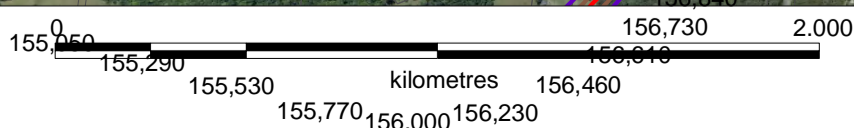
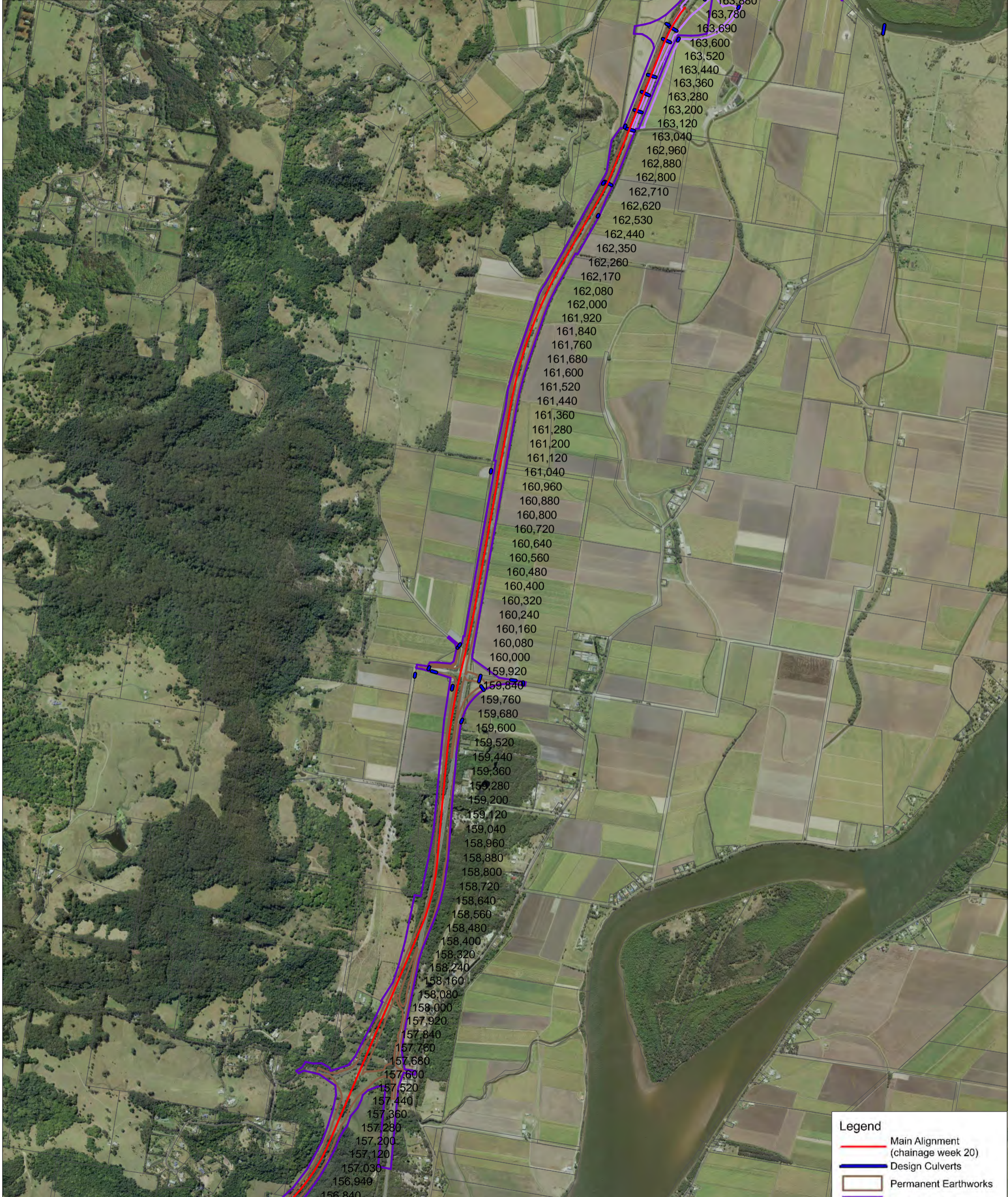


Appendix E

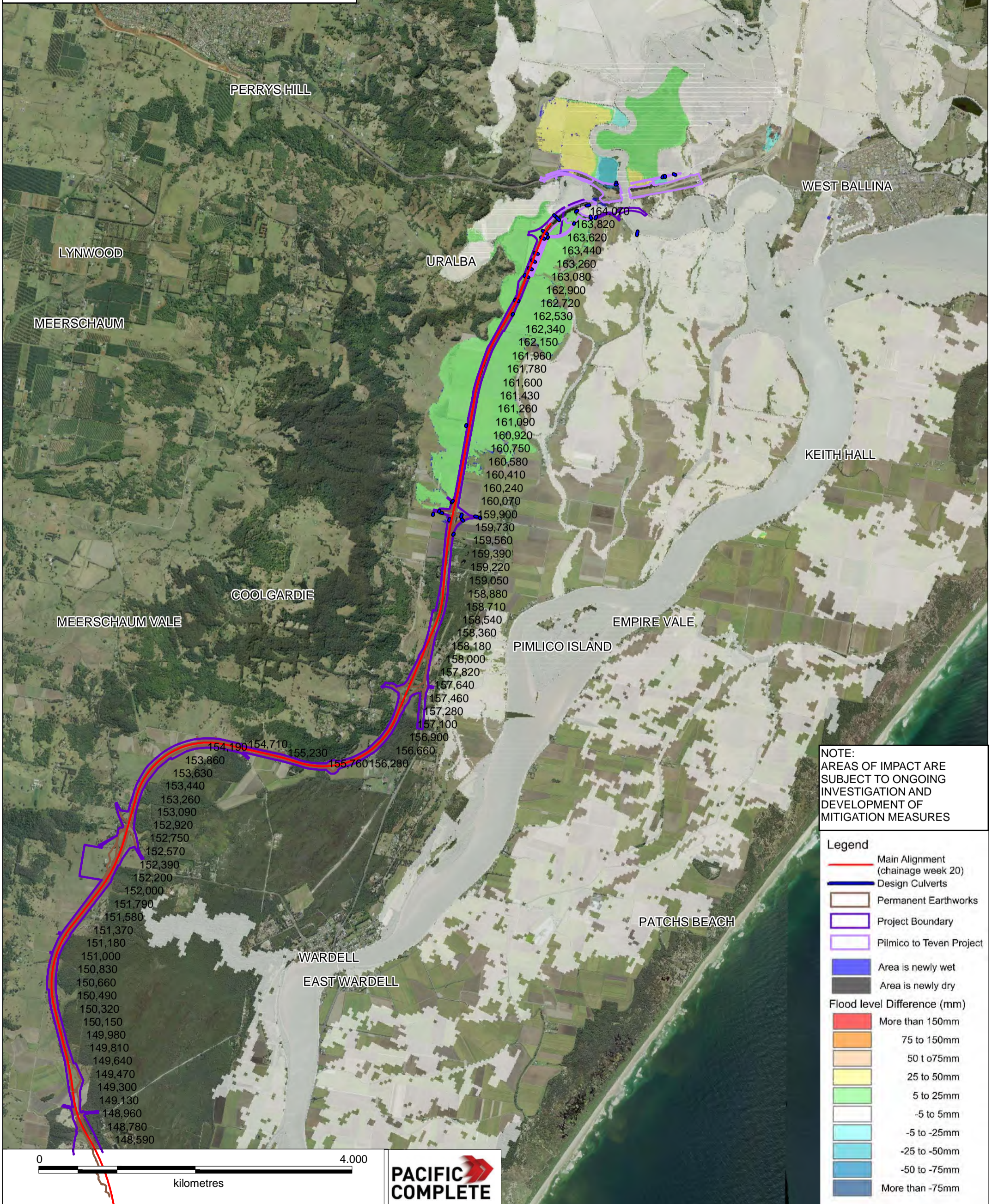
Future conditions flood maps for Lower Richmond River regional floodplain – composite results

**Lower Richmond River Regional Model
Proposed Infrastructure**
 Map ID: E001
 Revision: B
 Portion/Section: D/11
 Design Case: PC_LRIC_10m_dd057_g010
 Model Name: Lower Richmond River
 Modellers: Pacific Complete
 Stage: Substantial Detailed Design
 Date: 21/04/2017



- Legend**
- Main Alignment (chainage week 20)
 - Design Culverts
 - Permanent Earthworks
 - Project Boundary
 - Property Boundaries
 - Pilmico to teven Project

**Lower Richmond River Regional Model
Flood Level Difference**
 Map ID: E002
 Revision: B
 Portion/Section: D/Overview
 Design Case: PC_LRIC_10m_dd057_Q005AB_g010
 Existing Case: PC_LRIC_10m_E18_Q005AB_g010
 Event: 5 year 72hrs (Composite Result)
 Model Name: Lower Richmond River
 Modellers: Pacific Complete
 Stage: Substantial Detailed Design
 Date: 21/04/2017



NOTE:
 AREAS OF IMPACT ARE
 SUBJECT TO ONGOING
 INVESTIGATION AND
 DEVELOPMENT OF
 MITIGATION MEASURES

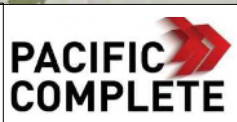
Legend

- Main Alignment (chainage week 20)
- Design Culverts
- Permanent Earthworks
- Project Boundary
- Pimlico to Teven Project
- Area is newly wet
- Area is newly dry

Flood level Difference (mm)

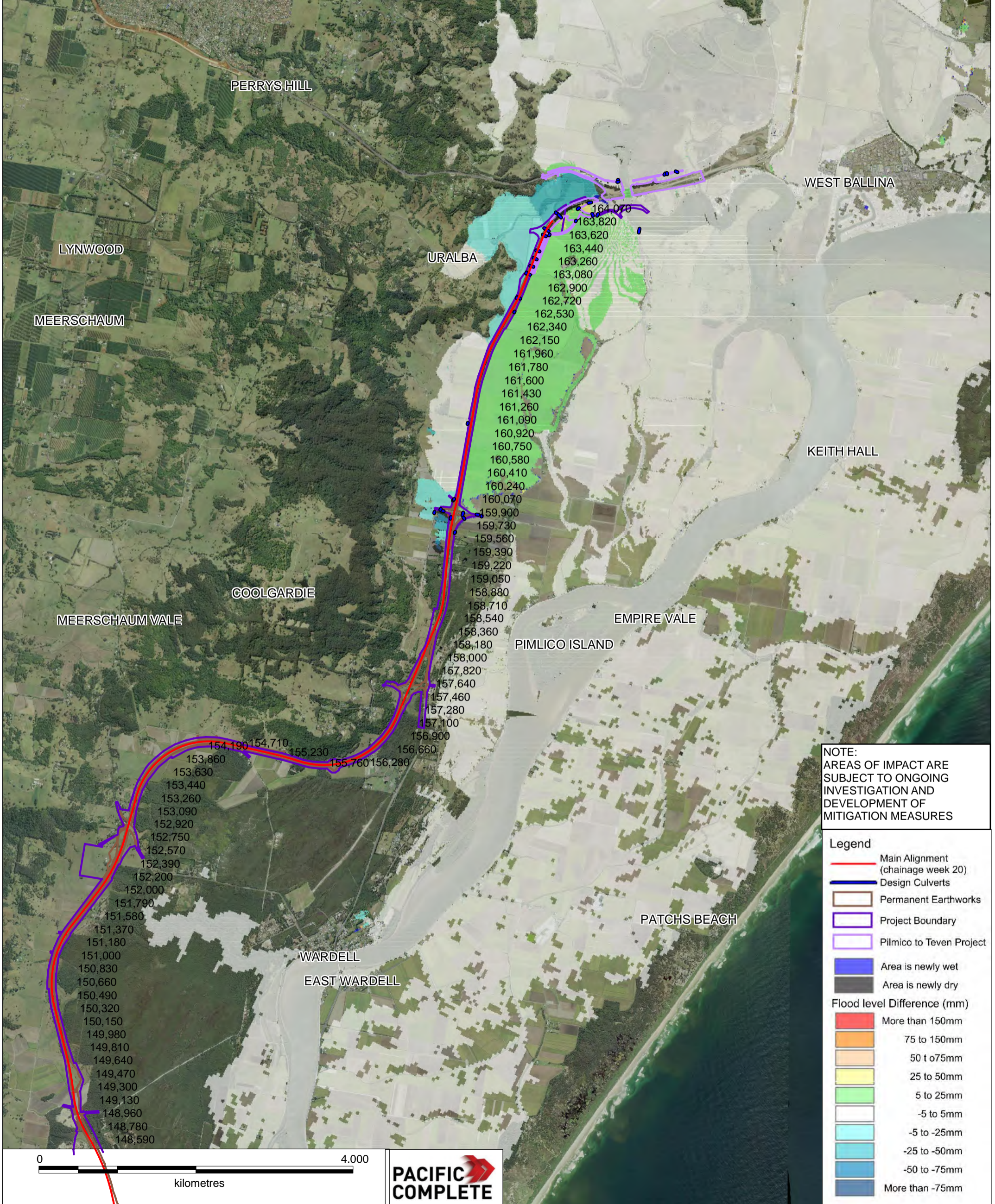
- More than 150mm
- 75 to 150mm
- 50 to 75mm
- 25 to 50mm
- 5 to 25mm
- 5 to 5mm
- 5 to -25mm
- 25 to -50mm
- 50 to -75mm
- More than -75mm

0 4.000
 kilometres



**Lower Richmond River Regional Model
Flood Level Difference**

Map ID: E003
 Revision: B
 Portion/Section: D/Overview
 Design Case: PC_LRIC_10m_dd057_Q020AB_g010
 Existing Case: PC_LRIC_10m_E18_Q020AB_g010
 Event: 20 year 72hrs (Composite Result)
 Model Name: Lower Richmond River
 Modellers: Pacific Complete
 Stage: Substantial Detailed Design
 Date: 21/04/2017



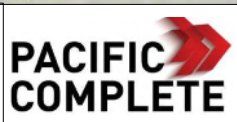
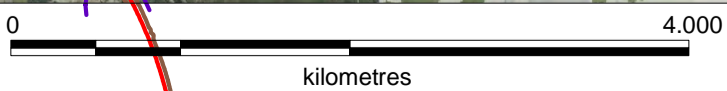
NOTE:
 AREAS OF IMPACT ARE
 SUBJECT TO ONGOING
 INVESTIGATION AND
 DEVELOPMENT OF
 MITIGATION MEASURES

Legend

- Main Alignment (chainage week 20)
- Design Culverts
- Permanent Earthworks
- Project Boundary
- Pimlico to Teven Project
- Area is newly wet
- Area is newly dry

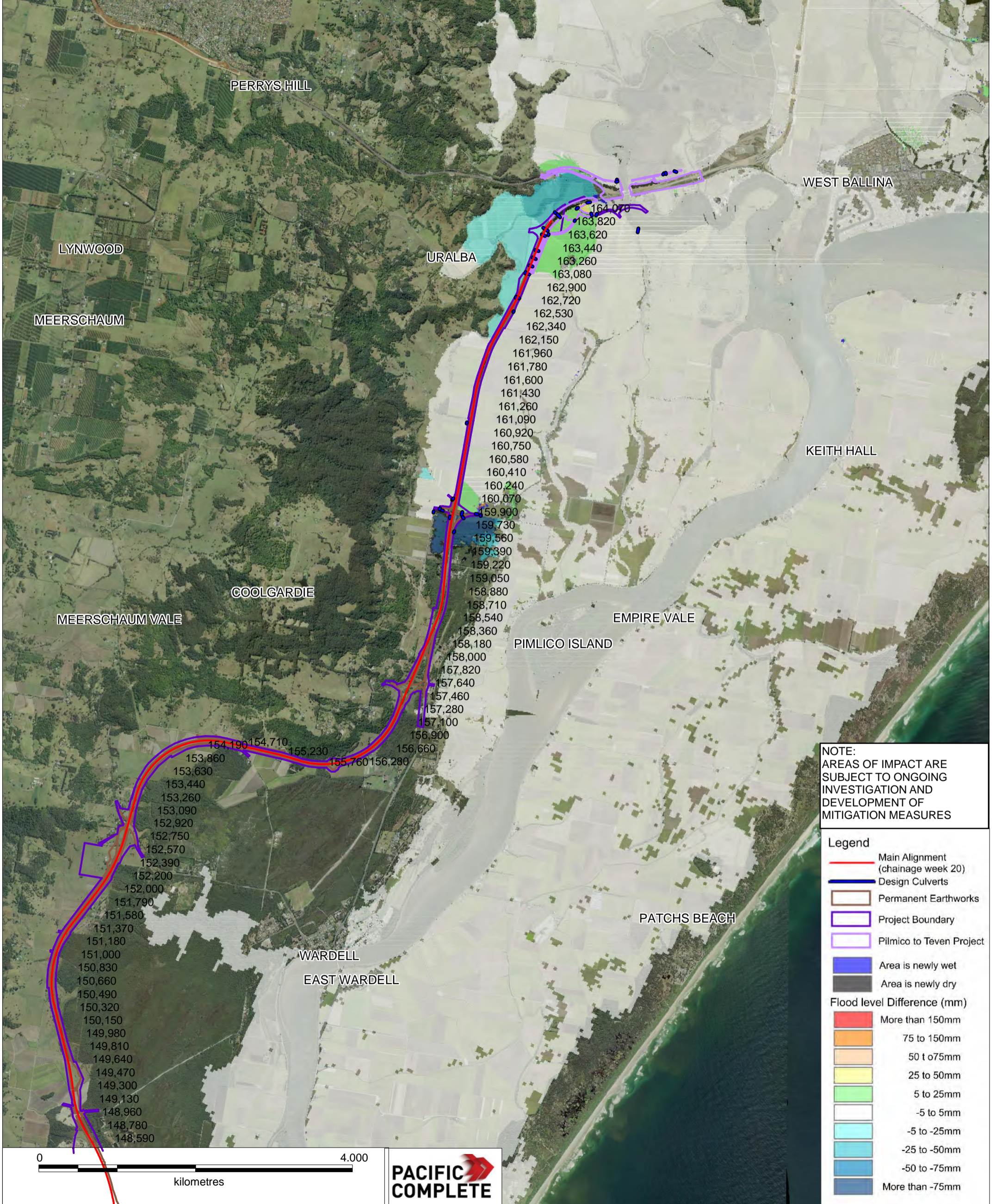
Flood level Difference (mm)

- More than 150mm
- 75 to 150mm
- 50 to 75mm
- 25 to 50mm
- 5 to 25mm
- 5 to 5mm
- 5 to -25mm
- 25 to -50mm
- 50 to -75mm
- More than -75mm



**Lower Richmond River Regional Model
Flood Level Difference**

Map ID: E004
 Revision: B
 Portion/Section: D/Overview
 Design Case: PC_LRIC_10m_dd057_Q050AB_g010
 Existing Case: PC_LRIC_10m_E18_Q050AB_g010
 Event: 50 year 72hrs (Composite Result)
 Model Name: Lower Richmond River
 Modellers: Pacific Complete
 Stage: Substantial Detailed Design
 Date: 21/04/2017



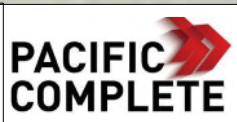
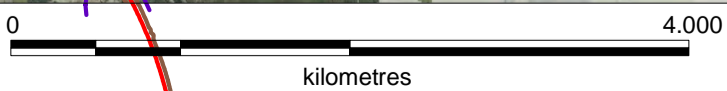
NOTE:
 AREAS OF IMPACT ARE
 SUBJECT TO ONGOING
 INVESTIGATION AND
 DEVELOPMENT OF
 MITIGATION MEASURES

Legend

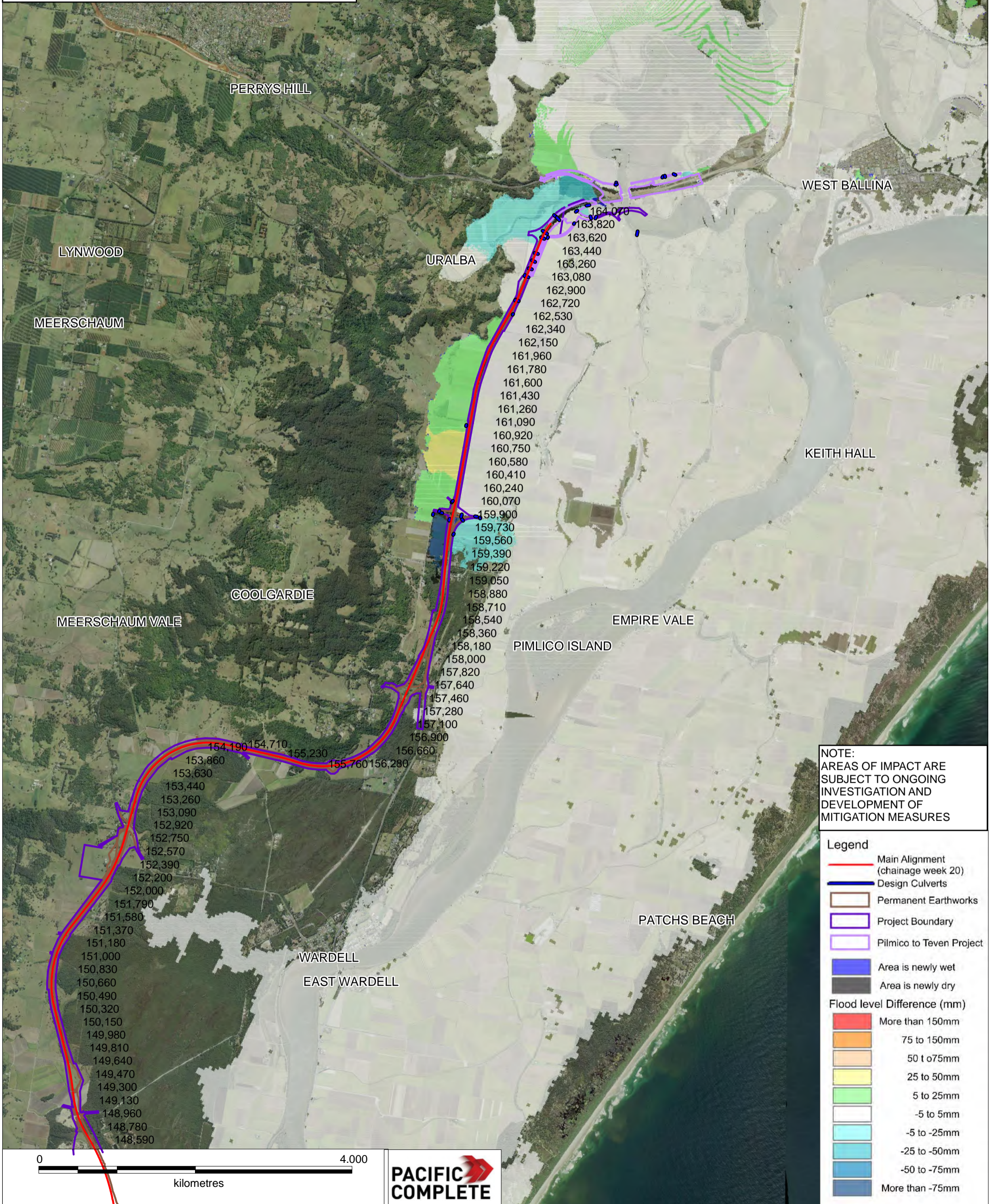
- Main Alignment (chainage week 20)
- Design Culverts
- Permanent Earthworks
- Project Boundary
- Pimlico to Teven Project
- Area is newly wet
- Area is newly dry

Flood level Difference (mm)

- More than 150mm
- 75 to 150mm
- 50 to 75mm
- 25 to 50mm
- 5 to 25mm
- 5 to 5mm
- 5 to -25mm
- 25 to -50mm
- 50 to -75mm
- More than -75mm



**Lower Richmond River Regional Model
Flood Level Difference**
 Map ID: E005
 Revision: B
 Portion/Section: D/Overview
 Design Case: PC_LRIC_10m_dd057_Q100AB_g010
 Existing Case: PC_LRIC_10m_E18_Q100AB_g010
 Event: 100 year 72hrs (Composite Result)
 Model Name: Lower Richmond River
 Modellers: Pacific Complete
 Stage: Substantial Detailed Design
 Date: 21/04/2017



NOTE:
 AREAS OF IMPACT ARE
 SUBJECT TO ONGOING
 INVESTIGATION AND
 DEVELOPMENT OF
 MITIGATION MEASURES

Legend

- Main Alignment (chainage week 20)
- Design Culverts
- Permanent Earthworks
- Project Boundary
- Pimlico to Teven Project
- Area is newly wet
- Area is newly dry

Flood level Difference (mm)

- More than 150mm
- 75 to 150mm
- 50 to 75mm
- 25 to 50mm
- 5 to 25mm
- 5 to 5mm
- 5 to -25mm
- 25 to -50mm
- 50 to -75mm
- More than -75mm

Lower Richmond River Regional Model Flood Level Difference

Map ID: E006

Revision: B

Portion/Section: D/11

Design Case: PC_LRIC_10m_dd057_Q005AB_g010

Existing Case: PC_LRIC_10m_E18_Q005AB_g010

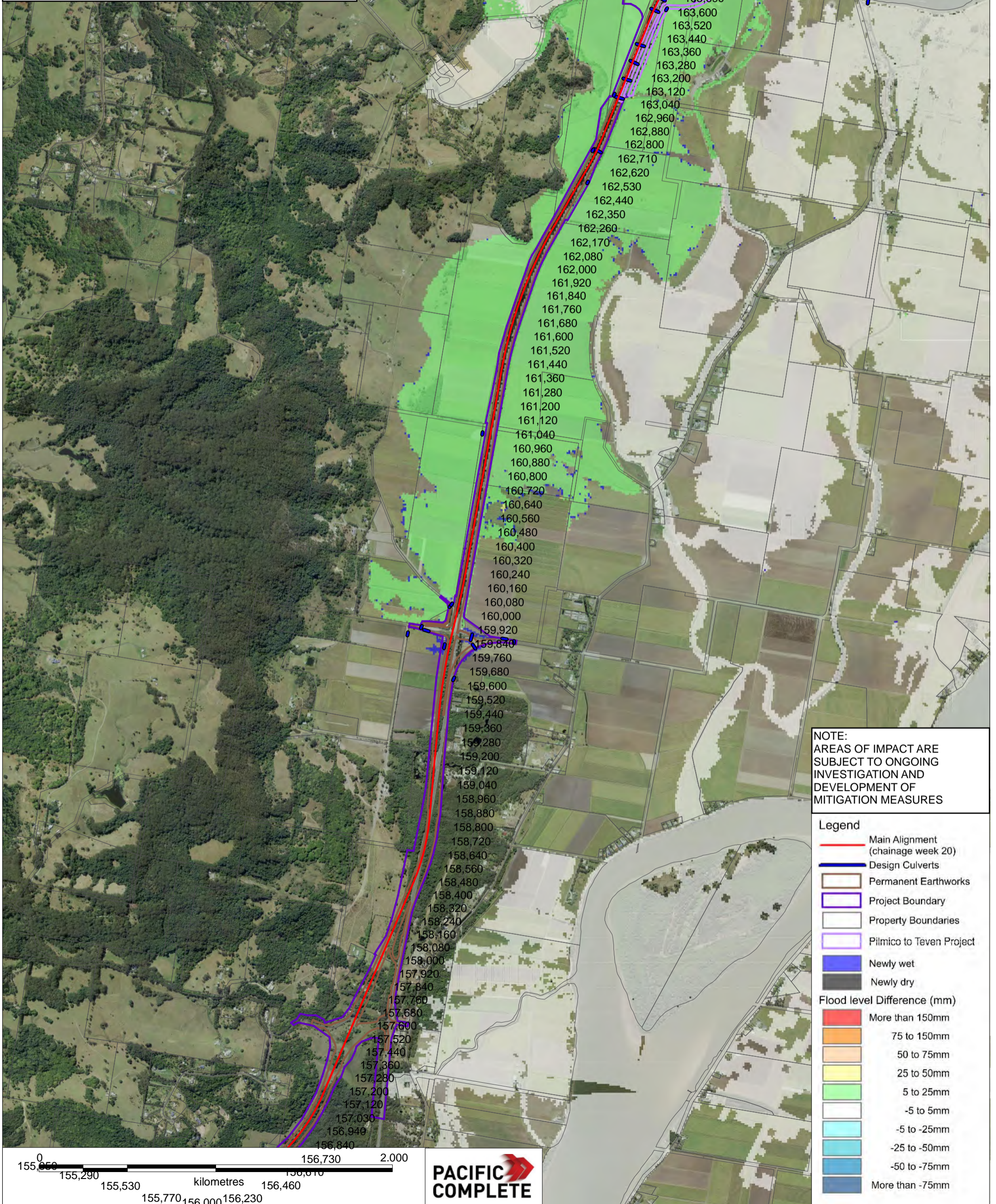
Event: 5 year 72hrs (Composite Result)

Model Name: Lower Richmond River

Modellers: Pacific Complete

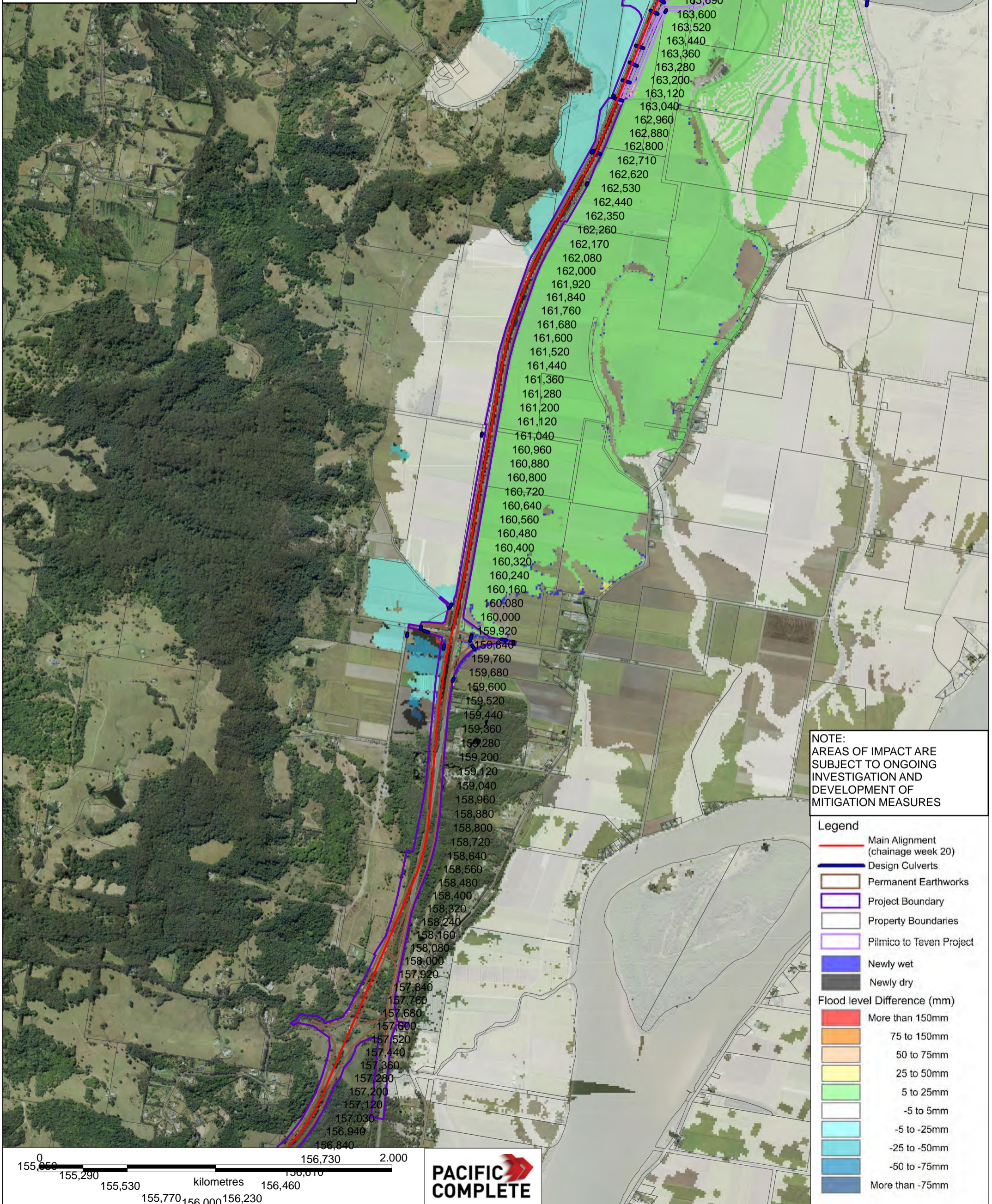
Stage: Substantial Detailed Design

Date: 21/04/2017



**Lower Richmond River Regional Model
Flood Level Difference**

Map ID: E007
 Revision: B
 Portion/Section: D/11
 Design Case: PC_LRIC_10m_dd057_Q020AB_g010
 Existing Case: PC_LRIC_10m_E18_Q020AB_g010
 Event: 20 year 72hrs (Composite Result)
 Model Name: Lower Richmond River
 Modellers: Pacific Complete
 Stage: Substantial Detailed Design
 Date: 21/04/2017



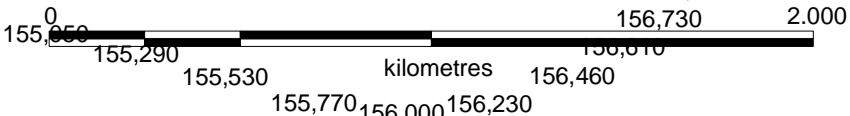
NOTE:
 AREAS OF IMPACT ARE
 SUBJECT TO ONGOING
 INVESTIGATION AND
 DEVELOPMENT OF
 MITIGATION MEASURES

Legend

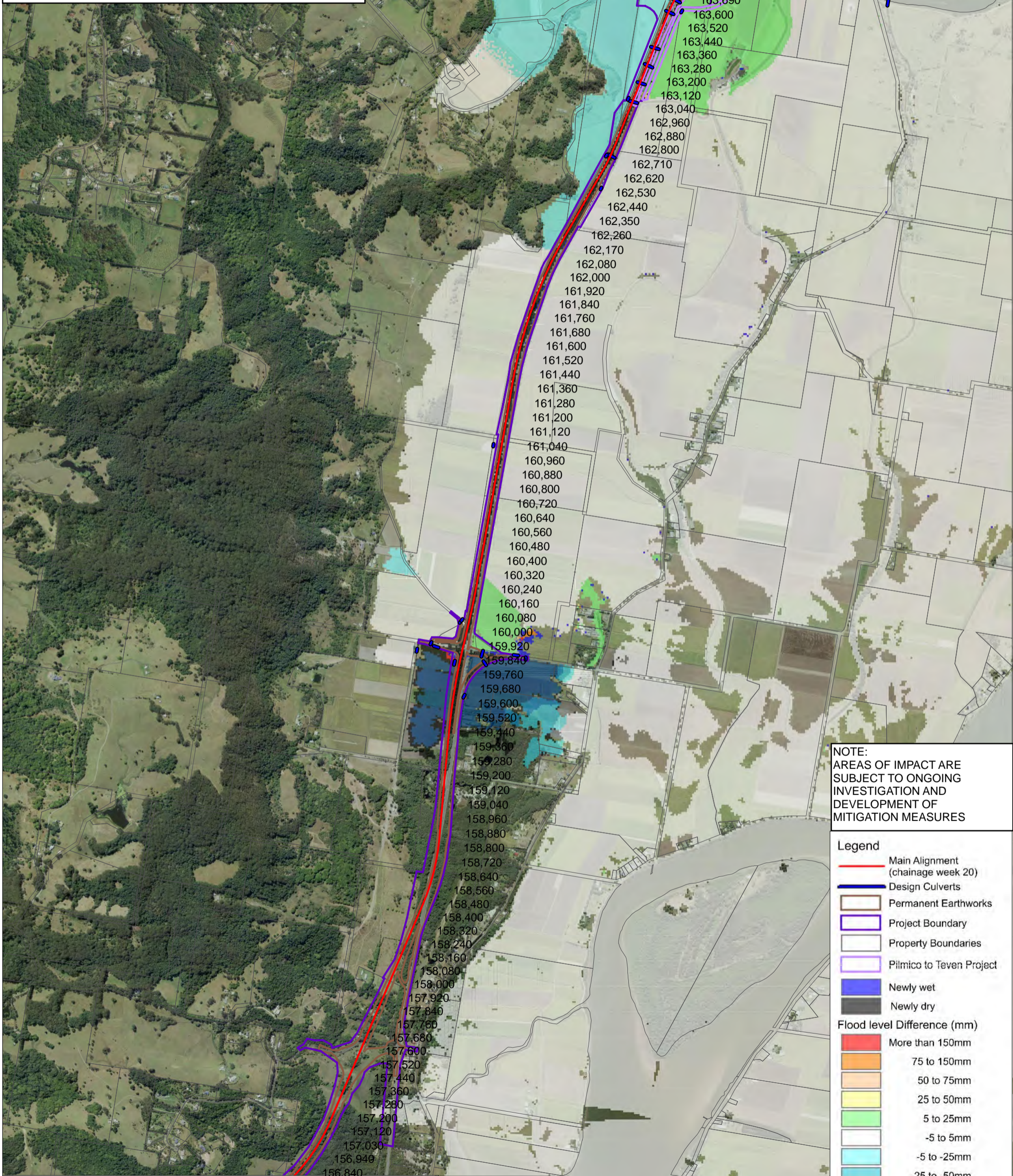
- Main Alignment (chainage week 20)
- Design Culverts
- Permanent Earthworks
- Project Boundary
- Property Boundaries
- Pilmico to Teven Project
- Newly wet
- Newly dry

Flood level Difference (mm)

- More than 150mm
- 75 to 150mm
- 50 to 75mm
- 25 to 50mm
- 5 to 25mm
- 5 to 5mm
- 5 to -25mm
- 25 to -50mm
- 50 to -75mm
- More than -75mm



**Lower Richmond River Regional Model
Flood Level Difference**
 Map ID: E008
 Revision: B
 Portion/Section: D/11
 Design Case: PC_LRIC_10m_dd057_Q050AB_g010
 Existing Case: PC_LRIC_10m_E18_Q050AB_g010
 Event: 50 year 72hrs (Composite Result)
 Model Name: Lower Richmond River
 Modellers: Pacific Complete
 Stage: Substantial Detailed Design
 Date: 21/04/2017



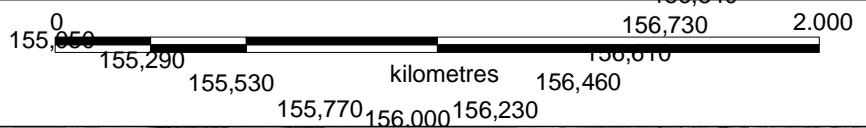
NOTE:
 AREAS OF IMPACT ARE
 SUBJECT TO ONGOING
 INVESTIGATION AND
 DEVELOPMENT OF
 MITIGATION MEASURES

Legend

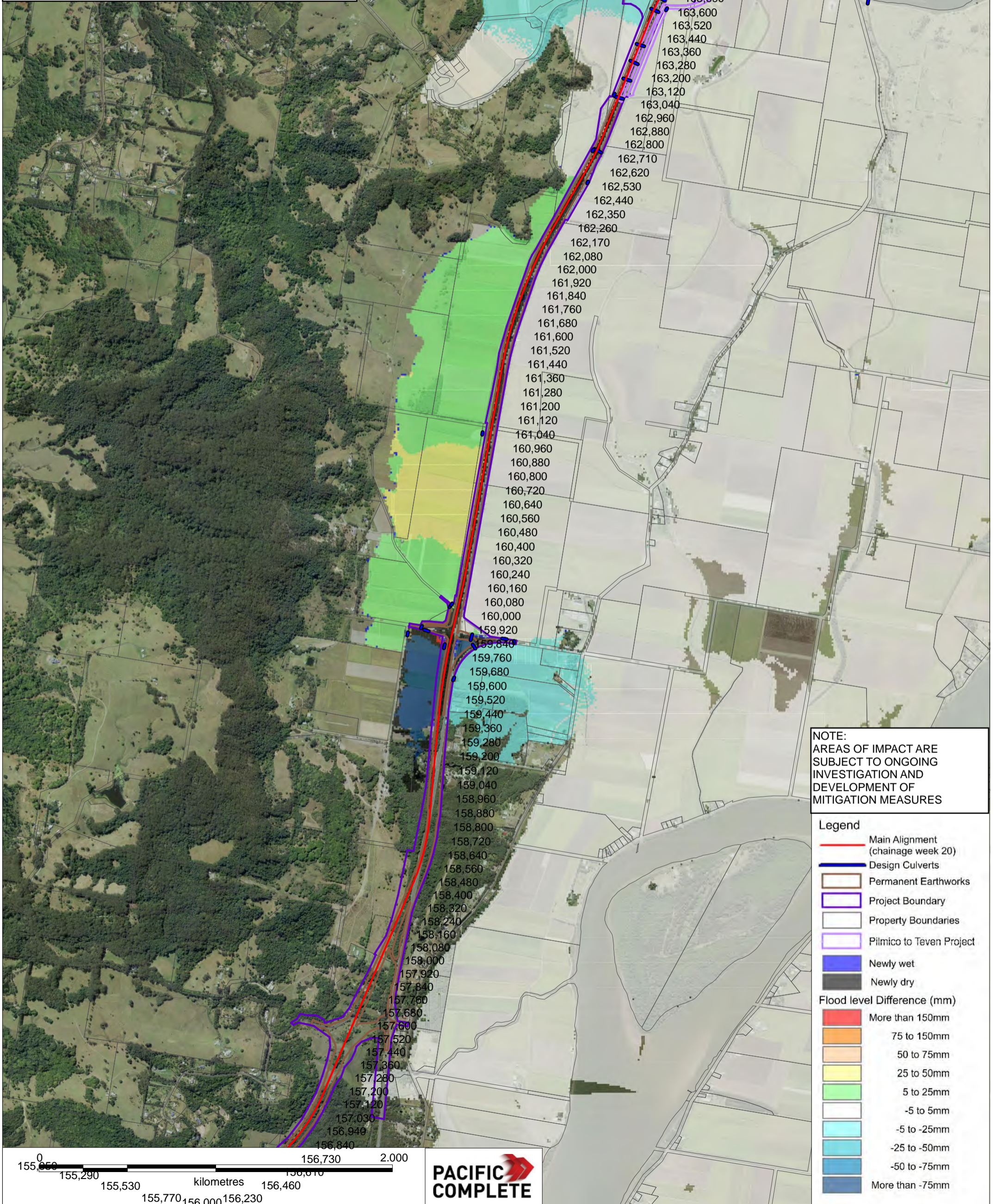
- Main Alignment (chainage week 20)
- Design Culverts
- Permanent Earthworks
- Project Boundary
- Property Boundaries
- Pilmico to Teven Project
- Newly wet
- Newly dry

Flood level Difference (mm)

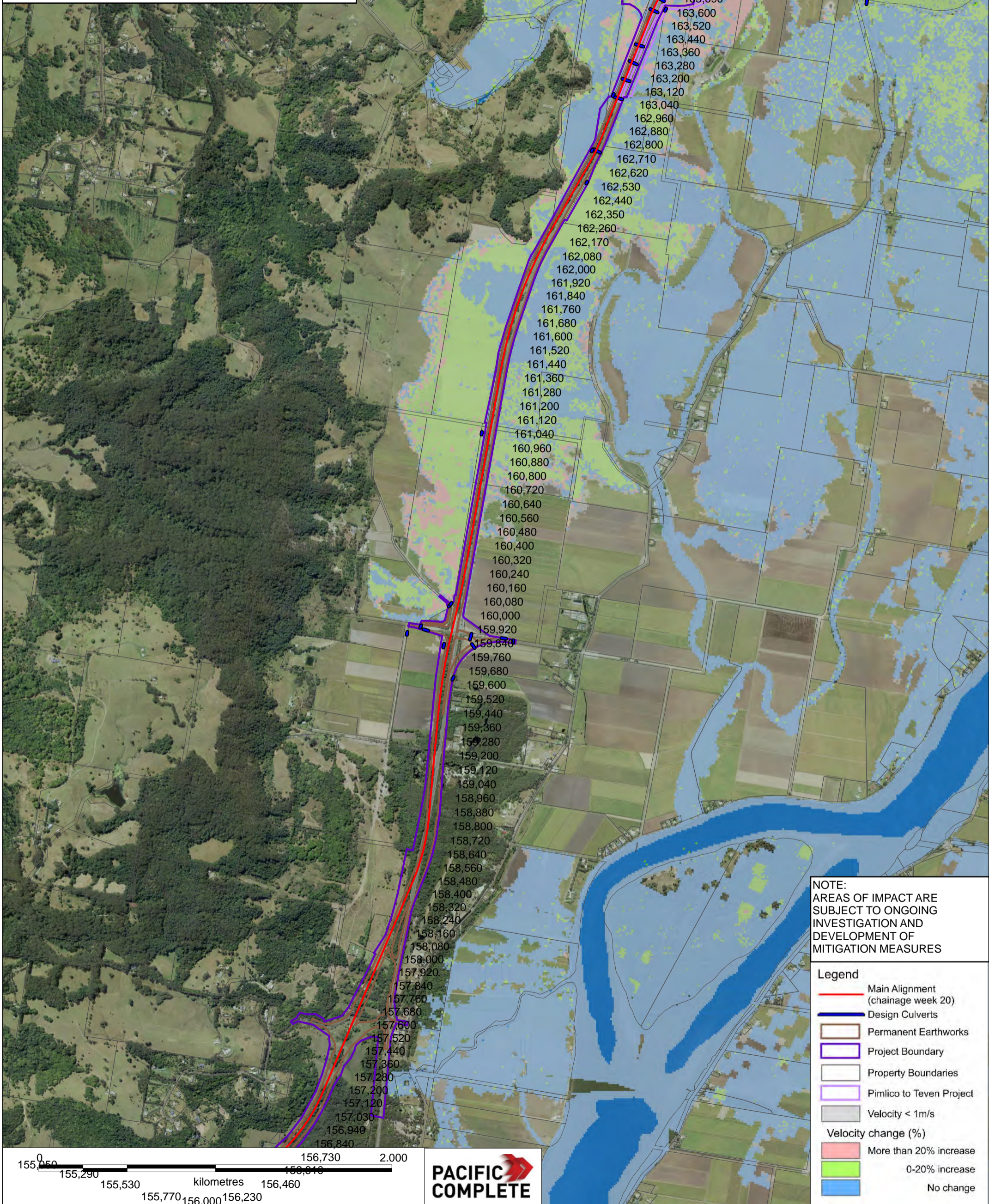
- More than 150mm
- 75 to 150mm
- 50 to 75mm
- 25 to 50mm
- 5 to 25mm
- 5 to 5mm
- 5 to -25mm
- 25 to -50mm
- 50 to -75mm
- More than -75mm



**Lower Richmond River Regional Model
Flood Level Difference**
 Map ID: E009
 Revision: B
 Portion/Section: D/11
 Design Case: PC_LRIC_10m_dd057_Q100AB_g010
 Existing Case: PC_LRIC_10m_E18_Q100AB_g010
 Event: 100 year 72hrs (Composite Result)
 Model Name: Lower Richmond River
 Modellers: Pacific Complete
 Stage: Substantial Detailed Design
 Date: 21/04/2017

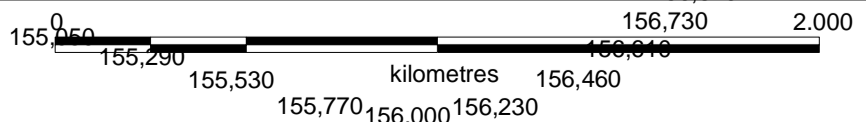


**Lower Richmond River Regional Model
Percentage Change in Flood Velocity**
 Map ID: E018
 Revision: B
 Portion/Section: D/11
 Design Case: PC_LRIC_10m_dd057_Q005AB_g010
 Existing Case: PC_LRIC_10m_E18_Q005AB_g010
 Event: 5 year 72hrs (Composite Result)
 Model Name: Lower Richmond River
 Modellers: Pacific Complete
 Stage: Substantial Detailed Design
 Date: 21/04/2017

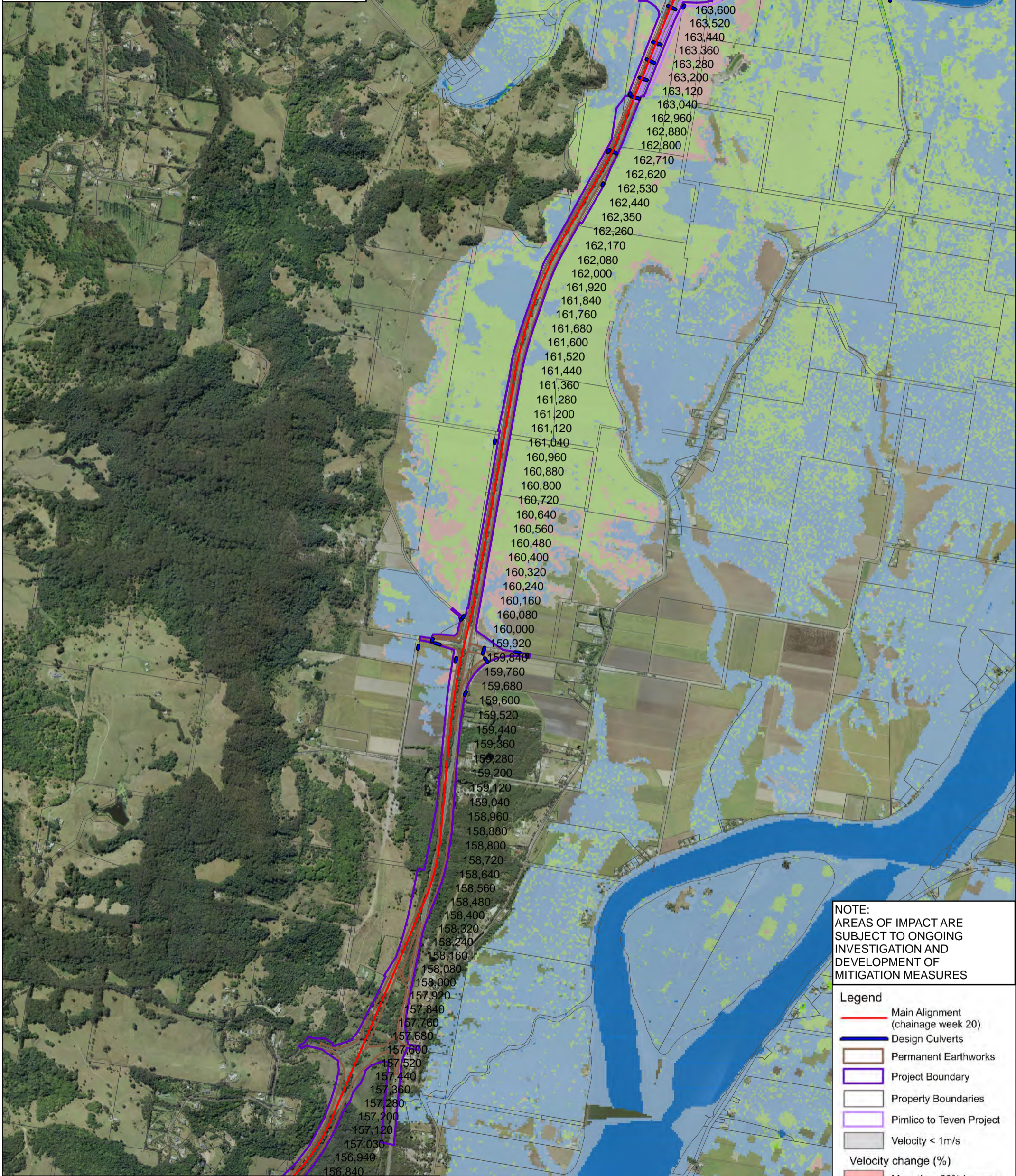


NOTE:
 AREAS OF IMPACT ARE
 SUBJECT TO ONGOING
 INVESTIGATION AND
 DEVELOPMENT OF
 MITIGATION MEASURES

| Legend | |
|---------------------|-----------------------------------|
| | Main Alignment (chainage week 20) |
| | Design Culverts |
| | Permanent Earthworks |
| | Project Boundary |
| | Property Boundaries |
| | Pimlico to Teven Project |
| | Velocity < 1m/s |
| Velocity change (%) | |
| | More than 20% increase |
| | 0-20% increase |
| | No change |



Lower Richmond River Regional Model
Percentage Change in Flood Velocity
 Map ID: E019
 Revision: B
 Portion/Section: D/11
 Design Case: PC_LRIC_10m_dd057_Q020AB_g010
 Existing Case: PC_LRIC_10m_E18_Q020AB_g010
 Event: 20 year 72hrs (Composite Result)
 Model Name: Lower Richmond River
 Modellers: Pacific Complete
 Stage: Substantial Detailed Design
 Date: 21/04/2017



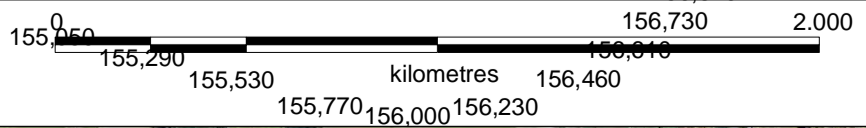
NOTE:
 AREAS OF IMPACT ARE
 SUBJECT TO ONGOING
 INVESTIGATION AND
 DEVELOPMENT OF
 MITIGATION MEASURES

Legend

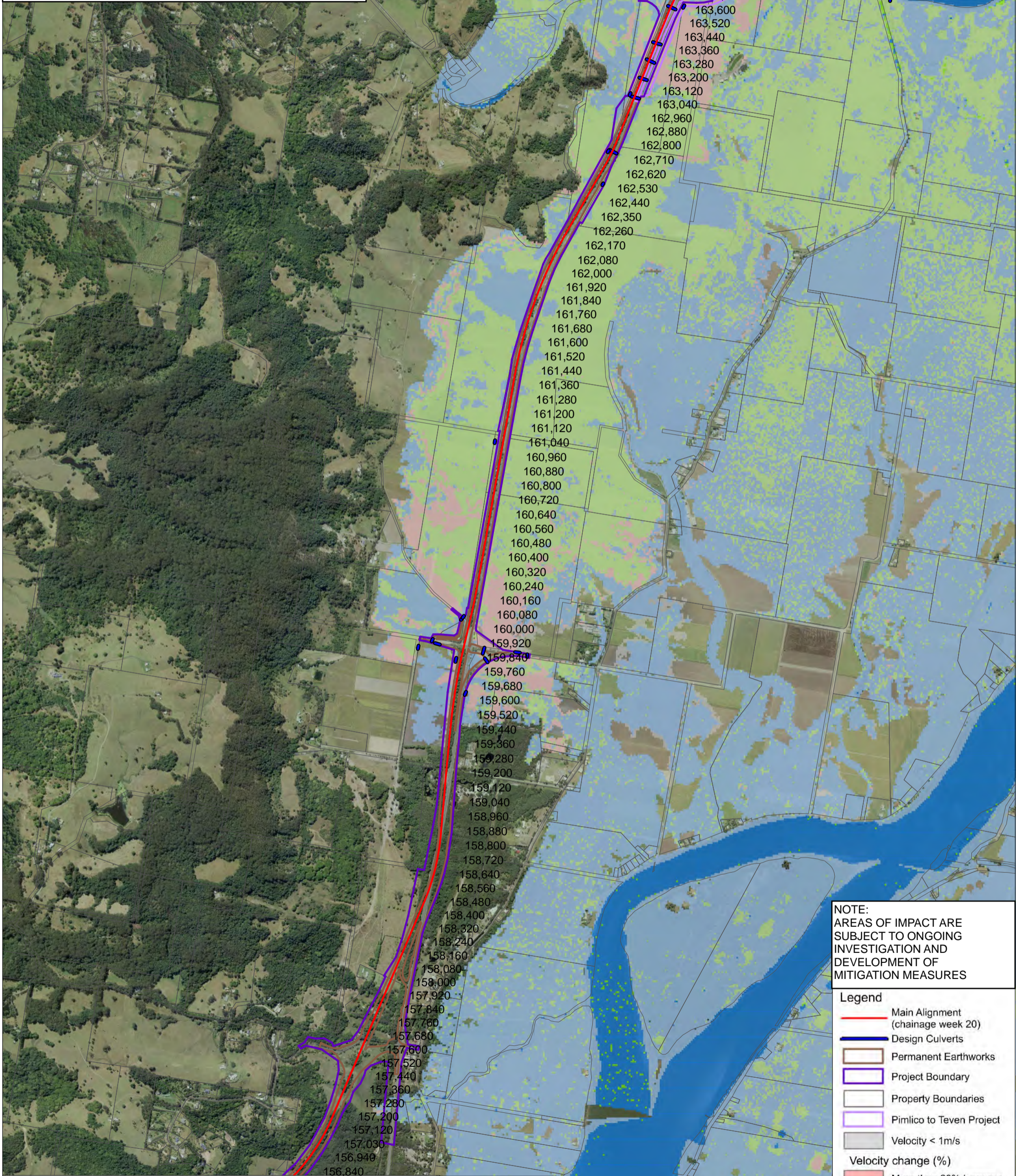
- Main Alignment (chainage week 20)
- Design Culverts
- Permanent Earthworks
- Project Boundary
- Property Boundaries
- Pimlico to Teven Project
- Velocity < 1m/s

Velocity change (%)

- More than 20% increase
- 0-20% increase
- No change



Lower Richmond River Regional Model
Percentage Change in Flood Velocity
 Map ID: E020
 Revision: B
 Portion/Section: D/11
 Design Case: PC_LRIC_10m_dd057_Q050AB_g010
 Existing Case: PC_LRIC_10m_E18_Q050AB_g010
 Event: 50 year 72hrs (Composite Result)
 Model Name: Lower Richmond River
 Modellers: Pacific Complete
 Stage: Substantial Detailed Design
 Date: 21/04/2017



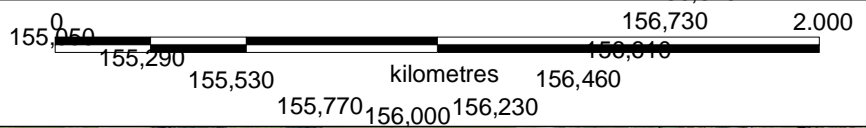
NOTE:
 AREAS OF IMPACT ARE
 SUBJECT TO ONGOING
 INVESTIGATION AND
 DEVELOPMENT OF
 MITIGATION MEASURES

Legend

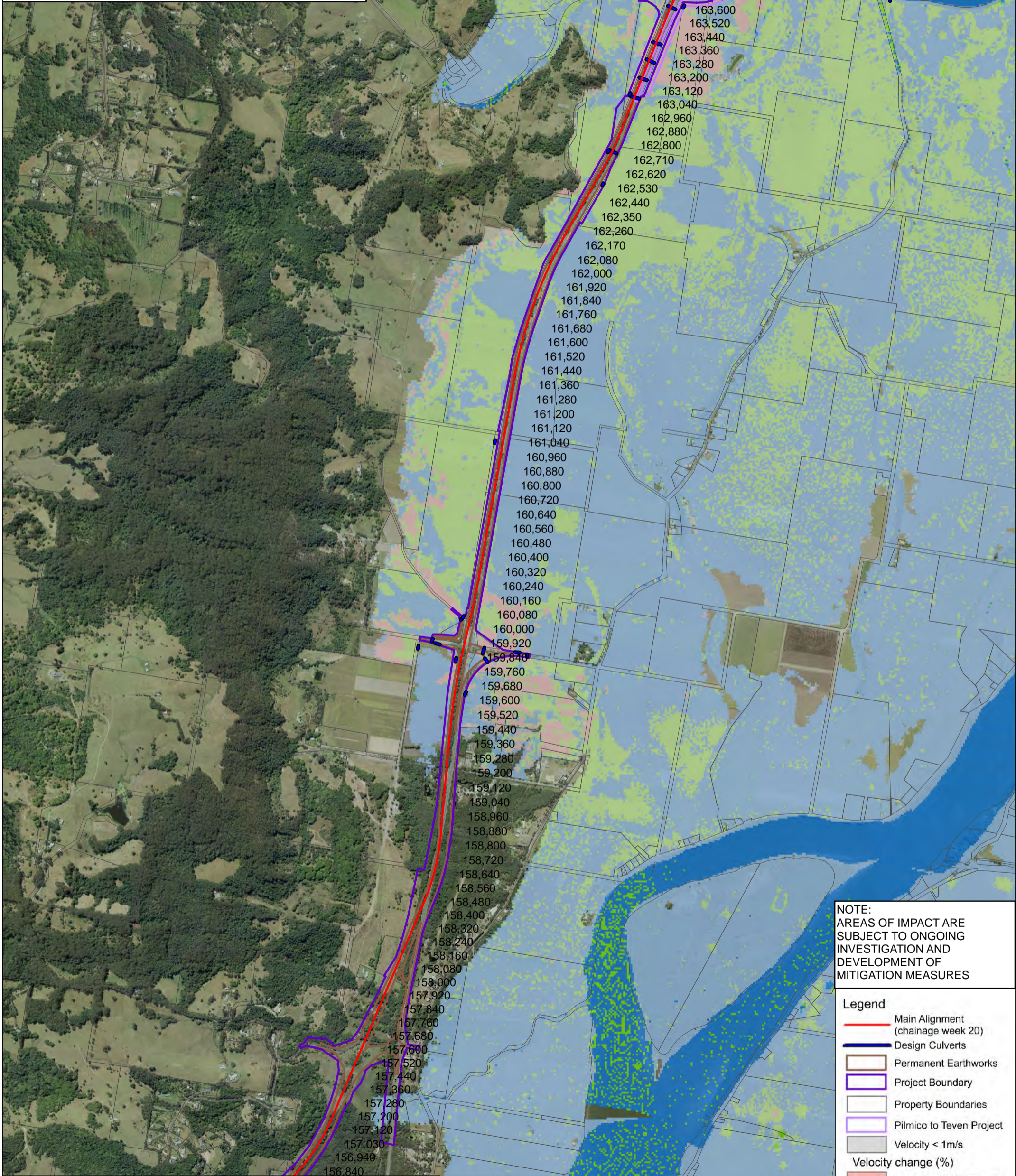
- Main Alignment (chainage week 20)
- Design Culverts
- Permanent Earthworks
- Project Boundary
- Property Boundaries
- Pimlico to Teven Project
- Velocity < 1m/s

Velocity change (%)

- More than 20% increase
- 0-20% increase
- No change



Lower Richmond River Regional Model
Percentage Change in Flood Velocity
 Map ID: E021
 Revision: B
 Portion/Section: D/11
 Design Case: PC_LRIC_10m_dd057_Q100AB_g010
 Existing Case: PC_LRIC_10m_E18_Q100AB_g010
 Event: 100 year 72hrs (Composite Result)
 Model Name: Lower Richmond River
 Modellers: Pacific Complete
 Stage: Substantial Detailed Design
 Date: 21/04/2017



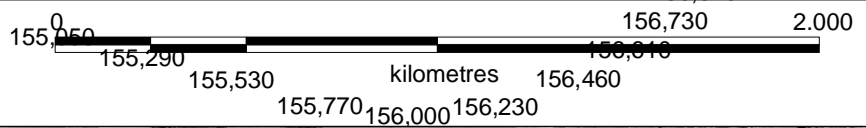
NOTE:
 AREAS OF IMPACT ARE
 SUBJECT TO ONGOING
 INVESTIGATION AND
 DEVELOPMENT OF
 MITIGATION MEASURES

Legend

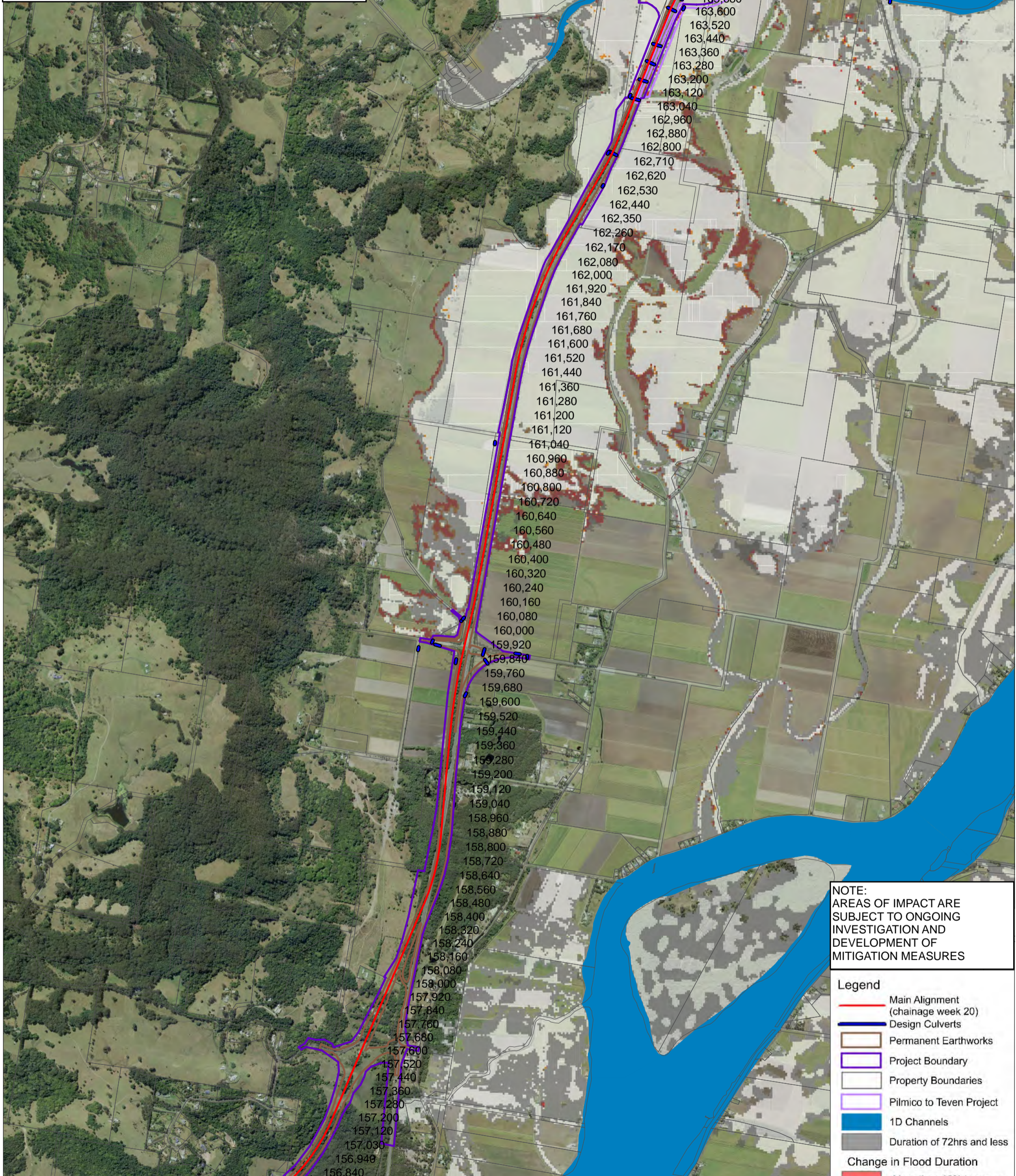
- Main Alignment (chainage week 20)
- Design Culverts
- Permanent Earthworks
- Project Boundary
- Property Boundaries
- Pilmico to Teven Project
- Velocity < 1m/s

Velocity change (%)

- More than 20% increase
- 0-20% increase
- No change



Lower Richmond River Regional Model
Percentage Change in Flood Duration
 Map ID: E026
 Revision: B
 Portion/Section: D/11
 Design Case: PC_LRIC_10m_dd057_Q005AB_g010
 Existing Case: PC_LRIC_10m_E18_Q005AB_g010
 Event: 5 year 72hrs (Composite Result)
 Model Name: Lower Richmond River
 Modellers: Pacific Complete
 Stage: Substantial Detailed Design
 Date: 21/04/2017



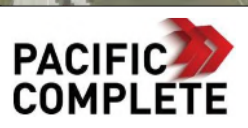
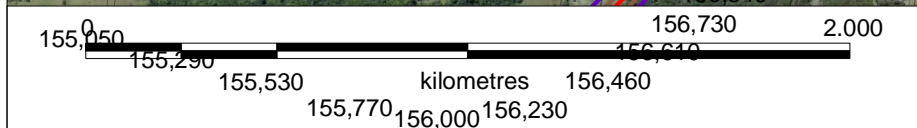
NOTE:
 AREAS OF IMPACT ARE
 SUBJECT TO ONGOING
 INVESTIGATION AND
 DEVELOPMENT OF
 MITIGATION MEASURES

Legend

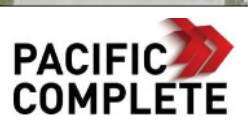
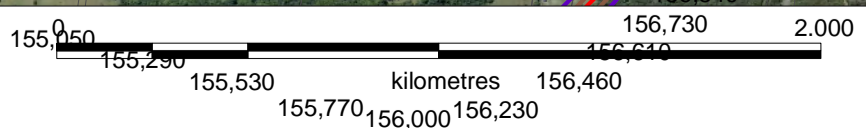
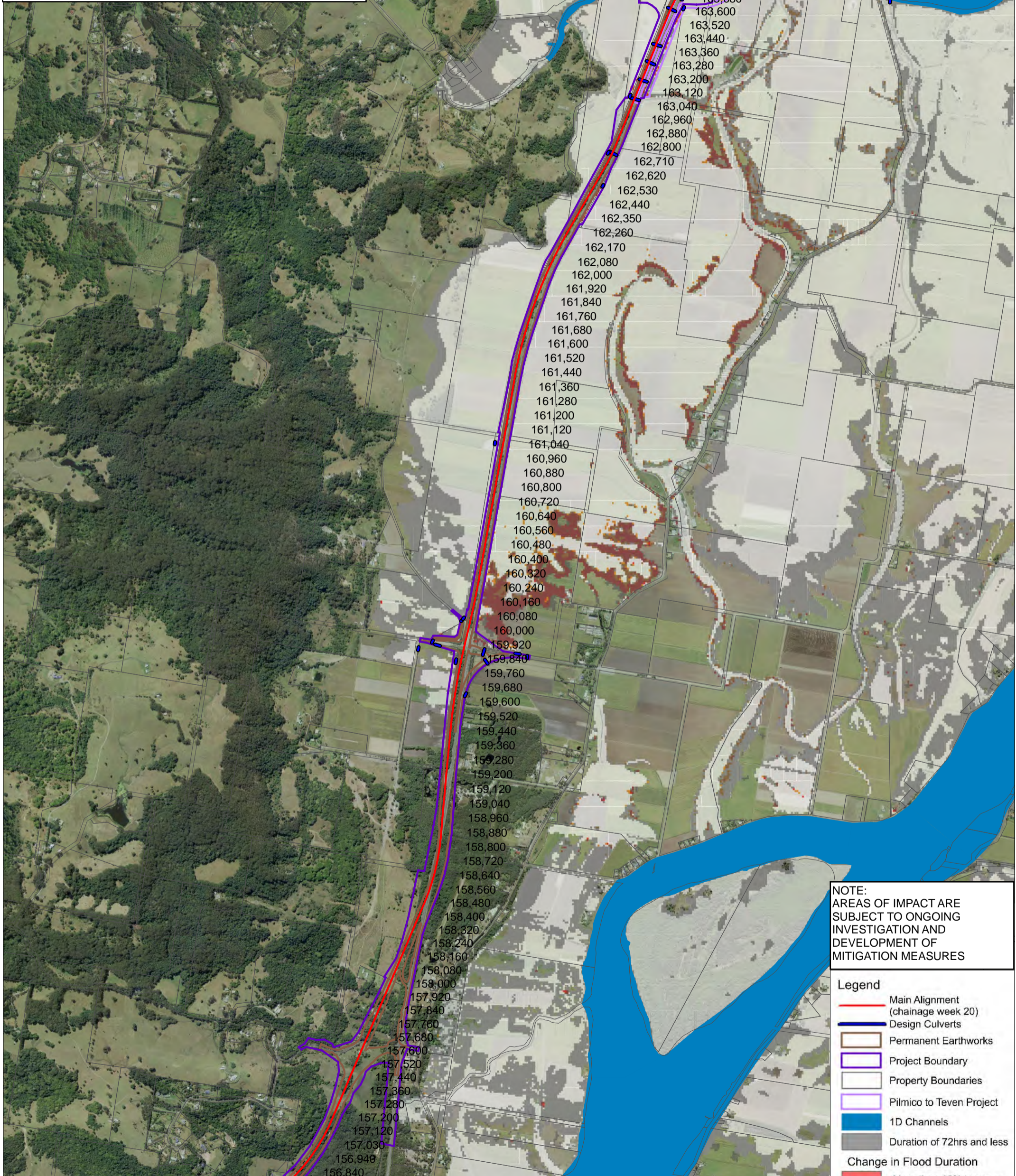
- Main Alignment (chainage week 20)
- Design Culverts
- Permanent Earthworks
- Project Boundary
- Property Boundaries
- Pilmico to Teven Project
- 1D Channels
- Duration of 72hrs and less

Change in Flood Duration

- More than 10% increase
- 5 to 10% increase
- Compliant (less than 5%)



Lower Richmond River Regional Model
Percentage Change in Flood Duration
 Map ID: E027
 Revision: B
 Portion/Section: D/11
 Design Case: PC_LRIC_10m_dd057_Q020AB_g010
 Existing Case: PC_LRIC_10m_E18_Q020AB_g010
 Event: 20 year 72hrs (Composite Result)
 Model Name: Lower Richmond River
 Modellers: Pacific Complete
 Stage: Substantial Detailed Design
 Date: 21/04/2017



NOTE:
 AREAS OF IMPACT ARE
 SUBJECT TO ONGOING
 INVESTIGATION AND
 DEVELOPMENT OF
 MITIGATION MEASURES

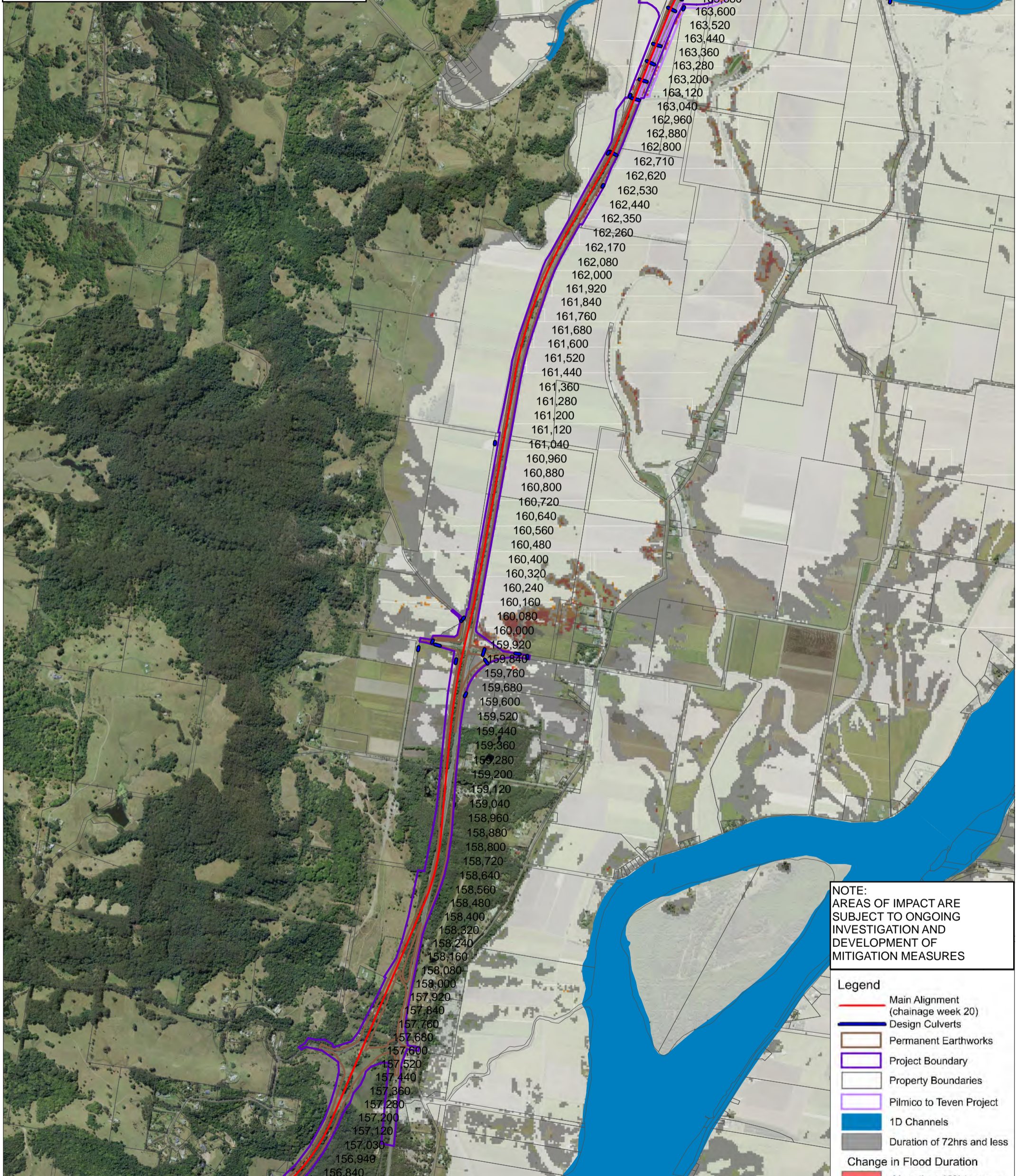
Legend

- Main Alignment (chainage week 20)
- Design Culverts
- Permanent Earthworks
- Project Boundary
- Property Boundaries
- Pilmico to Teven Project
- 1D Channels
- Duration of 72hrs and less

Change in Flood Duration

- More than 10% increase
- 5 to 10% increase
- Compliant (less than 5%)

Lower Richmond River Regional Model
Percentage Change in Flood Duration
 Map ID: E028
 Revision: B
 Portion/Section: D/11
 Design Case: PC_LRIC_10m_dd057_Q050AB_g010
 Existing Case: PC_LRIC_10m_E18_Q050AB_g010
 Event: 50 year 72hrs (Composite Result)
 Model Name: Lower Richmond River
 Modellers: Pacific Complete
 Stage: Substantial Detailed Design
 Date: 21/04/2017



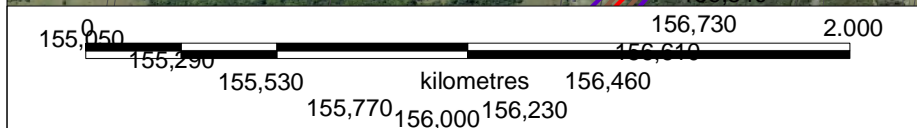
NOTE:
 AREAS OF IMPACT ARE
 SUBJECT TO ONGOING
 INVESTIGATION AND
 DEVELOPMENT OF
 MITIGATION MEASURES

Legend

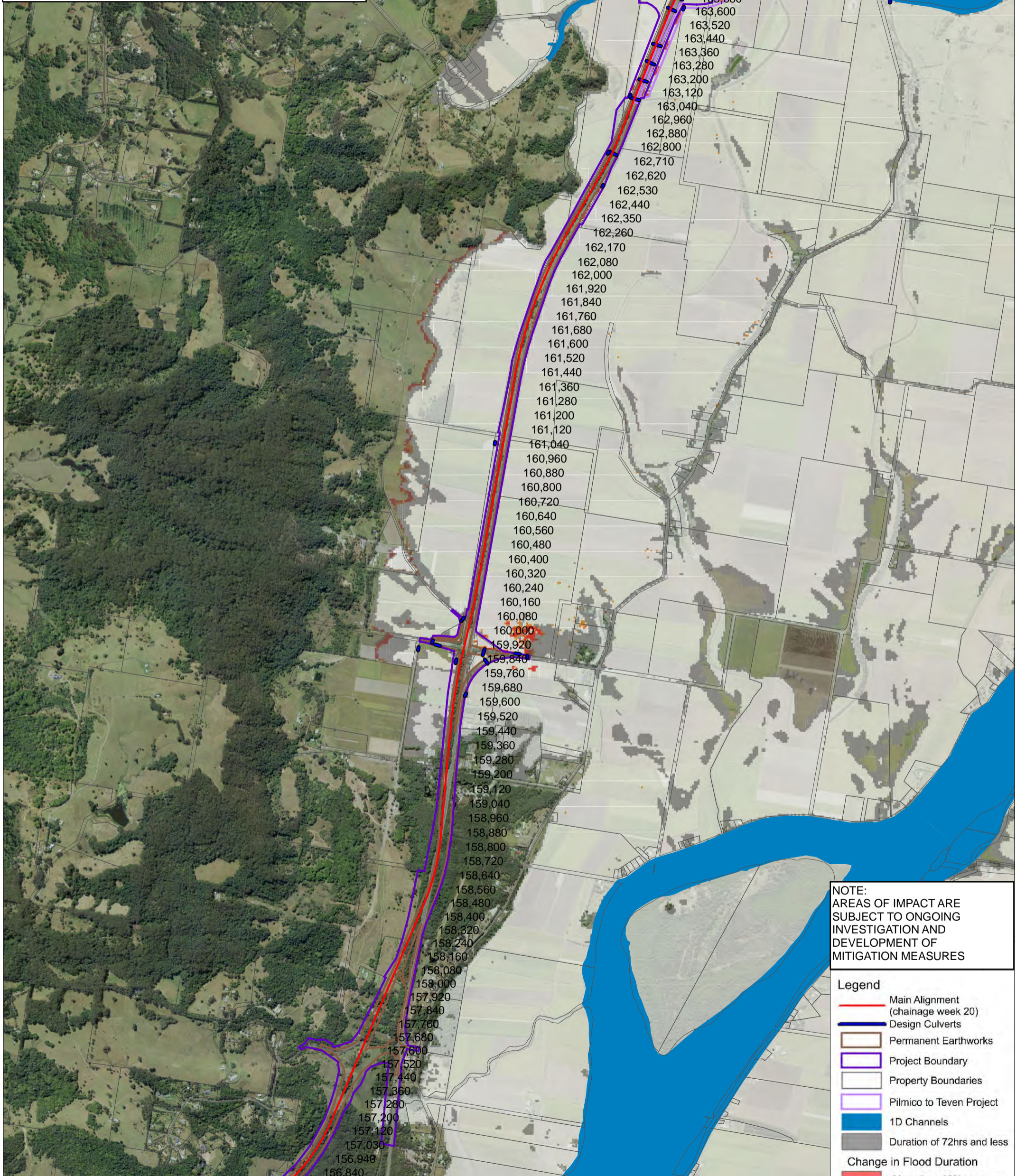
- Main Alignment (chainage week 20)
- Design Culverts
- Permanent Earthworks
- Project Boundary
- Property Boundaries
- Pilmico to Teven Project
- 1D Channels
- Duration of 72hrs and less

Change in Flood Duration

- More than 10% increase
- 5 to 10% increase
- Compliant (less than 5%)



Lower Richmond River Regional Model
Percentage Change in Flood Duration
 Map ID: E029
 Revision: B
 Portion/Section: D/11
 Design Case: PC_LRIC_10m_dd057_Q100AB_g010
 Existing Case: PC_LRIC_10m_E18_Q100AB_g010
 Event: 100 year 72hrs (Composite Result)
 Model Name: Lower Richmond River
 Modellers: Pacific Complete
 Stage: Substantial Detailed Design
 Date: 21/04/2017



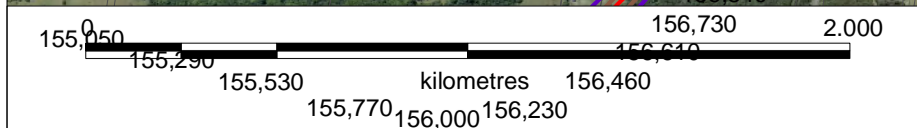
NOTE:
 AREAS OF IMPACT ARE
 SUBJECT TO ONGOING
 INVESTIGATION AND
 DEVELOPMENT OF
 MITIGATION MEASURES

Legend

- Main Alignment (chainage week 20)
- Design Culverts
- Permanent Earthworks
- Project Boundary
- Property Boundaries
- Pilmico to Teven Project
- 1D Channels
- Duration of 72hrs and less

Change in Flood Duration

- More than 10% increase
- 5 to 10% increase
- Compliant (less than 5%)



**Lower Richmond River Regional Model
Proposed Flood Hazard**

Map ID: E030

Revision: B

Portion/Section: D/11

Design Case: PC_LRIC_10m_dd057_Q005AB_g010

Existing Case: PC_LRIC_10m_E18_Q005AB_g010

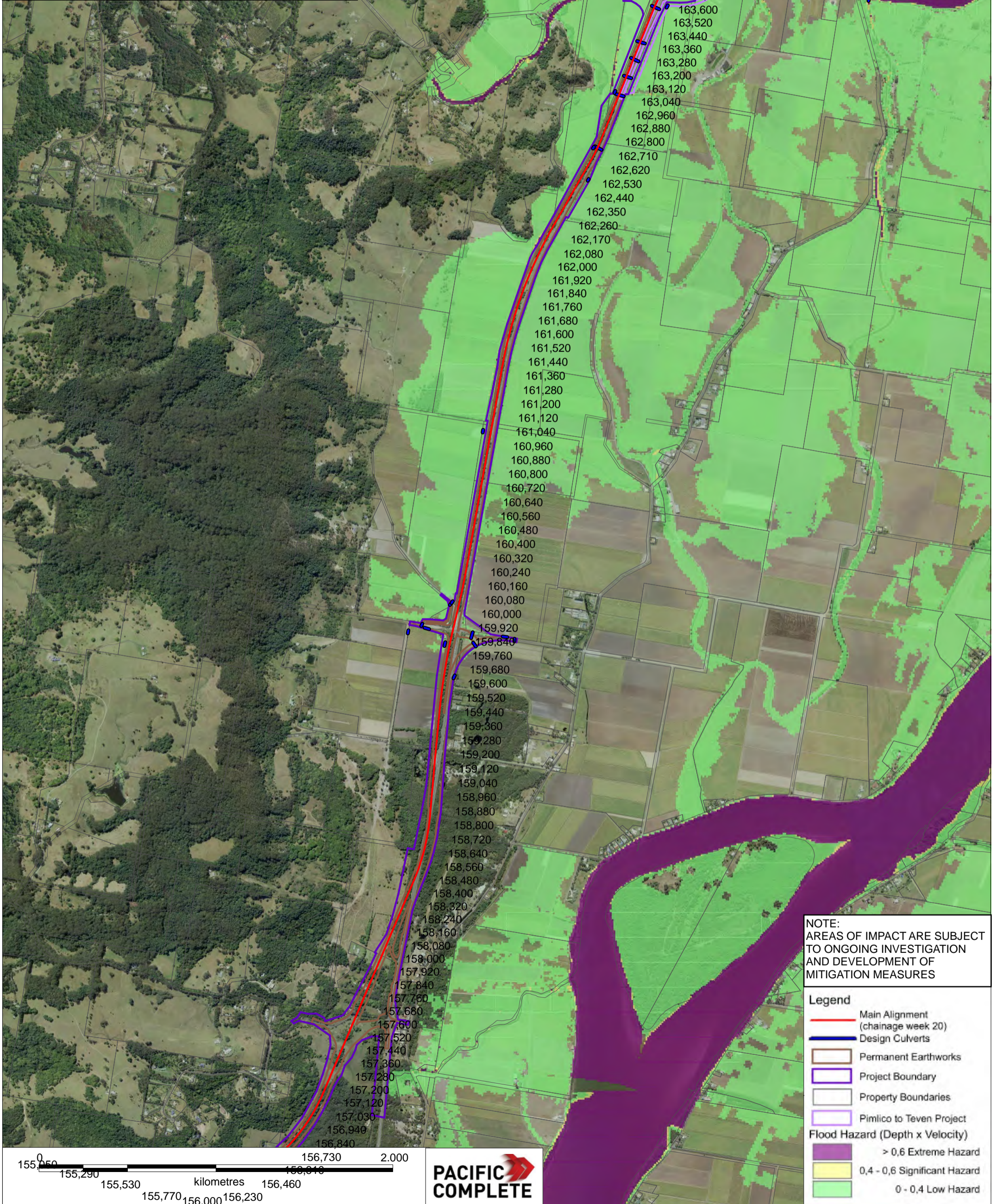
Event: 5 year 72hrs (Composite Result)

Model Name: Lower Richmond River

Modellers: Pacific Complete

Stage: Substantial Detailed Design

Date: 21/04/2017



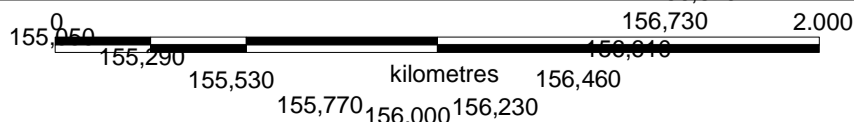
NOTE:
AREAS OF IMPACT ARE SUBJECT
TO ONGOING INVESTIGATION
AND DEVELOPMENT OF
MITIGATION MEASURES

Legend

- Main Alignment (chainage week 20)
- Design Culverts
- Permanent Earthworks
- Project Boundary
- Property Boundaries
- Pimlico to Teven Project

Flood Hazard (Depth x Velocity)

- > 0,6 Extreme Hazard
- 0,4 - 0,6 Significant Hazard
- 0 - 0,4 Low Hazard



**Lower Richmond River Regional Model
Proposed Flood Hazard**

Map ID: E031

Revision: B

Portion/Section: D/11

Design Case: PC_LRIC_10m_dd057_Q020AB_g010

Existing Case: PC_LRIC_10m_E18_Q020AB_g010

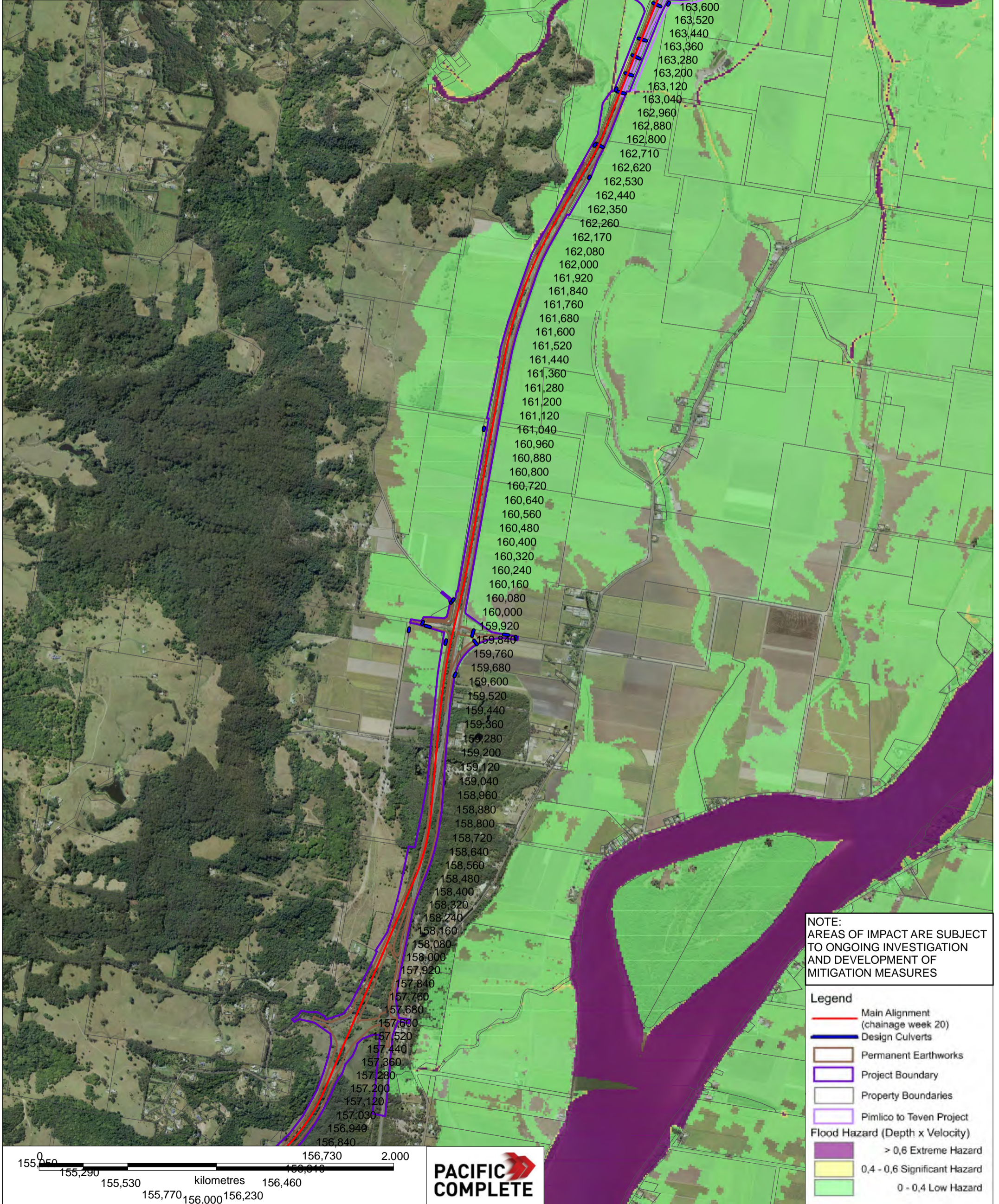
Event: 20 year 72hrs (Composite Result)

Model Name: Lower Richmond River

Modellers: Pacific Complete

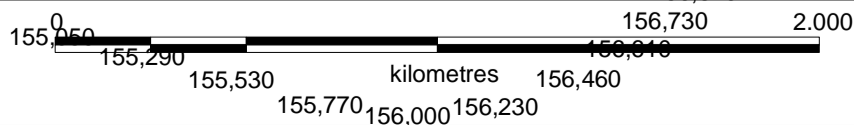
Stage: Substantial Detailed Design

Date: 21/04/2017



NOTE:
AREAS OF IMPACT ARE SUBJECT
TO ONGOING INVESTIGATION
AND DEVELOPMENT OF
MITIGATION MEASURES

| Legend | |
|---------------------------------|--------------------------------------|
| | Main Alignment (chainage week 20) |
| | Design Culverts |
| | Permanent Earthworks |
| | Project Boundary |
| | Property Boundaries |
| | Pimlico to Teven Project |
| Flood Hazard (Depth x Velocity) | |
| | > 0,6 Extreme Hazard |
| | 0,4 - 0,6 Significant Hazard |
| | 0 - 0,4 Low Hazard |



**Lower Richmond River Regional Model
Proposed Flood Hazard**

Map ID: E032

Revision: B

Portion/Section: D/11

Design Case: PC_LRIC_10m_dd057_Q050AB_g010

Existing Case: PC_LRIC_10m_E18_Q050AB_g010

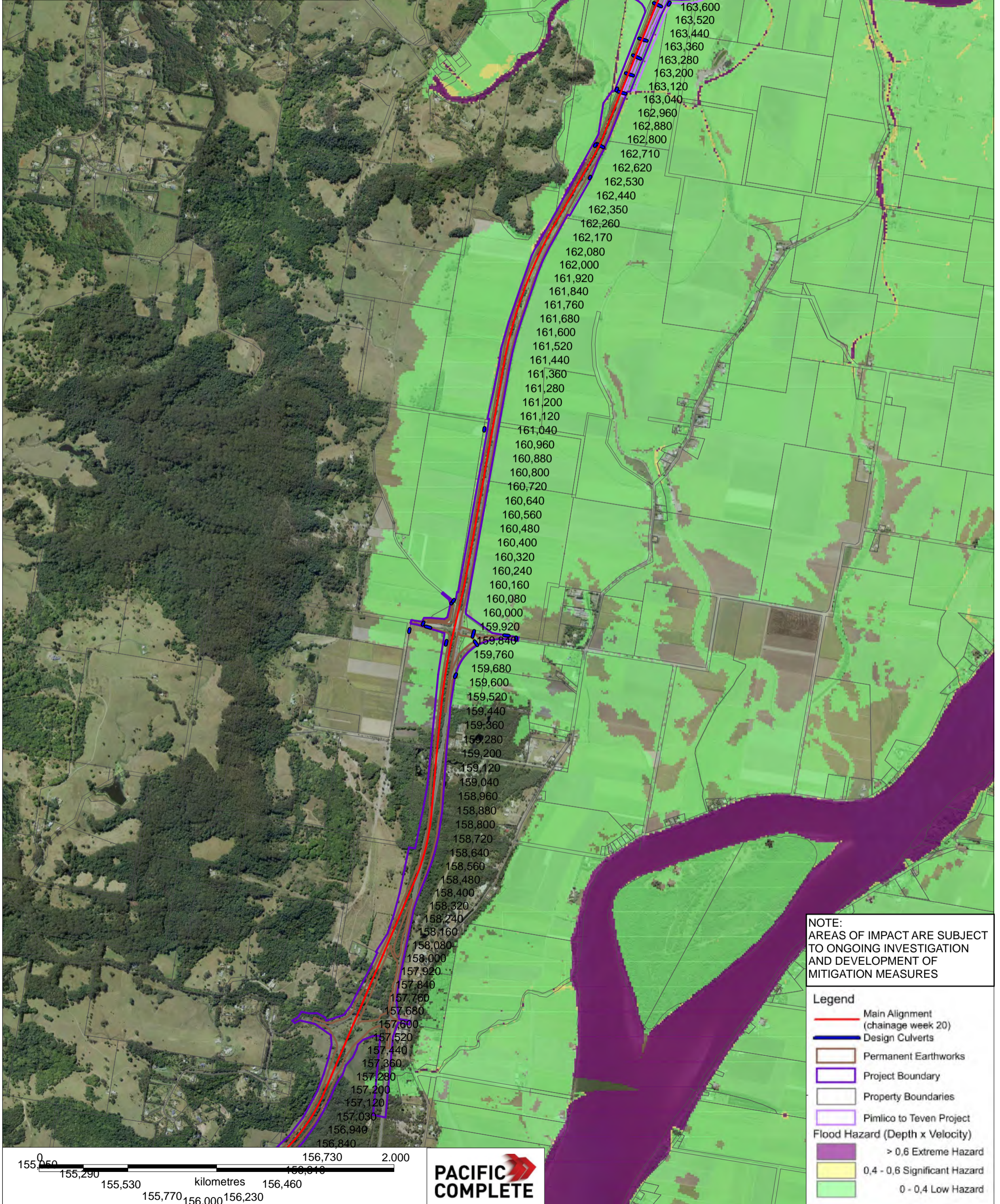
Event: 50 year 72hrs (Composite Result)

Model Name: Lower Richmond River

Modellers: Pacific Complete

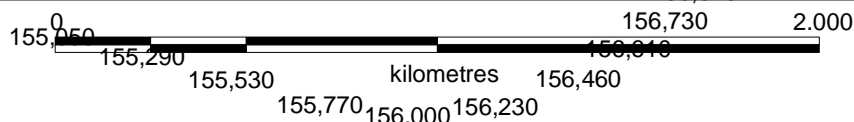
Stage: Substantial Detailed Design

Date: 21/04/2017



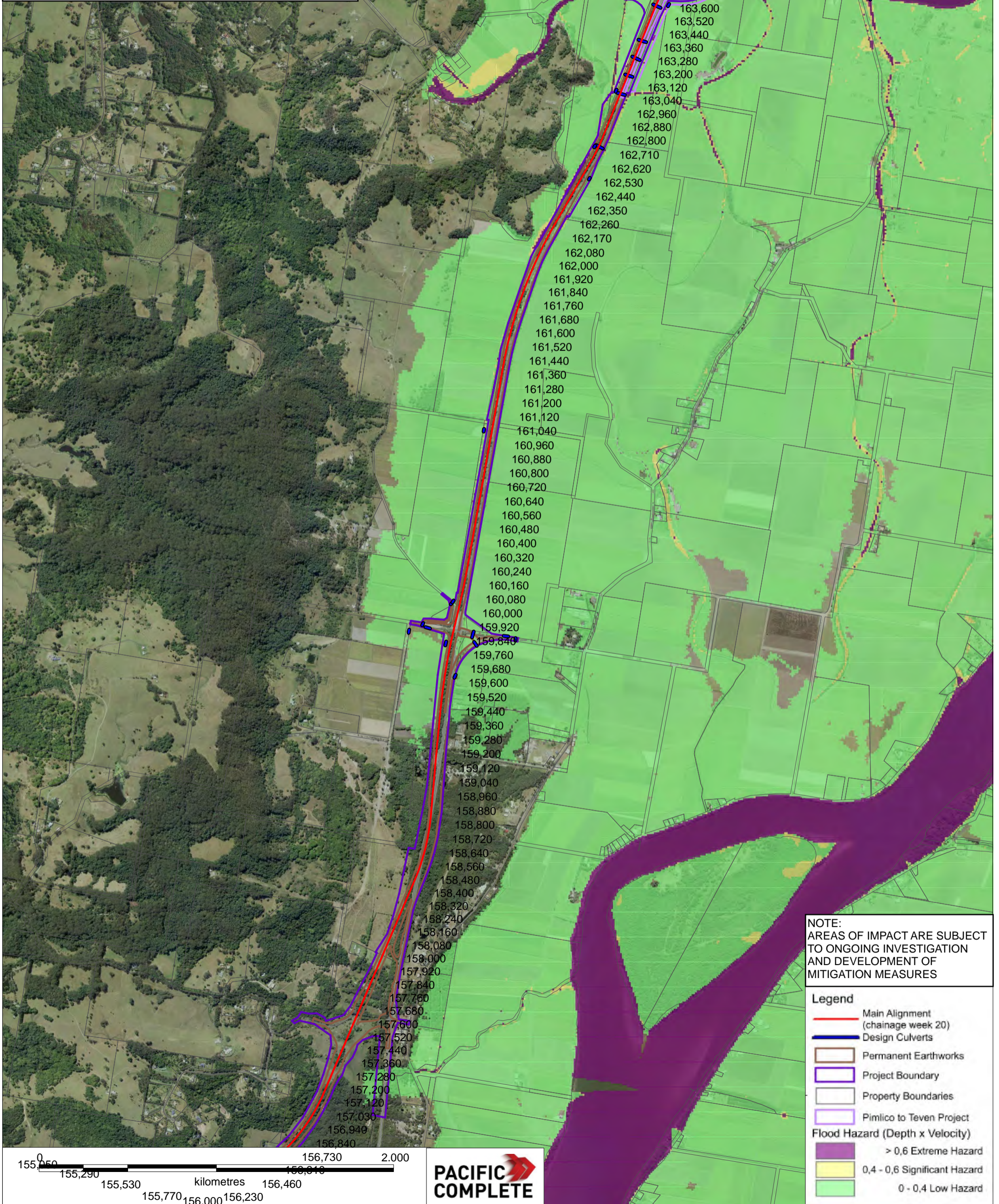
NOTE:
AREAS OF IMPACT ARE SUBJECT TO ONGOING INVESTIGATION AND DEVELOPMENT OF MITIGATION MEASURES

- Legend**
- Main Alignment (chainage week 20)
 - Design Culverts
 - Permanent Earthworks
 - Project Boundary
 - Property Boundaries
 - Pimlico to Teven Project
- Flood Hazard (Depth x Velocity)**
- > 0,6 Extreme Hazard
 - 0,4 - 0,6 Significant Hazard
 - 0 - 0,4 Low Hazard



**Lower Richmond River Regional Model
Proposed Flood Hazard**

Map ID: E033
 Revision: B
 Portion/Section: D/11
 Design Case: PC_LRIC_10m_dd057_Q100AB_g010
 Existing Case: PC_LRIC_10m_E18_Q100AB_g010
 Event: 100 year 72hrs (Composite Result)
 Model Name: Lower Richmond River
 Modellers: Pacific Complete
 Stage: Substantial Detailed Design
 Date: 21/04/2017



NOTE:
 AREAS OF IMPACT ARE SUBJECT
 TO ONGOING INVESTIGATION
 AND DEVELOPMENT OF
 MITIGATION MEASURES

| Legend | |
|---------------------------------|--------------------------------------|
| | Main Alignment (chainage week 20) |
| | Design Culverts |
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| | Pimlico to Teven Project |
| Flood Hazard (Depth x Velocity) | |
| | > 0,6 Extreme Hazard |
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| | 0 - 0,4 Low Hazard |

