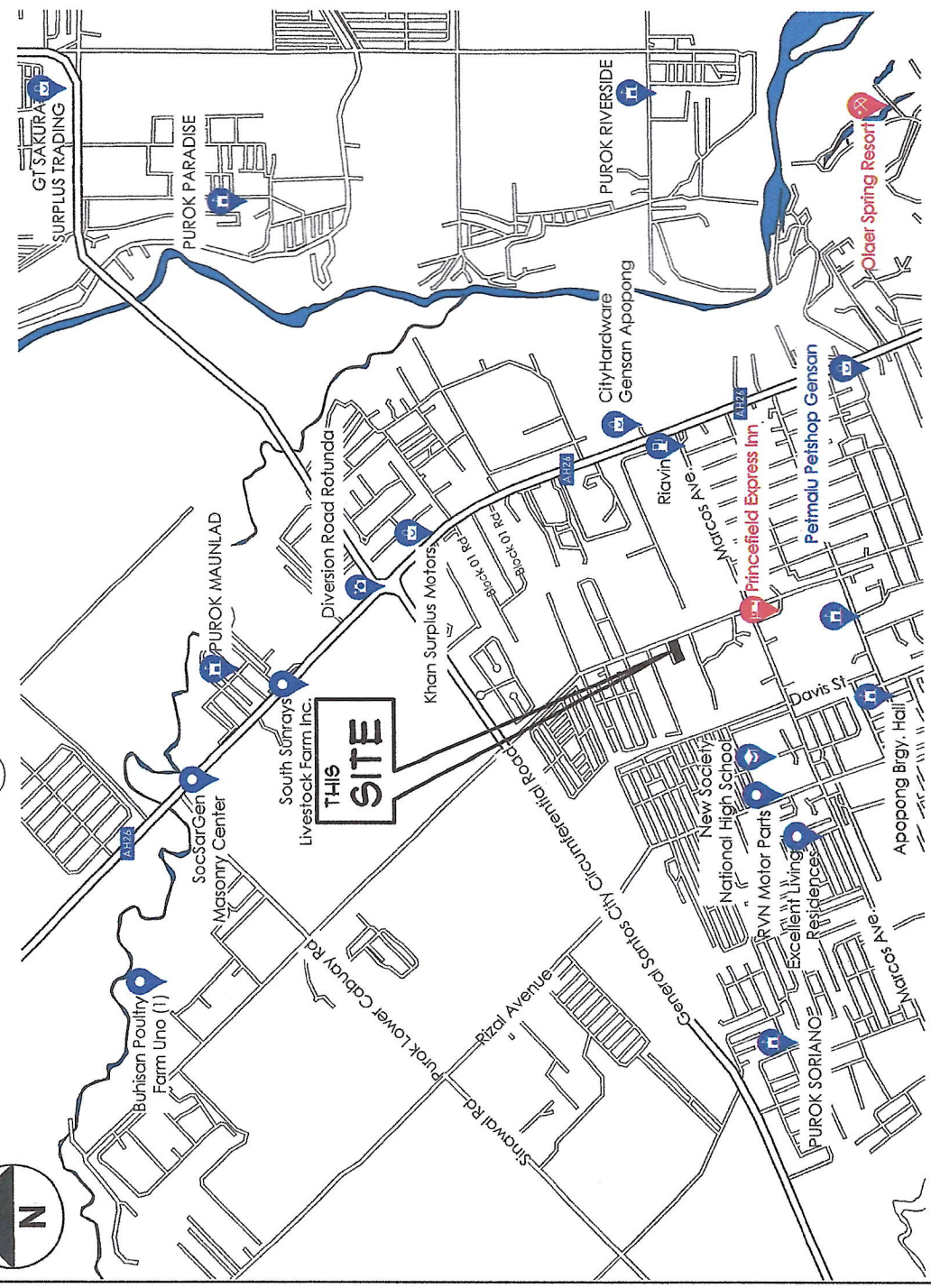
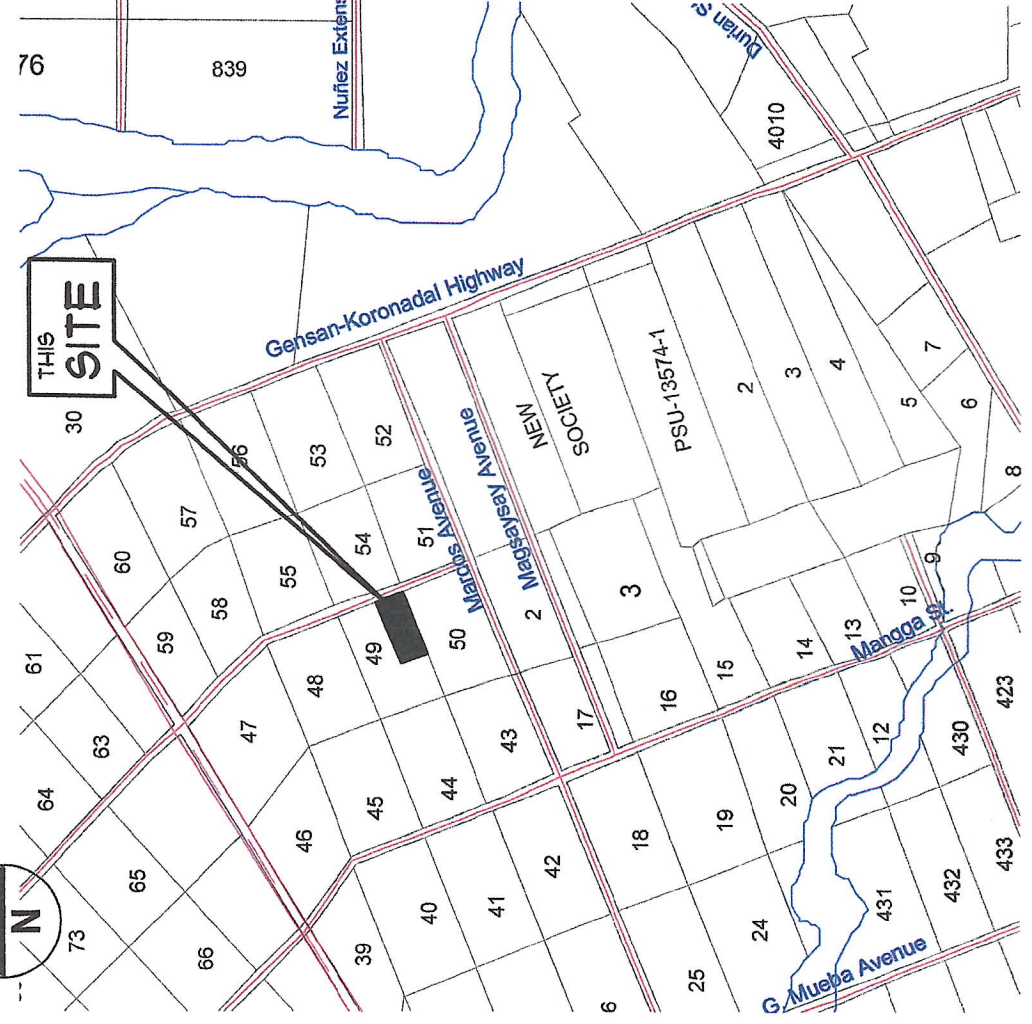


01 PERSPECTIVE  
B-01 NOT TO SCALE

04 SITE DEVELOPMENT PLAN  
B-01 SCALE: 1:800 M



02 VICINITY MAP  
B-01 NOT TO SCALE



03 LOCATION PLAN  
B-01 NOT TO SCALE

REPUBLIC OF THE PHILIPPINES CITY OF GENERAL SANTOS OFFICE OF THE CITY ENGINEER	
OFFICE OF THE BUILDING OFFICIAL	
LAND USE & ZONING	
LINE AND GRADE	
ARCHITECTURAL	
STRUCTURAL	
SANITARY	
ELECTRICAL	
MECHANICAL	
ELECTRONICS	
SHEET CONTENTS	SHEET NO.
As shown	B-01
DRAWN BY: DONG-RAE	REV. NO.
CHECKED BY:	DATE: FEB. 2025
	01
	15

**GENERAL SANTOS CITY WATER DISTRICT**  
E. FERNANDEZ STREET, BRGY. LAGAO, GEN. SANTOS CITY  
ENGINEERING & CONSTRUCTION DEPARTMENT  
PLANNING AND DESIGN DIVISION  
TEL. NO.: (083) 652-3824

**DANILO J. HORLADOR, JR.**  
CIVIL ENGINEER  
REG. NO. 0107345  
PIN. NO. 291-941-997  
DATE: 01/04/2025

**PROPOSED CONSTRUCTION OF PUMPHOUSE & GENSET SHED**  
LOCATION: LOT 49-A-2-B, BRGY. BINAWAL, GEN. SANTOS CITY

CHECKED & REVIEWED:  
ENGR. MARIA CELIA N. DANDAN  
PLANNING DEPARTMENT MANAGER, EOP

RECOMMEND APPROVAL:  
ENGR. CORNELIO T. TUBUA, JR.  
PLANNING GENERAL MANAGER

APPROVED:  
ENGR. ROGELIO A. BESANA, JR.  
PLANNING GENERAL MANAGER



**SCHEDULE OF FINISH**

**FLOORS:**

(FL1) PLAIN CEMENT FLOOR FINISH

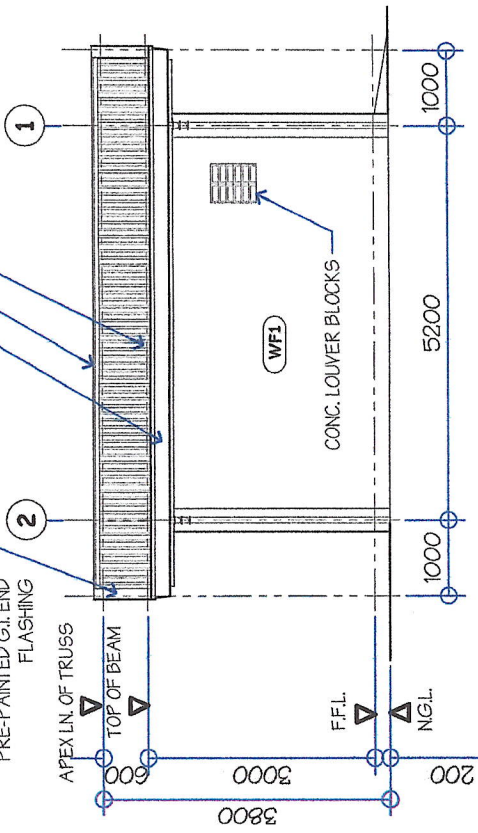
**WALLS:**

(WFL) 100mm thk. MACHINE MADE CHB W/ PLAIN CEMENT PLASTER (ACRYLIC PAINT FINISH)

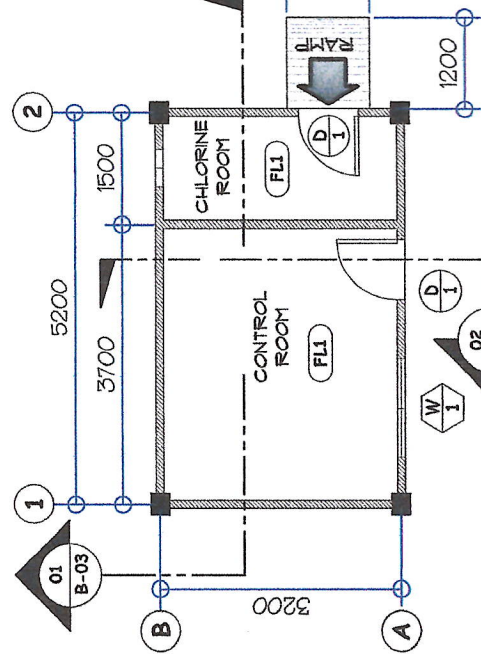
**CEILING:**

(CLI) 3.5mm thk FIBER CEMENT BOARD (PAINT FINISH) ON METAL FURRING CEILING FRAMES. USE 0.60mm thk. x 19mm x 5000mm DOUBLE FURRING CHANNELS @ 0.40m ON CENTER W/ 0.60mm thk. x 38mm x 5000mm CARRYING CHANNELS @ 1.20m ON CENTERS & ROD JOINER (HANKS/SUPPORTS) @ 1.20m O.C., SHORTER SPAN

0.60mm thk. PREFORMED, PRE-PAINTED G.I. RIDGE ROLL  
 0.4mm thk. PREFORMED, PRE-PAINTED G.I. GUTTER  
 0.6mm thk. PREFORMED, PRE-PAINTED G.I. END FLASHING

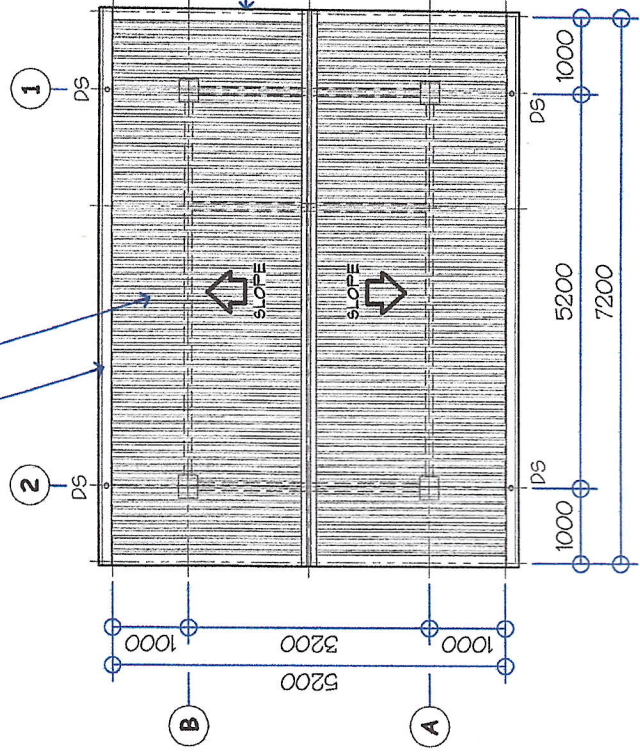


**05 REAR ELEVATION (PUMPHOUSE)**  
 SCALE: 1 : 100 M



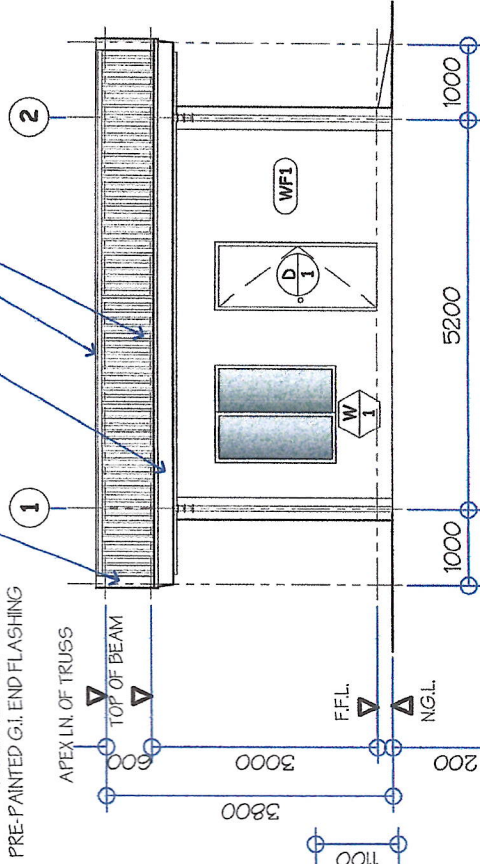
**01 FLOOR PLAN (PUMPHOUSE)**  
 SCALE: 1 : 100 M

0.4mm thk. RIB-TYPE LONG SPAN PRE-PAINTED ROOFING  
 0.60mm thk. PREFORMED, PRE-PAINTED G.I. GUTTER

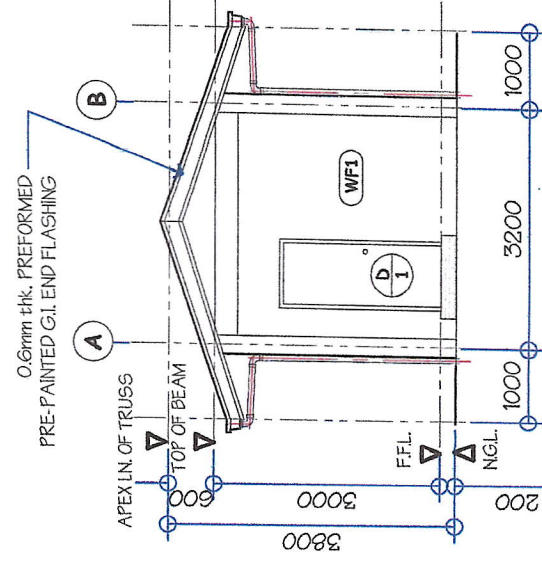


**06 ROOF PLAN (PUMPHOUSE)**  
 SCALE: 1 : 100 M

0.60mm thk. PREFORMED, PRE-PAINTED G.I. RIDGE ROLL  
 0.4mm thk. RIB-TYPE LONG SPAN PRE-PAINTED ROOFING

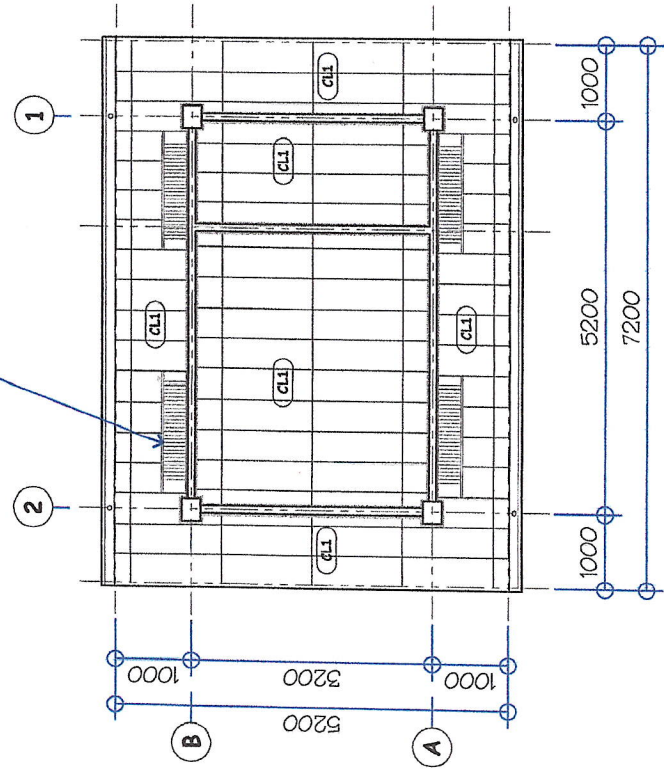


**02 FRONT ELEVATION (PUMPHOUSE)**  
 SCALE: 1 : 100 M



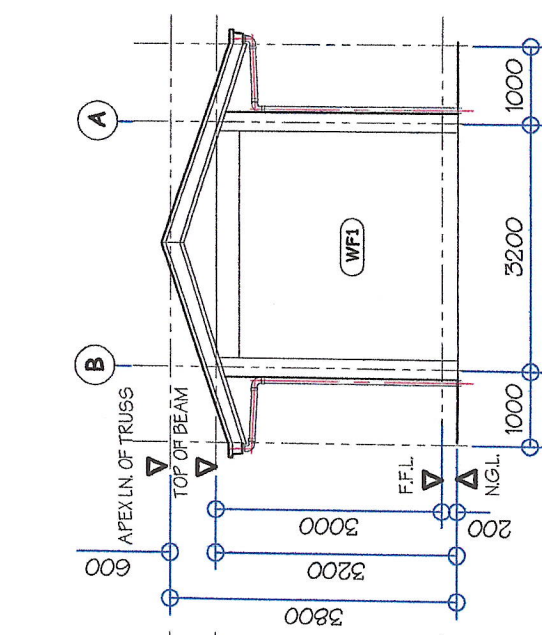
**03 RIGHT SIDE ELEVATION (PUMPHOUSE)**  
 SCALE: 1 : 100 M

25mm x 25mm WOOD VENT. PROVIDE INSECT SCREEN



**07 REFLECTED CEILING PLAN (PUMPHOUSE)**  
 SCALE: 1 : 100 M

0.6mm thk. PREFORMED, PRE-PAINTED G.I. END FLASHING, TYPICAL AT THE OTHER SIDE



**04 LEFT SIDE ELEVATION (PUMPHOUSE)**  
 SCALE: 1 : 100 M



**GENERAL SANTOS CITY WATER DISTRICT**  
 E. FERNANDEZ STREET, BRGY. LAGAO, GEN. SANTOS CITY  
 ENGINEERING & CONSTRUCTION DEPARTMENT  
 PLANNING AND DESIGN DIVISION  
 TEL. NO.: (083) 652 - 3824

**DANILO MORLADOR, JR.**  
 CIVIL ENGINEER  
 REG. NO. 027845  
 TIN. NO. 291-841-937  
 DATE: 01/04/2023

**PROPOSED CONSTRUCTION OF PUMPHOUSE & GENSET SHED**  
 LOCATION: LOT 48-A-2-B, BRGY. SINAWAL, GEN. SANTOS CITY

**ENGR. MARIA CELIA N. DANDAN**  
 ACTING DEPARTMENT MANAGER, ECD

**ENGR. COSMELIO T. TURJUA, JR.**  
 ACTING AGM, OPERATION & TECHNICAL SERVICES

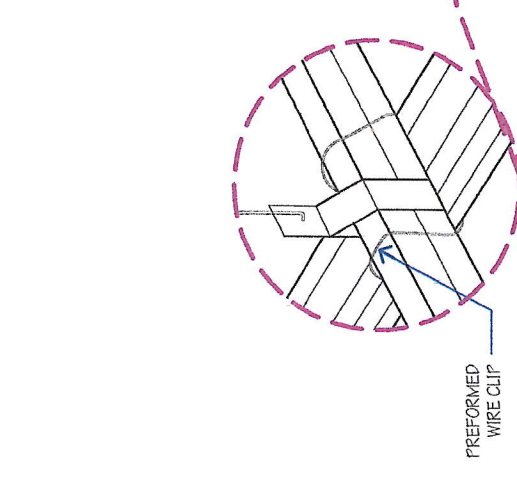
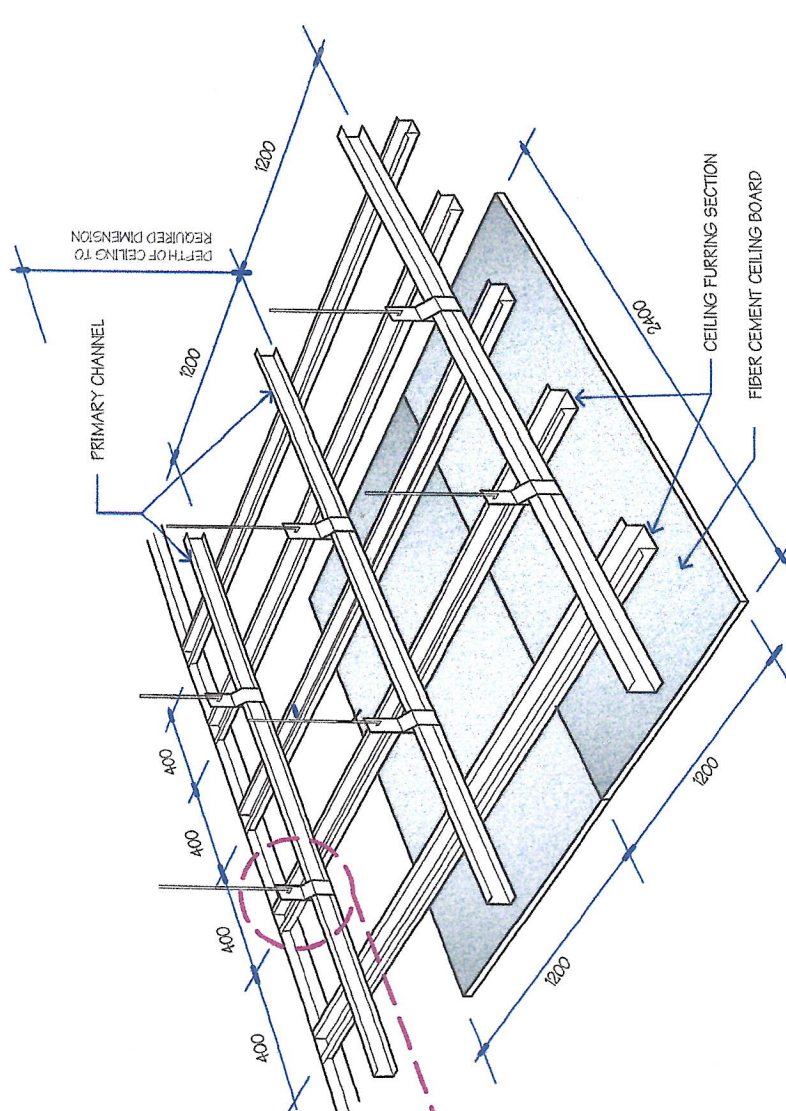
**ENGR. ROGELIO A. BESANA, JR.**  
 ACTING GENERAL MANAGER

**AS SHOWN**

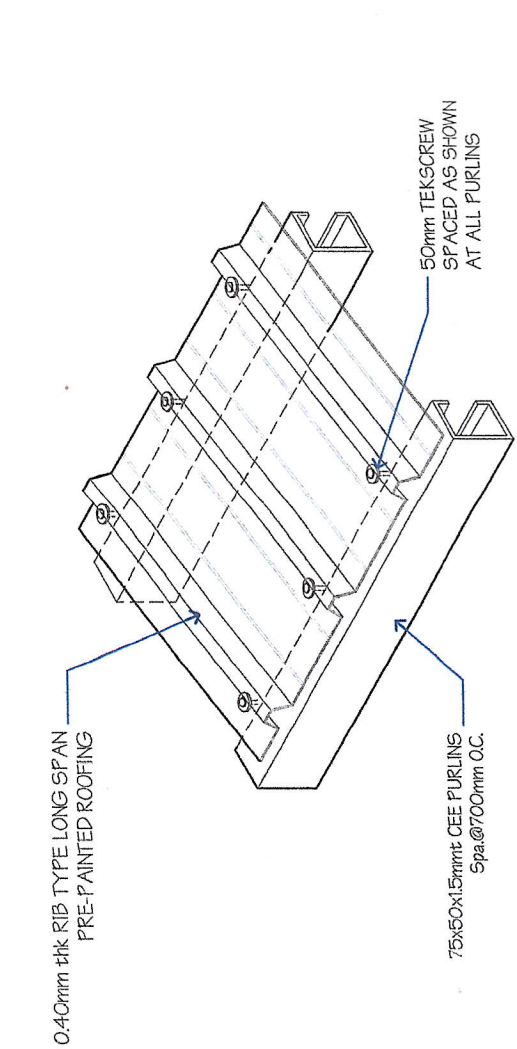
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**02**  
**15**

DRAWN BY: D2NS/RAE  
 CHECKED BY: DATE: FEB. 2023

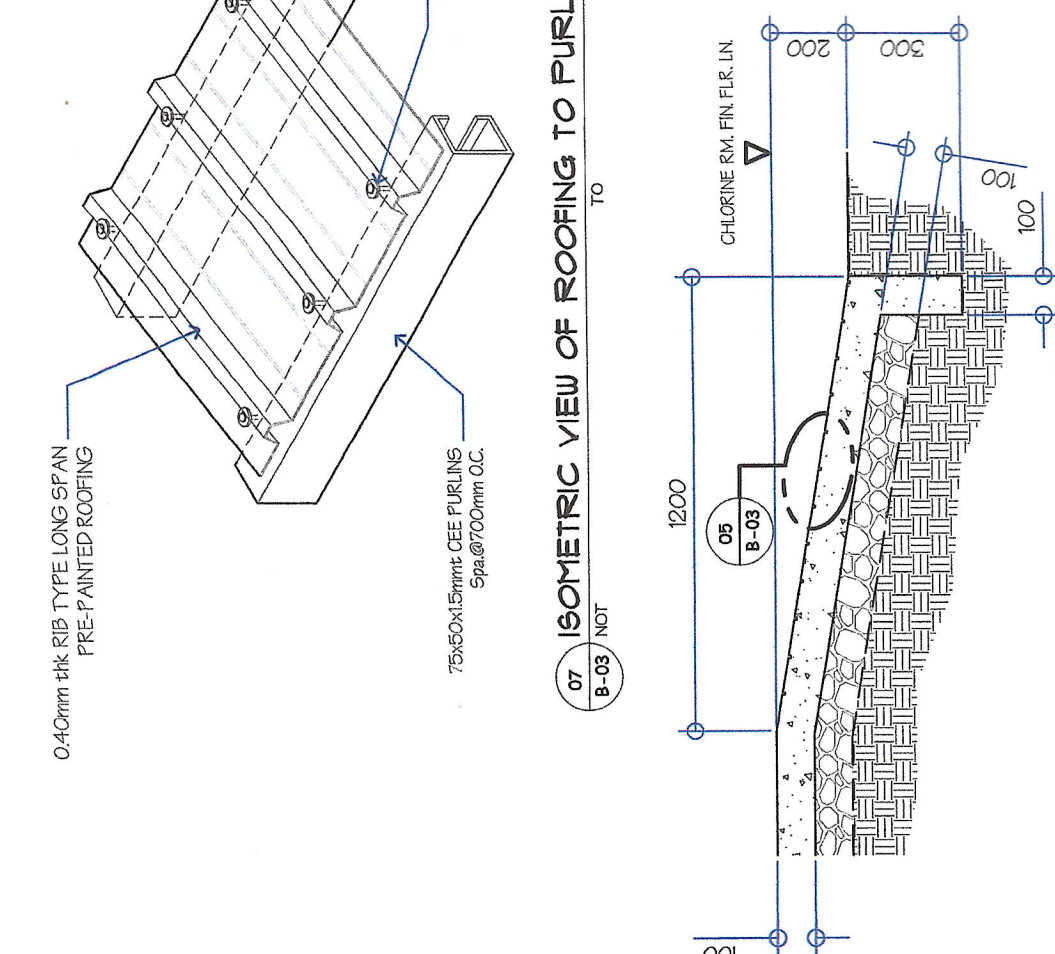




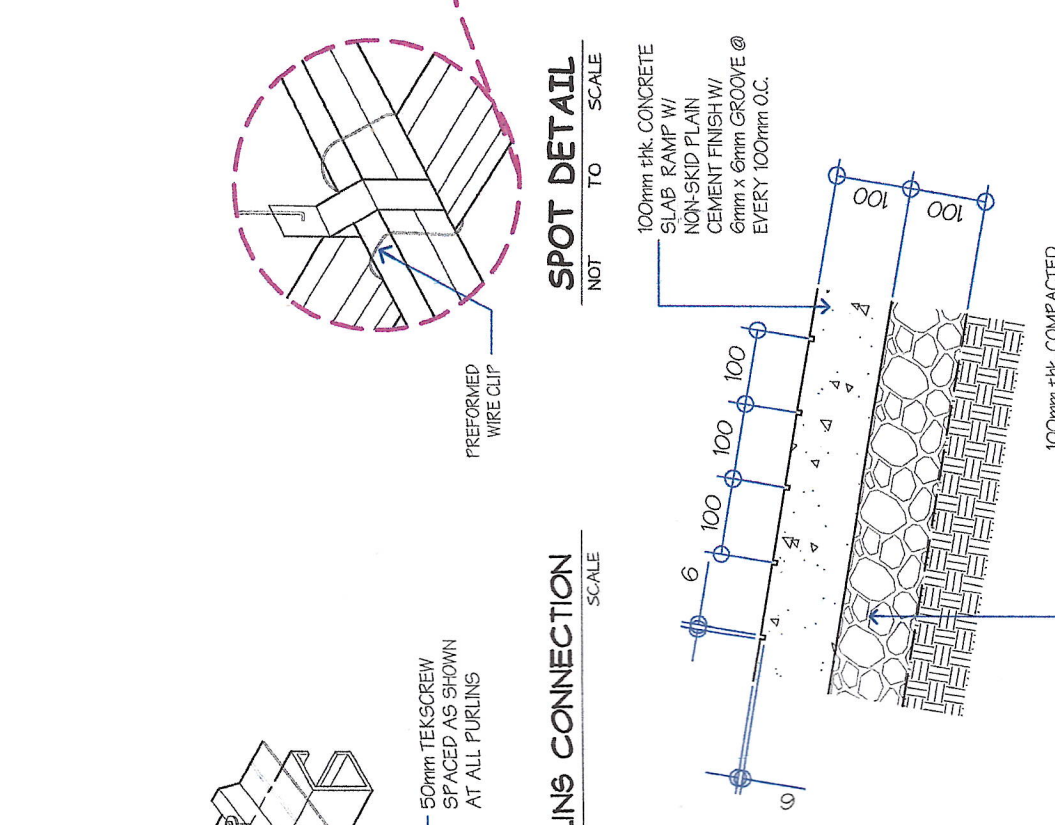
06 PERSPECTIVE, CLI (PUMPHOUSE)  
B-03 / NOT TO SCALE



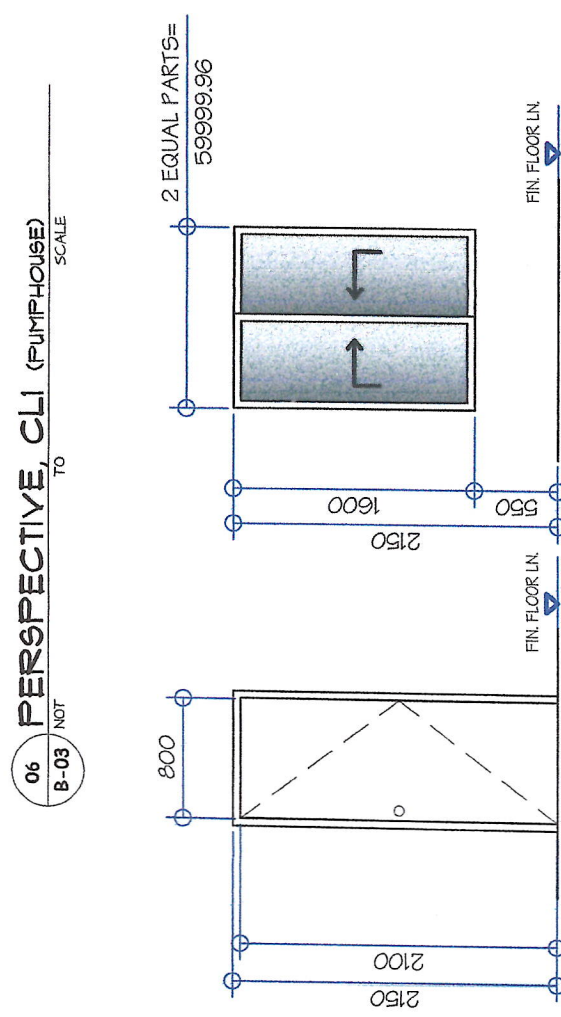
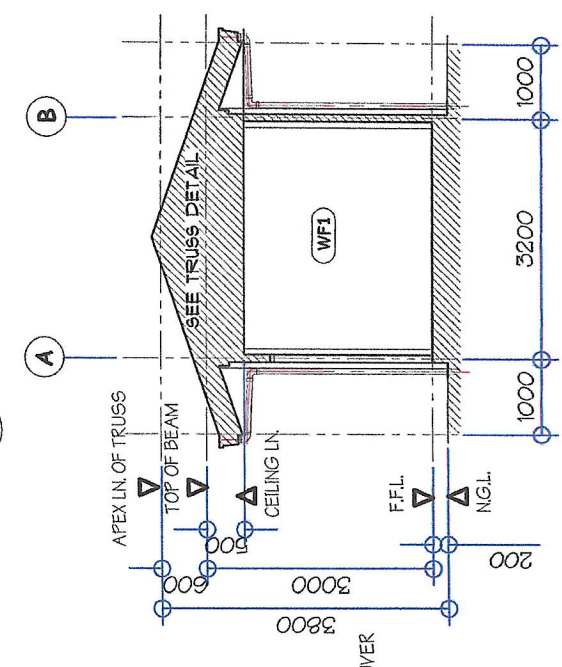
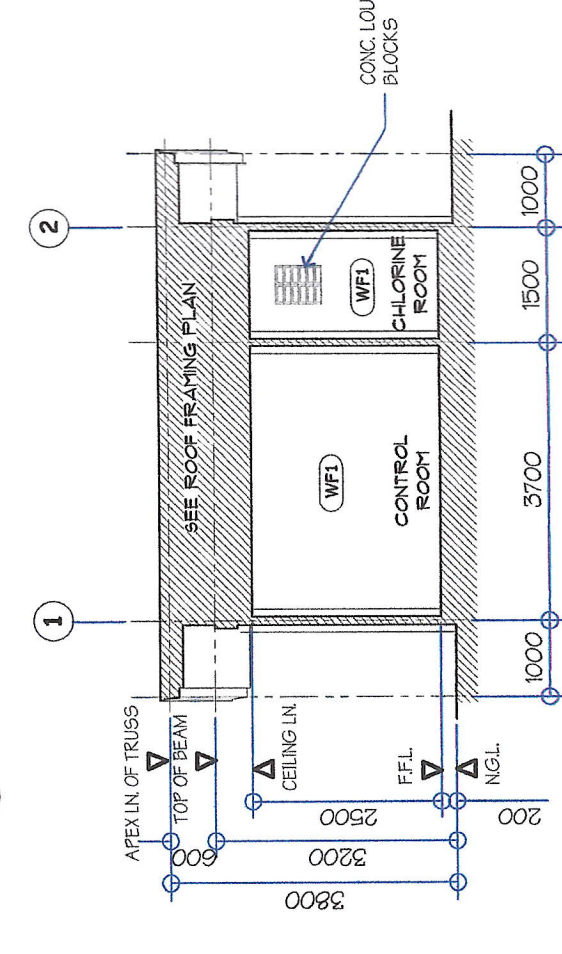
07 ISOMETRIC VIEW OF ROOFING TO PURLING CONNECTION  
B-03 / NOT TO SCALE



04 DETAIL SECTION OF RAMP (PUMPHOUSE)  
B-03 / SCALE: 1:20 M



05 SPOT DETAIL  
B-03 / SCALE: 1:10 M



MARK	DESCRIPTION	LOCATION	QUANTITY
W 1	SLIDING WINDOW IN POWDER COATED FINISH ALUMINUM FRAME WITH 6mm thk TINTED GLASS PANEL WITH COMPLETE ACCESSORIES	CONTROL ROOM	ONE (1) SET
D 1	40mm thk HOLLOW CORE FLUSH DOOR TYPE IN 50 x 150 KD DOOR JAMB WITH 6mm thk MARINE PLYWOOD DOUBLE FACING PAINT FINISH WITH COMPLETE ACCESSORIES	CONTROL ROOM, CHLORINE ROOM	TWO (2) SETS

03 SCHEDULE OF DOORS & WINDOWS (PUMPHOUSE)  
B-03 / SCALE: 1:50 M

**GENERAL SANTOS CITY WATER DISTRICT**  
E. FERNANDEZ STREET, BRGY. LAGAO, GEN. SANTOS CITY  
ENGINEERING & CONSTRUCTION DEPARTMENT  
PLANNING AND DESIGN DIVISION  
TEL. NO.: (083) 582-3824

**DANILO HORLADOR, JR.**  
CIVIL ENGINEER  
REG. NO. 0107546  
PR. NO. 0518704A  
TEL. NO. 291-941-997  
DATE: 01/04/2023

**PROPOSED CONSTRUCTION OF PUMPHOUSE & GENSET SHED**  
LOCATION: LOT 49-A-2-3, BRGY. BINAWAL, GEN. SANTOS CITY

ENGR. MARIA CELIA N. DANDAN  
ACTING DEPARTMENT MANAGER, ECD

RECOMMEND APPROVAL:

APPROVED:

RECOMMEND APPROVAL:

APPROVED:

SHEET CONTENTS

SHEET NO.

AS SHOWN

B-03

DRAWN BY: DCS/RAE

REV. NO. 03

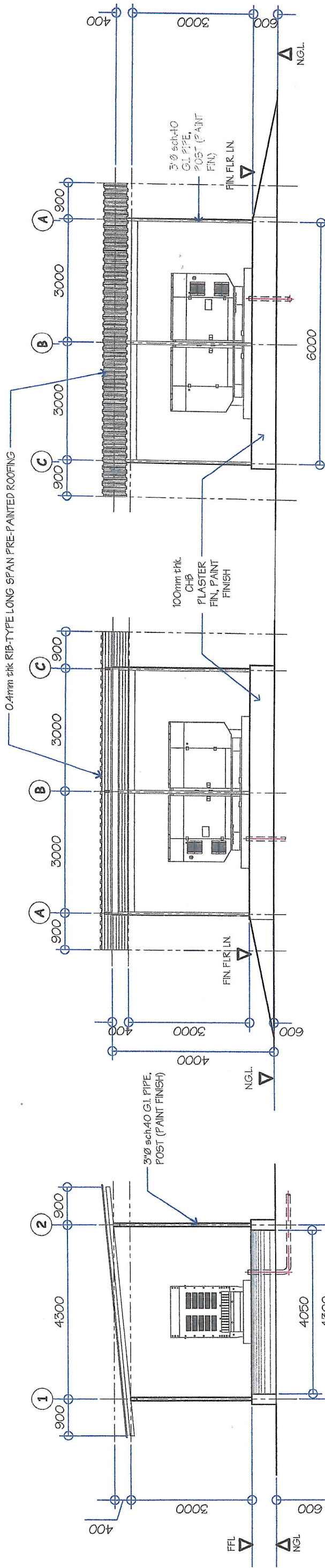
CHECKED BY:

DATE: FEB. 2023

ACTING GENERAL MANAGER

DATE: FEB. 2023

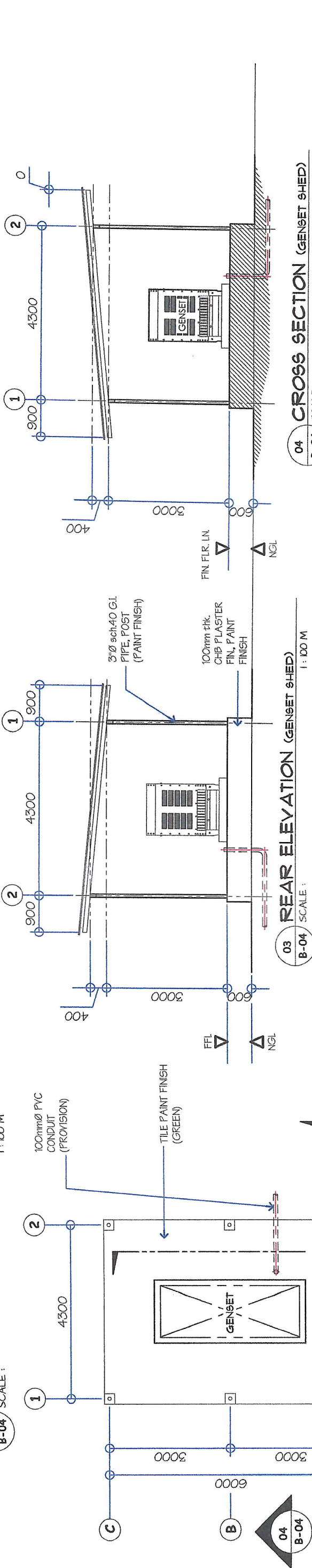




05 FRONT ELEVATION (GENSET SHED)  
SCALE: 1:100 M  
B-04

06 RIGHT ELEVATION (GENSET SHED)  
SCALE: 1:100 M  
B-04

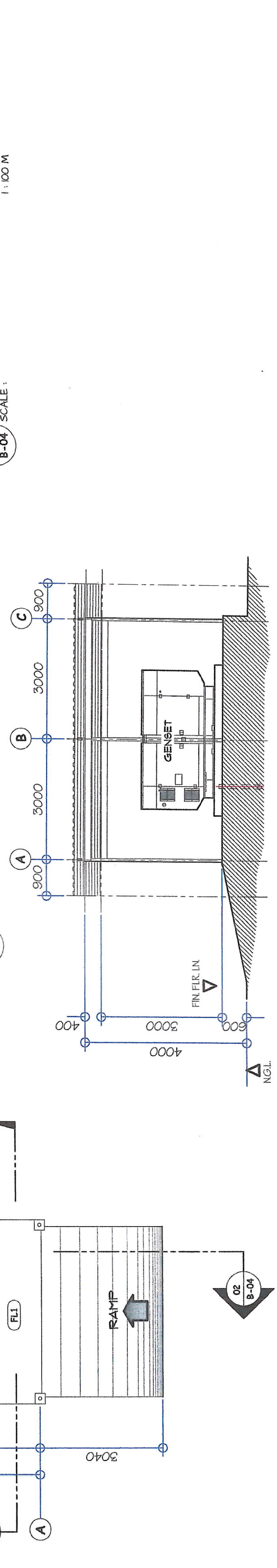
07 LEFT ELEVATION (GENSET SHED)  
SCALE: 1:100 M  
B-04



05 FRONT ELEVATION (GENSET SHED)  
SCALE: 1:100 M  
B-04

06 RIGHT ELEVATION (GENSET SHED)  
SCALE: 1:100 M  
B-04

07 LEFT ELEVATION (GENSET SHED)  
SCALE: 1:100 M  
B-04



03 REAR ELEVATION (GENSET SHED)  
SCALE: 1:100 M  
B-04

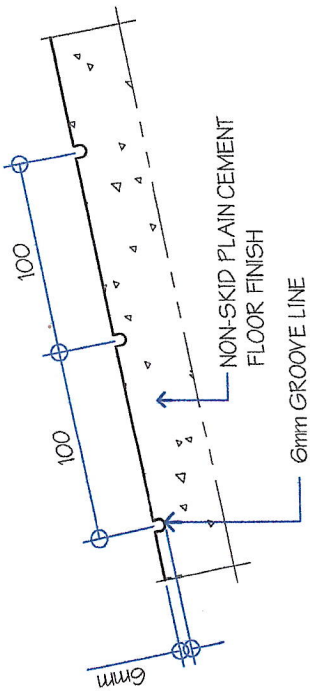
02 LONGITUDINAL SECTION (GENSET SHED)  
SCALE: 1:100 M  
B-04

04 CROSS SECTION (GENSET SHED)  
SCALE: 1:100 M  
B-04

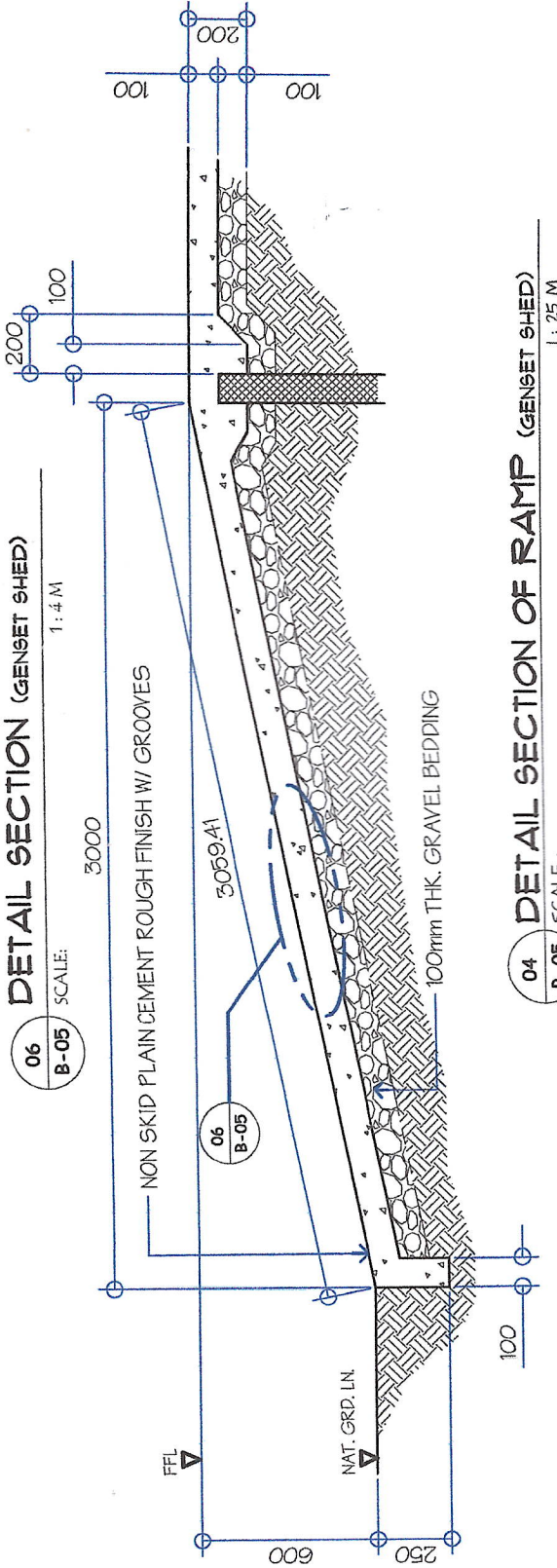
01 FLOOR PLAN (GENSET SHED)  
SCALE: 1:100 M  
B-04

<p><b>GENERAL SANTOS CITY WATER DISTRICT</b> E. FERNANDEZ STREET, BRGY. LAGAO, GEN. SANTOS CITY ENGINEERING &amp; CONSTRUCTION DEPARTMENT PLANNING AND DESIGN DIVISION TEL. NO.: (083) 552-3824</p>	<p><b>DANILO M. HORLADOR, JR.</b> CIVIL ENGINEER REG. NO. 0107545 PTR. NO. 081870-A DATE: 01/04/2023</p>	<p><b>PROPOSED CONSTRUCTION OF PUMPHOUSE &amp; GENSET SHED</b> LOCATION: LOT 48-A-2-B, BRGY. SINAWAL, GEN. SANTOS CITY</p>	<p>CHECKED &amp; REVIEWED: <i>[Signature]</i> ENGR. MARIA CELIA N. DANDAN ACTING DEPARTMENT MANAGER, ECD</p>	<p>RECOMMEND APPROVAL: <i>[Signature]</i> ENGR. CORNELIO T. TURJUA, JR. ENGINEERING AGENT, OPERATION &amp; TECHNICAL SERVICES</p>	<p>APPROVED: <i>[Signature]</i> ENGR. ROGELIO A. BESANA, JR. ACTING GENERAL MANAGER</p>	<p>SHEET CONTENTS AS SHOWN</p>	<p>SHEET NO. B-04</p>
	<p>DATE: 01/04/2023</p>	<p>DATE: JULY 2023</p>	<p>REV. NO.</p>	<p>DATE: JULY 2023</p>	<p>REV. NO.</p>	<p>DATE: JULY 2023</p>	<p>04</p>

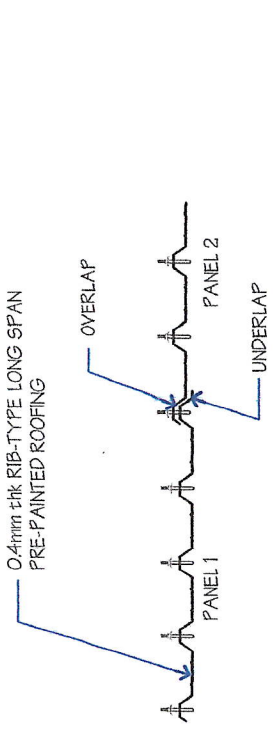




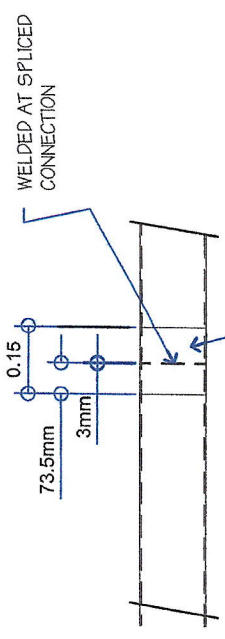
06 B-05 DETAIL SECTION (GENSET SHED)  
SCALE: 1:4 M



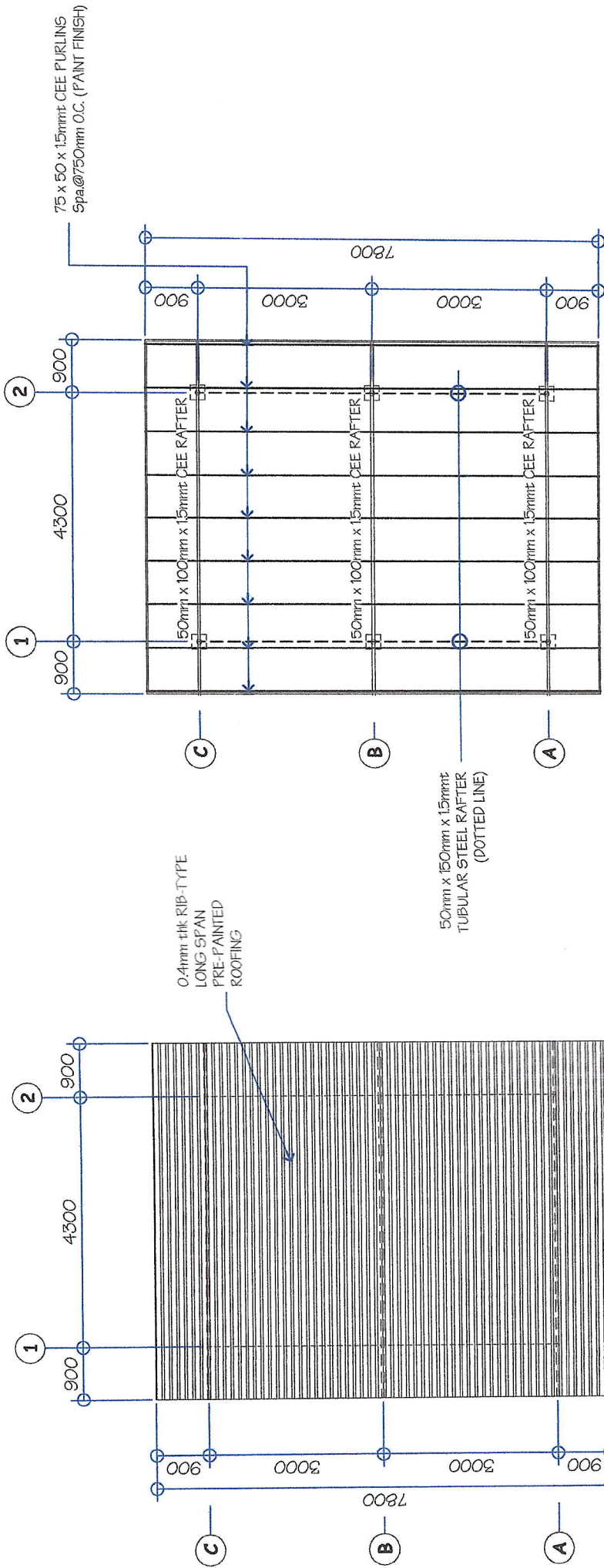
04 B-05 DETAIL SECTION OF RAMP (GENSET SHED)  
SCALE: 1:25 M



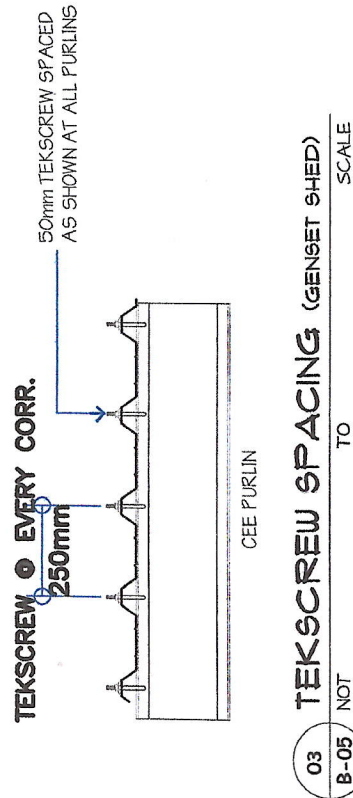
07 B-05 ROOF PANEL SIDE LAP DETAIL (GENSET SHED)  
SCALE



05 B-05 PURLIN SPLICE (GENSET SHED)  
SCALE



01 B-05 ROOF PLAN (GENSET SHED)  
SCALE: 1:100 M



03 B-05 TEKSCROW SPACING (GENSET SHED)  
SCALE

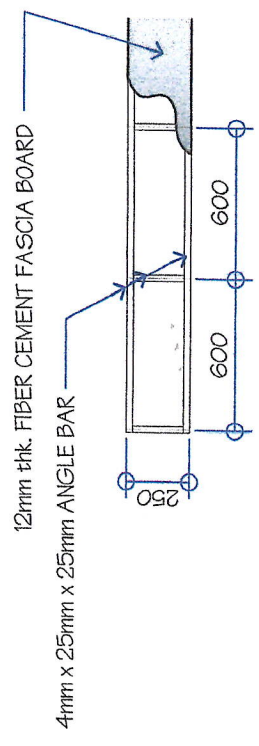
02 B-05 ROOF FRAMING PLAN (GENSET SHED)  
SCALE: 1:100 M

<b>GENERAL SANTOS CITY WATER DISTRICT</b> ENGINEERING & CONSTRUCTION DEPARTMENT PLANNING AND DESIGN DIVISION TEL. NO.: (083) 582-3824	<b>DANILO M. HORLADOR, JR.</b> CIVIL ENGINEER REG. NO. 0107545 PTR. NO. 0518704A TIN. NO. 291-941-997 DATE: 01/04/2023	PROJECT AND LOCATION <b>PROPOSED CONSTRUCTION OF PUMPHOUSE &amp; GENSET SHED</b> LOCATION: LOT 49-A-2-F, BRGY. SINWAL, GEN. SANTOS CITY	CHECKED & REVIEWED:  <b>ENGR. MARIA CELIA N. DANDAN</b> ACTING DEPARTMENT MANAGER/ ECD	RECOMMEND APPROVAL:  <b>ENGR. ROGELIO T. TURIVA, JR.</b> ACTING GENERAL MANAGER	APPROVED:  <b>ENGR. ROGELIO A. BESANA, JR.</b> ACTING GENERAL MANAGER	SHEET CONTENTS As SHOWN	SHEET NO. <b>B-05</b>
	GENERAL SANTOS CITY WATER DISTRICT . 1997	REG. NO. 0107545 PTR. NO. 0518704A TIN. NO. 291-941-997 DATE: 01/04/2023	LOCATION: LOT 49-A-2-F, BRGY. SINWAL, GEN. SANTOS CITY	ACTING DEPARTMENT MANAGER/ ECD	ACTING GENERAL MANAGER	REV. NO. 01 DATE: JUL 2023	<b>05</b>

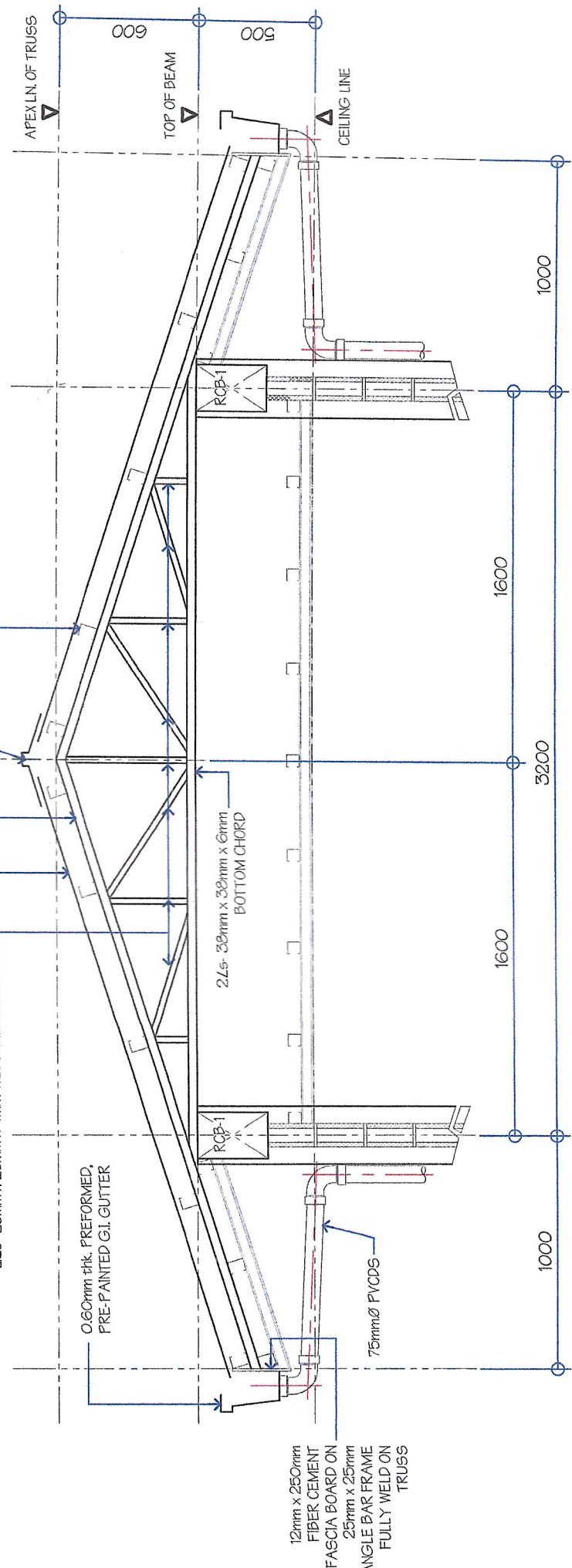




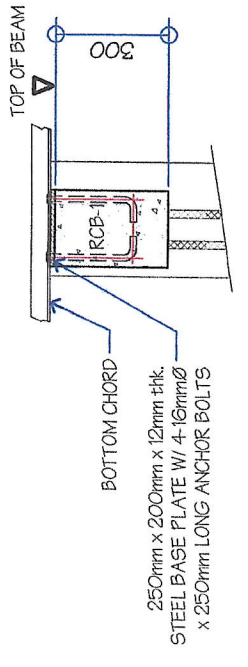




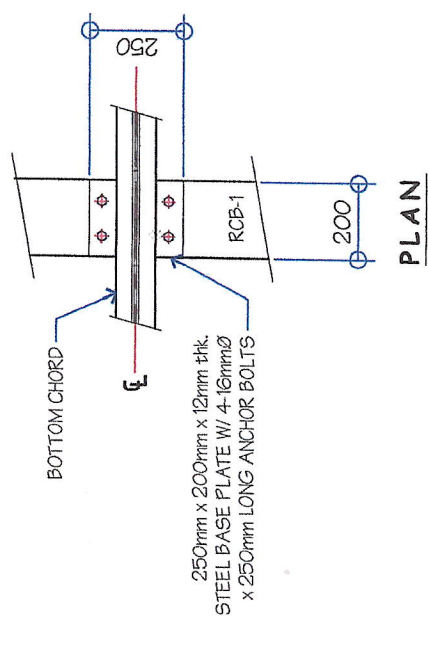
03 FASCIA FRAME DETAIL  
SCALE: 1:30 M



01 DETAIL ELEVATION OF TRUSS (PUMPHOUSE)  
SCALE: 1:25M



SECTION



02 DETAIL OF TRUSS ANCHORAGE  
SCALE: 1:20 M

**DANILO MORLADOR, JR.**  
CIVIL ENGINEER  
REG. NO. 0107545  
PTR. NO. 0518704A  
TIN. NO. 29-941-997  
DATE: 01/04/2023

**PROJECT AND LOCATION**  
PROPOSED CONSTRUCTION OF PUMPHOUSE & GENSET SHED  
LOCATION: LOT 4B-2-E, BRGY. SNAVAL, GEN. SANTOS CITY

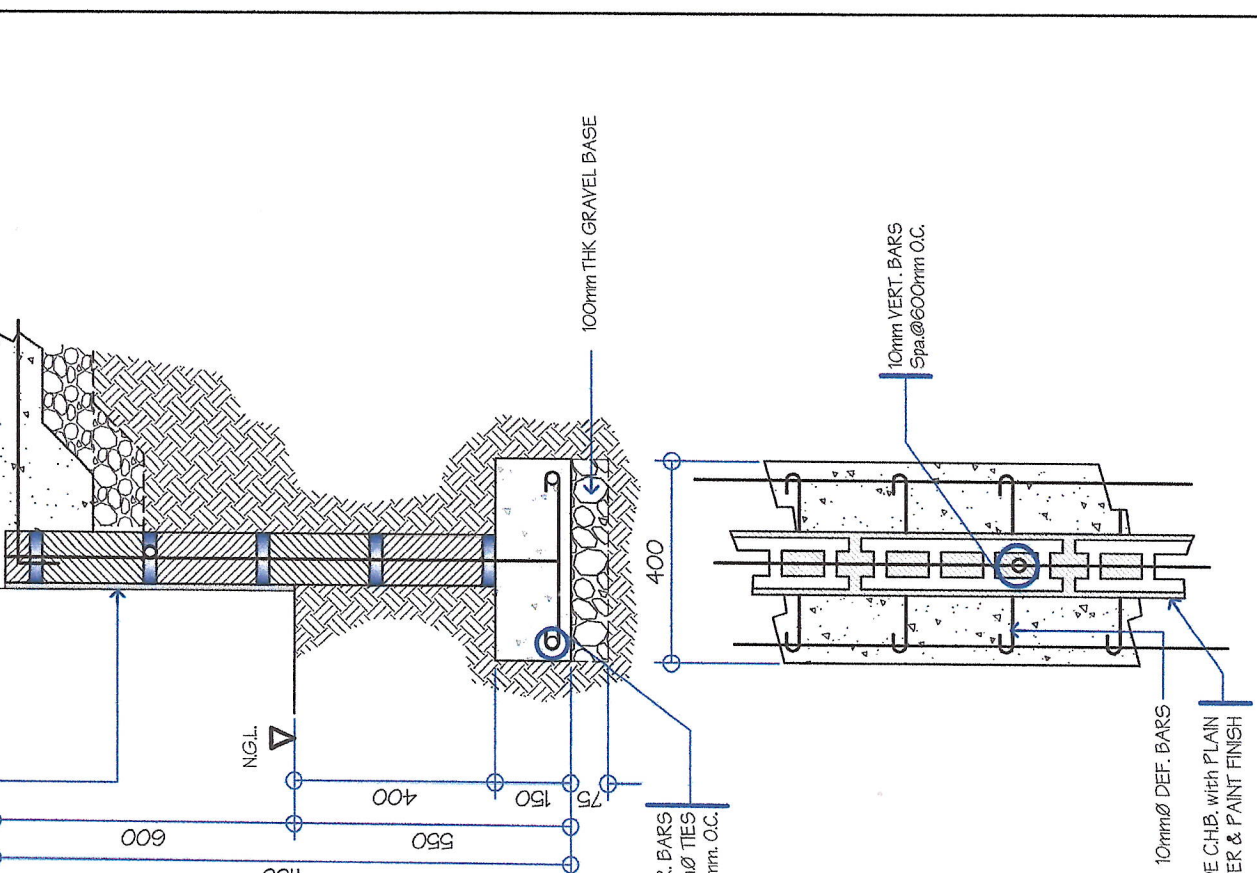
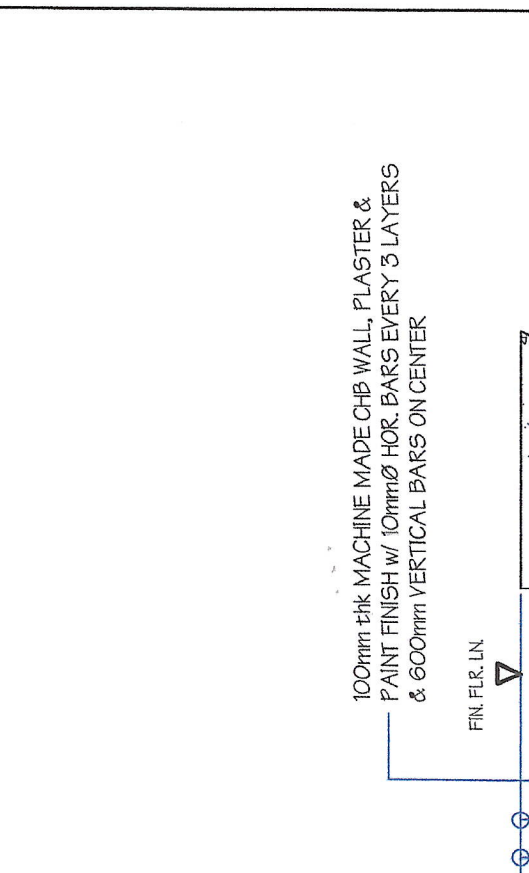
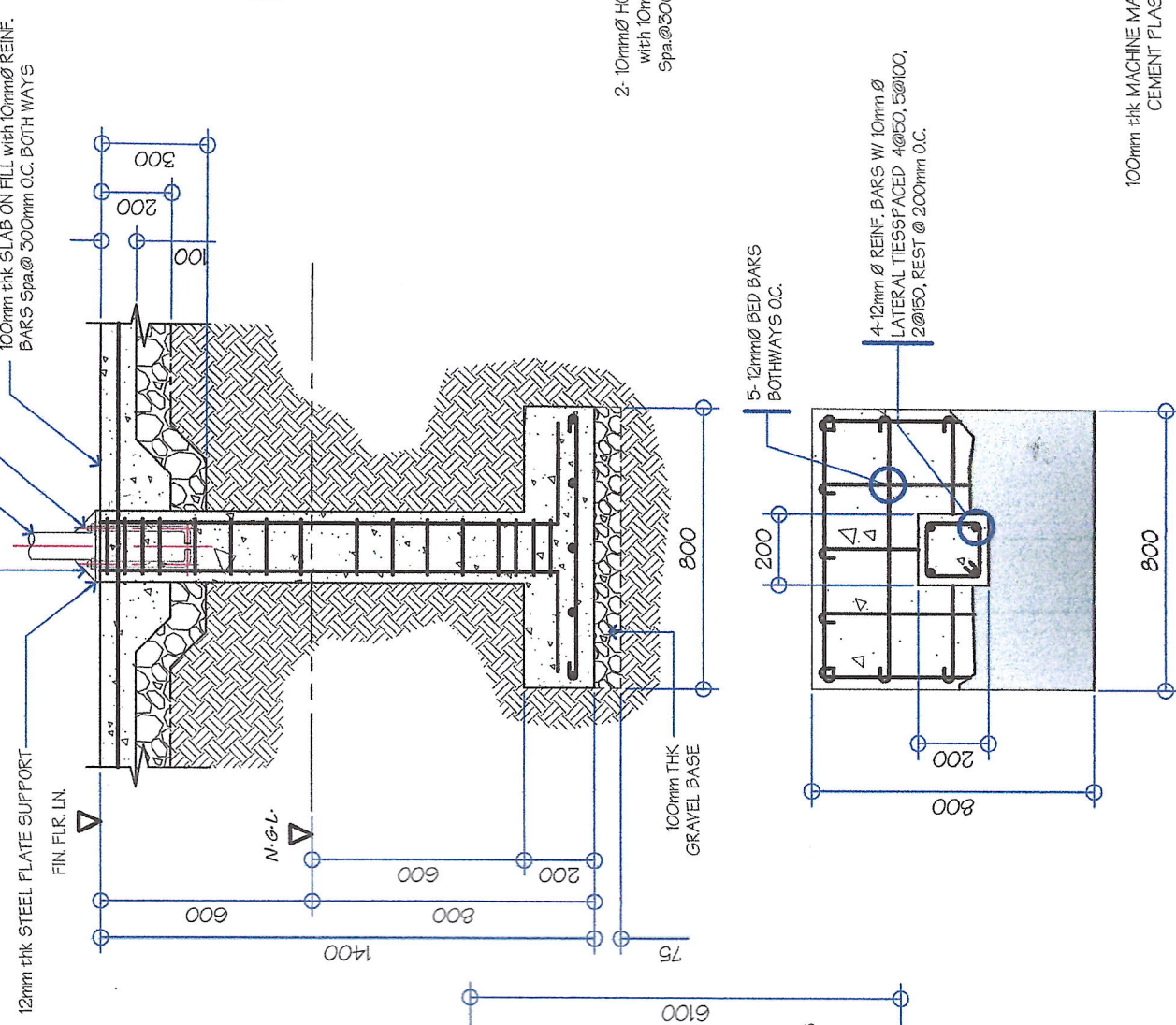
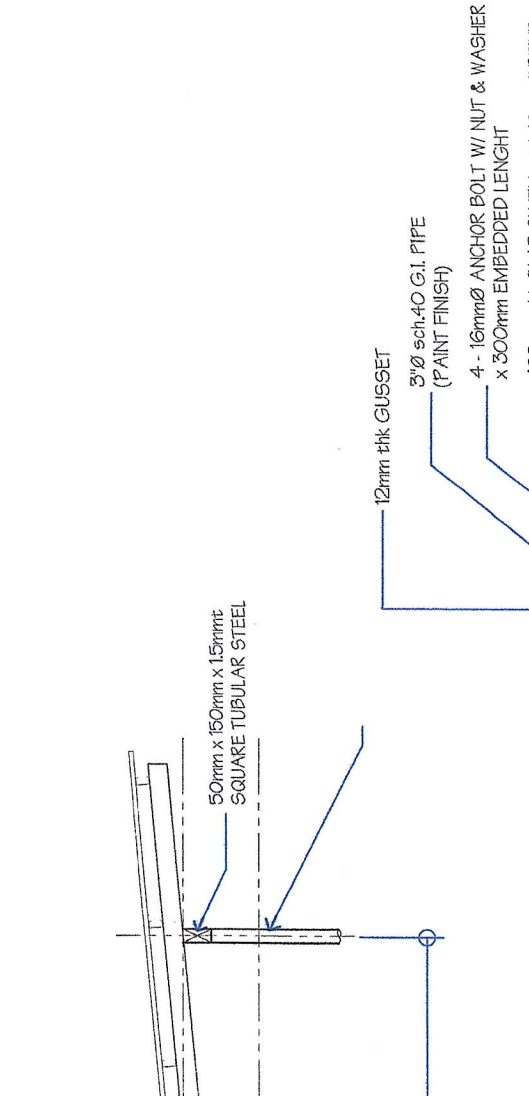
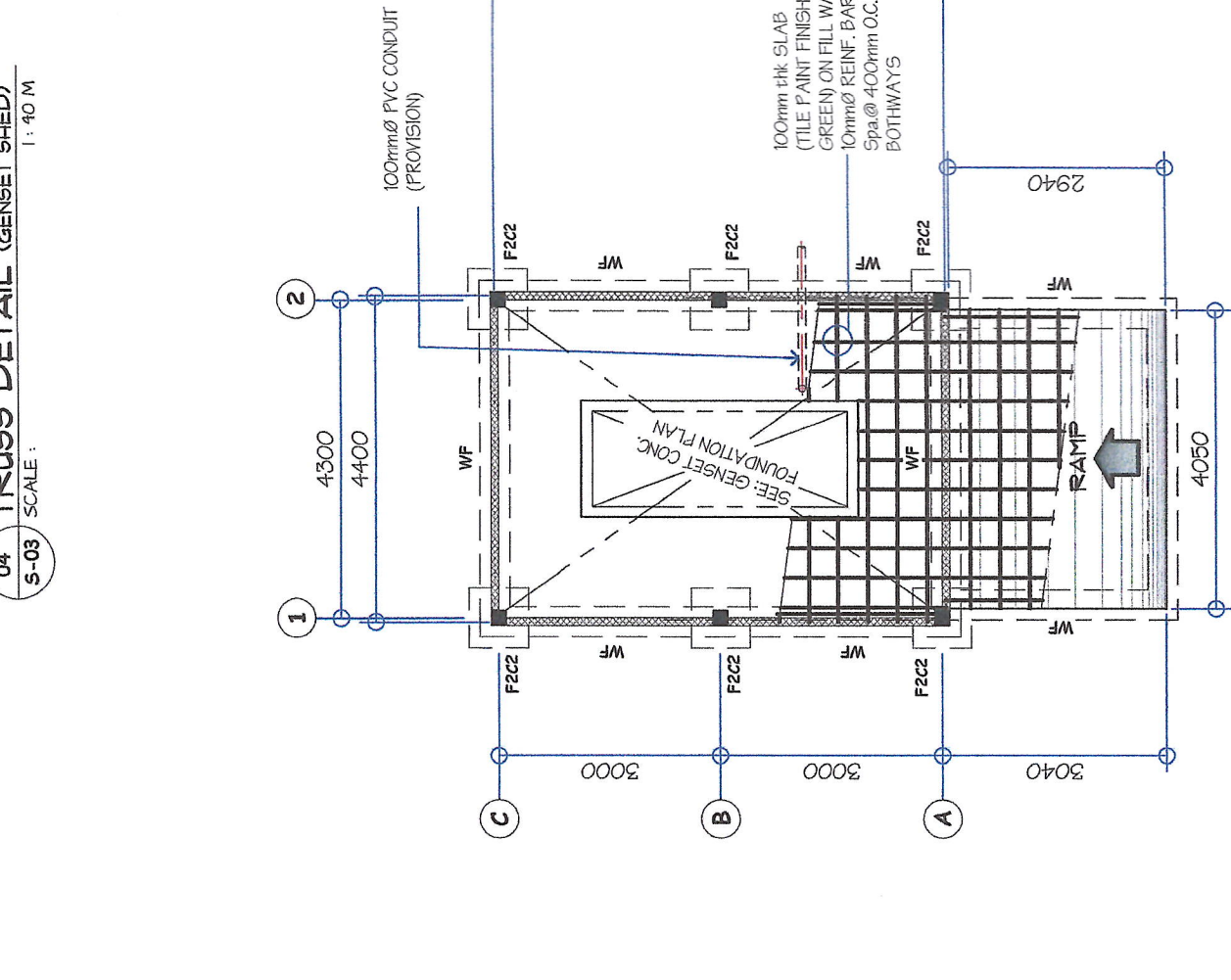
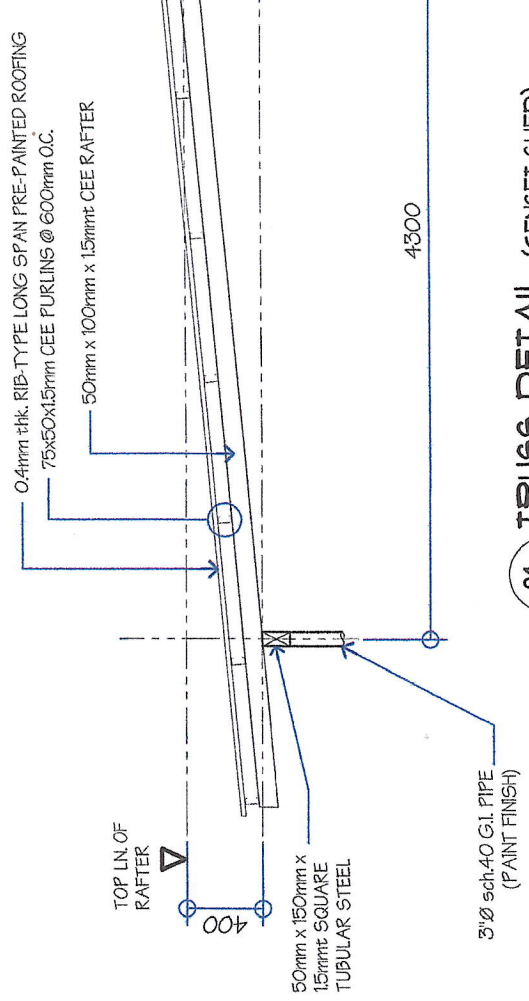
**CHECKED & REVIEWED:**  
ENGR. MARIA CELIA N. DANDAN  
ACTING DEPARTMENT MANAGER, ECD

**RECOMMEND APPROVAL:**  
ENGR. GONNELLO T. TURJUA, JR.  
ACTING AGM, OPERATION & TECHNICAL SERVICES

**APPROVED:**  
ENGR. ROGELIO A. BESANA, JR.  
ACTING GENERAL MANAGER

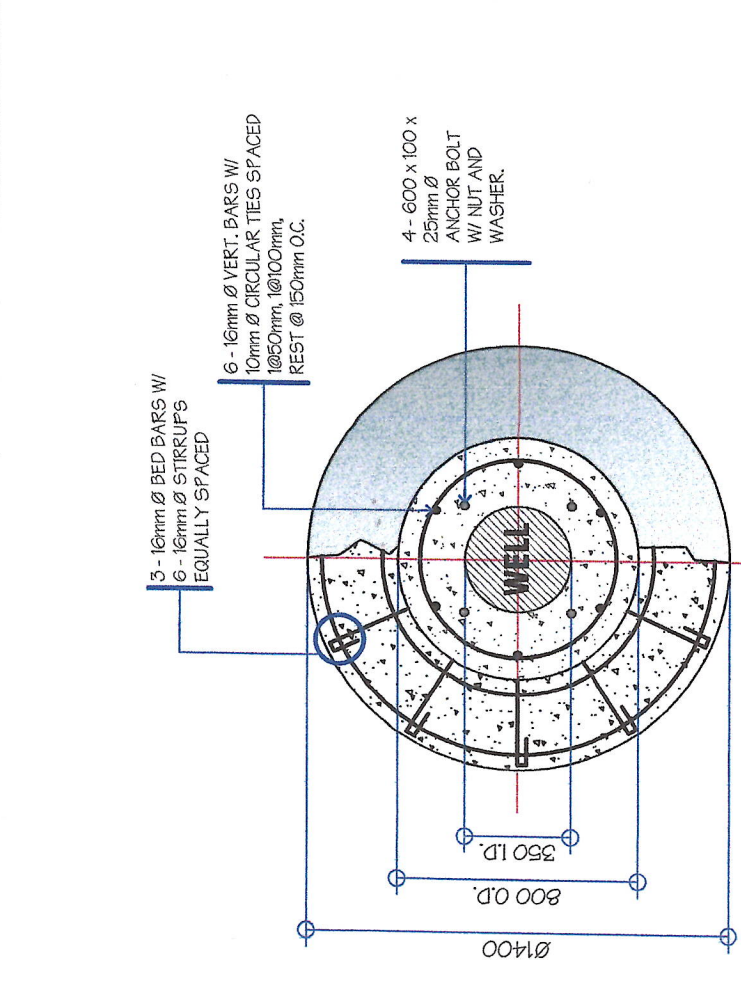
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AS SHOWN		S-02
DRAWN BY: DRNG-SAE	REV. NO.	07
CHECKED BY:	DATE: FEB. 2023	15



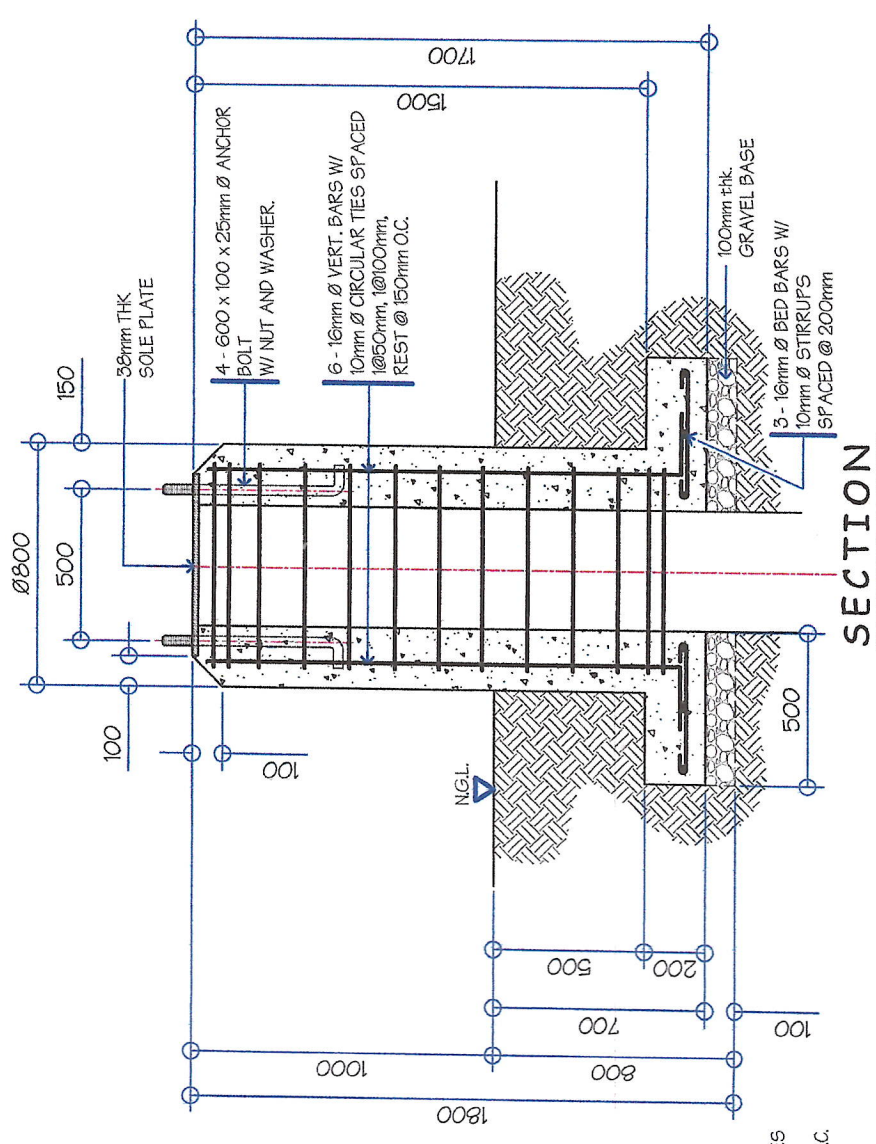


<p>GENERAL SANTOS CITY WATER DISTRICT E. FERNANDEZ STREET, BRGY. LAGAO, GEN. SANTOS CITY ENGINEERING &amp; CONSTRUCTION DEPARTMENT PLANNING AND DESIGN DIVISION TEL. NO.: (083) 852-3824</p>	<p>DANILO MORLADOR, JR. CIVIL ENGINEER REG. NO. C127545 PTR. NO. C518704A DATE: 01/04/2023</p>	<p>PROPOSED CONSTRUCTION OF PUMPHOUSE &amp; GENSET SHED LOCATION: LOT 4-B-A-2-B, BRGY. BINAWAL, GEN. SANTOS CITY</p>	<p>CHECKED: ENGR. MARIA CELIA N. DANDAN ACTING DEPARTMENT MANAGER, ECD</p>	<p>REVIEWED: ENGR. CORNELIO T. TURUA, JR. ACTING AGY. OFFICER IN CHARGE, TECHNICAL SERVICES</p>	<p>APPROVED:  ENGR. AS SHOUN DRAWN BY: DON-S-BAE CHECKED BY:  ACTING GENERAL MANAGER</p>	<p>SHEET CONTENTS: AS SHOUN</p>	<p>SHEET NO. 5-03</p>
	<p>REG. NO. C127545 PTR. NO. C518704A DATE: 01/04/2023</p>	<p>PROPOSED CONSTRUCTION OF PUMPHOUSE &amp; GENSET SHED LOCATION: LOT 4-B-A-2-B, BRGY. BINAWAL, GEN. SANTOS CITY</p>	<p>CHECKED: ENGR. MARIA CELIA N. DANDAN ACTING DEPARTMENT MANAGER, ECD</p>	<p>REVIEWED: ENGR. CORNELIO T. TURUA, JR. ACTING AGY. OFFICER IN CHARGE, TECHNICAL SERVICES</p>	<p>APPROVED:  ENGR. AS SHOUN DRAWN BY: DON-S-BAE CHECKED BY:  ACTING GENERAL MANAGER</p>	<p>SHEET CONTENTS: AS SHOUN</p>	<p>SHEET NO. 5-03</p>

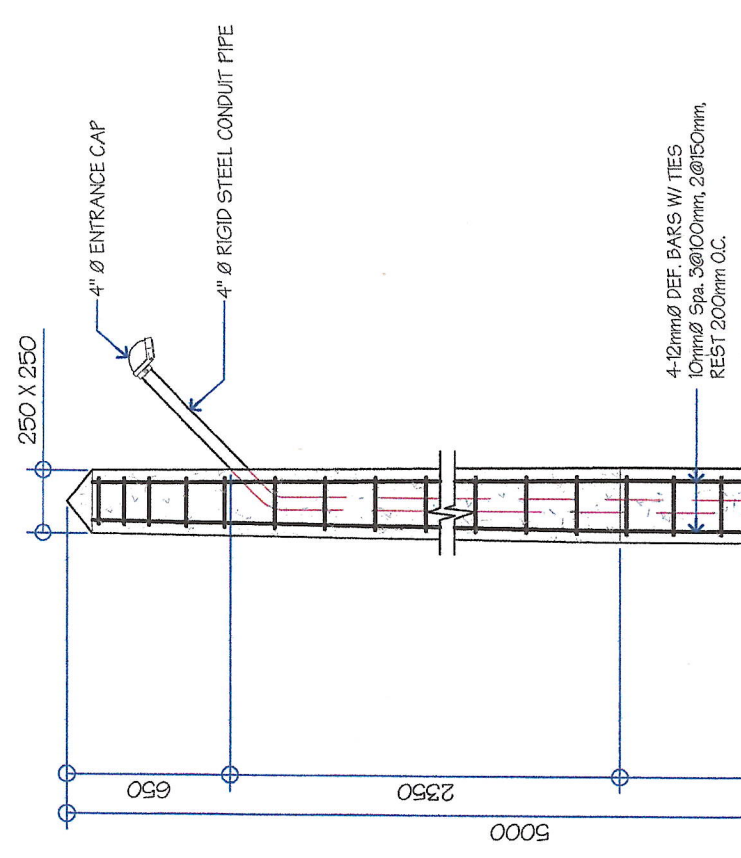




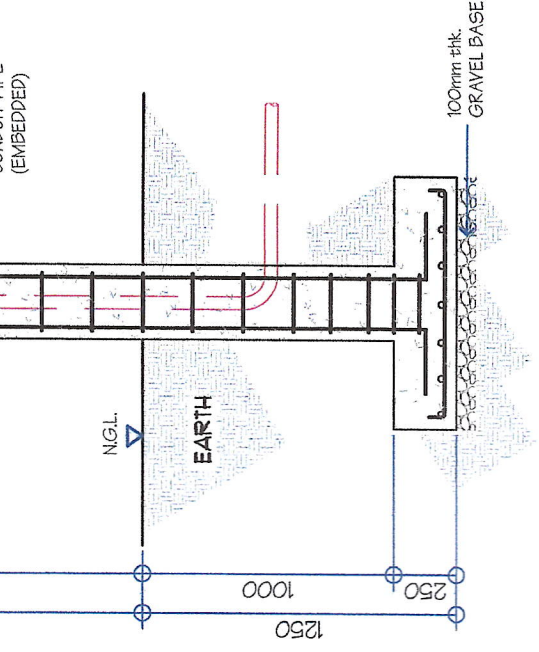
**PLAN**



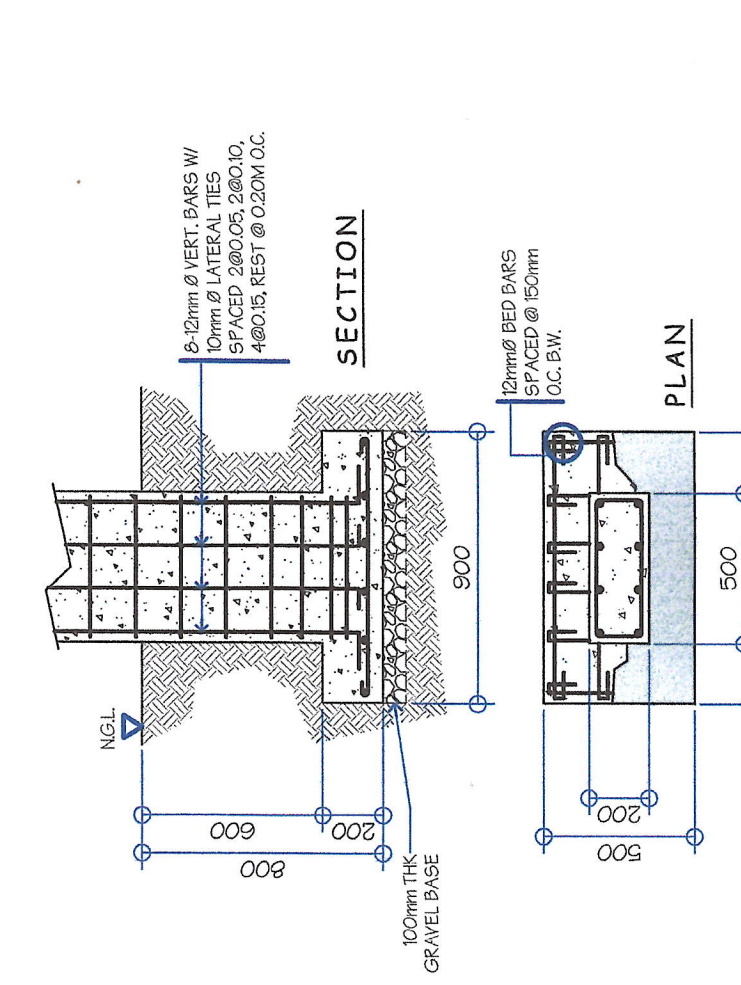
**SECTION**



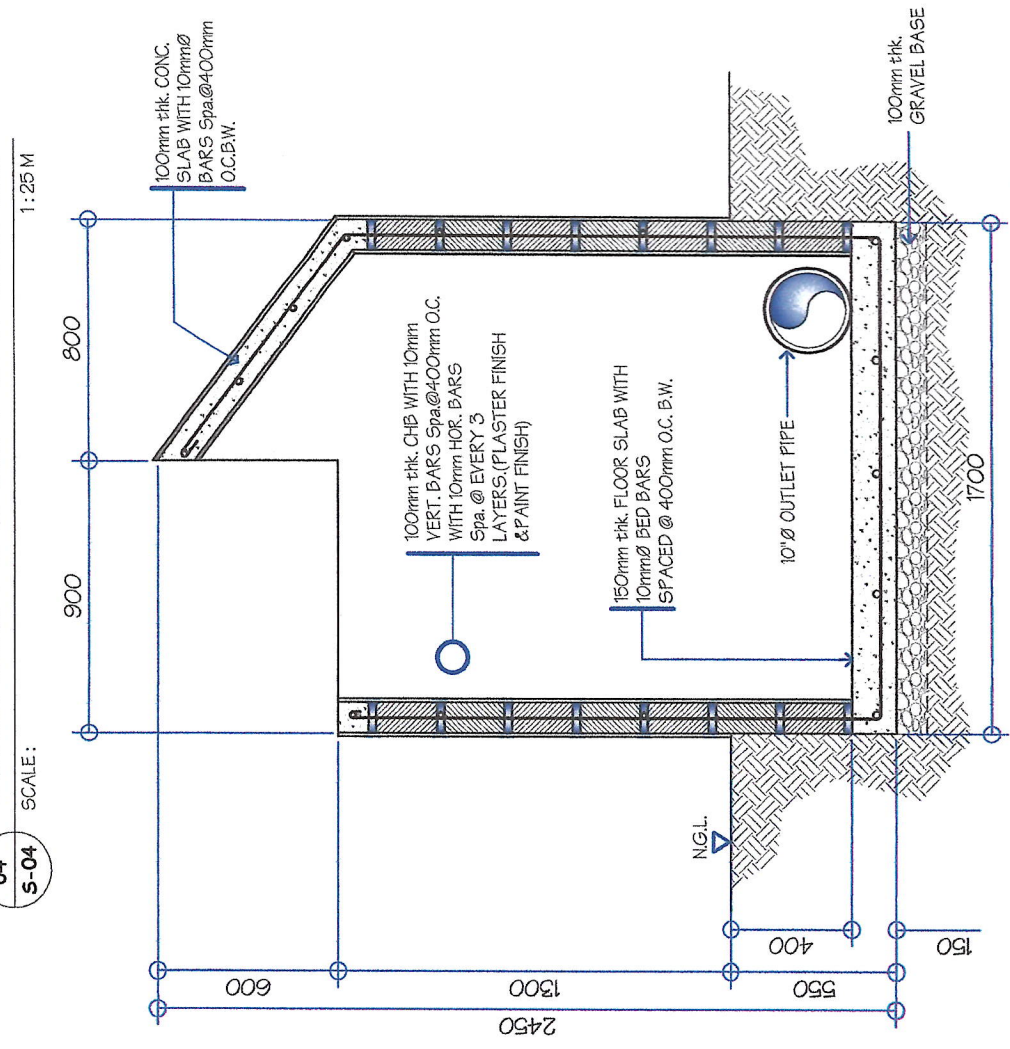
**SECTION**



**PLAN**



**SECTION**



**LONGITUDINAL SECTION OF TEST LINE BOX**

**ELECTRICAL SERVICE ENTRANCE PEDESTAL DETAIL**

**DEEP WELL CONCRETE BASE DETAIL**

04 S-04 SCALE: 1:25 M

01 S-04 SCALE: 1:40 M

02 S-04 SCALE: 1:30 M

03 S-04 SCALE: 1:25 M

<p><b>GENERAL SANTOS CITY WATER DISTRICT</b> E. FERNANDEZ STREET, BRGY. LAGAO, GEN. SANTOS CITY ENGINEERING &amp; CONSTRUCTION DEPARTMENT PLANNING AND DESIGN DIVISION TEL. NO.: (086) 552-9824</p>	<p><b>DANILO M. HORLADOR, JR.</b> CIVIL ENGINEER REG. NO. 0127545 PTR. NO. 0515704A DATE: 01/04/2020</p>	<p><b>PROPOSED CONSTRUCTION OF PUMPHOUSE &amp; GENSET SHED</b></p>	<p><b>ENGR. MARIA CELIA N. DANDAN</b> ACTING DEPARTMENT MANAGER, ECD</p>	<p><b>RECOMMEND APPROVAL:</b></p>	<p><b>ENGR. CORNELIO T. TURUJA, JR.</b> ACTING AGM, OPERATIONS &amp; TECHNICAL SERVICES</p>	<p><b>APPROVED:</b></p>	<p><b>ENGR. ROGELIO A. BESANA, JR.</b> ACTING GENERAL MANAGER</p>	<p><b>SHEET CONTENTS</b></p>	<p><b>AS SHOWN</b></p>	<p><b>SHEET NO.</b></p>
	<p><b>GENERAL SANTOS CITY WATER DISTRICT</b></p>	<p><b>DATE: 01/04/2020</b></p>	<p><b>LOCATION: LOT 48-A-2-B, BRGY. 3N/ANAW, GEN. SANTOS CITY</b></p>	<p><b>ENGR. CORNELIO T. TURUJA, JR.</b> ACTING AGM, OPERATIONS &amp; TECHNICAL SERVICES</p>	<p><b>ENGR. ROGELIO A. BESANA, JR.</b> ACTING GENERAL MANAGER</p>	<p><b>DATE: FEB. 2023</b></p>	<p><b>REV. NO.</b></p>	<p><b>09</b></p>	<p><b>S-04</b></p>	<p><b>15</b></p>



**TECHNICAL SPECIFICATION**

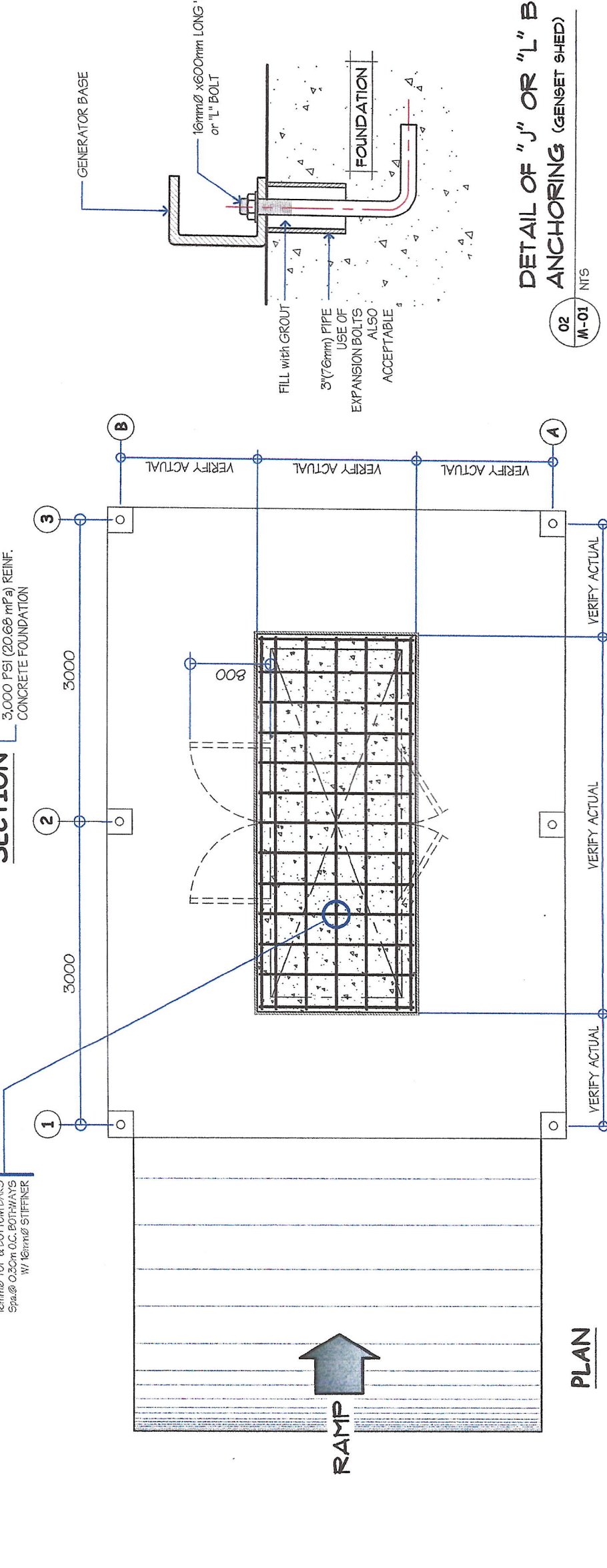
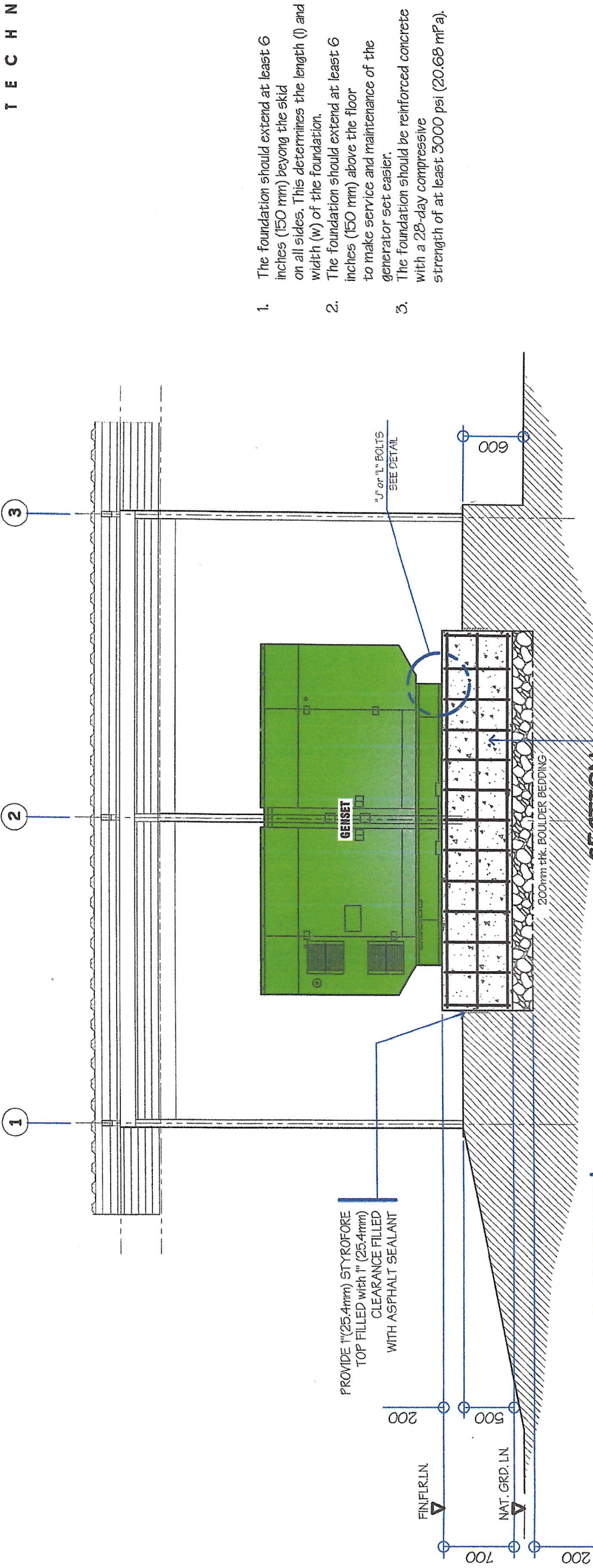
ONE (1) SET BRAND NEW SILENT TYPE DIESEL STANDBY POWERED GENERATING SET COMPLETE WITH ACCESSORIES

- ENGINE**
  - Configuration : 4 cycle, in-line, 6 cylinder diesel
  - Aspiration : Turbo charged and after cooled
  - Rated Speed, rpm : 1800
  - Speed droop : 5%
  - Overspeed limit, rpm : 2200±50
- ALTERNATOR**
  - Frequency and Spd : 60Hz/1800rpm
  - Insulation System : Class H/4 POLES
  - Rated Power Factor : 0.8
  - Voltage Regulation : ±5%
  - Full Load Current : >313 Amperes @460V
  - Excitation : SELF EXCITATION
  - Stator Winding : 2/3
  - Exciter Voltage Regulator : Permanent Magnet Generator (PMG)
- FUEL CONSUMPTION**
  - 100% Load : 50 1/hr
  - 75% Load : 38 1/hr
  - 50% Load : 26 1/hr
  - 25% Load : 15 1/hr
- ELECTRICAL SYSTEM**
  - Voltage : 460-480V
  - Power Factor : 0.8
  - Phase : 3
  - Frequency : 60Hz

- SOUNDPROOF ENCLOSURE**  
It should be Factory Assembled Soundproof Enclosure with 90db.
- GENERATING SET CONTROL MODULE FEATURES**  
Control System comprised of:
  - Protection and control of a diesel engine.
  - Three-phase AC voltage measuring system.
  - Equipped with an LCD display presenting all values and alarms.
  - Automatic engine start/stop.
  - Engine protection.
  - Breaker control.
  - Generator protection.
  - Digital governing and generator set protective functions.
  - Single phase full wave SCR type regulator compatible with either shunt or PMG systems.

- STANDARD FUNCTION**
  - Engine Control
  - Generator Monitoring
  - Generator Protection
  - Engine Monitoring
  - Clear Text Display
- SHUTDOWN FUNCTION**
  - Loss of Speed Signal
  - Alternator Under/Over Voltage
  - Mains Under/Over Frequency
  - Mains Under/Over Voltage
  - Under/Over Speed
  - Low Oil Pressure
  - High Engine Temperature
  - Phase Sequence Electrical (Option)
  - Earth Fault (Option)
- WARNING FUNCTION**
  - Alternator Under/Over Voltage
  - Alternator Under/Over Voltage
  - Mains Under/Over Voltage
  - Mains Under/Over Frequency
  - Under/Over Speed
  - Low Oil Pressure Pre-Alarm
  - High Engine Temperature Pre-Alarm
  - High/Low Battery Voltage
  - Over-current
  - Periodic Maintenance

7. GENERATING SET DIMENSION  
L = 3.30m W = 1.07m H = 1.60m



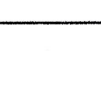
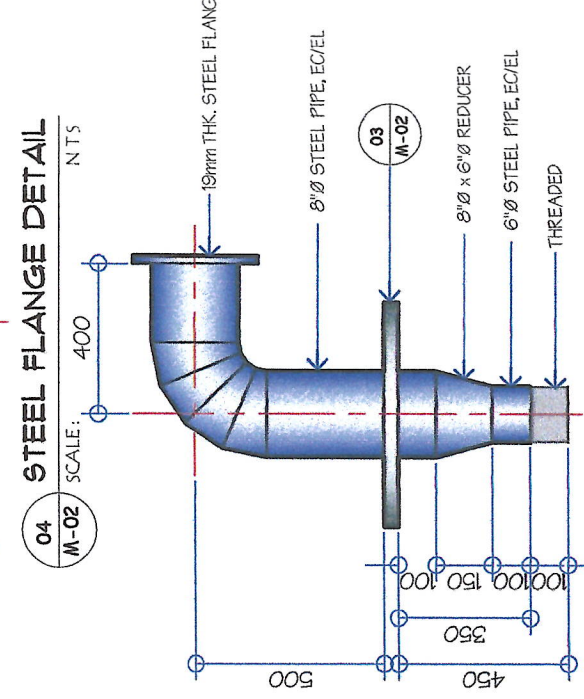
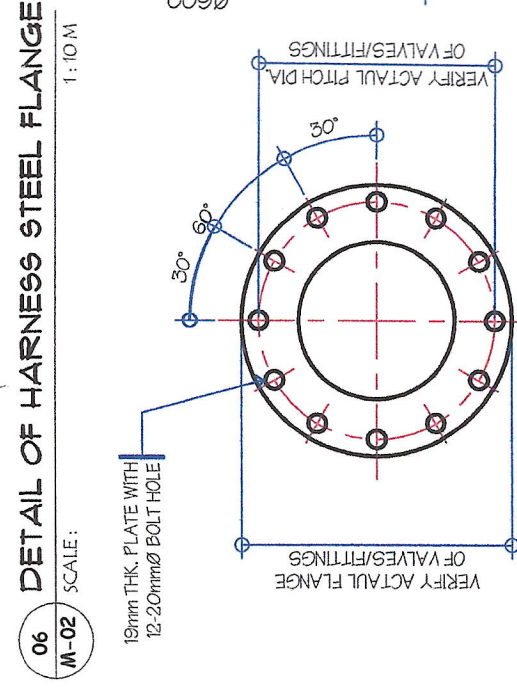
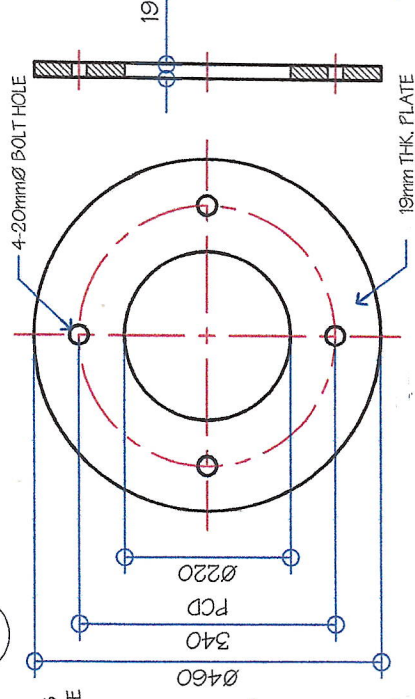
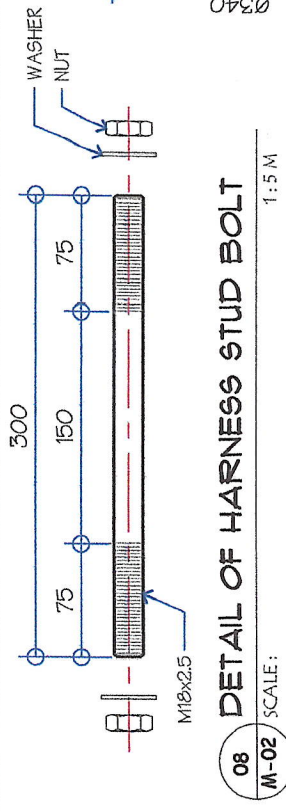
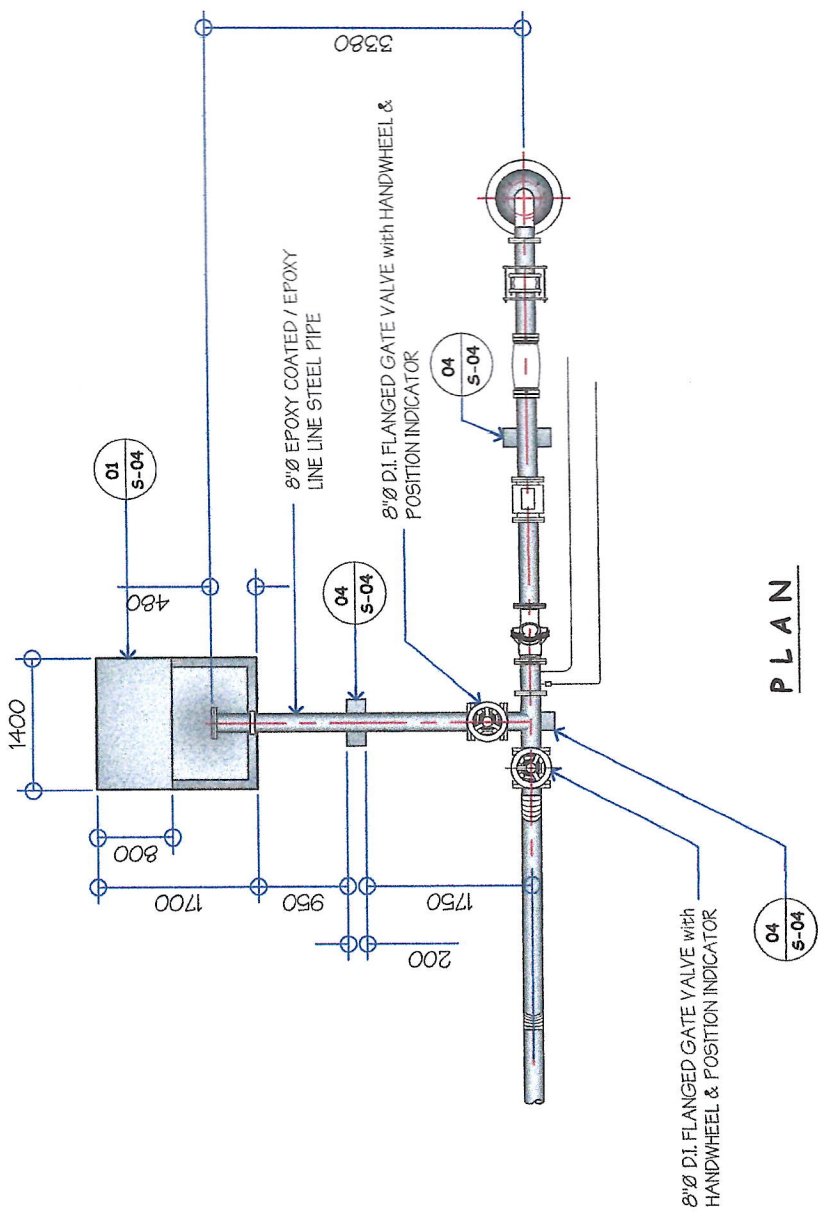
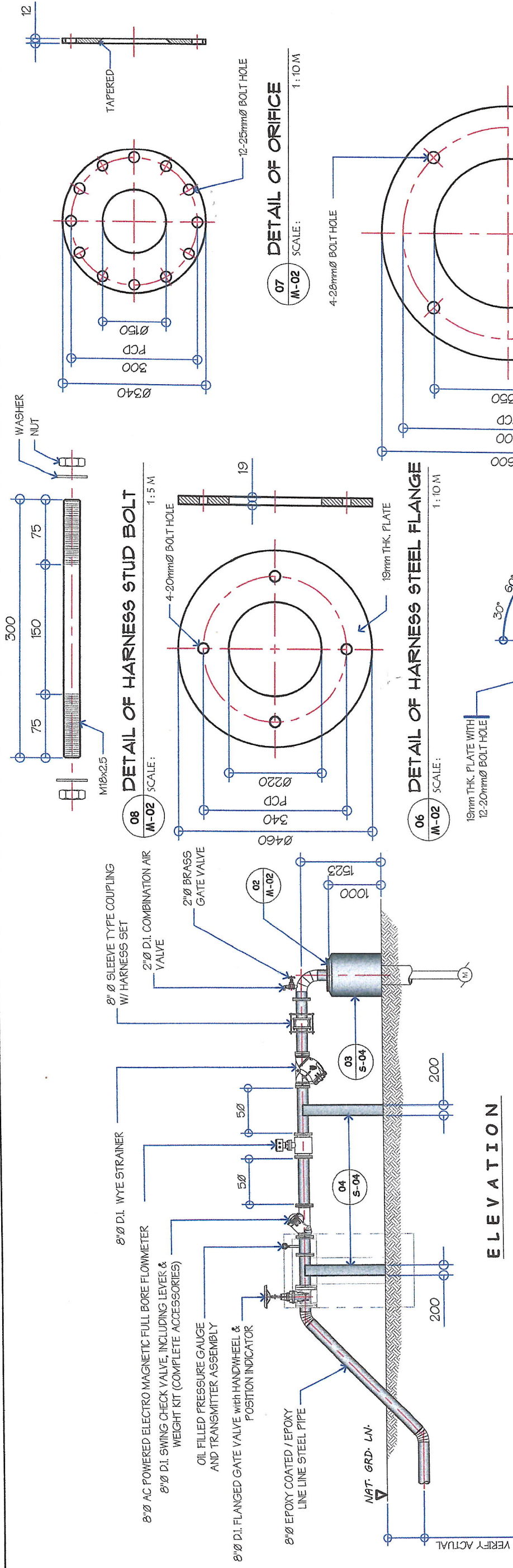
01 M-01 SCALE: 1:50 M  
TYPICAL VIBRATION ISOLATING FOUNDATION (GENSET SHED)

**DETAIL OF "J" OR "L" BOLT ANCHORING (GENSET SHED)**

02 M-01 NTS

<p><b>GENERAL SANTOS CITY WATER DISTRICT</b> E. FERNANDEZ STREET, BRY, LAGAO, GEN. SANTOS CITY ENGINEERING &amp; CONSTRUCTION DEPARTMENT PLANNING AND DESIGN DIVISION TEL. NO. : (085) 652-3824</p>	PROFESSIONAL MECHANICAL ENGINEER REG. NO. _____ PTR. NO. _____ TIN. NO. _____ DATE: _____	PROJECT AND LOCATION <b>PROPOSED CONSTRUCTION OF PUMPHOUSE &amp; GENSET SHED</b> LOCATION: LOT #9-A-2-5, BRGY. SANAVAL, GEN SANTOS CITY	CHECKED & REVIEWED: ENGR. MARIA CELIA N. DANDAN ACTING PROJECT MANAGER, ECD	RECOMMEND APPROVAL: ENGR. CORNELIO T. TURJUA, JR. SENIOR AGM, OPERATION & TECHNICAL SERVICES	APPROVED: ENGR. ROGELIO A. BESANA, JR. ACTING GENERAL MANAGER	SHEET CONTENTS AS SHOWN	SHEET NO. M-01
	DRAWN BY: DONG-RAE CHECKED BY: _____ DATE: FEB. 2023	10	15				



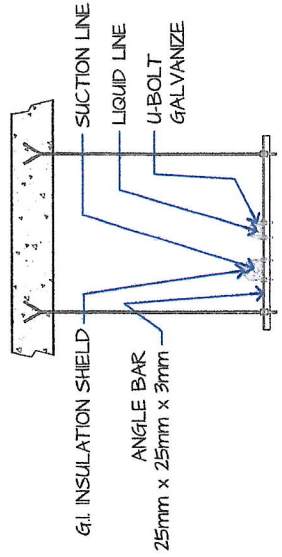


<p><b>GENERAL SANTOS CITY WATER DISTRICT</b>          E. FERNANDEZ STREET, BRGY. LAGAO, GEN. SANTOS CITY          ENGINEERING &amp; CONSTRUCTION DEPARTMENT          PLANNING AND DESIGN DIVISION          TEL. NO.: (085) 552-3824</p>	<p>PROFESSIONAL MECHANICAL ENGINEER</p> <p>REG. NO. _____          PR. NO. _____</p>	<p>PROPOSED CONSTRUCTION OF  <b>PUMPHOUSE &amp; GENSET SHED</b></p> <p>LOCATION: LOT 49-A-2-5, BRGY. SANWAL, GEN. SANTOS CITY</p>	<p>CHECKED &amp; REVIEWED:    <b>ENGR. MARIA CELLA N. DANDAN</b>          ACTING DEPARTMENT MANAGER, ECD</p>	<p>RECOMMEND APPROVAL:  </p>	<p>APPROVED:  </p>	<p>SHEET CONTENTS  <b>As SHOWN</b></p>	<p>SHEET NO.  <b>M-02</b></p>
	<p>TIN. NO. _____          DATE: _____</p>	<p>DRAWN BY: DOUG-BAE          REV. NO. _____          CHECKED BY: _____          DATE: FEB. 2023</p>	<p>11</p>	<p>15</p>			



**RECOMMENDED SUPPORT SPACING FOR COPPER TUBING**

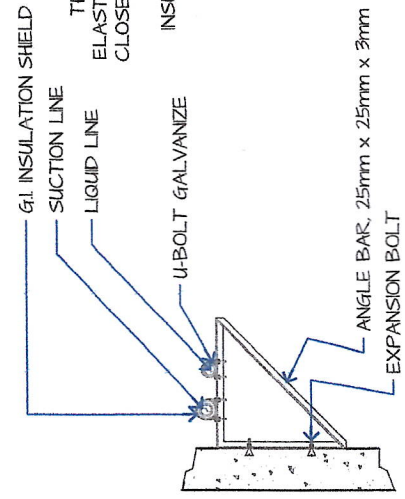
TUBE O.D. (mm)	DISTANCE BETWEEN SUPPORT (M)
16	1.89
22.29	2.44
35.54	3.05



**INDOOR**

**02 PIPE HANGER DETAIL**

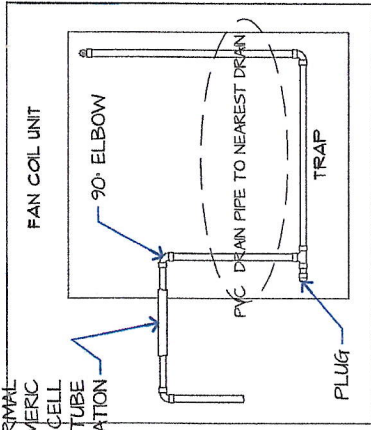
M-03 NOT TO SCALE



**OUTDOOR**

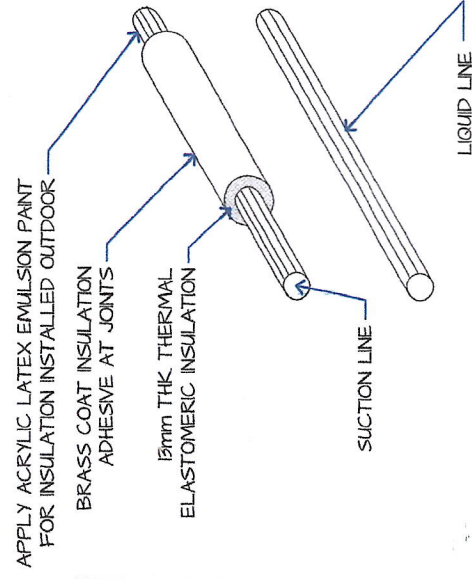
**03 CONDENSE DRAIN PIPE**

M-03 NOT TO SCALE



**04 PIPE INSULATION DETAIL**

M-03 NOT TO SCALE

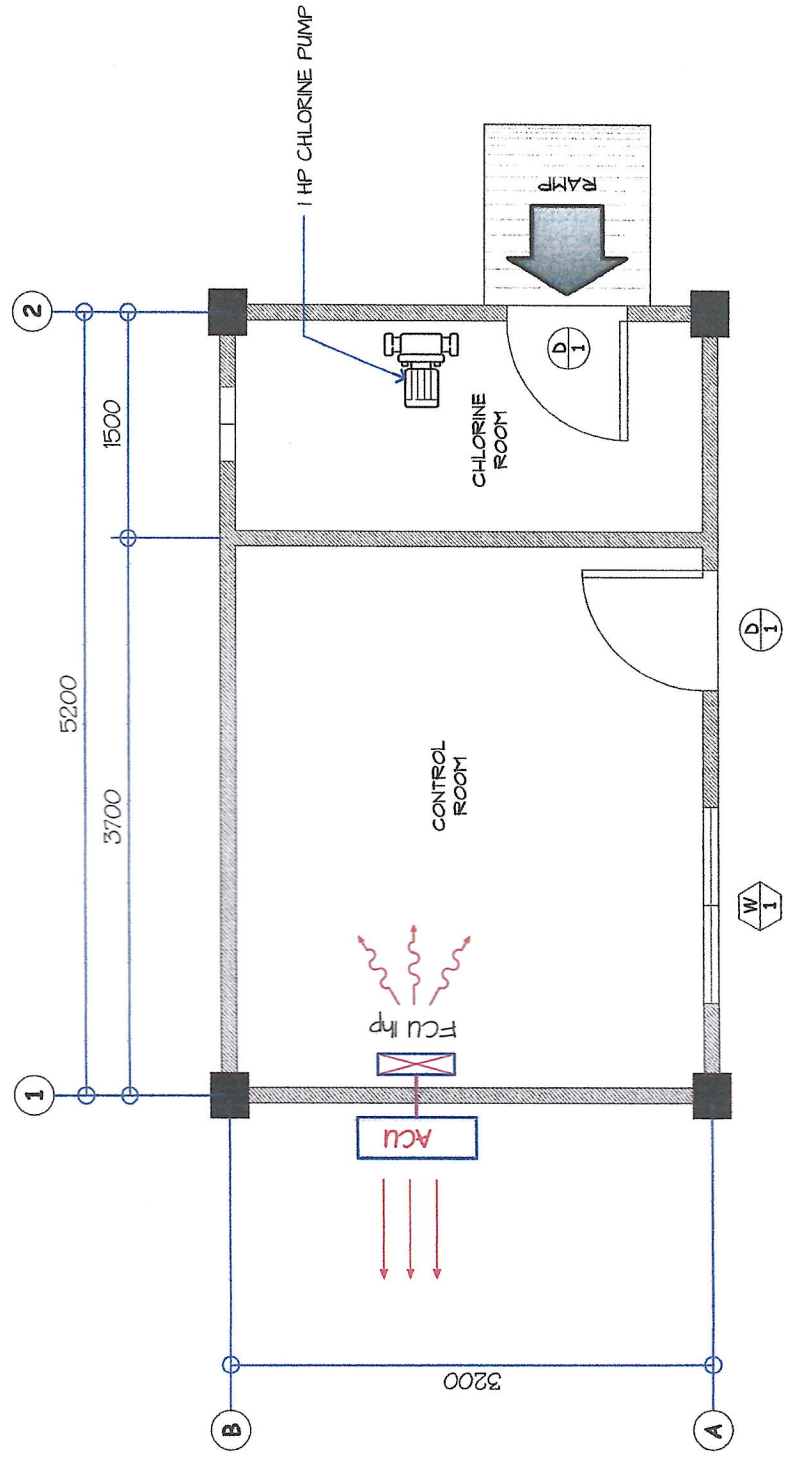
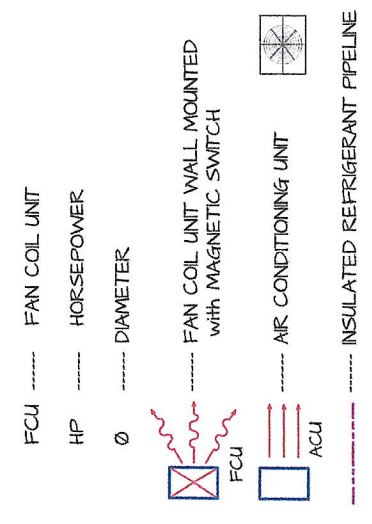


- NOTE:
- ADHESIVE & LATEX PAINT SHOULD BE COMPATIBLE WITH THE INSULATION.
  - LIQUID LINE EXPOSED TO DIRECT SUNLIGHT SHALL BE PROVIDED WITH INSULATION.
  - PROVIDE #24 INSULATION SHIELD AT THE POINT OF SUPPORT.

**MECHANICAL GENERAL NOTES:**

- ALL AIR-CONDITIONING AND VENTILATING UNITS SHALL BE NEW AND THE APPROVED PRODUCTS OF REPUTABLE MANUFACTURERS
- FAN COIL UNITS SHALL BE SUM MODEL MOUNTED AND MUST BE PROVIDED WITH BLUE PVC DRAIN PIPE.
- REFRIGERANT SUCTION LINES SHALL BE INSULATED WITH 13MM THK. ELASTOMERIC PRE-MOLDED RUBBER INSULATION.
- IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE HIS WORK WITH THE OTHER TRADES CONCERNED AND WITH THE OTHER PROJECT ENGINEER.
- THE WORKS THROUGHOUT SHALL BE EXECUTED IN THE MOST THROUGH MANNER KNOWN TO THE TRADE AND TO THE SATISFACTION OF THE ARCHITECT/ENGINEER.
- PROVIDE PROPER FOUNDATION FOR THE MOUNTING OF EQUIPMENT FOUNDATION FOR THE FCU SHALL BE AT LEAST 100MM FROM FINISHED FLOOR LINE.
- ALL AIR-CONDITIONING UNITS SHALL BE PROVIDED WITH THE AUTOMATIC MOTOR PROTECTOR TO BE INSTALLED BESIDE THE ACU.
- REFRIGERANT PIPES FOR SPLIT TYPE AIR-CON SHALL BE CLAD WITH A 4-Ø PVC PIPE PRIOR TO BEING EMBEDDED.
- ALL REFRIGERANT PIPES SHALL BE LOCATED AT THE REAR OF THE FCUS AND NOT ON THE USUAL SIDE LOCATION.
- HANGER/SUPPORT MUST BE PAINTED WITH DOUBLE COAT OF RUST PROTECTIVE PAINT.
- VERIFY ALL DIMENSIONAL LOCATION OF EQUIPMENT ON THE DRAWINGS OF RELATED TRADES AND INVESTIGATE ALL POSSIBLE INTERFERENCE AND CONDITION AFFECTING THE MECHANICAL WORK.
- UPON THE COMPLETION OF THE A/C EQUIPMENT INSTALLATION, TEST ALL FACTORY AND FIELD INSTALLED REFRIGERANT PIPING WITH A LEAK DETECTOR TO ACQUIRE A LEAK-TIGHT CORRECT AND RE-TEST THE SYSTEM FOLLOWING THE MANUFACTURER'S RECOMMENDATIONS.
- THE CONTRACTOR SHALL SUBMIT MANUFACTURER'S WARRANTY CERTIFICATE UPON THE COMPLETION OF THE PROJECT.

**LEGEND & ABBRE.**



**01 MECHANICAL EQUIPMENT LOCATION PLAN**

1:50 M

M-03 SCALE:

<p><b>GENERAL SANTOS CITY WATER DISTRICT</b> E. FERNANDEZ STREET, BRGY. LAGAO, GEN. SANTOS CITY ENGINEERING &amp; CONSTRUCTION DEPARTMENT PLANNING AND DESIGN DIVISION TEL. NO.: (083) 552 - 3824</p>	<p>PROFESSIONAL MECHANICAL ENGINEER</p>	<p>PROJECT AND LOCATION</p> <p><b>PROPOSED CONSTRUCTION OF PUMPHOUSE &amp; GENSET SHED</b></p> <p>LOCATION: LOT 49-A-2-3, BRGY. SINAWAL, GEN. SANTOS CITY</p>	<p>CHECKED &amp; REVIEWED:</p> <p>ENGR. MARA CELIA N. DANDAN ACTING DEPARTMENT MANAGER, ECD</p>	<p>RECOMMEND APPROVAL:</p> <p>ENGR. CONNOR T. TURUA, JR. ENGR. AGM, OPERATION &amp; TECHNICAL SERVICES</p>	<p>APPROVED:</p> <p><i>[Signature]</i> ENGR. ROGELIO A. BESANA, JR. ACTING GENERAL MANAGER</p>	<p>SHEET CONTENTS</p> <p><b>A6 SHOWN</b></p>	<p>SHEET NO.</p> <p><b>M-03</b></p>
	<p>REG. NO.</p> <p>PTR. NO.</p>	<p>TIN. NO.</p> <p>DATE:</p>	<p>DRAWN BY: DONG-PAE</p> <p>CHECKED BY:</p>	<p>REV. NO.</p> <p>DATE: FEB. 2023</p>	<p>12</p>	<p>15</p>	



### PLUMBING NOTES:

- GRADES OF HORIZONTAL PIPING RUN ALL HORIZONTAL FITTINGS IN PERFECT ALIGNMENT AND AT A FORM GRADE OF NOT LESS THAN TWO PERCENT (2%).
- CHANGE IN DIRECTION ALL CHANGE IN DIRECTION SHALL BE MADE BY APPROPRIATE USE OF FORTY FIVE DEGREES (45°) WYES, LONG SWEEP QUARTER BEND, SIX EIGHT OR SIXTEENTH BENDS. WHEN THE CHANGE OF FLOW IS FROM HORIZONTAL TO VERTICAL, 1/8 BEND COMBINATION MAYBE USED ON VERTICAL STACKS AND SHORT QUARTER BENDS MAYBE USED ON WASTE LINE. TEE AND CROSSINGS MAYBE USED IN VENT PIPES.
- PROHIBITED FITTINGS NO DOUBLE HUB OR TEE BRANCH SHALL BE USED ON HORIZONTAL WASTE LINES. THE DRILLINGS AND TAPINGS OF HOUSE DRAIN WASTE OR VENT PIPES AND USE OF SADDLE HUB AND BEND ARE PROHIBITED.
- SLEEVES PROVIDE PIPE SLEEVES AT WALLS, COLUMNS OR SLABS ONE SIZE BIGGER THAN THE ACTUAL SIZE PASSING THROUGH THE WALLS. COLUMNS OR UNDER SLAB TO PROTECT PIPE FROM LEAKAGE.
- PIPE CLEAN-OUTS PIPE CLEAN-OUTS ARE REQUIRED UNDER THE FOLLOWING CONDITIONS:
  - EVERY CHANGE IN HORIZONTAL DIRECTIONS EXCEEDING TWENTY-TWO AND ONE-HALF DEGREES (22.5°).
  - ONE AND ONE-HALF METERS (1.50 m) INSIDE THE PROPERTY LINE BEFORE THE HOUSE DRAINAGE CONNECTION.
  - EVERY FIFTEEN METERS (15.00 m) IN HORIZONTAL RUN OF PIPES.
  - AT THE END OF ANY HORIZONTAL PIPE LINES.
- ALL PLUMBING WORKS SHALL BE DONE BY A LICENSED MASTER PLUMBER AND A LICENSED PLUMBING CONTRACTOR.

### SPECIFICATIONS:

ALL PLUMBING WORKS AND INSTALLATION SHALL CONFORM WITH THE LATEST EDITION OF NATIONAL PLUMBING CODE RULES AND REGULATIONS OF THE ENFORCING AUTHORITY CONCERNED AND CITY.

ALL HORIZONTAL PIPINGS SHALL RUN IN PRACTICAL ALIGNMENT AND SHALL BE PROVIDED WITH SLOPE OF NOT LESS THAN 1% SLOPE AND SUPPORTED OF ANCHORED EVERY 300mm INTERVALS

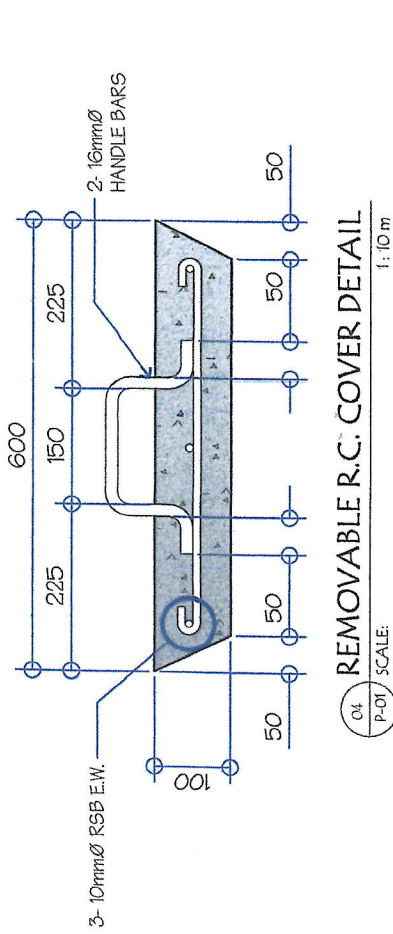
ALL MATERIALS SHALL BE NEW AND APPROVED TYPES:  
FOR SANITARY LINES:  
2" Ø PVC PIPES FOR VENTS AND FIXTURES  
4" Ø PVC PIPES FOR WC, F.C.O.

FOR WATER LINES:  
3/4" Ø G.I. PIPE FOR FIXTURES  
1/2" Ø G.I. PIPE FOR BRANCHES  
1" Ø G.I. PIPE FOR MAINLINE SUPPLY

ALL PLUMBING WORKS AND INSTALLATION SHALL BE STRICTLY SUPERVISED BY A DULY REGISTERED MASTER PLUMBER

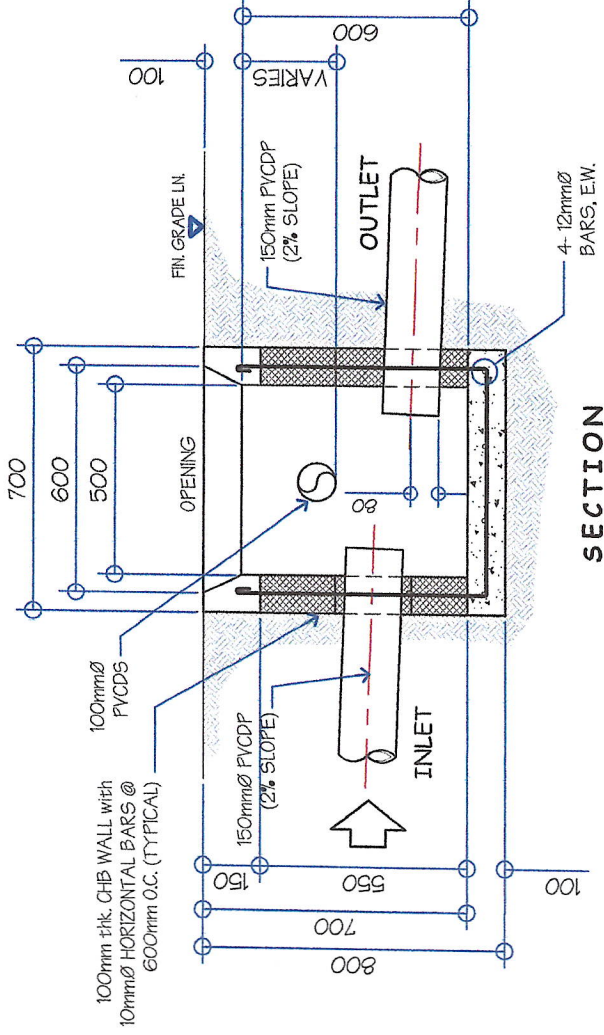
### PLUMBING LEGEND:

- CB CATCH BASIN
- PVCDF POLYVINYL CHLORIDE DRAINAGE PIPE
- PVCDS POLYVINYL CHLORIDE DRAINAGE DOWNSPOUT

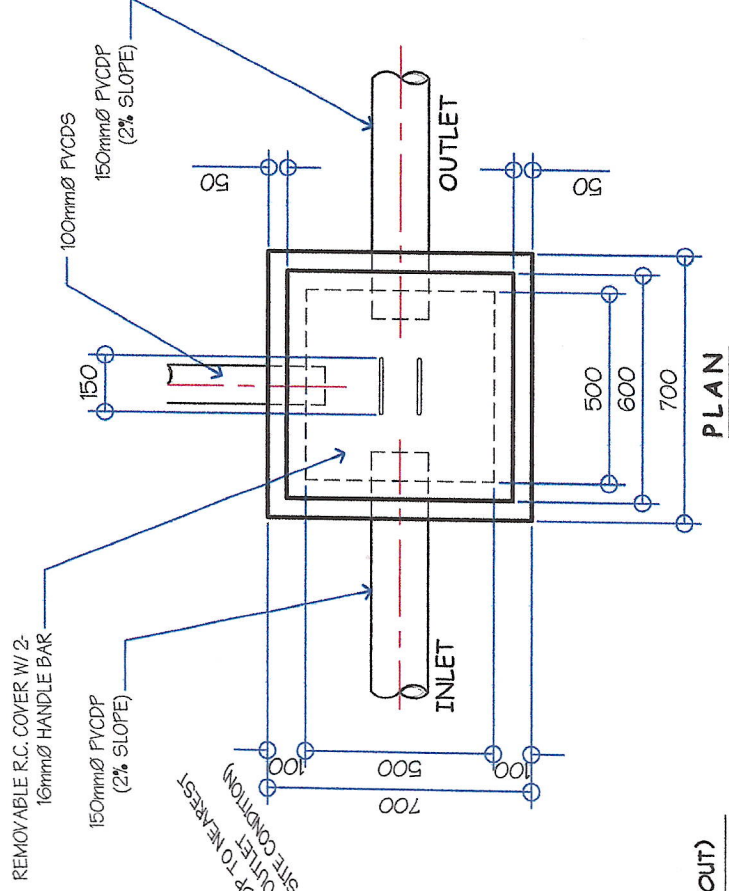


### REMOVABLE R.C. COVER DETAIL

SCALE: 1:10 M



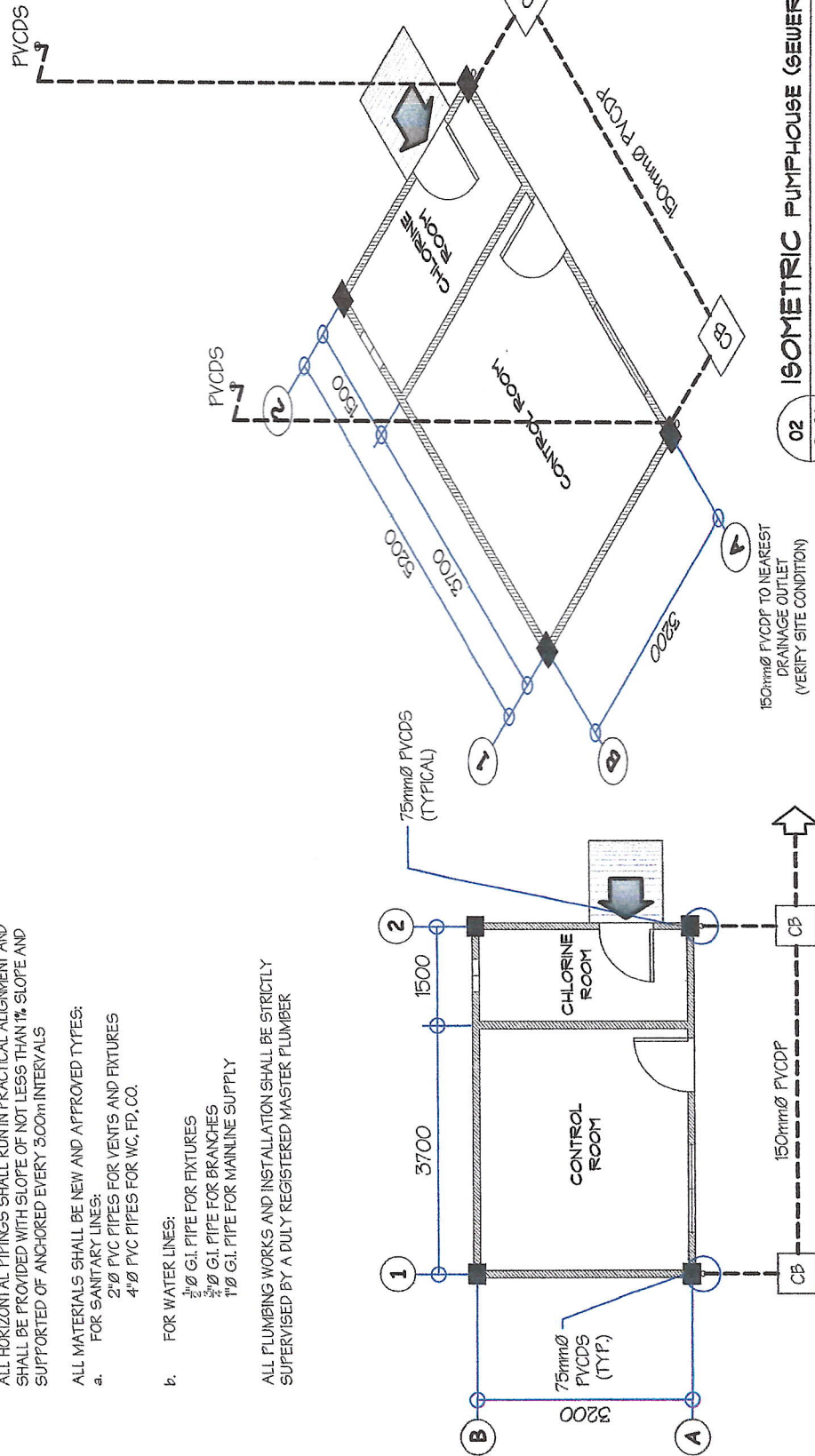
### SECTION



### PLAN

### 03 DETAIL OF CATCH BASIN (PUMPHOUSE)

SCALE: 1:20 M



### 02 ISOMETRIC PUMPHOUSE (SEWER & DRAINAGE LAY-OUT)

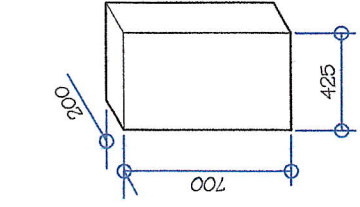
SCALE: NTS

### 01 FLOOR PLAN PUMPHOUSE (SEWER & DRAINAGE LAY-OUT)

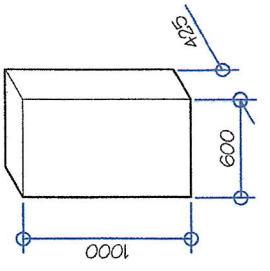
SCALE: 1:100 M

PROJECT AND LOCATION	CHECKED & REVIEWED:	RECOMMEND APPROVAL:	APPROVED:	SHEET CONTENTS	SHEET NO.
PROPOSED CONSTRUCTION OF PUMPHOUSE & GENSET SHED LOCATION: LOT 49-A-2-3, BRGY. SINAVAL, GEN. SANTOS CITY	ENGR. MARIA CELIA N. DANDAN ACTING DEPARTMENT MANAGER, ECD	ENGR. CORNELIO TURJUA, JR. ACTING GENERAL MANAGER	[Signature]	AS SHOWN	P-01
ENGR. ROGELIO A. BESANA, JR. REGISTERED MASTER PLUMBER	TIN. NO. 19C-425-622	ENGR. ROGELIO A. BESANA, JR. DRAWN BY: JONGSAE	[Signature]	REV. NO.	13
REG. NO. 2672	DATE: 01/04/2023	ENGR. ROGELIO A. BESANA, JR. CHECKED BY:	[Signature]	DATE: FEB. 2023	15
PT. NO. 0518705A					

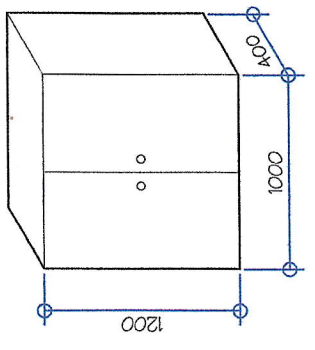




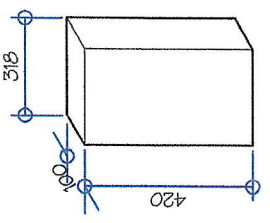
03 MCB  
E-01 NOT TO SCALE



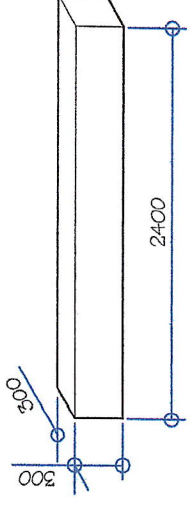
04 ATS  
E-01 NOT TO SCALE



05 MCB  
E-01 NOT TO SCALE

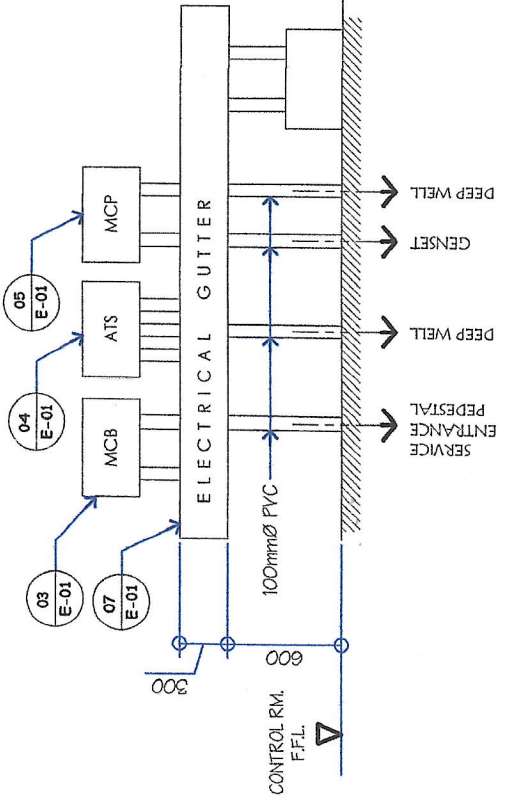


06 220V DISTRIBUTION PANEL  
E-01 NOT TO SCALE

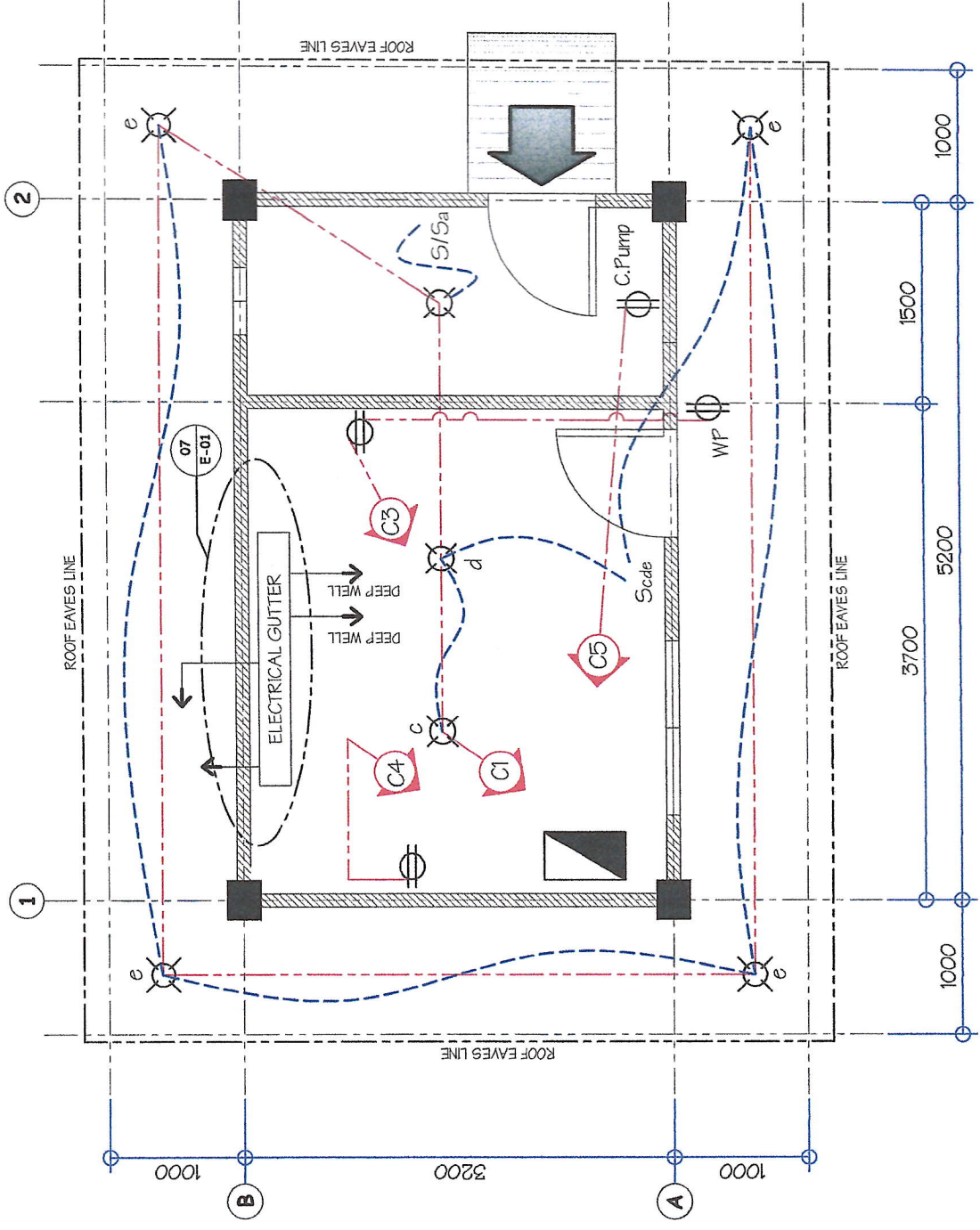


07 ELECTRICAL GUTTER  
E-01 NOT TO SCALE

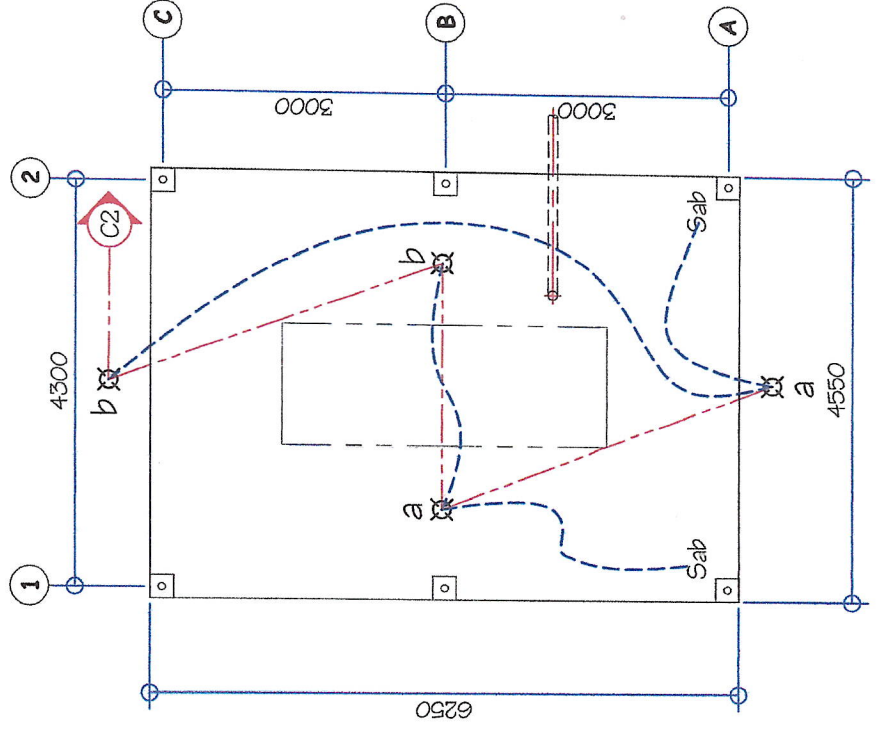
USE : 2mm Thick Pre-Painted G.I. Plain Sheet



08 ELEVATION  
E-01 NOT TO SCALE



01 ELECTRICAL LAYOUT (PUMP HOUSE)  
E-01 SCALE: 1:50 M



02 ELECTRICAL LAYOUT (GENSET SHED)  
E-01 SCALE: 1:50 M

LEGEND:

- CEILING LIGHT OUTLET
- DUPLEX CONVENIENCE OUTLET, GROUNDING TYPE TO AMP'S, 250 VOLT W/ MODERN PLATE COVER
- DUPLEX WEATHERPROOF CONVENIENCE OUTLET
- PANEL BOARD
- MOTOR CONTROL PANEL
- KILOWATT HOUR METER
- ONE GANG DEVICE SWITCH
- TWO GANG DEVICE SWITCH
- THREE GANG DEVICE SWITCH
- HOMERUN DIRECT TO PANEL BOARD
- RACEWAY CONDUIT CONCEALED IN CEILING
- CIRCUIT RUN
- SUBMERSIBLE PUMP MOTOR
- DOUBLE THROW
- GROUNDING SYSTEM
- ELECTRIC SERVICE ENTRANCE
- 1hp CHLORINE BOOSTER PUMP

<p><b>GENERAL SANTOS CITY WATER DISTRICT</b> E. FERNANDEZ STREET, BRGY. LAGAO, GEN. SANTOS CITY ENGINEERING &amp; CONSTRUCTION DEPARTMENT PLANNING AND DESIGN DIVISION TEL. NO.: (083) 652-3824</p>	<p>PROFESSIONAL ELECTRICAL ENGINEER</p> <p>REG. NO. _____ PTR. NO. _____</p>	<p>PROJECT AND LOCATION</p> <p><b>PROPOSED CONSTRUCTION OF PUMPHOUSE &amp; GENSET SHED</b></p> <p>LOCATION: LOT 48-A-2-3, BRGY. SINAWAL, GEN. SANTOS CITY</p>	<p>CHECKED &amp; REVIEWED:</p> <p>ENGR. MARIA CELIA N. DANDAN ACTING DEPARTMENT MANAGER, ECD</p>	<p>RECOMMEND APPROVAL:</p> <p>ENGR. CORNELIO T. JURUA, JR. ACTING DIVISION &amp; TECHNICAL SERVICES</p>	<p>APPROVED:</p> <p>ENGR. EDGELIO A. BESANA, JR. ACTING GENERAL MANAGER</p>	<p>SHEET CONTENTS</p> <p>As shown</p>	<p>SHEET NO.</p> <p>E-01</p>
	<p>DATE: _____</p>	<p>DATE: _____</p>	<p>DATE: FEB. 2023</p>	<p>REV. NO. _____</p>	<p>14</p>	<p>15</p>	



**SCHEDULE OF LOADS:**

CIRCUIT NO.	PARTICULARS	NO. OF OUTLET	WATTS	PHASE	VOLTS	AMPERE	CB RATING	WIRE SIZE AND CONDUIT
1	Lighting Outlet, LED Lamp	7	700	1	230	3.04	15 AT	2-3.5mm <sup>2</sup> THWN, 1-2.0mm <sup>2</sup> TW(GND), IN 15mm <sup>∅</sup> CONDUIT
2	Lighting Outlet, LED Lamp	4	400	1	230	1.74	15 AT	2-3.5mm <sup>2</sup> THWN, 1-2.0mm <sup>2</sup> TW(GND), IN 15mm <sup>∅</sup> CONDUIT
3	Convenience Outlet	2	1,000	1	230	4.35	20 AT	2-5.5mm <sup>2</sup> THWN, 1-2.0mm <sup>2</sup> TW(GND), IN 15mm <sup>∅</sup> CONDUIT
4	ACU, 1hp Split Type/Magnetic Switch w/ Built-in 3-Prong Outlet	1	1,840	1	230	8.00	20 AT	2-5.5mm <sup>2</sup> THWN, 1-2.0mm <sup>2</sup> TW(GND), IN 15mm <sup>∅</sup> CONDUIT
5	1HP Chlorinator pump	1	1,840	1	230	8.00	30 AT	2-5.5mm <sup>2</sup> THWN, 1-2.0mm <sup>2</sup> TW(GND), IN 15mm <sup>∅</sup> CONDUIT
6	S P A R E	1	2,000	1	230	8.70	15 AT	2-3.5mm <sup>2</sup> THWN, 1-2.0mm <sup>2</sup> TW(GND), IN 15mm <sup>∅</sup> CONDUIT
TOTAL			7,780					

COMPUTATION: @ 80% Demand Factor

Demand load =  $7780 / 230 \times 0.80$  = 27.06 A

COMPUTATION FOR MINIMUM STEP DOWN TRANSFORMER 460V/230V:  
 =  $27.06 \times 125 = 3383$  AMPS

KVA =  $3383 \times 230 / 1000$

KVA = 778

USED : 10 KVA, 460V PRE/230V SECONDARY DRY TYPE STEP DOWN TRANSFORMER

FEEDER : 2 - 14mm<sup>∅</sup> THWN wire, 1 - 3.5mm<sup>2</sup> TW (GND) IN 20mm<sup>∅</sup> CONDUIT

MAIN : 50AT, 100AF, 2P, 230V

PANEL FEED MOUNTING:	VOLTAGE:	NO. OF OUTLET
MCP TOP SURFACE	460	3
	460	3

CKT NO.	PARTICULARS	NO. OF OUTLET	WATTS	PHASE	VOLTS	AMPERE			CB RATING	WIRE SIZE AND CONDUIT
						AB	BC	CA		
1	125 HP Submersible Motor	1	106,000	3	460			30	250 AT	3-10.0mm <sup>2</sup> THWN, 1-2.2mm <sup>2</sup> TW(GND) IN 100mm <sup>∅</sup> CONDUIT
2	LP 10 KVA Dry Type Xmer	1	7,780	1	460	16.91			40 AT	2-5.5mm <sup>2</sup> THWN, 1-2.0mm <sup>2</sup> TW(GND) IN 15mm <sup>∅</sup> CONDUIT
TOTAL			113,780							

COMPUTATION:

$I = \frac{125 \times 113780}{173 \times 460 \times 0.80}$

$I = 223.4$  AMPS

KVA =  $(113780 / 125) / 0.80$

= 1137.8

= 177.78

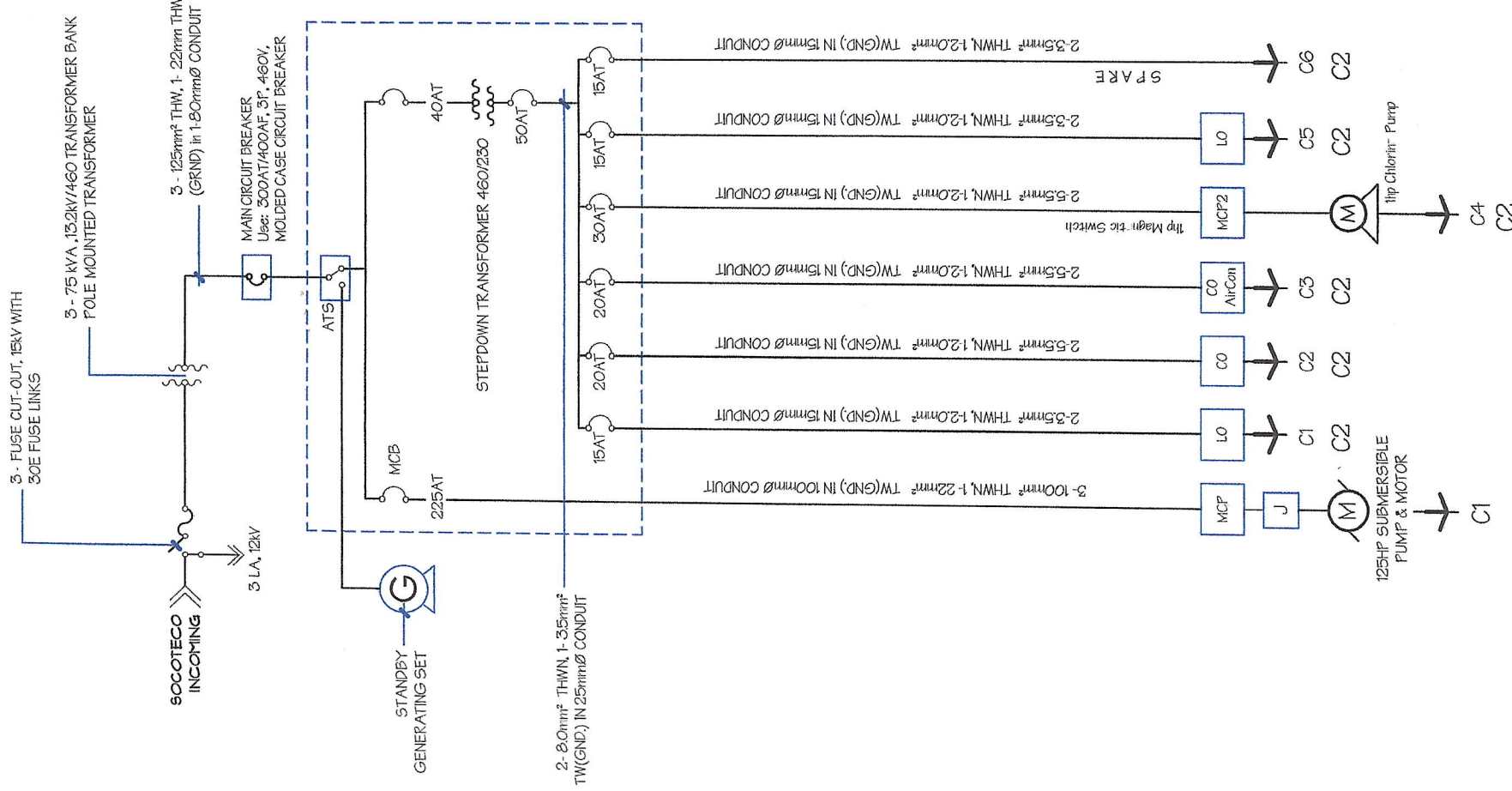
USE : 3 - 75 KVA, 13.2KV/460V TRANSFORMER BANK POLE MOUNTED TRANSFORMER

**GENERAL NOTES:**

- ALL ELECTRICAL WORKS SHALL BE DONE IN ACCORDANCE WITH THE PROVISIONS OF THE LATEST EDITION OF THE PHILIPPINE ELECTRICAL CODE, EXISTING APPLICABLE ORDINANCES, RULES AND REGULATIONS OF THE LOCAL GOVERNMENT AND WITH THE REQUIREMENTS OF THE LOCAL POWER COMPANY.
- THE TYPE OF SERVICE POWER SUPPLY TO BE USED SHALL BE SINGLE-PHASE, 2-WIRE, 230V, 60 HERTZ, AC
- THE CONTRACTOR SHALL VERIFY AND ORIENT THE ACTUAL LOCATION OF SERVICE ENTRANCE FOR CONNECTION TO THE POWER COMPANY SERVICE POINT.
- UNLESS OTHERWISE SPECIFIED, THE MINIMUM SIZES OF WIRE AND ELECTRICAL PVC PIPE TO BE USED SHALL BE 3.5mm<sup>2</sup> THWN AND 15mm NOMINAL DIAMETER, RESPECTIVELY. LIKEWISE ALL ELECTRICAL WIRES SHALL BE COLOR-CODED.
- ALL LIGHTING CIRCUIT HOME RUNS AND CONVENIENCE OUTLETS SHALL BE WIRED WITH NOT LESS THAN 3.5 mm<sup>2</sup> IN SIZE.
- WHEREVER REQUIRED AND NECESSARY, PULL OR JUNCTION BOXES SHALL BE INSTALLED AT CONVENIENT AND INCONSPICUOUS LOCATION. ALTHOUGH SUCH BOXES ARE NOT SHOWN ON THE PLAN NOR MENTIONED IN THE SPECIFICATIONS.
- ALL NON-CURRENT CARRYING METAL PARTS OF ELECTRICAL EQUIPMENT SHALL BE PROPERLY GROUNDED IN ACCORDANCE WITH THE PROVISIONS OF THE LATEST EDITION OF THE PHILIPPINE ELECTRICAL CODE.
- ALL MATERIALS TO BE USED SHALL BE BRAND NEW AND OF THE APPROVED TYPE FOR LOCATION AND PURPOSE.
- ALL WALL OUTLETS SHALL BE INSTALLED AT THE FOLLOWING HEIGHTS ABOVE THE FINISHED FLOOR LEVEL, UNLESS NOTED IN THE PLAN.
  - WALL SWITCHES @ 1300mm
  - ALL CONVENIENCE OUTLETS @ 300 mm
- ALL ELECTRICAL WORKS SHALL BE DONE UNDER THE DIRECT AND IMMEDIATE SUPERVISION OF A DULY REGISTERED ELECTRICAL ENGINEER.

**MOUNTING HEIGHTS:**

- CONVENIENCE OUTLETS : 300mm FROM BOTTOM OF OUTLET TO FINISH FLOOR LEVEL.
- WALL SWITCHES : 1,370mm FROM BOTTOM OF SWITCH TO FINISH FLOOR LEVEL.
- PANEL BOARD : 1,830mm TOP OF PANEL TO FINISH FLOOR LEVEL.
- KILOWATT HOUR METER : 1,830mm FROM CENTER OF DEVICES TO FINISH GRADE LEVEL.



01 E-02 NOT TO SCALE

**POWER SYSTEM SINGLE LINE DIAGRAM**

<p><b>GENERAL SANTOS CITY WATER DISTRICT</b>                  E. FERNANDEZ STREET, BRGY. LAGAO, GEN. SANTOS CITY                  ENGINEERING &amp; CONSTRUCTION DEPARTMENT                  PLANNING AND DESIGN DIVISION                  TEL. NO.: (083) 552-3824</p>	PROJECT AND LOCATION <p><b>PROPOSED CONSTRUCTION OF PUMPHOUSE &amp; GENSET SHED</b></p> LOCATION: LOT 49-A-2-5, BRGY. BINAWAL, GEN. SANTOS CITY	CHECKED & REVIEWED:  ENGR. MARIA FELINA N. DANDAN ACTING DEPARTMENT MANAGER, ECD	RECOMMEND APPROVAL:  ENGR. CORNELIO TURUJA, JR. ACTING AGN. OPERATIONAL TECHNICAL SERVICES	APPROVED:  ENGR. ROGELIO A. BESANA, JR. ACTING GENERAL MANAGER	SHEET CONTENTS AS SHOWN	SHEET NO. E-02
	REG. NO. TIN. NO. DATE:	DRAWN BY: DCS/RAE CHECKED BY:	REV. NO. DATE: FEB. 2023	15	15	