

Appendix C

Revised Surface Water Classification

Creek Crossing Locations between Angle Positions				Creek Crossing ID	Figure References	Strahler Classification				Threatened aquatic spp	Threatened Ecological Community	Waterway Assessment Classification					Identified Creek Crossings				Unconfirmed or no works required (ie. Suitable crossing exists or site access restrictions)		Preliminary site inspection completed?	Further consultation with DPI required for this location	Preliminary description of works and Guidance Recommendations for minimum requirements	
																	Existing to be upgraded		New creek crossing to be installed							
						1st order	2nd Order	3rd Order	DPI Classification (June 2012)			Class 1	Class 2	Class 3	Class 4	DPI Classification (June 2012)	On easement	Off easement	On easement	Off easement	On easement	Off easement				
1	2	C1	Figure 2a	1									1		1								✓		To be confirmed (TBC), Sediment and erosion controls to minimise impact of Category 2 access track construction.	
2	3	C2	Figure 2a	1			3rd						1				1						✓	✓	No flowing water course identified at this location. Works required would be construction of Category 2 access track.	
2	3	C3	Figure 2a	1									1		1								✓		Upgrade of existing crossing. Nature of works and design TBC	
3	4	C4	Figure 2a	1			2nd					1					1						✓		Bed level crossing installation- Nature of works and design TBC	
3	4	C5	Figure 2a	1			3rd					1				1							✓	✓	TBC. Recommendation for installation of a piped culvert at minimum.	
3	4	C6	Figure 2a	1			3rd					1					1						✓	✓	TBC. Recommendation for installation of a piped culvert at minimum.	
3	4	C7	Figure 2a	1			2nd		1		1						1						✓		TBC. Recommendation for installation of a boxed culvert at minimum due to proximity to AECDR).	
4	5	C8	Figure 2b	1			3rd					1			1								✓	✓	Field inspection notes minimal works would be required. Nature of works TBC. Recommended guidance suggests installation of a piped culvert at minimum if structure is required.	
4	5	C9	Figure 2b	1									1					1					✓		TBC. Bed level crossing installation- Nature of works and design TBC	
4	5	C10	Figure 2b	1									1					1					✓		TBC. Bed level crossing installation- Nature of works and design TBC	
4	5	C11	Figure 2b	1									1			1							✓		TBC. Bed level crossing installation- Nature of works and design TBC	
6	7	C12	Figure 2b	1			3rd						1					1						✓		Not identified during preliminary site walkover. Nature of works and design TBC following further field assessment.
6	7	C13	Figure 2b	1									1			1							✓		Upgrade of existing crossing. Nature of works and design TBC	
6	7	C14	Figure 2b	1									1				1						✓		TBC. Bed level crossing installation- Nature of works and design TBC	
6	7	C15	Figure 2b	1									1				1						✓		TBC. Bed level crossing installation- Nature of works and design TBC	
8	9	C16	Figure 2c		1		4th				1			2		1							✓	✓	Recommendation for a bridge or box culvert installation/ upgrade at this location. Bank protection works required. Design TBC	
8	9	C17	Figure 2c	1			1st					1					1						✓		Recommendation for a box culvert installation. Bank protection works required. Design TBC	
8	9	C18	Figure 2c	1			2nd					1						1					✓		Recommendation for a box culvert installation. Bank protection works required. Design TBC	
9	10	C19	Figure 2c		1		1st					1						1					✓		TBC. Recommendation for installation of a piped culvert at minimum.	
		TBC*																							Identified as Sandy Creek by DPI (1.06.12). Crossing requirements TBC.	
10	11	C20	Figure 2c		1		4th		1	1				2	1								✓	✓	Recommendation for a bridge or box culvert installation/ upgrade at this location. Bank protection works required. Design TBC	
11	12	C21	Figure 2d	1			1st						1				1									TBC. Bed level crossing installation- Nature of works and design TBC
11	12	C22	Figure 2d	1			1st						1				1									TBC. Bed level crossing installation- Nature of works and design TBC
11	12	C23	Figure 2d	1									1			1							✓			TBC. Bed level crossing installation- Nature of works and design TBC
11	12	C24	Figure 2d	1									1		1								✓			TBC. Bed level crossing installation- Nature of works and design TBC

Based on revised mapping provided in Appendix C.

* DPI provided assessment based on analysis of 1:25000 topographic mapping (June 2012). Crossing requirement at this location TBC

Far North NSW (Dumaresq to Lismore 330kV Transmission Line) Project

Based on revised mapping provided in Appendix C.

* DPI provided assessment based on analysis of 1:25000 topographic mapping (June 2012). Crossing requirement at this location TBC

Far North NSW (Dumaresq to Lismore 330kV Transmission Line) Project

Based on revised mapping provided in Appendix C.

Far North NSW (Dumaresq to Lismore 330kV Transmission Line) Project

Based on revised mapping provided in Appendix C.

Far North NSW (Dumaresq to Lismore 330kV Transmission Line) Project

Based on revised mapping provided in Appendix C.

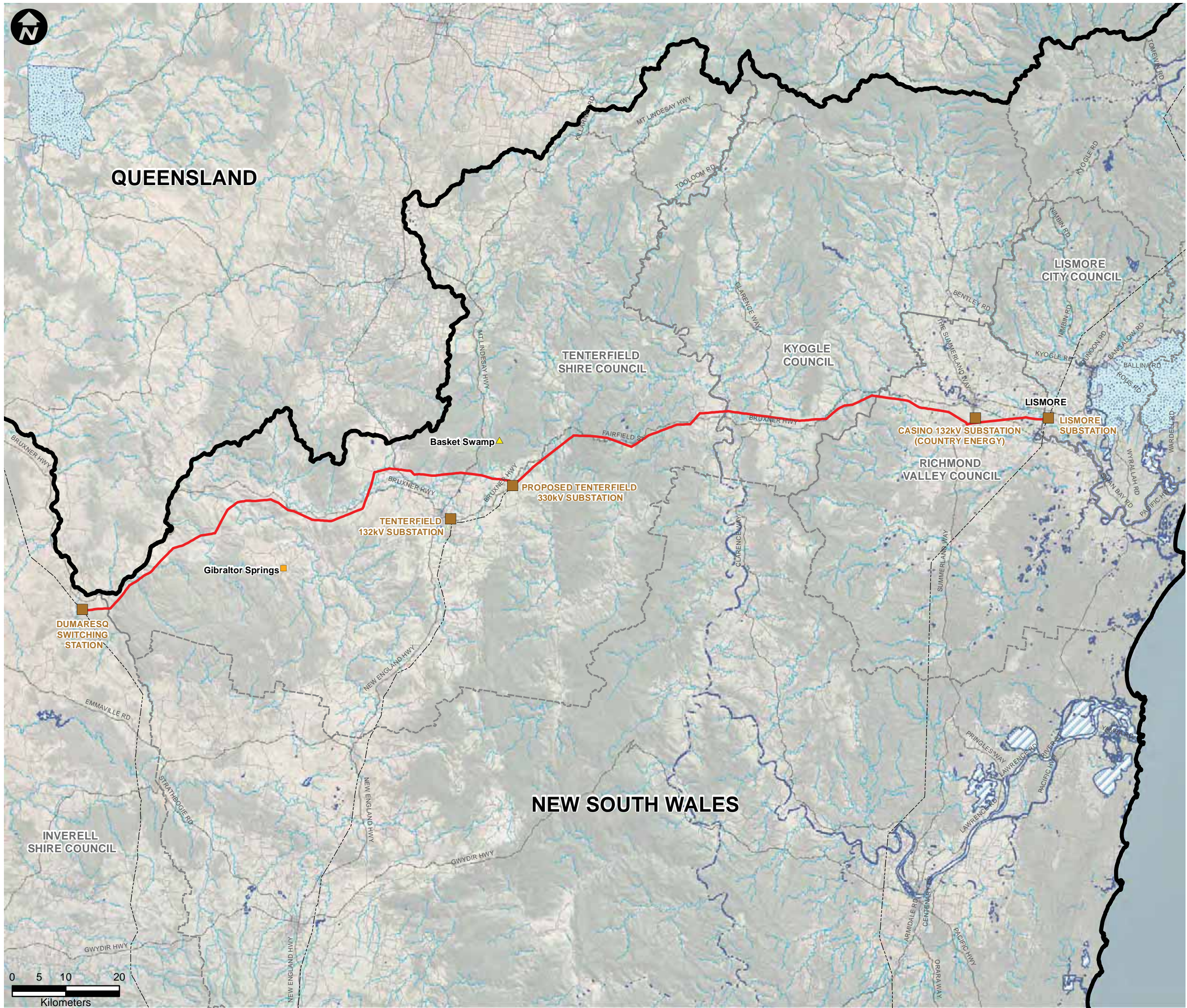
Far North NSW (Dumaresq to Lismore 330kV Transmission Line) Project

Based on revised mapping provided in Appendix C.

Creek Crossing Locations between Angle Positions				Creek Crossing ID	Figure References	Strahler Classification				Threatened aquatic spp	Threatened Ecological Community	Waterway Assessment Classification					Identified Creek Crossings				Unconfirmed or no works required (ie. Suitable crossing exists or site access restrictions)		Preliminary site inspection completed?	Further consultation with DPI required for this location	Preliminary description of works and Guidance Recommendations for minimum requirements		
																	Existing to be upgraded		New creek crossing to be installed								
																	On easement	Off easement	On easement	Off easement						On easement	Off easement
					1st order	2nd Order	3rd Order	DPI Classification (June 2012)						Class 1	Class 2	Class 3	Class 4	DPI Classification (June 2012)	On easement	Off easement	On easement	Off easement	On easement	Off easement			
51	52	C91	Figure 2w		1		5th					1	1							1			✓	✓	As yet, no crossing identified as a requirement, although category 1 access track crosses minor stream. Bed level crossing installation or culvert if required - Nature of works and design TBC		
51	52	C92	Figure 2w	1			3rd					1							1			✓	✓	As yet, no crossing identified as a requirement, although category 1 access track crosses minor stream. Bed level crossing installation or culvert if required - Nature of works and design TBC			
52	53	C93	Figure 2x	1			1st						1		1							✓		Upgrade of existing crossing. Nature of works and design; potentially a bed level crossing. TBC			
52	53	C94	Figure 2x	1			1st						1		1							✓		Upgrade of existing crossing. Nature of works and design; potentially a bed level crossing. TBC			
52	53	C95	Figure 2x	1			1st						1		1							✓		Upgrade of existing crossing. Nature of works and design; potentially a bed level crossing. TBC			
52	53	C96	Figure 2x	1			2nd						1		1							✓		Upgrade of existing crossing. Nature of works and design; potentially a bed level crossing. TBC			
53	54	C97	Figure 2x	1			3rd						1			1						✓	✓	Upgrade of existing crossing. Nature of works and design; potentially a bed level crossing. TBC			
53	54	C98	Figure 2x	1			3rd						1		1							✓	✓	Upgrade of existing crossing. Nature of works and design; potentially a bed level crossing. TBC			
53	54	C99	Figure 2x	1			2nd						1		1							✓		Upgrade of existing crossing. Nature of works and design; potentially a bed level crossing. TBC			
54	55	C100	Figure 2y	1			5th					1	1							1		✓	✓	As yet, no crossing identified as a requirement, although category 2 access track crosses tributary of Deep Ck. Given permanent flow, consideration would be given to pipe or box culvert at this location following field inspection.			
55	56	C101	Figure 2y/z	1			2nd						1			1						✓		Upgrade of existing crossing. Nature of works and design; potentially a bed level crossing. TBC			
57	58	C102	Figure 2y/z		1		5th					1	1			1						✓	✓	Crossing upgrade identified as a requirement. Given permanent flow and riparian habitat, consideration would be given to pipe or box culvert at this location following field inspection and confirmation of requirements. TBC			
58	59	C103	Figure 2z	1			3rd					1			1							✓	✓	Crossing upgrade identified as a requirement. Given permanent flow and riparian habitat, consideration would be given to pipe or box culvert at this location following field inspection and confirmation of requirements. TBC			
59	60	C104	Figure 2aa	1			3rd					1							1			✓	✓	As yet undetermined whether crossing is required to be installed as part of Category 3 access track work. Adequate sediment and erosion controls required at this location given access track has been identified as Category 3. TBC			

Creek Crossing Locations between Angle Positions				Creek Crossing ID	Figure References	Strahler Classification				Threatened aquatic spp		Threatened Ecological Community		Waterway Assessment Classification					Identified Creek Crossings				Unconfirmed or no works required (ie. Suitable crossing exists or site access restrictions)		Preliminary site inspection completed?		Further consultation with DPI required for this location	Preliminary description of works and Guidance Recommendations for minimum requirements
																			Existing to be upgraded		New creek crossing to be installed		On easement	Off easement				
																			On easement	Off easement	On easement	Off easement						
1st order	2nd Order	3rd Order	DPI Classification (June 2012)	Class 1	Class 2	Class 3	Class 4	DPI Classification (June 2012)	On easement	Off easement	On easement	Off easement	On easement	Off easement														
61	62	C105	Figure 2ab	1			1st						1						1		✓		TBC. Nature of works and design TBC					
61	62	C106	Figure 2ac	1			2nd						1						1		✓		As yet, no crossing identified as a requirement, although category 3 access track crosses minor stream. Bed level crossing installation or culvert if required - Nature of works and design TBC. Sediment and erosion controls important due to significant potential earthworks.					
65	66	C107	Figure 2ad	1			2nd						1								✓		TBA. Access arrangements would preferentially avoid crossing any watercourses therefore potentially no works at this location.					
66	67	C108	Figure 2ae			1	6th			1				1							✓	✓	TBA. Access arrangements would preferentially avoid crossing any watercourses. Unlikely that TG would propose a water course crossing at this location over the Richmond River given a minimum requirement would be construction of a bridge crossing.					
67	68	C109	Figure 2ae		1		4th				1			2							✓	✓	TBA. Access arrangements would preferentially avoid crossing any watercourses. Unlikely that TG would propose a water course crossing at this location over Ealshs Ck given a minimum requirement would be construction of a box culvert crossing or bridge.					

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LEGEND:

- Existing Transmission Lines^
- Proposed 330kV Alignment^
- Substation/Switching Station
- Roads
- Waterways
- Basket Swamp
- Gibraltar Springs
- Wetlands*
- Groundwater Dependent Ecosystems**
- State Border
- Local Government Area

Symbols and lines used in this figure are indicative and are not intended to reflect actual size of represented features.
Symbols and lines have been enhanced to aid visibility.

Source: Aerial Imagery from © Microsoft Bing Maps 2010
^ Transgrid 2010
* Wetlands of New South Wales. Department of Environment, Climate Change & Water - DECCW (2003)
** Australian Water Resources Assessment 2000 - NLWRA (2000) Surface Water Management Areas, (c) Commonwealth of Australia

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Client TransGrid		
Project FAR NORTH NSW (DUMARESQ - LISMORE 330kV TRANSMISSION LINE) PROJECT		
Title WETLANDS AND GROUNDWATER DEPENDENT ECOSYSTEMS		
Figure: C-3		
		

LEGEND:

- Existing 96L 132kV Structure Locations[^]
- Existing Transmission Lines[^]
- Proposed 330kV Angle Positions (Indicative)[^]
- Proposed 330kV Structure Locations (Indicative)[^]
- Proposed 330kV Centreline[^]
- Proposed 330kV Easement[^]
- Substation/Switching Station
- Roads

Waterways*:

- Major / Permanent Flow
- - - Major / Intermittent Flow
- - - Minor / Intermittent Flow

Access Tracks*:

- - - Category 1
- - - Category 2
- - - Category 3

C11 Identified or Potential Waterway Crossing Locations

- Creek Crossing (New)
- Creek Crossing (Upgrade Required)
- - - Aquatic Ecological Community of the Lowland Catchment of the Darling River (AECDR)

NSW DPI FFRD Threatened Species Records#:

- Maccullochella ikei*
- Mogurnda adspersa*

Endangered Populations#:

- Ambassis agassizii*
- Tandanus tandanus*

Commonwealth EPBC Act Listed Species~:

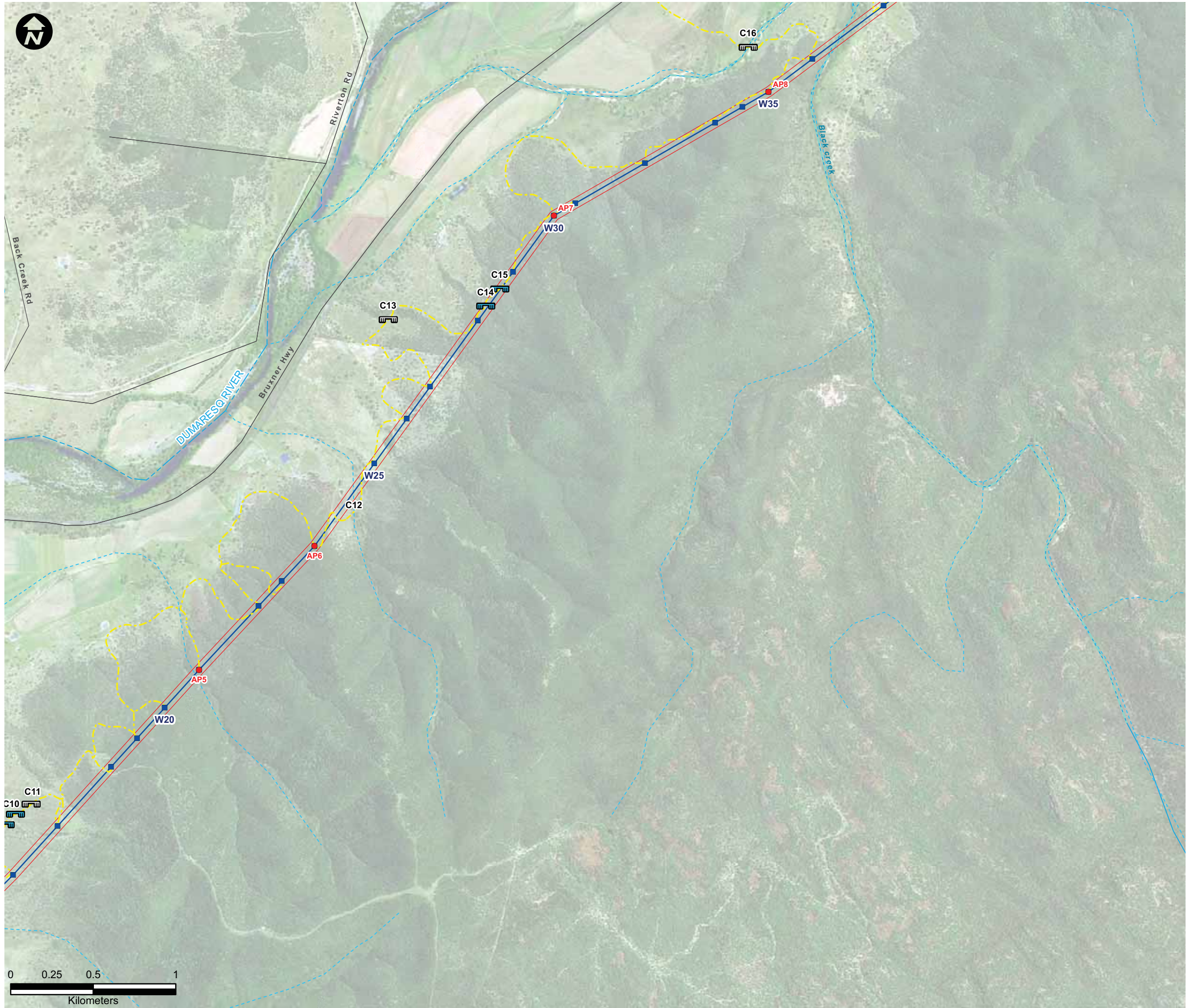
- Maccullochella peelii peelii*

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^{*} Refer to Table B-1 for access track classifications
[#] Fresh Water Fish Research Database - Dr Dean Gilligan, 2011 and John F. Pursey
[~] Digitised from DPI's online Fishing and Aquaculture Records Viewer (<http://www.dpi.nsw.gov.au/fisheries/species-protection/records/viewer>)

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Job No.: 43177662	File No.: 43177662.140-4.mxd	
Client TransGrid		
Project FAR NORTH NSW (DUMARESQ - LISMORE 330kV TRANSMISSION LINE) PROJECT		
Title SURFACE WATER AND HYDROLOGY MAPPING SERIES (REVISED)		
Figure: 2a		

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LEGEND:

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- Existing Transmission Lines[^]
- Proposed 330kV Angle Positions (Indicative)[^]
- Proposed 330kV Structure Locations (Indicative)[^]
- Proposed 330kV Centreline[^]
- Proposed 330kV Easement[^]
- Substation/Switching Station
- Roads

Waterways*:

- Major / Permanent Flow
- Major / Intermittent Flow
- Minor / Intermittent Flow

Access Tracks*:

- Category 1
- Category 2
- Category 3

C11 Identified or Potential Waterway Crossing Locations

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- Creek Crossing (Upgrade Required)
- Aquatic Ecological Community of the Lowland Catchment of the Darling River (AECDR)

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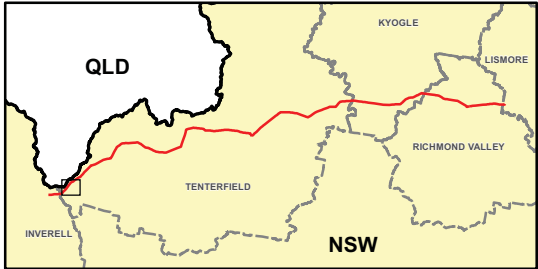
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TransGrid

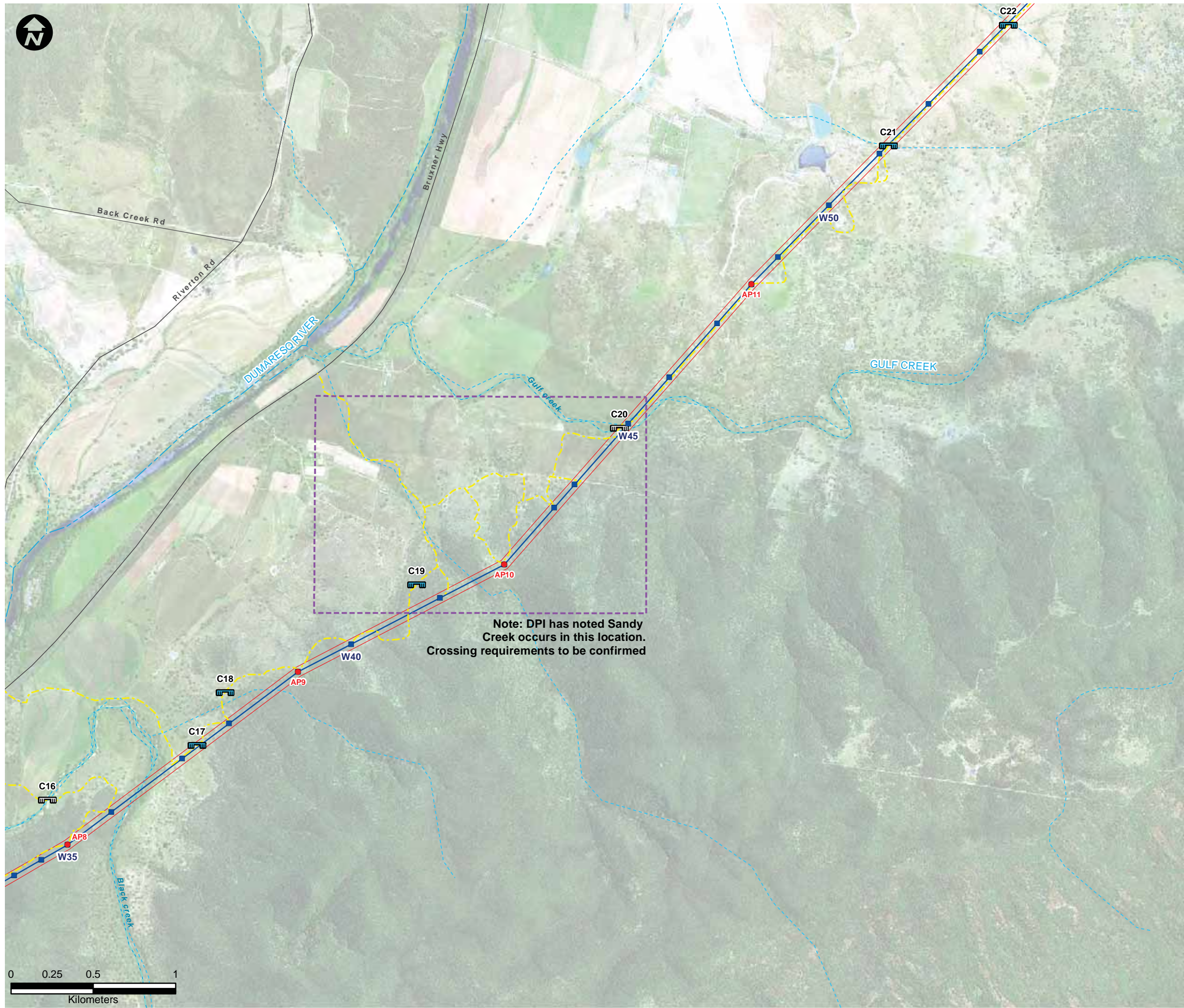
Project
FAR NORTH NSW
(DUMARESQ - LISMORE
330kV TRANSMISSION LINE)
PROJECT

Title
SURFACE WATER AND
HYDROLOGY MAPPING SERIES
(REVISED)

Figure: 2b



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LEGEND:

- Existing 96L 132kV Structure Locations^
- Existing Transmission Lines^
- Proposed 330kV Angle Positions (Indicative)^
- Proposed 330kV Structure Locations (Indicative)^
- Proposed 330kV Centreline^
- Proposed 330kV Easement^
- Substation/Switching Station
- Roads

Waterways*:

- Major / Permanent Flow
- Major / Intermittent Flow
- Minor / Intermittent Flow

Access Tracks*:

- Category 1
- Category 2
- Category 3

C11 Identified or Potential Waterway Crossing Locations

- Creek Crossing (New)
- Creek Crossing (Upgrade Required)
- Aquatic Ecological Community of the Lowland Catchment of the Darling River (AECDR)

NSW DPI FFRD Threatened Species Records# :

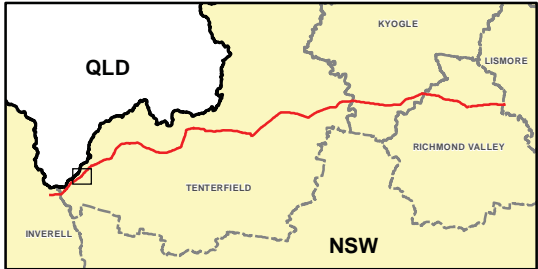
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- Mogurnda adspersa*

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Client
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Project
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330kV TRANSMISSION LINE)
PROJECT

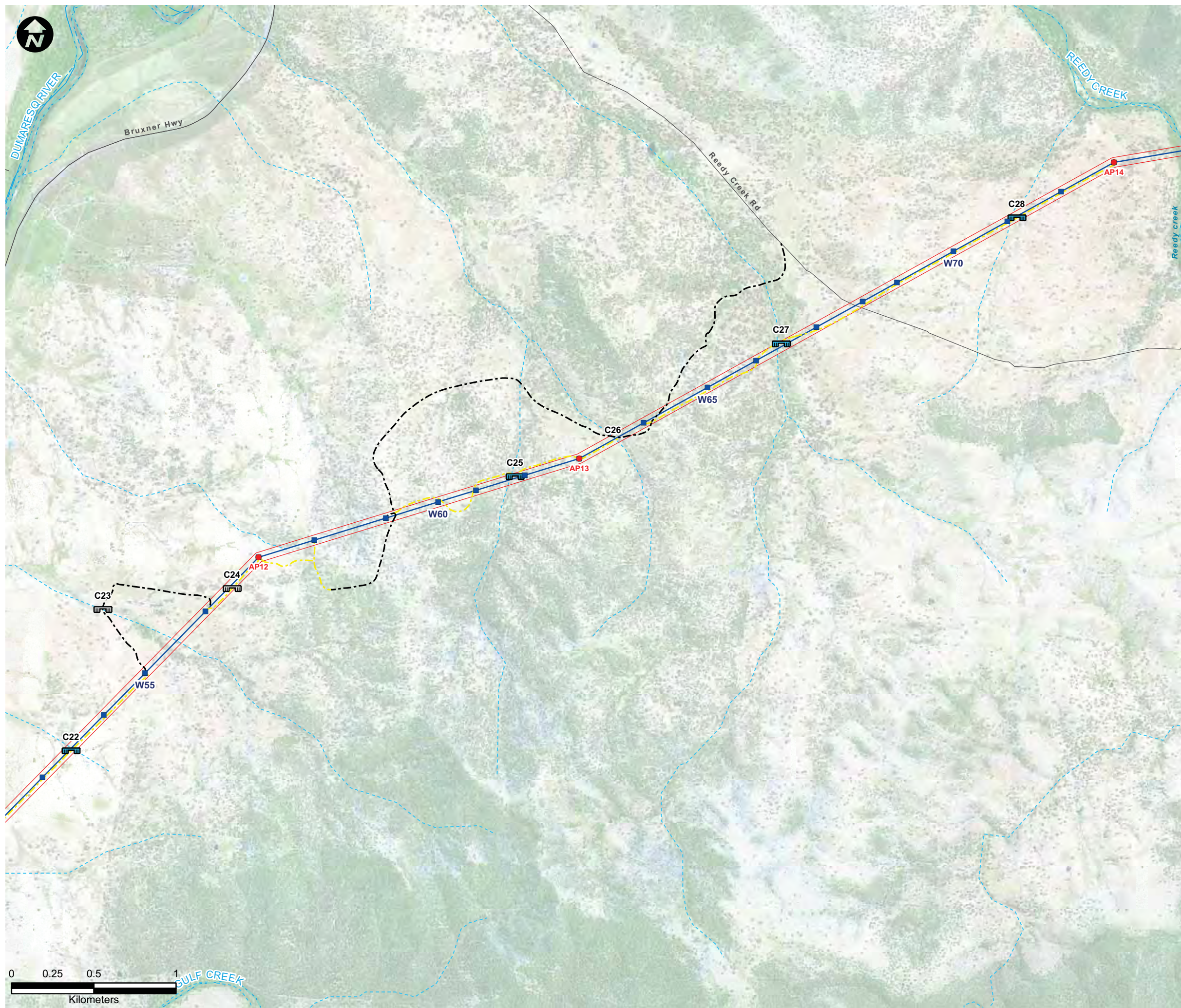
Title
SURFACE WATER AND
HYDROLOGY MAPPING SERIES
(REVISED)

Figure: 2c



Datum: GDA94, Projection: UTM, Grid: MGA Zone 56

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Datum: GDA94, Projection: UTM, Grid: MGA Zone 56

LEGEND:

- Existing 96L 132kV Structure Locations[^]
- Existing Transmission Lines[^]
- Proposed 330kV Angle Positions (Indicative)[^]
- Proposed 330kV Structure Locations (Indicative)[^]
- Proposed 330kV Centreline[^]
- Proposed 330kV Easement[^]
- Substation/Switching Station
- Roads

Waterways⁺:

- Major / Permanent Flow
- Major / Intermittent Flow
- Minor / Intermittent Flow

Access Tracks⁺:

- Category 1
- Category 2
- Category 3

C11 Identified or Potential Waterway Crossing Locations

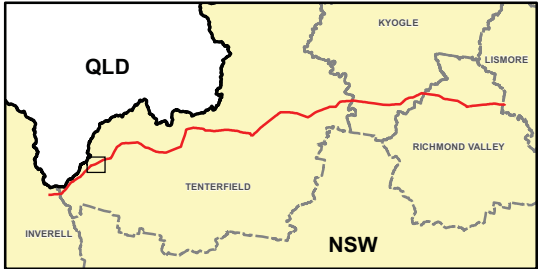
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- Creek Crossing (Upgrade Required)
- Aquatic Ecological Community of the Lowland Catchment of the Darling River (AECDR)

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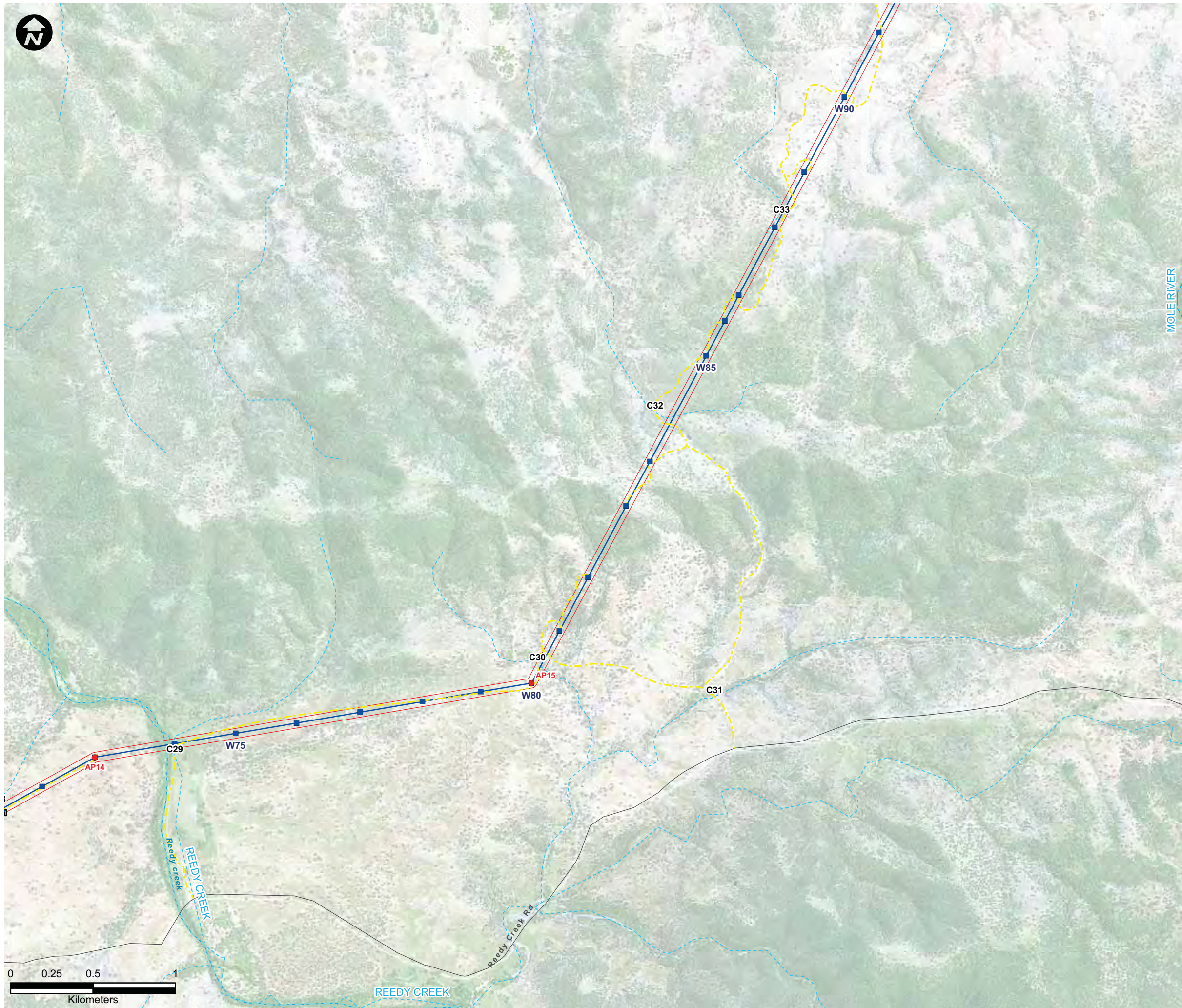
Project
FAR NORTH NSW
(DUMARESQ - LISMORE
330kV TRANSMISSION LINE)
PROJECT

Title
SURFACE WATER AND
HYDROLOGY MAPPING SERIES
(REVISED)

Figure: 2d

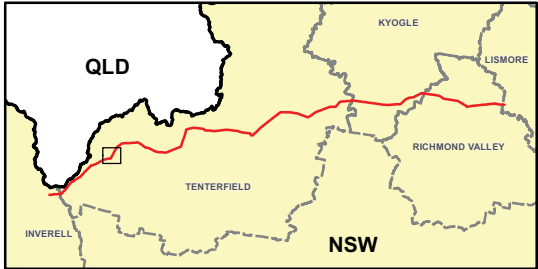
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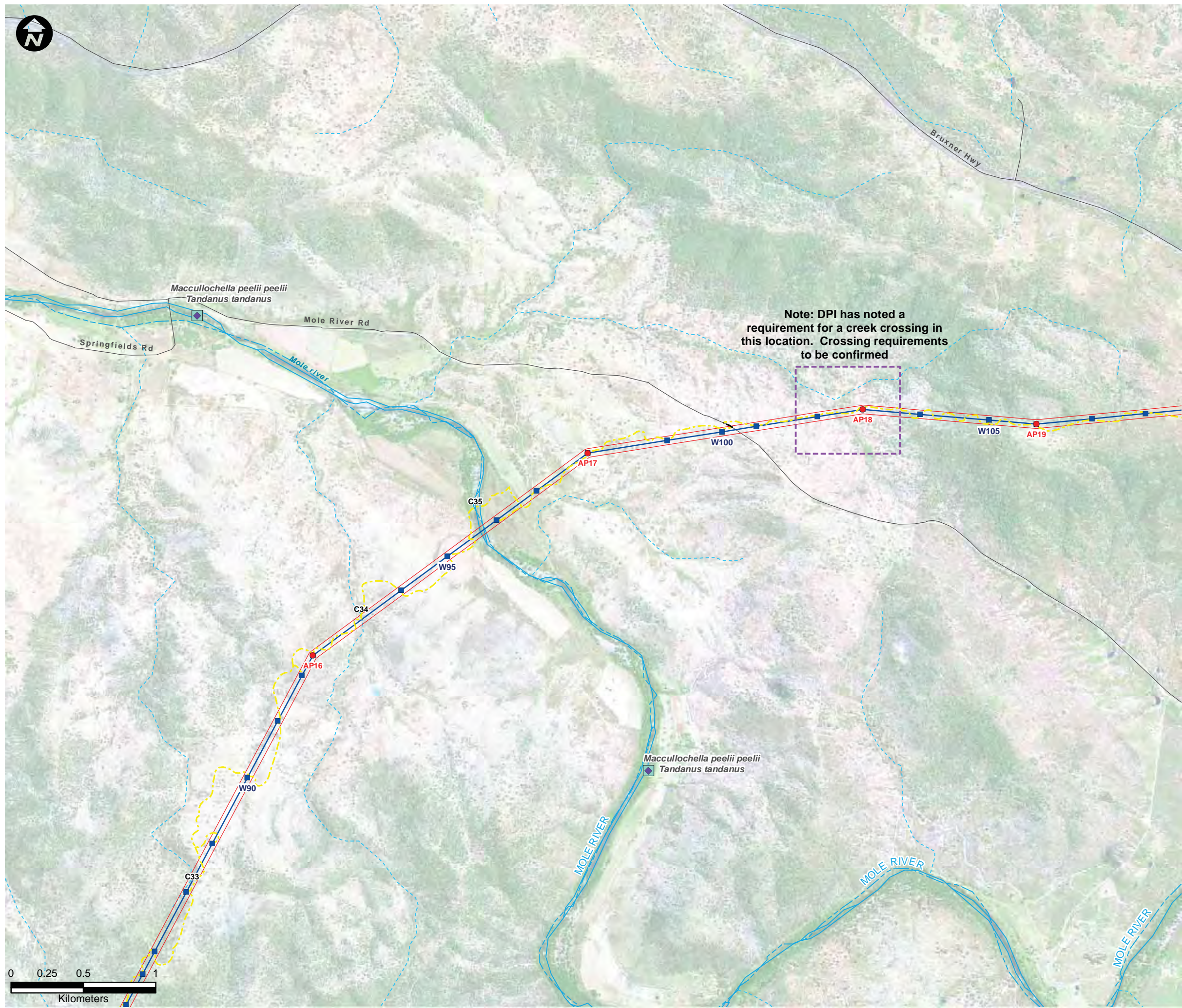
- Existing 96L 132kV Structure Locations[^]
- Existing Transmission Lines[^]
- Proposed 330kV Angle Positions (Indicative)[^]
- Proposed 330kV Structure Locations (Indicative)[^]
- Proposed 330kV Centreline[^]
- Proposed 330kV Easement[^]
- Substation/Switching Station
- Roads
- Waterways⁺:**
 - Major / Permanent Flow
 - Major / Intermittent Flow
 - Minor / Intermittent Flow
- Access Tracks⁺:**
 - Category 1
 - Category 2
 - Category 3
- C11** Identified or Potential Waterway Crossing Locations
 - Creek Crossing (New)
 - Creek Crossing (Upgrade Required)
- Aquatic Ecological Community of the Lowland Catchment of the Darling River (AECDR)
- NSW DPI FFRD Threatened Species Records[#]:**
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 - Mogurnda adspersa*
- Endangered Populations[#]:**
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 - Maccullochella peelii peelii*



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Job No.: 43177662	File No.:43177662.140-4.mxd	
Client TransGrid		
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Title SURFACE WATER AND HYDROLOGY MAPPING SERIES (REVISED)		
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LEGEND:

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- Proposed 330kV Structure Locations (Indicative)^
- Proposed 330kV Centreline^
- Proposed 330kV Easement^
- Substation/Switching Station
- Roads

Waterways*:

- Major / Permanent Flow
- Major / Intermittent Flow
- Minor / Intermittent Flow

Access Tracks*:

- Category 1
- Category 2
- Category 3

C11 Identified or Potential Waterway Crossing Locations

- Creek Crossing (New)
- Creek Crossing (Upgrade Required)
- Aquatic Ecological Community of the Lowland Catchment of the Darling River (AECDR)

NSW DPI FFRD Threatened Species Records# :

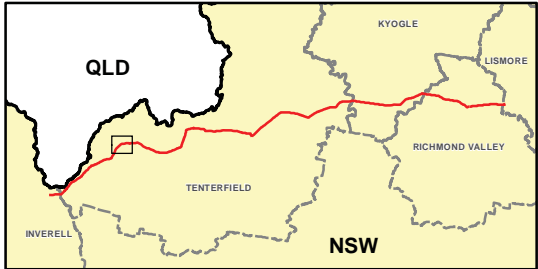
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Commonwealth EPBC Act Listed Species~:

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Fresh Water Fish Research Database - Dr Dean Gilligan, 2011

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TransGrid

Project
FAR NORTH NSW
(DUMARESQ - LISMORE
330kV TRANSMISSION LINE)
PROJECT

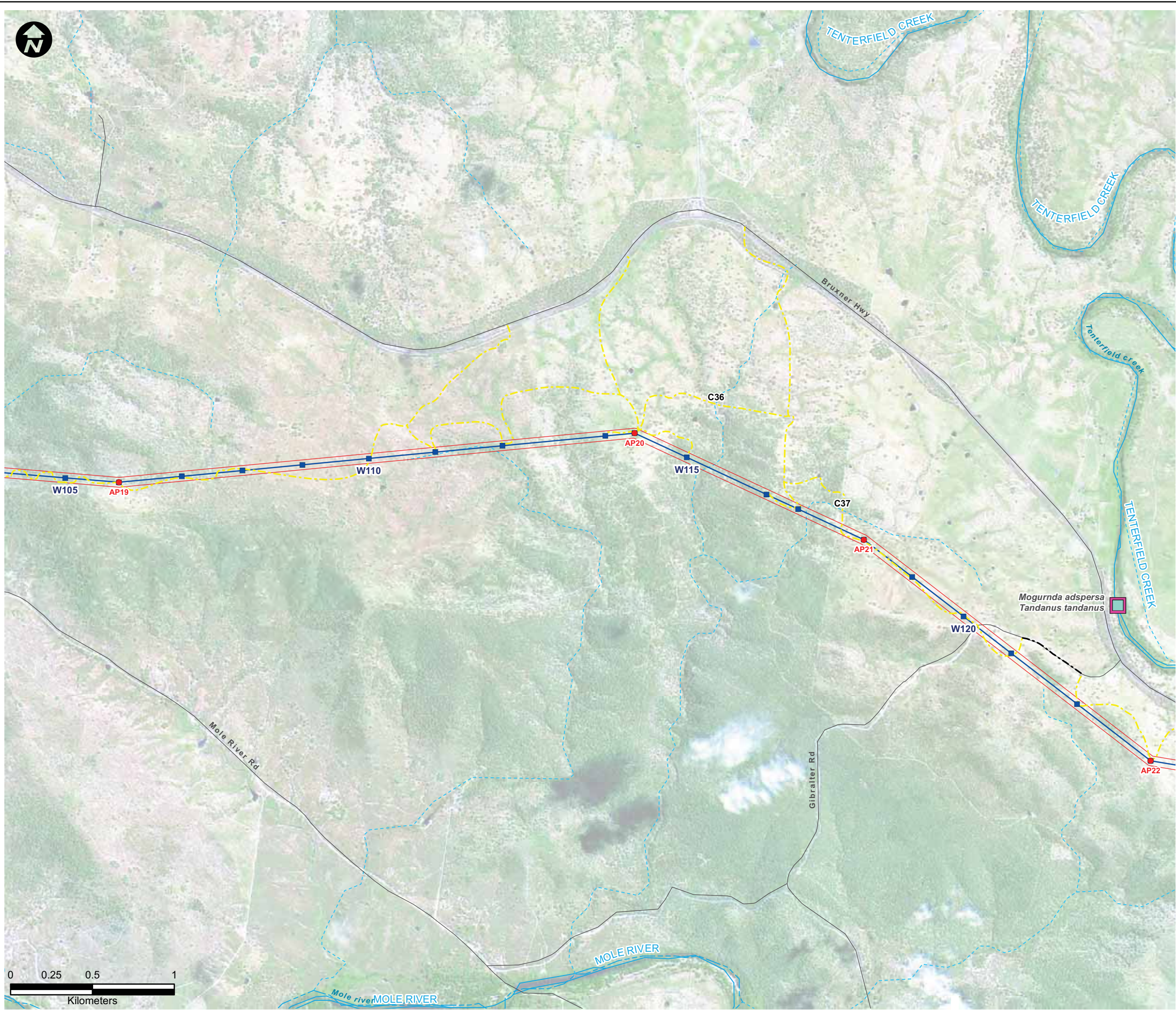
Title
SURFACE WATER AND
HYDROLOGY MAPPING SERIES
(REVISED)

Figure: 2f

URS

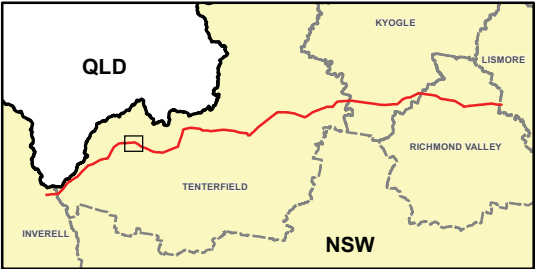
Datum: GDA94, Projection: UTM, Grid: MGA Zone 56

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LEGEND:

- Existing 96L 132kV Structure Locations[^]
- Existing Transmission Lines[^]
- Proposed 330kV Angle Positions (Indicative)[^]
- Proposed 330kV Structure Locations (Indicative)[^]
- Proposed 330kV Centreline[^]
- Proposed 330kV Easement[^]
- Substation/Switching Station
- Roads
- Waterways⁺:**
 - Major / Permanent Flow
 - Major / Intermittent Flow
 - Minor / Intermittent Flow
- Access Tracks⁺:**
 - Category 1
 - Category 2
 - Category 3
- C11** Identified or Potential Waterway Crossing Locations
 - Creek Crossing (New)
 - Creek Crossing (Upgrade Required)
 - Aquatic Ecological Community of the Lowland Catchment of the Darling River (AECDR)
- NSW DPI FFRD Threatened Species Records[#]:**
 - Maccullochella ikei*
 - Mogurnda adspersa*
- Endangered Populations[#]:**
 - Ambassis agassizii*
 - Tandanus tandanus*
- Commonwealth EPBC Act Listed Species[~]:**
 - Maccullochella peelii peelii*



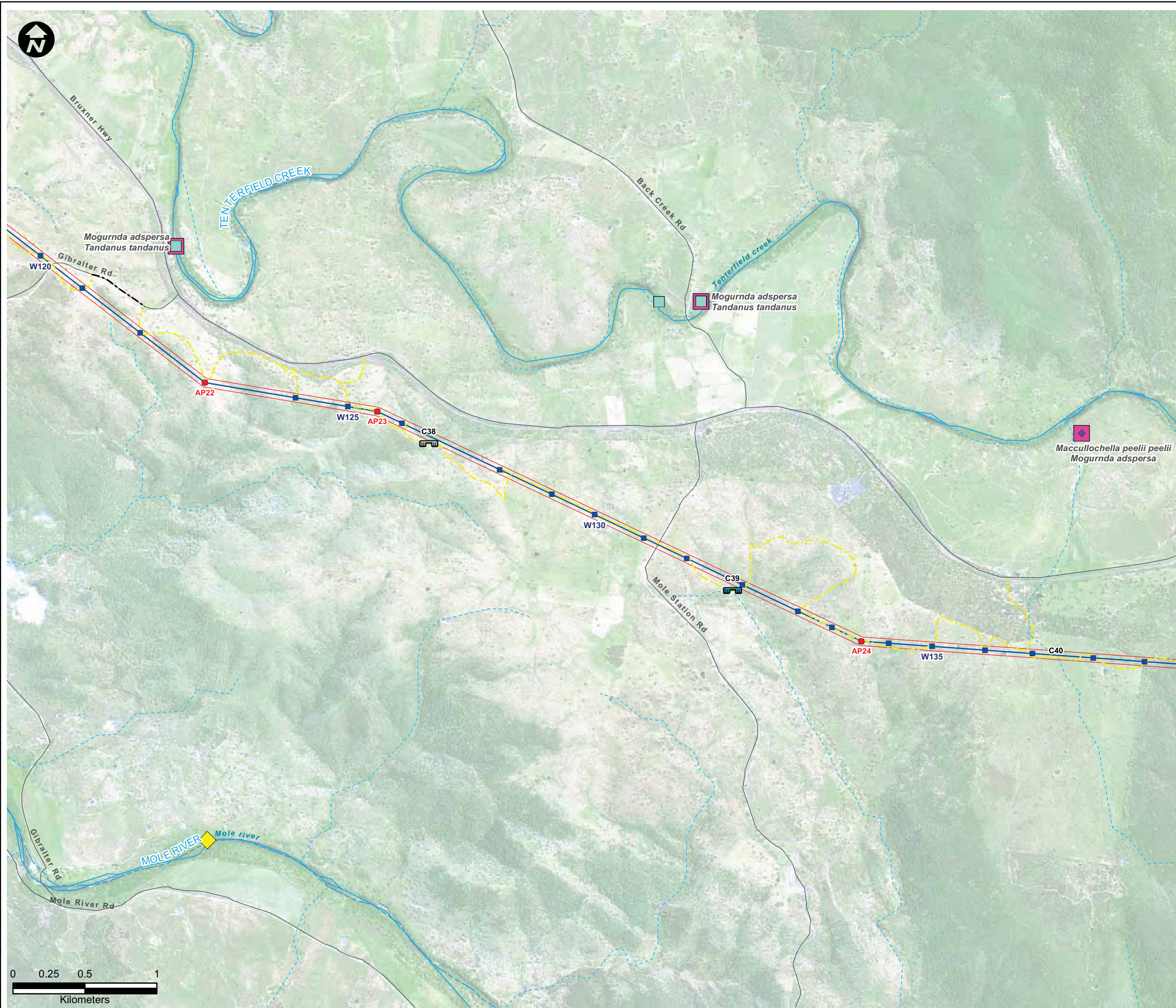
Symbols and lines used in this figure are indicative and are not intended to reflect actual size of represented features.
Symbols and lines have been enhanced to aid visibility.

Source: Aerial Imagery from TransGrid 2009.
[^] TransGrid 2010
⁺ Commonwealth of Australia (Geoscience Australia) 2010
^{*} Refer to Table B-1 for access track classifications
[#] Fresh Water Fish Research Database - Dr Dean Gilligan, 2011 and John F. Pursey
[~] Digitised from DPI's online Fishing and Aquaculture Records Viewer (<http://www.dpi.nsw.gov.au/fisheries/species-protection/records/viewer>)

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Job No.: 43177662	File No.:43177662.140-4.mxd	
Client TransGrid		
Project FAR NORTH NSW (DUMARESQ - LISMORE 330kV TRANSMISSION LINE) PROJECT		
Title SURFACE WATER AND HYDROLOGY MAPPING SERIES (REVISED)		
Figure: 2g		
		

Datum: GDA94, Projection: UTM, Grid: MGA Zone 56

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Datum: GDA94, Projection: UTM, Grid: MGA Zone 56

LEGEND:

- Existing 96L 132kV Structure Locations[^]
- Existing Transmission Lines[^]
- Proposed 330kV Angle Positions (Indicative)[^]
- Proposed 330kV Structure Locations (Indicative)[^]
- Proposed 330kV Centreline[^]
- Proposed 330kV Easement[^]
- Substation/Switching Station
- Roads

Waterways⁺:

- Major / Permanent Flow
- Major / Intermittent Flow
- Minor / Intermittent Flow

Access Tracks⁺:

- Category 1
- Category 2
- Category 3

C11 Identified or Potential Waterway Crossing Locations

- Creek Crossing (New)
- Creek Crossing (Upgrade Required)
- Aquatic Ecological Community of the Lowland Catchment of the Darling River (AECDR)

NSW DPI FFRD Threatened Species Records[#]:

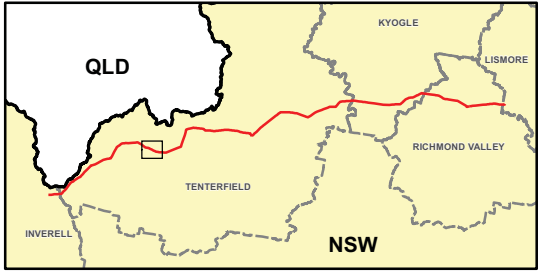
- Maccullochella ikei
- Mogurnda adspersa

Endangered Populations[#]:

- Ambassis agassizii
- Tandanus tandanus

Commonwealth EPBC Act Listed Species[~]:

- Maccullochella peelii peelii



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[^] TransGrid 2010

⁺ Commonwealth of Australia (Geoscience Australia) 2010

^{*} Refer to Table B-1 for access track classifications

[#] Fresh Water Fish Research Database - Dr Dean Gilligan, 2011 and John F. Pursey

[~] Digitised from DPI's online Fishing and Aquaculture Records Viewer (<http://www.dpi.nsw.gov.au/fisheries/species-protection/records/viewer>)

Drawn: SB/STB Approved: KT Date: 07/03/2012

Job No.: 43177662 File No.: 43177662.140-4.mxd

Client TransGrid

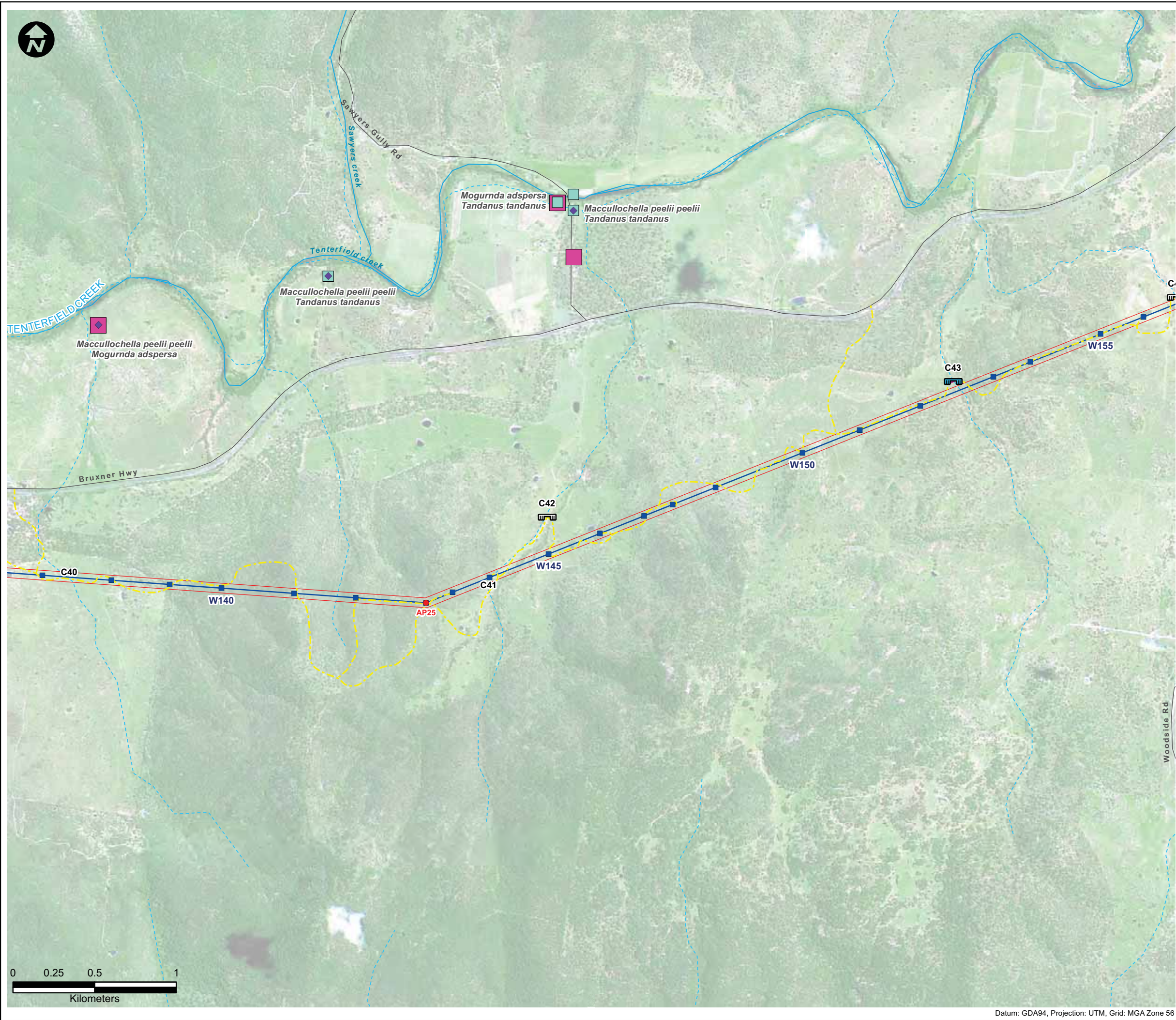
Project FAR NORTH NSW (DUMARESQ - LISMORE) 330kV TRANSMISSION LINE) PROJECT

Title SURFACE WATER AND HYDROLOGY MAPPING SERIES (REVISED)

Figure: 2h



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LEGEND:

- Existing 96L 132kV Structure Locations[^]
- Existing Transmission Lines[^]
- Proposed 330kV Angle Positions (Indicative)[^]
- Proposed 330kV Structure Locations (Indicative)[^]
- Proposed 330kV Centreline[^]
- Proposed 330kV Easement[^]
- Substation/Switching Station
- Roads
- Waterways⁺:**
 - Major / Permanent Flow
 - Major / Intermittent Flow
 - Minor / Intermittent Flow
- Access Tracks⁺:**
 - Category 1
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 - Category 3
- C11** Identified or Potential Waterway Crossing Locations
 - Creek Crossing (New)
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- NSW DPI FFRD Threatened Species Records[#]:**
 - Maccullochella ikei*
 - Mogurnda adspersa*
- Endangered Populations[#]:**
 - Ambassis agassizii*
 - Tandanus tandanus*
- Commonwealth EPBC Act Listed Species[~]:**
 - Maccullochella peelii peelii*

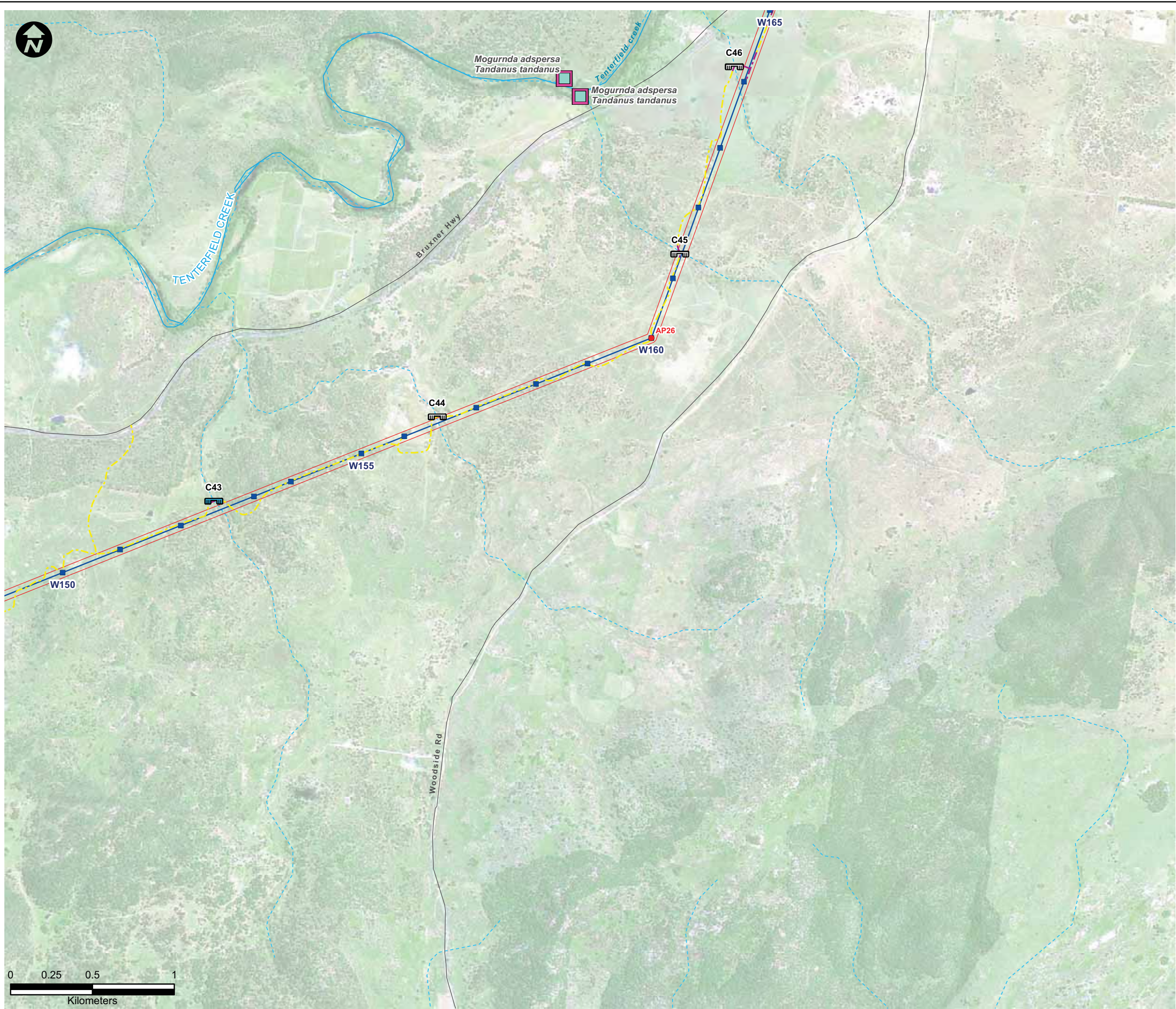
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Drawn: SB/STB	Approved: KT	Date: 07/03/2012
Job No.: 43177662	File No.: 43177662.140-4.mxd	
Client TransGrid		
Project FAR NORTH NSW (DUMARESQ - LISMORE 330kV TRANSMISSION LINE) PROJECT		
Title SURFACE WATER AND HYDROLOGY MAPPING SERIES (REVISED)		
Figure: 2i		

Datum: GDA94, Projection: UTM, Grid: MGA Zone 56

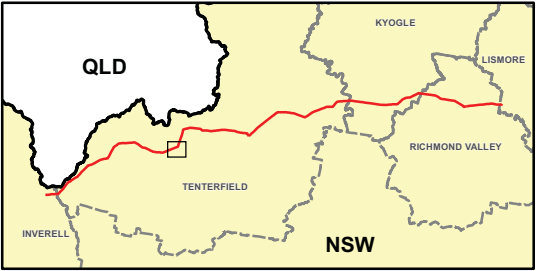
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Datum: GDA94, Projection: UTM, Grid: MGA Zone 56

LEGEND:

- Existing 96L 132kV Structure Locations[^]
- Existing Transmission Lines[^]
- Proposed 330kV Angle Positions (Indicative)[^]
- Proposed 330kV Structure Locations (Indicative)[^]
- Proposed 330kV Centreline[^]
- Proposed 330kV Easement[^]
- Substation/Switching Station
- Roads
- Waterways⁺:**
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 - Major / Intermittent Flow
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- Access Tracks⁺:**
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 - Mogurnda adspersa*
- Endangered Populations[#]:**
 - Ambassis agassizii*
 - Tandanus tandanus*
- Commonwealth EPBC Act Listed Species[~]:**
 - Maccullochella peelii peelii*



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Drawn: SB/STB | Approved: KT | Date: 07/03/2012

Job No.: 43177662 | File No.: 43177662.140-4.mxd

Client
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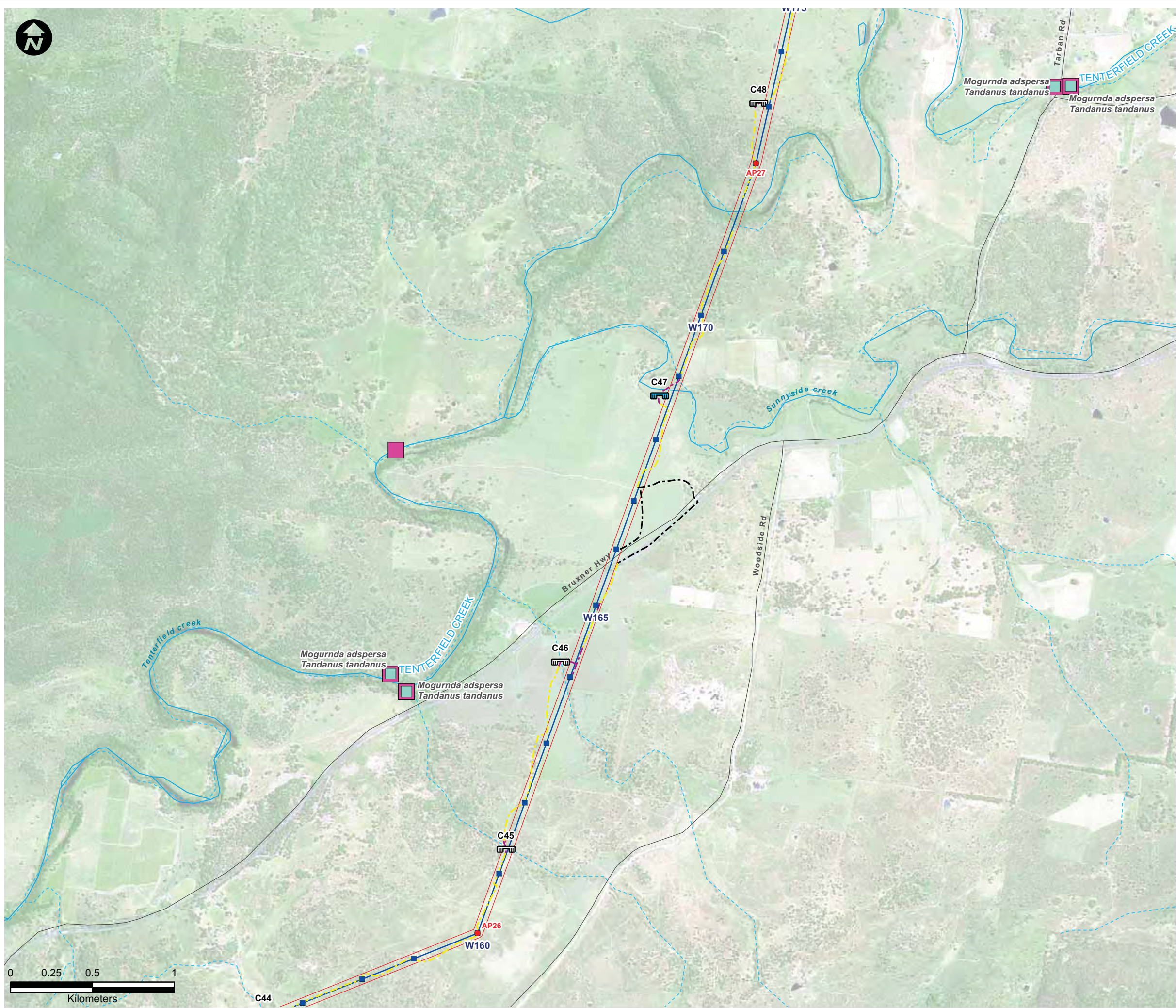
Project
FAR NORTH NSW
(DUMARESQ - LISMORE
330kV TRANSMISSION LINE)
PROJECT

Title
SURFACE WATER AND
HYDROLOGY MAPPING SERIES
(REVISED)

Figure: 2j



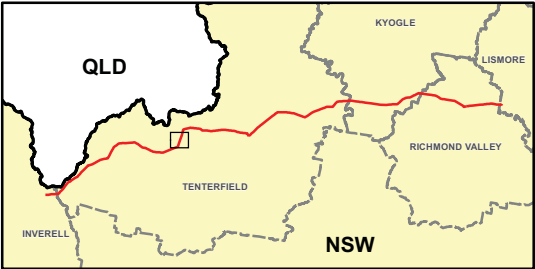
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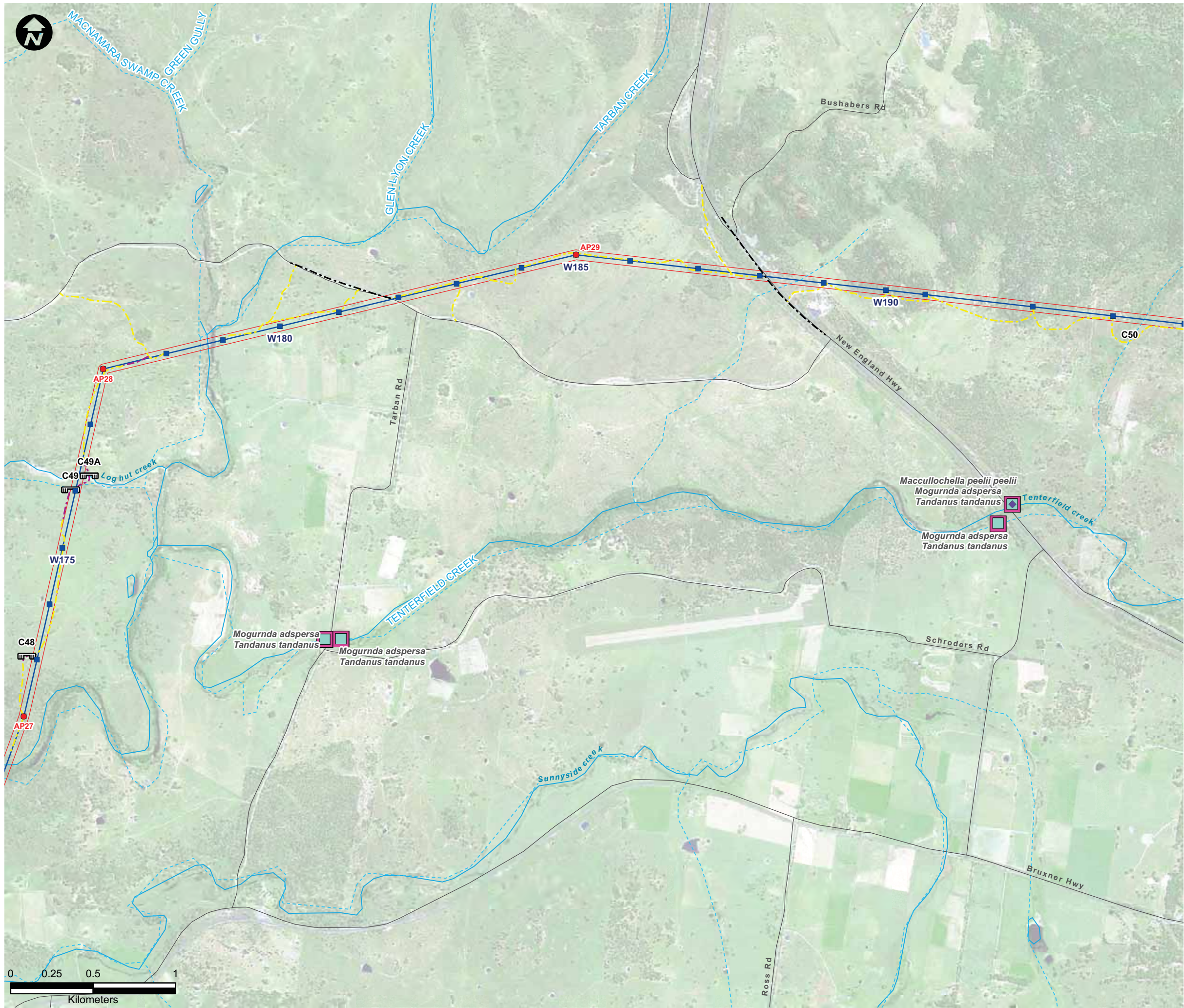
- Existing 96L 132kV Structure Locations[^]
- Existing Transmission Lines[^]
- Proposed 330kV Angle Positions (Indicative)[^]
- Proposed 330kV Structure Locations (Indicative)[^]
- Proposed 330kV Centreline[^]
- Proposed 330kV Easement[^]
- Substation/Switching Station
- Roads
- Waterways⁺:**
 - Major / Permanent Flow
 - Major / Intermittent Flow
 - Minor / Intermittent Flow
- Access Tracks⁺:**
 - Category 1
 - Category 2
 - Category 3
- C11** Identified or Potential Waterway Crossing Locations
 - Creek Crossing (New)
 - Creek Crossing (Upgrade Required)
- Aquatic Ecological Community of the Lowland Catchment of the Darling River (AECDR)
- NSW DPI FFRD Threatened Species Records[#]:**
 - Maccullochella ikei*
 - Mogurnda adspersa*
- Endangered Populations[#]:**
 - Ambassis agassizii*
 - Tandanus tandanus*
- Commonwealth EPBC Act Listed Species[~]:**
 - Maccullochella peelii peelii*



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Job No.: 43177662	File No.:43177662.140-4.mxd	
Client TransGrid		
Project FAR NORTH NSW (DUMARESQ - LISMORE 330kV TRANSMISSION LINE) PROJECT		
Title SURFACE WATER AND HYDROLOGY MAPPING SERIES (REVISED)		
Figure: 2k		
		

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LEGEND:

- Existing 96L 132kV Structure Locations[^]
- Existing Transmission Lines[^]
- Proposed 330kV Angle Positions (Indicative)[^]
- Proposed 330kV Structure Locations (Indicative)[^]
- Proposed 330kV Centreline[^]
- Proposed 330kV Easement[^]
- Substation/Switching Station
- Roads

Waterways⁺:

- Major / Permanent Flow
- Major / Intermittent Flow
- Minor / Intermittent Flow

Access Tracks⁺:

- Category 1
- Category 2
- Category 3

C11 Identified or Potential Waterway Crossing Locations

- Creek Crossing (New)
- Creek Crossing (Upgrade Required)
- Aquatic Ecological Community of the Lowland Catchment of the Darling River (AECDR)

NSW DPI FFRD Threatened Species Records[#]:

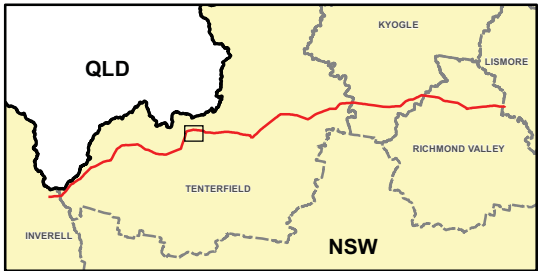
- Maccullochella ikei*
- Mogurnda adspersa*

Endangered Populations[#]:

- Ambassis agassizii*
- Tandanus tandanus*

Commonwealth EPBC Act Listed Species[~]:

- Maccullochella peelii peelii*



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Drawn: SB/STB | Approved: KT | Date: 07/03/2012

Job No.: 43177662 | File No.: 43177662.140-4.mxd

Client
TransGrid

Project
FAR NORTH NSW
(DUMARESQ - LISMORE
330kV TRANSMISSION LINE)
PROJECT

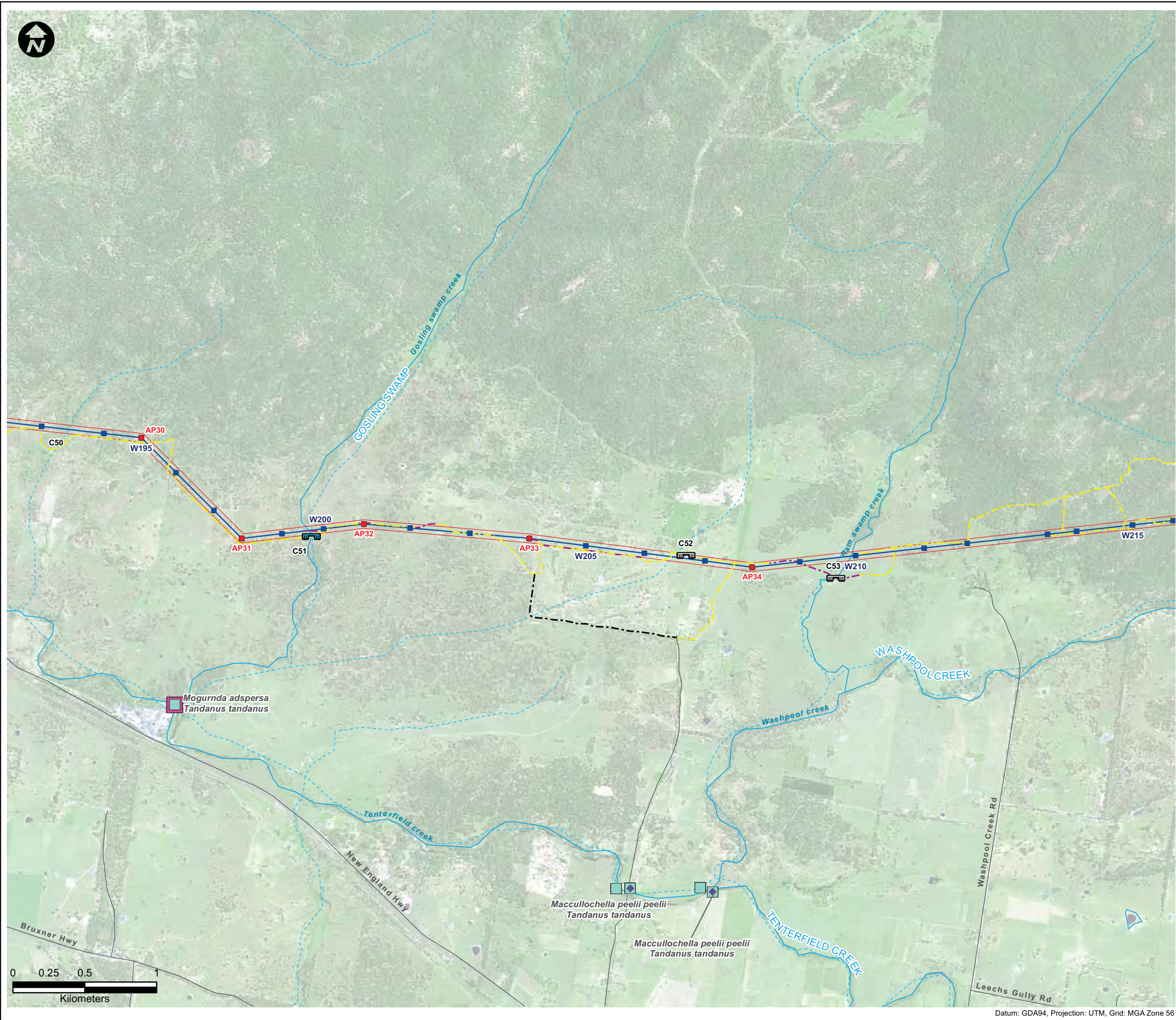
Title
SURFACE WATER AND
HYDROLOGY MAPPING SERIES
(REVISED)

Figure: 2I

URS

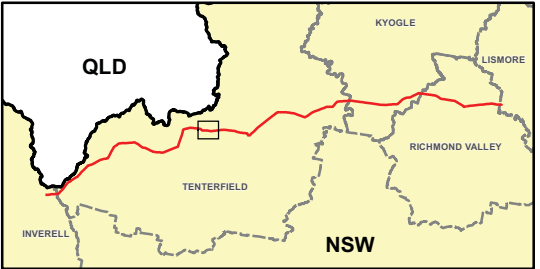
Datum: GDA94, Projection: UTM, Grid: MGA Zone 56

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LEGEND:

- Existing 96L 132kV Structure Locations[^]
- Existing Transmission Lines[^]
- Proposed 330kV Angle Positions (Indicative)[^]
- Proposed 330kV Structure Locations (Indicative)[^]
- Proposed 330kV Centreline[^]
- Proposed 330kV Easement[^]
- Substation/Switching Station
- Roads
- Waterways⁺:**
 - Major / Permanent Flow
 - Major / Intermittent Flow
 - Minor / Intermittent Flow
- Access Tracks⁺:**
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 - Category 2
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- C11** Identified or Potential Waterway Crossing Locations
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 - Maccullochella peelii peelii*



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Drawn: SB/STB | Approved: KT | Date: 07/03/2012

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Client
TransGrid

Project
FAR NORTH NSW
(DUMARESQ - LISMORE
330kV TRANSMISSION LINE)
PROJECT

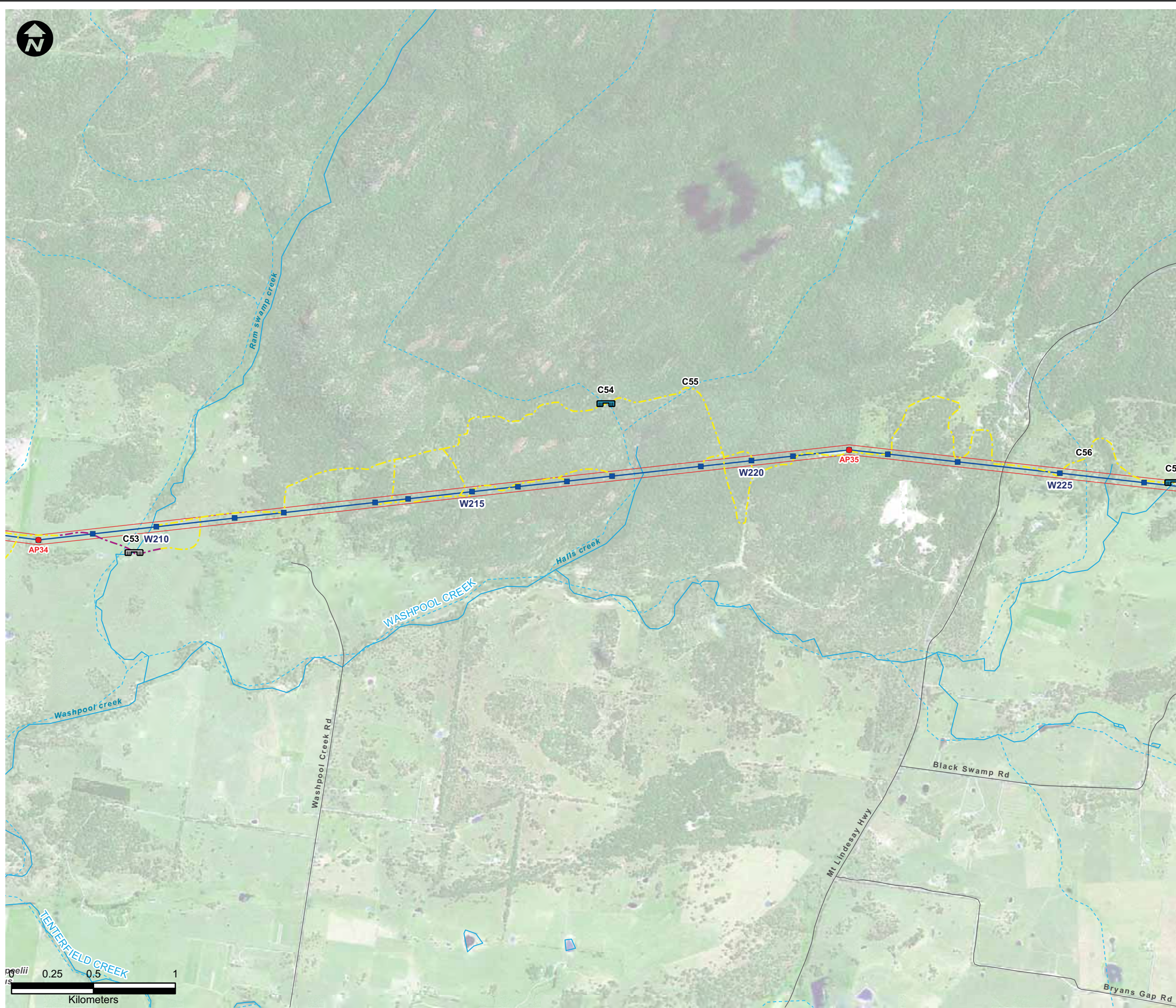
Title
SURFACE WATER AND
HYDROLOGY MAPPING SERIES
(REVISED)

Figure: 2m



Datum: GDA94, Projection: UTM, Grid: MGA Zone 56

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Datum: GDA94, Projection: UTM, Grid: MGA Zone 56

LEGEND:

- Existing 96L 132kV Structure Locations[^]
- Existing Transmission Lines[^]
- Proposed 330kV Angle Positions (Indicative)[^]
- Proposed 330kV Structure Locations (Indicative)[^]
- Proposed 330kV Centreline[^]
- Proposed 330kV Easement[^]
- Substation/Switching Station
- Roads

Waterways⁺:

- Major / Permanent Flow
- Major / Intermittent Flow
- Minor / Intermittent Flow

Access Tracks⁺:

- Category 1
- Category 2
- Category 3

C11 Identified or Potential Waterway Crossing Locations

- Creek Crossing (New)
- Creek Crossing (Upgrade Required)
- Aquatic Ecological Community of the Lowland Catchment of the Darling River (AECDR)

NSW DPI FFRD Threatened Species Records[#]:

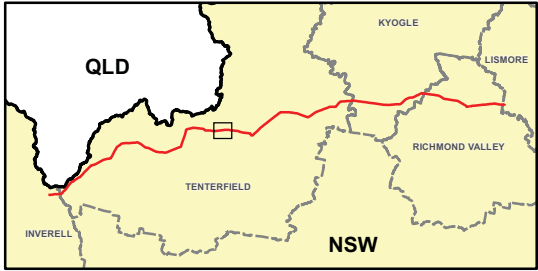
- Maccullochella ikei*
- Mogurnda adspersa*

Endangered Populations[#]:

- Ambassis agassizii*
- Tandanus tandanus*

Commonwealth EPBC Act Listed Species[~]:

- Maccullochella peelii peelii*



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(<http://www.dpi.nsw.gov.au/fisheries/species-protection/records/viewer>)

Drawn: SB/STB | Approved: KT | Date: 07/03/2012

Job No.: 43177662 | File No.: 43177662.140-4.mxd

Client
TransGrid

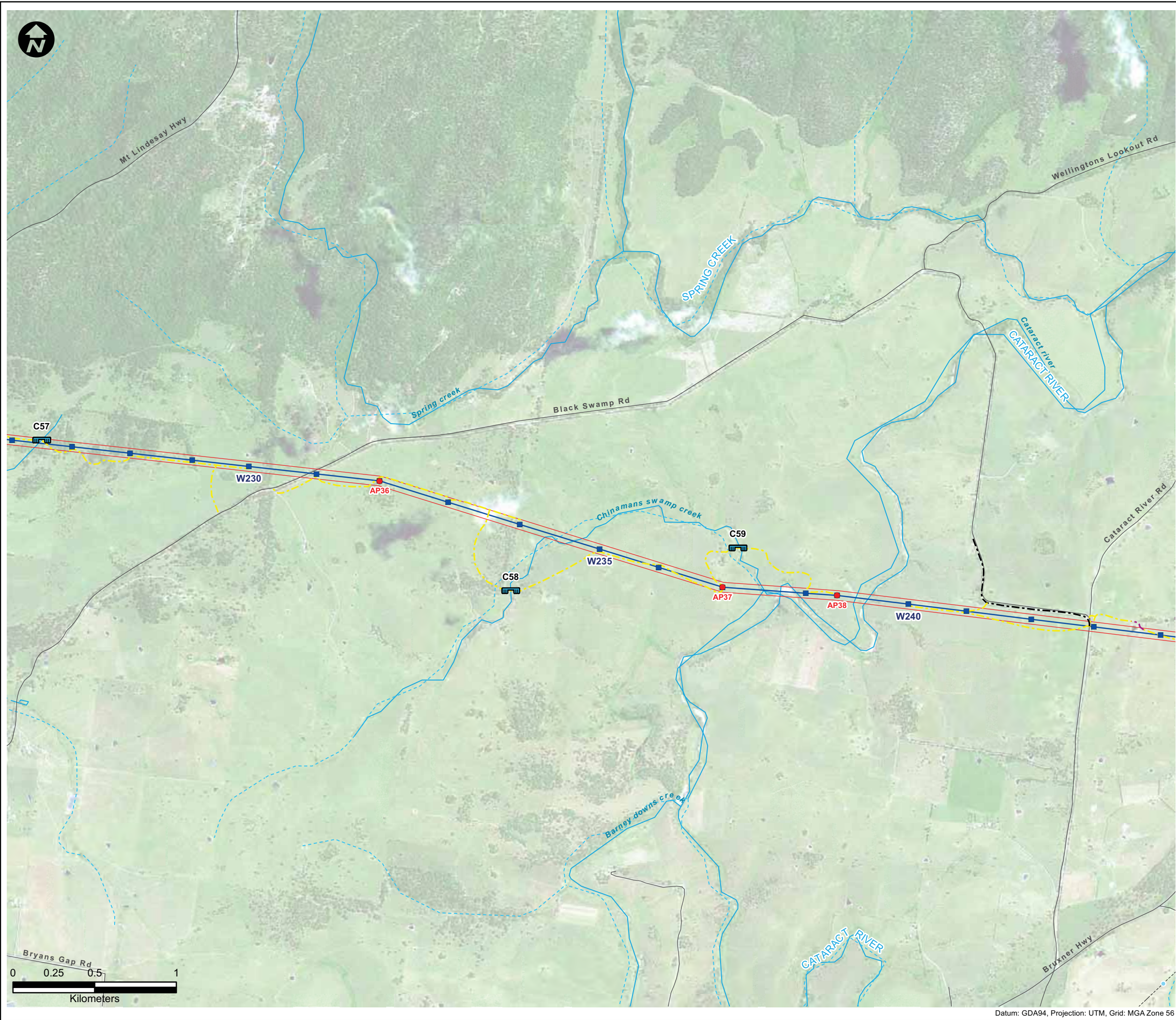
Project
FAR NORTH NSW
(DUMARESQ - LISMORE
330kV TRANSMISSION LINE)
PROJECT

Title
SURFACE WATER AND
HYDROLOGY MAPPING SERIES
(REVISED)

Figure: 2n

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Datum: GDA94, Projection: UTM, Grid: MGA Zone 56

LEGEND:

- Existing 96L 132kV Structure Locations[^]
- Existing Transmission Lines[^]
- Proposed 330kV Angle Positions (Indicative)[^]
- Proposed 330kV Structure Locations (Indicative)[^]
- Proposed 330kV Centreline[^]
- Proposed 330kV Easement[^]
- Substation/Switching Station
- Roads

Waterways[^]:

- Major / Permanent Flow
- Major / Intermittent Flow
- Minor / Intermittent Flow

Access Tracks[^]:

- Category 1
- Category 2
- Category 3

C11 Identified or Potential Waterway Crossing Locations

- Creek Crossing (New)
- Creek Crossing (Upgrade Required)
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NSW DPI FFRD Threatened Species Records[#]:

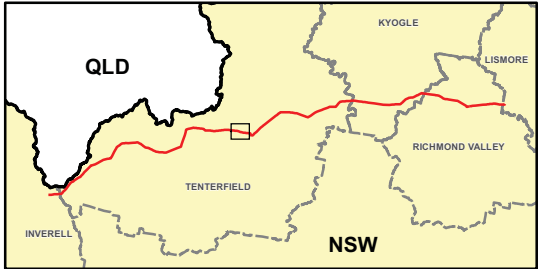
- Maccullochella ikei*
- Mogurnda adspersa*

Endangered Populations[#]:

- Ambassis agassizii*
- Tandanus tandanus*

Commonwealth EPBC Act Listed Species[~]:

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Client
TransGrid

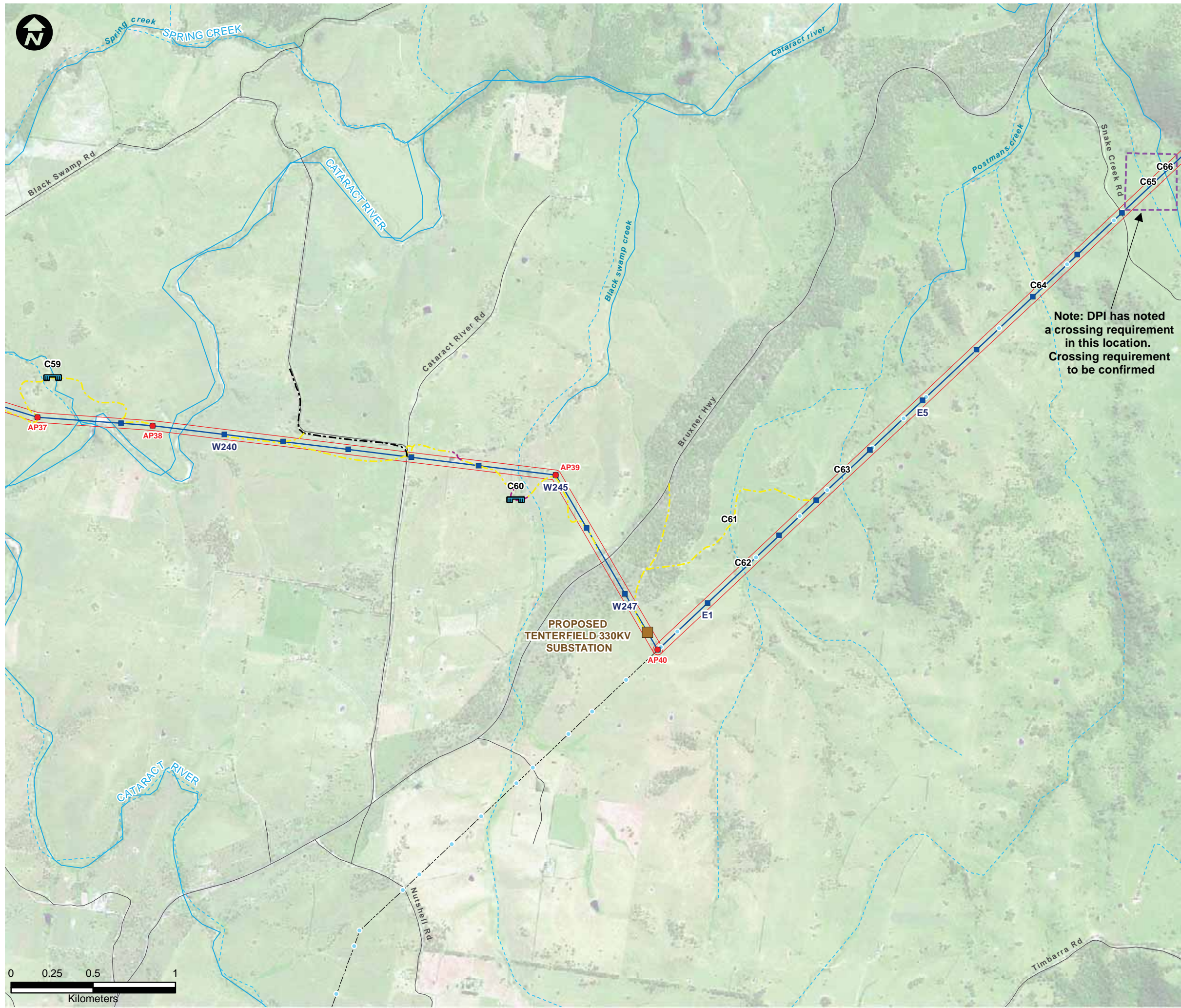
Project
FAR NORTH NSW
(DUMARESQ - LISMORE
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Title
SURFACE WATER AND
HYDROLOGY MAPPING SERIES
(REVISED)

Figure: 20



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Datum: GDA94, Projection: UTM, Grid: MGA Zone 56

LEGEND:

- Existing 96L 132kV Structure Locations^
- Existing Transmission Lines^
- Proposed 330kV Angle Positions (Indicative)^
- Proposed 330kV Structure Locations (Indicative)^
- Proposed 330kV Centreline^
- Proposed 330kV Easement^
- Substation/Switching Station
- Roads

Waterways*:

- Major / Permanent Flow
- Major / Intermittent Flow
- Minor / Intermittent Flow

Access Tracks*:

- Category 1
- Category 2
- Category 3

C11 Identified or Potential Waterway Crossing Locations

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NSW DPI FFRD Threatened Species Records# :

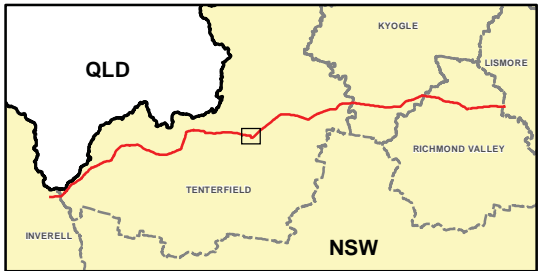
- Maccullochella ikei*
- Mogurnda adspersa*

Endangered Populations# :

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- Tandanus tandanus*

Commonwealth EPBC Act Listed Species~:

- Maccullochella peelii peelii*



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Source: Aerial Imagery from TransGrid 2009.

^ TransGrid 2010

* Commonwealth of Australia (Geoscience Australia) 2010

* Refer to Table B-1 for access track classifications

Fresh Water Fish Research Database - Dr Dean Gilligan, 2011

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~ Digitised from DPI's online Fishing and Aquaculture Records Viewer (<http://www.dpi.nsw.gov.au/fisheries/species-protection/records/viewer>)

Drawn: SB/STB | Approved: KT | Date: 07/08/2012

Job No.: 43177662 | File No.: 43177662.140-4.mxd

Client
TransGrid

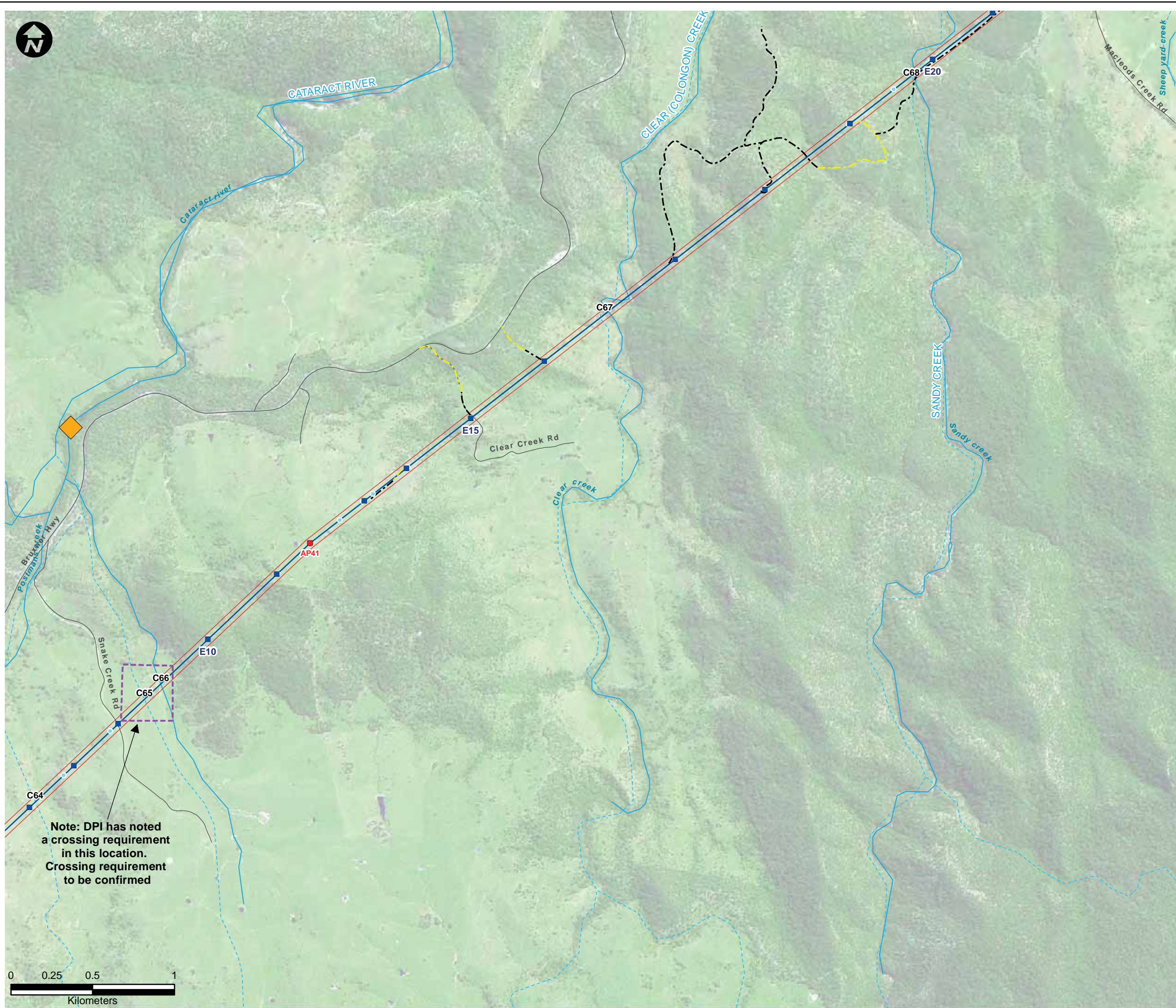
Project
FAR NORTH NSW
(DUMARESQ - LISMORE
330kV TRANSMISSION LINE)
PROJECT

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HYDROLOGY MAPPING SERIES
(REVISED)

Figure: 2p



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LEGEND:

- Existing 96L 132kV Structure Locations^
- Existing Transmission Lines^
- Proposed 330kV Angle Positions (Indicative)^
- Proposed 330kV Structure Locations (Indicative)^
- Proposed 330kV Centreline^
- Proposed 330kV Easement^
- Substation/Switching Station
- Roads

Waterways*:

- Major / Permanent Flow
- Major / Intermittent Flow
- Minor / Intermittent Flow

Access Tracks*:

- Category 1
- Category 2
- Category 3

C11 Identified or Potential Waterway Crossing Locations

- Creek Crossing (New)
- Creek Crossing (Upgrade Required)
- Aquatic Ecological Community of the Lowland Catchment of the Darling River (AECDR)

NSW DPI FFRD Threatened Species Records# :

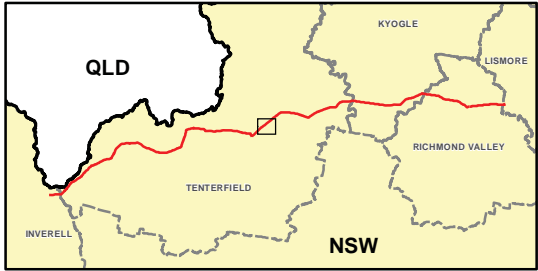
- Maccullochella ikei*
- Mogurnda adspersa*

Endangered Populations# :

- Ambassis agassizii*
- Tandanus tandanus*

Commonwealth EPBC Act Listed Species~:

- Maccullochella peelii peelii*



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Symbols and lines have been enhanced to aid visibility.

Source: Aerial Imagery from TransGrid 2009.

^ TransGrid 2010

* Commonwealth of Australia (Geoscience Australia) 2010

* Refer to Table B-1 for access track classifications

Fresh Water Fish Research Database - Dr Dean Gilligan, 2011 and John F. Pursey

~ Digitised from DPI's online Fishing and Aquaculture Records Viewer (<http://www.dpi.nsw.gov.au/fisheries/species-protection/records/viewer>)

Drawn: SB/STB Approved: KT Date: 07/08/2012

Job No.: 43177662 File No.: 43177662.140-4.mxd

Client TransGrid

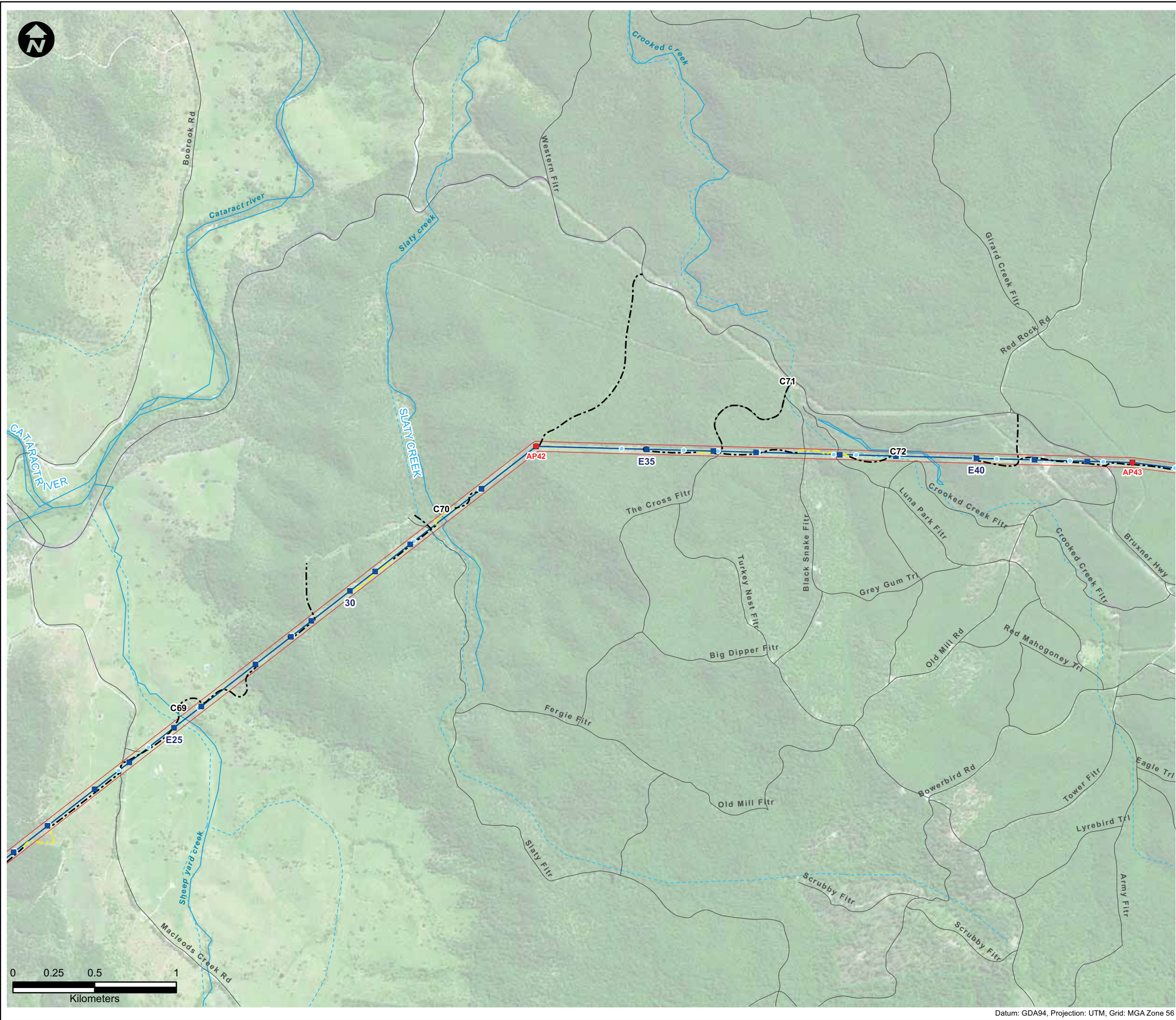
Project FAR NORTH NSW (DUMARESQ - LISMORE) 330kV TRANSMISSION LINE) PROJECT

Title SURFACE WATER AND HYDROLOGY MAPPING SERIES (REVISED)

Figure: 2q



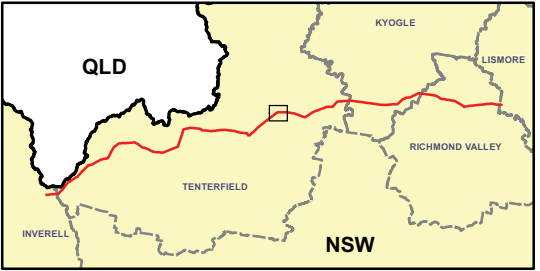
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Datum: GDA94, Projection: UTM, Grid: MGA Zone 56

LEGEND:

- Existing 96L 132kV Structure Locations[^]
- Existing Transmission Lines[^]
- Proposed 330kV Angle Positions (Indicative)[^]
- Proposed 330kV Structure Locations (Indicative)[^]
- Proposed 330kV Centreline[^]
- Proposed 330kV Easement[^]
- Substation/Switching Station
- Roads
- Waterways⁺:**
 - Major / Permanent Flow
 - Major / Intermittent Flow
 - Minor / Intermittent Flow
- Access Tracks⁺:**
 - Category 1
 - Category 2
 - Category 3
- C11** Identified or Potential Waterway Crossing Locations
 - Creek Crossing (New)
 - Creek Crossing (Upgrade Required)
 - Aquatic Ecological Community of the Lowland Catchment of the Darling River (AECDR)
- NSW DPI FFRD Threatened Species Records[#]:**
 - Maccullochella ikei*
 - Mogurnda adspersa*
- Endangered Populations[#]:**
 - Ambassis agassizii*
 - Tandanus tandanus*
- Commonwealth EPBC Act Listed Species[~]:**
 - Maccullochella peelii peelii*



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[^] TransGrid 2010
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^{*} Refer to Table B-1 for access track classifications
[#] Fresh Water Fish Research Database - Dr Dean Gilligan, 2011 and John F. Pursey
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Drawn: SB/STB | Approved: KT | Date: 07/03/2012

Job No.: 43177662 | File No.: 43177662.140-4.mxd

Client: TransGrid

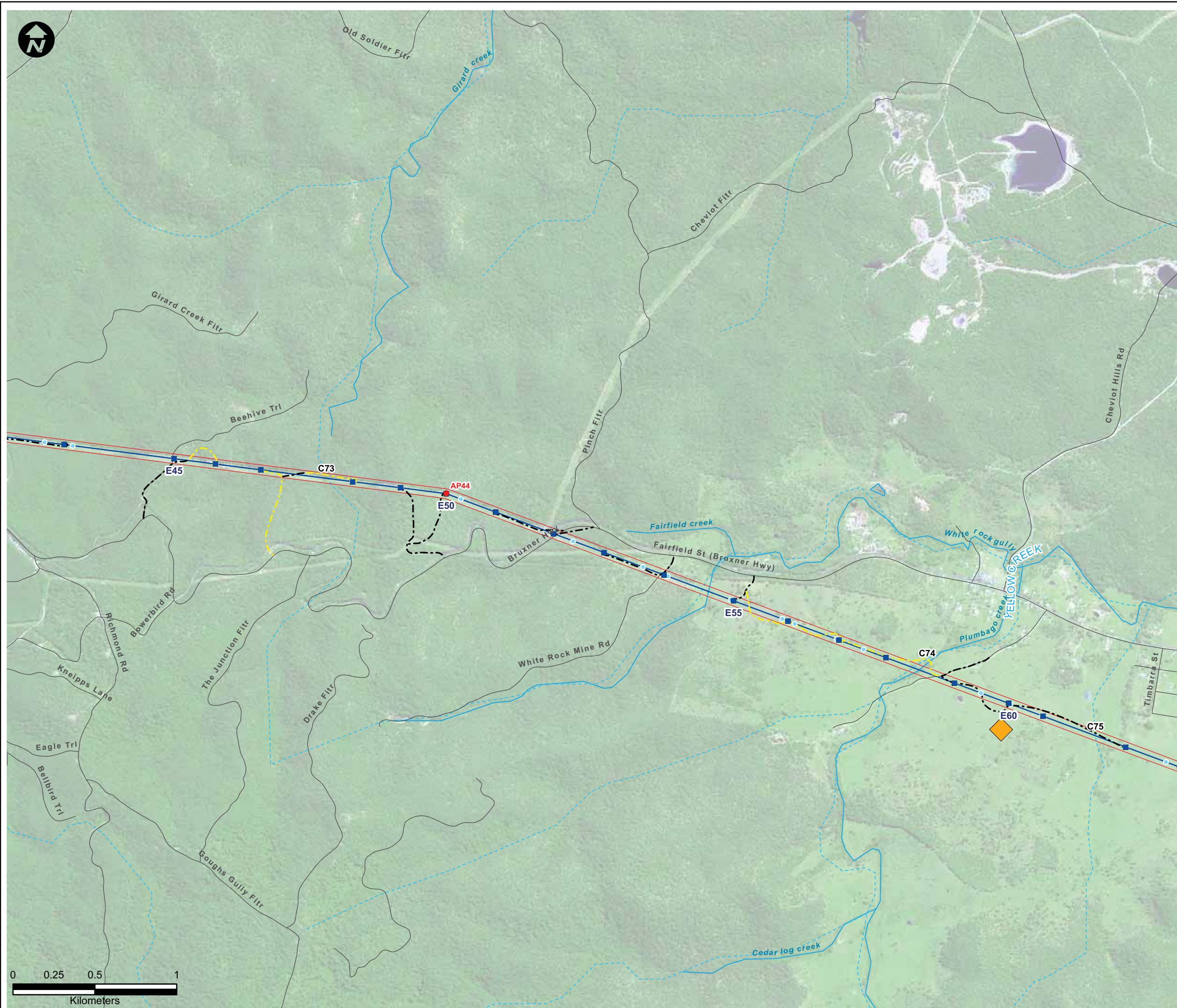
Project: FAR NORTH NSW (DUMARESQ - LISMORE) 330kV TRANSMISSION LINE) PROJECT

Title: SURFACE WATER AND HYDROLOGY MAPPING SERIES (REVISED)

Figure: 2r



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Datum: GDA94, Projection: UTM, Grid: MGA Zone 56

LEGEND:

- Existing 96L 132kV Structure Locations[^]
- Existing Transmission Lines[^]
- Proposed 330kV Angle Positions (Indicative)[^]
- Proposed 330kV Structure Locations (Indicative)[^]
- Proposed 330kV Centreline[^]
- Proposed 330kV Easement[^]
- Substation/Switching Station
- Roads

Waterways⁺:

- Major / Permanent Flow
- Major / Intermittent Flow
- Minor / Intermittent Flow

Access Tracks⁺:

- Category 1
- Category 2
- Category 3

C11 Identified or Potential Waterway Crossing Locations

- Creek Crossing (New)
- Creek Crossing (Upgrade Required)
- Aquatic Ecological Community of the Lowland Catchment of the Darling River (AECDR)

NSW DPI FFRD Threatened Species Records[#]:

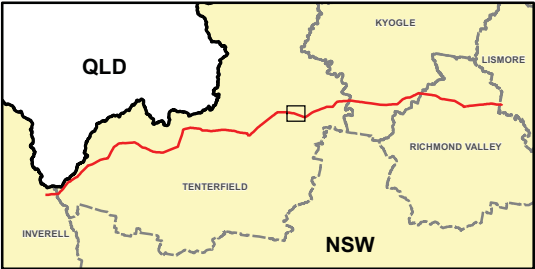
- Maccullochella ikei*
- Mogurnda adspersa*

Endangered Populations[#]:

- Ambassis agassizii*
- Tandanus tandanus*

Commonwealth EPBC Act Listed Species[~]:

- Maccullochella peelii peelii*



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Drawn: SB/STB | Approved: KT | Date: 07/03/2012

Job No.: 43177662 | File No.: 43177662.140-4.mxd

Client
TransGrid

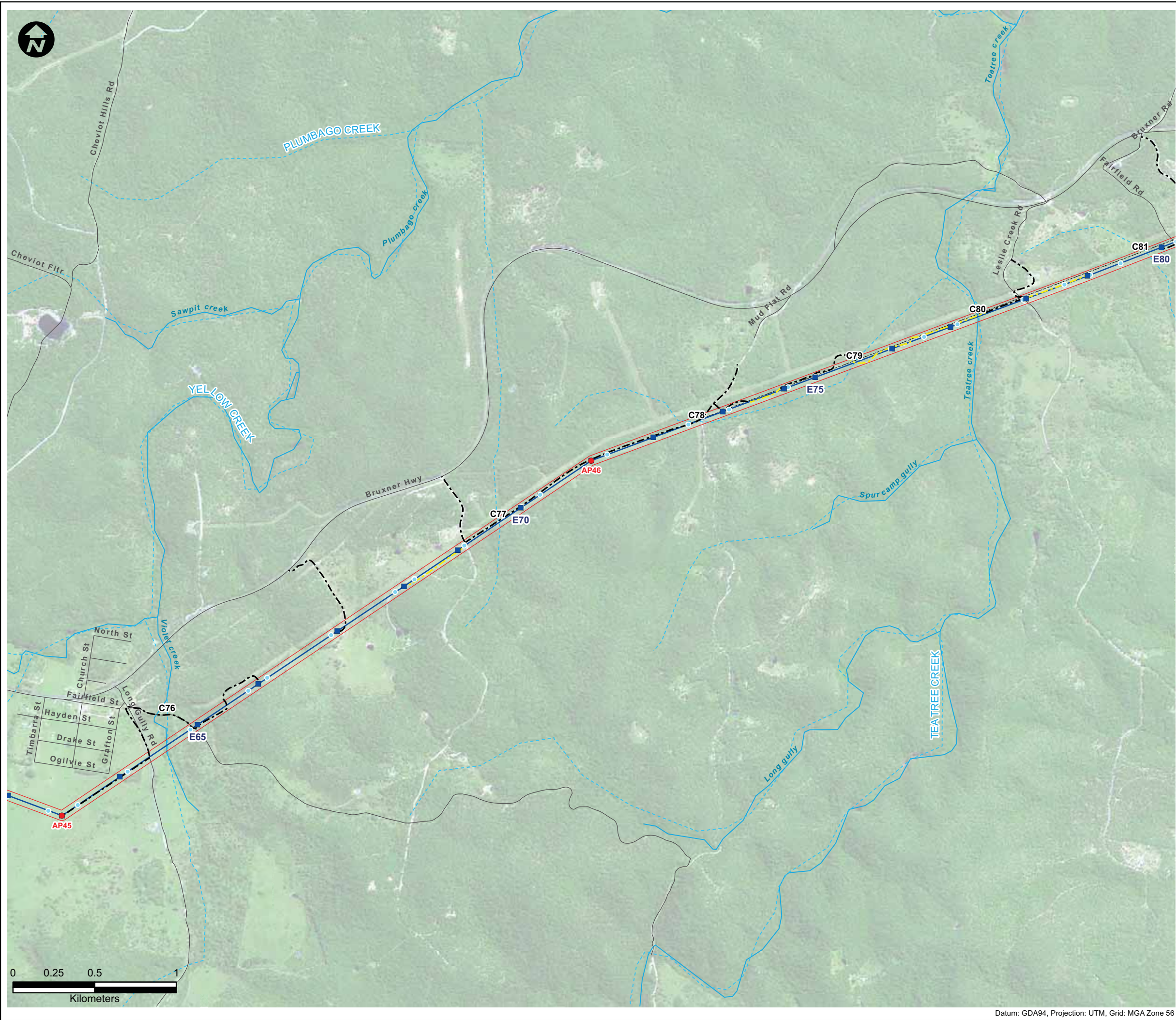
Project
FAR NORTH NSW
(DUMARESQ - LISMORE
330kV TRANSMISSION LINE)
PROJECT

Title
SURFACE WATER AND
HYDROLOGY MAPPING SERIES
(REVISED)

Figure: 2s

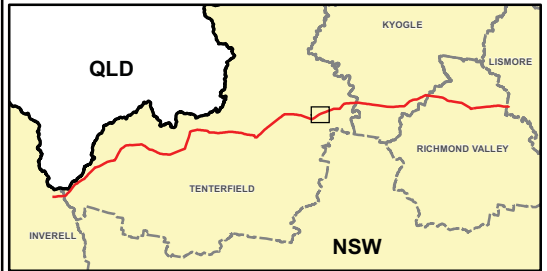


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LEGEND:

- Existing 96L 132kV Structure Locations[^]
- Existing Transmission Lines[^]
- Proposed 330kV Angle Positions (Indicative)[^]
- Proposed 330kV Structure Locations (Indicative)[^]
- Proposed 330kV Centreline[^]
- Proposed 330kV Easement[^]
- Substation/Switching Station
- Roads
- Waterways[~]:**
 - Major / Permanent Flow
 - Major / Intermittent Flow
 - Minor / Intermittent Flow
- Access Tracks[~]:**
 - Category 1
 - Category 2
 - Category 3
- C11** Identified or Potential Waterway Crossing Locations
 - Creek Crossing (New)
 - Creek Crossing (Upgrade Required)
 - Aquatic Ecological Community of the Lowland Catchment of the Darling River (AECDR)
- NSW DPI FFRD Threatened Species Records[#]:**
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 - Ambassis agassizii*
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Job No.: 43177662	File No.:43177662.140-4.mxd	
Client TransGrid		
Project	FAR NORTH NSW (DUMARESQ - LISMORE 330kV TRANSMISSION LINE) PROJECT	
Title	SURFACE WATER AND HYDROLOGY MAPPING SERIES (REVISED)	
Figure: 2t		
