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9 Building controls

Development controls in a floodplain should contain an appropriate mix of measures, including land use planning and building controls, to minimise the impact of floods.

Land use planning controls are primarily contained in local planning instruments and indicate the types of development suitable for various parts of the floodplain.¹ Building controls regulate the structural form of development and are primarily contained within national or state building regulations but are also found, in some instances, in local planning instruments.

Where land use planning allows development in places susceptible to flooding, building controls may reduce the risks posed to people and property. Building controls may also reduce the cost of property damage caused by flooding and the time taken to restore a building so that it can be reoccupied after a flood.²

9.1 Minimum floor levels

A council may specify minimum floor levels for habitable rooms through a planning scheme, a temporary local planning instrument or a council resolution.³ The State Planning Policy 1/03 Guideline: *Mitigating the Adverse Impacts of Flood, Bushfire and Landslide* suggests that councils may also set minimum floor levels for non-habitable rooms where local flooding characteristics warrant doing so.⁴

There are variations in the way councils impose minimum floor levels. For example, Brisbane's planning scheme requires habitable and non-habitable rooms of houses to be built to specified flood immunity levels.⁵ Ipswich's temporary local planning instrument for floods requires other factors to be considered as well in determining the minimum floor level for a habitable room, such as the consistency in height between the proposed building and the existing streetscape.⁶

9.2 Freeboard levels

In setting floor levels, councils typically use a 'freeboard' to provide an additional buffer allowing for uncertainty in estimating flood water heights, the effects of wave action and unforeseen variation in local flood behaviour.⁷ However, as floods vary from event to event, there is a limit to the protection afforded by a freeboard allowance.⁸

It is not mandatory for councils to set a freeboard level, nor is any particular freeboard level prescribed. As with minimum floor levels, this has led to variation in approaches among councils, with some setting freeboard levels for habitable and non-habitable floor levels, some setting them for habitable floor levels only, and some not setting them at all.⁹ Where councils have set freeboard levels, they generally range from 300 millimetres to 500 millimetres.¹⁰

A town planning expert who gave evidence to the Commission supported the introduction of a mandatory minimum freeboard level across the state, allowing councils to retain the discretion to raise the level for planning reasons, for example, to protect heritage buildings.¹¹ A council might also choose to set a higher freeboard where there was a high measure of uncertainty surrounding its estimated flood level.

The Queensland Government intends to introduce a new mandatory part to the Queensland Development Code: mandatory part 3.5 'Construction of buildings in flood hazard areas'.¹² The proposed new part establishes a standard minimum freeboard of 300 millimetres,¹³ but leaves councils free to set a greater freeboard height, if they consider it necessary.¹⁴ The operation of the proposed new part is discussed in further detail in section 9.5 *Proposed new part of the Queensland Development Code: 'Construction of buildings in flood hazard areas'*.

9.3 Building materials and design

The question arises as to whether there should be greater regulation, in areas at risk from flooding, of the design and types of materials used in the construction of buildings and other structures.

A town planning consultant submitted to the Commission that despite the obvious benefits of using flood resistant materials and innovative design solutions, the associated costs often discouraged developers from employing them.¹⁵ The Property Council of Australia is similarly concerned that prescribed mitigation measures for buildings may add to project costs, reducing their affordability.¹⁶ The Insurance Australia Group has suggested that building standards and codes should be improved so that they better protect property from flood damage, but in a cost effective manner.¹⁷

Although the Commission does not consider it appropriate for it to prescribe building design and materials, it is worth mentioning the experiences of some building owners whose properties incorporated building materials and design measures to mitigate flood damage. Local and state governments and individual property owners may benefit from considering similar measures.

In Maryborough, businesses in the low-lying marina precinct are some of the first to be affected by flooding of the Mary River. The owner of the main marina building fitted the building with louvre windows that could be easily removed, and built partition walls out of besser block.¹⁸ Following the 2010/2011 floods, the building owner and tenants have further adapted the building to enable more efficient evacuation before, and quicker recovery after, flooding by placing equipment on wheels and raising the height of power points.¹⁹

In Gympie, a furniture store which flooded to its second storey was fully operational within a week of the flood because of its comprehensive evacuation plan²⁰ and building improvements which better enabled it to cope with and recover from flooding.²¹ The improvements included constructing walls from modern fibrous cement, using acrylic water based paint, raising the height of electricity supply points and using flood resistant floor materials.²²

A residence in West End in Brisbane, built on the edge of the Brisbane River, includes several features designed to reduce any flood related damage. Design features included ensuring there was no built-in furniture in the downstairs area. Water resistant materials were used to build the doors and walls of the lower levels.²³

Some councils have also benefited from designing their buildings to be more flood resilient. For example, Ipswich City Council designed the caretaker's residence and kiosk at Colleges Crossing so they could be dismantled and removed before flooding occurs.²⁴ The council proposes to construct its public buildings from concrete rather than timber to lower any cost of cleaning and restoration after a flood.²⁵

The location of essential services such as lifts, electrical switch boards and back-up power supplies is also a relevant consideration in the design of a building to mitigate effects of flooding. The proposed new part of the Queensland Development Code introduces standards for the location of essential services in buildings.²⁶ This is further discussed in section 10.3 *Electrical infrastructure*.

The proposed new part of the Queensland Development Code establishes requirements about the design of residential buildings.²⁷ Building Codes Queensland is also considering introducing non-mandatory provisions into the Queensland Development Code relating to the use of water resistant materials of a non-structural nature. Some councils have indicated they will incorporate these standards into their local planning instruments, making them mandatory.²⁸ Following the 2010/2011 floods, a number of councils included standards about the use of flood resilient materials in their temporary local planning instruments.²⁹ Matters of building materials and design are also referred to in the model code proposed by the Queensland Reconstruction Authority.³⁰

9.4 State versus local regulation

There is agreement in the building industry about the need for more detailed building controls in areas susceptible to flooding.³¹ However, there is some debate about which level of government should regulate these types of controls.

Certain aspects of building work are assessed by a building certifier against the Queensland Development Code; other aspects of building work may be assessed by a council, if it has incorporated building controls in its planning scheme.³² Building work regulated by the Queensland Development Code cannot be regulated by planning schemes.³³ This rule did not apply to temporary local planning instruments, but the Queensland Government has recently passed the *Sustainable Planning and Other Legislation Amendment Act 2012*, which ensures that temporary local planning instruments are also unable to regulate building work covered by the Queensland Development Code.³⁴

The Queensland Government Planner considers it is appropriate to incorporate building controls into either building codes (which include the Queensland Development Code) or into local planning instruments (which include planning schemes and temporary local planning instruments).³⁵

On the other hand, Building Codes Queensland considers it is generally inappropriate for building controls to be included in local planning instruments.³⁶ Building Codes Queensland's view is that compliance with building controls is a matter best addressed through dedicated building codes that are routinely used by the construction industry, such as the Queensland Development Code and the Building Code of Australia.³⁷ It argues that if building design criteria were included in local planning instruments, there would be variation in building requirements and terminology across councils.³⁸

Building Codes Queensland also notes that any overlap between local planning instruments and building codes may create uncertainty for building certifiers³⁹ and lead to duplication in processes, creating additional costs and delays in the development application process.⁴⁰

However, Ipswich City Council's view is that planning schemes should deal with building design, habitable floor levels and the placement of buildings,⁴¹ whereas structural adequacy, use of flood resistant materials and construction techniques should be regulated by the Queensland Development Code.⁴²

For some aspects of building controls for areas at risk of flooding, this debate will be resolved with the introduction of a proposed new part of the Queensland Development Code: Mandatory Part 3.5 'Construction of Buildings in Flood Hazard Areas'.

9.5 Proposed new part of the Queensland Development Code: 'Construction of buildings in flood hazard areas'

The Queensland Development Code consolidates many of Queensland's building standards into a single document and is applied by building certifiers in the assessment of applications for building work.⁴³ It incorporates and adds to many of the standards contained in the Building Code of Australia⁴⁴ and regulates a range of building matters such as the design and siting of certain buildings, fire safety and the establishment of swimming pool barriers.

Some parts of the Queensland Development Code are mandatory,⁴⁵ other parts are not. The non-mandatory parts of the code provide model standards which may be modified by councils to suit local circumstances and incorporated into planning schemes. The code, as it is presently framed, does not include any mandatory or non-mandatory parts that regulate the construction of buildings in areas at risk of flooding.

The Building Code of Australia contains provisions dealing with natural hazards including bushfires, earthquakes and cyclones, though, like the Queensland Development Code, it does not deal with flood. The Commonwealth Government attributes this omission to the fact that planning authorities have the power to prohibit building in areas at risk from flooding and to require habitable floors to be above a specified flood level.⁴⁶

The Australian Building Codes Board has recently developed the 'Draft Standard for Construction of Buildings in Flood Hazard Areas'⁴⁷ to address the lack of specific state or national building regulation for how buildings should be constructed in areas at risk of flooding.

Basing its work on this draft national standard, Building Codes Queensland has prepared a proposed new Mandatory Part 3.5 of the Queensland Development Code, 'Construction of Buildings in Flood Hazard Areas'.

Queensland's proposed new part has three performance requirements which establish new standards for buildings in areas at risk from flooding. They are (paraphrased):

- to maintain the structural integrity of residential buildings during a flood
- to set criteria for the design and location of utilities⁴⁸ (for example, electrical switchboards and lift motors)⁴⁹
- to protect sanitary drains from backflow.⁵⁰

The first reflects, for the most part, the draft national standard, but the second and third do not appear in the draft national standard.

A more detailed discussion of the second and third performance requirements is in sections *10.1 Sewage and sewerage* and *10.3 Electrical infrastructure*.

The Queensland Government has indicated that the proposed new part will commence following the release of this report in early 2012,⁵¹ but before the finalisation of the draft national standard, which will be available for adoption by states and territories on 1 May 2013.⁵²

9.5.1 Required flood information

The Commission has concerns the proposed new part may, in certain circumstances, be unduly onerous for applicants wishing to build in areas at risk of flooding.

For the proposed new part to apply to building work, the following is required:

- the relevant council must have designated a 'flood hazard area'⁵³ within its region
- the building work is proposed within the designated flood hazard area
- the building work is proposed below a particular level, known as the 'defined flood level', within that flood hazard area.⁵⁴

The defined flood level, for a lot located in a flood hazard area, in the proposed new part is defined to mean:

- a. the expected flood level for the area declared by a Local Government under the *Building Regulation 2006*, section 13; or
- b. if a Local Government has not declared an expected flood level –
 - i. the 1% *Annual Exceedance Probability* flood level for the lot, as determined by a *competent person*; or
 - ii. the highest recorded flood level for the lot.⁵⁵

It is not apparent whether clause (b)(ii) of the definition requires that a flood level has been recorded at the lot, or whether it is sufficient for the flood level at the lot to be worked out from a recorded flood level at some other place (for example, at a gauge). If the latter, the definition does not contain any indication who should determine the highest recorded flood level for a lot. Neither part of clause (b) provides any information about how the relevant flood level is to be determined.

The effect of the definition seems to be that, where a council has designated a flood hazard area but has not declared an expected flood level, it is left to the building applicant to ascertain either the 1% AEP flood level or the highest recorded flood level for the relevant lot.

This scenario may arise, for example, where a council has adopted the Queensland Reconstruction Authority maps, without amendment, for the purpose of designating its flood hazard area.⁵⁶ While these maps may assist councils to identify areas where future flood investigations are required, they do not establish flood levels for all lots.⁵⁷ Flood levels might be able to be worked out where there is a gauge nearby, but for lots not directly adjacent to a gauge, further work will have to be done. (For further discussion about the Queensland Reconstruction Authority maps see section *2.7.3 Assessment of mapping options*.)

As well as the problems of determining the defined flood level, there are the difficulties of meeting the first requirement of the proposed new part, which is, in effect, that the building be designed and constructed to withstand a flood.⁵⁸ The proposed acceptable solution 'A1' (which entails compliance with sections of the draft national standard) applies only where one of the following also applies:

- a. the Local Government has declared, under section 13 of the *Building Regulation 2006*, an expected *maximum flow velocity* for the area in which the lot is located, that is less than 1.5 metres per second; or
- b. it is reasonable to expect the lot to be subjected to a *maximum flow velocity* of less than 1.5 metres per second; or
- c. the lot is located in an *inactive flow* or *backwater area*.⁵⁹

That provision contemplates that councils will (after the necessary amendment of section 13 of the *Building Regulation 2006*) be able to declare the expected maximum flow velocities of flood water and to designate inactive flow or backwater areas.⁶⁰

Where the defined flood level and ‘maximum flow velocity’ information for a lot are not declared by the relevant council, the building applicant may need to engage an engineer to establish them.⁶¹ Hydrologic and hydraulic models are likely to be required.⁶² The extent of the flood modelling required to determine the relevant flood level and flow velocity will depend upon the size and complexity of the watercourse, or the flow path, affecting the particular property.⁶³ (Flood studies are discussed further in section 2.2.)

Concerns have been raised about the time and cost implications for councils in obtaining the relevant flood data required to implement the proposed new part.⁶⁴ It has also been suggested that the potential requirement for a site-specific flood analysis where a council has not declared (for example) a defined flood level in its flood hazard area may be ‘both impractical and cost prohibitive’ for applicants for all but the largest of projects.⁶⁵ And it is said, with some justice, that it is unreasonable to require an applicant to obtain information about the maximum velocity of flow to which the entire lot is subjected and whether it is in the inactive flow or backwater area, when in fact the proposed development may only occupy a part of a lot, unaffected by flooding problems.⁶⁶

Recommendations

- 9.1 The proposed new part of the Queensland Development Code, Mandatory Part 3.5 ‘Construction of buildings in flood hazard areas’, should be amended so that the performance requirement relating to building design and construction (Performance Requirement P1) for building on a lot will only be triggered where the council has:
- designated part of its area as a natural hazard management area (flood) under section 13 of the *Building Regulation 2006*, and
 - either:
 - declared a height to be the expected flood level under section 13 of the *Building Regulation 2006*, or
 - adopted a highest recorded flood level for the lot, and
 - either:
 - declared a velocity to be the expected maximum velocity of flood water for the area in which the lot is located, or
 - designated the area in which the lot is located an inactive flow or backwater area.
- 9.2 The proposed new part of the Queensland Development Code, Mandatory Part 3.5 ‘Construction of buildings in flood hazard areas’, should be amended so that the performance requirements about utilities and sanitary drains (Performance Requirement P2 and P3) for building on a lot will only be triggered where the council has:
- designated part of its area as a natural hazard management area (flood) under section 13 of the *Building Regulation 2006*, and
 - either:
 - declared a height to be the expected flood level under section 13 of the *Building Regulation 2006*, or
 - adopted a highest recorded flood level for the lot.

Recommendation

- 9.3 The Queensland Government should consider amending the 'Limitation' section of the proposed new part of the Queensland Development Code, Mandatory Part 3.5 'Construction of buildings in flood hazard areas', to allow for the possible application of 'acceptable solution A1' to a building located on a lot if:
- it is reasonable to expect the part of the lot on which the building work is proposed to be subjected to a maximum velocity of less than 1.5 metres per second, or
 - the part of the lot on which the building work is proposed is located in an inactive flow or backwater area.

9.5.2 Assessing building applications against the proposed new part

A building certifier generally assesses building work applications.⁶⁷ A council may also become involved in the assessment process as a 'concurrence agency'.⁶⁸ This enables the council to require the building certifier to refuse the application, approve it in its entirety or impose conditions on the approval of the application.⁶⁹

Ipswich City Council has concerns about how building certifiers will deal with the determination of technical flood issues, such as calculating maximum velocities, when applying the proposed new part.⁷⁰ It considers that councils should have the primary responsibility for assessing building work applications within a flood hazard area, or, at a minimum, be a concurrence agency for these applications.⁷¹

It is logical that the entity assessing a building application to which the proposed new part applies should have the appropriate technical expertise to make informed decisions.

In circumstances where the proposed new part applies to a building application, a council (as the concurrence agency) will be able to indicate to a building certifier that it would be 'impractical or undesirable' for the building to comply with some requirements of the part.⁷² This enables councils to exercise discretion in circumstances where there are competing planning considerations.⁷³ For example, a council may consider it to be 'impractical or undesirable' to build an extension to an existing building above the defined flood level where the existing building is at a lower level.⁷⁴

The breadth and imprecision of the expression 'impractical or undesirable' may result in its inconsistent application by councils: this would run counter to one of its objectives, which is to introduce consistency in the application of building regulations.⁷⁵ It has been suggested to the Commission that the expression is also likely to introduce uncertainty, because its terms have not been used before in a planning context. It was suggested the expression be rephrased to be more consistent with the language of the *Sustainable Planning Act*, by amending the proposed new part to provide that councils can decide whether there are sufficient grounds to justify the decision to approve a development, despite any conflict with the proposed new part.⁷⁶

The Queensland Government contends that the current wording provides flexibility for councils to consider a wide range of matters when making their determinations.⁷⁷ To assist in interpretation of the provision, the Queensland Government included in the proposed new part some examples of the types of matters a council may wish to consider. These include:

- the expected level of flood inundation, the level of surrounding homes and any practical difficulties in achieving compliance
- the level of an existing building for additions and any practical difficulties in achieving compliance
- heritage or other planning related matters.⁷⁸

The Queensland Government also intends to develop material to guide councils on the types of matters they may wish to consider when making a decision.⁷⁹ The Commission believes this may go some way to ensuring consistent decisions are made.

9.5.3 Early adoption of the proposed new part

The Queensland Government intends to adopt the proposed new part in early 2012,⁸⁰ which is prior to the finalisation of the draft national standard (expected to be available for adoption on 1 May 2013).

The draft national standard is to be the subject of consultation throughout Australia to identify compliance costs, effects on competition and ways to maximise the efficiency of the new requirements.⁸¹ The results of that consultation are expected to be provided to the Australian Building Codes Board in February 2012.⁸²

Building Codes Queensland asserts that the early adoption of the proposed new part is necessary to address the immediate need for detailed standards for constructing new buildings as well as to improve flood resilience of communities across Queensland.⁸³

On 26 July 2011, Building Codes Queensland circulated a 'Building Newsflash bulletin' to building organisations, industry groups, councils and members of the general public seeking comments on the implementation of the proposed new part.⁸⁴ The proposed new part has also been published on the Department of Local Government and Planning's website, with an explanatory note.⁸⁵ That is the extent of public consultation. Building Codes Queensland has also consulted directly with various councils, the Queensland Reconstruction Authority and other building industry representatives.

The consultation process for the draft national standard has not yet been completed.⁸⁶ The Commonwealth Government anticipates the results of the consultation process will be available by June 2012.⁸⁷

The Commonwealth Government expects the Queensland Government will undertake a similar consultation process before the proposed new part commences.⁸⁸ Examples of what the Commonwealth Government believes the Queensland Government may need to consider as part of the consultation process include:

- the potential costs for councils of undertaking flood studies to determine maximum velocities or to identify inactive flow or backwater areas
- the potential costs for applicants of engaging suitably qualified professionals to determine flood levels or flood behaviour
- the costs of building materials or design solutions to meet the requirements of the proposed new part.⁸⁹

The Commission acknowledges the advantages of prompt attention to ensuring proper regulation of building in flood risk areas. However, it would be unfortunate if measures were put in place hastily, without proper consideration of their implications for both councils and those wishing to build, and without the benefit of more extensive public consultation.

(Endnotes)

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| <p>1 Local planning instruments include planning schemes, temporary local planning instruments and planning scheme policies (section 77, <i>Sustainable Planning Act 2009</i>) and are discussed in more detail in chapter 3 <i>Planning framework</i> and in chapter 5 <i>Local planning instruments</i>.</p> | <p>4 State Planning Policy 1/03 Guideline: <i>Mitigating the Adverse Impacts of Flood, Bushfire and Landslide</i> [p58].</p> |
| <p>2 Exhibit 966, Report of Paul Grech, <i>Report to Queensland Floods Commission of Inquiry Addressing Town Planning Issues</i>, 15 October 2011 [p42: para 19.2].</p> | <p>5 Brisbane City Council, Brisbane City Plan 2000, Chapter 5 'House Code', Section 4 'Performance Criteria and Acceptable Solutions', Section 4.1 'General Requirements' [p100-101].</p> |
| <p>3 Minimum floor levels of buildings are regulated by the <i>Building Act 1975</i>. Section 13(1)(b) of the <i>Building Regulation 2006</i> allows councils to declare minimum floor levels for habitable rooms. Non-Mandatory Part 1.5 'Floor Heights' of the Queensland Development Code may be adopted by councils to establish minimum floor levels for residential dwellings.</p> | <p>6 Ipswich City Council Temporary Local Planning Instrument 01/2001 – Flooding Regulation [p5, 7].</p> |
| <p>4</p> | <p>7 Exhibit 1007, Standing Committee on Agriculture and Resource Management (SCARM), Floodplain management in Australia: best practice principles and guidelines, SCARM Report 73, 2000 [p23]. Freeboard is also defined in the glossary.</p> |
| <p>5</p> | <p>8 Transcript, Glen Brumby, 28 September 2011, Brisbane [p3328, 3329].</p> |

- 9 Exhibit 666, Statement of Glen Brumby, 15 September 2011, Attachment 19: sub-attachment 4.
- 10 Exhibit 666, Statement of Glen Brumby, 15 September 2011, Attachment 19: sub-attachment 4; Exhibit 1007, Standing Committee on Agriculture and Resource Management (SCARM), Floodplain management in Australia: best practice principles and guidelines, SCARM Report 73, 2000 [p23].
- 11 Exhibit 964, Report of Steve Reynolds, *Building Controls for Flood Hazard Areas*, 7 November 2011 [p13: para 36].
- 12 The Queensland Development Code contains mandatory and non-mandatory building standards that are used by building certifiers to assess building applications. It is available at the Department of Local Government and Planning website at www.dlgp.qld.gov.au/building/queensland-development-code.html accessed on 20 January 2012.
- 13 Draft Mandatory Part 3.5, Queensland Development Code, Construction of Buildings in Flood Hazard Areas, 21 November 2011 [p5].
- 14 Statement of Glen Brumby, 16 November 2011 [p4: para 5(g)].
- 15 Submission of John Brannock (Brannock and Associates), 4 April 2011 [p5].
- 16 Submission of Property Council of Australia, 4 April 2011 [p3].
- 17 Submission of Insurance Australia Group, 31 March 2011 [p7].
- 18 Exhibit 795, Statement of Michael Cox, 28 September 2011 [p7: para 26].
- 19 Exhibit 795, Statement of Michael Cox, 28 September 2011 [p7: para 26]; Transcript, Michael Cox, 12 October 2011, Maryborough [p3994].
- 20 Evacuation plans are further discussed at section 8.3 *Development conditions*.
- 21 Exhibit 817, Statement of Amanda White, 28 September 2011 [p1: para 3].
- 22 Exhibit 817, Statement of Amanda White, 28 September 2011 [p1: para 4 – p2: para 9].
- 23 Exhibit 585, Statement of Emma Scragg, 24 August 2011 [p3: para 4 – p4: para 7].
- 24 Exhibit 853, Statement of Carl Wulff, 2 September 2011 [p15: para 83]; Transcript, Carl Wulff, 19 October 2011, Ipswich [p4192].
- 25 Transcript, Carl Wulff, 19 October 2011, Ipswich [p4191].
- 26 Draft Mandatory Part 3.5, Queensland Development Code, Construction of Buildings in Flood Hazard Areas, 21 November 2011 [p7].
- 27 Draft Mandatory Part 3.5, Queensland Development Code, Construction of Buildings in Flood Hazard Areas, Performance requirement P1, 21 November 2011 [p7].
- 28 Exhibit 666, Statement of Glen Brumby, 15 September 2011 [p12: para 50-51].
- 29 Exhibit 666, Statement of Glen Brumby, 15 September 2011 [p12: para 52]. For a discussion about temporary local planning instruments introduced following the 2010/2011 floods see section 5.2 *Temporary local planning instruments*.
- 30 The model code is discussed in more detail in section 4.2.2 *The Model Code provided by the Queensland Reconstruction Authority*.
- 31 Exhibit 666, Statement of Glen Brumby, 15 September 2011 [p13: para 53].
- 32 Chapter 4, Part 1, Division 1, *Building Act 1975*; Chapter 4, Part 2, Division 1, *Building Act 1975*.
- 33 Section 86, *Sustainable Planning Act 2009*; Sections 32, *Building Act 1975*; Section 33, *Building Act 1975*.
- 34 Clause 62, Sustainable Planning and Other Legislation Amendment Bill 2011.
- 35 Transcript, Gary White, 7 November 2011, Brisbane [p4620].
- 36 Exhibit 1015, Statement of Glen Brumby, 1 November 2011 [p4: para 15].
- 37 Exhibit 1015, Statement of Glen Brumby, 1 November 2011 [p4: para 15].
- 38 Exhibit 1015, Statement of Glen Brumby, 1 November 2011 [p4: para 17].
- 39 Exhibit 1015, Statement of Glen Brumby, 1 November 2011 [p5: para 18].
- 40 There may be duplication when an application is assessed at both the planning and building approval stage, see Exhibit 1015, Statement of Glen Brumby, 1 November 2011 [p4: para 19].

- 41 Exhibit 912, Statement of John Adams, 25 October 2011 [p12-13: para 40b].
- 42 Exhibit 912, Statement of John Adams, 25 October 2011 [p13: para 40c].
- 43 Chapter 4, Part 1, Division 1, *Building Act 1975*; Chapter 4, Part 2, Division 1, *Building Act 1975*.
- 44 The Building Code of Australia is a nationally uniform set of technical standards for the design and construction of buildings and other structures. The Building Code of Australia and the Plumbing Code of Australia comprise the National Construction Code. The National Construction Code is regulated by the Australian Building Codes Board. If there is any inconsistency between the Queensland Development Code and the Building Code of Australia, the Queensland Development Code prevails, see Section 35, *Building Act 1975*.
- 45 Schedule 1, *Building Act 1975* details the parts of the Queensland Development Code that have legislative effect.
- 46 Exhibit 1016, Submission of the Commonwealth Government, 28 October 2011 [p3: para 11].
- 47 Australian Building Codes Board, Draft Standard for Construction of Buildings in Flood Hazard Areas, version 7, October 2011 (Exhibit 1016, Submission of the Commonwealth Government, 28 October 2011, Annexure 4: Australian Building Codes Board, 'Draft Standard for Construction of Buildings in Flood Hazard Areas', version 7, October 2011).
- 48 The location of essential services is further discussed in section 10.3 *Electrical infrastructure*.
- 49 Utilities is defined in the proposed new part to mean: lift motors and lift motors for emergency lifts; electrical switchboards and meters; back-up power supplies and generators for essential services; sprinkler valve rooms and any associated pumps; fire indicator panels; controls for stairwell pressurisation and air-handling systems used for smoke control; and hot water systems (see draft Mandatory Part 3.5 of the Queensland Development Code 'Construction of Buildings in Flood Hazard Areas', 21 November 2011 [p7]).
- 50 See performance requirements P1, P2 and P3 of the draft Mandatory Part 3.5 of the Queensland Development Code 'Construction of Buildings in Flood Hazard Areas', 21 November 2011 [p7]. The prevention of backflow of sewage into buildings is discussed further in section 10.1 *Sewage and sewerage*.
- 51 Correspondence from the Queensland Government, Queensland Development Code, 18 January 2012.
- 52 Submission from the Attorney-General's Department, Commonwealth Government, undated [p3: para 12].
- 53 A 'flood hazard area' is defined within the proposed new part as 'an area, whether or not mapped, designated by a Local Government as a natural hazard management area (flood) under section 13 of the Building Regulation 2006' - Draft Mandatory Part 3.5 of the Queensland Development Code 'Construction of Buildings in Flood Hazard Areas', 21 November 2011, Definitions [p4].
- 54 Draft Mandatory Part 3.5, Queensland Development Code, 'Construction of Buildings in Flood Hazard Areas', 21 November 2011.
- 55 Draft Mandatory Part 3.5, Queensland Development Code, 'Construction of Buildings in Flood Hazard Areas', 21 November 2011 [p5].
- 56 The Queensland Reconstruction Authority contemplates the Queensland Reconstruction Authority maps being used by councils to trigger the proposed new part (Queensland Reconstruction Authority Guideline *Planning for stronger, more resilient floodplains: Part 1 - Interim measures to support floodplain management in existing planning schemes* [p16]).
- 57 The Queensland Reconstruction Authority maps include historical data of flood heights at gauges. That historical data could be used to identify a flood level at properties immediately adjacent to the gauge, but would require a hydraulic model to identify flood heights at any other property.
- 58 Draft Mandatory Part 3.5, Queensland Development Code 'Construction of Buildings in Flood Hazard Areas', 21 November 2011, Performance Requirement 1 [p7].
- 59 Draft Mandatory Part 3.5, Queensland Development Code 'Construction of Buildings in Flood Hazard Areas', 21 November 2011, Limitation [p3].
- 60 To enable this, the Queensland Government proposes to amend the *Building Regulation 2006* accordingly (Statement of Glen Brumby, 16 November 2011 [p8-9: para 13]).

- 61 In explaining the operation of the proposed new part, Building Codes Queensland advised that where a council does not provide a defined flood hazard level, then for buildings to be located in a designated flood hazard area, a hydrologist would be required to obtain this information (Exhibit 666, Statement of Glen Brumby, 15 September 2011 [p11: para 48]).
- 62 Trevor Johnson, Cardno, *Draft Queensland Development Code*, 19 December 2011 [p4, 5].
- 63 Trevor Johnson, Cardno, *Draft Queensland Development Code*, 19 December 2011 [p4].
- 64 Submission of Ipswich City Council, 6 December 2011 [p4].
- 65 Submission of the Local Government Association of Queensland, 6 December 2011 [p1].
- 66 Submission of the Local Government Association of Queensland, 6 December 2011 [p1].
- 67 Section 45, *Building Act 1975*.
- 68 Section 46, *Building Act 1975*.
- 69 The role of a ‘concurrency agency’ is described in more detail in chapter 3 *Planning framework*.
- 70 Submission of Ipswich City Council, 6 December 2011 [p1].
- 71 Submission of Ipswich City Council, 6 December 2011 [p3: para 1.2(b)].
- 72 Where an application involves building work for the construction of a class 1 building or an addition to a class 1 building and that work does not comply with performance requirement P1 of the proposed new part or section 2.7(a) of the draft national standard, the council may give a concurrence agency response about whether it is impractical or undesirable for the work to comply entirely or partly with performance requirements P1 and P2 of the proposed new part. The Queensland Government proposes to include the referral agency jurisdiction in Item 27, Table 1 of Schedule 7 of the *Sustainable Planning Regulation 2009* (Draft Mandatory Part 3.5 of the Queensland Development Code ‘Construction of Buildings in Flood Hazard Areas’, 21 November 2011 [p3]).
- 73 Statement of Glen Brumby, 16 November 2011 [p2: para 5.b].
- 74 Department of Local Government and Planning, Explanatory notes for the draft Queensland Development Code to adopt the draft Australian Building Codes Board Standard for Construction of Buildings in Flood Hazard Areas [p2].
- 75 Exhibit 1015, Statement of Glen Brumby, 1 November 2011 [p4: para 15, 17].
- 76 Submission of Ipswich City Council, 6 December 2011 [p3: para 1.2(d)].
- 77 Correspondence from the Queensland Government, 18 January 2012.
- 78 Draft Mandatory Part 3.5, Queensland Development Code ‘Construction of Buildings in Flood Hazard Areas’, 21 November 2011. [p3].
- 79 Correspondence from the Queensland Government, 18 January 2012.
- 80 Correspondence from the Queensland Government, 18 January 2012.
- 81 This process is a requirement of the Council of Australian Governments’ Guidelines for Best Practice Regulation, 2007 (Exhibit 1016, Submission from the Commonwealth Government on the draft Standard, 28 October 2011 [p1-2: para 5]).
- 82 Exhibit 1016, Submission from the Commonwealth Government on the draft Standard, 28 October 2011 [p5: para 26].
- 83 Exhibit 1015, Statement of Glen Brumby, 1 November 2011 [p2: para 7].
- 84 Exhibit 666, Statement of Glen Brumby, 15 September 2011 [p7: para 30]; Attachment 14; Exhibit 1015, Statement of Glen Brumby, 1 November 2011 [p3: para 9].
- 85 Statement of Glen Brumby, 16 November 2011 [p1-8].
- 86 Although Building Codes Queensland intends to consider the results of the national consultation process once completed (Exhibit 1015, Statement of Glen Brumby, 1 November 2011 [p13: para 44(i)]).
- 87 Submission from the Attorney-General’s Department, Commonwealth Government, undated [p3: para 12].
- 88 Submission from the Attorney-General’s Department, Commonwealth Government, undated [p3: para 13].
- 89 Submission from the Attorney-General’s Department, Commonwealth Government, undated [p3: para 13].