

## Structures and vegetation in close proximity to flood levees

<b>Policy, procedure, protocol</b>	Policy
<b>Document version</b>	V 2.0
<b>Date adopted by Council</b>	18 September 2018
<b>Minute number</b>	15.149/18
<b>File reference number</b>	2202364
<b>Due for review</b>	July 2022
<b>Documents superseded</b>	N/A
<b>Related documents</b>	V1.0 – 17/07/2018 – 15.124/18
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<b>Section / Department</b>	Water Cycle
<b>Linkage to Our Community Plan</b>	2 Infrastructure
<b>Objective</b>	2.1 We will have communities that are well serviced with appropriate infrastructure
<b>Strategy</b>	2.1.3 Provide strategic asset management planning

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## 1. Purpose

Council's Development Control Plans require that all buildings must be setback from the outside masonry levee wall or from the toe of any levee wall as follows;

- R1, R2 and R3 Residential and Business zones – 1.5 metres
- R5 Large lot residential and Rural zones – 3.5 metres.

This policy also applies to levees located in other zonings. This policy has been prepared to provide additional guidance regarding building any structure in close proximity to Council's constructed levees and areas of natural high ground. Structures on constructed levees and natural high ground can impact on the performance of each by concentrating flows and causing scour points. This policy is written to ensure that the structural integrity of Council's constructed levees and natural high ground are maintained. It will also ensure that Council maintains reasonable access to its constructed levees and areas of natural high ground to enable maintenance, repairs and /or possible replacement in perpetuity.

## 2. Definitions

**'Constructed Levee'** means a structure typically constructed from earth, concrete (cast-in-situ or pre-cast) or concrete block.

**'Natural High Ground Levees'** means land that does not contain a constructed levee but instead has an elevation at or above the surrounding leveed areas. Natural high ground provides the same function as constructed levees and is essential for the levee network.

**'Structures'** include but are not limited to utility lines, pipes, boat docks, stairs, decks, homes, swimming pools, power poles, roads, irrigation ditches and fence posts.

**'Vegetation'** in this Policy can also mean shrub or other plant.

## 3. Background

Council has a duty of care to maintain flood mitigation works in effective operational order, and ensure they present minimal hazards to landowners and provide protection to communities.

## 4. Policy, protocol or procedure statement

Structures generally should not be constructed within 1.5 metres of constructed levees (or 3.5 metres in R5 and rural zonings). However, it is recognised that in some circumstances there may be justification for varying this blanket exclusion. This policy outlines how applications for building in close proximity to a Council constructed levee or natural high ground will be considered. Council will treat each application on its merits, but applicants should not assume that consent for construction over or near constructed levees or natural high ground will be automatically granted.

## **5. Procedures**

Council is to be notified at least 48 hours prior to commencement of any work in close proximity to constructed levees or natural high ground and arrangements made for inspection during construction by Council staff.

### **5.1 Easements**

If part of any proposal for structures is in close proximity to a constructed levee the developer/owner will be required to provide an easement over any existing or proposed constructed levees if an easement is not already registered. The minimum width of the easement for a concrete block levee shall be 3.0 metres (but in some instances, may be varied depending on the site and location), and for an earth levee the easement width may be variable depending on site conditions. The easement is to include the levee footing. For natural high ground areas, although an easement is not required, Council will initiate negotiations and encourage the provision of an easement.

### **5.2 Building within 1.5 metres of existing levees**

Council do not permit any new structures to be supported by any part of the constructed levee. Construction of new structures with footings within 1.5 metres of constructed levee (or 3.5 metres in R5 and rural zonings) may only be considered when a structural engineer's certificate (if requested) is submitted to Council prior to issue of the construction certificate to verify the proposed structure near the constructed levee shall not affect the structural integrity of the constructed levee or place additional load on the constructed levee.

Access to the constructed levees or natural high ground is required for regular inspections and maintenance/repairs by Council staff. Inspection may be required during flood events as well as for routine asset condition assessment. Provision for easy access by Council staff for inspections needs to be incorporated into any proposed structure (e.g. by using lightweight materials, screwed / removable / cantilevered decking, etc). The property owner shall be responsible for the cost of any dismantling and reassembling of structures necessary to undertake the levee inspection.

### **5.3 Relocating Levees**

Where a developer proposes to relocate / realign the levee to suit their development requirements if this is approved it will be at the landowner's cost. A condition of approval may require a hydraulic assessment to determine impacts of the proposed alteration. Any proposed relocation of levees shall require approval of a Development Application and Construction Certificate. Survey will be required to ensure levee design height is maintained. The developer shall meet the requirements of 4.1 and if an easement is already granted, then shall meet the costs for amendments to the easement.

### **5.4 Heavy machinery and earthworks near levees**

Works around constructed levees or natural high ground, even when not within the prescribed setback distances must be carried out in such a way as to not interfere with the levee (e.g. heavy machinery shall not be permitted to repeatedly track across earth levees during construction). A dilapidation survey will be required prior to works and any damage that occurs to levees is required to be restored to Council's satisfaction.

### 5.5 Unauthorised works to Council levees

Landowners should be aware that they have an obligation to not interfere or damage flood mitigation works, and may have civil liability for damage that detrimentally affects their operation and consequentially causes loss to other people or interests.

### 5.6 Fill Between House and Levee or between Levee and River

For these requests, Council will require that vegetation and non-structural material is to be stripped from the surface of the constructed levee where fill is to be placed prior to placement and compaction. Fill is to be clean and suitable for compaction. The fill must not affect adjoining landowners in any way, such as creating ponding problems, concentrating rainfall runoff (erosion) or affecting any plantings. All work is to be carried out without any adverse effect on the existing levee and any damage is to be repaired to the satisfaction of Council at no cost to Council. Survey may be required to ensure design height is maintained. The finished surface is to be graded such that any run-off is not concentrated at any point and cause damage to the levee or batters. The disturbed area is to be turfed on completion of earthworks and watered until fully established. No vegetation other than grass is to be grown in the fill area.

### 5.7 Excavating or Boring in or adjacent to Levees

Excavating, for installing pipes and cables, can severely weaken the structural integrity and slope stability of constructed levees or natural high ground and create zones of turbulence. This turbulence may displace rock, pull bedding material out under bank protection or cause erosion of the levee to the point that a failure could occur. The developer must provide detailed designs, geotechnical analysis, structural engineer's certificate and construction procedures for these activities. Where Council consent is given for excavation, development conditions may include all or some of the following:

- No pits are to left in a levee
- No granular material is allowed as backfill within the excavated notch. Backfill material shall be either:
  - High clay content soil
  - Existing material treated with a polymer based dam or pond sealant
- The fill soil is to be compacted with a trench roller. If the depth of the trench exceeds 150mm the material shall be compacted in two or more layers; the minimum thickness of each layer shall be 150mm.
- Trenches shall be compacted to obtain a relative compaction of at least 98% of maximum dry density throughout.
- Moisture content of fill material shall not be less than 2%
- After works are complete, all exposed earth is to be turfed with a suitable grass.

For Boring, conditions may also include that the annular space between the bore and sleeve shall be pressure grouted with bentonite or other suitable cementitious flowable grout approved by Council. The density of bentonite solution should be checked during boring operation to ensure compliances to specifications.

### 5.8 Fencing

Fencing in proximity to levees may be approved by Council on the conditions that access to the levee for regular inspections and maintenance/repairs is maintained, rural fences are designed

in a way that can exclude cattle during prolonged wet weather periods and flood events, and fencepost are drilled rather than punched into the levee.

Placing new longitudinal fencing along the crest of a constructed levee should be avoided, as the potentially large number of posts placed into a levee may compromise its integrity and would require unnecessary additional maintenance.

### **5.9 Other Considerations**

It is possible that constructed levees or natural high ground may be raised in future, therefore the proposed development may need to be altered in future (at the owners cost). It is possible the levee may be overtopped in a major flood event. The development should be designed in such a way that allows free passage for floodwaters down either side of the development in a flood that overtops the levee.

### **5.10 Vegetation around levees**

The primary purpose of managing vegetation around constructed levees and natural high ground is to preserve levee integrity, scour protection during times of flooding, visibility and access. Healthy grass covers are ideal. However, overly long grass cover reduces the level of scour protection and requires regular mowing. Woody vegetation causes problems for levees as it:

- Reduces inspection visibility and vehicle access
- Weaken or causes breaches in levees when trees are toppled during a storm or flood event
- Creates scour points when levees are overtopped causing erosion and possible failure of the levee.

The expected root zone of trees, shrubs and other woody plants is not permitted to extend into the constructed levee easement zone (or zone of influence) of the levee. Should Council staff identify vegetation that threatens the constructed levee or natural high ground integrity Council will discuss removal with the property owner. Vegetation is to be assessed for heritage or environmental significance. Approvals are required before a tree can be removed or trimmed if it is a threatened species; or is within a heritage conservation area, has European heritage significance or has Aboriginal heritage value. Trees, shrubs and ground covers, such as reeds and rushes, may be suitable for planting at some locations where the expected root zone is, outside the easement zone (or zone of influence) to prevent erosion of stream banks. Council can advise of suitable species and locations.

As per 5.5 above, landowners should be aware that if they refuse Council's request to remove vegetation and this vegetation affects the constructed levee or natural high ground operation during a flood causing loss to other people or interests they may have civil liability for that loss.

## **6. Appeal/objections process**

Council acknowledges that there may be some situations that do not fall neatly into the categories detailed in this policy, therefore property owners who believe this is the case or feel there are extenuating circumstances can contact Council staff to have their unique situation brought before Council for determination.