

Report No.	20-178
Decision Required	

RIVER AND DRAINAGE ENGINEERING REPORT

1. PURPOSE

- 1.1. The purpose of this item is to report on progress with river and drainage activities for the period September - November 2020.

2. RECOMMENDATION

That the Committee recommends that Council:

- a. receives the information contained in Report No. 20-178.

3. FINANCIAL IMPACT

- 3.1. Funding provision for all activities reported on in this item is either included in the River and Drainage General or River and Drainage Schemes Activity sections of the 2018-28 **Long-term Plan (LTP)**; is covered by an approved carry-forward of unexpended budget from the 2019-20 financial year; or additional approval will be specifically sought by way of recommendation in the item.

4. SIGNIFICANT BUSINESS RISK IMPACT

- 4.1. There are no significant risks relating to the adoption of the recommendations contained in this report.

5. CLIMATE CHANGE IMPACTS

- 5.1. While this item doesn't specifically consider climate change impacts clearly climate change is a significant influence for the activity as a whole, reflected in the fact that the current 30 year Infrastructure Strategy highlights climate change as a significant issue.

6. DISCUSSION

- 6.1. Continuing the theme with the September report, central government funding of some key river management resilience projects continues to have considerable focus within the group. The Chief Executive signed a funding agreement with the Ministry for Business Innovation and Employment on 3 November for a total of \$24.9M of funding; expectation is that by the time Committee meets the Hon Stuart Nash (Minister for Economic and Regional Development) will have signed on behalf of central government.
- 6.2. Key drivers with that funding (termed shovel ready funding and part of central government's response to the economic effects of the COVID-19 national lockdown) are job creation and rapid mobilization. The November meeting of Council's Audit, Risk and Investment Committee considered amongst other things an item outlining a strategy for expediting the delivery of those projects; the themes in that item are very much the focus for staff in gearing up to deliver these projects.

- 6.3. In part related to those shovel ready projects, community engagement has also been a focus over the period. That's included Scheme Liaison Group meetings, inviting Whirokino Scheme ratepayers to a briefing on the Foxton Flood Mitigation project and two meetings that form the start of the ratepayer engagement around the development of a management strategy for the Rangitikei Scheme. Those meetings have been variously attended by the Council Chair and Councillors Cotton, Benbow, Clarke, Ferguson, Patrick and Turkington.
- 6.4. Staff met with the **Palmerston North City Council (PNCC)** Parks and Reserves Manager Kathy Dever-Tod in late September to traverse a range of overlapping issues, including progressing the shared path development along the margin of the Manawatu River between Palmerston North and Ashhurst. The section of path that has been constructed downstream of the State Highway 3 Bridge has been very beneficial for staff in permitting access for river maintenance with staff signaling an interest in working together with PNCC to progress the wider project.
- 6.5. As previously flagged to members (Report 19-89 presented to the June 2019 meeting), the reset some years ago of management practices as they relate to gravel extraction over this reach of the Manawatu are beginning to bear fruit with a clear recovery in bed levels and the river returning to a more natural form. This is also beginning to generate more management issues with access becoming increasingly problematic; a shared path would be very beneficial in that regard.
- 6.6. The period has seen considerable focus within the group and across the organisation on the LTP and accordingly attention has turned to the schedule of scheme meetings intended to coincide with LTP consultation in 2021. Particular focus is on those things we could look to improve on, particularly how we make the information presented available to those not able to attend in person (use of video-conference, placement of presentations on Council's website etc.).
- 6.7. Staff are also conscious of the wide array of policy directives emanating from central government and other funded projects such as Jobs for Nature, and the potential impacts on scheme ratepayers; the intent is to have a broader representation of staff present at these meetings to answer questions, without making the organising too onerous or diluting the focus. That collaborative theme is evident through the report with the large number of projects being advanced with both the science and freshwater teams.
- 6.8. Staff capability / capacity has been significantly boosted over the period with some key appointments. Those include Cliff Thomas to the position of Area Engineer Central and Bill Hewitt to the role of Project Delivery Team Leader, key focus being Shovel Ready project delivery. Senior Engineering Officer Dougal Ross has also returned to the Northern Team after a 12 month lifestyle leave break, improving our ability to deliver both the Lower Whanganui and Rangitikei capital projects.
- 6.9. Related to that, key equipment purchases have taken place over the period, with Kairanga staff welcoming the purchase of a new 13 tonne excavator. Kairanga staff will also take delivery of a new truck early in the new calendar year, both items replacing equipment that has served Horizons well.

7. INVESTIGATIONS AND DESIGN

- 7.1. During this reporting period the Investigations and Design Team has grown its capacity around project management to deliver capital projects for the River Management Group, particularly the 'Shovel Ready' projects.
- 7.2. Andrew Williams has joined the team as a Project Engineer on secondment from the Central Area Team and Rachel Pinny has also joined the team as the Projects Administrator. Recruitment for a Projects Team Leader has been undertaken successfully with Bill Hewitt joining the team in early December. Bill brings with him a wide range of

project management experience both in the private sector as well as within local government in New Zealand.

- 7.3. The following summarises the work that the team has undertaken during this reporting period.

ARAWHATA STREAM AND HOKIO DRAINAGE NETWORK STUDY

- 7.4. This project is looking at the Hokio Drainage network with a view to both increasing the level of service as well as seeking opportunities to reduce the sediment load in the drains that eventually flow into Lake Horowhenua.
- 7.5. The Horizons Team working on this project has been made up of staff from the Investigations and Design Team and the Southern Area Team, as well as from the Science and Innovation Team.
- 7.6. During this reporting period consultants Tonkin and Taylor have continued to progress their technical work with a draft of their findings due to be delivered at the end of November.
- 7.7. Within this space, work has also been undertaken alongside the consultants who are progressing detailed work around the Arawhata sediment trap that is being undertaken as part of the Jobs for Nature package of works.

KOPUTAROA SCHEME REVIEW

- 7.8. The review of the Koputaroa Scheme is a significant piece of work, as it seeks to understand the multiple issues and drivers that will shape the Scheme's operations and management well into the future.
- 7.9. Work on this review has continued throughout this reporting period, and staff are now focusing on bringing together the conclusions to shape the recommendations around the future management of the Scheme.
- 7.10. To assist with the understanding of the Scheme, as well as developing options for future management, staff have developed a number of hydraulic models of the Koputaroa Stream and associated drainage channels.

FLUVIAL PROGRAMME – OHAU GRAVEL RESOURCE STUDY

- 7.11. The fluvial programme looks at the gravel resource throughout the Region's Rivers and is undertaken in collaborating with the Science and Innovation, Environmental Data, and Survey Teams.
- 7.12. During this reporting period staff, alongside consultant Gary Williams, have been looking closely at the gravel resource of the Ohau River with a view to shaping up a Gravel Management Strategy for the river.
- 7.13. Work has focused on considering and quantifying changes in the gravel resource over time, as well as seeking to understand the fluvial geomorphic processes that shape the river. It is intended that this information will be discussed with Iwi with a view to shaping the strategic management of the gravel resource in the Ohau.

ASSET MANAGEMENT

- 7.14. Over this reporting period a lot of work has been undertaken in the Asset Management space. This work has included the refresh of Asset Management Plans for each of the Schemes, a component of the LTP update.
- 7.15. In addition to this staff have begun to look at the risk profiles for each of the Schemes, to inform decisions around appropriate levels of insurance and reserves that the Schemes should carry. This work supports the work that the Corporate Services Team has been undertaking around management of Council's insurance premiums through the LTP.
- 7.16. Staff have also continued working as part of an Asset Management Leadership Team across the organisation to develop a Strategic Asset Management Plan, as well as rolling

09 December 2020

out the new **Asset Management Information System (AMIS)** across the River Management Group as well as the wider organisation.

- 7.17. During this reporting period, a significant draw on staff time has been working with Audit New Zealand around the revaluation of the infrastructural assets required for the Annual Report.

REGULATORY ADVICE

- 7.18. During this reporting period, advice was provided on a number of substantive matters. This regulatory work has included specialist advice on flood risk and the production of technical reports for consent applications, rezoning and subdivisions.

SHOVEL READY PROJECTS

- 7.19. During this reporting period the team has been working to ensure that these projects are delivered as efficiently as possible. Staff have begun the procurement processes associated with setting up supplier panels for both contractors and consultants who can assist with the delivery of the projects.
- 7.20. The Foxton Project has been a particular focus for the team. Consultants E2 Environmental are progressing the detailed design with staff looking to appoint a resource management consultant to provide support in regards to the preparation of applications for the various resource consents that some of the work will require.

LOWER MANAWATU SCHEME RURAL FLOOD PROTECTION UPGRADE PROJECT

- 7.21. During this reporting period, staff have been working to ensure that works that were suspended by the COVID-19 shutdown can be re-started once the summer construction period begins.
- 7.22. A tender process has been undertaken and a contractor appointed to undertake works to extend the height of the Burkes Gates. Additionally works to complete stopbank raising along Kara Creek, as well as providing protection to two individual properties in the Taonui Basin, are also being progressed.

8. CENTRAL AREA

- 8.1. This reporting period has seen an increase in rainfall for this reporting period compared to the last reporting period – effectively a doubling of rainfall. The underlying dry nature of 2020 and the nature of the rainfall events meant that only modest peak flows were generated in the Manawatu.
- 8.2. Staff changes for the Central Area include Thomas Morgans replacing Warren Kimura who has retired; Cameron Reid promoted to Engineering Officer replacing Andy Williams who was seconded to the 'Projects' group; and Cliff Thomas taking the Area Engineer Central position with the departure of Paul Joseph.
- 8.3. Staff have continued to work closely with Horizons' Biodiversity Team to respond to the recent discovery of alligator weed in the Mangaone Stream and City tributaries. There has also been a recent discovery and removal of one site of Sagittaria weed, also in the Mangaone Stream. Inspections, monitoring and removal efforts for both are ongoing.

LOWER MANAWATU SCHEME

- 8.4. Works undertaken on the various rivers within the Scheme this period include the following:

MANAWATU RIVER

- 8.5. Progress is being made on the project to address the impacts of gravel build-up / beach development on the alignment of the Manawātū River between Palmerston North City and Ashhurst. Several beaches required excavation of 'high flow' channels to help in times of

- floods. It is intended to provide governance with an outline of the plan once developed, as this will be a key milestone in the management of this reach of the Manawatu.
- 8.6. Approximately 6km of vegetation mulching and layering have been completed across various sites along the Manawātū this period. Minor erosion repairs, pest plant removal, willow pole planting and a short section of drain clearing was also undertaken in the vicinity.
- 8.7. Works were completed at the upper reach of the Scheme, in the vicinity of the Ashhurst Domain and the confluence of the Pohangina River with the Manawātū River. These works included the ‘topping up’ of one of the existing rock groynes; constructing new tree groynes; and the planting of further willows for future erosion protection. The river protection works that continue to be damaged by four wheel drive enthusiasts and determined fly-tippers will also be repaired when required.
- 8.8. The work is focused on ensuring that the works completed adjacent to Ashhurst Domain are not outflanked further upstream, likely to be an ongoing battle particularly with the Manawatu now having a relatively fixed alignment as it exits the gorge.
- 8.9. The Fitzroy Bend Groynes were cleared of debris in October. Debris will be left to dry and if weather permits is planned to be burned before Christmas.
- 8.10. The pumps at both Heatley Avenue and Waterloo Park pump stations within the City have been removed, serviced, repaired and reinstalled. These pumps service the toe drains that run along the land side of the stopbanks in these areas.
- 8.11. Staff have continued to monitor, meet and work with PNCC across various projects this reporting period. These included the new Esplanade entrance, including the removal of large eucalyptus trees from the stopbank toe; progressing the river pathway extension upstream of Riverside Drive; native plantings of tributaries; and the now annual spring bonfire event held at Ahimate Park.
- 8.12. PNCC have begun design and consultation around the development of the Marae Tararta area, previously used as a gravel extraction site near the transfer station at Awapuni, with staff involved in workshops and design discussions. Layering of willows is currently being undertaken around the Marae Tararta site, and the contractor has recovered and relocated suitable native logs to Rangitāne.
- 8.13. Scheme staff met with Massey University property services staff to discuss several issues and ideas, one such being the reshaping of a drain at the toe of the terrace adjacent to the stopbank, to enable the area to be planted as a wetland. Also discussed was the possible rectification of river berm adjacent to the stopbank currently unable to be grazed. Staff agreed that the Scheme could assist with improving the site overall, and will work with Massey to do this.
- 8.14. Two separate complaints were received about the concrete riprap protection in the vicinity of the Foxton Beach Boat Club. One regarded stray concrete across the mudflats causing a nuisance to boaters; and the second alerting to plastic from old bank protection works was breaking down and releasing plastic into the estuary. The erosion area was repaired with additional riprap, and where possible, stray concrete was collected. A long term solution for this area is needed as the toe of the stopbank remains exposed.
- 8.15. **New Zealand Transport Agency (NZTA)** staff and consultants have approached staff for views around the retention of the old Manawatu River Bridge at Whirokino – whether that is likely to cause an operational issue. The staff view is that this is unlikely to be an issue provided maintenance roles and responsibilities are clearly identified; the old structure has a lower deck level and more supporting piers than the new bridge and therefore collects a greater volume of vegetative debris when the river is in flood.

OROUA RIVER

- 8.16. Although not a statutory requirement, staff have been providing representatives from Ngati Kauwhata with planned maintenance work for the Oroua River. Concerns have been raised around willow control work along the awa upstream of Te Arakura Road – staff have arranged to meet with Kauwhata on site to work through those concerns.
- 8.17. Vegetation clearance and disposal has been undertaken at several sites. Work was carried out at Timona Park in partnership with Manawatu District Council as part of the 'Windows to the Oroua' project. Native plants have been planted in the cleared areas.
- 8.18. Several sections of mulching and layering have been completed through Feilding. This work has sparked interest from the community, with many calls being fielded in regards to the removal or layering of trees. The calls were more of a curious nature as to the purpose of the work.
- 8.19. The preliminary work for this year's silt relocation contract is underway. Discussions are currently happening with a land owner, and an initial survey has been undertaken. This work is likely to commence early February 2021.

LOWER KIWITEA STREAM SCHEME

- 8.20. Maintenance works commenced in the Kiwitea Stream during November. Works included the constructions of groynes; the clearing of flood debris from beaches; the layering and / or mulching of existing willows; and the relocating of gravel beach build-ups causing erosion problems.

9. NORTHERN AREA**RANGITIKEI RIVER CONTROL SCHEME**

- 9.1. As part of the development of a management strategy for the Rangitikei Scheme, meetings were held with landowners / targeted rate payers (direct benefit) on 17 and 19 November at the new Te Matapihi Centre in Bulls. A more detailed overview of the strategy development and those meetings is provided as a separate item.
- 9.2. Following a repair to the fish friendly floodgate winch that drains Ellison Reserve in Tangimoana, we are working with Biodiversity and Freshwater Staff to fence off the floodgate outlet to the estuary from cattle. This will benefit the reserve and the damage from cattle to the drain.
- 9.3. The notification period associated with the Rangitikei aerial spray consent closed 26 October; staff are currently awaiting further direction from Regulatory Staff on next steps. Staff have also lodged a resource consent application for gravel management downstream of the Kakariki.
- 9.4. A contract has been let for the final stage of the Parewanui stopbank upgrade with work expected to commence shortly.

POHANGINA-OROUA RIVER CONTROL SCHEME

- 9.5. Scheme work for the year is ramping up as ground and access conditions improve. Noting that normal channel maintenance work is funded 100% from scheme rates while river bank erosion work is being undertaken at the request of the property owner, funded at the new rate of 50% by the landowner and 50% by the scheme.
- 9.6. At Totara Reserve an extensive erosion repair job at Gilcrest Track has been completed. This will go a long way to help protect the large and well-established Totara trees at this location. In addition approximately 1500 willow poles have been planted in front of the repair and a large volume of gravel has been redistributed to allow the river to flow further out in the channel, thus protecting this area.

UPPER WHANGANUI RIVER MANAGEMENT SCHEME

- 9.7. As a follow-up to the September meeting, staff have been working with **Ruapehu District Council (RuDC)** staff to complete fencing of the four grazed river berm areas along the right bank through Taumarunui. This area is managed jointly between the two Councils with “Right to Graze” leases issued to grazers following public advertisement.
- 9.8. These agreements do not bring in any income to Council as the land is identified as “Hydro Parcel” and so not able to be rented. However the free grazing rights do keep the land tidy and the weeds under control. The fencing of one area was completed in the previous financial year and a joint funding application between RuDC, River Management and Freshwater is currently being finalized for another area this financial year.

MATARAWA FLOOD CONTROL SCHEME

- 9.9. A pamphlet is being developed to drop in residential letterboxes to remind past and new property owners of the purpose of the scheme and how we can assist with the likes of channel clearance.

MAKIRIKIRI FLOOD CONTROL SCHEME

- 9.10. A meeting with the Mangatikotoko Dam landowner was held in October to review the **Comprehensive Dam Safety Review (CDSR)** completed and talk through planned works on the dam in the New Year.

WHANGAEHU – MANGAWHERO RIVER MANAGEMENT SCHEME

- 9.11. A Liaison Group meeting was held in Whanganui on 4 November.

LOWER WHANGANUI SCHEME

- 9.12. Work continues to progress with the Port Revitalisation / Te Puwaha project, working through a co-design / co-decision process with Te Mata Puau in accordance with the 2017 Te Awa Tupua statute.

RUAPEHU DISTRICT WIDE SCHEME

- 9.13. Staff met with representatives from Ngati Haua, Ngati Maniapoto and Ngati Tuwharetoa to advance a more collaborative management model that aligns with the values contained in the 2017 Te Awa Tupua statute.

EASTERN AREA**EASTERN AREA GENERAL**

- 9.14. September, October and November have experienced some larger rainfall events than the preceding months, which have been focused on the Eastern Tararua and Puketoi ranges in the Southern Tararua District (in the head waters of the Mangatainoka, Tiraumea and Mangatoro Rivers) and the northern headwaters of the Manawatū River.
- 9.15. The Mangatainoka, particularly at its confluence with the Makakahi, reached its highest level since 2017. This has led to some significant bank erosion and channel realignment of the river between the Pukewhai Bridge at 30km and Halls Road at 8km.
- 9.16. Two global consents are currently being prepared for the Eastern Area, one to renew the Upper Manawatū – Lower Mangahao Scheme gravel extraction consent, and a Tararua District wide willow removal and vegetation clearance consent. Both are in draft and are going through consultation with stakeholders currently.

TARARUA DISTRICT RIVER MANAGEMENT SCHEME

- 9.17. A large section of work has been completed on the Mangaroa Stream to remove vegetation and reduce flooding. Vegetation clearance work has also been completed on a

tributary to the Mangamarama Stream, near Pahiatua, which had been suffering from the effects of willow congestion.

- 9.18. Work is planned to begin soon in the headwaters of the Tiraumea, undertaking large scale willow removal, to improve congestion and water quality. This project is being undertaken in conjunction with Land Management staff.

SOUTH EASTERN RUAHINE SCHEME

- 9.19. The majority of work being undertaken in this period has involved vegetation clearance and channel shaping to alleviate the congestion caused by unmaintained protection planting within the scheme. The current river to be targeted is the reach of the Kumeti from Te Rehunga North Road to Top Grass Road.
- 9.20. A large renewal project is currently underway on “Hartridges Weir”. This was originally a stepped weir that has had two extra “steps” added over time due to sustained scouring at the toe of the weir. To help alleviate this scouring and to make the weir more resilient, the steps are being filled in and a scour apron added so that the weir more resembles a rock fall than steps. It is hoped that this will mean less frequent maintenance and improved fish passage.

UPPER MANAWATU – LOWER MANGAHAO SCHEME

- 9.21. Work is underway to renew the gravel extraction consent held by Horizons, an integral element of the management of the scheme. This will be lodged with the consent authority prior to Christmas.

10. SOUTHERN AREA

MANAWATU DRAINAGE SCHEME

- 10.1. River Management and Freshwater Staff have been working on two fencing and planting plans for discrete sections of the Taonui Stream, excluding cattle from the waterway while preserving access for maintenance.

MAKERUA DRAINAGE SCHEME

- 10.2. This period has seen the pump stations up and running keeping staff busy with manual and machine cleaning of the weed build up at the pump station screens to ensure the pumps can operate efficiently.
- 10.3. Staff met with local landowners and representatives from the NZTA to discuss ongoing drain slumping issues along Makerua Road Drain that has occurred since the installation of the crash barriers.
- 10.4. Staff met with members of the Makerua Scheme Liaison Group to discuss end of year finances and upcoming works programs

KOPUTAROA DRAINAGE SCHEME

- 10.5. Routine inspection and maintenance identified an issue with one of the Koputaroa No. 2 pumpstation pumps – high moisture levels within the pump motor. The pump has been removed for repairs and will hopefully be operational again prior to Christmas. Contingency plans have been discussed with affected landowners.
- 10.6. River Management and Science Staff are continuing to work closely on the instream values associated with the part of the network feeding the Koputaroa No.4 Pumpstation. Inspections have been scheduled for February 2021 to identify the fish species and numbers present within the catchment, investigate the current water quality throughout the network and assess culvert and fish friendly floodgates to maximize fish passage throughout the network.

09 December 2020

- 10.7. Although anecdotal information suggests rates are relatively low, staff have also installed nets on the outlet of the Koputaroa No.4 Pumpstation to monitor and record potential fish mortality as a result of the pump station operation. This is the first time such an assessment has been carried out on a Horizons pump station.

TE KAWAU DRAINAGE SCHEME

- 10.8. River Management and Freshwater Staff have been working on a planting plan for Johnston's drain. Planting of Johnston's drain is to improve water quality through shading, reduction of sediment and to introduce habitat for aquatic life.

11. ENVIRONMENTAL GRANT WORKS AND ENGINEERING ADVICE

- 11.1. Eastern Team had no new environmental grant applications received over the period. One outstanding environmental grant for the Tapuata Stream in urban Dannevirke has been completed with the construction of a rock lining on the outer bend of the stream, upstream from the Victoria Avenue Bridge.
- 11.2. Hilton Shane – Tapuata; Construction of a limestone rock lining for bank and house foundation protection. Work onsite was completed in August.
- 11.3. Northern Team had one request for environmental grant funding during the reporting period. This is combined between adjoining landowners on the Kiwitea Stream.

2020 – 2021 Environmental Grant work

Name	River or Stream	Job No.	Type of work	Work status	Estimated work cost (\$)	Value of grant (\$)
Cvitanovech	Makiriki	IN	Tree work groynes	Approved	\$14,000	\$4,200
Te Rongaroa Marae	Ongarue	IN	Rock Lining, Layering Planting & Earth works	Approved – On Hold	\$35,354	\$10,606
Palmer	Okahukura Saddle Rd	IN	Vege clearance	Application being prepared	\$23,250	\$6,975
Blue Mountain Adventure Centre	Piopiotea Stream	IN	Rock Lining	On Hold		
Friends of Taihape	Hautapu River	IN	Willow Clearance	On Hold	\$7,148	\$2,144
Segura – Tuatahi Property	Pungapunga	IN	Bank Protection, Gravel Mgmt	On Hold	\$18,885	\$5,665
McKay & Larsen	Kiwitea	IN	Bank Protection	Application being prepared		
Hilton Shane	Tapuata Stream	IN1513	Rock Lining	Complete	\$4600	\$1380

12. SIGNIFICANCE

12.1. This is not a significant decision according to the Council's Policy on Significance and Engagement.

Ramon Strong
GROUP MANAGER RIVER MANAGEMENT

ANNEXES

There are no attachments to this report.