

Site Plan

Scale 1:1000

ALIGNMENT OF ROAD BEGINNING
AT LOT 2405 CHANGED TO MATCH
CORRESPONDING SIDE.

LEGEND

- Existing Underground Cables
- Existing Conduits (Ducts)
- Install Proposed Conduits (Ducts)
- High Voltage Trenching
- Low Voltage Trenching
- Street Light Trenching
- Lay 40mm P.V.C. Service Conduits

- Proposed Pillar Excavation Location
- Existing Pillar Location

- Proposed Column Excavation location
- 5.5m Enlarged Base Column & 3.0m Eden Outreach
- Type 2 Ragbolt (Type 2 Footing)
- Colour Powder Coated Black

- Existing Column

- Install Proposed Street Light Lantern
- 17W StreetLED Luminaries

- Existing Street Light Lantern

- Establish Proposed Padmount Substation

- Existing Padmount Substation

- Customer Connection Point (CCP)

WAE LEGEND

- PVC DUCTS (TRENCH)
- PVC DUCTS (UNDERBORE)
- QUALITY LEVEL DATA POINT
- PROPERTY LINE
- DUCT END
- UNDERBORE END

WAE NOTES

- ONLY CHANGES MARKED UP IN RED ARE PART OF THIS ASSET RECORDING.
- ALL SURFACE ASSETS WERE RECORDED AT LEVEL QUALITY 'C'.
- DUCT TABLE HAS BEEN AMENDED AS PER INSPECTION. REFER TO DUCT SCHEDULE FOR DETAILS.

NOTE
URS19233 (Newpark Precinct 2 - Stage 1) is required to be constructed prior to this design being constructed on site.

Breakaway Links
Breakaway links must be used during each cable pull. The link must be of a lesser value than the maximum cable pulling tension (Refer MDI0028).

Pulling Compound
A cable pulling compound with a coefficient of friction less than 0.2 must be used on all cable pulls greater than 25m.

Cable Pulling
The cable pulling tension must not exceed 80% of the manufactures maximum tension (Refer MDI0028). Level 1 ASP to confirm maximum cable tension with the cable manufacturer prior to installation.

Painting of Columns
Local council requires a certificate from the manufacturer supplied confirming the power coated columns are in accordance with the requirements of AS/NZS 4506-2005. AS 2700S - 1996 (N61)

Duct Usage Charges
Under Projects URS14178 (Stage 1), URS16040 (Stages 12 & 12A), URS14838 (Stage 6) No reimbursement was claimed. Under (UCS0419) Duct re-imbursement was claimed for the sections U2 - U6.

Final Ground Level
The constructor is to confirm finished ground level with the developer prior to the commencement of construction.

APPROVAL TO CONNECT TO PUBLIC LIGHTING

Reviewers Name: _____

Date Approved: _____

Reviewers Signature: _____

This Approval is issued subject to Endeavour Energy's General Terms & Conditions for Connection of Public Lighting and is specifically for drawing No. _____ Amendment _____.

CERTIFIED BY ENDEAVOUR ENERGY

Amendment: _____

Date Approved: _____

Examiner's Signature: _____

Print Name: _____

This Certification is issued subject to Endeavour Energy's Standard Certification Terms.

AUTHORISATION OF ESTIMATE VALUE OF ENDEAVOUR ENERGY FUNDED ASSETS

Signed: _____

Print Name: _____

Service Number: _____

Funding Amount: \$ _____

Date: _____

DESIGN COMPLIANCE AND INDEMNITY

This design complies with Endeavour Energy's relevant standards as current at this time & as listed on the Endeavour Energy Accredited Service Provider's Internet site. These standards include, but are not limited to:

- CP: Connection Policy,
- EMS: Environmental Management Standard,
- MCI: Mains Construction Instruction,
- MDI: Mains Design Instruction,
- PDI: Protection Design Instruction,
- SDI: Substation Design Instruction,
- SAD: Design Drawing Standard,
- MMI: Mains Maintenance Instruction,
- SMI: Substation Maintenance Instruction,
- LDI: Public Lighting Electrical Design Element.

Additionally, where relevant, the design complies with AS/NZS7000 "Overhead Line Design - Detailed Procedures" published by The Australian Standards.

Power Line Design Pty Ltd indemnifies Endeavour Energy for any loss or damage resulting from non-compliance of the design with the above standards.

Signed: Michael Baranowski

Name: Michael Baranowski

Service Provider Number: 2486 Date: 27.02.2018

WORK COMPLETED / FIELD BOOK

CONSTRUCTED BY C.J. DOYLE CONTRACTING

WORKS COMPLETED CHRIS JOWETT

SIGNATURE CHRIS JOWETT DATE 30/10/18

INSPECTED BY MICHAEL WIER

SIGNATURE _____ DATE _____

ASSET RECORDING

I MICHAEL PULLING

OF C.J. DOYLE CONTRACTING

CONTACT No. 8784-1931

HEREBY CERTIFY THAT ASSETS MARKED AS-BUILT ON THIS DRAWING HAVE BEEN RECORDED AS PER ENDEAVOUR ENERGY STANDARD SAD 0004.

SIGNATURE MICHAEL PULLING DATE 30/10/18

Notes

- This drawing is to be read in conjunction with the relevant Endeavour Energy Network Standards and Connection Policy.
- Endeavour Energy Contact Phone: 131081.
- Design certification shall lapse where:
(i) notice of intent has not been received within six (6) months of this certification, or
(ii) construction has been interrupted for more than six (6) months.
where design certification has lapsed the design must be resubmitted for certification by the accredited designer.
- Accredited Service Provider to notify Endeavour Energy asset data customer department daily when cable works is in progress. (ph. 131 081).
- ATTENTION:**
Permanent survey marks may exist in this area, these are to be located by a surveyor prior to commencement of work.
- ATTENTION:**
All services searches must be checked before construction.
- ATTENTION:**
The preparation of this design has been undertaken giving due consideration to the location of existing services. The Constructor is however responsible for the verification of services and permanent survey marks prior to the commencement of construction. No responsibility nor liability will be accepted by the designer for damage to existing services as a result of this design.
- WARNING:**
Live Endeavour Energy cables & other services in this area. Please contact "Dial Before You Dig" on telephone: 1100 for searches two days prior to excavation.
- Material Quantities Specified on this Design:**
The quantities or dimensions specified on this design are based on design information supplied and site conditions at the time of the design. As quantities and dimensions are subject to change, the Constructor must check all quantities and dimensions on site prior to tendering and prior to construction.
- Reimbursements:**
Reimbursements will be paid to the nominated party on the letter of intent after the works have been completed and the letter of acceptance has been issued. The reimbursed amount is shown in the "Funding Arrangements for Scope of Work" table. Any disagreement with the amount should be resolved with Endeavour energy prior to the commencement of works.
- Operational Limitations:**
Unless approved otherwise, interruption to any customer's supply must be avoided, the following alternatives should be considered:
 - mobile generators and substations,
 - live line work,
 - design alternatives,
 - low voltage parallels,
 - work practices/standards, the cost is to be funded by the customer/developer.
- Environmental Management plan:**
EMP EMS0001 is part of this design (refer to EIA for details).
- Pollution Controls:**
All the requirements of the Environmental Protection Authority pollution control legislation is to be strictly adhered to.
- Aboriginal Heritage:**
If during construction of this project the constructor or developer becomes aware of any previously unidentified Aboriginal Object(s), all work likely to affect the object(s) shall cease immediately, and the Office of Environment & Heritage shall be notified immediately in accordance with section 89a of the National Parks & Wildlife ACT 1974. Works shall not recommence until written authorization from the NSW Office of Environment and Heritage has been issued, in addition to written consent from the local aboriginal land council.
- Heritage:**
If during construction of this project the constructor or developer becomes aware of any previously unidentified heritage object(s), all work likely to affect the object(s) shall cease immediately, and the Heritage Council of NSW shall be notified immediately in accordance with Section 146 of the Heritage ACT1977. Works shall not recommence until written authorization from the heritage council has been issued.
- Telecommunications:**
Telecommunications assets are **NOT** effected by the proposed works.
- Existing Assets:**
Have all the existing assets been field checked and are accurate at the time of design? **YES**

This Drawing Supplies 29 Lots (Subdivision of Lot 3, DP 1225885)						
C.A.P. No.	File No.	Lot Numbers	No. of Lots	Developer	Developers Representative	Contact No.
URS20371	2017/04850/001	2401-2429, Residue lots 2357-2362	29	Winten Property Group	Tana Sainsbury (J Wyndham Prince Pty Ltd)	(02) 4720 - 3319

Pioneer Cost Share Reimbursement SCHEME - Expiry Date : N/A

Pro-Rata Reimbursement for Customer's Load under 50KVA

Asset	Asset Cost Estimate (\$)	Unit Quantity	Net Asset Capacity (kVA)	Original Customer Utilization (kVA)	Maximum Reimbursement Amount (\$)
HV Mains					
LV Mains					
Substation					

Trench Length

High Voltage Trenching	31 m
Low Voltage Trenching	297 m
Street Light Trenching	0 m
Roadcrossing Trenching	132 m
Total	460 m

KEY DOCUMENTS TABLE

The Certification of this project is supported by the following key documents	
Document Name	Notation Date
Summary Environmental Report part of EMS 0001	12 FEB 2018
Safe Design Report	12 FEB 2018

Existing Conduits

All conduits are to be mandrelled, proven clear, free of foreign material, and deformation prior to the installation of cables.

Proposed Ducts/Conduits

All Proposed 125mm ducts / conduits are to have a minimum 750mm cover. (in accordance with MDI0028)

Service Ducts

The end of service ducts must not be placed under proposed driveways. (Refer to Developers Representative for details for details)

Minimum Bending Radius

Minimum Bending Radius for (U72) cable:
• 1950mm during mechanical installation, 1170mm when installed by hand.

Streetlight

Ensure all streetlight columns comply with MDI0028 clause 4.10.

Streetlight LV Supply

All active conductors extending from LV pillars to service streetlight columns to be fitted with a 16A in line fuse.

Vegetation

Vegetation to be cleared in accordance with Endeavour Energy's documents: MM0013 and EMS0004 "Vegetation Management".

Streetlight Columns

All streetlight columns are to be installed 350mm from the property boundaries unless otherwise indicated.

WARNING

Telstra assets in this area. Constructor to contact Telstra on ph 1800 653 935 prior to the commencement of works.

WARNING

High Pressure Gas Assets in this area. constructor to contact Jemena on ph 1300 665 380 prior to the commencement of works.

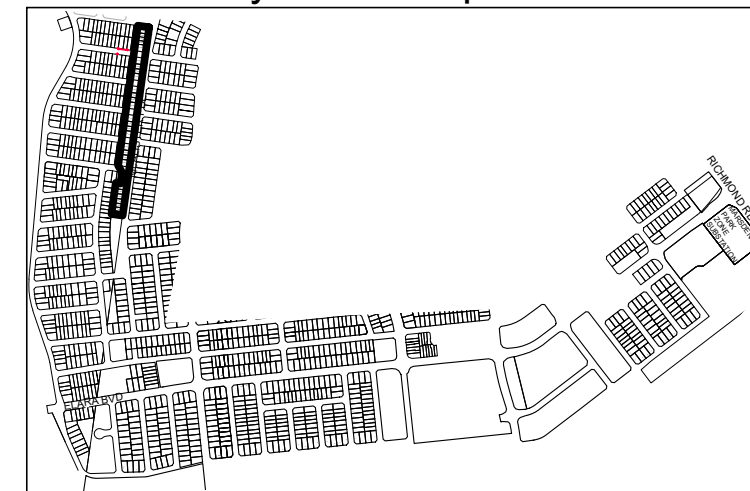
WARNING

A current services search of all utilities must be carried out prior to the commencement of works.

WARNING

Existing live electrical assets located in this vicinity, appropriate safety precautions must be utilized.

Locality of Development

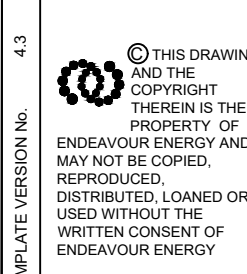


FUNDING ARRANGEMENTS FOR SCOPE OF WORKS			
ASP Level 1 Electrical Works		Customer	
Endeavour Energy Supplied Materials	Customer Funded Non-Contestable Works	Customer Funded	
NIL	All works associated with the inspection, testing, switching and the commissioning associated with this project.	Including but not limited to: <ul style="list-style-type: none">Pegging of easements, property boundaries and infrastructure locations.Provide Site Access.Own Service and Service connections.Confirm ground levels.	
Endeavour Energy Funded & Constructed		Customer Funded Contestable Works	
Works Required Prior to Completion of Customer Contestable Project	Works Required in Association of Customer Contestable Project	All other works and materials including but not limited to: <ul style="list-style-type: none">Excavation & Trenching.Under-bores.Duct Installation.Cable Installation (Pulling & Laying).Cable Joining.Installation of Earthing.Removal of Redundant Assets.	
NIL	NIL	Existing Duct Usage Charges (exc GST)	
Endeavour Energy Funded & Level 1 ASP Constructed - Reimbursement (exc GST)		Co-ordination Supply Required Date	
NIL		30 June 2018	
		Assets to be Returned to the nearest Endeavour Energy Depot by Level 1 ASP.	
		NIL	

THE PREPARATION OF THIS DESIGN HAS BEEN UNDERTAKEN GIVING DUE CONSIDERATION TO THE EXISTING SERVICES. THE PROJECT CONSTRUCTOR IS WHOLLY RESPONSIBLE FOR VERIFYING THE EXACT LOCATION OF EXISTING SERVICES AND PERMANENT SURVEY MARKS PRIOR TO COMMENCING CONSTRUCTION. NO RESPONSIBILITY OR LIABILITY WILL BE ACCEPTED BY THE DESIGNER OF THIS PROJECT FOR DAMAGE TO EXISTING SERVICES AS A RESULT OF THIS DESIGN.



POWER LINE DESIGN PTY LTD
PO BOX 338 Mittagong NSW 2575
Ph (02) 4872 1920 Fax (02) 4872 1240
Accredited Designer Number 2486 / ABN: 33107 591 946



Reference Drawings			
URS17427	500805A RETIC	NUL0572	500653A RETIC
URS17428	500803A RETIC	URS16140	408751A RETIC
URS18956	504827A RETIC	URS20371	509323A DTE
URS17974	502648A RETIC	URS19233	505358C DTE
URS18495	503195A RETIC	URS19233	505359C RETIC

Work Orders	
General	
Overhead	
Underground	
Substations	

CAP / SAMP No.	
AM Project No.	URS20371
HV Switching	2017/04850/001
UBD/Penguin Ref No.	C11 126
GIS Map No.	U82674
HV OP Diagram	MARSDEN PARK
Local Government Area	BLACKTOWN CITY

Drawn	Z MOORE
Date	27.02.2018
Checked	M.J.B

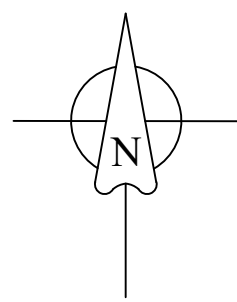
Design	Z MOORE
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RICHMOND ROAD
MARSDEN PARK
URS20371
RESIDENTIAL SUBDIVISION
LOT 3 DP 1225885
ELECTRICAL RETICULATION



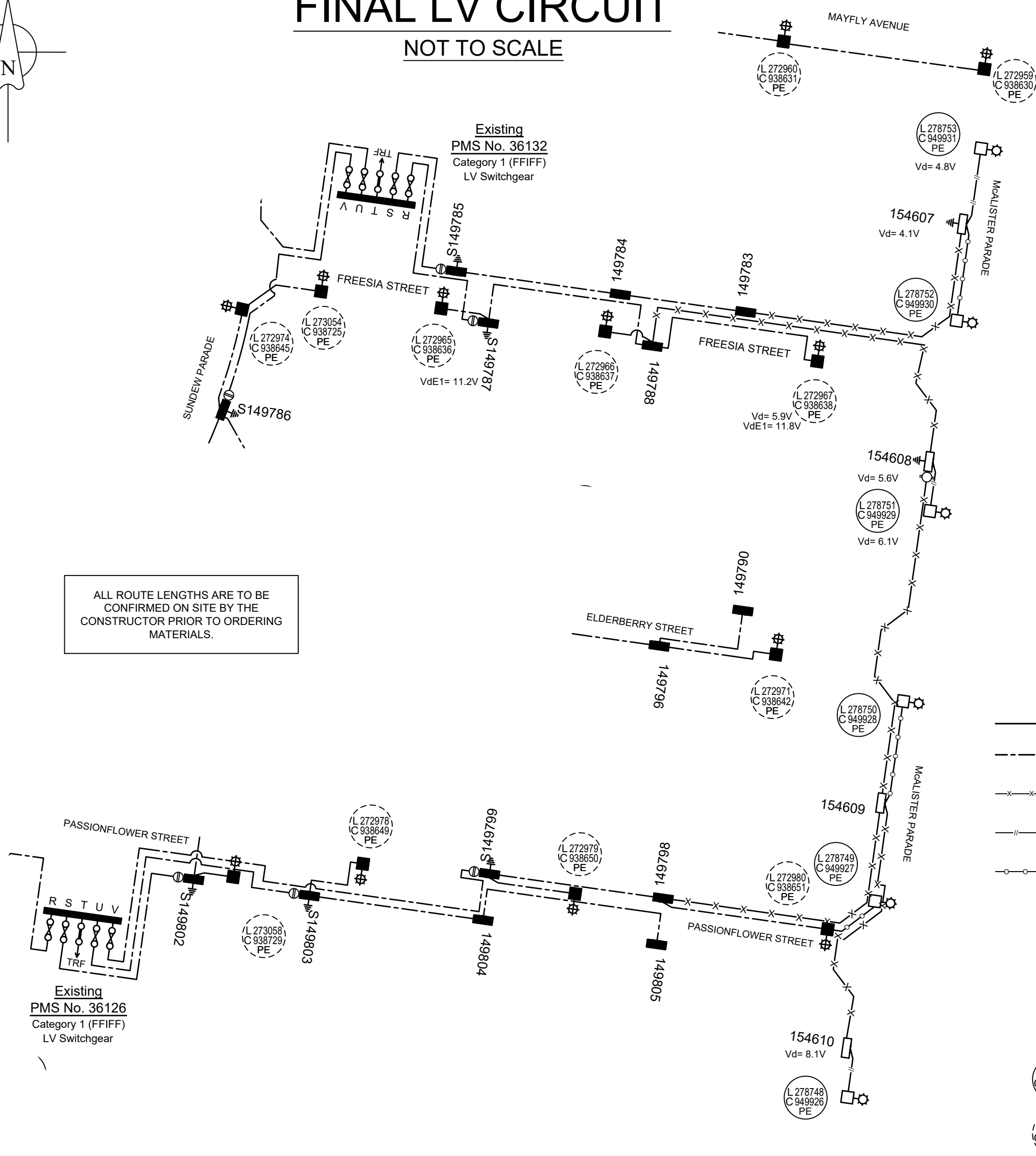
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Sheet No 1 of 4 Sheets

#3637



FINAL LV CIRCUIT

NOT TO SCALE



ALL ROUTE LENGTHS ARE TO BE
CONFIRMED ON SITE BY THE
CONSTRUCTOR PRIOR TO ORDERING
MATERIALS.

LEGEND

- Existing Overhead Mains
- Existing Underground Cable/s
- Install 240mm² Al 4-Core XLPE/PVC Cable (T84)
R.L. 540m, C.L. 717m.
- Install 50mm² Cu 4-Core XLPE/PVC Cable (T94)
R.L. 46m, C.L. 51m.
- Install 1x 16mm² Cu 2-Core XLPE/PVC Cable
in 50mm Conduit
R.L. 57m, C.L. 63m.
- LV Isolation Switch/Links (N/O)
- LV Isolation Switch/Links (N/C)
- Pillar Earth
- Existing Street Light Lantern
- Install New Street Light Lantern - 17W StreetLED P4
- Lantern Number - New Asset
Column Number - New Asset
(PE Controlled)
- Lantern Number - Existing Asset
Column Number - Existing Asset
(PE Controlled)

CERTIFIED BY ENDEAVOUR ENERGY

Amendment: _____
Date Approved: _____
Examiner's Signature: _____
Print Name: _____

WORK COMPLETED / FIELD BOOK

CONSTRUCTED BY **C.J. DOYLE CONTRACTING**
WORKS COMPLETED **CHRIS JOWETT**
SIGNATURE **CHRIS JOWETT** DATE **30/10/18**
INSPECTED BY **MICHAEL WIER**
SIGNATURE _____ DATE _____

ASSET RECORDING

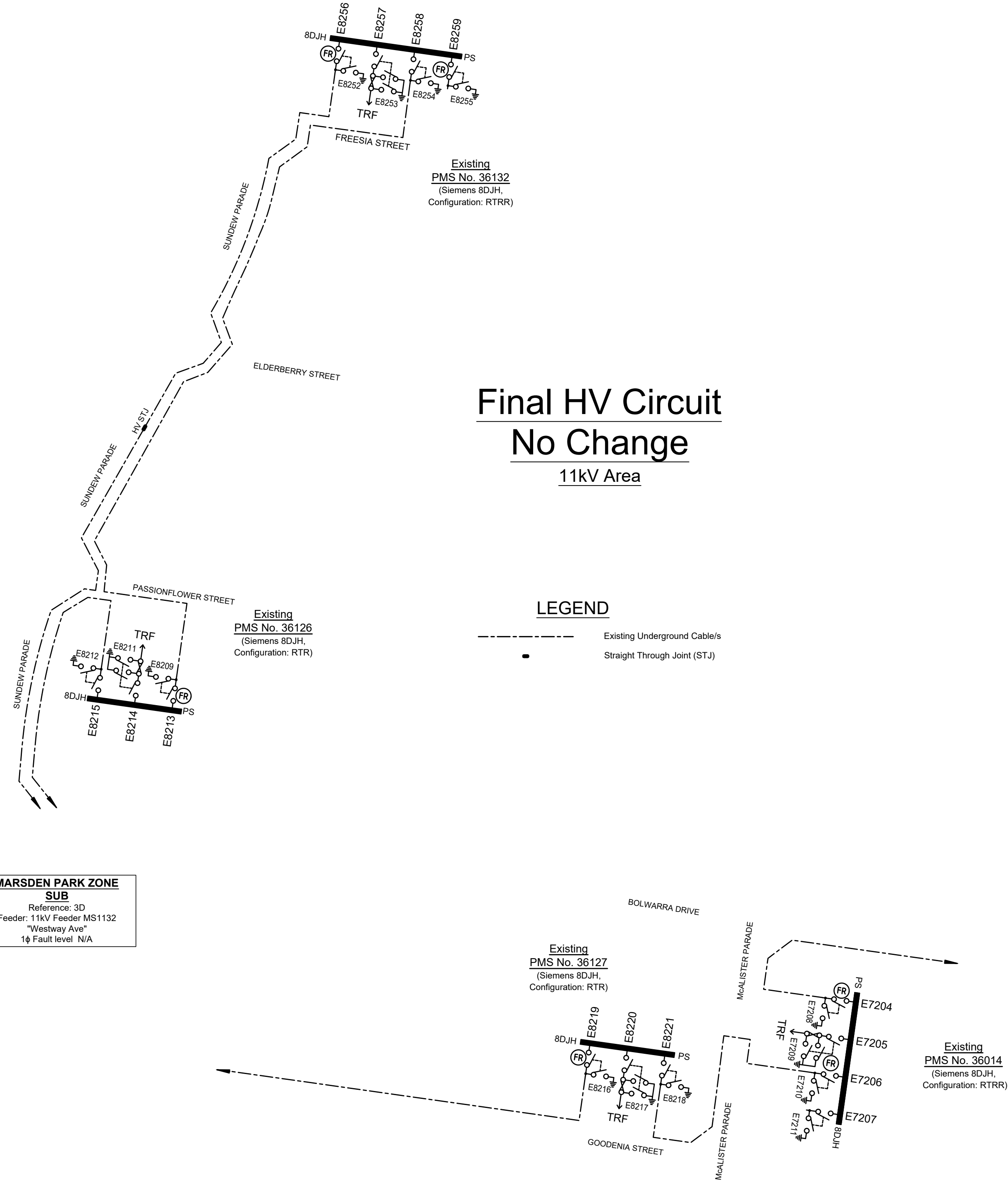
I **MICHAEL PULLING**
OF **C.J. DOYLE CONTRACTING**
CONTACT No **8784-1931**
HEREBY CERTIFY THAT ASSETS MARKED AS-BUILT
ON THIS DRAWING HAVE BEEN RECORDED AS PER
ENDEAVOUR ENERGY STANDARD SAD 0004.
SIGNATURE **MICHAEL PULLING** DATE **30/10/18**

Lighting Equipment & Billing Schedule

Lighting Design Refer	State	Luminaire Number	Support Number	Luminaire				Column / Pole					Outreach / Bracket			Upcast Angle	Category	Column Colour	Charge To
				Description	Part No.	Rate Code	QTY	Description	Part No.	Footing Bolt / Foundation	Rate Code	QTY	Description	Part No.	Rate Code				
1	New	278748	949926	17W StreetLED (Gerard)	JLB99G05L17	889	1	5.5m Enlarged Base Column	IE/5.5.EB	Type 2 /Type 2 (<9.0m)	995	1	3.0m Eden Outreach	IE3.0SOR/EDN	991	5°	P4	Powdercoated Black	Blacktown City Council
2	New	278749	949927	17W StreetLED (Gerard)	JLB99G05L17	889	1	5.5m Enlarged Base Column	IE/5.5.EB	Type 2 /Type 2 (<9.0m)	995	1	3.0m Eden Outreach	IE3.0SOR/EDN	991	5°	P4	Powdercoated Black	Blacktown City Council
3	New	278750	949928	17W StreetLED (Gerard)	JLB99G05L17	889	1	5.5m Enlarged Base Column	IE/5.5.EB	Type 2 /Type 2 (<9.0m)	995	1	3.0m Eden Outreach	IE3.0SOR/EDN	991	5°	P4	Powdercoated Black	Blacktown City Council
4	New	278751	949929	17W StreetLED (Gerard)	JLB99G05L17	889	1	5.5m Enlarged Base Column	IE/5.5.EB	Type 2 /Type 2 (<9.0m)	995	1	3.0m Eden Outreach	IE3.0SOR/EDN	991	5°	P4	Powdercoated Black	Blacktown City Council
5	New	278752	949930	17W StreetLED (Gerard)	JLB99G05L17	889	1	5.5m Enlarged Base Column	IE/5.5.EB	Type 2 /Type 2 (<9.0m)	995	1	3.0m Eden Outreach	IE3.0SOR/EDN	991	5°	P4	Powdercoated Black	Blacktown City Council
6	New	278753	949931	17W StreetLED (Gerard)	JLB99G05L17	889	1	5.5m Enlarged Base Column	IE/5.5.EB	Type 2 /Type 2 (<9.0m)	995	1	3.0m Eden Outreach	IE3.0SOR/EDN	991	5°	P4	Powdercoated Black	Blacktown City Council

Final HV Circuit No Change

11kV Area



LEGEND

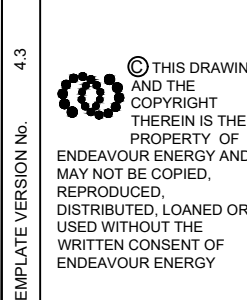
- Existing Underground Cable/s
- Straight Through Joint (STJ)

Legend for LV Voltage Drop

Voltage Drop Calculations
Based on an ADMD of 6.5kVA ADMD
Vd = Voltage drop for normal supply @ 100% ADMD
Emergency / backup voltage drop @ 60 of 6.5kVA% ADMD (3.9kVA)

	Source Substation - Fuse Strip	Backed Up Substation - Fuse Strip
VdE1	PMS 36132-R	PMS 36126-V
VdE2	PMS 36127-V	PMS 36129-U

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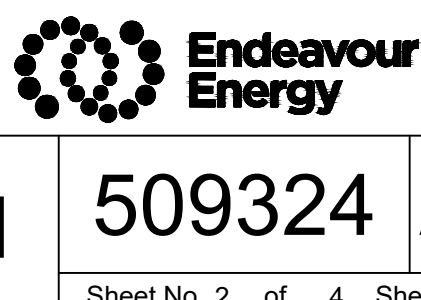
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AM Project No.	2017/04850/001		
HV Switching			
UBD/Penguin Ref No.	C11 126		
GIS Map No.	U82674		
HV OP Diagram	MARSDEN PARK		
Local Government Area	BLACKTOWN CITY		

ORIGINAL SCALE NTS	
Drawn	Z MOORE
Date	27.02.2018
Checked	M.J.B

DO NOT SCALE DIMENSIONS IN METRES	
Design	Z MOORE

RICHMOND ROAD
MARSDEN PARK
URS20371
RESIDENTIAL SUBDIVISION
LOT 3 DP 1225885
ELECTRICAL RETICULATION



Urban Subdivision Related Reimbursement - Duct and Cable Schedule											
Duct and Cable Schedule codes: T&R: HV Light trenching & reinstatement PC: Lay Cable - Pull Conductor through Ducts			LD: Lay HV 125mm Ducts in Trench C: Cable - Materials					LC: Lay HV Cable - Directly Buried in Trench D: Lay HV duct in SL/LV Trench *All length entered in meters (m)			
Nodes	Configuration	Route Length (m)	HV Trench & Reinststate (T&R)	Lay Duct (LD)	Lay Cable (LC)	Pull Cable (PC)	Cable (C) (AI)	Duct (D)	Other Duct Reimbursement (m) x (\$)	Existing Duct Usage (m) x (\$)	
a1-a2 ✓	New Footpath Ducts 	20	-	-	-	-	-	-	-	-	
a2-a3 ✓	New Footpath Ducts 	24	-	-	-	-	-	-	-	-	
R1 ✓	New Road Crossing 	20	-	-	-	-	-	-	-	-	
a3-a4 ✓	New Footpath Ducts 	8	-	-	-	-	-	-	-	-	
a4-a5 ✓	Existing Ducts 	25	-	-	-	-	-	-	-	Developer Funded See URS19233	
a5-a6 ✓	Existing Ducts 	20	-	-	-	-	-	-	-	Developer Funded See URS19233	
a6-a7 ✓	Existing Ducts 	23	-	-	-	-	-	-	-	Developer Funded See URS19233	
R2 ✓	Existing Road Crossing 	16	-	-	-	-	-	-	-	Developer Funded See URS19233	
R3 ✗	New Road Crossing 	16	-	-	-	-	-	-	-	-	
b1-b2 ✓	New Footpath Ducts 	20	-	-	-	-	-	-	-	-	
R4 ✓	New Road Crossing 	16	-	-	-	-	-	-	-	-	
b2-b3 ✗	New Footpath Ducts 	13	-	-	-	-	-	-	-	-	
b3-b4 ✓	New Footpath Ducts 	33	-	-	-	-	-	-	-	-	
R5 ✗	New Road Crossing 	16	-	-	-	-	-	-	-	-	
Running Total:		270m	0m	0m	0m	0m	0m	0m	\$0	\$0	

LV, LV

WORK COMPLETED / FIELD BOOK

CONSTRUCTED BY C.J. DOYLE CONTRACTING

WORKS COMPLETED CHRIS JOWETT

SIGNATURE CHRIS JOWETT DATE 30/10/18

INSPECTED BY MICHAEL WIER

SIGNATURE DATE

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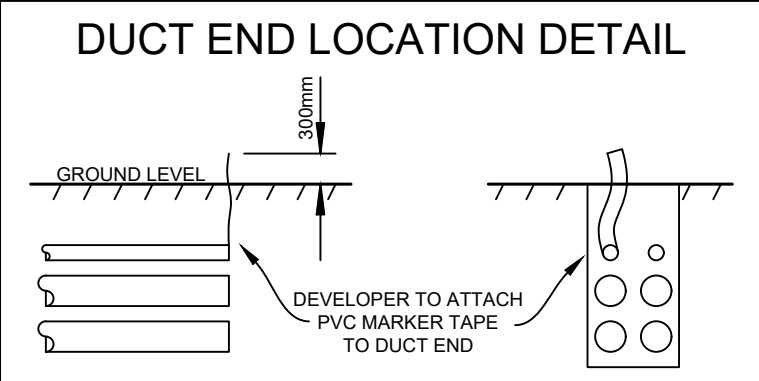
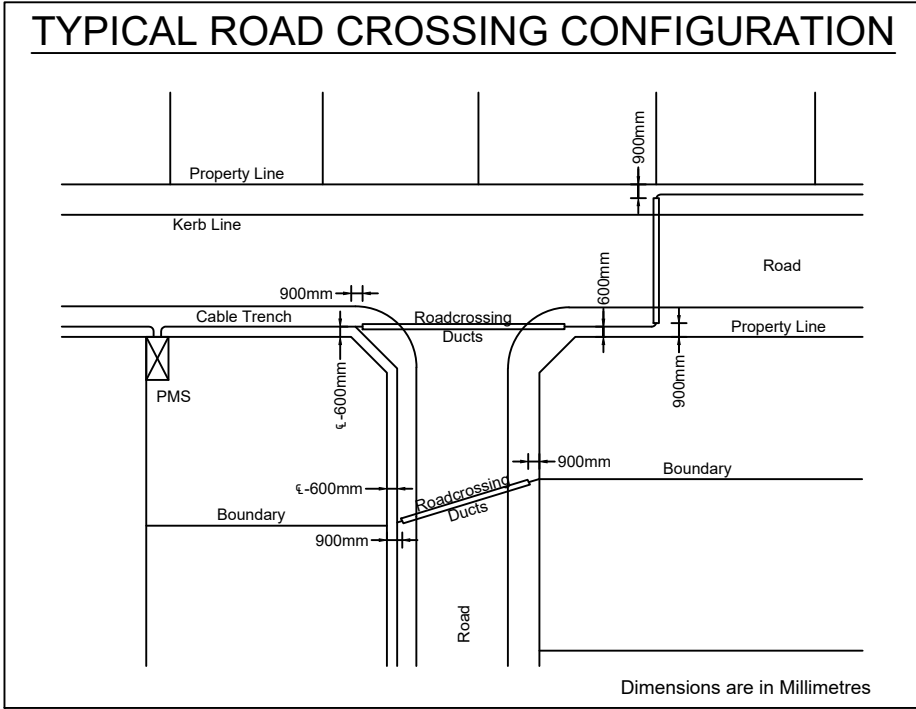
Amendment:

Date Approved:

Examiner's Signature:

Print Name:

This Certification is issued subject to Endeavour Energy's Standard Certification Terms.



EXISTING CONDUITS

All conduits are to be mandrelled, proven clear, free of foreign material, and deformation prior to the installation of cables.

SERVICE DUCTS

The end of service ducts must not be placed under proposed driveways. (Refer to Developers Representative for details)

NEW DUCTS/CONDUITS

All new 125mm ducts / conduits are to have a minimum 750mm cover. (in accordance with MDI0028)

DUCT REQUIREMENTS

A continuous spare 125mm duct is to be installed in all trenches where HV and LV mains cables are installed. (maximum of 1x HV & 1x LV)

TRENCH LEGEND

50mm Duct - with Existing Cable
50mm Duct - with New SL Cable
125mm Duct - Spare (Developers Use)
125mm Duct - Mandatory Spare
LV Cable (Direct Buried)
125mm Duct - with Existing Cable
125mm Duct - with New Cable
New Trench
Existing Trench

[illegible]