

BANGLADESH RURAL ELECTRIFICATION BOARD

PBS INSTRUCTION 100-45

STANDARD SPECIFICATIONS AND DRAWINGS FOR 33 KV LINE CONSTRUCTIONS

33 KV
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**33 KV
SPECIFICATIONS FOR CONSTRUCTION**

1. GENERAL

All Construction work shall be done in a throughout and workmanlike manner in accordance with the staking sheets, plans, specification drawings.

It may be mentioned here that some drawings in this instruction are found with 5'-0" crossarm for 300' RS (Ruling Span). These drawings can also be used for 150' RS, though they are not shown in those sections.

2. POLE DISTRIBUTION

In distribution of the poles, large, choice, close-grained, lower class poles shall be used for angle, crossing, deadend and equipment locations.

3. POLE INSTALLATION

The minimum setting depth for poles shall be as follows:

Pole Length (feet)	Setting Depth (Feet)
25	5.0
30	5.5
35	6.0
40	6.0
45	6.5
50	7.0
55	7.5
60	8.0

On sloping ground, the depth of the pole shall always be measured from lower side of the hole.

Pole holes shall be approximately eight inches (8") wider than butt diameter of the pole and shall be at least as large at the bottom as the top.

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In back filling, holes shall be tamped their full depth. Four inches (4") to six inches (6") of soil shall be shoveled into the hole around the pole and than firmly tamped. The process is repeated until the hole is filled to the surface. Excess soil is to be banked around the pole.

After completion of the job all pole locations are to be inspected and if any setting of the soil has taken place the holes in question must be re-tamped and more soil banked around the holes.

Tangent poles shall be set so that adjacent crossarm gains in opposite directions, except at terminals and deadend, where the gains of the last two poles shall be on the side facing the terminal or deadend. On unusually long spans the poles shall be set so that the crossarm comes on the side of the pole away from the long span. Where one pole top pin is used, it shall be installed on the opposite side of the pole from the gain.

Pole shall be set alignment and plumb except corners, terminals, angles, junctions or other points of strain, where they shall be set and raked against the strain so that the conductors shall be in line. These poles shall be raked against the conductor strain not less than one inch (1") for each ten feet (10') of pole length nor more than two inches (2") for each ten feet (10') of pole length after conductors are installed at required tension.

4. GRADING OF LINE

When using high poles to clear obstacle such as buildings, foreign wire crossing, railroads etc. there shall be no up-strain on pin type insulators in grading the line each way to lower poles.

5. GUY AND ANCHORS

Guys shall be installed after the poles are raked but before the conductors are strung and shall be attached to the pole as shown on the construction drawings.

All anchors & rods shall be in line with the strain and shall be so installed that approximately six inches (6") of the rod remains out of the ground. In cultivated fields or other locations as deemed necessary, the projection of anchor rod above earth may be increased to a maximum of twelve inches (12") to prevent burial of the rod eye. The back fill of all anchor holes shall be thoroughly tamped the full depth.

6. BOLTS

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PBS Instruction 100-25: Standard Specifications and Drawings for 6.6 KV-Line Construction				
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All bolts must be of the proper length. After installation the threaded portion of the bolts shall protrude at least one half inch (½") but not more than two and one half inch (2½") beyond the locknuts

7. LOCKNUTS

A locknut shall be installed with each nut on every bolt (Machine/ Double Arming/ Eye/ Oval Eye/ Upset bolt) and on all threaded hardware, such as insulators pins.

8. INSULATORS

Care is to be exercised in the handling and installation of insulators. Wear hand gloves during handling insulators. All insulators shall be inspected before installation and damaged units rejected. Suspension assemblies shall be checked to make sure that all cotter pins are securely in place. Pin type insulators shall be hand tight on the pins with the insulator grove parallel to the conductor.

9. CONDUCTORS AND SHIELD WIRES

Conductors and shield wires must be handled with care. They shall not be tramped on nor run over by vehicles. Each reel shall be examined and the wire shall be inspected for cuts, kinks/bends or other injuries. Injured portions shall be cut out and the conductor spliced. While installing the conductors they shall be pulled over suitable rollers or stringing blocks that are properly mounted on pole or crossarm. This is to prevent conductor binding while stringing and to ensure uniform conductor tensions during the sagging operation. No splices shall be pulled through stringing blocks. The neutral conductor should be maintained on one side of the pole (preferably the load side) for tangent construction and for angles not exceeding 30° be positioned in the inside of all angles.

For neutral and secondary conductors on poles, insulated brackets may be substituted for the angle and double upset bolts on angles 0° to 5° in locations known to be subject to considerable conductor vibration.

The shield wire is normally installed prior to pulling the phase conductor, due to its higher location on the pole or structure. If the phase conductors are installed prior to shield wire, it may damage the conductor during pulling up the shield wire through them.

10. CONDUCTOR ACCESSORIES

(a) TIES: Conductors shall be tied to pin insulators as illustrated in the appropriated TM40-10 (for single insulator), TM40-11 (for Double insulator) and TM40-12 Tying Guide

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PBS Instruction 100-25: Standard Specifications and Drawings for 0.25 KV Line Construction				
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Specifications. Shield wire shall be tied to spool insulator as illustrated in the Guide Drawing TM41-10. On tangent poles, they shall be tied in the top grove of the pin insulator and on the angle pole they shall be tied on the side of the pin insulators away from the strain. The top groves or side groves should be larger than the overall conductor diameter including armor rod if require.

(b) SPLICES: Conductor shall be spliced in accordance with the appropriate TM45 (splicing guide- compression type, ACSR conductor) and TM46 (automatic sleeve installation guide) Splicing/ Sleeve Installation Guide Specifications. All conductors shall be thoroughly cleaned by wire brushing and corrosion inhibitor applied before splicing or the installing conductors or clamps over aluminum conductor. Only one splice per conductor is permitted in any span. Splices are not permitted in deadend span, Grade B crossing spans and preferably not in the adjacent spans of Grade B crossing. Splices shall be located at least ten feet (10') from the nearest conductor support. Over highways, main road, railway, building or any other such obstacles and adjacent span of such span (if it is not deadend point) there should be any joint.

The conductor or OHGH should not be made any contact with ground or any obstacles such as walls, fences or building etc.

(c) TAPS AND JUMPERS: Jumper connectors shall be installed approximately six inches (6") from the line guard. Jumpers and other leads connected to conductors shall have sufficient slack to allow free movement of conductors. Where slacks in the jumpers or leads is not shown in the construction drawings, it shall be provided by at least two bends in a vertical plane, or one in a horizontal plane or the equivalent. All leads on equipment such as transformers, re-closers etc. shall be a minimum number 6 cooper conductivity. Where aluminum jumpers are used, a connection to a un-plated bronze terminal shall be made by splicing a short stub of cooper to the aluminum jumper using a suitable aluminum compression connector.

(d) HOT LINE CLAMPS AND CONNECTORS: Connectors and hot line clamps are suitable for the purpose shall be installed as shown on the Guide Drawings. On all hot line clamp installation, the clamps and jumper shall be so installed so that they are permanently bonded to the load side of the line, allowing the jumper to be de-energized when clamp is disconnected. This applies in all cases, even where the line is such that the tap line is in actually the back bone to the power source.

11. LIGHTNING ARRESTER GAP SETTING

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PBS Instruction 100-46: Standard Specifications and Drawings for 6.25/3 KV Line Construction				
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The external gap electrodes of lightning arresters, combination arrester-cut-out units and transformer mounted arresters shall be adjusted to the manufacturer's recommended spacing. Care shall be taken that the adjusted gap is not distributed when the equipment is installed.

12. SAGGING OF CONDUCTORS

The conductors shall be sagged in accordance with the appropriate sag table. The air temperature at that time and place of sagging shall be determined by a certified etched glass thermometer. Conductor of the same size shall be sagged evenly. In no case shall a conductor be drawn up tighter than specified for the particular conductor ruling span and temperature. Tolerance in stringing sags shall be zero inches (0") up and three inches (3") down.

13. SECONDARIES AND SERVICE DROPS

Conductor for secondary underbuilt on primary lines and off-line secondary (LT) shall be bare except in those instances where prevailing conditions may dictate that service cables must be used. Secondary conductor shall have a sufficient capacity to carry anticipated future load and shall be sagged in accordance with the appropriate sag and tension table.

Service drops shall be multiplex service cable. The service cable shall have an adequate capacity to carry anticipated future loads and shall be sagged to provide more than minimum vertical clearance over obstacles as required on Guide Drawing M50.

Secondaries and service drops shall be so installed as not to obstruct climbing space. There shall not be more than one splice per conductor in any span and splicing sleeves shall be located at least ten feet (10') from the conductor support. Where the same covered conductors or service cables are to be used for the secondary and service drop, they may be installed in one conditions run.

14. EQUIPMENT GROUNDS AND POLE PROTECTION

At the initial stage of RE (Rural Electric) program, one (1) 8'x5/8" hot dip galvanized MS ground rod was installed/ driven at every equipment installation and all surge arrester locations. Due to enhance use of underground water one ground rod is enough to maintain minimum ground resistance. For grounding purpose circular of Chief Engineer (Project) vide memo no. 202, dated 30/09/2018 and PBS Instruction 100-22 must be followed. The ground rod shall be driven full length into un-distributed earth and in accordance with Grounding Assembly unit M2-1. The top shall be at least twelve inches (12") below the surface of the earth. The ground wire shall be attached to the rod with a clamp and secured to the pole. Each

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transformer and automatic re-closer installation shall two (2) separate connections from the frame or tank to multi-grounded neutral conductor and ground.

For safety of switch operator, four (4) ground rods shall be installed at every sectionalizing air break switch installation (Refer to Grounding Assembly unit M2-15).

A driven ground rod (M2-1) or a guy/anchor combination may be used for pole protection purposes. When neither of the above is available and pole protection is required, a butt type grounding plate shall be installed (refer to Pole Protection Assembly unit M2-2). Pole protection shall not be installed at Grade B crossing.

The equipment ground, neutral conductor and lightning arresters shall be interconnected and attached to a common ground wire.

The correct quadrant location for the ground wire on a pole is depicted or noted on each individual Pole Top Construction Assembly Unit. The ground wire shall have a minimum clearance of two inches (2") from all pole line hardware and be securely stapled to maintain this position.

15. RIGHT OF WAY

The right of way shall be cleared by removing under-bushes and trees and trimming adjacent trees so that the right of way is clear from the ground up and to the width required. Trees will be trimmed symmetrically unless otherwise specified. Dead trees beyond the right of way which could strike the line if they fell shall be removed. Leaning trees beyond the right of way which would strike the line in falling shall be topped or removed. Palm trees requiring topping shall be removed in their entirety. Rapidly growing trees that could be a threat to the line shall be removed. Fruit trees and ornamental trees shall be trimmed and not removed unless otherwise authorized.

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PBS Instruction 100-26: Standard Specifications and Drawings for 0.75 KV Line Construction				
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**33 KV
DOUBLE CIRCUIT DESIGN CRITERIA**

1. GENERAL

The following information specifies special design criteria and requirements that must be considered when two 33 KV sub-transmission circuits are to be placed in a common use (double circuit single/double pole) line configuration.

2. DESIGN PHILOSOPHY

The primary objective of a common use pole line is to achieve savings of materials, costs and right of way by eliminating one pole line. However, when contemplating a common use pole line the designer must also be aware that there are also certain disadvantages to this type of construction. A major disadvantage is that two circuits on a single pole line the probability of outage to both the distribution line is increased. Also, this type of line configuration will be somewhat more difficult. Large line angle, equipment locations and installations, guying, deadends, tap-offs, and sub-station exists all presents unique design problems which will be encountered and must be solved. The advantages and disadvantages must be carefully weighed against each other before a decision to construct a double circuit line is finalized.

3. STAKING CONSIDERATIONS

The Double Circuit Pole Top Assembly Units were designed using the criteria that the "express" circuit will be the top circuit. An express circuit is one which carries a block of energy from one point to another without disturbing energy along the way. The bottom circuit of the double circuit line will be the source for all taps take-off and transformer installations.

The double circuit line should be as straight as possible between terminations as any increase in the number of line angles and control points will result in an increase in the cost of the line. Large line angles which require vertical construction should be avoided is at all possible. Vertical angles are turned on three separate poles which not only requires more right of way but will be substantially more expensive to construct. Also due to inherent design of the vertical corners, there may be instances wherein standard BREB phase positions cannot be followed.

4. POLE TOP ASSEMBLY UNITS

The Double Circuit Construction Assembly Units consist of two 33 KV circuits, sharing common multi-grounded neutral. For horizontal construction, one common use pole is utilized

BANGLADESH RURAL ELECTRIFICATION BOARD				
PBS Instruction 100-46: Standard Specifications and Drawings for 33 KV Line Construction				
Date of Origin	Reviewed By	Approved By	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	Specifications
Revision Date: July 1980, June 1981, August 1989, July 1995, August 2013 & February 2020				

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৬২১ তম বোর্ড সভায় অনুমোদিত সিদ্ধান্ত নং ১৭৭০০

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Asst.

with three phase conductors of one 33 KV circuit located at the top position of the pole and the phase conductor of the other 33 KV circuit, along with a neutral common to both circuits, located at the bottom position of the pole. For vertical construction three poles are utilized with like phases attached to a common pole. Note that the yellow phases and the common neutral conductor are always attached to the center pole, whereas the poles to which the Red or Blue phase are attached will be dictated by the direction of the line angle.

The series of the 33 KV Double Circuit Pole Top Assembly Units are identified by a "DC" prefix. These drawings supplement and are to be used in conjunction with the latest revision of the "Standard Specifications and Drawings For 33 KV Line Construction" PBS Instruction 100-45.

5. NOMINAL POLE SIZE-CLASS AND SPAN LENGTH

The nominal pole height and class to be used with tangent construction under level ground conditions using the normal span length as stipulated below will be 45'-4.

The nominal span length for tangent construction using a 45'-4 pole under level ground condition shall be 200' for rural areas and for bazar and town it should be 150'.

Note that the minimum conductor clearance as stipulated on Guide Drawing TM50 as found in PBS Instruction 100-45 will dictate the actual span length and pole height required.

6. PHASE AND COMMON NEUTRAL CONDUCTORS

The Double Circuit Pole Top Assembly Units were designed using Hawk (477 mcm), Grosbeak (636 mcm), Mallard (795 mcm) conductor and a 4/0 ACSR or Hawk conductor may be used as common neutral conductor. These conductors are to be sagged in accordance with sag table attached with PBS Instruction 100-45.

7. GUY AND ANCHORS

The guying requirement for three (3) horizontal crossarm configuration, each crossarm load is to be guyed separately. If a down guy is used for the top crossarm of a DC-T2 unit, the guy must be located on the bisector of the angle and opposite to the resultant of tension for the angle up to sixty degree (60°) and positioned to ensure that there is adequate, guy to phase conductor clearance. A down guy for the top the top crossarm may not have adequate clearance on the side of the pole on which the two phase conductors are located in the lower crossarm. For the DC-T8 unit, if there is an angle, the similar thing like DC-T2 may happen. In instances where a top circuit down guy cannot be installed, a overhead guy with a stub pole

BANGLADESH RURAL ELECTRIFICATION BOARD				
PBS Instruction 100-45: Standard Specifications and Drawings for 33 KV Line Construction				
Date of Origin	Reviewed By	Approved By	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	Specifications
Revision Date: July 1980, June 1981, August 1989, July 1995, August 2013 & February 2020				

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must be utilized. The stub pole height must be adequate enough to maintain a minimum of two feet (2') clearance (in all directions) between the top circuit overhead guy and the bottom circuit phase conductors.

On angles up to sixty degree (60°) to ninety degree (90°), head and back guy are to be used. If 4-pole structure is used, head and back space are free, so there will not be obstruction of guying.

Special guying instructions are noted on each individual construction drawing.

BANGLADESH RURAL ELECTRIFICATION BOARD				
PBS Instruction 100-26 : Standard Specifications and Drawings for 6.6 KV Line Construction				
Date of Origin	Reviewed By	Approved By	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	Specifications
Revision Date: July 1980, June 1981, August 1989, July 1995, August 2013 & February 2020				

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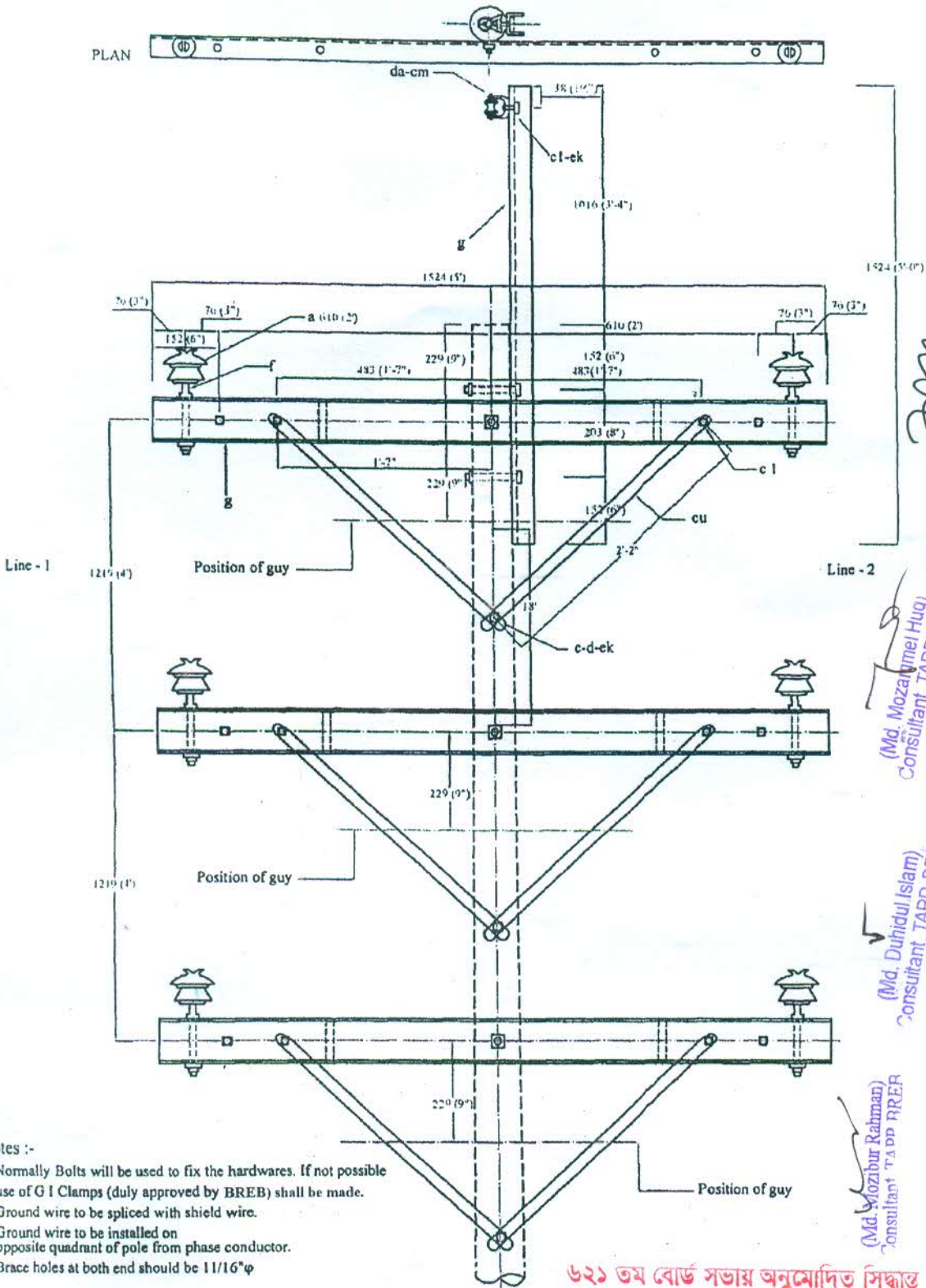
(Md. Mozammel Haq) (Md. Abdul Khaleque)
Consultant, TAPP, BREB Consultant, TAPP, BREB

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৬২১ তম বোর্ড সভায় অনুমোদিত সিদ্ধান্ত নং ১৭৭০০



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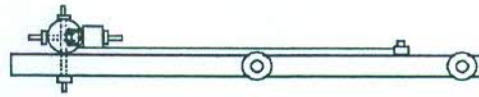
(Md. Ahsanul Hameed)
Consultant, TAPP, BREB

- Notes :-
1. Normally Bolts will be used to fix the hardware. If not possible use of G I Clamps (duly approved by BREB) shall be made.
 2. Ground wire to be spliced with shield wire.
 3. Ground wire to be installed on opposite quadrant of pole from phase conductor.
 4. Brace holes at both end should be 11/16"φ

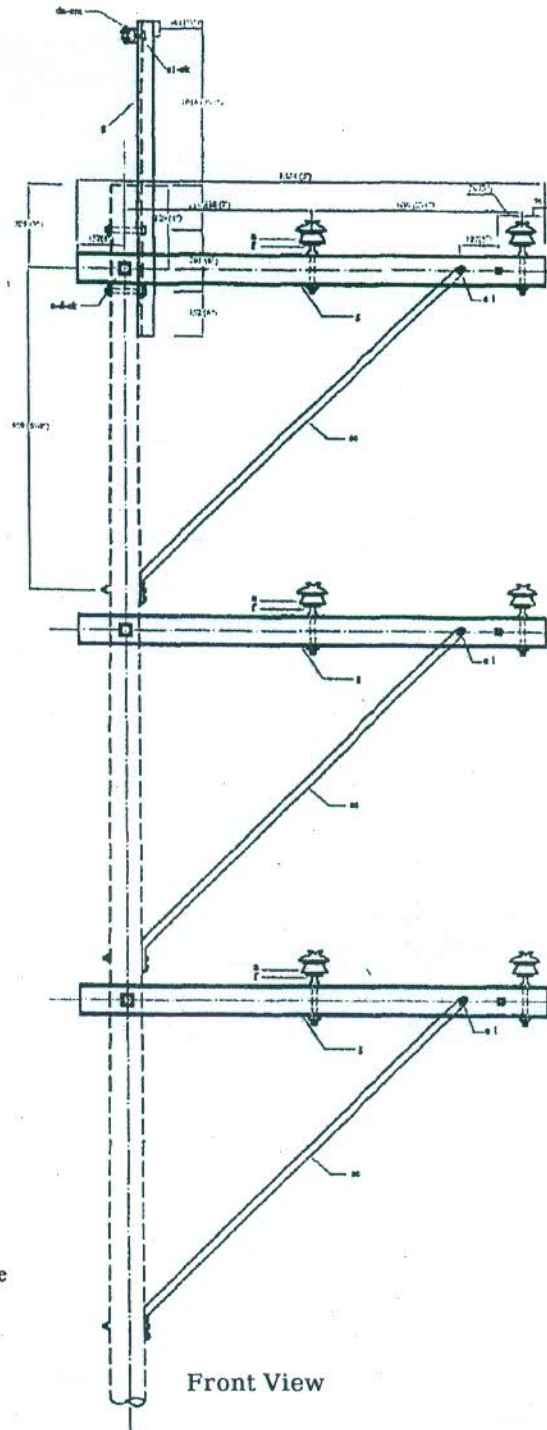
৬২১ তম বোর্ড সভায় অনুমোদিত সিদ্ধান্ত নং ১৭৭০০

ITEM	MAT. CODE	Qty.	MATERIAL	ITEM	MAT. CODE	Qty.	MATERIAL
a	C 5	06	Insulator, Pin type 33 Kv	cm	C 3	01	Insulator spool type (1 1/2")
c	B 6/7/8	08	Bolt, m/c, 5/8" x required length	cu	B41/B41.1/B44	06	Brace, Steel/ Wood, 28" x 1/4"
d	B 46	08	Washer, 2 1/4" Square, Flat, 11/16" holes	ek	B 50	15	Lock nut, 5/8"φ
f	B 122	06	Pin, Crossarm	c	B 3	07	Bolt, Machine 1/2" x 1 1/2"
g	X-6	04	Crossarm, steel channel 4" x 2" x 2" x 1/2" x 5'-0"	da	B 72	01	Bracket, secondary
c	B95	01	Bolt, Machine, 5/8" x 1-1/2"				

BANGLADESH RURAL ELECTRIFICATION BOARD				
Unit Description: 33 KV DOUBLE CKT. STANDARD FOR NARROW PROFILE WITH STEEL CROSSARM CONSTRUCTION (TANGENT)				
Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	DC-T1
Revision Date: July 1980, June 1981, August 1989, July 1995, August 2013, February 2020				



Top View



Front View

৬২১ তম বোর্ড সভায় অনুমোদিত সিদ্ধান্ত নং ১৭৭০০


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Notes :-

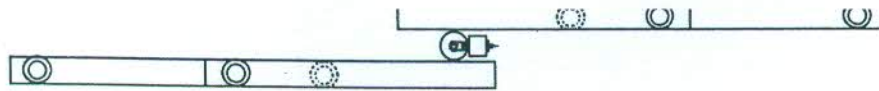
1. Normally Bolts will be used to fix the hardware. If not possible use of G I Clamps (duly approved by BREB) shall be made.
2. Ground wire to be spliced with shield wire.
3. Ground wire to be installed on opposite quadrant of pole from phase conductor.
4. Brace holes at both end should be $11/16''\phi$

ITEM	MAT. CODE	Qty.	MATERIAL	ITEM	MAT. CODE	Qty.	MATERIAL
a	C-5	12	Insulator, Pin type 33 Kv	da	B 72	01	Bracket, secondary
c	B 6/7/8	05	Bolt, m/c, 5/8" x required length	cm	C 3	01	Insulator spool type (1 1/4")
d	B 46	05	Washer, 2 1/4" Square, Flat, 11/16" holes	ac	B43/B43.1/B43.2	12	Brace, steel, side arm, 7' / 60" / 25"
f	B 122	12	Pin, Crossarm	ek	B 50	42	Lock nut 5/8"φ
g	X-6	07	Crossarm, steel channel 4" x 2" x 2" x 1/4" x 5'-0"	cl	B3	07	Bolt, Machine 1/2" x 1 1/2"
				n	B 26-28	09	Bolt, Arming 5/8"

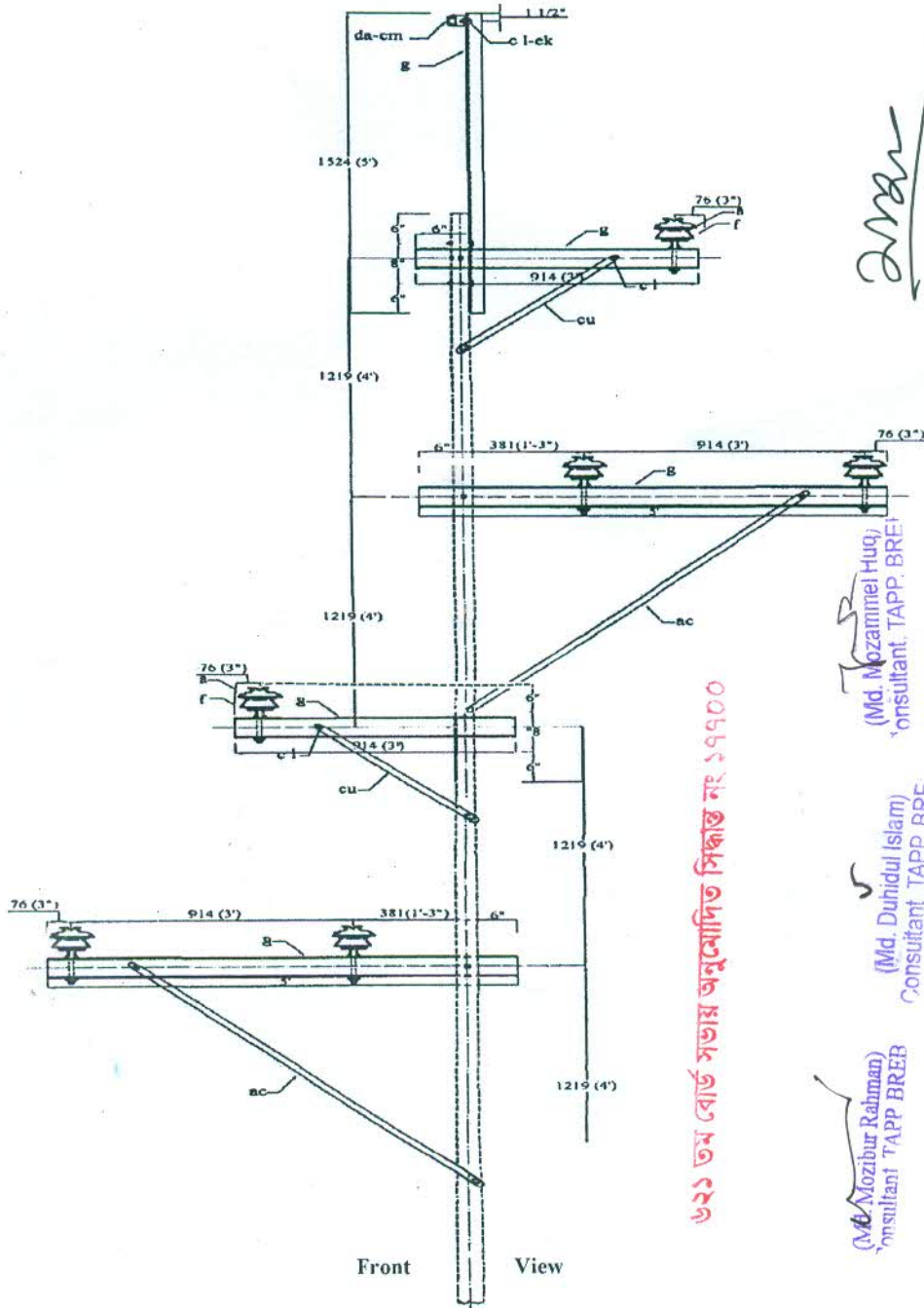
BANGLADESH RURAL ELECTRIFICATION BOARD

Unit Description: 33 KV DOUBLE CKT. STANDARD FOR NARROW PROFILE WITH STEEL CROSSARM CONSTRUCTION (UPTO 0° TO 10° ANGLE)

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	DC-T2



Top View



Front View

৬২১ তম বোর্ড সভায় অনুমোদিত সিদ্ধান্ত নং ১৭৭০০

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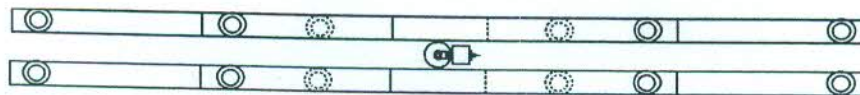
Item Code	Item No.	Material	Unit	Qty
a	C5	Insulator, Pin Type, 34.5 KV	No.	6
f	B122	Pin, Crossarm, 17"	No.	6
cu	B42.1/42.2	Brace, Steel 60"/25" Span	No.	4
c	B6/7/8	Bolt Machine, 5/8" x Req Length	No.	4
d	B46	Washer, Square, 2 1/4" x 2 1/4", as required	No.	-
c	B3	Bolt Machine, 1/2" x 1 1/2"	No.	5
c	B4/4.1/4.2/4.3	Bolt Machine, 1/2" x Req Length	No.	4
da	B72	Bracket, Secondary	No.	1
cm	C2/C3	Insulator, Spool, 1 3/4" grove dia	No.	1
ek	B50/138	Lock Nut, 5/8" dia, As required	No.	-
ek		Lock Nut, 1/2" dia	No.	-
g	X5	Crossarm, Steel 4" x 2" x 2" x 1/4" x 3'-0"	No.	2
g	X6	Crossarm, Steel 4" x 2" x 2" x 1/4" x 5'-0"	No.	2
c	B95	Bolt, Machine, 5/8" x 1-1/2"	No.	1

BANGLADESH RURAL ELECTRIFICATION BOARD

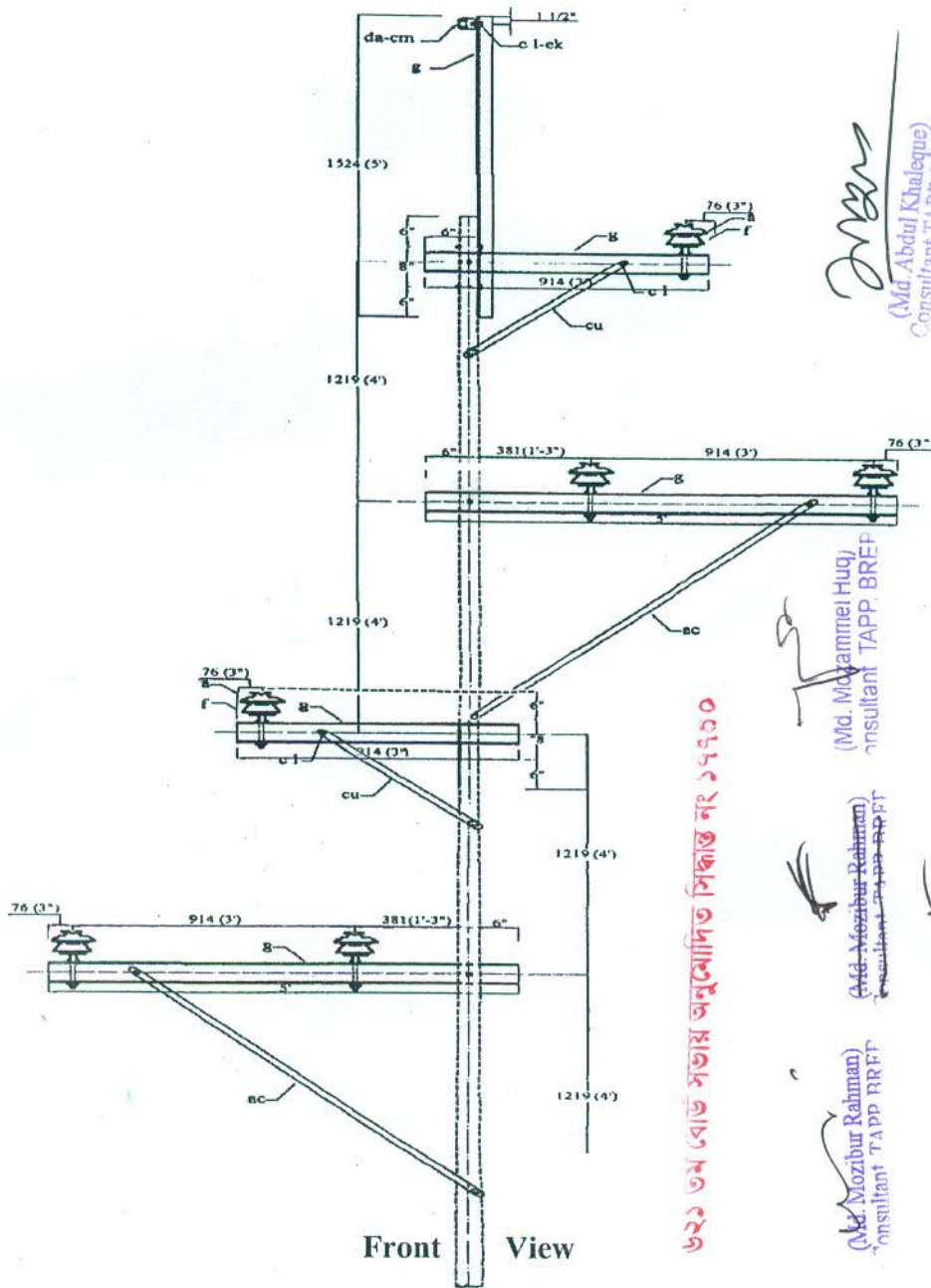
Unit Description: 33 KV DOUBLE CIRCUIT STEEL CROSSARM CONSTRUCTION, SINGLE SUPPORT WITH SHIELD WIRE

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation: DC-T2A
	BREB	BREB	-	

Revision Date: July 1980, June 1981, August 1989, July 1995, August 2013, February 2020



Top View



Front View

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Item Code	Item No.	Material	Unit	Qty
a	C5	Insulator, Pin Type, 34.5 KV	No.	12
f	B122	Crossarm Pin, 5/8" x 17"	No.	12
cu	B42.1/42.2	Brace, Steel 60"/25" Span	No.	8
c	B6/7/8	Bolt Machine, 5/8" x required length	No.	4
d	B46	Washer, Square, 2 1/4" x 2 1/4" as required	No.	-
c	B3	Bolt Machine, 1/2" x 1 1/2"	No.	9
c	B4/4.1/4.2/4.3	Bolt Machine, 1/2" x Req Length	No.	4
da	B72	Bracket, Secondary	No.	1
cm	C2/C3	Insulator, Spool, 1 3/4" groove dia	No.	1
ck	B50/138	Lock Nut, 5/8" dia, as required	No.	-
ck		Lock Nut, 1/2" dia, as required	No.	-
g	X5	Crossarm, Steel 4" x 2" x 2" x 1/4" x 3'-0"	No.	4
g	X6	Crossarm, Steel 4" x 2" x 2" x 1/4" x 5'-0"	No.	4
c	B95	Bolt, Machine, 5/8" x 1-1/2"		

BANGLADESH RURAL ELECTRIFICATION BOARD

Unit Description: 33KV DOUBLE CIRCUIT STEEL CROSSARM CONSTRUCTION, DOUBLE SUPPORT WITH SHIELD WIRE

Date of Origin

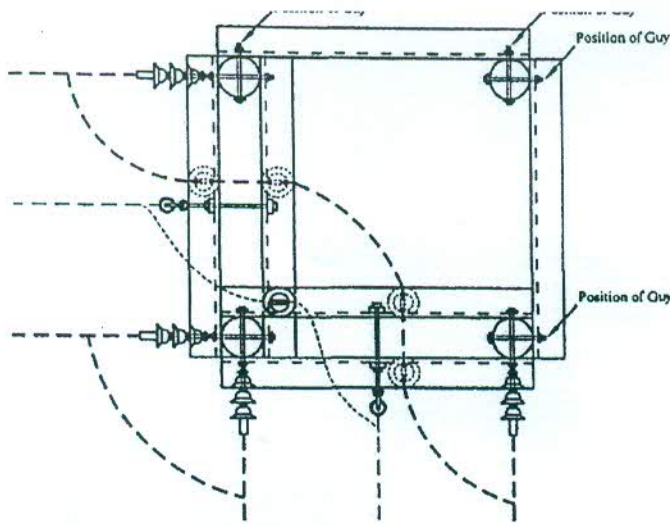
Reviewed by
BREB

Approved by
BREB

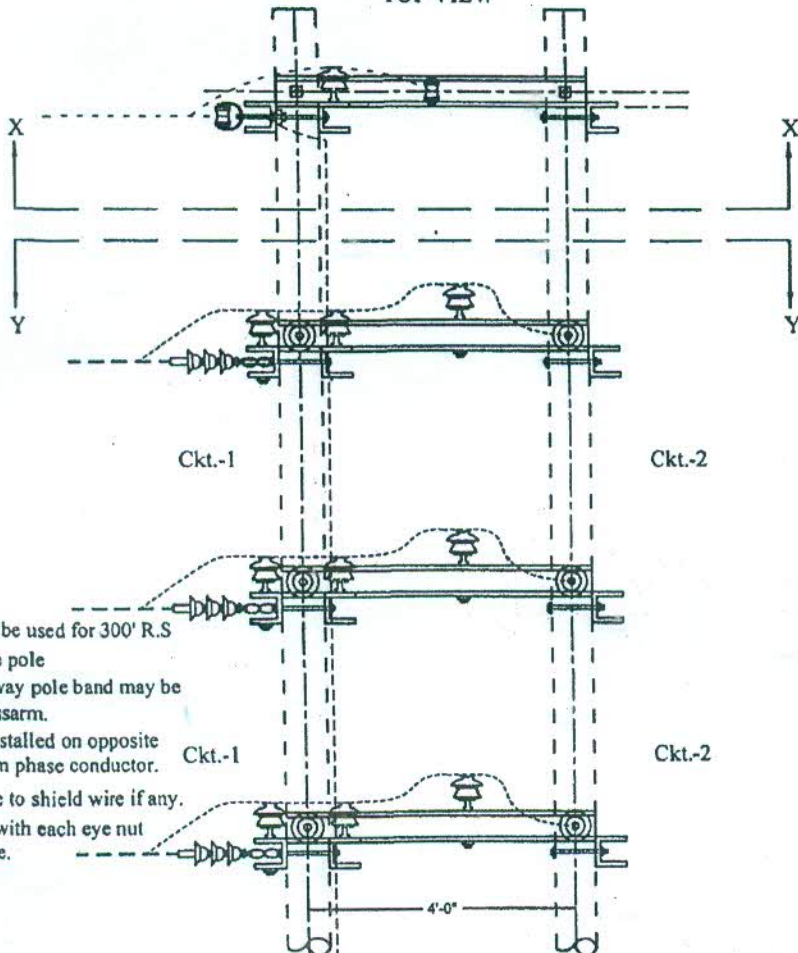
Revision No.

Unit Designation:
DC-T2B

Revision Date: July 1980, June 1981, August 1989, July 1995, August 2013, February 2020



TOP VIEW



Note:

1. Hawk conductor can be used for 300' R.S
 2. If proper holes on the pole are not available, 4-way pole band may be used for holding crossarm.
 3. Ground wire to be installed on opposite quadrant of pole from phase conductor.
- Connect ground wire to shield wire if any.
Use anchor shackle with each eye nut if necessary for angle.

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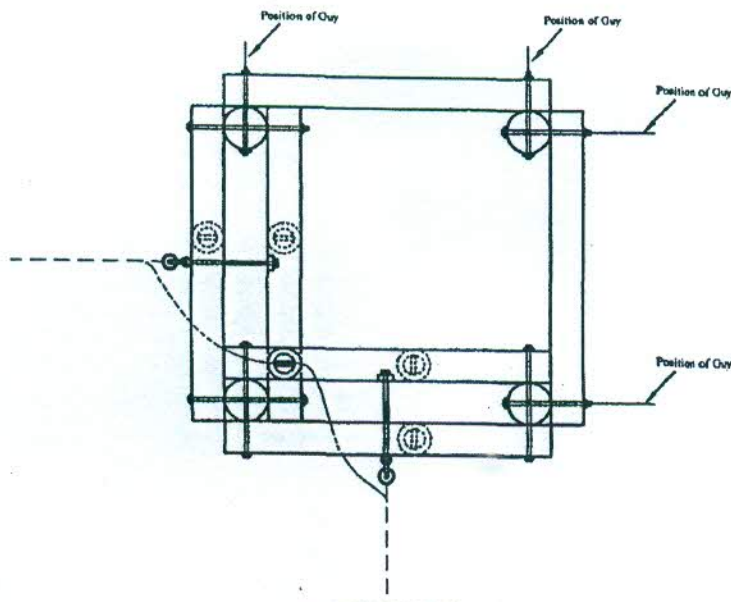
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ITEM	MATERIAL CODE	No.	MATERIAL	ITEM	MATERIAL CODE	No.	MATERIAL
a	C5	13	Insulator, pin type, 34.5 KV	n	B28/29/30	24	Bolt, Double Arming 5/8" x required length
c	B8/9/10	16	Bolt, Machine 5/8" x required length	aa	B53	14	Nut, eye, 5/8"
d	B46	16	Washer, 2 1/4" Square, Flat, 11/16" hole.	s	B73	02	Clevis, Secondary, Bracket
f	B122	13	Pin, crossarm, 3/4" x 17", 33 kv	cm	C3	02	Insulator, spool type, (1-3/4)"
k	C11	36	Insulator, Suspension, 34.5 KV	ek	B50	80	Lock Nut
g	X6	24	Crossarm, steel, 4" x 2" x 2" x 1/4" x 5'-0"	f	B132/133	12	Clamp, Deadend
bn	B85	04	Clamp, Loop deadend	bo	B55	14	Anchor, shackle

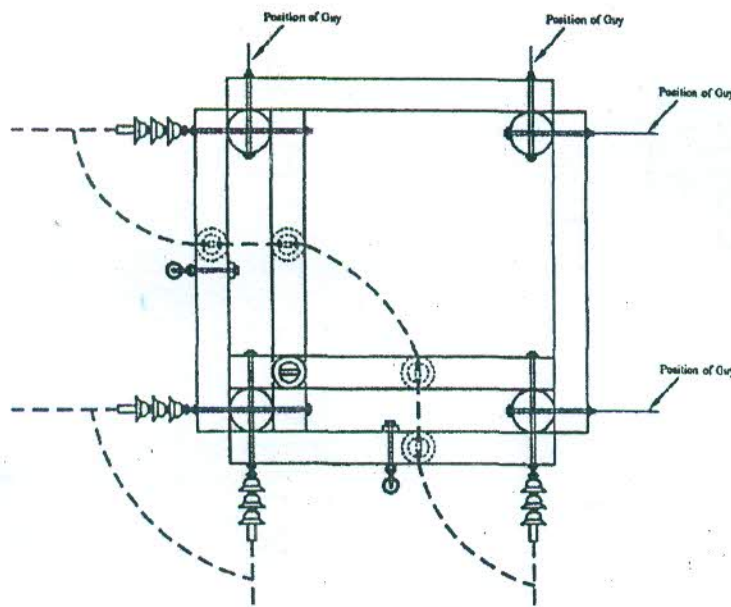
BANGLADESH RURAL ELECTRIFICATION BOARD

Unit Description: 33 KV DOUBLE CKT. STANDARD FOR NARROW PROFILE CONSTRUCTION (MORE THAN 30° ANGLE)

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	DC-T4



TOP VIEW
Section X-X



TOP VIEW
Section Y-Y

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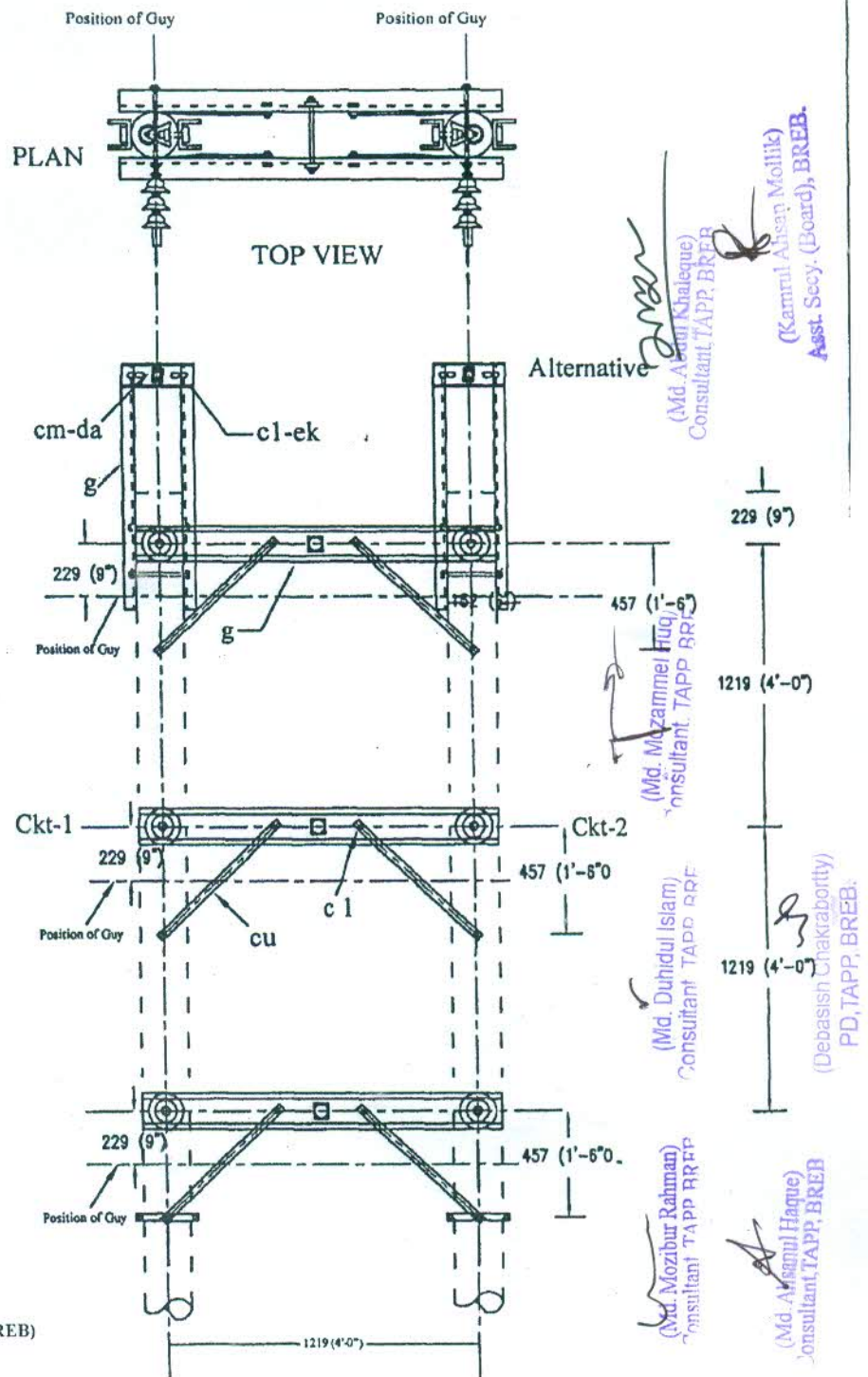
(Md. Ansamul Haque)
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BANGLADESH RURAL ELECTRIFICATION BOARD

Unit Description: 33 KV DOUBLE CKT. STANDARD FOR NARROW PROFILE CONSTRUCTION
(MORE THAN 30° ANGLE)

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	DC-T4

৬২১ তম বোর্ড সভায় অনুমোদিত সিদ্ধান্ত নং ১৭৭০৩



- Note:**
1. D is the diameter of the pole, at the location of installation of clamps.
 2. Use stub pole for guying where necessary.
 3. Brace hole at both end should be 11/16"φ
 4. Hawk conductor can be used for 300' R.S
 5. Ground wire to be installed on opposite quadrant of pole from phase conductor.
Splice ground wire with shield wire if any.
 7. Normally Bolts will be used to fix the hardwares.
If not possible use of G I Clamps (duly approved by BREB) shall be made.

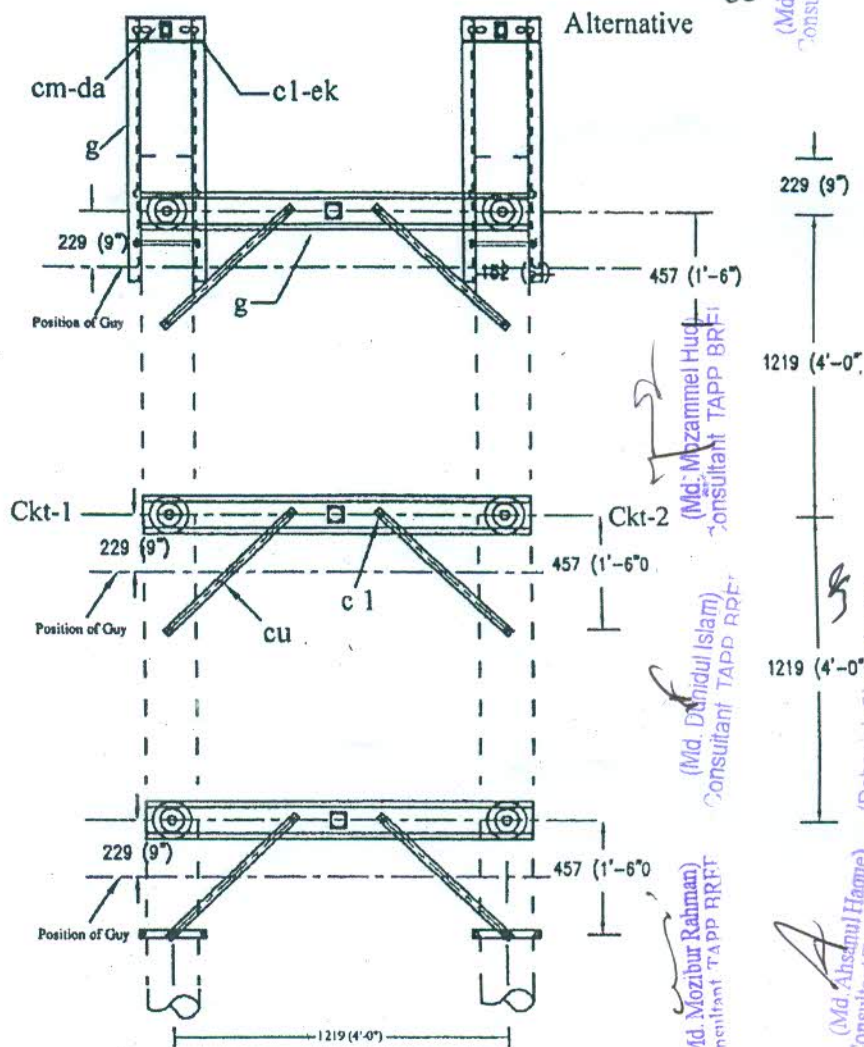
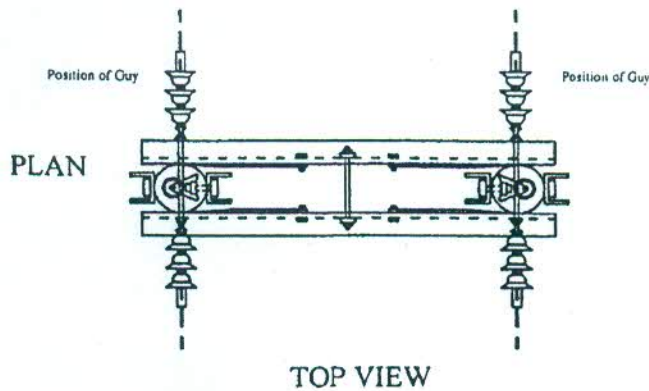
ITEM	MAT. CODE	Qty.	MATERIAL	ITEM	MAT. CODE	Qty.	MATERIAL
c	B6/7/8	06	Bolt, Machine 5/8" x required length	n	B26/27/28	09	Bolt, Double Arming 5/8" x required length
d	B 46	04	Washer, 2 1/4" Square, Flat, 11/16" hole.	aa	B 53	07	Nut, eye, 5/8"
ek	B50	45	Lock Nut 5/8"φ	cm	C 2/3	01	Insulator, spool type, (1-3/4)"
k	C11	18	Insulator, Suspension, 34.5 KV	cu	B41/B41.1/B44	12	Brace, Steel/ Wood, 28" x 1/4"
g	X6	08	Crossarm, steel, 4" x 2" x 2" x 1/4' x 5'-0"	l	B132/133	06	Clamp deadend
-	-	2 sets	Galvanized steel clamp with nuts & bolts	c	B3	15	Bolt, Machine 1/2" x 1 1/2"
s	B73	02	Clevis, secondary swinging	bo	B55	01	Shackle, anchor
c	B95	02	Bolt, Machine, 5/8" x 1-1/2"				

BANGLADESH RURAL ELECTRIFICATION BOARD

Unit Description: 33 KV DOUBLE CKT. STANDARD FOR NARROW PROFILE CONSTRUCTION (SINGLE DEADEND) (USING GS CLAMP FOR BOTTOM BRACE FITTING)

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	DC-T7

Revision Date: July 1980, June 1981, August 1989, July 1995, August 2013, February 2020



৬২১ তম বোর্ড সভায় অনুমোদিত সিদ্ধান্ত নং ১৯৭০০

Note:

1. D is the diameter of the pole, at the location of installation of clamps.
2. Use stub pole for guying where necessary.
3. Brace hole at both end should be $11/16'' \phi$
4. Hawk conductor can be used for 300' R.S
5. Ground wire to be installed on opposite quadrant of pole from phase conductor.
6. Splice ground wire with shield wire if any.
7. Use anchor shackle with each eye nut If necessary for angle.
8. Normally Bolts will be used to fix the hardwares. If not possible use of G I Clamps (duly approved by BREB) shall be made.

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(Md. Mozibur Rahman)
 Consultant TAPP BREB

(Md. Debidul Islam)
 Consultant TAPP BREB

(Md. Ahsanul Haque)
 Consultant TAPP BREB

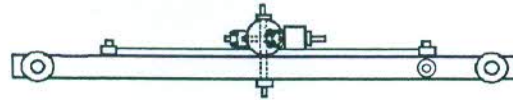
(Debasish Chakraborty)

ITEM	MAT. CODE	Qty.	MATERIAL	ITEM	MAT. CODE	Qty.	MATERIAL
c	B7/8	06	Bolt, Machine 5/8" x required length	n	B26/B27/B28	09	Bolt, Double Arming 5/8" x required length
d	B46	04	Washer, 2 1/4" Square, Flat, 11/16" hole.	aa	B53	14	Nut, eye, 5/8"
ek	B50	45	Lock Nut	cm	C3	02	Insulator, spool type, (1-3/4")
k	C11	36	Insulator, Suspension, 34.5 KV	cu	B41/41.1/44	12	Brace, Steel/ Wood, 28" x 1/4"
g	X6	08	Crossarm, steel, 4" x 2" x 2" x 1/4" x 5'-0"	bn	B85	04	Clamp, loop deadend
-	-	2 sets	Galvanized steel clamp with nuts & bolts	s	B73	18	Clevis, secondary swinging
l	B132/133	12	Clamp, deadend	c	B3	02	Bolt, Machine 1/2" x 1 1/2"
bo	B55	02	Shackle, anchor	c	B95	02	Bolt, Machine, 5/8" x 1 1/2"

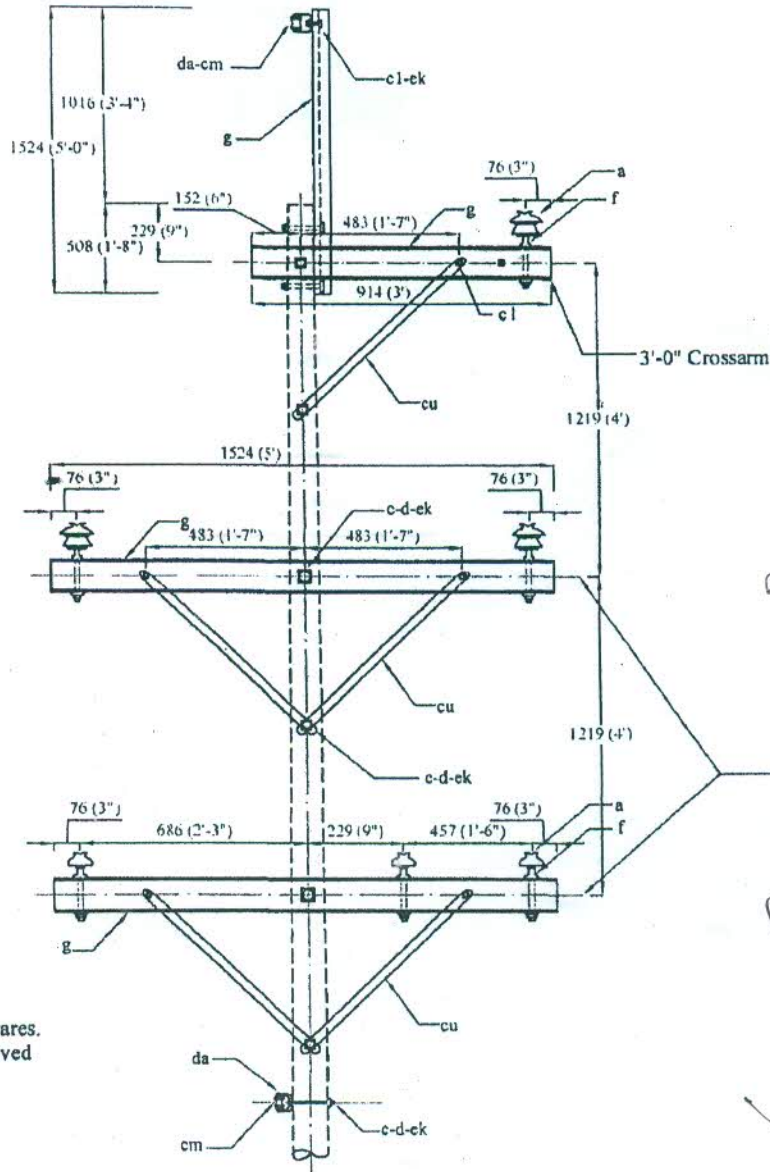
BANGLADESH RURAL ELECTRIFICATION BOARD

Unit Description: 33 KV DOUBLE CKT. STANDARD FOR NARROW PROFILE CONSTRUCTION (DOUBLE DEADEND) (USING GS CLAMP FOR BOTTOM BRACE FITTING)

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	DC-T8



Top View



Single Ckt. 33 KV & Single Ckt. 11 KV For Tangent Construction

Front View

Note :-

- Normally Bolts will be used to fix the hardwares. If not possible use of G I Clamps (duly approved by BREB) shall be made.
- Brace holes at both end should be $11/16''\phi$

(Signature)
(Md. Abdul Khaleque)
Consultant, TAPP, BREB

৬২১ তম বোর্ড সভায় অনুমোদিত সিদ্ধান্ত নং ১৭৭০০৬

(Signature)
(Md. Mazammel Haq)
Consultant, TAPP, BREB

(Signature)
(Kamrul Ahsan Mollik)
Asst. Secy. (Board), BREB.

(Signature)
(Md. Duhidul Islam)
Consultant, TAPP, BREB

(Signature)
(Debasish Chakraborty)
PD, TAPP, BREB

(Signature)
(Md. Mozibur Rahman)
Consultant, TAPP, BREB

(Signature)
(Md. Ahsanul Haque)
Consultant, TAPP, BREB

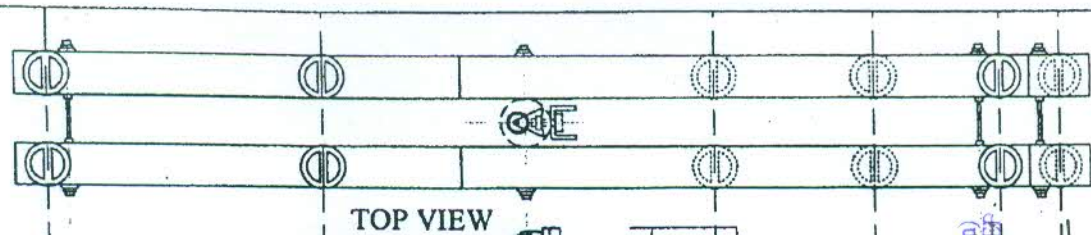
ITEM	MAT. CODE	Qty.	MATERIAL	ITEM	MAT. CODE	Qty.	MATERIAL
a	C-5	03	Insulator, Pin type 33 Kv	da	B 72	02	Bracket, secondary
a	C-1	03	Insulator, Pin type 11 Kv	cm	C 3/2	02	Insulator spool type (1 1/4")
c	B 5/6/7	09	Bolt, m/c, 5/8" x required length	cu	B41/B41.1/B44	05	Brace, Steel/ Wood, 28" x 1/4"
f	B 1	03	Pin, Crossarm, steel, 5/8" x 10 1/2"	ek	B 50	15	Lock nut 5/8"φ
f	B 122	03	Pin, Crossarm	c	B3	06	Bolt, Machine 1/2" x 1 1/2"
g	X-5	01	Crossarm, steel channel 4" x 2" x 2" x 1/4" x 3'-0"	d	B 46	08	Washer, 2 1/2" Square, Flat, 11/16" holes
g	X-6	03	Crossarm, steel channel 4" x 2" x 2" x 1/4" x 5'-0"				

BANGLADESH RURAL ELECTRIFICATION BOARD

Unit Description: 33 KV & 11 KV MIXED CIRCUIT, STEEL CROSSARM CONSTRUCTION- TANGENT

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	MC-1

Revision Date: July 1980, June 1981, August 1989, July 1995, August 2013, February 2020

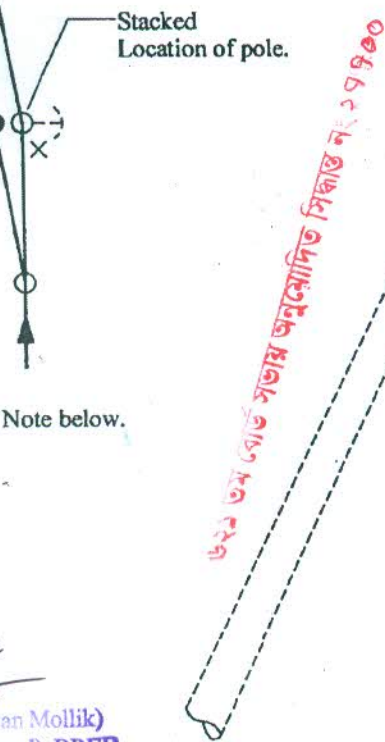
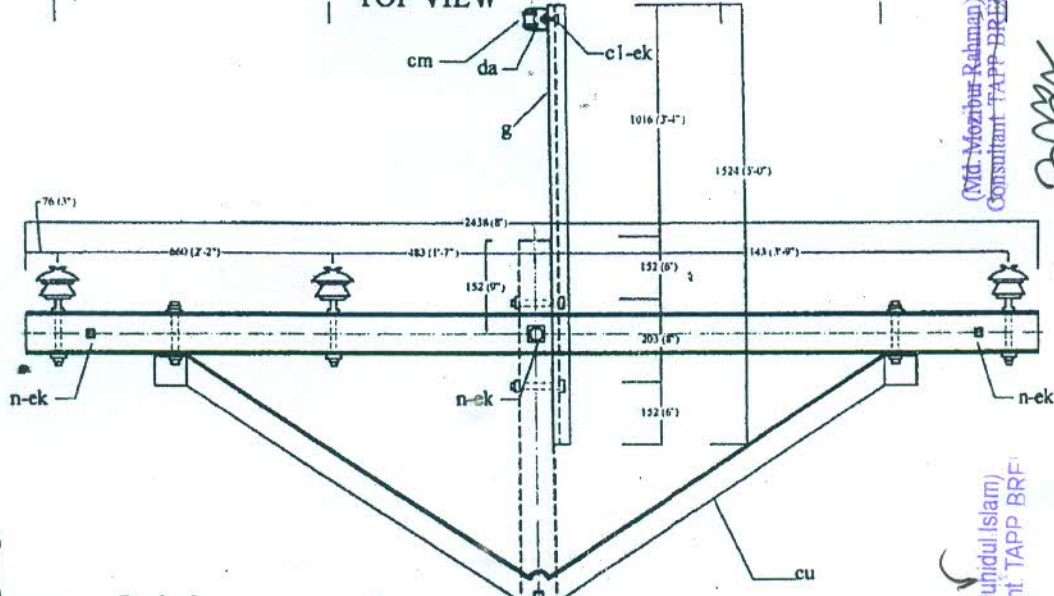


TOP VIEW

(Md. Mozammel Haq)
Consultant, TAPP, BREB

(Md. Mozibur Rahman)
Consultant, TAPP, BREB

(Md. Abdul Khaleque)
Consultant, TAPP, BREB



৬২২ তম কোড সভায় অনুমোদিত সিদ্ধান্ত নং ১৭৭৯০

(Kamrul Ahsan Mollik)
Asst. Secy. (Board), BREB.

(Md. Dujidul Islam)
Consultant, TAPP, BREB

(Debasish Chakraborty)
PD, TAPP, BREB

(Md. Mozibur Rahman)
Consultant, TAPP, BREB

(Md. Ahsanul Haque)
Consultant, TAPP, BREB

Note:-

1. Normally Bolts will be used to fix the hardwares. If not possible use of G I Clamps (duly approved by BREB shall be made).
2. Set the pole about 2 to 3 ft. inside the angle as shown.

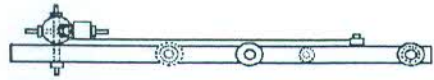
ITEM	MAT. CODE	Qty.	MATERIAL	ITEM	MAT. CODE	Qty.	MATERIAL
a	C 1	06	Insulator, pin type 11 KV	ek	B 50	32	Locknut 5/8"φ
f	B 1	06	Pin, Crossarm, 11 kv, steel	cm	C 3/2	02	Insulator, spool 1 1/4" or 3" dia groove
a	C 5	06	Insulator, pin type 33 KV	da	B 72	02	Bracket, secondary
d	B 46	05	Washer 2 1/4" Square, Flat, 11/16"φ Holes	n	B 26/27/28	06	Bolt, double arming 5/8"φ x required length
g	X 7	02	Crossarm, steel channel 4" x 2" x 2" x 1/4" x 8'-0"	cu	B42/B42.1/B45	02	Brace, Steel/ Wood, 60" Span
g	X 6	03	Crossarm, steel channel 4" x 2" x 2" x 1/4" x 5'-0"	ac	B 43	02	Brace, steel side arm
f	B 122	06	Pin, Crossarm, 33 kv, steel	c	B3	03	Bolt, Machine 1/2" x 1 1/2"
c	B95	01	Bolt, Machine, 5/8" x 1-1/2"				

BANGLADESH RURAL ELECTRIFICATION BOARD

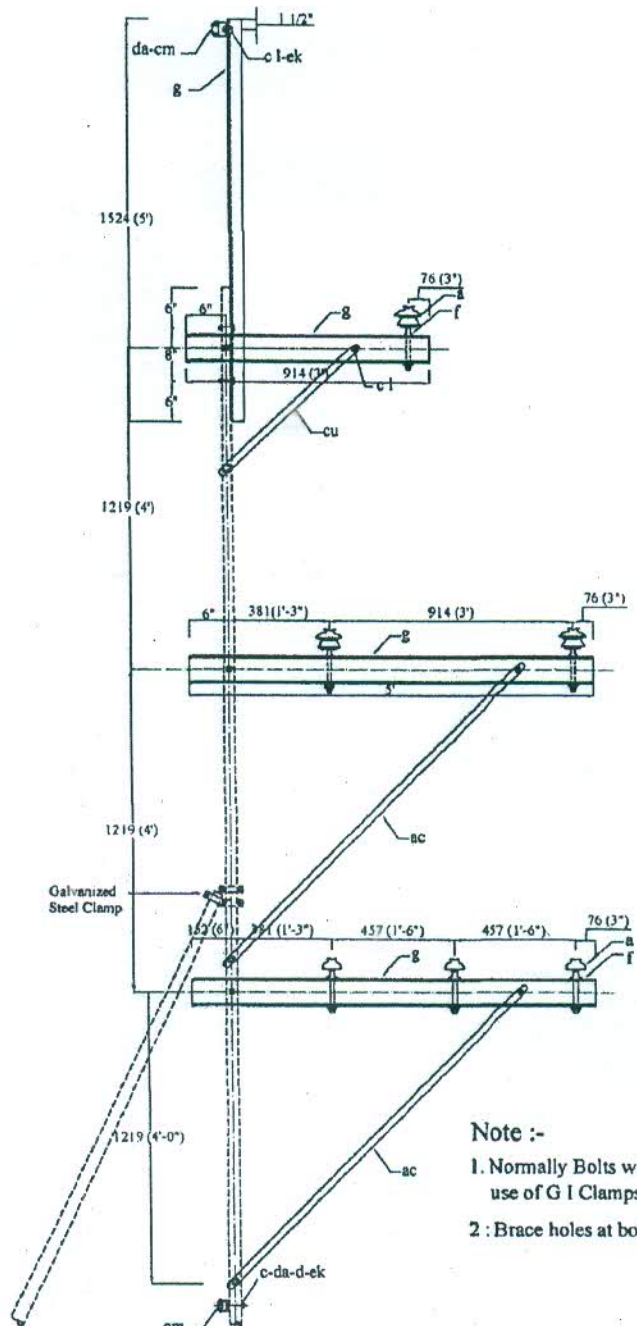
Unit Description: 33 KV & 11 KV MIXED & DOUBLE CIRCUIT STANDARD FOR ANGLE LOCATION (UPTO 10°) WHERE PUSH POLE IS TO BE USED IN PLACE OF GUY.

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	MC-1A

Revision Date: July 1980, June 1981, August 1989, July 1995, August 2013, February 2020



Top View



Single Ckt. 33 KV with upto Hawk conductor & Single Ckt. 11 KV For Angle Location


FRONT VIEW


ITEM	MAT. CODE	Qty.	MATERIAL	ITEM	MAT. CODE	Qty.	MATERIAL
a	C 5	06	Insulator, Pin type 33 Kv	cm	C 3/2	02	Insulator spool type (1 3/4")
a	C 1	06	Insulator, Pin type 11 Kv	cu	B41/ B41.1/ B44	02	Brace, Steel/ Wood, 28" x 1/4"
c	B 5/6/7	08	Bolt, m/c, 5/8" x required length	ac	B43/B43.1/B43.2	04	Brace, steel, side arm, 7/ 60"/ 25"
f	B 1	06	Pin, Crossarm, steel, 5/8" x 10 3/4"	ek	B 50	41	Lock nut 5/8" φ
f	B 122	06	Pin, Crossarm	cl	B 95	07	Bolt, Machine 5/8" x 1 1/2"
g	X 5	02	Crossarm, steel channel 4" x 2" x 2" x 1/4" x 3'-0"	d	B 46/118	08/	Washer, 2 1/4" Square,
g	X 6	05	Crossarm, steel channel 4" x 2" x 2" x 1/4" x 5'-0"	da	B 72	02	Bracket, secondary
				c	B3	07	Bolt, m/c, 1/2" x 1 1/2"


BANGLADESH RURAL ELECTRIFICATION BOARD


Unit Description: 33 KV & 11 KV MIXED CIRCUIT, STEEL CROSSARM CONSTRUCTION, UPTO 10° ANGLE


Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	MC-2



 (Md. Abul Kalamique)
 Consultant, TAPP, BREB



 (Md. Mozamir Huj,
 Consultant, TAPP, BREB


 (Md. Duhiqul Islam)
 Consultant, TAPP, BREB

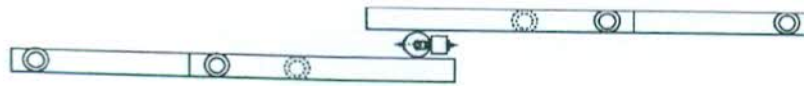

 (Md. Mozibur Rahman)
 Consultant, TAPP, BREB


 (Md. Ansumul Haque)
 Consultant, TAPP, BREB

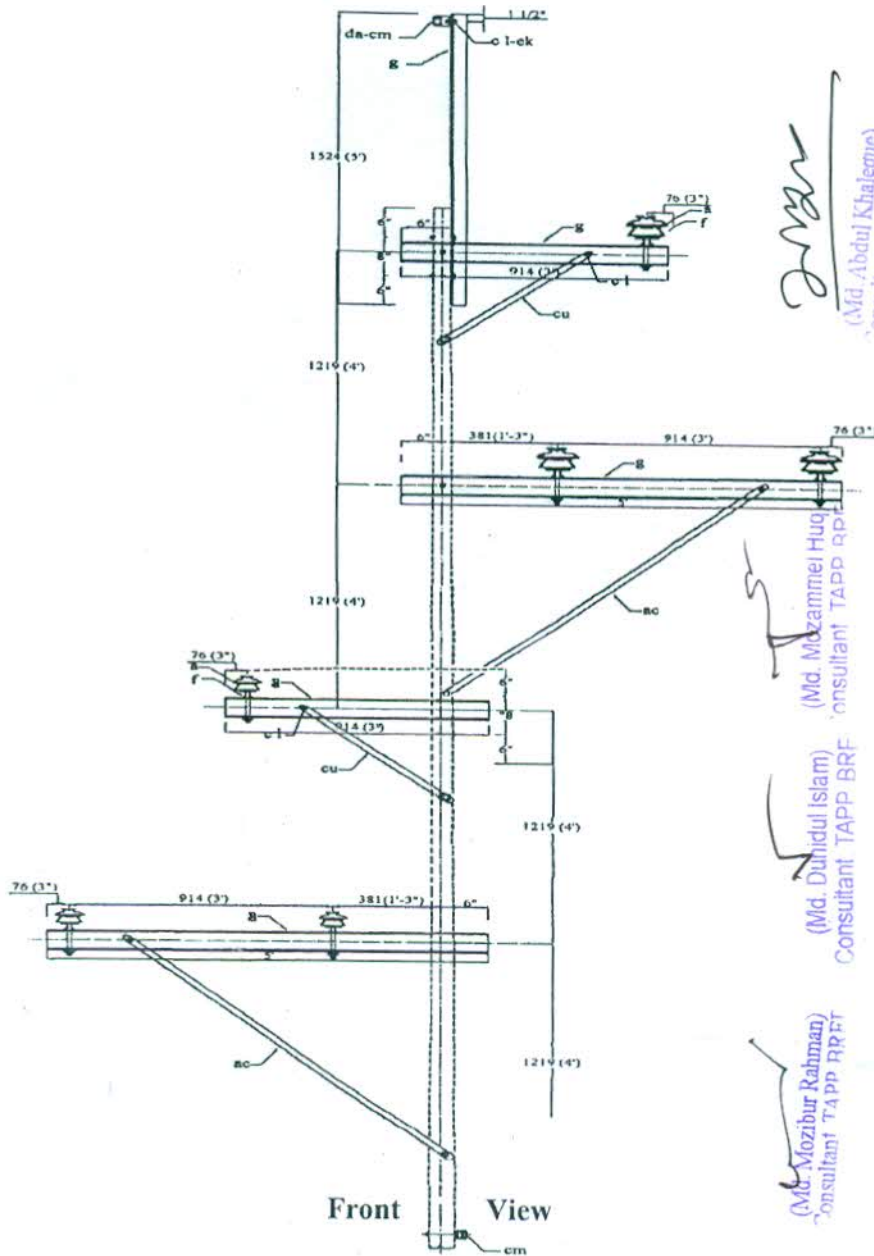

 (Kamrul Ahsan Molik)
 Asst. Secy. (Board), BREB.


 (Debasish Chakraborty)
 PD, TAPP, BREB


৬২১ ভবন বোর্ড সভায় অনুমোদিত সিদ্ধান্ত নং ১৭৭০০





Top View





Front View



 (Md. Abdul Khaletque)
 Consultant TAPP, BREB



 (Kamrul Absan Mollik)
 Asst. Secy. (Board), BREB.


 (Md. Mozammel Haque)
 Consultant TAPP BREB


 (Md. Duhidul Islam)
 Consultant TAPP BREB


 (Debasish Chakraborty)
 PD, TAPP, BREB


 (Md. Mozibur Rahman)
 Consultant TAPP BREB


 (Md. Asanul Haque)
 Consultant TAPP, BREB

Item Code	Item No.	Material	Unit	Qty
a	C5	Insulator, Pin Type, 34.5 KV	No.	3
f	B122	Pin, Crossarm, 17"	No.	3
a	C1	Insulator, Pin Type, 11 KV	No.	3
f	B1	Pin, Crossarm, 5/8"×10¼"	No.	3
cu	B42.1/42.2	Brace, Steel 60"/25" Span	No.	4
c	B6/7/8	Bolt Machine, 5/8"× required length	No.	4
d	B46	Washer, Square, 2¼"×2¼", as required	No.	-
c	B3	Bolt Machine, 1/2"× 1½"	No.	5
c	B4/4.1/4.2/4.3	Bolt Machine, 1/2"× Req Length	No.	4
da	B72	Bracket, Secondary	No.	1
bs	B33/34/35	Bolt, Single Upset, 5/8"× required length	No.	1
cm	C2/C3	Insulator, Spool, 1¼" groove dia	No.	2
ek	B50/138	Lock Nut, 5/8" dia, As required	No.	-
ek		Lock Nut, 1/2" dia	No.	-
g	X5	Crossarm, Steel 4"×2"×2"×¼"×3'-0"	No.	2
g	X6	Crossarm, Steel 4"×2"×2"×¼"×5'-0"	No.	2
c	B95	Bolt, Machine, 5/8" x 1-1/2"	No.	1

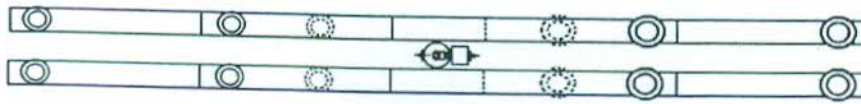
BANGLADESH RURAL ELECTRIFICATION BOARD

Unit Description: 33 KV & 11 KV Mixed Circuit, Single Support

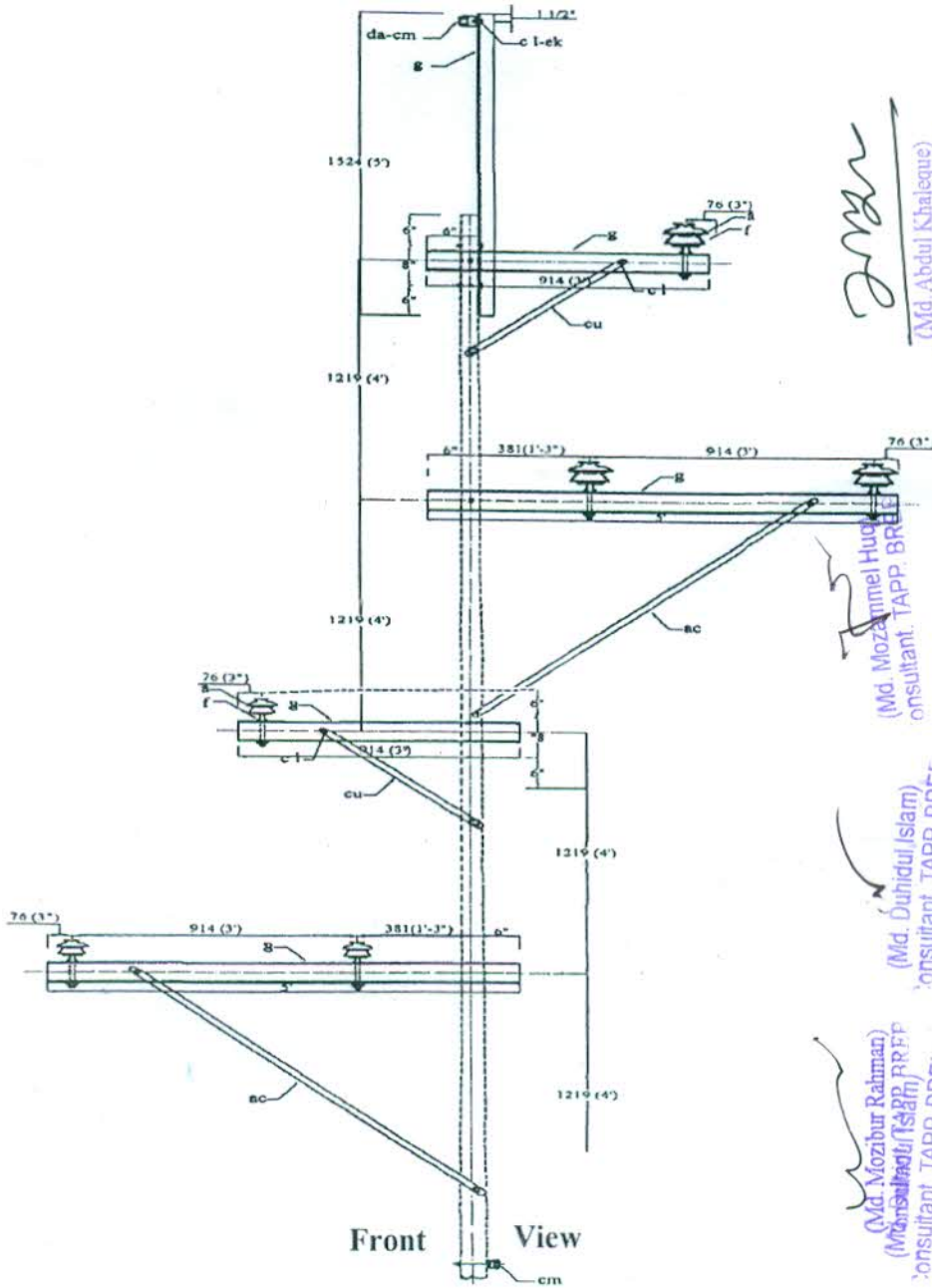
Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation:
July 1979	BREB	BREB	-	MC-2A

Revision Date: July 1980, June 1981, August 1989, July 1995, August 2013, February 2020

৬২১ তম বোর্ড সভায় অনুমোদিত সিদ্ধান্ত নং ১৭৭০০



Top View



Front View

(Md. Abdul Khaleque)
Consultant, TAPP, RBRE

(Md. Mozammel Haque)
Consultant, TAPP, RBRE

(Md. Duhidul Islam)
Consultant, TAPP, RBRE

(Md. Mozibur Rahman)
(Md. Saifuddin Islam)
Consultant, TAPP, RBRE

৬২৯ তম বোর্ড সভায় অনুমোদিত সিদ্ধান্ত নং ১৭৭০০

(Kamrul Ahsan Mollik)
Asst. Secy. (Board), RBRE.

(Debasish Chakraborty)
PD, TAPP, RBRE

(Md. Ahsanul Haque)
Consultant, TAPP, RBRE

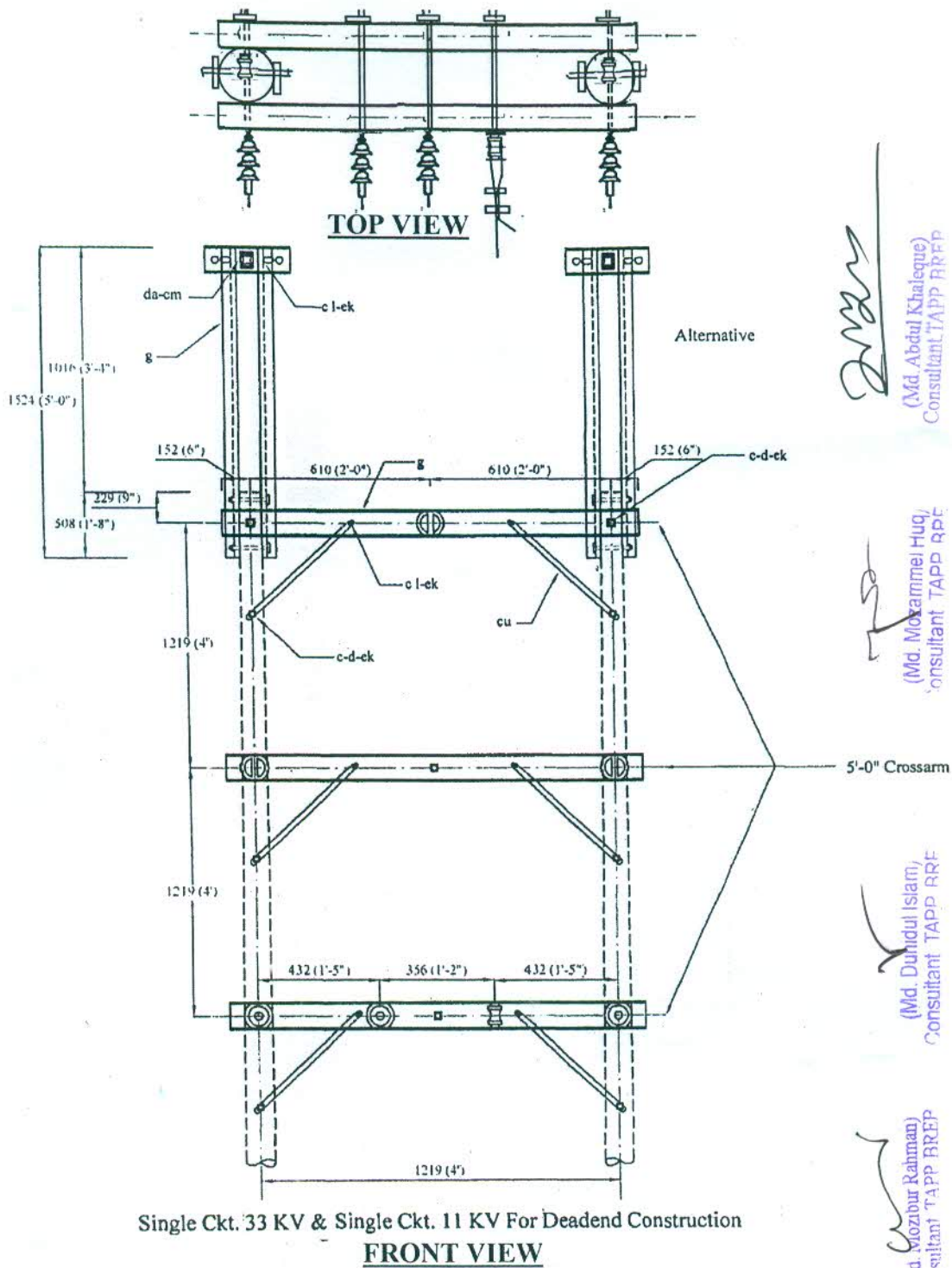
Item Code	Item No.	Material	Unit	Qty
a	C5	Insulator, Pin Type, 34.5 KV	No.	6
f	B122	Crossarm Pin, 17"	No.	6
a	C1	Insulator, Pin Type, 11 KV	No.	6
f	B1	Pin, Crossarm, 5/8"×10 3/4"	No.	6
cu	B42.1/42.2	Brace, Steel 60"/25" Span	No.	8
c	B6/7/8	Bolt Machine, 5/8"× required length	No.	4
d	B46	Washer, Square, 2 1/4"×2 1/4" as required	No.	-
c	B3	Bolt Machine, 1/2"× 1 1/2"	No.	9
c	B4/4.1/4.2/4.3	Bolt Machine, 1/2"× Req Length	No.	4
da	B72	Bracket, Secondary	No.	1
bs	B33/34/35	Bolt, Single Upset, 5/8"× required length	No.	1
cm	C2/C3	Insulator, Spool, 1 1/4" groove dia	No.	1
ek	B50/138	Lock Nut, 5/8" dia, as required	No.	-
ek		Lock Nut, 1/2" dia, as required	No.	-
g	X5	Crossarm, Steel 4"×2"×2"×1/4"×3'-0"	No.	4
g	X6	Crossarm, Steel 4"×2"×2"×1/4"×5'-0"	No.	4
c	B95	Bolt, Machine, 5/8"× 1-1/2"	No.	1

BANGLADESH RURAL ELECTRIFICATION BOARD

Unit Description: 33 KV & 11 KV Mixed Circuit, Double Support

Date of Origin July 1979	Reviewed by BREB	Approved by BREB	Revision No. -	Unit Designation: MC-2B
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Revision Date: July 1980, June 1981, August 1989, July 1995, August 2013, February 2020



Single Ckt. 33 KV & Single Ckt. 11 KV For Deadend Construction
FRONT VIEW

Note :-

1. Normally Bolts will be used to fix the hardware. If not possible use of G I Clamps (duly approved by BREB) shall be made.
- 2 : Brace holes at both end should be 11/16"φ

ITEM	MAT. CODE	Qty.	MATERIAL	ITEM	MAT. CODE	Qty.	MATERIAL
k	C 10	06	Insulator, Suspension	l	B 81/132/133	06	Clamp, deadend
k	C 11	09	Insulator, Suspension, 10"	n	B26/B27/B28	10	Bolt, Double arming, 5/8" x Required length
c	B3	15	Bolt, m/c, 1/2" x 1 1/2"	s	B 73	03	Clevis, Secondary, swinging
c	B 6/7/8	08	Bolt, m/c, 5/8"φ x req'd length	aa	B 53	07	Nut, eye, 5/8"φ
d	B 46/118	08	Washer, square 2 1/4"	cm	C 3/2	03	Spool Insulator, 1-3/4" 3" dia groove
g	X 6	10	Crossarm, steel 4" x 2" x 2" x 1/4" x 5'-0"	cu	B41/ B41.1/ B44	12	Brace, Steel/ Wood, 28" x 1/4"
ek	B 50/138	51	Locknuts, 5/8"φ	bn	B 85	06	Clamp, loop deadend
c	B95	02	Bolt, Machine, 5/8" x 1-1/2"	-	-	01	Plate, arm

BANGLADESH RURAL ELECTRIFICATION BOARD

Unit Description: 33 KV & 11 KV MIXED CIRCUIT, STEEL CROSSARM CONSTRUCTION SINGLE DEADEND WITH H-POLE

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	MC-3

Revision Date: July 1980, June 1981, August 1989, July 1995, August 2013, February 2020

৬২১ তম বোর্ড সভায় অনুমোদিত সিক্স নং ১৭৭০০

(Md. Abdul Khaleque)
Consultant, TAPP BREP

(Md. Mozammel Haq)
Consultant, TAPP BREP

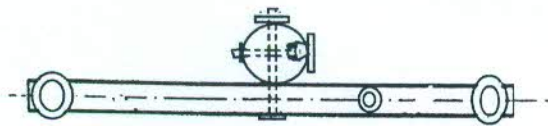
(Kamrul Ahsan Mollik)
Asst. Secy. (Board), BREB.

(Md. Duhidul Islam),
Consultant, TAPP BREP

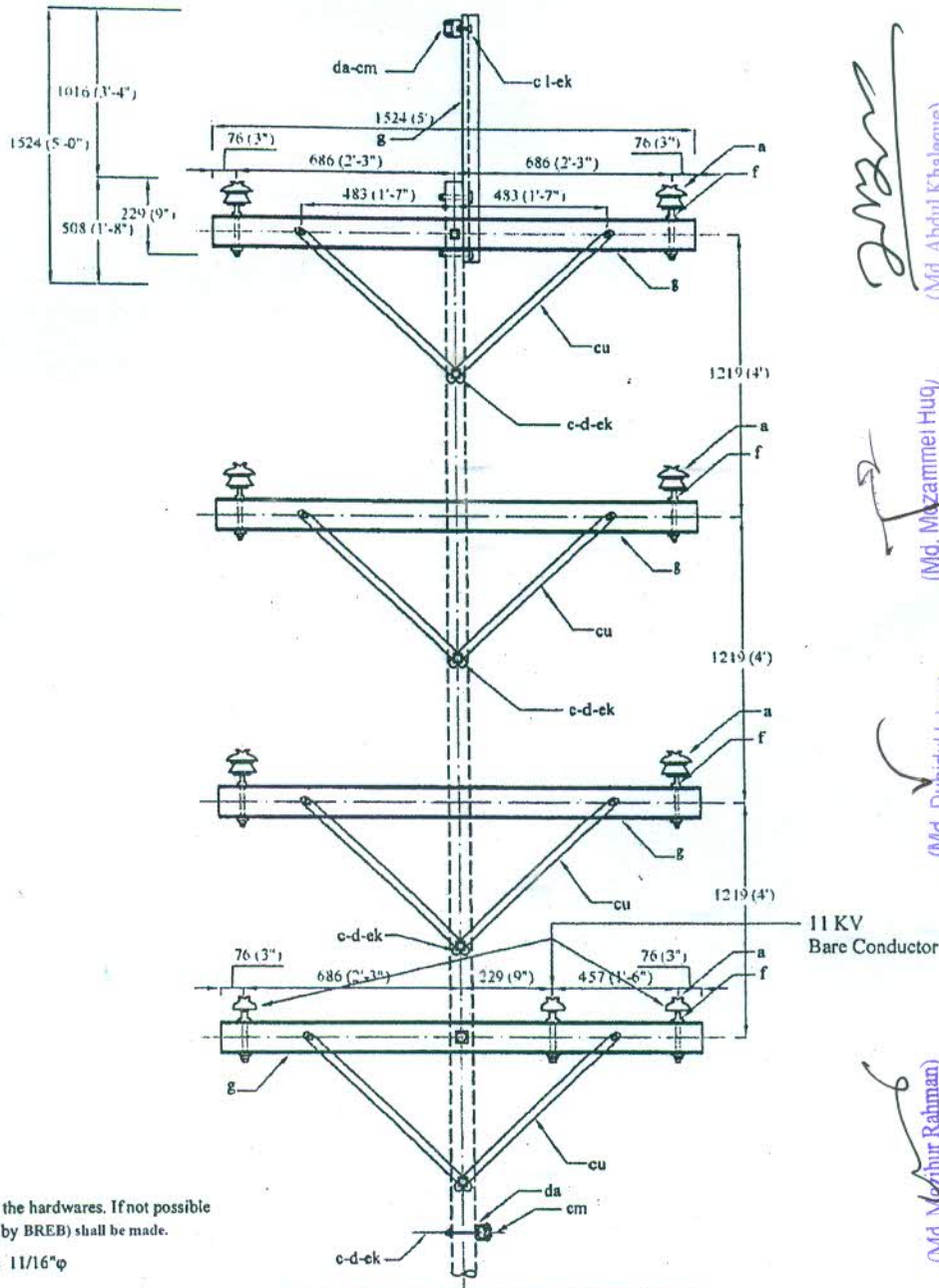
(Debashish Chakraborty)
PD, TAPP, BREB.

(Md. Mozibur Rahman)
Consultant, TAPP BREP

(Md. Ahsanul Haque)
Consultant, TAPP, BREB



TOP VIEW



FRONT VIEW

Note :-

1. Normally Bolts will be used to fix the hardware. If not possible use of G I Clamps (duly approved by BREB) shall be made.
2. Brace holes at both end should be 11/16"φ

Double Ckt. 33 Kv & Single Ckt. 11 KV For Tangent Construction


 (Md. Abdul Khaleque)
 Consultant TAPP BREB


 (Md. Mozammel Haque)
 Consultant TAPP BREB


 (Md. Duniidul Islam)
 Consultant TAPP BREB


 (Md. Mozibur Rahman)
 Consultant TAPP BREB


 (Kamrul Ahsan Mollik)
 Asst. Secy. (Board), BREB.


 (Debasish Chakraborty)
 P.O. TAPP BREB


 (Md. Ahsanul Haque)
 Consultant TAPP BREB

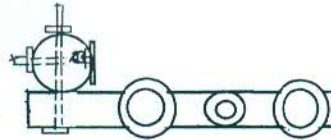
৬২১ তম বোর্ড সভায় অনুমোদিত সিদ্ধান্ত নং ১৭৭০০

ITEM	MAT. CODE	Qty.	MATERIAL	ITEM	MAT. CODE	Qty.	MATERIAL
a	C 5	06	Insulator, Pin type 33 Kv	da	B 72	01	Bracket, secondary
a	C 1	3	Insulator, Pin type 11 Kv	cm	C 3/2	02	Insulator spool type (1 1/4")
c	B 6/7/8	11	Bolt, m/c, 5/8" x required length	cu	B41/ 41.1/ B44	08	Brace, Steel/Wood, 28" x 1/4"
d	B 46	11	Washer, 2 1/4" Square, Flat, 11/16" holes	ek	B 50	20	Lock nut 5/8"φ
f	B 122	06	Pin, Crossarm, 17"	c	B95	01	Bolt, Machine, 5/8" x 1 1/2"
f	B 1	03	Pin, Crossarm, 10-3/4"	c	B3	09	Bolt, Machine 1/2" x 1 1/2"
g	X 6	05	Crossarm, steel channel 4" x 2" x 2" x 1/4" x 5'-0"	bs	B33/34/35	01	Bolt, Single Upset, 5/8" x req'd length

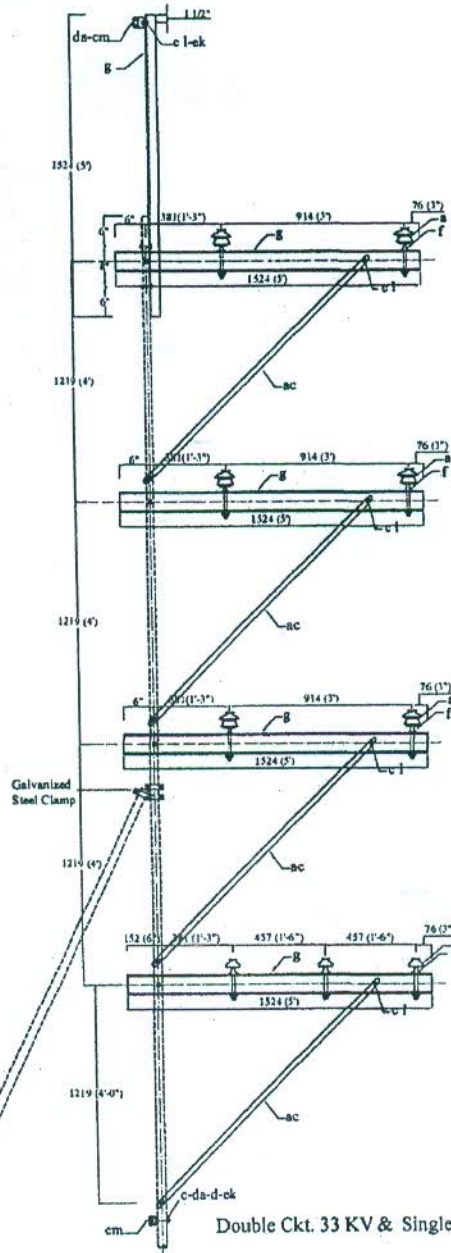
BANGLADESH RURAL ELECTRIFICATION BOARD

Unit Description: 33 KV & 11 KV MIXED CIRCUIT, STEEL CROSSARM CONSTRUCTION-TANGENT

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	MC-4



TOP VIEW



FRONT VIEW

Note :-

1. Normally Bolts will be used to fix the hardwares. If not possible use of G I Clamps (duly approved by BREB) shall be made.

৬২১ তম বোর্ড সভায় অনুমোদিত সিদ্ধান্ত নং ১৭৭৩৩

(Md. Abdul Khaleque)
Consultant TAPP, BREB

(Md. Mazammel Haq,
Consultant TAPP, BREB)

(Md. Duhidul Islam)
Consultant TAPP, BREB

(Md. Mozibur Rahman)
Consultant TAPP, BREB

(Kamrul Ahsan Moflik)
Asst. Secy. (Board), BREB

(Debasish Chakraborty)
TD TAPP, BREB

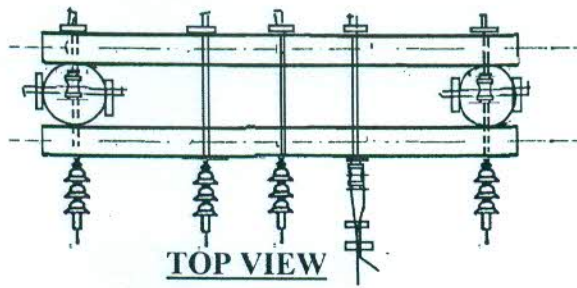
(Md. Akbarul Haque)
Consultant TAPP, BREB

ITEM	MAT. CODE	Qty.	MATERIAL	ITEM	MAT. CODE	Qty.	MATERIAL
a	C 5	06	Insulator, Pin type 33 Kv	cm	C 3/2	02	Insulator spool type (1 1/4")
a	C 1	03	Insulator, Pin type 11 Kv	ac	B43/ B43.1/ B43.2	04	Brace, steel, side arm, 7' / 60" / 25"
c	B 5/6/7	11	Bolt, m/c, 5/8" x required length	ek	B 50	16	Lock nut 5/8"φ
f	B 1	03	Pin, Crossarm, steel, 5/8" x 10 3/4"	c l	B3	05	Bolt, Machine 1/2" x 1 1/2"
f	B 122	06	Pin, Crossarm, 17"	d	B 46/118	11	Washer, 2 1/4" Square,
g	X-6	05	Crossarm, steel channel 4" x 2" x 2" x 1/4" x 5'-0"	da	B 72	02	Bracket, secondary
c	B95	01	Bolt, Machine, 5/8" x 1-1/2"				

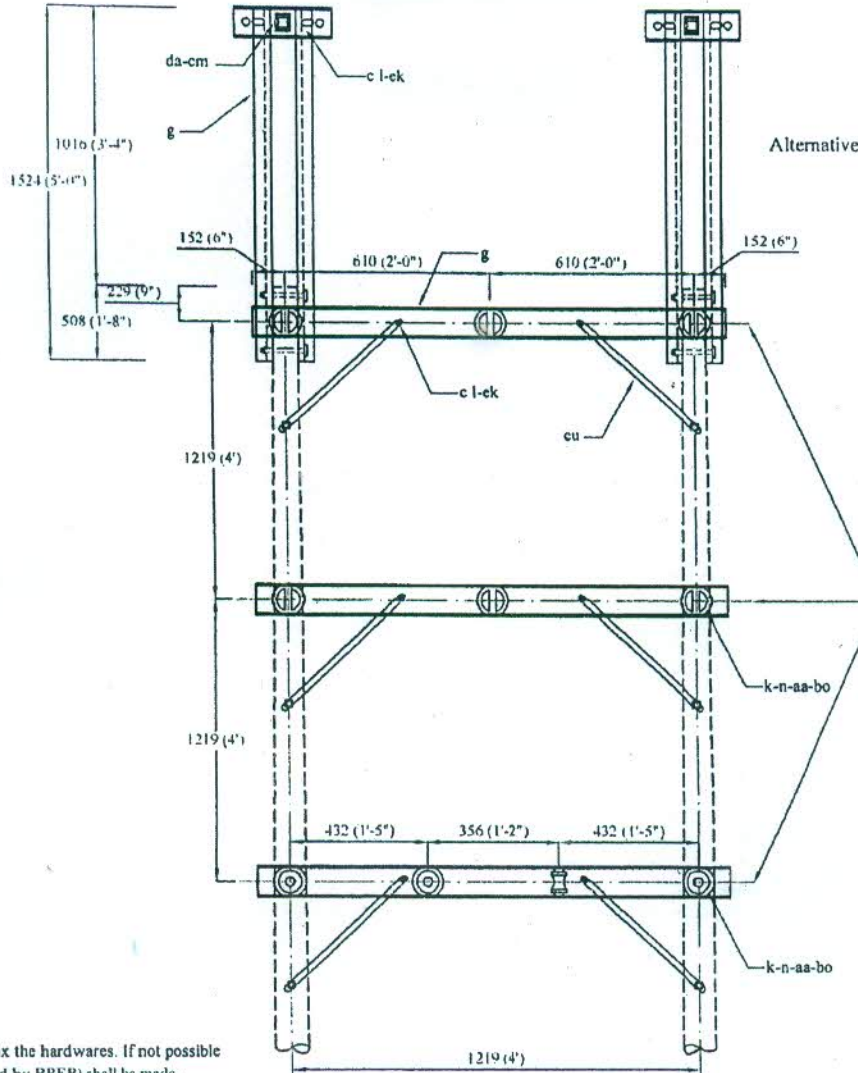
BANGLADESH RURAL ELECTRIFICATION BOARD

Unit Description: 33 KV & 11 KV MIXED CIRCUIT, STEEL CROSSARM CONSTRUCTION— TANGENT

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	MC-5



TOP VIEW



FRONT VIEW

Note :-
Normally Bolts will be used to fix the hardwares. If not possible use of G I Clamps (duly approved by BREB) shall be made.
2 : Brace holes at both end should be 11/16"φ

Double Ckt. 33 KV & Single Ckt. 11 KV For Deadend Construction

Alternative

(Md. Abdul Khaleque)
Consultant, TAPP, BREB

(Md. Mozammel Haque)
Consultant, TAPP, RPE

(Md. Durdul Islami)
Consultant, TAPP, RPE

(Md. Mozibur Rahman)
Consultant, TAPP, BREB

(Kamrul Absan Mollik)
Asst. Secy. (Board), BREB.

(Debasish Chakraborty)
PD, TAPP, BREB

(Md. Ahsanul Haque)
Consultant, TAPP, BREB

৩২১ তম বোর্ড সভায় অনুমোদিত সিদ্ধান্ত নং ১৭৭০০

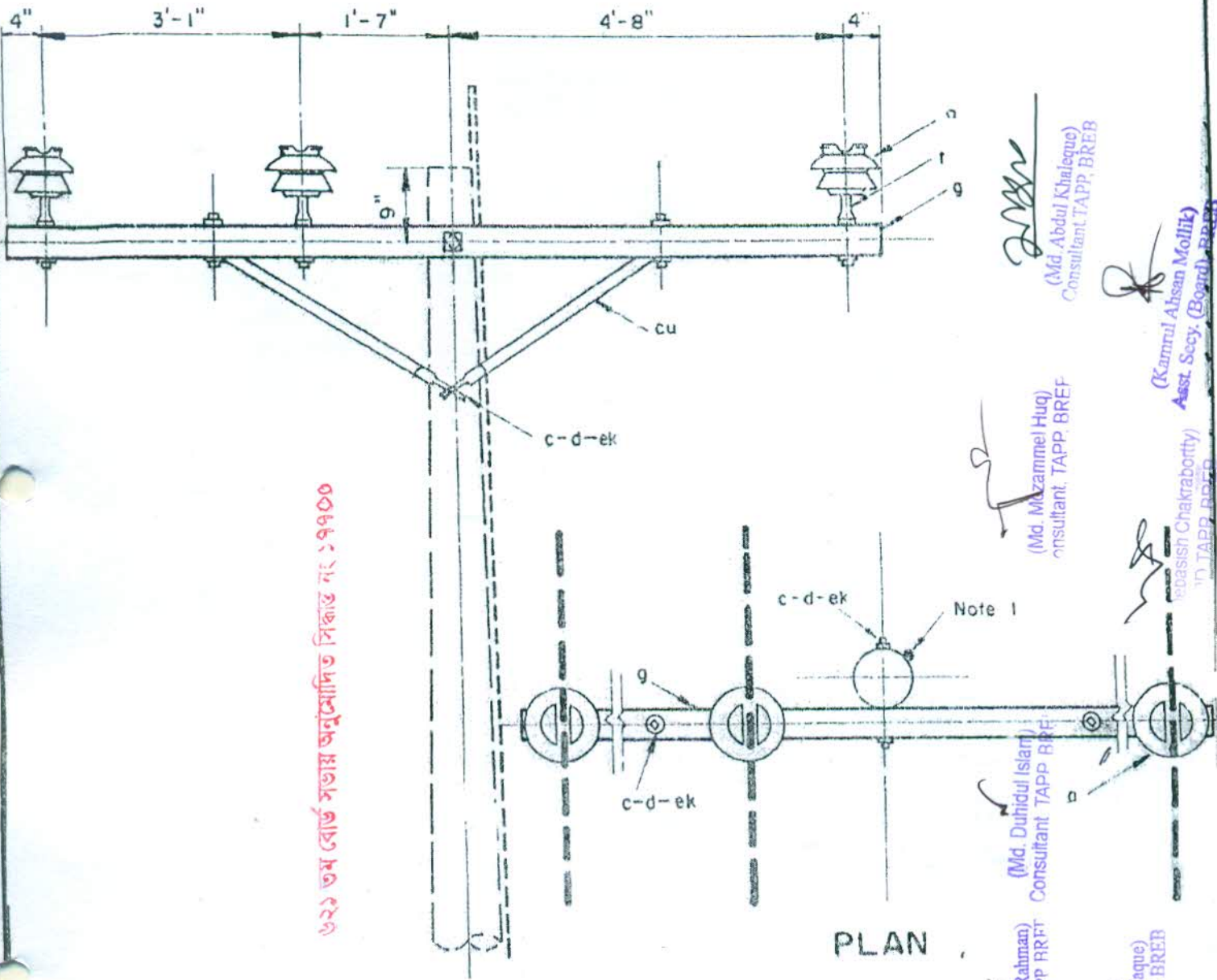
ITEM	MAT. CODE	Qty.	MATERIAL	ITEM	MAT. CODE	Qty.	MATERIAL
k	C 10	06	Insulator, Suspension	l	B 81/132/133	09	Clamp, deadend
k	C 11	18	Insulator, Suspension, 10"	n	B26/27/28	10	Bolt, D/A, 5/8" x Required Length
cl	B3	15	Bolt, m/c, 1/2" x 1 1/2"	aa	B 53	10	Nut, eye, 5/8"φ
c	B 6/7/8	08	Bolt, m/c, 5/8"φ x req'd length	cm	C 3/2	02	Spool Insulator, 1-3/4" 3" dia groove
g	X-6	08	Crossarm, steel 4" x 2" x 2" x 1/4" x 5'-0"	cu	B 41/B41.1/B44	12	Brace, Steel 28" / Wood
ek	B 50/138	51	Locknuts, 5/8"φ	s	B 72	02	Clevis, secondary swinging
-	B 85	04	Clamp, loop, deadend	-	-	01	Plate, arm
c	B95	03	Bolt, Machine, 5/8" x 1-1/2"				

BANGLADESH RURAL ELECTRIFICATION BOARD

Unit Description: 33 KV & 11 KV MIXED CIRCUIT, STEEL CROSSARM CONSTRUCTION— DEADEND

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	MC-6

Revision Date: July 1980, June 1981, August 1989, July 1995, August 2013, February 2020



৬২১ তম বোর্ড সভায় অনুমোদিত সিদ্ধান্ত নং ১৭৭০০

NOTE:

1. Ground wire to be installed on opposite quadrant of pole from center phase.

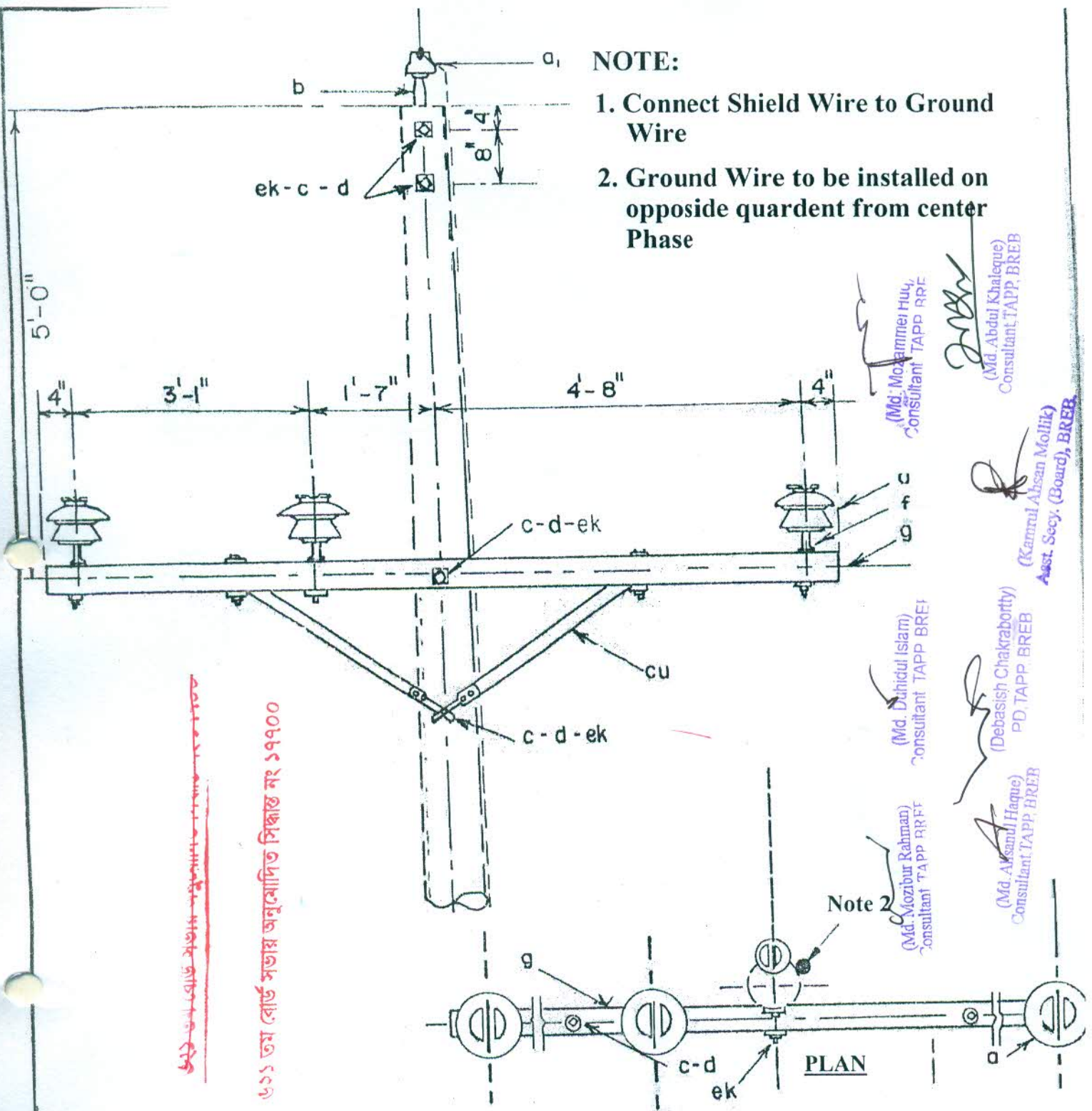
ITEM	NO.	MATERIAL	CODE	ITEM	NO.	MATERIAL	CODE
a	3	Insulator, pin type, 34.5 KV	C5	d	3	Washer, square, 2 1/4"	B46
c	2	Bolt, M/C, 5/8" x req'd length	B6/7/8	d	2	Washer, round 1 3/8" dia. 9/16" hole	
c	2	Bolt, machine, 1/2" x 6" - 12"	B4/B4.1 - 4.3	ek	-	Locknuts, as req'd	B50/138
cu	1	Brace, 60" span, wood/Steel	B42/B42.1/B45	f	3	Pin, crossarm, steel 3/4" x 17"	B122
				g	1	Crossarm, 3 3/4" x 4 3/4" x 10'-0"	X2

BANGLADESH RURAL ELECTRIFICATION BOARD

Unit Description: 33 KV CROSSARM CONSTRUCTION, TANGENT

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	T1

Revision Date: July 1980, June 1981, August 1989, July 1995, August 2013, February 2020



NOTE:

1. Connect Shield Wire to Ground Wire
2. Ground Wire to be installed on opposite quadrant from center Phase

৬১১ তম বোর্ড সভায় অনুমোদিত সিদ্ধান্ত নং ১৭৭০০

(Md. Mozammel Huq, Consultant TAPP, BREB)

(Md. Abdul Khaleque, Consultant TAPP, BREB)

(Kamrul Ahsan Mollik, Asst. Secy. (Board), BREB)

(Md. Duhidul Islam, Consultant TAPP, BREB)

(Debasish Chakrabortty, PD, TAPP, BREB)

(Md. Akbarul Haque, Consultant TAPP, BREB)

(Md. Mozibur Rahman, Consultant TAPP, BREB)

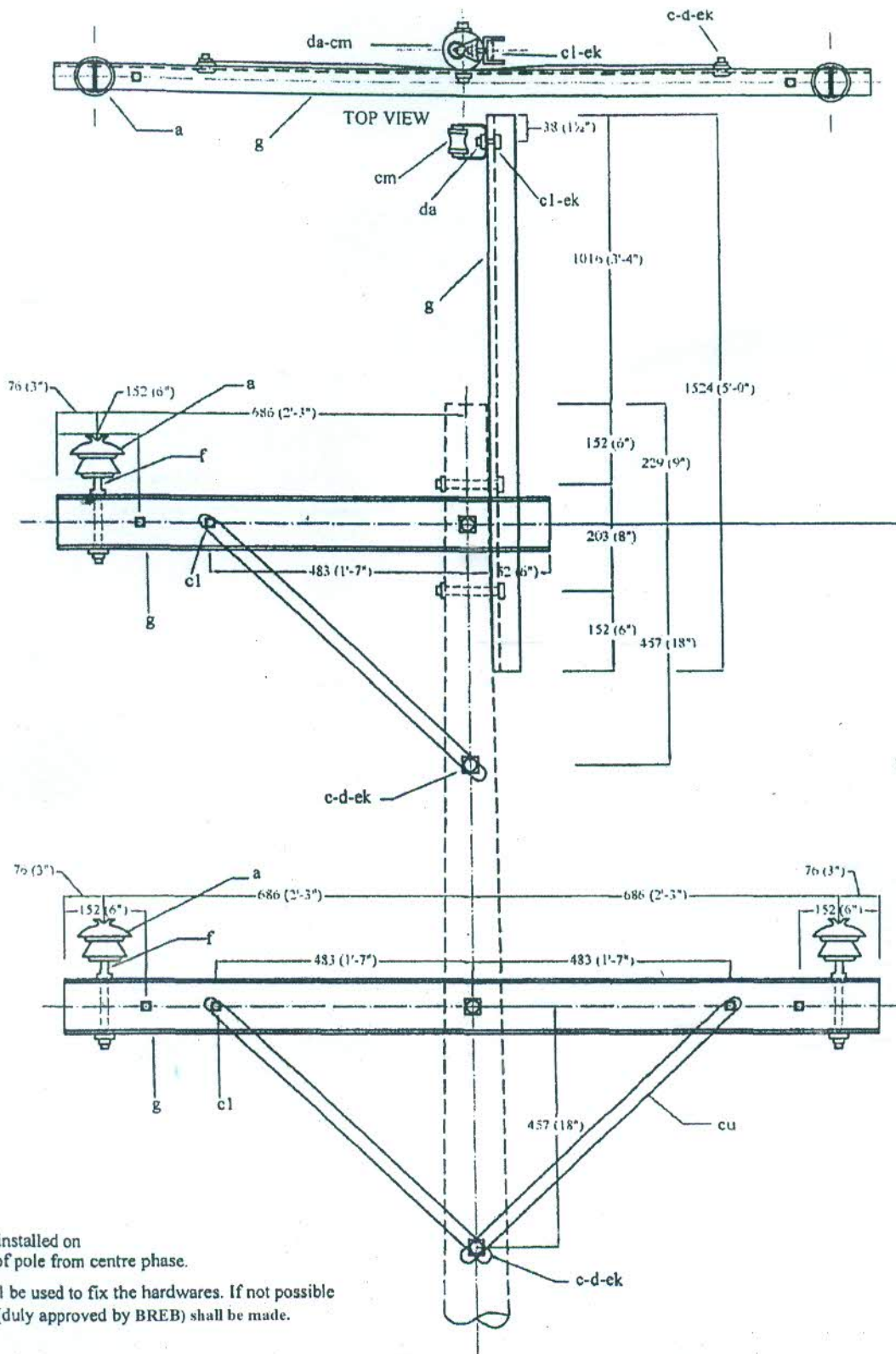
ITEM NO	MATERIAL	ITEM NO	MATERIAL
a	3 Insulator, Pin Type, 34.5 KV (C5)	d	5 Washer, Square, 2-1/4" (B46)
a ₁	1 Insulator, Pin Type, 11 KV (C1)	d	2 Washer, Round, 1-1/2" Dia
b	1 Pin, Pole Top, . 20" (B2)	ek	Locknuts, as required (B50/138)
c	3 Bolt, Machine, 5/8"x Req'd Length (B6/7/8)	f	3 Pin, Crossarm, Steel, 3/4"x 17" (B122)
c	3 Bolt, Machine, 1/2"x 6" - 12" (B4/B4.1 - 4.3)	g	1 Crossarm, 3-3/4"x 4-3/4"x 10'-0" (X2)
CU	1 Brace, 60" Span, Wood/Steel (B42/42.1/45)	c	2 Bolt, Carriage (B32)/ Bolt, M/C, 1/2"x 1-1/2" (B3)

BANGLADESH RURAL ELECTRIFICATION BOARD

Unit Description: 33 KV CROSSARM CONSTRUCTION WITH SHIELD WIRE- TANGENT

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	T1A

Revision Date: July 1980, June 1981, August 1989, July 1995, August 2013, February 2020



Note :-

1. Ground wire to be installed on opposite quadrant of pole from centre phase.
2. Normally Bolts will be used to fix the hardwares. If not possible use of G I Clamps (duly approved by BREB) shall be made.

(Md. Abdul Khaleque)
Consultant TAPP BREB

(Md. Mozammel Haque)
Consultant TAPP BREB

(Kamrul Ahsan Mollik)
Asst. Secy. (Board), BREB

(Md. Duhidul Islam)
Consultant TAPP BREB

(Debasish Shakraborty)
PD, TAPP, BREB

(Md. Mozibur Rahman)
Consultant TAPP BREB

(Md. Abul Haque)
Consultant TAPP, BREB

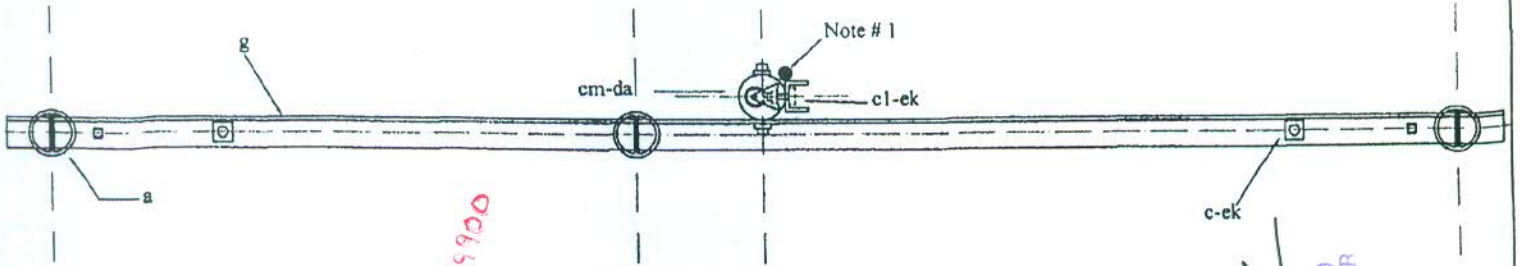
৬২১ তম বোর্ড সভায় অনুমোদিত সিক্রান্ত নং: ১৭৭০০

ITEM	MAT. CODE	Qty.	MATERIAL	ITEM	MAT. CODE	Qty.	MATERIAL
a	C 5	03	Insulator, Pin type 34.5 Kv	d	B 46	06	Washer, square, 2-1/4"
c	B 6/7/8	06	Bolt, m/c, 5/8" x req'd. length	ek	B 50/138	10	Locknuts, as required 5/8" φ hole
c1	B3	04	Bolt, Machine, 1/2" x 1 1/2"	f	B 122	03	Pin, xarm, steel 3/4"x17"
g	X-5	01	Crossarm, steel, 4" x 2" x 2" x 1/4" x 3'-0"	cu	B41/B41.1/B44	03	Brace, Steel/ Wood, 28" x 1/4"
g	X-6	02	Crossarm, steel 4" x 2" x 2" x 1/4" x 5'-0"	da	B 72	01	Bracket, secondary
cm	C 2/3	01	Insulator, Spool				

BANGLADESH RURAL ELECTRIFICATION BOARD

Unit Description: 33 KV STEEL CROSSARM CONSTRUCTION— TANGENT

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	T1B



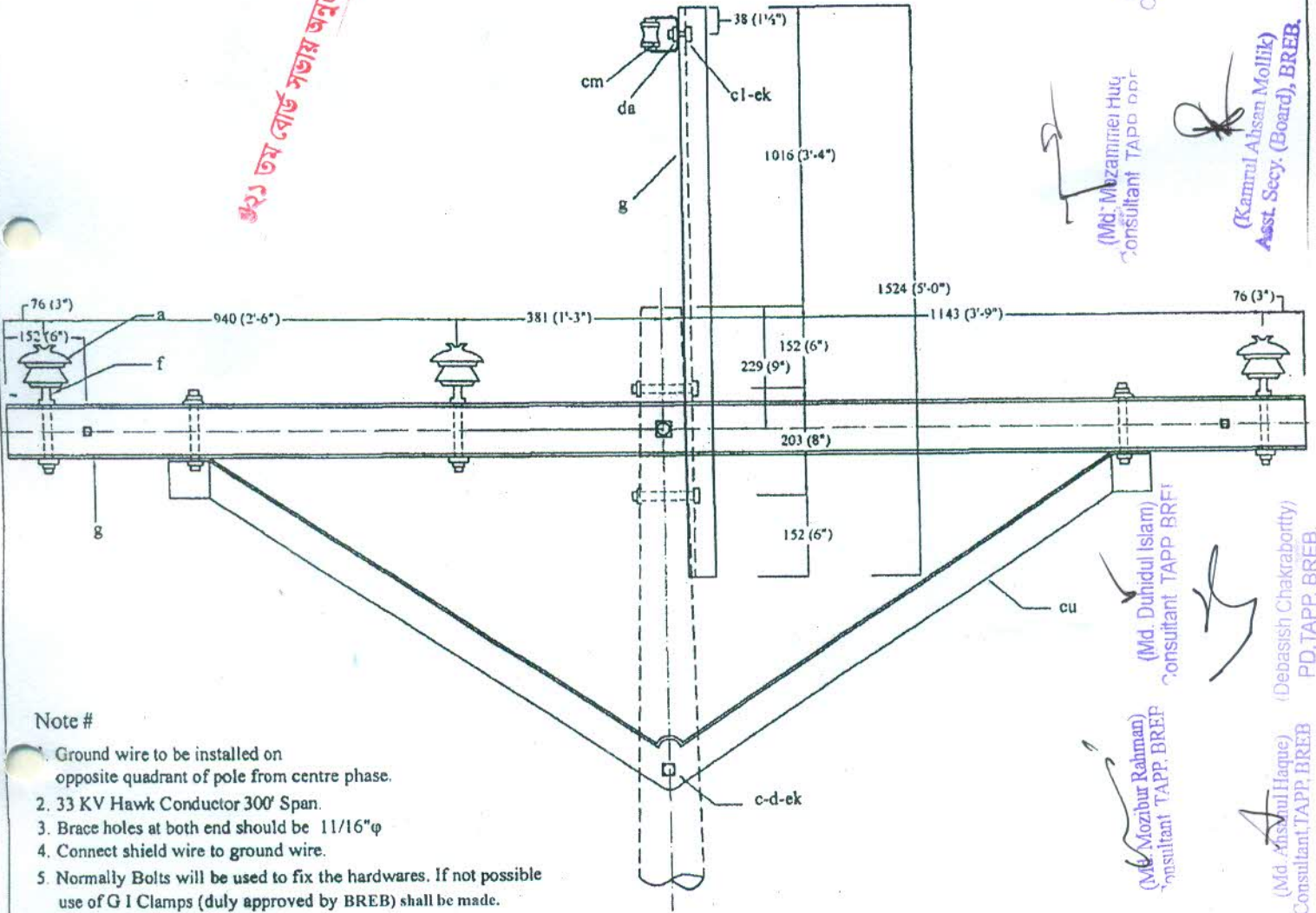
TOP VIEW

৩২১ তম বোর্ড সভায় অনুমোদিত সিদ্ধান্ত নং ১৬৭৩০

(Signature)
(Md. Abdul Khaque)
Consultant TAPP, BREB

(Signature)
(Md. Mozamir Huj)
Consultant TAPP, BREB

(Signature)
(Kamrul Ahsan Mollik)
Asst. Secy. (Board), BREB.



(Signature)
(Md. Duhidul Islam)
Consultant TAPP, BREB

(Signature)
(Debasish Chakraborty)
PD, TAPP, BREB

(Signature)
(Md. Mozibur Rahman)
Consultant TAPP, BREB

(Signature)
(Md. Anshul Haque)
Consultant TAPP, BREB

Note #

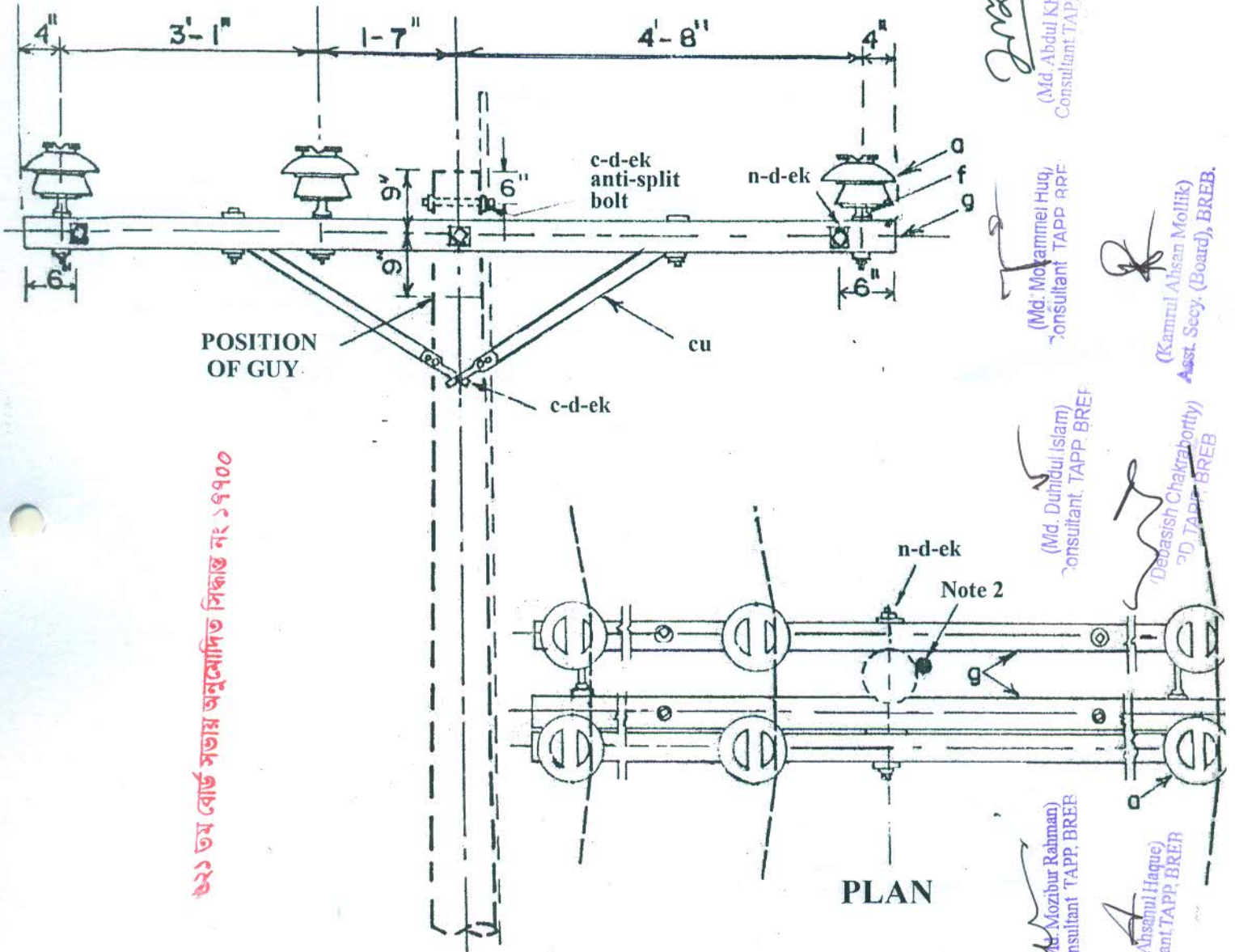
1. Ground wire to be installed on opposite quadrant of pole from centre phase.
2. 33 KV Hawk Conductor 300' Span.
3. Brace holes at both end should be 11/16"φ
4. Connect shield wire to ground wire.
5. Normally Bolts will be used to fix the hardware. If not possible use of G I Clamps (duly approved by BREB) shall be made.

ITEM	MAT. CODE	Qty.	MATERIAL	ITEM	MAT. CODE	Qty.	MATERIAL
a	C 5	3	Insulator, Pin type 34.5 KV	d	B 46	4	Washer, square, 2-1/4"
c	B 5/6/7/8	6	Bolt, m/c, 5/8" x req'd. length	ek	B 50/138	7	Locknuts, as required
cu	B42/42.1/45	1	Brace, Steel/ Wood, 60" Span	f	B 122	3	Pin, xarm, steel 3/4"x17"
g	X 7	1	Crossarm, steel 4" x 2" x 2" x 1/4" x 8'-0"	c	B3	1	Bolt, Machine, 1" x 1-1/2"
g	X 6	1	Crossarm, steel 4" x 2" x 2" x 1/4" x 5'-0"	da	B 72	1	Bracket, Secondary
cm	C 2/C3	1	Insulator, Spool	c	B95	1	Bolt, Machine, 5/8" x 1-1/2"

BANGLADESH RURAL ELECTRIFICATION BOARD

Unit Description: 33 KV STEEL CROSSARM CONSTRUCTION— TANGENT

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	T1C



৯২১ তম বোর্ড সভায় অনুমোদিত সিদ্ধান্ত নং ১৭৭০০

NOTE:

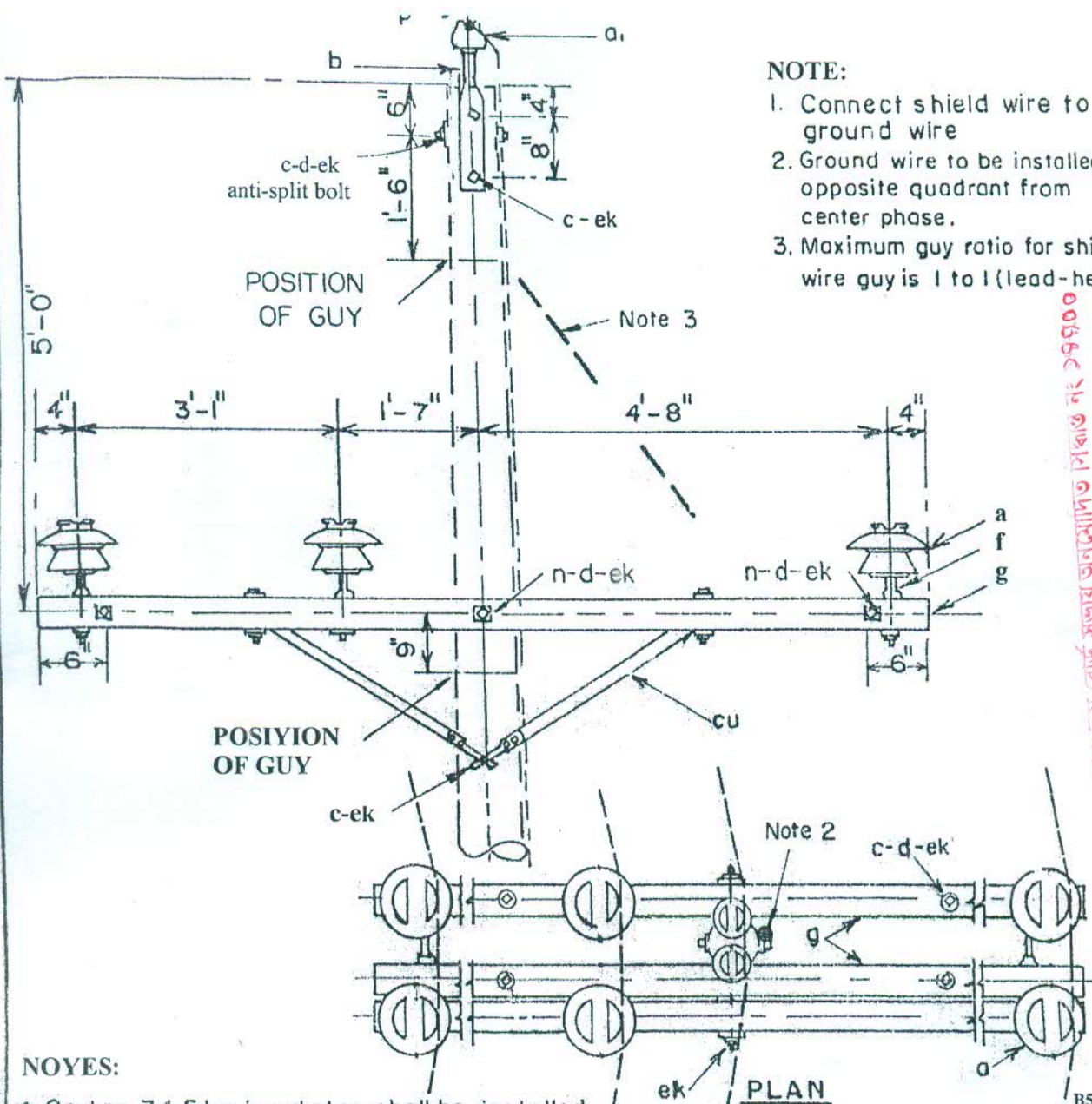
1. Square washers shall be installed on double arming bolts between pairs crossarms;
2. Ground wire to be installed on opposite quadrant from center phase.

ITEM NO.	MATERIAL	CODE	ITEM NO.	MATERIAL	CODE
a	6 Insulator pin type 34.5 KV	C5	ek	Lock nuts, as req'd	B50
c	5 Bolt, machine, 1/2" x 6" - 12"	B4/B4.1-4.3	f	6 Pin crossarm, steel, 3/4" x 17"	B122
cu	2 Brace, 60" span, wood /Steel	B42/B4.1	g	3 Crossarm, 3 3/4" x 4 3/4" x 10'-0"	X2
d	4 Washer, round, 1 1/2" dia		n	3 Bolt, double arming, 5/8"	B26/27/2
d	15 Washer, square, 2 1/4"	B46	c	2 Bolt, M/C, 5/8" x req'd length	B6/7/8

BANGLADESH RURAL ELECTRIFICATION BOARD

Unit Description: 33 KV CROSSARM CONSTRUCTION GRADE-B CROSSING AND 0° TO 10° ANGLE

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	T2



- NOTE:**
1. Connect shield wire to ground wire
 2. Ground wire to be installed on opposite quadrant from center phase.
 3. Maximum guy ratio for shield wire guy is 1 to 1 (lead-height)

NOYES:

4. Center 34.5 kv insulator shall be installed on the inside of the angle to allow adequate top guy clearance
5. Square washers shall be installed on double arming bolts between paired crossarms.

ITEM	NO	MATERIAL	CODE	ITEM	NO.	MATERIAL	CODE
a	6	Insulator, Pin Type, 34.5 KV	C5	a ₁	2	Insulator, pin, type 11KV	C1
b	2	Pin, Pole Top, 20"	B2	ek		Locknuts as req'd	
c	4	Bolt, Machine, 1/2"x 6"- 12"	B4/B4.1 - 4.3	f	6	Pin crossarm, steel, 3/4"x 17"	B122
c	4	Bolt, M/C, 5/8" x as req'd length	B6/7/8	g	3	Crossarm, 3 3/4" x 4 3/4" x 10'-0"	X2
cu	2	Brace, 60" Span, Wood/ Steel	B42/42.1/45	n	3	Bolts, Double Arming, 5/8" x as req'length	B26/27/28
d	4	Washer, round, 1/2" dia					
d	15	Washer, square, 2 1/4"	B46				
P		Connector as req'd.					

BANGLADESH RURAL ELECTRIFICATION BOARD

**Unit Description: 33 KV CROSSARM CONSTRUCTION WITH SHIELD WIRE
GRADE B CROSSING 0° TO 10° ANGLE**

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	T2A

Revision Date: July 1980, June 1981, August 1989, July 1995, August 2013, February 2020

৩৩ কভ স্তরের অধুনাগত পিকার্ড নং ৩৯৯০০

(Kamrul Ahsan Mollah)
Asst. Secy. (Board), BREB.

(Debasish Chakraborty)
PD, TAPP, BREB

(Md. Ahsanul Haque)
Consultant, TAPP, BREB

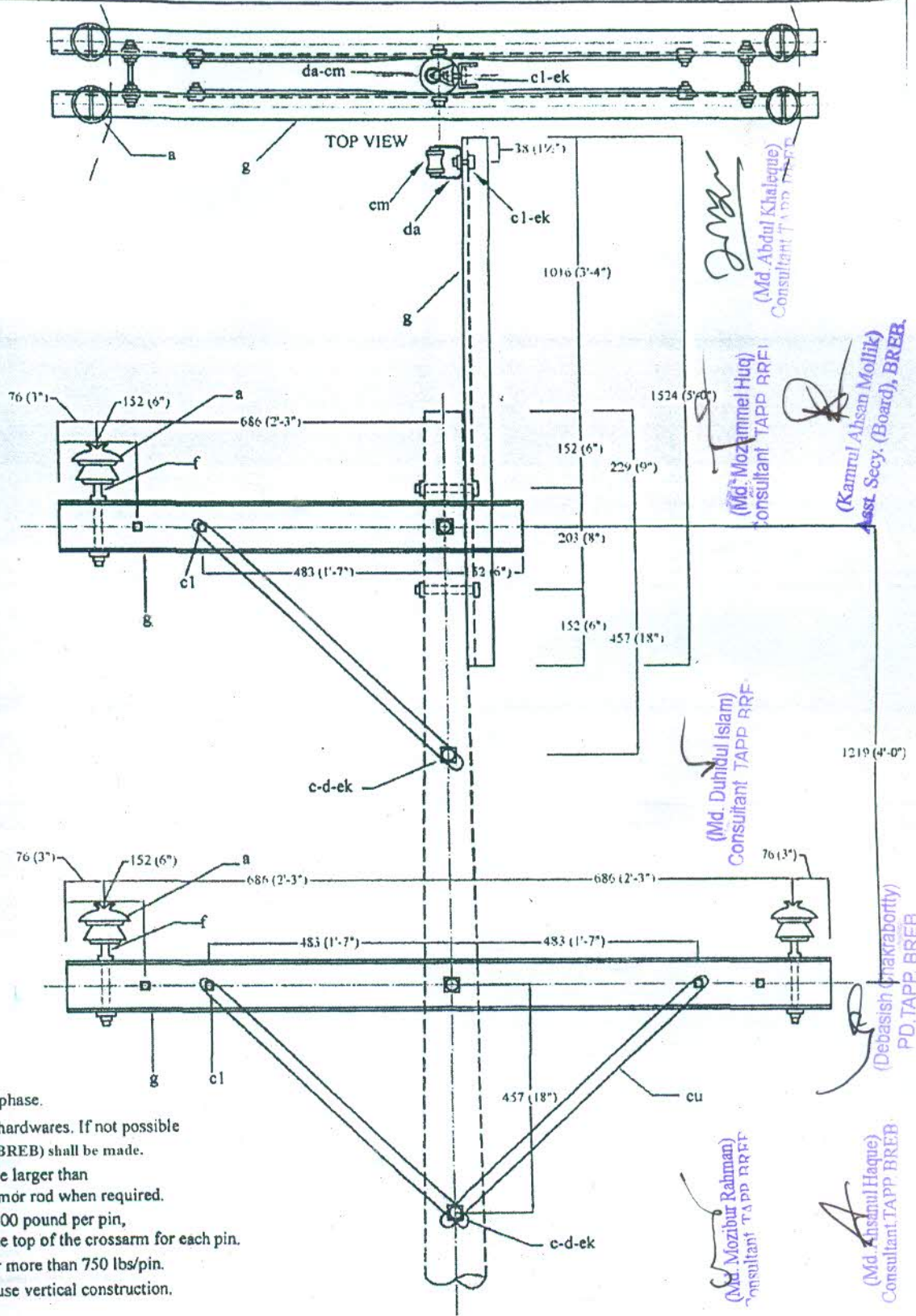
(Md. Abdul Khaque)
Consultant, TAPP, BREB

(Mg. Mokammel Haq)
Consultant TAPP BREB

(Md. Duhidul Islam)
Consultant TAPP BREB

(Md. Mozibur Rahman)
Consultant TAPP BREB

১৯৯১ তম বোর্ড সভায় অনুমোদিত সিদ্ধান্ত নং ১৭৭০০



Note :-

1. Ground wire to be installed on opposite quadrant of pole from centre phase.
2. Normally Bolts will be used to fix the hardwares. If not possible use of G I Clamps (duly approved by BREB) shall be made.
3. Side groove of insulator must always be larger than the diameter of conductor including armor rod when required.
4. When the transverse load is more than 500 pound per pin, install 2 1/4" x 2 1/4" x 3/16" washer on the top of the crossarm for each pin.
5. Use pin, crossarm, steel clamp type for more than 750 lbs/pin.
6. If transverse load exceed 1000 lbs/pin, use vertical construction.

(Md. Abdul Khaleque)
Consultant TAPP BREB

(Md. Mozammel Huq)
Consultant TAPP BREB

(Kamrul Ahsan Mollik)
Asst. Secy. (Board), BREB

(Md. Durdul Islam)
Consultant TAPP BREB

(Debasish Ghakraborty)
PD, TAPP, BREB

(Md. Masum Haque)
Consultant TAPP BREB

(Md. Mozibur Rahman)
Consultant TAPP BREB

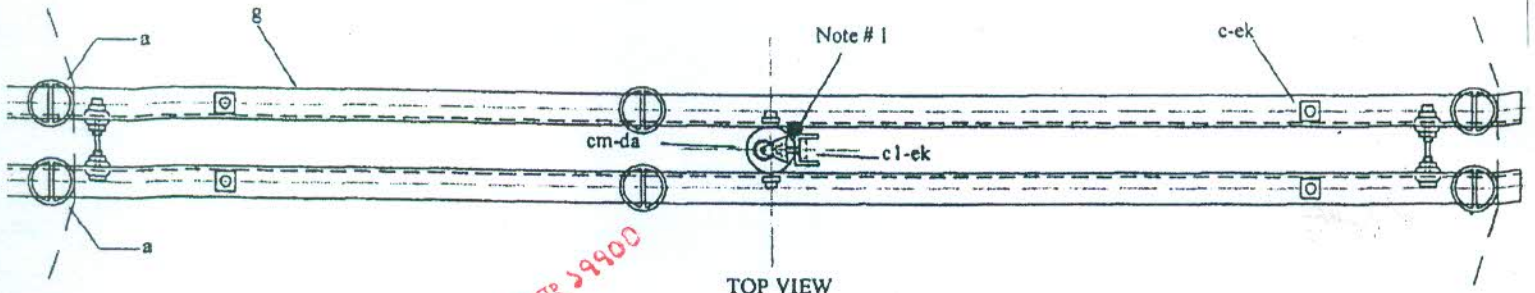
ITEM	MAT. CODE	Qty.	MATERIAL	ITEM	MAT. CODE	Qty.	MATERIAL
a	C 5	06	Insulator, Pin type 34.5 KV	d	B 46	04	Washer, square, 2-1/4"
c	B 6/7/8	04	Bolt, m/c, 5/8" x req'd. length	ek	B 50/138	27	Locknuts, as required
c	B3	07	Bolt, Machine, 1/2" x 1 1/2"	f	B 122	06	Pin, xarm, steel 3/4"x17"
cu	B41/B41.1/B44	06	Brace, steel / Wood, 20" x 1 1/4"	n	B26/B27/B28	05	Bolt, double arming
g	X 5	02	Crossarm, steel 4" x 2" x 2" x 1/4" x 3'-0"	cm	C 2/3	01	Insulator, Spool
g	X 6	03	Crossarm, steel 4" x 2" x 2" x 1/4" x 5'-0"	da	B 72	01	Bracket, Secondary
c	B 95	01	Bolt, Machine, 5/8" x 1 1/2"				

BANGLADESH RURAL ELECTRIFICATION BOARD

Unit Description: 33 KV STEEL CROSSARM CONSTRUCTION 0° TO 10° ANGLE
MAXIMUM TRANSVERSE LOADING - 1000 lb/pin

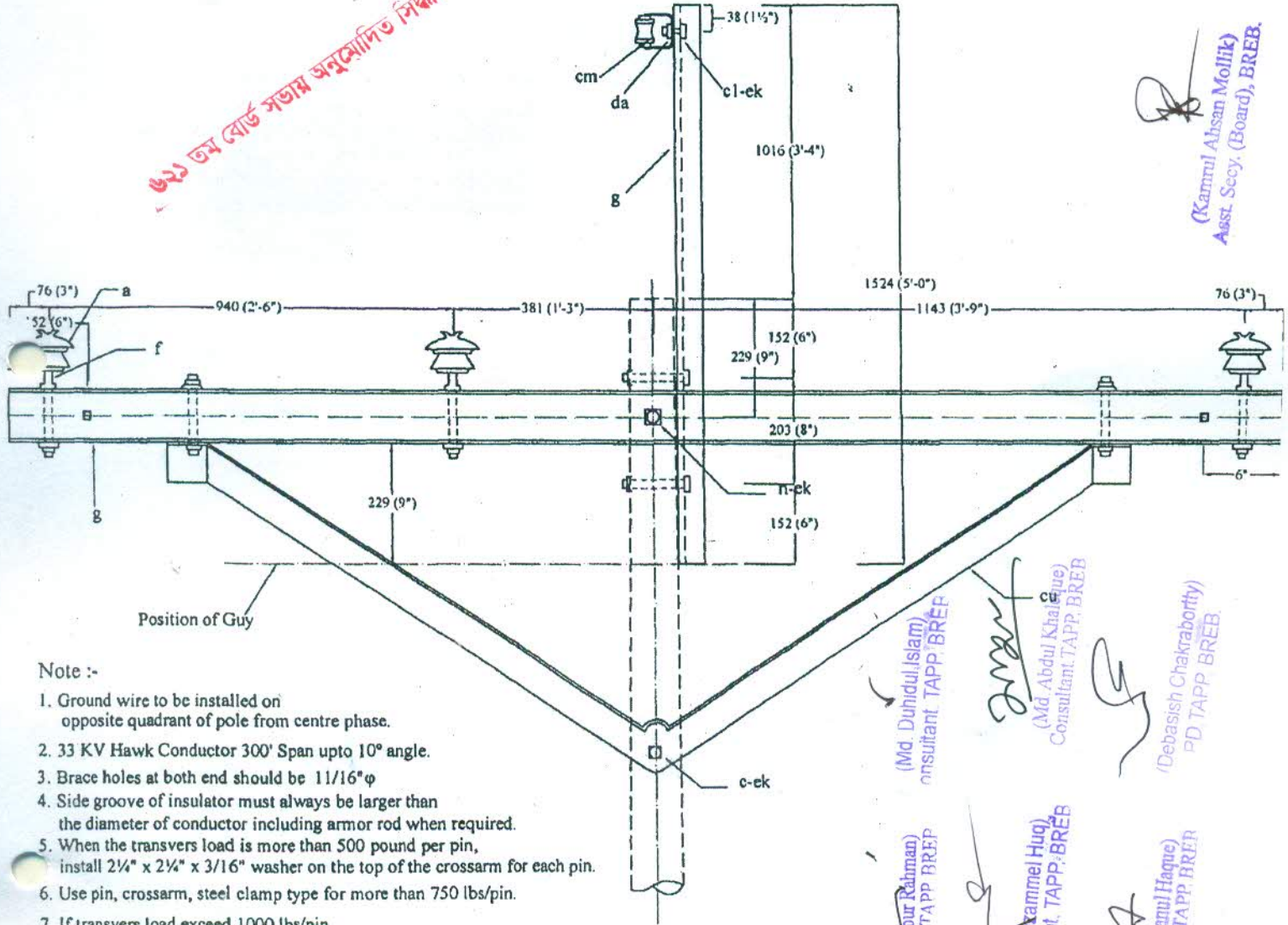
Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	T2B

Revision Date: July 1980, June 1981, August 1989, July 1995, August 2013, February 2020



৬২১ তম বোর্ড সভায় অনুমোদিত শিকার নং ১৭৭০০

TOP VIEW



(Kamrul Ahsan Mollik)
Asst. Secy. (Board), BREB.

(Md. Duhidul Islam)
consultant TAPP, BREB

(Md. Mozibur Rahman)
consultant TAPP, BREB

(Md. Mozammel Huj)
consultant TAPP, BREB

(Md. Ahsanul Haque)
consultant TAPP, BREB

(Md. Abdul Khaliq)
consultant TAPP, BREB

(Debashish Chakraborty)
PD TAPP, BREB

Note :-

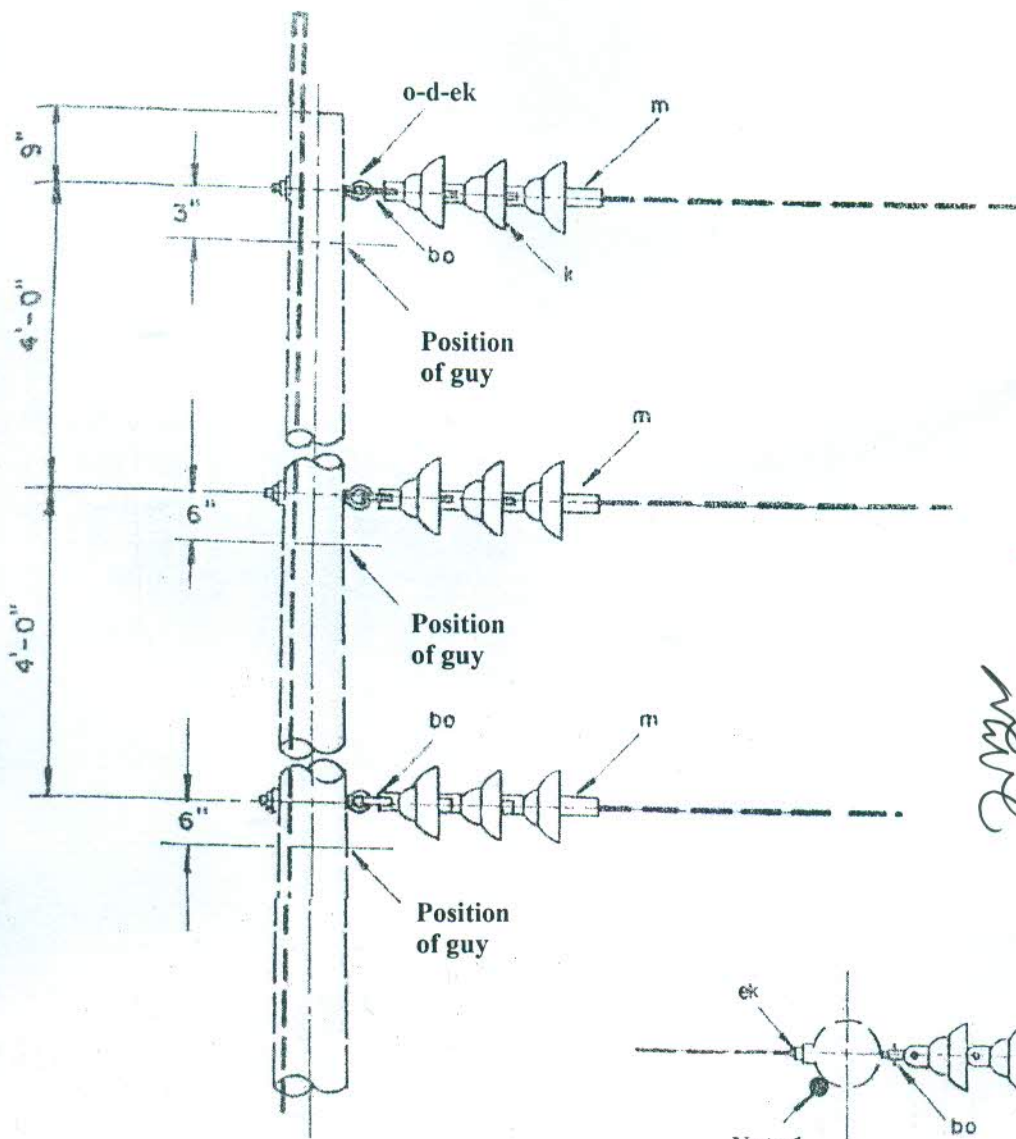
1. Ground wire to be installed on opposite quadrant of pole from centre phase.
2. 33 KV Hawk Conductor 300' Span upto 10° angle.
3. Brace holes at both end should be 11/16" φ
4. Side groove of insulator must always be larger than the diameter of conductor including armor rod when required.
5. When the transvers load is more than 500 pound per pin, install 2 1/4" x 2 1/4" x 3/16" washer on the top of the crossarm for each pin.
6. Use pin, crossarm, steel clamp type for more than 750 lbs/pin.
7. If transvers load exceed 1000 lbs/pin, use vertical construction.
8. Connect shield wire to ground wire.
9. Normally Bolts will be used to fix the hardware. If not possible use of G I Clamps (duly approved by BREB) shall be made.

ITEM	MAT. CODE	Qty.	MATERIAL	ITEM	MAT. CODE	Qty.	MATERIAL
a	C 5	6	Insulator, Pin type 34.5 KV	d	B 46	3	Washer, square, 2-1/4"
c	B 6/7/8	3	Bolt, m/c, 5/8" x req'd. length	ek	B 50/138	18	Locknuts, as required
cu	B42/B42.1/B45	2	Brace, steel / Wood, 60° span,	f	B 122	6	Pin, xarm, steel 3/4"x17"
g	X 7	2	Crossarm, steel 4" x 2" x 2" x 1/4" x 8'-0"	c	B4/4.1/4.2.4.1	5	Bolt, Machine, 1/2"x6" - 12"
g	X 6	1	Crossarm, steel 4" x 2" x 2" x 1/4" x 5'-0"	da	B 72	1	Bracket, Secondary
n	B26/B27/B28	3	Bolt, double, arming	cm	C 2/3	1	Insulator, Spool
c	B3	1	Bolt, Machine, 1/2" x 1-1/2"	c	B 95	1	Bolt, Machine, 5/8" x 1-1/2"

BANGLADESH RURAL ELECTRIFICATION BOARD

Unit Description: 33 KV STEEL CROSSARM CONSTRUCTION 0° TO 10° ANGLE

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	T2C



৬২১ তম বোর্ড সভায় অনুমোদিত সিদ্ধান্ত নং ১৭৭০০

(Kamrul Ahsan Mollik)
Asst. Secy. (Board), BREB.

(Md. Abdul Khaleque)
Consultant TAPP BREB

(Debasish Chakraborty)
PD, TAPP, BREB

(Md. Ahsanul Haque)
Consultant TAPP, BREB

(Md. Duhidul Islam)
Consultant, TAPP BREB

(Md. Mozibur Rahman)
Consultant, TAPP BREB

(Md. Mazammel Huq)
Consultant, TAPP BREB

Note:

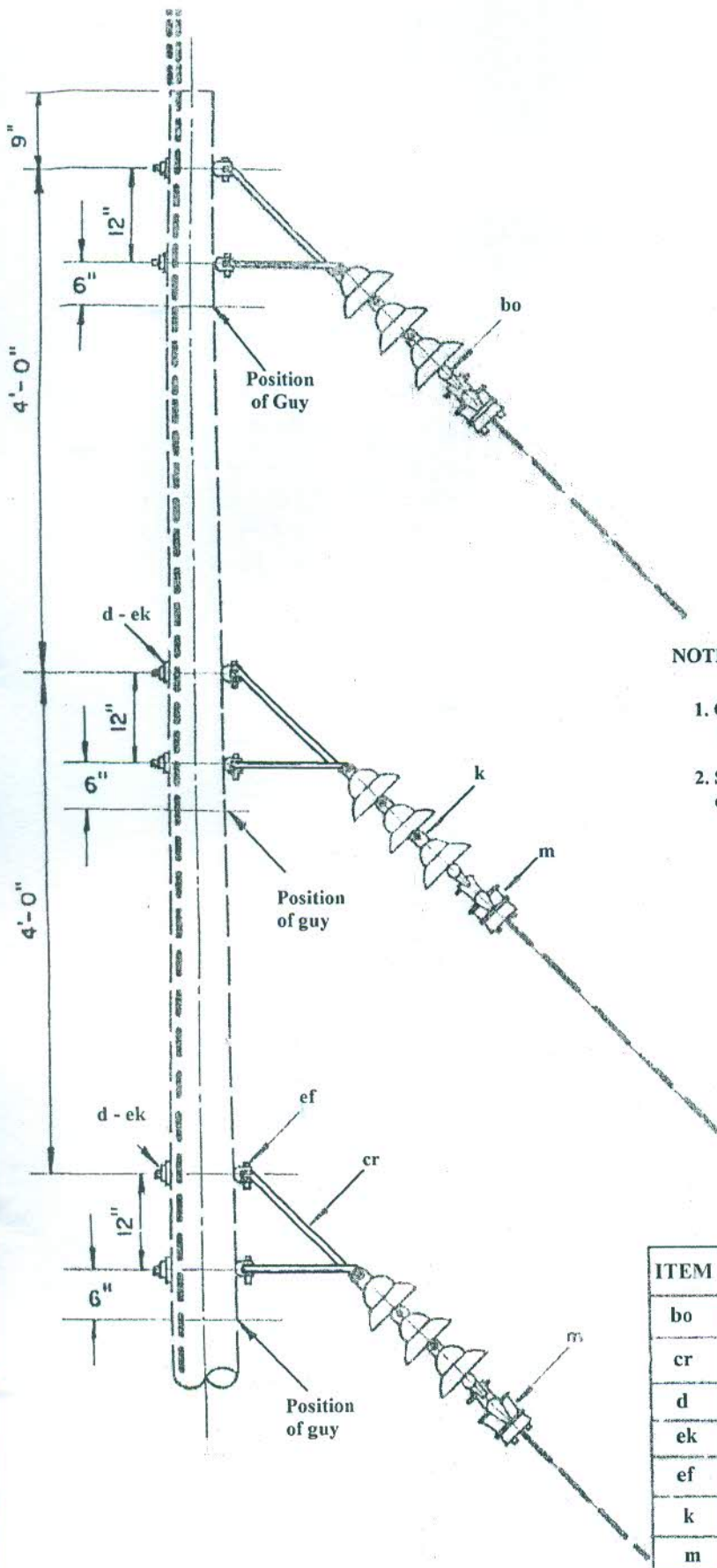
1. Ground wire to be installed on opposite side of pole from suspension insulators
2. See Dwg. TM41-10 for suspension assembly details.

ITEM	NO.	MATERIAL	CODE
bo	3	Shackle, anchor	B55
d	3	Washer, square, 2 1/4"	B46
ek		Locknuts, as req'd	B50/138
k	9	Insulator, suspension, 10"	C11
m	3	Clamp, suspension, 2 bolt	B83/84/134
o	3	Bolt, eye, 5/8" x req'd length	B18-22

BANGLADESH RURAL ELECTRIFICATION BOARD

Unit Description: 33 KV VERTICAL CONSTRUCTION, 30° TO 50° ANGLA

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	T3



৬২১ তম বোর্ড সভায় অনুমোদিত সিদ্ধান্ত নং ১৭৭০০

(Signature)
(Md. Abdul Khaleque)
Consultant, TAPP, BREB

(Signature)
(Debasish Chakrabortty) (Kamrul Ahsan Mollik)
Asst. Secy. (Board), BREB

NOTE:

1. Ground wire to be installed on the opposite side of pole from suspension insulators
2. See Drawing TM41-10 for suspension assembly details

(Signature)
(Md. Duhidul Islam)
Consultant, TAPP, BREB

(Signature)
(Md. Ahsanul Haque)
Consultant, TAPP, BREB

(Signature)
(Md. Mozibur Rahman)
Consultant, TAPP, BREB

(Signature)
(Md. Mozammel Haq)
Consultant, TAPP, BREB

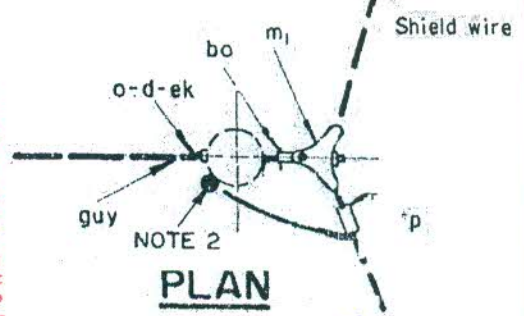
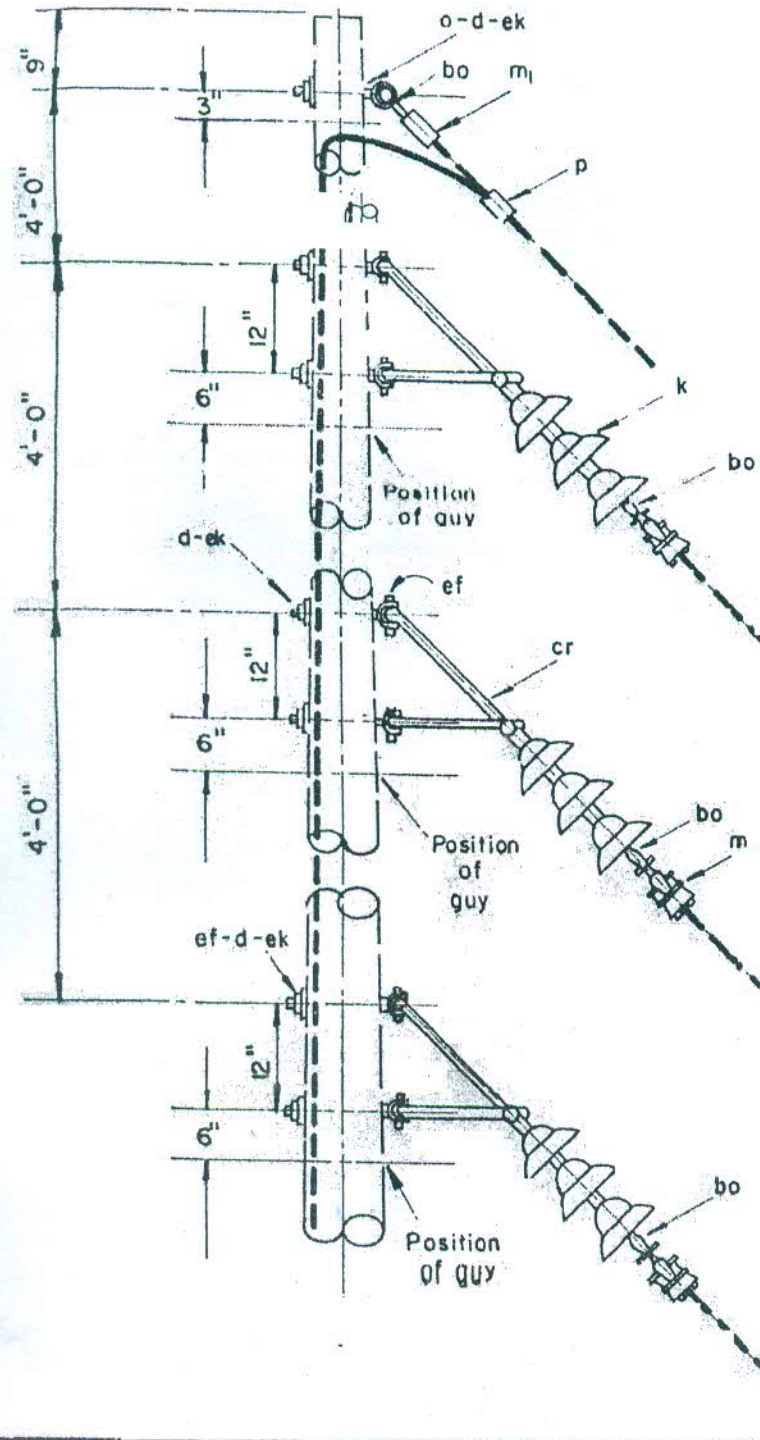
ITEM	NO.	MATERIAL	CODE
bo	3	Shackle, anchor	B55
cr	3	Bracket, angle, 5/8"	
d	6	Washer, square, 2-1/4"	B46
ek		Locknuts, as req'd	B50/138
ef	6	Bolt, clevis, 5/8" x req'd length	
k	9	Insulator, suspension, 10"	C11
m	3	Clamp, suspension, 2-bolt	B83/84/134

BANGLADESH RURAL ELECTRIFICATION BOARD

Unit Description: **33 KV VERTICAL CONSTRUCTION, 10° TO 30° ANGLA**

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	T3-1

৬২১ তম বোর্ড সভায় অনুমোদিত সিদ্ধান্ত নং ৩৭৭০৪



(Kamrul Ahsan Mollah)
Asst. Secy. (Board), BREB.

NOTE:

1. Connect ground wire to shield wire.
2. Ground wire to be installed on the opposite side of pole from suspension insulators.
3. See Dwg. TM41-10 for suspension assembly detail.

(Md. Dumul Islam)
Consultant TAPP, BREB

(Md. Abdul Khaleque)
Consultant TAPP, BREB

(Debasish Chakraborty)
PD, TAPP, BREB

(Md. Mozibur Rahman)
Consultant TAPP, BREB

(Md. Muzammel Haque)
Consultant TAPP, BREB

(Md. Akmal Haque)
Consultant TAPP, BREB

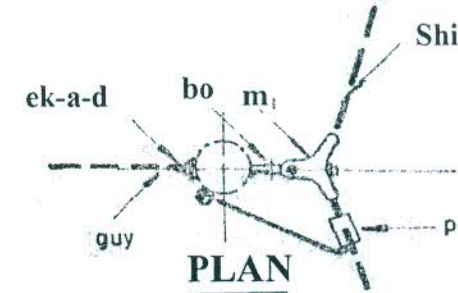
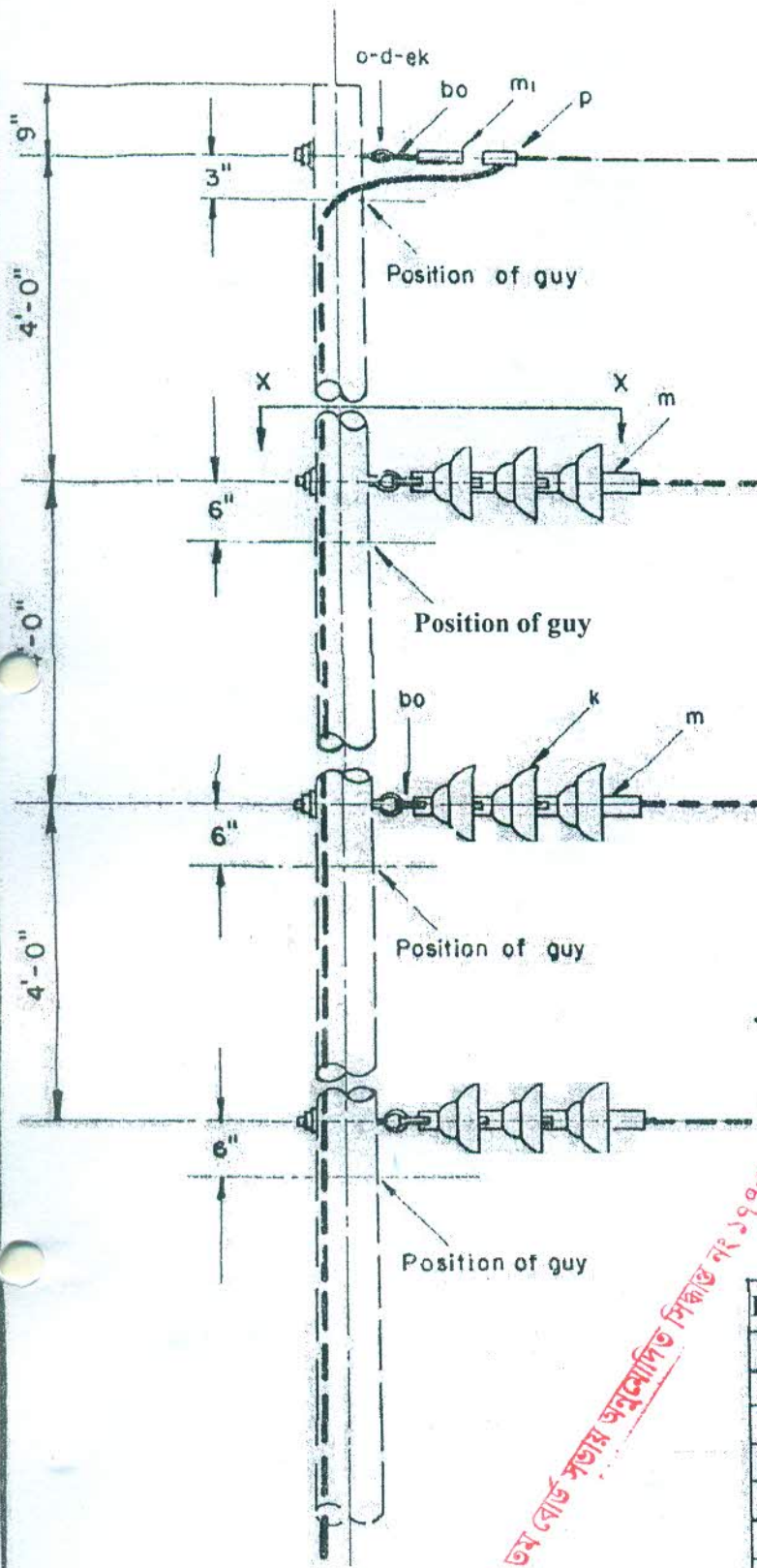
ITEM NO.	MATERIAL	CODE	ITEM NO.	MATERIAL	CODE
bo 4	Shackle, anchor	B55	k 9	Insulator, suspension, 10"	C11
cr 3	Bracket, angle, 5/8"				
d 7	Washer, square, 2 1/4"	B46	m 3	Clamp, suspension, 2 bolt	B83/84/134
ef 6	Bolt, clevis 5/8" x req'd length		m1 1	Clamp, suspension, 1 bolt	
ek	Locknuts, as req'd	B50/138	o 1	Bolt, eye, 5/8" x req'd length	B18-22
p	Connectors, as req'd				

BANGLADESH RURAL ELECTRIFICATION BOARD

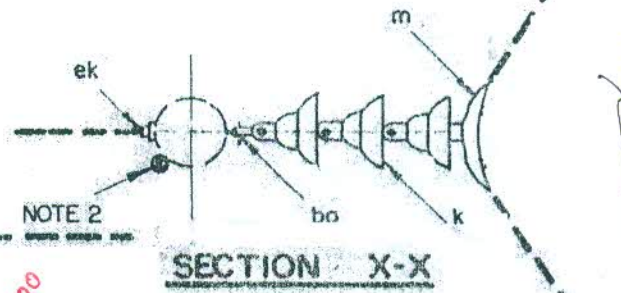
Unit Description: **33 KV VERTICAL CONSTRUCTION WITH SHIELD WIRE**
10° TO 30° ANGLE

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	T3-1A

Revision Date: July 1980, June 1981, August 1989, July 1995, August 2013, February 2020



- NOTE:
1. Connect ground wire to shield wire
 2. Ground wire to be installed on the opposite side of the pole from suspension insulator
 3. See Dwg. TM41-10 for suspension assembly details.



ITEM	No.	CODE	MATERIAL
bo	4	B55	Shackle, anchor
d	4	B46	Washer, Square, 2-1/4"
ek		B50	Locknuts, as req'd
k	9	C11	Insulator, Suspension, 10"
p			Connector
m	3	B83/B84/B134	Clamp, Suspension, 2 bolt
m ₁	1		Clamp, Suspension, 1 bolt
o	4	B18-22	Bolt, eye, 5/8" x req'd length

BANGLADESH RURAL ELECTRIFICATION BOARD

Unit Description: **33 KV VERTICAL CONSTRUCTION WITH SHIELD WIRE**
30° TO 50° ANGLE

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	T3A

৬২২ তম বোর্ড সভায় অনুমোদিত সিদ্ধান্ত নং ১৭৭০০

(Md. Abul Khaleque)
Consultant, TAPP, BREB

(Md. Mozammel Haq)
Consultant, TAPP, BREB

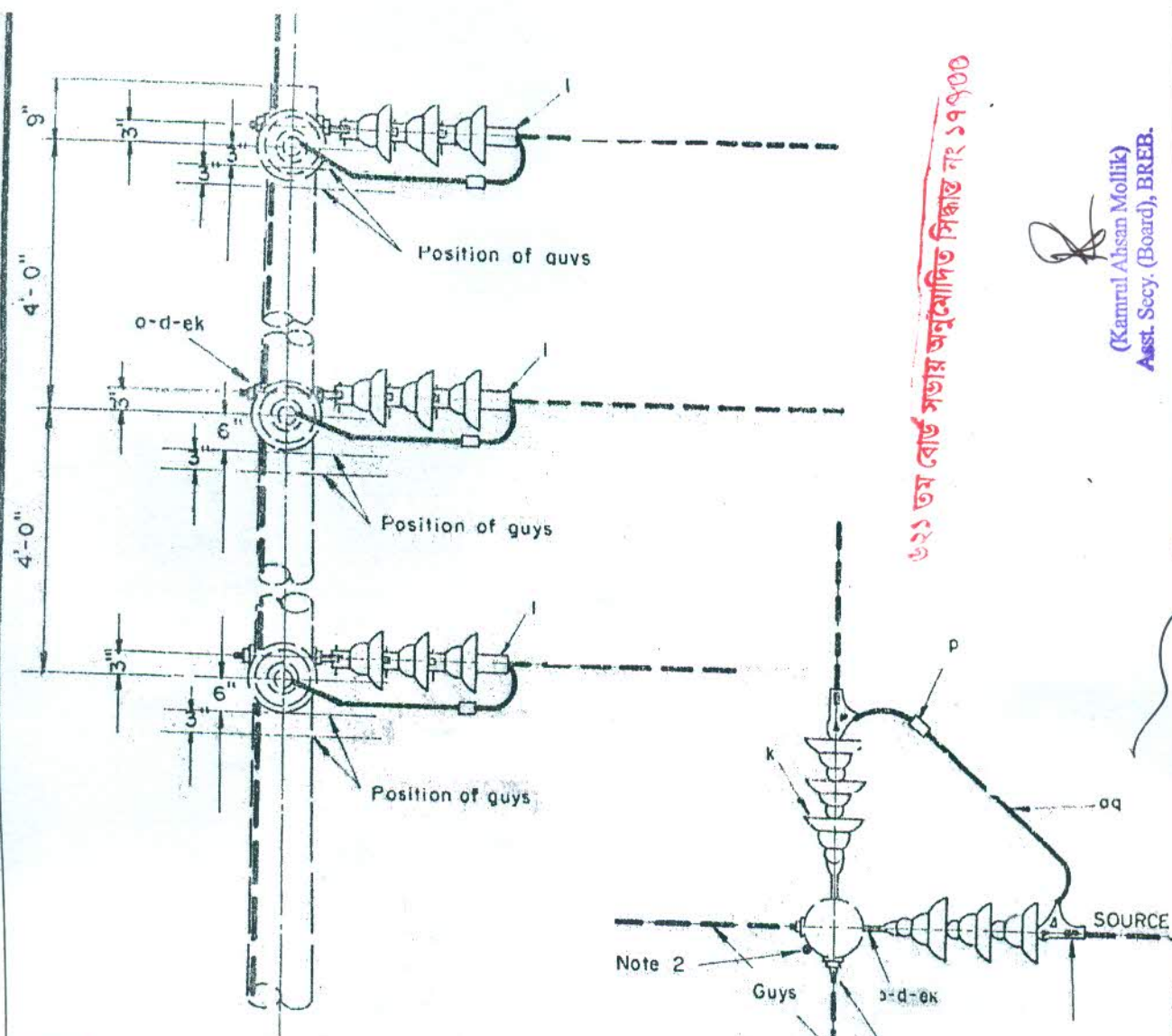
(Md. Duhidul Islam)
Consultant, TAPP, BREB

(Md. Ahsanul Haque)
Consultant, TAPP, BREB

(Md. Mozibur Rahman)
Consultant, TAPP, BREB

(Kamrul Ahsan Olfik)
Asst. Secy. (Board), BREB

(Debasish Chakraborty)
D. TAPP, BREB



৬২১ তম বোর্ড সভায় অনুমোদিত সিদ্ধান্ত নং ১৭৭০০

(Kamrul Absan Mollik)
Asst. Secy. (Board), BREB.

(Debasish Chakraborty)
PD, TAPP, BREB.

(Md. Ahsanul Haque)
Consultant, TAPP, BREB.

(Md. Abdul Khaieque)
Consultant, TAPP, BREB.

(Md. Mozammel Haq)
Consultant, TAPP, BREB.

(Md. Duhidul Islam)
Consultant, TAPP, BREB.

(Md. Mozibur Rahman)
Consultant, TAPP, BREB.

NOTES:

1. See Dwg. TM41-10 for deadend assembly details.
2. Ground wire to be installed on quadrant between guys.
3. Install top eye bolt in pre-drilled split bolt hole. Drill top conductor guy attachment hole nine inches from top eye bolt.

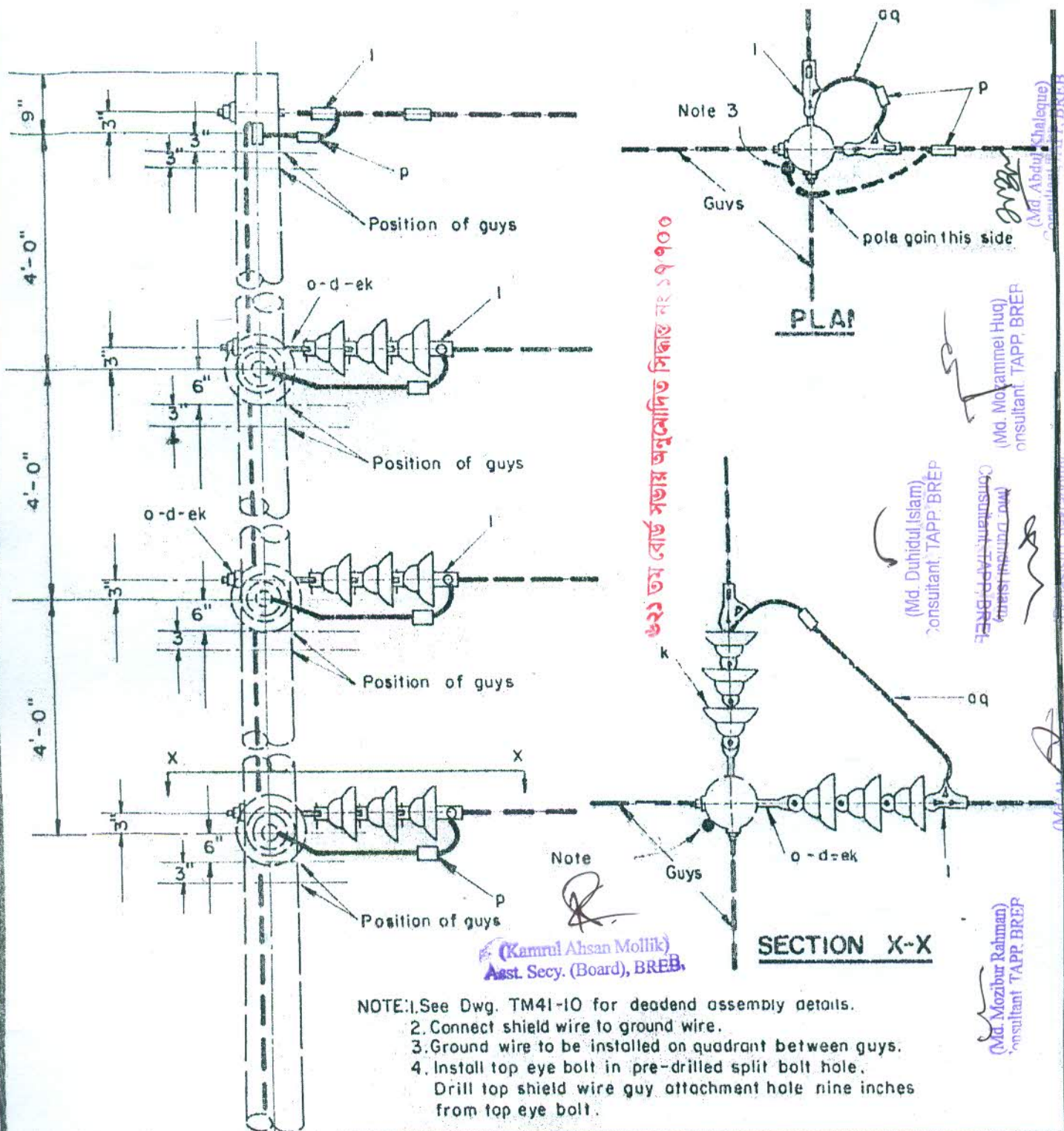
ITEM NO.	MATERIAL	CODE	ITEM NO.	MATERIAL	CODE
aq	Jumpers, as req'd		1	6	Clamp, deadend
d	6 Washer, square, 2 1/4"	B46	p		Connectors, as req'd
ek	Locknuts, as req'd	B50			
k	18 Insulator, suspension, 10"	C11			
o	6 Bolt, eye, 5/8" x req'd length	B18-22			

BANGLADESH RURAL ELECTRIFICATION BOARD

Unit Description: **33KV VERTICAL CONSTRUCTION 50° TO 90° ANGLE**

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	T4

Revision Date: July 1980, June 1981, August 1989, July 1995, August 2013, February 2020



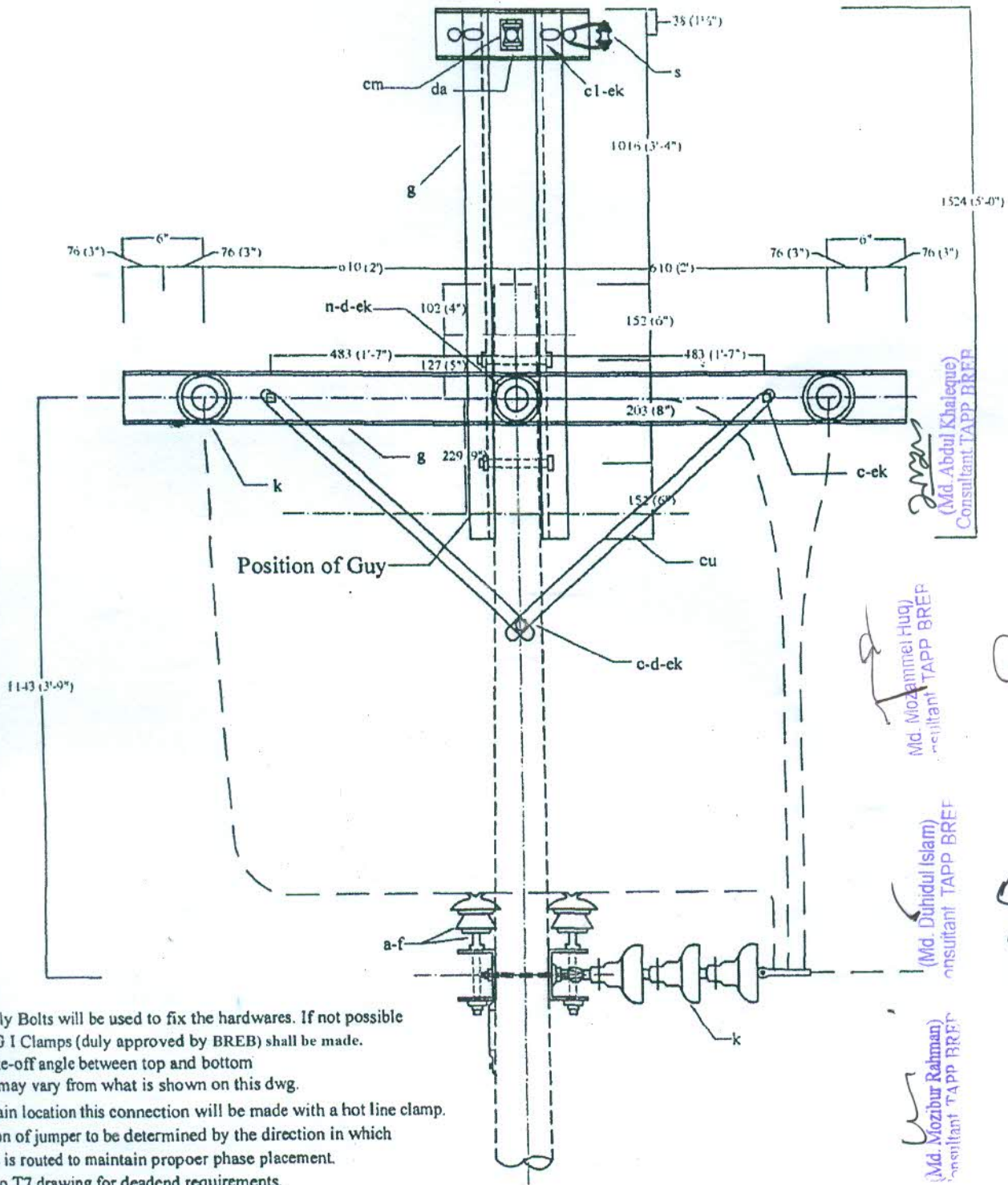
- NOTE: 1. See Dwg. TM41-10 for deadend assembly details.
 2. Connect shield wire to ground wire.
 3. Ground wire to be installed on quadrant between guys.
 4. Install top eye bolt in pre-drilled split bolt hole.
 Drill top shield wire guy attachment hole nine inches from top eye bolt.

ITEM	NO.	MATERIAL	CODE	ITEM	NO.	MATERIAL	CODE
aq		Jumpers, as req'd		l	8	Clamp, deadend	B81/132/133
d	8	Washer, square, 2 1/4"	B46	p		Connectors, as req'd	
ek		Locknuts, as req'd	B50				
k	18	Insulator, suspension, 10"	C11				
o	8	Bolt, eye, 5/8" x req'd length	B18-22				

BANGLADESH RURAL ELECTRIFICATION BOARD

Unit Description: **33 KV VERTICAL CONSTRUCTION WITH SHIELD WIRE
50° TO 90° ANGLE**

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	T4A



Note :-

1. Normally Bolts will be used to fix the hardwares. If not possible use of G I Clamps (duly approved by BREB) shall be made.
2. Top take-off angle between top and bottom circuit may vary from what is shown on this dwg.
3. At certain location this connection will be made with a hot line clamp.
4. Location of jumper to be determined by the direction in which the line is routed to maintain proper phase placement.
5. Refer to T7 drawing for deadend requirements.
6. See drawing E5-1 for crossarm loading limitation.

৬২১ তম বোর্ড সভায় অনুমোদিত শিফট নং ১৭৭৩৩

(Md. Abdul Khaieque)
Consultant TAPP BREB

(Md. Mozammel Haq)
Consultant TAPP BREB

(Md. Duhidul Islam)
Consultant TAPP BREB

(Md. Mozibur Rahman)
Consultant TAPP BREB

(Kamrul Ahsan Mollik)
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(Debasish Chakraborty)
PD, TAPP, BREB

(Md. Ahsanul Haque)
Consultant TAPP, BREB

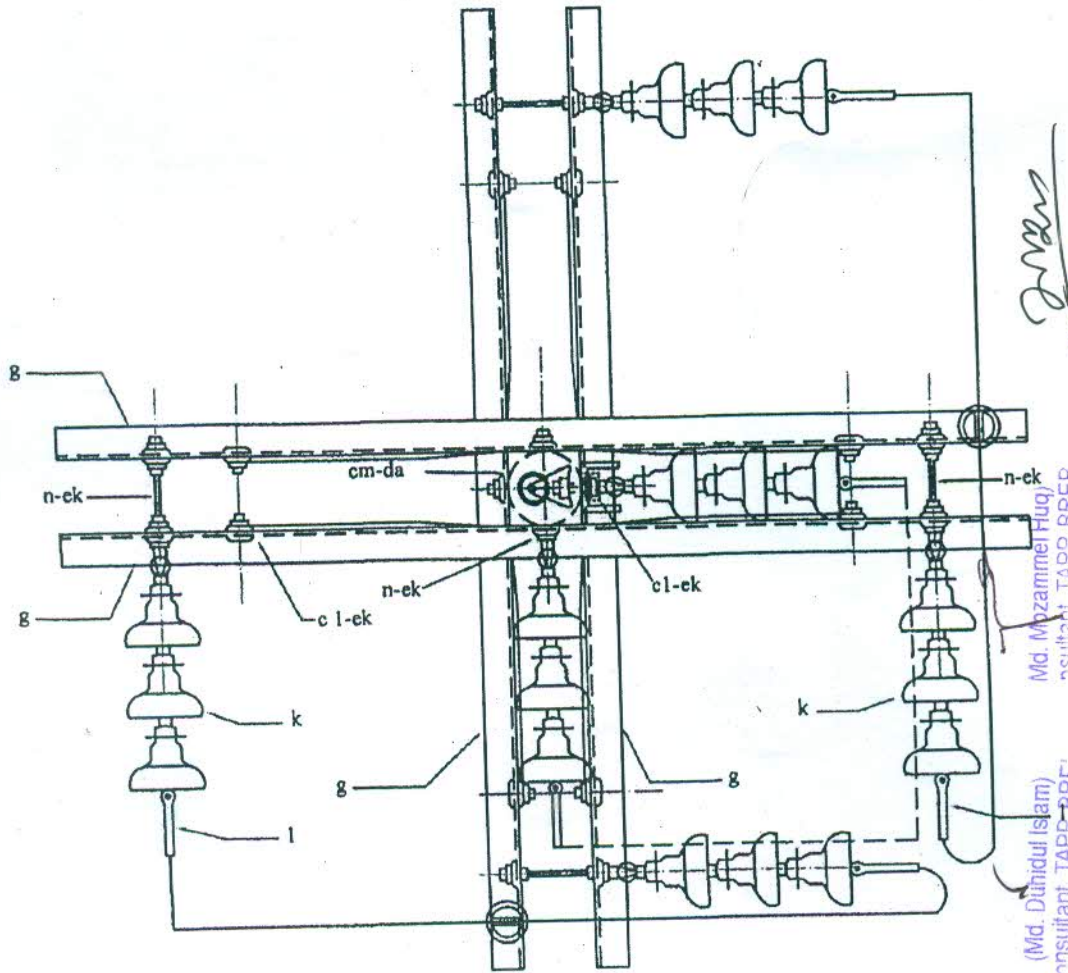
ITEM	MAT. CODE	Qty.	MATERIAL	ITEM	MAT. CODE	Qty.	MATERIAL
k	C 11	18	Insulator, suspension 33 KV	i	B 81/132/133	06	Clamp, deadend
a	C 5	02	Insulator, pin type 33 KV	p	15/16	-	Connectors as required
c	B 6/7/8	04	Bolt, machine, 5/8" x Required length	aa	B 53	07	Nut, eye, 5/8"
d	B 46/118	04	Washer, squire, 2 1/4"	cm	C 3/2	02	Spool, Insulator, 1 1/4" or 3" dia groove
f	B 122	02	Pin, crossarm, steel, 5/8" x 10-3/4"	ek	B 50	35	Locknuts as required
g	X 6	06	Crossarm, steel channel 4" x 2" x 2" x 1/4" x 5'-0"	bo	B 55	03	Anchor, shackle
cu	B41/B41.1/B44	08	Brace, steel / Wood, 28" x 1/4"	n	B26/B27/B28	06	Bolt, Double arming
c	B3	06	Bolt, Machine, 1/2" x 1 1/2"	da	B 72	01	Bracket, secondary
-	-	01	Plate, arming 14" or 12" x 4" x 1/4"	s	B 73	01	Clevis, secondary, swinging
c	B4/B4.1-4.3	02	Bolt, Machine, 1/2" x as required length	c	B95	02	Bolt, Machine, 5/8" x 1-1/2"

BANGLADESH RURAL ELECTRIFICATION BOARD

Unit Description: 33 KV STEEL CROSSARM CONSTRUCTION 50° to 90° ANGLE (HORIZONTAL ASSEMBLY)

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	T5 Sheet 1 of 2

Revision Date: July 1980, June 1981, August 1989, July 1995, August 2013, February 2020



TOP VIEW

(Signature)
 (Md. Abdul Khaleque)
 Consultant, TAPP, BREB

(Signature)
 (Kamrul Ahsan Mollik)
 Asst. Secy. (Board), BREB.

(Signature)
 (Md. Mozammel Haque)
 Consultant, TAPP, BREB

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 (Md. Dürnidul Islam)
 Consultant, TAPP, BREB

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 (Debasish Chakraborty)
 D.O. TAPP, BREB

(Signature)
 (Md. Mozibur Rahman)
 Consultant, TAPP, BREB

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 (Md. Ahsanul Haque)
 Consultant, TAPP, BREB

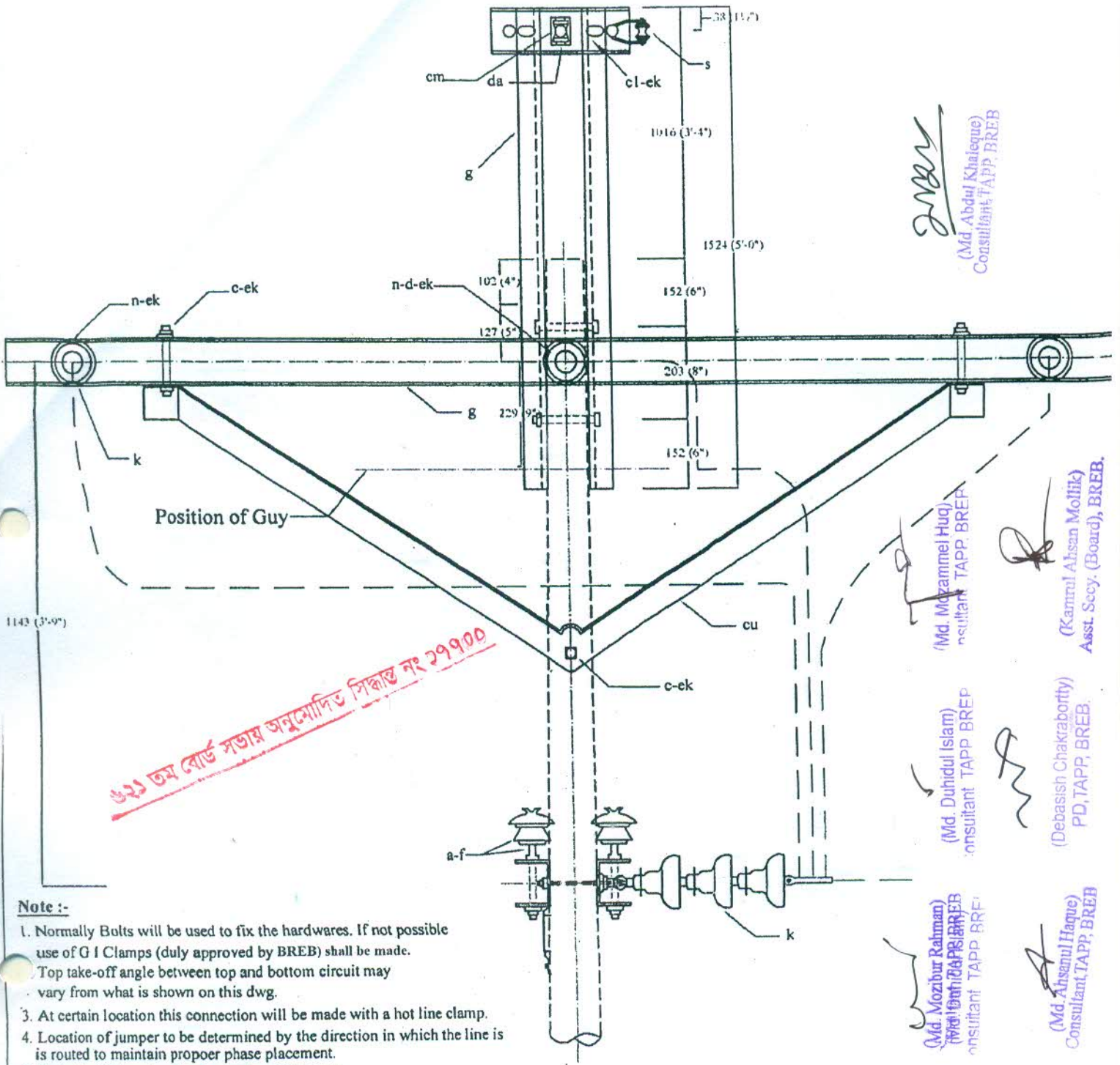
৬২১ তম বোর্ড সভায় অনুমোদিত সিদ্ধান্ত নং ১৭৭০০

BANGLADESH RURAL ELECTRIFICATION BOARD

Unit Description: 33 KV STEEL CROSSARM CONSTRUCTION 50° to 90° ANGLE (HORIZONTAL ASSEMBLY)

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	T5

Revision Date: July 1980, June 1981, August 1989, July 1995, August 2013, February 2020



Note :-

- Normally Bolts will be used to fix the hardwares. If not possible use of G I Clamps (duly approved by BREB) shall be made. Top take-off angle between top and bottom circuit may vary from what is shown on this dwg.
- At certain location this connection will be made with a hot line clamp.
- Location of jumper to be determined by the direction in which the line is routed to maintain proper phase placement.
- Refer to C7 drawing for deadend requirements.
- See drawing E5-1 for crossarm loading limitation.

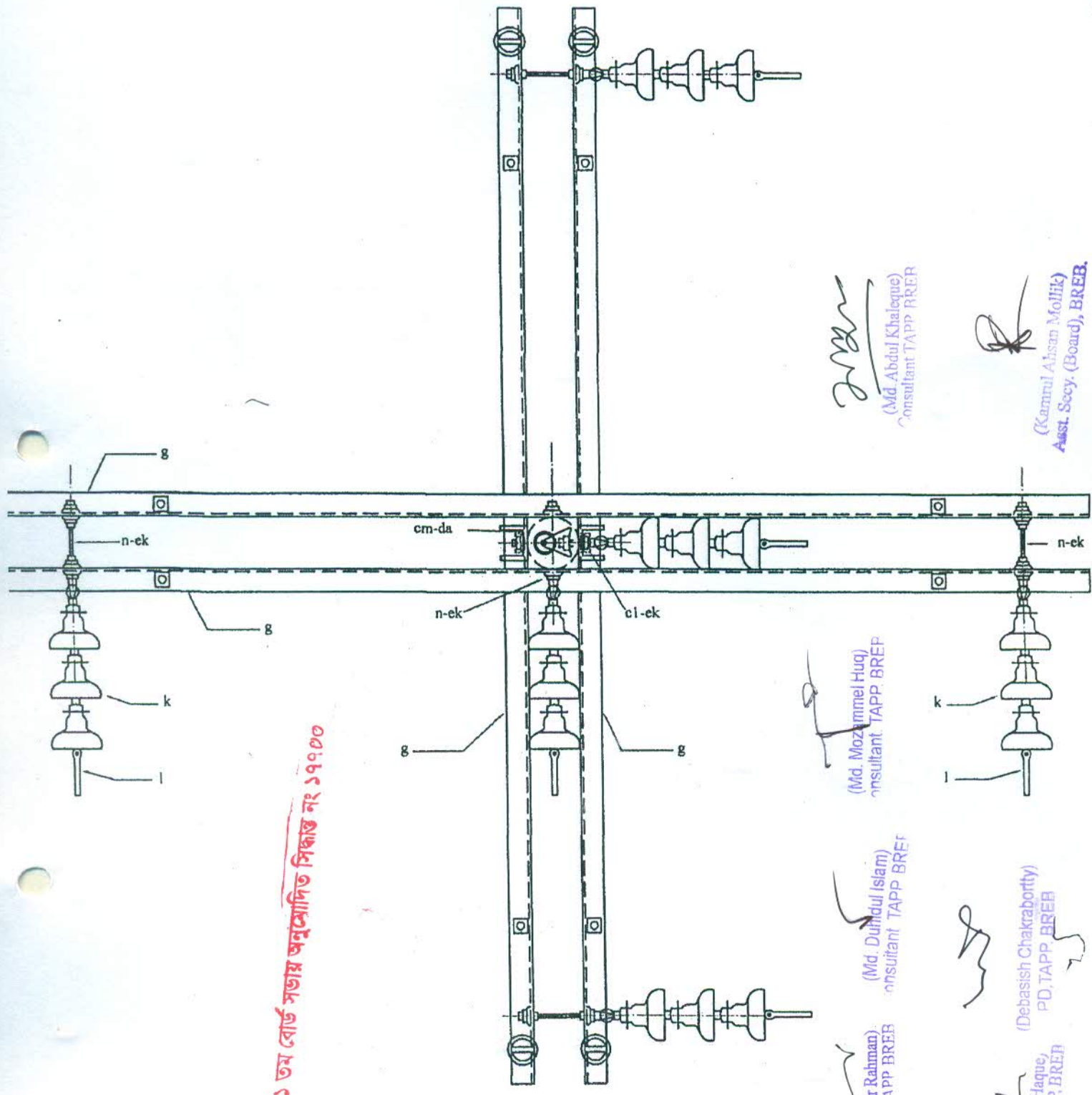
ITEM	MAT. CODE	Qty.	MATERIAL	ITEM	MAT. CODE	Qty.	MATERIAL
k	C 11	18	Insulator, suspension 11 KV	l	B 81/132/133	06	Clamp, deadend
a	C 5	02	Insulator, pin type 11 KV	p	15/16	-	Connectors as required
c	B 6/7/8	12	Bolt, machine, 5/8" x Required length	aa	B 53	06	Nut, eye, 5/8"
d	B 46/118	05	Washer, squire, 2 1/4"	o	B18/19/20	03	Bolt, eye 5/8" φ
f	B 122	02	Pin, crossarm, steel, 5/8" x 10-3/4"	cm	C 3/2	02	Spool, Insulator, 1-3/4" or 3" dia groove
g	X 7	04	Crossarm, steel channel 4" x 2" x 2" x 1/4" x 8'-0"	ck	B 50	36	Locknuts as required
g	X 6	02	Crossarm, steel channel 4" x 2" x 2" x 1/4" x 5'-0"	bo	B 55	06	Anchor, shackle
cu	B42/B42.1/B45	04	Brace, steel/ Wood, 60" Span	n	B26/B27/B28	06	Bolt, Double arming
da	B 72	01	Bracket, secondary	c:	B 3	08	Bolt, Machine, 1/2" x 1 1/2"
c	B4/B4.1-4.3	02	Bolt, Machine, 1/2" x as required length	c	B95	02	Bolt, Machine, 5/8" x 1-1/2"

BANGLADESH RURAL ELECTRIFICATION BOARD

Unit Description: 33 KV STEEL CROSSARM CONSTRUCTION 50° to 90° ANGLE (HORIZONTAL ASSEMBLY)

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	T5A

Revision Date: July 1980, June 1981, August 1989, July 1995, August 2013, February 2020



৬২১ তম বোর্ড সভায় অনুমোদিত সিক্স নং ১৭৭০০

TOP VIEW

(Signature)
 (Md. Abdul Khaleque)
 Consultant TAPP BREB

(Signature)
 (Kamrul Ahsan Mollik)
 Asst. Secy. (Board), BREB.

(Signature)
 (Md. Mozammel Haq)
 Consultant TAPP BREB

(Signature)
 (Md. Duhidul Islam)
 Consultant TAPP BREB

(Signature)
 (Debasish Chakraborty)
 PD, TAPP BREB

(Signature)
 (Md. Mozibur Rahman)
 Consultant TAPP BREB

(Signature)
 (Md. Ahsanul Haque)
 Consultant TAPP BREB

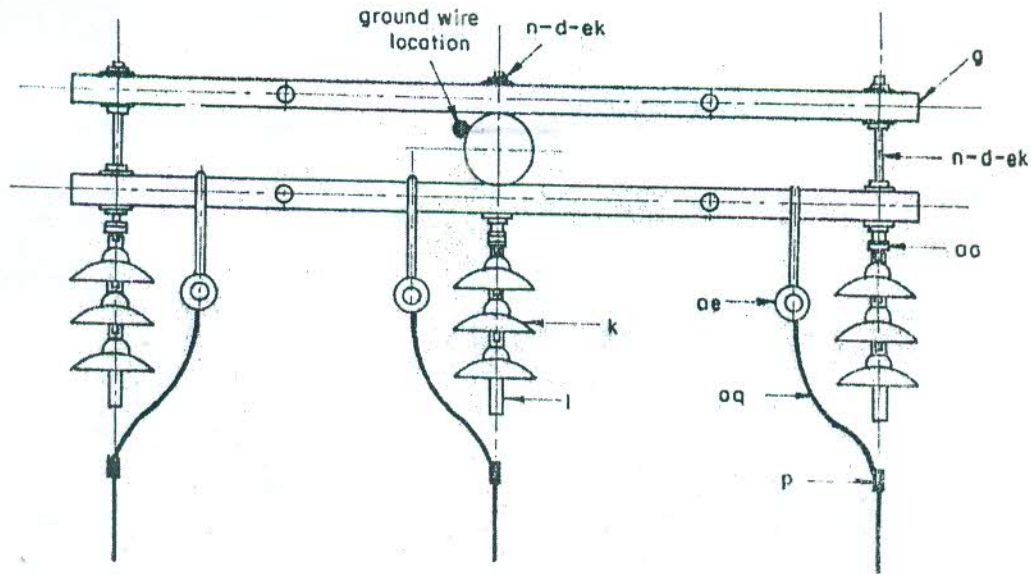
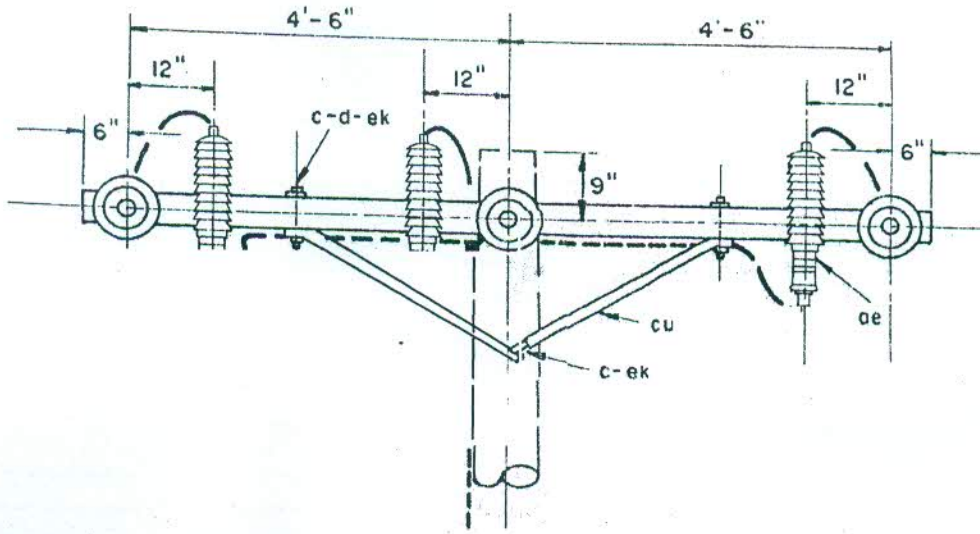
BANGLADESH RURAL ELECTRIFICATION BOARD

Unit Description: 33 KV STEEL CROSSARM CONSTRUCTION 50° to 90° ANGLE (HORIZONTAL ASSEMBLY)

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	T5A Sheet 2 of 2

Revision Date: July 1980, June 1981, August 1989, July 1995, August 2013, February 2020

৬২১ তম বোর্ড সভায় অনুমোদিত। সিক্সাও নং ১৭৭০০



ITEM	NO	MATERIAL	CODE	ITEM	NO	MATERIAL	CODE
c	1	Bolt, machine, 5/8" x req'd length	B6/7/8	n	3	Bolt, D/A, 5/8" x req'd length	B26-30
c	4	Bolt, machine, 1/2" x 6"-12"	B4/4.1-4.3	p	-	Connectors, as required	
d	10	Washer, square 2-1/4"	B46	oo	3	Nut, eye, 5/8"	B53
d	4	Washer, round, 1-3/8" diameter		oe	3	Surge Arresters, 33 KV	H3
q	2	Crossarm, 3-3/4" x 4-3/4" x 10'-0"	X2	cu	2	Brace, wood / Wood, 60" span	B42/B42.1/B45
k	9	Insulator, suspension, 10" diameter	C11	ek	-	Locknuts, as required	B50
l	3	Clamp, deadend	B81/132/133	aq	-	Jumpers, as required	

NOTES:

1. For this installation a driven ground rod is required. Specify separately as TM2-1.
2. TE5-2 required for 4/0 ACSR and larger conductors.
3. Connect surge arrester and guys to ground wire.
4. See TM41-10 for deadend assembly details.

BANGLADESH RURAL ELECTRIFICATION BOARD

Unit Description: 33 KV HORIZONTAL SINGLE DEADEND (WITHOUT SHIELD WIRE)

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	T7

Revision Date: July 1980, June 1981, August 1989, July 1995, August 2013, February 2020

(Kamrul Absan Mollik)
Asst. Secy. (Board), BREB.

(Debasish Chakraborty)
Asst. Secy. (Board), BREB.

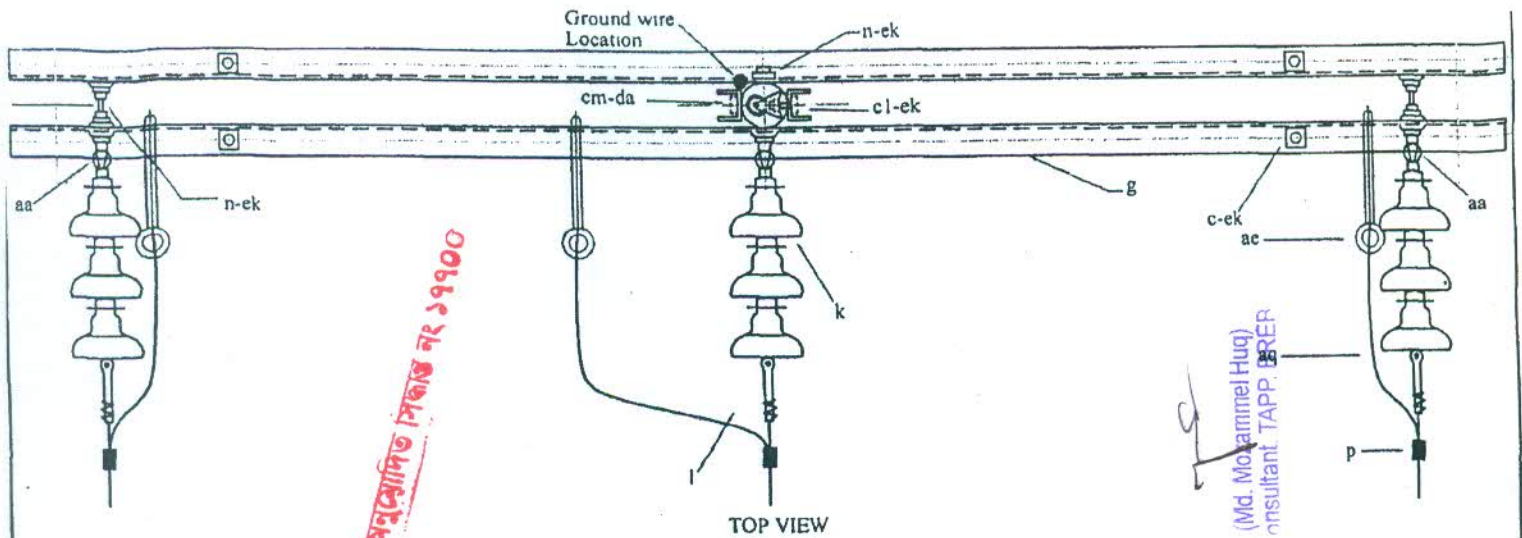
(Md. Anisul Haque)
Consultant, TAPP, BREB.

(Md. Abdul Khaleque)
Consultant, TAPP, BREB.

(Md. Mozammel Huq)
Consultant, TAPP, BREB.

(Md. Duhidul Islam)
Consultant, TAPP, BREB.

(Md. Mozibur Rahman)
Consultant, TAPP, BREB.



TOP VIEW

(Md. Mozammel Haq)
Consultant, TAPP, BREB

(Md. Duhidul Islam)
Consultant, TAPP, BREB

(Debasish Chakraborty)
PD, TAPP, BREB

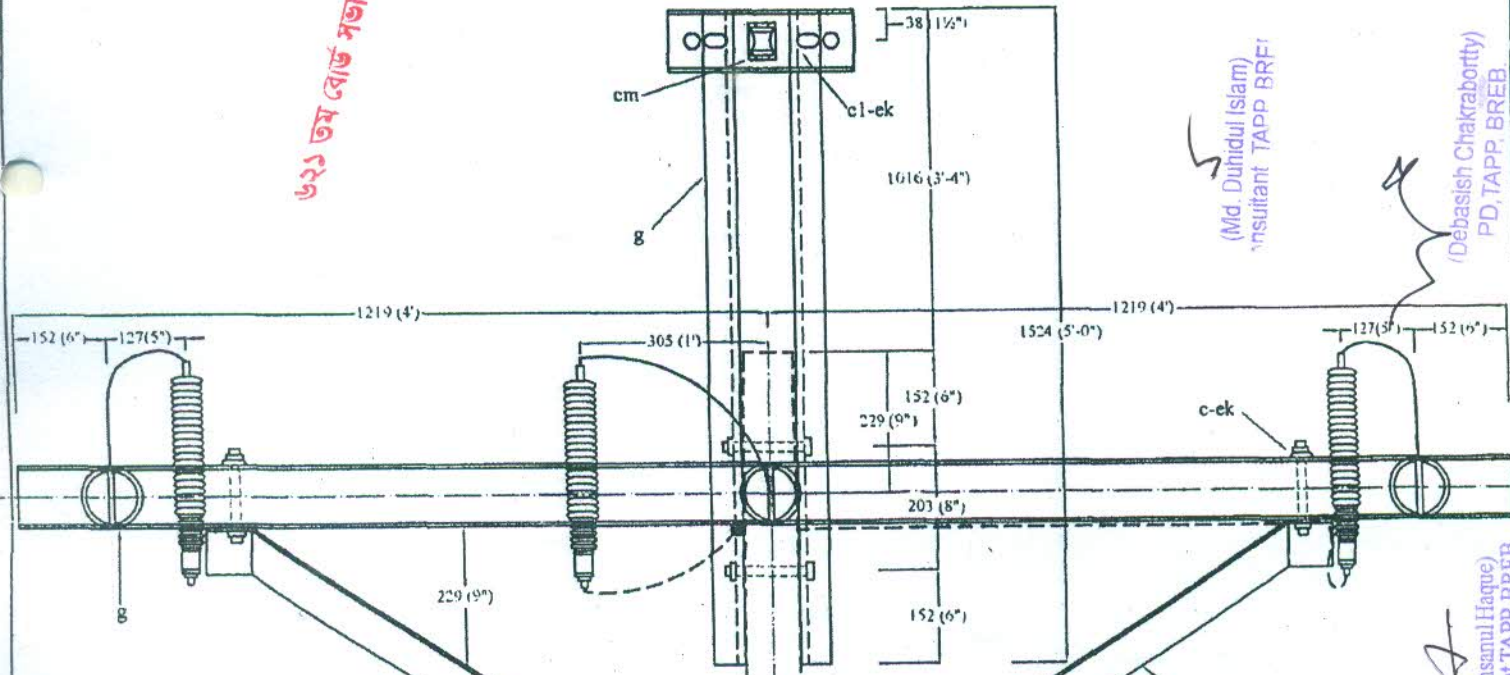
(Md. Ahsanul Haque)
Consultant, TAPP, BREB

(Md. Mozibur Rahman)
Consultant, TAPP, BREB

(Md. Abdul Khaleque)
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(Kamrul Ahsan Mollik)
Asst. Secy. (Board), BREB.

৬২১ তম বোর্ড সভায় অনুমোদিত সিকার নং ১৭৭০০



Note #

1. For this Installation a driven ground rod is require specify separately as TM2-1
2. See dwg. TE5-2 for crossarm loading limitation.
3. Use TE2-2 for shield wire guy. Terminate guy at top position of stub pole.
4. Connect surge arresters, shield wire & all guys to ground wire.
5. 33 KV Hawk Conductor 300' Span.
6. Brace holes at both end should be 1 1/16"φ
7. Normally Bolts will be used to fix the hardwares. If not possible use of G I Clamps (duly approved by BREB) shall be made.

ITEM	MAT. CODE	Qty.	MATERIAL	ITEM	MAT. CODE	Qty.	MATERIAL
k	C 11	9	Insulator, Suspension 10"φ	n	B26/B27/B28	3	Bolt, double arming, 5/8"φ x required Length
c	B 5/6/7/8	7	Bolt, m/c, 5/8" x req'd. length	aa	B 53	4	Nut, eye
cu	B42/B42.1/B45	2	Brace, steel / Wood, 60" span	ek	B 50/138	20	Locknuts, as required
g	X 7	2	Crossarm, steel 4" x 2" x 2" x 1/4" x 8'-0"	ac	H 3	3	Arrester, surge, 33 KV
g	X 6	2	Crossarm, steel 4" x 2" x 2" x 1/4" x 5'-0"	l	B 132/133	3	Clamp, deadend, for 477 MCM
cm	C 2/3	1	Insulator, Spool	d	B 46	3	Washer, square, 2-1/4"
c.	B4/B4.1 - 4.3	5	Bolt, Machine, 1/2" x 6" - 12"	s	B 73	1	Clevis, secondary swinging
c	B95	1	Bolt, Machine, 5/8" x 1-1/2"	-	-	1	Plate, arming 14" or 12" x 4" x 1/4"

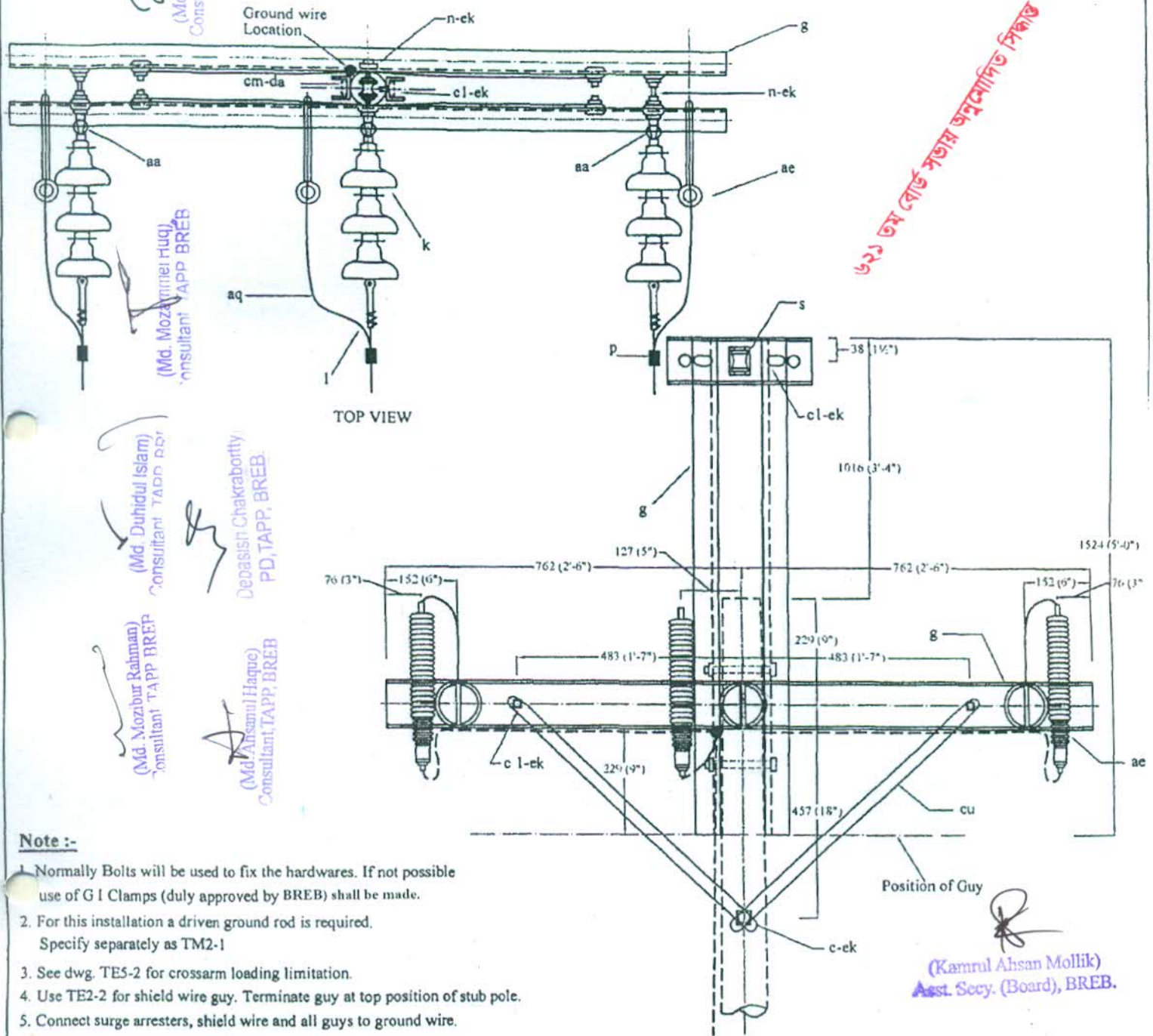
BANGLADESH RURAL ELECTRIFICATION BOARD

Unit Description: 33 KV STEEL CROSSARM (X7) CONSTRUCTION, HORIZONTAL SINGLE DEADEND

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	T7A

*(Md. Abdul Khaleque)
Consultant, TAPP, BREB*

৬২১ তম বোর্ড সভায় অনুমোদিত সিদ্ধান্ত নং ১৭৭০০



*(Md. Duhidul Islam)
Consultant TAPP, BREB*

*(Md. Mozibur Rahman)
Consultant TAPP, BREB*

*(Md. Anisul Haque)
Consultant, TAPP, BREB*

*(Md. Mozammel Haque)
Consultant, TAPP, BREB*

*(Md. Anisul Haque)
Consultant, TAPP, BREB*

*(Md. Anisul Haque)
Consultant, TAPP, BREB*

- Note :-**
- Normally Bolts will be used to fix the hardware. If not possible use of G I Clamps (duly approved by BREB) shall be made.
 - For this installation a driven ground rod is required. Specify separately as TM2-1
 - See dwg. TE5-2 for crossarm loading limitation.
 - Use TE2-2 for shield wire guy. Terminate guy at top position of stub pole.
 - Connect surge arresters, shield wire and all guys to ground wire.

*(Kamrul Ahsan Mollik)
Asst. Secy. (Board), BREB.*

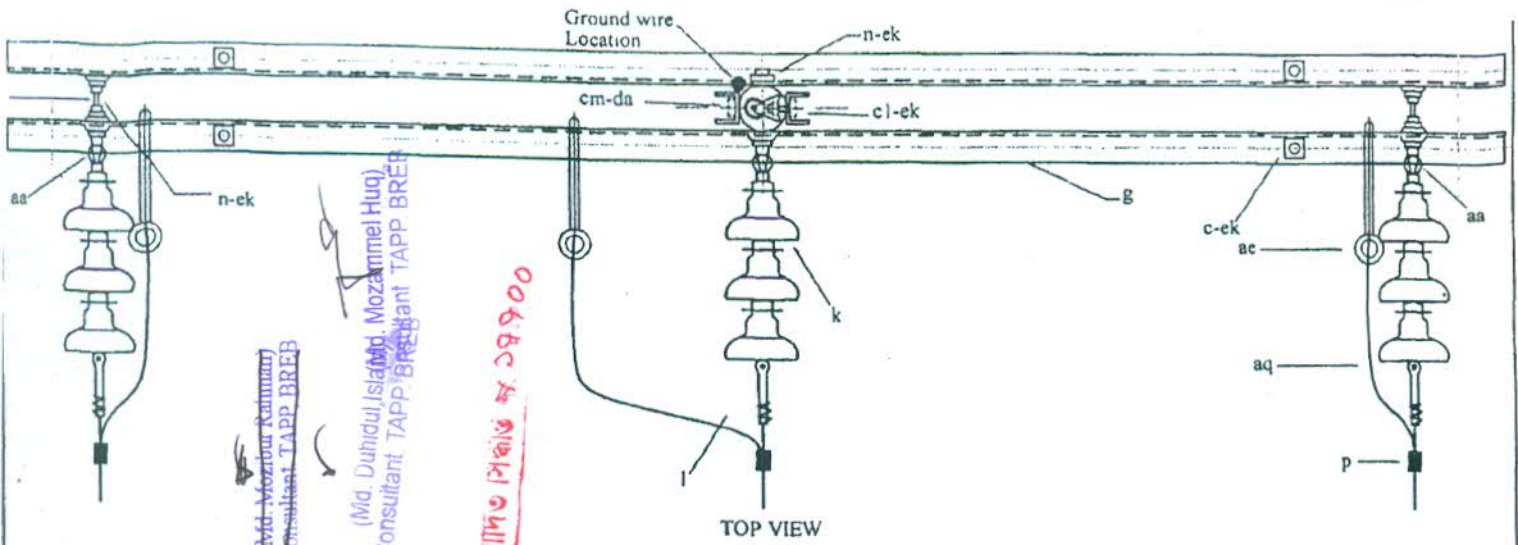
ITEM	MAT. CODE	Qty.	MATERIAL	ITEM	MAT. CODE	Qty.	MATERIAL
k	C 11	09	Insulator, Suspension 10"φ, 33 KV	n	B26/B27/B28	03	Bolt, double arming, 5/8"φ x required Length
c	B 6/7/8	03	Bolt, m/c, 5/8" x req'd. length	aa	B 53	04	Nut, eye
c	B4/B4.1 - 4.3	01	Bolt, Machine, 1/2" x 6" - 12"	ek	B 50/138	20	Locknuts, as required
cu	B41/B41.1/B44	04	Brace, Steel/ Wood, 28" x 1/4"	ae	H 3	03	Arrester, surge, 33 KV
g	X 6	04	Crossarm, steel 4" x 2" x 2" x 1/4" x 5'-0"	l	B 81/132/133	03	Clamp, deadend, for 477 MCM
c	B3	04	Bolt, Machine, 1/2" x 1-1/2"	p	l	-	Connector for 477 MCM as required
s	B 73	01	Clevis, Secondary, swinging	d	B 46	03	Washer 2 1/2" square with 11/16" holes
-	-	01	Plate, arming 14" or 12" x 4" x 1/4"	cm	C-2/3	01	Insulator, Spool
c	B95	01	Bolt, Machine, 5/8" x 1-1/2"				

BANGLADESH RURAL ELECTRIFICATION BOARD

Unit Description: 33 KV STEEL CROSSARM (X6) CONSTRUCTION HORIZONTAL SINGLE DEADEND

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	T7B

Revision Date: July 1980, June 1981, August 1989, July 1995, August 2013, February 2020



TOP VIEW

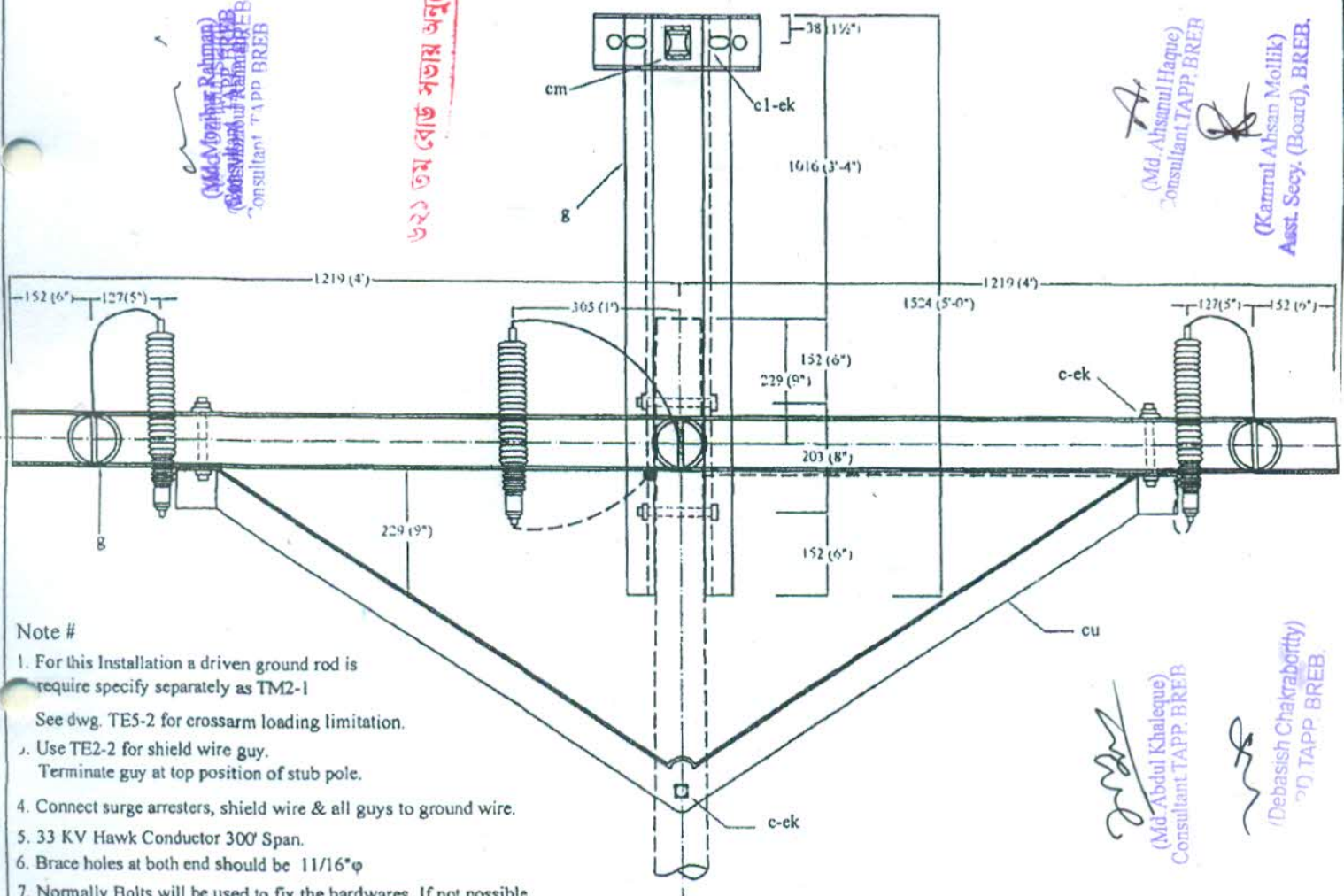
(Md. Mozibur Rahman)
Consultant TAPP BREB

(Md. Duhidul Islam, Mozammel Huq)
Consultant TAPP BREB

৩২২ তম বেড়ি মতায় অনুমোদিত দিকিড # ০৯৭০০

(Md. Ahsanul Haque)
Consultant TAPP BREB

(Kamrul Ahsan Mollik)
Asst. Secy. (Board), BREB.



- Note #
1. For this Installation a driven ground rod is require specify separately as TM2-1
See dwg. TE5-2 for crossarm loading limitation.
 2. Use TE2-2 for shield wire guy.
Terminate guy at top position of stub pole.
 4. Connect surge arresters, shield wire & all guys to ground wire.
 5. 33 KV Hawk Conductor 300' Span.
 6. Brace holes at both end should be 11/16"φ
 7. Normally Bolts will be used to fix the hardwares. If not possible use of G I Clamps (duly approved by BREB) shall be made.

(Md. Abdur Khaleque)
Consultant TAPP BREB

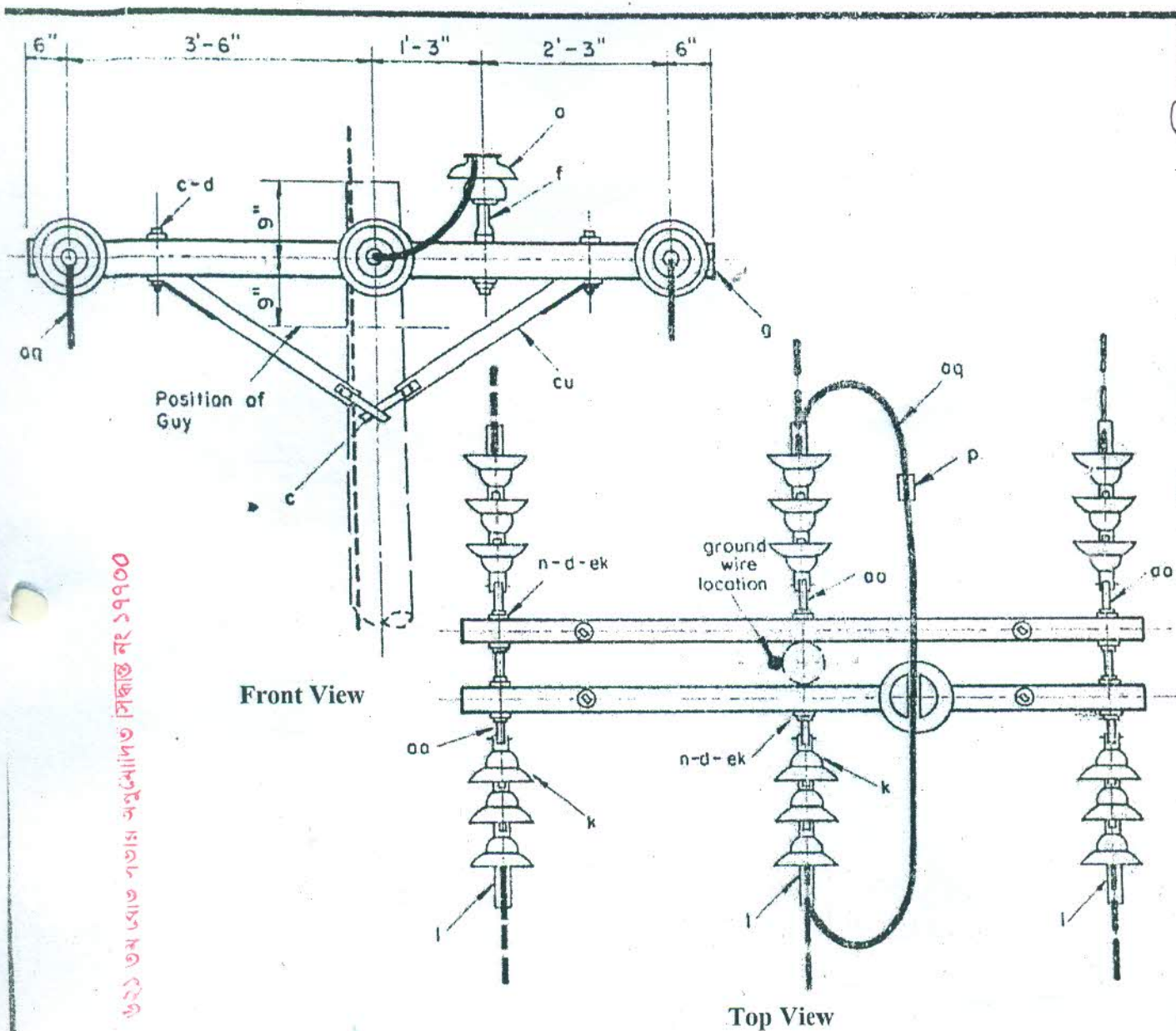
(Debasish Chakraborty)
TAPP BREB

ITEM	MAT. CODE	Qty.	MATERIAL	ITEM	MAT. CODE	Qty.	MATERIAL
k	C 11	9	Insulator, Suspension 10"φ c-ek	n	B26/B27/B28	3	Bolt, double arming, 5/8"φ x required Length
c	B 5/6/7/8	7	Bolt, m/c, 5/8" x req'd. length	aa	B 53	4	Nut, eye
cu	B42/B42.1/B45	2	Brace, Steel/ Wood, 60" Span	ek	B 50/138	20	Locknuts, as required
g	X 7	2	Crossarm, steel 4" x 2" x 2" x 1/4" x 8'-0"	ac	H 3	3	Arrester, surge, 33 KV
g	X 6	2	Crossarm, steel 4" x 2" x 2" x 1/4" x 5'-0"	l	B 81/132/133	3	Clamp, deadend, for 477 MCM
cm	C 2/3	1	Insulator, Spool	d	B 46	3	Washer, square, 2-1/4"
c	B4/B4.1 - 4.3	5	Bolt, Machine, 1/2" x 6" - 12"	s	B 73	1	Clevis, secondary swinging
c	B95	1	Bolt, Machine, 5/8" x 1-1/2"	-	-	1	Plate, arming 14" or 12" x 4" x 1/4"

BANGLADESH RURAL ELECTRIFICATION BOARD

Unit Description: 33 KV STEEL CROSSARM (X7) CONSTRUCTION, HORIZONTAL SINGLE DEADEND

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	T7C



(Kamrul Ahsan Mollah)
Asst. Secy. (Board), BREB.

(Debasish Chakraborty)
PD, TAPP, BREB.

(Md. Ahsanul Haque)
Consultant, TAPP, BREB.

(Md. Abduj Khaleque)
Consultant, TAPP, BREB.

(Md. Mozammel Haque)
Consultant, TAPP, BREB.

(Md. Dinkul Islam)
Consultant, TAPP, BREB.

(Md. Mozibur Rahman)
Consultant, TAPP, BREB.

৩২১ তম খণ্ড ৭তম অনুমোদিত সিক্সট নং ১৯৯০০

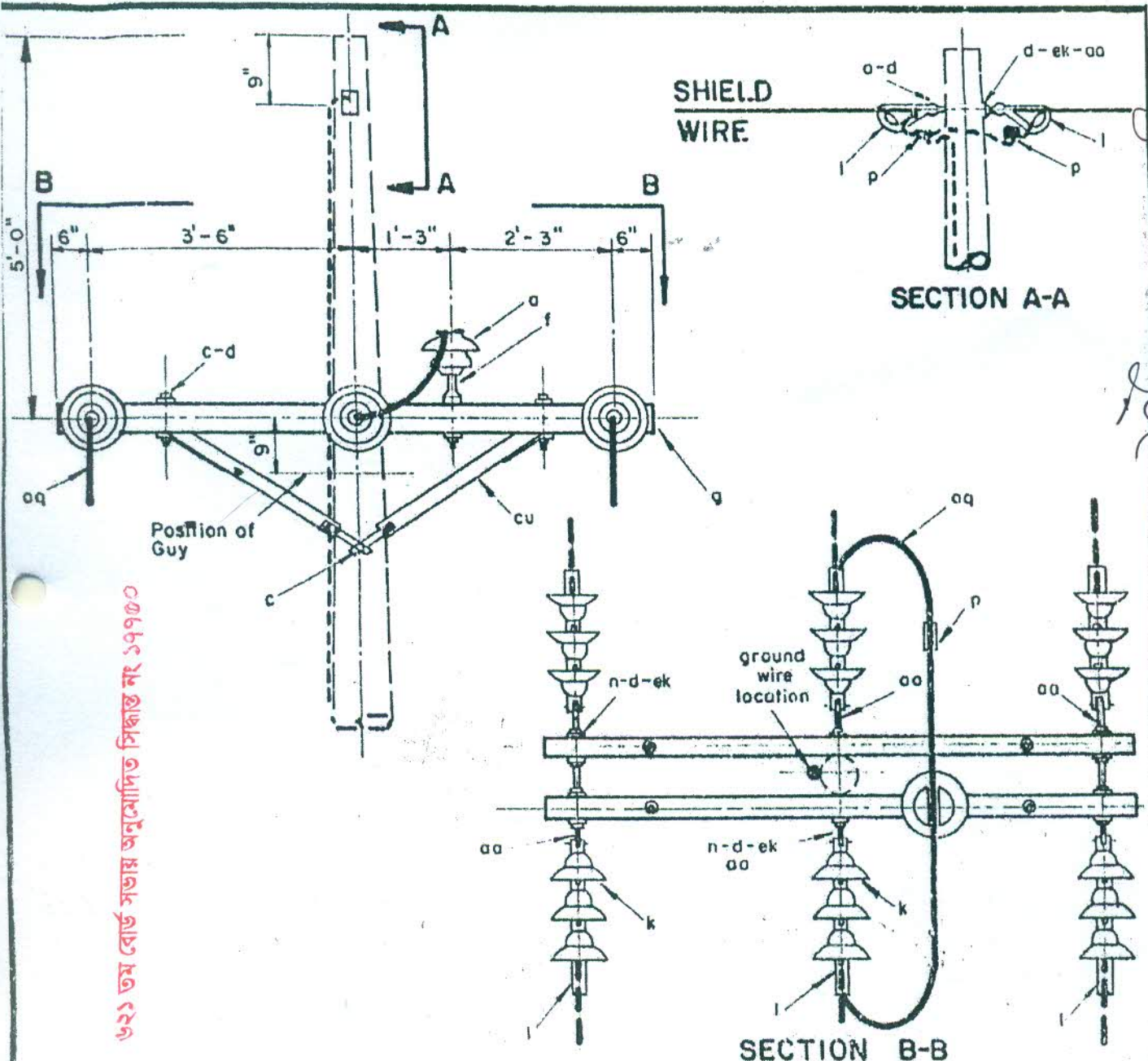
Q NO.	MATERIAL	CODE	ITEM NO.	MATERIAL	CODE
a	1 Insulator, pin type, 34.5KV	C5	ek	Locknuts, as required	B50
aa	6 Nut, eye 5/8"	B53	g	2 Crossarm, 3 3/4" x 4 3/4" x 8'-0"	X2
aq	Jumpers, as req'd		k	18 Insulator, suspension, 10"	C11
f	1 Pin, crossarm, steel, 3/4" x 17"	B122	l	6 Clamp, deadend	B81/132/133
c	1 Bolt, machine, 5/8" x req'd length	B6/7/8	n	3 Bolt, D/A 5/8" x req'd length	B26-30
c	5 Bolt, machine, 1/2" x 6" - 10"	B4/B4.1 - 4.3	p	Connectors, as required	
cu	2 Brace, Steel/ wood, 60" span	B42/B42.1/B45			
d	10 Washer, square, 2 1/4"	B46			
d	4 Washer, round, 1 1/2" dia.				

NOTES:
1. See TM41-10 for deadend assembly details.

BANGLADESH RURAL ELECTRIFICATION BOARD

Unit Description: 33 KV HORIZONTAL DOUBLE DEADEND WITHOUT SHIELD WIRE.				
Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	T8

Revision Date: July 1980, June 1981, August 1989, July 1995, August 2013, February 2020



৬২১ তম বোর্ড সভায় অনুমোদিত সিদ্ধান্ত নং ১৭৭৫০

(Kamrul Ahsan Mollik)
Asst. Secy. (Board), BREB.

(Debasish Chakraborty)
PD, TAPP, BREB

(Md. Ahsanul Haque)
Consultant, TAPP, BREB

(Md. Abdul Khaleque)
Consultant, TAPP, BREB

(Md. Moxammel Huq)
Consultant, TAPP, BREB

(Md. Durdul Islam)
Consultant, TAPP, BREB

(Md. Mozibur Rahman)
Consultant, TAPP, BREB

ITEM NO.	MATERIAL	CODE	ITEM NO.	MATERIAL	CODE
a	1 Insulator, pin type 34.5 KV	C5	d	4 Washer, round, 1 1/2" dia.	
aa	7 Nut, eye 5/8"	B53	ek	Locknuts, as required	B50
aq	Jumpers, as req'd		g	2 Crossarm, 3 3/4" x 4 3/4" x 8'-0"	X1
f	1 Pin, crossarm, steel, 3/4" x 17"	B122	k	18 Insulator, suspension, 10"	C11
c	1 Bolt, machine 5/8" x req'd length	B6/7/8	l	8 Clamp, deadend	B81/132/133
c	5 Bolt, machine, 1/2" x 6" - 10"	B4/B4.1 - 4.3	n	3 Bolt, D/A 5/8" x req'd length	B26-30
cu	2 Brace, Steel/ wood, 60" span	B42/B42.1/B45	o	1 Bolt, eye, 5/8" x req'd length	B18-22
d	2 Washer, square, 2 1/4"	B46	p	Connectors, as req'd	

NOTES: 1. Connect ground wire to shield wire. 2. See TM41-10 for deadend assembly details.

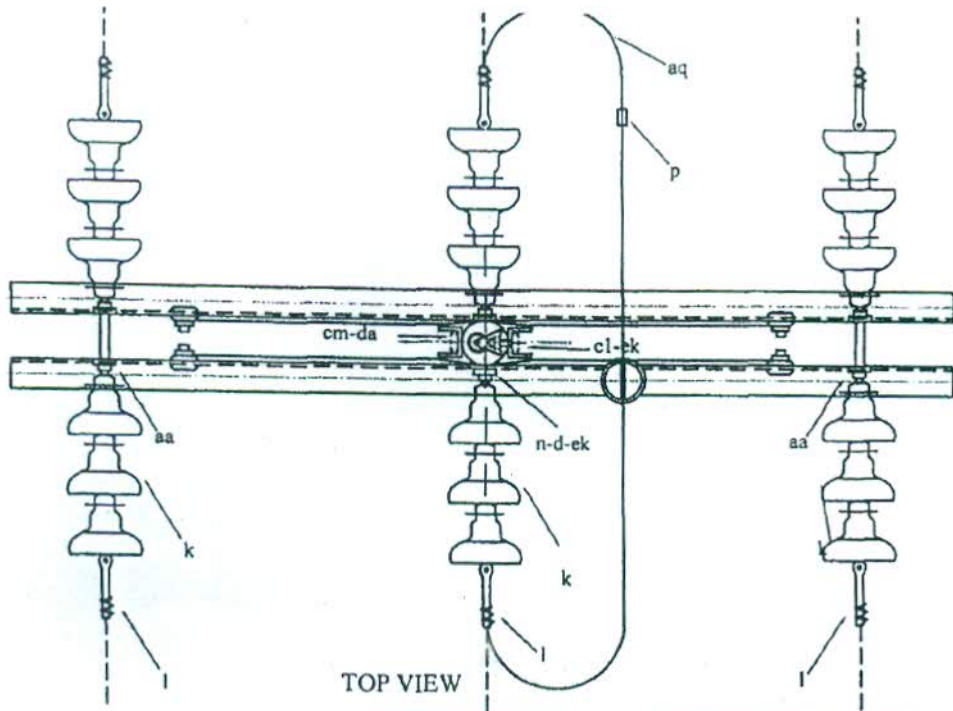
BANGLADESH RURAL ELECTRIFICATION BOARD

Unit Description: **33 KV HORIZONTAL DOUBLE DEADEND WITH SHIELD WIRE.**

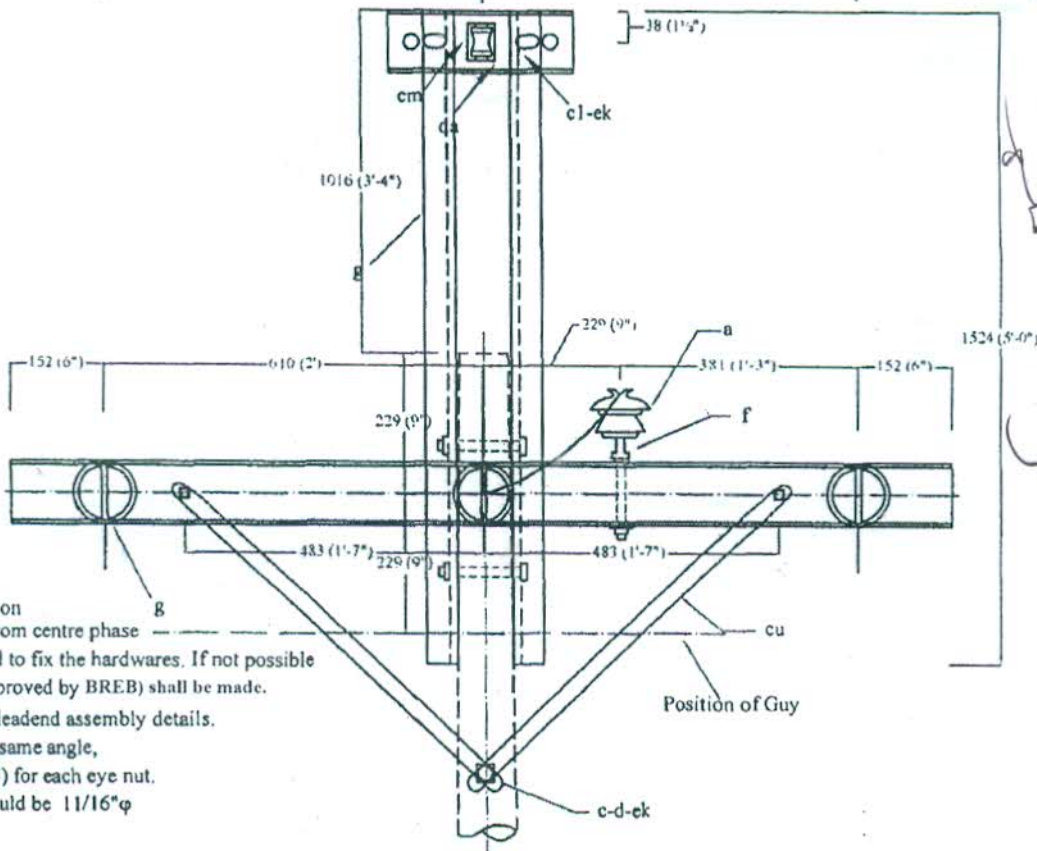
Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	T8A

Revision Date: July 1980, June 1981, August 1989, July 1995, August 2013, February 2020

৬২১ তম বোর্ড সভায় অনুমোদিত সিদ্ধান্ত নং: ২৭৭০০



TOP VIEW



Note :-

1. Ground wire to be installed on opposite quadrant of pole from centre phase
2. Normally Bolts will be used to fix the hardware. If not possible use of G I Clamps (duly approved by BREB) shall be made.
3. See drawing TM41-10 for deadend assembly details.
4. If this assembly is used for same angle, install anchor shackle(B 55) for each eye nut.
5. Brace holes at both end should be 11/16"φ

(Debasish Chakraborty)
PD TAPP BREB

(Md. Ahsanul Haque)
Consultant TAPP BREB

(Md. Mozammel Haque)
(Md. Abdul Khaleque)
Consultant TAPP BREB

(Md. Duhidul Islam)
Consultant TAPP BREB

(Md. Mozibur Rahman)
Consultant TAPP BREB

(Kamrul Ahsan Mollik)
Asst. Secy. (Board), BREB

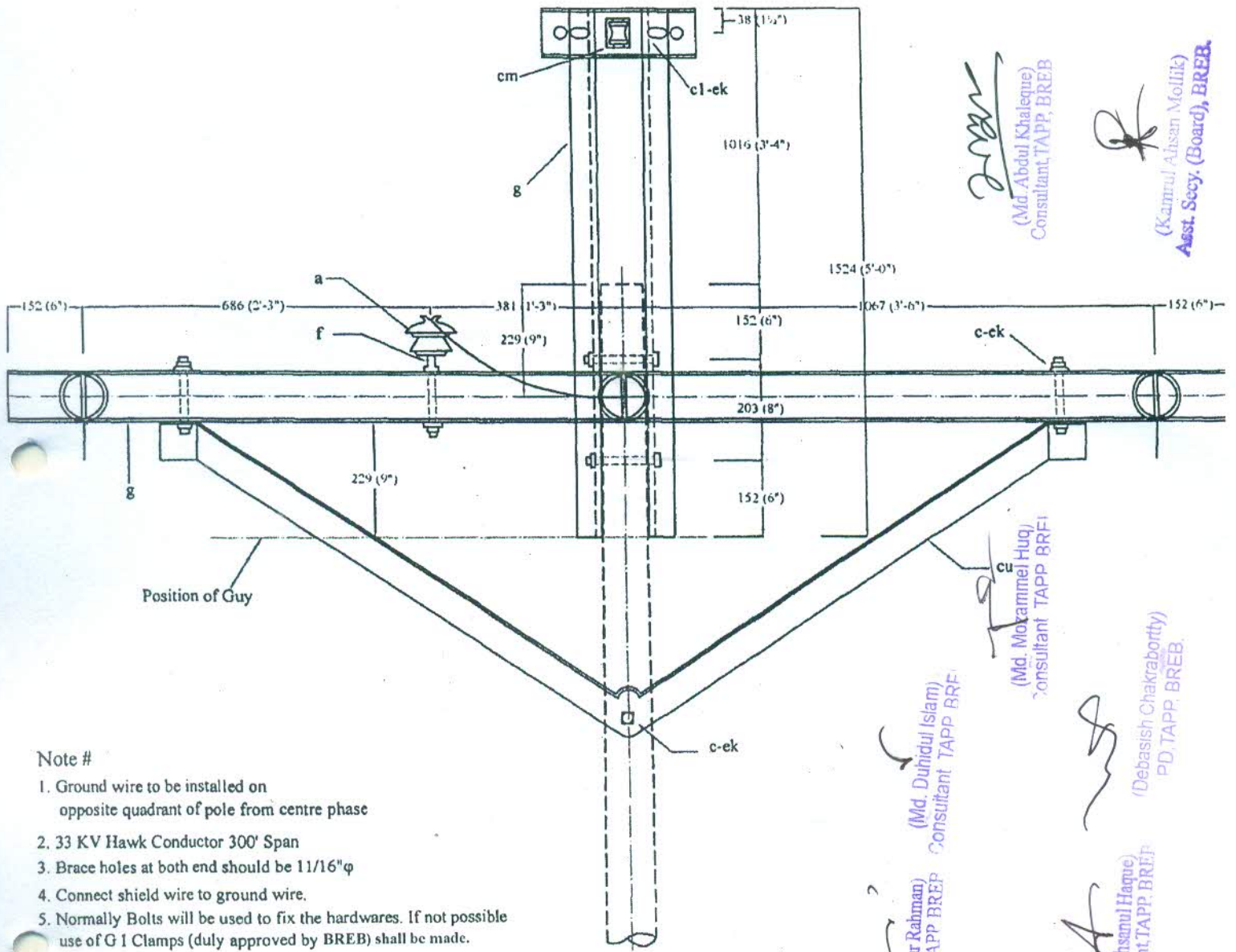
ITEM	MAT. CODE	Qty.	MATERIAL	ITEM	MAT. CODE	Qty.	MATERIAL
a	C 5	01	Insulator, Pin type 34.5 Kv	d	B 46	03	Washer, square, 2-1/4"
c	B 6/7/8	05	Bolt, m/c, 5/8" x req'd length	ek	B 50/138	20	Locknuts, as required
cl	B3	04	Bolt, Machine, 1/2"x1-1/2"	f	B122	01	Pin, xarm, steel 3/4"x17"
cu	B 41/B41.1/B44	04	Brace, Steel/ Wood, 28" x 1/4"	aa	B 53	07	Nut, eye
q	X 6	04	Crossarm, steel 4" x 2" x 2" x 1/4" x 5'-0"	l	B 132/133	06	Clamp, deadend for, 477 MCM
k	C 11	18	Insulator, Suspension, 33 KV	n	B26/B27/B28	03	Bolt, double arming, 5/8"φ
cm	C 2/3	02	Insulator, Spool	s	B 73	02	Clevis, Secondary swinging
-	-	02	Plate, arming 14" or 12" x 4" x 1/4"	o	B 18	01	Bolt, eye, 5/8"φ-8"
c	B4/B4.1 - 4.3	01	Bolt, Machine, 1/2" x 6" - 12"	c	B95	02	Bolt, Machine, 5/8" x 1-1/2"

BANGLADESH RURAL ELECTRIFICATION BOARD

Unit Description: 33 KV STEEL CROSSARM CONSTRUCTION HORIZONTAL DOUBLE DEADEND

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	T8B

Revision Date: July 1980, June 1981, August 1989, July 1995, August 2013, February 2020



Note #

1. Ground wire to be installed on opposite quadrant of pole from centre phase
2. 33 KV Hawk Conductor 300' Span
3. Brace holes at both end should be 11/16"φ
4. Connect shield wire to ground wire.
5. Normally Bolts will be used to fix the hardware. If not possible use of G I Clamps (duly approved by BREB) shall be made.

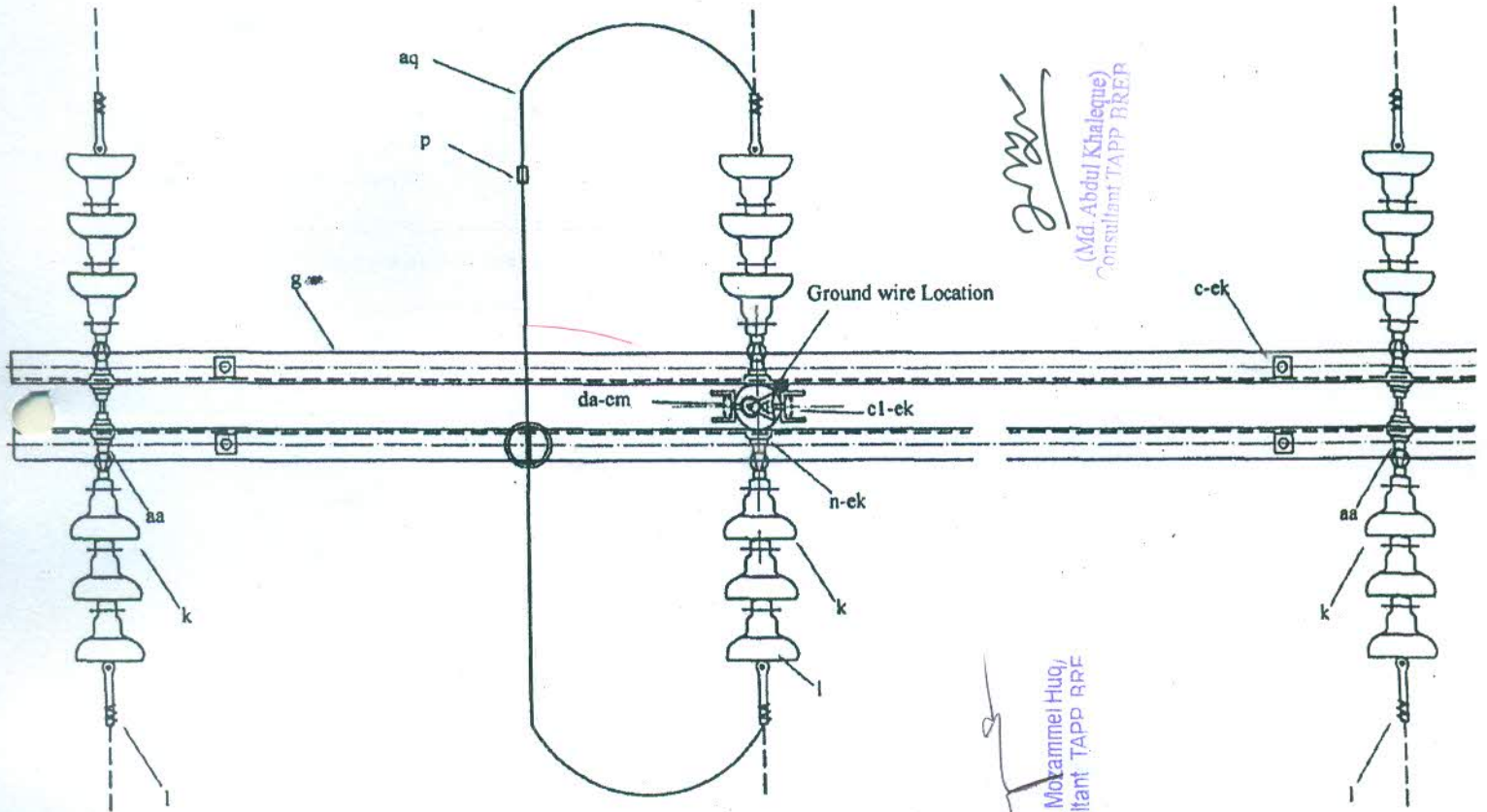
Front View

ITEM	MAT. CODE	Qty.	MATERIAL	ITEM	MAT. CODE	Qty.	MATERIAL
a	C 5	1	Insulator, Pin type 34.5 Kv	d	B 46	3	Washer, square, 2-1/4"
c	B 5/6/7/8	9	Bolt, m/c, 5/8" x req'd. length	ek	B 50/138	20	Locknuts, as required
cu	B 42/B42.1/B45	2	Brace, steel / Wood, 60" span	f	B 122	1	Pin, xarm, steel 3/4"x17"
g	X 7	2	Crossarm, steel 4" x 2" x 2" x 1/4" x 8'-0"	cm	C 2 / C3	2	Insulator, Spool
g	X 6	2	Crossarm, steel 4" x 2" x 2" x 1/4" x 5'-0"	o	B18/B19/B20	1	Bolt, eye 5/8"φ
k	C 11	18	Insulator, Suspension 33 KV	s	B 73	2	Clevis, Secondary swinging
l	B 81/132/133	6	Clamp, deadend for, 477 MCM	aa	B 53	7	Nut, eye
n	B26/B27/B28	3	Bolt, double arming, 5/8"	o	B 18	1	Bolt, eye, 5/8"φ - 8"
c	B4/B4.1 - 4.3	5	Bolt, Machine, 1/2" x 6" - 12"	-	-	2	Plate, arming 14" or 12" x 4" x 1/4"
c	B95	2	Bolt, Machine, 5/8" x 1-1/2"				

BANGLADESH RURAL ELECTRIFICATION BOARD

Unit Description: 33 KV STEEL CROSSARM CONSTRUCTION HORIZONTAL DOUBLE DEADEND

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	T8C (Sheet 1 of 2)



TOP VIEW

৬২১৩ম বোর্ড সভায় অনুমোদিত সিদ্ধান্ত নং ১৭৭০০

(Md. Abdul Khaleque)
Consultant TAPP BREB

(Md. Motammel Huq)
Consultant TAPP BREB

(Md. Duhidul Islam)
Consultant TAPP BREB

(Md. Mozibur Rahman)
Consultant TAPP BREB

(Debasish Chakraborty)
PD, TAPP, BREB

(Md. Ahsanul Haque)
Consultant TAPP, BREB

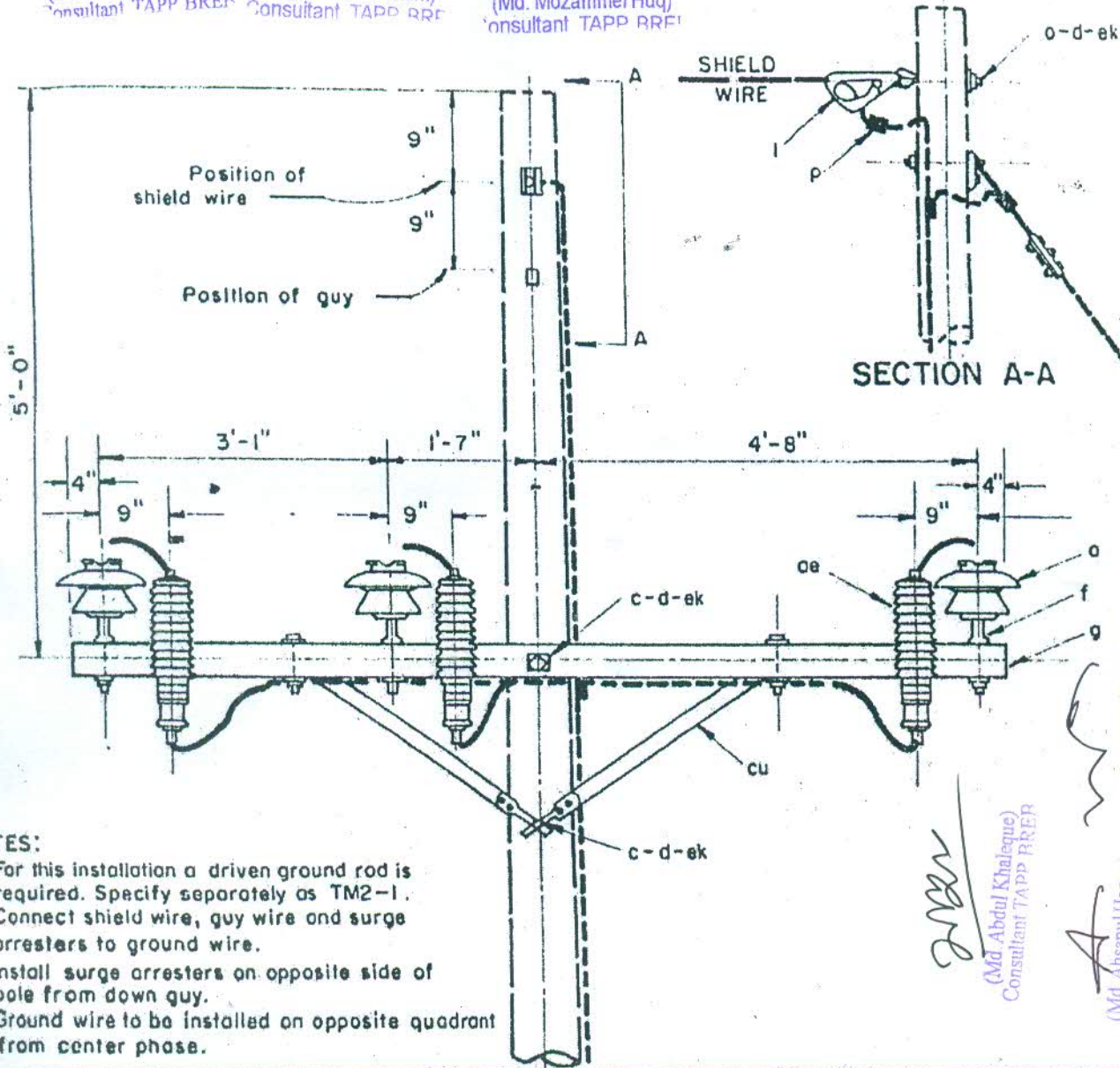
(Kamrul Ahsan Mollik)
Asst. Secy. (Board), BREB.

BANGLADESH RURAL ELECTRIFICATION BOARD				
Unit Description:	33 KV STEEL CROSSARM CONSTRUCTION HORIZONTAL DOUBLE DEADEND			
Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	T8C (Sheet 2 of 2)
Revision Date: July 1980, June 1981, August 1989, July 1995, August 2013, February 2020				

(Md. Mozibur Rahman)
Consultant TAPP BRER

(Md. Duhidul Islam)
Consultant TAPP BRER

(Md. Mozammel Haq)
Consultant TAPP BRER



NOTES:

1. For this installation a driven ground rod is required. Specify separately as TM2-1.
2. Connect shield wire, guy wire and surge arresters to ground wire.
3. Install surge arresters on opposite side of pole from down guy.
4. Ground wire to be installed on opposite quadrant from center phase.

(Md. Abdul Khaleque)
Consultant TAPP BRER

(Debasish Chakraborty)
PD, TAPP, BRER

(Md. Anisul Haque)
Consultant TAPP, BRER

(Kamrul Ahsan Mollik)
Asst. Secy. (Board), BRER.

৬২১ তম বোর্ড সভায় অনুমোদিত সিদ্ধান্ত নং ১৭৭০০

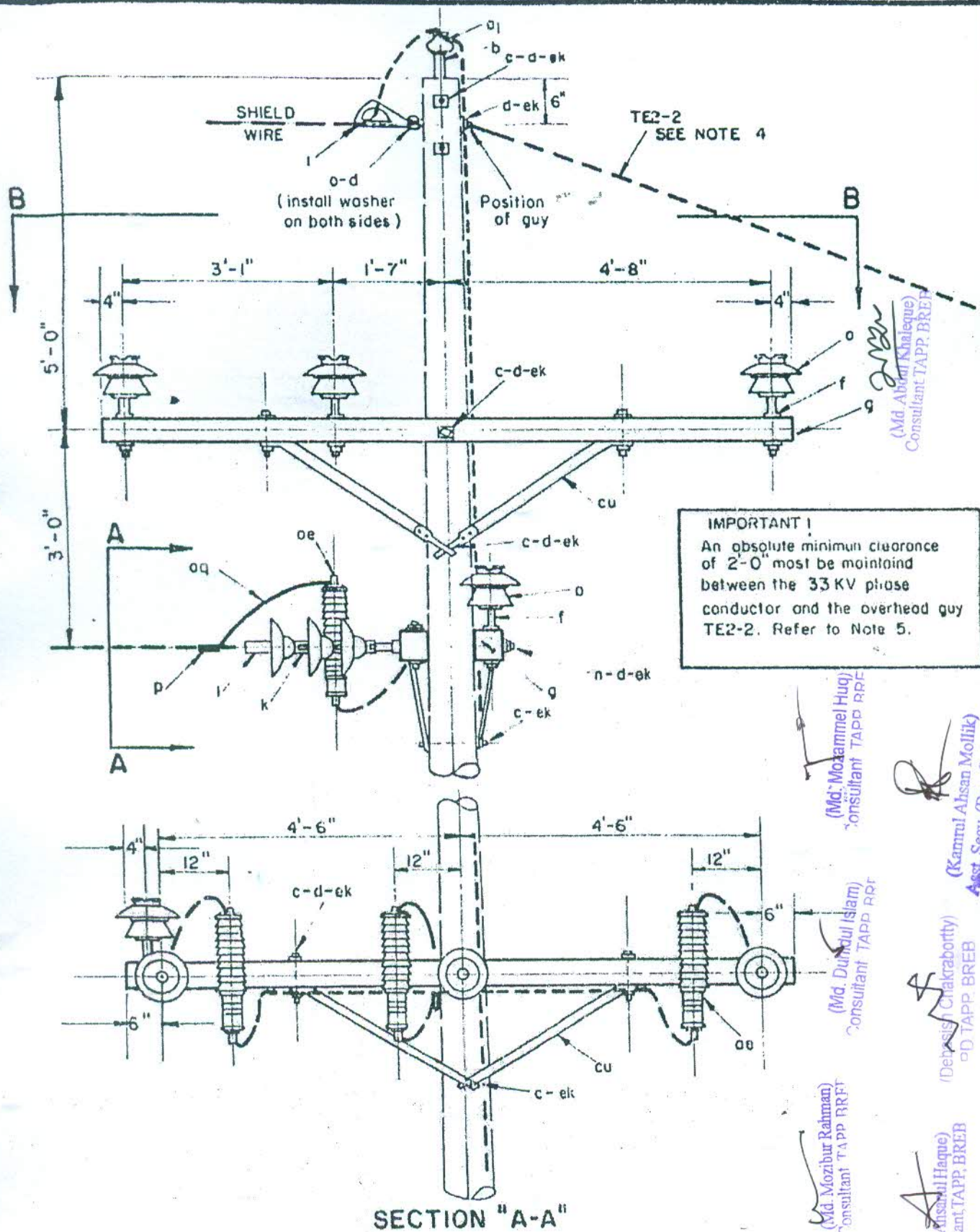
ITEM	NO	MATERIAL	MATERIAL CODE
a	3	Insulator, pin type, 34.5 KV	C5
b	2	Bolt, machine, 5/8" x req'd length	B6/7/8
c	3	Bolt, machine, 1/2" x 6" - 12"	B4/B4.1 - 4.3
d	4	Washer, square, 2-1/4"	B46
d	2	Washer, round, 1-3/8" diameter	
f	3	Pin, crossarm, steel, 3/4" x 17"	B122
g	1	Crossarm, 3-3/4" x 4-3/4" x 10'-0"	X2
l	1	Clamp, deadend, NR 3ACSR	B81/132/133
o	1	Bolt, eye, 5/8" x required length	B18-22
p	-	Connectors, as required	
oa	3	Surge arresters, 33 KV	H3
cu	1	Brace, Steel/ Wood, 60" Span	B42/B42.1/B45
ek	-	Locknut, as required	B50

BANGLADESH RURAL ELECTRIFICATION BOARD

Unit Description: **33 KV TRANSITION POLE SHIELDED-UNSHIELDED**

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	TIOA

Revision Date: July 1980, June 1981, August 1989, July 1995, August 2013, February 2020.



IMPORTANT!
 An absolute minimum clearance of 2'-0" must be maintained between the 33 KV phase conductor and the overhead guy TE2-2. Refer to Note 5.

(Md. Mozammel Huj)
 Consultant TAPP BREB

(Kamrul Ahsan Mollik)
 Asst. Secy. (Board), BREB

(Md. Durdul Islam)
 Consultant TAPP BREB

(Debasish Chakraborty)
 TD TAPP BREB

(Md. Mozibur Rahman)
 Consultant TAPP BREB

(Md. Anisul Haque)
 Consultant TAPP BREB

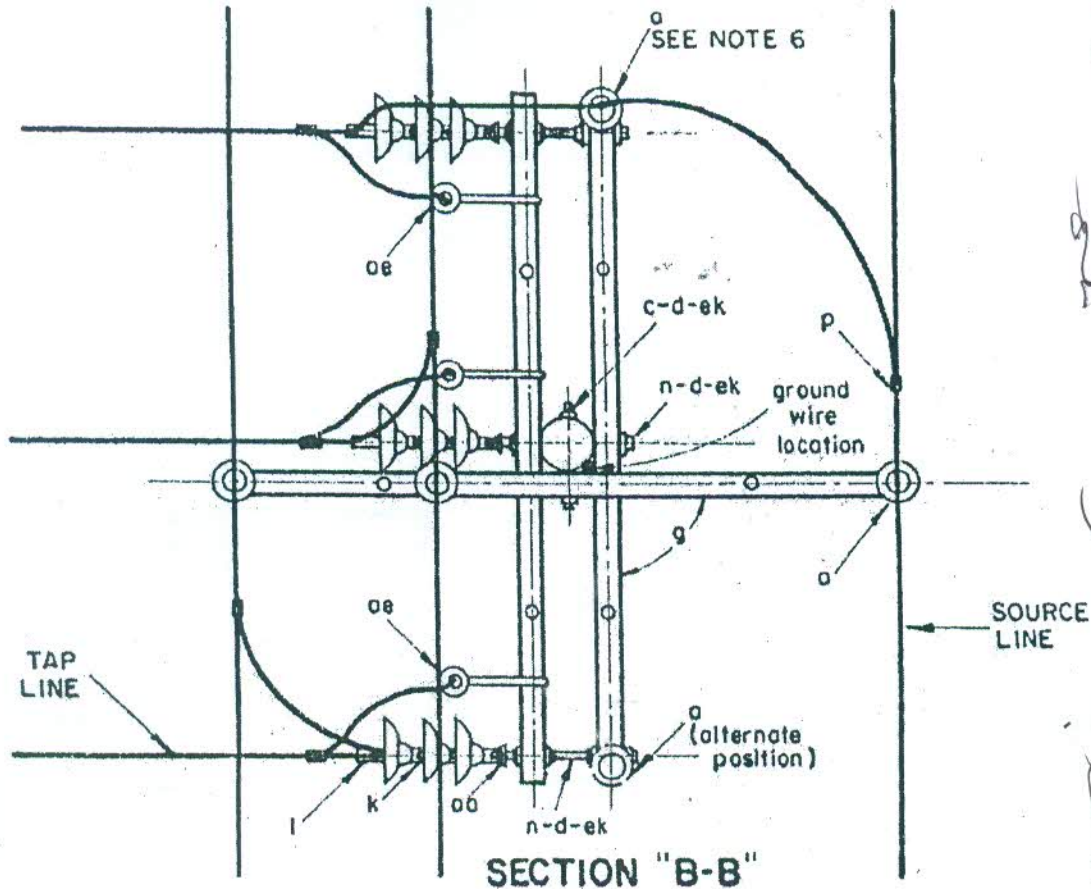
৬২১ তম বোর্ড সভায় অনুমোদিত সিদ্ধান্ত নং ৩৭৭০০

BANGLADESH RURAL ELECTRIFICATION BOARD

Unit Description: 33 KV TAKE OFF CROSSARM STEEL(X6, X7) CONSTRUCTION- WITH SHIELD WIRE

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	T26A Page 1 of 2

Revision Date: July 1980, June 1981, August 1989, July 1995, August 2013, February 2020



NOTES:

1. For this installation a driven ground rod is required. Specify separately as TM2-1.
2. Connect top shield wire directly to source shield wire. Connect shield wires, all guy wires and surge arresters to ground wire.
3. TE5-2 required for 4/O ACSR and larger top conductors.
4. Specify separately a TE2-2 for the shield wire guy. Install guy attachment on back of shield wire eye bolt and at top position on the guy stub pole. (See drawing TE5-2, sheet 2 of 2)
5. Specify a guy stub pole five feet shorter in length than the top-take off pole. The guy stub pole must be located twenty-five feet or more from the take-off pole.
6. Position of the jumper support 33 KV pin insulator is dependent upon the line phasing sequence. For horizontal construction the location of the phases on the pole shall be as per Guide Drawing TM21.

M	NO	MATERIAL	CODE	ITEM	NO	MATERIAL	CODE
a	4	Insulator, pin type, 34.5 KV	C5	i	4	Clamp, deadend	B81/132/133
ai	1	Insulator, pin type, 11KV	C1	n	3	Bolt, D/A, 5/8" x req'd length	B26-30
b	1	Pin, pole top, 20"	B2	o	1	Bolt, eye, 5/8" x req'd length	B18-22
c	5	Bolt, M/C, 5/8" x req'd length	B6/7/8	p	-	Connectors, as required	
c	6	Bolt, machine, 1/2" x 6"-12"	B4/B4.1-4.3	oo	3	Nut, eye, 5/8"	B53
d	16	Washer, square, 2-1/4"	B46	oe	3	Surge arrester, 33 KV	H3
d	6	Washer, round, 1-3/8" diameter		g	2	Crossarm Steel, 4"x 2"x 2"x 5'-0"	X6
f	4	Pin, crossarm, steel, 3/4" x 17"	B122	cu	6	Brace, Steel/ Wood, 60" Span	B42/42.1/45
g	1	Crossarm Steel, 4"x 2"x 2"x 8'-0"	X7	ek	-	Locknuts, as required	B50
k	9	Insulator, suspension, 10" diameter	C11	c	2	Bolt, Machine, 5/8" x 1-1/2"	B95

BANGLADESH RURAL ELECTRIFICATION BOARD

Unit Description: 33 KV TAKE OFF CROSSARM STEEL(X6, X7) CONSTRUCTION- WITH SHIELD WIRE

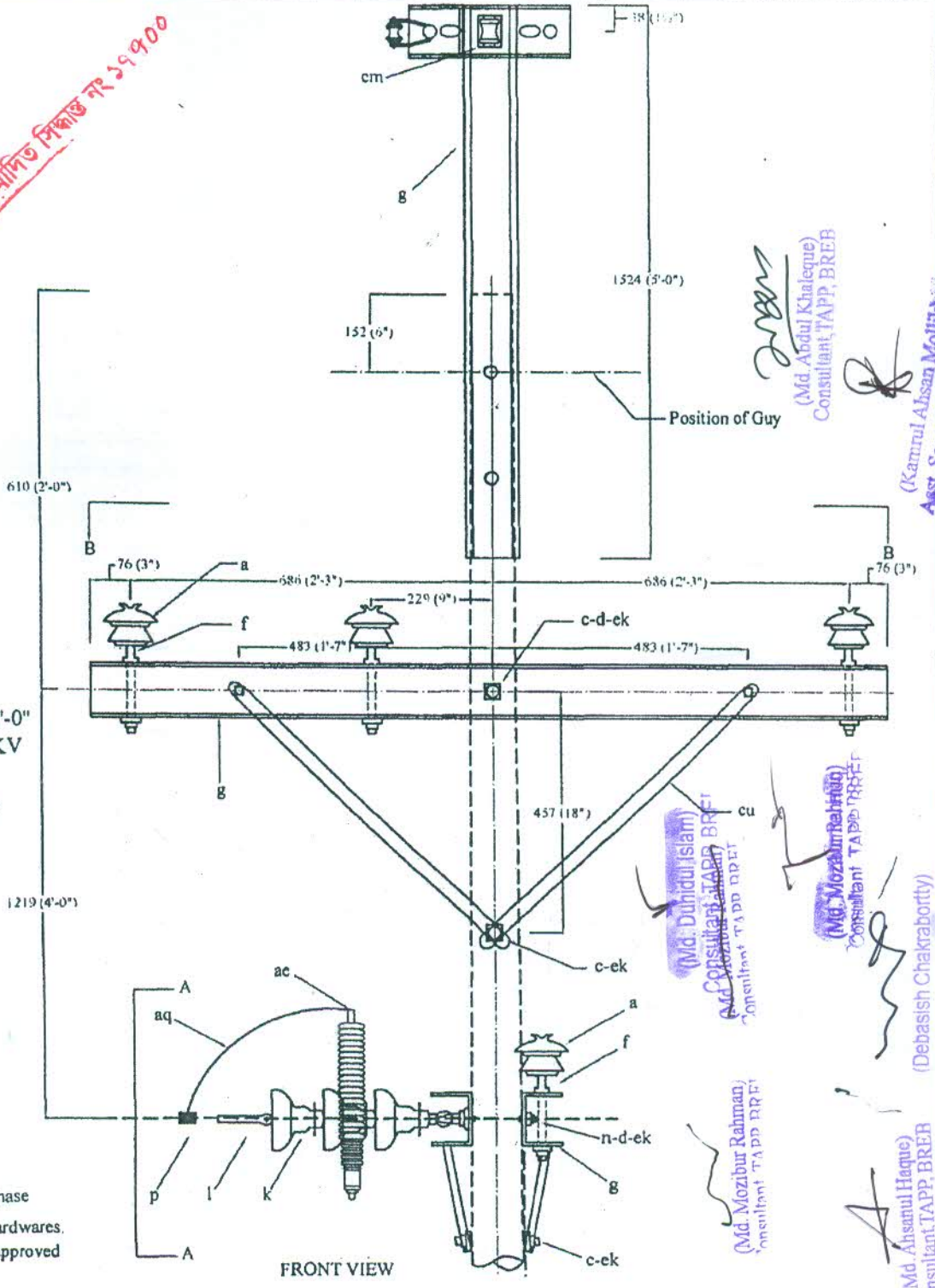
Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	T26A Page 2 of 2

Revision Date: July 1980, June 1981, August 1989, July 1995, August 2013, February 2020

Md. Abdul Chaleque
 Consultant TAPP BREB
 (Md. Mokammel Hossain)
 Consultant TAPP BREB
 (Md. Duhidul Islam)
 Consultant TAPP BREB
 (Md. Mozibur Rahman)
 Consultant TAPP BREB
 (Md. Ahsanul Haque)
 Consultant TAPP BREB
 (Kamrul Ahsan Mollah)
 P.D. TAPP BREB
 (Md. Saad Hossain)
 (board), BREB

৩২২ তম নোং মতাম অনুমোদিত নিকট ২৩-০৭-২০২০

৬২৩ তম বোর্ড সভার অনুমোদিত সিদ্ধান্ত নং ১৭৭০০



Important:-

An absolute minimum clearance of 2'-0" must be maintained between the 33 KV phase conductor and overhead guy TE2-2. Refer to note 5(Sheet 2 of 3).

Note :-

1. Ground wire to be installed on opposite quadrant of pole from centre phase
2. Normally Bolts will be used to fix the hardware. If not possible use of G I Clamps (duly approved by BREB) shall be made.

ITEM	MAT. CODE	Qty.	MATERIAL	ITEM	MAT. CODE	Qty.	MATERIAL
a	C 5	04	Insulator, Pin type 34.5 Kv	d	B 46	06	Washer, square, 2-1/4"
c	B 6/7/8	05	Bolt, m/c, 5/8" x req'd. length	k	C 11	09	Insulator, Suspension 10"φ, 33 KV
c	B3	06	Bolt, Machine, 1/2" x 1 1/2"	ek	B 50/138	26	Locknuts, as required
cu	B41/B41.1/B44	06	Brace, steel/Wood, 20" x 1/4"	f	B 122	04	Pin, x arm, steel 3/4"x17"
g	X 6	05	Crossarm, steel 4" x 2" x 2" x 1/4" x 5'-0"	aq	D 26/9/5	-	Jumpers as required
da	B 72	01	Bracket, secondary	l	B81/B132/B133	03	Clamp, deadend
aa	B 53	03	Nut, eye	n	B26/B27/B28	03	Bolt, double arming, 5/8"φ x required Length
ae	H 3	03	Arrester, surge, 33 KV	cm	C 2/3	01	Insulator, Spool
c	B4/B4.1 - 4.3	02	Bolt, Machine, 1/2" x 6" - 12"	p	-	-	Connector, as required
c	B95	02	Bolt, Machine, 5/8" x 1-1/2"				

BANGLADESH RURAL ELECTRIFICATION BOARD

Unit Description: 33 KV TAP TAKE-OFF STEEL CROSSARM (X6) CONSTRUCTION, HORIZONTAL

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	T26B Page 1 of 3

Revision Date: July 1980, June 1981, August 1989, July 1995, August 2013, February 2020

(Md. Mozibur Rahman)
Consultant, TAPP, BREB

(Md. Duhidul Islam)
Consultant, TAPP, BREB

(Md. Mozammel Huj)
Consultant, TAPP, BREB

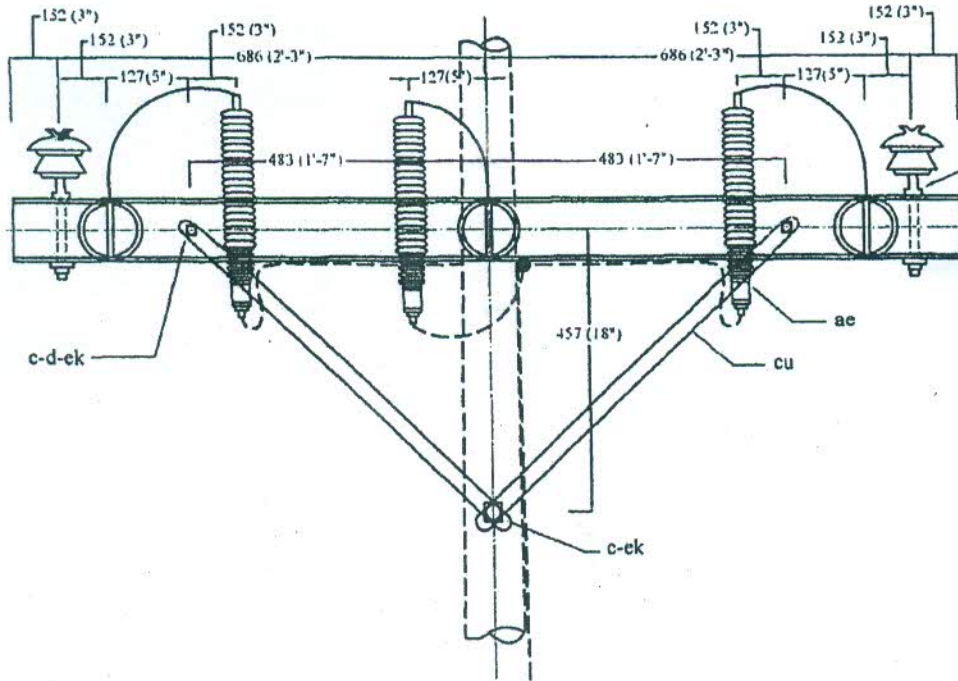
(Md. Abdul Khaleque)
Consultant, TAPP, BREB

(Md. Ansanul Haque)
Consultant, TAPP, BREB

(Debasish Chakraborty)
PD, TAPP, BREB

৬২১ তম বোর্ড সভায় অনুমোদিত সিদ্ধান্ত নং ২৭৭০০

(Kamrul Ahsan Mollik)
Asst. Secy. (Board), BREB.



SECTION A-A

Note :-

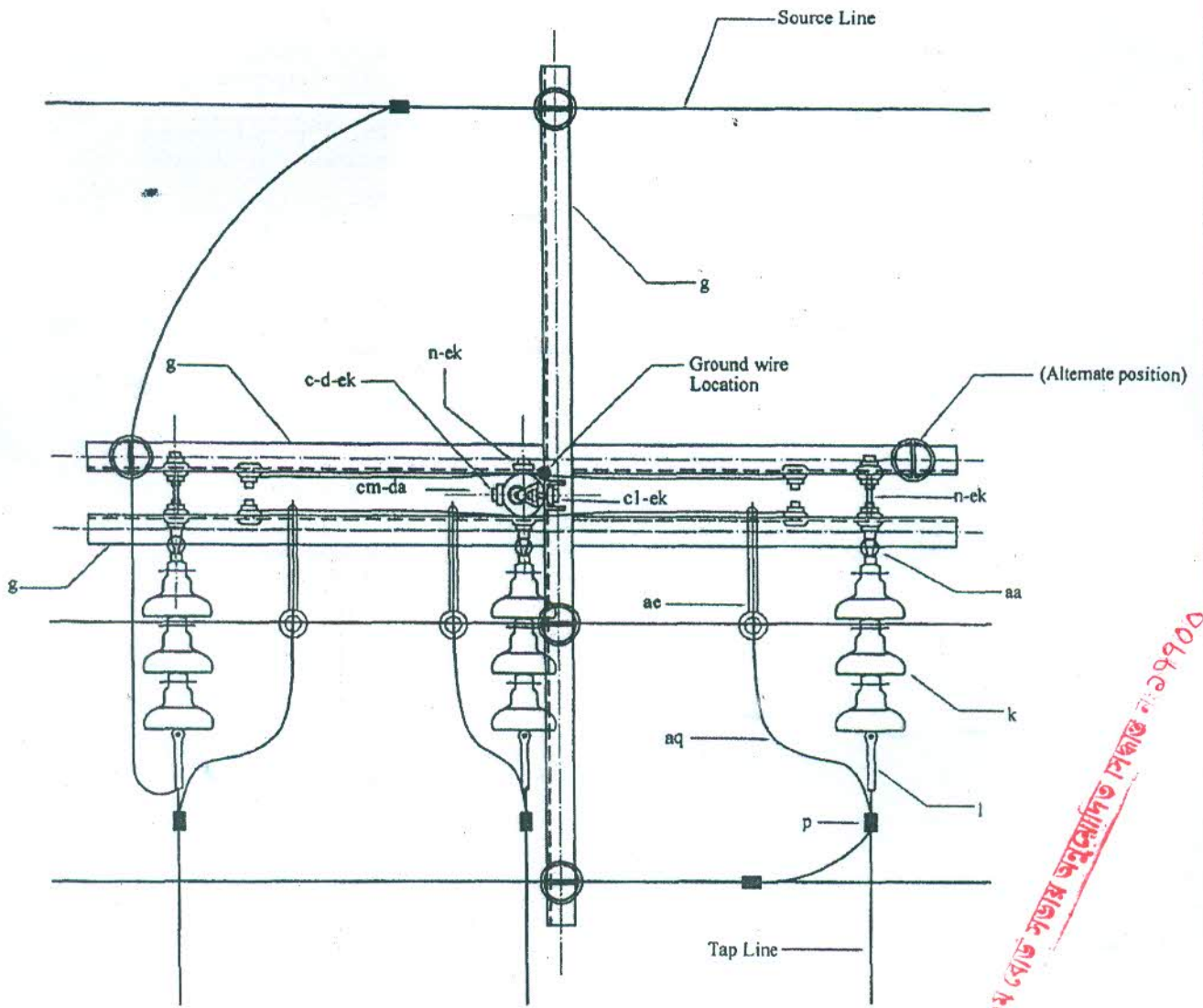
1. For this installation a driven ground rod is required. Specify separately as TM2-1
2. Connect tap shield wire directly to source shield wire. Connect shield wires, all guy wires and surge arresters bottom end to ground wire
3. TE5-2 required for 4/0 ACSR and larger tap conductors.
4. Specify separately a TE2-2 for the shield wire guy. Install guy attachment on back of shield wire eye bolt and at top position on the guy stub pole. (See Dwg. TE5-2, Sheet 3 of 3)
5. Specify a guy stub pole five feet shorter in length than the tap-take off pole. The guy stub pole must be located twenty-five feet or more from the take-off pole.
6. Position of the jumper support 33 KV pin insulator is dependent upon the line phasing sequence.

BANGLADESH RURAL ELECTRIFICATION BOARD

Unit Description: 33 TAP TAKE-OFF STEEL CROSSARM (X6) CONSTRUCTION, HORIZONTAL

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	T26B Page 2 of 3

Revision Date: July 1980, June 1981, August 1989, July 1995, August 2013, February 2020



(Md. Mozibur Rahman)
Consultant, TAPP, BREB

(Md. Duhidul Islam)
Consultant, TAPP, BREB

(Md. Mozammel Huq)
Consultant, TAPP, BREB

(Md. Abdul Khaleque)
Consultant, TAPP, BREB

(Md. Ahsanul Haque)
Consultant, TAPP, BREB

(Debasish Chakraborty)
PD, TAPP, BREB

(Kamrul Ahsan Mollik)
Asst. Secy. (Board), BREB

৩২৩ ৬ম বোর্ড সভায় অনুমোদিত পিক্ত নং ০৭৭০০

BANGLADESH RURAL ELECTRIFICATION BOARD				
Unit Description: 33 TAP TAKE-OFF STEEL CROSSARM (X6) CONSTRUCTION, HORIZONTAL				
Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	T26B Page 3 of 3
Revision Date: July 1980, June 1981, August 1989, July 1995, August 2013, February 2020				

(Md. Mozibur Rahman)
Consultant TAPP, BREB

(Md. Duhidul Islam)
Consultant TAPP, BREB

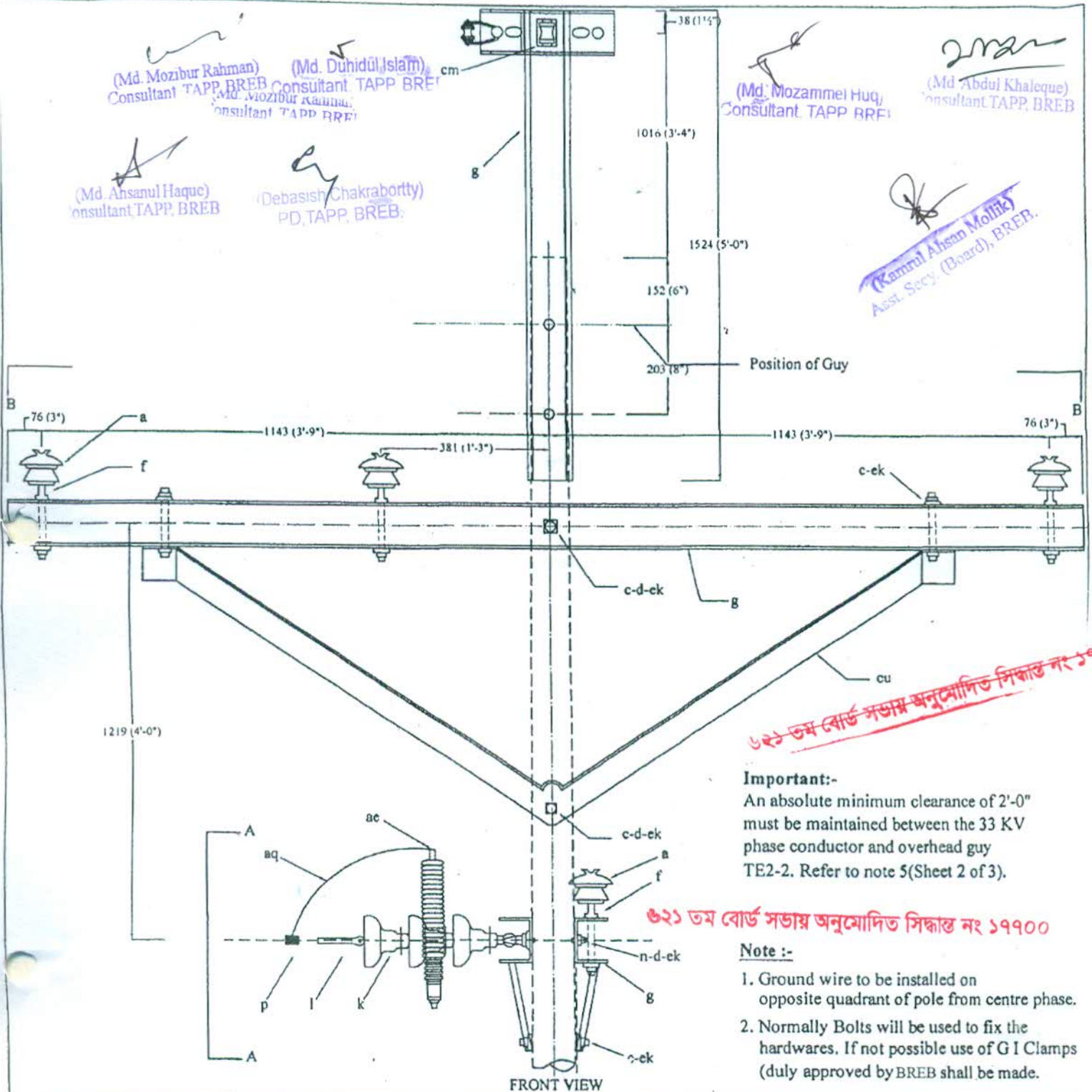
(Md. Mozammel Haq)
Consultant TAPP, BREB

(Md. Abdul Khaleque)
Consultant TAPP, BREB

(Md. Ansanul Haque)
Consultant TAPP, BREB

(Debasish Chakraborty)
PD, TAPP, BREB

(Kamrul Ansan Mollik)
Asst. Secy. (Board), BREB.



Important:-
An absolute minimum clearance of 2'-0" must be maintained between the 33 KV phase conductor and overhead guy TE2-2. Refer to note 5 (Sheet 2 of 3).

৬২১ তম বোর্ড সভায় অনুমোদিত সিদ্ধান্ত নং ১৭৭০০

Note :-

1. Ground wire to be installed on opposite quadrant of pole from centre phase.
2. Normally Bolts will be used to fix the hardwares. If not possible use of G I Clamps (duly approved by BREB shall be made).

ITEM	MAT. CODE	Qty.	MATERIAL	ITEM	MAT. CODE	Qty.	MATERIAL
a	C 5	04	Insulator, Pin type 34.5 Kv	d	B 46	05	Washer, square, 2-1/4"
c	B 5/6/7/8	11	Bolt, m/c, 5/8" x req'd. length	k	C 11	09	Insulator, Suspension 10"φ, 33 KV
cu	B42/B42.1/B45	03	Brace, steel / Wood, 60" span	ek	B 50/138	23	Locknuts, as required
g	X 7	03	Crossarm, steel 4" x 2" x 2" x 1/4" x 8'-0"	f	B 122	04	Pin, xarm, steel 3/4"x17"
g	X 6	02	Crossarm, steel 4" x 2" x 2" x 1/4" x 5'-0"	aq	D 26/9/5	-	Jumpers as required
cl	B 95	2	Bolt, m/c, 5/8" x 1 1/2"	l	B81/132/133	03	Clamp, deadend
da	B 72	01	Bracket, secondary	n	B26/27/28	03	Bolt, double arming, 5/8"φ x required Length
aa	B 53	04	Nut, eye	cm	C 2/3	02	Insulator, Spool
ae	H 3	03	Arrester, surge, 33 KV	p	-	-	Connector for 477 MCM as required
-	-	01	Plate, arming 14" or 12" x 4" x 1/4"	s	B 73	01	Clevis, secondary swinging
C	B4/B4.1-4.3	06	Bolt, Machine, 1/2" x 6" - 12"				

BANGLADESH RURAL ELECTRIFICATION BOARD

Unit Description: 33 KV TAP TAKE-OFF STEEL CROSSARM (X6 & X7) CONSTRUCTION, HORIZONTAL

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	T26C Page 1 of 3

Revision Date: July 1980, June 1981, August 1989, July 1995, August 2013, February 2020

(Md. Mozibur Rahman)
Consultant TAPP, BREB

(Md. Duhidul Islam)
Consultant TAPP, BREB

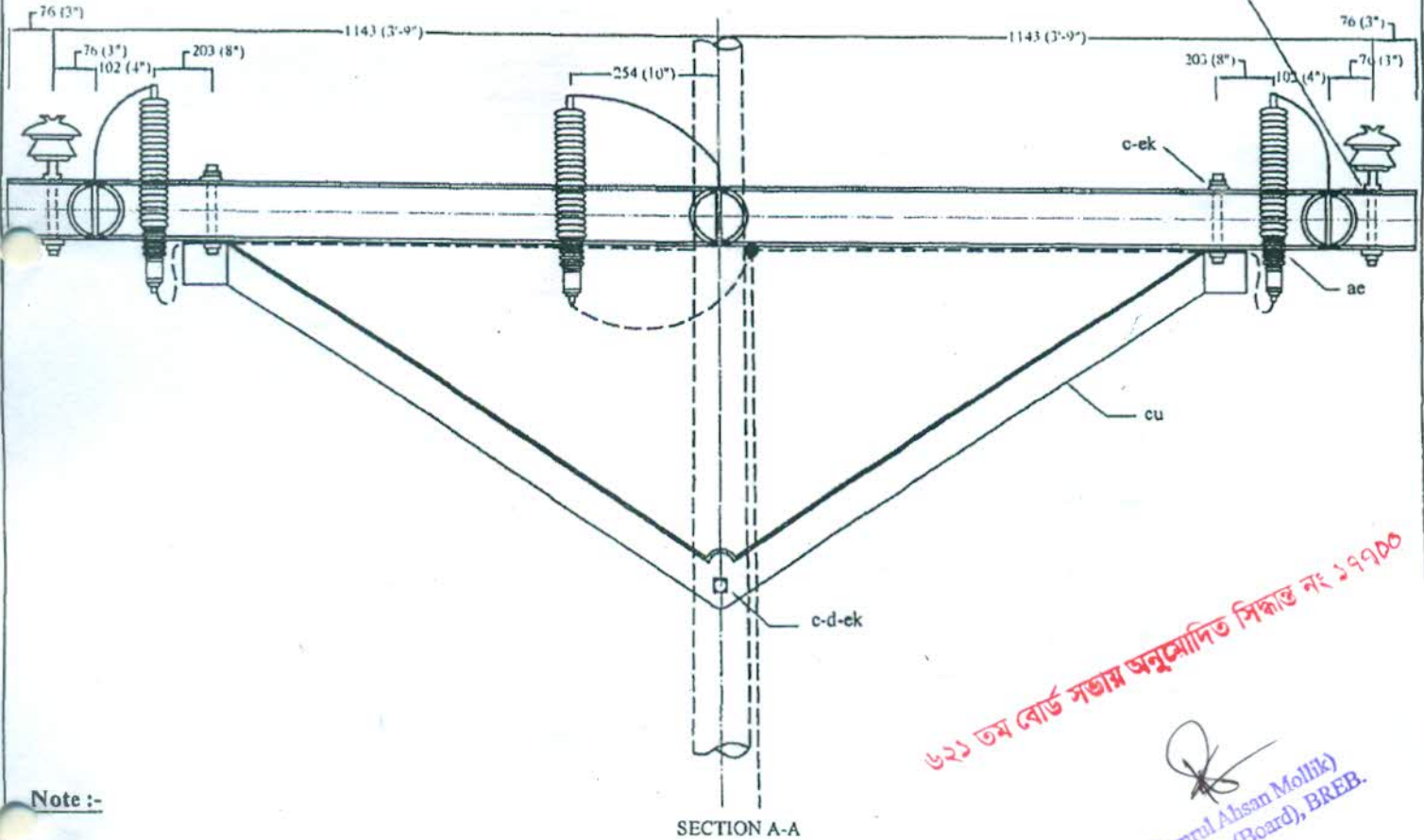
(Md. Mozammel Haq)
Consultant, TAPP, BREB

(Md. Abdul Khaleque)
Consultant TAPP, BREB

(Md. Ahsanul Haque)
Consultant, TAPP, BREB

(Debasish Chakraborty)
PD, TAPP, BREB

Alternative Position.
If the pin insulator
is not installed in this
position, L.A may
be installed.



Note :-

1. For this installation a driven ground rod is required.
Specify separately as TM2-1
2. Connect tap shield wire directly to source shield wire.
Connect shield wires, all guy wires and surge arresters bottom end to ground wire
3. TE5-2 required for 4/0 ACSR and larger tap conductors.
4. Specify separately a TE2-2 for the shield wire guy. Install guy attachment on back of
of shield wire eye bolt and at top position on the guy stub pole. (See Dwg. TE5-2, Sheet 3 of 3)
5. Specify a guy stub pole five feet shorter in length than the tap-take off pole.
The guy stub pole must be located twenty-five feet or more from the take-off pole.
6. Position of the jumper support 33 KV pin insulator is dependent upon the line phasing sequence.
For horizontal construction the location of the phases on the pole shall be as per Guide Drawing TM21.

BANGLADESH RURAL ELECTRIFICATION BOARD

Unit Description: 33 KV TAP TAKE-OFF STEEL CROSSARM (X6 & X7) CONSTRUCTION, HORIZONTAL

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	T26C

Page 2 of 3

Revision Date: July 1980, June 1981, August 1989, July 1995, August 2013, February 2020

(Md. Mozibur Rahman)
Consultant, TAPP, BREB

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(Md. Mozammel Haq)
Consultant, TAPP, BREB

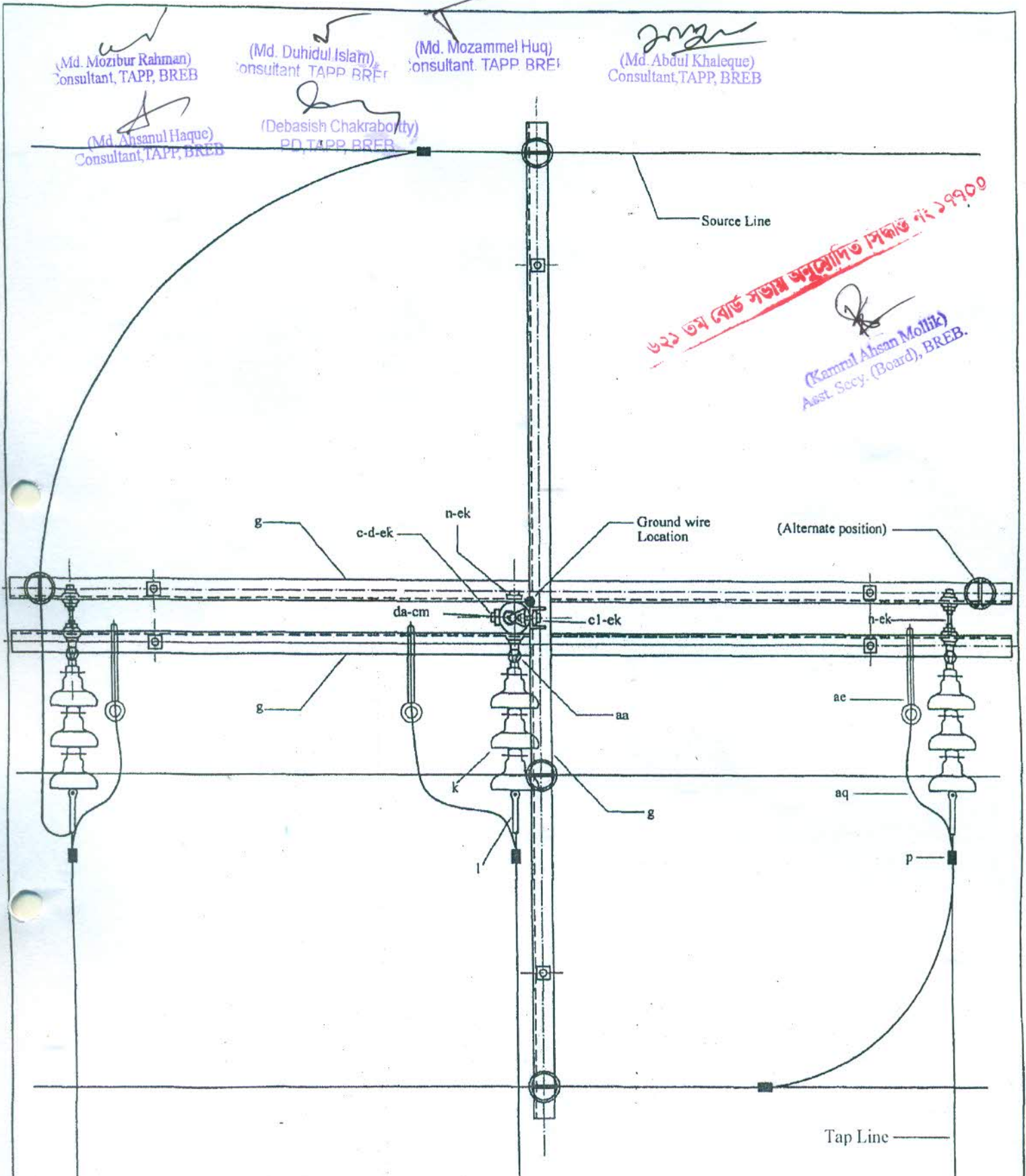
(Md. Abdul Khaleque)
Consultant, TAPP, BREB

(Md. Ahsanul Haque)
Consultant, TAPP, BREB

(Debasish Chakraborty)
EO, TAPP, BREB

৩২২ ভবন বোর্ড সভায় অনুমোদিত সিদ্ধান্ত নং ১৯৯০০৭

(Kamrul Ahsan Mollik)
Asst. Secy. (Board), BREB.

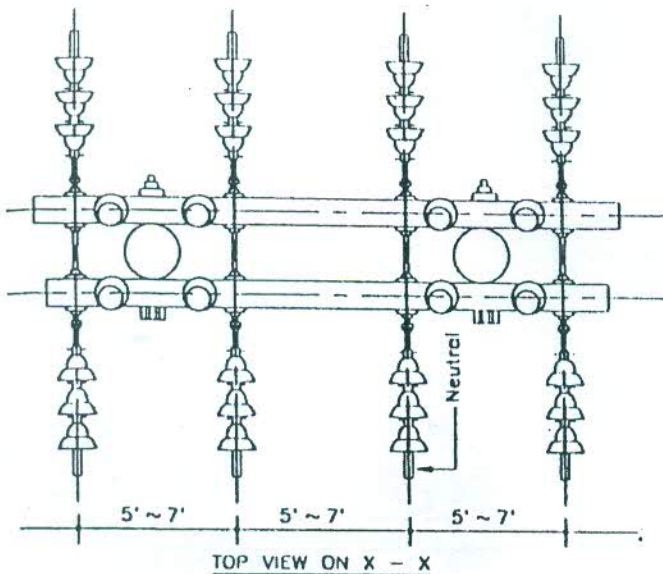


BANGLADESH RURAL ELECTRIFICATION BOARD

Unit Description: 33 KV TAP TAKE-OFF STEEL CROSSARM (X6 & X7) CONSTRUCTION, HORIZONTAL

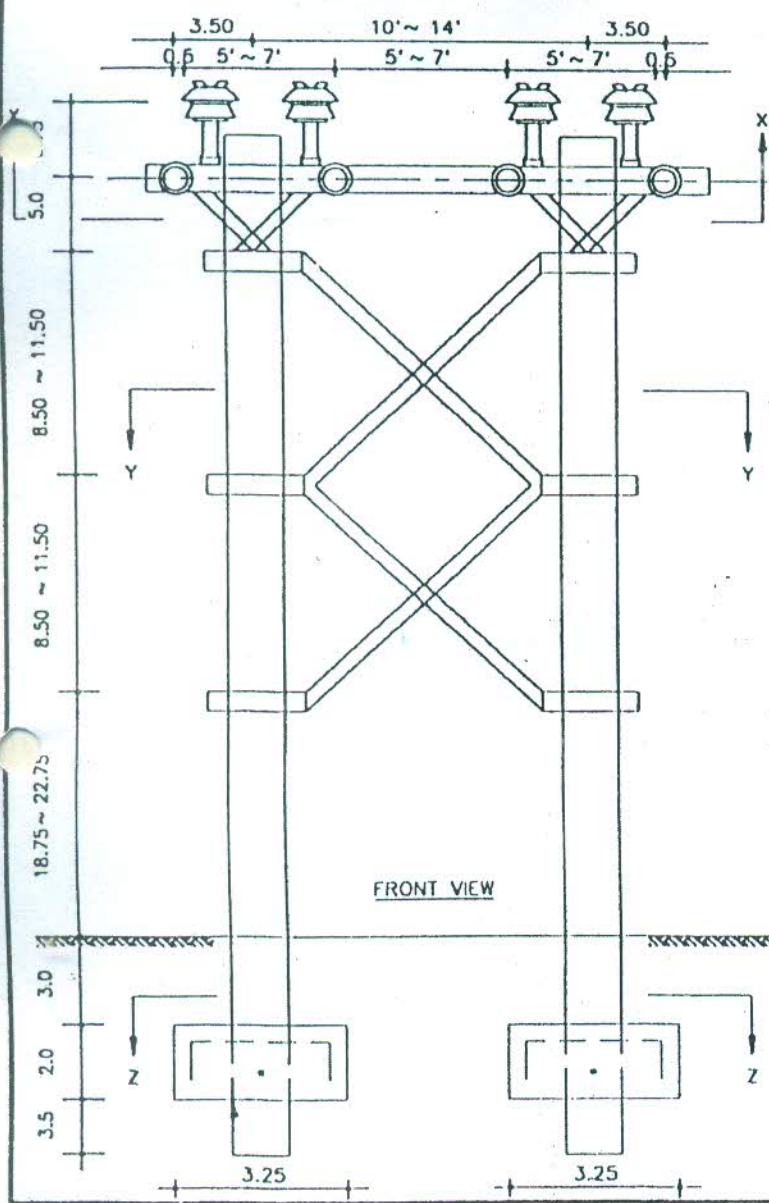
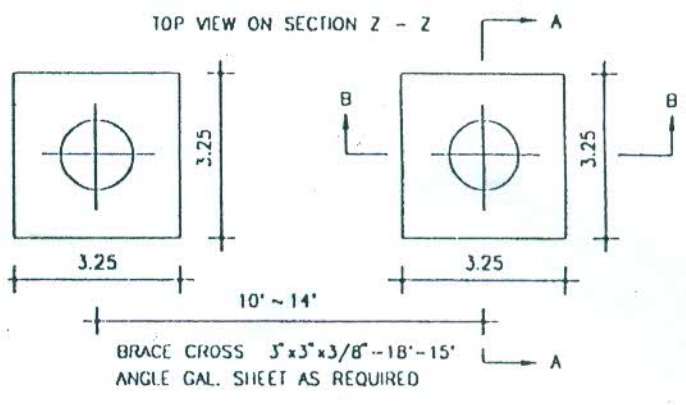
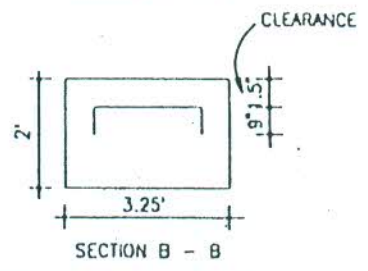
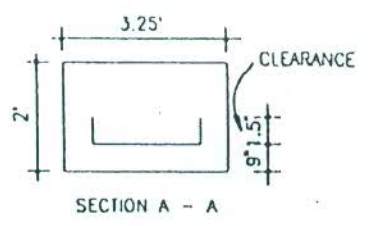
Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	T26C Page 3 of 3

Revision Date: July 1980, June 1981, August 1989, July 1995, August 2013, February 2020



৬২১ তম বোর্ড সভায় অনুমোদিত সিদ্ধান্ত নং ১৭৭৩৩

(Kamrul Ahsan Mollik)
Asst. Secy. (Board), BREB.



(Md. Mozibur Rahman)
Consultant, TAPP, BREB

(Md. Duhidul Islam)
Consultant, TAPP, BREB

(Md. Mozammel Haq)
Consultant, TAPP, BREB

(Md. Abujil Khaleque)
Consultant, TAPP, BREB

(Md. Ahsanul Haque)
Consultant, TAPP, BREB

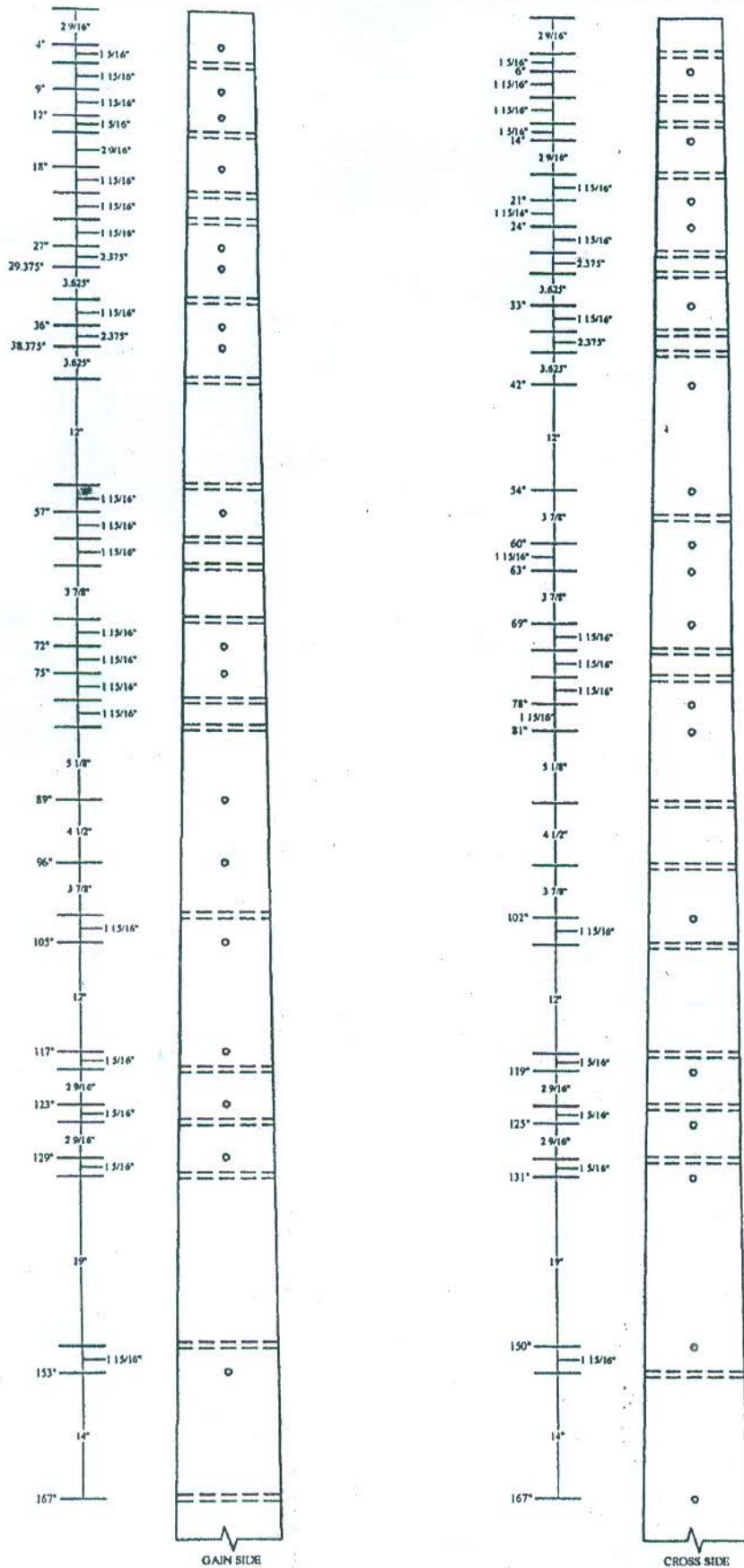
(Febasish Chakraborty)
PD, TAPP, BREB

ITEM	NO.	MATERIAL	UNIT
		MS rod, 1" dia x 4.5' long for RCC, as req'd	
		Brace, gal steel angle, 3" x 3" x 3/8" x 15'-18" as req'd	
		Pole Band, round, gal steel of diff. size, as required	
	02	Crossarm, Gal Steel Channel, 4"x2"x2"x3/8"x 16'-18'	
B122	08	Pin, Crossarm, Steel, 3/4"x 17"	
C5	08	Insulator, Pin Type, 34.5 KV	
C11	16	Insulator, Suspension, 10"	
B26-30	04	Bolt, Double Arming, 5/8"x as required length	
	02	Bolt, Machine, 1"x as required length (gal)	
		Bolt, Machine, 1"x 2-1/2" (gal)	
	02	Pole, 60'-2	
		Lock Nuts, 1" groove dia, as required	
B50/138		Lock Nuts, 5/8" groove dia, as required	
		RCC (1:1.5:3) as required	

BANGLADESH RURAL ELECTRIFICATION BOARD

Unit Description: **33 KV RIVER CROSSING DESIGN FOR 500' ~ 890' SPAN**

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	TC40



HOLE LOCATION OF 45FT SPC PLOE


 (Md. Abdul Khaleque)
 Consultant, TAPP, BREB


 (Md. Mokammel Huj)
 Consultant TAPP BREB


 (Md. Duhidul Islam)
 Consultant TAPP BREB


 (Md. Mozibur Rahman)
 Consultant TAPP BREB


 (Kamrul Ahsan Mollik)
 Asst. Secy. (Board), BREB.


 (Debasish Chakraborty)
 PD, TAPP, BREB


 (Md. Ahsanul Haque)
 Consultant TAPP, BREB

৬২১ তম নোড সভায় অনুমোদিত শিকড় নং ১৭৭০০

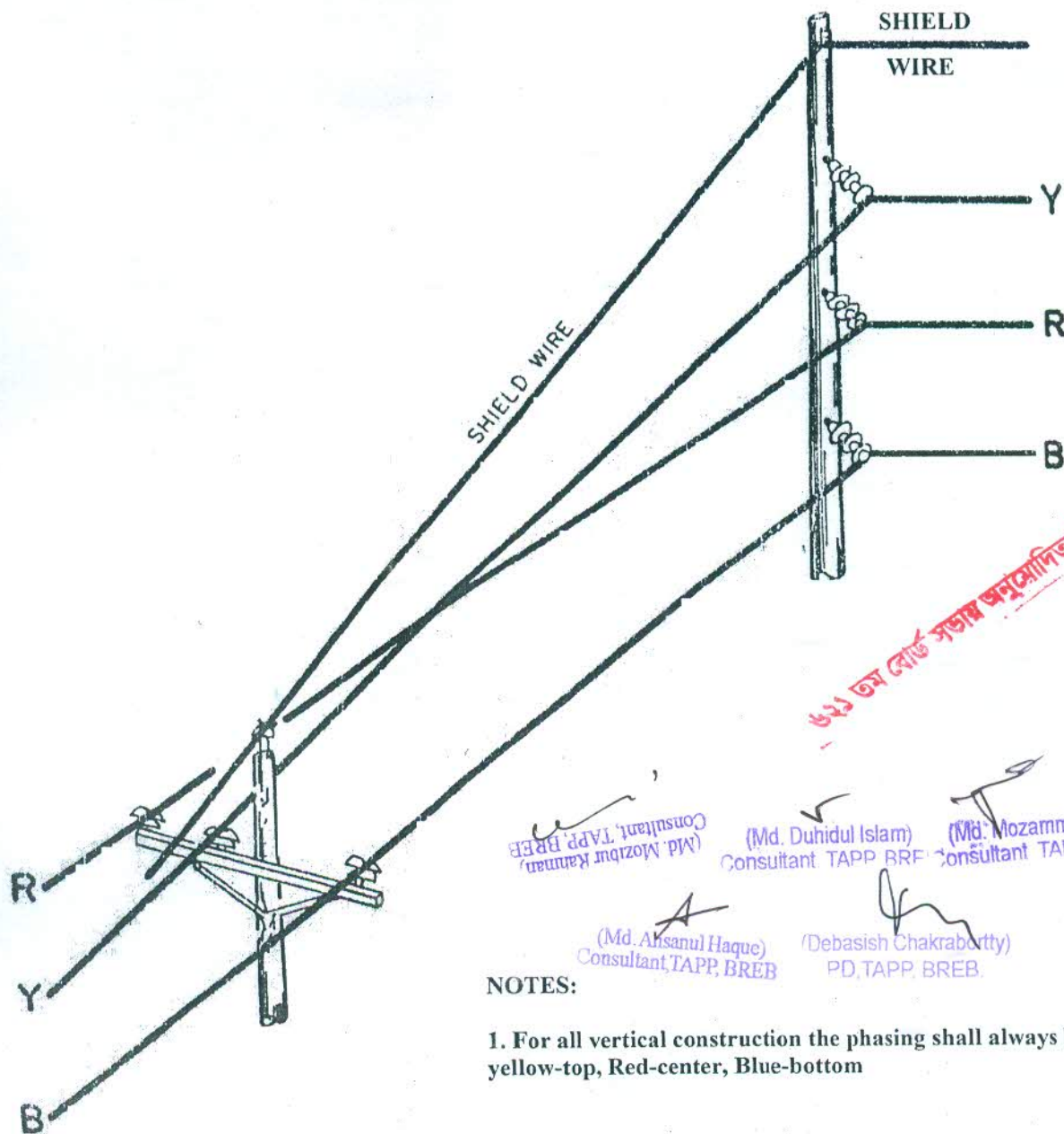
BANGLADESH RURAL ELECTRIFICATION BOARD

Unit Description: 33 KV DRILLING GUID FOR CONVERTING DISTRIBUTION POLES 40 & 45 FEET SPC & LONGER TO TRANSMISSION POLES

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	TM 20A

Revision Date: July 1980, June 1981, August 1989, July 1995, August 2013, February 2020

TYPE OF CONSTRUCTION	PHASE NOTATION	PHASE LOCATION ON POLE
HORIZONTAL	R (RED) Y (YELLOW) B (BLUE)	NORTH OR WEST CENTER SOUTH OR EAST
VERTICAL	Y (YELLOW) R (RED) B (BLUE)	TOP CENTER BOTTOM



(Md. Mozibur Rahman)
Consultant, TAPP, BREB

(Md. Duhidul Islam)
Consultant TAPP, BREB

(Md. Mozammel Haq)
Consultant TAPP, BREB

(Md. Ahsanul Haque)
Consultant, TAPP, BREB

(Debasish Chakraborty)
PD, TAPP, BREB.

(Md. Abdul Khaleque)
Consultant, TAPP, BREB

(Kamrul Ahsan Mollin)
Asst. Secy. (Board), BREB

৬৬৬ তম বোর্ড সভার অনুমোদিত সিদ্ধান্ত নং ১৭৭০০

NOTES:

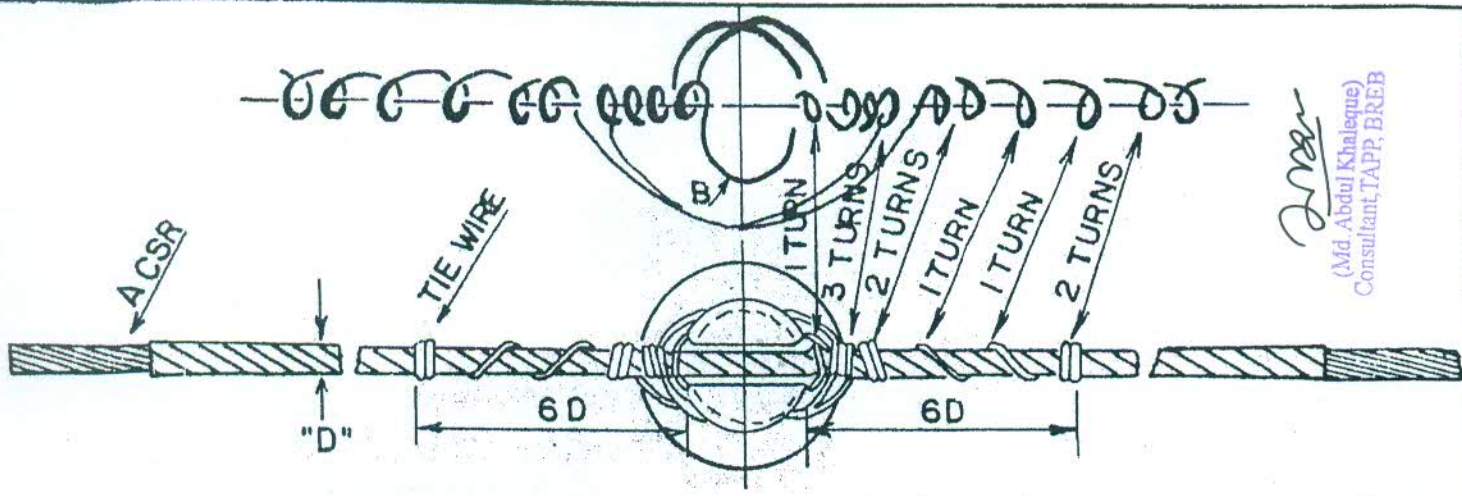
1. For all vertical construction the phasing shall always be yellow-top, Red-center, Blue-bottom

BANGLADESH RURAL ELECTRIFICATION BOARD

Unit Designation: 33 KV PHASING GUIDE CROSSARM TO VERTICAL

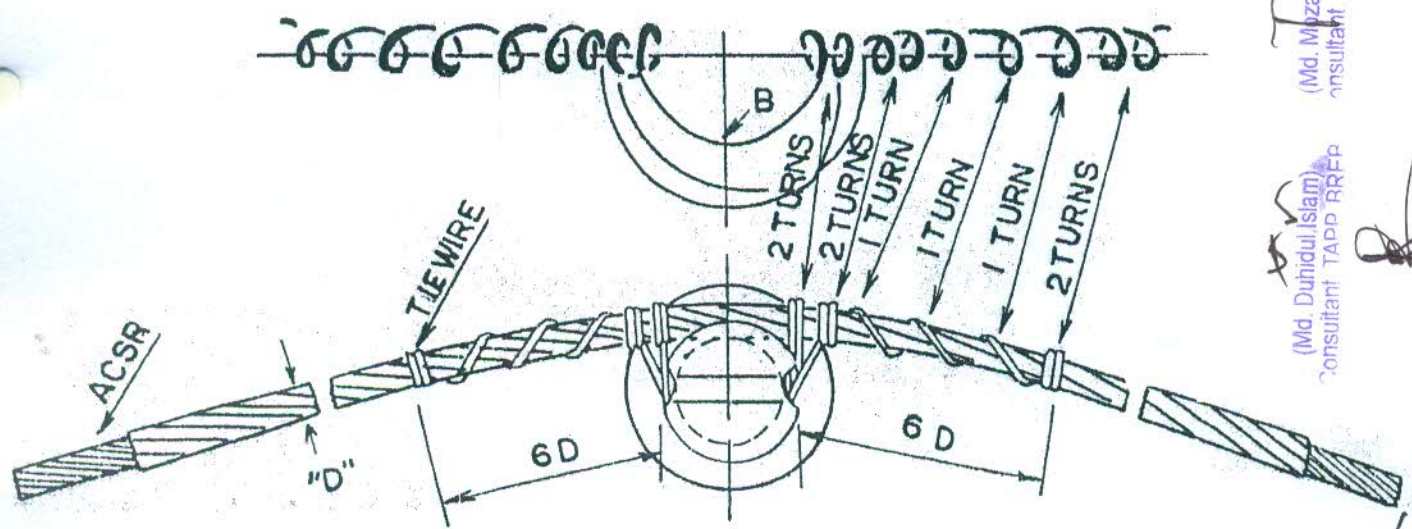
Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	TM21

Revision Date: July 1980, June 1981, August 1989, July 1995, August 2013, February 2020



SINGLE TOP GROOVE TIE

(Md. Abdul Khaleque)
Consultant, TAPP, BREB



SINGLE SIDE GROOVE TIE

(Md. Mizammel Hujj)
Consultant, TAPP, BREB

(Md. Duhidul Islam)
Consultant, TAPP, BREB

(Kamrul Ahsan Mollah)
Asst. Secy. (Board), BREB

- NOTE:**
1. In making ties, start with middle of length of tie wire at position marked "B"
 2. To complete tie, clinch up last two turns at each end with pliers until tie wire is snug and tight. Cut off ends flush with conductor
 3. Use the flat face of the pliers against the armor rods.

(Md. Mozibur Kamran)
Consultant, TAPP, BREB

৬২১ তম বোর্ড সভায় অনুমোদিত সিদ্ধান্ত নং ১৭৭০০

BANGLADESH RURAL ELECTRIFICATION BOARD

Unit Description: 33 KV TYING GUIDE, SINGLE INSULATOR, ALUMINIUM TIE WIRE, ACSR CONDUCTOR WITH PREFORMED ARMOR RODS

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	TM40-10

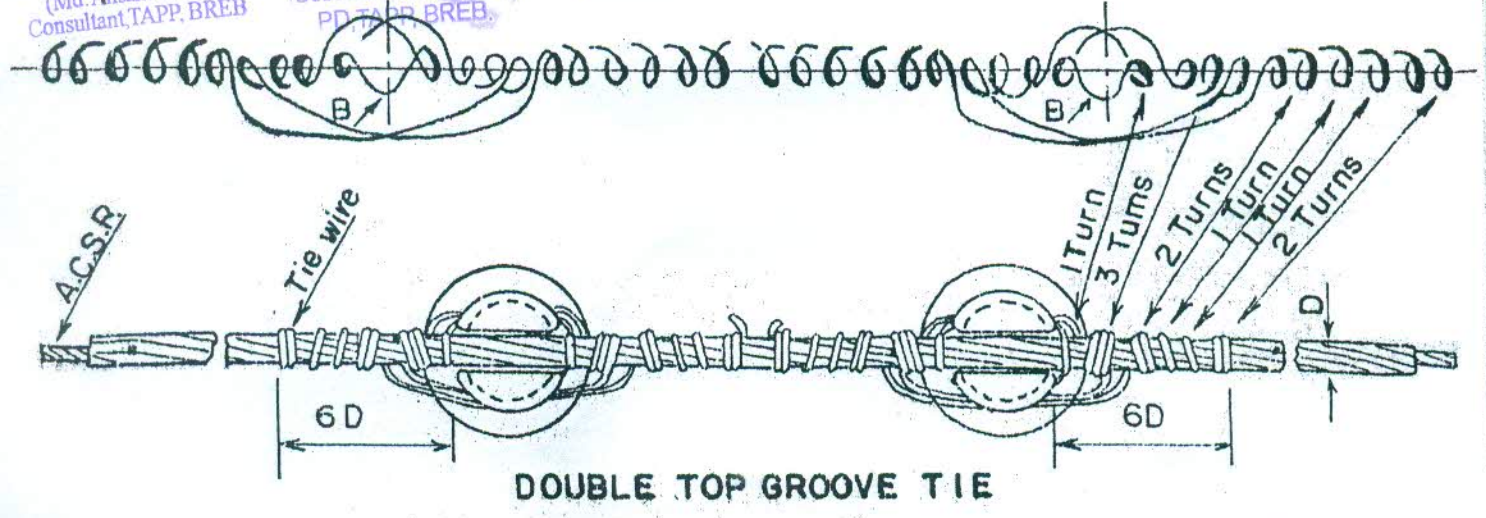
Revision Date: July 1980, June 1981, August 1989, July 1995, August 2013, February 2020

(Md. Mozibur Rahman)
Consultant, TAPP, BREB
(Md. Masum Haque)
Consultant, TAPP, BREB

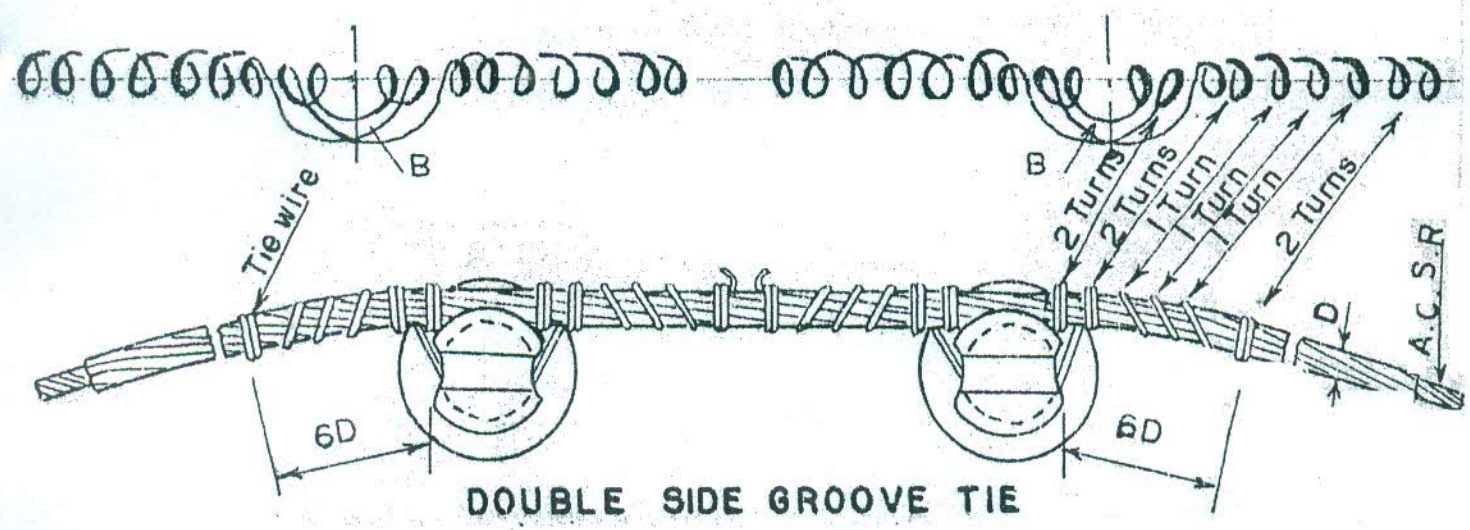
(Md. Duhidul Islam)
Consultant, TAPP, BREB
(Debasish Chakrabarty)
PD, TAPP, BREB

(Md. Mozammel Haq)
Consultant, TAPP, BREB

(Md. Abdul Knaque)
Consultant, TAPP, BREB



DOUBLE TOP GROOVE TIE



DOUBLE SIDE GROOVE TIE

NOTE:

1. In making ties, start with middle of length of tie wire at position marked "B"
2. To complete tie, cinch up last two turns at each end with pliers until tie wire is snug and tight. Cut off ends flush with conductor.
3. Use the flat face of the pliers against the armor rods.

(Kamrul Ahsan Mollah)
Asst. Secy. (Board), BREB.

৬২১ তম বোর্ড সভার অনুমোদিত সিদ্ধান্ত নং ১৭৭০০

BANGLADESH RURAL ELECTRIFICATION BOARD

Unit Designation: 33 KV TYING GUIDE, DOUBLE INSULATOR, ALUMINIUM TIE WIRE, ACSR CONDUCTOR WITH PREFORMED ARMOR RODS

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	TM40-11

Revision Date: July 1980, June 1981, August 1989, July 1995, August 2013, February 2020

(Md. Mozibur Rahman)
Consultant TAPP BREB

(Md. Duhidul Islam)
Consultant TAPP BREB

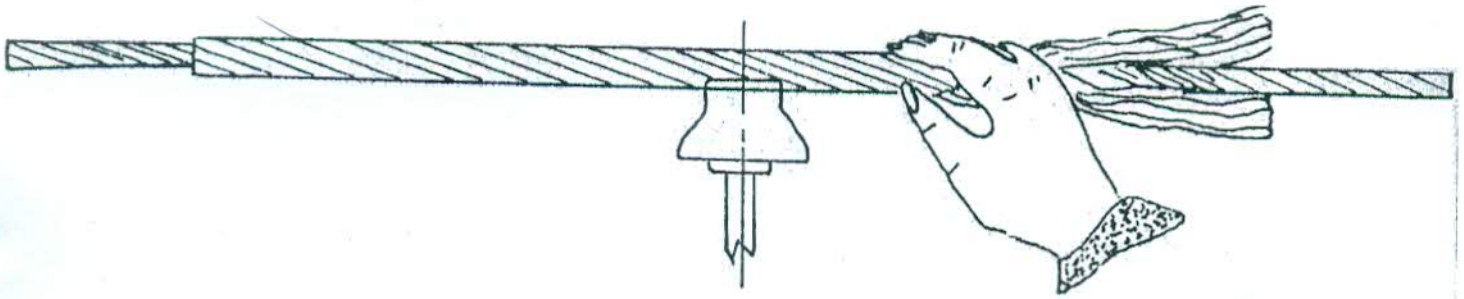
(Md. Mozammel Haq)
Consultant TAPP BREB

(Md. Abdul Khaleque)
Consultant, TAPP, BREB

(Md. Ahsanul Haque)
Consultant, TAPP, BREB

(Debasish Chakraborty)
PD, TAPP, BREB.

(Kamrul Ahsan Mollik)
Asst. Secy. (Board), BREB.



For hand application, hold one or more reinforcements against the conductor with midpoint at the insulator, and rotate in same direction as the lay of the conductor, for three or four inches each side of center. In like manner apply remaining reinforcements to center section. After all have been started, complete the application with a rotary outward wiping motion of the hand. Make certain that the ends snap into place in proper order.

PREFORMED ALUMINUM ALLOY ARMOR RODS							# 4 Al Tie Wire needed
ACSR Conductor	LENGTH SINGLE SUPPORT	LENGTH DOUBLE SUPPORT	NO. PER SET	WIRE DIAM. (IN.)	DIAM. PLUS RODS	Color Code	
3 (6x1)	33"	33"	9	0.281	0.523	Green	(+/-) 7'
1/0 (6x1)	37"	37"	11	0.398	0.640	Yellow	(+/-) 8'
4/0 (6x1)	43"	43"	15	0.563	0.805	Red	(+/-) 9'
477 mcm	53"	53"	19	0.858	1.15		(+/-) 11'

০০৬৫৪ নম্বরে পরিচালিত করা হয়েছে।

BANGLADESH RURAL ELECTRIFICATION BOARD

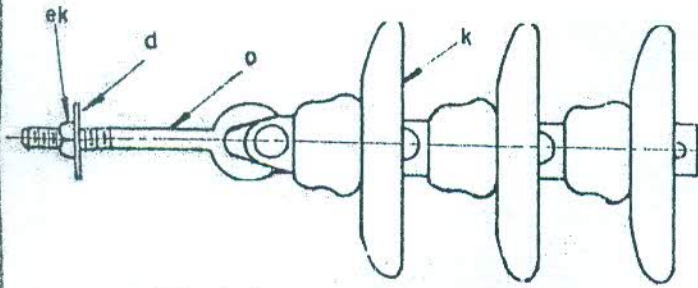
Unit Designation: 33 KV PREFORMED ARMOR RODS ACSR CONDUCTORS

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	TM40-12

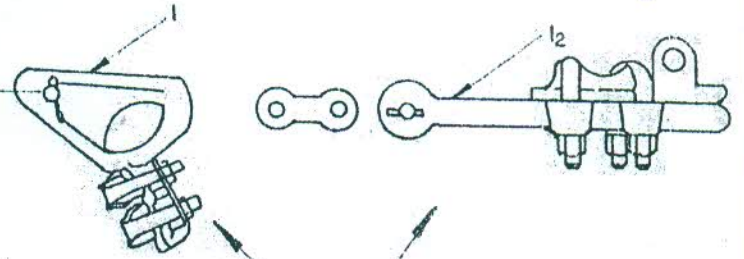
Revision Date: July 1980, June 1981, August 1989, July 1995, August 2013, February 2020

PRIMARY CONDUCTORS

(Md. Abdul Khaleque)
Consultant TAPP, BREB

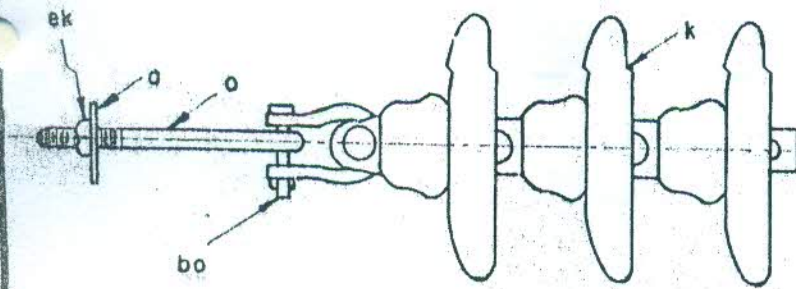


DEADEND ASSEMBLY

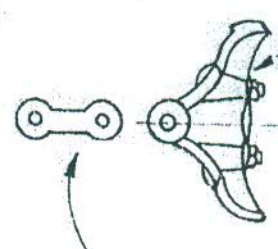


OR

OR



ANGLE ASSEMBLY



CLEVIS EYE

(Md. Mazammel Haq)
Consultant TAPP, BREB

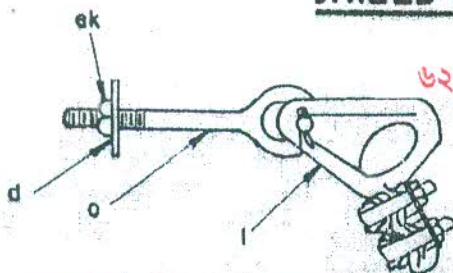
(Md. Dündüül İslam)
Consultant TAPP, BREB

(Md. Mozibur Rahman)
Consultant TAPP, BREB

(Md. Alimul Haque)
Consultant TAPP, BREB

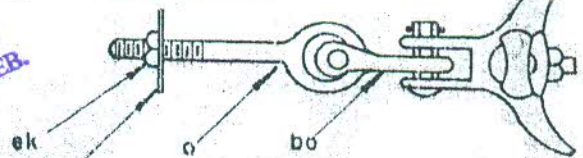
SHIELD WIRE, No 3 ACSR

৬২১ তম বোর্ড সভায় অনুমোদিত সিদ্ধান্ত নং ১৭৭০০



DEADEND ASSEMBLY

(Kamrul Ahsan Mollik)
Asst. Secy. (Board), BREB.



ANGLE ASSEMBLY

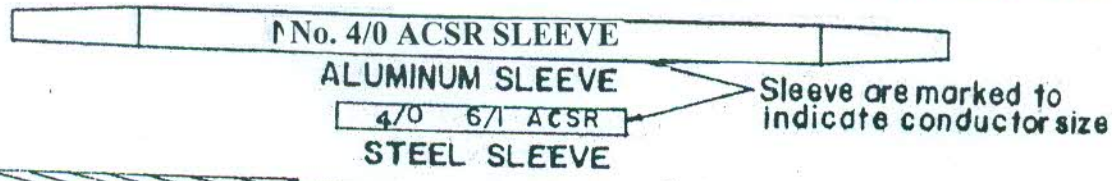
NOTE: 1 Clevis Eye is supplied with large conductor (477 mm ACSR and greater) strain clamp and angle

BANGLADESH RURAL ELECTRIFICATION BOARD

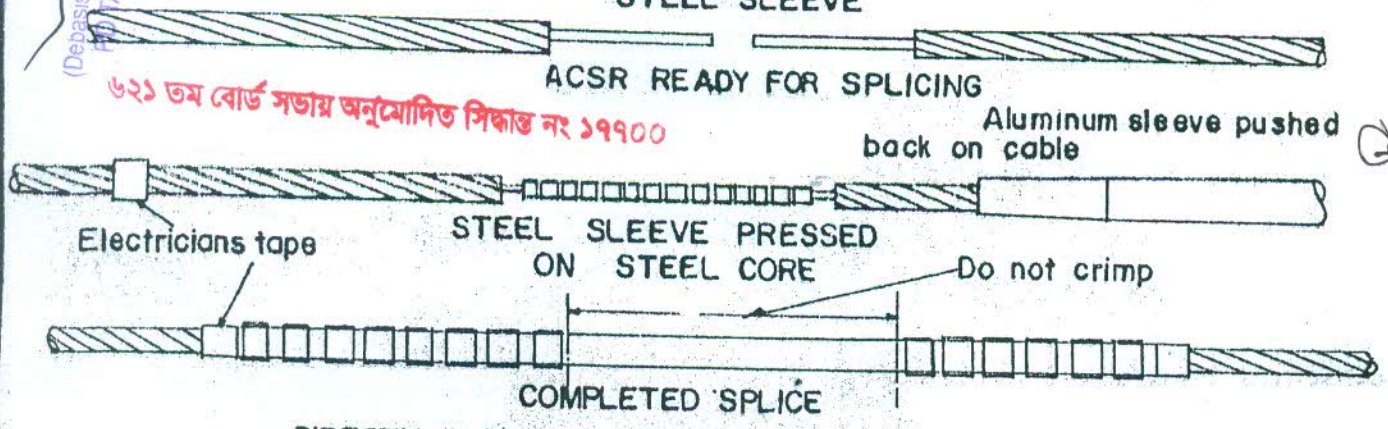
Unit Designation: 33 KV ANGLE AND DEADEND ASSEMBLY GUIDE

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	TM41-10

Revision Date: July 1980, June 1981, August 1989, July 1995, August 2013, February 2020



৬২১ তম বোর্ড সভায় অনুমোদিত সিদ্ধান্ত নং ১৭৭০০



DIRECTIONS FOR MAKING AN ACSR TWO SLEEVE SPLICE

1. Obtain correct sleeves and compression tool dies for the conductor being spliced. Complete die and crimp information are usually indicated on sleeves.
2. Select location of splice so that it will not be within 10'-0" of the nearest conductor support.
3. Prepare work area as much as field conditions permit so ends of conductors can be supported in a straight line after they have been prepared for splicing. This will assist in making a straight splice.
4. Clean conductor ends by wire brushing
5. Place aluminum sleeve on one conductor and slide it on far enough to be out of the way. Cut back aluminum strands on both conductor ends 3/4" more than half length of the steel sleeve.
6. Insert steel core wires in the steel sleeve, forcing them against the center stop to assure proper positioning. Crimp entire length of sleeve starting at the center and working to the end. Leave approximately 1/16" spaces between crimps.
7. If necessary straighten steel sleeve by hammering carefully against a suitable wood block
8. Place electricians tape on one conductor to assist in centering aluminum sleeve.
9. Wire brush conductors thoroughly until a bright finish indicates the absence of impurities, then immediately apply generous amounts of inhibitor compound to the steel sleeve and to the aluminum strands that will be covered by the aluminum sleeve.
10. Slide the aluminum sleeve into place. The first 2 crimps are to be made with the inner edges of the dies matching the positions stencilled on the sleeve and the splice is completed by crimping from there to the ends of the sleeve. If the tool die recommended on the sleeve is available follow the crimping directions on the sleeve, if not allow a space of approximately 1/16" between crimps. The central portion of the sleeve is not crimped.
11. If necessary straighten splice by hammering carefully between suitable blocks of wood.
12. Install plug securely in middle of sleeve and clean off excess inhibitor compound.

BANGLADESH RURAL ELECTRIFICATION BOARD

Unit Description: 33 KV SPLICING GUIDE COMPRESSION TYPE, TWO SLEEVE SPLICE, ACSR CONDUCTOR

Date of Origin	Reviewed by	Approved by	Revision No.	Unit Designation
July 1979	BREB	BREB Board	6	TM45

Revision Date: July 1980, June 1981, August 1989, July 1995, August 2013, February 2020

INSTRUCTIONS FOR SPLICING OVERHEAD CONDUCTORS USING FULL-TENSION AUTOMATIC SLEEVES

I. Preparation of Conductors:

1. Cut the conductor square so that all strands are even, in lay and free of burrs.
2. Straighten the conductor to remove any curvature due to coiling.
3. Clean the conductor thoroughly by using a wire brush which has been coated with a liberal quantity of inhibitor. Wipe off excess inhibitor after cleaning. It is just as important to clean new conductors as well as old conductors.
4. The conductor size and type stamped on the splice must correspond to the size and type of the conductor to be spliced.
5. Measure and mark the conductor with electrical tape to insure full insertion of the conductor into the splice. One half (1/2) the length of the splice is the measure of full insertion.

II. Installation of the Automatic Splice:

1. Remove the colored end plug (if provided) by pulling out with a slight twisting motion.
2. Do not remove the conductor runnel guide or the internal pilot cup (if provided) from the splice. These components confine and guide the conductor strands for easy insertion.
3. Insert end of the conductor into the splice, and with a smooth straight thrust push the conductor through the gripping jaws until the conductor hits the center stop.
4. Visually check tape marker to verify full insertion. Remove the tape marker.
5. As tension is applied the conductor will move 1/4" to 1/2" from the end of the splice due to the sliding action of the gripping jaws.
6. After completion of the splice installation and before the chain hoist or rope blocks have been released, an additional momentary tension (jerk) should be applied to the conductor to "set" the splice and assure proper installation.

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BANGLADESH RURAL ELECTRIFICATION BOARD

Unit Description: 33 KV SPLICING GUIDE FULL-TENSION AUTOMATIC SLEEVES

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