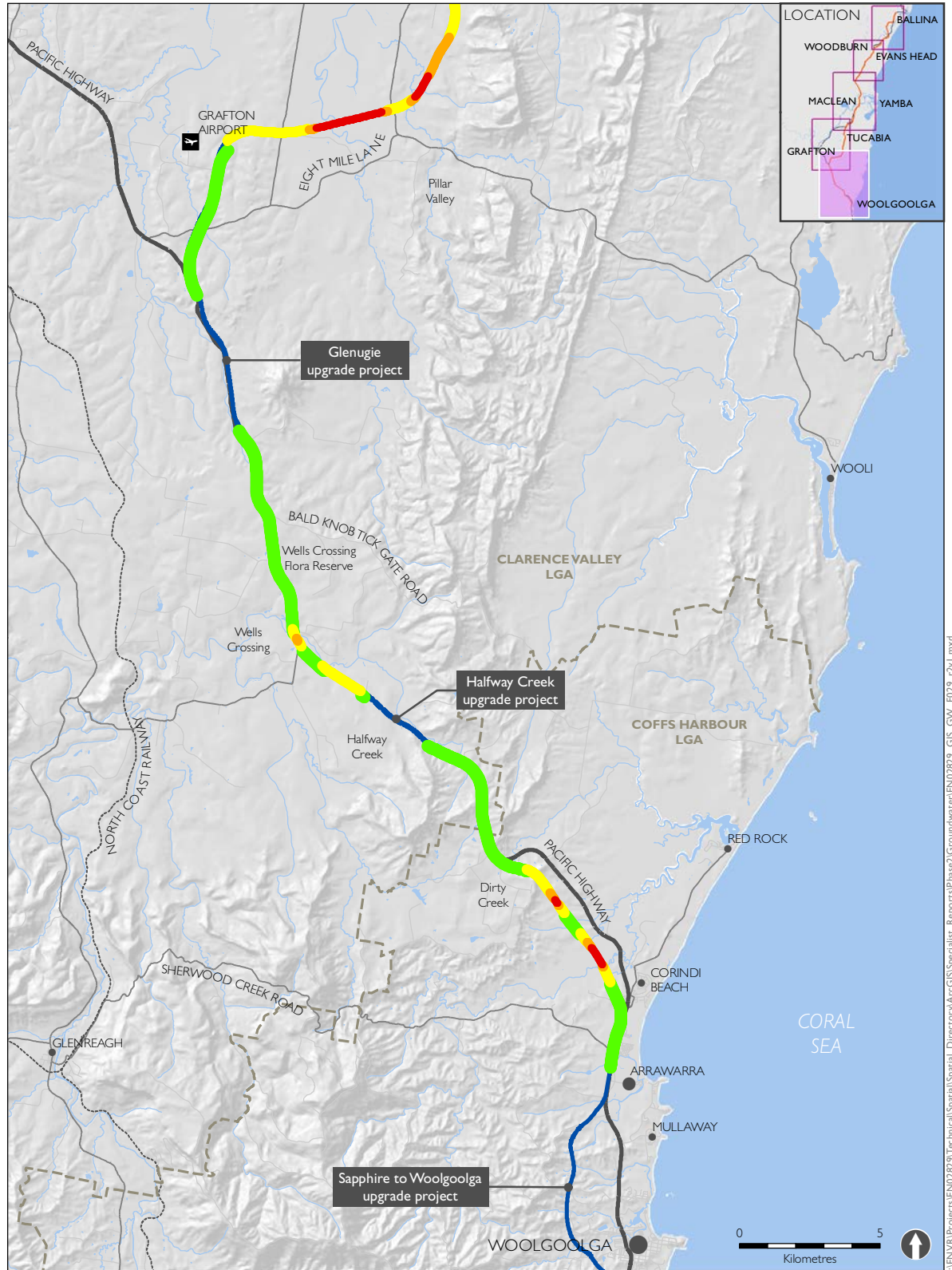








Appendix A Additional maps for the project

Upgrading the Pacific Highway - Woolgoolga to Ballina Upgrade

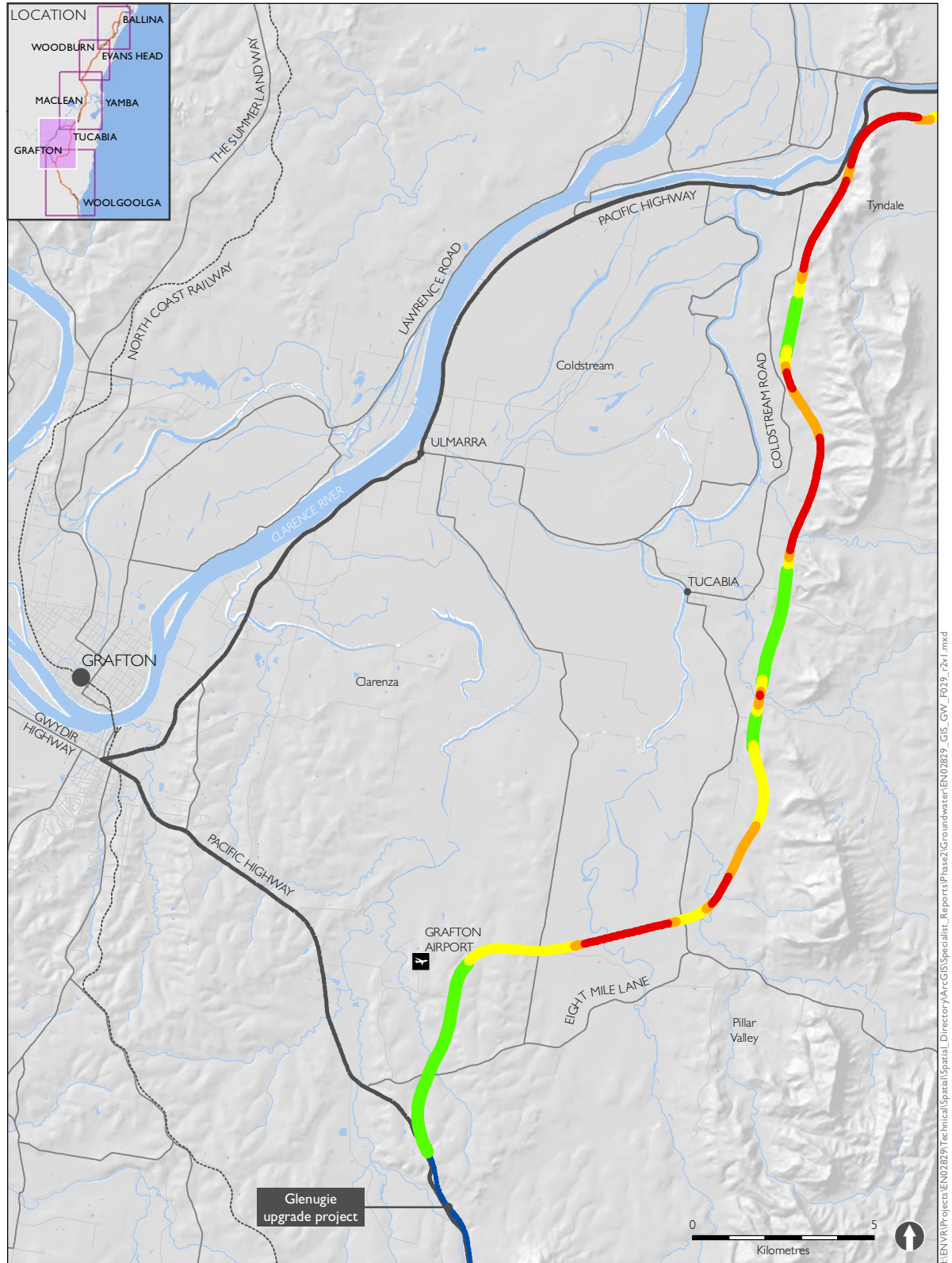
Figure A1-1 Pre-construction groundwater condition



- | | |
|--|--|
|  Pacific Highway upgrade | Pre-construction groundwater condition |
|  Existing Pacific Highway | (depth below ground) |
| |  < 2m |
| |  < 3m |
| |  < 5m |
| |  > 5m |

Upgrading the Pacific Highway - Woolgoolga to Ballina Upgrade

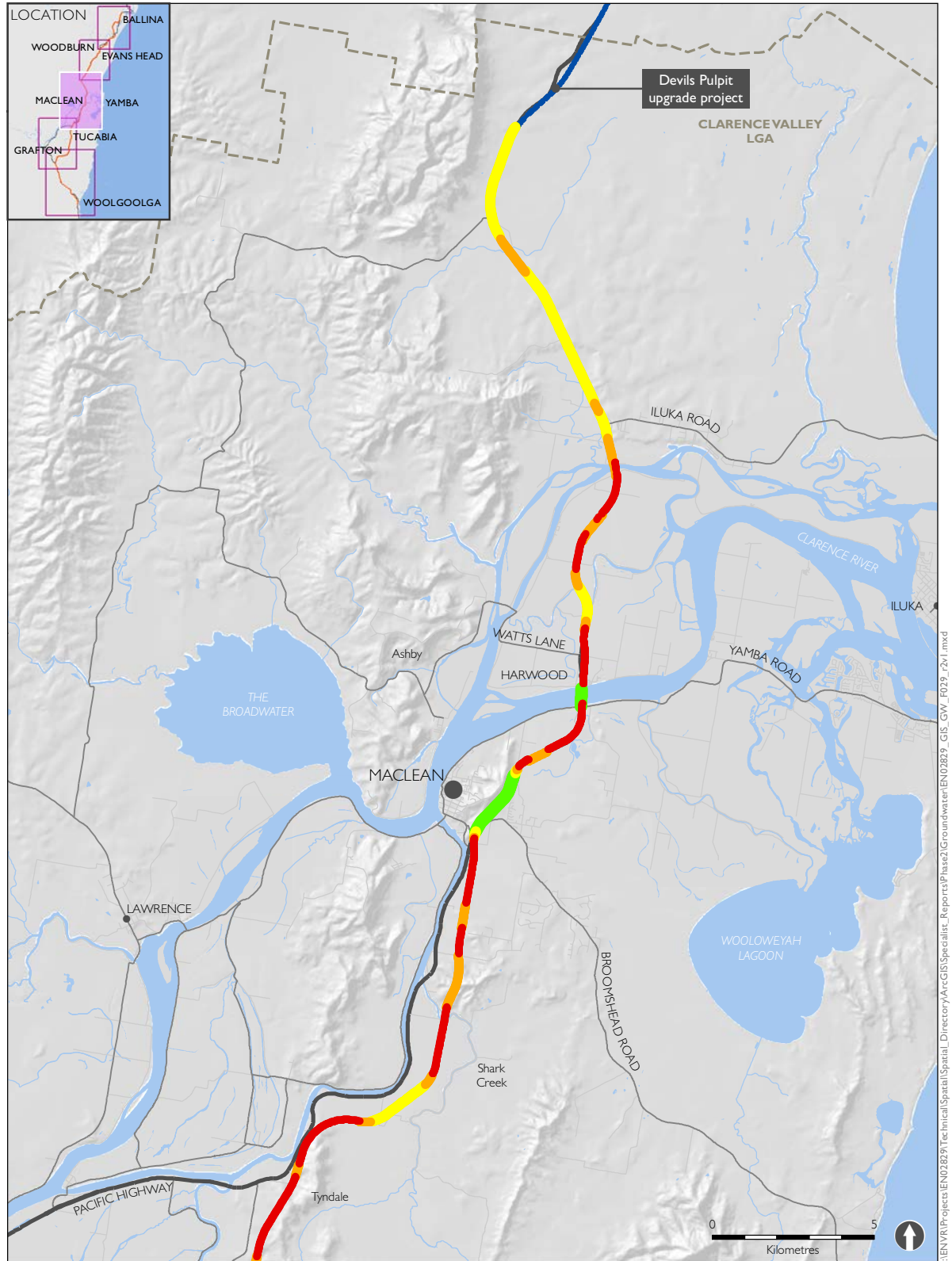
Figure A1-2 Pre-construction groundwater condition



- | | |
|--------------------------|---|
| Pacific Highway upgrade | Pre-construction groundwater condition (depth below ground) |
| Existing Pacific Highway | |
| < 2m | < 5m |
| < 3m | > 5m |

Upgrading the Pacific Highway - Woolgoolga to Ballina Upgrade

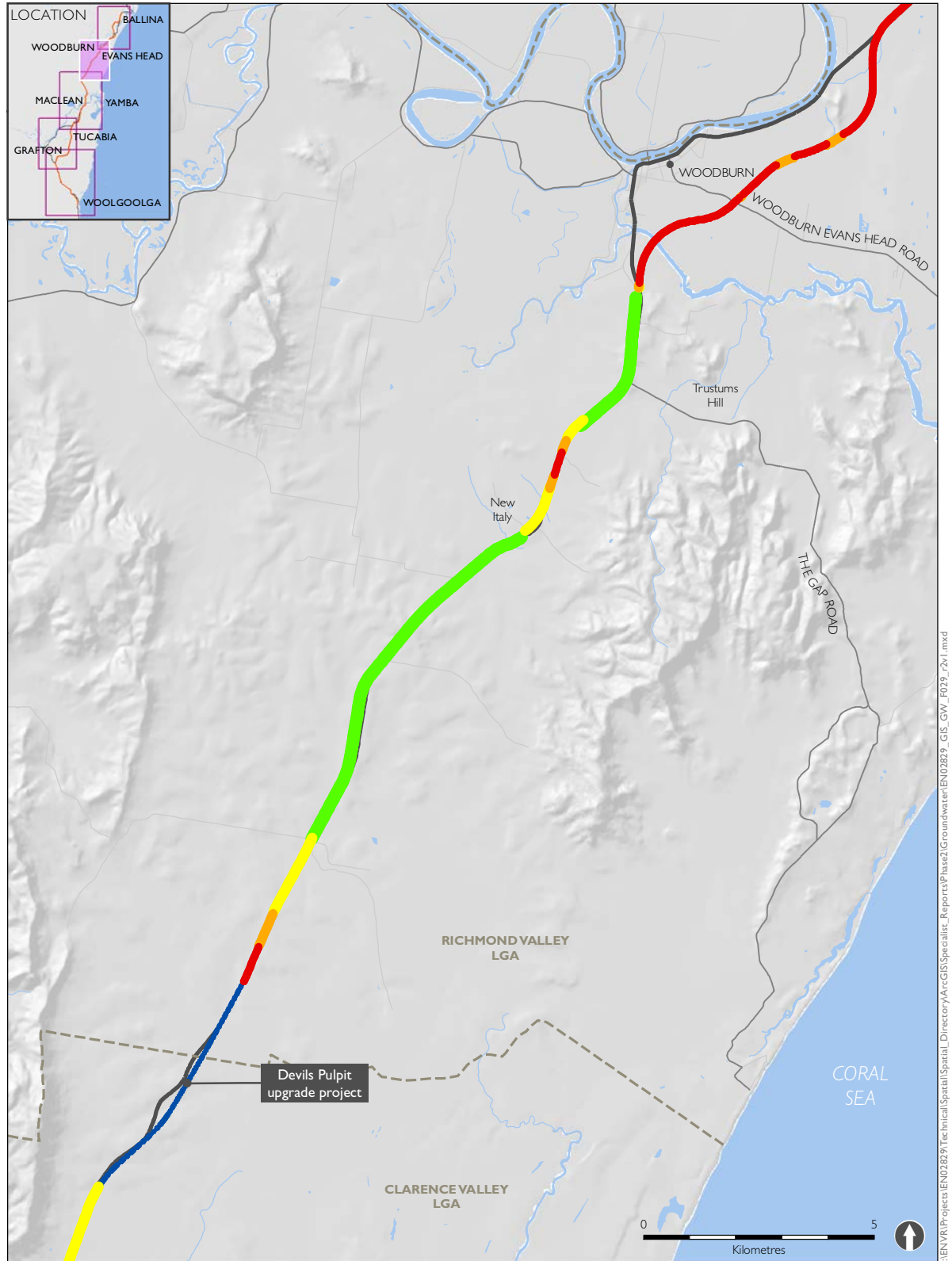
Figure A1-3 Pre-construction groundwater condition



- Pacific Highway upgrade
 - Existing Pacific Highway
- Pre-construction groundwater condition (depth below ground)
- < 2m
 - < 3m
 - < 5m
 - > 5m

Upgrading the Pacific Highway - Woolgoolga to Ballina Upgrade

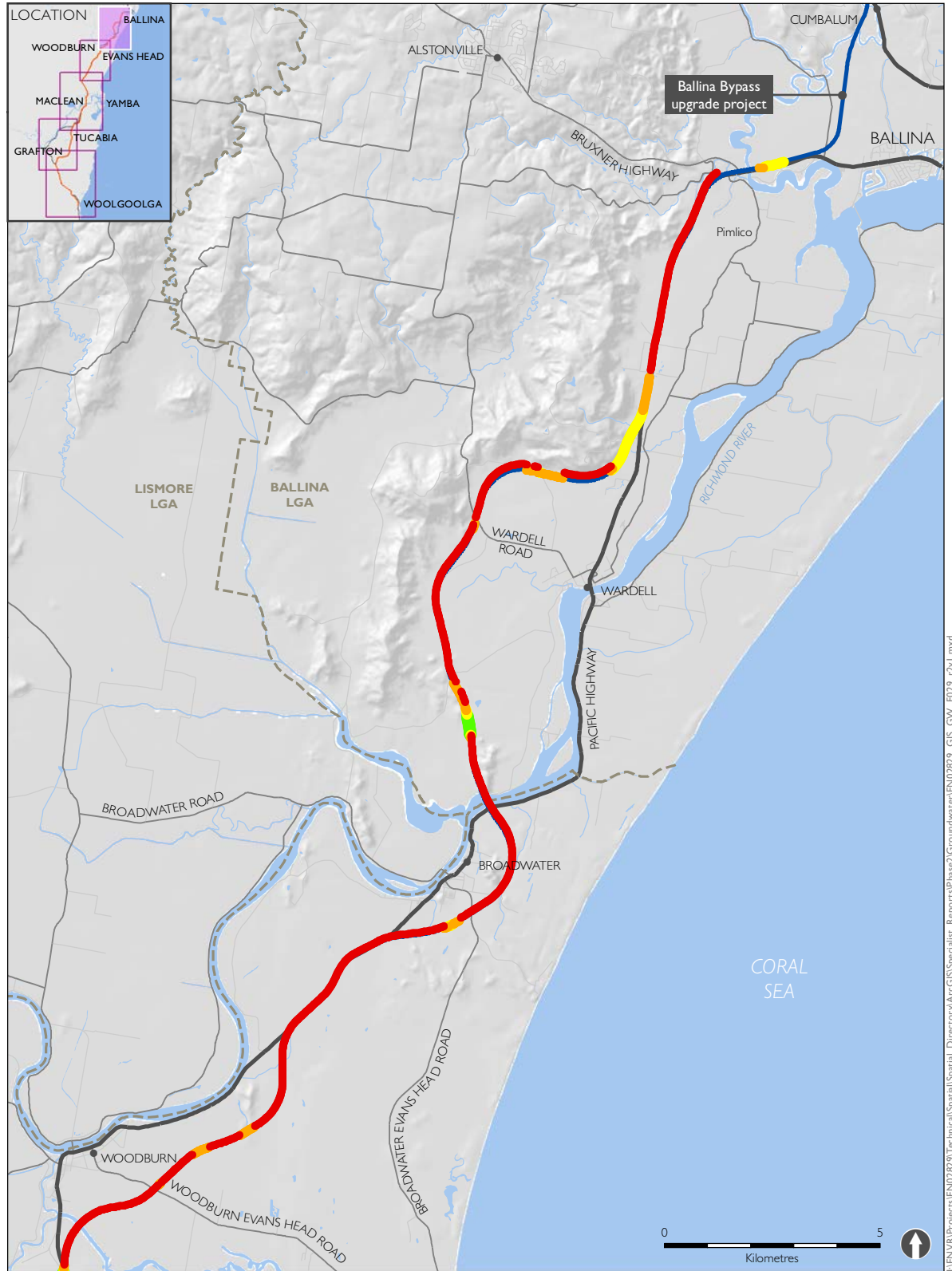
Figure A1-4 Pre-construction groundwater condition



- Pacific Highway upgrade
 - Existing Pacific Highway
- Pre-construction groundwater condition (depth below ground)
- < 2m
 - < 3m
 - < 5m
 - > 5m

Upgrading the Pacific Highway - Woolgoolga to Ballina Upgrade

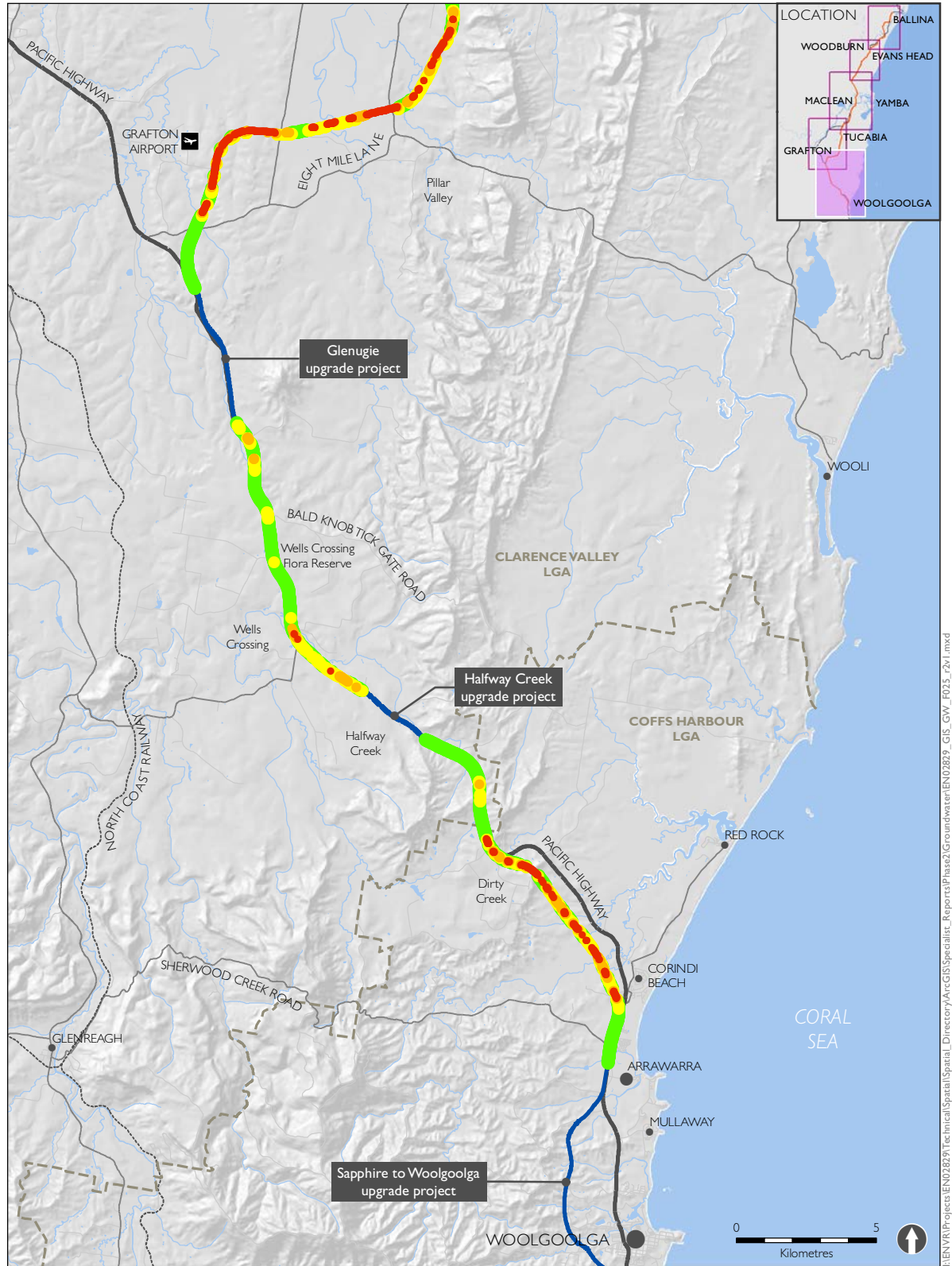
Figure A1-5 Pre-construction groundwater condition



- Pacific Highway upgrade
 - Existing Pacific Highway
- Pre-construction groundwater condition (depth below ground)
- < 2m
 - < 3m
 - < 5m
 - > 5m

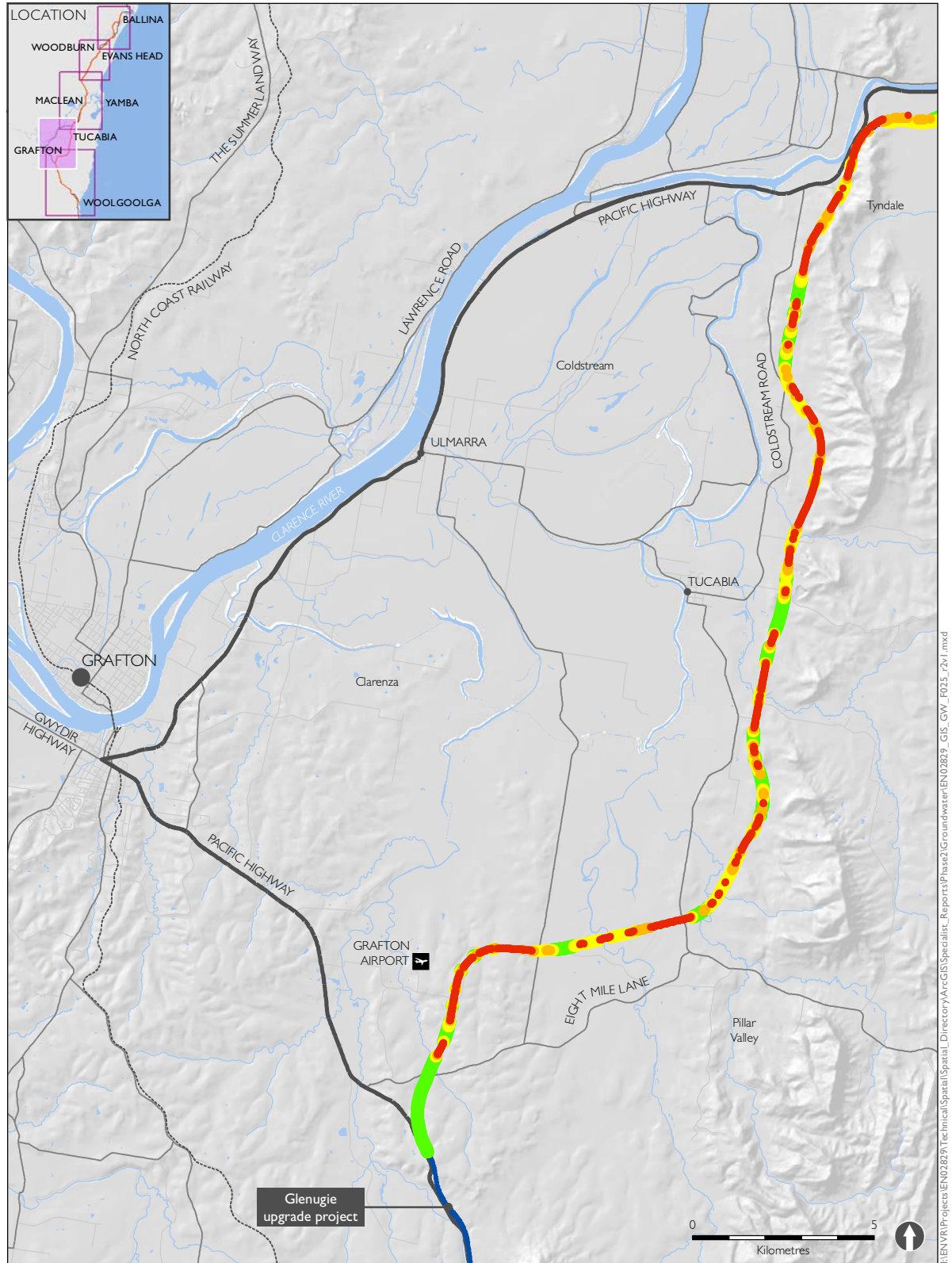
Upgrading the Pacific Highway - Woolgoolga to Ballina Upgrade

Figure A1-6 Construction phase potential impact to groundwater



- | | | |
|--------------------------|-------------------------------------|---------|
| Pacific Highway upgrade | Construction phase potential impact | |
| Existing Pacific Highway | High | Low |
| | Medium | Minimal |

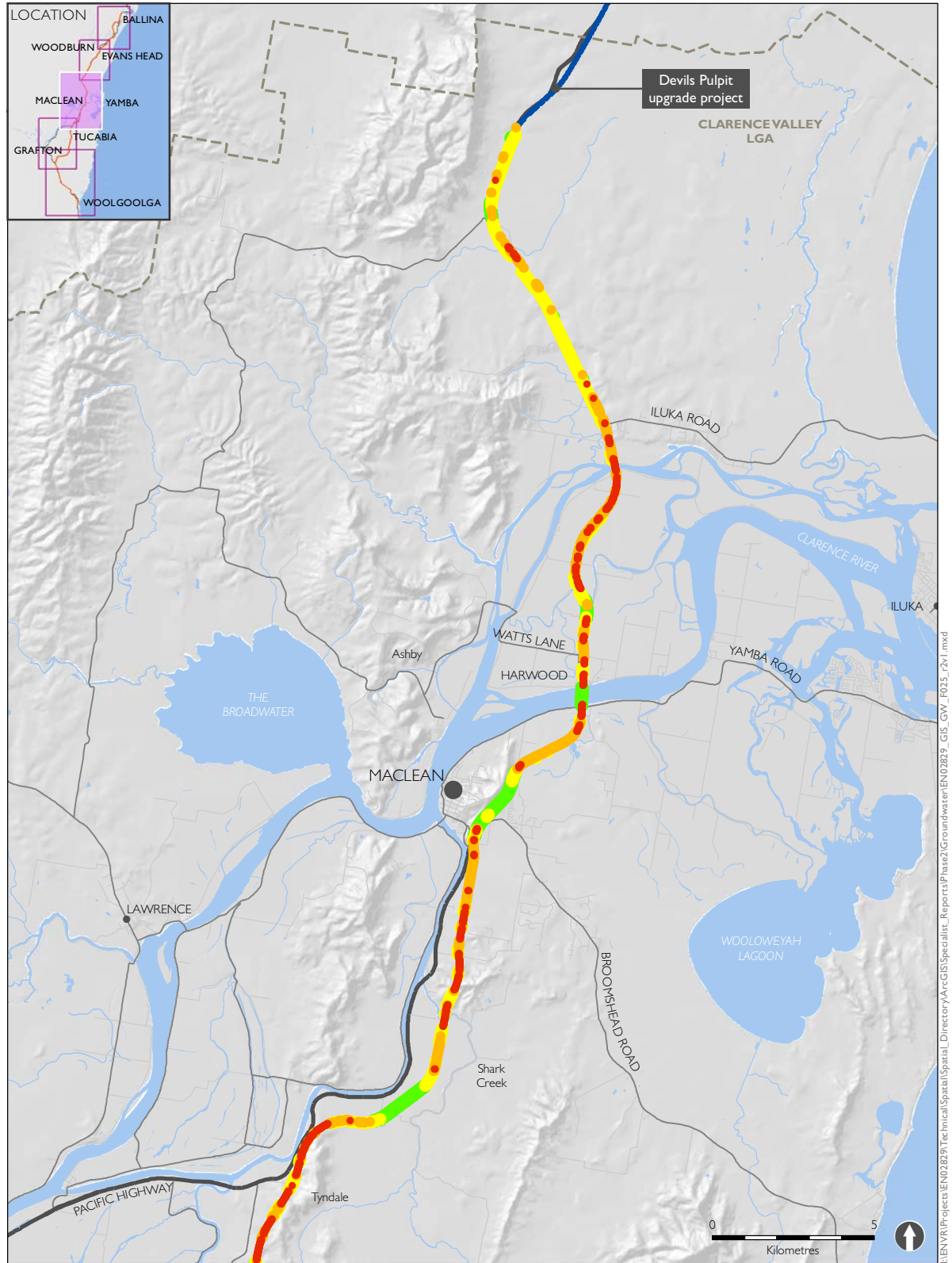
Figure A1-7 Construction phase potential impact to groundwater



- | | | |
|--|--|---|
|  Pacific Highway upgrade | Construction phase potential impact | |
|  Existing Pacific Highway |  High |  Low |
| |  Medium |  Minimal |

Upgrading the Pacific Highway - Woolgoolga to Ballina Upgrade

Figure A1-8 Construction phase potential impact to groundwater

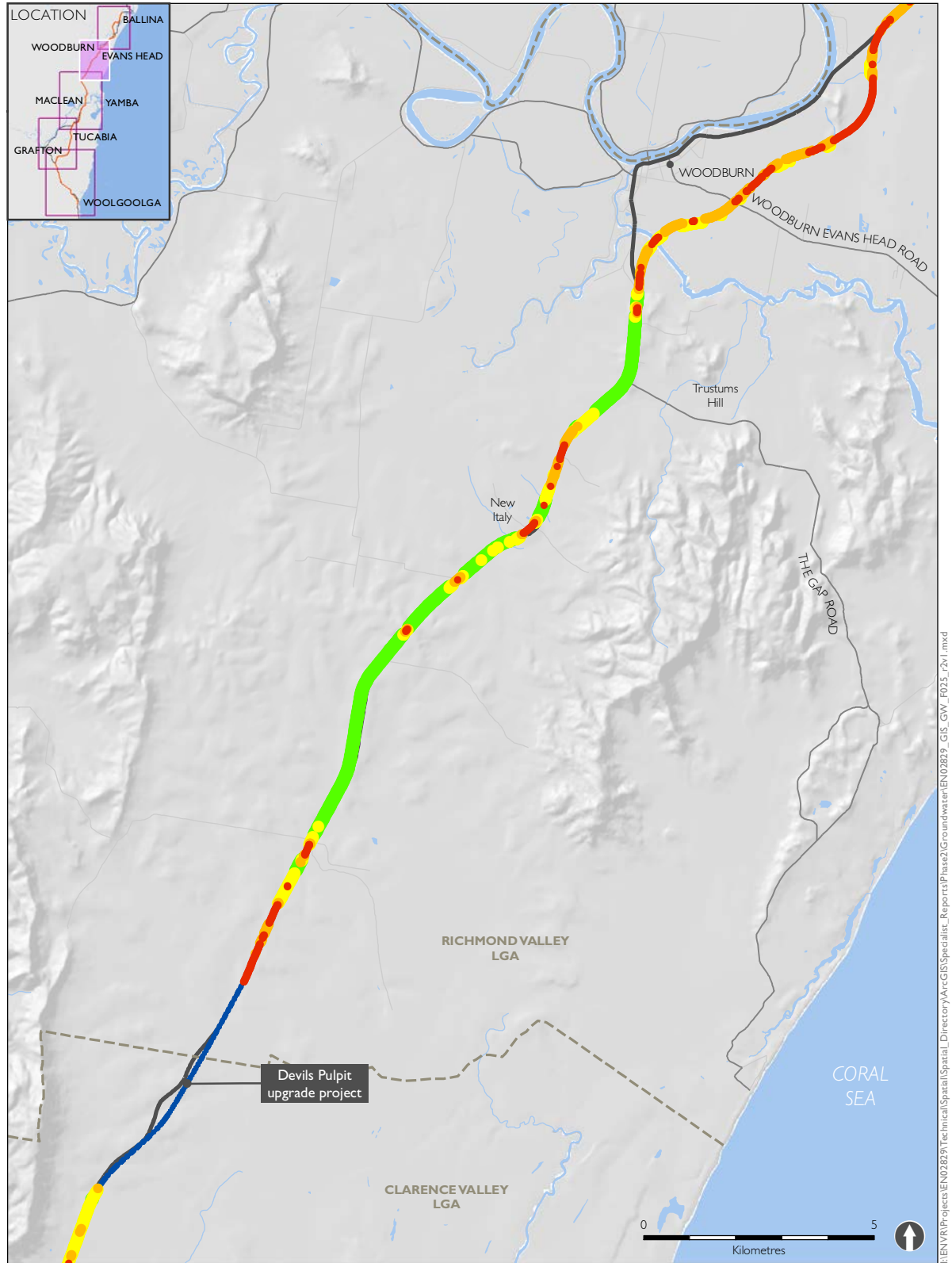


— Pacific Highway upgrade
 — Existing Pacific Highway

Construction phase potential impact

- High
- Medium
- Low
- Minimal

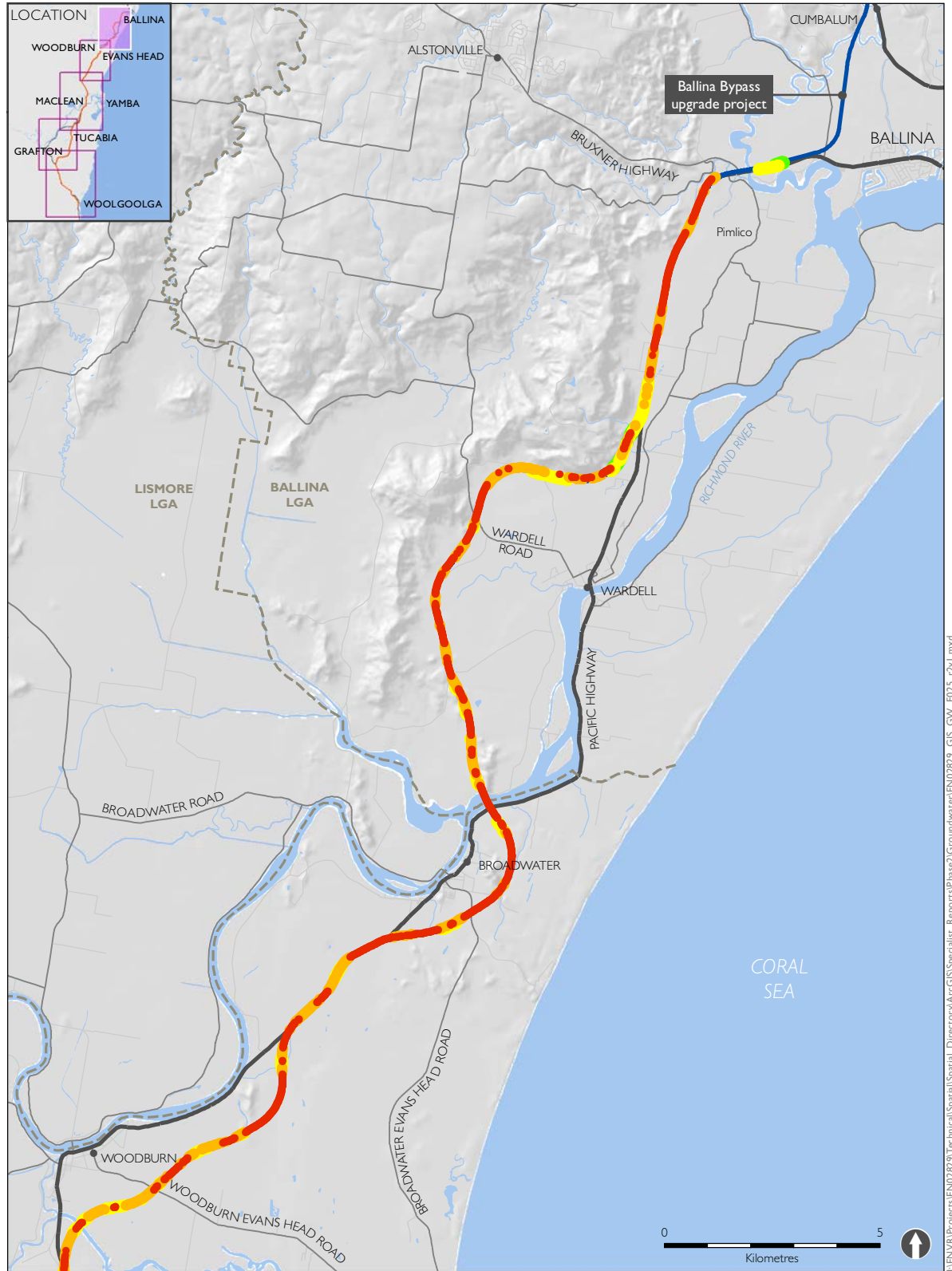
Figure A1-9 Construction phase potential impact to groundwater



- | | | |
|--------------------------|-------------------------------------|---------|
| Pacific Highway upgrade | Construction phase potential impact | |
| Existing Pacific Highway | High | Low |
| | Medium | Minimal |

Upgrading the Pacific Highway - Woolgoolga to Ballina Upgrade

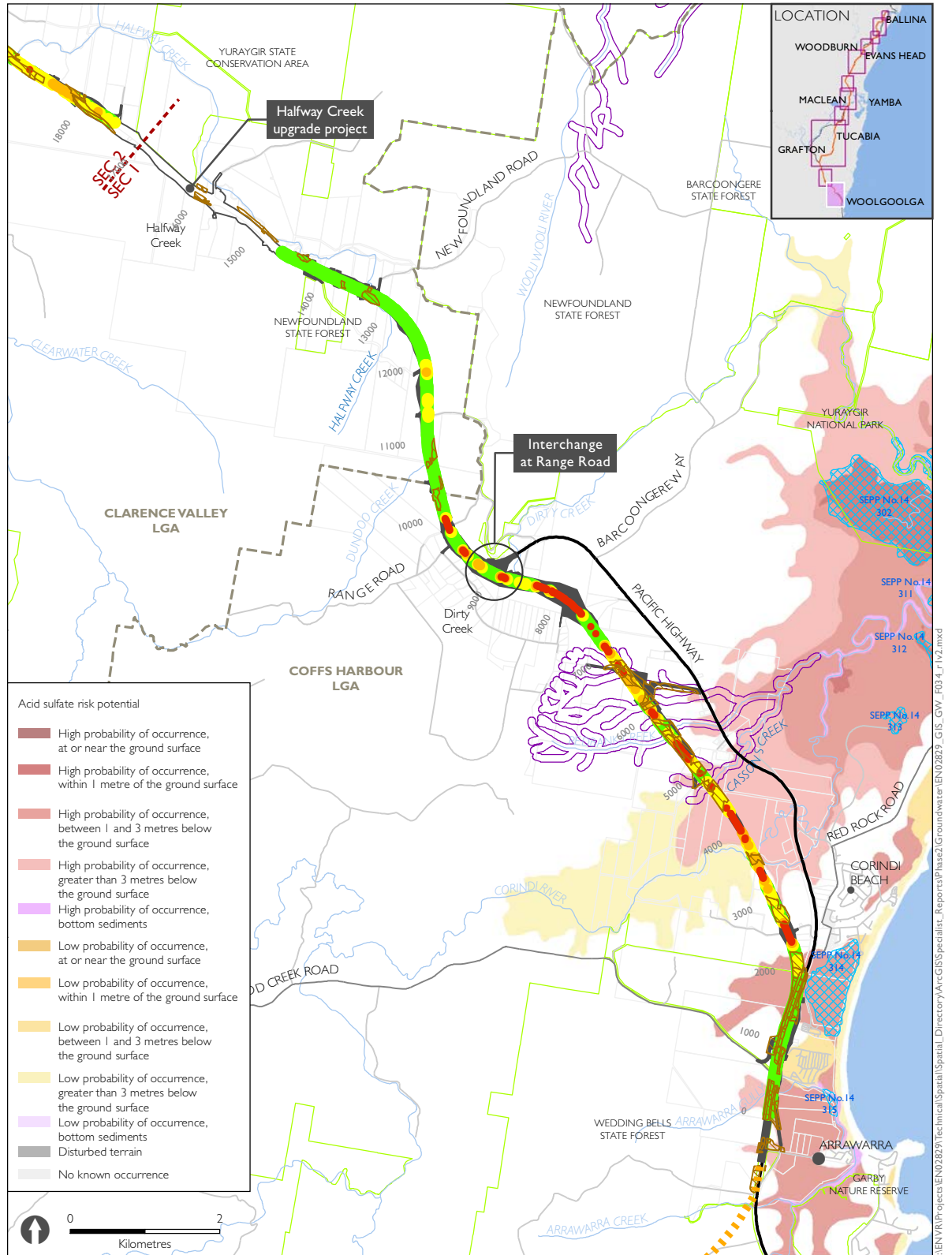
Figure A1-10 Construction phase potential impact to groundwater



- | | |
|--------------------------|-------------------------------------|
| Pacific Highway upgrade | Construction phase potential impact |
| Existing Pacific Highway | High |
| | Medium |
| | Low |
| | Minimal |

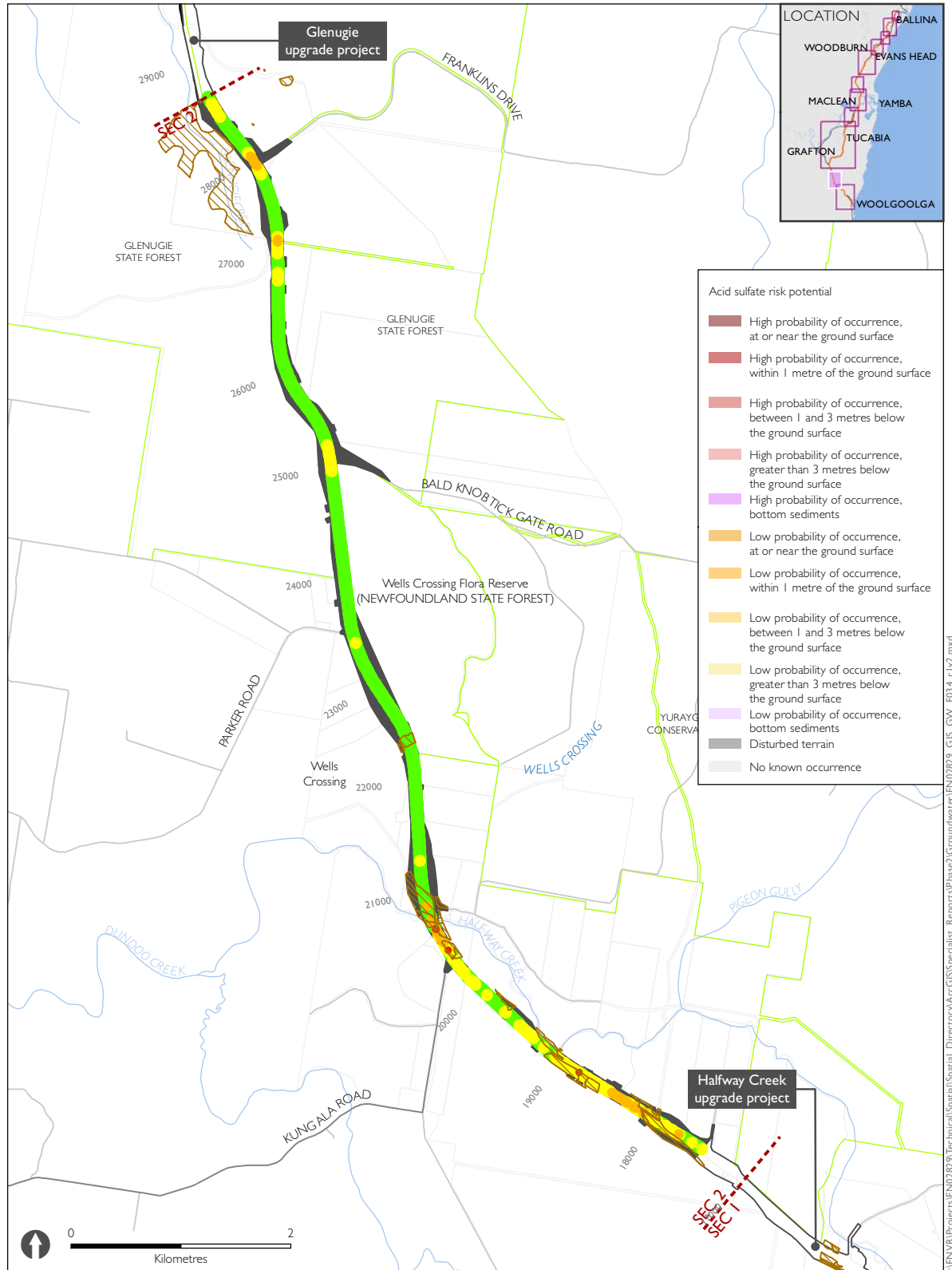
Upgrading the Pacific Highway - Woolgoolga to Ballina Upgrade

A1-11 Construction phase potential impact to targeted environmental receptors

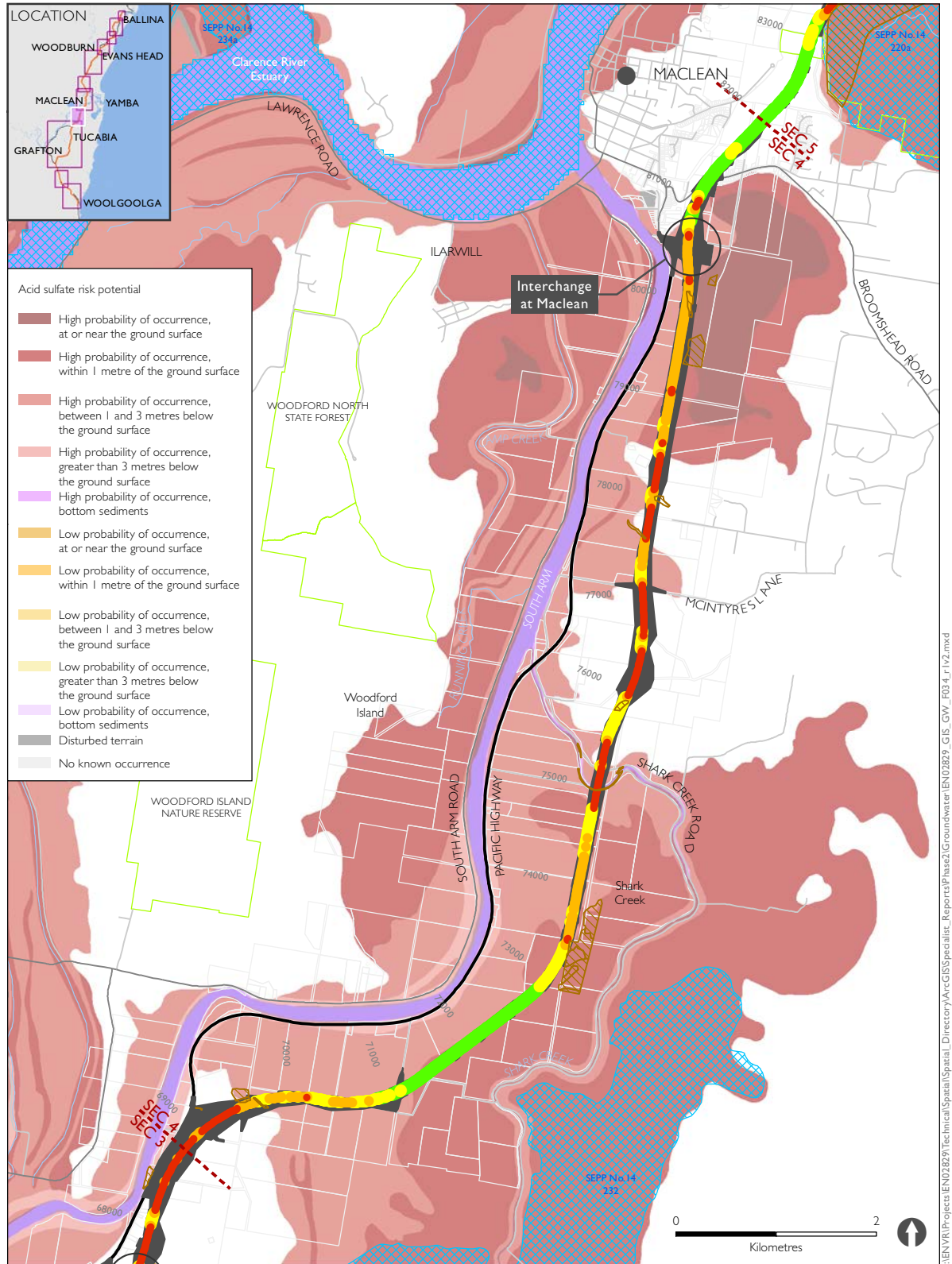


Upgrading the Pacific Highway - Woolgoolga to Ballina Upgrade

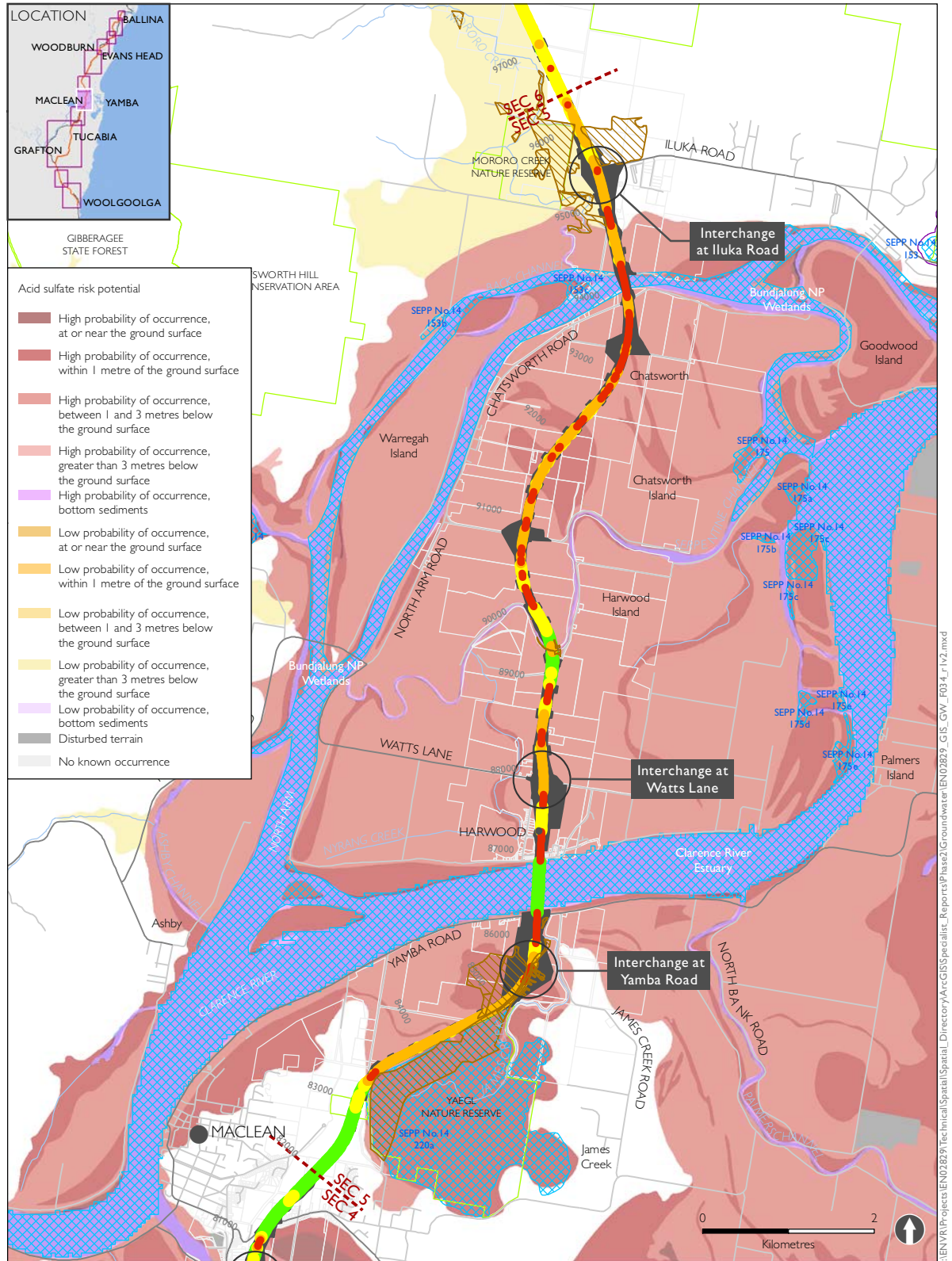
AI-12 Construction phase potential impact to targeted environmental receptors



A1-I4 Construction phase potential impact to targeted environmental receptors

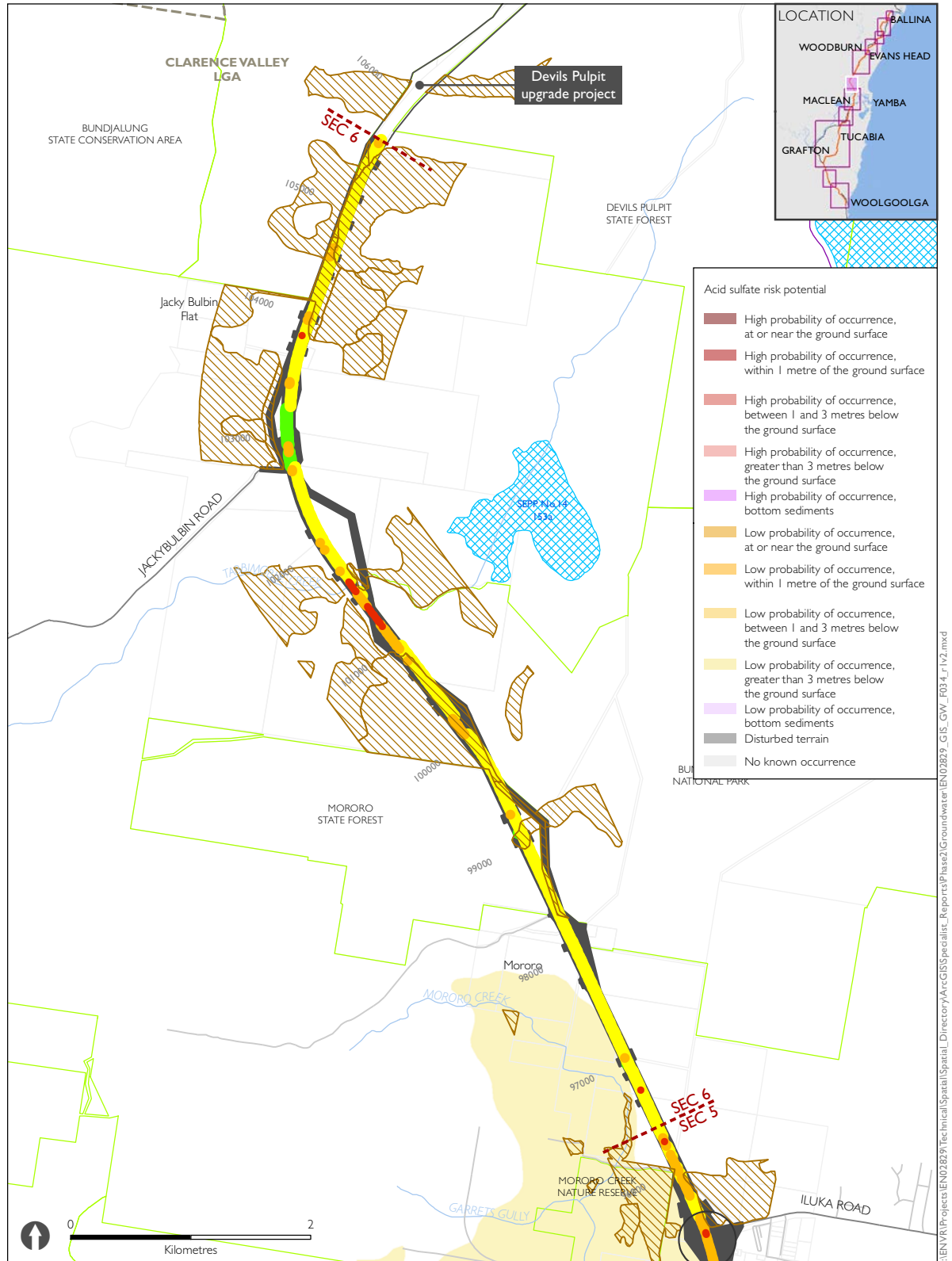


A1-15 Construction phase potential impact to targeted environmental receptors

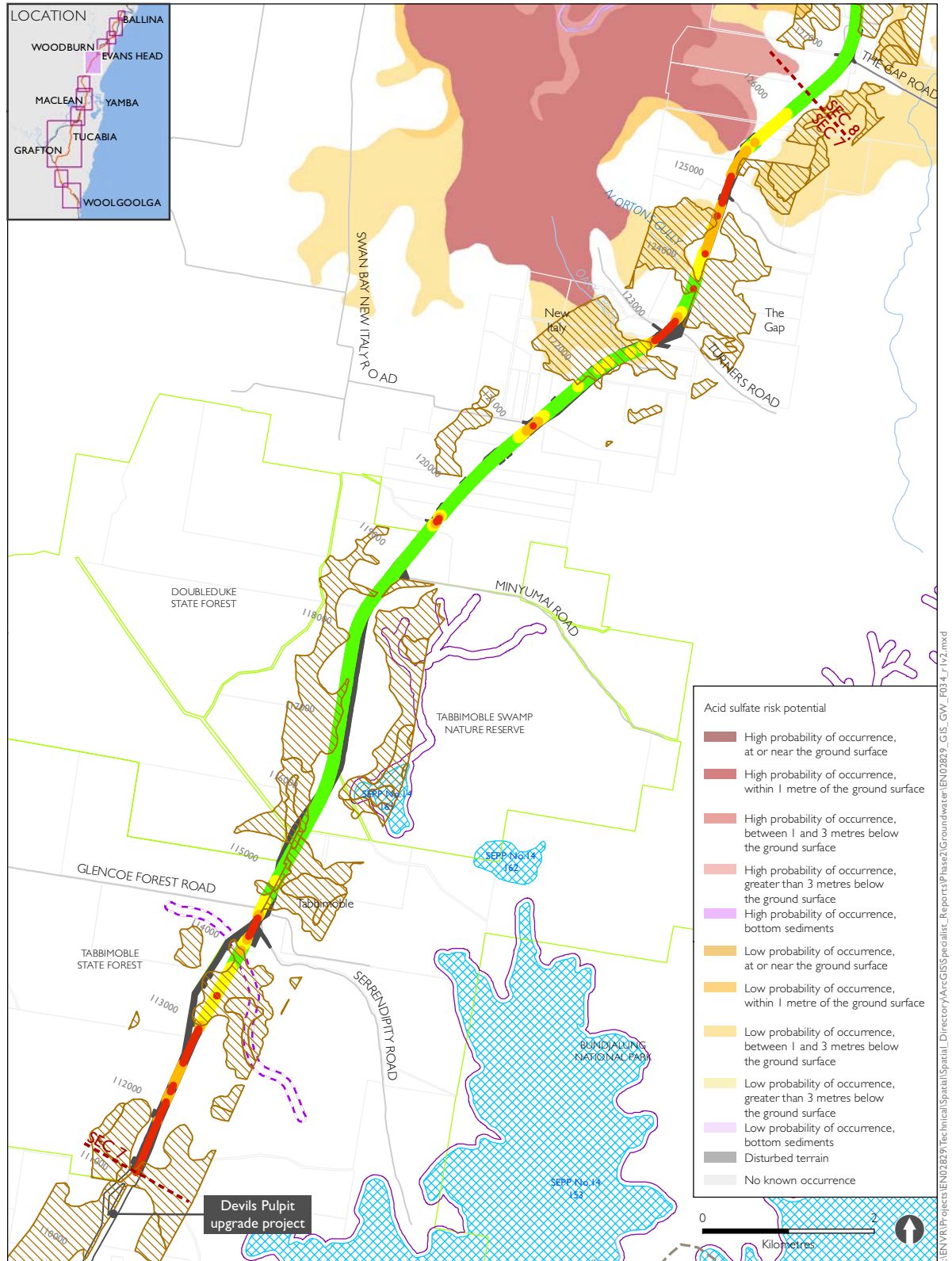


Upgrading the Pacific Highway - Woolgoolga to Ballina Upgrade

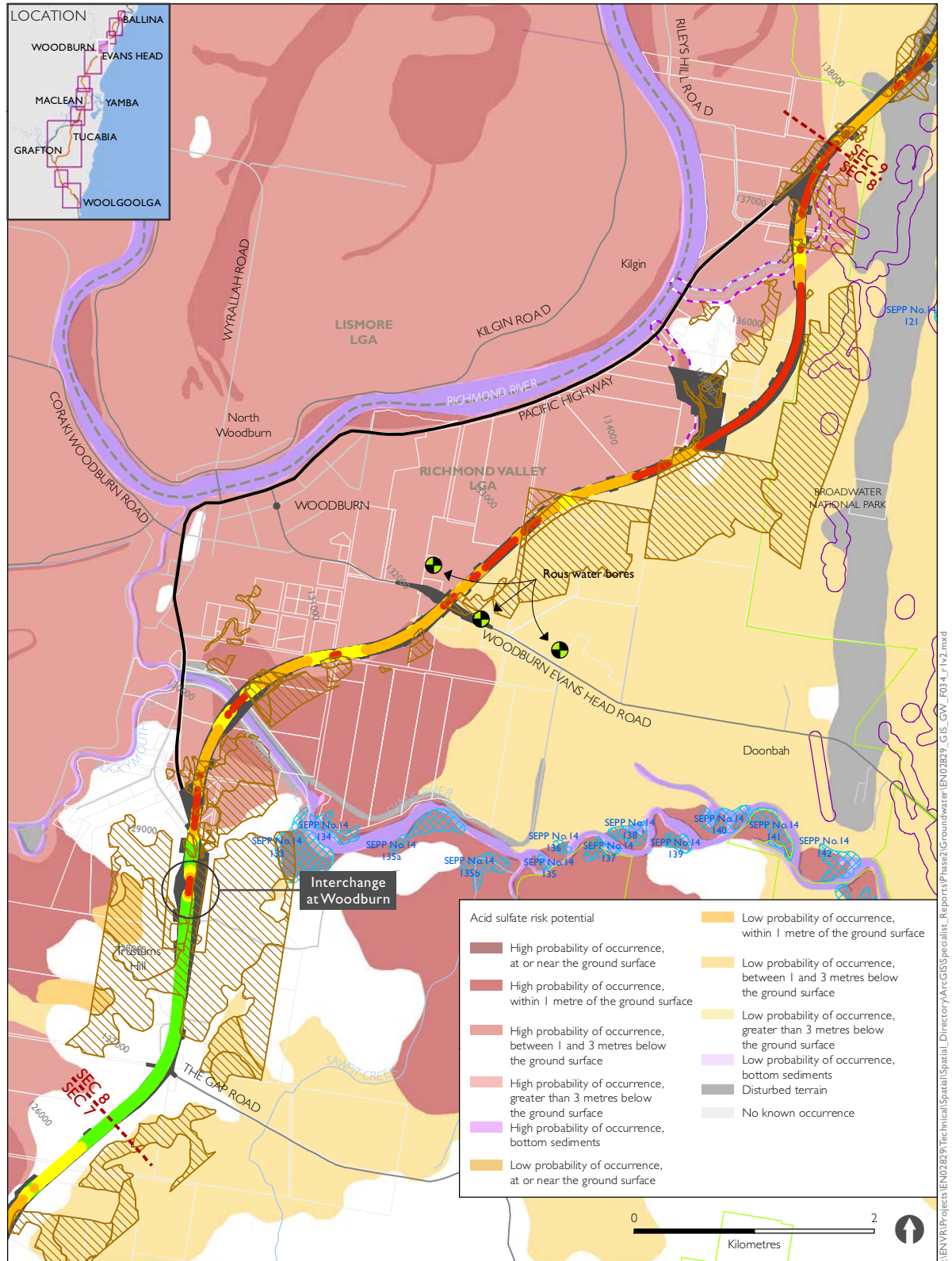
AI-16 Construction phase potential impact to targeted environmental receptors



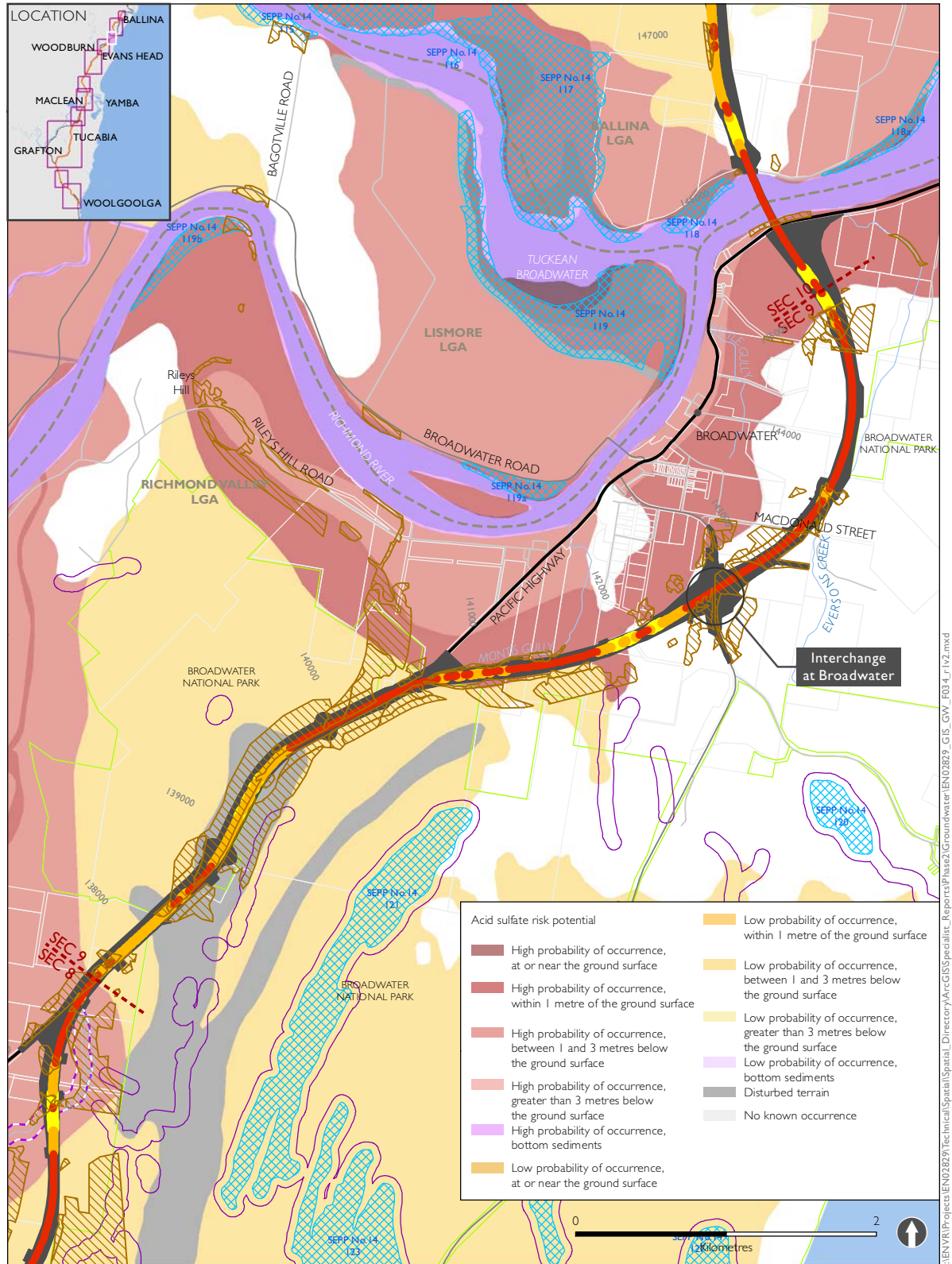
AI-17 Construction phase potential impact to targeted environmental receptors



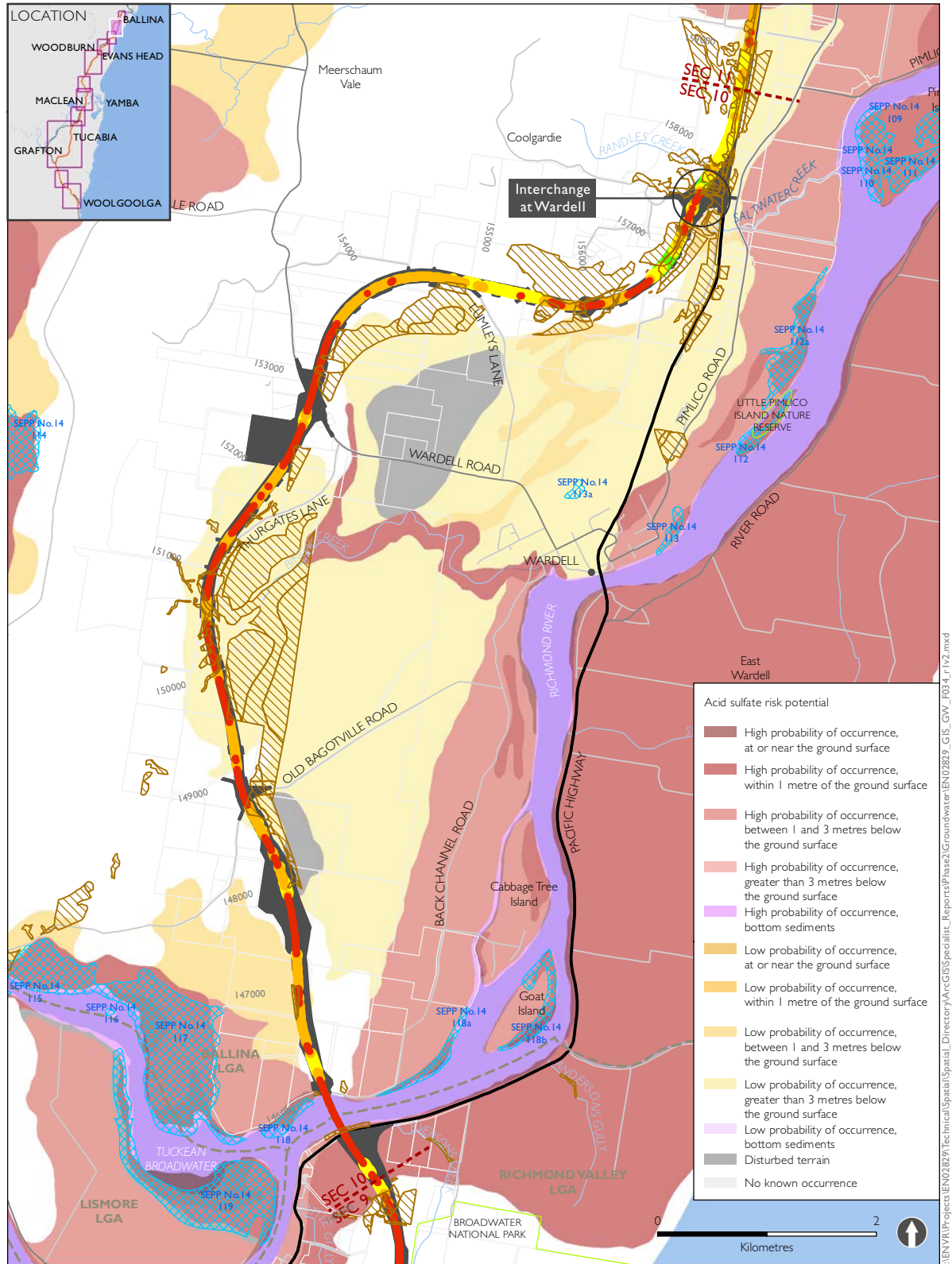
A1-18 Construction phase potential impact to targeted environmental receptors



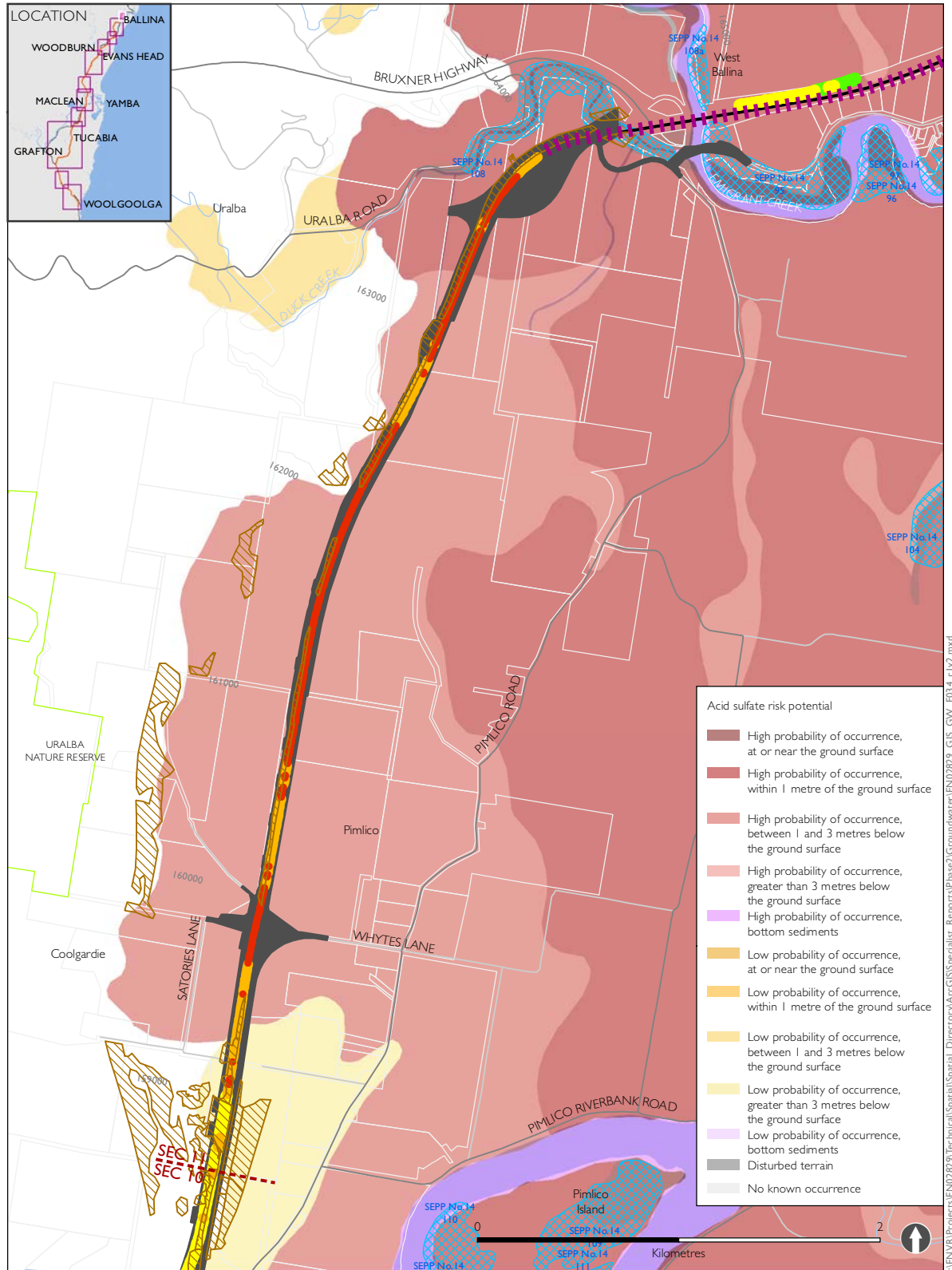
A1-19 Construction phase potential impact to targeted environmental receptors



A1-20 Construction phase potential impact to targeted environmental receptors



A1-21 Construction phase potential impact to targeted environmental receptors



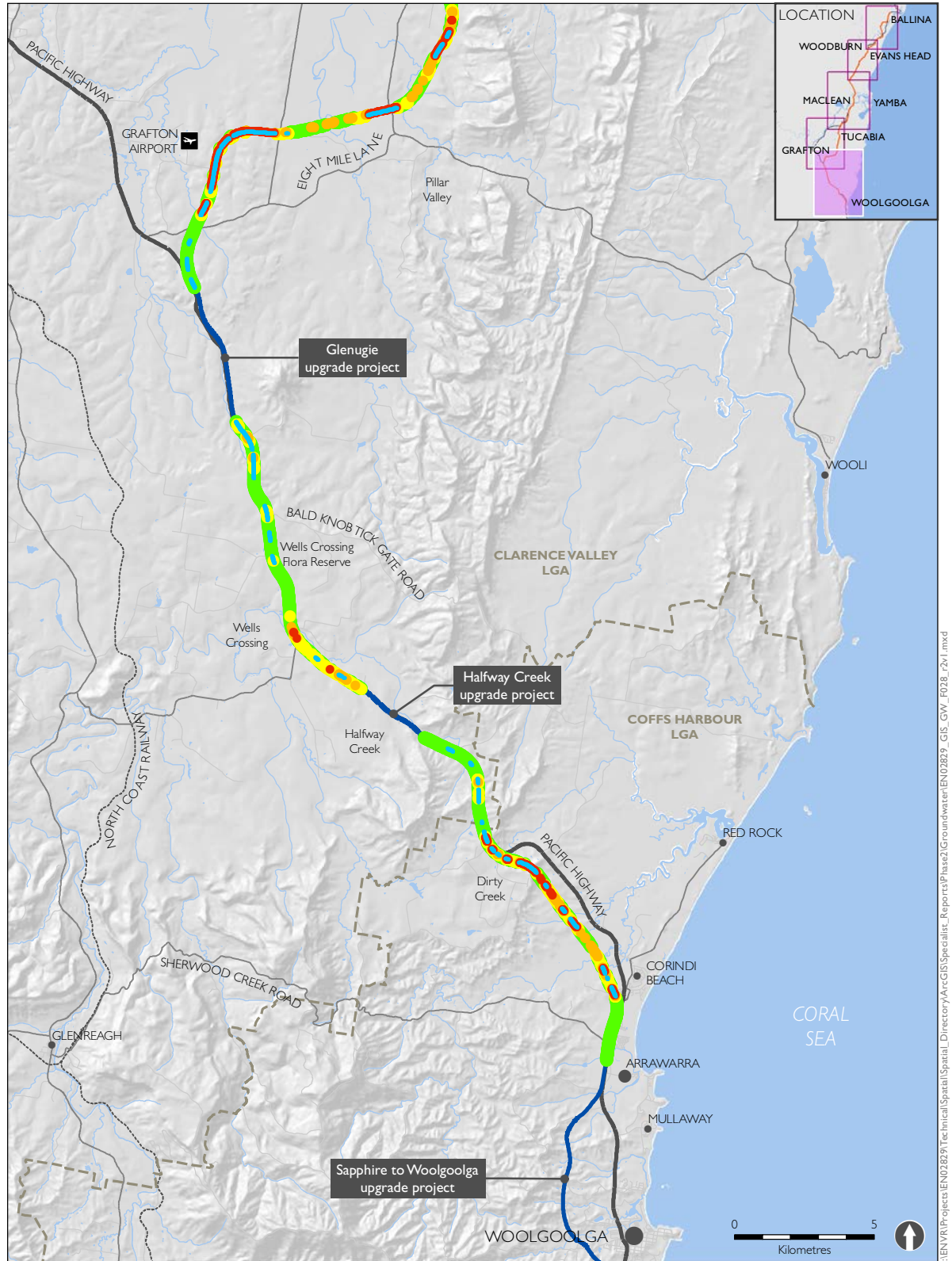
- The project
- Other upgrades
- Nationally Important & SEPP 14 wetlands

- Oxleyan Pygmy Perch habitat (NSW DPI)
- Oxleyan Pygmy Perch habitat (from targeted surveys)
- Threatened ecological communities
- State Forest, National Park, Nature Reserve, State Conservation Area

- Construction phase risk
- High
 - Medium
 - Low
 - Minimal

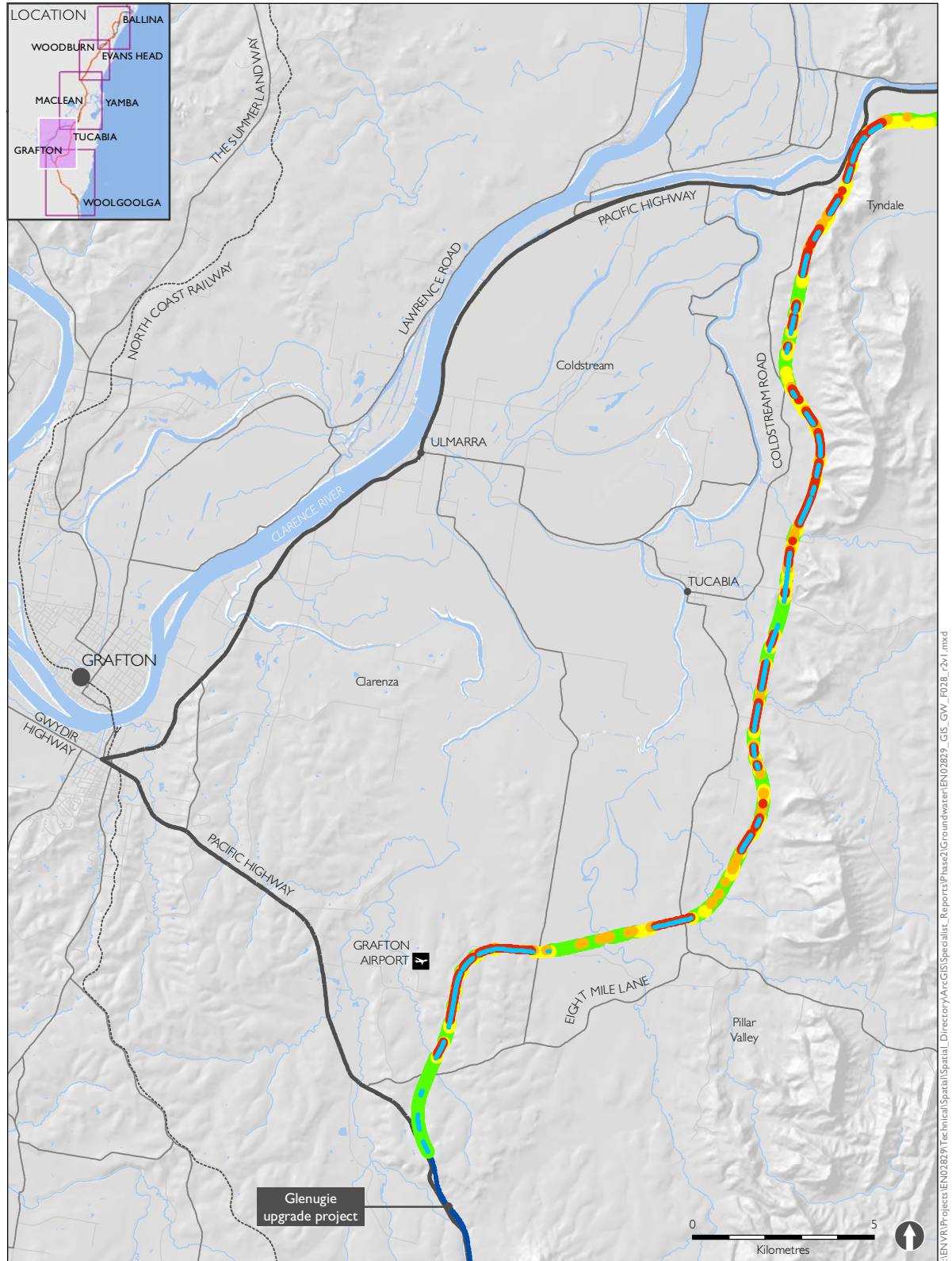
Upgrading the Pacific Highway - Woolgoolga to Ballina Upgrade








Figure A1-22 Operation phase potential impact to groundwater



- | | |
|--------------------------|----------------------------------|
| Pacific Highway upgrade | Operation phase potential impact |
| Existing Pacific Highway | High |
| | Medium |
| | Low |
| | Minimal |
| | Impact mitigated |

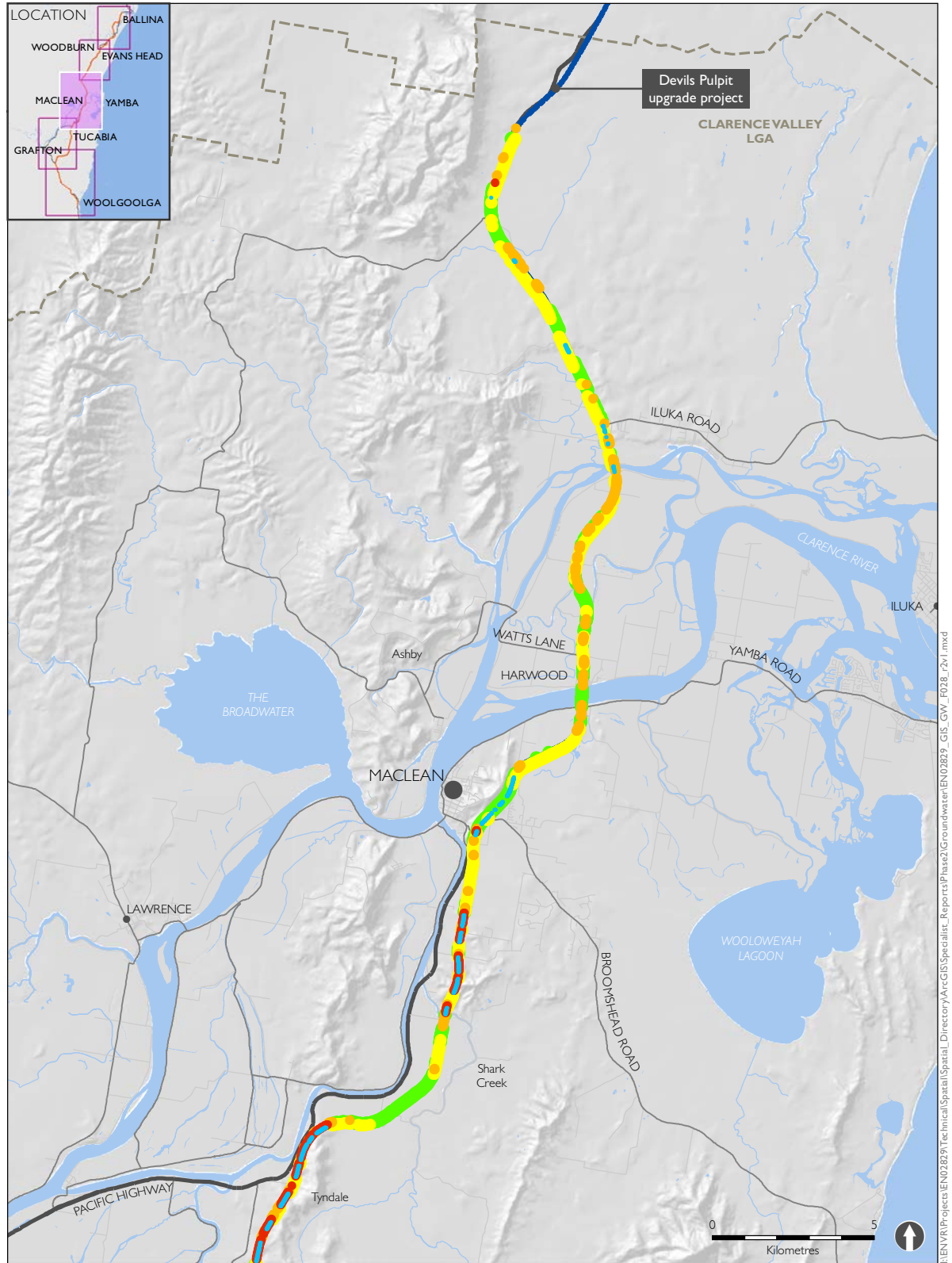
Figure A1-23 Operation phase potential impact to groundwater



- | | | |
|--|--|---|
|  Pacific Highway upgrade |  High |  Low |
|  Existing Pacific Highway |  Medium |  Minimal |
| |  Impact mitigated | |

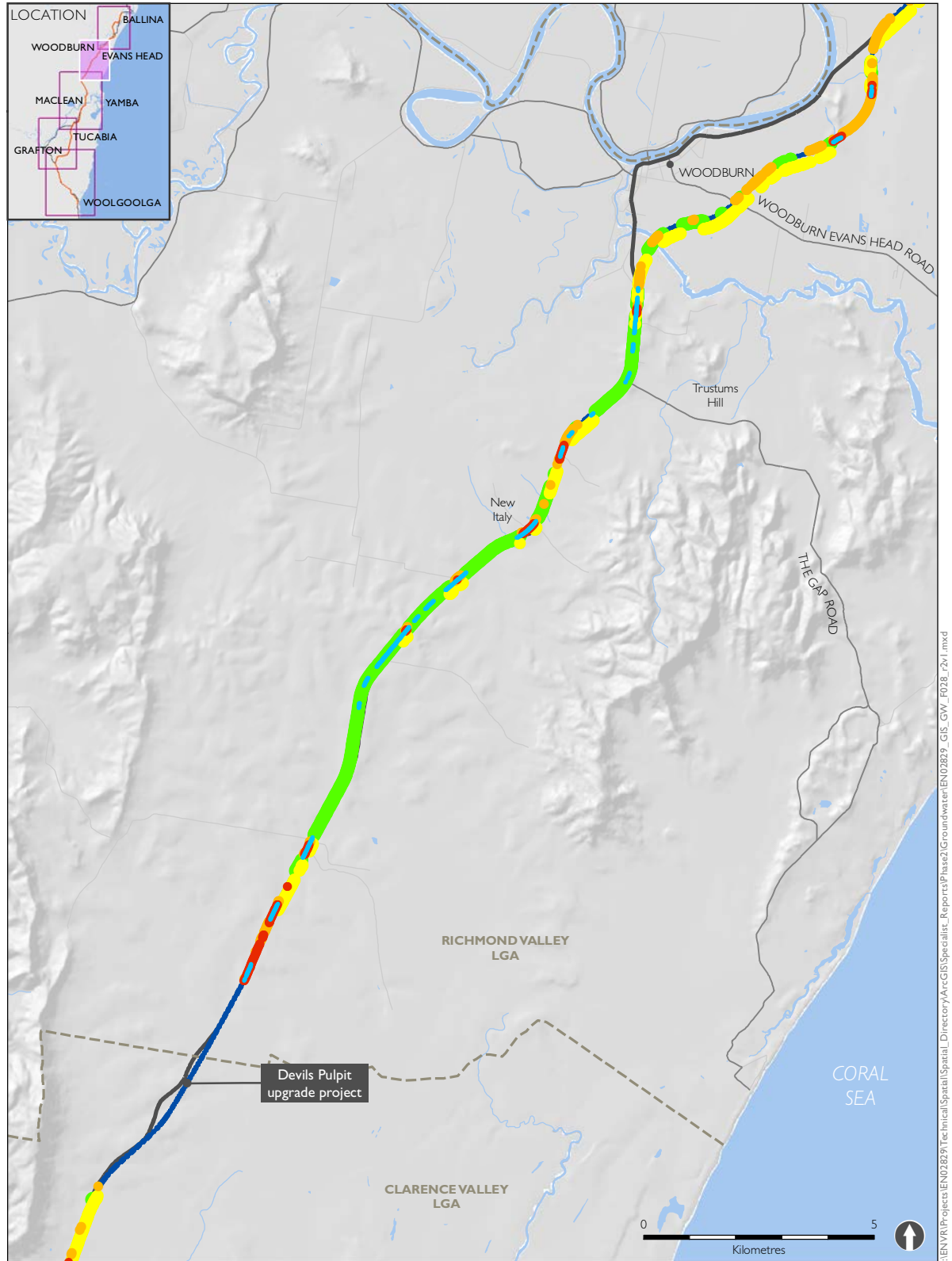
Upgrading the Pacific Highway - Woolgoolga to Ballina Upgrade

Figure A1-24 Operation phase potential impact to groundwater



- Pacific Highway upgrade
- Existing Pacific Highway
- High
- Medium
- Low
- Minimal
- Impact mitigated

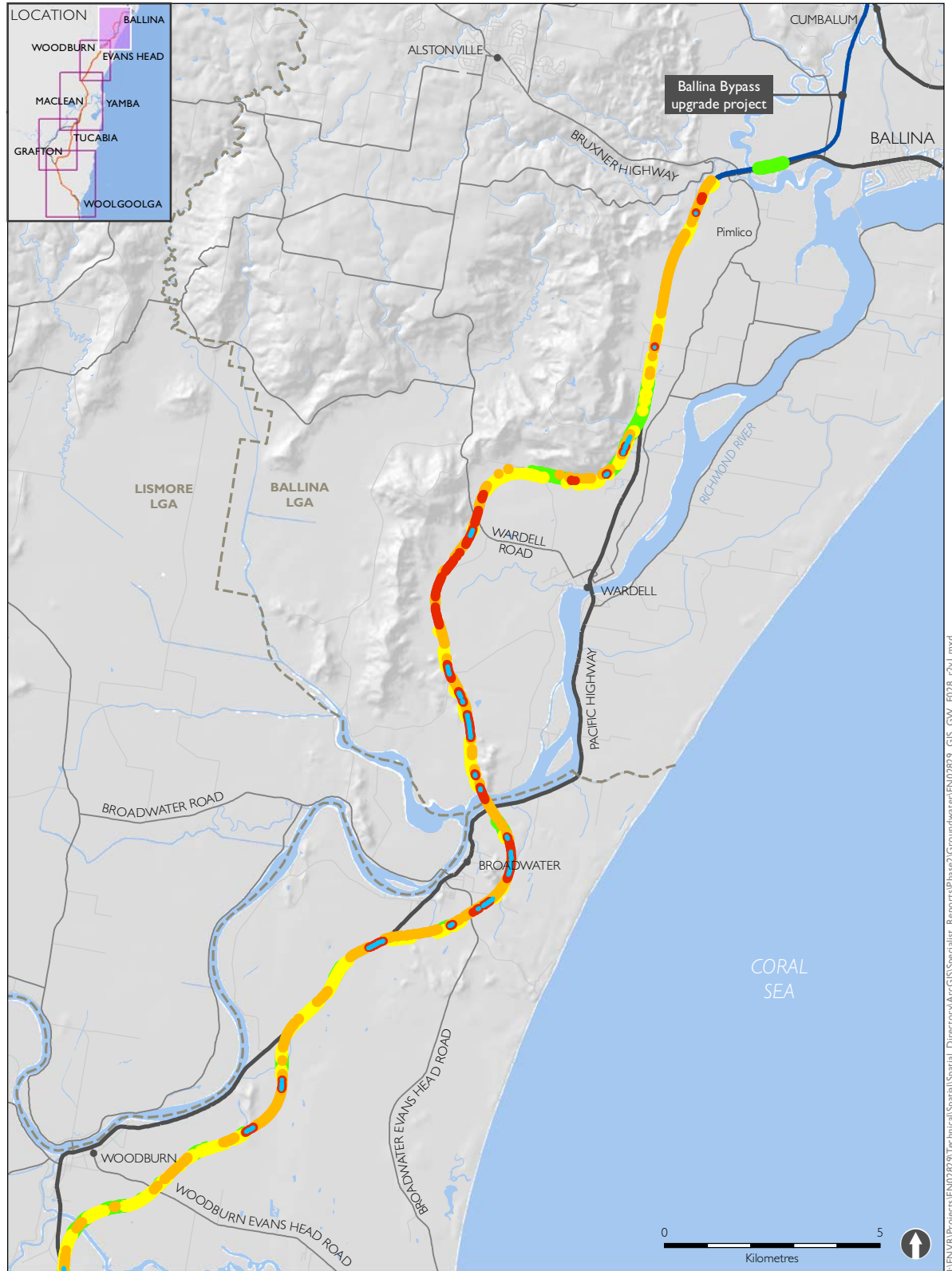
Figure A1-25 Operation phase potential impact to groundwater



- | | |
|--------------------------|----------------------------------|
| Pacific Highway upgrade | Operation phase potential impact |
| Existing Pacific Highway | High |
| | Medium |
| | Low |
| | Minimal |
| | Impact mitigated |

Upgrading the Pacific Highway - Woolgoolga to Ballina Upgrade

Figure A1-26 Operation phase potential impact to groundwater

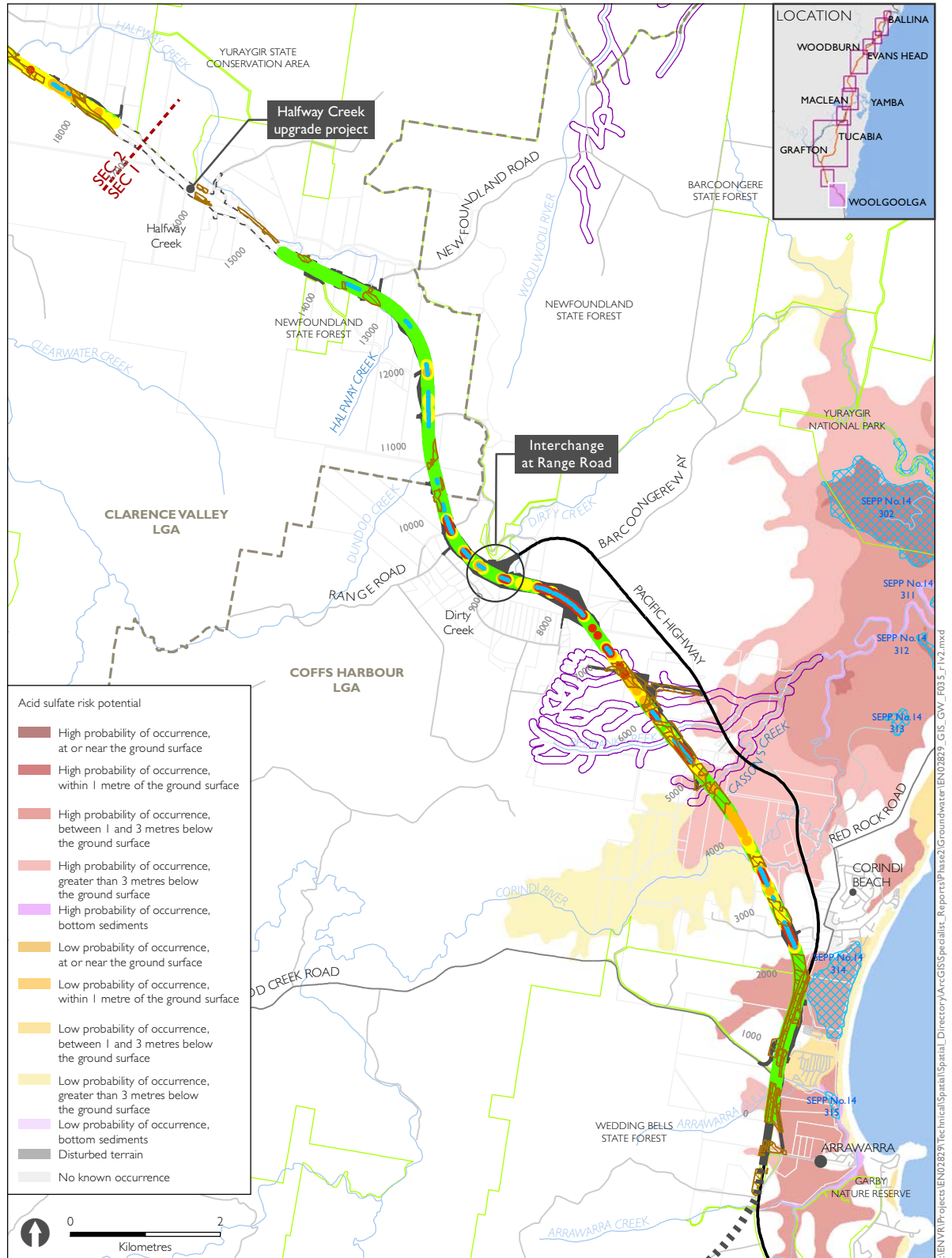


- Pacific Highway upgrade
- Existing Pacific Highway
- High
- Medium
- Low
- Minimal
- Impact mitigated

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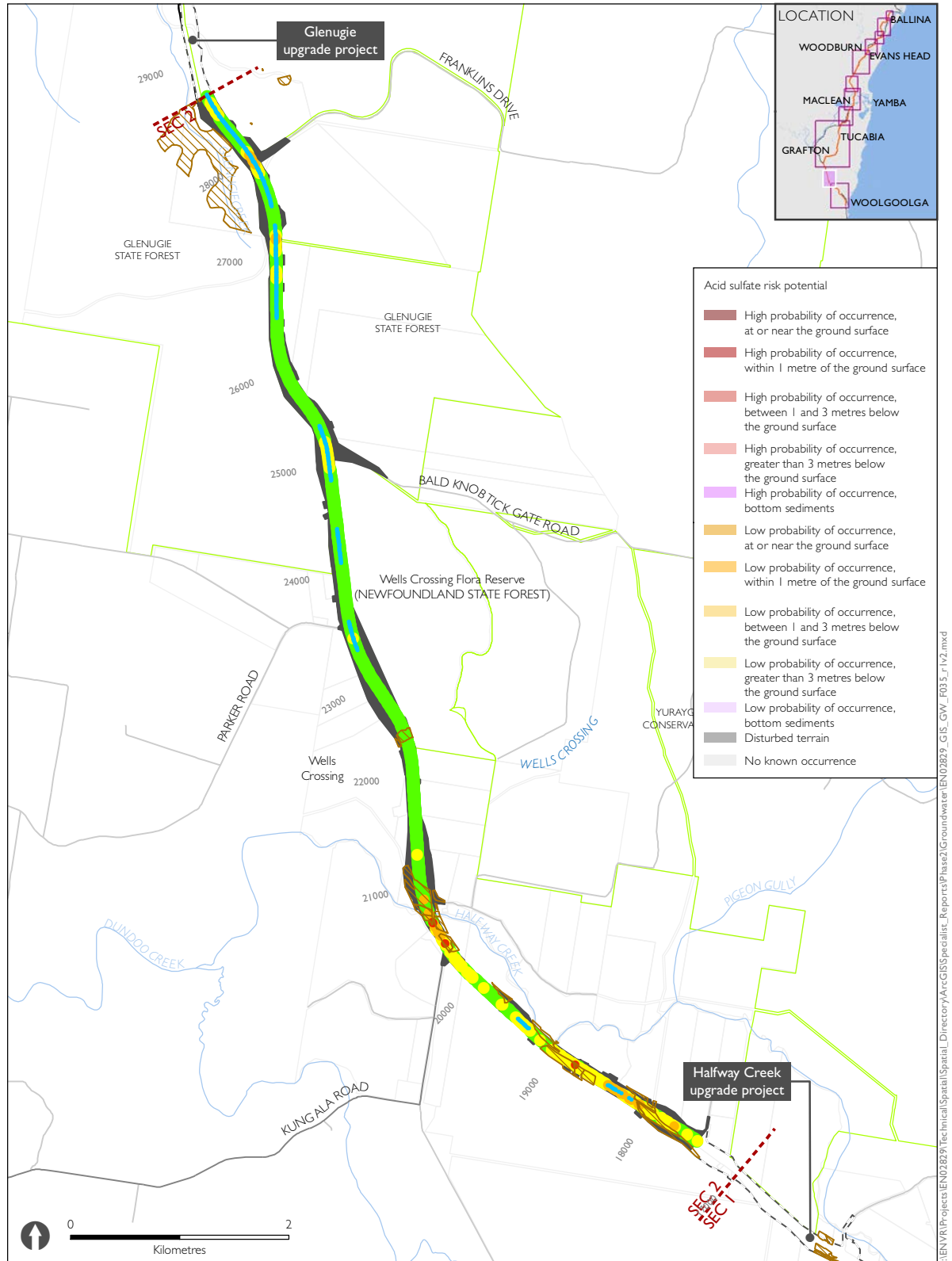
Upgrading the Pacific Highway - Woolgoolga to Ballina Upgrade

A1-27 Operation phase potential impact to targeted environmental receptors

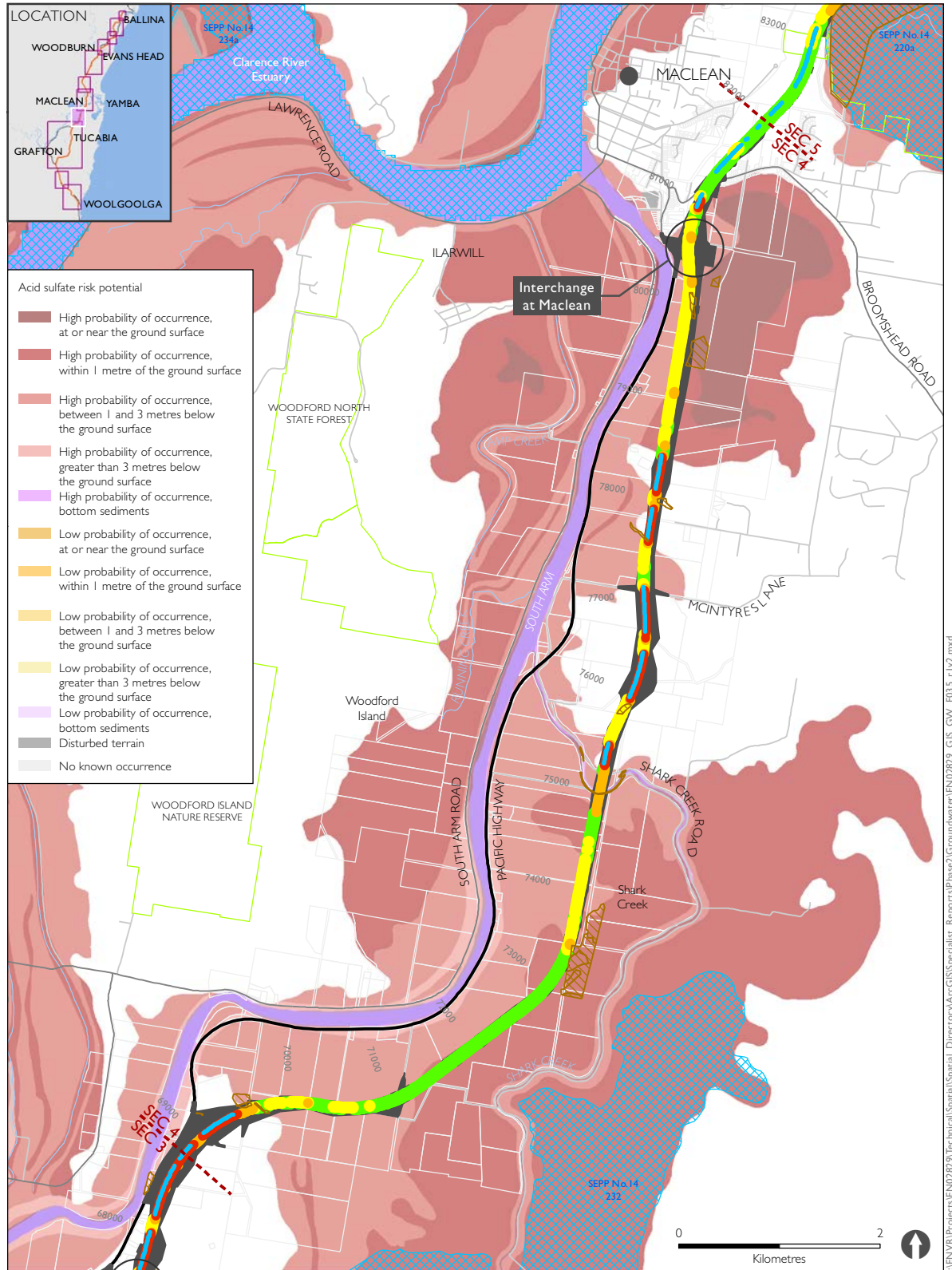


Upgrading the Pacific Highway - Woolgoolga to Ballina Upgrade

AI-28 Operation phase potential impact to targeted environmental receptors

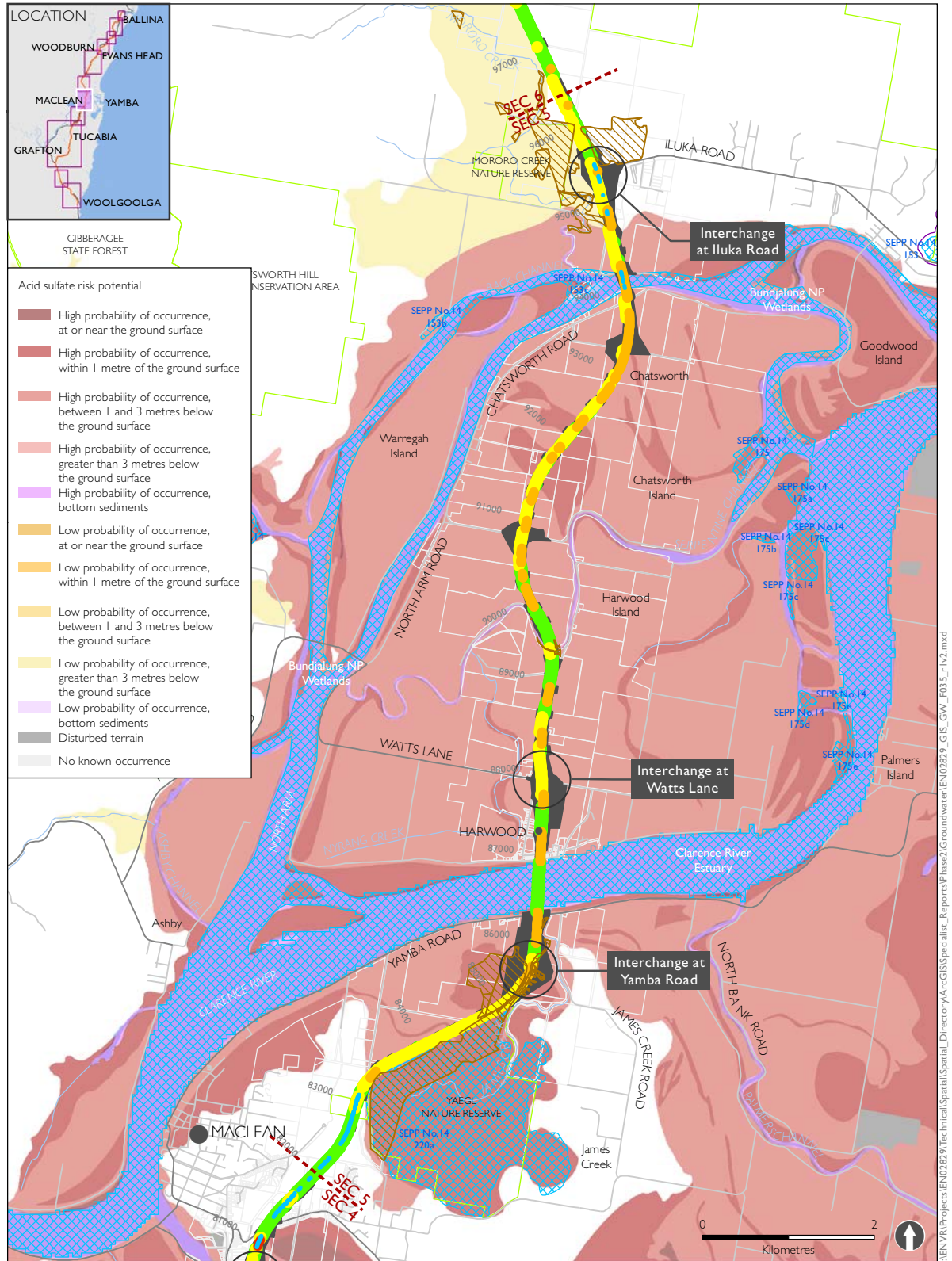


A1-30 Operation phase potential impact to targeted environmental receptors



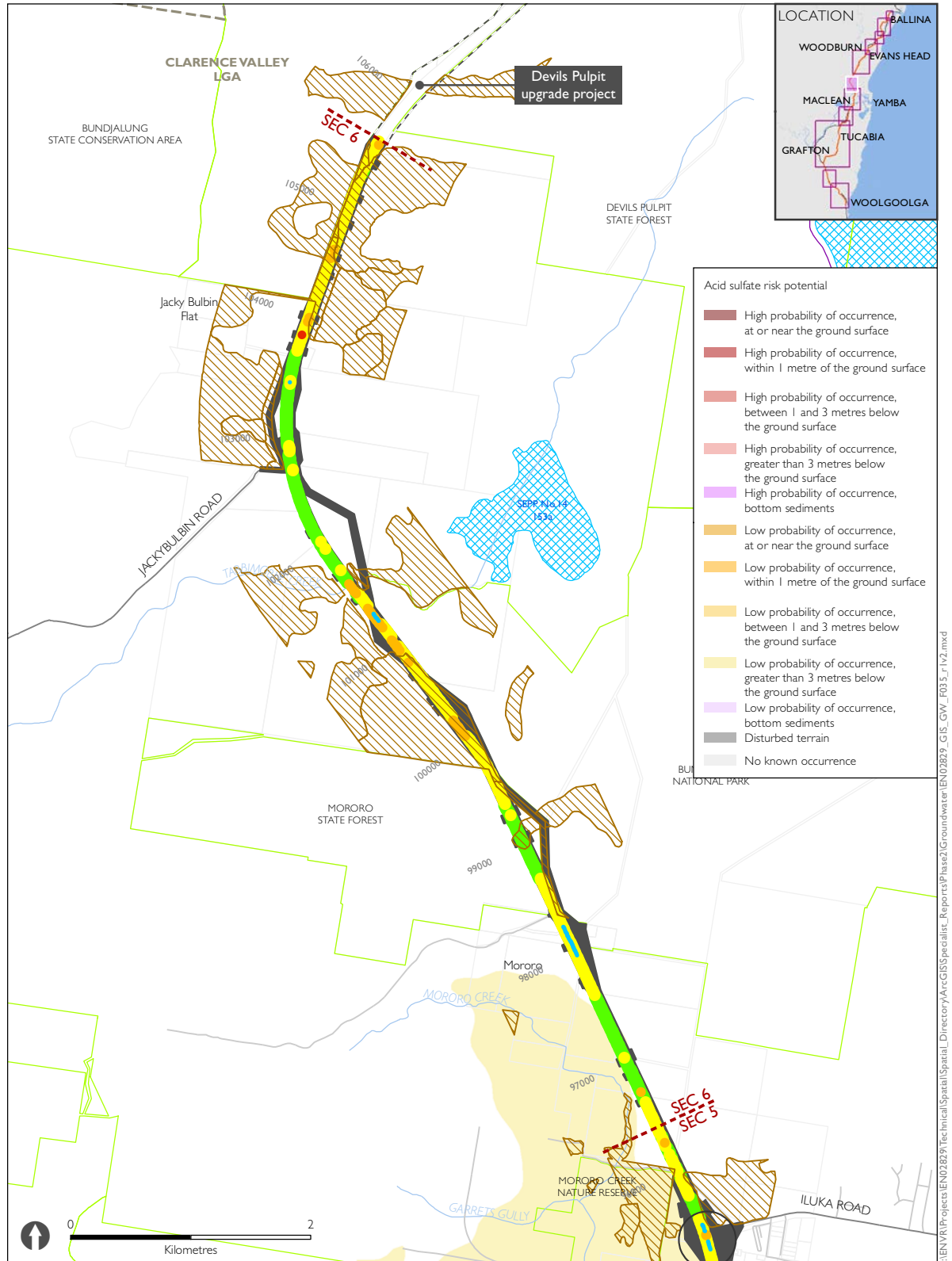
- The project
- Other upgrades
- Nationally Important & SEPP 14 wetlands
- Oxleyan Pygmy Perch habitat (NSW DPI)
- Oxleyan Pygmy Perch habitat (from targeted surveys)
- Threatened ecological communities
- State Forest, National Park, Nature Reserve, State Conservation Area
- Operation phase risk
- High
- Medium
- Low
- Minimal
- Impact mitigated

A1-31 Operation phase potential impact to targeted environmental receptors

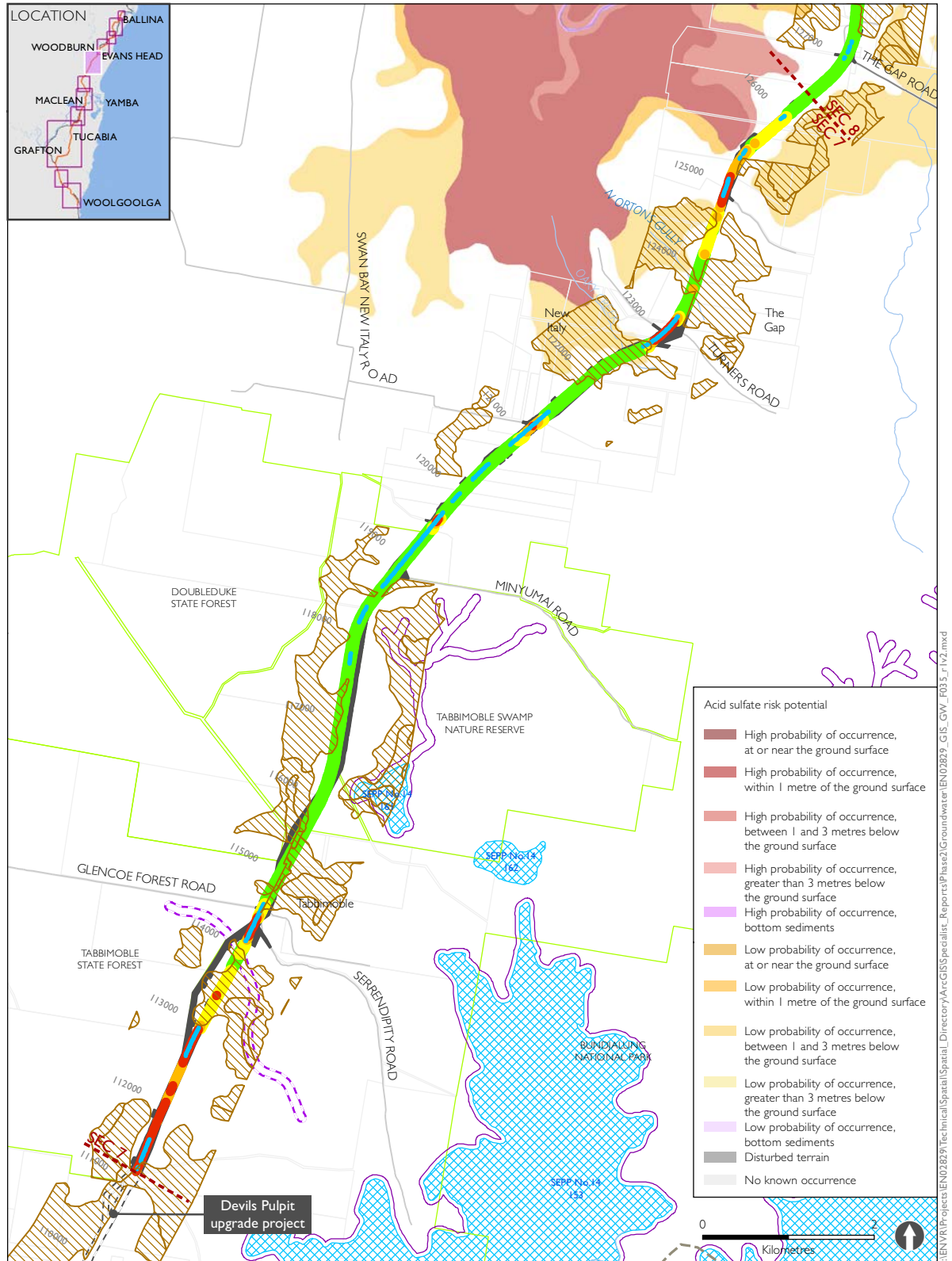


Upgrading the Pacific Highway - Woolgoolga to Ballina Upgrade

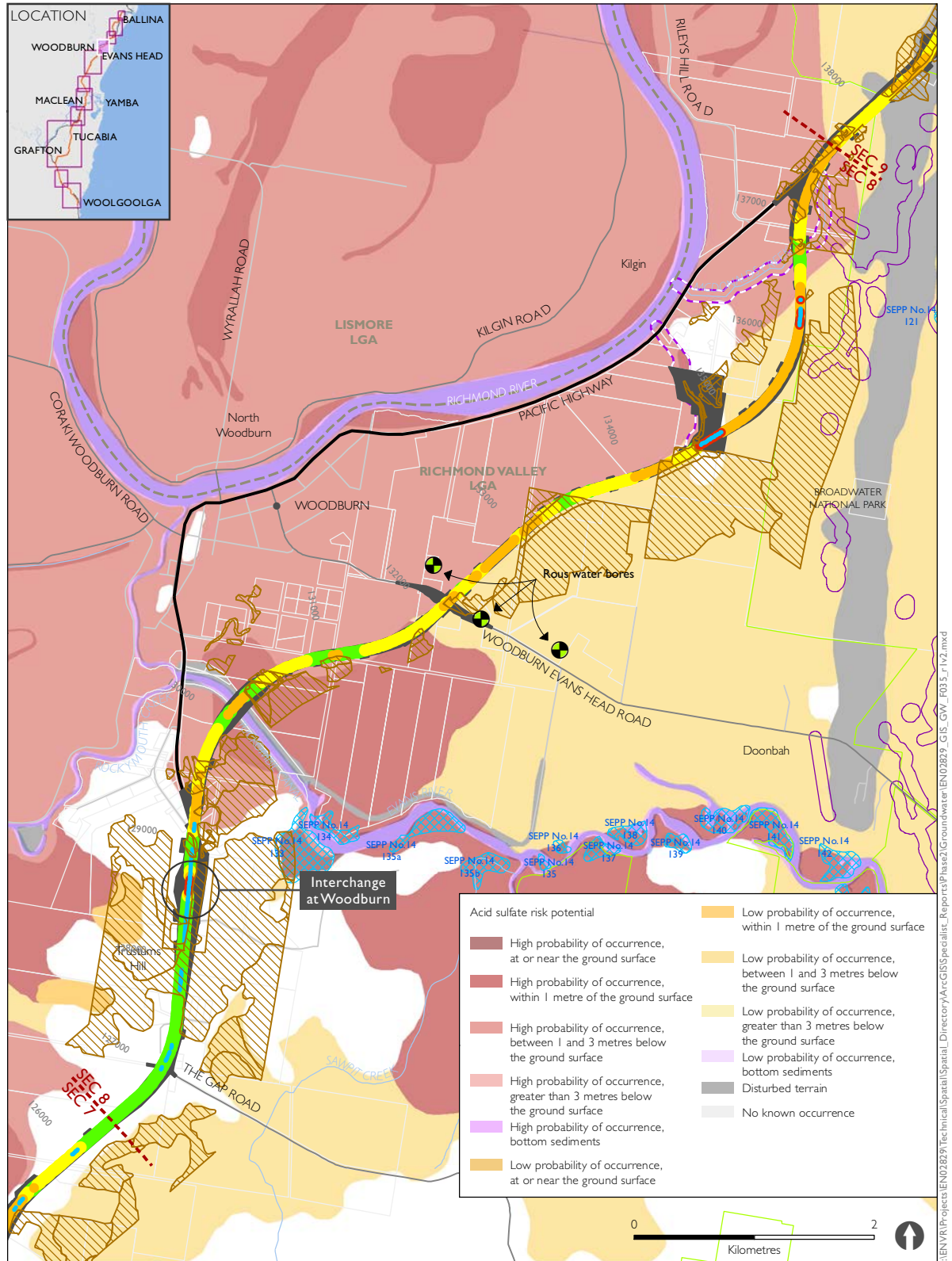
AI-32 Operation phase potential impact to targeted environmental receptors



AI-33 Operation phase potential impact to targeted environmental receptors

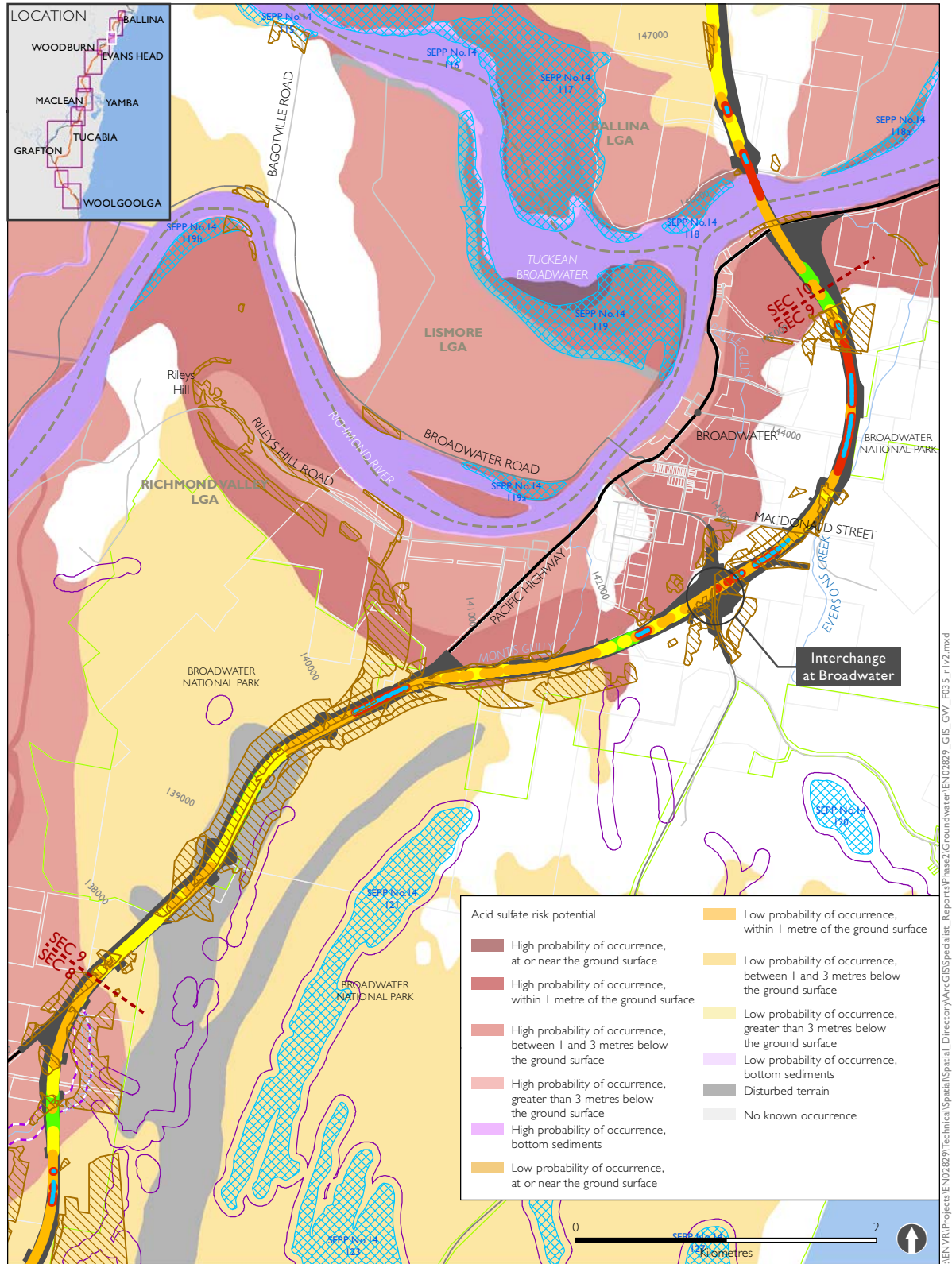


A1-34 Operation phase potential impact to targeted environmental receptors



- The project
- Other upgrades
- Nationally Important & SEPP 14 wetlands
- Oxleyan Pygmy Perch habitat (NSW DPI)
- Oxleyan Pygmy Perch habitat (from targeted surveys)
- Threatened ecological communities
- State Forest, National Park, Nature Reserve, State Conservation Area
- High
- Medium
- Low
- Minimal
- Impact mitigated

AI-35 Operation phase potential impact to targeted environmental receptors

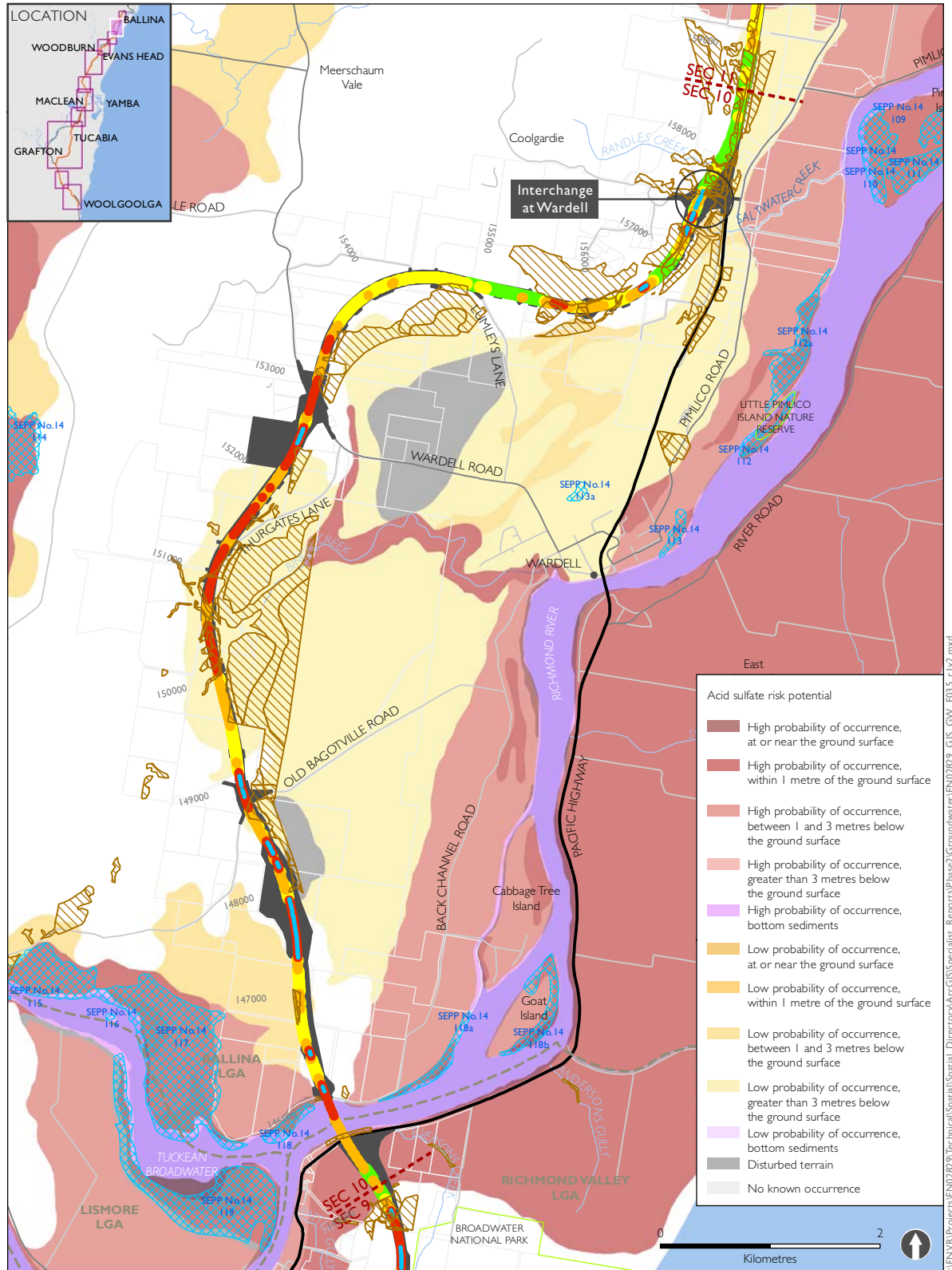


- The project
- Other upgrades
- Nationally Important & SEPP 14 wetlands

- Oxleyan Pygmy Perch habitat (NSW DPI)
- Oxleyan Pygmy Perch habitat (from targeted surveys)
- Threatened ecological communities
- State Forest, National Park, Nature Reserve, State Conservation Area

- Operation phase risk
- High
 - Medium
 - Low
 - Minimal
 - Impact mitigated

AI-36 Operation phase potential impact to targeted environmental receptors

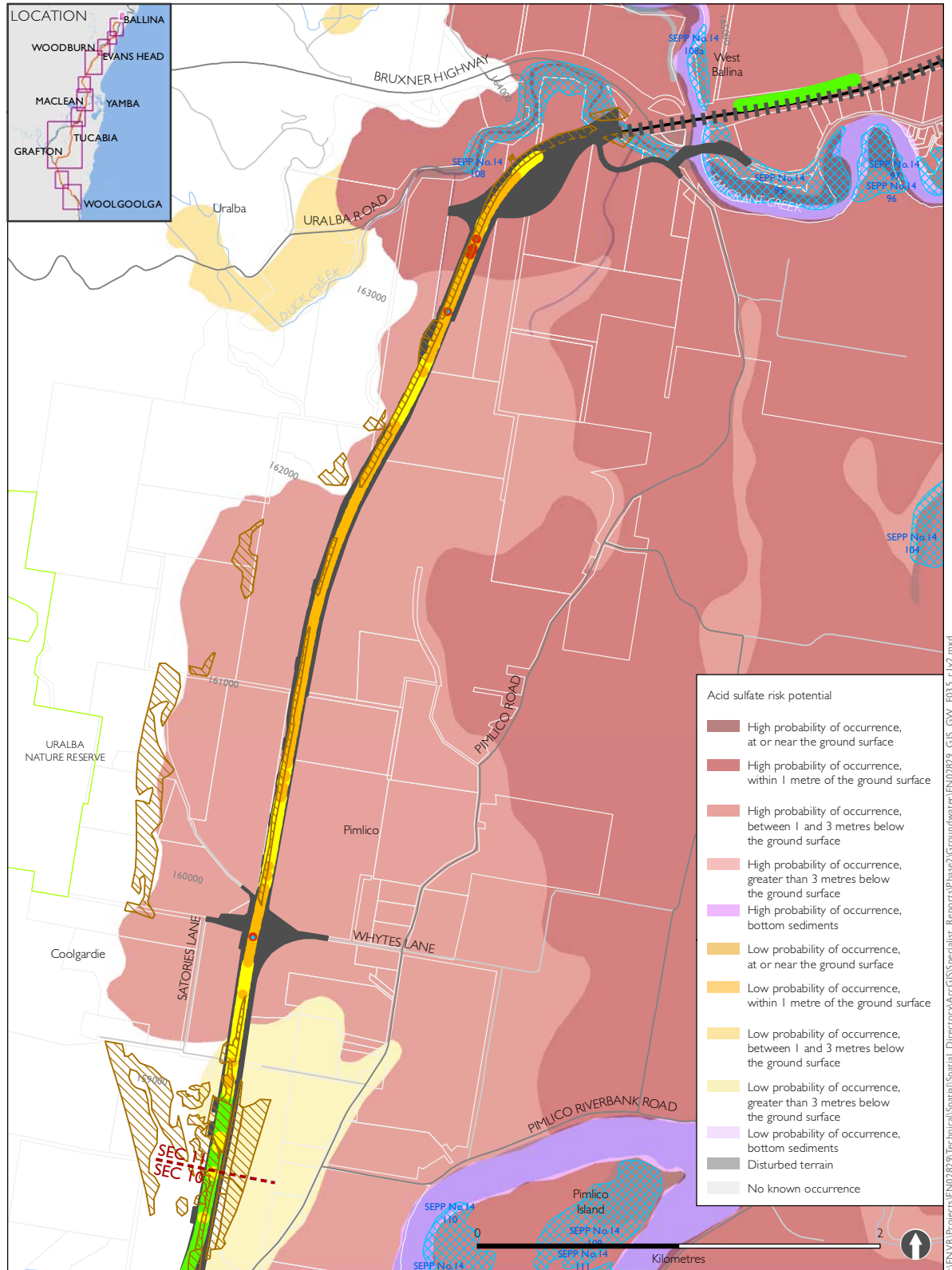


- The project
- Other upgrades
- Nationally Important & SEPP 14 wetlands

- Oxleyan Pygmy Perch habitat (NSW DPI)
- Oxleyan Pygmy Perch habitat (from targeted surveys)
- Threatened ecological communities
- State Forest, National Park, Nature Reserve, State Conservation Area

- Operation phase risk**
- High
 - Medium
 - Low
 - Minimal
 - Impact mitigated

A1-37 Operation phase potential impact to targeted environmental receptors



- The project
- Other upgrades
- Nationally Important & SEPP 14 wetlands
- Oxleyan Pygmy Perch habitat (NSW DPI)
- Oxleyan Pygmy Perch habitat (from targeted surveys)
- Threatened ecological communities
- State Forest, National Park, Nature Reserve, State Conservation Area
- High
- Medium
- Low
- Minimal
- Impact mitigated