WHIRINAKI RESILIENCE PROJECT
TECHNICAL FOCUS GROUP
MEETING MINUTES - DRAFT

DATE 8 September 2023

TIME 1:00pm - 3:00pm

VENUE East Pier, Napier; Microsoft Teams

IN ATTENDANCE

Mark Smith - Resident
Jayde Demanser - Resident
Jacob Brownlie - Resident
Charlotte Drury - View Consultants
Steve Rouse - Resident
Warick Marshall - Resident (Esk Valley)
Kathryn Gale – NPDT (Teams)
Paula Rewi - Petāne Marae / Landowner (Teams)
Marewa Reti - Petāne Marae
Barbara Smith - Petāne Marae (Teams)
Mel Taylor - TREC / NZTA
Daniel Headifen - TREC / KiwiRail
Matthew Brady - DoC (Teams)
Denise Fastier - DoC (Teams)
Tony Clifford - Pan Pac Forest Products
Rob Nichol - Contact (Teams)
Graeme Hansen - HDC
Kat Mortensen - HDC (Teams)
Michelle Oakley – HDC (Teams)
Phil Duncan - HBRC
Malcolm Miller - HBRC
Geoff Huggett - Resident
Mel Swayn - Community Communications
Ted Roberts - Resident
Edward Roberts - Resident
Doug Dickson - Resident
Daniel Gales - Resident (Esk Valley)
Rosy Hiha - Petāne Marae
Bronwyn Rewi - Petāne Marae / Landowner (Teams)
Maree Brown - Mana Ahuriri
Reece O'Leary - Pan Pac Forest Products
Anita Anderson - Mitchell Daysh
Raoul Oosterkamp - Mitchell Daysh
Martina Groves - PDP
Ramon Strong - PDP
Eddie Beetham - T+T
Richard Reinen-Hamill - T+T
James Winchester - Barrister (Teams)
Mark Roper - Ecological Solutions (Teams)
Richard Munneke - NCC (Teams)
Ross McLeod - HB Recovery Agency

Apologies:

John Clark - Contact
Stephen Daysh - Mitchell Daysh (attended latter part of meeting via Teams)
Stan Evans - Resident

1. Introductions

- New members at the meeting introduced themselves and provided a background as to their interest / involvement in the project.

- Phil Duncan noted that the focus of the meeting was to consider a proposed flood protection solution for the Category 2A area of Pohutukawa Drive and lower North Shore Road. He explained that the categorisation process was set out by central government and that the HBRC would review any proposed flood protection options based off this process / criteria. The proposal(s) would be reviewed by a Council technical team including compliance, consents, river management, biosecurity, engineering, project management and asset management, who then give recommendations on the proposals.
- For the Whirinaki area, the HBRC will review a report from Mitchell Daysh with inputs from the various technical experts, based on their recommendations on the detailed set of works.
- If this report meets the set criteria, then HBRC will recommend that the area can change category.

2. Confirmation of previous meeting minutes

- The meeting minutes from Meeting 3 of the TFG held on 28 July 2023 were confirmed as a true and correct record of the meeting following some changes requested by Maree.

  Moved – Phil Duncan
  Seconded – Dan Gales
  Carried unanimously

3. Project Update - Stage 1

Base Case

- Raoul reiterated Phils explanation that Stage 1 has a focus on the opportunities for flood protection of the category 2A properties within the project area (Pohutukawa Drive and Lower North Shore Road) and excludes the resilience initiatives for the industrial sites. Wider resilience initiatives will be considered as part of a Stage 2.
- HBRC has set three broad criteria for decision making for changes to land categorisation:
  - It meets the 1 in 100-year flood protection level;
  - Agreement for any land access required has been reached; and
  - Access to require funding is confirmed.
- Raoul provided a description of the Base Case and Base Case+ preliminary concepts that include:
  - A5 - Esk River Mouth and Coastal maintenance dredging
  - B1 - Existing Whirinaki stopbank
  - B3 - The installation of a new stopbank to Coast - Pohutukawa Drive across Evans Land
  - C1 - Whirinaki Drain SH2 culvert improvements + increase capacity of Whirinaki Drain - Downstream of SH2
  - B5 - New stopbank to coast – Bay View Side (Base Case+)
- Costs will be refined, and early estimates suggest that these will be in order of $15M - $20M.
- Ramon described the modelling that has been undertaken, noting that it is a very complex area with significant flood hazards, river engineering and river management requirements that

need to be considered in order to come up with the series of measures to provide mitigation and address the hazards.

- The computer model inputs a number of factors including the land surface, flood flows, downstream boundary conditions (the ocean) to determine the appropriate mitigation for future events (e.g., stop bank height).
- The key variables in the model are the state of the river mouth and size of the flood flow. The modelling considered:
  - Three river mouth states - open, partially open and blocked.
  - Three flood flows - 1,800 cumecs, 2,100 cumecs and 2,400 cumecs
- Ramon noted that there is uncertainty surrounding the size of Cyclone Gabrielle flood event, however it is very likely that it is greater than a 1 in 100-year flood event. Phil noted that the NIWA data on the event will be available toward the end of the year and this would inform the detailed design of any solution if it is to be built.
- Some key considerations for the modelling are:
  - The stop bank height required to contain a 1% Annual Exceedance Probability (AEP) event.
  - The variable ground surface as a result of seismic changes and silt deposition from Cyclone Gabrielle and future extreme flood events.
  - The dynamic mouth condition and its influence on the depth, extent of blockage and duration of flood events.
- There was discussion about the river mouth conditions during the cyclone, the impacts of the flows towards Bay View during Gabrielle and in previous events, the maintenance of the mouth and the river, and the impacts of woody debris during the floods.
- Ramon acknowledged that debris was a major issue during the event and noted that it is difficult to model the impact. Ramon also noted that if another flood event occurred now, the debris load would be exhausted (and for another 20 or 30 years) as a result of Gabrielle, and the impacts would be quite different. He reinforced the importance of river mouth maintenance that Richard and Eddie would discuss.
- Dan asked whether the model considers the current ground level of the properties and the impacts of the higher ground near the river mouth noting that a straighter river / natural flow path downstream would help with the river mouth opening and be better for the upper catchment. Ramon responded that the modelling was based on LIDAR data taken before and after Cyclone Gabrielle, so all existing levels were taken into consideration.
- Maree noted that due to policies that prevent forestry slash from being burnt, there is an increase in the woody debris within the catchment. She suggested that mitigation needs to also focus on the opening of the river mouth and the clearing of the riverbanks, to minimise debris blocking the river mouth.
- Ramon presented the preliminary model output that showed the existing Whirinaki stopbank and an extension toward the Coast, as well as a stopbank on the Bay View / southern side. He noted that the extent of the southern stopbank would need to be confirmed and that it would be lesser than the northern stopbank which has been estimated to be 2m in height from the model. The standard HBRC dimensions would be utilised in the design of the stopbank.

- Dan asked if the modelling considered river straightening and Ramon responded that the focus of this work is the 2A properties at this stage and that these other iterations can be looked at through the model including the impacts on other properties and the SH2 bridge.
- Rosy asked if the Ararata Urupa at the end of Pohutukawa Drive was being considered. Ramon and Phil confirmed that this and the Nukurangi Pa site were part of the consideration.
- Maree asked if the preliminary concept for the Pohutukawa Drive stopbank was the same as the concept provided by Stan Evans. Anita responded that it was not - this Stage 1 concept is only a line on a map and is still to be ground-truthed with respect to detailed design, wahi tapu and geotech (among other things).
- Maree also asked how the Whirinaki Stream is affected by the stopbank. Ramon described that the stream would flow adjacent to the stop bank, after flowing through the culvert underneath SH2, before joining the Esk River mouth.
- Phil reinforced that the Stage 1 option being presented is conceptual to confirm if it meets the three criteria for the land categorisation change of the 2A area and requires further discussion with other stakeholders about the detailed design process and through any consenting requirements.
- Reece commented that the proposed option and costing has been developed with the best available information and it would be refined through detailed design.
- Malcolm noted that consenting could be complicated depending on the details of a proposal, however if the relevant / interested parties were able to come to an agreement through a forum such as the TFG then that would be helpful to the process.

River Mouth Maintenance

- Richard (T+T) outlined that his role alongside Eddie has been to look at the river mouth and the issues associated with water passing over the gravel barrier at the coast and improve the maintenance opening regime as part of the Base Case / Base Case+.
- Richard explained the current coastal processes in the area and noted that the river mouth is incredibly dynamic, and that the mouth can drift from north to south by up to 1km along the beach and can be blocked.
- The Base Case recommends a more regular maintenance / control to keep the mouth open prior to specific rainfall events based on forecasted heavy rainfall over a certain threshold and approximately five days prior to an event. Maintenance also needs to consider ecological impacts and the wider catchment management.
- Jayde asked who would be responsible for maintenance. Richard responded that Council is responsible for the existing process and that T+T are recommending a more structured and formalised process to provide improved certainty to community and stakeholders.
- Modelling scenarios have taken into consideration a range of river mouth configurations, including fully closed, natural configuration (narrow) and a broad open river mouth and have taken into account three flood flow variations and two topographical variations (18 total modelling scenarios).
- Richard outlined an improved maintenance regime that would include monitoring, weather forecasting, whether the river mouth is in the preferred zone, whether the river mouth is open, consideration of ecological conditions and if all meet the criteria then the river mouth could be dredged / opened.

- Richard acknowledged that there is an inherit risk associated with manual processes for river mouth maintenance. He noted that a pessimistic approach to the height of the stop banks is taken rather than an optimistic approach to the maintenance of the river mouth, so as to account for the worst-case scenario.
- There was discussion about the practical measures that can be taken to open the river mouth during adverse river / weather conditions. Richard noted that a more structured and regular maintenance and monitoring regime is required, in order to prevent accumulation of material at the river mouth. The use of long reach excavators has also been explored. Additionally having the river more regularly flushed will be an important management option.
- Geoff asked whether the river mouth could be maintained to the level of the surge line, rather than opening the river mouth. Richard acknowledged this as a good observation and that maintaining the elevation of the over wash barrier to below a certain level may be a way to stop material building up at the river mouth.
- Richard described potential design conditions / criteria, including low tides, swell, channel positioning, channel depth, width, length and volume of material capable of moving within the limited timeframe of the tides. A structured plan will be developed with feedback to help manage river flows.

Land access

- Raoul described the land access and landowner agreements in relation to the Base Case and Base Case+ land. The majority of the owners of the coastal land parcels have indicated a level of in principle support conditional on detailed design and confirmation of final positioning, length and alignment of stop banks. A technical review of the Base Case / Base Case + is still to be undertaken by Waka Kotahi and KiwiRail.
- There was a question as to whether the ground level on 'Property 1' on the figure could be shaped to straighten the river, given there is in principle support by the landowner for stopbank works on their property. It is noted that while there is in principle support by the landowner, the stop bank location and any additional work on the property needs to be in negotiation with the landowner.
- Rosy and Maree noted that the mana whenua interest related to the alignment of the stopbank in relation to the Urupā and the Nukurangi Pa site. Reece noted that there is likely a way to align the stopbank so that it would not impact the Urupā and provide it protection. This will require further discussion. Phil noted generally that areas with stopbanks will require acquisition of the land or some formal agreement for access to the land. This will be confirmed through the subsequent detailed design process.
- Raoul noted that there are a range of things still to be determined as part of the detailed design process.

4. Open Discussion

- KiwiRail and Waka Kotahi were asked for an estimated timeframe of their review of the Base Case / Base Case+ work. Daniel Gale noted that they can't give an estimated timeframe, as they don't know many of the details of this work and the potential effects on KiwiRail and the State Highway.
- A question was asked regarding the difference between Category 2A and 2C and the timeframe for a decision. Phil noted that the timelines were set out in the letter to the 2A residents with a decision targeted for October following the review of the Stage 1 report. The

options that have been suggested are still reliant on technical reports, understanding any outstanding risks and resolving stakeholder concerns and issues etc. The October timeline is what the project team are aiming for, however nothing has been decided on or given the 'green light'.

- Tony asked Waka Kotahi if the culvert under SH2 can be treated as a separate issue to accelerate their review and enable decisions for the 2A landowners, noting that the Southern aspects are more complicated and include the railway. Mel Taylor responded that there are a number of downstream impacts that need to be considered including the impacts on the wider design, however, they acknowledge the need for urgency and have expressed this to their team.
- Mel Swayne thanked Pan Pac, Transpower and Contact for getting this project underway and for putting this in place. Tony noted that the Council are now funding the project.
- Dan asked whether a decision on the change of category will be made in the October timeframe or if this date flexible. Phil responded that this is the timeframe that all the technical and engineering information is intended to be in by. By that time if all information to understand the solution, the risks and how they will be resolved is received, then a decision is intended to be made.
- Mark asked Phil to confirm the definition of category 2C. Phil responded that category 2C recognises that there is a viable community level solution available, with the assumption that there is sufficient information available for a workable solution.
- Dan asked why river straightening hasn't been considered as part of the Base Case option. Graeme noted that the modelling will show to what extent any other elements are needed in addition to the base case such as river straightening. Modelling some of these other options is very difficult compared to a known structure such as a stopbank and can be undertaken as Stage 2 after the Stage 1 modelling has given an answer for the categorisation. Phil also noted that when considering the suite of potential options, consideration to all of the wider potential adverse effects from that has to be made. River straightening will likely have extensive wider adverse effects.
- Dan asked if the river straightening option required consents from both Council's. Malcolm confirmed that it would. Phil noted that the Council is looking at an Order in Council for the work across the region to reduce the time required for consenting. Dan asked for confirmation that if the Stage 2 options were to go ahead, then would community agreement facilitate this process. Phil also noted that the Councils focus was Stage 1 for the land categorisation and that the industries were considering the wider resilience separately. The Council would be part of this larger process to look at the wider issues.
- Mel asked for confirmation as to whether the information being provided by Mitchell Daysh and the technical team would enable the Council to have a decision within the October timeframe. Phil responded that if all information is appropriately addressed, the timeframe to review the report internally should be appropriate.

5. Next steps

- A Stage 1 Report will be developed and submitted to HBRC, who then will go through the decision-making process. The Stage 1 Report will be a priority for the consultancy team.
- A date for the next TFG meeting will be confirmed following this review process.

Meeting Close

Minutes prepared by Anita Anderson

Attachment 1: FINAL Minutes, TFG Meeting 3, 28 July 2023

WHIRINAKI RESILIENCE PROJECT

TECHNICAL FOCUS GROUP

MEETING MINUTES - FINAL [1]

DATE 28 July 2023

TIME 1:00pm – 3:00pm

VENUE Pan Pac Forest Products Ahuriri, Microsoft Teams

IN ATTENDANCE

Mark Smith - Resident	Geoff Huggett - Resident
Stan Evans - Resident	Daniel Gales - Resident (Esk Valley)
Jayde Demanser - Resident	Mel Swayn - Community Communications
Jacob Brownlie - Resident	Ted Roberts - Resident
Charlotte Drury - View Consultants	Edward Roberts - Resident
Kathryn Gale – NPDT (Teams)	Mary Martin - Petāne Marae
Kayla Thornton - NPDT (Teams)	Rosy Hiha - Petāne Marae
Maree Brown - Mana Ahuriri Trust	Bronwyn Rewi - Petāne Marae / Landowner (Teams)
Barbara Smith - Petāne Marae (Teams)	Reece O'Leary - Pan Pac Forest Products
Kyle Russell - Waka Kotahi / NZTA	Stephen Daysh - Mitchell Daysh
Daniel Headifen – KiwiRail (Teams)	Anita Anderson - Mitchell Daysh
Matthew Brady - DoC	Martina Groves - PDP (Teams)
Tony Clifford - Pan Pac Forest Products	Ramon Strong - PDP (Teams)
Rob Nichol - Contact (Teams)	Eddie Beetham - T+T (Teams)
Justan Clark - Transpower	Richard Reinen-Hamill - T+T (Teams)
Graeme Hansen - HDC	James Winchester - Barrister (Teams)
Malcolm Miller - HBRC	Richard Munneke - NCC (Teams)
Phil Duncan - HBRC	

Apologies:

Paula Rewi - Petāne Marae / Landowner	Susie Young – HBRC
Tania Lund - Transpower	Nic Peet – HBRC
John Clark - Contact	Ross McLeod - HB Recovery Agency

1. Introductions

- Stephen noted that there were a few new members at the meeting and asked those people to introduce themselves and provided a background as to their interest / involvement in the project.

[1] Confirmed at TFG Meeting 4, 8 September 2023

- Maree noted that she was representing Mana Ahuriri Trust as mana whenua and supporting Petane Marae as they are one of the seven hapu that Mana Ahuriri Trust support. Maree also asked that Mana Ahuriri Trust was removed from the project Governance Group structure but still are retained as mana whenua for the project.

2. Confirmation of previous meeting minutes

- The meeting minutes from Meeting 2 of the TFG held on 30 June 2023 were confirmed as a true and correct record of the meeting.

  Moved - Geoff Huggett
  Seconded - Matthew Brady
  Carried unanimously

- The meeting minutes will be finalised and attached to the minutes of Meeting 3 (Attachment 1).

3. Community feedback

- Stephen provided a description of the TFG process and outlined the meeting programme and project objective.
- Stephen noted that the FAQ's are currently a work in progress requiring input from the Councils to complete them.
- The team has met with a number of stakeholders and community members since the previous TFG meeting. Reece noted that the team are happy to meet the community members or talk on the phone at any time to answer any questions.

4. Project Update

- Stephen summarised the Design Workshop held with the technical team on 12 July 2023 where the participants brainstormed ideas for resilience options for the project area.
- James Winchester has considered the concepts from a legal perspective and noted his opinion that consenting through a typical RMA process will not be feasible and that an Order in Council process will be necessary under the Severe Weather Emergency Legislation Act 2023. Stephen supported this high-level advice.
- Surveying the Bay has been undertaking ground surveying within the project area.
- PDP are about to start a build of a numerical hydraulic model of the lower reach of the Esk.
- Mark Roper (EcologicalSolutions Ltd) has been engaged as an ecologist for the project.
- Stephen also noted that mana whenua will be included as part of the evaluation team to provide a cultural values assessment.

5. Design workshop outcomes - Conceptual options

- Ramon presented the concepts (Attachment 2) developed at the Design Workshop. The modelling will enable the benefits (in the form of reduction in flood levels) for the different options to be quantified, noting the precision limits that will apply/the number of base assumptions required (primarily silt and debris load and the state of the river mouth).

- The concepts are a made up of non-structural and structural measures.
- Non-structural measures are focussed on the mouth, endeavouring to train or direct river energy toward the mouth and reduce the volume of debris that accumulates at the mouth, complemented by a structure or structures at the mouth that limit offsetting and concentrate river scour.
- Structural measures include stop banks (new, modified and extended) and changes to drainage / culverts.

Base Concept - B1 and C1 - Upgrade stop bank and SH2 and SH2 Culvert

- The base concept had been previously identified by the HBRC and would upgrade (reform) the existing Whirinaki stopbank and addresses the under capacity SH2 culvert.
- Daniel asked whether water would be directed toward the railway with an increase in the stopbank height. Ramon explained that under the base concept, the stopbank upgrade was focussed on reforming the stopbank and making it a more substantial structure, not increasing the height (which is another concept). He noted any potential exacerbation of hazards in other locations as a result of the structure would be considered but doesn't apply to this base concept.
- Maree asked whether water would pond on the western side of the stopbank. Ramon acknowledged that with would need to be considered as part of this concept and that this also largely preserved the status quo (the stopbank wasn't being raised with this option so wouldn't exacerbate flooding to the west).
- Reece noted that Ramon was presenting the concepts separately and that these would ultimately be packaged together - the potential impacts of these packages would be considered as opposed to each element in isolation.
- Richard noted that modelling provides a good opportunity to compare and understand the various effects of different concepts.

A1 - Downstream realignment

- Ramon explained that this concept involved the realignment of the lower reach of the river between SH2 and the river mouth. This would have the effect of harnessing the energy of the river and directing it at the mouth of the river to stop the mouth migrating/offsetting, and blocking.
- Bronwyn noted that the land immediately downstream from the SH2 bridge is Rewi land.

A2 - Mouth and coastal works

- Richard explained that the wave action at the beach moves gravel on to/along the beach, resulting in the movement or blockage of the river mouth.
- A management / non-structural response would involve physical works (diggers) to maintain a notch in the mouth to ensure the outlet remains open.

- A potential structural response would involve armouring / river control works or the creation of an armoured opening. Consideration of natural longshore drift and erosion of the shoreline would be included / managed.

A3 Debris fence

- Ramon described the concept of a debris fence on the north side of the Esk River upstream of the SH2 bridge. This would involve large steel columns approximately 5m in length driven into the ground to form a 2m high fence with wire rope capturing / preventing the spread of debris downstream during floods and blocking the mouth. It would also aid in directing flood flow toward the mouth.
- Tony asked whether there are New Zealand examples of effective debris fences. Ramon noted that there are others, however not at this scale. There was a debris fence built in the Matukituki River in the 1970s which was ineffective and subsequently removed (navigation hazard) - it was ineffective because it had minimal debris load. The concept of the debris fence in this context looks to harness the high debris load that the Esk has in flood.
- Rosy asked about the certainty of success of the structure compared to the 1970's example. Ramon noted that modelling would only go some way to demonstrate the effectiveness, however he is confident the structure would work. It would need to be structurally designed to resist the applied forces when the river was in high flood (e.g., Gabrielle) and it would be designed to be structurally strong. The fence could also be planted with a line of trees (potentially native) to provide aesthetics and help the function of the barrier.
- Phil suggested that it would be worthwhile to demonstrate what the debris fence would look like and how it would work, given that this is proposed to be located on private property.
- Maree asked where the build-up of debris would go. Ramon responded that debris fence would need to be cleaned and debris removed following a flood event. Maree was concerned about the potentially high maintenance requirements associated with the structure. Ramon noted that the HBRC would likely be involved in the associated maintenance, however this detail would need to be agreed. Ramon also noted that removing debris off the fence would be more efficient than removing it off the floodplain/ adjoining beaches.
- Dan noted that the HBRC had a sizable fund for river maintenance, however with a reduction of residents in the Esk Valley, industries may need to provide more funding.
- Edward noted that the debris fence (as shown) would intersect their land and that they had concerns as to whether they would be able to access and maintain their crops on both sides of the fence.
- Ted noted that over 2000 tonnes of logs and debris had come down the valley in the cyclone so the fence would need to be designed to cope with this.
- Maree asked whose responsibility it would be for the maintenance and longevity of the fence, noting concerns related to the proximity of the fence to the coast in relation to its longevity. Ramon noted that the HBRC are most suited to this, however they do not have any statutory obligation and this would need agreement.

A4 - Upstream channel work

- Ramon explained that realignment of the river channel directly above SH2 would also help concentrate flood flow toward the mouth of the river. The effectiveness of this is more limited than the downstream work particularly if the SH2 bridge remained in its current form.

A5 - Whirinaki Drain improvement

- Ramon noted that improvements to the Whirinaki drain to provide additional capacity for overland flow and would go hand in hand with enlarging the SH2 culvert upgrade.
- Rosy noted that consideration is needed for protection of the urupā to the west of the protection works.

B1-2 - Improve existing Whirinaki stopbank

- Ramon explained that this concept would increase the height of the existing stopbank. A key consideration for this is what height is adequate and whether (in combination with some of the other measures) it would result in increased flood levels on the outside (the Esk River side) during flood events.

B3 - New stopbank extended from SH2 to sea and B5 New stopbank (shorter)

- Ramon explained that a new stopbank on the eastern side of SH2 would aim to provide flood protection to the community north of the river and to Pohutukawa Drive which has a high level of flood risk exposure. Recent information has shown that it could be more manageable to extend the stopbank over SH2 than previously thought (the approach embankments would not need to be as extensive as first thought).

B4 - Extend Whirinaki stopbank along SH2.

- Ramon explained that this was a variant to the extension of the existing stopbank over SH2, and involves a return alongside SH2 north towards the Contact, Transpower and Pan Pac sites.
- Phil asked whether this level of protection is aimed more toward the industrial sites, compared to the residential sites. Ramon noted that it was.
- Maree asked whether the cost is the key determination of which concepts would be undertaken, and whether all of them can be undertaken. Stephen responded that costs have been estimated for each concept and that these have been provided to councils and the government. Cost will be a factor when assessed against other values and issues in the multi-criteria assessment process when deciding on the favoured approach.
- Geoff asked whether SH2 at the drain will be upgraded if B4 is to occur. Reece responded that a suite of concepts will likely be chosen and so each concept should not be look at in isolation.
- Mark asked whether all residents within the whole area, would have targeted rates. It was noted that it would be the beneficiaries of the scheme that would need to contribute to costs.
- Bronwyn asked if there would be more consideration than just cost particularly where the land used for protection measures could be Māori land and whether the land would be taken through another process. Stephen responded that the assessment of the concepts would take into account a number of different factors including cultural values.

- Daniel asked if the size of the stopbank for B5 was known. Ramon noted that no design work had been undertaken but that it would likely be a similar standard to the existing Whirinaki stopbank.
- Phil noted that for any of the chosen solution to progress it would need to include an understanding of the benefits, an agreement for land access, and funding.

B6 - New stop bank on the south side

- Ramon explained that a new stopbank on the southern side would be considered to offset any protection works to the north and provide protection to Bay View properties and the railway to the south. An additional variation to B6 not included in the figures could consider a stopbank that extends to the western side of SH2 and follows/merges with the railway line and that protects the substation close to the SH2/ SH5 intersection.

Hinekatorangi Wetland

- Ramon described the concept for the changes to the Hinekatorangi Wetland which would involve an upgrade to the existing culvert and the relocation of the outlet to sea.

6. Next steps

- The project team are meeting with the new HBRC CEO (Dr Nic Peet) about the land categorisation process and programme on 4 August 23.
- Stephen noted that the project team is also working with lifeline agencies (Waka Kotahi, KiwiRail and Transpower) to ensure support and consistency through the government agencies.
- PDP's key focus for August is to build the hydraulic model.
- Multiple field work and desk top assessments will be progressed - surveying, ecology and cultural values.
- The next TFG meeting will be the options evaluation workshop and may run for an entire day. The option evaluations will involve Multi Criteria Decision Analysis.

7. Open Discussion

- Reece noted that the project team will ask the HBRC to undertake updated communication with residents at their meeting on 4 August.
- Maree asked how the technical lead group will assess mana whenua interests. Stephen noted that he would like to convene a meeting and discussions with mana whenua, to gain a better understanding of mana whenua issues prior to the evaluation and decision making.
- Matt asked whether debris and sedimentation from the upper catchment had been considered. Stephen noted that an overarching river management programme for the future is being looked at. Matt asked whether the channelisation below the SH2 bridge would be permanent if the realignment went ahead. Stephen confirmed it would be.
- Geoff asked whether survey topographical maps are available for the area. Stephen noted that that information is being pulled together and it would be part of the project information used

for the options assessment. Ramon noted that some information (e.g., post-Gabrielle aerial photographs) is available on the LINZ website.

- Rosy noted that with regard to their marae and urupā, their cultural perspective will be with Mana Ahuriri.
- Bronwyn asked what information could be shared with the community and their own shareholders. Stephen responded that the meeting minutes would be provided with the presentation and that this could be shared, noting that the minutes would be in draft until they were confirmed at the next meeting.
- Daniel asked whether KiwiRail are required to have an opinion on all of the various options by the September workshop. Stephen asked for best endeavours to make progress, given the urgency to complete the project.
- Kathryn noted that hard engineering has been a main consideration as a response solution. She considered that preventative measures need to also be a part of the conversation not only response measures.
- Martina noted that costs of maintenance need to be considered for any option progressed.

8. Closing

- Anita will send the confirmed minutes from TFG 2 following the meeting and will provide draft minutes including the presentation from this meeting on 2 August.
- Phil noted that it was important to emphasise that the concepts presented are completely unconstrained and not necessarily what would happen. They are the entirety of the thinking from the design workshop of the potential ideas that could provide some benefit and require further investigation.

Meeting Close

Minutes prepared by Anita Anderson

Attachment 2: Meeting Presentation

MITCHELL DAYSH

Draft Base Case briefing to inform Category 2A decision making

Technical Focus Group

8 September 2023

1

MITCHELL DAYSH

Agenda

1. Opening and introductions
2. Confirmation of previous meeting minutes
3. Project Update – Stage 1
4. Next steps
5. Meeting close

2

Purpose and intent

MITCHELL DAYSH

STAGE 1 INCLUSIONS

To outline and assess a Base Case concept package of flood mitigation interventions that are set at a predicted 1%AEP protection level using a number of scenarios based on past flooding events in the catchment.

This assessment is required to advise whether the community of North Shore Road and Pohutukawa Drive can be considered for transitioning from category **2A to 2C**.

EXCLUSIONS

Stage 1 **excludes** industry focused resilience improvements.

3

Decision making thresholds

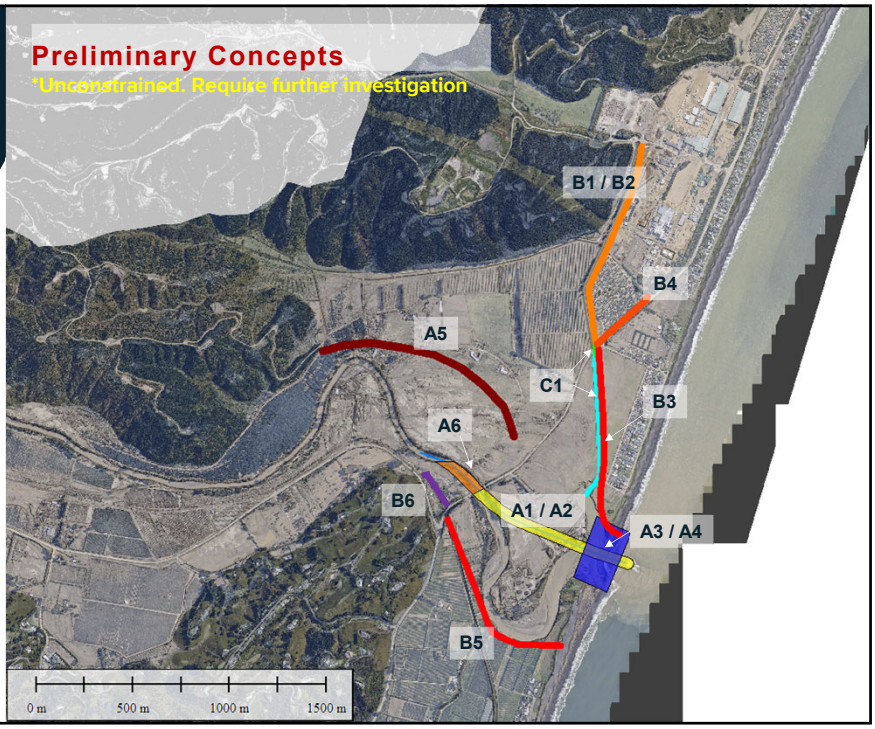
MITCHELL DAYSH

The Hawke's Bay Regional Council (HBRC) has established three key criteria to inform decision making:

- It meets the 1 in 100-year flood protection level (1%AEP),
- Agreement has been reached, in principle, for any land access required for delivery, and
- Access to required funding is confirmed.

4

Longlist of Options*



5

Critical first test if it meets a realistic 1 in 100-year flood protection level.

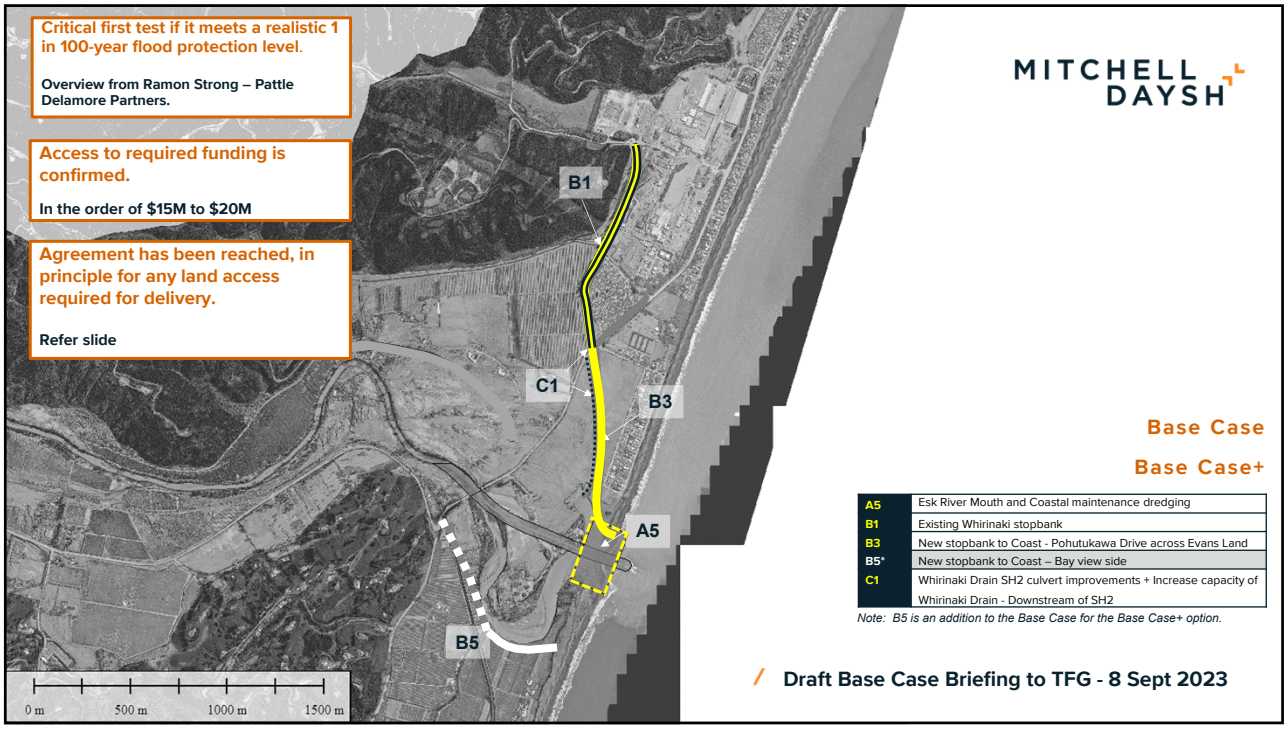
Overview from Ramon Strong – Pattle Delamore Partners.

Access to required funding is confirmed.

In the order of $15M to $20M

Agreement has been reached, in principle for any land access required for delivery.

Refer slide



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Base Case

Base Case+

A5	Esk River Mouth and Coastal maintenance dredging
B1	Existing Whirinaki stopbank
B3	New stopbank to Coast - Pohutukawa Drive across Evans Land
B5*	New stopbank to Coast – Bay view side
C1	Whirinaki Drain SH2 culvert improvements + Increase capacity of Whirinaki Drain - Downstream of SH2

Note: B5 is an addition to the Base Case for the Base Case+ option.

/ Draft Base Case Briefing to TFG - 8 Sept 2023

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Modelling Overview and Scenarios

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- 2D numeric hydraulic model run on a PC;

- Flood hydrograph, ground surface/ riverbed profile and the ocean are the key input parameters;

- Determining stopbank height and extents is based on the following model run scenarios:

	1,800 m^3/s	2,100 m^3/s	2,400 m^3/s
Mouth Open			
Mouth Partially Open			
Mouth Blocked			

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Key Modelling Considerations

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- **DESIGN BASIS**. Stopbank height required to contain/ protect against a 1%AEP event (100-year Return Period flood).

- **GROUND SURFACE**. Altered with the silt deposited during the Gabrielle event and will be altered further with future extreme flood events.

- **MOUTH CONDITION**. Influences the depth, extent and duration of flooding along the lower reach. Blocked for much of the Gabrielle event but a complex natural process that is difficult to predict.

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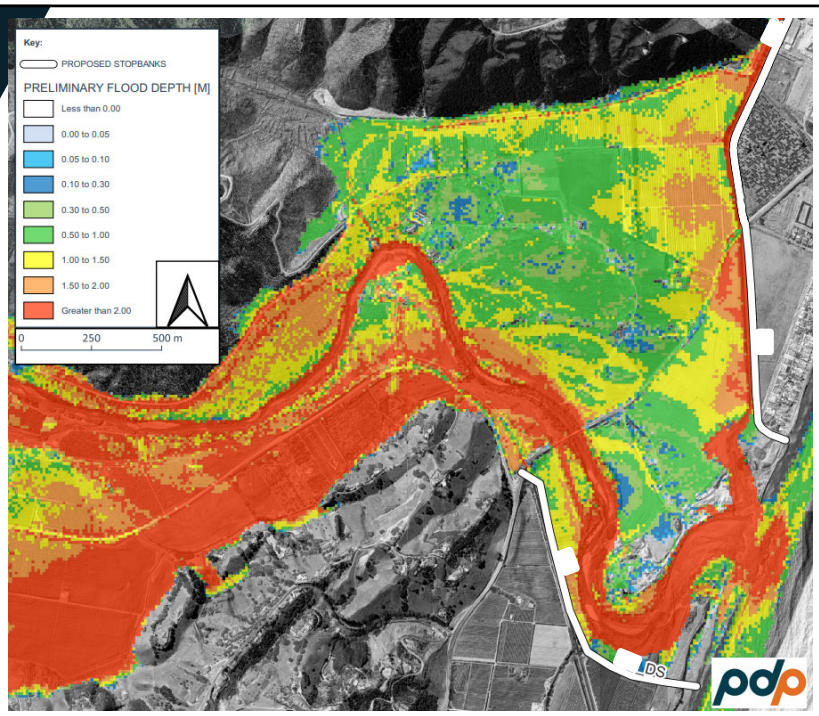
Prelim. Model Output



9

River mouth

Improved opening maintenance (A5)

- River mouth is very dynamic
- Outlet channel is frequently offset from river alignment and sometimes blocked.
- Objective of manual maintenance is to improve outflow during flood conditions.
- Needs to consider ecological effects.
- Needs to consider water quality saline intrusion during low flow conditions.
- Requires resourcing of monitoring and operational costs.
- Part of a wider catchment management scheme.

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Post Gabrielle (red)

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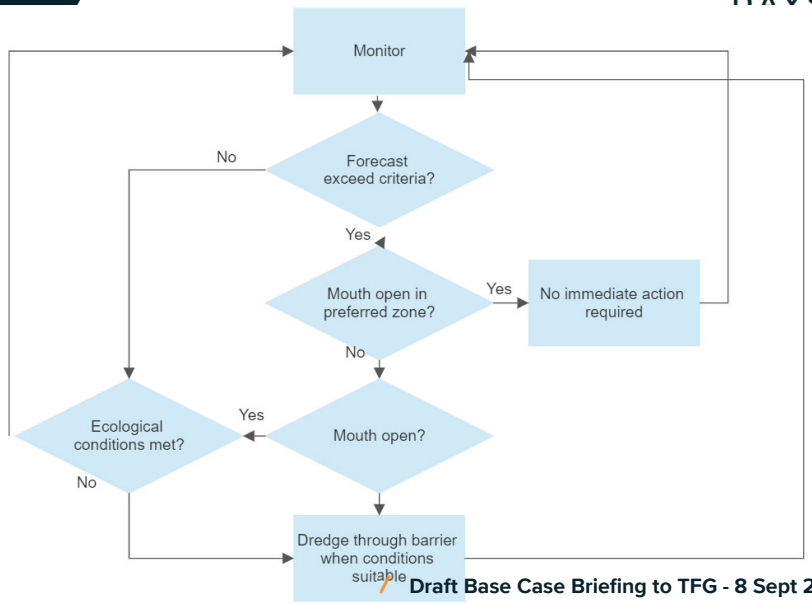
River mouth

Improved opening maintenance (A5)



11

River mouth

Improved opening maintenance (A5)

Design parameters

- Low tide operation (low waves)
- Channel position
  - Aligned with mouth
  - Refine based on gravel berm position
- Channel depth
  - Enough to focus flow as most hydraulic efficient path
  - 0 – 0.75 m (MSL to MHWS)
- Width
  - 1 – 2 bucket widths (~5m)
- Length
  - To breach gravel berm 50 m
- Volume will be tide and time limited.
- Outlet channel should scour (widen, deepen) as flow goes through.

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ID	Status	Commentary
1	In Principle Agreement	In principle support conditional on final agreement on alignment details for stopbank and drain widening[1].
1A	In progress	Urupa and Pa site.
2	In Principle Agreement	In support.
3	In Principle Agreement	In support, pending confirmation of final stopbank alignment.
4	In progress	Pending.
5	In progress	Technical review to be undertaken by Waka Kotahi.
6	In progress	Technical review to be undertaken by KiwiRail.

Other considerations

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- **Waahi Tapu –** Urupa and Pa site
- **Consentability –** Pathway being evaluated.
- **Ecology** - With appropriate controls effects on the terrestrial and aquatic ecological values will be minimal.
- **Landscaping –** Opportunities for landscape enhancements.

Next Steps

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STAGE 1 – NEXT STEPS

- Stage 1 Draft Report and recommendations to be issued to **HBRC** the week commencing **11 September 2023**.
- **HBRC** will make formal decision based on Stage 1 Report and recommendations.
- **HBRC (via HDC)** will communicate project delivery stages and associated timelines to community of North Shore Road and Pohutukawa Drive.

STAGE 2 - LONGER TERM

- Additional resilience opportunities for critical industry to be evaluated.
- Convene TFG 5 in October 2023 to discuss wider resilience packages.
- Continue one on one meetings on request.