

LOWER FITZROY RIVER

INFRASTRUCTURE PROJECT

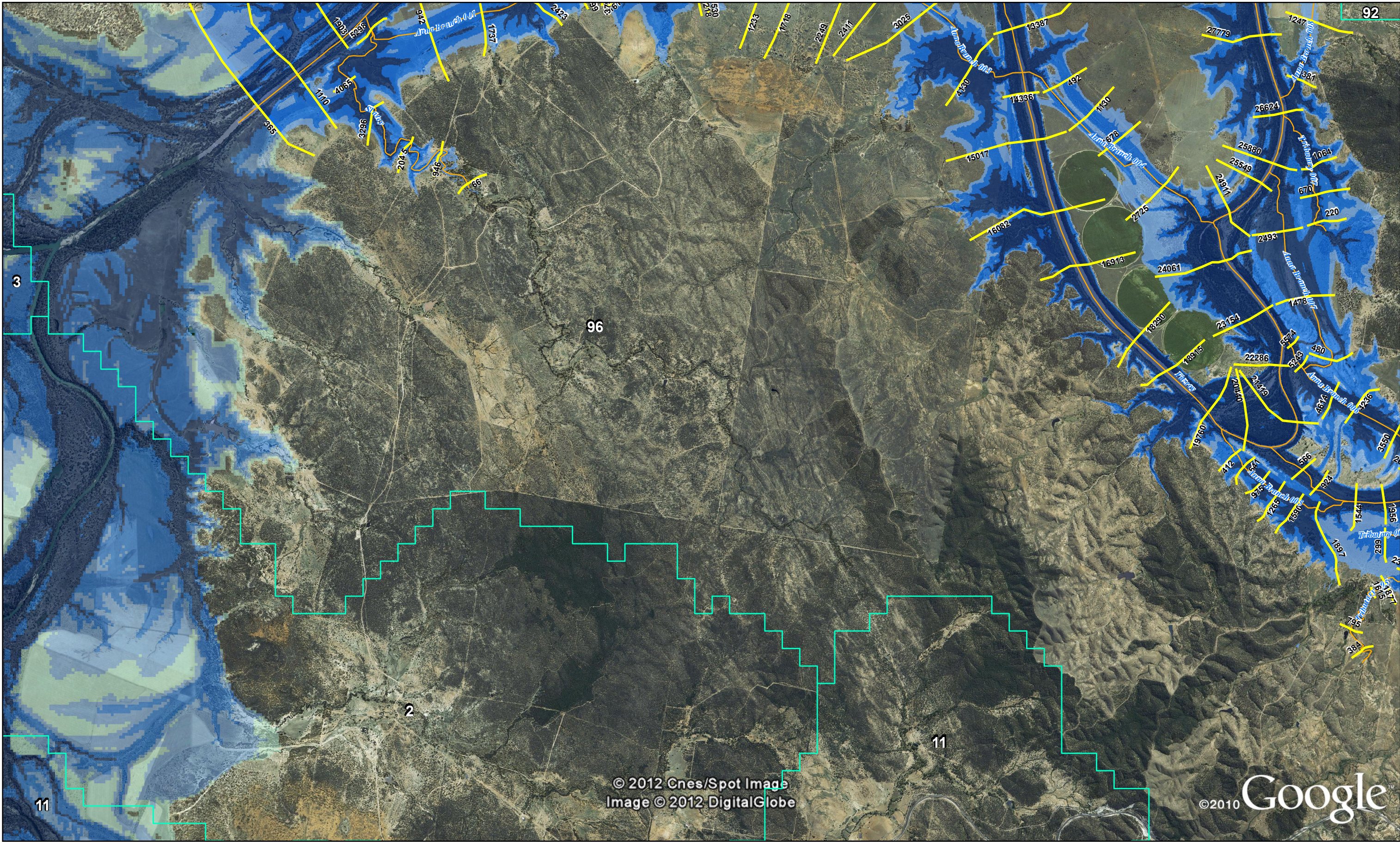
Appendix P

Surface water resources supporting material

Appendix F4

Rookwood Weir existing flood extents – 1 in 20 year AEP





Paper Size A3

0 0.5 1 1.5 2

Kilometres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55

N

LEGEND

- Weir Sites
- Gauge Stations
- Cross Sections
- Limit of Modelling
- Watercourse
- Model Subcatchments
- Water Depth
 - <= 1.5m
 - 1.5 - 3m
 - 3 - 6m
 - > 6m

10	11
8	9
7	
6	
5	
3	4
1	2

CLIENTS | PEOPLE | PERFORMANCE

Gladstone Area Water Board, SunWater
Lower Fitzroy River Infrastructure Project

Rookwood existing
flood extents – 20 year ARI

Job Number 41-20736
Revision 0
Date 15 Aug 2014

Figure F-4
Sheet 1-11



Paper Size A3

0 0.5 1 1.5 2

Kilometres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55

LEGEND

Weir Sites	Limit of Modelling	Water Depth	
Gauge Stations	Watercourse	≤ 1.5m	3 - 6m
Cross Sections	Model Subcatchments	1.5 - 3m	> 6m

10	11
8	9
7	
6	
	5
3	4
1	2

CLIENTS | PEOPLE | PERFORMANCE

Making Water Work

Gladstone Area Water Board, SunWater
Lower Fitzroy River Infrastructure Project

**Rookwood existing
flood extents – 20 year ARI**

Job Number | 41-20736
Revision | 0
Date | 15 Aug 2014

**Figure F-4
Sheet 2-11**

G:\4120736\GIS\Projects\MXD\260_Hydrological_Analysis\4120736_298_Rev_A.mxd

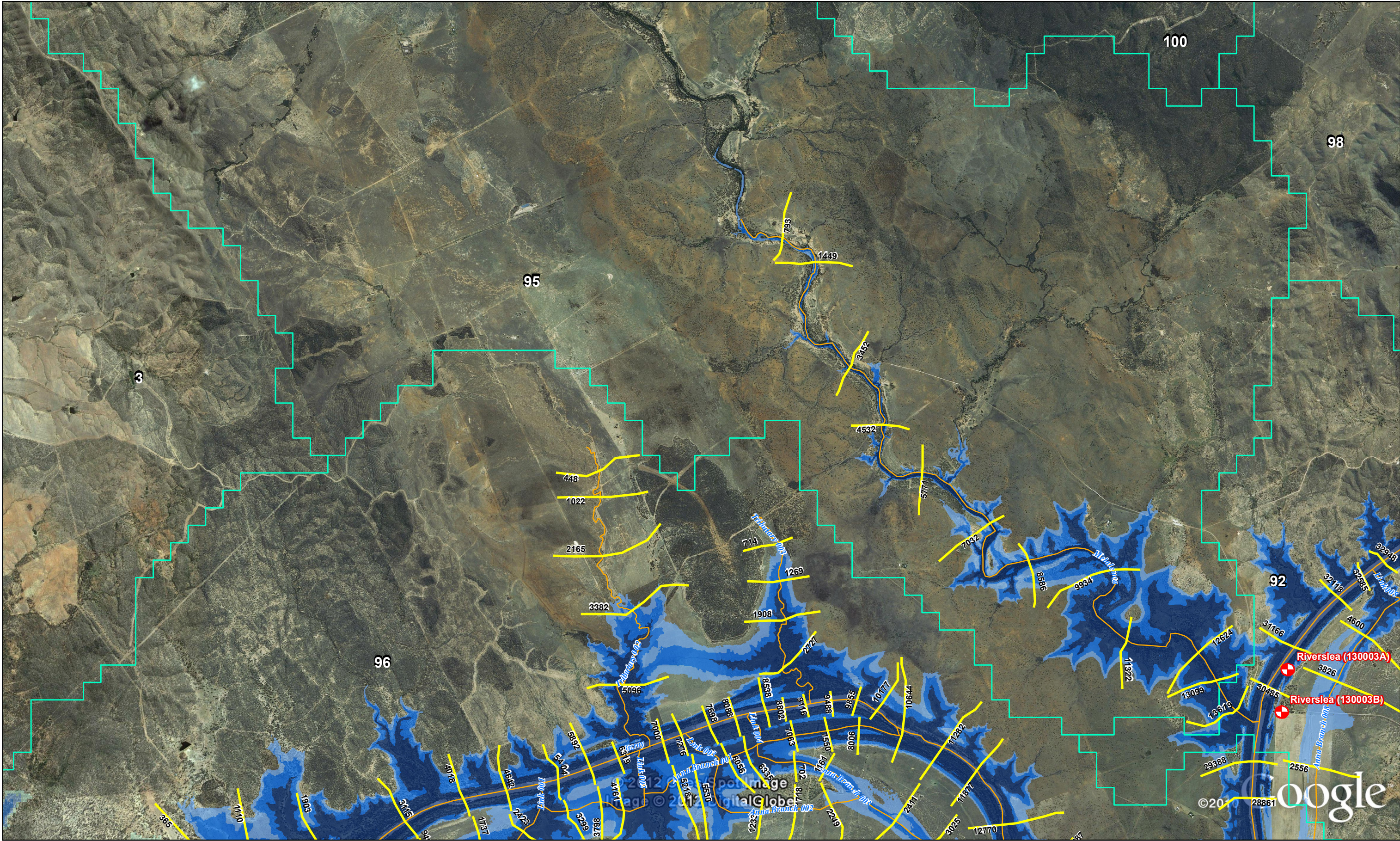
© 2014. Whilst every care has been taken to prepare this map, GHD, DERM, Google and Sunwater make no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and cannot accept liability and responsibility of any kind (whether in contract, tort or otherwise) for any expenses, losses, damages and/or costs (including indirect or consequential damage) which are or may be incurred by any party as a result of the map being inaccurate, incomplete or unsuitable in any way and for any reason.

Data source: DERM/GHD - River Strings (2012). DERM - Gauge Stations (2012). Weir Sites (2012). Sunwater - Model Subcatchments (2012). Google Earth Pro - Imagery (Date extracted = 30/08/2012). GHD - Cross Sections, Limit of Modelling, Existing Flood Mapping (2012). Created by: CM

Suite 4, Level 2, 1-3 Annand Street Toowoomba QLD 4350 Australia T 61 7 4633 8000 F 61 7 4613 1687 E tbamail@ghd.com W www.ghd.com

Based on or contains data provided by the State of Queensland (Department of Environment and Resource Management) 2012. In consideration of the State permitting use of this data you acknowledge and agree that the State gives no warranty in relation to the data (including accuracy, reliability, completeness, currency or suitability) and accepts no liability (including without limitation, liability in negligence) for any loss, damage or costs (including consequential damage) relating to any use of the data. Data must not be used for direct marketing or be used in breach of the privacy laws.

© The State of Queensland (Department of Environment and Resource Management) 2012.



Paper Size A3

0 0.5 1 1.5 2

Kilometres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55

N

LEGEND

Weir Sites	Limit of Modelling	Water Depth	
Gauge Stations	Watercourse	<= 1.5m	3 - 6m
Cross Sections	Model Subcatchments	1.5 - 3m	> 6m

10	11
8	9
7	
6	
	5
3	4
1	2

CLIENTS | PEOPLE | PERFORMANCE

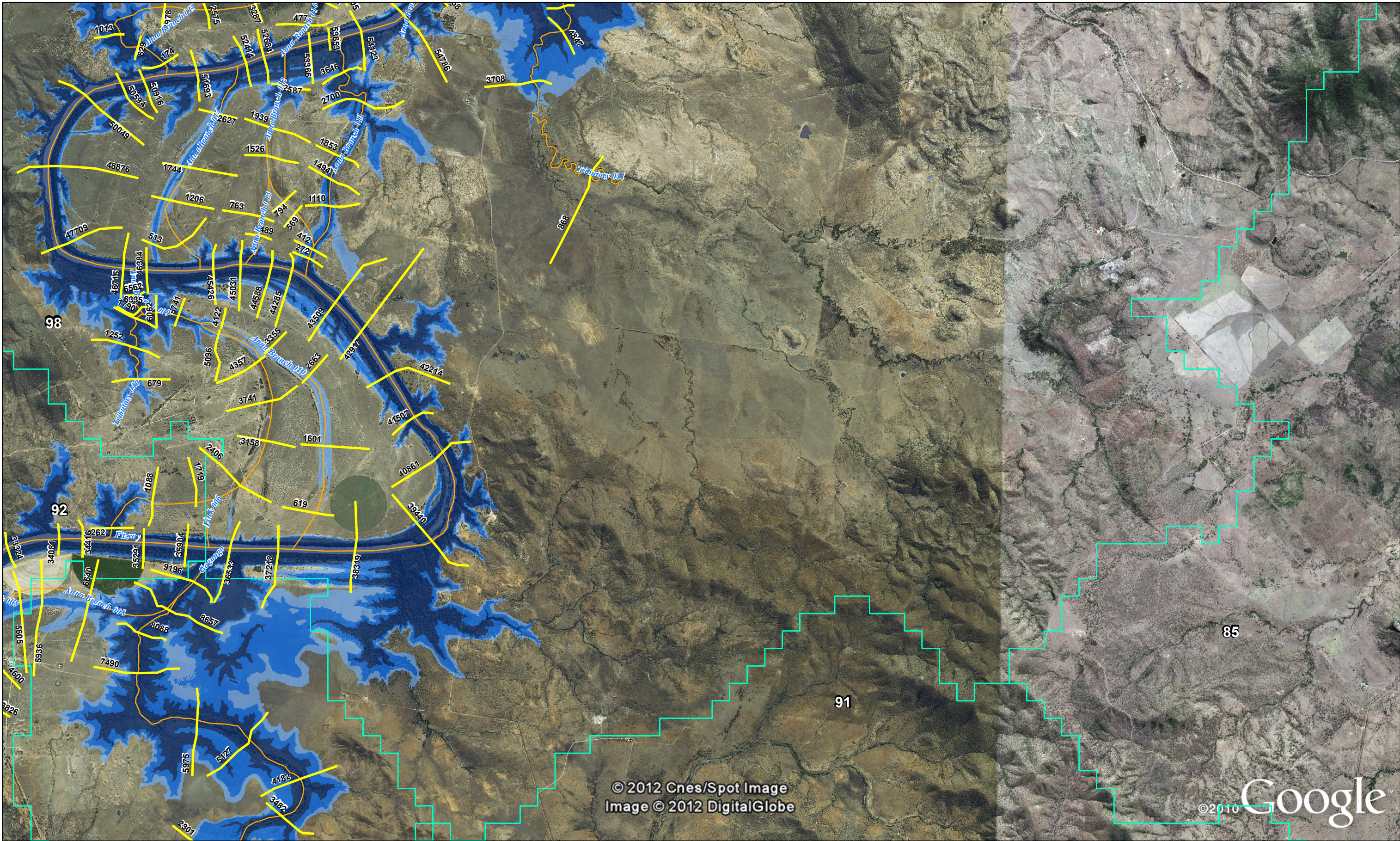
Making Water Work

Gladstone Area Water Board, SunWater
Lower Fitzroy River Infrastructure Project

Job Number 41-20736
Revision 0
Date 15 Aug 2014

**Rookwood existing
flood extents – 20 year ARI**

**Figure F-4
Sheet 3-11**



Paper Size A3

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55

LEGEND

● Weir Sites	— Limit of Modelling	Water Depth
⊕ Gauge Stations	— Watercourse	 <= 1.5m
— Cross Sections	 Model Subcatchments	 3 - 6m
		 > 6m

10	11
8	9
7	
6	
	5
3	4
1	2

Gladstone Area Water Board, SunWater
Lower Fitzroy River Infrastructure Project

**Rookwood existing
flood extents – 20 year ARI**

Job Number | 41-20736
Revision | 0
Date | 15 Aug 2014

**Figure F-4
Sheet 4-11**

G:\4120736\GIS\Projects\WMD\260_Hydrological_Analysis\4120736_298_Rev_A.mxd

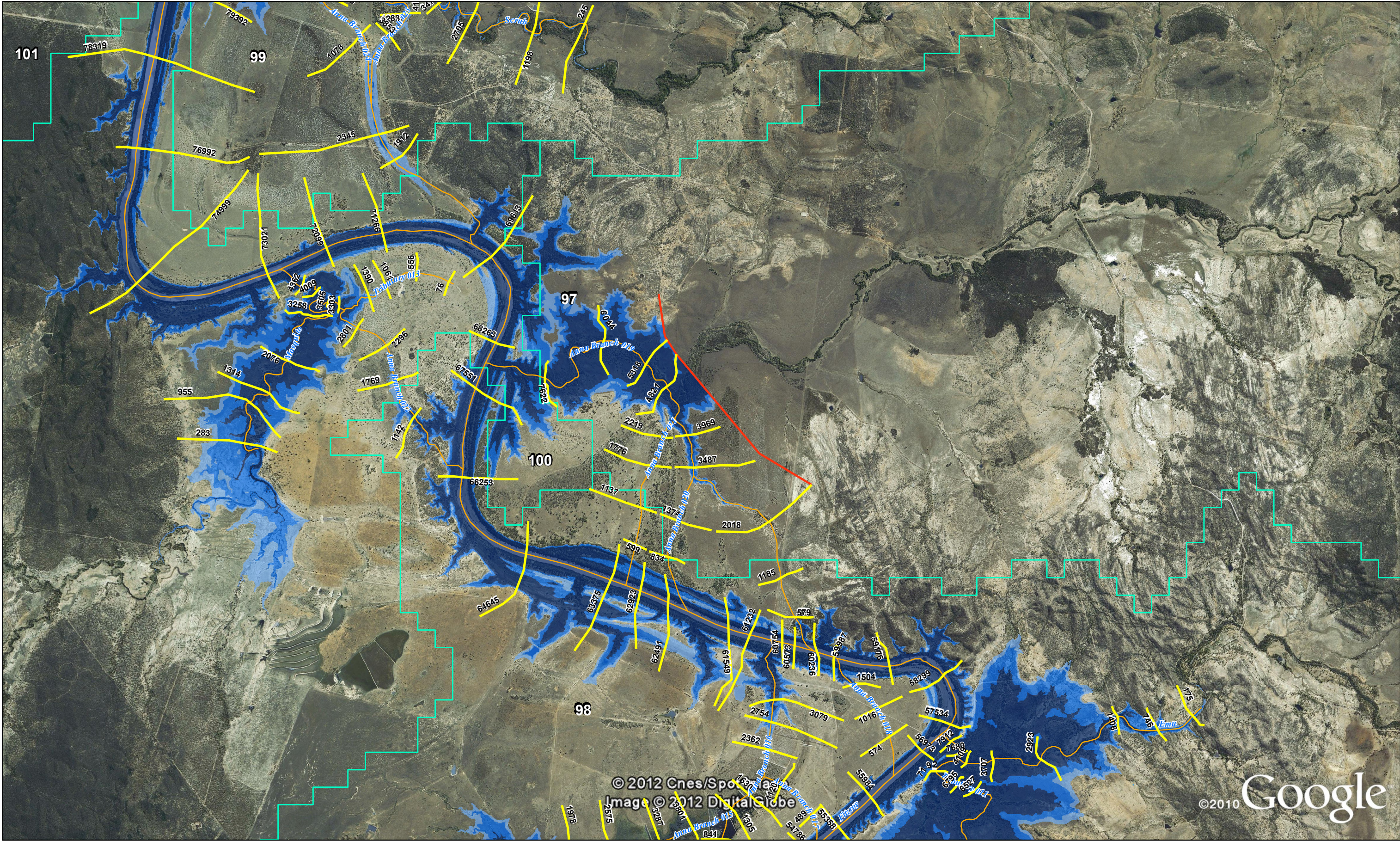
© 2014. Whilst every care has been taken to prepare this map, GHD, DERM, Google and Sunwater make no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and cannot accept liability and responsibility of any kind (whether in contract, tort or otherwise) for any expenses, losses, damages and/or costs (including indirect or consequential damage) which are or may be incurred by any party as a result of the map being inaccurate, incomplete or unsuitable in any way and for any reason.

Data source: DERM/GHD - River Strings (2012). DERM - Gauge Stations (2012). Weir Sites (2012). Sunwater - Model Subcatchments (2012). Google Earth Pro - Imagery (Date extracted = 30/08/2012). GHD - Cross Sections, Limit of Modelling, Existing Flood Mapping (2012). Created by: CM

Suite 4, Level 2, 1-3 Annand Street Toowoomba QLD 4350 Australia T 61 7 4633 8000 F 61 7 4613 1687 E tbaumail@ghd.com W www.ghd.com

Based on or contains data provided by the State of Queensland (Department of Environment and Resource Management) 2012. In consideration of the State permitting use of this data you acknowledge and agree that the State gives no warranty in relation to the data (including accuracy, reliability, completeness, currency or suitability) and accepts no liability (including without limitation, liability in negligence) for any loss, damage or costs (including consequential damage) relating to any use of the data. Data must not be used for direct marketing or be used in breach of the privacy laws.

© The State of Queensland (Department of Environment and Resource Management) 2012.



Paper Size A3

0 0.5 1 1.5 2

Kilometres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55

LEGEND

- Weir Sites
- Gauge Stations
- Cross Sections
- Limit of Modelling
- Watercourse
- Model Subcatchments
- Water Depth
 - <= 1.5m
 - 1.5 - 3m
 - 3 - 6m
 - > 6m

10	11
8	9
7	
6	
5	
3	4
1	2

GHD

CLIENTS | PEOPLE | PERFORMANCE

Gladstone Area Water Board

SunWater

Making Water Work

Gladstone Area Water Board, SunWater
Lower Fitzroy River Infrastructure Project

Job Number 41-20736
Revision 0
Date 15 Aug 2014

Rookwood existing
flood extents – 20 year ARI

Figure F-4
Sheet 5-11

G:\4120736\GIS\Projects\MXD\260_Hydrological_Analysis\4120736_298_Rev_A.mxd

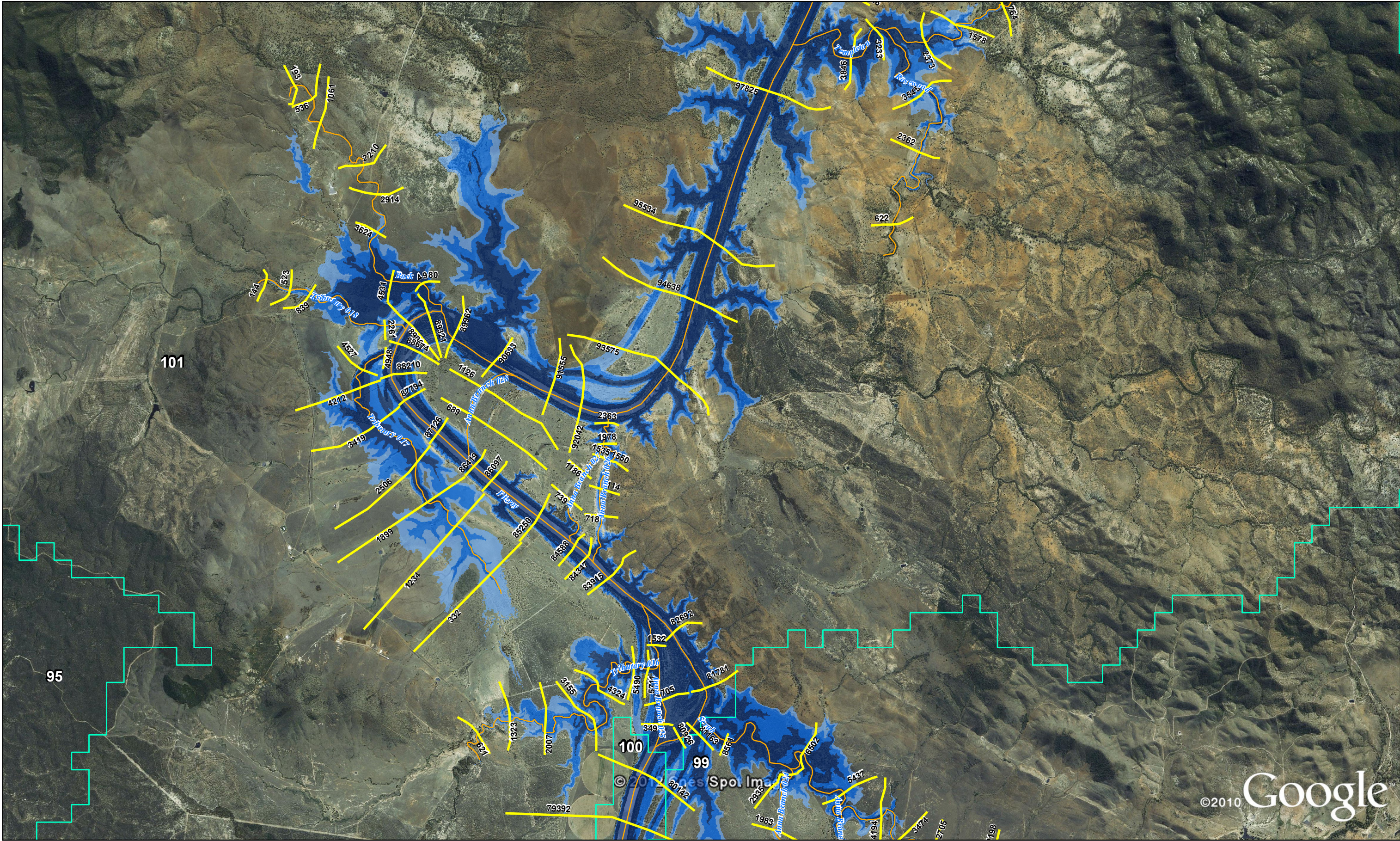
© 2014. Whilst every care has been taken to prepare this map, GHD, DERM, Google and Sunwater make no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and cannot accept liability and responsibility of any kind (whether in contract, tort or otherwise) for any expenses, losses, damages and/or costs (including indirect or consequential damage) which are or may be incurred by any party as a result of the map being inaccurate, incomplete or unsuitable in any way and for any reason.

Data source: DERM/GHD - River Strings (2012). DERM - Gauge Stations (2012). Weir Sites (2012). Sunwater - Model Subcatchments (2012). Google Earth Pro - Imagery (Date extracted = 30/08/2012). GHD - Cross Sections, Limit of Modelling, Existing Flood Mapping (2012). Created by: CM

Suite 4, Level 2, 1-3 Annand Street Toowoomba QLD 4350 Australia T 61 7 4633 8000 F 61 7 4613 1687 E tbamail@ghd.com W www.ghd.com

Based on or contains data provided by the State of Queensland (Department of Environment and Resource Management) 2012. In consideration of the State permitting use of this data you acknowledge and agree that the State gives no warranty in relation to the data (including accuracy, reliability, completeness, currency or suitability) and accepts no liability (including without limitation, liability in negligence) for any loss, damage or costs (including consequential damage) relating to any use of the data. Data must not be used for direct marketing or be used in breach of the privacy laws.

© The State of Queensland (Department of Environment and Resource Management) 2012.



Paper Size A3

0 0.5 1 1.5 2

Kilometres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55

N

LEGEND

- Weir Sites
- Gauge Stations
- Cross Sections
- Limit of Modelling
- Watercourse
- Model Subcatchments
- Water Depth
 - <= 1.5m
 - 1.5 - 3m
 - 3 - 6m
 - > 6m

10	11
8	9
7	
6	
5	
3	4
1	2

CLIENTS | PEOPLE | PERFORMANCE

Gladstone Area Water Board, SunWater
Lower Fitzroy River Infrastructure Project

**Rookwood existing
flood extents – 20 year ARI**

Job Number 41-20736
Revision 0
Date 15 Aug 2014

**Figure F-4
Sheet 6-11**

G:\41\20736\GIS\Projects\MXD\260_Hydrological_Analysis\4120736_298_Rev_A.mxd

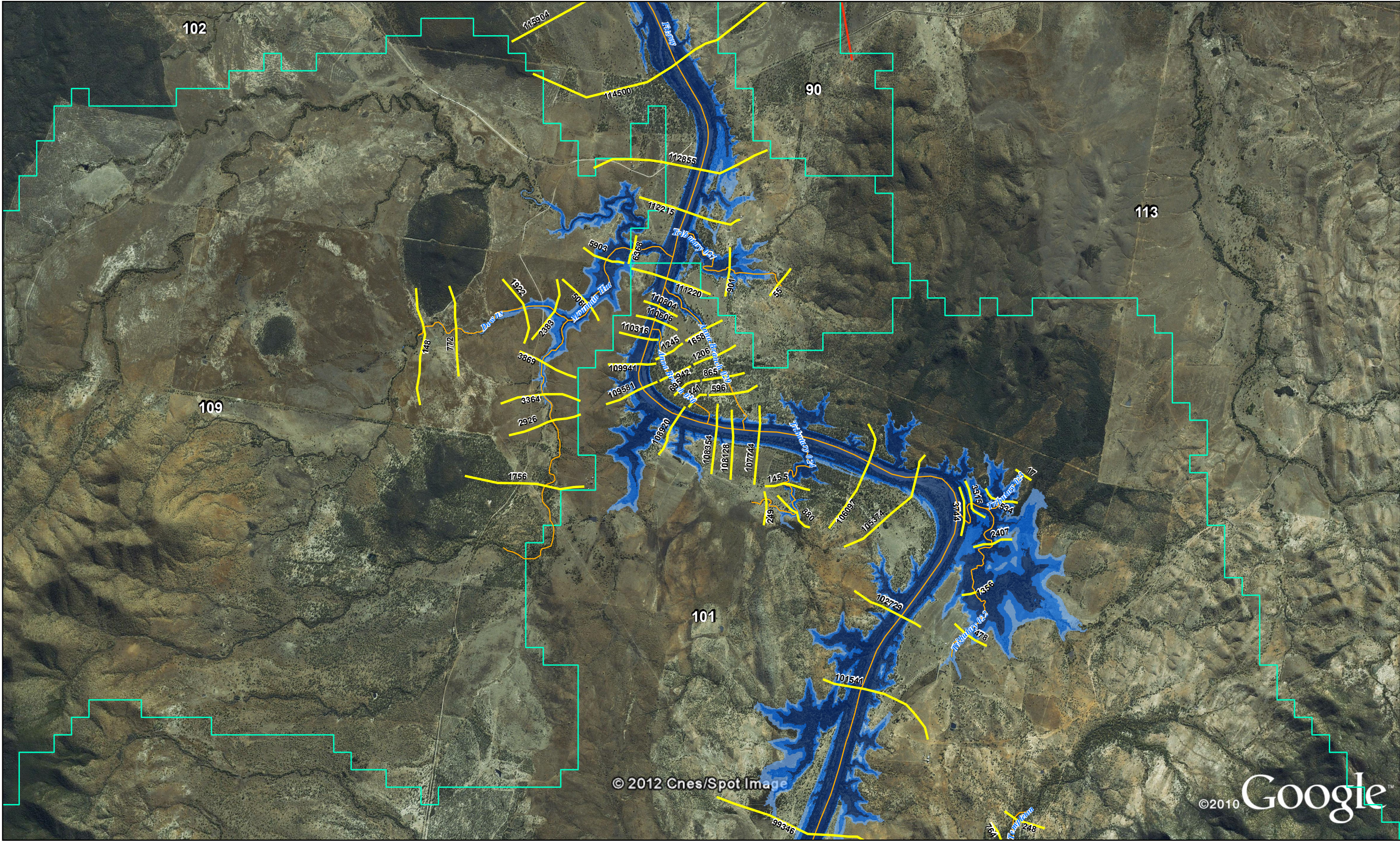
© 2014. Whilst every care has been taken to prepare this map, GHD, DERM, Google and Sunwater make no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and cannot accept liability and responsibility of any kind (whether in contract, tort or otherwise) for any expenses, losses, damages and/or costs (including indirect or consequential damage) which are or may be incurred by any party as a result of the map being inaccurate, incomplete or unsuitable in any way and for any reason.

Data source: DERM/GHD - River Strings (2012). DERM - Gauge Stations (2012). Weir Sites (2012). Sunwater - Model Subcatchments (2012). Google Earth Pro - Imagery (Date extracted = 30/08/2012). GHD - Cross Sections, Limit of Modelling, Existing Flood Mapping (2012). Created by: CM

Suite 4, Level 2, 1-3 Annand Street Toowoomba QLD 4350 Australia T 61 7 4633 8000 F 61 7 4613 1687 E tbamail@ghd.com W www.ghd.com

Based on or contains data provided by the State of Queensland (Department of Environment and Resource Management) 2012. In consideration of the State permitting use of this data you acknowledge and agree that the State gives no warranty in relation to the data (including accuracy, reliability, completeness, currency or suitability) and accepts no liability (including without limitation, liability in negligence) for any loss, damage or costs (including consequential damage) relating to any use of the data. Data must not be used for direct marketing or be used in breach of the privacy laws.

© The State of Queensland (Department of Environment and Resource Management) 2012.



Paper Size A3

0 0.5 1 1.5 2

Kilometres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55

N

LEGEND

- Weir Sites
- Gauge Stations
- Cross Sections
- Limit of Modelling
- Watercourse
- Model Subcatchments
- Water Depth
 - <= 1.5m
 - 1.5 - 3m
 - 3 - 6m
 - > 6m

10	11
8	9
7	
6	
	5
3	4
1	2

CLIENTS | PEOPLE | PERFORMANCE

Making Water Work

Gladstone Area Water Board, SunWater
Lower Fitzroy River Infrastructure Project

Job Number 41-20736
Revision 0
Date 15 Aug 2014

Rookwood existing
flood extents – 20 year ARI

Figure F-4
Sheet 7-11

G:\4120736\GIS\Projects\MXD\260_Hydrological_Analysis\4120736_298_Rev_A.mxd

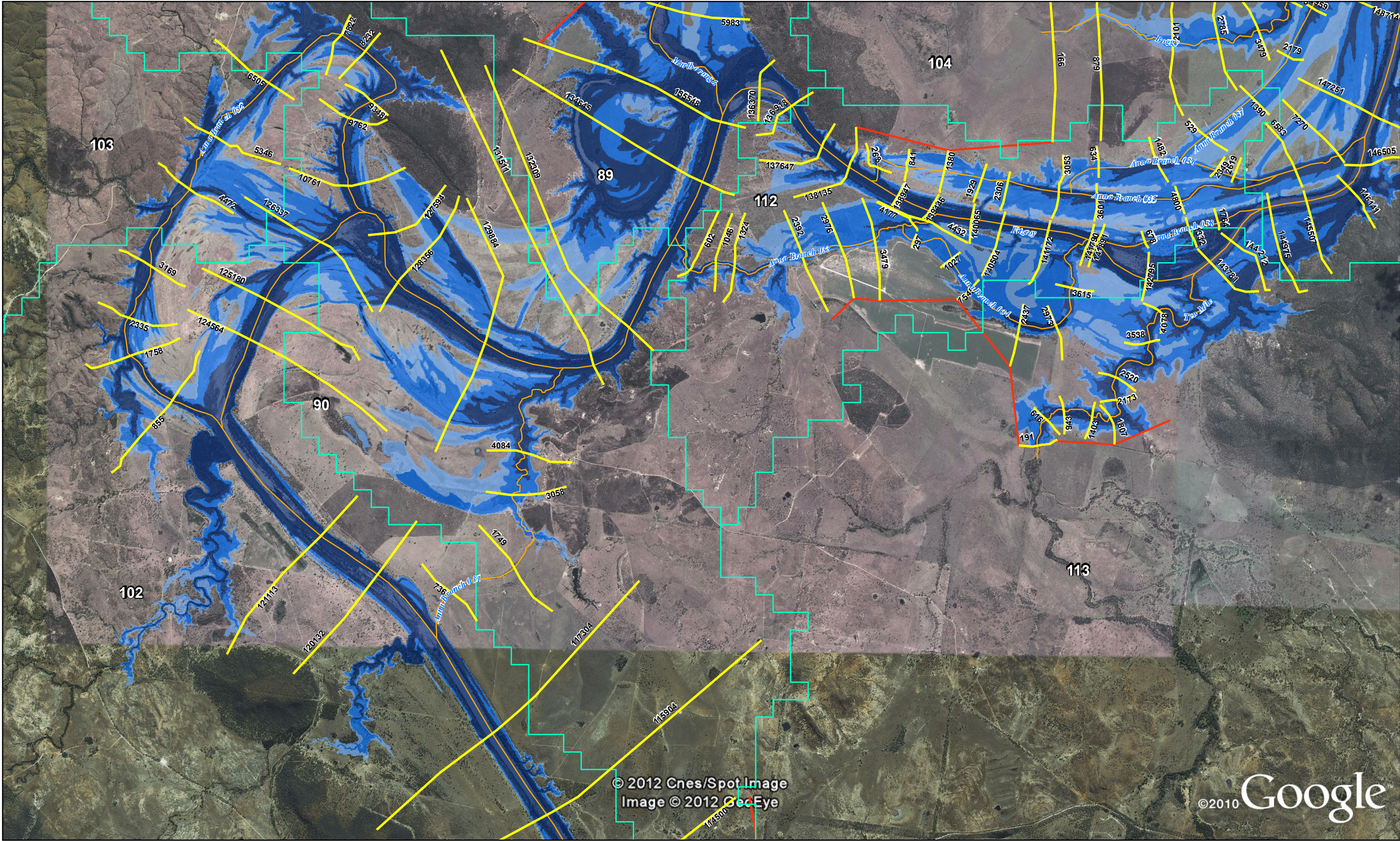
© 2014. Whilst every care has been taken to prepare this map, GHD, DERM, Google and Sunwater make no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and cannot accept liability and responsibility of any kind (whether in contract, tort or otherwise) for any expenses, losses, damages and/or costs (including indirect or consequential damage) which are or may be incurred by any party as a result of the map being inaccurate, incomplete or unsuitable in any way and for any reason.

Data source: DERM/GHD - River Strings (2012). DERM - Gauge Stations (2012). Weir Sites (2012). Sunwater - Model Subcatchments (2012). Google Earth Pro - Imagery (Date extracted = 30/08/2012). GHD - Cross Sections, Limit of Modelling, Existing Flood Mapping (2012). Created by: CM

Suite 4, Level 2, 1-3 Annand Street Toowoomba QLD 4350 Australia T 61 7 4633 8000 F 61 7 4613 1687 E tbamail@ghd.com W www.ghd.com

Based on or contains data provided by the State of Queensland (Department of Environment and Resource Management) 2012. In consideration of the State permitting use of this data you acknowledge and agree that the State gives no warranty in relation to the data (including accuracy, reliability, completeness, currency or suitability) and accepts no liability (including without limitation, liability in negligence) for any loss, damage or costs (including consequential damage) relating to any use of the data. Data must not be used for direct marketing or be used in breach of the privacy laws.

© The State of Queensland (Department of Environment and Resource Management) 2012.



Paper Size A3

0 0.5 1 1.5 2

Kilometres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55

N

LEGEND

- Weir Sites
- Gauge Stations
- Cross Sections
- Limit of Modelling
- Watercourse
- Model Subcatchments
- Water Depth
 - <= 1.5m
 - 1.5 - 3m
 - 3 - 6m
 - > 6m

10	11
8	9
7	
6	
	5
3	4
1	2

CLIENTS | PEOPLE | PERFORMANCE

Gladstone Area Water Board, SunWater
Lower Fitzroy River Infrastructure Project

Rookwood existing
flood extents – 20 year ARI

Job Number 41-20736
Revision 0
Date 15 Aug 2014

Figure F-4
Sheet 8-11

G:\4120736\GIS\Projects\MXD\260_Hydrological_Analysis\4120736_298_Rev_A.mxd

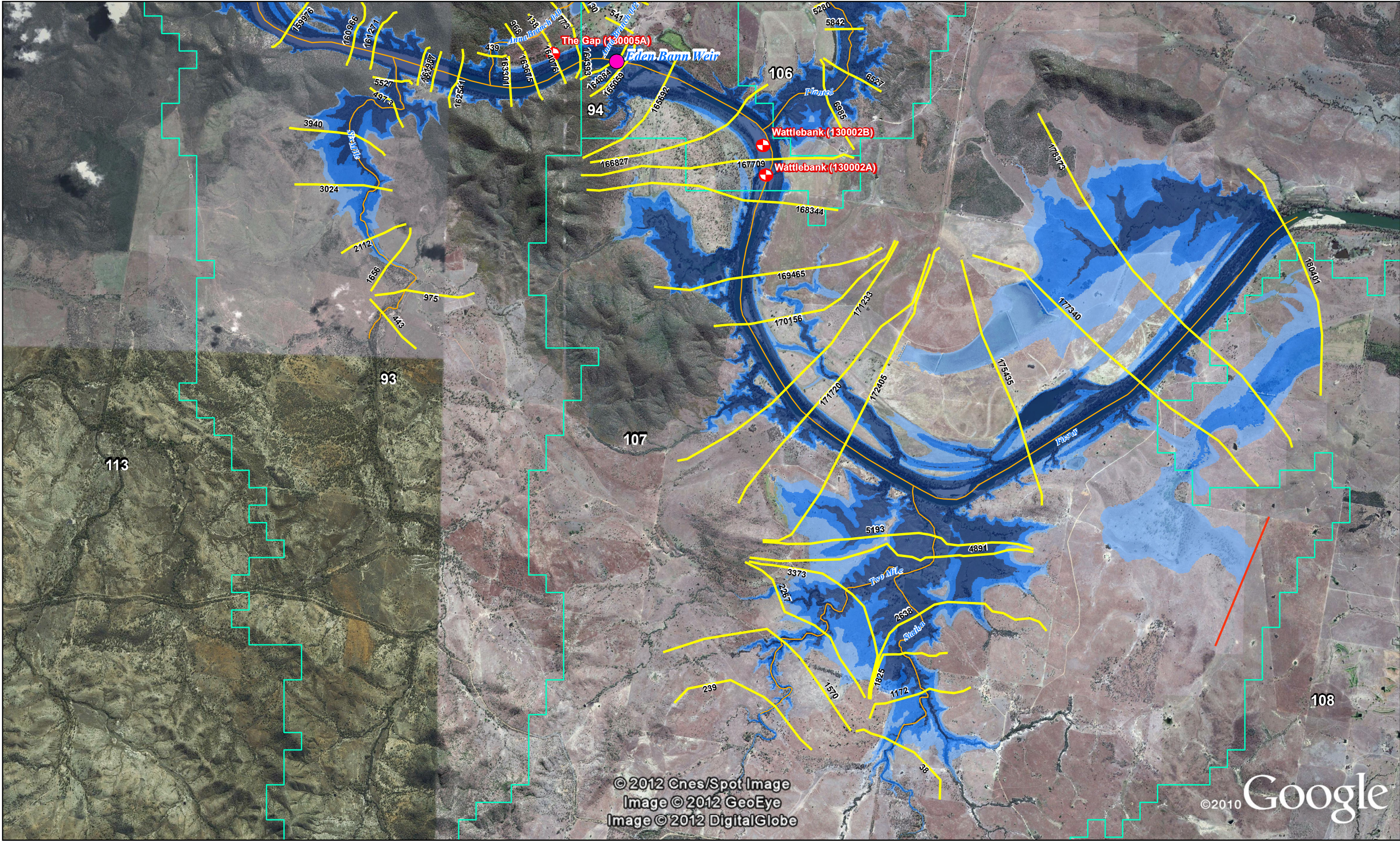
© 2014. Whilst every care has been taken to prepare this map, GHD, DERM, Google and Sunwater make no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and cannot accept liability and responsibility of any kind (whether in contract, tort or otherwise) for any expenses, losses, damages and/or costs (including indirect or consequential damage) which are or may be incurred by any party as a result of the map being inaccurate, incomplete or unsuitable in any way and for any reason.

Data source: DERM/GHD - River Strings (2012). DERM - Gauge Stations (2012). Weir Sites (2012). Sunwater - Model Subcatchments (2012). Google Earth Pro - Imagery (Date extracted = 30/08/2012). GHD - Cross Sections, Limit of Modelling, Existing Flood Mapping (2012). Created by: CM

Suite 4, Level 2, 1-3 Annand Street Toowoomba QLD 4350 Australia T 61 7 4633 8000 F 61 7 4613 1687 E tbmail@ghd.com W www.ghd.com

Based on or contains data provided by the State of Queensland (Department of Environment and Resource Management) 2012. In consideration of the State permitting use of this data you acknowledge and agree that the State gives no warranty in relation to the data (including accuracy, reliability, completeness, currency or suitability) and accepts no liability (including without limitation, liability in negligence) for any loss, damage or costs (including consequential damage) relating to any use of the data. Data must not be used for direct marketing or be used in breach of the privacy laws.

© The State of Queensland (Department of Environment and Resource Management) 2012.



Paper Size A3

0 0.5 1 1.5 2

Kilometres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55

N

LEGEND

- Weir Sites
- Gauge Stations
- Cross Sections
- Limit of Modelling
- Watercourse
- Model Subcatchments
- Water Depth
 - <= 1.5m
 - 1.5 - 3m
 - 3 - 6m
 - > 6m

10	11
8	9
7	
6	
	5
3	4
1	2

CLIENTS | PEOPLE | PERFORMANCE

Making Water Work

Gladstone Area Water Board, SunWater
Lower Fitzroy River Infrastructure Project

Job Number 41-20736
Revision 0
Date 15 Aug 2014

Rookwood existing
flood extents – 20 year ARI

Figure F-4
Sheet 9-11

G:\4120736\GIS\Projects\MXD\260_Hydrological_Analysis\4120736_298_Rev_A.mxd

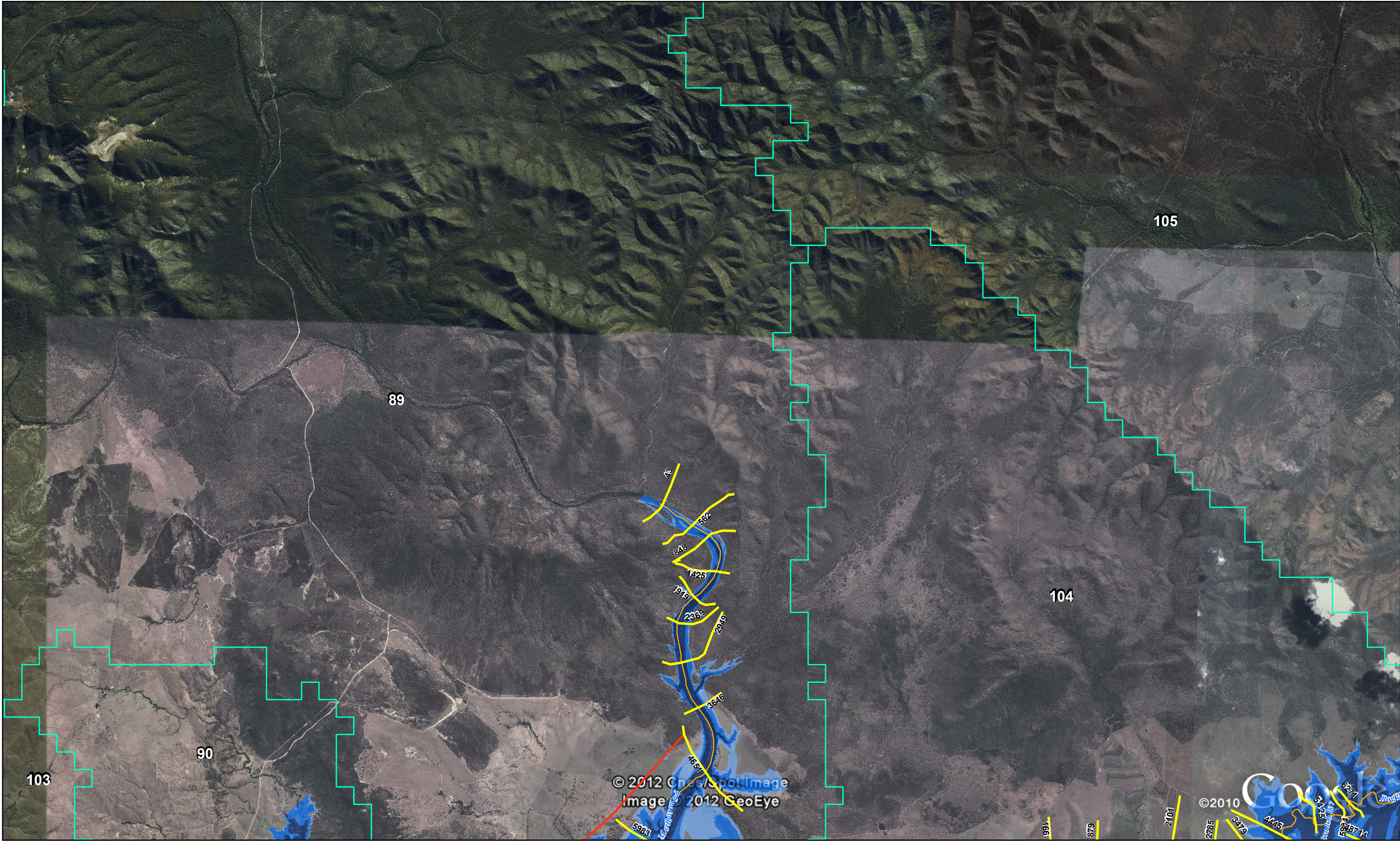
© 2014. Whilst every care has been taken to prepare this map, GHD, DERM, Google and Sunwater make no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and cannot accept liability and responsibility of any kind (whether in contract, tort or otherwise) for any expenses, losses, damages and/or costs (including indirect or consequential damage) which are or may be incurred by any party as a result of the map being inaccurate, incomplete or unsuitable in any way and for any reason.

Data source: DERM/GHD - River Strings (2012). DERM - Gauge Stations (2012). Weir Sites (2012). Sunwater - Model Subcatchments (2012). Google Earth Pro - Imagery (Date extracted = 30/08/2012). GHD - Cross Sections, Limit of Modelling, Existing Flood Mapping (2012). Created by: CM

Suite 4, Level 2, 1-3 Annand Street Toowoomba QLD 4350 Australia T 61 7 4633 8000 F 61 7 4613 1687 E tbamail@ghd.com W www.ghd.com

Based on or contains data provided by the State of Queensland (Department of Environment and Resource Management) 2012. In consideration of the State permitting use of this data you acknowledge and agree that the State gives no warranty in relation to the data (including accuracy, reliability, completeness, currency or suitability) and accepts no liability (including without limitation, liability in negligence) for any loss, damage or costs (including consequential damage) relating to any use of the data. Data must not be used for direct marketing or be used in breach of the privacy laws.

© The State of Queensland (Department of Environment and Resource Management) 2012.



Paper Size A3

0 0.5 1 1.5 2

Kilometres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55

LEGEND

Weir Sites	Limit of Modelling	Water Depth	
Gauge Stations	Watercourse	≤ 1.5m	3 - 6m
Cross Sections	Model Subcatchments	1.5 - 3m	> 6m

10	11
8	9
7	
6	
	5
3	4
1	2

CLIENTS | PEOPLE | PERFORMANCE

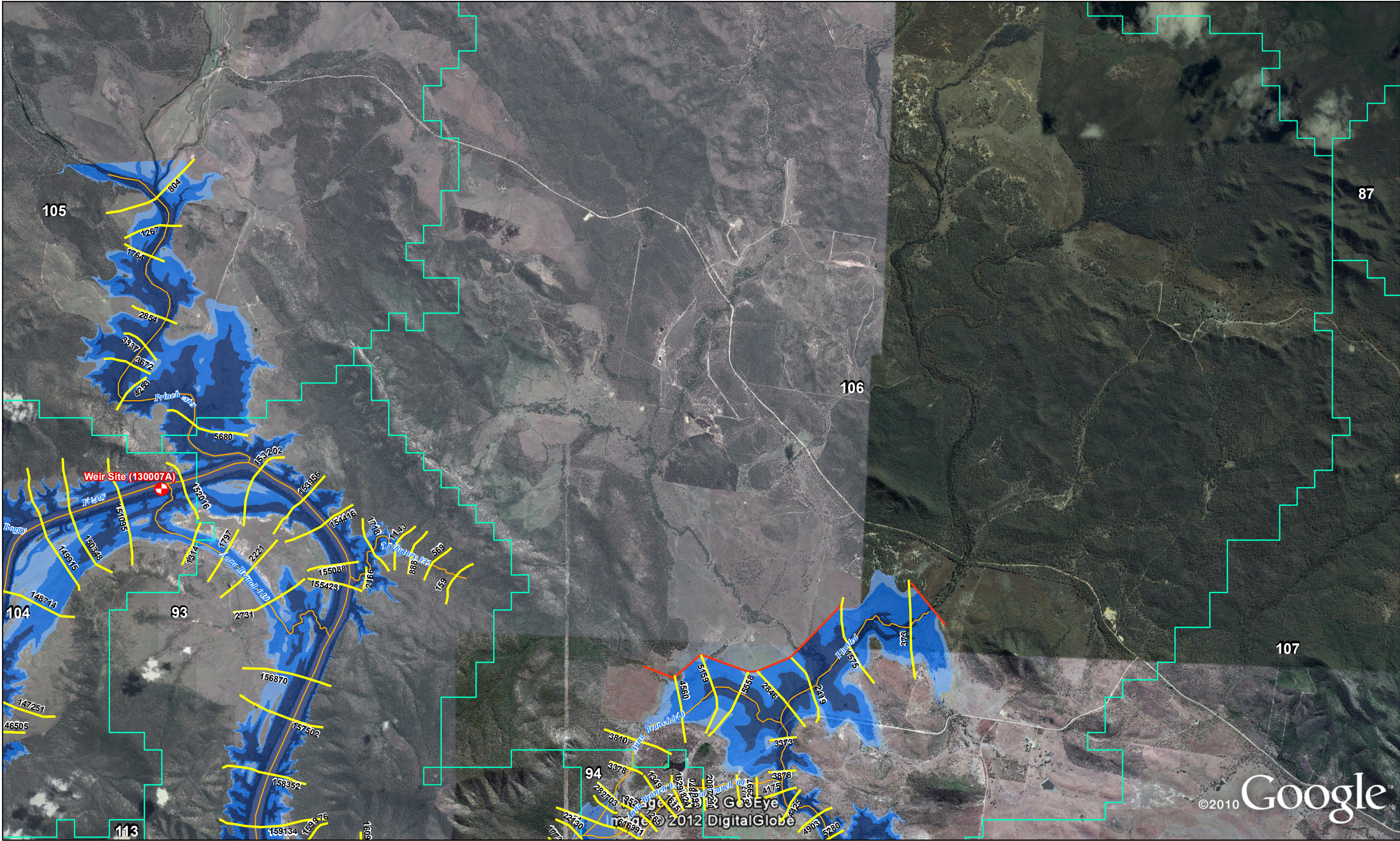
Making Water Work

Gladstone Area Water Board, SunWater
Lower Fitzroy River Infrastructure Project

Job Number | 41-20736
Revision | 0
Date | 15 Aug 2014

**Rookwood existing
flood extents – 20 year ARI**

**Figure F-4
Sheet 10-11**



Paper Size A3

0 0.5 1 1.5 2

Kilometres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55

N

LEGEND

- Weir Sites
- Gauge Stations
- Cross Sections
- Limit of Modelling
- Watercourse
- Model Subcatchments
- Water Depth
 - <= 1.5m
 - 1.5 - 3m
 - > 6m
 - 3 - 6m

10	11
8	9
7	
6	
	5
3	4
1	2

CLIENTS | PEOPLE | PERFORMANCE

Making Water Work

Gladstone Area Water Board, SunWater
Lower Fitzroy River Infrastructure Project

Job Number 41-20736
Revision 0
Date 15 Aug 2014

Rookwood existing
flood extents – 20 year ARI

Figure F-4
Sheet 11-11

G:\4120736\GIS\Projects\MXD\260_Hydrological_Analysis\4120736_298_Rev_A.mxd

© 2014. Whilst every care has been taken to prepare this map, GHD, DERM, Google and Sunwater make no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and cannot accept liability and responsibility of any kind (whether in contract, tort or otherwise) for any expenses, losses, damages and/or costs (including indirect or consequential damage) which are or may be incurred by any party as a result of the map being inaccurate, incomplete or unsuitable in any way and for any reason.

Data source: DERM/GHD - River Strings (2012). DERM - Gauge Stations (2012). Weir Sites (2012). Sunwater - Model Subcatchments (2012). Google Earth Pro - Imagery (Date extracted = 30/08/2012). GHD - Cross Sections, Limit of Modelling, Existing Flood Mapping (2012). Created by: CM

Suite 4, Level 2, 1-3 Annand Street Toowoomba QLD 4350 Australia T 61 7 4633 8000 F 61 7 4613 1687 E tbamail@ghd.com W www.ghd.com

Based on or contains data provided by the State of Queensland (Department of Environment and Resource Management) 2012. In consideration of the State permitting use of this data you acknowledge and agree that the State gives no warranty in relation to the data (including accuracy, reliability, completeness, currency or suitability) and accepts no liability (including without limitation, liability in negligence) for any loss, damage or costs (including consequential damage) relating to any use of the data. Data must not be used for direct marketing or be used in breach of the privacy laws.

© The State of Queensland (Department of Environment and Resource Management) 2012.