

## REPORT

### South West Regional Adoption of the Infrastructure Design Manual

Consultation and Engagement Summary

#### **Prepared For**

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### 1. Introduction

The following report provides a summary of the consultation and engagement initiatives undertaken in relation to the implementation of a standardised Infrastructure Design Manual (IDM) for the South West Region of Victoria. The report is structured to provide the background and objectives of this work, a summary of feedback received, and implications for further consideration. This report should be used by Councils to inform the adoption and further development of the IDM.

The consultation has involved the following Councils in the Region:

Golden Plains Shire Council Corangamite Shire Council

Colac Otway Shire Council Warrnambool City Council

Glenelg Shire Council Southern Grampians Shire Council

Moyne Shire Council

### **Background**

The Infrastructure Design Manual was originally developed by the Shire of Campaspe, City of Greater Shepparton and the City of Greater Bendigo but has now been adopted by a number of other councils in regional Victoria. A longer term aim of the Victorian government is for a standardised Infrastructure Design Manual to be used across the State of Victoria under the guidance of a newly formed Interim Infrastructure Design Standards Board. The Board will have representation from member councils and interested stakeholder groups and is to provide a means of review and development of the manual to ensure ongoing usability and relevance.

The Infrastructure Design Manual is expected to provide greater clarity and consistency for consultants, developers and contractors who need to know more about the rules, regulations and standards for new infrastructure when developing land. The primary objectives of the manual include:

- To clearly document the requirements for the design and development of infrastructure
- To standardise development submissions as much as possible and thereby speed up development approvals, and
- To ensure that minimum design criteria are met with regards to design and construction of infrastructure.

One of the keys to the success of the manual is consultation with stakeholders and users. This report summarises the consultation undertaken and provides a summary of feedback received.

Consultation has been undertaken on the manual originally developed by the Shire of Campaspe, City of Greater Shepparton and the City of Greater Bendigo and adopted by other councils.

The manual provides a reference guide to the standards and requirements for infrastructure in regional Victoria and will be used to provide consultants and developers with Council requirements in respect of planning and infrastructure needs in development. Further opportunities for consultation and engagement will be offered following adoption by Council.

### **Consultation Objectives**

- To outline the background and content of the draft Infrastructure Design Manual (IDM) to be implemented.
- · To identify other related projects and issues.
- To outline opportunities for review and contribute feedback on the manual.

# 2. Stakeholder Engagement

**Stakeholder Engagement Opportunities** 

A number of stakeholder engagement opportunities have been offered to date:

Consultation sessions were held with each of the Council's internal stakeholders to commence the project.

•	Golden Plains Shire Council	14 <sup>th</sup> February 2011
•	Corangamite Shire Council	15 <sup>th</sup> February 2011
•	Colac Otway Shire Council	15 <sup>th</sup> February 2011
•	Warrnambool City Council	16 <sup>th</sup> February 2011
•	Glenelg Shire Council	17 <sup>th</sup> February 2011
•	Southern Grampians Shire Council	17 <sup>th</sup> February 2011

Each session provided an opportunity for Council officers to provide the consultant team with up front information regarding the expectations and requirements for each municipality.

External stakeholder sessions were held during the same week in February 2011. A list of stakeholders invited to these sessions is provided in **Appendix 1**. This list was compiled by contributions from each Council within the region as their understanding of the external stakeholders that would have an interest in the document.

Prior to the stakeholder sessions a media release was placed in local newspapers by Councils in the region.

The letter sent to stakeholders is provided in **Appendix 2.** The letter directed stakeholders to the IDM Manual and identified opportunities for comment.

Following the completion of each session, the full list of stakeholders received a follow up letter providing details of further opportunities to comment.

The IDM and standard drawings are available on-line at:

http://www.designmanual.com.au.

Stakeholders, including individual Councils are able to download and review the material from this web page.

### 3. Council Feedback

Feedback from Councils - February 2011

Following Consultation meetings held with each of the Councils, verbal and written feedback was sought on the concept of an IDM for the South West Region. The following is a summary of feedback received:

- Yes, there are common issues that can be addressed across the region which can be addressed through a standardised approach.
- Adoption of common standards across the region would assist in countering arguments presented by developers that "I've done this elsewhere."
- IDM policy should compliment, not contradict State Policy.
- The general layout and content of the Shepparton IDM could apply across the State, however the IDM needs to allow for flexibility to specify regional or municipal specific information, where required.
- How do we cover individual items relevant to the South West ie construction in bluestone, it is not currently covered in the IDM.
- The IDM will not address all Council needs.
- The key objective of the IDM should be to improve certainty for all stakeholders.
- The guidelines assume a second level of Governance for implementation.
- Local Government has a significant role to play in the ongoing control of the IDM, with representation by member Councils.
- Input is required from Industry groups.
- Final drawing presentation, how much information is provided and is flexibility maintained.
- Higher/Lower standards than current practice.
- There will be a need to maintain and update the manual.
- "C" factors for drainage calculations may not suit our needs.
- What happens when a submission is made based on one version of the document and another version is released with revised standards prior to the original submissions approval?

### 4. Stakeholder Consultation

### **Briefing Sessions - February 2011**

Simon Anderson Consulting on behalf of the seven South West Council's of Victoria and the IDM Governance Group has completed two stakeholder briefing sessions held locally in the South West region in relation to the launch in the Infrastructure Design Manual. Consultation sessions were held at the regional centres of Colac and Warrnambool.

Each session provided information on the project, as well as the opportunity to ask questions and make comments. Each session also provided the community with the background context of the project, including the concept of a Governance structure which was currently being developed to oversee the preparation and ongoing management of the IDM.

The Warrnambool session was the most well attended with 12 attendees present made up of a mix of developers, consultants, service agencies, and peak body representatives. Whilst written invitations were made to stakeholders within the South West region, there was only a small numbers of attendees at the Colac briefing sessions where 5 attendees participated. The number of participants at both meetings is equivalent to attendance numbers at similar meetings in other regional centres.

Stakeholders arrived at each of the two sessions with varying levels of understanding of the concept of standardisation, and work undertaken to date in relation to the IDM. Whilst some attendees had reviewed the IDM, for others, attendance at the launch provided an introduction as to how the document was structured and what it contained. The opportunity to provide written feedback following the sessions provided all stakeholders with an opportunity to have comments considered.

### Written submissions

Attendees at each session were encouraged to provide feedback to assist in the ongoing adoption of the IDM for the South West Region. Written feedback was sought by the 28th February 2011 to enable the consideration of key issues and the adoption of the manual in mid 2011.

### Summary of Feedback Received

A summary of feedback received during the sessions is provided below. Feedback has been separated into opportunities and concerns to enable a range of implications to be identified.

### **Opportunities**

Overall, stakeholders were generally supportive of the 'principle' of standardisation. In particular, the prospect of additional certainty for developers, consultants and contractors at the start of the process was seen as a key benefit.

The rationalisation of different products to the supply chain was also considered as a key benefit of standardisation.

Some concerns were raised at the Warrnambool meeting regarding the timeframes and the pace of change across the region.

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Comments such as "It would be very beneficial for all councils to be operating on the same page" were common.

There was a need to provide certainty through standardisation, but at the same time, balance this need with the need to adapt to new standards and technologies as they emerge.

The manual should address standardised requirements, as well as individual/special circumstances where required.

Users of the manual want meaningful access to the ongoing process of review to the document.

#### Concerns

Councils saw themselves with a central role in the ongoing development of the IDM, and its overall governance structure and how do other industries gain access to lobby for changes.

It was frequently raised that there would be a period of transition and possible uncertainty from developers and Council staff following the introduction of the IDM, especially for those Councils that have recently undertaken their own review of their current standards.

Whilst it was acknowledged that there may be some cost savings for Council, and suppliers, it was not universally agreed that an IDM would lead to cost savings for developer and consultants. Much of the feedback received during the sessions expressed concern about the potential cost impost of raising standards, particularly in delivering affordable products to the market.

There was some concern about the imposition of "higher" or "lower" engineering standards.

The manual will need to be adapted to accommodate South West Region's different characteristics, including construction with bluestone kerb & channel as an example.

The objective of the IDM should be to simplify the approval process. This may include standard approaches across the region for activities such as driveway approval and construction, etc.

### **Implications for Consideration**

Based on the feedback received, the following implications should be considered by Council's:

- There is general support for the principle of standardisation, including additional certainty for developers and suppliers.
- Further stakeholder interest in the project is likely to arise once the IDM has been adopted and is being used by Council's in the South West.
- Whilst the manual has been updated on numerous occasions by Council's in Victoria's North & Gippsland regions, an audit of the manual will be required to identify and address South West Councils specific requirements that may be required ie bluestone construction.
- There will be a period of transition when the Manual is introduced and being used within each Council. A training program in the use of the manual following its introduction is currently being finalised. Training courses will be targeted at different user groups – Councils, Service Authorities, Consultants, and Developers where common issues are shared.
- There will be a need to ensure the involvement of key stakeholders, including Local Government, peak bodies, and key industry groups in the development and ongoing maintenance of the IDM standards.
- Further input from users of the manual will be important in revising standards which are appropriate for other regions are adapted to accommodate South West Regions different characteristics.
- Following adoption by the Councils in the South West, a series of implementation issues are required to be resolved, including a proposed method of ensuring consistency between new and existing standards and processes.

### Proposed consultative process from here

- Consideration of stakeholder feedback by Council early 2011.
- Council Adoption early to mid 2011.
- Further Communication with stakeholders & utilisation of the IDM Mid 2011.
- Ongoing development and improvement of the IDM 2011 onwards.
- Planning Scheme Amendment Mid to Late 2011 (following adoption by Councils).

# **Appendix 1**

Stakeholder List

		1745 Colac-	
2020 Engineering Solutions	Delahunty	Forest Rd 10 Station	COLAC
AB Tech Plumbing and Excavation Pty Ltd	Paton	Street Suite 2, 45	ALLANSFORD
Ace Surveys (Vic) Pty Ltd	Hand	Banyan St 31 Barwon	WARRNAMBOOL
AGB Group	Alsop	Terrace	GEELONG
Alan H Simpson Land Surveyor Pty Ltd	Simpson	PO Box 421 10 Oak	WARRNAMBOOL
Apollo Bay Building Group	Noy	Avenue	APOLLO BAY
Apollo Bay Coastal Pre-Mix Concrete	Noseda	McLennan St	APOLLO BAY
Aurecon Australia Pty Ltd	Mazur	PO Box 321	SOUTH MELBOU
Bannockburn Holdings Barry Wilson & Associates Professional	Hayden	86 Ryrie St 455 Raglan	Geelong
Engineers	Wilson	Parade 4 Hopkins	WARRNAMBOOL
Beaton's Building Consultancy	Beaton	Point Road	WARRNAMBOOL
Brian Consulting Pty Ltd	Brian	PO Box 1154 150 Oxford	WARRNAMBOOL
Cardno Grogan Richards Pty Ltd	Finnigan	Street	COLLINGWOOD
CFA	Wall	PO Box 586 P.O. Box	NORTH GEELON
CFA	Pennicuik	389	HAMILTON
Civil Contractors Federation	Stewart	PO Box 6165	HAWTHORN
Corangamite Catchment Management Authority	Wilkinson	64 Dennis St	COLAC
Corangamite CMA	Jones	PO Box 159	COLAC
Costa Group	Phipps	PO Box 166 21 Banyan	Belmont
Creative Architects	Holland	Street	WARRNAMBOOL
Dean Picken Designs Department of Planning & Community	Picken	PO Box 634 P.O. Box	WARRNAMBOOL
Environment	Myers	103 89 Verdon	GEELONG
DJ Bells	Bell	Street	WARRNAMBOOL
DSE	Brookes	PO Box 103	GEELONG
Dwyer Building Services	Dwyer	1 River Road	WARRNAMBOOL
Eclipse Drafting Services	Nadaraj	15 Kielli Drive Cnr Little Malop & Fenwick	WARRNAMBOOL
EPA - South West Region		Streets 853 Raglan	GEELONG
Form and Function Building Design	Monaghan	Parade	WARRNAMBOOL
Foreton Land Community	Готовот	DO Dov. FOED	WADDNAMDOOL

Forster

Cooper

Butler

1745 Colac-

Forster Land Surveying

Gary R Cooper Drafting

GHD

WARRNAMBOOL

**GEELONG** 

PO Box 5053 WARRNAMBOOL

18 Saltau Street

Level 3, 49-

Street

Glenelg Hopkins CMA

Gordon Consulting

### 51 Malop St

79 French

135 Myers St

**HAMILTON** 

**GEELONG** 

Street

Gordon Consulting	Gordon	135 Myers St 14 Barbro	GEELONG
Graeme Schultz Design & Drafting	Schultz	Terrace	WARRNAMBOOL
Greencon	Green	PO Box 73	COBDEN
		45 Banyan	
Hand M. W. PTY LTD	Hand	Street	WARRNAMBOOL
		Lake	
Harry Bood	Pood	Corangamite Rd	CORAGULAC
Harry Reed	Reed	7 Zeally Bay	CORAGULAC
Jeavons & Tomkinson	Stacey	Rd	TORQUAY
Joseph Land Surveying Pty Ltd	Joseph	PO Box 5113	WARRNAMBOOL
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K & A Hards Excavation & Plumbing	Hards	Lane	ALLANSFORD
Kavanagh Excavation & Plumbing	Kavanagh	PO Box 552	WARRNAMBOOL
Keanes Civil & Plumbing	Keane	PO Box 917	WARRNAMBOOL
		101 Manifold	
L Davidson & Sons	Davidson	Street	WOOLSTHORPE
		13B	
Ma Andla Dacino	NA - A U -	Beechnut	MADDNIAMDOOL
McArdle Design	McArdle	Place 6 Chatham	WARRNAMBOOL
McKinnon Quarries & Civil Pty Ltd	McKinnon	Court	WARRNAMBOOL
McNaughton Excavations	McNaughton	171 Hart St	COLAC
Workdag Nor Expavations	Mortadgittori	23 Banyan	COLINO
Merri Designs	Bourke	Street	WARRNAMBOOL
Mortlake Plans	O'Brien	PO Box 27	MORTLAKE
		82 Hopkins	
Mount Kimberly Homes	Dwyer	Highway	WARRNAMBOOL
Mugavin Homes	Mugavin	PO Box 756	WARRNAMBOOL
Nardi Holdings Pty Ltd	Nardi	PO Box 120	Bannockburn
NPM Architects	McConnell	PO Box 233	MORTLAKE
B B		1 Harrington	
Petecrete Pty Ltd	Madden	Road	WARRNAMBOOL
Peter Berry and Assoc.	Berry	153 Yarra St	GEELONG
Phipps Consulting	Phipps	PO Box 166	BELMONT
Pierrpoint Planning	Lacey	PO Box 5003	TARRINGTON
Powercor Australia	Coleman	PO Box 83 16 Nicholson	WARRNAMBOOL
Powers Building Consultancy	Powers	Street	WARRNAMBOOL
1 Owers building Consultancy	1 OWC13	61-65	WARTER
Project Delivery	McGann	Gellibrand St	COLAC
R.L Blake Pty Ltd	Blake	P.O Box 43	COBDEN
Regional Water Authority	Reilly	PO Box 1158	WARRNAMBOOL
Rod Bright & Associates Pty Ltd	Bright	26 Murray St	COLAC
Rod Bright & Associates Pty Ltd	Bright	26 Murray St	COLAC
Rodger Constructions P/L	Rodger	PO Box 493	WARRNAMBOOL
	2	4= 5	

Scanlon

Little

Gordon

Scanlon

COLAC

15 Banksia

Drv

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South West Civil Engineering	Smit	Street	WARRNAMBOOL
South West Survey Group	Jeavons	PO Box 93	APOLLO BAY
Ctaal 9 Tinnett Duilding Designage	Ctool	202 Lava	
Steel & Tippett Building Designers	Steel	Street 121 Kepler	WARRNAMBOC
Tait Leishman Taylor Lawyers	Lindsey	Street	WARRNAMBOOL
Techrds Design	Smith	18 Paling St	BALLARAT
recilius Design	Simui	P.O Box	DALLANAT
TGM Group	Trigg	563W	BALLARAT
Toronga Drafting	Gard	55 Harris St	ELLIMINYT
· · · · · · · · · · · · · · · · · · ·		125a Kepler	
Urbanomics	Howard	Street	WARRNAMBOOL
Vic Roads	Fary	PO Box 21	WARRNAMBOOL
	•	482 Raglan	
Vincent Land Surveying	Vincent	Parade	WARRNAMBOOL
Wannon Water	Wilson	PO Box 5118	WARRNAMBOOL
Wannon Water	Buam	PO Box 5118	WARRNAMBOOL
		4 Cooper	
Warrnambool Emergency Plumbing	Kavanagh	Street	WARRNAMBOOL
Woodhouse Graesser Johnston Pty Ltd	Woodhouse	116 Timor St	WARRNAMBOOL
Geoff	De La Rue	26 Murray St	COLAC
Bonacci Group		33a Myers St	GEELONG
		229	
Danier & Tarakinaan		Moorabool	OFFI ONO
Brown & Tomkinson		St,	GEELONG
TGM Engineers		PO Box 1137 Level 1 116A	GEELONG
Tomkinson		Ryrie St	GEELONG
TOTTIGHTSOFT		305 Bridge	OLLLONG
Goodison & Associates		Rd	RICHMOND
St Quentin Consulting		38 Murray St	COLAC
Bostocks Design & Drafting		11 Pike St	CAMPERDOWN
BDH Constructions		110 Main St	COLAC
Lenehan Homes		PO Box 483	WARRNAMBOOL
JG King Homes		PO Box 703	WARRNAMBOOL
CO Tang Homos		755	
		Corangamite	
Reed & Reed Surveying		Lake Road	CORAGULAC
Glenelg Hopkins CMA		241 Lava St	WARRNAMBOOL
Land Development		PO Box 61	BALLARAT
•		44 Lonsdale	
Barwon Water		St	SOUTH GEELON
		54-56	
Drapers Civil Contracting	_	Leather St	BREAKWATER
Steve	Payne	40-60 Dales	WARRNAMBOOL
		Road	
Province 9 House Phylid		85 Kennedy	LIANII TON
Brayley & Hayes Pty Ltd	Crowo	Street	HAMILTON
LOU	L'rowo	DOV 6004	

Crowe

Paul

HAWTHORN WES

Box 6094

Chris	Baudinette	58A Fairy Street	WARRNAMBOOL
Colin	Hunt	29 Hopkins Point Road 31 Banyan	WARRNAMBOOL
Francis	Neoh	Street 10 Dunvegan	WARRNAMBOOL
Neville	Lynch	Court 415 Hopkins	WARRNAMBOOL
Steve	Baulch	Point Road	WARRNAMBOOL
Trevor	McDowell	PO Box 2764	ALLANSFORD
Cocking Civil Engineering		PO Box 115	KOROIT
Seeley Architects		PO Box 380 10 Briars	TORQUAY
Steve	Giblin	Lane 172 La Trobe	WARRNAMBOOL
O'Reilly P J & Assoc Pty Ltd		Tce	Geelong
Jim Ramsey		PO Box 673	Ocean Grove
Brian O'Shannassy		49 Bakers Rd 44 Faulkner	Bannockburn
Colin King / Josh King		Rd	Inverleigh

## **Appendix 2**

Stakeholder Invitation Letter

Dear Sir/Madam.

### Infrastructure Design Manual - Invitation to attend Public Consultation Launch

The Councils in the South West of Victoria comprising of Golden Plains Shire, Surf Coast Shire, Corangamite Shire, Colac Otway Shire, Moyne Shire, Warrnambool City, Glenelg Shire and Southern Grampians Shire is undertaking consultation with the community prior to adopting and further developing a standardised Infrastructure Design Manual.

The manual was originally developed by the Shire of Campaspe, City of Greater Shepparton and the City of Greater Bendigo. The manual is now being used as the basis for identifying regional standards for infrastructure design across eighteen Regional Victorian Councils. A longer term aim is for a standardised Infrastructure Design Manual to be used across the State of Victoria.

The manual is a reference guide to the standards and requirements for infrastructure in regional Victoria and will be used to provide consultants and developers with council requirements in respect of planning and infrastructure needs in development.

The benefits of the manual include:

- Consistency for consultants and developers who work across borders resulting in more satisfactory development in a more timely manner,
- More efficient approval processes due to fewer anomalies between municipalities,
- Sharing of ideas and practices which will assist in a consistent and best practice approach.

One of the keys to the success of the manual is consultation with stakeholders and users. The councils are holding public consultation launches to outline the background and content of the draft manual. Simon Anderson Consultants are undertaking this consultation on behalf of the Councils and the Governance Group of the Infrastructure Design Manual.

Public consultation Launches will be held on:

- 15th February from 7 PM in Meeting Rooms 1 & 2 COPACC, corner Rae & Gellibrand Streets, Colac
- 16th February from 7 PM in the Reception Room, Civic Centre, 25 Liebig Street Warrnambool

Please RSVP your attendance, indicating which launch you will be attending, to myself at Simon Anderson Consultants on 03 51446688, mobile 0417 145763 or by email to **geoff@simonandersonconsultants.com.au** by **Friday 11<sup>th</sup> February**.

If you are unable to attend one of the launches the Infrastructure Design Manual can be downloaded from the website: www.designmanual.com.au. We welcome any written comments on the manual by **28**<sup>th</sup> **February 2011**. Please address them to "Infrastructure Design Manual" C/- Geoff Kinnish, Simon Anderson Consultants P/L, P.O. Box 566 Sale Vic 3850 or by email to the address above.

Should you have any queries, please feel free to give me a call on 0417 145763.

Yours faithfully

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Stakeholder follow up letter

Dear Sir/Madam.

### Infrastructure Design Manual - Feedback requested

The Councils in the South West of Victoria comprising of Golden Plains Shire, Corangamite Shire, Colac Otway Shire, Moyne Shire, Warnambool City, Glenelg Shire and Southern Grampians Shire are undertaking consultation with the community prior to adopting and further developing a standardised Infrastructure Design Manual.

The manual has now been adopted, or is being evaluated by 18 other regional Victorian Councils following its development by the Campaspe Shire Council, Greater Shepparton City Council and Greater Bendigo City Council. The manual is now being considered as the basis for identifying regional standards for infrastructure design across the South West region.

The manual is a reference guide to the standards and requirements for infrastructure in regional Victoria and will be used to provide consultants, developers and other stakeholders with council requirements in respect of planning and infrastructure needs in development.

Following the launch of the manual at meetings recently held in **Colac & Warrnambool**, we now invite stakeholders to review the manual and provide your feedback. Details are as follows:

- The manual is available online at www.designmanual.com.au,
- Written submissions to the manual will be considered up until **31st March 2011**, which will then form part of the next review of the document.
- All responses should be forwarded to C/- Geoff Kinnish, Simon Anderson Consultants P/L, P.O. Box 566 Sale Vic 3850 or by email to **geoff@simonandersonconsultants.com.au.**.

On compilation and review of the responses received, the governance group for the document will provide feedback, as necessary, to update stakeholders via the webpage.

The manual will be presented to each council for formal adoption.

Should you have any queries regarding the Infrastructure Design Manual please feel free to contact me on **03 51446688 or mobile 0417 145763**.

Yours faithfully

## **Appendix 3 – Submissions**

Each Member Council were going to discuss internally and prepare their own submissions directly to the Governance Group, some highlighted areas for further work include the use of bluestone kerb & channel and standard approach where this is required.

Other authorities including CFA, DSE and EPA for the South West Region have advised verbally that they are preparing detailed submissions and they will make these submissions at the conclusion of their deliberations, Glenelg Hopkins CMA have provided the following submission.

Glenelg Hopkins CMA - Marcus Little - Floodplain & Works Manager.

#### Sect 4.3 Requirements (p12)

- If applicable, the 1-in-100 year flood extent that corresponds to the 1-in-100 year flood level supplied by the relevant floodplain management authority
- A separate permit from the CMA may also be required for works on or near a designated waterway (refer to relevant CMA), including fill in a floodplain

#### Sec 5.1 Design Requirements – Objectives (p13)

- To protect/maintain the ability of the floodplain to convey and/or store floodwater
- To protect life, safety and infrastructure from flood risk

### Sec 5.8.1 Approval of functional layout submission – road design (p16)

 Road layout plans should include the 1-in-100 year flood extent that corresponds to the 1-in-100 year flood level supplied by the relevant floodplain management authority, where applicable

### Sec 7.2 Commencement of construction for development (p22)

2d – CMP environment management provisions should also include protection of the floodplain to ensure no
temporary storage of building materials or equipment within the 1-in-100 year flood extent without agreement
by the relevant floodplain management authority

### Sec 9.3 Traffic Management – requirements (p28)

 Access/egress to the development including consideration of acceptable flood risk and flood hazard as determined by the relevant floodplain management authority

### Sec 11.3 Drainage Strategy – requirements (p32)

• Where active floedways insert floodplains or flowpaths here are present, no development will be approved without hydraulic modelling and analysis. The analysis must identify the extent, velocities and depth of overland flood flows on the development as well as similar impact on the catchment external to the development site. The Developer may be further required to submit a risk assessment report including details of proposed works to ensure that the potential for loss of life, risk to health and damage to property is minimised, and how the flood conveyance or storage will be accommodated.

### Sec 12 Design of Roads (p33-57)

This section (both urban and rural) needs to note that consultation with the relevant floodplain management authority is required as to the acceptable flood risk and flood hazard pertaining to the proposed road design.

There should also be a reference here to how floodways at low sections in rural roads will be handled (eg do not raise above the surround ground levels, concrete paving, provision of flood gauge boards and associated safety signs etc)

### Sec 15.3 Earthworks and lotfilling - requirements (p62)

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Earthworks within an area of land liable to flooding must not adversely impact on the Floodplain characteristics. Existing flood-prone areas and depressions shall not be filled either temporarily or permanently unless the consent of the Relevant Authority (relevant floodplain management authority?) is given in writing and any relevant permits obtained.

I quite like the text found in Sec 16.3, which states The ..... resulting works must ensure that all adjacent landholders are not affected in any detrimental manner as a result of the proposal. The (modelling) analysis must also identify the extent, velocities and depth of overland flood flows on the development. It would be worthwhile adding something similar to this section

### Sec 16.3 Major and Minor Drainage Systems (p65)

The finished surface (is this meant to be floor level??) level of buildings shall be a minimum of 300mm above the 100 year ARI flood level.

### Sec 17.3 Rural Drainage – Requirements (p77)

• Consultation with the relevant floodplain management authority is required

### Sec 21.3 Stormwater Discharge Points – requirements (p100)

 Stormwater outlets to designated waterways will require a Works on Waterways permit from the relevant Catchment Management Authority

### Sec 22.1 Environmental Management during Construction – Objectives (p102)

 To protect the ability of the floodplain to convey and store floodwater from temporary storage of construction materials and machinery

### Sec 22.3 Erosion Control and Sediment Discharge (p103)

Straw bales are preferable to hay bales as a silt control measure as they are less likely to contain weed seeds.