

# **OVERHEAD CONSTRUCTION MANUAL**

## **Section 9 – Telecommunications**

Approved by: C Noel



CU		DESCRIPTION		PAGE	DWG No.	CU	DESCRIPTION		PAGE	DWG No.	
		<u>ADSS CABLE CONSTRUCTION</u>					<u>OPGW CABLE CONSTRUCTION</u>				
AD/B AD/BX AD/S AD/SR AD/T AD/TR AD/HA AD/UGT AD/OHJ AD/OHJ	ADSS CIVIL NOTES		9-ii	4920-A4			OPGW CONSTRUCTION CODE GUIDE		9-101	4920-A4	
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	ADSS OVERHEAD JOINT DETAILS		9-14		OPVR		OPGW SUSPENSION RAISER CONSTRUCTION for VD, ØØ111		9-111		
		<u>PILOT CABLE CONSTRUCTION</u>					<u>MESH RADIO NETWORK</u>				
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	Pilot Cable Angle - (10° Maximum).		9-52	4920-A4			MRN WITH REG. LV SPLY FROM VT (REG CNTRL BOX & RADIO)		9-204	4920-A4	
	Pilot Cable Termination Construction.		9-53	4920-A4			MRN WITH REG. LV SPLY FROM REGULATOR		9-205	4920-A4	
	Pilot Cable Shackle Construction.		9-54	4920-A4			MR/HECE, MR/HESE MESH RADIO NETWORK HEADEND		9-207	4920-A4	
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ORIGINAL ISSUE DATE 12/11/2019 APPD CKD DRN INDEX UPDATED							OVERHEAD CONSTRUCTION MANUAL		APP'D R. DOUGLAS	TECH STDS	AUTOCAD
							TELECOMMUNICATIONS		DATE 04/10/01	4920-A4	G
							INDEX		REC'D	SECT 9	PAGE i
									CKD	SHEET 1 OF 1	
									DWN S. Hennessy	FILE: ocm\s9\ohc9-1f.dwg	



## NOTES:

1. No excavated soil is to be used as foundation material or backfill material around the pits.
2. Top edge of pit shall be flush with the finished surface level (ground level after turf is laid).
3. Conduit entering the pit shall extend 40mm minimum past the inside wall of pit and be sealed.
4. Conduit exiting the pit must be extended not less than 150mm past the outside wall of the pit and be sealed.
5. All cable and conduit entry apertures shall be sealed to prevent entry of surrounding bedding material.
6. Mechanical rammers used for compaction shall not distort pit.

### 7. Foundation

Bed the pit in a layer of stabilised sand or stabilised fine crushed rock (10:1; Sand:Cement ratio by weight), (15:1; Sand:Cement ratio by volume). Particle size shall not exceed 5mm dia.

Ensure the level of foundation will leave the top edge of the pit flush with the finished surface after installation.

### 8. Backfill Material

- a) Backfill material shall be a granular material suitable for compaction.
- b) Backfill material to be compacted to the specified density.
- c) Particle size shall not exceed 5mm in diameter.
- d) Cable bearers and Covers must be installed prior to backfilling.

### 9. Optic Fibre Cable


- a) A 15-metre length of cable shall be left coiled in the pit for each cable that enters the pit for jointing.
- b) Cable left coiled in a pit shall be in a 600mm diameter minimum loop.
- c) In a transition pit with no cable joints, leave an additional 5 metres of the cable coiled in the pit.

### 10. Conduit Installation

Conduit shall be installed with a minimum depth of cover of 450mm below the finished surface level.

#### Additional notes for Pits located in Concrete Pathways

1. Pits in concrete pathways shall be located clear of driveways and cross-overs.
2. The top edge of the pit shall be flush with the finished surface of the reinforced concrete pathway.
3. Backfill material shall be stabilised sand or stabilised fine crushed rock the same as the foundation material

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		TELECOMMUNICATIONS		DATE 26/6/09	4920-A4		A
		ADSS CIVIL NOTES		REC'D Tom Bakker	SECT 9	PAGE ii	
		ADSS OPTICAL FIBRE INSTALLATION NOTES		CKD John Tunney	SHEET 1 OF 1		
				DWN T. Bakker	FILE: ocm\s9\ohc9-3a.dwg		



# ADSS FIBRE OPTIC CABLE CONSTRUCTION COMPATIBLE UNIT CODE GUIDE

AD

/

B

W

12

## CABLE TYPE

ADSS - ALL DIELECTRIC  
SELF SUPPORTING  
FIBRE OPTIC CABLE

## CONSTRUCTION TYPE

B - BLOCK  
S - SHACKLE  
SR - SHACKLE RAISER  
T - TERMINATION  
TR - TERMINATION RAISER  
HA - HEAVY ANGLE  
UGT - UNDERGROUND TERMINATION

## POLE/ATTACHMENT

W - WOOD POLE  
C - CONCRETE POLE  
X - CROSSARM

## OUTSIDE DIAMETER

12 - TO SUIT 12.6mm O.D. CABLE  
13 - TO SUIT 13.5mm O.D. CABLE

EXAMPLE : AD/HAW12 - ADSS CABLE, HEAVY ANGLE CONSTRUCTION, WOOD POLE ATTACHMENT, TO SUIT 12.6mm O.D. CABLE

## CONSTRUCTION COMPATIBLE UNITS/STOCK CODES

AD/BW12	AD/TC12
AD/BW13	AD/TC13
AD/BC12	AD/TRW12
AD/BC13	AD/TRW13
AD/BX12	AD/HAW12
AD/BX13	AD/HAW13
AD/SW12	AD/HAC12
AD/SW13	AD/HAC13
AD/SRW12	AD/UGTW
AD/SRW13	AD/UGTC
AD/TW12	20674 (VIB. DAMPER)
AD/TW13	20674 (VIB. DAMPER)

### NOTES:

- FOR DESIGN GUIDELINES, SEE BMS 03427 - DESIGN AND CONSTRUCTION OF ADSS CABLE SUPPORT SYSTEM.
- VIBRATION DAMPERS ARE NOT INCLUDED IN COMPATIBLE UNITS AND MUST BE REQUISITIONED SEPERATELY. 2 VIBRATION DAMPERS ARE REQUIRED ON EACH SPAN (ONE AT EACH END) ON EVERY SPAN OVER 75m.

### CABLE COMPATIBLE UNITS AND SIZE GUIDE

COMPATIBLE UNIT	NO. OF CORES	CABLE O.D. (mm)	STOCK CODE
AD12 (per metre)	12	12.6	17827
AD24 (per metre)	24	12.6	17826
AD48 (per metre)	48	13.5	20651
AD72 (per metre)	72	12.6	21854

O.D. - OUTSIDE DIAMETER

NOTE: IF A CONSTRUCTION CODE IS NOT LISTED HERE, IT IS NOT AVAILABLE.

ORIGINAL ISSUE

A



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## OVERHEAD CONSTRUCTION MANUAL

### TELECOMMUNICATIONS

## ADSS CONSTRUCTION CODE GUIDE CONSTRUCTION CODE GUIDE AND AVAILABLE COMPATIBLE UNIT LISTING

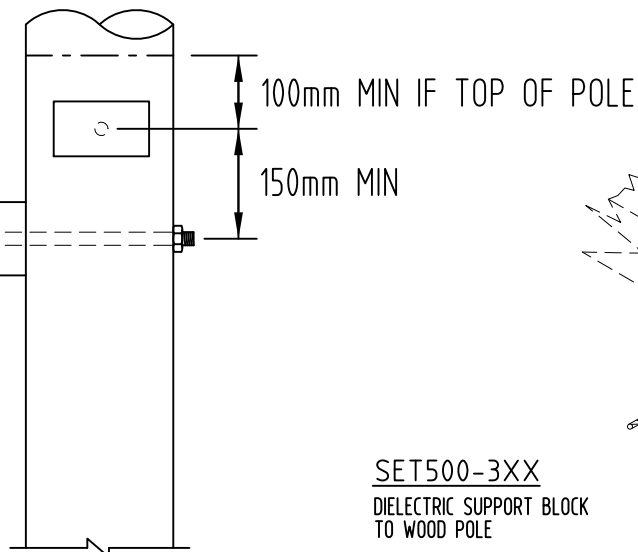
APP'D	R. English	TECH STDS		AUTOCAD
DATE	26/6/09	4920-A4		A
REC'D	T. Bakker	SECT	PAGE	
CKD	J. Tunney	9	3	
DWN	T. Bakker	SHEET 1 OF 1		
File:ocm\s9\ohc9-2a.dwg				



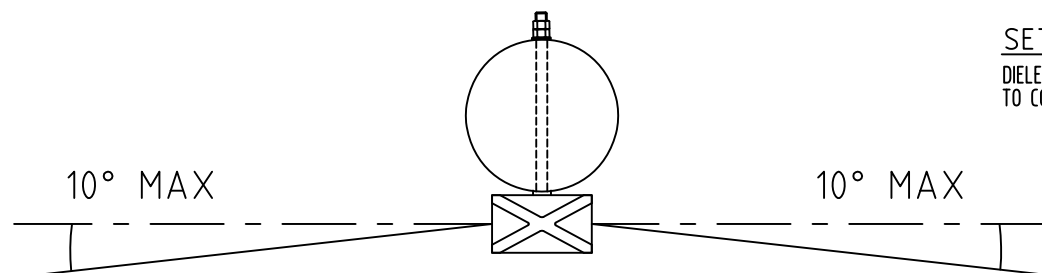
CU LIST

	AD/BW12	AD/BW13	AD/BC12	AD/BC13
SET500-312	1			
SET500-313		1		
SET500-412			1	
SET500-413				1

LV CROSSARM  
OR LVABC CONST.



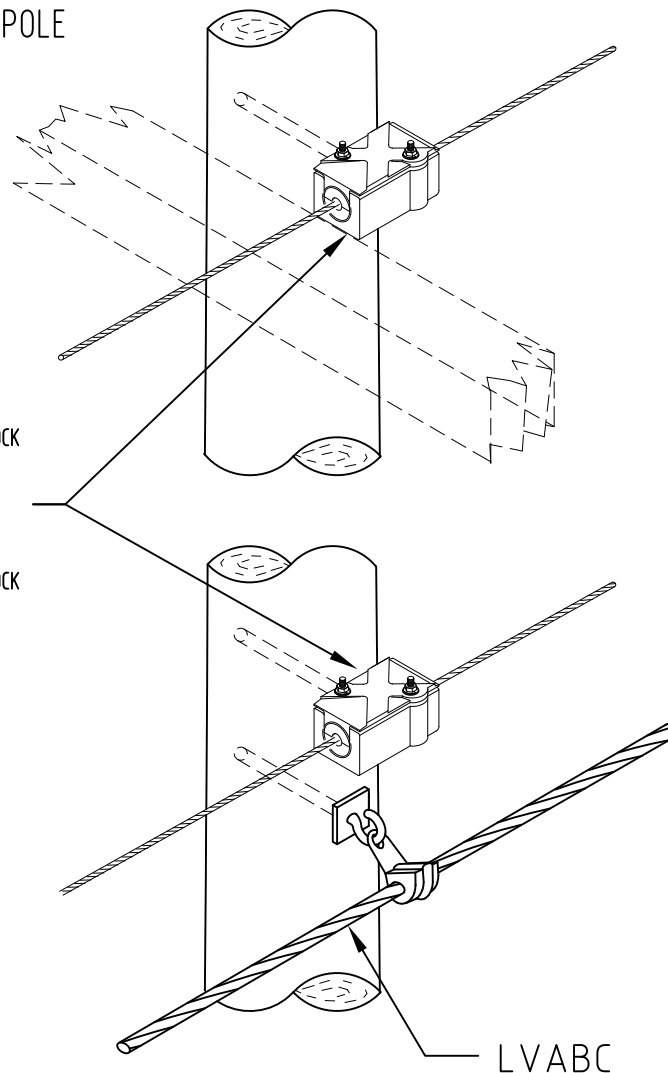
SET500-3XX  
DIELECTRIC SUPPORT BLOCK  
TO WOOD POLE  
OR  
SET500-4XX  
DIELECTRIC SUPPORT BLOCK  
TO CONCRETE POLE




Total Line Deviation less than or equal to 20°

# NOTES:

1. PREFERRED INTERMEDIATE CONSTRUCTION.  
USE IF SUFFICIENT SPACE IS AVAILABLE TO MOUNT DIRECTLY TO POLE.
2. MAXIMUM LINE DEVIATION OF 20° (MUST NOT EXCEED 10° ON EITHER SIDE).
3. 2 VIBRATION DAMPERS (1 AT EACH END) ARE REQUIRED ON SPANS OVER 75m.



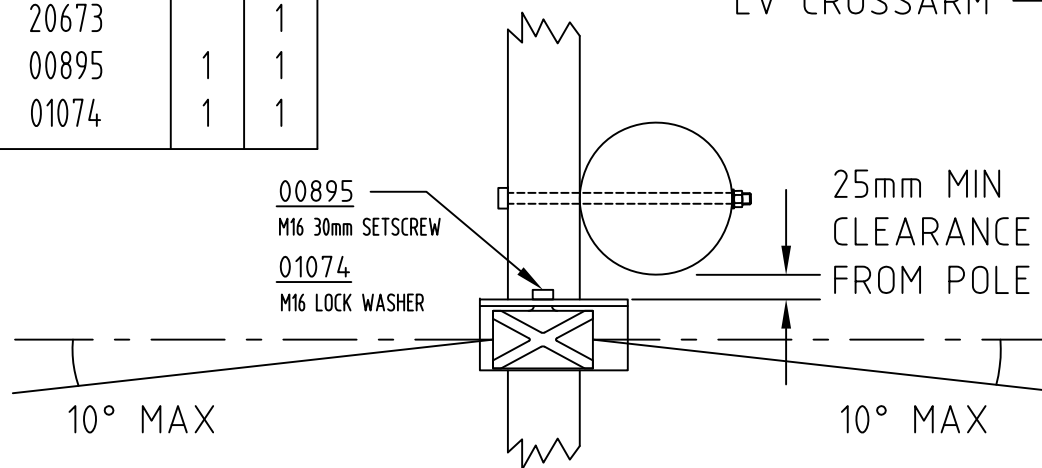
LVABC

A	ORIGINAL ISSUE		Remove Max Span Length Refer MainsDes	 © COPYRIGHT 2013 ENERGEX This drawing must not be reproduced in part or whole without written permission from ENERGEX	OVERHEAD CONSTRUCTION MANUAL  TELECOMMUNICATIONS  AD/B ADSS OPTICAL FIBRE INTERMEDIATE CONSTRUCTION	APP'D	Roy English	TECH STDS		AUTOCAD		
	B	DATE				19/03/13	DATE		26/6/09	4920-A4		B
	APPD	C. LEE				REC'D	Tom Bakker	SECT	9	PAGE	4	
	CKD	P. RELF				CKD	John Tunney	SHEET 1 OF 1				
	DRN	P. JUDGE				DWN	T. Bakker	FILE: ocm\s9\ohc9-4a.dwg				



## CU LIST


	AD/BX12	AD/BX13
21828	1	1
20672	1	
20673		1
00895	1	1
01074	1	1



Total Line Deviation less than or equal to 20°

## NOTES:

1. THIS CONSTRUCTION ONLY TO BE USED WHERE PREFERRED INTERMEDIATE CONSTRUCTIONS AD/BW OR AD/BC ARE UNSUITABLE.
2. MAXIMUM LINE DEVIATION OF 20° (MUST NOT EXCEED 10° ON EITHER SIDE).
3. 2 VIBRATION DAMPERS (1 AT EACH END) ARE REQUIRED ON SPANS OVER 75m.

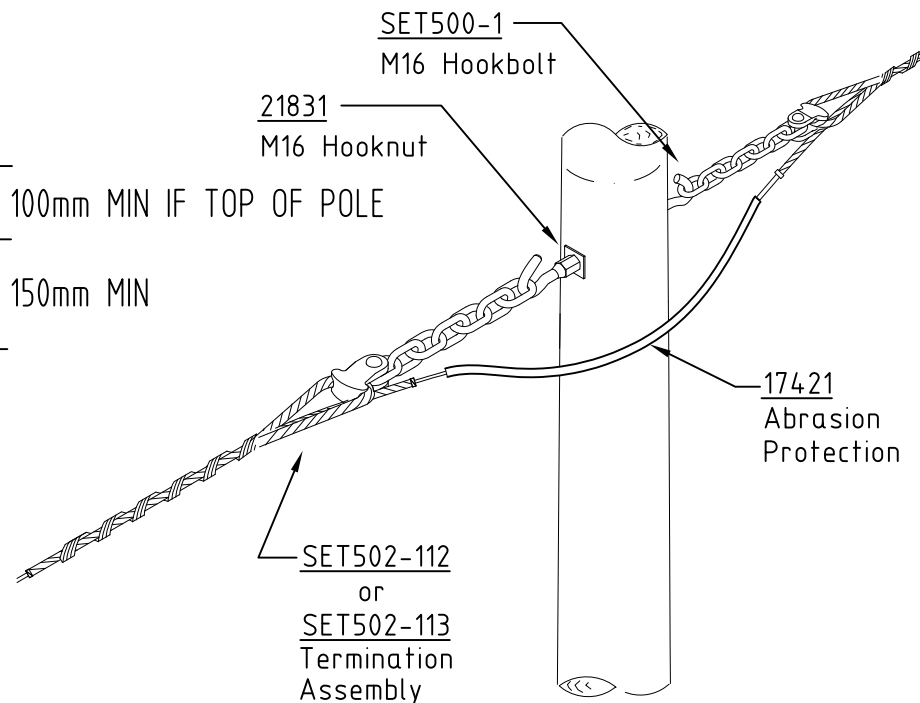
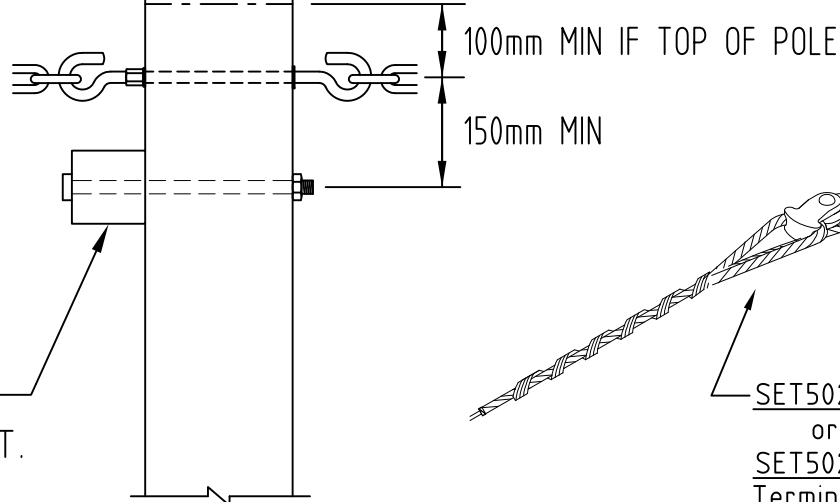
A	ORIGINAL ISSUE		B	DATE 19/03/13		APPD C. LEE	CKD P. RELF	DRN P. JUDGE	Remove Max Span Length Refer MainsDes	<div> ©COPYRIGHT 2009 ENERGEX This drawing must not be reproduced in part or whole without written permission from ENERGEX</div>	OVERHEAD CONSTRUCTION MANUAL	APP'D Roy English	TECH STDS		AUTOCAD	
	DATE 26/6/09	4920-A4		B												
	REC'D Tom Bakker	SECT 9		PAGE 5												
	CKD John Tunney	SHEET 1 OF 1														
	DWN T. Bakker	FILE: ocm/s9/ohc9-5a.dwg														
												TELECOMMUNICATIONS				
												AD/BX				
												ADSS OPTICAL FIBRE INTERMEDIATE CONSTRUCTION				



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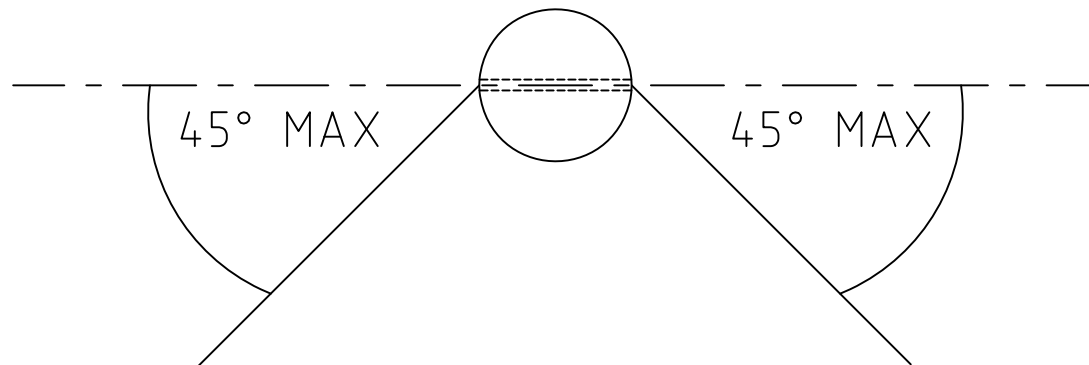
AD/SW12  
AD/SW13

SET500-1	1	1
21831	1	1
SET502-112	2	
SET502-113		2
17421	1	1

LV CROSSARM  
OR LVABC CONST.

## NOTES:

1. PREFERRED SHACKLE CONSTRUCTION.  
TO BE USED IF SUFFICIENT SPACE IS  
AVAILABLE TO MOUNT DIRECTLY TO POLE
2. MAXIMUM LINE DEVIATION OF 90° (MUST  
NOT EXCEED 45° ON EITHER SIDE)
3. ROTATE HOOKBOLT AND HOOKNUT TO COUNTER  
ANGLE OF ATTACHMENT OF ADSS CABLE.
4. 2 VIBRATION DAMPERS (1 AT EACH END) ARE  
REQUIRED ON SPANS OVER 75m.



Total Line Deviation less than or equal to 90°

A	ORIGINAL ISSUE		APPD	R. English		TECH STDS		AUTOCAD				
	DATE			19/03/13		4920-A4		B				
	C. LEE			REC'D		Tom Bakker		SECT		PAGE		
	P. RELF			CKD		J. Tunney		9		6		
	P. JUDGE			DWN		T. Bakker		SHEET		1 OF 1		
Remove Max Span Length Refer MainsDes							FILE: ocm/s9/ohc9-6a.dwg					



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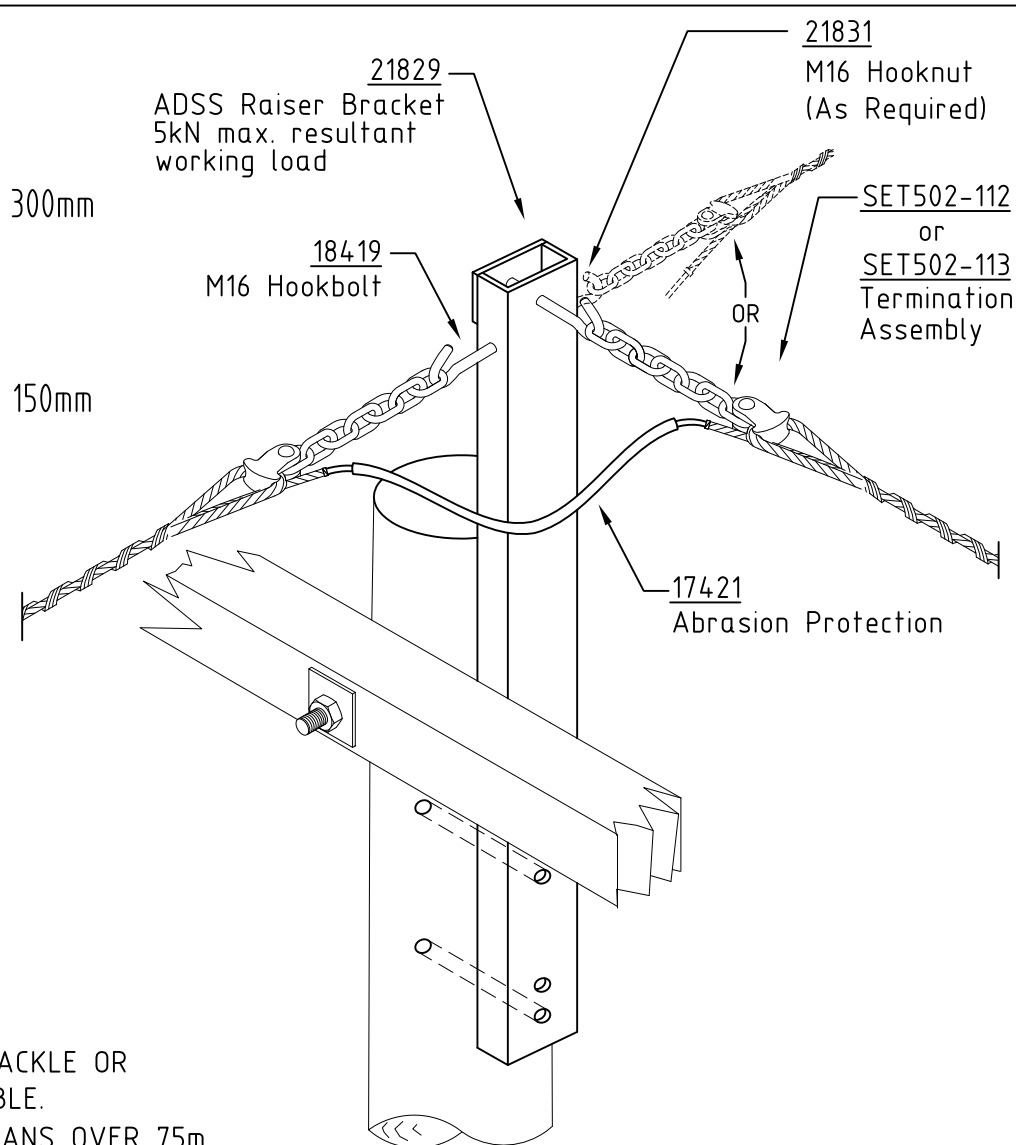
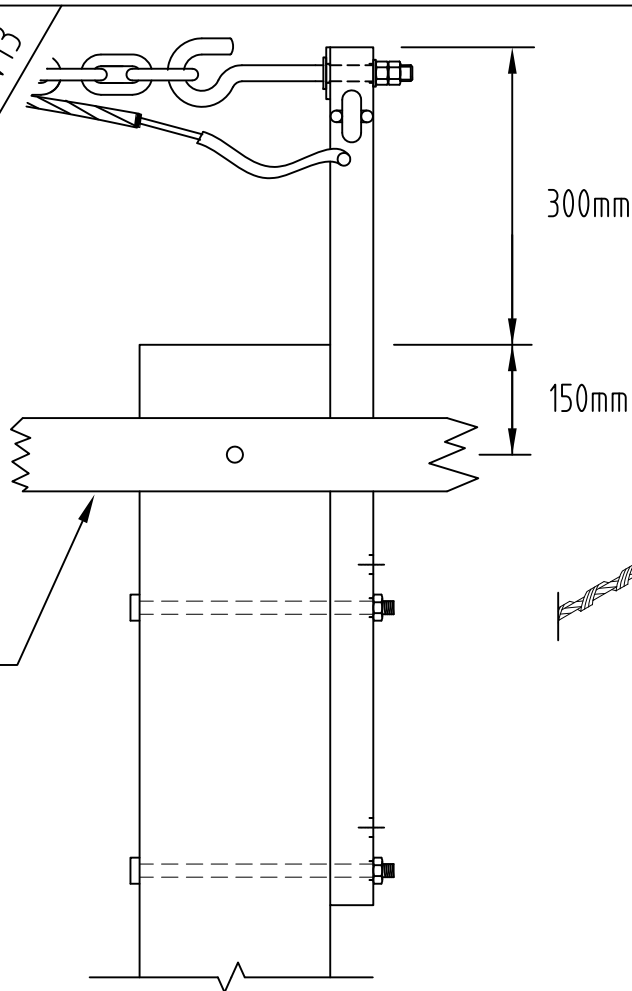
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## CU LIST


	AD/SRW12	AD/SRW13
SET502-112	2	
SET502-113		2
17421	1	1
18419	2	2
21829	1	1
21831	A.R.	A.R.

LV CROSSARM



## NOTES:

1. THIS CONSTRUCTION ONLY TO BE USED WHERE PREFERRED SHACKLE OR HEAVY ANGLE CONSTRUCTIONS AD/S & AD/HA ARE UNSUITABLE.
2. 2 VIBRATION DAMPERS (1 AT EACH END) ARE REQUIRED ON SPANS OVER 75m.

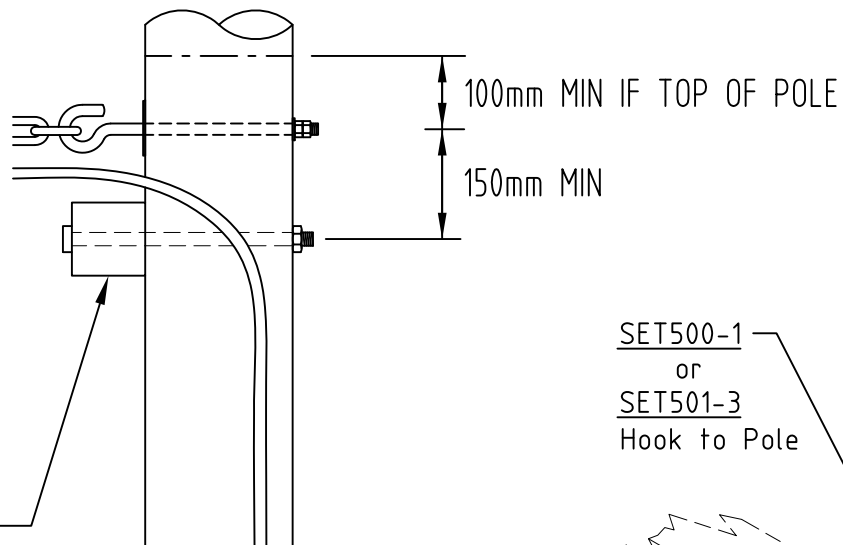
A	ORIGINAL ISSUE						 © COPYRIGHT 2013 ENERGEX This drawing must not be reproduced in part or whole without written permission from ENERGEX	OVERHEAD CONSTRUCTION MANUAL  TELECOMMUNICATIONS  AD/SR ADSS OPTICAL FIBRE SHACKLE RAISER CONSTRUCTION 5kN MWT	APP'D Roy English		TECH STDS		AUTOCAD	
	B	DATE 19/03/13	APP'D C. LEE	P. RELF	P. JUDGE	Remove Max Span Length Refer MainsDes			DATE 26/6/09	4920-A4B				
	CKD								REC'D Tom Bakker	SECT 9		PAGE 7		
	DRN								CKD John Tunney	SHEET 1 OF 1				
									DWN T. Bakker	FILE: ocm/s9/ohc9-7a.dwg				



## CU LIST


AD/TW12  
AD/TW13  
AD/TC12  
AD/TC13

SET500-1	1	1		
SET501-3			1	1
SET502-112	1		1	
SET502-113		1		1
17421	1	1	1	1

LV CROSSARM  
OR LVABC CONST.SET500-1  
or  
SET501-3  
Hook to Pole17421  
Abrasion  
ProtectionSET502-112  
or  
SET502-113  
Termination  
Assembly

## NOTES:

1. PREFERRED TERMINATION CONSTRUCTION.  
TO BE USED WHERE SUFFICIENT SPACE IS  
AVAILABLE TO MOUNT DIRECTLY TO POLE
2. 2 VIBRATION DAMPERS (1 AT EACH END) ARE  
REQUIRED ON SPANS OVER 75m.

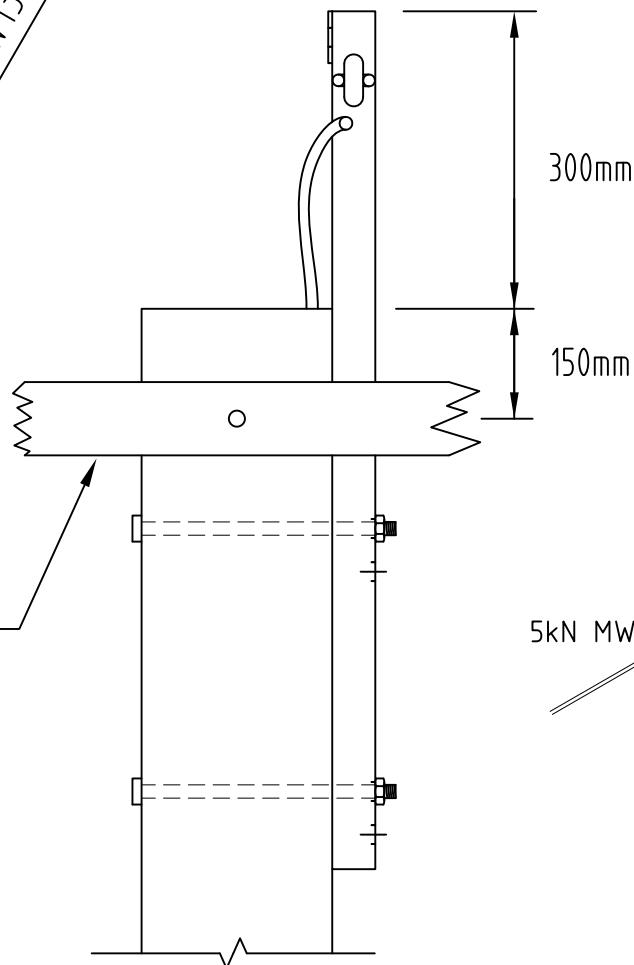
A	ORIGINAL ISSUE		APPD C. LEE	CKD P. RELF	DRN P. JUDGE	Remove Max Span Length Refer MainsDes	 © COPYRIGHT 2013 ENERGEX This drawing must not be reproduced in part or whole without written permission from ENERGEX	OVERHEAD CONSTRUCTION MANUAL  TELECOMMUNICATIONS  AD/T ADSS OPTICAL FIBRE TERMINATION CONSTRUCTION	APP'D Roy English	TECH STDS		AUTOCAD	
	B	DATE 19/03/13							DATE 26/6/09	4920-A4		B	
									REC'D Tom Bakker	SECT 9		PAGE 8	
									CKD John Tunney	SHEET 1 OF 1			
									DWN T. Bakker	FILE: ocm/s9/ohc9-8a.dwg			



## CU LIST

	AD/TRW12	AD/TRW13
SET502-112	1	
SET502-113		1
17421	1	1
18419	1	1
21829	1	1

LV CROSSARM



SET502-112  
or  
SET502-113  
Termination  
Assembly

21829  
ADSS Raiser Bracket  
5kN max.working load


18419  
M16 Hookbolt

17421  
Abrasion  
Protection

5kN MWT

## NOTES:

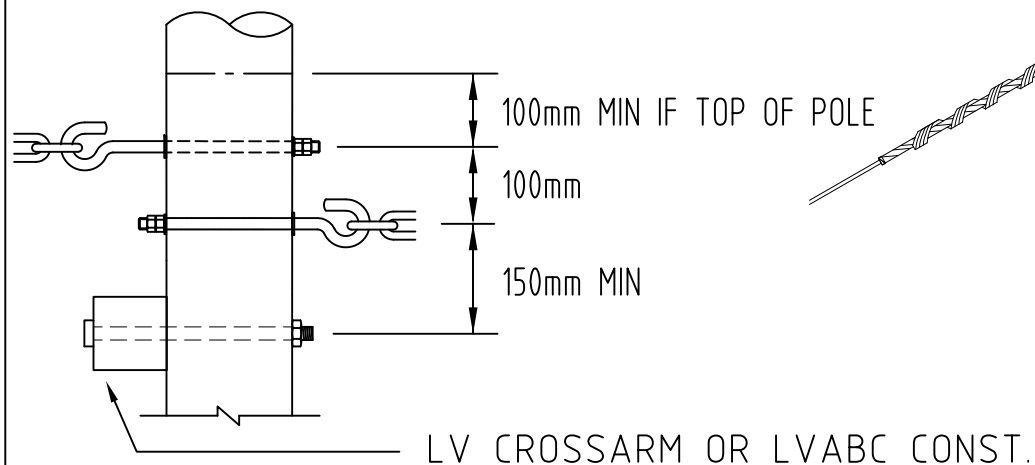
1. THIS CONSTRUCTION ONLY TO BE USED WHERE PREFERRED TERMINATION CONSTRUCTION AD/T IS UNSUITABLE.
2. 2 VIBRATION DAMPERS (1 AT EACH END) ARE REQUIRED ON SPANS OVER 75m.

A	ORIGINAL ISSUE		B	DATE 19/03/13		APPD	C. LEE		CKD	P. RELF		DRN	P. JUDGE		Remove Max Span Length Refer MainsDes	 © COPYRIGHT 2013 ENERGEX This drawing must not be reproduced in part or whole without written permission from ENERGEX	OVERHEAD CONSTRUCTION MANUAL		APP'D Roy English		TECH STDS		AUTOCAD	
																	TELECOMMUNICATIONS		DATE 26/6/09		4920-A4		B	
																	AD/TR		REC'D Tom Bakker		SECT 9		PAGE 9	
																	ADSS OPTICAL FIBRE TERMINATION RAISER CONSTRUCTION 5kN MWT		CKD John Tunney		SHEET 1 OF 1			
																			DWN T. Bakker		FILE: ocm/s9/ohc9-9a.dwg			



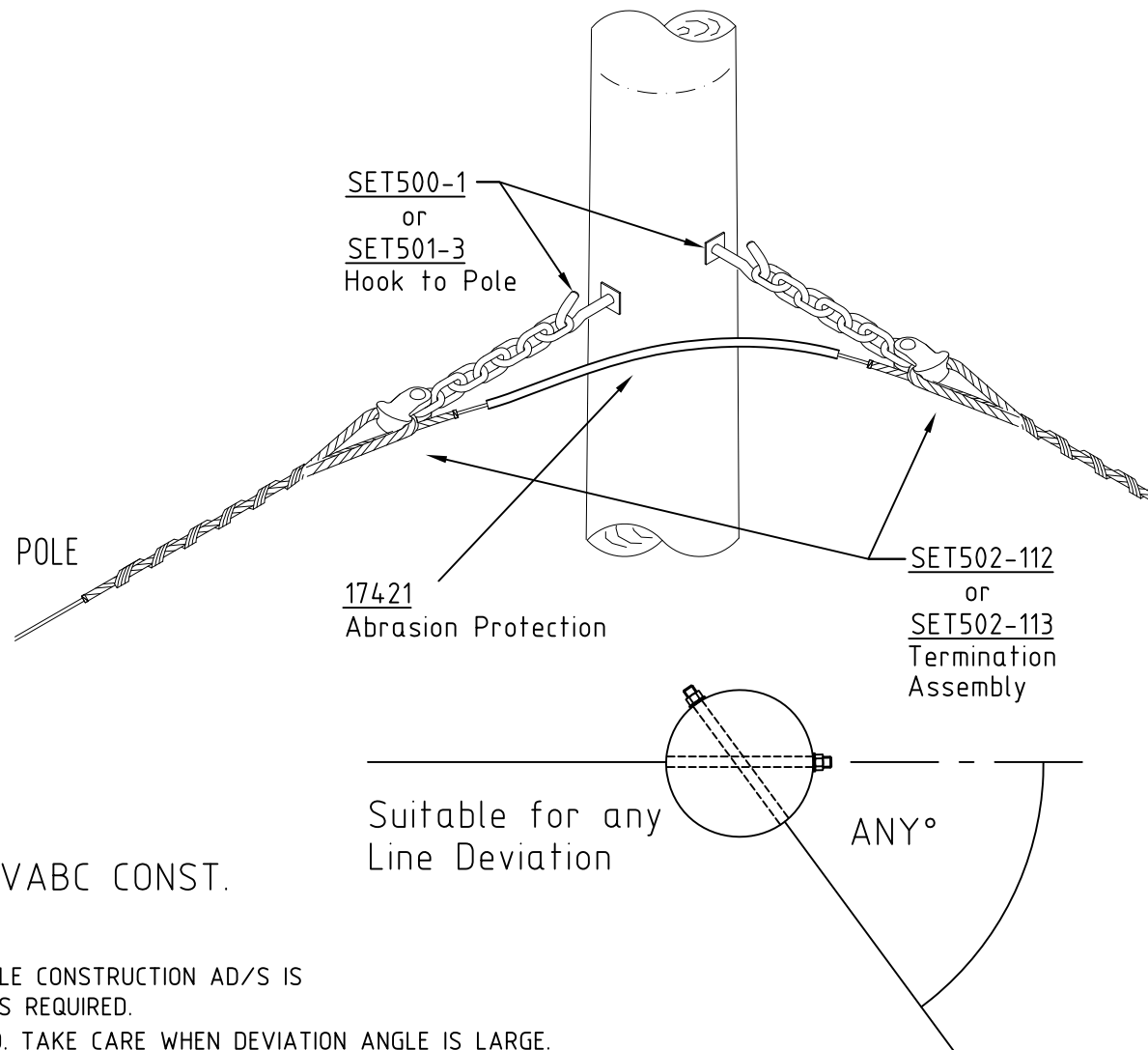
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	AD/HAW12	AD/HAW13	AD/HAC12	AD/HAC13
SET500-1	2	2		
SET501-3			2	2
SET502-112	2		2	
SET502-113		2		2
17421	1	1	1	1

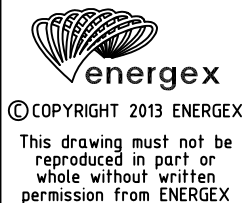


## NOTES:

1. THIS CONSTRUCTION TO BE USED WHERE PREFERRED SHACKLE CONSTRUCTION AD/S IS UNSUITABLE OR A LINE DEVIATION OF GREATER THAN 90° IS REQUIRED.
2. MINIMUM CABLE BENDING RADIUS MUST NEVER BE EXCEEDED. TAKE CARE WHEN DEVIATION ANGLE IS LARGE.
3. 2 VIBRATION DAMPERS (1 AT EACH END) ARE REQUIRED ON SPANS OVER 75m.



ORIGINAL ISSUE	DATE	APP'D	CKD	DRN	Remove Max Span Length Refer MainsDes
A	19/03/13	C. LEE	P. RELF	P. JUDGE	



# OVERHEAD CONSTRUCTION MANUAL

## TELECOMMUNICATIONS

### AD/HA

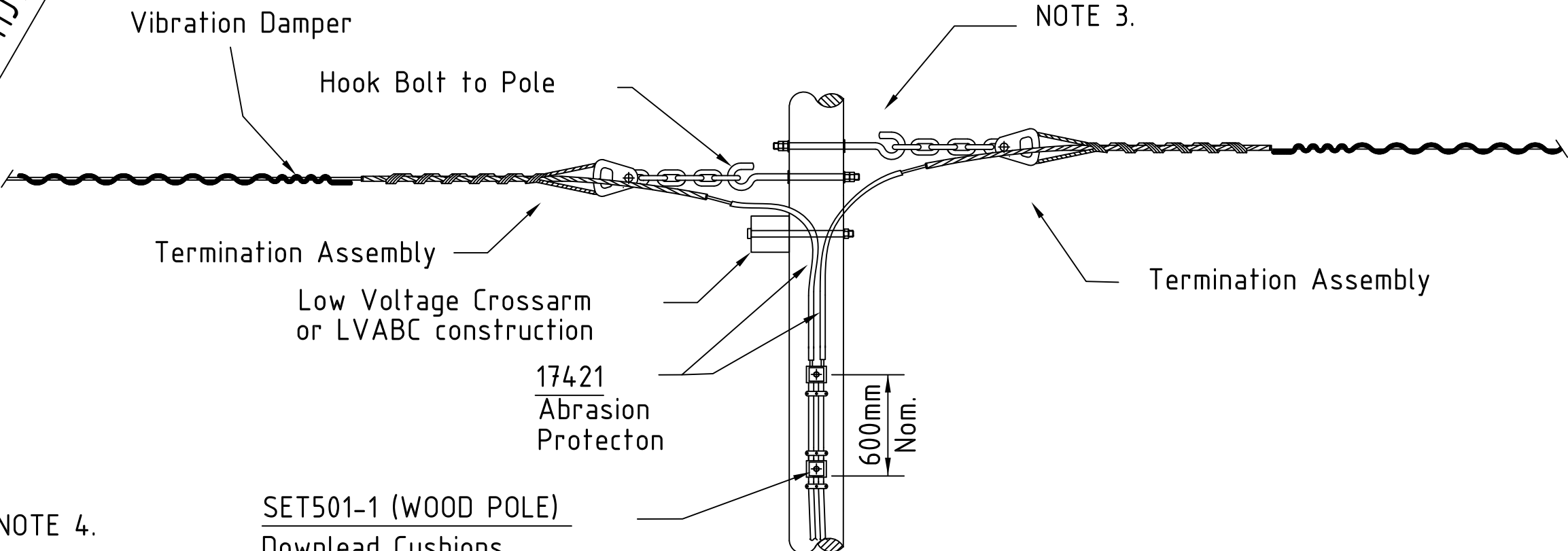
#### ADSS OPTICAL FIBRE HEAVY ANGLE CONSTRUCTION

APP'D	Roy English	TECH STDS	AUTOCAD
DATE	1/7/09	4920-A4	B
REC'D	Tom Bakker	SECT	PAGE
CKD	John Tunney	9	10
DWN	T. Bakker	SHEET	1 OF 1
FILE: ocm/s9/ohc9-10a.dwg			



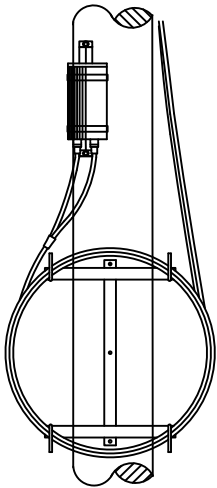





CU LIST	AD/OHJ12		AD/OHJ13		
SET501-1	1	1			
AD/SW12	1				
AD/SW13		1			
AD/SRW12	1				
AD/SRW13		1			
AD/HAW12	1				
AD/HAW13		1			
00684	5	5	NOTE 4.	SET501-1 (WOOD POLE) Download Cushions	
17421	1	1			
18026	1	1			

NOTES

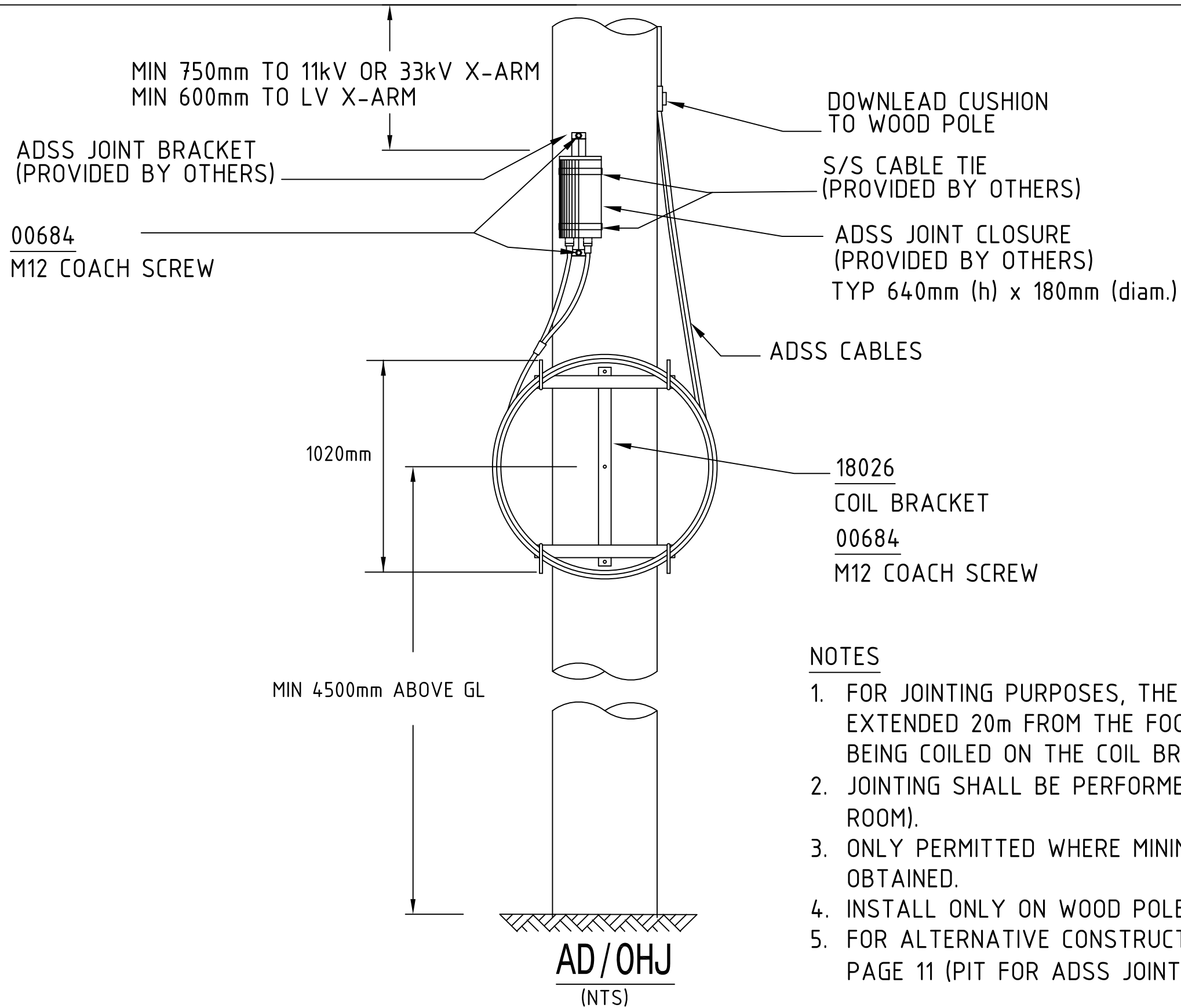
1. Do not over-tighten download cushions - crushing of cable can occur.
2. Cable to be installed with a bending radius >300mm to avoid fibre damage.
3. ADSS attachment assembly depends on ADSS cable diameter and OH construction. Refer Section 1, Page 502 AND Section 9, Pages 6, 7 & 10 of this manual.
4. SC00684 is issued as box of 500. QTY shown is number of screws.



REFER OCM SECT 9 PAGE 14  
 MINIMUM HEIGHT AND LOCATION  
 CONSTRAINTS APPLY.

ORIGINAL ISSUE	THIS PAGE TO BE READ WITH PAGE 14.	 ©COPYRIGHT 2019 ENERGEX This drawing must not be reproduced in part or whole without written permission from ENERGEX	OVERHEAD CONSTRUCTION MANUAL		APP'D	F. Zaini	TECH STDS		AUTOCAD
			TELECOMMUNICATIONS		DATE	04/11/2019	4920-A4		A
			AD/OHJ		REC'D	--	SECT		PAGE
			ADSS OPTICAL FIBRE OVERHEAD ATTACHMENT ARRANGEMENTS (ADSS JOINT)		CKD	P. Relf	9		13
					DWN	P.Poulos	SHEET 1 OF 1		FILE: ocm/s9/ohc9-13.dwg






IMPORTANT: COIL BRACKET AND ADSS JOINT MOUNTED ON FOOTPATH SIDE OF POLE, PARALLEL TO ROADWAY TO REDUCE RISK OF VEHICLE STRIKE DAMAGE. AVOID LOCATING IN CLOSE PROXIMITY TO HIGH VEHICLE ACCESS UNLESS PLACED HIGHER THAN TALLEST OF TRAFFIC (E.G. CAR CARRIERS AND CATTLE TRUCKS CAN BE 4.6M HIGH)

#### NOTES

1. FOR JOINTING PURPOSES, THE ADSS CABLE TO BE EXTENDED 20m FROM THE FOOT OF THE POLE BEFORE BEING COILED ON THE COIL BRACKET.
2. JOINTING SHALL BE PERFORMED IN THE VAN (CLEAN ROOM).
3. ONLY PERMITTED WHERE MINIMUM CLEARANCES CAN BE OBTAINED.
4. INSTALL ONLY ON WOOD POLES WITH EWP ACCESS.
5. FOR ALTERNATIVE CONSTRUCTION REFER OCM SECT 9 PAGE 11 (PIT FOR ADSS JOINT).

ORIGINAL ISSUE	THIS PAGE TO BE READ WITH PAGE 13.	 <b>energeX</b> ©COPYRIGHT 2019 ENERGEX This drawing must not be reproduced in part or whole without written permission from ENERGEX	OVERHEAD CONSTRUCTION MANUAL		APP'D	F. Zaini	TECH STDS		AUTOCAD
					DATE	04/11/2019	4920-A4		A
			ADSS CONSTRUCTION AD/OHJ ADSS OVERHEAD JOINT DETAILS		REC'D	--	SECT	PAGE	
					CKD	P. Relf	9	14	
					DWN	P.Poulos	SHEET 1 OF 1		FILE: ocm\s9\ohc-9-14a.dwg



CU LIST -

PCSL

SET54-4

1

2595

AR

2998

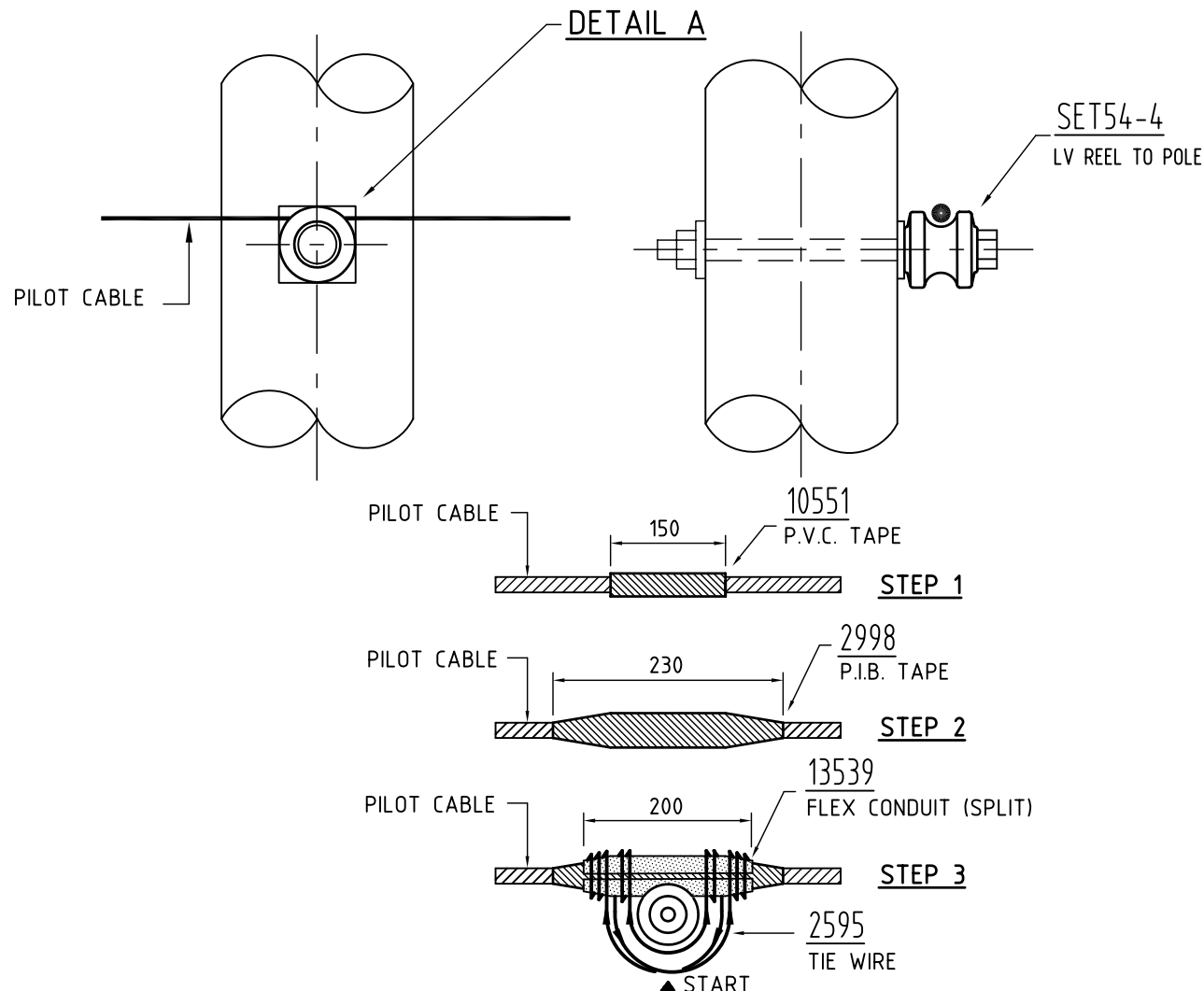
AR

10551


AR

13539

0.2m



DETAIL A : PILOT CABLE ATTACHMENT

A	ORIGINAL ISSUE				 ©COPYRIGHT 2009 ENERGEX This drawing must not be reproduced in part or whole without written permission from ENERGEX	OVERHEAD CONSTRUCTION MANUAL		APP'D	P.Pearl	TECH STDS		AUTOCAD	
	E	DATE	30/6/09					DATE	31-05-96	4920-A4		E	
	APPD		R. ENGLISH					REC'D		SECT	PAGE		
	CKD		J.TUNNEY					CKD	R.Walker	9	51		
	DRN		T.BAKKER					DWN	M. Welsh	SHEET 1 OF 1		FILE: ocm\s9\ohc9-51e.dwg	
MOVED FROM SECTION 3 TO SECTION 9 OF OHCM													

MOVED FROM SECTION 3  
TO SECTION 9 OF OHCM

## TELECOMMUNICATIONS

PCSL

PILOT CABLE STRAIGHT LINE CONSTRUCTION  
(WOOD POLE)



CU LIST -

PCA

SET55-3

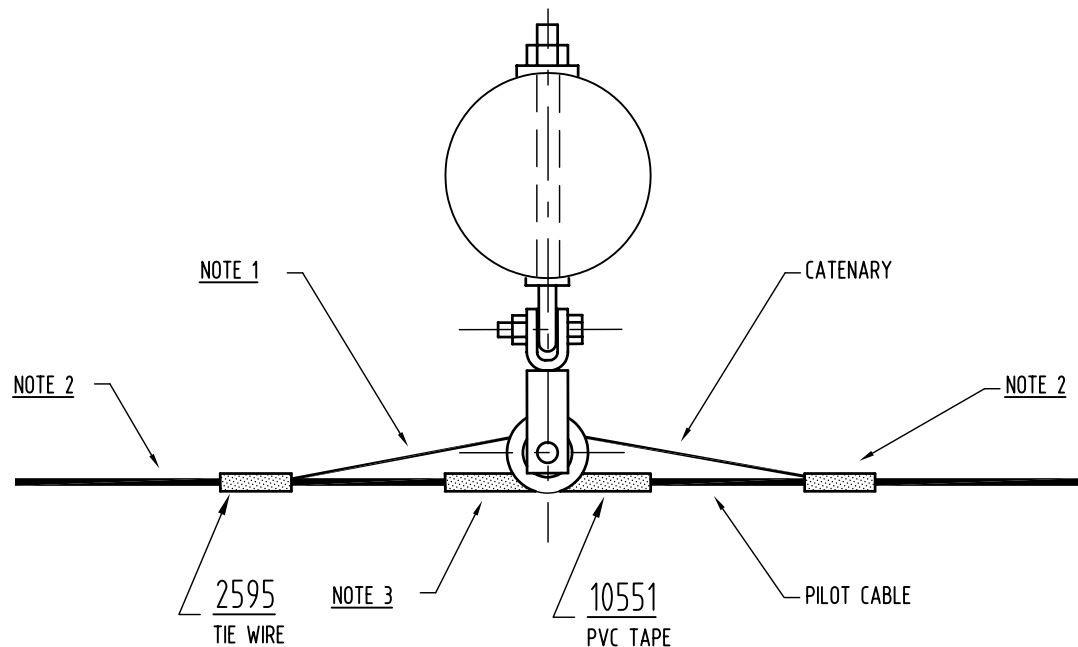
1

2595

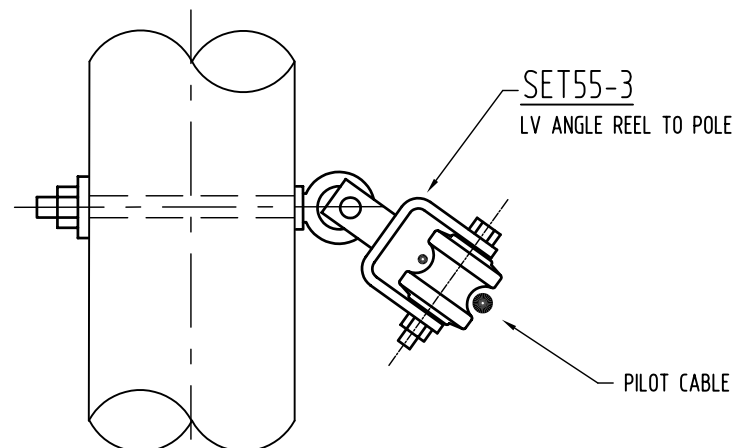
AR


10551

AR

**NOTES :**

1. WEBBING SPLIT TO A MAXIMUM OF ONE METRE.
2. WHERE THE PILOT CABLE IS SEPARATED FROM THE CATENARY WIRE, BIND THE CATENARY WIRE TO THE PILOT CABLE WITH TIE WIRE OVER PVC TAPE.
3. BIND PILOT CABLE WITH PVC TAPE AND SECURE PILOT AND CATENARY TO INSULATOR WITH SIDE TIE.



A	ORIGINAL ISSUE						 ©COPYRIGHT 2009 ENERGEX This drawing must not be reproduced in part or whole without written permission from ENERGEX	OVERHEAD CONSTRUCTION MANUAL  TELECOMMUNICATIONS  PCA PILOT CABLE ANGLE CONSTRUCTION - (10° MAX) (WOOD POLE)	APP'D P.Pearl		TECH STDS		AUTOCAD		
	DATE	30/6/09	APP'D	R. ENGLISH	CKD	J.TUNNEY			DRN	T.BAKKER	DATE	31-05-96	4920-A4		E
	MOVED FROM SECTION 3 TO SECTION 9 OF OHCM								REC'D		SECT	PAGE			
									CKD	R.Walker	9	52			
									DWN	M. Welsh	SHEET 1 OF 1				
										FILE: ocm\s9\ohc9-52e.dwg					



## CU LIST -

PCT

SET55-3

1

2595

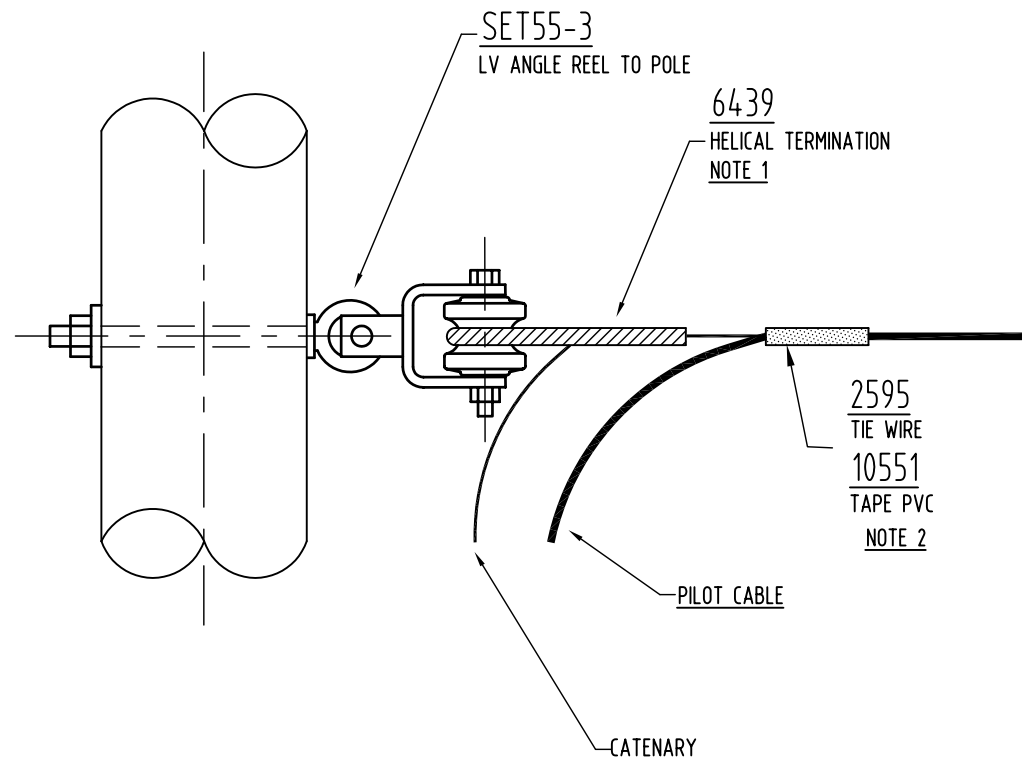
AR

10551


AR

6439

1

NOTES :

1. CATENARY TO BE STRIPPED FOR APPLICATION OF HELICAL TERMINATION.
2. WHERE THE PILOT CABLE IS SEPARATED FROM THE CATENARY WIRE, BIND THE CATENARY WIRE TO THE PILOT CABLE WITH TIE WIRE OVER P.V.C. TAPE.

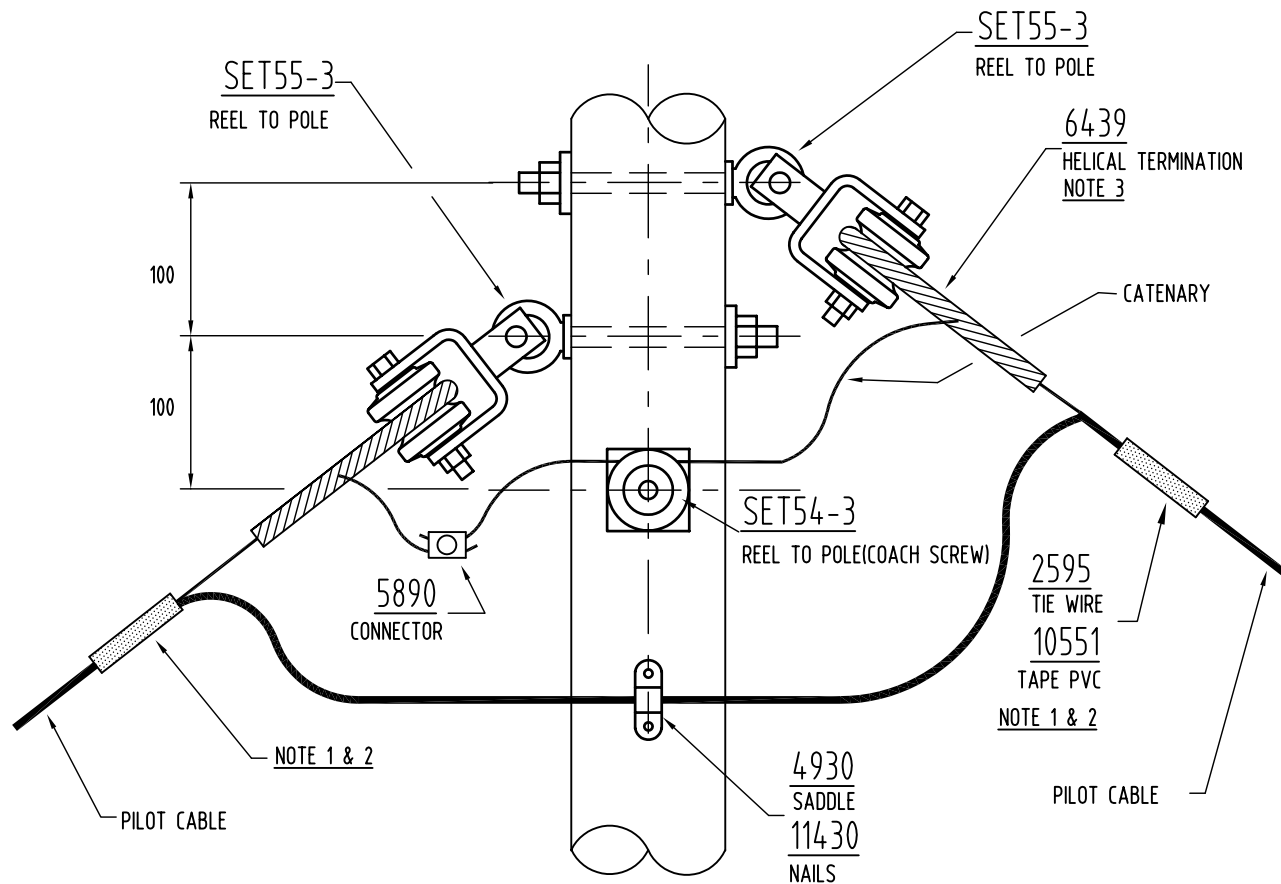
A	ORIGINAL ISSUE				MOVED FROM SECTION 3 TO SECTION 9 OF OHCM	 ©COPYRIGHT 2009 ENERGEX This drawing must not be reproduced in part or whole without written permission from ENERGEX	OVERHEAD CONSTRUCTION MANUAL  <u>TELECOMMUNICATIONS</u>  PCT PILOT CABLE TERMINATION CONSTRUCTION (WOOD POLE)		APP'D	P.Pearl	TECH STDS		AUTOCAD				
	DATE		1/7/09						DATE	31-05-96	4920-A4		E				
	APP'D		R. ENGLISH						REC'D		SECT	PAGE					
	CKD		J.TUNNEY						CKD	R.Walker	9	53					
	DRN		T.BAKKER						DWN	M. Welsh	SHEET 1 OF 1		FILE: ocm\s9\ohc9-53e.dwg				



## CU LIST -

PCS

SET55-3	2
SET54-3	1
2595	AR
4930	1
5890	1
6439	2
10551	AR
11430	2



## NOTES :

1. WEBBING SPLIT TO A MAXIMUM OF TWO METRES.
2. WHERE THE PILOT CABLE IS SEPARATED FROM THE CATENARY WIRE, BIND THE CATENARY WIRE TO THE PILOT CABLE WITH TIE WIRE OVER P.V.C. TAPE.
3. CATENARY TO BE STRIPPED FOR APPLICATION OF HELICAL TERMINATION.

A	ORIGINAL ISSUE		APP'D	R. ENGLISH	CKD	J. TUNNEY	DRN	T. BAKKER	MOVED FROM SECTION 3 TO SECTION 9 OF OHCM
	DATE	1/7/09							



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## OVERHEAD CONSTRUCTION MANUAL

## TELECOMMUNICATIONS

## PCS

PILOT CABLE SHACKLE CONSTRUCTION  
(WOOD POLE)

APP'D	P.Pearl	TECH STDS		AUTOCAD
DATE	31-05-96	4920-A4E		
REC'D		SECT	PAGE	
CKD	R.Walker	9	54	
		SHEET 1 OF 1		
DWN	M. Welsh	FILE: ocm\s9\ohc9-54e.dwg		



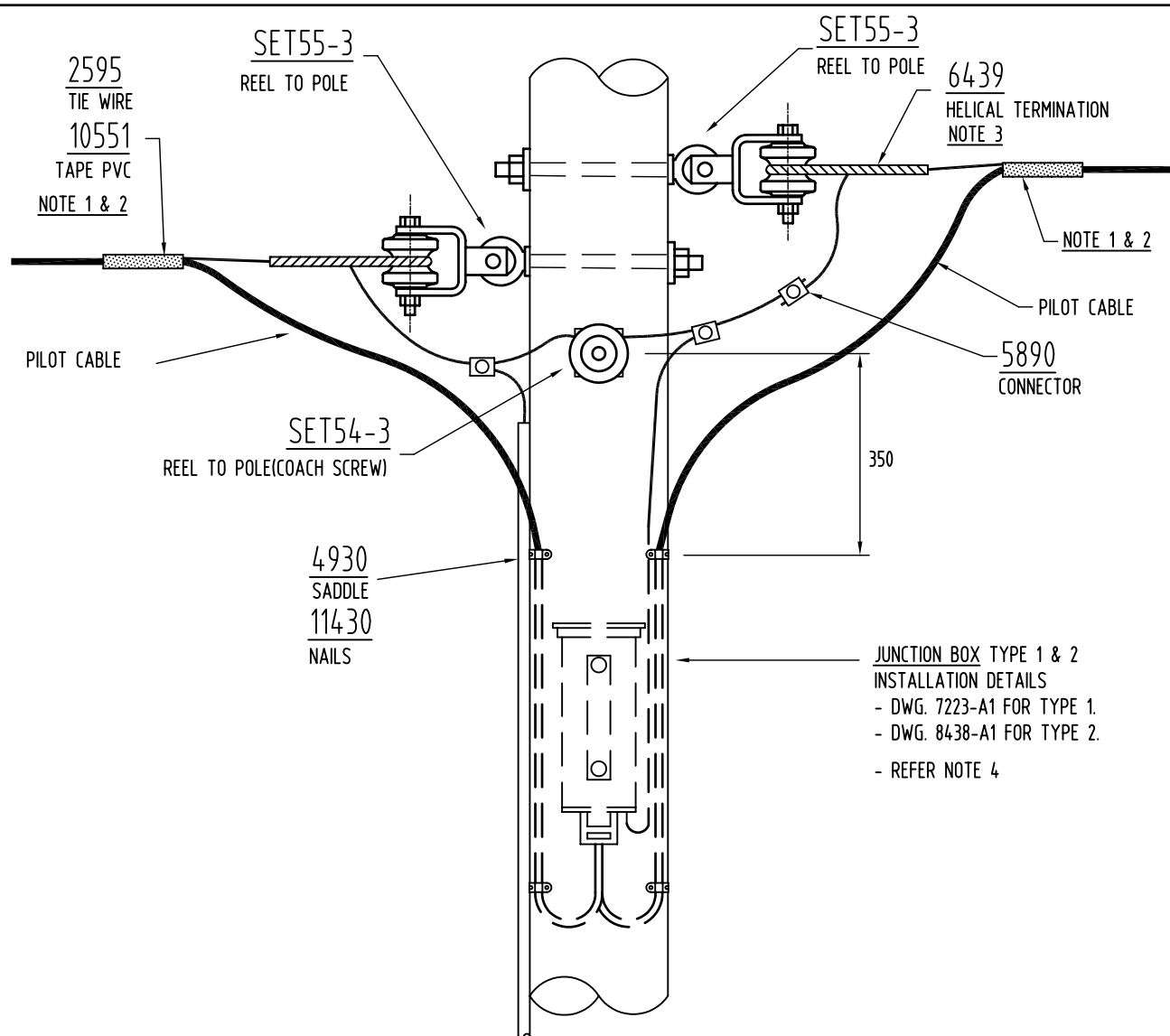
CU LIST -

PCJB

SET55-3	2
SET54-3	1
2595	AR
4930	2
5890	1
6439	2
10551	AR
11430	4

## NOTES :

1. WEBBING SPLIT TO A MAXIMUM OF TWO METRES.
2. WHERE THE PILOT CABLE IS SEPARATED FROM THE CATENARY WIRE, BIND THE CATENARY WIRE TO THE PILOT CABLE WITH TIE WIRE OVER P.V.C. TAPE.
3. CATENARY TO BE STRIPPED FOR APPLICATION OF HELICAL TERMINATION.
4. TYPE 1 JUNCTION BOX TO BE USED FOR ALL OH TO UG TRANSITIONS



A	ORIGINAL ISSUE	
	DATE	1/7/09
D		
APP'D	R. ENGLISH	
CK'D	J. TUNNEY	
DRN	T. BAKKER	
MOVED FROM SECTION 3 TO SECTION 9 OF OHCM NOTE 4, ADDED		



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## OVERHEAD CONSTRUCTION MANUAL

## TELECOMMUNICATIONS

## PCJB

## PILOT CABLE JUNCTION BOX CONSTRUCTION (WOOD POLE)

APP'D	P.Pearl	TECH STDS		AUTOCAD
DATE	03-12-97	4920-A4		
REC'D	J.TUNNEY	SECT	PAGE	
CKD	J.TUNNEY	9	55	
DWN	J.HILL	SHEET 1 OF 1		
		FILE: ocm\s9\ohc9-55d.dwg		



# OPGW CABLE CONSTRUCTION COMPATIBLE UNIT CODE GUIDE

OP

SU

/

11

## CABLE TYPE

OPGW - OPTICAL FIBRE  
GROUND WIRE

## CONSTRUCTION TYPE

SU - SUSPENSION for PO, SU, SUA, W, WA  
SUR - SUSPENSION RAISER for SU, SUA, W, WA  
V - SUSPENSION for VDR, VOR  
VR - SUSPENSION RAISER for VDR, VOR  
S4 - 0° TO 45° DEVIATION ANGLE SHACKLE  
S9 - 45° TO 90° DEVIATION ANGLE SHACKLE  
SR - SHACKLE RAISER  
T - TERMINATION  
TR - TERMINATION RAISER  
J - JOINT  
UGT - UNDERGROUND TERMINATION

## OUTSIDE DIAMETER

11 - TO SUIT 11.0mm & 11.1mm O.D. CABLE

REFER NOTES

## CONSTRUCTION COMPATIBLE UNITS

OPSU/11
OPSUR/11
OPV/11
OPVR/11
OPS4/11
OPS9/11
OPSR/11
OPT/11
OPTR/11
OPJ/11
OPUGT/11


EXAMPLE : OPSUR/11 - OPGW CABLE, SUSPENSION RISER CONSTRUCTION, TO SUIT 11.1mm O.D. CABLE

## CABLE COMPATIBLE UNITS AND SIZE GUIDE

COMPATIBLE UNIT	NO. OF CORES	CABLE O.D. (mm)	STOCK CODE
OP24 (per metre)	24	11.1	18718
OP48 (per metre)	48	11.1	20676
OP72 (per metre)	72	11.0	24830
OPGW IS LEFT HAND LAY			
SPIRAL VIBRATION DAMPER (if req'd)			19824

O.D. - OUTSIDE DIAMETER

NOTE: IF A CONSTRUCTION CODE IS NOT LISTED HERE, IT IS NOT AVAILABLE AS A DISTRIBUTION COMPATIBLE UNIT.

A	ORIGINAL ISSUE		APPD F. Zaini	CKD P. Relf	DRN F. Zaini	Added 0P72		 energex ©COPYRIGHT 2017 ENERGEX This drawing must not be reproduced in part or whole without written permission from ENERGEX	OVERHEAD CONSTRUCTION MANUAL		APP'D Roy English	TECH STDS		AUTOCAD	
	C	DATE 16/06/17							DATE 1/7/09	4920-A4		C			
									REC'D Tom Bakker	SECT 9		PAGE 101			
									CKD J. Tunney	SHEET 1 OF 1					
									DWN T. Bakker	FILE: ocm\s9\ohc9-101a.dwg					
									TELECOMMUNICATIONS						
									OPGW CONSTRUCTION CODE GUIDE						
									CONSTRUCTION CODE GUIDE AND AVAILABLE						
									COMPATIBLE UNIT LISTING						



## CU LIST

OPSU/11

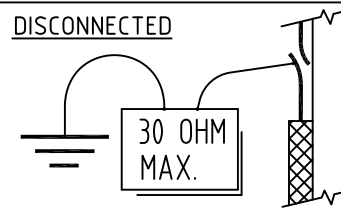
3215	AR
4926	24
6122	1
22518	1
7235	21m
22517	AR
SET261-1	1
SET263-4	1
00542	1
19820	1

SET261-1  
OHEW SUSPENSION  
00542  
EYEBOLT, M20x400

19820  
OPGW AGSU

SET263-4  
OPGW BOND TO DOWNLEAD

07235  
EARTHWIRE DOWNLEAD 19/1.78 Cu.  
PVC INSULATED (SEE NOTE 2)

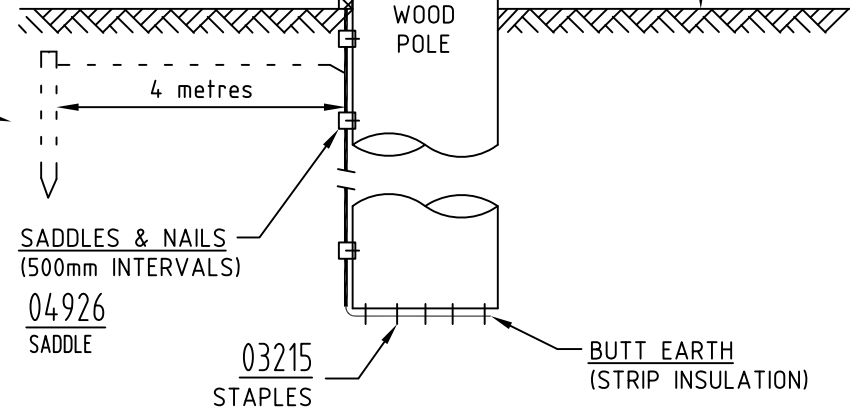


06122  
PG CONNECTOR

ADDITIONAL EARTHING  
IF REQUIRED  
(SECTION 8, PAGE 8-101)  
(If more than four additional  
earthrods required, contact  
local ENERGEX Office)

EARTHGUARD & SCREWS

22518 EARTH GUARD  
22517 SCREWS



## NOTES:

- Keep downloads as far as possible from other pole hardware or equipment.
- When other HV and/or LV earths are required on pole, do not install OPGW download at this pole.
- When future HV and/or LV earths are required and OPGW download is pre-existing, download must be disconnected from OPGW and separated from OPGW where cut by at least 1.2m.
- Where deviation angle > 5°, install clamp to inside angle side of pole. For < 5° angle, fit clamp to side of pole with most phases or either side of pole if double circuit feeder.
- For deviation angle limitations see OHCM section 9 page 112

ORIGINAL ISSUE	DATE	APP'D	CKD	DRN	Updated the earth in the PG clamp
A	27/09/18	F. ZANIN	P. RELF	P. RELF	



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## OVERHEAD CONSTRUCTION MANUAL

## OPGW CONSTRUCTION

## OPSU

OPGW SUSPENSION 0°-30° for  
33PO, 33SU, 33SUA, 33W, 33WA, 33DCI

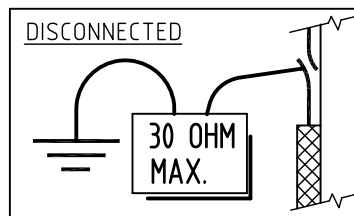
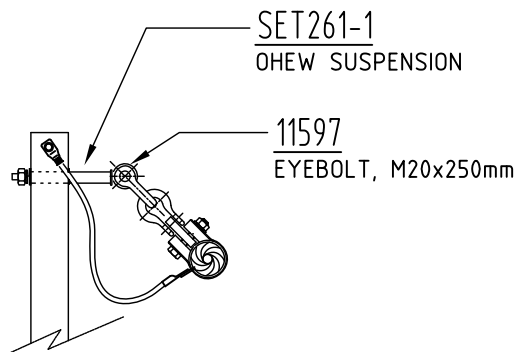
APP'D Roy English	TECH STDS	AUTOCAD
DATE 1/7/09	4920-A4	C
REC'D John Tunney	SECT 9	PAGE 102
CKD John Tunney	SHEET 1 OF 1	
DWN T. Bakker	FILE: ocm\s5\ohc-102b.dwg	



## CU LIST

OPSUR/11

3215	AR
4926	24
6122	1
22518	1
7235	21m
22517	AR
11597	1
19820	1
SET300-4	1
SET261-1	1
SET263-3	1
SET263-2	1



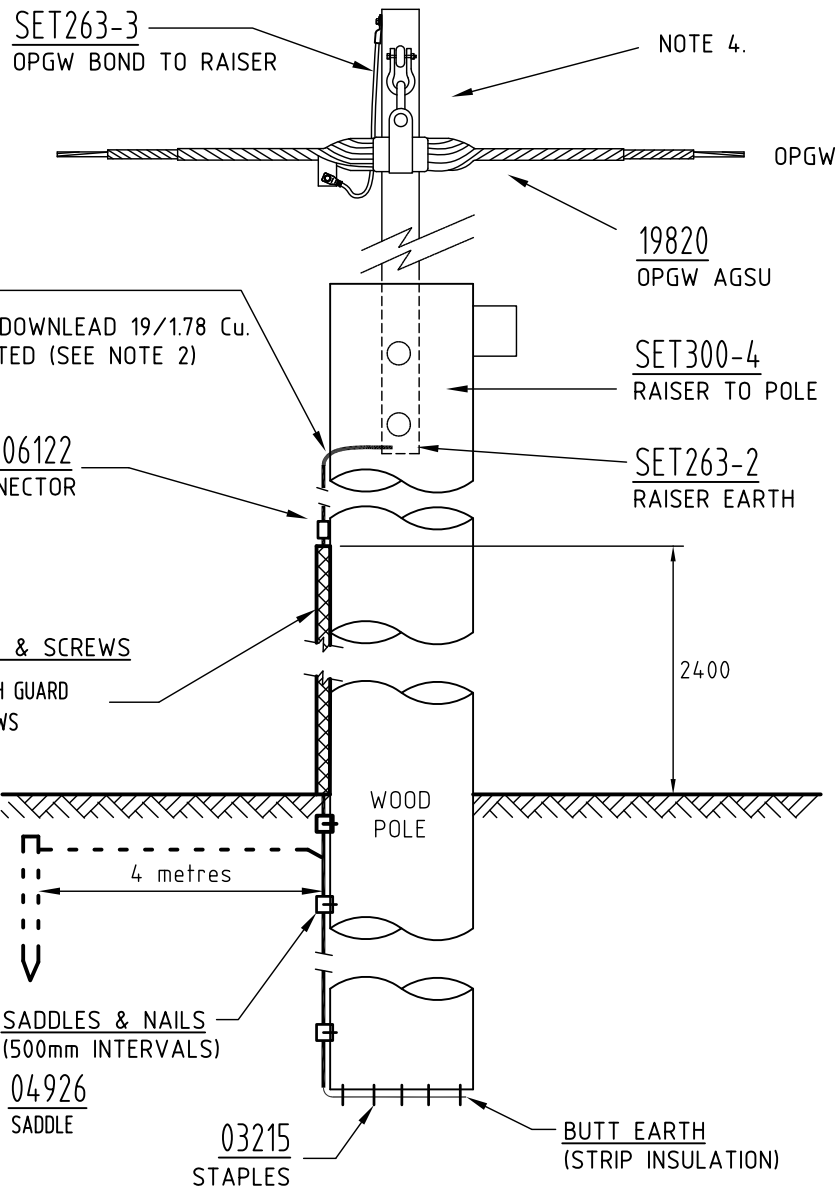
**ADDITIONAL EARTHING  
IF REQUIRED**  
(SECTION 8, PAGE 8-101)  
(If more than four additional  
earthrods required, contact  
local ENERGEX Office)

07235  
EARTHWIRE DOWNLEAD 19/1.78 Cu.  
PVC INSULATED (SEE NOTE 2)

06122  
PG CONNECTOR

**EARTHGUARD & SCREWS**

22518 EARTH GUARD  
22517 SCREWS



## NOTES:

- Keep download as far as possible from other pole hardware or equipment.
- When other HV and/or LV earths are required on pole, do not install OPGW download at this pole.
- When future HV and/or LV earths are required and OPGW download is pre-existing, download must be disconnected from OPGW and separated from OPGW where cut by at least 1.2m.
- Where deviation angle > 5°, install clamp to inside angle side of pole. For < 5° angle, fit clamp to side of pole with most phases or directly above pole if double circuit feeder.
- For deviation angle limitations see OHCM section 9 page 112

ORIGINAL ISSUE	DATE	REVISION	J.TUNNEY	P.RELF	Added note 5 Updated earthguard to SC 22518
A	B	APPD	CKD	DRN	



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## OVERHEAD CONSTRUCTION MANUAL

## OPGW CONSTRUCTION

## OPSUR

OPGW SUSPENSION RAISER 0°-30° for  
33SU, 33SUA, 33DCI

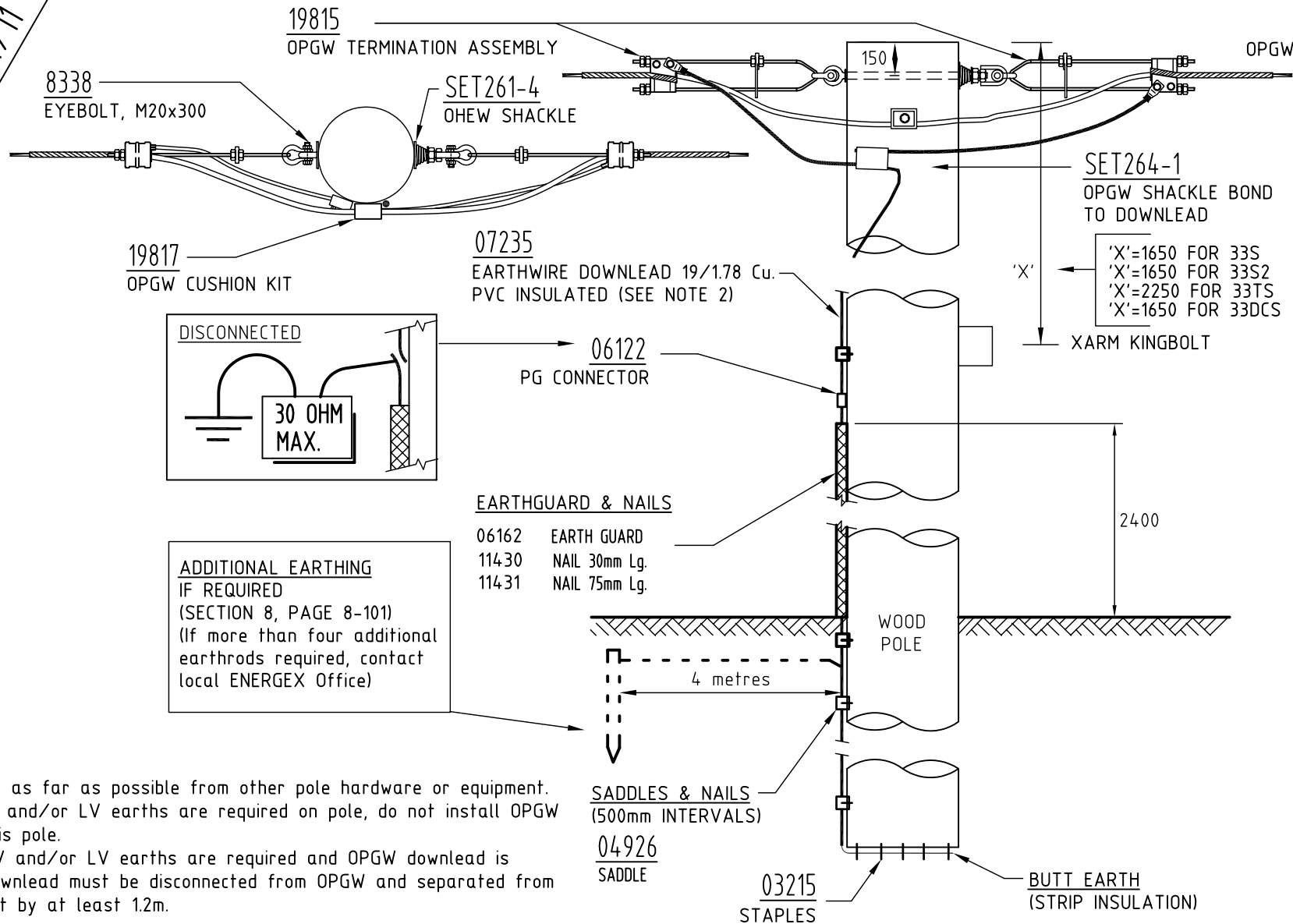
APP'D	Roy English	TECH STDS		AUTOCAD
DATE	1/7/09	4920-A4		B
REC'D	John Tunney	SECT	PAGE	
		9	103	
CKD	John Tunney	SHEET 1 OF 1		
DWN	T. Bakker	FILE: ocm\s9\ohc-103b.dwg		



## CU LIST

OPS4/11

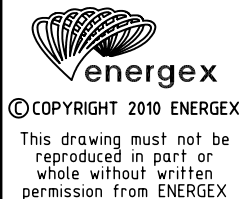
3215	12
4926	24
6122	1
6162	1
7235	21m
11430	AR
11431	AR
19815	2
8338	1
19817	1
SET261-4	1
SET264-1	1



## NOTES:

1. Keep downloads as far as possible from other pole hardware or equipment.
2. When other HV and/or LV earths are required on pole, do not install OPGW download at this pole.
3. When future HV and/or LV earths are required and OPGW download is pre-existing, download must be disconnected from OPGW and separated from OPGW where cut by at least 1.2m.

ORIGINAL ISSUE	DATE	REVISION	APP'D	CKD	DRN	Dim "X" for 33DCS now 1650 and to top of pole.
A	24-8-2010	ENGLISH	J. TUNNEY	J. TUNNEY	J. TUNNEY	



## OVERHEAD CONSTRUCTION MANUAL

## OPGW CONSTRUCTION

## OPS4

OPGW 0-45° SHACKLE  
for 33S, 33S2, 33TS, 33DCS

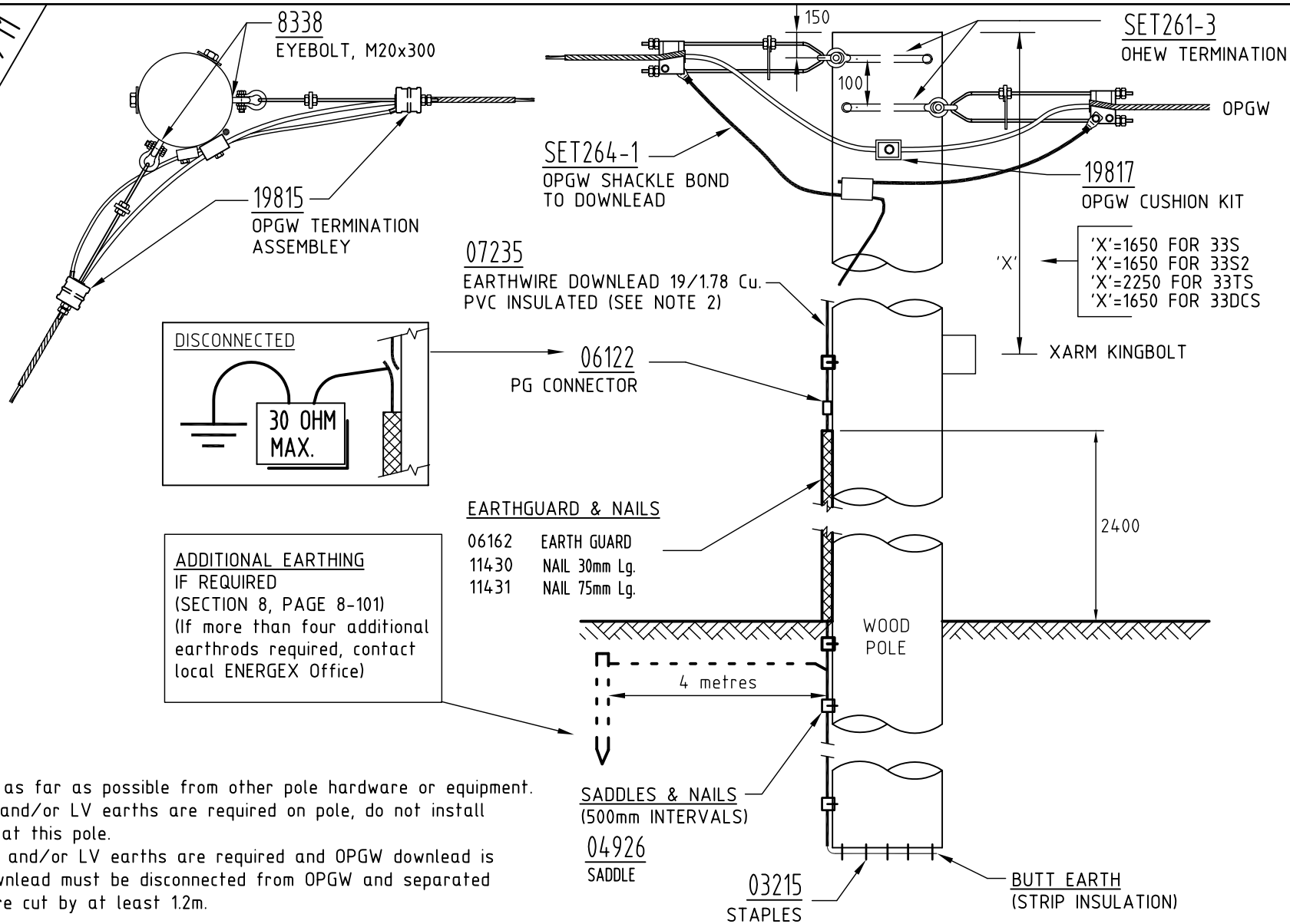
APP'D Roy English	TECH STDS	AUTOCAD
DATE 1/7/09	4920-A4	B
REC'D John Tunney	SECT 9	PAGE 104
CKD JohnTunney	SHEET 1 OF 1	
DWN T. Bakker	FILE: ocm\s9\ohc-104a.dwg	



## CU LIST


OPS9/11

3215	AR
4926	24
6122	1
6162	1
7235	21m
11430	AR
11431	AR
SET264-1	1
SET261-3	2
19815	2
8338	2
19817	1



## NOTES:

- Keep downloads as far as possible from other pole hardware or equipment.
- When other HV and/or LV earths are required on pole, do not install OPGW download at this pole.
- When future HV and/or LV earths are required and OPGW download is pre-existing, download must be disconnected from OPGW and separated from OPGW where cut by at least 1.2m.

A	ORIGINAL ISSUE					 © COPYRIGHT 2010 ENERGEX This drawing must not be reproduced in part or whole without written permission from ENERGEX	OVERHEAD CONSTRUCTION MANUAL			APP'D Roy English	TECH STDS		AUTOCAD
	B	DATE	24-8-2010	APPD R. ENGLISH	CKD J. TUNNEY		DRN J. TUNNEY	Dimension "X" now to top of pole	DATE	1/7/09	4920-A4		B
									REC'D John Tunney	SECT 9	PAGE 105		
									CKD JohnTunney	SHEET 1 OF 1			
									DWN T. Bakker	FILE: ocm\s5\ohc-105a.dwg			

## OVERHEAD CONSTRUCTION MANUAL

## OPGW CONSTRUCTION

## OPS9

OPGW 45-90° SHACKLE  
for 33S, 33S2, 33TS, 33DCS

Dimension "X" now to top of pole



3215	AR
4926	24
6122	1
6162	1
7235	21m
11430	AR
11431	AR
SET301-1	1
19817	1
2481	2
2477	2m
19815	2
SET263-3	2

The diagram illustrates the installation of an Optical Grounding Wire (OPGW) on a wooden pole. Key components and labels include:

- OPGW TERMINATION ASSEMBLY** (19815) at the top, connected to **OPGW** lines.
- OPGW CUSHION KIT** (19817) and **BANDIT STRAP, 10mm, S/S** (2477) for securing the OPGW.
- BANDIT SEAL, 10mm, S/S** (2481) for sealing the OPGW.
- RAISER TO POLE** (SET301-1) and **RAISER EARTH** (SET263-2) for mounting the OPGW to the pole.
- PG CONNECTOR** (06122) and **EARTHWIRE DOWNLEAD** (07235, 19/178 Cu. PVC INSULATED) for connecting the OPGW to the earthing system.
- EARTHGUARD & NAILS** (06162 EARTH GUARD, 11430 NAIL 30mm Lg., 11431 NAIL 75mm Lg.) for securing the downlead.
- SADDLES & NAILS** (04926 SADDLE) for mounting the downlead to the pole.
- BUTT EARTH (STRIP INSULATION)** (03215 STAPLES) for grounding the downlead.
- WOOD POLE** with a height of **2400** units.
- DISCONNECTED** label and **30 OHM MAX.** resistor for the earthing connection.
- ADDITIONAL EARTHING IF REQUIRED** (SECTION 8, PAGE 8-101) (If more than four additional earthrods required, contact local ENERGEX Office).
- NOTE 4.** and **2.8kN Max. Resultant Working Load** are also indicated.

Additional notes at the bottom of the page:

- As far as possible from other pole hardware or equipment.
- and/or LV earths are required on pole, do not install OPGW pole.
- and/or LV earths are required and OPGW downlead is required, downlead must be disconnected from OPGW and separated from OPGW by at least 1.2m.
- For feeders, mount riser on opposite side of pole to middle of pole.

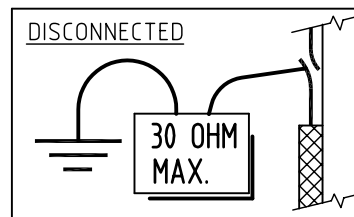
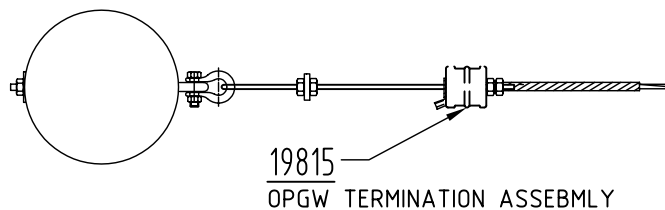
1. Keep downloads as far as possible from other pole hardware or equipment.
2. When other HV and/or LV earths are required on pole, do not install OPGW download at this pole.
3. When future HV and/or LV earths are required and OPGW download is pre-existing, download must be disconnected from OPGW and separated from OPGW where cut by at least 1.2m.
4. On single circuit feeders, mount riser on opposite side of pole to middle phase bridging post insulator.



## CU LIST

OPT/11

3215	AR
4926	24
6122	1
6162	1
7235	21m
11430	AR
11431	AR
SET261-3	1
00541	1
19815	1
6259	1



**ADDITIONAL EARTHING**  
IF REQUIRED  
(SECTION 8, PAGE 8-101)  
(If more than four additional  
earthrods required, contact  
local ENERGEX Office)

07235  
EARTHWIRE DOWNLOAD 19/1.78 Cu.  
PVC INSULATED (SEE NOTE 2)

06122  
PG CONNECTOR

## EARTHGUARD &amp; NAILS

06162 EARTH GUARD  
11430 NAIL 30mm Lg.  
11431 NAIL 75mm Lg.

SET261-3  
OHEW TERMINATION

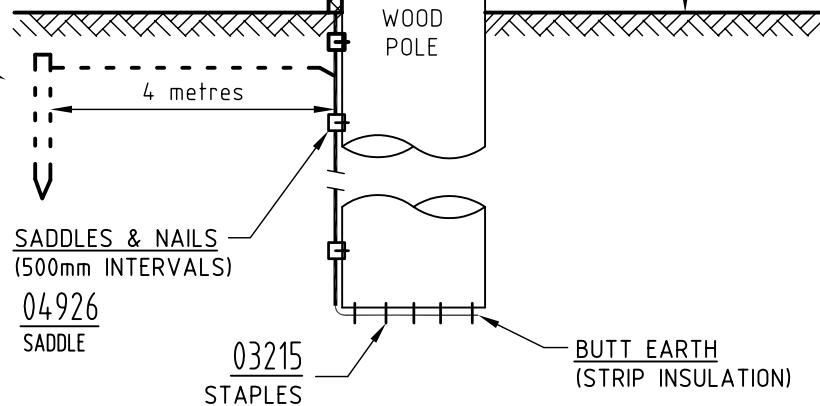
00541  
EYEBOLT, M20x350

6259  
LUG, 50mm<sup>2</sup> Cu

'X'=1650 FOR 33T  
'X'=1650 FOR 33T2  
'X'=2250 FOR 33TT


XARM KINGBOLT

2400



## NOTES:

- Keep downloads as far as possible from other pole hardware or equipment.
- When other HV and/or LV earths are required on pole, do not install OPGW download at this pole.
- When future HV and/or LV earths are required and OPGW download is pre-existing, download must be disconnected from OPGW and separated from OPGW where cut by at least 1.2m.

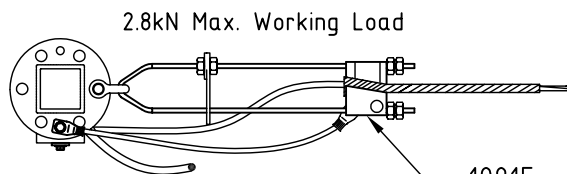
A	ORIGINAL ISSUE					 © COPYRIGHT 2010 ENERGEX This drawing must not be reproduced in part or whole without written permission from ENERGEX	OVERHEAD CONSTRUCTION MANUAL			APP'D Roy English	TECH STDS		AUTOCAD
	B	DATE 24-8-2010	APPD R. ENGLISH	CKD J. TUNNEY	DRN J. TUNNEY		DATE 1/7/09	4920-A4		B			
							REC'D Tom Bakker	SECT 9	PAGE 107				
							CKD JohnTunney	SHEET 1 OF 1					
							DWN T. Bakker	FILE: ocm\s5\ohc-107a.dwg					
Dimension "X" now to head of pole.						OPGW CONSTRUCTION OPT OPGW TERMINATION for 33T, 33T2, 33TT							



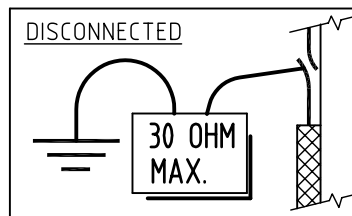
## CU LIST

OPTR/11

3215	AR
4926	24
6122	1
6162	1
7235	21m
11430	AR
11431	AR
SET301-1	1
19815	1
SET263-3	1
SET263-2	1
2477	4m
2481	4
19818	2



19815  
OPGW TERMINATION ASSEMBLY



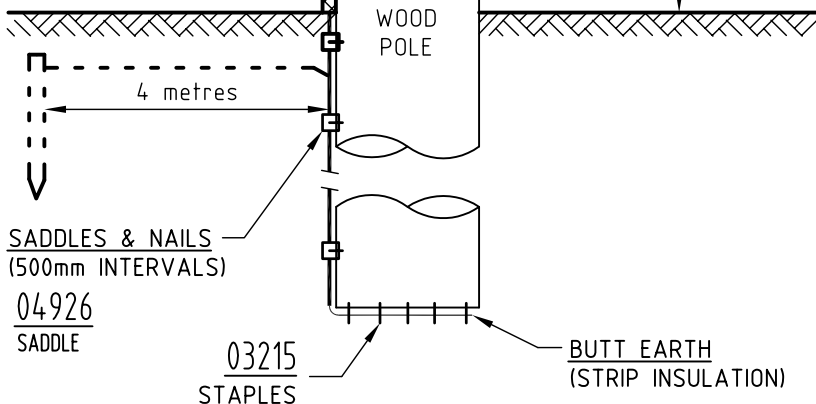
ADDITIONAL EARTHING  
IF REQUIRED  
(SECTION 8, PAGE 8-101)  
(If more than four additional  
earthrods required, contact  
local ENERGEX Office)

06122  
PG CONNECTOR

07235  
EARTHWIRE DOWNLEAD 19/1.78 Cu.  
PVC INSULATED (SEE NOTE 2)

EARTHGUARD & NAILS

06162	EARTH GUARD
11430	NAIL 30mm Lg.
11431	NAIL 75mm Lg.



19818  
OPGW CUSHION KIT

2477  
BANDIT STRAP, 10mm, S/S

2481  
BANDIT SEAL, 10mm, S/S

SET263-2  
RAISER EARTH

SET301-1  
RAISER TO POLE

SET263-3  
OPGW BOND TO RAISER

OPGW  
2.8kN MWT

NOTES:

1. Keep downloads as far as possible from other pole hardware or equipment.
2. When other HV and/or LV earths are required on pole, do not install OPGW download at this pole.
3. When future HV and/or LV earths are required and OPGW download is pre-existing, download must be disconnected from OPGW and separated from OPGW where cut by at least 1.2m.



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## OVERHEAD CONSTRUCTION MANUAL

OPGW CONSTRUCTIONOPTR

OPGW TERMINATION RAISER 2.8kN MWT  
for 33T

APP'D Roy English

DATE 30/6/09

REC'D Tom Bakker

CKD John Tunney

DWN T. Bakker

TECH STDS AUTOCAD

4920-A4 A

SECT PAGE

9 108

SHEET 1 OF 1

FILE: ocm\s9\ohc-108a.dwg

ORIGINAL ISSUE

A



## CU LIST

	OPJ/11	OPUGT/11
18026	1	1
02476	0.5	0.5
19817	10	10
00684	3	3
4932		5
16412		1
18076		4
1055-1-T1		1

MIN 750mm TO 33kV X-ARM

4500mm ABOVE GL

OPJ  
(NTS)19817  
DOWNLEAD CUSHION  
TO WOOD POLEOPGW JOINT  
(PROVIDED BY OTHERS)

OPGW CABLE

18026  
COIL BRACKET00684  
M12 SET SCREW16412  
16mm GREY FLEX  
CONDUIT TO HOUSE UG  
FIBRE OPTIC CABLE18076  
50mm LD WHITE  
CONDUIT1055-1-T1  
CABLE GUARD1200mm NOMINAL  
SPACING2476  
STRAPPING  
19mm S/S

OPGW CABLE

UG FIBRE OPTIC CABLE

4932  
50mm SADDLEOPUGT  
(NTS)

## NOTES

1. FOR JOINTING PURPOSES, THE OPGW CABLE SHOULD BE EXTENDED 20m FROM THE FOOT OF THE POLE BEFORE BEING COILED ON THE COIL BRACKET.
2. JOINTING SHALL BE PERFORMED IN THE VAN (CLEAN ROOM).



energen

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## OVERHEAD CONSTRUCTION MANUAL

## OPGW CONSTRUCTION

## OPJ &amp; OPUGT

## OPGW JOINT AND UNDERGROUND TERMINATION

APP'D Roy English

DATE 1/7/09

REC'D Tom Bakker

CKD John Tunney

DWN T. Bakker

TECH STDS AUTOCAD

4920-A4 A

SECT

9

PAGE

109

SHEET 1 OF 1

FILE: ocm\s9\ohc-109a.dwg



## CU LIST

OPV/11

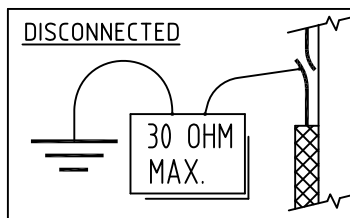
3215	AR
4926	24
6122	1
22518	1
7235	21m
22517	AR
SET261-1	1
SET263-4	1
00542	1
19820	1

SET261-1  
OHEW SUSPENSION  
00542  
EYEBOLT, M20x400

19820  
OPGW AGSU

SET263-4  
OPGW BOND TO DOWNLEAD

07235  
EARTHWIRE DOWNLEAD 19/1.78 Cu.  
PVC INSULATED (SEE NOTE 2)

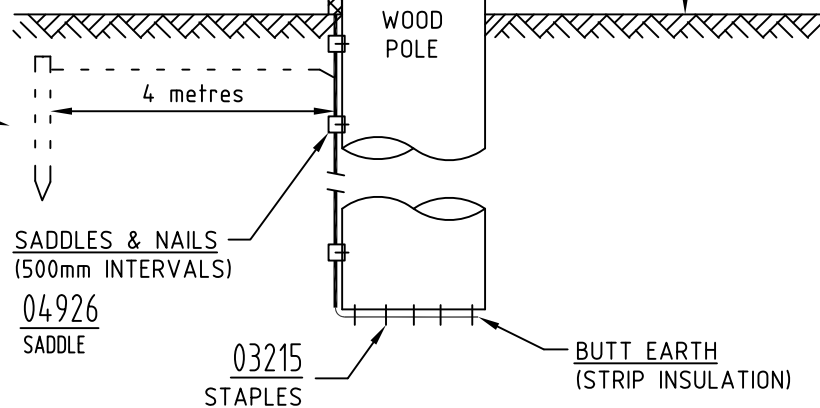


06122  
PG CONNECTOR

ADDITIONAL EARTHING  
IF REQUIRED  
(SECTION 8, PAGE 8-101)  
(If more than four additional  
earthrods required, contact  
local ENERGEX Office)

## EARTHGUARD &amp; SCREWS

22518 EARTH GUARD  
22517 SCREWS



NOTE 4.

OPGW

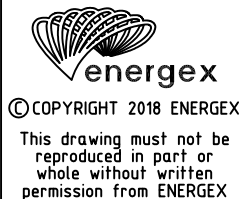
TOP GAINBASE KINGBOLT

2400

## NOTES:

1. Keep downleads as far as possible from other pole hardware or equipment.
2. When other HV and/or LV earths are required on pole, do not install OPGW downlead at this pole.
3. When future HV and/or LV earths are required and OPGW downlead is pre-existing, downlead must be disconnected from OPGW and separated from OPGW where cut by at least 1.2m.
4. Where deviation angle > 5°, install clamp to inside angle side of pole.  
For < 5° angle, fit clamp to side of pole with most phases.
5. For deviation angle limitations see OHCM section 9 page 112

A	ORIGINAL ISSUE		APP'D	F. ZAINI	CKD	P. RELF	DRN	P. RELF	Updated the earth in the PG clamp
	DATE	27/09/18							
D									



## OVERHEAD CONSTRUCTION MANUAL

## OPGW CONSTRUCTION

OPV  
OPGW SUSPENSION 0°-30° for  
33VDR, 33VOR

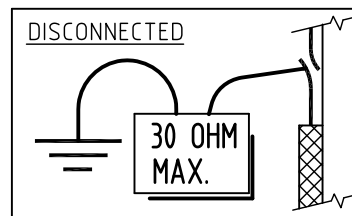
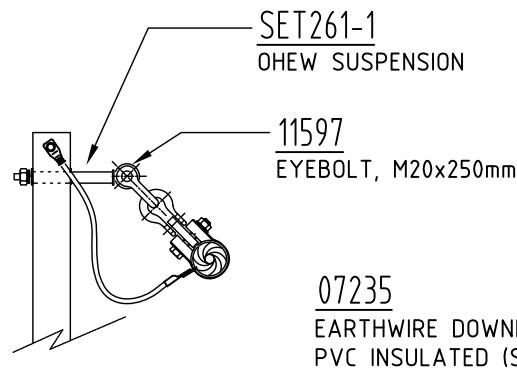
APP'D	Roy English	TECH STDS		AUTOCAD
DATE	1/7/09	4920-A4		D
REC'D	John Tunney	SECT	PAGE	
CKD	John Tunney	9	110	
DWN	T. Bakker	SHEET 1 OF 1		
FILE: ocm\s5\ohc-102c.dwg				



## CU LIST

OPVR/11

3215	AR
4926	24
6122	1
22518	1
7235	21m
22517	AR
11597	1
19820	1
SET300-4	1
SET261-1	1
SET263-3	1
SET263-2	1
SET262-3	3



**ADDITIONAL EARTHING  
IF REQUIRED**  
(SECTION 8, PAGE 8-101)  
(If more than four additional  
earthrods required, contact  
local ENERGEX Office)

## EARTHGUARD &amp; SCREWS

22518 EARTH GUARD  
22517 SCREWS

06122  
PG CONNECTOR

SET263-3  
OPGW BOND TO RAISER

SET300-4  
RAISER TO POLE

NOTE 4.

19820  
OPGW AGSU

SET262-3  
GAINBASE EARTH  
(EACH PHASE)

SET263-2  
RAISER EARTH

2400

WOOD  
POLE

4 metres

SADDLES & NAILS  
(500mm INTERVALS)

04926  
SADDLE

03215  
STAPLES

BUTT EARTH  
(STRIP INSULATION)

FASTEN RAISER TO POLE  
USING ONE OF THE TOP  
AND ONE OF THE BOTTOM  
HOLES PROVIDED

## NOTES:

- Keep download as far as possible from other pole hardware or equipment.
- When other HV and/or LV earths are required on pole, do not install OPGW download at this pole.
- When future HV and/or LV earths are required and OPGW download is pre-existing, download must be disconnected from OPGW and separated from OPGW where cut by at least 1.2m.
- Where deviation angle > 5°, install clamp to inside angle side of pole. For < 5° angle, fit clamp to side of pole with most phases.
- For deviation angle limitations see OHCM section 9 page 112



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## OVERHEAD CONSTRUCTION MANUAL

## OPGW CONSTRUCTION

## OPVR

OPGW SUSPENSION RAISER 0°-30° for  
33VDR, 33VOR

APP'D Roy English

DATE 1/7/09

REC'D John Tunney

CKD John Tunney

DWN T. Bakker

TECH STDS AUTOCAD

4920-A4 B

SECT PAGE

9 111

SHEET 1 OF 1

FILE: ocm\s9\ohc-111b.dwg

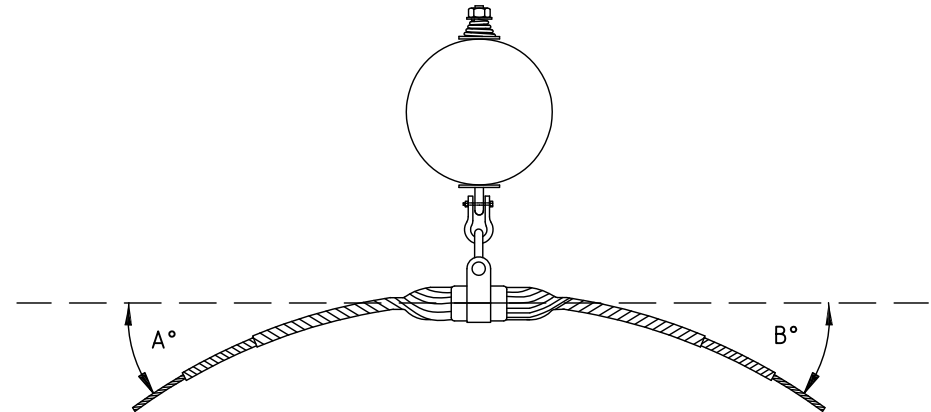
ORIGINAL ISSUE	DATE	REVISION	J.TUNNEY	P.RELF	Added note 5 Updated earthguard to SC 22518
A	B	APPD	CKD	DRN	



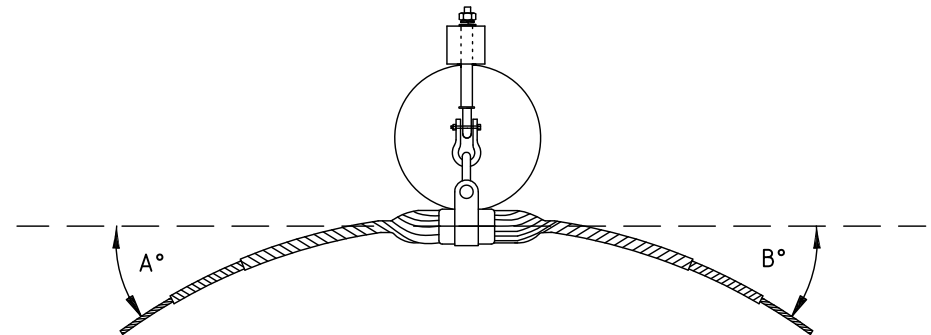
OPSU,OPV

**CAUTION:** For the purpose of construction, OPGW must be treated as an optical communications cable, not a ground wire. Refer to Energex SWP 105 for required practice. Excessive bending will damage the fibres inside the cable requiring expensive fibre optic splice terminations and/or replacement of the entire cable section/segment

Angle is measured between the centreline of the cable through the suspension fitting and the tangent of the cable that results in the largest measured angle



OPSUR,OPVR



# NOTES:

1. Suspension deviation angle must not exceed 30°.  $A^{\circ} + B^{\circ}$  cannot exceed 30° under any circumstance.
2. For shackle deviation angles  $<45^{\circ}$  use construction OPS4 (OHCM Section 9 page 104)
3. For shackle deviation angles  $>45^{\circ}$  use construction OPS9 (OHCM Section 9 page 105)

ORIGINAL ISSUE

A



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## OVERHEAD CONSTRUCTION MANUAL

### OPGW CONSTRUCTION

OPSU, OPSUR, OPV, OPVR

MEASURING MAXIMUM SUSPENSION AND DEVIATION

APP'D R. English

DATE 10/01/12

REC'D

CKD J. Tunney

DWN P. Relf

TECH STDS AUTOCAD

4920-A4 A

SECT 9 PAGE 112

SHEET 1 OF 1

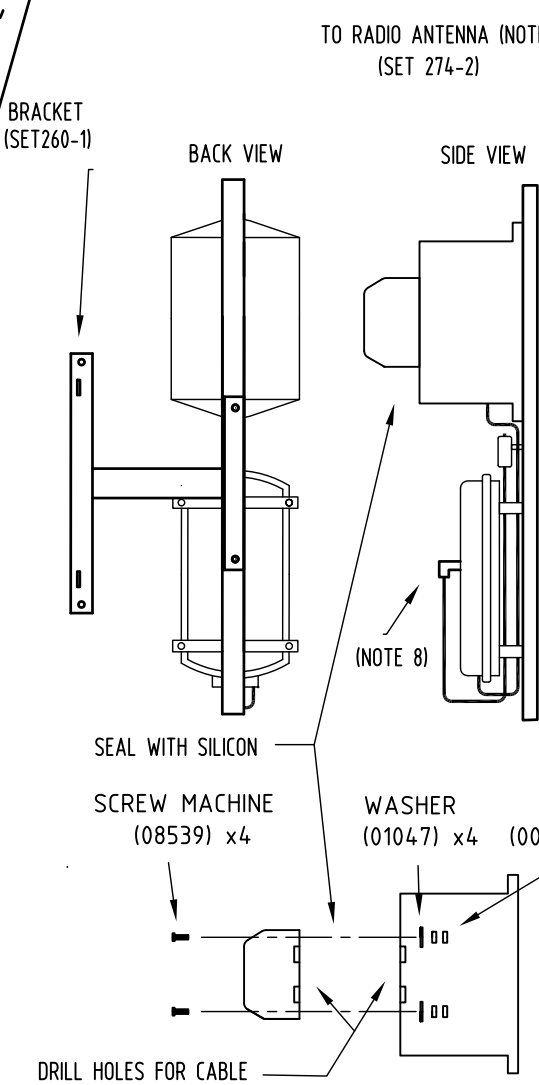
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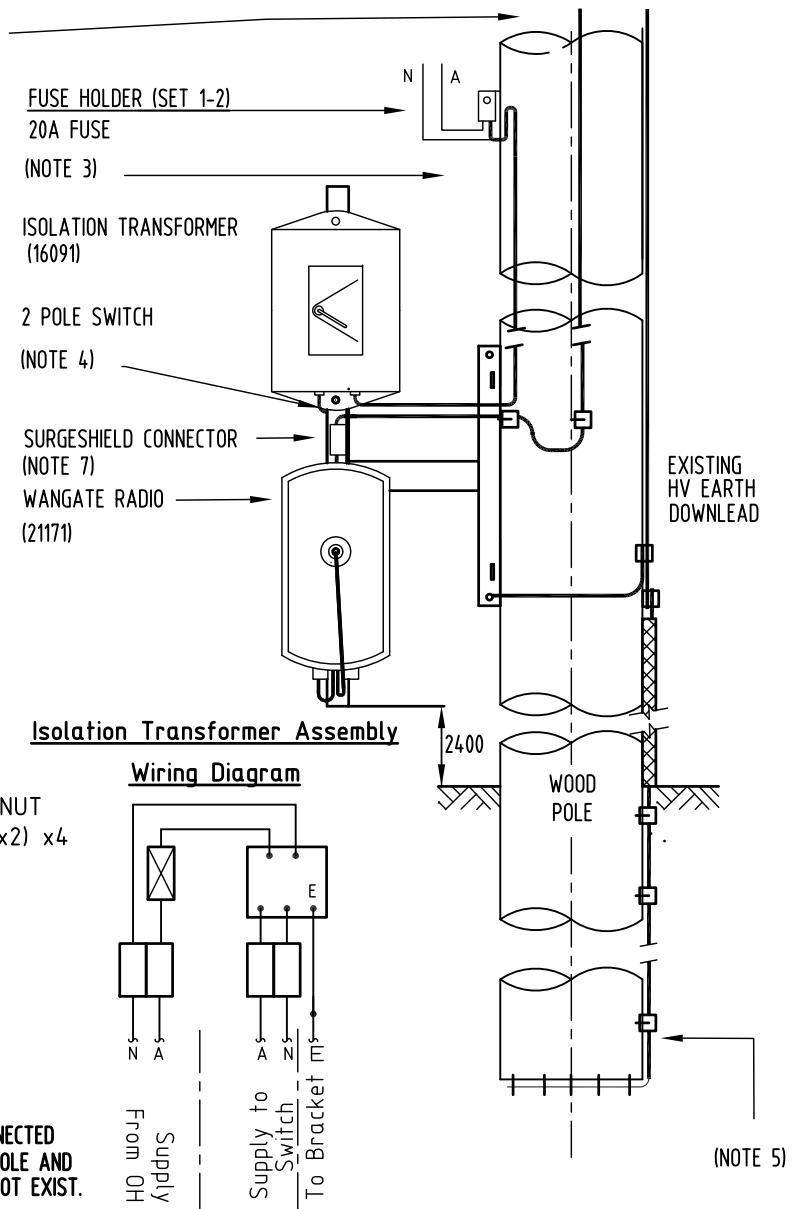
CU LIST -

STOCK CODE	DESCRIPTION	MR/SASE
00907	SET SCREW M12	2
00983	LOCKNUT M5	8
01047	WASHER 1/4IN	4
01053	UNISTRUT WASHER	2
04929	25mm SADDLES	20
06259	50mm LUG 12mm HOLE	1
07235	50mm WIRE	2
08539	SCREW MACHINE 25mm	4
10885	UNISTRUT NUT	2
12124	50mm LUG 8mm HOLE	1
16023	25mm CORRUGATED CONDUIT	10
16028	25mm CONDUIT GLAND	2
16091	ISOLATION TRANSFORMER	1
17119	2 CORE 6mm XLPE	10
21086	FUSEHOLDER 100A	1
21171	WANGATE RADIO	1
22278	SWITCH	1
22313	20A FUSE	1
SET1-2	BRACKET TO POLE	1
SET260-1	CONTROL BOX BRACKET TO POLE	1
SET274-2	ANTENNA TO X-ARM	1
21340	LARGE ANTENNA RF SURGE SHIELD 90° ANTENNA ADAPTOR	COMMS COMMS COMMS


- NOTES.
- For use where only a HV earth exists in a Separately Earthed area.
  - Radio Antenna above HV mains
  - 2 Core 6mm<sup>2</sup> XLPE covered by 25mm conduit
  - Power lead supplied with radio covered by 25mm conduit
  - Refer to drawing 7-606 for separate earthing.
  - 2400mm - Minimum height of radio
  - Isolation Transformer Earthing to bracket - Transformer stud - 50mm lug with 8mm hole  
Bracket - 50mm lug with 12mm hole
  - 90° Antenna adaptor and antenna lead to surge shield supplied with antenna



TO RADIO ANTENNA (NOTE 2)  
(SET 274-2)



ORIGINAL ISSUE	DATE	APP'D	CKD	DRN	NOTES UPDATED AND CU REVISED.
A	28-12-2012	F. ZAINI	P. POULOS	P. RELF	

  
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OVERHEAD CONSTRUCTION MANUAL

ISOLATION TRANSFORMER

MR/SASE

MESH RADIO NETWORK REPEATER & ISOLATION TRANSFORMER. (FOR USE IF HV EARTH ON POLE)

APP'D	R. ENGLISH	TECH STDS		AUTOCAD
DATE	10/08/10	4920-A4		D
REC'D		SECT	PAGE	
CKD	P. JUDGE	9	201	
DWN	P. RELF	SHEET 1 OF 1		
FILE: ocm\59\ohc-201b.dwg				

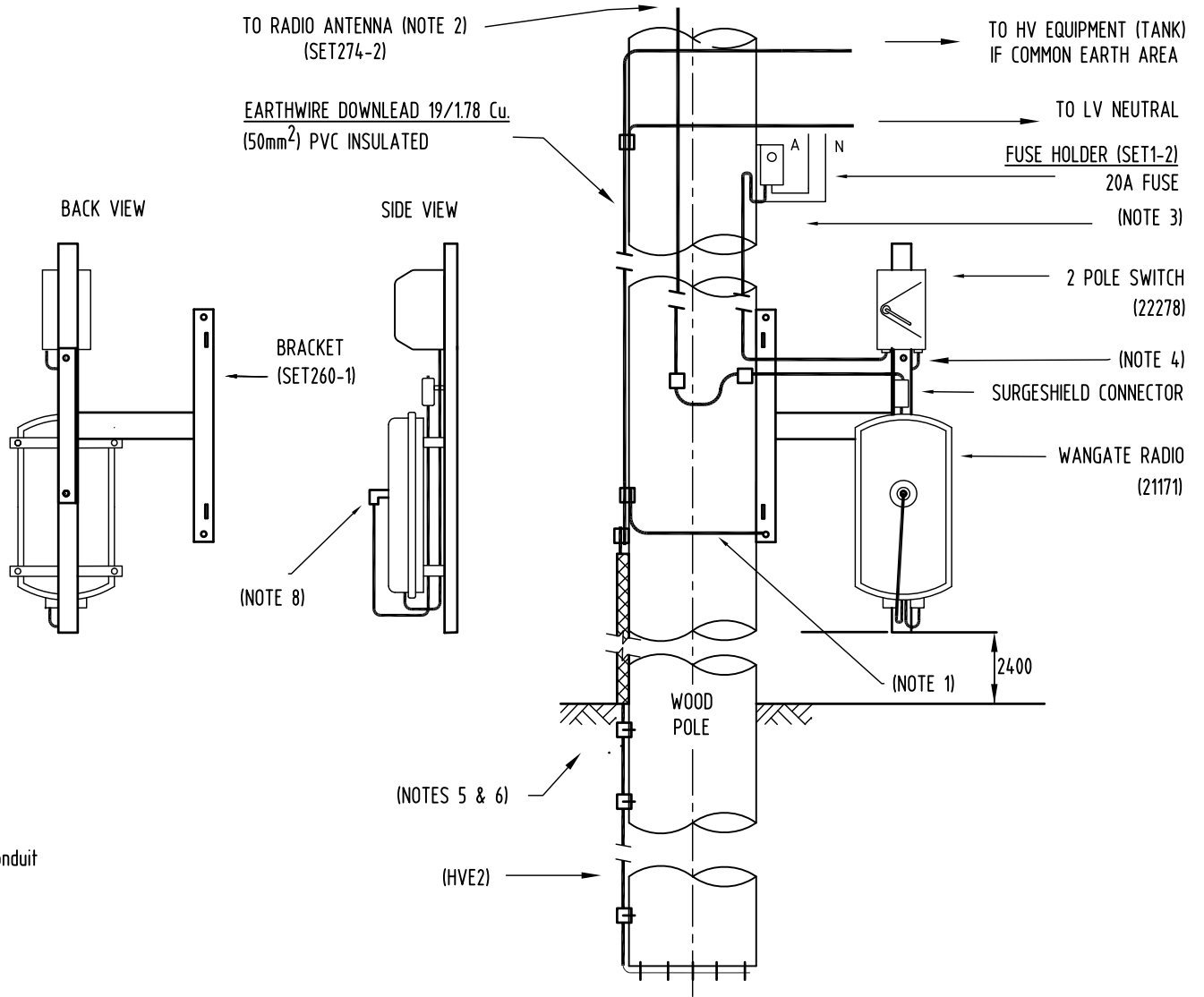


CU LIST -

STOCK CODE	DESCRIPTION	MR/SACE
00907	SET SCREW M12	2
00983	LOCKNUT M5	8
01047	WASHER 1/4IN	4
04929	25mm SADDLES	20
08539	SCREW MACHINE 25mm	4
16023	25mm CORRUGATED CONDUIT	10
16028	25mm CONDUIT GLAND	2
17119	2 CORE 6mm XLPE	10
21086	FUSEHOLDER 100A	1
21171	WANGATE RADIO	1
22278	SWITCH	1
22313	20A FUSE	1
HVE2/A	ANTENNA ABOVE HV EARTHING	1
SET1-2	BRACKET TO POLE	1
SET260-1	CONTROL BOX BRACKET TO POLE	1
SET274-2	ANTENNA TO X-ARM	1
21340	LARGE ANTENNA RF SURGE SHIELD 90° ANTENNA ADAPTOR	COMMS COMMS COMMS


NOTE.

- 1. For use in CMEN areas and Separate Earth areas.  
If in Separate Earth area, bracket must be connected to LV earth.
- 2. Radio Antenna above mains
- 3. 2 Core 6mm<sup>2</sup> XLPE covered by 25mm corrugated conduit
- 4. Power lead supplied with radio installed in 25mm corrugated conduit
- 5. Refer drawing 7-607 for earthing if CMEN area.
- 6. Refer drawing 7-606 for earthing if Separate Earth area.
- 7. 2400mm - Minimum height of radio
- 8. 90° Antenna adaptor and antenna lead to surge shield supplied with antenna



COMMON EARTH AREA ARRANGEMENT SHOWN.  
REFER NOTE 1 FOR SEPARATE EARTH AREA.

ORIGINAL ISSUE	DATE	APPD	CKD	DRN	NOTES UPDATED AND CU REVISED.
A	11-02-2013	F. ZAINI	P. POULOS	P. RELF	



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OVERHEAD CONSTRUCTION MANUAL

MESH RADIO

MR/SACE

MESH RADIO NETWORK REPEATER WITHOUT ISOLATION TRANSFORMER

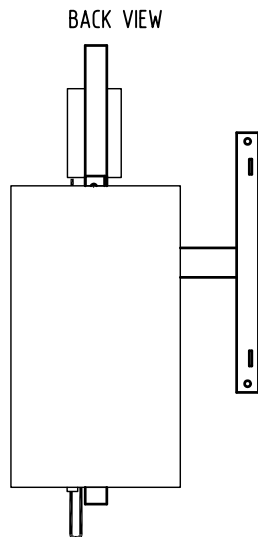
APP'D	R. ENGLISH	TECH STDS	AUTOCAD
DATE	10/08/10	4920-A4	D
REC'D		SECT 9	PAGE 202
CKD	P. JUDGE	SHEET 1 OF 1	
DWN	P. RELF	FILE: ocm\s9\ohc-202a.dwg	



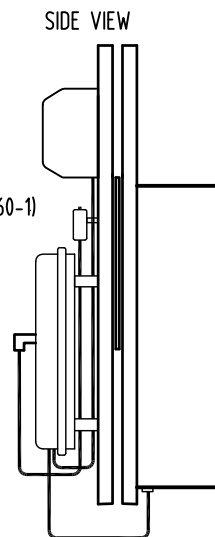
CU LIST -		
STOCK CODE	DESCRIPTION	MR/11REGVT
00412	M12x40 BOLT/NUT	2
00907	SET SCREW M12	4
01044	FLAT WASHER M12	8
01053	WASHER M12	4
01081	SPRING WASHER	2
04929	25mm SADDLES	20
06259	50MM LUG 12MM HOLE	1
07235	50MM WIRE	2
10885	UNISTRUT NUT	3
12124	50MM LUG 8MM HOLE	1
13401	EDO FUSE 3A K	2
16023	25mm CORRUGATED CONDUIT	10
16028	25mm CONDUIT GLAND	2
18648	UNISTRUT	1
21171	WANGATE RADIO	1
22278	SWITCH	1
20279	CCT BRIDGING	6
22888	VT	1
HVE2/A	ANTENNA ABOVE HV EARTHING	1
SET254-1	EDO TO X-ARM	2
SET274-1	VT TO POLE	1
SET274-2	ANTENNA TO X-ARM	1
21340	LARGE ANTENNA RF SURGE SHIELD 90° ANTENNA ADAPTOR	COMMS COMMS COMMS

**NOTE.**

1. To be used in conjunction with 9-204
2. Refer to drawing 7-302 for regulator construction
3. Radio Antenna above mains
4. Power lead supplied with radio installed in 25mm corrugated conduit
5. Refer to drawing 7-607 for earthing
6. 2400mm - Minimum height of radio
- 7 90° Antenna adaptor and antenna lead to surge shield supplied with antenna



BACK VIEW



SIDE VIEW

TO RADIO ANTENNA (NOTE 3)  
(SET 274-2)

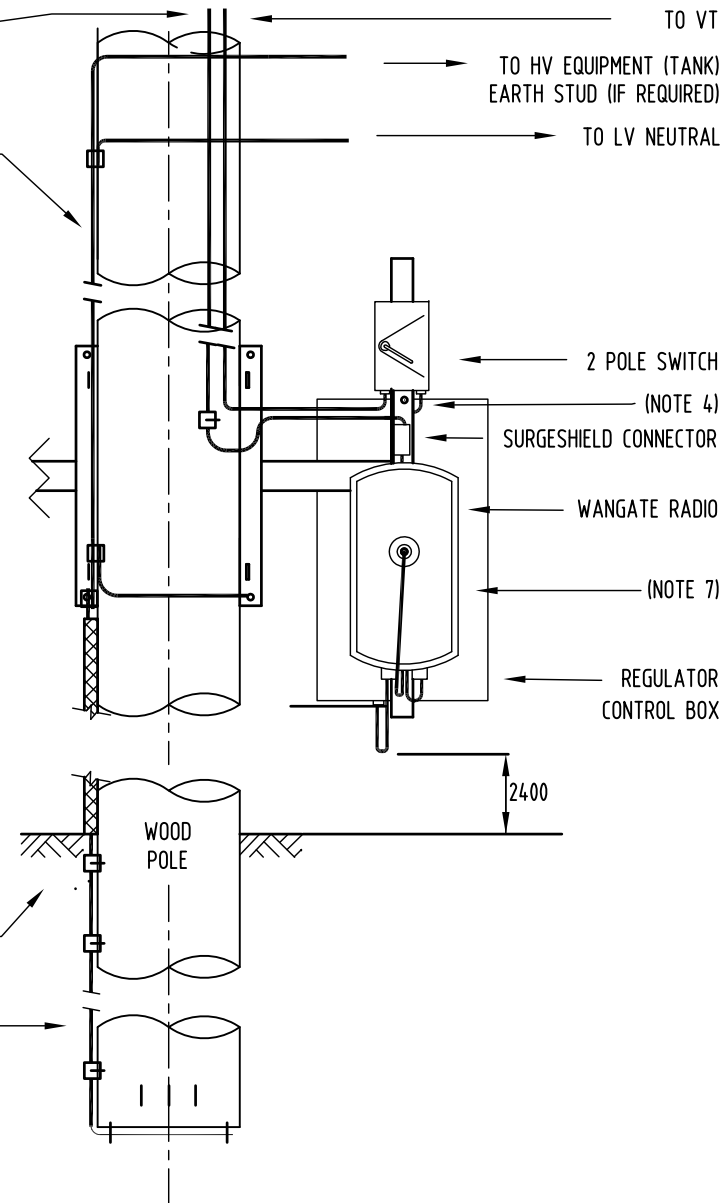
EARTHWIRE DOWNLEAD 19/1.78 Cu.  
(50mm<sup>2</sup>) PVC INSULATED

(SET260-1)


Comms cable

(NOTE 5)

(HVE2/A)



A	ORIGINAL ISSUE		APPD	F. ZAINI	CKD	P. POULOS	DRN	P. RELF	NOTES UPDATED AND CU REVISED.
	DATE	06-03-2013							
C									

  
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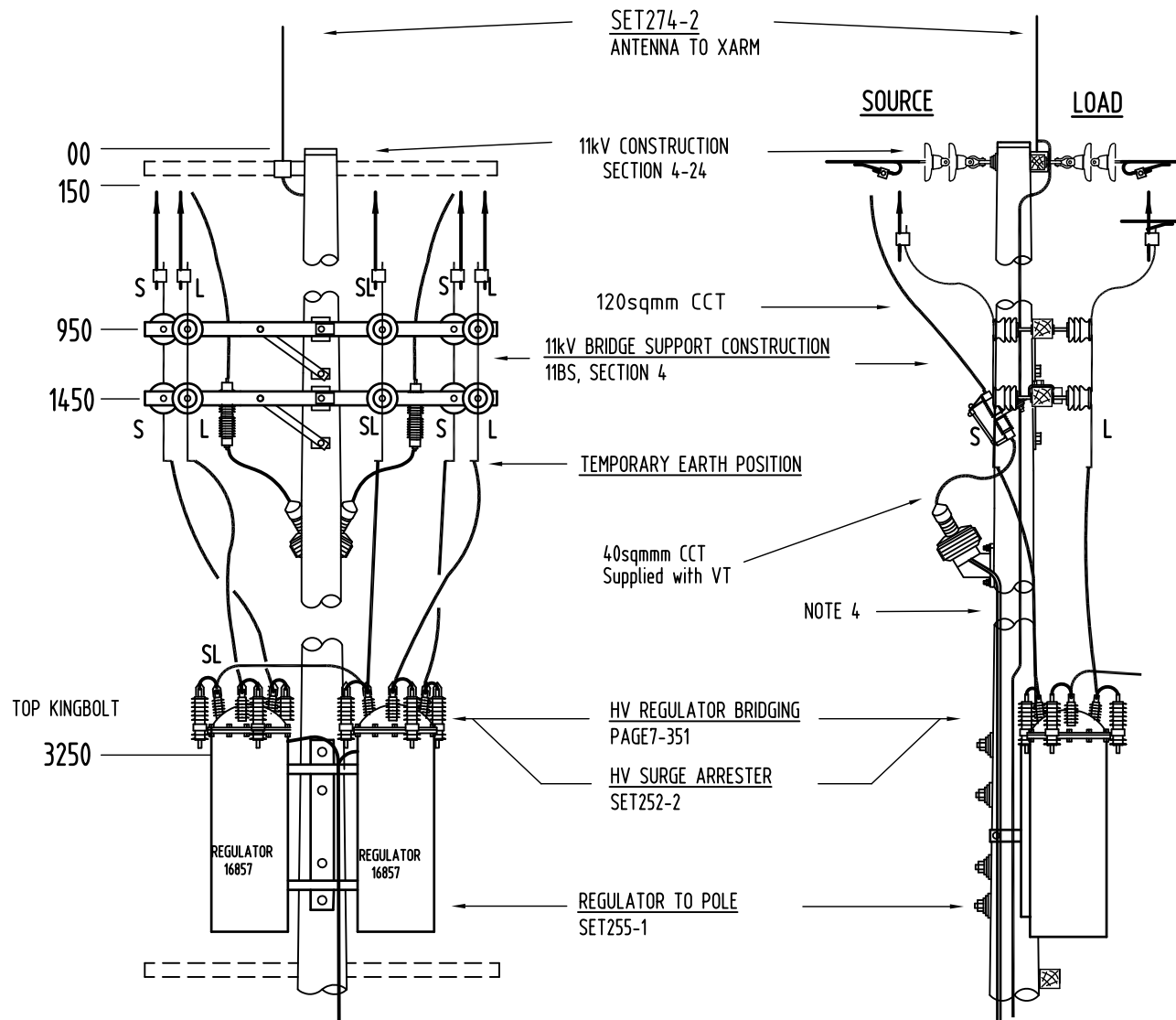
OVERHEAD CONSTRUCTION MANUAL

MESH RADIO  
MR/11REGVT

MESH RADIO NETWORK WITH REGULATOR. LV  
SUPPLY FROM VT

APP'D	R. ENGLISH	TECH STDS		AUTOCAD
DATE	10/08/10	4920-A4		C
REC'D		SECT	PAGE	
CKD	P. JUDGE	9	203	
DWN	P. RELF	SHEET 1 OF 1		
		FILE:		





# **NOTE.**

1. To be used in conjunction with 9-203
2. Refer to drawing 7-302 for regulator construction
3. Refer to drawing 4-24 for cross-arm spacing for VT dropouts
4. Radio Antenna above mains
5. Aerial to run down back of pole opposite side to 'B' phase
6. VT secondary cable supplied with VT to be covered by 25mm corrugated conduit



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## **OVERHEAD CONSTRUCTION MANUAL**

### **MESH RADIO**

### **MR/11REGVT**

MESH RADIO NETWORK WITH REGULATOR. LV SUPPLY FROM VT

APP'D R. ENGLISH

DATE 10/08/10

REC'D

CKD P. JUDGE

DWN P. RELF

**TECH STDS** AUTOCAD

**4920-A4** A

SECT PAGE

9 204

SHEET 1 OF 1

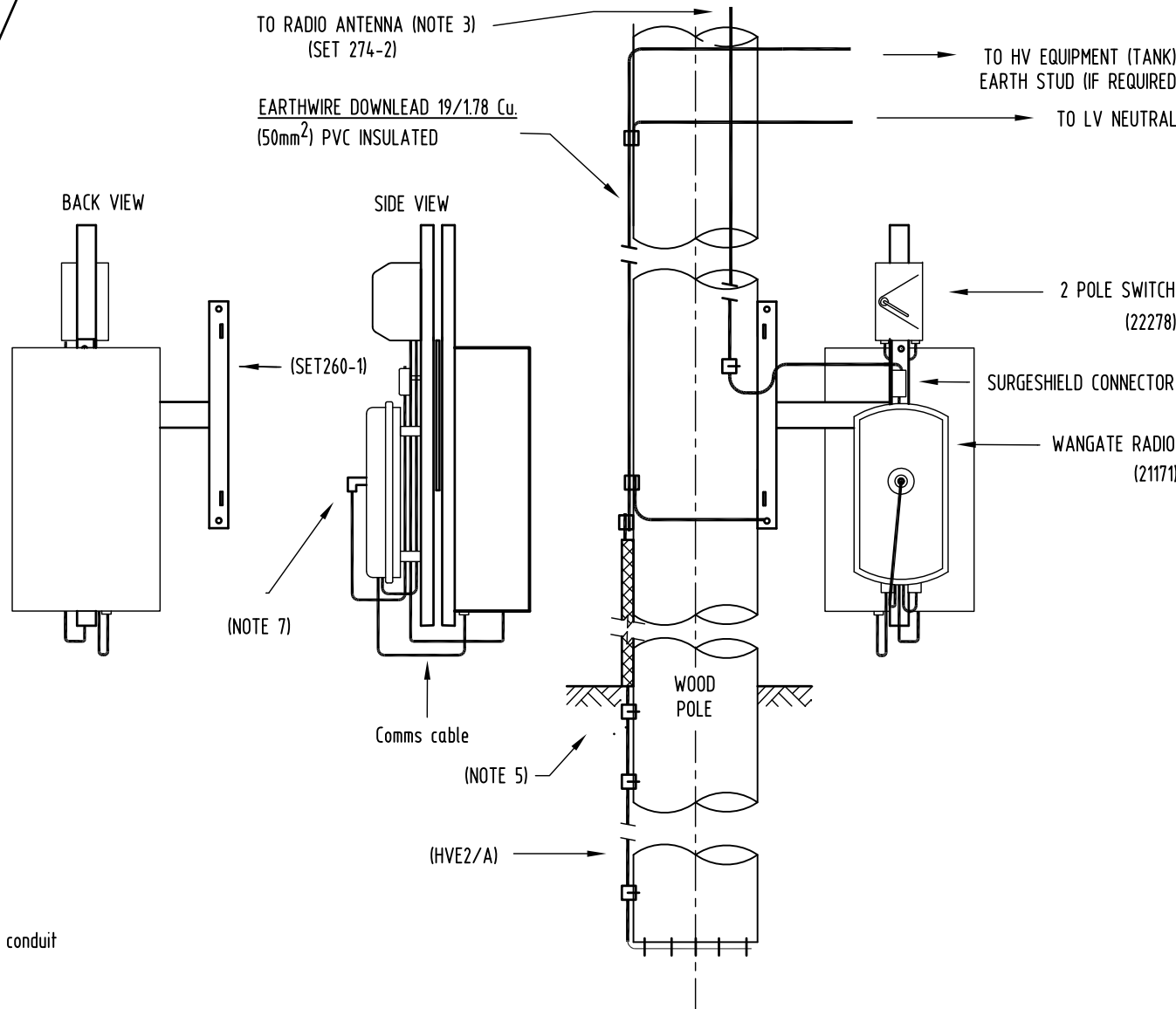
FILE:




CU LIST -		
STOCK CODE	DESCRIPTION	MR/11REG
00412	M12x40 BOLT/NUT	2
00907	SET SCREW M12	4
01044	FLAT WASHER M12	8
01053	WASHER M12	4
01081	SPRING WASHER	2
04929	25mm SADDLES	20
06259	50MM LUG 12MM HOLE	1
07235	50MM WIRE	2
10885	UNISTRUT NUT	3
12124	50MM LUG 8MM HOLE	1
16023	25mm CORRUGATED CONDUIT	10
16028	25mm CONDUIT GLAND	2
18648	UNISTRUT	1
21171	WANGATE RADIO	1
21340	LARGE ANTENNA	COMMS
22278	SWITCH	1
HVE2/A	ANTENNA ABOVE HV EARTHING	1
SET274-2	ANTENNA TO X-ARM	1

**NOTE.**

1. To be used in conjunction with 9-204
2. Refer to drawing 7-302 for regulator construction
3. Radio Antenna above mains
4. Power lead supplied with radio installed in 25mm corrugated conduit
5. Refer to drawing 7-607 for earthing
6. 2400mm - Minimum height of radio
- 7 90° Antenna adaptor and antenna lead to surge shield supplied with antenna



ORIGINAL ISSUE    <b>A</b>		 © COPYRIGHT 2010 ENERGEX This drawing must not be reproduced in part or whole without written permission from ENERGEX	OVERHEAD CONSTRUCTION MANUAL		APP'D	R. ENGLISH	TECH STDS		AUTOCAD
			MESH RADIO		DATE	10/08/10	4920-A4		A
			MR/11REG		REC'D		SECT	PAGE	
			MESH RADIO NETWORK WITH REGULATOR. LV SUPPLY FROM REGULATOR		CKD	P. JUDGE	9	205	
					DWN	P. RELF	SHEET 1 OF 1		



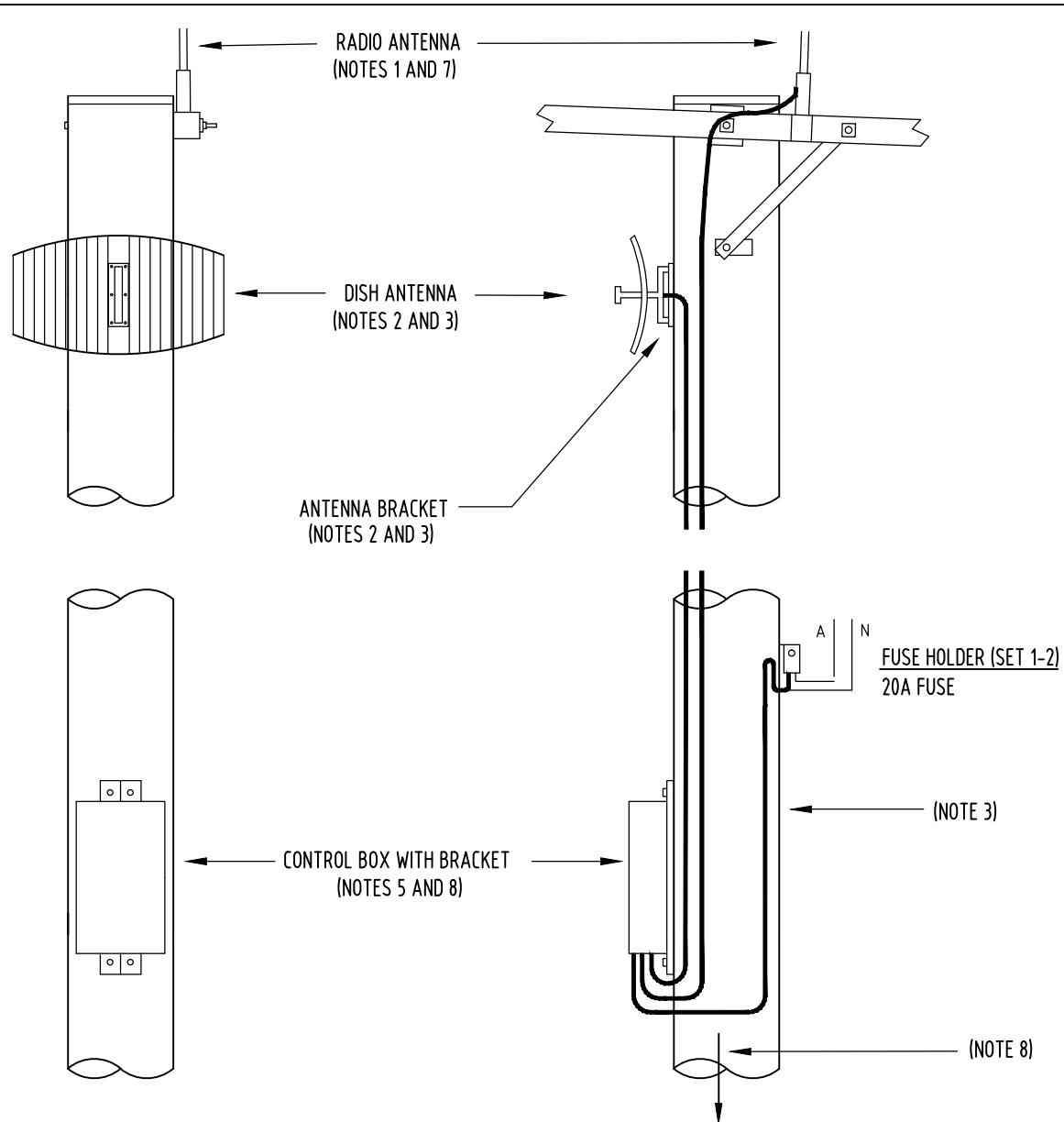
CU LIST -		MR/HECE	MR/HESE
STOCK CODE	DESCRIPTION		
00411	BOLT & NUT, M12 x 30, SS	1	1
00678	10mm COACH SCREW	10	10
01053	WASHER, M12, RD, SS	1	1
01081	WASHER, M12, LOCK, SS	1	1
04929	25mm SADDLES	20	20
06122	CONNECTOR	1	1
06259	LUG 19/1.78 x M12	1	1
07235	EARTHWIRE 19/1.78 Cu.	1	1
16023	25mm CORRUGATED CONDUIT	6	
17119	2 CORE 6mm XLPE	10	10
21086	FUSEHOLDER 100A	1	
22313	20A FUSE	1	1
SET1-2	FUSE HOLDER BRACKET TO POLE	1	
SET2-4	CABLE COVER	1	
SET274-2	ANTENNA TO X-ARM	1	1
LVAUX	LV ISOLATION TRANSFORMER		1
	HEADEND ANTENNA	COMMS	COMMS
	GRID PACK ANTENNA	COMMS	COMMS
	CONTROL BOX WITH BRACKET	COMMS	COMMS

#### NOTES.

1. Radio Antenna to be mounted above HV
2. Dish Antenna to be mounted atleast 1.5m below HV
3. Dish Antenna to be mounted atleast 0.3m above LV
4. 2 core 6mm<sup>2</sup> XLPE covered by 25mm<sup>2</sup> corrugated conduit
5. Enclosed GPO and circuit breaker supplied by COMMS
6. Isolation Transformer (LVAUX) to be used in seperately earthed area.
7. Radio Antenna is different to the standard DSS Antenna
8. Enclosure is to be earthed with a 50mm<sup>2</sup> earth as per OHCM section 7

#### LV Only pole

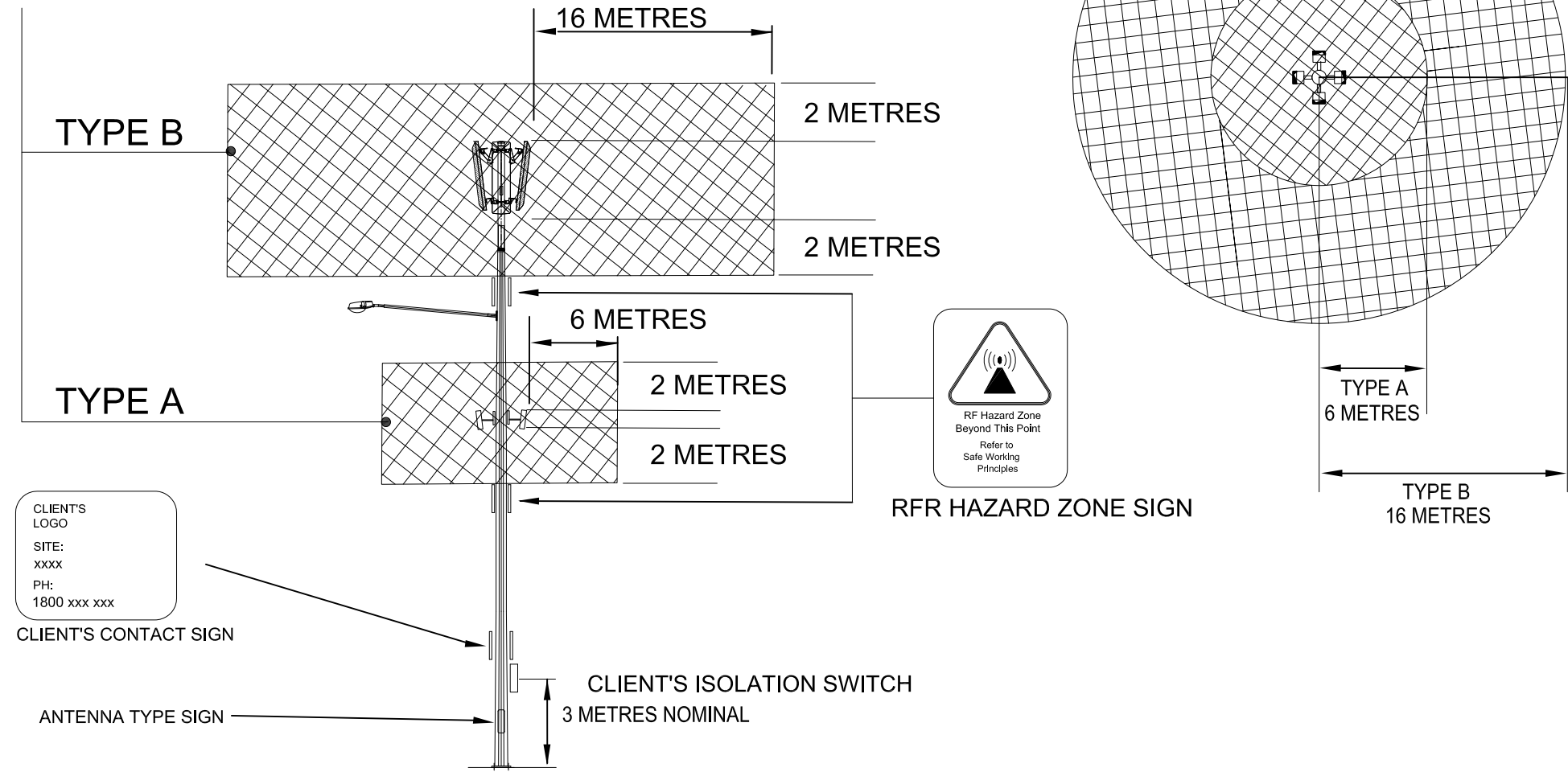
1. Radio Antenna to be mounted above top crossarm
2. Dish Antenna to be mounted atleast 1.5m below LV



ORIGINAL ISSUE A		<div> ©COPYRIGHT 2014 ENERGEX This drawing must not be reproduced in part or whole without written permission from ENERGEX</div>	OVERHEAD CONSTRUCTION MANUAL	APP'D A. SmithDePerez	TECH STDS		AUTOCAD
			MESH RADIO MR/HECE, MR/HESE MESH RADIO NETWORK HEADEND	DATE 22/05/2014	4920-A4		A
				REC'D	SECT 9	PAGE 207	
				CKD P. JUDGE	SHEET 1 OF 1		
				DWN P. RELF	FILE:		



PRECAUTIONARY MINIMUM SAFE  
APPROACH DISTANCE ADOPTED  
BY ENERGEX/ERGON TO RFR EMITTING  
ANTENNAS FOR ENERGEX/ERGON STAFF  
AND CONTRACTORS





## RF EXCLUSION ZONES

TYPE	TECHNOLOGY	EXCLUSION ZONES
WI-FI	WI-FI	250mm in all directions
A	SMALL CELLS MICRO CELLS	2M Vertically above and below 6M Horizontally
B	MACRO CELLS BASE STATIONS	2M Vertically above and below 16M Horizontally
ADJACENT SITES	MACRO CELLS BASE STATIONS	5M Vertically above and below 30M Horizontally

ADJACENT SITES - ANTENNA INSTALLATIONS NOT ON ENERGEX ASSETS BUT ON ADJACENT PRIVATE PROPERTY.  
REFER TO GIS FOR SITE SPECIFIC INFORMATION.

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				DWN P. Judge	FILE:	