TasNetworks Standard Construction Drawings

Public Lighting

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TasNetworks
Delivering your power

Tasmanian Networks Pty Ltd

Authorisations

Action	Name and title	Date
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Review cycle	5 Years	

Document control

Date	Version	Description	Author	Approved by
22/02/2016	1	Original Version	Jarad Hughes	Angus Ketley
30/09/2016	2	Refer to Record of revisions	Frank Pontes	Angus Ketley

Responsibilities

This document is the responsibility of the Asset Strategy Team, Tasmanian Networks Pty Ltd, ABN 24 167 357 299 (hereafter referred to as "TasNetworks").

Please contact the Asset Strategy Team with any queries or suggestions.

- Implementation All TasNetworks staff and contractors.
- Compliance All group managers.

Record of revisions

Version	Description	Date
1	• Original (PDF only)	10/02/2016
2	• Developed word publication version • Updated table of drawings to include revised drawings 'B' • Updated drawings PL-602, PL-605, PL-606, PL-607, PL-608, PL-609, PL-610, PL-611, PL-613 and D-PL1-0618-SD-001 to include comments as per the drawings revision section	30/09/2016

Table of Drawings

Drawing Number	Title	Revision
PL-601	Public Lighting Columns Column Section Assembly	A
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PL-603	Public Lighting Columns Column Assembly Procedure	A
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COLUMN SECTION ASSEMBLY

1. COLUMN SECTION PRE ASSEMBLY CHECK

COLUMNS ARE ASSEMBLED BY TELESCOPING THE SECTIONS INTO ONE ANOTHER. THE AMOUNT EACH SECTION SLIPS INTO ANOTHER DEPENDS ON THE DIAMETERS OF THE SECTIONS AT THAT POINT. AT TIMES THE DIAMETERS OF THE FEMALE AND MALE SECTIONS TO BE ASSEMBLED MAY BE VERY CLOSELY MATCHED.
THE FOLLOWING PROCEDURE WILL CONFIRM IF THE COLUMN CAN BE ASSEMBLED.

1.1 MEASURE THE INSIDE DIMENSION ACROSS THE FLATS (IDAF) OF ALL FACETS AT THE END OF THE FEMALE SECTION OF THE SLIP JOINT. ADD THE FOUR DIMENSIONS TOGETHER AND DIVIDE BY FOUR TO ATTAIN THE AVERAGE IDAF.

1.2 MEASURE THE OUTSIDE DIMENSION ACROSS THE FLATS (ODAF) OF ALL FACETS AT THE END OF THE MALE SECTION OF THE SLIP JOINT. ADD THE FOUR DIMENSIONS TOGETHER AND DIVIDE BY FOUR TO ATTAIN THE AVERAGE ODAF.

1.3 COMPARE THE AVERAGE DIMENSIONS AND IF THE MALE DIMENSION IS SMALLER THAN THE FEMALE DIMENSION CONTINUE ASSEMBLING THE COLUMN SECTIONS.

1.4 FOLLOW INSTRUCTIONS ON DRAWINGS PL-603 & PL-604 TO ASSEMBLE THE COLUMN.

1.5 THE SECTIONS MUST BE ASSEMBLED WITH THE WELD SEAMS IN LINE ALL THE WAY UP THE COLUMN AND THE ACCESS DOOR ON THE OPPOSITE SIDE TO THE OUTREACH ARM.

1.6 IT IS NOT NECESSARY TO SECURE THE COMPLETED JOINTS WITH ANY FASTENERS.

2. ENSURING CORRECT SLIP LENGTH

EACH COLUMN DRAWING SHOWS AN “OPTIMUM SLIP LENGTH”. IF IT IS NOT POSSIBLE TO ACHIEVE THE OPTIMUM SLIP LENGTH, FIT THE COLUMN SECTIONS TOGETHER TO THE “ABSOLUTE MINIMUM SLIP LENGTH” AS SHOWN IN THE TABLE ON DRAWING PL-602.

THE FOLLOWING PROCEDURE WILL CONFIRM IF THE COLUMN CAN BE USED.

2.1 MULTIPLY THE FEMALE AVERAGE IDAF DIMENSION AS DISCUSSED ABOVE BY A FACTOR OF 1.3. THIS WILL PROVIDE THE THEOETICAL SLIP LENGTH.

2.2 AT THE END OF THE MALE SECTION TO BE JOINTED, MEASURE THE DISTANCE EQUAL TO THE THEOETICAL SLIP LENGTH ALONG THE SECTION AND PLACE A WITNESS MARK.

2.3 ALIGN THE COLUMN SECTIONS AND ENSURE THAT THE MALE SECTION ENTERS THE FEMALE SECTION TO THE WITNESS MARK.

FOR SECTIONS NOT COMING TOGETHER TO THE WITNESS MARK, APPLY THE FOLLOWING:

2.4 IF THE MALE SECTION HAS ENTERED THE FEMALE SECTION BETWEEN 80 AND 100% OF THE THEORETICAL SLIP LENGTH THEN CHECK EACH FACET TO SEE IF THERE IS A TIGHT FIT. IF THE JOINT IS A TIGHT FIT WITH NO MOVEMENT THEN PROCEED WITH THE NEXT JOINT.

2.5 THE 80% SLIP LENGTH IS THE "ABSOLUTE MINIMUM SLIP LENGTH" AND SHALL BE CONFIRMED WITH THE MEASUREMENT IN THE TABLE ON DRAWING PL-602.

COLUMNS THAT DO NOT ACHIEVE THE “ABSOLUTE MINIMUM SLIP LENGTH” MEASUREMENT SHALL NOT BE USED.

ALTERATIONS

TasNetworks

DIMENSIONS ARE IN MILLIMETRES. UNLESS OTHERWISE STATED.

DRAWN	ACUTEL
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APPROVED	ANGUS KETLEY
DATE	10/02/2016

TasNetworks PTY. LTD.
ABN: 24 167 357 299

TITLE
PUBLIC LIGHTING
COLUMNS
COLUMN SECTION ASSEMBLY

SCALES: NTS

SIZE: A4

PL-601

REVISION: A

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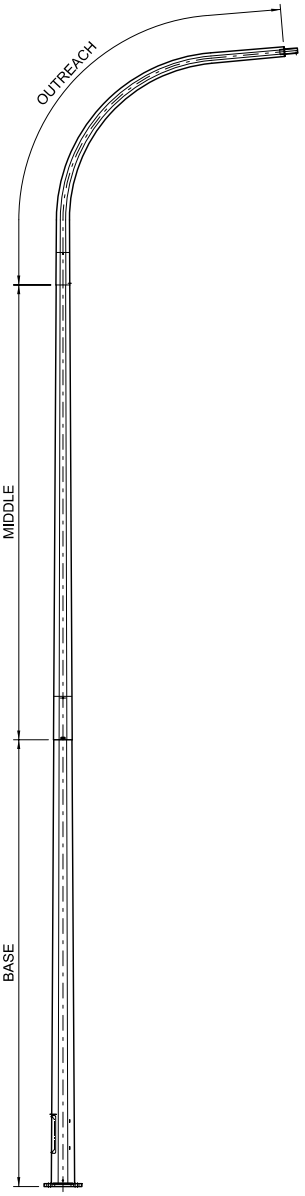
DRAWING No	S.I. No	COLUMN DESCRIPTION			BASE SECTION		MIDDLE SECTION		OUTREACH SECTION		OPTIMUM SLIP LENGTH	ABSOLUTE MIN SLIP LENGTH
		TYPE	MOUNTING HEIGHT	FOUNDATION	CODE	LENGTH (m	CODE	LENGTH (m	CODE	SIZE (m)	(mm)	(mm)
PL - 325	32.50.92	RIGID	7.0m	DIRECT BURIED	Q222GD	2.2	QL1S	6	XSA600	0.6 X 0.21	188	158
							QL1S	6	AC20SO	2.0 X 4.3	150	
PL - 326	32.49.71	RIGID	7.5m	DIRECT BURIED	HC49GDX2	4.9			AC20SO	2.0 X 4.3	162	130
PL - 327	32.49.73	RIGID	9.0m	BASE PLATE	HC49FD	4.9			AC20SO	2.0 X 4.3	162	130
PL - 328	32.49.74	RIGID	9.0m	BASE PLATE	HC49FD	4.9			AC30SO	3.0 X 4.3	162	130
PL - 329	32.49.75	RIGID	10.5m	BASE PLATE	B64FD	6.4			AC20SO	2.0 X 4.3	162	132
PL - 330	32.49.76	RIGID	10.5m	BASE PLATE	B64FD	6.4			AC30SO	3.0 X 4.3	162	132
PL - 331	32.49.77	RIGID	10.5m	BASE PLATE	FL5FD	2.8	FL1	6			400	242
							FL1	6	FC45SO	4.5 X 4.3	300	200
PL - 332	32.49.78	RIGID	12.0m	BASE PLATE	FL3FD	4.3	FL1	6	FC45SO	4.5 X 2.2	300	200
							FL1	6	FC45SO	4.5 X 2.2	300	200
PL - 333	32.49.80	IMPACT ABSORBING	9.0m	BASE PLATE	FL43FDI	4.3	FL132	3.2			400	220
							FL132	3.2	FC30SO	3.0 X 2.2	300	200
PL - 334	32.49.81	IMPACT ABSORBING	10.5m	BASE PLATE	FL345FDI	4.5	FL145	4.5			400	220
							FL145	4.5	FC20SO	2.0 X 2.2	300	200
PL - 335	32.49.82	IMPACT ABSORBING	10.5m	BASE PLATE	FL345FDI	4.5	FL145	4.5			400	220
							FL145	4.5	FC30SO	3.0 X 2.2	300	200
PL - 336	32.49.83	IMPACT ABSORBING	12.0m	BASE PLATE	FL3FDI	4.3	FL1	6			400	220
							FL1	6	FC30SO	3.0 X 2.2	300	200
PL - 341	32.49.72	RIGID	7.5m	BASE PLATE	C34FD	3.4	D24	2.4			162	132
							D24	2.4	AC2034	2.0 X 1.74	300	200

THIS TABLE IS TO BE USED IN CONJUNCTION WITH THE INFORMATION ON DRAWINGS PL-601, PL-603 AND PL-604



EMF/PDF CREATION DATE 06/OCT/16

ALTERATIONS

ORIGINAL ISSUE

INCLUDED NEW BASE PLATE COLUMN SPECIFICATION.

REV B

PROJECT TasNetworks

DESIGNED BY G.MARTINDILL
CHK.PROJ.SOLUTIONS I.S.TE
G.MARTINDILL 13-MAY-16
DRG.APPROV. DATE
A.KETLEY 06-OCT-16

DRAWN	ACUTEL
DESIGNED BY	G.MARTINDILL
CHECKED BY	G.MARTINDILL
APPROVED BY	A.KETLEY
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TITLE
PUBLIC LIGHTING
COLUMNS
COLUMN SECTION SPECIFICATION

SCALE NTS

A4

PL - 602

REVISION B

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COLUMN ASSEMBLY PROCEDURE

BEFORE COMMENCING THIS PROCEDURE THE OPERATOR MUST BE FULLY CONVERSANT WITH THE INFORMATION ON DRAWINGS PL-601, PL-602 AND PL-604.

COLUMNS CAN BE ASSEMBLED BY USING THE FOLLOWING TWO METHODS:

1. TIRFORING

   1.1 SET OUT WOOD PACKING PIECES AND POSITION THE COLUMN SECTIONS ONTO THE PACKING. ENSURE THE SECTIONS ARE LEVEL ON THE PACKING PIECES.

   1.2 ALIGN THE WELDS OF EACH SECTION ALONG THE FULL LENGTH OF THE COLUMN.

   1.3 MARK ON THE COLUMN FACETS AT EACH SLIP JOINT WITNESS MARKS TO ENSURE THE ABSOLUTE MINIMUM SLIP LENGTH IS ACHIEVED AS DISCUSSED IN PL-601.

   1.4 POSITION THE OUTREACH ARM SO THAT IT LIES TO THE RIGHT OF THE COLUMN.

   1.5 ASSEMBLE A 2 TONNE TIRFOR AGAINST THE COLUMN FACE OPPOSITE THE OUTREACH ARM ON THE LEFT HAND SIDE OF THE POLE.

   1.6 SECURE THE TIRFOR NEAR THE TOP OF THE VERTICAL SECTION OF THE COLUMN AND AT THE BASE OF THE COLUMN WITH WEBBING SLINGS. APPLY PROTECTION AROUND THE COLUMN TO ENSURE THE GALVANISED SURFACE IS NOT SCRATCHED OR DAMAGED DURING ASSEMBLY.

   1.7 AS THE TIRFOR IS OPERATED USE A RUBBER HAMMER OR BLOCK OF WOOD TO TAP EACH JOINT UNTIL IT IS WELL SEATED.

   1.8 WHEN OPERATING THE TIRFOR MAKE SURE THE COLUMN SECTIONS REMAIN IN LINE. MISALIGNMENT WILL PREVENT EASY TELESCOPING OF THE SECTIONS AND RESULT IN JAMMING OF THE SLIP JOINTS.

   1.9 CHECK THE SLIP JOINT LENGTH OVERLAP AGAINST THE WITNESS MARKS.

   1.10 CONTINUE OPERATING THE TIRFOR UNTIL NO FURTHER MOVEMENT IS DETECTED. IF THE OPTIMUM SLIP LENGTH MEASUREMENT NOT ACHIEVED THEN REFER TO SECTION 2.4 BELOW FOR REMEDIAL ACTION.

2. BLOCK AND HAMMER

   2.1 FOLLOW PROCEDURE UP TO 1.4 AS ABOVE FOR THE TIRFOR METHOD.

   2.2 POSITION THE PARTLY ASSEMBLED COLUMN WITH THE OUTREACH ARM IN THE VERTICAL POSITION.

   2.3 POSITION A BLOCK OF WOOD AGAINST THE BASE SECTION OF THE COLUMN.

   2.4 WHILE HOLDING THE OUTREACH ARM, STRIKE THE WOOD BLOCK WITH A HAMMER AND CONTINUE UNTIL THE OPTIMUM SLIP JOINT LENGTH IS OBTAINED.

   2.5 FOLLOW THE PROCEDURE AS FOR THE TIRFOR METHOD FROM STEPS 1.7.

ALTERATIONS

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DATE	10/02/2016

TITLE

PUBLIC LIGHTING
COLUMNS
COLUMN ASSEMBLY PROCEDURE

SCALES: NTS

SIZE: A4

PL-603

REVISION: A

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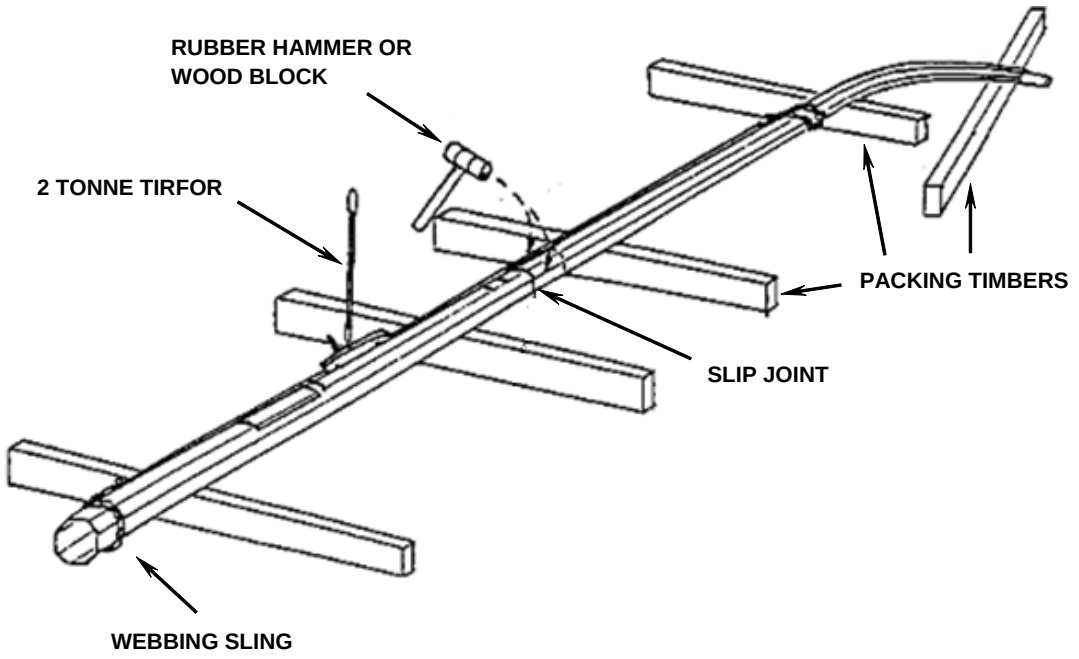

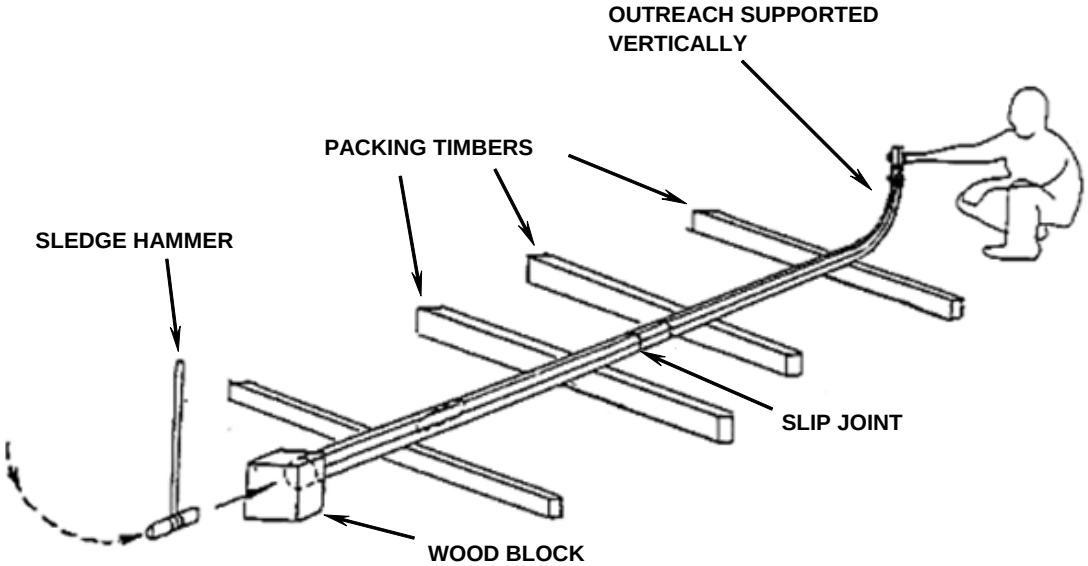

ALTERATIONS

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CHECKED	G.MARTINDILL
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PUBLIC LIGHTING
COLUMNS
COLUMN ASSEMBLY

SCALES: NTS

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PL-604

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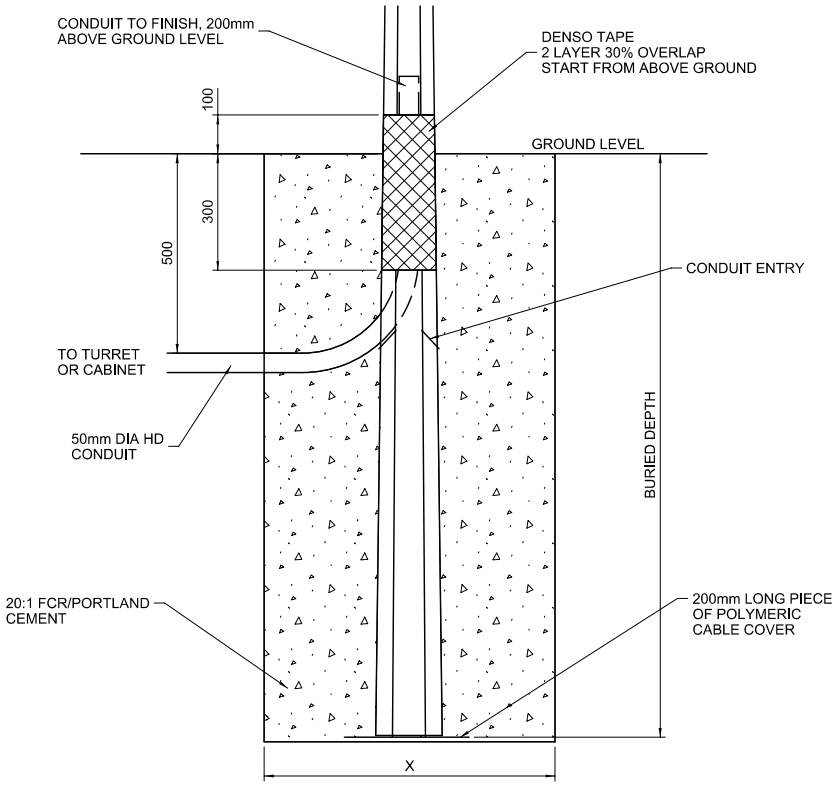

HOLE DIAMETER 'X' WITH 20:1 FCR/CEMENT BACKFILL

SOIL CATEGORY	POLE TYPE DRAWING NO	7.0M RIGID PL-325		7.5M RIGID PL-326	DECORATIVE PL-339 & PL-340
		1.0m BURIED DEPTH	1.5m BURIED DEPTH		
	CD	ENGINEERED FOUNDATION REQUIRED	750	750	600
	CC	450	450	450	450
	CB	450	450	450	450
	CA	450	450	450	450
	PA	750	450	450	450
	PB	ENGINEERED FOUNDATION REQUIRED	750	750	600

NOTES
1. BURIED DEPTH MEASUREMENT IS DEPENDENT ON COLUMN SIZE AND IS FOUND ON COLUMN DRAWING.
2. FOR INSTALLATION REQUIREMENTS AND SOIL CATEGORY PROPERTIES SEE DRAWING PL-606.
3. DIRECT BURIED FOUNDATION IS NOT SUITABLE FOR GROUND SLOPE EXCEEDING 3:1. SLOPE EXCEEDING THE 3:1 SHALL REQUIRE AN ENGINEERED FOUNDATION IN ACCORDANCE WITH AS 7000.

EMF/PDF CREATION DATE 06/OCT/16

ALTERATIONS		
	ORIGINAL ISSUE	
B	INCLUDED ADDITIONAL NOTES ON SLOPE LIMITATIONS AND UPDATED PL-325 FOUNDATION DIAMETER.	

REV	PROTECT	TasNetworks	DESIGNED BY	DRAWN BY	DATE
B			CROSS-SOLUTIONS	J.TE	13-MAY-16
			G.MARTINDILL	DRG.APPROV.	DATE
			G.MARTINDILL	A.KETLEY	06-OCT-16

DRAWN	ACUTEL
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DATE APPROVED	10/FEB/16

TITLE
PUBLIC LIGHTING
CIVIL
FOUNDATION - DIRECT BURIED

SCALE NTS

A4

REVISION B

PL - 605

DIRECT BURIED COLUMN NOTES

1. EXCAVATION

1.1. THE DEPTH OF THE HOLE IS SPECIFIED ON THE COLUMN DRAWING.
1.2. EXCAVATE HOLE WITH AUGER OR IF HAND DUG, HOLE TO HAVE PARALLEL SIDES. REMOVE ALL LOOSE SPOIL FROM BOTTOM OF HOLE PRIOR TO INSTALLING COLUMN.
1.3. IF EXCAVATION IS LARGER THAN THE SPECIFIED HOLE DIAMETER, A SLEEVE TUBE OR SOCKET WITH AN OUTSIDE DIAMETER NO SMALLER THAN THE SPECIFIED HOLE DIAMETER SHALL BE USED TO HOUSE THE COLUMN.
1.4. THE TUBE SHALL BE INSTALLED TO THE NOMINATED DEPTH AND EXTERNAL BACKFILL SHALL BE COMPACTED IN 200MM LAYERS TO SAME DENSITY AS THE EXISTING GROUND.
1.5. PLACE 200MM LENGTH OF POLYMERIC CABLE COVER AT BOTTOM OF HOLE.

2. CORROSION PROTECTION

2.1. ALL COLUMNS SHALL HAVE 2 LAYERS OF DENSO TAPE WITH A 30% OVERLAP TO COVER THE COLUMN 100MM ABOVE GROUND AND 300MM BELOW GROUND.

3. COLUMN POSITIONING

3.1. COLUMNS SHALL BE CENTRALLY POSITIONED WITHIN THE EXCAVATED HOLE OR SLEEVE TUBE.
3.2. UNLESS SPECIFIED OTHERWISE, THE OUTREACH IS TO ALIGN AT RIGHT ANGLES TO KERB AND THE ELECTRICAL ACCESS PANEL IS TO FACE THE PROPERTY BOUNDARY.

4. COLUMN LIFTING

4.1. COLUMNS SHALL BE LIFTED AND INSTALLED AS PER MANUFACTURER'S SPECIFICATIONS.

5. BACKFILL

5.1. BACKFILL MATERIAL SHALL BE A 20:1 RATIO OF FCR AND PORTLAND CEMENT THOROUGHLY MIXED PRIOR TO INSTALLATION.
5.2. BACKFILL SHALL BE COMPACTED IN 200MM LAYERS TO FULL DEPTH.

6. SOIL CLASSIFICATION

6.1. SOIL CATEGORY SHALL BE DETERMINED FOR THE TYPICAL SOIL CONDITION AT THE SITE OF THE PUBLIC LIGHTING INSTALLATION.
6.2. IMPORT FILL SHALL NOT BE CATEGORISED USING TABLE 1 BELOW.

SOIL CATEGORIES AND PROPERTIES			
SOIL CATEGORY	COHESIVE/ NON-COHESIVE	DESCRIPTION	
CD	COHESIVE	SOFT	CAN BE MOULDED BY LIGHT FINGER PRESSURE
CC	COHESIVE	FIRM	CAN BE MOULDED BY STRONG FINGER PRESSURE
CB	COHESIVE	STIFF	CANNOT BE MOULDED BY FINGERS
CA	COHESIVE	VERY STIFF	CAN BE INDENTED BY THUMB NAIL
PA	NON-COHESIVE	DENSE	COMPACTED IN-SITU, FORMS SOME CLUMPS
PB	NON-COHESIVE	LOOSE	RUNS OR CRUMBLES EASILY IN HAND

TABLE 1
SOIL CATEGORIES AND PROPERTIES FOR DIRECT BUIRED COLUMN FOOTINGS

EMF/PDF CREATION DATE 06/OCT/16

ALTERATIONS		
REV	PROTECT	
B	ORIGINAL ISSUE	INCLUDED ADDITIONAL CLARIFICATION ON SOIL CLASSIFICATION.

TasNetworks

DESIGNED BY: ENG-SOLUTIONS
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ENG.APPROV.: A.KETLEY
DATE: 13-MAY-16
DRG.APPROV.: A.KETLEY
DATE: 06-OCT-16

TasNetworks

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CHECKED BY	G.MARTINDILL
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DATE APPROVED	10/FEB/16

TITLE
PUBLIC LIGHTING
CIVIL
FOUNDATIONS - DIRECT BURIED COLUMN INSTALLATION REQUIREMENTS

SCALE: NTS
A4
REVISION: B

PL - 606

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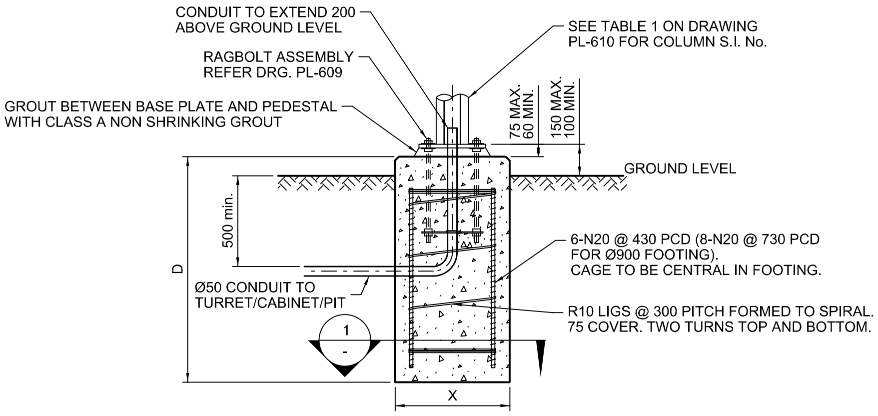
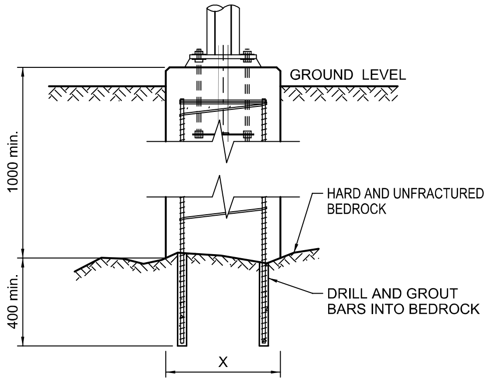
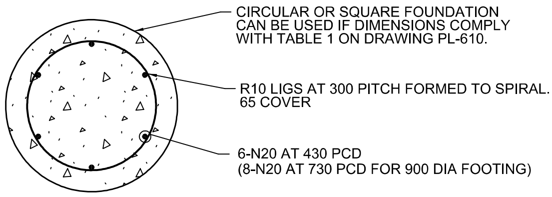


FOOTING DETAIL
(SEE NOTE 4)
SCALE 1:30



FOOTING DETAIL - ROCK ENCOUNTERED
(SEE NOTE 4)
SCALE 1:30



SECTION 1 -
SCALE 1:20

NOTES

1. ALL CONCRETE TO BE GRADE 32 MPa MIN.
2. COAT BOTH THREADS AND NUTS WITH DENSO PRIMER PASTE.
3. FOR DIMENSIONS AND SOIL CATEGORIES REFER TABLES 1 & 4 ON DRAWING PL-610.
4. DIMENSION X - Ø600 FOR 350 PCD BASEPLATE COLUMNS & Ø900 FOR 500 PCD BASEPLATE COLUMNS.
5. DIRECT BURIED FOUNDATION IS NOT SUITABLE FOR GROUND SLOPE EXCEEDING 3:1. SLOPE EXCEEDING THE 3:1 SHALL REQUIRE AN ENGINEERED FOUNDATION IN ACCORDANCE WITH AS 7000.

EMF/PDF CREATION DATE 06/OCT/16

ALTERATIONS

REV	ALTERATION	PROJECT	DESIGNED BY / ENG.CHECK	DRAWN BY / DATE	ENG.APPROV. / DATE
	ORIGINAL ISSUE				
B	INCLUDES ADDITIONAL NOTES ON SLOPE LIMITATIONS.	TasNetworks	CS PRO-SOLUTIONS / G.MARTINDILL	CS PRO-SOLUTIONS / 13-MAY-16	A.KETLEY / 06-OCT-16

TasNetworks

DRAWN	ACUTEL
DESIGNED BY	G.MARTINDILL
CHECKED BY	G.MARTINDILL
APPROVED BY	A.KETLEY
DATE APPROVED	10/FEB/16

TITLE
PUBLIC LIGHTING
CIVIL
FOUNDATIONS - COLUMNS
PILE FOOTING

SCALE 1:20 1:30

A4

PL - 607

REVISION B

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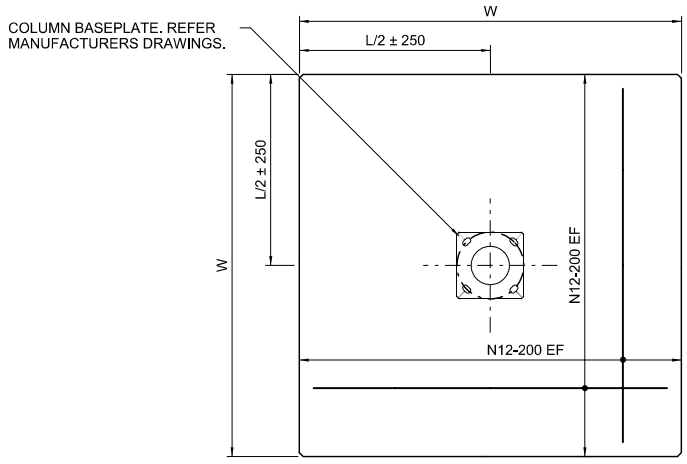
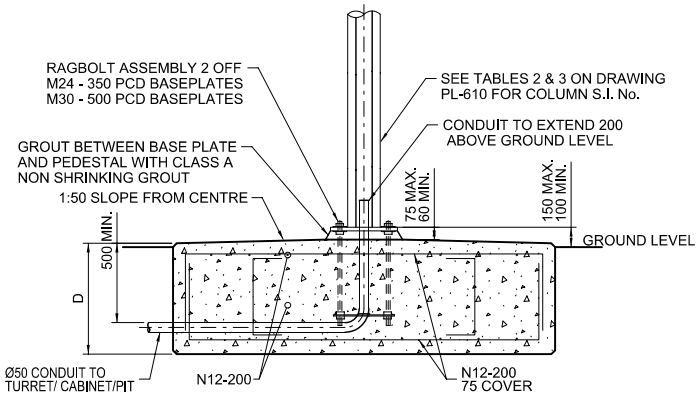


PLAN
SCALE 1:30



FOOTING DETAIL
SCALE 1:30

NOTES
1. ALL CONCRETE TO BE GRADE 32 MPa MIN.
2 COAT BOTH THREADS AND NUTS WITH DENSO PRIMER PASTE.
3. FOR DIMENSIONS AND SOIL CATEGORIES REFER TABLES 2, 3 & 4 ON DRAWING PL-610.
5. DIRECT BURIED FOUNDATION IS NOT SUITABLE FOR GROUND SLOPE EXCEEDING 3:1. SLOPE EXCEEDING THE 3:1 SHALL REQUIRE AN ENGINEERED FOUNDATION IN ACCORDANCE WITH AS 7000.

EMF/PDF CREATION DATE 06/OCT/16

ALTERATIONS

REV	PROJECT	
B		ORIGINAL ISSUE
		INCLUDED ADDITIONAL NOTES ON SLOPE LIMITATIONS.

TasNetworks

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DRAWN BY	CS-PRO-SOLUTIONS
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APPROVED BY	G.MARTINDILL
DRG.APPROV.	A.KETLEY
DATE	06-OCT-16

TasNetworks

DRAWN	ACUTEL
DESIGNED BY	G.MARTINDILL
CHECKED BY	G.MARTINDILL
APPROVED BY	A.KETLEY
DATE APPROVED	10/FEB/16

TITLE
PUBLIC LIGHTING
CIVIL
FOUNDATION - COLUMN
PAD FOOTING

SCALE 1:30

A4

PL - 608

REVISION B

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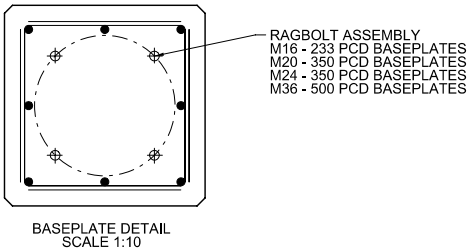
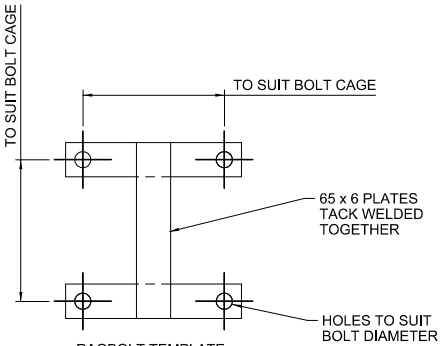
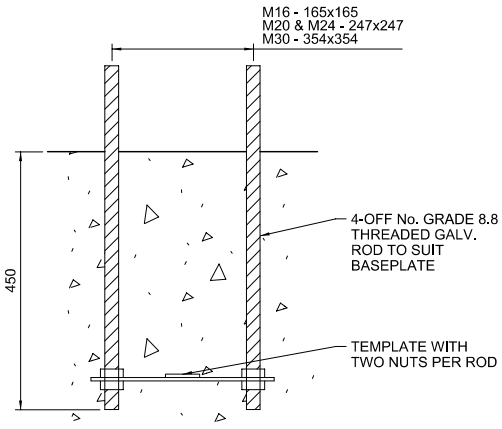


BASEPLATE DETAIL
SCALE 1:10



RAGBOLT TEMPLATE
SCALE 1:10



RAGBOLT ASSEMBLY DETAIL
SCALE 1:10

NOTES
1. ALL CONCRETE TO BE GRADE 32 MPa MIN.
2. COAT BOTH THREADS AND NUTS WITH DENSO PRIMER PASTE.
3. FOR STANDARD PILE AND PAD FOOTING DETAILS REFER: PL-607 & PL-608.
4. DIRECT BURIED FOUNDATION IS NOT SUITABLE FOR GROUND SLOPE EXCEEDING 3:1. SLOPE EXCEEDING THE 3:1 SHALL REQUIRE AN ENGINEERED FOUNDATION IN ACCORDANCE WITH AS 7000.

EMF/PDF CREATION DATE 06/OCT/16

ALTERATIONS					
	ORIGINAL ISSUE	INCLUDED ADDITIONAL NOTES ON SLOPE LIMITATIONS.	B	DESIGNED BY: CS.ROD-SOLUTIONS DRAWN BY: CS.TF CHECKED BY: G.MARTINDILL ENG.APPROV.: A.KETLEY DATE: 13-MAY-16 DATE: 06-OCT-16	

TasNetworks

DRAWN	ACUTEL
DESIGNED BY	G.MARTINDILL
CHECKED BY	G.MARTINDILL
APPROVED BY	A.KETLEY
DATE APPROVED	10/FEB/16

TITLE
PUBLIC LIGHTING
CIVIL
FOUNDATIONS - COLUMNS
RAGBOLT DETAILS

SCALE 1:10

A4

PL - 609

REVISION B

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COLUMN S.I. No.	DIMENSION D (m)												
	324973	324974	324975	324976	324977	324978	324980	324981	324982	324983	324985	324991	324972
CD	2.0	2.4	2.4	2.4	2.8	3.2	2.4	2.8	2.8	3.2	3.6	2.8	2.0
CC	1.5	1.5	1.5	1.5	1.8	2.0	1.8	2.0	2.0	2.0	2.4	1.8	1.5
CB	1.0	1.2	1.2	1.2	1.5	1.5	1.2	1.2	1.2	1.5	1.8	1.5	1.0
CA	1.0	1.0	1.0	1.0	1.0	1.2	1.0	1.0	1.0	1.2	1.2	1.0	1.0
PA	1.5	1.8	1.8	1.8	2.0	2.0	2.0	1.8	1.8	2.0	2.4	2.0	1.5
PB	1.8	2	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.8	2.4	1.8

TABLE 1
STANDARD COLUMN - PILE FOUNDATION

COLUMN S.I. No.	DIMENSION 'W' (m)											
	324973	324974	324975	324976	324977	324978	324980	324981	324982	324983	324985	324991	324972
CD	2.0	2.0	2.0	2.4	2.4	2.6	2.4	2.4	2.4	2.6	3.2	2.6	1.8
CC	1.8	2.0	2.0	2.0	2.0	2.4	2.0	2.0	2.0	2.4	2.8	2.4	1.5
CB	1.8	2.0	2.0	2.0	2.0	2.4	2.0	2.0	2.0	2.4	2.8	2.4	1.5
CA	1.8	2.0	2.0	2.0	2.0	2.4	2.0	2.0	2.0	2.4	2.4	2.4	1.5
PA	1.8	2.0	2.0	2.0	2.0	2.4	2.0	2.0	2.0	2.4	2.4	2.4	1.5
PB	1.8	2.0	2.0	2.0	2.0	2.4	2.0	2.0	2.0	2.4	2.8	2.4	1.8

TABLE 2

COLUMN S.I. No.	DIMENSION 'D' (m)												
	324973	324974	324975	324976	324977	324978	324980	324981	324982	324983	324985	324991	324972
CD	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.8	0.6	0.5
CC	0.6	0.6	0.6	0.6	0.8	0.6	0.6	0.6	0.8	0.8	0.8	0.8	0.5
CB	0.6	0.6	0.6	0.6	0.8	0.6	0.6	0.6	0.8	0.8	0.8	0.8	0.5
CA	0.6	0.6	0.6	0.6	0.8	0.6	0.6	0.6	0.8	0.8	1.0	0.8	0.5
PA	0.6	0.6	0.6	0.6	0.8	0.6	0.6	0.6	0.8	0.8	1.0	0.8	0.5
PB	0.6	0.6	0.6	0.6	0.8	0.6	0.6	0.6	0.8	0.8	0.8	0.8	0.5

TABLE 3
STANDARD COLUMN - PAD FOOTING

NOTES:

1. FOR PILE FOUNDATION DRAWING REFER PL-607.
2. FOR PAD FOOTING DRAWING REFER PL-608.
3. FOR ASSEMBLY REQUIREMENTS AND SOIL CATERGORY PROPERTIES REFER TO DRAWING PL-611.

EMF/PDF CREATION DATE 06/OCT/16

ALTERATIONS		
REV	PROJECT	
ORIGINAL ISSUE		
B		UPDATED TABLE 1,2 & 3 TO INCLUDE NEW COLUMN (324972).

TasNetworks

DESIGNED BY: G.MARTINDILL
CIVIL PUBLIC LIGHTING SOLUTIONS
DRAWN BY: A.K.ETLEY
13-MAY-16
G.MARTINDILL
DRG.APPROV.
A.KETLEY
DATE
06-OCT-16

DRAWN	ACUTEL
DESIGNED BY	G.MARTINDILL
CHECKED BY	G.MARTINDILL
APPROVED BY	A.KETLEY
DATE APPROVED	10/FEB/16

TITLE
PUBLIC LIGHTING
CIVIL
FOUNDATIONS - COLUMN FOOTING
DIMENSIONS AND SOIL CATEGORIES

SCALE: NTS
A4
REVISION: B

PL - 610

CAUTION : Printed document is uncontrolled.

RAGBOLT FOUNDATIONS

1. RAGBOLT FOUNDATIONS MUST BE CONSTRUCTED TO SUIT THE TYPE OF COLUMN AND THE SOIL CONDITIONS AT THE SITE. SEE DRAWINGS PL-607 TO PL-610 FOR THIS INFORMATION.
2. BEFORE POURING THE FOUNDATION IT IS RECOMMENDED THAT A RAGBOLT TEMPLATE BE USED TO ENSURE THAT THE RAGBOLT ASSEMBLY WILL BE CORRECTLY CENTRED AND VERTICAL.
3. THE TOP OF THE CONCRETE FOUNDATION SHOULD ALWAYS BE ABOVE GROUND LEVEL AND CONCRETE FINISHED OFF SO THAT THERE IS A GENTLE SLOPE FROM THE CENTRE TO THE OUTSIDE EDGE.
4. THE HEIGHT OF THE CONCRETE FOUNDATION ABOVE THE FINISHED GROUND LEVEL WILL DEPEND ON THE GROUND CONDITION AT EACH SITE.
5. WHEN THE FOUNDATION IS COMPLTED THE PROTRUDING PORTION OF THE RAGBOLTS SHOULD BE COATED WITH GREASE AND PROTECTED BY A CAP.

CORROSION PROTECTION

1. EXPOSED RAGBOLT THREADS AND NUTS FOR ALL TYPES OF COLUMNS SHALL BE LIBERALLY COATED WITH DENSO PRIMER PASTE TO ASSIST WITH CORROSION PROTECTION.
2. RIGID COLUMNS THAT HAVE A FINISHED SURFACE UP TO THE COLUMN WALL SHALL HAVE ALL RAGBOLT THREADS AND NUTS, AND ALL FACES OF THE FLANGE LIBERALLY COATED WITH DENSO PRIMER PASTE TO ASSIST WITH CORROSION PROTECTION.
3. DENSO 50 TAPE SHALL ALSO BE WRAPPED AROUND THE BASE OF THE COLUMN STARTING FROM A POINT 100 MM ABOVE THE FINISHED PAVED LEVEL DOWN TO THE TOP OF THE FLANGE. TWO LAYERS OF TAPE SHOULD BE APPLIED WITH A 30% OVERLAP.

SOIL CLASSIFICATION

1. SOIL CATEGORY SHALL BE DETERMINED FOR THE TYPICAL SOIL CONDITION AT THE SITE OF THE PUBLIC LIGHTING INSTALLATION.
2. IMPORT FILL SHALL NOT BE CATERGORISED USING TABLE 1 BELOW.

SOIL CATEGORIES AND PROPERTIES			
SOIL CATEGORY	COHESIVE/ NON-COHESIVE	DESCRIPTION	
CD	COHESIVE	SOFT	CAN BE MOULDED BY LIGHT FINGER PRESSURE
CC	COHESIVE	FIRM	CAN BE MOULDED BY STRONG FINGER PRESSURE
CB	COHESIVE	STIFF	CANNOT BE MOULDED BY FINGERS
CA	COHESIVE	VERY STIFF	CAN BE INDENTED BY THUMB NAIL
PA	NON-COHESIVE	DENSE	COMPACTED IN-SITU, FORMS SOME CLUMPS
PB	NON-COHESIVE	LOOSE	RUNS OR CRUMBLES EASILY IN HAND

TABLE 1
FOR PILE AND PAD FOOTINGS

EMF/PDF CREATION DATE 06/OCT/16

ALTERATIONS		
REV	PROJECT	
ORIGINAL ISSUE		
B		INCLUDED ADDITIONAL CLARIFICATION ON SOIL CLASSIFICATION.

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DRAWN BY	ICP ECO-SOLUTIONS
CHECKED BY	G.MARTINDILL
DATE	13-MAY-16
APPROVED BY	A.KETLEY
DATE	06-OCT-16

TasNetworks

DRAWN	ACUTEL
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APPROVED BY	A.KETLEY
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TITLE
PUBLIC LIGHTING
CIVIL
FOUNDATIONS - RAGBOLT AND CORROSION PROTECTION

SCALE: NTS

A4

PL - 611

REVISION: B

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BASE PLATE MOUNTED COLUMN INSTALLATION

1.1 COLUMNS SHALL BE ASSEMBLED AS SHOWN ON DRAWINGS PL-601 TO PL-604. THE ASSEMBLY OF AN IMPACT ABSORBING COLUMN IS THE SAME AS FOR A RIGID TYPE COLUMN.

1.2 PLACE A NUT AND WASHER ONTO EACH OF THE ANCHOR BOLTS SO THAT THEY WILL BE UNDER THE COLUMN BASE PLATE AND CLEAR OF THE TOP OF THE CONCRETE BY APPROXIMATELY 30 MM.

1.3 ADJUST TWO DIAGONALLY OPPOSED NUTS SO THEY ARE LEVEL WITH EACH OTHER AND 10 MM HIGHER THAN THE OTHER TWO NUTS. THESE FOUR NUTS WILL PROVIDE A MEANS OF OBTAINING VERTICAL PLUMBING OF THE COLUMN.

1.4 POSITION THE COLUMN SO THE CENTRE OF GRAVITY OF THE COLUMN IS ADJACENT TO THE FOUNDATION AND CENTRE THE LIFTING CRANE ABOVE THE COLUMN. ATTACH A SLING AT APPROXIMATELY TWO THIRDS OF THE COLUMN HEIGHT FROM THE BASE AND ATTACH A TIRFOR BETWEEN THE LIFTING LUG ON THE BASE PLATE AND THE LIFTING SLING.
THIS IS TO ALLOW THE SLING TO TIGHTEN AROUND THE COLUMN AND THE TIRFOR TO STOP THE SLING FROM SLIPPING FURTHER UP THE COLUMN WHILE TRANSFERRING THE LIFTING FORCE BACK TO THE COLUMN BASE.

1.5 FOR SMALLER COLUMNS A SLING CAN BE FASTENED TO THE ELECTRICAL PANEL RAILS IN THE INSPECTION OPENING AND THEN TO THE CRANE SLING.

1.6 FOR LARGER COLUMNS IT MAY BE NECESSARY TO USE A SMALL MOBILE CRANE TO "TAIL IN" THE BASE END OF THE COLUMN AS THE MAIN CRANE IS LIFTING. THIS WILL AVOID THE BASE PLATE DRAGGING ON THE GROUND AND MAINTAIN CONTROL OF THE BASE UNTIL THE COLUMN IS HELD VERTICAL BY THE LIFTING CRANE.

1.7 ALL LIFTING TACKLE SHALL BE RATED FOR THE MASS OF COLUMN BEING LIFTED.

1.8 BEFORE LIFTING THE COLUMN, MARK THE BASE PLATE AND FOUNDATION TO ENSURE THAT THE HEADFRAME AND LIGHTING ARRAY WILL BE CORRECTLY ORIENTATED.

1.9 LIFT AND LOCATE THE COLUMN ON THE FOUNDATION AND PLACE WASHERS AND NUTS ON ALL THE RAGBOLT THREADS.

1.10 RELEASE THE LOAD FROM THE LIFTING CRANE AND PLUMB THE COLUMN USING THE ADJUSTING NUTS.

1.11 WITH THE COLUMN VERTICAL, TIGHTEN ALL NUTS UP TO THE UNDERSIDE OF THE BASE AND TIGHTEN DOWN CORRESPONDING NUTS ABOVE THE BASE PLATE.

1.12 REMOVE THE LIFTING TACKLE FROM THE COLUMN BASE. THE TOP LIFTING SLING SHOULD LOOSEN AND THE TIRFOR ROPE CAN BE USED TO PULL THE LIFTING SLING DOWN THE COLUMN AS THE LIFTING CRANE CABLE IS RUN DOWN.

1.13 THE FLANGE FOR IMPACT ABSORBING AND RIGID COLUMNS SHOULD BE NO GREATER THAN 150 MM ABOVE THE FINISHED GROUND LEVEL. THE BOLT ASSEMBLY, NUTS AND FLANGE SHOULD BE CLEAR OF ANY SOIL AND VEGETATION.

1.14 WHERE RIGID COLUMNS ARE INSTALLED IN PAVED AREAS IT IS PREFERABLE TO HAVE THE FLANGE ABOVE THE FINISHED PAVING. WERE THE LOCAL AUTHORITY REQUIRES A DECORATIVE SURFACE TO BE FINISHED TO THE COLUMN WALL, THE CONCRETE FOUNDATION SHOULD BE LOW ENOUGH SO THE FLANGE AND NUTS ARE BELOW THE UNDERSIDE OF THE PAVING SURFACE TO BE PLACED AROUND THE COLUMN BASE.

ALTERATIONS

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DIMENSIONS ARE IN MILLIMETRES. UNLESS OTHERWISE STATED.

DRAWN	ACUTEL
CHECKED	G.MARTINDILL
APPROVED	ANGUS KETLEY
DATE	10/02/2016

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ABN: 24 167 357 299

TITLE
PUBLIC LIGHTING
CIVIL
BASE PLATE MOUNTED COLUMN INSTALLATION

SCALES: NTS

SIZE: A4

PL-612

REVISION: A

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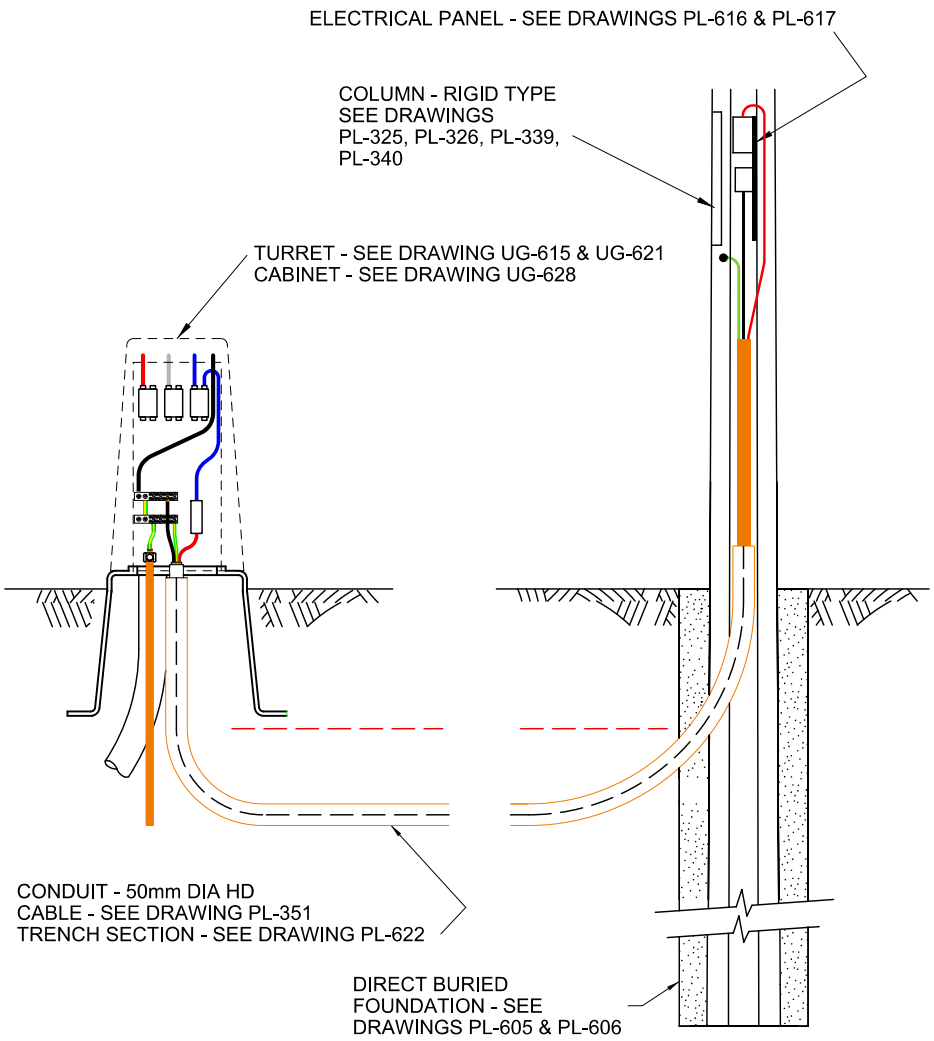

EMF/PDF CREATION DATE 06/OCT/16

ALTERATIONS		
	ORIGINAL ISSUE	ADDED INTERNAL TURRET DETAIL

REV	PROJECT	
B		DESIGNED BY CS PRO-SOLUTIONS
		DRAWN BY CS PRO-SOLUTIONS
		CHECKED BY A.KETLEY
		ENG.APPROV. A.KETLEY
		DATE 06-OCT-16

TasNetworks

DRAWN	ACUTEL
DESIGNED BY	G.MARTINDILL
CHECKED BY	G.MARTINDILL
APPROVED BY	A.KETLEY
DATE APPROVED	10/FEB/16

TITLE
PUBLIC LIGHTING
ELECTRICAL
TURRET/CABINET TO COLUMN LAYOUT

SCALE NTS

A4

PL - 613

REVISION B

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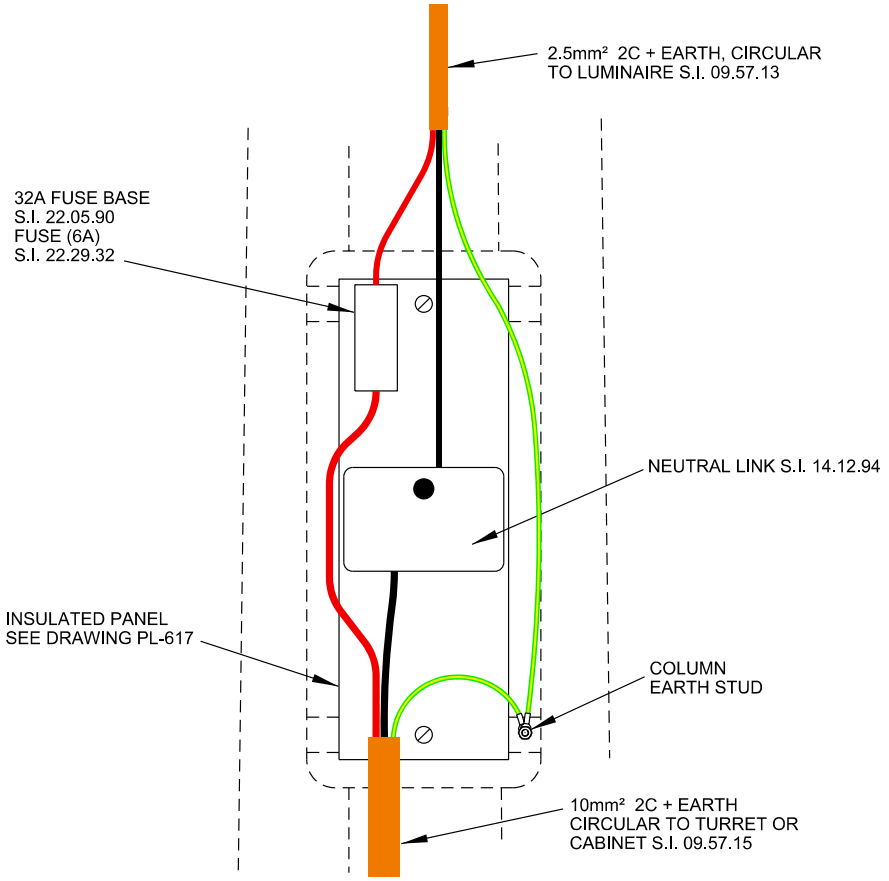

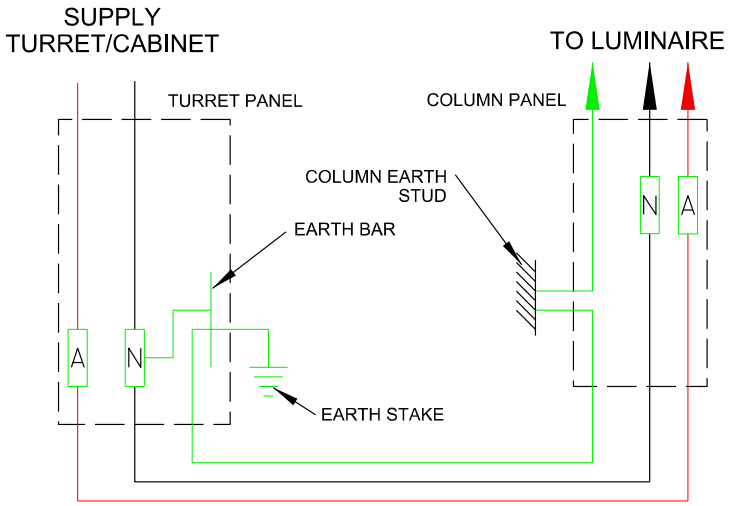

SCHEMATIC DIAGRAM
FOR URD CONFIGURATION

ALTERATIONS

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APPROVED	ANGUS KETLEY
DATE	10/02/2016

TITLE

PUBLIC LIGHTING
ELECTRICAL
COLUMN ELECTRICAL WIRING LAYOUT

PL-616

SCALES: NTS

SIZE: A4

REVISION: A

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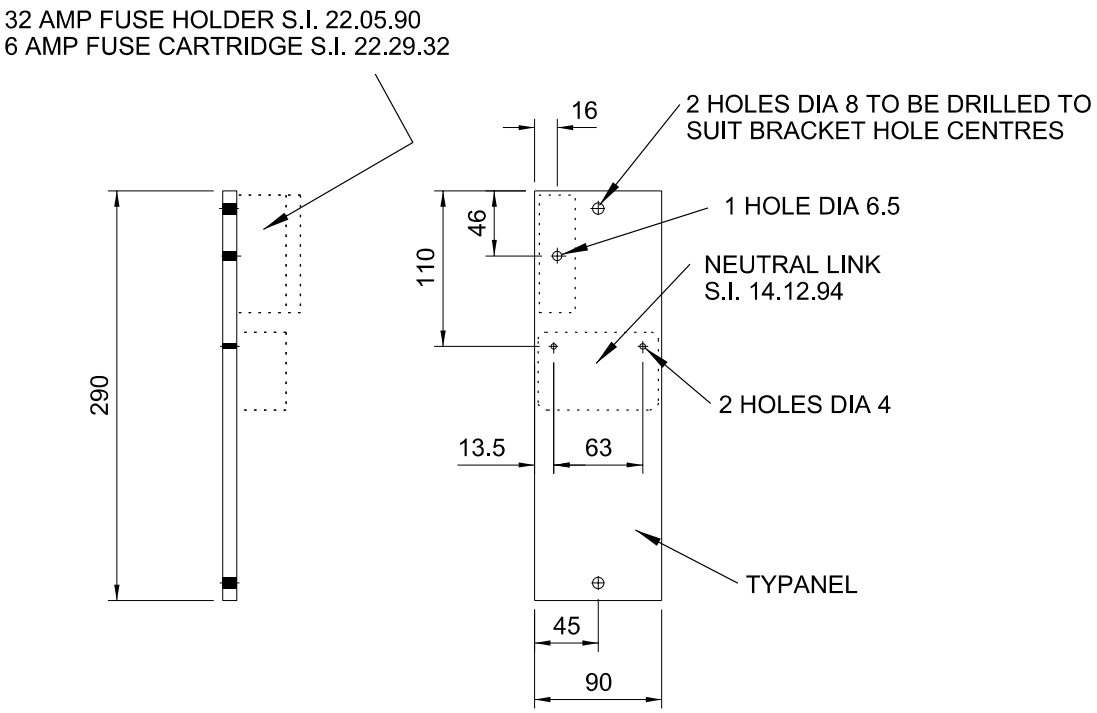

PUBLIC LIGHT ELECTRICAL PANEL GENERAL ARRANGEMENT AND DRILLING DETAIL

MATERIAL: 10mm TYPANEL to AS 1795 Certificate of suitability No 7152N

THIS PANEL IS TYPICAL FOR INGAL EPS COLUMNS

ALTERATIONS

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APPROVED	ANGUS KETLEY
DATE	10/02/2016

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ABN: 24 167 357 299

TITLE

PUBLIC LIGHTING
ELECTRICAL DRAWINGS
ELECTRICAL PANEL ASSEMBLY AND DETAILS

SCALES: NTS

SIZE: A4

PL-617

REVISION: A

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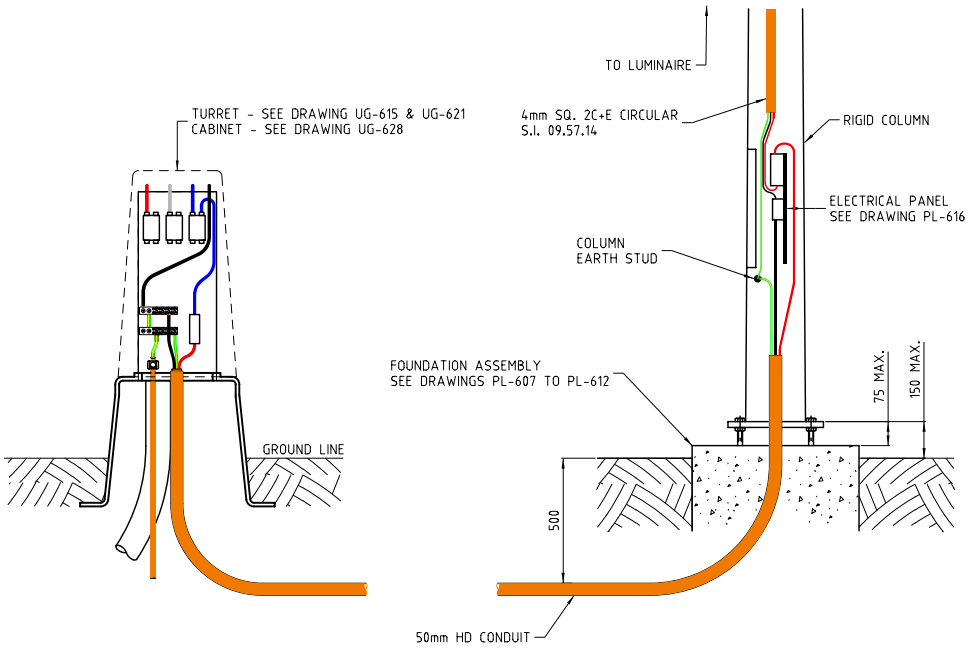

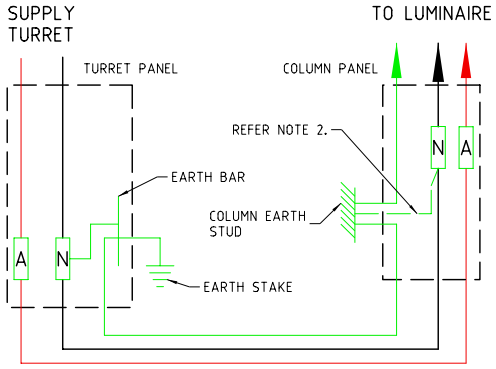

WIRING DIAGRAM

NOTES
1. THIS DRAWING LAYOUT IS ALSO APPLICABLE TO DIRECT BURIED RIGID COLUMNS.
2. IF AN EARTH CABLE IS INCLUDED WITH INCOMING SUPPLY IT IS TO BE ATTACHED DIRECTLY TO THE COLUMN EARTH STUD WITH NO MEN CONNECTION. IF NO INCOMING EARTH CABLE IS INSTALLED, A LINK FROM THE COLUMN EARTH STUD TO THE NEUTRAL IS TO BE MADE TO CREATE A MEN POINT.
3. ALL EARTHS SHALL BE CONNECTED TO COLUMN EARTH STUD.
4. COLUMNS WITH MULTIPLE LUMINAIRES WILL REQUIRE A SEPARATE FUSE AND CABLE FROM THE ELECTRICAL PANEL WITHIN THE COLUMN TO EACH LUMINAIRE.
5. COLUMNS MAY BE SUPPLIED FROM TURRETS OR CABINETS. SEE DRAWINGS UG-615, UG-621 & UG-628 FOR TURRET & CABINET LAYOUT.

EMF/PDF CREATION DATE 06/OCT/16

ALTERATIONS	
ORIGINAL ISSUE	

TasNetworks

DRAWN	CS PRO-SOLUTIONS
DESIGNED BY	CS PRO-SOLUTIONS
CHECKED BY	G.MARTINDILL
APPROVED BY	A.KETLEY
DATE APPROVED	06/OCT/16

TITLE
PUBLIC LIGHTING
ELECTRICAL
TURRET/CABINET TO SINGLE COLUMN LAYOUT
RIGID COLUMNS

SCALE NTS

A4

D - PL1 - 0618 - SD - 001

REVISION A

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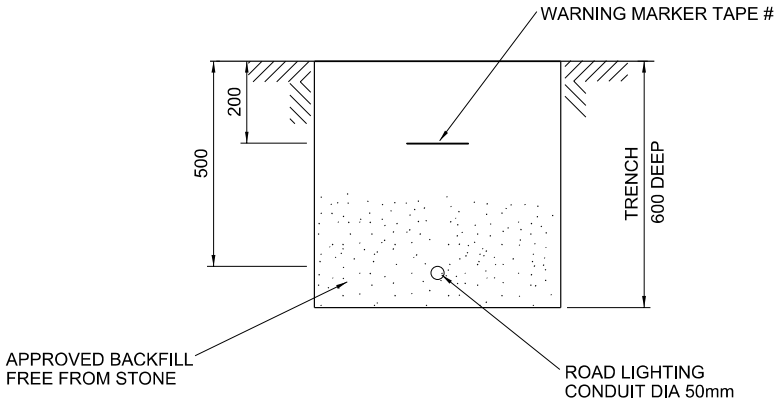
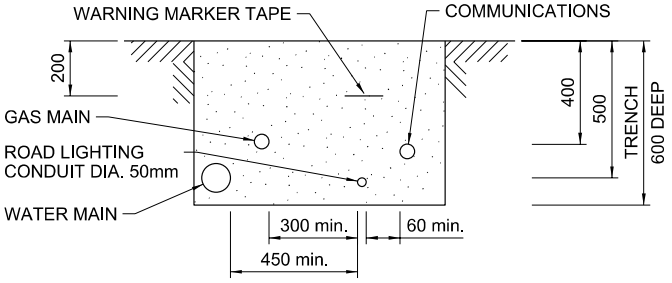


PUBLIC LIGHTING TRENCH
NTS



MINIMUM UTILITY SERVICE SEPARATIONS
NTS

NOTE: SEE DRAWING UG-205 FOR PUBLIC LIGHTING CONDIUT LOCATION IN TRENCHES WITH LV AND HV CABLES AND CONDUITS

ALTERATIONS

TasNetworks

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DRAWN	ACUTEL
CHECKED	G.MARTINDILL
APPROVED	ANGUS KETLEY
DATE	10/02/2016

TasNetworks PTY. LTD.
ABN: 24 167 357 299

TITLE
PUBLIC LIGHTING
CIVIL
TRENCH SECTIONS

SCALES
NTS

SIZE
A4

PL-622

REVISION
A

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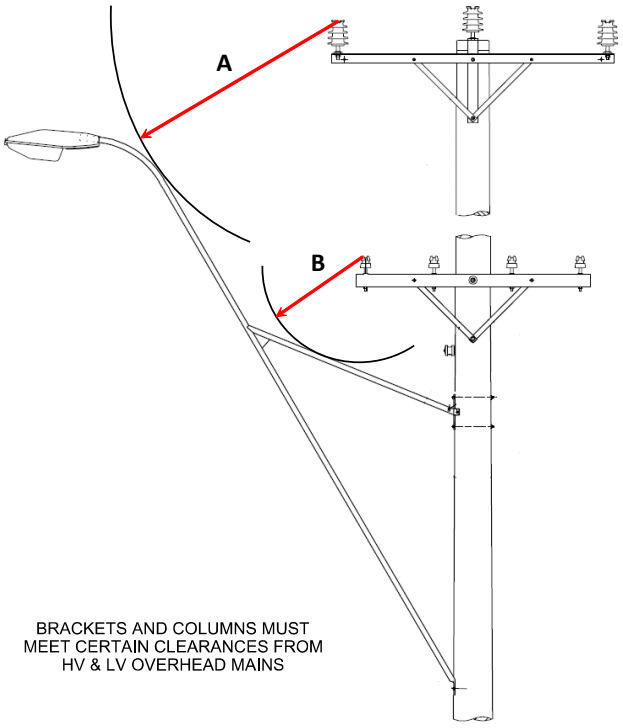
MINIMUM CLEARANCES FROM OVERHEAD CONDUCTORS

WHERE ROAD LIGHTING HARDWARE IS INSTALLED NEAR OR ATTACHED TO EXISTING POLES THAT SUPPORT LV/HV CONDUCTORS, THE DESIGNER SHALL ENSURE ADEQUATE CLEARANCE TO CONDUCTORS FOR THE INITIAL INSTALLATION AND THE SAFE ACCESS FOR FUTURE MAINTENANCE OF THE LIGHTING HARDWARE.

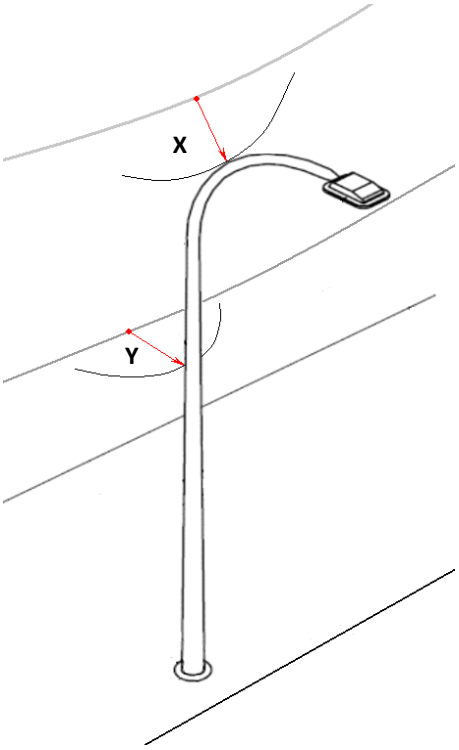
PUBLIC LIGHT CONTROL CIRCUITS SHALL BE REGARDED AS 'LIVE' LOW VOLTAGE, AS THEY CAN BE ENERGISED AT ANY TIME. WERE THE MINIMUM CLEARENCE OF 600MM CANNOT BE ACHIEVED TO A BRACKET, THE CONTROL CIRCUIT SHALL BE EITHER RELOCATED, EFFECTIVELY SLEEVED OR REPLACED WITH A SECTION OF INSULATED CONDUCTOR.

	Neutral	U ≤ 1000V	1000V < U ≤ 33kV
A			1500 mm
B	300 mm	600 mm	
X			2100 mm*
Y	1200 mm*	1500 mm*	

* Allowance for conductor blowout at operating temperature shall be added to X & Y clearances



BRACKETS AND COLUMNS MUST MEET CERTAIN CLEARANCES FROM HV & LV OVERHEAD MAINS



ALTERATIONS

TasNetworks

DIMENSIONS ARE IN MILLIMETRES. UNLESS OTHERWISE STATED.

TasNetworks PTY. LTD.
ABN: 24 167 357 299

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CHECKED	G.MARTINDILL
APPROVED	ANGUS KETLEY
DATE	10/02/2016

TITLE

PUBLIC LIGHTING
CLEARANCES
CLEARANCES TO OH WIRES

SCALES: NTS

SIZE: A4

PL-625

REVISION: A