

**TENDER FOR INSTALLATION OF ELECTRICITY SUPPLY TO KLINIK
KESIHATAN LONG LAMA, MIRI, NORTHERN REGION.**

SYARIKAT SESCO BERHAD (672931-A)

INSTRUCTIONS TO PERSONS TENDERING

1. The Tenderer must be a registered Mechanical and Electrical (M & E) Contractor registered under **UPK Works Head VIIB Sub-Head 2b or above AND 3b or above AND CIDB G2 or above, Category ME (E04 & E05)** and must work within the boundary of the approved category and class specified. The Tenderer is required to submit a copy of the letter of UPK and CIDB registrations together with the tender submission.
2. This tender is for **INSTALLATION OF ELECTRICITY SUPPLY TO KLINIK KESIHATAN LONG LAMA, MIRI, NORTHERN REGION**. The Tenderer must tender for the whole works by filling the appropriate Schedule(s) of Rates.
Failure to comply with the above requirement would result in the Tenderer being disqualified.
3. The Tender must be made on the accompanying Form of Tender with all the blanks therein and all the Schedules of Rates duly filled in ink and signed. Tender rates must include all incidental and contingent expenses.
2. No alteration is to be made in the Form of Tender or in the schedules thereto except in filling in the blanks as directed. **If any such alteration be made or if these instructions be not fully complied with, the tender would not be considered.**
4. The Tenderer, however is at liberty to add any further details that he may deem desirable and, in the event of his so doing, must print or type such details and annex the added matter to the tender submitted by him. Such additional details shall not be binding upon the Company unless they are approved by the Company and incorporated in the contract.
5. Incomplete tender submission will be rejected.
6. If the Tenderer has any doubt as to the meaning of any portion of the General Conditions or of the Specifications, he shall when submitting his tender, set out in his covering letter, the interpretation on which he relies.
7. The Tenderer is to submit with his tender in order of the relevant clauses, a statement of any departures from the Specifications.
8. The rates offered in the tender should be without consideration of the details/departures from the Specifications. If there is addition or deduction of the tender rates by virtue of the Company adopting those details/departures, then such additional/reduced sum should be stated in the annexed documents.
9. The Company will not be responsible for any expenses or losses, which may be incurred by any Tenderer in the preparation of his tender.
10. For local tenders with estimated tender sum of above RM 2,000,000.00, the amount of Bid Bond/ Earnest Money, required to accompany the tender, shall be 2% of the tender sum subject to a maximum of RM 100,000.00 (Ringgit Malaysia One Hundred Thousand).

Bid Bond shall be either in the form of Banker's Guarantee or Bank Draft/ Cashier Order.

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Bank Draft shall be issued by a bank licensed to operate in Malaysia. Banker's Guarantee shall be issued in accordance with the Company's standard format (Form PUR/4) by a bank licensed to operate in Malaysia or such other format as approved by the Company.

11. All contracts exceeding RM50,000.00 (Ringgit Malaysia Fifty Thousand) must include a Performance Bond for 10% of the contract sum.

The Performance Bond shall be either in the form of Banker's Guarantee or Bank Draft/ Cashier Order.

Bank Draft shall be issued by a bank licensed to operate in Malaysia. Whereas, a Banker's Guarantee shall be issued in an acceptable format similar to the sample format (Form PUR/5) by a bank licensed to operate in Malaysia.

The Performance Bond shall be irrevocable and valid for the duration of the contract period including the defect liability/ maintenance period, if any.

Within 21 days from the date of our letter of acceptance of your offer, the successful Tenderer will be required to furnish the necessary Performance Bond to the Company failing which the successful Tenderer will deem to have withdrawn from the offer and **Clause 13** as stated below shall be imposed.

12. If the Tenderer withdraws or modifies his tender during the bid validity period or after having been awarded the contract, the Company shall impose the following sanctions:

a. Bid Bond shall be forfeited.

b. Where there is no Bid Bond involved, the following penalties will be imposed:

- i. 20% loading of the tender prices shall be imposed on all of the Tenderer's future tenders' submission for a period of two consecutive years for the 1st offence.
- ii. Barring the Tenderer from tendering for a period of three consecutive years for the 2nd offence.
- iii. For any subsequent offence, the Tenderer, whether participating in his own name or using a company as a guise or using non-participating partners or shareholders in any company whatsoever shall not be allowed to participate in any future tenders and his name and/ or the offending company shall be permanently struck off from the Company's Contractor/ Supplier Register.

13. The tender must remain valid and open for acceptance for a period of **four (4) months from the closing date of the tender.**

14. This shall be a **one-off contract**, to be completed and commissioned until the completion of the project from the award of contract.

15. Bumiputra Tenderers are required to submit certified copies of Trade Registrations showing the proportion of Bumiputra participation in the companies and the names of the directors of the companies.

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16. The Tenderer should supply evidence to show the competence to undertake the works specified together with details of competent staff. When the Tenderer intends to employ more competent staff, this should be separately mentioned.
17. The Tender marked "**Confidential**" is to be submitted in a sealed envelope which should be clearly marked "**TENDER FOR INSTALLATION OF ELECTRICITY SUPPLY TO KLINIK KESIHATAN LONG LAMA, MIRI, NORTHERN REGION**" but should bear no writing on the outside of the envelope which would enable the Tenderer to be identified. The sealed envelope should then be despatched to:

**The Chief Executive Officer
Sarawak Energy Berhad,
P.O. Box 149
93700 KUCHING SARAWAK**

and shall be hand delivered to

**The Officer-In-Charge
Tender Box, 8th Floor
Sarawak Energy Berhad
Wisma SEB, No.1 The Isthmus
93050 KUCHING SARAWAK**

on or before 3:00 p.m. on 25/07/2012

18. Tenders received prior to the time of opening will be securely kept unopened. Tenders received after the time of opening will be rejected. The Company shall not be held responsible for premature opening of tenders not properly addressed or identified.
19. The Company does not bind itself to accept the lowest of any tender, nor assign any reason for the rejection of any tender.
20. The tender or any Tenderer who has not conformed with the foregoing instructions may not be considered.
21. The official currency for this Contract shall be the Ringgit Malaysia (RM) and all rates and prices shall be quoted in this currency.
22. Tenderer who requires clarification of the Tender Documents may contact the Company through:

**The Manager (Planning and Project)
Syarikat SESCO Berhad,
Jalan Pujut 1, P.O.Box 104,
98007 Miri,
Sarawak.**

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GENERAL CONDITIONS OF CONTRACT

1. Definition

In this Contract (as hereunder defined), the following Works and expressions shall have the meanings hereby assigned to them except where the context otherwise requires:-

- a) **"Company"** means the Syarikat SESCO Berhad.
- b) **"Authorised Officer"** means Regional Manager or Engineer-in-Charge at the respective region.
- c) **"Authorised Engineer"** shall mean the appointed Engineer or equivalent.
- d) **"Company's Representative"** means the person or persons for the time being duly authorised by the Company to be in charge of the Contract.
- e) The **"Contract"** shall mean and include the tender document, letter of acceptance, the Agreement together with any correspondence modifying the terms thereof, the General Conditions of Contract, the Specifications and Schedules thereto annexed, the Drawings annexed hereto (if any) and all documents to which reference may properly be made in order to ascertain the rights and obligations of the parties under the said agreement.
- f) **"Month"** shall mean calendar month.
- g) **"Day"** shall mean calendar day.
- h) **"Plant"** shall mean machinery, apparatus, materials, articles and things of all kinds to be installed under this Contract.
- i) The **"Site"** shall mean the actual place where the Plant is to be erected.
- j) The **"Specifications"** shall mean the Specifications annexed to or issued with these General Conditions of Contract.
- k) The **"Contractor"** means the person or persons, firm or company whose tender has been accepted by the Company and includes the Contractor's personal representatives, successors and permitted assigns.
- l) The **"Sub-Contractor"** shall mean any person other than the Contractor and including his legal representatives, successors and permitted assigns named in the Contract for any part of the Works or any person to whom any part of the Contract has been sub-contract with the consent in writing of the Company
- m) The **"Works"** shall mean all work to be done by the Contractor under the Contract including temporary works and variations, if any.
- n) **"Writing"** shall include any manuscript, typewritten or printed statement, under seal or hand as the case may be.
- o) **"Electrical Permit-to-Work"**, a form declaration signed and given by an Authorized Person, to a competent person in charge of work to be carried out on any earthed high voltage apparatus for the

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purpose of making known to such person exactly what apparatus is dead, isolated from all live conductors, has been discharged, is connected to earth and on which it is safe to work.

- p) **"Make Good"** means to carry out repairs, replacement, rectification where required of the Works at the Contractor's expense, and execute such works to the entire satisfaction of the Company.
- q) Words importing persons shall include firms and Company.
- r) Words importing the masculine gender only shall also include the feminine gender.
- s) Words importing the singular only shall also include the plural and vice versa.

2. Contractor to Inform Himself Fully

The Contractor shall be deemed to have examined the General Conditions of Contract, Specifications, Schedules, Drawings and Plans (if any), and to have obtained on his own responsibility and at his own expenses any additional information which he considers necessary for the satisfactory completion of his Tender.

3. Contractor's Responsibilities

All matters omitted from the Contract document, which may be inferred to obviously necessary for the efficiency, stability and completion of the Works, shall be deemed to be included in the Contract.

Unless otherwise specified, the Contractor shall supply the labour, transport, tools and equipment required for the completion of the Works.

4. Sub-letting

The Contractor shall not sub-let part of the Works without the prior written consent of the Company and such consent if given shall not relieve the Contractor from any liability or obligation under the Contract and he shall be responsible for the acts, defaults and neglects of any sub-contractor, his agents, servants or workmen as fully as if they were the acts, defaults or neglects of the Contractor, his agents, servants or workmen. Provided always that the provision of labour on a piecework basis shall not be deemed to be a sub-letting under this clause.

The Company may require the Tenderer to show documental proof for employment of their workers i.e EPF/SOSCO

The Contractor is strictly prohibited from engaging any of the Company's employees to execute any part of the Works.

It is hereby expressly agreed that a breach of any of the provisions under this Clause shall be deemed as a fundamental breach warranting earlier termination of this contract provided under **Clause 18** hereof.

5. Materials and Workmanship

The Contractor shall provide new materials of the best quality and the kind specified in the Specification of equivalent standard approved by the Company. Where materials are to be provided by the Company, the Contractor shall check the condition of all the materials issued to him. Should the Contractor detect any unsatisfactory conditions on any material issued, he shall notify the Company's Representative, in writing and seek instructions on further actions.

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The Company's Representative may reject any materials or workmanship which in his opinion, are not up to the approved standard. Where materials or workmanship are rejected by the Company's Representative, the Contractor must immediately remove from the site or demolish and remove from the site and make good the said rejection at his own expenses.

Materials both issued by the Company and/or provided by the Contractor are to be transported and stored on the site or elsewhere in such a manner as to prevent damage, deterioration, contamination or loss. The Contractor will indemnify the Company in respect of any damage, loss, deterioration or contamination of the materials issued by the Company.

6. Company's Safety Rules

The Contractor shall in respect of all his employees on site, conform to a standard of safety as high or higher than that adopted by the Company in respect of employees engaged in similar work.

In addition, the contractor is hereby required to adhere to and familiarise himself with requirements in the **Occupational Safety & Health Act 1994** especially the following four Parts: -

PART IV	-	General Duties of Employees and Self-employed Person
PART VI	-	General Duties of Employers
PART VII	-	Safety & Health Organisation
PART XII	-	Liability for offences

The Contractor shall also be required to procure and maintain sufficient quantities of the following tools and equipment for safe implementation of the Company's Works.

- a) Safety belt or harness
- b) Safety cone
- c) Safety helmet
- d) Reflective vest
- e) Safety shoes
- f) Pole top rescue rope
- g) Fiberglass ladder
- h) Earthing gears
- i) Road warning signage/lights
- j) Demarcation safety tape
- k) Any other safety equipment required for the work

Any failure by the Contractor to comply with the safety requirements specified in the safety rules shall be regarded as a breach of the Contract. The provisions in these Conditions such as remedy in the event of default, imposition of penalty, suspension or discontinuance of the work shall fully apply in case of such failure.

The Company shall be entitled to suspend the work by issuing stop work notice. The Contractor shall forthwith comply with the requirement specified in the notice within the time frame therein. The Contractor will be fined **RM 200.00 each time a "STOP WORK" notice** is issued.

The Contractor and his workers shall be required to attend a mandatory safety briefing by the Company prior to award of contract and the attendance shall be recorded. All new workers shall be required to undergo similar briefing before they are allowed into the Contractor's work force. Contractor who fails to comply with this requirement shall be penalised at a rate of **RM200.00 per person and the Contract can**

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be suspended until such time the non-compliance is remedied. Contract so suspended will not qualify for any extension of time on the completion period.

7. Competency and Contractor's Pass

All Contractor's site supervisor(s) who are working for the Company and in the Company's premises must be competent person(s), holding the relevant valid competency certificate issued by Electrical Inspectorate Unit (EIU) and the Company, before they can commence work on site.

Tender submission will not be considered for adjudication for those tenderer(s), who do not submit a list of minimum number of competent persons holding relevant valid competency certificate issued by EIU and Company, as required for the Contract.

The Contractor shall have all their competent persons issued with the Company's relevant contractor pass and will be required to produce the pass on site when requested by the Company's Representative. For the first offence where the Contractor or Contractor's workers fail to comply with this requirement, **"STOP WORK" notice and a letter of warning will be issued** to the Contractor.

For the second offence, **apart from issuing "STOP WORK" notice and warning letter** to the Contractor, the Contractor can be **suspended for one week, up to a maximum of three months period** if necessary, pending on the jurisdiction of the Authorized Officer. The Company reserves the right to employ other contractor(s) to carry out the Works for that period and the Company shall be entitled to recover from the Contractor any of the cost thereof or deduct the same from any monies due or that become due to the Contractor.

For the third and subsequent offence, **apart from issuing "STOP WORK" notice**, the Company reserves the right to **terminate the Contract and to bar the Contractor from participating in any distribution service tender for a period of one year.**

8. Inspection

The Company's Representative shall have authority to inspect the Works from time to time and may reject any work that in his opinion is not complied to Specifications. The Contractor is to make good of the works rejected within a reasonable time after inspection at no extra cost to the Company.

9. Notice to Local Authorities

The Contractor is to conform to all the requirements of the relevant Authorities, erect all boarding and give all notices and traffic safety precautions required by the relevant Authorities, and pay all fees, except the Local Authorities fees for the approval of drawings which will be paid by the Company.

The Contractor shall comply with all Laws, Ordinance, Rules and Regulations bearing on the conduct of the Works and he shall supply all materials for such purposes at his own costs.

10. Care of the Works

The Contractor shall take full responsibility for the care of the Works or any Section or Portions. In case any damage or loss shall happen to any Portion of the Works, it shall be made good by and at the sole cost of the Contractor and to the satisfaction of the Engineer. The Contractor shall also be liable for any loss of or damage to the Works occasioned by him or by any Sub-Contractor in the course of any operations carried out by him or by his Sub-Contractor for the purpose of completing any outstanding work

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11. Injury to Persons and Damage to Property

The Contractor shall indemnify the Company in respect of death or injury to any person and of all damages to any property occurring before and during all the Works shall have been taken over and against all actions, suits, claims, demands, costs, charges and expenses arising in connection therewith that shall be occasioned by the negligence of the Contractor or and Sub-Contractor or by defective design materials or workmanship.

12. Accident or Injury to Workman

The Contractor shall indemnify the Company against all actions, suits, claims, demands, costs or expenses arising in connection with death or injuries suffered by persons employed by the Contractor or his Sub-Contractors on the Works, whether at Law or under any Statutes dealing with the question of the liability of employers for injuries suffered by employees.

13. Interference

The Contractor shall execute the Works in such manner so as not to interfere unnecessarily or improperly with the public convenience and occupation of public or private roads, footpaths or properties whether in the possession of the Company or any person. The Contractor shall be liable for and shall indemnify and hold the Company harmless against and from all damages, losses and expenses (including legal fees and expenses) in respect of such matters, provided always that the same is due to any negligence, omission or default of the Contractor's employees or agent or of any sub-contractor.

14. Insurance

Before commencing the execution of works, the Contractor shall effect and shall also cause any of his assigned sub-contractor(s) to effect, insurance against their liabilities under the Workmen's Compensation Insurance with extension to cover Common Law and shall produce or cause sub-contractor(s) to produce the policies and premium receipts as and when required by the Company's Representative.

In addition, the Contractor shall take and effect a 3rd Party (Public) Liabilities Insurance Policy to cover the risks of damage or loss to any property occurring at the site where work under this Contract is being carried out, arising or caused by the Contractor, his employees or agents executing the work, commencing from the time the property arrives at site to the date of commissioning.

The Contractor is also required to provide adequate insurance coverage for all the plants and materials being delivered to the Contractor by the Company under this Contract against losses, damages and theft during the period between the issue out of equipment from our Stores and the official handing over of the said equipment to the Company upon completion of the Contract. The Contractor shall produce or cause Sub-Contractor to produce, such policies and premium receipts as and when required by the Company's Representative.

15. Authority to Start Work

The Authority to Start Work (if applicable) on the job shall be given in writing by the Company or the Company's Representative. However, in emergency cases, works may proceed after receiving instructions from the relevant Authorised Engineer.

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16. Order of Works

The work is to be proceeded within such order as the Company's Representative may direct, or, in the absence of such order, in the most workmanlike manner. The Work Schedule, where applicable, shall be agreed by the Company and complied by the Contractor.

17. Deviation of Work

Any deviation from the Specifications, approved plans and drawings (if any) shall be authorised in writing by the Company's Representative, failing which the Contractor is responsible for the dismantling of any parts rejected as a result of unauthorised alteration and Make Good the said rejection, at his own expense.

18. Termination

If in the opinion of the Company or the Company's representative, the Contractor:-

- a) has abandoned the Contract; or
- b) without reasonable excuse has failed to commence the Works within 48 hours or has suspended the progress of the Works for 7 days after the Company or the Company's Representative has issued the written authority to start work; or
- c) has failed to remove defective Works from the site or to pull down and replace the works for 7 days after the Company or the Company's Representative has issued a written notice that the said materials or Works had been condemned and rejected by the Company or the Company's Representative under these conditions; or
- d) has in the opinion of the Company or the Company's Representative not made satisfactory progress in the course of executing the works or is not executing the Works in accordance with the Contract or is persistently or flagrantly neglecting to carry out his obligations under the contract; or
- e) has to the detriment of good workmanship or in defiance of the Company's or the Company's Representative's instruction to the contrary sub-contract any part of the Contract; or
- f) has committed fraudulent act or acts against the Company; or
- g) is involved in any illegal activities;

then the Company may, after giving fourteen 14 days notice in writing to the Contractor of the default and its intention thereof, the Company shall forthwith terminate the Contract. Provided always that the earlier termination under this Clause shall not prejudice the Company's right to claim its rights in the Contract under civil proceedings. The Company may himself complete the Work or may employ any other Contractor to complete the work and the Company shall be entitled to recover from the Contractor any of the cost thereof or may deduct the same from any monies due or that become due to the Contractor.

If this Contract shall have been repudiated by the Contractor and/or determined in the manner above stipulated the Company shall not be liable to pay to the Contractor any money on account of this Contract until after the expiration of the maintenance period referred to in **Clause 28** and thereafter, until the costs of execution maintenance, damages for delay in completion (if any) and all other expenses incurred by the Company shall have been ascertained by the Company's representative. The Contractor shall then be entitled to receive only such sum or sums (if any) as the Company's representative may certify would have been payable to him upon due completion by him after deducting the said amount. If such amount shall exceed the sum which would have been payable to the Contractor on due completion by him, then the Contractor shall upon demand pay to the Company the amount of such excess and it shall be deemed a debt due by the Contractor to the Company and shall be recoverable accordingly.

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19. Barring of Contractor

The awarded Contractor can be barred from participating in the Company's tender on the following grounds:

- (a) If the Contractor receives three (3) Stop-Work notices and more than two (2) warning letters and the same warrants the contract be terminated pre-maturely, the Contractor shall be barred from participating in any distribution service tender for a period of one (1) year.
- (b) If Contractor's performance evaluation is less than 50% in which more than two (2) warning letters been received by the Contractor and the same warrants the contract to be terminated pre-maturely, the Contractor shall be barred from participating in any of the Company's tender for a period of two (2) years.

20. Contractor's Employees

The Company's Representative shall be at liberty to object to and require the Contractor to remove forthwith from the Works any person employed by the Contractor in or about the execution or maintenance of the Works who in the opinion of the Company's Representative misconduct himself or is incompetent or negligent in the proper performance of his duties or whose employment is otherwise considered by the Company's Representative to be undesirable and such person shall not be again employed upon the works without the written permission of the Company's Representative.

Any person so removed from the Works shall be replaced as soon as possible by a competent substitute who fulfils the conditions stated in the Contract and approved by the Company's Representative.

The contractor must provide sufficient number of teams and persons per team to ensure works are completed within the period specified by the Company's Representatives. Each team of workers shall have a team leader who must be competent to carry out the works. The contractor is also required to have an overall in charge supervisor who must also be competent.

Should the Company feels that the contractor's workers are not able to cope with the work, the contractor must employ more workers at any time, the contractor must employ more workers with no extra cost.

It is the responsibility of the Contractor to inform the Company for any changes in his work force during the contract period.

All workers shall wear proper uniform bearing the Company's name and logo/ identification.

21. Inspection and Testing on Completion

When the Works under this Contract is completed, the Contractor shall notify the Company's Representative, who will arrange for a convenient time to inspect the installation with the Contractor. Any part or the whole of the Works may be rejected if, in the opinion of the Company's Representative, the Specifications have not been complied with. The Contractor is to make good any of the parts rejected within a reasonable time after the inspection at no extra cost to the Company.

If after inspection the Company's representative finds the works satisfactory, he shall arrange for tests to be carried out. The Contractor is to be on hand to assist in any adjustment, repair or replacement of parts necessary to give a satisfactory result. The tender price shall also be deemed to have included such work.

22. Handing over

When the whole of the Works have been substantially completed and have satisfactorily passed any final test that may be prescribed by the Contractor, the Contractor may give a notice to that effect to the Company's Representative accompanied by an undertaking to finish any outstanding work during the Period of Maintenance. Such notice and undertaking shall be in writing and shall be deemed to be a request

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by the Contractor for the Company's Representative to issue a Certificate of Completion in respect of the Works.

The Handing over is effective from the issuing of the Certificate of Completion.

23. Award of Tender

This is a lump sum contract. The tenderer shall submit a lump sum tender amount for the supply of materials and scope of work as stated in the **Clause 1, Specification**. However, the tenderer is to provide the detailed quantity and rates for each scopes of works involved.

The contract sum payable to the Tenderer upon satisfactory completion of specific amount of works shall be computed as stated in **Clause 29**.

If in the opinion of the Company or the Company's representative that it is necessary for the expeditious execution of works under this tender which is beyond the capability of the successful Tenderer, the Company reserves the right to let out any work which have been awarded to the successful Tenderer to others.

24. Completion Time

The Contractor must complete the Works according to the project timeline as specified in **Clause 3, Specifications**, failing which the Company reserve the right to engage other contractors to complete the outstanding works, and the charges shall be fully borned by the contractor. The payment or deduction of contract sum shall not relieve the Contractor from his obligation to complete the Works or from any other of his obligations and liabilities under the Contract.

The date of completion for whole project shall on the satisfactory conclusion of the inspection and testing carried out as mentioned in **Clause 21** above.

Any part of the whole of the Works may be rejected if, in the opinion of the Company's Representatives, the Specifications have not been complied with. The contractor is to immediately make good of any of the parts rejected at no extra cost to the Company.

25. Extension Of Time For Completion

If, by reason of any industrial dispute or any cause beyond the reasonable control of the Contractor arising after the acceptance of the tender, the Contractor shall have been delayed or impeded in the completion of the Works, whether such delay or impediment occur before or after the time (if any) or extended time fixed for completion, provided that the Contractor shall without delay have given to the Company notice in writing of his claim for an extension of time, the Company shall on receipt of such notice grant the Contractor from time to time in writing either prospectively or retrospectively such extension of the time fixed by the Contract for the completion of the Works as may be reasonable.

26. Clearance of Site on Completion

On completion of the Works, the Contractor shall clear away and remove from the site all constructional plant, surplus materials, rubbish and temporary works of every kind and leave the whole of the site and Works clean and in workmanlike condition to the satisfaction of the Company's Representative. The clearance of site shall be completed within 3 days after completion of Works failing which all cost incurred for site clearance either from the Company or other authority will be deducted from the project payment.

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27. As-built Drawing

On completion of line erection, the contractor shall submit three sets of as-built drawings to the Company.

28. Maintenance

The Contractor shall be required to maintain the whole of the works free of charge, and replace any defective materials or bad workmanship for a period of **twelve (12) months** from the date of Completion of Works. All materials to replace any defective materials supplied by the Contractor and labour cost for the said replacement and maintenance costs shall be borne by the Contractor.

29. Payment

All invoices/bills for work done must be submitted to the Company within 30 days from the date of completion of work. The Company's payment term shall be 45 days upon satisfactory completion of works and receipt of the Contractor's accurate/correct invoice.

30. Contractor's equipment

Upon giving notice of termination as provided for in **Clause 18** above, the Contractor shall immediately despatch from the Site all Contractor's equipment brought by him thereon.

31. Contract Period

The Successful Tenderer shall be required to enter into contract and execute the Contract Agreement with the Company until the contract works are completed.

32. Company's right

The Company reserves the right to:

- a) Engage other contractors to carry out the jobs if the awarded contractor is unable to meet the target of supply restoration;
- b) Reject the lowest or any tender;
- c) Accept the tender in whole or in part.
- d) Issue stop work notice if the Contractor does not comply with the Occupational Safety and Health Act (OSHA) requirements or the Company's standard practice/safety rules or local authorities' requirements.

33. Contractor's Demerit System

Performance of contractors is currently assessed by SESCO's supervisors using the Contractors' Evaluation Form. Contractors are assessed on:

- i) Service Quality
- ii) Work Quality
- iii) Occupational Health & Safety

Warning letters shall be issued to the Contractor if the performance evaluation score of the Contractor falls below 50%.

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SPECIFICATIONS

1. Scope of Work

The specification covers all works associated with the erection of steel, belian or concrete poles for HT and LT overhead lines, 11/.433kV Substation, the running out of conductors, bonding wire, sagging and binding in and the erection of stays, lightning arrestors, switches, earthing, installation of normal service lines, twin-twisted PVC or XLPE services cum mains wiring and any other apparatus or equipment as may be specified elsewhere in this Contract. The design and construction are to conform to the company's standards as stipulated in the Overhead and Construction Manual (OCM).

The contractor is required to provide the detailed scope of works involved and specify the quantity and price of each scope and to be submitted in **Schedule A2 – Schedule Of Rates**. The scope of work involves the following:

A. 33KV Overhead Lines

- i. 16 nos. intermediate single pole configuration
- ii. 3 nos. sectional H-pole configuration
- iii. 2 nos. terminal H-pole configuration
- iv. Stringing of 2 spans of 3 phase 3 wire and 21 spans of 7/.183" AAAC bonding wire / overhead earthwire / guard wire per span without pole.
- v. Installation of 1 no. of H-pole pole only (complete with belian bracing, crossarms and insulators, binding in conductors and inclusive of tensioning where necessary)
- vi. Installation of 1 no Air Break Isolator complete with operating rod, bonding and jumper connection (per set of 2 or 3)
- vii. Erection of 44 nos. HT Ordinary Stays, 5 nos of Flying Stay with Poles and 1 nos of HT Lightning Arrestor complete with earthing/bonding and jumper connections (per set of 2 or 3)

B. 11kV Overhead Lines

- i. 4 nos. intermediate single pole configuration
- ii. 6 nos sectional H-pole configuration
- iii. 1 no. terminal H-pole configuration
- iv. Stringing of 2 spans of 3 phase 3 wire and 11 spans of 7/.183" AAAC bonding wire / overhead earthwire / guard wire per span without pole.
- v. Installation of 1 no Air Break Isolator complete with operating rod, earthing/bonding
- vi. Site ID and jumper connections including supply and install switch number plate (per set of 2 or 3)
- vii. Erection of 44 nos. HT ordinary stays inclusive of stay binding, painting and supply of paint, 5 nos. of flying stay with poles inclusive of stay binding, painting and supply of paint and pole ID (pole, catenary wire & ordinary stay).

C. 11/.433 160kVA Platform-Mounted Substation

Complete installation of 1 no. 11/.433 160kVA platform-mounted substation (complete with miscellaneous accessories and jumpers where necessary)

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D. LT Overhead Lines

There are 15 nos LT 3-phase 4-wire PVC with poles, 1 no. LT Guardwire/OHEW and 17 nos. LT ordinary stays.

E. Service Cables

Involves trenching, laying and termination of service cables on paved and unpaved area (bitumen and tar-sealed) inclusive of reinstatement where necessary. There are 450 metres of 35mm²/4c and 100 metres of 16mm²/2c PVC insulated conductors.

F. Associated works to complete and energize the new installation.

Involves installation of 1 no. 11kV auto-recloser (complete with miscellaneous accessories where necessary), 600 metres of 11kV 95mm²/3c aluminium cable to be laid across the Long Lama River via horizontal direct drilling (HDD) method (complete with transportation of material & equipment, and identification of suitable drilling location), pipe jointing, laying of pipes, installation and securing of pulling rope from end to end of HDD Pipe of 160mm dia PN 10, supply and install 2 nos. signboards station "Danger. High Voltage. No Anchoring" (size to be determined later) at the HDD entry and exit points, 60 nos. of hole excavation for poles and/or stays in rocky ground, and rentis clearing, tree cutting and removal within 6m from either side of the outermost conductors of the line and not more than 1m above ground for 1 km.

The project shall be completed and commissioned until conclusion of the whole project from award of project.

2. Coverage Areas Under This Contract

This project area is from Long Lama Power Station to Klinik Kesihatan at Long Lama Regional Growth Centre (RGC).

3. Issued/Excess Materials

Unless otherwise specified or authorised by the Company's Representative, all materials will be issued on the production of Goods Issued Chits or picking slips properly authorised by the Company's Representative.

Once issued from the store, the Contractor shall be fully responsible for the safe custody of all the materials issued from the Company upon delivery until the formal completion of works. Only upon complete installation of the materials, energisation and verification by the Company's Representative on the satisfactory completion of works, shall the materials be considered handed over to the Company for operation. Items found to be damaged or lost shall be replaced by the Contractor at his own expense.

All excess and/or dismantled materials are to be returned to the Company's Store without damage caused by Contractor's negligence and within one month from the date of completion of works, failing which an appropriate sum of money shall be deducted by the Company from any monies in their hand which are due or may become due to the Contractor. All dismantled/excess Company materials shall be carefully handled and the quantities to be returned to Store shall be certified by the Company's Representative.

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At times, when it might be difficult and not cost effective to recover the full length of belian poles, stay wires, kicking blocks etc when they are embedded in concrete footpath or in the middle of the asphalt roads, the contractor is advised to submit a report to the Company's Representative to account for the situations/circumstances resulting to any broken/sawn off poles, stays, kicking blocks etc. returned for each dismantling projects for approval.

Upon instruction of the Company's Representative, if applicable, the dismantled odd length of belian poles are to be cut or / and jointed to useable length. Cost of processing, cutting or / and jointing odd length belian poles are deemed to be included in the tender price.

4. Supervision and Contractor's Employee

The Contractor shall provide efficient supervision of the Works, and keep constantly on the Works competent supervisor(s) who can understand explanation and carry out instructions given by the Company's Representative.

Any orders or instructions which the Company's Representative may give to the Contractor's supervisor(s) shall be deemed to have been given to the Contractor. The Contractor must always inform the Company's Representative on the precise time schedule and location in writing prior to commencement work on site.

The Contractor's site supervisor(s) must be a competent person, holding relevant valid certificate of competency issued by Electrical Inspectorate Unit (EIU) and the Company, who must be available full-time on site for the Works.

This contract requires a minimum of **one (1), H2(OH& UG) up to 33kV competent supervisor**, and he shall be stationed fulltime in Miri for the duration of the project. The Contractor shall provide a minimum of **one (1) working team** comprising a minimum of **five (5) workers**, and the team shall be working full-time on the project simultaneously. The contractor is required to provide the Company a complete list of competent workers and their names are to be submitted in **Schedule B – Schedule Of Skilled Technicians and Labourers**.

5. Transportation

The Contractor shall arrange for his own transportation and handling of lines materials from the Company's Store to site and returning unused and/or dismantled materials from work site to the Company Store. The cost for this shall be deemed to be included in the tender price.

The contractor shall be responsible for the transportation of his own employees, etc. to site and no allowance shall be paid for this.

The Tenderer is required to complete **Schedule C on the types/ means of transportation**.

6. Tools

All tools, equipment and machinery that are necessary for HT overhead lines works and substation electrical equipments installation work shall be provided by the Contractor. Each working team should have sufficient tools and equipments to work independently.

The Tenderer is required to complete **Schedule D on the availability of tools**. Stock of listed tools in Schedule C is deemed necessary for execution of works. The Contractor may however recommend alternative tools or equipment subject to the approval from the Company's Representative.

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7. Standard Practice on HT overhead Installation

All HT overhead installation works shall be in compliance with the Company's Standard Practice, Specifications of this Tender and Instructions from the Company's Representative. The Company's Representative may reject any Works deemed unsatisfactory and the Contractor shall carry out any rectification works required at his own costs.

SESCO Standard Practices for HT Overhead Line Installation and the Steel Pole Design and Construction Manual may be examined at Syarikat SESCO Berhad Head Office or Regional Offices on request.

8. Hole Excavation

Care is to be taken during excavation of holes that the correct position of pole is not altered. Holes are to be excavated to the specified depth as stated in the Standard Practice or as instructed by the Company's Representative. Special allowance may be made for excavating in rocky ground where the use of air-compressor may be necessary. Piling shall be carried out by the Contractor as per Schedule of Rates for belian pepper post or bakau pile should it be deemed necessary by the Company's Representative. Belian pepper posts or bakau piles for piling shall be inspected and approved by the Company's Representative prior to use.

9. Pole Erection

Contractor is to ensure that he has sufficient men on site to erect poles safely. Any breakage or damage is to be made good by the Contractor at his own cost. After erection, the pole is to be checked for uprightness by using a plumb-bob.

9. Belian Pole Jointing (where applicable)

9.1) Location

The site for carrying out pole jointing may be at an allocated area within the Company's compound or at site depending on whether low tension supply is available at the site or not.

9.2) Pole cutting

Each section of splice is to be cut to the dimension shown on diagram 48 of the HT standard practices for belian poles. Two matching sections of the pole are to be clamped tightly together, and if necessary trimmed, to ensure a good snug fit before the poles are bored.

9.3) Boring

The boltholes are to be bored with the drill and bit at the correct position and whilst the two sections to be joined are still clamped together. The hole centres must be at the centre line of the pole face and the holes must be perpendicular to the pole surface.

9.4) Grooving

When boring is completed, the sections are parted but the matching sections must be permanently marked so as to enable them to be identified out of a pile of each section. After marking, each section is to be grooved with the grooving tool provided.

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9.5) Assembling

If this is carried out on site, the two sections are then fitted with the 'TECO' rings provided, fitted together and securely bolted. The angle iron and square washers must be fitted also to prevent splitting of the belian when under stress.

If this is carried out within the Company's compound, the sections are to be neatly stacked in the area allocated, care being taken to ensure that the splice ends will not be damaged in any way as to weaken the joint. The Company's Representative may reject any section or sections, which in his opinion have been damaged. Rejected section(s) shall be replaced by the contractor at his own expenses.

After transportation to site, the Contractor will be required to assemble the various sections together.

9.6) Pole requirement schedule

A pole requirement schedule with drawings listing the various lengths of belian poles required will be provided to the Contractor. These drawings shall show the dimensions of all the sections required and the sections to be assembled together and it shall be the Contractor's responsibility to work out the most economical number of standard length poles required to enable him to complete the contract. This requirement must be submitted to the Company's representative for his approval before materials may be issued and work commenced. Any shortage, unless satisfactorily explained to the Company in writing must be made up by the Contractor at his own expense.

10. Concrete Encasement

Steel poles shall be encased in concrete of 150mm thickness 300mm above ground level and 350mm below ground level as shown in attached **Drawing 1**. Concrete mix ratio shall be 1:2:4 cement/sand/gravel. 20mm diameter conduits shall be installed for accommodating earth wires connecting to the earth electrodes for earthing (where applicable) when forming concrete encasements.

11. Pole Fittings

Pole top fittings such as cross arms, insulators, insulator pins, eyebolt, eye nut, insulator hook, horn socket eye, tension clamp, belian brace, galvanised steel tie strap, galvanised steel attachment plate, galvanised steel nail plate, galvanised steel backing plates etc are to be properly fitted and securely tightened. Square washers are to be used where specified. Chipped insulators shall not be used. If these are used, they will be rejected by the Company's Representative and be replaced at the expense of the Contractor. Anti-climbing guards shall be installed on HT poles and LT skip poles where instructed by the Company's Representative.

Galvanised steel backing plates shall be installed on belian cross arms for angle poles when instructed by the Company's Representative.

Skip pole guard complete with insulator and other accessories shall be installed at the top of the LT skip pole if minimum clearance of 0.6m between the HT and LT lines cannot be maintained and when instructed by the Company's Representative.

The Contractor will be required to fit pole top equipment such as air break isolators, surge arresters, air break fused isolators etc. **The cost of jumper connections to these equipments shall be deemed to be included in the contract rates for installation of the equipments.**

Suspension clamps, hooks, strain clamp, dead end grip, thimble, cable ties, heat shrink end caps, connectors, galv'd steel earth attachment plate etc for aerial cable shall be properly installed to the satisfaction of the Company's Representative.

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12. Stays

Stay blocks are buried to 6 feet deep for HT overhead lines. Stays are to be made off as outlined in the Standard Practices. All stay bindings are to be black painted.

In coastal areas, all stays shall be painted with coal-tarepoxy paint before installation.

The cost of painting stay binding inclusive of supply of paint shall deem to be included in the tender rates for erection of stays.

13. Backfilling

The soil must be firmly packed into the hole and “ramming” must be done for every 6” layer of soil backfilled. Where reinstatement is necessary, this is to be carried out by the Contractor as per Schedule of Rates. Before carrying out such work, authorization from the Company’s Representative will be necessary.

14. Running Out

Great care is to be exercised when running out the conductors. Dragging of conductors along road surfaces is not allowed. Running out blocks are to be used. Damaged or badly scratched conductor caused by improper handling or negligence on the part of the Contractor will be rejected and replaced at the expense of the Contractor.

When a new conductor is to be run under the situations as stated below: -

- (i) crossing above or below existing lines
- (ii) running parallel above or below existing lines
- (iii) running in close proximity to exiting lines,

Adequate precautions shall be taken to avoid danger during the running out and permanent securing of the conductor. Where safety clearance as stipulated in Electricity Rule E26.1I on Minimal Safe Working Clearance cannot be maintained, the existing line shall be made dead and earthed.

15. Killing, Sagging and Binding-In

Before sagging is carried out, the Contractor must notify the Company’s Representative in advance to enable him or his representative to supervise the sagging and check the sags. Should the Contractor fail to comply with this, the Company’s Representative may, at his discretion, ask for re-sagging to be carried out. When the sagging is done to the satisfaction of the Company’s Representative, the Contractor may, on the instruction of the Company’s Representative, proceed to bind in the conductors. Binding-in must be sufficiently secured to prevent movement of the conductor. The Company’s Representative may, after inspecting the binding, request the contractor to redo any binding, which, in the opinion of the Company’s Representative, is not properly made. Any extra material required for this shall be at the expense of the Contractor.

16. Earthing/Bonding

Where pole-top equipments are fitted and all steel structures are located, they are to be earthed by the Contractor. **The tender rates for the erection of such fittings shall be deemed to have included the cost of the associated earthing and bonding.**

Footing resistance of individual steel poles shall not exceed 10 ohm. The Contractor shall take and record measurements of earth resistance for each individual steel pole and shall also provide the equipment for the measurement of these resistances. If the footing resistance exceeds 10 ohm, then local earth rods shall be installed for the poles. Earth wire used shall be 7/2.45mm PVC copper wire. **The costs for measurement of the earth resistances and earthing of the steel poles (where applicable) to obtain resistances not**

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exceeding 10 ohm for each individual pole shall be deemed to be included in the tender rates for installation of poles/lines. The Company shall supply the earth rods and earth wires.

7/.183” simalec (AAAC) conductor shall be installed as bonding wire for HT steel poles or as guard wire for HT/LT steel poles at approximately 7.35m above ground. Each pole shall be bonded to the bonding/guard wire. The bonding for steel poles is by means of jumpers, D-iron, LT insulators, parallel groove clamps, crimping type cable lugs and earth attachment plate. The messenger wire of the HT aerial cable, if present, shall also be bonded to every pole. However, the bonding/guard wire shall not be bonded to the LT steel/skip poles installed between the HT/LT poles.

7/.183” AAAC overhead earth wire (OHEW), guard wire or messenger wire of the HT aerial cable installed on HT or HT/LT belian poles shall be earthed at every 4th pole and the earth resistance shall not exceed 10 ohm.

Air Break Isolators (ABI) installed on steel poles or belian poles shall have their operating handles connected to an earth mat by means of 7/2.45mm PVC insulated copper cable and crimping type cable lugs. The resistance of the earth mat shall not exceed 10 ohm. ABI handles installed on steel poles shall additionally be bonded to the pole using 7/2.45mm PVC insulated copper cable, crimping type cable lugs and bolt, nut and washer.

The earth resistance for HT surge arresters mounted on steel pole or belian pole should be kept to 5 ohms or less and the earth wire used shall be 7/2.45mm PVC insulated copper cable. The base of surge arresters mounted on steel poles shall be bonded to the pole via an earth attachment plate. If HT bonding wire (OHEW, guard wire or HT aerial cable messenger wire) is present on the belian pole where surge arresters are installed, the HT bonding wire shall also be connected to the local earth of the arresters.

Overhead earth wire (OHEW) where installed shall be bonded to the steel risers.

The costs of bonding the guard wire, bonding wire, messenger wire or LT neutral to steel poles and OHEW to steel risers shall deem to be included in the tender rates for installation of guard wire, bonding wire, aerial cables, LT lines or OHEW.

The costs of earthing LT neutral, OHEW, guard wire or messenger wire at HT or HT/LT belian poles as mentioned above to obtain resistances not exceeding 10 ohm for each local earth shall deem to be included in the tender rates for installation of LT lines, OHEW, guard wire or aerial cables. The Company shall supply the earth rods and earth wires.

17. Testing for Earthing Works

On completion of earthing works, the Contractor is to notify the Company’s Representative, who will arrange for testing of earthing works to be carried out. Should the earth resistance prove to be too high, additional earth electrodes are to be driven in by the Contractor. The Company will supply the material for such additional work and the **tender price shall be deemed to have included this additional work.**

18. Dismantling of lines

Where dismantling or resiting of existing lines is necessary, the lines shall first be made dead by the Company’s Representative and Permit-to-work issued before any work may be carried out by the contractor.

19. Rentis Clearing, Tree Cutting and Removal

All trees, tall shrubs and undergrowth near HT lines to be constructed under project work shall be cleared to a distance of 6 metres from either side of the outer most conductors of the HT overhead lines and also cleared to a height of not more than 1 metres above ground.

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Fallen trees and shrubs shall be cleared from all roadways, footpaths and drains and removed from site to approved dumping ground where necessary. **The tender price for tree clearing shall be deemed to have included removing of shrubs and trees.**

20. Pole Pegging

Pegging for pole positions shall be carried out by the Contractor, and the Tender Price for installation of line is deemed to have included such work.

All the poles must be erected according to the pegged position, unless instructed otherwise by the Company's Representative. Any deviations from the pegged position must first be approved by the Company otherwise the Contractor will be held responsible for the dismantling and re-erection of any of the parts rejected at no extra cost to the Company.

21. Danger and Number Plate

The danger notice and pole numbers for HT steel poles shall be painted directly onto the steel poles by the contractor using automotive paint but for HT belian poles, they shall be painted onto SWG22 aluminium plates nailed with 25mm steel nails at four corners on the poles. The lettering for the danger notice shall be red in colour on a white background while the pole numbers shall be black in colour on a white background. The Contractor shall supply the painted danger notice plates and pole number plates for belian poles. The danger notice plate shall measure 170mm x 150mm while the pole number plate for each number shall measure 160mm x 150mm as shown in drawings 2 and 3 (page 47 & 48 respectively)

The danger notice and pole number shall be placed immediately above and below the 10 feet mark from the ground level respectively on the side of the pole facing the road.

The costs of supplying and installing the painted danger and number plates or of painting the danger notice and pole numbers on steel poles inclusive of supply of paint are **deemed to be included in the cost of erection of poles.**

22. Wayleave and Tree Compensations

Wayleave application and tree compensations shall be carried out by the Company. Where necessary, the Contractor's assistance may be called upon and the Tender Price for installation of line is deemed to have included such work.

23. Cable Laying

(a) Cable Route

Cable routes are to follow the plan provided for the works. Any deviation must have prior approval from the Company's Representative. Whether the cables are to be laid in flat or trefoil formation shall be determined by the Company's Representative before works commence.

(b) General Protection for Excavation of Trenches

The exact location of each trench will be settled on site by the Company's Representative when the Contractor is ready to commence work.

Trenches shall be kept as straight as possible and shall be excavated to approved formations of at least 800 mm in depth for street lighting and LV cables and 1100 mm in depth for HV cables (11

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kV and 33 kV). The width depends upon the number of cables in the trenches as shown in Drawings 1, 2 and 3 and the rates quoted for trenching and backfilling shall be regardless of the width of the trench. The width of the trenches can be wider than those shown in the drawings if laying of additional cables are required and there shall be no extra claim for this. Trenches shall have vertical sides and shall be timbered and sheeted where necessary to prevent subsidence.

The excavation of trenches shall include removal of all unsuitable excavated material, all timbering, pumping and baling and the provision of all necessary labour, plant, tools, additional soil, fuel and motile power for such purposes and the cost of this service and of the expendable materials shall be included in the contract rates and prices for excavation.

Subsidence may occur at some places during the excavation of trenches and a method of piling and rafting such as Bakau supports may be required before laying the cables or ducts in position. The Tenderer is to state in his tender his proposal to ensure that the cables are laid securely.

Each excavation on paved/concreted surfaces is to be sawcut and air compressor shall be used whenever necessary. The sawcut is to be 100mm outside the excavation limits. Any overbreak that may occur through slumping of trenches or lifting during excavation is to be similarly sawcut. Some material may be reusable and this shall be at the discretion of the Company's Representative. Approval to use excavated material must be obtained prior to back filling.

(c) General Protection for Cables and Backfilling of Trenches

Trenches are to be reinstated so that no significant settlement shall occur. Any material containing deleterious organic matter will not be acceptable.

i) 1 kV cables

For carriageway crossings, when the trench has been excavated and the cable laid, the first 400mm depth of cover backfill shall consist of washed river sand as shown in Drawing 1. The sand shall be free from pebbles, stones or other sharp objects as these may abrade the outer sheath of the cable. This shall be followed by another layer of approved material such as 38mm Down Crusher Run up to the surface level. The top 80mm depth of the above mentioned Down Crusher Down is to be removed by the Contractor prior to reinstatement of the carriageway. If the top layer of 80mm premix is to be reinstated by other relevant agencies or authority, the Contractor shall not carry out trenching of the carriageway without informing or giving advanced notice of several days to the Company's Representative.

The Contractor shall also be required to paint the white/yellow lines on the carriageway after reinstatement works are completed if these lines are disrupted due to trenching of the carriageway. The cost for this shall deem to be included in the tender rates for trenching.

For other surfaces (unpaved, footpaths etc.), the trenches shall be backfilled using the excavated material. However, every effort must be made to ensure that the excavated material is free from pebbles, stones or sharp objects so as not to damage the outer sheath of the cable. However the contractor shall quote for the rate for the repair of concrete pavement in Schedule I.

At areas where turfing are in existence before the cable laying works, every effort must be made to reinstate turfing to the original state or to the satisfaction of the Company's Representative, council or land owners. The cost to reinstate the turfing shall deem to be included in the tender rates. The trenches are not required to be backfilled with washed river sand.

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All backfills shall be properly compacted in accordance with Clause 6(n).

For all surfaces, the cables are to be protected by approved type of protection bricks through the entire length of the cable after 100 mm of backfilling above the cable. The protection bricks are as shown in Drawings 1 and 2.

ii) 11 kV cables

Requirements are similar to the above except for the following :-

For carriageways crossings, the first 700 mm depth of cover backfill shall consist of washed river sand as shown in Drawings 1 and 2.

iii) 33 kV cables

After the excavation of trenches and before the cable is laid, the trench is to be filled with 50 mm of washed river sand which will act as soft bedding for the cable. The sand shall be free from pebbles, stones or other sharp objects as these may abrade the outer sheath of the cable. The methods of backfilling shall depend on the original surface of the ground before excavation of the trenches.

iv) Unpaved Surfaces

When the trench has been excavated and the cable laid, the first 250 mm depth of cover backfill shall consist of washed river sand followed by the excavated material until the surface level as shown in Drawing 3.

At areas where turfing are in existence before the cable laying works, every effort must be made to reinstate turfing to the original state or to the satisfaction of the Company's Representative, council or land owners. The cost to reinstate the turfing shall deem to be included in the tender rates

v) Paved Surfaces (for three core cables where HDPE/GI pipes are used)

When the cable/pipe has been laid, the first 700 mm depth of cover backfill shall consist of washed river sand as shown in Drawing 3. This shall be followed by another layer of approved material such as 38 mm Down Crusher Run up to the surface level.

The top 80 mm depth of the above mentioned Down Crusher Down is to be removed by the Contractor prior to reinstatement of the paved surfaces or carriageway. If the top layer of 80 mm premix is to be reinstated by other relevant agencies or authority, the Contractor shall not carry out trenching of the carriageway without informing or giving advanced notice of several days to the Company's Representative.

The Contractor shall also be required to paint the white/yellow lines on the carriageway after reinstatement works are completed if these lines are disrupted due to trenching of the carriageway. The cost for this shall deem to be included in the contract rates for trenching.

vi) Paved Surfaces (for single core cables where PVC pipes are used)

Requirements are similar to above except that the sand bedding is to be replaced by a layer of 1:2:4 concrete 150 mm above and 150 mm below the PVC pipe as well as a layer of excavated material.

vii) Indicator Warning Tape

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For (i), (ii) and (iii) above, the warning tape is to be run 250 mm above the bricks/concrete slabs/pipes for the entire length of the cable laid if it is available and provided by the Company. The cost for installation of the warning tape shall be included in the cost of laying the cable.

(d) Road Crossing

When cables are to be laid across roads, asphalt road cutter shall be used to cut the tar-sealed surface before breaking it up using air compressor.

The contractor shall be responsible for arranging temporary steel decking on road crossings where trenches are opened, traffic control, men-at-work signs and to execute works with utmost despatch and to avoid least inconvenience to the public. Wherever required, warning lights should be placed at appropriate work sites to minimise danger to the public and properties.

Assuring public safety and traffic control will be the contractor's responsibility and must be in accordance with Local Authority or Police requirements.

The contractor shall also be responsible for obtaining Road Closure Permits from the local authorities e.g. Local Councils, JKR and Traffic Police and to comply with all the conditions as required by the various authorities at all times.

Only half the road is to be opened at one time and traffic flow is not to be impeded. Where pedestrian access is impeded suitable ramps are to be provided across excavation.

It is the contractor's responsibility to search out services over the area affected by excavation and any damage to these services will be repaired at the contractor's expense. The contractor is responsible for any damage to surfaces, paths, walls etc. which may result from work associated with construction, including the temporary diversion of traffic. Any claim against damage to the above shall be charged to the contractor.

(e) Rocky Ground

When rocky ground is encountered, apart from opening of road and paving, air compressor is to be used, depth of the trenches should not be less than 800 mm in general or in special cases to be determined by the Company's Representative.

(f) Sleeving

When cables are to be laid across roads, they shall be sleeved with appropriate size of HDPE/GI or PVC pipes as follows:-

- i) 16 mm²/2C-16 mm²/4C – HDPE solid wall pipe (63 mm x 6000 mm) or 2" internal diameter of GI pipe - Class 'A' welded steel tube (light grey) to BS 1387, nominal bore x 6 m length, thickness 2.9 mm
- ii) 35 mm²/4C, 95 mm²/4C, 185 mm²/4C - HDPE solid wall pipe (90 mm x 6000 mm) or 3" internal diameter of pipe - Class 'A' welded steel tube (light grey) to BS 1387, nominal bore x 6m length, thickness 3.25 mm

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- iii) 35 mm²/3C, 95 mm²/3C, 300 mm²/4C - HDPE solid wall pipe (110 mm x 6000 mm) or 4" internal diameter of pipe - Class 'A' welded steel tube (light grey) to BS 1387, nominal bore x 6m length, thickness 3.65 mm
- iv) 185 mm²/3C, 240 mm²/3C, 300 mm²/3C - HDPE solid wall pipe (160 mm x 6000 mm) or 6" internal diameter of pipe - Class 'B' welded steel tube (medium duty) to BS 1387, nominal bore x 6m length, thickness 4.85 mm
- v) 500 mm²/1C, 630 mm²/1C - 4" internal diameter PVC pipe, thickness 6.6 mm.

For HDPE pipes, they shall comply with BS EN 50086-2-4, galvanised pipes to comply with BS 729; and for PVC pipes they shall comply with BS 3505. The Company shall supply the HDPE/galvanised pipes.

(g) Storm Drain

When crossing storm drains, the cables are to be sleeved with HDPE or galvanised pipes and both ends of the pipes supported by concrete blocks. Pipes are to be laid either underneath the drain or not more than 300mm from the surface of the drain. If the pipes are going underneath the drain to the Company's specified depth, pipe sleeving are still required, and appropriate support for both ends may be required to the discretion of the Company's Representative.

(h) Concrete Trench/Cable Ducts

Where cables are to be laid in covered concrete trenches, the cost of removing and putting back the concrete/wooden trench cover, breaking concrete for cable entry and/or repairing/sealing of cable entry hole to facilitate cable laying shall deem to be included in the tender rates for cable laying. The sealing of cable entry hole shall be such as not to allow ingress of water into the trench.

Similarly, where cables need to be drawn through cable ducts and involve any of the above mentioned works, these costs shall deem to be included in the tender rates for cable laying.

(i) Other Service Mains

Galvanised or HDPE pipe sleeving is again required for cable crossing other service mains, such as water pipes, Telecom's cable and sewage mains. The cables are to go 300 mm underneath the said mains and with the sleeving to cover at least 1220 mm from each side of the crossing.

(j) Cable Handling

For erection in trenches or troughs, a sufficient number of rollers over which the cable can ride without tending to rotate or twist on its longitudinal axis during the pulling - in operation shall be used. Particular attention shall be given to the provision and placing of rollers at bends to ensure that the minimum bending radius for the cable is not reached.

The cable shall not in any circumstances be allowed to rotate or twist as a result of excessive pulling tension and/or the provision of an inadequate number of rollers and, except for short route lengths, bond pulling in which the whole of the mechanical tension is concentrated in the steel carrier wire shall be employed.

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(k) Installation Radii

Installation radii shall be as large as possible and shall not be less than that given in the table below:

Type of cable	Minimum bending radius During Installation	Adjacent to joints and terminations
Single core		
i. Unarmoured	20D	15D
ii. Armoured	15D	12D
Three core:		
i. Unarmoured	15D	12D
ii. Armoured	12D	10D

NOTE: D is the overall diameter of the cable.

(l) Pulling Tension

When pulling stockings are employed, there is a tendency to stretch the armour. The maximum pulling force should not exceed 6 kg per sq. mm for copper conductor or 3 kg per sq. mm for aluminium conductor.

If it is impractical to follow the above tensions the cables may be pulled by the cores and the total pulling force on the cable must not exceed 2,000 kg.

The contractor has to handle cable with great care and under no circumstances is the cable allowed to be bent. It can be coiled up to a radius of 12 times the outer diameter of the cable.

Pulling of cables through HDPE, PVC or GI pipes shall be carried out with extra care as this can easily cause cable sheath damage. Indiscriminate pulling of a cable by an excavator is strictly prohibited.

(m) Cable End Sealing

Under no circumstance is the cable to be exposed in the open. It must be covered with the end caps at all times.

If the cable has to be cut, the cable end must be sealed with end caps to prevent the ingress of moisture into the cable. The end caps shall be installed by the contractor to the satisfaction of the Company Representative and the cost for this shall deem to be included in the tender rates.

(n) Compaction

Initial compaction over pipelines for 300 mm is to be by hand ramming. Compaction of backfill materials is required in layers not exceeding 200 mm depth by suitable vibrating rammers or rollers and shall be considered satisfactory in carriageways if greater than 7 blows of a Seala penetrometer are required for each 50 mm penetration of backfilled material. For footpaths 4 blows/50 mm and berms 2 blows/50 mm.

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(o) Resurfacing

The resurfacing of roads is to be carried out by the respective councils or relevant Government agencies such as JKR, unless otherwise stated.

Should the Contractor be required to carry out resurfacing works, they are to ensure that the requirements for compaction mentioned above have been met before resurfacing is carried out. All materials used are to be placed in accordance with the local Council's Code of Practice for Engineering Works and all works undertaken to the satisfaction of the Local Council Engineers and the Company's Representative.

The mole ploughing of cables and ducts is an acceptable alternative to open trenching. The requirements for compaction after laying are as above, and in sealed areas this will necessitate sawcutting and removal of metal courses, compaction of the disturbed ground, and during final restoration. Metal surfaces may require additional metal to be applied after laying.

(p) Site Clearing

The contractor is responsible to clear all waste materials, refuse from the site after completion of works and to the satisfaction of the Company's Representative.

(q) Cable/Cable Joint Markers

Cable markers shall be supplied and installed by the contractor at the interval of 100 feet for straight route. On the point when route direction changes, and on curve the interval is to be instructed by the Company's Representative. Cable joint markers shall be supplied and installed by the contractor upon backfilling of the joint manhole. The cable/cable joint markers shall be to specifications shown in Drawings 6, 7 and 8.

(r) Cable Joint Man-Hole

The contractor shall excavate the man-hole for cable joint work as shown in Drawing 9. Excavator or similar machinery shall be used whenever possible to ensure speedy completion of Works particularly when executing Works of emergency nature. A sump hole for collecting water shall be provided at one end. Water must be pumped out to form a dry excavation. In areas where the soil is soft, the contractor shall take appropriate steps to prevent the collapse of soil by timber sheltering and the cost for this shall deem to be included in the contract rates for excavation of joint hole. However, the manhole size can be bigger than that shown in the above drawing to enable cable jointers to do their work comfortably or as instructed by the Company's Representative. No additional cost should be added for the extra work.

(s) Split Pipe Laying

The contractor shall also be responsible for split pipe laying work to be carried out on exposed cable as and when required by the Company inclusive of all backfilling, drain support and associated works. Pipes shall be supplied by the Company while other materials including clamps shall be supplied by the Contractor. The cost of splitting the pipe shall deem to be included in the contract rates for split pipe laying.

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24. Installation Standard of Substation Equipment and Earthing

Installation of transformer, auto recloser and other equipment must be strictly in accordance with the manufacturer's recommendation and the latest Company Construction/Installation Manual. The contractor must take all the precaution to avoid damages to the equipment and materials issued to him. Care must also be taken to ensure that transformer and auto recloser are erected upright and in alignment. Where switchgears are issued from the Company's stores without grounding bolts, the attention of the Company's Representative should be sought.

The Company Representative shall assign switchgear number, switchgear labels, substation nameplate, Danger signs and also LT feeder labels for the contractor to imprint/fix up. The contractor shall provide the material required for this purpose

25. Equipment Earthing

The contractor is required to apply anti-theft earthing protection for all the earthing required under this project and the installation cost for the earthing rod inclusive of earth wire, anti-theft protection and other fixing accessories for equipment are deemed to be included in the installation rates. The earthing copper wire running down from the pole top equipments shall be enclosed in 2" GI pipe up to a height of 3m from the pole base and need to be filled with concrete. The copper wire connecting the earthing rods starting from the lower end of the GI pipe up to the rest of the earthing rod points shall be wrapped in barbed wire and encased in 6" x 6" concrete. Both barbed wire and copper wire shall be totally encased in the concrete and buried to a depth of 2 (two) feet below the ground surface.

Apart from copper wire, earth electrode, electrode clamp and coupling and connector for connection to neutral conductor are to be provided by the Company, materials such as class "A" GI pipe, pipe clamp, barbed wire, concrete and all other accessories required for the complete installation of earthing protection are to be supplied by contractor.

26. Installation of Switchgear

Complete erection of switchgear inclusive of filling insulation oil, minor floor levelling and securing properly to the plinth using galvanised steel fixing bolts & nuts (supplied by contractor), installation of control wiring, earthing and coupling works in the case of extensible switchgear.

27. Installation of Ground-Mounted Transformer

The complete installation of ground-mounted transformer is inclusive the following:

- (a) Transportation of all the necessary equipments and materials from SESCO store to site.
- (b) Complete erection of transformer inclusive of minor floor levelling and securing properly to the plinth using galvanised steel fixing bolts & nuts (supplied by contractor)
- (c) Complete installation of ABI & lightning arrester. Supply of galvanised steel ABI bracket will be charged separately if used.
- (d) Complete installation of HT bridging from main line to ABFI & Lightning Arrester and to transformer HT terminal.
- (e) Complete installation of transformer earthing and others earthing (c/w anti theft protection) as required.

If underground cable or aerial cable is used for HT bridging, termination of cable will be carry by SESCO own staff.

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28. Installation of Auto Recloser

Installation of auto recloser on to existing HT pole shall be inclusive of transportation of equipment from SESCO store, installation of HT bridging, lightning arrestors, equipment earthing and installation of AR support pole if required.

29. Construction of Foundation

All mixing of concrete is to be done in a proper mechanical mixer, continuous mixing will not be allowed. The concrete is to be mixed until it is of even colour, of uniform and regular consistency throughout. Care must be taken not to use any cement showing signs of initial setting. The concrete to be discharged from the mixer on to a watertight platform, conveyed without delay to the work in hand, i.e. not more than 20 minutes shall elapse between mixing and depositing. The quantity of water used to the minimum necessary to produce concrete of workable nature and must not exceed 27 litres per 50 kg, of cement.

Foundations shall be constructed in accordance with the transformer, switchgear and pillar plinth drawings except the piling shown on the drawings will be decided on site (pending site conditions).

All the materials for substation civil works construction shall be supplied by the contractor.

In the event of any works not fulfilling such requirements, the Contractor shall rectify such at his expense.

30. Fencing And Gate

The Contractor shall provide transportation, workmanship and materials to install the fencing and gate in accordance with the **Drawings No. BTU-CW/05/03** for platform mounted transformer and Auto Recloser in the schedule of drawings in a workmanlike manner to the satisfaction of the Company's Representative. All paintworks are to be retouched with aluminium paint.

Chain link fencing shall be constructed of galvanised steel wire in accordance with B.S. 1722, part 10 and shall be of such manufacture that when one segment is cut, remaining segments within the pattern retain their rigidity. Overall height of the fencing shall be as indicated in the drawings.

All mesh shall be of galvanised steel wire gauge (SWG 10) approved by the Company's Representative within a length of side not exceeding 50mm. Line wires shall be of galvanised steel wire gauge sufficient to adequately support the mesh rigidity and place as shown on the drawings. Five rows of strained barbed wire shall be provided above the mesh.

Post, struts and rails shall be of galvanised steel angels and shall be constructed as shown on the drawings.

31. As-built drawings

On completion of line erection, the Contractor is required to submit three sets of as-built drawings with the HT/LT poles duly numbered to the Company.

32. Shutdown Procedure and Requirement

Where shutdown of system is necessary for connection or disconnection works, the Company's Safety Rules on shutdown procedure must be strictly adhered to. The supply to the overhead lines shall be isolated by the Company's Representative, who is also an Authorised Switching Personnel. The Company's Switching Personnel shall then issue the Electrical Permit-to- Work to the Contractor. NO works shall commence without

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the issue of the Electrical Permit-to-Work. The Contractor shall then earth the overhead lines using operating rod and overhead earthing set under the instruction and supervision of the Company's Switching Personnel. The Contractor shall nominate the name(s) of Competent Person(s) to receive the Electrical Permit-to-Work in **Schedule B**

The Contractor, where required, shall provide manpower to distribute the shutdown notices to all affected customers during the shutdown and this cost shall be included in the tender rates.

33. Penalties

The following penalties shall be imposed by the Company on the Contractor for failing to comply with the Contract Specifications and requirements. The penalty monies shall be deducted from monies due or which may become due to the Contractor.

a. Work Progress/Completion Target

The Contractor must complete the Works within the completion period failing which a penalty of **RM100** per day for the number of days in excess thereof shall be levied as stated in General Conditions of Contract.

b. Obstruction/Blockage of traffic flow

If there is any blockage of traffic flow indiscriminately during the course of installation works without the consent of JKR and local council or without informing the Company's Representative in advance, the Company shall impose a penalty charge of **RM100.00** on the Contractor per occasion of traffic obstruction.

c. Display of signboard/Traffic signs

The contractor shall provide all the necessary and proper informative and warning signs and place them at the minimum required distance from the working site in order to give ample warning time and space to motorists. Blinking warning lamps and reflective ribbons shall be installed at night failing which the Company shall impose a penalty charge of **RM100.00** on the contractor on per occasion basis.

d. Materials Issued Out From Store

All materials issued to Contractor must be taken out within 3 days after the picking slips are issued. The Company shall impose a storage charge of **RM100.00** per day for any materials left or kept at the store after the 3 days period.

e. Stop work notice

A penalty of **RM200.00** shall be imposed on the Contractor for every stop work notice issued due to non-compliance with safety requirements.

f. Safety Briefing

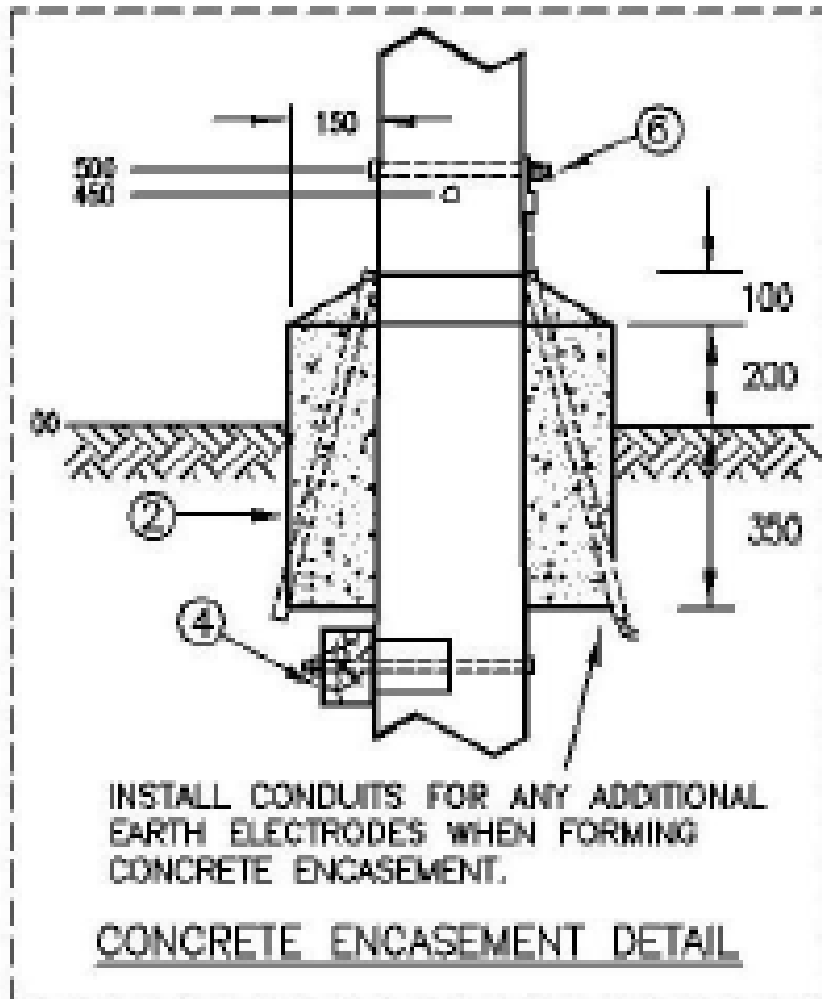
A penalty of **RM200.00** per person shall be imposed on the contractor for failure to comply with the safety requirements.

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Drawing 1: Concrete Encasement Detail



2 - Concrete footing

4 – Belian block installed for poor soil condition

6 – Attachment for earth wire from steel pole through
conduit to earth electrode

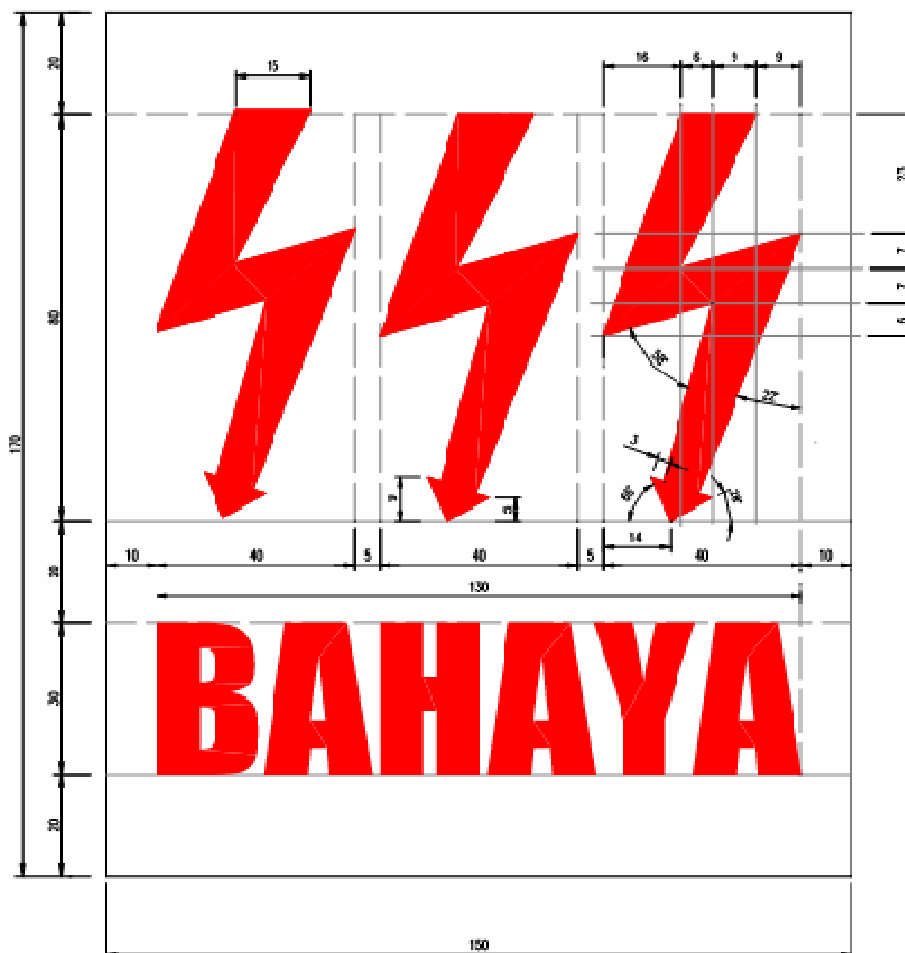
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Drawing 2 : Danger Plate

High Tension Overhead Line Pole
Danger Notice



- Orientate the danger notice towards road side or direction of approach
- Paints : Automotive Paint for White Background
Automotive Paint for Red Lettering
Paint directly on steel pole
- Use aluminium sheet SWG 22
for woodpole nailed with 25 mm steel nails at four corners.

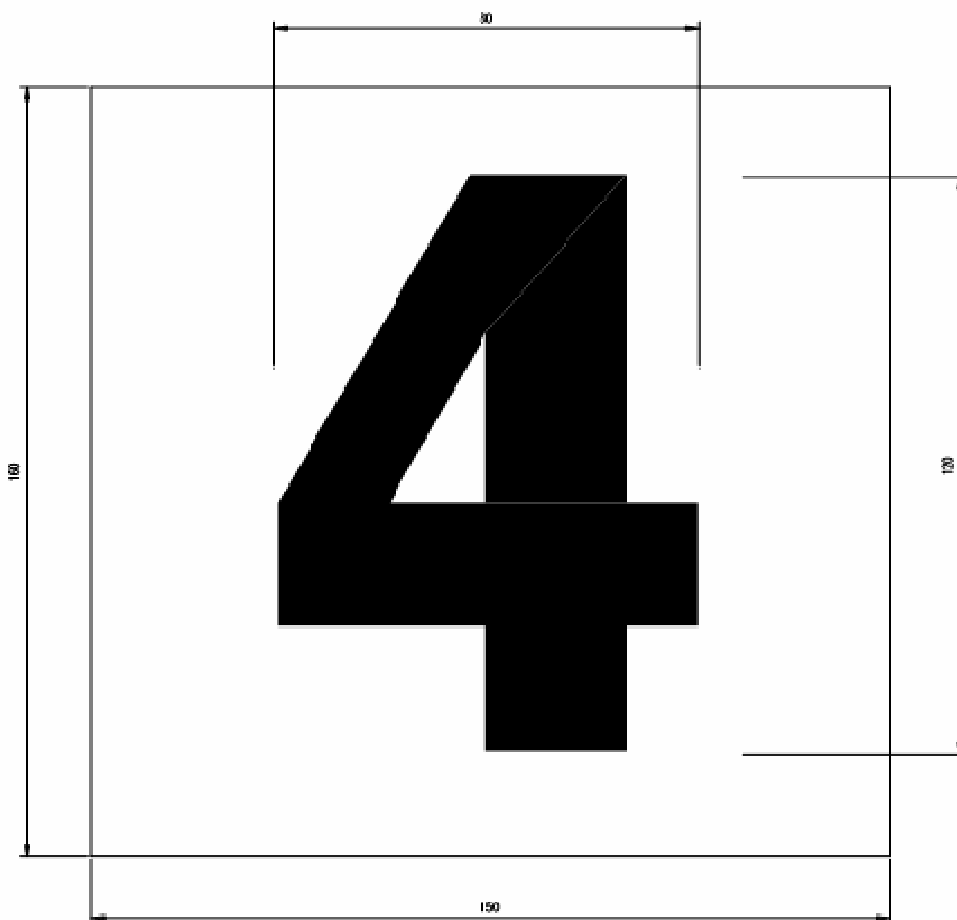
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Drawing 3 : Pole Numbering

High Tension Overhead Line Pole Numbering



- Orientate the pole number towards road side or direction of approach
- Paints : Automotive Paint for White Background
Automotive Paint for Black Lettering
Paint directly on steel pole
- Use aluminium sheet SWG 22
for woodpole nailed with 25 mm steel nails at four corners.

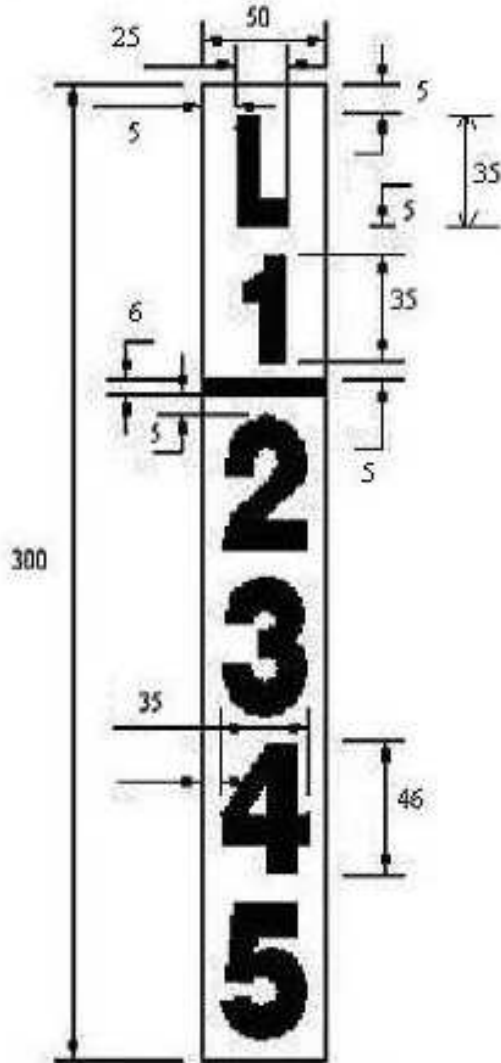
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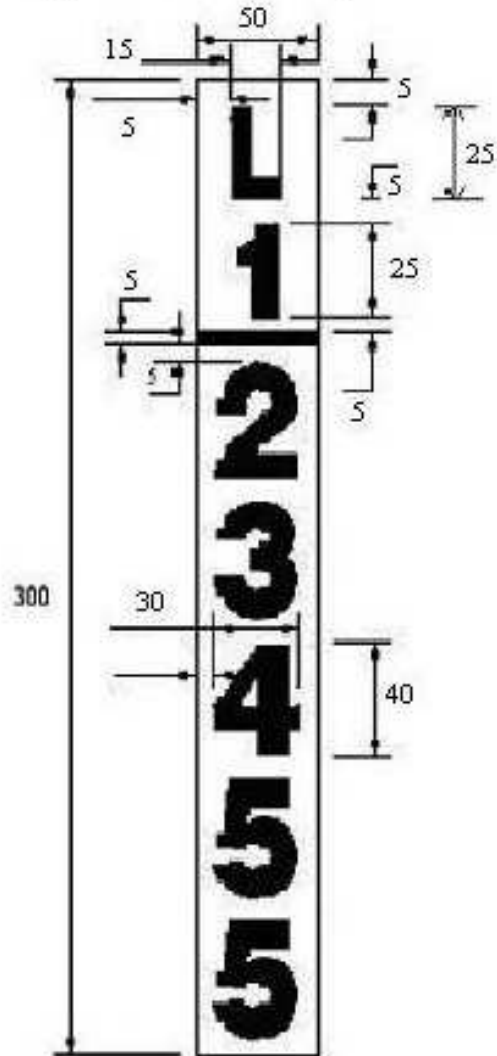
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Drawing 4 : Pole ID Plate Dimension (All Dimensions Shown Are in mm)

(i) For six letters plate



(ii) For seven letters plate



All dimensions in mm.

Remarks: Pole ID number is to be given by SESCO

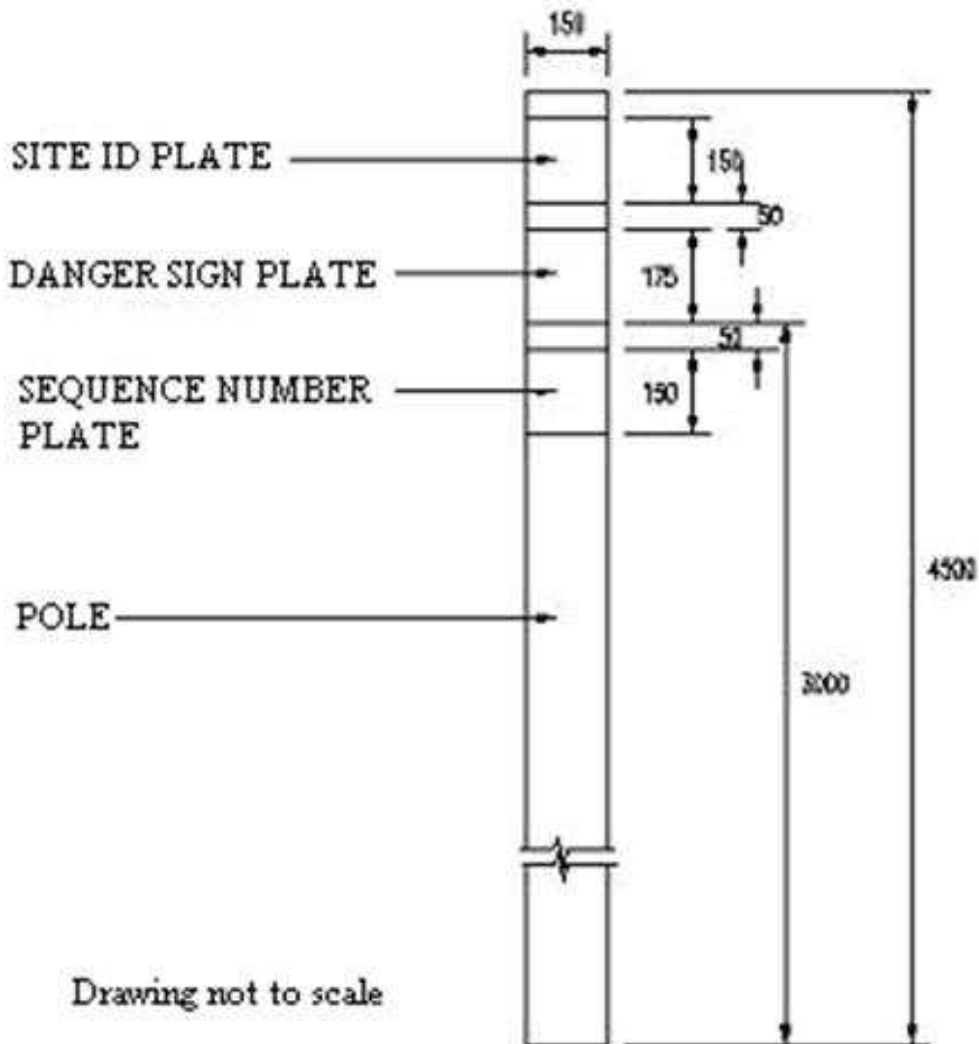
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Drawing 5 : Position Of Various Site Labelling

The positions of various site labelling (Site ID, danger sign, sequence number) on a pole. All dimensions shown are in mm.



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Drawing 6 : Anti-Theft Earthing Protection System

**Installation Details: Anti Theft Earthing Protection
(Pole Mounted Equipment Earthing Protection)**

