

RTI DL RELEASE - DNRM

Design Notes

- Tank to trough distances shown on this map are not to scale. The maximum and minimum distance is 50m and 20m respectively, unless otherwise specified.
- Pipelines are to be laid to a minimum depth of 800 mm in cracking clays (black soil), and 450 mm in all other places.
- Tank and trough hookups, and the installation of valves and gauges are to be completed as per the current GABSI Hookup Drawings.
- All works are to be installed in accordance with the specifications outlined in the GABSI Works Agreements.

Produced by: Jason Keller
 File: RN1728 Bulgroo Bore
 Location: Toowoomba
 © The State of Queensland (Department of Environment

**RN1728
 Bulgroo Bore - Bulgroo
 Prelim Map**

*Edition: Preliminary
 Version: A
 Date: 17/11/2011
 Engineer: Jason Keller*

Bulgroo, RN1728_Piping File_Part 2
1:60,000

0 0.3 0.6 0.9 1.2 1.5 km



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12-309

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PIPELINE DESIGN CHECKLIST



Scheme & RN: **RN1728 Bulgroo**
 Design Type: **Piping Prelim**
 Engineer: **Jason Keller**
 Signature
 Date: **27/03/2012**

Checklist of design information provided by Engineer for design check

	Yes/No
PDF Maps of scheme provided - Subsidised & Full designs	Yes
Water point notes provided - Even Grazing & Holding Paddock	EG
Survey data provided	Yes
Recent dynamic bore test provided	est
WaterCad file provided with scenarios only for subsidised, full, and holding paddocks designs	Yes
Location of WaterCad file: W:\Works & Planning\Warrego Jobs\Bulgroo RN 1728\Design Check\Revision 270312\WaterCAD	

	Engineer	Projects Engineer	RPEQ
	Yes/No	Yes/No	Yes/No
PDF Scheme Maps			
Winter bore drain is mapped correctly?	Yes		
2km drain buffer shown?	na		
Paddocks mapped and named correctly?	Yes		
Pipe indicating diameter and class shown?	Yes		
Watering points show tank sizes?	Yes		
Private & future works are clearly distinguished?	na		
Vegetation overlay of RE data?	Yes		
Pipe layout is optimal taking into account RE data?	Yes		

	Engineer	Projects Engineer	RPEQ
	Yes/No	Yes/No	Yes/No
Costing			
Cost estimates have been developed using up to date unit prices?	Yes	Yes	
All subsidised works comply with GABSI policy & guidelines?	Yes	Yes	
Shared infrastructure has been costed?	Yes	Yes	
All private upgrades have been charged?	na	Yes	

	Engineer	Projects Engineer	RPEQ
	Yes/No	Yes/No	Yes/No
Water Point Notes			
All watering point locations have been surveyed accurately? (elevations and bulgroo pts dem)	no	DEM	
Water demands for even grazing has been obtained from l'holder?	yes	Yes	
Water demand for holding paddocks has been obtained from l'holder?	na	NA	
Correct peak daily demand for stock/domestic supply has been applied?	yes	Yes	
All paddocks have 2 day (gravity) or 4 day (pumped) storage?	yes	Yes	

	Engineer	Projects Engineer	RPEQ
	Yes/No	Yes/No	Yes/No
WaterCAD Design			
Bore Curve is based upon recent dynamic test?	est		
Any pumps have been sized efficiently and correctly?	na	NA	
Valve, pump, reservoir elevations from survey points?	DEM	Yes	
Junction elevations from survey points?	DEM	Yes	
Tank elevations from survey points?	DEM	Yes	
Tank volumes match water point notes?	yes	Yes	
Pipe size is optimised?	yes	Note 1	
Pipe pressures do not exceed manufacturer specs & temp derating?	yes	Yes	
Design is optimised to fill in 24th hour?	yes	Yes	
Hazen - Williams coefficient is 120?	yes	Yes	
Negative pressures have been eliminated?	yes	Yes	
System is balanced - no spikes in discharge?	yes	Yes	

	Engineer	Projects Engineer	RPEQ
	Yes/No	Yes/No	Yes/No
Projects Engineer Approval			
Design is approved for RPEQ certification			
Projects Engineer Name			
Date of approval			
Comments:			

	RPEQ
	Yes/No
RPEQ Certification	
Design is certified to meet industry best practice	
RPEQ Name	
RPEQ No.	
Date of certification	

Comments:

Note 1: See Clacked Design: I have change the layout a bit and though there is a few more km of pipe it seems to save \$40000+.

PRVs have been used to control pressure on the southern section of the system. Bulgroo RN1728 Piping File Part 2. RPEQ 2410 pipe will also be used.

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Bulgroo - Bulgroo Bore RN1728 Proposed Water Point Notes

Water Point	DSE @ 8.5 L/d	CATTLE @ 60L/d	Paddock	Water Required (L/day)	2 Day Storage for WP (gal)	Tank (gal)		Troughs (with Aprons)		Notes
						Tank Size	QTY	Size and Material Type	QTY	
WP01		100 No.1		6,000	2,667	3,000	1	12' Concrete "Rectangular"	1	
WP02		100 No.1		6,000	2,667	3,000	1	12' Concrete "Rectangular"	1	
WP04		100 No.2		6,000	2,667	3,000	1	12' Concrete "Rectangular"	1	
WP05		175 No.3		10,500	4,667	5,000	1	12' Concrete "Rectangular"	1	
WP07		220 No.3 & No.4		13,200	5,867	8,000	1	12' Concrete "Rectangular"	1	
WP08		45 No.4		2,700	1,200	3,000	1	12' Concrete "Rectangular"	1	
WP09		45 No.4		2,700	1,200	3,000	1	12' Concrete "Rectangular"	1	
WP10		45 No.4		2,700	1,200	3,000	1	12' Concrete "Rectangular"	1	
WP11		75 No.5		4,500	2,000	3,000	1	12' Concrete "Rectangular"	1	
WP12		75 No.5		4,500	2,000	3,000	1	12' Concrete "Rectangular"	1	
WP13		120 No.6		7,200	3,200	5,000	1	12' Concrete "Rectangular"	1	
WP14		133 No.7		7,980	3,547	5,000	1	12' Concrete "Rectangular"	1	
WP15		133 No.7		7,980	3,547	5,000	1	12' Concrete "Rectangular"	1	
WP16		134 No.7		8,040	3,573	5,000	1	12' Concrete "Rectangular"	1	
WP17		175 No.8 & No.9		10,500	4,667	5,000	1	12' Concrete "Rectangular"	1	
WP18		75 No.8		4,500	2,000	3,000	1	12' Concrete "Rectangular"	1	
WP19		100 No.9		6,000	2,667	3,000	1	12' Concrete "Rectangular"	1	
WP20		100 No.10		6,000	2,667	3,000	1	12' Concrete "Rectangular"	1	
WP21		150		9,000	4,000	5,000	1	12' Concrete "Rectangular"	1	
Stock Total:		2100								

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COSTING ESTIMATES FOR PROPERTY
SUBSIDISED PRELIMINARY DESIGN

Last Updated 21/09/09

ITEM	DESCRIPTION	UNITS	RATE	QUANTITY	TOTAL
PIPE	50mm PE100 PN8 in 800m COILS	\$/m	1.60		\$ -
PIPE	63mm PE100 PN8 in 500m COILS	\$/m	2.50		\$ -
PIPE	75mm PE100 PN8 in 300m COILS	\$/m	3.40		\$ -
PIPE	90mm PE100 PN8 in 200m COILS	\$/m	4.10		\$ -
PIPE	110mm PE100 PN8 in 200m COILS	\$/m	6.90		\$ -
Shared Pipeline					\$ -
Overheads			5%		\$ -
SUB TOTAL				0	\$ -
TANK	10000 Gallon Polyethylene Tank	\$/tank	5,300		\$ -
TANK	8000 Gallon Polyethylene Tank	\$/tank	3,800		\$ -
TANK	5000 Gallon Polyethylene Tank	\$/tank	2,200		\$ -
TANK	3000 Gallon Polyethylene Tank	\$/tank	1,800		\$ -
Overheads			5%		\$ -
SUB TOTAL				0	\$ -
TROUGH	16ft sheep+cattle Troughs inc. precast aprons	\$/trough	1,700		\$ -
TROUGH	12ft sheep troughs inc. built in aprons	\$/trough	1,300		\$ -
Overheads			5%		\$ -
SUB TOTAL				0	\$ -
FITTINGS					\$ -
COOLING GRID	See Cooling Grid Estimator				
DESIGN	Includes Design/ Supervision/ Survey/ Hire Equipment				\$ -
SUB TOTAL					\$ -
ADMINISTRATION	5% to subtotal				\$ -
SUB TOTAL	27.4km x \$7000 (includes 9.5km of drain from Araluen)				\$ 191,800.00
INC 10% GST					\$ 19,180.00
GRAND TOTAL					\$ 210,980.00
LANDHOLDER CONTRIBUTION (25%)					\$ 52,745.00
INITIAL LANDHOLDER PAYMENT					\$ 26,372.50

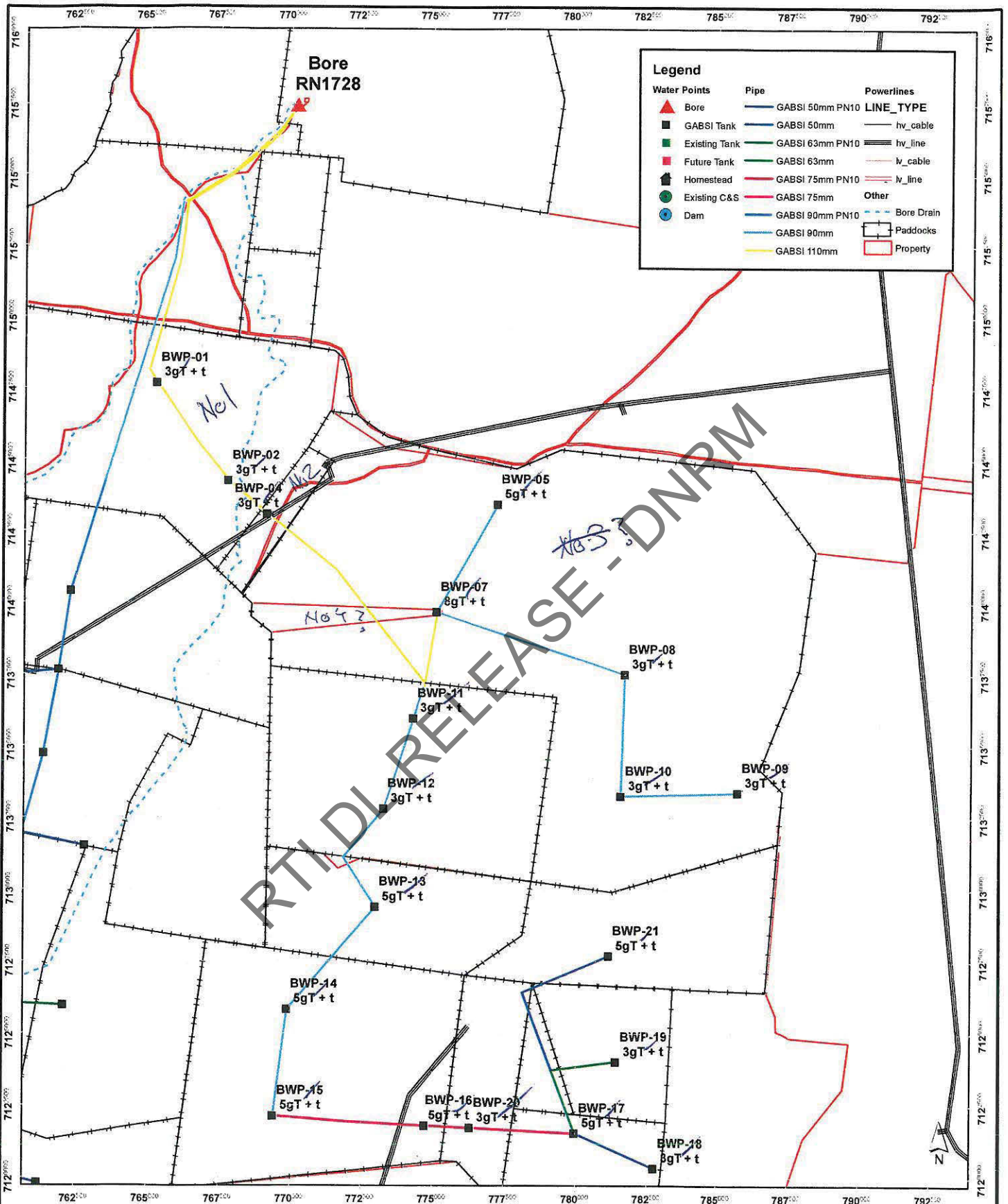
Release

COSTING ESTIMATES FOR PROPERTY
EXTENSION PRELIMINARY DESIGN

Last updated:

17/04/2012

ITEM	DESCRIPTION	UNITS	RATE	QUANTITY	TOTAL
PIPE	50mm PE100 PN8 in 800m COILS	\$/m	1.60	11,200	\$ 17,920.00
PIPE	63mm PE100 PN8 in 500m COILS	\$/m	2.50	5,000	\$ 12,500.00
PIPE	75mm PE100 PN8 in 300m COILS	\$/m	3.40	11,400	\$ 38,760.00
PIPE	90mm PE100 PN8 in 200m COILS	\$/m	4.10	38,600	\$ 158,260.00
PIPE	110mm PE100 PN8 in 200m COILS	\$/m	6.90	30,100	\$ 207,690.00
Shared Pipeline					\$ -
Overheads			5%		\$ 21,756.50
SUB TOTAL				96,300	\$ 456,886.50
TANK	10500 Gallon Polyethylene Tank	\$/tank	5,300	0	\$ -
TANK	8000 Gallon Polyethylene Tank	\$/tank	3,800	1	\$ 3,800.00
TANK	5000 Gallon Polyethylene Tank	\$/tank	2,200	7	\$ 15,400.00
TANK	3000 Gallon Polyethylene Tank	\$/tank	1,800	11	\$ 19,800.00
Overheads			5%		\$ 1,950.00
SUB TOTAL				19	\$ 40,950.00
TROUGH	16ft sheep+cattle Troughs inc. precast aprons	\$/trough	1,700		\$ -
TROUGH	12ft sheep troughs inc. built in aprons	\$/trough	1,300	19	\$ 24,700.00
Overheads			5%		\$ 1,235.00
SUB TOTAL				19	\$ 25,935.00
FITTINGS					\$ 24,249.50
COOLING GRID	See Cooling Grid Estimator				\$ 20,500.00
DESIGN	Includes Design/ Supervision/ Survey/ Hire Equipment				\$ 20,274.50
SUB TOTAL					\$ 588,795.50
ADMINISTRATION	5% to subtotal				\$ 2,500.00
SUB TOTAL					\$ 591,295.50
INC 10% GST					\$ 59,129.55
GRAND TOTAL					\$ 650,425.05
SUBTRACT GRAND TOTAL FOR SUBSIDISED DESIGN					\$ 210,980.00
100% COSTS					\$ 439,445.05
LANDHOLDER CONTRIBUTION (25%)					\$ 52,745.00
TOTAL LANDHOLDER CONTRIBUTION					\$ 492,190.05
INITIAL LANDHOLDER PAYMENT					\$ 465,817.55



Water Points		Pipe		Powerlines	
▲	Bore	—	GABSI 50mm PN10	—	hv_cable
■	GABSI Tank	—	GABSI 50mm	—	lv_line
■	Existing Tank	—	GABSI 63mm PN10	—	lv_cable
■	Future Tank	—	GABSI 63mm	—	N_line
■	Homestead	—	GABSI 75mm PN10	—	Other
■	Existing C&S	—	GABSI 75mm	—	Bore Drain
■	Dam	—	GABSI 90mm PN10	—	Paddocks
		—	GABSI 90mm	—	Property
		—	GABSI 110mm		

Design Notes

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 File: RN1728 Bulgroo Bore
 Location: Toowoomba
 © The State of Queensland (Department of Environment and Resource Management) 2012

**RN1728
 Bulgroo Bore
 "Bulgroo" Piping Map**

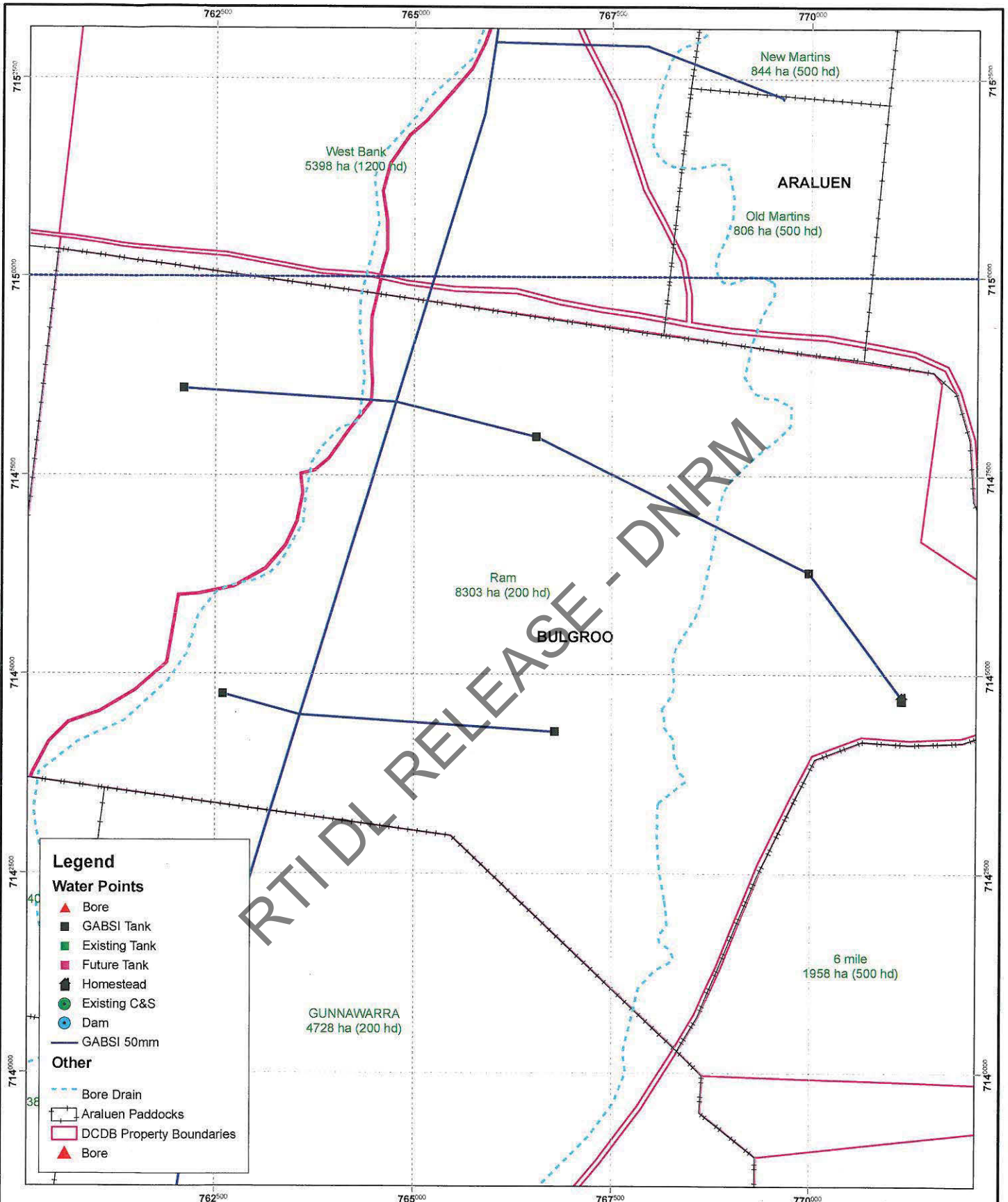
Edition: Preliminary
 Version: B
 Date: 27/03/2012
 Engineer: Jason Keller



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Map Projection: UTM, MGA Zone 55
 Map Datum: GDA 1994
 Data Sources: Dept. of Environment & Resource Management, Geoscience Australia and Landsat TM imagery
 Property boundaries shown on this map are provided as a locational aid only





Legend

Water Points

- ▲ Bore
- GABSI Tank
- Existing Tank
- Future Tank
- Homestead
- Existing C&S
- Dam
- GABSI 50mm

Other

- - - Bore Drain
- ▭ Araluen Paddocks
- ▭ DCDB Property Boundaries
- ▲ Bore

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**RN1728
 Bulgroo Bore - Bulgroo
 Planning Map**

Edition: Planning
 Version: A
 Date: 19/07/2011
 Engineer: Jason Keller

1:45 000

0 0.20 0.40 0.8 1 km



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 Department of Agriculture,
 Fisheries and Forestry**

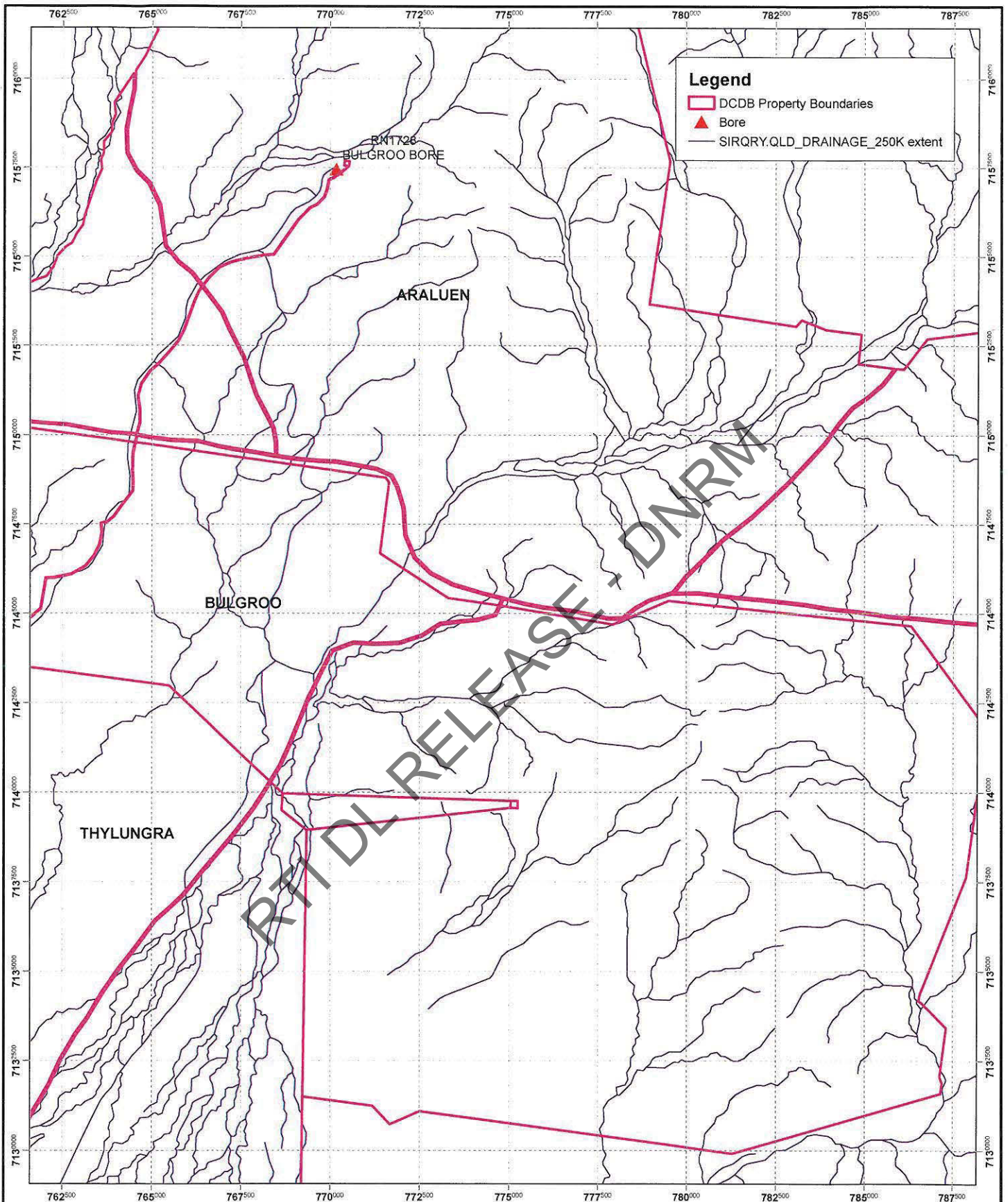
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Legend

- DCDB Property Boundaries
- ▲ Bore
- SIRQRY.QLD_DRAINAGE_250K extent

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**RN1728
 Bulgroo Bore
 Planning Map**

Edition: Planning
 Version: A
 Date: 19/07/2011
 Engineer: Jason Keller

1:100,000

Bulgroo_RN1728_Piping File Part 2

0 0.40 0.80 1.60 2.40 km



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Revised Cost Estimate of Piping Works for Bulgroo Bore 1728

The following table shows a summary of the costs associated with the design to service "Bulgroo". The table outlines the estimated contributions required for the initial deposit, the total landholder contribution and the total cost of the project, excluding installation. Costs are estimated from material and freight for previous works, including GST, and will be revised following receipt of quotes.

Bulgroo Pipe Route 1

A. Estimated Total Cost of Subsidised Works (Excluding Installation)	\$211,000
B. Landholder's Estimated Cash Contribution to Subsidised Works (25% A.)	\$52,800
C. Estimated Cost of Unsubsidised Works	\$402,000
D. Landholders Estimated Total Cash Contribution (B + C)	\$454,800
i. Advance Payment (1/2B +C)	\$428,400
ii. Estimated Second Payment (Itemised account once materials delivered)	\$26,400

Bulgroo Pipe Route 2:

A. Estimated Total Cost of Subsidised Works (Excluding Installation)	\$211,000
B. Landholder's Estimated Cash Contribution to Subsidised Works (25% A.)	\$52,800
C. Estimated Cost of Unsubsidised Works	\$360,000
D. Landholders Estimated Total Cash Contribution (B + C)	\$412,800
iii. Advance Payment (1/2B +C)	\$386,400
iv. Estimated Second Payment (Itemised account once materials delivered)	\$26,400

Release

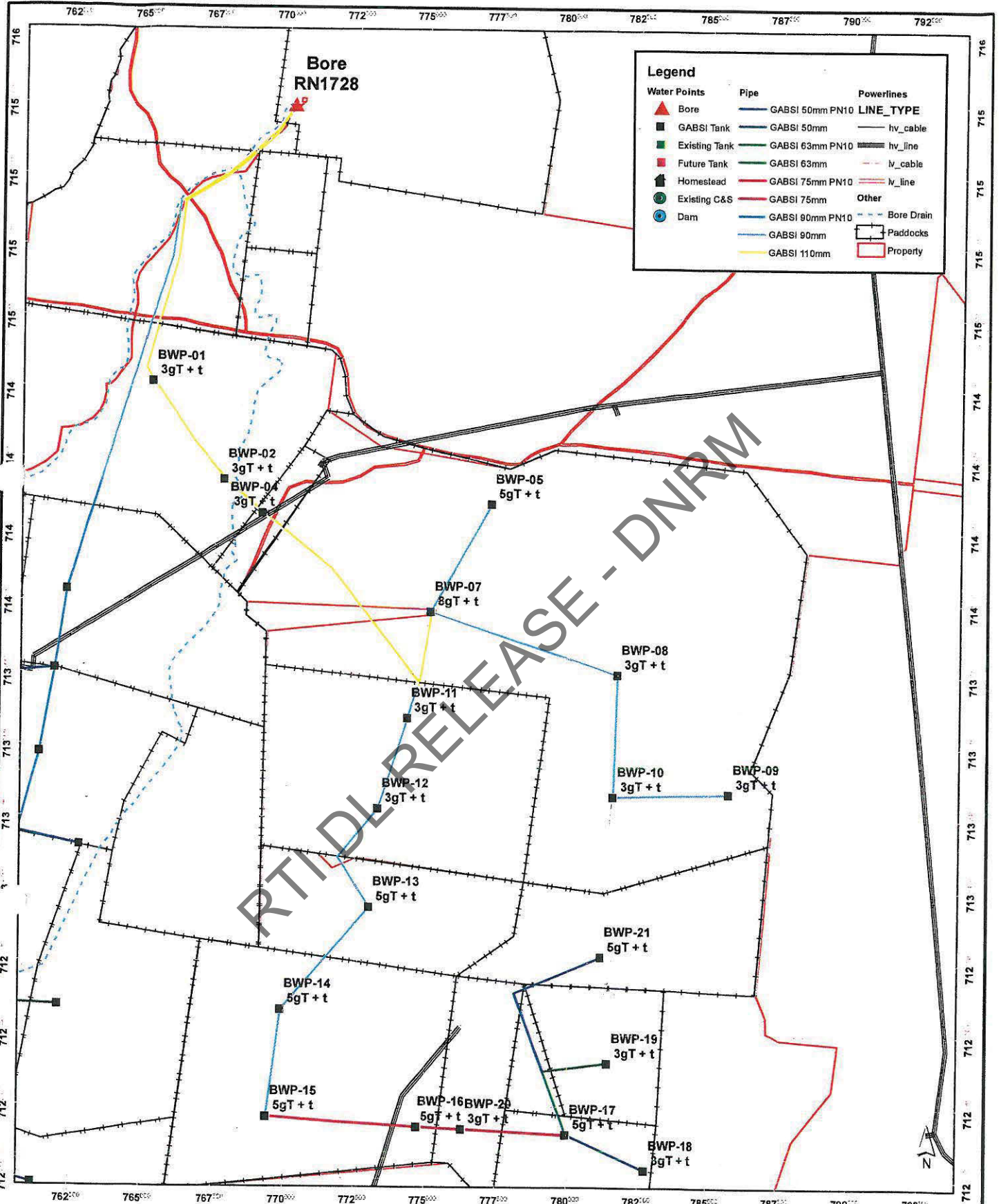
Bulgroo - Bulgroo Bore RN1728 Proposed Water Point Notes

Water Point	DSE @ 8.5 L/d	CATTLE @ 60L/d	Paddock	Water Required (L/day)	2 Day Storage for WP (gal)	Tank (gal)		Troughs (with Aprons)		Notes
						Tank Size	QTY	Size and Material Type	QTY	
WP01		100	No.1	6,000	2,667	3,000	1	12' Concrete "Rectangular"	1	
WP02		100	No.1	6,000	2,667	3,000	1	12' Concrete "Rectangular"	1	
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WP20		100	No.10	6,000	2,667	3,000	1	12' Concrete "Rectangular"	1	
WP21		150	No.12	9,000	4,000	5,000	1	12' Concrete "Rectangular"	1	
Stock Total:		-	2070		Totals	3,000	11	12' Concrete "Rectangular"	20	
						5,000	7			
						8,000	1			
							<u>19</u>			

I / WE _____ HEREBY AGREE TO THE MATERIALS LISTED & WATER ALLOCATIONS AS STATED ABOVE FOR WORKS DESIGNED UNDER THE GABSI SCHEME.

SIGNED: _____ DATE: _____ WITNESS: _____ DATE: _____

Release



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A3
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 0 2 4 6 8 10 km

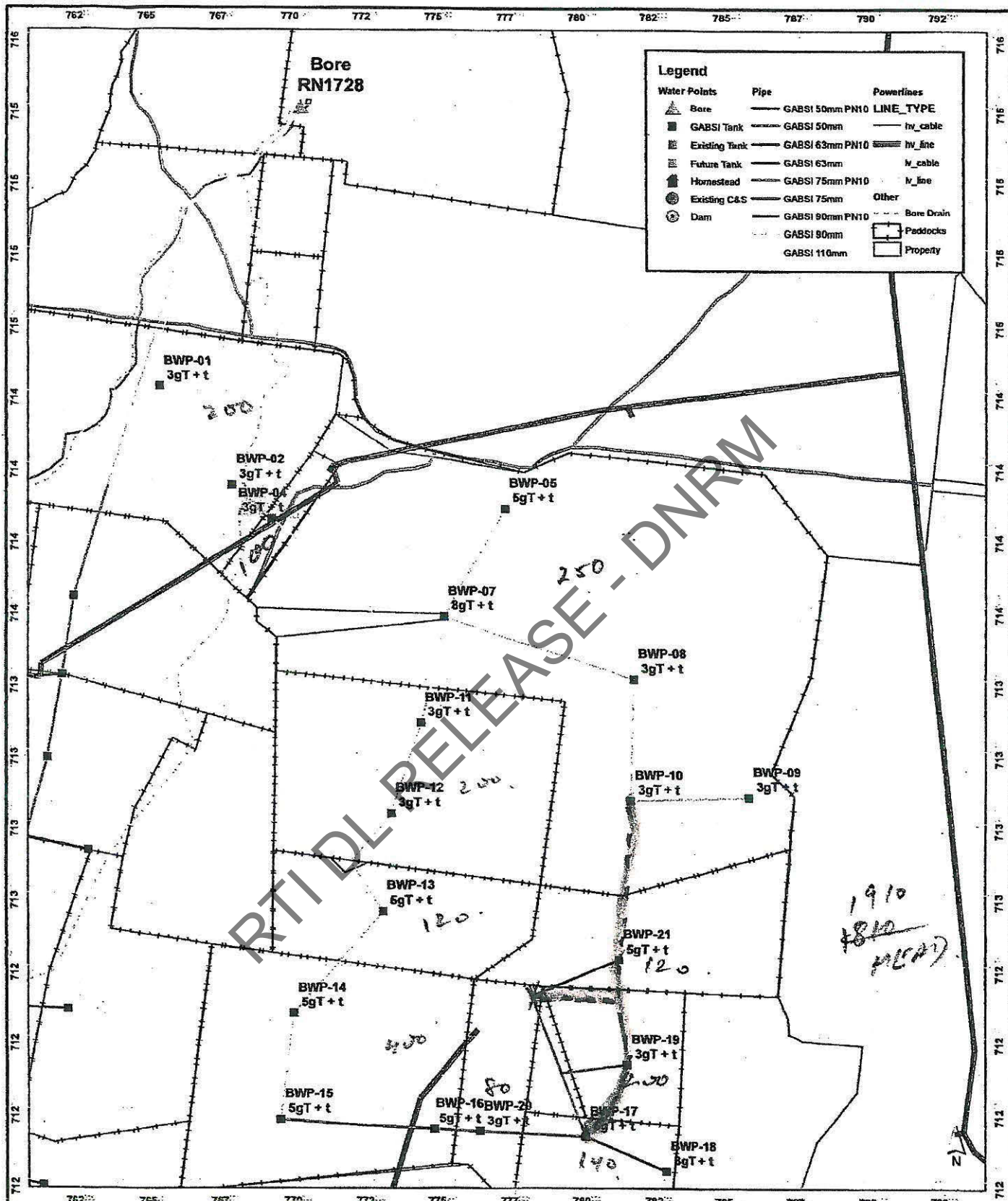


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 Map Datum: GDA 1994
 Data Sources: Dept. of Environment & Resource Management, Geoscience Australia and Landnet TM Imagery
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 "Bulgroo" Piping Map**

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 Engineer: Jason Keller*

A3

1:125,000



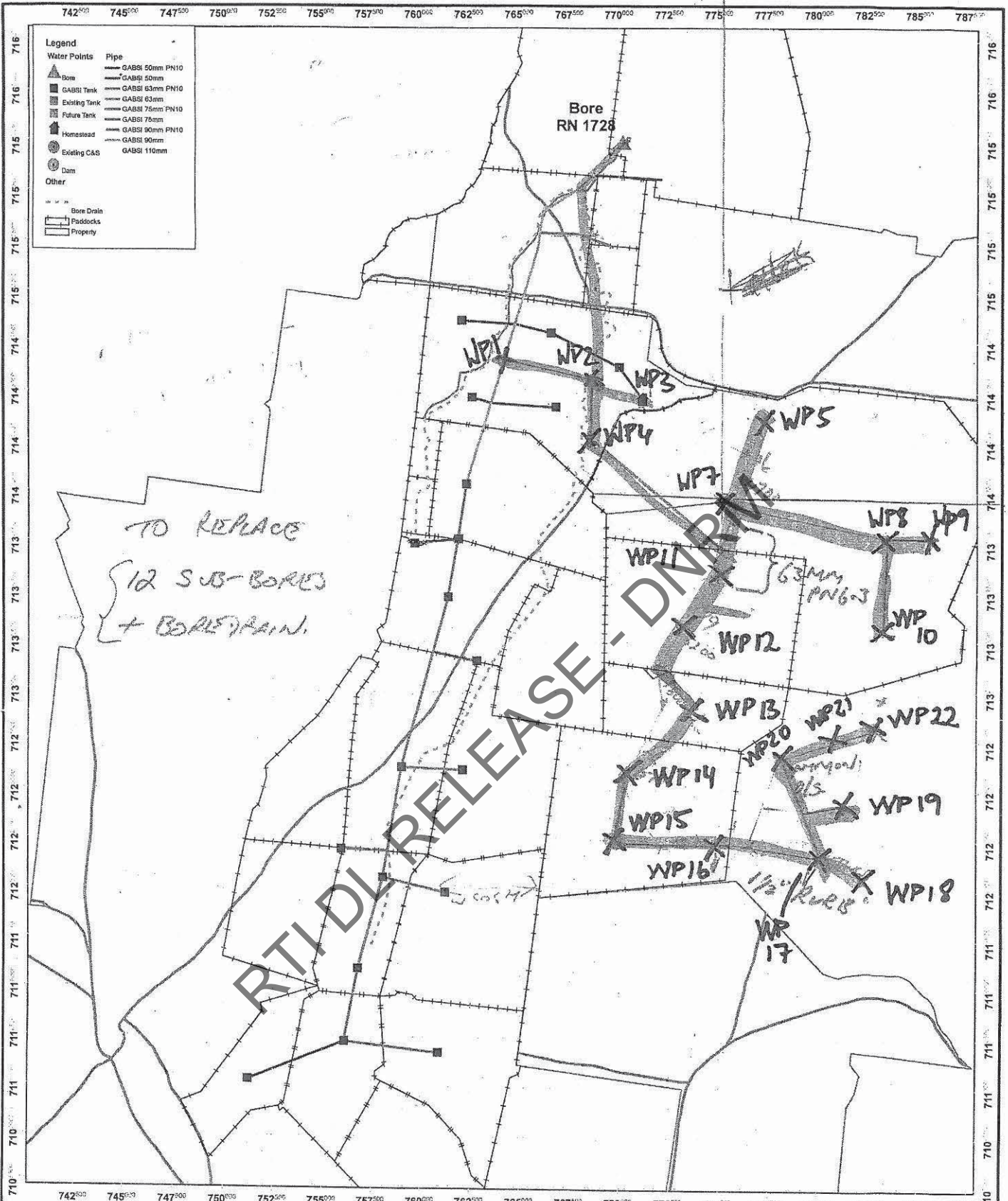
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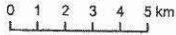
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1:180,000



A3



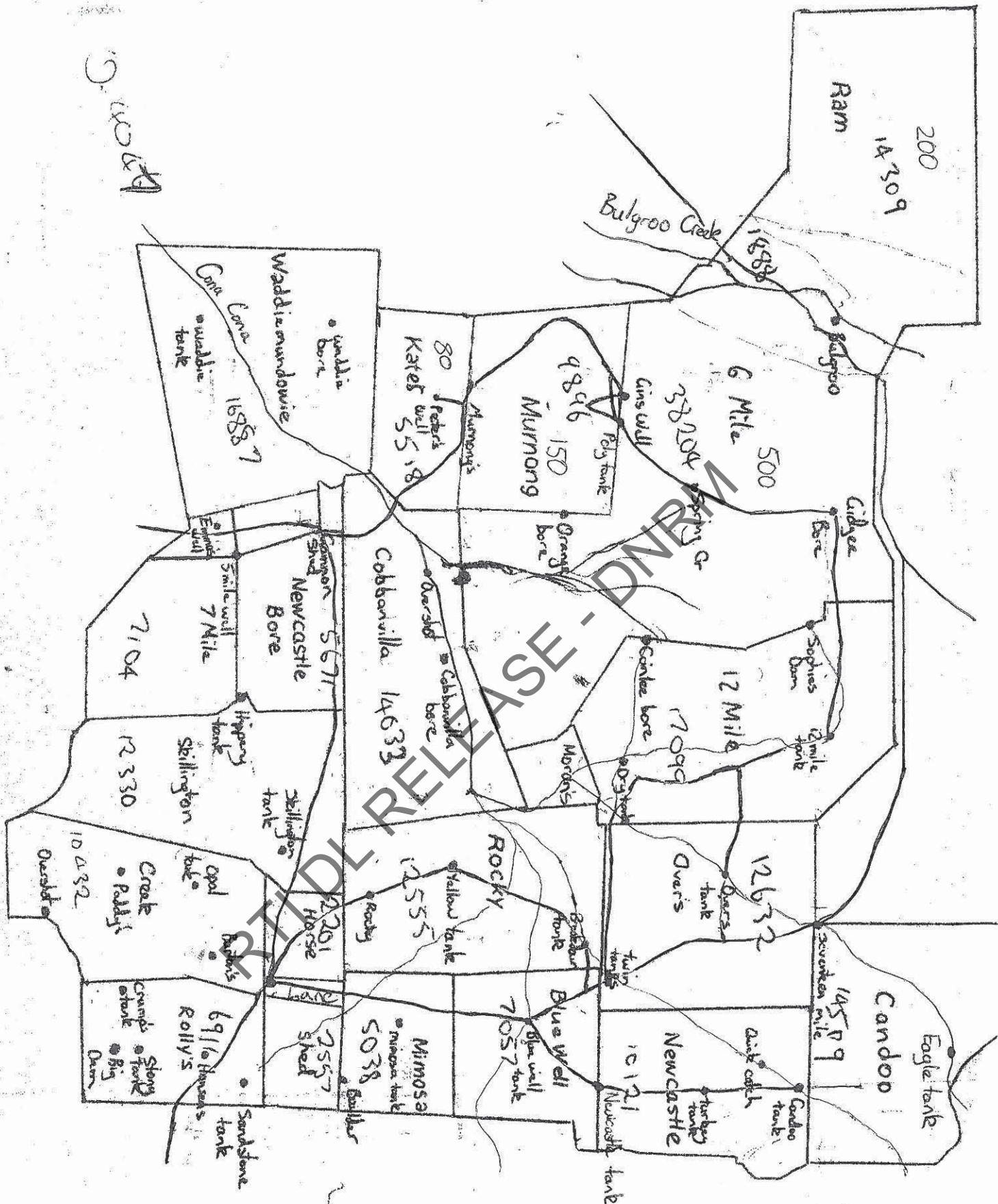
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Map Projection: UTM, MGA Zone 55
 Map Datum: GDA 1994
 Data Source: Dept of Environment & Resource Management, Geoscience Australia and LandSat TM imagery
 Property boundaries shown on this map are provided as a locational aid only



Release





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