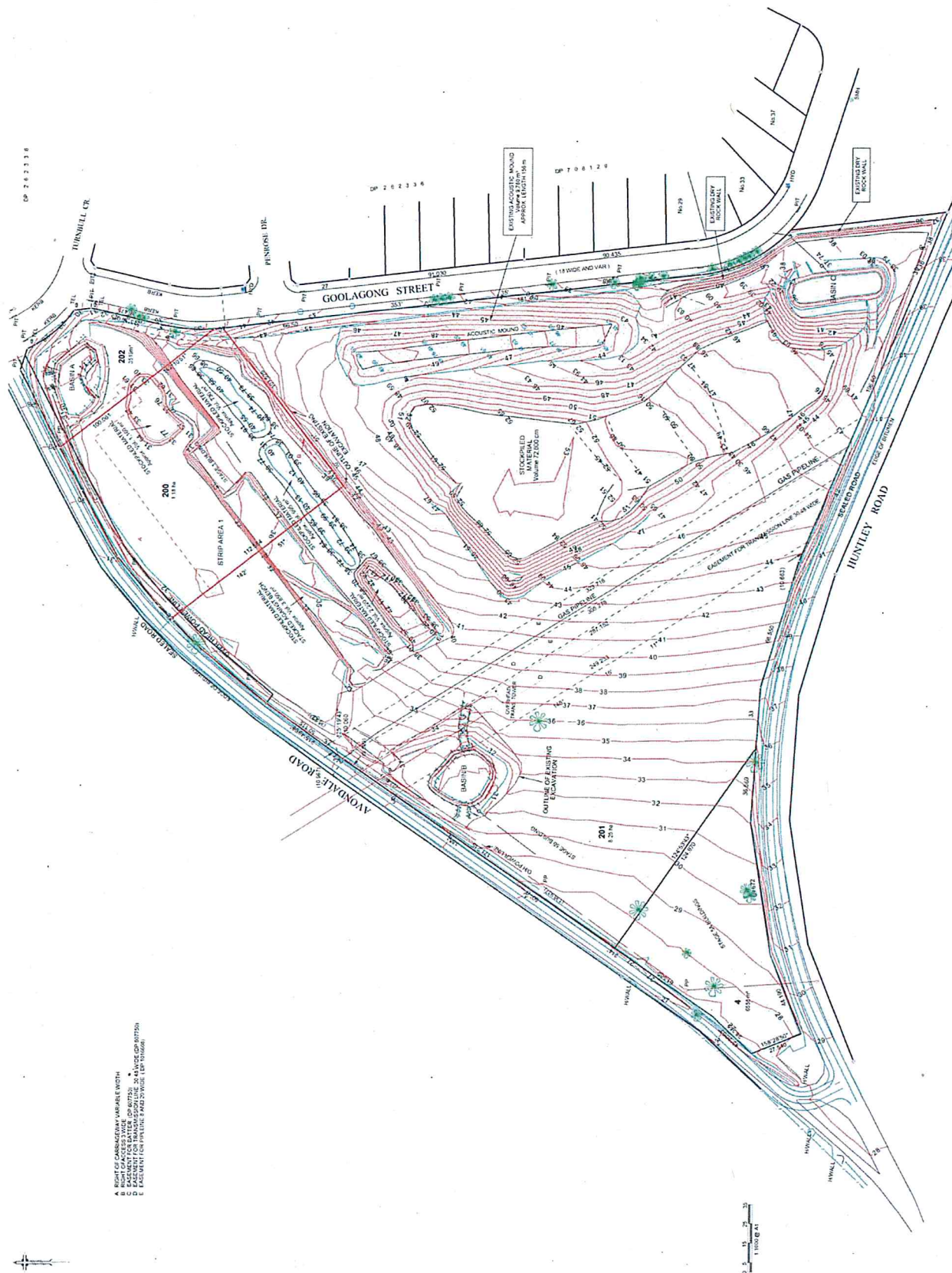


Appendix C – CEH SURVEYORS PLANS

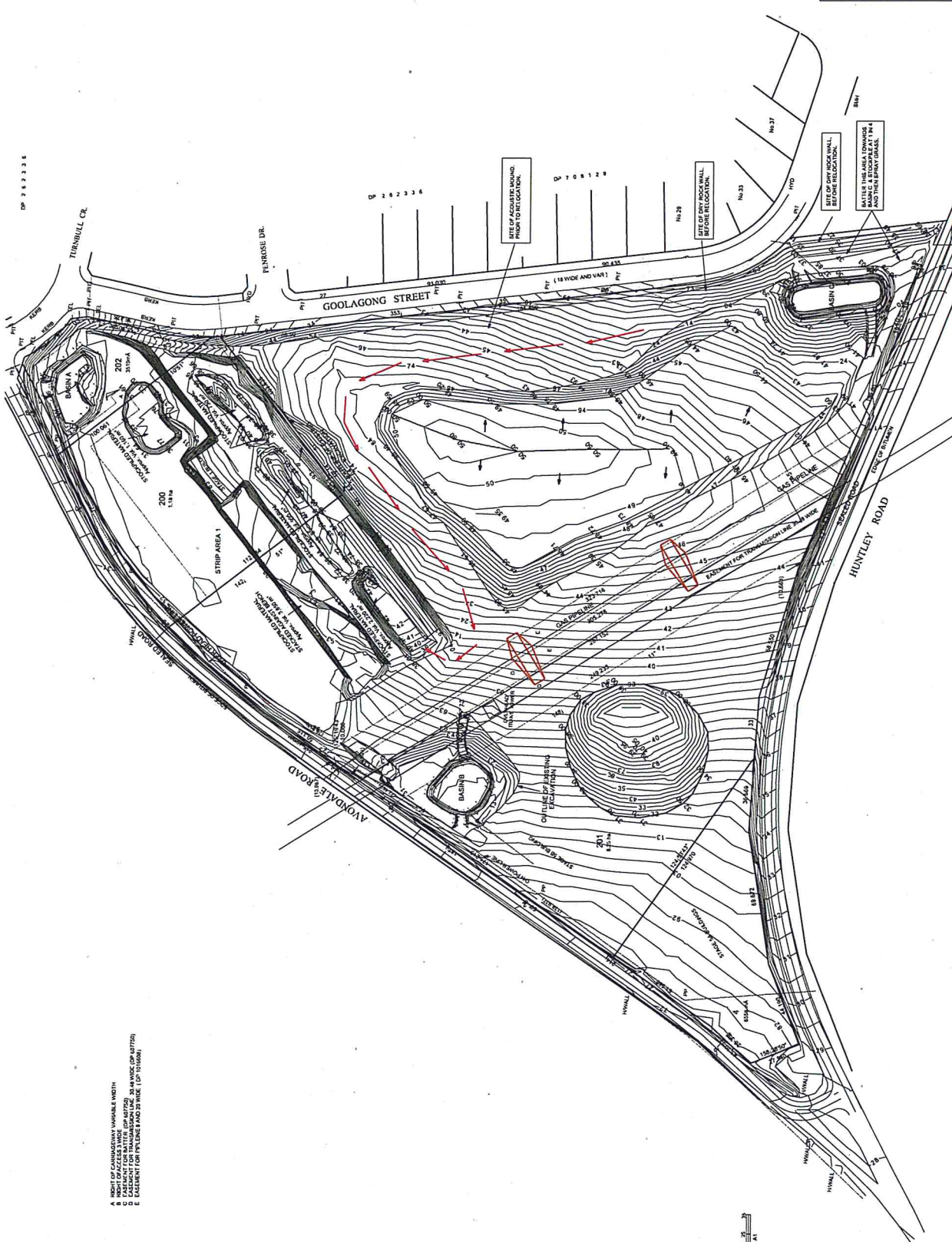
- A1-D208150-PLAN 1
- A1-D208150-PLAN 2
- A1-D208150-PLAN 3



Bruce E. Smith
Registered Surveyor
Surveying and Mapping Information Ltd 2002

Appendix D – PROPOSED SITE MANAGEMENT PLAN

Appendix E – TRUCK MOVEMENT PLANS



Appendix F – MONITORING SCHEDULE

JORDAN MEALEY AND PARTNERS

Consulting Civil-Structural Engineers

Suite 3, 10 Beverley Ave, Warilla
Ph. (02) 42972199 Fax (02) 42966523
P.O. Box 137, Warilla 2528
A.C.N. 075 099 795

ADDITIONAL ILLAWARRA HEALTH PRECINCT SITE MONITORING SCHEDULE

Item	Item to Check	Possible Action Required	Drawing	Testing Method	Frequency	Inspected By	Records
Drainage Channels	1. Scouring	Seed and apply Jute matting	Appendix D	Visual	Weekly & After storms	Contractor	Log sheet
	2. Sediment build up	Remove sediment					
	3. Channel dimensions	Remove sediment					
Rock Check Dams	1. Sediment build up	Remove sediment	SD 5-4	Visual	Weekly & After storms	Contractor	Log sheet
	2. Dam stability	Rebuild rock check dams					
Earth Bridge	1. Condition	Recompact fill	Appendix D	Visual	Weekly & After storms	Contractor	Log sheet
Stabilised Site Access	1. Sediment build up	Remove sediment	SD 6-14	Visual	Weekly & After storms	Contractor	Log sheet
	2. Condition	Relay aggregate and cattle grid					
Stockpiles	1. Vegetation growth	Seed if required	SD 4-1	Visual	Weekly & After storms	Contractor	Log sheet
	2. Stability	Reduce bank slope					
Sediment Fences	1. Sediment build up	Remove sediment	SD 6-8	Visual	Weekly & After storms	Contractor	Log sheet
Geotextile Inlet Filter	1. Sediment build up	Remove sediment and repair	SD 6-12	Visual	Weekly & After storms	Contractor	Log sheet
Inlet Pit	1. Sediment build up	Remove sediment	Appendix D	Visual	Weekly & After storms	Contractor	Log sheet
Thermometer	1. Temperature	NA	NA	Visual	Daily	Contractor	Log sheet
Wind meter	1. Wind speed	NA	NA	Visual	Daily	Contractor	Log sheet
Wind sock	1. Wind direction	NA	NA	Visual	Daily	Contractor	Log sheet

Appendix G – LOG SHEET

ADDITIONAL ILLAWARRA HEALTH PRECINCT SITE INSPECTION LOG SHEET

[illegible]

Appendix H – MARTENS CONSULTING ENGINEERS INSPECTION AND TEST PLAN

Table 9: Inspection and test plan.

Element	Inspections		Acceptance Criteria	Testing		Inspectorate			Notes / Documentation Required
	Activity	Standard		Method	Freq.	SUB	CON	ENG	
Sediment Fences	1. Check accumulation of sediment and condition of all fences. 2. Remove sediment as required.	Fig SD 6-8	< 30 % design capacity is lost to accumulated sediment.	Visual	Weekly Storms		X		Annotate / complete site SWMP log-sheet.
Sediment Basins	1. Check inlet points for scour and repair as required. 2. Check decant and outlet structure for blockages and operation. 3. Check weir and spillway condition. Repair as required. 4. Re-use water for dust control as required. 5. Add flocculent (eg. gypsum at 32kg/100m ³) evenly over entire surface of pond at completion of storm event. 6. Decant after minimum 36 hours. 7. Remove accumulated sediment in sediment storage zone when 50 % capacity has been exhausted.	Attach. D Fig SD 6-4	1. No visible scour on inlet(s), weir, spillway. 2. Decant and outlet structures are not blocked and are functional. 3. Discharge when suspended solids < 50 mg/L (determine by water testing or when submerged 50 mm disk is clearly visible at > 30 cm depth). 4. Sediment storage zone capacity > 50 %.	Visual Test	Storms		X		Annotate / complete site SWMP log-sheet noting flocculent used and application rate and period (in hours) between flocculent addition and discharge. Note any water re-use activities. Flocculent application rate may be varied by contractor provided acceptance criteria are met. All variations to be noted in SWMP log-sheet.
Earth Banks	Check condition of banks and repair as required.	Fig SD 5-6	Bed and banks are eroded.	Visual	Weekly Storms		X		Annotate / complete site SWMP log-sheet.
Overland Flow Paths	Check condition of reinforced overland flow paths and repair as required.	Fig SD 5-7	Topsoil > 75 mm deep. Jute matting / other lining is secure and covers full extent of overland flow path.	Visual	Weekly		X		Annotate / complete site SWMP log-sheet.
Check Dams	Check condition of check dams and repair as required. Remove sediment as required.	Fig SD 5-4	Check dam is stable. < 30 % design capacity is lost to accumulated sediment.	Visual	Weekly Storms		X		Annotate / complete site SWMP log-sheet.

Element	Inspections		Testing		Inspectorate			Notes / Documentation Required
	Activity	Standard	Acceptance Criteria	Method	Freq.	SUB	CON	ENG
Energy Dissipaters	Check condition of energy dissipater and repair as required.	Fig SD 5-8	Extent and rock cover in accordance with SWMP design specifications.	Visual	Weekly Storms		X	Annotate / complete site SWMP log-sheet.
Stabilised Site Access	Ensure dimensions and aggregate are in place and drainage is adequate.	Fig SD 6-14	Water doesn't accumulate within access point. Aggregate will be adequately clean to prevent sediment generation.	Visual	Weekly		X	Annotate / complete site SWMP log-sheet.
Straw Bales	Ensure bale condition and location are acceptable. Remove any accumulated sediment.	Fig SD 6-7	Bale has not bio-degraded. Bale in original location. < 30 % design capacity is lost to accumulated sediment.	Visual	Weekly		X	Annotate / complete site SWMP log-sheet.
Inlet Pit Filter Socks	Remove accumulated sediment and litter. Repair / replace damaged filters.	Fig SD 6-11	Filter is undamaged and no sediment is accumulated.		Weekly Storms		X	Annotate / complete site SWMP log-sheet.
Revegetation	Undertake revegetation on completed levels as required.	Sub-contractor to specify	> 90% cover achieved	Visual	Final surface	X		Annotate / complete site SWMP log-sheet. Sub-contractor work docket / order.
Dust Monitoring	Undertake dust monitoring at each of the monitoring locations.	NSW EPA Criteria	< 4 g/m ³ /month	Lab	Start-up Monthly			X Engineer to install dust monitoring gauges. Surveyor to survey location. Issue monitoring note to contractor together with laboratory results.
Rainfall Monitoring	Collect daily rainfall data from site rain gauge at 9am. Empty rain gauge at 9am daily.	Nil	Nil	Visual	Daily		X	Annotate / complete site SWMP log-sheet.

Element	Inspections		Testing		Inspectorate			Notes / Documentation Required
	Activity	Standard	Acceptance Criteria	Method	Freq.	SUB	CON	ENG
SWMP Audit 1	Confirm placement of sediment fences and need for further fencing	Fig SD 6-8	Appropriate coverage and installation.	Visual	After sediment fence install			W
SWMP Audit 2	Confirm basins bund footings. Issue notice of outstanding works for any incomplete	Attach. D	Elements are installed and operational in accordance with this SWMP.	Visual	After all excavation			H
SWMP Audit 3	Confirm completion of sediment basins. Issue notice of outstanding works for any incomplete	Attach. D	Elements are installed and operational in accordance with this SWMP.	Visual	After construct.			H
SWMP Audit 4	Confirm construction of overland flow paths and other erosion control structures. Issue notice of outstanding works for any incomplete	Attach. D	Elements are installed and operational in accordance with this SWMP.	Visual	After all SWMP items install			H
SWMP Audit 5	2 weekly inspection by engineer to audit site operations	Attach. D	Elements are installed and operational in accordance with this SWMP.	Visual	2 weeks			W
SWMP Audit 6	Inspection by engineer to audit site operations following major rainfall event (> 50 mm/day)	Attach. D	Elements are installed and operational in accordance with this SWMP.	Visual	Storm			W
Works as Executed Plan (WAE)	Surveyor to prepare works as executed plan	SWMP	Design levels are in accordance with this SWMP or as modified by project engineer.	Survey	On completion	X		
Certification	Engineer to inspect site and issue certification of SWMP works as complete on completion of earthworks and site stabilisation and issue of WAE	SWMP	Site is stable and design surfaces are revegetated.	Visual	On completion			W
Legend:	SUB – Sub-contractor X – Work activity		CON – Principal Contractor S – Surveillance	ENG – Supervising Engineer W – Witness Point		H – Hold Point		

Appendix I – MARTENS CONSULTING ENGINEERS SITE LOG-SHEET

Appendix J – MARTENS CONSULTING ENGINEERS SOIL TEST DATA

Table 1: Soil test data.

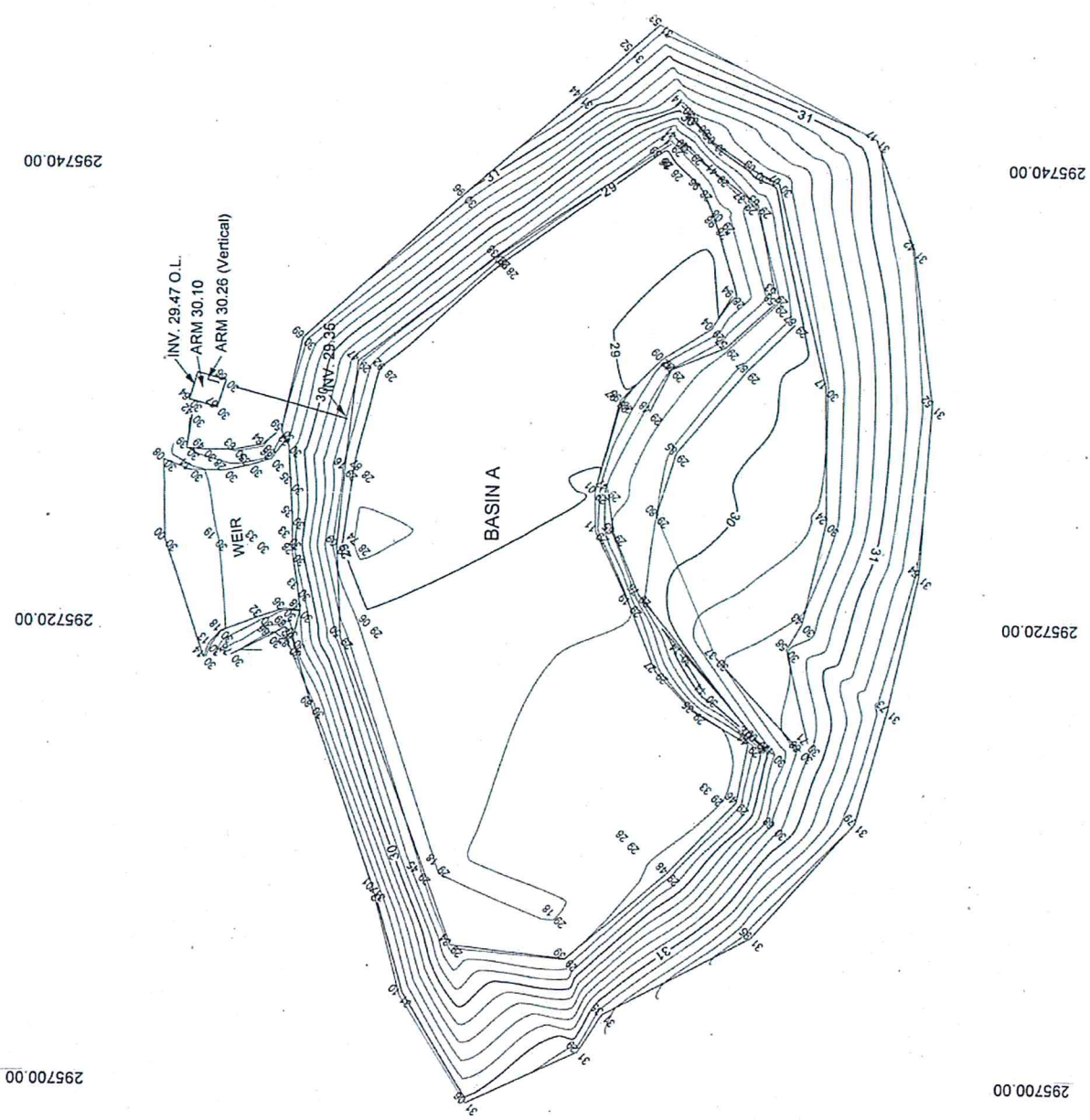
Element	MA1	MA2
Clay % ¹	32/23	11/10
Silt % ¹	21/24	13/10
Fine Sand % ¹	43/43	29/30
Coarse Sand & % ¹	4/5	22/25
Gravel % ¹	0/0	25/25
Dispersion %	32	52
Organic Carbon %	1.00	0.26
K-factor	0.043	0.033
Rating	High	Moderate
Dispersion Fraction x (Clay + Silt/2)	13.6	9.1
Soil Type ¹	D	C

Notes

1. Type D soils are if Dispersion Fraction x (Clay + Silt/2) > 10.



Appendix K – CEH SEDIMENT BASIN SURVEYS & CERTIFICATION



CEH - CRAVEN, ELLISTON & HAYES (DAPTO) PTY. LTD.
 CONSULTING LAND, ENGINEERING AND MINING SURVEYORS, TOWN PLANNERS
 'THE LINK' 44 BAAN BAAN STREET DAPTO NSW 2530
 PHONE 02 42 014306 FAX 02 42 015243

WORK AS EXECUTED SURVEY - BASIN A
 AVONDALE ROAD, PENROSE
 For LAVIE DEVELOPMENTS PTY LTD

AS
 B.E. 103 9001

SURVEYOR	B.E.S./J.R.	DATE	REV	COMMENT
DRAWN	B.E.S.	7/03/2012	A	
CHECKED	B.E.S.			
SURVEY FILE	D208150-WAE-PONDS			
FILE NAME:	D208150-WAE-BASIN-A			

DRAWING No.
A3-D208150-WAE
 SCALE 1:200
 Sheet 1 of 2 Sheets

295750.00

295775.00

295800.00
6178575.00

6178575.00

6178550.00

6178525.00

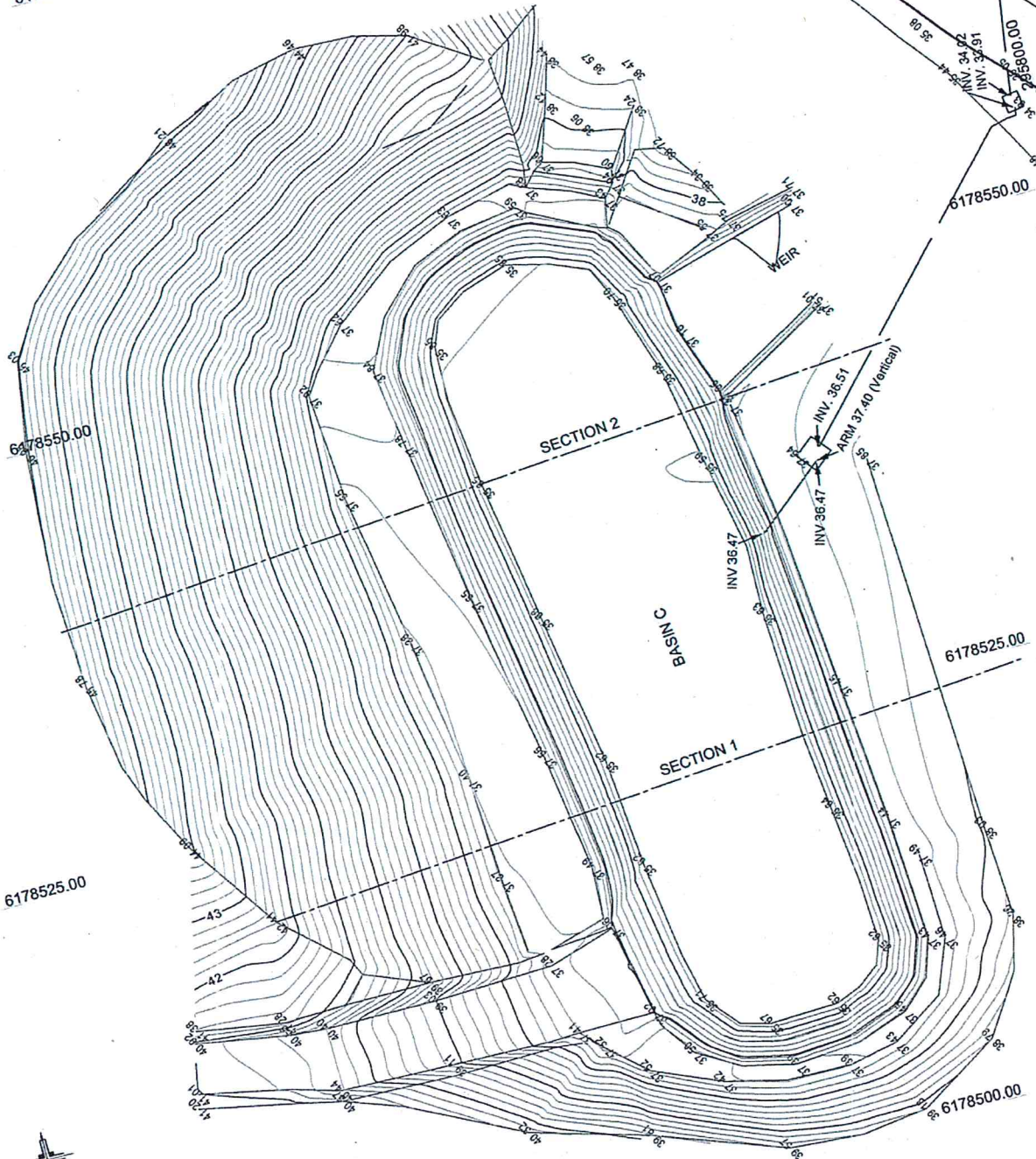
6178525.00

6178500.00

6178500.00

295750.00

295775.00



DRAWING No.	A3-D208150-WAE-C
SCALE	1:250
Sheet 1 of 1 Sheets	
SURVEYOR	B.E.S./J.R.
DATE	4/04/2012
REV	B. ADDITIONAL INVERTS SHOWN 16/04/2012
COMMENT	
WORK AS EXECUTED SURVEY - BASIN C	AVONDALE ROAD, PENROSE
For LA VIE DEVELOPMENTS PTY LTD	
CEH	CRAVEN, ELLISTON & HAYES (DAPTO) PTY. LTD.
CONSULTING LAND, ENGINEERING AND MINING SURVEYORS, TOWN PLANNERS	A.B.N. 61 006 544 024
PHONE 02 42 614398	FAX 02 42 615243



Craven Elliston & Hayes (Dapto) Pty Ltd

ABN 81 056 544 604

Registered Surveyors

22nd March, 2012

Our Ref: D208150

LA VIE DEVELOPMENTS PTY LTD
Mariners Court
44-50 McElhone Street
WOOLLOOMOOLOO NSW 2011

Attention:- Dr. Brett Gooley

Re: Sediment Control Basins 'A' and 'B' - Work as Executed Survey.

Dear Sir,

Acting under your instructions we have completed work as executed surveys on the two completed basins located on the Illawarra International Health Precinct project at Avondale Road, Penrose.

The two basins are identified on the design plans prepared by Martens & Associates Pty Ltd.

I certify that the volumes tabulated below are correct and have been calculated from the work as executed surveys completed on 7th March 2012.

	Units	Basin 'A'	Basin 'B'
Settling Zone Capacity	m ³	447	414
Settling Zone Depth	mm	860	640
Sediment Storage Zone	m ³	125	282
Total Basin Capacity (to overflow weir invert)	m ³	572	696

Yours faithfully

Craven, Elliston & Hayes (Dapto) Pty Ltd

Bruce E. Smith M.I.S. (NSW) MSSSI
Surveyor Registered Under
The Surveying and Spatial Information Act 2002

- Torrens and Strata Subdivisions
- Volumetric Surveys
- Residential Surveys
- Mine surveyors
- Land Development
- Project Management
- Commercial Surveys
- Industrial Surveys

44 Baan Baan Street, PO Box 212,
Dapto N.S.W, 2530
Ph: +61 4261 4366
Fax +61 4261 5243
Email: cehdapto@cehdapto.com
www.cehdapto.com





Craven Elliston & Hayes (Dapto) Pty Ltd

ABN 81 056 544 604

Registered Surveyors

10th April, 2012

Our Ref: D208150

LA VIE DEVELOPMENTS PTY LTD
Mariners Court
44-50 McElhone Street
WOOLLOOMOOLOO NSW 2011

Attention:- Dr. Brett Gooley

Re: Sediment Control Basin 'C' - Work as Executed Survey.

Dear Sir,

Acting under your instructions we have completed work as executed survey on the completed basin 'C' located on the Illawarra International Health Precinct project at Avondale Road, Penrose.

The basin is identified on the design plans prepared by Martens & Associates Pty Ltd.

I certify that the volumes tabulated below are correct and have been calculated from the work as executed surveys completed on 4th April 2012.

	Units	Basin 'C'
Settling Zone Capacity (RL37.0 - RL36.4)	m ³	413
Settling Zone Depth	mm	600
Sediment Storage Zone (to RL36.4)	m ³	421
Total Basin Capacity (to RL37.0 o/flow weir invert)	m ³	834

Yours faithfully

Craven, Elliston & Hayes (Dapto) Pty Ltd

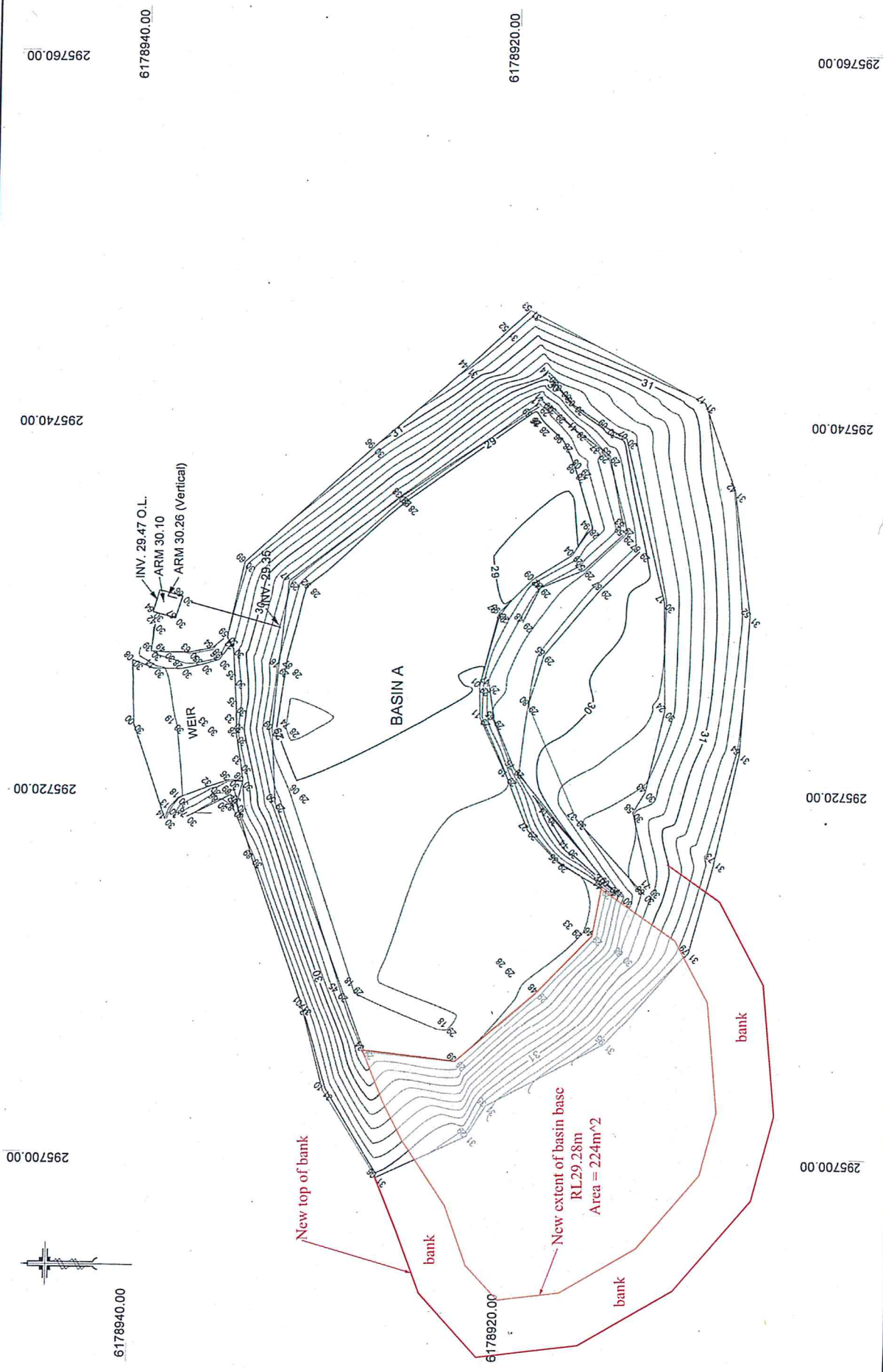
Bruce E. Smith M.I.S. (NSW) MSSSI
Surveyor Registered Under
The Surveying and Spatial Information Act 2002

- Torrens and Strata Subdivisions
- Volumetric Surveys
- Residential Surveys
- Mine surveyors
- Land Development
- Project Management
- Commercial Surveys
- Industrial Surveys

44 Baan Baan Street, PO Box 212,
Dapto N.S.W, 2530
Ph: +61 4261 4366
Fax +61 4261 5243
Email: cehdapto@cehdapto.com
www.cehdapto.com



Appendix L – SEDIMENT BASIN A MODIFICATION PLAN



CEH CRAVEN, ELLISTON & HAYES (DAPTO) PTY. LTD.
A.B.N. 81 006 644 604
 CONSULTING LAND, ENGINEERING AND MINING SURVEYORS, TOWN PLANNERS
 'THE LINK' 44 BAAN BAAN STREET DAPTO NSW 2530
 PHONE 02 42 614356 FAX 02 42 615243

WORK AS EXECUTED SURVEY - BASIN A
 AVONDALE ROAD, PENROSE
 For LA VIE DEVELOPMENTS PTY LTD

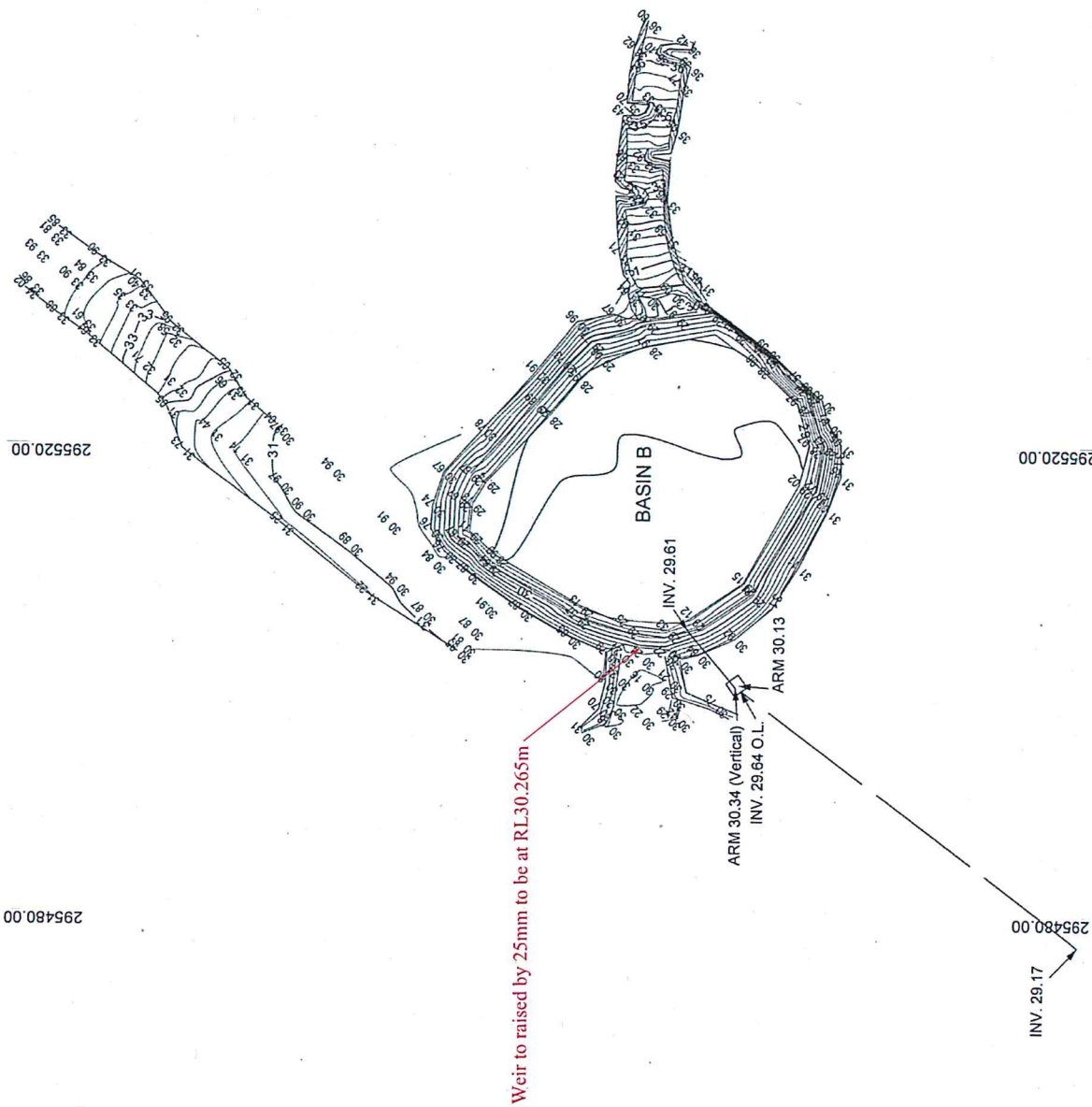
SURVEYOR	B.E.S./J.R.	DATE	REV	COMMENT
DRAWN	B.E.S.	7/03/2012	A	
CHECKED	B.E.S.			
SURVEY FILE	D208150-WAE-PONDS			
FILE NAME:	D208150-WAE-BASIN-A			

DRAWING No.
A3-D208150-WAE

SCALE 1:200

Sheet 1 of 2 Sheets

Appendix M – SEDIMENT BASIN B MODIFICATION PLAN



CRAVEN, ELLISTON & HAYES (DAPTO) PTY. LTD.

CONSULTING LAND, ENGINEERING AND MINING SURVEYORS, TOWN PLANNERS
"THE LINK" 44 BAIN BAAN STREET DAPTO NSW 2530
PHONE 02 42 614366 FAX 02 42 615243



WORK AS EXECUTED SURVEY - BASIN B
AVONDALE ROAD, PENROSE
For LA VIE DEVELOPMENTS PTY LTD

SURVEYOR	B.E.S./J.R.	DATE	REV	COMMENT
DRAWN	B.E.S.	7/03/2012	A	
CHECKED	B.E.S.			
SURVEY FILE	D208150-WAE-PONDS			
FILE NAME:	D208150-WAE-BASIN-B			

DRAWING No.
A3-D208150-WAE

SCALE 1:400
Sheet 2 of 2 Sheets

Appendix N – SEDIMENT BASIN C MODIFICATION PLAN

