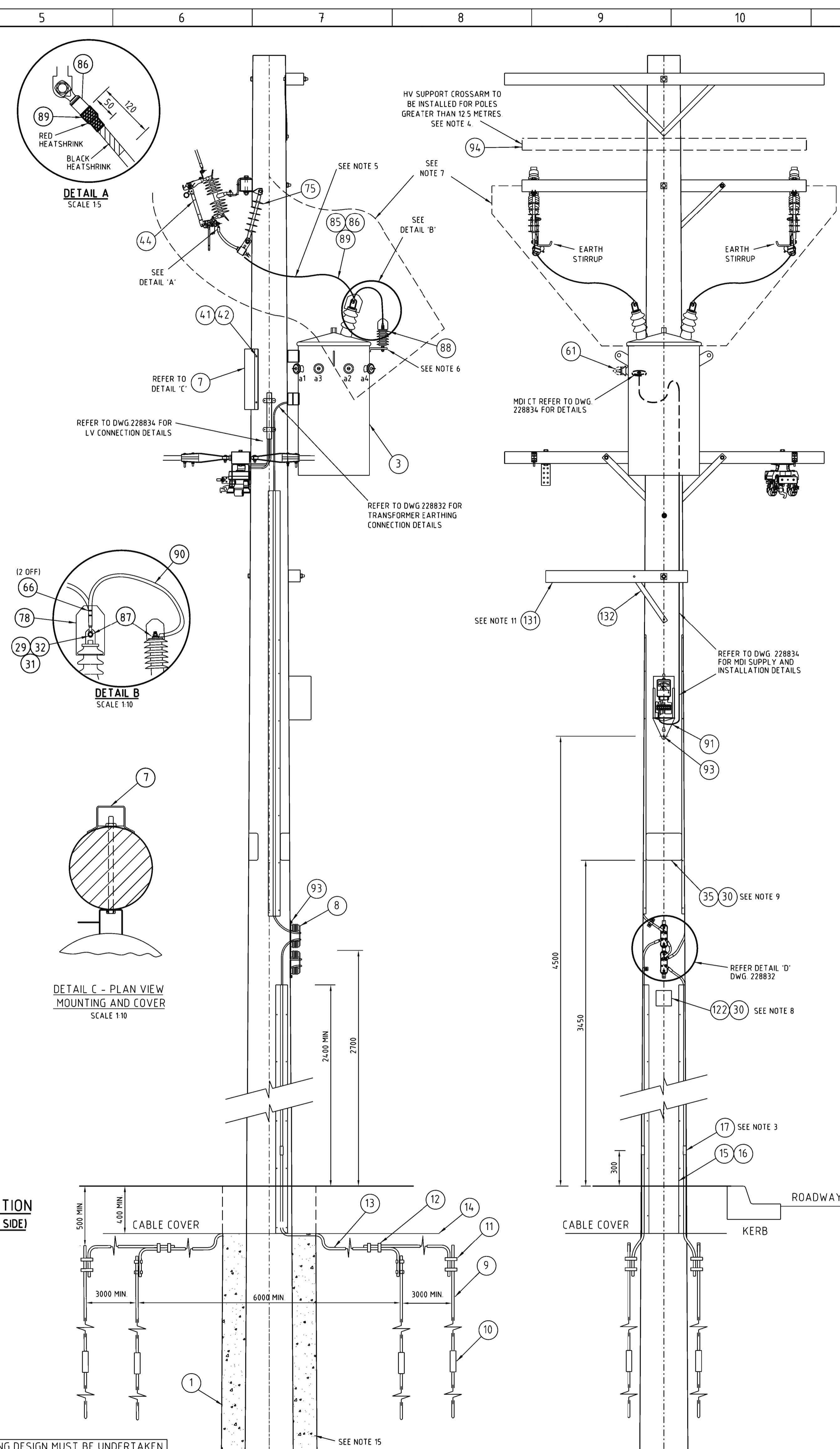
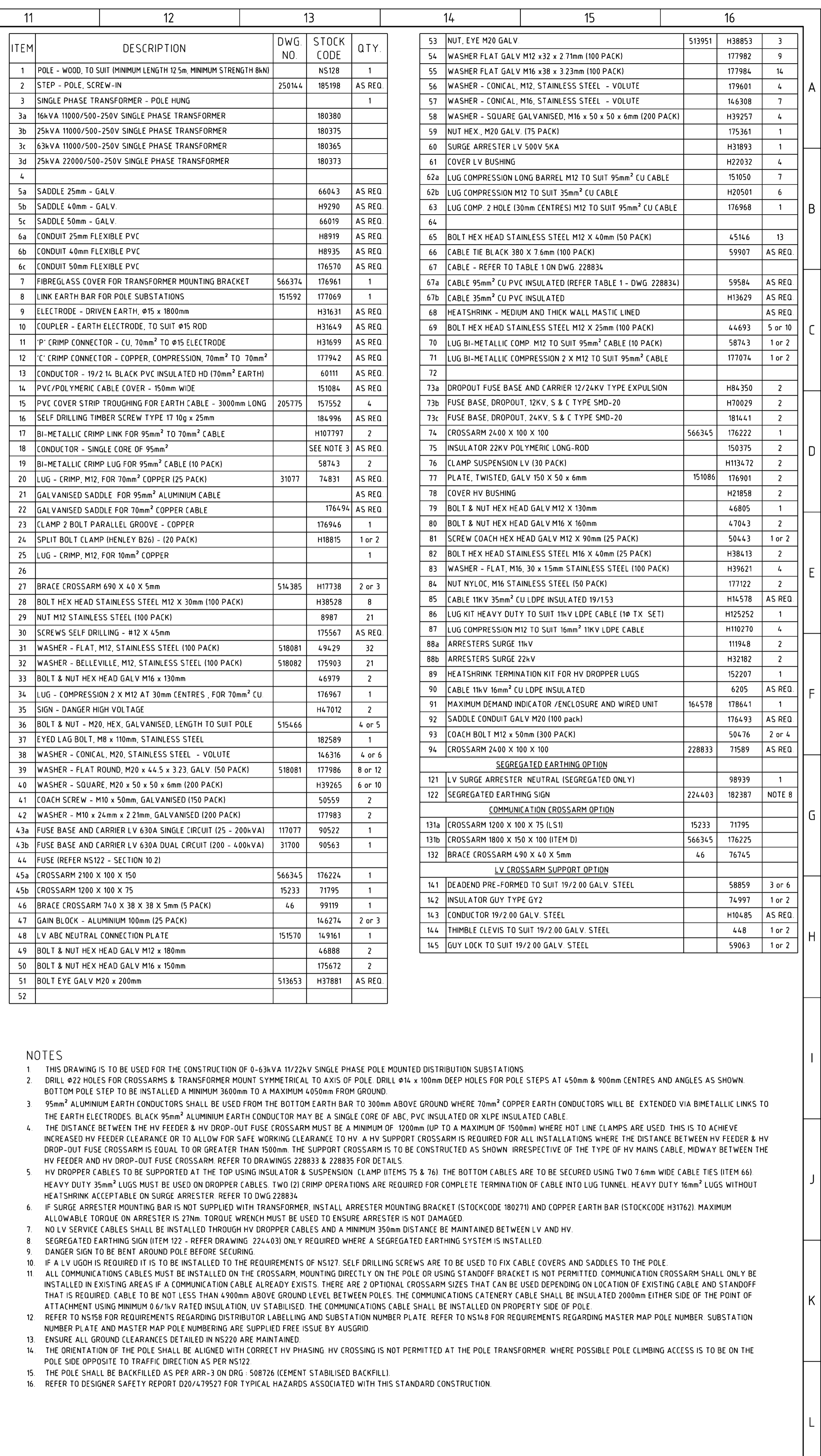


REAR VIEW SCALE 120



END VIEW SCALE 1:20



FRONT VIEW SCALE 1:20

1	CAD DRAWING DRAWN: P. JONES CHECKED: P. JONES DATE: 15/10/12
2	MINIMUM CLEARANCE TO INCLUDE 20V ARRESTOR ITEM 13A AND 13B NOTE 13A AND 13B P/N 4902-0703-0-0-000 P/N 4902-0703-0-0-000 P/N 4902-0703-0-0-000 DATE: 01-12-2014 DRAWN: C. MABUTT CHECKED: P. JONES APPROVED: P. JONES
3	3 HV SUPPORT CROSSARM ADDED IN FRONT VIEW NOTE 2 & 11 AMENDED NOTE 13 AMENDED P/N 4902-0703-0-0-000 P/N 4902-0703-0-0-000 P/N 4902-0703-0-0-000 DATE: 27/07/2014 DRAWN: M. CHANAN CHECKED: P. JONES APPROVED: P. JONES
4	5 NEWORK STANDARD THREE POLE DRAWING TITLE ALTERED TO DRAWING 228831 NOTE 1 AND ENDORSEMENT NOTE 1 AND ENDORSEMENT CHANGED TO RECORD WHEN A HV SUPPORT CROSSARM IS REQUIRED CROSSARM IS REQUIRED ITEMS 21 & 22 CHANGED TO ITEMS 21 & 22 CHANGED TO P. JONES 15/10 P. JONES 15/10 APPROVED: C. MABUTT APPROVED: J. DUNCAN
5	DWN: PATRICIA RIOS CHKD: PHILIP JONES DATE: 10/12/2020 DATE: 10/12/2020 DATE: 10/12/2020 DATE: 10/12/2020
6	APPLY: GLEN FORD DWN: P. RIOS CHKD: P. JONES DATE: 16/02/2021 DATE: 16/02/2021 DATE: 16/02/2021 DATE: 16/02/2021
7	APPLY: GLEN FORD DWN: P. RIOS CHKD: P. JONES DATE: 16/02/2021 DATE: 16/02/2021 DATE: 16/02/2021 DATE: 16/02/2021

8	ITEM 13A AND 13B NOTE 13A AND 13B P/N 4902-0703-0-0-000 P/N 4902-0703-0-0-000 P/N 4902-0703-0-0-000 DATE: 01-12-2014 DRAWN: C. MABUTT CHECKED: P. JONES APPROVED: P. JONES
9	4.5 STOCK CODE FOR ITEM 62A NOTE 2 & 11 AMENDED NOTE 13 AMENDED P/N 4902-0703-0-0-000 P/N 4902-0703-0-0-000 P/N 4902-0703-0-0-000 DATE: 27/07/2014 DRAWN: M. CHANAN CHECKED: P. JONES APPROVED: P. JONES
10	5 NEWORK STANDARD THREE POLE DRAWING TITLE ALTERED TO DRAWING 228831 NOTE 1 AND ENDORSEMENT NOTE 1 AND ENDORSEMENT CHANGED TO RECORD WHEN A HV SUPPORT CROSSARM IS REQUIRED CROSSARM IS REQUIRED ITEMS 21 & 22 CHANGED TO ITEMS 21 & 22 CHANGED TO P. JONES 15/10 P. JONES 15/10 APPROVED: C. MABUTT APPROVED: J. DUNCAN
11	DWN: PATRICIA RIOS CHKD: PHILIP JONES DATE: 10/12/2020 DATE: 10/12/2020 DATE: 10/12/2020 DATE: 10/12/2020
12	APPLY: GLEN FORD DWN: P. RIOS CHKD: P. JONES DATE: 16/02/2021 DATE: 16/02/2021 DATE: 16/02/2021 DATE: 16/02/2021
13	APPLY: GLEN FORD DWN: P. RIOS CHKD: P. JONES DATE: 16/02/2021 DATE: 16/02/2021 DATE: 16/02/2021 DATE: 16/02/2021

ITEM	DESCRIPTION	DWG. NO.	STOCK CODE	QTY
1	POLE - WOOD, TO SUIT (MINIMUM LENGTH 12.5M, MINIMUM STRENGTH 8kN)		NS128	1
2	STEP - POLE, SCREW-IN	250144	185198	AS REQ.
3	SINGLE PHASE TRANSFORMER - POLE HUNG			1
3a	16kVA 11000/500-250V SINGLE PHASE TRANSFORMER		180380	
3b	25kVA 11000/500-250V SINGLE PHASE TRANSFORMER		180375	
3c	63kVA 11000/500-250V SINGLE PHASE TRANSFORMER		180365	
3d	25kVA 22000/500-250V SINGLE PHASE TRANSFORMER		180373	
4				
5a	SADDLE 25mm - GALV		66043	AS REQ.
5b	SADDLE 40mm - GALV		H9290	AS REQ.
5c	SADDLE 50mm - GALV		66019	AS REQ.
6a	CONDUIT 25mm FLEXIBLE PVC		H8919	AS REQ.
6b	CONDUIT 40mm FLEXIBLE PVC		H8935	AS REQ.
6c	CONDUIT 50mm FLEXIBLE PVC		176570	AS REQ.
7	FIBREGLASS COVER FOR TRANSFORMER MOUNTING BRACKET	566374	176561	1
8	LINK EARTH BAR FOR POLE SUBSTATIONS	151592	177069	1
9	ELECTRODE - DRIVEN EARTH, Ø15 x 1800mm		H31631	AS REQ.
10	COUPLER - EARTH ELECTRODE, TO SUIT Ø15 ROD		H31649	AS REQ.
11	P: CRIMP CONNECTOR - CU, 70mm ² TO Ø15 ELECTRODE		H31699	AS REQ.
12	C: CRIMP CONNECTOR - COPPER, COMPRESSION, 70mm ² TO 70mm ²		177942	AS REQ.
13	CONDUCTOR - 19/2 14 BLACK PVC INSULATED HD (70mm ² EARTH)		60111	AS REQ.
14	PVC/POLYMER CABLE COVER - 150mm WIDE		151084	AS REQ.
15	PVC COVER STRIP TROUGHING FOR EARTH CABLE - 3000mm LONG	205775	157552	4
16	SELF DRILLING TIMBER SCREW TYPE 17 10g x 25mm		184996	AS REQ.
17	BI-METALLIC CRIMP LINK FOR 95mm ² TO 70mm ² CABLE		H107797	2
18	CONDUCTOR - SINGLE CORE OF 95mm ²		SEE NOTE 3	AS REQ.
19	BI-METALLIC CRIMP LUG FOR 95mm ² CABLE (10 PACK)		58743	2
20	LUG - CRIMP, M12, FOR 70mm ² COPPER (25 PACK)	31077	74831	AS REQ.
21	GALVANISED SADDLE FOR 95mm ² ALUMINIUM CABLE		AS REQ.	
22	GALVANISED SADDLE FOR 70mm ² COPPER CABLE		176494	AS REQ.
23	CLAMP 2 BOLT PARALLEL GROOVE - COPPER		176946	1
24	SPLIT BOLT CLAMP (HENLEY B26) - (20 PACK)		H18815	1 or 2
25	LUG - CRIMP, M12, FOR 10mm ² COPPER		1	
26				
27	BRACE CROSSARM 690 X 40 X 5mm	514385	H17738	2 or 3
28	BOLT HEX HEAD STAINLESS STEEL M12 X 30mm (100 PACK)		H38528	8
29	NUT M12 STAINLESS STEEL (100 PACK)		8987	21
30	SCREWS SELF DRILLING - #12 X 4.5mm		175567	AS REQ.
31	WASHER - FLAT, M12, STAINLESS STEEL (100 PACK)	518081	49429	32
32	WASHER - BELLEVILLE, M12, STAINLESS STEEL (100 PACK)	518082	175903	21
33	BOLT & NUT HEX HEAD GALV M16 X 130mm		46979	2
34	LUG - COMPRESSION 2 X M12 AT 30mm CENTRES, FOR 70mm ² CU		176967	1
35	SIGN - DANGER HIGH VOLTAGE		H47012	2
36	BOLT & NUT - M20, HEX, GALVANISED, LENGTH TO SUIT POLE	515466		4 or 5
37	EYED LAG BOLT, M8 x 110mm, STAINLESS STEEL		182589	1
38	WASHER - CONICAL, M20, STAINLESS STEEL - VOLUTE		146316	4 or 6
39	WASHER - FLAT ROUND, M20 x 4.5 x 3.23 GALV (150 PACK)	518081	177986	8 or 12
40	WASHER - SQUARE, M20 x 50 x 50 x 6mm (200 PACK)		H39265	6 or 10
41	COACH SCREW - M10 x 50mm, GALVANISED (150 PACK)		50559	2
42	WASHER - M10 x 24mm x 2.2mm, GALVANISED (200 PACK)		177983	2
43a	FUSE BASE AND CARRIER LV 630A SINGLE CIRCUIT (25 - 200kVA)	117077	90522	1
43b	FUSE BASE AND CARRIER LV 630A DUAL CIRCUIT (200 - 400kVA)	31700	90563	1
44	FUSE (REFER NS122 - SECTION 10 2)			
45a	CROSSARM 2100 X 100 X 75	566345	176224	1
45b	CROSSARM 1200 X 100 X 75	15233	171795	1
46	BRACE CROSSARM 710 X 38 X 5mm (5 PACK)	46	99119	1
47	GAIN BLOCK - ALUMINIUM 100mm (25 PACK)		146274	2 or 3
48	LV ABC NEUTRAL CONNECTION PLATE	151570	149161	1
49	BOLT & NUT HEX HEAD GALV M12 x 180mm		46888	2
50	BOLT & NUT HEX HEAD GALV M16 x 150mm		175672	2
51	BOLT EYE GALV M20 x 200mm	513653	H37881	AS REQ.
52				

- NOTES**
- THIS DRAWING IS TO BE USED FOR THE CONSTRUCTION OF 0-63kVA 11/22kV SINGLE PHASE POLE MOUNTED DISTRIBUTION SUBSTATIONS
 - DRILL Ø22 HOLES FOR CROSSARMS & TRANSFORMER MOUNT SYMMETRICAL TO AXIS OF POLE. DRILL Ø14 x 100mm DEEP HOLES FOR POLE STEPS AT 450mm & 900mm CENTRES AND ANGLES AS SHOWN. BOTTOM POLE STEP TO BE INSTALLED A MINIMUM 3600mm TO A MAXIMUM 4050mm FROM GROUND.
 - 95mm² ALUMINIUM EARTH CONDUCTORS SHALL BE USED FROM THE BOTTOM EARTH BAR TO 300mm ABOVE GROUND WHERE 70mm² COPPER EARTH CONDUCTORS WILL BE EXTENDED VIA BIMETALLIC LINKS TO THE EARTH ELECTRODES. BLACK 95mm² ALUMINIUM EARTH CONDUCTOR MAY BE A SINGLE CORE OF ABC, PVC INSULATED OR LPE INSULATED CABLE.
 - THE DISTANCE BETWEEN THE HV FEEDER & HV DROP-OUT FUSE CROSSARM MUST BE A MINIMUM OF 1200mm (UP TO A MAXIMUM OF 1500mm) WHERE HOT LINE CLAMPS ARE USED. THIS IS TO ACHIEVE INCREASED HV FEEDER CLEARANCE OR TO ALLOW FOR SAFE WORKING CLEARANCE TO HV. A HV SUPPORT CROSSARM IS REQUIRED FOR ALL INSTALLATIONS WHERE THE DISTANCE BETWEEN HV FEEDER & HV DROP-OUT FUSE CROSSARM IS EQUAL TO OR GREATER THAN 1500mm. THE SUPPORT CROSSARM IS TO BE CONSTRUCTED AS SHOWN IRRESPECTIVE OF THE TYPE OF HV MAINS CABLE, MIDWAY BETWEEN THE HV FEEDER AND HV DROP-OUT FUSE CROSSARM. REFER TO DRAWINGS 228833 & 228835 FOR DETAILS.
 - HV DROPPER CABLES TO BE SUPPORTED AT THE TOP USING INSULATOR & SUSPENSION (LAMP ITEMS 75 & 76). THE BOTTOM CABLES ARE TO BE SECURED USING TWO 76mm WIDE CABLE TIES (ITEM 66) HEAVY DUTY 35mm² LUGS MUST BE USED ON DROPPER CABLES. TWO (2) CRIMP OPERATIONS ARE REQUIRED FOR COMPLETE TERMINATION OF CABLE INTO LUG TUNNEL. HEAVY DUTY 16mm² LUGS WITHOUT HEATSHRINK ACCEPTABLE ON SURGE ARRESTER. REFER TO DWG 228834.
 - IF SURGE ARRESTER MOUNTING BAR IS NOT SUPPLIED WITH TRANSFORMER, INSTALL ARRESTER MOUNTING BRACKET (I STOCK CODE 180271) AND COPPER EARTH BAR (I STOCK CODE H31762). MAXIMUM ALLOWABLE TORQUE ON ARRESTER IS 27Nm. TORQUE WRENCH MUST BE USED TO ENSURE ARRESTER IS NOT DAMAGED.
 - NO LV SERVICE CABLES SHALL BE INSTALLED THROUGH HV DROPPER CABLES AND A MINIMUM 350mm DISTANCE BE MAINTAINED BETWEEN LV AND HV.
 - SEGREGATED EARTHING SIGN ITEM 122 - REFER DRAWING 224-03 ONLY REQUIRED WHERE A SEGREGATED EARTHING SYSTEM IS INSTALLED.
 - DANGER SIGN TO BE BENT AROUND POLE BEFORE SECURING.
 - IF A LV LUG IS REQUIRED IT IS TO BE INSTALLED TO THE REQUIREMENTS OF NS122. SELF DRILLING SCREWS ARE TO BE USED TO FIX CABLE COVERS AND SADDLES TO THE POLE.
 - ALL COMMUNICATIONS CABLES MUST BE INSTALLED ON THE CROSSARM INSULATING BRACKET IS NOT PERMITTED. COMMUNICATION CROSSARM SHALL ONLY BE INSTALLED IN EXISTING AREAS IF A COMMUNICATION CABLE ALREADY EXISTS. THERE ARE 2 OPTIONAL CROSSARM SIZES THAT CAN BE USED DEPENDING ON LOCATION OF EXISTING CABLE AND STANDOFF THAT IS REQUIRED. CABLE TO BE NOT LESS THAN 4900mm ABOVE GROUND LEVEL BETWEEN POLES. THE COMMUNICATIONS CATENARY CABLE SHALL BE INSULATED 2000mm EITHER SIDE OF THE POINT OF ATTACHMENT USING MINIMUM 0.6/1kV RATED INSULATION, UV STABILISED. THE COMMUNICATIONS CABLE SHALL BE INSTALLED ON PROPERTY SIDE OF POLE.
 - REFER TO NS158 FOR REQUIREMENTS REGARDING DISTRIBUTOR LABELLING AND SUBSTATION NUMBER PLATE. REFER TO NS164 FOR REQUIREMENTS REGARDING MASTER MAP POLE NUMBER. SUBSTATION NUMBER PLATE AND MASTER MAP POLE NUMBERING ARE SUPPLIED FREE ISSUE BY AUSGRID.
 - ENSURE ALL GROUND CLEARANCES DETAILLED IN NS220 ARE MAINTAINED.
 - THE ORIENTATION OF THE POLE SHALL BE ALIGNED WITH CORRECT HV PHASING. HV CROSSING IS NOT PERMITTED AT THE POLE TRANSFORMER WHERE POSSIBLE. POLE CLIMBING ACCESS IS TO BE ON THE POLE SIDE OPPOSITE TO TRAFFIC DIRECTION AS PER NS122.
 - THE POLE SHALL BE BACKFILLED AS PER ARR-3 ON DRG 508726 (CEMENT STABILISED BACKFILL).
 - REFER TO DESIGNER SAFETY REPORT D20/479527 FOR TYPICAL HAZARDS ASSOCIATED WITH THIS STANDARD CONSTRUCTION.

53	NUT, EYE M20 GALV	513951	H38853	3
54	WASHER FLAT GALV M12 x 2.7mm (100 PACK)		177982	9
55	WASHER FLAT GALV M16 x 38 x 3.23mm (100 PACK)		177984	14
56	WASHER - CONICAL, M12, STAINLESS STEEL - VOLUTE		179601	4
57	WASHER - CONICAL, M16, STAINLESS STEEL - VOLUTE		146308	7
58	WASHER - SQUARE GALVANISED, M16 x 50 x 50 x 6mm (200 PACK)		H39257	4
59	NUT HEX, M20 GALV (75 PACK)		175361	1
60	SURGE ARRESTER LV 500V 5KA		H31893	1
61	COVER LV BUSHING		H27202	4
62a	LUG COMPRESSION LONG BARREL M12 TO SUIT 95mm ² CU CABLE		151050	7
62b	LUG COMPRESSION M12 TO SUIT 35mm ² CU CABLE		H20501	6
63	LUG COMP. 2 HOLE (30mm CENTRES) M12 TO SUIT 95mm ² CU CABLE		176968	1
64				
65	BOLT HEX HEAD STAINLESS STEEL M12 X 40mm (50 PACK)		45146	13
66	CABLE TIE BLACK 380 X 7.6mm (100 PACK)		59077	AS REQ.
67	CABLE - REFER TO TABLE 1 ON DWG 228834			
67a	CABLE 95mm ² CU PVC INSULATED (REFER TABLE 1 - DWG 228834)		59584	AS REQ.
67b	CABLE 35mm ² CU PVC INSULATED		H13629	AS REQ.
68	HEATSHRINK - MEDIUM AND THICK WALL MASTIC LINED			AS REQ.
69	BOLT HEX HEAD STAINLESS STEEL M12 X 25mm (100 PACK)		44693	5 or 10
70	LUG BI-METALLIC COMP M12 TO SUIT 95mm ² CABLE (10 PACK)		58743	1 or 2
71	LUG BI-METALLIC COMPRESSION 2 X M12 TO SUIT 95mm ² CABLE		177074	1 or 2
72				
73a	DROPOUT FUSE BASE AND CARRIER 12/24kV TYPE EXPULSION		H84350	2
73b	FUSE BASE, DROPOUT, 12kV, S & C TYPE SMD-20		H70029	2
73c	FUSE BASE, DROPOUT, 24kV, S & C TYPE SMD-20		18141	2
74	CROSSARM 2400 X 100 X 100	566345	176222	1
75	INSULATOR 22kV POLYMERIC LONG-ROD		150375	2
76	LAMP SUSPENSION LV (30 PACK)		H13472	2
77	PLATE, TWISTED, GALV 150 X 50 x 6mm	151086	176901	2
78	COVER HV BUSHING		H21858	2
79	BOLT & NUT HEX HEAD GALV M12 X 130mm		46805	1
80	BOLT & NUT HEX HEAD GALV M16 X 160mm		47043	2
81	SCREW COACH HEX HEAD GALV M12 X 90mm (25 PACK)		50443	1 or 2
82	BOLT HEX HEAD STAINLESS STEEL M16 X 40mm (25 PACK)		H38143	2
83	WASHER - FLAT, M16, 30 x 15mm STAINLESS STEEL (100 PACK)		H39621	4
84	NUT NYLOC, M16 STAINLESS STEEL (50 PACK)		177122	2
85	CABLE 11kV 35mm ² CU LDPE INSULATED 19/153		H14578	AS REQ.
86	LUG KIT HEAVY DUTY TO SUIT 11kV LDPE CABLE (10 TX SET)		H125252	1
87	LUG COMPRESSION M12 TO SUIT 16mm ² 11kV LDPE CABLE		H110270	4
88a	ARRESTERS SURGE 11kV		111948	2
88b	ARRESTERS SURGE 22kV		H32182	2
89	HEATSHRINK TERMINATION KIT FOR HV DROPPER LUGS		152207	1
90	CABLE 11kV 16mm ² CU LDPE INSULATED		6205	AS REQ.
91	MAXIMUM DEMAND INDICATOR / ENCLOSURE AND WIRED UNIT	164578	178641	1
92	SADDLE CONDUIT GALV M20 (100 pack)		176493	AS REQ.
93	COACH BOLT M12 x 50mm (300 PACK)		50476	2 or 4
94	CROSSARM 2400 X 100 X 100	228833	17589	AS REQ.
SEGREGATED EARTHING OPTION				
121	LV SURGE ARRESTER NEUTRAL (SEGREGATED ONLY)		98939	1
122	SEGREGATED EARTHING SIGN	224-03	182387	NOTE 8
COMMUNICATION CROSSARM OPTION				
131a	CROSSARM 1200 X 100 X 75 (LS1)	15233	17195	
131b	CROSSARM 1800 X 150 X 100 (ITEM D)	566345	176225	
132	BRACE CROSSARM 490 X 40 X 5mm	46	76745	
LV CROSSARM SUPPORT OPTION				
141	DEADEND PRE-FORMED TO SUIT 19/2 00 GALV STEEL		58859	3 or 6
142	INSULATOR GUY TYPE GY2		74997	1 or 2
143	CONDUCTOR 19/2 00 GALV STEEL		H10485	AS REQ.
144	THIMBLE CLEVIS TO SUIT 19/2 00 GALV STEEL		448	1 or 2
145	GUY LOCK TO SUIT 19/2 00 GALV STEEL		59063	1 or 2

	SCALE AS SHOWN SCALE DESIGNED DRAWN CHECKED APPROVED DATE 15/10/12	PROJECT NUMBER STD PROJECT NUMBER 145 NEWCASTLE RD WALLSEND, NSW 2287	STANDARD CONSTRUCTION SINGLE PHASE - 11/22kV TIMBER POLE MOUNTED DISTRIBUTION SUBSTATION 0-63kVA GENERAL ARRANGEMENT
	PROJECT NUMBER STD PROJECT NUMBER 145 NEWCASTLE RD WALLSEND, NSW 2287	PROJECT NUMBER STD PROJECT NUMBER 145 NEWCASTLE RD WALLSEND, NSW 2287	PROJECT NUMBER STD PROJECT NUMBER 145 NEWCASTLE RD WALLSEND, NSW 2287
ASSOCIATED DRAWINGS TIMBER POLE FOOTING ARRANGEMENT 508726 POLE TRANSFORMER - SINGLE PHASE - EARTHING CONNECTION DETAILS 228832 POLE TRANSFORMER - SINGLE PHASE - CROSSARM DETAILS 228833 POLE TRANSFORMER - SINGLE PHASE - LV TX, LV ABC & DM&C CONNECTIONS 228834 POLE TRANSFORMER - SINGLE PHASE - HV OVERHEAD SUPPLY OPTIONS 228835 POLE TRANSFORMER - SINGLE PHASE - STREET LIGHTING DETAIL OPTION 228836 POLE TRANSFORMER - SINGLE PHASE - LV OPEN WIRE CONNECTIONS 228837		PROJECT NUMBER STD PROJECT NUMBER 145 NEWCASTLE RD WALLSEND, NSW 2287	
PROJECT NUMBER STD PROJECT NUMBER 145 NEWCASTLE RD WALLSEND, NSW 2287		PROJECT NUMBER STD PROJECT NUMBER 145 NEWCASTLE RD WALLSEND, NSW 2287	
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