ELECTRICAL AND COMMUNICATIONS INFRASTRUCTURE REPORT

for

RIVERWOOD NORTH RESIDENTIAL RENEWAL PROJECT

Prepared by:

SHELMERDINES
Consulting Engineers
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Crows Nest NSW 2065
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Facsimile: 02 9439 8709
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17 December 2010
Job No. 5659E

ELECTRICAL SUPPLY

The electrical infrastructure will require to be upgraded and relocated to meet the maximum demand of the development.

The electrical maximum demand for the development is 3,350kVA which is broken up as follows:–

Phase	No. Units	Stage	Max Demand
Phase 01	68 Units	Stage 01	345kVA
Phase 01	55 Units	Stage 01	280kVA
Phase 01	27 Units	Stage 02	140kVA
Phase 02	177 Units	Stage 01	895kVA
Phase 02	159 Units	Stage 02 and 03	805kVA
Phase 02	175 Units	Stage 04	885kVA
		TOTAL	**3,350kVA**

Initial advice from the Supply Authority, Energy Australia, suggests that the existing substations located within the development will need to be decommissioned and upgraded. The existing Riverwood zone substation and high voltage network is near full capacity.

The existing high voltage network will need to be upgraded to meet the expected electrical load for the development. All new infrastructure for the development is proposed to be underground. It is proposed that the development be served from four padmount substations located within the development adjacent to the buildings.

The above will require confirmation with Energy Australia from our formal application for the new supply.

STREET LIGHTING

New street lighting will be provided and installed to Energy Australia street lighting network standards. All cabling to the proposed street lighting fixtures will be installed underground in dedicated service trenches. The new street lighting fixtures will be chosen to suit the architectural detail of the development.

COMMUNICATION SERVICES

Telephone and Internet

The existing communications cable infrastructure in the existing road system within the development area is providing both telephone and internet services to the existing residential buildings. These services will need to be decommissioned and removed.

It is proposed that multiple underground communications conduits and pit systems be installed throughout the development. The multiple conduit and pit system will allow for the future installation of both copper communications cables and optical fibre communications cables from the available Network Carriers and Service Providers.

Optical Fibre Cable Network

There is an existing optical fibre cable infrastructure near the proposed development. The underground optical fibre cable infrastructure runs along the south side of Washington Avenue from Union Street – Roosevelt Street – Washington Avenue – Belmore Road.

Connection to the fibre optic network will be via the new underground communications conduit and pit system.

Pay TV

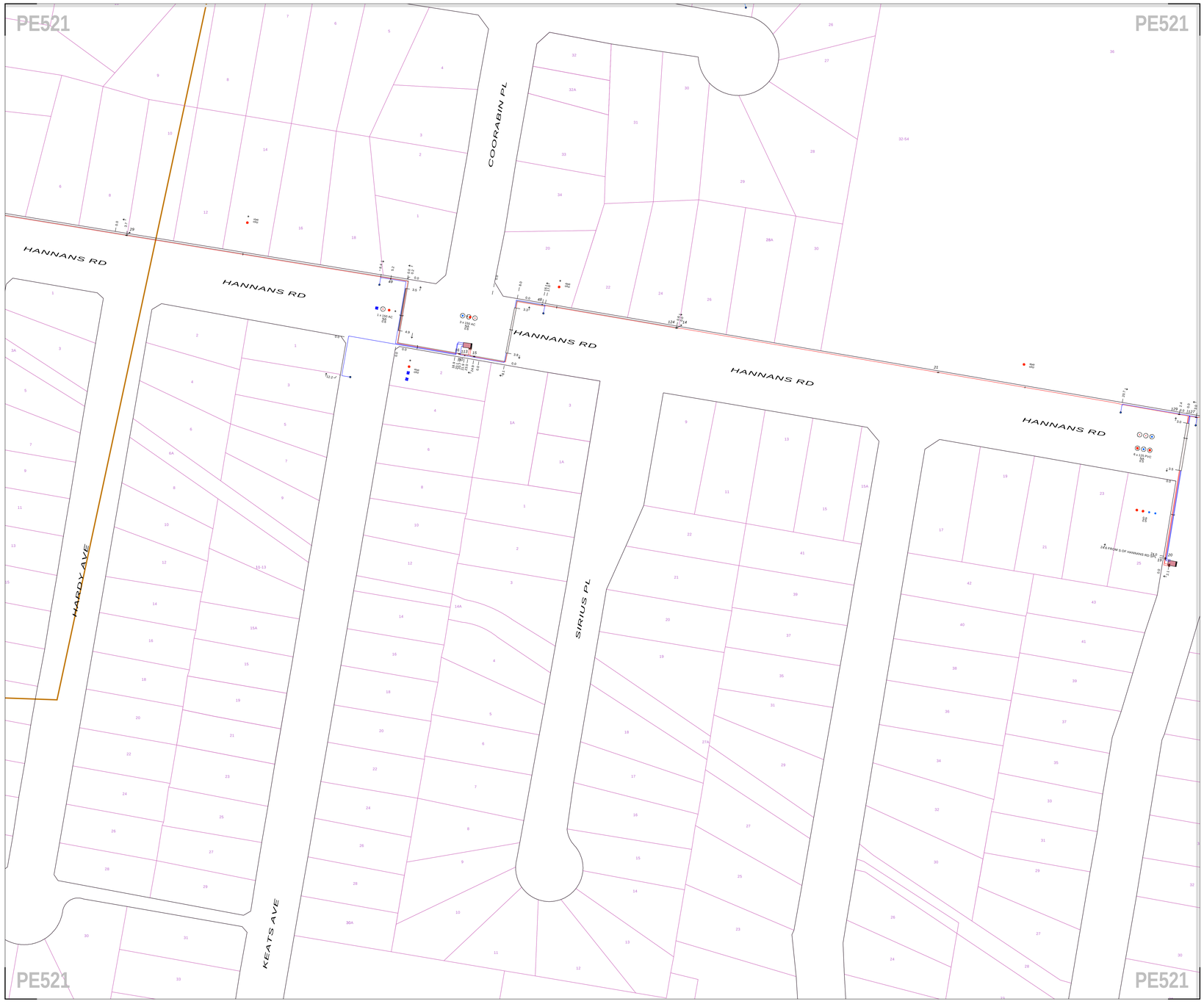
Pay TV is available via two methods, satellite dish or co–axial cable.

These two methods will be investigated during design with the relevant Service Providers.

For cable connection, the multiple conduit and pit system would be extended to each building.

S_19873772_PE5212GMLA0_1.hpgl2

PE521



JOINT DETAIL REPORT

No.... Blk.Pg..... PillCat..... Joint Location.....

Map: PE521

29	642-48	0.700.60

WARNING

EnergyAustralia's plans show the position of assets at the time of installation and may not account for subsequent changes to road alignments, fences or buildings. The plans show no more than the presence or absence of EnergyAustralia assets in the street.
Persons working near electricity networks must exercise care and will be held responsible for any damage caused.
You must excavate by hand or use vacuum excavation to establish the location of EnergyAustralia underground cables and associated assets.
Underground: Working near a cable may result in electric shock even if no contact is made. Any work in the vicinity of any cable should only be performed using safe work methods developed in accordance with the recommendations included in WorkCover Code of Practice for Excavation and WorkCover Guide for Work Near Underground Assets
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Overhead: Do not excavate near poles or towers until the stability of the foundation has been assessed by EnergyAustralia. Cables or earth conductors may be present close to substations, poles or towers. Workers must maintain safe approach distances and follow applicable WorkCover Codes of Practice.
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PE5144	PE2233	PE2434
PE5122	PE5211	PE5212
PE5124	PE5213	PE5214
272G12	272H12	272J12
272G13	272H13	272J13
272G14	272H14	272J14

EA (GSG) GRID

GRID

PE5212GMLA0
Distribution - 19873772
INFORMATION ON THIS PLAN ONLY
VALID FOR 30 DAYS FROM ISSUE DATE
29 Oct 2010 **Page 1 of 1**

N

SCALE 1:502
0 30 metres

EnergyAustralia

A0 MOCS_std_plot

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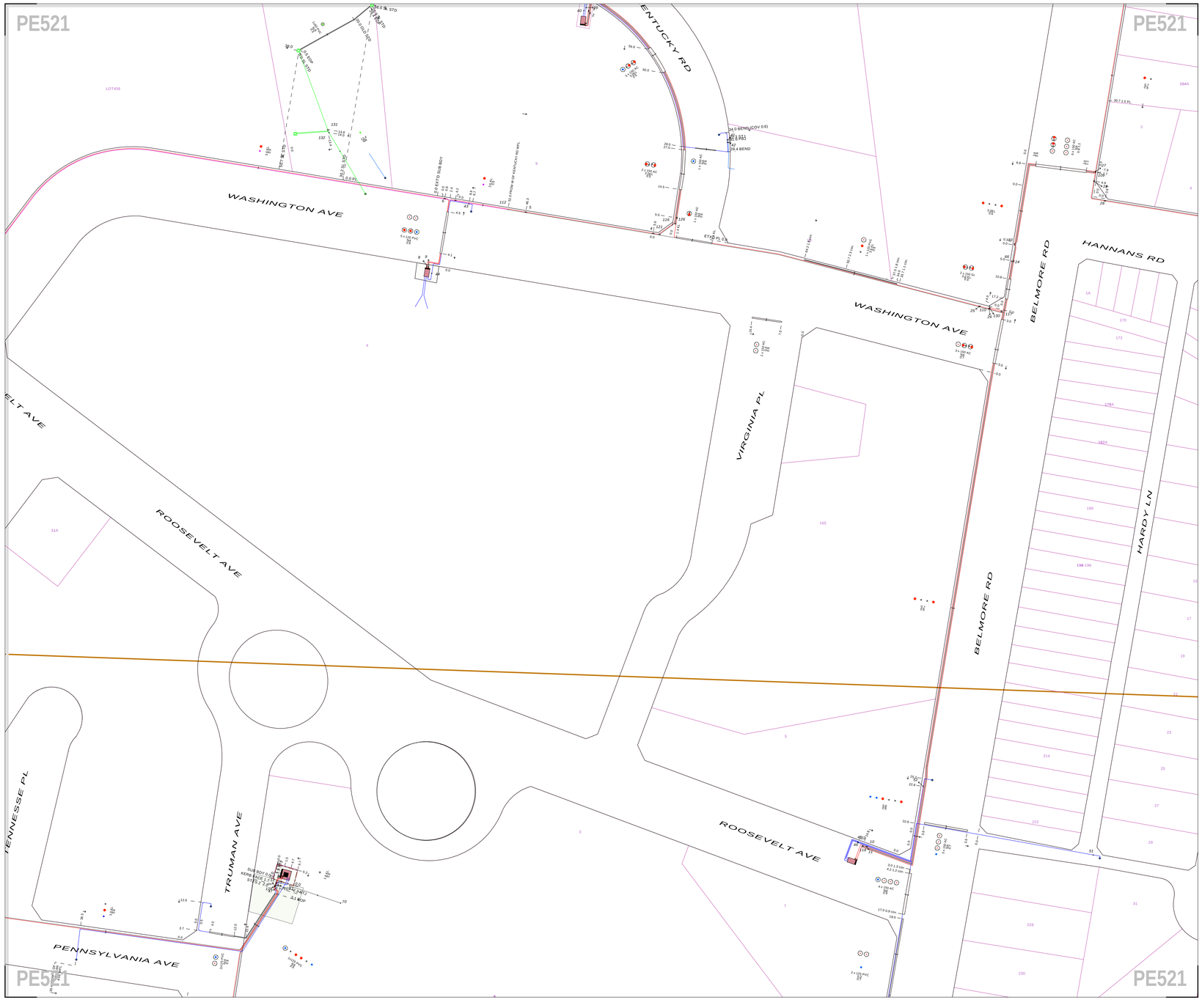

JOINT DETAIL REPORT

Map: PE521

No.	Bk-Pg	Pl/Cvr	Joint Location
1	1080-10	0.90/0.40	0.9 E. of Kiosk. 1.8 N of Kiosk N Wall
2	1080-6	1.20/0.40	1.2 E. of Kiosk. 1.2 N of Kiosk N Wall
4	1069-46	3.70/0.50	
5	594-89	3.60/0.60	
6	1176-38	0.80/0.50	
7	1176-38	0.80/0.60	
8	1168-91	0.50/0.60	0.4 W. of Kiosk EBL.
9	1168-90	0.70/0.60	0.5 W. of Kiosk EBL.
22	642-49	0.60/0.40	
23	987-28	3.10/0.60	
24	1236-55	4.20/0.60	
25			
26	1236-55	4.20/0.60	
27	642-49	0.60/0.40	
28	372-47	0.60/0.60	
39	1069-26	0.40/0.50	0.4 W. of Kiosk EBL. 2.7 N of Kiosk N Wall
40	1080-6	0.80/0.50	0.8 W. of Kiosk EBL. 1.7 N of Kiosk N Wall
41	1081-21	3.20/0.40	
42	886-468	0.60/0.60	
43	1168-83	1.30/0.60	
44	1168-83	2.60/0.60	0.6 E. of Kiosk EBL.
66	1236-55	4.20/0.60	
109	640-78	1.10/0.40	
110	642-32	3.80/0.60	
112	594-89	3.40/0.60	
116	6666-NR		NR
117	6666-NR		NR
121	6666-NR		NR
126	1069-46	2.80/0.50	
130	1236-55	4.20/0.60	
131	2329-67	14.80/0.50	
132	2329-67	14.00/0.50	

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EA (ISG) GRID

PE2344	PE2433	PE2434
PE5122	PE5211	PE5212
PE5124	PE5213	PE5214

GRID

272F12	272G12	272H12
272F13	272G13	272H13
272F14	272G14	272H14

PE5211GMLA0

Distribution - 19873772

INFORMATION ON THIS PLAN ONLY
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29 Oct 2010 **Page 1 of 1**

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SCALE 1:502

0 **30 metres**

EnergyAustralia

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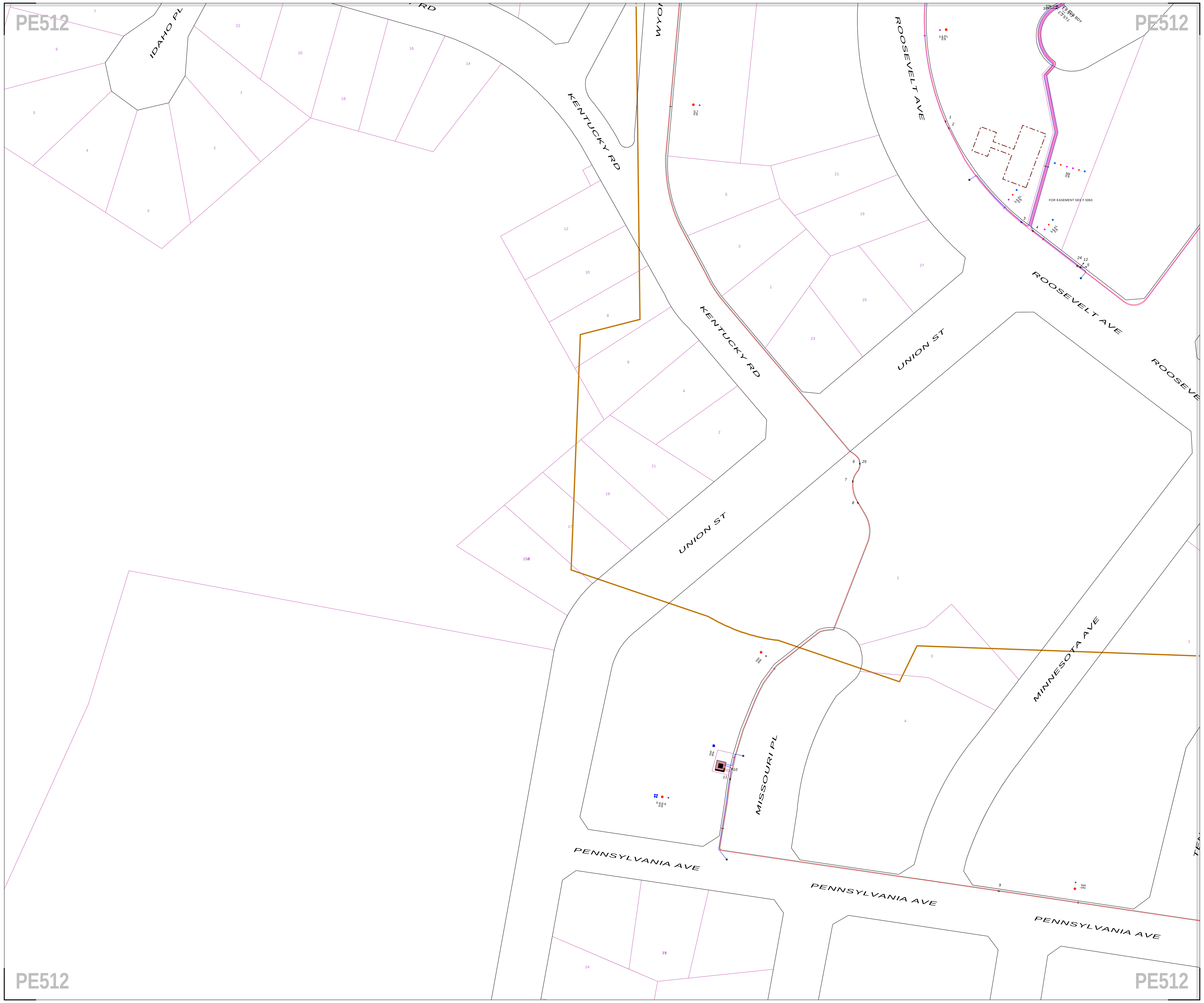

JOINT DETAIL REPORT

No.	Bk-Pg	Pl/Cvr	Joint Location
Map: PE512			
1	877-21	/0.60	11.0 N of wall
2	877-21	/0.60	9.3 N of wall
3	859-29	/0.40	Extension Union St N PL
4	859-29	0.60/0.40	3.5 S of Union St ext. N PL
5	623-35	/0.60	22.0 W of Washington Ave W PL 3.7 KL
6	394-27	99.99/0.60	4.9 S of Union St 0.8 W of Kentucky Rd
7	760-81	6.10/0.70	8.0 S of Union Rd 6.1 W of Kentucky Rd
8	760-81	0.80/0.70	14.0 S of Union St 9.0 W of Kentucky Rd
12	838-91	/0.60	22.0 W of Washington Ave W PL 4.2 KL
24	623-35	/0.60	23.0 W of Washington Ave. WPL 3.7 KL
25	394-27	0.80/0.60	4.9 S of Union St S KL
33	BT05-244	/0.50	1.7M SW OF SUB. SW BDY, 2.9 SE OF SUB.SE BDY
34	BT05-244	/0.50	2.3 SW OF SUB. SW BDY, 3.1 SE OF SUB. SE BDY

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EA (ISG) GRID

PE2344	PE2433	PE2434
PE5122	PE5211	PE5212
PE5124	PE5213	PE5214

GRID

272E12	272F12	272G12
272E13	272F13	272G13
272E14	272F14	272G14

PE5122GMLA0

Distribution - 19873772

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29 Oct 2010 **Page 1 of 1**

N

SCALE 1:502

0 — 30 metres

EnergyAustralia®

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PE5122	PE5211	PE5212
PE5124	PE5213	PE5214

EASTING GRID

272G11	272H11	272J11
272G12	272H12	272J12
272G13	272H13	272J13

GRID

PE2434GMLA0

Distribution - 19873772

INFORMATION ON THIS PLAN ONLY
VALID FOR 30 DAYS FROM ISSUE DATE

29 Oct 2010 **Page 1 of 1**

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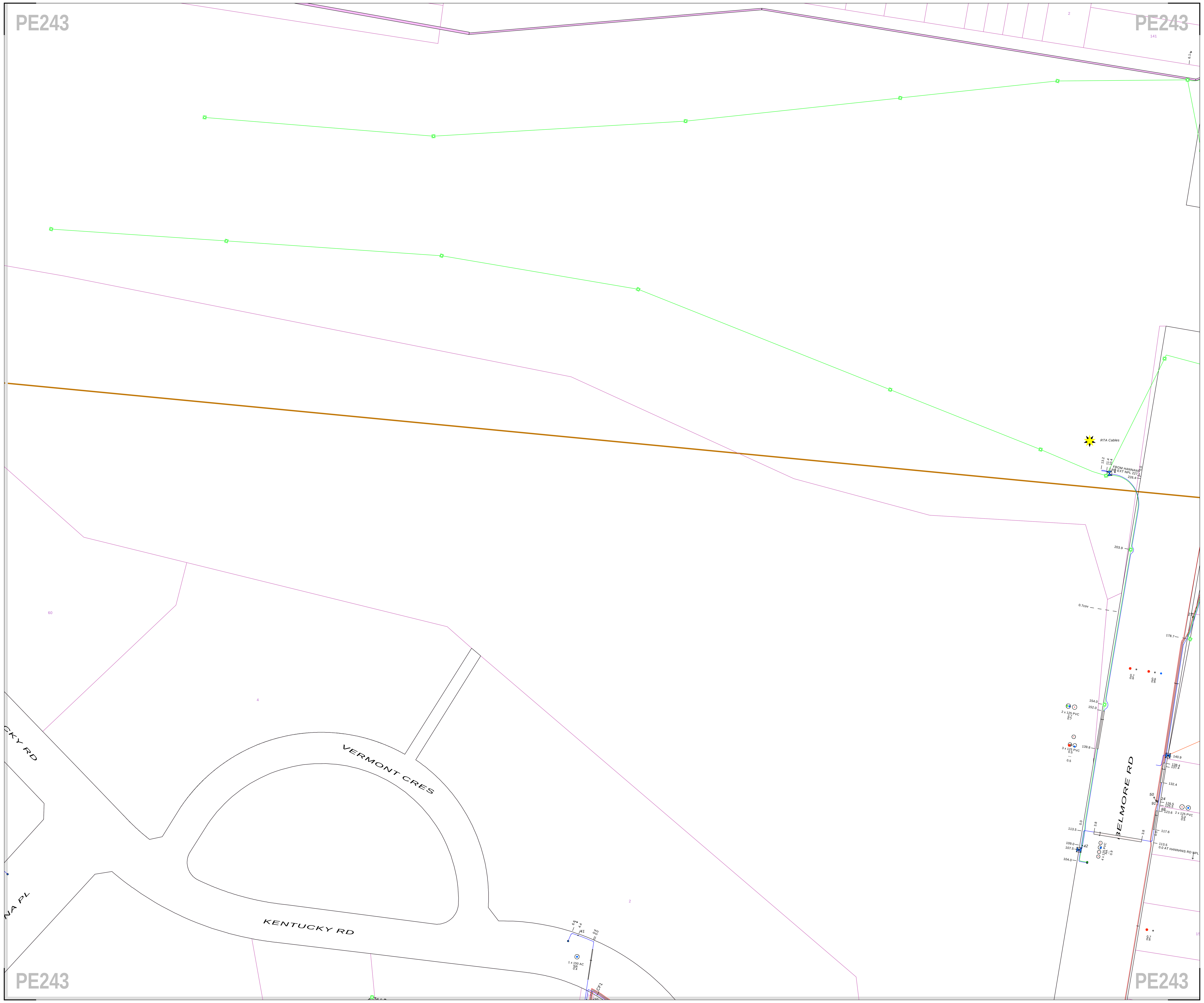
SCALE 1:502

0 30 metres

EnergyAustralia

PE243 - CF1

Ref: G6



JOINT DETAIL REPORT

No.	Bk-Pg	Pl/Cvr	Joint Location
Map: PE243			
23	2208-33	99.99/0.90	185.7 S of N pl SOFALA ST.
24	2208-46	0.70/0.50	
41	1081-23	0.60/0.40	
42	2242-32	0.50/0.50	
50	343-93	0.70/0.60	
88	2208-46	0.70/0.50	
91	343-93	0.70/0.60	

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PE2344	PE2433	PE2434	EA (ISG) GRID
PE5122	PE5211	PE5212	
PE5124	PE5213	PE5214	
272F11	272G11	272H11	GRID
272F12	272G12	272H12	
272F13	272G13	272H13	

PE2433GMLA0

Distribution - 19873772

INFORMATION ON THIS PLAN ONLY
VALID FOR 30 DAYS FROM ISSUE DATE

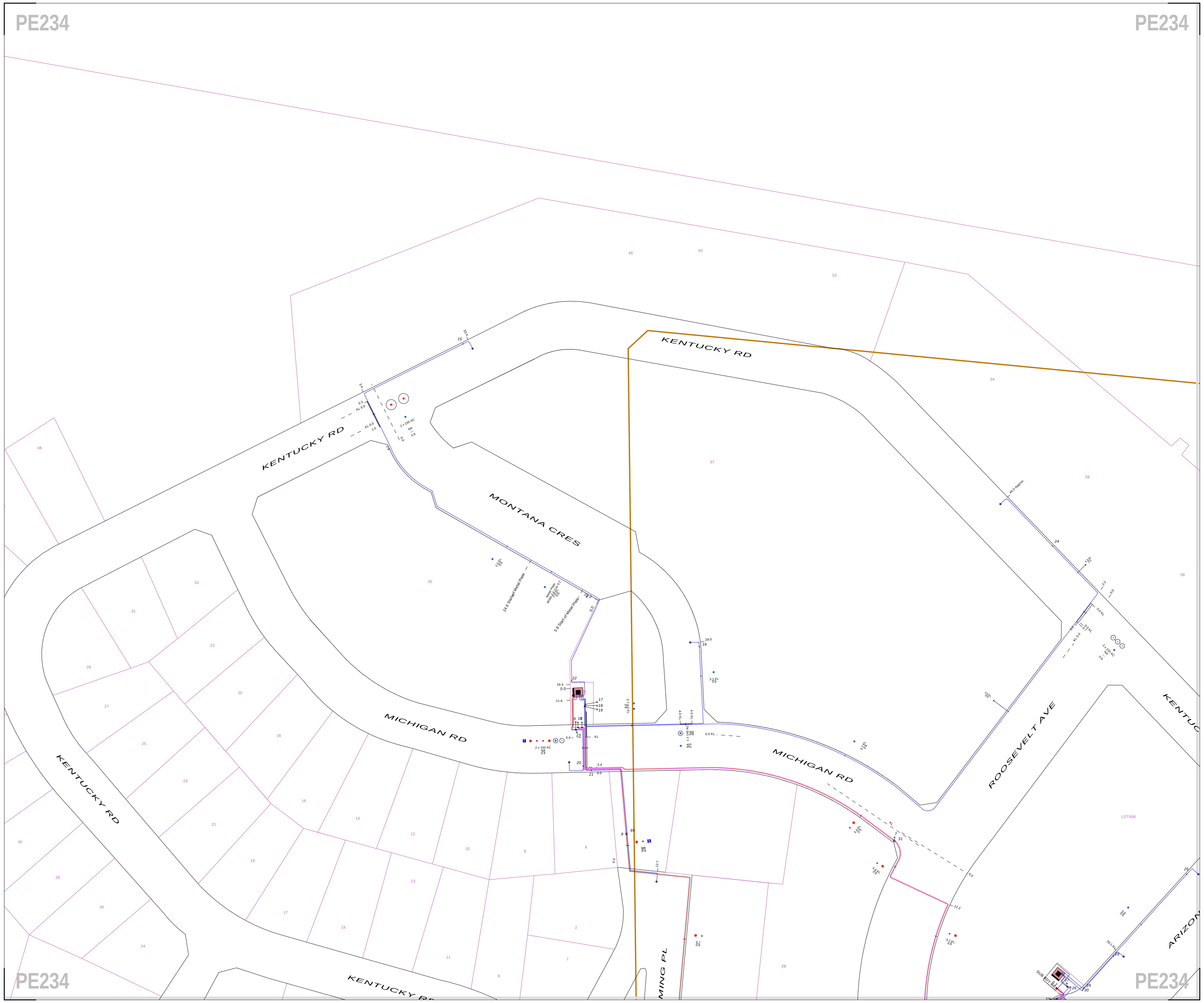
29 Oct 2010 **Page 1 of 1**

N

SCALE 1:502

0 30 metres

EnergyAustralia



JOINT DETAIL REPORT

No.	Bk-Pg	Pl/Cvr	Joint Location
Map: PE234			
7	642-47	/0.60	3.6 to 4KL & 7.5W of Roosevelt Ave. WKL
16	792-62	/0.60	3.0KL & 27.4N of Michigan Rd NKL
24	626-4	/0.60	3.0KL & 24.1W of Roosevelt Ave. WKL
25	838-87	/0.60	5.3N & 4.3E of Laundry
26	859-15	/0.70	1.4N of Sub S wall & 2.4E of Sub E wall
27	859-14	/0.70	1.1N of Sun S wall & 2.2E of Sub E wall
28	839-18	/0.40	2.0KL & 33.1N of Arizona Pl. SKL
29	859-14	/0.60	0.6S of Sub N wall & 4.0E of Sub E wall
30	859-15	/0.60	1.3S of Sub N wall & 4.4E of Sub E wall
31	642-47	/0.60	3.6 to 4KL & 7.5W of Roosevelt Ave. WKL

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PE2344	PE2433	PE2434
PE5122	PE5211	PE5212
PE5124	PE5213	PE5214

GRID		
272E11	272F11	272G11
272E12	272F12	272G12
272E13	272F13	272G13

PE2344GMLA0

Distribution - 19873772

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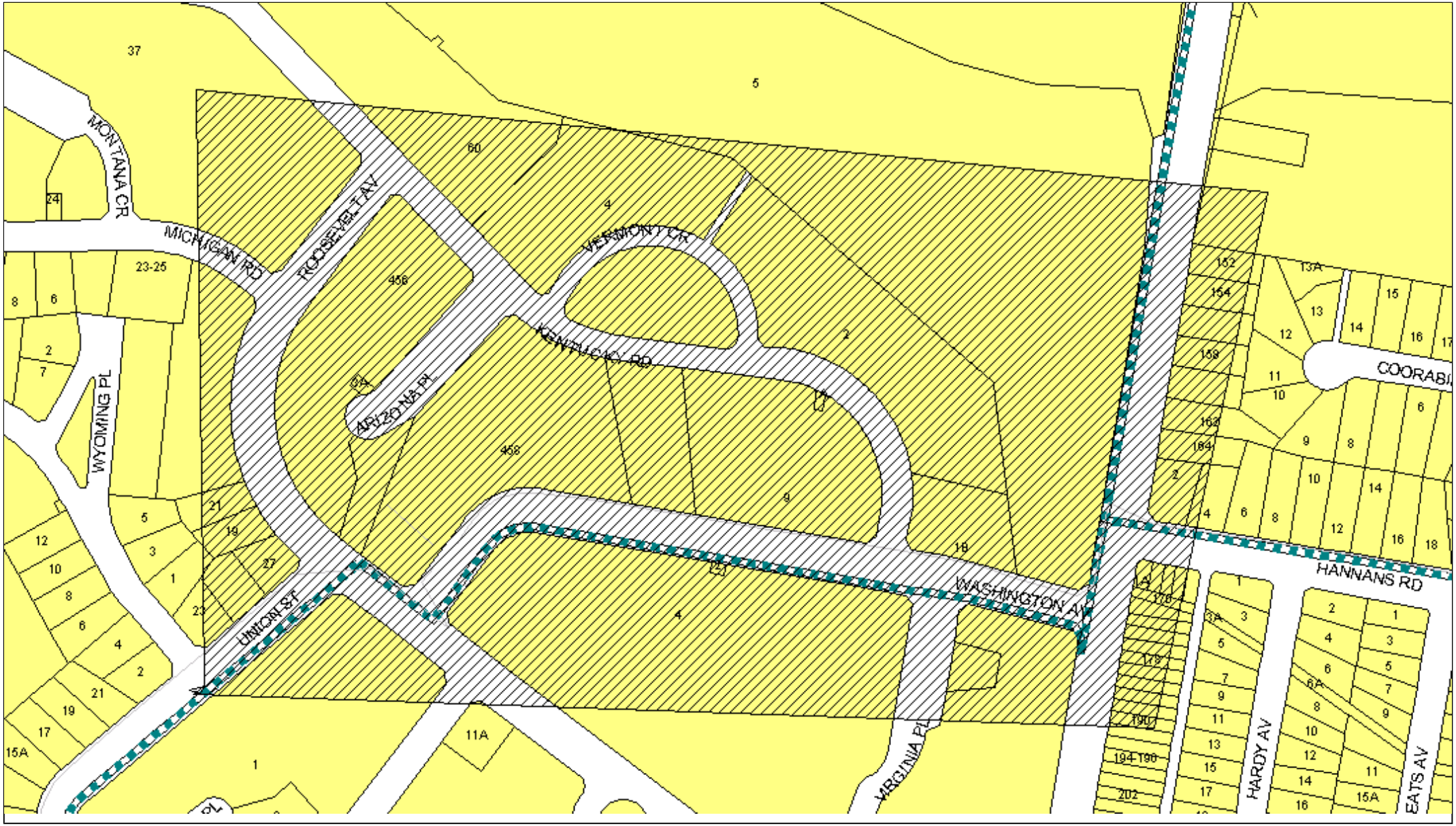
29 Oct 2010 **Page 1 of 1**

N

SCALE 1:502

0 **30 metres**

EnergyAustralia



Uecomm
Cable Uecomm Underground OVERVIEW MAP
Scale: 1 : 2500 **Printed On:** 29/10/2010

Sequence Number: 19873774
Location: Washington Av

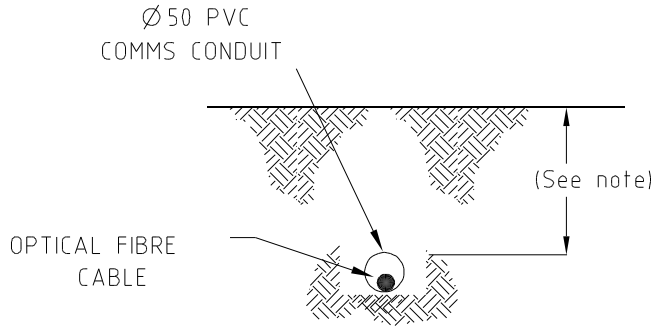
Job Location
Line
Point
Area

Undergound Asset
Uecomm

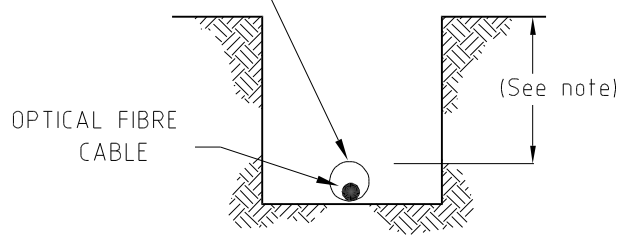
DRAWING NOT TO SCALE

LEGEND

- ELECTRICITY POLE
- FIBRE OPTIC CABLE
- CABLE CONDUIT (TRENCHING)
- CABLE CONDUIT (BORE TUNNELLING)
- UE P2 PIT
- UE P5 PIT
- UE P6 PIT
- UE P8 PIT
- UE P9 PIT
- BL - BUILDING LINE
- BOK - BACK OF KERB
- CL - CENTRELINE OF CONDUIT
- TP - TURNING POINT OF CONDUIT
- FENCE LINE, FL
- TELSTRA MANHOLE
- T - TELSTRA PIT
- OPTICAL FIBRE JOINT
- JOINT LOOP (m) - POLE / UNDERGROUND
- CABLE HEAD POLE
- 0.6m - CABLE DEPTH



SECTION A-A
BORE



SECTION B-B
TRENCH

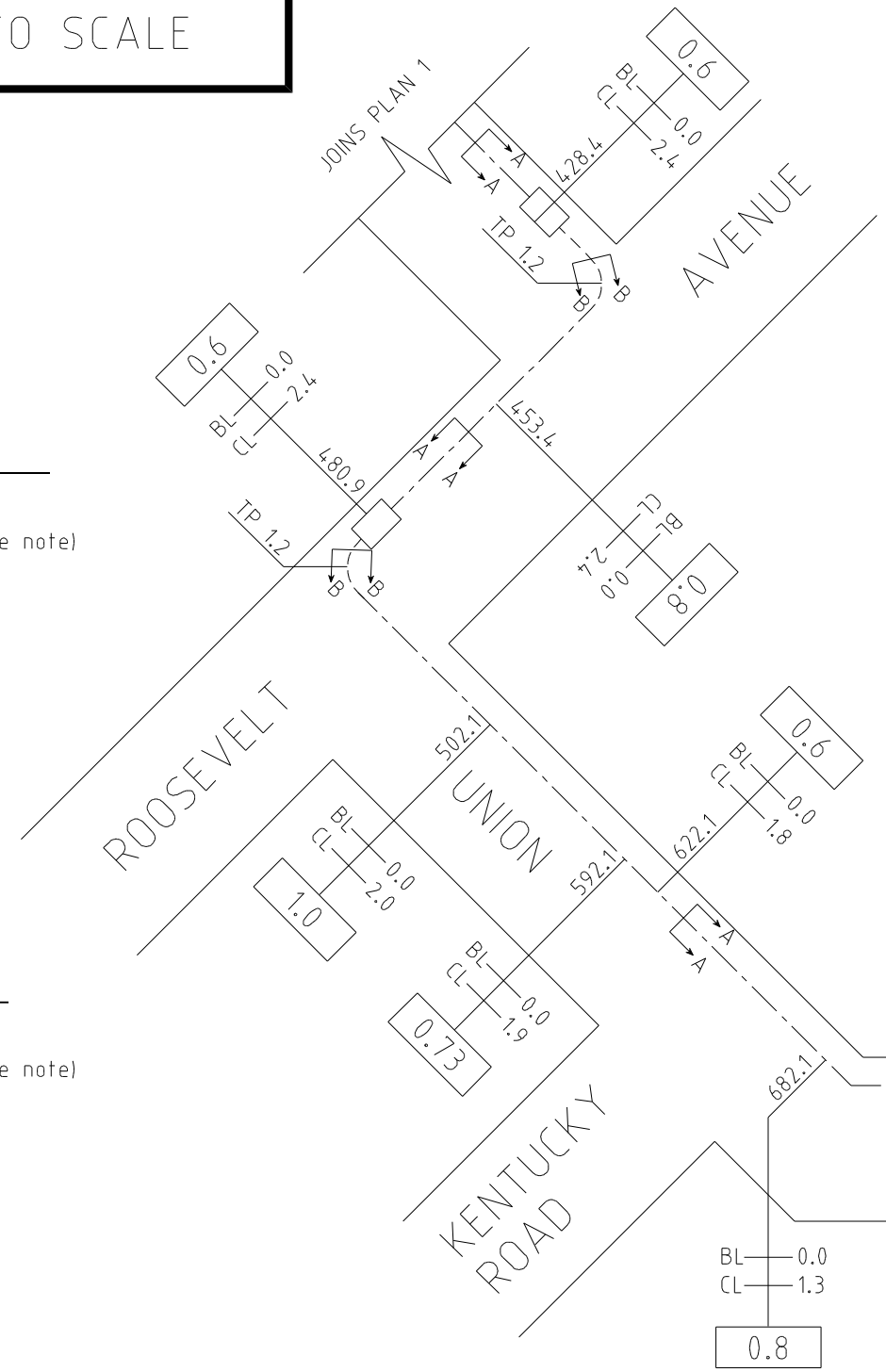


ABB Australia Pty Ltd.
109 Bannister Rd
Canning vale WA 6155
QUALITY ENDORSED COMPANY
ISO9001 REGISTRATION No.049
STANDARDS AUSTRALIA

Note:
1. Conduit depths quoted are approximate only and may change due to unforseen circumstances.
2. In all instances it is recommended that the position of conduits & cables should be proved on site by hand, prior to commencement of works.
3. Loop in all pits unless otherwise stated.

REVISION					
14.08.03	0	AS BUILT		MW	DC
08.01.04	1	P5 at school modified to P6		MS	DC
DATE	REV.	REVISION DESCRIPTION		CHECKED	APP'D.

CONTACT OFFICER	TREVOR SMITH PH: (02) 8226 3244
PROJECT NUMBER	UEC-DE&TS-382
PLAN No.	-
UBD REF	272-E13

Uecomm™ MAKING THE CONNECTION
ACN 079 083 195

UECOMM
MEL/SYD/QLD

DRAWN JMCK	14.08.03
DESIGN CHECKED	M.W. 14.08.03
APPROVED	14.08.03 dc

DRG No. OFN5-SYD-2460-2

EXTERNAL ROUTE (2 OF 2)
RIVERWOOD PUBLIC SCHOOL(3743)
UNION STREET
RIVERWOOD 2210

A3

DRAWING NOT TO SCALE

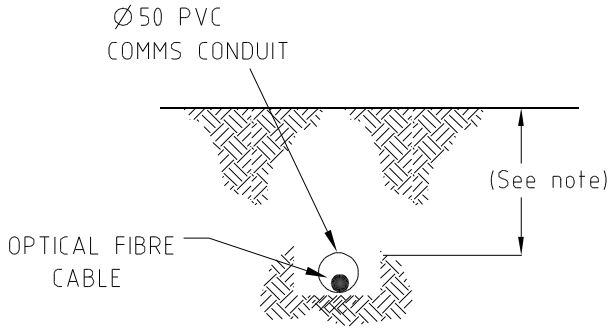
LEGEND

- ELECTRICITY POLE
- FIBRE OPTIC CABLE
- CABLE CONDUIT (TRENCHING)
- CABLE CONDUIT (BORE TUNNELLING)
- UE P2 PIT
- UE P5 PIT
- UE P6 PIT
- UE P8 PIT
- UE P9 PIT

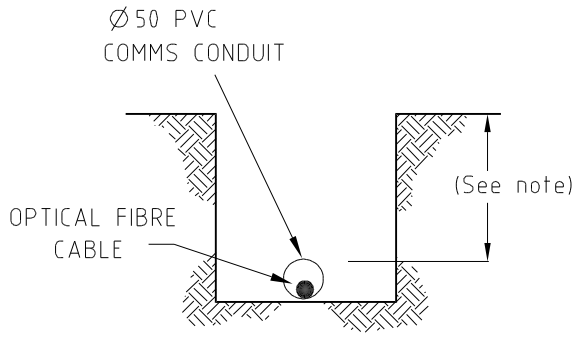
BL - BUILDING LINE
BOK - BACK OF KERB
CL - CENTRELINE OF CONDUIT
TP - TURNING POINT OF CONDUIT

- FENCE LINE, FL
- TELSTRA MANHOLE
- TELSTRA PIT
- OPTICAL FIBRE JOINT
- JOINT LOOP (m) - POLE / UNDERGROUND
- CABLE HEAD POLE
- 0.6m - CABLE DEPTH

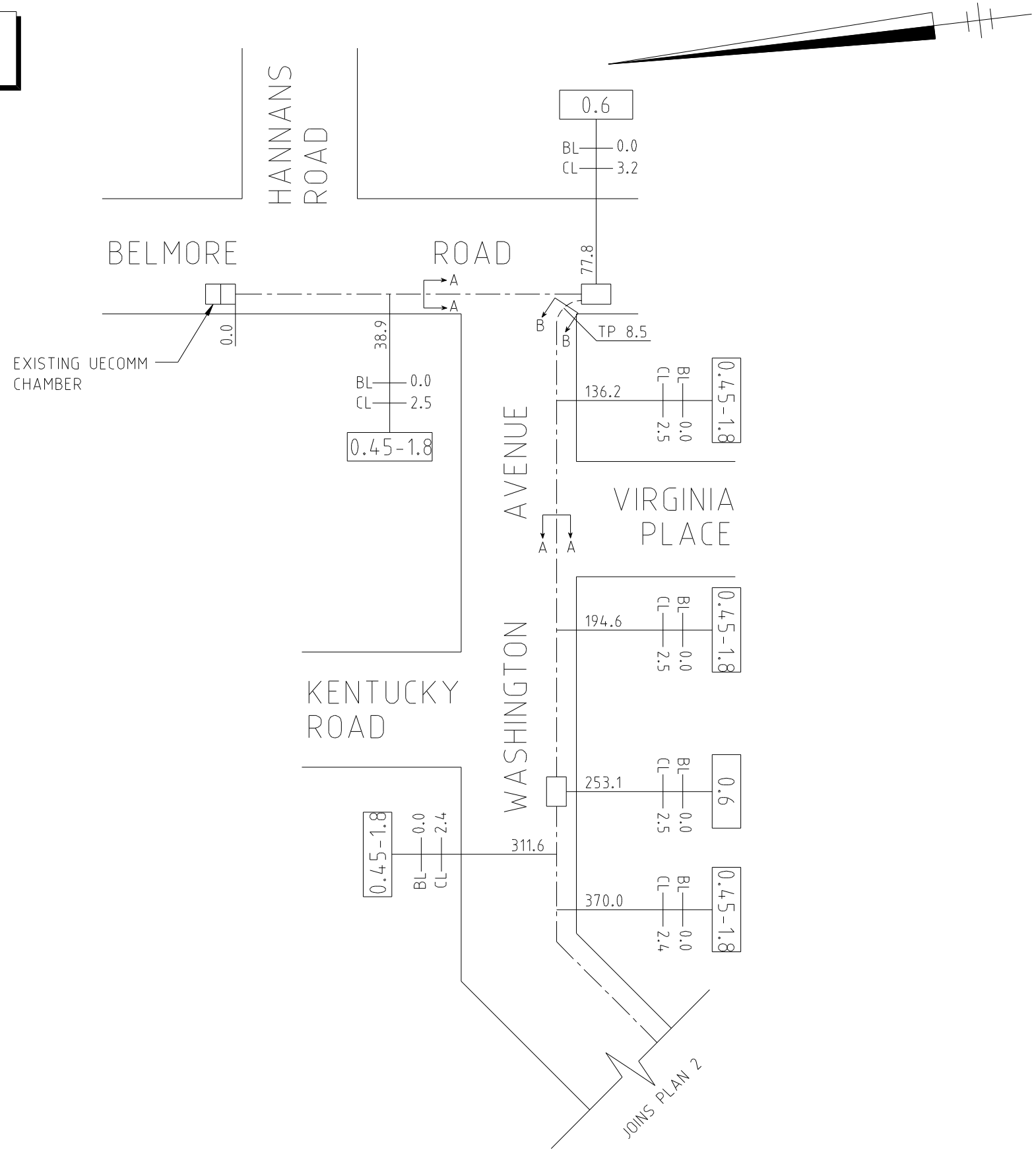
ABB Australia Pty Ltd.
109 Bannister Rd
Canning vale WA 6155
QUALITY ENDORSED COMPANY
ISO9001 REGISTRATION No.049
STANDARDS AUSTRALIA



SECTION A-A
BORE



SECTION B-B
TRENCH



Note:

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REVISION	DATE	REV.	REVISION DESCRIPTION	CHECKED	APP'D.
	14.08.03	0	AS BUILT	MW	DC

CONTACT OFFICER: TREVOR SMITH PH: (02) 8226 3244
PROJECT NUMBER: UEC-DE&TS-382
PLAN No.: -
UBD REF: 272-E13

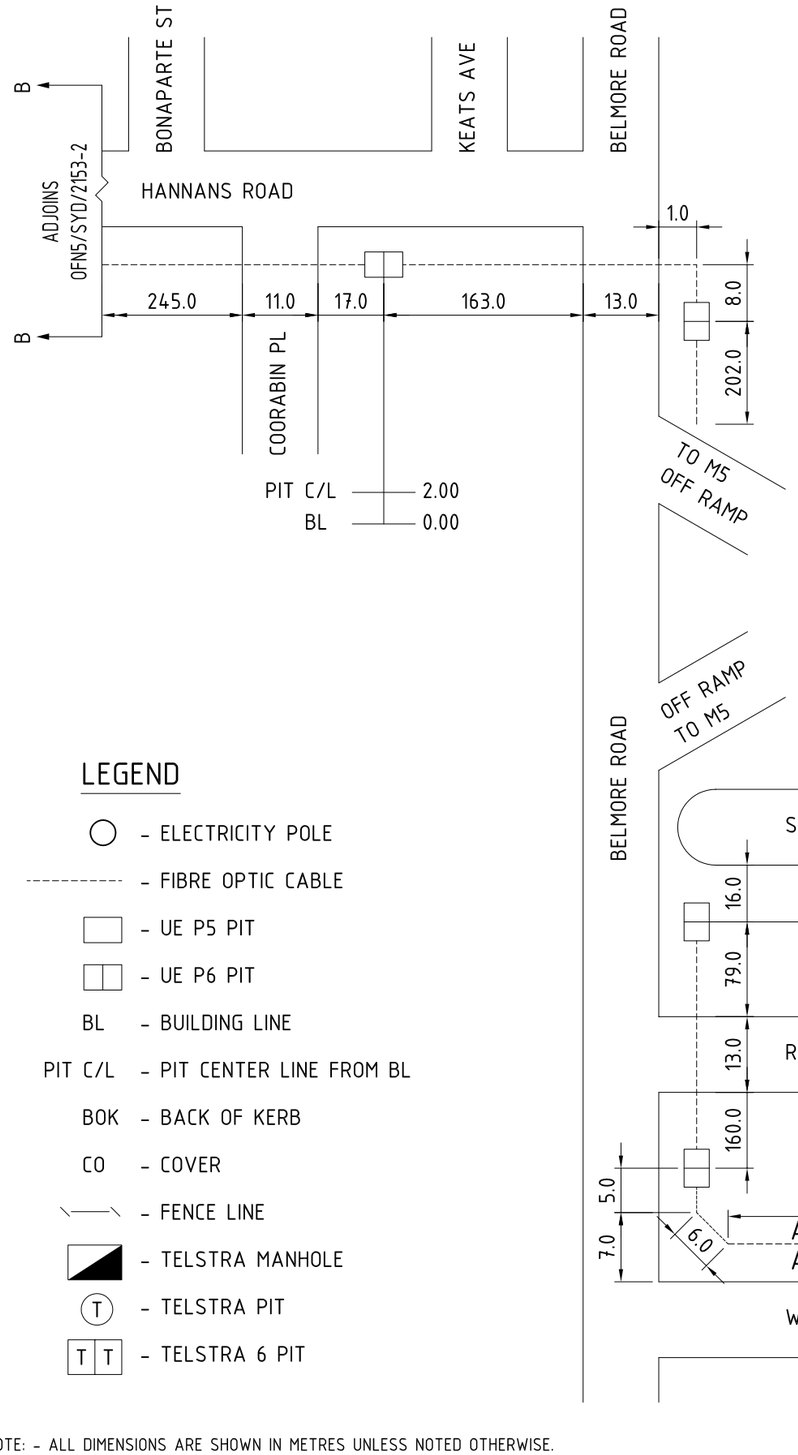
Uecomm™ MAKING THE CONNECTION
ACN 079 083 195
UECOMM
MEL/SYD/QLD

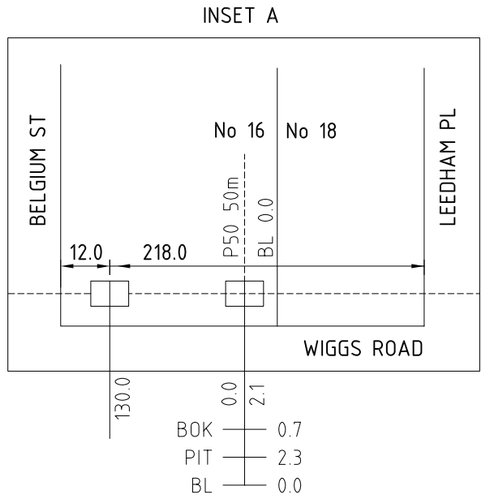
DRAWN JMCK 14.08.03
DESIGN CHECKED M.W. 14.08.03
APPROVED 14.08.03 dc

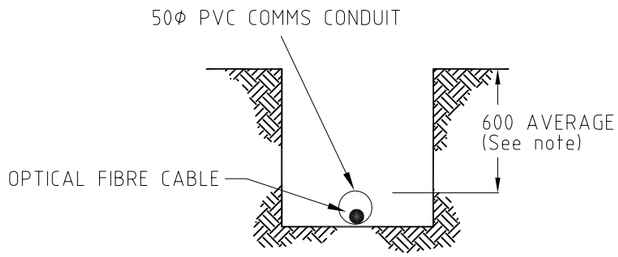
DRG No. OFN5-SYD-2460-1

EXTERNAL ROUTE (1 OF 2)
RIVERWOOD PUBLIC SCHOOL (3743)
UNION STREET
RIVERWOD 2210

A3







SECTION A-A

Note:
Conduit depths quoted are approximate only and may change due to unforseen circumstances.
Excavate by hand until conduit depth is determined.

LEGEND

- ○ - ELECTRICITY POLE
- ---------- - FIBRE OPTIC CABLE
- ▭ - UE P5 PIT
- ▭▭ - UE P6 PIT
- BL - BUILDING LINE
- PIT C/L - PIT CENTER LINE FROM BL
- BOK - BACK OF KERB
- CO - COVER
- \——\ - FENCE LINE
- ◥◣ - TELSTRA MANHOLE
- (T) - TELSTRA PIT
- T T - TELSTRA 6 PIT

NOTE: - ALL DIMENSIONS ARE SHOWN IN METRES UNLESS NOTED OTHERWISE.

REVISIONS					
B	NEW PIT & PIPE (YKPPS-101)	10.07.08	SG	
A	RENUMBERED. WAS BCE-00-0074	26.02.01		
REV	DESCRIPTION	DATE	CHECKED	APPROVED

BCE
Brice Civil Engineering Pty Ltd
A.B.N. 13 087 182 581
P.O. Box 378 Cherrybrook NSW 2126 Ph:(02) 8850 7550 Fax: (02) 8850 7551

Uecomm™ MAKING THE CONNECTION
ACN 079 083 195

APPROVED
R.Browne
26.02.01

UBD REF:
272-J13,H13,H12,H11, H10,G10,F10,E9

PROJECT:
HANNANS ROAD - WIGGS ROAD
RIVERWOOD NSW 2210
CONDUIT: 50mm
DEPTH: 0.5 - 0.7m

"AS-BUILT" PLANS

METHOD:		
DIRECTIONAL BORE AND EXCAVATION		
SCALE: NOT TO SCALE	DRAWN SSQ P/L	SIZE A3
DOCUMENT No: OFN5/SYD/2153-3	DATE: 10.02.01	REVISION: B

PREPARED BY: S & S QUIRK PTY LTD PH:(02) 9482 7944 FAX:(02) 9482 7955, ON BEHALF OF BCE FOR UE COMM.