

TECHNICAL AND ECONOMICAL CONDITIONS FOR POLE DESIGN

POLE TYPE	DEVIATION ANGLE	WIND SPAN (m)	WEIGHT SPAN (m) (max/min)
1DLP (16 sided)	0°-1°	165	263/105

NOTE:

THE STANDARDS FOR MATERIAL, FABRICATION, WORKMANSHIP, GALVANIZING, WELDING, INSPECTION, ETC.

- MATERIAL SPECIFICATION:
 - FOR POLE, MATERIAL GRADE IS S355JR.
 - FOR BASE PLATE, MATERIAL GRADE IS S355JR.
 - FOR CROSS ARM MATERIAL GRADE IS S275JR.
- CROSS ARM BOLT IS 5.6 GRADE.
- CROSS ARM CONNECTING BOLT GRADE 8.8.
- GALVANIZING AS PER BSEN 1461:2009.
- BOLTS AS PER ISO 898-1:2009; NUTS AS PER ISO 4034; WASHER AS PER DIN127.
- ALL DIMENSIONS ARE IN MM.
- ALL MATERIALS ARE MILD STEEL IF NOT STATED OTHERWISE.
- MARK NUMBER WITH "H" ALPHABET INDICATES HIGH TENSILE STEEL.
- ALL STRUCTURAL WELDING SHOULD BE CARRIED OUT ACCORDING TO BSEN 61011-1 & 2.

WARNING:

THIS IS APPROVED FOR THE GENERAL USE OF THE POLE ONLY. IT DOES NOT RELEASE THE MANUFACTURER/CONTRACTOR/SUPPLIER FROM COMPLIANCE WITH SPECIFICATION AND STANDARDS FOR DESIGN, WORKMANSHIP AND PERFORMANCE AS STIPULATED IN THE CONTRACT.

POWER GRID COMPANY OF BANGLADESH

APPROVED WITH COMMENT

This approval is general only and does not release the manufacturer/contractor/supplier from compliance with specification and standards for Design, workmanship and performance as stipulated in the contract.

COMMENT: THIS APPROVAL SUPERSEDES EARLIER APPROVAL GIVEN VIDE PGCB LETTER NO. 04/PGCB/SE(TLD), Design & QC/2017/67 DATED 05.02.2017.

Md. Shooeb Hason
Assistant Engineer
Design & QC (TLD-1)
PGCB Ltd. Dhaka.

(Engr. S.M. Zafrul Hasan)
Executive Engineer (TL-1)
Design & Quality Control
PGCB

(Abdur Rashid Khan)
Supervising Engineer(TLD)
Design & Quality Control
PGCB

10 MAR 2017

CLIENT :

POWER GRID COMPANY OF BANGLADESH LIMITED (PGCB)

CONTRACTOR :

JOINT VENTURE OF ZTT & SINOTEC

MANUFACTURER :

CONFIDENCE™
Steel Limited

TITLE:

DESIGN, SUPPLY, ERECTION, TESTING AND COMMISSIONING OF ISHURDI-ROOPUR 132KV DOUBLE CIRCUIT TRANSMISSION LINE ON TURNKEY BASIS

DRAWN

CHECKED

APPROVED

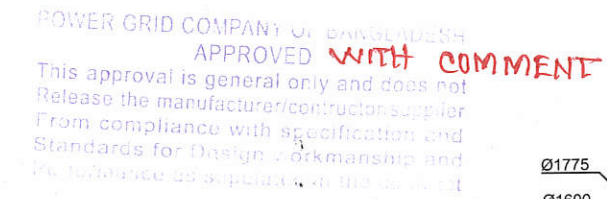
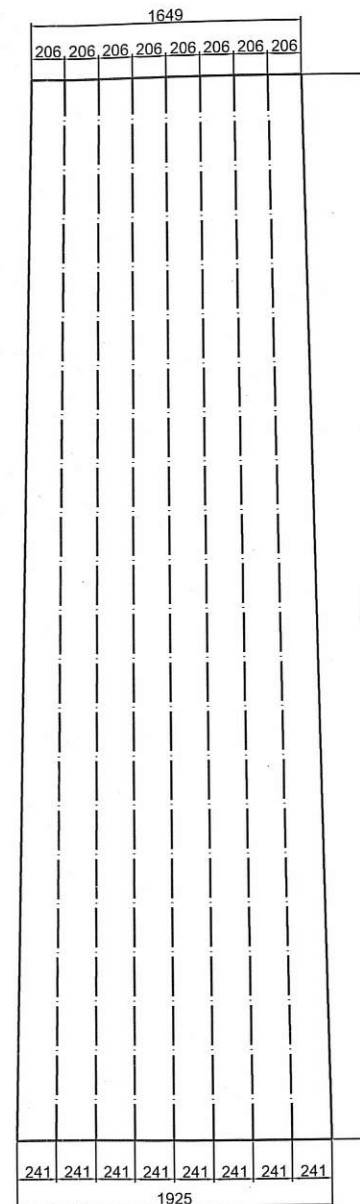
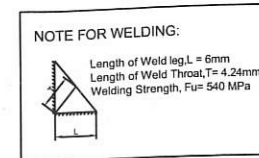
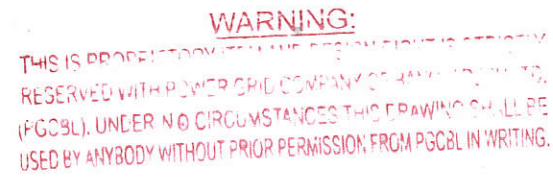
SCALE

DATE

Dwg No: GSL/ZTT-SINOTEC/SD/1DLP

SHT. NO. 1/14

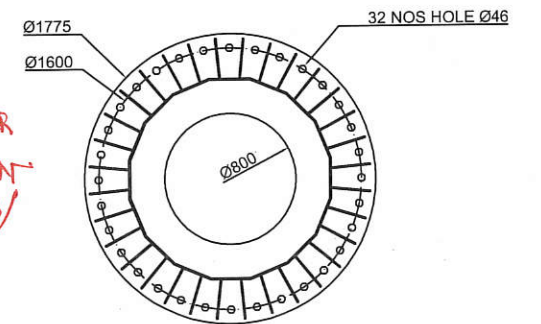
REV : A



COMMENT: THIS APPROVAL SUPERSEDES EARLIER APPROVAL GIVEN VIDE PGOB LETTER NO. 04/PGOB/SE(TLD), DESIGN & BC/2016/485 DATED 30.10.2016

Dr. Shooeb Hasan
Assistant Engineer
Design & QC (TLD-1)
POCB Ltd. Dhaka.

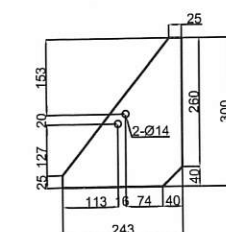
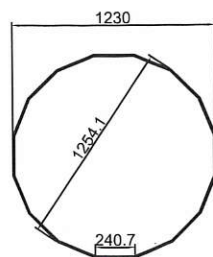
(Engr. S.M. Inayat Khan)
Executive Engineer (T.C.)
Design & Quality Control
FGCB



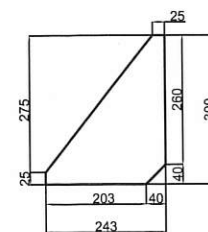
BASE PLATE (PL Ø1775X28H THK) (1DLP-1AH)
Outer dia=1775mm, Inner dia=800mm
 QTY : 1 PCS

THE STANDARDS FOR MATERIAL, FABRICATION, WORKMANSHIP,
GALVANIZING, WELDING, INSPECTION, ETC.

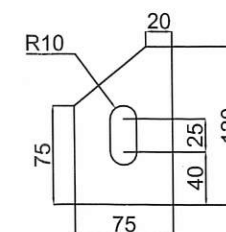
4. MATERIAL SPECIFICATION:
 - A) FOR POLE, MATERIAL GRADE IS S355JR.
 - B) FOR BASE PLATE, MATERIAL GRADE IS S355JR.
 - C) FOR CROSS ARM MATERIAL GRADE IS S275JR.
2. ANCHOR BOLT IS 5.6 GRADE;
CROSS ARM CONNECTING BOLT GRADE 8.8.
3. GALVANIZING AS PER BSEN 1461:2009.
4. BOLTS AS PER ISO 898-1:2009; NUTS AS PER ISO 4034;
WASHER AS PER DIN127.
5. ALL DIMENSION ARE IN MM.
6. ALL MATERIALS ARE MILD STEEL IF NOT STATED OTHERWISE.
7. MARK NUMBER WITH "H" ALPHABET INDICATES HIGH TENSILE STEEL.
8. ALL STRUCTURAL WELDING SHOULD BE CARRIED OUT ACCORDING
TO BSEN 61011-1 & 2.



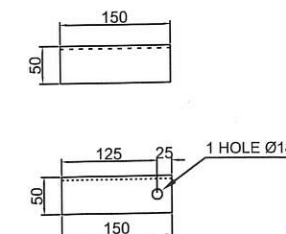
GUSSET PLATE-(1DLP-1E)
PL 300X8THK -243 LG
QTY:2 PCS



GUSSET PLATE-(1DLP-1B)
PL 300X8THK -243 LG
QTY:30 PCS



LIFTING CLEAT- (1DLP-1C)
(PL 75X20 THK- 120 LG)
QTY : 2PCS



LADDER CLEAT- (1DLP-1D)
(L 50X50X6THK- 150 LG)
QTY : 2PCS

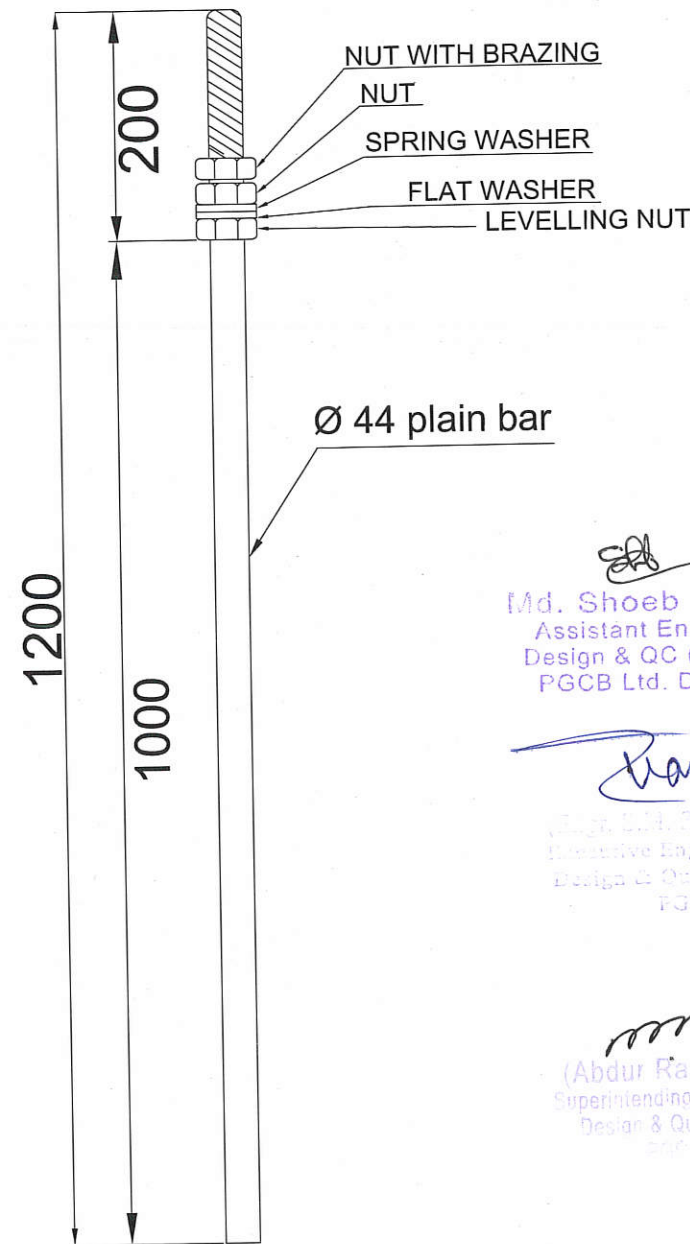
Sl/ No	Mark no	Qty/Pole	GRADE	Size	Pole Size			Wt/pc	Total Wt. (kg)	Remarks
					Length	Top Dia	Bottom Dia			
1	1DLP-1H	1	S355JR	PL 10 THK	6500	1056.4	1230	1964.46	1964.46	
2	1DLP-1AH	1	S355JR	PL1775X28	1775			692.51	692.51	
3	1DLP-1B	30	S275JR	PL243X8	300			4.58	137.34	
4	1DLP-1E	2	S275JR	PL243X8	300			4.58	9.16	
4	1DLP-1C	2	S275JR	PL75X20	120			1.41	2.83	
5	1DLP-1D	2	S275JR	50X50X6	150			0.68	1.35	
Total=									2807.65	kg
TOTAL WEIGHT (GALV)=									2905.92	kg

CLIENT :		 POWER GRID COMPANY OF BANGLADESH LIMITED (PGCB)			
CONTRACTOR : JOINT VENTURE OF ZTT & SINOTEC					
MANUFACTURER :		 CONFIDENCE™ Steel Limited			
TITLE: DESIGN, SUPPLY, ERECTION, TESTING AND COMMISSIONING OF ISHURDI-ROOPPUR 132KV DOUBLE CIRCUIT TRANSMISSION LINE ON TURNKEY BASIS					
DRAWN	CHECKED	APPROVED		POLE TYPE:	SCALE
M.S.S	M.R.C			1DLP	N.T.S
Drawing Name: 1DLP Erection Drawing					
DATE	02.02.2017	Dwg No: CSL/ZTT-SINOTEC/SD/1DLP	SHT. NO. 2/14	REV : 	

POWER GRID COMPANY OF BANGLADESH
APPROVED **WITH COMMENT**
This approval is general only and does not
Release the manufacturer/contractor/supplier
From compliance with specification and
Standards for Design workmanship and
Performance as stipulated in the contract

**COMMENT : THIS APPROVAL SUPERSEDES EARLIER APPROVAL
GIVEN VIDE PGOB LETTER NO. 04/PAGB/SE(TLD).DESIGN &
QC/2016/488 DATED 30/10/2016**

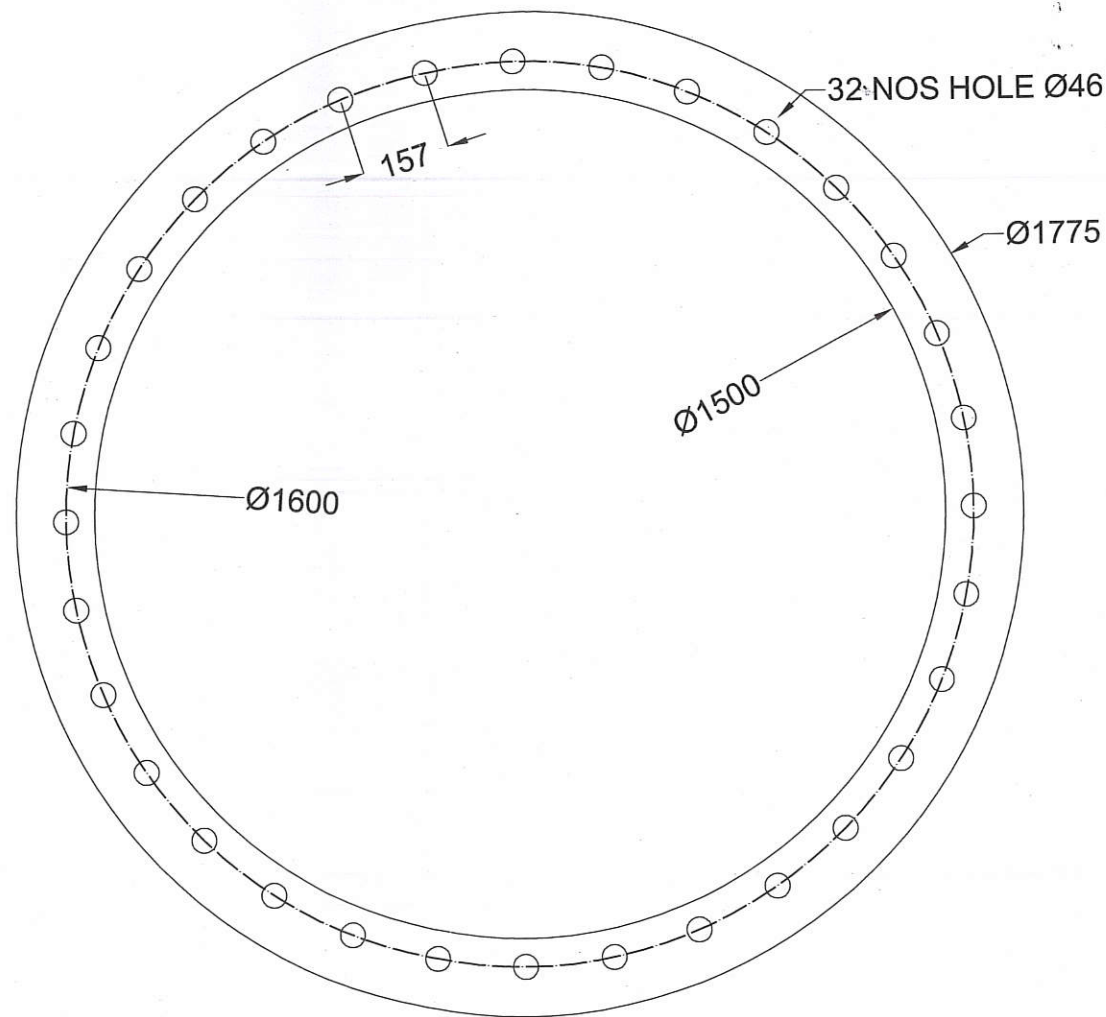
BILL OF MATERIAL								
Sl No	Mark No	Qty/Pole	GRADE	Size	Length (mm)	Wt/pcs (KG)	Total Weight (KG)	Remarks
1	1DLP-DBP	1	S275JR	PL1775X10	1775	247.32	247.32	
2	ANCHOR BOLT	32	5.6	Ø44	1200	14.16	453.12	
	Nut	32	5.6			0.72	23.04	
	Leveling Nut	32	5.6			0.72	23.04	
	Nut WITH BRAZING	32	5.6			0.72	23.04	
	SPW	32	5.6			0.180	5.76	
	PLW	32	5.6			0.083	2.66	
Total=							777.98	Kg
TOTAL WEIGHT(GALV)=							805.21	Kg



Md. Shoeb Hasan
Assistant Engineer
Design & QC (TLD-1)
PGCB Ltd. Dhaka.

(Md. Rashid Khan)
Executive Engineer (TLD-1)
Design & Quality Control
PGCB

(Abdur Rashid Khan)
Superintending Engineer(TLD)
Design & Quality Control
PGCB



WARNING:
THIS IS PROPRIETARY ITEM AND DESIGN RIGHT IS STRICTLY
RESERVED WITH POWER GRID COMPANY OF BANGLADESH LTD.
(PGCB). UNDER NO CIRCUMSTANCES THIS DRAWING SHALL BE
USED BY ANYBODY WITHOUT PRIOR PERMISSION FROM PGCB IN WRITING.

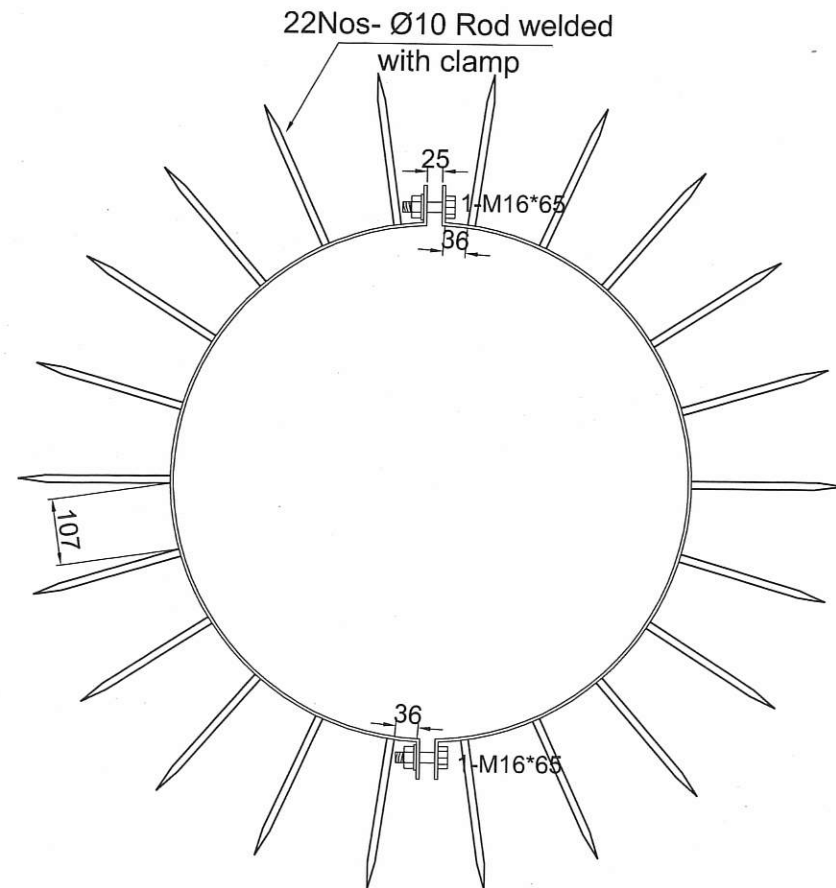
NOTE:
THE STANDARDS FOR MATERIAL, FABRICATION, WORKMANSHIP,
GALVANIZING, WELDING, INSPECTION, ETC.
1. MATERIAL SPECIFICATION:
A) FOR POLE, MATERIAL GRADE IS S355JR.
B) FOR BASE PLATE, MATERIAL GRADE IS S355JR.
C) FOR CROSS ARM MATERIAL GRADE IS S275JR.
2. ANCHOR BOLT IS 5.6 GRADE;
CROSS ARM CONNECTING BOLT GRADE 8.8.
3. GALVANIZING AS PER BSEN 1461:2009.
4. BOLTS AS PER ISO 898-1:2009; NUTS AS PER ISO 4034;
WASHER AS PER DIN127.
5. ALL DIMENSION ARE IN MM.
6. ALL MATERIALS ARE MILD STEEL IF NOT STATED OTHERWISE.
7. MARK NUMBER WITH "H" ALPHABET INDICATES HIGH TENSILE STEEL.
8. ALL STRUCTURAL WELDING SHOULD BE CARRIED OUT ACCORDING
TO BSEN 61011-1 & 2.

DETAIL OF ANCHOR BOLT
QTY= 32 PCS, Ø=44mm
5.6GRADE

Dummy Base plate (PL Ø1775X10mm THK)
(1DLP-DBP)
Outer dia=1775mm, Inner dia=1500mm

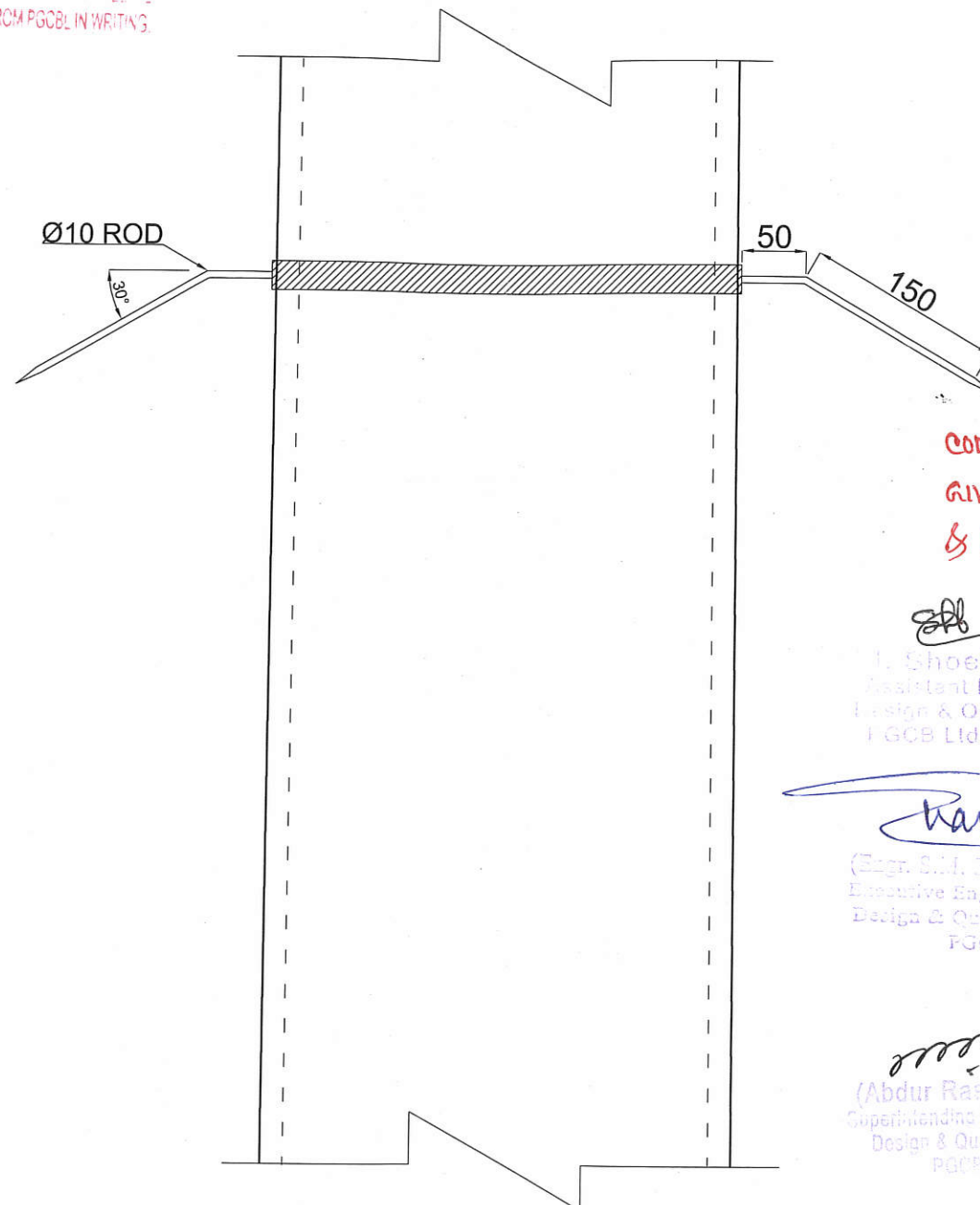
CLIENT :		POWER GRID COMPANY OF BANGLADESH LIMITED (PGCB)		
CONTRACTOR :		JOINT VENTURE OF ZTT & SINOTEC		
MANUFACTURER :		CONFIDENCE TM Steel Limited		
TITLE:		DESIGN, SUPPLY, ERECTION, TESTING AND COMMISSIONING OF ISHURDI-ROOPPUR 132KV DOUBLE CIRCUIT TRANSMISSION LINE ON TURNKEY BASIS		
DRAWN	CHECKED	APPROVED	POLE TYPE:	SCALE
M.S.S	M.R.C		1DLP	N.T.S
Drawing Name: 1DLP Erection Drawing				
DATE	02.02.2017	Dwg No: CSL/ZTT-SINOTEC/SD/1DLP	SHT. NO. 3/14	REV : A

WARNING:
THIS IS PROPRIETARY INFORMATION AND DESIGN RIGHT IS STRICTLY
RESERVED WITH POWER GRID COMPANY OF BANGLADESH LIMITED
(PGCL). UNDER NO CIRCUMSTANCES THIS DRAWING SHALL BE
USED BY ANYBODY WITHOUT PRIOR PERMISSION FROM PGCL IN WRITING.

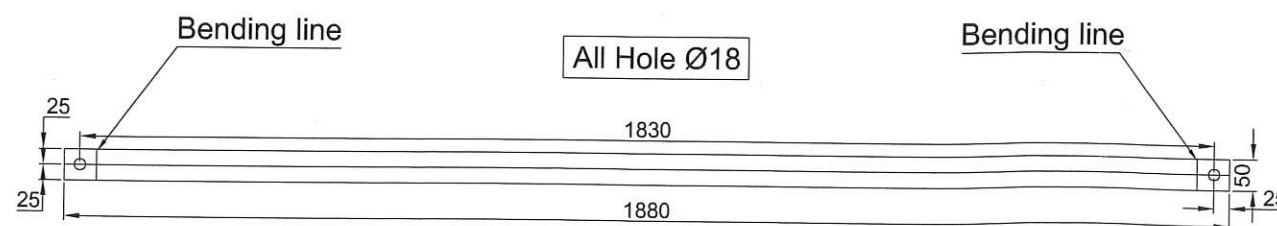


CROSS SECTION

1DLP-ACD



ELEVATION



**FLAT BAR DETAIL (FB 50X5 THK - 1880 LG)
(1DLP-C1)**

BILL OF MATERIAL								
Sl/No	Mark no	Qty/Pole	GRADE	Size	Length	Wt/pc	Total Wt. (kg)	Remarks
1	1DLP-C1	2	S275JR	FB50X5	1880	3.69	7.38	
2	SPIKE ROD	22	40	Ø10	200	0.12	2.69	
3	BOLT	2	5.6	M12	65	0.18	0.36	
Total=							10.43	kg
TOTAL WEIGHT (GALV)=							10.80	kg

POWER GRID COMPANY OF BANGLADESH LIMITED
APPROVED WITH COMMENT
This approval is general only and does not
Release the manufacturer/contractor from
From compliance with specification and
Standards for Design workmanship and
Performance as required in the contract.

**COMMENT: THIS APPROVAL SUPERSEDES EARLIER APPROVAL
GIVEN VIDE PGCB LETTER NO. 04/PGCB/SE(TLD), DESIGN
& QC/2016/485 DATED 30.10.2016**

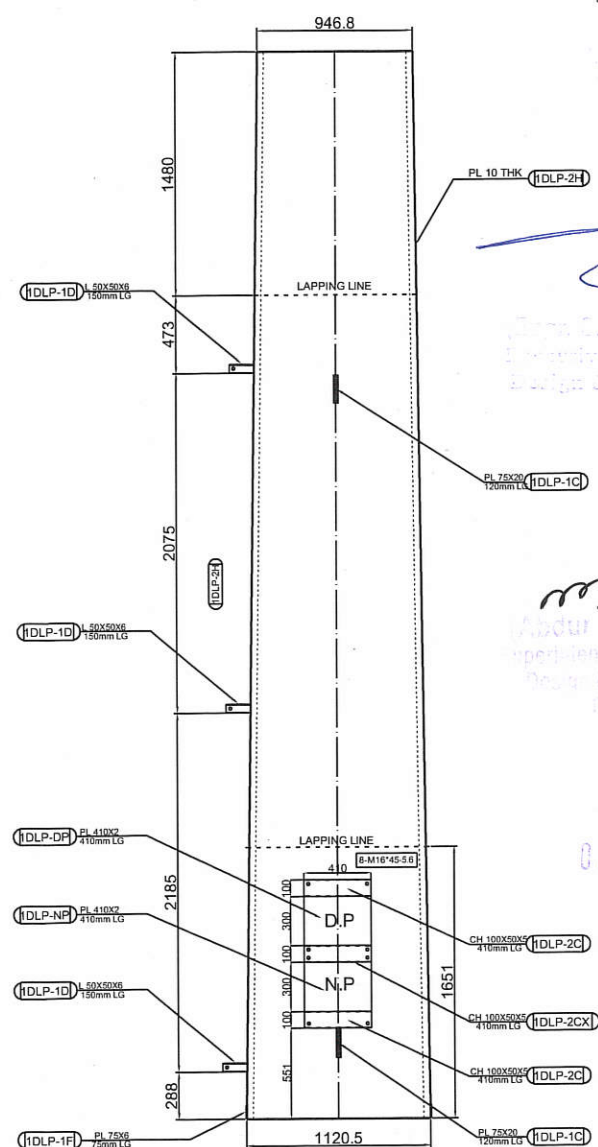
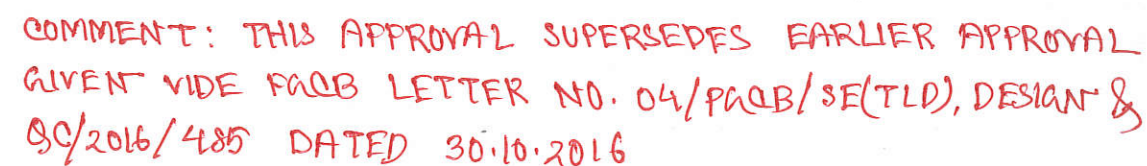
(Signature)
I. Shueb Hasan
Assistant Engineer
Design & QC (TLD-1)
PGCB Ltd. Dhaka.

(Signature)
(Engr. S.M. Rafiqul Islam)
Executive Engineer (TLD-1)
Design & Quality Control
PGCB

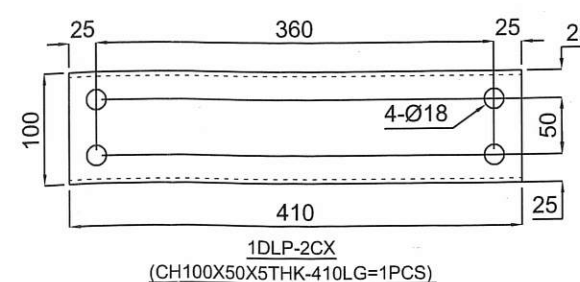
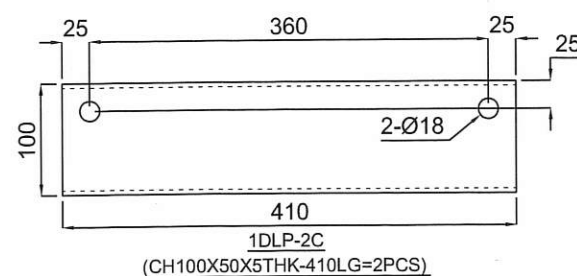
(Signature)
(Abdur Rashid Khan)
Superintending Engineer (TLD)
Design & Quality Control
PGCB Ltd.

NOTE:
THE STANDARDS FOR MATERIAL, FABRICATION, WORKMANSHIP,
GALVANIZING, WELDING, INSPECTION, ETC.
1. MATERIAL SPECIFICATION:
A) FOR POLE, MATERIAL GRADE IS S355JR.
B) FOR BASE PLATE, MATERIAL GRADE IS S355JR.
C) FOR CROSS ARM MATERIAL GRADE IS S275JR.
2. ANCHOR BOLT IS 5.6 GRADE;
CROSS ARM CONNECTING BOLT GRADE 8.8.
3. GALVANIZING AS PER BSEN 1461:2009.
4. BOLTS AS PER ISO 898-1:2009; NUTS AS PER ISO 4034;
WASHER AS PER DIN127.
5. ALL DIMENSION ARE IN MM.
6. ALL MATERIALS ARE MILD STEEL IF NOT STATED OTHERWISE.
7. MARK NUMBER WITH "H" ALPHABET INDICATES HIGH TENSILE STEEL.
8. ALL STRUCTURAL WELDING SHOULD BE CARRIED OUT ACCORDING
TO BSEN 61011-1 & 2.

CLIENT :		POWER GRID COMPANY OF BANGLADESH LIMITED (PGCB)		
CONTRACTOR :		JOINT VENTURE OF ZTT & SINOTEC		
MANUFACTURER :		CONFIDENCE™ Steel Limited		
TITLE:		DESIGN, SUPPLY, ERECTION, TESTING AND COMMISSIONING OF ISHURDI-ROOPPUR 132KV DOUBLE CIRCUIT TRANSMISSION LINE ON TURNKEY BASIS		
DRAWN	CHECKED	APPROVED	POLE TYPE:	SCALE
M.S.S	M.R.C		1DLP	N.T.S
Drawing Name: 1DLP Erection Drawing				
DATE	02.02.2017	Dwg No: CSL/ZTT-SINOTEC/SD/1DLP	SHT. NO. 4/14	REV : 3

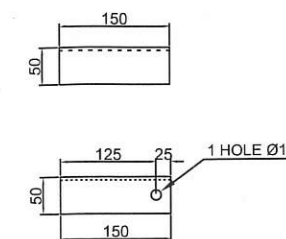


LONGITUDINAL FACE

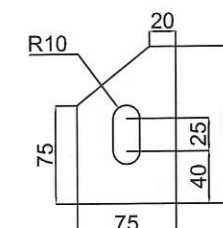


NOTE FOR WELDING:
Length of Weld leg, $L = 6\text{mm}$
Length of Weld Throat, $T = 4.24\text{mm}$
Welding Strength, $F_u = 540\text{ MPa}$

Sl/No	Mark no	Qty/Pole	GRADE	Size	Pole Size			Wt/pc	Total Wt. (kg)	Remarks
					Length	Top Dia	Bottom Dia			
1	1DLP-2H	1	S355JR	PL 10 THK	6500	946.8	1120.5	1786.90	1786.90	
2	1DLP-1C	4	S275JR	PL75X20	120			1.41	5.65	
3	1DLP-2C	2	S275JR	CH40X80X4	410			1.94	3.89	
4	1DLP-2CX	1	S275JR	CH40X80X4	410			1.94	1.94	
5	1DLP-1D	3	S275JR	50X50X6	150			0.68	2.03	
6	1DLP-1F	2	S275JR	PL75X6	75			0.26	0.53	
7	1DLP-DP	1	S275JR	PL410X2	450			2.90	2.90	
8	1DLP-NP	1	S275JR	PL410X2	450			2.90	2.90	
9	BOLT	8	5.6	M16	45			0.14	1.13	
Total=									1807.86	kg
TOTAL WEIGHT (GALV)=									1871.13	kg



LADDER CLEAT- (1DLP-1D)
(L 50X50X6THK- 150 LG)
QTY : 3PCS



LIFTING CLEAT- (1DLP-1C)
(PL 75X20 THK- 120 LG)
QTY : 4PCS

NOTE:

THE STANDARDS FOR MATERIAL, FABRICATION, WORKMANSHIP,
GALVANIZING, WELDING, INSPECTION, ETC.

WARNING:

THIS IS PROPRIETARY AND THE DESIGN RIGHT IS STRICTLY RESERVED WITH POWER GRID COMPANY OF INDIA LTD. (PGCIL), UNDER NO CIRCUMSTANCES THIS DRAWING SHALL BE USED BY ANYBODY WITHOUT PRIOR PERMISSION FROM PGCIL IN WRITING.

1. MATERIAL SPECIFICATION:
 - A) FOR POLE, MATERIAL GRADE IS S355JR.
 - B) FOR BASE PLATE, MATERIAL GRADE IS S355JR.
 - C) FOR CROSS ARM MATERIAL GRADE IS S275JR.
2. ANCHOR BOLT IS 5.6 GRADE;
CROSS ARM CONNECTING BOLT GRADE 8.8.
3. GALVANIZING AS PER BSEN 1461:2009.
4. BOLTS AS PER ISO 898-1:2009; NUTS AS PER ISO 4034; WASHER AS PER DIN127.
5. ALL DIMENSION ARE IN MM.
6. ALL MATERIALS ARE MILD STEEL IF NOT STATED OTHERWISE
7. MARK NUMBER WITH "H" ALPHABET INDICATES HIGH TENSILE STEEL.
8. ALL STRUCTURAL WELDING SHOULD BE CARRIED OUT ACCORDING TO BSEN 61011-1 & 2.

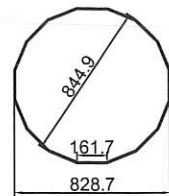
CLIENT :  POWER GRID COMPANY OF BANGLADESH LIMITED (PGCB)

CONTRACTOR : JOINT VENTURE OF ZTT & SINOTEC

MANUFACTURER :  **CONFIDENCE™**
Steel Limited

TITLE: DESIGN, SUPPLY, ERECTION, TESTING AND COMMISSIONING OF ISHURDI-ROOPPUR 132KV DOUBLE CIRCUIT TRANSMISSION LINE ON TURNKEY BASIS

DRAWN	CHECKED	APPROVED	POLE TYPE:	SCALE
M.S.S	M.R.C		1DLP	N.T.S
Drawing Name: 1DLP Erection Drawing				
DATE	02.02.2017	Dwg No: CSL/ZTT-SINOTEC/SD/1DLP	SHT. NO. 5/14	REV : 3



COMMENT : THIS APPROVAL SUPERSEDES
EARLIER APPROVAL GIVEN VIDE PQOB
LETTER NO. 04/PQOB/SE(TLD), DESIGN-
8/8C/2016/485 DATED 30.10.2016

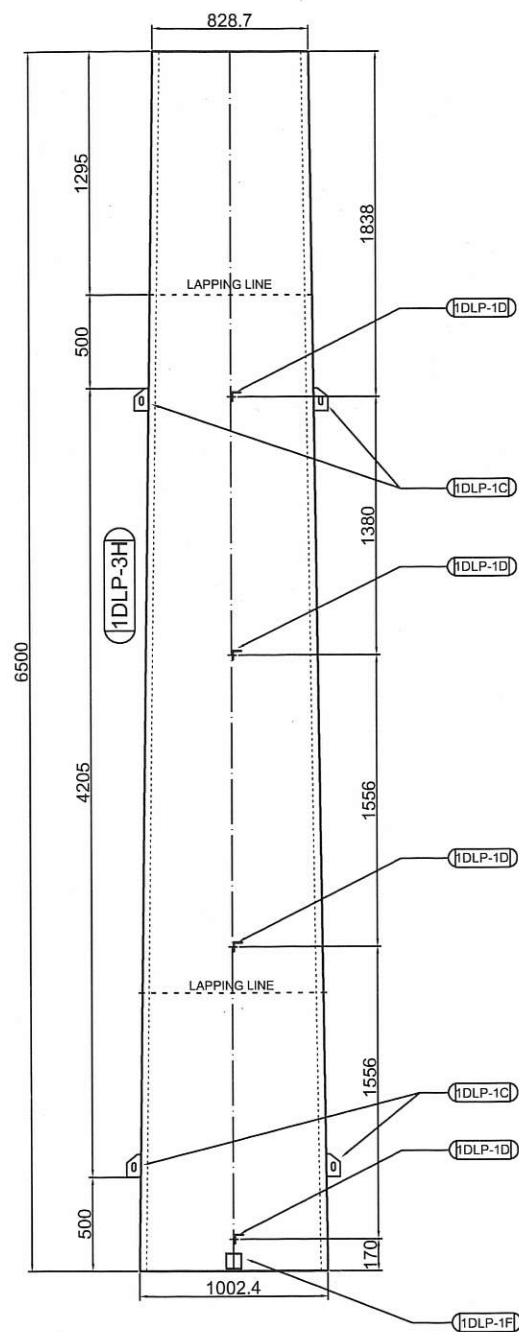
POWER GRID COMPANY OF ONTARIO

APPROVED **WITH COMMENT**

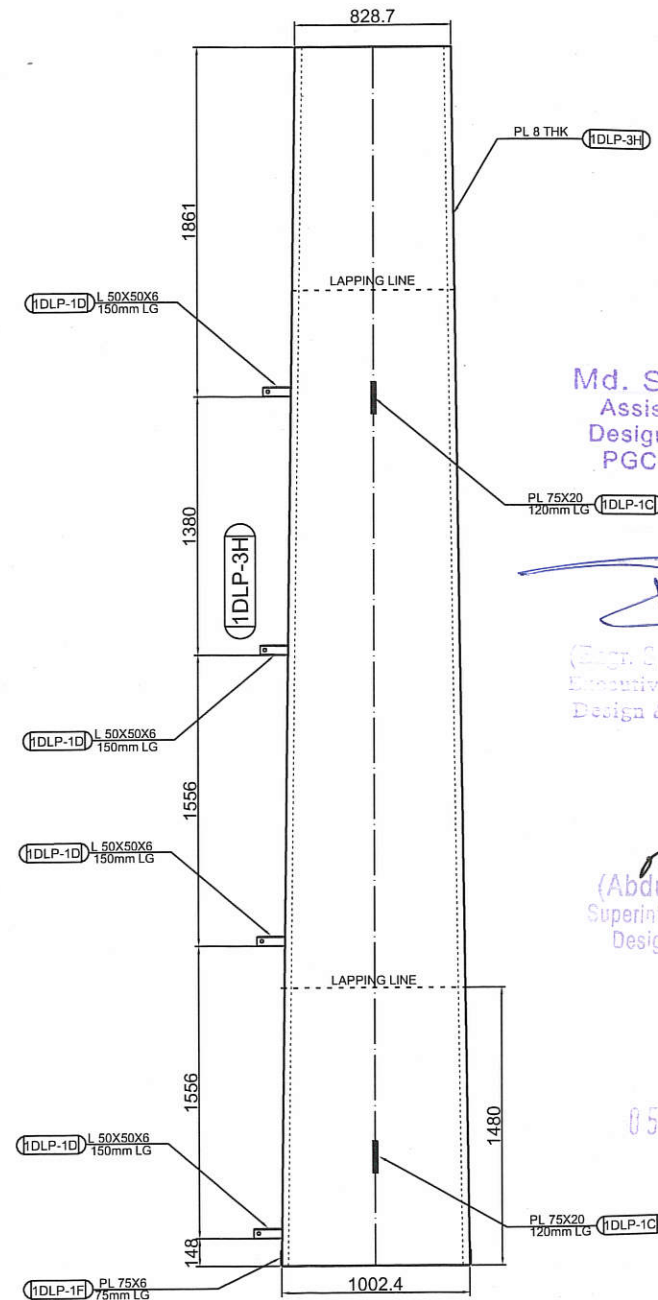
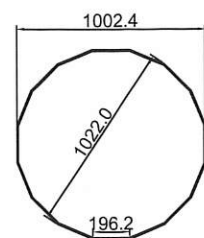
This approval is general only and does not
Release the manufacturer/contractor/supplier
From compliance with specification and
Standards for Design workmanship and
Performance as stipulated in the contract

BILL OF MATERIAL

Sl/ No	Mark no	Qty/Pole	GRADE	Size	Pole Size			Wt/pc	Total Wt. (kg)	Remarks
					Length	Top Dia	Bottom Dia			
1	1DLP-3H	1	S355JR	PL1570X8	6500	828.7	1002.4	1281.75	1281.75	
2	1DLP-1C	4	S275JR	PL152X8	96			0.92	3.67	
3	1DLP-1D	4	S275JR	50X50X6	150			0.68	2.70	
4	1DLP-1F	2	S275JR	PL75X6	75			0.26	0.53	
								Total=	1288.64	kg
								TOTAL WEIGHT (GALV)=	1333.75	kg



TRANSVERSE FACE



LONGITUDINAL FACE

Md. Shoeb Hossain
Assistant Engineer
Design & QC (TLD-1)
PGCB Ltd. Dhaka.

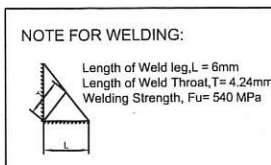
(Engr. S.M. Zahid Hossain)
Executive Engineer (TE-4)
Design & Quality Control
PGCB

(Abdur Rashid Khan)
Superintending Engineer(TLD)
Design & Quality Control
PGCB Ltd

05 FEB 2017

WARNING:

THIS PROPRIETARY DESIGN RIGHT IS STRICTLY
TIED WITH POWER GRID COMPANY OF CANADA. IN LTD.
UNDER NO CIRCUMSTANCES THIS DRAWING SHALL BE
REPRODUCED WITHOUT PRIOR PERMISSION FROM EGCBL IN WRITING.



NOTE:

THE STANDARDS FOR MATERIAL, FABRICATION, WORKMANSHIP,
GALVANIZING, WELDING, INSPECTION, ETC.

1. MATERIAL SPECIFICATION:
 - A) FOR POLE, MATERIAL GRADE IS S355JR.
 - B) FOR BASE PLATE, MATERIAL GRADE IS S355JR.
 - C) FOR CROSS ARM MATERIAL GRADE IS S275JR.
2. ANCHOR BOLT IS 5.6 GRADE;
CROSS ARM CONNECTING BOLT GRADE 8.8.
3. GALVANIZING AS PER BSEN 1461:2009.
4. BOLTS AS PER ISO 898-1:2009; NUTS AS PER ISO 4034;
WASHER AS PER DIN127.
5. ALL DIMENSION ARE IN MM.
6. ALL MATERIALS ARE MILD STEEL IF NOT STATED OTHERWISE.
7. MARK NUMBER WITH "H" ALPHABET INDICATES HIGH TENSILE STEEL.
8. ALL STRUCTURAL WELDING SHOULD BE CARRIED OUT ACCORDING
TO BSEN 61011-1 & 2.

CLIENT :  POWER GRID COMPANY OF BANGLADESH LIMITED (PGCB)

CONTRACTOR : JOINT VENTURE OF ZTT & SINOTEC

MANUFACTURER :  **CONFIDENCE™**
Steel Limited

TITLE: DESIGN, SUPPLY, ERECTION, TESTING AND COMMISSIONING OF ISHURDI-ROOPPUR 132KV DOUBLE CIRCUIT TRANSMISSION LINE ON TURNKEY BASIS

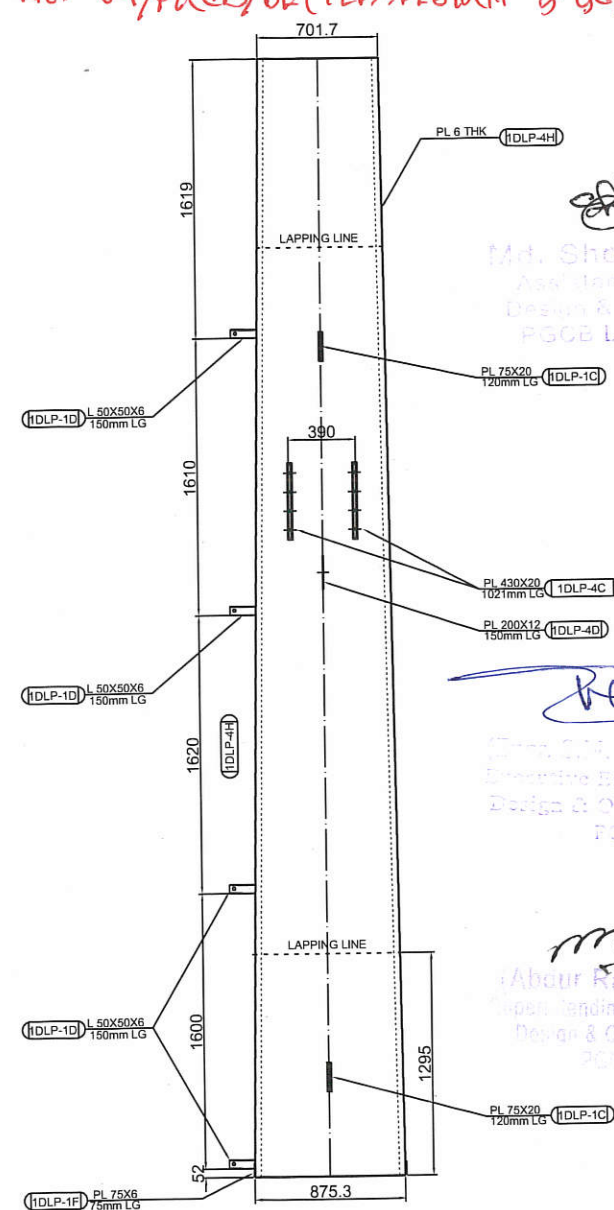
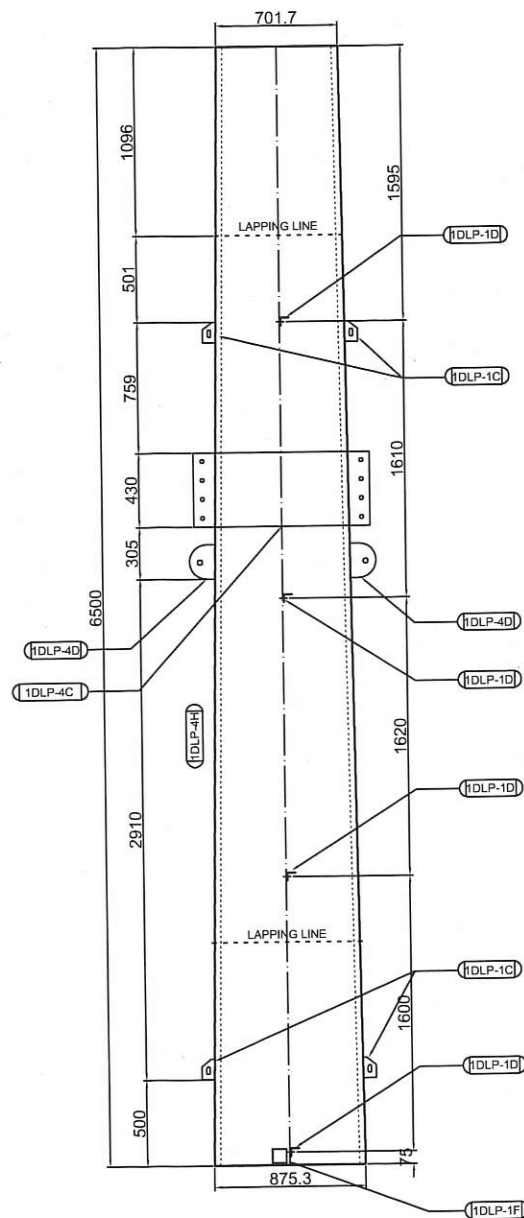
DRAWN	CHECKED	APPROVED	POLE TYPE:	SCALE
M.S.S	M.R.C		1DLP	N.T.S

Drawing Name: TDLP Erection Drawing

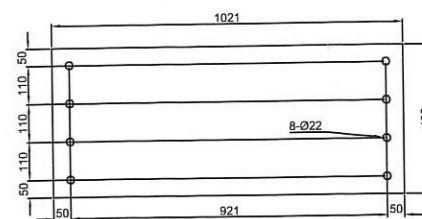
DATE	02.02.2017	Dwg No: CSL/ZTT-SINOTEC/SD/1DLP	SHT. NO. 6/14	REV : ③
------	------------	---------------------------------	---------------	---------



COMMENT: THIS APPROVAL SUPERSEDES EARLIER APPROVAL GIVEN VIDE
PAOB LETTER NO. 04/PAOB/SR(TLP), DESIGN & GC/2016/485 DATED 30.10.2016



LONGITUDINAL FACE

[illegible]

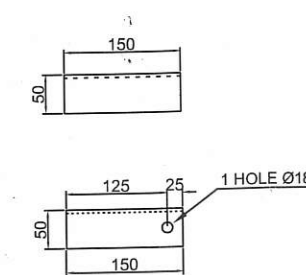
Md. Shoeb Hasan
Assistant Engineer
Design & QC (TLD-1)
PGCB Ltd, Dhaka.

(Abdur Rashid Khan)
Open-Ended Engineer (TLB)
Design & Quality Control
2018-14

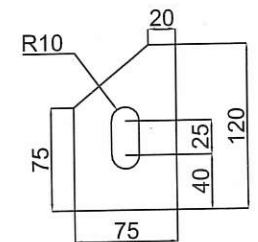
06 FEB 1964

Length of Weld leg, $L = 6 \text{ mm}$
Length of Weld Throat, $T = 4.24 \text{ mm}$
Welding Strength, $F_u = 540 \text{ MPa}$

BILL OF MATERIAL										
SI/ No	Mark no	Qty/Pole	GRADE	Size	Pole Size		Wt/pc	Total Wt. (kg)	Remarks	
					Length	Top Dia				Bottom Dia
1	1DLP-4H	1	S355JR	PL1374X6	6500	701.7	875.3	841.30	841.30	
2	1DLP-1C	4	S275JR	PL75X20	120			1.41	5.65	
3	1DLP-1D	4	S275JR	50X50X6	150			0.68	2.70	
4	1DLP-1F	2	S275JR	PL75X6	75			0.26	0.53	
5	1DLP-4C	2	S275JR	PL430X20	1021			68.93	137.86	
6	1DLP-4D	2	S275JR	PL200X12	150			2.83	5.65	
Total=								993.69	kg	
TOTAL WEIGHT (GALV)=								1028.47	kg	



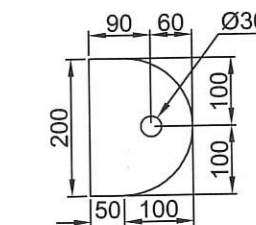
LADDER CLEAT- (1DLP-1D)
(L 50X50X6THK- 150 LG)
QTY : 4PCS



LIFTING CLEAT- (1DLP-1C)
(PL 75X20 THK- 120 LG)
QTY : 4PCS

THE STANDARDS FOR MATERIAL, FABRICATION, WORKMANSHIP,
GALVANIZING, WELDING, INSPECTION, ETC.

1. MATERIAL SPECIFICATIONS:
 - A) FOR POLE, MATERIAL GRADE IS S355JR.
 - B) FOR BASE PLATE, MATERIAL GRADE IS S355JR.
 - C) FOR CROSS ARM MATERIAL GRADE IS S275JR.
2. ANCHOR BOLT IS 5.6 GRADE;
CROSS ARM CONNECTING BOLT GRADE 8.8.
3. GALVANIZING AS PER BSEN 1461:2009.
4. BOLTS AS PER ISO 898-1:2009; NUTS AS PER ISO 4034;
WASHER AS PER DIN127.
5. ALL DIMENSION ARE IN MM.
6. ALL MATERIALS ARE MILD STEEL IF NOT STATED OTHERWISE.
7. MARK NUMBER WITH "H" ALPHABET INDICATES HIGH TENSILE STEEL.
8. ALL STRUCTURAL WELDING SHOULD BE CARRIED OUT ACCORDING
TO BSEN 61011-1 & 2.



(1DLP-4D)
(PL 200X12 THK- 150 LG)
QTY : 2PCS

CLIENT :  POWER GRID COMPANY OF BANGLADESH LIMITED (PGCB)

CONTRACTOR :
JOINT VENTURE OF ZTT & SINOTEC

MANUFACTURER :  **CONFIDENCE™**
Steel Limited

TITLE: DESIGN, SUPPLY, ERECTION, TESTING AND COMMISSIONING OF ISHURDI-ROOPPUR 132KV DOUBLE CIRCUIT TRANSMISSION LINE ON TURNKEY BASIS

DRAWN	CHECKED	APPROVED	POLE TYPE:	SCALE
M.S.S	M.R.C		1DLP	N.T.S

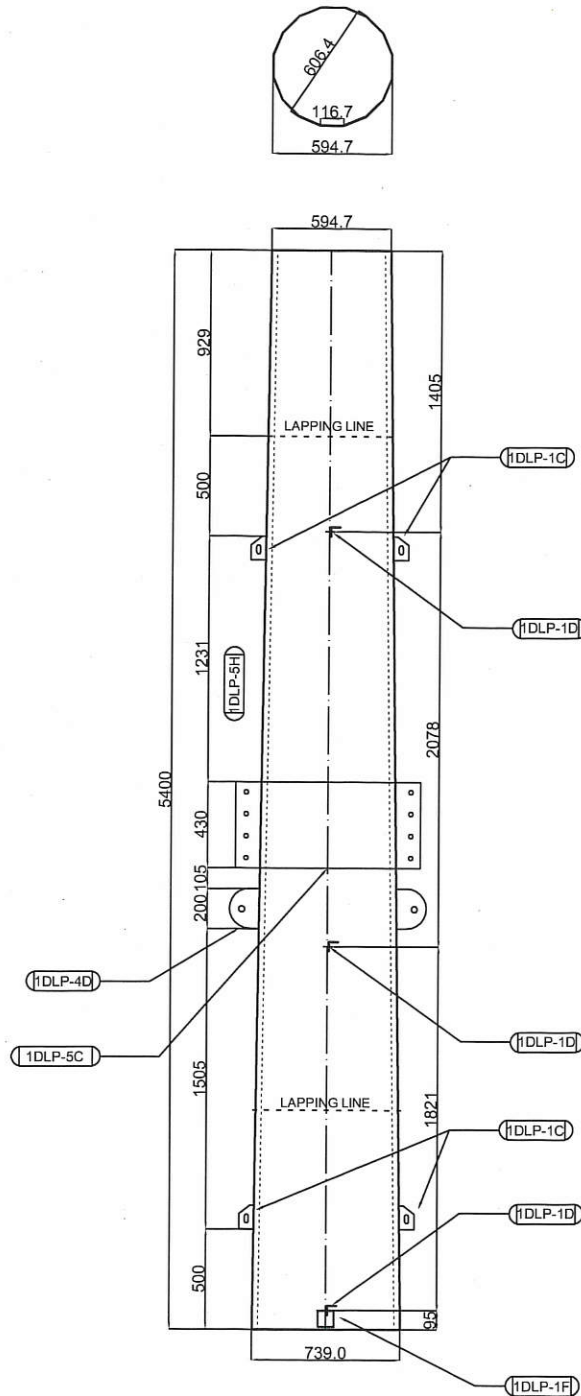
Drawing Name: 1DLP Erection Drawing

DATE	02.02.2017	Dwg No: CSL/ZTT-SINOTEC/SD/1DLP	SHT. NO. 7/14	REV : 
------	------------	---------------------------------	---------------	---

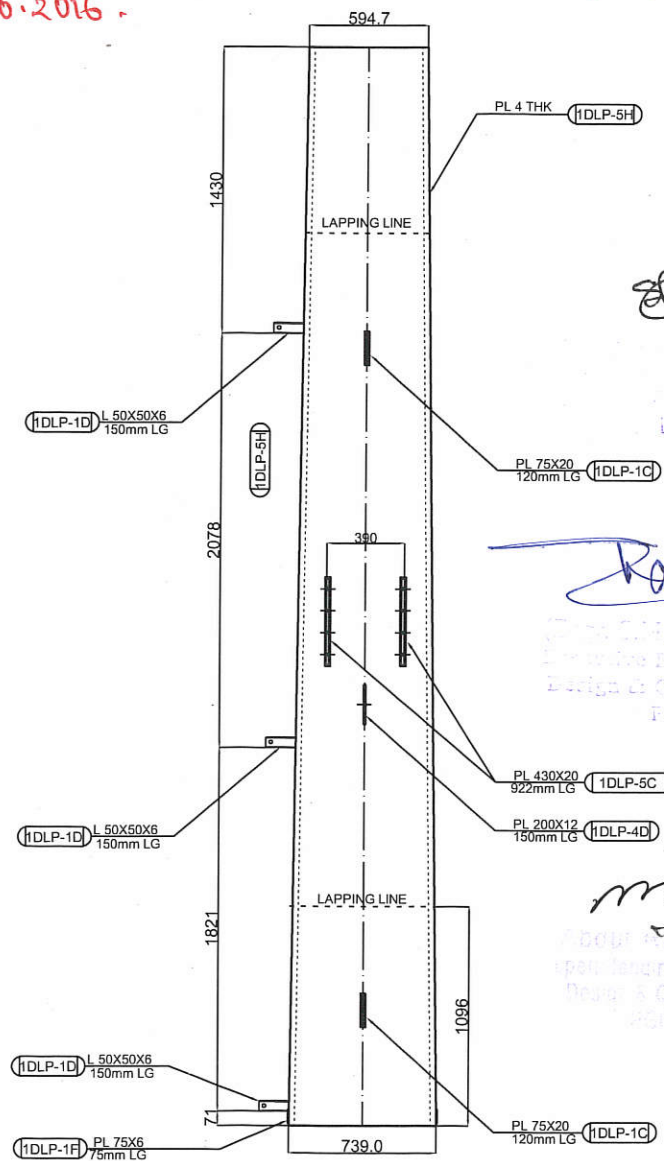
POWER GRID COMPANY OF BANGLADESH
APPROVED WITH COMMENT
This approval is general only and does not
Release the manufacturer/contractor/supplier
From compliance with specification and
Standards for Design workmanship and
Performance as stipulated in the contract.

COMMENT: THIS APPROVAL SUPERSEDES EARLIER APPROVAL GIVEN
VIDE POCB LETTER NO. 04/PACB/SE(TLD), DESIGN & QC/2016/485 DATED
30.10.2016.

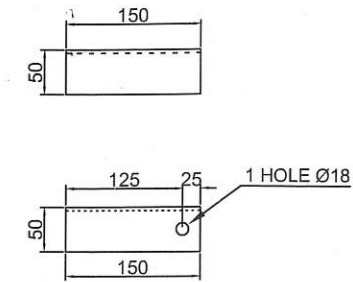
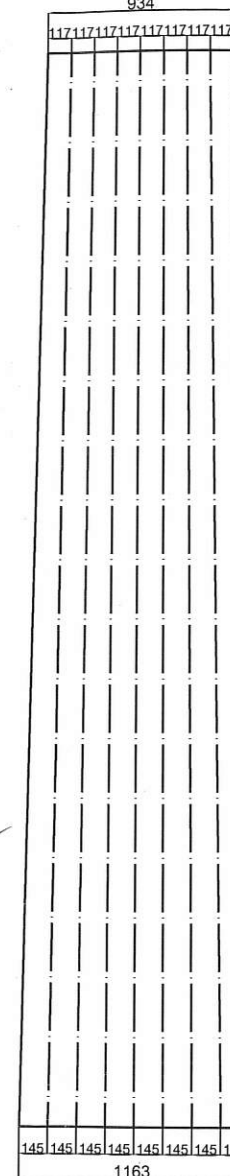
BILL OF MATERIAL										
SI/ No	Mark no	Qty/Pole	GRADE	Size	Pole Size			Wt/pc	Total Wt. (kg)	Remarks
					Length	Top Dia	Bottom Dia			
1	1DLP-5H	1	S355JR	PL1163X4	5400	594.7	739	394.40	394.40	
2	1DLP-1C	4	S275JR	PL75X20	120			1.41	5.65	
3	1DLP-1D	3	S275JR	50X50X6	150			0.68	2.03	
4	1DLP-1F	2	S275JR	PL75X6	75			0.26	0.53	
5	1DLP-5C	2	S275JR	PL430X20	922			62.24	124.49	
6	1DLP-4D	2	S275JR	PL200X12	150			2.83	5.65	
Total=									532.74	kg
TOTAL WEIGHT (GALV)=									551.39	kg



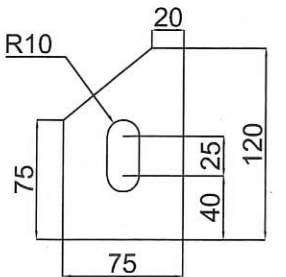
TRANSVERSE FACE



LONGITUDINAL FACE



LADDER CLEAT- (1DLP-1D)
(L 50X50X6THK- 150 LG)
QTY : 3PCS

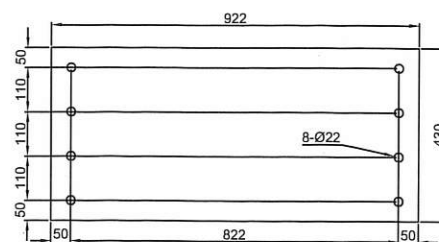
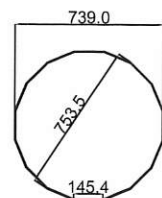


LIFTING CLEAT- (1DLP-1C)
(PL 75X20 THK- 120 LG)
QTY : 4PCS

NOTE:

THE STANDARDS FOR MATERIAL, FABRICATION, WORKMANSHIP, GALVANIZING, WELDING, INSPECTION, ETC.

- MATERIAL SPECIFICATION:
A) FOR POLE, MATERIAL GRADE IS S355JR.
B) FOR BASE PLATE, MATERIAL GRADE IS S355JR.
C) FOR CROSS ARM MATERIAL GRADE IS S275JR.
- ANCHOR BOLT IS 5.6 GRADE;
CROSS ARM CONNECTING BOLT GRADE 8.8.
- GALVANIZING AS PER BSEN 1461:2009.
- BOLTS AS PER ISO 898-1:2009; NUTS AS PER ISO 4034;
WASHER AS PER DIN127.
- ALL DIMENSION ARE IN MM.
- ALL MATERIALS ARE MILD STEEL IF NOT STATED OTHERWISE.
- MARK NUMBER WITH "H" ALPHABET INDICATES HIGH TENSILE STEEL.
- ALL STRUCTURAL WELDING SHOULD BE CARRIED OUT ACCORDING TO BSEN 61011-1 & 2.



(1DLP-5C)
(PL 430X20 THK- 922 LG)
QTY : 2PCS

NOTE FOR WELDING:

Length of Weld leg, L = 6mm
Length of Weld Throat, T = 4.24mm
Welding Strength, F_w = 540 MPa

WARNING:
THIS IS PROPRIETARY ITEM AND DESIGN RIGHT IS STRICTLY
RESERVED WITH POWER GRID COMPANY OF BANGLADESH LTD.
(PGCB). UNDER NO CIRCUMSTANCES THIS DRAWING SHALL BE
REPRODUCED OR USED BY ANYBODY WITHOUT PRIOR PERMISSION FROM PGCB IN WRITING.



CLIENT :		POWER GRID COMPANY OF BANGLADESH LIMITED (PGCB)			
CONTRACTOR :		JOINT VENTURE OF ZTT & SINOTEC			
MANUFACTURER :					
TITLE:		DESIGN, SUPPLY, ERECTION, TESTING AND COMMISSIONING OF ISHURDI-ROOPPUR 132KV DOUBLE CIRCUIT TRANSMISSION LINE ON TURNKEY BASIS			
DRAWN	CHECKED	APPROVED	POLE TYPE:	SCALE	
M.S.S	M.R.C		1DLP	N.T.S	
Drawing Name: 1DLP Erection Drawing					
DATE	02.02.2017	Dwg No: CSL/ZTT-SINOTEC/SD/1DLP	SHT. NO. 8/14	REV :	

WARNING:

THIS IS PROPRIETARY INFORMATION AND IS STRICTLY RESERVED WITH POWER GRID COMPANY OF BANGLADESH (PGCB). UNDER NO CIRCUMSTANCES THIS DRAWING SHALL BE USED BY ANYBODY WITHOUT PRIOR PERMISSION FROM PGCB IN WRITING.

COMMENT! THIS APPROVAL SUPERSEDES EARLIER APPROVAL GIVEN VIDE PGCB LETTER NO. 04/PAOB/SE(TLD),

DESIGN & QC/2016/485 DATED 30.10.2016

POWER GRID COMPANY OF BANGLADESH
APPROVED **WITH COMMENT**
This approval is general only and does not Release the manufacturer/contractor/supplier from compliance with specification and Standards for Design workmanship and Workmanship as stipulated in the contract.

APPROVED WITH COMMENT

Shoeb Hasan
Senior Engineer
A/QC (TLD-1)
PGCB Ltd. Dhaka.

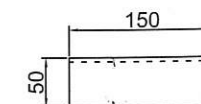
(Engr. S.M. Zafar Hossain)
Senior Engineer (TLD-1)
Design & Quality Control
PGCB

(Abdur Rashid Khan)
Superintending Engineer (TLD)
Design & Quality Control
PGCB Ltd.

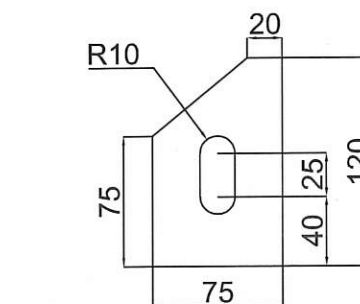
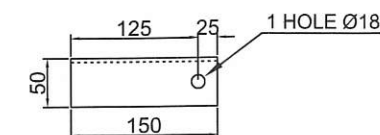
05 FEB 2017

BILL OF MATERIAL

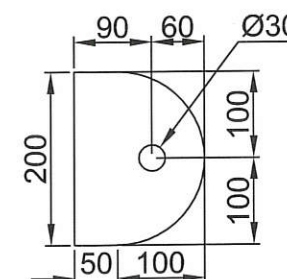
Sl/No	Mark no	Qty/Pole	GRADE	Size	Pole Size			Wt/pc	Total Wt. (kg)	Remarks
					Length	Top Dia	Bottom Dia			
1	1DLP-6H	1	S355JR	PL986X4	5150	490	627.6	318.89	318.89	
2	1DLP-1C	2	S275JR	PL75X8	120			1.41	2.83	
3	1DLP-1D	4	S275JR	50X50X6	150			0.68	2.70	
4	1DLP-1F	2	S275JR	PL75X6	75			0.26	0.53	
5	1DLP-6C	2	S275JR	PL430X20	822			55.49	110.99	
6	1DLP-4D	2	S275JR	PL200X12	150			2.83	5.65	
Total=									441.59	kg
TOTAL WEIGHT (GALV)=									457.04	kg



LADDER CLEAT- (1DLP-1D)
(L 50X50X6THK- 150 LG)
QTY : 4PCS



LIFTING CLEAT- (1DLP-1C)
(PL 75X20 THK- 120 LG)
QTY : 2PCS



(1DLP-4D)
(PL 200X12 THK- 150 LG)
QTY : 2PCS

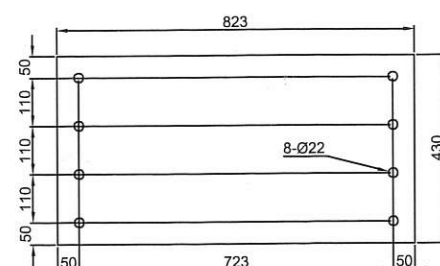
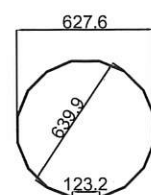
NOTE:

THE STANDARDS FOR MATERIAL, FABRICATION, WORKMANSHIP, GALVANIZING, WELDING, INSPECTION, ETC.

- MATERIAL SPECIFICATION:
A) FOR POLE, MATERIAL GRADE IS S355JR.
B) FOR BASE PLATE, MATERIAL GRADE IS S355JR.
C) FOR CROSS ARM MATERIAL GRADE IS S275JR.
- ANCHOR BOLT IS 5.6 GRADE;
CROSS ARM CONNECTING BOLT GRADE 8.8.
- GALVANIZING AS PER BSEN 1461:2009.
- BOLTS AS PER ISO 898-1:2009; NUTS AS PER ISO 4034;
WASHER AS PER DIN127.
- ALL DIMENSION ARE IN MM.
- ALL MATERIALS ARE MILD STEEL IF NOT STATED OTHERWISE.
- MARK NUMBER WITH "H" ALPHABET INDICATES HIGH TENSILE STEEL.
- ALL STRUCTURAL WELDING SHOULD BE CARRIED OUT ACCORDING TO BSEN 61011-1 & 2.

TRANSVERSE FACE

LONGITUDINAL FACE



(1DLP-6C)
(PL 430X20 THK- 823 LG)
QTY : 2PCS

NOTE FOR WELDING:

Length of Weld leg, L = 6mm
Length of Weld Throat, T = 4.24mm
Welding Strength, F_w = 540 MPa

CLIENT : **POWER GRID COMPANY OF BANGLADESH LIMITED (PGCB)**

CONTRACTOR : **JOINT VENTURE OF ZTT & SINOTEC**

MANUFACTURER : **CONFIDENCETM Steel Limited**

TITLE: **DESIGN, SUPPLY, ERECTION, TESTING AND COMMISSIONING OF ISHURDI-ROOPPUR 132KV DOUBLE CIRCUIT TRANSMISSION LINE ON TURNKEY BASIS**

DRAWN	CHECKED	APPROVED	POLE TYPE:	SCALE
M.S.S	M.R.C		1DLP	N.T.S

Drawing Name: 1DLP Erection Drawing
DATE: 02.02.2017 Dwg No: CSL/ZTT-SINOTEC/SD/1DLP SHT. NO. 9/14 REV : 1

Eye bolt
1-M16*35

Earth wire angle
(1DLP-EWA)

Stud clamp

Pole cap
1DLP-PC

Side Plate
1DLP-SP

Bolt
1-M16*70

1DLP-C3

Stud Clamp

Bolt
1-M16*70

Earth wire angle

POLE

Bolt
1-M16*70

TOP VIEW

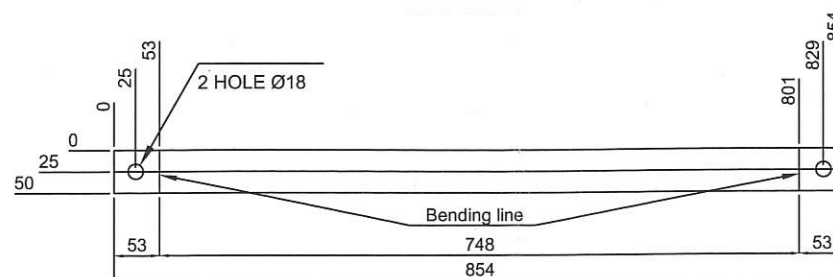
POWER GRID COMPANY OF BANGLADESH
APPROVED WITH COMMENT
This approval is general only and does not
Release the manufacturer/contractor/supplier
From compliance with specification and
Standards for Design, Workmanship and
Performance as stipulated in the contract

BILL OF MATERIAL

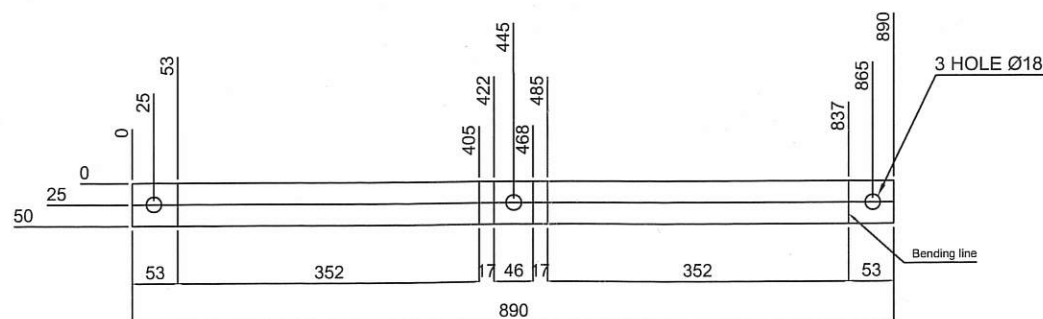
Sl/No	Mark no	Qty/Pole	GRADE	Size	Length	Wt/pc	Total Wt. (kg)	Remarks
1	1DLP-PC	1	S275JR	PL498X4	498	7.79	7.79	
2	1DLP-SP	2	S275JR	PL100X4	780	2.45	4.90	
3	1DLP-EWA	1	S275JR	90X90X6	1250	10.24	10.24	
4	1DLP-C2	2	S275JR	PL50X5	854	1.68	3.35	
5	1DLP-C3	2	S275JR	PL50X5	890	1.75	3.49	
6	BOLT	1	5.6	M16	35	0.13	0.13	
7	BOLT	6	5.6	M16	70	0.18	1.09	
Total=							30.99	kg
TOTAL WEIGHT (GALV)=							32.07	kg

COMMENT: THIS APPROVAL SUPERSEDES EARLIER APPROVAL GIVEN VIDE PAOB
LETTER NO. 04/PAOB/SE(TLD), DESIGN & QC/2016/578 DATED 18.12.2016

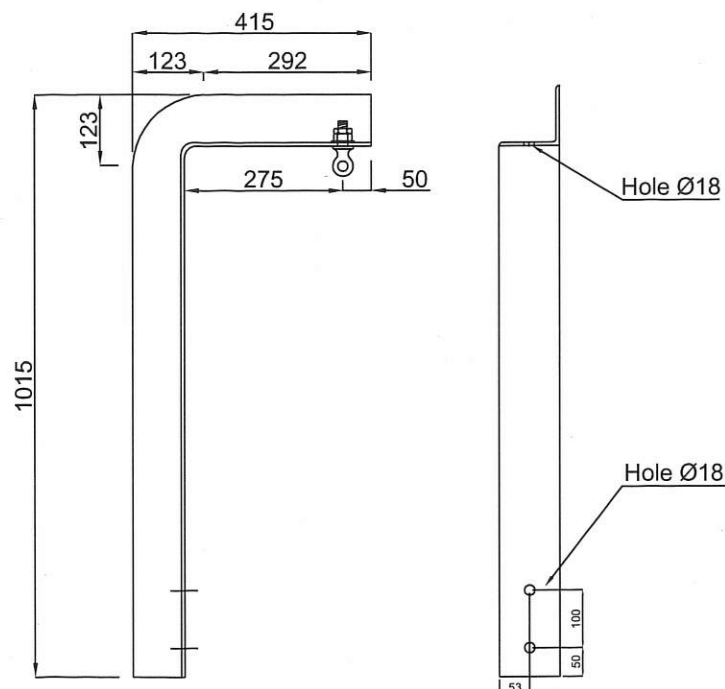
WARNING:
THIS IS PROPRIETARY ITEM AND DESIGN RIGHT IS STRICTLY
RESERVED WITH POWER GRID COMPANY OF BANGLADESH LIMITED
(PGCL). UNDER NO CIRCUMSTANCES THIS DRAWING SHOULD BE
USED BY ANYBODY WITHOUT PRIOR PERMISSION FROM PGCL IN WRITING



PL 50X5 THK- 854 LG
1DLP-C2

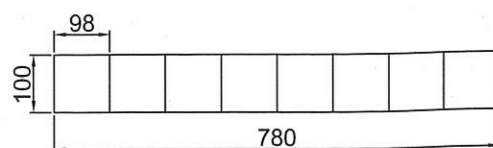


PL 50X5 THK- 890 LG
1DLP-C3

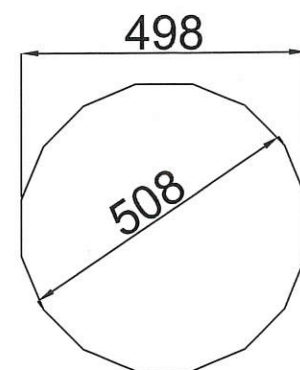


EARTHWIRE ANGLE 90X90X6 (EWA) DETAIL (1 SET)

EARTHING WIRE ANGLE ARRANGEMENT
1DLP-EWA



SIDE PLATE: PL100X4 THK-780 LG
1DLP-SP



POLE CAP: PL Ø498X4 THK
1DLP-PC

Md. Shoeb Hasan
Assistant Engineer
Design & QC (TLD-1)
PGCL Ltd. Dhaka.

05 FEB 2017

05 FEB 2017

05 FEB 2017

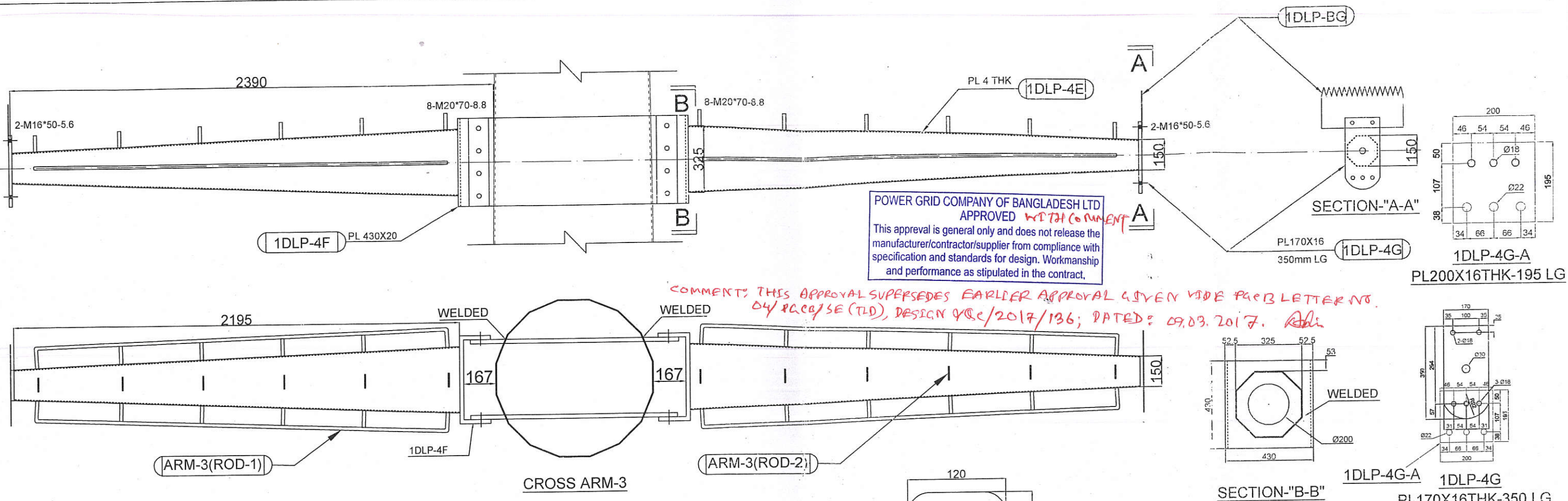
05 FEB 2017

NOTE:

THE STANDARDS FOR MATERIAL, FABRICATION, WORKMANSHIP,
GALVANIZING, WELDING, INSPECTION, ETC.

- MATERIAL SPECIFICATION:
 - FOR POLE, MATERIAL GRADE IS S355JR.
 - FOR BASE PLATE, MATERIAL GRADE IS S355JR.
 - FOR CROSS ARM MATERIAL GRADE IS S275JR.
- ANCHOR BOLT IS 5.6 GRADE;
CROSS ARM CONNECTING BOLT GRADE 8.8.
- GALVANIZING AS PER BSEN 1461:2009.
- BOLTS AS PER ISO 898-1:2009; NUTS AS PER ISO 4034;
WASHER AS PER DIN127.
- ALL DIMENSION ARE IN MM.
- ALL MATERIALS ARE MILD STEEL IF NOT STATED OTHERWISE.
- MARK NUMBER WITH "H" ALPHABET INDICATES HIGH TENSILE STEEL.
- ALL STRUCTURAL WELDING SHOULD BE CARRIED OUT ACCORDING
TO BSEN 61011-1 & 2.

CLIENT :	POWER GRID COMPANY OF BANGLADESH LIMITED (PGCL)			
CONTRACTOR :	JOINT VENTURE OF ZTT & SINOTEC			
MANUFACTURER :	CONFIDENCE™ Steel Limited			
TITLE:	DESIGN, SUPPLY, ERECTION, TESTING AND COMMISSIONING OF ISHURDI-ROOPPUR 132KV DOUBLE CIRCUIT TRANSMISSION LINE ON TURNKEY BASIS			
DRAWN	CHECKED	APPROVED	POLE TYPE	SCALE
M.S.S	M.R.C		1DLP	N.T.S
DRAWING NAME: 1DLP-EARTH WIRE AND POLE CAP ARRANGEMENT				
DATE	02.02.2017	Dwg No: CSL/ZTT-SINOTEC/SD/1DLP	SHT.NO. 10/14	REV : A



NOTE:

THE STANDARDS FOR MATERIAL, FABRICATION, WORKMANSHIP, GALVANIZING, WELDING, INSPECTION, ETC.

1. MATERIAL SPECIFICATION:

- FOR POLE, MATERIAL GRADE IS S355JR.
 - FOR BASE PLATE, MATERIAL GRADE IS S355JR.
 - FOR CROSS ARM MATERIAL GRADE IS S275JR.
- ANCHOR BOLT IS 5.6 GRADE; CROSS ARM CONNECTING BOLT GRADE 8.8.
 - GALVANIZING AS PER BSEN 1461:2009.
 - BOLTS AS PER ISO 898-1:2009; NUTS AS PER ISO 4034; WASHER AS PER DIN127.
 - ALL DIMENSION ARE IN MM.
 - ALL MATERIALS ARE MILD STEEL IF NOT STATED OTHERWISE.
 - MARK NUMBER WITH "H" ALPHABET INDICATES HIGH TENSILE STEEL.
 - ALL STRUCTURAL WELDING SHOULD BE CARRIED OUT ACCORDING TO BSEN 61011-1 & 2.

Md. Shueb Hasan
 Sub-Divisional Engineer
 Design & Quality Control
 PGCB Ltd.

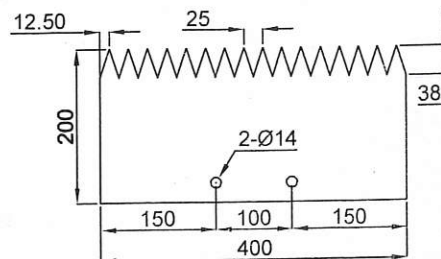
(Engr. Md. Azizul Islam Sarkar)
 Executive Engineer (TLD-1)
 Design & Quality Control
 PGCB

(Engr. S. M. Zafrul Hasan)
 Superintending Engineer (TLD)
 Design & QC, PGCB, Dhaka.

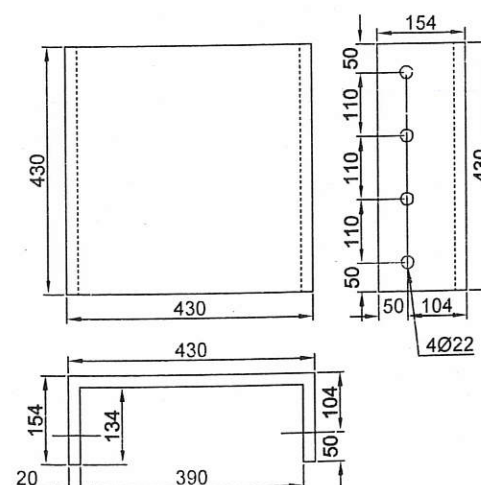
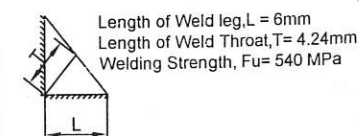
(Md. Abdur Rahim)
 Assistant Engineer
 Transmission Line Design
 PGCB, Dhaka

BILL OF MATERIAL

Sl/No	Mark no	Qty/Pole	GRADE	Size	Pole Size			Wt/pc	Total Wt. (kg)	Remarks
					Length	Top Dia	Bottom Dia			
1	1DLP-4E	2	S275JR	PL525X4	2203	150	325	36.32	72.63	
2	1DLP-4F	2	S275JR	PL430X20	698			47.12	94.24	
3	1DLP-4G	2	S275JR	PL170X16	350			7.47	14.95	
4	1DLP-4G-A	2	S275JR	PL200X16	195			4.90	9.80	
5	1DLP-BG	2	S275JR	PL200X2	400			1.26	2.51	
6	ARM-3(ROD-1)	4	S275JR	φ16	2550			4.02	16.08	
7	ARM-3(ROD-2)	12	S275JR	φ16	260			0.41	4.92	
8	BOLT	4	5.6	M16	50			0.13	0.50	
9	BOLT	16	8.8	M20	70			0.35	5.60	
Total=									221.23	kg
TOTAL WEIGHT (GALV)=									228.98	kg



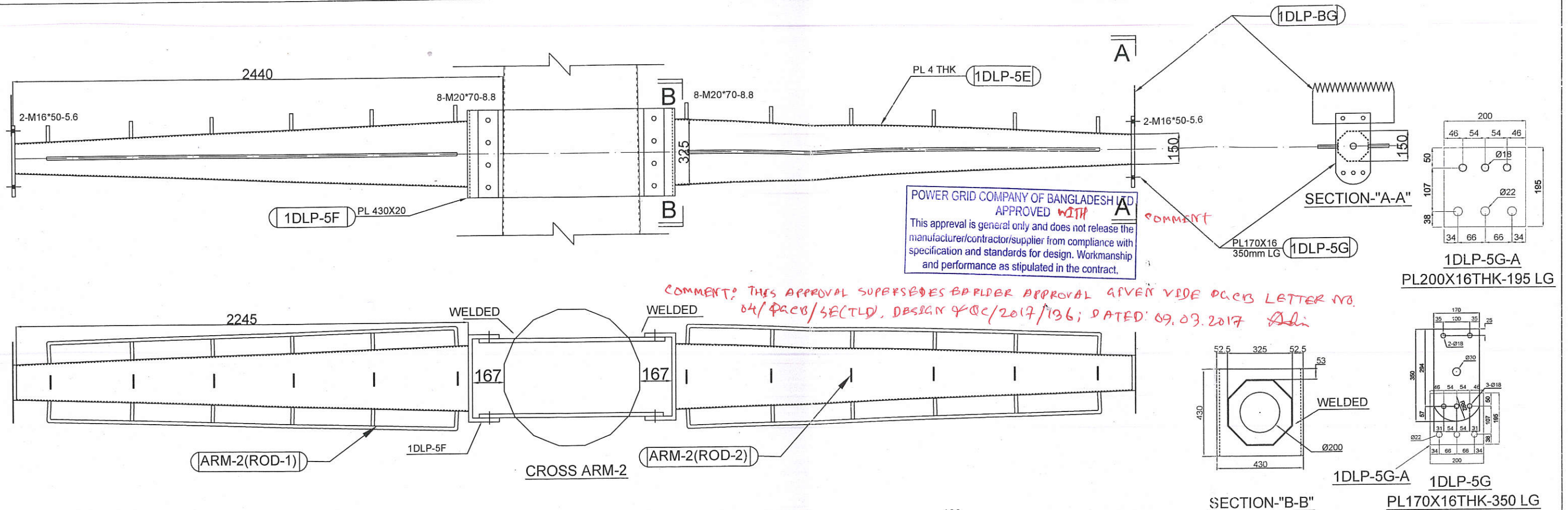
NOTE FOR WELDING:



ARM-3(ROD-2)
 Ø16X260mm=12PCS

ARM-3(ROD-1)
 Ø16X2550mm=4PCS

CLIENT :		POWER GRID COMPANY OF BANGLADESH LIMITED (PGCB)			
CONTRACTOR :		JOINT VENTURE OF ZTT & SINOTEC			
MANUFACTURER :		CONFIDENCE			
TITLE: DESIGN, SUPPLY, ERECTION, TESTING AND COMMISSIONING OF ISHURDI-ROOPPUR 132KV DOUBLE CIRCUIT TRANSMISSION LINE ON TURNKEY BASIS					
DRAWN	CHECKED	APPROVED	POLE TYPE	SCALE	
M.S.S	M.R.C	子英东	1DLP	N.T.S	
DRAWING NAME: 1DLP-DETAIL OF CROSS ARM-3					
DATE	12.12.2017	Dwg No: CSL/ZTT-SINOTEC/SD/1DLP	SHT.NO. 11/14	REV : 6	



NOTE:

THE STANDARDS FOR MATERIAL, FABRICATION, WORKMANSHIP, GALVANIZING, WELDING, INSPECTION, ETC.

1. MATERIAL SPECIFICATION:

- FOR POLE, MATERIAL GRADE IS S355JR.
 - FOR BASE PLATE, MATERIAL GRADE IS S355JR.
 - FOR CROSS ARM MATERIAL GRADE IS S275JR.
- ANCHOR BOLT IS 5.6 GRADE;
CROSS ARM CONNECTING BOLT GRADE 8.8.
 - GALVANIZING AS PER BSEN 1461:2009.
 - BOLTS AS PER ISO 898-1:2009; NUTS AS PER ISO 4034;
WASHER AS PER DIN127.
 - ALL DIMENSION ARE IN MM.
 - ALL MATERIALS ARE MILD STEEL IF NOT STATED OTHERWISE.
 - MARK NUMBER WITH "H" ALPHABET INDICATES HIGH TENSILE STEEL.
 - ALL STRUCTURAL WELDING SHOULD BE CARRIED OUT ACCORDING TO BSEN 61011-1 & 2.

Md. Shueb Hasan
 Sub-Divisional Engineer
 Design & Quality Control
 PGCB Ltd.

(Engr. Md. Azzul Islam Sarker)
 Executive Engineer (TLD-)
 Design & Quality Control
 PGCB.

(Engr. S. M. Zafrul Hasan)
 Superintending Engineer (TLD)
 Design & QC, PGCB, Dhaka.

31 JAN 2018

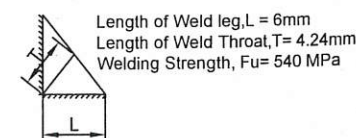
(Md. Abdur Rahim)
 Assistant Engineer
 Transmission Line Design
 PGCB, Dhaka

BILL OF MATERIAL

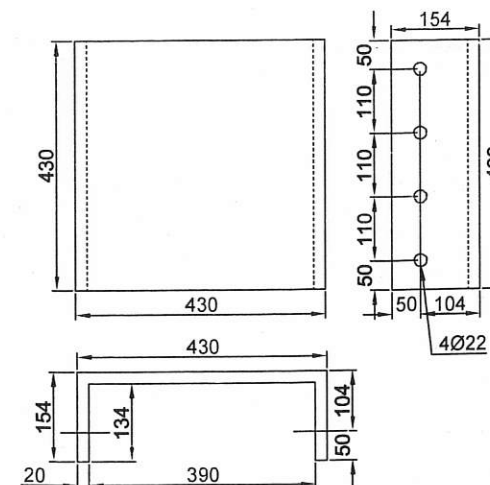
SI/No	Mark no	Qty/Pole	GRADE	Size	Pole Size			Wt/pc	Total Wt. (kg)	Remarks
					Length	Top Dia	Bottom Dia			
1	1DLP-5E	2	S275JR	PL525X4	2252	150	325	37.12	74.25	
2	1DLP-5F	2	S275JR	PL430X20	698			47.12	94.24	
3	1DLP-5G	2	S275JR	PL170X16	350			7.47	14.95	
4	1DLP-5G-A	2	S275JR	PL200X16	195			4.90	9.80	
5	1DLP-BG	2	S275JR	PL200X2	400			1.26	2.51	
6	ARM-2(ROD-1)	4	S275JR	φ16	2550			4.02	16.08	
7	ARM-2(ROD-2)	12	S275JR	φ16	260			0.41	4.92	
8	BOLT	4	5.6	M16	50			0.13	0.50	
9	BOLT	16	8.8	M20	70			0.35	5.60	
Total=									222.85	kg
TOTAL WEIGHT (GALV)=									230.65	kg

BIRD GUARD (1DLP-BG)
 PL 200X2 THK - 400 LG

NOTE FOR WELDING:

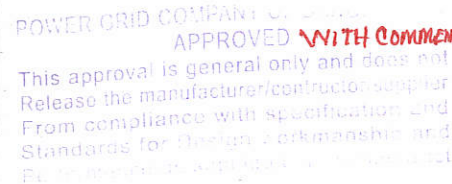
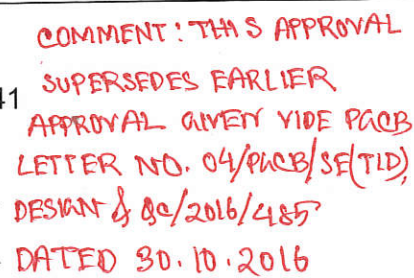


ARM-2(ROD-2)
 Ø16X260mm=12PCS

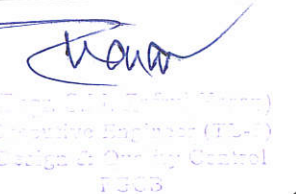


1DLP-5F
 PL 430X20 THK- 698 LG

CLIENT :		POWER GRID COMPANY OF BANGLADESH LIMITED (PGCB)			
CONTRACTOR :		JOINT VENTURE OF ZTT & SINOTEC			
MANUFACTURER :		CONFIDENCE steel limited			
TITLE:		DESIGN, SUPPLY, ERECTION, TESTING AND COMMISSIONING OF ISHURDI-ROOPPUR 132KV DOUBLE CIRCUIT TRANSMISSION LINE ON TURNKEY BASIS			
DRAWN	CHECKED	APPROVED	POLE TYPE	SCALE	
M.S.S	M.R.C	于英东	1DLP	N.T.S	
DRAWING NAME: 1DLP-DETAIL OF CROSS ARM-2					
DATE	12.12.2017	Dwg No: CSL/ZTT-SINOTEC/SD/1DLP	SHT.NO. 12/14	REV : 6	



Step Rod Detail



NOTE:

THE STANDARDS FOR MATERIAL, FABRICATION, WORKMANSHIP,
GALVANIZING, WELDING, INSPECTION, ETC.

1. MATERIAL SPECIFICATION:
 - A) FOR POLE, MATERIAL GRADE IS S355JR.
 - B) FOR BASE PLATE, MATERIAL GRADE IS S355JR.
 - C) FOR CROSS ARM MATERIAL GRADE IS S275JR.
2. ANCHOR BOLT IS 5.6 GRADE;
CROSS ARM CONNECTING BOLT GRADE 8.8.
3. GALVANIZING AS PER BSEN 1461:2009.
4. BOLTS AS PER ISO 898-1:2009; NUTS AS PER ISO 4034;
WASHER AS PER DIN127.
5. ALL DIMENSION ARE IN MM.
6. ALL MATERIALS ARE MILD STEEL IF NOT STATED OTHERWISE.
7. MARK NUMBER WITH "H" ALPHABET INDICATES HIGH TENSILE STEEL.
8. ALL STRUCTURAL WELDING SHOULD BE CARRIED OUT ACCORDING TO BSEN 61011-1 & 2.



CLIENT :	 POWER GRID COMPANY OF BANGLADESH LIMITED (PGCB)			
CONTRACTOR :	JOINT VENTURE OF ZTT & SINOTEC			
MANUFACTURER :	 CONFIDENCETM Steel Limited			
TITLE:	DESIGN, SUPPLY, ERECTION, TESTING AND COMMISSIONING OF ISHURDI-ROOPPUR 132KV DOUBLE CIRCUIT TRANSMISSION LINE ON TURNKEY BASIS			
DRAWN	CHECKED	APPROVED	POLE TYPE	SCALE
M.S.S	M.R.C		1DLP	N.T.S
DRAWING NAME: 1DLP-LADDER ARRANGEMENT				
DATE	02.02.2017	Dwg No: CSL/ZTT-SINOTEC/SD/1DLP	SHT.NO. 14/14	REV : 3