

## Karen Cowell

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**From:** Gina O'Driscoll [Gina.O'Driscoll@seqwater.com.au] on behalf of Barry Dennien [Barry.Dennien@seqwater.com.au]  
**Sent:** Monday, 10 January 2011 12:23 PM  
**To:** Ken Smith  
**Subject:** FW: Wivenhoe Dam release strategy  
**Attachments:** Technical Situation Report W37.docx  
**Importance:** High

Dear CEOs

This teleconference at 12.30pm today is to update you on the current Wivenhoe flood release strategy.

In preparation for this meeting we are intending to send out a Technical Report closer to 12.30pm that will detail the strategy.

Dial in details are:

Phone: [REDACTED]

Pin: [REDACTED]

If you wish to contact me regarding this teleconference, please phone my office on [REDACTED] or mobile [REDACTED]

Carl and Rob,

Attached is the Technical Situation Report drafted by Seqwater following consultation with BoM and Councils.

Key points are:

- There is continuing heavy rainfall in catchments. Total inflows over the event will be at least 1,500,000 ML and probably above 2,100,000 ML.
- As a result, Wivenhoe Dam is above 140% of capacity and Somerset is above 150%, with both rising fast.
- As specified in the approved Operational Procedures, the primary objective is now to minimizing the risk of urban inundation (release strategy W2). This involves larger releases now, minimizing the risk of even larger releases later (were the flood compartment to reach high levels).
- Consistent with this release strategy, dam releases have increased to 2,000 cubic metres per second (172,000 ML/day). It is expected to increase to 2,600 cubic metres per second by midday tomorrow.
- As specified in the approved Operational Manual, we are targeting maximum flow in the Brisbane River of 3,500 cumecs at Moggill. This is the levels above which urban inundation begins.
- For comparison, flows would be up to 12,000 cumecs without the dams.

Seqwater has previously had verbal conversations with Council staff regarding impacts. However, given the significance of this event, and consistent with the draft protocol, we are seeking formal Council input to this version. This advice would relate to the impact of releases, based on the type of scenario analysis that you described this morning.

Our preference would be to finalise the report, including your input, before or at the 12.30 teleconference with Council CEOs and the BoM. This timing means that it can underpin all media messaging this afternoon.

I appreciate your assistance. Please call me if I can be of any assistance.

Regards,  
Dan

**Daniel Spiller**

Director, Operations

**SEQ Water Grid Manager**

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## TECHNICAL SITUATION REPORT

TSR Number	W36	Date of TSR release	10.1.2011	Time of TSR release	8am
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### Seqwater status of inflows and dam operations

*Current status but could change based on inflows or rainfall.*

Current objectives	<ul style="list-style-type: none"> <li>Continue increasing releases to discharge flood waters but keep impact downstream to minimum.</li> </ul>										
Strategy	<ul style="list-style-type: none"> <li>All bridges are now inundated .</li> </ul>										
Key considerations	<table> <tr> <td>Storage levels:</td><td>Above FSL</td></tr> <tr> <td>Inflows:</td><td>Inflows expected around 1,500,000ML which is close to 1974 event.</td></tr> <tr> <td>Rainfall:</td><td>Continuing</td></tr> <tr> <td>Lockyer/Bremer:</td><td>Monitoring their inflows</td></tr> <tr> <td>Brisbane River:</td><td>Impact as below.</td></tr> </table>	Storage levels:	Above FSL	Inflows:	Inflows expected around 1,500,000ML which is close to 1974 event.	Rainfall:	Continuing	Lockyer/Bremer:	Monitoring their inflows	Brisbane River:	Impact as below.
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Lockyer/Bremer:	Monitoring their inflows										
Brisbane River:	Impact as below.										

### Rainfall

Moderate to heavy rainfall has been recorded in the Upper Brisbane and Stanley Rivers in the last 12 hours with totals up to 90 mm. Totals for the last 24 hours range from 100 to 325mm.

Mt Glorious recorded 100 mm in the last 12 hours.

Rainfall of similar magnitudes is expected in the 12 to 24 hours around the downstream catchments as the system tracks south.

A severe weather warning remains current for heavy rainfall in the dam catchment areas.

### North Pine Dam (Full Supply Level 39.60 m AHD)

The dam level was 39.97 m and steady. Five gates are open releasing 475 m<sup>3</sup>/s. The inflow into the dam since the commencement of the event is 52,000 ML. Estimated event volume is 72,000 ML assuming no further rainfall. Gate operations will continue until at least Tuesday 11 January 2011.

### Somerset Dam (Full Supply Level 99.00 m AHD)

The dam level at 05:00 was 102.84 m AHD and rising (storing 193,000 ML above FSL). Peak inflow to the dam is estimated to be about 4,200 m<sup>3</sup>/s based on observed rainfall and could be as high as 5,000m<sup>3</sup>/s with additional forecast rainfall. Five sluice gates are open releasing about 1,100m<sup>3</sup>/s (95,000ML/d) into Wivenhoe Dam. At this stage the dam lake level will reach about 103.5 m AHD on Monday afternoon. Areas around Kilcoy will continue to be adversely affected.

Since the commencement of the event on 02/01/2011 approximately 142,000ML has been released from the dam into Wivenhoe, with an event total of the order of 520,000ML expected. This is expected to increase due to the forecast rain in the next 24 to 48 hours. At this stage, releases will continue until at least Thursday.



## **Wivenhoe Dam (Full Supply Level 67.00 m AHD)**

River levels upstream of the dam have peaked and are falling slowly with significant inflow being generated from the intense heavy rainfall. Flows in the Brisbane River at Gregor's Ck have peaked at 7,350m<sup>3</sup>/s at 23:00 on Sunday 9 January. This peak is bigger than January 1974 and February 1999 at this location.

The dam level is rising quickly, with the current level being 70.77m AHD (storing 450,000 ML). Estimated peak inflow to the dam just from the Upper Brisbane R is around 8,800m<sup>3</sup>/s and, at this stage, the dam will reach at least 73.3 m AHD during Tuesday morning. Given the rapid increase in inflow volumes, it was necessary to start to increase the release from Wivenhoe during Monday morning.

The objective for dam operations will be to minimise the impact of urban flooding in areas downstream of the dam and, at this stage, the aim is to keep combined flows in the lower Brisbane to 3,500m<sup>3</sup>/sec if possible. Consistent with the approved Operating Procedures, these target combined flows may need to be increased to 4,000m<sup>3</sup>/s, and potentially higher. In either case, this is significantly less than the current estimated combined pre-dam peak inflow of 12,000 m<sup>3</sup>/s.

Fernvale Bridge approaches and Mt Crosby Weir Bridge have been inundated and both bridges are now closed.

The current release rate from Wivenhoe Dam is around 2,000m<sup>3</sup>/s (172,000ML/day). Gate opening will continue to be increased during Monday and the release is expected to increase to at least 2,600m<sup>3</sup>/s in the next 12 to 24 hours and further depending on downstream flows..

Since the commencement of the event on 02/01/2011 approximately 275,000ML has been released from the dam, with an event total approaching 1,600,000ML without further rain and as much as 2,100,000ML with forecast rainfall of (both including Somerset outflow). At this stage, releases will continue until at least Sunday 16<sup>th</sup> January 2011.

## **Impacts downstream of Wivenhoe Dam**

The projected Wivenhoe Dam releases combined with Lockyer flows and local runoff will mean that all crossings downstream of Wivenhoe (Twin Bridges, Fernvale, Savages Crossing, Burtons Bridge, Kholo Bridge, Mt Crosby Weir and Colleges Crossing) will be adversely impacted until at least Saturday 15 January in varying degrees.

Water levels in the lower Brisbane R will be impacted by the combined flows of Lockyer Ck, Bremer River, local runoff and releases from Wivenhoe Dam. If the predicted rainfall eventuates in the downstream tributary catchments the resultant combined flows in the lower Brisbane may exceed the threshold of damaging discharge in the urban areas within the next 24 to 48 hours. Currently the estimate peak flow in the lower Brisbane River will be the highest since Wivenhoe Dam was completed in 1984 but still well below flows the 1974 levels.

Somerset Regional, Ipswich City and Brisbane City Councils have been advised of the updated Wivenhoe operating strategy.

## **Outlook**

Heavy rainfall continues throughout South East Queensland and the situation could deteriorate rapidly over the next 24 hours. The flood operation centre will continue to monitor the situation and provide every six hours until the situation stabilizes.

Seqwater Technical Officer name

Robert Drury



Seqwater Technical Officer position title	Dam Operations Manager

### BoM assessment

*(consisting of references to latest Flood Warning for the Brisbane River and other relevant Bureau forecasts and warnings (e.g. weather/rain forecasts, Tropical Cyclone Warning etc) and other updates/comments if needed)*

BoM has been advised.

BoM Technical Officer name	Peter Baddiley
BoM Technical Officer position title	
BoM Technical Officer contact details	flood.qld

### Brisbane City Council (BCC) assessment

*(to include predicted local inundation areas and depths of inundation based on the information)*

Council has been advised of the current status.

BCC Technical Officer name	Chris Lavin
BCC Technical Officer position title	Disaster Operations Manager
BCC Technical Officer contact details	

### Ipswich City Council (ICC) assessment (if required)

*(to include predicted local inundation areas and depths of inundation based on the information)*

Council has been advised of the current status.

ICC Technical Officer name	Tony Trace
ICC Technical Officer position title	Local Disaster Response Coordinator
ICC Technical Officer contact details	

### Somerset Regional Council (SRC) assessment (if required)

*(to include predicted local inundation areas and depths of inundation based on the information)*

Council has been advised of the current status.

SRC Technical Officer name	Tony Jacobs
SRC Technical Officer position title	Local Disaster Response Coordinator

**SRC Technical Officer contact details**

Collated and distributed by (Agency)

Contact Officer signature	
Contact Officer name	Rob Drury
Contact Officer position title	Dam Operations Manager

<b>Next TSR due</b>	<b>Date</b>	11.1.2011	<b>Time</b>		<b>or Event</b>	Change in strategy
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## Karen Cowell

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**From:** Gina O'Driscoll [Gina.O'Driscoll@seqwater.com.au]  
**Sent:** Monday, 10 January 2011 12:23 PM  
**To:** Ken Smith  
**Attachments:** Water\_Grid\_FS\_Wivenhoe\_Somerset\_Dams.pdf

### Barry Dennien

Chief Executive Officer

SEQ Water Grid Manager

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# Wivenhoe and Somerset Dams

Providing water supply and flood control for South East Queensland

## A FEW FACTS

Wivenhoe Dam was built in response to the 1974 floods and is an award-winning feat of hydrological and structural engineering.

Connected to Wivenhoe Dam, Somerset Dam was completed in 1959. In the event of heavy rains, which may cause Somerset Dam to reach capacity, water is released downstream from Somerset to Wivenhoe Dam.

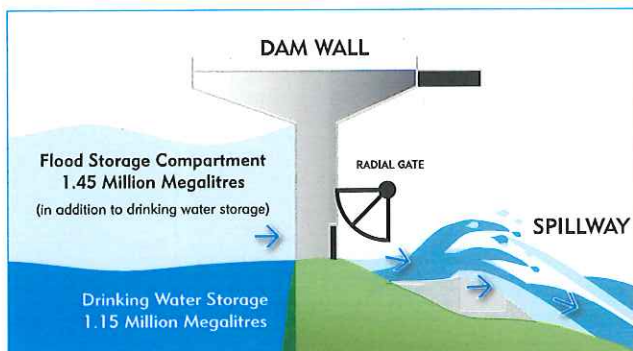
On top of storing 1.15 million megalitres of precious drinking water, Wivenhoe Dam can also store an additional 1.45 million megalitres, equal to 2.5 times the volume of Sydney Harbour. This additional space is known as the dam's flood storage compartment and works to hold back the flood waters which gather in the Brisbane Valley. These flood waters can threaten Brisbane after heavy weather events.

The flood storage compartment at Wivenhoe Dam temporarily stores flood water and releases it at a controlled rate to minimise downstream impacts. Flood levels along the Brisbane River and in the Ipswich and Brisbane urban areas would be much higher without the support of Wivenhoe and Somerset dams.

The Wivenhoe Dam wall is designed to withstand an extreme flood event, much worse than anything on record to date.

In a flood event similar to 1974, there would still be a large amount of local flooding in and around the Ipswich and Brisbane regions, simply due to the heavy local rainfalls. However, water levels along the Brisbane River would be reduced due to the mitigating impacts of Somerset and Wivenhoe dams.

### Wivenhoe Dam Flood Storage Compartment



If it wasn't for Wivenhoe and Somerset dams, a considerable number of people, properties and infrastructure could be at an even greater risk of serious flooding. These dams are a crucial component of South East Queensland's flood mitigation plan and something Queenslanders can be proud of.

## Spectacular pictures – but why does Wivenhoe Dam have to release stored flood water?

South East Queensland has a weather pattern that often sees prolonged or multiple rain events in close succession.



As soon as Wivenhoe Dam's flood storage compartment begins to fill, it has to be carefully emptied in order to make room for additional heavy rainfall events that may occur. Wivenhoe Dam's flood storage compartment can fill in less than three days following heavy rainfall. This highlights the need for strategic management of dam levels. Controlled releases consider the following flood factors: catchment runoff below the dam wall, urban runoff and river levels.

Following heavy rainfall in October 2010, Wivenhoe Dam received inflows equivalent to almost half the flood storage compartment capacity - in just a few days.

Wivenhoe Dam controls 50 per cent of the Brisbane catchment. It is therefore possible for Brisbane to flood from other sources such as rainfall in the catchment below the dam wall.

A fundamental principle in the management of Wivenhoe Dam is that all floodwater should be released within seven days. This means the greater the volume received in the flood storage compartment, the greater the discharge required.

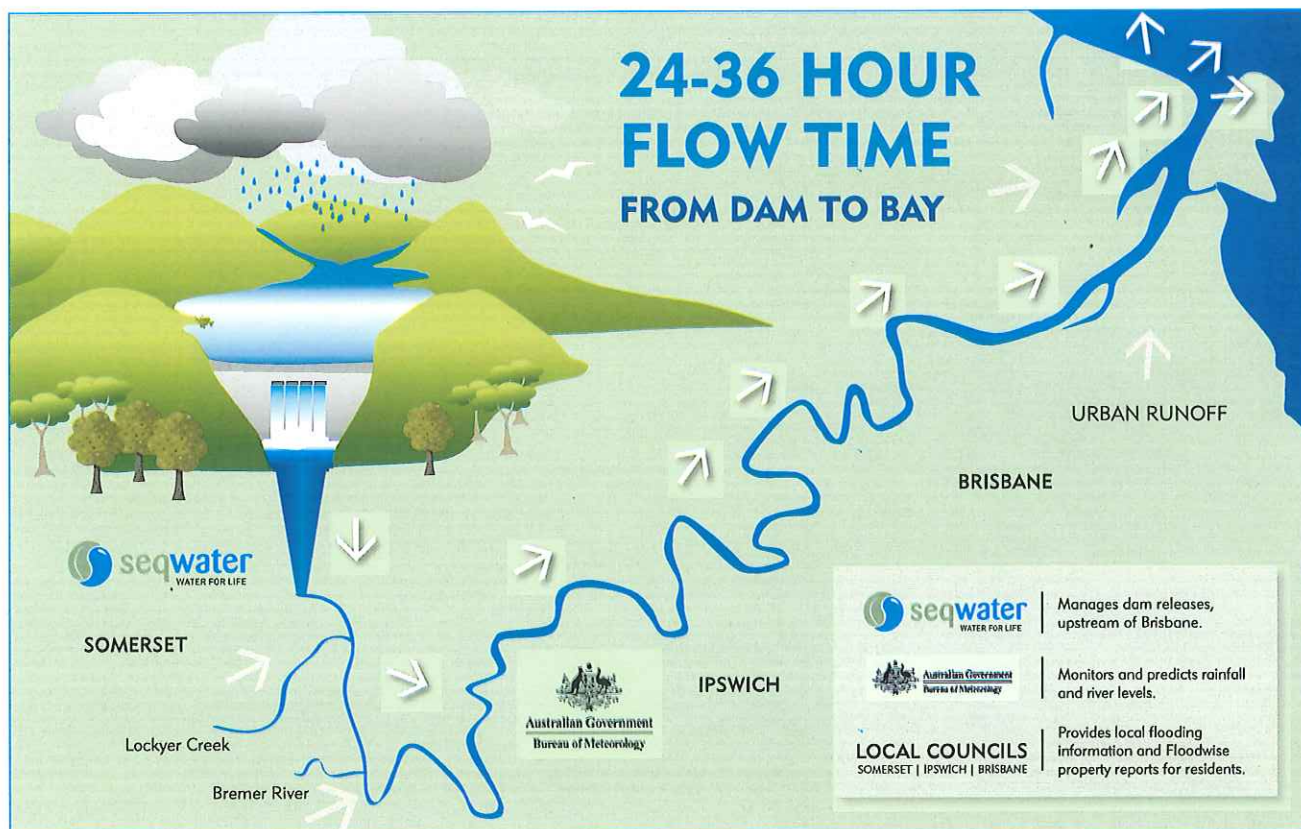
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secure

sustainable

[www.watergrid.com.au](http://www.watergrid.com.au)





## How are the releases managed?

Before Wivenhoe Dam begins a controlled release from its flood storage compartment, a dedicated 24-hour Flood Operations Centre is activated. The specific purpose of the centre is to manage any potential impacts of releases downstream.

The actions of the Flood Operations Centre are guided by a Flood Mitigation Manual. The Queensland State Government, local councils and relevant emergency services are consulted before the water releases from dams take place, to ensure communities are warned and can take all necessary precautions.

The amount of water released from Wivenhoe Dam depends on the level of water inside the flood storage compartment, as well as the incoming flows and downstream tributaries.

During a major flooding event, the SEQ Water Grid Manager, Seqwater (the dam operators), the Bureau of Meteorology and local councils work together to formulate recommendations. Members of the public and relevant emergency services are then advised on how to best manage impending localised flooding.

Rainfall is continually monitored throughout all South East Queensland catchments during a flood event. The Bureau of Meteorology provides rainfall forecasts to Seqwater who then monitor the surrounding catchments.

Together with weather predictions, a comprehensive network of river sensors, providing real-time data, work to inform the basis for a formulated schedule of controlled dam releases. The schedule works to ensure the maximum protection from flooding in urban areas is achieved.

Based on the weather forecast from the Bureau of Meteorology, and Seqwater's decisions to release water from Wivenhoe Dam, councils then work with residents regarding local area impacts. Councils know their areas best and work to advise residents about road and bridge closures, as well as local flooding.

The following priorities are considered when determining how much water is to be released from Wivenhoe Dam, and at what capacity:

- the structural safety of the dam
- maximising protection from flooding in urbanised areas
- minimising disruption to rural industries along the Brisbane River and Stanley River valleys
- minimising impacts to flora and fauna during the water release phase of a flood event
- the ability to retain the dam at full supply level at the conclusion of a flood event.

## How do I find out further information?

For more information on the status of dam levels and Water Grid recreation sites visit [www.watergrid.com.au](http://www.watergrid.com.au)

For information on local flooding, including road closures, contact your local council or visit their website.

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[www.watergrid.com.au](http://www.watergrid.com.au)

## Karen Cowell

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**From:** Barry Dennien [Barry.Dennien@seqwater.qld.gov.au]  
**Sent:** Monday, 10 January 2011 4:48 PM  
**To:** Ken Smith  
**Subject:** Brisbane impacted areas

Ken

Still waiting for Brisbane (Col) to send through the impacted areas with the anticipated 4000 cumecs river flow.

I will send through ASAP

**Barry Dennien**  
Chief Executive Officer  
SEQ Water Grid Manager

**Phone:** [REDACTED] | **Fax:** [REDACTED] | **Mobile:** [REDACTED]

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**Karen Cowell**

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**From:** Barry Dennien [REDACTED]  
**Sent:** Monday, 10 January 2011 6:14 PM  
**To:** Ken Smith  
**Attachments:** Impacts of Wivenhoe releases (DRAFT).docx

Ken

As discussed

Regards

**Barry Dennien**

Chief Executive Officer

SEQ Water Grid Manager

Phone: [REDACTED] | Fax: [REDACTED] | Mobile: [REDACTED]

Email: [barry.dennien@seqwater.com.au](mailto:barry.dennien@seqwater.com.au) [REDACTED]

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**10 JANUARY 2011**

## **IMPACTS OF WIVENHOE RELEASES ON LOCAL SUBURBS**

Built in response to the 1974 floods, Wivenhoe Dam's key role is to protect Brisbane City and other communities downstream from major flooding.

Wivenhoe Dam is currently holding back flood waters equivalent to about two times the volume of Sydney Harbour. Without this support from Wivenhoe Dam, current weather patterns would have resulted in huge amounts of water having already inundated large areas of Ipswich, Brisbane and surrounding areas.

Over the past 24 hours, the catchments for Wivenhoe and Somerset dams have received upwards of 300 millimetres of rainfall, seeing dam inflows similar to those experienced in the 1974 floods.

Current inflows into Wivenhoe Dam are approximately 1,032,000 megalitres per day and the dam is now sitting at approximately 153 per cent.

With all five gates open, Wivenhoe Dam is now releasing 170,000 megalitres per day, which is the largest daily release since the dam was built.

The Water Grid operators continue to work closely with relevant local councils and government authorities regarding these controlled releases.

The release of water from Wivenhoe Dam is strictly guided by an established Flood Mitigation Manual.

Wivenhoe Dam controls 50 per cent of the Brisbane catchment, therefore downstream flooding can be heavily influenced by rainfall below the dam.

However, with the forecast for continued rain and the unprecedented releases expected to continue, there will be an impact on property in the Somerset, Brisbane and Ipswich regions.

In Brisbane there is the potential for water entering properties and some households. Affected areas may include low-lying areas of Windsor, Albion, Newstead, Bowen Hills, East Brisbane, River Hills, Oxley Creek, Carindale, Tingalpa, Bulimba Creek, Hemmant and Rocklea.

Affected roads may include Milton Road, Butterfield Street, Waterloo and Ross Street in Newstead, Sandgate Road at Albion and Windsor's Northey Street.

In Ipswich, the Bremer River is expected to peak Tuesday afternoon, 11 January with a height of 12.7 metres. This peak is primarily due to localised flooding, however the higher levels in the Brisbane River, due to Wivenhoe releases, are impacting the localised flooding as well.



Approximately 300 properties will be affected with some houses experiencing inundation.

Importantly, we must release this water safely to be able to store the expected substantial inflows coming with more severe weather.

## Karen Cowell

**From:** Colin Jensen [Colin.Jensen@brisbane.qld.gov.au]  
**Sent:** Tuesday, 11 January 2011 9:27 AM  
**To:** Barry.Dennien@brisbane.qld.gov.au; dan.spiller@brisbane.qld.gov.au; Ken Smith  
**Cc:** Chris Lavin; John Cowie; Vicki Pethybridge  
**Subject:** BCC Inundation Maps for 5000m3/s  
**Attachments:** 5000 m3 Brisbane East.pdf; 5000 m3 Brisbane South.pdf; 5000 m3 Brisbane West.pdf; 5000 m3 Whole of Brisbane.pdf

[illegible]

Place: LDCC

[illegible]

Gentlemen

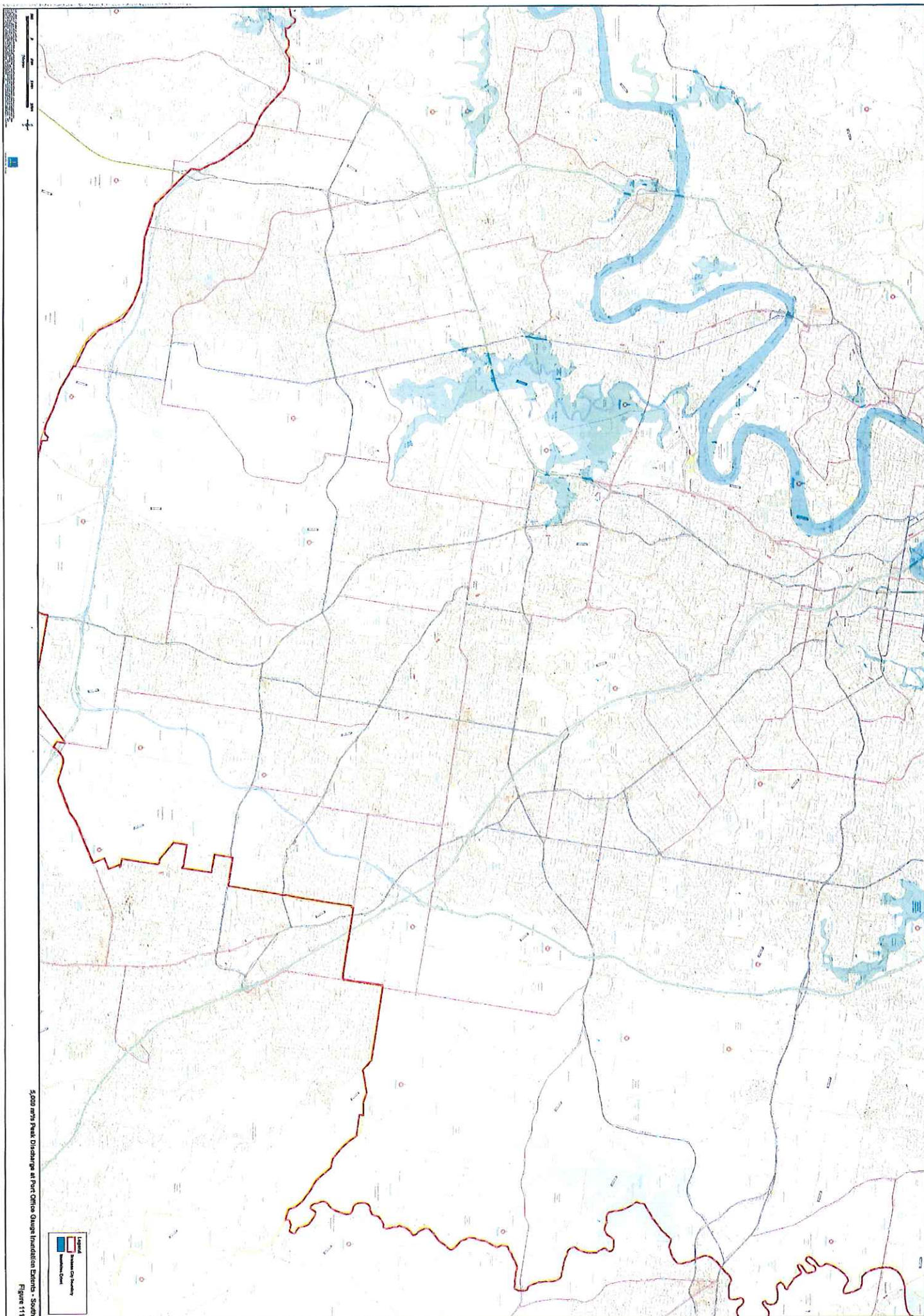
Please find attached our flood maps for river flows of 5,000 cumecs FYI. I will also provide a list of suburbs and streets when I have it to hand.

I note the preliminary advice from BOM is to start our consideration of a 6,000 cumec event for Thursday

Regards

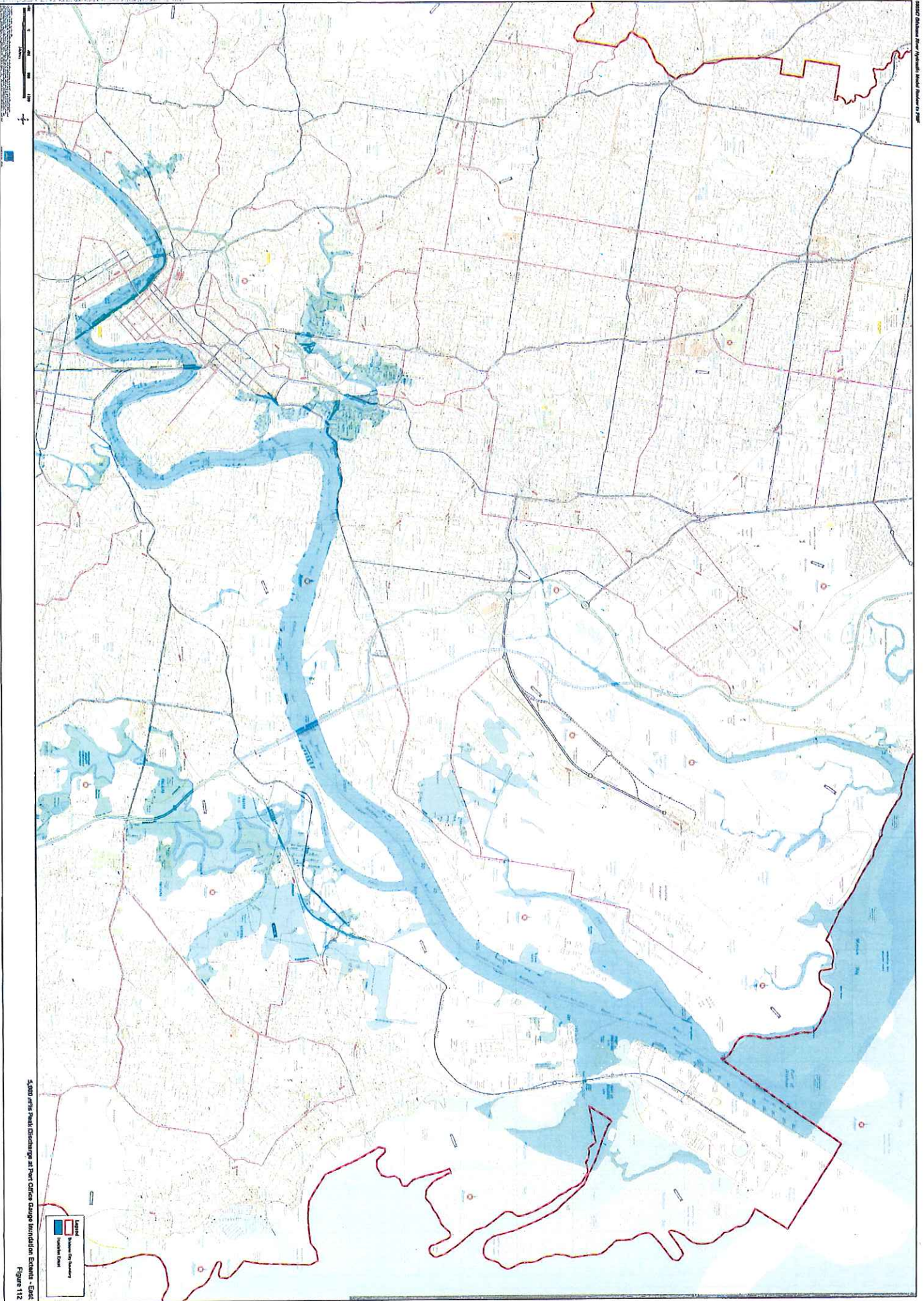
Colin Jensen  
Chief Executive Officer  
Brisbane City Council  
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Phone: [REDACTED] Fax [REDACTED]  
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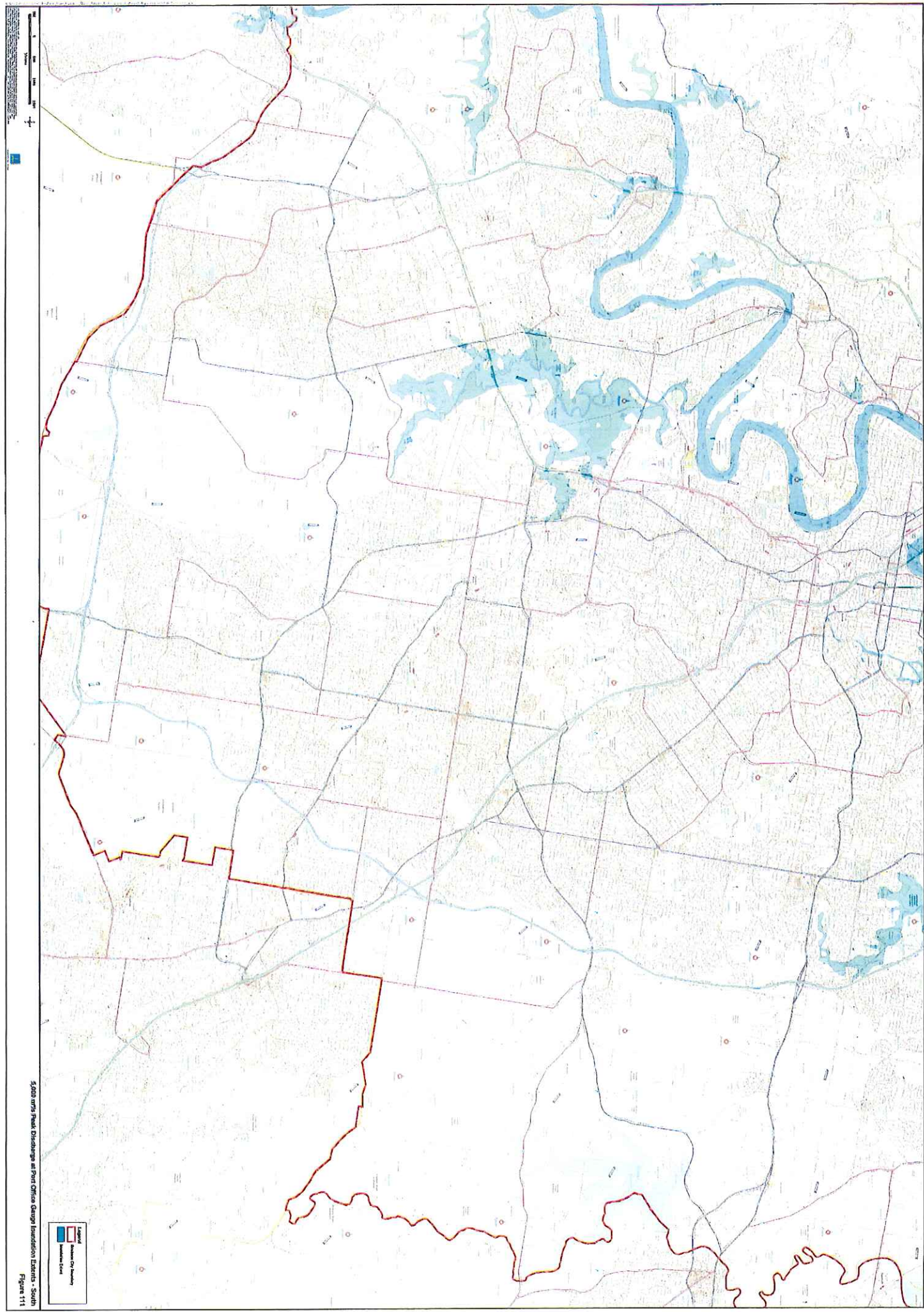


5,000 m³/s Peak Discharge at Peak Cretia Gauging Station Districts - South  
Figure 111









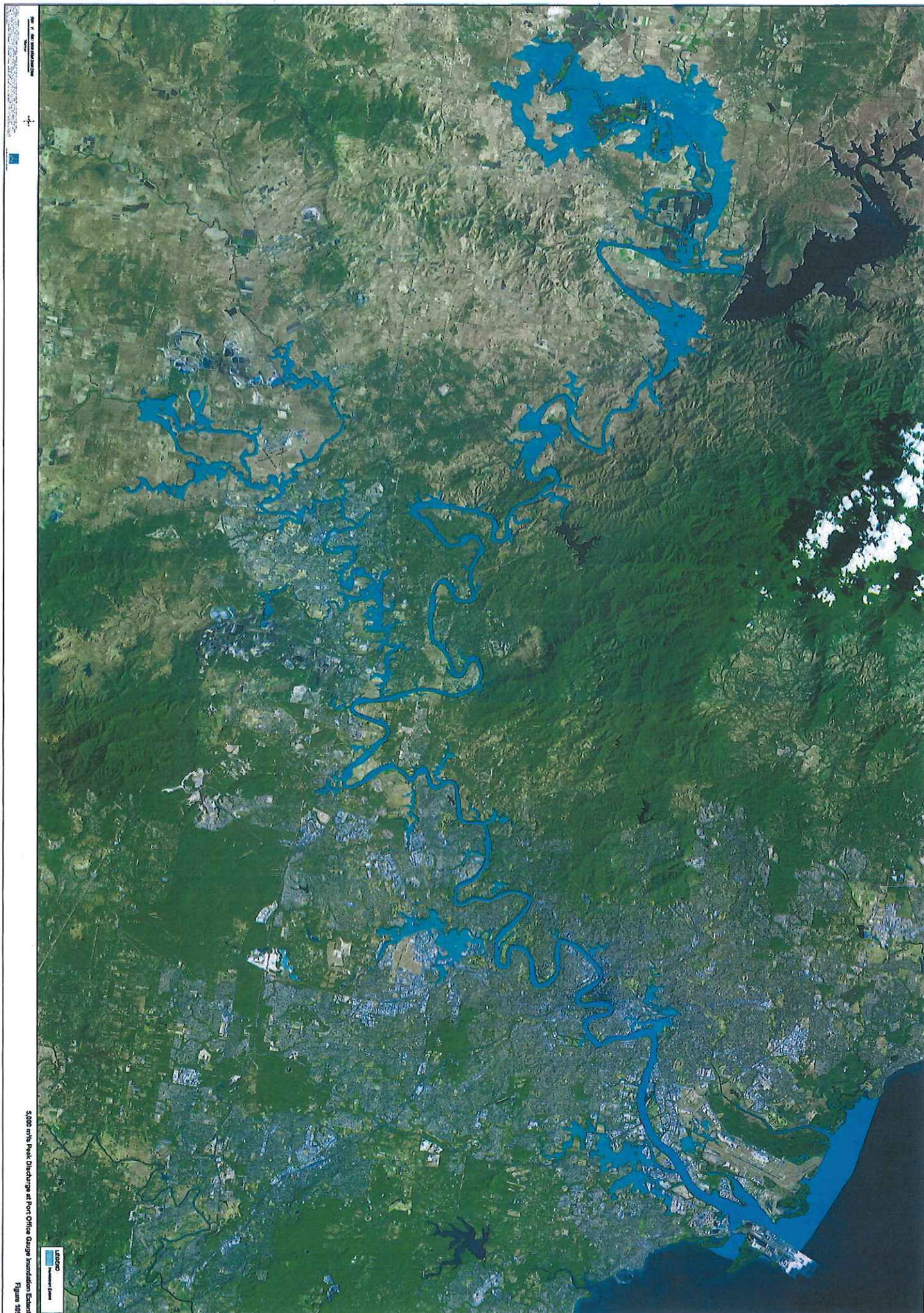
5,000 year Peak Discharge at Port Office Gauge Inundation Extent - South  
Figure 111





5,000 m³/s Flood Discharge at Fort Collins - Inundation Extents - West  
Figure 110





5,000 with Peak Discharge at Port Office Gauge Inundation Extent  
Figure 300



## **Karen Cowell**

---

**From:** Shelley Banks [Shelley.Banks@seqwater.qld.gov.au]  
**Sent:** Tuesday, 11 January 2011 9:01 AM  
**Subject:** SEQ Water Grid Media Report 11 January 2011  
**Attachments:** SEQ Water Grid Media Report - 11 January 2011.pdf

Please see attached today's media report. Coverage over the past 24 hours includes the following:

### **State Government**

- Authorities fear the Brisbane River could flood later this week. Anna Bligh, Queensland Premier says the Wivenhoe Dam has so far protected the city from a repeat of 1974. Also mentions Toowoomba flooding (ABC 612, Hot Tomato, Australian Financial Review, ABC Melbourne, ABC Sydney, Channel 7 Melbourne, Sky News)

### **Local Government**

- Interview with Graham Quirk, A/Lord Mayor regarding the Brisbane River rising. Mentions that Wivenhoe releases will have an impact on river levels (4BC)
- Brisbane Lord Mayor, Campbell Newman, held a press conference regarding expected flooding in Brisbane. Mentions that Wivenhoe is currently protecting the city (ABC 612)
- Interviews with Brisbane Lord Mayor, Campbell Newman, regarding flooding and the SMS early warning system. Mentions Wivenhoe protecting the city and that Seqwater has to release the water from the dam (ABC 612, 4BC, Triple M)
- Kilcoy and Toogoolawah have been cut off by flood waters. Somerset Regional Council is holding emergency meetings. Mention of concerns for towns around Wivenhoe (ABC 612, 4KQ)
- Email from Norman Park resident who is frustrated getting information from Brisbane City Council and Seqwater (4BC)
- Interviews with Ipswich Mayor, Paul Pisasale, who says the city is on flood alert and mentions Wivenhoe opening the gates again (4BC, Queensland Times)
- The water storages in Toowoomba are almost full for the first time in 12 years (ABC Western Queensland, WIN Toowoomba)
- Parts of Esk have been hit by flash flooding this afternoon. Graeme Lehmann, Councillor, Somerset Regional Council, says some areas are cut off by dam releases (ABC 612)
- Multiple stories regarding the extreme flash flooding in Toowoomba (4BC, ABC Canberra, 4KQ, 4GR, Australian, Courier Mail, Toowoomba Chronicle, Channel 9, Channel 10, ABC Sydney, Channel 7 Sydney, ABC Sydney)
- Peter Taylor, the Mayor of the Toowoomba Shire Council explains that they have established Toowoomba Regional Council Disaster Control Centre and shares the number that residents can call to make contact (ABC Southern Queensland)
- Toowoomba Region Council is asking Toowoomba residents to boil water prior to use (4GR)

### **SEQ Water Grid**

- Multiple stories on releases from Wivenhoe Dam including interviews with Barry Dennien, inflows into the dam, flood levels in South East Queensland, dam levels, local road closures and flood warnings (ABC Southern Queensland, ABC 612, 4BC, 4KQ, ABC Canberra, River FM, Gold FM, Triple M, Nova, B105, Courier Mail, Brisbane Times, AAP, Australian, Queensland Times, Sky News, Channel 9, Channel 10, Channel 7, Channel 7 Sydney).
- Letter to the editor regarding releases from Leslie Harrison Dam causing damage to the Capalaba Greyhound Club (Bayside Bulletin)

## SEQ Distributor-retailer

- Mobile pumps and tankers have been deployed across the Sunshine Coast to ensure the sewage network continues to function adequately. Unitywater says the rainfall has infiltrated the network affecting pumps in the region (Mix 92.7, SEA FM)
- Unitywater is holding a community information day on 15 January (Caboolture Shire Herald, Sunshine Coast Daily)

Regards

Shelley

### Shelley Banks

Senior Communications Officer

SEQ Water Grid Communications Unit

SEQ Water Grid Manager

Phone: [REDACTED] | Fax: [REDACTED]

Email: [shelley.banks](mailto:shelley.banks) [REDACTED]

Visit: Level 15, 53 Albert Street Brisbane

Post: PO Box 16205, City East QLD 4002

ABN: 14783 317 630



# no lifeguards here

A WATER SAFETY INITIATIVE FROM



Swimming in weirs and  
flowing water is FA

**rethink**

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## Karen Cowell

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**From:** Elaina Smouha [Elaina.Smouha [REDACTED]]  
**Sent:** Tuesday, 11 January 2011 11:42 AM  
**To:** Ken Smith  
**Cc:** Barry Dennien  
**Subject:** FW: Brian Cooper - CV  
**Attachments:** BrianCooperCV09122010.pdf

Ken

Attached is a copy of the consultant's CV, Brian Cooper, who we intended to engage for the independent Flood Manual review.

Please let Barry or I know if you have any queries.

Regards

Elaina

### Elaina Smouha

Director, Governance and Regulatory Compliance

### SEQ Water Grid Manager

Phone: [REDACTED] | Mobile: [REDACTED] | Fax: [REDACTED]

Email: [elaina.smouha@seqwater.com.au](mailto:elaina.smouha@seqwater.com.au)

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ABN: 14783 317 630

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# Brian Cooper

Dams Engineer

## Qualifications & Affiliations

Short courses on finite element analysis, embankment dam engineering, earthquake engineering. Published technical papers – ICOLD, ANCOLD and I.E. Aust. Attended dam safety course at USBR (Denver, USA) in 2002

Bachelor of Engineering (B.E. Hons), 1968 and Master of Engineering Science (M.Eng.Sc.), 1971

University of New South Wales

Graduate Diploma of Engineering Management, 1994 Deakin University

F.I.E. Aust., C.P.Eng. RPEQ

## Expertise

Brian has approximately 40 years experience in investigation and design of major dams, weirs and hydraulic structures, having started his career designing farm dams and small irrigation schemes. He retired from NSW Department of Commerce in 2005. Brian now works as a private consultant specialising in dams engineering and fish passage at dams and weirs. He has a special interest in risk assessment and computer modelling in general and the seismic analysis of dams in particular. Engineering software (concrete dam stability analysis and flood routing) written by Brian is still used extensively in the Dams & Civil Group of the Department of Commerce. He also has particular experience with concrete dams and the use of post tensioned ground anchors for strengthening those dams. He was a member of the Australian National Committee on Large Dams (ANCOLD) Working Group that developed guidelines for 'Design of Dams for Earthquakes' and a member of the Working Group that revised the guidelines for 'Risk Assessment for Dams'. He has been a guest lecturer for a number of years (most recently in 2009) on concrete dam engineering for the University of NSW post graduate Embankment Dam Engineering Course, and on the history of dams in NSW at Sydney University.

He has been the project director and project manager for a number of feasibility studies, design reviews, site investigations and detail design consultancies for major dams and weirs including the direction and co-ordination of all specialist services including dambreak studies, preparation of dam safety emergency plans and risk assessments. He is currently an expert reviewer for a number of Australian water authorities and consultants (State Water Corporation (NSW), Hydro Tasmania, SunWater (Queensland), Brisbane City Council, Goulburn-Murray Water, Goulburn Valley Water, WA Water Corporation, Southern Rural Water (Victoria), URS, GHD, Hobart Water, NT PowerWater, and TrustPower (NZ)). He has also worked as a sub-consultant for a number of consulting firms (URS, MWH, GHD).

Brian is the Engineers Australia representative for the NSW Dams Safety Committee (the dam safety regulator in NSW) and is currently the Chairman of that organisation. He has been a member of the Murray Darling Basin Authority's Fish Passage Task Force which advises inter alia on the installation of fishways on the Murray River as part of the Living Murray Program.

Brian is a registered engineer in Queensland (RPEQ No. 6819). He started his own consulting business in 2008, advising on dam safety, dam design and analysis, dam risk assessments and dam upgrades as well as fish passage for dams. He is providing specialist advice through *Brian Cooper Consulting* as a sole trader.



## Professional Experience

2008 to Present: *Principal of Brian Cooper Consulting*

- 2010 Five yearly comprehensive dam safety inspection of Carcoar Dam (double curvature arch dam).  
Internal reviewer to URS (Melbourne) on concept design of regulator structures and associated fishways for the Hipwell Road project for watering the Gunbower Forest  
Specialist adviser to Melbourne Water – valve behaviour on Sugarloaf Dam pipeline, structural behaviour of pumping station floor slab and pump bases at Cardinia Dam Pumping Station  
Commenced work as member of ANCOLD working group re-writing the Earthquake Guidelines – responsible for re-writing sections relating to concrete dams.  
Continuing involvement with Alluvium in the design of the weir upgrade and the new fishway for Booligal Weir.  
Continuing external peer review services to State Water Corporation for the detail design of new auxiliary fuse plug spillways for Copeton and Chaffey Dams, detail design of raising and post tensioned strengthening of Keepit Dam, detail design of upgrade works for Wyangala Dam, finite element analysis of Carcoar Dam (double curvature arch dam).  
Further work with GHD (Perth) on risk assessment for Serpentine Dam.  
Continuing involvement with Hydro Tasmania, as Chair of external review panel for Catagunya Dam.
- 2009 Part of URS' comprehensive inspection team for Melbourne Water's Maroondah Dam.  
Part of URS' business risk assessment team for Southern Rural Water's Cowwarr and Maffra Weirs.  
Part of Alluvium's design team upgrading Booligal Weir and providing a fishway at the weir, for State Water Corporation.  
Part of GHD's design team for Lower Fitzroy River Infrastructure Project designing fishways for Rookwood and Eden Bann Weirs near Rockhampton in Queensland.  
Project Manager on behalf of SA Water and reviewer for study into vibration of a crane rail beam at Lock 5 on the River Murray.  
Expert reviewer for State Water Corporation for 3D finite element analysis of Carcoar Dam (double curvature arch dam).  
Internal reviewer for URS on Laanecoorie Dam Upgrade.  
Expert reviewer for State Water Corporation for risk assessments for Oberon and Rydal Dams.  
Member of GHD's Serpentine Dam risk assessment team for WA WaterCorp.  
Expert reviewer for SunWater in Queensland for the comprehensive risk assessment undertaken for Fairbairn Dam and Coolmunda Dam.  
Expert reviewer for State Water Corporation for major upgrade works at Keepit, Copeton, Chaffey and Wyangala Dams.  
Appointed as Chairman of the NSW Dams Safety Committee (the dam safety regulator in NSW).  
Provided external peer review for Goulburn Valley Water, on Nine Mile Creek Dam Upgrade.  
Internal reviewer for URS (Adelaide) for Lake Victoria Outlet Regulator options studies.  
Provided advice to URS (Melbourne) on the Mildura Weir Fishway design.  
Member of expert panel advising State Water Corporation on revised dam surveillance regime.  
Part of Ecosmart bid team - prepared concept designs for fish passage facility at proposed Wyaralong Dam in Queensland.  
Continuing expert review role for Catagunya Dam upgrade.
- 2008 Started as a private specialist dams consultant - *Brian Cooper Consulting*.  
Worked through the URS Corporation for the USBR and the USACE in developing a risk toolbox for lined spillways.  
Advised TrustPower in New Zealand on replacement of post tensioned anchors at Mahinerangi No. 1 Dam.  
Adviser to State Water Corporation and to URS on further upgrade works for Hume Dam.  
Provided specialist advice to WA Water Corporation on Wellington Dam post tensioning.  
Peer reviewer on behalf of URS for Warren Dam in South Australia.  
Part of URS team carrying out portfolio risk assessment of Melbourne Water's dams.  
Member of Expert Review Panel for Darwin River and Manton Dams for NT PowerWater.



***1987 to 2008: Dams & Civil Section of NSW Department of Public Works and Services/NSW Department of Commerce.***

- 2008 Carried out detailed 3D finite element analysis of radial gate at Wyangala Dam spillway for State Water Corporation.  
Continuing review role for Tillegra Dam.  
Continuing review role for Hinze and Lake Manchester Dams in Queensland and Catagunya Dam in Tasmania.  
Prepared options report on Burrendong Dam spillway modifications for State Water Corporation.
- 2007 Continuing roles on Lake Manchester, Hinze, Catagunya and Redbank Ck. Dams.  
Internal peer reviewer for NSW Dept. of Commerce regarding design of Tillegra Dam.  
Advised State Water on feasibility of fish passage facilities at a number of their major irrigation dams.  
Expert reviewer for GHD on a flood retarding basin in south west Sydney.  
Part of expert panel for River Murray Water risk assessments for Hume and Dartmouth Dams, Torrumbarry and Yarrowonga Weirs and Lake Victoria.  
Re-elected as Deputy Chairman of the Dams Safety Committee
- 2006 Project director for 3D finite element analysis of Bendora Dam (double curvature arch dam)  
Chair of external peer review panel for upgrading of Lake Manchester Dam (concrete gravity dam) in Queensland  
Internal peer reviewer and senior consultant for the raising of Hinze Dam (earth and rockfill embankment) in Queensland  
Project director for preliminary and detailed design of Redbank Creek Dam (single curvature arch dam) upgrading  
Project director for Keepit Dam fish passage investigations  
Part of expert panel for URS undertaking portfolio risk assessment for dams owned by River Murray Water  
External peer reviewer for Hydro Tasmania for Catagunya Dam (concrete gravity dam) upgrading;  
Project director for 3D finite element analysis of Upper Cordeaux No. 2 Dam (single curvature arch dam owned by SCA) for BHP Billiton
- 2005 Project design engineer for dam related aspects of Nepean Dam Deepwater Access Project:  
Pipeline crossing end of spillway; outlet works for end of pipeline  
Project design engineer for Avon Dam Deepwater Access Project: tunnel design through rockfill buttressing; new low level outlet works
- 2004 Internal reviewer to URS Australia for Pykes Ck Dam Investigations (Southern Rural Water, Victoria)  
Internal reviewer to URS Australia for Lower Reservoir Dam (Hobart Water, Tasmania)  
Member of expert review panel for the Melton Dam upgrade design (Southern Rural Water, Victoria)
- 2003/04 Designer for retrofitting multi-level offtake for Tallowa Dam (Sydney Catchment Authority).  
Member of the Independent Technical Expert Panel for the Eildon Dam Upgrading in Victoria for Goulburn-Murray Water.  
Currently the design director for the Wivenhoe Dam Alliance carrying out the flood capacity upgrading for Wivenhoe Dam in Queensland – included directing major computational fluid dynamics modelling investigations of existing spillway
- 2003 Carried out options study for environmental upgrading works at Keepit Dam (selective withdrawal facility, additional outlet works and fish passage)  
Carried out assessment of spillway capacity for Hume Dam using computational fluid dynamics modelling (by a sub-consultant)  
Carried out detail design for anchoring Bellfield Dam (Victoria) Intake Tower  
Carried out detailed finite element analysis of Keepit Dam radial gates
- 2002 Carried out review of large farm dam with seepage problems. Directed computational fluid dynamics modelling of drum gate and radial gates at Warragamba Dam together with structural analysis of gates (modelling carried out by sub-consultant) to ensure gates can handle more



rigorous operating conditions

Adviser to the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) on civil engineering matters related to the replacement reactor project at Lucas Heights

Expert reviewer for Goulburn-Murray Water for remedial works at Cairn Curran Dam in Victoria

Project Director for Lerderderg Weir safety review and risk assessment for Southern Rural Water (Victoria). Carried out finite element analysis of radial gate

2001

Project Director for design of further remedial works at Hume Dam.

Technical director on behalf of NPWS for quantitative risk assessment for Snowy Mountains roads

Chairman of the committee producing a geotechnical response plan for the Alpine Way in the Snowy Region for NPWS

Carried out non-linear finite element analysis (earthquake loading) for outlet tower at Bellfield Dam for Wimmera-Mallee Water (Victoria)

Joined the MDBC's Fish Passage Reference Group and reviewed fishway designs

Consultant to DLWC for their portfolio risk assessment of thirty dams

Provided advice on the post tensioning system at Waitakere Dam in New Zealand.

Director of Dam Surveillance Group responsible for the surveillance of DLWC dams and participant of a number of 5 yearly surveillance inspections

Project Director of review of DLWC Intake Towers Earthquake Stability Review

Directed DPWS input into the Earthquake Stability of the structural elements of Yarrawonga Weir as sub-consultant to URS Australia – included detail design of anchoring system for the weir.

Also provided design advice on design of stone columns to provide protection against liquefaction of alluvial foundations.

Member of the expert panel for the risk assessment studies being undertaken for Goulburn-Murray Water

Project Director for safety review and preliminary design of remedial options for Blowering Dam (DLWC)

Acted as reviewer for a number of projects carried out by URS (incl. Cardinia Dam outlet tower, Bellfield Dam embankment/spillway)

Directed functionality study (including business risk assessment) for Yallourn Weir for Southern Rural Water (Victoria)

2000

Project Director for design of further investigations and remedial works at Hume Dam.

Safety reviews for Bamarang and Flat Rock Dams

Director of Dam Surveillance Group responsible for the surveillance of DLWC dams and participant of a number of 5 yearly surveillance inspections

Project Director for earthquake studies on intake towers and appurtenant works at DLWC dams

Consultant to DLWC to manage their portfolio risk assessment

Project Director for a number of dambreak studies and preparation of dam safety emergency plans

Member of the consulting team carrying out risk assessments for Goulburn-Murray Water (Victoria) for Eppalock Dam

Carried out review of Earthquake Stability Review of the Outlet Tower at Eppalock Dam in Victoria for G-MW.

Reviewed URS Australia designs for Alpine Way remedial works

1999

Project Director of earthquake studies on Wyangala Dam

Project Director for design of further remedial works at Hume Dam. Included design of ground improvement works (stone columns) for protecting alluvial foundations against liquefaction

Peer reviewer of Leslie Dam (Queensland) Safety Report.

Peer reviewer of DLWC's Screening Level Risk Assessment

1998

Project Director for portfolio risk assessment for six dams owned by a Southern Rural Water in Victoria.

Directed structural analysis of spillway gates on Narracan Dam for Southern Rural Water

Project Director for concept design and DD&C contract documentation for Warragamba Dam auxiliary spillway. Dam to be upgraded the dam to cater for increased inflow flood estimates.

Upgrading works estimated to cost \$135M. An auxiliary spillway is to be constructed adjacent to the existing dam - involves excavating some 2,000,000m<sup>3</sup> of rock and constructing concrete lining, training walls, fuse plug embankments, large scale cement stabilised sandstone fill, a multi

- span bridge across the spillway, post tensioned ground anchors for dissipator/training walls, modifications of existing spillway gates. Design involved extensive physical hydraulic model testing.
- 1997 Feasibility options study for remediation of Redbank Ck. Dam near Mudgee (NSW) Karapiro Dam, New Zealand - Part of international consulting team reviewing this concrete arch dam's security and determining appropriate remedial options (mass concrete buttressing). Director of risk assessment studies for Tenterfield Dam
- 1993-1997 Hume Dam Investigations - Project Manager of Investigation and Design Studies for the embankments at the dam. Work involves:
- review of the stability of the embankments under static and earthquake loadings
  - investigation of liquefaction
  - potential of embankments' foundations
  - development of stabilising options
  - development of options to provide increased flood security including provision of new auxiliary spillways and modifications to existing works
- detail design and documentation of stabilising works for the embankments including a key trench into the dam's foundations, stabilising berms, slurry wall cut-offs, drainage/filter curtains and strengthening of critical gravity training walls with both horizontal and vertical post tensioning.
- part of advisory and review team for the risk assessment of the dam and its components.
- 1990-1996 Warragamba Dam Upgrading for Sydney Water Corporation - Project Manager of Investigation Concept Design Studies for upgrading the dam to cater for increased inflow flood estimates and provide substantial flood mitigation. Upgrading works estimated to cost \$280M. The existing dam was to be strengthened with mass concrete buttressing – some 600,000m<sup>3</sup>.
- 1996 Project Director for Safety Review (including Finite Element Analysis) of Wellington Dam
- 1993-1996 Hume Dam Gates for Department of Water Resources - Project Manager for the design of new maintenance baulks and emergency closure gates. Involves development of proposals for underwater installation.
- 1995 Redbank Creek Dam and Lithgow No. 2 Dam for NSW Public Works Dams Surveillance - Project Manager for safety reviews and finite element analysis of two 15m high arch dams. Clarrie Hall Dam for NSW Public Works Dams Surveillance - Project Manager for dambreak studies.
- 1994 Burrinjuck Dam Gates for NSW Department of Water Resources - Project Manager for the design of new control and emergency closure gates. Involves underwater installation. Karangi Dam for Coffs Harbour City Water Project - Project Manager for dambreak studies.
- 1993 Mardi Dam for Wyong Council - Project Manager for safety review of earth embankment.
- 1988-1990 Nepean Dam Remedial Works for Sydney Water Corporation - Project Manager for investigation studies, design development and detail design. Work involved:
- initial flood security studies and development of options
  - co-ordination of hydraulic model studies
  - detail design and contract documentation for modified spillway, large size post-tensioned ground anchors and rockfill buttressing.
- 1987-1989 Boggabilla Weir for NSW Department of Water Resources - Project Manager for detail design and contract documentation of a large gated re-regulation weir with fishway. Involved liaison with fisheries expert in developing optimum geometry for fish ladder.



Chaffey Dam for NSW Department of Water Resources - Project Manager for upgrading of dam.  
Work involved:

- development of options and preliminary design
- finite element analyses for raised morning glory spillway
- stability analyses for raised earth/rockfill embankment
- co-ordination of hydraulic model studies for raised spillway.

**1969-1987:** ***Water Resources Commission of NSW (WRC) (now Department of Land and Water Conservation).***

1986-1987 Flood Security studies for WRC - Project Design Engineer for investigation into flood security of Chaffey and Glennies Creek Dams. Involved co-ordinating dambreak studies, development of remedial options, economic risk studies.

1985-1987

Hume Dam Strengthening for WRC - Project Design Engineer for detail design and contract documentation. Work included:

- design of large size post-tensioned ground anchors including development of appropriate grouting procedures
- design of structural modifications to the concrete gravity dam
- design of a new road bridge over the dam.
- establishing the rationale for replacing the existing post tensioning system

## Contact

Tel:

Mob

Email: [brian.cooper@hume.com.au](mailto:brian.cooper@hume.com.au)



## Karen Cowell

---

**From:** Petula Martinz [Petula.Martinz@seqwg.com.au]  
**Sent:** Tuesday, 11 January 2011 4:19 PM  
**To:** Barry Dennien; Bob Reilly; Damien Brown; Darren Madgwick; Geoff Stead; Ken Smith; Kerry Dunn; Lance McCallum; Lauren Sims; Peter Borrows; Peter Martin; Rob Drury; SEQWGM Emergency; Stephen Robertson; Terry Wall; Tim Watts  
**Subject:** Wivenhoe Dam release update  
**Attachments:** Technical Situation Report W40.docx

All,

Current strategy from Flood Control Centre attached.

Dan

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## TECHNICAL SITUATION REPORT

TSR Number	W40	Date of TSR release	11.1.2011	Time of TSR release	4.00pm
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### Seqwater status of inflows and dam operations

*Current status but could change based on inflows or rainfall.*

Current objectives	<ul style="list-style-type: none"> <li>Maintain releases to keep Wivenhoe below fuse plug initiation and releases need to be made to ensure the dam security and minimise flood impacts downstream if possible</li> </ul>										
Strategy	<ul style="list-style-type: none"> <li>Inflows into Wivenhoe in excess of 12000 cumecs.</li> <li>Maintain current release 5700 cumecs as long as possible but due to the high level in the dam may change frequently due to inflows, this is being reviewed every 30 minutes and releases adjusted accordingly.</li> <li>Close sluices at Somerset Dam to store more water however will affect upstream areas.</li> </ul>										
Key considerations	<table> <tr> <td>Storage levels:</td><td>Above FSL</td></tr> <tr> <td>Inflows:</td><td>Inflows expected around 1,500,000ML which is close to 1974 event.</td></tr> <tr> <td>Rainfall:</td><td>Continuing</td></tr> <tr> <td>Lockyer/Bremer:</td><td>Monitoring their inflows</td></tr> <tr> <td>Brisbane River:</td><td>Impact as below.</td></tr> </table>	Storage levels:	Above FSL	Inflows:	Inflows expected around 1,500,000ML which is close to 1974 event.	Rainfall:	Continuing	Lockyer/Bremer:	Monitoring their inflows	Brisbane River:	Impact as below.
Storage levels:	Above FSL										
Inflows:	Inflows expected around 1,500,000ML which is close to 1974 event.										
Rainfall:	Continuing										
Lockyer/Bremer:	Monitoring their inflows										
Brisbane River:	Impact as below.										

### Somerset/Wivenhoe Dam

Our strategy revolves ensuring dam security and is around trying to prevent initiation of the first fuse plug at EL 75.6m. If this happens we will get a rapid increase of about 2,000m<sup>3</sup>/s in outflow from the dam in addition to the gate release which could be as high as 10,000m<sup>3</sup>/s at the time. Sluices have been closed at Somerset and this will result in high upstream water levels affecting Kilcoy.

Wivenhoe Dam is rising very quickly and rapid gate openings are required to manage this increase. Based on the current rate of rise, inflow rate is in excess of 12,000m<sup>3</sup>/s. The situation is being revised constantly and releases will be increased hourly until the water level starts to stabilize. It is possible that the releases will be as high as 10,000m<sup>3</sup>/s in the next few hours. Heavy rainfall continues in the catchment especially around the dam.

It should be noted that the flow in the lower Brisbane R in 1974 was about 9,500m<sup>3</sup>/s.

Travel time to Lower Brisbane River is 24 hours.



## North Pine

Inflows and outflows are at record levels and increasing within inflows nearing 3,000m<sup>3</sup>/s, and is approaching an extreme event (possibly as high as 1 in 10,000 AEP)

Seqwater Technical Officer name	Robert Drury
Seqwater Technical Officer position title	Dam Operations Manager

## BoM assessment

*(consisting of references to latest Flood Warning for the Brisbane River and other relevant Bureau forecasts and warnings (e.g. weather/rain forecasts, Tropical Cyclone Warning etc) and other updates/comments if needed)*

BoM has been advised.

BoM Technical Officer name	Peter Baddiley
BoM Technical Officer position title	
BoM Technical Officer contact details	

## Brisbane City Council (BCC) assessment

*(to include predicted local inundation areas and depths of inundation based on the information)*

Council has been advised of the current status.

BCC Technical Officer name	Chris Lavin
BCC Technical Officer position title	Disaster Operations Manager
BCC Technical Officer contact details	

## Ipswich City Council (ICC) assessment (if required)

*(to include predicted local inundation areas and depths of inundation based on the information)*

Council has been advised of the current status.

ICC Technical Officer name	Tony Trace
ICC Technical Officer position title	Local Disaster Response Coordinator
ICC Technical Officer contact details	

### Somerset Regional Council (SRC) assessment (if required)

*(to include predicted local inundation areas and depths of inundation based on the information)*

Council has been advised of the current status.

SRC Technical Officer name	Tony Jacobs
SRC Technical Officer position title	Local Disaster Response Coordinator
SRC Technical Officer contact details	

### Collated and distributed by (Agency)

Contact Officer signature	
Contact Officer name	Rob Drury
Contact Officer position title	Dam Operations Manager

Next TSR due	Date	11.1.2011	Time	PM	or Event	
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## Karen Cowell

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**From:** Petula Martinz [Petula.Martinz@seqwg.com.au]  
**Sent:** Tuesday, 11 January 2011 6:44 PM  
**To:** Barry Dennien; Bob Reilly; Damien Brown; Darren Madgwick; Geoff Stead; Ken Smith; Kerry Dunn; Lance McCallum; Lauren Sims; Peter Borrowes; Peter Martin; Rob Drury; SEQWGM Emergency; Stephen Robertson; Terry Wall; Tim Watts ; SEQWGM Media; john.bradle@seqwg.com.au  
**Subject:** Updated technical support report  
**Attachments:** Technical Situation Report W41.docx

All,

Updated report attached.

Regards,  
Dan

**Petula Martinz**  
Executive Assistant to Daniel Spiller  
Director Operations  
SEQ Water Grid Manager  
**Phone:** [REDACTED]  
**Email:** [petula.martinz@seqwg.com.au](mailto:petula.martinz@seqwg.com.au)  
**Visit:** Level 15, 53 Albert Street, Brisbane  
**Post:** PO Box 16205, City East Qld 4002  
**ABN:** 14783 317 630

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## TECHNICAL SITUATION REPORT

TSR Number	W41	Date of TSR release	11.1.2011	Time of TSR release	6pm
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### Seqwater status of inflows and dam operations

*Current status but could change based on inflows or rainfall.*

Current objectives	<ul style="list-style-type: none"> <li>Maintain releases to keep Wivenhoe below fuse plug initiation and releases need to be made to ensure the dam security and minimise flood impacts downstream if possible</li> </ul>										
Strategy	<ul style="list-style-type: none"> <li>Peak inflows into Wivenhoe in excess of 12000 cumecs.</li> <li>Increase releases to maintain fuse plug and dam integrity.</li> <li>Close sluices at Somerset Dam to store more water however will affect upstream areas.</li> </ul>										
Key considerations	<table> <tr> <td>Storage levels:</td><td>Above FSL</td></tr> <tr> <td>Inflows:</td><td>Inflows expected well over 1,500,000ML.</td></tr> <tr> <td>Rainfall:</td><td>Continuing</td></tr> <tr> <td>Lockyer/Bremer:</td><td>Monitoring their inflows</td></tr> <tr> <td>Brisbane River:</td><td>Impact as below.</td></tr> </table>	Storage levels:	Above FSL	Inflows:	Inflows expected well over 1,500,000ML.	Rainfall:	Continuing	Lockyer/Bremer:	Monitoring their inflows	Brisbane River:	Impact as below.
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Lockyer/Bremer:	Monitoring their inflows										
Brisbane River:	Impact as below.										

### Somerset/Wivenhoe

Our strategy revolves ensuring dam security and is around trying to prevent initiation of the first fuse plug at EL 75.6m. If this happens we will get a rapid increase of about 2,000m<sup>3</sup>/s in outflow from the dam in addition to the gate release which could be as high as 10,000m<sup>3</sup>/s at the time.

Sluices have been closed at Somerset and this will result in high upstream water levels affecting Kilcoy. Somerset is at 104.41m holding 671,000ML and 176.6%.

In the last twelve hours totals of up to 370mm have fallen in the area around Wivenhoe Dam. In the last hour, rainfalls between 15 and 30mm have been recorded in the same area. At 1600, the BoM advised that falls between 50 to 100mm are still forecast for the 24hrs to 1600 Wednesday 12 January 2011 for the North Pine and Somerset/Wivenhoe catchments. Current inflows are about 9,000cumecs.

At 1730 Wivenhoe Dam was 74.92m AHD holding 2,200,000ML and 190% and rising slowly and releasing about 6,700m<sup>3</sup>/s.

The current expectation is that the dam will reach a steady state (outflow equals inflow) within the next 3 hours without further significant rainfall. At this time, release from the dam will be about 8,000 m<sup>3</sup>/s.

If there is no further rainfall, it may be possible to then slowly reduce this release overnight.

The dam is expected to peak below 75.5m AHD which is 100mmm below the first fuse plug initiation level.



Note that the automatic recorder as indicated on the BoM website is affected by drawdown and is not reflecting the actual lake level and tendency.

The Flood Operations Centre is continuing to monitor rainfalls and water levels through the Brisbane and Pine catchments and reviewing operating strategy every 30 minutes. The FOC is also maintaining close contact with warning agencies and local councils.

It should be noted that the flow in the lower Brisbane R in 1974 was about 9,500m<sup>3</sup>/s

**North Pine Dam:**

Five gates are open, and will continue until at least Wednesday 12 January.

The local Council is being kept informed regarding Youngs Crossing.

**Leslie Harrison Dam:**

Gate releases are underway due to rainfall and inflows.

**Hinze Dam:**

A release of around 86cumecs or 7396 megalitres a day is being made through the emergency gates and this will increase to around 8,000 megalitres per day by 6pm Tuesday 11 January. There is no public access to the spillway.

**Wyalong Dam**

As at 5:00pm today 9,680ML/day was passing over the spillway at Wyalong Dam. This represents a water depth of 0.59m over the spillway. The water level is continuing to rise. Wyalong Dam Alliance will continue to monitor and advise of water levels and flows.

Seqwater Technical Officer name	Robert Drury
Seqwater Technical Officer position title	Dam Operations Manager

**BoM assessment**

*(consisting of references to latest Flood Warning for the Brisbane River and other relevant Bureau forecasts and warnings (e.g. weather/rain forecasts, Tropical Cyclone Warning etc) and other updates/comments if needed)*

BoM has been advised.

BoM Technical Officer name	Peter Baddiley
BoM Technical Officer position title	
BoM Technical Officer contact details	

**Brisbane City Council (BCC) assessment**

*(to include predicted local inundation areas and depths of inundation based on the information)*

Council has been advised of the current status.

BCC Technical Officer name	Chris Lavin
BCC Technical Officer position title	Disaster Operations Manager
BCC Technical Officer contact details	

### Ipswich City Council (ICC) assessment (if required)

*(to include predicted local inundation areas and depths of inundation based on the information)*

Council has been advised of the current status.

ICC Technical Officer name	Tony Trace
ICC Technical Officer position title	Local Disaster Response Coordinator
ICC Technical Officer contact details	

### Somerset Regional Council (SRC) assessment (if required)

*(to include predicted local inundation areas and depths of inundation based on the information)*

Council has been advised of the current status.

SRC Technical Officer name	Tony Jacobs
SRC Technical Officer position title	Local Disaster Response Coordinator
SRC Technical Officer contact details	

### Collated and distributed by (Agency)

Contact Officer signature	
Contact Officer name	Rob Drury
Contact Officer position title	Dam Operations Manager

Next TSR due	Date	11.1.2011	Time	PM	or Event	
--------------	------	-----------	------	----	----------	--



**Karen Cowell**

---

**From:** John Gardiner  
**Sent:** Wednesday, 12 January 2011 5:08 AM  
**To:** John Gardiner; Sandra Mclean; Jill Martin; Martin King; 'William.ferguson'; 'Phil.Nickerson'; Kirsten Roos; 'Troy Davies'; Ros Dunn; 'paul.reynolds'; 'simone.castal'; 'greg.gough'; 'Louise.morland'; 'Carolyn.varley'; 'Kerry.waters'; 'Paul.michaels'; 'David.noble'; 'Nathalie.sengers'; 'bob\_hammill'; 'kerrily\_boulton'; Jacqui Molensen; Jane.Willis; 'Elspeth.costello'; 'Karen.schelbach'; 'Kschelbach'; Paul Holmes; 'Tim.Goodwin'; 'Cameron.Bunkum'; Kathy Parton; 'johngardiner'; Blair Ryan; Rona Hayes; Jennifer Griffiths; Chris Rowsell; 'Paul.Hauenschild'; 'Ian.Drake'; 'Cara.Swann'; 'policemedia'; Kym Charlton; 'Robert.z.hoge'; 'Kirsty.n.balmer'; Andrew Morrissey; 'margaret.smit'; 'simon.broadfoot'; 'maja.cerjak'; 'campaigns'; Lara McKay; 'Kelly.SimonJ'; 'orla\_thompson'; 'dmalliance'; 'craig\_johnstone'; 'Michael.chestermar'; 'bruce.picard'; 'grahammetcal'; 'ronwatson'; John.Stock; 'mpalme'; 'nmaquire'; 'CQ\_RED\_ExecSupport'; Hugh O'Brien; 'Roulston.Chandra'; 'kerri.anderson'; 'SusanE\_Scott'; 'maccmedia'; 'web'; 'brian.bolton'; 'Robyn\_Kinne'; David Russo; Brione Sargent; Chrissie Gold  
**Cc:** Ken Smith; 'Kimberley Gardiner'  
**Subject:** Latest flood media 5am 12/1/11

**Big day – best of luck to all**

**Latest media 5am 12/1/11**

**ABC Online**

## Record floods loom

- [Current weather warnings](#)
- [Suburbs at risk](#)
- [Road closures](#)
- In an emergency call the SES on 132 500

Authorities say thousands of properties could be flooded as the Bremer and Brisbane rivers hit record levels over the next two days. The Brisbane River is set rise to 4.5 metres today and could go higher than the 1974 floods that reached 5.45 metres. The Bremer River at Ipswich is now expected to reach 22 metres this morning - 1.5 metres above the 1974 levels. Large parts of Brisbane are already affected by flooding. A number of shops in the CBD have been evacuated and the State Library has closed because of the extreme weather conditions. A steady stream of debris is floating down the swollen Brisbane River, including boats ripped from their moorings by the force of the current. Queensland Premier Anna Bligh says the scale of the looming disaster is constantly being reassessed. "If we see these sorts of levels in the Brisbane River we would expect to see somewhere above 9,000 properties affected significantly and more than 30,000 other properties having some impact," she said. Ms Bligh has urged people not to panic. "We are facing one of our toughest ever tests, we will only pass this test if we are calm," she said. "Now is not a time for panic, it



is a time for us to stick together." Police Commissioner Bob Atkinson echoed Ms Bligh's call for calm. "Stay calm but act wisely and if you're in doubt, evacuate to friends or evacuate, don't take any unnecessary risks," he said. The [latest victim is a four-year-old boy](#) who drowned at Marburg, near Ipswich. Ipswich Mayor Paul Pisasale said Ipswich is doing the best it can. "We're going to resolve this together," he said. In Brisbane, preparations are being made for around 1,000 at the main evacuation centre at the RNA Showgrounds. Pallavi Datar and her husband arrived on Tuesday. Ms Datar says they are grateful for the speedy response by authorities. "When we left the home we didn't know where to go, but we were hoping that there would be some arrangement made by the city council," she said. "We are really really appreciating the situation that the city council was so prompt in setting up an evacuation centre for people like us, because otherwise there would have been really nowhere to go." Around 800 Ipswich residents have sought shelter at evacuation centres in the city. Greg Goebel, the executive director of the Australian Red Cross, says Ipswich residents are distressed but coping well. "There's been no panic but there's obviously been an influx of people as the day and night has gone on, but people are generally well behaved," he said. "They realise the gravity of the situation." Several major highways are cut as well as countless suburban roads. Residents in flood-affected south-east Queensland are being urged to conserve their drinking water over the next 48 hours. Barry Dennien from SEQ Water says some of the organisation's treatment equipment has been damaged. He says it is important the treated supply is preserved for the next couple of days. "We'd like people to be a touch conservative with the water they are using. It's safe to drink. It's perfectly OK," he said. "But if they could just be conservative. That way we can maintain and get through the next coming days which is critical." Prime Minister Julia Gillard says it will take many months for communities to recover. She says the Federal Government is doing all it can to help people. "We've already processed more than 10,000 claims and paid more than \$13 million and this is just the start - there will be more payments and support for people in recovery and then all of the rebuilding to do." Lifeline is appealing for donations to help its crisis hotline field calls from those affected by floods. The organisation is dealing with large phone bills as they provide counselling from call centres across the country. Lifeline's Chris Wagner says they are providing support around the clock for people looking for someone to talk to about the disaster. "Nationally our centres are all heavily manning the 131114 24-hour crisis telephone service," he said. "That service is already receiving calls from a number of people who either are affected by the flood crisis or who are being affected by watching the flood crisis as the coverage unfolds." Brisbane's CBD and many parts of Ipswich face power supplies as floodwaters rise. Energex says the outages will impact hundreds of thousands of customers. Supply was cut to Ipswich last night and there will be cuts in Brisbane from 7:00am today. The company says the restoration of supplies will depend on floodwaters receding and the amount of damage caused to its substations and network. Meanwhile, Deputy Police Commissioner Ian Stewart says police are daunted by the scale of the disaster in the Lockyer Valley. A raging torrent of water swept through Toowoomba and the Lockyer Valley on Monday, and heavy rain yesterday again pushed creeks to major flood levels. "Certainly Grantham is one of the focus, but the other one is the Murphy's Creek and Withcott area," he said. "That's the other area we're having difficulty getting into, and it's going to take us a long time today to get to every one of those areas. "The scale of this operation is daunting when you look at the number of places and creeks that have been affected." Many towns were either badly damaged or wiped out by the flash flooding. Homes were knocked from their footings and cars were washed away. Where the water has dropped slightly, there has been tonnes of mud and debris left behind. A telephone hotline - 1300 993 191 - has been set up for people seeking information on friends and relatives caught up in the flooding disaster.

John Gardiner  
Manager Community Affairs  
Department of the Premier and Cabinet

[john.gardiner](mailto:john.gardiner)

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**Karen Cowell**

---

**From:** WaterGridMedia [REDACTED]  
**Sent:** Wednesday, 12 January 2011 11:41 AM  
**To:** Ken Smith [REDACTED]  
**Cc:** geoff.stead [REDACTED]; barry.dennien [REDACTED]  
**Subject:** Media release: SEQ ENCOURAGED TO LIMIT HOUSEHOLD WATER USE TO HELP FLOOD RESPONSE

Hi Ken

Please find below conservation media release for your final approval.

Regards  
Barry

**MEDIA ALERT**  
**11 JANUARY 2011**

**SEQ ENCOURAGED TO LIMIT HOUSEHOLD WATER USE TO HELP FLOOD RESPONSE**

South East Queensland residents have been encouraged to limit the amount of water they use in coming days until the impact of flooding on water infrastructure can be fully assessed.

Water remains safe to drink and major water treatment plants are not expected to be impacted by flooding.

Most major drinking water reservoirs are at 75 per cent capacity or higher.

Water Grid spokesperson Dan Spiller said the suggestion to conserve water as a precaution until a full assessment can be made of expected damage to smaller treatment plants and reservoirs, mostly in outlying areas of the SEQ region.

"There is a limited supply of water in some local reservoirs and we are unable to get tankers in to replenish supplies due to flooded roads. We are also facing issues with loss of power at some smaller water treatment plants.

"We are therefore encouraging all SEQ residents to assist in the flood response by restricting non-essential water use until further notice."

The Water Grid, local retailers and Emergency Management Queensland are working closely to gain access to the impacted plants and to rectify all situations to maintain essential supplies.

"We are working urgently to find ways for tankers to get in and replenish supplies. We are also considering options for getting bottled water in to those areas," said Mr Spiller.

Residents with further enquiries can contact their local water retailer with further questions:

Unitywater- 07 5431 8333  
Queensland Urban Utilities - 13 26 57  
Allconnex - 1300 000 928

For general emergencies please call 13 23 64.

**ENDS**



Notes to the editor

## **About the Water Grid**

Established in June 2008 in response to the crippling Millennium Drought, the Water Grid represents one of Australia's largest investments in water infrastructure.

Through a network of climate resilient water sources, treatment facilities, new two-way pipes and existing pipelines, the Water Grid gives the South East Queensland region the ability to support water demands, water quality, economic prosperity and lifestyle - regardless of climate change and population growth.

For further information visit [www.watergrid.com.au](http://www.watergrid.com.au)

**For further details contact the Water Grid Communications Unit on:**

**Ph: (07) 3247 3000 | Email: [media@segwgm.com.au](mailto:media@segwgm.com.au)**

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**Karen Cowell**

---

**From:** Ken Smith  
**Sent:** Monday, 10 January 2011 6:12 PM  
**To:** Dennien Barry @ [REDACTED]  
**Subject:** FW: BCC Innundation Map at 4000 cumecs  
**Attachments:** img-110173945-0001.jpg

Barry

FYI

Regards

**Ken Smith**  
Director-General  
Department of the Premier and Cabinet

Phone: [REDACTED] Fax: [REDACTED]  
Mobile: [REDACTED]  
Email: [Ken.Smith@\[REDACTED\]](mailto:Ken.Smith@[REDACTED])

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**From:** Colin Jensen [[mailto:Colin.Jensen@\[REDACTED\]](mailto:Colin.Jensen@[REDACTED])]  
**Sent:** Monday, 10 January 2011 6:09 PM  
**To:** Ken Smith  
**Subject:** BCC Innundation Map at 4000 cumecs

Ken

As discussed, please find attached a map showing the innundation in Brisbane that is estimated to result from a river flow of 4,000 cubic meters per second. Note that this only shows the river flooding not innundation from localised rain flooding.

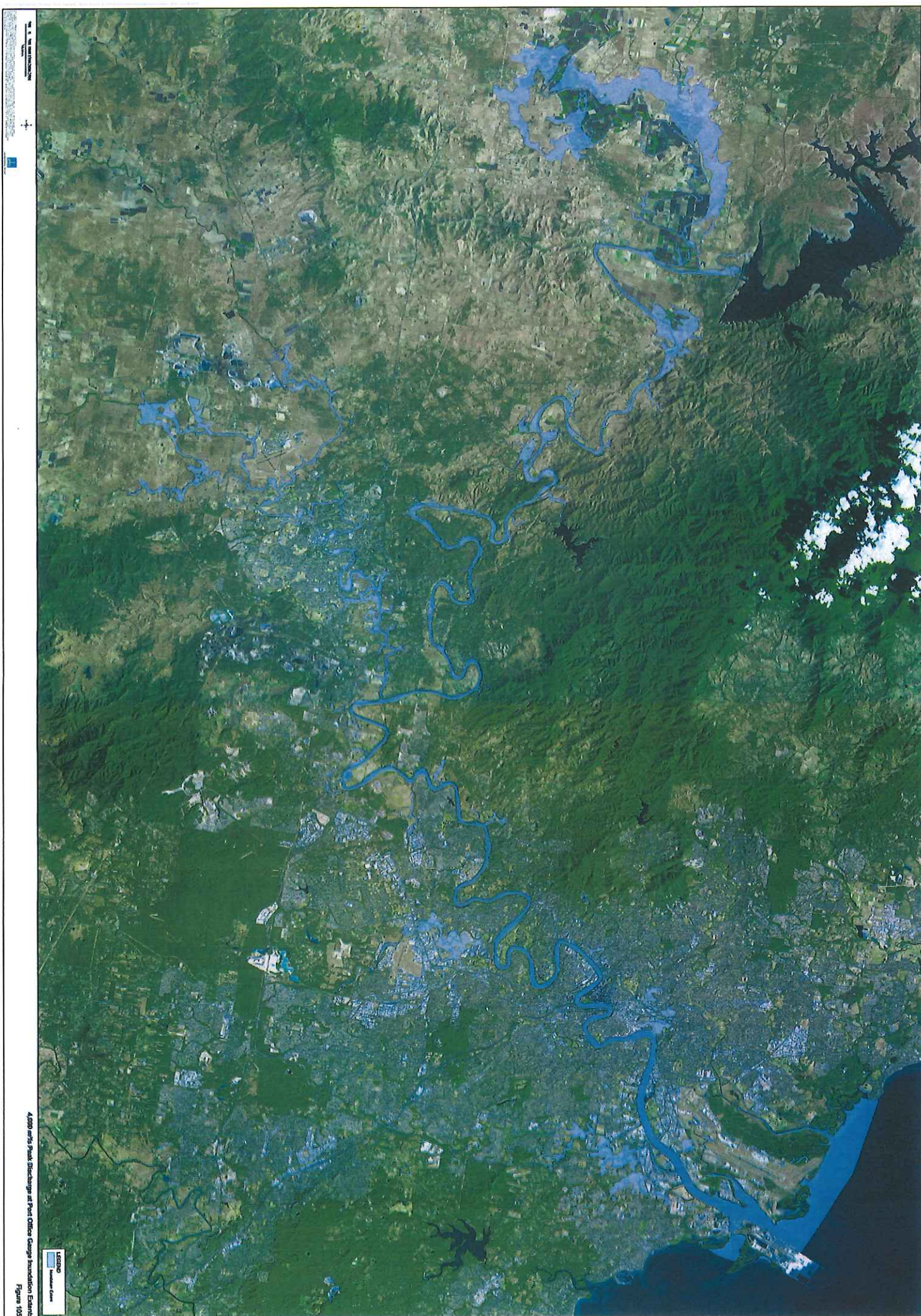
Regards

Colin Jensen  
Chief Executive Officer  
Brisbane City Council  
GPO Box 1434 | Brisbane Qld 4001  
Level 23, Brisbane Square | 266 George Street, Brisbane, Qld 4000  
Phone: 07 [REDACTED] | Fax: [REDACTED]  
Email: [colin.jensen@\[REDACTED\]](mailto:colin.jensen@[REDACTED])



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4,000 wetland structures at Port Office Change Foundation Islands  
Figure 105



## Karen Cowell

---

**From:** Ken Smith  
**Sent:** Monday, 10 January 2011 6:21 PM  
**To:** Dennien Barry @ [REDACTED] 'stephen.beckett [REDACTED]  
**Subject:** FW:  
**Attachments:** Impacts of Wivenhoe releases (DRAFT).docx

Barry

I have added a few areas you left off in the list. Update attached.

Stephen....draft note for Local Brisbane Members. Have also included information about Bremer and Ipswich.

Regards

**Ken Smith**  
Director-General  
[Department of the Premier and Cabinet](#)

Phone: [REDACTED] Fax: [REDACTED]  
Mobile: [REDACTED]  
Email: [Ken.Smith](mailto:Ken.Smith) [REDACTED]

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**From:** Barry Dennien [[mailto:\[REDACTED\]](mailto:[REDACTED])]  
**Sent:** Monday, 10 January 2011 6:14 PM  
**To:** Ken Smith  
**Subject:**

Ken

As discussed

Regards

**Barry Dennien**  
Chief Executive Officer  
**SEQ Water Grid Manager**

Phone: (07) [REDACTED] | Fax: (07) [REDACTED]  
Email: [barry.dennie](mailto:barry.dennie) [REDACTED]  
Visit: Level 15, 53 Albert Street, Brisbane  
Post: PO Box 16205, City East Qld 4002  
ABN: 14783 317 630

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**10 JANUARY 2011**

## **IMPACTS OF WIVENHOE RELEASES ON LOCAL SUBURBS**

Built in response to the 1974 floods, Wivenhoe Dam's key role is to protect Brisbane City and other communities downstream from major flooding.

Wivenhoe Dam is currently holding back flood waters equivalent to about two times the volume of Sydney Harbour. Without this support from Wivenhoe Dam, current weather patterns would have resulted in huge amounts of water having already inundated large areas of Ipswich, Brisbane and surrounding areas.

Over the past 24 hours, the catchments for Wivenhoe and Somerset dams have received upwards of 300 millimetres of rainfall, seeing dam inflows similar to those experienced in the 1974 floods.

Current inflows into Wivenhoe Dam are approximately 1,032,000 megalitres per day and the dam is now sitting at approximately 153 per cent.

With all five gates open, Wivenhoe Dam is now releasing 170,000 megalitres per day, which is the largest daily release since the dam was built.

The Water Grid operators continue to work closely with relevant local councils and government authorities regarding these controlled releases.

The release of water from Wivenhoe Dam is strictly guided by an established Flood Mitigation Manual.

Wivenhoe Dam controls 50 per cent of the Brisbane catchment, therefore downstream flooding can be heavily influenced by rainfall below the dam.

However, with the forecast for continued rain and the unprecedented releases expected to continue, there will be an impact on property in the Somerset, Brisbane and Ipswich regions.

In Brisbane there is the potential for water entering properties and some households. Affected areas may include low-lying areas of Windsor, Albion, Newstead, Breakfast Creek, Bowen Hills, East Brisbane, River Hills, Oxley Creek, Carindale, Canonvale, Tingalpa, Murarie Bulimba Creek, Hemmant and Rocklea.

Affected roads may include Milton Road, Butterfield Street, Waterloo and Ross Street in Newstead, Sandgate Road at Albion and Windsor's Northey Street.

In Ipswich, the Bremer River is expected to peak Tuesday afternoon, 11 January with a height of 12.7 metres. This peak is primarily due to localised flooding, however the higher levels in the Brisbane River, due to Wivenhoe releases, are impacting the localised flooding as well.

Approximately 300 properties will be affected with some houses experiencing inundation.

Importantly, we must release this water safely to be able to store the expected substantial inflows coming with more severe weather.



## Karen Cowell

---

**From:** Ken Smith  
**Sent:** Monday, 10 January 2011 6:24 PM  
**To:** Dennien Barry @ [REDACTED]  
**Subject:** FW: List of suburbs impacted by inundation from a 4,000 cumec river flow

Barry

At last. I will call you to discuss assumptions underpinning number of properties impacted at 4,000 cubic meters assumption

Regards

**Ken Smith**  
Director-General  
[Department of the Premier and Cabinet](#)

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**From:** Colin Jensen [\[mailto:\[REDACTED\]\]](#)  
**Sent:** Monday, 10 January 2011 6:21 PM  
**To:** Ken Smith  
**Subject:** List of suburbs impacted by inundation from a 4,000 cumec river flow

Ken

Please find following, as discussed, some information on the consequence of river inundation likely to result from a river flow of 4,000 cubic meters per second.

Number of properties affected:

- 455 properties (parcels of land) have been identified as experiencing flooding on next Wednesday (at least 221 of these are homes and businesses)
- 7, 731 properties may see some flooding either on the land or outside the property
- More than 400 streets will be affected by flooding in some way

Below is the list of suburbs where the 455 properties that will be affected are located. In brackets is the number of properties/parcels of land that will be affected in each suburb. This is based on the data and modelling we have done to date and we may see increases in these numbers once figures are revised.

- Rocklea (80)
- Albion (49)

- Milton (49)
- Auchenflower (40)
- Norman Park (26)
- Pinkenba (26)
- 0- Oxley (19)
- New Farm (17)
- Kangaroo Point (16)
- Bulimba & Sherwood (14 each)
- Yeronga (10)
- Graceville (9)
- Newstead (8)
- Yeerongpilly (7)
- Bowen Hills (6)
- Indooroopilly, Windsor (5 each)
- Wacol, Brisbane City, Moggill, East Brisbane, Fortitude Valley (4 each)
- Chelmer, Hemmant, Tennyson (3 each)
- Fairfield, Fig Tree Pocket, Coorparoo, South Brisbane, Lytton, Murrarie (2 each)

7 Rapid Response Group teams will be working from both a map and a database to doorknock/letterbox drop a flyer to the 221 homes and businesses that are predicted as being likely to experience inundation. They will visually check using the map that none of the remaining parcels of land from the total 455 properties identified as experiencing flooding are actually homes or businesses also.

The locations where the 221 homes and businesses are located is Albion, Auchenflower, Brisbane City, Bowen Hills, Bulimba, Fortitude Valley, Graceville, Hemmant, Indooroopilly, Kangaroo Point, Lytton, Milton, New Farm, Newstead, Norman Park, Oxley, Pinkenba, Rocklea, Sherwood, Tennyson, Wacol, Windsor, Yeronga.

Regards

Colin Jensen  
 Chief Executive Officer  
 Brisbane City Council  
 GPO Box 1434 | Brisbane Qld 4001  
 Level 23, Brisbane Square | 266 George Street, Brisbane, Qld 4000  
 Phone: 07 [REDACTED] | Fax: 07 [REDACTED]  
 Email: [colin.jensen@brisbanecity.qld.gov.au](mailto:colin.jensen@brisbanecity.qld.gov.au)

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**Karen Cowell**

---

**From:** Ken Smith  
**Sent:** Monday, 10 January 2011 6:59 PM  
**To:** 'Barry Dennien'  
**Subject:** RE: FLDWARN for Lower Brisbane and Bremer Rs [SEC=UNCLASSIFIED]

Thanks Barry. Let me know about their height assumptions. Be interesting to see whether they are predicting 3.6 meters at 4000cumecs per second.

Regards

**Ken Smith**  
Director-General  
[Department of the Premier and Cabinet](#)

Phone: [REDACTED]  
Mobile: [REDACTED]  
Email: [REDACTED]

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**From:** Barry Dennien [mailto:[REDACTED]]  
**Sent:** Monday, 10 January 2011 6:41 PM  
**To:** Ken Smith  
**Subject:** FW: FLDWARN for Lower Brisbane and Bremer Rs [SEC=UNCLASSIFIED]

---

**From:** Colin Jensen [mailto:[REDACTED]]  
**Sent:** Monday, 10 January 2011 6:39 PM  
**To:** Barry Dennien  
**Cc:** Dan Spiller  
**Subject:** Re: FLDWARN for Lower Brisbane and Bremer Rs [SEC=UNCLASSIFIED]

Barry

Suburb list has been emailed. I've asked for confirmation around the 3m. I'm not clear whether it relates to a 4,000 or 5,000 cumec event. BOM indicated that they were working with BCC in the numbers so I'm assuming we agree - my concern is what is the assumptions inherent in the predictions though. I will further insight tomorrow.

FYI. We have stood up our Local Disaster Management Group (chaired by the Lord Mayor) for 10am tomorrow. I understand that the Deputy Premier will be attending

Regards

Colin Jensen  
Chief Executive Officer  
Brisbane City Council  
GPO Box 1434 | Brisbane Qld 4001  
Level 23, Brisbane Square | 266 George Street, Brisbane, Qld 4000  
Phone: [REDACTED]  
Email: [REDACTED]

>>> Barry Dennien <Barry.Dennien@seqwgm.com.au> 10/01/2011 5:16:34 pm >>>

Col

I note the BOM prediction of 3 meters Wednesday do you concur?

How is the Suburb list going

thanks

Barry

TO::BOM615

IDQ20805

Australian Government Bureau of Meteorology  
Queensland

PRIORITY  
FLOOD WARNING FOR THE LOCKYER, BREMER, WARRILL AND BRISBANE RIVER BELOW WIVENHOE  
INCLUDING BRISBANE CITY  
Issued at 4:16 PM on Monday the 10th of January 2011  
by the Bureau of Meteorology, Brisbane.

Stream level rises causing moderate to major flooding are being recorded in Lockyer Creek, Warrill Creek and along the Bremer River. Major flood levels are likely at Ipswich during Tuesday.

Wivenhoe dam is providing significant mitigation of upper Brisbane floods. River flows from the Bremer and Lockyer catchments combined with releases from Wivenhoe dam are expected to increase levels in Brisbane overnight and through Tuesday.

At the Brisbane City Gauge, a river levels of about 2.1 metres is expected with the afternoon high tide on Tuesday and about 3 metres is expected with the high tides on Wednesday causing moderate flooding.

(3 metres at the Brisbane City gauge is about 1.5 metres higher than the highest tide of the year at this location).

#### LOCKYER CREEK:

Further rainfall during Monday has led to renewed rises in the Lockyer Creek catchment. Rainfall is forecast to continue this evening and a return to moderate to major flood levels is expected overnight and during Tuesday. Major



flood levels are expected to continue at Lyons Bridge with rises above 15 metres likely during Tuesday.

#### BREMER RIVER:

Rainfall during Monday will lead to renewed rises and a return to moderate flood levels along the Bremer River to Walloon. Levels over 5 metres are expected at Rosewood overnight.

The Bremer River at Ipswich is expected to reach about 12.7 metres on Tuesday afternoon. Higher levels are possible.

#### WARRILL CREEK

Further rainfall during Monday will lead to increasing river levels along Warrill Creek with levels expected to reach above 6 metres at Amberley overnight.

#### MIDDLE AND LOWER BRISBANE:

SEQwater advises releases from Wivenhoe Dam will increase during Monday. Moderate flooding is expected at Savages Crossing and at Mt Crosby Weir overnight tonight and during Tuesday.

The Brisbane River at the City Gauge (lower end of Edward Street and at Thornton Street) is expected to reach about 2.1 metres with the afternoon high tide on Tuesday and reach about 3 metres with the high tides on Wednesday causing moderate flooding.

(3 metres at the Brisbane City gauge is about 1.5 metres higher than the highest tide of the year at this location).

#### Predicted River Heights/Flows:

Ipswich: Reach about 12.7 metres (major) during Tuesday afternoon. Quicker rises and higher levels are possible depending on further rainfall tonight.

Moggill: Reach about 12 metres (minor) during Tuesday afternoon.

Jindalee: Reach about 7 metres (minor) overnight Tuesday.

Brisbane: Reach about 2.1 metres with the afternoon high tide on Tuesday.

Reach about 3 metres with the high tides on Wednesday causing moderate flooding.

(3 metres at the Brisbane City gauge is about 1.5 metres higher than the highest tide of the year at this location).

Further rises are possible at all four locations depending on further rain.

#### Next Issue:

The next warning will be issued at about 9pm Monday.

#### Latest River Heights:

Lockyer Ck at Gatton #	10.36m steady	03:04 PM MON 10/01/11
Laidley Ck at Laidley	6m rising	02:45 PM MON 10/01/11
Laidley Ck at Showground Weir #	6.98m rising	03:07 PM MON 10/01/11
Laidley Ck at Warrego Hwy *	5.43m falling	01:00 PM MON 10/01/11
Lockyer Ck at Glenore Grove #	11.36m falling	03:05 PM MON 10/01/11
Lockyer Ck at Lyons Br #	14.79m rising	03:02 PM MON 10/01/11
Lockyer Ck at Rifle Range Rd *	13.4m rising	08:20 AM MON 10/01/11
Brisbane R at Lowood Pump Stn #	14.13m falling	03:07 PM MON 10/01/11
Brisbane R at Savages Crossing #	14.15m rising	03:09 PM MON 10/01/11
Brisbane R at Burtons Br #	10.88m rising	03:05 PM MON 10/01/11
Brisbane R at Kholo Br #	6.23m rising	03:06 PM MON 10/01/11

Brisbane R at Mt Crosby #	14.26m rising	03:07 PM MON 10/01/11
Brisbane R at Colleges Crossing #	11.96m rising	03:09 PM MON 10/01/11
Bremer R at Spicers Br #	5.07m rising	03:09 PM MON 10/01/11
Bremer R at Rosewood #	4.94m rising	03:02 PM MON 10/01/11
Bremer R at Five Mile Br Walloon #	5.12m falling	03:09 PM MON 10/01/11
Warrill Ck at Harrisville #	3.82m rising	03:05 PM MON 10/01/11
Warrill Ck at Amberley DNR *	5.34m rising	08:10 AM MON 10/01/11
Bremer R at Ipswich #	6.6m rising	02:40 PM MON 10/01/11
Brisbane R at Moggill #	5.52m rising	02:59 PM MON 10/01/11
Brisbane R at Jindalee Br #	3.7m rising	02:50 PM MON 10/01/11
Brisbane R at City Gauge #	1.36m falling	03:09 PM MON 10/01/11

\*automatic station

Warnings and River Height Bulletins are available at <http://www.bom.gov.au/qld/flood/>. Flood Warnings are also available on telephone 1300 659 219 at a low call cost of 27.5 cents, more from mobile, public and satellite phones.

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## Karen Cowell

---

**From:** Ken Smith  
**Sent:** Tuesday, 11 January 2011 7:20 AM  
**To:** 'pt.lucas' [REDACTED]  
**Subject:** Fw: Water Grid dam release strategy  
**Attachments:** Technical Situation Report W38.docx

DP

Latest report on releases from Wivenhoe. Note uncertainty about impact of Lockyer.

---

**From:** Dan Spiller [REDACTED]  
**To:** 'stephen.robertson' [REDACTED] <stephen.robertson@[REDACTED]>; Ken Smith; 'Lance McCallum' [REDACTED] <lance.mccallum@[REDACTED]> 'Tim Watts' [REDACTED]  
[REDACTED] 'Geoff Stead' [REDACTED]  
(geoff.stead@[REDACTED]) <geoff.stead@[REDACTED]>; 'lauren.sims' [REDACTED]  
<lauren.sims@[REDACTED]>; 'Martin.PeterJ' [REDACTED] <Martin.PeterJ@[REDACTED]>  
'Dunn.Kerry' [REDACTED] <Dunn.Kerry@[REDACTED]>  
**Cc:** Barry Dennien <Barry.Dennien@[REDACTED]>; 'pborrows' [REDACTED]  
<pborrows@[REDACTED]>; 'Rob Drury' <rdrury@[REDACTED]>; 'pbird' [REDACTED]  
<pbird@[REDACTED]>; 'Damien Brown (damien.brown' [REDACTED] <damien.brown@[REDACTED]>  
'bob.reilly' [REDACTED] <bob.reilly@[REDACTED]> 'terry.wall' [REDACTED]  
<terry.wall@[REDACTED]>; 'Madgwick.DarrenT' [REDACTED] <Madgwick.DarrenT@[REDACTED]>  
**Sent:** Tue Jan 11 07:16:44 2011  
**Subject:** Water Grid dam release strategy

All,

Attached is the latest report, with the BoM warning on the Lockyer flood below.

Key points are:

- Current releases are 2,750 cubic metres per second (about 240,000 ML/day). Due to heavy rainfall in the catchment, it was not possible to reduce releases to allow the Lockyer Valley flows to pass.
- Further rainfall may result in the need to increase releases.
- Wivenhoe Dam is at 73.51m AHD and rising at about 25mm/hour. Above 74m, the primary objective becomes maintaining the security of the dam. Releases would be increased at this level with less scope for consideration of downstream impacts.

The BoM is remodeling based on this release strategy. There is some uncertainty about the level of flows coming from the Lockyer.

Please call me on [REDACTED] if you require any further information.

Debbie and Tim: I recommend that a briefing for the Minister would be appropriate, perhaps around 10am.

Regards,  
Daniel Spiller

Australian Government Bureau of Meteorology Queensland

PRIORITY

FLOOD WARNING FOR THE LOCKYER, BREMER, WARRILL AND BRISBANE RIVER BELOW WIVENHOE INCLUDING BRISBANE CITY Issued at 4:06 AM on Tuesday the 11th of January 2011 by the Bureau of Meteorology, Brisbane.

The main flood waters in the Lockyer Creek are now arriving at Lyons Bridge, with strong stream rises expected during Tuesday.

Wivenhoe dam is providing significant mitigation of upper Brisbane floods. River flows from the Bremer and Lockyer catchments combined with releases from Wivenhoe dam are expected to increase levels in Brisbane during Tuesday.

At the Brisbane City Gauge, minor flood levels of about 2.1 metres are expected with the afternoon high tide on Tuesday and levels of about 3 metres are expected with the high tides on Wednesday causing moderate flooding.

(3 metres at the Brisbane City gauge is about 1.5 metres higher than the highest tide of the year at this location).

#### LOCKYER CREEK:

Extremely heavy rainfall during Monday led to extreme rises in the Lockyer Creek catchment and Laidley Creek at Mulgowie. Record flood levels of 18.92 metres were recorded at Gatton Monday evening before the station failed. This level was well above the previous record peak of 16.33 metres from the February 1893 flood.

The main flood waters are currently arriving at Lyons Bridge, with strong stream rises expected in the next few hours. The Lockyer Creek at Glenore Grove peaked at 14.60 metres at 11:30pm, which is 0.3 metres below the 1974 flood.

Renewed stream rises have commenced in Lockyer Creek at Lyons Bridge with a peak between 16 and 16.5 metres expected Tuesday morning. This is likely to be similar in level to the 1996 flood.

#### BREMER RIVER:

The Bremer River at Walloon has exceeded the moderate flood level. The Bremer River at Rosewood peaked at 5.8 metres around midnight Monday.

The Bremer River at Ipswich is expected to reach about 12.7 metres on Tuesday afternoon. Higher levels are possible.

#### WARRILL CREEK

Warrill Creek at Amberley peaked at 5.98 metres around 9pm Monday.

#### MIDDLE AND LOWER BRISBANE:

Moderate flooding is developing at Savages Crossing and at Mt Crosby Weir.

At the Brisbane City Gauge (lower end of Edward Street and at Thornton Street), minor flood levels of about 2.1 metres are expected with the afternoon high tide on Tuesday and levels of about 3 metres are expected with the high tides on Wednesday causing moderate flooding.

(3 metres at the Brisbane City gauge is about 1.5 metres higher than the highest tide of the year at this location).

#### Predicted River Heights/Flows:

Ipswich: Reach about 12.7 metres (major) during Tuesday afternoon.

Moggill: Reach about 12 metres (minor) during Tuesday afternoon.

Jindalee: Reach about 7 metres (minor) overnight Tuesday.

Brisbane: Reach about 2.1 metres (minor) with the afternoon high tide on Tuesday. Reach about 3 metres (moderate) with the high tides on Wednesday.



(3 metres at the Brisbane City gauge is about 1.5 metres higher than the highest tide of the year at this location).

Further rises are possible at all four locations depending on further rain.

**Next Issue:**

The next warning will be issued at about 8am Tuesday.

**Latest River Heights:**

Lockyer Ck at Helidon #	12.68m steady	03:02 PM MON 10/01/11
Flagstone Ck at Brown-Zirbels Rd *	3.49m falling	02:10 AM TUE 11/01/11
Sandy Creek at Sandy Creek Road #	2.15m falling	03:19 AM TUE 11/01/11
Ma Ma Ck at Harm's *	3.26m rising	02:30 AM TUE 11/01/11
Tenthill Ck at Tenthill *	5.57m rising	02:40 AM TUE 11/01/11
Lockyer Ck at Gatton #	18.92m rising	06:30 PM MON 10/01/11
Laidley Ck at Mulgowie *	6.39m rising	02:20 AM TUE 11/01/11
Laidley Ck at Laidley	8.7m falling slowly	10:00 PM MON 10/01/11
Laidley Ck at Showground Weir #	7.84m rising	03:25 AM TUE 11/01/11
Laidley Ck at Warrego Hwy *	6.41m rising	02:00 AM TUE 11/01/11
Lockyer Ck at Glenore Grove #	13.8m falling	03:24 AM TUE 11/01/11
Lockyer Ck at Lyons Br #	15.55m rising	03:23 AM TUE 11/01/11
Lockyer Ck at Rifle Range Rd *	15.39m rising	02:40 AM TUE 11/01/11
Lockyer Ck at O'Reilly's Weir #	18m falling	03:28 AM TUE 11/01/11
Brisbane R at Lowood Pump Stn #	15.93m falling	03:31 AM TUE 11/01/11
Brisbane R at Savages Crossing #	15.89m rising	03:29 AM TUE 11/01/11
Brisbane R at Burtons Br #	12.22m rising	03:29 AM TUE 11/01/11
Brisbane R at Kholo Br #	7.99m rising	03:29 AM TUE 11/01/11
Brisbane R at Mt Crosby #	15.82m steady	03:30 AM TUE 11/01/11
Brisbane R at Mt Crosby #	14.08m falling	04:39 PM MON 10/01/11
Brisbane R at Colleges Crossing #	13.91m rising	03:32 AM TUE 11/01/11
Bremer R at Rosewood#	5.56m falling	03:11 AM TUE 11/01/11
Bremer R at Five Mile Br Walloon #	6.4m rising	03:15 AM TUE 11/01/11
Warrill Ck at Greens Rd Amberley #	5.84m falling	03:29 AM TUE 11/01/11
Bremer R at One Mile Br #	13.75m rising	03:31 AM TUE 11/01/11
Bremer R at Hancocks Br Brassall #	11.33m rising	03:22 AM TUE 11/01/11
Bremer R at Ipswich #	8.55m rising	03:31 AM TUE 11/01/11
Brisbane R at Moggill #	7.07m rising	03:29 AM TUE 11/01/11
Brisbane R at Jindalee Br #	4.5m rising	03:29 AM TUE 11/01/11
Brisbane R at City Gauge #	1.4m falling	03:15 AM TUE 11/01/11

\*automatic station

Warnings and River Height Bulletins are available at <http://www.bom.gov.au/qld/flood/> .  
Flood Warnings are also available on telephone 1300 659 219 at a low call cost of 27.5 cents, more from mobile, public and satellite phones.

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**Robert Drury**

Dam Operations Manager

Water Delivery

Queensland Bulk Water Supply Authority trading as Seqwater



Swimming in weirs and  
flowing water is FA1

rethink



Ph (07) [REDACTED] [rdrury](mailto:rdrury@seqwater.com.au) [REDACTED]  
Wivenhoe Dam, Brisbane Valley Highway, via Fernvale Q4306 Australia  
PO Box 37, Fernvale QLD 4306  
Website | [www.seqwater.com.au](http://www.seqwater.com.au)

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## TECHNICAL SITUATION REPORT

TSR Number	W38	Date of TSR release	11.1.2011	Time of TSR release	6.30am
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### Seqwater status of inflows and dam operations

*Current status but could change based on inflows or rainfall.*

Current objectives	<ul style="list-style-type: none"> <li>Maintain releases to keep Wivenhoe below RL74 at which significant releases need to be made to ensure the dam security and minimise flood impacts downstream if possible</li> </ul>										
Strategy	<ul style="list-style-type: none"> <li>Maintain current release of 2750cumecs as long as possible but it may need to be increased</li> <li>Close sluices at Somerset Dam to store more water however will affect upstream areas.</li> <li></li> </ul>										
Key considerations	<table> <tr> <td>Storage levels:</td><td>Above FSL</td></tr> <tr> <td>Inflows:</td><td>Inflows expected around 1,500,000ML which is close to 1974 event.</td></tr> <tr> <td>Rainfall:</td><td>Continuing</td></tr> <tr> <td>Lockyer/Bremer:</td><td>Monitoring their inflows</td></tr> <tr> <td>Brisbane River:</td><td>Impact as below.</td></tr> </table>	Storage levels:	Above FSL	Inflows:	Inflows expected around 1,500,000ML which is close to 1974 event.	Rainfall:	Continuing	Lockyer/Bremer:	Monitoring their inflows	Brisbane River:	Impact as below.
Storage levels:	Above FSL										
Inflows:	Inflows expected around 1,500,000ML which is close to 1974 event.										
Rainfall:	Continuing										
Lockyer/Bremer:	Monitoring their inflows										
Brisbane River:	Impact as below.										

### Rainfall

Rainfall continues in the North Pine Dam, Somerset Dam and Wivenhoe Dam catchments. Isolated falls in the Upper Brisbane River of up to 125 mm have been recorded with widespread falls of 40 to 70 mm in the Somerset Dam catchment. This rainfall will increase inflows into the dam.

There has also been 20 to 60 mm in the Lockyer Creek catchment in the last 12 hours with falls of up to 30 mm in the Bremer River.

A severe weather warning remains current for heavy rainfall in the dam catchment areas. The QPF issued by BOM at 16:00 estimates rainfalls for the 24 hours to 10:00 Tuesday as North Pine Dam (25mm to 50mm, with isolated falls to 100mm); Wivenhoe/Somerset Dam Catchments (25mm to 50mm, with isolated falls to 100mm).

### North Pine Dam (Full Supply Level 39.60 m AHD)

The dam level is 39.80m AHD and has commenced rising again (storing 4,400ML above FSL). Five gates are open releasing 177 m3/s. The inflow into the dam since the commencement of the event is 77,000 ML. Estimated event volume is 88,000 ML assuming no further rainfall. Releases from the dam will continue until at least Wednesday 12 January 2011.

### Somerset Dam (Full Supply Level 99.00 m AHD)

The dam level is 103.27m AHD and falling slowly. Peak inflow to the dam is estimated to be about

4,200 m<sup>3</sup>/s. Total discharge into Wivenhoe Dam is currently 1400 m<sup>3</sup>/s and this discharge will be decreased in the next few hours to be around 500 m<sup>3</sup>/s later on Tuesday. This is to ensure that the combined flood mitigation capacity in Somerset and Wivenhoe Dam is maximized.

The dam level peaked at 103.52m AHD at 19:00 on Monday 10 January 2011, (unless further significant rainfall is experienced). Areas around Kilcoy will continue to be adversely affected.

### **Wivenhoe Dam (Full Supply Level 67.00 m AHD)**

The dam level is 73.51m AHD and rising at about 25 mm/hour. Releases from the dam have been held at a rate of 2,750 m<sup>3</sup>/s since 19:30 hours on Monday 10 January 2011. Outflows into the Brisbane River from both Lockyer Creek and the Bremer River are also increasing.

The BoM has provided further advice about the flash flooding experienced in the upper areas of Lockyer Creek. The rainfall responsible for this event was not observed at any rainfall stations but it is considered to be extreme. Flood levels in the Lockyer Creek catchment will exceed maximum recorded levels in some stations in the upper catchment. This flow will result in increases in Brisbane River levels below the junction of Lockyer Creek.

Five radial gates are currently open at the dam releasing about 2,750m<sup>3</sup>/s into the Brisbane River. At this stage, the dam will reach just over 74.0m AHD during Tuesday evening.

Above EL 74.0m AHD the objective for dam operations is to maintain the security of the dam and minimise downstream flood flows if possible.

If further rainfall occurs, dam releases may need to be increased further and this may result in river flows in the lower Brisbane River approaching or exceeding 5,000m<sup>3</sup>/s.

### **Impacts downstream of Wivenhoe Dam**

The projected Wivenhoe Dam releases combined with Lockyer Creek flows and local runoff will mean that all crossings downstream of Wivenhoe (Twin Bridges, Fernvale, Savages Crossing, Burtons Bridge, Kholo Bridge, Mt Crosby Weir and Colleges Crossing) will be adversely impacted until at least Sunday 16 January in varying degrees.

Water levels in the lower Brisbane River will be impacted by the combined flows of Lockyer Creek, Bremer River, local runoff and releases from Wivenhoe Dam.

The BoM will provide further information regarding the magnitude of the flash flood event occurring in Lockyer Creek early Tuesday morning. Consideration was given to modifying the releases from Wivenhoe Dam to try to moderate the peak flows emanating from Lockyer Creek but the rainfall in the past 12 hours in the catchment above the dam makes this option not possible. Therefore instead of decreasing releases to accommodate the Lockyer Creek flows, the strategy will endeavour to maintain the current releases until Lockyer Creek peaks.

### **Outlook**

Heavy rainfall continues throughout South East Queensland and the situation could deteriorate over the next 24 hours. The flood operation centre will continue to monitor the situation and provide situation reports every six hours until the situation stabilizes.

Seqwater Technical Officer name

Robert Drury

Seqwater Technical Officer position title

Dam Operations Manager



## BoM assessment

*(consisting of references to latest Flood Warning for the Brisbane River and other relevant Bureau forecasts and warnings (e.g. weather/rain forecasts, Tropical Cyclone Warning etc) and other updates/comments if needed)*

BoM has been advised.

BoM Technical Officer name	Peter Baddiley
BoM Technical Officer position title	
BoM Technical Officer contact details	

## Brisbane City Council (BCC) assessment

*(to include predicted local inundation areas and depths of inundation based on the information)*

Council has been advised of the current status.

BCC Technical Officer name	Chris Lavin
BCC Technical Officer position title	Disaster Operations Manager
BCC Technical Officer contact details	

## Ipswich City Council (ICC) assessment (if required)

*(to include predicted local inundation areas and depths of inundation based on the information)*

Council has been advised of the current status.

ICC Technical Officer name	Tony Trace
ICC Technical Officer position title	Local Disaster Response Coordinator
ICC Technical Officer contact details	

## Somerset Regional Council (SRC) assessment (if required)

*(to include predicted local inundation areas and depths of inundation based on the information)*

Council has been advised of the current status.

SRC Technical Officer name	Tony Jacobs
SRC Technical Officer position title	Local Disaster Response Coordinator
SRC Technical Officer contact details	

Collated and distributed by (Agency)

Contact Officer signature	
Contact Officer name	Rob Drury
Contact Officer position title	Dam Operations Manager

Next TSR due	Date	11.1.2011	Time	PM	or Event	
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**Karen Cowell**

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**From:** Ken Smith  
**Sent:** Friday, 14 January 2011 12:59 PM  
**To:** 'pt.lucas' [REDACTED]  
**Subject:** Fw: Current version  
**Attachments:** ATT1249776.doc

DP

Draft release

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**From:** Melanie Hirsig <[Melanie.Hirsi\[REDACTED\]](mailto:Melanie.Hirsi[REDACTED])>  
**To:** Fiona Ferrier <[Fiona.Ferrier@\[REDACTED\]](mailto:Fiona.Ferrier@[REDACTED])>; Ken Smith  
**Cc:** [john.bradley\[REDACTED\]](mailto:john.bradley[REDACTED]) <[john.bradley\[REDACTED\]](mailto:john.bradley[REDACTED])>  
**Sent:** Fri Jan 14 12:56:41 2011  
**Subject:** FW: Current version

Kind Regards  
Melanie

**Melanie Hirsig** | Acting Executive Assistant | Office of the Director-General | Department of Community Safety  
t: (07) [REDACTED] | f: [REDACTED] | e: [melanie.hirsig\[REDACTED\]](mailto:melanie.hirsig[REDACTED]) | w:  
[communitysafety.qld.gov.au](http://communitysafety.qld.gov.au)

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**From:** Melanie Hirsig  
**Sent:** Friday, 14 January 2011 12:29 PM  
**To:** [REDACTED]; [barry.dennien\[REDACTED\]](mailto:barry.dennien[REDACTED])  
**Subject:** Current version

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## Media Release

**MEDIA RELEASE**  
**14 JANUARY 2011**

### **NON-FLOOD AFFECTED RESIDENTS URGED TO USE WATER WISELY**

Despite significant operational challenges caused by flooding, the major water supplies remain reliable in the Water Grid supplying Brisbane, Ipswich and the Gold Coast.

Deputy Premier Paul Lucas said that the region's major water treatment plant at Mount Crosby had been partly flooded and impacted by poor water quality in the Brisbane River.

"While production is increasing, some of our water treatment infrastructure was impacted by floods and the output is still being affected by turbidity in the Brisbane and North Pine Rivers.

"The East Bank of Mt Crosby, which was inundated, is now back on line and gradually being brought up to maximum production.

"We are also using the desalination plant and transfers across the Water Grid to resupply local water reservoirs where water levels declined while Mount Crosby was off line."

Mr Lucas urged residents and businesses in Brisbane, Logan and Ipswich who had not been affected by floods to use only what they need for the next few days.

"Our key priority in these areas is maintaining sufficient water for those households and businesses who need to use more in the immediate flood recovery.

"It is really important that we all use our precious clean water supplies wisely over coming days" said.

Water Grid Manager CEO Barry Dennien said that people who haven't been affected by the flood can help by using the same cautious water use practices that saw us through the drought. These include:

- take only short 4 minute showers
- don't water gardens
- don't hose buildings, driveways and footpaths
- delay washing your cars
- don't fill pools
- only use dishwashers when you have a full load
- turn-off taps when you don't need water

"During the drought south-east Queenslanders showed how well we could conserve water. This latest crisis means residents and businesses outside the directly flooded affected areas need to do the same again" Mr Dennien said.



"I can assure everyone who has not been directly impacted by flooding that by conserving valuable water over the next few days you will make a real and important contribution to the flood recovery effort" said Mr Dennien.

The Water Grid is working closely with local councils to prioritise water use for the cleanup of key roads first, followed by other areas later after water treatment plants are operating normally again.

## **ENDS**

Notes to the editor

### **About the Water Grid**

Established in June 2008 in response to the crippling Millennium Drought, the Water Grid represents one of Australia's largest investments in water infrastructure.

Through a network of climate resilient water sources, treatment facilities, new two-way pipes and existing pipelines, the Water Grid gives the South East Queensland region the ability to support water demands, water quality, economic prosperity and lifestyle - regardless of climate change and population growth.

For further information visit [www.watergrid.com.au](http://www.watergrid.com.au)

**For further details contact the Water Grid Communications Unit on:**

**Ph: (07) 3247 3000 | Email: [media@seqwgm.com.au](mailto:media@seqwgm.com.au)**

**Karen Cowell**

---

**From:** Ken Smith  
**Sent:** Friday, 14 January 2011 4:07 PM  
**To:** 'kimberley.gardine'  
**Subject:** Fw: Fwd: questions

KG

Hedley Thomas' questions.

---

**From:** Barry Dennien <Barry.Dennien>  
**To:** Ken Smith; Bradley John <John.Bradley>  
**Sent:** Fri Jan 14 15:54:56 2011  
**Subject:** Fwd: questions

Regards  
Barry Dennien

Begin forwarded message:

**From:** WaterGridMedia <[WaterGridMedia](#)>  
**Date:** 14 January 2011 3:46:17 PM AEST  
**To:** Barry Dennien <[Barry.Dennien](#)>  
**Cc:** "[seqwgm](#)" <[seqwgm](#)>  
**Subject:** FW: questions

Hi Barry,

As discussed with Stacey, Please find the questions from Hedley Thomas, Chief Correspondent, The Australian.

Regards

Jade

Water Grid Communications Unit

---

**From:** Thomas, Hedley [mailto:thomash]  
**Sent:** Friday, 14 January 2011 3:24 PM  
**To:** WaterGridMedia  
**Subject:** questions

Stacey



Re questions in writing, due to the tight time frame I have limited them to four:

1. What do the operators of Wivenhoe Dam say to the suggestion that the warnings by the BOM's severe weather forecasters in September and October of a confirmed La Nina, and the heightened possibility of flooding rains and cyclone activity, should have necessitated a much more conservative approach to Wivenhoe Dam – specifically, that it should have led to the volume of water in Wivenhoe being significantly reduced over the ensuing weeks to give the dam a much larger buffer?
2. What do the operators say to the suggestion that the failure to err on the side of caution – to ensure this much larger buffer - was a poor decision under the circumstances and in the light of the warnings of extreme weather, and that this compromised the dam's ability to take the water?
3. What do the operators say to the suggestion that the sudden and significant discharges this week was a major contributor to the Brisbane River flood?
4. What was the peak flow at the port office in the Brisbane River – and what was the dam's contribution to that peak flow?
5. What do the operators say to the suggestion that the decision to maintain storage at around FSL following the weather bureau's warnings was influenced by the years of El Nino-related drought, and political pressure?

I will need those responses asap Stacey, by 5pm.

Many thanks

Hedley Thomas

National Chief Correspondent

The Australian & The Weekend Australian

[REDACTED]

E: [thomash](#) [REDACTED]

[REDACTED] Bowen Hills Qld 4006

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**Karen Cowell**

---

**From:** Ken Smith  
**Sent:** Friday, 14 January 2011 10:31 PM  
**To:** 'Barry.Dennien'; 'John.bradley'  
**Cc:** 'watergridmedia'  
**Subject:** Re: Water Supply is looking better

Great news Barry. Congratulations on a job well done.

---

**From:** Barry Dennien <[Barry.Dennien](mailto:Barry.Dennien)>  
**To:** John Bradley (<[john.bradley](mailto:john.bradley)>); Ken Smith  
**Cc:** [watergridmedia](mailto:watergridmedia) <[watergridmedia](mailto:watergridmedia)>  
**Sent:** Fri Jan 14 20:26:22 2011  
**Subject:** Water Supply is looking better

Gents

More good news, Mt Crosby is now producing 410 megalitres per day ( Westbank 230, Eastbank 180) an we are building the system storage.

Lowood Water pump station and treatment plant is up and running, after a short commissioning Lowood, Gatton, Helidon, Fernvale and Laidley will start getting supply. Six QUU crews are on site to repair the reticulation system to these towns.

Regards

Barry

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## Karen Cowell

---

**From:** Ken Smith  
**Sent:** Friday, 14 January 2011 10:33 PM  
**To:** 'pt.lucas@[REDACTED]'  
**Subject:** Fw: Water Supply is looking better

Good news on the eastbank.

---

**From:** Barry Dennien <[Barry.Dennien@\[REDACTED\]](mailto:Barry.Dennien@[REDACTED])>  
**To:** John Bradley ([john.bradle@\[REDACTED\]](mailto:john.bradle@[REDACTED])) <[john.bradle@\[REDACTED\]](mailto:john.bradle@[REDACTED])> Ken Smith  
**Cc:** [watergridmedia@\[REDACTED\]](mailto:watergridmedia@[REDACTED]) <[watergridmedia@\[REDACTED\]](mailto:watergridmedia@[REDACTED])>  
**Sent:** Fri Jan 14 20:26:22 2011  
**Subject:** Water Supply is looking better

Gents

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Barry

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## Karen Cowell

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**From:** Ken Smith  
**Sent:** Saturday, 15 January 2011 12:40 PM  
**To:** 'nicole.scurrah' [REDACTED]  
**Subject:** Fw: Response to Minister Robertson on 24/12  
**Attachments:** Letter to Minister - flood management.doc; ATT00001.htm

Fyi. Will discuss later

---

**From:** Bradley John <[John.Bradley@derm.qld.gov.au](mailto:John.Bradley@derm.qld.gov.au)>  
**To:** [lance.mccallum@derm.qld.gov.au](mailto:lance.mccallum@derm.qld.gov.au) <[lance.mccallum@derm.qld.gov.au](mailto:lance.mccallum@derm.qld.gov.au)>  
**Cc:** Ken Smith  
**Sent:** Sat Jan 15 12:19:58 2011  
**Subject:** Response to Minister Robertson on 24/12

Lance /Ken

Further to separate discussions with you both today,

Attached is a copy should you need it today (due to media interest) of the advice which SEQWGM gave Min Robertson on 24/12 regarding whether there would be any flood mitigation benefit in drawing down dam levels below FSL before the wet season.

We are preparing the detailed advice requested by Min Robertson on these issues also which we have agreed with Lance to have ready by COB tomorrow prior to a meeting with Minister before Cabinet Monday.

regards

John Bradley  
Director-General  
Department of Environment and Resource Management  
**Telephone:** [REDACTED]  
**Email:** [John.Bradley@derm.qld.gov.au](mailto:John.Bradley@derm.qld.gov.au)  
[www.derm.qld.gov.au](http://www.derm.qld.gov.au)

Department of Environment and Resource Management  
400 George Street, Brisbane Q 4000  
GPO Box 2454, Brisbane Q 4001

---

**From:** Barry Dennien [[mailto:\[REDACTED\]](mailto:[REDACTED])]  
**Sent:** Saturday, 15 January 2011 7:34 AM  
**To:** Bradley John  
**Subject:** Fwd: Flood Letter - Minister

John

See attached

I will phone in the sdmg so I can attend the lord mayors disastereeting

We will have a full brief for you

Regards  
Barry Dennien

Begin forwarded message:

**From:** Elaina Smouha <[Elaina.Smouha](mailto:Elaina.Smouha@seqwater.com.au)>  
**Date:** 14 January 2011 3:04:21 PM AEST  
**To:** Barry Dennien <[Barry.Dennien](mailto:Barry.Dennien@seqwater.com.au)>  
**Subject:** Fwd: Flood Letter - Minister

Elaina Smouha  
Director, Governance and Regulatory Compliance  
SEQ Water Grid Manager  
Phone: [REDACTED]  
Email: [elaina.smouha](mailto:elaina.smouha@seqwater.com.au) [REDACTED]  
Visit: Level 15, 53 Albert Street Brisbane  
Post: PO Box 16205, City East QLD 4002  
ABN: 14783 317 630

Begin forwarded message:

**From:** Chris Snape <[Chris.Snape](mailto:Chris.Snape@seqwater.com.au)>  
**Date:** 14 January 2011 3:01:46 PM GMT+10:00  
**To:** "Elaina Smouha" <[Elaina.Smouha](mailto:Elaina.Smouha@seqwater.com.au)>  
**Cc:** Elaina Smouha <[Elaina.Smouha](mailto:Elaina.Smouha@seqwater.com.au)>  
**Subject:** Flood Letter - Minister

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3 sheets of A4 paper = 1 litre of water

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24 December 2010

Hon Stephen Robertson MP  
Minister for Natural Resources, Mines and Energy  
and Minister for Trade  
PO Box 15216  
Brisbane Qld 4001

Dear Minister

I am pleased to respond to your letter of 25 October 2010 regarding options to and benefits of releasing water from key storages in anticipation of major inflows over the current wet season. Our advice follows, based on discussions with Seqwater.

Only four of the dams in South East Queensland region are gated, with the ability to release significant amounts of water in anticipation of major inflows. These are Wivenhoe, Somerset, North Pine and Leslie Harrison dams.

Detailed operational procedures have been approved for each of the gated dams. The dams will continue to be operated in accordance with these procedures. These procedures generally relate to the management of the dams and should be managed above Full Supply Level. This advice relates to the water security aspect of the management of the dams below Full Supply Level.

Based on information currently available, Seqwater has advised that releasing water to below Full Supply Level may provide some benefits in terms of reduced community and operational impacts during minor inflow events, such as has occurred over the past month. For medium and major flood events, it considers that pre-emptive releases will provide negligible benefits.

Informed by this advice, the SEQ Water Grid Manager has advised Seqwater that, from a water security perspective, it has no in-principle objection to minor releases from Wivenhoe, Somerset and North Pine dams to minimise the operational and community impacts of gate releases. Specifically, it has advised that it has no in-principle objection to:

- Wivenhoe and Somerset dams being drawn down to 95 per cent of their combined Full Supply Level
- North Pine Dam being drawn down to 97.5 per cent of its Full Supply Level.

The SEQ Water Grid Manager has assessed the water security implications of the release to be negligible, having no impact on our ability to meet the risk criteria specified in the System Operating Plan or our ability to meet our supply obligations to Grid Customers. From a water security perspective, the Queensland Water Commission has also confirmed that it does not have any objections to the potential release.

Please note that these arrangements are intended to apply for the current wet season only, taking into account the level of storages and the rainfall forecasts over coming months.

For future wet seasons, the SEQ Water Grid Manager will continue to work with Seqwater to investigate the optimal arrangements. In particular, we propose to further investigate options that may reduce the frequency or duration of intermediate level flows (between 1,900 and 3,500 cubic metres per second). In addition, we recommend that the investigations with the Queensland Water Commission to examine the opportunity of raising the full supply level of Wivenhoe Dam for water supply be expanded to include options involving the release of the additional water once major inflows are forecast.

I trust that this advice is sufficient. If you have any questions, please do not hesitate to contact Mr Dan Spiller, Director Operations, by telephone on [REDACTED] or by email on [dan.spiller@seqwater.com.au](mailto:dan.spiller@seqwater.com.au) [REDACTED]

Yours sincerely



**Gary Humphrys**  
Chair

## **ATTACHMENT**

### **Wivenhoe and Somerset dams**

Wivenhoe Dam can store up to 1.15 million litres (ML) of drinking water. In addition, it has the capacity to store an additional 1.45 ML of flood water.

While large, the flood compartment can be filled within days. For example, following heavy rainfall in October 2010 Wivenhoe Dam received inflows equivalent to almost half of the flood storage compartment capacity in just a few days.

Several factors influence flood release strategies for Wivenhoe and Somerset dams.

First, rain events that have caused flooding have historically been prolonged events over several days, often with a second event occurring several days to a week after the first. As a result, the operational procedures for the dam are designed to ensure that all water held in the flood compartments is released within seven days of a rain event, ensuring that the flood compartment is available for any future inflows.

Secondly, the dam only controls flood waters from part of the Brisbane River catchment area. About 50 per cent of the catchment area of the Brisbane River is upstream of the Wivenhoe Dam wall, and can be potentially controlled by it. No flood mitigation structures exist for most of the potential run-off from the other 50 per cent of the catchment area.

Third, the Bureau of Meteorology has had limited success in plotting rainfall distribution accurately to assess where most flooding risk lies above or below the dam wall. Historical floods have demonstrated that flooding can occur from both. For example, the 1974 flood flows primarily occurred below the dam wall whilst the 1890's event occurred above the dam wall. As a result, when releasing water from Wivenhoe Dam it is very important to predict and monitor below the dam wall flows so as to understand combined river flows that cause flood impacts.

Taking these factors into account, the flood release strategy for Wivenhoe and Somerset dams has a hierarchy of objectives:

- Ensure the structural safety of the dam
- Provide optimum protection of urbanised areas from inundation
- Minimise disruption to rural life
- Retain full supply level after a flood event
- Minimise impacts to flora and fauna during the drain down phase.

Within this framework, flood releases from Wivenhoe Dam typically fall into two categories of flood events based on the impact they cause when combined with below the dam wall catchment runoff:

- Larger events typically involving combined river flows greater than 3,500 cubic meters per second measured at Moggill. These events would have flood impacts on



urban areas in Brisbane. This scale of release has not been required since Wivenhoe Dam was completed.

- Smaller events with combined river flows of less than 1,900 cubic meters per second measured at the Mt Crosby weir which can inundate up to seven rural bridges isolating up to 50 households and causing inconvenience to many more. There has been six of these events since 1984, when Wivenhoe Dam was completed.

Our assessment of the benefits of lowering dam storage levels to reduce flooding impacts is below for these two event types.

#### *Large events*

Seqwater has advised that releases of greater than 3,500 cubic metres per second (m<sup>3</sup>/s) from Wivenhoe Dam are likely to impact on urban areas in Brisbane. Events of this nature have not been experienced since Wivenhoe Dam was completed in 1984.

Seqwater has advised that:

- pre-emptive releases are likely to have negligible impacts on the extent of these impacts
- any impacts would require releases of at least 250,000 ML. This is equivalent to a release of about 16 per cent of the combined storage capacity of Wivenhoe and Somerset dams.

A pre-emptive release of this scale is not recommended, based on information currently available. The potential water security impacts are considered to be more significant than the negligible benefits. These potential security impacts include costs associated with the earlier or avoidable operation of the desalination facility at capacity, as well as the increased probability of triggering the implementation of a drought response plan.

More detailed investigation of opportunities to actively manage flood storage is recommended, including options to increase flood supply level on a temporary basis. These investigations need to be led by Seqwater, and involve the Bureau of Meteorology, Councils and the SEQ Water Grid Manager.

In particular, it has been identified that it is worth investigating the impacts on downstream flooding for intermediate level flows (flows between 1900 and 3500 m<sup>3</sup>/s).

Seqwater will undertake extensive investigations for the Queensland Water Commission in early 2011 to examine the opportunity of raising the full supply level of Wivenhoe Dam for water supply. We will recommend that the scope of this work be widened to consider the benefits of pre-lowering storage levels based on mid range rainfall events and the reduced impacts to river levels and subsequent property impacts. It is noted that predicting rainfall intensity and location, even as events are about to occur has not been accurate, however the Bureau of Meteorology is improving its methods.

### *Smaller events*

Pre-emptive releases from Wivenhoe Dam may reduce the impacts of minor gate releases (strategies W1A to W1E in the operational procedures).

Minor gate releases may result in the closure of up to six bridges, isolating up to 50 dwellings and inconveniencing many more. As stated in existing flood management plans, releases should be managed to minimise the impacts on these residents. Over the immediate term, Councils have requested that bridge closures be avoided over the Christmas to New Year period, if at all possible. In addition:

- There are resource implications involved in the activation of the flood control centre. Under flood management plans, the centre must be staffed by suitably qualified officers at all times during gate releases. There are currently only four quality duty engineers, who have staffed the flood centre for much of period since the initial release in October.
- Gate releases during the Christmas holiday period would result in closure of dams to water based activities, impacting on up to 150,000 people who are expected to use the recreational facilities over the holiday period.

The Water Grid Manager has advised Seqwater that, from a water security perspective, it would not object to water being released from Wivenhoe and Somerset dams to 95 per cent of storage capacity at any time until end March 2010.

Under this recommendation, storage levels could potentially be reduced by up to about 77,250 ML. This is equivalent to the amount of water released between 13 and 16 December 2010, through a single gate.

Pre-emptive releases will be managed so as to minimise the likelihood of gate releases due to small storms and local rainfall. Storage capacity will usually be reduced through a combination of:

- Extended gate releases, especially for strategy W1C. For comparison, up to 130,000 ML/day was released during in November and mid December 2010. At this rate, the additional releases could occur in about half a day.
- Ongoing gate releases of up to 30,000 ML/day, which do not isolate any residents but can inundate some lower bridges that cause inconvenience.
- Ongoing valve release of up to about 4,300 ML/day, which can be maintained without inundate any bridges.

Actual releases would be decided by Seqwater based on operational considerations and in accordance with its statutory and regulatory obligations.

### *Water security impacts*

The water security impacts of releases will be zero if the dams fill over the remainder of the wet season. Current forecasts indicate that there is a high probability of this occurring:

- Heavy rainfall is forecast over the Christmas holiday period, as noted above.
- Over the remainder of the wet season, advice from the Bureau of Meteorology is that sea surface temperatures are likely to remain at levels typical of a La Niña event into the first quarter of 2011, with the majority of the models indicating the event will gradually weaken over the coming months.

The water security impacts will be minimal, even if there were no further inflows to the dams. Modelling indicates that the reduction would have a minimal impact on the probability of key water Grid storages falling to 40 per cent of capacity over the next five years.

### **North Pine and Leslie Harrison dams**

North Pine and Leslie Harrison dams do not have flood mitigation potential. Once the dams have reached Full Supply Level, all water flows into the dam must be released to protect the structural safety of the dam.

Seqwater has advised that, without major releases, there are negligible benefits to reducing volumes stored in North Pine or Leslie Harrison dams for the purposes of reducing the extent or duration of any downstream flooding impacts.

For North Pine Dam, there may be some operational and community benefits to minor releases to below Full Supply Level in some circumstances. Any gate operation at North Pine Dam results in inundation of Youngs Crossing Road, which isolates a number of residents. These impacts are currently being minimised by releasing from North Pine Dam at night. With further rainfall forecast, Seqwater may choose to reduce the level to below Full Supply Level in order to reduce the frequency of night releases or the likelihood of releases being required during the day.

For this dam, the SEQ Water Grid Manager has advised Seqwater that, from a water security perspective, it would not object to water being released to 97.5 per cent of storage capacity at any time until end March 2010.

For Leslie Harrison Dam, gate operations do not impact on public roads and generally only inconvenience the general public during large flood events. There is no scope to reduce this inconvenience through small pre-emptive releases. Accordingly, no in-principle approval be made for pre-emptive releases from this dam.



