

**WORKING DRAFT  
FOR CONSULTATION  
SUBJECT TO CHANGE**

**DRAWING KEY**

**BOUNDARIES**

- Study Area Boundary

**GEOTECHNICAL**

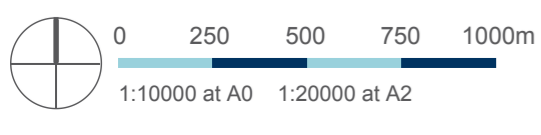
- No Significant Geotechnical Issues Expected
- Detailed Geotechnical Investigation Required
- Complex Geotechnical Investigation Required
- Steep Slope - 10% Gradient or Above
- Environmental Investigation Required
- Geologically Significant Sites
- Indicative Extent of Shallow Rock (<2m Depth)
- Historical Landslips

**NATURAL FEATURES**

- Escarpment
- 10m Contours
- Major Watercourse
- Minor Watercourse

**MOVEMENT NETWORK**

- Freeway / Highway
- Major / Arterial Road
- Local Road
- Railway



**WESTERN GEELONG GROWTH AREA  
GEOTECHNICAL, HYDROGEOLOGICAL & ENVIRONMENTAL**

# GEOTECHNICAL / HYDROGEOLOGICAL / ENVIRONMENTAL

## WESTERN GEELONG GROWTH AREA

- Land capability assessments have been undertaken to consider the feasibility and limitations of land development within the growth areas.
- Preliminary land capability assessments have considered the geological (earth structure and substance), hydrogeological (groundwater) and contamination (ground conditions due to existing/previous land use) characteristics of the growth areas.
- Both growth areas feature interesting and challenging topography, including areas of slope and steep and uneven terrain. Further investigation will be required in subsequent precinct structure planning processes to identify slope stability in some areas.
- Buildings and infrastructure in areas of significant slope may require a specific design response at a reduced dwelling density.
- Environmental assessments and remediation measures would be required in areas of significant potential for contamination, with limitations on future land use where remediation is not possible.

### Significant features

- Batesford limestone quarry (still in operation): The quarry walls are being shaped to stable slopes approved by the Department of Economic Development, Jobs, Transport and Resources (DEDJTR)
- Three soil stockpiles are located around the quarry, made from unwanted quarry materials
- Two separate smaller (former) quarries are located in the south eastern corners of the site, one sand and one basalt.
- Large landslips have historically occurred on the banks of the Moorabool River, with smaller slips occurring on the banks of Cowies Creek and the Barwon River.

### Topography (land shape and slope)

- The study area is dominated by areas of land with generally shallow slope gradients, except for the areas adjacent to the watercourses and quarry

### Geology (physical structure and substance of the earth)

- The study area is underlain by a series of geological units, with Newer Volcanics Basalt and Moorabool Viaduct Sands dominating the near surface materials. Fyansford Formation clay is exposed on the Moorabool River and Cowies Creek banks.
- There are 4 geological and geomorphological sites of significance within the study area. These relate to a rotational slump on the bank of the Moorabool River, an exposure of Batesford Limestone, an exposure of Tertiary age deposits and outcrops of granite and epidiorite.
- In selected locations, the presence of shallow rock and clays (the latter which are subject to shrink swell movements with seasonal changes in moisture conditions) would act as constraints in construction of buildings and infrastructure.

### Hydrology (surface water movement)

- The Moorabool River, Cowies Creek and the Barwon River are significant water features that cross the site. Local to the quarry, the Moorabool River was diverted from its original course as part of the quarry works.

### Hydrogeology (groundwater)

- The underlying aquifers (permeable rocks that contain or transmit groundwater) are indicated to be the Quaternary age basalt, Tertiary age Moorabool Viaduct Sands, Tertiary age Batesford Limestone and the basement bedrock
- The existing quarry is currently dewatered, with the groundwater discharging to the Moorabool River.
- When the quarry operation stops, the pit will gradually fill part-way with groundwater to become a lake. Significant further investigation is required to identify potential opportunities for development around this area.

### Environmental

- Historically the study area consisted of open grazing land across most of the precinct, with local vineyards and an orchard.
- The quarry has been in use from 1888 and there are soil stockpiles beside the quarry that contain potential waste products at depth.
- Potential for localised contamination could also exist at:
  - » Retailing of fuels at the Batesford Roadhouse
  - » Historical timber treatment and current waste recyclers on Hamilton Highway
  - » Storage and maintenance of heavy machinery along with associated fuels and oils within the quarry site
  - » Sand quarry and backfill operation adjacent to Barwon River in the south eastern corner of the precinct.

### Next Steps

- Further investigations may be required to evaluate land capability in relation to the above sites as part of subsequent precinct structure planning processes.
- Land in proximity to the Batesford quarry and stockpiles and waterway corridors and floodplains will require significant further investigation to identify potential opportunities for development including any setback distances.