

**APPENDIX B**

**Model Results – Proposed Modification**

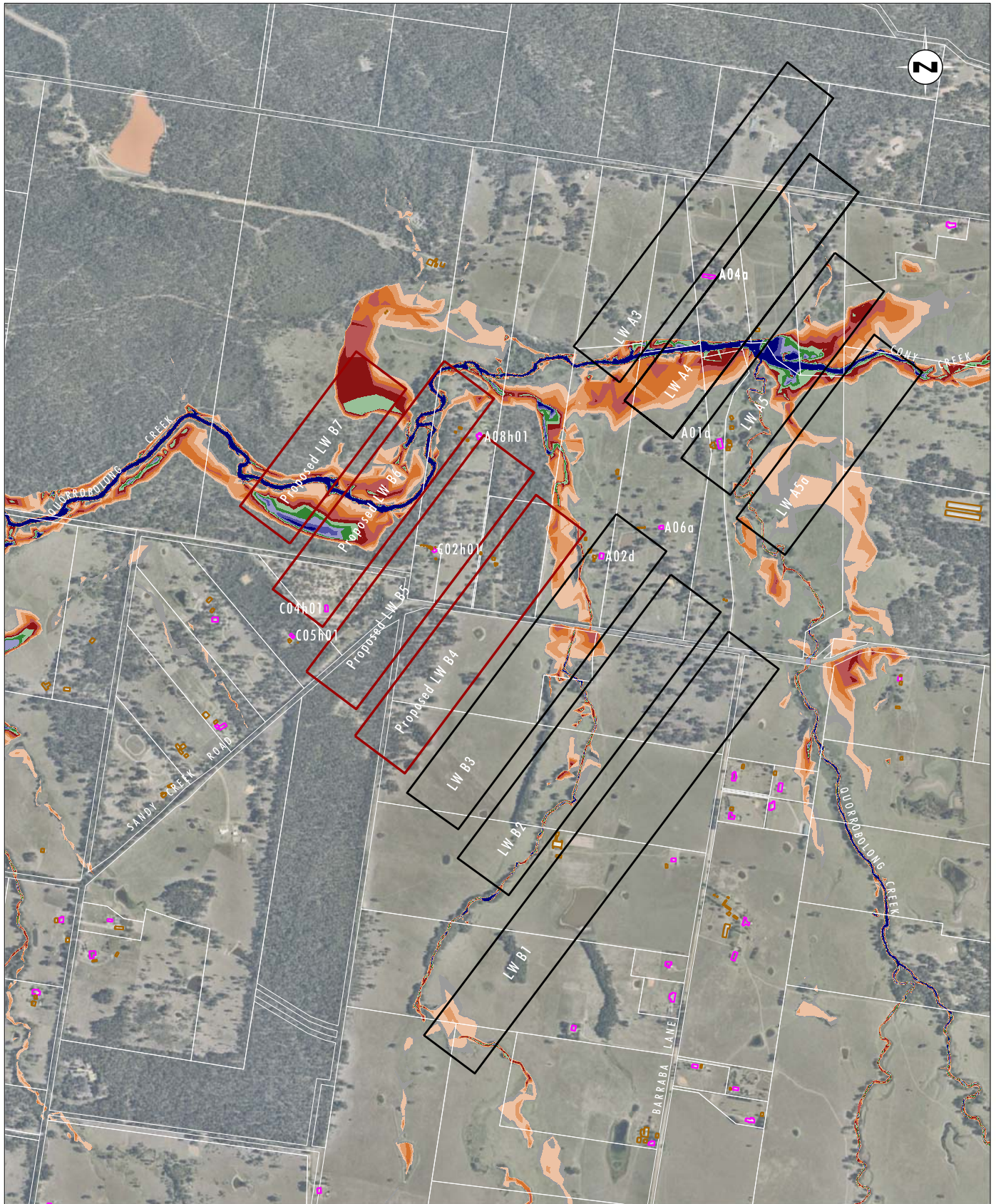


Image Source: Nearmap (2017)  
 Data Source: Austar Coal Mine (2017)

0 0.25 0.5 1.0 km  
 1:20 000

**Legend**

- Proposed LWB4-B7 Longwall Panels
- Approved LWA3-A19 and LWB1-B3 Longwall Panels
- Dwelling
- Other Structure

**Water Depth (m)**

- |  |  |
|--|--|
| <span style="background-color: #cccccc; border: 1px solid black; display: inline-block; width: 15px; height: 10px; margin-right: 5px;"></span> Range [0.001 : 0.100] | <span style="background-color: #008000; border: 1px solid black; display: inline-block; width: 15px; height: 10px; margin-right: 5px;"></span> Range [1.100 : 1.300] |
| <span style="background-color: #d3d3d3; border: 1px solid black; display: inline-block; width: 15px; height: 10px; margin-right: 5px;"></span> Range [0.100 : 0.300] | <span style="background-color: #008000; border: 1px solid black; display: inline-block; width: 15px; height: 10px; margin-right: 5px;"></span> Range [1.300 : 1.500] |
| <span style="background-color: #f5deb3; border: 1px solid black; display: inline-block; width: 15px; height: 10px; margin-right: 5px;"></span> Range [0.300 : 0.500] | <span style="background-color: #6666ff; border: 1px solid black; display: inline-block; width: 15px; height: 10px; margin-right: 5px;"></span> Range [1.500 : 1.700] |
| <span style="background-color: #ffcc99; border: 1px solid black; display: inline-block; width: 15px; height: 10px; margin-right: 5px;"></span> Range [0.500 : 0.700] | <span style="background-color: #0000ff; border: 1px solid black; display: inline-block; width: 15px; height: 10px; margin-right: 5px;"></span> Range [1.700 : 1.900] |
| <span style="background-color: #ff9966; border: 1px solid black; display: inline-block; width: 15px; height: 10px; margin-right: 5px;"></span> Range [0.700 : 0.900] | <span style="background-color: #0000ff; border: 1px solid black; display: inline-block; width: 15px; height: 10px; margin-right: 5px;"></span> Range [ $>$ 1.900]    |

**FIGURE B1**

**100% AEP Storm Event: Maximum Modelled Flood Depths, Predicted Subsidence Approved LWA3-A19 and LWB1-B3, Proposed LWB4-B7**



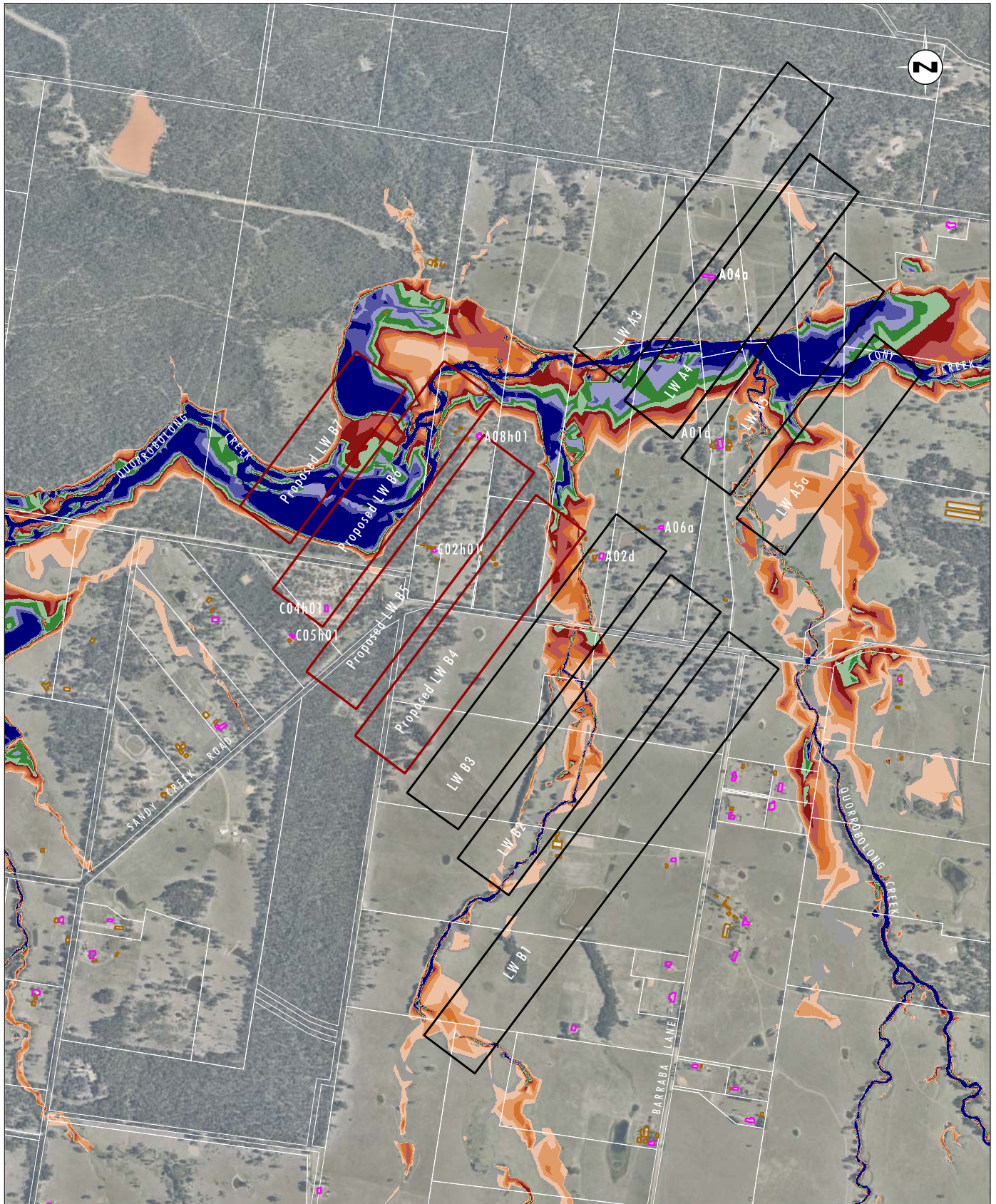


Image Source: Nearmap (2017)  
 Data Source: Austar Coal Mine (2017)

0 0.25 0.5 1.0 km  
 1:20 000

**Legend**

- Proposed LWB4-B7 Longwall Panels
- Approved LWA3-A19 and LWB1-B3 Longwall Panels
- Dwelling
- Other Structure

**Water Depth (m)**

- |  |  |
|--|--|
| <span style="background-color: #cccccc; border: 1px solid black; display: inline-block; width: 15px; height: 10px; margin-right: 5px;"></span> Range [0.001 : 0.100] | <span style="background-color: #800000; border: 1px solid black; display: inline-block; width: 15px; height: 10px; margin-right: 5px;"></span> Range [0.900 : 1.100] |
| <span style="background-color: #d3d3d3; border: 1px solid black; display: inline-block; width: 15px; height: 10px; margin-right: 5px;"></span> Range [0.100 : 0.300] | <span style="background-color: #90ee90; border: 1px solid black; display: inline-block; width: 15px; height: 10px; margin-right: 5px;"></span> Range [1.100 : 1.300] |
| <span style="background-color: #f5deb3; border: 1px solid black; display: inline-block; width: 15px; height: 10px; margin-right: 5px;"></span> Range [0.300 : 0.500] | <span style="background-color: #90ee90; border: 1px solid black; display: inline-block; width: 15px; height: 10px; margin-right: 5px;"></span> Range [1.300 : 1.500] |
| <span style="background-color: #ff8c00; border: 1px solid black; display: inline-block; width: 15px; height: 10px; margin-right: 5px;"></span> Range [0.500 : 0.700] | <span style="background-color: #66b3ff; border: 1px solid black; display: inline-block; width: 15px; height: 10px; margin-right: 5px;"></span> Range [1.500 : 1.700] |
| <span style="background-color: #cd5c5c; border: 1px solid black; display: inline-block; width: 15px; height: 10px; margin-right: 5px;"></span> Range [0.700 : 0.900] | <span style="background-color: #0000ff; border: 1px solid black; display: inline-block; width: 15px; height: 10px; margin-right: 5px;"></span> Range [1.700 : 1.900] |
|  | <span style="background-color: #0000ff; border: 1px solid black; display: inline-block; width: 15px; height: 10px; margin-right: 5px;"></span> Range [ $>$ 1.900]    |

FIGURE B2

**5% AEP Storm Event: Maximum Modelled Flood Depths, Predicted Subsidence Approved LWA3-A19 and LWB1-B3, Proposed LWB4-B7**



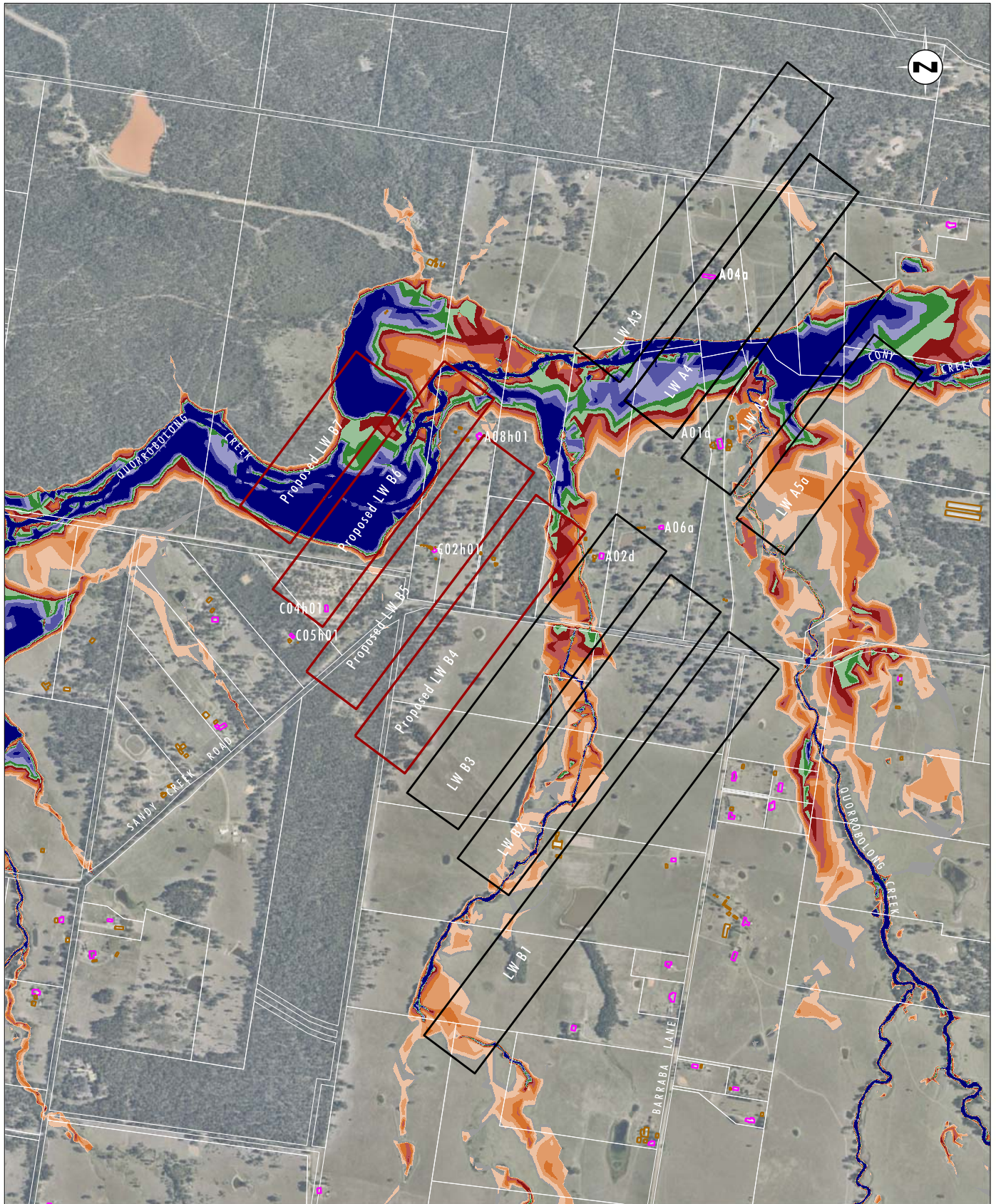


Image Source: Nearmap (2017)  
 Data Source: Austar Coal Mine (2017)

0 0.25 0.5 1.0 km  
 1:20 000

**Legend**

- Proposed LWB4-B7 Longwall Panels
- Approved LWA3-A19 and LWB1-B3 Longwall Panels
- Dwelling
- Other Structure

**Water Depth (m)**

- |  |  |
|--|--|
| <span style="background-color: #cccccc; border: 1px solid black; display: inline-block; width: 15px; height: 10px; margin-right: 5px;"></span> Range [0.001 : 0.100] | <span style="background-color: #008000; border: 1px solid black; display: inline-block; width: 15px; height: 10px; margin-right: 5px;"></span> Range [1.100 : 1.300] |
| <span style="background-color: #a9a9a9; border: 1px solid black; display: inline-block; width: 15px; height: 10px; margin-right: 5px;"></span> Range [0.100 : 0.300] | <span style="background-color: #008000; border: 1px solid black; display: inline-block; width: 15px; height: 10px; margin-right: 5px;"></span> Range [1.300 : 1.500] |
| <span style="background-color: #808080; border: 1px solid black; display: inline-block; width: 15px; height: 10px; margin-right: 5px;"></span> Range [0.300 : 0.500] | <span style="background-color: #4682b4; border: 1px solid black; display: inline-block; width: 15px; height: 10px; margin-right: 5px;"></span> Range [1.500 : 1.700] |
| <span style="background-color: #4682b4; border: 1px solid black; display: inline-block; width: 15px; height: 10px; margin-right: 5px;"></span> Range [0.500 : 0.700] | <span style="background-color: #000080; border: 1px solid black; display: inline-block; width: 15px; height: 10px; margin-right: 5px;"></span> Range [1.700 : 1.900] |
| <span style="background-color: #000080; border: 1px solid black; display: inline-block; width: 15px; height: 10px; margin-right: 5px;"></span> Range [0.700 : 0.900] | <span style="background-color: #000080; border: 1px solid black; display: inline-block; width: 15px; height: 10px; margin-right: 5px;"></span> Range [ $>$ 1.900]    |

**FIGURE B3**

**1% AEP Storm Event: Maximum Modelled Flood Depths, Predicted Subsidence Approved LWA3-A19 and LWB1-B3, Proposed LWB4-B7**



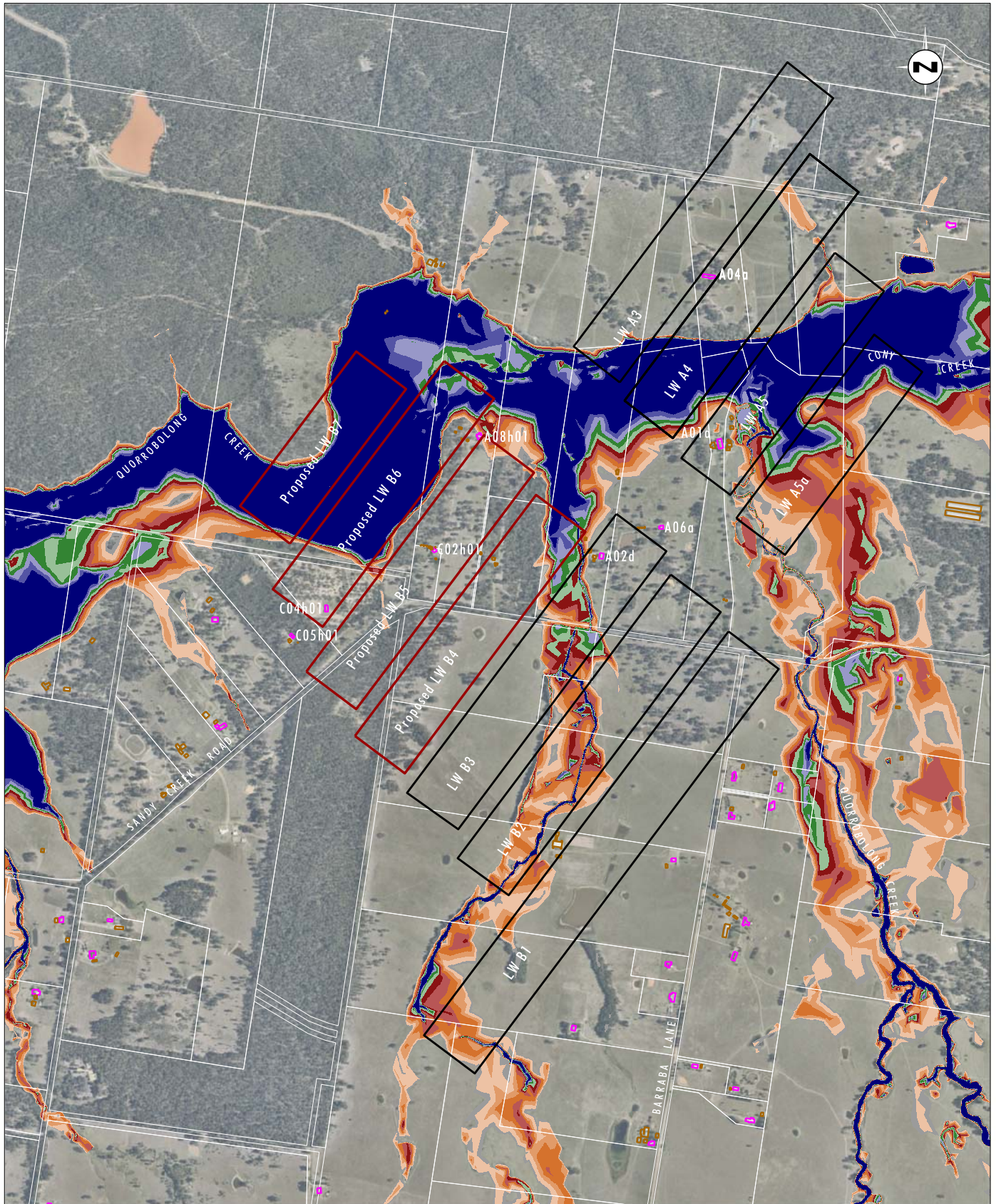


Image Source: Nearmap (2017)  
 Data Source: Austar Coal Mine (2017)

0 0.25 0.5 1.0 km  
 1:20 000

**Legend**

- Proposed LWB4-B7 Longwall Panels
- Approved LWA3-A19 and LWB1-B3 Longwall Panels
- Dwelling
- Other Structure

**Water Depth (m)**

- |   |   |
|---|---|
| <span style="display: inline-block; width: 15px; height: 10px; background-color: #e0e0e0; margin-right: 5px;"></span> Range [0.001 : 0.100] | <span style="display: inline-block; width: 15px; height: 10px; background-color: #800000; margin-right: 5px;"></span> Range [0.900 : 1.100] |
| <span style="display: inline-block; width: 15px; height: 10px; background-color: #c0c0c0; margin-right: 5px;"></span> Range [0.100 : 0.300] | <span style="display: inline-block; width: 15px; height: 10px; background-color: #008000; margin-right: 5px;"></span> Range [1.100 : 1.300] |
| <span style="display: inline-block; width: 15px; height: 10px; background-color: #808080; margin-right: 5px;"></span> Range [0.300 : 0.500] | <span style="display: inline-block; width: 15px; height: 10px; background-color: #008000; margin-right: 5px;"></span> Range [1.300 : 1.500] |
| <span style="display: inline-block; width: 15px; height: 10px; background-color: #404040; margin-right: 5px;"></span> Range [0.500 : 0.700] | <span style="display: inline-block; width: 15px; height: 10px; background-color: #483d8b; margin-right: 5px;"></span> Range [1.500 : 1.700] |
| <span style="display: inline-block; width: 15px; height: 10px; background-color: #202020; margin-right: 5px;"></span> Range [0.700 : 0.900] | <span style="display: inline-block; width: 15px; height: 10px; background-color: #000080; margin-right: 5px;"></span> Range [1.700 : 1.900] |
|   | <span style="display: inline-block; width: 15px; height: 10px; background-color: #000080; margin-right: 5px;"></span> Range [ $>$ 1.900]    |

**FIGURE B4**

**PMF Event: Maximum Modelled Flood Depths, Predicted Subsidence Approved LWA3-A19 and LWB1-B3, Proposed LWB4-B7**



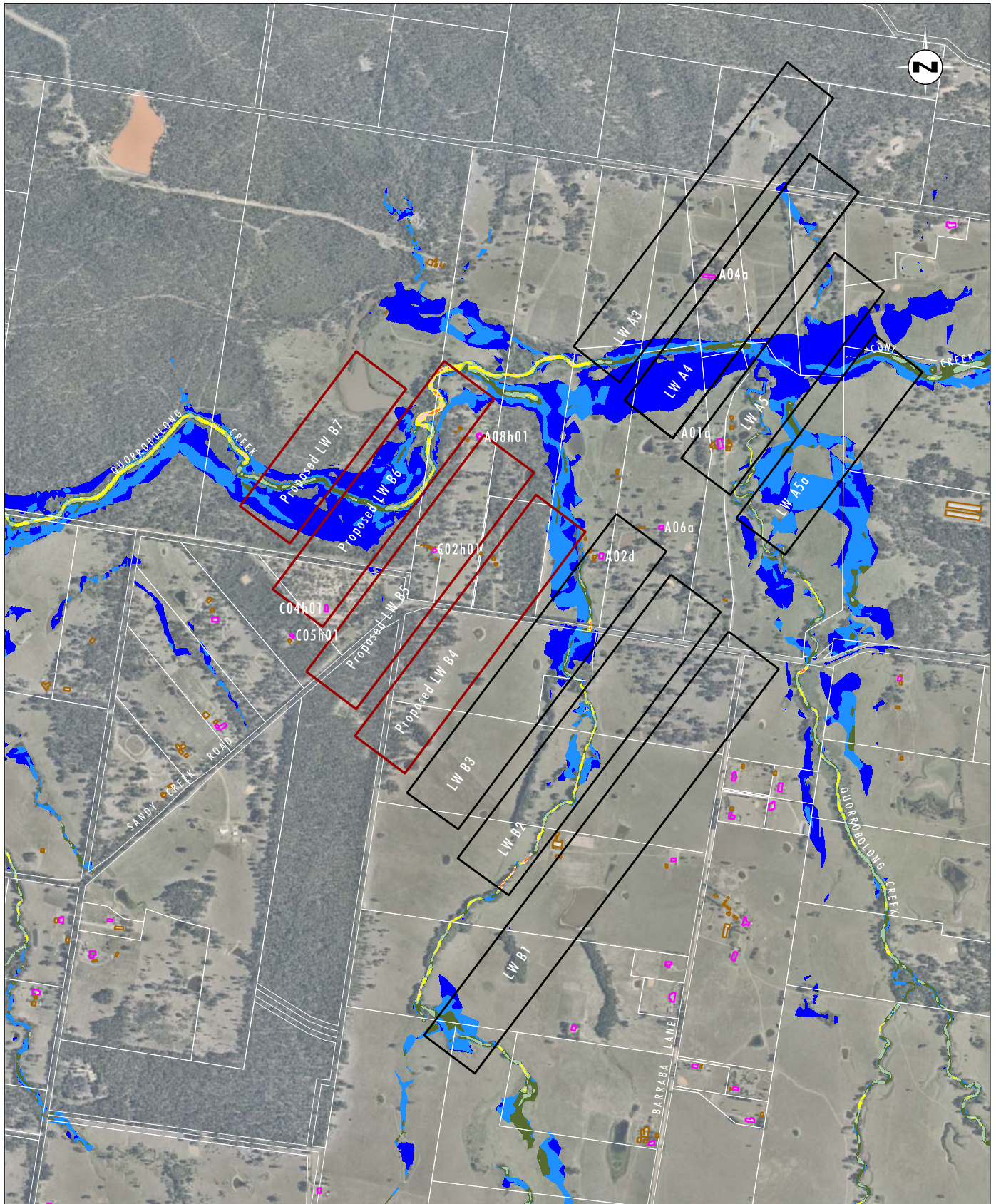


Image Source: Nearmap (2017)  
 Data Source: Austar Coal Mine (2017)

0 0.25 0.5 1.0 km  
 1:20 000

**Legend**

- Proposed LWB4-B7 Longwall Panels
- Approved LWA3-A19 and LWB1-B3 Longwall Panels
- Dwelling
- Other Structure

**Water Velocity (m/s)**

- |   |   |
|---|---|
| <span style="background-color: blue; width: 15px; height: 10px; display: inline-block; margin-right: 5px;"></span> Range [0.100 : 0.250]        | <span style="background-color: orange; width: 15px; height: 10px; display: inline-block; margin-right: 5px;"></span> Range [1.500 : 1.750]  |
| <span style="background-color: lightblue; width: 15px; height: 10px; display: inline-block; margin-right: 5px;"></span> Range [0.250 : 0.500]   | <span style="background-color: red; width: 15px; height: 10px; display: inline-block; margin-right: 5px;"></span> Range [1.750 : 2.000]     |
| <span style="background-color: green; width: 15px; height: 10px; display: inline-block; margin-right: 5px;"></span> Range [0.500 : 0.750]       | <span style="background-color: darkred; width: 15px; height: 10px; display: inline-block; margin-right: 5px;"></span> Range [2.000 : 2.250] |
| <span style="background-color: yellow; width: 15px; height: 10px; display: inline-block; margin-right: 5px;"></span> Range [0.750 : 1.000]      | <span style="background-color: purple; width: 15px; height: 10px; display: inline-block; margin-right: 5px;"></span> Range [2.250 : 3.000]  |
| <span style="background-color: lightyellow; width: 15px; height: 10px; display: inline-block; margin-right: 5px;"></span> Range [1.000 : 1.250] |   |

FIGURE B5

**100% AEP Storm Event: Maximum Modelled Flow Velocities, Predicted Subsidence Approved LWA3-A19 and LWB1-B3, Proposed LWB4-B7**



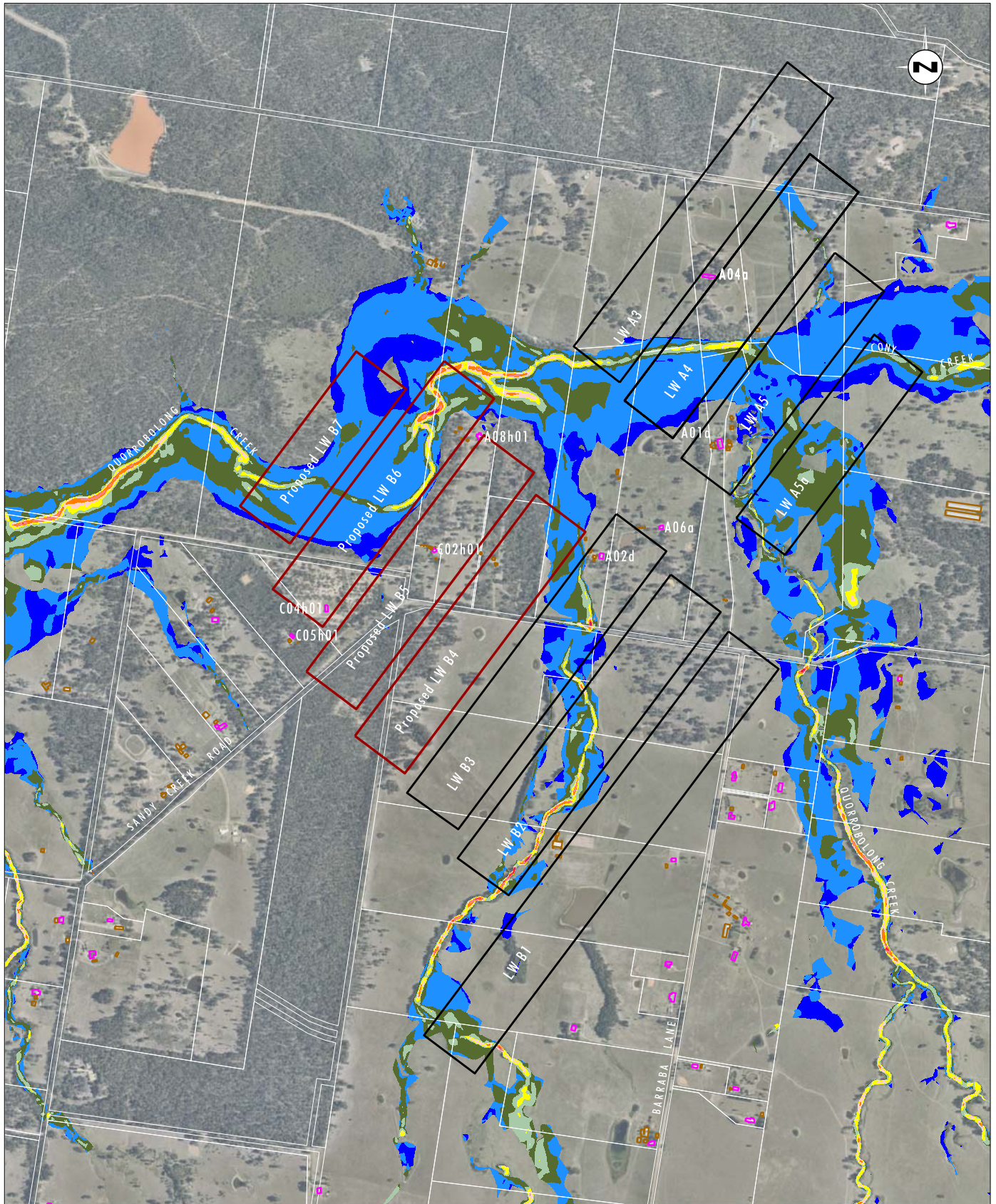


Image Source: Nearmap (2017)  
 Data Source: Austar Coal Mine (2017)

0 0.25 0.5 1.0 km  
 1:20 000

**Legend**

- Proposed LWB4-B7 Longwall Panels
- Approved LWA3-A19 and LWB1-B3 Longwall Panels
- Dwelling
- Other Structure

**Water Velocity (m/s)**

- |  |   |
|--|---|
| <span style="background-color: blue; width: 15px; height: 10px; display: inline-block; margin-right: 5px;"></span> Range [0.100 : 0.250]       | <span style="background-color: orange; width: 15px; height: 10px; display: inline-block; margin-right: 5px;"></span> Range [1.250 : 1.500]  |
| <span style="background-color: lightblue; width: 15px; height: 10px; display: inline-block; margin-right: 5px;"></span> Range [0.250 : 0.500]  | <span style="background-color: red; width: 15px; height: 10px; display: inline-block; margin-right: 5px;"></span> Range [1.500 : 1.750]     |
| <span style="background-color: green; width: 15px; height: 10px; display: inline-block; margin-right: 5px;"></span> Range [0.500 : 0.750]      | <span style="background-color: pink; width: 15px; height: 10px; display: inline-block; margin-right: 5px;"></span> Range [1.750 : 2.000]    |
| <span style="background-color: lightgreen; width: 15px; height: 10px; display: inline-block; margin-right: 5px;"></span> Range [0.750 : 1.000] | <span style="background-color: yellow; width: 15px; height: 10px; display: inline-block; margin-right: 5px;"></span> Range [2.000 : 2.250]  |
| <span style="background-color: yellow; width: 15px; height: 10px; display: inline-block; margin-right: 5px;"></span> Range [1.000 : 1.250]     | <span style="background-color: magenta; width: 15px; height: 10px; display: inline-block; margin-right: 5px;"></span> Range [2.250 : 3.000] |

FIGURE B6

5% AEP Storm Event: Maximum Modelled Flow Velocities, Predicted Subsidence Approved LWA3-A19 and LWB1-B3, Proposed LWB4-B7



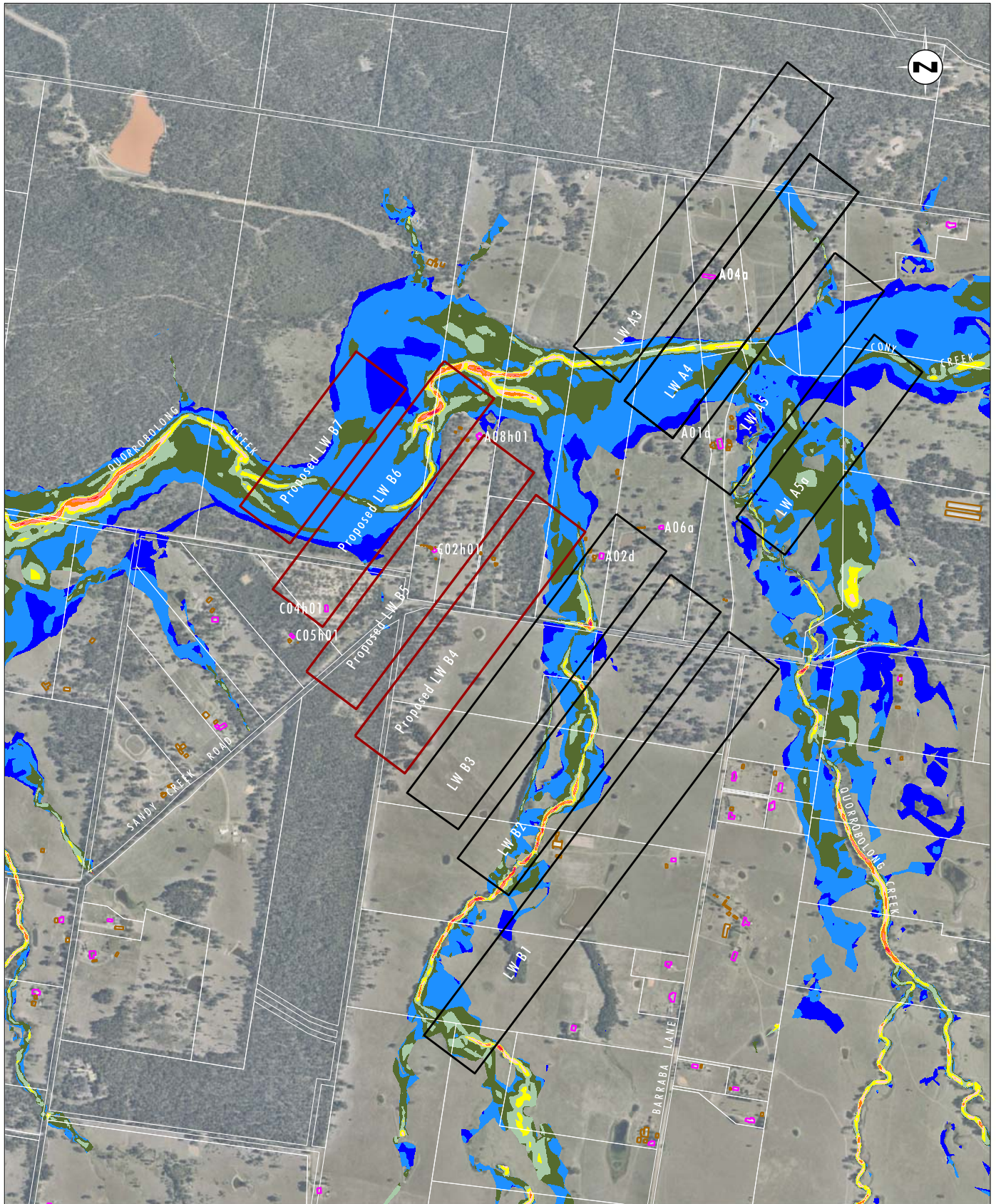


Image Source: Nearmap (2017)  
 Data Source: Austar Coal Mine (2017)

**Legend**

- Proposed LWB4-B7 Longwall Panels
- Approved LWA3-A19 and LWB1-B3 Longwall Panels
- Dwelling
- Other Structure

**Water Velocity (m/s)**

- |  |   |
|--|---|
| <span style="background-color: blue; width: 15px; height: 10px; display: inline-block; margin-right: 5px;"></span> Range [0.100 : 0.250]       | <span style="background-color: orange; width: 15px; height: 10px; display: inline-block; margin-right: 5px;"></span> Range [1.500 : 1.750]      |
| <span style="background-color: lightblue; width: 15px; height: 10px; display: inline-block; margin-right: 5px;"></span> Range [0.250 : 0.500]  | <span style="background-color: lightorange; width: 15px; height: 10px; display: inline-block; margin-right: 5px;"></span> Range [1.750 : 2.000] |
| <span style="background-color: green; width: 15px; height: 10px; display: inline-block; margin-right: 5px;"></span> Range [0.500 : 0.750]      | <span style="background-color: red; width: 15px; height: 10px; display: inline-block; margin-right: 5px;"></span> Range [2.000 : 2.250]         |
| <span style="background-color: lightgreen; width: 15px; height: 10px; display: inline-block; margin-right: 5px;"></span> Range [0.750 : 1.000] | <span style="background-color: purple; width: 15px; height: 10px; display: inline-block; margin-right: 5px;"></span> Range [2.250 : 3.000]      |
| <span style="background-color: yellow; width: 15px; height: 10px; display: inline-block; margin-right: 5px;"></span> Range [1.000 : 1.250]     |   |

**FIGURE B7**

**1% AEP Storm Event: Maximum Modelled Flow Velocities, Predicted Subsidence Approved LWA3-A19 and LWB1-B3, Proposed LWB4-B7**



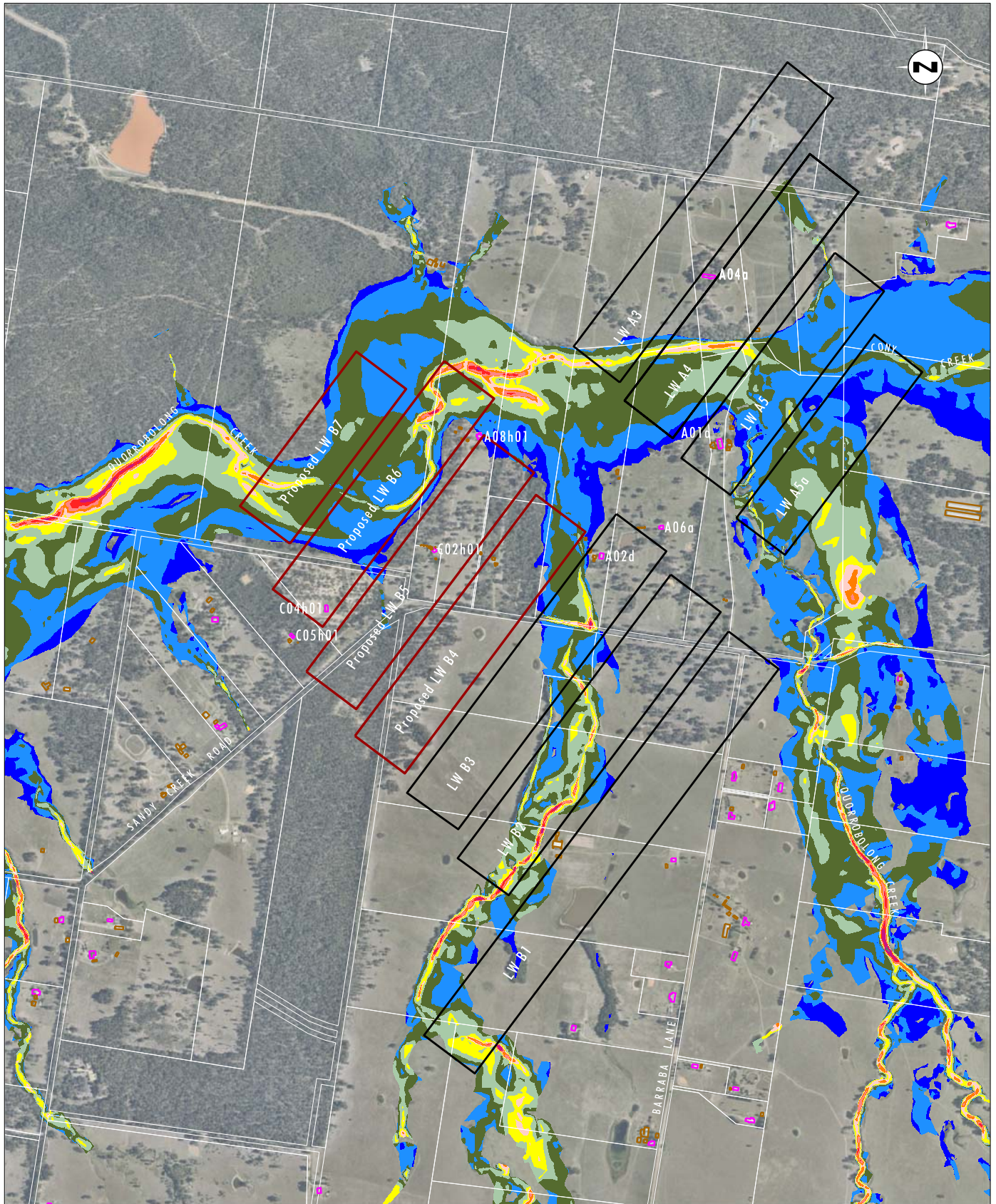


Image Source: Nearmap (2017)  
 Data Source: Austar Coal Mine (2017)

0 0.25 0.5 1.0 km  
 1:20 000

**Legend**

- Proposed LWB4-B7 Longwall Panels
- Approved LWA3-A19 and LWB1-B3 Longwall Panels
- Dwelling
- Other Structure

**Water Velocity (m/s)**

- |  |   |
|--|---|
| <span style="background-color: blue; width: 15px; height: 10px; display: inline-block; margin-right: 5px;"></span> Range [0.100 : 0.250]       | <span style="background-color: orange; width: 15px; height: 10px; display: inline-block; margin-right: 5px;"></span> Range [1.250 : 1.500]  |
| <span style="background-color: lightblue; width: 15px; height: 10px; display: inline-block; margin-right: 5px;"></span> Range [0.250 : 0.500]  | <span style="background-color: red; width: 15px; height: 10px; display: inline-block; margin-right: 5px;"></span> Range [1.500 : 1.750]     |
| <span style="background-color: green; width: 15px; height: 10px; display: inline-block; margin-right: 5px;"></span> Range [0.500 : 0.750]      | <span style="background-color: pink; width: 15px; height: 10px; display: inline-block; margin-right: 5px;"></span> Range [1.750 : 2.000]    |
| <span style="background-color: lightgreen; width: 15px; height: 10px; display: inline-block; margin-right: 5px;"></span> Range [0.750 : 1.000] | <span style="background-color: darkred; width: 15px; height: 10px; display: inline-block; margin-right: 5px;"></span> Range [2.000 : 2.250] |
| <span style="background-color: yellow; width: 15px; height: 10px; display: inline-block; margin-right: 5px;"></span> Range [1.000 : 1.250]     | <span style="background-color: purple; width: 15px; height: 10px; display: inline-block; margin-right: 5px;"></span> Range [2.250 : 3.000]  |

FIGURE B8

PMF Event: Maximum Modelled Flow Velocities, Predicted Subsidence Approved LWA3-A19 and LWB1-B3, Proposed LWB4-B7



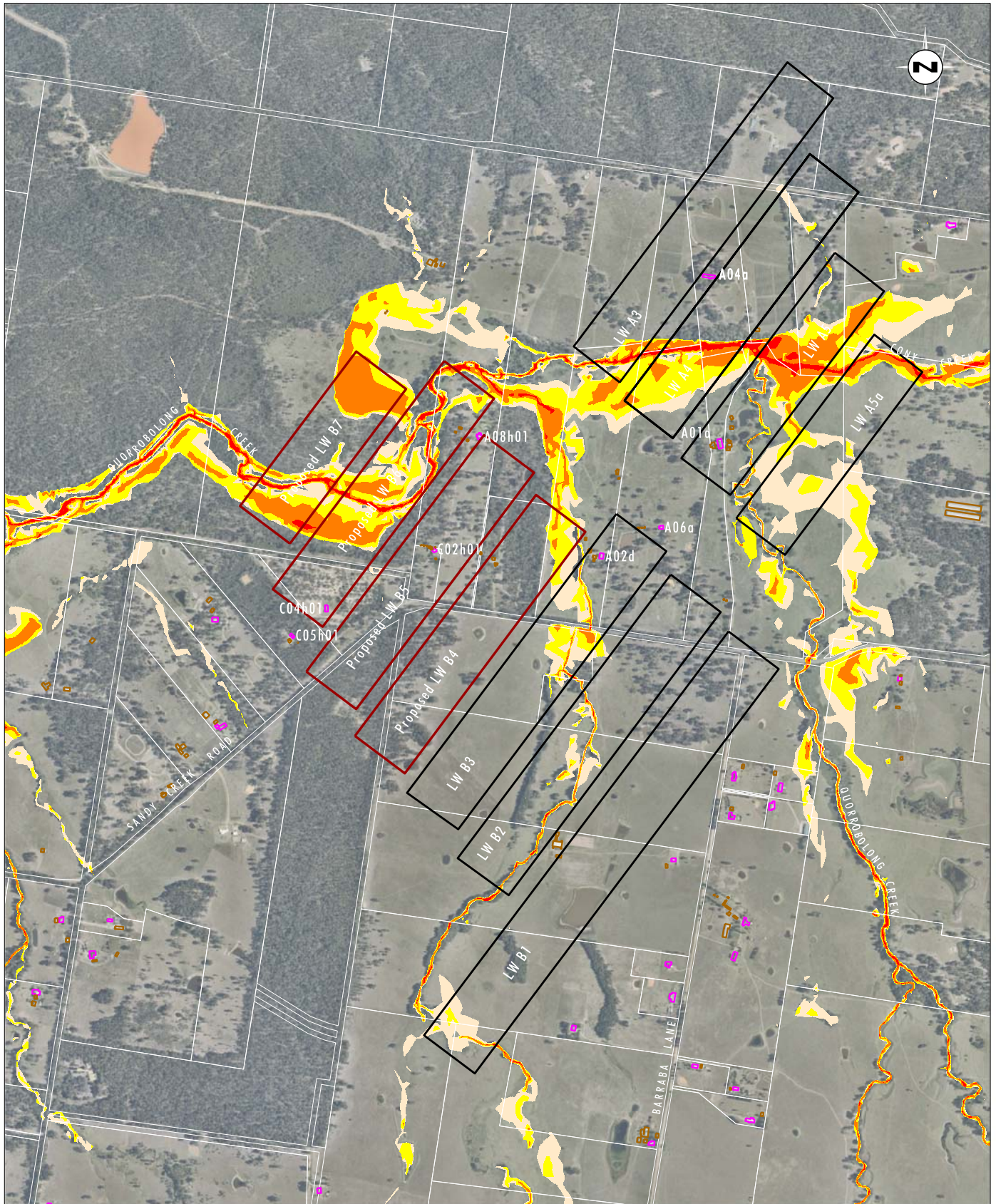


Image Source: Nearmap (2017)  
 Data Source: Austar Coal Mine (2017)

0 0.25 0.5 1.0 km  
 1:20 000

**Legend**

- Proposed LWB4-B7 Longwall Panels
- Approved LWA3-A19 and LWB1-B3 Longwall Panels
- Dwelling
- Other Structure

**Hazard Category**

- Low Hazard - Unclassified hazard
- Low Hazard - Vehicles unstable
- High Hazard - Wading unsafe
- High Hazard - Damage to light structures

FIGURE B9

100% AEP Storm Event: Maximum Modelled Flood Hazard, Predicted Subsidence Approved LWA3-A19 and LWB1-B3, Proposed LWB4-B7



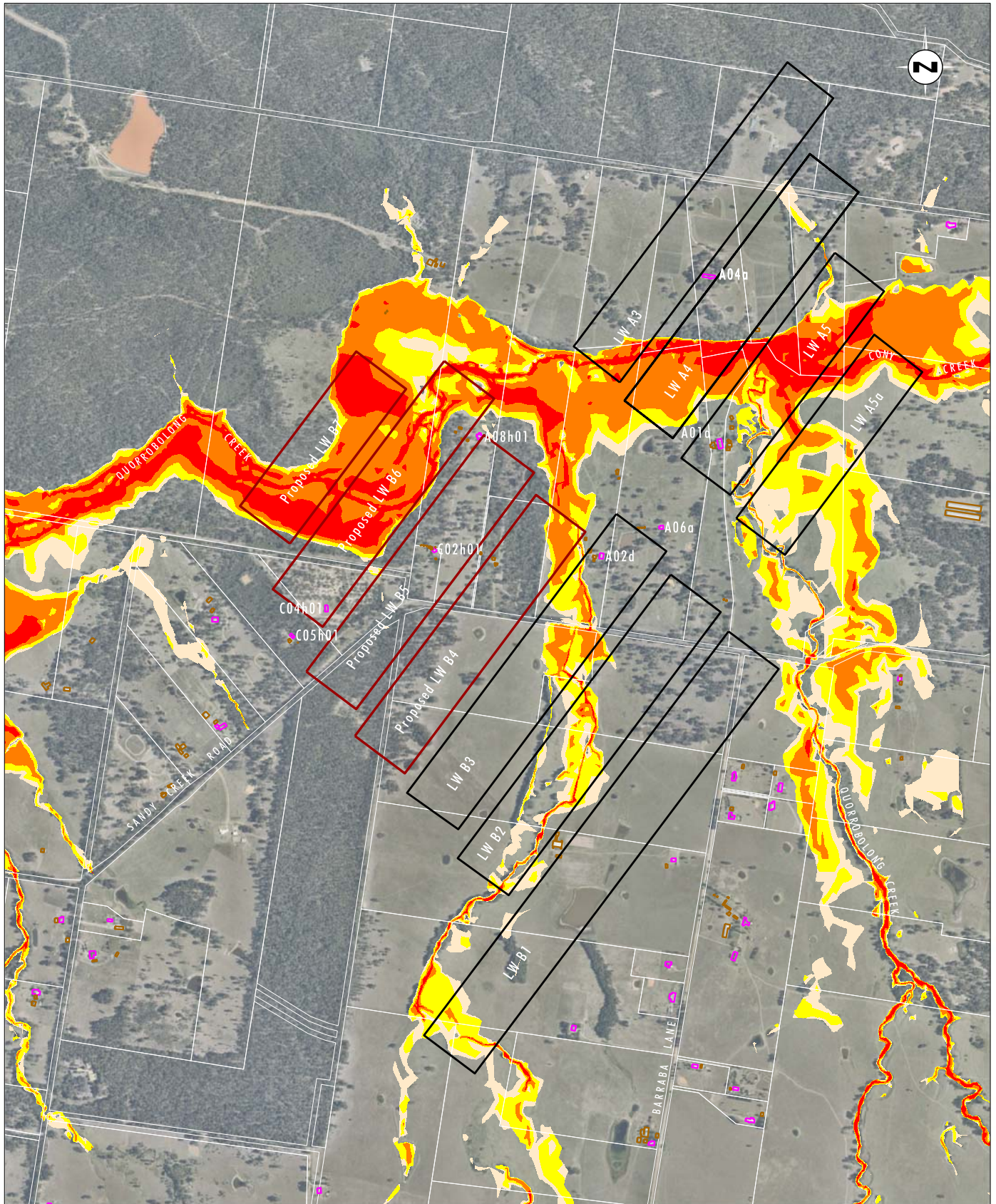


Image Source: Nearmap (2017)  
 Data Source: Austar Coal Mine (2017)

0 0.25 0.5 1.0 km  
 1:20 000

**Legend**

- Proposed LWB4-B7 Longwall Panels
- Approved LWA3-A19 and LWB1-B3 Longwall Panels
- Dwelling
- Other Structure

**Hazard Category**

- Low Hazard - Unclassified hazard
- Low Hazard - Vehicles unstable
- High Hazard - Wading unsafe
- High Hazard - Damage to light structures

**FIGURE B10**

**5% AEP Storm Event: Maximum Modelled Flood Hazard, Predicted Subsidence Approved LWA3-A19 and LWB1-B3, Proposed LWB4-B7**



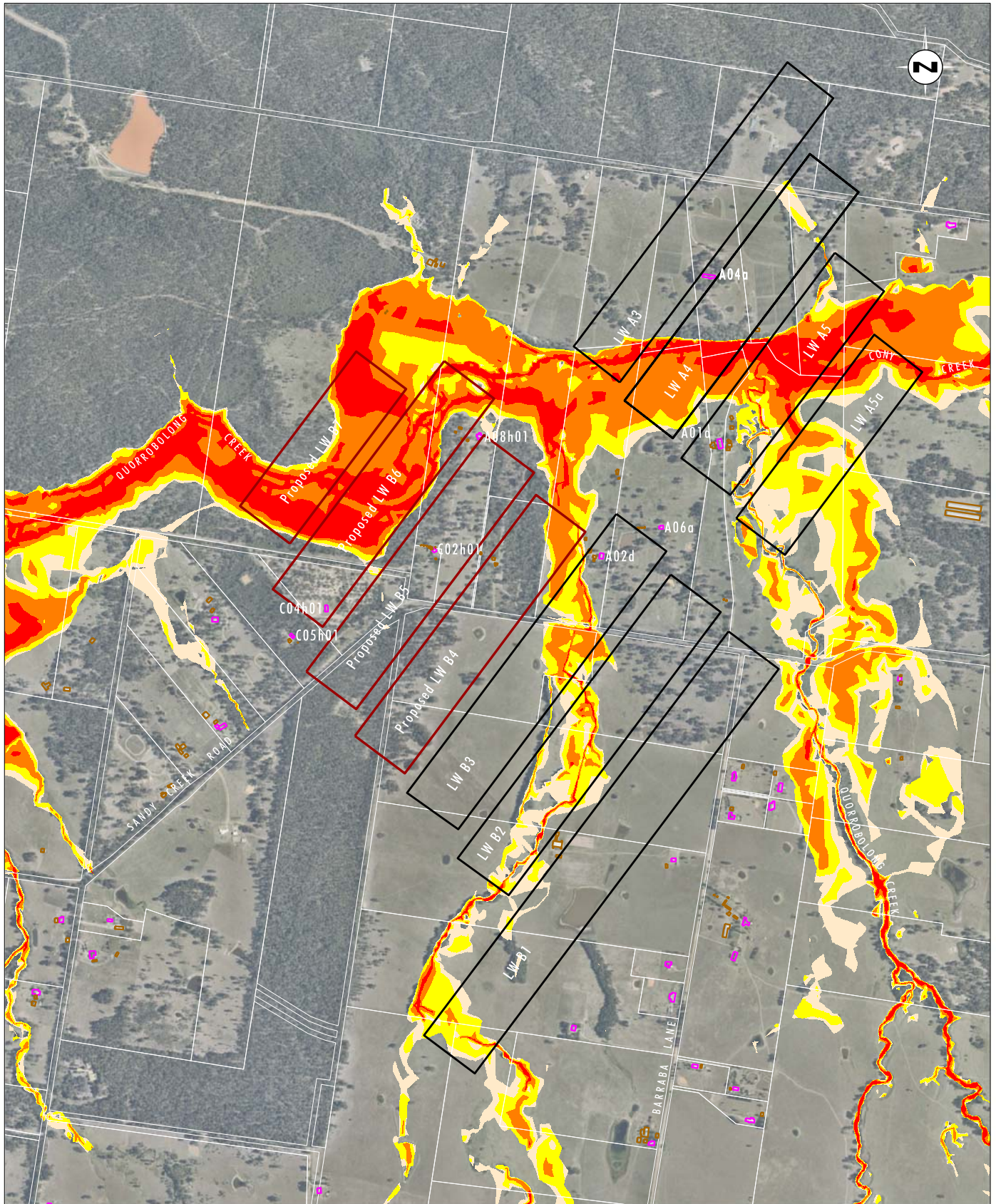


Image Source: Nearmap (2017)  
 Data Source: Austar Coal Mine (2017)

0 0.25 0.5 1.0 km  
 1:20 000

**Legend**

- Proposed LWB4-B7 Longwall Panels
- Approved LWA3-A19 and LWB1-B3 Longwall Panels
- Dwelling
- Other Structure

**Hazard Category**

- Low Hazard - Unclassified hazard
- Low Hazard - Vehicles unstable
- High Hazard - Wading unsafe
- High Hazard - Damage to light structures

FIGURE B11

1% AEP Storm Event: Maximum Modelled Flood Hazard, Predicted Subsidence Approved LWA3-A19 and LWB1-B3, Proposed LWB4-B7



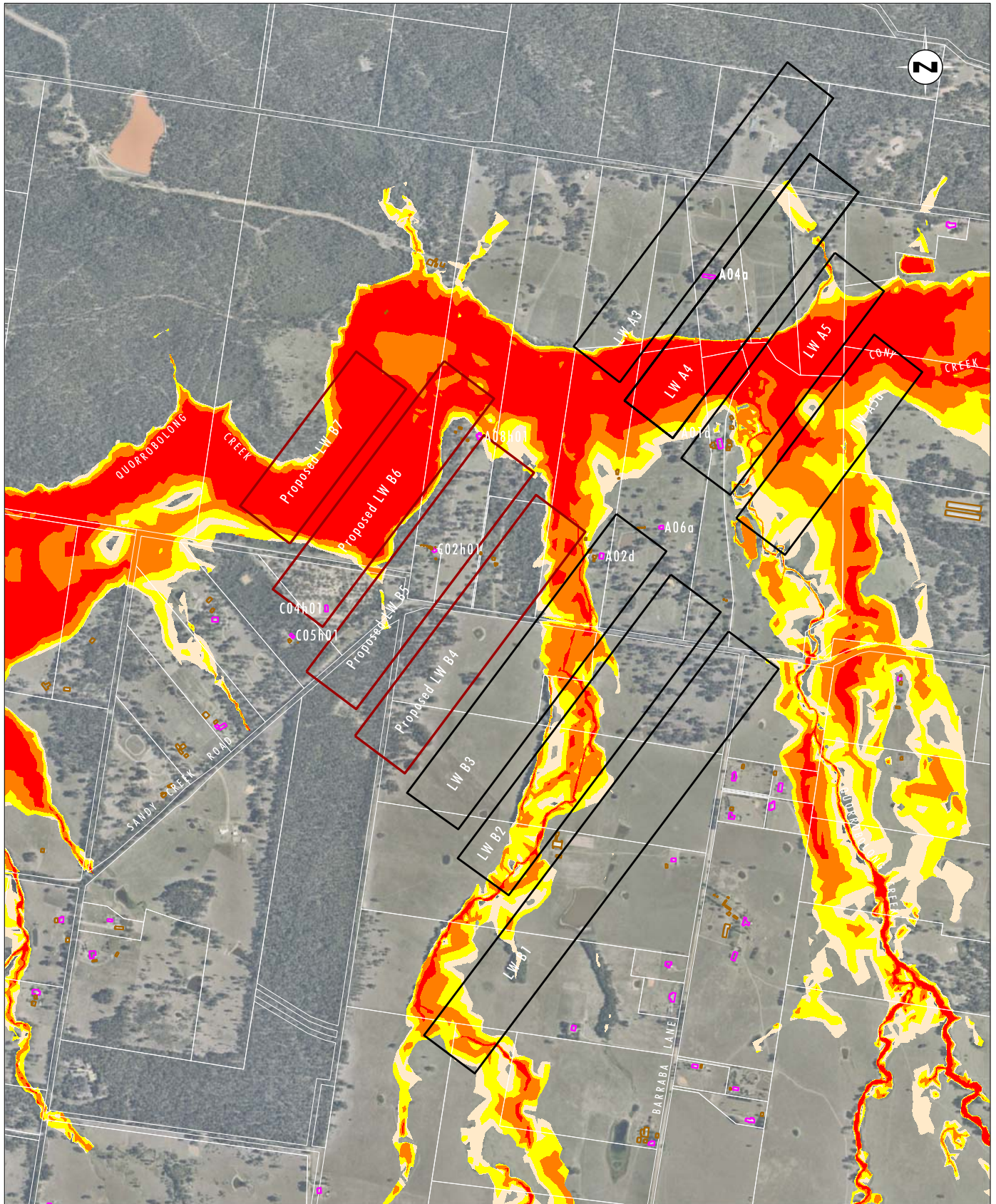


Image Source: Nearmap (2017)  
 Data Source: Austar Coal Mine (2017)

0 0.25 0.5 1.0 km  
 1:20 000

**Legend**

- Proposed LWB4-B7 Longwall Panels
- Approved LWA3-A19 and LWB1-B3 Longwall Panels
- Dwelling
- Other Structure

**Hazard Category**

- Low Hazard - Unclassified hazard
- Low Hazard - Vehicles unstable
- High Hazard - Wading unsafe
- High Hazard - Damage to light structures

FIGURE B12

PMF Event: Maximum Modelled Flood Hazard, Predicted Subsidence Approved LWA3-A19 and LWB1-B3, Proposed LWB4-B7



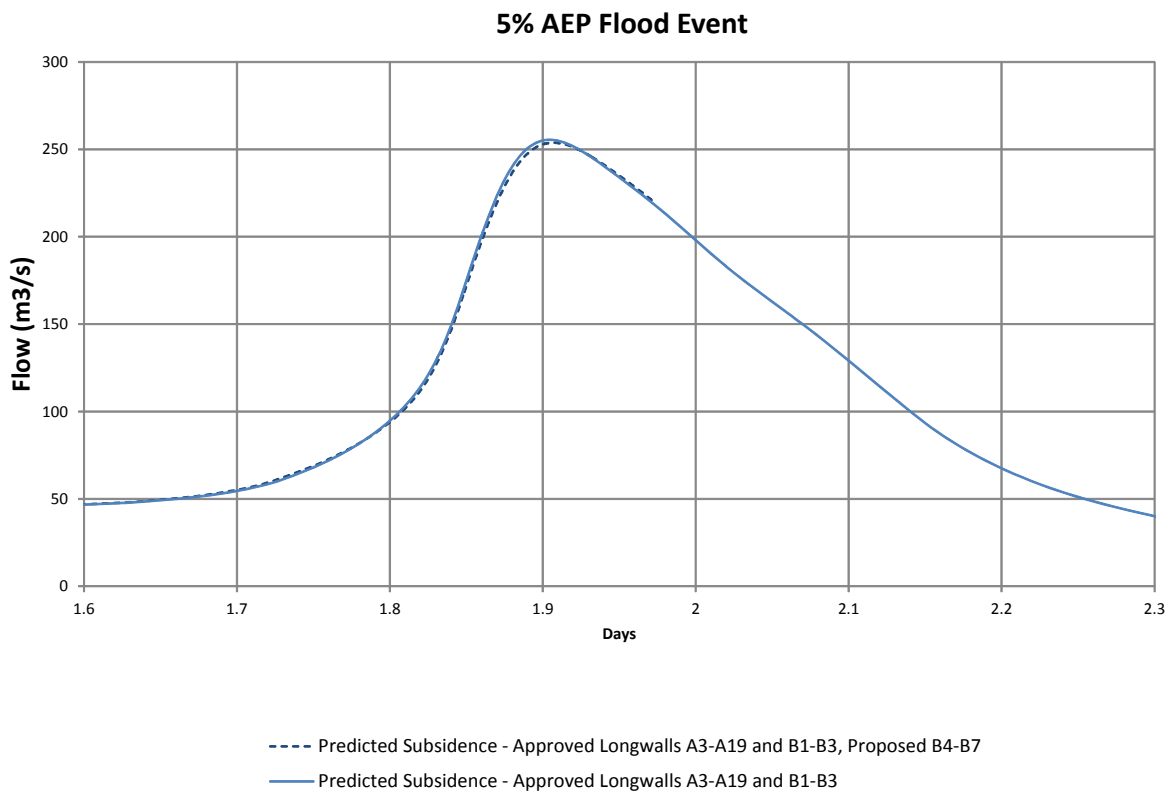
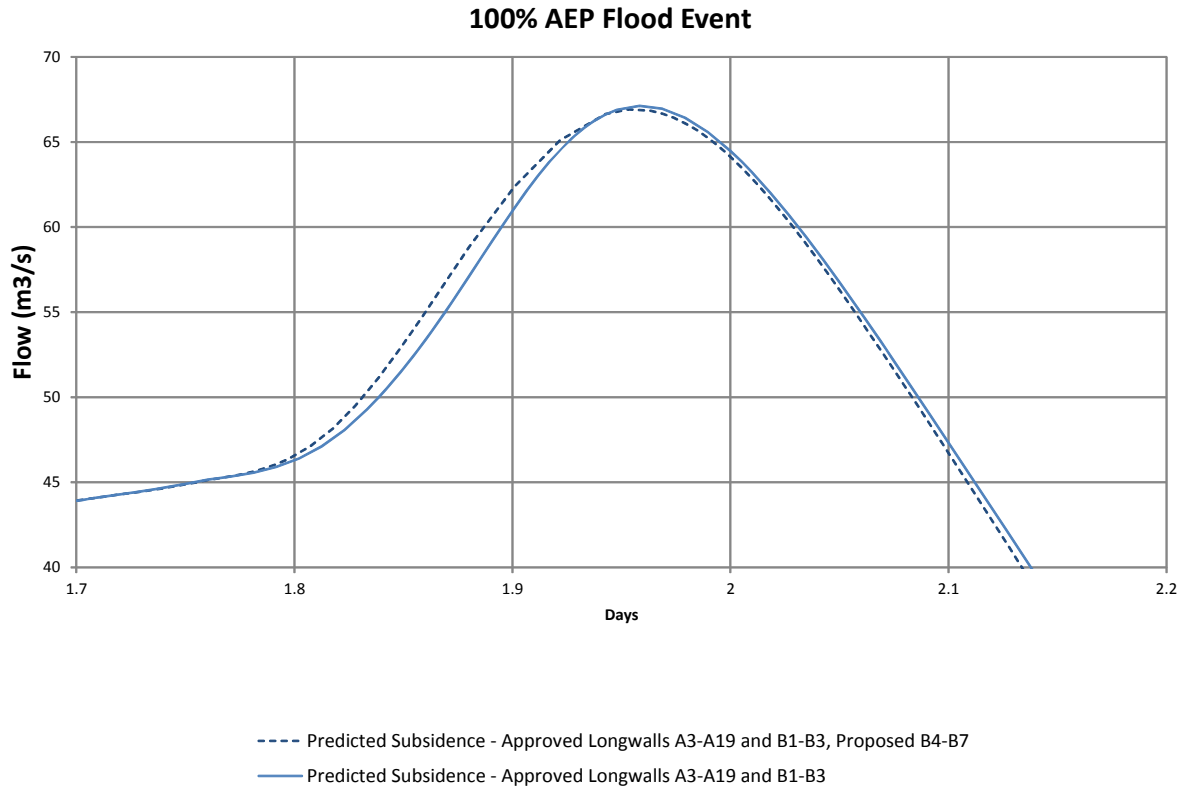
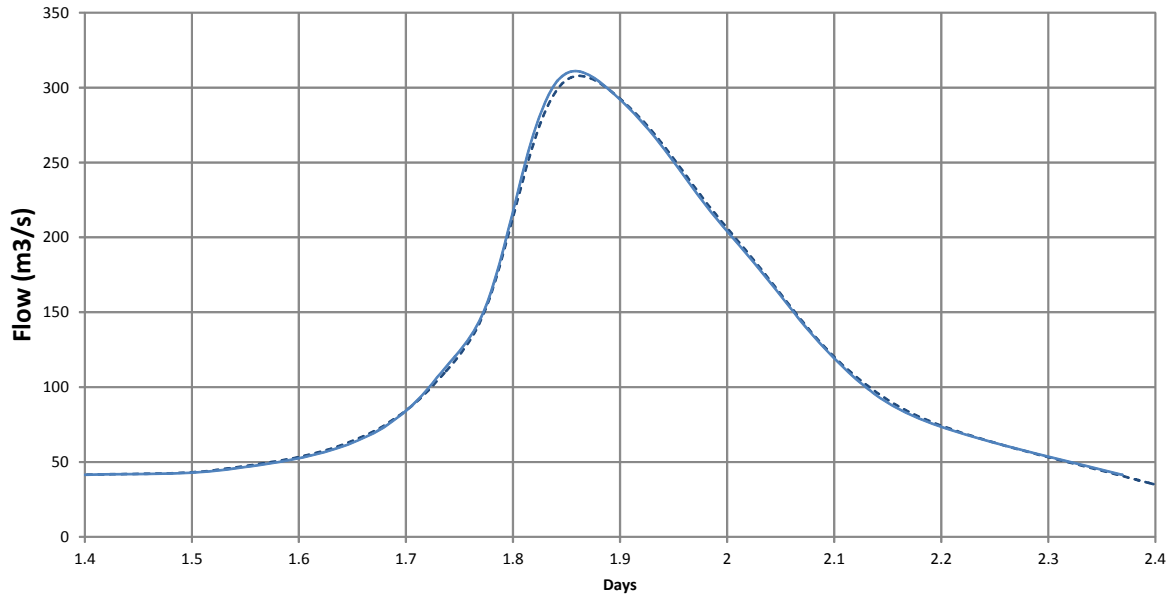


FIGURE B13

Predicted Flood Hydrographs 100% AEP and 5% AEP Storm Events, Quorrobolong Creek Downstream of Proposed LWB4-B7 Modification Area

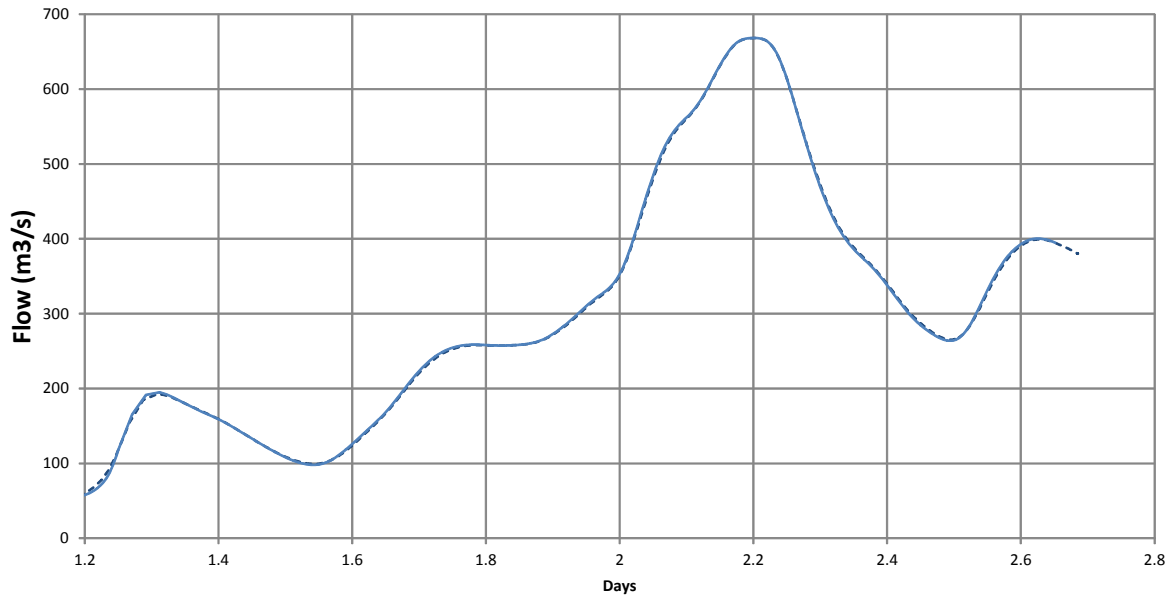


### 1% AEP Storm Event



- - - Predicted Subsidence - Approved Longwalls A3-A19 and B1-B3, Proposed B4-B7  
 — Predicted Subsidence - Approved Longwalls A3-A19 and B1-B3

### PMF Event



- - - Predicted Subsidence - Approved Longwalls A3-A19 and B1-B3, Proposed B4-B7  
 — Predicted Subsidence - Approved Longwalls A3-A19 and B1-B3

FIGURE B14

Predicted Flood Hydrographs 1% AEP and PMF  
 Storm Events, Quorrobolong Creek Downstream of  
 Proposed LWB4-B7 Modification Area





Image Source: Nearmap (2017)  
 Data Source: Austar Coal Mine (2017)

0 0.25 0.5 1.0 km  
 1:20 000

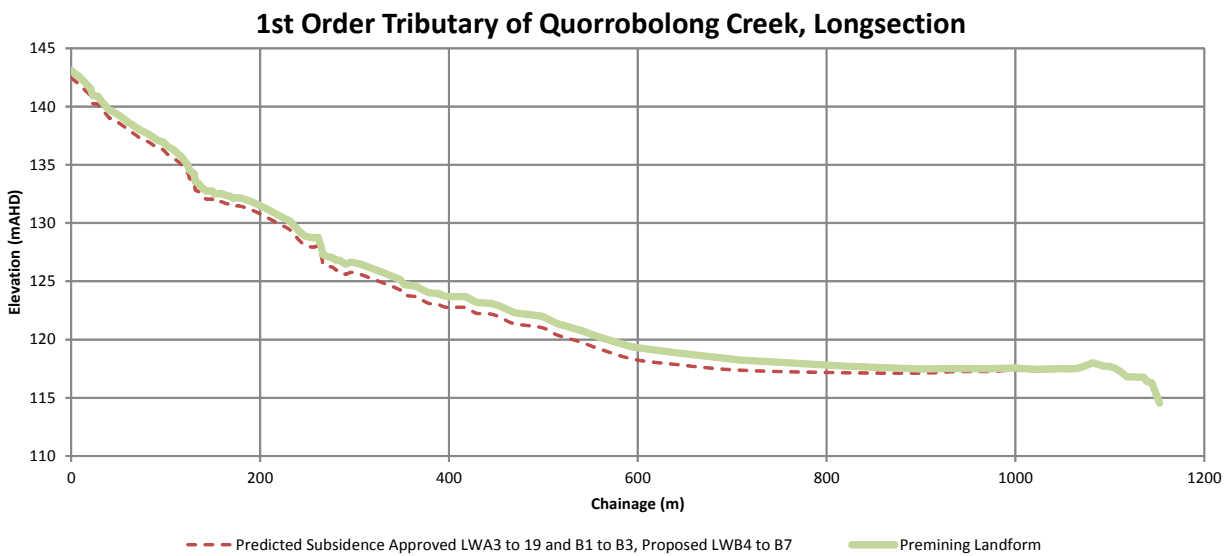
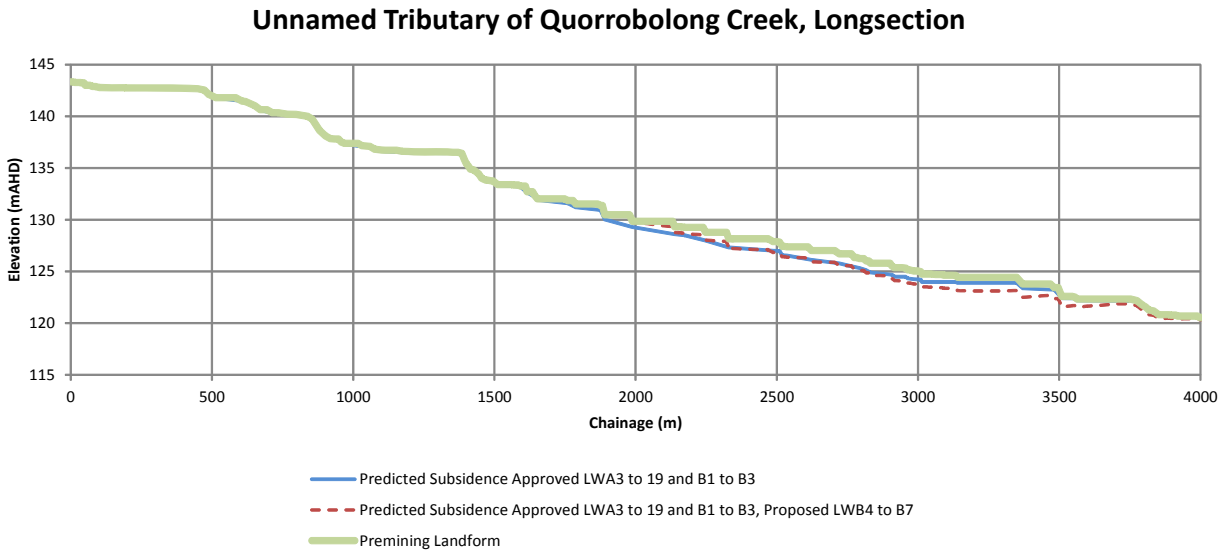
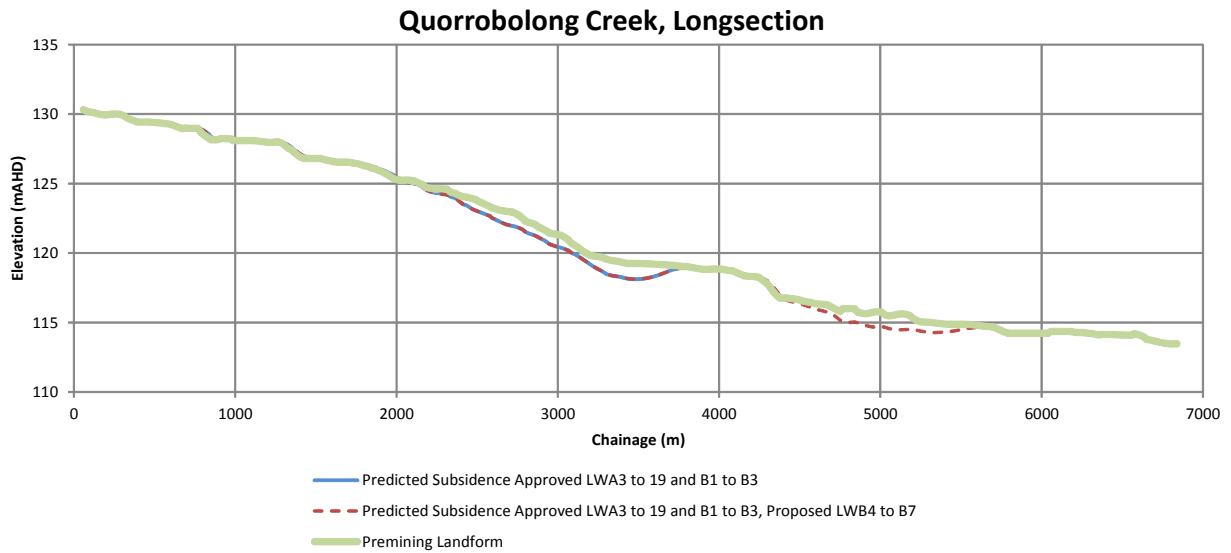
**Legend**

- Proposed LWB4-B7 Longwall Panels
- Approved LWA3-A19 and LWB1-B3 Longwall Panels
- Dwelling
- Other Structure
- Quorrobolong Creek
- 1st Order Tributary
- Unnamed Tributary of Quorrobolong Creek

**FIGURE B15**

**Quorrobolong Creek and Unnamed Tributary of Quorrobolong Creek, Long Sections Plan View**





**FIGURE B16**  
**Quorrobolong Creek, Unnamed Tributary**  
**and 1st Order Tributary of Quorrobolong Creek Profiles**