DEENDAYAL PORT AUTHORITY

An ISO 9001 : 2008 & ISO 14001 : 2004 Certified Port

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No.: EL/ WK/2819

Date: 24/07/2024

EXPRESSION OF INTEREST [EOI] for "Upgradation of Tuna road from two lanes to four lanes providing Lighting & Electrification in the stretch of 13 kilometers"

(This EOI is issued to elicit Expression of Interest from the parties interested in the work and does not constitute any binding commitment from the Deendayal Port Authority to proceed with the work or invite any or all the parties in the subsequent bidding process. The Open Tenders will be issued subsequently.)

Executive Engineer (Electrical), DPT invites Expression of Interest for the work of "Upgradation of Tuna road from two lanes to four lanes providing Lighting & Electrification in the stretch of 13 kilometers" from the reputed firms from those who have executed similar work in Government/public sectors and other leading private organizations. The Expression of Interest (EOI) documents containing details of Scope of Work and Technical Specifications are enclosed herewith.

The interested firms are requested to submit their expression of interest for the said work in BOQ format as enclosed at Annexure I. The completed EOI (Expression of Interest) shall be submitted to the office of the undersigned on or before 12/08/2024. A soft copy of EOI is also acceptable through e-mail Id. deepak.hazra@deendayalport.gov.in

Sd/-

Executive Engineer (E)
Deendayal Port Authority

ANNEXURE – I

Sr. No.	Description	Qty	Unit	Rate	Amount
Part A: Electrical Item					
1	Supply at site 10mtr long galvanized octagonal street light pole with detachable double Arm as per Technical Specification No. 1 A) 10 Mtr. long Octagonal Type Street light pole with 1.5 Mtr. long double arm	410	No.		
2	Erection of supplied 10Meter long octagonal pole along with civil foundation as per Technical Spec no 2	410	No.		
3	Supply, erection, testing & commissioning at site, of Polygonal galvanized high mast tower of 20 Mtr. as per Technical Specification No. 3. A) Supply B) Erection, testing & commissinoing	1 1	No. No.		
4	Supply of Energy Efficient LED Street Light luminary & Flood Light Luminary as per Technical Specification No. 4 A) LED 150W Street Light B) 400W LED Flood Light	820 12	No. No.		
5	Fixing of LED Street Light & Flood Light Luminary with all accessories as per Technical Specification No. 5 A) LED 150W Street Light B) 400W LED Flood Light	820 12	No. No.		
6	Supply at site 4 Core, LT armoured aluminium conductor XLPE cable of 1.1KV grade of the following type & size as per Technical Specification No. 6 4 Core, 16 Sq. mm 4 Core, 50 Sq. mm 4 Core, 70 Sq. mm 4 Core, 120 Sq. mm	13728 9815 9685 500	Mtr Mtr Mtr Mtr		
7(a)	Laying of 3.5/4.0 Core LT armoured alluminium conductor XLPE cable of 1.1KV grade of the following type & size through excavation in soft/hard soil as	500	Mtr		

	per Technical Spec No. 7(a) i) Single length upto 3.5/4.0 core x 240 Sq.mm				
7(b)	Laying of 3.5/4.0 Core LT armoured alluminium conductor XLPE cable of 1.1KV Grade of following type & size in half round RCC pipe of 6" internal dia as per technical speci no 7(b). i) Upto 3.5/4.0 core x 120 Sq.mm in 6" half round pipe	12675	Mtr		
7(c)	Laying of LT armoured aluminium conductor XLPE cable of 1.1kV grade of size up to 120 Sq.mm through Road crossing in Horizontal boring with suitable size of HDPE heavy duty pipe as per Technical Specification No.7(c) i)Upto 3.5/4.0 core x 120 Sq.mm through horizontal boring in suitable size HDPE pipe	120	Mtr		
7(d)	Laying of 4 Core, 35 Sq.mm LT armoured aluminium conductor XLPE cable of 1.1kV grade existing octagonal pole by inserting flexible pipe of hard PVC of size 50 mm two length from ground level to Termination Point fixing with heavy duty cable tie. as per Technical Specification No. 7(d) i) Upto 3.5/4.0 core x 120 Sq.mm in flexible pipe of 50mm dia	13410	Mtr		
8	Supply, Installation, Testing and Commissioning of Double Pole Structure without 11KV A.B Switch & H.G Fuse on 8 mtr PSC pole of 200KG complete with Labour and Material as per Tech Specification No. 8	7	No.		
9	Supply of Street Light Feeder Pillar fabricated from M. S. Steel as per Technical Spec No.9	7	No.		
10	Preparation of poles earthing system with GI pipe as per Tech Spec No.10	410	No.		
11	Preparation of Feeder Pillor earthing system with GI earth plate including required accessories and civil work as per Technical Specification No. 11	14	No.		
12.	Reclamation to low laying area at various locations as per site conditions. as per technical specification no.12	1500	M3		
13.	Liasioning work with PGVCL authority	1	JOB		

	for allotment for 3 phase LT Supply & Connection at various locations with complete work as per technical specification no.13		WORK		
TOTAL FOR PART-A					

Sr. No.	Description	Qty	Unit	Rate	Amount
PartB: Comprehensive maintenance work for period of 5 Years.					
1	Comprehensive annual maintenance Contract for the stretch of the 13 km. street lighting of Tuna Road from National Highway No.8-A to Tuna Port (DP World) to be carried out from the date of expiry of 01 (one) years on-site warranty for the supplied and installed Street lighting poles and 20Mtr. High mast tower etc. for the period of the 5 years.				
	a) CAMC for First Year Period	12	Month		
	b) CAMC for Second Year Period	12	Month		
	c) CAMC for Third Year Period	12	Month		
	d) CAMC for Fourth Year Period	12	Month		
	e) CAMC for Fifth Year Period	12	Month		
TOTAL FOR PART-B					

TOTAL FOR PART-A _____

TOTAL FOR PART-B_____

TOTAL _____

(Net amount payable Excluding GST _____

Sd/-

Signature
& Seal of Contractor

Executive Engineer (E)
Deendayal Port Authority

Scope of Work & Technical Specification

1.0 Scope of work

1.1 Execution of Design, manufacturing, inspection & testing at manufacturer's works in accordance with agreed QAP, packaging, delivery to site; handling at site – unloading, storage, shifting from point of unloading to store, storage and from store to the installation site; cleaning, assembly, touch up painting; installation at site; inspection & testing and commissioning; and operation, along with Comprehensive Annual maintenance contract for specified 5 no of years for all the equipment, LED Lighting Fixture, Poles, Street Lighting power system with all accessories.

1.2 Approximate length of road considered in this project is 13km and approximate nos. of light poles and Luminaires expected is 410 no's & 820 no's respectively.

1.3 The street lighting system shall include minimum components but not limited to the following;

(a) LED Street Luminaire with accessories including Drivers.

(b) Octagonal Lighting pole with inbuilt Junction Box, RCC foundation, Mounting Brackets, hard wares, and other accessories

(c) Connecting power Cabling laid in DWC/ HDPE pipes.

(d) Earthing system for pole and feeder pillars with accessories and termination.

(e) Outdoor Feeder Pillars (OFP).

(f) Excavation of trench or Horizontal Drilling for laying DWC pipes connectivity from Feeder Pillar.

(g) All mounting and foundation supports and hardware accessories for equipment/system installations.

(h) All civil works associated with installations of the equipment/systems within Contractor's scope including excavation, concreting, back filling of soil for preparation of equipment foundation, laying of DWC pipes either by excavating of through HDD; embedment, chipping, punching, making holes, pipe sleeves, fire/ water proof sealing etc.

2.0 Carrying out detailed survey for identifying the roads; Row cross sections taking into consideration the carriage way and drains/ foot path on either side at different stretches of a particular road; List out the requirements of particular roads; prospective location for mounting the Feeder pillar and the locations for mounting the poles keeping in view of availability of supply, access and ease of maintenance; measure exact road lengths; identifying any bottlenecks/ obstacle for execution like laying of cables etc. along the entire length of the roads; calculating a detailed BOQ; preparation of detail report incorporating all the above and submission to DPA for review and approval.

2.1 The Battery Limit of BIDDER starts from the LT tariff meter provided by PGVCL. The Incoming supply at 415 V as decided point by PGVCL shall be provided by PGVCL from the nearest source here Installation of 2 pole structure for erection of LT Panel which includes mounting of PCC 8mtr pole, stay set as per requirement, earthing, LT Panel on a two pole structures, Incoming cable from LT Tariff meter to Distribution Panel & outgoing cable from Distribution Panel to street light junction

box and all the required civil works shall be done by the Contractor. However, the entire Liaison with PGVCL for fast disposal shall be lying with the Contractor.

2.2 Submission of equipment / system Calculation Sheets, Detail Engineering Drawings, Data Sheets, equipment Sizing Calculations etc for review and approval by DPA before execution/ procurement and manufacturing.

2.3 Any other equipment/ material which are not specifically listed in this specification butare necessary to make the system complete and functional in all respect as per requirement and statute is should be carried out without any financial implication.

2.4 All SAFETY considerations in design and manufacturing for safe operation & maintenance and safe practices during installation at site shall be in the scope of the contractor. Cost towards accomplishing the same shall be included in the BID price and no extra claim shall be entertained later.

2.5 Submission of all "As Built" drawings, Data sheets, Calculations etc. after execution and commissioning of the equipment and systems as specified above.

2.6 Submission of relevant documents and drawings to the concerned statutory authorities/ agencies and getting clearance and approval for the supplied and installed equipment under this specification is solely the responsibility of the contractor.

2.7 All Liaison activities for obtaining required mandatory approvals/ NOCs from Electrical Inspector and any other Statutory Authority as applicable for drawings & documents, initiation of works, LT Tariff meter panel Load release, charging and commissioning of equipment and system etc. are within the scope of works.

2.8 Operation and maintenance of Street Lighting and Centralized Control and Monitoring System including setting up of WhatsApp group; maintaining a service team, spare parts and providing service 365 days as per the Service Level Benchmark specified. The same shall also include the following;

(a) Appropriate up-keeping, maintenance, and operation of all network, hardware, and software components, and ensure smooth functioning of the lighting system throughout the entire contract period.

(b) During the guarantee period, if any hardware or software needs to be replaced, the same will be replaced with same of OEM or higher configuration free of cost.

2.9 Maintaining a status Dashboard regarding the road wise operational status of the Light Poles, No of Complaints, resolution status, Preventive maintenance status and submission of periodic report on weekly basis to DPA during Operation & Maintenance period

2.10 Manning a control room 24X7, 365 days and Monitoring the entire system for all parameters by the contractor and reporting the same appropriately to the concerned Authority.

2.11 All Liaison activities with DPA and other Statutory Authorities for coordinating and seeking required permissions for carrying out scheduled works during O&M tenure.

TECHNICAL SPECIFICATIONS

1.0 TECHNICAL SPECIFICATIONS No 1

SUPPLY OF OCTAGONAL POLE AlONG WITH 1.5MT DOUBLE ARM

1.1 The Product should be designed for the specific climatic and environmental conditionsof the region to ensure full durability and safety throughout its designed life.

1.2 All the Octagonal Poles shall be designed to withstand the maximum wind speed of 180 kmph as per IS 875. The top loading i.e. area and the weight of fixtures are to be considered to calculate maximum deflection of the pole and the same shall meet the requirement of BS EN 40-2-1&3.

1.3 The pole shaft shall have octagonal cross section and shall be continuously tapered wh single longitudinal welding. There shall not be any circumferential welding of the pole shaft. The welding of the pole shaft shall be done by Submerged Welding process.

1.4 All octagonal pole shafts shall be provided with the rigid flange plate MS FE410 conforming to IS 2062 of suitable thickness with provision for fixing minimum 4 foundation bolts. The base plate shall be fillet welded to the pole shaft at two locations i.e. from inside and outside. The welding shall be done as per qualified MMAW process approved by Third Party Inspection agency.

1.5 The materials of the pole as follows:

(a) Pole - Conforming to grade S355J0,

(b) Base Plate: - Fe 410 Conforming to IS 226/ IS 2062, (four number stiffener at the base plate should be provide in each pole)

(c) Foundation Bolts: - 6.8 Gr. as per IS 1367,

(d) Pole Sections: - The Octagonal Poles shall be in single piece with single longitudinal welding joint,

(e) Galvanization: - The poles shall be hot dip galvanized as per IS 2629 / IS 2633 / IS 4759 and BSEN ISO 1461 standards with average coating thickness of 65 microns. The galvanizing shall be done in single dipping. The zinc Ingot raw material shall be 99.99% pure and procured from reliable sources with Quality Test Certificates.

1.6 The pole manufacturing & galvanizing unit shall be ISO 9001: 2000 & ISO 14001 certified to ensure consistent quality & environmental protection.

1.7 The poles shall have integrated Junction box with openable door of adequate size (Not less than 500mm length) at the elevation of 750 mm from the base plate. The door shall be hinged type with mechanical interlock, dust proof, weather proof and vandal resistance and shall ensure safety of inside connections and components. The door shall be flush with

the exterior surface and shall have suitable locking arrangement. The pole shall be adequately strengthened at the location of the door to compensate for the loss in section.

1.8 The door of the Junction Box shall permit clear access to the components inside viz., termination strips, connectors, MCBs, cables etc. There shall also be suitable arrangement for the purpose of earthing.

1.9 Electrical connections - Four way connectors shall be provided along with Slide lock suitable for connecting 1.1 kV grade, 4 core X16 sqmm Al cable. It shall also inhouse1 no. 6 amps DP MCB,2.5 sqmm connectors for looping with 2.5 Sqmm Copper wires for connecting to the luminaries through 0.6 kV grade, 3 core X 2.5 mm² PVC insulated copper conductor flexible un-armoured Cable from the terminal block to the fixture within the pole. All the cables laid through the pipe shall be without any joint.

1.10 Two nos. Earth Boss shall be provided at the bottom of the pole or on base plate (diagonally opposite) suitable for connecting 25X6 mm GI/ CU earth strip or SWG wire for earthing of the poles. Similar Earth Boss suitable for connecting 4 sqmm copper wireshall be provided on the control plate inside the Junction Box for earthing of theelectrical components.

1.11 Two nos. 50 mm NB HDPE sleeves of suitable length shall be provided through the foundation up to foundation top.

1.12 Earthing of each pole shall be carried out with one dedicated earth electrode. The earth electrode shall be GI pipe electrode as recommended in the latest version of IS 3043The earth electrode shall be connected with 8 swg two GI wire to the two distinct earth boss on the pole.

1.13 Aesthetic appearance - All the grooves and carvings of the pole unit shall be free from any kind of distortion for a pleasing aesthetic appearance.

1.14 Top Mountings –The octagonal 10mtr pole should be supplied along with galvanized double arm bracket made from GI Pipe of at least 48 mm dia 1.5 mt long suitable for it to install over 70mm pole dia on top, as selected by the DPA for Installation of the luminaries.

1.15 The Poles shall be bolted on a pre-cast foundation with a set of foundation bolts for greater rigidity.

1.16 The CONTRACTOR shall carry out all the relevant tests and inspection in the presence of the DPA or Third Party Agency, as may be selected by the DPA, before the dispatch of the poles at no extra cost to the DPA.

1.17 All the material/equipment/accessories shall be supplied with manufacturer's test certificates.

1.18 CONTRACTOR shall submit the Proposed Product Catalogue, Detail Data sheet, spareparts list and drawing of Pole & Bracket along with the BID for each product quoted.

HEIGHT	TOP DIA (A/F)	BOTTOM DIA (A/F)	SHEET THICKNES	BASE PLATE DIMENSIONS (LxBxT)	FOUNDATION BOLT			
					BOLT SIZE (NO. x DIA)	PITCH CIRCLE DIA	BOLT LENGTH (MM)	PROJECTED BOLT LENGTH
(mtr)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)
10	70	175	4	275 x 275 x 16	4 x M24 Dia	270	750 "J" type	125

TECHNICAL SPECIFICATIONS No 2
FOR ERECTION OF OCTAGONAL POLE.

The poles shall be bolted on a precast RCC foundation with a set of four foundation bolts for greater rigidity. This includes fixing & erection of 10-meter-long with detachable type double arm Octagonal pole on foundation to be prepared by excavation of pit of 600mm (W) x 1000mm (L) x 1300mm deep after carrying out necessary excavation. At the bottom of pit 10cm of sand layer shall be provided and over that 10cm CC of 1:4:8 mix shall be provided and then foundation bolt of size 900mm long "J" type of M24mm dia shall be buried in the CC up to the length of 775 mm and 125 mm should be projected length over the foundation thereafter pit shall be filled with 1:2:4 CC mix of cement sand and 6 to 20mm graded metal course aggregate concrete. However, if contractor is pre-cast the foundation at location side. the pre-cast foundation shall be size 600mm (W) x 1000mm (L) x 1300mm deep. The termination and connection through connector and MCB of junction box shall be done through cable brass glands of suitable size including earth linking to the pole and junction box with 8 SWG GI wire with all material and labour as directed by Engineer-in-charge.

TECHNICAL SPECIFICATIONS No 3

Technical Specification and data sheet for 20 Mtr HighMast Tower.

This specification covers the design, manufacture, transportation, installation, testing and commissioning of the complete Signage, using fixed type of High Mast Towers, including the Civil Foundation Works.

a. Structure

The High mast shall be of continuously tapered, polygonal cross section, 20 sided or as per proven design, presenting a pleasing appearance and shall be based on proven In-Tension design conforming to standards, to give an assured performance and reliable service. The mast height shall be 20 meters, with minimum diameters as per proven design. Minimum plate thickness of

bottom section shall be 6 mm. and other sections 5 mm. The PCD of the mast flange shall be minimum 740mm. or as per proven design. The structure shall be suitable for wind loading as per IS-875, part-3, 1987 or relevant to site condition. Essentially mast should be capable of withstanding the 3-second gust of 55 m/sec. The factor of safety for wind load shall be 1.25 and for other loads 1.15.

b. Construction

The mast shall be capable of safely withstanding the strong winds prevailing at site. The deflection at the top during heavy storm periods shall therefore be considered in the design and the mast designed in such way that the above deflection during worst periods is kept to a minimum value. The mast shall be fabricated from special steel plates, conforming to BS- EN10-025, cut & folded to form a polygonal section as stated above and shall be telescopically jointed & fillets welded. The welding shall be in accordance with BS:5135. The procedural weld geometry and the workmanship shall be exhaustively tested on the completed welds. The 20-meter size mast shall be delivered in sections and shall be jointed of the entire section. The base flange shall be provided with supplementary gussets between the bolt holes to ensure elimination of helical stress concentration. For the environmental protection of the mast, the entire fabricated mast shall be hot dip galvanized, internally & externally, having a uniform thickness of 65 microns.

c. LANTERN CARRIAGE

Fabrication

A fabricated Lantern Carriage shall be provided for fixing and holding the flood light LED fitting. It shall be suitable for symmetric & asymmetric loading as per the requirement of Schedule-B. The Lantern Carriage shall be of special design and shall be of steel tube construction, the tubes acting as conduits for wires, with holes fully protected by grommets. The Lantern Carriage shall be so designed and fabricated to hold the required number of LED floodlight fittings and junction boxes and also to have a perfect self-balance. The 360° (Inner & Outer Page 35 of 56 Rings) Lantern Carriage shall be fabricated in two halves and joined by bolted flanges with stainless steel bolts and plastic lock type stainless steel nuts to enable easy installation or removal from the erected mast. The inner lining of the carriage shall be provided with protective PVC arrangement, so that no damage is caused to the surface of the mast during the raising and lowering operations of the carriage. The entire Lantern Carriage shall be hot dip galvanized after fabrication. For raise & lower, a suitable

Winch Arrangement shall be provided. The winch shall be fixed at the base of the mast and the specially designed head frame assembly shall be at the top.

d. Winch

The winch shall be of double drum type as per IS 807, suitable to lift optimum mechanical load and shall be operated manually & electrically. Permanent oil bath of SAE 90 or equivalent of proven design. The gear ratio may be according to manufacturer's standard. However, the minimum working load shall be not less than 400 Kg. The winch drums shall be grooved to ensure perfect seat for stable and tidy rope lay with no chances of rope slippage. The rope termination in the winch shall be such that distortion or twisting is eliminated and at least 5 to 6 runs of rope remains on the drum even when lantern carriage is fully lowered and rested on the rest pads. It shall be possible to remove the double drum after dismantling, through the door opening provided at the base of mast. Also, a winch gear box for simultaneous and reversible operations of the double drum winch shall be provided as part of the contract.

e. Head Frame

The head frame which is to be designed as a capping unit of the mast, shall be of welded steel construction, galvanized both internally and externally after assembly. The top pulley shall be of appropriate diameter, large enough to accommodate the stainless steel wire ropes and the multi-core electric cable. The pulley block shall be made of non-corrosive material and shall be of die casted aluminium alloy (LM-6). Self-lubricating bearings and stainless steel shaft shall be provided to facilitate smooth and maintenance free operation for a long period. The pulley assembly shall be fully protected by a canopy galvanized externally and internally. Close fittings guides and sleeves shall be provided to ensure that the ropes and cables do not dislodged from their respective positions in the grooves. The head frame shall be provided with guides and stops with PVC buffer for docking the lantern carriage.

f. Stainless Steel Wire Ropes

The suspension system shall be essentially without intermediate joint and shall consist of any non-corrosive stainless steel of AISI 316 or better grade. The stainless steel wire ropes shall be of 7/19 construction, the central core being of the same material. The overall diameter of the rope shall not be less than 6 mm. The breaking load of each rope shall not be less than 2350 Kg. individually, giving factor of safety or over 5 for system at full load, the minimum recommended value as per the TR-7 referred to in the beginning of the specification. The end construction of rope to winch drum shall be fitted with tellurite. The thimbles shall be secured on ropes by compression splices. Two continuous lengths of stainless steel wire ropes shall be used in the system and no intermediate joints are acceptable in view of the required safety. No intermediate joints, either bolted or else is provided on the wire ropes between winch and lantern carriage.

g. Cable

Trailing cable EPR Insulated and PCP sheathed 2.5 sq. mm. 5 core annealed copper cable.

h. Power Tool(Integral to System)

3 Phase, 415 V, 50 Hz., AC +/- 5% Rating of the motor shall be suitable to the design with control & torque limiting protection single speed. Also it shall be remote control operated for raising and lowering operations of the carriage. Remote also to be provide with each High Mast.

i. Lightening Finial, Earthling and Earthling Terminals

Suitable earthling terminals using 12 mm diameter galvanized bolts shall be provided at a convenient location on the base of the Mast. One earth pit pipe type as per IS 3043 shall be provided for each mast for lightening protection. One lightening finial is to be provided on top of mast.

Suitable Aviation obstruction light shall be provided as per the Law of the Land.

j. Erection, Testing & Commissioning:

Erection, testing & commissioning of High Mast towers which include complete CIVIL foundation work including filling & rolling the land/cutting of saplings. The foundation of High Mast shall be Raft Foundation. However, before making a Civil Foundation for High Mast towers, firm shall take drawing/items approval from concern Civil Department or as directed by EIC.

k. Guarding:

Supply, Installation, testing & commissioning of guarding to 20 Mtr. High Mast GI tower along with guarding civil foundation. The guarding is to be fabricated from MS angle of 75X75X6 mm. duly welded and bolted to form square guarding of 5 mtr. X 5 mtr. complete with painting with two coats of metal primer & two coats of final finish enamel paint The work includes complete labour & materials.

Technical Specification No. 4

2.0 (DATA SHEET) For supply of 150W Street light LED Luminaire & 400W Flood LED

Sr. No.	Parameters	Requirements / Value
1.	Type	150W Street light LED Luminaire & 400W Flood Light LED Luminaries complete with all accessories including driver, internal wiring with flameproof wires, etc.
2.	LED chip make	Nichia, Philip Lumiled, Osram, CREE
3.	Rated Voltage	230V
4.	Operating Voltage Range	Single phase 120-280-volt AC. But luminaries shallbe tested for 100V to 300 V AC
5.	Frequency	50 Hz +/- 3%
6.	Power Factor	> 0.95
7.	LED wattage	1-3 Watt
8.	LED chip Efficacy	>135 Lm/Watt system lumen output at 25 degree C, supported by LM80 report, to besubmitted.
9.	LED Drive current	>=350 mA<750 mA
10.	LED Beam Angle	CONTRACTOR to decide
11.	Colour Temperature	≥5500K.
12.	Rated Minimum LED Life(L70)	50000 Burning Hours (With only 30% LumenDegradation or 70% Lumen maintenance)
13.	System efficacy	≥ 100 Lm/Watt
14.	Total Lumen Output	CONTRACTOR to offer
15.	Colour Rendering Index of Luminaires	>70
16.	System Power Efficiency	≥ 90%
17.	Driver Type	Constant Current based Electronic Driver
18.	Driver Efficiency	> 90%

19.	Driver Life	>20000 hrs.
20.	Maximum temperature rise for Driver	<30 Deg C at 45 Deg C ambient
21.	Operating Temperature Range	-20 Deg C to + 50 Deg C
22.	Luminaries body temperature after 12 hours of continuous operation	≤ 30 Deg C from ambient
23.	Junction temperature	< 85 Deg C - self certified by Manufacturer
24.	Heat Sink Temperature	≤ 15 C from ambient
25.	Solder point temperature	< 70 Deg C
26.	Operating Humidity	10% to 95% RH
27.	Control Gear	Prewired with low smokehalogen free,fire retardant e beam cable up to terminal block. Fuse protection shall be provided inside.
28.	Operating Hours	Dusk to Dawn (max 12 Hrs.)
29.	Total Harmonics Distortion (THD)	<10%
30.	Construction	High power SMD and LED must be mounted on Copper MCPCB for high thermal conductivity and fastest heat transfer from the LED junction
31.	IP Protection	IP66 or more; no water stagnation anywhere
32.	Luminary Housing	Pressure Die Cast Aluminum (grade 5000 or similar) housing with corrosion resistant polyster powder coating & safety as per IEC 60598 / IS 10322. Mounting bracket with aiming & locking facilities. Large surface area with fins to dissipate the heat to ambient air
33.	Heat Sink	Well-designed thermal management system with defined heat sink - Aluminium extrusion
34.	Clip / Fasteners	Corrosion free/ Stainless steel.

35.	Wire	The connecting wires used inside the luminaries, shall be Low Smoke Halogen Free, fire retardant e- beam cable and fuse protection shall be provided in input side.
36.	Materials	Halogen free and fire retardant confirming to UL94.
37.	Optics	Secondary lens array should be provided for optimized roadway photometric distribution. Lens material should be optical high grade PMMA with more than 90% light transmittance
38.	IK protection for Optic Cover	>IK07
39.	Photometric measurements	LM-79/IS16105.
40.	Minimum Surge Protection	>10 kV
41	Warranty / Guarantee	5 Years
42.	Protection Required in Driver Module	
a.	Short Circuit	Yes; Constant current limit mode.
b.	Open Circuit	Yes
c.	Over Voltage	Yes; Auto Isolation
d.	Over Temperature	Yes; Auto Shut Off.
e.	Under Voltage	Yes;
f.	String Open Protection	Yes;

Technical Specification No. 5

a) This includes fixing & commissioning of supplied 150W LED Street Light Luminary. The supplied fitting shall be fixed on 1.5 mtr double arm GI pipe bracket or nipple on the Octagonal Pole. This includes Electrical connections - Four way connectors shall be provided along with Slide lock suitable for connecting 1.1 kV grade, 4 core X16 sq mm Al cable. It shall also inhouse1 no. 6-10 amps DP MCB,2.5 sq mm connectors for looping with 2.5 Sq mm Copper wires for connecting to the luminaries through 0.6 kV grade, 3 core X 2.5 mm² PVC insulated copper conductor flexible un-armoured Cable from the terminal block to the fixture within the pole. All the cables laid through the pipe shall be without any joint. This also includes necessary wiring, connections & necessary earth linking connections with all material, labour, tools & tackles as directed by Engineer-In-charge.

b) This includes fixing & commissioning of supplied 400W LED Flood light luminary Installation: This includes Installation of LED fittings on Lantern ring, with 3 core X 2.5 mm² PVC insulated copper conductor flexible un-armoured Cable complete wiring connection from JB to individual LED's fittings on towers, complete with man, material, Tools & tackles, connection etc.

Technical Specification No. 6

(a) This includes supply at site 1.1 KV grade, 4 Core, 16 Sq. mm Aluminum conductor, XLPE insulated armored cable confirming to IS: 7098 (Part-I) 1985 with up to date amendments

and of approved make with ISI mark. The cable shall have marking/embossing at the interval of every meter showing its progressive length. The contractor shall produce the routine test certificate during supply of cable at site. The rate shall inclusive of all taxes, duties, packing, forwarding, insurance, transportation and unloading at site of work etc.

(b) This includes supply at site 1.1 KV grade, 4 Core, 50 Sq. mm Aluminum conductor, XLPE insulated armored cable confirming to IS: 7098 (Part-I) 1985 with up to date amendments and of approved make with ISI mark. The cable shall have marking/embossing at the interval of every meter showing its progressive length. The contractor shall produce the routine test certificate during supply of cable at site. The rate shall inclusive of all taxes, duties, packing, forwarding, insurance, transportation and unloading at site of work etc.

(c) This includes supply at site 1.1 KV grade, 4 Core, 70 Sq. mm Aluminum conductor, XLPE insulated armored cable confirming to IS: 7098 (Part-I) 1985 with up to date amendments and of approved make with ISI mark. The cable shall have marking/embossing at the interval of every meter showing its progressive length. The contractor shall produce the routine test certificate during supply of cable at site. The rate shall inclusive of all taxes, duties, packing, forwarding, insurance, transportation and unloading at site of work etc.

(d) This includes supply at site 1.1 KV grade, 4 Core, 120 Sq. mm Aluminum conductor, XLPE insulated armored cable confirming to IS: 7098 (Part-I) 1985 with up to date amendments and of approved make with ISI mark. The cable shall have marking/embossing at the interval of every meter showing its progressive length. The contractor shall produce the routine test certificate during supply of cable at site. The rate shall inclusive of all taxes, duties, packing, forwarding, insurance, transportation and unloading at site of work etc.

Technical Specification No. 7

This includes laying & end termination of 1.1 KV XLPE armoured L.T cable in proposed hard & soft Soil /Laying on half round "6" RCC pipe / Laying through horizontal boring / laying through double walled corrugated HDPE pipe of suitable size
Method of Laying.

a) This includes laying of single length cable of size up to 4 core, 120 Sq.mm LT armoured aluminum Conductor XLPE Cable of 1.1KV Grade through excavation in soft/hard soil. The trench to be excavated 300mm wide, 600mm deep. The bed of 50mm of river sand shall be provided in the bottom of the excavated trench. The cable shall be laid over the bed of river sand. The cable shall be protected as per Sketch shown below by providing and laying bricks both the sides lengthwise parallel to the cable & the gaps shall be filled with river sand. The cable shall be covered by keeping two bricks over the side bricks shown in the sketch. The filling of the trench shall be done with the excavated stuff & should be watered and rammed properly to its original position. The excess excavated stuff shall be disposed off from the Site of work and spreaded in low laying area as directed. Contractor has to places cable route marker at and interval of 20-meter length the route marker shall be of heavy duty HDPE plate width red radium colour. The work includes complete labour and materials and to entire satisfaction of Engineer-in-charge.

b)

Sketch

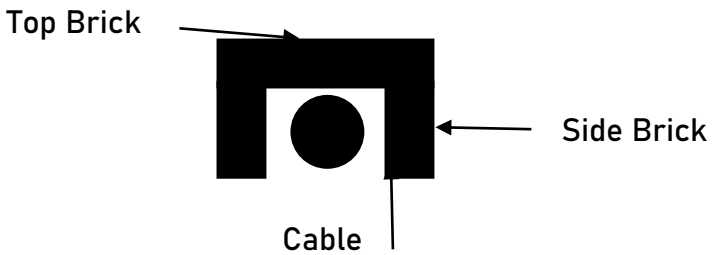


Fig 1.1

c) The item includes laying of single length cable of size 4 core x 50 Sq.mm & 4C x 70Sqmm LT armoured aluminum Conductor XLPE Cable of 1.1KV Grade both in the ½ round RCC hume Pipe 6" I/D the half round pipe should be laid on the coarse sand. The cable shall be laid on the existing half round pipe as shown in the drawing after laying of cable the pipe should be filled with fine sand and covered with half round pipe.. At every approximately 15mtr length of there should be inspection chamber provided. The item includes required material and labour as directed by Engineer in charge.

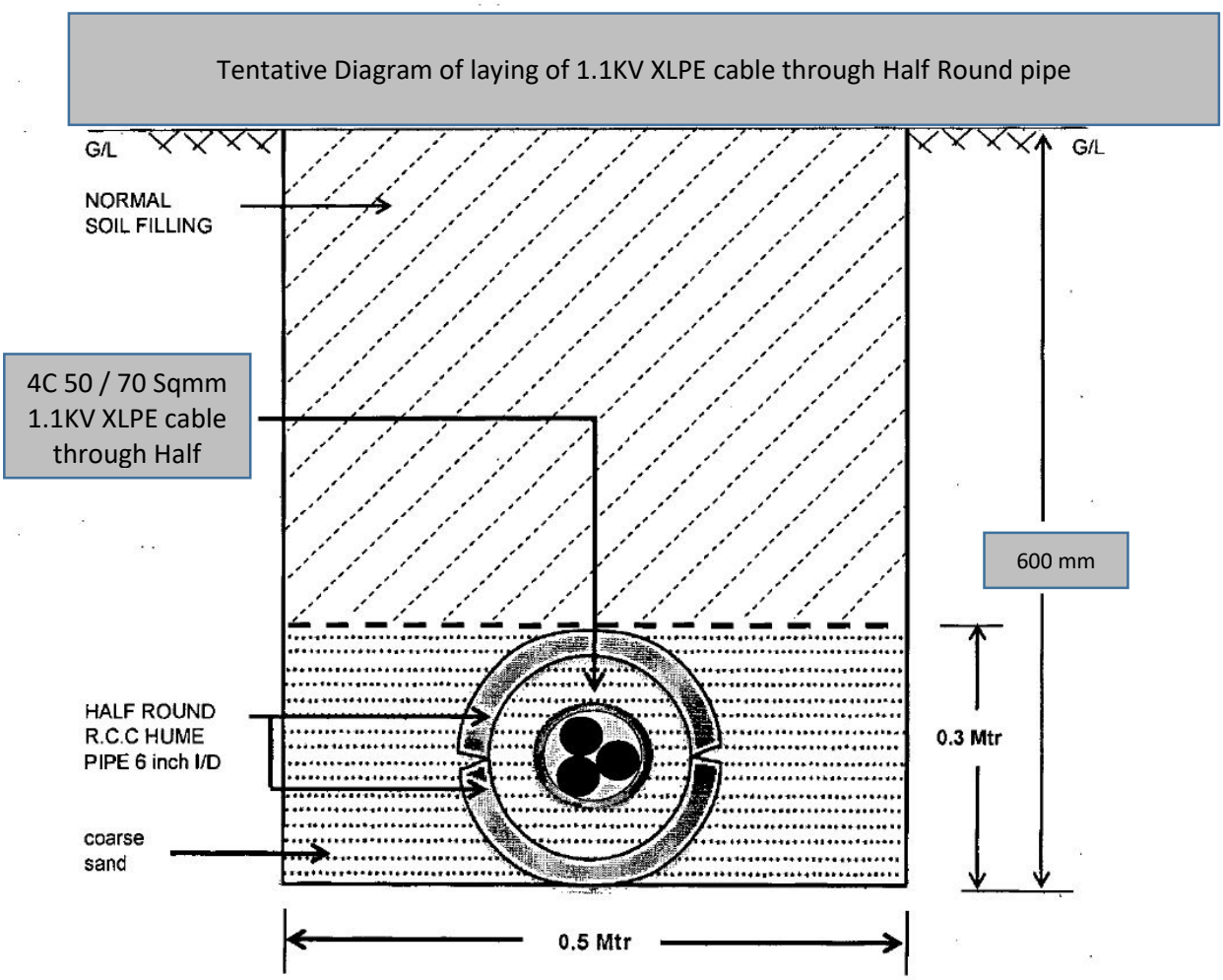


Fig 1.2

c) This includes laying of single length cable of size up to 4 core, 120 Sq. mm LT armoured

aluminum Conductor XLPE Cable of 1.1KV. The contractor has to arrange horizontal boring machine and should bore minimum 2 meter below ground level this also, include insertion of HDPE Pipe of size 63 mm or more, pipe thickness 6.6 mm wall having coupler arrangement at one side or flexible pipe of same dia, 400-meter length may be used for above work. The work is to be executed at various locations and will be of different length After completion of boring and cable insertion, contractor has to places cable route marker at and interval of 20-meter length the route marker shall be of heavy duty HDPE plate width red radium colour. The work includes complete labour and materials and to entire satisfaction of Engineer-in-charge.

d) This includes laying/ Fixing of single length cable of size 4 core, 16 to 35 Sq. mm LT armoured aluminum Conductor XLPE Cable of 1.1KV Grade through existing octagonal pole by inserting flexible pipe of hard PVC of size 50 mm two length from ground level to junction box fixing with heavy duty cable tie. This also includes necessary cable termination at the Street Light Pole with required material as directed by Engineer in charge.

Technical Specification No. 8

This includes design, supply at site, installation, testing and commissioning of Outdoor mounted type Feeder pillar panel double shutter, handle with locking arrangement, dust, damp and vermin proof. The feeder pillar shall be fabricated from 3mm thick M. S sheet outer frame using suitable size of M.S angle and M.S Flat for the frame structure the inner sheet and the door should be made from 1.8 mm thick M.S sheet. The feeder pillar shall be powdered coated using simens grade paint.

The feeder pillar shall be specious for easy maintenance and shall be specious to be provided with all the material mentioned below.

1. 200 / 250Amps, 415 V 50 Hz volt ICTPN Switch. 1No.
2. 100 / 125A, 415 volt ICTPN Switch. For outgoing cable 4No.
3. 20A, 10KA 2 Pole MCB for panel power supply 1No.
4. Indicating lamp Red, yellow & blue 230/240v AC, with in built resistance 1No.
5. Surface mounted light sensor timer Switch 1 No.
6. 3 phase 4 pole heavy duty Contractor suitable for 150A (Load Current) 1No.
7. Analog Time Switch 1 No.
8. Multifunction Meter 1 No
9. Suitable size of Aluminium bus bar for Phase & Neutral, PVC sleeved with colour code. Danger Board, tie belt etc.

All these components shall be mounted in the feeder pillar by means of suitable cadmium passivated hardware. The feeder pillar shall be complete in all respects with cable glands, lugs for incoming and outgoing cables including interconnection with PVC insulated cable single core, standard copper conductor of 650/1100V grade.

The feeder pillar shall be erected on DP structure at suitable height by using proper M.S channel frame of Proper size. The M.S channel frame shall be fitted with proper GI bolt & nut on the so that it shall withstand the load of the panel properly.

The feeder pillar shall be tested as per IS. The feeder pillar shall be provided with 2 Nos. SS terminals for earthing. The Panel shall be manufactured from type test holder having type test certificate of feeder panel of similar or above ratings. The above panel drawing should have to be approved by inspection agencies / Engineer-in-charge before placing the order showing the position of the components as mentioned in Sr no 1to 9. This includes all labour and material as directed by Engineer-in-charge.

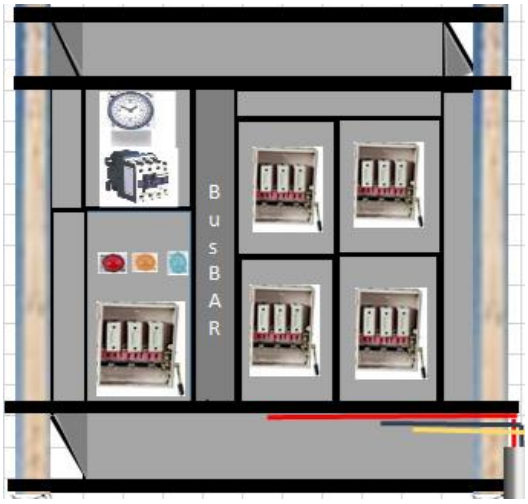


FIG 1.3

Technical Specification No. 9

The item includes Supply and fixing Double Pole Structure without 11kv A.B.Switch & DO Fuse on 8 metre RCC/PCC pole. The DP structure should be erected near the PGVCL tapping point from where the LT cable from the meter box will be directly terminated on the M.S Distribution board incomer & outgoing cable should be laid from the Distribution board through timer circuit to the lighting pole. The Distribution panel is to be fitted at least 3 mtr. form the ground level on proper size and length of M. S Channel /Angle on top & bottom also the earthing should be provided to the Distribution panel, however location may get changed as per site situation.

SR	PARTICULARS	UNIT	QTY
1	PSC pole 8 mtr (working load 200Kg) as per Annexure 1	NO.	2.00
2	M.S. Angle Top FEBRI.65x65x6mm - 3000mm	No	2.00
3	M.S. Angle Bottom FEBRI.65x65x6mm - 3000mm	No	4.00
4	M.S. Angle Fabri. 65x65x6mm - 3000mm for cross bracing	No	4.00
5	(a) Ancher rod - 1 No.	NO.	4.00
6	(b) Turn buckle - 1 No.	NO.	4.00
7	(c) Eye Bolt - 1No(16mmX590 mm Round Bar).	NO.	4.00
8	(d) Stay wire- 7/12	KG	13.60
9	(e) LT Guy Insulator - 1 No.	NO.	4.00
10	(f) Guy Clamp - 1 Set.	SET	4.00
11	(a) GI Wire No. 8 From Pole Top to Earthing Coil	KG	2.72
12	(b) Rigid PVC Pipe -20mm dia (1.5 Mtr) - 1No	NO.	2.00
13	(c) Earthing Bolt	NO	2.00
14	(d) Earthing Coil (GI Wire No 8)	NO	2.00
15	(e) Alu. Binding wire	KG	0.50
16	(f) Barbed wire as per requirement		

The Contractor has to supply and to install the same at the site as directed by Engineer in charge which also include cement concreting of ratio (1:2:4) by proper excavation and insertion of Pole complete with labour and material and same should be in proper alignment. Thereafter, two coat of metal primer and three coat of silver paint is to be applied on its ancillary items, barbered wire should be wound on the pole from ground level to 2.5 to 3 metre height similarly danger plate and

associated items required to complete the work will be in scope of contractor. The work is to be carried out as per Indian Electricity Rules and as per norms of PGVCL. However, fabricated M.S fencing duly painted shall be provided around such switches.

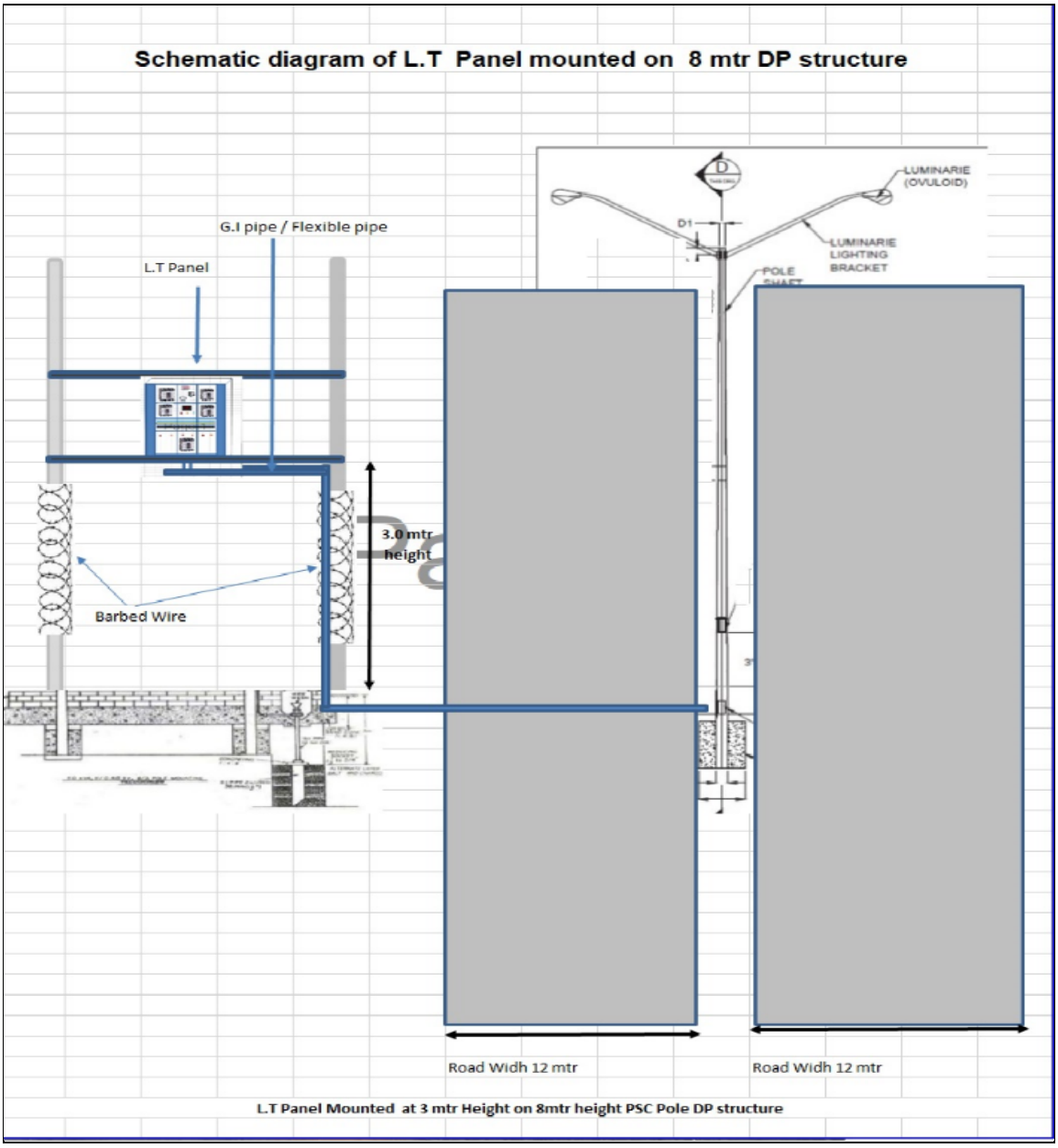
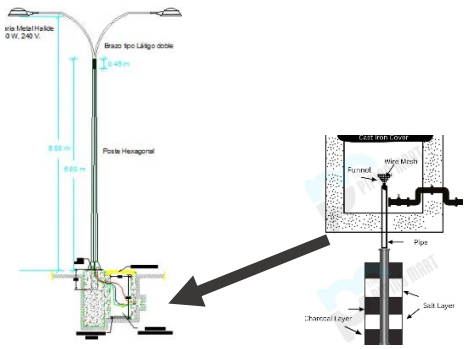


Fig 1.4

Technical Specification No. 10

This includes preparation of Pole earthing with GI earth pipe 40mm internal dia, 3 mm pipe thickness (No minus tolerance allowed) and 1.5-meter-long of standard quality class – B. The pipe should be provided with 10mm holes in diagonally opposite directions throughout the length of the pipe at 150mm intervals centre to centre. The connection between the earthing stud inside pole and the earthing Pipe shall be done with two runs of 8 SWG GI wire with necessary clamps and nut bolts. The work includes all labour and material as directed by Engineer-in-charge.



10mtr Double arm pole Pipe earthing

Fig 1.5

Technical Specification No. 11

This includes preparation of earth station with G.I. Earth plate 600mm x 600mm x 10mm thickness and shall be buried in such a way that its top edge is at a depth of not less than 1.5 Meter from the surface of ground. It shall have a G.I pipe (Class-B) for watering of size 20mm dia. buried vertically and adjacent to plate electrode and other end shall be provided with funnel. The two runs of G.I. flat of size 50mm x 6mm thick shall be clamped near funnel and to be taken from main earth plate. The value of earth pit shall be less than 5Ω.

A cement concrete (ratio 1:4:8) chamber of at least 30 cm x 30 cm shall be provided just below the surface of ground over the funnel for watering and having RCC/CI cover of suitable size as directed. The pit shall be filled with alternative layer of 15cm each of charcoal and salt. This also includes removal of extra-excavated earth from the site.

Two runs of G.I. flat strip of size 25mm x 3mm thick shall be connected from earth pit to Street Light Feeder Pillar as directed by Engineer-in-charge. This work includes all labour and material. The work shall be carried out to entire satisfaction of Engineer-in- charge.

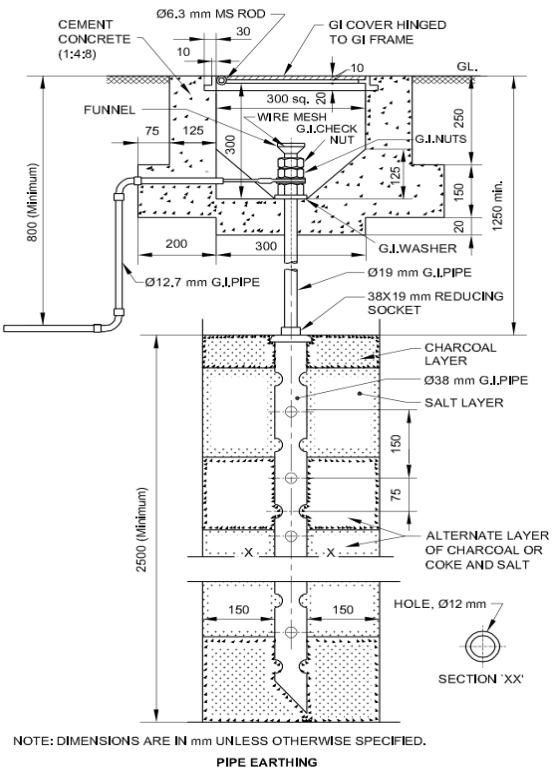


Fig 1.6

Technical Specification No. 12

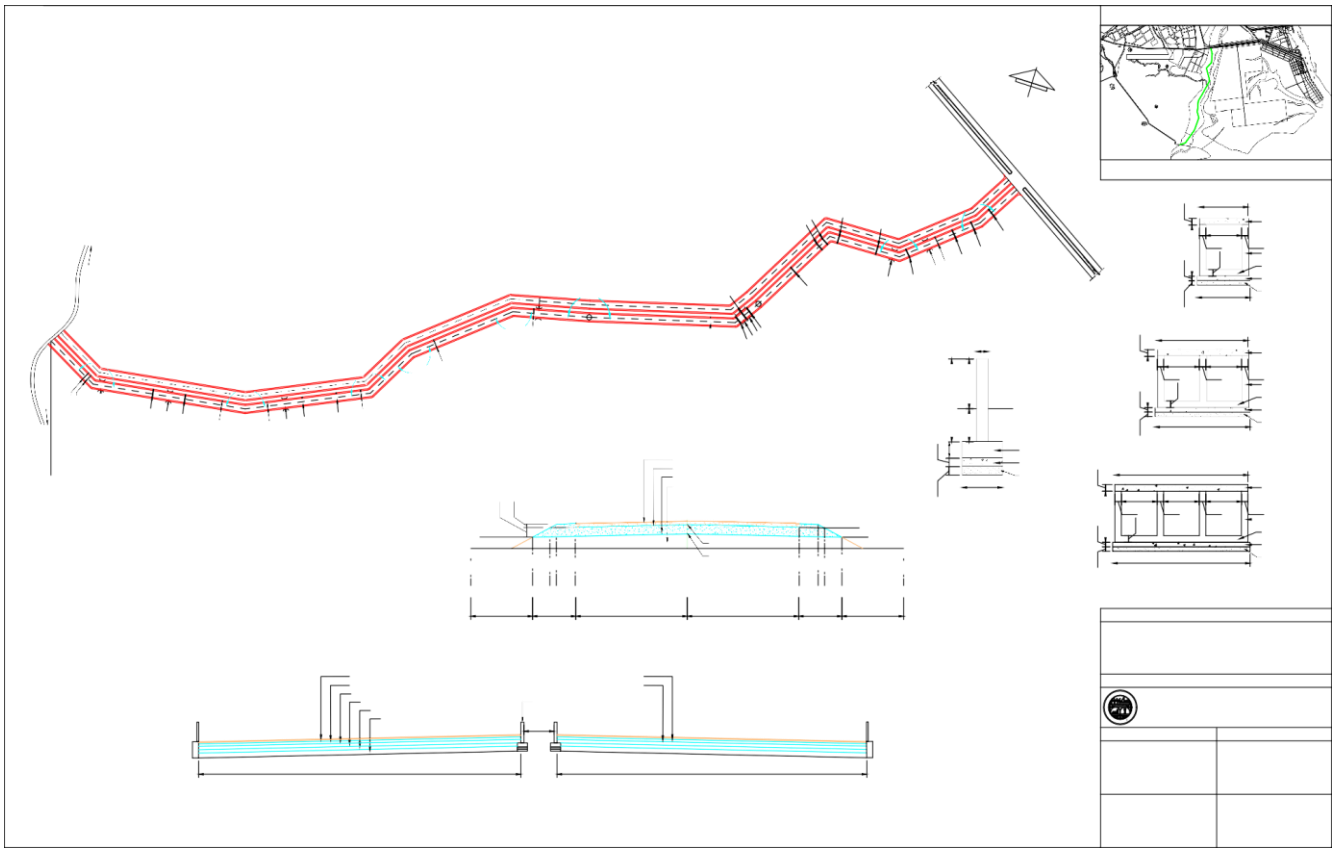
The contractor has to arrange reclamation materials as per govt norms, such as coarse graded material spreading and compating with hand roller. Material shall be of grade one size 75mm to 0.075 mm having CBR value 30, for low laying area to maintain proper leveling before laying of cable/ fixing of pole. The work is to be executed at various locations and will be of different area. Thereafter cable insertion, cable laying will be done, contractor has to places cable route marker at and interval of 20-meter length the route marker shall be of heavy duty HDPE plate width red radium colour. The work includes complete labour and materials and to entire satisfaction of Engineer-in-charge.

Technical Specification No. 13

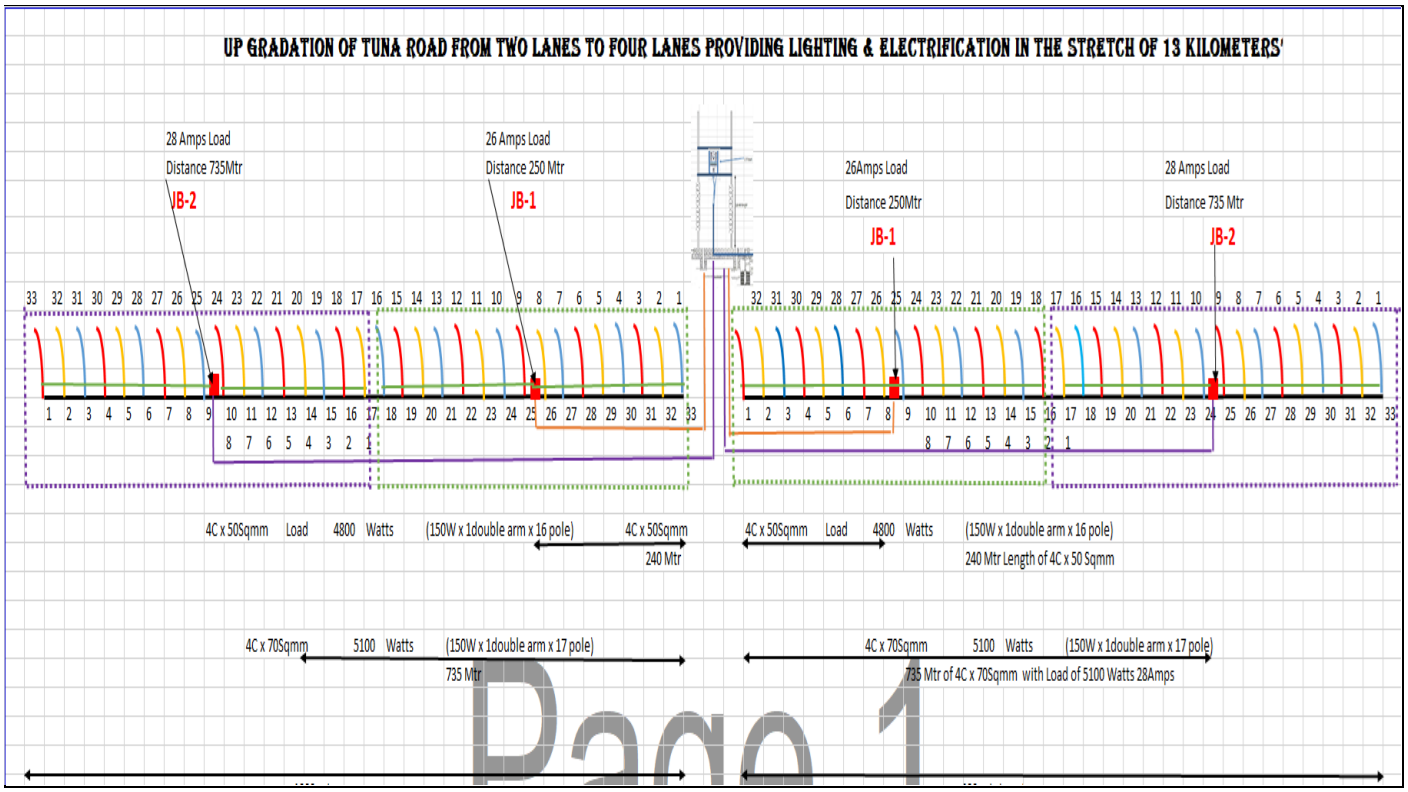
The contractor has to execute liaison work with PGVCL for allotment of 3 phase CT operating meter or direct type as the case may be at nearby location where the power is available of PGVCL and for ease of connection. The required document will be handed over to contractor from DPA However, required fees for 07 Number Electrical Connections of approx, 50KW each is to be arranged by the contractor Hence, contractor is directed to evaluate the same, this includes all the required materials such as electrical meters MCB, ELCB, Cable, Earthing, Meter DB & its Installation Earthing etc.

Initial registration fee will be borne by the contractor, However, the remaining charges, whatever will be paid by DPA to PGVCL for 10 Nos. of New LT 3- Phase Connections. The work includes complete labour and materials and to entire satisfaction of Engineer-in-charge.

DRAWING of 13KM stretch of TUNA ROAD



Tentative Drawing of the Street light pole distribution



Signature
& Seal of Contractor

Sd/-
Executive Engineer (E)
Deendayal Port Authority

PART B

Name of Work: Comprehensive Annual Maintenance Contract for Street lighting & Electrification of 4 lane road for a Stretch of 13 Km from National High way 8A to Tuna (DP World) for a period of 5 (five)years.

Scope of Work for Comprehensive Annual Maintenance Contract

The scope of work will cover 05 (five) years comprehensive annual maintenance services from the date of expiry of 01 (one) years on-site warranty for the supplied and installed Street lighting poles, lighting fixtures & its connected accessories along with 20 Mtr HM pole & its lighting accessories, L.T Distribution panel & power supply etc at Tuna road.

The contract shall be comprehensive in nature wherein preventive as well as breakdown maintenance of entire street lighting system and its accessories along with power supply at different location in the 13 KM stretch from national highway 8-A to DP World (TUNA) is to be attended by the contractor including the arrangement of spares, tools, consumables, technical expertise and manpower. The replaced consumables, tools, items will be contractor's property. The respective firm shall submit the maintenance schedule as per the OEM recommendations to the DPA Engineer-in- Charge for approval and all maintenance activity shall be carried out as per the schedule approved by DPA.

1.0 Maintenance Support Services (MSS):

The services provided by the contractor during AMC period will comprise but not limited to the following:

- Preventive Maintenance: Preventive maintenance would be carried on quarterly basis as per the checklist.
- Breakdown Maintenance: Breakdown maintenance is to be carried out as and when required
- Coordinate with OEM's for support in case of breakdown, or any other issue in any particular equipment to manage spares for smooth functioning of the entire system.
- Repair /replacement of poles, lighting fixture, assemblies, sub-assemblies, spares, up gradation of system if any etc. to make the system operational.

1.0.1 Maintenance shall cover both preventive and breakdown maintenance of the entire lighting system as per the "Schedule B". The service through the AMC envisages diagnosis of problem & rectification of fault including repair/replacement of faulty /subsystems/circuits/ accessories etc.

Further suggestions regarding the cause of problem and measures, if any for avoiding such problems in future shall also be indicated.

1.0.2 The comprehensive maintenance and servicing of the street lighting system & its connected accessories shall be carried out by the contractor during normal working hours. Breakdown Services should be provided within the stipulated period even at any time to avoid inconvenience.

1.0.3 Once the fault is reported, the contractor shall rectify the fault / malfunctioning within the stipulated time (mentioned under breakdown maintenance) and make the system fully operational.

1.0.4 After repair/maintenance of the lighting system & its accessories, the maintenance engineer of the contractor shall submit the detail report on the repair carried out on the lighting system. The engineer shall give details of the parts repaired /replaced along with the analysis for making the history sheets of faults / problems of the lighting system. DPA would also like the reasons of failure and suggestions to avoid such problems in future. Engineer should maintain the history book from day one after completion of project & handing over the entire system to DPA.

1.0.5 Contractor has to maintain spares at site. However, during repair if it is found that any part of the equipment required to be taken out of DPA premises, the same shall be taken out with the permission of station in charge at the risk and cost of the contractor including packing, insurance and transportation etc.

1.0.6 The comprehensive AMC work is to be carried out on 24 x 7 basis with both adequate skilled & semi-skilled manpower as per the site requirement and with mutual consent of DPA Engineer-In-Charge, manpower deputed by the contractor for carrying out the maintenance / repair job as part of the contract shall be skilled electricians having trade in ITI electrician with 5 yrs. Experience in electrical field & helpers should have qualification of at least SSC pass having Knowledge of electrical maintenance work and trained in maintenance of Street lighting poles & lighting fixtures and its connected accessories along with 20 Mtr HM pole & its lighting accessories along with connected power supply.

1.0.7 The contractor at site office should maintain the profile of the staff, while appointing the manpower the contractor should obtain Police verification certificate form the local Police station, while submitting the Bio-data the contractor should issue appointment letter along with attested certificate & Qualification along with copy of addhar card. Also, along with this Complain register, Attendance register, Site order Book, Requisition Book, Job Card and other statuary register as ALC guide line is to be maintained and submitted for time to time verification from Engineer-in-charge. However, DPA will provide an office room at the nearest available location free of cost. However, DPA will not be held responsible for privilege, security etc.

1.0.8 The Maintenance staff should have cordially good relation with PGVCL personal & should be in touch with them by sharing the mobile no for early restoration of power supply during the time of power failure. IF any fault occurs at PGVL end same should be conveyed immediately to the concern PGVCL division from the registered mobile.

1.1 Preventive maintenance

During the Preventive maintenance, the contractor's maintenance engineer should visit the area at least once in every months to take up the preventive maintenance of all equipment's covered in the contract such as testing and checking the various functions/performance of the equipment and reconfiguration if required to ensure optimum performance of the system, cleaning of cabinets, cables, connectors etc,. During the visit, he will co-ordinate with the maintenance in charge DPA and discuss in details operational problem and advise accordingly. Detailed report for the checking/testing carried out and witnesses the by the DPA representative during each preventive maintenance visit, should be submitted to DPA Site-Engineer.

1.2 Breakdown maintenance

During any breakdown in any lighting system, the contractor shall attend unlimited emergency breakdown calls. There shall be no restriction on number of breakdown maintenance per month/year. It is the responsibility of the contractor to maintain the availability of lighting system to near 100% except for the PGVCL power supply problem

Contractor's maintenance engineer is required to respond and report to DPA designated Engineer-in-charge within 2 hours from the time of fault reported. The allowable resolution time will be 06 hrs. from the time of fault reported including Saturdays, Sundays and closed holidays.

The defective components, accessories etc. The transportation of man and materials to the site shall be in the scope of contractor.

The engineer should carry the required test equipment and spares required for diagnosis the fault and make the system operation. After the breakdown maintenance of the system / equipment, the maintenance engineer of the contractor shall submit the detailed report on the repair carried out on the system/equipment's. The engineer shall give details of the parts repaired/replaced along with fault analysis for making the history sheets of faults/problems of each equipment. DPA would also like to know the reasons of failure and suggestion to avoid such problems in future.

2.0 Non-Performance Deductions (Penalty)

For Preventive maintenance:

If Preventive maintenance is not done in any month, then the penalty @ Rs 5000/- will be deducted from the monthly payment due to the contractor.

2.1 For Breakdown Maintenance:

If the contractor fails to rectify /restore the system/equipment within the permissible time response and resolution time, DPA may without prejudice to any other rights or remedy available, impose penalty for non-performance of the systems as detailed below:

2.2 Penalty clause: -

Penalty for Lighting

Contractor is required to maintain 100% lighting fixture in working condition in both High mast tower and all the street light poles at the stretch of 13KM throughout the contract period, but if the lighting fixture fails due to any reasons and working condition of fixture in HM tower & Street light poles is reduced to 95% then no penalty for period of 1 week will not be imposed, however during that period if the non-working fixture is reduced below 95% then the penalty @ Rs 1000/- per day will be charged till one week than double the rate will be imposed after one week until contactor maintains 100% illumination in the 20mtr high mast & lighting tower.

2.3 Delay in the submission of documents

If any delay in the submission of the documents mentioned at clause no. ___ of Section III, penalty @ Rs. 1000.00 per day and part thereof will be levied till completion of complete documents.

2.4 Non-availability / Non- working of Mobile.

The communication system (Mobile Phone) should be available 24x 7 in working condition, the

contractor site-in-charge / Electrician should update the position of the Lighting of the entire 13KM stretch to the Engineer-in –charge / DPA in-charge in every shift and form a WhatsApp group. However, if for any reason the site office phone is out of order immediately it should be repaired or replaced by new phone at site if the phone is not available at site for more than 12hr's then penalty @ 1000/-hour will be imposed till the availability of the phone at site.

2.5 Poor workmanship.

If during Inspection if any work carried out is of temporary in nature and if the work done without following safety norms, then penalty of 2000/- per incident will be levied on the contractor. (work such as temporary Cable joint/ excavation not properly covered / Cleaning of vegetation around the street light pole / HM tower / Distribution panel door damage or not closed / junction box open etc. all this will come under poor workmanship).

3.0 Repairs /replacement of faulty Lighting Fixture & its accessories

For the entire lighting system for PGVCL supply till the end point the entire system cover under comprehensive maintenance, all spare parts, for restoring services shall be provided from contractor's stock of spares. The contractor will arrange for transportation of the spares to site, otherwise the contractor will arrange the repairs / replacement, which have gone faulty. After repair, the original configuration in terms of fixture shall be restored. However, if the contractor is unable to repair the original lighting fixture himself, he should get it repaired through OEM or their authorized service Centre at his own cost. If the lighting fixture or any other system is beyond repair, then it will be the responsibility of the contractor to replace the faulty part at its own cost. The contractor shall ensure to stock the required /critical spares from his or her own resources.

4.0 Test and Measuring Equipments/Tools

The contractor will be responsible for arranging all tools /test and measuring equipments that may be required for carrying out the maintenance job. The maintenance team should ensure that while visiting the sites, they should carry the required tools/test and measuringequipment along with the spares. The testing instruments used should be yearly tested by Lab and necessary certificate should be available.

5.0 Spares

Contractor shall provide all required all spare parts, all types cables required at site, L. T joint kit, MCB/MCCB, timer, contractor, connectors and DPA would not provide any spare in this regard. Contractor shall stock the spares at Local office for minimizing downtime. In case DPA provides any spare f o r any emergency repairs, the same shall be refunded by the contractor as part of this scope. Contractor shall co-ordinate with all the OEM'S involved for the system.

6.0 Transportation

It will be the responsibility of the contractor to arrange for the free transportation of the engineers / Electrician / helper as well as materials (test equipment's and spares) to the site i.e. 13KM Stretch at Tuna Road within the stipulated time period to avoid penalty for downtime period during breakdown.

7.0 Co-ordinations with OEM'S:

The contractor will co-ordinate with OEM(s) system/equipment and its sub system and resolve maintenance/repair related issues.

8.0 Contract duration:

The duration of the services offered through this proposal will be for a period of four (05)years from the date of expiry of 01 (one) years on-site warranty for the supplied and installed system.

9.0 Compliance with Security Requirements:

It shall be responsibility of contractor to fully comply the following with Security provisions:

9.1 Entry/Access to the Premises is governed by rules & regulations formulated from time to time, which are binding by DPA and its contractors. All such rules & regulationsare to be complied.

9.2 Contractor is to ensure that all the personnel engaged by them abide by the Security anddiscipline rules prescribed from time to time by the Security Section of DPA.

9.3 Contractor is to comply with any directive, as may be prescribed by/given by DPA from time to time in respect of security matters.

9.4 Contractor shall provide Insurance cover to all its employee for any accidents in thework place as per the Indian Labour Laws.

10.0 Responsibilities of Contractor

10.1 Contractor will ensure consistency of work and work force, correct trouble shooting, good workmanship, follow all safety procedures and will make all necessary efforts to maintain healthy environment and reliable services.

10.2 If any of the staff member appointed by Contractor is found to be 'not competent', he has to be replaced by a right person within a stipulated time as instructed by Electrical Engineer- In-charge.

10.3 In no case, the contractor or his/her employees shall claim job / employment with DPA. No transport facility shall be provided for the contractor or his employees by DPA.

10.4 It is purely contractor's responsibility to get his staff acquainted/trained with the site conditions, operation and maintenance procedure, equipment detail, safety devices, scope of work etc.,

10.5 Contractor will be responsible for any act of theft, sabotage, misdeed, indiscipline, and negligence on the part of contractor or his employees. Penalty or legal action, as decided by EIC shall be imposed on the contractor.

10.6 The contractor or his supervisor shall meet the EIC or his nominee every day to receive the details of issues / complaints to be attended and after attending to these complaints, a report on the same has to be submitted to the concerned Officer.

10.7 The contractor has to maintain 2 no's Cell phones (Android type) round the clock for with internet facility for video conference & communication 1 set for Lighting Staff for controlling AMC staff and 1 set Cell phones (Android type) for Site-in-charge at the cost and responsibility of the Contractor.

10.8 DPA will not be responsible for death, accident or injury to the Contractor's employees engaged by him, which may arise in the course of their duty at our premises, nor shall we be responsible and be liable to pay damages or compensation to such persons or to third parties. The Contractor

shall at all times indemnify and keep DPA indemnified against all claims which may be under the Workmen's Compensation Act, 1923, or any statutory modifications thereof or otherwise for or in respect of any damages or compensation payable in consequence of any accident or injury sustained by any workman or other person/ person at the Centre or premises, building, equipment's etc. is attributable to the Contractor or his workmen, such damages shall be made good by the Contractor or his workmen, such damages shall be made good by the Contractor.

10.9 DPA will provide maximum 2 no's of any "E" type or "D" type quarter whichever available at Kandla Colony will be allotted subject to availability on payment basis.

10.10 During night i.e from dusk to dawn, the staff of the contractor shall make a visit to the entire route twice & shall recorded on concern register the status of the lighting system.

10.11 The watch keeping work shall be arranged by the contractor and if any of the area of 13KM stretch any theft of lighting fixture / Spares / wires / cables or any other item missing, which may effect the illumination system due to which penalty is imposed as per the penalty clause the same has to be born by the contractor, DPA will not be held responsible.

10.12 The contractor is responsible for restoring power in case of faults occurring in the above-mentioned areas. The contractor must ensure that their deployed personnel are equipped with all the necessary tools and resources required for prompt and effective troubleshooting and resolution of electrical issues. This includes having access to testing equipment, replacement parts, and any other tools deemed essential for restoring power.

10.13 The Contractor should provide uniform to all the staff deployed in the work of Comprehensive Annual Maintenance along with PPE kit while on duty.

11.0 HAND-OVER OF THE SYSTEM DURING EXIT PERIOD

11.1 The CONTRACTOR shall hand over to the DPA. the following before the expiry of the contract or in the case of termination of Contract by DPA with Justifiable reason as specified:

11.2 A complete list of Assets with its records over the past period.

11.3 All the assets in good working condition as per tech specification. In case any asset is not in working condition, CONTRACTOR shall ensure that the same is made good as per required standard and performance and handed over within the Exit period.

11.4 All the documents prepared by the contractor is the property of DPA. The contractor will not share the information contained in the above said log books registers with any outside person without written permission of EIC. The contractor has to hand over the log book and registers to DPA at the time of completion of contract period.

Sd/-

Signature
& Seal of Contractor

Executive Engineer (E)
Deendayal Port Authority