**FLOODING**

**Rivas Road**

Heavy vegetation within the catchment's flood flowpath chokes the flow velocity which will hold back waters to increase flood height.  Realistically the only solution is to reform the stream channel to suit a required design flow capacity or leave everything as is and accept the current situation.

**Captain Cook Road**

Flooding of this area has only occurred since filling by the Cooks Beach subdivisional development closed off the drain leading across the CBD lands that provided the relief for the Endeavour Place catchment.  The Developer Engineers had assumed an alternate adopted flowpath which is 200mm to 300mm higher and accordingly causes the flooding before overtopping and releasing to the adjoining catchments

Some new build development and in most locations section infill with  impermeable materials has occurred within this catchment.  These actions have exacerbated the earlier created situation and it can now be considered permanent unless significant new drainage works are undertaken.

An immediate relief action would be to reform the drainage channel along the south edge of Captain Cook Road nominally 300mm depth at the maximum available grade to release into the junction of Charles Green Drive.  All vehicle entries would need to be culverted with a minimum 225mm diameter culvert.

**Riverview Road**

Not directed to a specific location but I am aware of numerous property developments at low elevations.  I'd suggest the cause is a choked flowpath in Cook Stream slowing and elevating the flood water height.

**Bank Street Reserve**

A local impoundment still mostly in natural topography.  There is / was a piped drainage link serving this area and I assume it is still working.  (through Morrisons into the CBD piped network).  Truth is, that drainage is probably undersized to accept the flows out of that catchment and I do not know how good catch pits are serving that area.

**Rees Road Culvert**

Discussed previously, minor works were undertaken some years back to lower the crest of the road.  I doubt that was very successful, simply if Cook Stream's flow channel is choked, water will back up and overtop Rees Ave.  Simple choice, either reform the flow channel or accept the probability of current flood impacts.

**Oyster Drive**

West End:  No flood impact from surface waters.  One of the Iti Lane coastal outlets worked which in spite of rainfall intensity maintained a "dry catchment".

East End:  A piped drainage system exists or existed to serve this area.  The coastal outfall was abandoned when the Rock Company's wall was constructed.  I am not aware of any coastal drainage infrastructure now provided.

**OTHER ITEMS**

**Sewage Pump Stations**

This was an extreme failure by Council and / or Council's Service Provider.

All sewage pump stations are fitted with 6 hours of storage.

All are performance monitored 24 /7 and have alarm notifications complete with battery backup provided via SCADA telemetry to a remote mobile phone or pager and the base station.  All fault situations are identified and reported in real time.

A trailer mounted alternator is part of the Cooks Beach Sewerage establishment and is sized to provide power requirements to all but the main lift station.  It is difficult to understand under the operation and maintenance requirements that the failure events occurred.

In addition to management requirements there are numerous nominated design construction actions within the Cooks Beach Sewerage plan presented for the

Loan and Consent purposes that have not been undertaken.  One major design failure allows flood water ingress at gulley traps.  Also manholes are not sealed.  There are nominated soakage trenches at suitable overflow locations that have not been provided.

Discharge of raw sewage onto residential property surfaces is not a Permitted Activity and breaches numerous Regulations, Statutes, and Codes of Practice that are adopted by TCDC.

The events that occurred at Cooks Beach on February 13th 2023 were not "Force Majeure" as has been suggested by TCDC personnel.  All aspects should have been controlled.

Permanent remedial works will necessitate works to control surface water flooding concurrent with the necessary Wastewater System upgrading to obtain safety within dwellings and to eliminate wastewater drainage failure.

**Flooding in Longreach**

This situation should not exist.  I have not undertaken design but visually it appears the flow channel under and below the road bridge crossing is too small.  It is choked with vegetation.  The bridge span is adequate.

The situation is similar to the Rees Ave location.  Vegetation is holding back the flows causing the water level to back up and flood across the roadway.  Good gradient is available in the flow channel below the bridge.

**Coastal Erosion**

Agree with the conveyed comments and the community definitely needs a new approach - not rocks.

Sandbag groins have been  used elsewhere and seem to be the most logical, the least impacting, and are the easiest to install and if required, removed.

One side issue at Purangi Estuary.  In addition to controlling the beach erosion and hopefully maintaining a navigable channel, unless sand mobility is stopped the relocation into the Purangi Estuary will progress beyond recovery ie: tidal flows within the channel will be lost.

**Financial**

Large sums of money are charged / collected on behalf of Cooks Beach residents that appear not to be available for expenditure at Cooks Beach.

It may be appropriate for a review / audit of practices to be undertaken seeking to provide transparency of financial expenditure.