohau and Hokio catchments. These events have resulted in increased numbers of enquires from ratepayers which staff are continuing to respond to.
155. Meetings have been held with the various Scheme Liaison Committees to discuss their Draft AMPs and up- coming maintenance programmes. Overall the AMPs were well supported by the Scheme Liaison Committees however concerns were raised around the increased cost of insurance and the low valuation of some of the main floodgated structures. There is an expectation that these matters will be addressed and ratepayers will be further involved in ultimate decisions, over the next year or thereabouts.
156. Staff met with representatives of the Horowhenua (HDC) and Motuiti Road residents to discuss an on-going drainage issue. A number of properties in this area are affected by high ground water tables during the winter months which can affect their onsite effluent systems and also during rainfall events, can result in extensive flooding around their properties. Horowhenua District Council have carried out some upgrade works on the roadside drain, however due to the proximity of the drain to the road and the sandy nature of the surrounding ground, increasing the depth of this drain would create significant erosion problems. Horizons Regional Council staff met with several of the property owners after the joint meeting to discuss options to improve drainage on individual properties. It has been agreed that further investigation will be undertaken into the possibility of diverting some of the water away from Motuiti Road to a local Scheme drain.
157. The persistent rainfall and high drain levels within Scheme drains, together with spring weed growth has kept staff busy clearing weed blockages from drains and culverts and clearing the weed build up at the various Scheme pump stations.

OHAU-MANAKAU SCHEME

158. A number of willows which had been growing at the toe of the stopbank on the Ohau River and were starting to spread into the stopbank were removed.

159. A number of willows and other vegetation on the inside of a bend on the Waikawa Stream upstream of State Highway One were removed to alleviate the pressure on the out side bend which was being eroded and was threatening the access road for a nearby property.
160. A section of the Lake Waitaha Drain was cleaned downstream of Muhunoa West Road to alleviate flooding upstream of the road culvert.
161. There has been no progress made as regards obtaining land entry agreement for the outstanding section of stopbank upgrade work on the Ohau River. The Ombudsman's response to a complaint from the landowner concerned is expected shortly and once that is available, legal advice will be sought as to options for progressing this project.

MANAWATU DRAINAGE SCHEME

162. A culvert on Upper Aorangi Drain has been replaced after a weed blockage caused floodwaters to pipe around the culvert, scour out the adjoining road verge, and seriously damage the culvert structure. Another culvert on Karere Road was replaced following the collapse of old pipes.
163. A total of 0.5 km of drains were machine cleaned.

MAKERUA DRAINAGE SCHEME

164. Several slumps on Linton Main Drain were mechanically removed and concrete riprap placed at the sites to prevent further erosion.
165. One of the submersibles at Boundary pump station was withdrawn and replaced by a backup pump. The withdrawn pump has been sent to Triple "R" Engineering for servicing as part of an on-going maintenance programme.
166. General maintenance has been undertaken on the Okuku pump station access road.
167. A total of 11.6 km of drains were machine cleaned during the period in response to the particularly wet weather and elevated drain levels.

KOPUTAROA DRAINAGE SCHEME

168. Preliminary inspections of floodgates along the Koputaroa Stream in preparation for a CCTV pipe assessment programme to be undertaken during the approaching summer period, identified a number of instances of slumping around headwalls. Repair work has subsequently been undertaken at those sites.
169. New steps have been installed at Koputaroa No.4 pump station to improve access down onto the platform above the submersible pump.
170. A total of 1.1 km of drains were machine cleaned.

MOUTOA DRAINAGE SCHEME

171. Several windows have been replaced at Cook's and Diagonal pump stations after they were found broken.
172. A total of 1.0 km of drains were machine cleaned.

TE KAWAU DRAINAGE SCHEME

173. A total of 6.6 km of drains were machine cleaned.

HOKIO DRAINAGE SCHEME

174. A total of 0.1 km of drains were machine cleaned.

WHIROKINO DRAINAGE SCHEME

175. A total of 2.5 km of drains were machine cleaned.

FOXTON EAST DRAINAGE SCHEME

176. An undersized culvert which was causing a flooding issue along Avenue Road has been upgraded to a 600 mm diameter culvert.

ENVIRONMENTAL GRANT WORK

177. Four new applications for grant assistance were received and approved during the period. The status of projects that have been approved in the year to date is shown in the following table:

Name	River	Type of work	Date Approved	Work Status	Estimated/ Actual works cost (\$)	Value of grant
K Tuffin	Upper Ongarue	Debris clearance	28/06/2011	Completed	\$12,000 actual	\$3,600
B Walker	Mangawharariki River	Erosion protection and debris clearance	25/07/2011	Completed	\$12,279	\$3,684
C Williamson	Waituna Stream	Channel clearing and erosion protection	03/10/2011	Completed	\$4,700	\$1,410
J Wi (Tuhua Hikurangi Regional Management Committee)	Ongarue River	Willow clearance and poisoning	17/10/2011	Yet to commence	\$3,000	\$900
C Nagel	Tutaenui Stream	Erosion protection	04/11/2011	Yet to commence	\$10,500	\$3,150
Ferry View Farm Receiver	Amon Drain	Flood protection	04/11/2011	Yet to commence	\$13,300	\$3,9990

178. Advice is currently being provided in respect of at least four further flooding or erosion problems which are likely to lead to applications for environmental grant applications.

RECOMMENDATIONS

179. That the Committee recommends that Council:

- a. **receives** the information contained in Report No. 11-221;
- b. **notes** that a schedule of works completed during the period is available for inspection.

A COOK
GROUP MANAGER OPERATIONS

A Significant decision? If Yes	No
Do recommendations meet Significance Policy (contained within the LTCCP)	

Item No: 7
Date: 14/12/2011
Report No: 11-217
File No: PRD05 38

LOWER MANAWATU SCHEME UPGRADE MITIGATION OF EFFECTS IN THE TAONUUI BASIN

PURPOSE

1. The purpose of this item is to provide Council with an update on progress towards providing information needed by the Commissioners before the Taonui Basin Consent Hearing can be reconvened.

FINANCIAL IMPACT

2. There is no immediate financial impact arising from this item. The funding for all works proposed under the Lower Manawatu Scheme (LMS) Rural Upgrade Project is provided for in the 2009-19 Long Term Plan (LTP).

COMMUNITY ENGAGEMENT

3. The subject matter of this item is of particular interest to the owners of properties within and on the fringes of the Taonui Basin. It is proposed that a circular letter be sent to those parties prior to the end of December, providing an update on the Taonui Basin consent application process.

BACKGROUND

4. The Consent Hearing for the upgrade of the Lower Manawatu Scheme (LMS) stopbanks, and more particularly the resulting diversion of additional water into the Taonui Basin, was adjourned in November 2009. The hearing panel comprises two independent commissioners being Christine Foster, Planning Consultant, and Nigel Mark-Brown expert River Engineer. Council was required to provide a substantial quantity of further information. Much of the required information about impacts on flooding in the Taonui Basin can be found in Milestone No. 1 and No. 2 Reports, presented to Council in April 2010 and August 2011 respectively.
5. It is now necessary to translate changes in flooding patterns into impacts on farm activities and production, and this agenda item describes that process.

MILESTONE NO.1 AND NO. 2 REPORTS

6. Milestone No.1 Report described the 1% AEP flood impacts on the new baseline flood, and compared them with flooding for the LMS upgrade case. The new baseline was one of the big issues to emerge from the Hearing.
7. The application presented to the November 2009 Hearing assumed that the baseline case was the flood protection that existed in January 2004, before the big flood. That flood protection was less than the old LMS standard. The old baseline case also assumed that the stopbanks would fail in the design flood. The new baseline case was the flood protection that was permitted to exist, not the flood protection that actually existed at any particular point in time. The new baseline also assumed that stopbanks would not fail. We do not have to obtain consents to prevent a stopbank from failing.

8. The effect of the change in baseline was that the LMS upgrade now adds 163 mm to the 1% AEP pond level, compared to 430 mm in the old baseline case.
9. Another requirement for further information was to quantify the effect of under-design and over-design floods. Adverse effects do not only occur in the design flood, they also happen in larger and smaller floods. The Milestone No. 2 Report compared flooding for the new baseline and LMS upgrade cases for a range of floods between 4% AEP (25-year) and 0.5% AEP (200-year). It also presented a suite of works that would mitigate the extra flooding by reducing its duration.
10. The combined effect of modifying the baseline and considering a range of flood sizes rather than just one flood is that the damage costs per hectare will be reduced, but a larger number of hectares will be affected. For some properties the two will approximately balance out, but that will not necessarily be the case.

TASKS TO BE COMPLETED BEFORE HEARING RECONVENED

11. Before the Taonui Basin Hearing can be reconvened, the major remaining task is to take the information about changes in ponding, and assess the resultant effects on farming operations on a property by property basis. There are 72 different property owners.
12. Simon Harris, an agricultural economist from Christchurch, has been engaged to carry out the work. He has done previous work on the LMS in 1998-9, as well as similar work in Canterbury, Otago and Waikato. He in turn has engaged John Stantiall, a local agricultural consultant with extensive experience in the primary sector, to interview farmers property by property.
13. The report, to be produced by Simon and John, will have to be very detailed to meet the Commissioners requirements. They will:
 - Estimate the per hectare damage to farm production for six different farm types (Dairy at three intensities, Sheep and Beef, Dairy support and Crop) at set depth and duration events. This may include losses arising from pasture or crop damage, evacuation etc., as well as disruption during flooding.
 - For each property, identify land use, and estimate damage to farm infrastructure including regrassing, fences, drains, races, stockyards, irrigation systems and other equipment.
 - Identify effluent treatment and disposal systems that may be affected.
 - Identify potential access issues.
 - Identify other issues specific to each property that may arise as a result of flooding at different depths.
14. For each property the damages under each flood event will be aggregated and converted to a depth/damage curve, annual damages will be estimated and converted to a net present value (NPV), which is the equivalent lump sum capital cost of the changes. The report will detail:
 - The method used.
 - The damage items assessed.
 - The findings for each property in the Taonui Basin.
 - The aggregate findings for the Taonui Basin.
 - Discussion on any relevant matters for the Commissioners to consider including relationship between positive and negative impacts, and intangible damages.

BASE INFORMATION REQUIRED FOR ASSESSMENT OF AGRICULTURAL DAMAGES

15. Simon Harris has indicated a need for very detailed maps, showing durations of flooding for a range of flood sizes. The maps required are more detailed than those in the Milestone No. 2 Report.
16. Six maps are required, each for a different flood size, with the range between 50% AEP (2-year) and 0.5% AEP (200-year). Four different zones have to be shown on each map, corresponding to the area flooded for up to three days, between three and five days, between five and eight days, and for more than eight days. The maps have to show how these zones change between the baseline case, and the case where the LMS upgrade and all mitigation works have been completed. The GIS team has now been provided with all of the necessary levels, and the very substantial task of producing the maps is now well advanced.
17. Investigations to date have concentrated on floods 4% AEP (25-year) or larger, which are large enough to operate the LMS spillways. However, there is also a need to quantify the effects of smaller floods, when Burkes Drain spillways operate but the LMS spillways do not. The gravity drainage works and the pump are expected to provide benefits in these smaller events, and the benefits can be balanced against the adverse effects in the larger events.
18. Most of the levels for the larger floods had already been generated for the Milestone No. 2 Report. However, some additional modeling was needed for the 10% AEP and 50% AEP events. Modeling of the Taonui Basin topography for simulation of the larger floods was coarse and approximate. This was quite adequate for the large volumes of water in the large floods, but was inadequate for the smaller floods. A more detailed model was set up, using LiDAR data for the topography, as well as better definition of the spillway crests and the existing culverts. An additional benefit of this modeling is that the benefits of the proposed new 7.5 cummec pump can be demonstrated in more detail than previously possible.

THE PROPOSED BURKES PUMP AS MITIGATION

19. The pump achieves a substantial reduction in pond size and duration for the smaller (and therefore more frequent) floods. The capital cost and the running costs of the pump are to be funded partly by the Manawatu Drainage Scheme ratepayers, and partly by the LMS. It is legitimate to treat the LMS share of the pump as mitigation of LMS upgrade effects, but obviously the Manawatu Drainage Scheme share can not be counted as mitigation.
20. The LMS contribution to the capital cost is set at \$2 million. Protocols will need to be drawn up to determine when the LMS will pay running costs, and when the Manawatu Drainage Scheme will pay running costs. Once that has been determined, the proportion of the pump benefit that can legitimately be counted as mitigation can be established.

DESIGN OF GRAVITY DRAINAGE IMPROVEMENTS

21. The major design task is to design the improvements to 3 km of Burkes Drain. The substantial survey work is complete, and design is about to commence. It is expected that the first draft of design drawings will be complete before Christmas so that follow-up consultation with affected land owners can commence in January 2012.

RECONVENING OF HEARING

22. Before the Hearing can be reconvened, an "Information Capsule" will be sent to the commissioners. It will contain Milestone No. 1 and No. 2 Reports (which however they have already received), the report from Simon Harris, and another report from Council Officers providing the remaining requested information that has not yet been provided.
23. One of those items will be an evacuation plan for the Taonui Basin, to be implemented when the LMS spillways are predicted to operate. Some consultation will be necessary. Landowners will need to know what we can and can not provide, and will have the opportunity to let us know what information they will find useful.

TIMELINES

24. Now that the scope of final work required to satisfy the Commissioners requests is understood, a reasonable timeline for reconvening the consent application can be established. It is now anticipated that a final report from the economist will be available by the end of March and that the final information capsule will be forwarded to the Commissioners in early April. Timing for the reconvened Hearing will then be in the hands of the Consents Manager.

RECOMMENDATION

25. That the Committee recommends that Council:
 - a. **receives** the information contained in Report No. 11-217.

G. Doull
SENIOR DESIGN ENGINEER

A D Cook
GROUP MANAGER OPERATIONS

A Significant decision? If Yes	No
Do recommendations meet Significance Policy (contained within the LTCCP)	

Item No: 8
Date: 14/12/2011
Report No: 11-220
File No: PRD 05 16

LOWER MANAWATU SCHEME – CITY REACH PROJECT FLOOD PROTECTION AT TURITEA CAMPUS

PURPOSE

1. The purpose of this item is to seek the Committee's endorsement of an amended proposal to undertake flood protection works at the Turitea Science Campus, for inclusion in the Council's Draft 2012-22 Long Term Plan (LTP).

FINANCIAL IMPACT

2. Ultimate adoption through the LTP process of the proposal as recommended in this item would increase Council's debt by approximately \$0.87 million. There would be no increase in the present level of Lower Manawatu Scheme (LMS) Special Project rates for Palmerston North, however the rate would be applied for one year longer than would otherwise be necessary. There would be a General Rate impact of approximately \$517,000 over 14 years.

COMMUNITY ENGAGEMENT

3. The subject matter in this item has been discussed with affected property owners and managers and with the LMS City Reach Working Party. If Council adopts the recommendations, then the proposal will be subject to the full statutory LTP consultation process.

BACKGROUND

4. The Committee received a proposal at its October meeting for an extension of the LMS City Reach Project to accommodate works that would provide the same standard of Manawatu River flood protection to the Turitea Science Campus, as is will be provided to the main Palmerston North 'City' area on the right bank of the Manawatu River at the conclusion of the present City Reach Project in 2013-14. In addition, the proposal would also provide 0.5% AEP protection from the Turitea Stream.
5. The extension would have the effect of extending the project term by one year.
6. The proposal considered by the Committee would have increased Council's debt by \$1.4 million and extended the period of application of the Special Project rate by three years. The rate itself would however have been maintained at the same level, apart from inflationary impacts.
7. The Committee, and subsequently Council, endorsed in principle the proposal to provide 0.2% AEP flood protection to the Science Campus, with the extension to be funded by way of increased loans and an extension of the present Special Project benefit area.
8. However, the Committee considered that the benefit to the Science Campus from the proposed work would be substantially greater that was reflected by the rates that would be paid in respect of the Campus area according to the present 'one-city' funding model and that a disproportionate amount would be paid by the wider 'City' ratepayers. Accordingly, staff were requested to explore options for a rating differential on the Turitea

Campus to compensate for the perceived low property valuations at Turitea, and to better reflect the level of benefit that would accrue to the area.

COMMENT

9. Councillors Guy and Rieger, together with the Group Manager Operations met with representatives of owners and lessees of Science Campus properties on 24 November. Those owners and lessees confirmed their desire for the protection work to proceed; confirmed their understanding of the present significant risk to property and science project viability and accordingly the benefit to be derived from the protection proposal; and expressed an understanding of Council's expectation for a fair apportionment of costs amongst those who would benefit.
10. After some discussion around what those respective benefits might be, the owners and lessees confirmed that they would have some considerable difficulty making 'up-front' capital payments for the proposed works but expressed a willingness to make increased annual contributions in lieu of rates as an operational expense.
11. On the basis that the full effect of the extension on Palmerston North Special Project rates would be \$122,000 per year for 13 years, the group offered to advocate with their respective boards or management groups for an annual contribution from the combined Government Department or SOE Science Centre owners of \$61,000 per year for the term of the loan. They were each confident of their ability to obtain approval for that contribution but could not commit to it on the day.
12. The group expressed a desire to take responsibility themselves for the apportionment of that total sum amongst the various owners. Horizons Regional Council (HRC) would then enter into formal agreements with the respective owners for the advised contributions.
13. That would leave the matter of one private property, presently understood to be in the hands of a receiver, who was not represented at the meeting. The contribution that would be justified in respect of that property on a proportional valuation basis is \$12,000. It would appear that such a contribution could best be obtained through a new rating category, however some further research is required in that regard.
14. Further modelling work has now been undertaken on the assumption of a total annual 'contribution' from the Turitea area of \$73,000 per year. The overall project budget and rating impacts would then be:
 - Total project budget increases from \$12.4 million to \$14.0 million.
 - Total borrowings increase by \$0.93 million to \$9.056 million.
 - Project debt peaks at \$8.87 million in 2014-15 as opposed to \$8.0 million in 2013-14.
 - Loan term increases one year only with final repayments in 2025-26.
 - LMS Special Project rate remains at present level, excepting interest rate/inflation impacts, but remains in place for one additional year. 'City' ratepayers would therefore in effect pay an additional \$870,000 for the Tutitea work over the next 14 years.
 - Turitea 'owners' would pay a total of \$1.05 million, including a minor contribution in respect of back rates, over the next 14 years.
15. The proposed amended funding arrangement for the City Reach Project extension is considered to be fair and reasonable. It is hoped that at least verbal confirmation of the arrangement will be available by the time of the Committee meeting.

RECOMMENDATIONS

16. That the Committee recommends that Council:
- a. **receives** the information contained in Report No. 11-220;
 - b. **endorses** the proposed extension of the Lower Manawatu Scheme City Reach Project to provide 0.2% AEP flood protection to the Turitea Science Campus, with the extension to be funded by way of increased loans; an extension of the Lower Manawatu Scheme Special Project Rate benefit area; and contributions in lieu of rates from Turitea land owners; and
 - c. **approves** the inclusion of the proposal in the Draft 2012-22 Long Ter, Plan, subject to formal confirmation of agreement for the aforementioned contributions.

A D Cook

GROUP MANAGER OPERATIONS

A Significant decision? If Yes	No
Do recommendations meet Significance Policy (contained within the LTCCP)	

Item No: 9
Date: 14/12/2011
Report No: 11-223
File No: PRD 05 36

WHANGANUI RIVER – LOWER REACHES CHANNEL MANAGEMENT

PURPOSE

1. The purpose of this item is to inform the Committee of a request that Horizons assume responsibility for channel management activities within the Whanganui River downstream of the Cobham Bridge and to seek the Committee's direction around options.

FINANCIAL IMPACT

2. There is no immediate impact arising from the recommendations within this item. However, should Council ultimately decide to assume additional river management responsibilities, then there will be significant and on-going budget and rating impacts.

COMMUNITY ENGAGEMENT

3. This item will be of particular interest to Wanganui ratepayers. Should Council wish to explore options for its involvement in management of the lower reaches of the Whanganui River, then full community consultation through an Annual or Long Term Plan (LTP) process would be required.

BACKGROUND

4. In 1998 Horizons Regional Council (HRC) joined with Wanganui District Council (WDC) and Transit New Zealand, to establish and fund a Working Party to investigate the existing and potential bank erosion and stability problems along the Kukuta to river mouth section of the Whanganui River. The driver for the study was some substantial river bank slumping that threatened roads and other community infrastructure at a number of locations throughout the 'City reach' of the river. A study was commissioned and managed by the Working Party and ultimately a comprehensive study report was received by the respective Councils in 1999. The decision was made at the time for responsibility for the implementation of a 20-year programme of works that formed part of the final report, to sit with WDC. One of the key factors in that regard was that most of the works identified in the programme were designed to mitigate erosion risk to infrastructural assets managed by either WDC or Transit New Zealand and as such would be expected to attract significant central government funding assistance. Horizons Regional Council was not able to access that funding. The study report was reviewed in 2003 and programme implementation, with the exception of the vegetation management component, has subsequently remained with WDC.
5. In early 2007 HRC reached agreement with WDC for the transfer of certain Whanganui River related functions. Specifically it was agreed that:
 - HRC would assume responsibility for managing the flood risk through the Wanganui 'City reach' and to implement a staged investigation programme to assess flood risk and develop mitigation options.

- HRC would from 1 July 2007 provide an emergency management support service around the provision of rainfall and river flow information and would provide on-site expert flood management support during flood events. The Whanganui Flood Action Plan has subsequently been developed in that regard.
 - HRC would from 1 July 2007 assume responsibility for the management of river edge vegetation and the clearance of vegetation obstructions from the channel downstream of Upokongaro.
 - WDC would continue to be responsible for erosion mitigation works, in general accordance with the 20-year Lower Whanganui River Management Programme (2003 Review) document.
 - WDC would continue to undertake other minor river related maintenance activities including slipway clearance and amenity maintenance.
6. Council endorsed the transfer in June 2007 and funding provision for the transferred functions was added to and removed from the 2007-08 Annual Plans of HRC and WDC respectively. A new Lower Whanganui River Scheme was established through the 2008-2009 Annual Plan and the flood risk and vegetation management functions have subsequently been funded through that Scheme's budget.
 7. In 2004 HRC and WDC jointly funded a separate study on the condition of the river channel and associated river alignment control works downstream of the Cobham Bridge. A report completed by Gary Williams in December 2004 highlighted a number of issues around the condition of river management structures along the estuary, the lack of maintenance of those structures, and the need for clarification around roles and responsibilities in that regard. The report recommended that further surveys and investigations be undertaken. While the report did not identify any pressing erosion/protection issues, it did recommend that some remedial work be undertaken to address the development of an embayment immediately upstream of the South Mole.
 8. For various reasons, largely related to port management issues, there has been little or no action on the report findings to date. In fact, it is noted that with the port not making a profit since the 1970's, there has been little or no maintenance of river control structures for decades.
 9. In July 2011, reports of increased erosion of the South Spit gave cause for some concern and as reported to the Committee at the time, HRC agreed to share the cost of a review of that part of the 2004 Gary Williams report that addressed the lower river alignment and the erosion risk at the South Spit.

COMMENT

10. A report on the recent review has been received and is attached at Annex A.
11. The report confirms that there has been significant recent erosion in a number of locations along the river side of the South Spit. Components of works constructed in 1947 following the last breach of the spit, that were not visible in 2004, have now been exposed and further deterioration of old wall and groyne structures is apparent.
12. The long-term stability of channel alignment in the lower river is critical not only to navigation and recreational activities, but also to the long-term integrity of flood protection works at Balgownie and to general channel and bank stability for some distance upstream. There is no question that the large number of old structures have been very effective and largely continue to be effective, in maintaining channel stability, despite

there being no maintenance undertaken for decades. Accordingly, there appears to be no better option for ensuring a stable lower river channel alignment in the future, than maintaining the existing protection infrastructure.

13. The Williams report identifies some specific works which are best described as 'deferred maintenance' that should be undertaken over the next three years or thereabouts. The recommended works are designed to repair weaknesses exposed by recent erosion and to ensure on-going effectiveness in most conditions. There is always a prospect however of more substantial damage occurring in future severe storms. Three specific items of work are estimated to cost \$115,000 and a fourth un-estimated repair could cost a similar sum.
14. However, the report makes scant reference to, and does not estimate, the cost of on-going monitoring and maintenance. The aging structures were obviously very well built and have provided effective protection to date without maintenance, however the need for maintenance can be expected to increase significantly in the near future. In particular rapidly deteriorating steel work has only a limited remaining life. Accordingly, a significant provision will need to be made by someone for an annual monitoring and maintenance programme.
15. A letter has now been received from the Chief Executive of WDC, advising of his Council's resolution to formally request HRC extend its current river management function to include the maintenance of the lower river reach, but excluding the port.
16. It can reasonably be argued that HRC is the appropriate authority to manage the subject river reach and that the existing Lower Whanganui River Scheme should logically be extended in scope to facilitate that management. Most if not all of the expertise required to design and execute river control works in an estuarine environment is available within HRC's Operations Group.
17. There would however be a need to establish a clear demarcation between river control and port management requirements. HRC does not have an interest in the port, nor does it have the expertise required to model sediment movement on a harbour or to design harbour works.
18. However, the key issue to be considered is the scope of work required over the longer term; the quantum of costs that would be incurred and how those costs might be funded.
19. It is understood that proceeds from the Wanganui Harbour Endowment, as administered by WDC, are required to be used for purposes related to the maintenance of the harbour and river works. The works required to prevent erosion along the South Spit, including the South Mole, could reasonably be interpreted to be included in that requirement, indeed it is assumed that the original capital works and their maintenance in earlier years were funded through that mechanism. However, it is understood that the Endowment has struggled to fund port operation losses, including minor dredging and facility maintenance, over recent years and maintenance of the subject river works has been well down the list of priorities.
20. It is understood that all Endowment Proceeds will be required for the foreseeable future to fund either functional replacement of part of the Port facilities or decommissioning of the Port for recreational purposes. Accordingly, it would appear that the cost of river works will need to be funded through rating the wider Wanganui community in one form or another. The question then arises as to which is the most appropriate authority to collect the rate and to manage the function.
21. It is anticipated that WDC will make a submission to HRC's 2012-22 LTP along the lines of the letter recently received from their Chief Executive.

RECOMMENDATIONS

22. That the Committee recommends that Council:
- a. **receives** the information contained in Report No. 11-223;
 - b. **notes** the issues raised in the 2011 Williams report and in particular the need for deferred maintenance work to be undertaken on old erosion protection structures along the South Spit;
 - c. **notes** the request from Wanganui District Council for Horizons Regional Council to assume responsibility in respect of that maintenance; and
 - d. **defers** any decision on the request pending the receipt and consideration of submissions to Council's 2012-22 Long Term Plan.

A D Cook

GROUP MANAGER OPERATIONS

ANNEX

- A Whanganui South Spit. A Review of Erosion and Protection Measures and Proposed Repair Programme.

WANGANUI DISTRICT COUNCIL
HORIZONS REGIONAL COUNCIL

WHANGANUI RIVER

SOUTH SPIT

A REVIEW OF
EROSION & PROTECTION MEASURES
AND PROPOSED REPAIR PROGRAMME

September

2011

G & E WILLIAMS CONSULTANTS

OTAKI

WHANGANUI RIVER – SOUTH SPIT

REVIEW of EROSION & PROPOSED REPAIRS

1 INTRODUCTION

The lower Whanganui River has been highly modified by harbour works and facilities, and protection measures along the banks of the river. The lower estuary area was developed as a port from the late 19th century, with harbour facilities, rock breakwaters, training banks and other river and coastal management works being constructed.

There are a variety of protection works and measures along the South Spit, which separates the lower estuary reach of the river from the sea. The river mouth has been held at its northern extremity beside Castlecliff by rock moles, which extended well out into the littoral zone of coastal activity. Long rock training banks were also constructed along the estuarine reaches of the river.

The state and effectiveness of the protection works along the South Spit has been assessed in a number of studies, with a comprehensive study of the lower reaches of the Whanganui River being carried out in 1998. A review of the features and structures along the lower estuary reach of the river was undertaken in 2004, with the concerns and issues arising for interested parties being recorded, and recommendations made about repair and development proposals. As part of the investigations for the stopbank raising along the lower estuary reach, a study was carried out in 2007 on the changes in conditions at the river mouth, and the effect on the mouth of flood flows.

In recent years there has been some notable changes along the river side of the South Spit, with erosion retreat of the river side sand dune in places, and a continuing deterioration of the old wall and groyne protection measures. A monitoring programme has been set up, with Ian Moore undertaking periodic inspections. Assessments have been undertaken since February 2006, and the recent reports prepared in December 2010 and February 2011, which contain useful photographs for comparison purposes, were provided.

A review of erosion retreat and the state of protection measures along the South Spit has been commissioned by Wanganui District Council [WDC] and Horizons Regional Council [HRC], with a proposed programme of repair works to be drawn up. This review is based on my previous studies of the river, and assessments of the South Spit protection measures, and the information provided by Ian Moore. The South Spit was briefly inspected with Ian Moore (and Allan Cook of HRC) on 26 August, and then a full inspection to the south mole was carried out with Ian Moore on 9 September.

2 BACKGROUND

The South Spit was breached most recently in the late 1940's, and various walls and protection measures were constructed to close off the breach. In 1947 a solid

concrete wall was constructed along the width of the breach. In 1956 a set of permeable timber groynes were constructed in front of this concrete wall (as well as groynes on the seaward side of the spit). The specification for this work refers to 5 pile groynes. However, there are 4 groynes with timber walings attached between the piles (as specified), and one that consists only of piles.

During the 1998 investigations the South Spit area was inspected, and photographs taken of various works and measures in the area. At that time, the set of four groynes were still in a sound condition, and the river side sandhill came up to the landward end of the groynes, with no other structures visible in this area of the river bank. There were various walling structures downstream of the groynes that were in poor states of disrepair, but were considered to be still reasonably effective. Further downstream there were the remains of a long training structure of limestone rock and timber walling, out from the edge of the spit, with some of the timber piles of an old carriageway structure still remaining.

At one point there were some remaining piles of an old wharf, and further downstream some ship wrecks had been placed behind the training wall. In this area, the rock and wall structure was relatively effective, with vegetated sand dunes behind.

Upstream of the main structure of the south mole there is a substantial rock lining, that curves alongside the sand dunes. Immediately upstream of the end of this rock there is a large erosion embayment. The 2004 report noted:

“The old Harbour Board plans show the half-tide training bank stopping short of the end of the south mole, and it is not known if there is any rock along the length over which the embayment has formed. The erosion may have taken place because of a lack of a rock training bank along this section. The erosion will continue with a progressive retreat of this part of the spit, and as the embayment becomes enlarged, the distortion effect on river flows and waves will increase, accelerating the rate of erosion.”

The main issues identified in the 2004 report were the lack of maintenance of the protection measures, the responsibilities for this maintenance and recreational uses of the area. Concern was expressed about the on going erosion at the upstream end of the south mole. The questions of maintenance and responsibilities were also raised for the moles.

3 ASSESSMENT

3.1 General

There has been significant recent erosion in a number of places along the river edge of the South Spit, as recorded by the monitoring of Ian Moore. A comparison of photographs taken in 1998 and during the site inspection is informative, and highlights areas of erosion and relative stability. Some photographs could be reproduced from the same place, or very close to it. A selection of these photographs is given in Attachment A.

A general assessment of erosion along the South Spit and the state of the old protection measures has been based on the earlier inspections and photographs, the site inspection with Ian Moore, and discussions of erosion trends. For this

assessment, the South Spit has been divided into five sections, as follows (and shown on Figure 1):

- (A) Downstream of the (left side) rock training wall to the groynes — at the upstream end of the spit.
- (B) The breach area, where there is a lateral wall at the sandhill toe and a set of groynes in front — 5 groynes, including the row of posts at the upstream end.
- (C) Downstream of the groynes to the wrecks, where there is an old timber wall and concrete blocks etc behind or rock in front — the old wharf structure being half way along this section.
- (D) Downstream of the wrecks to the large erosion embayment, where there is an intact rock wall/lining.
- (E) The large erosion embayment upstream of the south mole.

The south mole itself has also been assessed, in terms of its general state.

3.2 Training wall to Groynes (Section A)

A significant erosion embayment has formed immediately upstream of the groynes and concrete wall (of the breach area), as shown in Photos 3. This is a recent development, and the sandhill now has a high steep slope of sand in the hook of the embayment, which is subject to on going collapses and wind erosion as well as toe removal. The embayment, with the end of the concrete wall at its point, will exacerbate the erosion potential, and there will be a progressive development of the embayment with sandhill retreat.

The half-tide rock training wall from Landguard Bluff did not extend down to the breach (and original tidal overflow) area, and probably remains at its original length. Some rock works, as short snub groynes, were though placed between the end of the training wall and the concrete wall of the breach cutoff. These rock knobs are largely the same now as they were in 1998, as shown by Photos 2. Some slow displacement has, though, probably taken place.

Preventing the on going erosion and enlargement of this embayment upstream of the lateral wall and groynes is a priority. The high sandhill is prone to sand collapse failures, and sandhill retreat at this point would outflank the wall of the downstream works.

3.3 Breach wall and Groyne set (Section B)

The concrete wall along this section, which has been cast over and onto an older structure, is now exposed over much of its length, as shown on Photos 4 and 5. This wall was not visible in 1998, and the groynes extended back to the sandhill. The wall forms a sharp face at the edge of the river, and there are now gaps between the groyne ends and the wall, and this gives rise to a flow concentration gap. The groynes are, though, still very effective in collecting and then shedding debris, as demonstrated in the photos of the February 2011 monitoring report, and this mitigates the flow concentration effects of the gaps.

The groynes themselves are still intact, although deterioration over time (especially the rusting away of the tie bolts) is giving rise to some damage to the

waling boards. The sandhill above the concrete wall has lost much of its vegetation cover, and progressive sand collapses and slope failures are taking place above the wall. The wall itself is fully intact and generally sound, and there is still a row of timber piles in front from an old timber wall. These piles help collect debris up against the wall and river edge.

A closing of the gaps at the groynes would maintain their integrity and proper functioning, and allow some build up against the lateral wall again, as conditions become favourable. This could be by either adding to the groynes with piles and further walling boards, or by placing a rock 'block' from the wall to the groyne, at each groyne.

The gaps at the two downstream groynes are much less than at the upper groynes, and the presence of concrete rubble at the sandhill toe (and in front of the lateral wall) has clearly been useful in mitigating toe erosion. Rubble has obviously been placed around the end of the most downstream groyne, and this groyne remains relatively secured at its landward end.

3.4 Walls of Concrete blocks and Rock facing (Section C)

From the groynes downstream, there is an old timber wall, with just piles above the beach sand with an occasional board, and a haphazard 'wall' of concrete blocks, old concrete filled drums etc, at the sandhill toe (see Photos 6 & 7). Despite its poor appearance, these measures have held the sandhill toe, and there has been an improvement in the vegetation cover since 1998.

The river flow is more parallel to the bank here, with lesser flood pressures on the bank, and there has been no noticeable movement in the main concrete blocks.

Further downstream there is a shallow embayment, from the old wharf to the wrecks, and here the old timber wall is faced with rock and concrete blocks on the river side. There may have been some outward movement of the rock and blocks in places, but generally there has been no decline in protective function since 1998, with only small areas of raw sand on the adjacent sandhill (see Photos 8).

This section has remained notably stable, despite the poor condition of the timber work and the haphazard placement of the block work.

The iron work of the main wreck has been removed, but this is assumed to be by salvage, and not because of natural rusting and decay.

3.5 Rock lining downstream of Wrecks (Section D)

Downstream of the wrecks there is a substantial rock wall that is now lining the bank, with the sandhill vegetation close by above the crest of the wall. There has been no real change along this section, and it remains as a relatively stable part of the river side of the South Spit.

No repair measures should be required in this section as part of the proposed programme.

3.6 Large Erosion Embayment (Section E)

Upstream of the rock extension of the south mole there is a large embayment, and active erosion is occurring along the edge of this embayment, especially at the hook end beside the rock work. This embayment has existed for a long time, but

the edge was much less active in 1998. The Harbour Board map of 1929 shows a tidal embayment in this area with relatively high sand hills behind.

The 2005 Google Maps aerial shows the raw face of the sandhills around the bay, and there has been further retreat since then. There are also washout guts beside the rock works out to the bay, which can be seen in the 2005 photography, but do appear to be active. Further retreat along the rock and enlargement of the bay will occur over time.

There is a substantial area of sandhills between this bay and the sea, but as further retreat occurs there is an increasing risk of a break through of the higher sandhills and outflow directly to the sea in a flood event.

There are still some remains of the harbour works across the bay, on a line from the old half-tide rock wall (of the upstream section) to the end of the rock extension of the south mole. As noted in 2004, it is not known what rock or other works exist along this line across the bay. The establishment of a protection wall or training work across the bay would be very expensive, and is not warranted. The 2004 report suggested a lattice work of driven piles to break up flood flow currents and waves diffracting around the end of the south mole rock works. This would still be a costly job. An alternative would be to place a toe lining, of rock or rubble, around the embayment, as a toe support. The substantial length around the bay makes this an expensive option too.

Rubble or rock could be transported to the site from the Airport road and along the access way to the south coast beach, with access along the beach front and then across the sand hills to the site. Off road trucks would be required, with a significant cut through the sand hills with placed formation materials to access the site itself. Alternatively, the machines and materials could be barged to the site, with some temporary wharf or tie up facility established at the end of the rock works.

The problem in this section is that there is a slowly increasing risk of a break through (and increasing distortion of flood flows within and around the bay), but any effective mitigation measure is relatively expensive.

The most cost effective measure is still considered to be a lattice work of driven piles, constructed from a barge. The detailed layout of this work is important for its effective functioning, and the best tool to determine this would be a scaled physical model. There are now, though, relatively sophisticated 2-dimensional computer models that can be applied to river estuaries. If there is sufficient data to effectively calibrate the Whanganui River estuary for sea, tidal and river flows, then the proposed works could be assessed and designed through computer modeling.

3.7 South Mole

The south mole is a substantial structure, and a large amount of rock was used in its construction, extension and topping up. The rocks are large boulder sizes, and the placed rock forms a continuous and robust training structure out into the sea. There has been some settlement of these rocks over time, with a few lower sections along the mole, but the mole remains a robust and substantial harbour work.

Algae and weed growth on the boulders indicates a high degree of stability of the individual rocks (see Photos 11).

At the upstream end of the mole, where there is a concrete structure, some re-working activity is apparent on the sand dune side, from wave wash over effects. There has been some loss of material from the 'basin' area behind the mole, as shown by Photos 10, while a comparison with the photo in the December 2010 monitoring report as well shows marked changes in debris within this basin area. This basin area is, however, a small area of activity alongside the mole, which is not really affecting the mole or the sand dunes beyond.

There is an embayment or hook in the south beach immediately south of the mole, because of the southward littoral drift and wave diffraction around the mole and refraction on to the beach. Waves thus run along the south side of the mole, with wave energy being dissipated on both sides of the mole. There is, though, a wide shallow beach (below mean sea level) out from the spit south of the mole.

When there are strong winds and currents from the south to south east, wash over of the south mole can affect the rock lining and facilities on the north side, between the north mole and the harbour wharf. A slow lowering of the mole rocks and the development of gaps can, therefore, affect the protection measures and facilities on the north side.

The mole will retain its training and flushing function for a long time to come, without maintenance topping up — excepting a very severe and damaging storm. While some topping up may be prudent at some time to minimise gap development and any progressive unraveling, at present there is no need to programme remedial works for the mole.

4 PROGRAMME OF REPAIRS

4.1 General

The protection measures along the South Spit are all old works, and there has been no real maintenance of them for decades. The measures in place, as decayed and haphazard as some of them are, are still effective in maintaining the river edge and preventing substantial erosion into the spit. Some of the erosion problems are on going, such as the continuing enlargement of the embayment upstream of the south mole extension, but some are recent activity, in particular at the upstream end, above and at the groyne set.

There is some vulnerability to continuing and unraveling erosion, and a small amount of repair work now would be well worthwhile in places. A programme of repair measures is thus recommended, with the works being carried out over a number of years.

4.2 Programme and Priorities

A qualitative assessment of priorities has been undertaken to programme repairs. This has been based on a combination of: recent erosion activity and likelihood of further activity; accessibility and cost effectiveness of the measures; and the risk of

substantial loss and retreat of the sand hills that could threaten the integrity of the spit.

At each site where some repair measures were considered necessary, a practical repair measure has been determined. This has allowed a rough order cost to be estimated and a general programme drawn up with associated costs. A more detailed and site specific consideration of options should, however, be carried out prior to actual works being implemented. The measure selected is then representative of what is required.

Proposed remedial measures are listed below in priority order:

- At the active embayment upstream of the groynes and breach walls (Section A): a low rock groyne across the river flats, from the existing small rock knobs back to the sandhill; and a short rock plug from the concrete wall (at its upstream end) to the first pile of the set of piles.
- At the groynes in front of the lateral wall (Section B): a plug of rock to secure the landward end of the groynes and connect to the concrete wall, with the priority being the larger gaps at the first two (upstream) groynes.
- At the large embayment upstream of the south mole (Section E): a lattice work of driven piles along the line of the old training structure.

The location of these works are indicated on Figure 2, and numbered in priority order. Other repairs may be required in the future, as storms and floods occur, but there are no other identified repairs for the present conditions. The monitoring of the protection measures and structures along the whole length of the South Spit should continue, to ensure timely responses when they are needed, and this could be part of the inspection regime for the lower Whanganui River.

Access for the first two priority works would be off the south beach access way, and temporary access along the river flats beside the sand hills would have to be established. The work sites would be affected by the tidal variations in the river estuary.

Any effective measure to mitigate the erosion and sand hill retreat at the large embayment will be expensive, and more investigations are needed to determine the extent and layout, and hence magnitude of these works. These works have then been programmed in, but not costed.

4.3 Rough Order Costs

A rough order cost has been estimated for the two priority works, based on the use of local limestone rock, with a temporary access along the river margin, where the protection measures are located.

1. Rock groynes at upstream embayment (Section A):

General & establishment		\$ 5,000
Access establishment	500 m	\$ 7,500
Rock groynes	700 tn	\$ 35,000

2. Rock 'plugs' Groynes 1 & 2 (Section B):

General & establishment		\$ 5,000
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Access establishment	200 m	\$ 3,000
Rock groynes	500 tn	\$ 25,000

3. Rock 'plugs' Groynes 3 & 4 (Section B):

General & establishment		\$ 5,000
Access establishment	150 m	\$ 2,000
Rock groynes	150 tn	\$ 7,500
20% contingencies		\$ 20,000
TOTAL		\$ 115,000

These costs are based on rock costs of \$50/tonne (\$25 in the quarry + \$15 transport to site + \$10 to place), and access formation costs of cut & fill at \$5/m and a top course layer at \$10/m.

Rough order costs have been obtained for piles and waling to extend the groynes, with piles at around \$1000 each and waling around \$40/m. Extending the groynes back to the concrete lateral wall would be cheaper than the rock plugs. There would be greater set up costs at the work site (groynes) and probably more access difficulties and costs for the machinery involved. The driving site is under water at high tides. Overall this approach would, though, cost less, but provide a less robust 'join' at the lateral wall.

4.4 Programme

The proposed works could be programmed over the next three years, starting with the works upstream of the groynes, as follows:

YEAR	WORKS	COST (\$)
1	Low rock groynes upstream of Groynes	57,500
2	Rock 'plug' at Groynes 1 & 2	40,000
3	Rock 'plug' or rubble at Groynes 3 & 4	17,500
?	Works at the large embayment	Not estimated

The appropriate measures at the large embayment upstream of the south mole requires further consideration and design investigation. This should, though, be seen as part of the programme.

5 CONCLUSIONS

The protection measures along the river edge of the South Spit are old and have not been maintained for decades. Despite the decay and deterioration of the old timber structures, there are robust measures in place, with substantial quantities of rock, concrete blocks and rubble, as well as the permeable groynes.

In their present state, the protection measures and the south mole will continue to be effective, and the proposed repair works are essentially stitching up gaps or weaknesses to maintain that effectiveness. Future severe storms and floods may damage the structures and displace the rock and rubble, but until that occurs the proposed works will maintain the integrity of the existing measures.

A continuation of revegetation work on the dunes themselves is recommended, along with the structural repairs, especially on the large dune alongside the protection works. The existing vegetation should also be protected from damage by any use made of the South Spit area.

The difficult issue is what to do at the large erosion embayment upstream of the south mole, and determining cost effective measures to mitigate the sand hill retreat. Relatively small amounts of additional rock or rubble will be sufficient for the repairs at and upstream of the groyne set. There are, though, some construction issues around access and working within the tidal range of the estuary. There are both cost and environmental impacts, with the only practical access being along the estuary edge beside the sand hills.

The costs are very much rough order costs for initial budgeting, and would have to be refined through a design and tendering process. The priority rock works could be carried out over a three year programme of works, with access developed as required each year.

There are likely to be consenting issues, and this could affect the timing of repair works. Temporary access would have to be constructed along the edge of the estuary, at the toe of the sand dunes, and maintained over a period of time, for each of the repairs of the three year programme of works. If the materials and machinery were brought to the work sites by barge, then this would avoid these access impacts. The works themselves would be very similar to what is present along the estuary edge of the South Spit.

September 2011

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Water & Soil Engineer

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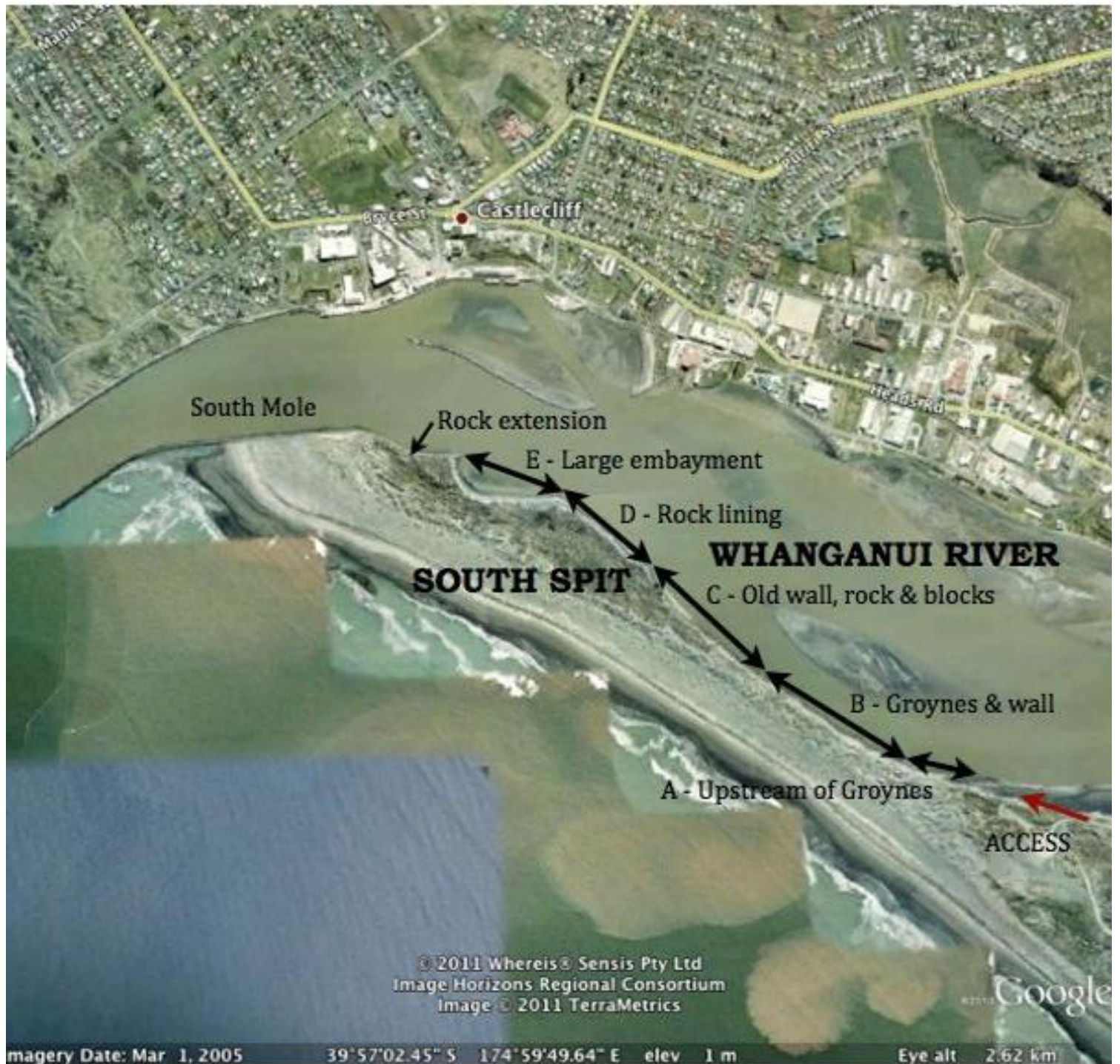
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PHOTOGRAPHS
SOUTH SPIT PROTECTION MEASURES

Photographs of the protection measures along the South Spit, taken in 1998 and during the field inspection (September 2011)

LOCATION of STUDY SECTIONS



WHANGANUI RIVER — SOUTH SPIT

FIGURE 1

PROPOSED WORKS & PRIORITY

Numbered in priority order



WHANGANUI RIVER — SOUTH SPIT

FIGURE 2

A Significant decision? If Yes	No
Do recommendations meet Significance Policy (contained within the LTCCP)	

Item No: 10
Date: 14/12/2011
Report No: 11-218
File No: OAM 02 00

INFRASTRUCTURAL ASSET MANAGEMENT PLANS

PURPOSE

1. The purpose of this item is to inform the Committee of the comments received from the Scheme Liaison Committees in respect of the revised Asset Management Plans (AMP) and to seek approval for inclusion of the Plans in the Draft Long Term Plan (LTP).

FINANCIAL IMPACT

2. Financial provision for the plan preparation and consultation work is included in the 2011-12 Annual Plan, within the asset management budget, under the river and drainage Schemes activity. Provision for any new work arising from adoption of the Plans will follow with the adoption of the LTP.

COMMUNITY ENGAGEMENT

3. There is a statutory requirement to consult Scheme stakeholders during the AMP review process, especially in respect of the review and agreement requirement around levels of service. Consultation undertaken will essentially be achieved through Scheme Liaison Committees. Ultimately, the AMPs' will form part of the Draft LTP and will be subject to the associated statutory consultation process.

BACKGROUND

4. Council is required to review its Infrastructural Asset Management Plans and to revalue its assets at three yearly intervals. The primary objectives of the plans are to define the desired level of service as determined in consultation with the community, in those Schemes where assets are employed; to set out the management and operational processes that are in place to deliver that level of service, in particular the processes for maintaining the assets in perpetuity without loss of service potential; and to ensure that the assets are being managed in the most cost-effective way over their life cycle, through comprehensive inspection programmes and work prioritisation.
5. Financial forecasts are prepared annually for each river and drainage Scheme, and project all future expenses and revenues, cash flows and loan requirements for infrastructural assets, and are in accordance with the requirements of the LGA 2002. These forecasts detail when the budget will be available to rectify any service level shortfalls that have been logged into the AMS, thereby reducing the risk of asset failure and demonstrating sound risk management planning. The Scheme financial forecasts included in the AMP are subsequently incorporated into the LTP.
6. The AMP links these two essential components of information to form a cohesive plan that will provide sound management of a Scheme's assets.
7. The current review of the AMP has been completed to schedule to meet the LTP timeline.
8. Council Staff must discuss the content of the AMP and agree on appropriate performance targets, levels of service and particular asset management principles for

Schemes with stakeholders. It was noted by the Catchment Operations Committee that consultation would be undertaken with Scheme Liaison Committees to represent stakeholder interests in this regard, and meetings were undertaken to satisfy this requirement in November. Consultation with the wider stakeholder group will occur through the LTP process and in particular through the annual round of Scheme meetings.

COMMENT

9. Concerns over the escalating cost of insurance and the desirability of a review of the level of Scheme financial reserves to enable more extensive self insurance by Schemes were raised by Scheme Liaison Committee members in nearly all Scheme liaison meetings. Drainage Schemes also raised concerns over the valuation of some of their larger floodgated structures. There was a view that the replacement cost of some of those structures was understated. These latter concerns have initiated a review of the replacement value of some of the larger floodgated structures, and a review by the Asset Management Engineer of the level of Scheme reserves in the light of a changed insurance environment. It is intended to report to the Committee on these matters early in 2012. Scheme Liaison Committee members expressed a desire to continue discussions on the management of asset risk at the next Scheme AGMs.
10. Scheme Liaison Committee members also voiced some concerns over day to day operational issues that did not affect the content of the AMP, but will nevertheless be investigated and reported through the existing 'matters arising from Scheme meetings' process by the respective Area Engineer.
11. Particular AMP relevant issues raised by Scheme Liaison Committee members are detailed below. Where appropriate, changes have been made to the relevant draft Plans. It is not intended to distribute copies of all Draft AMP's to members of the Catchment Operations Committee, however copies will be made available on request.
12. The Lower Manawatu Scheme (LMS) Liaison Committee discussed the capital expenditure programme, especially the outstanding expenditure forecast for the Linton stopbank upgrade and the priority of other upgrade works. A review of the programme is scheduled to be undertaken shortly and if it is possible to complete that prior to final adoption of the Plan and LTP, then it would be desirable that the review be incorporated in the Plan. Members also queried whether there would be any additional adverse flooding affects upstream of the Linton stopbank upgrade as a direct consequence of the stopbank upgrade; whether the likely cost and risk implications from the CCTV inspections of culverts could be better quantified; and whether the increasing contributions to the Scheme reserve could be balanced by a revised loan repayments schedule. Corrections to the map and shared asset schedule in the AMP were also identified.
13. The Mangatainoka AMP needs to explicitly acknowledge that the stopbanks on the Mangatainoka are at different levels between left and right banks causing a different level of service to be provided to each bank at the same river distance, and that rectifying this will be a factor that is likely to affect future expenditure. There were also issues raised regarding the cost of treating Old Man's Beard; the quantities of gravel that should ideally be extracted; and the level of Scheme reserves, with a request that the latter target be raised from \$700,000 to \$1,000,000.
14. The Upper Manawatu & Lower Mangahao Scheme Liaison Committee members felt that indicated future insurance costs were unaffordable and cover should be discontinued, and that Old Man's Beard infestation on bank protection plantings should be added as a factor likely to affect future expenditure.

15. The South Eastern Ruahine Scheme Liaison Committee members would like the design standard of their stopbanks progressively raised to the Horizons generic design standard. Members also approved of an increase in the Scheme reserve target and indicated that they would favour an increase in contributions to the reserve rather than a decrease in their rates when the loan was repaid.
16. The Rangitikei Scheme Liaison Committee members felt that the reduced quantities of gravel extracted, and therefore the corresponding reduced revenue, should be added to the factors that could affect future expenditure. They also queried whether any of the forestry blocks owned by the Scheme were eligible for carbon credits and whether amenity works on the Rangitikei River could be wholly funded by the General Rate.
17. The Pohangina Oroua Scheme Liaison Committee members would like to see further gravel extraction sites being opened up on the river, and would like the invoicing process for privately funded bank protection works to be reviewed.
18. The Ohau Manakau Scheme Liaison Committee members believed that it is likely that the Scheme would take a greater role in providing flood protection and drainage to areas outside of the Scheme's present works area, and that this should be recognised in future demand. Also, future expenditure may be affected by environmental and recreational initiatives, and the costs associated with seeking a Court Order to access land to undertake stopbank upgrades to meet the community's desired level of flood protection.
19. The Koputaroa Drainage Scheme committee members would like to see increased power costs for pumps included in the factors that affect future expenditure, and noted that flooding issues outside the works area may lead to an expansion of the scheme in the future.
20. The Manawatu Drainage Scheme Liaison Committee members sought the inclusion of more detailed information as regards funding of repairs to any damage incurred to Scheme assets through the operation of LMS spillways. They also suggested that the target level of the reserves should be \$200,000, not \$700,000.
21. The Te Kawau Drainage Scheme Liaison Committee members discussed the recently completed CCTV culvert inspections, expressing concern over the cost of culvert repairs and whether the AMPs could better define the risks of culvert failure so that landowners could make an informed decision as to the level of risk that they were prepared to live with. This will be addressed by the results of a risk assessment currently underway.
22. The Moutoa Drainage Scheme Liaison Committee members would like the AMP to recognise that the level and condition of the stopbanks on the Moutoa floodway, in particular a section of the right bank approximately 2 km downstream of Kerekere Road, were not to present day design standards.

RECOMMENDATIONS

23. That the Committee recommends that Council:
 - a. **receives** the information contained in Report No. 11-218;
 - b. **notes** that where appropriate, amendments requested by Scheme Liaison Committees have been made to the Draft Asset Management Plans;
 - c. **notes** that copies of the amended Draft Plans are available to Committee members on request;

- d. **notes** that the general issue of risk management is still to be addressed and that further changes could be made to the Plans in that regard, prior to their final adoption with the Long Term Plan; and
- e. **endorses** the Draft Plans, amended to reflect stakeholder feedback to date, for statutory consultation through the forthcoming 2012-22 Long Term Plan process.

P Joseph
ASSETS ENGINEER

A D Cook
GROUP MANAGER OPERATIONS

A Significant decision? If Yes	No
Do recommendations meet Significance Policy (contained within the LTCCP)	

Item No: 11
Date: 14/12/2011
Report No: 11-222
File No: PRD 06 00

RIVER AND DRAINAGE SCHEME AUDITS

PURPOSE

1. The purpose of this item is to seek Council's endorsement of a change in frequency of Scheme audits.

FINANCIAL IMPACT

2. There is no immediate financial impact arising from this item. Provision is made within approved Scheme budgets for audits scheduled during the current financial year. Adoption of recommendations in the item would however result in reduced general rate funding for Scheme audits in future years.

COMMUNITY ENGAGEMENT

3. Scheme audits are of particular interest to Scheme ratepayers. Any change in the present audit process, including frequency, should be relayed to Scheme ratepayers at the annual round of Scheme meetings to be held in April 2012.

BACKGROUND

4. Council embarked on a programme of comprehensive Scheme reviews in 1991, and over the past 20 years has completed a total of 25 full and four partial reviews. Arising from essentially every review has been a recommendation that the associated rating system also be reviewed and consequently a secondary but very substantial programme of work has resulted. With the completion in 2010-11 of a partial review of the Rangitikei Scheme and a full review of the Pakihi Scheme, all presently scheduled reviews had been completed. Similarly, with the recent completion of partial rating system reviews for the Mangatainoka, Makerua and Moutoa Schemes, it is unlikely that there will be a need for further significant changes for the next five to 10 years.
5. There could be a need in the interim to undertake occasional partial reviews of either Schemes or rating systems, for example where a Scheme extension is proposed or where there is widely supported ratepayer demand for a change in service level that justifies a change in rating system differentials. Similarly circumstances could arise where a full scale review is required, for example following a major flood event. In either case specific funding provision would need to be made for those circumstances.
6. In recognising the approaching conclusion to what had been a protracted, demanding and costly review process, and the need for some mechanism to ensure that the outcomes of those reviews were being reflected through appropriate Scheme management, Council adopted in the 2009-19 Long Term Plan (LTP) a programme of five-yearly audits of all Schemes.
7. The purpose of the audits was to ensure that Scheme management was generally in accordance with the most recent review recommendations, or alternatively that any deviations from agreed management philosophy or programmes had been based on a well informed, considered and documented process and that appropriate stakeholder consultation had occurred.

Audits would also consider whether actual Scheme expenditure after a period of review implementation was aligned to assumptions made in the development of particular targeted rating systems and whether any adjustments may be required in that regard.

8. It was intended that an initial series of audits would be completed by 2014-15.
9. To date audits have been completed for the Mangatainoka, Tawhatai-Mangaone, Moutoa, Whirikino, Upper Whanganui, Upper Manawatu and Ihuraua Schemes. Audits are scheduled in the current year for the Upper Manawatu, South Eastern Ruahines and Foxton East Schemes.

DISCUSSION

10. The reviews undertaken to date have generally confirmed that Schemes are being managed in accordance with review findings. They have provided a mechanism for investigation of minor works area extensions and for correction of rating system anomalies. In some instances, the need for either better documentation of information or communication with stakeholders has also been identified. Accordingly, the process has been well worth while and should be continued.
11. Experience to date however would suggest that the workload resulting from an audit frequency of five years, involving on average of six or seven audits per year is considerable. Also the cost, averaging \$23,500, and funded fully by the General rate is significant. Furthermore, it has been found that following through on the actions arising from an audit can take up to two years, meaning that the interval between audits can effectively be as short as three years.
12. It is suggested that similar objectives would be achieved from the audit process if the frequency was increased to 10 years. It is unlikely that the type of issues being addressed through the process would need to be dealt with more urgently. Nevertheless, the opportunity to bring a particular Scheme audit forward for some particular reason, within an overall 10 year framework, would still exist through the Annual Plan process.
13. Assuming a 10 year frequency is adopted, then audits of all 24 Schemes yet to be subject to the process will be completed at the rate of three per year over the next eight years. A second series of audits would then commence.
14. At this stage the 10-year financial forecasts to be included in the Draft LTP include provision for the reduced audit frequency.

RECOMMENDATIONS

15. That the Committee recommends that Council:
 - a. **receives** the information contained in report No. 11-222;
 - b. **approves** a change in the frequency for Scheme audits from five to 10 years;
 - c. **notes** that an initial series of audits should be completed by 2019; and
 - d. **requests** the Group Manager Operations to make provision in the 2012-22 Long Term Plan accordingly.

A D Cook

GROUP MANAGER OPERATION

A Significant decision? If Yes	N
Do recommendations meet Significance Policy (contained within the LTCCP)	

Item No: 12
Date: 14/12/2011
Report No: 11-215
File No: ELM 6 00

SUSTAINABLE LAND USE INITIATIVE (SLUI)

PURPOSE

1. This report is to update Members of the progress on Council's Sustainable Land Use Initiative (SLUI).

FINANCIAL IMPACT

2. There are no financial impacts associated with this report.

COMMUNITY ENGAGEMENT

3. The community affected by these recommendations have been fully updated via personal letters regarding funding while media articles have also been released outlining the wider success of the campaign.

PROGRESS TOWARDS TARGETS

4. The 2011-12 target for completing Whole Farm Plans (WFP) is 100 WFPs or 55,000 hectares mapped. Of these, around 90 (90%) will be completed by our main contracted supplier, LandVision Ltd, the remainder by Horizons staff or another supplier. By the 25th of November 2011 LandVision had mapped 33 properties and Horizons two.

Table 1 summarises progress toward WFP development.

Table 1: Whole Farm Plan Development – 25th November 2011

Whole Farm Plan Development						
	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12
Farms Mapped	46	89	80	81	65	35
Draft Completed	46	89	80	81	65	26
Completed	45	89	80	81	64	11
Copy to Landowner (Active)	45	88	80	81	56	2
TARGET	40	80	80	100	100	100*
CUMULATIVE (WFPs Completed)	45	133	213	294	358	360

* 100 plans or 55,000 ha

5. Implementation generally begins the year following the completion of the WFP. The SLUI programme budgets on implementation taking at least five years to complete.

Table 2 summarises implementation progress to date.

Table 2: Implementation Progress – 25th November 2011

Whole Farm Plan Implementation						
	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12
Total WFPs	45	133	213	294	358	360
Works Programmes Planned *1		45	133	213	349	334
Works Started *2		40 (89%)	116 (87%)	189 (89%)	254 (86%)	276 (83%)
Projects Completed (Jobs)	13	67	99	191	203	104

*1 plans delivered

*2 work carried out or agreed to start this year, cumulative

6. For the financial year to 25th November 2011 the 104 individual implementation projects completed have had a grant cost of \$923,658.

Table 3: Work Types and Grants 1 July 2011 – 25th November 2011

Work Type	Number of Claims	Total Cost (\$)	Grant Paid (\$)	Grant Rate – Average (%)	Hectares Treated (Ha)
Afforestation	28	1,030,165	572,557	56	872
Retirement	8	137,866	87,268	63	53
Gully planting	8	11,565	5,783	50	56
Managed retirement	4	54,011	54,011	100	20
Riparian retirement	24	269,107	150,508	56	130
Space planting	21	36,538	16,633	46	74
Structures Earthworks	1	4,012	2,006	50	7
Wetland	7	40,146	20,521	51	5
Other *1	3	22,989	14,371	63	
Grand Total	104	1,606,400	923,658	58	1,216

*1 – digger work for; 1- fencing and 2- alternative water supplies as a result of riparian retirement.

ACTIVITY SUMMARY

7. All this winter's forestry planting and release spraying has been completed, this includes all AGS projects (six), four major grant projects and the replant of the Forestry Right on Ridge Road (Pohangina).
8. MAF internal restructuring is continuing. Since the last report in September we now have another new report. Amanda Evans has been replaced by Louise Askin. Louise is based out of Wellington and currently runs the Sustainable Farming Fund portfolio for the lower part of the North Island. It is not clear whether Louise will be the permanent report for SLUI. This won't be known until the MAF restructuring is completed in the New Year.
9. The next joint MAF/Horizons Governance Group meeting is to be held in Palmerston North on the 15th of December. Horizons will provide a draft of the six monthly report and budget information until the end of November.
10. An Advisory Group meeting was held on the 28th of November. This meeting took the opportunity to carry out a field visit to the Ridge Road, Pohangina area.
11. The end of year report and final invoice to MAF were sent in early August. The final payment for 2010-11 of \$363,000 was paid on the 14th of October.
12. A spreadsheet to manage priority assessment is continually updated for proposed WF Plans. The priority list for 2011-12 Whole Farm Plans (WFP) stands at 48 properties. Staff are managing the names that go onto this spreadsheet slightly differently than they

have in previous years. In the past any landowner who expressed a reasonable interest in getting a WFP was included. Now the list is much more immediate and we include only those ready and fully committed to the process and only those where we have a reasonable expectation of the mapping being started within the next two to four months. The total area of the 48 properties on our list is 42,000 ha, which is 76% of our target for the year.

13. As noted in point three, 11 WFP have been completed to date, another 24 have been mapped. Interestingly the area mapped by LandVision in the 33 plans is 20,057 hectares, an average of 607 ha per property (last year the average property was nearly 1,000 ha).
14. Plan completion is well ahead of the corresponding time last year (11 completed vs 0). Landowners confirming they want a WFP are getting a quicker turn around than in previous years.
15. Table 3 shows the full breakdown of works by type for this year. Claims are coming in at the rate of around 10 a week at the moment as landowners complete lambing and docking and have some time to put to the claim process.
16. In the last agenda it was reported that two carbon companies had made contact with us regarding forestry options within the region. One of these has purchased three properties, including Split Rock Station, which was in receivership. The new owners have completed the release spraying of the pines established through SLUI assistance.
17. AgResearch have produced a draft review 'SLUI Outcomes Project', which will provide independent advice on reporting of SLUI progress. This involved reviewing the operation of our database and putting together a proposal to report the degree to which target land has been protected from erosion, and how this might convert to a reduction in sediment in rivers. A number of helpful suggestions will be implemented to streamline database operation, plus AgResearch will be contracted to deliver an independent report on the above topics for the period up to July 2011.
18. We have been asked to provide copies of one WFP to a land agent in order to market a property. We have also been contacted by a prospective purchaser of a property to clarify how the implementation of the works programme is managed.
19. Garth Eyles has been contacted regarding his availability to complete some WFP for us this year. We intend to use his expertise as a training opportunity for newer staff who will accompany him on the survey and produce plans with his overview.
20. Angus Gordon has been contracted to survey landowners on 'the value of WFP'. This is as a result of issues raised in the MAF validation report of April 2010. We are currently finalising the survey questionnaire with Angus.

RECOMMENDATIONS

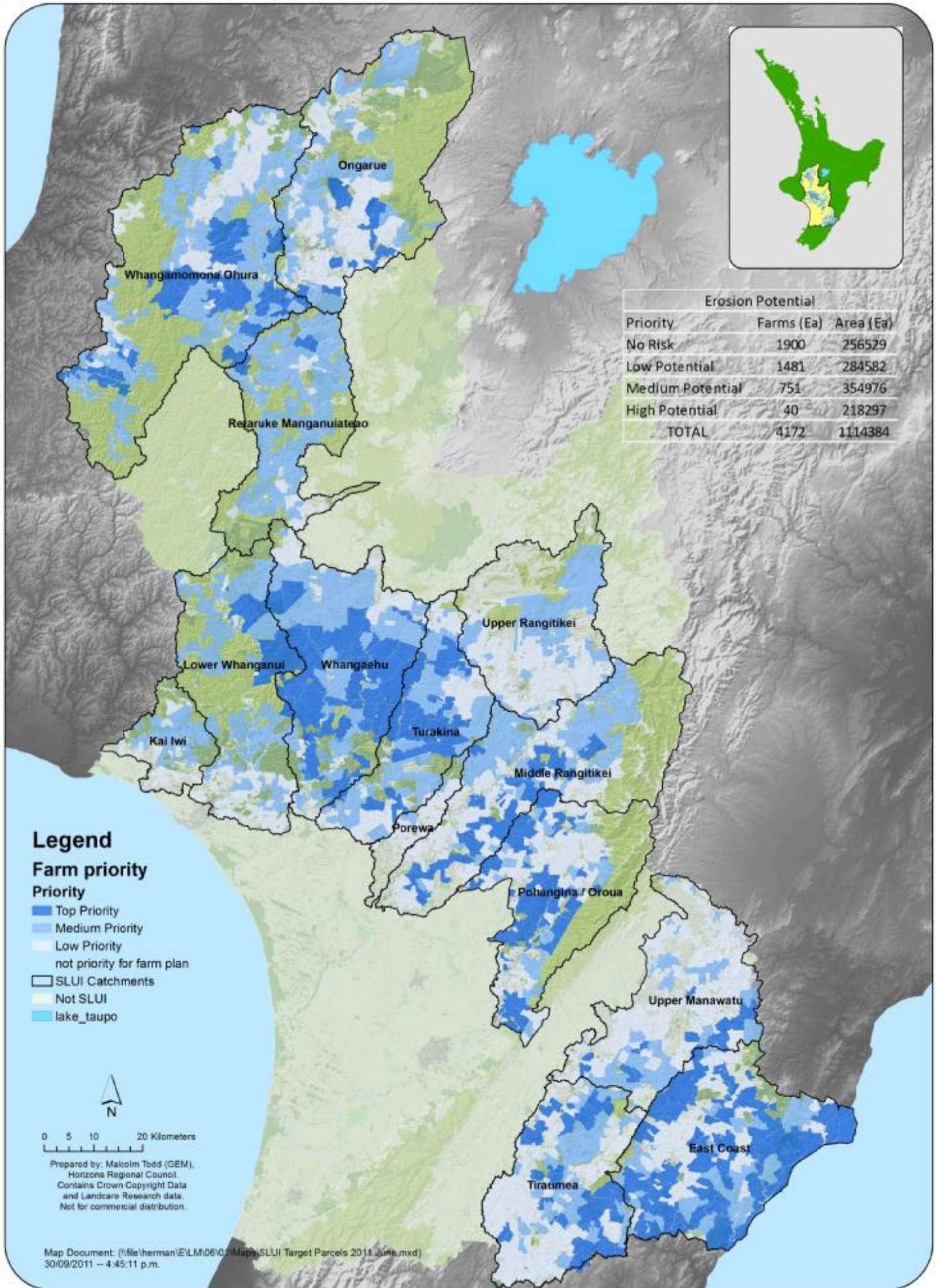
21. That the Committee recommends that Council:
 - a. **receives** the information in Report No. 11-215 and Annexes.

CC Mitchell

GROUP MANAGER ENVIRONMENTAL MANAGEMENT

ANNEX

- A SLUI Overview Map – Target Farms & Priorities
- B SLUI Overview Map – Plan Progress
- C SLUI Overview Map – Implementation Progress



Legend

Farm priority

Priority

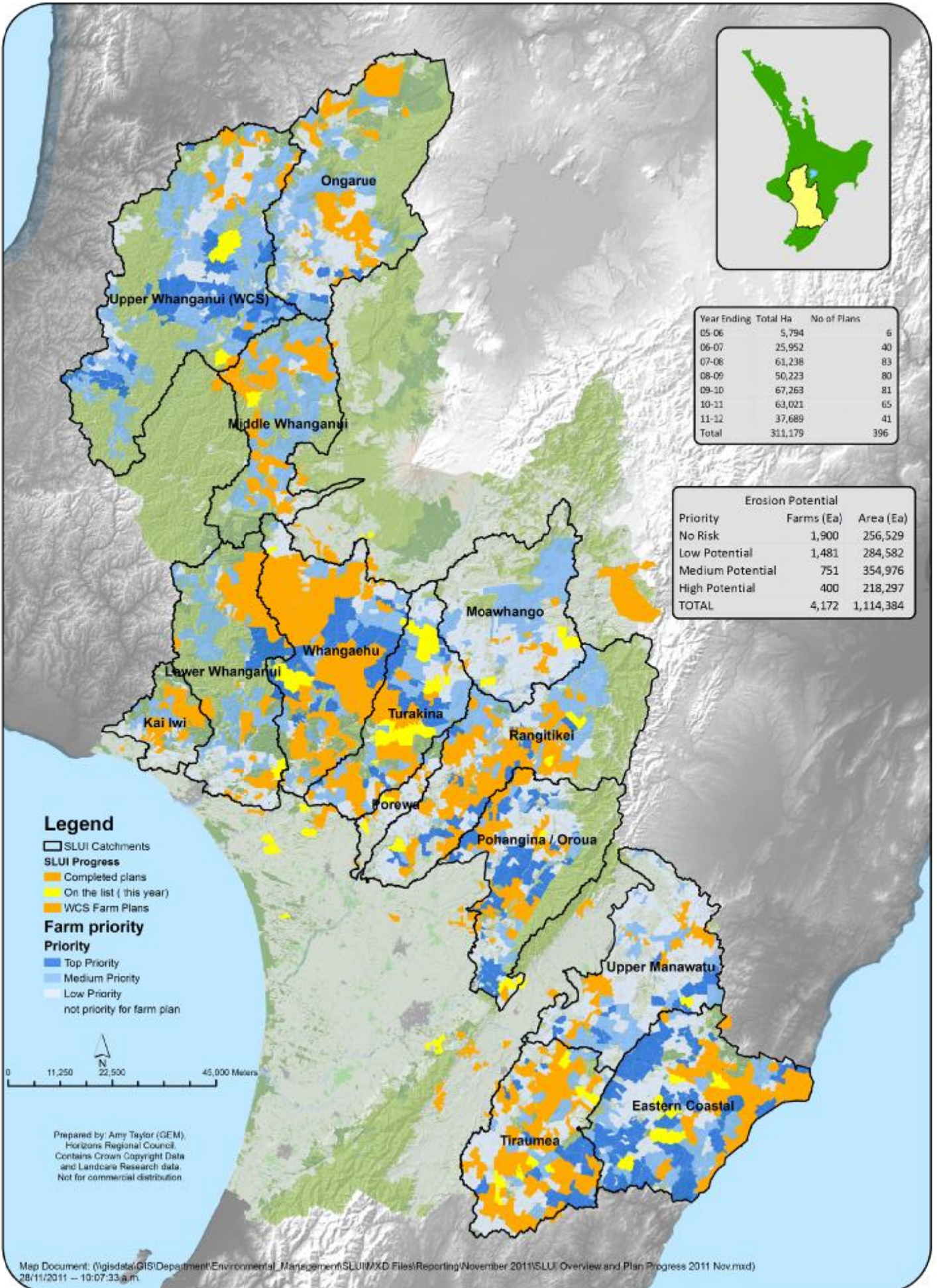
- Top Priority
- Medium Priority
- Low Priority
- not priority for farm plan
- SLUI Catchments
- Not SLUI
- lake_taupo



0 5 10 20 Kilometers

Prepared by: Malcolm Todd (GEM),
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Map Document: (\\file\herman\E\LM\06\03\Maps\SLUI Target Parcels 2014_aure.mxd)
30/09/2011 -- 4:45:11 p.m.



Year Ending	Total Ha	No of Plans
05-06	5,794	6
06-07	25,952	40
07-08	61,238	83
08-09	50,223	80
09-10	67,263	81
10-11	63,021	65
11-12	37,689	41
Total	311,179	396

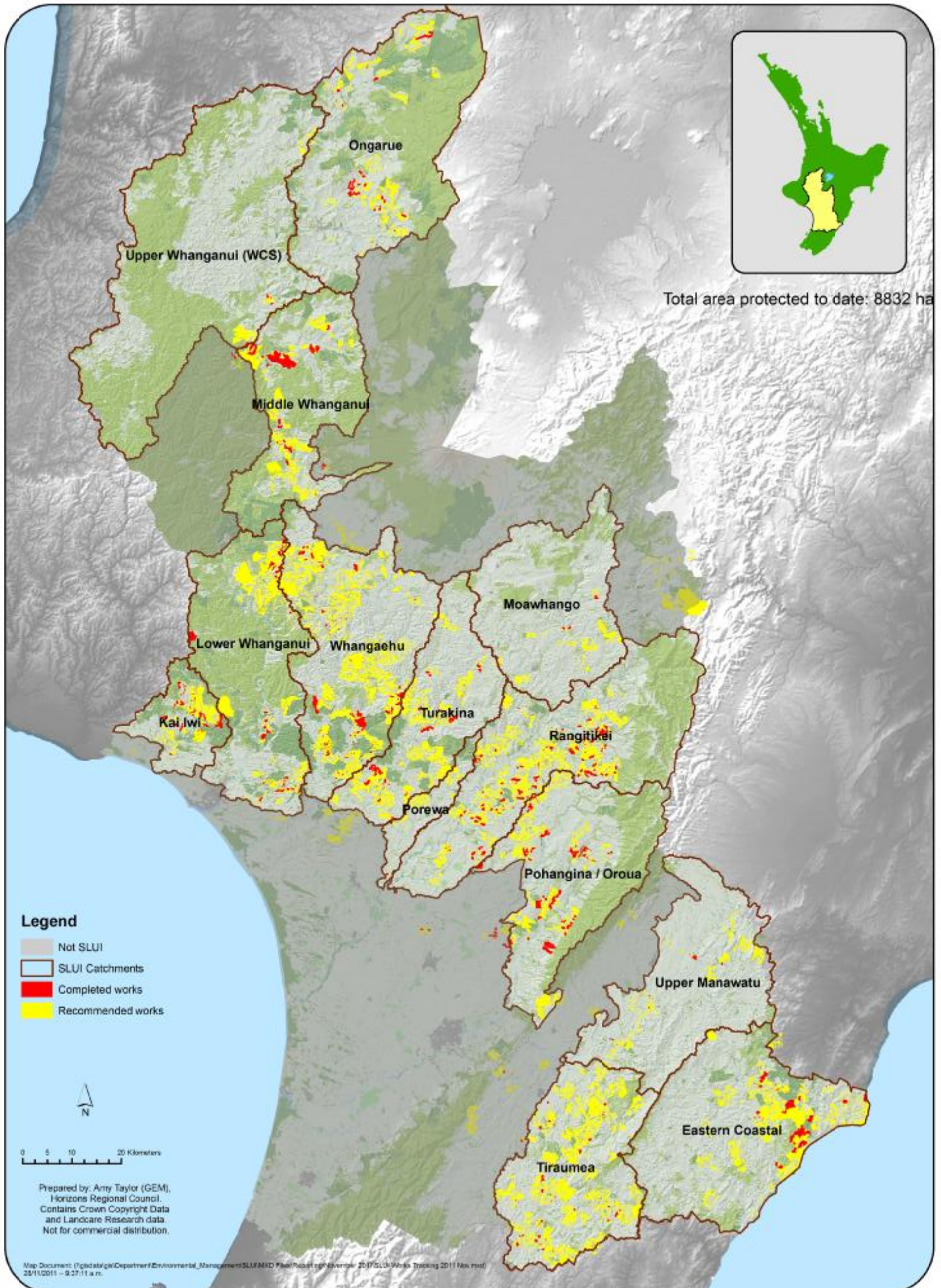
Priority	Erosion Potential	
	Farms (Ea)	Area (Ea)
No Risk	1,900	256,529
Low Potential	1,481	284,582
Medium Potential	751	354,976
High Potential	400	218,297
TOTAL	4,172	1,114,384

Legend

- SLUI Catchments
- SLUI Progress**
- Completed plans
- On the list (this year)
- WCS Farm Plans
- Farm priority**
- Priority**
- Top Priority
- Medium Priority
- Low Priority
- not priority for farm plan



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