

STATEMENT TO QLD FLOODS COMMISSION OF INQUIRY

NAME: Mr Chris Warren

OCCUPATION: Director Strategic Planning & Development – Moreton Bay Regional Council

DATE OF STATEMENT: 12 September 2011

I, CHRIS WARREN, Director Strategic Planning & Development, of Moreton Bay Regional Council [REDACTED] Strathpine, Queensland, being under oath, say as to the points raised in the letter dated 19 August 2011 – **Reference Doc 1680912:**

1. A summary of the assessment criteria and development controls contained in Council's planning scheme(s) and how such criteria are used to assess applications for development in the natural hazard management area or in areas at risk of flood.

- 1.1 The Moreton Bay Regional Council area is currently covered by planning schemes for the previous local government areas of Redcliffe, Pine Rivers and Caboolture. Each scheme has its own assessment criteria and development controls. The Pine Rivers planning scheme has been endorsed by the Minister for Local Government, Planning and Sport as appropriately reflecting State Planning Policy 1/03 – *Mitigating the Adverse Impacts of Flood, Bushfire and Landslide*. The Redcliffe planning scheme has been endorsed by the Minister for Local Government and Planning as appropriately reflecting State Planning Policy 1/03 – *Mitigating the Adverse Impacts of Flood, Bushfire and Landslide* for flood only. The Caboolture planning scheme has been endorsed by the Minister for Local Government and Planning as appropriately reflecting State Planning Policy 1/03 – *Mitigating the Adverse Impacts of Flood, Bushfire and Landslide* for bushfire and landslide only.
- 1.2 **Redcliffe District**
Under the Strategic Framework of the planning scheme, planning scheme strategy (7) e) relates to the natural hazards and flood risk issue and states that Council will:
- 1.3 *Manage the impacts of natural disasters through appropriate assessment criteria and land use allocation. Identify areas where natural disasters may effect development and apply appropriate controls on development that mitigates those impacts.*
- 1.4 The Redcliffe district planning scheme also includes Desired Environmental Outcomes, overlay mapping to identify areas subject to natural flooding and development codes to achieve the outcomes sought by State Planning Policy 1/03. In addition to the overlay codes there are other codes and design manual policies (applicable to assessable development) that include Specific Outcomes and other requirements to deal with flood hazard, storm tide hazard and stormwater runoff/overland flows. The defined flood event is the flood with a 1% annual exceedance probability (i.e. 1 in 100 year likelihood, aka Q100). Overlay Map 3 in the planning scheme shows the extent of the Q100 flood inundation plus a 30m buffer. In coastal areas the planning scheme currently also uses the State defined Default Storm Tide level which includes a 300mm allowance for sea level rise.
- 1.5 In relation to flooding, code assessable development within the natural flood hazard area as shown on Overlay Map 3 is assessed against the Specific Outcomes SO11 to SO14 (inclusive) of Natural Features and Resources Overlay Code, viz:

- 1.6 SO11 New development for residential purposes or involving the construction of permanent structures on land subject to flooding does not result in adverse impacts on safety of people and development.
- 1.7 SO12 Development does not result in adverse impacts on structures or premises to:
 - a) flood levels;
 - b) stream bank stability (erosion); or
 - c) water quality in receiving waters.
- 1.8 SO13 Essential services such as electricity, gas, water, sewerage and telecommunications maintains its function during a flood event.
- 1.9 SO 14 Any development within an identified drainage problem area on Overlay Map 3 does not increase the occurrence or severity of drainage problems on other premises.
- 1.10 Development proponents must demonstrate compliance with the Specific Outcomes to satisfy the code. SO12 and SO14 do not have any Probable Solutions stated in the code. SO11 and SO13 have the following Probable Solutions which are generally provided rather than alternative solutions:
 - 1.11 PS11.1 Development is sited on land that is not subject to flooding; or
 - PS11.2 Floor levels are located above the Q100 flood level; and
 - PS11.3 There is at least one evacuation route that remains passable for emergency evacuation during floods; or
 - PS11.4 Premises are located to allow for sufficient warning time to enable safe evacuation; or
 - PS11.5 A safe refuge is available for people within the development site.
 - PS13.1 Any components of infrastructure that are likely to fail to function or may result in contamination when inundated by flood water are:
 - a) located above flood levels; or
 - b) designed and constructed to exclude floodwater intrusion / infiltration; and
 - PS13.2 Infrastructure is designed and constructed to resist hydrostatic and hydrodynamic forces as a result of inundation by flood.
- 1.12 In regard to providing solutions to satisfy Specific Outcomes SO12 and SO14 development proponents are required to demonstrate this using Council's design standards (Planning Scheme Policy 10) which, for stormwater, are based on the Queensland Urban Drainage Manual.
- 1.13 Impact assessable development is assessed against the whole planning scheme.
- 1.14 All development works must also comply with Chapter 6 (Stormwater) of Planning Scheme Policy 10 – *Works (Development Standards Manual)*.
- 1.15 Development proponents must show the Q100 floodlines on proposal layout plans for development applications. These floodlines must be derived from either Council flood studies or approved flood studies provided by the applicant to support their application. The minimum development level is the flood level for an event with a 1% annual exceedance probability plus a 300 mm freeboard.
- 1.16 **Pine Rivers District**
The Pine Rivers planning scheme includes Desired Environmental Outcomes, overlay mapping to identify areas subject to natural flooding and development codes to achieve the outcomes sought by State Planning Policy 1/03. The district is also

divided into a number of localities including a *Coast and River Lands Locality* which includes natural flood hazards areas. In addition to the overlay and locality codes there are other codes and design manual policies (applicable to assessable development) that include Specific Outcomes and other requirements to deal with flood hazard, storm tide hazard and stormwater runoff/overland flows. Overlay Code Map 8 - *Major Flood Events* in the planning scheme shows the extent of the Q100 flood inundation estimated at that time and is the *Designated Natural Hazard Area (Flood)* for the purposes of Section 13 of the *Building Regulation 2006*. Applicants can also obtain the Q100 flood levels from Council. The defined flood event is the flood with a 1% annual exceedance probability (i.e. 1 in 100 year likelihood, aka Q100). In coastal areas the planning scheme currently uses the State defined Default Storm Tide level which includes a 300mm allowance for sea level rise.

- 1.17 In relation to flooding, code assessable development within the natural flood hazard area as shown on Overlay Map 8 is assessed against the Specific Outcomes of the *Major Flood Events Code* and applicants are required to provide relevant information in accordance with Planning Scheme Policy PSP17 – *Demonstrating Compliance with the Major Flood Events Code*. The purpose of PSP17 is to outline the information required in order to properly assess a development application triggered by the Major Flood Events Overlay Code. PSP17 requires a flood hazard assessment and a flood hazard mitigation report to be provided by applicants. The Major Flood Events Overlay Code includes six (6) Specific Outcomes to be satisfied to meet the Overall Outcomes of this code.
- 1.18 In regard to providing solutions to satisfy Specific Outcomes development proponents are required to demonstrate this using Council's design standards (Planning Scheme Policy PSP28) which, for stormwater, are based on the Queensland Urban Drainage Manual.
- 1.19 Impact assessable development is assessed against the whole planning scheme.
- 1.20 All development works must also comply with Part 2 - *Design Standards for Stormwater Drainage Works* of Planning Scheme Policy PSP28 – *Civil Infrastructure Design*. Section 4.10.1 of Part 2 prescribes minimum development levels for new development affected by flooding in natural watercourses (creeks, rivers, waterways) being the major flood level plus a 750 mm freeboard. Therefore, the minimum development level is 750 mm above the greater of the estimated Q100 flood level or the highest recorded flood level. This freeboard also applies to the storm tide event with a 1% annual exceedance probability.
- 1.21 Development proponents must show the Q100 floodlines on proposal layout plans for development applications. These floodlines must be derived from either Council flood studies or approved flood studies provided by the applicant to support their application.
- 1.22 ***Caboolture District***
The Caboolture planning scheme has not been endorsed by the Minister as reflecting State Planning Policy 1/03 – *Mitigating the Adverse Impacts of Flood, Bushfire and Landslide* for floods. Consequently, code and impact assessable development is assessed having regard to State Planning Policy 1/03 (SPP 1/03) and its associated guideline to ensure the outcomes sought by the SPP 1/03 are achieved. For the purposes of assessment under SPP 1/03 Council has used the flood with a 1% annual exceedance probability to define the natural flood hazard management area. Notwithstanding this, the Caboolture planning scheme does address natural hazards. The Strategic Framework - General Matters includes the following:

(f) *The effect of naturally occurring and man made hazards on the environment and community are minimised.*

- 1.23 The Desired Environmental Outcomes of the planning scheme also includes the following:

(c)(iv) *The adverse effects of naturally occurring and man made hazards on the natural environment and human communities are minimised.*

- 1.24 There is no overlay mapping in the planning scheme to identify areas subject to natural flooding and consequently development codes (for a stated purpose or development type) include outcomes that must be satisfied in relation to flood hazards and mitigation of these hazards for development affected by flooding. In addition to these codes there is Planning Scheme Policy 19 - *Stormwater* that provides development proponents guidance on Council's requirements for technical reports addressing stormwater quantity and quality impacts of development. The defined flood event is the flood with a 1% annual exceedance probability (i.e. 1 in 100 year likelihood). In coastal areas the planning scheme currently uses the State defined Default Storm Tide level which includes a 300mm allowance for sea level rise.
- 1.25 Where relevant, the Stormwater Code is called up, as an assessment criteria, in the planning scheme Assessment Tables for most Defined Uses. For Reconfiguring a Lot type development the Reconfiguring a Lot Development Code applies and includes Specific Outcomes relevant to flood hazard and the provision of appropriate flood immunity. The defined major flood event used to establish flood immunity and hazard is the flood with a 1% annual exceedance probability (i.e. 1 in 100 likelihood, aka Q100).
- 1.26 In relation to flooding, code assessable development anticipated to be affected by natural flood hazard is assessed against the SPP 1/03, SPP 1/03 Guideline and Specific Outcomes of the relevant code and applicants are required to provide relevant information in accordance with Planning Scheme Policy PSP19 – *Stormwater*. Council's knowledge base on flooding within the Caboolture district has increased dramatically over the years by its own flood assessments and approved flood studies provided by development proponents.
- 1.27 In regard to providing solutions to satisfy Specific Outcomes development proponents are required to demonstrate this using Council's design standards (Planning Scheme Policy PSP4 – *Design and Development Manual*) which, for stormwater, are based on the *Queensland Urban Drainage Manual* and *Australian Rainfall and Runoff*.
- 1.28 Impact assessable development is assessed against the whole planning scheme, SPP 1/03 and the SPP 1/03 Guideline.
- 1.29 All development works must also comply with Section 8 - *Stormwater Drainage* of Planning Scheme Policy PSP4 – *Design and Development Manual*. Section 8.9 includes minimum development levels for new development affected by flooding in natural watercourses (creeks, rivers, waterways) being the major flood (Q100) level plus a 300 mm freeboard. This freeboard also applies to the storm tide event with a 1% annual exceedance probability. Table 7.20 of the *Reconfiguring a Lot Code* also prescribes the minimum flood free (above Q100) area required in new lots created through the development approval process.
- 1.30 Development proponents must show the Q100 floodlines on proposal layout plans for development applications. These floodlines must be derived from either Council

flood studies or approved flood studies provided by the applicant to support their application.

1.31 Identification of Natural Flood Hazard Areas for Development Assessment

1.32 Council's knowledge base on flooding within the Caboolture district has increased dramatically over the years since the current planning scheme commenced. Council's own flood assessments and approved flood studies provided by development proponents have been used in the assessment of development applications.

1.33 Today, Council has extensive flood assessments for all watercourses in the Moreton Bay Regional Council area and the natural Q100 flood hazard areas are depicted on Council's computerised spatial mapping system (GIS). Council has also recently assessed overland flows assuming the existing underground stormwater systems are blocked or overloaded. This information gives development assessment officers very good information on where development applications impact on natural flood hazard management areas as well as runoff paths from minor catchments to the existing watercourses.

2. A description of how the natural hazard management area or area at risk of flood, as it relates to flood affected land, is reflected in the planning scheme.

2.1 The Moreton Bay Regional Council area is currently covered by planning schemes for the previous local government areas of Redcliffe, Pine Rivers and Caboolture. Each scheme has its own assessment criteria and development controls.

2.2 The Pine Rivers planning scheme has been endorsed by the Minister for Local Government, Planning and Sport as appropriately reflecting State Planning Policy 1/03 – *Mitigating the Adverse Impacts of Flood, Bushfire and Landslide* and includes an overlay map showing the natural flood hazard area.

2.3 The Redcliffe planning scheme has been endorsed by the Minister for Local Government and Planning as appropriately reflecting State Planning Policy 1/03 – *Mitigating the Adverse Impacts of Flood, Bushfire and Landslide* for flood only and includes an overlay map identifying the natural flood hazard area.

2.4 The Caboolture planning scheme has been endorsed by the Minister for Local Government and Planning as appropriately reflecting State Planning Policy 1/03 – *Mitigating the Adverse Impacts of Flood, Bushfire and Landslide* for bushfire and landslide only and does not include any mapping of flood affected land.

2.5 Redcliffe District

The Redcliffe planning scheme seeks to manage the impacts of natural disasters through appropriate assessment criteria and land use allocations. In relation to flooding, code assessable development within the natural flood hazard area as shown on Overlay Map 3 is assessed against the Specific Outcomes of that code. In addition to the overlay codes there are other codes and design manual policies (applicable to assessable development) that include Specific Outcomes and other requirements to deal with flood hazard, storm tide hazard and stormwater runoff/overland flows. The defined flood event is the flood with a 1% annual exceedance probability (i.e. 1 in 100 year likelihood, aka Q100). Overlay Map 3 in the planning scheme shows the extent of the Q100 flood inundation plus a 30m buffer. In coastal areas the planning scheme currently also uses the State defined Default Storm Tide level which includes a 300mm allowance for sea level rise.

- 2.6 For assessable development, development proponents are required to demonstrate this using Council's design standards (Planning Scheme Policy 10) which, for stormwater, are based on the Queensland Urban Drainage Manual.
- 2.7 Impact assessable development is assessed against the whole planning scheme.
- 2.8 All development works must also comply with Chapter 6 (Stormwater) of Planning Scheme Policy 10 – *Works (Development Standards Manual)*.
- 2.9 ***Pine Rivers District***
The Pine Rivers planning scheme overlay mapping identifies areas subject to natural flooding. The district is also divided into a number of localities including a *Coast and River Lands Locality* which includes natural flood hazards areas. In addition to the overlay and locality codes there are other codes and design manual policies (applicable to assessable development) that include Specific Outcomes and other requirements to deal with flood hazard, storm tide hazard and stormwater runoff/overland flows.
- 2.10 Overlay Code Map 8 - *Major Flood Events* in the planning scheme shows the extent of the Q100 flood inundation estimated at that time and is the *Designated Natural Hazard Area (Flood)* for the purposes of Section 13 of the *Building Regulation 2006*. Applicants can also obtain the Q100 flood levels from Council. The defined flood event is the flood with a 1% annual exceedance probability (i.e. 1 in 100 year likelihood, aka Q100). In coastal areas the planning scheme currently uses the State defined Default Storm Tide level which includes a 300mm allowance for sea level rise.
- 2.11 In relation to flooding, code assessable development within the natural flood hazard area as shown on Overlay Map 8 is assessed against the Specific Outcomes of the *Major Flood Events Code* and applicants are required to provide relevant information in accordance with Planning Scheme Policy PSP17 – *Demonstrating Compliance with the Major Flood Events Code*. The purpose of PSP17 is to outline the information required in order to properly assess a development application triggered by the Major Flood Events Overlay Code. PSP17 requires a flood hazard assessment and a flood hazard mitigation report to be provided by applicants. The Major Flood Events Overlay Code includes six (6) Specific Outcomes to be satisfied to meet the Overall Outcomes of this code.
- 2.12 In regard to providing solutions to satisfy Specific Outcomes development proponents are required to demonstrate this using Council's design standards (Planning Scheme Policy PSP28) which, for stormwater, are based on the Queensland Urban Drainage Manual.
- 2.13 Impact assessable development is assessed against the whole planning scheme.
- 2.14 All development works must also comply with Part 2 - *Design Standards for Stormwater Drainage Works* of Planning Scheme Policy PSP28 – *Civil Infrastructure Design*. Section 4.10.1 of Part 2 prescribes minimum development levels for new development affected by flooding in natural watercourses (creeks, rivers, waterways) being the major flood level plus a 750 mm freeboard. Therefore, the minimum development level is 750 mm above the greater of the estimated Q100 flood level or the highest recorded flood level. This freeboard also applies to the storm tide event with a 1% annual exceedance probability.
- 2.15 ***Caboolture District***
The Caboolture planning scheme does not include mapping of the natural flood hazard areas or areas at risk of flood. Consequently, land use zones do not

necessary reflect whether the land is affected by major flood events. This places a greater emphasis on determining flood hazard during assessment of development applications. Code and impact assessable development is assessed having regard to State Planning Policy 1/03 (SPP 1/03) and its associated guideline to ensure the outcomes sought by the SPP 1/03 are achieved. For the purposes of assessment under SPP 1/03 Council has used the flood with a 1% annual exceedance probability to define the natural flood hazard management area. Notwithstanding this, the Caboolture planning scheme does address natural hazards. The Strategic Framework - General Matters includes the following:

(f) The effect of naturally occurring and man made hazards on the environment and community are minimised.

- 2.16 The Desired Environmental Outcomes of the planning scheme also includes the following:

(c)(iv) The adverse effects of naturally occurring and man made hazards on the natural environment and human communities are minimised.

- 2.17 There is no overlay mapping in the planning scheme to identify areas subject to natural flooding and consequently development codes (for a stated purpose or development type) include outcomes that must be satisfied in relation to flood hazards and mitigation of these hazards for development affected by flooding. In addition to these codes there is Planning Scheme Policy 19 - *Stormwater* that provides development proponents guidance on Council's requirements for technical reports addressing stormwater quantity and quality impacts of development. The defined flood event is the flood with a 1% annual exceedance probability (i.e. 1 in 100 year likelihood). In coastal areas the planning scheme currently uses the State defined Default Storm Tide level which includes a 300mm allowance for sea level rise.
- 2.18 Where relevant, the Stormwater Code is called up as an Assessment Criteria in the planning scheme Assessment Tables for most Defined Uses. For Reconfiguring a Lot type development the Reconfiguring a Lot Development Code applies and includes Specific Outcomes relevant to flood hazard and the provision of appropriate flood immunity. The defined major flood event used to establish flood immunity and hazard is the flood with a 1% annual exceedance probability (i.e. 1 in 100 likelihood, aka Q100).
- 2.19 In relation to flooding, code assessable development anticipated to be affected by natural flood hazard is assessed against the SPP 1/03, SPP 1/03 Guideline and Specific Outcomes of the relevant code and applicants are required to provide relevant information in accordance with Planning Scheme Policy PSP19 - *Stormwater*. Council's knowledge base on flooding within the Caboolture district has increased dramatically over the years by its own flood assessments and approved flood studies provided by development proponents.
- 2.20 In regard to providing solutions to satisfy Specific Outcomes development proponents are required to demonstrate this using Council's design standards (Planning Scheme Policy PSP4 - *Design and Development Manual*) which, for stormwater, are based on the *Queensland Urban Drainage Manual* and *Australian Rainfall and Runoff*.
- 2.21 Impact assessable development is assessed against the whole planning scheme, SPP 1/03 and the SPP 1/03 Guideline.
- 2.22 All development works must also comply with Section 8 - *Stormwater Drainage* of Planning Scheme Policy PSP4 - *Design and Development Manual*. Section 8.9

includes minimum development levels for new development affected by flooding in natural watercourses (creeks, rivers, waterways) being the major flood (Q100) level plus a 300 mm freeboard. This freeboard also applies to the storm tide event with a 1% annual exceedance probability. Table 7.20 of the *Reconfiguring a Lot Code* also prescribes the minimum flood free (above Q100) area required in new lots created through the development approval process.

2.23 Development proponents must show the Q100 floodlines on proposal layout plans for development applications. These floodlines must be derived from either Council flood studies or approved flood studies provided by the applicant to support their application.

2.24 **Identification of Natural Flood Hazard Areas for Development Assessment**

2.25 Council's knowledge base on flooding within the Caboolture district has increased dramatically over the years since the current planning scheme commenced. Council's own flood assessments and approved flood studies provided by development proponents have been used in the assessment of development applications.

2.26 Today, Council has extensive flood assessments for all watercourses in the Moreton Bay Regional Council area and the natural Q100 flood hazard areas are depicted of Council's computerised spatial mapping system (GIS). Council has also recently assessed overland flows assuming the existing underground stormwater systems are blocked or overloaded. This information gives development assessment officers very good information on where development applications impact on natural flood hazard management areas and where land is affected by flooding.

2.27 Example of current GIS mapping:

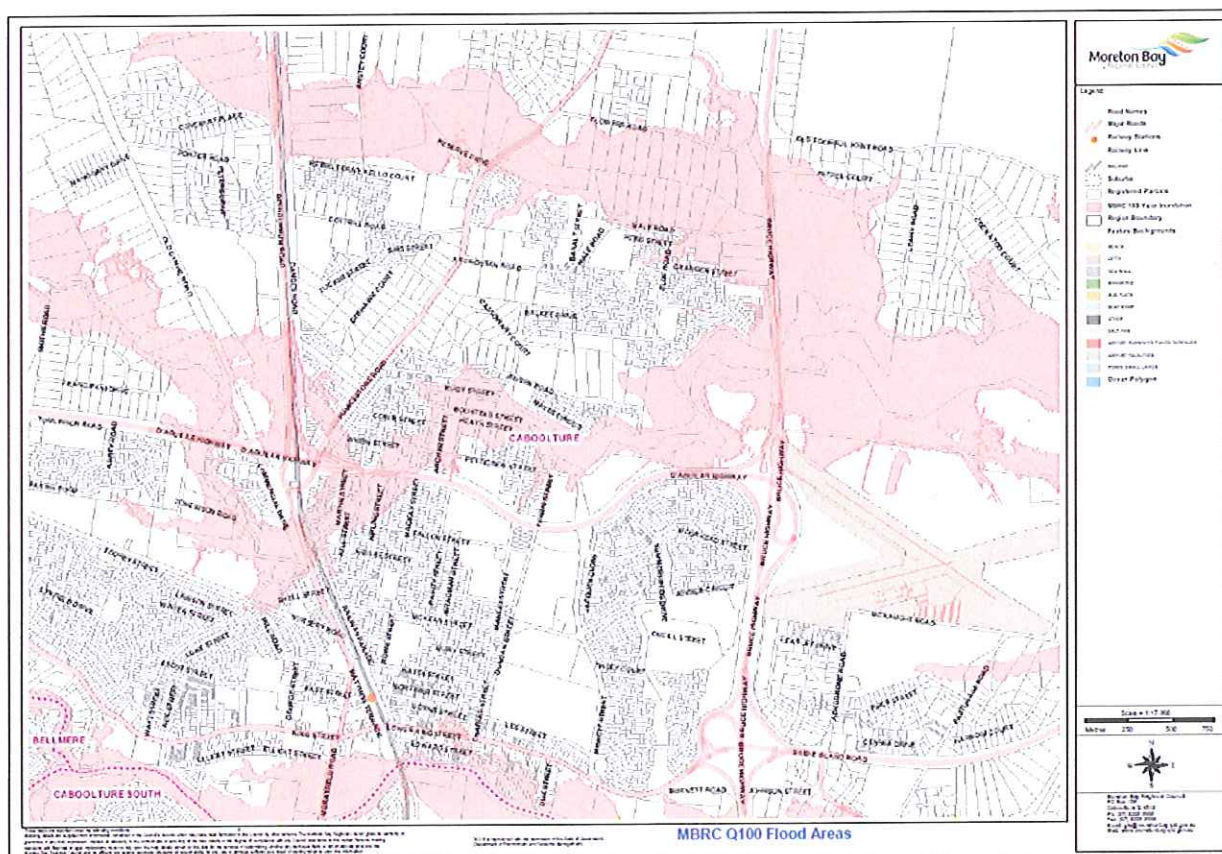


Fig 1. – Current MBRC Q100 Flood Areas (example in Caboolture)

3. Details of Council's defined flood event including a description of:

- a. how the defined flood event was chosen; and**
- b. the way in which the council's defined flood event was calculated or determined**

- 3.1 The defined flood event was required to be reflected in each of the Planning Schemes for the region by both the State Planning Policy and its accompanying guidelines. The State nominated its position as the adoption of 1% AEP (Annual Exceedance Probability) as the criteria for determining the defined flood event and flood management area.
- 3.2 Pine Rivers Plan adopted this as their standard through its Major Flood Events Overlay. The Redcliffe City Planning Scheme also adopted the same standard through its Overlay Map 3.
- 3.3 Note the statement under A2.9 of the State Planning Policy Guideline 1/03 (Refer Attachment 1680912-1) that the adopted flood management area is likely to be inundated in more extreme flood events, however the State indicates that the residual risk i.e. the risk of a flood which exceeds the Defined Flood Event - should be addressed in the local government counter disaster plans and emergency procedures, both of which are beyond planning scheme measures.
- 3.4 Although the Caboolture ShirePlan does not fully encompass the State Planning Policy on Flooding to the Minister's satisfaction, it does adopt the 1% AEP for reconfiguring and filling. All other assessable development needs to comply with that same State Planning Policy to the extent that it is not reflected in the Planning Scheme. The Minister has indicated that both the Redcliffe Planning Scheme and the PineRiversPlan reflect the flooding aspects of the State Planning Policy.

4. A description of any planning requirements to have evacuation routes and/or early warning systems for areas identified to be at high risk of flooding, including information about how the existence of such evacuation routes and/or early warning systems are communicated to the occupiers of areas at high risk of flooding.

- 4.1 There are no specific planning requirements within the Caboolture Planning Scheme in regard to having evacuation routes and or early warning systems for areas identified to be at high risk of flooding.
- 4.2 At the time of the 11 January 2011 flood event, MBRC had one flood warning system in place for areas which were at risk of flooding, which was for Dale Street, Burpengary. There was no designated evacuation route/s associated with the warning protocol. Residents were provided with correspondence in May 2009, advising of revised protocol of warning and potential resident action – refer Attachment 1680912-2.

5. A description of any controls or standards used to assess the storage of chemicals or other Environmentally Relevant Activities below the Q100 flood line or the Council's defined flood event.

- 5.1 Council's response has drawn on the records for licensed premises that store flammable and combustible liquids as per the *Dangerous Goods Safety Management Act 2001* as well as devolved environmentally relevant activities administered under the *Environmental Protection Act 1994*. Schedule 2 of the *Environmental Protection Regulation 2008* defines each environmentally relevant activity (ERA). The ERAs

devolved to and administered by Local Government are specified in section 101 of the *Regulation* and are listed as follows -

ERAs administered by Local Government (as at 1 January 2009)
ERA 4 (1) Poultry farming; Farming more than 1,000-200,000 birds
ERA 4 (2) Poultry farming; Farming more than 200,000 birds
ERA 6 (a) Asphalt manufacturing; Manufacturing in a year less than 1000t of asphalt
ERA 6 (b) Asphalt manufacturing; Manufacturing in a year 1000t or more of asphalt
ERA 8 (3a) Chemical storage; Storing a total quantity of 10m ³ to 500m ³ of chemicals of Class C1 or C2 combustible liquids under AS 1940 or dangerous goods Class 3
ERA 12 (1) Plastic product manufacturing; Manufacturing, in a year, a total of 50t or more of plastic product (other than foam, composite plastics or rigid fibre-reinforced plastics)
ERA 12 (2) Plastic product manufacturing; Manufacturing, in a year, a total of 5t or more of foam, composite plastics or rigid fibre-reinforced plastics
ERA 17 Abrasive blasting; Cleaning equipment or structures on a commercial basis using a stream of abrasives in either a wet or dry pressure stream.
ERA 18 (a) Boilermaking or engineering; Boilermaking, assembling, building or manufacturing 200t to 10,000t of metal product in a year
ERA 18 (b) Boilermaking or engineering; Boilermaking, assembling, building or manufacturing more than 10,000t of metal product in a year
ERA 19 Metal forming; Forming a total of 10,000t or more of metal in a year
ERA 20 (1) Metal recovery; Recovering less than 100t of metal in a day
ERA 20 (2a) Metal recovery; Recovering 100t or more of metal in a day, or 10,000t or more of metal in a year without using a fragmentiser
ERA 20 (2b) Metal recovery; Recovering 100t or more of metal in a day, or 10000t or more of metal in a year using a fragmentiser
ERA 21 Motor vehicle workshop operation; Operating a workshop on a commercial basis or in the course of carrying on a commercial enterprise involving any of the following relating to motor vehicles – (a) maintaining mechanical components, engine cooling radiators or body panels; (b) spray-painting body panels; (c) detailing or washing.
ERA 37 (a) Printing; Printing, in a year, 200t to 1,000t of printed materials
ERA 37 (b) Printing; Printing, in a year, more than 1,000t of printed materials
ERA 38 (1a) Surface coating; Anodising, electroplating, enamelling or galvanizing, using, in a year, 1t to 100t of surface coating materials
ERA 38 (2a) Surface coating; Coating, painting or powder coating, using, in a year, 1t to 100t of surface coating materials
ERA 43 Concrete batching; Producing 200t or more of concrete or concrete products in a year, by mixing cement with sand, rock, aggregate or other similar materials.
ERA 48 (1) Wooden and laminated product manufacturing; Fabricating in a year 100t or more of wooden products

ERA 49 Boat maintenance or repair; Operating, on a commercial basis, a boat maintenance or repair facility for maintaining or repairing hulls, superstructure or mechanical components of boats or seaplanes.

ERA 61 (1) Waste incineration and thermal treatment; Incinerating waste vegetation, clean paper or cardboard
--

5.2 The predominant environmentally relevant activity in the Moreton Bay region is ERA 21 Motor vehicle workshop operation. Motor vehicle workshops and the majority of other ERAs are carried out inside industrial sheds or purpose built buildings however there are some ERAs that are conducted outside the protection of a building, typical examples are ERA 8 (3a) Chemical storage (which includes service stations) and ERA 43 Concrete batching.

5.3 ERAs not devolved to Council are administered by DERM.

5.4 The controls used to regulate these activities are determined by the planning instruments for each district. In all three districts the applications for an ERA are either

5.4.1 Code assessable by the assessment manager on land already approved for that use; or

5.4.2 Impact assessable on land not approved for that use.

5.5 Code Assessable Applications

These ERAs are code assessable because the suitability of the land use for industrial type activities has already been predetermined by consideration of all relevant overlays. The land allocated for these activities is typically industrial estates that are approved on land above the estimated Q100 or defined flood event level at the time the subdivision was approved.

5.6 Impact Assessable Applications

Applications for ERAs that are impact assessable are ordinarily for those types of activities not located in an industrial estate. A typical example is a fuel service station in a stand alone development. In assessing applications of this type the applicant is required to address all relevant codes and demonstrate that the development is above the Q100 or defined flood event level determined at the time of application. Developments were not approved within the current Q100 or defined flood event level for each district.

5.7 A series of maps is attached which shows the position of ERAs and licensed premises for the storage of flammable and combustible liquids in relation to the current Q100 for MBRC. Some properties are now within the Q100 to varying degrees of coverage. These have been identified in three spreadsheets titled Dangerous Goods – Q100, Service Stations – Q100 and Industrial Properties – Q100. **Refer Attachments 1680912-3; 1680912-4; 1680912-5, 1680912-6.**

5.8 In summary, the control for ERAs and activities that store chemicals such as flammable and combustible liquids is the current Q100 level at the time of any application lodged with Council.

6. A description of any conditions imposed by Council on the approval of development applications to ensure that hazardous materials affected by flood water do not affect public safety and/or the environment.

6.1 Prior to amalgamation each of the three Councils used standard conditions for ERAs adopted by the Environmental Protection Interest Group under SEQROC (South East Queensland Region Organisation of Councils). Since amalgamation the standard set

of conditions are used by MBRC to ensure hazardous materials do not affect public safety or the environment. The relevant conditions for water borne contaminants form Schedule C of the development permit for Council administered ERAs. A copy of these standard conditions follows –

6.2 SCHEDULE C - WATER

- (C1) Contaminants or contaminated water must not be directly or indirectly released from the Premises or to the ground or groundwater at the Premises except for:
- i) uncontaminated Overland Stormwater flow;
 - ii) uncontaminated Stormwater to the Stormwater system; or
 - iii) contaminants released to sewer under and in accordance with a trade waste permit granted by the relevant authority under the *Water Supply (Safety & Reliability) Act 2008*.
- (C2) Releases to water must not cause any visible oil slick or other visible evidence of oil or grease, nor contain visible, grease, scum, litter or floating oil.
- (C3) The Holder must ensure that:
- i) maintenance and cleaning of equipment (including vehicles and plant) is carried out in an area where contaminants cannot be released into stormwater drainage, a roadside gutter, a water or onto unsealed ground.
 - ii) any spillage of contaminants is cleaned up immediately by a method other than hosing, sweeping or otherwise releasing the contaminants into stormwater drainage, a roadside gutter or a water.
 - iii) incident rainfall and overland flow of stormwater does not contact contaminants (for example, areas with contaminants should be roofed or be protected by diversion drains).

End of conditions for Schedule C

- 6.3 In summary, there are no specific development conditions imposed by Council to ensure hazardous materials do not affect flood waters because developments are not approved on land within the current Q100 level. There are conditions however to prevent contaminants being directly or indirectly released to ground or stormwater.

7. A description of how levee banks are regulated in the council area using specific examples.

7.1 Levee Banks approved for Development

7.2 Off-stream Extractive Industry

Levee banks have been implemented by some off-stream extractive industry sites to provide protection to their operations and mitigate against transportation of sediments and other contaminants from the site to receiving waters during flood events.

- 7.3 The bund/levee bank requirements are generally included in conditions of town planning consents/development approvals for extractive industry sites and require the developer to operate, maintain and repair this infrastructure. Detailed technical reports are required to ensure proper performance of these works. Consent approval conditions generally include a periodic report on the development to demonstrate compliance with specific conditions and review the program of proposed development into the future (generally at five year intervals).

- 7.4 By way of example, Boral Resources (Qld) Pty Ltd currently operate an off-stream extractive industry at Lawnton Pocket Road, Lawnton adjacent the North Pine River, South Pine River and Four Mile Creek. The original town planning consent permit (No.444) was issued on 24 January 1978 for extraction on the site adjacent the North Pine River and stockpiling of materials at the end of Lawnton Pocket Road. The permit conditions required the construction of bunds along the North Pine River in accordance with the Environmental Impact Statement for the development. This permit also required a detailed development program for the first five years with updates to be made to this program every five years thereafter. Consent Permit No. 444 was subsequently reviewed and amended with permit No. 444/A being issued on 6 July 1987 to BMG Resources Limited. At the time the amended approval was issued East Coast Gravel Pty Ltd were also carrying out gravel extraction within the rivers adjacent the site under approvals issued by the State. The operation, maintenance and repair of the bunds is the responsibility of the developer.

7.5 Residential Development

There are no levee banks constructed for residential development in the region.

8. Details of council infrastructure (sewers, roads, stormwater etc) that was affected by flooding during the period 1 December 2010 to 31 January 2011.

- 8.1 Infrastructure affected included roads, buildings and park assets. Examples of damage included roads sustaining damage ranging from potholes to complete failure of the road surface and pavement. In some areas, parts of the road have been eroded completely. On several roads in mountainous terrain, slip failures of slopes above and/or below the road has resulted in failure of the road to the point of road closure being required. Damage to buildings was mostly damage to electrical services; however some buildings have sustained significant structural damage, especially several amenity buildings located within parks. Park asset damage ranged from erosion of softfall, damage to and loss of fencing, playground equipment, shelter sheds, and BBQ facilities.
- 8.2 A cross section of flood affected infrastructure within MBRC was as follows:
- 8.3 **Roads:**
- 8.3.1 Gap Road, Bellthorpe - damaged section of road - longitudinal crack down approximate centreline of pavement in steep rural country was reconstructed - coincided as main route of transporting avocado crop out of Bellthorpe to market;
- 8.3.2 Bellthorpe Range Road, Bellthorpe - a 1.5km section of roadway was severely damaged - major erosion, loss of guardrail, drainage failure and localised batter / bank slippages - this section has been closed since January 2011 - current works at tender stage for reconstruction - estimated time to reopen March 2012;
- 8.3.3 Jimna Court, Deception Bay - major pavement and supporting retaining wall failure leading to structural damage to immediate upstream dwellings (x2) - initially damaged in October 2010 rains; further damaged in December 2010 / January 2011 rains - restricted / limited access for residents in Jimna Court whilst the pavement and supporting earthen embankment was redesigned and reconstructed, with the inclusion of substantive drainage system - October 2010 through to July 2011;
- 8.3.4 Mt Nebo Road, Mt Nebo - major landslips affecting pavement and associated access;
- 8.3.5 Bridge - Lacey's Creek Road - abutment erosion, significant shoulder erosion.

8.4 Parks & Reserves:

- 8.4.1 Sweeney Reserve, Petrie - major damage / loss of existing infrastructure - park furniture, playground equipment, shade structures, road and car parking pavements, toilet block etc - park has been closed since 11 January 2011;
- 8.4.2 Centenary Lakes, Caboolture - major damage / loss of existing infrastructure - fences, softfall to numerous locations, irrigation systems (electrical equipment), pumps overhauled, park furniture, footpaths, park furniture, playground equipment, shade structures, road and car parking pavements, toilet block etc - park has been closed since 11 January 2011.

8.5 Buildings & Facilities:

- 8.5.1 Dayboro Pool - replacement of pool heating units;
- 8.5.2 Dayboro Art Gallery - footpath repaired and external wall sheeting repaired and repainted;
- 8.5.3 Mt Glorious Road - LED early warning (fire) sign replaced.

- 8.6 In relation to sewer infrastructure, I understand that the Queensland Flood Commission of Inquiry has sought information from Unitywater regarding water and sewerage infrastructure matters. Unitywater are best placed to provide information pertaining to the degree if any, of the flood affectation of these assets, as well as the capacity of such assets.

9. A description of the measures used by Council to protect Council infrastructure (sewers, roads, stormwater etc) and to ensure such infrastructure functions during a defined flood event.

- 9.1 Measures used by Council to protect Council infrastructure during a defined flood event are extensive. Some measures are as follows:
- a) Open drainage cleaning/ desilting program.
 - b) Armour and stabilisation to identified high flow drainage areas
 - c) Gravel road grading program including the addition of gravel wearing surface and regrading table drains ensuring functional drainage of road surface.
 - d) Pothole patching and pavement failure activities.
 - e) Promotion of road reconstruction and rehabilitation candidates which are critical routes during flood times
 - f) Resurfacing and rehabilitation programs
 - g) Active clearance of under road culverts following rain events of debris to prevent blockage and unnecessary overtopping of roads.
 - h) CCTV asset inspection program of stormwater pipes
 - i) Patrols to clear drainage pits during rain events

- 9.2 In relation to sewer infrastructure, I understand that the Queensland Flood Commission of Inquiry has sought information from Unitywater regarding water and sewerage infrastructure matters. Unitywater are best placed to provide information pertaining to the degree if any, of the flood affectation of these assets, as well as the capacity of such assets.

10. A description of any development approvals for subdivisions of lots to create more than four residential lots since 2003, together with a depiction of the proposed developments on a cadastral map within Council's jurisdiction.

- 10.1 **Three (3) attachments 1680912-7, 1680912-8, 1680912-9** contain a description of development approvals for subdivisions of lots to create more than four (4) residential lots since 2003.

- 10.2 A copy of the Residential Development 2003-2011 Index Map and Residential Development 2003-2011 and a 1 in 100 year flood event Index Map are included as **Attachments 1680912-10, 1680912-11.**

All the facts sworn to in this affidavit are true and correct to my knowledge and belief except as stated otherwise.

Sworn by CHRIS WARREN at
Strathpine this 12th day of September 2011
before me, Angus James Conaghan:

