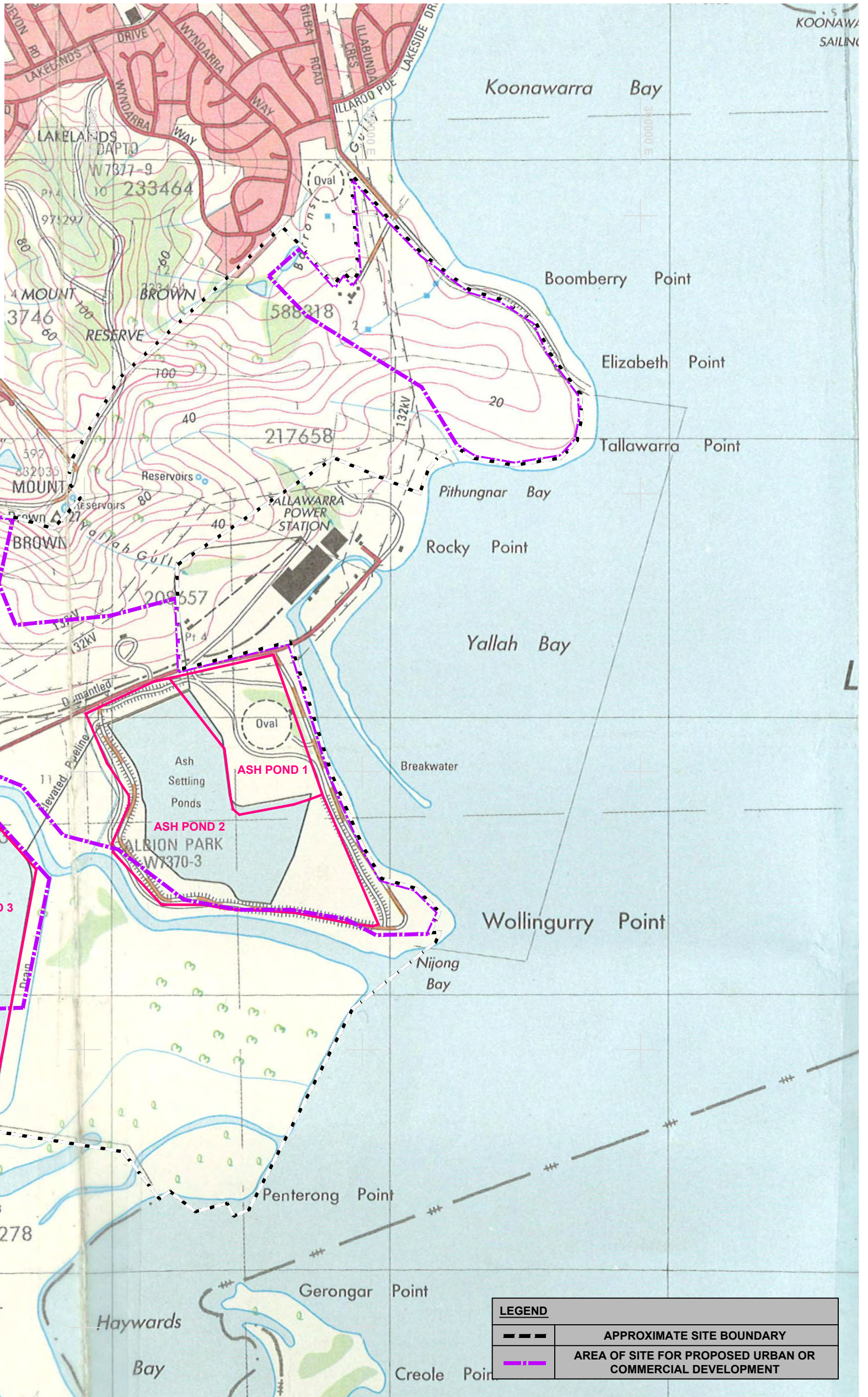


Figures

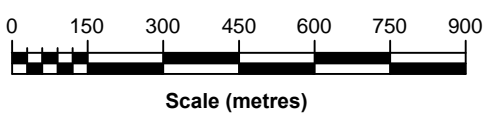


REGIONAL MAP (1:500,000)



LEGEND	
	APPROXIMATE SITE BOUNDARY
	AREA OF SITE FOR PROPOSED URBAN OR COMMERCIAL DEVELOPMENT

TOPOGRAPHIC IMAGE SOURCE: ALBION PARK 9028-1-N TOPOGRAPHIC MAP 1:25,000 2nd Ed, CENTRAL MAPPING AUTHORITY OF NSW, 1986
 AERIAL IMAGE SOURCE: GOOGLE EARTH PRO 2010
 AERIAL IMAGE ©: DIGITAL GLOBE 2010

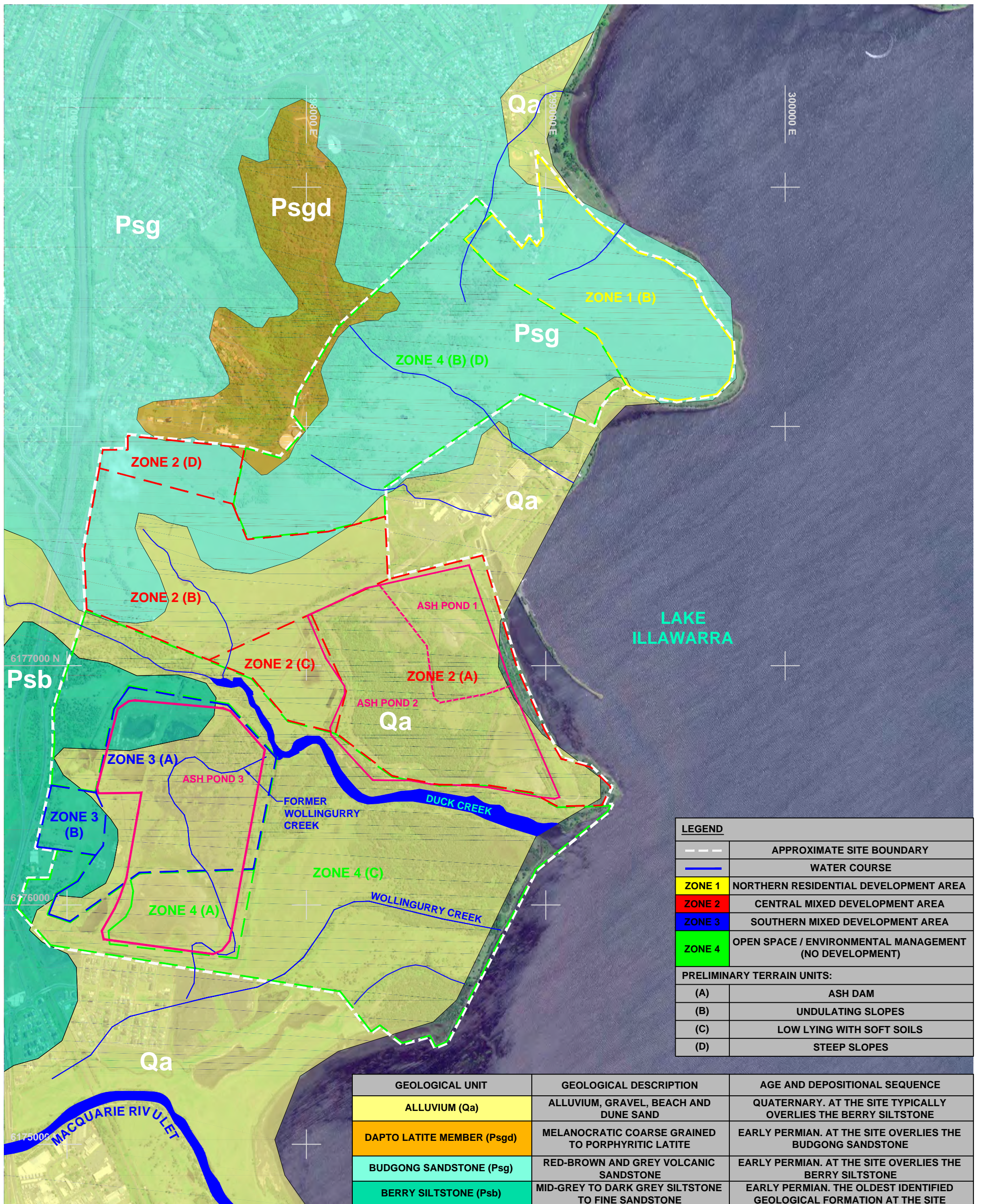


Scale (metres)

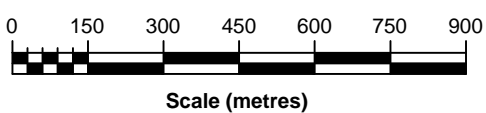
drawn	CDC/AW
approved	PT
date	27/03/12
scale	1:15 000
original size	A3

coffey
 environments
 SPECIALISTS IN ENVIRONMENTAL,
 SOCIAL AND SAFETY PERFORMANCE

client:	TRUENERGY	
project:	GROUNDWATER MODELLING ASSESSMENT MODELLING REPORT - ASH PONDS TALLAWARRA LANDS, YALLAH, NSW	
title:	SITE LOCALITY PLAN	
project no:	ENAUWOLL04009AE-R03	figure no: FIGURE 1



AERIAL IMAGE SOURCE: WOLLONGONG CITY COUNCIL 2010
 GEOLOGICAL MAP: 1:50,000 KIAMA GEOLOGICAL SERIES SHEET (9028-1, 1st EDITION) PREPARED BY THE NSW DEPARTMENT OF MINES (1974) FOR GEOLOGICAL SURVEY OF NSW



drawn	CDC / AW
approved	PT
date	27/03/12
scale	1:15 000
original size	A3

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 SPECIALISTS IN ENVIRONMENTAL,
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client:	TRUENERGY	
project:	GROUNDWATER MODELLING ASSESSMENT MODELLING REPORT - ASH PONDS TALLAWARRA LANDS, YALLAH, NSW	
title:	SITE LAYOUT PLAN SHOWING GEOLOGY MAP	
project no:	ENAUWOLL04009AE-R03	figure no: FIGURE 2

297000 E

298000 E

299000 E

300000 E

6179000 N

6178000 N

6177000 N

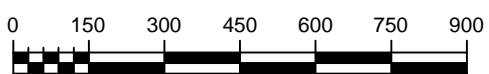
6176000 N

6175000 N



LEGEND	
	APPROXIMATE SITE BOUNDARY
	ASH POND BOUNDARIES

AERIAL IMAGE SOURCE: WOLLONGONG CITY COUNCIL 2010



Horizontal Scale (metres)

drawn CDC / AW

approved PT

date 27/03/12

scale 1:15 000

original size A3

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SPECIALISTS IN ENVIRONMENTAL,
SOCIAL AND SAFETY PERFORMANCE

client: TRUENERGY

project: GROUNDWATER MODELLING ASSESSMENT
MODELLING REPORT - ASH PONDS
TALLAWARRA LANDS, YALLAH, NSW

title: HISTORICAL AERIAL PHOTOGRAPH - 1948
SHOWING CURRENT SITE BOUNDARY

project no: ENAUWOLL04009AE-R03

figure no: FIGURE 3



Land uses:

Residential	[Yellow]
Hillside residential/large lots	[Orange]
Landscape improvements	[Green]
Employment - neighbourhood centre	[Light Blue]
Employment - enterprise/business	[Purple]
Employment - industry/business	[Dark Purple]
Retirement living (possible use)	[Brown]
Primary school (possible use)	[Orange]
Tourism	[Yellow]

TRUenergy - Tallawarra lands

Corkery Consulting
 Warren Lee Urban Design Pty Ltd
 mobile 0434 076 122 | www.wlud.com.au

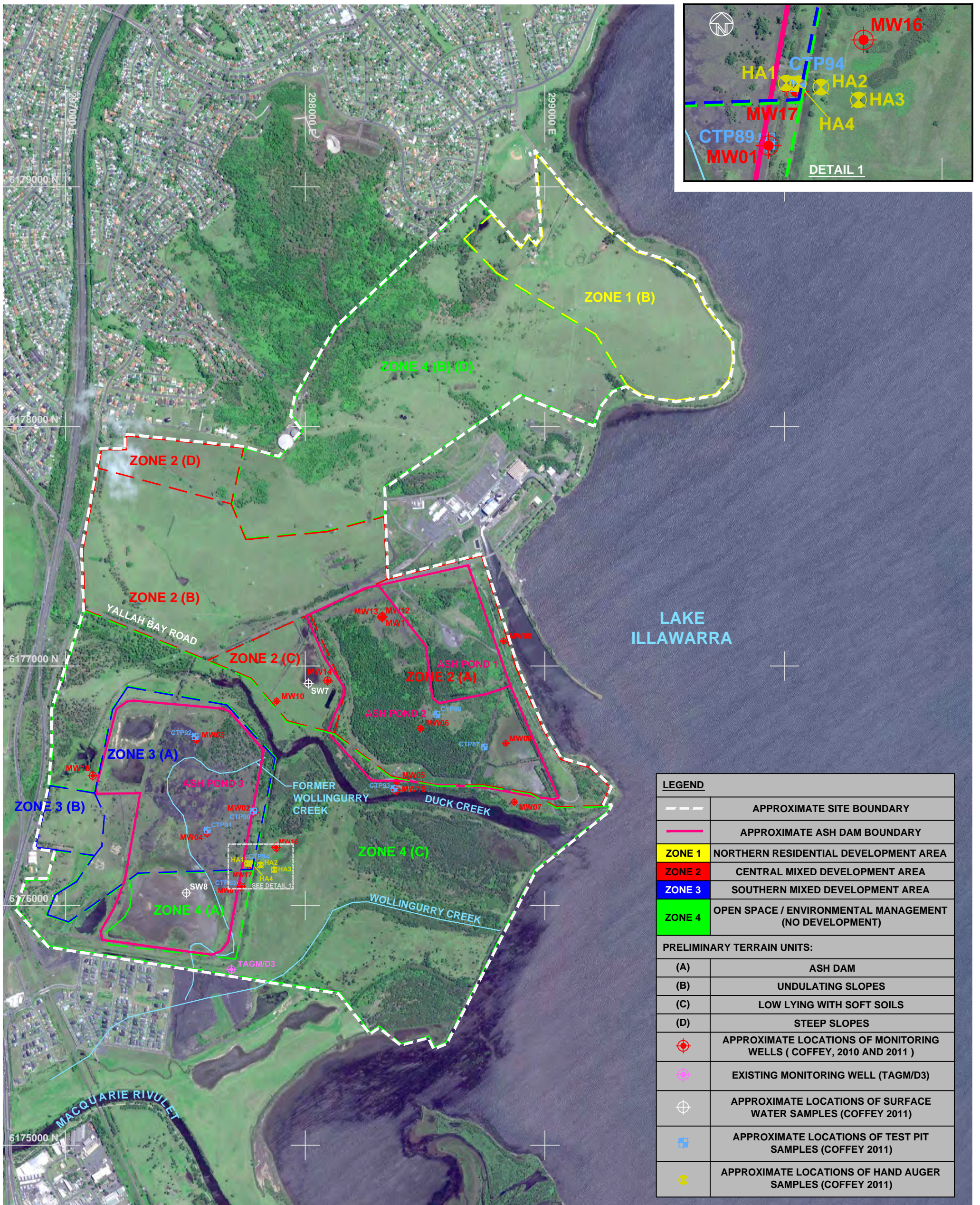
concept plan
 August 2010

LEGEND	
[Dashed Line]	APPROXIMATE SITE BOUNDARY

SCALE 1:7500 @ A1

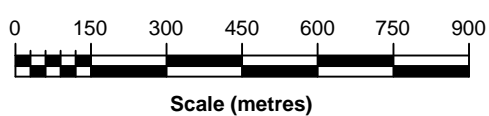
PLAN SOURCE: WARREN LEE URBAN DESIGN PTY LTD, TRUENERGY TALLAWARRA LANDS MASTERPLAN, 17 AUG 2010

	drawn	CDC / AW	<p>SPECIALISTS IN ENVIRONMENTAL, SOCIAL AND SAFETY PERFORMANCE</p>	client:	TRUENERGY		
	approved	PT		project:	GROUNDWATER MODELLING ASSESSMENT MODELLING REPORT - ASH PONDS TALLAWARRA LANDS, YALLAH, NSW		
	date	27/03/12		title:	PROPOSED DEVELOPMENT - CONCEPT MASTERPLAN 17 AUGUST 2010		
	scale	1:12 000		project no:	ENAUWOLL04009AE-R03	figure no:	FIGURE 4
	original size	A3					



LEGEND	
---	APPROXIMATE SITE BOUNDARY
---	APPROXIMATE ASH DAM BOUNDARY
ZONE 1	NORTHERN RESIDENTIAL DEVELOPMENT AREA
ZONE 2	CENTRAL MIXED DEVELOPMENT AREA
ZONE 3	SOUTHERN MIXED DEVELOPMENT AREA
ZONE 4	OPEN SPACE / ENVIRONMENTAL MANAGEMENT (NO DEVELOPMENT)
PRELIMINARY TERRAIN UNITS:	
(A)	ASH DAM
(B)	UNDULATING SLOPES
(C)	LOW LYING WITH SOFT SOILS
(D)	STEEP SLOPES
⊕	APPROXIMATE LOCATIONS OF MONITORING WELLS (COFFEY, 2010 AND 2011)
⊕	EXISTING MONITORING WELL (TAGM/D3)
⊕	APPROXIMATE LOCATIONS OF SURFACE WATER SAMPLES (COFFEY 2011)
⊕	APPROXIMATE LOCATIONS OF TEST PIT SAMPLES (COFFEY 2011)
⊕	APPROXIMATE LOCATIONS OF HAND AUGER SAMPLES (COFFEY 2011)

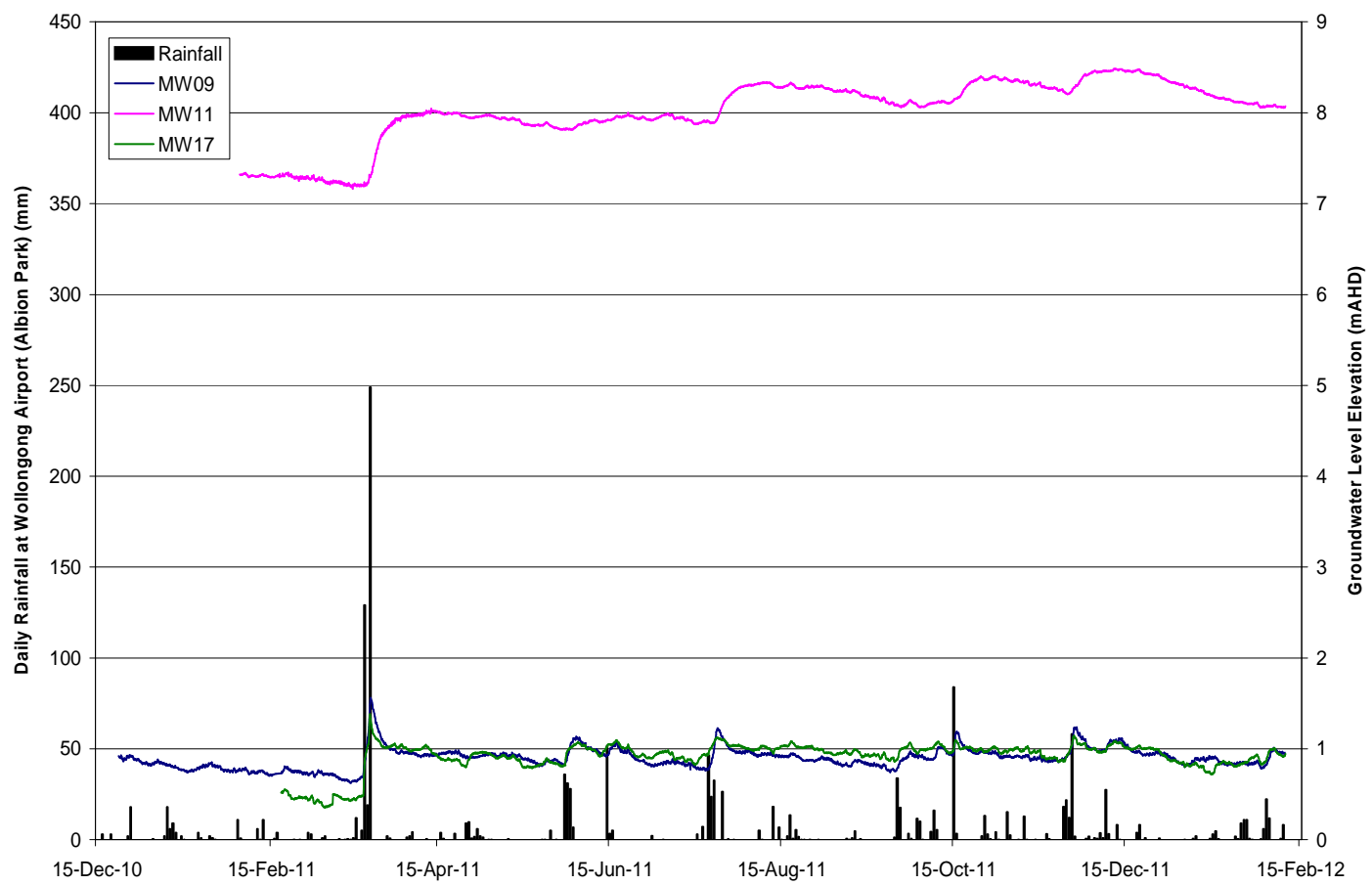
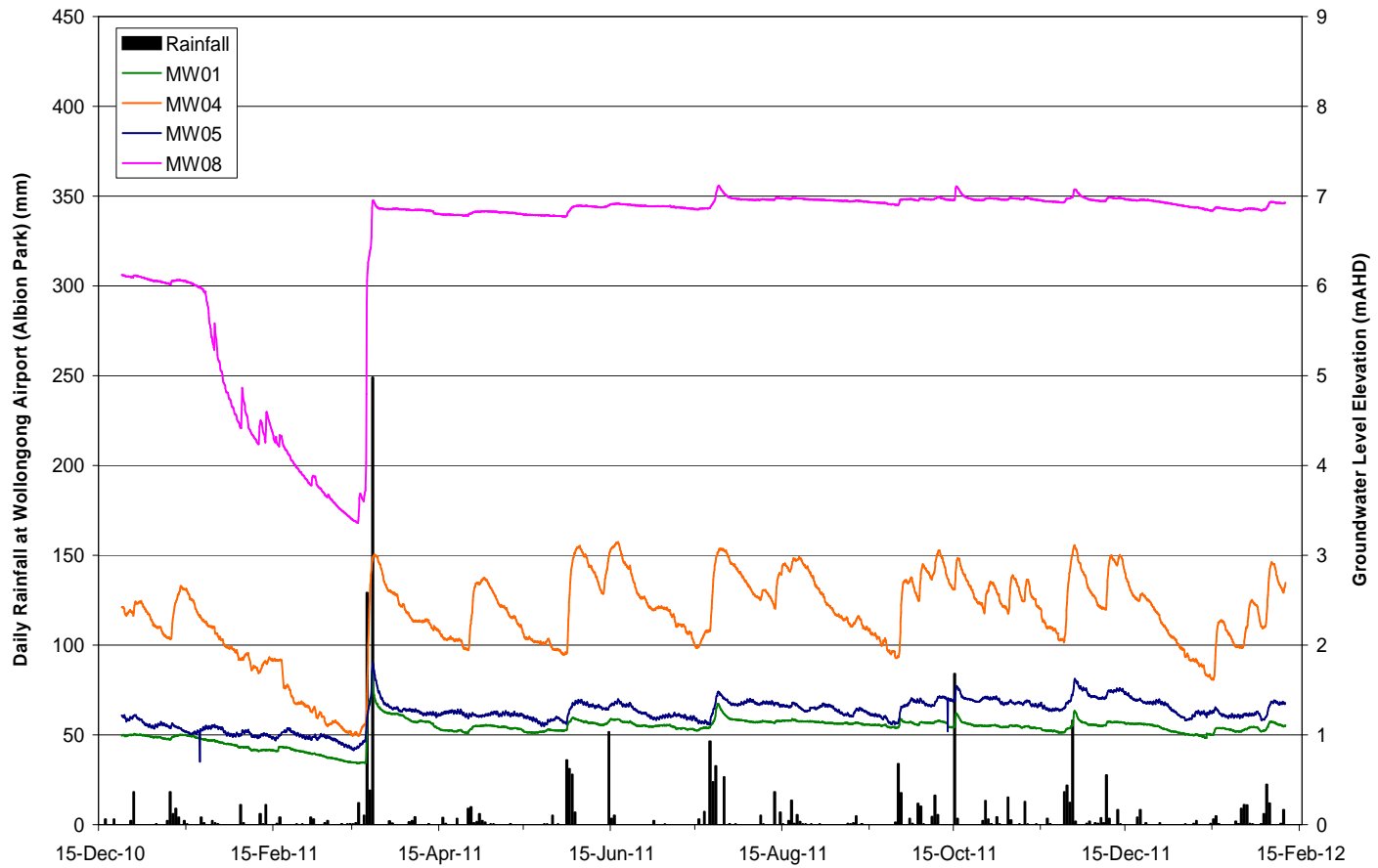
AERIAL IMAGE SOURCE: WOLLONGONG CITY COUNCIL 2010



drawn	CDC/AW
approved	PT
date	27/03/12
scale	1:15 000
original size	A3

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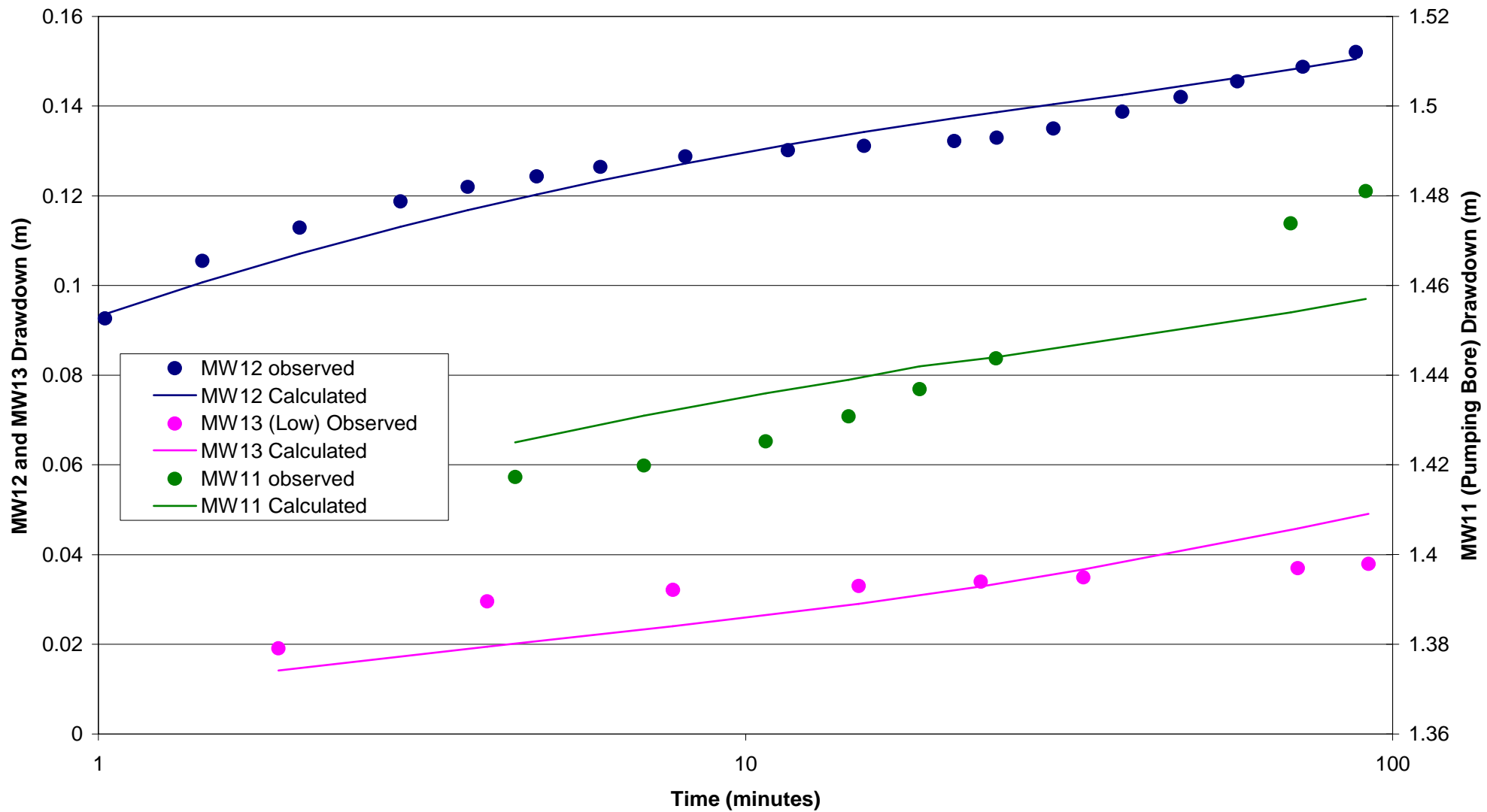
client:	TRUENERGY	
project:	GROUNDWATER MODELLING ASSESSMENT MODELLING REPORT - ASH PONDS TALLAWARRA LANDS, YALLAH, NSW	
title:	GROUNDWATER MONITORING WELL LOCATIONS, SURFACE WATER & SOIL SAMPLE LOCATIONS	
project no:	ENAUWOLL04009AE-R03	figure no: FIGURE 5




drawn	CDC
approved	PT
date	1 March 2012
scale	NA
original size	A4

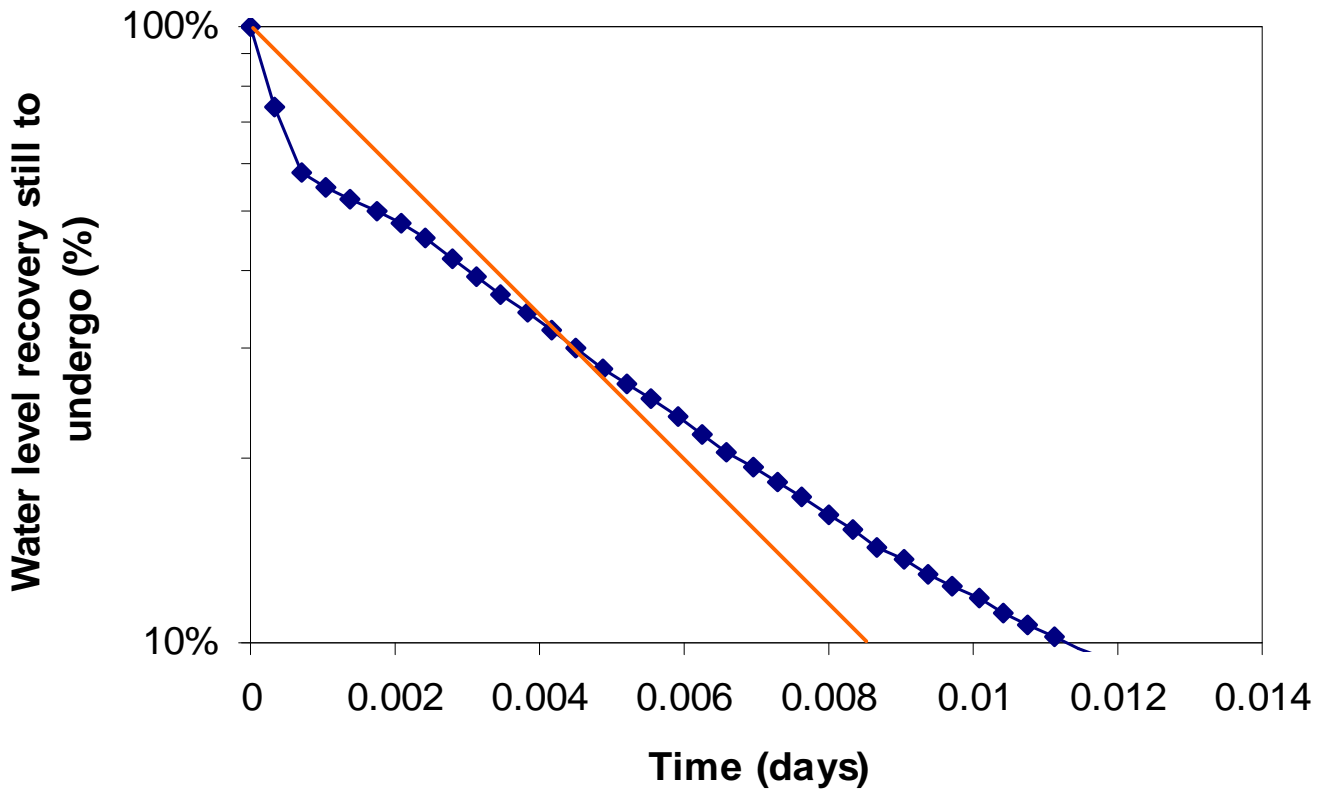


client:	TRUenergy	
project:	Groundwater Modelling Assessment Modelling Report - Ash Ponds Tallawarra Lands, Yallah, NSW	
title:	GROUNDWATER HYDROGRAPHS	
project no:	ENAUWOLL04009AE-R03	figure no: FIGURE 6

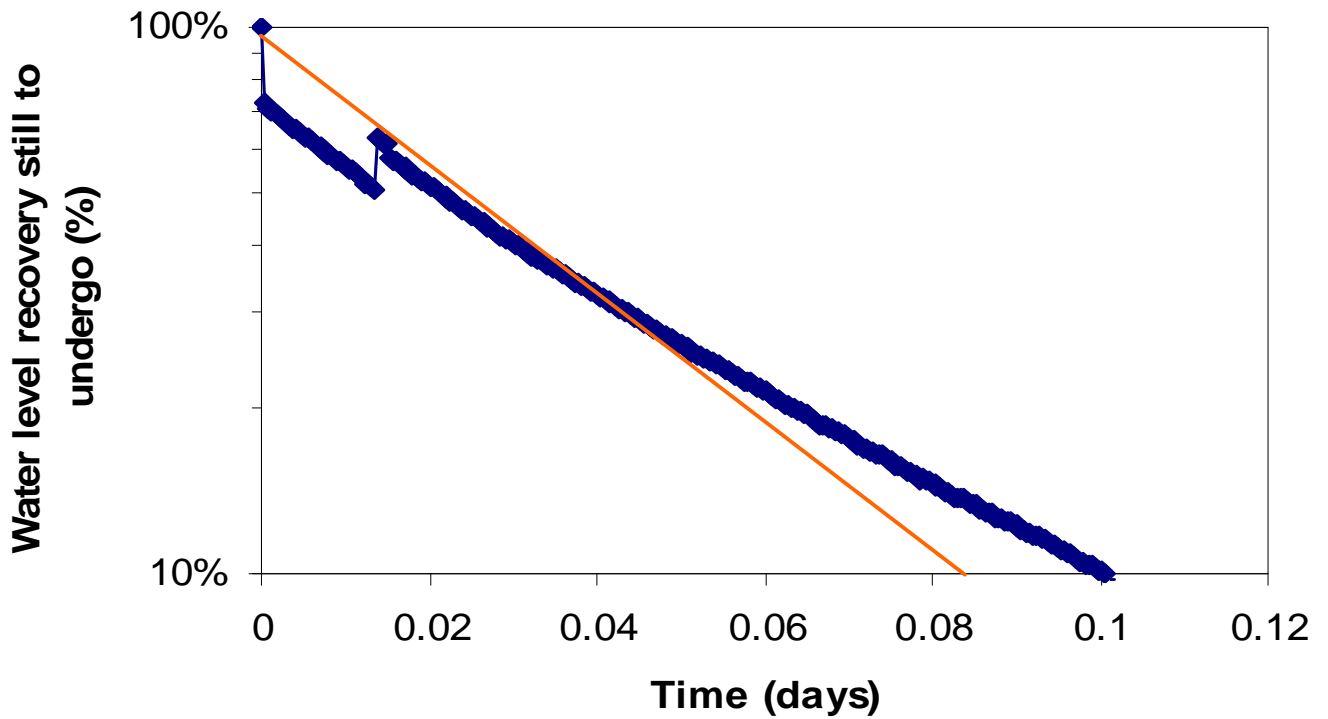


drawn	CDC	 SPECIALISTS IN ENVIRONMENTAL, SOCIAL AND SAFETY PERFORMANCE	client:	TRUenergy
approved	PT		project:	Groundwater Modelling Assessment Modelling Report - Ash Ponds Tallawarra Lands, Yallah, NSW
date	1 March 2012		title:	PUMP TEST WTAQ ANALYSIS
scale	N/A		project no:	ENAUWOLL04009AE-R03
original size	A4		figure no:	FIGURE 7

MW05 Slug Test



MW17 Slug Test

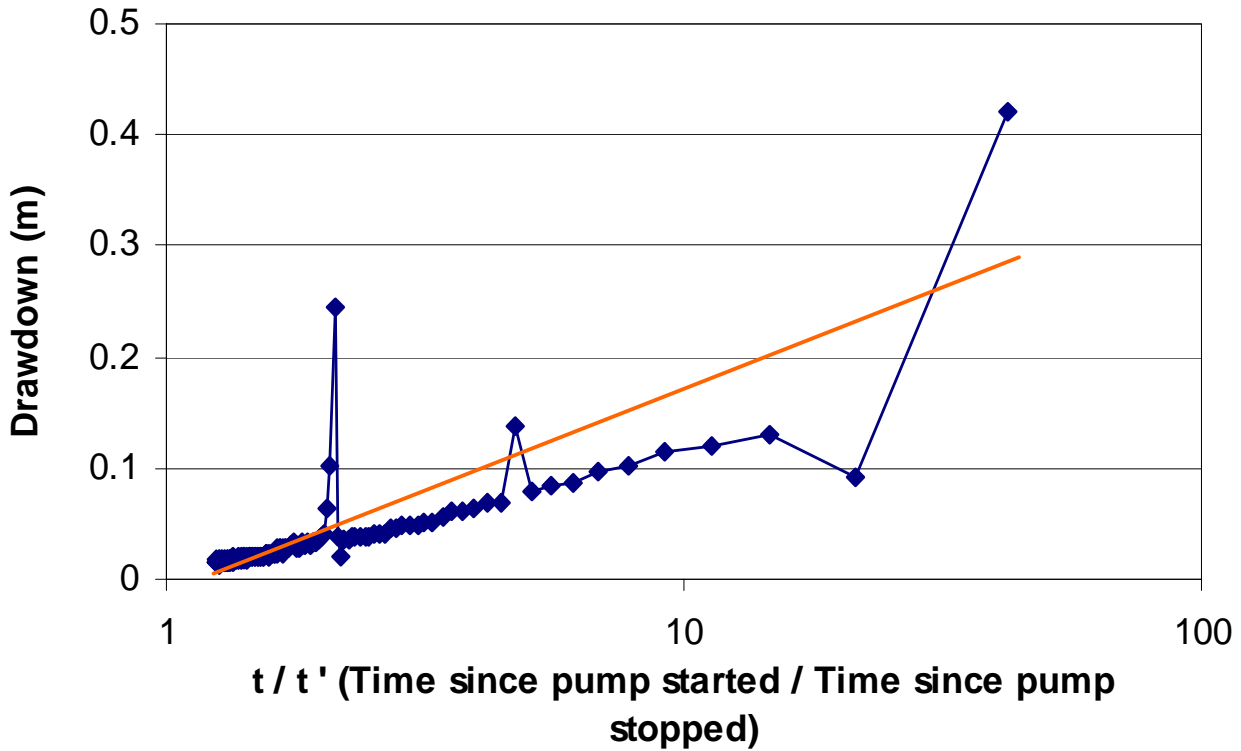


drawn	CDC
approved	PT
date	1 March 2012
scale	NA
original size	A4

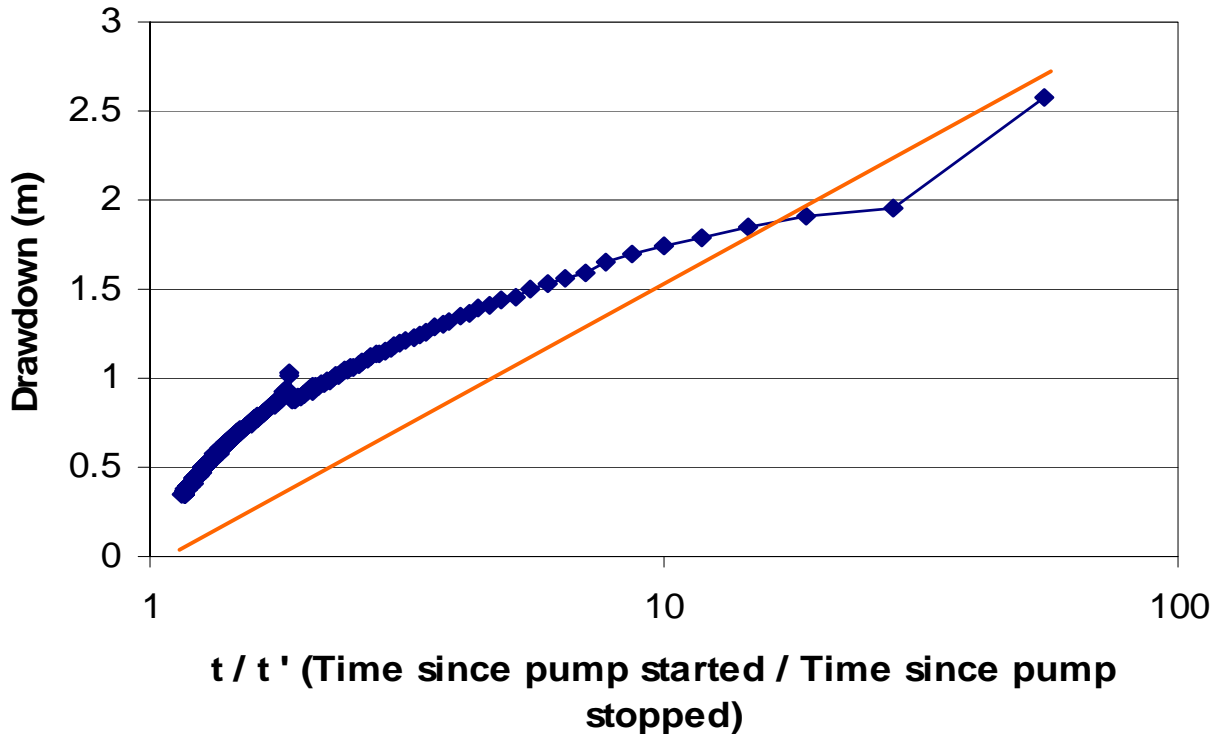



client:	TRUenergy
project:	Groundwater Modelling Assessment Modelling Report - Ash Ponds Tallawarra Lands, Yallah, NSW
title:	SLUG TEST ANALYSIS HVORSLEV METHOD
project no:	ENAUWOLL04009AE-R03
figure no:	FIGURE 8

MW04 Constant Discharge Test - Recovery Phase



MW09 Constant Discharge Test - Recovery Phase

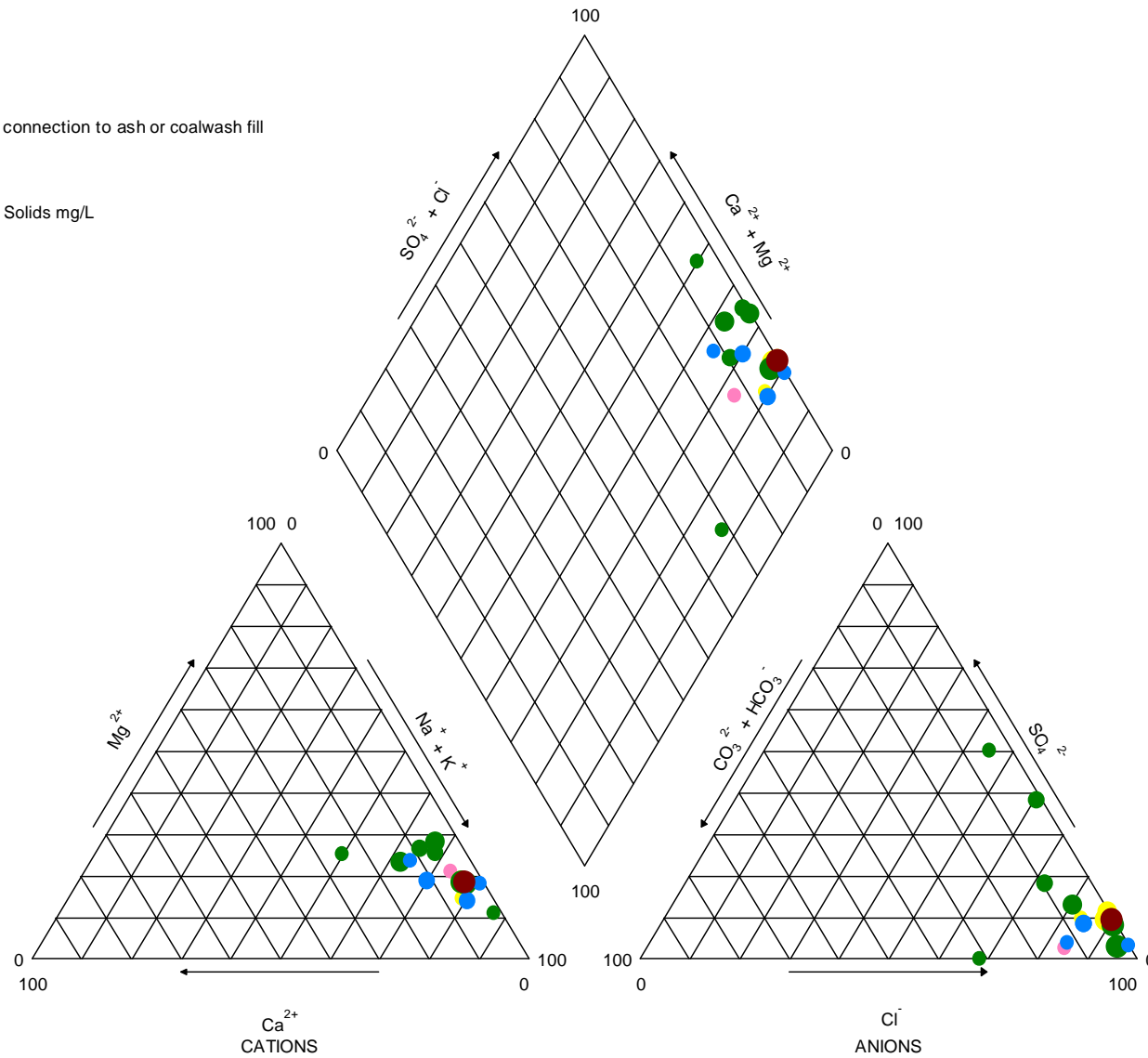


drawn	CDC	 <p>coffey environments</p> <p>SPECIALISTS IN ENVIRONMENTAL, SOCIAL AND SAFETY PERFORMANCE</p>	client:	TRUenergy
approved	PT		project:	Groundwater Modelling Assessment Modelling Report - Ash Ponds Tallawarra Lands, Yallah, NSW
date	1 March 2012		title:	CONSTANT DISCHARGE TEST RECOVERY ANALYSIS JACOB METHOD
scale	NA		project no:	ENAUWOLL04009AE-R03
original size	A4		figure no:	FIGURE 9

EXPLANATION

- Residual
- Ash
- Alluvial / Estuarine
- Alluvial / Estuarine with connection to ash or coalwash fill
- Seawater

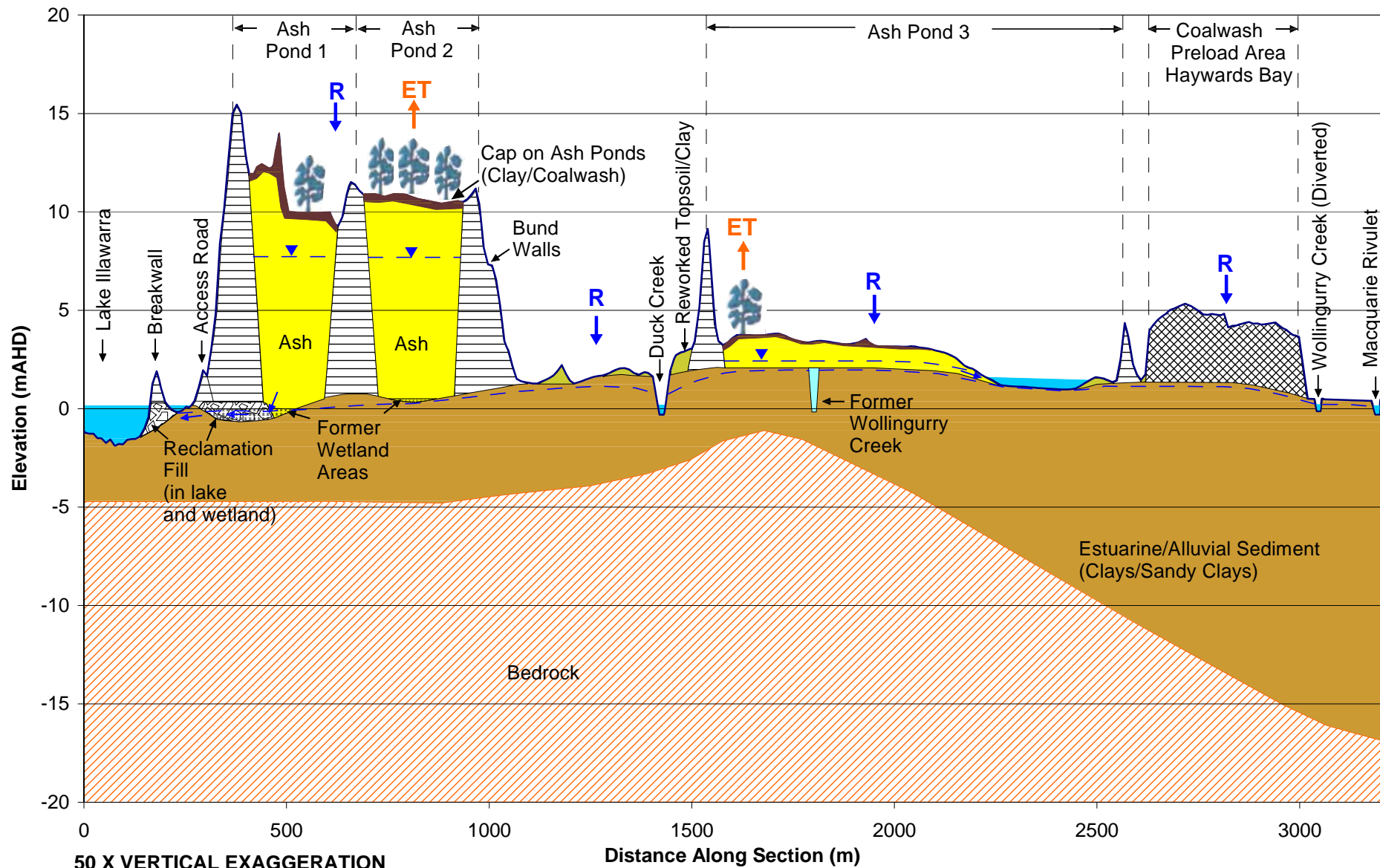
- 2660 Total Dissolved Solids mg/L
- 35195 Total Dissolved Solids mg/L



drawn	CDC
approved	PT
date	1 March 2012
scale	N/A
original size	A4



client:	TRUenergy
project:	Groundwater Modelling Assessment Modelling Report - Ash Ponds Tallawarra Lands, Yallah, NSW
title:	PIPER PLOT
project no:	ENAUWOLL04009AE-R03
figure no:	FIGURE 10



50 X VERTICAL EXAGGERATION

LEGEND

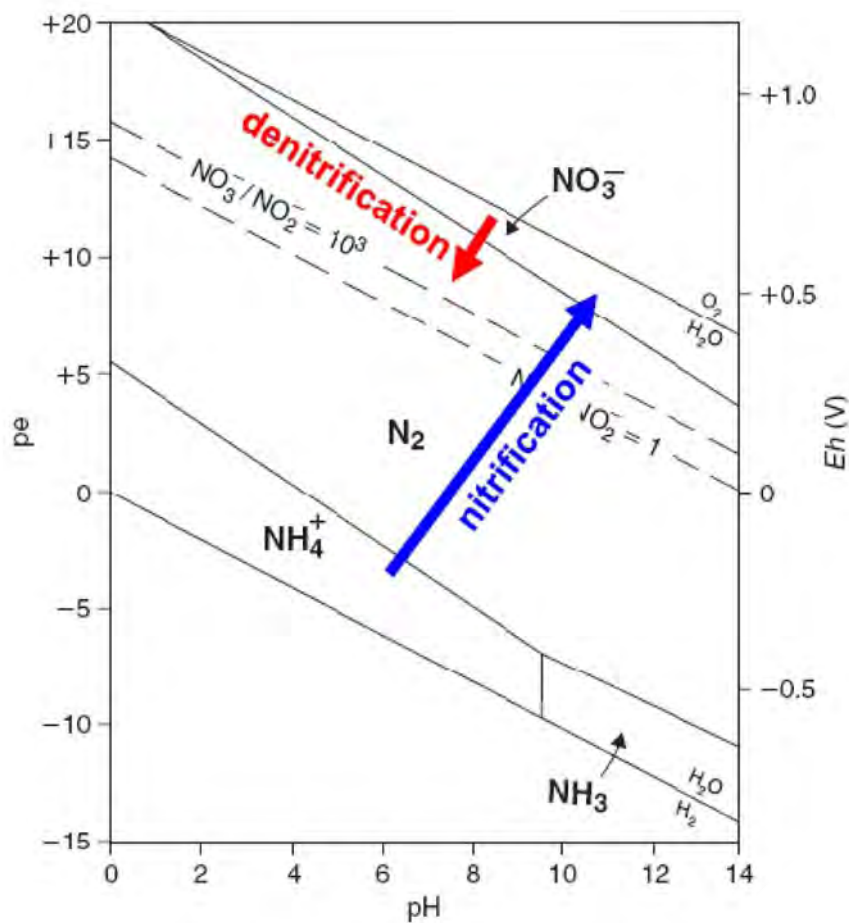
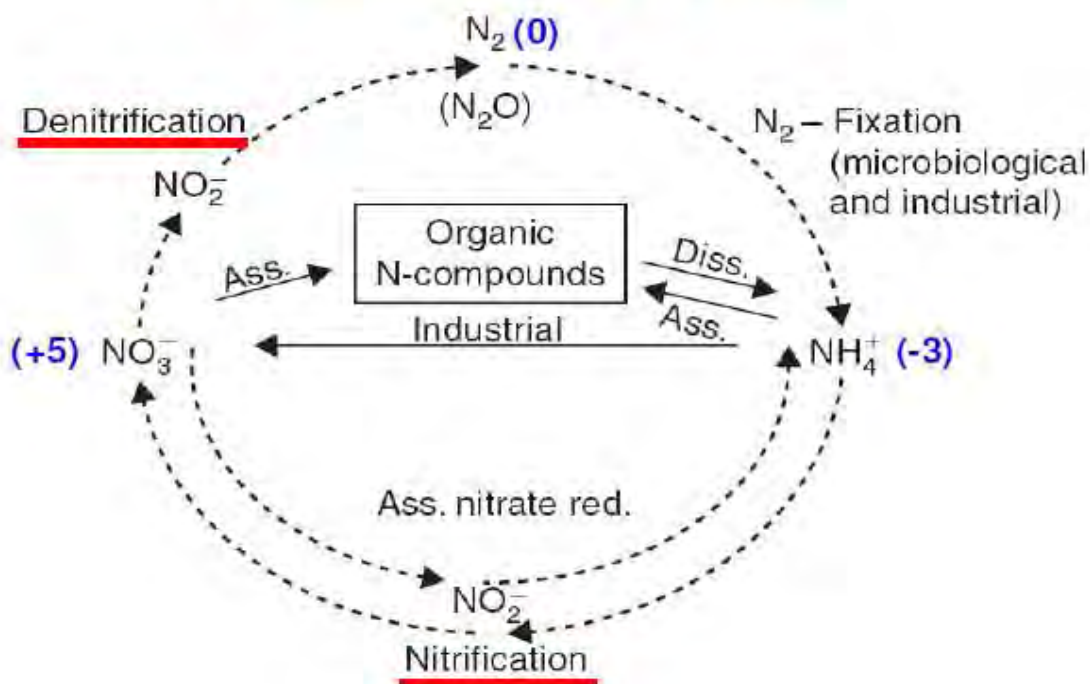
- R Rainfall Recharge
- ET Evapotranspiration
- Interpreted Groundwater Level

drawn	CDC
approved	PT
date	1 March 2012
scale	As Shown
original size	A4



client:	TRUenergy
project:	Groundwater Modelling Assessment Modelling Report - Ash Ponds Tallawarra Lands, Yallah, NSW
title:	HYDROGEOLOGICAL CONCEPTUAL MODEL - NO DEVELOPMENT
project no:	ENAUWOLL04009AE-R03
figure no:	FIGURE 11

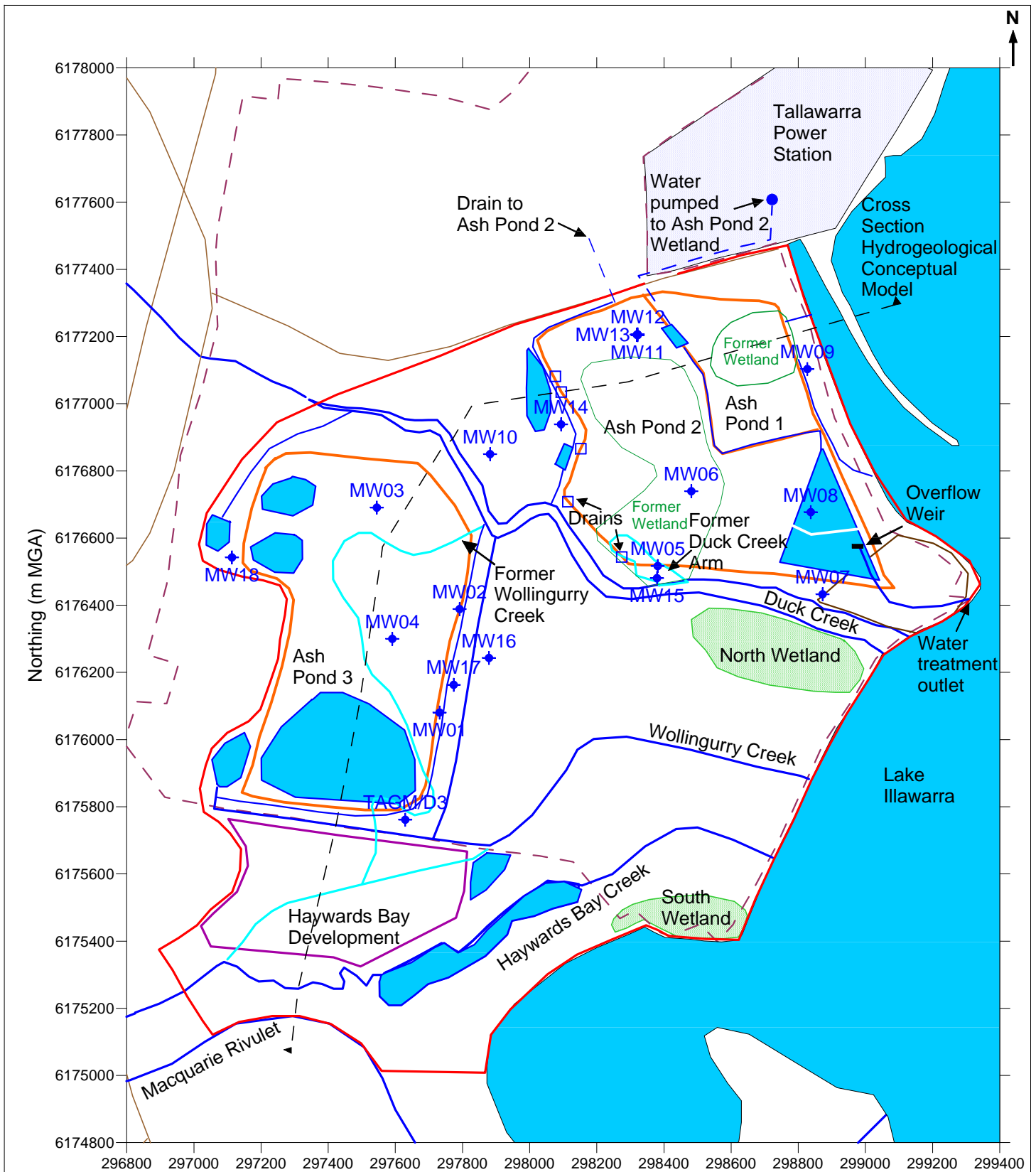
The nitrogen cycle



drawn	CDC
approved	PT
date	1 March 2012
scale	NA
original size	A4



client:	TRUenergy
project:	Groundwater Modelling Assessment Modelling Report - Ash Ponds Tallawarra Lands, Yallah, NSW
title:	PATHWAYS IN REDOX REACTIONS OF NITROGEN
project no:	ENAUWOLL04009AE-R03
figure no:	FIGURE 12



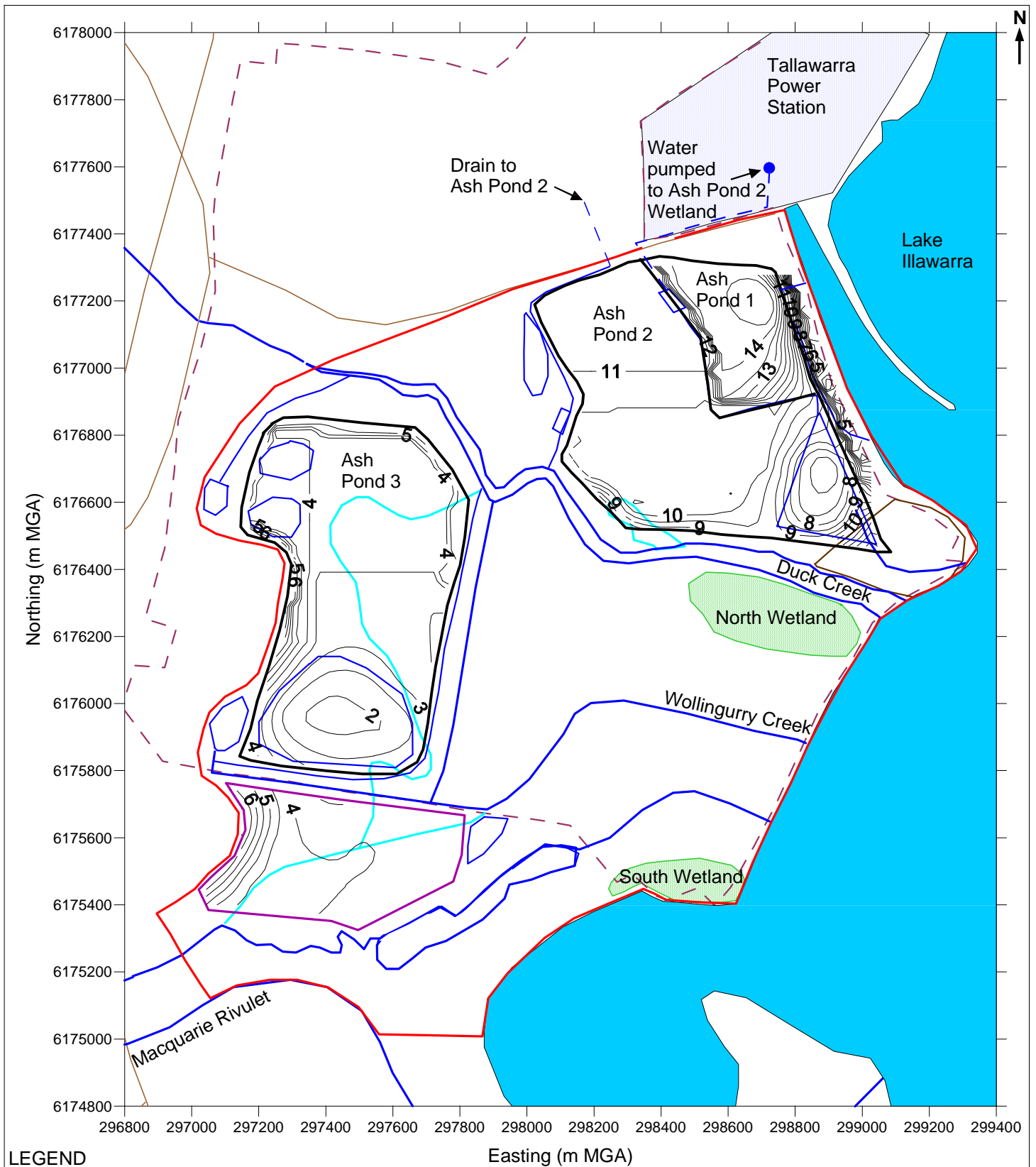
LEGEND

- | | | | |
|--------------------|-----------------|-----------------------------|-----------------------|
| --- Site Boundary | SEPP14 Wetlands | Ash Ponds | Watercourses / Drains |
| --- Model Boundary | Lakes / Ponds | Coalwash Preload Area | Former Watercourses |
| --- Roads | Bedrock Outcrop | Groundwater Monitoring Well | Drains |

drawn	CDC
approved	PT
date	1 March 2012
scale	1:16,000
original size	A4



client:	TRUenergy
project:	Groundwater Modelling Assessment Modelling Report - Ash Ponds Tallawarra Lands, Yallah, NSW
title:	MODEL BOUNDARY AND GROUNDWATER MONITORING WELL LOCATIONS
project no:	ENAUWOLL04009AE-R03
figure no:	FIGURE 13



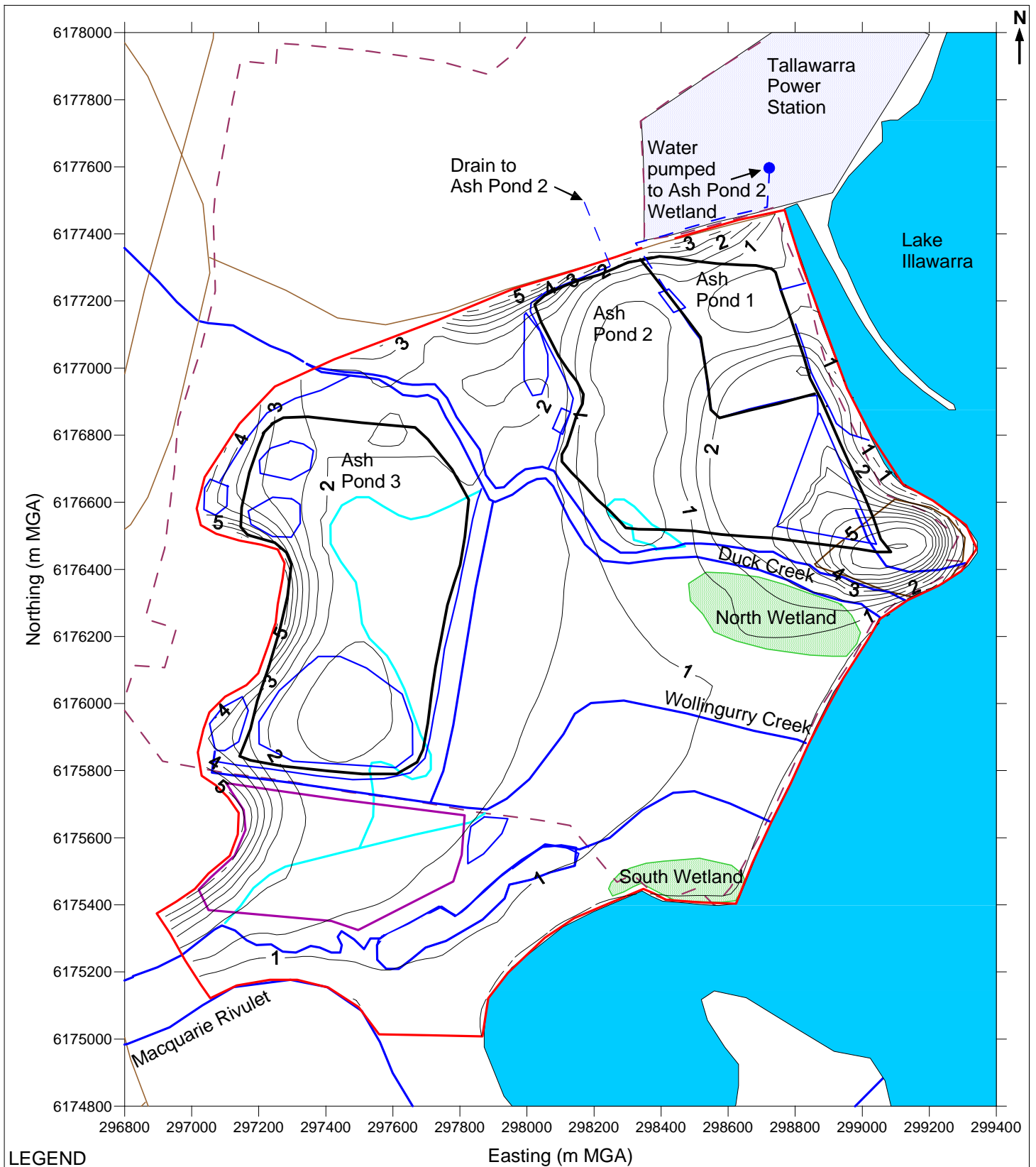
LEGEND

- Site Boundary
- Roads
- Model Boundary
- SEPP14 Wetlands
- Ash Ponds
- Watercourses / Drains
- Lakes / Ponds
- Coalwash Preload Area
- Former Watercourses
- Bedrock Outcrop
- Model Layer Elevation (m AHD)

drawn	CDC
approved	PT
date	1 March 2012
scale	1:16,000
original size	A4



client:	TRUenergy
project:	Groundwater Modelling Assessment Modelling Report - Ash Ponds Tallawarra Lands, Yallah, NSW
title:	MODEL LAYER 1 (FILL) - TOP ELEVATION
project no:	ENAUWOLL04009AE-R03
figure no:	FIGURE 14



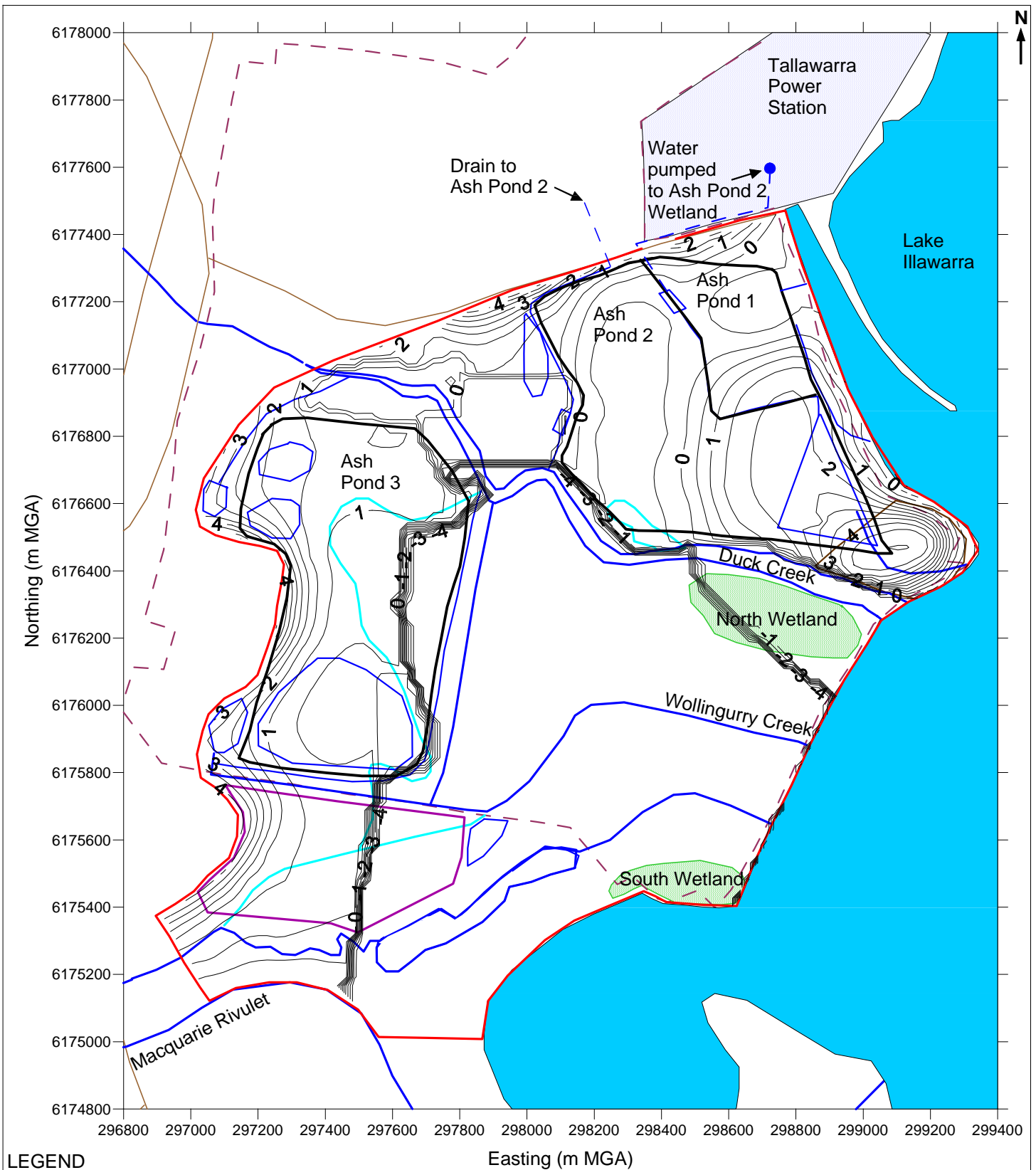
LEGEND

- Site Boundary
- Roads
- Model Boundary
- SEPP14 Wetlands
- Ash Ponds
- Watercourses / Drains
- Lakes / Ponds
- Coalwash Preload Area
- Former Watercourses
- Bedrock Outcrop
- Model Layer Elevation (m AHD)

drawn	CDC
approved	PT
date	1 March 2012
scale	1:16,000
original size	A4




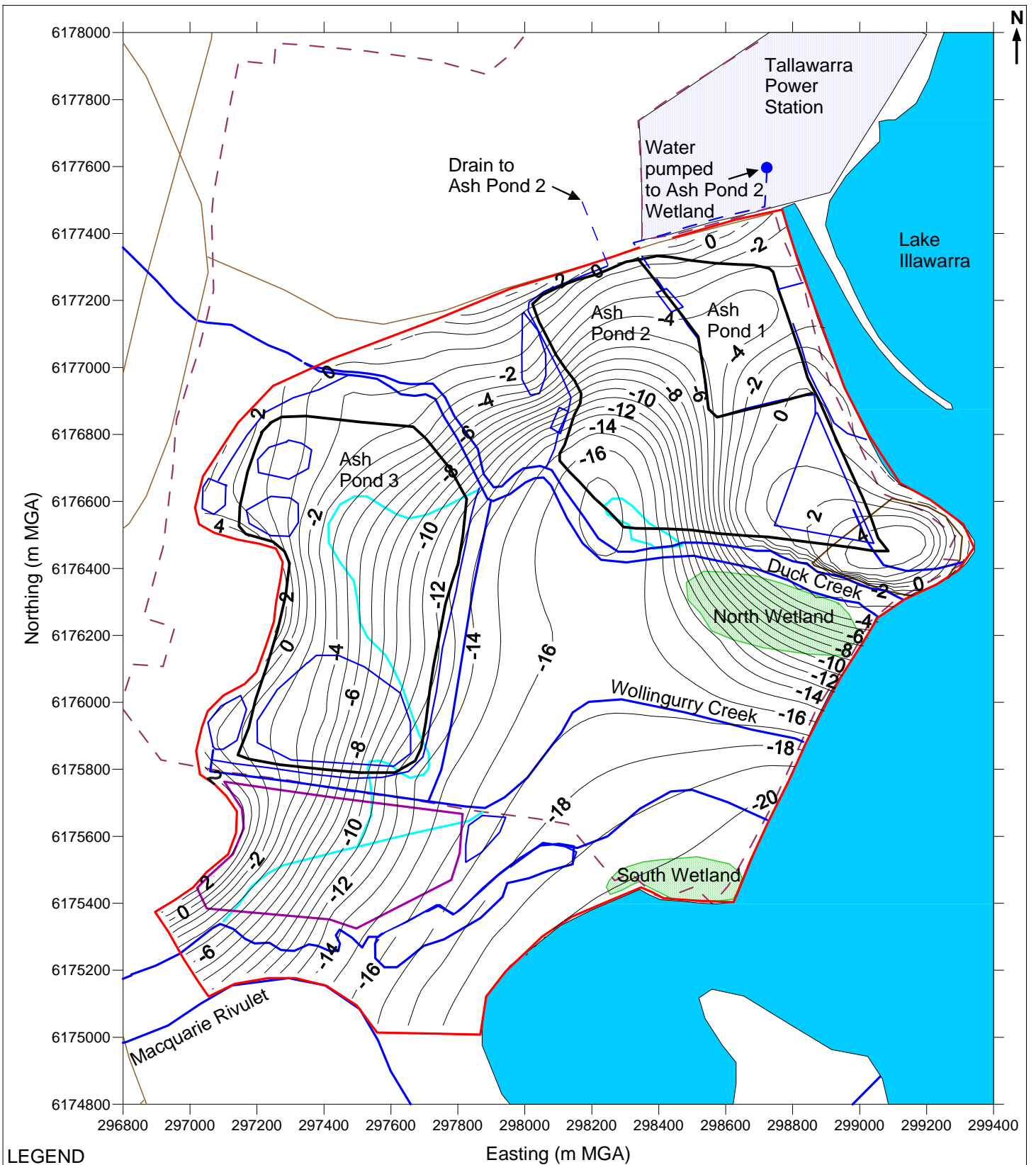
client:	TRUenergy
project:	Groundwater Modelling Assessment Modelling Report - Ash Ponds Tallawarra Lands, Yallah, NSW
title:	BASE OF MODEL LAYER 1 - TOP OF NATURAL GROUND
project no:	ENAUWOLL04009AE-R03
figure no:	FIGURE 15



LEGEND

- Site Boundary
- Roads
- Model Boundary
- SEPP14 Wetlands
- Ash Ponds
- Watercourses / Drains
- Lakes / Ponds
- Coalwash Preload Area
- Former Watercourses
- Bedrock Outcrop
- Model Layer Elevation (m AHD)

drawn	CDC	 <p>SPECIALISTS IN ENVIRONMENTAL, SOCIAL AND SAFETY PERFORMANCE</p>	client:	TRUenergy
approved	PT		project:	Groundwater Modelling Assessment Modelling Report - Ash Ponds Tallawarra Lands, Yallah, NSW
date	1 March 2012		title:	BASE OF MODEL LAYER 2
scale	1:16,000		project no:	ENAUWOLL04009AE-R03
original size	A4		figure no:	FIGURE 16



LEGEND

- - - Site Boundary
- Roads
- Model Boundary
- ▨ SEPP14 Wetlands
- Ash Ponds
- Watercourses / Drains
- Lakes / Ponds
- Coalwash Preload Area
- Former Watercourses
- Bedrock Outcrop
- 2- Model Layer Elevation (m AHD)

drawn	CDC
approved	PT
date	1 March 2012
scale	1:16,000
original size	A4

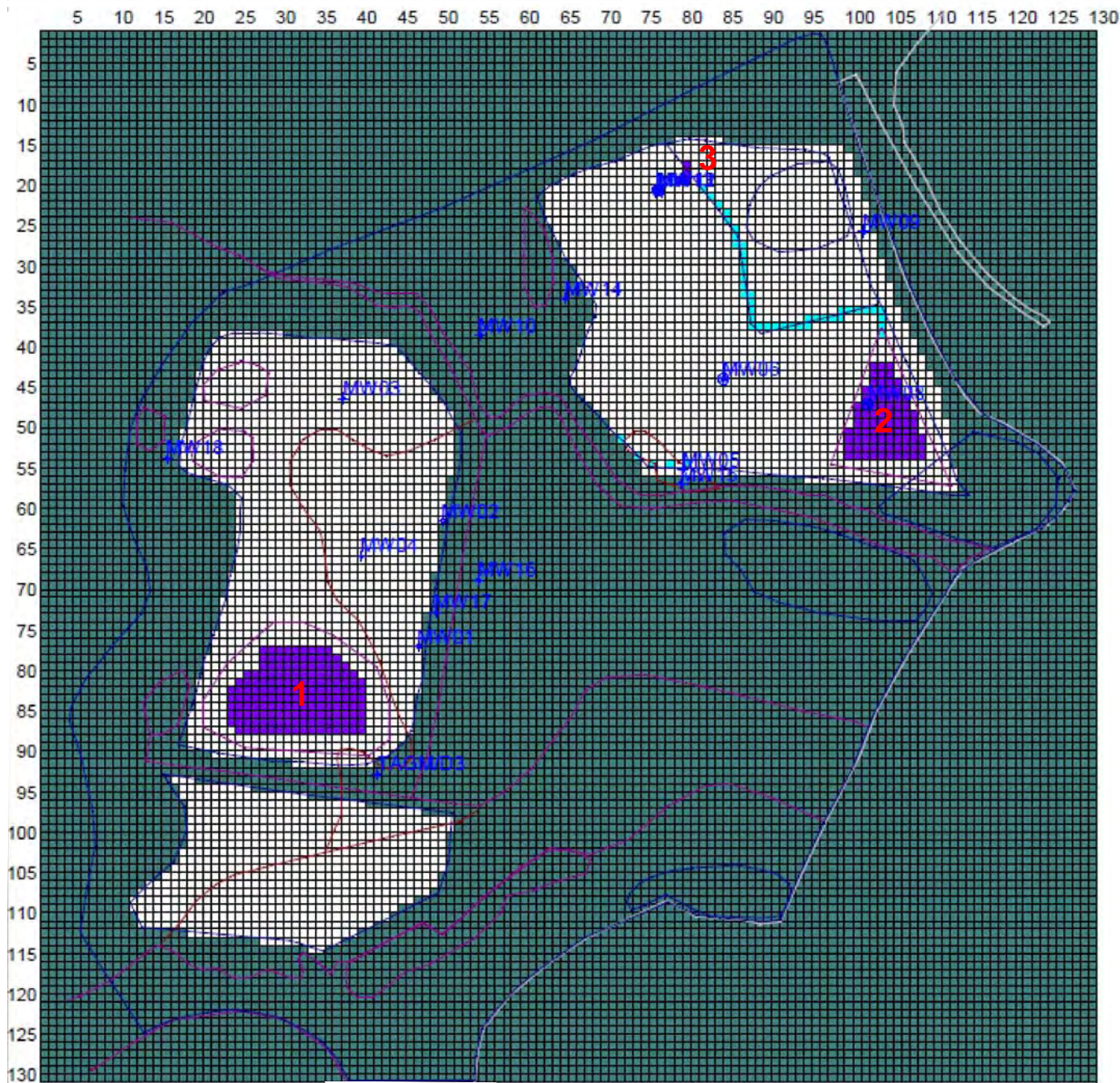


client:	TRUenergy
project:	Groundwater Modelling Assessment Modelling Report - Ash Ponds Tallawarra Lands, Yallah, NSW
title:	BASE OF MODEL LAYER 3 (TOP OF BEDROCK)
project no:	ENAUWOLL04009AE-R03
figure no:	FIGURE 17

South

Cross Section - Column 36

North




LEGEND

 River Cells

 Inactive Cells

 Groundwater Monitoring Well

 Pond Number

 Drain Cells

drawn	CDC
approved	PT
date	1 March 2012
scale	1:16,000
original size	A4



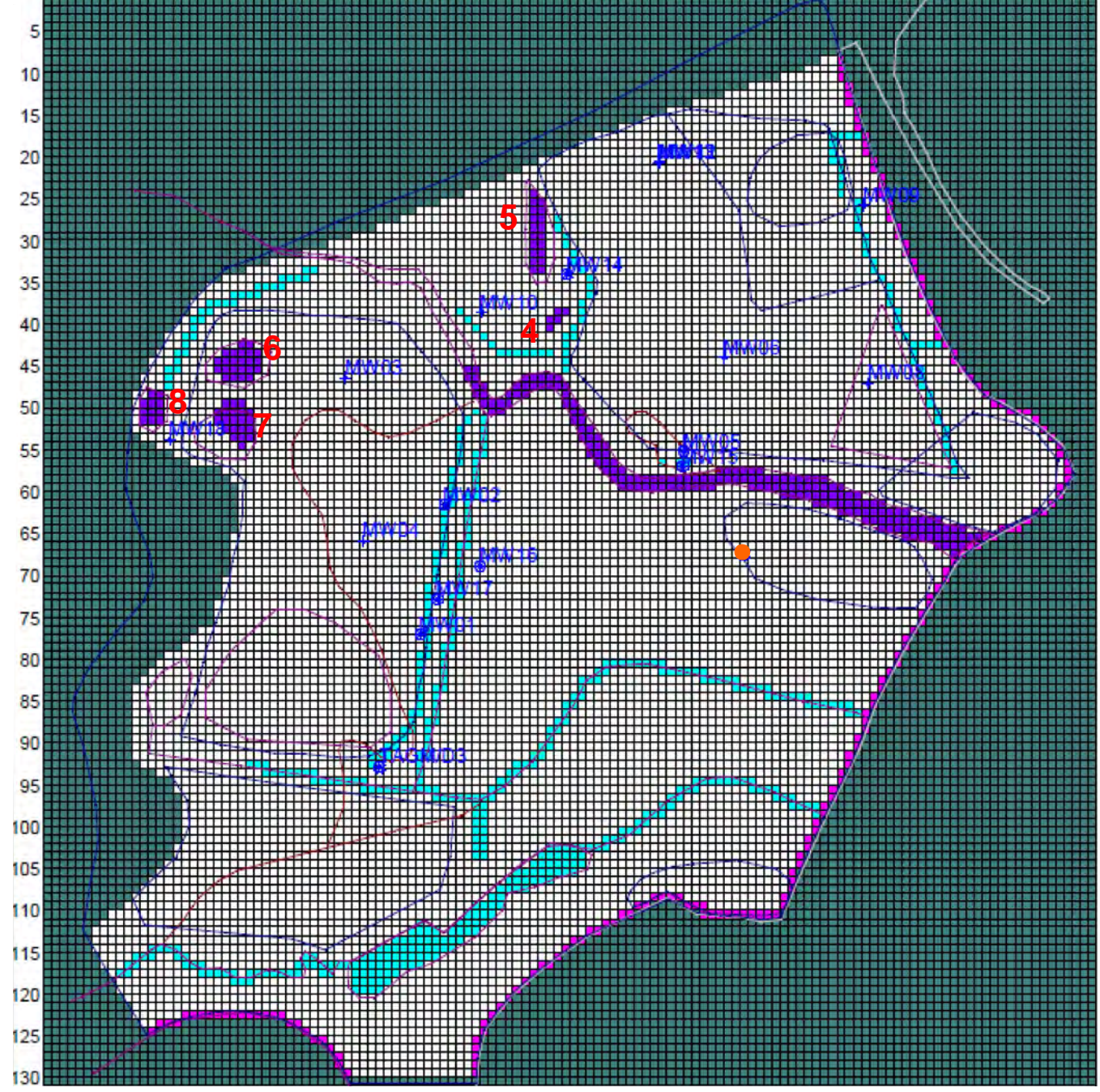
client:	TRUenergy
project:	Groundwater Modelling Assessment Modelling Report - Ash Ponds Tallawarra Lands, Yallah, NSW
title:	MODEL GRID AND BOUNDARY CONDITIONS - LAYER 1
project no:	ENAUWOLL04009AE-R03
figure no:	FIGURE 18



South Cross Section - Column 36 North




5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100 105 110 115 120 125 130



LEGEND

- River Cells
- Drain Cells
- Constant Head Cells
- Inactive Cells
- Groundwater Monitoring Well
- Observation Point North Wetland (Model Only)
- 5 Pond Number

drawn	CDC	 <small>SPECIALISTS IN ENVIRONMENTAL, SOCIAL AND SAFETY PERFORMANCE</small>	client:	TRUenergy		
approved	PT		project:	Groundwater Modelling Assessment Modelling Report - Ash Ponds Tallawarra Lands, Yallah, NSW		
date	1 March 2012		title:	MODEL GRID AND BOUNDARY CONDITIONS - LAYER 2		
scale	1:16,000		project no:	ENAUWOLL04009AE-R03	figure no:	FIGURE 19
original size	A4					

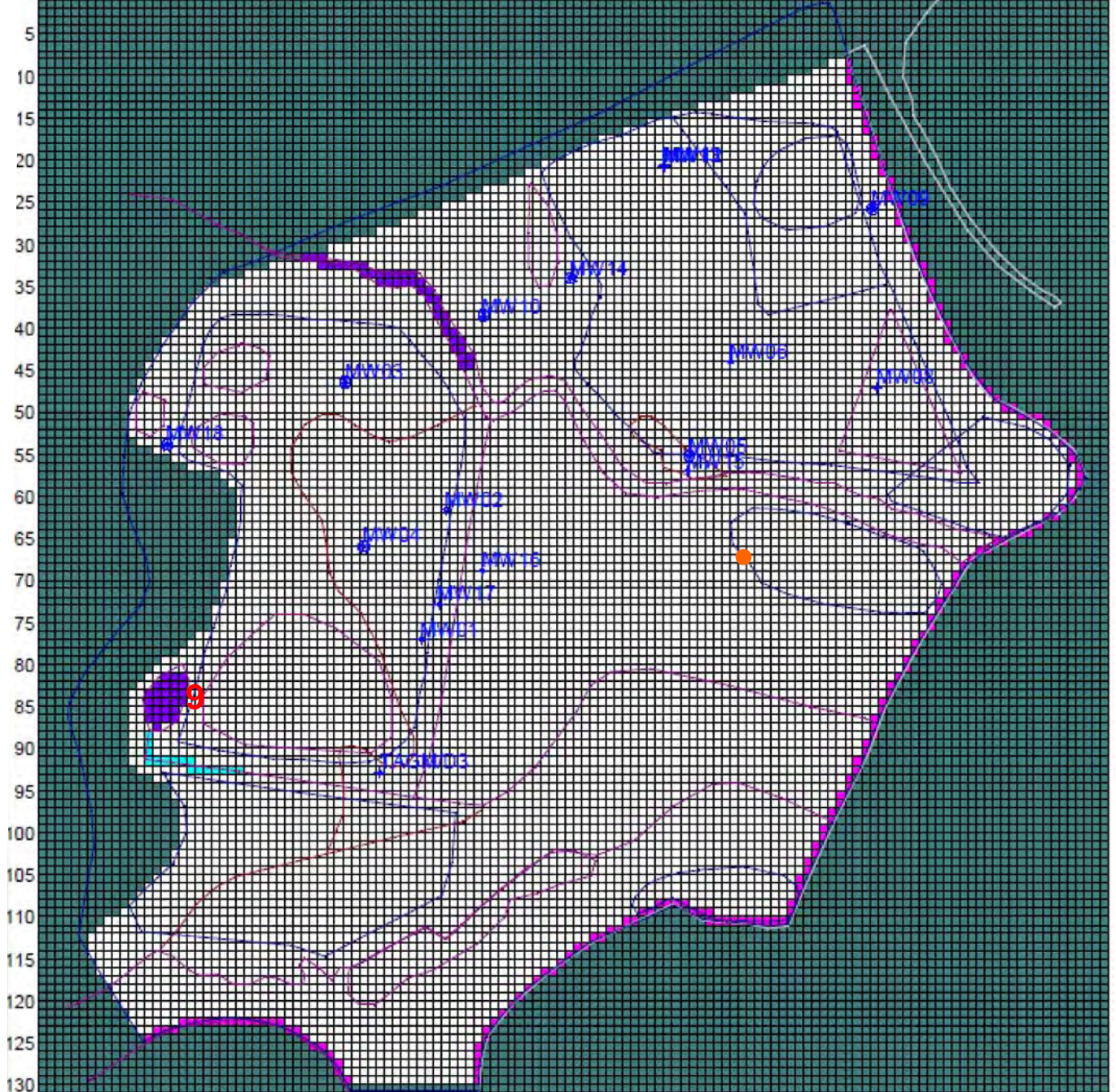
South

Cross Section - Column 36

North



5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100 105 110 115 120 125 130



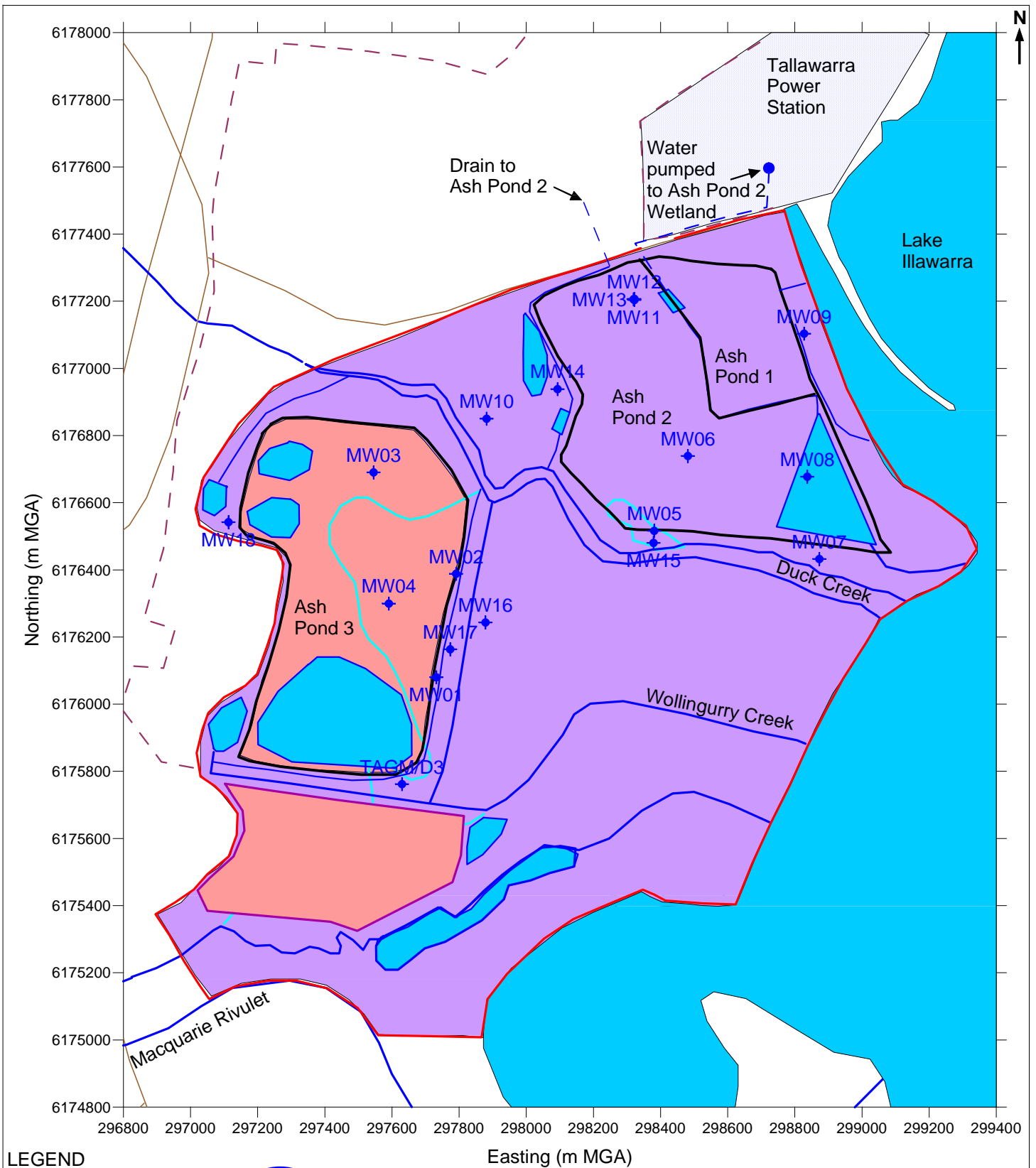
LEGEND

- River Cells
- Constant Head Cells
- Drain Cells
- Inactive Cells
- Groundwater Monitoring Well
- Observation Point North Wetland (Model Only)
- 9 Pond Number

drawn	CDC
approved	PT
date	1 March 2012
scale	1:16,000
original size	A4

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SPECIALISTS IN ENVIRONMENTAL,
SOCIAL AND SAFETY PERFORMANCE

client:	TRUenergy
project:	Groundwater Modelling Assessment Modelling Report - Ash Ponds Tallawarra Lands, Yallah, NSW
title:	MODEL GRID AND BOUNDARY CONDITIONS - LAYER 3
project no:	ENAUWOLL04009AE-R03
figure no:	FIGURE 20



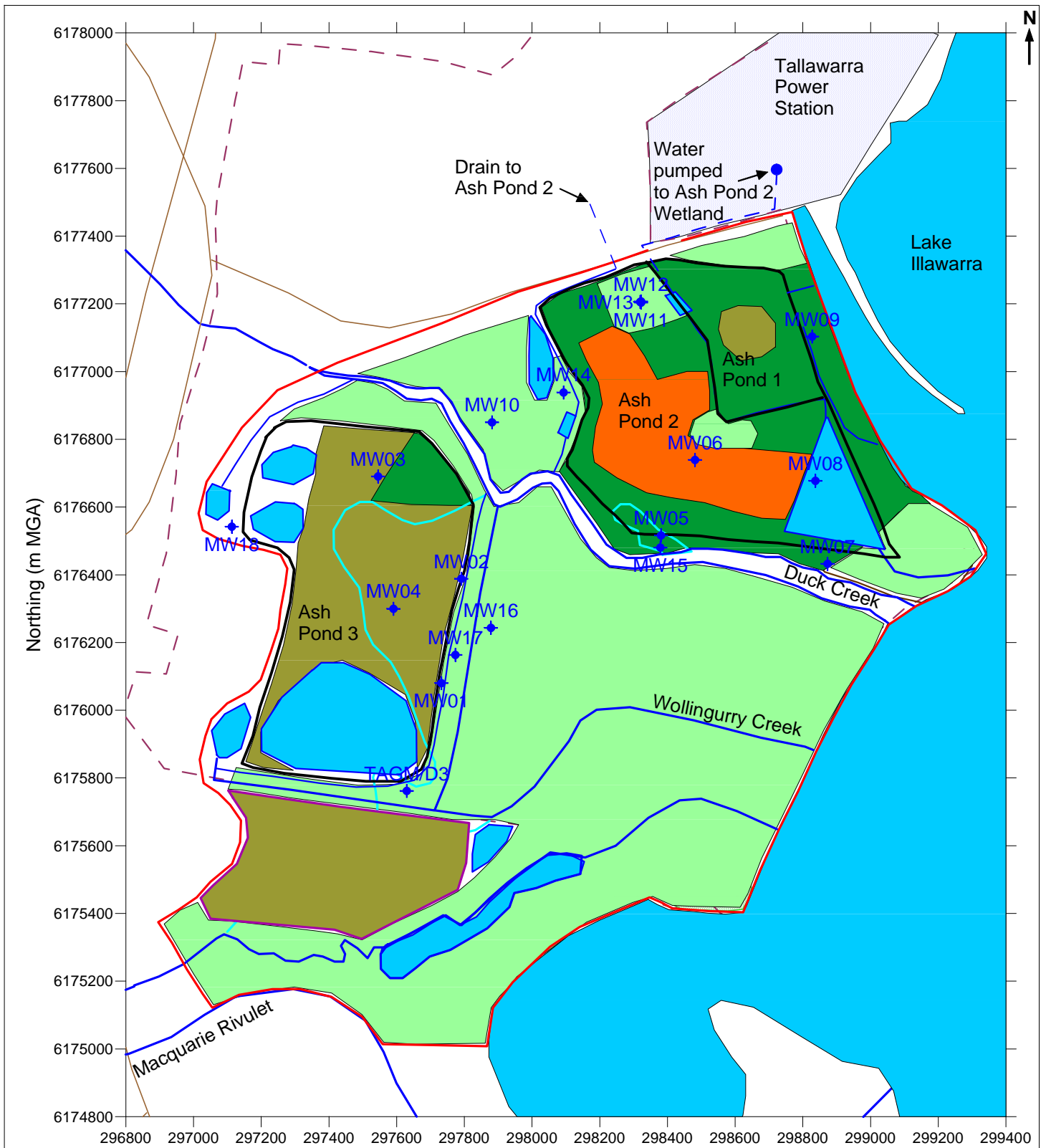
LEGEND

- - - Site Boundary
- Model Boundary
- Watercourses / Drains
- Former Watercourses
- Lakes / Ponds
- Ash Ponds
- Coalwash Preload Area
- ◆ Groundwater Monitoring Well
- Recharge Zone 1: 3% average annual rainfall (0.00009 m/day)
- Recharge Zone 2: 4% average annual rainfall (0.00012 m/day)

drawn	CDC
approved	PT
date	1 March 2012
scale	1:16,000
original size	A4

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environments
SPECIALISTS IN ENVIRONMENTAL,
SOCIAL AND SAFETY PERFORMANCE

client:	TRUenergy
project:	Groundwater Modelling Assessment Modelling Report - Ash Ponds Tallawarra Lands, Yallah, NSW
title:	MODEL RECHARGE ZONES
project no:	ENAUWOLL04009AE-R03
figure no:	FIGURE 21



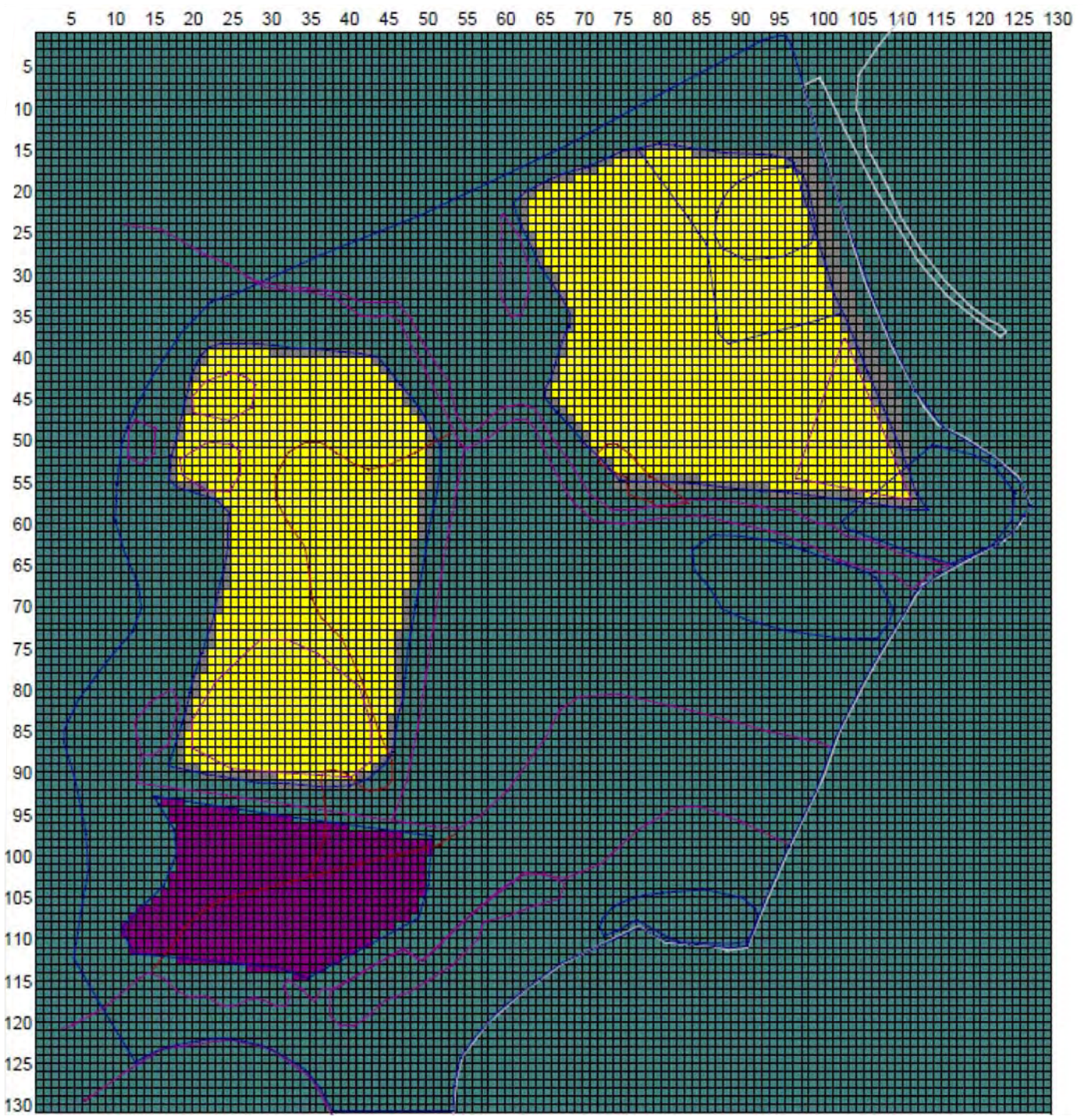
LEGEND

- | | | |
|---------------------------|-----------------------------|---|
| --- Site Boundary | Lakes / Ponds | ET Zone 1: Exposed ground |
| --- Model Boundary | Ash Ponds | ET Zone 2: Grasses, wetlands, various forests |
| --- Watercourses / Drains | Coalwash Preload Area | ET Zone 3: Coastal Swamp Oak and weeds |
| --- Former Watercourses | Groundwater Monitoring Well | ET Zone 4: Planted Swamp Oak (Ash Pond 2) |

drawn	CDC
approved	PT
date	1 March 2012
scale	1:16,000
original size	A4




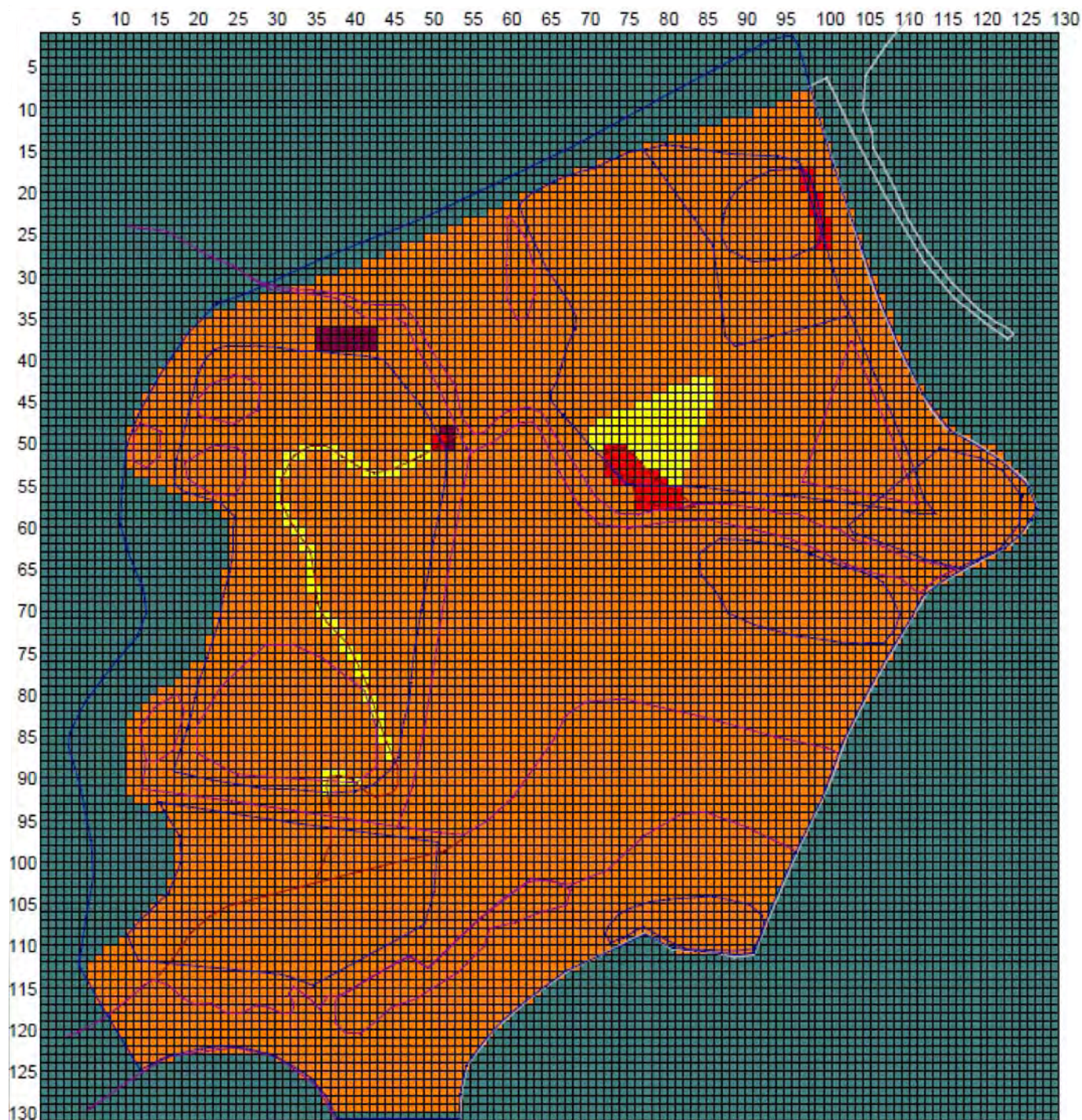
client:	TRUenergy
project:	Groundwater Modelling Assessment Modelling Report - Ash Ponds Tallawarra Lands, Yallah, NSW
title:	MODEL EVAPOTRANSPIRATION ZONES
project no:	ENAUWOLL04009AE-R03
figure no:	FIGURE 22



LEGEND


- Ash Ponds - Ash
- Coalwash Preload Mounds
- Bund Walls - Coalwash and Clay
- Inactive Cells

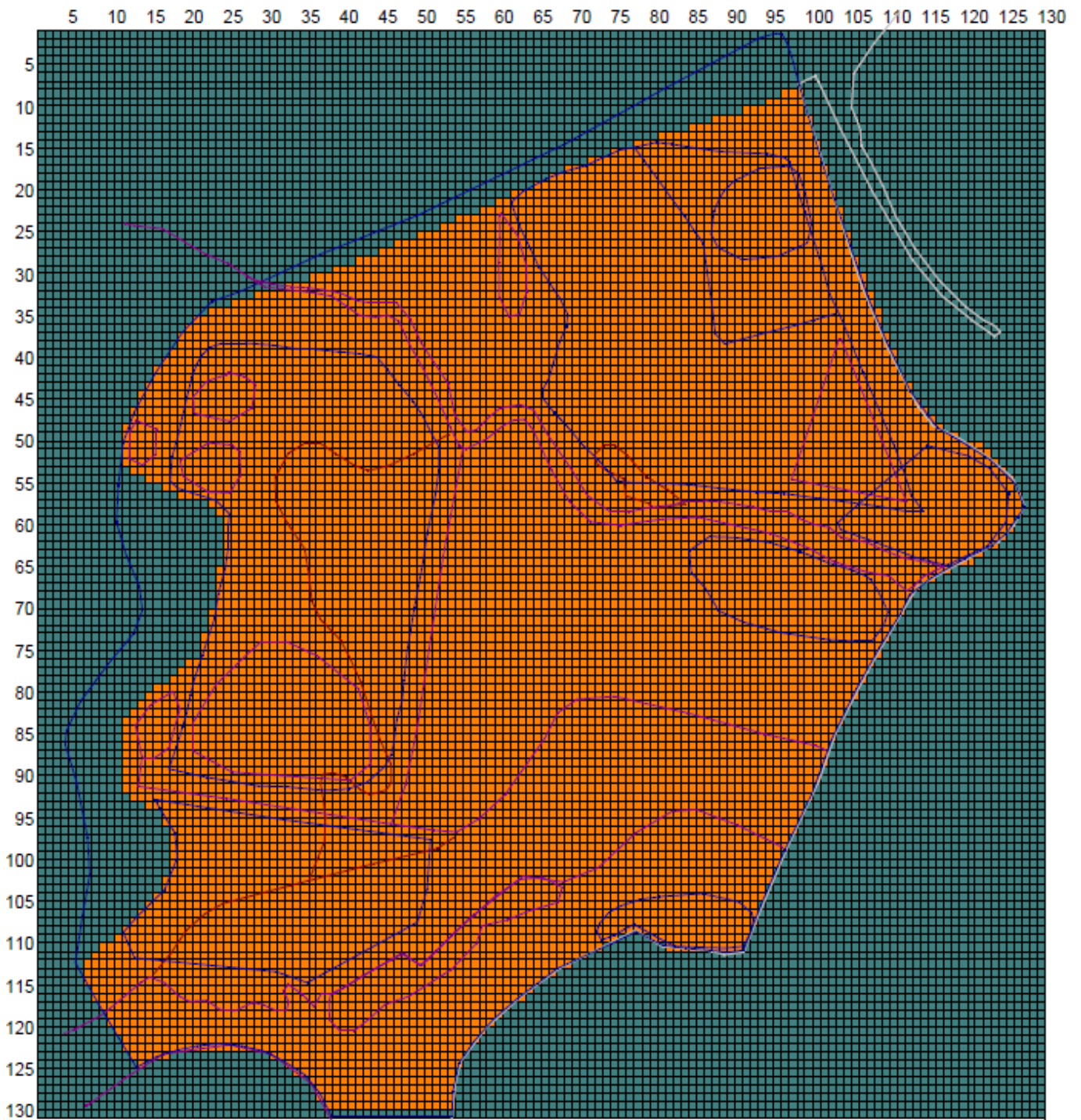
drawn	CDC	 <small>SPECIALISTS IN ENVIRONMENTAL, SOCIAL AND SAFETY PERFORMANCE</small>	client:	TRUenergy		
approved	PT		project:	Groundwater Modelling Assessment Modelling Report - Ash Ponds Tallawarra Lands, Yallah, NSW		
date	1 March 2012		title:	MODEL HYDRAULIC CONDUCTIVITY ZONES - LAYER 1		
scale	1:16,000		project no:	ENAUWOLL04009AE-R03	figure no:	FIGURE 23
original size	A4					



LEGEND


- Alluvial / Estuarine Sediment
- Ash Fill
- Reclamation Fill
- Reworked Soil

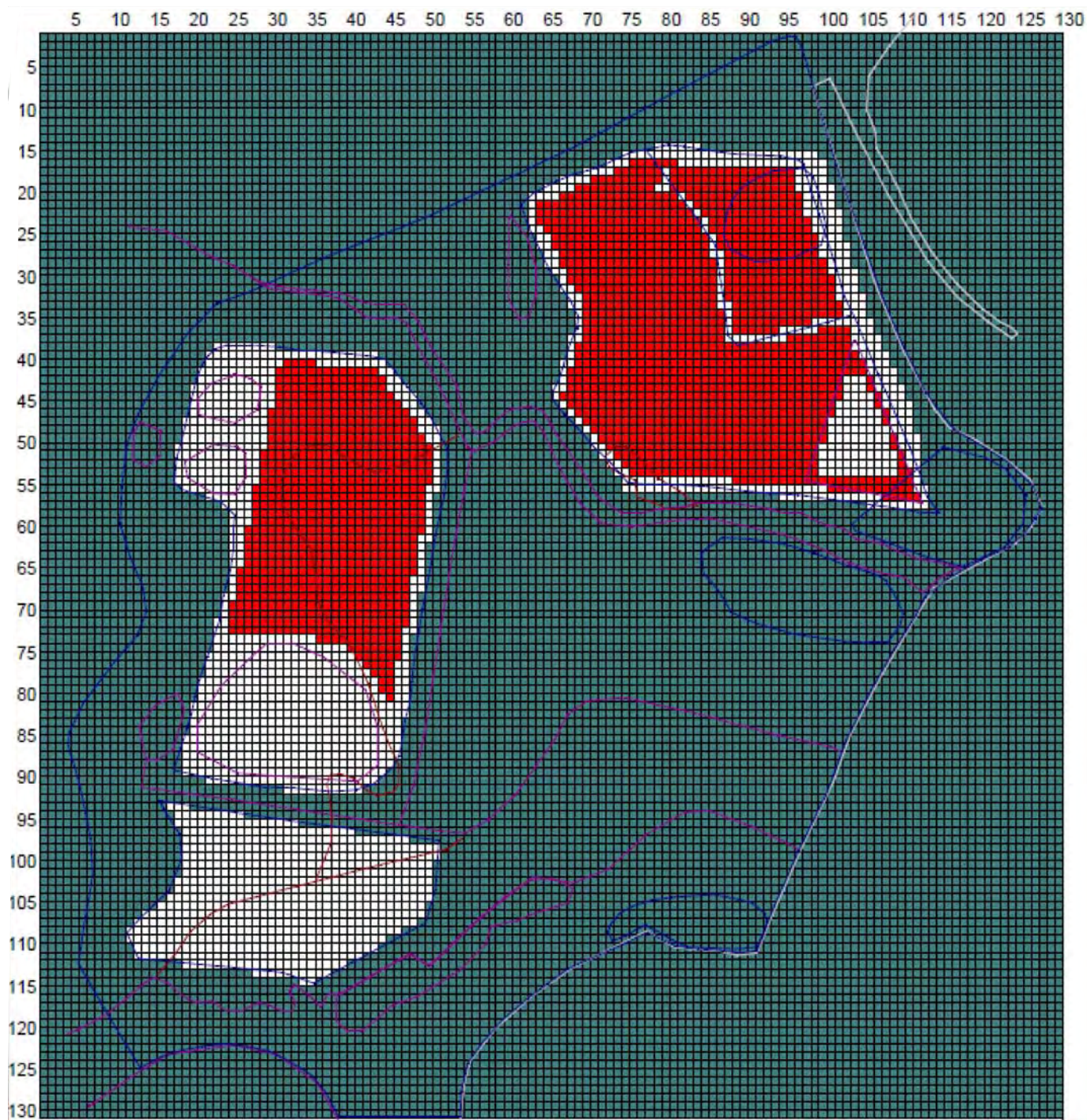
drawn	CDC	 <small>SPECIALISTS IN ENVIRONMENTAL, SOCIAL AND SAFETY PERFORMANCE</small>	client:	TRUenergy
approved	PT		project:	Groundwater Modelling Assessment Modelling Report - Ash Ponds Tallawarra Lands, Yallah, NSW
date	1 March 2012		title:	MODEL HYDRAULIC CONDUCTIVITY ZONES - LAYER 2
scale	1:16,000		project no:	ENAUWOLL04009AE-R03
original size	A4		figure no:	FIGURE 24





LEGEND


 Alluvial / Estuarine Sediment

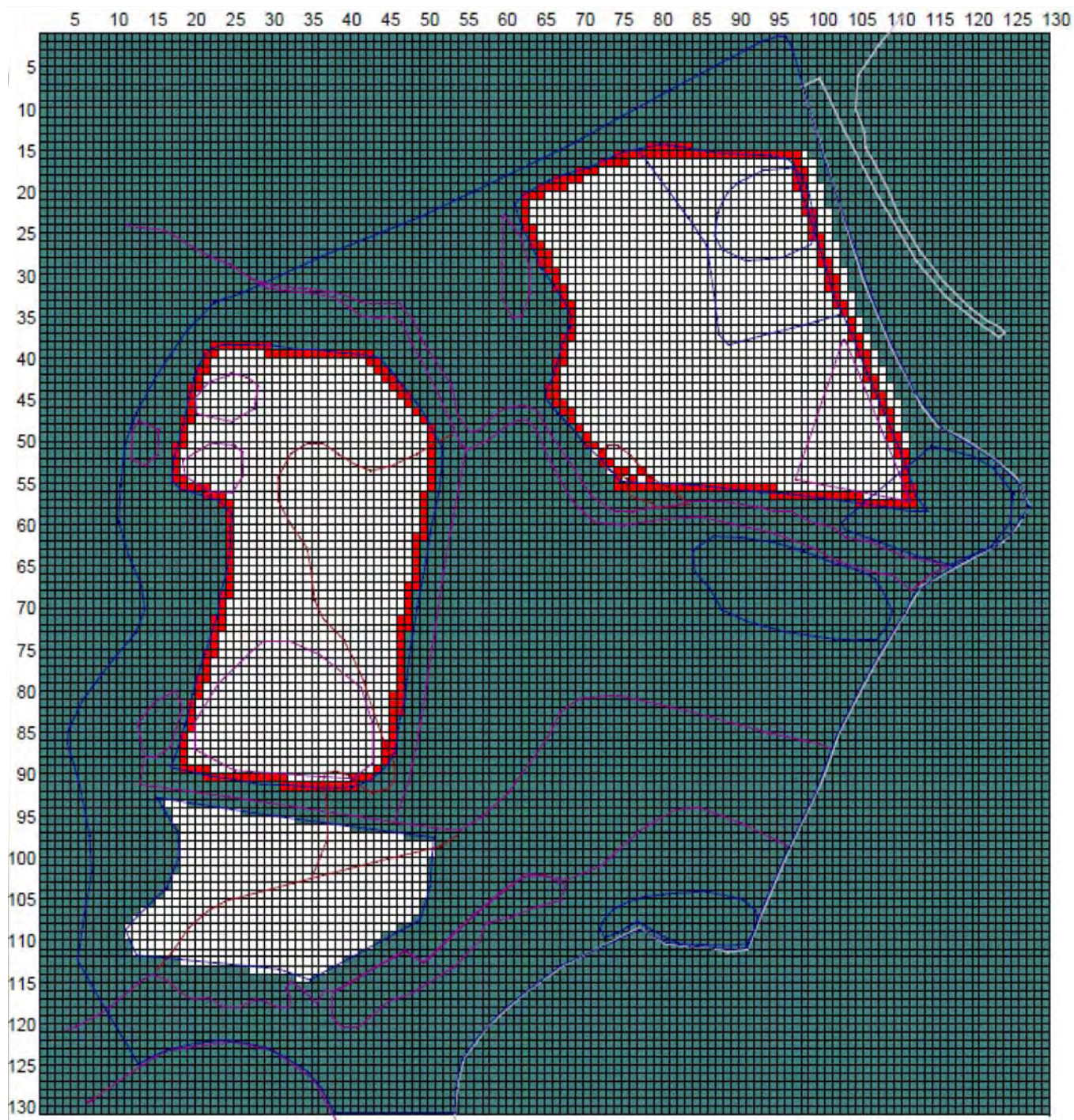
drawn	CDC	 SPECIALISTS IN ENVIRONMENTAL, SOCIAL AND SAFETY PERFORMANCE	client:	TRUenergy
approved	PT		project:	Groundwater Modelling Assessment Modelling Report - Ash Ponds Tallawarra Lands, Yallah, NSW
date	1 March 2012		title:	MODEL HYDRAULIC CONDUCTIVITY ZONES - LAYER 3
scale	1:16,000		project no:	ENAUWOLL04009AE-R03
original size	A4		figure no:	FIGURE 25





LEGEND


-  Constant Concentration Cells - Arsenic (0.3 mg/L)
-  Inactive Cells

drawn	CDC	 SPECIALISTS IN ENVIRONMENTAL, SOCIAL AND SAFETY PERFORMANCE	client:	TRUenergy
approved	PT		project:	Groundwater Modelling Assessment Modelling Report - Ash Ponds Tallawarra Lands, Yallah, NSW
date	1 March 2012		title:	CONSTANT CONCENTRATION CELLS IN LAYER 1 - ARSENIC
scale	1:16,000		project no:	ENAUWOLL04009AE-R03
original size	A4		figure no:	FIGURE 26



LEGEND


-  Constant Concentration Cells - Ammonium (20 mg/L)
-  Inactive Cells

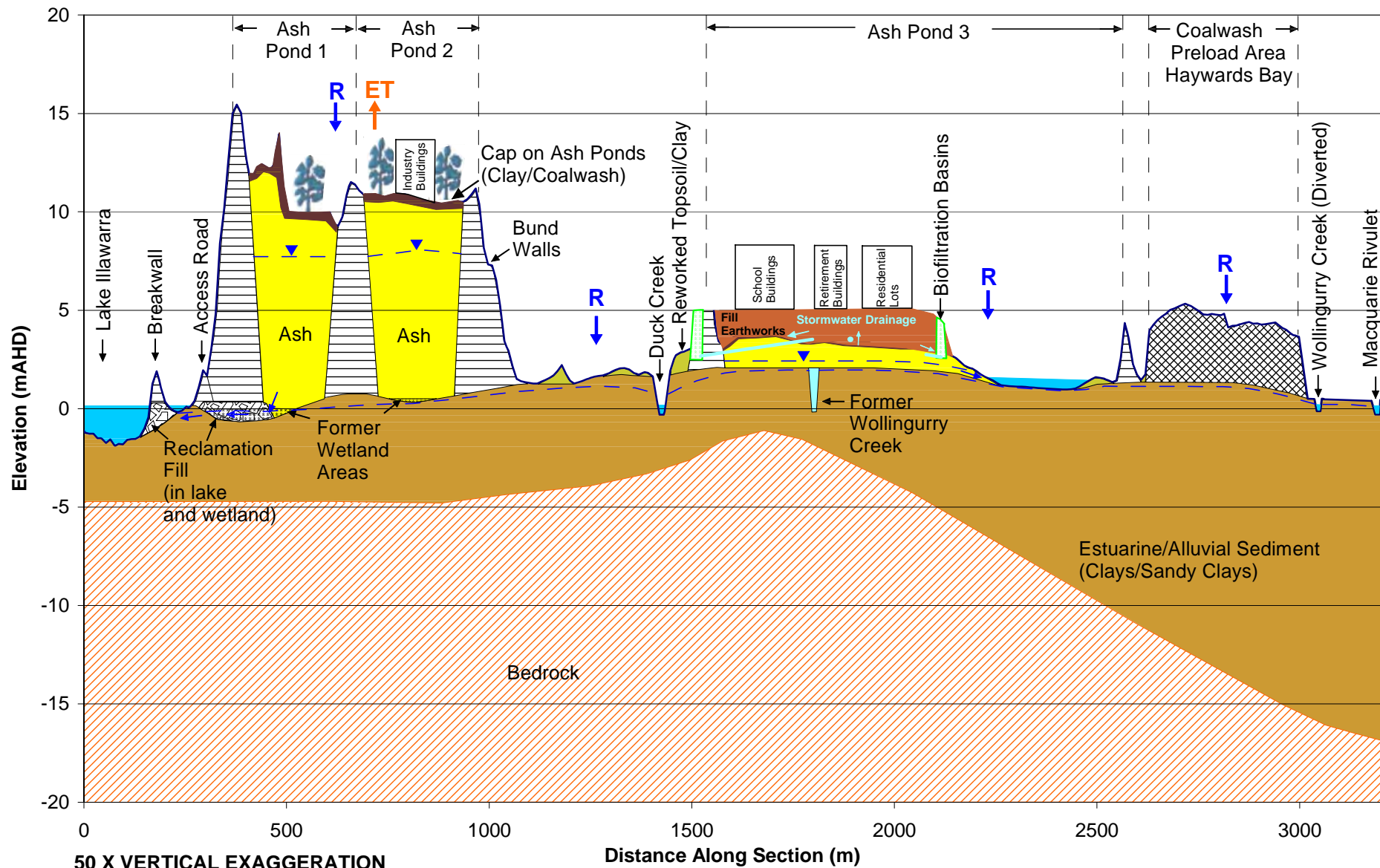
drawn	CDC	 SPECIALISTS IN ENVIRONMENTAL, SOCIAL AND SAFETY PERFORMANCE	client:	TRUenergy
approved	PT		project:	Groundwater Modelling Assessment Modelling Report - Ash Ponds Tallawarra Lands, Yallah, NSW
date	1 March 2012		title:	CONSTANT CONCENTRATION CELLS IN LAYER 1 - AMMONIUM
scale	1:16,000		project no:	ENAUWOLL04009AE-R03
original size	A4		figure no:	FIGURE 27



LEGEND

- Dry Cells
- Inactive Cells

drawn	CDC	 SPECIALISTS IN ENVIRONMENTAL, SOCIAL AND SAFETY PERFORMANCE	client:	TRUenergy
approved	PT		project:	Groundwater Modelling Assessment Modelling Report - Ash Ponds Tallawarra Lands, Yallah, NSW
date	1 March 2012		title:	DRY CELLS - LAYER 1
scale	1:16,000		project no:	ENAUWOLL04009AE-R03
original size	A4		figure no:	FIGURE 28



- LEGEND**
- R Rainfall Recharge
 - ET Evapotranspiration
 - Interpreted Groundwater Level

drawn	CDC
approved	PT
date	1 March 2012
scale	As Shown
original size	A4



client:	TRUenergy
project:	Groundwater Modelling Assessment Modelling Report - Ash Ponds Tallawarra Lands, Yallah, NSW
title:	HYDROGEOLOGICAL CONCEPTUAL MODEL - WITH DEVELOPMENT
project no:	ENAUWOLL04009AE-R03
figure no:	FIGURE 29

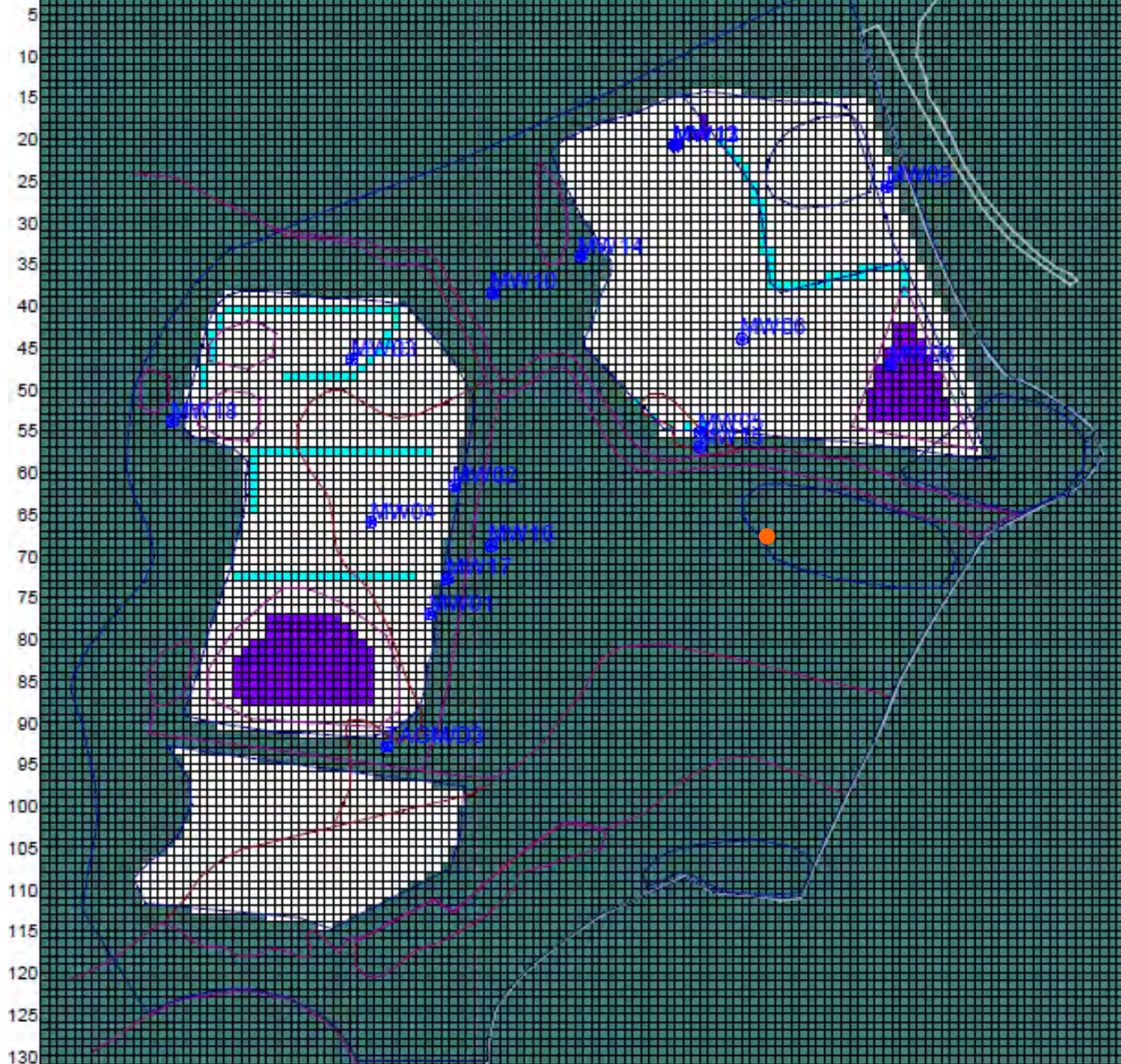
South

Cross Section - Column 36






North



5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100 105 110 115 120 125 130



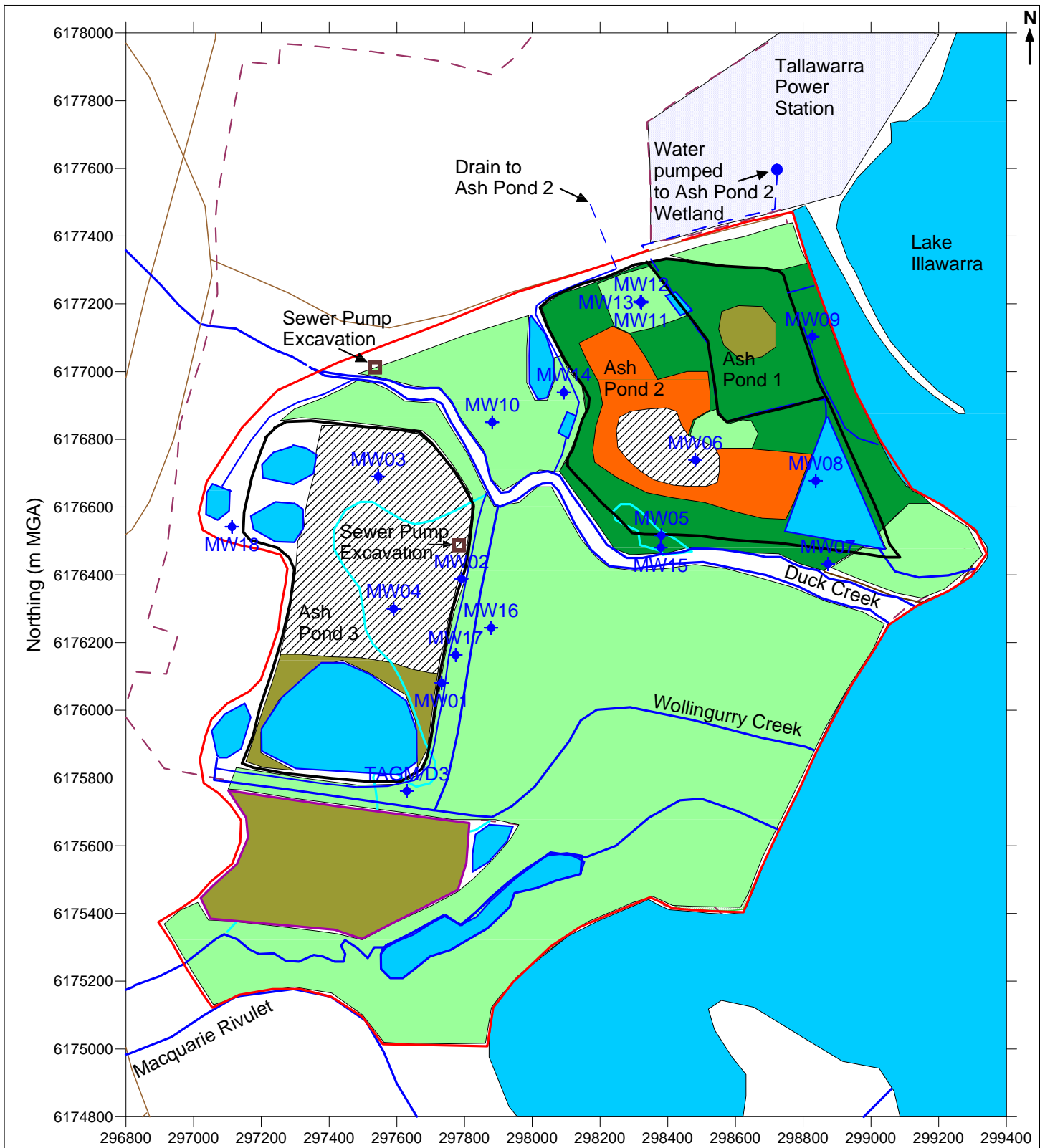
LEGEND

-  River Cells
-  Inactive Cells
-  Groundwater Monitoring Well
-  Observation Point North Wetland (Model Only)
-  Drain Cells

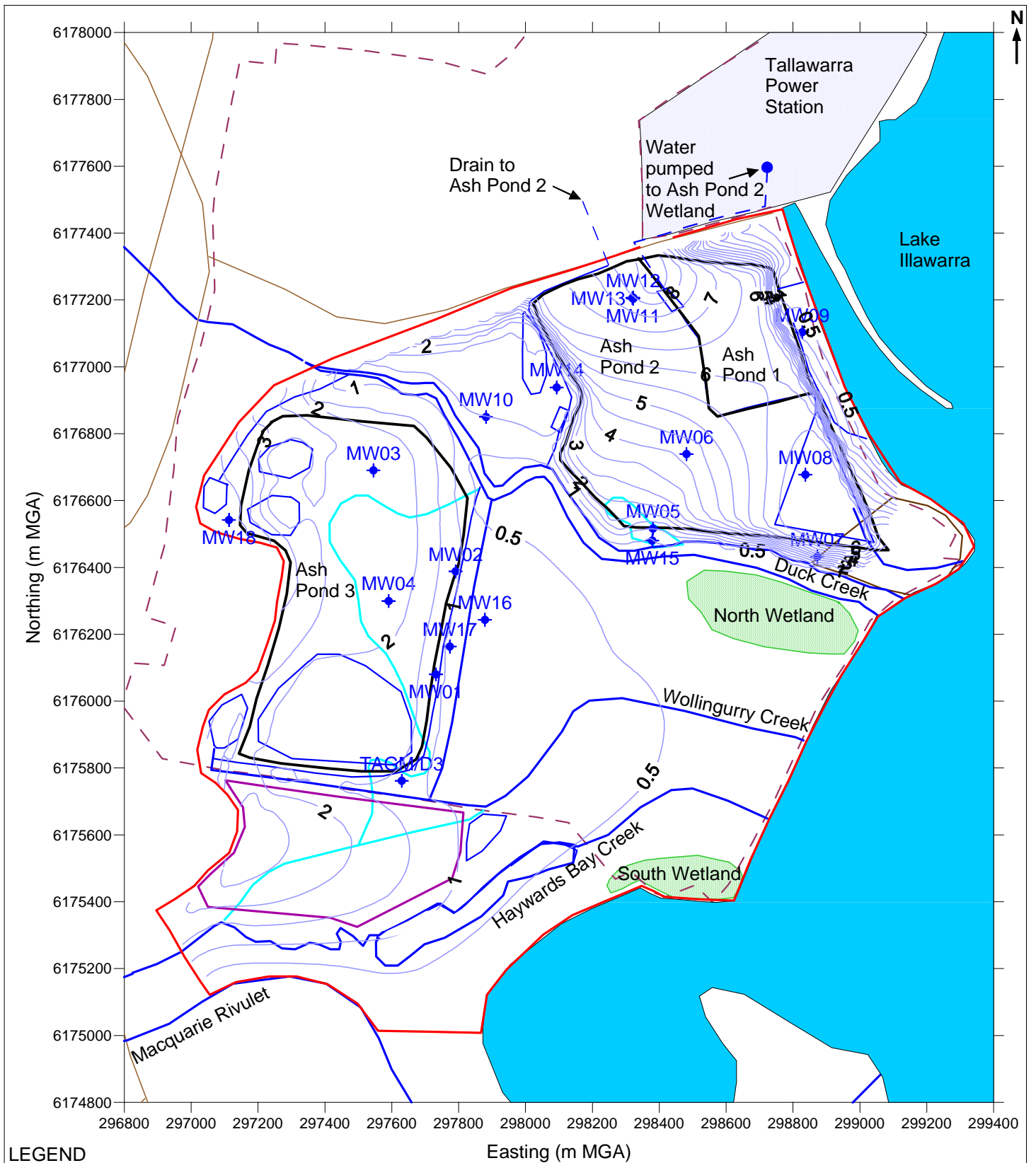
drawn	CDC
approved	PT
date	1 March 2012
scale	1:16,000
original size	A4



client:	TRUenergy
project:	Groundwater Modelling Assessment Modelling Report - Ash Ponds Tallawarra Lands, Yallah, NSW
title:	MODEL GRID AND BOUNDARY CONDITIONS LAYER 1 WITH DEVELOPMENT
project no:	ENAUWOLL04009AE-R03
figure no:	FIGURE 30



drawn	CDC	<p>SPECIALISTS IN ENVIRONMENTAL, SOCIAL AND SAFETY PERFORMANCE</p>	client:	TRUenergy
approved	PT		project:	Groundwater Modelling Assessment Modelling Report - Ash Ponds Tallawarra Lands, Yallah, NSW
date	1 March 2012		title:	PREDICTIVE MODEL CHANGES WITH DEVELOPMENT EVAPOTRANSPIRATION ZONES AND EXCAVATIONS
scale	1:16,000		project no:	ENAUWOLL04009AE-R03
original size	A4		figure no:	FIGURE 31



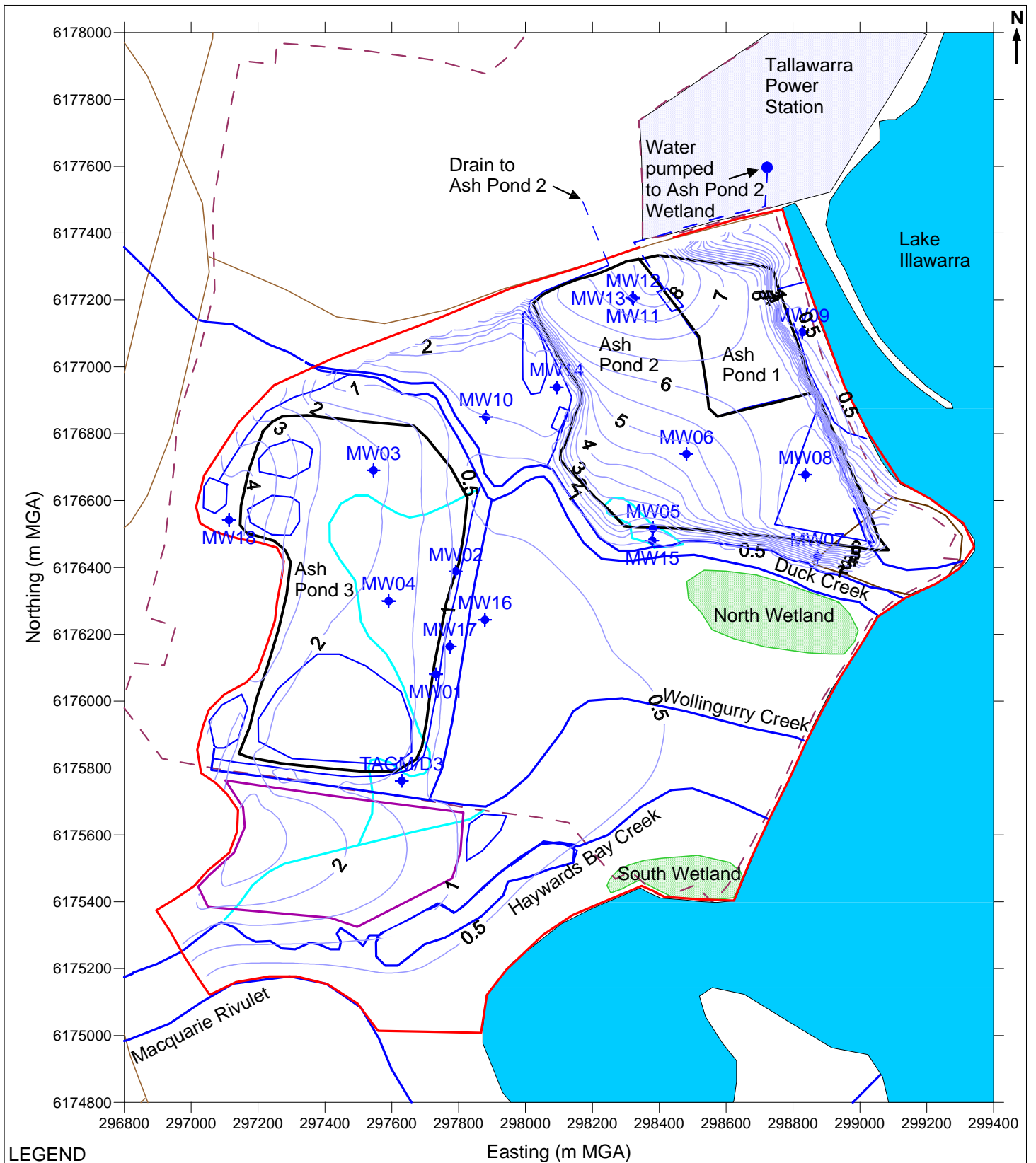
LEGEND

- Site Boundary
- Roads
- Model Boundary
- SEPP14 Wetlands
- Ash Ponds
- Watercourses / Drains
- Lakes / Ponds
- Coalwash Preload Area
- Former Watercourses
- Bedrock Outcrop
- Groundwater Monitoring Well
- Modelled Groundwater Contour Level (m AHD)

drawn	CDC
approved	PT
date	1 March 2012
scale	1:16,000
original size	A4



client:	TRUenergy
project:	Groundwater Modelling Assessment Modelling Report - Ash Ponds Tallawarra Lands, Yallah, NSW
title:	MODELLED GROUNDWATER CONTOUR LEVELS NO DEVELOPMENT - 30 YEAR SIMULATION RESULTS (2027)
project no:	ENAUWOLL04009AE-R03
figure no:	FIGURE 32



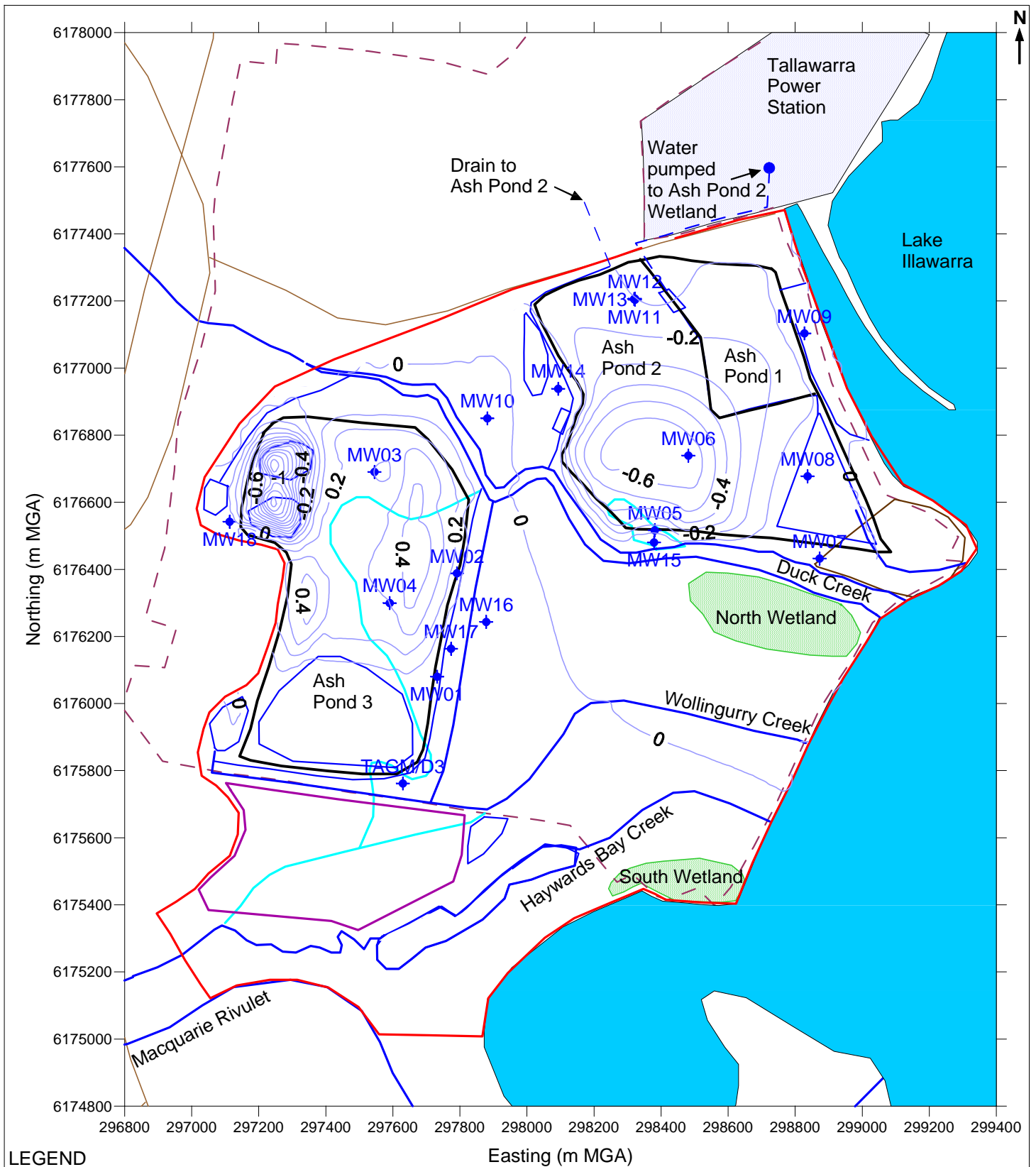
LEGEND

- Site Boundary
- Roads
- Model Boundary
- SEPP14 Wetlands
- Watercourses / Drains
- Lakes / Ponds
- Former Watercourses
- Bedrock Outcrop
- Ash Ponds
- Coalwash Preload Area
- ◆ Groundwater Monitoring Well
- 2 — Modelled Groundwater Contour Level (m AHD)

drawn	CDC
approved	PT
date	1 March 2012
scale	1:16,000
original size	A4




client:	TRUenergy
project:	Groundwater Modelling Assessment Modelling Report - Ash Ponds Tallawarra Lands, Yallah, NSW
title:	MODELLED GROUNDWATER CONTOUR LEVELS WITH DEVELOPMENT - 30 YEAR SIMULATION RESULTS (2027)
project no:	ENAUWOLL04009AE-R03
figure no:	FIGURE 33

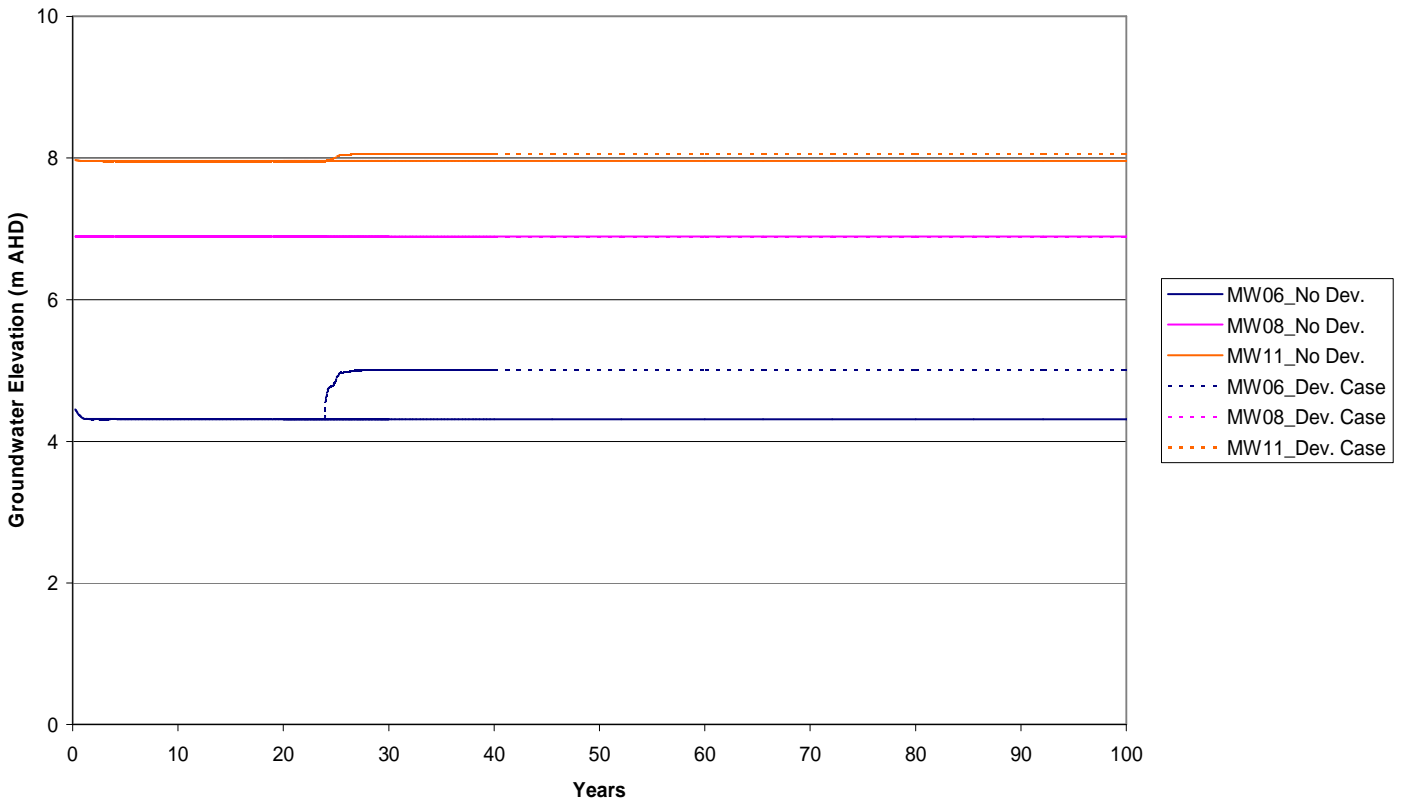


LEGEND

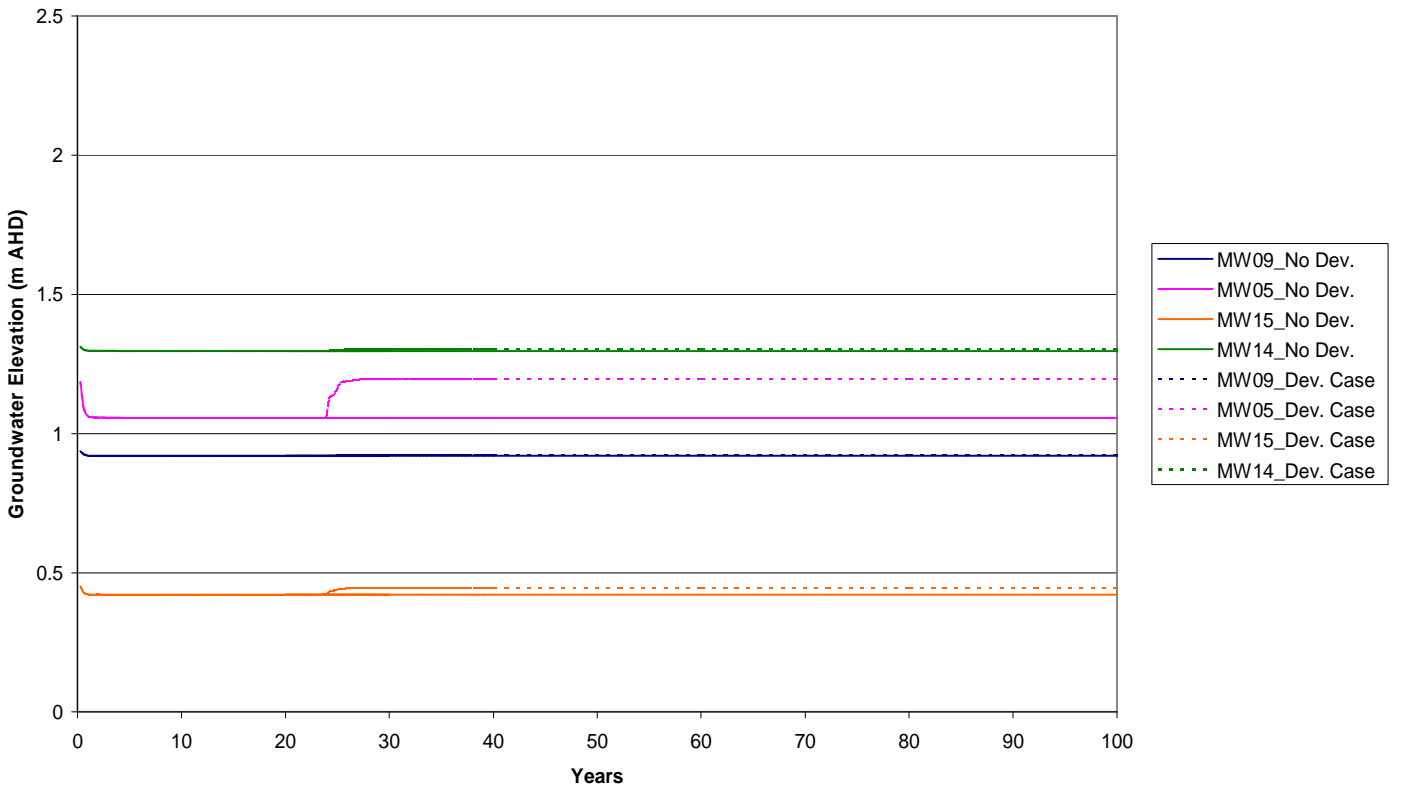
- Site Boundary
- Roads
- Model Boundary
- SEPP14 Wetlands
- Ash Ponds
- Watercourses / Drains
- Lakes / Ponds
- Coalwash Preload Area
- Former Watercourses
- Bedrock Outcrop
- Groundwater Monitoring Well
- Modelled Groundwater Drawdown (m)

drawn	CDC	 <p>SPECIALISTS IN ENVIRONMENTAL, SOCIAL AND SAFETY PERFORMANCE</p>	client:	TRUenergy
approved	PT		project:	Groundwater Modelling Assessment Modelling Report - Ash Ponds Tallawarra Lands, Yallah, NSW
date	1 March 2012		title:	MODELLED GROUNDWATER DRAWDOWN 30 YEAR SIMULATION RESULTS (2027)
scale	1:16,000		project no.:	ENAUWOLL04009AE-R03
original size	A4		figure no.:	FIGURE 34

Simulated Groundwater Levels - Within Ash Pond 2



Simulated Groundwater Levels - Outside Ash Pond 1 and 2 Area

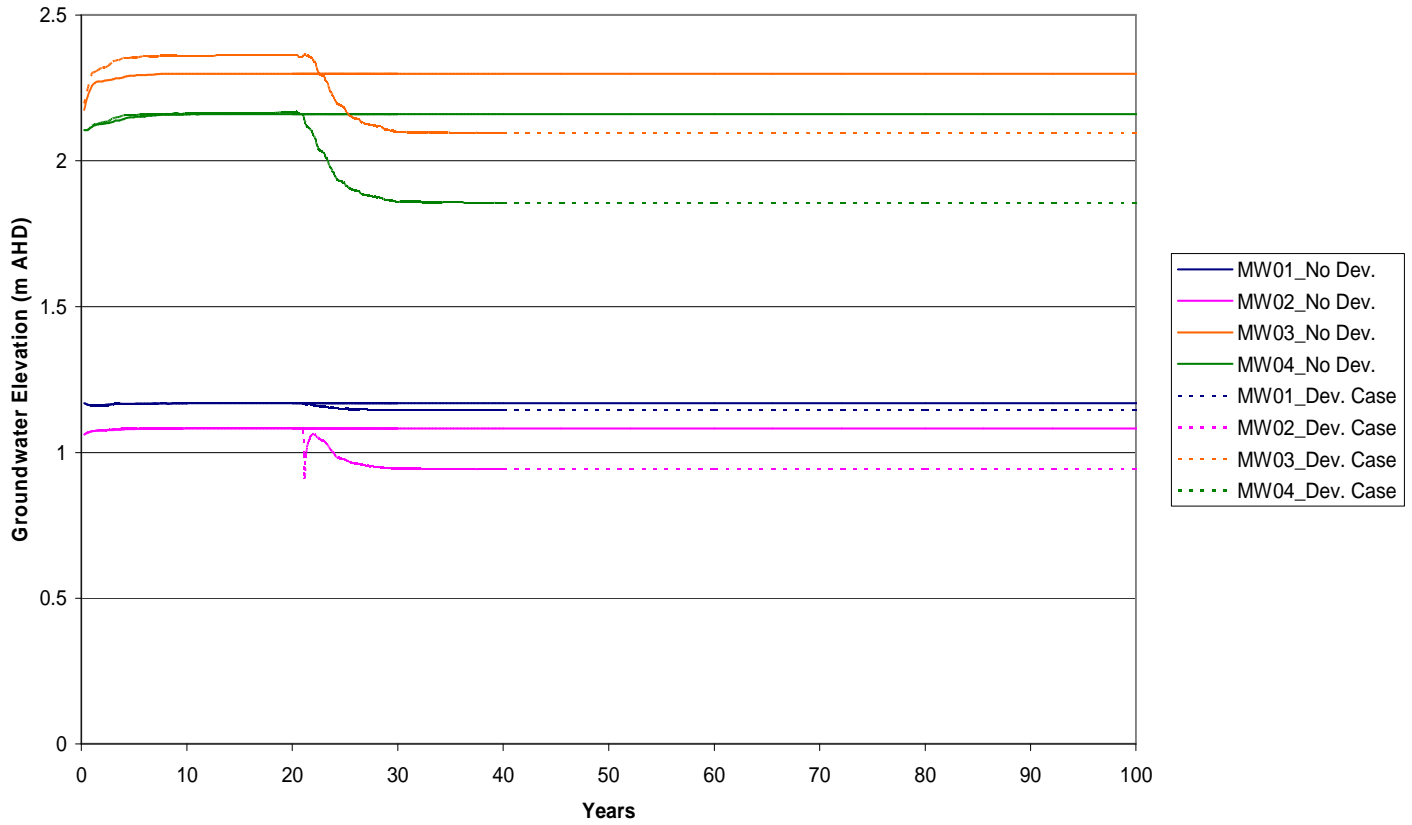


drawn	CDC
approved	PT
date	1 March 2012
scale	NA
original size	A4

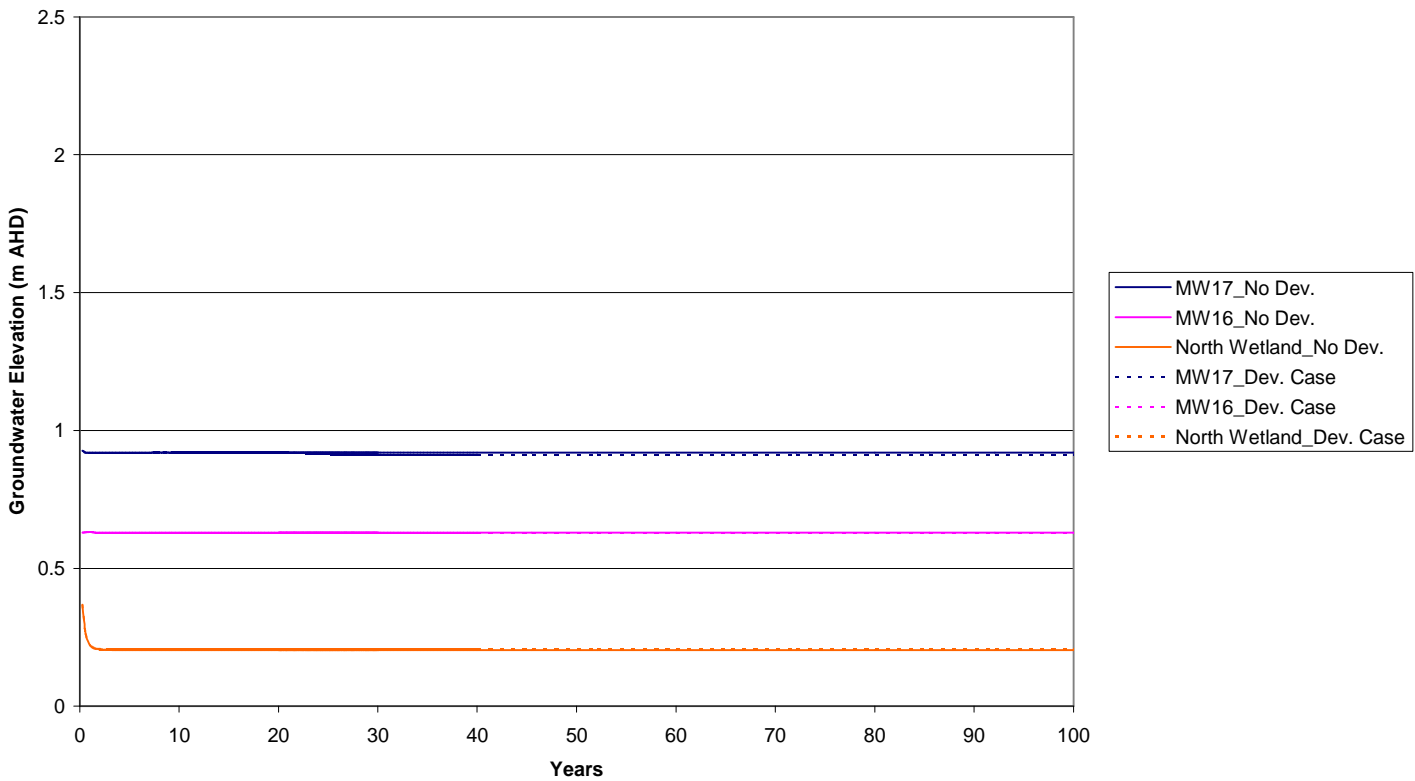


client:	TRUenergy	
project:	Groundwater Modelling Assessment Modelling Report - Ash Ponds Tallawarra Lands, Yallah, NSW	
title:	MODELLED HYDROGRAPHS - ASH POND 1 AND 2 AREA	
project no:	ENAUWOLL04009AE-R03	figure no: FIGURE 35

Simulated Groundwater Levels - Within Ash Pond 3 and Bund Wall



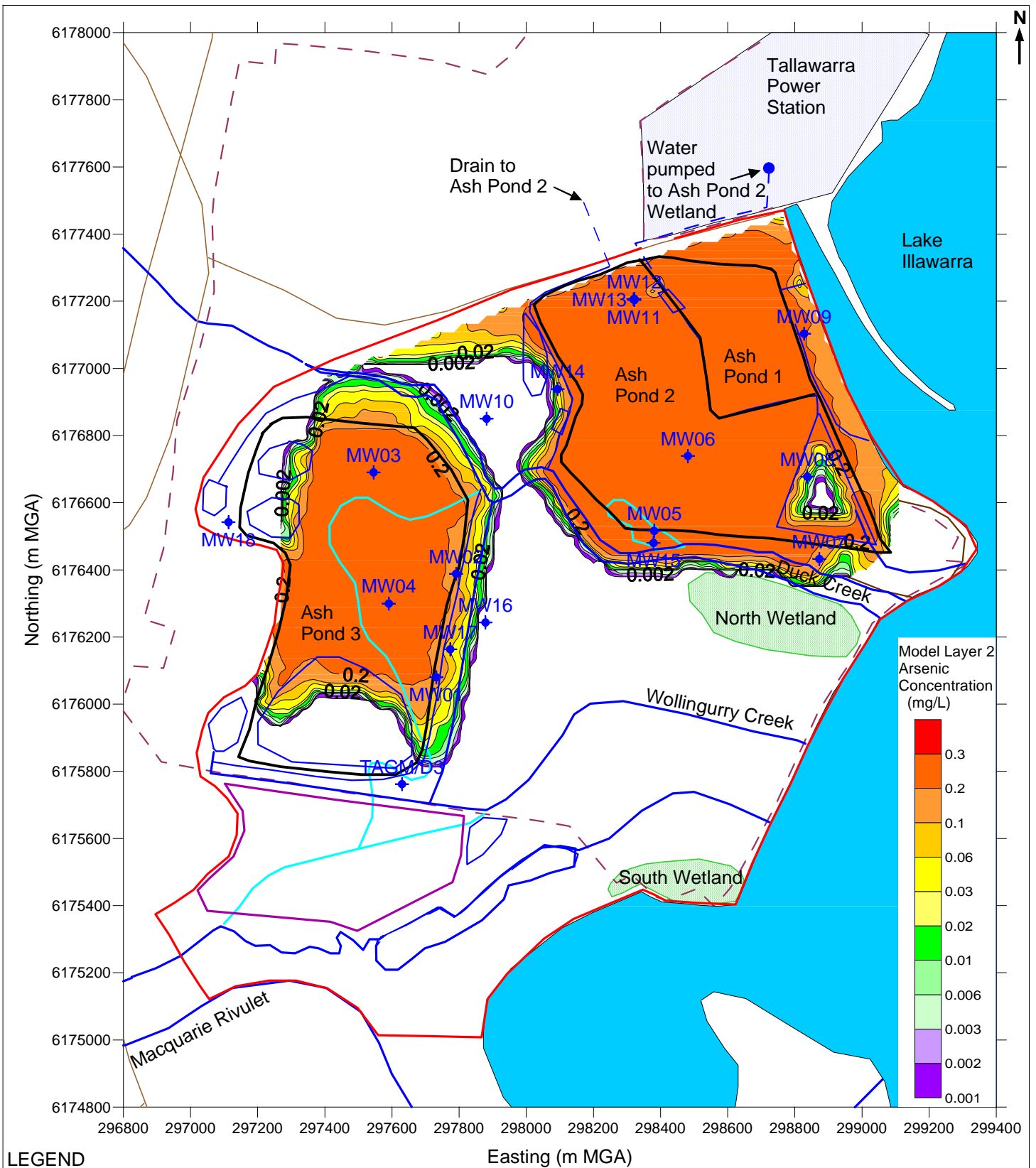
Simulated Groundwater Levels - East of Ash Pond 3



drawn	CDC
approved	PT
date	1 March 2012
scale	NA
original size	A4



client:	TRUenergy
project:	Groundwater Modelling Assessment Modelling Report - Ash Ponds Tallawarra Lands, Yallah, NSW
title:	MODELLED HYDROGRAPHS - ASH POND 3 AREA
project no:	ENAUWOLL04009AE-R03
figure no:	FIGURE 36



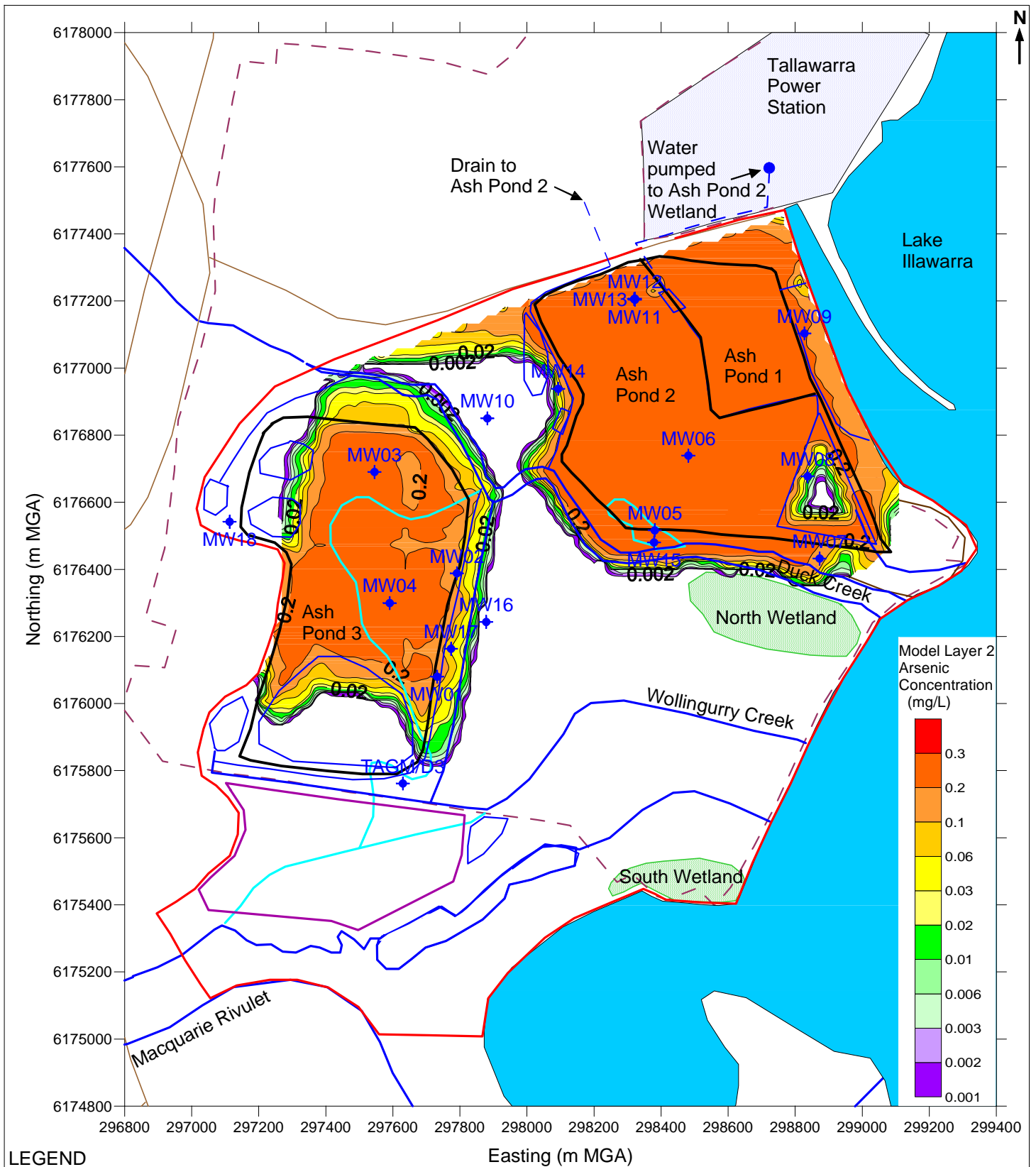
LEGEND

- Site Boundary
- Roads
- Model Boundary
- SEPP14 Wetlands
- Ash Ponds
- Watercourses / Drains
- Lakes / Ponds
- Coalwash Preload Area
- Former Watercourses
- Bedrock Outcrop
- Groundwater Monitoring Well

drawn	CDC
approved	PT
date	1 March 2012
scale	1:16,000
original size	A4



client:	TRUenergy
project:	Groundwater Modelling Assessment Modelling Report - Ash Ponds Tallawarra Lands, Yallah, NSW
title:	MODELLED GROUNDWATER ARSENIC CONCENTRATIONS NO DEVELOPMENT - 30 YEAR SIMULATION RESULTS (2027)
project no:	ENAUWOLL04009AE-R03
figure no:	FIGURE 37



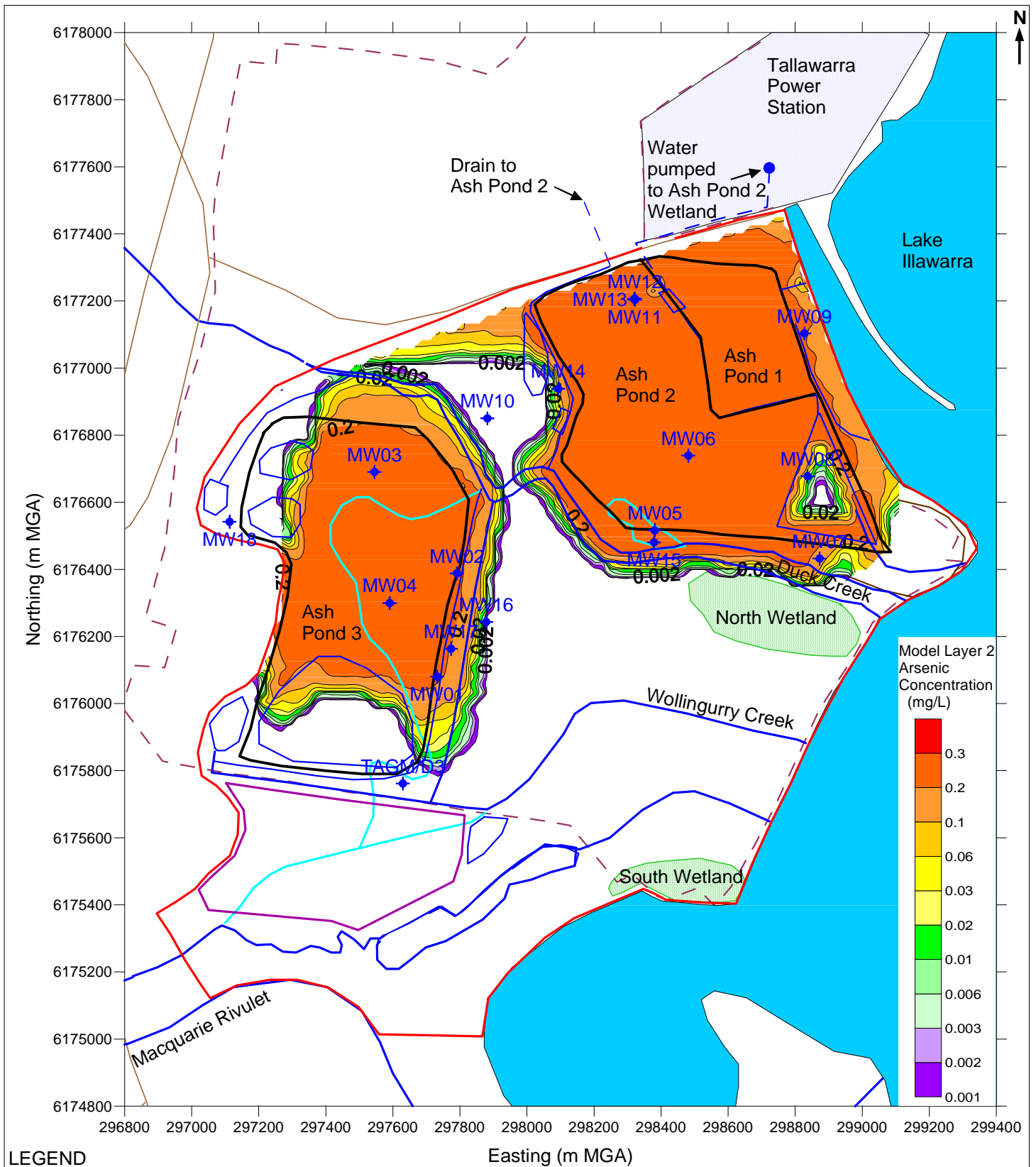
LEGEND

- Site Boundary
- Roads
- Model Boundary
- SEPP14 Wetlands
- Ash Ponds
- Watercourses / Drains
- Lakes / Ponds
- Coalwash Preload Area
- Former Watercourses
- Bedrock Outcrop
- Groundwater Monitoring Well

drawn	CDC
approved	PT
date	1 March 2012
scale	1:16,000
original size	A4



client:	TRUenergy
project:	Groundwater Modelling Assessment Modelling Report - Ash Ponds Tallawarra Lands, Yallah, NSW
title:	MODELLED GROUNDWATER ARSENIC CONCENTRATIONS WITH DEVELOPMENT - 30 YEAR SIMULATION RESULTS (2027)
project no:	ENAUWOLL04009AE-R03
figure no:	FIGURE 38



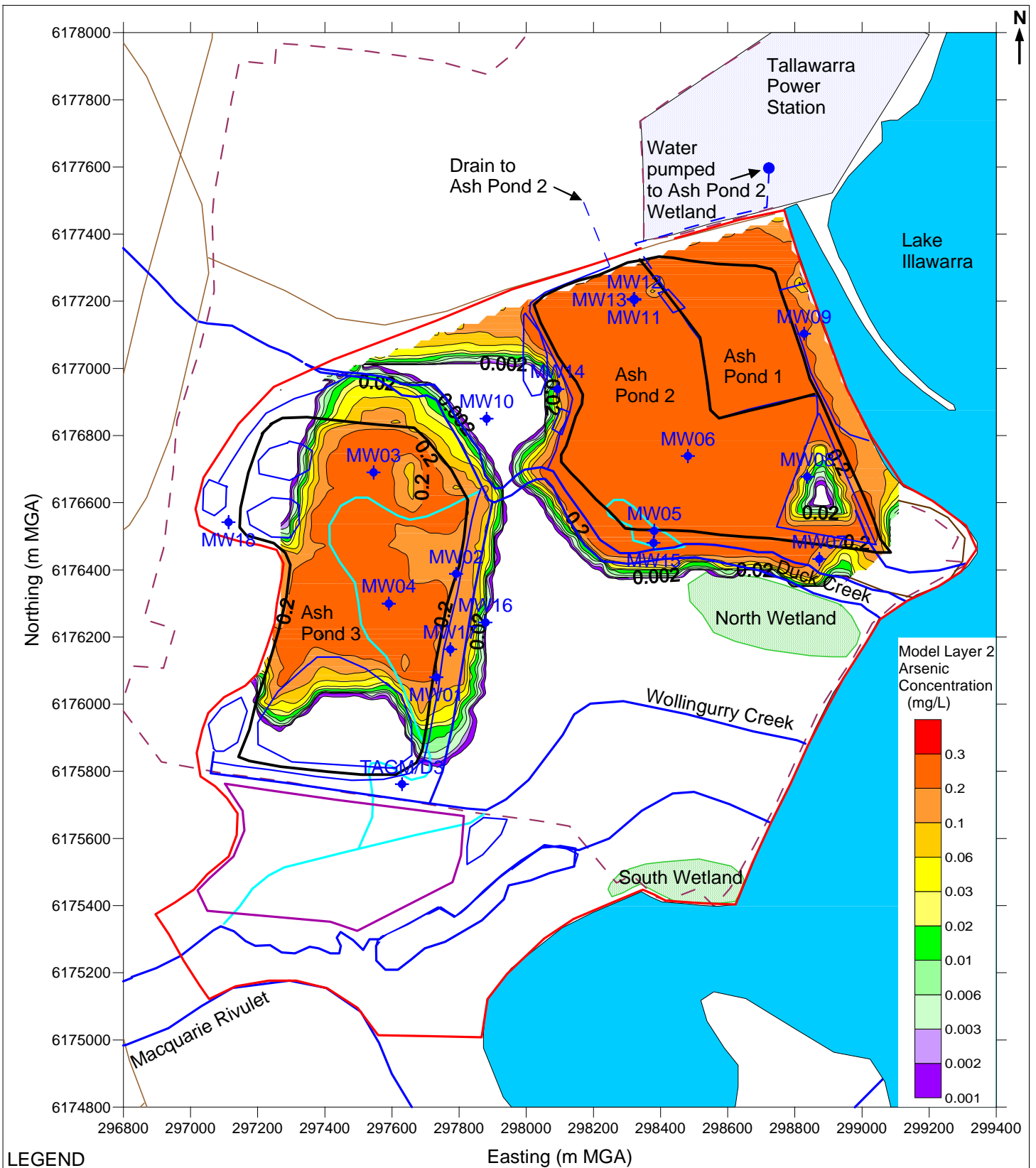
LEGEND

- Site Boundary
- Model Boundary
- Watercourses / Drains
- Former Watercourses
- Roads
- SEPP14 Wetlands
- Lakes / Ponds
- Bedrock Outcrop
- Ash Ponds
- Coalwash Preload Area
- Groundwater Monitoring Well

drawn	CDC
approved	PT
date	1 March 2012
scale	1:16,000
original size	A4



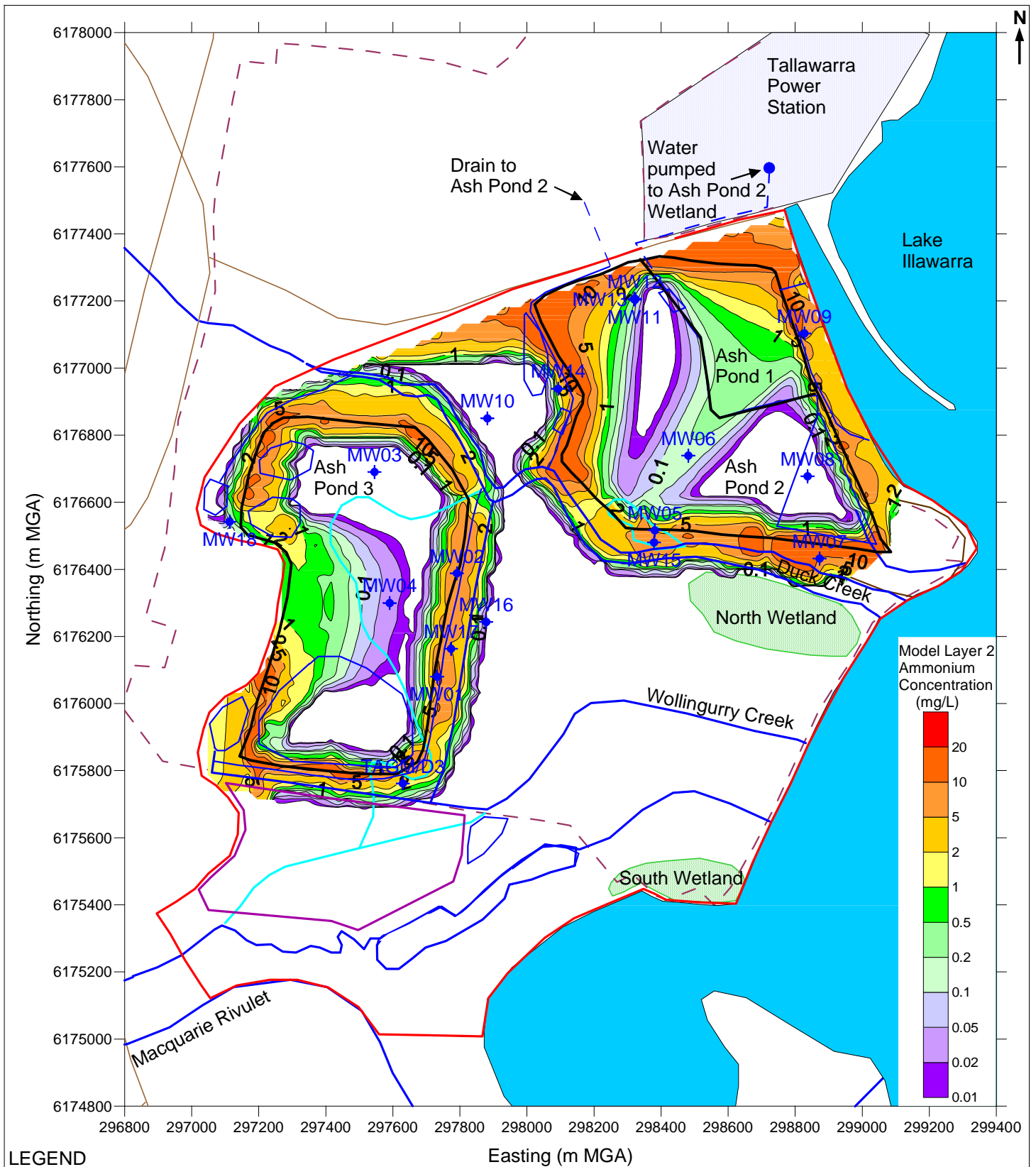
client:	TRUenergy
project:	Groundwater Modelling Assessment Modelling Report - Ash Ponds Tallawarra Lands, Yallah, NSW
title:	MODELLED GROUNDWATER ARSENIC CONCENTRATIONS NO DEVELOPMENT - 100 YEAR SIMULATION RESULTS (2097)
project no:	ENAUWOLL04009AE-R03
figure no:	FIGURE 39



drawn	CDC
approved	PT
date	1 March 2012
scale	1:16,000
original size	A4



client:	TRUenergy
project:	Groundwater Modelling Assessment Modelling Report - Ash Ponds Tallawarra Lands, Yallah, NSW
title:	MODELLED GROUNDWATER ARSENIC CONCENTRATIONS WITH DEVELOPMENT - 100 YEAR SIMULATION RESULTS (2097)
project no:	ENAUWOLL04009AE-R03
figure no:	FIGURE 40



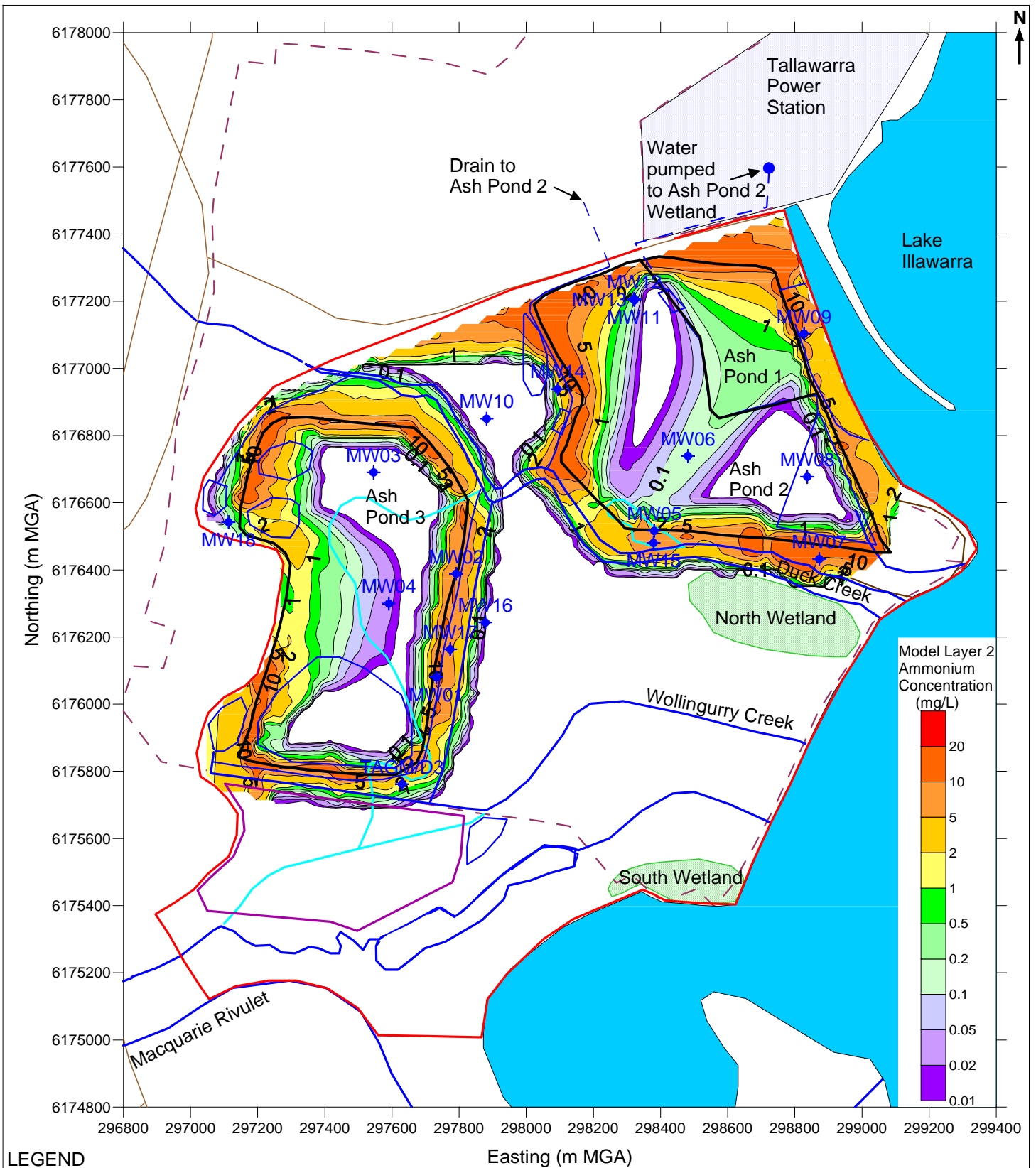
LEGEND

- Site Boundary
- Roads
- Model Boundary
- SEPP14 Wetlands
- Ash Ponds
- Watercourses / Drains
- Lakes / Ponds
- Coalwash Preload Area
- Former Watercourses
- Bedrock Outcrop
- Groundwater Monitoring Well

drawn	CDC
approved	PT
date	1 March 2012
scale	1:16,000
original size	A4



client:	TRUenergy
project:	Groundwater Modelling Assessment Modelling Report - Ash Ponds Tallawarra Lands, Yallah, NSW
title:	MODELLED GROUNDWATER AMMONIUM CONCENTRATIONS NO DEVELOPMENT - 30 YEAR SIMULATION RESULTS (2027)
project no:	ENAUWOLL04009AE-R03
figure no:	FIGURE 41



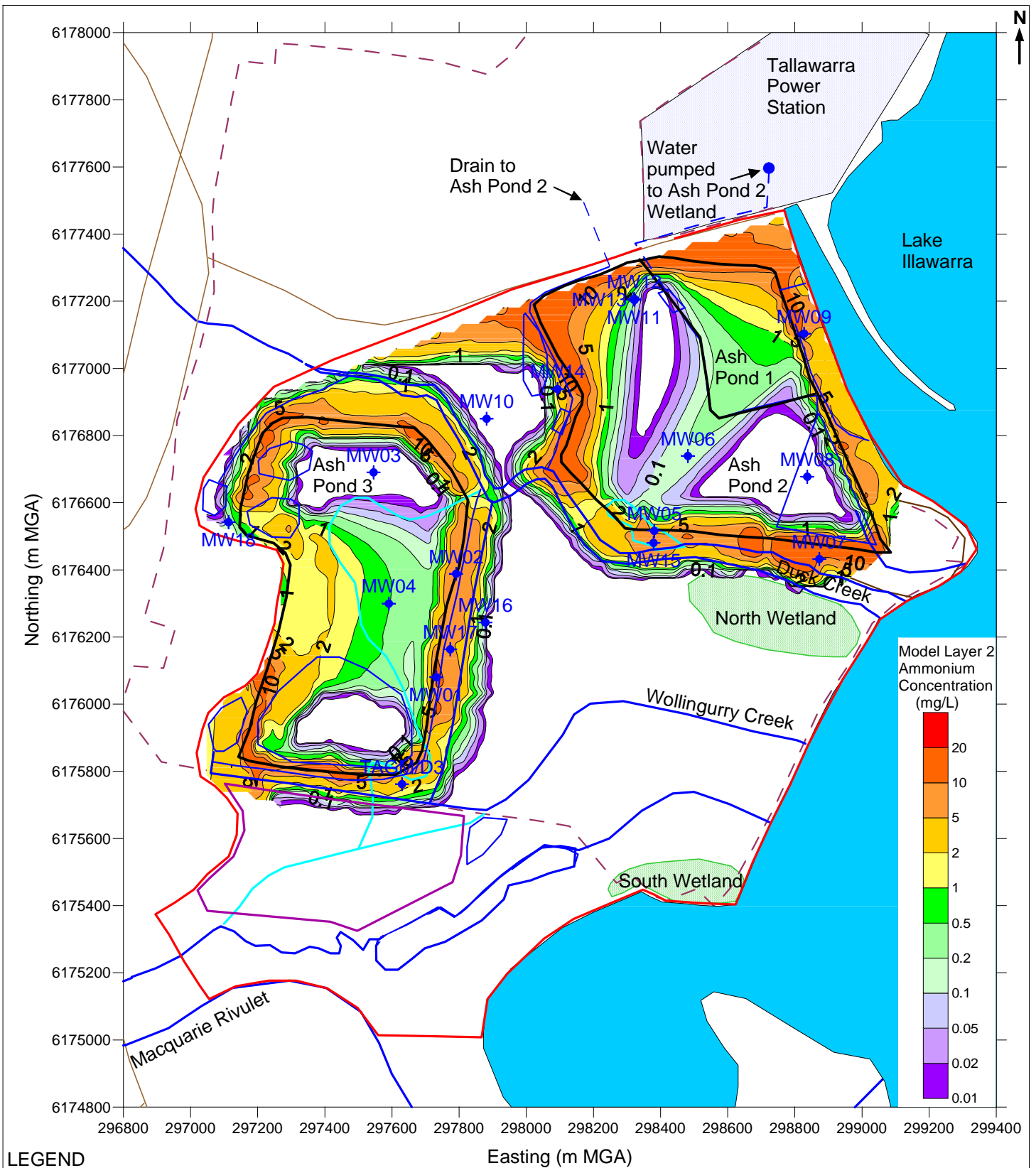
LEGEND

- Site Boundary
- Roads
- Model Boundary
- SEPP14 Wetlands
- Ash Ponds
- Watercourses / Drains
- Lakes / Ponds
- Coalwash Preload Area
- Former Watercourses
- Bedrock Outcrop
- ◆ Groundwater Monitoring Well

drawn	CDC
approved	PT
date	1 March 2012
scale	1:16,000
original size	A4



client:	TRUenergy
project:	Groundwater Modelling Assessment Modelling Report - Ash Ponds Tallawarra Lands, Yallah, NSW
title:	MODELLED GROUNDWATER AMMONIUM CONCENTRATIONS WITH DEVELOPMENT - 30 YEAR SIMULATION RESULTS (2027)
project no:	ENAUWOLL04009AE-R03
figure no:	FIGURE 42



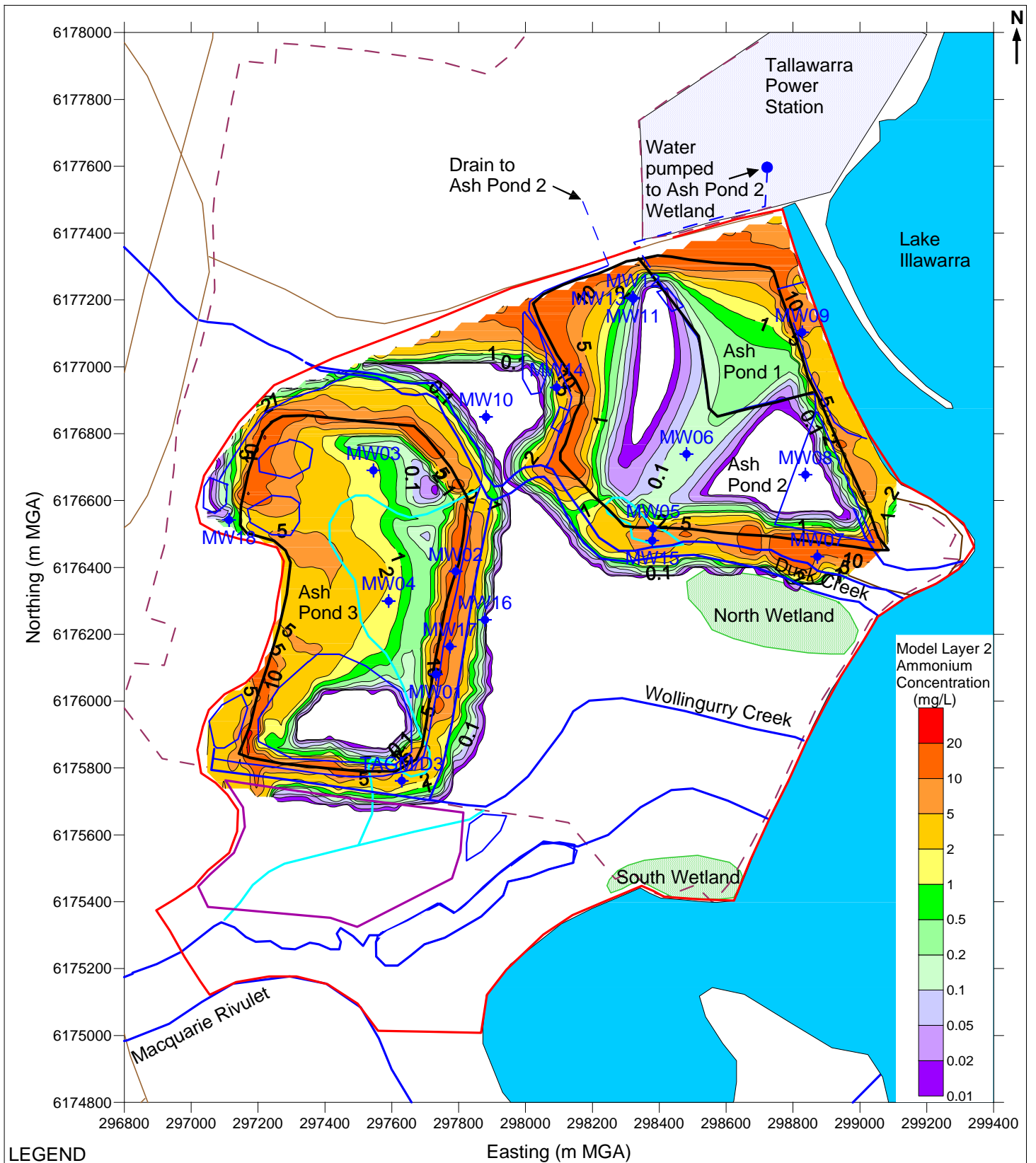
LEGEND

- Site Boundary
- Roads
- Model Boundary
- SEPP14 Wetlands
- Ash Ponds
- Watercourses / Drains
- Lakes / Ponds
- Coalwash Preload Area
- Former Watercourses
- Bedrock Outcrop
- Groundwater Monitoring Well

drawn	CDC
approved	PT
date	1 March 2012
scale	1:16,000
original size	A4



client:	TRUenergy
project:	Groundwater Modelling Assessment Modelling Report - Ash Ponds Tallawarra Lands, Yallah, NSW
title:	MODELLED GROUNDWATER AMMONIUM CONCENTRATIONS NO DEVELOPMENT - 100 YEAR SIMULATION RESULTS (2097)
project no:	ENAUWOLL04009AE-R03
figure no:	FIGURE 43



LEGEND	
--- Site Boundary	— Roads
— Model Boundary	○ SEPP14 Wetlands
— Watercourses / Drains	□ Ash Ponds
— Former Watercourses	○ Lakes / Ponds
	□ Coalwash Preload Area
	○ Bedrock Outcrop
	◆ Groundwater Monitoring Well

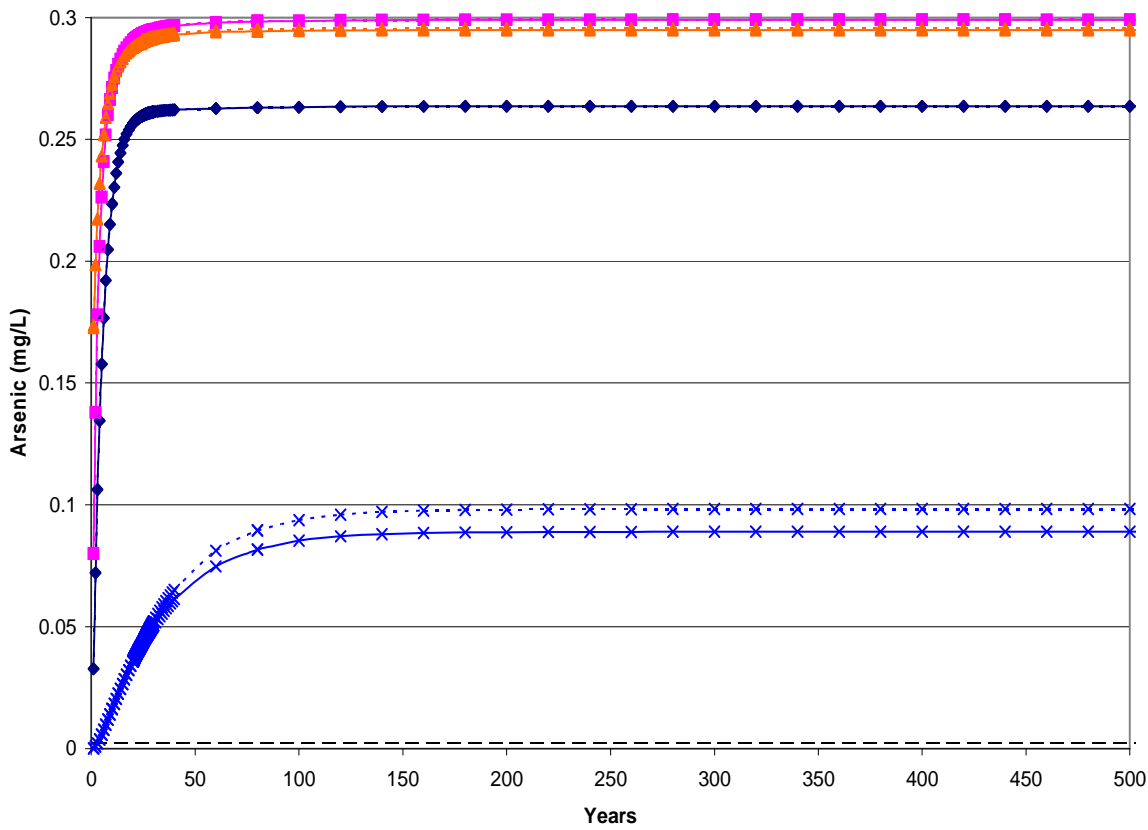
drawn	CDC
approved	PT
date	1 March 2012
scale	1:16,000
original size	A4

coffey environments
SPECIALISTS IN ENVIRONMENTAL, SOCIAL AND SAFETY PERFORMANCE

client:	TRUenergy
project:	Groundwater Modelling Assessment Modelling Report - Ash Ponds Tallawarra Lands, Yallah, NSW
title:	MODELLED GROUNDWATER AMMONIUM CONCENTRATIONS WITH DEVELOPMENT - 100 YEAR SIMULATION RESULTS (2097)
project no:	ENAUWOLL04009AE-R03
figure no:	FIGURE 44

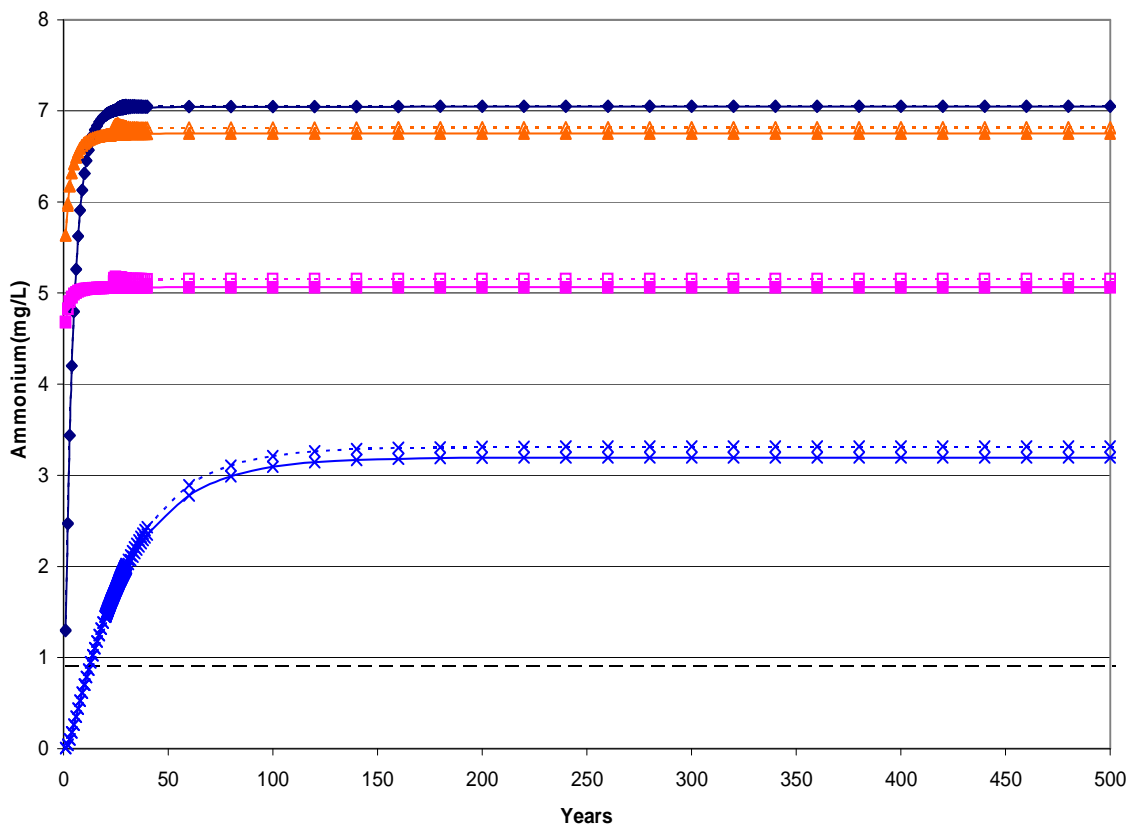
Simulated Arsenic Concentrations - Ash Pond 1 and 2 Area

ANZECC Marine
Trigger Value:
0.0023 mg/L



Simulated Ammonium Concentrations - Ash Pond 1 and 2 Area

ANZECC Marine
Trigger Value:
0.91 mg/L (at pH 8.0)



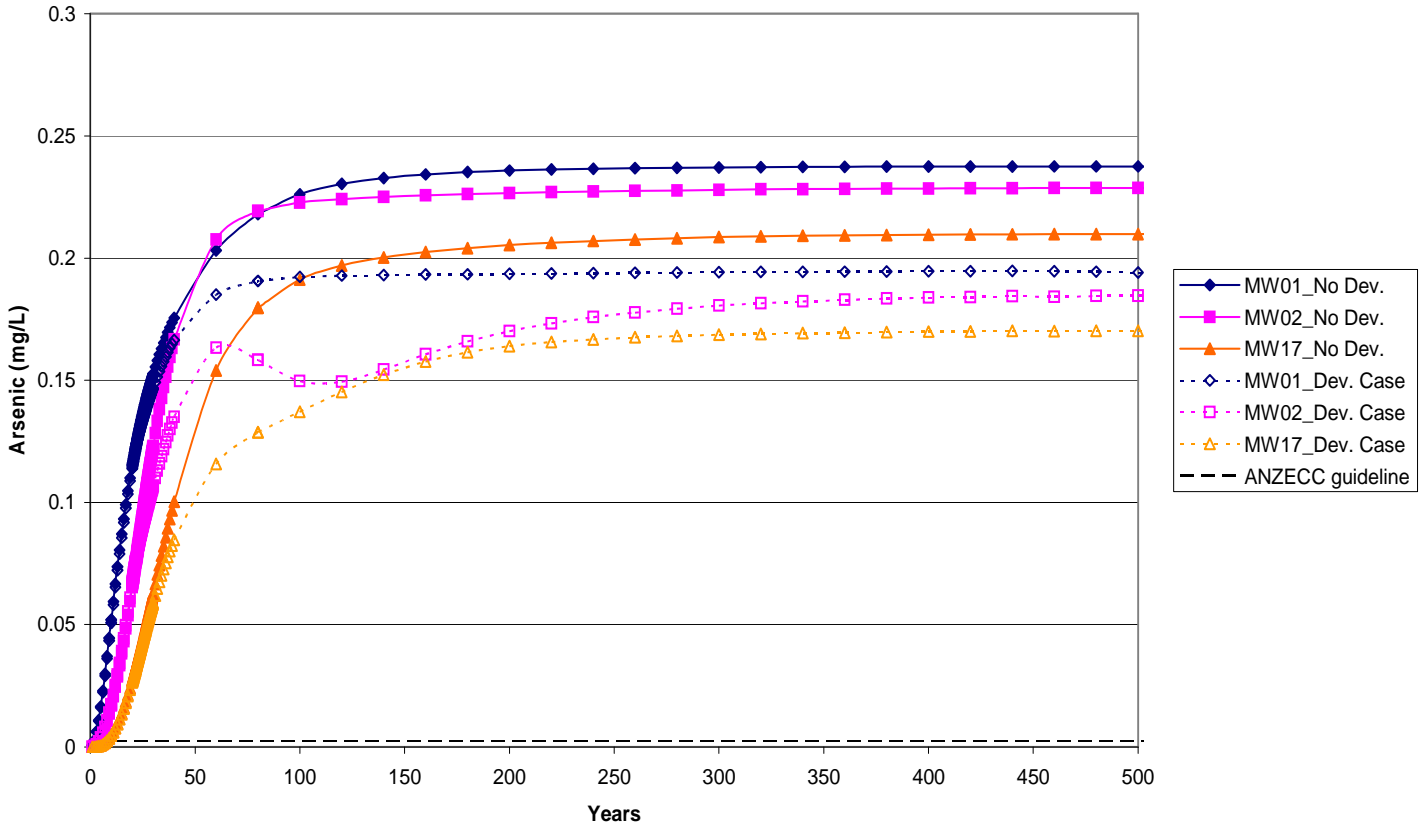
drawn	CDC
approved	PT
date	1 March 2012
scale	NA
original size	A4



client:	TRUenergy
project:	Groundwater Modelling Assessment Modelling Report - Ash Ponds Tallawarra Lands, Yallah, NSW
title:	MODELLED ARSENIC AND AMMONIUM CONCENTRATIONS - ASH POND 1 AND 2 AREA
project no:	ENAUWOLL04009AE-R03
figure no:	FIGURE 45

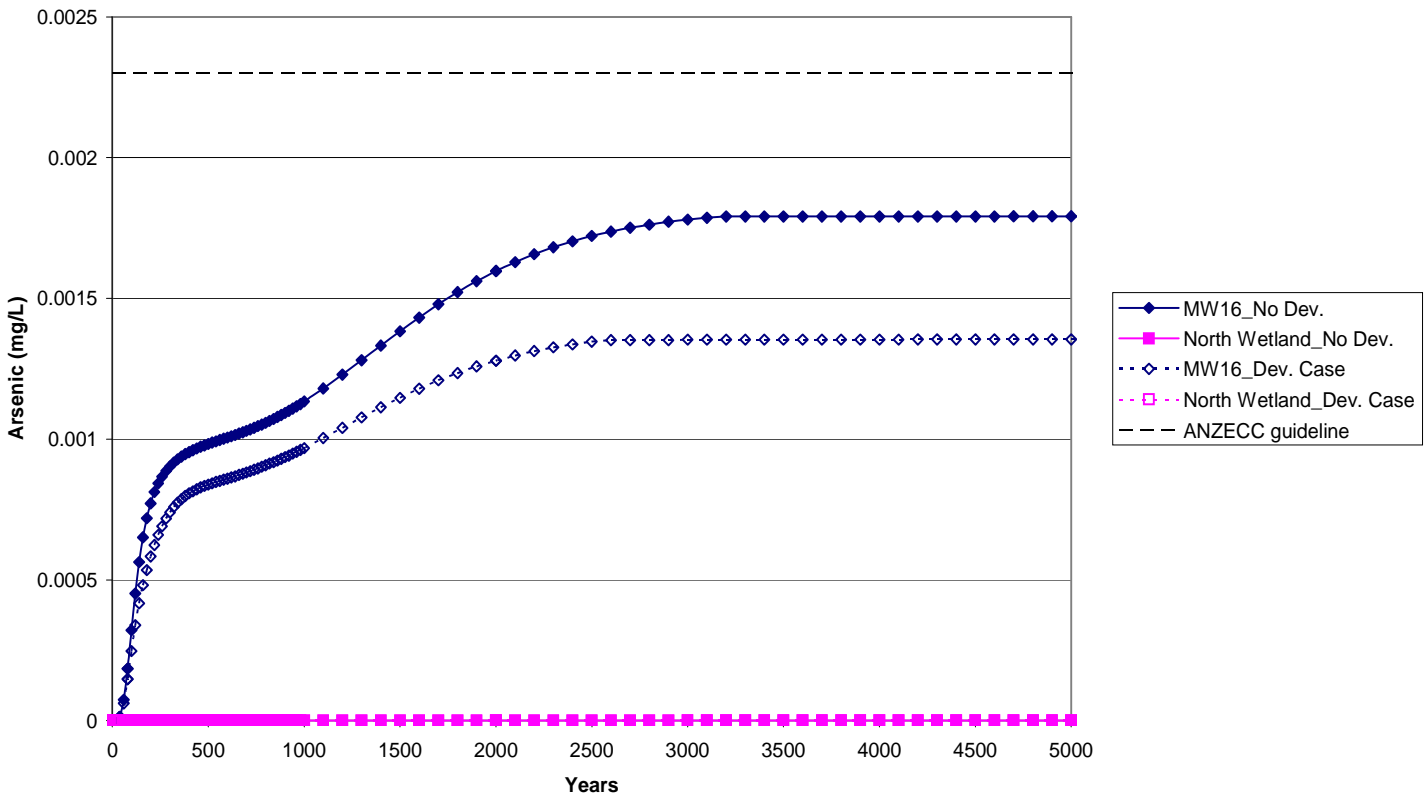
Simulated Arsenic Concentrations - Ash Pond 3 Bund Wall and East

ANZECC Marine
Trigger Value:
0.0023 mg/L



Simulated Arsenic Concentrations - Further East of Ash Pond 3

ANZECC Marine
Trigger Value:
0.0023 mg/L



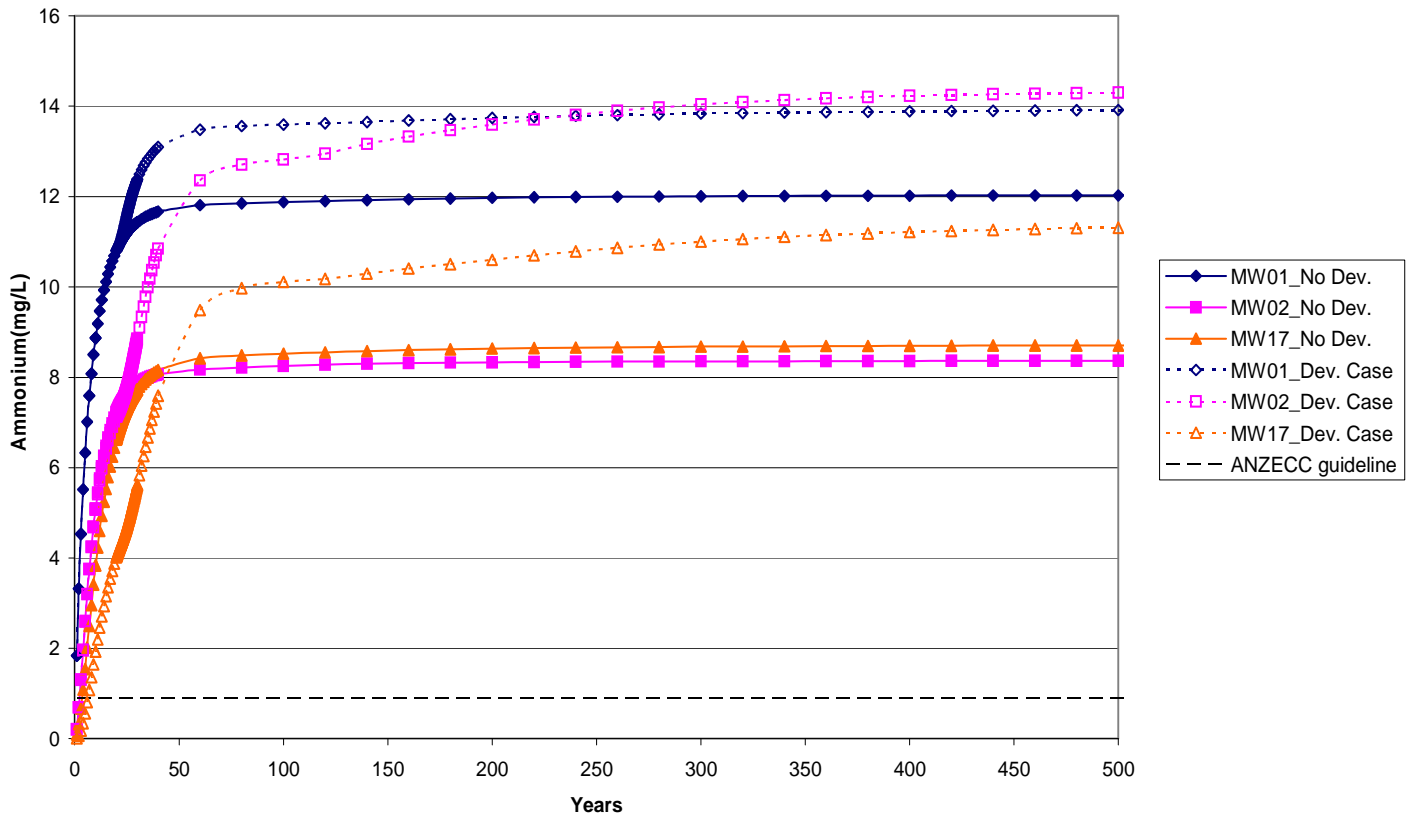
drawn	CDC
approved	PT
date	1 March 2012
scale	NA
original size	A4



client:	TRUenergy
project:	Groundwater Modelling Assessment Modelling Report - Ash Ponds Tallawarra Lands, Yallah, NSW
title:	MODELLED ARSENIC CONCENTRATIONS - ASH POND 3 AREA
project no:	ENAUWOLL04009AE-R03
figure no:	FIGURE 46

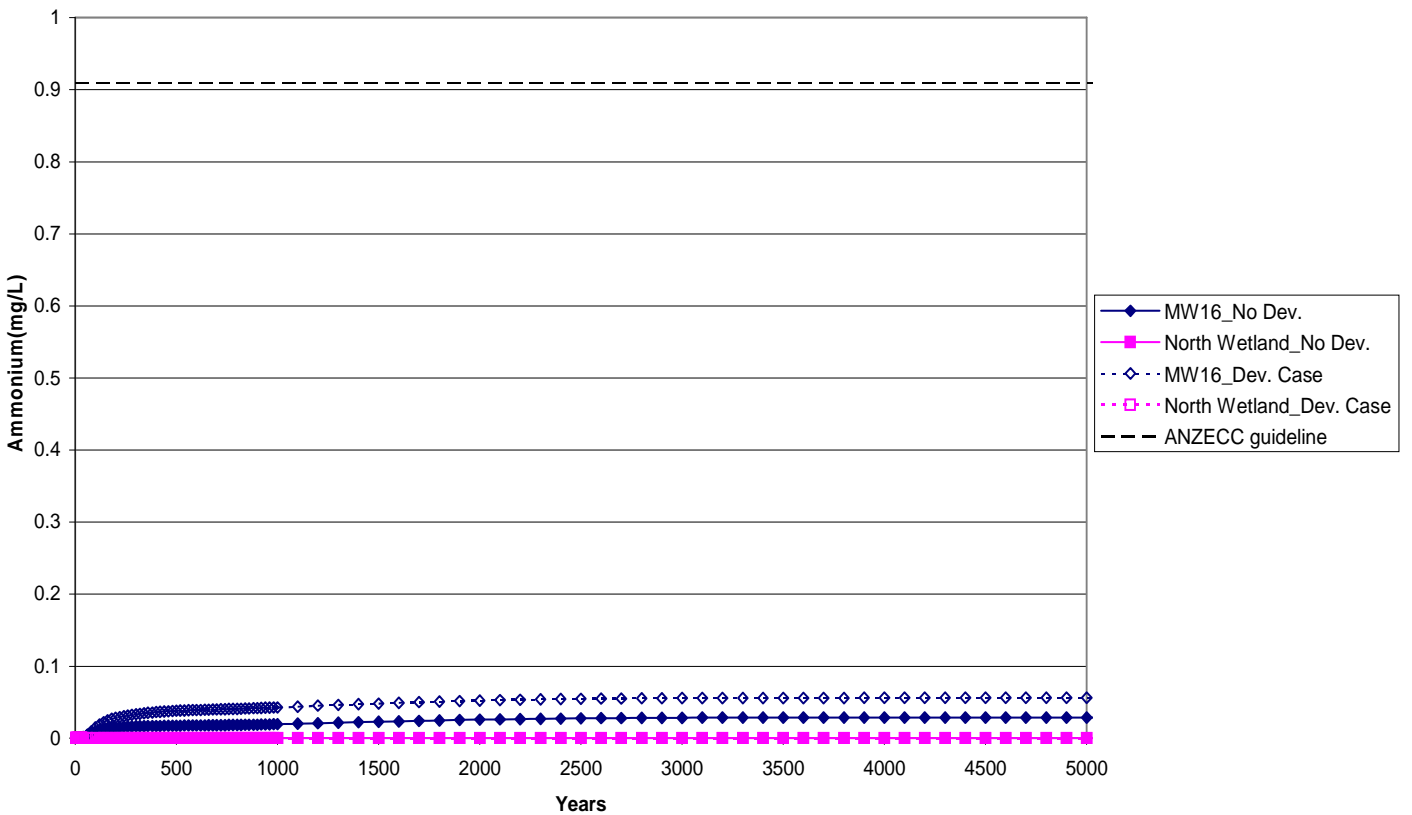
Simulated Ammonium Concentrations - Ash Pond 3 Bund Wall and East

ANZECC Marine
Trigger Value:
0.91 mg/L (at pH 8.0)



Simulated Ammonium Concentrations - Further East of Ash Pond 3

ANZECC Marine
Trigger Value:
0.91 mg/L (at pH 8.0)



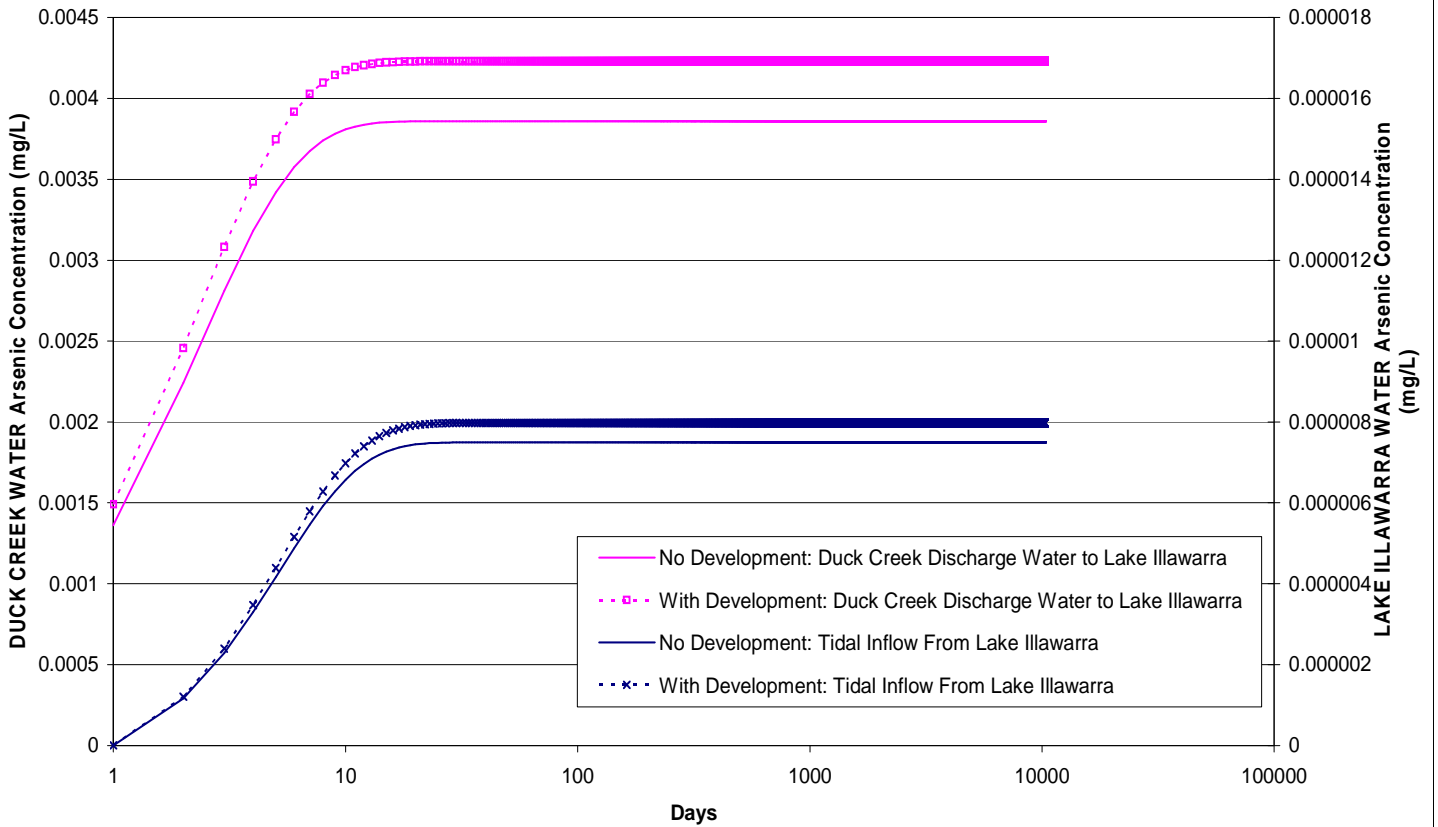
drawn	CDC
approved	PT
date	1 March 2012
scale	NA
original size	A4



client:	TRUenergy	
project:	Groundwater Modelling Assessment Modelling Report - Ash Ponds Tallawarra Lands, Yallah, NSW	
title:	MODELLED AMMONIUM CONCENTRATIONS - ASH POND 3 AREA	
project no:	ENAUWOLL04009AE-R03	figure no: FIGURE 47

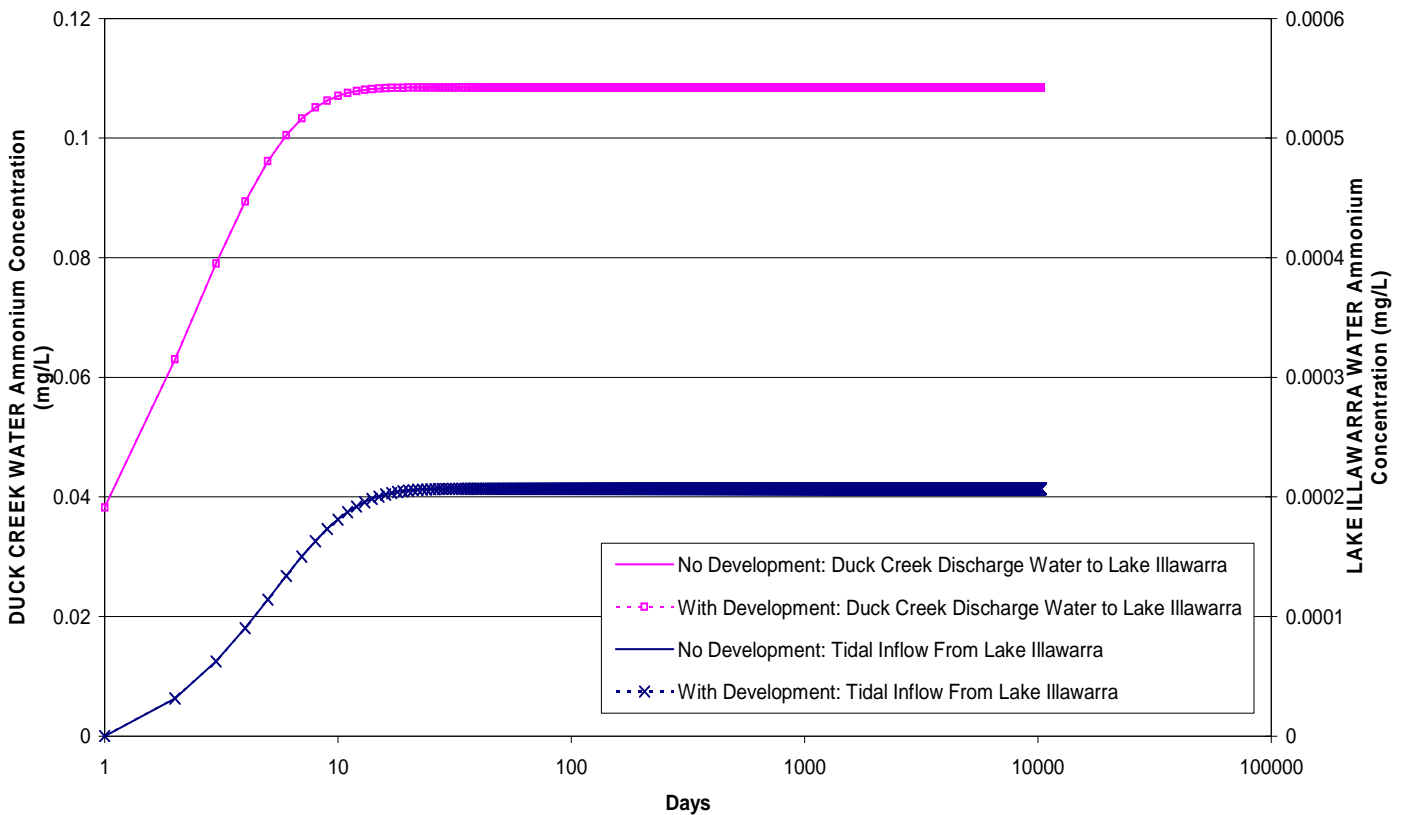
Arsenic Concentrations - Duck Creek and Lake Illawarra

ANZECC Marine
Trigger Value:
0.0023 mg/L



Ammonium Concentrations - Duck Creek and Lake Illawarra

ANZECC Marine
Trigger Value:
0.91 mg/L (at pH 8.0)



drawn	CDC
approved	PT
date	1 March 2012
scale	NA
original size	A4



client:	TRUenergy
project:	Groundwater Modelling Assessment Modelling Report - Ash Ponds Tallawarra Lands, Yallah, NSW
title:	DUCK CREEK AND LAKE ILLAWARRA ARSENIC AND AMMONIUM CONCENTRATIONS - MIXING CALCULATIONS
project no:	ENAUWOLL04009AE-R03
figure no:	FIGURE 48