

6. BARNETT PARK FLOOD DETENTION BASIN

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PURPOSE

The purpose of this report is to seek the Board's support for the possible location of a flood detention basin in Barnett Park.

INTRODUCTION

Barnett Park and its hinterland drains to the estuary in Moncks Bay via Rifle Range Drain and an overflow swale through Barnett Park. There is a history of drain overflows and backflow during storm events and/or very high tide events resulting in flood damage to low-lying residential properties in Wakatu Avenue, Bay View Road, Cliff Street and Main Road. For example, flood water was reported to have entered 8 houses and 24 garages during the October 2000 storm.

Many minor improvements have been made to the drainage system over the years to reduce flood risk to a level that is acceptable in comparison with other parts of Christchurch where flood risks exist.

Major system improvements including a flood detention basin in Barnett Park have been identified in the past. However, to date available funds have been committed to other capital projects of higher priority.

A recent interim decision by the Environment Court on proposed urban growth within the catchment provides the opportunity to reconsider major drainage improvements, in particular the flood detention basin. The cost of any basin that both reduced the flood risk to existing properties in Moncks Bay and provided stormwater control and treatment for future development within the catchment could be shared between the Council and developers. This may be quite advantageous to both parties.

FUTURE URBAN GROWTH

In the long-term there is the potential for approximately 100 new residential lots within the overall Barnett Park catchment. Up to 65 of these could result from a recent interim decision by the Environment Court in respect of hill land west of Barnett Park.

The decision allows 11.4ha of new residential modified LHA zoning on the upper slopes of Moncks Spur subject to many stringent conditions. In addition, the developer is required to provide 40ha of reserve land to Barnett Park as environmental compensation.

A stormwater disposal concept satisfactory to the Council is one of the many conditions that have to be met prior to the Court making its final decision later this year. All stormwater disposal options will be investigated in conjunction with a review of flood mitigation measures for the overall catchment. A flood detention basin(s) located in Barnett Park serving both flood control and stormwater mitigation purposes is expected to be the most attractive option. However, this conclusion will need to be confirmed by further investigations.

BARNETT PARK MANAGEMENT PLAN

The 1992 Barnett Park Management Plan guides the development and management of Barnett Park.

The Plan divides the Park into 3 management zones:

ZONE	DESCRIPTION
A	Cultural and active recreation (includes sports fields)
B	Exotic/indigenous transition
C	Natural aspect

The "footprint" of a possible detention basin would occupy most of Zone B (see attached plan).

Particularly relevant Objectives and Policies from the Plan are:

- 3.1 Objective: To provide a transition between the highly modified lower valley and the more natural hill slopes capable of accommodating less formal recreation activities appropriate to an informal setting.
- Policy 1.1 The transition zone shall be enhanced with the planting of native trees and shrubs along the stream, around the pond and toward the head of the valley, and exotic planting for southerly shelter near the sports fields. Informal activities such as informal picnics, walking, running, nature watching, etc in keeping with the passive nature of this area shall be encouraged.
- 7.1 Objective: To protect native and exotic wildlife and their habitats subject to the requirements of the Wildlife Act 1953, and the management plan vegetation objectives and policies.
- Policy 1.4 A pond/wetland area shall be created on the upper valley floor to encourage aquatic wildlife in the park and help show water velocities in the creek and its tributaries.

A flood detention basin in Zone B can be designed around the pond proposal featured in the Plan to maintain and enhance the existing values and advance a number of Management Plan objectives and policies.

THE DETENTION BASIN

If further investigations indicate that a flood detention basin(s) in Barnett Park is the preferred option for flood control and/or stormwater mitigation for future development, features of the basin design could include:

- A twin water quality/flood detention basin system
- A small permanent pond within the basin for water fowl
- Extensive planting of native grasses, shrubs and trees along Rifle Range waterway and around the pond
- A passive recreation area that forms a transition between existing sports fields and the natural valley
- Possibly an additional junior playing field located within a normally dry compartment of the basin

The likely dimensions of a twin basin system are expected to be no greater than the following:

- Flood ponding area when full (once on average every 20 years) 2.7ha
- Permanent wet pond area 0.75ha
- Maximum water depth when full 2.5m
- Height of downstream embankment 3.5m
- Embankment side slope 1 vertical to 4 horizontal

It should be noted that for storm events greater than a 20 year return period, flooding will still occur over the existing flood-prone residential area. However, flood damage incurred will be reduced significantly. The potential for tidal flooding will also still remain.

NEXT STEPS

The following action is proposed between now and 30 September 2003:

1. Seek community views on a flood detention basin located in Barnett Park.
2. Report to the July 2003 meeting of the Parks, Gardens and Waterways Committee.
3. Review flood mitigation measures for existing development and investigate stormwater disposal options for new development.
4. Reflect community feedback into the design of any detention basin.
5. Prepare a draft drainage cost sharing scheme for Council approval that splits capital costs fairly between the Council and developers.
6. Begin preparation of an application to Environment Canterbury for a discharge permit to the estuary.

Steps 5 and 6 above will also involve community consultation. Seeking community views in Step 1 above needs to be managed as the first phase of an integrated consultation process.

Flood control options were presented to the Redcliffs Residents' Association in November 1997. The meeting favoured the flood detention basin option over the other three presented.

SUMMARY AND CONCLUSIONS

There is a history of flooding on private property and streets in Moncks Bay. However, to date major flood mitigation works have not been undertaken because available funds have been committed to other projects with a higher priority at the time.

Future residential development of up to 100 lots within the catchment that includes Barnett Park depends on, amongst other things, stormwater control and treatment. A flood detention basin within Barnett Park could provide for new development and mitigate the existing flood risk, probably in a cost-effective way. However, this needs to be confirmed by further investigations.

A basin can be designed in a way that is consistent with the objectives and policies contained in the Barnett Park Management Plan.

Staff

- Recommendation:**
1. That the Board approve in principle the location of a flood detention basin for flood control and/or stormwater mitigation for new development within Barnett Park (Zone B).
 2. That the Board's views on a flood detention basin in Barnett Park be conveyed to the Parks, Gardens and Waterways Committee.
 3. That the Board recommend that the Parks and Waterways Unit seek community views on this proposal.

Chairperson's

- Recommendation:** That the recommendations be adopted.