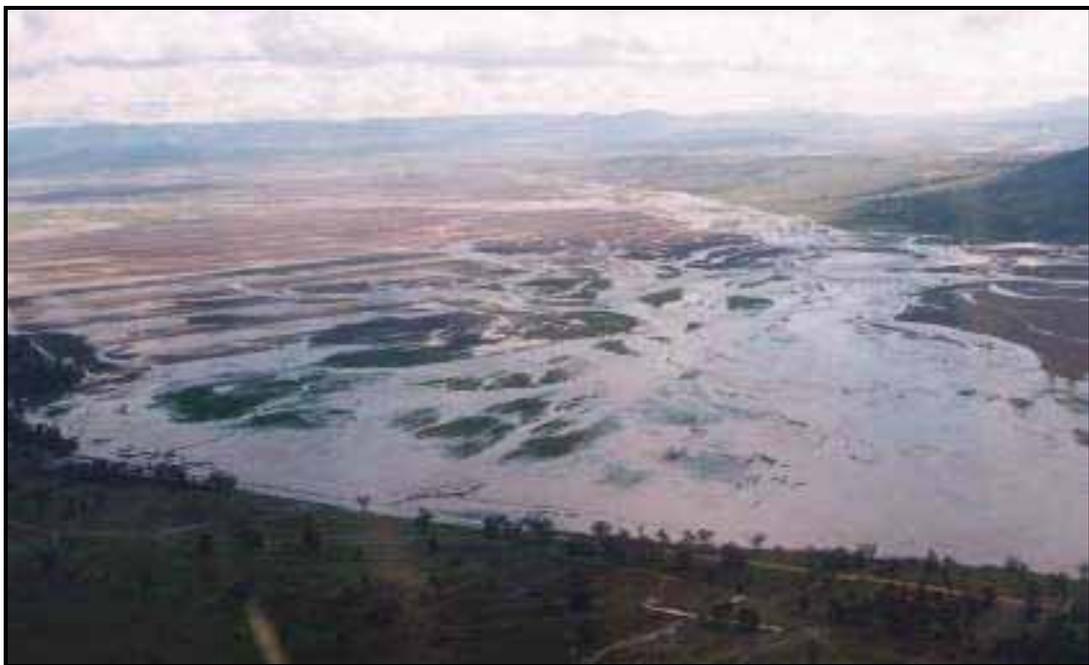


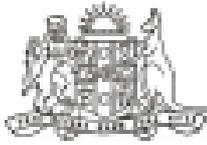
Department of  
**Infrastructure, Planning and Natural Resources**

# **BLACKVILLE FLOODPLAIN MANAGEMENT PLAN**



Final Report  
October 2003

**Department of Infrastructure, Planning and  
Natural Resource**



Department of  
**Infrastructure, Planning and Natural Resources**

## **BLACKVILLE FLOODPLAIN MANAGEMENT PLAN**

October 2003

**Prepared for:**

Department of Infrastructure, Planning and Natural Resources  
Barwon Regional Office  
Level 3, Noel Park House  
155-157 Marius Street  
Tamworth NSW 2340

**Prepared by:**

**Perrens Consultants Pty Ltd**  
PO Box 5215  
West Chatswood NSW 1515

**Gunnedah Management Consultants**  
PO Box 180  
Gunnedah NSW 2380

**January 2001**

**ISBN 0 7347 5314 4**

**Department of Infrastructure, Planning and  
Natural Resources**

## TABLE OF CONTENTS

	Page No.
<b>PREAMBLE.....</b>	<b>1</b>
<b>1.0 FLOODPLAIN MANAGEMENT PLAN.....</b>	<b>3</b>
1.1. Objective of the Plan.....	3
1.2. Priority Issues.....	3
1.3. Management Plan.....	4
1.4. Plan Implementation.....	12
1.4.1. Responsibility.....	12
1.4.2. Licensing and Legislative Requirements.....	12
1.4.3. Licensing Procedures and Requirements.....	13
1.4.4. Funding and Cost Sharing Arrangements.....	17
1.4.5. Education and Extension.....	17

### FIGURES

Figure 1 – Blackville Floodplain Management Study Area.....	2
Figure 2 – Proposed Floodplain Management Plan Actions.....	11
Figure 3 – Identified Major Flow Paths.....	16
Figure 4 – Location of Surveyed Sections within Study Area.....	23

### TABLES

Table 1 - Floodplain Management Plan Actions for the Confined Floodplain Zone.....	5
Table 2 - Floodplain Management Plan Actions for the Blackville Alluvial Fan Zone .....	7
Table 3 - Floodplain Management Plan Actions for the Upper Catchment Zone.....	9
Table 4 - Existing Levee Structures Proposed for Licensing .....	14
Table 5 - Existing Banks and Waterway/Floodway Structures Proposed for Licensing .....	14

### ANNEXURES

ANNEXURE A – DESIGNATED 10 YEAR ARI FLOOD LEVELS.....	19
ANNEXURE B – DESIGNATED 10 YEAR ARI FLOOD FLOWS.....	20

## **PREAMBLE**

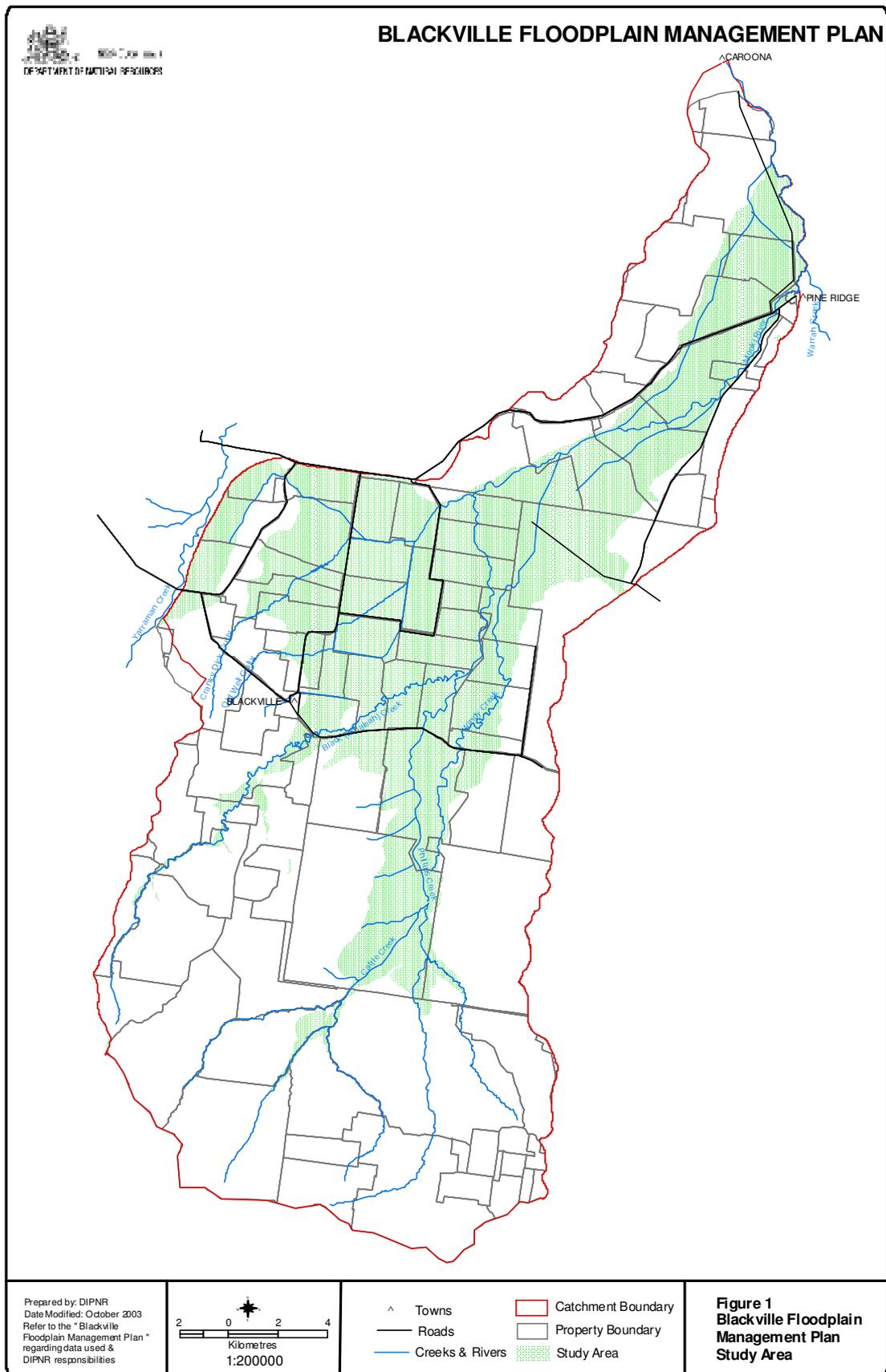
The Blackville Floodplain Management Plan was prepared by Perrens Consultants in conjunction with the local community and the Department of Land and Water Conservation, now the Department of Infrastructure, Planning and Natural Resources (DPINR), with funding provided by the Natural Heritage Trust and the NSW Government. As illustrated on Figure 1, the Blackville Floodplain Management Plan is concerned with the floodplain of the Mooki River upstream of Caroona.

The Mooki River catchment in the Blackville study area has undergone changes to the natural drainage system as a result of past land management practices. These changes have caused increased erosion in the upstream areas and have impacted on downstream landholders that have not been able to pass on the additional flow or sediment that they receive because of the confined nature of the floodplain. The floodplain management plan provides the framework for resolving these issues. Implementation of the plan will provide the community with greater security against flood risk and will allow for the sustainable management of riparian and floodplain ecosystems.

The plan has been prepared in accordance with processes outlined in the NSW Government Floodplain Management Manual (2001) which supports the NSW Flood Prone Land Policy. The Blackville Rural Floodplain Management Committee, which consists of landholders, representatives of local interest groups and agency representatives, has overseen the development of the plan. Plan development has progressed through three key stages, with the following aims:

- Flood Study - defining the nature and extent of flooding and flood-related ecological and cultural issues;
- Floodplain Management Study – evaluating management options to address existing and future flood risk taking into account social, ecological and economic factors;
- Floodplain Management Plan – adopting community-owned strategies to manage flood risk and to support the natural functions of the floodplain environment.

The plan outlines strategies for the management of flood control works, which include levees and other works that can affect the distribution of floodwaters. The plan has been adopted under provisions in Part 8 of the Water Act and must be taken into account by the DPINR when assessing approval applications for flood control works under that Act, or its forthcoming replacement, the Water Management Act. It specifies modifications to some existing flood control works and outlines strategies for the management of future works on the floodplain. As well, the plan recommends a number of land management practices that will assist in achieving sustainable productive use of the floodplain. These practices, which will be promoted through the Blackville Landcare group, include the establishment and maintenance of vegetative cover on the floodplain and in riparian zones, stabilisation of creek and river banks, establishment of riparian buffer zones and the control of sedimentation and flood debris.



## **1.0 FLOODPLAIN MANAGEMENT PLAN**

This plan is concerned primarily with the land of less than 2% slope in the catchment of the Mooki River upstream of Carroona which has been designated as floodplain under Part 8 of the *Water Act*. The plan recognises, however that there is a strong interconnection between the management of the floodplain land and conditions within the catchment draining onto the floodplain. For planning purposes, this Plan recognises three broad classes of land within the catchment:

- The upper catchment with slopes greater than 2%.
- The Blackville alluvial fan generally comprising floodplain land upstream of “Hillview”.
- The confined floodplain zone between “Hillview” and Carroona.

### **1.1. Objective of the Plan**

The overall objective of this Floodplain Management Plan is to minimise the impact of flooding on the community. The plan recognises that complete elimination of flood losses is neither practicable nor economically feasible. Accordingly, the specific objectives of the Plan are to:

- minimise the reduction of yield or loss of a crop because of inundation or waterlogging;
- minimise the lost opportunity to carry out agricultural activities at an optimal time because of waterlogged land;
- minimise erosion of topsoil and the consequent loss of productive potential;
- minimise erosion of gullies and creeks and rivers with the consequent loss of productive land;
- minimise direct flood damages to homes, machinery and equipment;
- minimise damage to infrastructure such as roads and telephone services; and
- minimise disruption to farm business, schooling and access to medical services.

### **1.2. Priority Issues**

The priorities for reducing the impacts of flooding within the study area have been identified by the Floodplain Management Committee as:

#### **1. Confined Floodplain Zone**

- Increased flow on western side of floodplain. Possible redirection of flow.
- Flow redistribution (in PP Board area) on western side including man-made embankments / siltation.
- Buffer zones on river banks – non existent in some locations.
- Breakout points.
- Flood debris causing diversions.

## 2. Alluvial Fan Zone

- Gully erosion particularly in Cranky Dick, Old Well, and drainage channels.
- Effects of contour banks in transition zone contributing to erosion.
- Stabilisation of gullies with appropriate grasses, not weeds.
- Build up of Johnsons Grass at junction of Black and Phillips Creeks, leading to breakouts.
- Lack of buffer zones.
- Siltation on lower drain as a result of gully erosion.

## 3. Upper Catchment

- Gully and streambank erosion, Phillips Creek.
- Erosion due to farming close to the creek.
- Limited capacity in primary channel – lack of vegetation management in beds and on banks - breakouts / overtopping.
- Management of properties to cater for climatic variability.

### 1.3. Management Plan

This Floodplain Management Plan has been developed on the basis of detailed technical analysis of flood flows within the study area and conforms to the NSW Government's draft "Floodplain Development Manual". The draft Plan has been exhibited for comment by the community and other stakeholders and discussed at a public meeting.

The key elements of the plan are shown on Figure 2 and are described in further detail in Tables 1 to 3. The actions identified in the Plan fall into two broad categories:

- Recommended land management practices that will assist in the achievement of sustainable productive land use that minimises impacts on downstream landholders. The adoption of these practices should be encouraged by the relevant Landcare group and will be encouraged by State Government agencies. Whilst these practices will be strongly encouraged, their adoption is at the discretion of the individual landholder.
- Existing and future construction works that will require licensing under either the Rivers and Foreshores Improvement Act or Part 8 of the Water Act. All existing unlicensed works (modified as necessary to comply with the requirements of this Plan) will require licensing. Details of the formal procedures for licensing of works are set out in 1.4.3.

Any levees on the floodplain must allow overtopping in a 10 year average recurrence interval (ARI) flood and to allow free passage (ie no change in natural ground level) at all major inflow and outflow points. The location of designated major inflow and outflow points along the Mooki River and the main floodrunners are identified in Annexure B.

Within the area covered by the Blackville residual flow drain scheme, a number of possible improvements are identified to stabilise existing waterways or channels. Any new waterways are to be constructed to carry a 2 year ARI flow and to allow excess flow to disperse over the floodplain.

Table 1 - Floodplain Management Plan Actions for the Confined Floodplain Zone

Issue	Solutions	Priority <sup>1</sup>	Recommended Actions	Responsibility
<b>1. Crop losses and damage</b>	<b>Minimise impacts of flooding:</b>			
	Reduce risk exposure	-	Opportunity cropping, choice of crop & timing to recognise flood risk in terms of: <ul style="list-style-type: none"> <li>▪ Flood liability of the land,</li> <li>▪ Increased risk of flooding in summer,</li> <li>▪ Increased risk of flooding in a “La Nina” event.</li> </ul>	Individual landholders.
	Allow the orderly passage of flood water (avoid damages)	High	<ul style="list-style-type: none"> <li>▪ Maintain floodways and riparian buffer zones with permanent grass cover – no cropping.</li> <li>▪ Remove fences where practical.</li> <li>▪ Relocate tracks &amp; earthworks to avoid unnecessary concentration/redirection of flow.</li> <li>▪ Use minimum/zero tillage.</li> <li>▪ Consider flow direction when orientating crop rows.</li> </ul>	Individual landholders.
	<p>Designate floodway along main river and along the western “flood runner”.</p> <ol style="list-style-type: none"> <li>1. All floodways to conform to the following requirements: <ul style="list-style-type: none"> <li>▪ Levee height must allow overtopping in a 10 year ARI flood.</li> <li>▪ Natural surface must be retained at major breakouts (shown on Figure 3).</li> <li>▪ Flow location, depth or velocity across property boundaries must not alter significantly from natural conditions.</li> <li>▪ Consistency of levee alignment adjacent to property boundaries is the responsibility of neighbouring landholders.</li> </ul> </li> <li>2. Levees permitted along the main river provided they meet the following guidelines: <ul style="list-style-type: none"> <li>▪ Set back a minimum of 100 m from top of river bank,</li> <li>▪ Zone between riverbank and levee to be maintained in permanent grass cover.</li> </ul> </li> <li>3. Levees permitted along the eastern side of the western flood runner provided they meet the following guidelines: <ul style="list-style-type: none"> <li>▪ Set back a minimum of 100 m from centre of “flood runner”,</li> <li>▪ Waterway to be maintained under permanent grass cover for a width of 100 m either side of the centre line of the flood runner</li> </ul> </li> </ol>	Very High	<ul style="list-style-type: none"> <li>▪ Within six months of adoption of the Floodplain Management Plan, all existing levees to be modified to conform with requirements set out in the adjacent “Solutions” column.</li> <li>▪ Once modified, details of all existing levees must be submitted to DIPNR for approval.</li> <li>▪ Subject to prior approval by DIPNR, new levees may be constructed at landholder’s discretion provided they conform with the overall requirements of the Floodplain Management Plan and the guidelines set out in the adjacent “Solutions” column.</li> </ul>	<p>All existing levees to be modified as necessary at landholder’s expense.</p> <p>Neighbouring landholders to agree to location of any new levees and timing of construction.</p> <p>Construction by individual landholder concerned after approval by DIPNR.</p>

Issue	Solutions	Priority	Recommended Actions	Responsibility
<b>2. Flow redistribution on road reserve near “Mooki Springs”</b>	<b>Allow free flow of floodwater:</b>			
	Remove significant impediments to orderly flood flow across the floodplain	High	<ul style="list-style-type: none"> <li>▪ Remove permanent fences across the floodplain.</li> <li>▪ Annual grass slashing on the TSR reserve area in December.</li> <li>▪ Remove silt beside Pine Ridge road in a manner that minimises risk of erosion in the event of a flood.</li> <li>▪ Continue erosion protection downstream of road.</li> </ul>	Council & landholders. PP Board/Council. Floodplain Management Committee. Council.
<b>3. Other damage caused by flooding</b>	<b>Minimise factors that cause damage</b>			
<ul style="list-style-type: none"> <li>▪ <b>Erosion</b></li> </ul>	Maintain vegetative cover on floodways and floodplain		<ul style="list-style-type: none"> <li>▪ Permanent 100% grass and shrub cover on floodways and riparian zone.</li> <li>▪ Minimum 20 m wide grassed riparian zone with 50 m at breakout/inflow points.</li> <li>▪ 70% vegetation cover on floodplain.</li> <li>▪ Minimum or zero tillage on floodplain.</li> <li>▪ Opportunity cropping to control deep drainage of moisture.</li> <li>▪ Higher level of erosion protection required downstream of Pine Ridge road.</li> </ul>	Individual landholders.
<ul style="list-style-type: none"> <li>▪ <b>Sedimentation</b></li> </ul>	Maintain vegetative cover on floodplain  Stabilise creek and river banks		<ul style="list-style-type: none"> <li>▪ 70% vegetation cover on floodplain.</li> <li>▪ Permanent grass cover on floodways and riparian zone.</li> <li>▪ Also see “Riparian Zone” actions.</li> </ul>	Individual landholders.
<ul style="list-style-type: none"> <li>▪ <b>Flood debris</b></li> </ul>	Minimise flood debris		<ul style="list-style-type: none"> <li>▪ Leave rooted stubble standing.</li> <li>▪ Minimise length of chopped stubble.</li> </ul>	Individual landholders.
<ul style="list-style-type: none"> <li>▪ <b>Groundwater Recharge</b></li> </ul>	Control soil moisture		<ul style="list-style-type: none"> <li>▪ Opportunity cropping.</li> <li>▪ Maintain minimum 70% ground cover.</li> </ul>	Individual landholders.
<b>4. Riparian Zone erosion, bank collapse, breakout points</b>	<b>Establish adequate width riparian zone and manage vegetation appropriately</b>			
	Establish adequate riparian buffer zone with permanent vegetation along rivers and creeks: <ul style="list-style-type: none"> <li>▪ 20 m minimum</li> <li>▪ 50 m minimum at breakout and inflow points</li> </ul>		<ul style="list-style-type: none"> <li>▪ Implement recommendations of “<i>Rivercare Plan</i>” (1996).</li> <li>▪ Establish permanent grass cover on required width of riparian zone.</li> <li>▪ Control weeds in riparian zone.</li> <li>▪ Control stock access river channel to prevent development of permanent watering points. Use rotational/block grazing.</li> </ul>	Individual landholders.
	Bank protection works at Pine Ridge		<ul style="list-style-type: none"> <li>▪ Design according to principles in “<i>River Planning Resource Book</i>” (DLWC 1997).</li> </ul>	Council.

Note 1: Priority set only for highest priority items

Table 2 - Floodplain Management Plan Actions for the Blackville Alluvial Fan Zone

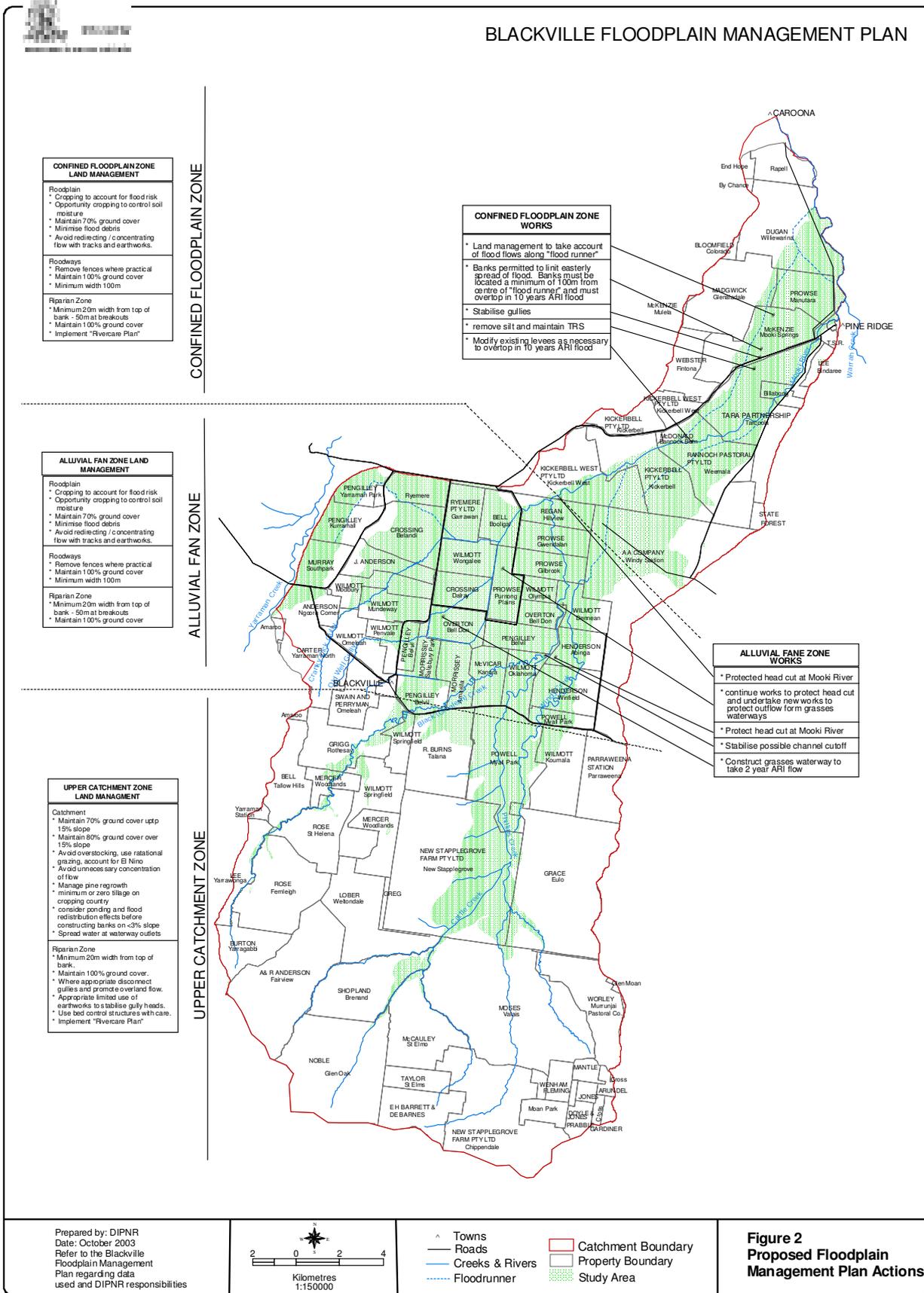
Issue	Solutions	Priority	Recommended Actions	Responsibility
<b>1. Crop losses and damage</b>	<b>Minimise impacts of flooding:</b>			
	Reduce risk exposure.		Opportunity cropping, choice of crop and timing to recognise flood risk in terms of: <ul style="list-style-type: none"> <li>▪ Flood liability of the land;</li> <li>▪ Increased of risk of flooding in summer;</li> <li>▪ Increased of risk of flooding in a “La Nina” event.</li> </ul>	Individual landholders.
	Allow the orderly passage of flood water (avoid damages).	Very High	<ul style="list-style-type: none"> <li>▪ Maintain floodways and riparian buffer zones with permanent dense grass cover – no cropping.</li> <li>▪ Remove fences where practical.</li> <li>▪ Relocate tracks &amp; earthworks to avoid unnecessary concentration and redirection of flow.</li> <li>▪ Use minimum/zero tillage.</li> <li>▪ Consider direction of flood flow when orientating crop rows.</li> </ul>	Individual landholders.
<b>2. Stabilise residual flow drains</b>	<b>Divert water to new waterways or stabilise bed and banks:</b>			
	Construct new grassed waterway on “Bell Don”	High	<ul style="list-style-type: none"> <li>▪ Design waterway to carry 2 year ARI flow.</li> <li>▪ Allow excess flow to overflow waterway.</li> <li>▪ Establish full grass cover before diverting water to waterway.</li> <li>▪ Divert water into waterway by means of dam across existing drainage gully.</li> </ul>	Individual landholders.
	Channel stabilisation: <ul style="list-style-type: none"> <li>• Bed control at critical points</li> <li>• Revegetation of channels</li> </ul>		<ul style="list-style-type: none"> <li>▪ Bed control structures: <ul style="list-style-type: none"> <li>– Repair tyre structure on “Wongalee” - as necessary.</li> <li>– Bed control structure (eg ramp) at end of waterway on “Delray”.</li> </ul> </li> <li>▪ Establish vegetation on banks and bed of drains.</li> </ul>	Landcare funding.  Individual landholders.
	Control flows and sedimentation between the end of the constructed drains and the Mooki River		<ul style="list-style-type: none"> <li>▪ Possible compensation for sediment from Blackville drains.</li> <li>▪ Stabilise outlet to Mooki River (see below).</li> </ul>	Landcare.  Landcare.
<b>3. Control flows from contour banks</b>	<b>Disperse flow at waterway outlets:</b>		<ul style="list-style-type: none"> <li>▪ Construct waterway outlets with “level spreader” to ensure uniform overland flow.</li> <li>▪ If waterway discharges into a creek, ensure that bank is adequately protected.</li> </ul>	Individual landholders.

Issue	Solutions	Priority	Recommended Actions	Responsibility
<b>4. Other damage caused by flooding</b>	<b>Minimise factors that cause damage</b>			
▪ <b>Erosion</b>	Maintain vegetative cover on floodways and floodplain.	Medium High	<ul style="list-style-type: none"> <li>▪ Permanent 100% grass and shrub cover on floodways and riparian zone.</li> <li>▪ Minimum 20 m wide grassed riparian zone with 50 m at breakout/inflow points.</li> <li>▪ 70% vegetation cover on floodplain.</li> <li>▪ Minimum or zero tillage on floodplain.</li> <li>▪ Opportunity cropping to control deep drainage of moisture.</li> </ul>	Individual landholders.
▪ <b>Sedimentation</b>	Maintain vegetative cover on floodplain. Stabilise creek and river banks.		<ul style="list-style-type: none"> <li>▪ 70% vegetation cover on floodplain.</li> <li>▪ Permanent grass cover on floodways and riparian zone.</li> <li>▪ Also see “Riparian Zone” actions.</li> </ul>	Individual landholders.
▪ <b>Flood debris</b>	Minimise flood debris.		<ul style="list-style-type: none"> <li>▪ Leave rooted stubble standing.</li> <li>▪ Minimise length of chopped stubble.</li> </ul>	Individual landholders.
▪ <b>Groundwater Recharge</b>	Control soil moisture.		<ul style="list-style-type: none"> <li>▪ Opportunity cropping.</li> <li>▪ Maintain minimum 70% ground cover.</li> </ul>	Individual landholders.
<b>5. Riparian Zone erosion, bank collapse, breakout points</b>	<b>Establish adequate width riparian zone and manage vegetation appropriately</b>			
	Establish adequate riparian buffer zone along rivers and creeks: <ul style="list-style-type: none"> <li>▪ 20 m minimum;</li> <li>▪ up to 50 m at breakout and inflow points;</li> </ul>	Medium High	<ul style="list-style-type: none"> <li>▪ Implement recommendations of “<i>Rivercare Plan</i>” (1996).</li> <li>▪ Establish permanent vegetation on required width of riparian zone.</li> <li>▪ Control weeds in riparian zone, slash if necessary.</li> <li>▪ Control stock access river channel to prevent development of permanent watering points. Use rotational/block grazing.</li> </ul>	Individual landholders.
	Works to prevent potential breakout near junction of Black Creek and Phillips Creek	Very High	<ul style="list-style-type: none"> <li>▪ Bank stabilisation and riparian zone vegetation in accordance with “<i>River Plan</i>” (1996).</li> </ul>	Landcare.
<b>6. Bed stability in rivers and creeks</b>	<b>Works to stabilise bed levels at critical locations</b>			
	<ul style="list-style-type: none"> <li>▪ Bed control ramp at mouth of Black Creek</li> <li>▪ Bed control ramp at outlet from residual flow drains to Mooki River</li> </ul>	Medium	<ul style="list-style-type: none"> <li>▪ Design structures for high return period flow (20+ years).</li> <li>▪ Establish and maintain good bank vegetation in the vicinity.</li> <li>▪ Create and manage adequate riparian zone (50 m wide near Black Creek/Phillips Creek junction).</li> <li>▪ See also 5. “Riparian Zone” actions.</li> </ul>	Landcare.

Table 3 - Floodplain Management Plan Actions for the Upper Catchment Zone

Issue	Solutions	Priority	Recommended Actions	Responsibility
<b>1. Increased flood flows</b>	<b>Manage land use to control runoff:</b>			
	Maintain healthy ground cover	Very High	<ul style="list-style-type: none"> <li>▪ Maintain 70% ground cover on slopes up to 15%.</li> <li>▪ Maintain 80% ground cover on slopes above 15%.</li> <li>▪ Stocking strategy to take account of climatic variability – SOI data is available.</li> <li>▪ Avoid overstocking- use rotational grazing.</li> <li>▪ Manage pine regrowth according to State Forest recommendations (1997).</li> </ul>	Individual landholders.
	Allow the orderly passage of flood water (avoid damages)		<ul style="list-style-type: none"> <li>▪ Relocate tracks &amp; earthworks to avoid concentration and redirection of flow. (This refers to informal earthworks rather than formal designed banks and waterways).</li> </ul>	Individual landholders.
<b>2. Erosion from cultivated land</b>	<b>Minimise erosion</b>			
	Maintain vegetative cover	High	<ul style="list-style-type: none"> <li>▪ Minimum 20 m wide grassed riparian zone between creek and cultivation.</li> <li>▪ Permanent 100% grass and shrub cover on riparian zone.</li> <li>▪ Minimum or zero tillage preferred.</li> <li>▪ Opportunity cropping to control deep drainage of moisture.</li> </ul>	Individual landholders.
<b>3. Erosion from grazing land</b>	<b>Minimise erosion</b>			
	Maintain healthy ground cover		<ul style="list-style-type: none"> <li>▪ Follow recommendations for “Increased flood flows” – see 1. above.</li> </ul>	Individual landholders.
	Prevent concentration of water		<ul style="list-style-type: none"> <li>▪ Relocate tracks &amp; earthworks to avoid unnecessary concentration and redirection of flow.</li> <li>▪ Remove or re-align trees and logs in creeks to avoid critical erosion where necessary.</li> </ul>	Individual landholders.
	Stabilise creek channels		<ul style="list-style-type: none"> <li>▪ Bed control structures used with care.</li> <li>▪ Implement recommendations of “<i>River Plan</i>” (1999) for Black Creek.</li> </ul>	Individual landholders.
	Earthworks to minimise the worsening of gully growth		<ul style="list-style-type: none"> <li>▪ Appropriate limited use of earthworks to stabilise gully heads.</li> <li>▪ Where appropriate, disconnect gullies and promote overland flow.</li> <li>▪ see also 6. “Riparian Zone” actions below.</li> </ul>	Individual landholders.

Issue	Solutions	Priority	Recommended Actions	Responsibility
<b>4. Control flows from contour banks</b>	<b>Appropriate use and construction of banks and waterways</b>			
	Use banks and waterways as necessary to control erosion particularly on cultivated land.  Design of banks on low slopes (less than 3%) should consider possible effects of ponding of runoff or diversion of flood flows that escape from adjoining drainage lines.		Contour bank systems to be based on an integrated farm plan prepared with assistance from DIPNR or others with appropriate expertise such as a registered farm planner.	Individual landholders.  Promotion of farm plans by Landcare.
	Disperse flow at waterway outlets.		<ul style="list-style-type: none"> <li>▪ Construct waterway outlets with “level spreaders” to ensure uniform overland flow.</li> <li>▪ If waterway discharges into a creek, ensure that bank is adequately protected.</li> </ul>	Individual landholders.
<b>5. Other damage caused by flooding:</b>	<b>Minimise factors that cause damage</b>			
<ul style="list-style-type: none"> <li>▪ <b>Erosion</b></li> </ul>	Maintain vegetative cover on creek banks and riparian zone		<ul style="list-style-type: none"> <li>▪ Permanent 100% grass and shrub cover on banks riparian zone</li> <li>▪ Maintain minimum vegetative cover – see 1. “Runoff Control” above</li> <li>▪ see also 6. “Riparian Zone” recommendations</li> </ul>	Individual landholders.
<ul style="list-style-type: none"> <li>▪ <b>Flood Debris</b></li> </ul>	Minimise flood debris.		<ul style="list-style-type: none"> <li>▪ Remove fallen timber from creek banks and riparian zone where necessary to minimise critical erosion.</li> </ul>	Individual landholders.
<ul style="list-style-type: none"> <li>▪ <b>Groundwater Recharge</b></li> </ul>	Control soil moisture.		<ul style="list-style-type: none"> <li>▪ Opportunity cropping.</li> <li>▪ Maintain minimum 70% ground cover.</li> </ul>	Individual landholders.
<b>6. Riparian Zone erosion, bank collapse, breakout points</b>	<b>Establish adequate width riparian zone and manage vegetation appropriately</b>			
	Establish adequate riparian buffer zone along rivers and creeks: <ul style="list-style-type: none"> <li>▪ 6 m minimum for grazing land;</li> <li>▪ 20 m minimum for cropping;</li> <li>▪ Up to 50 m at breakout and inflow points.</li> </ul>		<ul style="list-style-type: none"> <li>▪ Establish permanent grass cover on required width of riparian zone.</li> <li>▪ Manage grazing to control weeds in riparian zone.</li> <li>▪ Control stock access to creeks to prevent development of permanent watering points. Use rotational/block grazing.</li> </ul>	Individual landholders.
<b>7. Bed stability in rivers/creeks</b>	<b>Works to stabilise bed levels at critical locations</b>			
			<ul style="list-style-type: none"> <li>▪ Bed control structures used with care.</li> <li>▪ Implement recommendations of “River Plan” (1999) for Black Creek.</li> </ul>	Individual landholders.



## 1.4. Plan Implementation

The Floodplain Management Committee has adopted an integrated and whole of community approach to the implementation of the Floodplain Management Plan. The Committee considers that co-ordinated implementation will allow the benefits of the recommended management options to be maximised and flow from one property to the next. This will minimise the risk of one landholder's good management being negated by a neighbour's inactivity.

The Floodplain Management Plan is one of a set of complementary strategies being developed for the Liverpool Plains, the Namoi Valley and, ultimately, the Murray Darling Basin. The broader perspective established by these plans not only acknowledges the practical requirements for natural resource management but, in recognising the links between different parts of the larger catchment, provides opportunities to benefit from those links.

Other strategic plans are not only looking at on-ground management options but are also identifying and trailing processes whereby the costs of management and land use change can be equitably distributed among the beneficiaries of that change. These beneficiaries could be quite distant from Blackville and, in the next few years, it will be important to establish what price they are prepared to pay for, say, better quality water delivered, for example, through riparian vegetation and well managed, grassed waterways.

### 1.4.1. Responsibility

The agreed responsibilities for action to implement this plan are:

- **Blackville Landcare Group:** – Promotion of appropriate land use management and encouraging the preparation of integrated management plans for each farm. These plans should:
  - be prepared by a registered farm planner;
  - define the physical characteristics of the land,
  - identify appropriate land management (in keeping riparian zone and floodplain management requirements and natural resource management objectives);
  - define the layout and design criteria used for all soil conservation works.
- **Blackville Floodplain Management Committee** – Oversight of the implementation of works necessary to ensure that orderly progression of floodwater through the designated floodplain area. These works include stabilisation of the Blackville residual flow drains, construction of any new waterways, removal or construction of levees, bed stabilisation works, stabilisation of the main river channels and silt removal.
- **Department of Infrastructure, Planning and Natural Resources:** - Oversight and technical assistance for proposals for works within the rivers, creeks, channels or floodplain. Review and approval (if warranted) of proposals for works that conform with the requirements of the Floodplain Management Plan.
- **Pastures Protection Board:** - Management of the stock route beside the Pine Ridge Road.
- **Council:** - Road level adjustments (if required)

### 1.4.2. Licensing and Legislative Requirements

Under the recently amended Part 8 of the *Water Act*, the Floodplain Management Committee is responsible for monitoring the implementation of the Floodplain Management Plan.

The implementation of floodplain management plans is regulated by Part 8 of the *Water Act*. The *Water Act* is currently being replaced by the *Water Management Act* (2000). The new Act incorporates the provisions of a number of different former acts that relate to aspects of water management in NSW. These include the *Water Administration Act* (1986), the *Drainage Act* (1939), the *Irrigation Act* (1912), the *Private Irrigation Districts Act* (1973) and the *Rivers and Foreshores Improvement Act* (1948). In the main, the provisions of these acts will be incorporated as regulations under the *Water Management Act*. The new act also operates in concert with other statutes such as the *Environmental Planning and Assessment Act*.

The *Water Act* had provisions for regulating passage of flood flows on the floodplain. These provisions are supplemented, to some extent, in the *Rivers and Foreshores Improvement Act*. In future, works that divert floodwaters, such as levees, will require an approval under the *Water Management Act*. Likewise, works that aim to reduce future flood damage or restore damage from past floods will also require an approval. The act also includes powers to require alterations to be made to such structures to achieve environmental outcomes.

Part 8 of the *Water Act* as amended by the *Water Amendment (Flood Control Works) Act (1999)* provided for the regulation of flood control works and deals with the process of approving any works which may prevent or mitigate the effect of floods and which affect the flow of water to or from a river or lake. These provisions have now been incorporated into the *Water Management Act (2000)*. Under the new legislation, when flood control works are consistent with a local Floodplain Management Plan prepared in accordance with the relevant floodplain development manual, they can be approved without the application being advertised or objections being taken. Where there is no Floodplain Management Plan or the proposal does not conform with a plan, the application will need to be advertised. If an objection is received as a result of the advertisement, the applicant will be advised of the grounds of the objection. If the objection cannot be resolved with the applicant, compulsory mediation will be required. The DIPNR may require the person who made the objection to provide additional information. This information must be provided within the time specified by the DIPNR. Failure to do so may result in the DIPNR rejecting the objection.

In implementing the Floodplain Management Plan, other statutory plans such as the Namoi River Management Plan, the Liverpool Plains Regional Vegetation Management Plan and local government Local Environmental Plans will also need to be considered. When completed, the first two of these plans will be available from the DIPNR.

#### 1.4.3. Licensing Procedures and Requirements

The main requirements for implementing aspects of the Floodplain Management Plan relating to construction works are set out below. Basically, the Plan:

- provides a mechanism for licensing existing works that meet the requirements set out in the Plan. (Some existing works require modification prior to licensing);
- allows for the construction of levees along the eastern side of the western flood runner at the individual landholder's discretion, subject to meeting requirements set out in the Plan; and
- provides guidelines for other proposals not specifically identified in the Plan. These guidelines include the location and crest level of levees, and provisions for orderly conveyance at major inflow and outflow points.

**Existing Levees and Floodways** - all existing levees and floodways that comply with the Floodplain Management Plan require approval and licensing by the DIPNR. The known levees and floodways identified in Table 5 are recommended for approval by the Department subject to the landholder:

- Submitting a completed application form with the necessary supporting details to DIPNR;
- Undertaking any necessary modifications to levee height identified in Table 4 or to waterways as identified in Table 5;
- Demonstrating that the works comply with the relevant requirements of Table 1 and Table 2 in terms of maintaining natural levels at inflow/outflow points and maintenance of grass cover on floodways; and
- Providing a survey plan showing details of the location of the levee and confirming that the crest level of the levee complies with the requirements.

This Floodplain Management Plan recognises that although, for historic reasons, some existing levees may not meet the requirements for setback from the river (100 m from the bank), these existing levees may be deemed to comply with the requirements of the Plan.

Table 4 - Existing Levee Structures Proposed for Licensing

Structure	Location	Permitted Actions	Required Actions
Irrigation Banks	"Williewarina"	Nil	Nil
Levee	"Mooki Springs" approx 200 m east of Western Floodrunner	Nil	Adjust levee level if necessary and confirm crest level is less than 10 year ARI flood
Levee	"Tarcoola" on west bank of Mooki River	Nil	Adjust levee level if necessary and confirm crest level is less than 10 year ARI flood
Levee	"Weemala" on west bank of Mooki River	Repair breaches in levee	Adjust levee level if necessary and confirm crest level is less than 10 year ARI flood
Levee	"Weemala" on east bank of Mooki River	Repair breaches in levee	<ol style="list-style-type: none"> <li>1. Leave existing opening in levee used for vehicle access</li> <li>2. Reduce level of levee for 50 m downstream of vehicle access opening to 5 year ARI level (500 mm less than 10 year ARI level).</li> <li>3. Remove levee to the north of the section defined in 2 above.</li> <li>4. For levees to south of vehicle access, repair and adjust levee level as necessary to be less than 10 year ARI.</li> </ol>
Levee	"Kickerbell" on east bank of Mooki River	Nil	Adjust if necessary and confirm crest level is less than 10 year ARI flood.

Table 5 - Existing Banks and Waterway/Floodway Structures Proposed for Licensing

Structure	Location	Permitted Actions	Required Actions
Waterway	"Booligal"	Nil	Restore/maintain vegetation cover
Waterway	"Garrawah"	Nil	Restore/maintain vegetation cover
Levee	"Garrawah"	Nil	Nil
Waterway	"Wongalee" and "Pumong Plains"	Nil	Restore/maintain vegetation cover
Bed control structure	"Wongalee" and "Pumong Plains"	Repair as necessary	Nil
Waterway	"Jamina"	Nil	Restore/maintain vegetation cover
Bank and one sided waterway	Quirindi Shire Council – Western side of Blackville Road	Nil	Restore/maintain vegetation cover

**Existing Soil Conservation Works** - all existing soil conservation works located within the floodplain zone (as defined in Figure 2) require approval and licensing by the DIPNR under Part 8 on the *Water Act*. All existing works are deemed to comply with the Plan and may be licensed by the Department subject to:

- Submitting a completed application form with the necessary supporting details;
- Providing a plan prepared by a registered farm planner showing the location and dimensions of all soil conservation banks and waterways; and
- Providing a copy of design notes prepared by DIPNR or a registered farm planner setting out the basis for the bank spacing and hydraulic design of banks, waterways and control structures.

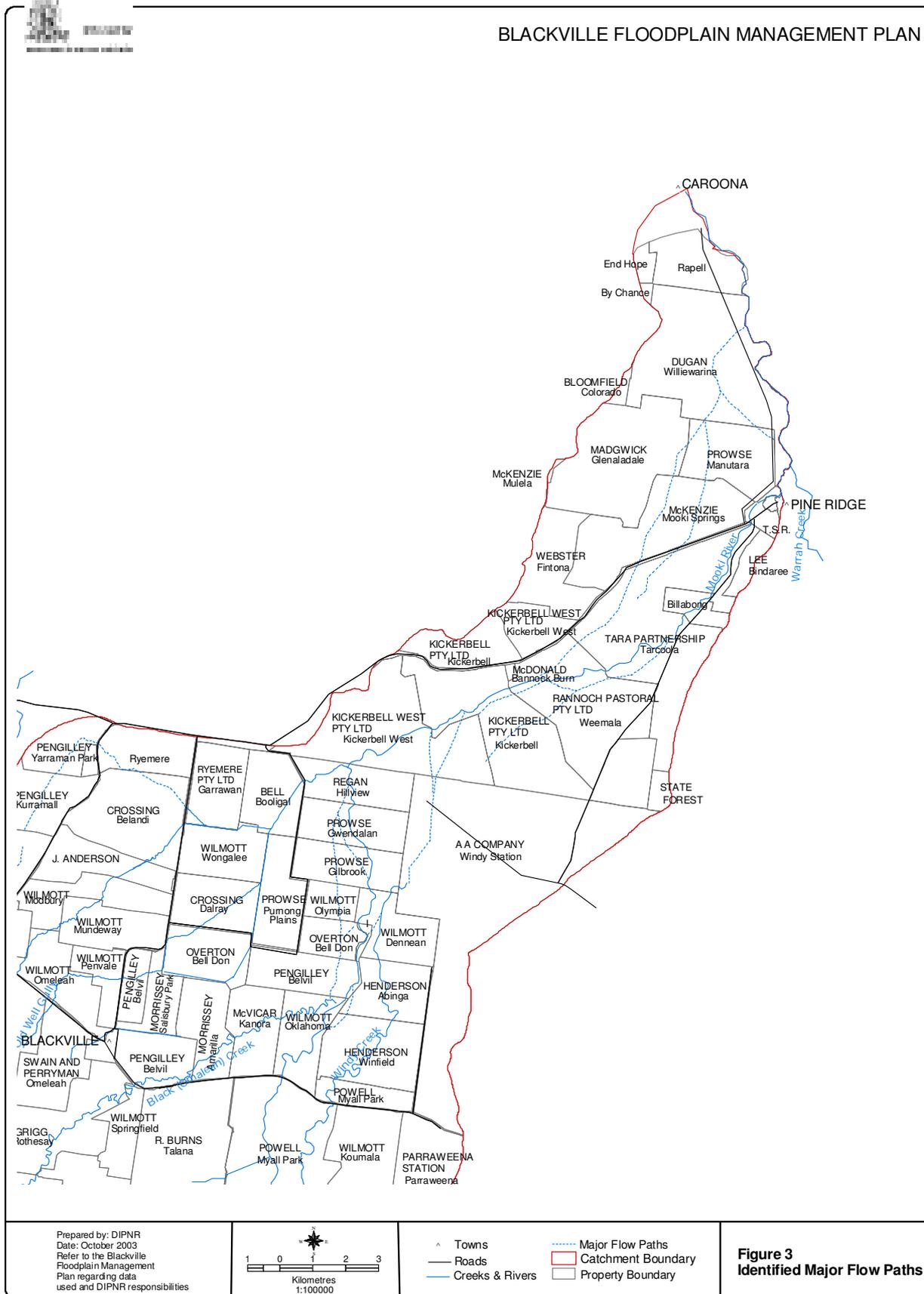
A key requirement for approval of existing soil conservation works is that they must be documented on a farm plan prepared by either the DIPNR or a registered farm planner. Any soil conservation banks and waterways that are not adequately documented on a farm plan will be deemed to be non-complying and will be advertised in accordance with DIPNR procedures for “non-complying development”. An approval may then be granted subject to the works satisfying DIPNR’s technical requirements and issues raised by any objectors.

**Proposed Levees – Identified in the Floodplain Management Plan** - the Plan makes provision for the construction of levees located east of the western floodrunner. Provided these levees comply with the requirements of the Plan in terms of location, crest level and provision for unimpeded conveyance of major inflows and outflows, construction of levees may be approved and licensed by the DIPNR as “complying development” subject to providing the necessary technical details to demonstrate that the proposal complies with the following requirements for construction of levees:

- Levee height must allow overtopping in a 10 year ARI flood (as defined in Annexure A) (design levels to be provided with the application and final levels are to be confirmed by a registered surveyor).
- Levee must be located at least 100 m from the centre of the western floodrunner (a scale plan must be provided showing the location of the proposed levee relative to major features such as the river, roads, property boundaries and buildings).
- Levee alignment must be consistent across property boundaries. It is the responsibility of neighbouring landholders to resolve this matter and provide documentary evidence to this effect.
- Unimpeded flow of water must be allowed via major flow lines as defined in Figure 3. (Unimpeded flow shall be deemed to be a width of 100 m either side of the banks of the major flow line or sufficient width to allow 10 year ARI discharge to enter or leave with a maximum depth of flow of 0.3 m. Within the inflow/outflow zone, no alteration of bank level is permitted).
- Levee and floodway must comply with the general provisions of the Floodplain Management Plan and the specific requirements for construction of levees set out in Table 1.

**Proposed Levees – Not Identified in the Floodplain Management Plan** - future proposals for construction of levees that are not specifically identified in the Plan may be approved and licensed by the DIPNR subject to providing sufficient technical detail to demonstrate that the proposal will have negligible impact on flood flow distribution, flood levels or flow velocities. These proposals will need to be advertised and will be subject to the formal objection procedures. However, the Plan provides guidelines to that provide a basis for ensuring consistency between any future proposals and those specifically identified in the Plan. Such proposals will be required to conform to the following guidelines:

- Levee height must allow overtopping in a 10 year ARI flood (as defined in Annexure A) (design levels to be provided with the application and final levels are to be confirmed by a registered surveyor).
- Levee must be located at least 100 m away from the bank of the outermost flow channel (a scale plan must be provided showing the location of the proposed levee relative to major features such as the river, roads, property boundaries and buildings).
- Levee alignment must be consistent across property boundaries. It is the responsibility of neighbouring landholders to resolve this matter and provide documentary evidence to this effect.
- Unimpeded flow of water must be allowed via major flow lines as defined in Figure 3 (unimpeded flow shall be deemed to be a width of 100 m either side of the banks of the major flow line or sufficient width to allow 10 year ARI discharge to enter or leave with a maximum depth of flow of 0.3 m. Within the inflow/outflow zone, no alteration of bank level is permitted).
- Levee and floodway must comply with the general provisions of the Floodplain Management Plan and the specific requirements for construction of levees set out in Table 1.



**Works in Rivers and Creeks** - all proposals for construction works in rivers and creeks (eg bed control structures) will require approval of the Department of Infrastructure, Planning and Natural Resources under the provisions formerly contained in Rivers and Foreshores Improvement Act. The Department's processes allow a single "combined" application covering a number of landowners or the whole study area to be considered in a single application. Proposals that comply with the recommendations of the various "Rivercare" Plans or this Floodplain Management Plan will be favoured.

**Vegetation Clearing and Log Removal** - all proposals for clearing of vegetation or removal of logs within a channel or within 20 m of the bank of a creek or river will require approval of the Department of Infrastructure, Planning and Natural Resources under the provisions formerly contained in Rivers and Foreshores Improvement Act.

#### 1.4.4. Funding and Cost Sharing Arrangements

Funding will be required for a range of activities that will benefit a whole section of the community. Such projects identified in this plan include:

- Removal of silt on the southern side of Pine Ridge Road towards the western side of the floodplain.
- Bed stabilisation works on the residual flow drains.
- Bed and bank stabilisation in Black Creek near the junction with Phillips Creek.
- Bed stabilisation at the outflow from the residual flow drains into the Mooki River.
- Compensation or remedial works to alleviate sedimentation between West Warrah Road and the Mooki River on "Hillview".
- Bank stabilisation works near Pine Ridge.

Ongoing funding will also be required for various maintenance activities associated with these works and previous community projects. Some funding may be available in the future from various grant sources (Rivercare, NHT, etc) but the availability of these funds cannot be guaranteed. The Committee considers that applications for funding should be made through the Blackville Landcare Group.

Other strategic plans are not only looking at on-ground management options but are also identifying and trialing processes whereby the costs of management and land use change can be equitably distributed among the beneficiaries of that change. These beneficiaries could be quite distant from Blackville and, in the next few years, it will be important to establish what price they are prepared to pay for, say, better quality water delivered, for example, through increased riparian vegetation and well managed, grassed water ways. Other cost sharing arrangements may include local government rate based incentive, commonwealth or state government grants, marketing support and extension services.

#### 1.4.5. Education and Extension

In many instances, the implementation of changes in land use or property management require considerable education and extension effort. In Blackville however, most landholders already have a reasonable understanding of floodplain management principles. This is the result of past involvement in a "Landcare" group, "Rivercare" planning and/or the Blackville Project together with the generally high level of landholder expertise.

What is required now is an acceptance of the need for some change and community co-operation in making it happen. Apart from its statutory responsibility to oversee the implementation of the Plan, the Floodplain Management Committee, in collaboration with the "Landcare" Group, has an excellent opportunity to influence and facilitate this process.

It is in the interests of all landholders to make every effort to co-operate in implementing the Plan. This will not only contribute to long term economic stability but it is the best insurance against further regulation by any government, now or in the future.

**ANNEXURE A – DESIGNATED 10 YEAR ARI FLOOD LEVELS****Designated 10 Year ARI Flood Levels**

(Note: Any levee within a property must have a crest level below the level that would be achieved by drawing a straight line between the levels specified at each boundary)

<b>Flow Path</b>	<b>Adjoining Properties</b>	<b>10 Year ARI Flood Level (m AHD)</b>
Mooki River	“Rapell” & “Williewarina”	307.7
Mooki River	“Williewarina” & “Manutara”	310.4
Mooki River	“Manutara” & “Mooki Springs”	312.7
Mooki River	“Mooki Springs” & “Billabong”	316.6
Mooki River	“Billabong” & “Tarcoola”	318.4
Mooki River	“Tarcoola” & “Weemala”	323.9
Mooki River	“Weemala” & “Kickerbell”	328.7
Mooki River	“Kickerbell” & “Kickerbell West”	332.3
Mooki River	“Kickerbell West” & “Hillview”	335.8
Mooki River	“Hillview” & “Gwendalan”	337.2
Mooki River	“Gwendalan” & “Gilbrook”	339.3
Mooki River	“Gilbrook” & “Dennean”	342.2
Mooki River	“Dennean” & “Bell Don”	344.3
Mooki River	“Bell Don” & “Belville”	346.4
Mooki River	“Belville” & “Oaklahoma”	350.2
Phillips Creek	“Oaklahoma” & “Myall Park”	361.5
Phillips Creek	“Myall Park” & “New Staplegrove”	385.9
Western Floodrunner	Junction with Mooki River	308.3
Western Floodrunner	“Williewarina” & “Manutara”	310.2
Western Floodrunner	“Manutara” & Glenaladale”	311.8
Western Floodrunner	Glenaladale” & “Mooki Springs”	313.7
Western Floodrunner	“Mooki Springs” & “Tarcoola”	318.1
Western Floodrunner	“Tarcoola” & “Weemala”	323.9
Western Floodrunner	Start of Floodrunner on “Weemala”	327.0
Central Floodrunner	Junction with Mooki River	330.8
Central Floodrunner	“Tarcoola” & “Weemala”	323.9
Central Floodrunner	“Weemala” & “Kickerbell”	327.5
Central Floodrunner	“Kickerbell” & “Kickerbell West”	331.8
Windy Gully	Junction with Mooki River	330.8
Windy Gully	“Kickerbell West” & “Windy Station”	334.6
Windy Gully	“Windy Station” & “Gilbrook”	341.4
Windy Gully	“Gilbrook” & “Dennean”	342.0
Windy Gully	“Dennean” & “Abinga”	346.0
Windy Gully	“Abinga” & “Winfield”	351.6
Windy Gully	“Winfield” & “Myall Park”	359.4
Windy Gully	“Myall Park” & “New Staplegrove”	380.2
Windy Gully	Windy Gully Breakout from Phillips Creek	387.5
Black Creek	Junction with Phillips Creek	350.2
Black Creek	“Oaklahoma” & “Kanoora”	359.0
Black Creek	“Kanoora” & “Amarilla”	363.5

**ANNEXURE B – DESIGNATED 10 YEAR ARI FLOOD FLOWS****Designated 10 Year ARI Flood Flows**

(Note: Within the hydraulic model, calculation of flows occurs at the mid point between defined cross sections. Major flow paths are shown on Figure 3 and cross section locations are shown on Figure 4)

**Table B-1**  
**Designated 10 Year ARI Flows Along Major Flow Paths within the Upper Catchment and Alluvial Plain Zones**

<b>River or Creek</b>	<b>Upstream Cross Section</b>	<b>Downstream Cross Section</b>	<b>Flow (m<sup>3</sup>/s)</b>
Cattle Creek	A	B	128
Cattle Creek	B	C	153
Black Creek	H	J	160
Phillips Creek	A	C	176
Phillips Creek	C	D	197
Phillips Creek	D	F	292
Phillips Creek	F	G	299
Phillips Creek	G	H	275
Phillips Creek	H	J	250
Windy Gully	D	F	24
Windy Gully	F	G	17
Windy Gully	G	H	25
Windy Gully	H	K	14
Windy Gully	K	10	23
Windy Gully	10	9	22
Windy Gully	9	8	23
Old Well Gully	XS6	XS5	7
Old Well Gully	XS5	XS4	7
Old Well Gully	XS4	XS3	7
Old Well Gully	XS3	XS1	11
Old Well Gully	XS1	XS2	11
Old Well Gully	XS2	XS16	13
Old Well Gully	XS16	XS17	15
Old Well Gully	XS17	XS18	18
Old Well Gully	XS18	XS15	22
Old Well Gully	XS15	T	52
Old Well Gully	T	U	99
Cranky Dick Gully	XS7	XS8	6
Cranky Dick Gully	XS8	XS9	6
Cranky Dick Gully	XS9	XS10	9
Cranky Dick Gully	XS10	XS12	10
Cranky Dick Gully	XS12	XS14	28
Cranky Dick Gully	XS14	XS15	31
Mooki River	J	K	245
Mooki River	K	10	250
Mooki River	10	9	254
Mooki River	9	U	243

**Table B-2**  
**Designated 10 Year ARI Flows Between Major Flow Paths**  
**Within the Upper Catchment and Alluvial Plain Zones**

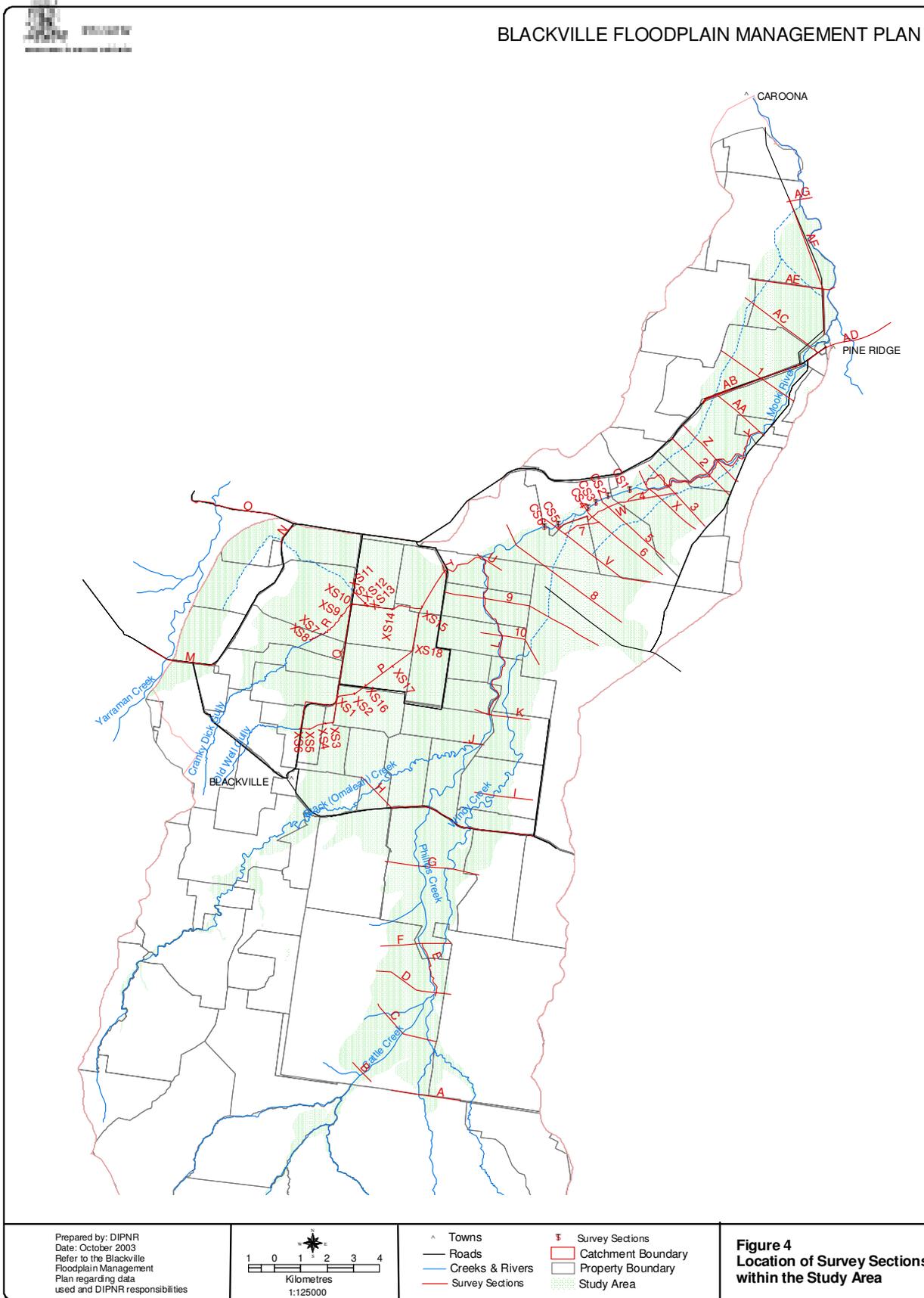
<b>Weir/ Channel</b>	<b>Upstream Flow Path</b>	<b>Downstream Flow Path</b>	<b>Cross- Section</b>	<b>Flow (m<sup>3</sup>/s)</b>
Cross Weir 1	Windy Gully	Phillips Creek	H	19
Cross Weir 2	Mooki River	Windy Gully	V	2
Cross Weir 13	Phillips Creek	Cattle Creek	C	2
Cross Weir 14	Mooki River	Windy Gully	J	5
Cross Weir 15	Mooki River	Windy Gully	K	2

**Table B-3**  
**Designated 10 Year ARI Flows within the Confined Floodplain Zone**

<b>River or Creek</b>	<b>Upstream Cross Section</b>	<b>Downstream Cross Section</b>	<b>Flow (m<sup>3</sup>/s)</b>
Eastern Floodrunner	V	6	23
Eastern Floodrunner	6	5	39
Eastern Floodrunner	5	X	61
Eastern Floodrunner	X	3	70
Eastern Floodrunner	3	2	90
Eastern Floodrunner	2	Z	111
Eastern Floodrunner	Z	AA	118
Western Floodrunner	X	3	71
Western Floodrunner	3	2	49
Western Floodrunner	2	Z	49
Western Floodrunner	Z	AA	48
Western Floodrunner	AA	1	64
Western Floodrunner	1	AC	62
Western Floodrunner	AC	AE	66
Western Floodrunner	AE	AG	46
Central Floodrunner	X	3	24
Central Floodrunner	3	2	46
Central Floodrunner	2	Z	46
Central Floodrunner	Z	AA	45
Central Floodrunner	AA	1	25
Central Floodrunner	1	AC	25
Central Floodrunner	AC	AE	20
Central Floodrunner	AE	AG	63
Mooki River	U	8	286
Mooki River	8	V	280
Mooki River	V	6	272
Mooki River	6	5	218
Mooki River	5	X	135
Mooki River	X	3	118
Mooki River	3	2	94
Mooki River	2	Z	70
Mooki River	Z	AA	63
Mooki River	AA	1	177
Mooki River	1	AC	177
Mooki River	AC	AE	177
Mooki River	AE	AG	533
Mooki River	AG	Caroona	524
Warrah Ck 935.00	NA	NA	618
Borambil Ck 2000.00	NA	NA	113

**Table B-4**  
**Designated 10 Year ARI Flows between Major Flow Paths**  
**within the Confined Floodplain Zone**

<b>Weir/ Channel</b>	<b>Upstream Flow Path</b>	<b>Downstream Flow Path</b>	<b>Cross- Section</b>	<b>Flow (m<sup>3</sup>/s)</b>
Cross Weir 4	Western Floodrunner	Central Floodrunner	Z	2
Cross Weir 5	Central Floodrunner	Western Floodrunner	AA	19
Cross Weir 6	Central Floodrunner	Western Floodrunner	AC	4
Cross Weir 7	Western Floodrunner	Central Floodrunner	AE	19
Cross Weir 8	Mooki River	Central Floodrunner	AE	64
Cross Weir 9	Mooki River	Central Floodrunner	Z	2
Cross Weir 10	Mooki River	Central Floodrunner	6	54
Cross Weir 11	Western Floodrunner	Mooki River	X	2
Cross Weir 16	Mooki River	Windy Gully	V	2
Cross Weir 17	Mooki River	Central Floodrunner	5	83
Cross Weir 18	Central Floodrunner	Eastern Floodrunner	5	28
Cross Weir 19	Mooki River	Eastern Floodrunner	X	12
Cross Weir 20	Central Floodrunner	Mooki River	2	2
Cross Weir 21	Mooki River	Eastern Floodrunner	2	24
Cross Weir 22	Mooki River	Eastern Floodrunner	Z	8
Cross Weir 23	Western Floodrunner	Central Floodrunner	3	22
Cross Weir 24	Central Floodrunner	Eastern Floodrunner	6	20
Cross Weir 25	Eastern Floodrunner	Mooki River	3	24
Cross Weir 26	Mooki River	Central Floodrunner	3	2



**Department of Infrastructure, Planning and  
Natural Resources  
Barwon Regional Office, Level 3 Noel Park House  
155-157 Marius Street, Tamworth NSW 2340**