

3.0 PLANNING SCHEME POLICY 3 – FLOOD AND STORM TIDE HAZARD

3.1 RELATIONSHIP WITH THE PLANNING SCHEME

- (1) This planning scheme policy sets out:
- (i) information council may request for the preparation and submission of technical reports for proposed development affected by the flood prone, storm tide and drainage constrained land hazard overlays. These are contained in the following subsections:
 - 3.2.1.1 Flood assessments
 - 3.2.1.2 Storm tide assessments
 - 3.3.1.1 Drainage constrained land assessments
 - (ii) general guidance for applicants which is contained in the following sections:
 - 3.2.2.1 Hydrological analysis
 - 3.2.2.2 Hydraulic analysis
 - 3.2.2.3 Channel design
 - 3.2.2.4 Trafficable access

3.2 FLOOD AND STORM TIDE ASSESSMENTS

The following information may be required to inform PO4 and PO6 of the Flood and Storm Tide Hazard Overlay Code.

3.2.1 Information that Council may request

3.2.1.1 Flood assessments

- (1) A development application involving land that is within the flood hazard overlay may require the submission of a flood report detailing the impacts of the proposed development.
- (2) A flood report must be certified by a suitably qualified Registered Professional Engineer of Queensland (RPEQ) and must contain:
- (a) a site plan showing the location of existing and proposed structures;
 - (b) the location of existing and proposed drainage structures and overland flow paths;
 - (c) an assessment of the contributing catchment for the 50, 10, 5, 2 and 1% AEP design flood events including:
 - (i) where in the storm tide area, the provision made for storm tide events;
 - (ii) the extent, depth and velocity of the flood waters for each event;
 - (iii) a contour plan with levels to AHD at 0.25m contours and details of any structures which may act as a hydraulic controls;
 - (d) scaled drawings for each design storm event showing a comparison between the existing and proposed scenario;
 - (e) the impact of the proposed development on surrounding properties;
 - (f) the extent and impact of any proposed earthworks or changes to the flow path;
 - (g) for overland flow, any potential blockages in the system from debris;
 - (h) where within the storm tide hazard area, the impact in terms of foreshore or bank stability and type of protection proposed; and,
 - (i) all relevant computer data files that are compatible with council's software.

3.2.1.2 Storm tide assessments

- (1) A development application involving land that is within the storm tide hazard overlay may require the submission of a storm tide assessment which includes:
 - (a) a contour plan with levels to AHD at 0.25 metre contours which shows:
 - (i) the extent of the storm tide inundation;
 - (ii) the location of any existing and proposed structures on the lot;
 - (iii) the extent of any proposed excavation and fill;
 - (b) any impacts on neighbouring properties; and,
 - (c) any impacts in terms of foreshore bank stability and the type of protection proposed.

3.2.2 Guidance for applicants

3.2.2.1 Hydrological Analysis

- (1) Stream flow is to be simulated in accordance with the methods recommended in the Queensland Urban Drainage Manual (QUDM) and Australian Rainfall and Runoff (AR&R).
- (2) Hydrological models are to account for all existing and future stream and catchment development.
- (3) Model parameters are to be determined by calibration against past flood events and by recognised AR&R regional relationships.
- (4) Calibration includes all major flooding events with recorded flood level information.
- (5) Calibration models accurately reflect the existing development during the event.
- (6) Flood analysis by accepted flood modelling techniques is carried out to determine the worst flooding scenario for the particular flood frequency in concern.

3.2.2.2 Hydraulic Analysis

- (1) Flood levels are simulated in accordance with the methods recommended in QUDM and AR&R.
- (2) Cross section information used in hydraulic calculations is based on a recent survey of the waterway or foreshore at sufficient detail to accurately model the terrain.
- (3) Survey is to Australian Height Datum (AHD).
- (4) Roughness coefficients are determined from calibration and published upper bound guidance values and accurately reflect terrain conditions.
- (5) Hydraulic gradients are determined from surveyed flood levels or cross-sections up and downstream of the subject site.
- (6) Flood levels for a particular annual exceedance probability (AEP) are determined from the design storm that yields the highest water level prediction.

3.2.2.3 Channel design

- (1) Maximum average flow velocity in consolidated bare earth and vegetated channels is to comply with the lower of the tabulated values for easily erodible soils in QUDM and/or poor grass cover in AR&R.

- (2) The maximum Froude number is less than 0.9 and supercritical flow is not acceptable.
- (3) Manning's 'n' values are determined from the sources recommended in QUDM and published upper bound guidance values are adopted.
- (4) Velocity and Froude number calculations are to include several stream flow events from a 50 percent AEP (2 year ARI) to 1 percent AEP (100 year ARI) storm event.
- (5) Channel design is to minimise erosion potential.
- (6) The minimum centreline radius of bends in channels is not less than four times the width of flow of a 1 percent AEP (100 year ARI) flow at that location.
- (7) The maximum angle of deflection of the channel between the straight reaches upstream and downstream of the curve is not to exceed 60°.
- (8) The channel is straight both upstream and downstream of all curves for a distance in each case equivalent to at least the radius of the curve.
- (9) Access to channels is provided for maintenance equipment.

3.2.2.4 Trafficable access

- (1) Trafficable access to the site during a flood or storm tide event is to consider emergency service access, the time of the road closure, the number of properties affected, the land use, and the flows depths and width limitations in accordance with section 7.3.15 of QUDM.
- (2) Car parking should also be considered in accordance with section 7.3.10 of QUDM..

3.3 DRAINAGE CONSTRAINED LAND ASSESSMENT

3.3.1 Information that Council may request

The following may be required to inform PO7 in the Flood and Storm Tide Hazard Overlay Code.

3.3.1.1 Drainage constrained land assessments

- (1) Where an application involves land on the Southern Moreton Bay Islands shown as drainage constrained an assessment that confirms the extent and effects of the drainage issues may be required. Depending on the type of drainage problem, the assessment may need to include:
 - (a) a contour plan with levels to AHD at 0.25 metre contours which shows the location of any existing and proposed structures on the site;
 - (b) existing contributing stormwater catchment and future catchment;
 - (c) the location, depth, width and velocity of calculated stormwater overland flow;
 - (d) the location of any easements (existing and proposed);
 - (e) a description of soil layers to a depth of 1.2 metres; and,
 - (f) the proposed remedial works to address the drainage problem (where possible).

3.3.2 Guidance for applicants

- (1) Drainage constrained land on the Southern Moreton Bay Islands is primarily associated with:
 - (a) existing stormwater overland flow paths;
 - (b) access constraints due to stormwater overland flow;
 - (c) high water table; and,
 - (d) seepage (stormwater and wastewater).