
Assignment 1 – Planning a Geotechnical Investigation and Testing Program

Foundations for Brisbane's New Queen's Wharf Development

- As a starting point, goto:
<http://www.statedevelopment.qld.gov.au/major-projects/queens-wharf-brisbane.html>
- Queen's Wharf Development:
 - Buildings:
 - Casino
 - 3 hotels
 - 3 residential towers
 - Department store and 50 food and beverage outlets
 - Cinema and Queensland Hotel and Hospitality School
 - Foreshore development and parklands
 - Pedestrian bridge

Queen's Wharf Development



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Government Precinct Redevelopment - Figure 1 - Project Site - Site Context Report



Queen's Wharf Development



Some Background Data

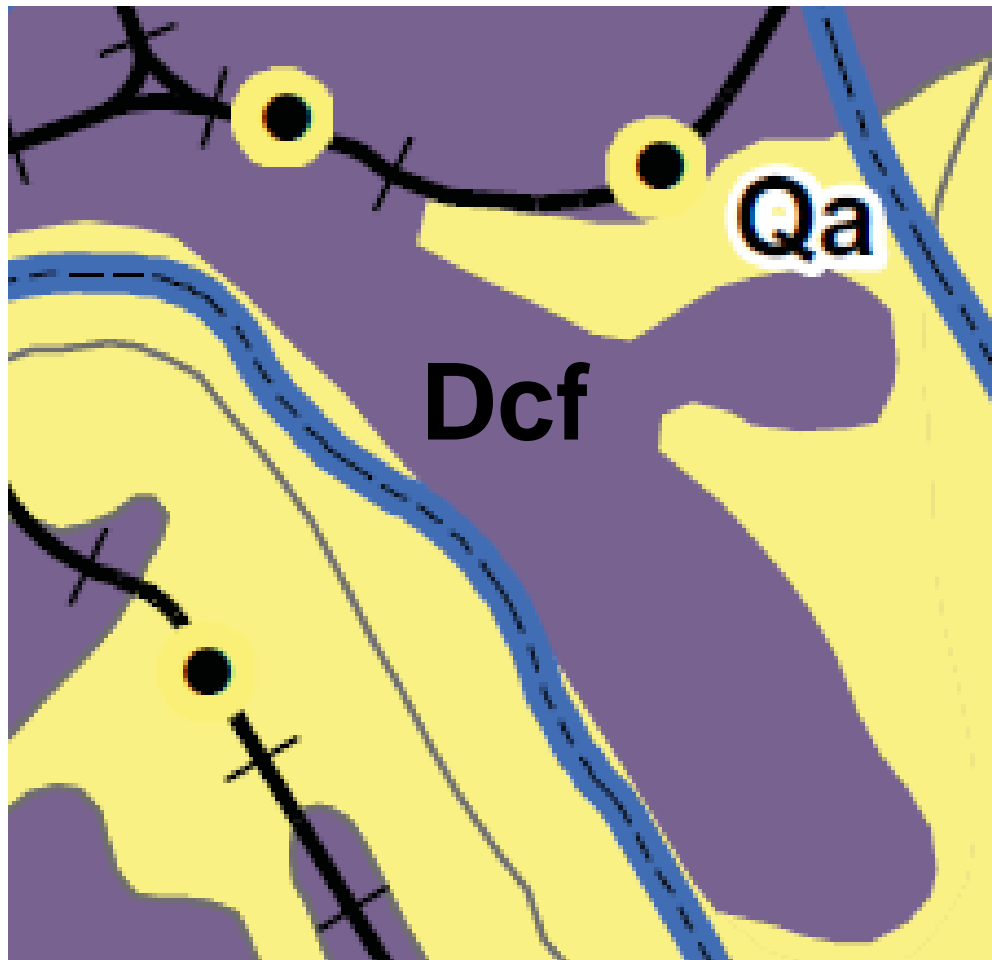
- Topography, Geomorphology, Geology and Soils of Brisbane CBD:

<http://eisdocs.dsdip.qld.gov.au/Completed%20Projects/Cross%20River%20Rail/EIS/EIS%2030%20Aug%202011/01%20Volume%201/07%20Soils%20Topography%20and%20Geomorphology.pdf>

- Excavations in Brisbane CBD:

http://australiangeomechanics.org/admin/wp-content/uploads/2015/03/36_3_5.pdf

Geology of Brisbane CBD



Geology within Study Boundary

Quaternary

- Qhh (Anthropogenic deposits)
- Qha/2 (Holocene Alluvium)
- Qha/1 (Holocene Alluvium)
- Qhe (Holocene Alluvium)
- Qa (Quaternary Alluvium)
- Qpa (Pleistocene Alluvium)

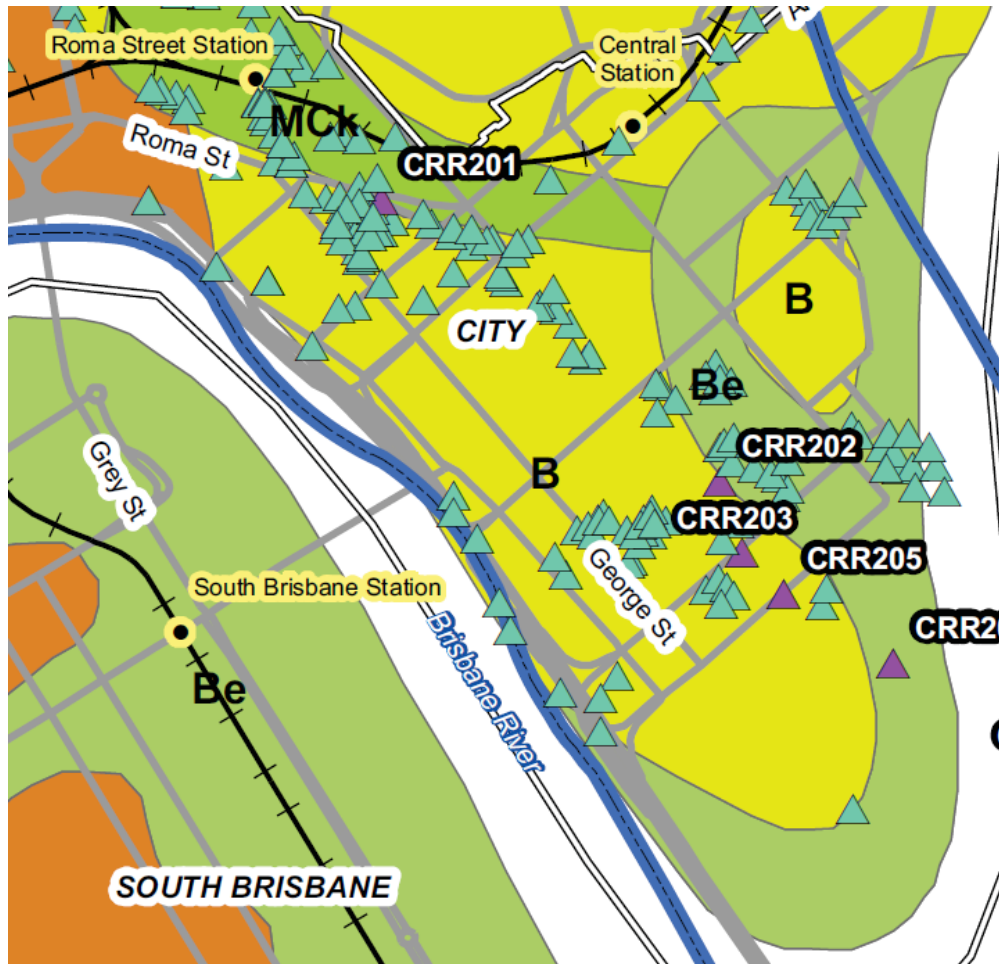
Mesozoic

- RJbw (Woogaroo Subgroup)
- Rin (Tingalpa Formation)
- Rip (Aspley Formation)
- Rif (Brisbane Tuff)

Palaeozoic

- DCf (Neranleigh-Fernvale Beds)
- DCy (Bunya Phyllite)

Soils of Brisbane CBD





Soils within Study Boundary

B	BEENLEIGH
Be	BRISBANE RIVER
Cm	CHERMSIDE
L	LOGAN

Soils within Study Boundary

MCK	MOGGILL CK
Nu	NUNDAH
T	TOOWONG
W	WOODRIDGE
Wo	WOONGOOLBA

Geotechnical Bores

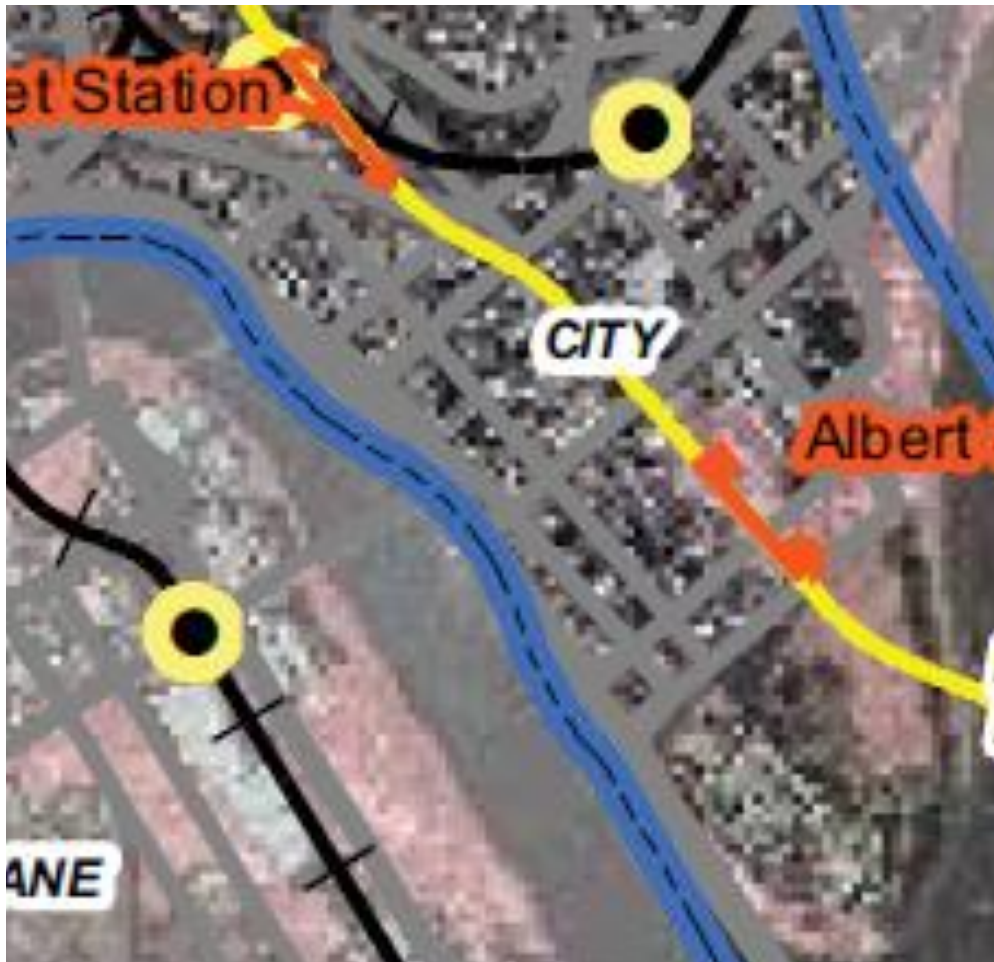
-  Cross River Rail Bore Logs
-  Bore logs from previous studies

Erosion Hazard for Brisbane CBD



Erosion Hazard

Acid Sulfate Soils for Brisbane CBD



Acid Sulfate Soils

Some Design Guidelines

- Assume:
 - 3 m high floors
 - Average 10 kPa dead + live loading per floor

Plan a Geotechnical Investigation and Testing Program

- Discuss likely **geotechnical requirements** of proposed development **(25%)**:
 - Building basements and foundations
 - Foreshore development and parklands
 - Pedestrian bridge
- Discuss likely **ground conditions and geotechnical constraints** of site **(30%)**:
 - Excavations and foundations
 - Ground and surface water considerations
- Outline **geotechnical investigation & testing program** to address & satisfy above **(45%)**