



Republika ng Pilipinas
Lungsod Quezon

BIDS AND AWARDS COMMITTEE FOR INFRASTRUCTURE & CONSULTANCY
2nd Floor, Finance Building, Procurement Department, Quezon City Hall Complex, Elliptical Road, Quezon City



March 9, 2022

Request for Quotation/ Proposal

No.	Project No.	Project Name	Location	Amount	Duration Cal. Days	Office	Source Fund
<u>Buildings – Small B</u>							
1	22-001SV	Proposed Rehabilitation of Fire Exit at Social Development Center at Barangay Payatas	Payatas	165,523.84	30	Engineering Department	Engineering Department
2	22-002SV	Proposed Rehabilitation of Reception Area at Betty Go Belmonte Super Health Center in Barangay Holy Spirit	Holy Spirit	341,124.74	30	Engineering Department	20% Community Development Fund
3	22-003SV	Proposed Rehabilitation of Novaliches District Hospital Covid Ward	San Bartolome	354,897.38	30	Engineering Department	Engineering Department - SB No. 1
4	22-004SV	Proposed Rehabilitation of Waterline System at Culiati High School	Culiati	586,890.41	60	Engineering Department	Special Education Fund
5	22-005SV	Proposed Temporary Enclosure for Crematory Machine at Baesa Crematorium	Baesa	594,910.45	30	Engineering Department	Engineering Department - SB No. 1
6	22-006SV	Proposed Rehabilitation of Reception Area at Health Centers in Barangay Libis and Barangay Bagumbuhay (District 3)	Libis and Bagumbuhay	632,587.24	30	Engineering Department	20% Community Development Fund
7	22-007SV	Proposed Rehabilitation of Reception Area at Health Centers in Barangay Alicia and Barangay Paltok (District 1)	Alicia and Paltok	809,220.13	30	Engineering Department	20% Community Development Fund
8	22-008SV	Proposed Rehabilitation of Day Care Center at Idang Street, Sitio Aguardiente	Sta. Monica	828,057.99	30	Engineering Department	Engineering Department - SB No. 1
9	22-009SV	Proposed Upgrading of Electrical System at Sauyo High School	Tandang Sora	846,268.11	90	Engineering Department	Special Education Fund
10	22-010SV	Proposed Rehabilitation of Reception Area at Health Centers in Barangay Apolonio Samson, Barangay Tandang Sora and Barangay Pasong Tamo (District 6)	Apolonio Samson, Tandang Sora and Pasong Tamo	851,009.93	30	Engineering Department	20% Community Development Fund



Republika ng Pilipinas

Lungsod Quezon

BIDS AND AWARDS COMMITTEE FOR INFRASTRUCTURE & CONSULTANCY

2nd Floor, Finance Building, Procurement Department, Quezon City Hall Complex, Elliptical Road, Quezon City



11	22-011SV	Proposed Rehabilitation of Electrical System at North Fairview Elementary School	North Fairview	856,353.23	60	Engineering Department	Special Education Fund
12	22-012SV	Proposed Upgrading of Service Entrance at NOH Sta. Lucia Senior High School	Sta. Lucia	908,850.15	60	Engineering Department	Special Education Fund
13	22-013SV	Proposed Construction of Terrace at Barangay Hall In Barangay Kalusugan	Kalusugan	914,528.02	60	Engineering Department	Engineering Department
14	22-014SV	Proposed Rehabilitation of Distribution Feeder at Lagro Elementary School	Greater Lagro	933,602.51	60	Engineering Department	Special Education Fund
15	22-015SV	Proposed Rehabilitation of Reception Area at Health Centers in Barangay Kamuning, Barangay Kaunlaran and Barangay San Vicente (District 4)	Kamuning, Kaunlaran and San Vicente	953,997.37	30	Engineering Department	20% Community Development Fund
<u>Roads – Small B</u>							
16	22-016SV	Proposed Rehabilitation (Surface Improvement) at Lourdes Street	Novaliches Proper	933,825.43	30	Engineering Department	20% Community Development Fund

The Quezon City Government through its Bids and Awards Committee – Infra and Consultancy undertake a Small Value Procurement in accordance with **Section 53.9 of the Revised Implementing Rules and Regulations of Republic Act No. 9184.**

Please quote your best offer for the project/s described above, subject to the Terms and Conditions provided. Submit your proposal/price quotation duly signed by you or your duly authorized representative not later than **15 March 2022** on or before **10:00 A.M.,** Philippine Standard Time, together with the following documents:

1. PhilGEPS Platinum Certificate (3 pages)
2. DTI or SEC Registration Certificate
3. Mayor's Permit
4. Tax Clearance
5. PCAB License (Bidders with valid Philippine Contractors Accreditation Board (PCAB)
6. Audited Financial Statements
7. Net Financial Contracting Capacity (NFCC)
8. List of Key Construction Personnel to be assign for the project
9. List of Major Equipment to be used for the Project
10. Duly Notarized Affidavit of Undertaking of Key Personnel and Equipment
11. Income/Business Tax Returns
12. Omnibus Sworn Statement prescribed by the Government Procurement Policy Board (GPPB) duly notarized with attached Secretary's Certificate (*If a partnership, corporation, cooperative, or joint venture*). The authorized representative as identified in the Omnibus Sworn Statement shall be the signatory in the proposal/price quotation form.



Republika ng Pilipinas Lungsod Quezon

BIDS AND AWARDS COMMITTEE FOR INFRASTRUCTURE & CONSULTANCY
2nd Floor, Finance Building, Procurement Department, Quezon City Hall Complex, Elliptical Road, Quezon City



Opening of Quotations/Proposals will be on **15 March 2022** at exactly **1:00 P.M.**

in a **SEALED LONG BROWN ENVELOPE** shall:

- 1 Contain the Name of Project of the contract to be quoted in capital letters;
- 2 Bear the name and address of the Contractor in capital letters;
- 3 Be addressed to the Procuring Entity's BAC.

Name of Project: **IN CAPITAL LETTERS**

**Quezon City Local Government
BIDS AND AWARDS COMMITTEE (INFRA & CONSULTANCY)
2/F Procurement Department, Finance Building
Quezon City Hall Compound**

TERMS AND CONDITIONS

1. Contractor shall **provide correct and accurate** information required in this form.
2. Price quotation/proposal must be valid for a period of thirty (30) calendar days from the date of submission.
3. Price quotation/proposal, to be denominated in Philippine Peso shall include all taxes, duties and/or levies payable.
4. Quotation/Proposal **exceeding** the Approved Budget for the Contract (ABC) shall be **rejected**.
5. Award of contract shall be made to the lowest quotation/proposal (for infra) which complies with the minimum technical specifications and other terms and conditions stated herein.
6. Any interlineations, erasures or overwriting shall be valid only if they are signed or initialed by the contractor or his/her duly authorized representative/s.
7. The Engineering Department shall have the right to inspect and monitor the construction projects
8. Non-submission of eligibility documents shall mean disqualification of Quotation/Proposal.
9. Liquidated damages equivalent to one tenth (1/10) of one percent (1%) of the cost of the unperformed portion for every day of delay, Engineering Department shall rescind the contract once the cumulative amount of liquidated damages reaches ten percent (10%) of the amount of the contract, without prejudice to other courses of action and remedies open to it.
10. Failure to follow these instructions will disqualify your entire quotation/proposal.

For any clarification you may contact us at 89884242 loc. 8505/8709.

ATTY. MARK DALE DIAMOND P. PERRAL
Chairman, BAC Infra and Consultancy



Republika ng Pilipinas
Lungsod ng Quezon
CITY ENGINEERING DEPARTMENT
5th, 6th, 7th Floors, QC Civic Center Building "B"
Telephone Nos. 8988-4242 Local 8538



PROJECT TITLE : **PROPOSED UPGRADING OF ELECTRICAL SYSTEM AT SAUYO HIGH SCHOOL**

LOCATION : **BARANGAY TANDANG SORA, DISTRICT 6, QUEZON CITY**


LIST OF MANPOWER

NO.	MANPOWER	QTY
1	Project Engineer	1
2	Materials Engineer	1
3	Safety Engineer	Refer to DOLE Requirements
4	Foreman	1
5	Skilled Worker	3
6	Driver	1
7	Laborer/Helper	4

Prepared by:


STEPHANIE D. OVIEDO
Planning & Programming Division

Checked by:


JOCELYN A. NAONG
Planning & Programming Division



Republika ng Pilipinas
Lungsod ng Quezon
CIVIL ENGINEERING DEPARTMENT
5th, 6th 7th Floor, QC Civic Center Building "B"
Telephone Nos. 8988-4242 Local 8538



PROJECT TITLE : PROPOSED UPGRADING OF ELECTRICAL SYSTEM AT SAUYO HIGH SCHOOL
LOCATION : BARANGAY TANDANG SORA, DISTRICT 6, QUEZON CITY

LIST OF EQUIPMENT

NO.	NAME OF EQUIPMENT	QTY
1	Elf truck	1
2	Scaffolding	As Needed
3	Power Tools	As Needed
4	Minor Tools	As Needed

Prepared by:


STEPHANIE D. OVIEDO
Planning & Programming Division

Checked by:


JOCELYN A. NAONG
Planning & Programming Division

PROJECT TITLE : PROPOSED UPGRADING OF ELECTRICAL SYSTEM AT SAUYO HIGH
LOCATION : BARANGAY TANDANG SORA, DISTRICT 6, QUEZON CITY
PROJECT NO. : 22 - 009SV
DURATION : Ninety (90) Calendar Days

BREAKDOWN OF COST

ITEM NO	WORK DESCRIPTION	MATERIALS COST	LABOR COST	INDIRECT COST	AGGREGATE COST
I	GENERAL REQUIREMENTS				
II	UPGRADING OF SERVICE ENTRANCE AT SAUYO HIGH SCHOOL MAIN				
III	UTILITY AND ANCILLARY WORKS				

TOTAL COST P

LUMP SUM BID IN WORDS : _____

Contractor : _____

BILL OF QUANTITIES
(Building Construction/Rehabilitation Project)

PROJECT TITLE : PROPOSED UPGRADING OF ELECTRICAL SYSTEM AT SAUYO HIGH SCHOOL

LOCATION : BARANGAY TANDANG SORA, DISTRICT 6, QUEZON CITY

PROJECT NO. : 22 - 009SV

DURATION : Ninety (90) Calendar Days

SCOPE OF WORKS:

1. General Requirements include temporary facilities and utilities, billboard, and construction health and safety, and clearing, hauling and disposal of construction materials and debris.
2. Upgrading of Service Entrance at Sauyo High School Main
 - 2.1. Site works include demolition, site clearing and preparation.
 - 2.2. Electrical works include installation of electrical roughing-ins, wirings, and electrical panel board and accessories
3. Utilities and ancillary works include construction of service entrance post and electrical concrete pit.
4. All necessary testing of materials and commissioning works must be performed as per standard procedure.

ITEM NO	WORK DESCRIPTION AND SCOPE OF WORKS	QTY	UNIT	UNIT COST	TOTAL COST
I	GENERAL REQUIREMENTS				
	Billboard	1	piece	₱	₱
	Clearing, Hauling and Disposal of Construction Materials and Debris	1	t.l.		
	Construction Health and Safety	1	unit		
	Temporary Electrical and Water Facilities	90	day		
	Temporary Enclosure Around the Construction Area (H=2.4m)	16	l.m.		
				Direct Cost I	₱
II	UPGRADING OF SERVICE ENTRANCE AT SAUYO HIGH SCHOOL MAIN				
A	Site Works				
	Demolition Works				
	Dismantling of existing Main Circuit Breaker	1	assy	₱	₱
	Site Clearing And Preparation	2	sq.m		
				Direct Cost A	₱
B	Electrical Works				
	Roughing-ins				
	32mmØ PVC Pipe	1	piece	₱	₱
	65mmØ IMC Pipe	4	piece		
	Fittings and Accessories				
	32mmØ PVC Locknut & Bushing	2	pair		
	65mmØ IMC Locknut & Bushing	2	pair		
	32mmØ PVC Adaptor	1	piece		
	65mmØ IMC Coupling	2	piece		
	65mmØ Weatherproof Entrance Cap	2	piece		
	20mm Ø x 3000mm Grounding Rod w/ Ground Clamp	3	set		

ITEM NO	WORK DESCRIPTION AND SCOPE OF WORKS	QTY	UNIT	UNIT COST	TOTAL COST
	80mm ² Ø Solderless Connector w/ Two-Bolt	10	pair		
	Secondary Rack w/ 2-Spool, Heavy Duty	10	assy		
	Secondary Rack w/ 3-Spool, Heavy Duty	11	assy		
	Wires and Cables				
	8.0mm ² THHN Wire	15	l.m.		
	14mm ² THHN Wire	110	l.m.		
	38mm ² THHN Wire	40	l.m.		
	80mm ² THHN Wire	36	l.m.		
	80mm ² THW Wire	230	l.m.		
	22mm ² TW Wire	6	l.m.		
	Panelboard				
	MCB				
	Main: 200AT, 250AF, 3P, 230V, MCCB	1	assy		
	Branches: 1 - 125AT, 3P, 230V				
	Enclosure: NEMA 3R with Ground Terminals				
	Pipe Hangers & Supports				
	Vertical Layout of Pipe	10	l.m.		
	Miscellaneous & Consumables				
	16mmØ Eyebolt	1	piece		
	16mmØ Nylon Rope	75	l.m.		
	All Around Sealant	1	can		

ITEM NO	WORK DESCRIPTION AND SCOPE OF WORKS	QTY	UNIT	UNIT COST	TOTAL COST
	Electrical Tape	10	piece		
	Epoxy Primer	1	lit		
	Masking Tape	3	piece		
	Paint Thinner	1	lit		
	Quick Dry Enamel Silver	1	sqm		
	Rubber Tape	3	piece		
				Material Cost B	₱
				Labor Cost B	
				Subtotal B	₱
				Materials Cost II	₱
				Labor Cost II	
				Direct Cost II	₱
III	UTILITY AND ANCILLARY WORKS				
	Service Entrance Post (0.80m x 0.80m x 6.00m)	1	unit		
	Electrical Earth Pit (0.50m x 0.50m)	1	unit		
				Direct Cost III	₱

SUMMARY

ITEM NO	WORK DESCRIPTION & SCOPE OF WORKS	TOTAL COST
I	GENERAL REQUIREMENTS	₱
II	UPGRADING OF SERVICE ENTRANCE AT SAUYO HIGH SCHOOL MAIN	
III	UTILITY AND ANCILLARY WORKS	
	TOTAL DIRECT COST	₱
Strictly enforce Health Protocols relative to the latest applicable DPWH Memorandum		Overhead, Contingencies and Miscellaneous Expenses (OCM)
		Profit
		VAT
	TOTAL ESTIMATED COST	₱



Republika ng Pilipinas
Lungsod ng Quezon
CITY ENGINEERING DEPARTMENT
5th , 6th, 7th Floor, QC Civic Center Building "B"
Telephone Nos. 8988-4242 Local 8538



PROJECT TITLE: PROPOSED UPGRADING OF ELECTRICAL SYSTEM AT SAUYO HIGH SCHOOL

LOCATION: BARANGAY TANDANG SORA, DISTRICT 6, QUEZON CITY

TECHNICAL SPECIFICATIONS

PART 1 – GENERAL

1.1 GENERAL REQUIREMENTS

These supplemental items consist of temporary lighting & water facilities, billboard, construction safety net and health. Personnel Protective Equipment (PPE) should be used by the construction personnel or manpower at all times.

1.2 SITE WORKS

This item consists of disposal of material that has been and replaced.

1.3 REFERENCE

The publications listed below form a part of his specification to the extent referenced. the publications are referred to in the text by the basic designation only.

1.3.1 American Society for Testing and Materials (ASTM)

ASTM A123/A123M	(2000) Zinc (Hot-dip Galvanized) Coatings On Iron and Steel Products
ASTM B1	(1995) Hard – Drawn Copper Wire
ASTM BB	(1999) Concentric-Lay-Stranded Copper Conductor, Hard, Medium – Hard or Soft

1.3.2 National Electrical Manufacturers Association (NEMA)

NEMA C80.3	(1994) Electrical Metallic Tubing – zinc Coated (EMT)
NEMA c57.12.28	(1999) Pad mounted equipment-Enclosure Integrity
NEMA TC 2	(1998) Electrical Polyvinyl Chloride (PVC) Tubing (EPT) and Conduit (EPC- 40)
NEMA TC3	(1999) PVC Fittings for Use with Rigid PVC Conduit ant Tubing
NEMA WD 1	(1999) General requirements for Wiring Devices

1.3.3 National Fire Protection Association (NFPA)

NFPA 70	(2002) National Electrical Code
---------	---------------------------------

1.3.4 Underwriters Laboratories Inc. (UL)

UL 1242	(1996; Mar 1998) Intermediate Metal Conduit
UL 467	(1993; Rev Apr 1999) Grounding & Bonding Equipment
UL 486A	(1997; Rev Dec 1998) Wire Connection & Soldering Legs for Use with Copper Conductors
UL 486C	(1997; Rev Aug 1998) Splicing Wire Connectors
UL 489	(1996; Rev thru Dec 1998) Molded-Case Circuit Breakers
UL 50	(1995; R 1999, Bul. 1999) Safety Enclosures for Electrical Equipment
UL510	(1994; R Apr 1998) Poly Vinyl Chloride Polyethylene & Rubber Insulating Tape
UL 514A	(1996; Rev Dec 1999) Metallic Outlet Boxes
UL 797	(1993; R1997) Electrical Metallic Tubing
UL 83	(1998; R 1999, Bul. 1999 & 2000) Thermoplastic-Insulated Wires & Cables
UL 869A	(1998) Service Equipment

1.3.5 Institute of Integrated Electrical Engineer (IIEE)

PEC	(2017) Philippine Electrical Code
-----	-----------------------------------

1.3.6 Philippine National Standard (PNS)

BS	(2002) Bureau of Standard
----	---------------------------

1.4 SUBMITTALS

Submit the following:

1.4.1 Shop Drawings
Panelboards**1.4.2 Product Data**

Receptacles
Circuit breakers
Switches
Enclosed Circuit breakers

1.4.3 Test Reports

Insulation Resistance & Continuity test
Grounding system test
Functionality Test

1.5 MAINTENANCE

1.5.1 Electrical Systems

Submit operation and maintenance manuals for electrical systems that provide basic data relating to the design, operation, and maintenance of the electrical distribution system for the building.

This shall include:

- a. Single line diagram of the "as-built" building electrical system.
- b. Manufacturers' operating and maintenance manuals on active electrical equipment.

PART 2 – PRODUCTS

2.1 MATERIALS AND EQUIPMENT

Materials, equipment, and devices shall, as a minimum, meet requirements of UL, where UL standards are established for those items, and requirements of NFPA 70 and PEC.

2.2 CONDUIT AND FITTINGS

Shall conform to the following:

2.2.1 Rigid Nonmetallic Conduit

PVC Type EPC-40, in accordance with NEMA TC 2 and UL 651.

2.2.2 Intermediate Metal Conduit (IMC)

UL 1242, zinc-coated steel only.

2.2.3 Fittings for IMC threaded-type, Split couplings unacceptable.

2.2.4 Fittings for Rigid Nonmetallic Conduit

NEMA TC 3.

2.3 WIRE AND CABLES

Wires and cables shall meet applicable requirements of NFPA 70, PEC and PNS and UL for type of insulation, jacket, and conductor specified or indicated. Wires and cables manufactured more than 12 months prior to date of delivery shall not be used.

2.3.1 Conductors, shall be stranded unless specifically indicated otherwise. Conductor sizes and ampacities shown are based on copper, unless indicated otherwise. All conductors shall be copper.

2.3.1.1 Equipment Manufacturer Requirements

When manufacturer's equipment requires copper conductors at the terminations or requires copper conductors to be provided between components, of equipment, provide copper conductors or splices, splice boxes, and other work required to satisfy manufacturer's requirements.

2.3.2 Color Coding

Provide for service, feeder, branch, control, and signalling circuit conductors. Color shall be green for grounding conductors Color of ungrounded conductors in different voltage systems shall be as follows;

- a. 230 volt, three phase: black, red and yellow

2.3.3 Insulation

Unless specified or indicated otherwise or required by NFPA 70, PEC and PNS, power and lighting wires shall be 600-volt. Type THW or THHN conforming to UL 83 except that grounding wire may be type TW conforming to UL 83, Where lighting fixtures require 90-degree Centigrade (C) conductors, provide only conductors with 90-degree C insulation or better.

2.3.4 Bonding Conductors

ASTM B1, Solid bare copper wire for sizes 8mm² and smaller diameter, ASTM B8, Class B, stranded bare copper wire for sizes 14mm² and larger diameter.

2.4 SPLICES AND TERMINATION COMPONENTS

UL 486A for wire connectors and UL 510 for Insulating tapes, Connectors for 5.5 mm² and smaller diameter wires shall be insulated, pressure-type in accordance with UL 486A or UL 486C (twist-on splicing connector). Provide solderless terminal lugs on stranded conductors.

2.5 PANELBOARDS

UL 67 and UL 50 having a short-circuit current rating of 10,000 amperes symmetrical minimum, Panelboards for use as service disconnecting means shall additionally conform to UL 869A, Panelboards shall be circuit breaker-equipped. Design shall be such that individual breakers can be removed without disturbing adjacent units or without loosening or removing supplemental insulation supplied as means of obtaining clearances as required by UL "Specific breaker placement" is required in panelboards to match the breaker placement indicated in the panelboard schedule on the drawings, Use of *Subfeed Breakers* is not acceptable unless specifically indicated otherwise, Main breaker shall be *Separated* mounted *above* branch breakers, Circuit breakers shall be bolt-on type, Where *space only* is indicated, make provisions for future installation of breakers. Panelboard locks shall be keyed same. Directories shall indicate load served by each circuit in panelboard, Directories shall also indicate source of service to panelboard (e.g. Panel PA served from Panel MDP), Type directories and mount in holder behind transparent protective covering. Panelboards shall be listed and labelled for their

intended use, Enclosure shall be galvanized steel gauge 14. Paint coating system shall comply with NEMA C57.12.28 for galvanized steel.

2.5.1 Panelboard Buses

Support copper bus bars on bases independent of circuit breakers. Main buses and back pans shall be designed so that breakers may be changed without machining, drilling, or tapping. Provide separate ground bus identified as equipment grounding bus per UL 67 for connecting conducting bus per UL 67 form connecting grounding conductors, bond steel cabinet.

2.5.2 Circuit Breakers

UL 489, thermal magnetic-type having a minimum short-circuit current rating equal to the short-circuit current rating of the panelboard in which the circuit breaker shall be mounted. Breaker terminals shall be UL listed as suitable for type of conductor provided. Series rated circuit breakers and plug-in circuit breakers without a self-contained bracket and not secured by a positive locking device requiring mechanical release for removal are unacceptable. Series rated circuit breakers and plug-in circuit breakers are unacceptable.

2.5.2.1 Multipole Breakers

Provide common trip-type with single operating handle. Breaker design shall be such that overload in one pole automatically causes all poles to open. Maintain phase sequence throughout each panel so that three adjacent breaker poles are connected to Phases A, B, and C, respectively.

2.6 GROUNDING AND BONDING EQUIPMENT

UL 467, Ground rods shall be copper-clad steel, with minimum diameter of 20 mm and minimum length of 3050 mm.

PART 3 – EXECUTION

3.1 INSTALLATION

Electrical installations shall conform to requirements of NFPA 70 and PEC and to requirements specified herein.

3.1.1 Wiring Methods

Provide insulated conductors installed in IMC, and rigid non-metallic conduit except where specifically indicated or specified otherwise or required by NFPA 70 and PEC to be installed. Otherwise, Provide insulated green equipment grounding conductor for circuit(S) installed in conduit and raceways. Minimum conduit size shall be 15mm nominal inside diameter for low voltage lighting and power circuits.

3.1.1.2 Nonmetallic Conduit

a. Restrictions applicable to PVC Schedule 40

- (1) Do not use in areas where subject to severe physical damage
- (2) Do not use above grade

3.1.1.3 Service Entrance Conduit, Underground

PVC, type-EPC 40, underground portion shall be encased in minimum of 75 mm of concrete and shall be installed minimum 460 mm below slab or grade.

3.1.2 Conduit Installation

Unless indicated otherwise, conceal conduit under floor slabs and within finished walls ceilings, and floors, install conduit parallel with or at right angles to ceilings, walls, and structural members where located above accessible ceilings and where conduit will be visible after completion of project.

3.1.2.1 Conduit through Floor Slabs

Where conduits rise through floor slabs. Curved portion of bends shall not be visible above finished slab.

3.1.2.2 Conduit Support

Support conduit by pipe straps, wall brackets, hangers, or ceiling trapeze. Fasten by concrete inserts or expansion bolts on concrete and by machine screws, welded threaded studs, or spring-tension clamps on steel work. Threaded C-Clamps may be used on IMC conduit only. Do not weld conduits of pipe straps to steel structures, Load applied to fasteners shall not exceed one-fourth proof test load. Fasteners attached to concrete ceiling shall be vibration resistant and shock-resistant. Holes cut to depth of more than 40 mm in reinforced concrete beams or to depth of more than 20 mm in concrete joints shall not cut main reinforcing bars. Fill unused holes. In partitions of light steel construction, use sheet metal screws. In suspended-ceiling construction, run conduit above ceiling. Do not support conduit by ceiling support system. Conduit and box systems shall be supported independently of both (a) tie wires supporting ceiling grid system, and (b) ceiling grid system into which ceiling panels are placed. Supporting means shall not be shared between electrical raceways and mechanical piping or ducts. Installation shall be coordinated with above-ceiling mechanical systems to assure maximum accessibility to all systems. Spring-steel fasteners may be used for lighting branch circuit conduit supports in suspended ceilings in dry locations.

3.1.2.3 Directional Changes in Conduit Runs

Make Changes in direction of runs with symmetrical bends or cast-metal fittings. Make field-made bends and offsets with hickey or conduit-bending machine. Do not install

crushed or deformed conduits. Avoid trapped conduits. Prevent plaster, dirt, or trash from lodging in conduits, boxes, fittings, and equipment during construction. Free clogged conduits of obstructions.

3.1.2.4 Pull Wire

Install pull wires in empty conduits, Pull wire shall be plastic having minimum 890-N tensile strength. Leave minimum 915 mm of slack at each end of pull wire.

3.1.2.5 Conduit Installed in Concrete Floor Slabs

Locate so as not to adversely affect structural strength of slabs. Install conduit within middle one-third of concrete slab. Do not stack conduits. Space conduits horizontally not closer than three diameters, except at cabinet locations. Curved portions of bends shall not be visible above finish slab. Increase slab thickness as necessary to provide minimum 25 mm cover over conduit. Where embedded conduits cross building and/or expansion joints, provide suitable watertight expansion/deflection fittings and bonding jumpers. Expansion/deflection fittings shall allow horizontal and vertical movements of raceway. Conduit larger than 22 mm trade size shall be parallel with or at right angles to main reinforcement, when at right angles to reinforcement, conduit shall be close to one of supports of slab.

3.1.2.6 Locknuts and Bushings

Fasten conduits to sheet metal boxes and cabinets with two locknuts where required by NFPA 70 and PEC where insulated bushings are used, and where bushings cannot be brought into firm contact with the box; otherwise, use at least minimum single locknut and bushing. Locknuts shall have sharp edges for digging into wall of metal enclosures. Install bushing on ends of conduits, and provide insulating type where required by NFPA 70 and PEC.

3.1.3 Boxes, Outlets, and Supports

Provide boxes in wiring and raceway systems wherever required for pulling of wires, making connections, and mounting of devices or fixtures. Boxes for metallic raceways shall be cast-metal, except that nonmetallic boxes may be used with nonmetallic conduit system. Each box shall have volume required by NFPA 70 and PEC for number of conductors enclosed in box. Boxes for mounting lighting fixtures shall be minimum 100 mm square, or octagonal, except that smaller boxes may be installed as required by fixture configurations, as approved. Provide separate boxes for flush or recessed fixtures when required by fixture terminal operating temperature; fixtures shall be readily removable for access to boxes unless ceiling access panels are provided. Support boxes and pendants for surface-mounted fixtures on suspended ceilings independently of ceiling supports, or make adequate provisions for distributing load over ceiling support members in an approved manner. Fasten boxes and supports with wood screws on wood. With bolts and expansion shields on concrete, with toggle bolts on hollow masonry units, and with machine screws or welded studs on steel.

3.1.4 Conductor Identification

Provide conductor identification within each enclosure where tap, splice, or termination is made. For conductor's 14mm² and smaller diameter, color coding shall be by factory applied, color-impregnated insulation. For conductors 22mm² and larger diameter, color coding shall be by plastic-coated, self-sticking markers, colored nylon cable ties and plates; or heat shrink-type sleeves.

3.1.5 Splices

Make splices in accessible locations, make splices in conductors 5.5mm² and smaller diameter with insulated, pressure-type connector, Make splices in conductors 22mm² and larger diameter with solderless connector, and cover with insulation material equipment to conductor insulation.

Seal openings around electrical penetrations through fire resistance-rated walls, partitions, floor, or ceilings.

3.1.6 Grounding and Bonding

In accordance with NFPA 70 and PEC. Ground exposed non-current-carrying metallic parts of electrical equipment, metallic raceway systems, grounding conductor in metallic and nonmetallic raceways, telephone system grounds. Make ground connection to driven ground rods on exterior of building. Interconnect all grounding media in or on the structure to provide a common ground potential.

3.1.6.1 Resistance

Maximum resistance-to-ground of grounding system shall not exceed 5 ohms, contact Engineer for further instructions.

3.1.6.2 Equipment Connections

Provide power wiring for the connection of motors and control equipment under this section of the specification. Except as otherwise specifically noted or specified, automatic control wiring, control devices, and protective devices within the control circuitry are not included in the section of the specifications but shall be provided under the section specifying the associated equipment.

3.2 FIELD QUALITY CONTROL

Furnish test equipment and personnel and submit written copies of test result. Give the engineer five (5) working days' notice prior to each test.

3.2.1 Insulation Resistance and Continuity Test

Upon completion of wiring installations, test wiring rated 600 volt and less to verify that no short circuits or accidental grounds exist. Perform insulation resistance test on wiring 14 mm² and larger diameter using insulation resistance test instrument which applies voltage of approximately 500 volts on provide direct reading of resistance, Minimum resistance shall be 250,000 ohms. This shall be well documented as test forms supervised by a licensed electrical practitioner with valid Professional Regulation Commission ID. Attached in this test form is a certificate of calibration.

3.2.2 Grounding Resistance Test

Upon completion of main service entrance, test grounding system to ensure continuity, and that resistance to ground is not excessive. Test each ground rod for resistance to ground before making connections to rod; tie grounding system together and test for resistance to ground. Make resistance measurements in dry weather, not earlier than 48 hours after rainfall. Submit written results of each test to Engineer, and indicate location of rods as well as resistance and soil conditions at time measurements were made. Minimum resistance shall be 5 ohms. This shall be well documented as test forms supervised by a licensed electrical practitioner with valid Professional Regulation Commission ID. Attached in this test form is a certificate of calibration.

3.2.3 Functionality Test

This shall be performed after completion of installation of wiring devices and lighting fixture/s. Wiring devices shall provide appropriate voltage for its respective equipment or appliance as detailed in the schedule of loads. All Lighting Fixtures shall provide appropriate color temperature and illumination as required. The switch/es nomenclature shall be able to control the fixture/s as referred by the 'as-built' plan. This shall be well documented as test forms supervised by a licensed electrical practitioner with valid Professional Regulation Commission ID. Attached in this test form is a certificate of calibration.

4.0 CONCRETE WORKS

Concrete works must be done using 2 bagger mixer with 3000psi or 4000psi with grade 40 or grade 60 reinforcing bars as specified in the plan and program of works.

PREPARED BY:

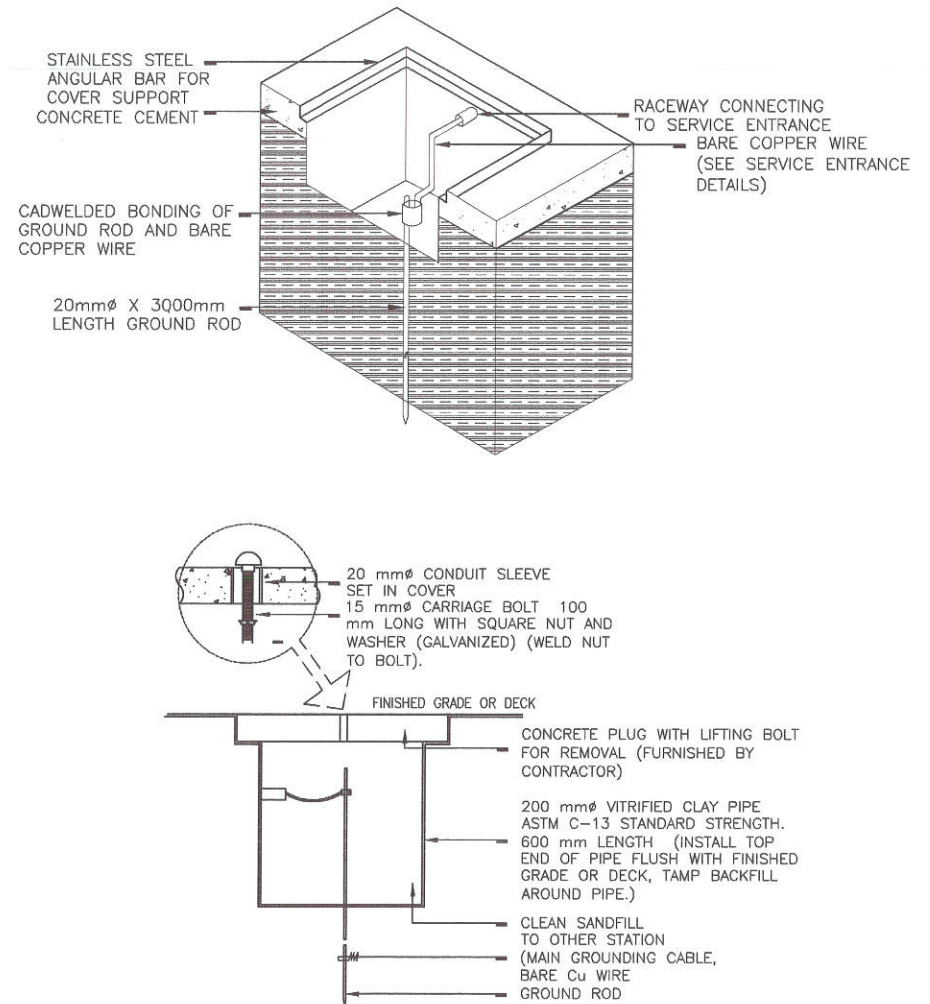

STEPHANIE D. OVIEDO
Planning and Programming Division

CHECKED BY:


JOCELYN A. NAONG
Planning and Programming Division

- ALL ELECTRICAL WORKS SHALL BE DONE IN ACCORDANCE WITH THE PROVISIONS OF THE LATEST EDITION OF THE PHILIPPINE ELECTRICAL CODE, THE LAWS AND ORDINANCES OF THE LOCAL CODE ENFORCING AUTHORITIES AND THE REQUIREMENTS OF THE LOCAL POWER AND TELEPHONE UTILITY COMPANY.
- ALL EMBEDDED BRANCH CIRCUITS SHALL BE PVC CONDUITS AND FOR EXPOSED INSTALLATION SHALL BE IMC SUPPORTED BY CONDUIT CLAMPS EVERY 700 MILLIMETERS
- PULL BOXES SHALL BE PROVIDED BY THE CONTRACTOR WHENEVER NECESSARY TO FACILITATE WIRE PULLING EVEN IF THESE ARE NOT INDICATED ON THE PLANS. SIZING OF ALL PULLBOXES SHALL BE COMPUTED BASED ON THE CODE REQUIREMENTS. SUBMIT SHOP DRAWINGS TO THE ENGINEER FOR APPROVAL PRIOR TO FABRICATION. LOCATION OF PULLBOXES SHALL BE APPROVED BY THE ARCHITECT/ENGINEER AND MUST BE REFLECTED ON THE "AS-BUILT" PLAN.
- ALL METALLIC CONDUITS, CABINETS AND EQUIPMENT SHALL BE PROPERLY GROUNDED AND BONDED.
- ALL MATERIALS TO BE USED SHALL BE OF THE BEST QUALITY, BRAND NEW AS SPECIFIED.
- THE DRAWINGS AND SPECIFICATIONS ARE INTENDED TO PRESENT GENERAL LAYOUT AND BROAD OUTLINE/DESCRIPTION OF THE PROJECT BUT DO NOT NECESSARILY INDICATE/DESCRIBED ACTUAL LOCATIONS, LEVEL AND DISTANCES OF THE EQUIPMENT. THE CONTRACTOR IS HEREBY REQUIRED TO MAKE SUCH ADJUSTMENT AT THE JOBSITE AS LOCATION, DISTANCES AND LEVELS ARE GOVERNED BY ACTUAL FIELD CONDITIONS.
- ANY DISCREPANCY BETWEEN THE PLANS AND SPECIFICATIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER FOR CLARIFICATION DECISION.
- ALL LIGHTING AND CONVENIENCE OUTLET CIRCUITS SHALL BE 3.5 SQ. MM. THWN-2 COPPER WIRE UNLESS OTHERWISE NOTED. MINIMUM SIZE OF WIRE SHALL BE 3.5 SQ. MM. COPPER WIRE. ALL WIRES AND CABLES SHALL BE COLOR CODED AS FOLLOWS:
 PHASE A - RED
 PHASE B - YELLOW
 PHASE C - BLUE
 GROUND - WHITE
- BOXES, WIRE, GUTTERS, ENCLOSURE SHALL BE FABRICATED FROM STEEL WITH THICKNESS AS FOLLOWS:

MAXIMUM WIDTH OF THE WIDEST SURFACE STEEL	GA
UP TO INCLUDING 152.40 MM	GA 16 PAINTED WITH METAL PRIMER EPOXY AND TOPCOAT
OVER 152.40 MM BUT NOT OVER 457.30	GA 14 PAINTED WITH METAL PRIMER EPOXY AND TOPCOAT
OVER 457.30 MM BUT NOT OVER 762 MM	GA 12 PAINTED WITH METAL PRIMER EPOXY AND TOPCOAT
OVER 762 MM	GA 10 PAINTED WITH METAL PRIMER EPOXY AND TOPCOAT
- ALL ELECTRICAL WORKS HEREIN SHALL BE EXECUTED BY EXPERIENCED ELECTRICIAN UNDER THE DIRECT SUPERVISION OF A REGISTERED ELECTRICAL PRACTITIONER. WORKS SHALL BE NEATLY PLACED, SECURELY FASTENED AND PROPERLY FINISHED.
- TYPE OF SERVICE ENTRANCE SHALL BE THREE-PHASE, THREE-WIRE PLUS GROUND, 60 HERTZ, 230V AC NOMINAL.
- CONDUITS IN NO CASE SHALL THERE BE MORE THAN THE EQUIVALENT OF FOUR QUARTER BENDS IN ANY ONE RUN. ALL CONDUIT BENDS SHALL BE FIELD MADE BY USING HYDRAULIC BENDERS. MINIMUM BENDING RADIUS MUST BE IN ACCORDANCE TO THE CODE REQUIREMENTS.
- UPON COMPLETION OF ELECTRICAL CONSTRUCTION WORK, INSULATION RESISTANCE TEST AND FUNCTIONALITY TEST SHALL BE PERFORMED BY THE CONTRACTOR INCLUSIVE OF THE INSTALLATION TO BE REPORTED IN DETAILS ON FORMS APPROVED BY THE QUEZON CITY ENGINEERING DEPARTMENT REPRESENTATIVE. THE GROUND RESISTANCE FOR ELECTRICAL SYSTEMS SHALL NOT BE MORE THAN 5 OHMS. COMMUNICATION GROUNDING RESISTANCE SHALL NOT EXCEED 2 OHMS.



1 GENERAL NOTES

NOT TO SCALE

2 GROUND ROD TEST STATION DETAIL

NOT TO SCALE



Republika ng Pilipinas
Lungsod ng Quezon
CITY ENGINEERING DEPARTMENT

PROJECT TITLE :

**PROPOSED UPGRADING OF ELECTRICAL
SYSTEM AT SAUYO HIGH SCHOOL**

PROJECT LOCATION :

BARANGAY TANDANG SORA, DISTRICT 6, QUEZON CITY

DRAWN BY:

DATE:

CHECKED BY:

REVISION NO.:

SUBMITTED BY:

ENGR. LEO S. DEL ROSARIO
HEAD, PLANNING & PROGRAMMING DIVISION

RECOMMENDING APPROVAL:

ENGR. ISABANI R. VERZOSA, JR.
OIC, CITY ENGINEERING DEPARTMENT

APPROVED BY:

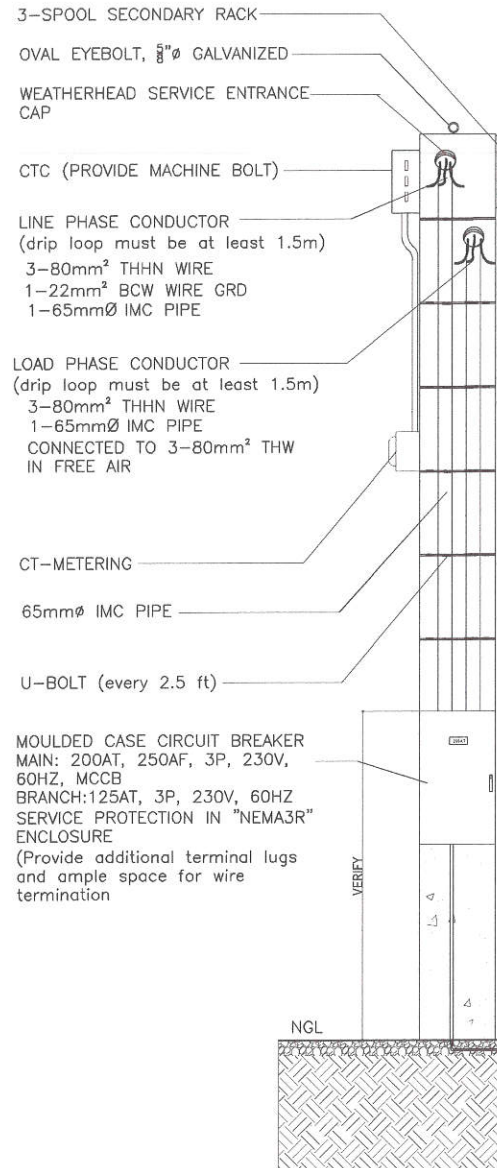
HON. MA. JOSEFINA G. BELMONTE
CITY MAYOR, QUEZON CITY

SHEET CONTENT

GENERAL NOTES
GROUND ROD TEST
STATION DETAIL

SHEET NO.

**EL-02
02/06**



SAUYO HIGH SCHOOL (MAIN)

BAGONG LIPUNAN BUILDING (EXISTING) LPP-LIGHTING POWER PANEL

CKT. NO.	LOAD DESCRIPTION	VOLTS	VA	AMP.	AT	SIZE OF	
						WIRES	CONDUITS
1	12-LIGHTING OUTLETS 4-CEILING FAN/ORBIT FAN	230	1,800	7.83	30	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ^ø PVC PIPE
2	12-LIGHTING OUTLETS 4-CEILING FAN/ORBIT FAN	230	1,800	7.83	30	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ^ø PVC PIPE
3	12-LIGHTING OUTLETS 4-CEILING FAN/ORBIT FAN	230	1,800	7.83	30	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ^ø PVC PIPE
4	12-LIGHTING OUTLETS 4-CEILING FAN/ORBIT FAN	230	1,800	7.83	30	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ^ø PVC PIPE
5	12-LIGHTING OUTLETS 4-CEILING FAN/ORBIT FAN	230	1,800	7.83	30	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ^ø PVC PIPE
6	10-LIGHTING OUTLETS	230	1,000	4.35	30	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ^ø PVC PIPE
7	10-LIGHTING OUTLETS	230	1,000	4.35	30	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ^ø PVC PIPE
8	8-CONVENIENCE OUTLETS	230	1,440	6.26	30	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ^ø PVC PIPE
9	8-CONVENIENCE OUTLETS	230	1,440	6.26	30	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ^ø PVC PIPE
10	8-CONVENIENCE OUTLETS	230	1,440	6.26	30	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ^ø PVC PIPE
11	8-CONVENIENCE OUTLETS	230	1,440	6.26	30	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ^ø PVC PIPE
12	8-CONVENIENCE OUTLETS	230	1,440	6.26	30	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ^ø PVC PIPE
TOTAL			18,200	79.15			
COMPUTATION:						OVER CURRENT PROTECTION	
IT = $\frac{18,200 \text{ VA}}{230 \text{ V}}$						USE: 125AT, 250AF, 3P, 230V, MCCB IN NEMA 1	
IT = 79.13 AMP.						MAIN FEEDER:	
						USE: 2 - 38mm ² THHN & 1-14mm ² TW GROUND WIRE IN 40mm ^ø (1 1/4") PVC PIPE	

NCR BUILDING (EXISTING) LPP-LIGHTING POWER PANEL

CKT. NO.	LOAD DESCRIPTION	VOLTS	VA	AMP.	AT	SIZE OF	
						WIRES	CONDUITS
1	12-LIGHTING OUTLETS 4-CEILING FAN/ORBIT FAN	230	1,800	7.83	30	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ^ø PVC PIPE
2	12-LIGHTING OUTLETS 4-CEILING FAN/ORBIT FAN	230	1,800	7.83	30	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ^ø PVC PIPE
3	12-LIGHTING OUTLETS 4-CEILING FAN/ORBIT FAN	230	1,800	7.83	30	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ^ø PVC PIPE
4	12-LIGHTING OUTLETS 4-CEILING FAN/ORBIT FAN	230	1,800	7.83	30	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ^ø PVC PIPE
5	12-LIGHTING OUTLETS 4-CEILING FAN/ORBIT FAN	230	1,800	7.83	30	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ^ø PVC PIPE
6	10-LIGHTING OUTLETS	230	1,000	4.35	30	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ^ø PVC PIPE
7	10-LIGHTING OUTLETS	230	1,000	4.35	30	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ^ø PVC PIPE
8	8-CONVENIENCE OUTLETS	230	1,440	6.26	30	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ^ø PVC PIPE
9	8-CONVENIENCE OUTLETS	230	1,440	6.26	30	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ^ø PVC PIPE
10	8-CONVENIENCE OUTLETS	230	1,440	6.26	30	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ^ø PVC PIPE
11	8-CONVENIENCE OUTLETS	230	1,440	6.26	30	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ^ø PVC PIPE
12	8-CONVENIENCE OUTLETS	230	1,440	6.26	30	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ^ø PVC PIPE
TOTAL			18,200	79.15			
COMPUTATION:						OVER CURRENT PROTECTION	
IT = $\frac{18,200 \text{ VA}}{230 \text{ V}}$						USE: 125AT, 250AF, 3P, 230V, MCCB IN NEMA 1	
IT = 79.13 AMP.						MAIN FEEDER:	
						USE: 2 - 38mm ² THHN & 1-14mm ² TW GROUND WIRE IN 40mm ^ø (1 1/4") PVC PIPE	

1 SERVICE ENTRANCE POST DETAILS (SAUYO HS MAIN)

NOT TO SCALE

2 SCHEDULE OF LOADS

NOT TO SCALE



Republika ng Pilipinas
Lungsod ng Quezon
CITY ENGINEERING DEPARTMENT

PROJECT TITLE:

**PROPOSED UPGRADING OF ELECTRICAL
SYSTEM AT SAUYO HIGH SCHOOL**

PROJECT LOCATION:

BARANGAY TANDANG SORA, DISTRICT 6, QUEZON CITY

DRAWN BY:

DATE:

CHECKED BY:

REVISION NO.:

SUBMITTED BY:

ENGR. LEO S. DEL ROSARIO
HEAD, PLANNING & PROGRAMMING DIVISION

RECOMMENDING APPROVAL:

ENGR. ISAGANI R. VERZOSA, JR.
CHIEF, CITY ENGINEERING DEPARTMENT

APPROVED BY:

HON. MA. JOSEFINA G. BELMONTE
CITY MAYOR, QUEZON CITY

SHEET CONTENT

SERVICE ENTRANCE
POST DETAILS
(SAUYO HS MAIN)
SCHEDULE OF LOADS

SHEET NO.

EL-03
0306

SAUYO HIGH SCHOOL (MAIN)

PREFAB (DPWH) BUILDING (EXISTING)

LPP-LIGHTING POWER PANEL

CKT. NO.	LOAD DESCRIPTION	VOLTS	VA	AMP.	AT	SIZE OF	
						WIRES	CONDUITS
1	8-LIGHTING OUTLETS	230	800	3.48	20	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ^ø PVC PIPE
2	8-LIGHTING OUTLETS	230	800	3.48	20	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ^ø PVC PIPE
3	8-LIGHTING OUTLETS	230	800	3.48	20	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ^ø PVC PIPE
4	8-LIGHTING OUTLETS	230	800	3.48	20	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ^ø PVC PIPE
5	4-CONVENIENCE OUTLETS	230	720	3.13	20	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ^ø PVC PIPE
6	4-CONVENIENCE OUTLETS	230	720	3.13	20	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ^ø PVC PIPE
7	4-CONVENIENCE OUTLETS	230	720	3.13	20	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ^ø PVC PIPE
8	4-CONVENIENCE OUTLETS	230	720	3.13	20	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ^ø PVC PIPE
9	8-CEILING FAN/ORBIT FAN	230	1200	5.22	20	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ^ø PVC PIPE
10	8-CEILING FAN/ORBIT FAN	230	1200	5.22	20	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ^ø PVC PIPE
TOTAL			8480	36.88			
COMPUTATION:						OVER CURRENT PROTECTION	
IT = $\frac{8480 \text{ VA}}{230 \text{ V}}$						USE : 60AT, 100AF, 2P, 230V, MCCB IN NEMA 1	
IT = 36.87 AMP.						MAIN FEEDER:	
						USE : 2 - 14mm ² THHN & 1-8.0mm ² TW GROUND WIRE IN 32mm ^ø (1"0) PVC PIPE	

ALUMNI ROOM (COMPUTER ROOM) (EXISTING)

LPP-LIGHTING POWER PANEL

CKT. NO.	LOAD DESCRIPTION	VOLTS	VA	AMP.	AT	SIZE OF	
						WIRES	CONDUITS
1	10-LIGHTING OUTLETS	230	1000	4.35	20	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ^ø PVC PIPE
2	5-CONVENIENCE OUTLETS	230	900	3.91	20	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ^ø PVC PIPE
3	5-CONVENIENCE OUTLETS	230	900	3.91	20	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ^ø PVC PIPE
4	4-CONVENIENCE OUTLETS	230	720	3.13	20	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ^ø PVC PIPE
5	4-CONVENIENCE OUTLETS	230	720	3.13	20	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ^ø PVC PIPE
6	6-CEILING FAN/ORBIT FAN	230	900	3.91	20	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ^ø PVC PIPE
7	1.SHP-AIR CONDITIONING UNIT	230	2300	10	20	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ^ø PVC PIPE
TOTAL			6440	30.6			
COMPUTATION:						OVER CURRENT PROTECTION	
IT = $\frac{6440 \text{ VA} + (0.25 \times 2300 \text{ VA})}{230 \text{ V}}$						USE : 60AT, 100AF, 2P, 230V, MCCB IN NEMA 1	
IT = 30.5 AMP.						MAIN FEEDER:	
						USE : 2 - 14mm ² THHN & 1-8.0mm ² TW GROUND WIRE IN 32mm ^ø (1"0) PVC PIPE	

CANTEEN (EXISTING)

LPP-LIGHTING POWER PANEL

CKT. NO.	LOAD DESCRIPTION	VOLTS	VA	AMP.	AT	SIZE OF	
						WIRES	CONDUITS
1	6-LIGHTING OUTLETS 4-CEILING FAN/ORBIT FAN	230	1,200	5.22	20	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ^ø PVC PIPE
2	4-CONVENIENCE OUTLETS	230	720	3.13	20	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ^ø PVC PIPE
3	ELECTRIC STOVE	230	1,500	6.52	20	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ^ø PVC PIPE
4	ELECTRIC STOVE	230	1,500	6.52	20	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ^ø PVC PIPE
TOTAL			4,920	21.39			
COMPUTATION:						OVER CURRENT PROTECTION	
IT = $\frac{4,920 \text{ VA}}{230 \text{ V}}$						USE : 40AT, 100AF, 2P, 230V, MCCB IN NEMA 1	
IT = 21.39 AMP.						MAIN FEEDER:	
						USE : 2 - 8.0mm ² THHN & 8.0mm ² TW GROUND WIRE IN 25mm ^ø (3/4"0) PVC PIPE	



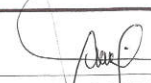




MINI COVERED COURT (EXISTING)

LPP-LIGHTING POWER PANEL

CKT. NO.	LOAD DESCRIPTION	VOLTS	VA	AMP.	AT	SIZE OF	
						WIRES	CONDUITS
1	8-LIGHTING OUTLETS	230	800	3.48	20	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ^ø PVC PIPE
2	6-CONVENIENCE OUTLETS	230	1,080	4.70	20	2-3.5mm ² THHN COPPER WIRE 1-3.5mm ² TW GROUND WIRE	IN 20mm ^ø PVC PIPE
TOTAL			1,880	8.18			
COMPUTATION:						OVER CURRENT PROTECTION	
IT = $\frac{1,880 \text{ VA}}{230 \text{ V}}$						USE : 60AT, 100AF, 2P, 230V, MCCB IN NEMA 1	
IT = 8.17 AMP.						MAIN FEEDER:	
						USE : 2 - 14mm ² THHN & 1-8.0mm ² TW GROUND WIRE IN 32mm ^ø (1"0) PVC PIPE	

1 SCHEDULE OF LOADS

NOT TO SCALE

 <div>Republika ng Pilipinas Lungsod ng Quezon CITY ENGINEERING DEPARTMENT</div>	PROJECT TITLE :	DRAWN BY: 	SUBMITTED BY: 	RECOMMENDING APPROVAL: 	APPROVED BY: 	SHEET CONTENT	SHEET NO.
	PROPOSED UPGRADING OF ELECTRICAL SYSTEM AT SAUYO HIGH SCHOOL	DATE:  CHECKED BY: 	ENGR. LEO S. DEL ROSARIO HEAD, PLANNING & PROGRAMMING DIVISION	ENGR. ISAGANI R. VERZOSA , JR. CITY ENGINEERING DEPARTMENT	HON. MA. JOSEFINA G. BELMONTE CITY MAYOR , QUEZON CITY	SCHEDULE OF LOADS	<div>EL-04 0406</div>
	PROJECT LOCATION : BARANGAY TANDANG SORA, DISTRICT 6, QUEZON CITY	REVISION NO. :					

MAIN DISTRIBUTION PANEL (SAUYO HS MAIN)

MDP

CKT. NO.	LOAD DESCRIPTION	VOLTS	VA	AMPERE LOAD				AT	SIZE OF	
				AB	CA	BC	3Ø		WIRES	CONDUITS
1	ALUMNI ROOM PANEL	230	6,440	30.5				60	2-14mm ² THHN COPPER WIRE 1-8.0mm ² TW GROUND WIRE	IN 32mm ^Ø PVC PIPE
2	PREFAB (DPWH) BLDG.	230	8,480	36.87				60	2-14mm ² THHN COPPER WIRE 1-8.0mm ² TW GROUND WIRE	IN 32mm ^Ø PVC PIPE
3	CANTEEN PANEL	230	21,900			21.39		40	2-8.0mm ² THHN COPPER WIRE 1-8.0mm ² TW GROUND WIRE	IN 25mm ^Ø PVC PIPE
4	NCR BUILDING	230	4,920			79.13		125	2-38mm ² THHN COPPER WIRE 1-14mm ² TW GROUND WIRE	IN 40mm ^Ø PVC PIPE
5	BAGONG LIPUNAN BLDG. PANEL	230	18,200			79.13		125	2-38mm ² THHN COPPER WIRE 1-14mm ² TW GROUND WIRE	IN 40mm ^Ø PVC PIPE
6	MINI COVERED COURT	230	1,880			8.17		60	2-14mm ² THHN COPPER WIRE 1-8.0mm ² TW GROUND WIRE	IN 32mm ^Ø PVC PIPE
7	PROVISION FOR EMERGENCY SUPPLY	230						125	3-38mm ² THHN COPPER WIRE 1-14mm ² TW GROUND WIRE	IN 40mm ^Ø IMC PIPE
TOTAL			72,300	66.92	100.42	87.3				

COMPUTATION:

$$IT = (100.42 + (0.25 \times 10)) \times 1.732$$

$$IT = 178.28 \text{ AMP.}$$

OVER CURRENT PROTECTION

USE : 200AT, 250AF, 3P, 230V, MCCB IN NEMA 3R

MAIN FEEDER:

USE : 3-80mm² THHN & 1-22mm² TW GROUND WIRE
IN 65mm^Ø (2 1/2") IMC PIPE

PROPOSED MAIN DISTRIBUTION PANEL (SAUYO HS MAIN)

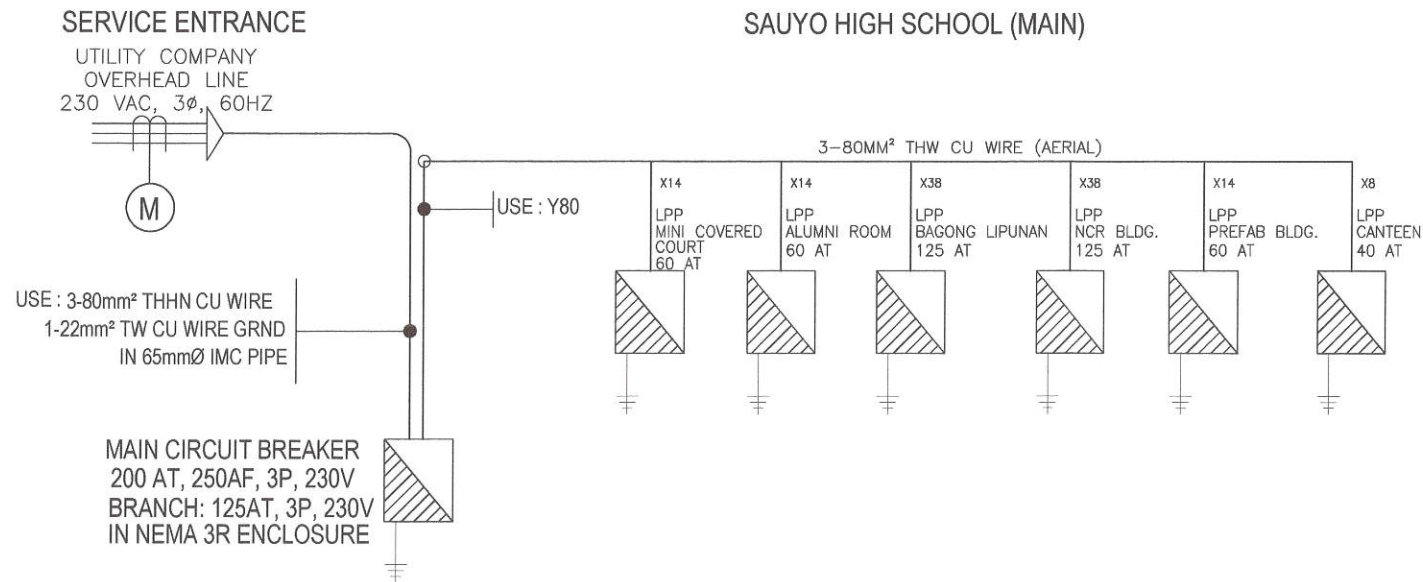
MAIN: 200AT, 250AF, 3P, 230V

BRANCH: 1 - 125AT, 3P, 230V

ENCLOSURE: NEMA 3R WITH GROUND TERMINALS

1 SCHEDULE OF LOADS

NOT TO SCALE



CODE	DESCRIPTION
F80	3-80MM ² THW COPPER WIRE (AERIAL)
Y80	3-80MM ² THHN COPPER WIRE 1-22MM ² TW WIRE GRD 1-65MM ^Ø IMC PIPE
X38	2-38MM ² THHN COPPER WIRE 1-14MM ² TW WIRE GRD 1-40MM ^Ø PVC PIPE
X14	2-14MM ² THHN COPPER WIRE 1-8.0MM ² TW WIRE GRD 1-32MM ^Ø PVC PIPE
X8	2-8.0MM ² THHN COPPER WIRE 1-8.0MM ² TW WIRE GRD 1-32MM ^Ø PVC PIPE
PHASE ABC	A - RED B - YELLOW C - BLUE NEUTRAL - BLACK GROUND - WHITE

2 SINGLE LINE DIAGRAM

NOT TO SCALE



Republika ng Pilipinas
Lungsod ng Quezon
CITY ENGINEERING DEPARTMENT

PROJECT TITLE:

PROPOSED UPGRADING OF ELECTRICAL
SYSTEM AT SAUYO HIGH SCHOOL

PROJECT LOCATION:

BARANGAY TANDANG SORA, DISTRICT 6, QUEZON CITY

DRAWN BY:

DATE:

CHECKED BY:

REVISION NO.:

SUBMITTED BY:

ENGR. LEO S. DEL ROSARIO
HEAD, PLANNING & PROGRAMMING DIVISION

RECOMMENDING APPROVAL:

ENGR. ISAGANI R. VERZOSA, JR.
CITY ENGINEERING DEPARTMENT

APPROVED BY:

HON. MA. JOSEFINA G. BELMONTE
CITY MAYOR, QUEZON CITY

SHEET CONTENT

SINGLE LINE DIAGRAM

SHEET NO.

EL-05
0506

1. ALL MATERIALS AND WORKMANSHIP SHALL CONFORM WITH THE LATEST BUILDING CODE OF AMERICAN CONCRETE INSTITUTE (ACI-318)
2. ALL CONCRETE SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH AT THE END OF TWENTY EIGHT (28) DAYS WITH CORRESPONDING MAXIMUM SIZE AGGREGATE AND SLUMPS AS FOLLOWS

LOCATION	STRENGTH	MAX SIZE OF AGGREGATES	MAX SLUMP
a. SLAB ON GRADE, CURBS, PAVEMENTS, WALL FOOTING	3000 Psi (20.685 MPA)	1 in (25 mm)	4 in (100mm)
b. BEAMS, COLUMNS, FOOTINGS SUSPENDED SLAB	3000 Psi (20.685 MPA)	3/4 in (19mm)	4 in (100mm)

3. ALL REINFORCING BARS SHALL CONFORM TO PNS49 GRADE 275 FOR 12MM AND SMALLER BARS AND GRADE 415 FOR 16mm AND LARGER BARS.
4. IN GENERAL THE LATEST EDITION OF ACM15 MANUAL OF STANDARD PRACTICE DETAILING REINFORCED CONCRETE STRUCTURES SHALL BE ADHERED TO UNLESS OTHERWISE SHOWN OR NOTED.

5. MAINTAIN MINIMUM CONCRETE COVER FOR REINFORCING STEEL AS FOLLOWS:

CONCRETE DEPOSITED DIRECTLY AGAINST GROUND	75mm
SUSPENDED SLABS	20mm
SLAB ON GRADE	40 mm
WALLS ABOVE GRADE	25 mm
BEAMS & COLUMNS	40mm

6. SPLICES SHALL BE SECURELY WIRED TOGETHER AND SHALL LAP OR EXTEND IN ACCORDANCE WITH TABLE 1 (TABLE OF LAP SPLICE AND ANCHORAGE LENGTH UNLESS OTHERWISE SHOWN ON DRAWINGS SPLICES SHALL BE STAGGERED WHENEVER POSSIBLE.)

7. ALL ANCHOR BOLTS, DOWELS AND OTHER INSERTS SHALL BE PROPERLY POSITIONED AND SECURED IN PLACE PRIOR PLACING OF CONCRETE

8. CONTRACTOR SHALL NOTE AND PROVIDE ALL MISCELLANEOUS CURBS, SILLS, STOOLS, EQUIPMENTS & MECHANICAL BASES THAT ARE REQUIRED BY THE ARCHITECTURAL, ELECTRICAL, AND MECHANICAL DRAWINGS.

9. ALL CONCRETE SHALL BE KEPT MOIST FOR A MINIMUM OF SEVEN (7) CONSECUTIVE DAYS IMMEDIATELY AFTER POURING BY THE USE OF WET BURLAP FOG SPRAYING, CURING COMPOUNDS OR OTHER APPROVED METHODS.

10. STRIPPING OF FORMS AND SHORES:

FOUNDATION	24 HRS.
SUSPENDED SLAB EXCEPT WHEN ADDITIONAL LOADS ARE IMPOSED	8 DAYS
WALL	21 DAYS
BEAMS	14 DAYS
COLUMNS	21 DAYS

11. DEVELOPMENT LENGTH FOR ALL BARS SHALL BE A MINIMUM OF 50 BAR DIAMETER UNLESS OTHERWISE NOTED IN STRUCTURAL STEEL AND PLATES.

12. ALL STRUCTURAL STEEL SHALL CONFORM TO ASTM (A-36) SPECIFICATIONS WITH MINIMUM YIELD STRENGTH, $f_y = 250 \text{ MPa}$

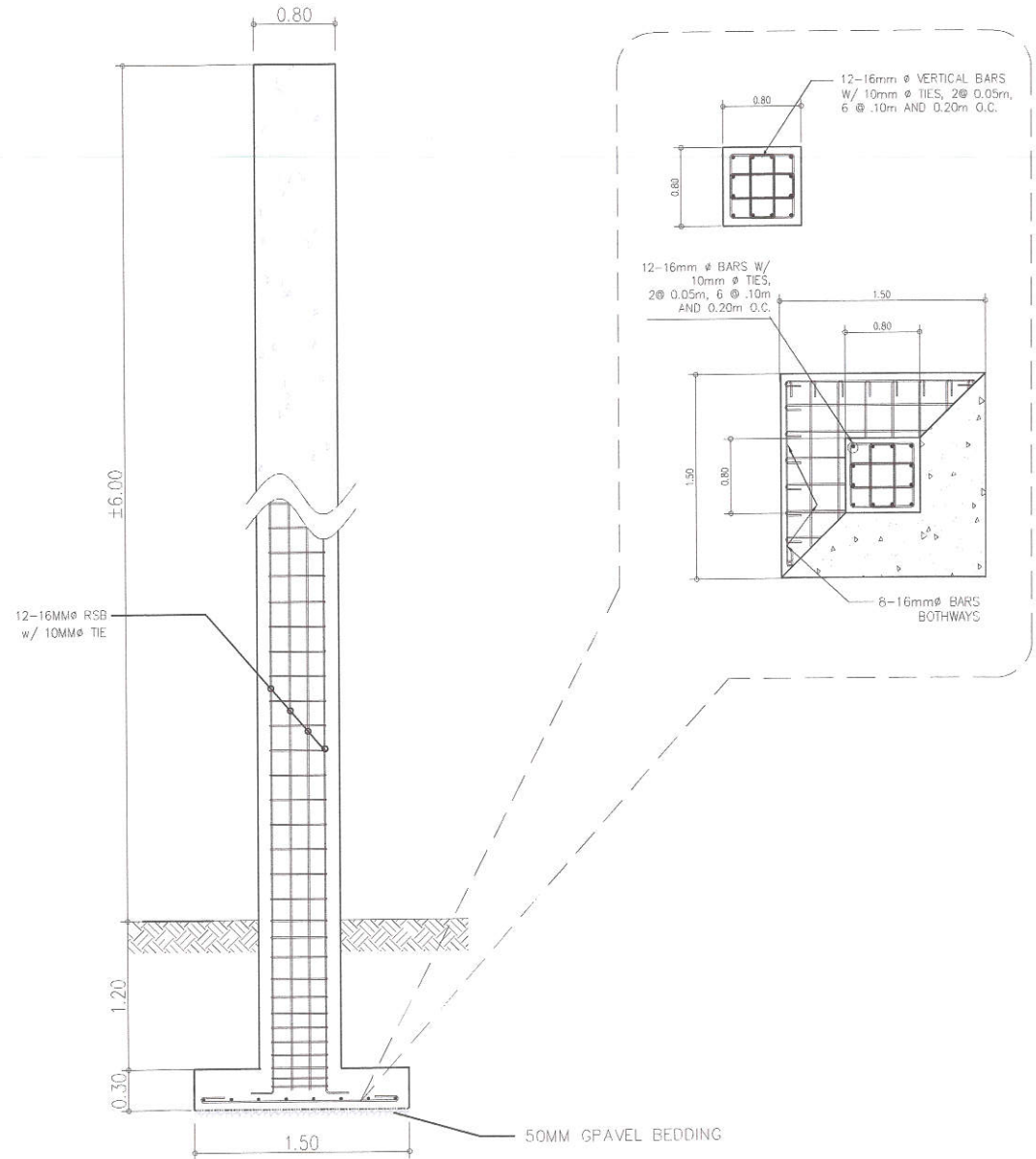
13. ANCHOR & FASTENER BOLTS. ALL BOLTS SHALL CONFORM TO ASTM (A-307) SPECIFICATIONS

14. WELDING RODS. ALL WELDING RODS SHALL BE MILD STEEL ELECTRODE, LOW HYDROGEN E7018 WITH MINIMUM YIELD STRENGTH = 420 MPa

15. FOUNDATION IS DESIGNED BASED ON NATIONAL BUILDING CODE OF THE PHILIPPINES FOR AN ALLOWABLE SOIL BEARING CAPACITY OF 240KPa

16. FOUNDATION SHALL REST ON NATURAL SOIL UNLESS OTHERWISE NOTED BY THE ENGINEER. NO PART OF THE FOUNDATION SHALL REST ON FILL

17. THE CONTRACTOR SHALL NOTIFY THE ENGINEER UPON COMPLETION OF FOUNDATION EXCAVATION FOR ACTUAL SOIL CONDITIONS WHICH DO NOT CONFORM TO THE BOA BEARING CAPACITY FOR PROPER REVISION.



1 GENERAL NOTES

2 CONCRETE SERVICE ENTRANCE POST DETAILS (SAUYO HS MAIN)

NOT TO SCALE



Republika ng Pilipinas
Lungsod ng Quezon
CITY ENGINEERING DEPARTMENT

PROJECT TITLE :

**PROPOSED UPGRADING OF ELECTRICAL
SYSTEM AT SAUYO HIGH SCHOOL**

PROJECT LOCATION :

BARANGAY TANDANG SORA, DISTRICT 6, QUEZON CITY

DRAWN BY:

DATE:

CHECKED BY:

REVISION NO.:

SUBMITTED BY:

ENGR. LEO S. DEL ROSARIO
HEAD, PLANNING & PROGRAMMING DIVISION

RECOMMENDING APPROVAL:

ENGR. ISAGANI R. VERZOSA, JR.
C.E. CITY ENGINEERING DEPARTMENT

APPROVED BY:

HON. MA. JOSEFINA G. BELMONTE
CITY MAYOR, QUEZON CITY

SHEET CONTENT

GENERAL NOTES
CONCRETE SERVICE
ENTRANCE POST
POST DETAILS

SHEET NO.

ST-01
06/06