

STAFF REPORT

TO: Chairman & Members, Engineering Services Committee
FROM: Utilities Asset Manager, J Cuthbertson
FILE REF: S753
DATE: 3 November 2005
SUBJECT: Ruby Bay Stormwater

PURPOSE

The purpose of this report is to highlight to the Engineering Services Committee the options for improving the stormwater in the Ruby Bay area.

COMMENT

Council has engaged Opus International Consultants to model the stormwater systems in the Ruby Bay area and come up with solutions to minimise flooding of private properties and the State Highway.

Areas of Flooding

It was indicated to Opus that there were several flooding areas that needed to be addressed. Opus in their investigations confirmed generally four areas of flooding, these being:

- a) intersection of Crusader Drive and Pomona Road;
- b) the existing detention pond
- c) road/SH 60 flooding generally outside No 88 to 82 and 74 – 68 Stafford Drive
- d) the Gallagher property

Options Considered to Resolve Identified Flooding Areas

From the identified flooding areas, a number of options/solutions to resolve the flooding potential were considered. It should be noted however that for a single flooding problem, more than one solution could potentially be considered. Appendix 1 attached indicates cost estimates to undertake the options for each flooding area.

Flooding Area “A” – Intersection of Crusader Drive and Pomona Road

The existing intakes at this intersection are badly located. Drainage material from the roadside drainage coming down Pomona Road covers the gratings, thus flooding occurs. The pipework away from the first sump is 300 mm diameter and discharges

into the existing detention dam. The pipework from the second sump is unknown but discharges into a soak hole.

To improve the present issues, new sumps, enlarged pipework, either routed directly across the private property or around the carriageway, kerb and channel from Stafford Drive along Pomona Road could all be considered.

The expected cost of these options range from:

- a) do minimal - \$16,000 to
- b) complete solution - \$121,000

Flooding Area “B” – Existing Detention Pond

The existing detention pond functions well. The problem is that the captured water within the pond cannot be discharged effectively. The discharge problem is caused by several issues:

- Flatness of the surrounding ground
- Insufficient gradient
- Surcharging open ditches
- High sea levels/storm surge
- High tide
- Pipework capacity

To improve the discharge potential of contained water, four options could be considered:

- a) Replace the existing 300 mm diameter pipework for the detention pond, through 118 Stafford Drive to the sea with a 450 mm diameter pipe line. The existing outfall to the sea would also need to be upgraded.
- b) Install a new stormwater pipeline along Tait Street from the detention pond to the sea. This option would require a new sea outfall.
- c) At present there is a 300 mm diameter stormwater pipe under Stafford Drive. The pipework discharges into an open drain along the side of Stafford Drive and is then reticulated through 84 Stafford Drive to another open drain within the Gallagher property. The proposal is to install a 525 mm diameter stormwater reticulation system for the detention pond, under Stafford Drive, across the road verge, through to discharge the Gallagher property.
- d) The open drain which starts at the outlet of the 300 mm diameter pipe under Stafford Drive extends beyond property No 84 to about No 72 and causes significant ponding. To remove this ponding area, a new 300 mm diameter pipe would need to be installed through No 72 to discharge into the open drain within the Gallagher property.
- e) Another option would be to divert the stormwater source from the upstream catchment of the detention pond directly to the sea via Tait Street and a 450 mm diameter pipeline. This option would provide more security to the detention pond, however, once the detention pond was full, flooding caused

by all of the other pipework limitations would still occur. The frequency of the detention pond being filled would be greatly reduced.

(Refer to attached spreadsheet Appendix 1 for estimated costs).

Flooding Area “C” – Gallagher Property

Two issues exist within the Gallagher property. The existing open drains within the property were dug by a previous owner of the property. The property is the natural low spot in the area. The open drains do have sufficient Q50 flood capacity, however, they have become overgrown and need regular cleaning out. The responsibility for these drains needs to be resolved, ie they are private and the landowner must clear them or Council should take over responsibility.

Finally, all stormwater directed to the Gallagher property results in either water being discharged to the sea via No 34 Broadsea Avenue or a semi-formed drain which leads back towards Mapua.

The final outlet structure within the Council reserve also needs upgrading, with a new floodgate and a surge sump located in the base of the chamber.

The consultants considered all work associated with Area “C” as less important and thus a “do nothing” approach now and review in the future could be an option.

Way Forward

Staff have instructed Opus International Consultants to design Options C and D for resolution of the flooding problems generated in flood area “B”. Once priced these estimates will be included in Council’s LTCCP for consideration.

RECOMMENDATION

That this report be received.

Jeff Cuthbertson
Utilities Manager