LOCKYER VALLEY REGIONAL COUNCIL

Temporary Local Planning Instrument 2024 (Flood Regulation)

1. Short Title

1. This temporary local planning instrument ('the TLPI') may be cited as Temporary Local Planning Instrument 2024 (Flood Regulation).

2. Purpose

1. The purpose of the TLPI is to:
   a. provide improved flood regulation based on the identification of a Flood hazard overlay for the Lockyer Valley Region; and
   b. to protect life and property by ensuring development appropriately responds to, or is avoided in response to, the risk of flood hazard present on a site.

3. Commencement

1. The TLPI commences on 22 July 2024.

4. Expiry

1. In accordance with section 23 of the *Planning Act 2016*, the TLPI has effect for two (2) years from the date of commencement, unless repealed sooner.

5. Application of the TLPI

1. The TLPI applies to the Lockyer Valley local government area.
2. The TLPI affects the operation of the Lockyer Valley Planning Scheme 2024 ('the planning scheme').
3. The TLPI applies to development on land shown on the Flood hazard overlay map in Appendix D as being a flood hazard area, investigation area or overland flow path.

6. Relationship with the Planning Scheme

1. If the planning scheme is inconsistent with the TLPI, the TLPI prevails to the extent of any inconsistency.

7. Effect

1. The TLPI affects the operation of the planning scheme by:
   a. defining a Flood hazard overlay (see Appendix D);
   b. suspending and replacing provisions of the planning scheme (see Appendix A);
   c. identifying categories of development and categories of assessment for development within the Flood hazard overlay (see Appendix B); and
   d. introducing a new Flood hazard overlay code which includes assessment benchmarks for development within the Flood hazard overlay (see Appendix C).
2. The TLPI designates the flood hazard area and the defined flood level for the purposes of the Building Code of Australia and the Queensland Development Code.

8. Interpretation

1. Unless otherwise defined in the TLPI, the terms used in the TLPI have the same meaning as defined in the *Planning Act 2016* and the planning scheme.
2. For the TLPI, the following terms have the meaning shown in Table 1.

Table 1: Definitions of terms in the TLPI

TERM	DEFINITION

defined flood level (DFL)	The level to which it is reasonably expected flood waters may rise (see Section 8 of the *Building Regulation 2021*).
flood hazard overlay	The area identified on TLPI Flood hazard overlay — Map 1 in Appendix D as being a flood hazard area, investigation area or overland flow path.
flood investigation area	The area on TLPI Flood hazard overlay — Map 1 in Appendix D categorised as flood investigation area. Land within the flood investigation area is known to be, or has the potential to be, flood affected and subject to a defined flood event, that has not yet been quantified.
habitable room	Has the same meaning as in the National Construction Code.
high flood hazard area	The area on TLPI Flood hazard overlay — Map 1 in Appendix D categorised as high hazard. Development of land in this area may pose an unacceptable risk to life and property during a defined flood event. During a defined flood event: a. major to extreme risk to life is likely; b. able bodied adults cannot walk safely; and c. light frame buildings can structurally fail.
items of value	Items that cannot be easily repaired, replaced or restored and include: a. personal, organisational or historical records; b. cultural heritage artefacts of importance such as museum collections, unique artworks, rare books, etc.
low flood hazard area	The area on TLPI Flood hazard overlay - Map 1 in Appendix D categorised as low hazard. Development of this land, after application of relevant mitigation actions, does not pose a significant risk to life or property during a defined flood event. During a defined flood event: a. there is no significant risk to life; and b. property is only at risk when exposed and in direct contact with flood waters.
medium flood hazard area	The area on TLPI Flood hazard overlay - Map 1 in Appendix D categorised as medium hazard. Development of land in this area may pose a risk to life and property during a defined flood event. During a defined flood event: a. able bodied adults may not be able to walk safely; b. cars can float and precautions must be taken; and c. only large vehicles (trucks) may be able to travel safely.
overland flow path	An area on TLPI Flood hazard overlay - Map 1 in Appendix D identified as an overland flow path.
tolerable risk	A risk that, following an understanding of the likelihood and consequences, is low enough to allow the exposure to continue, and at the same time high enough to require new treatments or actions to reduce risk. Society can live with this risk but believes that as much as reasonably practical should be done to reduce the risks further. (Refer to Appendix E Guidance on determining tolerable risk.)

APPENDIX A

EFFECT OF TEMPORARY LOCAL PLANNING INSTRUMENT 2024 (FLOOD REGULATION) ON THE LOCKYER VALLEY PLANNING SCHEME 2024

Table 2: Effect on Planning Scheme

<table>
<tr><th>SCHEME REFERENCE</th><th colspan="3">EFFECT OF TEMPORARY LOCAL PLANNING INSTRUMENT</th></tr>
<tr><td rowspan="7">Table 1.6-1 Building assessment provisions in the planning scheme for an assessment manager</td><td colspan="3">Inserts five rows in Table 1.6-1 Building assessment provisions in the planning scheme for an assessment manager, and two notes as follows:</td></tr>
<tr><td>COLUMN 1
CATEGORIES OF ASSESSMENT AND/OR CODE</td><td>COLUMN 2
DESCRIPTION AND REGULATION</td><td>COLUMN 3
BUILDING ASSESSMENT PROVISIONS OF THE PLANNING SCHEME</td></tr>
<tr><td>Flood hazard</td><td>Designates the ‘flood hazard area’ for the QDC under section 32 of the Building Act and section 8 of the Building Regulation. The date of designation is the date of commencement.

Editor’s note—Building work in a designated flood hazard area must meet the requirements of the relevant building assessment provisions under the Building Act.</td><td>The flood hazard area is the Flood hazard overlay mapped in TLPI Flood hazard overlay - Map 1 in Appendix D and including:
a. High flood hazard areas;
b. Medium flood hazard areas;
c. Low flood hazard areas;
d. Flood investigation areas;
e. Overland flow paths.</td></tr>
<tr><td>Flood hazard</td><td>Declaration within the designated flood hazard area of the ‘defined flood level’ for the NCC and QDC under section 53 of the Building Act, for the purposes of section 8 of the Building Regulation.</td><td>a. Planning Scheme Policy 4 Flood hazard, section SC6.4.9 Special areas declared ‘defined flood level’;
b. Defined flood level (DFL) - Map 2a — Peak flood level in Appendix D.</td></tr>
<tr><td>Flood hazard</td><td>Declaration within the designated flood hazard area of a ‘finished floor level’ of Class 1 buildings built in all or part of the flood hazard area for the NCC and QDC under section 32 of the Building Act and section 8 of the Building Regulation.</td><td>For parts of Forest Hill, Laidley North and Portobello Road, Helidon Spa -
Planning Scheme Policy 4 Flood hazard, section SC6.4.9 Special areas, ‘declared finished floor level’ in Tables SC6.4-2 and SC6.4-3, and shown in section SC4.9.1.</td></tr>
<tr><td>Flood hazard</td><td>Declaration of a ‘freeboard’ that is more than 300mm for the NCC and QDC under section 32 of the Building Act and section 8 of the Building Regulation.</td><td>Appendix C Flood hazard overlay code, Table 10 Flood immunity — Minimum design requirements.</td></tr>
<tr><td>Flood hazard</td><td>Declaration within the designated flood hazard area of a ‘maximum flow velocity of water’ for the NCC and QDC under section 32 of the Building Act.
For the purposes of section 8 of the Building Regulation the date of designation is the date of commencement.</td><td>a. For parts of Forest Hill, Laidley North and Portobello Road, Helidon Spa - Planning Scheme Policy 4 Flood hazard, section SC6.4.9 Special areas, ‘maximum flow velocity’ in Tables SC6.4-2 and SC6.4-3, and ‘flood velocity’ in section SC4.9.1;</td></tr>
</table>

			b. Defined Flood Level (DFL) — Map 2c - Peak flood velocity in Appendix D.
	Note—Building work in a designated flood hazard area must meet the requirements of the relevant building assessment provisions under the Building Act. *Note—Building work in high flood hazard areas with flow velocity greater than 1.5m a second will require a structural engineering design capable of withstanding the nature of the hazard(s) to which the building will be subject consistent with the requirements of the relevant building assessment provisions, to be supported by a report (or multiple reports) prepared by a Registered Professional Engineer Queensland that identifies the flood hazard and the structural approach to be utilised.*		
Table 5.10-6: Flood hazard overlay	Suspends and replaces with Appendix B Table of Assessment.		
8.7 Flood hazard overlay code	Suspends and replaces with Appendix C Flood hazard overlay code.		
Schedule 1 Definitions, SC1.2 Administrative terms, Flood hazard area	Suspends and replaces with a revised definition for ***flood hazard area*** as follows: The area designated as the flood hazard area under section 8 of the *Building Regulation*. See Table 1.6-1 Building assessment provisions in the planning scheme for an assessment manager.		
Schedule 2 Planning Scheme Maps, Table SC2.1-1: Map index, OM7 Flood hazard overlay	Suspends OM7 Flood hazard overlay map and replaces with TLPI Flood hazard overlay map — Map 1 in Appendix D.		

APPENDIX B

CATEGORIES OF DEVELOPMENT AND CATEGORIES OF ASSESSMENT FOR THE FLOOD HAZARD OVERLAY

1. Categories of development and categories of assessment for the Flood hazard overlay

1. The categories of development and categories of assessment for development within the Flood hazard overlay are identified in Column 2 of Table 3.
2. If development is identified in the planning scheme as having a different category of development or category of assessment than under Table 3 below, the highest level of assessment applies as follows:
   i. accepted development subject to requirements prevails over accepted development;
   ii. code assessment prevails over accepted development subject to requirements and accepted development;
   iii. impact assessment prevails over code assessment, accepted development subject to requirements and accepted development.

Note—Where development is proposed on a site that is included in more than one overlay, or in more than one sub-category within an overlay, that changes the category of development or category of assessment, the highest category applies.

Note—This section should be read in conjunction with section 5.3 of the planning scheme, particularly section 5.3.2 — Determining the category of development and category of assessment and section 5.3.3 — Determining the assessment benchmarks.

2. Assessment benchmarks for development within the Flood hazard overlay

1. Table 3 identifies development for which the Flood hazard overlay code is an assessment benchmark.

Table 3: Categories of development and categories of assessment - Flood hazard overlay

DEVELOPMENT	CATEGORIES OF DEVELOPMENT AND ASSESSMENT	ASSESSMENT BENCHMARKS FOR ASSESSABLE DEVELOPMENT AND REQUIREMENTS FOR ACCEPTED DEVELOPMENT
Building work		
Building work for demolition or relocation off-site.	No change	Not applicable
Building work in a Flood investigation area where Council's most recent flood modelling shows the land is not subject to flooding in the DFE.	No change	Not applicable
Building work not listed above.	Code assessment	Flood hazard overlay code
Reconfiguring a lot		
Reconfiguring a lot in a Flood investigation area where Council's most recent flood modelling shows the land is not subject to flooding in the DFE.	No change	Not applicable
Reconfiguring a lot not listed above.	No change	Flood hazard overlay code
Material change of use in a Flood investigation area or an Overland flow path		
Material change of use in a Flood investigation area where Council's most recent flood modelling shows the land is not subject to flooding in the DFE.	No change	Not applicable
Material change of use for: a. Animal husbandry; or b. Cropping; or c. Permanent plantation.	No change	Not applicable

Material change of use not listed above.	Code assessment	Flood hazard overlay code
Material change of use in the Low flood hazard area		
Material change of use for: a. Animal husbandry; or b. Cropping; or c. Park; or d. Permanent plantation; or e. Roadside stalls.	No change	Not applicable
Material change of use for: a. Dwelling house; or b. Home-based business; or c. Utility installation involving: i. electricity supply infrastructure; or ii. stormwater drainage infrastructure; or iii. transport service; or iv. water supply infrastructure; or v. water treatment infrastructure; or vi. water cycle management infrastructure.	Accepted development	Flood hazard overlay code
Material change of use for: a. a Vulnerable use (excluding a Dwelling house); or b. Essential community infrastructure; or c. Critical infrastructure where not a Utility installation.	Code assessment	Flood hazard overlay code
Material change of use not listed above for this hazard area.	No change	Flood hazard overlay code
Material change of use in the Medium flood hazard area		
Material change of use for: a. Animal husbandry; or b. Cropping; or c. Park; or d. Permanent plantation; or e. Roadside stalls.	No change	Not applicable
Material change of use for: a. Dwelling house; or b. Dual occupancy; or c. Home-based business; or d. Utility installation involving: i. a sewerage treatment plant; or ii. a maintenance depot; or iii. a storage depot; or iv. a waste management facility; or e. a Vulnerable use; or f. Critical infrastructure; or g. Essential community infrastructure.	Code assessment	Flood hazard overlay code
Material change of use not listed above for this hazard area.	No change	Flood hazard overlay code
Material change of use in the High flood hazard area and the Rural zone		
Material change of use for: a. Animal husbandry; or b. Cropping; or c. Park; or d. Permanent plantation; or e. Roadside stalls.	No change	Not applicable
Material change of use for Utility installation involving: a. stormwater drainage infrastructure; or b. water cycle management infrastructure.	No change	Flood hazard overlay code

Material change of use not involving Building work.	No change	Flood hazard overlay code
Material change of use not listed above for this hazard area.	Code assessment	Flood hazard overlay code
Material change of use in the High flood hazard area and the Local centre zone		
Material change of use for: a. Agricultural supplies store; or b. Food and drink outlet; or c. Garden centre; or d. Hardware and trade supplies; or e. Health care service; or f. Indoor sport and recreation; or g. Market; or h. Outdoor sport and recreation; or i. Park; or j. Parking station; or k. Place of worship; or l. Service industry; or m. Shop; or n. Utility installation involving: i. stormwater drainage infrastructure; or ii. water cycle management infrastructure.	No change	Flood hazard overlay code
Material change of use not listed above for this hazard area.	Code assessment	Flood hazard overlay code
Material change of use in the High flood hazard area other than in the Rural zone or Local centre zone		
Material change of use	Code assessment	Flood hazard overlay code
Operational work in a Flood investigation area or an Overland flow path		
Operational work in a Flood investigation area where Council's most recent flood modelling shows the land is not subject to flooding in the DFE.	No change	Not applicable
Operational work for exempt clearing work.	No change	Not applicable
Operational work not listed above for these areas.	Code assessment	Flood hazard overlay code
Operational work in the Low flood hazard area or Medium flood hazard area		
Operational work for: a. exempt clearing work; or b. minor filling or excavation.	No change	Not applicable
Operational work not listed above for these hazard areas.	No change	Flood hazard overlay code
Operational work in the High flood hazard area and the Rural zone		
Operational work for exempt clearing work.	No change	Not applicable
Operational work for filling or excavation of less than $10m^3$ and: a. not associated with Reconfiguring a lot or a Material change of use; or b. associated with Cropping, Permanent plantation or land rehabilitation.	Accepted development	Not applicable
Operational work not listed above for this hazard area.	Code assessment	Flood hazard overlay code
Operational work in the High flood hazard area and the Local centre zone		
Operational work for exempt clearing work.	No change	Not applicable
Operational work for filling or excavation of $10m^3$ or more and not associated with Reconfiguring a	Code assessment	Flood hazard overlay code

lot or a Material change of use.		
Operational work for filling or excavation not listed above for this hazard area.	No change	Not applicable
Operational work not listed above for this hazard area.	No change	Flood hazard overlay code
Operational work in the High flood hazard area other than in the Rural zone or Local centre zone		
Operational work for: a. exempt clearing work; or b. minor filling or excavation.	No change	Not applicable
Operational work for filling or excavation, other than minor filling or excavation.	Code assessment	Flood hazard overlay code
Operational work not listed above for this hazard area.	No change	Flood hazard overlay code

APPENDIX C

FLOOD HAZARD OVERLAY CODE

1. Application

1. This code applies to development:
   a. within the Flood hazard overlay as shown in Map 1 of Appendix D;
   b. identified as requiring assessment against the Flood hazard overlay code in Table 3.

2. Compliance with the Flood hazard overlay code

1. Development that complies with the purpose of the code, complies with the code.
2. Accepted development that complies with the relevant acceptable outcomes of the code, complies with the purpose of the code.
3. Assessable development that complies with the Performance outcomes of the code, complies with the purpose of the code.

Note—The Flood hazard overlay code is only one of Council's responses to flooding. Strategic planning, education, disaster management, flood emergency management, and mitigation and protection works are also important.

Note—Compliance with this code may be demonstrated by providing any required technical reports prepared by a suitably qualified person consistent with Planning Scheme Policy 4 Flood hazard.

3. Purpose

1. The purpose of the Flood hazard overlay code is to ensure development is designed, constructed and operated to:
   a. protect life and property;
   b. avoid exposing people and property to unacceptable risk from flood hazard;
   c. where avoidance of areas of intolerable risk from flood hazard is not reasonably practicable, ensure development mitigates the risk from flood hazard to people and property to an acceptable level;
   d. limit the exposure of vulnerable uses where risk levels cannot be mitigated to an acceptable level;
   e. ensure that works to mitigate the risk from flood hazard occur in a way that protects, maintains and improves the protective function of landforms, vegetation, biodiversity and natural processes in managing the effects of flooding.
2. The purpose of the code will be achieved through the following overall outcomes:
   a. All new development in the Low flood hazard area is compatible with the identified flood risk and mitigates the risk to people and property from flood hazard to an acceptable level.
   b. Development in the Medium flood hazard area is avoided, or where not reasonably practicable to avoid, development:
      i. is located in the area of lowest flood hazard;
      ii. mitigates risk to an acceptable level for all flood events up to and including the defined flood level or as determined by Planning Scheme Policy 4 Flood hazard.
   c. Development in the High flood hazard area is avoided, or where not reasonably practicable to avoid, development:
      i. is located in the area lowest flood hazard;
      ii. mitigates risk to an acceptable level for all flood events up to and including the defined flood level;
      iii. does not result in an increase in intensity or scale of development (including excavation and filling).
   d. Development in the High flood hazard area of the Local centre zone:
      i. is located on the area of lowest flood hazard;
      ii. mitigates risk to an acceptable level for all flood events up to and including the defined flood event;
      iii. does not result in an increase in intensity or scale of development.
   e. Development in flood hazard areas of the Rural zone is limited to agricultural activities and uses directly supporting the primary agricultural use.
   f. Vulnerable uses and essential community infrastructure do not occur in areas of Medium or High flood hazard and only locate in Low flood hazard areas where it is demonstrated that avoidance is not reasonably practicable and they are consistent with Table 10: Flood immunity - Minimum design requirements.
   g. Critical infrastructure avoids areas of High flood hazard and only occurs in areas of Low or Medium flood hazard where it is demonstrated that avoidance is not reasonably practicable, and that critical infrastructure remains operational and accessible to serve the community during and immediately after a flood event.
   h. Buildings and structures in the flood hazard area are located, designed and constructed to be resilient to flood hazards up to and including the defined flood event, including:
      i. protecting the contents of buildings from flood damage;
      ii. minimising the impacts of flooding on the life of assets including preventing and withstanding the effects of

floodwater inundation;
iii. ensuring buildings and structures are structurally adequate to resist hydrostatic, hydrodynamic and debris impact loads associated with flooding;
iv. minimising disruption to residents, business and site operations;
v. minimising ongoing maintenance costs, recovery time and restoration costs after a flood event.

i. Development supports and does not unduly burden disaster management response or recovery capacity and capability.
j. The natural floodplain function (conveyance and storage) is protected and improved by ensuring development:
   i. does not adversely affect the hydraulic function of flood conveyance and capacity of waterways or overland flow paths;
   ii. maintains flood storage;
   iii. does not, directly or cumulatively, cause or increase adverse impacts from flooding on other properties or land upstream, downstream or adjacent.
k. Development occurs in a way that:
   i. maintains or improves the protective function of landforms, vegetation, biodiversity, natural processes and natural land contours, where possible;
   ii. protects and improves vegetation, riparian corridors and overland flow paths.
l. The manufacture, assembly, storage, distribution or disposal of hazardous chemicals, hazardous materials and dangerous goods in the flood hazard overlay is avoided, or risks to public safety and the environment from the potential impact of floodwaters are mitigated to an acceptable level up to and including the 0.2% AEP flood event or the defined flood level, whichever is the greater flood event, plus 500mm freeboard.

Note—

a. Building work for Class 1 buildings in flood hazard areas with a velocity less than 1.5m/s must comply with:
   i. National standard Construction of buildings in flood hazard areas, sections 2.3, 2.4, 2.5, 2.6, 2.7, 2.8 and 2.10;
   ii. DFL plus freeboard of 500mm.
b. A study must be conducted to determine the DFL and the flood hazard category in a Flood investigation area or an Overland flow path. The assessment benchmarks of the Flood hazard overlay code relevant to that flood hazard category are then applicable.
c. Building work in flood hazard areas with a velocity 1.5m/s or greater, requires structural engineering design capable of withstanding the nature of the hazard/s to which the building will be subject consistent with the requirements of the relevant building assessment provisions.
d. Any engineering design solution is to be:
   i. supported by a report identifying the flood hazard and the structural approach to be used;
   ii. certified by RPEQ.

4. Assessment benchmarks for accepted development

1. Accepted development does not require a development approval and is not subject to assessment benchmarks. However, certain requirements may apply to development for it to be accepted development. Where nominated in Table 3, accepted development must comply with the relevant acceptable outcomes identified in Table 5 and Table 6 of the Flood hazard overlay code.
2. Assessment benchmarks for accepted development are shown with an asterisk (*) in the Acceptable outcomes column of Tables 5 and 6.
3. Where assessment benchmarks apply to accepted development, the development must comply with all nominated requirements of this and other applicable codes of the planning scheme. Accepted development that does not comply with one or more of the nominated acceptable outcomes of the applicable code/s becomes code assessable in accordance with section 5.3.3(2) of the planning scheme.

5. Determining the flood hazard category from a site-specific flood risk assessment

1. Where the code requires a site-specific flood risk assessment to be undertaken, Table 4: Flood hazard category parameters for site specific flood risk assessments is to be used to determine an equivalent flood hazard area for this code.

Table 4: Flood hazard category parameters for site-specific flood risk assessments

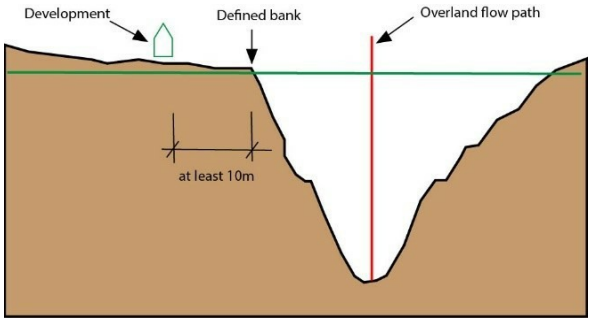
CRITERIA	FLOOD HAZARD CATEGORY		
	LOW	MEDIUM	HIGH
Maximum flood depth	Less than 0.5m	0.5m to 1.2m	More than 1.2m
Maximum flood velocity	Less than 3.0m/s	Less than 3.0m/s	More than 3.0m/s
Depth by velocity (d*V)	Less than 0.4m^2/s	0.4m^2/s to 0.6m^2/s	More than 0.6m^2/s

Table 5: Flood hazard overlay code - Assessment benchmarks for accepted and assessable development in the Flood hazard overlay

PERFORMANCE OUTCOMES	ACCEPTABLE OUTCOMES
PO1 Development in a flood investigation area or overland flow path: a. minimises risk from the adverse effects of flooding; b. only occurs where the risk can be mitigated to an acceptable or tolerable level; c. is designed to respond to the flood hazard category applicable to the site. *Note—Compliance with this Performance Outcome may be demonstrated by providing a flood risk assessment, consistent with Planning Scheme Policy 4 Flood hazard.* *Note—Land in the flood investigation area is susceptible to some degree of flooding. Detailed modelling in these locations is incomplete or has not been undertaken. A site specific risk assessment is required to determine the hazard classification and the sites suitability for development.*	***AO1.1** For development in a flood investigation area or overland flow path: a. written advice is obtained from Council stating that the latest data available to Council confirms that the site is not subject to flood hazard; or b. a site-specific flood risk assessment, prepared by a suitably qualified person, determines that the development site is not located in an area of high, medium or low flood hazard in accordance with Table 4: Flood hazard category parameters for site specific flood risk assessments. **AO1.2** Where a site-specific flood risk assessment determines the flood hazard category to be low, medium or high, development satisfies the requirements of this Flood hazard overlay code relevant to that flood hazard category.
Flood risk compatibility	
PO2 Development avoids flood hazard areas of intolerable risk or areas known to be, or have the potential to be, affected by flood inundation such as overland flow paths. *Note—Guidance material relating to the risk profile of the flood hazard area categories is available in Planning Scheme Policy 4 Flood hazard.*	***AO2.1** Development is positioned within an area of low flood hazard. **AO2.2** Development demonstrates that: a. all options to avoid the area of flood hazard have been exhausted; b. development is located on the part of the site with the lowest level of flood hazard; c. mitigation to an acceptable hazard level is achieved where the development: i. can be serviced with infrastructure (power, water, sewerage, access and telecommunications) for the expected life of the asset; ii. complies with a site-based flood risk assessment consistent with Planning Scheme Policy 4 Flood hazard.
Resilient built form	
PO3 Buildings and structures are located, designed and constructed to be resilient to flood risks up to and consistent with Table 10: Flood immunity - Minimum design requirements, and: a. protecting the contents of buildings and structures from flood damage; b. minimising the impacts of flooding on the asset's life including preventing and withstanding the effects of floodwater inundation; c. ensuring buildings and structures are structurally adequate to resist hydrostatic, hydrodynamic and debris impact loads associated with flooding; d. minimising disruption to residents, business, site operations; e. minimising ongoing maintenance costs, recovery time and restoration costs after a flood event. *Note—Partial compliance with this Performance Outcome may be demonstrated by providing a materials assessment against the Flood Resilient Building Guidance for Queensland Homes and/or Reducing Vulnerability of Buildings to Flood Damage - Guidance on Building in Flood Prone Areas.*	***AO3.1** Flood immunity of buildings (except Class 10 structures) is consistent with Table 10: Flood immunity - Minimum design requirements. ***AO3.2** If understorey screening is provided, it allows the free flow of floodwater through the understorey (i.e. does not impede water flow) and: a. is a minimum of 50% permeable (e.g. using vertical battens with a batten width gap between battens); b. does not use solid doors, tilt panels and roller doors. ***AO3.3** Essential utilities (e.g. wastewater treatment systems and associated pumping equipment) are located consistent with Table 10: Flood immunity - Minimum design requirements or are sealed to prevent water intrusion. ***AO3.4** Property is protected from flood damage by having an area located above or outside the flood hazard so: a. items of value can be moved; or b. raised to safe storage above the designated finished floor level in Table 10: Flood immunity - Minimum design requirements; property is secured against flotation and lateral movement.

	Note—Refer to the building assessment provisions for the QDC referenced class of building.
PO4 Non-habitable floor areas, where not raised above the DFL, are designed and constructed to be resilient to the effects of flood.	***AO4.1** The finished floor levels of Class 10a and 10c structures (e.g. sheds, garages, carports), whether attached to or detached from the main building, are not inundated by more than a low degree of exposure consistent with Table 12: Flood hazard exposure for carparking and non-habitable buildings. ***AO4.2** Building work for a Class 10a structure below the DFL is constructed: a. without solid doors, tilt panels and roller doors; b. may be screened to a minimum of 50% permeability for security purposes and to allow the free flow of floodwater. ***AO4.3** Fencing and retaining walls allow the free flow of floodwater (i.e. do not impede water flow) and do not add to flood debris in a DFL flood event or more. **AO4.4** Development is designed and constructed to prevent and withstand floodwater inundation by: a. using flood resilient materials; b. allowing the free flow of floodwater (i.e. does not impede the flow of water). *Note—Refer to the building assessment provisions for the QDC referenced class of building.*
PO5 Building works to an existing building for commercial, industrial or other non-residential activities located below the DFL are resilient to flood events, up to and including the DFE (see Table 10: Flood immunity - Minimum design requirements) by ensuring the design and built form mitigate the potential risks of flooding to an acceptable or tolerable level. ***Editor's note—This performance outcome is intended to apply to classes of buildings not otherwise covered by P1 of the QDC MP3.5 and National Standard for Construction of buildings in flood hazard overlays.***	***AO5.1** Building works to an existing building for commercial, industrial or other non-residential activities located below the DFL, use materials that are capable of resisting damage, deterioration and decay. *Note—Refer to the building assessment provisions for the QDC referenced class of building, refer to National standard for Construction of buildings in flood hazard overlays.* *Note—In accordance with Figure 1 Identifying defined flood level (DFL), flood hazard level (FHL) and freeboard, of the National Standard for Construction of buildings in flood hazard overlays, the non-habitable floor level is no greater than 1m below the DFL.*
PO6 Cultural artefacts, records and items of high value in essential community infrastructure are protected from flood damage and stored above the PMF.	**AO6.1** Cultural artefacts, records and items of high value in facilities such as libraries, museums, galleries and hospitals are stored in an area that: a. protects and seals the artefacts from flood intrusion; or b. is raised above the PMF for safe storage; or c. allows their movement to a safer location above the PMF.
Disaster management	
PO7 Development in the flood hazard overlay supports and does not unduly burden, disaster management response or recovery capacity and capabilities. *Note—A Flood Emergency Management Plan may be required to be prepared by a suitably qualified person and is consistent with Planning Scheme Policy 4 Flood hazard.*	**AO7.1** No acceptable outcome is nominated.
PO8 Flood awareness and hazard-warning signage informs people of flood risk severity in the flood hazard overlay.	**AO8.1** Flood awareness and hazard-warning signage is consistent with the requirements of Planning Scheme Policy 4 Flood hazard.
Flood conveyance and storage	
PO9 Development does not directly, indirectly or cumulatively	***AO9.1** Filling to achieve flood immunity does not occur on

cause any adverse change in flood risk or flow characteristics inside or outside the site, including: a. loss of flood storage; or b. loss of, or changes to, flow paths; or c. an increase in water flow velocity or depth; or d. reduction in flood warning times; or e. an increase in runoff volume; or f. an increase in potential erosion, scour or flood damage on the premise or on other premises, public land, watercourses, roads or infrastructure. *Note—Partial compliance with this Performance outcome may be achieved by demonstrating that any additional runoff volume due to an increase in impermeable area is managed on site or by the existing drainage networks without adversely changing flood risk or flow characteristics.*	land within a flood hazard area. ***AO9.2** The finished floor level of an extension to an existing building is consistent with Table 10: Flood immunity - Minimum design requirements. **AO9.3** Development does not adversely change the flood risk or flow characteristics within the floodplain as demonstrated by an engineering risk assessment. *Note—An adverse change in flood risk or flow characteristics means a change to any of the following:* a. *loss of flood storage; or* b. *loss of, or changes to, flow paths; or* c. *an increase in water flow velocity or depth; or* d. *reduction in flood warning times; or* e. *an increase in runoff volume; or* f. *an increase in potential erosion, scour or flood damage on the premise or on other premises, public land, watercourses, roads or infrastructure.* **AO9.4** Flood conveyance or flood function areas may be used for car parking where there is a low degree of exposure consistent with Table 12: Flood hazard exposure for carparking and non-habitable buildings. **AO9.5** Flood awareness signage is provided to carparking areas where the carparking serves as a flood conveyance or performs a flood function.

PO10 Development within an overland flow path: a. maintains the conveyance of floodwaters to allow flow and debris to pass unimpeded through the site; b. does not concentrate, intensify or divert floodwater onto upstream, downstream or adjacent sites; c. will not result in an increase in flood levels or flood risk severity on upstream, downstream or adjacent sites. *Note—Development is to be connected to the Council's drainage network in accordance with section 77 of the Local Government Act. It is an offence under the section 80 of Local Government Act, to restrict or redirect stormwater over land.* *Note—Compliance with this Performance Outcome will be achieved by providing a hydraulic impact assessment prepared by a suitably qualified and experienced engineer and is consistent with Planning Scheme Policy 4 Flood hazard.*	***AO10.1** Development, including onsite wastewater treatment systems, are located at least 10m from the overland flow path's defined bank, as shown by the diagram below.  *Note—The key components of development and overland flow paths are depicted in the above figure. The width of the overland flow paths may be smaller or larger than the location of the defined bank depicted in the above figure. The setback of 10m must be from the defined bank or edge to the overland flow path, whichever is greater.* ***AO10.2** Development does not change the pre-development profile or interfere with an overland flow path. ***AO10.3** Overland flow paths are retained as part of the stormwater drainage network to allow the free open surface flow of stormwater through a site. ***AO10.4** Development retains existing overland flow paths rather than relying on piped solutions for stormwater drainage. **AO10.5** For Council drainage purposes, overland flow paths are protected by an easement or other legal instrument.
PO11 Developments with basement or undercroft carparking or storage are designed to maximise public safety, minimise flood recovery actions, and be resilient to the intrusion of floodwaters.	**AO11.1** Basement and undercroft carparking or storage is not provided in areas of intolerable risk. **AO11.2** Undercroft carparking is designed and constructed to experience no more than a medium degree of exposure consistent with Table 12: Flood hazard exposure for carparking and non-habitable buildings and: a. provides a means of escape for pedestrians from the undercroft; b. includes flood-warning signage indicating the potential to flood; c. with essential utilities and services located at or above consistent with Table 10: Flood immunity - Minimum design requirements; d. provide waterproof and water-impermeable walls and floors. **AO11.3** Basement carparking must be designed and constructed: a. to provide a drainage system to have a flood immunity of the DFL or 0.2% AEP, whichever is greater, plus freeboard to avoid flooding of the basement; b. to provide a means of escape for pedestrians from the basement; c. with flood-warning signage indicating the potential to flood; d. with essential utilities and services located at or above the DFL plus freeboard;

	e. provide waterproof and water-impermeable walls and floors; f. to prevent floodwater intrusion, including: i. backflow of water from drainage systems and installations; ii. from vents, staircases and lift wells that lead to the basement. *Note—In flood hazard areas, basement storage spaces do not include areas for bike storage, restrooms, building maintenance, essential services or utilities.* **AO11.4** Development involving a basement that relies on a pumping solution to manage floodwater for dewatering provides a secondary pump system with a backup power source for the pump. *Note—The use of demountable barriers, pumps or other mechanical mechanisms to provide flood protection is not supported unless there is a secondary fail-safe system.*
Environmental values and public safety	
PO12 Development within the flood hazard overlay involving the manufacturing, assembly, storage, distribution, or disposal of hazardous materials and hazardous chemicals avoids or minimises risks to public health and safety and the environment, by: a. protecting underground tanks for hazardous chemicals against the forces of buoyancy, velocity flow and debris impacts; b. securing above-ground tanks for hazardous chemicals against flotation and lateral movement; c. preventing damage to hazardous chemicals pipework; d. preventing entry of floodwater into hazardous chemicals pipework; e. preventing damage to or off-site release of packages, drums or containers, storing hazardous materials. *Note—A pump drainage system is not an acceptable alternative to meet the performance outcome.*	**AO12.1** Development for the manufacture and disposal of all classes of hazardous materials and hazardous chemicals does not occur within the flood hazard overlay. **AO12.2** Development involving the storage of hazardous materials or hazardous chemicals has: a. an impervious bund wall 1.5 times the quantity of liquid chemical stored; or b. a racking or storage system higher than the 0.5% AEP or the DFL, whichever is the greater flood event. **AO12.3** For development involving the storage of hazardous materials or hazardous chemicals, it is demonstrated that the development can operate without risk of environmental harm during a flood event up to and including the 0.2% AEP or the DFL, whichever is the greater flood event.
PO13 Works to mitigate flood risks avoid adverse impacts on other environmental values. *Note—Additional assessment benchmarks relating to ecological and biodiversity values are contained in section 8.3 Biodiversity overlay code of the planning scheme.*	No acceptable outcome is nominated.
PO14 Development maintains or improves the protective function of landforms, vegetation and natural processes in managing the effects of flooding. *Note—Additional assessment benchmarks relating to ecological and biodiversity values are contained in section 8.3 Biodiversity overlay code of the planning scheme.*	No acceptable outcome is nominated.

Table 6: Flood hazard overlay code - Additional assessment benchmarks for accepted and assessable development in the Low flood hazard area

PERFORMANCE OUTCOMES	ACCEPTABLE OUTCOMES
Flood risk compatibility	
AO15 Vulnerable uses and essential community infrastructure only occur on premises within the Low flood	**AO15.1** Vulnerable uses and essential community infrastructure located on premises within the Low flood

hazard areas where it is demonstrated that: a. avoidance of the risk area is not reasonably practicable; b. development is located in the area of lowest risk possible; c. for all flood events up to and including the DFE (see Table 10: Flood immunity - Minimum design requirements), development does not result in any of the following: i. an intolerable level of risk to people and property from flood hazard; or ii. the isolation of persons; or iii. the inability for vehicles to safely access and evacuate the site using the existing or proposed road network; or iv. undue burden on disaster management responses and recovery capacity. *Note—Compliance with this Performance outcome will be demonstrated by providing a Flood Emergency Management Plan, prepared by a suitably qualified person and consistent with Planning Scheme Policy 4 Flood hazard.*	hazard area demonstrate flood risk can be mitigated and ensure that: a. development is located in the area of lowest flood hazard; b. development meets the minimum design requirements in Table 10: Flood immunity - Minimum design requirements; c. access to a constructed road which remains safe and trafficable for vehicles, pedestrian movements and emergency services up to consistent with Table 10: Flood immunity - Minimum design requirements; d. development does not result in the undue burden on disaster management responses and recovery capacity. *Note—Compliance with this Performance Outcome will be demonstrated by providing a Flood Emergency Management Plan, prepared by a suitably qualified person and consistent with Planning Scheme Policy 4 Flood hazard.*
PO16 Critical infrastructure located within the Low flood hazard area demonstrates that: a. the development is located in the areas of lowest flood hazard; b. for all flood events up to and including the DFE (see Table 10: Flood immunity — Minimum design requirements), development: i. remains operational to serve community needs during and immediately after a flood event, even when other infrastructure or services may be compromised; ii. retains essential site access during a flood event; iii. is designed, located, managed and operated to avoid adverse impacts from flooding on the community and the environment. *Note—Compliance with this Performance Outcome may be achieved through a flood risk management plan prepared by a suitably qualified person and consistent with Planning Scheme Policy 4 Flood hazard.*	No acceptable outcome is nominated.

Table 7: Flood hazard overlay code — Additional assessment benchmarks for assessable development in the Medium flood hazard area

PERFORMANCE OUTCOMES	ACCEPTABLE OUTCOMES
Flood risk compatibility	
PO17 Development within the Medium flood hazard area does not occur unless designed, constructed and operated to mitigate the risk to an acceptable level. *Note—Guidance material relating to the risk profile of the flood hazard overlay categories is available in Planning Scheme Policy 4 Flood hazard.*	No acceptable outcome is nominated.
PO18 Vulnerable uses and essential community infrastructure avoid locating within the Medium flood risk hazard area.	No acceptable outcome is nominated.
PO19 Critical infrastructure does not occur within the Medium flood hazard area unless it is demonstrated that: a. avoidance of the area is not reasonably practicable; b. development is located in the area of lowest flood hazard; c. for all flood events, up to and including the DFE (see Table 10: Flood immunity — Minimum design requirements) development:	No acceptable outcome is nominated.

i. remains operational to serve community needs during and immediately after a flood event, even when other infrastructure or services may be compromised; ii. retains essential site access during a flood event; iii. is designed, located, managed and operated to avoid adverse impacts from flooding on the community and the environment. *Note—Compliance with this Performance Outcome will be achieved through a flood risk management plan prepared by a suitably qualified and experienced engineer and consistent with Planning Scheme Policy 4 Flood hazard.*	

Table 8: Flood hazard overlay code — Additional assessment benchmarks for assessable development in the High flood hazard area

PERFORMANCE OUTCOMES	ACCEPTABLE OUTCOMES
Flood risk compatibility	
PO20 Development within the High flood hazard area prioritises risk avoidance and the safety of people and property from intolerable risk over mitigation and avoids locating within an area of intolerable risk.	**AO20.1** Development only occurs in the High flood hazard area where it is demonstrated that: a. all options for avoidance of the area of high flood risk have been exhausted; b. development is located on the part of the site which is at the lowest level of flood hazard; c. mitigation to an acceptable risk level is achieved where the development: i. can be serviced with infrastructure (power, water, sewerage, access and telecommunications) for the expected life of the asset; ii. complies with a site-based flood risk assessment prepared by a suitably qualified person and consistent with Planning Scheme Policy 4 Flood hazard. **AO20.2** Vulnerable uses, essential community infrastructure and critical infrastructure do not establish in the High flood hazard area.
PO21 Development within the High flood hazard area does not intensify intolerable risk through increases in the number of people working or living in the area.	**AO21.1** Home-based businesses do not occur within the High flood hazard area. **AO21.2** Building work for a Class 10 structure or a secondary dwelling does not occur within the High flood hazard area.
PO22 Building work outside the Rural zone and associated with an existing use of land within the High flood hazard area does not increase risk to people and property from flood hazard by increasing the GFA, building footprint, or the number of buildings on a lot. *Note—Guidance material relating to the risk profile of the flood hazard overlay categories is available in Planning Scheme Policy 4 Flood hazard.*	No acceptable outcome is nominated.
PO23 Development within the Rural zone: a. is limited to uses which have a direct relationship with rural activities and cannot be located elsewhere; b. is limited to uses which can withstand flood events.	**AO23.1** Development within the Rural zone is limited to rural sheds that support the following uses: a. Animal husbandry; or b. Animal keeping; or c. Cropping; or d. Permanent plantation; or e. Roadside stall. **AO23.2** Development in the Rural zone is positioned on the part of the site with the lowest level of flood hazard and able to access an evacuation route.

	AO23.3 Development in the Rural zone does not: a. involve difficult to evacuate uses; or b. include a sales or retail operation, except where a Roadside stall.
Resilient built form	
PO24 Development in the Local centre zone is: a. limited to uses which can withstand all flood events up to and consistent with Table 10: Flood immunity - Minimum design requirements; b. constructed and operationally prepared for flood impacts; c. structurally adequate to resist hydrostatic, hydrodynamic and debris impact loads associated with flooding; d. operated in a manner that does not require an extended recovery period and restoration after a flood event such that business can resume trading shortly after a flood event. *Note—Compliance with this Performance Outcome may be demonstrated by providing a structural engineering report and business flood management plan or Flood Emergency Management Plan and consistent with Planning Scheme Policy 4 Flood hazard.*	**AO24.1** Development in the Local centre zone is designed and constructed to prevent and withstand floodwater inundation. **AO24.2** New buildings in the Local centre zone are: a. constructed to withstand the expected flood impacts of a DFL flood event; or b. comprised of resilient or readily replaceable materials that allow operators to resume trading shortly after a flood event; or c. constructed with minimum floor levels consistent with Table 10: Flood immunity - Minimum design requirements.
Disaster management	
PO25 Development within the High flood hazard area supports and does not unduly burden disaster management response or recovery capacity and capabilities through sheltering in place and ensures occupants are prepared for flood events and evacuation.	**AO25.1** Development within a High flood hazard area has a site-specific Flood Emergency Management Plan that outlines the full extent of the risk and potential consequences with roles and responsibilities for before, during and after a flood event and is consistent with Planning Scheme Policy 4 Flood hazard.
Public safety	
PO26 Manufacturing, storage or disposal of hazardous materials does not occur.	No acceptable outcome is nominated.

Table 9: Flood hazard overlay code - Additional assessment benchmarks for assessable Reconfiguring a lot

PERFORMANCE OUTCOMES	ACCEPTABLE OUTCOMES
Minimising flood risk	
PO27 Reconfiguring a lot locates and designs all lots to: a. achieve an acceptable risk and flood immunity; b. minimise the exposure of people and property to an intolerable flood risk hazard; c. minimise damage to property and essential utilities; d. facilitate safe and efficient evacuation.	**AO27.1** Development involving Reconfiguring a lot: a. does not occur in an area of High flood hazard; or b. maintains the same number of lots in the High flood hazard area. **AO27.2** Development envelope areas ensure that there is sufficient area to accommodate future intended uses which avoid flood hazard areas as much as practicable and: a. includes an envelope which caters for: i. infrastructure required for the intended use; ii. an access location to the required standard; iii. signage as required; iv. any construction features; v. consistent with Table 11: Flood immunity - Site works; b. demonstrates that works in association with the development can achieve an acceptable risk level for future intended purposes; c. provides information on mitigation methods required for future uses to maintain and/or achieve an acceptable risk level.

	AO27.3 Where site mitigation works are required to achieve an acceptable risk level, the site works must be completed before the new lots are created. *Note—Flood immunity may be achieved by filling and providing drainage channels.*
PO28 Reconfiguring a lot: a. creates safe access and egress routes for people and emergency services personnel internal and external to the site; b. minimises the length of roads within the flood hazard overlay; c. provides lots and roads that are not frequently flooded or subject to nuisance ponding or seepage. *Note—For example, avoid finger-like or tree-like subdivision patterns.*	**AO28.1** New roads proposed as part of the development are designed and constructed to remain safe for vehicles and emergency services up to and including the DFL and: a. have a two-lane sealed carriageway; b. are connected to a higher order road at both ends and at intervals of less than 250m; c. do not include design elements that may impede access and egress; d. incorporate mountable kerb (where kerb is provided); e. are consistent with evacuation routes in Planning Scheme Policy 4 Flood hazard. **AO28.2** The subdivision layout ensures access and egress routes remain safe for vehicles and emergency services and: a. directs occupants away from, rather than towards or through areas with the severest flood risk hazard; b. minimises the length of routes through all flood hazard areas; c. locates accesses into the development above the DFL; d. avoids cul-de-sacs and road networks that limit access and egress.
Floodplain function (conveyance and behaviour)	
PO29 The floodplain function (conveyance and behaviour) is protected or improved by: a. maintaining existing ground levels; b. minimising cutting and filling in the floodplain; c. maintaining or improving the existing floodplain storage capacity; d. maintaining or reducing the maximum flow velocity of water or flood depth; e. maintaining or reducing the potential risk of flood damage; f. decreasing runoff volume; g. improving or maintaining floodwater conveyance and behaviour; h. improving or maintaining natural features and vegetation along riparian corridors and overland flow paths. *Note—Partial compliance with this Performance outcome may be demonstrated by complying with PO9.*	**AO29.1** In High flood hazard areas, development does not alter the natural floodplain function and water flow. **AO29.2** Development does not adversely change the flood hazard category or flow characteristics of the site or of upstream, downstream or adjacent sites. **AO29.3** Development: a. does not block or divert floodwaters or overland flow; b. does not result in an increase in the flood extent or flood hazard category of upstream, downstream or adjacent sites. **AO29.4** Development that creates new overland flow paths or significantly alters an existing overland flow path, does not: a. create an intolerable risk to existing and future uses inside and outside of the site; b. worsen the flood hazard category or flow characteristics outside of the site. **AO29.5** Future lots are not divided by areas of flood conveyance. **AO29.6** Floodways or areas used for floodwater conveyance are protected by an easement or reserve provided to Council. **AO29.7** Easements or reserves are to protect the greater of: a. the DFL flood extent; or b. the floodway extent.
Services	
PO30 Infrastructure and utilities (including roads, water supply, sewerage) support community resilience up to and including the DFE (see Table 10: Flood immunity - Minimum	**AO30.1** Infrastructure and utilities are: a. not located in the flood hazard overlay; or b. located on the highest part of the site to improve flood

design requirements).	immunity and are designed to prevent floodwater intrusion.
Disaster management response	
PO31 Development supports and does not unduly burden, disaster management response or recovery capacity and capabilities.	**AO31.1** The subdivision layout is a grid-like pattern allowing multiple access points which demonstrates sufficient capacity for an evacuating population through examination of: a. risk of isolation; b. road access and egress immunity up to and including the DFL; c. evacuation routes.

Table 10: Flood immunity - Minimum design requirements

USE	DEFINED FLOOD EVENT	DESIGNATED FINISHED FLOOR LEVEL AND ESSENTIAL UTILITIES
Residential activities	DFL	DFL plus 500mm freeboard
Essential community infrastructure, Critical infrastructure and Vulnerable uses	0.2% AEP or the DFL, whichever is the greater flood event. Vehicle and pedestrian access: DFL	0.2% AEP or the DFL, whichever is the greater flood event, plus 500mm freeboard
Lots noted as Special Areas (by Lot on Plan) in Planning Scheme Policy 4 Flood hazard		The declared finished floor level plus freeboard specified in Planning Scheme Policy 4 Flood hazard, Special areas
Flood Investigation Areas and Overland flow paths shown on Flood hazard overlay - Map 1	To be determined by a site-specific flood risk assessment	
Locations noted as Investigation Areas within the Planning Scheme Policy 4 Flood hazard	To be determined by a site-specific flood risk assessment	
Commercial and Industry activities (but not a referrable hazardous chemical facility)	DFL	DFL plus 300mm freeboard
All other uses	DFL	DFL plus 500mm freeboard

Table 11: Flood immunity - Site works

FLOOD MAP ELEMENT	RESIDENTIAL ZONE	NON-RESIDENTIAL ZONE	PROPORTION OF LOT
Flood hazard area or Overland flow path	DFL plus 500mm	DFL plus 300mm	Where sewered: 100% Where unsewered: a. a minimum area of 2,250m^2 in one consolidated location; b. regular shape (e.g. square or rectangle); c. has direct access and to a constructed road.
Flood investigation area on Flood hazard overlay - Map 1	To be determined by a site-specific flood risk assessment		
Investigation area in Planning Scheme Policy 4 Flood hazard	To be determined by a site-specific flood risk assessment		

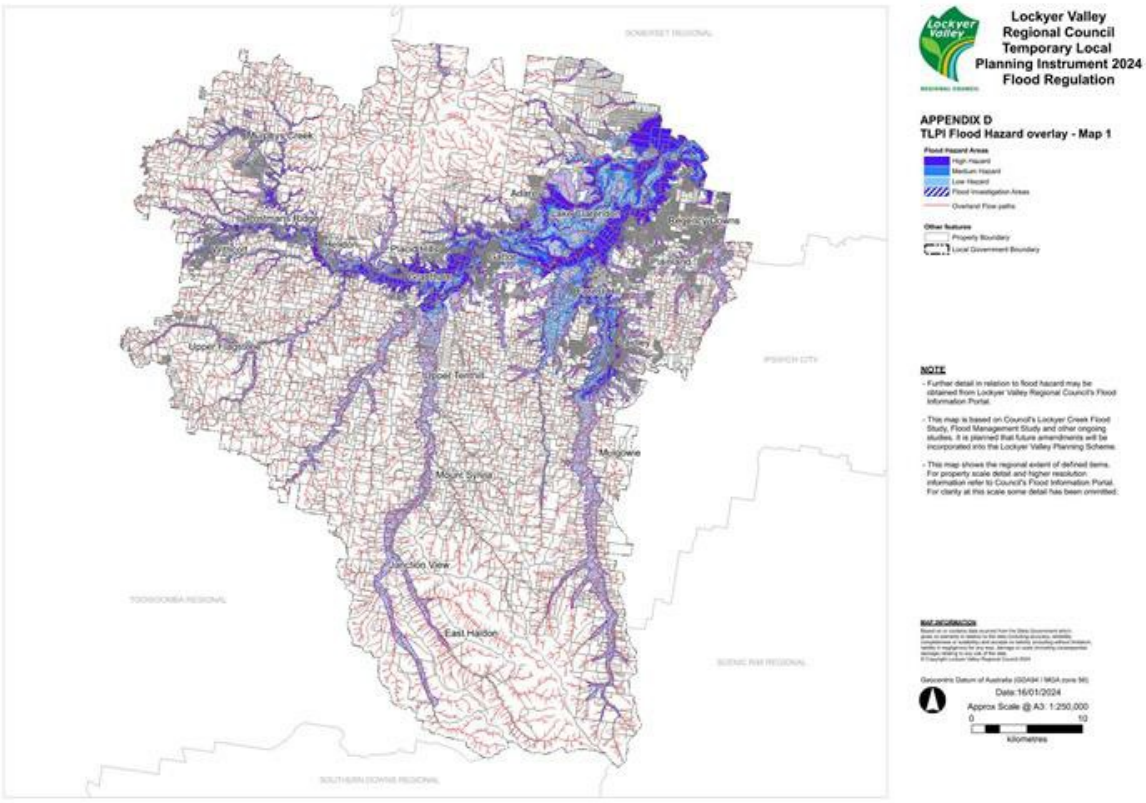
Table 12: Flood hazard exposure for carparking and non-habitable buildings

CRITERIA	DEGREE OF EXPOSURE	
	LOW	MEDIUM
Maximum flood depth	≤0.3m	≤0.6m
Maximum flood velocity	≤0.4m/s	≤0.8m/s
Depth by velocity (d*V)	≤0.25 m^2/s	≤ 0.4 m^2/s

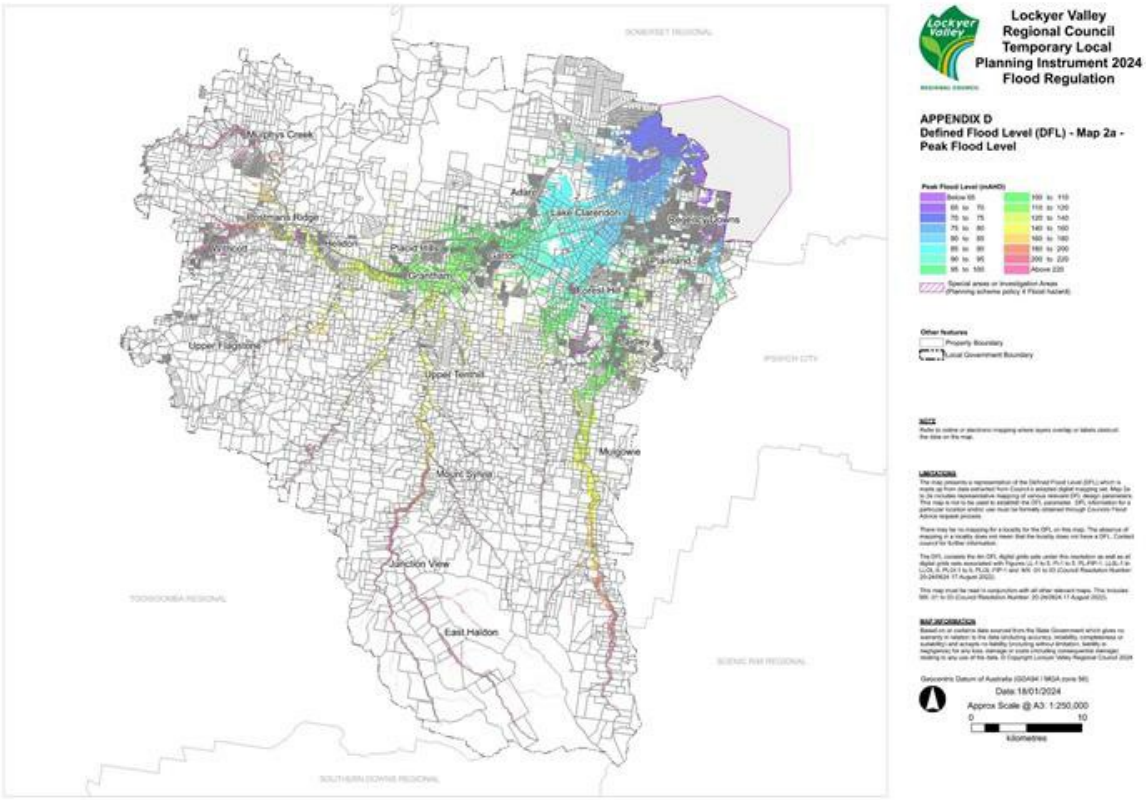
APPENDIX D

Further detail in relation to flood hazard may be obtained from Lockyer Valley Regional Council's Flood Information Portal.

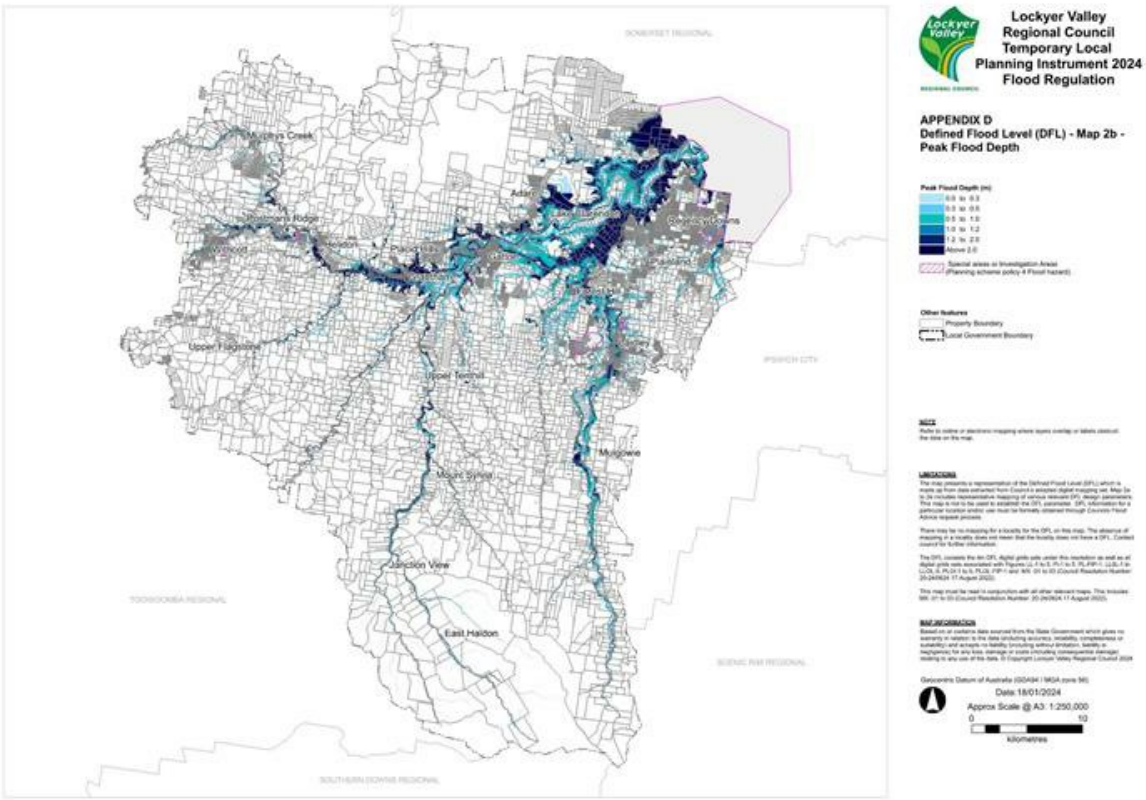
Flood hazard overlay — Map 1



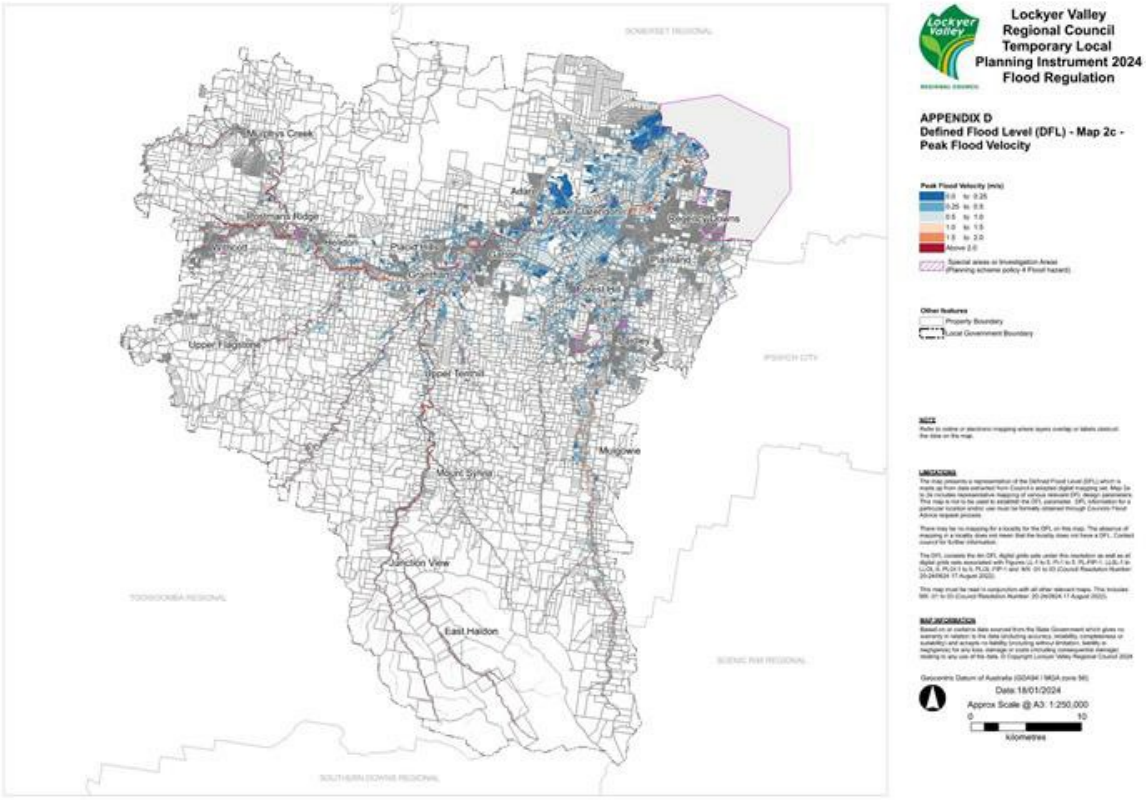
Flood hazard overlay - Map 2a



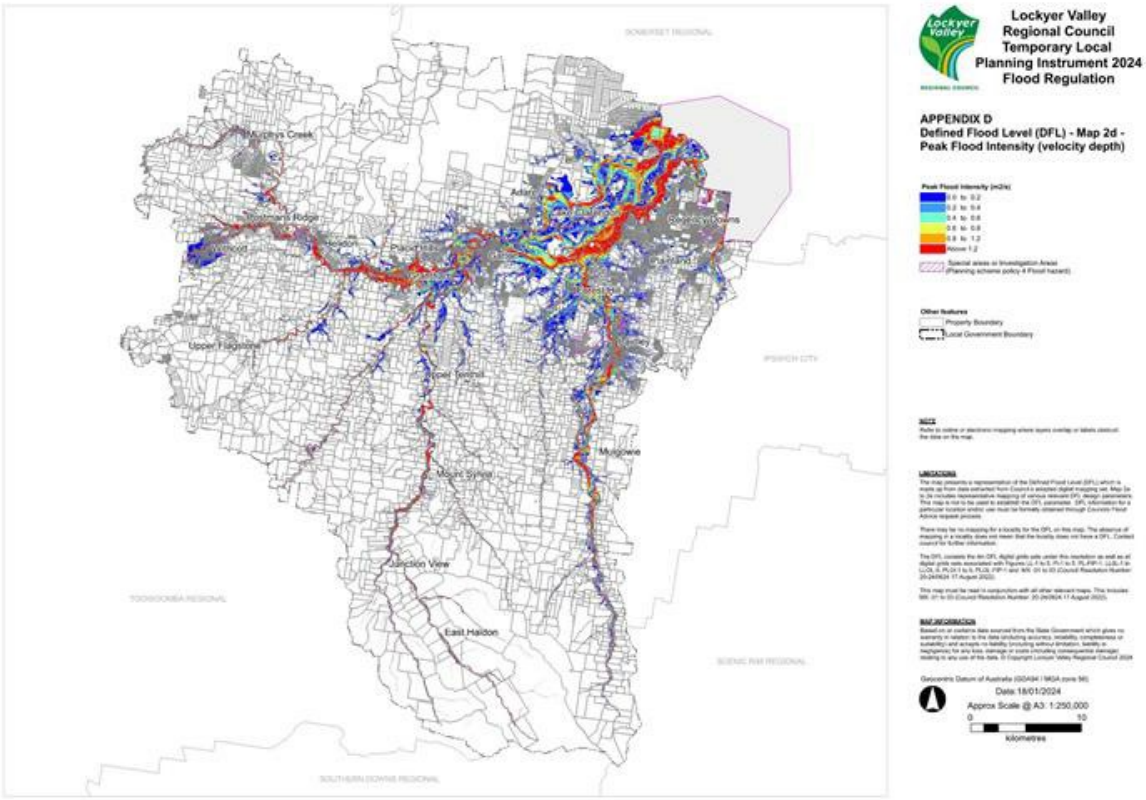
Flood hazard overlay - Map 2b



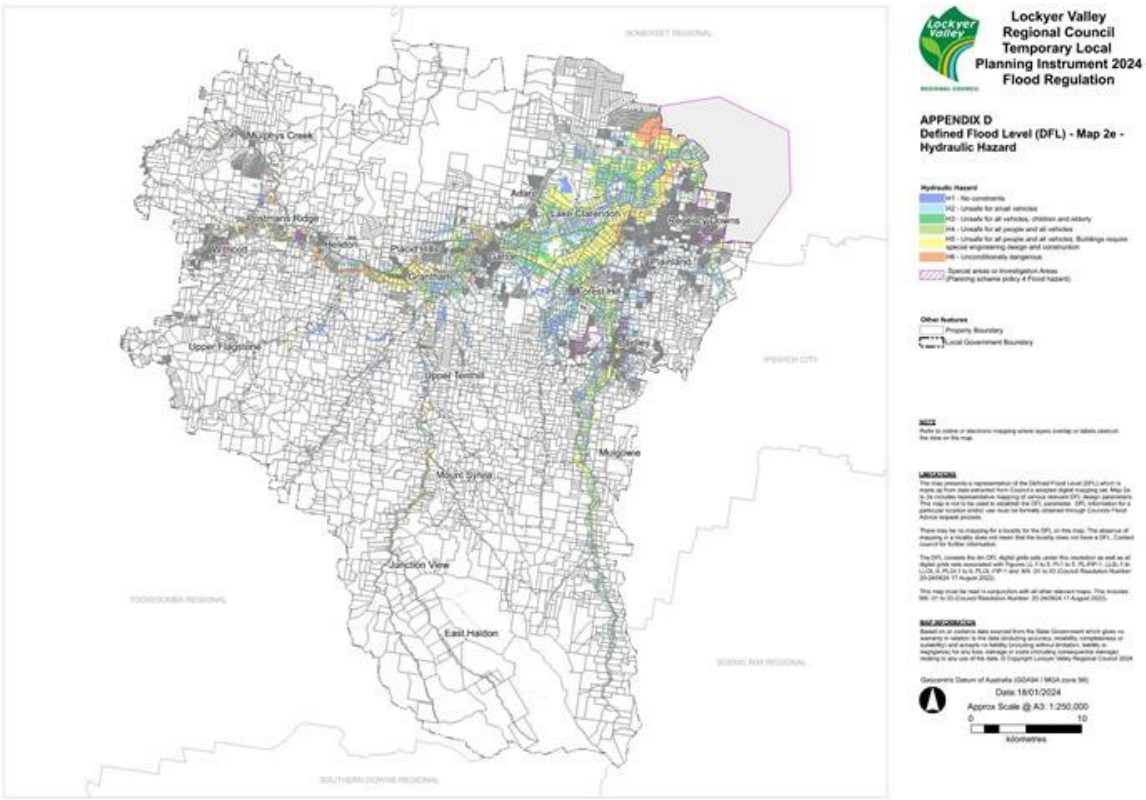
Flood hazard overlay - Map 2c



Flood hazard overlay - Map 2d



Flood hazard overlay - Map 2e



Appendix E

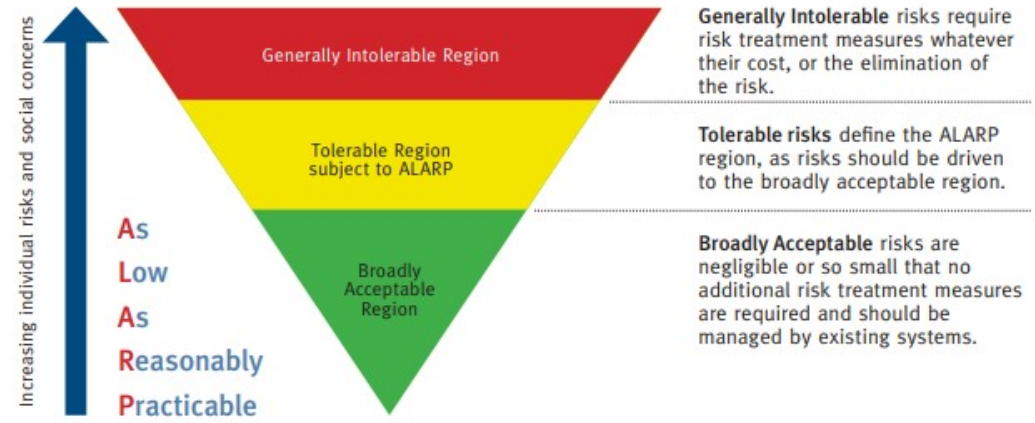
GUIDANCE FOR DETERMINING TOLERABLE RISK

A tolerable risk is one that meets the requirements of National Emergency Risk Assessment Guidelines October 2010 (NERAG) section 6.3 and tables 6, 7 and 8 for 'Tolerable subject to ALARP'.

NERAG provides a process for assessing risk as either intolerable or tolerable (subject to reducing the risk to 'as low as reasonably practicable' (ALARP)).

The ALARP principle helps to prioritise a risk hierarchy and determine which risks require action and which do not. Those that are broadly acceptable naturally require little, if any, action while risks that are at an intolerable level require attention to bring them to a tolerable level. It is entirely appropriate and accepted practice that risks may be tolerated, provided that the risks are known and managed. Refer to Figure 9 from the NERAG (see below).

Figure 9 ALARP Principle



ALARP Principle from the National Emergency Risk Assessment Guidelines October 2010

The following tolerability matrices from the NERAG should be used depending on the level of confidence for a particular risk issue.

Table 6 Evaluation Table – High Confidence Level

Likelihood Level	Consequence Level: Insignificant	Minor	Moderate	Major	Catastrophic
Almost Certain					
Likely					
Possible					
Unlikely					
Rare					
Very Rare					
Almost Incredible					

Table 7 Evaluation Table – Moderate Confidence Level

Likelihood Level	Consequence Level: Insignificant	Minor	Moderate	Major	Catastrophic
Almost Certain					
Likely					
Possible					
Unlikely					
Rare					
Very Rare					
Almost Incredible					

Table 8 Evaluation Table – Low Confidence Level

Likelihood Level	Consequence Level: Insignificant	Minor	Moderate	Major	Catastrophic
Almost Certain					
Likely					
Possible					
Unlikely					
Rare					
Very Rare					
Almost Incredible					

	Intolerable
	Tolerable subject to ALARP
	Broadly Acceptable

Evaluation tables from the National Emergency Risk Assessment Guidelines October 2010

In accordance with the State interest statement for Natural hazards, risk and resilience of the *State Planning Policy 2017,* where it is not possible to avoid the natural hazard area, development must mitigate the risks to people and property to an acceptable or tolerable level. This means a fit-for-purpose risk assessment may need to be undertaken to identify and achieve an acceptable or tolerable level of risk for personal safety and property in natural hazard areas.

Land use planning provisions are one component of an integrated disaster management strategy. Other risk management strategies which may need to be considered include building controls, mitigating infrastructure, early warning systems, community education and awareness, and disaster management.

Risk to development in natural hazard areas must be managed to a tolerable or broadly acceptable levels considering and (as a minimum):

a. support, and not hinder disaster management capacity and capabilities;
b. directly, indirectly and cumulatively avoid an increase in the exposure or severity of the natural hazard and the potential for damage on the site or to other properties;
c. avoid risks to public safety and the environment from the location of the storage of hazardous materials and the release of

these materials as a result of a natural hazard;

d. maintain or enhance the protective function of landforms and vegetation that can mitigate risks associated with the natural hazard.

Community infrastructure must be located and designed to maintain the required level of functionality during and immediately after a natural hazard event.