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1 INTRODUCTION

This section contains local objectives and controls for development in the flood prone areas of Dora Creek Township, as defined in Figure 1 - Area Plan Boundary. For general development controls including residential, commercial and sea/lake level rise, refer to Lake Macquarie Development Control Plan 2014 (LMDCP2014).

1.1 BACKGROUND

Dora Creek is located 30km southwest of Newcastle, rises in the Sugarloaf Ranges, some 460m above sea level and flows in an easterly direction to its mouth at Lake Macquarie. The township of Dora Creek is located about 3km from the mouth and is subject to flooding constraints. Flooding in Dora Creek is influenced both by rainfall over its catchment and high water levels in Lake Macquarie.

Inundation of overbank areas occurs when the carrying capacity of the Dora Creek channel is exceeded. Overbank flows where floodwaters do not return to the main creek channel, occur at several locations in the vicinity of the Dora Creek Township. Upstream of the Main Northern Railway, there are overflows to the north to Muddy Lake. Downstream of the railway, overflows occur to Muddy Lake and Lake Eraring in the north and to Bonnells Bay in the south.

One significant flooding event has affected the Dora Creek Catchment since the implementation of the original Area Plan. The June 2007 “Pasha Bulka” long weekend floods produced peak rainfall and flood levels consistent with the 1990 flood event, with the Martinsville and Mandalong catchments recording peak rainfall bursts. Overall, the 2007 flooding event at Dora Creek catchment was recorded at just below a 5 per cent AEP event.

The *Dora Creek Floodplain Management Plan 1998* provided the preliminary basis for the future management of flood liable lands and the management of development within the Dora Creek floodplain area. The *Dora Creek Floodplain Management Plan 1998* has been replaced by the *Dora Creek Floodplain Risk Management Study and Plan 2015* in accordance with the [NSW Floodplain development Manual the management of flood liable land \(April 2005\)](#) and will provide the basis for the future management of flood liable land within the Dora Creek area.

The *Dora Creek Floodplain Risk Management Study and Plan 2015* recommended that Development Control Plan (DCP) conditions be updated to reflect current details of floodways, flood storage areas and flood fringe areas, restrict development within high hazard flood prone lands (floodways, flood storage area, high velocity over 1.5m/s), prohibit development of Building Code of Australia Classes 1, 2, 3 4, 9a and 9c buildings in areas with flows in excess of 1.5 m/s, restrict development within low hazard flood prone lands and include clarity to development controls in relation to commercial and mixed use zones.

The *Dora Creek Floodplain Risk Management Study and Plan 2015* recommended revising Section 10.7 Certificates to contain property specific flooding information. This recommendation has been implemented through request of a ‘Flood Certificate or Flood / Tidal Inundation Certificate’ for lot specific flooding information. Alternatively, access to lot specific flood information via the On-line Flood Summary Information Tool is accessible through the [Lake Macquarie City Council website](#).

In accordance with the *NSW Floodplain Development Manual (April 2005)*, the *Dora Creek Floodplain Risk Management Study and Plan 2015* incorporated an assessment of climate change resulting in future sea and lake level rise. This assessment included projected estimations of a 0.4 metre and 0.9 metre rise in sea and lake levels by Years 2050 and 2100, with peak rainfall and storm volume expected to increase by an estimate of 10 per cent (low), 20 per cent (medium) and 30 per cent (high) by designated timeframes.

Sections of the Dora Creek Catchment have been identified in Lake Macquarie’s [Inundation Hazard Map](#) as having high hazard of permanent inundation through projected estimates of 0.4 metre and 0.9 metre sea level rise.

The *Dora Creek Floodplain Risk Management Study and Plan 2015* recommended undertaking a Local Adaptation Plan for the Dora Creek catchment and its implementation will provide further detailed

development conditions on completion, which will replace intermediate controls found under Section 1.4 *Adaption to Sea and Lake Level Rise* of this Area Plan.

1.2 EXTENT OF AREA PLAN

This Area Plan applies to the flood prone areas shown in Figure 1.

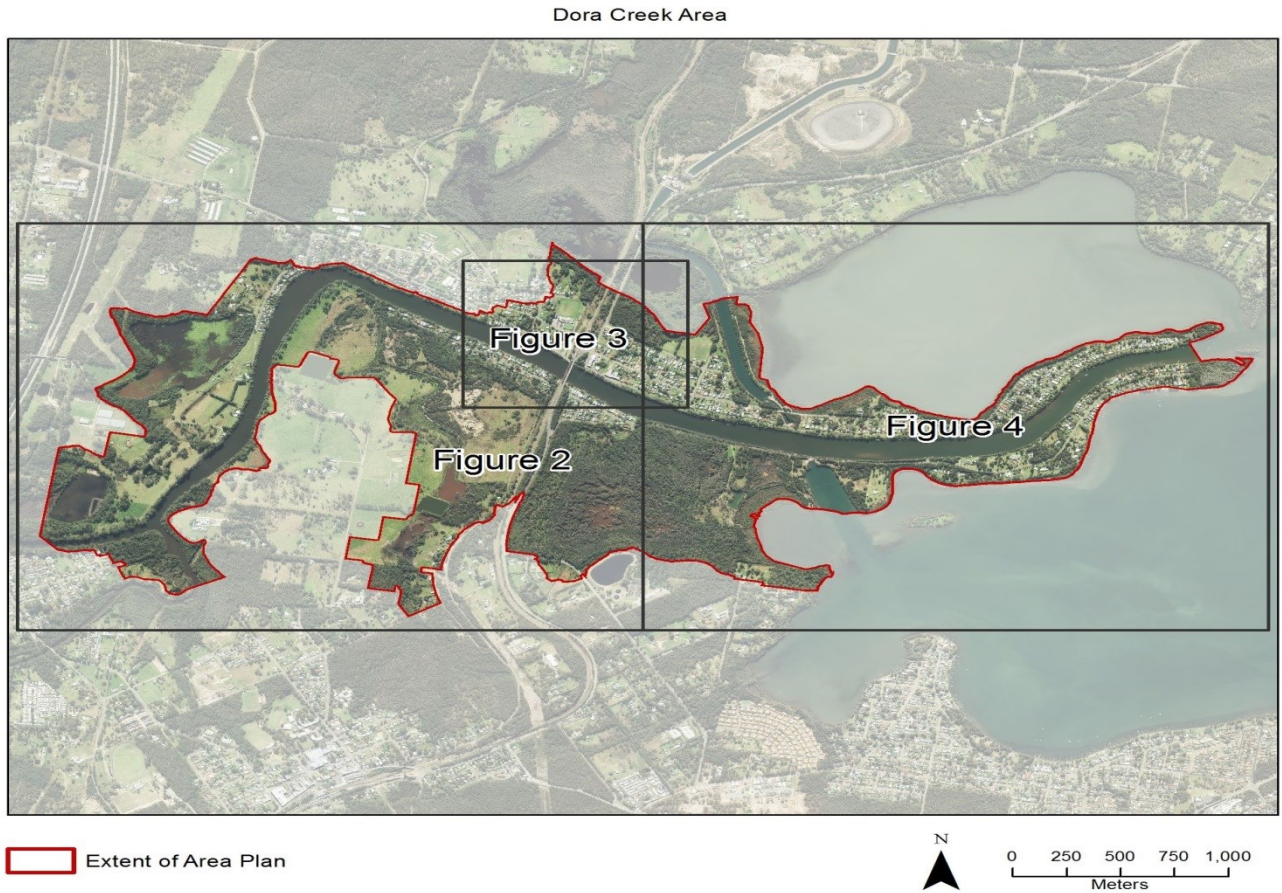


Figure 1 - Area Plan Boundary

1.3 FLOOD DEVELOPMENT CONTROLS AND FLOOD PLANNING LEVELS

Objectives

- a. To ensure that more intensive forms of development in parts of the flood prone areas of Dora Creek are consistent with the requirements of Clause 7.3 Flood Planning of *LMLEP 2014*, the *Dora Creek Floodplain Risk Management Study Plan 2015* and *Lake Macquarie Development Control Plan 2014*.
- b. To ensure that subdivision and development is managed in accordance with the flood hazard identified in the *Dora Creek Floodplain Risk Management Study Plan 2015* and *Lake Macquarie Development Control Plan 2014*.
- c. To restrict more intensive forms of development in parts of the flood prone area of Dora Creek.

Controls

1. On flood prone land identified as a non-commercial area within Figures 2-4, the following forms of new development are not supported because of the risk to life and property. Any Development Applications submitted to Council in relation to the development types listed below, must be consistent with the requirements of Clause 7.3 Flood Planning of *LMLEP 2014*:
 - i. Subdivision,
 - ii. Dual Occupancy – Attached and Detached (Class 1A), Boarding House (Class 1B),
 - iii. Small Lot Housing, Group Homes, Semi Detached Dwelling (Class 1A),
 - iv. Multiple Dwelling Housing, Residential Flat Building (Class 2),
 - v. Hostel, Hotel Accommodation (Class 3),
 - vi. Sensitive Use Developments (Class 9), (e.g. Aged Care Building, Child Care Centres, Day Respite Care Centres, Place of Public Worship, Information and Educational Facilities), and
 - vii. Healthcare Buildings (Class 9A).

For additional DCP provisions:

Refer to *LMDCP 2014*, Part 3 - Development in Residential Zones - Clause 2.8 Catchment Flood Management, and Clause 2.9 Lake Flooding and Tidal Inundation (Incorporating Sea Level Rise).

Note: Section 1.5 Glossary provides definitions for various references in this DCP including “Class” in relation to building types.

2. On flood prone land identified as a commercial area within the Dora Creek township CBD (Wamsley Street, Dora Street and Doree Place) (Figure 3) the following new buildings types and uses are not supported because of the flood risk to life and property. Any Development Applications submitted to Council in relation to the development types listed below, must be consistent with the requirements of Clause 7.3 Flood Planning of *LMLEP 2014*:
 - i. Boarding House,
 - ii. Small Lot Housing, Group Homes, Multiple Dwelling Housing, Shop Top Housing; Residential Flat Buildings,
 - iii. Hostels, and
 - iv. Sensitive Use Developments (Class 9C), (e.g. Aged Care Building, Child Care Centres, Day Respite Care Centre, Places of Public Worship).

For additional DCP provisions:

Refer to LMDCP 2014, Part 4 Development in Centres and Mixed Use Employment Zones – Clause 2.9 Catchment Flood Management, and Clause 2.10 Lake Flooding and Tidal Inundation (Incorporating Sea Level Rise).

1.4 ADAPTATION TO SEA AND LAKE LEVEL RISE

Objectives

- a. To ensure that development is designed to enable future adaptation if projections are realised, or that measures are implemented to mitigate any adverse impacts of climate change or sea level rise.
- b. To encourage innovative responses to sea level rise impacts
- c. To ensure that development adequately considers and responds to sea level rise projections, and the predicted effects on inundation, flooding and foreshore recession, and on groundwater levels.

General Provisions

1. General provisions related to adaptation to sea and lake level rise are provided in Councils DCP Flooding and Development Guidelines:
 - i. [Flood Resilient Housing Guidelines](#)
 - ii. [Flood Management Guidelines](#)

1.5 GLOSSARY

Annual Exceedance Probability (AEP): the chance of a flood of a given or larger size occurring in any one year, usually expressed as a percentage. For example, if a peak flood discharge of 500 m³/s has an AEP of 5 per cent, it means that there is a 5 per cent chance (that is one-in-20 chance) of a 500 m³/s or larger event occurring in any one year (see ARI).

Australian Height Datum (AHD): a common national surface level datum approximately corresponding to mean sea level.

Class 1-9C: refers to the NSW Building Code of Australia's building classification types.

Commercial area: is defined as an area that contains the following uses - commercial premises, business premises, office premises, retail premises.

Development: is defined in Part 4 of the Environmental Planning and Assessment Act (EP&A Act).

Flood: relatively high stream flow which overtops the natural or artificial banks in any part of a stream, river, estuary, lake or dam, and/or local overland flooding associated with major drainage before entering a watercourse, and/or coastal inundation resulting from super-elevated sea levels and/or waves overtopping coastline defences excluding tsunami.

Flood fringe areas: the remaining area of flood prone land after floodway and flood storage areas have been defined.

Flood Planning Level (FPL): means the level of a 1:100 ARI (Average recurrent interval) flood event plus 0.5 metre freeboard.

Flood prone land: land susceptible to flooding by the Probable Maximum Flood (PMF) event. Flood prone land is synonymous with flood liable land.

Flood storage areas: those parts of the floodplain that are important for the temporary storage of floodwaters during the passage of a flood. The extent and behaviour of flood storage areas may change with flood severity, and loss of flood storage can increase the severity of flood impacts by reducing natural flood attenuation. Hence, it is necessary to investigate a range of flood sizes before defining flood storage areas.

Floodway areas: those areas of the floodplain where a significant discharge of water occurs during floods. They are often aligned with naturally defined channels. Floodways are areas that, even if only partially blocked, would cause a significant redistribution of flood flows, or a significant increase in flood levels.

Freeboard: provides reasonable certainty that the risk exposure selected in deciding on a particular flood chosen as the basis for the FPL is actually provided. It is a factor of safety typically used in relation to the setting of floor levels, levee crest levels, etc. Freeboard is included in the flood planning level.

Habitable floors: in a residential situation: a living or working area, such as a lounge room, dining room, rumpus room, kitchen, bedroom or workroom. In an industrial or commercial situation: an area used for offices or to store valuable possessions susceptible to flood damage in the event of a flood.

New development: refers to development of a completely different nature to that associated with the former land use. For example, the urban subdivision of an area previously used for rural purposes. New developments involve rezoning and typically require major extensions of existing urban services, such as roads, water supply, sewerage and electric power.

Redevelopment: refers to rebuilding in an area. For example, as urban areas age, it may become necessary to demolish and reconstruct buildings on a relatively large scale. Redevelopment generally does not require either rezoning or major extensions to urban services.

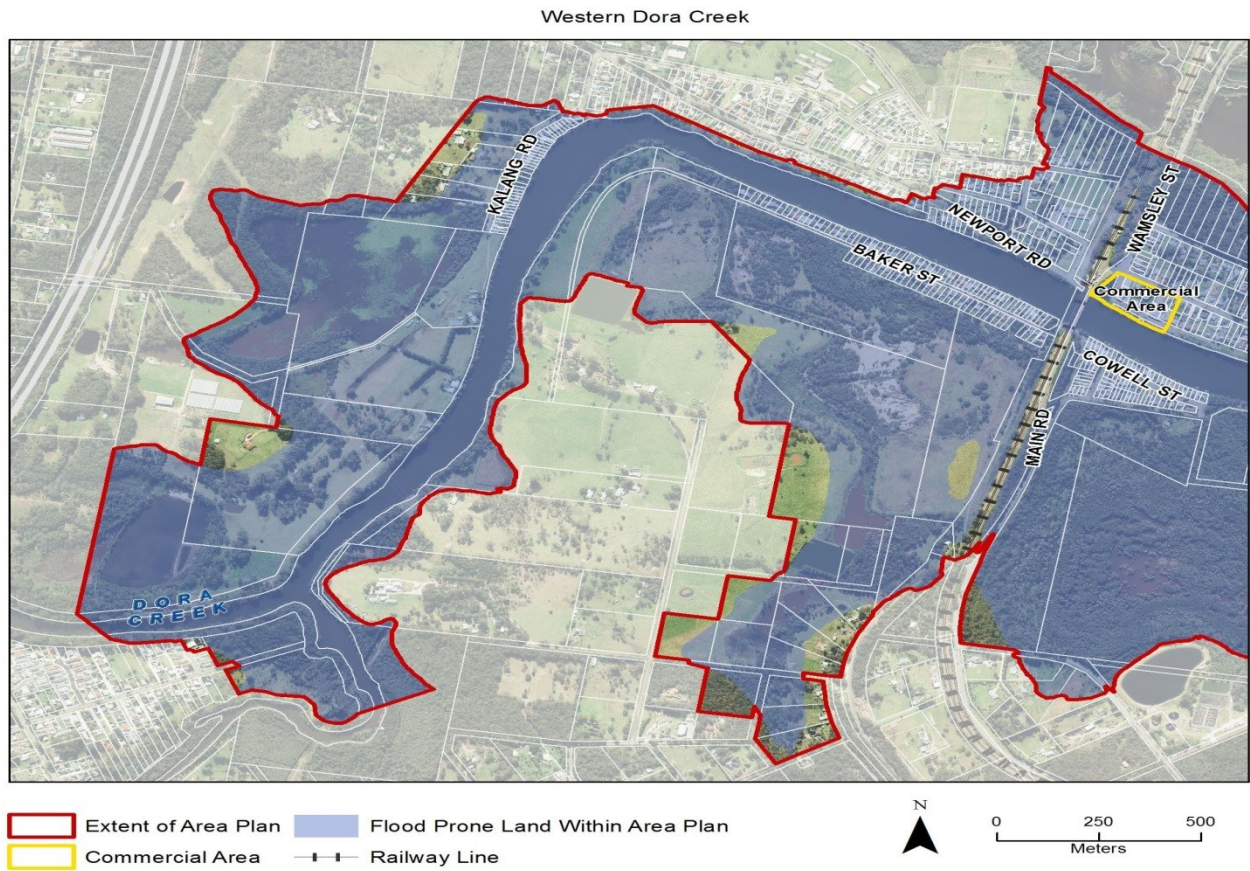


Figure 2 - Flood Prone Areas - Western Dora Creek

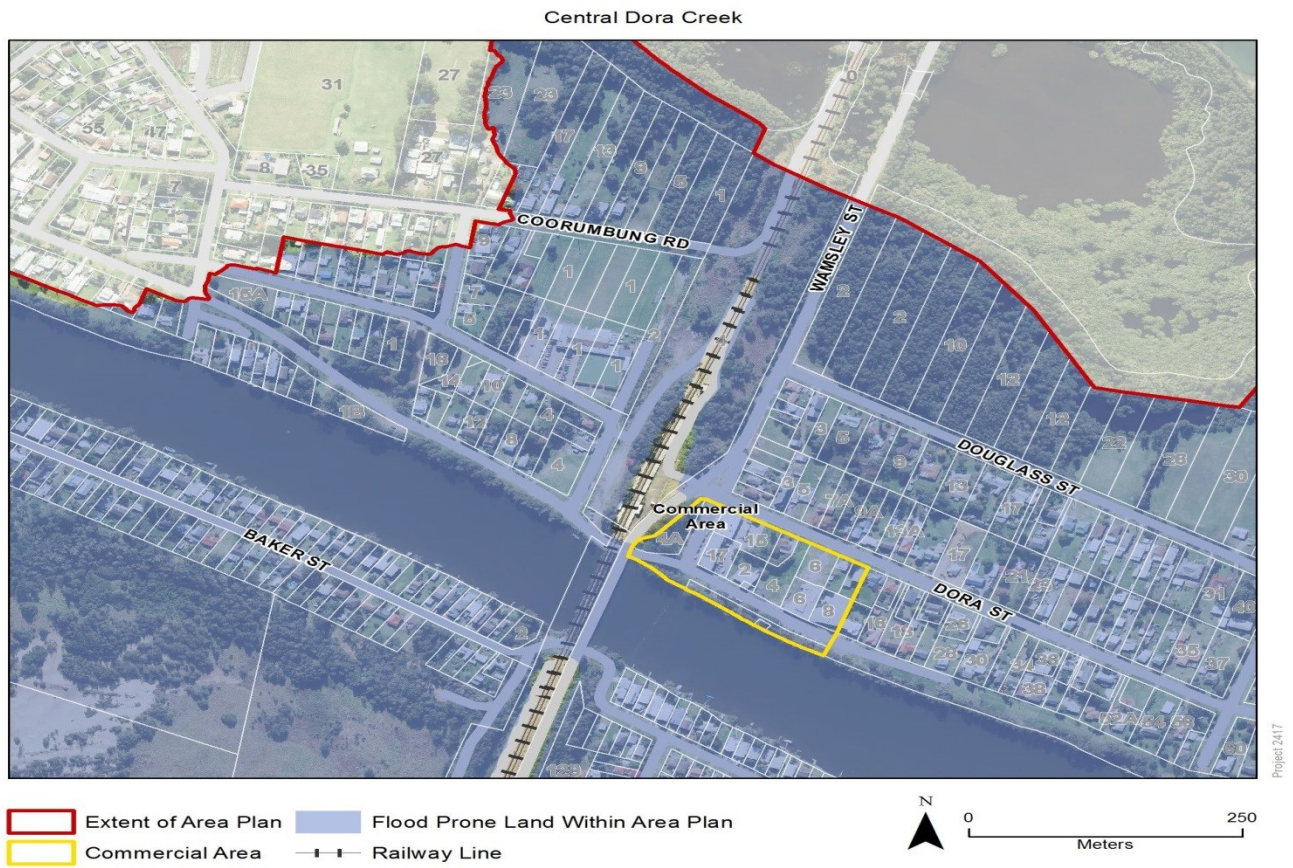


Figure 3 - Flood Prone Areas – Central Dora Creek

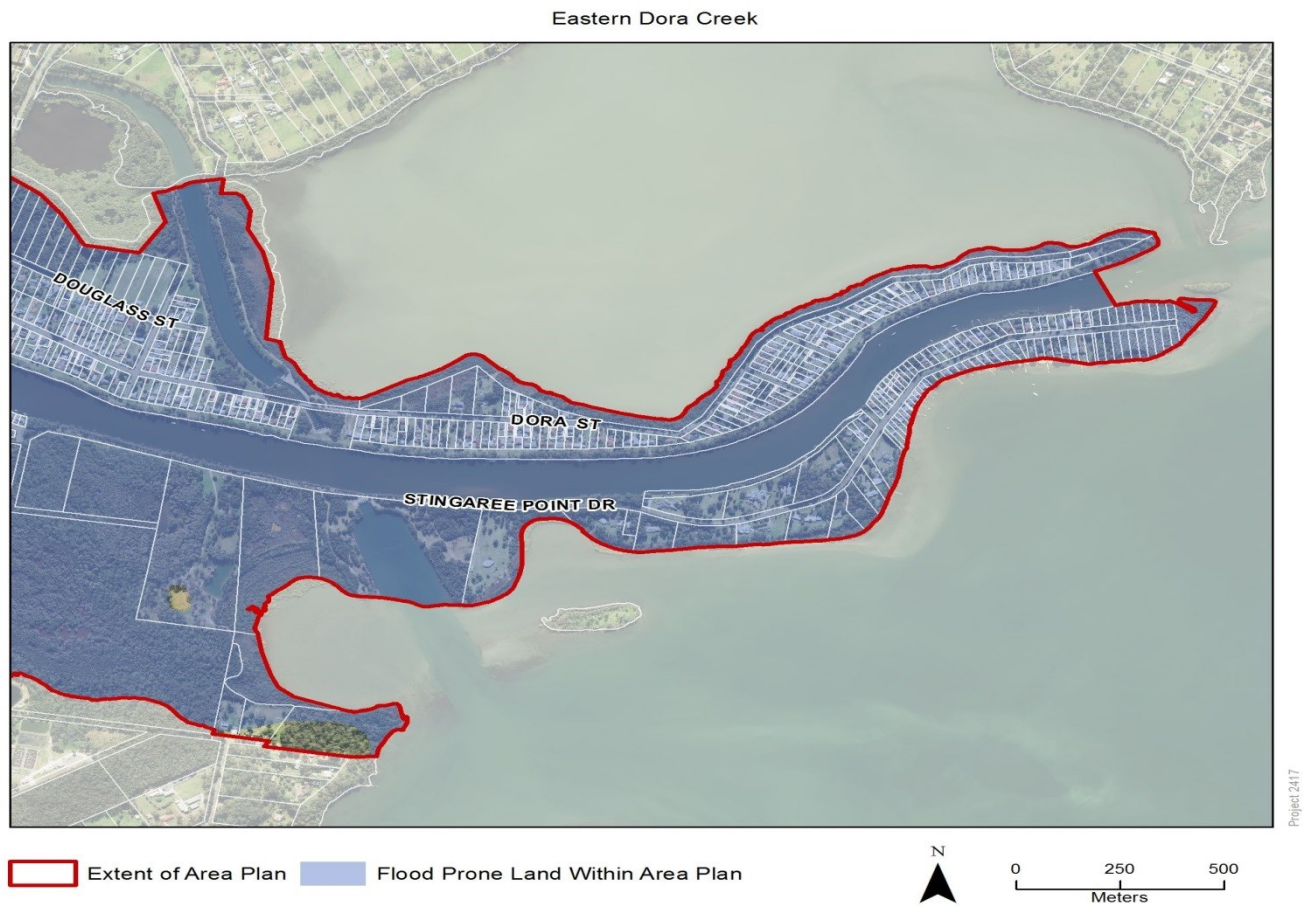


Figure 4 - Flood Prone Areas – Eastern Dora Creek