Leichhardt Floodplain Risk Management Study and Plan

APPENDIX E

FORESHORE MANAGEMENT - DRAFT

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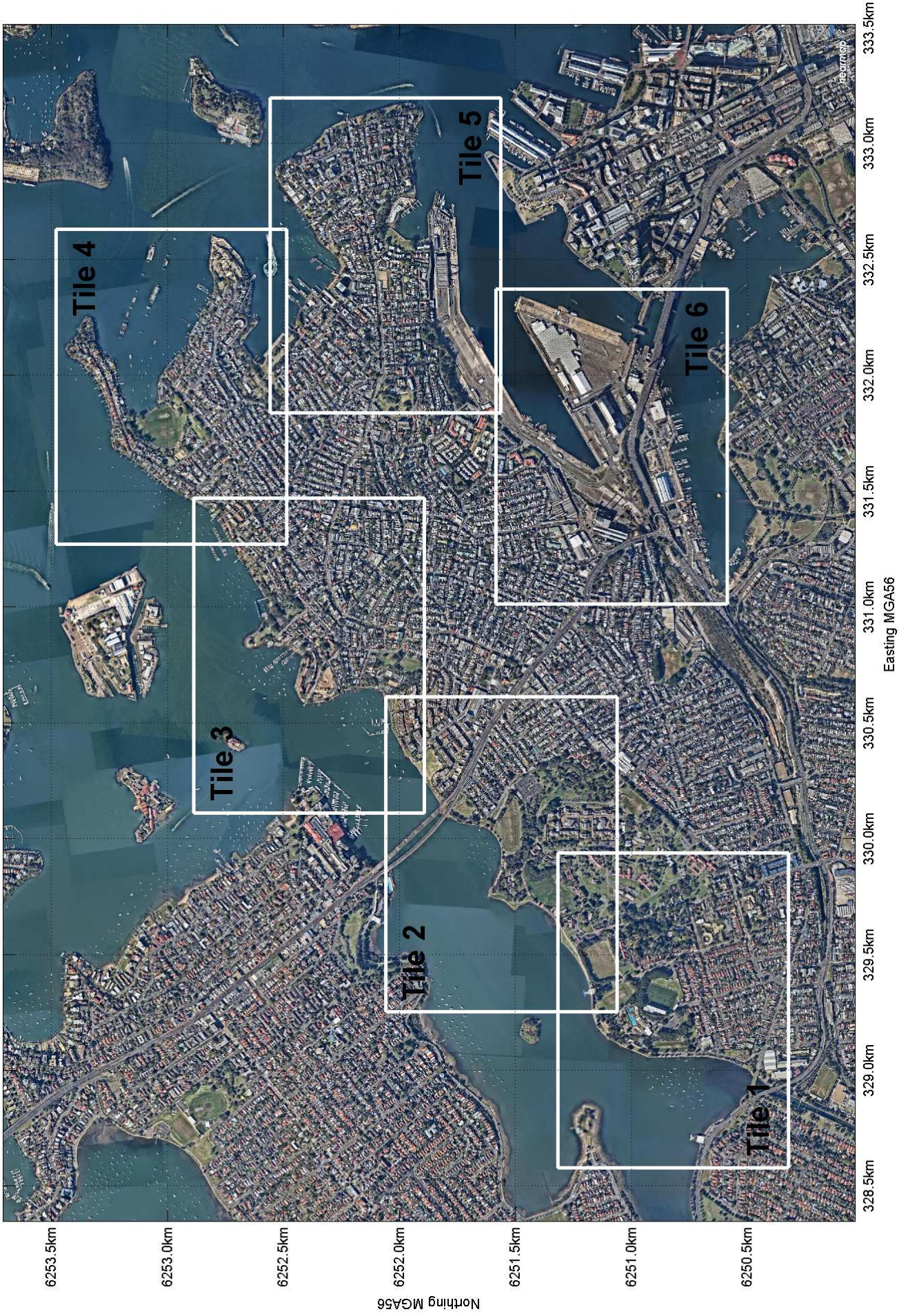
Shaping the Future



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Leichhardt Foreshore Options Assessment

Inundation Extents
Figure Overview

Appendix E.1

NA49913094 Jun 2016

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Leichhardt Foreshore Options Assessment

Inundation Extents
Present Day − Tile 1

Appendix E.2

Leichhardt Foreshore Options Assessment

Inundation Extents
2050 (+0.4m) − Tile 1 − Estuary Planning Level

Appendix E.3

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Leichhardt Foreshore Options Assessment

Inundation Extents
2100 (+0.9m) − Tile 1 − Estuary Planning Level

Appendix E.4

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Leichhardt Foreshore Options Assessment

Inundation Extents
2100 (+1.1m) − Tile 1 − Estuary Planning Level

Appendix E.5

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Leichhardt Foreshore Options Assessment

Inundation Extents
Present Day − Tile 2

Appendix E.6

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Leichhardt Foreshore Options Assessment

Inundation Extents
2050 (+0.4m) − Tile 2 − Estuary Planning Level

Appendix E.7

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Leichhardt Foreshore Options Assessment

Inundation Extents
2100 (+0.9m) − Tile 2 − Estuary Planning Level

Appendix E.8

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Leichhardt Foreshore Options Assessment

Inundation Extents
2100 (+1.1m) − Tile 2 − Estuary Planning Level

Appendix E.9

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Leichhardt Foreshore Options Assessment

Inundation Extents
Present Day − Tile 3

Appendix E.10

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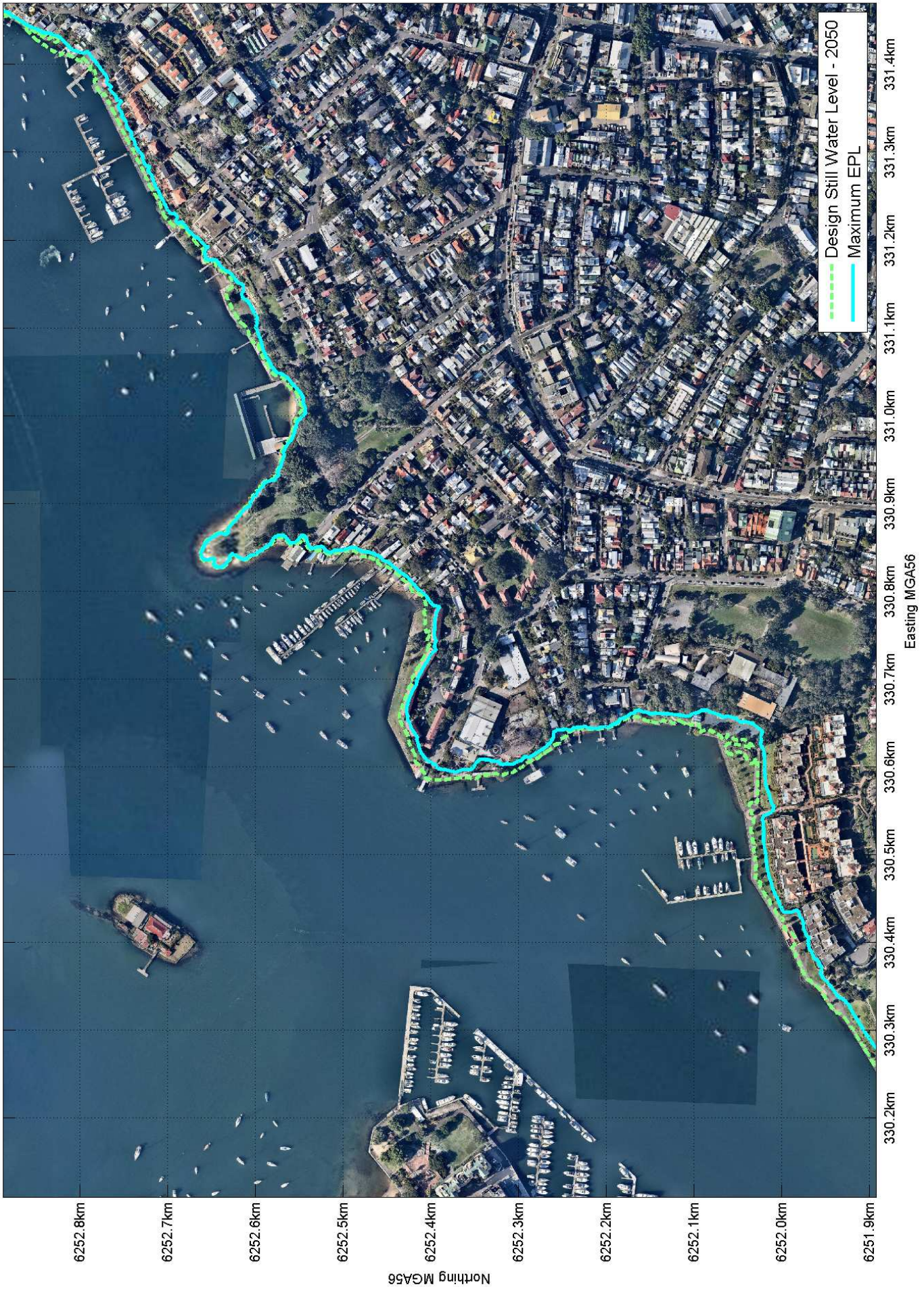

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Leichhardt Foreshore Options Assessment

Inundation Extents
2050 (+0.4m) − Tile 3 − Estuary Planning Level

Appendix E.11

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Leichhardt Foreshore Options Assessment

Inundation Extents
2100 (+0.9m) − Tile 3 − Estuary Planning Level

Appendix E.12

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Leichhardt Foreshore Options Assessment

Inundation Extents

2100 (+1.1m) − Tile 3 − Estuary Planning Level

Appendix E.13

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Leichhardt Foreshore Options Assessment

Inundation Extents
Present Day − Tile 4

Appendix E.14

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Leichhardt Foreshore Options Assessment

Inundation Extents
2050 (+0.4m) − Tile 4 − Estuary Planning Level

Appendix E.15

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Leichhardt Foreshore Options Assessment

Inundation Extents
2100 (+0.9m) − Tile 4 − Estuary Planning Level

Appendix E.16

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Leichhardt Foreshore Options Assessment

Inundation Extents

2100 (+1.1m) − Tile 4 − Estuary Planning Level

Appendix E.17

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Leichhardt Foreshore Options Assessment

Inundation Extents
Present Day − Tile 5

Appendix E.18

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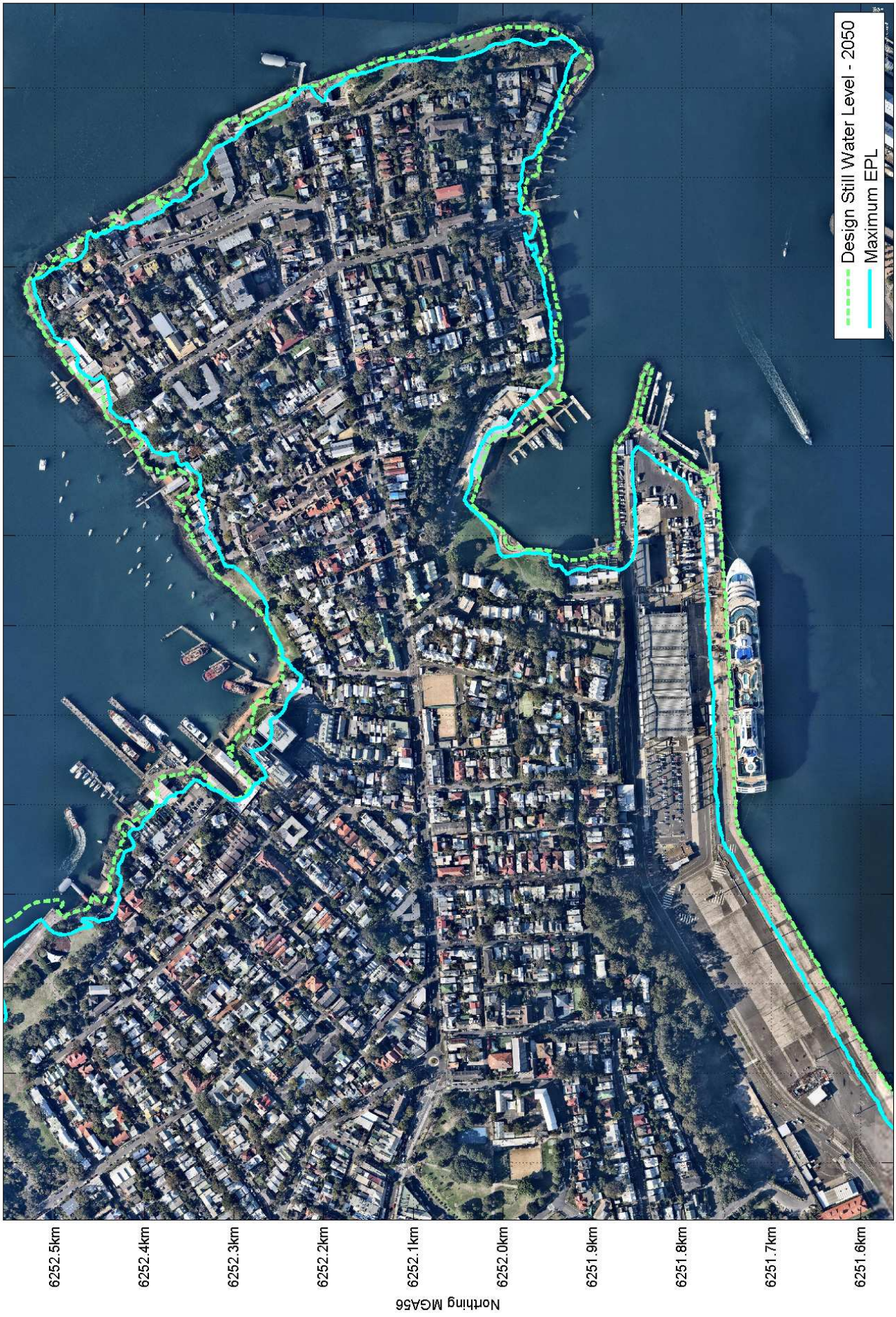

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Leichhardt Foreshore Options Assessment

Inundation Extents
2050 (+0.4m) − Tile 5 − Estuary Planning Level

Appendix E.19

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Leichhardt Foreshore Options Assessment

Inundation Extents
2100 (+0.9m) − Tile 5 − Estuary Planning Level

Appendix E.20

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Leichhardt Foreshore Options Assessment

Inundation Extents
2100 (+1.1m) − Tile 5 − Estuary Planning Level

Appendix E.21

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Leichhardt Foreshore Options Assessment

Inundation Extents
Present Day − Tile 6

Appendix E.22

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Leichhardt Foreshore Options Assessment

Inundation Extents
2050 (+0.4m) − Tile 6 − Estuary Planning Level

Appendix E.23

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Leichhardt Foreshore Options Assessment

Inundation Extents
2100 (+0.9m) − Tile 6 − Estuary Planning Level

Appendix E.24

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Leichhardt Foreshore Options Assessment

Inundation Extents
2100 (+1.1m) − Tile 6 − Estuary Planning Level

Appendix E.25

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Option ID	Location	Details	Existing Seawall Condition	Reasoning	Scenario where damage occurs	Constraints
F1	Outlet of Hawthorne Canal (north and south of Lilyfield Road)	Raise sea wall	Good - Very Good (seawall was remediated in 2014, though not raised)	- Protection of foreshore access and safety of pedestrians. - Protection of commercial and residential buildings.	- Foreshore open space area impacted by 2050 (+0.4m) SWL. - Buildings impacted by 2050 (+0.4m) EPL and 2100 (+0.9m) SWL.	- Potential impacts on visual amenity. - Development controls on future development of impacted buildings may negate the need for seawall raising for building protection.
F2a	Leichhardt Park Bay Run and Leichhardt Rowing Club	Raise sea wall	Good - Very Good (seawall was remediated in 2014, though not raised)	Iconic portion of the Bay Run and recreational areas impacted by inundation.	- Waves only at 2050 (+0.4m). - SWL at 2100 (+0.9m).	- Depending on height increase required, may impact on visual amenity.
F2b		Wave dissipation along existing seawall.		Wave dissipation might be able to be designed into seawall design without any increase in the seawall height. This area is only impacted by wave run-up and over topping in 2050 (+0.4m) so SWL protection is not required until sea levels increase beyond 0.4m.		- Depending on nature of design and visibility during low tide, may impact on visual amenity.
F3	Callan Park	Fill and raise Callan Park grounds	Medium	Significant amount of land affected by rising sea level. Crown Land. Very high amenity. Some sections of the existing seawall appear to require maintenance.	- Inundated by Still Water Level at 2050 (+0.4m).	- Fill would require drainage in order to preserve storm water conveyance. There may be funding considerations as the land is Crown Land.
F4	King Georges Park	Fill western area of King George Park	Fair	Much of King George park is significantly inundated in various scenarios. Fill may be required to preserve iconic bay run and recreational area.	- Approximately 50% of park inundated by Still Water Level at 2100 (+0.9m). - Park completely inundated by EPL at 2050 (+0.4m).	- A large area of fill is required, with potential issues arising from funding and overland flow considerations. Drainage systems would be required in order to preserve storm water conveyance.
F5	Iron cove Bridge to Balmain Campus	Raise Seawall	Good	Residential lots are affected by EPL cases, while council land is affected by both SWL and EPL. Raising the Seawall by a minor amount may reduce overtopping while retaining visual amenity of the recreational areas.	- Several buildings affected by EPL at 2100 (+0.9m). -	- Potential impacts on visual amenity.
F6	Sydney Secondary College - Balmain Campus	Raise Seawall or Fill	Good	Filling area around tennis courts and/or raising seawall in vicinity of school will reduce amount of property inundated in future scenarios.	- Tennis courts completely inundated by Still Water Level at 2100 (+0.9m).	- Potential impacts on overland flow and visual amenity.
F7	Broderick / Elliott Street	Raise seawall or Extend seaward to reduce overtopping	Good	Raise Seawall level or extend seaward to prevent overtopping and inundation of commercial properties in future scenarios.	- Approximately 5m of foreshore inundated by Still Water Level at 2100 (+0.9m).	- Development controls may be a more effective method of foreshore protection at this location.
F8	Carieville Street	Raise seawall or Extend seaward to reduce overtopping	Unknown	Properties are significantly affected by SWL in future scenarios. Most buildings are generally set back to approximately the future SWL extent, though they will be affected by overtopping.	- Some buildings near the foreshore significantly inundated by Still Water Level at 2050 (+0.4m) - Buildings which are set back will be affected by overtopping in future scenarios.	- Funding considerations, private land, Sydney Water easement.

Option ID	Location	Details	Existing Seawall Condition	Reasoning	Scenario where damage occurs	Constraints
F9	Dawn Fraser Pool	Increase structural stability of pool.	NA	Increase structural stability of pool to withstand increased inundation and wave impacts under future sea level rise scenarios.	- All events.	- Heritage value of asset.
F10	Gow Street to Cove Street	Raise seawall or Extend seaward to reduce overtopping	Fair	Some residential lots in the lee of Balmain Wharf may be affected by overtopping, raising of seawall between Gow street and Cove Street would protect significant amount of land (residential and recreational).	- Several lots affected by SWL and EPL cases in all scenarios (including existing).	- Potential impacts on visual amenity.
F11	Birchgrove Park	Fill	Very Good	Fill park in order for it to withstand sea level rise. Park is completely inundated in several future scenarios.	- Birchgrove Park approximately 70% inundated by Still Water level at 2100 (+0.9m) and 90% inundated at 2100 (+1.1m). - Birchgrove Park completely inundated by EPL in 2100 (+1.1m).	- Very large fill area which will be costly for likely low economic benefit. Overland flow needs to be considered so upstream levels do not increase as a result of the fill.
F12	Mort Bay Park	Raise Seawall to protect areas of Mort bay Park	Varying	Localised area of Mort Bay Park inundated by still water level in several scenarios. Raising seawall will protect park and foreshore.	- Park foreshore significantly inundated by Still Water level at 2100 (+1.1m). - Park partially inundated by EPL at 2100 (+0.9m).	- Major overland flow path between McKell Street and College Street needs to be considered / preserved.
F13	Waterview Street	Raise Sea Wall	Medium	Raising seawall in this vicinity would protect several infrastructure lots.	- Infrastructure lots approximately 50% inundated by Still Water level at 2050 (+0.4m).	- Overland flow in the east of the SP2 area.
F14	Propeller Park	Fill, Raise recreational Land	Good	Raising seawall will be insufficient as still water levels are so high, hence, fill is required to reduce SWL affectation.	- Recreational land significantly inundated by Still Water level at 2100 (+0.9m). - Residential land affected by Still Water level at 2100 (+1.1m)	- Major Overland Flow around Colgate Ave, costly to fill, visual amenity.
F15	Private properties on Gilchrist and Duke Place	Raise seawalls	Unknown	Low lying portions of private properties inundated. Some structures and buildings appear to be impacted.	- Existing SWL.	- Private property.
F16	Duke Street to Simmons Point Reserve	Raise seawall	Fair	Raise seawall to protect lots including B2 (Local Centre) area in future scenarios.	- Buildings partially inundated by Still Water level at 2100 (+0.9m). - Buildings significantly inundated by EPL in future scenarios.	- Minor overland flow path to be considered. Localised lack of data regarding seawall height and condition.
F17	Simmons Reserve to Lookes Ave	Raise or extend seawall	Fair	Buildings are set back from seawall, affected by EPL and mostly free from SWL inundation. Increasing seawall height would reduce overtopping at these locations.	- Foreshore area and foreshore buildings of several properties are affected by Still Water Level at 2050 (+0.4m). - Several buildings affected by EPL in future scenarios.	- Localised overland flow, funding (private property).
F18	NSW Police maritime Area Command, Jubilee Place	Raise Seawall	Fair	Raise seawall to protect police building from SWL, Overtopping is not a critical concern here as the location is low wave climate.	- Building partially inundated by Still Water Level at 2011 (+0.9m). - Building and Jubilee Park significantly affected by EPL in future scenarios.	- Minor Overland Flow.