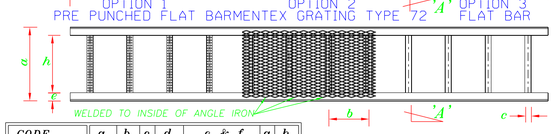
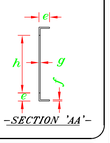
-STRAIGHT SECTIONS-

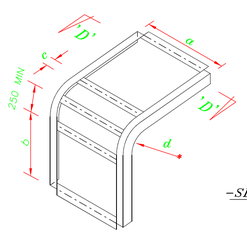


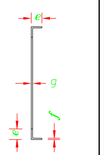


-SECTION 'AA'-

CODE	a	b	c	d	e & f	g	h
S 1000 – 80	1000	500	60	6000	80 x 80 x 6	6	840
S 900 – 80	900	500	60	6000	80 x 80 x 6	6	740
S 800 – 80	800	500	60	6000	80 x 80 x 6	6	640
S 600 – 80	600	500	60	6000	80 x 80 x 6	6	440
S 450 – 80	450	500	60	6000	80 x 80 x 6	6	290
S 400 – 80	400	500	60	6000	80 x 80 x 6	6	240
S 300 – 80	300	500	60	6000	80 x 80 x 6	6	140
S 600 – 50	600	500	50	6000	50 x 50 x 6	6	500
S 450 – 50	450	500	50	6000	50 x 50 x 6	6	350
S 400 – 50	400	500	50	6000	50 x 50 x 6	6	300
S 300 – 50	300	500	50	6000	50 x 50 x 6	6	200
S 600 – 40	600	500	50	6000	40 x 40 x 5	5	520
S 450 – 40	450	500	50	6000	40 x 40 x 5	5	370
S 400 – 40	400	500	50	6000	40 x 40 x 5	5	320
S 300 – 40	300	500	30	6000	40 x 40 x 5	5	220
S 200 – 40	200	500	30	6000	40 x 40 x 5	5	120
S 300 – 25	300	500	25	6000	25 x 25 x 5	5	250
S 200 – 25	200	500	25	6000	25 x 25 x 5	5	150
S 150 – 25	150	500	25	6000	25 x 25 x 5	5	100

-90 INNER BEND-

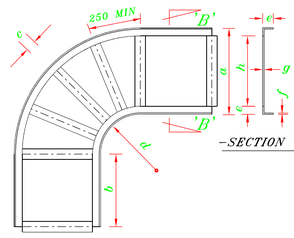




-SECTION 'DD'-

CODE	a	b	c	d	e & f	g	h
IB 1000/80	1000	500	60	600	80 x 80 x 6	6	840
IB 900/80	900	500	60	600	80 x 80 x 6	6	740
IB 800/80	800	500	60	600	80 x 80 x 6	6	640
IB 600/80	600	500	60	600	80 x 80 x 6	6	440
IB 450/80	450	500	60	600	80 x 80 x 6	6	290
IB 400/80	400	500	60	600	80 x 80 x 6	6	240
IB 300/80	300	500	60	600	80 x 80 x 6	6	140
IB 600/50	600	500	50	600	50 x 50 x 6	6	500
IB 450/50	450	500	50	600	50 x 50 x 6	6	350
IB 400/50	400	500	50	600	50 x 50 x 6	6	300
IB 300/50	300	500	50	600	50 x 50 x 6	6	200
IB 600/40	600	500	50	600	40 x 40 x 5	5	520
IB 450/40	450	500	50	600	40 x 40 x 5	5	370
IB 400/40	400	500	50	600	40 x 40 x 5	5	320
IB 300/40	300	500	50	600	40 x 40 x 5	5	220
IB 200/40	200	500	30	600	40 x 40 x 5	5	120
IB 300/25	300	500	25	600	25 x 25 x 5	5	250
IB 200/25	200	500	25	600	25 x 25 x 5	5	150
IB 150/25	150	500	25	600	25 x 25 x 5	5	100

-90 HORIZONTAL BEND-



-SECTION 'BB'-

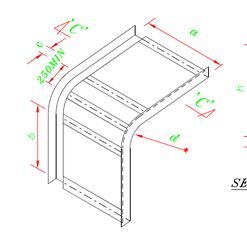
WWO-CODE	a	b	c	d	e & f	g	h
HB 1000/80	1000	500	60	600	80 x 80 x 6	6	840
HB 900/80	900	500	60	600	80 x 80 x 6	6	740
HB 800/80	800	500	60	600	80 x 80 x 6	6	640
HB 600/80	600	500	60	600	80 x 80 x 6	6	440
HB 450/80	450	500	60	600	80 x 80 x 6	6	290
HB 400/80	400	500	60	600	80 x 80 x 6	6	240
HB 300/80	300	500	60	600	80 x 80 x 6	6	140
HB 600/50	600	500	50	600	50 x 50 x 6	6	500
HB 450/50	450	500	50	600	50 x 50 x 6	6	350
HB 300/50	300	500	50	600	50 x 50 x 6	6	200
HB 600/40	600	500	50	600	40 x 40 x 5	5	520
HB 450/40	450	500	50	600	40 x 40 x 5	5	370
HB 400/40	400	500	50	600	40 x 40 x 5	5	320
HB 300/40	300	500	30	600	40 x 40 x 5	5	220
HB 200/40	200	500	30	600	40 x 40 x 5	5	120
HB 300/25	300	500	25	600	25 x 25 x 5	5	250
HB 200/25	200	500	25	600	25 x 25 x 5	5	150
HB 150/25	150	500	25	600	25 x 25 x 5	5	100

NOTE

MAX.BENDING RADIUS FOR ALL CABLES = 10 x OD

CABLE SIZE	CABLE TYPE	OD	MAX BENDING RADIUS
630 x 1C	M.V. XLPE	46	460
240 x 3C	M.V. XLPE	71	710
150 x 3C	M.V. XLPE	67	670
95 x 3C	M.V. XLPE	55	550
630 x 1C	L.V. PVCSWA	47	470
240 x 4C	L.V. PVCSWA	65	650
185 x 4C	L.V. PVCSWA	60	600
150 x 4C	L.V. PVCSWA	55	550
120 x 4C	L.V. PVCSWA	53	530
95 x 4C	L.V. PVCSWA	49	490
70 x 4C	L.V. PVCSWA	44	440
50 x 4C	L.V. PVCSWA	40	400
35 x 4C	L.V. PVCSWA	35	350
25 x 4C	L.V. PVCSWA	32	320
16 x 4C	L.V. PVCSWA	29	290
4 x 4C	L.V. PVCSWA	21	210
2.5 x 4C	L.V. PVCSWA	18.5	185
1.5 x 4C	L.V. PVCSWA	17	170
2.5 x 7C	L.V. PVCSWA	21.5	215
2.5 x 12C	L.V. PVCSWA	29	290
2.5 x 19C	L.V. PVCSWA	32	320

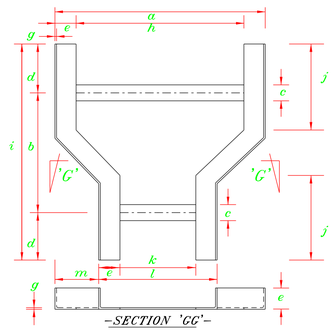
-90 OUTER BEND-



SECTION 'CC'

CODE	a	b	c	d	e & f	g	h
OB 1000/80	1000	500	60	600	80 x 80 x 6	6	840
OB 900/80	900	500	60	600	80 x 80 x 6	6	740
OB 800/80	800	500	60	600	80 x 80 x 6	6	640
OB 600/80	600	500	60	600	80 x 80 x 6	6	440
OB 450/80	450	500	60	600	80 x 80 x 6	6	290
OB 400/80	400	500	60	600	80 x 80 x 6	6	240
OB 300/80	300	500	60	600	80 x 80 x 6	6	140
OB 600/50	600	500	50	600	50 x 50 x 6	6	500
OB 450/50	450	500	50	600	50 x 50 x 6	6	350
OB 400/50	400	500	50	600	50 x 50 x 6	6	300
OB 300/50	300	500	50	600	50 x 50 x 6	6	200
OB 600/40	600	500	50	600	40 x 40 x 5	5	520
OB 450/40	450	500	50	600	40 x 40 x 5	5	370
OB 400/40	400	500	50	600	40 x 40 x 5	5	320
OB 300/40	300	500	30	600	40 x 40 x 5	5	220
OB 200/40	200	500	30	600	40 x 40 x 5	5	120
OB 300/25	300	500	25	600	25 x 25 x 5	5	250
OB 200/25	200	500	25	600	25 x 25 x 5	5	150
OB 150/25	150	500	25	600	25 x 25 x 5	5	100

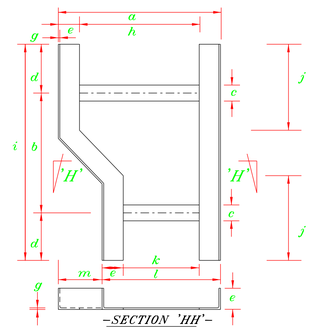
-EQUAL REDUCERS-



-SECTION 'GG'-

CODE	a	h	b	c	d	e & g	g	k	l	m	i	j
ER 1000/900/80	1000	840	500	60	250	80 x 80 x 6	6	740	900	50	1000	300
ER 1000/800/80	1000	840	500	60	250	80 x 80 x 6	6	640	800	100	1000	300
ER 1000/600/80	1000	840	500	60	250	80 x 80 x 6	6	440	600	200	1000	300
ER 1000/450/80	1000	840	500	60	250	80 x 80 x 6	6	290	450	275	1000	300
ER 1000/300/80	1000	840	500	60	250	80 x 80 x 6	6	140	300	350	1000	300
ER 900/800/80	900	740	500	60	250	80 x 80 x 6	6	640	800	50	1000	300
ER 900/600/80	900	740	500	60	250	80 x 80 x 6	6	440	600	150	1000	300
ER 900/450/80	900	740	500	60	250	80 x 80 x 6	6	290	450	225	1000	300
ER 900/300/80	900	740	500	60	250	80 x 80 x 6	6	140	300	300	1000	300
ER 800/600/80	800	640	500	60	250	80 x 80 x 6	6	640	600	100	1000	300
ER 800/450/80	800	640	500	60	250	80 x 80 x 6	6	290	450	175	1000	300
ER 800/300/80	800	640	500	60	250	80 x 80 x 6	6	140	300	250	1000	300
ER 600/450/80	600	440	500	60	250	80 x 80 x 6	6	290	450	75	1000	300
ER 600/300/80	600	440	500	60	250	80 x 80 x 6	6	140	300	150	1000	300
ER 600/450/50	600	500	500	50	250	50 x 50 x 6	6	350	450	75	1000	300
ER 600/300/50	600	500	500	50	250	50 x 50 x 6	6	200	300	150	1000	300
ER 450/400/50	450	350	500	50	250	50 x 50 x 6	6	300	400	25	1000	300
ER 450/300/50	450	350	500	50	250	50 x 50 x 6	6	200	300	75	1000	300
ER 400/300/50	400	300	500	50	250	50 x 50 x 6	6	200	300	50	1000	300
ER 600/450/40	600	520	500	50	250	40 x 40 x 5	5	370	450	75	1000	300
ER 600/400/40	600	520	500	50	250	40 x 40 x 5	5	320	400	100	1000	300
ER 600/300/40	600	520	500	50	250	40 x 40 x 5	5	220	300	150	1000	300
ER 600/200/40	600	520	500	50	250	40 x 40 x 5	5	120	200	200	1000	300
ER 450/300/40	450	370	500	50	250	40 x 40 x 5	5	220	300	75	1000	300
ER 450/200/40	450	370	500	50	250	40 x 40 x 5	5	120	200	125	1000	300
ER 400/300/40	400	320	500	50	250	40 x 40 x 5	5	220	300	50	1000	300
ER 400/200/40	400	320	500	50	250	40 x 40 x 5	5	120	200	100	1000	300
ER 300/200/25	300	250	500	25	250	25 x 25 x 5	5	150	200	50	1000	300
ER 300/150/25	300	250	500	25	250	25 x 25 x 5	5	100	150	75	1000	300
ER 200/150/25	200	150	500	25	250	25 x 25 x 5	5	100	150	25	1000	300

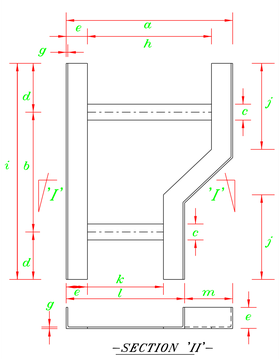
-OFFSET REDUCERS LEFT-



-SECTION 'HH'-

WWO-CODE	a	h	b	c	d	e & g	g	k	l	m	i	j
ORL 1000/900/80	1000	840	500	60	250	80 x 80 x 6	6	740	900	100	1000	300
ORL 1000/800/80	1000	840	500	60	250	80 x 80 x 6	6	640	800	200	1000	300
ORL 1000/600/80	1000	840	500	60	250	80 x 80 x 6	6	440	600	400	1000	300
ORL 1000/450/80	1000	840	500	60	250	80 x 80 x 6	6	290	450	550	1000	300
ORL 1000/300/80	1000	840	500	60	250	80 x 80 x 6	6	140	300	700	1000	300
ORL 900/800/80	900	740	500	60	250	80 x 80 x 6	6	640	800	100	1000	300
ORL 900/600/80	900	740	500	60	250	80 x 80 x 6	6	440	600	300	1000	300
ORL 900/450/80	900	740	500	60	250	80 x 80 x 6	6	290	450	450	1000	300
ORL 900/300/80	900	740	500	60	250	80 x 80 x 6	6	140	300	600	1000	300
ORL 800/600/80	800	640	500	60	250	80 x 80 x 6	6	640	600	200	1000	300
ORL 800/450/80	800	640	500	60	250	80 x 80 x 6	6	290	450	350	1000	300
ORL 800/300/80	800	640	500	60	250	80 x 80 x 6	6	140	300	500	1000	300
ORL 600/450/80	600	440	500	60	250	80 x 80 x 6	6	290	450	150	1000	300
ORL 600/300/80	600	440	500	60	250	80 x 80 x 6	6	140	300	300	1000	300
ORL 600/450/50	600	500	500	50	250	50 x 50 x 6	6	350	450	150	1000	300
ORL 600/300/50	600	500	500	50	250	50 x 50 x 6	6	200	300	300	1000	300
ORL 450/400/50	450	350	500	50	250	50 x 50 x 6	6	300	400	50	1000	300
ORL 450/300/50	450	350	500	50	250	50 x 50 x 6	6	200	300	50	1000	300
ORL 400/300/50	400	300	500	50	250	50 x 50 x 6	6	200	300	100	1000	300
ORL 600/450/40	600	520	500	50	250	40 x 40 x 5	5	370	450	150	1000	300
ORL 600/400/40	600	520	500	50	250	40 x 40 x 5	5	320	400	200	1000	300
ORL 600/300/40	600	520	500	50	250	40 x 40 x 5	5	220	300	300	1000	300
ORL 600/200/40	600	520	500	50	250	40 x 40 x 5	5	120	200	400	1000	300
ORL 450/300/40	450	370	500	50	250	40 x 40 x 5	5	220	300	150	1000	300
ORL 450/200/40	450	370	500	50	250	40 x 40 x 5	5	120	200	250	1000	300
ORL 400/300/40	400	320	500	50	250	40 x 40 x 5	5	220	300	100	1000	300
ORL 400/200/40	400	320	500	50	250	40 x 40 x 5	5	120	200	200	1000	300
ORL 300/200/25	300	250	500	25	250	25 x 25 x 5	5	150	200	100	1000	300
ORL 300/150/25	300	250	500	25	250	25 x 25 x 5	5	100	150	150	1000	300
ORL 200/150/25	200	150	500	25	250	25 x 25 x 5	5	100	150	50	1000	300

-OFFSET REDUCERS RIGHT-



-SECTION 'II'-

NOTES

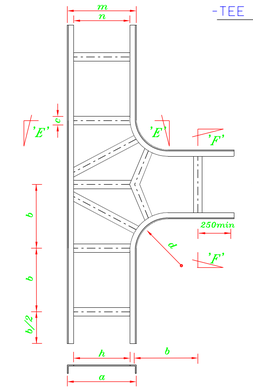
1) TRAYS CONSTRUCTED WITH THE FOLLOWING ANGLE IRONS WILL BE SUPPORTED AT THE FOLLOWING MIN. DISTANCES APART
   - 80 x 80 x 6 @ 3000
   - 50 x 50 x 6 @ 3000
   - 40 x 40 x 5 @ 3000
   - 25 x 25 x 5 @ 2000

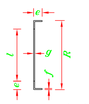
2) AT ALL BENDS THE FLAT BAR CABLE CLAMP SUPPORTS MUST NOT ACCEED 250mm DISTANCES APART

3) CABLE BRACKETS FOR CORROSIVE AREAS TO BE HOT-DIP GALVANISED TO SANS 121 ISO 1461

4) MENTEX GRATING TYPE 72 CAN BE USED AS AN OPTIONAL EXTRA HOT-DIP GALVANISED[SANS 121 ISO 1461]

-TEE PIECE-



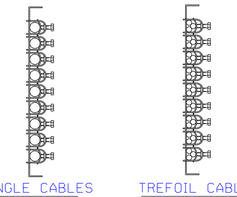


-SECTION 'FF'-

-SECTION 'EE'-

CODE	a	R	b	c	d	e & f	g	h	l	m	n
TP 1000/1000/80	1000	1000	500	60	600	80 x 80 x 6	6	840	840	1000	840
TP 1000/900/80	1000	900	500	60	600	80 x 80 x 6	6	840	740	1000	840
TP 1000/800/80	1000	800	500	60	600	80 x 80 x 6	6	840	640	1000	840
TP 1000/600/80	1000	600	500	60	600	80 x 80 x 6	6	840	440	1000	840
TP 1000/450/80	1000	450	500	60	600	80 x 80 x 6	6	840	290	1000	840
TP 1000/300/80	1000	300	500	60	600	80 x 80 x 6	6	840	140	1000	840
TP 900/900/80	900	900	500	60	600	80 x 80 x 6	6	740	740	900	740
TP 900/800/80	900	800	500	60	600	80 x 80 x 6	6	740	640	900	740
TP 900/600/80	900	600	500	60	600	80 x 80 x 6	6	740	440	900	740
TP 900/450/80	900	450	500	60	600	80 x 80 x 6	6	740	290	900	740
TP 900/300/80	900	300	500	60	600	80 x 80 x 6	6	740	140	900	740
TP 800/800/80	800	800	500	60	600	80 x 80 x 6	6	640	640	800	640
TP 800/600/80	800	600	500	60	600	80 x 80 x 6	6	640	440	800	640
TP 800/450/80	800	450	500	60	600	80 x 80 x 6	6	640	290	800	640
TP 800/300/80	800	300	500	60	600	80 x 80 x 6	6	640	140	800	640
TP 600/600/80	600	600	500	60	600	80 x 80 x 6	6	440	440	600	440
TP 600/450/80	600	450	500	60	600	80 x 80 x 6	6	440	290	600	440
TP 600/300/80	600	300	500	60	600	80 x 80 x 6	6	440	140	600	440
TP 600/600/50	600	600	500	60	600	50 x 50 x 6	6	500	500	600	500
TP 600/450/50	600	450	500	50	600	50 x 50 x 6	6	500	350	600	500
TP 600/300/50	600	300	500	50	600	50 x 50 x 6	6	500	200	600	500
TP 450/450/50	450	450	500	50	600	50 x 50 x 6	6	350	350	450	350
TP 450/300/50	450	300	500	50	600	50 x 50 x 6	6	350	200	450	350
TP 400/400/50	400	400	500	50	600	50 x 50 x 6	6	300	300	400	300
TP 400/300/50	400	300	500	50	600	50 x 50 x 6	6	300	200	400	300
TP 600/600/40	600	600	500	50	600	40 x 40 x 5	5	520	520	600	520
TP 600/450/40	600	450	500	50	600	40 x 40 x 5	5	520	370	600	520
TP 600/400/40	600	400	500	50	600	40 x 40 x 5	5	520	320	600	520
TP 600/300/40	600	300	500	50	600	40 x 40 x 5	5	520	220	600	520
TP 600/200/40	600	200	500	50	600	40 x 40 x 5	5	520	120	600	520
TP 450/450/40	450	450	500	50	600	40 x 40 x 5	5	370	370	450	370
TP 450/400/40	450	400	500	50	600	40 x 40 x 5	5	370	320	450	370
TP 450/300/40	450	300	500	50	600	40 x 40 x 5	5	370	220	450	370
TP 450/200/40	450	200	500	50	600	40 x 40 x 5	5	370	120	450	370
TP 400/400/40	400	400	500	50	600	40 x 40 x 5	5	320	320	400	320
TP 400/300/40	400	300	500	50	600	40 x 40 x 5	5	320	220	400	320
TP 400/200/40	400	200	500	50	600	40 x 40 x 5	5	320	120	400	320
TP 300/300/25	300	300	500	25	600	25 x 25 x 5	5	250	250	300	250
TP 300/200/25	300	200	500	25	600	25 x 25 x 5	5	250	150	300	250
TP 300/150/25	300	150	500	25	600	25 x 25 x 5	5	250	100	300	250
TP 200/200/25	200	200	500	25	600	25 x 25 x 5	5	150	150	200	150
TP 200/150/25	200	150	500	25	600	25 x 25 x 5	5	150	100	200	150
TP 150/150/25	150	150	500	25	600	25 x 25 x 5	5	100	100	150	100

METHOD FOR FIXING CABLES ON TRAY



SINGLE CABLES
EXAMPLE
ON 1000 x 80 TRAY

TREFOIL CABLES
EXAMPLE
ON 1000 x 80 TRAY

CLIENT: TRANSNET national ports authority

Client Name:	
Designation & Section:	ELECTRICAL ENGINEER: PORT ENGINEERING
Client Signature:	Project Phase:
Date:	
Contact No.'s:	

No.	DATE	REVISION DETAIL
00	11-12-2020	ORIGINAL
01	27-11-2022	APPROVED FOR CONSTRUCTION (AFC)

Main Contractor: Stateway Switchboards (Pty) Ltd.
55 Second Road, Linbro Park Sandton
P.O. Box 1055 Linbro Park 2065
TEL. +27(0) 11 021 7260 FAX. +27(0) 86 503 2258

Main Contractor:	STATEWAY SWITCHBOARDS (PTY.) LTD.
ZML Africa Drawing No.	TNPA/2020

Consultant: Z.M.L Africa Group — Engineering Africa Forward

Site Address: Sturrock Dry Dock, Cape Town

Building Name: Combined Pumphouse and Graving Dock Substation

Project Description: Sturrock Dry Dock Electrical Infrastructure Upgrades: - Sketch Plan

Drawing Description: Electrical Substation Cable Racking and Routing Layout

Drawn:	P.MAZIBUKO	Date:	29 / 07 / 2021
Designer / Checked:	M.SHEZI	Scale:	NOT TO SCALE
Approved:	M.SHEZI	Drawing Size:	A1
Prof Reg. No.	20110108	Revision No.	01
Signature:			27/11/2022

Drawing Number: TNPA/2020-000-E-CR-0003

Site & Building No.	Floor No.	Discipline & Service Type

Sheet Number	Project Number	Proposal No.
003		000