

## 5. HORNER'S DRAIN PONDING BASIN

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This report has been referred to the Parks Gardens & Waterways Committee for consideration and recommendation to the Council.

### PURPOSE OF REPORT

The purpose of this report is to consider the acquisition of a property in QEII Drive for the following purposes:

1. To provide an additional ponding basin for the Horner's Drain Catchment.
2. To provide for the future road widening of QEII Drive.

### BACKGROUND

The Horner's Drain catchment is a complex network of interconnected drains and ponding areas that flows northwards from the Cranford Basin area to the Styx River. Parts of this system are in immediate need of repair/maintenance, and development pressures from currently zoned residential land will need to be taken into account with regard to surface water management.

This report highlights the need for an additional ponding area within this catchment, specifically at a location immediately to the north of Winters Road.

Horner's Drain has a relatively flat grade, and is constricted in downstream reaches where it is deeply incised and timber/concrete lined. In places this hard-lining is beginning to fail. Kruses Drain is a tributary of this Horner's Drain system, and this drains a large area of Papanui. Kruses Drain is relatively steep, and the flood peaks from this area are not able to get away through the existing outfall down Horner's Drain. As a result, flow reversal in Horner's Drain occurs in response to significant rainfall, and floods the area around the Philpotts Road – Winters Road corner. Much of this floodwater then drains south-eastwards down Bullers Drain, to Dudley Creek Diversion pipe and on to Horseshoe Lake.

This diversion pipeline was constructed based on a design flow from Bullers Drain of up to 410 L/s following a 5-year rainfall event. Because of the backflow from Kruses/Horner's Drains, this limitation is exceeded regularly (discharge of in excess of 1.5 m<sup>3</sup>/s can occur in a 5-year event). While there are no known flooding or capacity problems associated with this increased discharge, water levels in downstream Horseshoe Lake are often higher than expected, and this additional discharge could be responsible, at least in part, for this. During times of high water levels in the Avon River, outflow from Horseshoe Lake has to be pumped to prevent flooding in adjacent properties, and the higher than expected water levels result in increased demands on these pumps.

As part of an overall Horner's Drain upgrade, including some diversion of the northern end of the drain to the Styx River, "beheading" of the Bullers Drain catchment has been considered. This will mean that floodwaters from the Cranford Basin and Horner's Drain area (ie backflow) are prevented from entering Bullers Drain, and diverted to Horner's Drain and north to the Styx River. The reasons for this include reducing the flow to Dudley Creek Diversion pipeline (with consequent relief for the Horseshoe Lake pumps), as well as making allowance for stormwater runoff from development of the zoned residential land south of Winters Road. In order for this to be possible, allowance has to be made for routing the floodwater that would usually have flowed down Bullers Drain, to some other location. Because of capacity and hydraulic grade limitations in Horner's Drain (the alternative outfall), additional storage is required for this flood volume. This storage will fill during times of flood, with slow release over an extended period of time at a rate at or below the capacity of the outfall.

The area immediately north of Winters Road is ideally situated to provide this additional storage. This is because it is low-lying (and is currently flood-prone), and is also close enough such that hydraulic connection to this area can be made. The existing ground levels are such that some surface modification (ie earthworks) is likely to be required to provide for the required storage volume. Due to the existing low ground level, these works are likely to be relatively minor.

The current outflow from the Kruses Drain catchment passes largely untreated to Horner's Drain, and on towards the Styx River. It has been suggested that some primary (first flush) treatment be provided for this runoff, and in order to achieve this some detention (or temporary storage) will be required. A preliminary proposal to divert of Kruses Drain discharge through such an area has been considered, and is likely to be feasible if ponding can be provided in the area immediately north of Winters Road – the area being considered for purchase.

If purchased, this land should be able to provide the following benefits:

- Likely reduction in discharge down Bullers Drain, resulting in lower flood levels in Horseshoe Lake with reduced costs of pumping;
- Possible improvement in water quality within Horseshoe Lake due to less potentially contaminated runoff (from Kruses Drain, in particular) from entering Dudley Creek Diversion pipeline;
- First flush treatment and water quality enhancement of low flows from Kruses/Horner's Drain catchments, potentially resulting in improvement in water quality in the Styx River;
- Additional ponding volume available to make allowance for development of currently zoned residential land (cost share possibilities);
- Public ownership and access linking Bullers Drain corridor (from Walter Park) to prospective access way alongside Horner's Drain, north to the Styx River.

### **ROAD WIDENING**

The section of Queen Elizabeth II Drive between Philpotts Road and Hills Road forms an important section of the ring road in the north of Christchurch. Currently this is the only major length of the eastern section of the ring road which does not have an existing 40 metre corridor or narrower corridor and adjoining designation to allow for future road widening.

It is therefore seen as essential to obtain land as it becomes available for purchase to enable the widening to occur. The purchase of the property will enable a 20 metre strip of land to be set apart, for the future four laning of the road plus land for the provision of an off-road pedestrian / cycle track and adjacent landscaping. The City Streets Unit will fund the cost of the strip of the land in conjunction with Parks and Waterways Unit.

### **ZONING**

The property is zoned Rural 3 under the City Plan which permits subdivision down to a minimum of 4 hectares.

### **PROPERTY DETAILS**

The property to be acquired contains an area of 6.9580 hectares as depicted on the attached plan, and lies immediately opposite and to the north of the Philpotts Road/QEII Drive intersection. It is in pasture and well fenced on all boundaries and is used for grazing purposes. The property is currently on the market for sale through Harcourts (Holmwood Real Estate) and has attracted reasonably strong interest from people seeking to acquire a lifestyle block close to the city.

### **AGREEMENT**

To determine the property's value the Council engaged the services Ford Baker, Registered Public Valuers, the details of which are included in the Public Excluded section of this report. Agreement has been reached with the owner on the basis that Council approval will be sought at its April meeting and that the transaction will be settled in early May.

### **SOURCE OF FUNDS**

The purchase of the property will be funded through the Waterways and Wetlands Protection budget, Page 9.4.85. The area required for future road is to be funded by the City Streets Unit.

### **Staff**

**Recommendation:** That the property be acquired on the terms and conditions contained in the Public Excluded Section of this report.

### **Chairman's**

**Recommendation:** That the above recommendation be adopted.