

DELHI DEVELOPMENT AUTHORITY ELECTRICAL DIVISION NO.-I

NOTICE INVITING TENDER

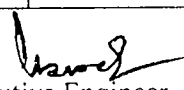
Sealed item rate tenders are invited for the following works by the Executive Engineer, Electrical Division No.-I/ DDA, School Block, Shakarpur, Delhi-110092 up to 3.00 pm on date mentioned below on behalf of DDA from the approved contractors of appropriate class of DDA, CPWD, P&T, MES, Railway. The tenders shall be opened on the same day at 3.30 pm at Ground Floor, Vikas Minar, I.P. Estate, New Delhi in the presence of intending tenderer or their authorised representatives.

The tender Documents can be had on any working day from the Sr. AO, (CAU) EZ/DDA and sales counter, Vikas Minar, Ground floor in respect of the following work between 10.00 am to 3.00 pm on payment of amount of tender cost (non refundable) mentioned against each work on production of valid registration certificate, valid registration with works contract cell of sales tax department of GNCTD and tax clearance certificate from the works contract cell of sales tax Deptt. in form XI. Sale of tender form will be stopped 4 days (including date of opening) before the date fixed for opening of tenders as mentioned below.

The manner of submission of tenders, opening of the same and entry of contractors/ their representatives to the place of opening shall be as per provisions provided in clause 3 (a) (b) and (c) of PWD 6 forming part of the tender documents.

The earnest money may be deposited at time of submission of tender documents in the form of Banker's Cheque, Pay order and Bank Draft of a Scheduled Bank Guaranteed by the RBI in favour of Sr. A.O (CAU)EZ/DDA or FDR valid for a period of six months or more than after last date of report pledged in favour of Ex. Engineer, Electrical Division No-I ,DDA. The tender of contractor who does not enclose the earnest money in the prescribed manner shall be summarily rejected.

Sl.No.	NIT No.	Name of works	Estt. Cost Earnest Money Cost of tender Time Allowed	Last date of sales Date of Opening
1.	NIT No. 16/EE/ELD- I/AE-III/ DDA/ 2008-09	D/o 134.2 Hact. Land at Jasola D/o main land at Jasola Ph.-I (SH: Providing street lighting in 30 Mtrs., 24 mtrs. & 18 mtrs. Road at District Centre Jasola)	Rs. 54,85,112.00 Rs. 1,09,702.00 Rs. 1000.00 Four months	24.11.2008 28.11.2008


Executive Engineer
Electrical Division -I
DDA

ED-I/13 (37) A/Cs/DDA/ 1248

Dated : 10/11/08

Copy to:-

1. Chief Engineer (El.), DDA
2. AO (CAU) EZ, DDA
3. AO Works-III/DDA
4. S.E. (E) Circle -3/(CWG-I)DDA
5. EE/Elect. Div.-2 to 12 / DDA
6. F.O. to C.E. (E)/ DDA
7. EE/ WD -5, DDA.
8. AE (P) Elect. Divn.-I/DDA (7 a. Concerned AE -III/ ELD-I DDA)
9. Head Clerk/Electrical Division I/DDA

Ref: RCT No. 16/ELD-IPDK/08-09

SCHEDULE OF WORK

Name of work : D/o 134.2 Hactare Land at Jasola.

SH : Providing street lighting on 30 mtrs., 24mtrs & 18 mtrs. Road at District Centre Jasola.

S. No.	Description of Item	Qty.	Rate.	Unit	Amount
1.	Supplying erection, testing and commissioning of HOT dip galvanized octagonal steel pole of 12 meter height made out of 4mm thic sheet having bottom 200mm A/F and top 100mm A/F with bracket and built in connectorcontrol box with flush cover on RCC foundation with bolts and nuts, making connection, interconnections with suitable size of copper wire with thimble/ lugs in the connector box, earthing, marking/ numbering of poles etc. complete as per drawing & technical specifications attached.				
	a) Single overhang				

35
Nos

Each

b) Double overhang

36

nos.

Each

c) Triple overhang

4

nos.

Each

2. Supplying, installation, testing & commissioning of

street light fitting suitable for following HPSV tubular lamp complete with reflector protective glass cover with accessories including high pressure sodium vapour tubular lamp, making connection and complete as per technical specification attached.

a) 250 watt HPSV

119

nos.

Each

8

3. Supplying & laying of one number double walled corrugated high density polyethylene pipe having corrugation on the outer wall and plain surface inner wall conforming to IS : 14930 Part-I & II complete with necessary HDPE fittings for protection of 1.1 KV grade underground cable directly in ground at a depth of 50cm including excavation and refilling the trench etc. as required.

a) 90mm (outer dia) nominal size 3380 mtr.

Mtr

b) 120mm (outer dia) nominal size 330 mtr.

Mtr

4. Supplying & laying of one number additional double walled corrugated high density polyethylene pipe having corrugation on the outer wall and plain

9

surface inner wall confirming to IS : 14930 part-I & Part-II complete with necessary HDPE fittings for protection of 1.1 KV grade underground cable directly in ground in the same trench in one tier horizontal formation at a depth of 50 cm including excavation and refilling the trench etc. as required but excluding sand cushioning and protective covering.

a) 90 mm outer dia nominal size 470 mtrs.

M4r

b) 120 mm outer dia nominal size 300 mtr.

M4r

5. Providing boring & laying of HDPE pipe (ISI marked) of the following size confirming to IS : 4984 with pressure rating of 6 kg./sq. cm by trench less technology with no dig method by making bore hole in the horizontal direction across the road with boring equipment including jointing cleaning pipe performing mandrel

test providing suitable cover on the mouth of the pipe
excavation of pit of required size & depth etc. as
required.

a) 75 mm outer dia

125
mtr.

Mtr.

b) 110 mm outer dia

75
mtr.

Mtr.

6. Supplying of following sizes of XLPE aluminium
conductor armoured power cable of 1.1 KV grade
including connection, testing etc. as required and as
per technical specification enclosed

a) 2x25 sqmm.

3500
mtr.

Mtr

b) 2x 35 sqmm.

670
mtr.

Mtr

c) 4x50 sq.mm.

720

mtr.

Mtr

7. Supplying & drawing of 3x2.5 sq.mm size of FR PVC 1500

mtr.

Mtr

insulated copper conductor single core cable in the existing poles as required (for connection between connector box and fitting)

8. Laying of one number PVC insulated and PVC 3200

sheathed/ XLPE power cable of 1.1 KV grade of size mtr.

Mtr

not exceeding 25 sqmm in the existing RCC/HUME/STONE WARE/ METAL/DWC pipe as required.

9. Laying of one number PVC insulated and PVC 650

sheathed/XLPE power cable of 1.1 KV grade of size mtr.

Mtr

exceeding 25sqmm but not exceeding 400 sq.mm in

the existing RCC/HUME/STONEWARE/METAL/DWC pipe as required.

10. Supplying & making end termination with brass compression gland and aluminium lugs for following sizes of PVC insulated and PVC sheathed/XLPE aluminium conductor armoured power cable of 1.1 KV grade as required.

a) 2x25 mm

8 sets

set

b) 2x35 sq. mm

2

sets

Set

c) 4x50 sq. mm

4

sets

25

11. Supplying, installation, testing & commissioning of floor mounted free standing type, LT cubical feeder pillar duly compartmentalized (out door type) made out of 2mm thick CRCA MS sheet, making connections, interconnections of the accessories mounted thereon on with suitable size of copper wire/ strip with thimbles/ lugs, earthing the body of the feeder pillar, including supplying & fixing of the following items and as per technical specification & drawing enclosed.

- d) 125 Amp. TP&N 415 volts switch disconnector fuse unit with HRC fuses (interior only)-1 No.
- b) i) 32 Amp. 'C' Series TP &N MCB – 3 nos.
ii) 32 Amp. DP MCB =4 Nos
- c) 40 Amp. 240 V AC contactor- 1 No. .
- d) Timer switch – 1 No. programmable
- e) 4 stripped Al. Busbar duly sleeved/ tapped of suitable size & length – 2 sets
- f) Danger notice plate – 1 No.

g) Suitable size of Bakelite sheet 6mm thick for 1
mounting energy meter set

Set

12.

Supplying, installation, testing & commissioning of floor mounted free standing type LT cubical Feeder pillar duly compartmentalized (out door type), made out of 2mm thick MS sheet making connections, interconnections of the accessories mounted thereon with suitable size of copper wire/strip with thimbles/ lugs, earthing the body of the feeder pillar, including supplying & fixing of the following items and as per technical specification & drawing enclosed.

- a) 63 Amp TP&N 415 volts switch disconnector,
Unit with HRC fuses (interior only) – 1 no.
- b) 32 Amps. D.P. MCB – 3 no.
- c) 40 Amps 415V AC contactor – 1 no.

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- d) Timer switch programmable – 1 no.
 - e) 4 stripped Al. Busbar duly sleeved/ taped of suitable size & length 1 set.
 - f) Danger notice plate – 1 no.
 - g) Suitable size of backelite sheet 6mm thick for mounting energy meter – 2 sets
- 2 sets
- Set*
-
13. Earthing with GI earth pipe 4.5 meter long and 40mm dia i/c accessories and providing masonry enclosure with cover plate having locking arrangement and watering pipe etc. (but without charcoal or coke and salt) complete as required.
- 16 sets
- Set*
-
14. Extra for using salt and charcoal for pipe earth electrode as required.
- 16 sets
- Set*

15.	Supplying and laying 25mm x 5mm GI strip at 0.5 mtr. Below ground level as strip electrode including soldering etc. as required.	30 mtr.
16.	Providing & fixing 25mm x 5mm GI strip in 40mm dia GI pipe from earth electrode as required.	15 mtr.
17.	Providing and fixing of 25mm x 5mm GI strip on surface or in recess for connections etc. as required.	20 mtr.
18.	Providing and fixing 6 SWG GI wire on surface or in DWG pipe for loop earthing along with cable etc. as required.	3500 mtr.
Total		

Mr

Mr,

Mr,

Mr.

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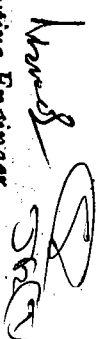
Executive Engineer
Electrical Division No. 4,
Shakarpur, DDA

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GOVERNING SPECIFICATIONS IN RESPECT OF MATERIAL TO BE USED IN THE WORK

S.No.	Item	Governing specifications	Make/Model
1.	Octagonal poles		Phillips/Valmont/Bajaj
2.	Street light fittings	IS: 10322 Pt. I to V Note: Model indicated including the acceptable model. Improved model if any, offered by the manufacturer shall also be accepted.	Phillips—Velocity Bajaj—JET Crompton—Land mark Schreder—Seal safe MC3 GE--Olympia
3.	HPSV tubler lamp		Phillips—SONT.Plus-PIA Osram—T-Super 4Y
4.	Capacitor & Ballast for control gear compartment	IS: 6616 (FOR BALLAST)	As per manufactures standard accessories
5.	XLPE armoured Al. cond. Cable	IS: 7098-Part-I	Asian/Ecko/Skyrone/Grandlay/Plaza Unistar/ Havell's with ISI mark
6.	PVC insulated copper cond. Cable	IS: 694	National/Ecko/Havell's /skyrone with ISI mark
7.	Switch disconnector fuse unit	IS: 13947	L & T/Siemens/ Arcva/C&S/ABB/GE

8.	Miniature circuit breaker	IS: 8828	Legrand/ Standard / Indo Kopp/ L&T _____ C-Series (Breaking capacity 10 KA)
9.	DWC pipe	IS: 14930	Rex _____ / Dura Line/ Gemini ISI Mark
10.	Time Switch	-	L&T/ Schneider Electric/ ABB
11.	A.C. contactor	IS: 13947	L&T / Siemens/ Areva/ ABB/GE/ C&S
12.	G.I. Pipe	IS: 1239	Jindal (Hissar)/ Surya/ Tata with ISI Marks


 Executive Engineer
 Electrical Division No. 1,
 Shakarpur, DDA

ADDITIONAL CONDITIONS & SPECIFICATIONS

1. General :

The contractor must get acquainted with the proposed site for the work & study specifications and conditions carefully before tendering. If the site or part of the site is not available for any reason the programme of execution shall be modified accordingly and the agency shall have no claim except provided in the printed conditions of the contract.

1.2 The contractor shall submit the test report form duly filled in for receiving the electric supply from "DISCOM", if so required by the Engineer-in-charge.

1.3 The work, as indicated in the schedule of work attached herewith including any modification/addition/alteration ordered subsequently, shall be carried out in the following preference as per the specification indicated below:

- i) Indian Electricity rules 2005 amended upto date.
- ii) Technical specifications attached herewith.
- iii) Relevant BIS standards as modified upto date.
- iv) CPWD general specifications for electrical works part-I (Internal) 2005 and part II (external) 1994 amended upto date.

1.4 The work shall be considered as one package and indivisible

- 2.1 Design criteria and requirement of illumination level, given in the Technical Specifications are the only basis of evaluation of tenders. No weightage of any kind shall be given, if the tenderer claims to meet better specifications.
- 2.2 The rates quoted by the contractor shall be firm & inclusive of all Central/State Govt. Taxes, Duties levies, etc. No escalation in tendered rates shall be permitted. However, service tax wherever applicable be reimbursed to the Agency on the proof of payment to the concerned Department.
- 2.3 Concessional Sales Tax from C/D shall not be issued by the Department.
- 2.4 i) Suitable and open storage accommodation shall be provided by the department free of cost to the contractor. However temporary structure, if required by the contractor for safe & lockable storage of the material shall be allowed at his own cost.
- ii) All tools and tackles required for unloading of the equipment and erection at site shall be responsibility of the contractor.
- 2.5 Materials to be used in the site of works shall be ISI marked, where material bearing ISI Marked, are not available, material conforming to ISI shall be used with prior approval of the Engineer-in-charge.
- 2.6 For the feeder pillar, the contractor will first submit dimensional detailed drawings for approval of the Engineer-in-charge before fabrication is taken up at factory.
- 2.7 In some portion the cable is to be laid after removing the interlocking tiles/stones etc. Agency shall have to make good the same after laying the cable for which nothing extra shall be paid.

3. **INSPECTION BEFORE DESPATCH :**

All routine and acceptance tests prescribed in relevant BIS specifications shall be conducted before dispatch of equipments. No. equipment shall be dispatched from

the manufacturer's premises without such tests being conducted and test result recorded. These test certificates shall be given along with the supply of equipments. The Engineer-in-charge shall, if he so desires inspect and witness the pre-delivery tests. For this purpose, the contractor shall give 15 days advance information. Department shall bear expenses for inspection as far as travelling and boarding/loading is concerned.

- 3.1 Prior to despatch, all equipments shall be adequately protected for the whole period of transit, storage & erection against corrosion and incidental damages etc. from the effect of vermin, sunlight, rain, heat and humid climate.

4. **INSURANCE :**

- i) Contractor shall arrange storage-cum-erection insurance right from the date material is supplied and upto commissioning and handing over of the installations to the department, from recognised Insurance Company. Contractor shall give policies of insurance and receipts of payments to Engineer-in-charge.

ii) **REMEDY OF FAILURE TO INSURE:**

If the contractor fail to effect and keep in force the insurance referred to in the proceeding sub-clause, the department may effect and keep in force any such insurance and pay such premium as may be necessary for that purpose and from time to time deduct the amount, so paid by the department, from any money due or which may become due to the contractor

5. **DAMAGES AND COMPANSATION :**

Department shall not be liable for any payment of any damages, loss and compensation payable at law in respect of or in consequence of any accident or injury to any person in the employment of the contractor.

6. **COMPLETION PLAN & DATA:**

After the work is completed, it shall be ensured that installation is tested and commissioned, the contractor shall give completion certificate given in Appendix 'D' of CPWD General Specifications for Electric Works Part-II External 1994 within one month after actual date of completion, failing which an amount @ 1% of the tendered cost subject to maximum of Rs.25000/- shall be deducted from any amount due to contractor.

7. **PHYSICAL COMPLETION:**

The contractor shall give 3 copies of completion plans as per details below :-

- a) General layout of the site showing the routes of cables, location of feeder, pillars.
- b) Schedule of lengths, types & sizes of cables in different circuits/service mains and pole numbers on each circuit; and
- c) Position of all cable joints, if any.

8. **GUARANTEE :**

After satisfactory commissioning of the installation, the department shall record the physical completion of work, but the installation shall be taken over after the completion of maintenance/guarantee period in perfect working order.

Damages/theft if any during the maintenance/guarantee period shall be made good before handing over & the security deposit shall be released after successful completion of guarantee period.

- a) Contractor shall give guarantee/warranty of all the material/equipment installed as per specifications for a period of one year from the date of completion against unsatisfactory performance or breakdown due to


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defective design, manufacture, or defective installation. Warranty

shall cover the quality, strength and performance of material and equipment.

- b) Satisfactory performance during the guarantee period.
- c) Prompt services during the maintenance/guarantee period.
- d) Attending to consequential damages promptly in equipment supplied and installed.

9. During the guarantee period the contractor shall also carry out the maintenance as well as trouble free running/operation of street lights installed by him within the quoted rates. The scope of work shall be as under :

- i. To keep all the street lighting points & all allied installation in working order.
 - ii. Street lighting should be switched on/off at appropriate time fixed by the deptt.
 - iii. The contractors shall replace all the defective materials i/c HPSV lamp, ballast/ignitor etc. during the guarantee period free of cost.
 - iv. The contractor shall deploy trained & competent staff as and when required during the guarantee period of one year from the date of completion of work.
 - v. The contractor shall submit the log sheet regarding the status of street lighting points and other allied installations on weekly basis, to the Engineer-in-charge, duly signed by him or his authorized representative.
 - vi. The contractor shall take all safety measures at site during maintenance of the installations.
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- vii. Any injury/mishap to the maintenance staff during duty hours will solely be the liability of the contractor.
- viii. The contractor shall maintain the street lighting luminaries with wheel ladder/motorized ladder only.
- ix. Co-ordination and follow up action with Electric Supply Agency shall be done by the contractor in case of failure/fault in supply.
- x. The contractor shall intimate the engineer-in-charge about the major breakdown or failure of electric supply immediately.



Executive Engineer
Electrical Division No. 1,
Shakarpur, DDA



TECHNICAL SPECIFICATION

1. DESIGN CRITERIA :

Street Lighting on road as per details given below is to be designed on the following design parameters.

- i) The tenderer shall confirm & ensure that minimum required illumination lux level is achieved at 230 volt \pm 5% on each carriage way.
- ii) **Pole to pole spacing** : Reference point of installation of poles shall be intersection/ T-section. Variation in pole to pole spacing + 0 to - 10% shall be permitted only, when required for installation of poles between two reference points i.e. straight road formations.
- iii) The maintenance factor shall be 0.75

S. No.	Road, width (in mtrs.)	Carriage way (in mtrs.)	Type of carriage way	Pole height (in mtrs.)	Max. spacing of poles (in mtrs.)	Bracket length (around) Excluding length of fitting (mtrs.)	Tilt angle (around)	Lighting specifications Eavg. E. min. : Eavg.	Lamp wattage HPSV
1.	18 Mtr.	11	Single	12	29	1	0° to 15°	35 Lux 0.4	250 Watt
	18 Mtr.	11	Double	12	35	1	0° to 15°	35 Lux 0.4	250 Watt
2.	24 Mtr.	11	Single	12	40 (Opposite)	1	0° to 15°	35 Lux 0.4	250 Watt
3.	30 Mtr.	11	Double (On central verge double overhang)	12	38	1	0° to 15°	35 Lux 0.4	250 Watt

- NOTE :**
1. For curves and bends, spacing should be 70% of the normal spacing.
 2. Central verge/ footpath is about 200-250mm above road level and the plinth level of the base plate of the pole shall be about 250mm above the central verge/footpath. The effective height of the pole foundation shall be therefore 0.5 meter above the road.

2.0 SPECIFICATION FOR POLYGONAL POLES :

2.1 Design:

The structure shall conform to IS 875-Part 3: 1987 relating to wind load on structures and also conform to BSEN 40-1:1992 relating to general construction.

The grade of steel used shall be S-355 as per BSEN-10025 or equivalent Standards.

Manufacturing of poles shall be done out of Manufacturer supplies straight sheet to eliminate deformity due to decoiling of rolls.

2.2 Pole Shaft :

The pole shaft shall have octagonal cross section and shall be continuously tapered with single longitudinal welding. There shall not be any circumferential welding.

The welding of pole shaft shall be done by submerged arc welding process. The base plate shall be fixed by welding to the pole shaft at two locations i.e. from inside and outside.


Bending of the sheet into polygonal shape shall be done through a CNC controlled, Laser aligned single blade bending process.

Foundation accessories will be as per IS 1367.

2.3 Door Opening :

Polygonal poles shall have door of suitable size at the elevation of 2500mm from the base plate. The door shall be flush with locking facility. The pole shall be additionally reinforced with a welded steel section, so that the section at door is unaffected and undue bucking of the cut section is prevented.

The base compartment of the built in connector control box shall have provision to have 6mm thick bakelite sheet of suitable size to accommodate the required electrical accessories with compression gland for termination of incoming & outgoing supply cables. The connector box shall be provided with 4 Nos. 20mm x 5mm Al. bar of suitable length, 6 Amp. C.series MCB for individual fitting with din channel, earthing stud and other required accessories.



2.4 Galvanization:

The poles shall be single dip, hot galvanized as per IS: 2629/IS 2633/IS 4759 standards with minimum coating thickness of 65 microns.

2.5 Base Flange :

The base plate shall be fabricated from steel plate free from laminations and mounted on RCC Foundation laid as per the drawing.

3.0 LUMINAIRES :

The Bidder shall supply the lamps, luminaries & control gear with type test report. All equipments suppliers should have ISO 9001 & preferably ISO 14001 certification. Type test certificates from National Physical Laboratories, Central research Institute, National test House shall only be acceptable.

Following data will need to be submitted before finalization of luminaire

Manufacturers Type Test Certificates of Lamps, Luminaires and gears from Govt.

Accredited test Laboratories/R&D Labs to be provided.

Test certificate for compliance of IP 66 & I.P. 54 test shall be carried out at any of the laboratories (NTH, CPRI, NPL – New Delhi) and test certificates submitted.

3.1 **Light fittings suited for 150 W/250 W High Pressure Sodium Vapour Lamp**

Luminaire housing should be completely made of High Pressure Die Cast Aluminium (corrosion resistant). Single pc in construction.

Precision optical system for tubular lamp, Optical compartment duly brightened and anodized aluminium with Lamp position adjustable from back without use of tools.

The optics should be suitable for adjustment of toe-in/throw and spread to suit different road widths and spacing.

IP 66 protection for lamp compartment & I.P.-54 for gear compartment

Luminaires should be duly chromatised and coated with pure polyester to minimum 45 micron thickness. Colour/shade of luminaries shall be as per IS-5 matching in colour shade & tone with the galvanized pole.

Luminaire should have a electro Magnetic Choke.

Choice of self stopping igniters

Luminaire shall be open from top

Luminaire conforming to IEC 60598

3.2. Ballasts & Igniters :

All Accessories as per IS standards.

Power Delivery to Lamp > 95%.

PF> 0.85 for HID luminaries.

Should be Vacuum impregnated open construction ballast.

Low loss with maximum watt loss not more than 44 watts for 400W lamp.

Maximum temperature rise of 75 deg.C

Maximum winding temperature 130 deg.C

3.3. Lamps :

3.3.1 High pressure sodium Vapour Lamps 150W, 250W, :

Luminous efficacy of atleast 110-130 lumens/Watt.

Robust internal construction with excellent reliability through life, fast re-ignition time less than 180 seconds.

High lumen maintenance of 95% at the end of 15000 hrs.

Life at 50% mortality>30000 burning hours.

4.0 CABLES :

4.1 Technical specification for 1.1 KV, XLPE insulated, Power Cables.

The cables shall be manufactured and tested strictly in accordance with the Indian Standard IS 7098 (Part-I) and its latest amendments.

4.1.1 Conductor :

All conductors shall be stranded.

All conductors shall be of high electrical conductivity aluminium conforming to requirement of IS 8130-1984 with latest amendments.

Before stranding, the conductor shall be circular in cross section, uniform in quality, solid, smooth and free from scale, sharp edges and other defects.

4.1.2 Insulation :

The conductor shall be provided with Cross Linked Polyethylene (XLPE) insulation applied by extrusion process. XLPE insulation shall be strictly as per IS-7098 (Part-I) and its latest amendments.

The insulation shall be both heat and moisture resistant and shall be suitable for continuous operation at conductor temperature of 90 deg. C, rising momentarily to 250 deg.C under short circuit conditions.

It shall fit tightly to the conductor and shall be applied concentrically above the conductor in thickness, consistent with the voltage classification. No tolerance on the negative side shall be acceptable.

The insulation shall be so applied that it shall be possible to remove it without damaging the conductor.

The insulating material shall have excellent electrical properties with regard to resistivity, dielectric constant and loss factor and also shall have high tensile strength and resistance to abrasion. This shall not deteriorate at elevated temperatures or when immersed in water. The insulation shall be preferably fire resistant and also resistant to chemicals like acids, alkalise, oils and ozone etc.

4.2 Inner Sheath :

The laid up cores shall be provided with an inner sheath applied by extrusion process.

It shall be ensured that it is as circular as possible.

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The inner sheath material shall be of polyvinyl chloride (PVC) compound conforming to the requirements of type ST 2 compound of IS:5831 with latest amendments.

The inner sheath shall be so applied that it fits closely on the laid up cores and it should be possible to remove it without damage to the insulation. No tolerance on the negative side shall be acceptable.

4.3 Armouring :

The armouring shall be of galvanized steel wires for multi core cables. The galvanized steel wires shall comply with the requirements of IS: 3975 with latest amendments. No tolerance on the negative side shall be acceptable.

4.4 Outer Sheath :

The outer sheath material shall be of polyvinyl chloride (PVC) compound conforming to the requirements of type ST 2 compound of IS:5831 with latest amendments.

The outer sheath shall be applied by extrusion process. No tolerance on the negative side shall be acceptable.

4.5 Core Identification :


Individual core of multi-core cables shall be colour coded and/or numbered for proper identification in accordance with relevant IS/ manufacturer's standard.

4.6 Reels/Drums :

Cables shall be supplied in the drums made from eco-friendly material in the specified length. The Drums shall be strong, weatherproof and non-returnable. The ends of the cable shall be sealed by means of non – hygroscopic sealing material.

4.7 General :

All cables shall be suitable for installation in air, conduits, ducts, open concrete trenches or for direct burial in either wet or dry locations for normal operating conditions.



All cables shall be flexible and easy to bend, pull, handle and install.

4.8 Tests and Inspection :

Cables shall be subjected to routine & acceptance tests in accordance with the IS 7098 (Part – I), in addition to physical, ageing and electrical tests at the Manufacturer's plant in accordance with applicable standards

Copies of certified test reports shall be submitted for approval prior to dispatch of cables.

4.9 Cable Laying :

The bidders shall ensure that the cable is meggered and found healthy before transporting to site.

Warning boards and barriers/barricades shall be provided at the junctions of the roads along the trench. Barricade with corrugated sheet painted with Red and White strips shall be provided along the entire trench. Warning red light shall be provided over the trench to avoid the accidents in the Night.

5.0(A) SPECIFICATION OF FEEDER PILLAR :

The contractor shall have to get the control panels fabricated from the vendor having type test certificate from CPRI for 31 MVA short circuit rating upto 400 amp. For cubical panels. The copy of the type test certificate shall also have to be produced failing which feeder pillar shall not be accepted.

- a) The material/work shall conform to/shall be carried out as per CPWD specifications for electrical work (part-I) 2005 internal, part-II-1994 external and part-IV sub-station work as amended upto date.
- b) IS-8623/93 with upto date amendments shall be applicable for enclosures i.e. the conditional features routine test as recommended in the said IS shall be conducted type tests however are not required.

- c) All material used for the fabrication of feeder pillars shall be got approved from the Engineer-in-charge before fabrication. No claim for defective materials not approved by the Engineer-in-charge shall be entertained.
- d) The feeder pillars shall have sloping canopy projecting out on all sides with suitable sloping channel on front for drainage of water.
- e) Angle iron legs shall be suitably shaped at the bottom for anchoring in concrete base.
- f) The feeder pillars shall be provided with ventilation window covered with wire net in double fold from inside. The window shall be provided on both the side panels of feeder pillars.
- g) The feeder pillars shall be provided with a danger notice plate as per CPWD specifications for electrical work part-I internal 2005.
- h) Interconnections of the various mountings on the feeder pillar shall be done using PVC insulated conductors, or solid strips with PVC taping/sleeving of appropriate sizes. Termination shall be made such that local heating is avoided, suitable lugs shall be used for connections.
- i) All the metal work of feeder pillar shall be painted prior to erection with one coat of antirust primer. After erection, they shall be painted with two coats of enamel paint as required, on all sides wherever accessible.
- j) Protection level of IP-54 shall be applicable.
- k) Suitable light inside the feeder pillar shall be provided.

5.0 (B) Specifications of HDPE Pipes:

- a) The DWC high density polyethylene pipe having corrugation on outer wall and plain inner wall shall conform to IS-14930 part—I & II amended upto date.
- b) The pipe shall be ISI marked.
- c) Job includes accessories like HDPE snap fit coupler with required.No. of neoprene 'O' rings in rings in order to make water/damp proof joint.

- (i) Contractor shall produce test report of anti rodent test, toxicity test of pipe from Govt. approved test house.

6.0 **Testing of installation :**

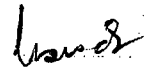
After completion of work following test shall be conducted.


The average lighting level shall be calculated as per clause 7.1.3, 7.1.4 & 7.1.5 of CIE (International Commissioning of illumination) Technical Report No.CIE-140-2000 on "Road Lighting Calculations".

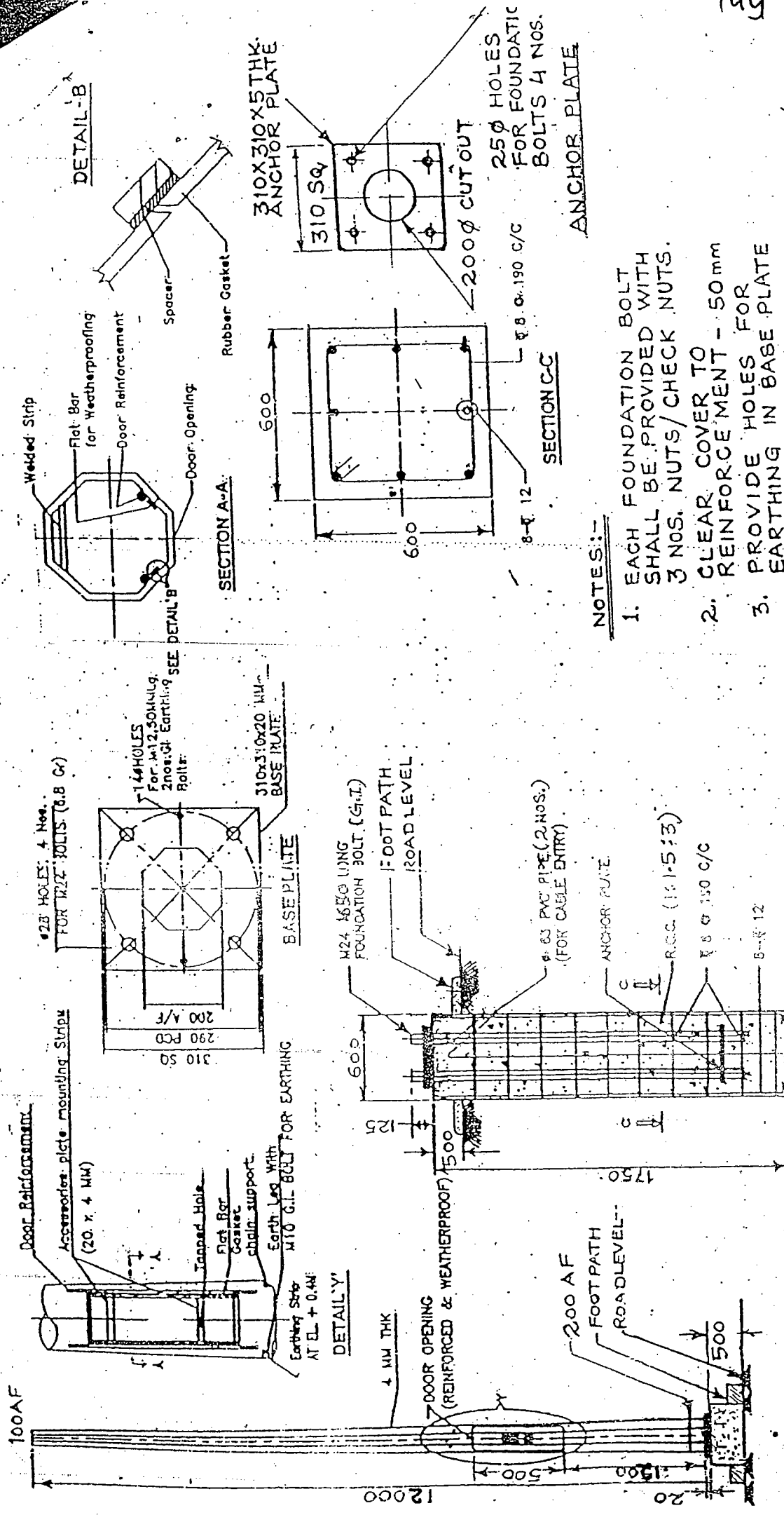
Voltage during measurement should be maintained at $230V \pm 5\%$ and frequency 50 Hz-2.5% and + 1%.

Meters to be used for measurement would also be calibrated from standard laboratories and calibration certificated produced Preferred B rand are LMT, Minolta.

7. A table indicating the makes acceptable in respect of some of important materials is attached. The contractor shall have option to use any of makes specified in the table against a particular item subject to conformity with specification. For materials not covered in above mentioned table any BIS marked product may be used and if same is not available, then it shall conform to relevant BIS code and shall be used with prior approval of Engineer-in-charge. However, the make and models mentioned in the table should meet the prescribed technical specifications.
8. All the materials shall be got approved from the Engineer-in-charge before installation at site.


Executive Engineer
Electrical Division No. 1,
Shakarpur, DDA





NOTES:-

1. EACH FOUNDATION BOLT SHALL BE PROVIDED WITH 3 NOS. NUTS/CHECK NUTS.
2. CLEAR COVER TO REINFORCEMENT - 50mm
3. PROVIDE HOLES FOR EARTHING IN BASE PLATE
4. ALL DIMENSIONS ARE IN mm
5. DRAWING IS NOT TO SCALE.

ELEVATION

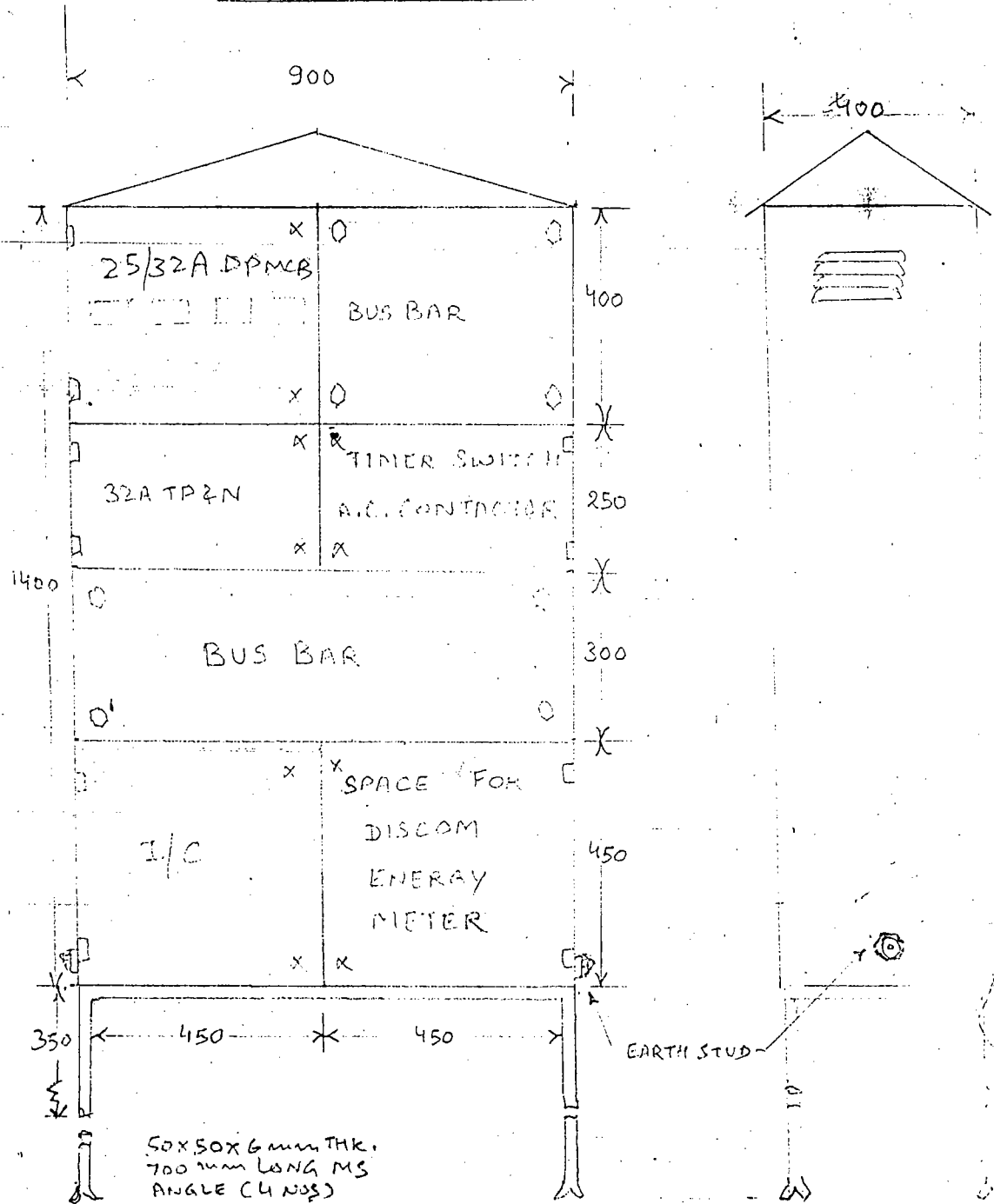
DETAIL OF CIVIL FOUNDATION

G.A. DWG. OF 11 Mtr. OCTAGONAL POLE

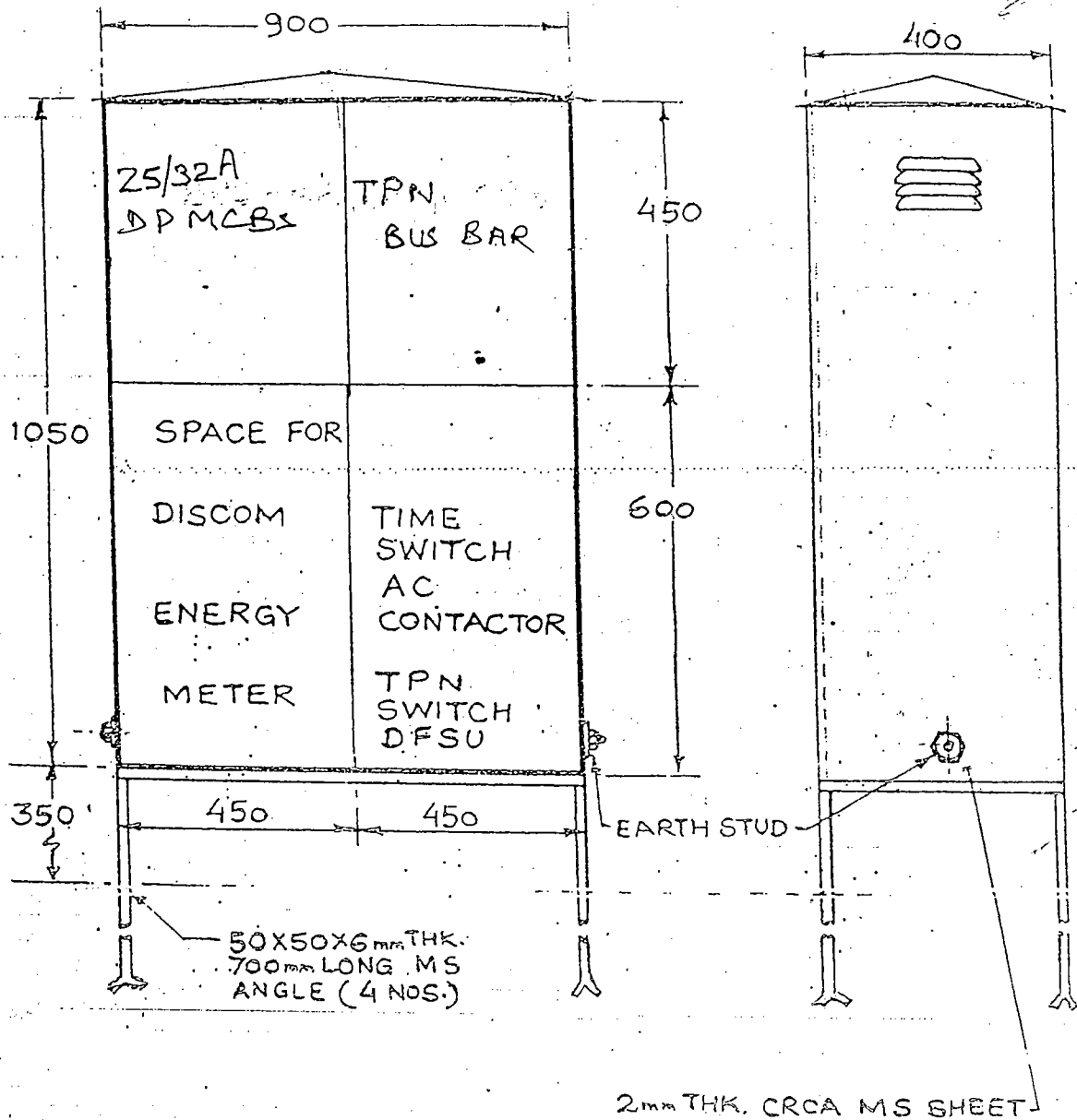
Handwritten Signature
Executive Engineer
Electrical Division No. 1,
Shakarpur, DDA

FEEDER PILLAR (1400x900x400)

ITEM No 11



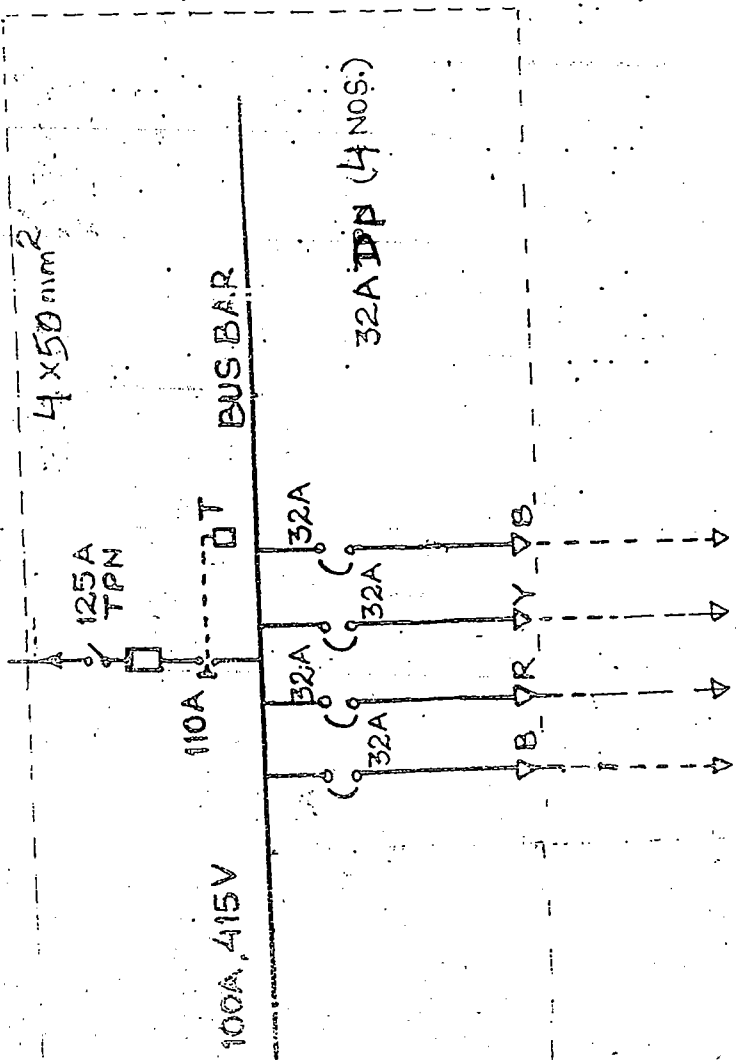
Handwritten Signature
 Executive Engineer
 Electrical Division No. 1,
 Shakarpur, DDA

FEEDER PILLAR (1050X900X400)ITEM No 12

NOTES:-

1. DRG. IS NOT TO SCALE
2. ALL DIMENSIONS ARE IN MM

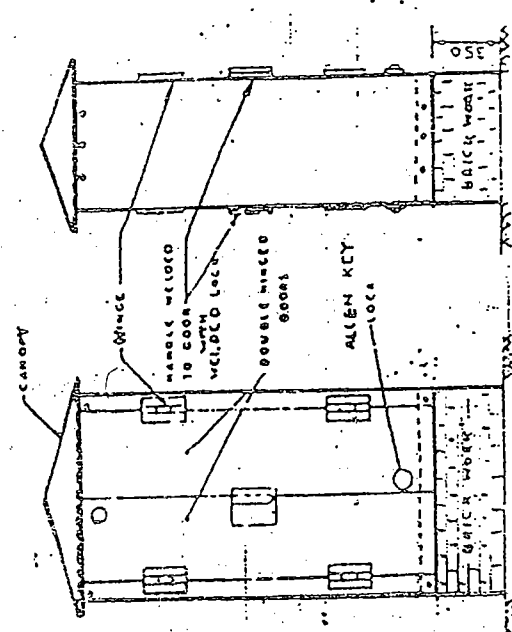
[Signature]
 Executive Engineer
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- LEGEND**
- SWITCH DISCONNECTOR PUSE UNIT
 - MINIATURE CIRCUIT BREAKER (TPN)
 - CABLE GLAND
 - CONTACTOR
 - TIME SWITCH

NOTES :-

- 1 DESIGN OF FEEDER PILLAR ACCOMODATING THE ITEMS SHOWING THE SINGLE LINE DIAGRAM SHALL BE AS PER TYPICAL ARRANGEMENT SHOWN.
2. FEEDER PILLAR SHALL REST (PROPERLY FIXED) ON A M.S. ANGLE IRON FRAME (50MM X 50MM X 6MM) DULY WELDED TO 700MM LONG LEGS.
3. ON THE BACK SIDE REMOVABLE M.S. SHEET OF 2MM THICK OF SUITABLE SIZE SHALL BE FIXED.



Executive Engineer
 Electrical Division No. 1,
 Shakarpur, DDA
 EEC/EC-CWG-1
 AEC/EC-CWG-1



DISTRICT CENTER JASOLA

24 Mtr. WIDE ROAD

30 Mtr. WIDE ROAD

F.P. - 1

420 Mtr.

18 Mtr. WIDE ROAD

F.P. - 2

PARKING

F.P. - 3

BUS DROP POINT

130 Mtr.

308 Mtr.

PARKING NSSC

NSSC JASOLA

- 0 - 12 MTR. POLE
- o - SINGLE O/H
- o - DOUBLE O/H
- o - TRIPLE O/H

FEEDER PILLAR

F.P. - 1 = C₁ - C₂ - C₃ - C₄

F.P. - 2 = C₅ - C₆ - C₇

F.P. - 3 = C₈ - C₉ - C₁₀

PARKING

GREEN BELT

C₁₀

C₄ = 2X35 SW. mm

C₉ = 2X35 SW. mm

Rest of all c/c's = 2X25 SW. mm

Handwritten signature

Executive Engineer

Electrical Division No. 1.

Shakarpur, DDA

Handwritten signature