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PS7-442

BRIEF REPORT

ON THE STORM OF AUGUST 1992

**S D Bensberg
Technical Officer**

AVON RIVER STOPBANK OVERTOPPING DURING STORM

ESTUARY PRECINCT

STEAM WHARF DRAIN - ALPORT PLACE

STYX RIVER

HEATHCOTE RIVER CHANNEL OVERTOPPING

AVON RIVER STOPBANK OVERTOPPING DURING STORM 28 AUGUST TO 31 AUGUST

GENERAL

It would appear that the riverbanks were only overtopped during the high tide of Friday 28 August at 6.00 pm.

SITES OF CONCERN

- 1 Pumping Station No. 205 - New Brighton Road
 - 2 New Brighton Road at Barkers Road
 - 3 Bexley Road
 - 4 Owles Terrace
 - 5 Motorboat Club - Owles Terrace
 - 6 Evans Avenue/Admirals Way
 - 7 Kibblewhite Street
 - 8 Avonside Drive upstream of Kerrs Reach
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- 1 **Pumping Station No. 205 - New Brighton Road
as seen by John Hodgson at 5.30 pm, Friday 28th**

The stopbanks immediately upstream of Horseshoe Lake outlet was overtopped over a length of approximately 6 metres.

The sump outside No. 309 New Brighton Road was flowing in reverse.

The staff gauge in Horseshoe Lake was reading RL 10.10. The river water level was approximately at RL 11.10 to top the stopbanks, yet the pumps were pumping from Horseshoe Lake into the Avon River.

This caused a high water level between the pump house and the culvert outfall to the river. This flow escaped the channel by overflowing onto New Brighton Road around the left hand side of the culvert and secondly by undermining and flowing under a protective retaining wall into No. 309 New Brighton Road.

The water flowed quickly along New Brighton Road and entered No. 303 New Brighton Road. The water depth was approximately 400-450 mm in the rear of No. 303 New Brighton Road. Surveyed flood water level RL 10.95.

The flood waters also entered other properties along New Brighton Road.

The average stopbank level adjacent to the Horseshoe Lake outlet was RL 11.00 with a low point of RL 10.96 in several locations.

Design level for stopbanks was RL 11.20.

**2 New Brighton Road at Barkers Road
as seen by Stephen Bensberg at 5.00 pm, Friday 28th**

The Avon River had overtopped its northern bank approximately 30 m west of Barkers Road for approximately 30 to 40 metres. This flow was entering the open paddocks adjacent to Barkers Road.

Other overtopping incidents may have occurred further west but did not risk proceeding through the flood water.

Stopbank design level was RL 11.16.

Average level as surveyed is RL 10.90 with a low point of RL 10.82.

**3 Bexley Road
as seen by Stephen Bensberg at 5.15 pm, Friday 28th**

The Avon River overtopped the stopbank at No. 37. The width of the overtopping was approximately 2 metres and depth of water was approximately 50 mm.

The stopbank was also overtopped opposite No's 58 and 60 for a width of over 30 metres. Difference in water level between the Avon River and Bexley Road flood water was approximately 100 mm to 150 mm.

While assessment of the situation was occurring the width of the overtopping was growing with a few additional minor breaches developing. At 5.30 pm the first breach at No. 37 had grown to a width of 4 metres.

Due to the volume of water flowing over the stopbank Bexley Road was quickly flooded from Eureka Street to Pages Road. Waitaki Street was also flooded.

Stopbank at No. 37 was RL 10.842

Stopbank at No. 58 was RL 10.836

Design level was approximately 11.15.

4 Owles Terrace

Reference to report from K Sibly (Area A)

From survey data stopbank low spot is RL 10.84.

Design level was RL 11.15.

New Brighton bridge staff gauge was read by K J Sibly and shown to be RL 10.95 and rising.

5 Motorboat Club - Owles Terrace

Reference to report from K Sibly (Area B)

Water flowed at out of the boat ramp into Owles Terrace and flooded the low area between Collingwood Street and Hardy Street.

Stop bank low spots are RL 10.92

Boat ramp ground level is RL 10.86

Both stopbank and boat ramp design levels were RL 11.15

It was obvious from the wash pattern in the snow that the stopbank had also been overtopped over a small length of approximately 10 metres.

6 Evans Avenue/Admirals Way

Geoff Stuart, Neville Stewart, C Rance

Three areas of concern:

- 1 Floodwaters bubbling back up the stormwater sumps, i.e. flap valves not sealing properly.
- 2 It would appear that Pumping Station No. 207 does not pick up all the sumps in Evans Avenue.
- 3 The stopbanks were overtopped for a length of approximately 30 metres downstream of Evans Avenue/Admirals Way corner.

Design level for the stopbanks was RL 11.15 but survey level indicates that actual is RL 10.95 with one location as low as RL 10.80.

Note: The water level in Evans Avenue was to within 40 mm of the house floor level at No. 19.

7 Kibblewhite Street

No Drainage and Waste Management Unit officers witnessed flooding in Kibblewhite Street however Chris Rance did observe a barricade across Kibblewhite Street when passing that location. (Has flooded in the past).

It is "believed" that the Roding Unit may have installed some sumps and directly connects to the river without flap valves, as yet no check against Drainage and Waste Management Unit records has been made.

8 Avonside Drive upstream of Kerrs Reach

On Saturday Stephen Bensberg noted that Avonside Drive was barricaded upstream of Kerrs reach and that flood water was still present across the roadway. Have not been able to get witnesses to any bank overtopping in this area but needs investigation.

ESTUARY PRECINCT BASED ON REPORT FROM K SIBLY

Estuary Road was inundated at the following intersections:

Tovey Street, Beatty Street and Ebbtide Street

Rockinghorse Road was inundated at the following intersections:

Godwit, Heron, Penguin and Plover Streets

It would appear that the majority of flooding was due to surface water being unable to drain due to the high tide.

Flood Waters from Estuary

Water flowed out of the Estuary at the period of high tide and flooded Estuary Road, Ebbtide Street and Capsian Street to Rockinghorse Road - unsure if this is bank overtopping.

40 Rockinghorse Road

Flood waters from the Estuary are reported to have flooded No. 40 Rockinghorse Road - no details yet.

STEAM WHARF DRAIN - ALPORT PLACE

5.30 pm - Friday 28th

The rising high tide flowed from the Heathcote River back up Steam Wharf Drain and overflowed into Alport Place also preventing stormwaters from draining away from the area.

Heathcote River level at Tunnel Road was RL 10.95.

Crown of road in Alport Place is RL 10.60.

There is no structure in the stormwater drain to prevent the backflow of the Heathcote River.

STYX RIVER

K Couling and H Welles

Lower Styx Road experienced flooding in a couple of location, however only between No. 931 and 993 was flooding reported on residential properties from the Styx River itself.

A Christchurch City Council Reserve exists between No. 931 and 961 Lower Styx Road. The level of the boat ramp allowed flood waters onto Lower Styx Road.

A small low privately constructed stopbank exists from the Council Reserve along the riverbank behind No. 961 and past No. 985. This stopbank was holed when a substantial tree partly falling over exposing its roots and creating the hole in the stopbank.

Residents in the area witnesses flood waters flowing from the reserve and along the back portion of these properties.

At No. 963 the flood waters extended 285 mm up the house foundations.

Flood water RL 10.38
House floor level RL 10.60
Stopbank level RL 10.27

At No. 985 flood water entered a sleep out on the property. It would appear that the flood waters came over a low spot in the stopbank to the west of the property.

Flood water RL 10.37
House RL 10.82
Sleepout floor level RL 10.18
Stopbank RL 10.20
Stopbank low spot RL 9.83

At No. 993 flood waters entered a conservatory attached to the house. It would appear that the flood waters came over a lower portion of the stopbank behind No. 1003 Lower Styx Road.

Flood water RL 10.35
House RL 10.56
Stopbank RL 10.22
Stopbank low spot RL 9.72

Harbour Road/Kainga Road

The paddocks to the south of Kainga Road were heavily inundated.

The maximum water level at the Styx River tide gates is estimated to have been RL 10.40 to 10.35.

HEATHCOTE RIVER CHANNEL OVERTOPPING

GENERAL

The heaviest flooding from the Heathcote River occurred on the high tide period for Friday 28 September 1992 at 5.30 pm. While the following high tides of Saturday 29 September also flooded the street adjoining the Heathcote River, the inundation was not as wide spread as Fridays.

SITES OF CONCERN

- 1 Greenpark Street
- 2 Ferniehurst Street to Colombo Street
- 3 Colombo Street to Burnbrae
- 4 Burnbrae to Opawa Road
- 5 Downstream of Opawa Road

1 Greenpark Street

The Heathcote River runs behind the eastern properties in Greenpark Street. The street itself is drained by sumps with direct connections to the Heathcote River.

Two complaints were received from residents in Greenpark Street about the increasing rapid rising level of the Heathcote River and inundation of Greenpark Street at the southern end. The street flooding may be due to backflow of stormwater from the Heathcote River into Greenpark Street or the inability of the existing system to cope with the rainfall which fell in the Greenpark Street catchment.

Note: This situation is a reoccurring problem. The last recorded complaints of this nature were in July 1991.

2 Ashgrove Terrace

The Heathcote River flooded across Ashgrove Terrace opposite No. 43 (by Ferniehurst bridge) as seen by S Bensberg and H Welles on 29 September 1992. The Heathcote River between Ferniehurst Street and Colombo Street flooded into parts of the reserve between the river and Cashmere Road.

Staff gauge read by S Bensberg on 29 September at 1725 was RL 17.10.

Earnlea Terrace

1700 - 29 September 1992 Earnlea Terrace inundation by flood waters from Heathcote River.

3 Hunter Terrace, Sloan Terrace, Waimea Terrace, Eastern Terrace

The rising flood waters of the Heathcote River inundated Waimea Terrace and Hunter Terrace from approximately No. 15 Waimea Terrace to approximately just short of Malcolm Avenue bridge. The lower lawn of the Cashmere Club was also inundated.

Waimea Terrace was flooded from Malcolm Avenue around to Birdwood Avenue with flood water entering private properties along Waimea Terrace.

No incidents of flood waters entering dwelling have been recorded.

Eastern Terrace was inundated from:

- a Birdwood Avenue around to approximately No. 85 (unconfirmed)
- b Sandwich Road to Tennyson Street bridge.

The estimated river flood levels also indicate that Fifield Terrace may have been inundated downstream of Wilsons Road. Riverlaw Terrace may have also been inundated over this length. This was later confirmed by A C Watson that some residents from Fifield Terrace have indicated that Fifield Terrace was flooded.

Palatine Terrace was inundated from approximately No. 90 to No. 100.

4 Aynsley Terrace

Aynsley Terrace was inundated from approximately No. 75 to Garlands Road/Ford Road footbridge.

5 Richardson/Clarendon Terraces

The estimated river flood levels indicate that both Clarendon and Richardson Terraces would have been inundated for most of their length - confirmed by A C Watson.

It is also understood that some localised flooding occurred under the railway bridge across the Heathcote River.

Gould Crescent

as seen by A C Watson - Friday 28th

The eastern elbow of Gould Crescent was inundated with flood waters from the Heathcote River having been seen to breach the stopbank where a footpath crosses the stopbank.

Gould Crescent was also inundated on Saturday 29 September with approximately 50 mm to 75 mm over the crown of the road.

Average stopbank level RL 10.87 to 10.96

Low spot in stopbank RL 10.85