

ITEM NO: 3

SUBJECT: DRAFT SOUTH LEURA FLOODPLAIN RISK MANAGEMENT STUDY AND PLAN – ADOPTION FOR THE PURPOSE OF PUBLIC EXHIBITION

FILE NO: F00246

Recommendations:

1. *That the Council endorse the Draft South Leura Floodplain Risk Management Study and Plan for the purpose of public exhibition.*
 2. *That the exhibition of the Draft Plan be widely advertised and promoted and be for a period of not less than six (6) weeks.*
 3. *That a public meeting be held during the exhibition period.*
 4. *That a report come back to the Council following the public exhibition.*
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Report by Group Manager, Community & Corporate:

Report Summary

The purpose of the report is to introduce the Draft South Leura Floodplain Risk Management Study and Plan (FRMS&P) and request that the Council endorse this document for public exhibition.

This report summarises the following:

- Issues that have contributed to the need for the FRMS&P;
- Issues that were raised by the community during the stakeholder consultation;
- How the issues have been addressed through the draft FRMS&P; and
- The resource implications as a result of adopting this draft FRMS&P.

The draft FRMS&P is attached separately for the information of the Councillors.

Background

In recent years the Blue Mountains has experienced an increase in the number of localised flooding events due to a number of factors including increased urbanisation and high intensity storm events. To deal with the increasing risk of potential litigation due to flooding, the Environmental Management Branch initiated a floodplain risk management program for priority catchments throughout the City where flooding issues have been reported. This program commenced with the Jamison Creek Floodplain Risk Management Study and Plan (FRMS&P) which was adopted by the Council in 2006.

The Environmental Management Branch successfully applied for State and Commonwealth funding under the Floodplain Management Program and engaged Maunsell Australia Pty Ltd

to prepare the South Leura Floodplain Risk Management Study and Floodplain Risk Management Plan in line with the NSW Flood Policy and in accordance with the principles of the *NSW Government's Floodplain Management Manual*. Under the Flood Policy, the management of flood prone land remains the responsibility of local government. However, Section (733) and Section (3) of the Local Government Act, 1993 indemnifies the Council from liability for advice relating to flooding provided it has acted in good faith and substantially in accordance with the principles set out in the *Floodplain Management Manual*.

A South Leura Floodplain Management Committee (SLFMC) was formed, involving key stakeholders from the community and government agencies, including the Ward 2 Councillors. Phase 1 was preparation of a Flood Study where the nature and extent of the flood problem was determined including flood levels, depths, velocities and flows in the catchment. Phase 2 was preparation of a Floodplain Risk Management Study where the floodplain management issues were assessed, management options investigated and recommendations made. Phase 3 was preparation of a Floodplain Risk Management Plan detailing how flood prone land within the study area is proposed to be managed. In May 2008, the draft South Leura Floodplain Risk Management Study and Plan was completed.

Study Area

The study area covers most of the sub-catchments on the southern side of Leura, including Jamison Creek Tributary, Valley of the Waters Creek, Gordon Creek and Leura Falls Creek. All these creeks are tributaries of the Cox's River, which flows into Warragamba Dam, Sydney's drinking water supply. The area spans from the Great Western Highway on the north to Orchard Lane, Hester Road and West Street in the east, to York Street, Wilson Street and Govett Street in the west and Sublime Point Road in the south. The total area covers approximately 550 hectares. The study area is shown in Figure 1.

The study area contains areas of natural heritage and ecological significance including hanging swamps, waterfalls, Crown Reserves and National Park. In addition there are large areas of residential development, a commercial centre, several large resorts as well as a golf course and country club. The bushland and sedge swamp ecological communities influence the hydrology and water quality of the creeks, as well as providing habitat for flora and fauna including several species that are rare, vulnerable or endangered. The catchment of South Leura is characterised by moderate to steep slopes and flow is conveyed via a mixture of natural channels, modified grass and concrete lined channels and culverts. The land use is primarily zoned residential with some areas of business (Leura Mall), industrial and recreational land use.

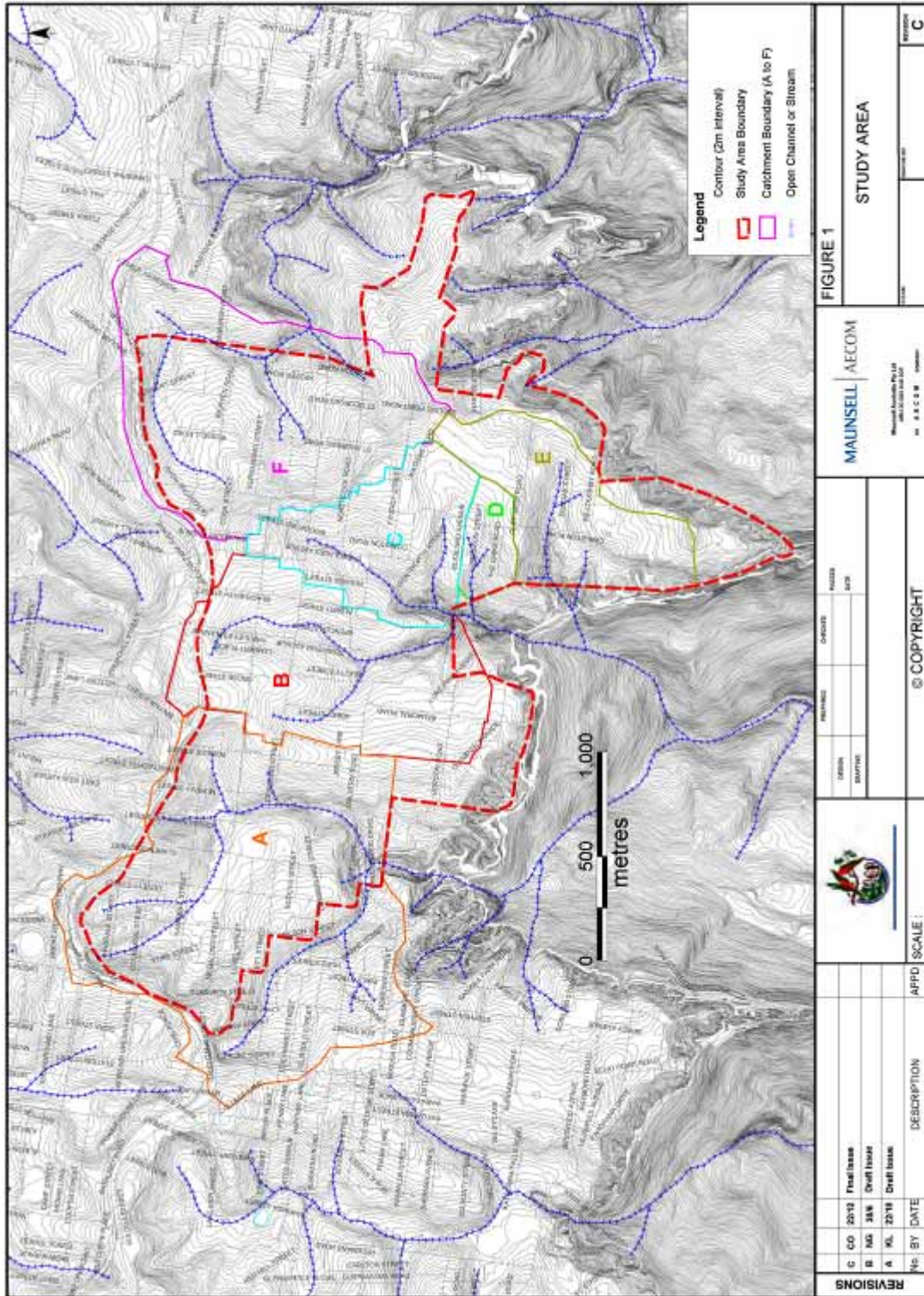


Figure 1: The Study Area for the South Leura FRMS&P

Research and Consultation

In developing the draft FRMS&P extensive research and consultation was carried out including:

- Review of background information and files including LEP 2005 and the Blue Mountains Better Living DCP for Single Dwellings and Subdivision Developments - Stormwater;
- A review of previous studies, rainfall and streamflow data;
- Consultation with internal staff members;
- A community residents questionnaire sent out to all householders in the study area;
- Formation of a South Leura Floodplain Management Committee which met throughout the development of the FRMS&P;
- Survey data collected for areas identified as potential flooding ‘hotspots’;
- Meetings with key stakeholders and site visits to flood affected properties; and
- Assessment of houses/buildings and roads affected by a 100 year ARI storm event.

The following issues came out of the community and key stakeholder consultation process including feedback during the meetings of the South Leura Floodplain Management Committee.

- Increasing the community’s flood awareness is critical, and education programs have been recommended as part of the plan, particularly in relation to larger floods.
- The results of the community questionnaire have shown that the majority of people believe that development should not be allowed on flood prone land or areas that pose a high hazard to people. Many responses also indicated that restrictions should be placed on new development, including ensuring that floor levels of new development are above estimated flood levels at the site. The proposed Local Floodplain Risk Management Policy covers these issues of development control.
- A more detailed analysis was requested for a number of properties along Sublime Point Road which experienced flooding damage during storm events in 2007.

Findings of the FRMS&P

- Flooding in South Leura can generally be described as ‘flash flooding’ i.e., where waters in drains, creeks and water courses rise very rapidly at areas of constriction and then fall shortly after the peak flood period.
- There have been a number of minor flood events in recent years (5–10 years ARI) that have resulted in flooding of properties, however no major flood events (50-100 year ARI) have been recorded in recent history and as such flood awareness is low.
- The flood hazard characteristics of major Blue Mountains rainfall events are predominantly high due to the steep nature of the channels and streams and the rapid rise of the flood waters.
- The land use in the catchment is predominantly residential, with a commercial centre and several resorts. The buildings impacted by flooding are generally residential.
- Flow in South Leura is predominantly conveyed by a mixture of natural channels, modified grass and concrete lined channels and culverts. In the upper areas of the catchments channels often run between houses, or along the backyards of properties. Many buildings are located in overland flow paths.

Table 1 provides a summary of the flood problem in South Leura.

Table 1: Summary of South Leura Flooding Issues

Total Number of Properties 2437	100 year ARI storm event	Probable Maximum Flood (PMF)
Number of flood liable properties	205	252
Number of properties with houses in flood path	25	51
Number of houses flooded above floor level	8	18

The Probable Maximum Flood (PMF) is the largest flood that could physically occur at the location of interest. It is an extremely rare event which is associated with a Probable Maximum Precipitation (PMP).

It should be noted that the above summary doesn't include properties at risk from nuisance flooding. Houses that have experienced nuisance flooding were identified in the community questionnaire, during the data collection stage. Nuisance flooding can include surface runoff from a neighbouring property, a property located on the low side of a road, surface runoff or overland flows from a road and flooding from blocked stormwater infrastructure. Nuisance flooding has **not** been modelled as part of the flood study; the modelling has only included creek flooding.

Floodplain Risk Management Measures Considered

The Floodplain Development Manual (April 2005) defines three ways of managing flood risk. All three types of management measures were considered in this Study, and the community consulted to identify an integrated and effective mix, appropriate for South Leura. These types of measures are:

- Flood Modification. Modifying the behaviour of the flood itself;
- Property Modification. Modifying (i.e. house raising) or purchasing existing properties and/or by imposing controls on property and infrastructure development; and
- Response Modification. Modifying the response of the population at risk to better cope with a flood event.

Flood modification measures are a common and proven means of reducing damage to existing properties at risk. Measures considered in this study included detention basins, levees, channel modifications and culvert upgrades.

Property modification measures, such as effective land use controls, are essential if the growth in future flood damage is to be contained. Measures considered in this study included adoption of Flood Planning Levels, Section 149 Certificates, Land Use Zoning changes, development controls and voluntary purchase.

Response modification measures are the most effective means of dealing with the continuing flood problem, which is the risk that remains from floods after other measures are in place. Measures considered in this study included flood education and awareness and flood prediction and warning.

Recommended Management Options

It is noted that the list of flood mitigation options in the study are recommendations made by the consultants, not a plan of future Council flood mitigation works. The Council will

consider the recommendations made in the study and use the study in planning for such works. Any actions undertaken by the Council will be dependant on funding and future Capital Works Program assessment processes. Significant grants are potentially available for flood mitigation works.

Several management options have been recommended in the study, ranging from improving flood awareness to removing the flood hazard by altering the flood water hydraulics. Recommended management options include the following.

Property modifications measures:

- Incorporate a draft local floodplain risk management policy in the Blue Mountains better living DCP;
- Carry out changes to relevant planning instruments to reflect the flood hazard;
- Adopt a 100 year ARI flood level + 500mm freeboard as the flood planning level; and
- Voluntary purchase of flood effected properties where no other options are considered viable.

Response modification measures:

- The Council to implement a flood education and awareness program;
- The Council to present the State Emergency Services with flood information presented in this report; and
- Flood modifications measures such as culvert upgrades and channel modifications at a range of locations identified in the report.

Financial Implications

It is important to note that adoption of the South Leura FRMS&P is not a commitment by the Council to undertake all the recommended flood mitigation options identified in the report. It is a management tool to identify a range of actions and rank their priority against other flood studies in the LGA including the Jamison Creek FRMS&P. The Council will only pursue priority options identified by an internal working group and then only implement the actions where external grant funding is successful and where there is sufficient matching funds available.

Under the NSW Government's Floodplain Management Program, financial assistance is provided to councils for the implementation of floodplain risk management measures. Under current arrangements, funds are provided on a 2:1 basis, i.e. councils fund one third of implementation costs. The provision of State funds is dependent on State-wide priorities and the availability of funds under the Floodplain Management Program.

Legal and Risk Management Issues

One of the main drivers behind the development of FRMS&Ps throughout the City is that the Council has a role in advising property owners, occupiers and developers on the extent and level of flooding and in making a decision with regard to an appropriate flood planning level.

The NSW Flood Prone Land Policy provides for the protection of councils, government agencies. And their staff against claims for damages resulting from their issuing advice or granting approvals on floodplains, providing such action was taken in accordance with the principles and guidelines of the *Floodplain Management Manual*.

The Council is in the process of developing a Local Floodplain Risk Management Policy but in the mean time two relevant planning documents make reference to land subject to inundation and to stormwater management. These include LEP 2005 and the Blue Mountains Better Living DCP.

Advice is to be provided on Section 149(2) Certificates for properties affected by flooding in South Leura up to the 100 year ARI flood level. The Council’s statutory responsibilities include updating Section 149 Certificates as new information becomes available. Section 149 (2) and Section 149 (5) Certificates are used to inform property owners, prospective property buyers and property developers of the flood risk associated with a particular allotment and that development may be restricted because of the likelihood of flooding or other risk.

Conclusion

The development of the Draft South Leura Floodplain Risk Management Study and Plan involved comprehensive research, field investigation and stakeholder consultation. The plan has sought to improve management of the identified South Leura and Katoomba catchments with regard to flooding, alleviate the Council’s flood liability as well as fulfil the Council’s legal requirement as instructed in the *NSW Government’s Floodplain Management Manual*.

It is recommended that the Council endorse the Draft South Leura Floodplain Risk Management Study and Plan for public exhibition for a period of 6 weeks.

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