



# Rockhampton Regional Council's Response to Queensland Flood Commission of Inquiry

1 April 2011

QFCI

Date: 23/05/11 JM

Exhibit Number: 459



**Rockhampton Office**  
232 Bolsover St, Rockhampton  
**Gracemere Office**  
1 Ranger St, Gracemere  
**Mount Morgan Office**  
32 Hall St, Mount Morgan  
**Yeppoon Office**  
70 Anzac Parade, Yeppoon

31 March 2011

Justice C E Holmes  
Commissioner  
Queensland Floods Commission of Inquiry  
Level 30  
400 George Street  
Brisbane QLD 4001



Dear Justice Holmes,

**Re: Requirement to Provide Information to Commission of Inquiry**

We refer to your letter of 22 March 2011, in which you required us to furnish you with information in our capacities as Chair of the Rockhampton Local Disaster Management Group and Local Disaster Co-ordinator. The attached information is to be read as a joint response to these requests.

With respect to the 21 points listed in your letter, please find numbered responses that address each point. Where information has been previously supplied in response to your initial Requirement to Provide Information, dated 1 March 2011, that has been identified against the relevant request.

In regards to the specific request for provision of information with respect to any communications or involvement with specific agencies, the responses are limited to the formal documented communication and involvement with those agencies that took place during the event as the recording of informal or adhoc communication is not practical and would be based on recollection after the fact.

We have interpreted, as best we can, the details required in response to your requests and if the information provided has not accurately reflected the nature of the information that you required, please do not hesitate to contact us and we will seek to provide any further relevant information if it is available.

Yours sincerely



Councillor Brad Carter  
Mayor of Rockhampton Regional Council  
Chair of Rockhampton LDMG



Gavin Steele  
Local Disaster Co-ordinator



- 1. The local planning and preparation, including training, undertaken in advance of and/or in relation to the 2010/11 flood events.**



The Rockhampton Local Disaster Management Group (LDMG) conducts an annual exercise prior to the onset of the wet season each year in addition to regular statutory meetings of the LDMG each year to ensure preparedness and to update agency contact details.

The Rockhampton Regional Council purchased the Guardian Control Centre System, an IT disaster management system for use in the Rockhampton LDMG's Local Disaster Co-ordination Centre (LDCC) in 2010 and it was activated and utilised for the first time during the 2010/2011 flood events.

The training and preparations undertaken prior to the 2010/2011 flood events is included in the following table;

<b>Date</b>	<b>Training</b>	<b>Participants</b>	<b>Provider</b>
12 Sept 2009	Exercise – LDCC Operations	LDCC Council Staff, Agency Liaison Officers from QFRS, QPS, SES, QAS, EMQ	RRC – LDC
17 Dec 2009	Disaster Management – Concept of Operations	LDMG Members	EMQ Regional Director – Rockhampton
17 Feb 2010	LDMG Statutory meeting	LDMG Members	Chair LDMG
3 March 2010	DDMG Statutory meeting	DDMG Members	Chair DDMG
2-4 June 2010	LGAQ Disaster Management Conference – Home Hill	Chair LDMG Deputy Chair LDMG LDC Disaster Officer	LGAQ
6 Sept 2010	LDMG Statutory meeting	LDMG Members	Chair LDMG
13 Oct 2010	LDCC – Guardian Control Centre System	Agency Liaison Officers from QPS, QAS, SES, EMQ	QIT Plus (System Developers)
14 Oct 2010	LDCC – Guardian Control Centre System	LDCC Council Staff	QIT Plus (System Developers)
18 Nov 2010	Roles, responsibilities and functions of LDMG	LDMG Members	EMQ Area Director - Rockhampton
10 Dec 2010	Exercise – LDCC Operations utilising Guardian system	LDCC Council Staff, Agency Liaison Officers from QFRS, QPS, SES, QAS, EMQ	RRC, QIT Plus (System Developer)

In addition to the above activities, the Rockhampton Airport, which is wholly owned and operated by the Rockhampton Regional Council, undertakes an annual disaster training exercise as part of its legislative obligations from CASA and the Office of Transport Security to maintain its aerodrome licence.

This exercise is generally focused on issues regarding a possible airplane incident which impacts passenger safety and airport security, however the key response agencies involved would also be involved in mobilising as a result of impacts to the airport from severe weather events or other natural disasters and as such this training is incorporated as part of the disaster management training for this key piece of Council infrastructure and members of the Rockhampton LDMG are involved as observers in this activity.

- End of response -



2. Any measures implemented immediately prior to or during the 2010/11 flood events that were designed to mitigate the effect of any flooding (for example , sandbagging, temporary levees) including an assessment of the performance of those measures.





The Rockhampton Local Disaster Management Group undertook an extensive range of measures to mitigate the effects of flooding to private and public assets.

Those measures utilised to protect the Airport and Council's Wastewater Treatment Plants are included in the response to Item 8.

The Rockhampton LDMG together with the local SES provided 20,000 sandbags for distribution to the public and provided stockpiles of sand throughout the Regional Council area for residents to be able to fill their own sandbags. The sand stockpiles were continually monitored and replenished throughout the flood response.

The LDMG also co-ordinated a Community Assistance exercise where members of the community were invited to volunteer their time to fill sandbags at the Rockhampton Showgrounds. The LDMG arranged for the provision of empty sandbags and sand stockpiles at the Showgrounds and in excess of 5000 sandbags were filled by the volunteers.

These filled sandbags were utilised by the SES for emergency calls and calls for assistance received from those members of the public that were not physically capable of protecting their own homes.

This exercise proved very successful and most home owners and business owners in flood-prone areas of the region utilised sandbags to protect their property from flood waters.

The LDMG was activated on 6<sup>th</sup> December 2010 for the first flood to hit the region which reached a peak of 7.65m on 16<sup>th</sup> December 2010. The LDMG activated again on 28<sup>th</sup> December 2010 for the second flood which peaked at 9.2m on 6<sup>th</sup> January 2011.

The Rockhampton Regional Council also launched a "Be Prepared – Natural Disasters Happen" DVD (copy attached) on 15<sup>th</sup> October 2010, which was mailed to at risk residents in the community and also available on-line on Council's website and free of charge at Council's Customer Service Centres at Yeppoon, Rockhampton, Gracemere and Mount Morgan.

The DVD was aimed at ensuring the community was prepared for natural disasters. The DVD was actively promoted in local media and also distributed by Council's elected representatives to key community groups and at community events prior to Christmas. Approximately 10,000 copies of the DVD have been distributed and the contents of the DVD can be streamed via Council's website.

The LDMG created flood inundation maps for the Regional Council area at river heights of 8.5m and 9m on 29<sup>th</sup> December 2010 which were placed in major shopping centres, in Council Libraries and on Council's website and also published in the local newspaper, The Morning Bulletin, on 30<sup>th</sup> December 2010.

Due to new advice from BOM on 30<sup>th</sup> December 2010 indicating a possible higher flood peak, new flood inundation maps showing a river height of 9.5m were updated at all locations and on Council's website.

The LDMG also undertook a letterbox drop of approximately 2000 residences in possible flood inundation areas on 30<sup>th</sup> December 2010 to warn residents of the need to consider evacuation based on the latest flood warning advice. A copy of this letter which was also included in the initial response to the first Request for Information received from the Flood Commission of Inquiry, dated 1 March 2011, is attached.

- End of Response -

**COPY**

**Rockhampton Office**  
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30 December 2010

To the Resident

Due to the expected impending flood level of the Fitzroy River to approximately 9.4 meters, your property is likely to be significantly impacted by flood waters. Predications are the water levels will remain above 9 meters for up to ten (10) days.

We urge you to relocate to friends or family in higher ground, taking with you appropriate clothing including wet weather gear, pets, medication, toiletries, linen and towels and appropriate footwear.

If you are unable to secure alternate accommodation Council has prepared an evacuation centre at the Sports Centre, located at the Central Queensland University (CQU) on Yamba Road. The centre will be open from 8am Friday 31 December 2010 however please contact 1300 652 659 if you require this service.

When evacuating, please ensure you remember to take the following:

- Appropriate clothing including wet weather gear;
- Medication;
- Toiletries;
- Linen and towels; and
- Appropriate footwear.

If you require any immediate assistance please contact the Local Disaster Coordination Centre which is open from 8am to 10.30pm on Thursday 30 December 2010. From Friday 31 December 2010 the centre will be operating 24 hours a day.

Regards



Mayor Brad Carter  
Chair of the Local Disaster Management Group  
Enquiries: 1300 652 659

**COPY**

- 3. Local participation, or otherwise, in Emergency Management Queensland's (EMQ) 2010 Pre-Season Flood and Cyclone Workshop, including an assessment of the local assistance gained thereby.**





The Emergency Management Queensland (EMQ) 2010 Pre-Season Flood and Cyclone Workshop was conducted in Rockhampton on 14<sup>th</sup> October 2010.

The workshop was attended by the following members from Rockhampton Regional Council\*;

Mayor Brad Carter – Chair of Rockhampton LDMG  
Mr Gavin Steele – Rockhampton Local Disaster Co-ordinator (LDC)  
Mr Martin Crow – Deputy Local Disaster Co-ordinator (DLDC)  
Mr Eddie Cowie – Rockhampton Regional Council SES Local Controller

\*Full lists of attendance of State Agency representatives, including those that are part of the Rockhampton LDMG, can be obtained from EMQ Rockhampton who facilitated the workshop.

With respect to the assistance gained by attending the Flood and Cyclone Workshop, given that it is predominantly focused on weather forecasts for the upcoming season, the primary benefit is purely to gain an awareness of the current weather environment (specifically in this instance the La Nina event) and the predictions of tropical cyclone activity that can be expected.

In regards to the Bureau of Meteorology information that is presented at the workshop, it is well presented and very informative and assists to inform us with respect to our LDMG planning.

Feedback given at the conclusion of the workshop suggested that the workshop should be more concise and that other than the BOM advice, there was little to be gained from the other general information provided by EMQ and others which just seemed to pad out the programme.

- End of Response -



4. Local participation, or otherwise, in EMQ's 2010 Consultation Sessions concerning the proposed changes to the *Disaster Management Act 2003 (Qld)*, including an assessment of the local assistance gained thereby.



The Emergency Management Queensland (EMQ) Consultation Session concerning the proposed changes to the *Disaster Management Act 2003* (Qld) was conducted in Rockhampton on 23<sup>rd</sup> April 2010.

The Consultation Workshop conducted in Rockhampton Regional Council Chambers was attended by the following members from Rockhampton Regional Council;

Deputy Mayor Rose Swadling – Deputy Chair of Rockhampton LDMG  
Mr Evan Pardon – Chief Executive Officer, Rockhampton Regional Council  
Mr Gavin Steele – Rockhampton Local Disaster Co-ordinator (LDC)  
Mr Andrew Bicknell – Disaster Management Officer

An Information Session on changes to the *Disaster Management Act 2003* (Qld) was conducted on 30 July 2010 at Frenchville Sports Club, Rockhampton, by EMQ which was attended by the following members of Rockhampton Regional Council\*;

Mayor Brad Carter – Chair of the Rockhampton LDMG  
Mr Evan Pardon – Chief Executive Officer  
Mr Gavin Steele – Rockhampton Local Disaster Co-ordinator (LDC)  
Mr Martin Crow – Deputy Local Disaster Co-ordinator (DLDC)  
Mr Andrew Bicknell – Disaster Management Officer  
Mr Eddie Cowie – SES Local Controller

\*Full lists of attendance of State Agency representatives, including those that are part of the Rockhampton LDMG, can be obtained from EMQ Rockhampton, who hosted the session.

With respect to the assistance gained by attending the Consultation Workshop and Information Session, it was informative to understand the continuing role of Local Government in disaster management arrangements and the changing roles of the Queensland Police Service and EMQ in managing disasters at District and State level.

The confirmation of the escalation process for requests for assistance from Local to District to State was also important in ensuring an effective response.

The fact that all State Government Departments were expected to have an understanding of the new Act and that wider communication to achieve this at the State level was proposed as part of the roll-out, was seen as a positive outcome to address ongoing anomalies being experienced at the local level.

Historically, local LDMG's were being excluded from particular incidents as one State Government Department was seen as the lead agency and consideration to the impact on the wider local community was not generally understood.

Rockhampton Regional Council experienced this during the Hendra Virus outbreak in August 2009 when DPI and QLD Health were the lead agencies, the Rockhampton Bushfires in October 2009 where QFRS was the Lead Agency and initially when the Chinese Bulk Carrier (Shen Neng 1) grounded on the Great Barrier Reef in April 2010 and Maritime Safety Qld (MSQ) were the Lead Agency.

- End of Response -





5. Any measures taken to train and/or equip the local State Emergency Services (SES), including an assessment of the adequacy and timeliness thereof.



Upon the formation of Rockhampton Regional Council as a result of the Queensland Local Government amalgamations in March 2008, the Rockhampton Regional Council inherited five (5) SES Units that operate within the new local government area.

To address the logistics of dealing with the five (5) separate SES Groups, Council appointed a full-time SES Local Controller, Mr Eddie Cowie, in November 2009, to oversee the day to day operations of the various SES Groups and to consolidate their training and equipment and supply needs. Whilst the Local Controller is a Council Officer, during disaster events he is a volunteer member of the SES and falls under the control and tasking of EMQ.

Council maintains an annual operational budget to provide an appropriate level of support to the local SES Groups together with some financial assistance, by way of an annual subsidy, provided to Council from the State Government to assist. The State Government and Council recently jointly funded the purchase of five (5) new SES Emergency Response vehicles at a cost of \$300,000 to ensure the ongoing effectiveness of the SES Groups.

SES Training is provided in-house by senior SES members and by EMQ.

The attached statement from Mr Eddie Cowie, Rockhampton Regional Council SES Local Controller, outlines the activities undertaken in response to the recent 2010/2011 flood events and the SES training undertaken.

- End of Response -



To Whom It May Concern:

I, Edward Conrad Cowie of Rockhampton, Queensland make the following statements.

I am the appointed Local Controller for the Rockhampton Regional Council State Emergency Service Unit and I am employed by the Rockhampton Regional Council in this position.

I am responding to the request from the Commission of Enquiry surrounding the Queensland Floods with information specifically relating to the State Emergency Service activities that occur within the Rockhampton Regional Council local government boundaries, prior to and during the 2010/2011 flood events.

- Planning and preparation for the flood events was a consistent process for the Rockhampton Regional Council State Emergency Service Unit with regular SES Group training meetings, group training courses, requestion of equipment/flood supplies and communication processes undertaken during 2010/2011.
- The Rockhampton Regional Council SES Local Controller regularly engaged the community via the media in the preparation, response, and the recovery stages of this event to assist in articulating the message of preparation and resilience of the community to this flood event.
- Ongoing competency maintenance at the Unit/Group level of SES members who already have qualifications that related to the agreed SES Functions of Storm Damage, Flood Boat, Incident Management and Agency Support occurring during 2010.
- Rockhampton Regional Council State Emergency Service Unit Executive volunteers were consistently engaged to ensure that they had appropriate resources available at the SES Group level to respond to incidents of Storm Damage during the 2010/2011 flood event.
- Rockhampton Regional Council provided an 'Operational Budget' to every SES Group within the Rockhampton Regional Council SES Unit to ensure that all Rockhampton Regional Council State Emergency Service Unit equipment was operational and fully maintained to ensure SES response. Equipment such as chainsaws, pole saws, generators, flood boats, storm damage trailers, SES vehicles etc are all included in this process
- Rockhampton Regional Council purchased/replaced 5 SES Storm Damage response vehicles at a total cost of over \$300,000 in 2010 with a further 3 SES Rescue Trucks to be replaced within this 2010/2011 financial year.
- The Rockhampton Regional Council State Emergency Service Local Controller attended the '2010-2011 Queensland Tropical Cyclone Consultative Committee Cyclone, Storm and Flood Season Seminar', the 'Natural Disaster Relief and Recovery Arrangements Workshop (10/02/2010)' and the Consultation Sessions regarding the proposed changes to the Disaster Management Act 2003 (30/7/2010)
- Due to an obvious decline in training offered by Emergency Management Queensland over recent years to State Emergency Service volunteers, the Rockhampton Regional Council State Emergency Service Unit has had to



establish a Unit Training Group to meet the requirements of minimum training of SES members within the Rockhampton Regional Council SES Unit.

- In 2010 the Rockhampton Regional Council SES Unit identified and appointed 2 SES Honorary Unit Training Officers to assist in Unit training.
- Due to inconsistency in Regional EMQ training, some training has become reactive not proactive in many agreed SES Functions within the SES in 2010/2011.
- The Rockhampton Regional Council State Emergency Service Unit assisted the Rockhampton Regional Council to establish sand piles and make available to the community sandbags during the response stage of the flood events.
- SES teams responding within the Rockhampton Regional Council area distributed over 20,000 sandbags during the flood event.
- SES teams responded and sandbagged numerous properties, critical facilities and infrastructure including constructing flood barriers at the Rockhampton Airport Terminal, Rockhampton Ambulance Station in preparation and the response to the flooding in 2010/2011.
- SES teams in the Rockhampton Regional Council area responded to over 2000 requests for assistance during the 2010/2011 flood event.
- SES teams in the Rockhampton Regional Council area were involved in numerous requests for flood boat assistance including requests for residents to be self evacuated, requests for flood boat transportation of critical staff, emergency service personal, numerous medical transfers for serious/critical/deceased persons and food/ medical/ re-supply to residents.
- SES flood boat teams within the Rockhampton Regional Council responded to the Bajool area in the lead up to the Rockhampton Floods to assist Queensland Police in the search, location and body retrieval of a deceased male who died while crossing a flooded waterway.

- 6. The local actions undertaken in advance of and/or in respect of the 2010/2011 flood events in relation to resourcing, co-ordination and deployment of any personnel and equipment.**



The Rockhampton LDMG met on 24<sup>th</sup> December 2010 to confirm arrangements over the Christmas/New Year break and to ensure that Agency contacts were up to date and to determine availability of key agency contacts or alternates if normal members were on leave.

After heavy local rainfall Christmas Day and overnight into Boxing Day the Rockhampton LDMG went to 'Watch Stage' on 26<sup>th</sup> December 2010. The SES responded to calls as a result of localised flooding in the Mount Morgan area late on the 25<sup>th</sup> and early on the 26<sup>th</sup> December 2010.

In response to advice from BOM about heavy rainfall recorded throughout the Fitzroy River catchment and possible flooding, the Rockhampton LDMG activated on 28<sup>th</sup> December 2010 and the Local Disaster Co-ordination Centre (LDCC) was opened to act as a central point of communication.

Prior to Christmas, Rockhampton Regional Council had undertaken a survey of available staff over the Christmas/New Year period and as a result, these staff were contacted and advised that they would be required and rosters were created to fill the Council roles within the LDCC.

Whilst the LDMG and Council specifically, is responsible for the operations of the LDCC with assistance from relevant State Agencies, the responsibility for staffing of those specific State agencies is an issue for those relevant departments and the Council, Chair of the LDMG and LDC do not have any control over resourcing in State Departments.

As an observation, all other LDMG member agencies appeared to have undertaken similar planning to Council and were able to quickly fill rosters with available staff to provide the required level of response. We are aware that as an example the QPS was able to deploy an additional 60 Police to the region to respond to the flood event.

EMQ also arranged for SES crews from throughout the State to provide additional support and relief to local SES crews throughout the event.

The QFRS also deployed additional staff to manage the LDMG's air operations unit which consisted of helicopters located at Council's Heritage Village which were utilised to access remote or isolated communities, undertake resupply and perform emergency air-lifts if required.

Specific resourcing, co-ordination and deployment information for each State Agency during the flood event is best sourced directly from the relevant agency.

- End of Response -



- 7. The local actions undertaken in respect of the 2010/2011 flood events in relation to immediate management, response and recovery operations, including the co-ordination and deployment of personnel and equipment.**





Given that the response to Item 6 fundamentally dealt with the preparations for the response aspect of the flood disaster operations from a resourcing and deployment aspect, in response to this item I will focus on specific actions that were undertaken.

### **LDMG Key Tactical Deployment Decisions**

#### **Air Operations**

The LDMG decided early on within the flood event that the airport was likely to be inundated and non-operational for a period of time due to the predicted flood peak from BOM.

To address the impacts on aviation and the perceived demand for possible resupply activities to remote or isolated communities, emergency medical evacuations and deployment of personnel across flood waters, the LDMG designated an Air Operations staging point for helicopter operations. Together with the QFRS and the local ADF, a helicopter landing area and staging point was set up at the Rockhampton Heritage Village.

The LDMG also submitted a Request for Assistance to the District Disaster Management Group which was then forwarded to the State Disaster Management Group for early deployment of three (3) Blackhawk Helicopters from the ADF for possible heavy lift operations. These appliances were approved and deployed to Rockhampton and staged out of the Western Street Army Barracks.

#### **Evacuation Centre**

The LDMG co-ordinated the set-up of an Evacuation Centre at the Central Queensland (CQ) University, which commenced operations on 31<sup>st</sup> December 2010.

Further details regarding this Centre are provided in response to Item 13.

#### **Sand bags and Sand Stockpiles**

The LDMG co-ordinated the allocation of sand bags and sand stockpiles throughout the Regional Council area in order to allow residents to protect their private property. The LDMG also arranged for a volunteer day where empty sand bags were filled by volunteer members of the community with sand supplied at the Rockhampton Showgrounds. Over 5000 sand bags were filled as a result of this exercise.

#### **Flood Information and Awareness Activities**

1. The LDMG arranged for a door to door letterbox drop to approximately 2000 properties that were potentially going to be impacted by the predicted flood.
2. The Chair of the LDMG secured a daily morning spot on local radio to disseminate information and a media scrum was held at 10am every morning

after the daily LDMG meeting to brief all media (Local, State, National and International) on the latest flood advice.

3. Rockhampton Regional Council's website was update daily with Fact Sheets and links to other key agencies.
4. Media releases were issued every day after the LDMG meeting to local radio and print organisations and appeared in the local newspaper, The Morning Bulletin.
5. Flood Inundation Maps were supplied to the local newspaper and printed full page to show residents if their properties were likely to be impacted.
6. Flood Inundation Maps were placed on Council's website.
7. Flood Inundation Maps were placed in all major Shopping Centres and at Council Libraries and Customer Service Centres.
8. The LDMG co-ordinated a door to door assessment of properties and their occupants in Depot Hill to ensure their awareness and preparedness for the impending flood. This door to door exercise involved Police, SES, Council, QFRS and Ergon.

#### Recovery Centre

The LDMG co-ordinated the set-up of a Recovery Centre at Schotia Place where free clean-up kits, donated goods and Counselling services were available to those members of the public who had water into their properties and/or over the floorboards of their house.

#### Bulk Clean Service

The LDMG co-ordinated a bulk clean service for all properties in flood affected areas. This bulk clean service was undertaken by QFRS, SES and Council and involved removal of all water damaged property out onto the footpath for collection, hosing out of inundated areas, spreading of lime on footpath and front yards to reduce odour and assist with break-up of clay and silt deposited from flood waters.

#### Community Clean-Up Day

The LDMG co-ordinated a Community Clean-Up Day on 22<sup>nd</sup> January 2011 with over 200 community volunteers assisting with clean-up activities throughout the city. The volunteers were provided a safety briefing by Rockhampton Regional Council staff and their work was co-ordinated by the local SES.

Kerbside Clean-Up Service

The LDMG co-ordinated a free kerbside clean-up service for all materials that were water damaged and had been placed out on the footpath by residents or had been moved out onto the footpath as part of the bulk clean exercise.

This service was performed by Rockhampton Regional Council staff and selected local machinery contractors.

- End of Response -



8. Any local measures taken or requested to preserve vital infrastructure and to manage, maintain or reinstate the supply of essential services (water, food, power, transport, communications and/or sewerage) during the 2010/2011 flood events.





The LDMG undertook extensive measures during the 2010/2011 flood event to protect and preserve vital infrastructure and ensure supply of essential services. These actions included;

#### Sewerage and Wastewater Treatment Plant Activities

Attendance by Council staff (Fitzroy River Water (FRW) employees) at all properties likely to be inundated and plugging of overflow relief gullies to avoid floodwater intrusion into the sewerage infrastructure and to maintain service continuity to private properties.

Removal of 'at risk' sewerage treatment plant equipment from areas of possible inundation.

Fuel stockpiling for possible use for power generation to ensure operation of treatment plants in the event of power loss.

Stockpiling of sewerage treatment plant chemicals in the advent of extended period of isolation from supply due to flooding.

Co-ordination with Ergon Energy to ensure continuity of power supply during the flood event.

Disconnection of 'at risk' sewerage pump station switchboards from electricity supply.

Liaison with regulators (DERM, QHealth) on environmental and public health issues.

Regular updating of operations on FRW website during flood event.

The Rockhampton Regional Council Wastewater Treatment plants continued to operated throughout the entire 2010/2011 flood event.

#### Water Treatment Plant

There were no impacts to Council's water treatment plant during the 2010/2011 flood event.

#### Food Resupply

The LDMG through the LDCC set up a food resupply arrangement which was in effect from 31 December 2010 with a major grocery retailer (email attached) who had adequate local supplies at the time to provide food for remote or isolated communities.

The food would be ordered and paid for by the resident and the food would be packed by the supermarket and then delivered to the air operations staging point for delivery by helicopter to the isolated resident.

Contact from the LDCC was regularly made with local major grocery and fuel retailers to ensure adequate supplies were maintained and that adequate planning was in place for resupply.

The LDCC co-ordinated the use of an SES flood boat and an ADF Unimog to ship food supplies and bakery ingredients from Rockhampton to the Gracemere township when supplies had become depleted.

#### Power

The LDMG invited Ergon Energy to all meetings of the LDMG to co-ordinate the communication of information regarding proposed power disconnections and to collaboratively ensure continuity of supply for critical assets.

#### Transport

During the 2010/2011 flood event the Bruce Highway at the southern entrance to Rockhampton was cut by flood waters for two (2) weeks. The Rockhampton Airport was out of operation for a period of three (3) weeks.

The Department of Transport and Main Roads (DTMR) had responsibility for undertaking the assessment and necessary repairs required prior to the reopening of the Bruce Highway.

The LDMG sought to protect the airport terminal and the airport control tower, which contains a significant amount of electrical switch equipment essential to the operation of the airport, by installing a temporary flood barrier, which is owned by EMQ. The flood barrier (2 lengths of 500m each) was deployed from Brisbane and Townsville and set up around the perimeter of the airport terminal and control tower (See attached images). This barrier proved effective in ensuring that the terminal and control tower were unaffected by flood waters.

Other measures taken at the Airport to protect the infrastructure and return it to full operation after the floods are detailed in the attached correspondence and Situation Reports.

#### Communications

Communications were generally unaffected during the 2010/2011 flood event.

**Gavin Steele**

---

**From:** Barnes Laurence [REDACTED]  
**Sent:** Friday, 31 December 2010 3:15 PM  
**To:** Gavin Steele  
**Subject:** RE: Food Supply for Remote Communities

Gavin,

1. The store phone number is [REDACTED] and the contact person will be Linda Huth.
2. The customer will have to supply their credit card details for payment.
3. Could orders be placed between 8am and 10am. ( depending on time required for helicopter)
4. We don't have any way of delivering to the Heritage Village.
5. We are open on Monday but with limited staff.

Could give us a days notice if this service is going to happen so we could arrange staff and keep boxes.

Regards,

Laurie Barnes  
Northside Plaza Woolworths.

-----Original Message-----

**From:** Gavin Steele [REDACTED]  
**Sent:** Friday, 31 December 2010 1:09 PM  
**To:** Barnes Laurence  
**Subject:** Food Supply for Remote Communities

Lawrie,

Thank you for your assistance. The attached document is what we would require in regards to packaging up the goods. As discussed, this is preliminary planning only at this stage and may not be required. The way we would see it working is that we would supply the isolated properties with a contact number from your store and they would place their order by a set time each day and provide you their name and address, you would arrange filling the orders and payment and packing and we would co-ordinate to have the packed goods transported to the Rockhampton Heritage Village at a set time each day for airlift to the isolated communities at a set time. We would see this process being repeated every 4 days.

In regards to information from you, can you let me know the following;

1. The phone number that residents can call to place orders?
2. What they will need to have to arrange payment (drivers licence number, credit card, etc)?
3. What time would you like orders placed by?
4. Can you delivery orders to the Heritage Village?
5. Probably looking at groceries for approximately 15-20 households per delivery.
6. Are you closed on the public holiday next Monday?
7. Is there any further information you require from me to make this happen?

Regards,

**Gavin Steele**  
General Manager Infrastructure & Planning Services  
Rockhampton Regional Council  
Phone: [REDACTED]  
Mobile: [REDACTED]  
E-mail: [REDACTED]  
Web: [www.rockhamptonregion.qld.gov.au](http://www.rockhamptonregion.qld.gov.au)

"To create a region that our community values and others admire"

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Rockhampton Region - an award winning Region - working towards the vision of becoming the most liveable community in the world!

Rockhampton Region received a bronze award at the prestigious International Awards for Liveable Communities (LivCom Awards), Rockhampton was named Queensland's Tidiest Town 2009 and Yeppoon Main Beach was named Queensland's Cleanest Beach 2009.

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Rockhampton Airport Jan 2011





# Airport Correspondence

Flood Event  
2010/2011



## David Blackwell

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**Subject:** FW: Flood Preparation Update - 31 December

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**From:** Iain Lobegeler  
**Sent:** Saturday, 1 January 2011 1:46 AM  
**To:** David Blackwell; Robert Holmes  
**Subject:** Flood Preparation Update - 31 December

David, Bob,

Please find below an update on key flood preparations;

- Airservices are yet to advise their capacity to continue air traffic control operations from the tower building if water protection can be provided. Several phone discussions have been held with the local tower manager and other Airservices managers, about a range of issues.
- Flood protection barriers are being installed to protect the terminal building and the tower within one bund wall. The second shipment of the barrier is arriving by road during the night. The on call officer will assist with the unloading of this equipment at an airside location. There should be 1000 metres of this equipment on site by morning. 650 metres will be needed. It is doubtful that there will be enough 90 degree bend sections to complete this wall without the inclusion of sandbags.
- To protect the runway lighting switch gear. We are raising the runway switch equipment in the maintenance shed. This work has commenced during the day in liaison with ATC to ensure availability of lights when needed, and the safety of the electricians. At the final stage of this task the Runway 33 Precision Approach Path Indicator (PAPI) lights will need to be disconnected and will remain disconnected. Loss of the 33 PAPI will be NOTAMed at that time and passenger jets will be restricted to Runway 15 arrivals. As the runway is shortened due to inundation, 15 will become the only available runway direction.
- Sandbags will be required to protect the runway lighting stand-by generator building and associated equipment. The generator room has a perimeter of 30 metres. The tower's generator may also require protection (a similar sized building). Airservices will advise if they require this building to be protected, alternatively they may install a portable generator.
- Tomorrow an electrical contractor will be escorted by a safety officer to commence removing the Movement Area Guidance Signage from the runways. Each of these lit signs has a replacement value of at least \$7000. The 16 sign boxes will be stored on the mezzanine floor in the maintenance shed.
- As the runways are closed the fibreglass gable markers will be collected to prevent them from floating around. We are also considering cutting the ties of the fence along the western end of the secondary runway to mitigate damage to this fence (aprox 2000 metres).
- I am reviewing the unserviceability marking requirements for the various phases of closure and water inundation.
- After runway closure the firearms from the safe in the maintenance shed will be placed in storage with the Police at Bolsover Street. I may ask Trevor Heard to complete this task as it will be time consuming and needs to be completed by responsible person with a firearm licence.
- It needs to be established if Ergon will cut the power supply and if they do when.
- Mike Fisher (QFRS) has advised that a request been made via the DDC to source a large Avtur tanker to provide the additional fuel source for the defence aircraft. The plan is for the tanker to initially fill from the supply at the airport and then relocate to a small airfield south of Rockhampton. Ongoing replenishment of the tanker would then occur from Gladstone. Sourcing this high pressure fuelling tanker has proven to be problematic. I appear to have made some progress tonight with Shell now advising a tanker will be sent from either Mackay or Brisbane. Confirmation tomorrow expected from Shell management in Melbourne.
- Caltex advise they can relocate their tankers to an alternative site in town but will require ongoing security for the vehicles.
- The ARFF advise they will also relocate their tenders to an alternative helicopter landing area and provide fire

coverage provided the security of the vehicles can be maintained.

- Council vehicles and plant will be moved to higher ground on site, or other Council depots.
- All equipment in the maintenance shed has been moved or raised.
- A wide range of equipment and paper work has been moved/raised in the main terminal building.
- The Aeroclub have now asked about the need to sandbag the GA terminal building that they occupy. I have checked my original design levels for this building and doubt it will need protecting. This is a situation I will monitor.
- Ground handling agents will commence unregistered vehicle storage on the stockpile to the south of the freight sheds.
- The RFDS are relocating their aircraft and operations to Mackay and Bundaberg.
- The CHRS will be relocating within the local area but will remain onsite for as long as possible. They are considering moving their above ground Avtur tank
- The Met will sandbag their building and rely on their generator to maintain equipment operations.
- The Avgas tank at the GA was filled today to prevent buoyancy issues associated with in ground tanks.
- BP have been contacted to make flood preparations for their in ground tank at the RFDS hangar. The local contractor should respond.
- Airservices have contact the construction company at the new tower site to request this site be prepared. Difficulties have been experienced with these preparations. The construction company has shut down for the holiday and does not have anybody in town to attend the site. Airservices have removed some light items but are reluctant to interfere with their contractor's property. We have raised the fabric cover along the portable fencing and may need to take action to make the site safe. There are rubbish hoppers and box trailers that should be moved.
- Airport closure advice has been distributed by email to the MOWP list and a NOTAM has been raised advising of closure to all aircraft other than emergency operations. CASA and the Office of Transport Security have been contacted and advised of the closure directly.
- We are reviewing staffing requirements and rosters for the coming days.
- As discussed we need to consider ongoing utilisation of the ISS security contract during the flood. I recall looting was an issue in many areas during the 1991 flood event.
- General aviation movements have become chaotic. A safety officer will be placed on this apron tomorrow to assist with passenger transfers.
- Freight aircraft up to B737 capacity will be arriving tonight and early in the morning with 40 pallets of bedding for the evacuation centre.
- An additional VB passenger service will occur at 0600 tomorrow.

In view of the 8:00pm BOM update indicating later flood level rises we may need to review the closure time for the airport!

Regards

Iain Lobegeier | Airport Operations Manager | Rockhampton Airport  
Rockhampton Regional Council

Address: PO Box 1860, Rockhampton Q 4700 | Australia  
Web: [www.rok.aero](http://www.rok.aero)

## David Blackwell

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**Subject:** FW: Flood Preparation Update - 01 January

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**From:** Iain Lobegeler  
**Sent:** Saturday, 1 January 2011 11:12 PM  
**To:** David Blackwell; Robert Holmes  
**Subject:** Flood Preparation Update - 01 January

Please find below an update on key flood preparations;

- Airservices have advised they will continue to provide ATC services for as long as possible. We should now be able to keep the building dry but it now seems that we may need to ensure their portable generator is sand bagged.
- Airspace restrictions will commence effective 0630L tomorrow to assist with the safety of essential air traffic over the city. Movement approvals will be forwarded to ATC from the DCC. The changes are effective to midday Monday and have the capacity for review.
- Flood protection barriers are being installed to protect the terminal building and the tower within one bund wall. The structure is approximately 75% complete.
- The runway switch equipment in the maintenance shed has been raised and the power supply has been isolated.
- Sandbags are still required to protect the runway lighting stand-by generator building and associated equipment. The generator room has a perimeter of 30 metres.
- The Movement Area Guidance Signage has been removed and stored.
- Fibreglass gable markers have been collected where they are close to the water line. A few gables could not be safely retrieved before the water immersed them.
- Fences were not released due to the capacity to continue with some fixed wing operations tomorrow.
- RWY 04/22 (secondary) was closed by 1600L due to flooding.
- At 1700L a NOTAM was raised to advise of the reduced length of the RWY 33 Runway End Safety Area.
- The power supply to the airport will be cut when the base of the supply pole becomes inundated.
- Arrangements were made for an aviation fuel tanker to be relocated from Mackay. The plan is for the tanker to initially fill from the supply at the airport and then relocate to the "Old Station" airfield south of Rockhampton. Ongoing replenishment of the tanker would then occur from Gladstone. The refueler from Mackay could not send a driver with the vehicle today. Due to closure of the road across the Yeppen flood plain a requested has been made to Shell to send a tanker from Brisbane.
- Secondary helicopter landing areas will be established at the Heritage Village and Georgeson Oval. The main site will be at the village.
- Council vehicles and plant have be moved to higher ground on site, or other Council depots.
- We are reviewing staffing requirements and rosters for the coming days.
- Arrangements are in place for ISS Security to continue with all hours security services.
- A safety officer was placed on the GA apron to assist with passenger transfers.
- Freight and Police wing aircraft movements occurred throughout the morning.
- The ADF will complete some C130 and Kingair supply movements tomorrow if possible on RWY 15/33.

- 3 light aircraft remain on the GA Apron.
- An additional VB passenger service occurred at 0600 this morning.

Regards

Iain Lobegeier | Airport Operations Manager | Rockhampton Airport  
Rockhampton Regional Council

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## David Blackwell

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**Subject:** FW: Flood Preparation Update - 02 January

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**From:** Iain Lobegeier  
**Sent:** Sunday, 2 January 2011 8:49 PM  
**To:** Robert Holmes; David Blackwell  
**Subject:** Flood Preparation Update - 02 January

Bob, David,

Please find below an update on key flood preparations;

- Flood protection barriers being installed to protect the terminal building, the tower and the Optec building within one bund wall are basically complete.
- Flood protection for the runway stand-by generator has been completed.
- The available distances for RWY 15 were published after a sunrise assessment. The basic RWY distance available was 1640m initially. Two reductions occurred during the day with the final distance being 1400m.
- Some fixed wing aircraft operated on the reduced length runway throughout the day, including Police Wing Caravans, ADF Kingairs, the State Airwing Hawker Jet (the Premier's aircraft tasked to relief operations) and a Dash 8-200 freighter.
- Arrangements continue for an aviation refuelling tanker to be relocated to Gladstone. Shell advise they are loading a tanker from Brisbane Airport on to another truck and ferrying it up tomorrow. A permit will still be needed to drive the unregistered tanker between Gladstone and the "Old Station" airfield.
- Caltex now advise they may be able to fill their trucks if they can access their depot and run a portable generator.....
- We are reviewing staffing requirements and rosters for the coming days. An all night water level watch will occur again tonight.
- The ADF delivered the keys to the Optec building but it is doubtful they will be preparing the sewer drains in this building.
- 3 light aircraft remain on the GA Apron.

Regards

Iain Lobegeier | Airport Operations Manager | Rockhampton Airport  
Rockhampton Regional Council

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## David Blackwell

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**Subject:** FW: Flood Preparation Update - 03 January

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**From:** Iain Lobegeler  
**Sent:** Monday, 3 January 2011 9:25 PM  
**To:** David Blackwell; Robert Holmes  
**Subject:** Flood Preparation Update - 03 January

Bob, David,

Please find below an update on key flood preparations;

- Due to the Duty Safety Officer's sunrise report on the movement area a NOTAM was raised to close RWY 15/33 until I could make a more detailed assessment. Following an inspection the runway was re-opened with a published distance of 900m for RWY 15 operations only. Due to the reduced width available Code B aircraft only were permitted.
- Water was also flowing across the eastern end of RWY 04/22 at sunrise.
- Only 2 taxiways and the main apron were dry at sunrise with only Taxiway Alpha providing usable access between the apron and RWY 15/33. All other taxiways were published by NOTAM as being closed. By early afternoon only helicopters could access dry portions of the RPT apron.
- Due to the extraordinary presence of birds a NOTAM was raised to advise of the increased activity. A Bird Watch Report was distributed with the condition revised to "Severe".
- By 1500L there had been no requirement for fixed wing aircraft to use RWY 15. Due to the ongoing reduction of Runway width and the intense activity of birds it was decided to close the RWY. A NOTAM was published advising the RWY would only be available for emergency operations following an assessment for serviceability.
- Included in the decision to close the RWY was the presence of a dip appearing in the surface of RWY 15/33. A slight imperfection has been noticed at this location in recent months but it has increased significantly in recent days. The dip is located where a much broader area of consolidation had previously been corrected at the location of the original watercourse for Lion Creek.
- A request was made for assistance with the flood barrier at the terminal building due to the presence of water encroaching a low area early this morning.
- Arrangements were (hopefully) completed for an aviation refuelling tanker to be relocated to Gladstone and provided with a permit to transport fuel to the "Old Station" airfield.
- Sections of the security fence along the north western side of RWY 04/22 were damaged by flowing water this afternoon. It had been decided not to lay the mesh down along this fence as the water initially rose due to ongoing aircraft movements at the time. Assistance was sought from the ARFF to use their Argo water response vehicle to drive along the South western security fence and cut the ties on the mesh allowing it to fall to the south with the flowing water. Some of the fence was cut open late in the afternoon but work could not be completed safely due to the increased current in the deeper water further west.
- A safety officer has remained on site again tonight to operate the pumps at the terminal building flood barrier.

Regards

Iain Lobegeler | Airport Operations Manager | Rockhampton Airport  
Rockhampton Regional Council

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## David Blackwell

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**Subject:** FW: Flood Update - 04 January

**Attachments:** IMG\_2190x.JPG; IMG\_2101x.JPG; IMG\_2111x.JPG

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**From:** Iain Lobegeler  
**Sent:** Tuesday, 4 January 2011 9:15 PM  
**To:** Robert Holmes; David Blackwell  
**Subject:** Flood Update - 04 January

Bob, David,

Please find below an update on key flood preparations;

- All of the aircraft movement area remains closed and the dry portion (900m) of RWY 15/33 has narrowed since yesterday.
- The Aero Club commenced raising valuables in the GA Terminal as a precaution but there is no real expectation of this building being flooded.
- Bird activity may have reduced today but the presence is still at extraordinary levels.
- Given the subsidence at the old creek bed location on RWY 15/33 (refer attached photos) it seems that we will be resuming operations with a displaced RWY 15 threshold and reduced distances. If there is serious damage under the submerged section of runway that distance may be too short. Note the distance required to grade the depression out may be much greater than the eye can judge.
- A took a call from Qld Transport. They are preparing a report for Cabinet on anticipated damage to roads and airports in the flood affected shires. I advised that we are anticipating pavement repairs and have extensive damage to fences.
- When I left today at 1300 there was approximately 700 to 800 metres of fence damaged. The supply of the chain mesh for this fence could cause the greatest delay to repair this fence so I advised Andrew to prepare to replace 1000m of mesh. It is unknown how much mesh on the ground will be reusable, a progressive collapse would most likely do more stretching damage than a single overturning event. If we have ordered too much the rusted section just south of the main terminal could be replaced and a few contingency rolls would be useful for the next time a fire tender careers off a runway and can't stop.....
- An offer was made by GHD to provide an aviation pavement engineer and an aviation lighting engineer for a few days on a "probono" basis to assess damage.
- Cairns Airport has offered an electrician to assist with the recovery. What would be interesting is if their Civil Engineer could Project Manage any runway repairs, but that may be too much to ask.
- A request was made to the LDCC early this morning for assistance with a Wallaby that was found in the equipment storage area at the southern end of the terminal.
- Arrangements have been made for 2 Safety Officer shifts and one Operations Coordinator per day to work for the remainder of the week. Minimal changes were required due to current leave and roster allocations.
- I suggested to Tony Cullen today that it would be useful for a cameraman from WINN to complete some detailed capture of the flooded areas. The ABC did this in 1991 and provided Council with their footage, very useful. Tony was keen on this idea and advised the media are keen to get into the airport. Presently he plans to limit the media to 2 TV stations and the predicted time is 1115 tomorrow.

Sorry for the late report I needed to spend some time with my family this afternoon.



IMG\_2190x.JPG  
(204 KB)



IMG\_2101x.JPG  
(280 KB)



IMG\_2111x.JPG  
(131 KB)

Regards

Iain Lobegeier | Airport Operations Manager | Rockhampton Airport  
Rockhampton Regional Council

Address: PO Box 1860, Rockhampton Q 4700 | Australia  
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## **ROCKHAMPTON AIRPORT FLOOD SITUATION REPORT**

Author: David Blackwell, Director Airports  
Date: Wednesday 6 January 2011  
Edition: Recovery Phase #1

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### **SUMMARY**

With the Fitzroy River flood expected to peak later today, Airport Management is now considering the recovery phase of this disaster. Accordingly, this is the first of several information bulletins for airport tenants and stakeholders that will hopefully provide some useful information regarding the return to normal airport operations.

**RUNWAYS:** Both runways have been inundated and their condition will not be known until the water has receded and inspections have been conducted

**TAXIWAYS:** All taxiways have been inundated and their condition will not be known until the water has receded and inspections have been conducted

**SECURITY FENCING:** Perimeter security fencing has been damaged to the west of the main runway and to the north of RWY 04/22. All perimeter fencing will need to be inspected before an assessment can be made. The Terminal car park fencing and security gates appear serviceable but have yet to be inspected

**TERMINAL:** The terminal has not received any significant water ingress and is expected to be returned to service without major issues. The terminal building is operating intermittently on standby generator supply.

**ROAD NETWORK:** Many of the airport access roads have been inundated and their condition will not be known until the water has receded and inspections have been conducted

**AIRSERVICES:** ATC and ARFF are currently operating with electricity supply from their standby generator. The ATC building is enclosed within the flood barrier, while ARFF is on higher ground and not considered to be at risk of inundation.

**GENERAL AVIATION:** There is significant flood water in the GA area and an assessment will be made when access to this area has improved.

A meeting is being planned for this Friday afternoon between Airport Management and the following airport stakeholders:

- Airline Ground Handling Agents
- Airservices Australia ATC, ARFF & FMS
- Caltex Refuelling
- ISS Security

The aim is to develop an understanding of the issues and expectations of these key people so that we can draft a suitable recovery plan. A time has yet to be finalised for this meeting.

A meeting with all airport tenants and stakeholders is expected to be convened early next week.

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## **Rockhampton Airport – Flood Situation Report**

### **AIRPORT OPERATIONS**

At this stage the airport is closed for all aircraft operations. Further information is available from the relevant NOTAM.

A full assessment of the aeronautical infrastructure will not be conducted before mid next week. Following the assessment we will be able to estimate the time required to reinstate critical services and restore aeronautical operations.

### **PERSONNEL & INFRASTRUCTURE**

#### **1. PERSONNEL:**

Facilities staff are working in the terminal conducting remedial works and general maintenance.

Operations personnel are providing 24/7 coverage of the terminal building and conducting regular serviceability inspections of airside areas, where possible. They are also controlling the operation of the flood pumps around the perimeter of the terminal building.

#### **2. SAFETY ISSUES:**

The erosion to roads and footpaths could be hazardous to vehicles or pedestrian on the receding flood levels.

All flood affected electrical services must be checked by qualified electricians before being energised.

A higher than usual level of snakes activity is occurring around the airport precinct.

#### **3. MOVEMENT AND MANOEUVRING AREA ISSUES:**

**RUNWAYS:** Both runways have been inundated and their condition will not be known until the water has receded and inspections have been conducted.

There has been some subsidence in the area of Lion Creek that may have affected the main runway (RWY 15/33). It is expected that this runway will commence operations with a reduced length so that a more detailed assessment (and possibly remedial works) of this area can be conducted.

**TAXIWAYS:** All taxiways have been inundated and their condition will not be known until the water has receded and inspections have been conducted

**APRONS:** The GA Apron has been inundated and will need to be inspected before its condition can be assessed. Approx 50% of the RPT apron has been flood affected and inspections of these areas will need to be conducted.

#### **4. SECURITY ISSUES:**

Security fencing in several areas has been affected by the flood waters. An assessment will need to be conducted of all fences before a determination can be made to the extent of the damage.

#### **5. AIRSERVICES AUSTRALIA**

ATC and ARFF continue to operate from standby electrical supply.

## **Rockhampton Airport – Flood Situation Report**

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Airservices FMS has been working to keep ATC and ARFF services operational.

Navigation aids – it would appear that the VOR / DME has not been affected by the flood but the NDB may have sustained some damage, though this has not been determined.

### **6. REFUELLING ISSUES:**

Caltex personnel evacuated their facility near the terminal building on Sunday afternoon and will not return until access to their site has been restored.

At this stage it is not known whether their facilities can be easily restarted when power has been restored.

### **7. ELECTRICAL / DATA / IT ISSUES:**

The High Voltage Supply to the airport precinct was cut on Monday afternoon (3 Jan 11). Since that time, ATC, ARFF, CQ Fresh Pack have been operating on standby generator supply. The Terminal building started using standby generator supply from today on an ad hoc basis.

The Precision Approach Path Indicator (PAPI) systems will need to be re-installed and calibrated. Assuming that the main runway will be operating from a reduced length, a PAPI set will need to be installed at a temporary location to suit the displaced runway threshold.

Movement Area Guidance Signage will need to be reinstalled and checked before operations can commence.

Paid parking equipment will need to be reinstated and tested before this system can become operational again. It is important to get the paid parking system operational before normal domestic operations commence, due to the higher workload associated with the management of the carpark without the paid parking system.

Terminal electricity supply is operating on standby generator supply on an ad hoc basis; therefore key internal telephones have been diverted to Council's City Hall building.

Direct fax services are not available at this stage due to lack of electricity supply.

### **8. WATER SUPPLY ISSUES:**

None at this stage

### **9. SEWERAGE ISSUES:**

The sewage pump station in the General Aviation Area may have been inundated but will need to be checked by Fitzroy River Water (FRW) before being considered serviceable.

The sewage pump station in the Short Term Carpark does not appear to have been affected by the flood and will be checked by FRW before being returned to service.

The sewage pump station adjacent to the Caltex refuelling compound may be flood affected and will need to be checked by FRW before being considered serviceable.

## **Rockhampton Airport – Flood Situation Report**

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The sewage outlets from the terminal building have been sealed to prevent backflow into the terminal and these plugs will need to be removed before normal terminal sewer services can be reinstated.

NOTE: Terminal air-conditioning can only be used on essential services (i.e. IT / Comms rooms) as condensate drains are plumbed into the sewage system and may overflow the sewage storages.

NOTE: Due to the limited availability of sewage storage, the automatic urinal flush system in the terminal was disabled on the weekend and signs installed on the male toilet doors advising people not to use the male toilets.

### **10. STORM WATER ISSUES:**

Condition assessments will be conducted when the flood waters have receded

### **11. ROAD NETWORK ISSUES**

Condition assessments will be conducted when the flood waters have receded

### **12. EMERGENCY SERVICES INVOLVED**

None at this stage

### **13. REGULATORY ISSUES**

Discussions will need to be held with the Office of Transport Security (OTS) to determine whether we can establish a Special Event Zone (SEZ) for the repair works to the airside areas. An SEZ would allow more streamlined security arrangements that could significantly improve the speed of remedial works by non-airport personnel.

### **14. MEDIA ISSUES**

Channel 7 is coming to the airport tomorrow (Thursday) from 11am to inspect and video the facilities. Interviews with airport personnel may be requested but none have been foreshadowed at this stage.

### **15. CUSTOMER IMPACTS**

A meeting next week with all airport tenants and stakeholders will address this matter.

The GA Terminal has not been affected by the flood waters. All other structures have yet to be assessed.

An email has been sent to the 3 RPT airline operators seeking feedback and questions to assist with the meeting this Friday.

It is unlikely that the airport will be capable of handling RPT operations before the later part of January, though exact dates cannot be considered until we have more information on the status of critical infrastructure.

### **16. ANY OTHER ISSUES**

None at this stage.

## **ROCKHAMPTON AIRPORT FLOOD SITUATION REPORT**

Author: David Blackwell, Director Airports  
Date: 6 January 2011  
Edition: Recovery Phase #2 (EXTERNAL)

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### **SUMMARY**

**RUNWAYS:** Both runways have been inundated and their condition will not be known until the water has receded and inspections have been conducted

**TAXIWAYS:** All taxiways have been inundated and their condition will not be known until the water has receded and inspections have been conducted

**SECURITY FENCING:** Perimeter security fencing has been damaged to the west of the main runway (RWY 15/33) and to the north of the secondary runway (RWY 04/22). All perimeter fencing will need to be inspected before an assessment can be made. The Terminal car park fencing and security gates appear serviceable but have yet to be inspected

**TERMINAL:** The terminal has not received any significant water ingress and is expected to be returned to service without major issues. The terminal building is operating intermittently on standby generator supply.

**ROAD NETWORK:** Many of the airport access roads have been inundated and their condition will not be known until the water has receded and inspections have been conducted

**AIRSERVICES:** ATC and ARFF are currently operating with electricity supply from their standby generator. The ATC building is enclosed within the flood barrier, while ARFF is on higher ground and not considered to be at risk of inundation.

**GENERAL AVIATION:** There is significant flood water in the GA area and an assessment will be made when access to this area has improved.

A meeting is being planned for this Friday afternoon between Airport Management and the following airport stakeholders:

- Airline Ground Handling Agents
- Airservices Australia ATC, ARFF & FMS
- Caltex Refuelling
- ISS Security

The aim is to develop an understanding of the issues and expectations of these key people so that we can draft a suitable recovery plan. A time has yet to be finalised for this meeting.

A meeting with all airport tenants and stakeholders is expected to be convened early next week.

## **Rockhampton Airport – Flood Situation Report**

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### **AIRPORT OPERATIONS**

At this stage the airport is closed for all aircraft operations. Further information is available from the relevant NOTAM.

A full assessment of the aeronautical infrastructure will not be conducted before mid next week. Following the assessment we will be able to estimate the time required to reinstate critical services and restore aeronautical operations.

Significant Bird activity on and adjacent to the movement areas could create Bird Hazards issues when the runway is reopened with remaining large flooded areas. A plan to manage the problem will need to be formulated and advised to the airlines.

### **PERSONNEL & INFRASTRUCTURE**

#### **1. SAFETY ISSUES:**

The erosion to roads and footpaths could be hazardous to vehicles or pedestrian on the receding flood levels.

All flood affected electrical services must be checked by qualified electricians before being energised.

A much higher than usual level of snake activity is occurring around the airport precinct.

Sterilisation of areas of publically accessible areas affected by flood waters may be required. We will be liaising with Council regarding the availability and application of anti-bacterial sprays for this task.

SES has been carrying out daily serviceability checks of the flood protection for the terminal building, including barrier integrity, pump fuel & water levels.

#### **2. MOVEMENT AND MANOEUVRING AREA ISSUES:**

**RUNWAYS:** Both runways have been inundated and their condition will not be known until the water has receded and inspections have been conducted.

There has been some subsidence in the area of Lion Creek that may have affected the main runway (RWY 15/33). It is expected that this runway will commence operations with a reduced length so that a more detailed assessment (and possibly remedial works) of this area can be conducted.

**TAXIWAYS:** All taxiways have been inundated and their condition will not be known until the water has receded and inspections have been conducted

**APRONS:** The GA Apron has been inundated and will need to be inspected before its condition can be assessed. Approx 50% of the RPT apron has been flood affected and inspections of these areas will need to be conducted.

## **Rockhampton Airport – Flood Situation Report**

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### **3. SECURITY ISSUES:**

Security fencing in several areas has been affected by the flood waters. An assessment will need to be conducted of all fences before a determination can be made to the extent of the damage.

While unaffected by the flood, the protection of the CBS Equipment involved a significant amount of equipment removal and relocation. This will take some time (approx 1 day) to return to service, with system testing required afterwards.

### **4. AIRSERVICES AUSTRALIA**

ATC and ARFF continue to operate from standby electrical supply.

ARFF Rockhampton has set up a remote communication centre through their command vehicle at the Heritage Village. All calls into the Fire Control centre will be diverted to this centre. There is no longer an ARFF presence at ROK.

Navigation aids – it would appear that the VOR / DME has not been affected by the flood but the NDB may have sustained some damage. Will seek information from Airservices FMS.

### **5. REFUELLING ISSUES:**

Caltex personnel evacuated their facility near the terminal building on Sunday afternoon and will not return until access to their site has been restored.

At this stage it is not known whether their facilities can be easily restarted when power has been restored.

### **6. AIRLINE GROUND HANDLING ISSUES:**

All previously utilised GSE appears to be unaffected by the flood event. Confirmation will be required by the respective agents.

All check-in counters and server rooms are currently in serviceable condition, though some equipment will need to be reinstated before operations can recommence.

### **7. ELECTRICAL / DATA / IT ISSUES:**

The High Voltage Supply to the airport precinct was cut on Monday afternoon (3 Jan 11). Since that time, ATC, ARFF, CQ Fresh Pack have been operating on standby generator supply. The Terminal building standby generator was tested today and will be operated on an as required basis.

The Precision Approach Path Indicator (PAPI) systems will need to be re-installed and calibrated. Assuming that the main runway will be operating from a reduced length, a PAPI set will need to be installed at a temporary location to suit the displaced runway threshold.

Movement Area Guidance Signage will need to be reinstalled and checked before operations can commence.

Paid parking equipment will need to be reinstated and tested before this system can become operational again. It is important to get the paid parking system operational before normal domestic operations commence due to the workload associated with the management of the paid parking system with numerous unrecorded cars in the carpark.

## **Rockhampton Airport – Flood Situation Report**

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Terminal electricity supply is operating on standby generator supply on an adhoc basis; therefore key internal telephones have been diverted to Council's City Hall building.

Direct fax services are not available at this stage due to lack of electricity supply.

### **8. WATER SUPPLY ISSUES:**

None at this stage

### **9. SEWERAGE ISSUES:**

FRW has advised that they plan to return the Short Term Carpark sewage pumping station to service later today. As there is not High Voltage supply to the airport, FRW will be providing a small standby generator to run the station but the timing of this is not known yet.

Once it is operational, we may be able to return some sewage services to normal but only those that will not be continually inundated with ground or flood water.

The sewage pump station in the General Aviation Area may have been inundated but will need to be checked by Fitzroy River Water (FRW) before being considered serviceable.

The sewage pump station adjacent to the Caltex refuelling compound may be flood affected and will need to be checked by FRW before being considered serviceable.

The sewage outlets from the terminal building have been sealed to prevent backflow into the terminal and these plugs will need to be removed before normal terminal sewer services can be reinstated.

NOTE: Terminal air-conditioning can only be used for essential services (i.e. IT / Comms rooms) as condensate drains are plumbed into the sewage system and continued use may overflow sewage storages.

NOTE: Due to the limited availability of sewage storage, the automatic urinal flush system in the terminal was disabled on the weekend and signs installed on the male toilet doors advising people not to use the male toilets.

### **10. STORM WATER ISSUES:**

Condition assessments will be conducted when the flood waters have receded.

Airport personnel will need to monitor the storm water outlets that are inside the flood barrier (mainly around the public viewing area) during large local rainfall events to ensure that the terminal is not inundated in these areas.

### **11. ROAD NETWORK ISSUES**

Condition assessments will be conducted when the flood waters have receded

### **12. EMERGENCY SERVICES ISSUES**

None at this stage

## **Rockhampton Airport – Flood Situation Report**

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### **13. REGULATORY ISSUES**

The Office of Transport Security (OTS) will not be requiring a Special Event Zone to be established for airside recovery works until we recommence RPT services.

While there isn't a requirement to display an Aviation Security Identity Card (ASIC) until RPT services resume, we still need to develop a plan for access control to meet CASA's safety requirements for other aircraft movements.

### **14. MEDIA ISSUES**

None at this stage.

### **15. CUSTOMER IMPACTS**

The GA Terminal has not been affected by the flood waters. All other structures in the GA have yet to be assessed.

It is unlikely that the airport will be capable of handling RPT operations before the later part of January, though exact dates cannot be considered until we have more information on the status of critical infrastructure.

Feedback has been received from QantasLink regarding their ability to commence operations into ROK. It would appear that they will be the first RPT operator to commence services due to their ability to schedule aircraft that can operate on a significantly reduced runway length (1,300m for Q300).

### **16. ANY OTHER ISSUES**

A call was received from Qld Transport; they are preparing a report for Cabinet on anticipated damage to roads and airports in the flood affected shires. They were advised that we are anticipating pavement repairs and have extensive damage to fences.

An offer was received from Cairns Airport to provide an experienced airport electrician to assist with the recovery process. This offer is being discussed internally and a decision will be made soon.

An offer was made by GHD to provide an aviation pavement engineer and an aviation lighting engineer for a few days on a "probono" basis to assess damage.

Numerous other airports in Qld have offered their assistance in the recovery phase. The need for this type of assistance has yet to be determined.





## **ROCKHAMPTON AIRPORT FLOOD SITUATION REPORT**

Author: David Blackwell, Director Airports  
Date: 7 January 2011  
Edition: Recovery Phase #3 (EXTERNAL)

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### **SUMMARY**

The flood level of the Fitzroy River is currently stationary at 9.15m at the Rockhampton City Gauge. The information provided by the BOM is consistent with the observed gauge height. The advice from the BOM is that the river will remain around 8.5m until late next week.

At 8.5m, it is expected that access to the runways and taxiways will be possible to conduct visual inspections but not pavement strength testing.

Following today's meeting with key stakeholders and based on the available information, the following sequence of events is possible:

14 January – access to critical airport infrastructure becomes available for inspection;

24 January – Following the review, and assuming that most issues are addressable within a short timeframe, limited airport operations could commence;

28 January – it is possible that most normal airport services would be reinstated.

There are many issues that are unknown at this stage, so the above dates are for strategic information only and not to be relied on as definite operational dates.

**RUNWAYS:** Both runways have been inundated and their condition will not be known until the water has receded and inspections have been conducted

**TAXIWAYS:** All taxiways have been inundated and their condition will not be known until the water has receded and inspections have been conducted

**SECURITY FENCING:** Perimeter security fencing has been damaged to the west of the main runway (RWY 15/33) and to the north of the secondary runway (RWY 04/22). All perimeter fencing will need to be inspected before an assessment can be made. The Terminal car park fencing and security gates appear serviceable but have yet to be inspected

**TERMINAL:** The terminal has not received any significant water ingress and is expected to be returned to service without major issues. The terminal building is operating intermittently on standby generator supply.

**ROAD NETWORK:** Many of the airport access roads have been inundated and their condition will not be known until the water has receded and inspections have been conducted

**AIRSERVICES:** ATC and ARFF are currently operating with electricity supply from their standby generator. The ATC building is enclosed within the flood barrier, while ARFF is on higher ground and not considered to be at risk of inundation.

## **Rockhampton Airport – Flood Situation Report**

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**GENERAL AVIATION:** Some buildings within the GA were inundated but the overall GA area has fared better than expected. Further information will be provided when access to this area has improved.

### **AIRPORT OPERATIONS**

At this stage the airport is closed for all aircraft operations. Further information is available from the relevant NOTAM.

A full assessment of the aeronautical infrastructure will not be conducted before mid next week. Following the assessment we will be able to estimate the time required to reinstate critical services and restore aeronautical operations.

Significant Bird activity on and adjacent to the movement areas could create Bird Hazards issues when the runway is reopened with remaining large flooded areas. A plan to manage the problem will need to be formulated and advised to the airlines.

### **PERSONNEL & INFRASTRUCTURE**

#### **1. SAFETY ISSUES:**

The erosion to roads and footpaths could be hazardous to vehicles or pedestrian on the receding flood levels.

All flood affected electrical services must be checked by qualified electricians before being energised.

A higher than usual level of snake activity is occurring around the airport precinct.

Sterilisation of areas of publically accessible areas affected by flood waters may be required. Other areas of the airport may also require some level of sterilisation. We will be liaising with FRW (Marco) regarding the use and availability of anti-bacterial sprays for this task.

SES has been carrying out daily serviceability checks of the flood protection for the terminal building, including barrier integrity, pump fuel & water levels.

#### **2. MOVEMENT AND MANOEUVRING AREA ISSUES:**

**RUNWAYS:** Both runways have been inundated and their condition will not be known until the water has receded and inspections have been conducted.

There has been some subsidence in the area of Lion Creek that may have affected the main runway (RWY 15/33). Operations with a displaced threshold are expected. Assuming that there is no significant damage to the runway south of the subsidence, the declared distances could be up to 2,000m for takeoff and 1,800m for landing. Note; these distances are for general information only; all operational information will be published in the approved manner.

**TAXIWAYS:** All taxiways have been inundated and their condition will not be known until the water has receded and inspections have been conducted.

**APRONS:** The GA Apron has been inundated and will need to be inspected before its condition can be assessed. Approx 50% of the RPT apron has been flood affected and inspections of these areas will need to be conducted.

Gladstone Airport has offered the use of their 'Marco' roller during any remedial pavement works. Gladstone Airport's pavement specialist is also on site from next week, should Council wish to discuss repair works with an external consultant.

## **Rockhampton Airport – Flood Situation Report**

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### **3. SECURITY ISSUES:**

Security fencing in several areas has been affected by the flood waters. An assessment will need to be conducted of all fences before a determination can be made to the extent of the damage.

While unaffected by the flood, the protection of the CBS Equipment involved a significant amount of equipment removal and relocation. This will take some time (approx 1 day) to return to service, with system testing required afterwards.

Qantas Security has requested that the screening equipment be returned to service as soon as practical and that daily serviceability and calibration checks are performed daily. The aim is to ensure that this equipment is ready for operation and that any faults are detected as early as possible.

### **4. AIRSERVICES AUSTRALIA**

ATC and ARFF continue to operate from standby electrical supply.

ARFF Rockhampton has set up a remote communication centre through their command vehicle at the Heritage Village. All calls into the Fire Control centre will be diverted to this centre. There is no longer an ARFF presence at ROK.

ROK ARFF has now declared Category 0 operations so that all duty crew can be made available for the disaster relief and recovery works. Additional support personnel from other ARFF stations are becoming available to assist with the recovery works.

Navigation aids – it would appear that the VOR / DME has not been affected by the flood but the NDB may have sustained some damage.

### **5. REFUELLING ISSUES:**

Caltex personnel evacuated their facility near the terminal building on Sunday afternoon and will not return until access to their site has been restored.

At this stage it is not known whether their facilities can be easily restarted when power has been restored.

A phone hook-up with Caltex local management will be conducted early next week.

### **6. BUREAU OF METEOROLOGY**

Though the airport office is still currently manned, operations have been severally affected by flood waters damaging external data and phone services. The office is operating on limited capacity 3G mobile data services.

### **7. AIRLINE GROUND HANDLING ISSUES:**

All previously utilised GSE appears to be unaffected by the flood event. Confirmation will be required by the respective agents.

All check-in counters and server rooms are currently in serviceable condition, though some equipment will need to be reinstated before operations can recommence.

## **Rockhampton Airport – Flood Situation Report**

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### **8. ELECTRICAL / DATA / IT ISSUES:**

The High Voltage Supply to the airport precinct was cut on Monday afternoon (3 Jan 11). Since that time, ATC, ARFF, CQ Fresh Pack have been operating on standby generator supply. The Terminal building standby generator was tested today and will be operated on an as required basis.

The Precision Approach Path Indicator (PAPI) systems will need to be re-installed and calibrated. Assuming that the main runway will be operating from a reduced length, a PAPI set will need to be installed at a temporary location to suit the displaced runway threshold.

Movement Area Guidance Signage will need to be reinstalled and checked before operations can commence.

Paid parking equipment will need to be reinstated and tested before this system can become operational again. It is important to get the paid parking system operational before normal domestic operations commence due to the workload associated with the management of the paid parking system with numerous unrecorded cars in the carpark.

Terminal electricity supply is operating on standby generator supply on an ad hoc basis; therefore key internal telephones have been diverted to Council's City Hall building.

Direct fax services are not available at this stage due to lack of electricity supply.

The relevant airport High Voltage electrical services have now been isolated and this will allow for the reconnection of the High Voltage electrical supply. At this stage the connection is scheduled for Monday 10 Jan. Once the HV supply has been connected, the return of electrical supply to all airport areas is expected to roll out gradually. Further information will be provided as soon as it is known.

### **9. WATER SUPPLY ISSUES:**

None at this stage

### **10. SEWERAGE ISSUES:**

FRW has advised that they plan to return the Short Term Carpark sewage pumping station telemetry back into service by utilising batteries delivered to site on a regular basis.

The sewage pump station in the General Aviation Area may have been inundated but will need to be checked by Fitzroy River Water (FRW) before being considered serviceable.

The sewage pump station adjacent to the Caltex refuelling compound may be flood affected and will need to be checked by FRW before being considered serviceable.

The sewage outlets from the terminal building have been sealed to prevent backflow into the terminal and these plugs will need to be removed before normal terminal sewer services can be reinstated.

When the High Voltage supply has been reconnected to the airport precinct, power will gradually become available to the 3 sewage pump stations at the airport.

**NOTE:** Terminal air-conditioning can only be used for essential services (i.e. IT / Comms rooms) as condensate drains are plumbed into the sewage system and continued use may overflow sewage storages.

## **Rockhampton Airport – Flood Situation Report**

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NOTE: Due to the limited availability of sewage storage, the automatic urinal flush system in the terminal was disabled on the weekend and signs installed on the male toilet doors advising people not to use the male toilets.

### **11. STORM WATER ISSUES:**

Condition assessments will be conducted when the flood waters have receded.

Airport personnel will need to monitor the storm water outlets that are inside the flood barrier (mainly around the public viewing area) during large local rainfall events to ensure that the terminal is not inundated in these areas.

### **12. ROAD NETWORK ISSUES**

Condition assessments will be conducted when the flood waters have receded.

It has been noted that there is some asphalt (and possibly) pavement damage sustained on the Hunter Street entrance road.

As soon as the water recedes from the Hunter Street entrance and Canoona Road becomes trafficable, the Hunter Street access will be closed off with temporary fencing and access to the terminal area will be via the Canoona Road entrance. This will allow for works to be conducted on the entrance road, associated stormwater drainage and gardens without the need for traffic control measures.

This should also significantly reduce the visitations of people 'sight seeing' around the work areas and speed up the remediation works.

### **13. EMERGENCY SERVICES MATTERS**

None at this stage

### **14. REGULATORY ISSUES**

The Office of Transport Security (OTS) will not be requiring a Special Event Zone to be established for airside recovery works until we recommence RPT services.

While there isn't a requirement to display an Aviation Security Identity Card (ASIC) until RPT services resume, we still need to develop a plan for access control to meet CASA's safety requirements for other aircraft movements.

### **15. MEDIA ISSUES**

(a) Media outlets should be advised ASAP of the following dates:

**Friday 14 January 11:** floodwaters should reduce to 8.5m around this date and therefore access to runways and other movements areas may become available for visual inspection;

**Monday 24 January 11:** after the visual assessment, more detailed assessments of the major infrastructure elements will be conducted. Assuming that most rectification works proceed within a short timeframe, limited airport operations may be possible. An initial assessment of the scope of works is that 10 working days will be the minimum required to reinstate services necessary for RPT operations.

**Friday 28 January 11:** if most of the remedial work proceeds normally, then it is then possible that normal RPT services could be reinstated.

## **Rockhampton Airport – Flood Situation Report**

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- (b) The airport web site will be updated in the next 24hr to reflect the changes to the operating schedule indicated above.
- (c) Capricorn Tourism will be contacted to update their airport related information.

### **16. CUSTOMER IMPACTS**

The GA Terminal has not been affected by the flood waters, though it is unlikely that the airport will be capable of handling RPT operations before the later part of January, though exact dates cannot be considered until we have more information on the status of critical infrastructure.

We are now starting to receive enquiries from passengers affected by the shutdown of the airport. Current estimates are that approx 50,000 passenger movements are affected.

As a result of the large number of affected travellers, it is inevitable that RRC Customer Service will be inundated with enquiries about changes to travel arrangements. The following is a summary of the issues known by Airport Management or reported through our Customer Service Centre:

#### **(a) QantasLink**

The regular information updates provided by QantasLink management has been of great assistance in the management of this issue from a Council perspective.

QantasLink has advised that they are phoning and emailing travellers that are scheduled to depart up to 11 January and emailing affected travellers after this date.

Q300 operations can be conducted with a runway length of 1,300m and without the need for passenger screening or CBS.

Q400 operations entail similar issues as jet RPT operations.

*QUESTION: Does QantasLink still allow the relocation of affected passengers onto other local airport services (e.g. GLT & MKY) and has not levied any charges on this activity.*

*QUESTION: Can travellers cancel flights that were scheduled to arrive or depart during the closure period is being sought. Are their costs? What other issues should they be aware of?*

#### **(b) Tiger Airways**

- ROK/BNE has been cancelled until further notice
- ROK/MEL will be reinstated from 26 March 2011

Due to the lack of Tiger services, performance matters are irrelevant.

The call centre number has been unavailable intermittently for some time now. Tiger Management have been made aware of this issue.

RRC Customer Service has been advised that Tiger will offer to move passengers onto another service at no cost or offer a full refund.



## **Rockhampton Airport – Flood Situation Report**

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(c) **Virgin Blue**

Feedback received regarding the airline's customer service centre in response to the closure of ROK has not been complementary.

*QUESTION: What is the minimum runway length required to provide commercial E170 and E190 services?*

*QUESTION: Can travellers cancel flights that were scheduled to arrive or depart during the closure period is being sought. Are their costs? What other issues should they be aware of?*

*QUESTION: RRC Customer Service has been contact several times by travellers concerned about the Terms and Conditions associated with the cancellation of Virgin Blue flights and the transfer policy (for example; a \$15 'transfer' fee has been reported).*

### **17. ANY OTHER ISSUES**

A call was received from Qld Transport; they are preparing a report for Cabinet on anticipated damage to roads and airports in the flood affected shires. They were advised that we are anticipating pavement repairs and have extensive damage to fences.

An offer was received from Cairns Airport to provide an experienced airport electrician to assist with the recovery process. This offer is being discussed internally and a decision will be made soon.

An offer was made by GHD to provide an aviation pavement engineer and an aviation lighting engineer for a few days on a "probono" basis to assess damage.

Numerous other airports in Qld have offered their assistance in the recovery phase. The need for this type of assistance has yet to be determined.

Rockhampton Airport Meteorology Office has been added to the external distribution list of this information.



## **ROCKHAMPTON AIRPORT FLOOD SITUATION REPORT**

Author: David Blackwell, Director Airports  
Date: 8 January 2011  
Edition: Recovery Phase #4 (EXTERNAL)

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### **AIRPORT OPERATIONS**

At this stage the airport is closed for all aircraft operations. Further information is available from the relevant NOTAM.

A full assessment of the aeronautical infrastructure will not be conducted before late next week. Following the assessment we will be able to estimate the time required to reinstate critical services and restore aeronautical operations. Please refer to the Media Issues section within this report for further information.

Significant Bird activity on and adjacent to the movement areas could create Bird Hazards issues when the runway is reopened with remaining large flooded areas. A plan to manage the problem will need to be formulated and advised to the airlines.

### **PERSONNEL & INFRASTRUCTURE**

#### **1. SAFETY ISSUES:**

The erosion to roads and footpaths could be hazardous to vehicles or pedestrian on the receding flood levels.

All flood affected electrical services must be checked by qualified electricians before being energised.

A higher than usual level of snake activity is occurring around the airport precinct. Destruction of snakes or other protected wildlife, unless for self preservation is not allowed.

Sterilisation of areas of publically accessible areas affected by flood waters may be required. Other areas of the airport may also require some level of sterilisation. We will be liaising with FRW regarding the use and availability of anti-bacterial sprays for this task.

SES has been carrying out daily serviceability checks of the flood protection for the terminal building, including barrier integrity, pump fuel & water levels.

## **Rockhampton Airport – Flood Situation Report**

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### **2. MOVEMENT AND MANOEUVRING AREA ISSUES:**

**RUNWAYS:** Both runways have been inundated and their condition will not be known until the water has receded and inspections have been conducted.

There has been some subsidence in the area of Lion Creek that may have affected the main runway (RWY 15/33). Operations with a displaced threshold are expected.

Assuming that there is no significant damage to the runway south of the subsidence, the declared distances could be up to 2,000m for takeoff and 1,800m for landing. Note; these distances are for general information only; all operational information will be published in the approved manner.

**TAXIWAYS:** All taxiways have been inundated and their condition will not be known until the water has receded and inspections have been conducted.

**APRONS:** The GA Apron has been inundated and will need to be inspected before its condition can be assessed. Approx 50% of the RPT apron has been flood affected and inspections of these areas will need to be conducted.

Gladstone Airport has offered the use of their 'Marco' roller during any remedial pavement works. Gladstone Airport's pavement specialist is also on site from next week, should Council wish to discuss repair works with an external consultant.

### **3. SECURITY ISSUES:**

Security fencing in several areas has been affected by the flood waters. An assessment will need to be conducted of all fences before a determination can be made to the extent of the damage.

While unaffected by the flood, the protection of the CBS Equipment involved a significant amount of equipment removal and relocation. This will take some time (approx 1 day) to return to service, with system testing required afterwards.

Qantas Security has requested that the screening equipment be returned to service as soon as practical and that daily serviceability and calibration checks are performed daily. The aim is to ensure that this equipment is ready for operation and that any faults are detected as early as possible.

### **4. AIRSERVICES AUSTRALIA**

ATC and ARFF continue to operate from standby electrical supply.

ARFF Rockhampton has set up a remote communication centre through their command vehicle at the Heritage Village. All calls into the Fire Control centre will be diverted to this centre. There is no longer an ARFF presence at ROK.

ROK ARFF has now declared Category 0 operations so that all duty crew can be made available for the disaster relief and recovery works. Additional support personnel from other ARFF stations are becoming available to assist with the recovery works.

Navigation aids – it would appear that the VOR / DME has not been affected by the flood but the NDB may have sustained some damage.

## **Rockhampton Airport – Flood Situation Report**

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### **5. REFUELLING ISSUES:**

Caltex personnel evacuated their facility near the terminal building and will not return until access to their site has been restored.

At this stage it is not known whether their facilities can be easily restarted when power has been restored.

A phone hook-up with Caltex local management will be conducted early next week.

### **6. BUREAU OF METEOROLOGY**

**CORRECTION:** The Airport BOM office is not manned at this time but their equipment is operating on their standby generator. Limited airport weather reports are being sent via a 3G wireless data modem.

BOM staff are hopefully be returning sometime next week, once Canoona road and their local access road become trafficable.

### **7. AIRLINE GROUND HANDLING ISSUES:**

All previously utilised GSE appears to be unaffected by the flood event. Confirmation will be required by the respective agents.

All check-in counters and server rooms are currently in serviceable condition, though some equipment will need to be reinstated before operations can recommence.

### **8. ELECTRICAL / DATA / IT ISSUES:**

The High Voltage Supply to the airport precinct was cut on 3 Jan 11. Since that time, ATC, ARFF, CQ Fresh Pack have been operating on standby generator supply. The Terminal building standby generator is now operating continuously to provide security lighting and limited IT and communications capacity.

The Precision Approach Path Indicator (PAPI) systems will need to be re-installed and calibrated. Assuming that the main runway will be operating from a reduced length, a PAPI set will need to be installed at a temporary location to suit the displaced runway threshold.

Movement Area Guidance Signage will need to be reinstalled and checked before operations can commence.

Paid parking equipment will need to be reinstated and tested before this system can become operational again. It is important to get the paid parking system operational before normal domestic operations commence due to the workload associated with the management of the paid parking system with numerous unrecorded cars in the carpark.

Key Airport Management internal telephones have been diverted to Council's City Hall building.

Direct fax services are not available at this stage due to lack of electricity supply.

The relevant airport High Voltage electrical services have now been isolated and this will allow for the reconnection of the High Voltage electrical supply. At this stage the connection is scheduled for Monday 10 Jan. Once the HV supply has been connected, the return of electrical supply to all airport areas is expected to roll out gradually. Further information will be provided as soon as it is known.

## **Rockhampton Airport – Flood Situation Report**

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### **9. WATER SUPPLY ISSUES:**

None at this stage

### **10. WASTE & RECYCLING ISSUES:**

None at this stage

### **11. SEWERAGE ISSUES:**

FRW has advised that they plan to return the Short Term Carpark sewage pumping station telemetry back into service by utilising batteries delivered to site on a regular basis.

The sewage pump station in the General Aviation Area may have been inundated but will need to be checked by Fitzroy River Water (FRW) before being considered serviceable.

The sewage pump station adjacent to the Caltex refuelling compound may be flood affected and will need to be checked by FRW before being considered serviceable.

The sewage outlets from the terminal building have been sealed to prevent backflow into the terminal and these plugs will need to be removed before normal terminal sewer services can be reinstated.

When the High Voltage supply has been reconnected to the airport precinct, power will gradually become available to the 3 sewage pump stations at the airport.

NOTE: Terminal air-conditioning can only be used for essential services (i.e. IT / Comms rooms) as condensate drains are plumbed into the sewage system and continued use may overflow sewage storages.

NOTE: Due to the limited availability of sewage storage, the automatic urinal flush system in the terminal was disabled on the weekend and signs installed on the male toilet doors advising people not to use the male toilets.

### **12. STORM WATER ISSUES:**

Condition assessments will be conducted when the flood waters have receded.

Airport personnel will need to monitor the storm water outlets that are inside the flood barrier (mainly around the public viewing area) during large local rainfall events to ensure that the terminal is not inundated in these areas.

### **13. ROAD NETWORK ISSUES**

Condition assessments will be conducted when the flood waters have receded.

It has been noted that there is some asphalt (and possibly pavement) damage sustained on the Hunter Street entrance road.

As soon as the water recedes from the Hunter Street entrance and Canoona Road becomes trafficable, the Hunter Street access will be closed off with temporary fencing and access to the terminal area will be via the Canoona Road entrance. This will allow for works to be conducted on the entrance road, associated stormwater drainage and gardens without the need for traffic control measures.

This should also significantly reduce the visitations of people 'sight seeing' around the work areas and speed up the remediation works.

## **Rockhampton Airport – Flood Situation Report**

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### **14. EMERGENCY SERVICES MATTERS**

None at this stage

### **15. REGULATORY ISSUES**

The Office of Transport Security (OTS) will not be requiring a Special Event Zone to be established for airside recovery works until we recommence RPT services.

While there isn't a requirement to display an Aviation Security Identity Card (ASIC) until RPT services resume, we still need to develop a plan for access control to meet CASA's safety requirements for other aircraft movements.

### **16. MEDIA ISSUES**

- (a) The following information was updated on the Airport Web Site ([www.rok.aero](http://www.rok.aero) / [www.rockhamptonairport.com.au](http://www.rockhamptonairport.com.au)) at 11:43am today:

*The Fitzroy River reached its peak flood level of 9.2m on Wednesday 5 January at the Rockhampton City Gauge. The flood level is stationary at approximately 9.1m. Advice received from the Bureau of Meteorology is that the Fitzroy River will remain around 8.5m until late next week.*

*As a result of this advice, the following general recovery information for Rockhampton Airport has been provided:*

#### ***Friday 14 Jan 11***

*Floodwaters are expected to reduce to 8.5m by this date. Access to runways and other critical operational areas may become available for visual inspection. The inspections are anticipated to take approximately 2 working days.*

*After the visual appraisal a more detailed assessment of the major infrastructure elements will be conducted. These assessments should take around 3 days, depending upon access and infrastructure condition.*

#### ***Wednesday 19 Jan 11***

*Assuming that all critical infrastructure has not sustained major damage, remedial works can commence.*

#### ***Monday 24 Jan 11***

*By this date it may be possible to reinstate some aircraft operations during daylight hours only.*

*Airport facilities necessary for Regular Public Transport services (e.g. QantasLink, Virgin Blue and Tiger Airways) may be possible but more information will be required before this can be accurately determined.*

#### ***Friday 28 January 11***

*Unless the airport has sustained significant damage to key infrastructure, it is probable that that normal RPT services could be reinstated.*

*Airport Management will endeavour to expedite the return to service of all RPT services but at this stage the condition of the facilities is unknown. More information will be posted on this web site when it becomes available.*

- (b) Capricorn Tourism have been contacted and advised of the above information.



## **Rockhampton Airport – Flood Situation Report**

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### **17. CUSTOMER IMPACTS**

We are now starting to receive enquiries from passengers affected by the shutdown of the airport. Current estimates are that approx 50,000 passenger movements are affected.

As a result of the large number of affected travellers, it is inevitable that RRC Customer Service will be inundated with enquiries about changes to travel arrangements. The following is a summary of the issues known by Airport Management or reported through our Customer Service Centre:

#### **(a) QantasLink**

The information provided to date by QantasLink management has been of great assistance in the management of this issue from a Council perspective.

QantasLink has advised that they are phoning and emailing travellers that are scheduled to depart up to 11 January and emailing affected travellers after this date.

Q300 operations can be conducted with a runway length of 1,300m and without the need for passenger screening or CBS.

*QUESTION: Does QantasLink still allow the relocation of affected passengers onto other local airport services (e.g. GLT & MKY) and has not levied any charges on this activity.*

*QUESTION: Can travellers cancel flights that were scheduled to arrive or depart during the closure period is being sought. Are their costs? What other issues should they be aware of?*

#### **(b) Tiger Airways**

- ROK/BNE has been cancelled until further notice
- ROK/MEL will be reinstated from 26 March 2011

The call centre number has been unavailable intermittently for some time now. Tiger Management have been made aware of this issue.

RRC Customer Service has been advised that Tiger will offer to move passengers onto another service at no cost or offer a full refund.

#### **(c) Virgin Blue**

We understand that Virgin Blue has sent text messages to customers today advising them of the changes in flights at Rockhampton Airport due to the floods.

*QUESTION: What is the minimum runway length required to provide commercial E170 and E190 services?*

*QUESTION: Can travellers cancel flights that were scheduled to arrive or depart during the closure period is being sought. Are their costs? What other issues should they be aware of?*

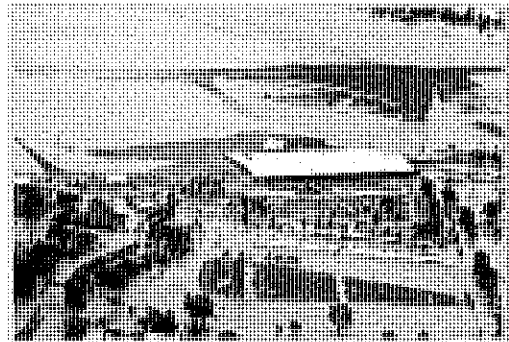
*QUESTION: RRC Customer Service has been contact several times by travellers concerned about the Terms and Conditions associated with the cancellation of Virgin Blue flights and the transfer policy (for example; a \$15 'transfer' fee has been reported).*

## **Rockhampton Airport – Flood Situation Report**

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### **18. ANY OTHER ISSUES**

We have decided to take up the offer from Cairns Airport to provide an experienced airport electrician to assist with the recovery process. Arrangements will be made early next week for travel and accommodation.





## **ROCKHAMPTON AIRPORT FLOOD SITUATION REPORT**

Author: David Blackwell, Director Airports  
Date: Monday 10 January 2011  
Edition: Recovery Phase #5 (EXTERNAL)

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### **AIRPORT OPERATIONS**

At this stage the airport is closed for all aircraft operations. Further information is available from the relevant NOTAM.

A full assessment of the aeronautical infrastructure will not be conducted before late next week. Following the assessment we will be able to estimate the time required to reinstate critical services and restore aeronautical operations. Please refer to the Media Issues section within this report for further information.

Significant Bird activity on and adjacent to the movement areas could create Bird Hazards issues when the runway is reopened with remaining large flooded areas. A plan to manage the problem will need to be formulated and advised to the airlines.

### **PERSONNEL & INFRASTRUCTURE**

#### **1. SAFETY ISSUES:**

The erosion to roads and footpaths could be hazardous to vehicles or pedestrian on the receding flood levels.

All flood affected electrical services must be checked by qualified electricians before being energised.

A higher than usual level of snake activity is occurring around the airport precinct. Destruction of snakes or other protected wildlife, unless for self preservation is not allowed.

Sterilisation of areas of publically accessible areas affected by flood waters may be required. Other areas of the airport may also require some level of sterilisation. We will be liaising with FRW regarding the use and availability of anti-bacterial sprays for this task.

SES has been carrying out daily serviceability checks of the flood protection for the terminal building, including barrier integrity, pump fuel & water levels.

## **Rockhampton Airport – Flood Situation Report**

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### **2. BRUCE HIGHWAY**

Advice from the BOM regarding a river level of 8.5m by this Friday indicates that the Bruce Highway to the south of Rockhampton may become operational on the weekend. Obviously this is dependant upon the extent of any damage that has been sustained at the Yeppen Crossing and associated road network. When

### **3. MOVEMENT AND MANOEUVRING AREA ISSUES:**

**RUNWAYS:** Both runways have been inundated and their condition will not be known until the water has receded and inspections have been conducted.

There has been some subsidence in the area of Lion Creek (the northern end of the main runway) that may have affected the main runway (RWY 15/33). Assuming that there is no significant damage to the runway south of this subsidence, the available runway distances may be up to 1,900m for takeoff and 1,790m for landing. Note; these distances are for general information only; all operational information will be published in the approved manner.

The water level on the main runway has reduced a small amount and sweeping and visual inspection of the runway has commenced (refer photos at the end of this report). Several pavement anomalies have been identified and marked to engineering assessment.

With the exception of the intersection of the two runways, the secondary runway (RWY 04/22) is still completely underwater.

**TAXIWAYS:** All taxiways have been inundated and their condition will not be known until the water has receded and inspections have been conducted.

At this stage the inspection of the main runway has been prioritised. The critical taxiways will be reviewed in due course.

**APRONS:** The GA Apron has been inundated and will need to be inspected before its condition can be assessed. Approx 50% of the RPT apron has been flood affected and inspections of these areas will need to be conducted.

Gladstone Airport has offered the use of their 'Marco' roller during any remedial pavement works. Gladstone Airport's pavement specialist is also from next week, should Council wish to discuss repair works with an experienced pavement consultant.

### **4. SECURITY ISSUES:**

Security fencing in several areas has been affected by the flood waters. An assessment will need to be conducted of all fences before a determination can be made to the extent of the damage.

It is possible that temporary fencing will be used to effectively secure the western section of the secondary runway (RWY04/22). This would significantly reduce the fencing that is required to be reinstated prior to the commencement of RPT operations.

While unaffected by the flood, the protection of the CBS Equipment involved a significant amount of equipment removal and relocation. This will take some time (approx 1 day) to return to service, with system testing required afterwards.

Qantas Security has requested that the screening equipment be returned to service as soon as practical and that daily serviceability and calibration checks are performed daily.

## **Rockhampton Airport – Flood Situation Report**

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The aim is to ensure that this equipment is ready for operation and that any faults are detected as early as possible.

All CCTV and most access control systems have been restored in the terminal area. Security equipment in the General Aviation area will not be restored until power has been reconnected to this area.

### **5. AIRSERVICES AUSTRALIA**

ATC and ARFF continue to operate from standby electrical supply.

ARFF Rockhampton has set up a remote communication centre through their command vehicle at the Heritage Village. All calls into the Fire Control centre will be diverted to this centre. There is no longer an ARFF presence at ROK.

ROK ARFF has now declared Category 0 operations so that all duty crew can be made available for the disaster relief and recovery works. Additional support personnel from other ARFF stations are becoming available to assist with the recovery works.

Navigation aids – it would appear that the VOR / DME has not been affected by the flood but the NDB may have sustained some damage.

### **6. REFUELLING ISSUES:**

Caltex personnel evacuated their facility near the terminal and will not return until access to their site has been restored.

At this stage it is not known whether their facilities can be easily restarted when power has been restored.

The local Caltex Manager has advised that they will be able to deploy back to the airport with little notice (a couple of hours). The main issue will be the reinstallation of pump electrical motors that were isolated and removed prior to Caltex's evacuation from the airport. It is expected that this work will take ½ a day to complete.

### **7. BUREAU OF METEOROLOGY**

**CORRECTION:** The Airport BOM office is not manned at this time but their equipment is operating on their standby generator. Limited airport weather reports are being sent via a 3G wireless data modem.

BOM staff are hopefully be returning sometime next week, once Canoona road and their local access road become trafficable.

### **8. AIRLINE GROUND HANDLING ISSUES:**

All previously utilised GSE appears to be unaffected by the flood event. Confirmation will be required by the respective agents.

All check-in counters and server rooms are currently in serviceable condition, though some equipment will need to be reinstated before operations can recommence.

## **Rockhampton Airport – Flood Situation Report**

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### **9. ELECTRICAL / DATA / IT ISSUES:**

The High Voltage Supply to the airport precinct was cut on 3 Jan 11. Since that time, ATC, ARFF, CQ Fresh Pack have been operating on standby generator supply. The Terminal building standby generator is now operating continuously to provide security lighting and limited IT and communications capacity.

The Precision Approach Path Indicator (PAPI) systems will need to be re-installed and calibrated. Assuming that the main runway will be operating from a reduced length, a PAPI set will need to be installed at a temporary location to suit the displaced runway threshold.

Movement Area Guidance Signage will need to be reinstalled and checked before operations can commence.

All runway light fittings affected by water (currently 67 above ground and 124 inset fittings) will need to be removed, cleaned and repaired as required.

Paid parking equipment will need to be reinstated and tested before this system can become operational again. It is important to get the paid parking system operational before normal domestic operations commence due to the workload associated with the management of the paid parking system with numerous unrecorded cars in the carpark.

Key Airport Management internal telephones have been diverted to Council's City Hall building.

Direct fax services are not available at this stage due to lack of electricity supply.

High Voltage (HV) supply was restored to the airport precinct today. Sections of the terminal building were returned to service. Power to the General Aviation area has not yet been restored. Power to the Freight Area has not yet been restored.

With reference to the Sewage Matters section below, RRC IT services have been restored to the terminal building.

### **10. WATER SUPPLY ISSUES:**

None at this stage

### **11. WASTE & RECYCLING ISSUES:**

None at this stage



## **Rockhampton Airport – Flood Situation Report**

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### **12. SEWERAGE ISSUES:**

With the reconnection of HV to the airport, the sewage pump station in the Short Term Carpark has been returned to service. Due to the flooding of the staff carpark area, floodwater may be affecting the operation of this station and this is currently being investigated. At this stage the sewage drainage plugs from the terminal to this station cannot be removed.

The sewage pump station in the General Aviation Area may have been inundated but will need to be checked by Fitzroy River Water (FRW) before being considered serviceable.

The sewage pump station adjacent to the Caltex refuelling compound may be flood affected and will need to be checked by FRW before being considered serviceable.

NOTE: Terminal air-conditioning can only be used for essential services (i.e. Mezzanine IT / Comms rooms) as condensate drains are plumbed into the sewage system and continued use may overflow sewage storages.

The Common User IT / Comms room air-conditioning has been restored as the condensate drain for this room has been temporarily redirected away from the sewer system. This has allowed power to be applied to RRC IT systems and power has also been applied to the Virgin Blue server system.

NOTE: Due to the limited availability of sewage storage, the automatic urinal flush system in the terminal was disabled on the weekend and signs installed on the male toilet doors advising people not to use the male toilets.

### **13. STORM WATER ISSUES:**

Condition assessments will be conducted when the flood waters have receded.

Airport personnel will need to monitor the storm water outlets that are inside the flood barrier (mainly around the public viewing area) during large local rainfall events to ensure that the terminal is not inundated in these areas.

### **14. ROAD NETWORK ISSUES**

It has been noted that there is some asphalt (and possibly pavement) damage sustained on the Hunter Street entrance road.

The water level of the entrance road has been reducing marginally today, with water still completely across the entrance road.

As soon as the water recedes from the Hunter Street entrance and Canoona Road becomes trafficable, the Hunter Street access will be closed off with temporary fencing and access to the terminal area will be via the Canoona Road entrance. This will allow for works to be conducted on the entrance road, associated stormwater drainage and gardens without the need for traffic control measures.

This should also significantly reduce the visitations of people 'sight seeing' around the work areas and speed up the remediation works.

### **15. EMERGENCY SERVICES MATTERS**

None at this stage

## **Rockhampton Airport – Flood Situation Report**

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### **16. REGULATORY ISSUES**

The Office of Transport Security (OTS) will not be requiring a Special Event Zone to be established for airside recovery works until we recommence RPT services.

While there isn't a requirement to display an Aviation Security Identity Card (ASIC) until RPT services resume, we still need to develop a plan for access control to meet CASA's safety requirements for other aircraft movements.

### **17. MEDIA ISSUES**

(a) The following information was updated on the Airport Web Site ([www.rok.aero](http://www.rok.aero) / [www.rockhamptonairport.com.au](http://www.rockhamptonairport.com.au)) at 9:07am today:

*The Fitzroy River reached its peak flood level of 9.2m on Wednesday 5 January at the Rockhampton City Gauge. Unfortunately the flood level has remained stationary over the weekend at 9.1m. Advice received from the Bureau of Meteorology this morning is that the Fitzroy River will remain around 8.5m until late next week.*

*As a result of this advice, the following general recovery information for Rockhampton Airport remains valid:*

#### ***Friday 14 Jan 11***

*Floodwaters are expected to reduce to 8.5m by this date. Access to runways and other critical operational areas may become available for visual inspection. The inspections are anticipated to take approximately 2 working days.*

*After the visual appraisal a more detailed assessment of the major infrastructure elements will be conducted. These assessments should take around 3 days, depending upon access and infrastructure condition.*

#### ***Wednesday 19 Jan 11***

*Assuming that all critical infrastructure has not sustained major damage, remedial works can commence.*

#### ***Monday 24 Jan 11***

*By this date it may be possible to reinstate some aircraft operations during daylight hours only.*

*Airport facilities necessary for Regular Public Transport services (e.g. QantasLink, Virgin Blue and Tiger Airways) may be possible but more information will required before this can be accurately determined.*

#### ***Friday 28 January 11***

*Unless the airport has sustained significant damage to key infrastructure, it is probable that that normal RPT services could be reinstated.*

*Airport Management will endeavour to expedite the return to service of all RPT services but at this stage the condition of the facilities is unknown. More information will be posted on this web site when it becomes available.*

## **Rockhampton Airport – Flood Situation Report**

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### **18. CUSTOMER IMPACTS**

We are now starting to receive enquiries from passengers affected by the shutdown of the airport. Current estimates are that approx 50,000 passenger movements are affected.

As a result of the large number of affected travellers, it is inevitable that RRC Customer Service will be inundated with enquiries about changes to travel arrangements. The following is a summary of the issues known by Airport Management or reported through our Customer Service Centre:

#### **(a) QantasLink**

The information provided to date by QantasLink management has been of great assistance in the management of this issue from a Council perspective.

QantasLink has advised that they are phoning and emailing travellers that are scheduled to depart up to 11 January and emailing affected travellers after this date.

Dash 8-Q300 (50 seat) operations can be conducted with a runway length of 1,300m and without the need for passenger screening or CBS

Dash 8-200 (34 seat) operations may be possible with a runway length of 1,100m

There is currently an issue with refunds and assistance being available to passengers that booked before 29 December 2011. Discussions with QantasLink Sales this morning has revealed that the information on the Qantas web site will be amended today. For the latest information, please refer to the specific Qantas web page:

[http://www.qantas.com.au/travel/airlines/disruptions/global/en?int\\_cam=au:hp:rockhampton:closure:jan11](http://www.qantas.com.au/travel/airlines/disruptions/global/en?int_cam=au:hp:rockhampton:closure:jan11)

#### **(b) Tiger Airways**

- ROK/BNE has been cancelled until further notice
- ROK/MEL will be reinstated from 26 March 2011

The call centre number has been unavailable intermittently for some time now. Tiger Management have been made aware of this issue.

RRC Customer Service has been advised that Tiger will offer to move passengers onto another service at no cost or offer a full refund.

Tiger Airways Rockhampton Airport specific web page has been up since 2 January 11 and is linked to the airport's web site. The web link is:

<http://www.tigerairways.com.au/au/en/disruption.php>

#### **(c) Virgin Blue**

We understand that Virgin Blue has sent text messages to customers today advising them of the changes in flights at Rockhampton Airport due to the floods.

Virgin Blue has now created a web page for this event and this is the best source for customer information. The web link is:

<http://www.virginblue.com.au/MinorIncidentReport/index.htm>

## **Rockhampton Airport – Flood Situation Report**

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### **19. ANY OTHER ISSUES**

We have decided to take up the offer from Cairns Airport to provide an experienced airport electrician to assist with the recovery process. Arrangements will be made early next week for travel and accommodation.







## **ROCKHAMPTON AIRPORT FLOOD SITUATION REPORT**

Author: David Blackwell, Director Airports  
Date: Tuesday 11 January 2011  
Edition: Recovery Phase #6 (EXTERNAL)

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### **AIRPORT OPERATIONS**

At this stage the airport is closed for all aircraft operations. Further information is available from the relevant NOTAM.

A full assessment of the aeronautical infrastructure will not be conducted before late next week. Following the assessment we will be able to estimate the time required to reinstate critical services and restore aeronautical operations. Please refer to the Media Issues section within this report for further information.

Significant Bird activity on and adjacent to the movement areas could create Bird Hazards issues when the runway is reopened with remaining large flooded areas. A plan to manage the problem will need to be formulated and advised to the airlines.

### **PERSONNEL & INFRASTRUCTURE**

#### **1. SAFETY ISSUES:**

The erosion to roads and footpaths could be hazardous to vehicles or pedestrian on the receding flood levels.

All flood affected electrical services must be checked by qualified electricians before being energised.

A higher than usual level of snake activity is occurring around the airport precinct. Destruction of snakes or other protected wildlife, unless for self preservation is not allowed.

Sterilisation of areas of publically accessible areas affected by flood waters may be required. Other areas of the airport may also require some level of sterilisation. We will be liaising with FRW regarding the use and availability of anti-bacterial sprays for this task.

SES has been carrying out daily serviceability checks of the flood protection for the terminal building, including barrier integrity, pump fuel & water levels.

## **Rockhampton Airport – Flood Situation Report**

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### **2. BRUCE HIGHWAY**

Currently the Fitzroy River flood level is 8.9m on the Rockhampton Gauge and slowly reducing.

Advice from the BOM regarding a river level of 8.5m by this Friday indicates that the Bruce Highway to the south of Rockhampton may become operational on the weekend.

Obviously this is dependant upon the extent of any damage that has been sustained at the Yeppen Crossing and associated road network. When

### **3. MOVEMENT AND MANOEUVRING AREA ISSUES:**

**RUNWAYS:** Both runways have been inundated and their condition will not be known until the water has receded and inspections have been conducted.

There has been some subsidence in the area of Lion Creek (the northern end of the main runway) that may have affected the main runway (RWY 15/33). Assuming that there is no significant damage to the runway south of this subsidence, the available runway distances may be up to 1,900m for takeoff and 1,790m for landing. Note; these distances are for general information only; all operational information will be published in the approved manner.

The water level on the main runway has reduced a small amount and sweeping and visual inspection of the runway has commenced (refer photos at the end of this report). Several pavement anomalies have been identified and marked to engineering assessment.

With the exception of the intersection of the two runways, the secondary runway (RWY 04/22) is still completely underwater.

**TAXIWAYS:** All taxiways have been inundated and their condition will not be known until the water has receded and inspections have been conducted.

At this stage the inspection of the main runway has been prioritised. The critical taxiways will be reviewed in due course.

**APRONS:** The GA Apron has been inundated and will need to be inspected before its condition can be assessed. Approx 50% of the RPT apron has been flood affected and inspections of these areas will need to be conducted.

Gladstone Airport has offered the use of their 'Marco' roller during any remedial pavement works. Gladstone Airport's pavement specialist is also from next week, should Council wish to discuss repair works with an experienced pavement consultant.

### **4. SECURITY ISSUES:**

Security fencing in several areas has been affected by the flood waters. An assessment will need to be conducted of all fences before a determination can be made to the extent of the damage.

It is possible that temporary fencing will be used to effectively secure the western section of the secondary runway (RWY04/22). This would significantly reduce the fencing that is required to be reinstated prior to the commencement of RPT operations.

While unaffected by the flood, the protection of the CBS Equipment involved a significant amount of equipment removal and relocation. This will take some time (approx 1 day) to return to service, with system testing required afterwards.



## **Rockhampton Airport – Flood Situation Report**

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Qantas Security has requested that the screening equipment be returned to service as soon as practical and that daily serviceability and calibration checks are performed daily. The aim is to ensure that this equipment is ready for operation and that any faults are detected as early as possible.

All CCTV and most access control systems have been restored in the terminal area. Security equipment in the General Aviation area will not be restored until power has been reconnected to this area.

### **5. AIRSERVICES AUSTRALIA**

ATC and ARFF continue to operate from standby electrical supply.

ARFF Rockhampton has set up a remote communication centre through their command vehicle at the Heritage Village. All calls into the Fire Control centre will be diverted to this centre. There is no longer an ARFF presence at ROK.

ROK ARFF has now declared Category 0 operations so that all duty crew can be made available for the disaster relief and recovery works. Additional support personnel from other ARFF stations are becoming available to assist with the recovery works.

Navigation aids – it would appear that the VOR / DME has not been affected by the flood but the NDB may have sustained some damage.

### **6. REFUELLING ISSUES:**

Caltex personnel evacuated their facility near the terminal and will not return until access to their site has been restored.

At this stage it is not known whether their facilities can be easily restarted when power has been restored.

The local Caltex Manager has advised that they will be able to deploy back to the airport with little notice (a couple of hours). The main issue will be the reinstallation of pump electrical motors that were isolated and removed prior to Caltex's evacuation from the airport. It is expected that this work will take ½ a day to complete.

### **7. BUREAU OF METEOROLOGY**

CORRECTION: The Airport BOM office is not manned at this time but their equipment is operating on their standby generator. Limited airport weather reports are being sent via a 3G wireless data modem.

BOM staff are hopefully be returning sometime next week, once Canoona road and their local access road become trafficable.

### **8. AIRLINE GROUND HANDLING ISSUES:**

All previously utilised GSE appears to be unaffected by the flood event. Confirmation will be required by the respective agents.

All check-in counters and server rooms are currently in serviceable condition, though some equipment will need to be reinstated before operations can recommence.

## **Rockhampton Airport – Flood Situation Report**

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### **9. ELECTRICAL / DATA / IT ISSUES:**

The High Voltage Supply to the airport was reinstated yesterday and the terminal building is now operating normally. Sections of the Freight Area now have electrical services, though some sections that are supplied from the carpark distribution boards may still be unserviceable.

Power in the GA area has yet to be restored due to a problem with the power distribution in this location. Contracted electrical services are working on this issue and further advice will be provided in due course.

The cleaning of all runway light fittings affected by water (currently 67 above ground and 124 inset fittings) will commence soon; all fittings will need to be removed, cleaned and repaired as required.

Paid parking equipment is planned to be reinstalled over the next few days.

### **10. WATER SUPPLY ISSUES:**

None at this stage

### **11. WASTE & RECYCLING ISSUES:**

None at this stage

### **12. SEWERAGE ISSUES:**

The sewage drainage plugs from the terminal to the sewage pumping station were removed today. As a result the Terminal Building, ATC Tower and ARFF complex should now have functioning sewage services.

The sewage pump station in the General Aviation Area may have been inundated but will need to be checked by Fitzroy River Water (FRW) before being considered serviceable.

The sewage pump station adjacent to the Caltex refuelling compound may be flood affected and will need to be checked by FRW before being considered serviceable.

### **13. STORM WATER ISSUES:**

Condition assessments will be conducted when the flood waters have receded.

### **14. ROAD NETWORK ISSUES**

The water level of the entrance road has reduced considerably and is now trafficable to normal low clearance vehicles.

RRC Infrastructure Services has been working on the Hunter St entrance road, repairing the asphalt damage that was sustained as a result of the floodwaters. When this work is completed, the entrance road should be fully operational.

We still intend to close off the Hunter Street access to the airport to allow for works to be conducted on the entrance road, associated stormwater drainage and gardens without the need for traffic control measures.

## **Rockhampton Airport – Flood Situation Report**

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### **15. EMERGENCY SERVICES MATTERS**

None at this stage

### **16. REGULATORY ISSUES**

The Office of Transport Security (OTS) will not be requiring a Special Event Zone to be established for airside recovery works until we recommence RPT services.

While there isn't a requirement to display an Aviation Security Identity Card (ASIC) until RPT services resume, we still need to develop a plan for access control to meet CASA's safety requirements for other aircraft movements.

### **17. MEDIA ISSUES**

(a) The following information was updated on the Airport Web Site ([www.rok.aero](http://www.rok.aero) / [www.rockhamptonairport.com.au](http://www.rockhamptonairport.com.au)) at 1:45pm today:

The Fitzroy River reached its peak flood level of 9.2m on Wednesday 5 January at the Rockhampton City Gauge. The flood level has remained virtually stationary and is now reading 9.0m. Advice received from the Bureau of Meteorology this morning is that the Fitzroy River will remain around 8.5m until late this week. At 8.5m, we expect most parts of the airport to become accessible.

As a result of this advice, the following general recovery information for Rockhampton Airport can be provided:

#### **Tuesday 11 Jan 11**

The water level on the main runway (RWY 15/33) has reduced by a small amount. Sweeping and visual inspection of the dry section of this runway has now commenced. Several issues have been identified with the available runway and have been marked for engineering assessment.

With the exception of the intersection of the two runways, the secondary runway (RWY 04/22) is still completely underwater.

#### **Friday 14 Jan 11**

Floodwaters are expected to reduce to 8.5m by this Friday. Full access to runways and other critical operational areas is expected become available for visual inspection. The inspections are anticipated to take approximately 2 working days.

After the visual appraisal, detailed engineering assessments will be conducted. These assessments should take around 3 days.

#### **Wednesday 19 Jan 11**

Assuming that the critical infrastructure has not sustained major damage, remedial works can commence.

#### **Monday 24 Jan 11**

By this date it may be possible to reinstate some aircraft operations during daylight hours only.

Airport facilities necessary for Regular Public Transport services (e.g. QantasLink, Virgin Blue and Tiger Airways) may be possible but more information will required before this can be accurately determined.

## **Rockhampton Airport – Flood Situation Report**

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Friday 28 January 11

Unless the airport has sustained significant damage to key infrastructure, it is probable that that normal RPT services could be reinstated.

Airport Management will endeavour to expedite the return to service of all RPT services but at this stage the condition of the facilities is unknown. More information will be posted on this web site when it becomes available.

### **18. CUSTOMER IMPACTS**

We are now starting to receive enquiries from passengers affected by the shutdown of the airport. Current estimates are that approx 50,000 passenger movements are affected.

As a result of the large number of affected travellers, it is inevitable that RRC Customer Service will be inundated with enquiries about changes to travel arrangements. The following is a summary of the issues known by Airport Management or reported through our Customer Service Centre:

#### **(a) QantasLink**

The information provided to date by QantasLink management has been of great assistance in the management of this issue from a Council perspective.

QantasLink has advised that they are phoning and emailing travellers that are scheduled to depart up to 11 January and emailing affected travellers after this date.

Dash 8-Q300 (50 seat) operations can be conducted with a runway length of 1,300m and without the need for passenger screening or CBS

Dash 8-200 (34 seat) operations may be possible with a runway length of 1,100m

The Qantas web site was updated last night with the latest information relating to Rockhampton Airport. Please refer to the web page for more information:

[http://www.qantas.com.au/travel/airlines/disruptions/global/en?int\\_cam=au:hp:rockhampton:closure:jan11](http://www.qantas.com.au/travel/airlines/disruptions/global/en?int_cam=au:hp:rockhampton:closure:jan11)

#### **(b) Tiger Airways**

- ROK/BNE has been cancelled until further notice
- ROK/MEL will be reinstated from 26 March 2011

The call centre number has been unavailable intermittently for some time now. Tiger Management have been made aware of this issue.

RRC Customer Service has been advised that Tiger will offer to move passengers onto another service at no cost or offer a full refund.

Tiger Airways Rockhampton Airport specific web page has been up since 2 January 11 and is linked to the airport's web site. The web link is:

<http://www.tigerairways.com.au/au/en/disruption.php>

## **Rockhampton Airport – Flood Situation Report**

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### **(c) Virgin Blue**

We understand that Virgin Blue has sent text messages to customers today advising them of the changes in flights at Rockhampton Airport due to the floods.

Virgin Blue has now updated their web page for this event. The link is:

<http://www.virginblue.com.au/MinorIncidentReport/index.htm>

## **19. TERMINAL ISSUES**

The terminal building is still surrounded by the flood barrier. Two small sections of this barrier have been removed. It is expected that the remainder of this barrier will be removed over the next week. At this stage all ground handling GSE is 'trapped' behind the flood barrier.

**NOTE: 3 personnel from the SES and EMQ are to be on airport this (Thursday 13 Jan) from 8am to commence the removal of the flood barrier. We will be seeking volunteers to assist them with the removal of the barrier.**

Power and data services have been restored, though some power and lighting circuits have yet to be energised.

Security services are all operational.

Toilets and the mains water supply is available.

Air-conditioning services were switched on late this afternoon and may take 24 hours to stabilise.

The staff carpark is still flood affected and cannot be used at this stage.

All other carparks are yet to be cleaned and checked; therefore it is preferable that vehicles are not stored in these areas.

Some sandbags are still to be removed from the internal of the building.

Cleaning of the terminal building is to be conducted over the next couple of days.

## **20. ANY OTHER ISSUES**

We have decided to take up the offer from Cairns Airport to provide an experienced airport electrician to assist with the recovery process. Arrangements will be made early next week for travel and accommodation.

Adelaide and Brisbane Airport's have been in contact asking whether we require any assistance from their various business units. At this stage the offers of assistance are not required, though we will continue to monitor the situation.



## **ROCKHAMPTON AIRPORT FLOOD SITUATION REPORT**

Author: David Blackwell, Director Airports  
Date: Wednesday 11 January 2011  
Edition: Recovery Phase #7 (EXTERNAL)

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### **AIRPORT OPERATIONS**

At this stage the airport is closed for all aircraft operations. Further information is available from the relevant NOTAM.

For up to date information on the timing of the airport opening, please refer to the airport website ([www.rockhamptonairport.com.au](http://www.rockhamptonairport.com.au))

Significant Bird activity on and adjacent to the movement areas could create Bird Hazards issues when the runway is reopened with remaining large flooded areas. A plan to manage the problem will need to be formulated and advised to the airlines.

### **PERSONNEL & INFRASTRUCTURE**

#### **1. SAFETY ISSUES:**

A higher than usual level of snake activity is occurring around the airport precinct. Destruction of snakes or other protected wildlife, unless for self preservation is not allowed.

#### **2. BRUCE HIGHWAY**

Currently the Fitzroy River flood level is 8.9m on the Rockhampton Gauge and slowly reducing.

Advice from the BOM regarding a river level of 8.5m by this Friday indicates that the Bruce Highway to the south of Rockhampton may become operational on the weekend.

Obviously this is dependant upon the extent of any damage that has been sustained at the Yeppen Crossing and associated road network.

## **Rockhampton Airport – Flood Situation Report**

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### **3. MOVEMENT AND MANOEUVRING AREA ISSUES:**

**RUNWAYS:** The main runway (RWY 15/33) is approx 70% clear of water and visual inspections have commenced. With the exception of the runway intersection, the secondary runway (RWY 04/22) is still underwater. Please refer to end of this document for a graphical depiction of the water on the airport operational areas.

There has been some subsidence in the area of Lion Creek (the northern end of the main runway) that will affect the main runway (RWY 15/33). A detailed survey of this area has been conducted and RRC Infrastructure Design Services are currently assessing the extent of the remedial works required.

Until this work is successfully completed, the maximum available runway distances will be in the order of 1,900m for takeoff and 1,790m for landing. This is assuming that the remaining southern section of this runway is serviceable. Note; these distances are for general information only; all operational information will be published in the approved manner.

The water level on the main runway has reduced further. Sweeping, water blasting by the Rural Fire Service and visual inspection of the runway has commenced. Several pavement anomalies have been identified and marked to engineering assessment.

**TAXIWAYS:** At this stage the inspection of the main runway has been prioritised. The critical taxiways will be reviewed in due course.

**APRONS:** Approx 50% of the RPT apron has been flood affected and inspections of these areas will need to be conducted.

### **4. SECURITY ISSUES:**

Several large sections of the security fencing has been affected by the flood waters.

Temporary fencing is being sourced to isolate the western section of the secondary runway (RWY04/22). This will significantly reduce the fencing that is required to be reinstated prior to the commencement of RPT operations.

Flood proofing of the CBS and Screening Point equipment was removed today and it is expected that electrical equipment will be installed in the next couple of days; system testing will then follow this work.

### **5. AIRSERVICES AUSTRALIA**

ARFF Rockhampton has set up a remote communication centre through their command vehicle at the Heritage Village. All calls into the Fire Control centre will be diverted to this centre. There is no longer an ARFF presence at ROK.

ROK ARFF has now declared Category 0 operations so that all duty crew can be made available for the disaster relief and recovery works. Additional support personnel from other ARFF stations are becoming available to assist with the recovery works.

Navigation aids – it would appear that the VOR / DME has not been affected by the flood but the NDB may have sustained some damage. When power has been restored to the GA area, Airservices Australia will be able to conduct an assessment of the NDB facility.



## **Rockhampton Airport – Flood Situation Report**

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### **6. REFUELLING ISSUES:**

The local Caltex Manager has advised that they will be able to deploy back to the airport with little notice (a couple of hours). The main issue will be the reinstallation of pump electrical motors that were isolated and removed prior to Caltex's evacuation from the airport. It is expected that this work will take ½ a day to complete.

### **7. BUREAU OF METEOROLOGY**

**CORRECTION:** The Airport BOM office is not manned at this time but their equipment is operating on their standby generator. Limited airport weather reports are being sent via a 3G wireless data modem.

BOM staff are expecting to return once Canoona road and their local access road becomes trafficable. Based on observations today, it is expected that the BOM offices could be accessible from this weekend.

### **8. AIRLINE GROUND HANDLING ISSUES:**

Power and air-conditioning was restored to the Qantas leased area this afternoon in preparation for the IT installation, scheduled for Thursday.

External data services for Virgin Blue are unserviceable. It would appear that the problem is with the Telstra fibre optic service to the airport. As QantasLink share this service, Qantas IT should be prepared for this issue.

### **9. ELECTRICAL / DATA / IT ISSUES:**

The High Voltage Supply to the airport was reinstated on Monday and the terminal building is now operating normally. Sections of the Freight Area now have electrical services, though some sections that are supplied from the carpark distribution boards may still be unserviceable.

Power in the GA area has yet to be restored due to a problem with the power distribution in this location. Contracted electrical services are working on this issue and further advice will be provided in due course. The electrical contractor has identified the issue and if spare parts are available locally, anticipates that the GA area will have power by Friday afternoon.

The cleaning of all runway light fittings affected by water (currently 67 above ground and 124 inset fittings) will commence soon; all fittings will need to be removed, cleaned and repaired as required.

Paid parking equipment in the Short Term car park was reinstalled today. The remainder of the paid parking equipment will be installed over the next week, though this is not a priority.

### **10. WATER SUPPLY ISSUES:**

None at this stage

### **11. WASTE & RECYCLING ISSUES:**

None at this stage



## Long-term rail options

The two long-term rail corridors which have been identified both have the potential to remove rail operations from Denison Street, reduce the impact of flooding on the North Coast Rail Line and reduce rail travel time.

### Key features and considerations for the Western Rail corridor option

- Corridor west of the Rockhampton Airport.
- Rail junction at Egans Hill enables rail traffic to enter Rockhampton and access existing passenger station, intermodal terminal and maintenance yards.
- Rail junction at Parkhurst retained as rail spur to Yeppoon Branch, track maintenance and sleeper factory.
- Long connections required to access existing station and rail facilities.
- Potential environmental impact on the Yeppen flood plain.
- Construction cannot be staged.

### Key features and considerations for the Eastern Rail corridor option

- Corridor east of the existing Rockhampton Railway Station and reconnects with the North Coast Rail Line in North Rockhampton.
- Passenger and freight rail will continue to pass through urban areas of North Rockhampton but not through city streets.
- Maintains direct access to Yeppoon Branch Line and other existing Rockhampton rail facilities for Queensland Rail.
- Potential environmental impacts on The Common and Depot Hill area.
- Staged implementation possible.

## Map Legend

Western Road corridor option	
Inner City Bruce Highway Upgrade option	
Eastern Road corridor option	
Western Rail corridor option	
Eastern Rail corridor option	
Yeppen flood plain crossing	

## Long-term road options

The three long-term road corridors identified all have the potential to deliver significant improvements to the traffic flow and amenity of the Bruce Highway through Rockhampton. All options being considered would:

- improve cross river traffic flow
- reduce inner-city congestion
- reduce the impact of flooding on the Bruce Highway
- reduce journey (travel) times
- improve safety.

### Key features and considerations for the Western Road corridor option

- Corridor west of the Rockhampton airport.
- New river crossing (north of Rockhampton CBD).
- Links to the Airport and future growth areas north of the city.
- Reduction in long distance freight traffic within city centre.
- Intersections at key locations.
- Some impacts on existing properties and accesses.
- Potential environmental impacts on the Yeppen flood plain.

### Key features and considerations for the inner-city Bruce Highway Upgrade option

- Upgrade of existing Bruce Highway within Rockhampton.
- New river crossing (within Rockhampton CBD).
- Long distance freight traffic remains within city.
- Signalised intersections at key locations.
- Removal of some existing traffic lights (limiting side road access).
- Current freight connections are maintained.
- Potential impact for existing properties and accesses along the Bruce Highway.

### Key features and considerations for the Eastern Road corridor option

- Corridor east of the Rockhampton Railway Station that connects to the existing Bruce Highway on Rockhampton's north side.
- New river crossing (south of Rockhampton CBD).
- Links to freight hubs including Parkhurst, Lakes Creek Road, CBD and rail facilities.
- Reduction in long-distance freight (including livestock freight) from the city centre.
- Intersections at key locations.
- Potential impact on existing properties and accesses.
- Potential environmental impact on The Common.

# Fitzroy River Floodplain and Road Planning Study

## Bruce Highway and North Coast Rail Line options

The Fitzroy River Floodplain and Road Planning Study is assessing current and future demands on the Bruce Highway and North Coast Rail Line to make recommendations that will inform short to long-term transport (road and rail) investment decisions within the Rockhampton region.

The \$5 million study is an Australian Government funded initiative being delivered by the Queensland Department of Transport and Main Roads. The study commenced in November 2009 and is due for completion in late 2011.

Following technical studies, traffic modelling and a review of community feedback, the study has identified a two part strategy to reduce the impact of flooding on the Bruce Highway and to address freight issues in and around Rockhampton.

**What's inside?**

- Map showing the options
- Key features for each option

## Short-term priority: flooding

Reducing the impact of flooding on the Bruce Highway across the Yeppen flood plain has been identified as a short to medium-term priority outcome for the study. As a short to medium-term solution, the study will make recommendations to provide a high level Bruce Highway crossing of the Yeppen flood plain, reducing the risk of the southern entrance into Rockhampton being isolated during flood events.

## Long-term (2031) priority: traffic demand

The study team has undertaken traffic modelling on the Bruce Highway which indicates that by the year 2031 (depends on traffic growth rate assumptions) a new bridge may be required across the Fitzroy River to accommodate traffic growth and demand. The predicted timing of when a new bridge will be required depends on traffic growth rate assumptions. Until a new bridge is constructed, a number of improvements can be made to the existing Bruce Highway to manage traffic flow. These improvements could include upgrading intersections and changing some intersections to 'left-in, left-out' accesses. A new connection from Glenmore Road onto the Neville Hewitt Bridge may also divert a majority of livestock freight away from the Fitzroy River Bridge and CBD.

The study team has identified options that could provide long-term transport infrastructure solutions for the Rockhampton region. As the study is in its early stages of route identification, only broad corridors of intent are available for community consideration. The options presented in this information sheet are suggested options for the ultimate long-term location of the Bruce Highway (once it approaches capacity) and the North Coast Rail Line.

The long-term options are not required until well into the future. However it is important that planning is undertaken now to identify the footprint for future infrastructure and progressively preserve transport corridors for the future. Any future construction of the final long-term transport solution will be undertaken in stages and will be dependent on future demand and the availability of funding.

Technical, engineering, environmental, cultural heritage, social, safety and community analysis will be undertaken on the options to help identify the best long-term transport solutions.

## Why are we doing the study?

- Investigating ways to reduce the impact of flooding on the Bruce Highway and rail approaches into Rockhampton
- Identifying potential traffic capacity issues and safety improvements for heavy vehicle movements on the Bruce Highway through Rockhampton
- Investigating requirements for strategic connections between the Bruce Highway and freight generating hubs within Rockhampton
- Providing recommendations for a long-term solution to improve network efficiency for the North Coast Rail Line in Rockhampton.

## Community feedback

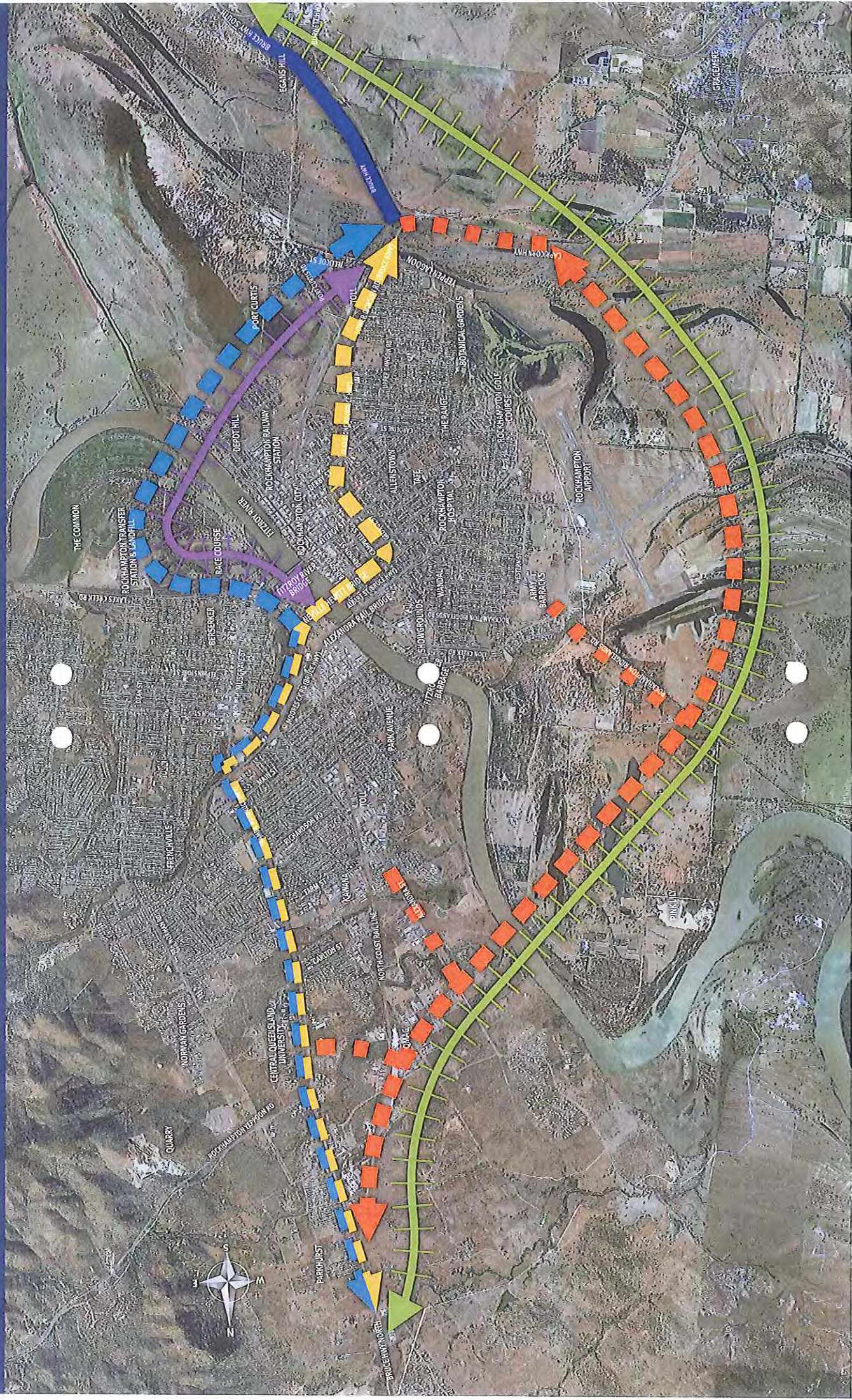
In February 2010, the community was asked to submit their comments on transport issues in and around the city of Rockhampton. Feedback from the community included issues relating to congestion, flooding, safety and rail operations.

Community feedback along with technical review and traffic and hydraulic (flood) modelling has been considered by the study team to inform the development of all short-listed road and rail corridors.

The Department of Transport and Main Roads thanks the community for their valuable contribution so far and encourages them to continue being involved in this important process.



# Long-term road and rail options





The Rockhampton Regional Council currently has a Fitzroy River Floodplain Study underway which commenced in 2008 and is due to be completed in June 2011. A draft copy of the study was provided with the initial response to the 'Requirement to Provide Information' received from the Queensland Flood Commission of Inquiry, dated 1 March 2011.

Council has also been working as a stakeholder with the Queensland State Government Department of Main Roads on the Federally funded 'Fitzroy River Floodplain and Road Planning Study – Bruce Highway and North Coast Rail Line Options' which is seeking to provide flood-free access to Rockhampton. A copy of the current project update and road and rail options paper dated March 2011 is attached.

Council has also been considering a number of levee bank options for the city including a levee for the entire Rockhampton city area (copy attached) and a single option for a levee to protect the Rockhampton Airport (copy attached) given its important role as a key access point for transporting key equipment, resources and personnel into and out of the region during disaster events.

The LDMG has also investigated the use of a car-mounted loud hailer system as another possible mechanism for communicating with local communities to increase awareness of an imminent disaster event. The use of the SMS Alert system has also been investigated for certain communities within the region.

- End of Response -



**Legend**

- Cadastral
- TUFLOW Model Extents
- Railway Line
- Major Road
- Proposed Levee Location

- Afflux (m)**
- < -0.300
  - 0.300 to -0.225
  - 0.225 to -0.150
  - 0.150 to -0.075
  - 0.075 to -0.020
  - 0.020 to 0.020
  - 0.020 to 0.075
  - 0.075 to 0.150
  - 0.150 to 0.225
  - 0.225 to 0.300
  - > 0.300
  - Was Dry Now Wet
  - Was Wet Now Dry

Notes:

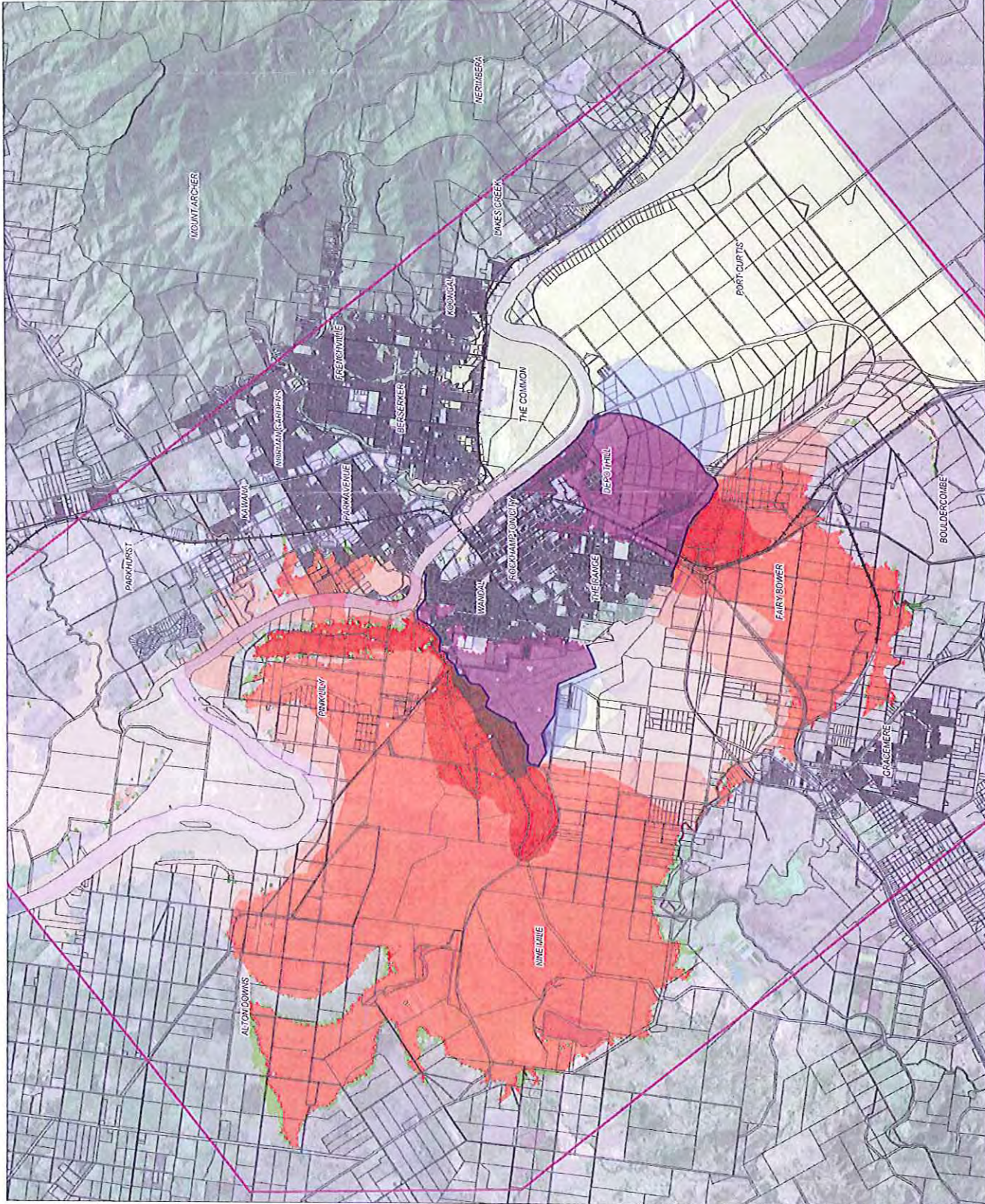
**DRAFT**

Date: 15/02/2011

Version: 0

**Fitzroy River Flood Study**

**Figure X - Increases in Peak Water Levels**  
**Levee Option 12 - Small Airport, Depot Hill and Port Curtis Levees**



0 4000 (m)

Scale 1:80 000 (m) (@ A3 size)

Prepared by: MDA, June 05



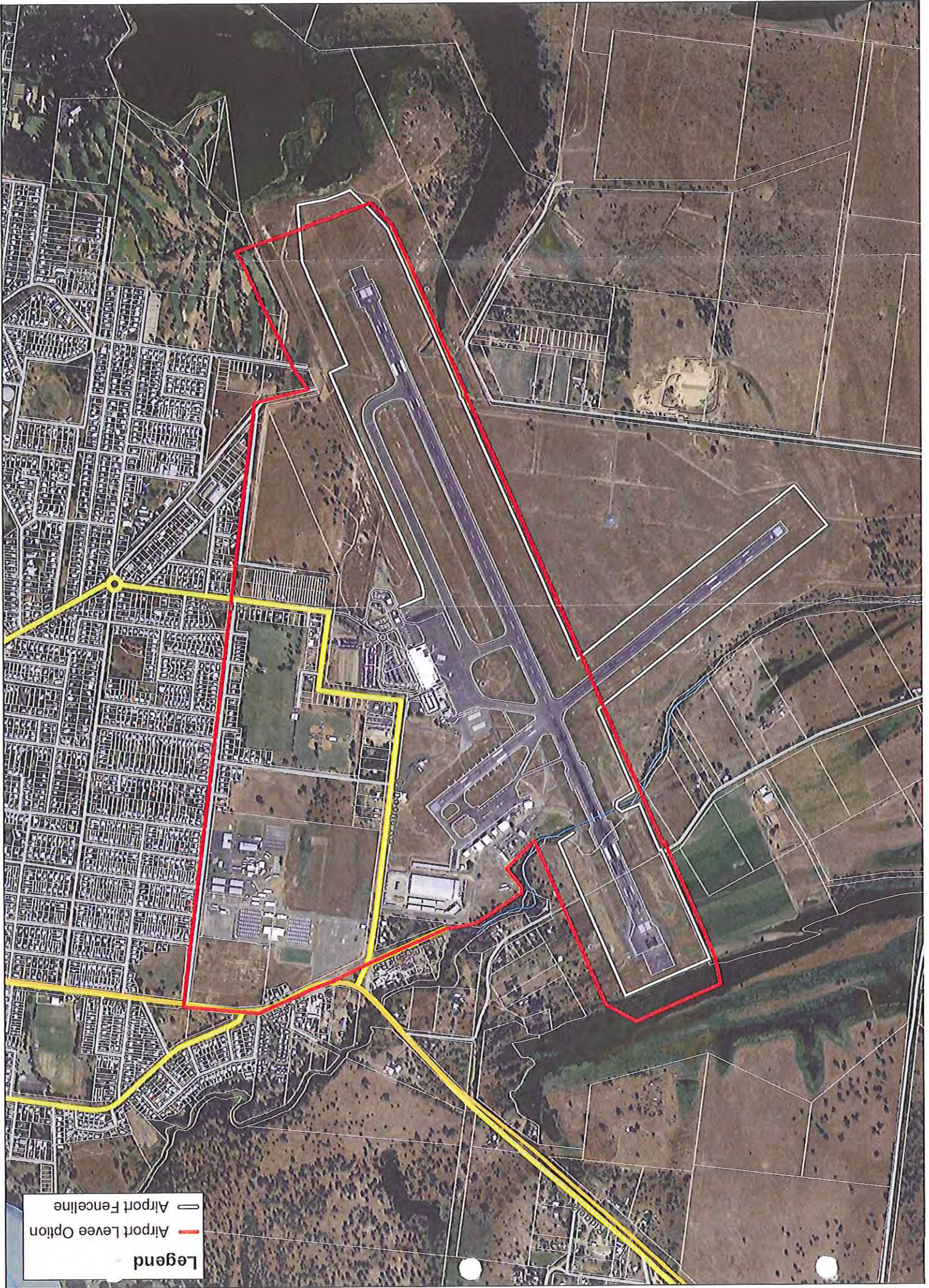
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# Airport Levee Option

Page Size: A3  
 1:12,000

0 0.0501 0.2 km

Rev: A  
 25/02/2011



**Legend**

- Airport Levee Option
- Airport Fenceline



**20. Advice as to any special consideration that should be given the local area by reason of particular regional or geographic differences.**

The location of Rockhampton City is within the Fitzroy River Floodplain so the likelihood of inundation of large areas of the city during large flood events is high.

The former Rockhampton City Council and current Rockhampton Regional Council are well aware of this issue and as such have had controls in place within their Town Planning Schemes to limit development in flood-prone areas to ensure that there is no intensification of use and therefore greater properties at risk in these areas.

Rockhampton is fortunate in that being at the end of the 2<sup>nd</sup> largest river catchment in Australia there is generally considerable notice provided regarding an impending flood. Given the location of the city within the floodplain, this notice period provides residents in low-lying areas sufficient notice to take the necessary measures and do the necessary planning to minimise losses and damage due to flooding.

From a preparedness perspective, the lead time provided by our location on the river system also provides the LDMG with time to put mitigation measures in place (such as installation of the flood barrier around the airport), communicate with residents and take the necessary actions and precautions to prepare for the event. It also means that all local response agencies have time to deploy equipment, resources and personnel to the area to prepare.

- End of Response -



**21. Advice as to any feature of the disaster preparation and planning stages or the special consideration that should be given the local area by reason of particular regional or geographic differences.**

The LDMG came across specific logistical issues on two (2) occasions during the 2010/2011 flood event which both related to the use of ADF resources. It must be pointed out that the ADF have some local resources located at the Western Street Barracks and a local reserves brigade in Rockhampton and that the ADF have a Liaison Officer who is an observer at LDMG meetings.

In the first instance, the LDMG was seeking to assist local residents who wished to self-evacuate in the Depot Hill area, an area that is very low-lying and significantly impacted by floods. At the time of assisting with evacuations the flood waters in some streets were already at a depth of greater than 1 metre which meant that all local passenger vehicles operated by Council and other local response agencies did not have adequate clearance. In order to safely move people out with some of their valuable possessions a 'Request for Assistance' (RFA) was sent to the DDMG for use of a locally based ADF Unimog which has high clearance and passenger carrying ability. As the ADF resources are Federal resources, the RFA had to be escalated to the SDMG. The RFA was subsequently declined and the LDMG had to use a high clearance Rural Fire Engine that had a water tank on the back and limited passenger carrying capacity thus requiring multiple trips to take a maximum of 2 persons at a time.

On another occasion when the Gracemere township, which was cut off from Rockhampton by floodwaters across the Yeppen Floodplain, required resupply of essential goods (bread, milk) and some flour for the local bakery to make bread, the local ADF representative offered the keys to a local Unimog to assist with getting the items across the flooded Bruce Highway to Gracemere. Despite being in the same room as the LDMG, in order to follow the DM Act escalation protocols, the LDMG once again had to raise a RFA which was once again escalated to the DDMG and then SDMG. On this occasion the request was approved and the local Unimog could be utilised.

In both cases above, the response times to get decisions on the RFA's were generally 24 - 48 hours after being sent due to the escalation process for a decision.

The LDMG is of the view that to facilitate quicker responses it would be advantageous for relevant authorisations and delegations to be given to the appropriate local officers responsible for locally based State and Federal resources and assets such that decisions about local issues can be made locally without the need for escalation through District and State Groups who have little direct knowledge or awareness of local situations.

- End of Response -

## **Rockhampton Airport – Flood Situation Report**

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### **6. REFUELLING ISSUES:**

The local Caltex Manager has advised that they will be able to deploy back to the airport with little notice (a couple of hours). The main issue will be the reinstallation of pump electrical motors that were isolated and removed prior to Caltex's evacuation from the airport. It is expected that this work will take ½ a day to complete.

### **7. BUREAU OF METEOROLOGY**

**CORRECTION:** The Airport BOM office is not manned at this time but their equipment is operating on their standby generator. Limited airport weather reports are being sent via a 3G wireless data modem.

BOM staff are expecting to return once Canoona road and their local access road becomes trafficable. Based on observations today, it is expected that the BOM offices could be accessible from this weekend.

### **8. AIRLINE GROUND HANDLING ISSUES:**

Power and air-conditioning was restored to the Qantas leased area this afternoon in preparation for the IT installation, scheduled for Thursday.

External data services for Virgin Blue are unserviceable. It would appear that the problem is with the Telstra fibre optic service to the airport. As QantasLink share this service, Qantas IT should be prepared for this issue.

### **9. ELECTRICAL / DATA / IT ISSUES:**

The High Voltage Supply to the airport was reinstated on Monday and the terminal building is now operating normally. Sections of the Freight Area now have electrical services, though some sections that are supplied from the carpark distribution boards may still be unserviceable.

Power in the GA area has yet to be restored due to a problem with the power distribution in this location. Contracted electrical services are working on this issue and further advice will be provided in due course. The electrical contractor has identified the issue and if spare parts are available locally, anticipates that the GA area will have power by Friday afternoon.

The cleaning of all runway light fittings affected by water (currently 67 above ground and 124 inset fittings) will commence soon; all fittings will need to be removed, cleaned and repaired as required.

Paid parking equipment in the Short Term car park was reinstalled today. The remainder of the paid parking equipment will be installed over the next week, though this is not a priority.

### **10. WATER SUPPLY ISSUES:**

None at this stage

### **11. WASTE & RECYCLING ISSUES:**

None at this stage

## **Rockhampton Airport – Flood Situation Report**

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### **12. SEWERAGE ISSUES:**

The sewage pump station in the General Aviation Area may have been inundated but will need to be checked by Fitzroy River Water (FRW) before being considered serviceable. This work cannot be conducted until power has been restored.

The sewage pump station adjacent to the Caltex lease (servicing the freight area) is now serviceable.

### **13. STORM WATER ISSUES:**

None at this stage

### **14. ROAD NETWORK ISSUES**

RRC Infrastructure Services repaired all issues with the Hunter St entrance road, and the entrance road should be fully operational.

We still intend to close off the Hunter Street access to the airport to allow for works to be conducted on the entrance road, associated stormwater drainage and gardens without the need for traffic control measures. At this stage, there is still water over the Cannoona Road entrance to the airport. This is expected to clear by Thursday afternoon.

### **15. EMERGENCY SERVICES MATTERS**

None at this stage

### **16. REGULATORY ISSUES**

The Office of Transport Security (OTS) will not be requiring a Special Event Zone to be established for airside recovery works until we recommence RPT services.

While there isn't a requirement to display an Aviation Security Identity Card (ASIC) until RPT services resume, we still need to develop a plan for access control to meet CASA's safety requirements for other aircraft movements.

### **17. MEDIA ISSUES**

(a) The following information was updated on the Airport Web Site ([www.rok.aero](http://www.rok.aero) / [www.rockhamptonairport.com.au](http://www.rockhamptonairport.com.au)) at 10:55am today:

General recovery information for Rockhampton Airport is as follows:

#### **Tuesday 11 Jan 11**

The water level on the main runway (RWY 15/33) has reduced by a small amount. Sweeping and visual inspection of the dry section of this runway has now commenced. Several issues have been identified with the available runway and have been marked for engineering assessment. With the exception of the intersection of the two runways, the secondary runway (RWY 04/22) is still completely underwater.

#### **Wednesday 12 January 11**

The water is receding faster than anticipated and a much larger section of the main runway (RWY 15/33) is now exposed. Taxiway Juliet is still partially underwater and the secondary runway is still submerged. Cleanup of the main runway is being carried out by the Rural Fire Brigade support trucks and several mobile rotary brooms.

Power has been restored to the terminal and services are now being reinstated.

## **Rockhampton Airport – Flood Situation Report**

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### **Friday 14 Jan 11**

Floodwaters are expected to reduce to 8.5m by this Friday - this is still currently the case. Full access to runways and other critical operational areas is expected become available for visual inspection around this time. The inspections are anticipated to take approximately 2 working days.

After the visual appraisal, detailed engineering assessments will be conducted. These assessments should take around 3 days.

### **Wednesday 19 Jan 11**

Assuming that the critical infrastructure has not sustained major damage, remedial works can commence.

### **Monday 24 Jan 11**

By this date it may be possible to reinstate some aircraft operations during daylight hours only.

Airport facilities necessary for Regular Public Transport services (e.g. QantasLink, Virgin Blue and Tiger Airways) may be possible but more information will required before this can be accurately determined.

### **Friday 28 January 11**

Unless the airport has sustained significant damage to key infrastructure, it is probable that that normal RPT services could be reinstated.

Airport Management will endeavour to expedite the return to service of all RPT services but at this stage the condition of the facilities is unknown. More information will be posted on this web site when it becomes available.

## **18. CUSTOMER IMPACTS**

We are now starting to receive enquiries from passengers affected by the shutdown of the airport. Current estimates are that approx 50,000 passenger movements are affected.

As a result of the large number of affected travellers, it is inevitable that RRC Customer Service will be inundated with enquiries about changes to travel arrangements. The following is a summary of the issues known by Airport Management or reported through our Customer Service Centre:

### **(a) QantasLink**

The information provided to date by QantasLink management has been of great assistance in the management of this issue from a Council perspective.

QantasLink has advised that they are phoning and emailing travellers that are scheduled to depart up to 11 January and emailing affected travellers after this date.

Dash 8-Q300 (50 seat) operations can be conducted with a runway length of 1,300m and without the need for passenger screening or CBS

Dash 8-200 (34 seat) operations may be possible with a runway length of 1,100m

The Qantas web site was updated last night with the latest information relating to Rockhampton Airport. Please refer to the web page for more information:

[http://www.qantas.com.au/travel/airlines/disruptions/global/en?int\\_cam=au:hp:rockhampton:closure:jan11](http://www.qantas.com.au/travel/airlines/disruptions/global/en?int_cam=au:hp:rockhampton:closure:jan11)

## **Rockhampton Airport – Flood Situation Report**

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### **(b) Tiger Airways**

- ROK/BNE has been cancelled until further notice
- ROK/MEL will be reinstated from 26 March 2011

The call centre number has been unavailable intermittently for some time now. Tiger Management have been made aware of this issue.

RRC Customer Service has been advised that Tiger will offer to move passengers onto another service at no cost or offer a full refund.

Tiger Airways Rockhampton Airport specific web page has been up since 2 January 11 and is linked to the airport's web site. The web link is:

<http://www.tigerairways.com.au/au/en/disruption.php>

### **(c) Virgin Blue**

We understand that Virgin Blue has sent text messages to customers today advising them of the changes in flights at Rockhampton Airport due to the floods.

Virgin Blue has now updated their web page for this event. The link is:

<http://www.virginblue.com.au/MinorIncidentReport/index.htm>

## **19. TERMINAL ISSUES**

The terminal building is still surrounded by the flood barrier. ISS volunteers have removed approx 20% of this barrier. It is expected that the remainder of this barrier will be removed over the next week.

**NOTE: 3 personnel from the SES and EMQ are to be on airport this (Thursday 13 Jan) from 8am to commence the removal of the flood barrier. We will be seeking volunteers to assist them with the removal of the barrier.**

The staff carpark is still flood affected and cannot be used at this stage.

All other carparks are yet to be cleaned and checked; therefore it is preferable that vehicles are not stored in these areas.

Cleaning of the terminal building is to be conducted over the next couple of days.

## **20. ANY OTHER ISSUES**

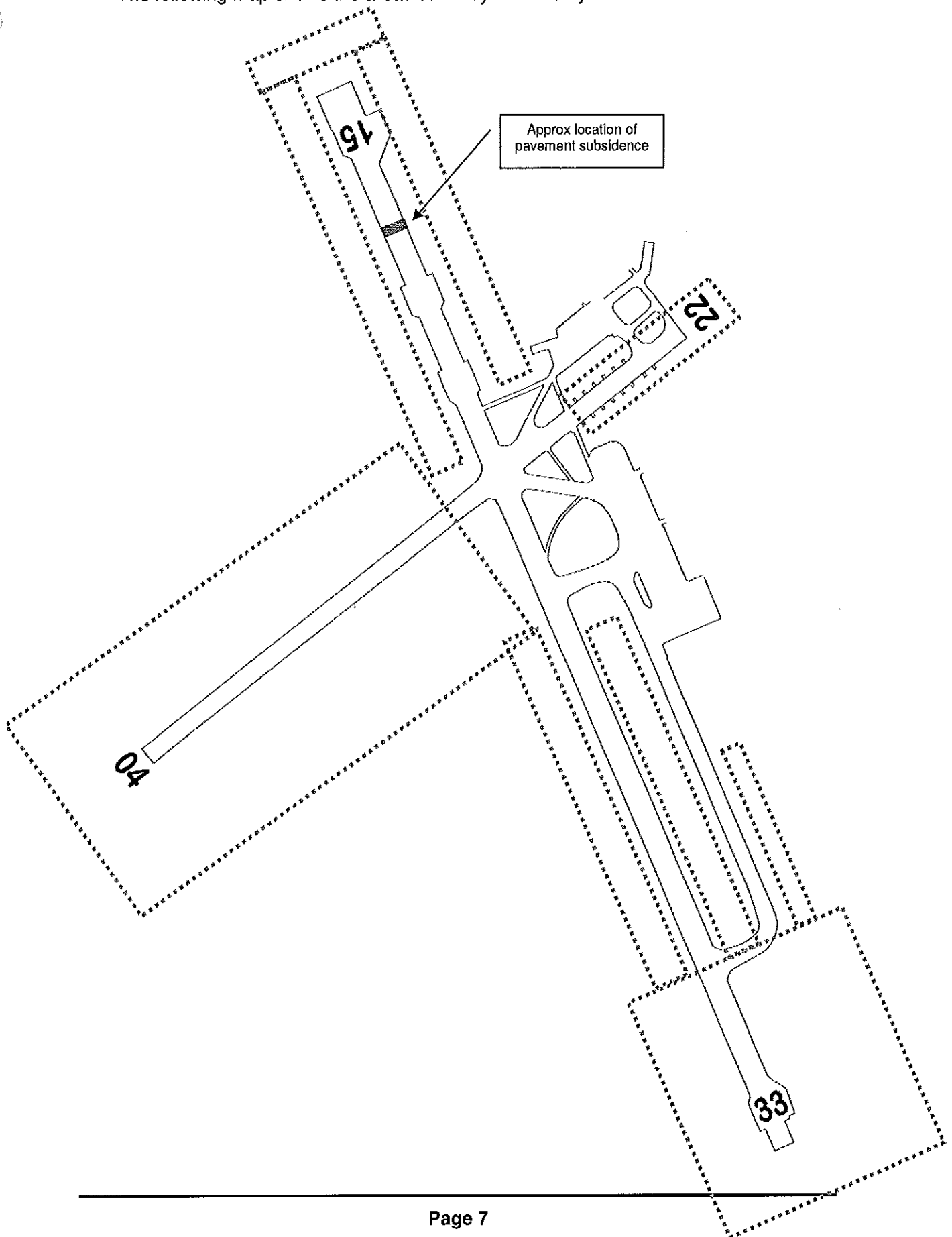
We have decided to take up the offer from Cairns Airport to provide an experienced airport electrician to assist with the recovery process. Arrangements will be made early next week for travel and accommodation.

## Rockhampton Airport – Flood Situation Report

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### 21. AIRPORT LAYOUT MAP

The following map shows the areas currently affected by the floods.







## **ROCKHAMPTON AIRPORT FLOOD SITUATION REPORT**

Author: David Blackwell, Director Airports  
Date: Thursday 13 January 2011  
Edition: Recovery Phase #8 (EXTERNAL)

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### **AIRPORT OPERATIONS**

At this stage the airport is closed for all aircraft operations. Further information is available from the relevant NOTAM.

For up to date information on the timing of the airport opening, please refer to the airport website ([www.rockhamptonairport.com.au](http://www.rockhamptonairport.com.au))

Significant Bird activity on and adjacent to the movement areas could create Bird Hazards issues when the runway is reopened with remaining large flooded areas. A plan to manage the problem will need to be formulated and advised to the airlines.

### **PERSONNEL & INFRASTRUCTURE**

#### **1. SAFETY ISSUES:**

A higher than usual level of snake activity is occurring around the airport precinct. Destruction of snakes or other protected wildlife, unless for self preservation is not allowed.

RRC Personnel must make themselves aware of the latest Work Method Statement '*Working In and Around Flood Affected Areas*'. Information should be sourced from supervisors and/or RRC Safety Unit.

#### **2. BRUCE HIGHWAY**

Advice received today are that the Bruce Highway will be open to heavy vehicles traffic from 4pm Friday 14 January 11. Normal vehicle access will be advised soon.

#### **3. MOVEMENT AND MANOEUVRING AREA ISSUES:**

**RUNWAYS:** The main runway (RWY 15/33) is approx 80% clear of water and visual inspections have commenced. Water from the secondary runway (RWY 04/22) is now clearing and cleaning works have commenced. Please refer to end of this document for a graphical depiction of the water on the airport operational areas. Gas pockets have been located in various locations on the main runway and are being drilled to release the pressure under the asphalt (refer photo at the end of this report).

There has been some subsidence in the area of Lion Creek (the northern end of the main runway) that will affect the main runway (RWY 15/33). A detailed survey of this area has

## **Rockhampton Airport – Flood Situation Report**

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been conducted and RRC Infrastructure Design Services are currently assessing the extent of the remedial works required.

Until this work is successfully completed, the maximum available runway distances will be in the order of 1,900m for takeoff and 1,790m for landing. This is assuming that the remaining southern section of this runway is serviceable. Note; these distances are for general information only; all operational information will be published in the approved manner.

The water level on the main runway has reduced further. Sweeping, water blasting by the Rural Fire Service and visual inspection of the runway has commenced. Several pavement anomalies have been identified and marked to engineering assessment.

Please note the following memo was issued by Airport Operations today:

*Closing of the airport due to flooding has provided a level of free access to the movement areas not normally available without ATC clearance.*

*Due to water damage to some of the aircraft movement areas it is essential that airside drivers access only the areas permitted by their Airside Driving Authority (ADA) unless prior briefing and permission is provided by one of the Airport Operations Coordinators.*

*As the water recedes gas pockets are creating pressure under the asphalt in some locations. The gas pockets have the capacity to cause permanent damage to the asphalt surface particularly if a vehicle drives over the raised area.*

*To prevent further damage and delays to the return to aircraft operations it is essential that vehicles are not driven into areas covered by water or along the shoulders of the main runway, particularly the runway shoulders south of Lion Creek.*

TAXIWAYS: Cleaning and inspection of the taxiways has commenced.

APRONS: Cleaning and inspections of the RPT and GA aprons has commenced.

#### **4. SECURITY ISSUES:**

Several large sections of the security fencing have been affected by the flood waters. Temporary fencing is being sourced to isolate the western section of the secondary runway (RWY04/22). This will significantly reduce the fencing that is required to be reinstated prior to the commencement of RPT operations.

Airside Gate 6 will be closed from Friday 14 January, with all airside access via Gate 7.

The pedestrian gate from Canoona Rd (P2) will remain locked until the water damage to the electronic access control system for this gate has been repaired.

#### **5. AIRSERVICES AUSTRALIA**

ARFF Rockhampton has set up a remote communication centre through their command vehicle at the Heritage Village. All calls into the Fire Control centre will be diverted to this centre. There is no longer an ARFF presence at ROK.

ROK ARFF has now declared Category 0 operations so that all duty crew can be made available for the disaster relief and recovery works. Additional support personnel from other ARFF stations are becoming available to assist with the recovery works.

## **Rockhampton Airport – Flood Situation Report**

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Navigation aids – it would appear that the VOR / DME have not been affected by the flood but the NDB may have sustained some damage. When power has been restored to the GA area, Airservices Australia will be able to conduct an assessment of the NDB facility.

### **6. REFUELLING ISSUES:**

Work on the Caltex refuelling area has commenced. We have yet to receive information regarding their return to the airport.

### **7. BUREAU OF METEOROLOGY**

The Airport BOM office reopened at 05.30am today. They are still experiencing problems with data and phone communications. Telstra and BOM technical personnel are continuing to restore services. The ROK BOM office temporary phone number is 0408 200 595.

Normal hours of operation are 0530 to 1315 and 1430 to 2245 daily, including weekends.

### **8. AIRLINE GROUND HANDLING ISSUES:**

Power and air-conditioning was restored to the Qantas leased area this afternoon in preparation for the IT installation, scheduled for Thursday.

External data services for Virgin Blue are unserviceable. It would appear that the problem is with the Telstra fibre optic service to the airport.

### **9. ELECTRICAL / DATA / IT ISSUES:**

The High Voltage Supply to the airport was reinstated on Monday and the terminal building is now operating normally. Sections of the Freight Area now have electrical services, though some sections that are supplied from the carpark distribution boards may still be unserviceable. Contracted electrical services will be on site tomorrow (Friday) and attempt to rectify all power distribution issues in the carpark and freight area.

Power in the GA area has yet to be restored due to a problem with the power distribution in this location. Contracted electrical services are working on this issue and further advice will be provided in due course. The electrical contractor has identified the issue and if spare parts are available locally, anticipates that the GA area will have power by Friday afternoon.

The cleaning of all runway light fittings affected by water (currently 67 above ground and 124 inset fittings) will commence soon; all fittings will need to be removed, cleaned and repaired as required.

### **10. WATER SUPPLY ISSUES:**

None at this stage

### **11. WASTE & RECYCLING ISSUES:**

None at this stage

### **12. SEWERAGE ISSUES:**

The sewage pump station in the General Aviation Area may have been inundated but will need to be checked by Fitzroy River Water (FRW) before being considered serviceable. This work cannot be conducted until power has been restored.

## **Rockhampton Airport – Flood Situation Report**

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### **13. STORM WATER ISSUES:**

None at this stage

### **14. ROAD NETWORK ISSUES**

The Hunter St entrance road is now completely serviceable. The carpark entrance gates will remain locked until further notice, with access to the terminal via the freight area automatic gate.

The decision to close off the main entrance road has been deferred due to a lack of visitors to the airport at this stage. We will monitor this situation and make changes to the road access if necessary.

### **15. EMERGENCY SERVICES MATTERS**

None at this stage

### **16. REGULATORY ISSUES**

The Office of Transport Security (OTS) will not be requiring a Special Event Zone to be established for airside recovery works until we recommence RPT services.

While there isn't a requirement to display an Aviation Security Identity Card (ASIC) until RPT services resume, we still need to develop a plan for access control to meet CASA's safety requirements for other aircraft movements.

### **17. MEDIA ISSUES**

- (a) The Airport Web Site ([www.rockhamptonairport.com.au](http://www.rockhamptonairport.com.au)) was updated today with the latest general public information.

### **18. CUSTOMER IMPACTS**

We are now starting to receive enquiries from passengers affected by the shutdown of the airport. Current estimates are that approx 50,000 passenger movements are affected. The Australian Business Traveller web site has a comprehensive list of airline ticket policy information for passengers travelling via flood affected Qld airports. The link is: <http://www.ausbt.com.au/which-airlines-will-waive-fees-for-brisbane-flight-changes>

As a result of the large number of affected travellers, it is inevitable that RRC Customer Service will be inundated with enquiries about changes to travel arrangements. The following is a summary of the issues known by Airport Management or reported through our Customer Service Centre:

#### **(a) QantasLink**

Please refer to the Qantas web page for more information:

[http://www.qantas.com.au/travel/airlines/disruptions/global/en?int\\_cam=au:hp:rockhampton:closure:jan11](http://www.qantas.com.au/travel/airlines/disruptions/global/en?int_cam=au:hp:rockhampton:closure:jan11)

#### **(b) Tiger Airways**

Tiger Airways web link is:

<http://www.tigerairways.com.au/au/en/disruption.php>

#### **(c) Virgin Blue**

The Virgin Blue web link is:

<http://www.virginblue.com.au/MinorIncidentReport/index.htm>

## **Rockhampton Airport – Flood Situation Report**

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### **19. TERMINAL ISSUES**

NOTE: Personnel from the SES and EMQ are to be on airport again tomorrow (Friday 14 Jan) to continue with the removal of the flood barrier. Our sincere thanks to all of those people who volunteered to assist with the dismantling of the barrier today.

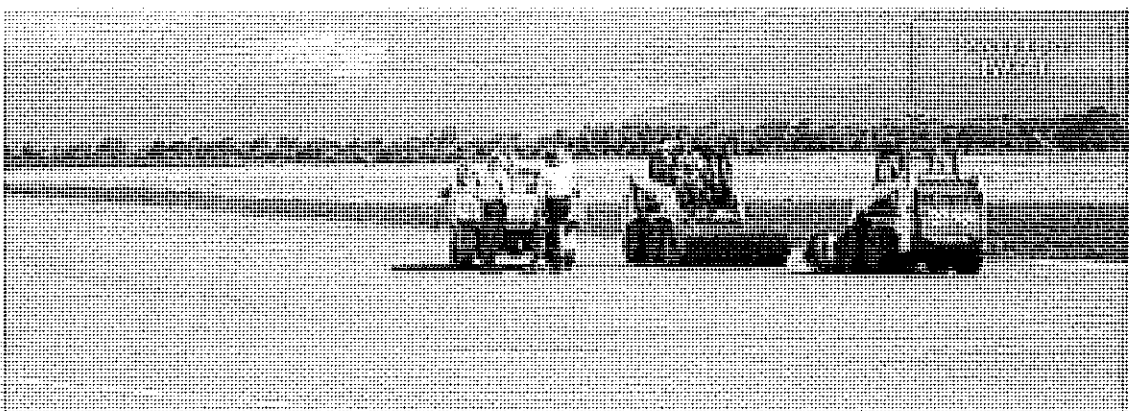
All carparks (including staff carpark) are yet to be cleaned and checked; therefore it is preferable that vehicles are not stored in these areas.

### **20. ANY OTHER ISSUES**

The airport electrician from Cairns Airport will arrive on site tomorrow afternoon (via Mackay).

A pavement specialist will arrive from Melbourne this Saturday to assist RRC engineers with the assessment of our runways, taxiways and apron areas.

### **21. PHOTOS**

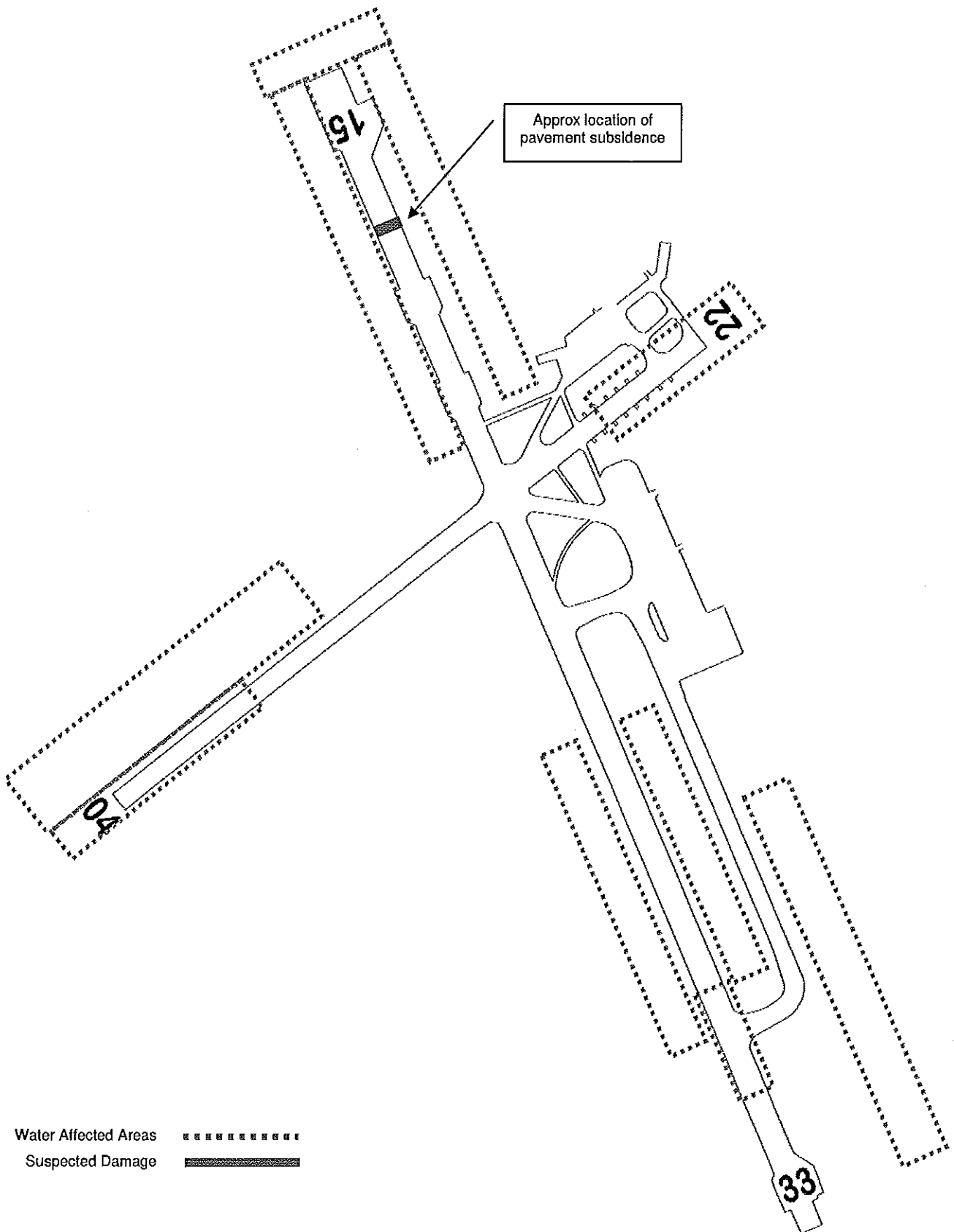


## Rockhampton Airport – Flood Situation Report

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### AIRPORT LAYOUT MAP

The following map shows the areas currently affected by the floods.



## **ROCKHAMPTON AIRPORT FLOOD SITUATION REPORT**

Author: David Blackwell, Director Airports  
Date: Friday 14 January 2011  
Edition: Recovery Phase #9 (EXTERNAL)

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### **AIRPORT OPERATIONS**

At this stage the airport is closed for all aircraft operations. Further information is available from the relevant NOTAM.

For up to date information on the timing of the airport opening, please refer to the airport website ([www.rockhamptonairport.com.au](http://www.rockhamptonairport.com.au))

Significant Bird activity on and adjacent to the movement areas could create Bird Hazards issues when the runway is reopened with remaining large flooded areas. A plan to manage the problem will need to be formulated and advised to the airlines.

### **PERSONNEL & INFRASTRUCTURE**

#### **1. SAFETY ISSUES:**

A higher than usual level of snake activity is occurring around the airport precinct. Destruction of snakes or other protected wildlife, unless for self preservation is not allowed.

RRC Personnel must make themselves aware of the latest Work Method Statement '*Working In and Around Flood Affected Areas*'. Information should be sourced from supervisors and/or RRC Safety Unit.

#### **2. BRUCE HIGHWAY**

The Bruce Highway was open to all vehicle traffic from 4pm Friday 14 January 11.

## **Rockhampton Airport – Flood Situation Report**

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### **3. MOVEMENT AND MANOEUVRING AREA ISSUES:**

**RUNWAYS:** The main runway (RWY 15/33) is now clear of water and visual inspections have commenced. Water from the secondary runway (RWY 04/22) is almost gone and cleaning works have also commenced. Please refer to end of this document for a graphical depiction of the water on the airport operational areas.

Gas pockets have been located in various locations on the main runway and have been drilled to release the pressure under the asphalt. This has been successful in returning the deformations back to a more normal appearance. It is expected that several of the larger areas affected will be excavated and patched. Further information will be available following the detailed inspections conducted over the weekend.

There has been some subsidence in the area of Lion Creek (the northern end of the main runway) that will affect the main runway (RWY 15/33). A detailed survey of this area has been conducted and RRC Infrastructure Design Services are currently assessing the extent of the remedial works required.

Until this work is successfully completed, the maximum available runway distances will be in the order of 1,900m for takeoff and 1,790m for landing. This is assuming that the remaining southern section of this runway is serviceable. Note; these distances are for general information only; all operational information will be published in the approved manner.

The water level on the main runway has reduced further. Sweeping, water blasting by the Rural Fire Service and visual inspection of the runway has commenced. Several pavement anomalies have been identified and marked to engineering assessment.

Please note the following memo was issued by Airport Operations today:

**TAXIWAYS:** Cleaning and inspection of the taxiways has commenced.

**APRONS:** Cleaning and inspections of the RPT and GA aprons has commenced.

### **4. SECURITY ISSUES:**

Several large sections of the security fencing have been affected by the flood waters. Temporary fencing is being sourced to isolate the western section of the secondary runway (RWY04/22). This will significantly reduce the fencing that is required to be reinstated prior to the commencement of RPT operations.

The pedestrian gate from Canoona Rd (P2) has been repaired but it has not yet been confirmed as serviceable.

Repair of the main runway (RWY 15/33) safety / security perimeter fence is starting to look like the major impediment to returning to normal RPT operations. A fencing contractor conducted a thorough inspection of the damaged fencing today and the main issue appears to be access to the work areas as most of the site is underwater or very muddy.



## **Rockhampton Airport – Flood Situation Report**

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### **AIRSERVICES AUSTRALIA**

ARFF Rockhampton has set up a remote communication centre through their command vehicle at the Heritage Village. All calls into the Fire Control centre will be diverted to this centre. There is no longer an ARFF presence at ROK.

ROK ARFF has now declared Category 0 operations so that all duty crew can be made available for the disaster relief and recovery works. Additional support personnel from other ARFF stations are becoming available to assist with the recovery works.

Navigation aids – it would appear that the VOR / DME have not been affected by the flood but the NDB may have sustained some damage.

### **5. REFUELLING ISSUES:**

Work on the Caltex refuelling area has commenced. We have yet to receive information regarding their return to the airport.

### **6. BUREAU OF METEOROLOGY**

The Airport BOM office reopened at 05.30am today. They are still experiencing problems with data and phone communications. Telstra and BOM technical personnel are continuing to restore services. The ROK BOM office temporary phone number is 0408 200 595.

### **7. AIRLINE GROUND HANDLING ISSUES:**

Power and air-conditioning was restored to the Qantas leased area this afternoon in preparation for the IT installation, scheduled for Thursday.

External data services for Virgin Blue are unserviceable. It would appear that the problem is with the Telstra fibre optic service to the airport.

### **8. ELECTRICAL / DATA / IT ISSUES:**

Power to all GA tenancies has now been restored. Only the paid parking system remains de-energised at this stage.

The airport fax line has been disconnected by Telstra during the repair work on Canoona Road. A return to service date has not yet been advised.

The cleaning of all runway light fittings affected by water (currently 67 above ground and 124 inset fittings) will commence soon; all fittings will need to be removed, cleaned and repaired as required.

### **9. WATER SUPPLY ISSUES:**

None at this stage

### **10. WASTE & RECYCLING ISSUES:**

None at this stage

### **11. SEWERAGE ISSUES:**

None at this stage

## **Rockhampton Airport – Flood Situation Report**

---

### **12. STORM WATER ISSUES:**

None at this stage

### **13. ROAD NETWORK ISSUES**

None at this stage

### **14. EMERGENCY SERVICES MATTERS**

None at this stage

### **15. REGULATORY ISSUES**

Awaiting advice from CASA regarding our proposal to install temporary fencing to isolate the western section of RWY 04/22 from the main runway.

### **16. MEDIA ISSUES**

- (a) The Airport Web Site ([www.rockhamptonairport.com.au](http://www.rockhamptonairport.com.au)) was updated today with the latest general public information.

### **17. CUSTOMER IMPACTS**

As a result of the large number of affected travellers, it is inevitable that RRC Customer Service will be inundated with enquiries about changes to travel arrangements. The following is a summary of the issues known by Airport Management or reported through our Customer Service Centre:

(a) **QantasLink**

Please refer to the Qantas web page for more information:

[http://www.qantas.com.au/travel/airlines/disruptions/global/en?int\\_cam=au:hp:rockhampton:closure:jan11](http://www.qantas.com.au/travel/airlines/disruptions/global/en?int_cam=au:hp:rockhampton:closure:jan11)

(b) **Tiger Airways**

Tiger Airways web link is:

<http://www.tigerairways.com.au/au/en/disruption.php>

(c) **Virgin Blue**

The Virgin Blue web link is:

<http://www.virginblue.com.au/MinorIncidentReport/index.htm>

### **18. TERMINAL ISSUES**

The flood barrier is now 80% removed and packed up.

All carparks (including staff carpark) are yet to be cleaned and checked; therefore it is preferable that vehicles are not stored in these areas.

### **19. ANY OTHER ISSUES**

The electrician from Cairns Airport arrived on site today.

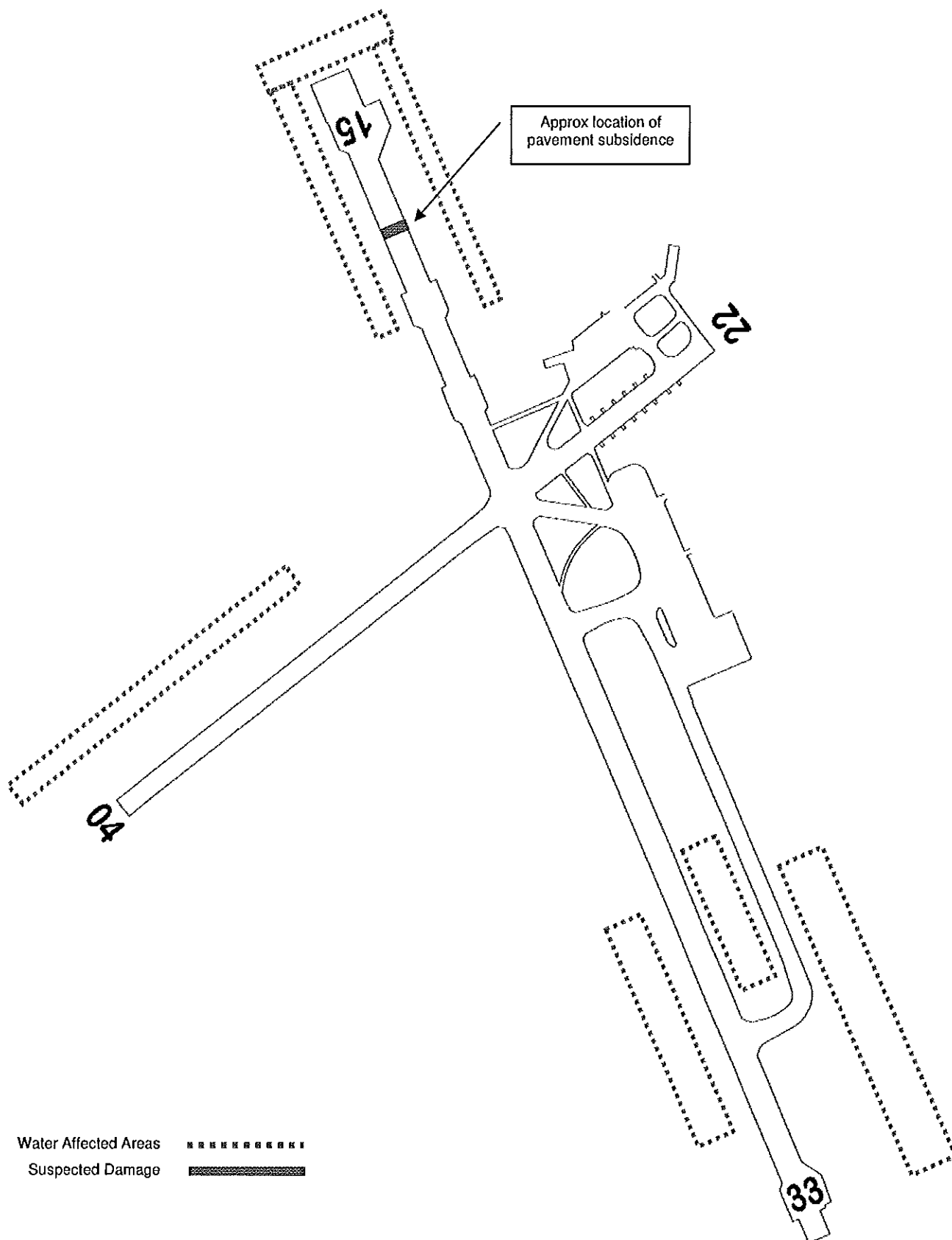
A pavement specialist will arrive on site on the weekend and commence inspections and testing this Sunday.

## Rockhampton Airport – Flood Situation Report

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### AIRPORT LAYOUT MAP

The following map shows the areas currently affected by the floods.





## **ROCKHAMPTON AIRPORT FLOOD SITUATION REPORT**

Author: David Blackwell, Director Airports  
Date: Saturday 15 January 2011  
Edition: Recovery Phase #10 (EXTERNAL)

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### **AIRPORT OPERATIONS**

At this stage the airport is closed for all aircraft operations. Further information is available from the relevant NOTAM.

For up to date information on the timing of the airport opening, please refer to the airport website ([www.rockhamptonairport.com.au](http://www.rockhamptonairport.com.au))

Significant Bird activity on and adjacent to the movement areas could create Bird Hazards issues when the runway is reopened with remaining large flooded areas. A plan to manage the problem will need to be formulated and advised to the airlines.

### **PERSONNEL & INFRASTRUCTURE**

#### **1. SAFETY ISSUES:**

A higher than usual level of snake activity is occurring around the airport precinct. Destruction of snakes or other protected wildlife, unless for self preservation is not allowed.

RRC Personnel must make themselves aware of the latest Work Method Statement '*Working In and Around Flood Affected Areas*'. Information should be sourced from supervisors and/or RRC Safety Unit.

#### **2. BRUCE HIGHWAY**

Open

#### **3. MOVEMENT AND MANOEUVRING AREA ISSUES:**

All movement and manoeuvring areas are clear of water

**RUNWAYS:** Detailed inspections of the main runway (RWY 15/33) commenced late this afternoon and will continue all day Sunday.

The subsidence in the area of Lion Creek (the northern end of the main runway) has been surveyed and RRC Infrastructure Design Services are currently assessing the extent of the remedial works required.

## **Rockhampton Airport – Flood Situation Report**

---

TAXIWAYS: Cleaning and inspection of the taxiways has commenced.

APRONS: Cleaning and inspections of the RPT and GA aprons has commenced.

### **4. SECURITY ISSUES:**

Several large sections of the security fencing have been affected by the flood waters. Temporary fencing is being sourced to isolate the western section of the secondary runway (RWY04/22). This will significantly reduce the fencing that is required to be reinstated prior to the commencement of RPT operations.

The pedestrian gate from Canoona Rd (P2) has been repaired but it has not yet been confirmed as serviceable.

Repair of the main runway (RWY 15/33) safety / security perimeter fence is starting to look like the major impediment to returning to normal RPT operations. A fencing contractor conducted a thorough inspection of the damaged fencing today and the main issue appears to be access to the work areas as most of the site is underwater or very muddy.

### **5. AIRSERVICES AUSTRALIA**

ARFF Rockhampton has set up a remote communication centre through their command vehicle at the Heritage Village. All calls into the Fire Control centre will be diverted to this centre. There is no longer an ARFF presence at ROK.

ROK ARFF has now declared Category 0 operations so that all duty crew can be made available for the disaster relief and recovery works. Additional support personnel from other ARFF stations are becoming available to assist with the recovery works.

Navigation aids – it would appear that the VOR / DME have not been affected by the flood but the NDB may have sustained some damage.

### **6. REFUELLING ISSUES:**

Work on the Caltex refuelling area has commenced. We have yet to receive information regarding their return to the airport.

### **7. BUREAU OF METEOROLOGY**

The Airport BOM office has full data / communications capability restored and the office is back in normal operation.

### **8. AIRLINE GROUND HANDLING ISSUES:**

None at this stage.

### **9. ELECTRICAL / DATA / IT ISSUES:**

Power to all GA tenancies has now been restored. Only the paid parking system remains de-energised at this stage.

The airport fax line has been disconnected by Telstra during the repair work on Canoona Road. A return to service date has not yet been advised.

The cleaning of all runway light fittings affected by water (currently 67 above ground and 124 inset fittings) has commenced. All fittings are being removed, cleaned and repaired as required. Approx 50% of the main runway light fittings have been cleaned and repaired. Approx 20% of all critical inset lights have been cleaned and repaired.

## **Rockhampton Airport – Flood Situation Report**

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### **10. WATER SUPPLY ISSUES:**

None at this stage

### **11. WASTE & RECYCLING ISSUES:**

None at this stage

### **12. SEWERAGE ISSUES:**

None at this stage

### **13. STORM WATER ISSUES:**

None at this stage

### **14. ROAD NETWORK ISSUES**

None at this stage

### **15. EMERGENCY SERVICES MATTERS**

None at this stage

### **16. REGULATORY ISSUES**

Awaiting advice from CASA regarding our proposal to install temporary fencing to isolate the western section of RWY 04/22 from the main runway.

### **17. MEDIA ISSUES**

(a) The Airport Web Site ([www.rockhamptonairport.com.au](http://www.rockhamptonairport.com.au)) was updated today with the latest general public information.

### **18. CUSTOMER IMPACTS**

We are not aware of any changes to the airline information.

#### **(a) QantasLink**

Please refer to the Qantas web page for more information:

[http://www.qantas.com.au/travel/airlines/disruptions/global/en?int\\_cam=au:hp:roka pt:closure:jan11](http://www.qantas.com.au/travel/airlines/disruptions/global/en?int_cam=au:hp:roka pt:closure:jan11)

#### **(b) Tiger Airways**

Tiger Airways web link is:

<http://www.tigerairways.com.au/au/en/disruption.php>

#### **(c) Virgin Blue**

The Virgin Blue web link is:

<http://www.virginblue.com.au/MinorIncidentReport/index.htm>

### **19. TERMINAL ISSUES**

The flood barrier has now been removed and packed up. There is still a lot of blue plastic and gravel to be removed over the next couple of days.

## **Rockhampton Airport – Flood Situation Report**

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The FIDS was restarted and the fibre optic connection between the main and backup servers had failed (media converter power supply). This has now been rectified and the FIDS is operational – awaiting flights!

All car parks (including staff carpark) are yet to be cleaned and checked; therefore it is preferable that vehicles are not stored in these areas.

### **20. ANY OTHER ISSUES**

The electrician from Cairns Airport arrived on site today.

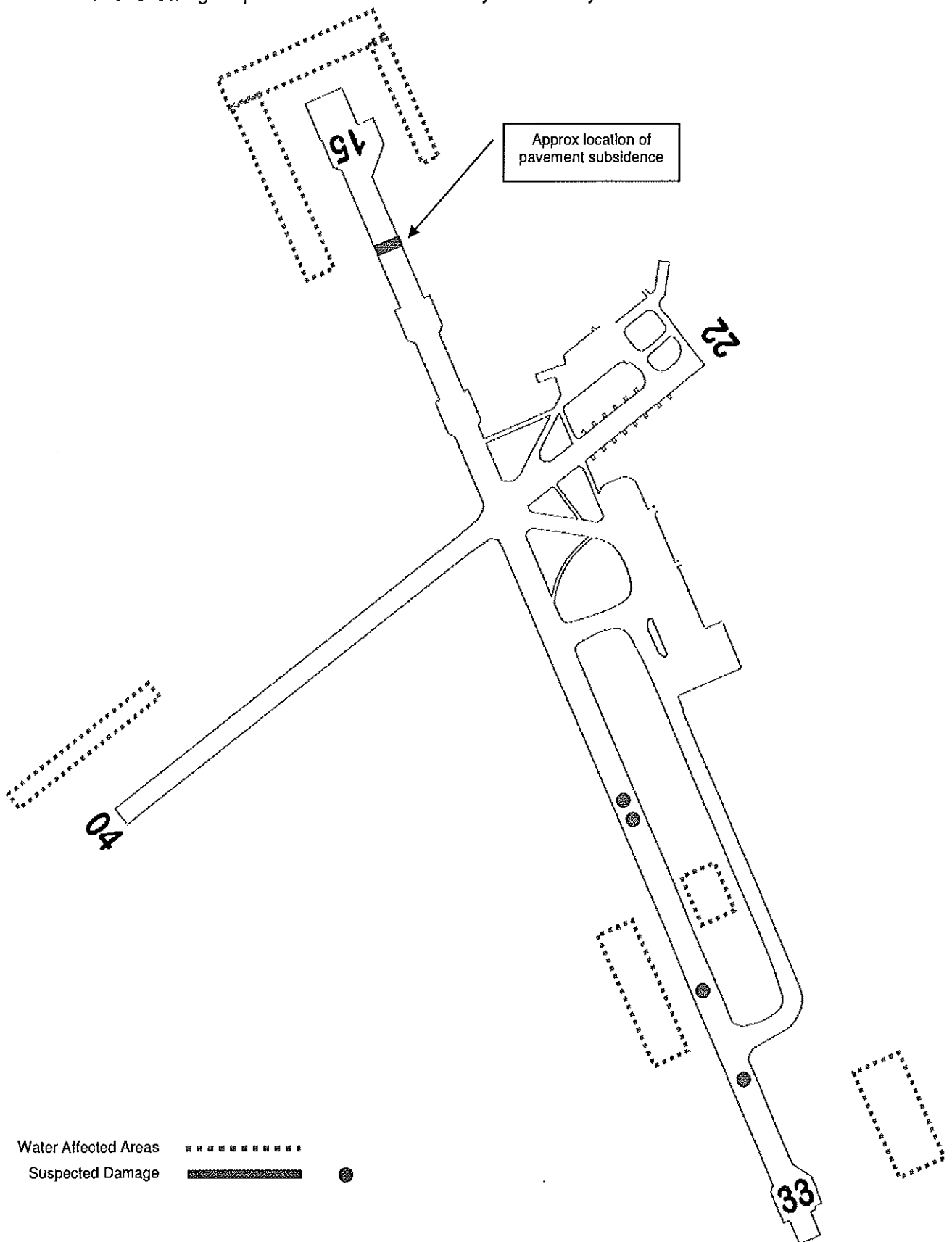
A pavement specialist arrived on site today and commenced inspections immediately.



## Rockhampton Airport – Flood Situation Report

### AIRPORT LAYOUT MAP

The following map shows the areas currently affected by the floods.







## **ROCKHAMPTON AIRPORT FLOOD SITUATION REPORT**

Author: David Blackwell, Director Airports  
Date: Sunday 16 January 2011  
Edition: Recovery Phase #11 (EXTERNAL)

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### **AIRPORT OPERATIONS**

At this stage the airport is closed for all aircraft operations. Further information is available from the relevant NOTAM.

For up to date information on the timing of the airport opening, please refer to the airport website ([www.rockhamptonairport.com.au](http://www.rockhamptonairport.com.au))

Significant Bird activity on and adjacent to the movement areas could create Bird Hazards issues when the runway is reopened with remaining large flooded areas. A plan to manage the problem will need to be formulated and advised to the airlines.

### **PERSONNEL & INFRASTRUCTURE**

#### **1. SAFETY ISSUES:**

A higher than usual level of snake activity is occurring around the airport precinct. Destruction of snakes or other protected wildlife, unless for self preservation is not allowed.

RRC Personnel must make themselves aware of the latest Work Method Statement '*Working In and Around Flood Affected Areas*'. Information should be sourced from supervisors and/or RRC Safety Unit.

#### **2. BRUCE HIGHWAY**

Open

## **Rockhampton Airport – Flood Situation Report**

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### **3. MOVEMENT AND MANOEUVRING AREA ISSUES:**

All movement and manoeuvring areas are clear of water

RUNWAYS: Detailed inspections of the main runway (RWY 15/33) commenced on Saturday and continued all day Sunday. The good news is that there were no surprises.

Our pavement specialist has recommended several test bores be drilled through the asphalt for pavement condition and load bearing strength tests. This work will commence Monday morning, with results expected by Tuesday.

We expect to excavate and replace a 4m wide section of the asphalt (length yet to be determined) on the main runway, near the intersection of Taxiway 'J'. This work is well within the scope and experience of RRC Infrastructure personnel. Timing for this work has yet to be finalised but it is expected to be completed this week.

The subsidence in the area of Lion Creek (the northern end of the main runway) has been surveyed and RRC Infrastructure Design Services are currently assessing the extent of the remedial works required. Further details on this work will be available later Monday.

TAXIWAYS: Cleaning and inspection of the taxiways has commenced.

APRONS: Cleaning and inspections of the RPT and GA aprons has commenced.

### **4. SECURITY ISSUES:**

Several large sections of the security fencing have been affected by the flood waters. Temporary fencing is being sourced to isolate the western section of the secondary runway (RWY04/22). This will significantly reduce the fencing that is required to be reinstated prior to the commencement of RPT operations.

The pedestrian gate from Canoona Rd (P2) has been repaired but it has not yet been confirmed as serviceable.

Repair of the main runway (RWY 15/33) safety / security perimeter fence is starting to look like the main risk to returning to normal RPT operations in a timely manner. If the proposed fencing contractor cannot guarantee that all main runway works will be completed this week, we will seek assistance through the LDCC to expedite this activity.

We will be seeking volunteers through the LDCC to assist with the clearing of the airport perimeter security fencing; approximately 5km of security fencing has between 500mm and 1m of flood debris that requires removal.

### **AIRSERVICES AUSTRALIA**

ARFF Rockhampton has set up a remote communication centre through their command vehicle at the Heritage Village. All calls into the Fire Control centre will be diverted to this centre. There is no longer an ARFF presence at ROK.

ROK ARFF has now declared Category 0 operations so that all duty crew can be made available for the disaster relief and recovery works. Additional support personnel from other ARFF stations are becoming available to assist with the recovery works.

Navigation aids – it would appear that the VOR / DME have not been affected by the flood but the NDB may have sustained some damage.

QUESTION: Airservices Australia; please advise the status of the NDB.

## **Rockhampton Airport – Flood Situation Report**

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### **5. REFUELLING ISSUES:**

Work on the Caltex refuelling area has commenced. We have yet to receive information regarding their return to the airport.

### **6. BUREAU OF METEOROLOGY**

The Airport BOM office has full data / communications capability restored and the office is back in normal operation.

### **7. AIRLINE GROUND HANDLING ISSUES:**

None at this stage.

### **8. ELECTRICAL / DATA / IT ISSUES:**

Power to all GA tenancies has now been restored. Only the paid parking system remains de-energised at this stage.

The airport fax line has been disconnected by Telstra during the repair work on Canoona Road. A return to service date has not yet been advised.

The cleaning of all runway light fittings affected by water (currently 67 above ground and 124 inset fittings) has commenced. All fittings are being removed, cleaned and repaired as required. Inspection and repair of the main runway lights continued today and is progressing well.

### **9. WATER SUPPLY ISSUES:**

None at this stage

### **10. WASTE & RECYCLING ISSUES:**

None at this stage

### **11. SEWERAGE ISSUES:**

None at this stage

### **12. STORM WATER ISSUES:**

None at this stage

### **13. ROAD NETWORK ISSUES**

None at this stage

### **14. EMERGENCY SERVICES MATTERS**

None at this stage

### **15. REGULATORY ISSUES**

Awaiting advice from CASA regarding our proposal to install temporary fencing to isolate the western section of RWY 04/22 from the main runway.

## **Rockhampton Airport – Flood Situation Report**

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### **16. MEDIA ISSUES**

- (a) The Airport Web Site ([www.rockhamptonairport.com.au](http://www.rockhamptonairport.com.au)) was updated today with the latest general public information.

### **17. CUSTOMER IMPACTS**

We are not aware of any changes to the airline information.

- (a) **QantasLink**

Please refer to the Qantas web page for more information:

[http://www.qantas.com.au/travel/airlines/disruptions/global/en?int\\_cam=au:hp:rockhampton:closure:jan11](http://www.qantas.com.au/travel/airlines/disruptions/global/en?int_cam=au:hp:rockhampton:closure:jan11)

- (b) **Tiger Airways**

Tiger Airways web link is:

<http://www.tigerairways.com.au/au/en/disruption.php>

- (c) **Virgin Blue**

The Virgin Blue web link is: -

<http://www.virginblue.com.au/MinorIncidentReport/index.htm>

### **18. TERMINAL ISSUES**

The flood barrier has now been removed and packed up. There is still a lot of blue plastic and gravel to be removed over the next couple of days.

The FIDS was restarted and the fibre optic connection between the main and backup servers had failed (media converter power supply). This has now been rectified and the FIDS is operational – awaiting flights!

All carparks (including staff carpark) are yet to be cleaned and checked; therefore it is preferable that vehicles are not stored in these areas.

### **19. ANY OTHER ISSUES**

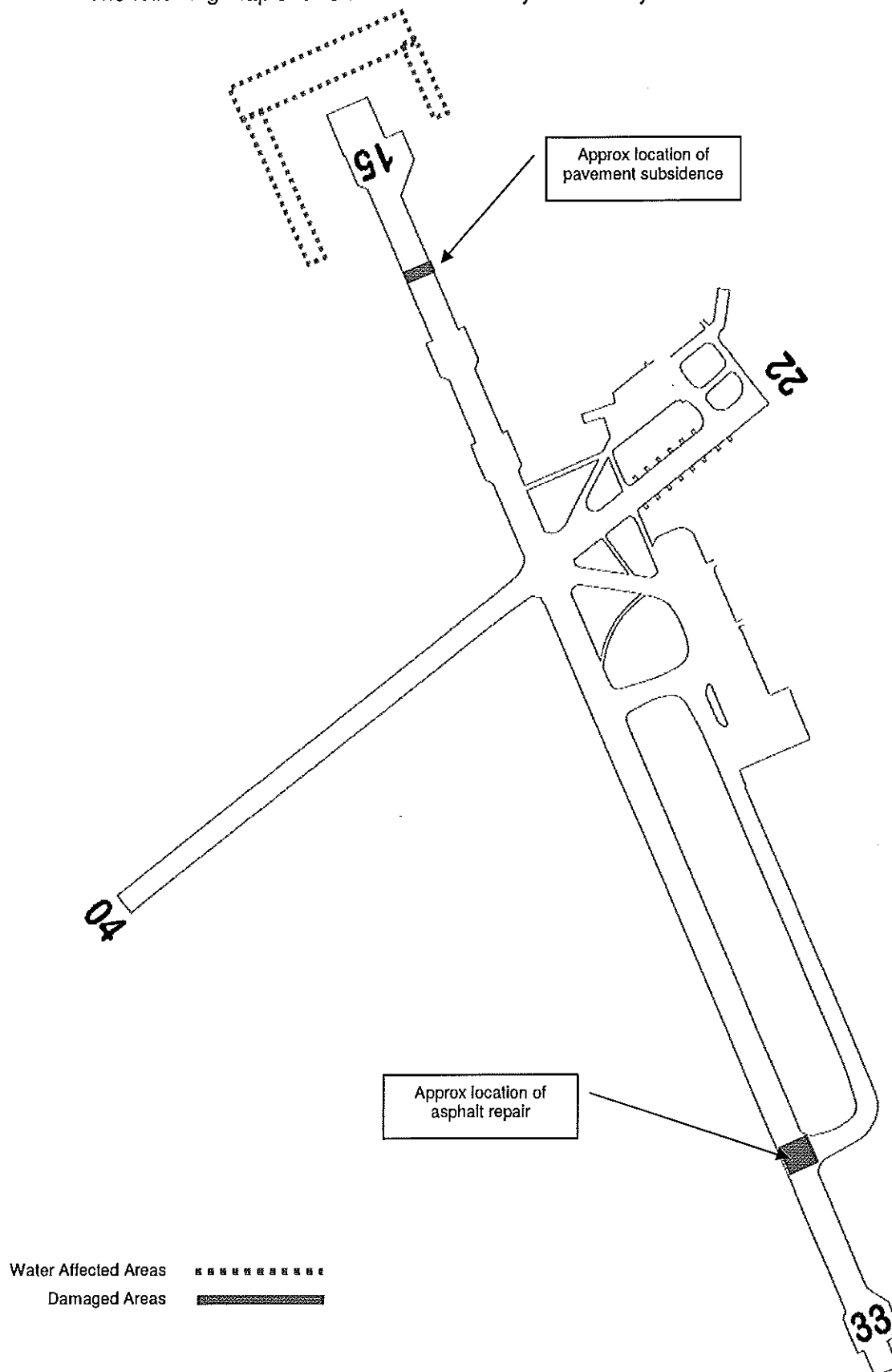
None at this stage.

## Rockhampton Airport – Flood Situation Report

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### AIRPORT LAYOUT MAP

The following map shows the areas currently affected by the floods.







## **ROCKHAMPTON AIRPORT FLOOD SITUATION REPORT**

Author: David Blackwell, Director Airports  
Date: Monday 17 January 2011  
Edition: Recovery Phase #12 (EXTERNAL)

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### **AIRPORT OPERATIONS**

At this stage the airport is closed for all aircraft operations. Further information is available from the relevant NOTAM.

For up to date information on the timing of the airport opening, please refer to the airport website ([www.rockhamptonairport.com.au](http://www.rockhamptonairport.com.au))

Significant Bird activity on and adjacent to the movement areas could create Bird Hazards issues when the runway is reopened with remaining large flooded areas. A plan to manage the problem will need to be formulated and advised to the airlines.

### **PERSONNEL & INFRASTRUCTURE**

#### **1. SAFETY ISSUES:**

A higher than usual level of snake activity is occurring around the airport precinct. Destruction of snakes or other protected wildlife, unless for self preservation is not allowed.

RRC Personnel must make themselves aware of the latest Work Method Statement '*Working In and Around Flood Affected Areas*'. Information should be sourced from supervisors and/or RRC Safety Unit.

#### **2. BRUCE HIGHWAY**

Open

## **Rockhampton Airport – Flood Situation Report**

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### **3. MOVEMENT AND MANOEUVRING AREA ISSUES:**

All movement and manoeuvring areas are clear of water

**RUNWAYS:** Test bores of the area of concern on the main runway has finished and a review of the pavement and asphalt condition is currently being conducted.

A 4m to 5m wide section of the asphalt of approximately 30m in length on the main runway, adjacent to Taxiway 'J' will be reconstructed in the next few days. Several other smaller asphalt patching jobs will be carried out at the same time.

We will be displacing the threshold to the south of the subsidence located near Lion Creek (at the northern end of the main runway). As subsidence will not impact upon the airport's return to service date, will no longer be reported on the works in these reports

**The key issue is that the asphalt and pavements will be in an operational condition for normal RPT operations from Monday 24 January 2010. The aircraft that will be allowed are the E170/190, F-100 and Q400; B737 or A320 operations will not be allowed at this stage.**

**Details regarding night operations from 24 January have yet to be finalised and further information will become available in the next 24hrs.**

Please note that this only relates to the runway surfaces. Issues such as security fencing and approach path lighting still must be finalised. Further information on these issues will become available in the next 24hrs.

**TAXIWAYS:** Cleaning and inspection of the taxiways has commenced. No issues of significance have been identified at this stage.

**APRONS:** Cleaning and inspections of the RPT and GA aprons has commenced. When the engineering assessments of the main runway and associated taxiways are complete, assessments of the aprons will commence.

### **4. SECURITY ISSUES:**

Several large sections of the security fencing have been affected by the flood waters. Temporary fencing is being sourced to isolate the western section of the secondary runway (RWY04/22). This will significantly reduce the fencing that is required to be reinstated prior to the commencement of RPT operations.

The pedestrian gate from Canoona Rd (P2) has been repaired but it has not yet been confirmed as serviceable.

Repair of the main runway (RWY 15/33) safety / security perimeter fence is starting to look like the main risk to returning to normal RPT operations in a timely manner.

A further inspection of the fence has revealed 20 posts broken off from their concrete supports, with the remaining post supports having been uprooted. Works will commence on this fence from Tuesday morning. Approx 60m of replacement chain mesh fencing is being sought as soon as possible.

**We will be seeking volunteers through the LDCC to assist with the clearing of the airport perimeter security fencing; approximately 5km of security fencing has between 500mm and 1m of flood debris that requires removal.**

All passenger screening equipment has been reinstalled and tested. All systems are serviceable. CBS equipment will be reinstalled and tested soon.

## **Rockhampton Airport – Flood Situation Report**

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### **5. AIRSERVICES AUSTRALIA**

ARFF Rockhampton has set up a remote communication centre through their command vehicle at the Heritage Village. All calls into the Fire Control centre will be diverted to this centre. There is no longer an ARFF presence at ROK.

ROK ARFF has now declared Category 0 operations so that all duty crew can be made available for the disaster relief and recovery works. Additional support personnel from other ARFF stations are becoming available to assist with the recovery works.

**QUESTION: Is the information on the ARFF still correct?**

Navigation aids – it would appear that the VOR / DME have not been affected by the flood. Airservices has advised that the NDB returned to service on Friday 14 January.

### **6. REFUELLING ISSUES:**

None at this stage.

### **7. BUREAU OF METEOROLOGY**

None at this stage.

### **8. AIRLINE GROUND HANDLING ISSUES:**

None at this stage.

### **9. ELECTRICAL / DATA / IT ISSUES:**

The paid parking system equipment is being progressively installed over the next few days.

The airport fax line was disconnected by Telstra during the repair work on Canoona Road. A return to service date has not yet been advised.

Cleaning and inspection of the main runway lighting system is now complete.

Installation of the displaced threshold RWY 15 PAPI system is expected to start on Wednesday, with survey and system alignment expected to be complete before the end of the week.

Reinstallation of the RWY 33 PAPI system is complete, and system alignment will be carried out at the same time as the RWY 15 PAPI system. Advice is being sought on whether the displaced threshold PAPI system will require flight calibration before it can be released into service.

### **10. WATER SUPPLY ISSUES:**

None at this stage

### **11. WASTE & RECYCLING ISSUES:**

None at this stage

## **Rockhampton Airport – Flood Situation Report**

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### **12. SEWERAGE ISSUES:**

None at this stage

### **13. STORM WATER ISSUES:**

None at this stage

### **14. ROAD NETWORK ISSUES**

None at this stage

### **15. EMERGENCY SERVICES MATTERS**

None at this stage

### **16. REGULATORY ISSUES**

Awaiting advice from CASA regarding our proposal to install temporary fencing to isolate the western section of RWY 04/22 from the main runway.

### **17. MEDIA ISSUES**

- (a) The Airport Web Site ([www.rockhamptonairport.com.au](http://www.rockhamptonairport.com.au)) was updated today with the latest general public information.

### **18. CUSTOMER IMPACTS**

We are not aware of any changes to the airline information.

(a) **QantasLink**

Please refer to the Qantas web page for more information:

[http://www.qantas.com.au/travel/airlines/disruptions/global/en?int\\_cam=au:hp:rockhampton:closure:jan11](http://www.qantas.com.au/travel/airlines/disruptions/global/en?int_cam=au:hp:rockhampton:closure:jan11)

(b) **Tiger Airways**

Tiger Airways web link is:

<http://www.tigerairways.com.au/au/en/disruption.php>

(c) **Virgin Blue**

The Virgin Blue web link is:

<http://www.virginblue.com.au/MinorIncidentReport/index.htm>

### **19. TERMINAL ISSUES**

The flood barrier has now been removed and packed up. There is still a lot of blue plastic and gravel to be removed over the next couple of days.

The FIDS was restarted and the fibre optic connection between the main and backup servers had failed (media converter power supply). This has now been rectified and the FIDS is operational – awaiting flights!

All carparks (including staff carpark) are yet to be cleaned and checked; therefore it is preferable that vehicles are not stored in these areas.

### **20. ANY OTHER ISSUES**

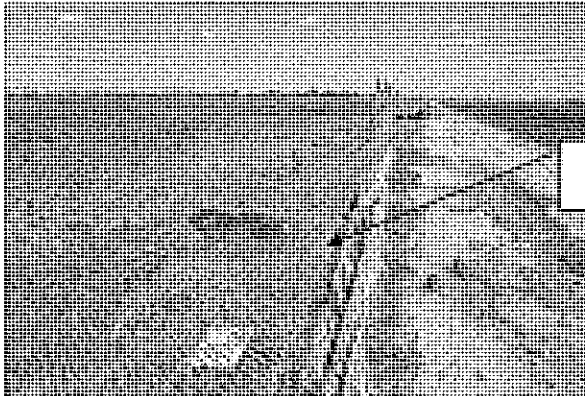
None at this stage.

## Rockhampton Airport – Flood Situation Report

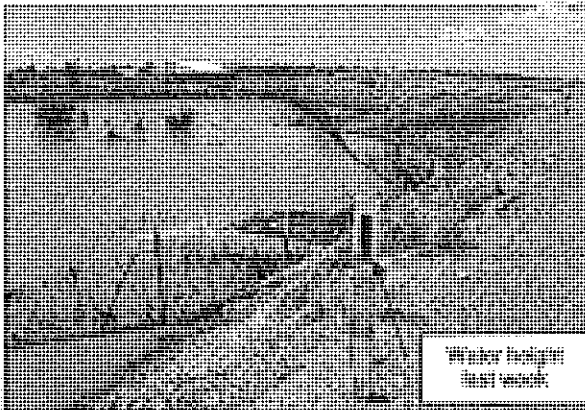
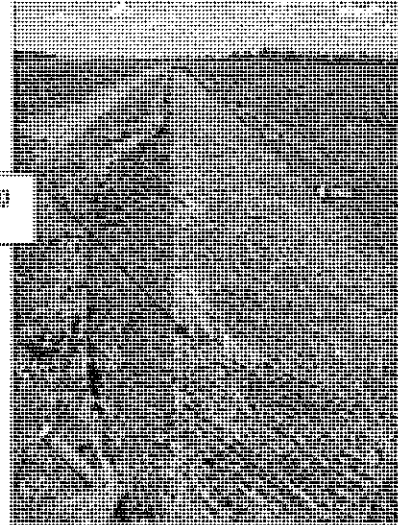
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### 21. PHOTOS

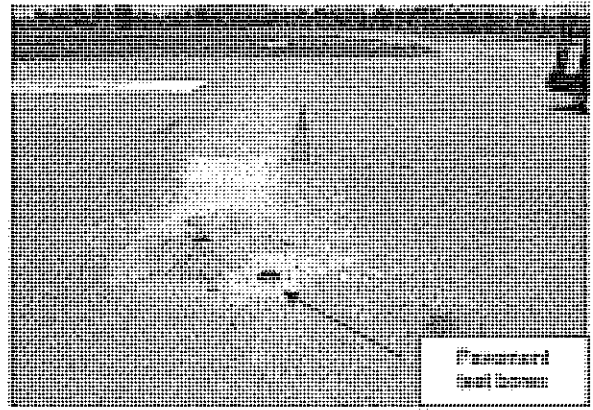
#### Main Runway (RWY 15/33)



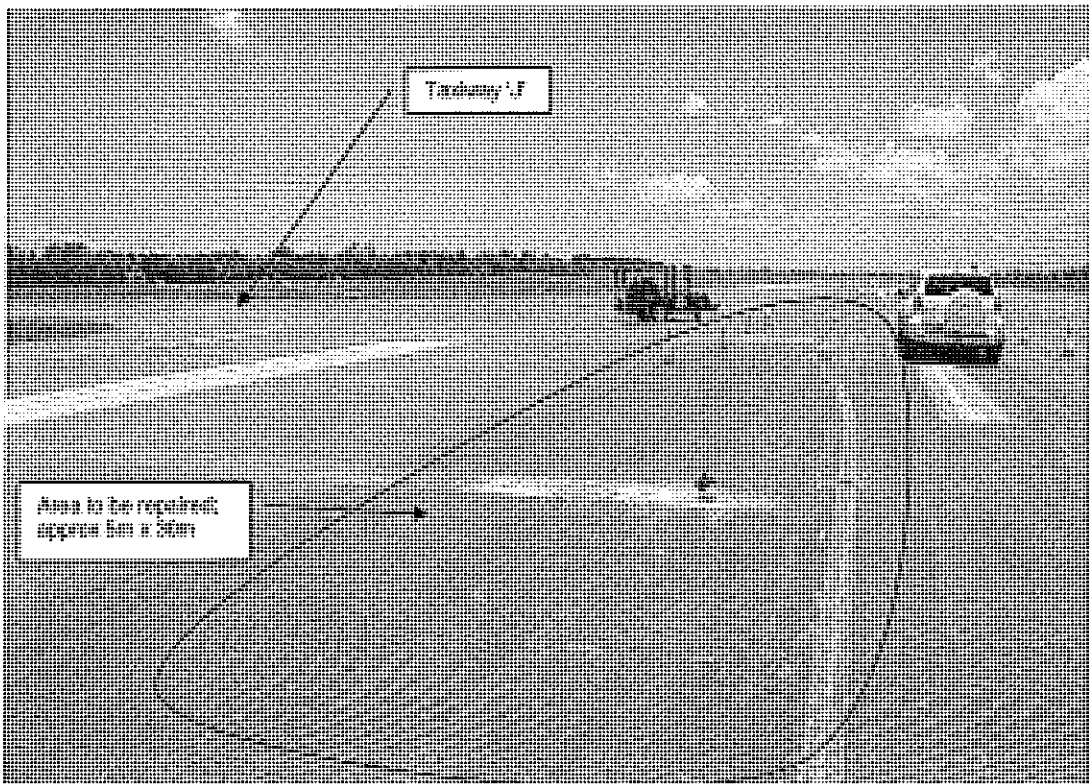
Water flowing  
along edge



Water flowing  
along edge



Water flowing  
along edge



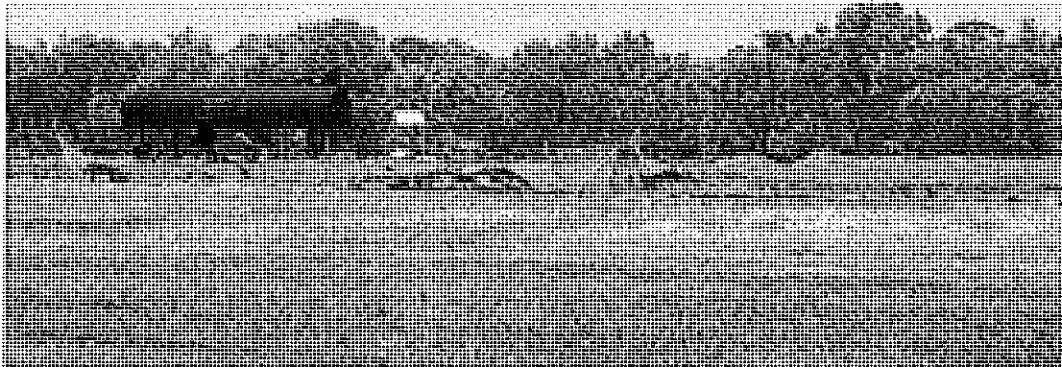
Taxiway 'F'

Area to be repaired:  
approx 5m x 30m

## Rockhampton Airport – Flood Situation Report

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### Secondary Runway (RWY 04/22)

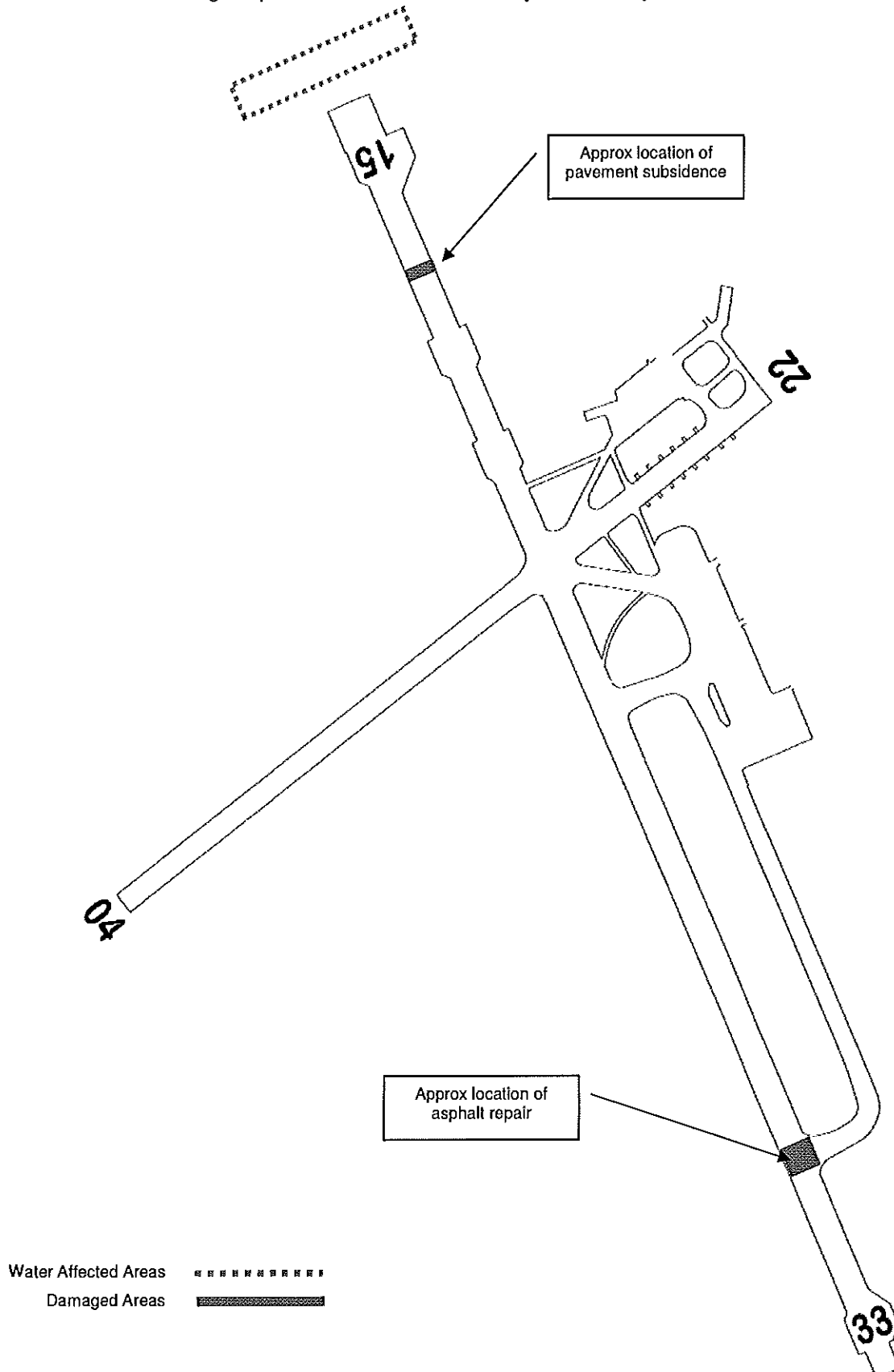


## Rockhampton Airport – Flood Situation Report

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### AIRPORT LAYOUT MAP

The following map shows the areas currently affected by the floods.



(1)

(2)

(3)



## **ROCKHAMPTON AIRPORT FLOOD SITUATION REPORT**

Author: David Blackwell, Director Airports  
Date: Tuesday 18 January 2011  
Edition: Recovery Phase #13 (RRC INTERNAL USE ONLY)

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### **AIRPORT OPERATIONS**

At this stage the airport is closed for all aircraft operations. Further information is available from the relevant published NOTAM.

A Method of Working Plan will soon be issued detailing the displaced threshold due to the pavement subsidence at the northern end of the main runway (RWY 15/33). This information will go out to all normal MOWP recipients.

### **PERSONNEL & INFRASTRUCTURE**

#### **1. SAFETY ISSUES:**

A higher than usual level of snake activity is occurring around the airport precinct. Destruction of snakes or other protected wildlife, unless for self preservation is not allowed.

RRC Personnel must make themselves aware of the latest Work Method Statement '*Working In and Around Flood Affected Areas*'. Information should be sourced from supervisors and/or RRC Safety Unit.

#### **2. BRUCE HIGHWAY**

Open

#### **3. MOVEMENT AND MANOEUVRING AREA ISSUES:**

**RUNWAYS:** A 9m wide by 20m long asphalt section on the main runway, adjacent to Taxiway 'J' will be reconstructed in the next few days. Several (approx 8) smaller asphalt patching jobs will be carried out at the same time.

The availability of a suitable asphalt mix for the repairs of the main runway has the potential to impact upon the timely repair of the runway. We will be discussing this matter with our pavement consultant, RRC Infrastructure and others tomorrow morning. From that discussion we will be well placed to provide a definitive timeline for the return to operations on the main runway.

**TAXIWAYS:** No issues of significance have been identified.

**APRONS:** No issues of significance have been identified.

## **Rockhampton Airport – Flood Situation Report**

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### **4. SECURITY ISSUES:**

Several large sections of the security fencing have been affected by the flood waters. Temporary fencing has been installed to isolate the western section of the secondary runway (RWY 04/22). This has significantly reduced the fencing repairs necessary for the recommencement of RPT operations on the main runway (RWY 15/33).

Repair of the main runway (RWY 15/33) safety / security perimeter fence is progressing well, with the works expected to be completed by this Friday.

The CBS equipment (including work stations and ETD) were powered up this afternoon and will be tested by screening personnel tomorrow.

The pedestrian gate from Canoona Rd (P2) is awaiting a new electric strike as it was damaged by the flood. This is expected to be fixed by Thursday afternoon.

### **5. AIRSERVICES AUSTRALIA**

ARFF Rockhampton has set up a remote communication centre through their command vehicle at the Heritage Village. All calls into the Fire Control centre will be diverted to this centre. There is no longer an ARFF presence at ROK.

ROK ARFF has now declared Category 0 operations so that all duty crew can be made available for the disaster relief and recovery works. Additional support personnel from other ARFF stations are becoming available to assist with the recovery works.

**QUESTION:** Is the information on the ARFF still correct?

### **6. REFUELLING ISSUES:**

Refuelling services have relocated back to the airport and are operating normally.

### **7. BUREAU OF METEOROLOGY**

None at this stage.

### **8. AIRLINE GROUND HANDLING ISSUES:**

None at this stage.

### **9. ELECTRICAL / DATA / IT ISSUES:**

The airport fax line is now operational.

The paid parking system equipment is being progressively installed over the next few days. At this stage the Short Term carpark equipment is serviceable. We have issues with the Premium and Long Term carpark equipment and have advised the contractor to work on the Long Term carpark as the priority.

Movement Area Guidance Signs for all movement and manoeuvring areas have been reinstalled. The main runway lighting system was tested today and appears to be serviceable. Further testing of the system will continue tomorrow.

Installation of the displaced threshold RWY 15 PAPI system is expected to start this Thursday, with survey and system alignment expected to be complete before the end of the week.

Reinstallation of the RWY 33 PAPI system is complete, and system alignment will be carried out tomorrow.

## **Rockhampton Airport – Flood Situation Report**

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### **10. WATER SUPPLY ISSUES:**

None at this stage

### **11. WASTE & RECYCLING ISSUES:**

None at this stage

### **12. SEWERAGE ISSUES:**

None at this stage

### **13. STORM WATER ISSUES:**

None at this stage

### **14. ROAD NETWORK ISSUES**

None at this stage

### **15. EMERGENCY SERVICES MATTERS**

None at this stage

### **16. REGULATORY ISSUES**

None at this stage.

### **17. MEDIA ISSUES**

- (a) The Airport Web Site ([www.rockhamptonairport.com.au](http://www.rockhamptonairport.com.au)) was updated today with the latest general public information.

### **18. CUSTOMER IMPACTS**

We are not aware of any changes to the airline information.

(a) **QantasLink**

Please refer to the Qantas web page for more information:

[http://www.qantas.com.au/travel/airlines/disruptions/global/en?int\\_cam=au:hp:roka:pt:closure:jan11](http://www.qantas.com.au/travel/airlines/disruptions/global/en?int_cam=au:hp:roka:pt:closure:jan11)

(b) **Tiger Airways**

Tiger Airways web link is:

<http://www.tigerairways.com.au/au/en/disruption.php>

(c) **Virgin Blue**

The Virgin Blue web link is:

<http://www.virginblue.com.au/MinorIncidentReport/index.htm>

### **19. TERMINAL ISSUES**

The staff carpark entry boom gate is now operational. The exit boom is faulty and is expected to be repaired tomorrow. Airport should now start to use the staff carpark in lieu of parking at the front of the terminal building.

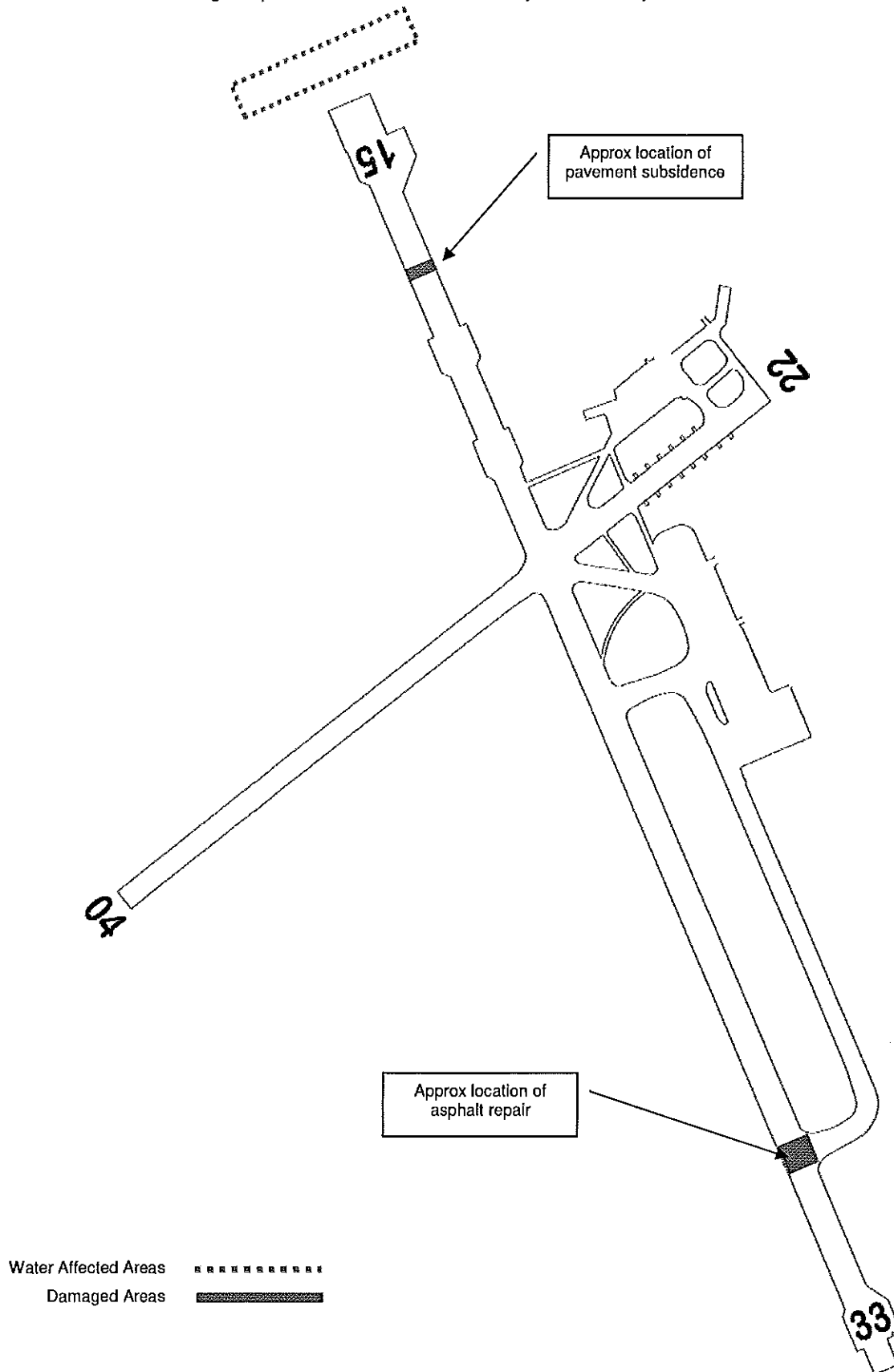
### **20. ANY OTHER ISSUES**

None at this stage.

## Rockhampton Airport – Flood Situation Report

### 21. AIRPORT LAYOUT MAP

The following map shows the areas currently affected by the floods.



## **ROCKHAMPTON AIRPORT FLOOD SITUATION REPORT**

Author: David Blackwell, Director Airports  
Date: Wednesday 19 January 2011  
Edition: Recovery Phase #14 (EXTERNAL)

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### **AIRPORT OPERATIONS**

At this stage the airport is closed for all aircraft operations. Further information is available from the relevant published NOTAM.

A Method of Working Plan will soon be issued detailing the displaced threshold due to the pavement subsidence at the northern end of the main runway (RWY 15/33). This information will go out to all normal MOWP recipients.

### **PERSONNEL & INFRASTRUCTURE**

#### **1. SAFETY ISSUES:**

A higher than usual level of snake activity is occurring around the airport precinct. Destruction of snakes or other protected wildlife, unless for self preservation is not allowed.

RRC Personnel must make themselves aware of the latest Work Method Statement '*Working In and Around Flood Affected Areas*'. Information should be sourced from supervisors and/or RRC Safety Unit.

#### **2. BRUCE HIGHWAY**

Open

#### **3. MOVEMENT AND MANOEUVRING AREA ISSUES:**

**RUNWAYS:** We were planning to conduct a test repair of a section of Taxiway 'J' this afternoon. Unfortunately the storm and associated heavy rain resulted in this work being rescheduled to tomorrow (Thursday). We are currently pumping out the water in all of the repair sections and hope that the weather will allow the repair works to proceed tomorrow.

We do not expect the rain today to delay the return to service date of Monday 24 January 2011.

**TAXIWAYS:** No issues.

**APRONS:** No issues.

## **Rockhampton Airport – Flood Situation Report**

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### **4. SECURITY ISSUES:**

Repair of the main runway (RWY 15/33) safety / security perimeter fence is progressing well, with approx 50% of the work now completed. The works are on schedule for completion this Friday.

The CBS equipment (including work stations and ETD) were tested today. At this stage the ETD is unserviceable but the CBS X-Ray equipment is all ok. The repair of the ETD is in hand and will not impact on the return to service date.

The pedestrian gate from Canoona Rd (P2) is awaiting a new electric strike as it was damaged by the flood. This is expected to be fixed by Thursday afternoon.

### **5. AIRSERVICES AUSTRALIA**

ARFF have completed operations at the Heritage village and are now operating from the Airport. ARFF have been assisting with the airport's return to service by washing down the car parks and other landside areas over the past 4 days. Due to their main fire truck's weight, we have requested that ARFF vehicles limit their activities on movement and manoeuvring areas.

The assistance of the ARFF team has been very much appreciated!

At present ARFF are assisting the overall relief and recovery effort by deploying to areas external to the airport on an as required basis.

Full ARFF cover will be in place for RPT operations next Monday.

### **6. REFUELLING ISSUES:**

Refuelling services have relocated back to the airport and are operating normally.

### **7. BUREAU OF METEOROLOGY**

None at this stage.

### **8. AIRLINE GROUND HANDLING ISSUES:**

None at this stage.

### **9. ELECTRICAL / DATA / IT ISSUES:**

The paid parking system has been returned to service today and will be progressively tested over the next 2 days.

The main runway lighting system was tested today and appears to be serviceable. Further testing of the system will continue tomorrow.

Installation of the displaced threshold RWY 15 PAPI system is expected to start this Thursday, with survey and system alignment expected to be complete before the end of the week.

Reinstallation of the RWY 33 PAPI system is complete, and system alignment is currently ongoing. It is expected to be ready in the next 24hr.

We expect to have the main runway lighting system completely serviceable by Wednesday 26 January 2011. This means that night RPT operations from Wednesday evening will be possible.

## **Rockhampton Airport – Flood Situation Report**

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### **10. WATER SUPPLY ISSUES:**

None at this stage

### **11. WASTE & RECYCLING ISSUES:**

None at this stage

### **12. SEWERAGE ISSUES:**

None at this stage

### **13. STORM WATER ISSUES:**

None at this stage

### **14. ROAD NETWORK ISSUES**

None at this stage

### **15. EMERGENCY SERVICES MATTERS**

None at this stage

### **16. REGULATORY ISSUES**

None at this stage.

### **17. MEDIA ISSUES**

(a) The Airport Web Site ([www.rockhamptonairport.com.au](http://www.rockhamptonairport.com.au)) was updated today with the latest general public information.

### **18. CUSTOMER IMPACTS**

None at this stage

### **19. TERMINAL ISSUES**

None at this stage.

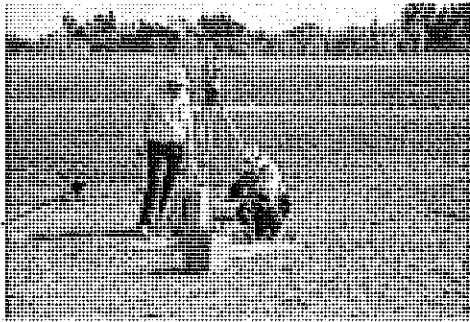
### **20. ANY OTHER ISSUES**

None at this stage.

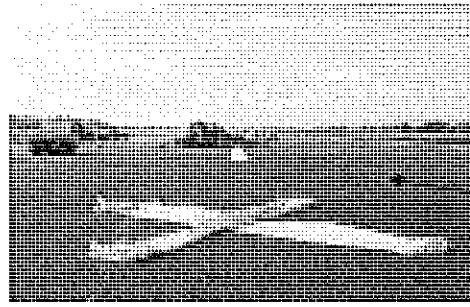
## Rockhampton Airport – Flood Situation Report

### 21. PHOTOS

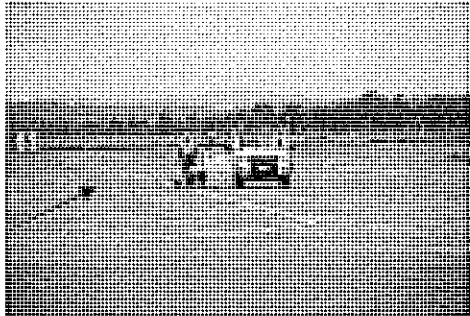
PAPI  
Commissioning



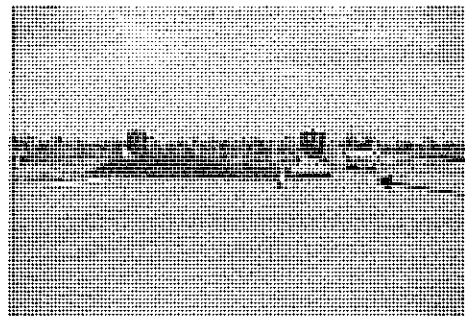
Asphalt Repair  
Areas



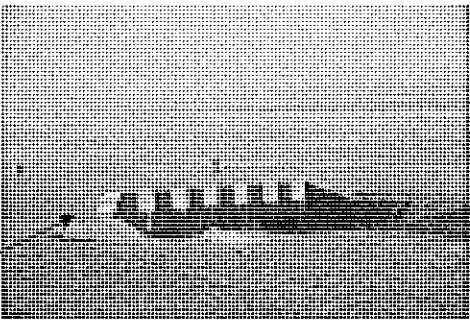
Taxiway Light  
repairs



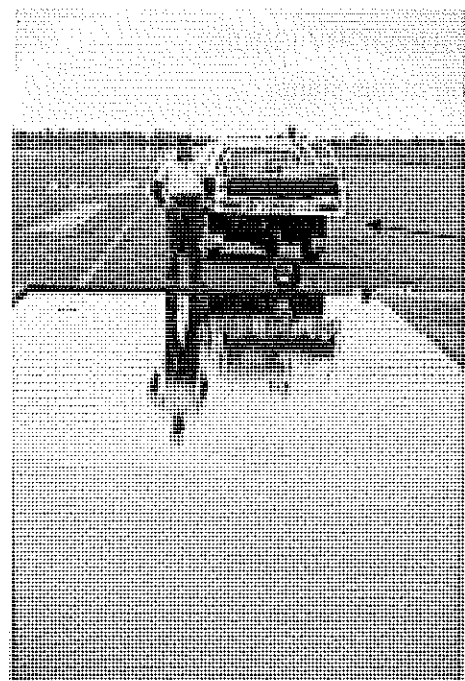
Asphalt Repair  
Areas



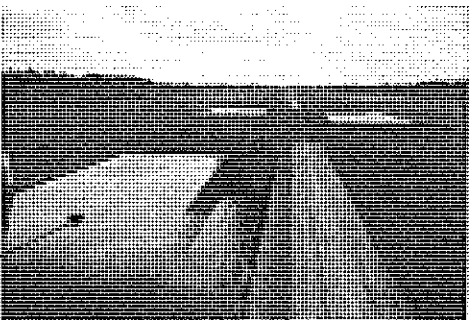
Stormwater this  
afternoon



Airport water  
technician at work



Asphalt Repair  
Areas

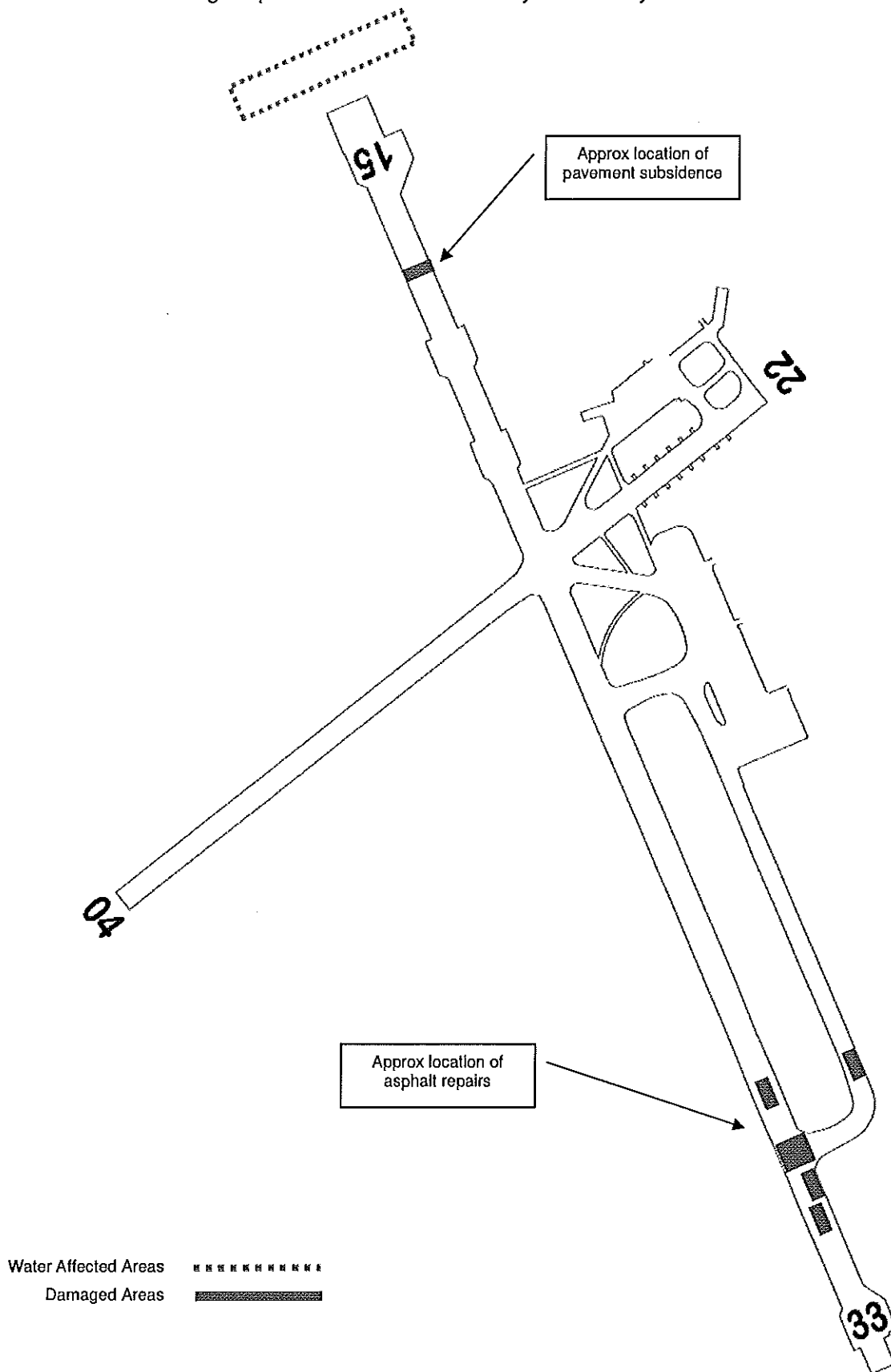




## Rockhampton Airport – Flood Situation Report

### AIRPORT LAYOUT MAP

The following map shows the areas currently affected by the floods.



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## **ROCKHAMPTON AIRPORT FLOOD SITUATION REPORT**

Author: David Blackwell, Director Airports  
Date: Thursday 20 January 2011  
Edition: Recovery Phase #15 (External)

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### **AIRPORT OPERATIONS**

At this stage the airport is closed for all aircraft operations. Further information is available from the relevant published NOTAM.

A Method of Working Plan detailing the displaced threshold of the main runway (RWY 15/33) was issued late last night. The information went out to CASA and all normal MOWP recipients.

### **PERSONNEL & INFRASTRUCTURE**

#### **1. SAFETY ISSUES:**

A higher than usual level of snake activity is occurring around the airport precinct. Destruction of snakes or other protected wildlife, unless for self preservation is not allowed.

RRC Personnel must make themselves aware of the latest Work Method Statement '*Working In and Around Flood Affected Areas*'. Information should be sourced from supervisors and/or RRC Safety Unit.

#### **2. BRUCE HIGHWAY**

Open

#### **3. MOVEMENT AND MANOEUVRING AREA ISSUES:**

**RUNWAYS:** The 'test' patch / repair of the damage sustained to Taxiway 'J' has been carried out without issue. Results from the testing carried out this afternoon were not available today but expected first thing tomorrow morning. It is unlikely that the results from the test repair will negatively impact on the main runway's return to service on Monday 24 January.

We still plan for a return to service date of Monday 24 January 2011.

**TAXIWAYS:** No issues.

**APRONS:** No issues.

## **Rockhampton Airport – Flood Situation Report**

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### **4. SECURITY ISSUES:**

Repair of the main runway (RWY 15/33) safety / security perimeter fence is progressing well, with approx 70% of the work now completed. The works are on schedule for completion this Friday.

The pedestrian gate from Canoona Rd (P2) is awaiting a new electric strike as it was damaged by the flood. This is expected to be fixed by Thursday afternoon.

### **5. AIRSERVICES AUSTRALIA**

None at this stage.

### **6. REFUELLING ISSUES:**

None at this stage.

### **7. BUREAU OF METEOROLOGY**

None at this stage.

### **8. AIRLINE GROUND HANDLING ISSUES:**

None at this stage.

### **9. ELECTRICAL / DATA / IT ISSUES:**

The paid parking system was returned to service today and is still being tested. Both ADSL lines for the paid parking are out of service and another 'backup' ADSL line is being used temporarily. This should not affect the performance of the paid parking system.

The main runway lighting system was tested today and appears to be serviceable. Further testing of the system will continue tomorrow.

Installation of the displaced threshold RWY 15 PAPI system has been put back to Friday, with survey and system alignment expected to be completed on Saturday.

### **10. WATER SUPPLY ISSUES:**

None at this stage

### **11. WASTE & RECYCLING ISSUES:**

None at this stage

### **12. SEWERAGE ISSUES:**

None at this stage

### **13. STORM WATER ISSUES:**

None at this stage

### **14. ROAD NETWORK ISSUES**

None at this stage

### **15. EMERGENCY SERVICES MATTERS**

None at this stage

## **Rockhampton Airport – Flood Situation Report**

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### **16. REGULATORY ISSUES**

None at this stage.

### **17. MEDIA ISSUES**

(a) The Airport Web Site ([www.rockhamptonairport.com.au](http://www.rockhamptonairport.com.au)) was updated today with the latest general public information.

### **18. CUSTOMER IMPACTS**

None at this stage

### **19. TERMINAL ISSUES**

None at this stage.

### **20. ANY OTHER ISSUES**

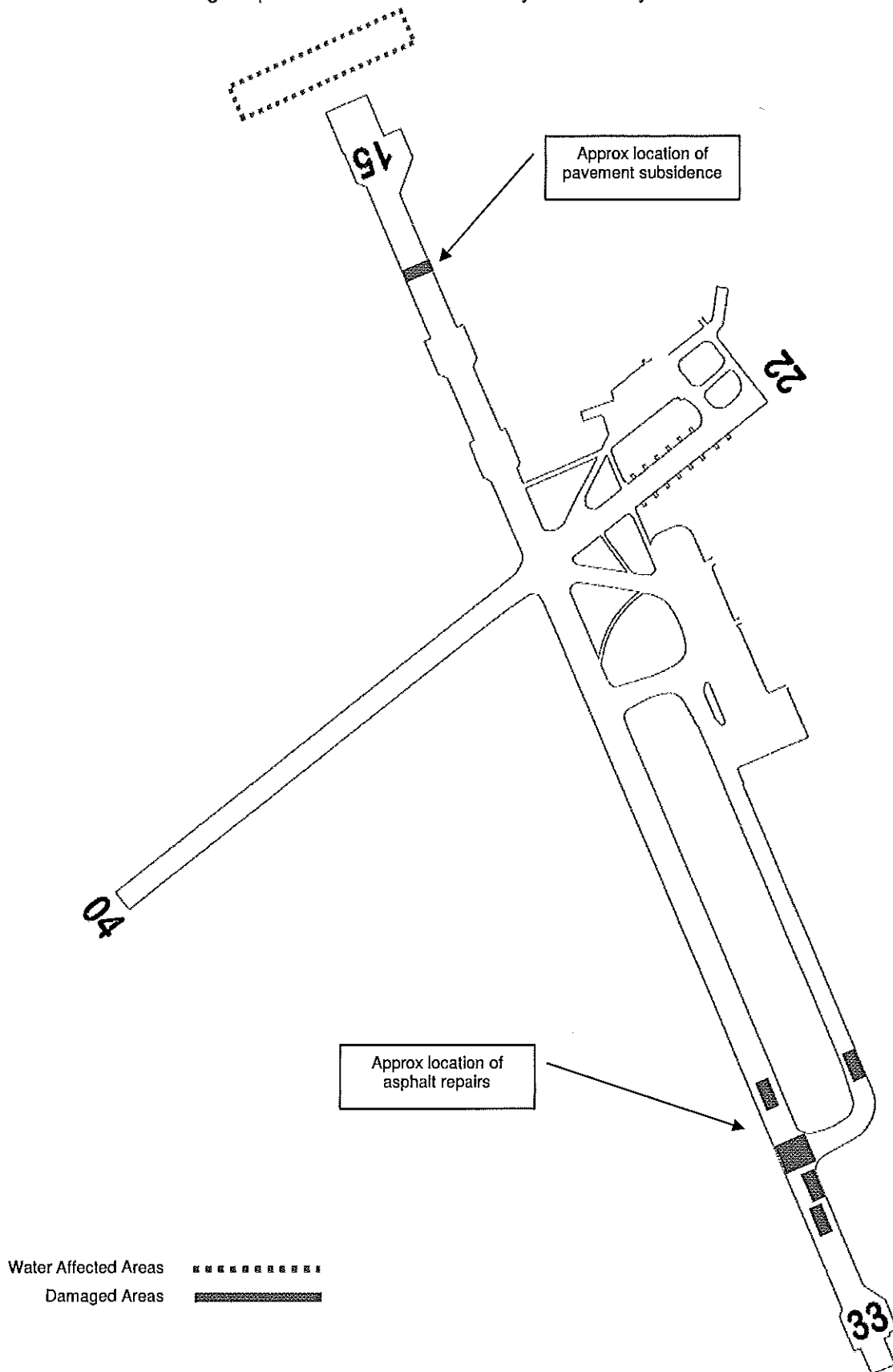
None at this stage.

## Rockhampton Airport – Flood Situation Report

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### 21. AIRPORT LAYOUT MAP

The following map shows the areas currently affected by the floods.



## **ROCKHAMPTON AIRPORT FLOOD SITUATION REPORT**

Author: David Blackwell, Director Airports  
Date: Friday 21 January 2011  
Edition: Recovery Phase #16 (RRC INTERNAL USE ONLY)

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### **AIRPORT OPERATIONS**

At this stage the airport is closed for all aircraft operations. Further information is available from the relevant published NOTAM.

The final CASA reviewed Method of Working Plan (MOWP) detailing the displaced threshold of the main runway (RWY 15/33) was issued today. The relevant NOTAM advising the return to normal operations were also issued today.

Monday 24 January will see normal daytime airport operations commence. Night operations are still planned to start on Wednesday evening (26 Jan).

### **PERSONNEL & INFRASTRUCTURE**

#### **1. SAFETY ISSUES:**

A higher than usual level of snake activity is occurring around the airport precinct. Destruction of snakes or other protected wildlife, unless for self preservation is not allowed.

#### **2. BRUCE HIGHWAY**

Open

#### **3. MOVEMENT AND MANOEUVRING AREA ISSUES:**

**RUNWAYS:** The 'test' patch / repair of the damage sustained to Taxiway 'J' has been carried out without issue. Minor changes to the asphalt mix were made as a result of the asphalt testing conducted yesterday.

All main runway asphalt repairs were completed this afternoon. Based on the information available, the main runway will return to normal daylight operations on Monday 24 January 2011.

Repairs to the southern shoulder of the secondary runway, west of the main runway intersection were carried out today.

Pavement and asphalt repairs to Taxiway 'F' (a GA Apron access taxiway) will be completed tomorrow. As with the secondary runway works, this work is not relevant to the main runway operations but were convenient to carry out now.

## **Rockhampton Airport – Flood Situation Report**

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Deep drilling of the pavement subsidence areas in the northern section of RWY 15/33 (now excluded from aircraft operations – refer MOWP) commenced. This work will assist with the engineering assessment of the damage to these two areas. This work is not relevant to the return of service of RWY 15/33 but due to the height of the drilling rig, it is an appropriate time to carry out the works.

TAXIWAYS: No issues

APRONS: No issues

#### **4. SECURITY ISSUES:**

Repair of the main runway (RWY 15/33) safety / security perimeter fence is now complete.

The pedestrian gate from Canoona Rd (P2) is awaiting a new electric strike as it was damaged by the flood. This is expected to be fixed by Thursday afternoon.

#### **5. AIRSERVICES AUSTRALIA**

None at this stage

#### **6. REFUELLING ISSUES:**

None at this stage

#### **7. BUREAU OF METEOROLOGY**

None at this stage

#### **8. AIRLINE GROUND HANDLING ISSUES:**

None at this stage

#### **9. ELECTRICAL / DATA / IT ISSUES:**

The paid parking system was returned to service today and is still being tested. Both ADSL lines for the paid parking are out of service and another 'backup' ADSL line is being used temporarily. With the exception of the LH entry station to the Short Term Carpark, the paid parking system is serviceable.

**NOTE: ISS SECURITY PERSONNEL** - A complete software update of the paid parking system will be performed tomorrow from 9am. This should not involve ISS personnel but they need to be aware of that parts of the system may stop working during the upgrade. Any issues please contact CDS Support or Rocky Industrial Controls for assistance.

The Qantas FIDS (FILD) system is currently unserviceable. A full Qantas FIDS arrivals and departures database for 24 January has been created on the airport FIDS as a backup.

Following the completion of asphalt works on the main runway, the installation of flush mounted taxiway lead-in lights for Taxiway 'J' will be carried out tomorrow.

Installation of the displaced threshold RWY 15 PAPI system has been completed and tested. PAPI system survey and system alignment will be completed tomorrow.



## **Rockhampton Airport – Flood Situation Report**

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### **10. WATER SUPPLY ISSUES:**

None at this stage

### **11. WASTE & RECYCLING ISSUES:**

None at this stage

### **12. SEWERAGE ISSUES:**

None at this stage

### **13. STORM WATER ISSUES:**

None at this stage

### **14. ROAD NETWORK ISSUES**

Asphalt repairs to the entry road to the Short Term Carpark are planned to be completed tomorrow.

### **15. EMERGENCY SERVICES MATTERS**

None at this stage

### **16. REGULATORY ISSUES**

None at this stage

### **17. MEDIA ISSUES**

A Council media event will be held at the airport on Monday morning to highlight the return to service. The first scheduled flight is Virgin Blue (BNE/ROK) at 7:15am.

### **18. CUSTOMER IMPACTS**

A large LED sign board has been installed at the Hunter Street entrance to the airport. At this stage it is programmed to display a welcome message on Monday but can be programmed to advise passengers of other important information should issues with the airport appear during the return to service period (e.g. paid parking system failure).

Virgin Blue has scheduled 2 services and QantasLink, 7 services for next Monday.

### **19. TERMINAL ISSUES**

A full clean of the terminal will be conducted on Sunday in preparation for the return to service on Monday.

### **20. ANY OTHER ISSUES**

Numerous GA operators will be returning to the airport on Monday morning.

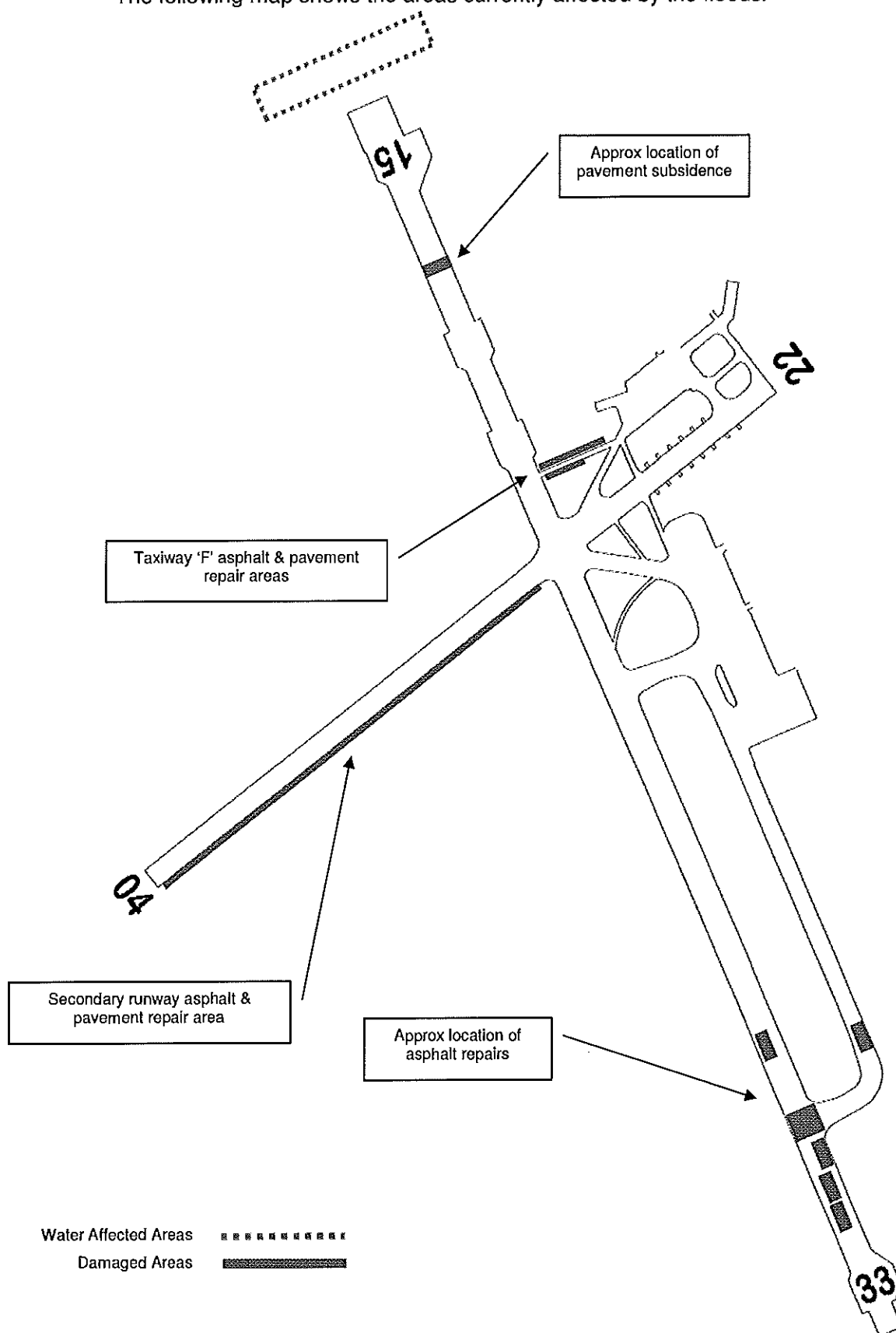
**21. PHOTOS**



## Rockhampton Airport – Flood Situation Report

### AIRPORT LAYOUT MAP

The following map shows the areas currently affected by the floods.





## **ROCKHAMPTON AIRPORT FLOOD SITUATION REPORT**

Author: David Blackwell, Director Airports  
Date: Saturday 22 January 2011  
Edition: Recovery Phase #17 (EXTERNAL)

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### **AIRPORT OPERATIONS**

At this stage the airport is closed for all aircraft operations. Further information is available from the relevant published MOWP and NOTAM.

Monday 24 January will see normal daytime airport operations commence. Night operations are still planned to start on Wednesday evening (26 Jan).

With the return of fixed wing aircraft operations on 24 January 2011 and in particular the resumption of screened passenger services, normal airside safety and security procedures will return. To summarise:

- A valid ASIC must be displayed at all times when airside;
- Normal visitor pass requirements will apply;
- Airside driving will be restricted to the areas authorised for individual drivers;
- All access gates and doors must be closed and locked unless an ASIC holder is present to control access;
- Normal ATC clearance for Runway and Taxiway access will be required;

Note Runway 04/22 will be closed until further notice. ATC clearance will not be required for Runway 04/22 until it is returned to service.

### **PERSONNEL & INFRASTRUCTURE**

#### **1. SAFETY ISSUES:**

A higher than usual level of snake activity is occurring around the airport precinct. Destruction of snakes or other protected wildlife, unless for self preservation is not allowed.

#### **2. BRUCE HIGHWAY**

Open

## **Rockhampton Airport – Flood Situation Report**

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### **3. MOVEMENT AND MANOEUVRING AREA ISSUES:**

**RUNWAYS:** Pavement and asphalt repairs to Taxiway 'F' (a GA Apron access taxiway) were completed today.

Deep drilling of the pavement subsidence areas in the northern section of RWY 15/33 has now concluded and the equipment has been removed from the airport.

**TAXIWAYS:** No issues

**APRONS:** No issues

### **4. SECURITY ISSUES:**

The pedestrian gate from Canoona Rd (P2) is awaiting a new electric strike as it was damaged by the flood. Discussions with Canoona Road based rental car operators have revealed that the repair of this gate is now an urgent matter.

### **5. AIRSERVICES AUSTRALIA**

None at this stage

### **6. REFUELLING ISSUES:**

None at this stage

### **7. BUREAU OF METEOROLOGY**

None at this stage

### **8. AIRLINE GROUND HANDLING ISSUES:**

None at this stage

### **9. ELECTRICAL / DATA / IT ISSUES:**

The Qantas FIDS (FILD) system is currently unserviceable. A full Qantas FIDS arrivals and departures database for 24 January has been created on the airport FIDS as a backup.

**QUESTION:** Is the Qantas FILD system for ROK now serviceable?

The PAPI system for the displaced threshold of Runway 15 was successfully surveyed and commissioned today. Both main runway PAPI systems are now serviceable.

The installation of flush mounted taxiway lead-in lights for Taxiway 'J' started this afternoon and is expected to be completed by Sunday afternoon.

### **10. WATER SUPPLY ISSUES:**

None at this stage

### **11. WASTE & RECYCLING ISSUES:**

None at this stage

## **Rockhampton Airport – Flood Situation Report**

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### **12. SEWERAGE ISSUES:**

None at this stage

### **13. STORM WATER ISSUES:**

None at this stage

### **14. ROAD NETWORK ISSUES**

Kerbing and associated asphalt repairs to the entry road to the Short Term Carpark were completed today. Further work on the new rental car entry area will continue tomorrow and Monday. All rental car operators were advised today of the modified procedures for rental car returns. This is expected to continue until late next week.

### **15. EMERGENCY SERVICES MATTERS**

None at this stage

### **16. REGULATORY ISSUES**

None at this stage

### **17. MEDIA ISSUES**

A Council media event will be held at the airport on Monday morning to highlight the return to service.

### **18. CUSTOMER IMPACTS**

A large LED sign board has been installed at the Hunter Street entrance to the airport. At this stage it is programmed to display a welcome message on Monday but can be programmed to advise passengers of other important information should issues with the airport appear during the return to service period (e.g. paid parking system failure).

### **19. TERMINAL ISSUES**

A backup ADSL line is being used temporarily to operate the paid parking system. A complete software update of the paid parking system was performed today. At this stage, a Premium Long Term entry station, one Short Term Exit Station and both Short Term Entry Stations are out of service. Rocky Industrial Controls will be on site again tomorrow to try and resolve these issues.

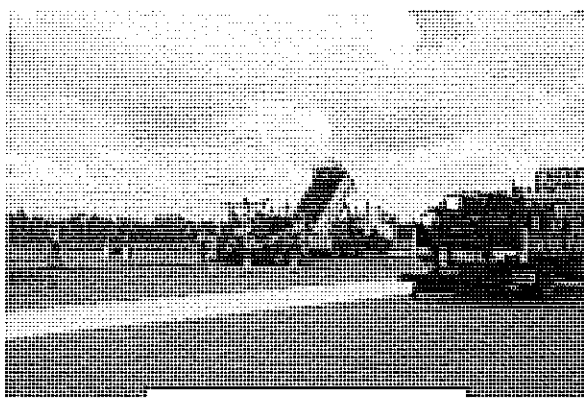
### **20. ANY OTHER ISSUES**

Numerous GA operators will be returning to the airport on Monday morning.

## Rockhampton Airport – Flood Situation Report

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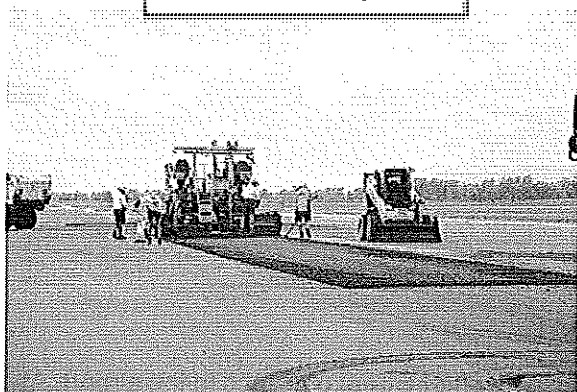
### 21. PHOTOS



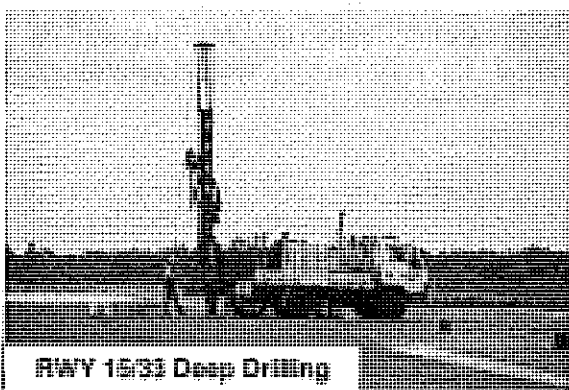
RWY 15/33 Repairs



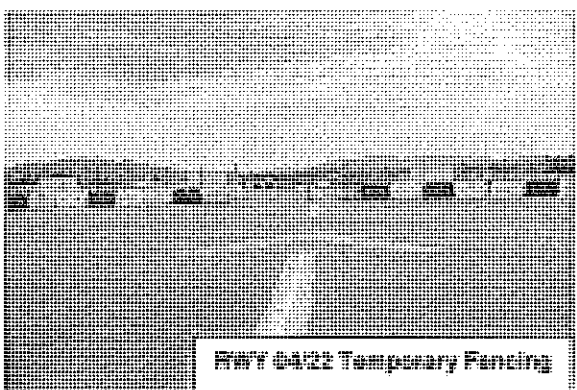
RWY 15/33 Repairs



TWY F Repairs



RWY 15/33 Deep Drilling



RWY 04/22 Temporary Fencing

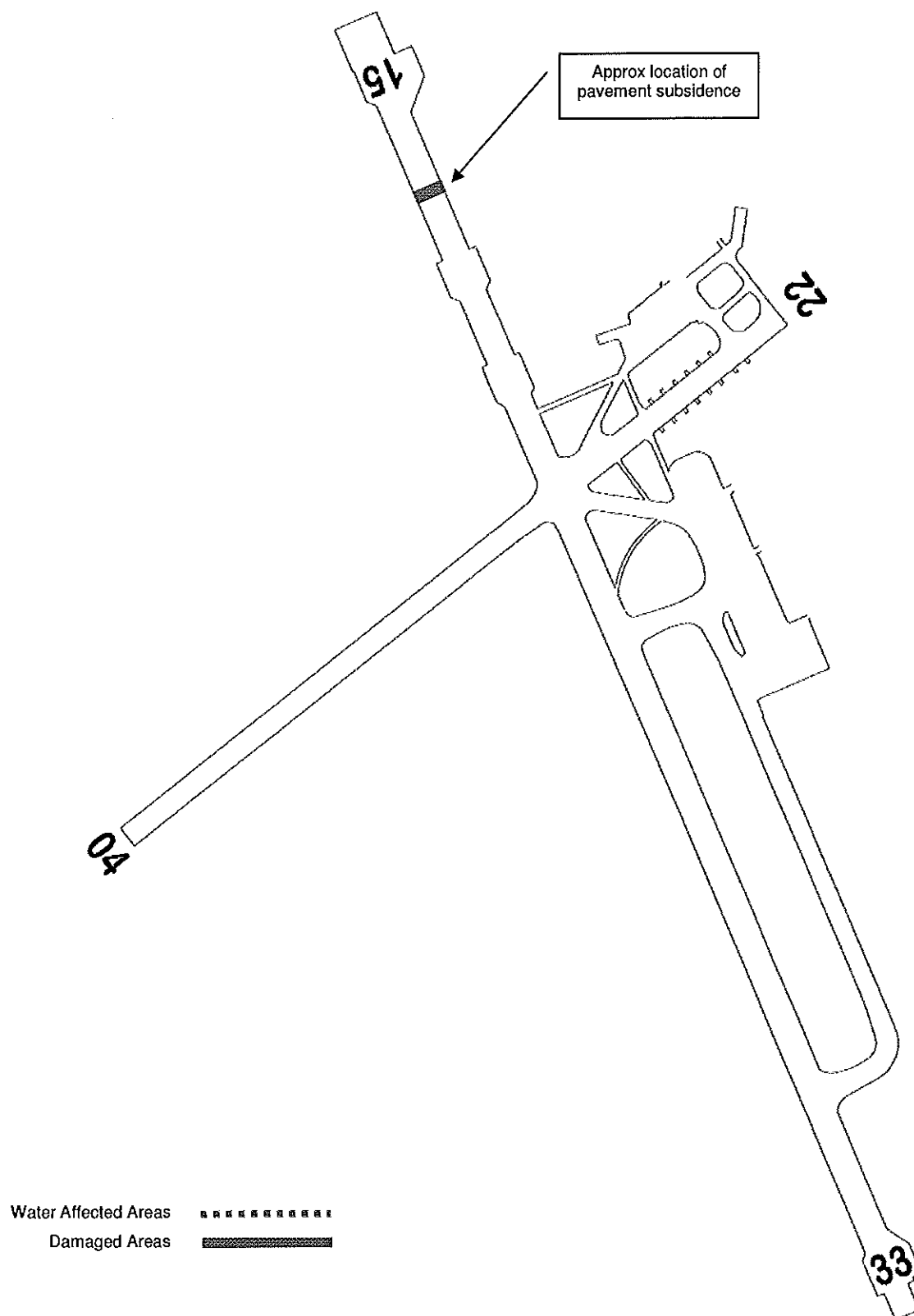


## Rockhampton Airport – Flood Situation Report

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### AIRPORT LAYOUT MAP

The following map shows the areas currently affected by the floods.



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## **ROCKHAMPTON AIRPORT FLOOD SITUATION REPORT**

Author: David Blackwell, Director Airports  
Date: Sunday 23 January 2011  
Edition: Recovery Phase #18

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### **AIRPORT OPERATIONS**

Monday 24 January will see normal daytime airport operations commence. Night operations are still planned to start on Wednesday evening (26 Jan).

With the return of fixed wing aircraft operations on 24 January 2011 and in particular the resumption of screened passenger services, normal airside safety and security procedures will return. To summarise:

- A valid ASIC must be displayed at all times when airside;
- Normal visitor pass requirements will apply;
- Airside driving will be restricted to the areas authorised for individual drivers;
- All access gates and doors must be closed and locked unless an ASIC holder is present to control access;
- Normal ATC clearance for Runway and Taxiway access will be required;

Note Runway 04/22 will be closed until further notice. ATC clearance will not be required for Runway 04/22 until it is returned to service.

### **PERSONNEL & INFRASTRUCTURE**

1. PERSONNEL:

None at this stage

2. AIRPORT PLANT & EQUIPMENT

None at this stage

3. SAFETY ISSUES:

A higher than usual level of snake activity is occurring around the airport precinct. Destruction of snakes or other protected wildlife, unless for self preservation is not allowed.

## **Rockhampton Airport – Flood Situation Report**

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**4. BRUCE HIGHWAY**

Open

**5. MOVEMENT AND MANOEUVRING AREA ISSUES:**

RUNWAYS: No issues

TAXIWAYS: No issues

APRONS: No issues

**6. SECURITY ISSUES:**

The pedestrian gate from Canoona Rd (P2) is awaiting a new electric strike as it was damaged by the flood. Discussions with Canoona Road based rental car operators have revealed that the repair of this gate is now an urgent matter.

**7. AIRSERVICES AUSTRALIA**

None at this stage

**8. REFUELLING ISSUES:**

None at this stage

**9. BUREAU OF METEOROLOGY**

None at this stage

**10. AIRLINE GROUND HANDLING ISSUES:**

None at this stage

**11. ELECTRICAL / DATA / IT ISSUES:**

Intersystems (ROK FIDS support service) has advised that our system is now receiving valid Qantas FILD data and that the Qantas flights for 24 January are now loaded into our system.

**12. WATER SUPPLY ISSUES:**

None at this stage

**13. WASTE & RECYCLING ISSUES:**

None at this stage

**14. SEWERAGE ISSUES:**

None at this stage

**15. STORM WATER ISSUES:**

None at this stage

**16. ROAD NETWORK ISSUES**

None at this stage

## **Rockhampton Airport – Flood Situation Report**

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### **17. EMERGENCY SERVICES MATTERS**

None at this stage

### **18. REGULATORY ISSUES**

None at this stage

### **19. MEDIA ISSUES**

A Council media event will be held at the airport on Monday morning to highlight the return to service.

### **20. CUSTOMER IMPACTS**

None at this stage

### **21. TERMINAL ISSUES**

The Right Hand Premium Long Term entry station is unserviceable; the Right Hand Short Term Entry and Left Hand Short Term Exit stations are also unserviceable. A representative from the paid parking vendor will be on site midday tomorrow. EziPark has been unable to connect to the paid parking system but their intercom system is functioning and they can raise boom gates. Everyone should expect a range of issues with the paid parking system tomorrow!

### **22. ANY OTHER ISSUES**

None at this stage



- 9. Any warning system in place or any information received or obtained concerning weather and flood forecasts or warnings, and the steps taken to disseminate that information to the community before, during and immediately after the 2010/2011 flood events.**

The LDMG undertook extensive public information and communication activities during the 2010/2011 flood events regarding weather and flood forecasts.

The nature and extent of these activities have been included in the response to Item 7 of this document and a copy of all media releases, webpage downloads and general communications were provided in hard copy and electronic format with the original response provided by Rockhampton Regional Council to the Request for Information received from the Queensland Flood Commission of Inquiry, dated 1 March 2011.

In regard to the source and receipt of weather and flood information on which the LDMG make its decision, we rely on the regular updates provided by BOM on their website for river flows and flood predictions and the LDMG would make a direct telephone call each morning during the LDMG meeting to BOM's hydrology unit to compare local river observations with BOM's forecasts and to ensure that the LDMG had the most up to date information available in order to make decisions.

The LDMG has a regular practice of teleconferencing with the BOM hydrologists during events so that all LDMG members have an opportunity to ask questions and get information first-hand from BOM regarding likely local weather and flood predictions.

We have always found this information to be extremely valuable and reliable in managing the impacts of extreme weather events.

- End of Response -



**10. In relation to item 9, an indication of the source/s, accuracy and timeliness of that information or effectiveness of the warning system for local purposes.**

The response to this particular item has been incorporated into the response provided to Item 9.

The LDMG relies heavily on the information provided by BOM and we found during this event that the information provided to us during our daily teleconference with BOM was extremely timely, accurate and valuable in undertaking our planning.

BOM Flood modelling for the Fitzroy River catchment has been found to be very accurate during recent flood events in our region.

- End of Response -

**11. Any local measures undertaken to protect life and private/public property in connection with the 2010/2011 flood events (such as road/bridge closures, evacuation arrangements, etc) and the steps taken to disseminate information about those measures to the community before, during and immediately after the 2010/2011 flood events.**

The response to this particular item has been predominantly addressed in the responses provided to Items 2, 7 and 8.

In addition, the LDMG issued media releases about local road closures which were updated daily and placed on Council's webpage and provided to the RACQ for input to their website.

Rockhampton Regional Council staff worked throughout the flood event placing 'Road Closed' and 'Water over Road' signage throughout the region as well as setting up temporary detours around inundated areas to ensure continual access where possible.

Council staffed worked with Qld Police to ensure road safety was not compromised and Qld Police undertook some surveillance and enforcement of areas subject to load limits and road closures to ensure compliance and public safety was maintained.

#### No Fly Zone

With regards to measures specifically taken to protect life, the LDMG secured a 'No Fly Zone' over Rockhampton which limited the air traffic in the skies above the City to emergency aircraft only. This measure was to reduce the possibility of an aircraft related accident due to many rural landowners and private individuals owning light planes and helicopters which through their uncontrolled operations could jeopardise the safety of others and impede emergency aircraft from fulfilling their responsibilities. This measure proved very effective.

#### Marine Craft Exclusion Zone

The LDMG also requested MSQ designate the Yeppen Floodplain as a marine craft exclusion zone in order to guard against private boat owners entering the flood waters and utilising small boats for ferrying of goods or passengers across an area of high speed floodwaters. In the 1991 flood event in Rockhampton, three (3) people in a small boat had drowned and the LDMG wished to ensure that the chances of a repeat of such an event were reduced.

The Qld Water Police patrolled the flood waters to ensure compliance with the boating restrictions that were in place. This measure also proved to be very effective.

- End of Response -

**12. The circumstances of any rescues or evacuations performed in the local area in connection with the 2010/11 flood events, including an assessment of the adequacy and timeliness thereof.**

The LDMG was not required to make any arrangements for urgent rescues or forced evacuations during the 2010/2011 flood event.

The LDMG did co-ordinate an exercise in the Depot Hill and Port Curtis areas with Council staff, Police and SES to assist people who were self-evacuating from their properties by providing assistance with transport and movement of personal items.

Approximately 500 people chose to self-evacuate during the 2010/2011 flood event with the majority of those people choosing to stay with friends, relatives or in commercial accommodation (hotels, motels).

- End of Response -

**13. The circumstances of the establishment and subsequent operation and performance of any Evacuation Centre/s in the local area, including an assessment of any particular difficulties encountered.**

The LDMG established an Evacuation Centre at Central Queensland (CQ) University on 31<sup>st</sup> December 2010 which could accommodate up to 600 people. There was further accommodation on-site in a dormitory area for a further 400 people if required. The Evacuation Centre closed on Friday 21<sup>st</sup> January 2011, after 3 weeks of operation.

The Evacuation Centre was set up and staffed by Red Cross with the Salvation Army providing catering. At its peak the Evacuation Centre accommodated 187 people.

The LDMG also arranged for housing of companion animals on an adjoining facility which, at its peak, catered for over 60 dogs, cats and birds. The LDMG arranged for the RSPCA to have a fulltime Officer to tend to the animals during their stay.

The issue of evacuees wanting to bring companion animals with them was highlighted early and the LDMG was able to plan to accommodate this desire which proved to be beneficial to many people who had a strong attachment to their pets and would have suffered further emotional distress had that not occurred.

The Salvation Army were able to utilise the catering facilities and commercial kitchens that were available at the South Rockhampton TAFE College, which due to the time of year, was vacant for the school holiday period. This was also extremely timely in regards to having facilities suitable to prepare three (3) meals a day for a large number of people.

Key learnings from the set up and operation of the Evacuation Centre revolved around the mental health and special needs issues associated with some of the centres occupants and how these issues can be appropriately handled in an Evacuation Centre environment, particularly when occupants may be there for extended periods.

Concerns about anti-social behaviour also resulted in the LDMG providing a permanent security presence with a Security Guard on-site and regular attendance at the facility by members of the QPS to provide assistance to the Red Cross volunteers when any anti-social issues arose.

The accommodation and food provided to occupants was of a high standard so much so that there were concerns that some occupants of the Centre may not wish to leave, particularly those who were displaced or in lower socio-economic groups, once the flood event was over.

Assistance and counselling from State Agencies and Community Groups was provided to occupants to address the above issues and ensure that every occupant of the Centre had access to appropriate support networks and suitable accommodation to go to once the Centre closed. This strategy proved successful and affective in integrating people back into the community.



**14. The circumstances of any flood related human fatality within the region, including the measures taken to prevent and/or respond to any such fatality, during the 2010/2011 flood events.**

There were no local fatalities during the 2010/2011 flood event.

- End of Response -

**15. Any involvement had with State or Federal agencies, including particularly the Queensland Police Service, in relation to the provision of emergency response measures, personnel, equipment, services or logistical support, together with an assessment of the adequacy and timeliness thereof, during the 2010/2011 flood events.**

The LDMG works closely with local Police as both a member of the LDMG and through our membership as part of the operations of the DDMG. QPS also has Liaison Officers within the LDCC to co-ordinate operations during an event.

Given that the Rockhampton LDMG has had multiple activations over the last 2 years with the 2008 floods, Hendra Virus in August 2009, Rockhampton Bushfires in October 2009, Shen Neng 1 Grounding on Great Barrier Reef in April 2010 and various tropical cyclone activations, a very good working relationship has been developed at the local level with all State, Not for Profit and Federal Agencies (specifically Centrelink and the ADF).

The local Police response to disaster events and specifically the 2010/2011 flood event, has been exceptional and is a great model to be adopted elsewhere. During the 2010/2011 flood event the DDC attended the LDMG meetings so that there was no need for duplication of information at the DDMG level and a greater focus could be dedicated to tactical response activities.

The only issues identified throughout the flood event relating to State or Federal Agencies were both in relation to Emergency Management Queensland (EMQ).

The first was hesitation from EMQ initially to deploy the flood barrier from Townsville and Brisbane for protection of the Rockhampton airport due to concerns about the high transport costs if there was any uncertainty about it being definitely needed. This was overcome after further discussion.

The second issue was in regards to the legislative responsibility placed upon LDMG's under the DM Act when responding to a disaster and the escalation process required to request assistance from the District and then State once resources are fully exhausted at each respective level.

The LDMG had set up a food resupply process from 31<sup>st</sup> December 2010 and had set up regular contact with all major local grocery and fuel providers to monitor stock levels and ensure adequate local supplies. The LDMG was then made aware via the media that EMQ in Brisbane had reached an agreement with the National Retailers group to undertake food resupply arrangements using a Hercules C130 which was flying food from Brisbane to Mackay and then transporting by road from Mackay to Rockhampton. Neither the LDMG nor Rockhampton DDMG were made aware of this arrangement and local retailers had indicated little benefit was to be gained by such an exercise given their stock levels at the time.

This arrangement was put in place without any 'Request for Assistance' being supplied by either the LDMG or the DDMG as required under the Act. Local EMQ also had no knowledge of this arrangement.

- End of Response -

**16. The nature and timing of any communications within the disaster management hierarchy, including particularly any communications had with the District Disaster Co-ordinator (DDC), the State Disaster Co-ordinator or the State Recovery Co-ordinator, and whether any direction/s were given by the DDC and the nature of any such direction/s.**

All formal communications between the LDMG and DDMG, which are generally in the form of Situation Reports or Requests for Assistance, have been provided as part of Rockhampton Regional Council's response to the initial Requirement to Provide Information received from the Queensland Flood Commission of Inquiry, dated 1 March 2011.

The only directions provided by the DDC during the 2010/2011 flood event were in regards to timing and changing of formats for Situation Reports, which was a direction from the SDC.

In regards to other communications, the LDC started to receive telephone calls on a daily basis direct from the SDMG wanting to know information about how many people were accommodated in the Evacuation Centre overnight. This information was supplied in twice daily Situation Reports provided by the LDMG to the DDMG and then to the SDMG, however it appeared that telephone calls were being made rather than reading the reports provided.

- End of Response -

**17. An assessment of the adequacy of equipment and communications systems in the local area during the 2010/2011 flood events.**

There were no general impacts on equipment and communication systems in the Rockhampton Regional Council area during the 2010/2011 flood event.

- End of Response -



**18. An assessment of the adequacy of the community's response in the local area during the 2010/11 flood events.**

The Rockhampton local community is relatively resilient in regards to dealing with flooding from the Fitzroy River. Many of the low-lying areas in the region are occupied by long term residents who have a very good local knowledge of the impacts of flooding in their area and an awareness of the preparations that they have to take to ensure that any flood waters have minimal impact on their property.

This also means that in some quarters there is a level of complacency or stubbornness, particularly amongst elderly long time residents who have lived through floods before but do not appreciate that their ability to act quickly has diminished over time and that an event bigger event could be possible than those they have previously experienced. Getting these people to consider evacuation is a challenge.

The fact that the last big flood in Rockhampton occurred 20 years ago in 1991 and that since this time, all response agencies now operate under greater controls and restraints in regards to insurance and risk management, workplace health and safety and changes to legislative responsibilities and liabilities, means that the activities undertaken in 1991 are not necessarily acceptable, given the above requirements, in 2010/2011.

The general community does not have an appreciation of the changes or necessarily accept the reasons for the changes that have taken place over time. The community expectations of actions taken by various levels of government and government departments, community and not-for-profit groups and volunteer organisations such as the SES were compared to their 1991 experiences.

Given the reduced level of regulation and risk management in 1991, responses in 2010/2011 were more managed and controlled which was perceived by some parts of the community to be less responsive and less helpful. As the risk of litigation for actions taken during a disaster event is seen to increase in the future there is no doubt that certain groups within the community will also become more negative to the level of response provided.

- End of Response -

**19. Any measures being proposed, planned or implemented to prepare for, mitigate or manage future events (such as the installation of automatic river gauges, culvert management, levee construction and the like).**

# MINUTES

## ROCKHAMPTON REGIONAL COUNCIL

Local Disaster Management Group

2010/2011 Flooding

Thursday 27 January 2011  
Council Chambers City Hall  
Bolsover Street  
Rockhampton  
8am

### Chairperson

Cr Brad Carter

Mayor – Rockhampton Regional Council

### Deputy Chairperson

Cr Rose Swadling

Deputy Mayor – Rockhampton Regional Council

### Local Disaster Coordinator

Gavin Steele

General Manager Infrastructure and Planning –  
Rockhampton Regional Council

### Attendees:

Evan Pardon- RRC  
Jenny Smith – Red Cross  
Mel Adams – QPS  
Ray Bohlsen – QFRS  
Paul Floian – QLD Health  
Ken Crane – DOC  
Bernadette Loughnane – QLD Health  
Bob Holmes – RRC  
Councillor Bill Ludwig – RRC  
Cheryl Haughton – RRC  
Andrew Bicknell – RRC  
Patrick Downing – EMQ  
Rob Ferguson – EMQ  
Iain Lobegeier – RRC  
Peter McGuigan – The Salvation Army  
Martin Crow – RRC  
Renee Green – RRC  
Tony Cullen – RRC  
Councillor Cherie Rutherford - RRC

Meeting Opened 8.07am

	ACTION OFFICER
1. OPENING OF MEETING	
2. DEBRIEF	
1. Did you feel that your agency plans were adequate to deal with this event? <i>Things to consider were whether you had adequate</i>	

*resources/staff available to handle the vent, were people readily contactable and able to assist, were you quickly able to marshal resources and have rosters and communications up and Operational? Are there any improvements to make?*

### **QLD Health**

Queensland Health believes that their plans were adequate to deal with the flood event as they were not that over burdened on there services and they will have their own agency debrief.

Queensland Health think it is important that a least one representative from Queensland Health be present at the LDMG meetings and that the minutes from the LDMG meetings be sent to a centralised area of Queensland Health as soon as possible so that they can be distributed through out their departments.

### **QRFS**

That they started planning for this event the same time as the first LDMG meeting was set up and based on information from that received at that meeting.

They thought that the whole process went fairly smoothly for the duration of the event.

The QRFS said that the Salvation Army, SES and the Rural Fire Barrages were really useful through out this event.

They also didn't have any issues with their resources.

### **QPS**

They didn't have any staffing issues as they were lucky to have had staff from the South East up in Rockhampton before the event in South East. They found it very beneficial to have had their own flight centre set up to transfer staff to other locations and to bring them in to Rockhampton. They found that towards the end of the event that they had too many staff available

### **Red Cross**

Before the event happened the red cross had did some pre season training and state wide exercise, but due to the number of multiple problems, their pre season roster was of no use. They also had about 70 personal from all over Australia to help with the event.

The red cross is still to have their debrief regarding the flood event with the members of the Evacuation Centre

Would like to thank to Tony and Sam from Rockhampton Regional Council Media department for the photographs that they took of

the Evacuation Centre as these photographs will be a great help when they have their debrief of the events.

Issues with the Emery System, that there was a discrepancy between the head count at the evacuation centre and the people being registered on the system.

For the media events they tried to promote a positive message and that they thought that having the Mayor in the media was very important.

Through that the 8am meeting was a problem because they could not get personal prepared for the day head because they didn't have the up to date information that they needed.

### **SES**

As this is a new unit they didn't have much planning in place before the event and had some trouble with fatigue manage due to shortage or volunteers being unavailable. Next time will look at recruiting replacement staff/volunteers three days before

But over all everything worked well on the ground, all though some areas did become problems with not enough flood boats available and had to get extra resources from the North.

### **EMQ**

Had a lot of planning with staff and that they had a good amount of staff available during the event.

### **Department of Communities**

That they had a large area to look after and ha to look after many different events that happening in the area.

It is important to have regular meetings with the LDMG to keep up to date with all the information needed to make informed decisions.

There were about 50 staff operating centres around the area, we also had some staff that were stranded on the other side of the Yeppen crossing. Next time there is an event could possible go straight to outreach programs for the people who would be affected.

### **RRC**

**Tony**

All the agencies worked quite well together and was good to have only one spokes person for the LDMG as it meant that the one message was getting to the public.

Asked if the other agencies media personal could get involved with the Rockhampton Regional Council media team next time.

Would like to thank his team for coming back from their holidays to help out through out this event.

Think that the LDMG meeting should stick to morning meetings and not afternoon meeting as the media have deadlines to make.

Was good to have the one number to call the 1300 652 659.

### **Gavin**

That this event was the best media exercise to have occurred at this point, was disappointed with ABC media this time as their reporting was quite poor with the accuracy of information.

### **Mayor**

That most of the active decisions regarding disasters are made at the LDMG level and not at the DDMG and are the people sitting on the DDMG sitting at the right level.

If there are to be any people from other district from agencies that are Member of the LDMG, please inform the other members of the LDMG.

### **Salvation Army**

That the leadership that has been shown has be outstanding and the media have been really out standing too.

We were ready for this event with 40 training Salvation Army volunteers training for disaster with food handling, food preparation and how to handle people. There were also substitute volunteers from Brisbane too.

Didn't have any problems with catering for 200 people but would have logistic problems with catering for over 200 to 1000 people. Would have been very different if we did have to cater for up to a 1000 people, if that, felt that if that scenario had happened that the Armed Forces would have been far better able to cope with that amount of people.

There will soon be logistic problem with the amount of donations

that were donated for the flood victims and how to redistribute the donations.

There will be debrief next Monday to talk about these issues and felt that cash donations would have been better.

### **St Vincent Paul's**

They have not be involved at this level before the mainly deal with the clod face of bedding and clothes and the wellbeing centre.

Personal observation was there was a double up on services that the St Vincent De Paul already supplies.

Where do we sit when there is a disaster, not sure if we should sit here or not?

### **Airwing**

This event was consistent with other events they have been involved with.

The Guardian Program was of great assistants to them. Would like the Guardian program to be able to close off tasks that are completed.

The closing of Rockhampton air space to all aircraft was a very good decision and was a key issue.

The Rockhampton event was a good exercise and was happy with what happened.

### **Ergon**

Were fine with their resources and applied to get resources on the ground early. They had to deal with the flooding all over Queensland.

This was the first time that they had to man the call centre and they will need to develop that more.

The minutes from the LDMG meeting was important and the sooner they received that minutes the better so that they could be distributed.

Struggled with the information that was given out and what data needed to be moved and how it needed to be moved. The flood mapping was a really help with the recovery efforts.

There is now modelling going on with what critical infrastructure



and areas that contain high voltage would be affected at a height of ten metres.

Would like to thank Tony and his team for their effort through out this event.

Would also like to thank all the agencies for their assistance during this event.

The need for more local focus.

The first time that they have had to work closely with Q Build and it was a good innovation and also was the first time they have had to work in the Recovery Centre. They had at least 20-30 people a day coming up to them for face to face discussions at the Evacuation Centre.

### **The Salvation Army**

how can they contribute to the other agencies reports and taking back of key decisions

### **DOC**

The activation of the LDMG early on was very good and the advisory member were really important in the decision making process.

Had some staff in other flood effected area around Queensland.

The flood mapping done by the Rockhampton Regional Council was really good and that a copy of the flood map was given to the Recovery Centre

The meeting times were good time for them, but two hours meetings were a bit long time.

That some discussion would have been more relevant for the Council and Councillors.

Ergon being at the recovery centre was really good.

**2. Was the information at the LDMG relevant and timely?**  
*Did you feel adequately informed of the key issues and the course of action proposed? What improvements would you suggest?*

### **QRFS**

They said that the information that they received was very

beneficial and they were very happy with the positive information they received daily.

### **QPS**

The LDMG worked really well due to the fact that all the relevant people were present for the LDMG meetings. Some of the LDMG meetings were a bit too lengthy at times and was hard to get information out to people on the ground that day; this could have been solved by an earlier start time.

Some of the strategic issues were missed for example the running of the SES flood boats after dark, as this was against regulations and put the SES team at great risk, but weren't made aware of this until after the event had occurred. The QPS is seeking legal information on this issue as it could have legal ramifications. Will need to take in consideration these strategic issues next time there is a disaster.

### **SES**

The information was given in a timely manner and the information captured from other agencies was good, it allowed us to bring in extra resources and resource our tasks better.

The earlier that we get the information from other agencies the better, so that we can organise what resources we will need to the day.

### **EMQ**

The flow of information was very good to keep the community well informed and that there were good decisions that could be had out of the information supplied other agencies.

The mapping of where the flood waters could possibly get it was an issue and work should continue on that. Look at better trigger points for closing certain infrastructure with the other agencies

More robust discussion on the bigger scope of the different area that we look at

Would like to see more work done with the outer laying shop owners when it comes how to re-supplying their shops.

### **RRC - Gavin**

The flood barriers surrounding the airport work very well and saved the terminal from being inundated. Next time would like if the barriers could be here sooner because it takes about 2 days to

set up.

### **Department of Communities**

The meeting times didn't have much effect on their agency as they had their own debrief in the afternoons. The information from these meetings was a great help when making their own decisions and that there was a single point of truth of the information being related.

That the leadership that the Mayor showed was fantastic and was so important to the community.

Would like to say that everyone did an excellent job throughout this event.

**3. Did you feel that information was readily supplied and easily understood by all that attended LDMG meetings or was it industry/agency specific?**

*Was jargon or acronyms used that made understanding of information difficult? As an agency rep did you feel comfortable to brief the other members of the LDMG on your agency's activities?*

### **QPS**

The decisions that were decided on at the LDMG meetings were getting lost/misinterpreted by some members working on the ground.

That when new ground teams arrived to take over, the same debrief had to occur time and again.

### **SES**

Thought that the information that was supplied was free flowing, which they took back to debrief their IMT team to give them better understanding of what was happening up here during the event.

**4. Are there other agencies that you believe should be included in the LDMG?**

### **QRFS**

Don't think that there is a need to have any other agencies members other than the current member to be on the LDMG Committee.

### **Red Cross**

Think that it may be beneficial to invite a respected local indigenous community member to be an advisory member of the LDMG meeting

### **SES**

That there was ready a good core membership and didn't think another agencies needed to be included.

### **Salvos**

Thought that DERM and Education QLD could be advisory members.

**5. How did the operation of the LDMG for this event compare to any previous experiences you may have had with prior events?**

*What learning or improvements would you suggest?*

### **QRFS**

Said that they were going to learn from this event and that they thought everything went very smoothly for the entire time the event was happening.

### **QPS**

Asked about the retention of information gathered regarding the Guardian system, will need to talk to the operators of the Guardian system to see if that is possible

### **Red Cross**

Asked if there will be a debrief of all the sub groups.

Have issues with the volume of donations that were donated and what to do with all of them and with the accuracy of information and the timing of the information.

### **SES**

The last even has about twenty years ago and very few of the core group has around now so they don't have much experience with this event as they are a new unit.

This latest event will be something that will happen again and the SES thinks with more desks top training will really improve their operation.

They also think that an exercise scenario would also be beneficial.

**6. Do you have any general comments or suggestions about the way the LDMG operates that you believe would assist in managing future events?**

**QRFS**

Have no general comment regarding the way the LDMG operates except to thank all the Rockhampton Regional Council staff that assisted with the event.

**QPS**

Expressed how they felt the timing of decisions was really good and people weren't afraid to make those decisions. That all information was shared between the agencies so they all could make informed decisions.

**Red Cross**

Thought that it might help if other people that aren't already advisory members be invited, so that the LDMG got take advantage of for expertises.

If a chart or something could be developed regarding the chain of command so that new or current advisory/Member could refer to.

**SES**

Would like to thank for all the support from the Rockhampton Regional Council and all the agencies involved with this event.

That the process that were in place run quite well, and the Guardian System work well to manage their tasks and improved how they dealt with those task even know it was quite new to the SES staff.

**RRC**

That fatigue management was a really big issue for this event and will need to be looked at prior to the next major event.

**Recovery**

**RRC**

There will be a debrief with councillors regarding the event and the issues that were identified during the event.

The recovery is almost complete, next time the recovery plan may need to be look at the amount of support given as there was a lot of dependencies on the Recovery Centre for helping with the clean up, high expectations of the Recovery Centre and its level of services.

There will be a more debrief at the Recovery Centre Committee meeting

Was the Recovery Centre set up in time? Yes it was believed that the Recovery Centre was set up in time, as there were only 5 people on the first day the Recovery Centre was opened.

The QPS to revise the number of people that can actually house in the Evacuation Centre and what equipment that will be needed, as they couldn't house 1200 people in the current Evacuation Centre.

It was lucky that this event happened in the Christmas period when no students were at the TAFE or CQU.

There are three other possible locations for the Evacuation Centre one being the Show Grounds.

There may need to a revision of the membership of the LDMG, as there are same three or four core members, possible could have a bigger range of members for the LDMG.

The value of only have four core members is that they have knowledge of disaster management and that any one can be advisory members of the LDMG.

That there should be a quorum of members for decision that are being made.

It was good to have many of the members of the LDMG as local residents on the area.

That they recovery planning should have commenced much sooner.

**Bob**

Thanks to all that support that was given to the Waste department during this event especial to Ergon who help keeping critical waste infrastructure going.

That the value of the information that BOM supplied was great for decision making and would it be beneficial to have BOM on the line for LDMG meetings.

**Councillor Rutherford**

Does this committee intent to ask the residents on how this event has affected them, how it was handled and how they think it could have been better handled. This is to be brought up at the Councillor debrief

One of the key issues was that the rural residents weren't getting the information they required regarding up to date information, accurate information and road closure as the information on the Main Roads, RACQ and Council website differed

For the Chairperson of the LDMG to send out a thank you letters to everyone that help out during this event.

**Renee**

There will be a media release in Saturdays 29 January 2011 to thank everyone for their support with this event.

**Tom**

There will be a BBQ for all SES, QFRS and QPS staff that help during the event, which will be held at the Shearing Shed at the Heritage Village on Saturday starting a 5pm and finishing at around 7.30 – 8pm.

For reply please quote: *TF/11/3868 – DOC/11/12441*

Department of the  
**Premier and Cabinet**

**24 JAN 2011**

The Honourable Justice Catherine E Holmes  
Commissioner  
Inquiry into the Queensland 2010–11 Floods  
Brisbane Supreme Court  
PO Box 15167  
CITY EAST QLD 4002

I refer to the Commission of Inquiry established to examine matters related to Queensland flood disaster.

As you are aware, the Commission's Terms of Reference include, among other matters:

- the implementation of the systems operation plans for dams across the state and in particular the Wivenhoe and Somerset release strategy and an assessment of compliance with, and the suitability of the operational procedures relating to flood mitigation and dam safety; and
- all aspects of land use planning through local and regional planning systems to minimise infrastructure and property impacts from floods.

Without limiting the information which will be provided to the Commission at a later stage as it specifies its requirements, I take this opportunity to immediately refer three resources to the Commission for its consideration. These documents include:

- The *Rockhampton Flood Management Study* undertaken by Camp Scott Furphy Pty Ltd and completed in 1992;
- A report by the then SEQ Water titled *Provision of Contingency Storage in Wivenhoe and Somerset Dams* prepared in March 2007 for the Queensland Water Commission and Department of Natural Resources and Water; and
- Seqwater's *Manual of operational procedures for flood mitigation at Wivenhoe Dam and Somerset Dam* ("Flood Mitigation Manual") in its complete form and last reviewed in 2009.



In relation to the final document, *Seqwater's Flood Mitigation Manual*, on Thursday 20 January 2011, the Minister for Natural Resources Mines and Energy and Minister for Trade released a version of the document which was redacted to remove information which Seqwater considered could be of concern in relation to the security of critical infrastructure. The Minister has publicly acknowledged that it would be a matter for your Commission to consider to its own satisfaction whether the full release of the Manual is appropriate during the course of its proceedings. Accordingly, please note that the Manual has been attached here in its complete form.

I recognise that the Commission will have significant information requirements and Queensland government agencies will be responsive in responding comprehensively to the Commission's needs during the Inquiry.

Please do not hesitate to contact my office on telephone (07) 3224 4728 should you require any further information.

Yours sincerely



Ken Smith  
**Director-General**

# **WATER RESOURCES COMMISSION**



## **ROCKHAMPTON FLOOD MANAGEMENT STUDY**

### **PHASE 2 REPORT**

#### **VOLUME 1 EXECUTIVE SUMMARY**

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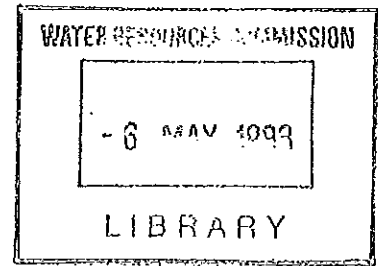
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**NOVEMBER 1992**

**CMPS&F.  
Rockhampton Flood Management Study  
:Phase 2 report.**

**7190 WRC 43565870 Vol.1**

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**WATER RESOURCES COMMISSION**

**ROCKHAMPTON FLOOD MANAGEMENT STUDY**

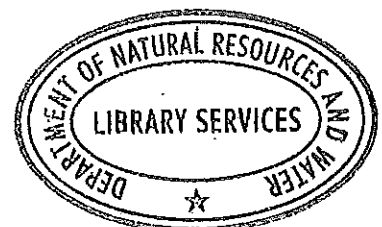
**PHASE 2 REPORT**

**VOLUME 1  
EXECUTIVE SUMMARY**



**CAMP SCOTT FURPHY PTY LTD  
ACN 004 939 548**

**NOVEMBER 1992**



# ROCKHAMPTON FLOOD MANAGEMENT STUDY

## PREFACE

The Rockhampton Flood Management Study was an outcome of the January 1991 flooding at Rockhampton. This flood caused major economic and social problems in the Rockhampton area. Homes and businesses were flooded and the city was isolated from the rest of Queensland for 12 days. Communities right along the Queensland coast were affected by this severing of the coastal road and rail links.

The three levels of Government – local, state and federal – then agreed that a study was needed to allow better management of the Fitzroy River flooding at Rockhampton. The Water Resources Commission then arranged for this study and a Steering Committee, comprising the main authorities concerned with the flooded areas near Rockhampton, was formed. This Steering Committee, which provided direction during the study, consisted of representatives from the following bodies:

QDPI – Water Resources Commission  
Rockhampton City Council  
Livingstone Shire Council  
Fitzroy Shire Council  
Department of Transport  
Queensland Railways  
Commonwealth Department of Primary Industries and Energy

Consultant – Camp Scott Furphy Pty Ltd – was engaged to carry out this study.


The consultant considered recent Fitzroy River flow records, along with the historical flood levels since 1859, to assess the likely frequency of different flood levels at Rockhampton. The economic losses of the 1991 flood were assessed. These two aspects in combination then allowed assessment of the likely annual damages from flooding at Rockhampton. The effects of the existing major works in the flooded area were reviewed, while the social and environmental impacts of flooding were also considered.

From a whole range of possible flood mitigation options, the consultant has recommended a number of both structural and non-structural measures to best reduce the impacts of flooding at Rockhampton. The structural measures recommended are those with the highest benefit to cost advantage, whilst having acceptable hydraulic impacts. The non-structural measures recommended are those areas which need improving, based on the experiences gained from the 1991 flood.

The consultant regularly referred their findings back to the Steering Committee during the course of the study. They have also held public meetings and displays to allow input from the general public and to keep them informed. This report is the final outcome of the consultants extensive studies and its findings are endorsed by the Steering Committee. This study now allows a better understanding of the mechanisms and likely occurrence of flooding at Rockhampton, the damages flooding causes and recommends ways to better manage this flooding.

Nevertheless, the release of this study report does not imply any immediate commitment by the various authorities to carry out the recommended measures. These bodies each have ongoing work commitments, responsibilities and financial constraints which may restrict what action they take here. A statement by the Department of Transport on how they determine priorities for road works is contained in the main report.

Each authority will, no doubt, give due consideration to the study's detailed findings and recommendations in their planning and control of future works in these flood affected areas. Readers of this report should be aware, though, that it is still up to each authority to determine what measures it takes to reduce these flooding problems and for the timing of these measures.



M B McKenna  
Regional Manager  
Water Resources Commission  
ROCKHAMPTON

&

Chairman  
Rockhampton Flood Management Study  
Steering Committee

# **ROCKHAMPTON FLOOD MANAGEMENT STUDY**

## **PHASE 2 REPORT**

**VOLUME 1      EXECUTIVE SUMMARY**

**VOLUME 2      REPORT**

**VOLUME 3      APPENDICES**

# **ROCKHAMPTON FLOOD MANAGEMENT STUDY**

## **PHASE 2**

### **EXECUTIVE SUMMARY**

#### **INTRODUCTION**

Rockhampton, the largest urban centre in Central Queensland, is built adjacent to the Fitzroy River. The Fitzroy River basin is one of the largest on the east coast of Australia, with a catchment area above Rockhampton of about 140,000 km<sup>2</sup>.

The Fitzroy River at Rockhampton and adjacent areas and townships have been subjected to flooding on many occasions as a result of heavy rainfalls in the Fitzroy River basin. The worst flood since records commenced in 1859 was in 1918, when the river level at Rockhampton reached 10.11 m on the City flood gauge (8.65 m AHD). The second highest peak was 9.4 m gauge height (7.95 m AHD) in 1954. Rockhampton again suffered major flooding in January 1991 due to heavy rainfalls associated with Cyclone Joy. The peak flood level on this occasion reached 9.30 m gauge height (7.85 m AHD), but due to changes in the floodplain characteristics in recent years this level cannot be compared directly with that of previous major floods. In river discharge terms, both the 1991 and 1954 floods had peak flows of about 15,000 m<sup>3</sup>/s at Yaamba compared to about 18,000 m<sup>3</sup>/s in 1918.

Major flood flows cause flooding from Yaamba to downstream of Rockhampton including significant flooding of the lower lying parts of Rockhampton. A major flood breakout occurs upstream of Rockhampton at Pink Lily which results in significant flow in the floodplain which flows to the south of the city. These floodplain flows can result in the closure of Rockhampton Airport, the Bruce and Capricorn Highways and the North Coast Railway. Also the Bruce Highway and the North Coast Railway can be cut by floodwaters at the Alligator Creek crossing near Yaamba, some 30 km north of Rockhampton. In the 1991 flood, all of these links were cut for about two weeks, effectively isolating Rockhampton for this period.

This disruption to all major traffic routes in and out of Rockhampton results in large indirect flood losses not only in Rockhampton but throughout the Queensland Coast. Significant direct flood damages resulted in the 1991 flood from about 160 properties being inundated above floor level, with a further 1200 properties being flooded to below floor level.

This Study was commissioned, following the 1991 flood, to consider all aspects of current flood management and options for future flood management in order to make recommendations aimed at reducing the impact, both tangible and intangible, of future floods.

The Study has been funded under the Federal Water Resources Assistance Program (FWRAP) and the study reports have been prepared to facilitate application for further FWRAP funding for the recommended works.



The Phase 1 Report, released in April 1992 comprised:

- Study of Fitzroy River flood characteristics;
- Flood damage assessment;
- Appraisal of options for flood management;
- Recommendations in regard to future flood management;
- Community consultation.

The current report on Phase 2 comprises detailed investigation of those options identified in Phase 1 as having sufficient merit to warrant more detailed study.

A brief summary of the studies carried out, the recommendations of non-structural flood management measures which can be implemented immediately, and structural flood mitigation works are given in this Executive Summary.

The recommended measures provide the opportunity for substantial reduction in the economic and social costs of flooding in Rockhampton. The recommended works are capable of providing these improvements with minimal adverse impact.

It is anticipated that, providing the works recommended herein secure community support, application for funding of the structural works may be made under the Federal Water Resources Assistance Program (FWRAP). It is the responsibility of the Local Authorities to make such application for funding, in the first instance to the Water Resources Commission. Applications close on 15 December each year and if supported by both State and Federal Government may be included in the budget for commencement of the following year. It should be noted that such applications are assessed on their merits, cost-effectiveness and priority relative to other State projects.

## **COMMUNITY CONSULTATION**

Public displays to summarise the findings and recommendations of the Phase 1 Report were prepared in late April 1992 and the reports were made available in local libraries. Three public meetings were held in early May 1992 to explain the findings of Phase 1 and to elicit feedback from the community. These meetings were attended by a total of 53 residents whose response was generally positive. Two written submissions were subsequently received in regard to proposed flood mitigation works.

There was general support for the proposed non-structural measures, namely upgrading of the flood warning system, the installation of flood markers, provision of a recorded telephone service, flood preparedness leaflets/telephone directory entries.

There was general agreement that further consideration to upgrading the flood immunity of the Yeppen Crossing was warranted.

There was concern expressed in regard to levees, particularly property resumption impacts and flood level impact upstream. The positive effect on property values within the protected area and the potential for development of land currently liable to flooding were recognised.

Fairybower/Gracemere residents were vocal in their adverse reaction against levees both around Port Curtis/Depot Hill and the airport. Their view was that they had been disadvantaged by previous works eg. the Fitzroy River Barrage and Yeppen crossing and did not want to be further disadvantaged. Furthermore they are against contributing (by way of rates/charges) to any works which will disadvantage them.

## **HYDRAULIC MODEL STUDIES**

### **Model Calibration and Validation**

A major component of the Phase 2 Study was the hydraulic model study. This comprised setting up of the computer model MIKE II to simulate floods in the Fitzroy River from Yaamba to the ocean together with the associated floodplain in the Rockhampton area. The model was calibrated using the 1991 and 1988 floods, the only floods which are representative of current conditions. Agreement between observed flood levels for these events and those estimated from the model were generally within  $\pm 0.2$  m and within  $\pm 0.15$  m at key locations. This degree of agreement is regarded as being satisfactory considering the known limitations of some of the topographic information utilised in the model, and the difficulty of accurately recording flood levels under very bad conditions.

It was concluded that the fitted model adequately represented floods of 9,400 m<sup>3</sup>/s (1988) and 14,200 m<sup>3</sup>/s (1991) representing annual exceedance probabilities (AEP's) of 8.5% and 2% respectively. Floodplain flows in the 1988 flood were within 14% of measured flows, and bridge flows at Yeppen for the 1991 flood were in very close agreement with those estimated from measured levels and velocities.

The model was then run, without further amendment to its parameters, with the recorded flood hydrographs for 1983, 1978, 1954 and 1918, in order to validate the model, satisfactory model performance for these events indicating the robustness of the model over a range of floods. The only modification made to the model for these validation runs was the removal of the Fitzroy River barrage in the runs for pre-barrage conditions (1954 and 1918). The model represented existing conditions in all other aspects. At the Rockhampton flood gauge, differences between observed and modelled flood levels for these events were in the range of +0.06 m and -0.21 m, whilst at Yaamba, flood levels were overestimated by up to 0.28 m and 0.23 m for the 1954 and 1918 floods but underestimated by up to 0.6 m from the 1983 flood. These discrepancies are believed to relate to changes in cross section which are known to have occurred over the period of record. As the model has been set up to represent current conditions in the river and the floodplain as closely as possible, it could not be expected to reproduce levels in conditions different from those presently existing. It was concluded that, subject to the limitations outlined above, the model performed satisfactorily over a wide range of floods.

Following from the above, it was concluded the model could be utilised with acceptable confidence in the estimation of flood levels for a range of design floods for current conditions, and for consideration of the effectiveness and impact of a range of flood mitigation options.

## Design Floods

Following completion of the calibration/validation stage, the hydraulic model was used to simulate water levels resulting from a range of design floods from 5% AEP (20 year ARI) to 0.1% AEP (1,000 year ARI).

The peak flow at Yaamba together with the resulting distribution of flows between the river and the floodplain are given in Table A.

**TABLE A**  
**Summary of Peak Discharges in Design Runs**

Flow Path	Location	Peak Discharge (m <sup>3</sup> /s) for AEP of					
		5%	2%	1%	0.5%	0.2%	0.1%
Fitzroy River	Yaamba	11,500	14,200	16,400	19,000	22,500	24,000
	Barrage	9,150	10,250	11,100	12,100	13,400	14,000
Floodplain	Breakout at Pink Lily	2,435	4,130	5,600	7,400	9,810	10,850
	Yeppen Crossing						
	– bridge flow	2,100	2,500	2,650	2,670	2,675	2,680
	– overflow	200	1,410	2,600	4,420	6,920	7,920
	– total	2,300	3,910	5,250	7,090	9,595	10,600
Note: the difference between flow at the Barrage and breakout flow at Pink Lily is return flow via Lion Creek.							

Comparison of this distribution of flows between the river and the floodplain with those from the previous model studies (Table 13-1 of the Phase 1 Report) shows these to be consistent with the two physical models but with substantially greater floodplain flow than the 1987 mathematical model.

Table B summarises the peak flood levels at key locations in the river and the floodplain for the range of flows considered. Levels for floods more extreme than 1% AEP should be regarded as tentative as they may exceed the levels of topographic information.

**TABLE B****Summary of Peak Flood Levels for Design Runs**

Location	Peak Flood Levels (m AHD) for AEP of					
	5%	2%	1%	0.5%	0.2%	0.1%
Yaamba	17.11	17.93	18.52	19.14	19.88	20.18
Barrage	8.93	9.49	9.91	10.35	10.90	11.13
City Flood Gauge	7.37	7.84	8.21	8.59	9.04	9.23
u/s Yeppen Crossing	8.06	8.64	9.00	9.32	9.67	9.83
Airport (Terminal)	8.64	9.61	10.15	10.64	11.20	11.43
Note: Levels for floods of AEP < 1% are tentative.						

The flood levels obtained from the design runs were utilised to produce flood maps for existing conditions as outlined in a subsequent paragraph.

The model was then modified to simulate the resulting flood levels with a wide range of flood mitigation options, as outlined below.

**FLOOD MITIGATION OPTIONS**

The report describes a wide range of flood mitigation options in detail together with their impact on flood levels. The range of flood mitigation options considered was:

- levee construction: Port Curtis – Depot Hill – Lower CBD and Depot Hill – Lower CBD only;
- levee construction: airport including the effect of the proposed runway extension;
- levee construction: Splitters Creek;
- improving flood immunity of the Yeppen Crossing, together with lessening the impact on upstream flood levels;
- reduction in floodplain flows by raising breakout control levels in the Pink Lily area;
- construction of a major floodway to the south of the city, either in whole or in part;
- impact of Commonage Landfill;
- lowering the elevated section of the Capricorn Highway.

These options were considered firstly on an individual basis, and then in various combinations. A summary of the cost, benefit cost ratios where appropriate, and flood level impacts of the various schemes are given in the accompanying Figures.

Only the first four options given above were beneficial in substantially reducing flood damages and/or levels. A summary of the recommended options is given in a subsequent paragraph.

The cost of the various flood mitigation options should be compared with the 'do nothing' cost which has been estimated (see Phase 1 Report) to be \$5.2 million per annum. This is the long term damage cost averaged over the range of flood probabilities.

The bulk of the flood damages in Rockhampton result from flows in the Pink Lily-Yeppen-Gavial Creek Floodway, with only the lower part of Quay Street and relatively minor flooding on the north bank of the river resulting directly from river levels exceeding bankfull in the immediate vicinity. This suggests that reduction in flood levels in the areas subject to flooding from the floodway is likely to provide the most appropriate means of reducing the flooding problems in Rockhampton.

### **Levee Construction**

The most appropriate means of reducing flood damages in the main flood liable areas such as Port Curtis and Depot Hill is to protect them from flooding by the construction of levees.

Levees are low earth embankments built to exclude flood waters. They have advantages and disadvantages which should be clearly understood by the community in deciding whether to proceed with any proposed levees.

Levees are often the most economically attractive form of protection to flood liable areas. They exclude all flood waters from the protected area for all floods up to some selected design flood. Their chief disadvantage results from this limitation in that they may overtop in some flood greater than that for which they are designed, unless designed to protect against probable maximum flood. This overtopping may be accompanied by failure of the levee. Subsequent damage in these circumstances is made all the worse because of the expectation of protection. This impact is minimised by good design which incorporates spillway sections in the levees to allow controlled overtopping in the event of extreme flood together with good construction practices and an appropriate level of maintenance. This allows time for evacuation and prevents catastrophic failure.

Levee construction should be accompanied by a community education and awareness program to ensure that the benefits and limitations of levees are realised.

Other negative impacts are the effects on flood levels elsewhere in the floodplain, and problems with internal drainage which requires storage, and in extreme cases may require pumped outlets to be provided.

In spite of these problems, which as stated above may be minimised by appropriate design and by community education, levees can provide a high level of community benefit.

For example, by preventing flooding over the full range of floods up to the design flood, significant reduction in flood damages can accrue. Furthermore, any land protected by the levee which was previously undeveloped because of its flood liable nature, may become available for development. Property values tend to rise due to rezoning and subsequent development of vacant land, and also values of existing property may increase due to the lowered flood risk. As property values rise, and/or land is developed, Council rates income increases. In Rockhampton, where there is little development potential close to the business district, this could be a substantial benefit, which has not been included in the benefit-cost analysis.

A summary of advantages and disadvantages of levee schemes is given below.

Advantages	Disadvantages	Overcome by
Reduction in mean annual flood damage Reduction in social impacts of flooding Improved property values Scope for additional development	Failure due to overtopping False sense of security Increase in flood levels elsewhere	Design/maintenance Education/warning Compensatory works if increase unacceptable

The above are taken into account in regard to the various options considered.

A levee to protect Depot Hill and the CBD alone would offer substantial benefits in terms of reduction in flood damages and would have a negligible impact on flood levels. This would, however, be to the detriment of the Port Curtis community whose already high sense of isolation would be worsened. The Port Curtis area could be protected within a combined levee one end of which would be near the Yeppen Crossing and the other along Quay Street. This levee would have substantial economic benefits, but if constructed on its own would cause significant increase in flood levels upstream of 0.9 m downstream of Yeppen Crossing for 1% AEP flood, by 0.4 m on the upstream side of Yeppen Crossing and by 0.15 m at Fairybower Road. However, these negative impacts can be obviated by carrying out these works in conjunction with the proposed upgrading of the Yeppen Crossing (see below). With protection to 1% AEP flood level, the cost of this option is \$7.4 million, with reduction in mean annual damages (MAD) of \$0.49 million and a benefit-cost ratio (BCR) of 1.25 at 5% discount rate (0.93 at 7%). Raising the level of protection to 0.5% AEP, at a cost of \$8.85 million would increase the BCR to 1.43 (1.05) as damage reduction would be substantially increased to \$0.63 million. However, the latter is not recommended as this would have a negative impact on flood levels in the floodplain.

## LEVEE OPTIONS

Option	Description	Table J-1
A1	Levee - Airport	
Cost: \$4.3 m p.a. Reduction MAD: \$2.1 m p.a. BCR: 0.45 (0.33) NPV: \$1.94 m (\$1.44 m) Impact on levels: Increases levels along Lion Creek (outside levee) by max of 0.37 m at 2% AEP, 0.58 m at 1% AEP. Reduces levels w/s Yeppen by 0.04 m, 0.08 m for 2%, 1% AEP. Increase levels city reach of river by 0.03 m, 0.05 m for 2% AEP, 1% AEP. Major benefit - keeps airport open to 1% AEP for emergency relief.		

Option	Description	Table J-2
A2	Levee - Port Curtis - Dept Hill - Lower CBL	
Cost: \$4.3 m p.a. Reduction MAD: \$2.1 m p.a. BCR: 0.45 (0.33) NPV: \$1.94 m (\$1.44 m) Impact on levels: Increases levels along Lion Creek (outside levee) by max of 0.37 m at 2% AEP, 0.58 m at 1% AEP. Reduces levels w/s Yeppen by 0.04 m, 0.08 m for 2%, 1% AEP. Increase levels city reach of river by 0.03 m, 0.05 m for 2% AEP, 1% AEP. Major benefit - keeps airport open to 1% AEP for emergency relief.		

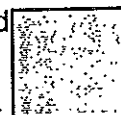
Option	Description	Table J-3
A5	Levee - Moores Creek	
Cost: \$4.3 m p.a. Reduction MAD: \$2.1 m p.a. BCR: 0.45 (0.33) NPV: \$1.94 m (\$1.44 m) Impact on levels: Negligible as flood storage only.		

Option	Description
A6	Moores Creek
Impact on levels: Negligible as flood storage only.	

Option	Description
A7	Lakes Creek Road
Impact on levels: Increases flood levels negligible as flood storage only.	

Option	Description	Table J-3
A3	Levee - Rockhampton Airport	
Cost: \$4.3 m p.a. Reduction MAD: \$2.1 m p.a. BCR: 0.45 (0.33) NPV: \$1.94 m (\$1.44 m) Impact on levels: Increases levels along Lion Creek (outside levee) by max of 0.37 m at 2% AEP, 0.58 m at 1% AEP. Reduces levels w/s Yeppen by 0.04 m, 0.08 m for 2%, 1% AEP. Increase levels city reach of river by 0.03 m, 0.05 m for 2% AEP, 1% AEP. Major benefit - keeps airport open to 1% AEP for emergency relief.		

Options shaded thus are carried forward for further consideration.



Option	Description	Table J-4
A4	Levee - Airport with proposed runway extension	
Details not available, modelled approximately, little change from A3.		

Note: NPV at 5% (7%)

## Summary of Levee Options

The proposed levee around Rockhampton Airport would ensure flood free operation to 1% AEP flood and provide protection to the adjacent residential area. This would increase flood levels along Nine Mile Road and the Rockhampton-Ridgeland Road by 0.56 m and 0.12 m respectively in 1% AEP but would result in a small decrease in flood levels downstream of the airport. A few houses outside the levee, within the floodway would need to be raised. The estimated cost of these works is \$4.3 million, for protection to 1% AEP flood level, with MAD reduction of \$0.1 million and BCR of 0.45 at 5% (0.33 at 7%). Increasing the level of protection to 0.5% AEP would increase the cost to \$5.6 million. The justification of these works would be in regard to maintaining operation of the airport during major floods.

A small levee to prevent the breakout from the Fitzroy River into Splitters Creek was also considered. A levee alone, without flood gates on Splitters Creek would not eliminate backwater flooding from the river but would stop the higher velocity overflow occurring. This would cost \$0.14 million and has a bcr of about 1.2 (0.9).

### **Upgrading of Yeppen Crossing**

As discussed in the Phase 1 Report (section 13.5), the highway and railway crossings, of the Fitzroy River floodplain to the South of Rockhampton, known as the 'Yeppen Crossing' were reconstructed in the 1980's. The design flood immunity of the crossing is 8.5% AEP (12 year ARI). The actual performance of the crossing in the 1988 and 1991 floods is consistent with the design criteria and the anticipated average duration of closure of 0.58 days per year. Notwithstanding the above, it is clear that the indirect losses caused by closure of this crossing are high and could be substantially reduced by further upgrading of the flood immunity of the crossing.

It was apparent from the investigation of individual options for Yeppen Crossing that only those combining an increase in waterway area with an increase in embankment height would be able to improve the flood immunity of the crossing without negative impact on flood levels.

The existing bridge and embankment structures across the floodplain at Yeppen comprise 4 road and 4 rail bridges. These structures cause significant afflux during major floods. Although reduction in afflux would be beneficial to flood levels in the Fairybower area and to a lesser degree at the airport, flood damages in these areas alone are not sufficient to warrant works to reduce afflux by increasing bridge waterway area. Also simply raising the embankments without increasing waterway area has a negative impact on upstream levels but very small reduction to submergence times.

However, the combination of increased waterway area and raised embankment height offers significant reduction in submergence time together with some improvement in flood levels. The options considered in this regard (B5 and B7) would both maintain flood free conditions for 2% AEP flood (eg. the 1991 flood) with time of submergence for 1% AEP being reduced from about 12.7 days under existing conditions to 6.8 days for Option B5 and 8 days for Option B7.



Under Option B5, each of the bridges would be doubled in length, and the embankment would be raised so as to give constant road and rail heights across the entire length of the crossing. It is emphasised that, whilst doubling of bridging length is shown by the hydraulic model studies to be appropriate, this should not be taken as final design dimensions of these structures. The individual bridges will need to be designed to ensure that they meet design criteria for velocity and afflux. This is outside the scope of the current study.

The cost of upgrading as outlined above has been estimated to be \$16.5 million on the basis of existing carriageway width. No allowance has been made for widening to four lanes as has been recommended in the recent Rockhampton Transport Study.

Option B7 represents a lower cost alternative in which the additional waterway area would be obtained by excavating an average of 2 m from upstream of the highway bridges through to downstream of the railway bridges. The hydraulic model runs showed this to be almost as beneficial as doubling bridge length, in conjunction with raising embankments. An initial consideration of the structural implications of this has shown this to be feasible. In the case of the highway bridge, DOT have indicated that no bridge strengthening would be required, but in the case of the railway bridges the pile caps would be exposed, requiring some structural works and possibly the installation of some additional piles. However, detailed structural calculations in this regard, are outside the scope of the study. It would also be necessary to provide some protection works in the lowered sections in order to prevent continuing erosion. Gabions/reno mattresses would be suitable in this regard. This option could have a relatively high maintenance cost, as small floods may cause siltation in the lowered section. This tendency would be minimised by limiting the slope of the downstream ramp. As floodplain flows occur only on a frequency of 1 year in 7 on average, this should not be a major problem. The lowered sections would be drained to Scrubby Creek to prevent permanent water below the bridges. The cost of this option, at \$13.0 million, offers substantial saving over Option B5. This cost includes for bridge strengthening measures expected to be sufficient.

However, the Department of Transport have indicated that this option would be unacceptable, hence it has been excluded from the recommended options.

The preferred option would produce a flood free crossing at 2% AEP with reduced times of submergence of 6.8 days at 1% AEP. The average annual closure time would be reduced to 0.15 days per annum. These times vary slightly when these measures are combined with others.

Mean annual damage costs for the Yeppen Crossing which relate primarily to indirect losses resulting from disruption to business operation was estimated to be \$1.75 million p.a., although accuracy of this estimate is not high, as explained in the Phase 1 Report. Upgrading the crossing as outlined above, would reduce MAD to \$0.45 million p.a. representing a benefit of \$1.3 million p.a.. This has a net present value of \$24.7 million at 5% discount rate and hence a BCR of 1.50. Corresponding values at 7% are \$18.2 million with BCR of 1.1.

As well as this scheme having a reasonable high benefit-cost ratio (greater than 1) it would also have a significant social impact as it would not only greatly reduce the disruption to the movement of persons and goods into and out of Rockhampton during floods, but would also significantly improve the sense of isolation caused by the closure of the major crossings.

## YEPPEN CROSSING

Option	Description	Table J-6
B1	Double bridge width	
<b>Impact on levels:</b> Reduces flood level u/s of crossing by 0.27 m for 2% AEP, 0.29 for 1% AEP. Reduces flood levels Airport, Fairybower Road by 0.08, 0.14 m respectively for both 2% and 1% AEP. Reduces levels Depot Hill by 0.06 m, 0.1 m for 2% and 1% AEP. TOS: 9.75 d, 11.95 d (current 11.6, 12.7 d)		

Option	Description	Table J-9
B5	Combine B1 + B4	
Cost: \$16.5 million Reduction MAD: \$1.3 m.p.a. NPV: \$24.7 m (\$18.2 m) BCR: 1.50 (1.10)		Flood Free at 2% AEP
<b>Impact on levels:</b> Reduces flood level u/s crossing by 0.17 m, 0.05 m for 2%, 1% AEP. Reduces flood levels Airport by 0.05 m, 0.02 m for 2%, 1% AEP. Reduces flood level Fairybower Road by 0.09 m, 0.02 m. Reduces level at Depot Hill by 0.08 m, 0.15 m. TOS: 0 at 2% AEP, 6.8 d at 1% AEP		

Option	Description	Table J-8
B4	Raise road/rail to bridge level	
<b>Impact on levels:</b> Increases flood u/s of crossing by 0.38 m for 2% AEP, 0.31 m for 1% AEP. Increases level Fairybower Road by 0.23 m, 0.19 m for 2% AEP, 1% AEP. Reduces level Depot Hill by 0.04 m, 0.06 m for 2%, 1% AEP. TOS: 7.67 d, 9.63 d for 2%, 1% AEP		

Option	Description	Table J-11
B7	Combine B6 + B4	
Cost: \$13.0 million Reduction MAD: \$1.28 m.p.a. NPV: \$24.3 m (\$17.9 m) BCR: 1.87 (1.38)		Flood Free at 2% AEP
<b>Impact on levels:</b> Increases flood level u/s of crossing by 0.01 m for 2% AEP, 0.27 m for 1% AEP. Increases flood level Airport by 0 for 2% AEP, 0.09 m for 1% AEP. Increases flood level Fairybower by 0, 0.16 m for 2%, 1% AEP. TOS: 0 for 2% AEP, 8 d for 1% AEP		

Option	Description	Table J-10
B6	Increase waterway area by lowering invert by 2 m	
<b>Impact on levels:</b> Reduces level u/s of crossing by 0.21 m for 2% AEP, 0.22 m for 1% AEP. Reduces level Fairybower Road by 0.11 m 2% and 1% AEP. Reduces level Depot Hill by 0.03 m, 0.05 m for 2%, 1% AEP. TOS: 10.1 d, 11.4 d for 2%, 1% AEP		

Options shaded thus are carried forward for further consideration.

Note: NPV at 5% (7%)      **Summary of Flood Mitigation Options – Yeppen Crossing**

a) Options with Port Curtis – Depot Hill – CBD Levee

Option	Description	Table J-30
C3	(B3a + A2) Yeppen upgrade - levee Port Curtis to CBD	<p>Yeppen flood free at 2% AEP Port Curtis - Dupon Hill - Lower CBD flood free to 1% AEP</p>
	<p>Cost: \$23.8 m Reduction MAD: \$11.7 m NPV: \$33.6 m (\$24.9 m) BCR: 1.40 (1.04)</p>	
	<p><b>Impact on levels:</b> Flood levels Yeppen reduced by 0.28 m at 2% AEP and 0.02 lower at 1% AEP. Levels at Dupon reduced by 0.00 m at 2% AEP and 0.02 m at 1% AEP. Levels at Fairy Power Road reduced by 0.15 for 2% AEP and by 0.02 m at 1% AEP.</p>	
	<p>TOS zero 2% AEP; 6.5 days at 1% AEP.</p>	
	<p><b>THIS OPTION PROVIDES PROTECTION TO GREATEST FREQUENTLY FLOODED AREA AND RESULTS IN REDUCTION IN LEVELS OF YEPPEN AT 1% AND 2% AEP</b></p>	

## Preferred Options

Note: NPV at 5% (7%)

b) Options with Depot Hill - CBD Levee only  
(ie. excluding Port Curtis)

Option	Description
C6	(B5 + A1) Yeppen upgrade + levee Depot Hill to C8D
Cost: \$22.2 million Reduction MAD: \$1.62 m NPV: \$30.8 m (\$22.7 m) BCR: 1.38 (1.02)	Yeppen flood free at 2% AEP Depot Hill, Lower CBD flood free to 1% AEP

**Impact on levels:**  
Improved flood level impacts compared to C8 at expense of not protecting Port Curtis area. Lovels u/s Yeppen reduced by 0.16 m for 2% AEP compared to existing, and by 0.07 m at 1% AEP. Reduction at Alport 0.05 m at 2% AEP, 0.01 m at 1% AEP. Reduction at Falybpower Road 0.08 m 2% AEP, 0.03 m at 1% AEP. TOS zero 2% AEP, 6.9 days at 1% AEP.

**REDUCED IMPACT U/S YEPPEN COMPARED TO OPTION C8, BUT AT EXPENSE OF NOT PROTECTING PORT CURTIS.**

Option	Description	Table J-31
C3	C3 - A3 - A5 to as CR - Levee Airport - Splitters Creek	
<p>Cost: \$28.4 million</p> <p>Reduction MAD: 131.88 m.p.a.</p> <p>NFY: \$35.7 m (\$26.3 m)</p> <p>BCR: 1.26 (0.93)</p>		
<p><b>Impact on levels:</b></p> <p>Flood level w/s Yoppen reduced by 0.33 m at 2% AEP compared with existing and 0.06 m at 1% AEP compared to existing. Rates level Nine Mile road by 0.11 m, 0.18 m for 2% AEP - 1% AEP.</p> <p>Level at Fairpower Road reduced by 0.25 m, 0.17 m for 2% - 1% AEP. Small increase in level in Riverphile City - Barrage reduction d/s of barrage of 0.02 m, 0.05 m at City gauge for 2% - 1% AEP.</p> <p>TS zero 2% AEP - 3.5 days at 1% AEP.</p> <p>THIS OPTION PROVIDES PROTECTION TO AIRPORT AND SPLITTERS CREEK AREA AS WELL AS PORT CURTIS - CRD - SMALL REDUCTION IN LEVEL W/ YOPPEN AT 2% AEP BUT INCREASE OF 0.17 M AT 1% AEP.</p>		
Option	Description	Table J-3a
B3a	as B3 + removal of bridge on Old Burnett Highway & disused railway embankment	
		<p>Yoppen TOS 0 for 2% AEP</p> <p>AEP, 3.0 d for 1% AEP</p>
<p><b>Impact on levels:</b></p> <p>Flood level w/s Yoppen Crossing reduced by 0.34 m for 2% AEP, and by 0.16 m for 1% AEP. Respective reductions Fairpower Road 0.18 m, 0.06 m.</p> <p>Levels in City much reduced by 0.04, 0.05 m for 2%, 1% AEP.</p> <p>Levels at Airport reduced by 0.11 m, 0.05 m.</p> <p>Levels at Depot Hill reduced by 0.13 m, 0.25 m for 2% - 1% AEP.</p> <p>Yoppen Crossing flood free at 2% AEP</p> <p>TOS: 3.0 d for 1% AEP</p>		

**NOTE:** The above options relate to increasing waterway area of Yeppen bridges by doubling the bridge length.

'Do Nothing' Case	
Cost:	
MAD of \$5.2 million per year	
Closure Frequency	Yappen Crossing 8.5% (12 year ARI)
Flooding Frequency	
Port Curtis - Depot Hill - Lower CBD	
8% - 10 % AEP (10 - 12 year ARI)	

The contribution to reduction in damages and isolation due to the currently planned upgrade of the Alligator Creek crossing near Yaamba is recognised.

### **Summary of Recommended Options**

The recommended structural flood mitigation schemes are therefore:

- Priority 1      ●      Levee to protect lower Dawson Road, Port Curtis, Depot Hill and the lower CBD against floods up to 1% AEP together with upgrading Yeppen Crossing to 2% AEP flood immunity. The combined cost of these works has been estimated to be \$24 million. These works would greatly reduce direct flood damages in the most flood liable areas of Rockhampton, and greatly reduce indirect damages due to the closure of the southern approach routes. This scheme also has high social as well as economic benefit.
- Priority 2      ●      Levee to protect Rockhampton Airport. This would cost \$4.3 million with protection to 1% AEP flood level. This would have to be justified on the basis of greatly improved flood immunity to the Airport from about 5% AEP to 1% AEP.
- Priority 3      ●      Splitters Creek levee, cost \$0.14 million and a BCR of 1.2.
- Priority 4      ●      Flood gates on Splitters Creek, Moores Creek, Frenchmans Creek, Thozet Creek and flood valves on stormwater drainage outlets, approximate cost \$2.5 million.

### **FLOOD MAPPING**

Flood maps showing the extent of flooding for a range of flood levels, on a probability basis, are a necessary pre-requisite to the development of planning controls for flood liable land. The delineation of the flood liable area into high and low hazard categories is a further aid in the development of planning controls.

A flood map has been prepared at a scale of 1:10,000 to show the extent of inundation in 2%, 1% and 0.5 % AEP floods.

The extent of the maps has been limited to the areas for which contour plans are available. These do not, therefore, cover the whole of Rockhampton City nor any of the flood liable parts of Livingstone and Fitzroy Shires. Predictions of flood levels are available for the latter areas from the hydraulic model.

The flood maps, however, are of a low level of accuracy because of significant anomalies between the observed flood inundation extent in 1991 (2% AEP) and that determined by available contour information.

Whilst the 2% AEP flood line is believed to be reasonably accurate, the 1% and 0.5% AEP events are regarded as indicative only. They should not be used, therefore, to determine whether or not a particular block is flood liable at 1% AEP. The flood maps have been marked to clearly display this limitation.

The accuracy of the maps is also dependant upon the accuracy of the modelled flood levels. This is expected to be of the order of  $\pm 0.2$  m at the 1% AEP level. The extent of such variation on the ground can be substantial where gradients are low.

If the works recommended in this study are constructed, the necessity for improving the accuracy of the flood maps will diminish, because most of the areas where there is some doubt as to the extent of flooding will be protected by the various mitigation measures.

However, should the recommended works not proceed, it is recommended that the accuracy of the flood maps be improved by actually establishing on the ground, the 1% AEP levels determined from the hydraulic model. This should be done prior to final adoption of the flood maps.

Prior to adoption of the maps for planning purposes, we recommend that the maps be issued in draft form for public comment. This will enable any minor anomalies in relation the 1991 flood extent to be identified and resolved. The maps could then be adopted as interim documents until they can be refined as discussed above.

In addition to the flood inundation map, a flood hazard map has been prepared. This categorises the flood liable area of Rockhampton into floodway, flood storage and flood fringe areas which are each sub-divided into low hazard and high hazard areas. This map is subject to similar limitations regarding accuracy as the flood inundation map, and should be regarded as preliminary.

It is recommended that the development guidelines given in the NSW Floodplain Development Manual be adopted in regard to planning and the consideration of development applications in the flood liable areas of Rockhampton City, and where applicable to the adjacent flood liable parts of the Fitzroy Shire and Livingstone Shire.

It is also recommended that no new residential, commercial or industrial development be permitted in designated floodways.

The primary requirement in regard to new residential dwellings where they are permitted is for a minimum habitable floor level of 0.5 m above the design flood (1% AEP). It is recommended that this level be adopted. The same criteria should apply to access roads within any new areas of development, where these are permitted in flood fringe and flood storage areas.

## SUMMARY OF RECOMMENDATIONS

This section summarises the recommendations made in Phases 1 and 2 of the study for improvement of flood management in Rockhampton. The latter incorporates both the structural flood mitigation options discussed above and the non-structural measures recommended in the Phase 1 Report. The consideration of a combination of such measures is in line with the guidelines given for works to be funded under the Federal Water Resources Assistance Program (FWRAP).

This section also briefly addresses possible funding for these works.

It is recommended that those items of the relatively low cost non-structural measures identified as being of first priority be implemented by Rockhampton City Council, Fitzroy Shire Council and Livingstone Shire Council as appropriate, as soon as possible and prior to awaiting the outcome of any funding application, as although these do not give any physical protection against flooding they will ensure that damages are minimised should another major flood occur prior to the construction of the flood mitigation works.

The estimated total cost of the recommended works is about \$32 million. Of this, the very important non-structural works would cost about \$0.3 million, and it is recommended that these be carried out as soon as possible. The structural works have been designated at four priority levels and it is recommended that these priorities be used in phasing the works according to budget constraints. A summary of these items is given in Table C and recommendations are outlined in more detail in the following paragraphs.

### Non-Structural Measures

The following is a summary of the non-structural measures which were recommended in the Phase 1 Report, which should be consulted for further detail. These are measures recommended for immediate implementation.

- a) Formulation and adoption of a floodplain management policy to be formalised by the adoption of appropriate planning instruments. The flood inundation map and flood hazard map produced as part of this study provide the basis for these controls. For the preparation of the floodplain management policy allow \$30,000;
- b) Upgrading of the flood warning system:
  - installation of telephone telemetry at the Rockhampton flood warning gauge, cost \$20,000;
  - installation of a new river level station with telephone telemetry at Pink Lily to provide information regarding floodplain flows, cost \$15,000;
  - installation of rainfall recorders at existing river level stations equipped with telephone telemetry (Riverslea, The Gap, Neerkol Creek) cost 3 @ \$1,000 ie. \$3,000;
  - installation of a water level and a rainfall recorder with telephone telemetry in the Alligator Creek catchment, cost \$16,000.

Annual maintenance and operation on the above, allow \$20,000. It is possible that some of the cost of the above upgrading could be met by the Bureau of Meteorology.

- c) Installation of permanent flood markers throughout the urban area and the floodplain to show the 1991 flood level, allow \$25,000 (1,000 markers @ \$25);
- d) Establishment of a recorded message telephone service for flood warnings at the Local Emergency Operations Centre (LEOC), cost approximately \$30,000. The warning messages should be frequently updated and should contain information on levels at Tartrus, Riverslea, The Gap, Yaamba, and the new floodway reference gauge as well as Rockhampton. The message should repeat so that information missed on the first pass may be reheard. Multiple telephone lines should be provided;
- e) Instigation of a programme of raising community flood awareness and preparedness, by means of:
  - i) making the flood maps available for sale to the public;
  - ii) preparation of a flood awareness pamphlet;
  - iii) inclusion of a flood awareness page in the local telephone directory;
  - iv) encouragement to local business operators to prepare flood action plans;
  - v) establishment of the LEOC as a single point of contact;
  - vi) raising media awareness of their role in flood warning dissemination;
  - vii) improvement to road closure reporting (RACQ/LEOC).

The costs of preparation of the community flood awareness material would be approximately \$25,000.

The total cost of these measures outlined above would be \$163,000 plus annual maintenance costs of about \$30,000. The improvement in flood warnings and the way in which the community can relate the warnings to their own circumstances would be expected to result in a substantial reduction in direct flood damages. If this results in only a 10% reduction in actual damage, this is worth of the order of \$200,000 p.a. (mean annual direct damage approximately \$2 m) so this expenditure is clearly worthwhile. These measures are further summarised in Table C.

The Phase 1 report also contained a recommendation in regard to a pilot study of the feasibility of flood proofing commercial premises in Rockhampton. This may be supported by local business groups. The aim of such a study would be to look at the practicalities of flood proofing a small number of existing buildings of a range of types and industry types, together with a detailed examination of the damage reduction such measures would produce in order to enable evaluation of the cost effectiveness of this approach. There is very little detailed information in this regard, hence support for a pilot study would be very worthwhile. The cost of this study would be about \$40,000. Business operators should also be encouraged to prepare flood contingency plans, or flood action plans, so that they can minimise damage and disruption caused by any future floods.

Whilst the responsibility for flood forecasting lies with the Bureau of Meteorology, there would be merit in establishing a flood forecasting model for the lower Fitzroy River which would be operated locally. This could be developed from the MIKE II model set up for the current study and would allow the operators of the LEOC to have improved information of a more detailed nature than that provided by the bureau. The cost of developing this model would be about \$50,000 plus \$30,000 for computer software and hardware. It is recommended that consideration be given to developing this system.

## **Structural Measures**

The following structural measures are recommended. The priority of each component is shown. Should the works be constructed in a phased manner, the order of construction should follow the priority rating. A phased approach will allow the highest level of benefits to be achieved early during the works programme. Works of Priority 1 to 4 may be considered, for example, as a 4 year work programme. This timing must be determined by Local Authority in regard to the bridges and also in regard to possible funding.

As discussed in Section 3, the recommended works comprise the following, a summary of which is given in Table C.

### **a) Priority 1**

- upgrading Yeppen crossing by raising embankment height to bridge height for the full width of the floodplain crossing, together with doubling the bridge waterway area by increasing bridge length to about 840 m from the existing 420 m. The estimated cost of these works is \$16.5 million.

These works would raise the flood immunity of the southern road and rail approaches to Rockhampton to above 2% AEP, with significantly reduced closure times for more extreme floods.

The damage reduction has been estimated to be about \$ 1.3 million per annum on a long term average basis, with a benefit-cost ratio of 1.5, 1.87 for these alternatives assuming a 5% discount rate (1.1, 1.4 for 7%).



- Construction of a levee to protect the lower Dawson Road/Gladstone Road, Port Curtis, Depot Hill areas and the lower part of the CBD. This would extend from Blackall Street to the north of Yeppen Yeppen Lagoon along Jellicoe Street to Port Curtis, across to Depot Hill, to near the Gavial Creek junction with the Fitzroy River, then along Quay Street to Derby Street. If protection were provided to 1% AEP, the cost would be about \$6.9 million, with a BCR of 1.35 at 5% (1.0 at 7%). Raising the level of protection to 0.5% AEP would increase the total cost to \$8.35 million with a BCR of 1.43 (1.05), and to 0.2% AEP the cost would be \$10.1 million with a BCR of 1.45 (1.06). However, raising the level of protection above 1% AEP would adversely impact on flood levels elsewhere in the floodplain for floods more severe than 1% AEP, so 1% AEP is recommended as the basis of design.
- Removal of the bridge/causeway along the section of the Old Burnett Highway between Jellicoe Street and the new Bruce Highway, together with removal of the disused railway embankment adjacent to the Old Bruce Highway between Port Curtis and Roopes Bridge at a cost of approximately \$0.5 million.

The latter measure is necessary to help offset the adverse impact of flood levels caused by the proposed levee. The measures outlined above should be regarded as a total package and should preferably be constructed concurrently. If phasing is necessary due to financial constraints, the Yeppen Crossing upgrade should be regarded as being the highest priority.

This scheme will have a very high positive social impact. It will allow complete protection from flooding (apart from local runoff) for the areas within the levee up to at least 1% AEP with consequent reduction of the trauma effects of isolation during flooding. The community awareness programme should include discussion of the limits of flood protection but this should be balanced against the benefits. This scheme will also allow development within the protected areas, although sufficient area should be retained for storage of local flood waters, and should result in a rise in property values. It is considered that there is little or no negative environmental impact of these works.

The proposed upgrading of Yeppen Crossing will also have a substantial positive social impact as it will significantly reduce the frequency of closure of the southern road and rail approach to Rockhampton, with consequent reduction in disruption to social and business activity. The proposed scheme is considered to have negligible environmental impacts.

**b) Priority 2**

At a slightly lower priority, construction of a levee to protect Rockhampton Airport, and the adjacent residential areas is recommended. One end of this levee would be near the Barrage. It would then pass close to Lion Creek, around the airport and then to higher ground near Denham Street (Extended). This would cause a significant increase in flood levels in that part of the floodplain between Pink Lily and Lion Creek. This is a maximum of 0.3 m at 2% AEP and 0.6 m at 1% AEP. A small number of houses along Nine Mile Road may need to be raised to compensate for this effect. The increase in level along the Rockhampton-Ridglands Road is 0.05 m at 2% AEP and 0.12 m at 1% AEP, which is regarded as being acceptable.

Social impact will be positive overall with the protection of the airport and the adjacent residential areas, although it will be negative for the small number of houses where flood levels are adversely effected. However, as these houses are within a current floodway, their lot is not significantly worsened. The cost of raising these houses should be considered as part of the scheme. Land use controls should be utilised to prevent additional development in the floodway as discussed in section 4.

The cost of this levee system, with protection to 1% AEP is estimated to be \$4.3 million rising to \$5.6 million at 0.5% AEP and \$7.1 million at 0.2% AEP. The direct benefits are relatively low with BCR at 1% AEP at only about 0.45 at 5% (0.33 at 7%). However, a significant intangible benefit would be obtained from keeping the airport open to traffic during such circumstances by allowing emergency and flood relief services to operate far more effectively than is currently possible. The recommended level of protection is 1% AEP due to the adverse impact on flood levels which would occur with a higher degree of protection.

**c) Priority 3**

- The construction of a levee to prevent direct overflow from the Fitzroy River into Splitters Creek. The levee would extend from near Limestone Creek to near Splitters Creek. The purpose of this levee is to prevent the direct overflow and hence reduce flood hazard. The cost would be \$0.14 million but the tangible benefits would be small. The social impact would be positive as a result of reduction in flood hazard.
- The stabilisation of control levels at Pink Lily was investigated as described in Sections 2.7 and 3.4, whereupon it was determined that no alteration to the control levels could be justified. However, as discussed in the Phase 1 Report, section 13.4.3, it would be advisable to stabilise the outer bank of the Pink Lily meander so that the breakout threshold level does not reduce with time. It is not possible to estimate direct flood mitigation benefits from this measure. Hence these stabilisation works are included as a low priority item at an estimated cost of \$900,000 on the basis of battering the existing bank, placement of a rockfill toe and revegetation of the banks.

**d) Priority 4**

Priority 4 items are those which should be undertaken in the longer term. These are measures to reduce flooding in flood fringe areas and comprise the fitting of flood gates on creeks and flood valves on stormwater drainage outlets to prevent backwater flooding. These will not prevent flooding in the relevant drainage areas when local flooding is coincident with river flooding, but will prevent river floodwater backing up these systems to between 2% AEP and 1% AEP level at which adjacent bank sections would start to overtop. Further long term measures to improve the immunity would be to raise the north bank levels by means of low levees. These have not been costed at this time.

These items have not been costed in detail, a sum of \$500,000 has been allowed for floodgates for each major creek on the north bank ie. Splitters Creek, Moores Creek, Frenchmans Creek and Thozet Creek, and a further \$500,000 in total for similar control on piped stormwater drainage outlets.

In addition to the capital costs outlined above, the Local Authorities and Government Departments responsible for the above works would need to meet maintenance costs. These costs are difficult to establish and a nominal cost of \$100,000 per annum for Priority 1 works, \$50,000 per annum for Priority 2 and Priority 3 works and \$100,000 for Priority 4 works should be allowed. These would be substantially reduced if there is spare capacity in the existing maintenance labour force.

**Other Issues Requiring Action**

This paragraph lists other issues raised in this report which require further investigation or action for their resolution. Due to budgetary and time constraints it was not possible to include the following in Phase 2, but all of the items listed warrant further study.

- Estimation of probable maximum flood;
- Scrubby Creek Diversion;
- Development of a geographic information system for counter disaster planning and operation;
- Detailed investigation of erosion and siltation in the lower Fitzroy River;
- Investigation of leachate from operational and closed landfills in the Fitzroy River floodplain and subsequent remediation if warranted.

**TABLE C**

**Summary of Proposed Works Programme**

<b>PRIORITY 1 MEASURES</b>	
<b>NON-STRUCTURAL</b>	
• Floodplain Management Policy	\$30,000
• Upgrading of flood warning system	\$53,000
• Installation of Flood Markers	\$25,000
• Recorded message service	\$30,000
• Community awareness programme	\$25,000
<b>SUB-TOTAL</b>	<b>\$163,000</b>
<b>CAPITAL WORKS</b>	
• Upgrade Yeppen Crossing to increase embankment height to that of the bridges, plus increase waterway area by increasing bridging length to 840 m (BCR 1.5)	\$16.5 m
• Construction of levee from Blackall Street to Quay Street protecting Lower Dawson Road, Port Curtis, Depot Hill and the lower CBD (BCR 1.25)	\$6.9 m
• Removal of disused railway embankment adjacent to Old Bruce Highway (material may be used in levee works) Demolition and removal of bridge/causeway on Old Burnett Highway	\$0.5 m
<b>SUB-TOTAL</b>	<b>\$23.9 m</b>
<b>TOTAL PRIORITY 1</b>	<b>\$24.063 m</b>

<b>PRIORITY 2 MEASURES</b>	
<b>NON STRUCTURAL</b>	
• Development of Flood Forecasting model	\$80,000
• Commercial Flood Proofing Pilot Study	\$40,000
<b>SUB-TOTAL</b>	<b>\$120,000</b>
<b>CAPITAL WORKS</b>	
• Construction of levee to protect airport extending from Savage Street to Denham Street Extd (BCR 0.45)	\$4.3 m
<b>TOTAL PRIORITY 2</b>	<b>\$4.42 m</b>

<b>PRIORITY 3 MEASURES</b>	
• Construction of levee to prevent overflow from River to Splitters Creek (BCR approximately 0.7)	\$0.14 m
• Bank stabilisation works at Pink Lily	\$0.9 m
<b>TOTAL PRIORITY 3</b>	<b>\$1.04 m</b>

<b>PRIORITY 4 MEASURES</b>	
• Flood gates on Splitters Creek, Moores Creek, Frenchmans Creek and Thozet Creek	\$2.0 m
• Flood valves on stormwater drainage outfalls	\$0.5 m
<b>TOTAL PRIORITY 4</b>	<b>\$2.5 m</b>

<b>OVERALL TOTAL RECOMMENDED WORKS</b>	<b>\$32.023 m</b>
Note: BCRs at 5% discount rate.	

## FUNDING OF WORKS

In recent years flood mitigation works have been eligible for funding under the Federal Water Resources Assistance Program (FWRAP). From 1993/94 flood mitigation works and measures are expected to be eligible for funding under the National Landcare Program (NLP) which will integrate FWRAP and other programs.

In Queensland, it is the responsibility of the relevant Local Authority to apply for funding under the program to the State Government in the first instance through the Water Resources Commission, customarily by December each year. The State Government will integrate and prioritise applications and submit those programs it supports as part of a Partnership Agreement with the Commonwealth Government. Notification of successful applications is made following the Federal Budget each August.

Under this scheme funding is as follows:

•	Federal Government	40%
•	State Government	40%
•	Local Government	20%

It should be noted that NLP funds are limited, and that submissions for funding are considered on their merits and cost-effectiveness and also on the basis of priority with other state projects as this program is placing increasing emphasis on well integrated land and water resource management projects and non-structural flood mitigation measures. However, due to the magnitude of flood damages in the recent flood and the isolation of a city of the size of Rockhampton which results from such floods, it may be expected that the chances of a support by the State would be high, but would of course depend on the State's priorities in the particular year. Criteria for Commonwealth support under the new NLP may evolve from those under FWRAP with increasing emphasis on Commonwealth funds being used to stimulate micro-economic reform or improvements in procedures and perceptions of natural resource management issues. Consequently, successful projects would need to engender new local and regional financing schemes and viable, beneficial, community-based flood management strategies.

Thus if funding were obtained under NLP for all the first priority works, the Local Authority Contribution would be expected to be \$4.8 million. However, if only the levee works and the non-structural works were funded in this way, for example, this would reduce to \$1.5 million.

Whilst the proposed upgrading at Yeppen principally relates to flood mitigation in respect of reduction of indirect damages, it would be expected that part of the upgrading costs would be met by the Department of Transport. This would be the subject of negotiation between relevant Government Departments and Local Authorities. A statement from the Department of Transport setting out their position in regard to funding these works is given in Volume 3 (Appendix L).

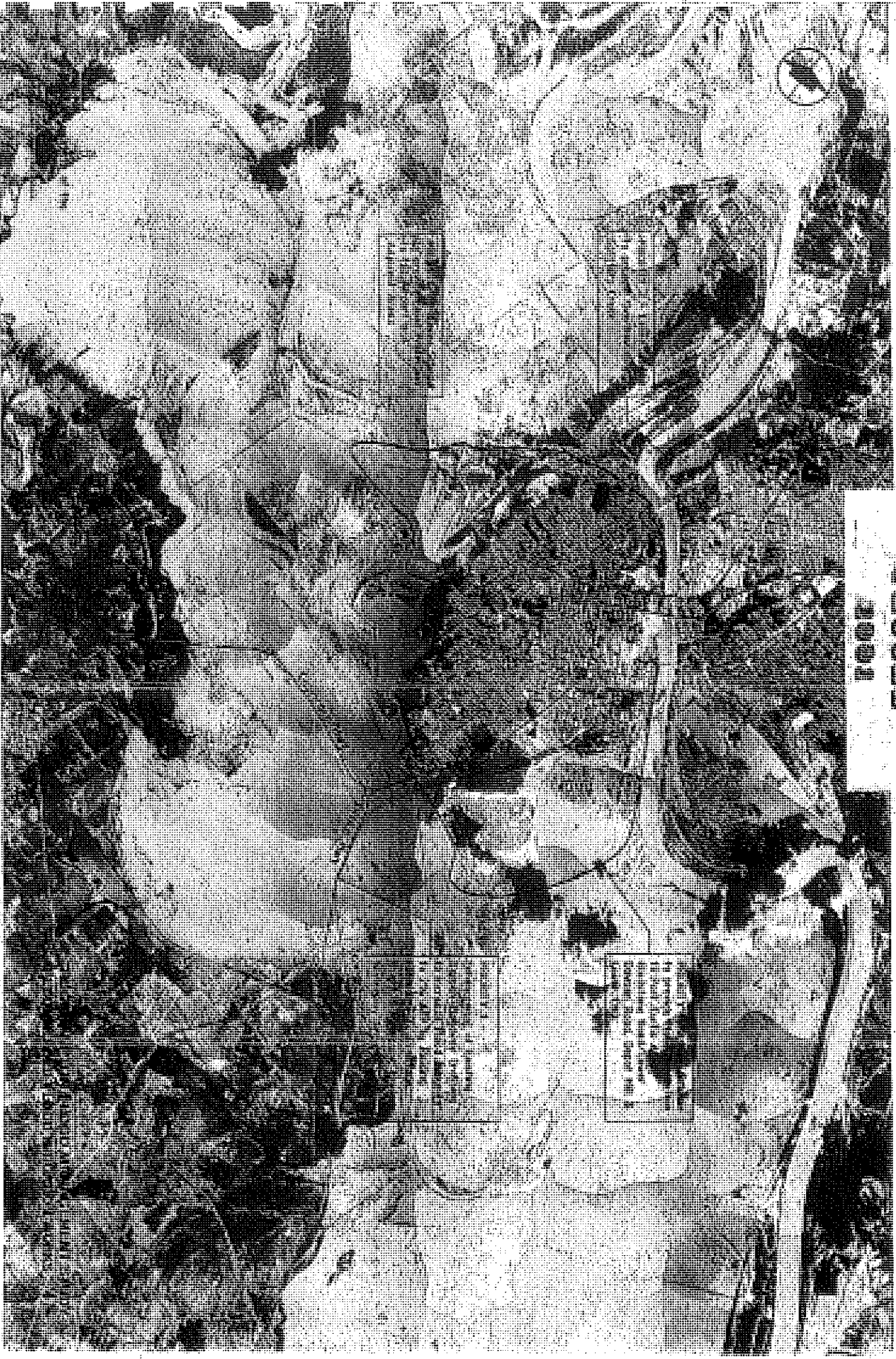
In regard to the airport levee, Rockhampton Airport is owned by Rockhampton City Council but is administered as a separate entity. Thus the costs attributable to protection of the airport will need to be separated from those for protection of the adjacent residential areas, so that the costs of protection of the airport are not a direct cost on ratepayers. As for the Yeppen crossing, the distribution of costs will need to be negotiated should the scheme proceed.

Also the Bureau of Meteorology may contribute to funding of the flood warning system upgrade. Local business groups may be willing to fund the proposed flood proofing pilot study.

The priorities listed above should be followed in developing a phased programme of works to match Local Authority and funding agency budgets.

# BUCKHAMPTON FLOODS

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