

Storm event

FRIDAY, 29 OCTOBER 2021



This event was sharp and sudden. MetService had not issued any alerts or warnings for Marlborough.

This photo clearly shows the start of the event over central Blenheim

It started with lightning and thunder and like similar events it was thought it would last for a short duration.

The following are some of the peak rainfall intensities

- 11.1 mm in 5 minutes
- 17.1 mm in 10 min
- 35.7 mm in 30 min
- 50.2 mm in 60 min

These short duration rainfall intensities (30 minute, 1 hour) recorded were about 50% higher

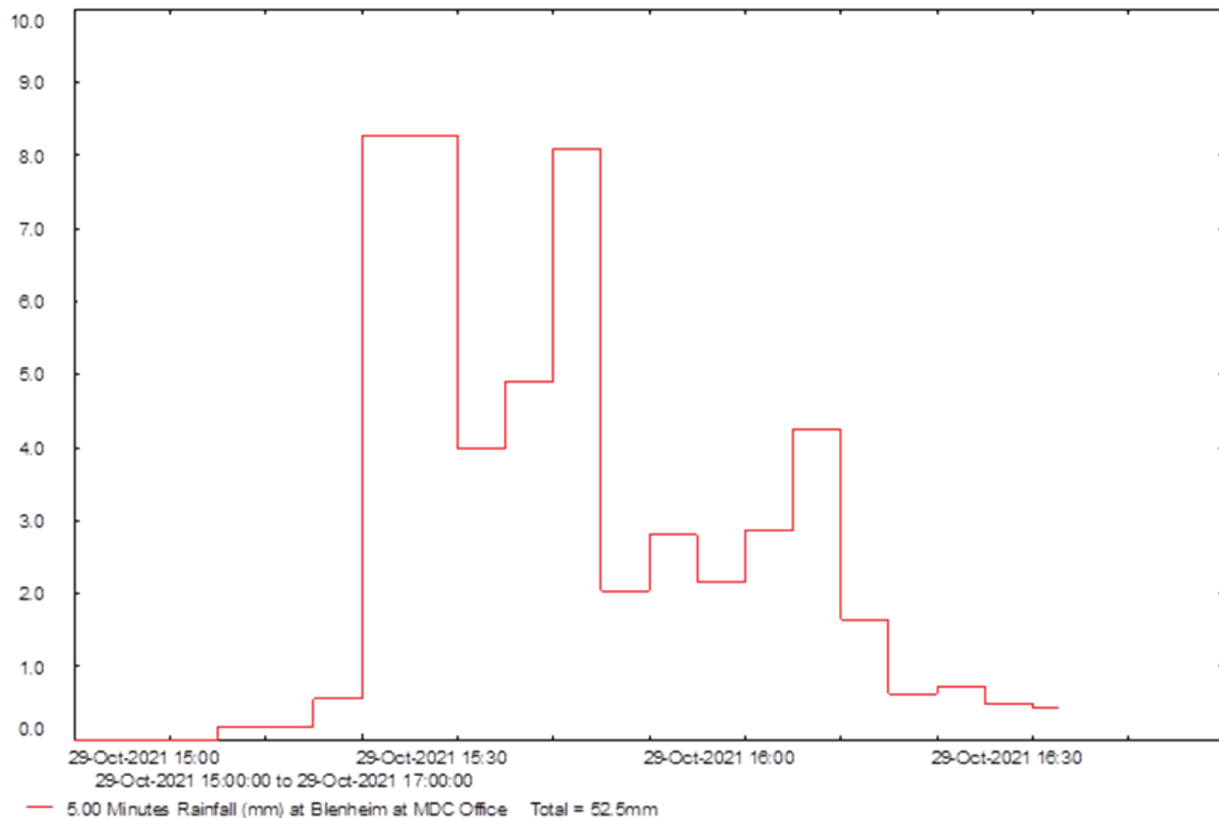
than the design 100 year event intensity figures.

This event was particularly unique in that it affected the central areas of Blenheim only, covering the area north of Alabama Rd and out toward Grove Rd and Dillons Point.

The area south of Alabama Rd and Springlands were not affected. In fact just south of Blenheim only 5 mm of rainfall was recorded at the Landfill over the same time period.

The following graph shows the 5 min intensities for the duration of the event.

Note the time scale is not in daylight saving time so is showing the time as an hour early.

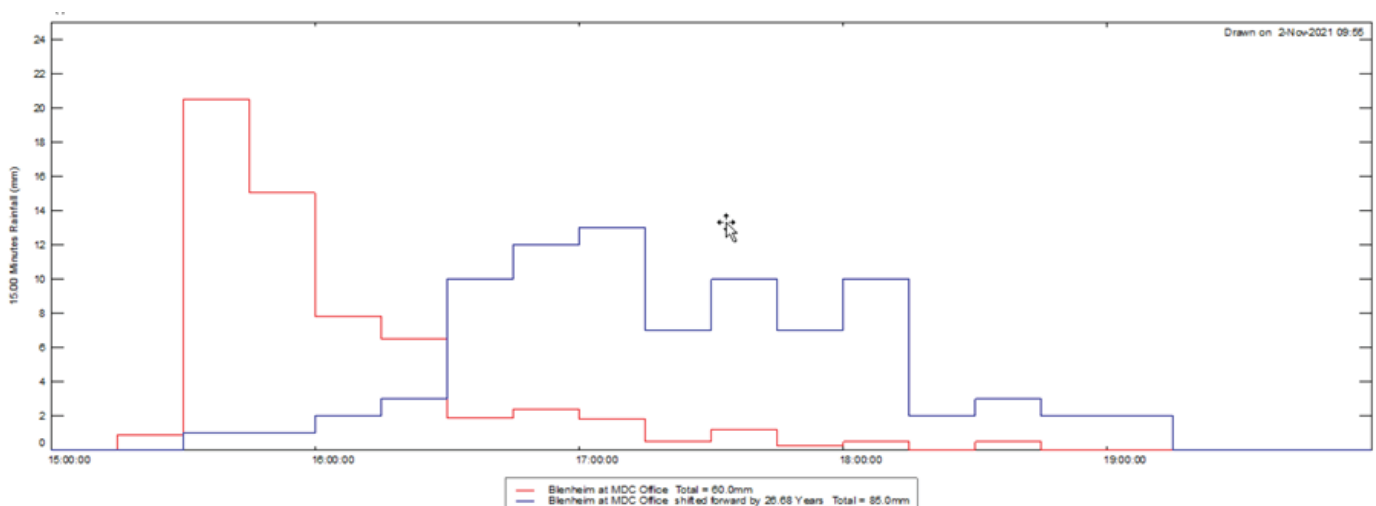


Stormwater network design:

- The older system was designed to cope with 25 to 30 mm per hour
- The design for current day standards is 30 to 35 mm per hour. This provides a standard to cope with intensities to match a 1 in 50 year event and in some instances a 1 in 100 year event.
- Rainfall in excess of this will accumulate in roads and flow through what we refer to as secondary flow paths. These are generally when the water has ponded in the road to a depth where it will flow over the “high point” to the sump in the next catchment.
- Clearly this event exceeded even the backup of secondary flow paths.

The last event that affected the CBD like this was in February 1995, the following is a comparison of the rainfall for the two events. Red is Oct 21 and blue is Feb 1995. Note this data is in 15 min intervals, not 5 min as in the previous graph.

There was a total of 85 mm in the Feb 1995 event, but with intensities that were “lighter”.



Since 1995 a new large stormwater main was installed in Henry St, taking the western section of this catchment out to the Taylor River. This reduced the volume of water flowing through the CBD network. Without this pipe the flooding in the CBD on Friday would potentially have been much worse.

There has been some discussion in the community about the stormwater pumping system not operating. We expect this refers to the flood pumps on the edge of the Taylor River at the end of Redwood St, Symons St and Kinross St. These pumps only operate when the Taylor River is in flood and the floodgates are closed. When the river is not in flood they do not run as there is sufficient gravity outflow when floodgates are not forced to be closed by high river levels.

The pipe network was flowing at maximum capacity, switching the pumps on would not have increased the flow through the piped system.

This event was fast and furious. It came with no warning from MetService. When it first started we considered, as with most thunderstorms, it would blow through very quickly. But it didn't.

It came when many people take the opportunity to have a holiday over the two long weekends and it was 4:45 on Friday before Anniversary weekend. Many staff and contractors were already finished for the day. Mobilising a workforce to react was difficult and numbers were short.

By the time we had staff ready with sandbags and sand the CBD was already flooded. We therefore concentrated our resources on attending to residential dwellings that were likely to have water through them, sandbagging where we could.

There have been many buildings which suffered water ingress through the roof. A contributing factor to this is considered to have been the heavy hail that preceded the rain. Once the hail stopped rain washed the hail into gutters which then accumulated to block downpipes. This results in an overflow from gutters into ceiling spaces