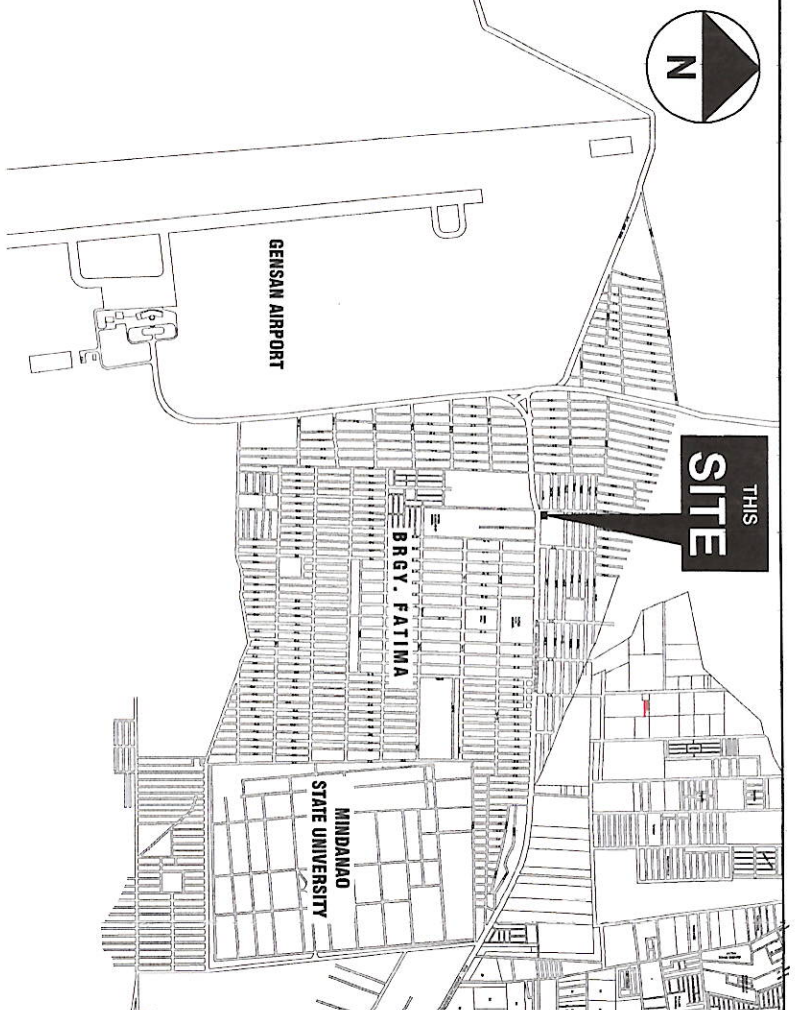


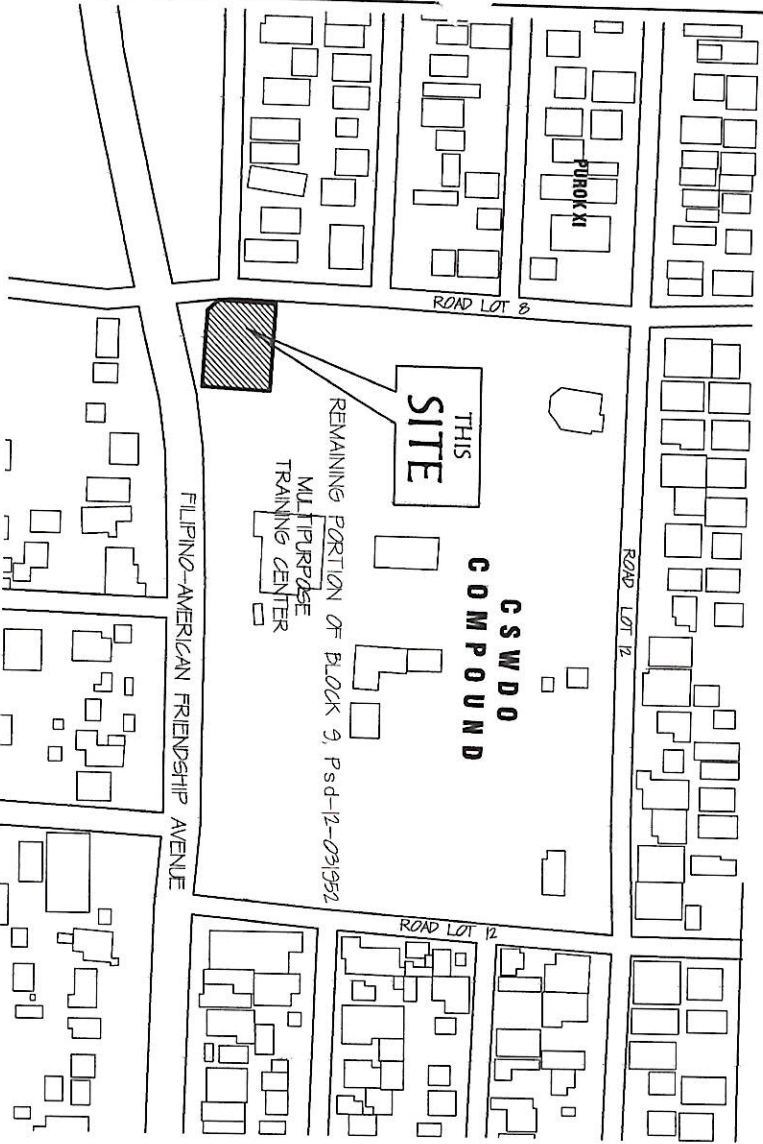
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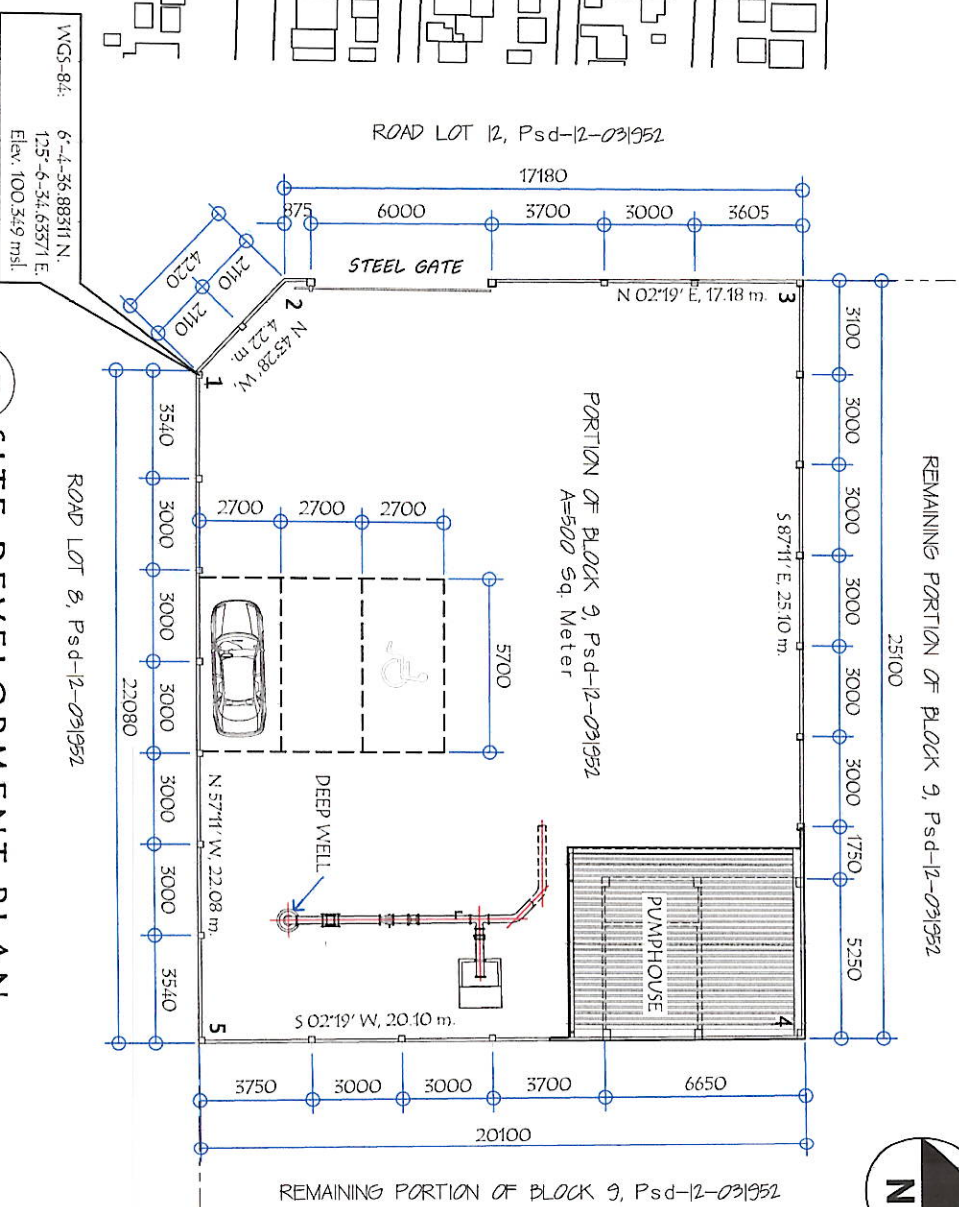
03 PERSPECTIVE
A-01 NOT TO SCALE



04 VICINITY MAP
A-01 NOT TO SCALE

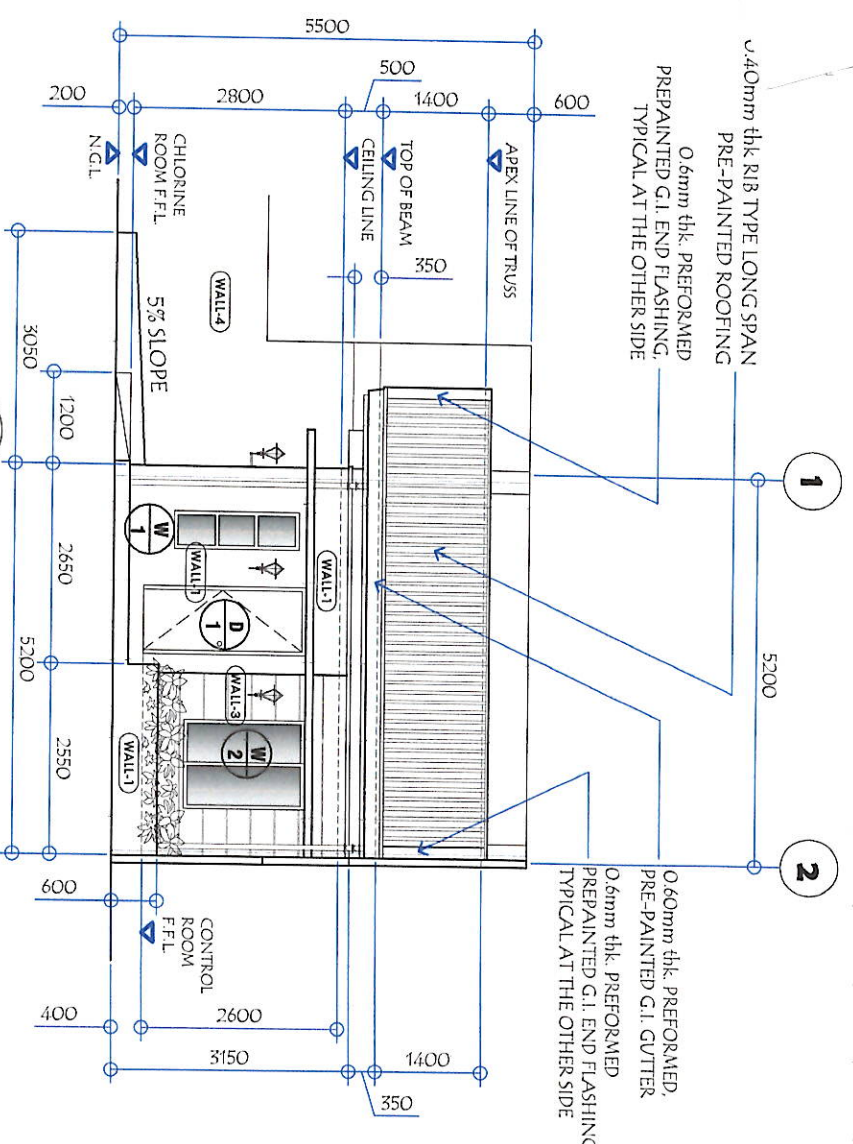


01 LOCATION PLAN
A-01 NOT TO SCALE

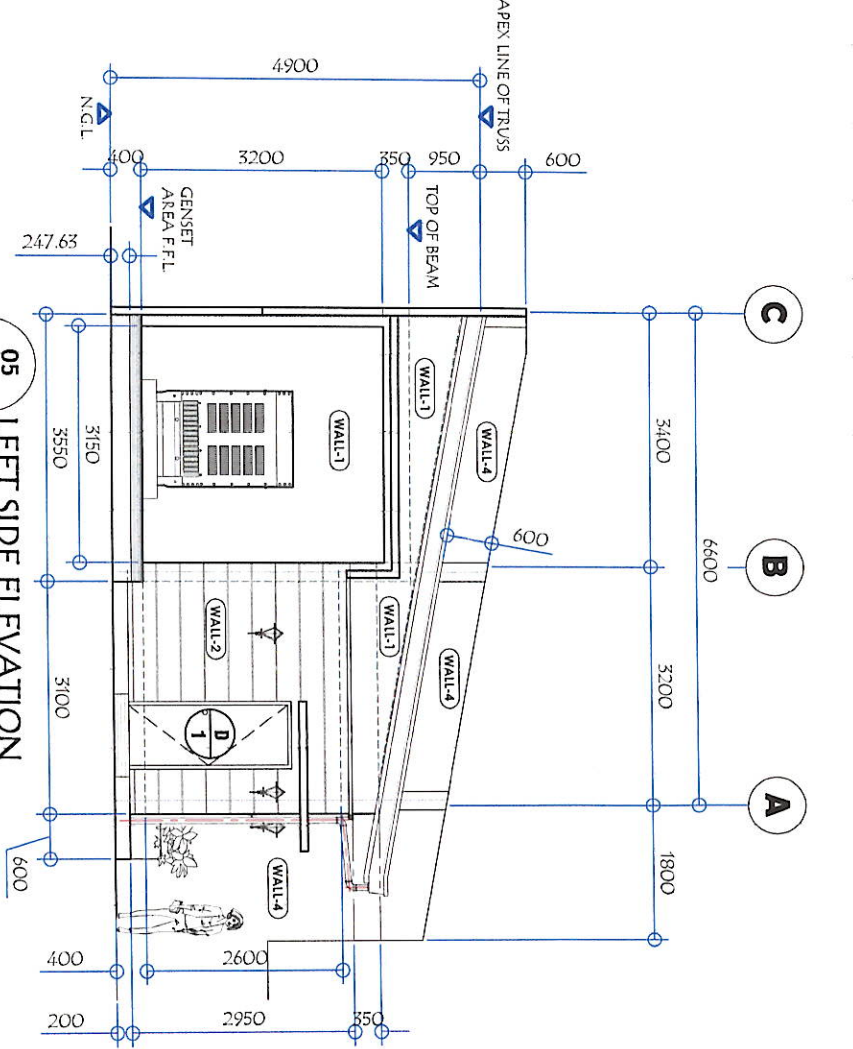


02 SITE DEVELOPMENT PLAN
A-01 SCALE: 1:250 M

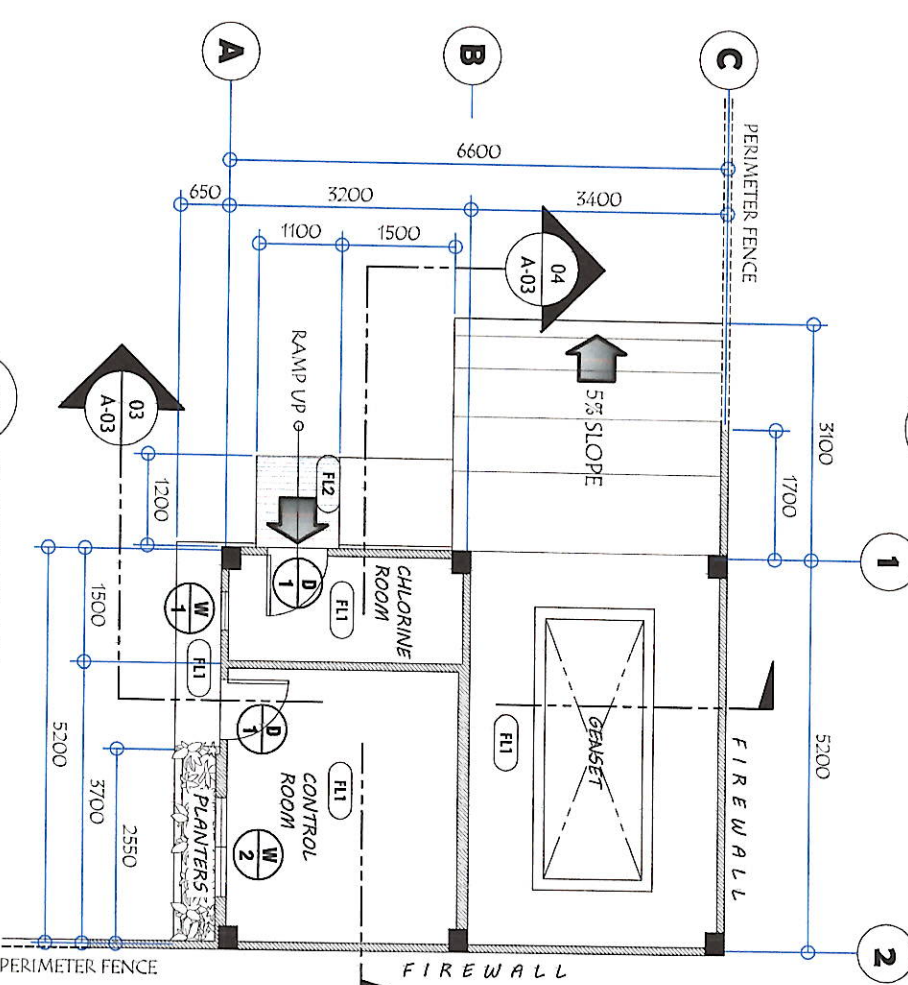
<p>GENERAL SANTOS CITY WATER DISTRICT E. FERNANDEZ STREET, BRGY. LAGA, GEN. SANTOS CITY PLANNING AND CONSTRUCTION DEPARTMENT TEL. NO.: (083) 552-3824</p>		<p>DANILO M. HORLADOR, JR. CIVIL ENGINEER</p>		<p>PROJECT AND LOCATION PROPOSED CONSTRUCTION OF PUMPHOUSE, GENSET SHED, & PERIMETER FENCE</p>		<p>CHECKED: </p>		<p>REVIEWED: </p>		<p>APPROVED: </p>	
REG. NO. 0107545	TIN. NO. 291-941-997	PR. NO. 61873A	DATE: 01/12/2022	LOCATION: ZONE I1-B, BRGY. FATIMA, GEN. SANTOS CITY	ENGR. M. CELIA N. DANDAN OFFICER-IN-CHARGE, PDD	ENGR. ROGELIO A. BESANA, JR. AGM, OPERATION & TECHNICAL SERVICES	ENGR. ARVIN B. GELLANGANIN GENERAL MANAGER A	DRAWN BY: RBA	REV. NO.	01	23
<p>SHEET CONTENTS</p> <p>ELECTRONICS</p> <p>MECHANICAL</p> <p>ELECTRICAL</p> <p>SANITARY</p> <p>STRUCTURAL</p> <p>ARCHITECTURAL</p> <p>LAND USE & ZONING</p> <p>LINE AND GRADE</p>											



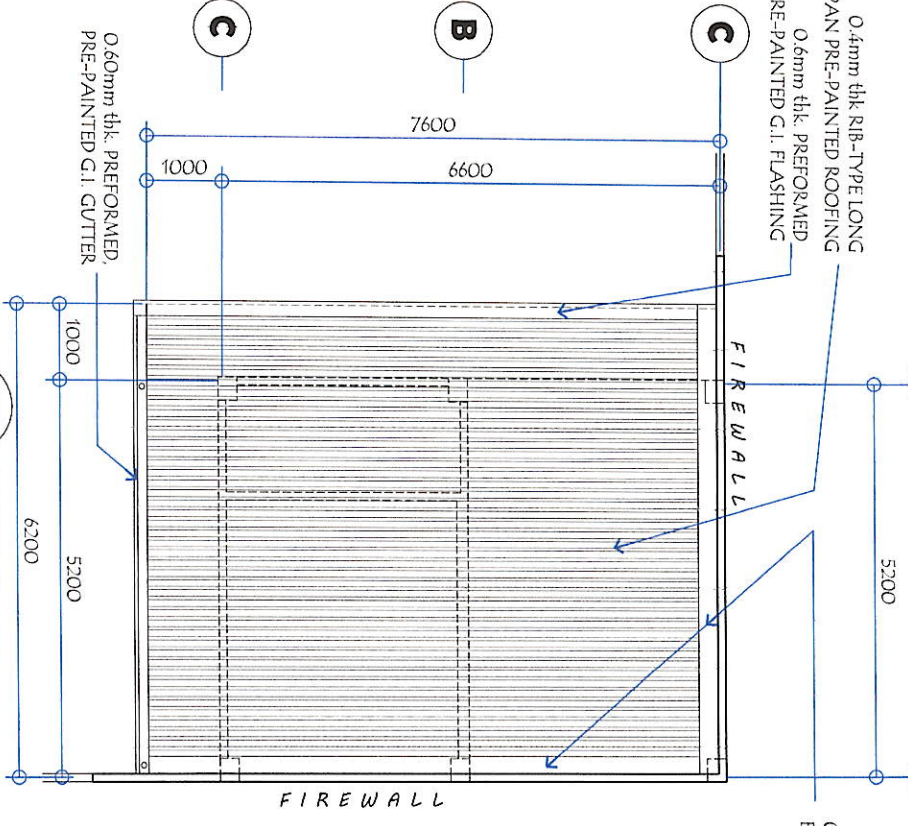
04 FRONT ELEVATION
SCALE: 1:100 M



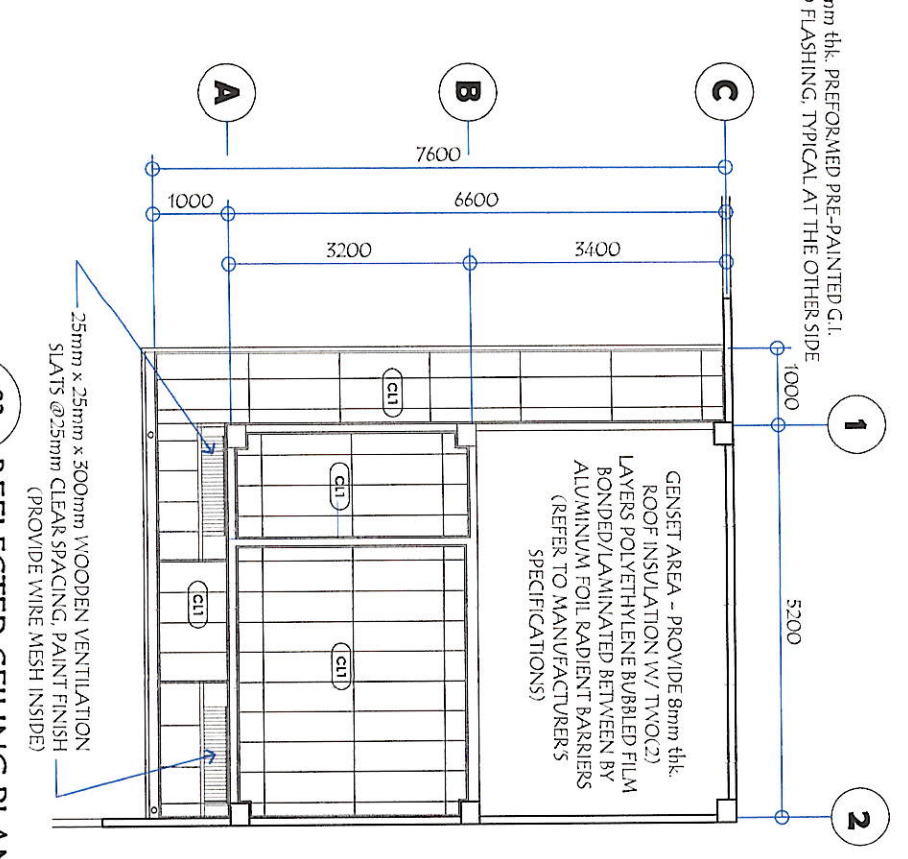
05 LEFT SIDE ELEVATION
SCALE: 1:100 M



01 FLOOR PLAN
SCALE: 1:100 M



02 ROOF PLAN
SCALE: 1:100 M



03 REFLECTED CEILING PLAN
SCALE: 1:100 M

SCHEDULE OF FINISH

- FLOORS:**
- (F1) PLAIN CEMENT FLOOR FINISH
 - (F2) NON SKID PLAIN CEMENT FLOOR FINISH WITH 12mm GROOVE @ EVERY 100mm O.C.
- WALLS:**
- (WALL-1) 100mm thick CHB W/ PLAIN CEMENT PLASTER (ACRYLIC PAINT FINISH)
 - (WALL-2) 100mm thick CHB W/ BRICKS TYPE PLAIN CEMENT PLASTER (ACRYLIC PAINT FINISH)
 - (WALL-3) 150mm thick CHB W/ BRICKS TYPE PLAIN CEMENT PLASTER (ACRYLIC PAINT FINISH)
 - (WALL-4) 100mm thick CHB W/ PLAIN CEMENT PLASTER FINISH
- CEILING:**
- (C1) 3.5mm thick FIBER CEMENT BOARD (PAINT FINISH) ON METAL FURRING CEILING FRAMES. USE 0.60mm thick x 19mm x 50mm x 5000mm DOUBLE FURRING CHANNELS @ 0.40m ON CENTER W/ 0.60mm thick x 38mm x 5000mm CARRYING CHANNELS @ 1.20m ON CENTERS & ROD JOINER (HANGERS/SUPPORTS) @ 1.20m O.C., SHORTER SPAN

GENERAL SANTOS CITY WATER DISTRICT
E. FERNANDEZ STREET, BRGY. LAGA, GEN. SANTOS CITY
ENGINEERING & CONSTRUCTION DEPARTMENT
PLANNING AND DESIGN DIVISION
TEL. NO.: (083) 552-3824

DANILO M. HERRADOR, JR.
REG. NO. 0107545
TIN. NO. 291-941-997
DATE: 01/12/2022

PROJECT AND LOCATION
PROPOSED CONSTRUCTION OF PUMPHOUSE, GENSET SHED, & PERIMETER FENCE
LOCATION: ZONE 11-B, BRGY. FATIMA, GEN. SANTOS CITY

CHECKED: ENGR. MA. CELIA N. DANDAN
OFFICER-IN-CHARGE, PDD

REVIEWED: ENGR. ROGELIO A. BESANA, JR.
AGM OF REGION 8 TECHNICAL SERVICES

APPROVED: ENGR. ARN B. GELLANGARIN
GENERAL MANAGER A

SHEET CONTENTS
AS SHOWN

SHEET NO.
A-02

DATE: Feb. 2022

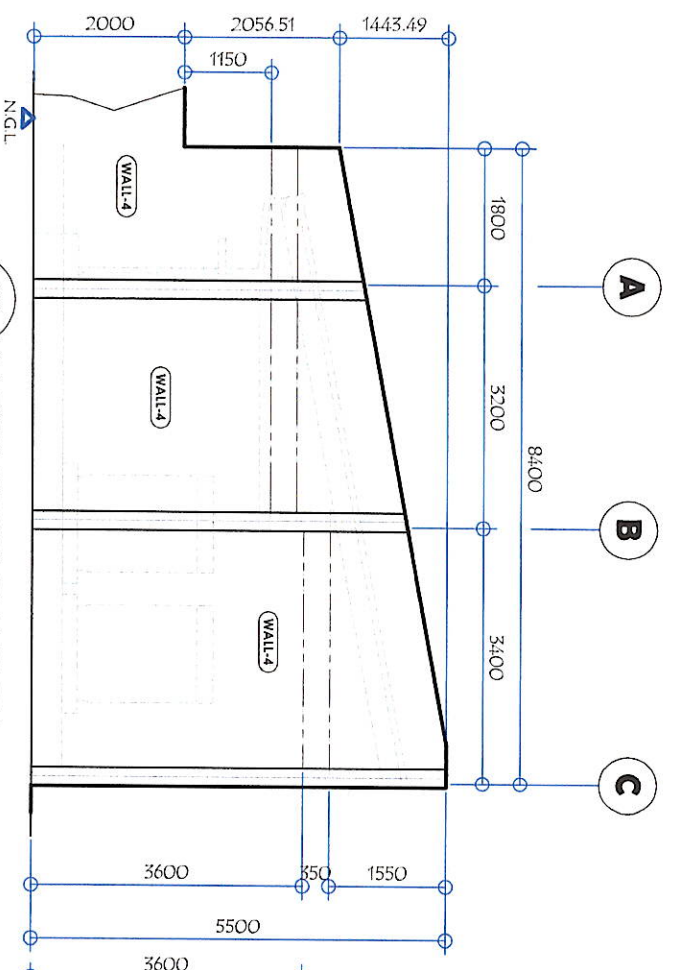
REV. NO.
02

CHECKED BY: ESA

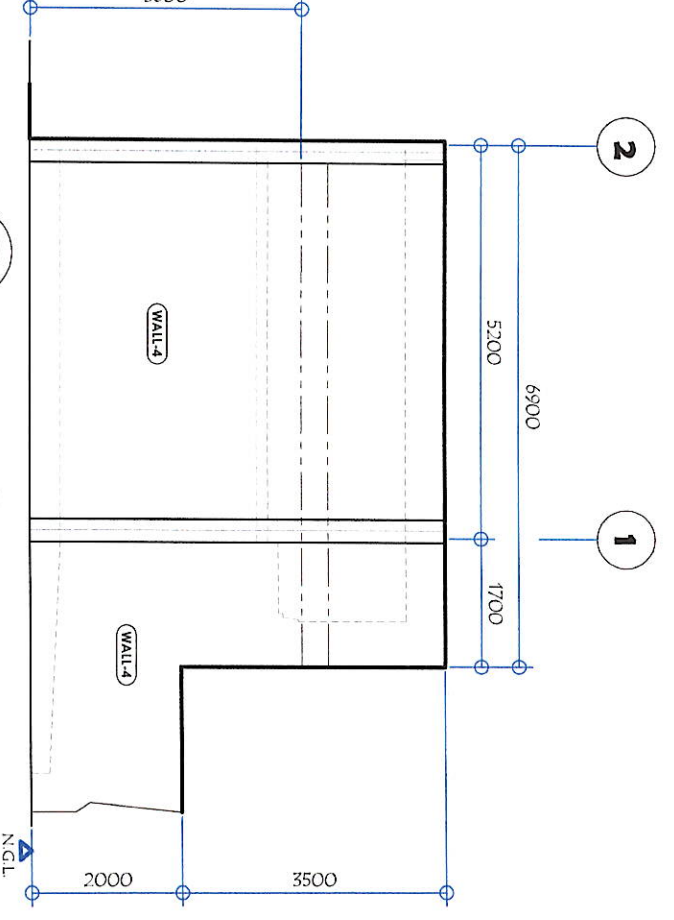
DATE: Feb. 2022

REV. NO.
23

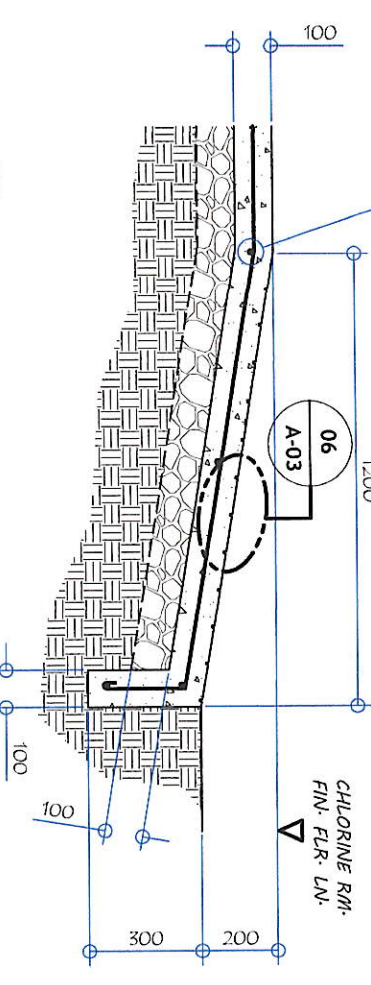
01 RIGHT SIDE ELEVATION
 SCALE: 1:100 M



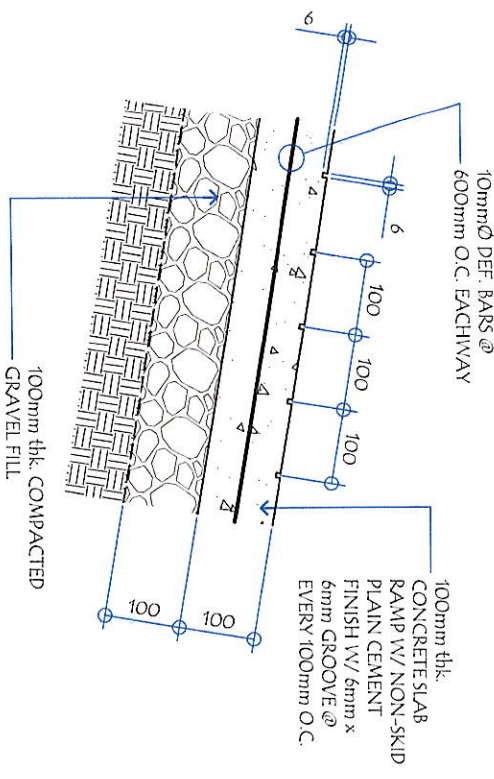
02 REAR ELEVATION
 SCALE: 1:100 M



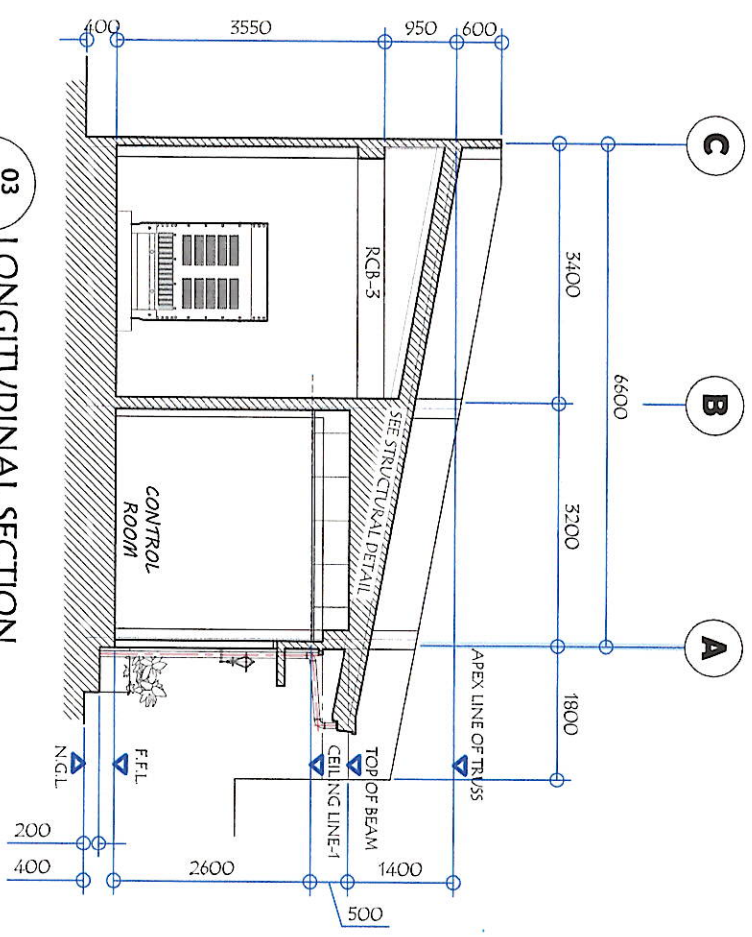
05 DETAIL SECTION OF RAMP
 SCALE: 1:20 M



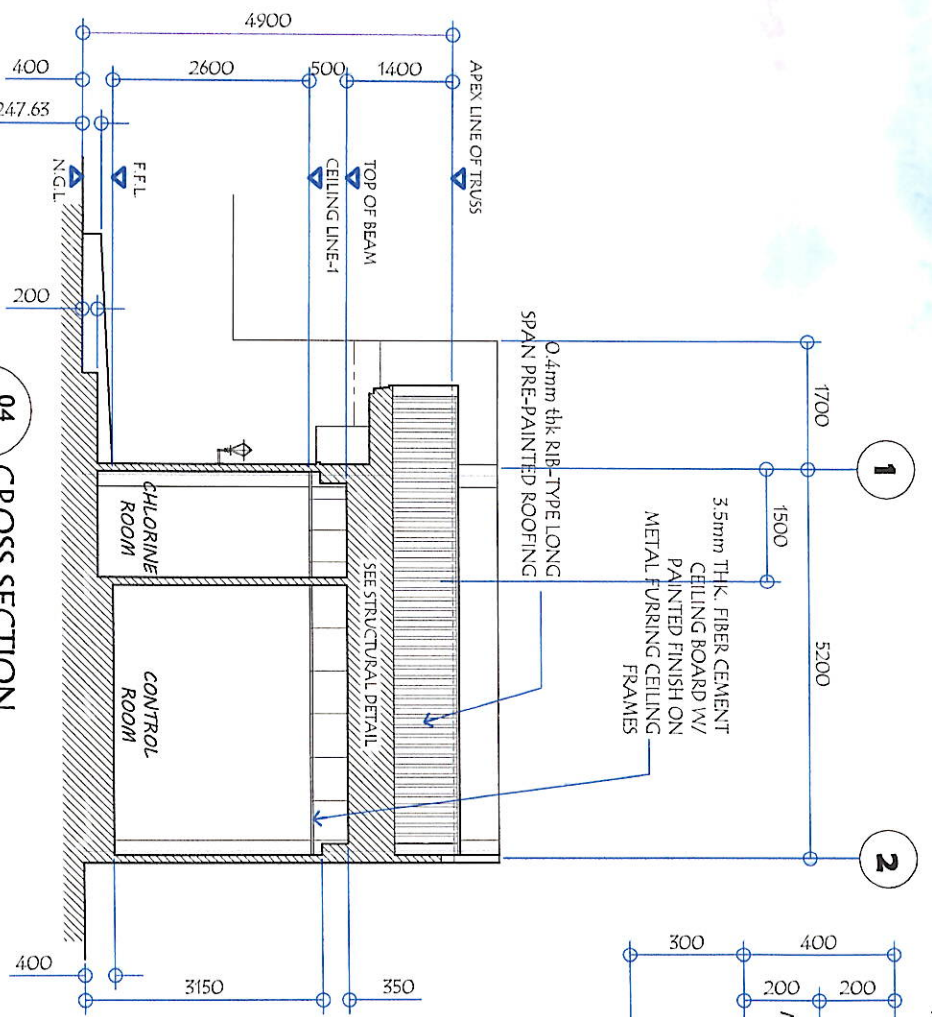
06 SPOT DETAIL
 SCALE: 1:10 M



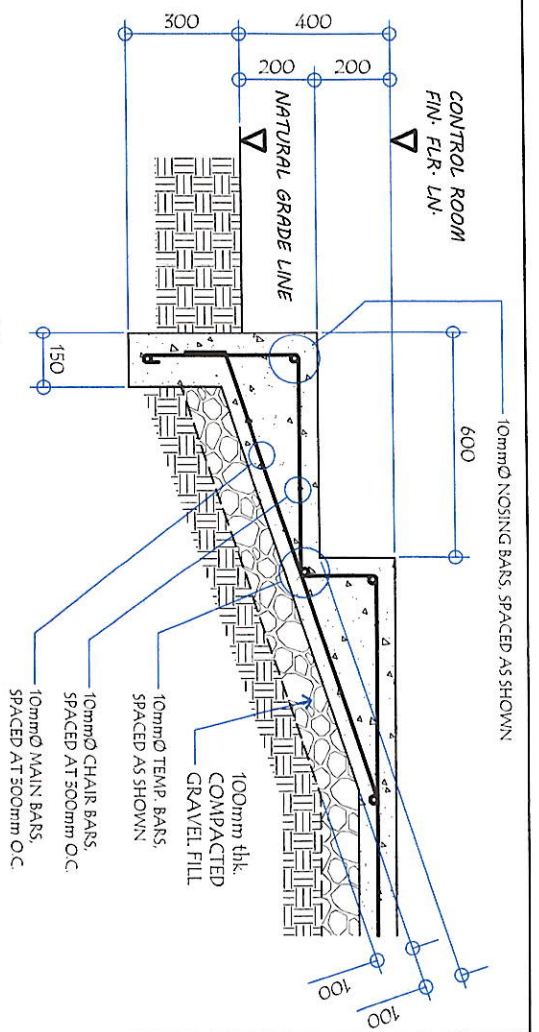
03 LONGITUDINAL SECTION
 SCALE: 1:100 M

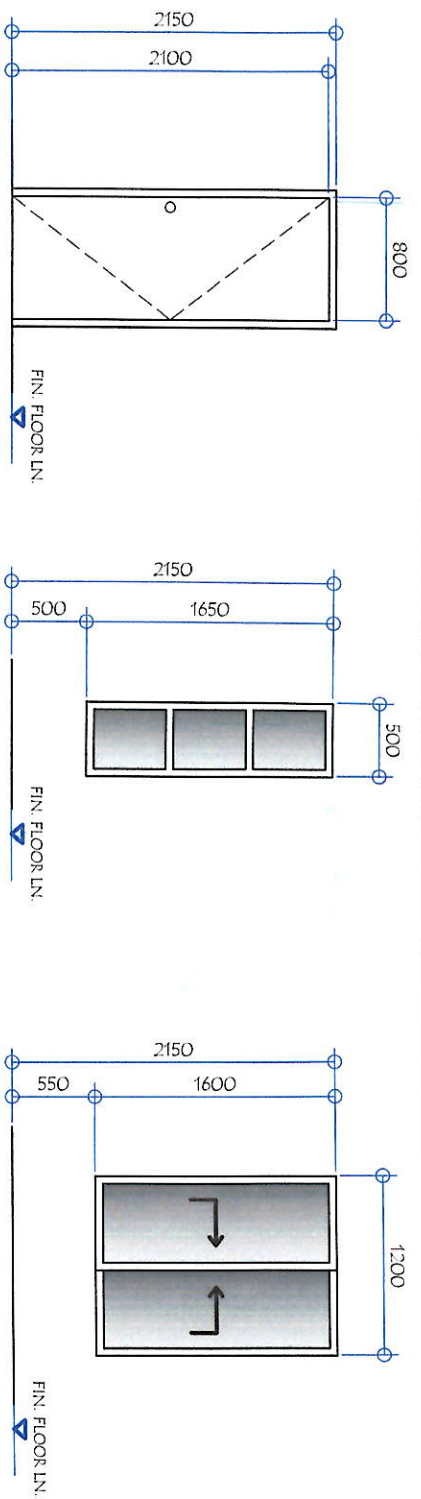


04 CROSS SECTION
 SCALE: 1:100 M



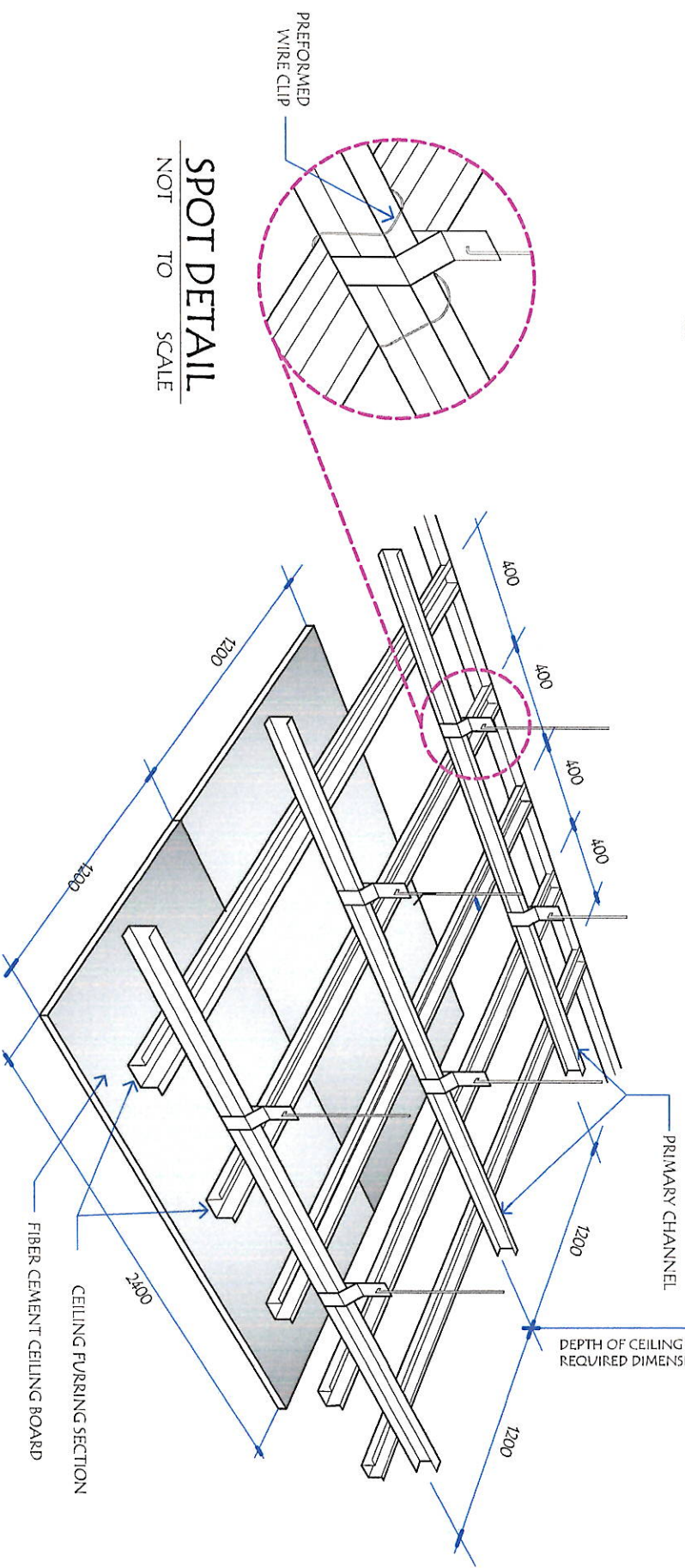
07 DETAIL OF R.C. STAIR
 SCALE: 1:20 M





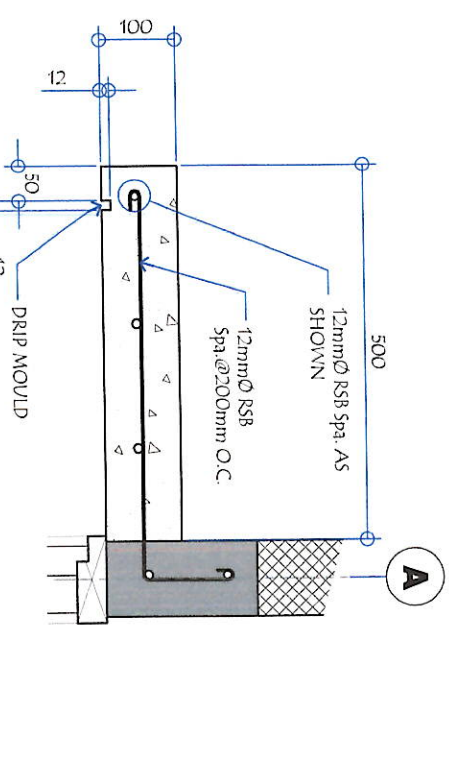
MARK	DESCRIPTION	LOCATION	QUANTITY
D 1/1	40mm thk HOLLOW CORE FLUSH DOOR TYPE IN 50 x 150 KD DOOR JAMB WITH 6mm thk MARINE PLYWOOD DOUBLE FACING PAINT FINISH WITH COMPLETE ACCESSORIES	CONTROL ROOM, CHLORINE ROOM	TWO (2) SETS
W 1/1	FIXED WINDOW IN POWDER COATED FINISH ALUMINUM FRAME 6mm thk. TINTED GLASS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

02 SCHEDULE OF DOORS & WINDOWS
SCALE: 1:50 M

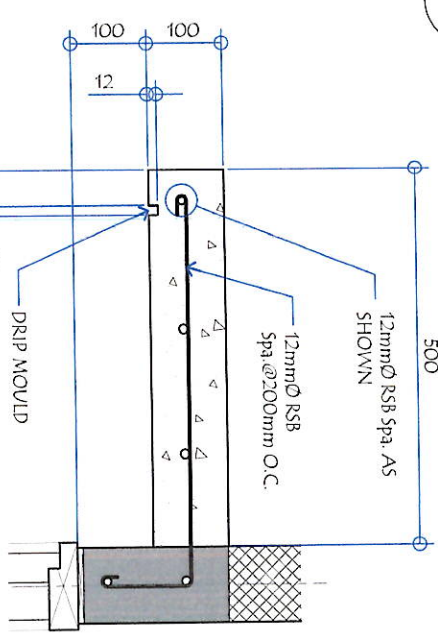


SPOT DETAIL
NOT TO SCALE

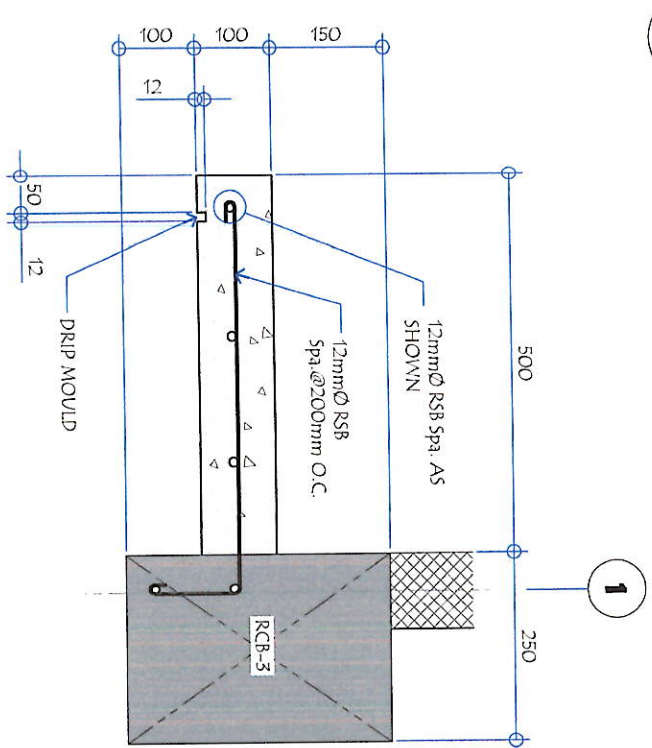
01 PERSPECTIVE (CEILING)
SCALE: A-04



05 CONC. SUNBREAKER DETAIL @ CONTROL ROOM
SCALE: 1:10 M



04 CONC. SUNBREAKER DETAIL @ CHLORINE ROOM
SCALE: 1:10 M



03 CONC. SUNBREAKER DETAIL @ GENSET AREA
SCALE: 1:10 M

GENERAL SANTOS CITY WATER DISTRICT
E. HERNANDEZ STREET, BRGY. LAGA, GEN. SANTOS CITY
ENGINEERING & CONSTRUCTION DEPARTMENT
PLANNING AND DESIGN DIVISION
TEL. NO.: (083) 592-3824

DANILO M. TORLADOR, JR.
REGISTERED PROFESSIONAL ENGINEER
REG. NO. 0107545
TIN. NO. 291-941-997
P.R. NO. 61873A
DATE: 01/12/2022

PROJECT AND LOCATION
PROPOSED CONSTRUCTION OF PUMPHOUSE & PERIMETER FENCE
LOCATION: ZONE 11-B, BRGY. FATIMA, GEN. SANTOS CITY

CHECKED:
ENGR. M. CELIA N. DANDAN
OFFICER-IN-CHARGE, PDD

REVIEWED:
ENGR. ROGELIO A. BESANA, JR.
AGM, OPERATIONAL & TECHNICAL SERVICES

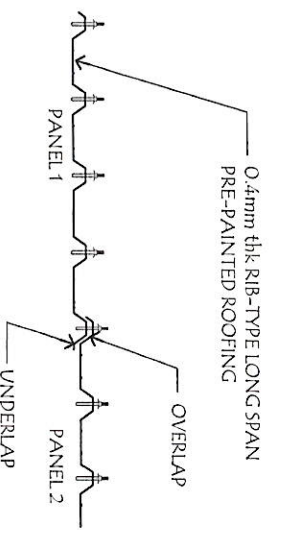
APPROVED:
ENGR. ARN B. GELLANGARIN
GENERAL MANAGER A

SHEET CONTENTS
AS SHOWN

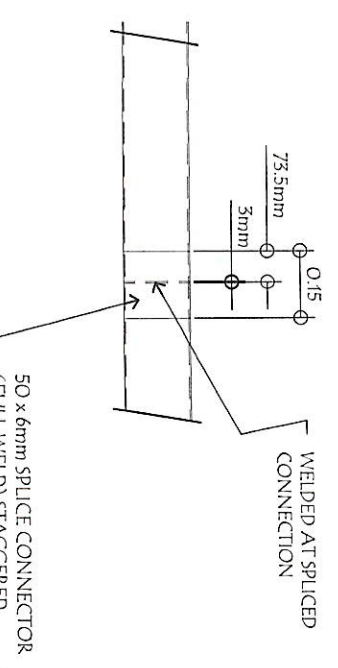
CHECKED BY: RRA
DATE: Feb. 2022

SHEET NO.
A-04

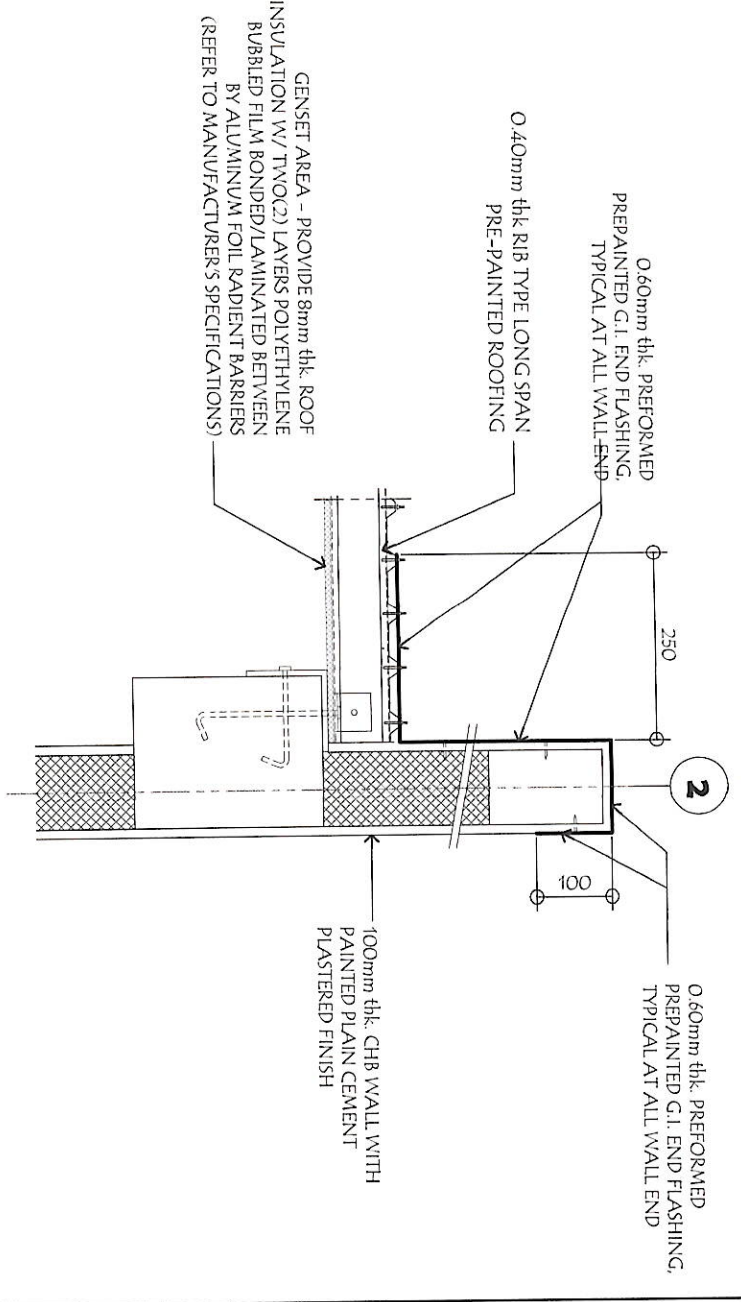
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04



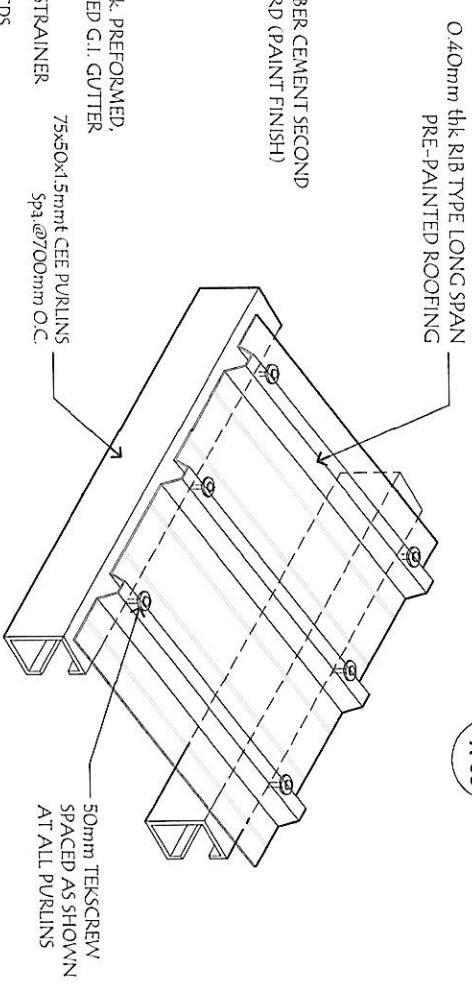
06 ROOF PANEL SIDE LAP DETAIL
A-05 NOT TO SCALE



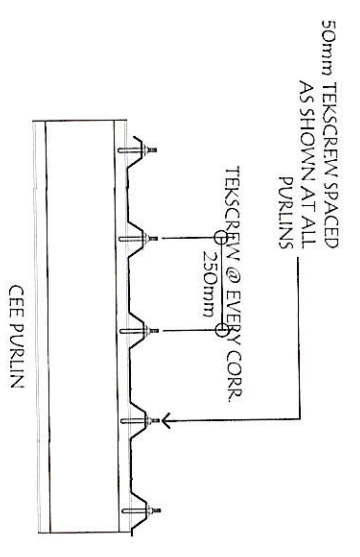
07 PURLIN SPICE (POWERHOUSE)
A-05 NOT TO SCALE



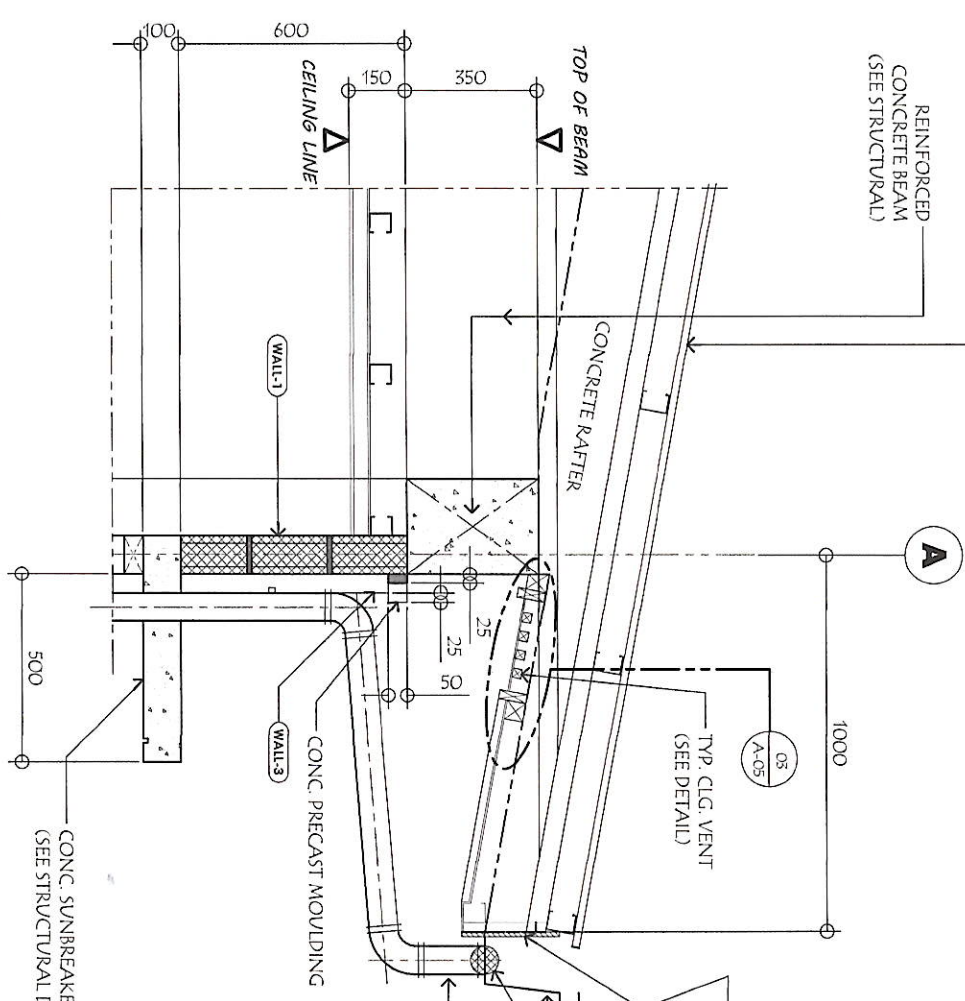
08 DETAIL SECTION (END WALL FLASHING CONNECTION)
A-05 SCALE 1:10M



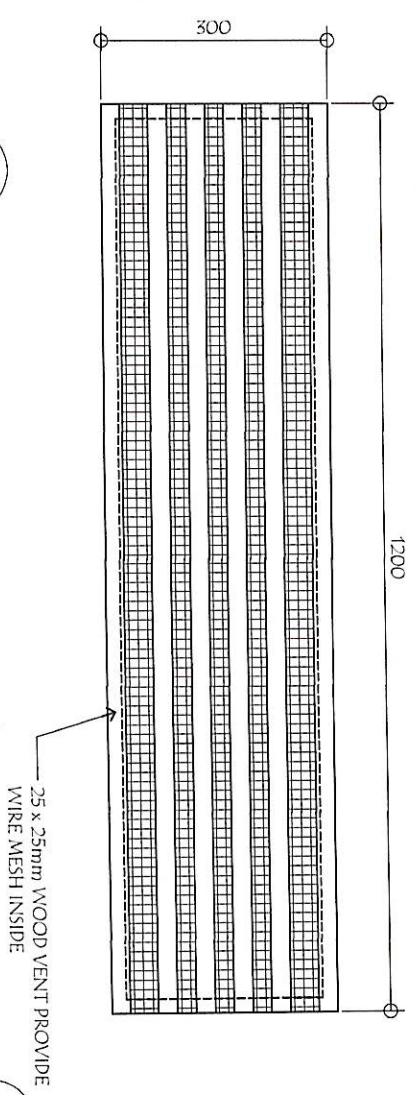
04 ISOMETRIC VIEW OF ROOFING TO PURLINS CONNECTION
A-05 NOT TO SCALE



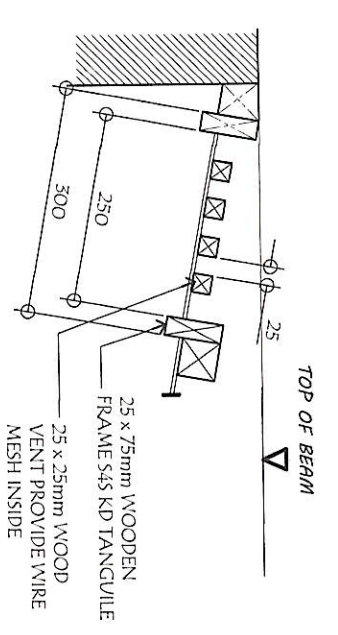
05 TEKSCREW SPACING
A-05 NOT TO SCALE



01 DETAIL SECTION OF EAVE (FRONT)
A-05 SCALE 1:20M

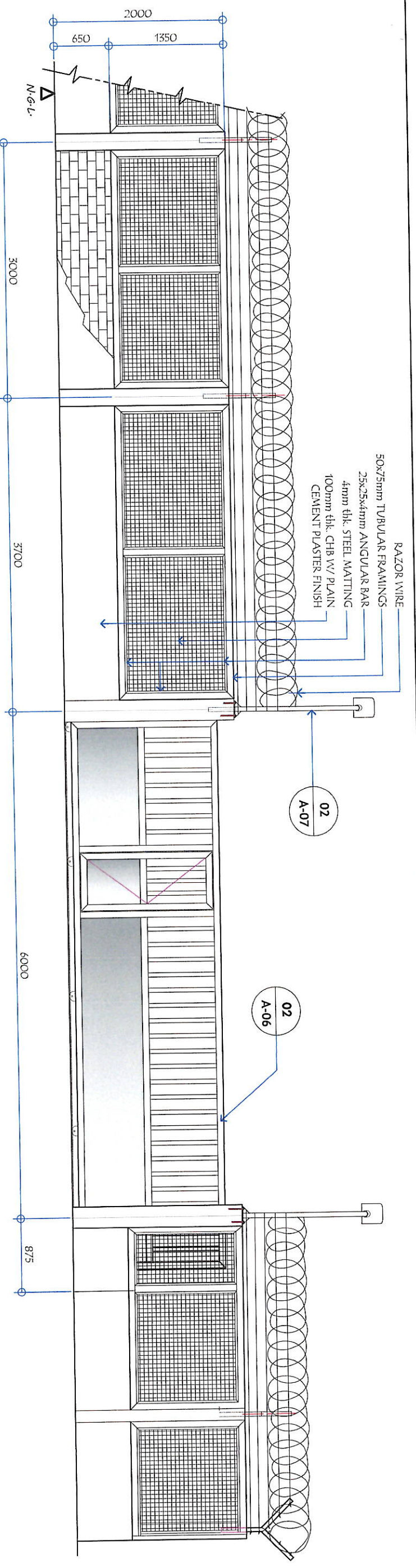


02 TYPICAL CEILING VENT PLAN DETAIL
A-05 SCALE 1:10M

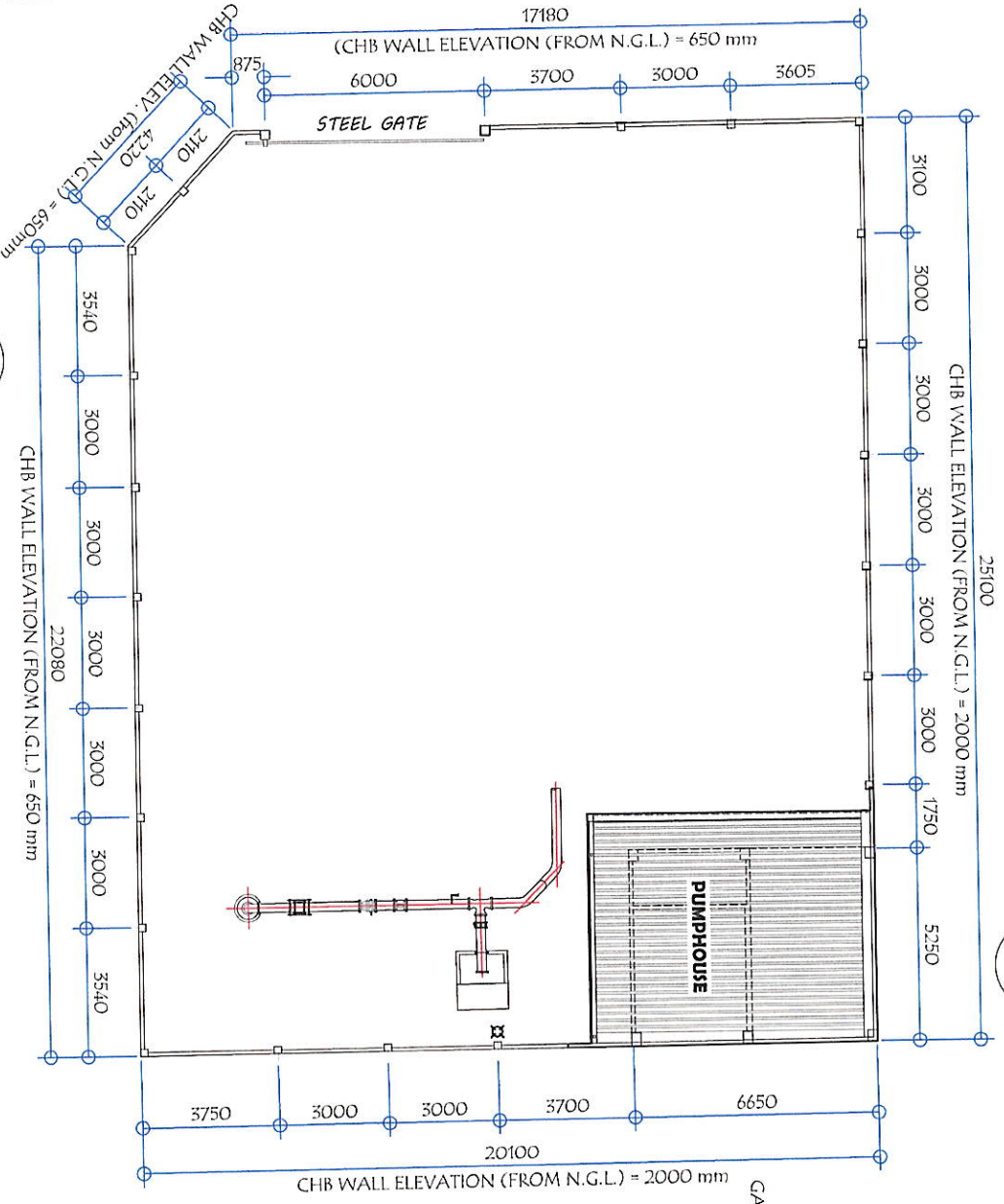


03 TYPICAL CEILING VENT SECTION DETAIL
A-05 SCALE 1:10M

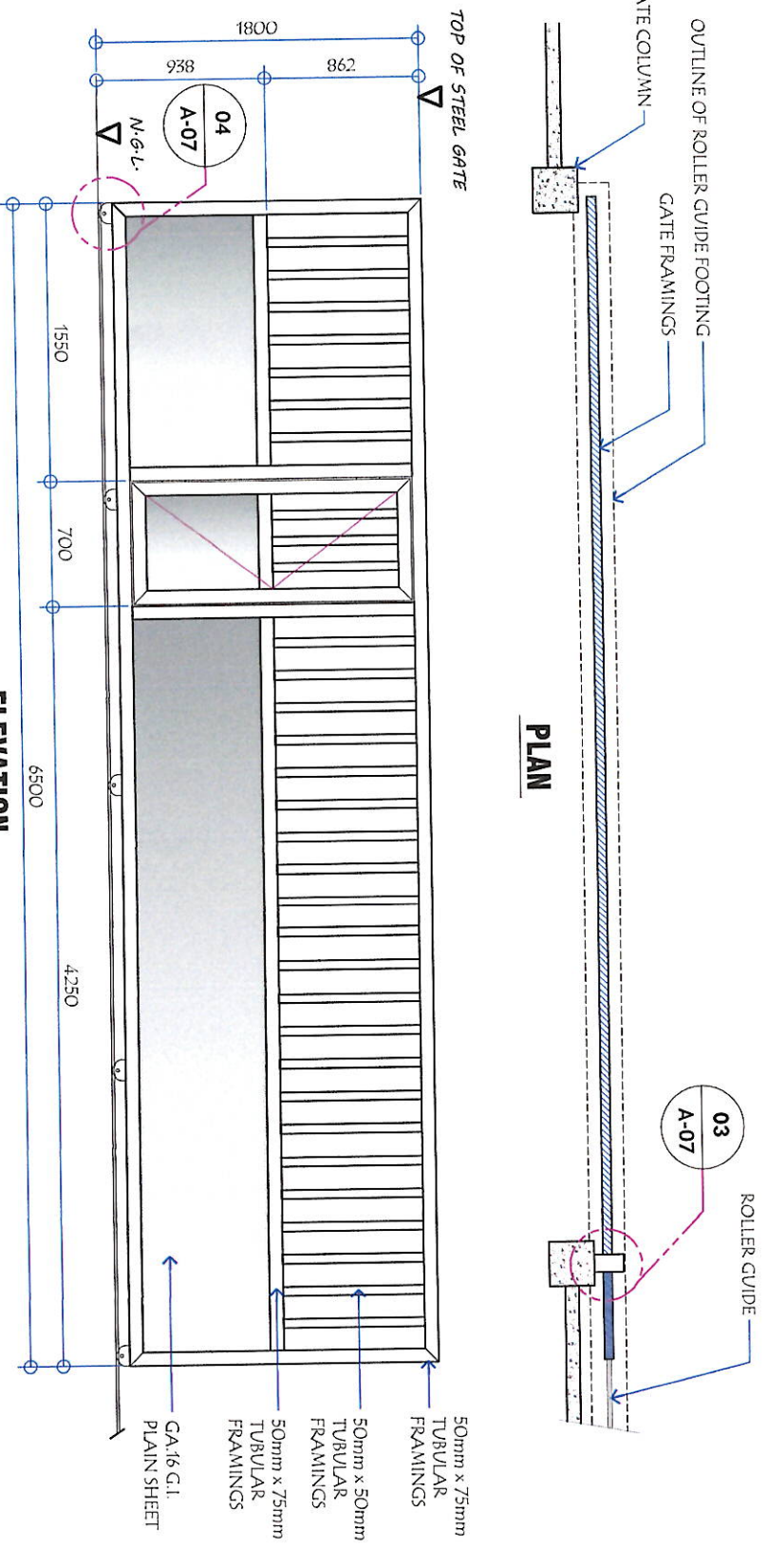
<p>GENERAL SANTOS CITY WATER DISTRICT E. FERRANDEZ STREET, BRGY. LAGAO, GEN. SANTOS CITY ENGINEERING & CONSTRUCTION DEPARTMENT PLANNING AND DESIGN DIVISION TEL. NO. : (083) 552 - 3824</p>		<p>DANILO M. OKLADDER, JR. CIVIL ENGINEER</p>		<p>PROPOSED CONSTRUCTION OF PUMPHOUSE & PERIMETER FENCE</p>		<p>REG. NO. 0107545 TIN. NO. 291-941-997 PIR. NO. 61873A</p>		<p>DATE: 01/12/2022</p>		<p>LOCATION: ZONE 11-B, BRGY. FATIMA, GEN. SANTOS CITY</p>	
<p>PROJECT AND LOCATION</p>				<p>CHECKED: </p>				<p>REVIEWED: </p>			
<p>APPROVED: </p>				<p>AGM. OPERATION & TECHNICAL SERVICES</p>				<p>SHEET CONTENTS</p>			
<p>AS SHOWN</p>				<p>DATE: Feb. 2022</p>				<p>SHEET NO.</p>			
<p>05</p>				<p>23</p>				<p>A-05</p>			



03 PERIMETER FENCE STEEL GATE ELEVATION
SCALE: 1:50 M



01 PERIMETER FENCE LAYOUT
SCALE: 1:200 M



02 STEEL GATE DETAIL (PERIMETER FENCE)
SCALE: 1:40 M

GENERAL SANTOS CITY WATER DISTRICT
E. FERNANDEZ STREET, BRGY. LAGAO, GENERAL SANTOS CITY
ENGINEERING & CONSTRUCTION DEPARTMENT
PLANNING AND DESIGN DIVISION
TEL. NO.: (083) 552-3824

DANILO M. TORLADOR, JR.
CIVIL ENGINEER
REG. NO. 0107545
PR. NO. 61873A
TN. NO. 291-941-997
DATE: 01/12/2022

PROJECT AND LOCATION
PROPOSED CONSTRUCTION OF
PUMPHOUSE, GENSET SHED, &
PERIMETER FENCE
LOCATION: ZONE 11-B, BRGY. FAJIMA, GEN. SANTOS CITY

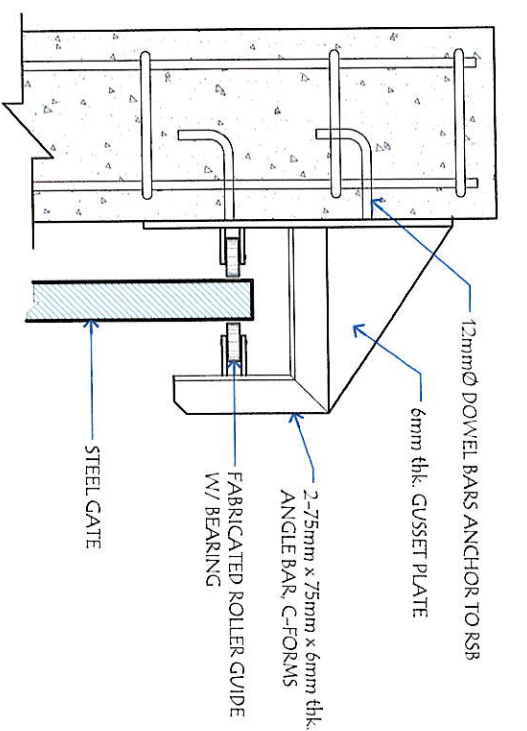
CHECKED:
ENGR. MARICELA N. DANDAN
OFFICER-IN-CHARGE, PDD

REVIEWED:
ENGR. ROGELIO A. BESANA, JR.
AGM, OPERATION & TECHNICAL SERVICES

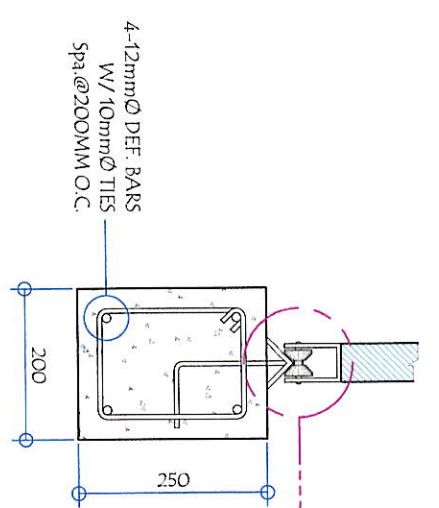
APPROVED:
ENGR. ARN B. GELLANGAN
GENERAL MANAGER A

SHEET CONTENTS
AS SHOWN
DRAWN BY: RBA
REV. NO.
CHECKED BY: ESA
DATE: Feb. 2022

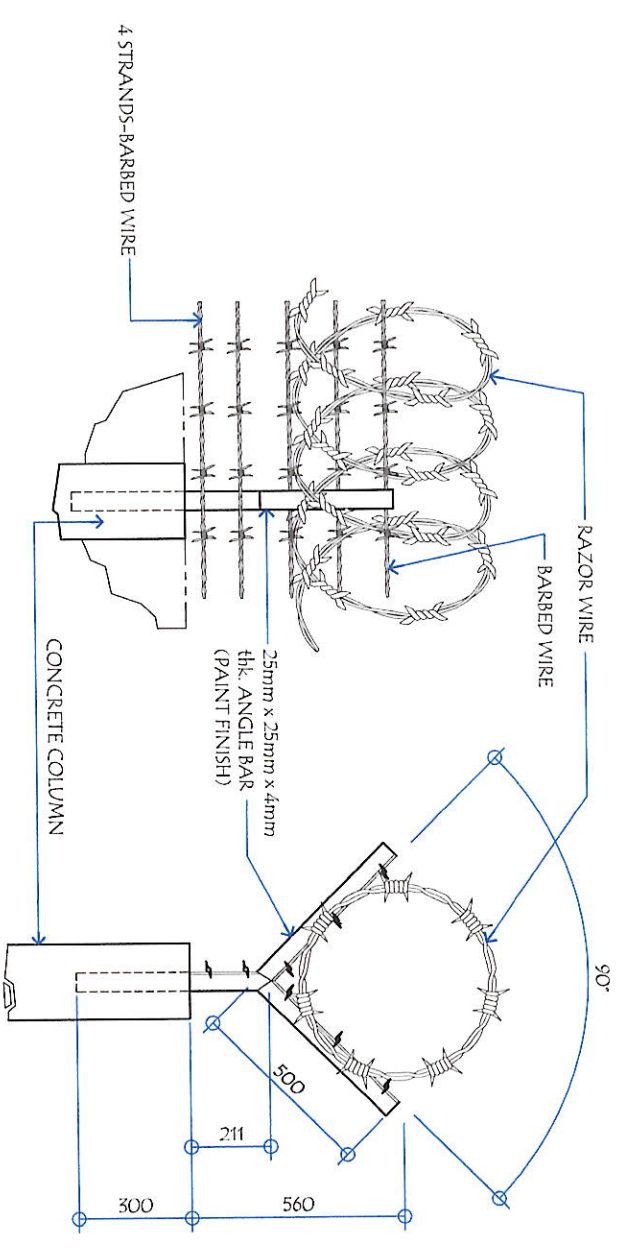
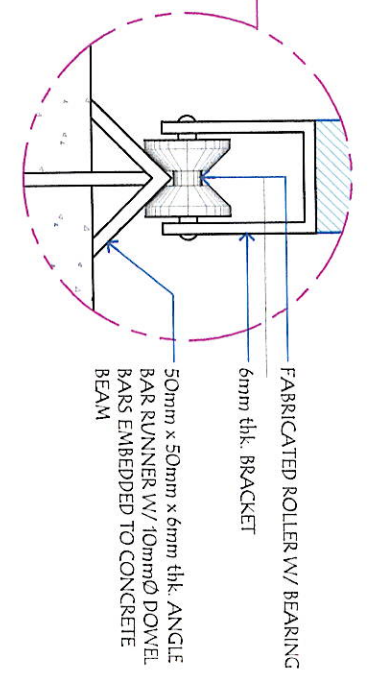
SHEET NO.
A-06
06
23



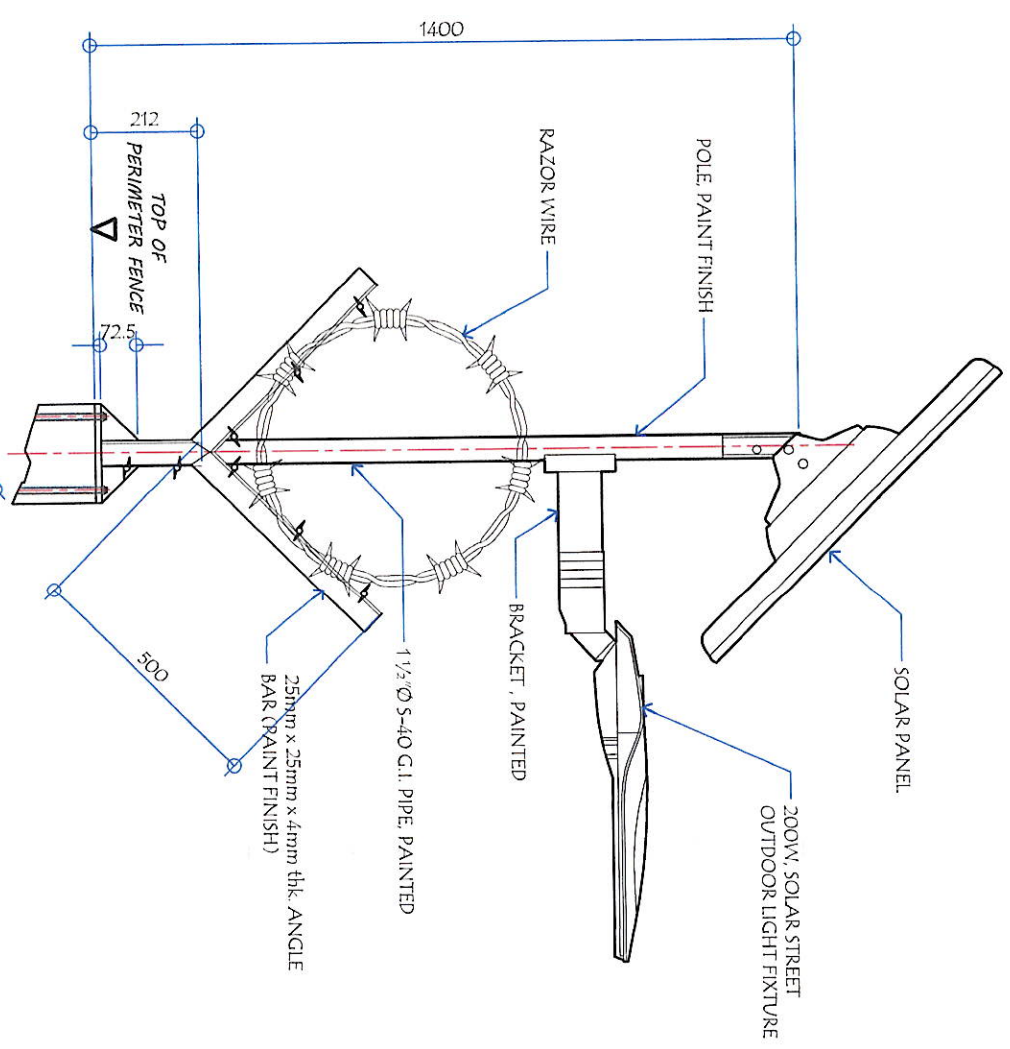
03 SPOT DETAIL
SCALE: 1:40 M



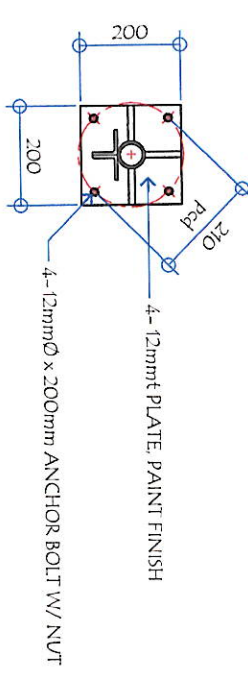
04 SPOT DETAIL
SCALE: 1:40 M




01 MILITARY BARBED WIRE MOUNTING DETAIL
SCALE: 1:20 M



02 FLOOD LIGHT POST DETAIL
SCALE: 1:15 M



 <p>GENERAL SANTOS CITY WATER DISTRICT E. FERRERADEZ STREET, BRGY. LAGAO, GEN. SANTOS CITY ENGINEERING & CONSTRUCTION DEPARTMENT PLANNING AND DESIGN DIVISION TEL. NO.: (083) 552-3824</p>		<p>DANILO M. HORLADOR, JR. CIVIL ENGINEER TEL. NO. 291-941-997 DATE: 01/12/2022</p>		<p>PROJECT AND LOCATION PROPOSED CONSTRUCTION OF PUMPHOUSE, GENSSET SHED, & PERIMETER FENCE LOCATION: ZONE 11-3, BRGY. FATIMA, GEN. SANTOS CITY</p>		<p>CHECKED: ENGR. M. CELIA N. DANDAN OFFICER-IN-CHARGE, PDD</p>		<p>REVIEWED: ENGR. ROGELIO A. BESANA, JR. AGM, OPERATIONS & TECHNICAL SERVICES</p>		<p>APPROVED: ENGR. ARN B. GELLANGARAN GENERAL MANAGER A</p>		<p>SHEET CONTENTS AS SHOWN</p>		<p>SHEET NO. A-07</p>	
<p>REG. NO. 0107545 PR. NO. 61873A</p>		<p>DATE: 01/12/2022</p>		<p>DATE: 01/12/2022</p>		<p>DATE: Feb. 2022</p>		<p>REV. NO.</p>		<p>DATE: Feb. 2022</p>		<p>07</p>		<p>23</p>	

GENERAL CONSTRUCTION NOTES

GENERAL NOTES

1. IN THE INTERPRETATION OF THE DRAWINGS, INDICATED DIMENSIONS SHALL GOVERN AND DISTANCES AND SIZES SHALL NOT BE SCALED FOR CONSTRUCTION PURPOSES.
2. IN REFERENCE TO OTHER DRAWINGS, SEE ARCHITECTURAL DRAWINGS FOR DEPRESSIONS IN FLOOR SLABS, OPENINGS IN THE WALLS AND SLABS, INTERIOR PARTITIONS, LOCATION OF DRAINS ETC.
3. IN CASE OF DISCREPANCIES AS TO THE LAYOUT, DIMENSIONS, AND ELEVATIONS NOTED IN THE STRUCTURAL PLANS, AND ARCHITECTURAL DRAWINGS, THE CONTRACTOR SHALL NOTIFY BOTH THE STRUCTURAL ENGINEER AND THE ARCHITECT.
4. ALL CONCRETE WORK SHALL BE DONE IN ACCORDANCE WITH THE ACI 318 - 95, BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE AND ALL STRUCTURAL STEEL WORK ACCORDING WITH THE SPECIFICATION (9th EDITION) IN SO FAR AS THEY DO NOT CONTRADICT WITH THE LOCAL BUILDING CODE REQUIREMENTS.
5. ACI REFERS TO AMERICAN CONCRETE INSTITUTE, ASCE TO AMERICAN INSTITUTE OF STEEL CONSTRUCTION AND ASTM TO AMERICAN SOCIETY FOR TESTING MATERIALS.
6. CONSTRUCTION NOTES AND TYPICAL DETAILS APPLY TO ALL DRAWINGS UNLESS OTHERWISE SHOWN OR NOTED. MODIFY TYPICAL DETAILS AS DIRECTED TO MEET SPECIAL CONDITIONS.
7. SHOP DRAWINGS WITH ERECTION AND PLACING DIAGRAMS OF ALL STRUCTURAL STEELS, MISCELLANEOUS IRON, PRE-CAST CONCRETE, ETC. SHALL BE SUBMITTED FOR ENGINEER'S APPROVAL BEFORE FABRICATION.
8. CONTRACTOR SHALL NOTE AND PROVIDE ALL MISCELLANEOUS CHAIRS, SLEEVES, STOPS, EQUIPMENTS AND MECHANICAL DEVICES THAT ARE REQUIRED BY THE ARCHITECTURAL, ELECTRICAL, AND MECHANICAL DRAWINGS.
9. ALL RESULTS OF MATERIAL TESTING FOR CONCRETE, REINFORCING BARS, & STRUCTURAL STEEL MUST BE NOTED & APPROVED BY THE STRUCTURAL DESIGNER.

NOTES ON CONCRETE MIXES & PLACING

1. ALL CONCRETE SHALL DEVELOP A MIN. COMPRESSIVE STRENGTH AT THE END OF TWENTY EIGHT (28) DAYS W/ CORRESPONDING MAXIMUM SIZE AGGREGATE & SLUMPS AS FOLLOWS.
- | LOCATION | 28 DAYS STRENGTH | MAX. SIZE OF AGGREGATE | MAX. SLUMP |
|--|---------------------|------------------------|------------|
| ALL OTHERS, INCLUDING SUSPENDED SLABS, | 4000 PSI (27.6 MPa) | 20mm | 100mm |
| COLUMNS | 4000 PSI (27.6 MPa) | 20mm | 100mm |
| BEAMS, SLABS | 4000 PSI (27.6 MPa) | 20mm | 100mm |
| SLAB ON FILL | 4000 PSI (27.6 MPa) | 20mm | 100mm |
2. MAINTAIN MINIMUM CONCRETE COVER FOR REINFORCING STEEL AS FOLLOWS:
- | SLAB ON GRADE | 20mm |
|---|------|
| WALLS ABOVE GRADE | 25mm |
| BEAM STRIPS AND COLUMN TIES | 40mm |
| WHERE CONCRETE IS EXPOSED TO EARTH BUT Poured AGAINST FORMS | 50mm |
| WHERE CONCRETE IS DEPOSITED DIRECTLY AGAINST EARTH | 75mm |
3. CONCRETE SHALL BE DEPOSITED IN ITS FINAL POSITION WITHOUT SEGREGATION. RE-HANDLING OR PLACING SHALL BE DONE PREFERABLY WITH BUCKETS, BUCKETS OR WHEELBARROWS, NO CHUTES WILL BE ALLOWED EXCEPT TO TRANSPORT CONCRETE FROM HOPPERS TO BUCKETS, WHEELBARROWS OR BUCKETS IN WHICH CASE THEY SHALL NOT EXCEED SIX (6) METERS IN AGGREGATE LENGTH.
 4. NO DEPOSITING OF CONCRETE SHALL BE ALLOWED WITHOUT THE USE OF VIBRATORS UNLESS AUTHORIZED IN WRITING BY THE DESIGNER AND ONLY FOR UNUSUAL CONDITIONS WHERE VIBRATIONS ARE EXTREMELY DIFFICULT TO ACCOMPLISH.
 5. ALL ANCHOR BOLTS, DOWELS, AND OTHER INSERTS, SHALL BE PROPERLY POSITIONED & SECURED IN PLACE PRIOR TO PLACING OF CONCRETE.
 6. ALL CONCRETE SHALL BE KEPT MOIST FOR A MINIMUM OF SEVEN CONSECUTIVE DAYS IMMEDIATELY AFTER POURING BY THE USE OF WET BURLAP, FOG SPRAYING, CURING COMPOUNDS OR OTHER APPROVED METHODS.
 7. STRIPPING OF FORMS AND SHORES:
- | FOUNDTATION | 24 HRS. |
|---|---------|
| SUSPENDED SLAB EXCEPT WHEN ADDITIONAL LOADS ARE IMPOSED | 8 DAYS |
| WALLS | 21 DAYS |
| BEAMS | 14 DAYS |
| COLUMNS | 21 DAYS |

NOTES ON FOOTINGS

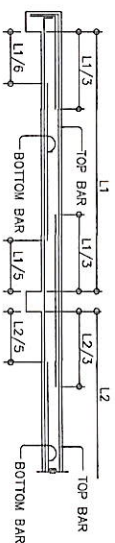
1. FOOTINGS ARE DESIGNED FOR AN ALLOWABLE SOIL BEARING PRESSURE OF 96 Kpa (2000 psf). CONTRACTOR SHALL REPORT TO THE ENGINEER, IN WRITING, THE ACTUAL SOIL CONDITIONS UNCOVERED AND CONFIRM ACTUAL BEARING CAPACITY OF SOIL BEFORE DEPOSITING CONCRETE.
2. FOOTING SHALL REST AT LEAST 150mm BELOW NATURAL GRADE LINE UNLESS OTHERWISE INDICATED IN PLANS. NO FOOTING SHALL REST ON FILL.
3. MINIMUM CONCRETE PROTECTION FOR REINFORCEMENTS SHALL BE 75mm CLEAR FOR CONCRETE DEPOSITED ON THE GROUND AND 50mm FOR CONCRETE DEPOSITED AGAINST A FORMWORK.

NOTES ON REINFORCEMENT

1. UNLESS OTHERWISE NOTED IN PLANS, THE YIELD STRENGTH OF REINFORCING BARS SHALL BE:
 - A. FOOTINGS, FOOTING BEAMS AND GIRDERS $f_y = 275 \text{ MPa}$ (40,000 psi)
 - B. COLUMNS AND SHEAR WALLS $f_y = 275 \text{ MPa}$ (40,000 psi)
 - C. BEAMS AND GIRDER $f_y = 275 \text{ MPa}$ (40,000 psi)
 - D. NON-LOAD BEARING WALL PARTITIONS, BEDDED SLABS, FLOOR & ROOF SLABS, PARAPETS, CATCH BASIN, SIDE WALK, $f_y = 227.5 \text{ MPa}$ (33,000 psi)
2. ALL REINFORCING BARS SIZE 10mm OR LARGER SHALL BE FORMED IN ACCORDANCE WITH ASTM A 706. BARS SMALLER THAN 10mm MAY BE PLAN.
3. SPLICES SHALL BE SECURELY WELDED TOGETHER & SHALL LAP OR EXTEND IN ACCORDANCE W/ TABLE A & TABLE B (TABLE OF LAP SPLICE ANCHORAGE LENGTH) UNLESS OTHERWISE SHOWN ON DRAWINGS. SPLICES SHALL BE STaggerED WHENEVER POSSIBLE.

NOTES ON CONCRETE SLABS

1. ALL SLAB REINFORCEMENTS SHALL BE 20mm CLEAR MINIMUM FROM BOTTOM AND FROM THE TOP OF SLAB.
2. UNLESS OTHERWISE SHOWN, REINFORCEMENT IN CONTINUOUS ELEVATED SLAB SHALL BE CUT AS FOLLOWS:

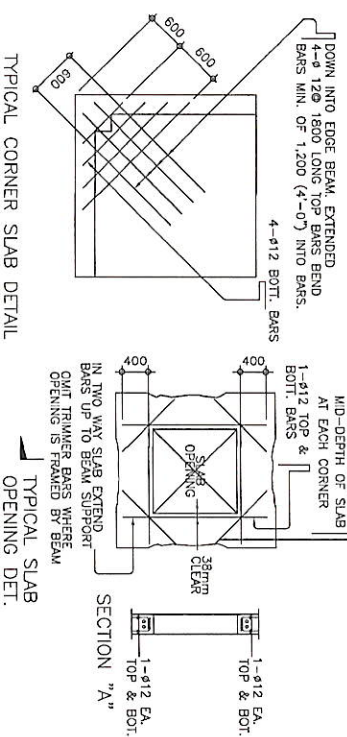


TYPICAL BAR BENDING AND CUTTING DETAILS FOR SLABS

3. IF SLABS ARE REINFORCED BOTHWAYS, BARS ALONG THE SHORTER SPAN SHALL BE PLACED BELOW THOSE ALONG THE LONG SPAN AT THE CENTER AND OVER THE LONGER SPAN FOR REINFORCING BARS NEAR THE SUPPORTS. THE SPACING OF THE BARS AT THE COLUMN STRIPS SHALL NOT BE MORE THAN ONE AND A HALF (1 1/2) SLAB THICKNESS.
4. TEMPERATURE BARS FOR SLAB SHALL BE GENERALLY PLACED NEAR THE FACE IN TENSION AND SHALL BE LESS THAN 0.025 x GROSS CROSS-SECTIONAL AREA (A_g) OF THE SLAB (SEE SCHEDULE BELOW)

THICKNESS	MINIMUM TEMPERATURE BARS
100 mm	10 mm ϕ 250mm EACH WAY
125 mm	10 mm ϕ 250mm EACH WAY
150 mm	10 mm ϕ 165mm EACH WAY
175 mm	10 mm ϕ 150mm EACH WAY
200 mm	10 mm ϕ 140mm EACH WAY

5. UNLESS OTHERWISE NOTED IN THE PLANS ALL BEDDED SLABS SHALL BE REINFORCED WITH 10mm ϕ AT 250mm O.C. EACH WAY TO CENTER OF SLAB AND CONSTRUCTION JOINTS FOR SAME SHALL NOT BE LESS THAN 3.65 METER APART
6. PROVIDE EXTRA REINFORCEMENTS FOR CORNER SLAB (TWO ADJACENT DISCONTINUOUS EDGES) AS SHOWN BELOW.
7. CONCRETE SLAB REINFORCEMENTS SHALL BE PROPERLY SUPPORTED WITH 10mm ϕ STEEL CHAIR OR APPROVED EQUIVALENT SPACED AT 1.0 METER ON CENTER BOTHWAYS

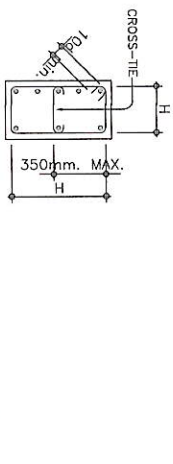


TYPICAL CORNER SLAB DETAIL

TYPICAL SLAB OPENING DET.

NOTES ON COLUMNS

1. PROVIDE EXTRA SETS OF TIES AT 100mm O.C. FOR TIED COLUMN REINFORCEMENT ABOVE AND BELOW BEAM-COLUMN CONNECTIONS FOR A DISTANCE FROM FACE OF CONNECTION EQUAL TO THE GREATER OF THE OVERALL THICKNESS OF COLUMN, 1/6 THE CLEAR HEIGHT OF COLUMN OR 450mm.
2. COLUMN TIES SHALL BE PROTECTED EVERYWHERE BY A COVERING OF CONCRETE CAST MONOLITHICALLY WITH THE CORE WITH THE MINIMUM THICKNESS OF 40mm AND NOT LESS THAN 40 TIMES THE MAXIMUM SIZE OF COARSE AGGREGATE IN MILLIMETERS.
3. WHERE COLUMNS CHANGE IN SIZE, VERTICAL REINFORCEMENTS SHALL BE SET IN PLACE AND NOT WELDED IN 6 AND EXTRA 10mm TIES AT 100mm SHALL BE PROVIDED THRU OUT THE OFFSET REGION.
4. UNLESS OTHERWISE INDICATED IN THE PLANS LAP SPLICES FOR VERTICAL COLUMN REINFORCEMENT SHALL BE MADE WITHIN THE BEAM. FOR COLUMNS WITH SECTION APPROVED MECHANICAL DEVICES MAY BE USED PROVIDED THAT NOT MORE THAN ALTERNATE BARS ARE WELDED OR MECHANICALLY SPLICED AT ANY LEVEL AND THE VERTICAL DISTANCES BETWEEN THESE WELDS OR SPLICES OF ADJACENT BARS IS NOT LESS THAN 600mm.

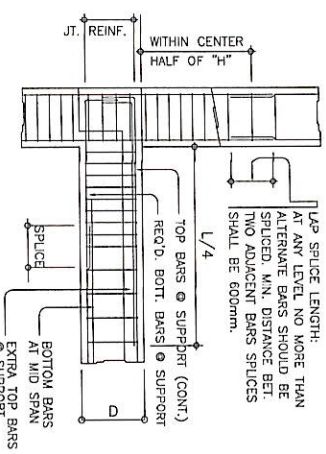


JOINT LAP SPACE ϕ 25mm WHEN THERE ARE BEAMS HAVING WIDTH OF AT LEAST ONE-HALF THE COLUMN WIDTH & DEPTHS NOT LESS THAN THREE QUARTERS OF THE DEEPEST BEAM THAT FRAME INTO FOUR SIDES OF THE COLUMN. ALL OTHER CONDITIONS USE HOOPS ϕ 5mm CENTERS.

FOR COL. BR SPLICES SEE TABLE OF MIN. LAP SPLICE LENGTH OF COLUMN REINFORCEMENT (SPACING OF TIES ALONG THIS REGION SHALL NOT BE LESS THAN 100mm)

NOTE: ALL CONCRETE REINF. DETAIL SHOULD BE DONE IN ACCORDANCE WITH THE LATEST EDITION OF ACI DEPARTMENT MANUAL

TYPICAL COLUMN ELEV. SHOWING DOWELS AND TIES SPACING



TYP. DETAIL OF COL. LAP SPLICE & EXT. GIRDER TO COL. CONNECT.

NOTES ON BEAMS AND GIRDERS

1. UNLESS OTHERWISE NOTED IN PLANS, CAMBER ALL BEAMS AND GORS AT LEAST 6mm AS NOTED IN PLANS. EXCEPT CAMBERED BEAMS FOR WHICH THE CAMBER SHALL BE AS NOTED IN PLANS OR AS FREE SPAN. 20mm FOR EVERY 3.0M OF FREE SPAN.
2. TYPICAL BAR BENDING AND CUTTING DETAILS FOR BEAMS SHALL BE AS SHOWN IN FIG. B-1.

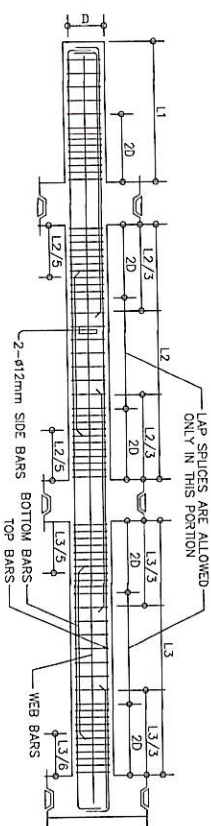


FIG. B-1

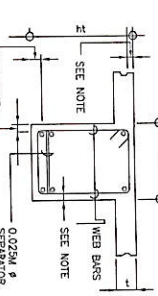
BAR SIZE	TENSION BARS	EMBEDMENT LENGTHS AND LAPPED SPLICED IN MILLIMETERS
10mm ϕ	300	300
12mm ϕ	300	300
16mm ϕ	400	400
20mm ϕ	500	500
25mm ϕ	600	600
32mm ϕ	750	750

BAR SIZE	COMPRESSION BARS	EMBEDMENT LENGTHS AND LAPPED SPLICED IN MILLIMETERS
10mm ϕ	225	200
12mm ϕ	225	200
16mm ϕ	350	325
20mm ϕ	450	475
25mm ϕ	550	625
32mm ϕ	700	775

NOTE 1: TOP FLAT BARS, MULTIPLY VALUE BY 2

NOTE 2: TOP FLAT BARS, MULTIPLY VALUE BY 2 VALUES GIVEN ABOVE CAN ALSO BE USED FOR COLUMNS.

3. IF THE BEAM REINFORCING BARS END IN A WALL THE CLEAR DISTANCE FROM THE BAR TO THE FACE OF THE WALL SHALL NOT BE LESS THAN 25mm. EMBEDMENT LENGTH SHALL BE THE FURTHER IN TABLE 'A' FOR TENSION BARS AND TABLE 'B' FOR COMPRESSION BARS UNLESS SPECIFIED IN PLANS. TOP BAR SHALL NOT BE SPLICED WITHIN THE COLUMN OR WITHIN A DISTANCE TWICE THE MEMBER DEPTH FROM THE FACE OF THE COLUMN. AT LEAST TWO STRIPS SHALL BE PROVIDED AT ALL SPLICES.
4. IF THERE ARE TWO OR MORE LAYERS OF REINFORCING BARS, USE 25mm BAR SEPARATORS SPACED AT 1.0M ON CENTER. IN NO CASE SHALL THERE BE LESS THAN TWO (2) SEPARATORS BETWEEN TWO LAYERS OF BARS.
5. MINIMUM CONCRETE PROTECTION FOR REINFORCING BARS OR STEEL SHAPES SHALL BE AS SHOWN IN FIG. B-2 UNLESS SPECIFIED ELSEWHERE.



TYP. DET. FOR SLEEVES THRU CONCRETE BEAM

FIG. B-3

6. WHEN A BEAM CROSSES A GIRDER, REST BEAM ON TOP OF GIRDER BARS. BEAM REINFORCING BARS SHALL BE SYMMETRICAL ABOUT CENTER LINE WHERE CENTRAL JOINTS OCCUR. SPLICES WHERE DEVELOP IN TENSION AT LEAST 125% OF THE SPECIFIED YIELD STRENGTH OF THE BAR, NOT MORE THAN 50% OF THE BARS AT ANY ONE SECTION IS ALLOWED TO BE SPLICED THEREIN.

GENERAL CONSTRUCTION NOTES

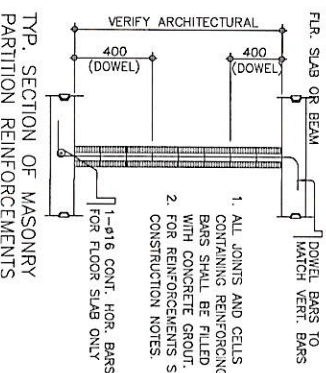
NOTES ON CONCRETE HOLLOW BLOCK WALLS

- UNLESS OTHERWISE SHOWN IN PLANS ALL CONCRETE HOLLOW BLOCKS AND CERAMIC BLOCKS SHALL BE REINFORCED AS SHOWN IN THE SCHEDULE OF CONCRETE HOLLOW BLOCKS AND CERAMIC BLOCK REINFORCEMENT.
- PROVIDE 150mm x 300mm STIFFENER COLUMN REINFORCED WITH 4-#12mm WITH 6mm² TIES AT 150mm ON CENTER WHERE CONCRETE HOLLOW BLOCK TERMINATES AND AT EVERY 3.0M LENGTH OF CONCRETE HOLLOW BLOCK WALLS UNLESS NOTED IN STRUCTURAL PLANS.

THICKNESS	REINFORCEMENT		NOTES
	HORIZONTAL	VERTICAL	
75 mm	10mm ² @ 600mm O.C.	10mm ² @ 600mm O.C.	A. MINIMUM LAPS AT SPICE = 0.2M B. PROVIDE RIGHT ANGLE REINFORCEMENT AT CORNERS 0.92M LONG
125 mm	10mm ² @ 600mm O.C.	10mm ² @ 600mm O.C.	C. WHERE CHB OR CER. BLK. WALL DOWELS JOIN COL. R.C. BEAMS AND WALL DOWELS WITH THE SAME SIZE AS VERT. OR HOR. REINFORCEMENTS SHALL BE PROVIDED
150 mm	10mm ² @ 600mm O.C.	10mm ² @ 600mm O.C.	
200 mm	12mm ² @ 600mm O.C.	12mm ² @ 600mm O.C.	

REINFORCING CONCRETE LINTEL BEAM IN CONCRETE BLOCK WALLS

CLEAR SPAN (L)	TOTAL R.C. LENGTH (L+2d)	R.C. HEIGHT (H)	R.C. BOTT. REINFORC. (BAR)	R.C. TOP REINFORC. (BAR)	R.C. STRIPS
1.20M	1.60M	200	1-#10	1-#10	65mm @ 200mm
1.50M	1.90M	200	1-#10	1-#10	65mm @ 200mm
1.80M	2.20M	200	1-#12	1-#12	65mm @ 200mm
2.10M	2.50M	250	1-#12	1-#10	65mm @ 200mm
2.40M	2.80M	250	1-#16	1-#10	65mm @ 200mm
2.70M	3.10M	300	1-#16	1-#12	65mm @ 200mm
3.00	3.40M	300	1-#16	1-#12	65mm @ 200mm
3.30	3.70M	300	1-#16	1-#12	65mm @ 200mm
3.60	4.00	300	1-#20	1-#12	65mm @ 200mm

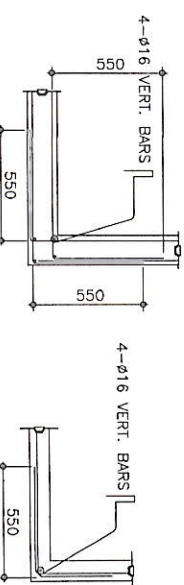


NOTES ON CONCRETE WALLS

- ALL WALLS SHALL BE REINFORCED ACCORDING TO THE FOLLOWING SCHEDULE OF WALL REINFORCEMENT UNLESS OTHERWISE INDICATED IN THE PLANS.

WALL THICKNESS	REINFORCEMENT		VERTICAL SECTION
	HORIZONTAL	VERTICAL	
100mm	10mm ² @ 250mm O.C.	10mm ² @ 300mm O.C.	VERT. BARS: 10mm ² @ 200mm O.C. AT CENTER VERTICAL BARS STAGGERED OUT
125mm	10mm ² @ 250mm O.C.	10mm ² @ 250mm O.C.	
150mm	12mm ² @ 250mm O.C.	12mm ² @ 300mm O.C.	

- REINFORCING BARS SHALL HAVE 25mm CLEAR CONCRETE COVER FROM FACE OF WALL EXCEPT FOR WALLS IN CONTACT WITH THE GROUND WHERE A MINIMUM SHALL BE 50mm CLEAR, AND FOR EXPOSED PARTS OF FORMED WALLS WHERE THE MINIMUM SHALL BE 50mm CLEAR.
- CARRY VERTICAL BARS AT LEAST 60mm ABOVE FLOOR LEVEL TO PROVIDE FOR SPICES WHEN NECESSARY. TOP BARS SHALL BE SECURED BY LAPING A DISTANCE EQUAL TO 30 DIAMETERS AND WIRE SECURED WITH 16 G. WIRE PROVIDED THAT SPLICES IN ADJACENT BARS ARE STAGGERED AT LEAST 1.50M O.C.
- UNLESS OTHERWISE NOTED IN THE PLANS, ALL OPENINGS IN WALLS 250mm OR THICKER SHALL BE REINFORCED AROUND WITH 2-20mm BARS FOR 225mm, 200mm, 175mm, 150mm, USE 2-16mm FOR 125mm AND 100mm WALLS. USE 2-12mm BARS. ALL WALLS SPACING SHALL HAVE VERTICAL REINFORCEMENT BENT TO A U-FORM LIKE STIRRUPS AND SPACED ACCORDING TO THE SCHEDULE UNLESS OTHERWISE NOTED (SEE FIG.1)



TYPICAL CONNECTION DETAIL OF R.C. WALL AT CORNERS

NOTES ON WELDS

- USE E70xx ELECTRODES FOR ALL MEMBERS WELDED.
- WELDS SHALL DEVELOP THE FULL STRENGTH OF MEMBERS JOINED UNLESS OTHERWISE SHOWN OR DETAILED IN THE DRAWINGS.

NOTES ON STRUCTURAL STEEL

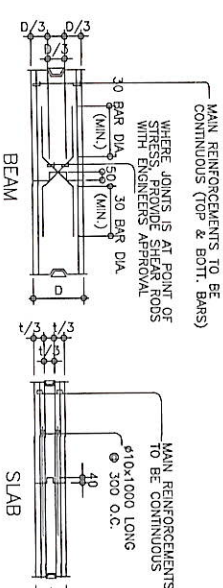
- STRUCTURAL STEEL TO BE USED FOR FABRICATION AND ERECTION OF THIS STRUCTURE SHALL COMPLY WITH ALL THE PERTINENT PROVISIONS OF ASPEC SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDING LATEST EDITION.
- ALL STRUCTURAL STEEL SHAPES SHALL CONFORM TO ASTM A36 STRUCTURAL STEEL UNLESS OTHERWISE INDICATED.
- ALL WELDED CONNECTIONS SHALL DEVELOP THE FULL STRENGTH OF THE MEMBERS CONNECTED.
- UNLESS OTHERWISE SPECIFIED ALL WELDING RODS SHALL CONFORM ANS E60 ELECTRODES.
- ALL BOLTS USED UNLESS OTHERWISE SPECIFIED SHALL BE ASTM A 307 BOLTS.

NOTES ON EMBEDDED PIPES

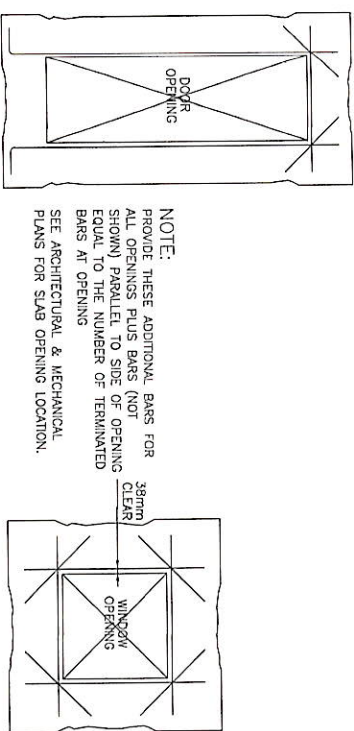
- ALL EMBEDDED PIPES FOR UNIFORMS, ETC. THAT PASS THRU BEAMS SHALL NOT EXCEED 100mm IN DIAMETER OR 1/3 BEAM DEPTH WHICHEVER IS LESS, UNLESS OTHERWISE APPROVED IN WRITING BY THE STRUCTURAL ENGINEER.
- NO PIPES SHALL BE ALLOWED TO PASS THRU BEAMS VERTICALLY.
- NO PIPES SHALL BE EMBEDDED IN COLUMNS.

NOTES ON CONSTRUCTION JOINTS IN CONCRETE

- WHERE A CONSTRUCTION JOINT IS TO BE MADE, THE SURFACE OF CONCRETE SHALL BE CLEANED AND ALL LUMP AND STANDING WATER REMOVED. SHEAR KEY SHALL BE PROVIDED AT THE JOINT.



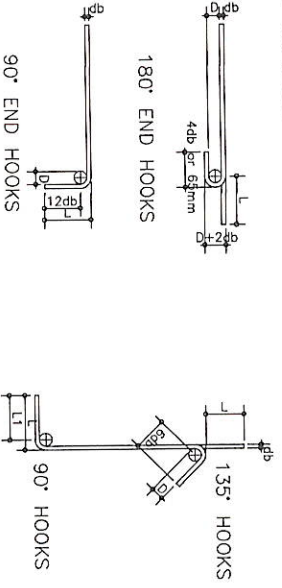
TYPICAL SLAB & BEAM CONSTRUCTION JOINT DET.



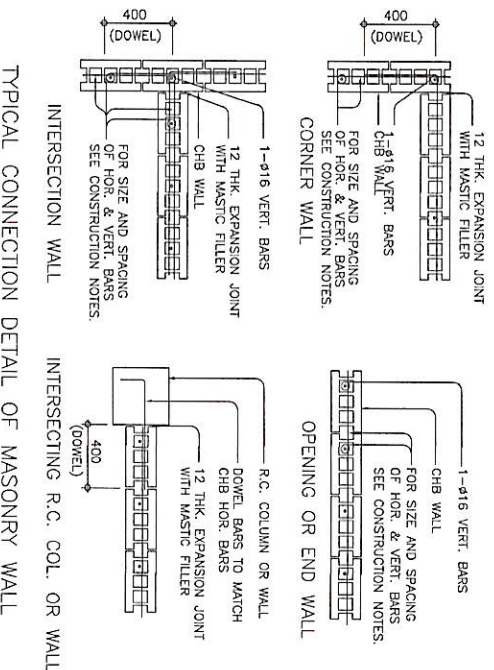
TYP. EXTERIOR WINDOW & DOOR OPENING

NOTES OF STIRRUPS

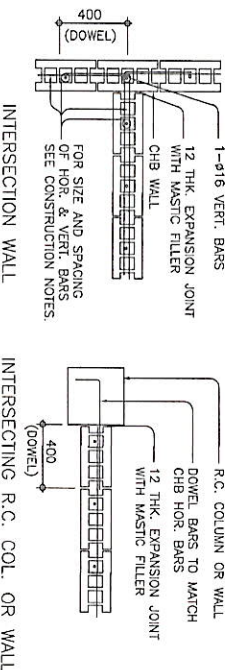
- ALL REINFORCEMENT SHALL BE BENT COLD UNLESS OTHERWISE PERMITTED BY THE STRUCTURAL ENGINEER.
- REINFORCEMENT PARCALLY EMBEDDED IN CONCRETE SHALL NOT BE FILLED BENT, EXCEPT AS SHOWN IN THE DESIGN DRAWINGS OR PERMITTED BY THE STRUCTURAL ENGINEER.
- TIES & CLOSE STIRRUPS MUST BE BENT AT 135°.



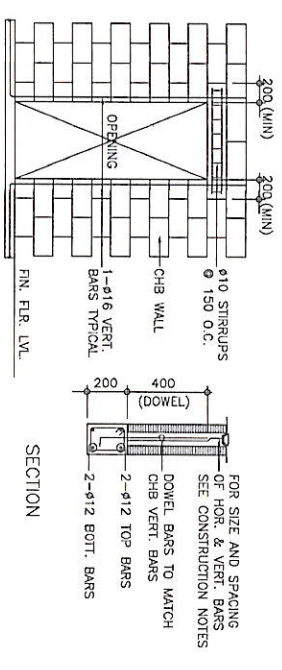
MAIN BAR END HOOKS (ALL GRADES)				STIRRUP AND THE HOOKS (ALL GRADES)			
BAR SIZE (DEFINED)	DIAMETER (mm)	180° HOOK	90° HOOK	BAR SIZE (DEFINED)	DIAMETER (mm)	180° HOOK	90° HOOK
10mm	60	75	150	10mm	40	125	85
12mm	75	100	150	12mm	50	185	115
16mm	95	125	175	16mm	65	200	140
18mm	115	150	200	20mm	85	200	165
20mm	135	175	230	25mm	115	250	200
25mm	150	200	250	25mm	150	355	230
28mm	180	250	350				
32mm	200	300	450				



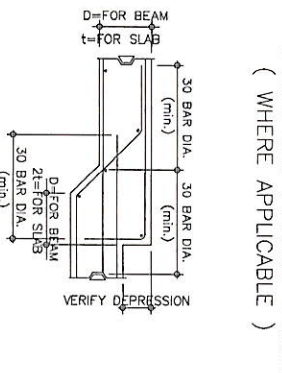
INTERSECTION R.C. COL. OR WALL



TYPICAL CONNECTION DETAIL OF MASONRY WALL



TYP. DET. OF LINTEL BEAM AT CHB WALL OPENING



TYPICAL DETAIL FOR BEAM OR SLAB CHANGE SOFFIT

GENERAL SANTOS CITY WATER DISTRICT
E. FERNANDEZ STREET BRGY. LAGAJO, GEN. SANTOS CITY
ENGINEERING & CONSTRUCTION DEPARTMENT
PLANNING AND DESIGN DIVISION
TEL. NO.: (083) 552-3824

DANILON M. FORLADOR, JR.
CIVIL ENGINEER
REG. NO. 0107545
T.N. NO. 291-941-997
DATE: 01/12/2022

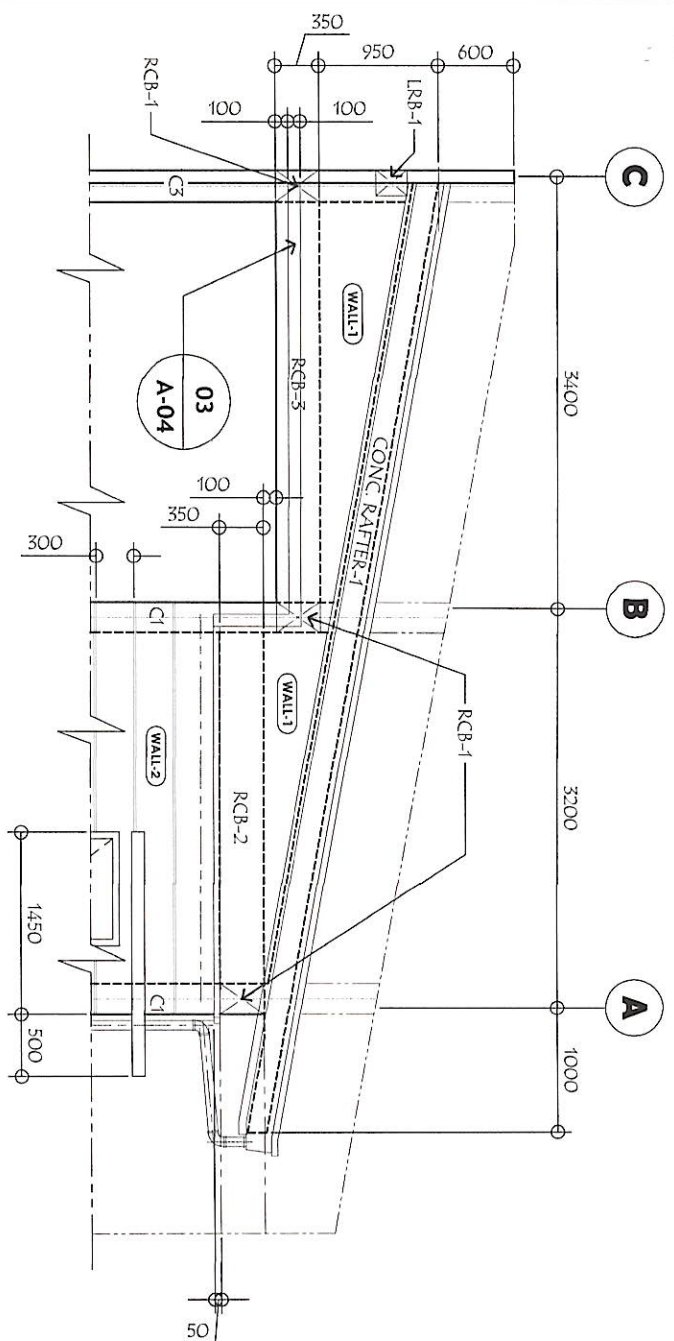
PROJECT AND LOCATION
PROPOSED CONSTRUCTION OF PUMPHOUSE & PERIMETER FENCE
LOCATION: ZONE 11-B, BRGY. FATIWA, GEN. SANTOS CITY

CHECKED: ENGR. MA. CELIA N. DANDAN
OFFICE IN-CHARGE, PDD

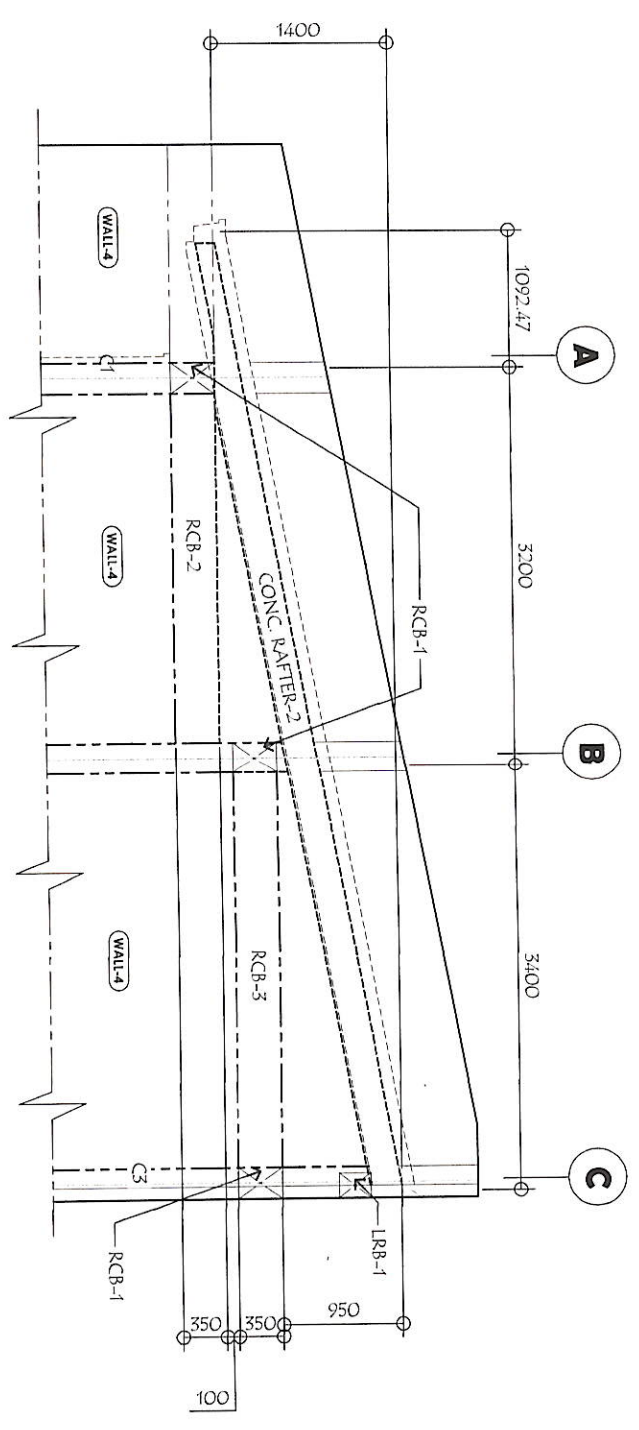
REVIEWED: ENGR. ROGELIO A. BESANNA, JR.
AGM, OPERATION & TECHNICAL SERVICES

APPROVED: ENGR. ARN B. GELLANGARIN
GENERAL MANAGER A

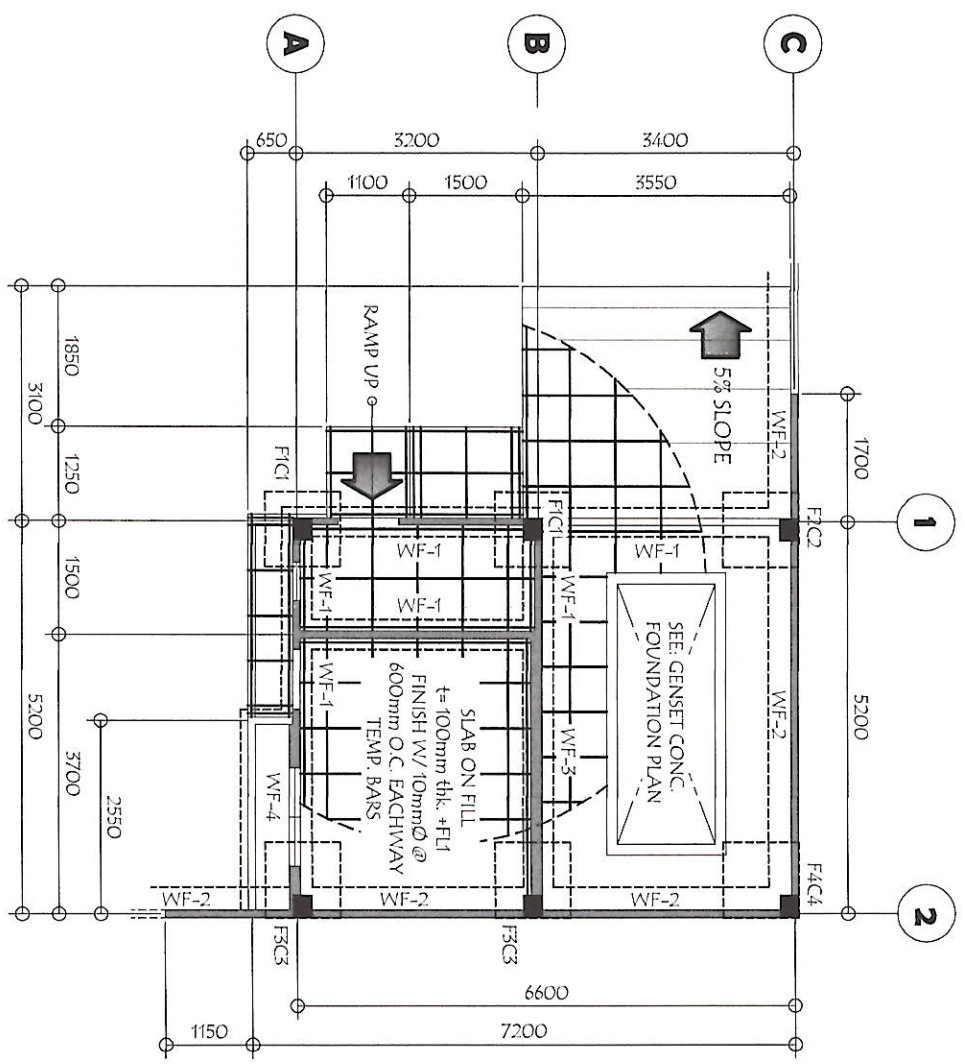
SHEET CONTENTS
AS SHOWN
REV. NO. 09
DATE: Feb. 2022
SHEET NO. S-02
23



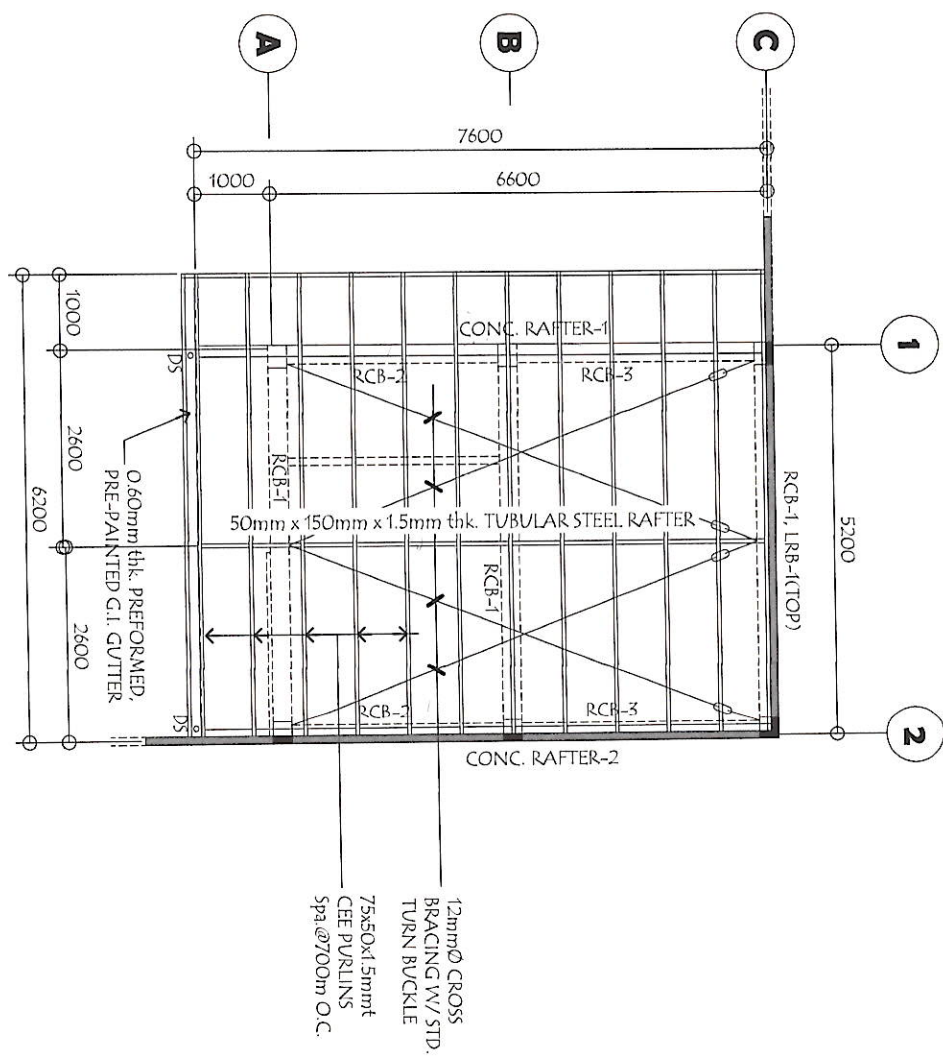
03 ELEV. OF LEFT SIDE WALL FRAME
SCALE: 1:60 M



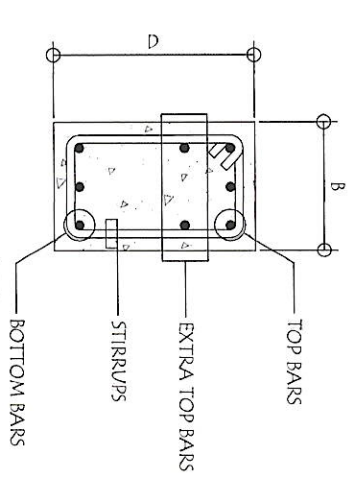
04 ELEV. OF RIGHT SIDE WALL FRAME
SCALE: 1:60 M



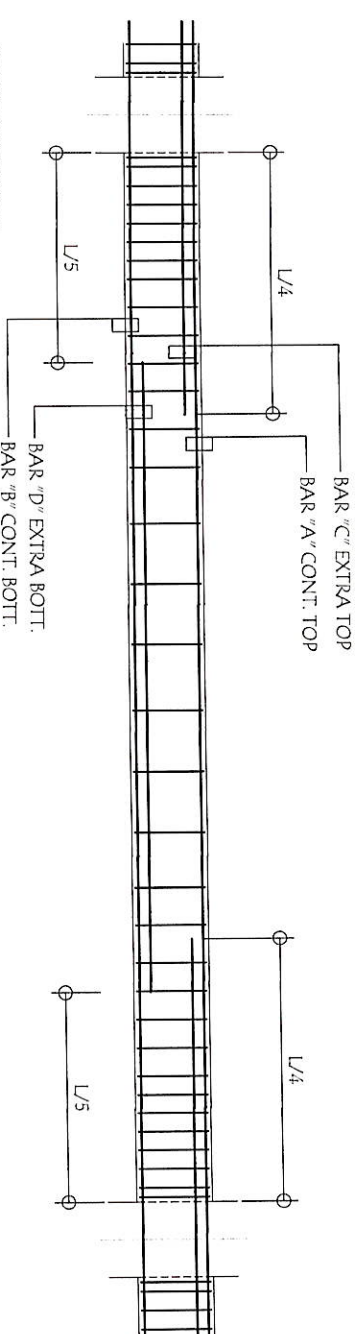
01 FOUNDATION PLAN
SCALE: 1:100 M



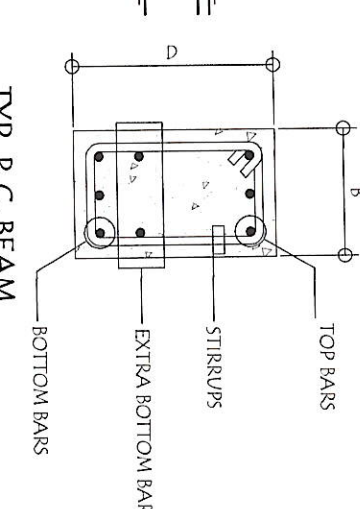
02 ROOF FRAMING PLAN
SCALE: 1:100 M



TYP. R.C. BEAM SECTION @ SUPPORT



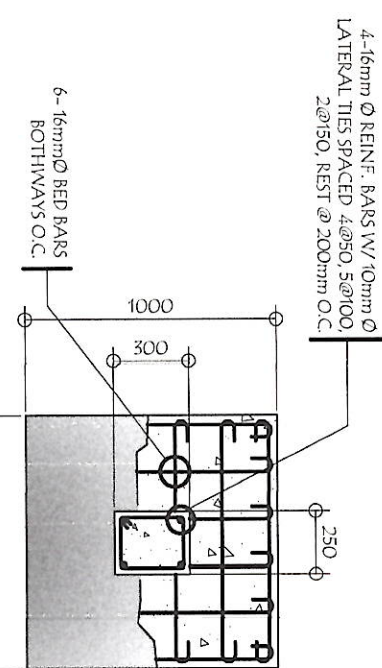
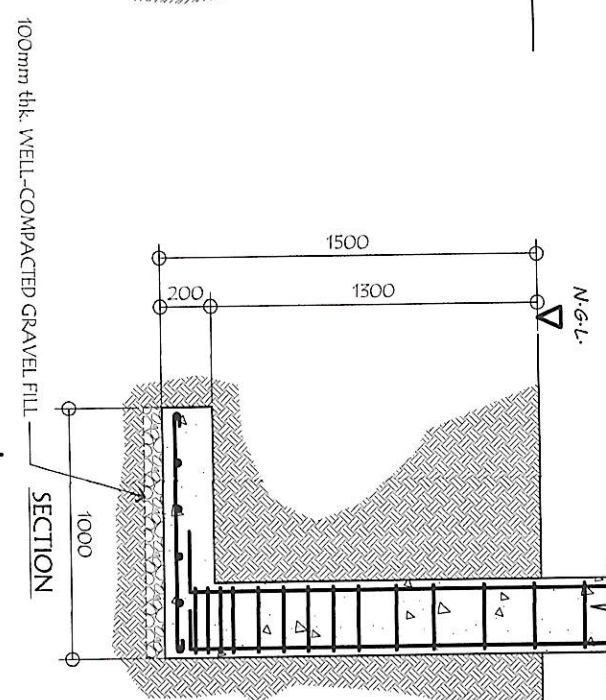
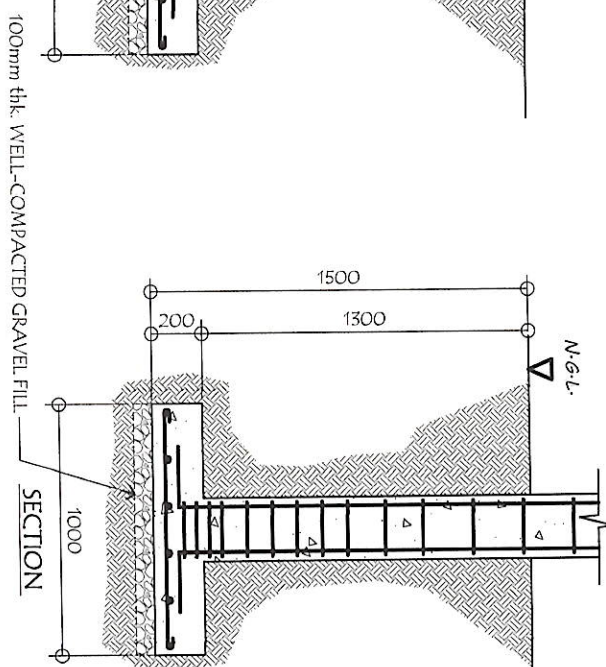
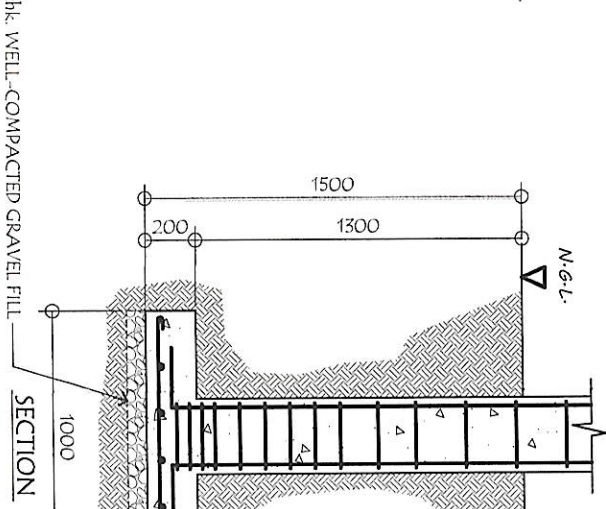
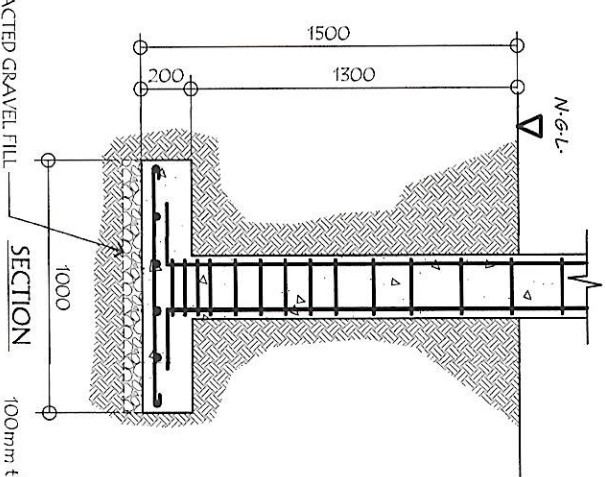
TYP. R.C. BEAM ELEVATION



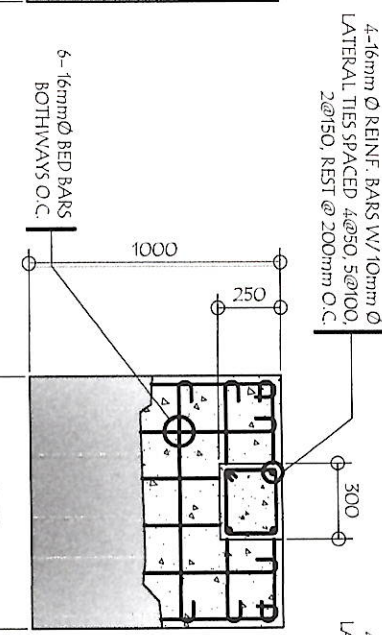
TYP. R.C. BEAM SECTION @ MID-SPAN

BEAM MARK	SIZES				REINFORCEMENT				SPACING OF STIRRUPS
	WIDTH B	DEPTH D	BAR 'A'	BAR 'B'	BAR 'C'	BAR 'D'	STIRRUPS		
RCB-1	250	350	3 - Ø12mm	3 - Ø12mm	2 - Ø12mm	2 - Ø12mm	A		
RCB-2	250	350	3 - Ø12mm	3 - Ø12mm	2 - Ø12mm	2 - Ø12mm	B		
RCB-3	250	350	3 - Ø12mm	3 - Ø12mm	2 - Ø12mm	2 - Ø12mm	B		

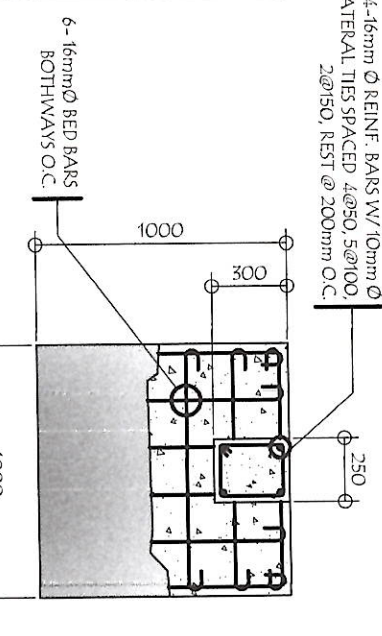
NOTE:
ALL REINFORCEMENT BARS SHALL BE GRADE 40 UNLESS OTHERWISE SPECIFIED IN THE DRAWING



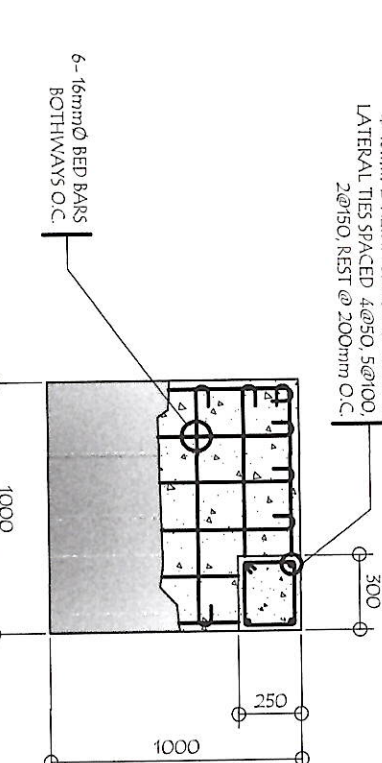
01 F1C1 DETAIL SCALE: 1:50 M



02 F2C2 DETAIL SCALE: 1:50 M



03 F3C3 DETAIL SCALE: 1:50 M



04 F4C4 DETAIL SCALE: 1:50 M

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CHECKED: *[Signature]*
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ENGR. BOGELIO A. BESANA, JR.
AGM, OPERATION & TECHNICAL SERVICES

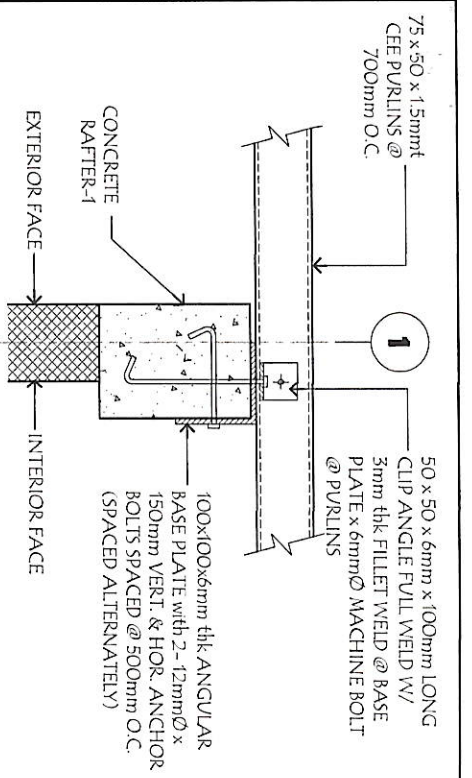
APPROVED: *[Signature]*
ENGR. ARN B. GELLANCA, RIN
GENERAL MANAGER A

SHEET CONTENTS:
AS SHOWN

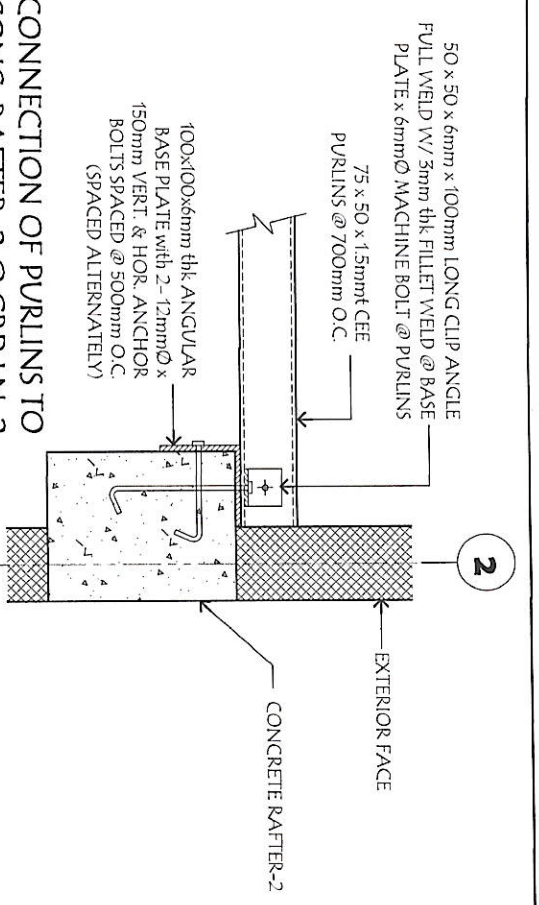
SHEET NO. **S-04**

DRAWN BY: RRA
CHECKED BY: ESA
DATE: Feb. 2022

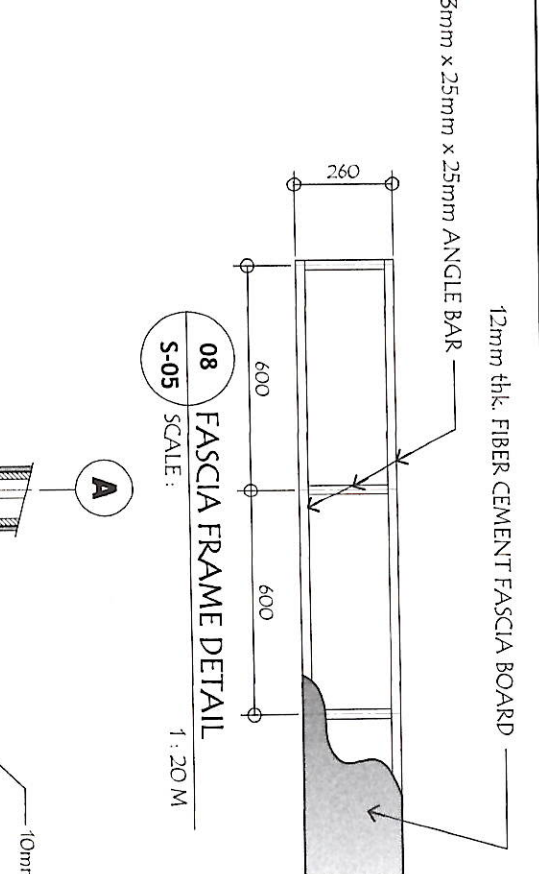
REV. NO. **11**
DATE: Feb. 2022



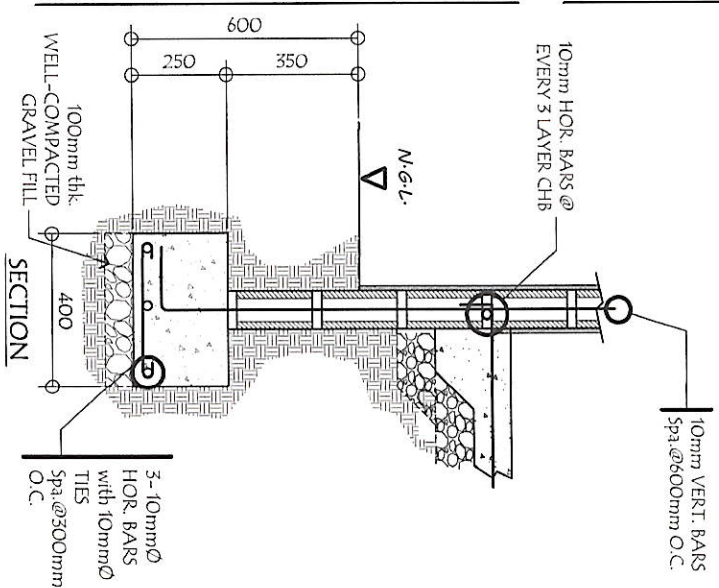
06 CONNECTION OF PURLINS TO CONC. RAFTER-1 @ GRD LN. 1
SCALE: 1:10 M



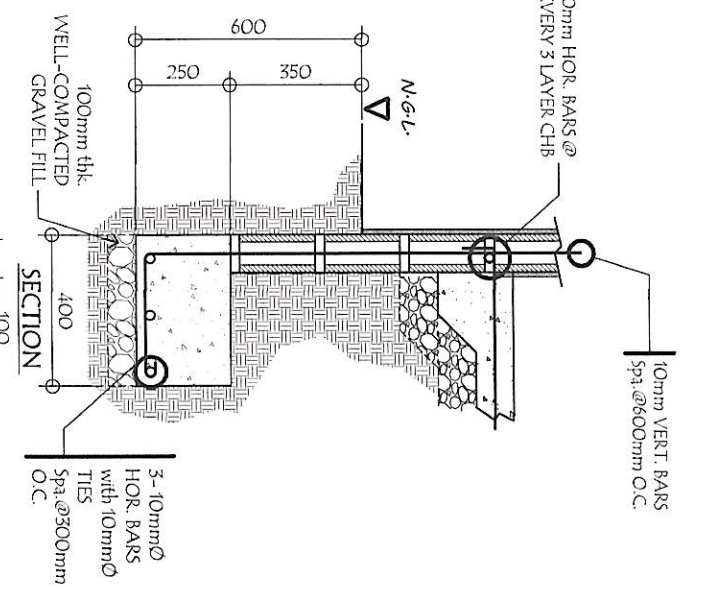
07 CONNECTION OF PURLINS TO CONC. RAFTER-2 @ GRD LN. 2
SCALE: 1:10 M



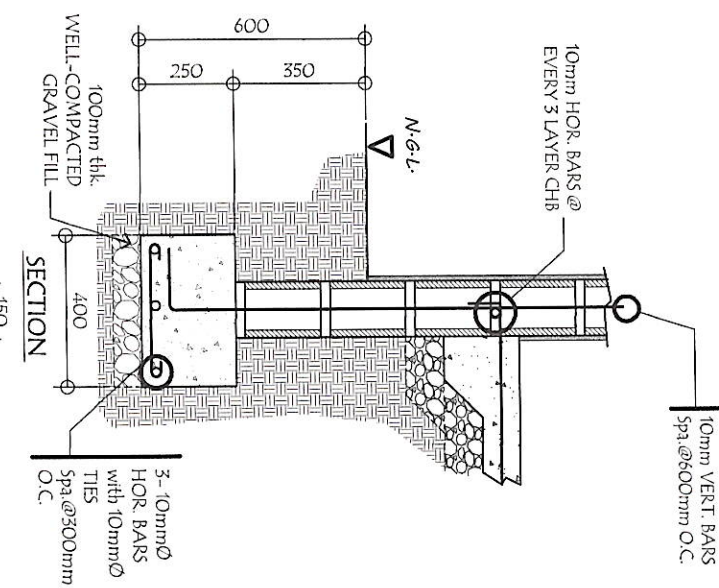
08 FASCIA FRAME DETAIL
SCALE: 1:20 M



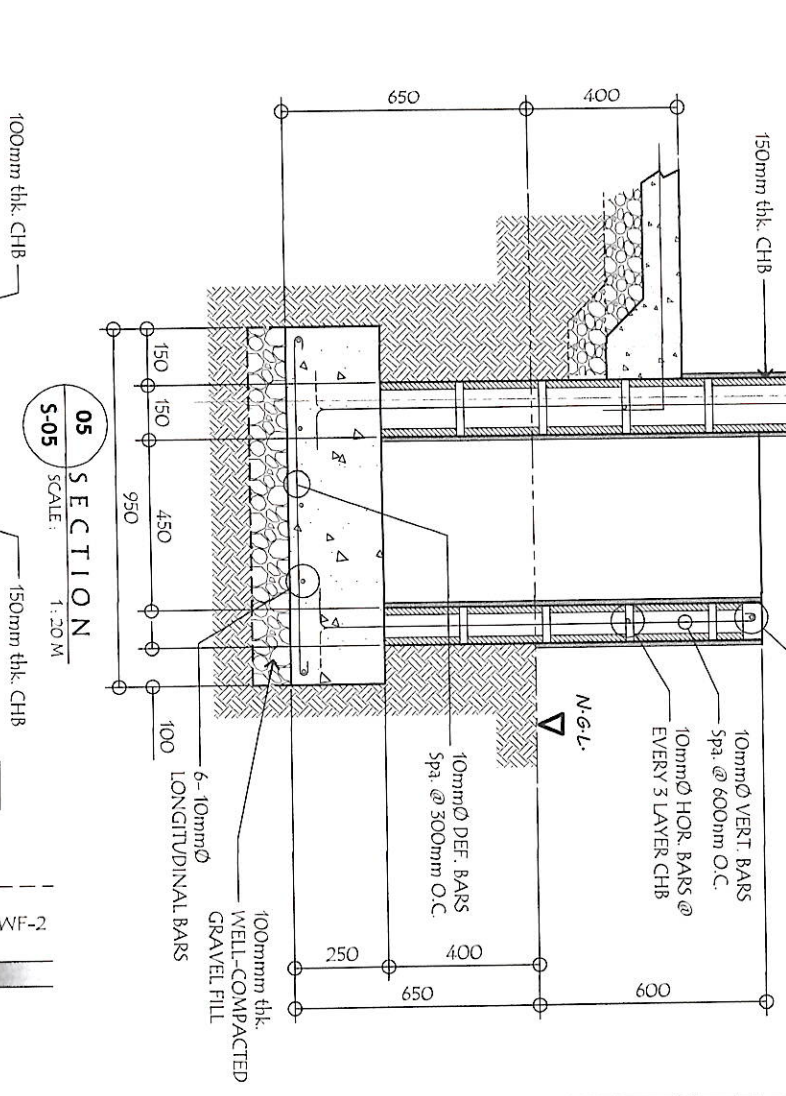
01 W.F.-1 DETAIL
SCALE: 1:20 M



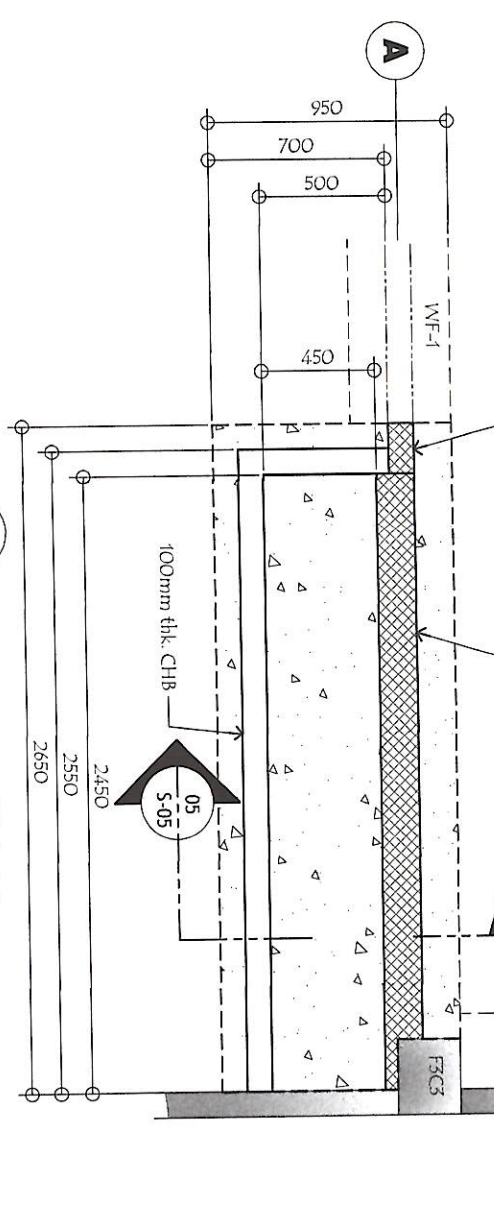
02 W.F.-2 DETAIL
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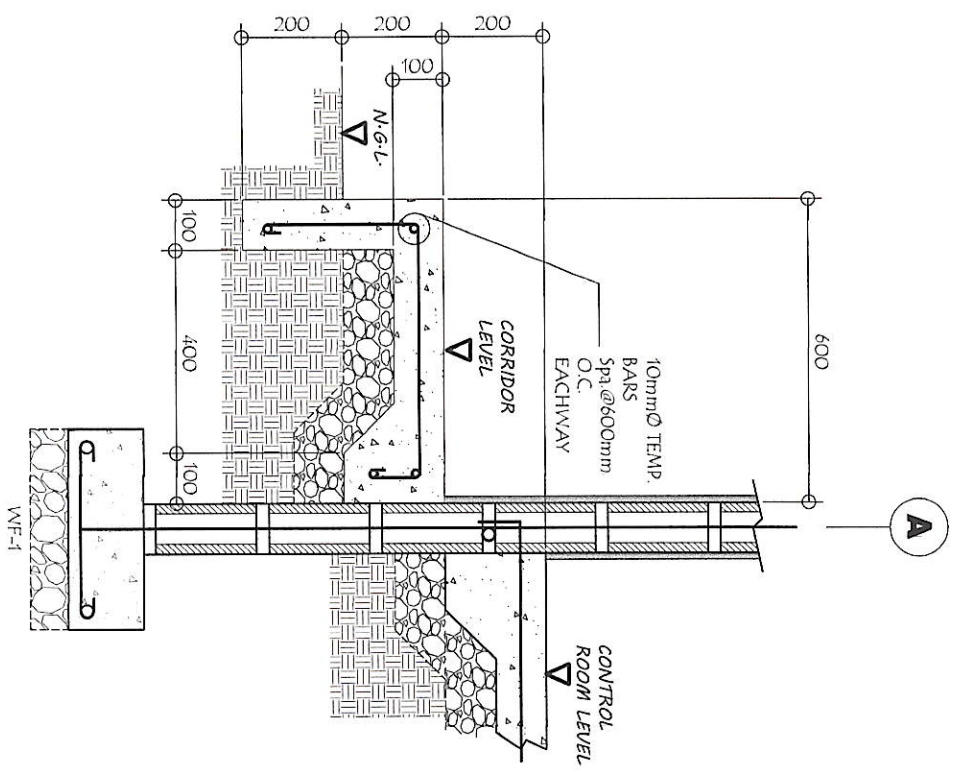
03 W.F.-3 DETAIL
SCALE: 1:20 M



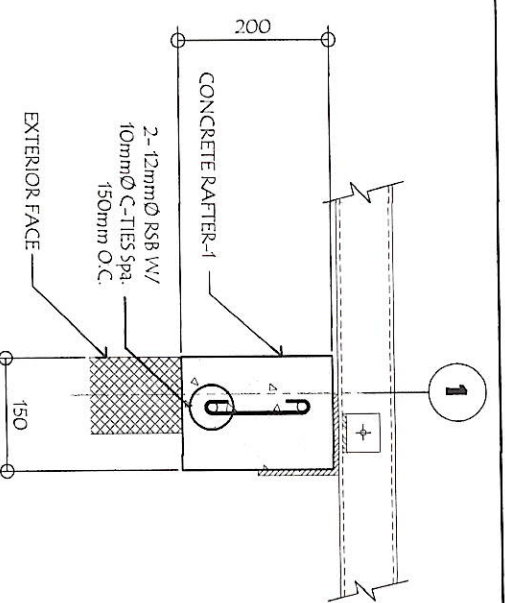
05 SECTION
SCALE: 1:20 M



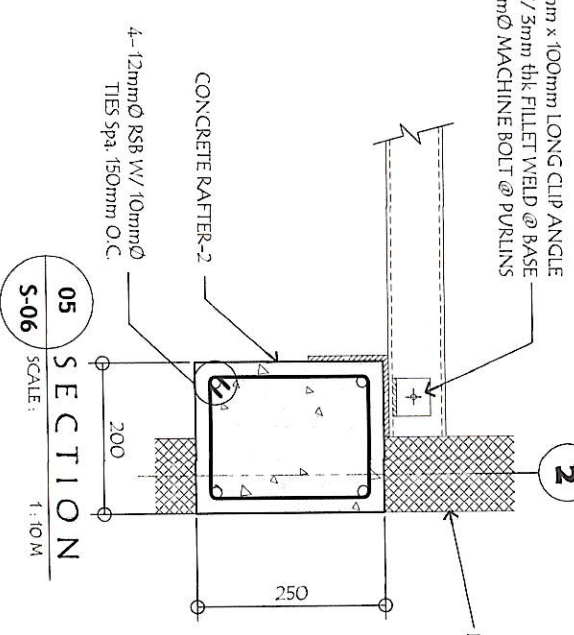
04 W.F.-4 DETAIL
SCALE: 1:30 M



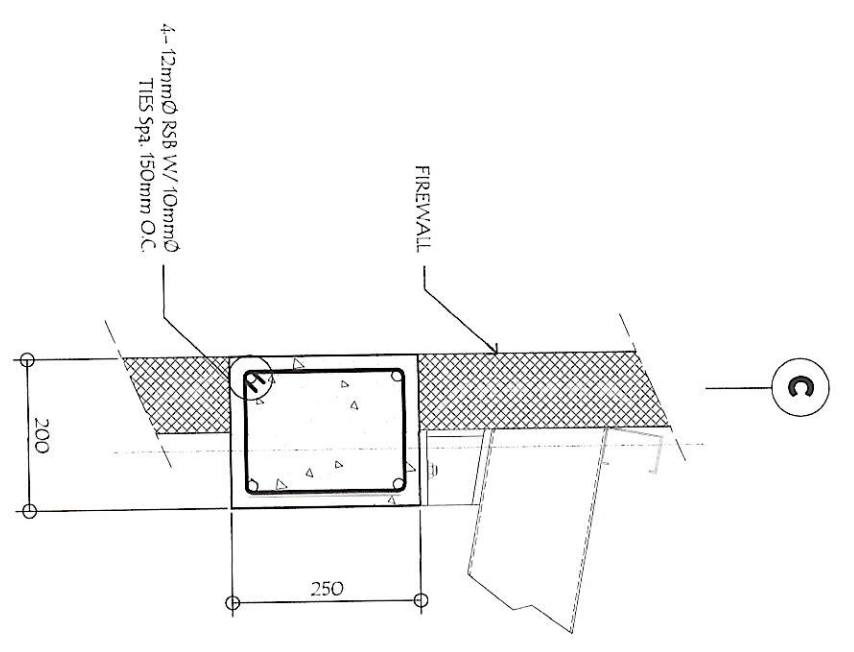
03 DETAIL SECTION OF CORRIDOR
SCALE: 1:15 M



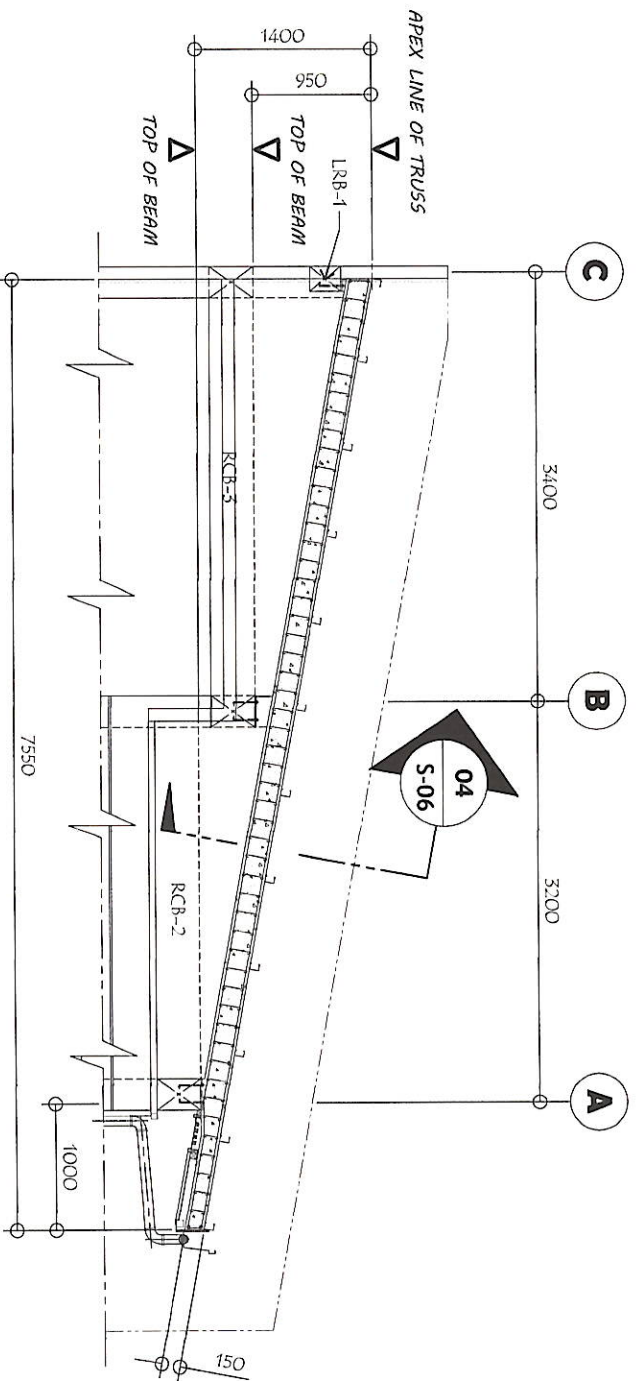
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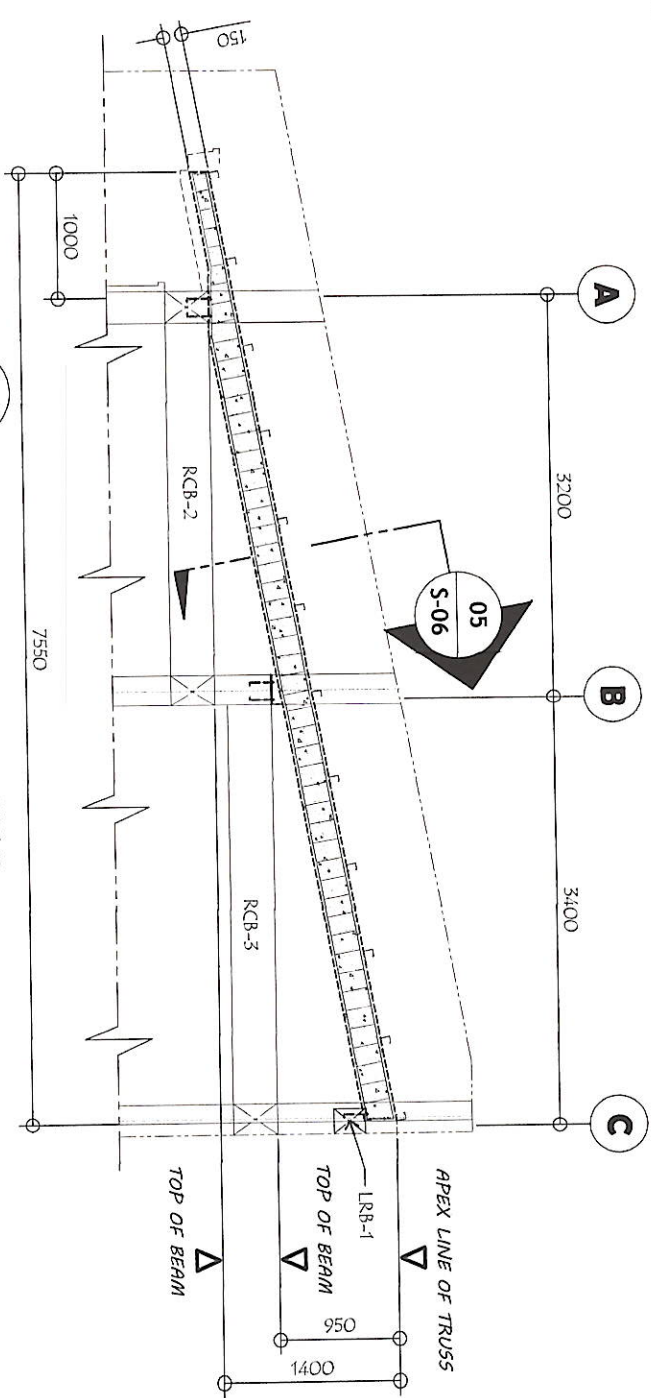
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06 DETAIL SECTION OF LRB-1
SCALE: 1:10 M

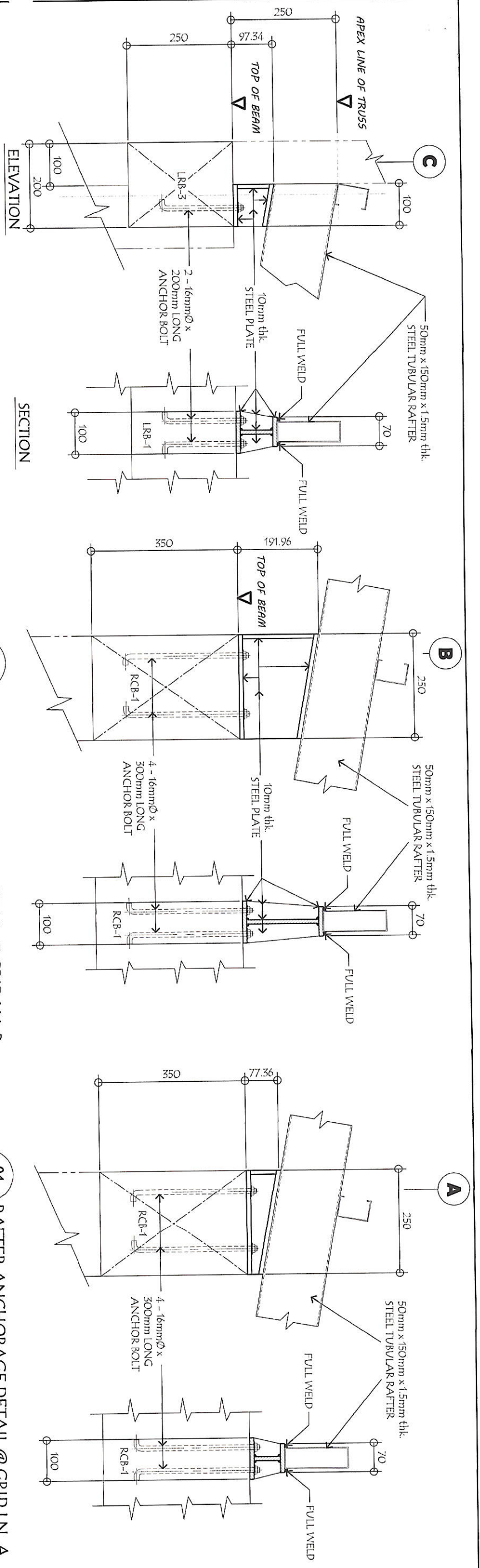


01 CONCRETE RAFTER-1 DETAIL
SCALE: 1:60 M



02 CONCRETE RAFTER-2 DETAIL
SCALE: 1:60 M

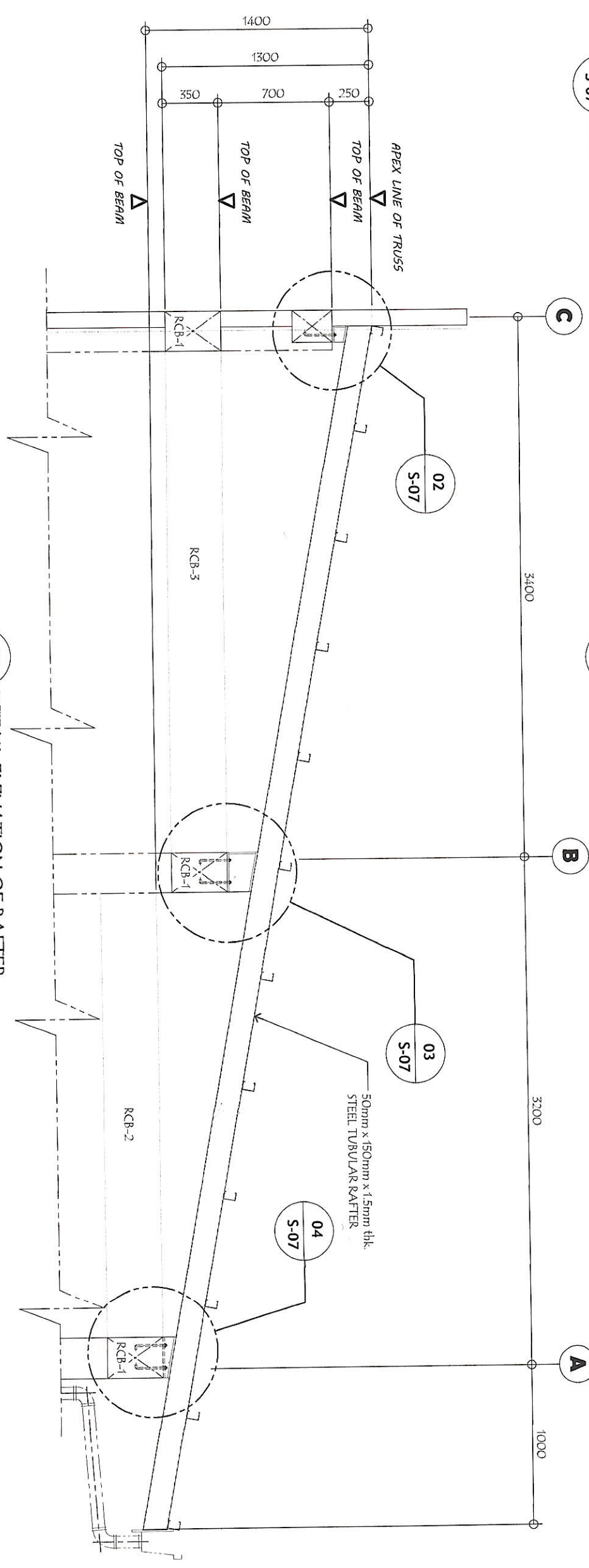
<p>GENERAL SANTOS CITY WATER DISTRICT E. FERNANDEZ STREET, BRGY. LAGAO, GEN. SANTOS CITY ENGINEERING & CONSTRUCTION DEPARTMENT PLANNING AND DESIGN DIVISION TEL. NO.: (083) 552-3884</p>		<p>DANILO M. KALADOR, JR. CIVIL ENGINEER REG. NO. 0107545 TIN. NO. 291-941-997 PR. NO. 61873A</p>		<p>PROJECT AND LOCATION PROPOSED CONSTRUCTION OF PUMPHOUSE & PERIMETER FENCE LOCATION: ZONE 11-B, BRGY. FATIMA, GEN. SANTOS CITY</p>		<p>CHECKED: ENGR. MA. DELIA N. DANDAN OFFICER-IN-CHARGE, PDD</p>		<p>REVIEWED: ENGR. ROGELIO A. BESANA, JR. ACM. OF. DESIGN & TECHNICAL SERVICES</p>		<p>APPROVED: ENGR. ARN B. GELLANGARIN GENERAL MANAGER A</p>		<p>SHEET CONTENTS AS SHOWN</p>		<p>SHEET NO. S-06</p>	
												<p>DRAWN BY: RRA REV. NO. 13</p>		<p>CHECKED BY: ESA DATE: Feb. 2022 23</p>	



02 RAFTER ANCHORAGE DETAIL @ GRID LN. C
 S-07 SCALE: 1:10M

03 RAFTER ANCHORAGE DETAIL @ GRID LN. B
 S-07 SCALE: 1:10M

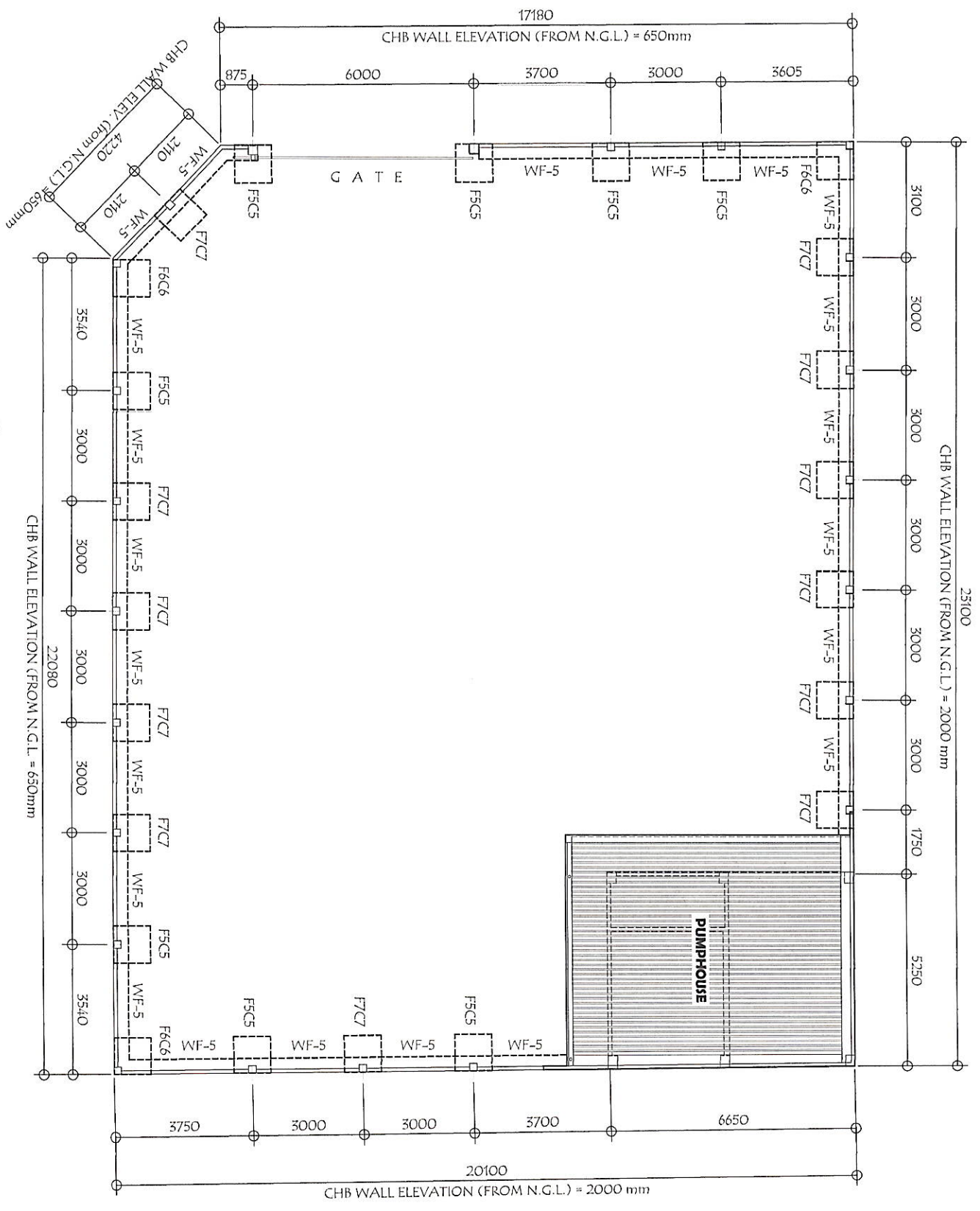
04 RAFTER ANCHORAGE DETAIL @ GRID LN. A
 S-07 SCALE: 1:10M



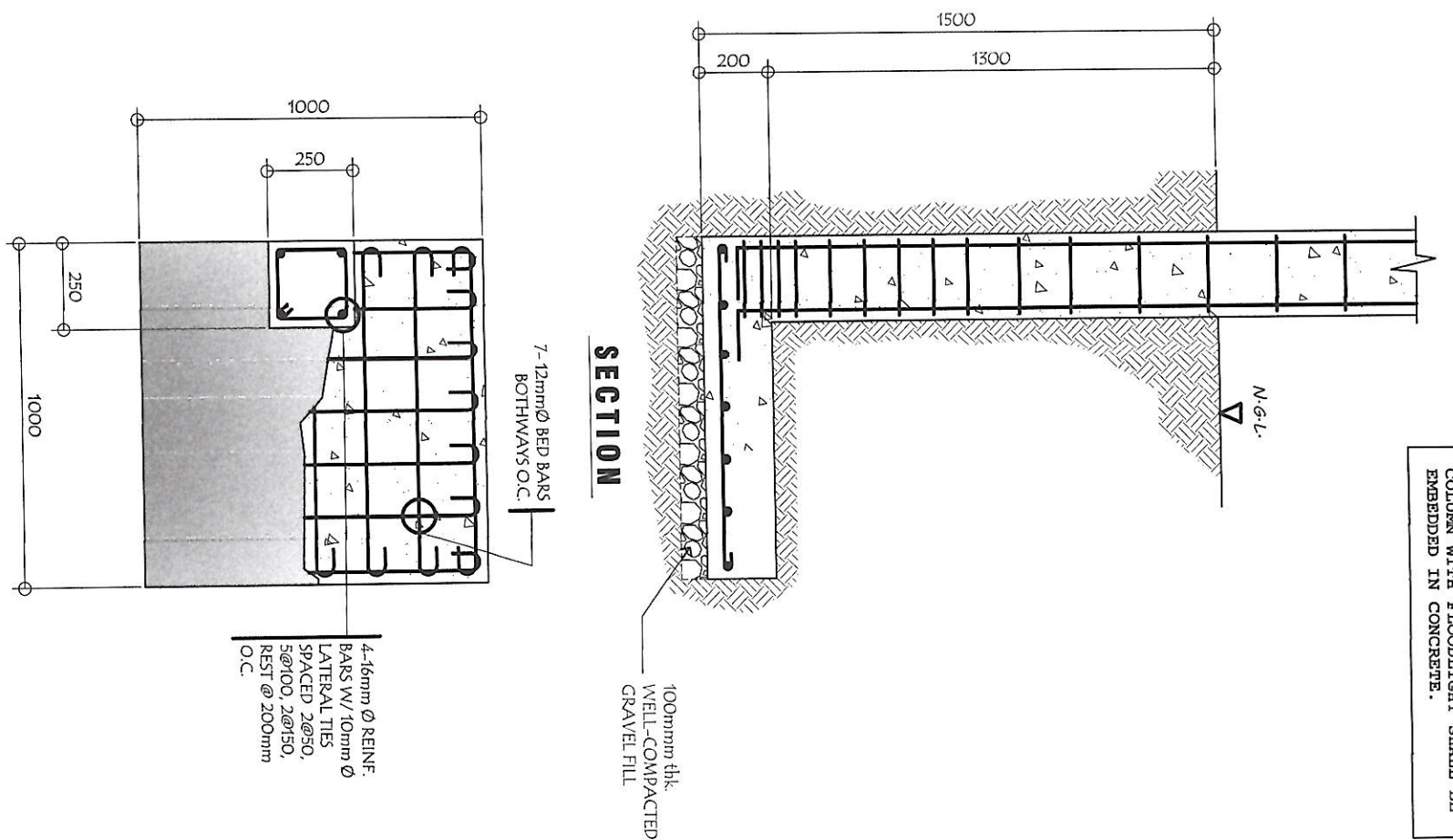
01 DETAIL ELEVATION OF RAFTER
 S-07 SCALE: 1:30M

<p>GENERAL SANTOS CITY WATER DISTRICT E. FERNANDEZ STREET, BRGY. LAGA, GEN. SANTOS CITY ENGINEERING & CONSTRUCTION DEPARTMENT PLANNING AND DESIGN DIVISION TEL. NO.: (083) 582-3824</p>		<p>DANILO M. TORLADOR, JR. CIVIL ENGINEER REG. NO. 0107545 TIN. NO. 291-941-997 DATE: 01/12/2022</p>		<p>PROJECT AND LOCATION PROPOSED CONSTRUCTION OF PUMPHOUSE & PERIMETER FENCE LOCATION: ZONE 11-B, BRGY. FAJIMA, GEN. SANTOS CITY</p>		<p>CHECKED: ENGR. MA. DELIA N. DANDAN OFFICER-IN-CHARGE, PDD</p>		<p>REVIEWED: ENGR. ROGELIO A. BESANA, JR. AGM, OPERATION & TECHNICAL SERVICES</p>		<p>APPROVED: ENGR. ARN B. GELLANGARN GENERAL MANAGER A</p>		<p>SHEET CONTENTS AS SHOWN</p>		<p>SHEET NO. S-07</p>	
												<p>14</p>		<p>23</p>	

01 FOUNDATION PLAN OF PERIMETER FENCE
 SCALE: 1:150 M



02 F5C5 DETAIL (PERIMETER FENCE)
 SCALE: 1:20 M



NOTE:
 ELECTRICAL CONDUIT OF CONCRETE COLUMN WITH FLOODLIGHT SHALL BE EMBEDDED IN CONCRETE.

DANILO M. HORIADOR, JR.
 CIVIL ENGINEER

PROPOSED CONSTRUCTION OF
 PUMPHOUSE & PERIMETER FENCE

ENGR. MA. CELIA N. DANDAN
 OFFICER-IN-CHARGE, PDD

ENGR. ROGELIO A. BESANA, JR.
 AGM, OPERATION & TECHNICAL SERVICES

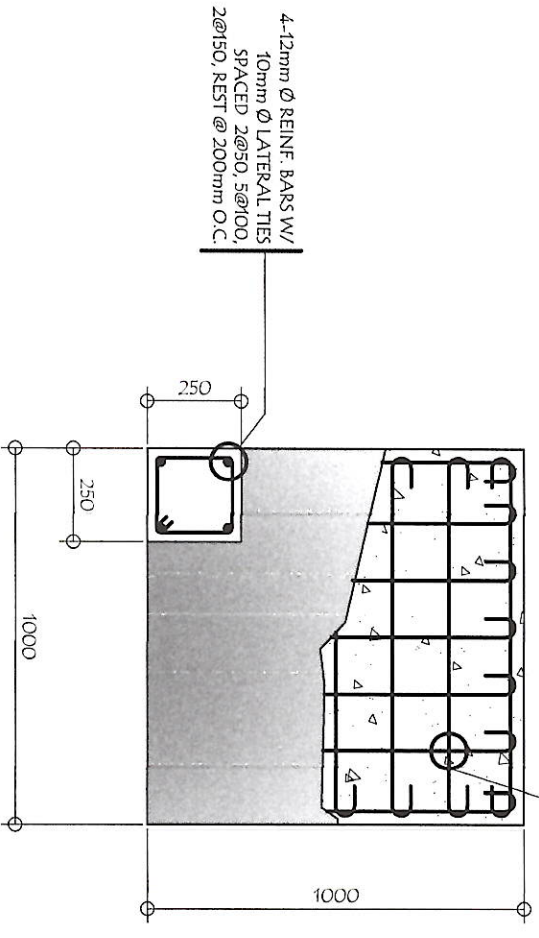
ENGR. ARN. B. CELLANORAN
 GENERAL MANAGER A

01 F6C6 DETAIL (PERIMETER FENCE)
 SCALE: 1:20 M

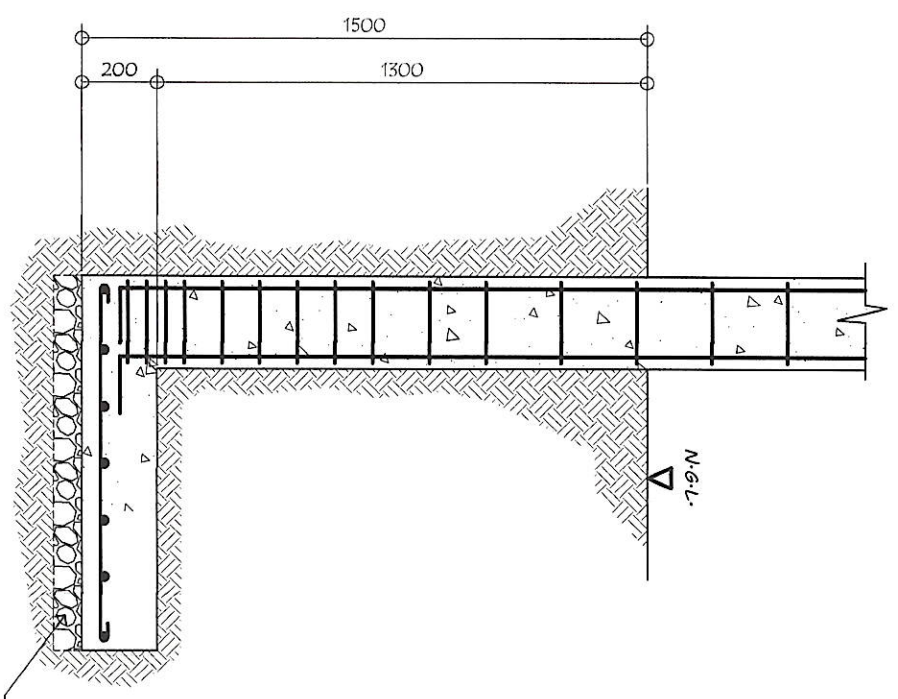
02 F7C7 DETAIL (PERIMETER FENCE)
 SCALE: 1:20 M

03 WF-5 (PERIMETER FENCE)
 SCALE: 1:15 M

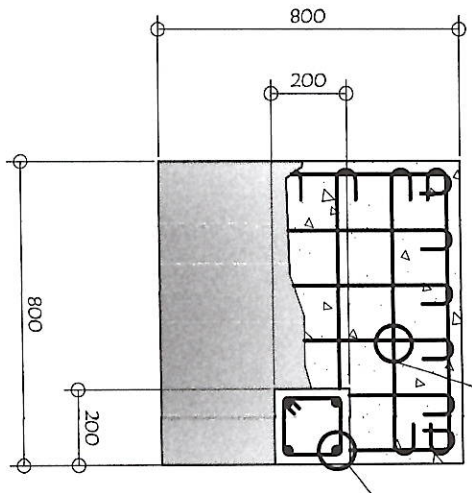
PLAN



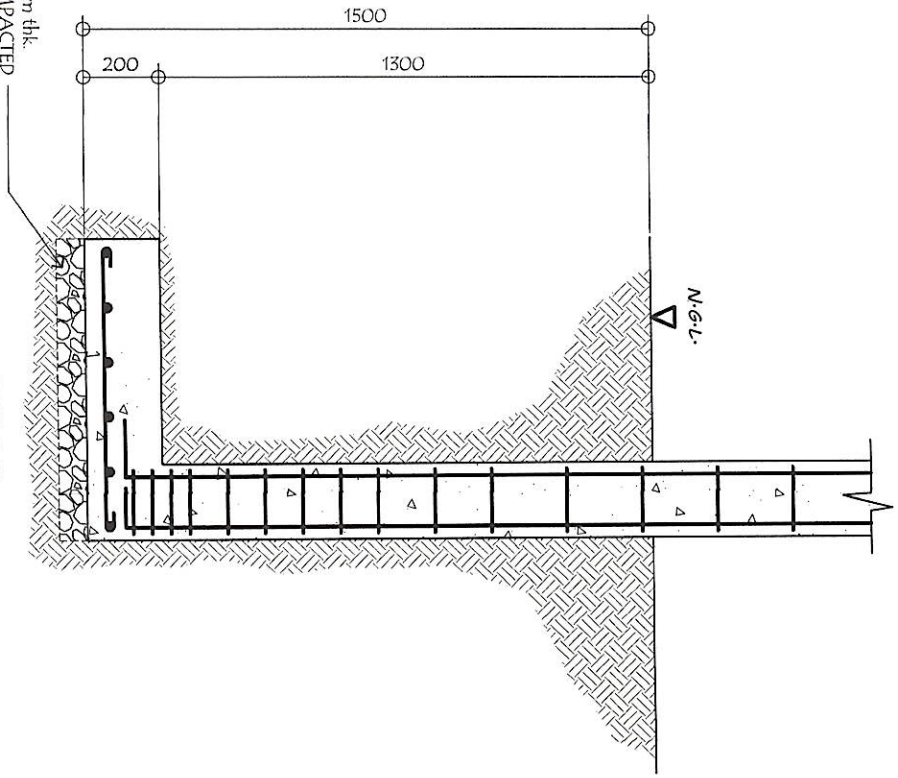
SECTION



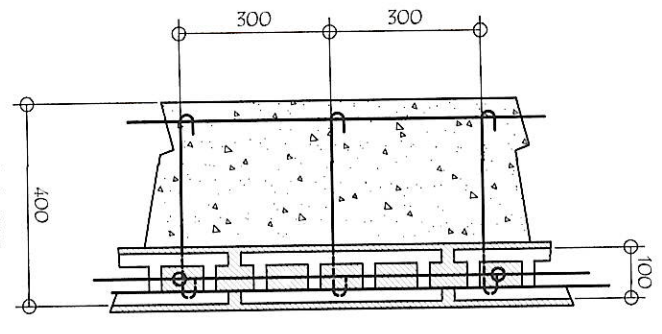
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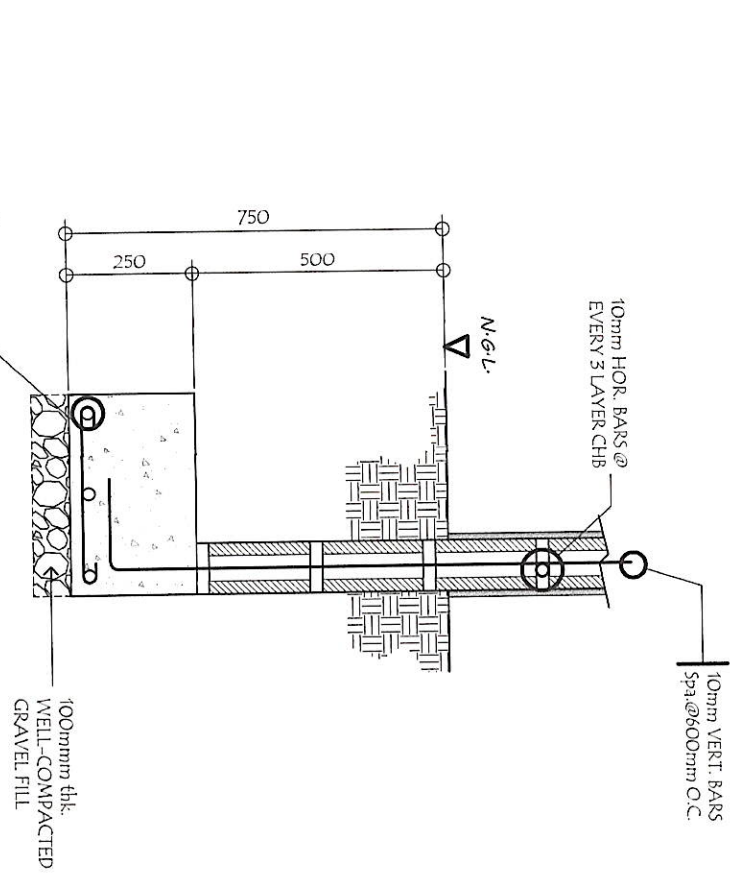
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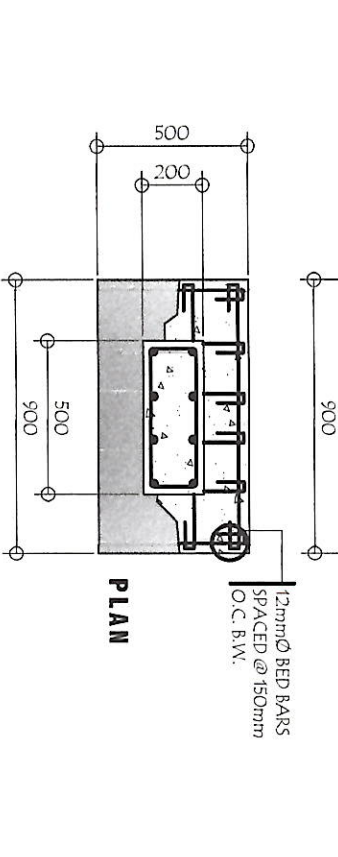
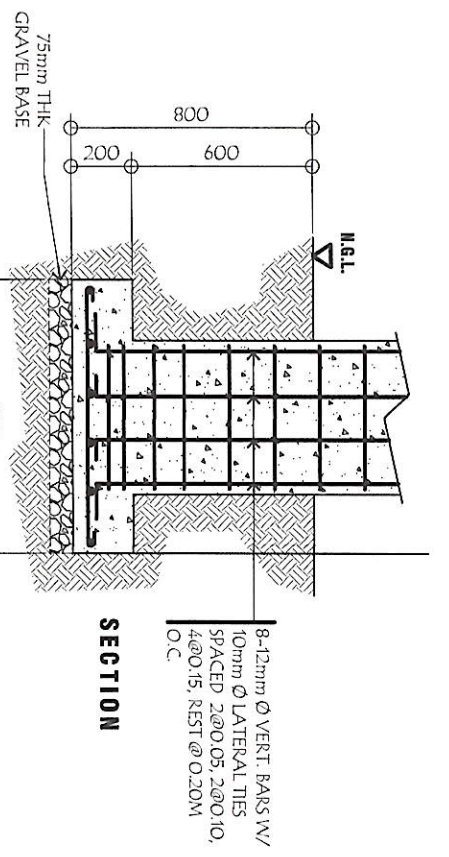
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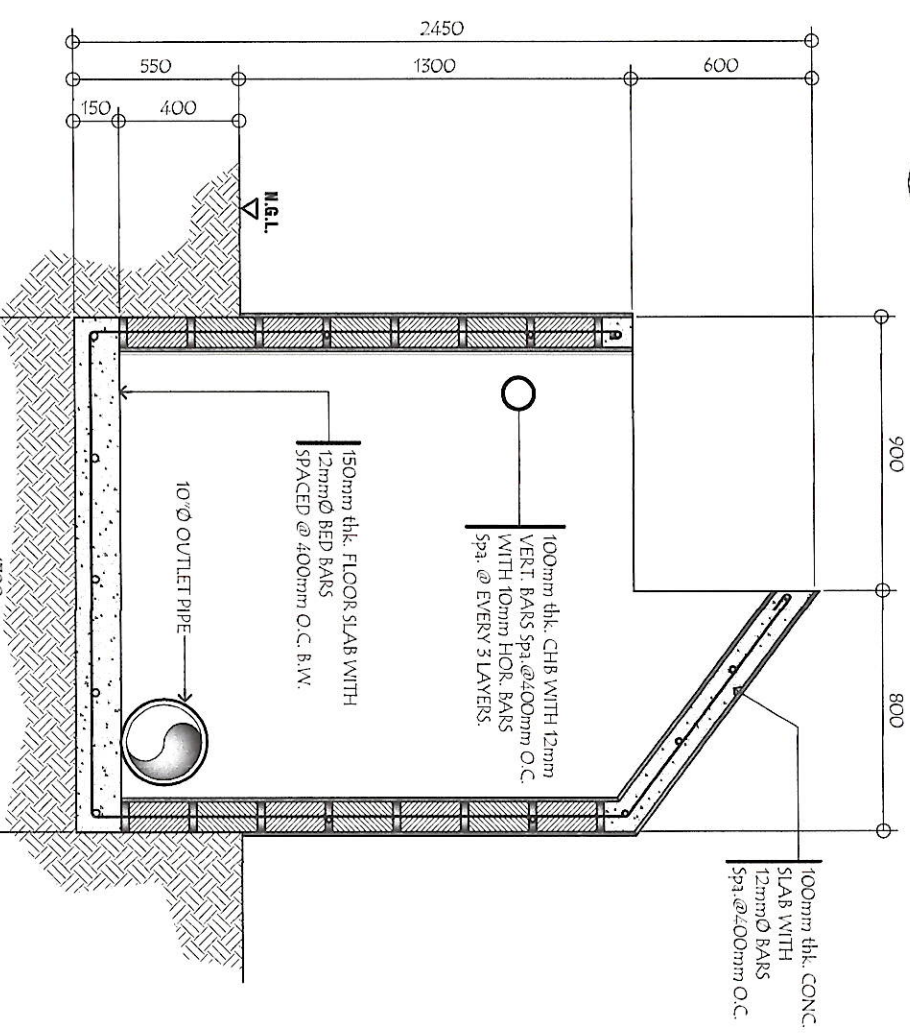
SECTION



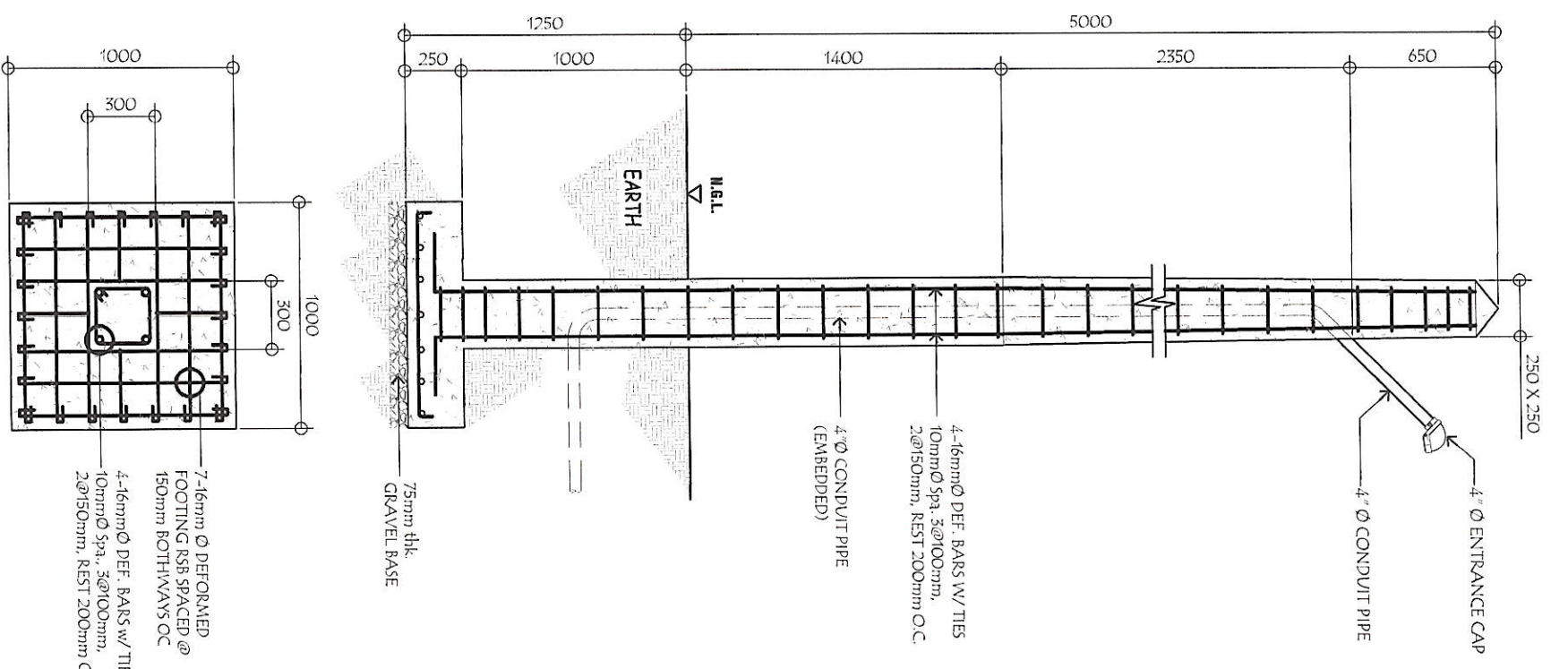
PROJECT AND LOCATION	CHECKED:	REVIEWED:	APPROVED:	SHEET CONTENTS	SHEET NO.
PROPOSED CONSTRUCTION OF PUMPHOUSE & PERIMETER FENCE	ENGR. MA. CELIA N. DANDAN	ENGR. ROGELIO A. BESANA, JR.	ENGR. ARN. B. CELLANORAN	AS SHOWN	S-09
LOCATION: ZONE 11-B, BRGY. FATIMA, GEN. SANTOS CITY	OFFICER-IN-CHARGE, PDD	AGM, OPERATION & TECHNICAL SERVICES	GENERAL MANAGER A		16
					23



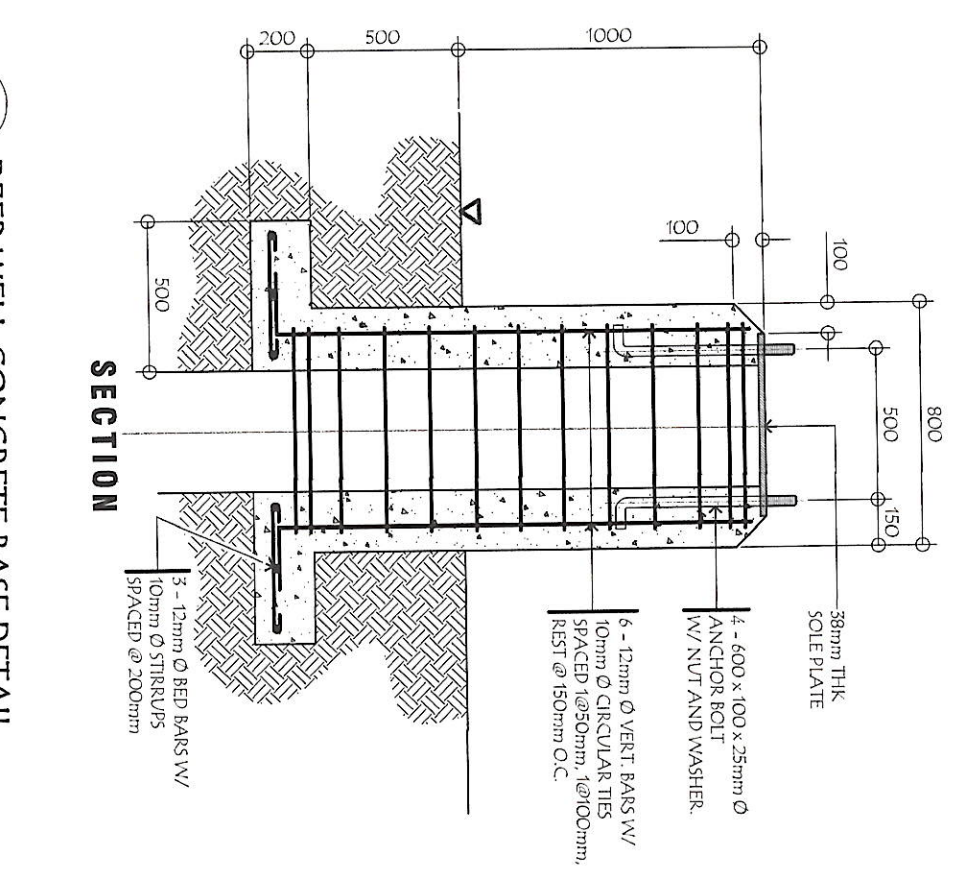
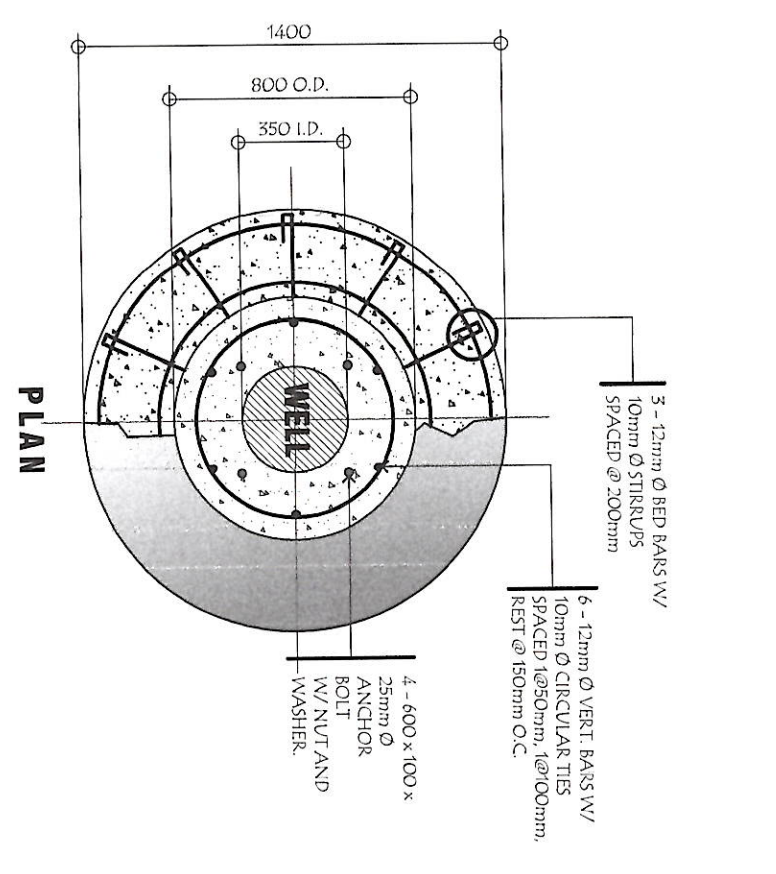
04 CONCRETE PIPE SUPPORT DETAILS
SCALE: 1:25 M



01 LONGITUDINAL SECTION OF TEST LINE BOX
SCALE: 1:40 M



02 SERVICE ENTRANCE DETAIL
SCALE: 1:30 M



03 DEEP WELL CONCRETE BASE DETAIL
SCALE: 1:25 M

GENERAL SANTOS CITY WATER DISTRICT
E. FERNANDEZ STREET, BRGY. LAGAO, GEN. SANTOS CITY
ENGINEERING & CONSTRUCTION DEPARTMENT
PLANNING AND DESIGN DIVISION
TEL. NO.: (083) 552-3824

DANIL O. HORLADOR, JR.
CIVIL ENGINEER

REG. NO. 0107545
TIN. NO. 291-941-997
PR. NO. 61873A
DATE: 01/12/2022

PROJECT AND LOCATION:
PROPOSED CONSTRUCTION OF PUMPHOUSE & PERIMETER FENCE

CHECKED: **ENGR. MA. CELIA N. DANDAN**
OFF. ENGR.-IN-CHARGE, PDD

REVIEWED: **ENGR. JOCELIO A. BESANA, JR.**
AGM. OF OPERATION & TECHNICAL SERVICES

APPROVED: **ENGR. ARN B. GELLANG, JR.**
GENERAL MANAGER A

SHEET CONTENTS	SHEET NO.
AS SHOWN	S-10
DRAWN BY: RRA CHECKED BY: ESA REV. NO. DATE: Feb 2022	17
	23

ONE(1) SET BRAND NEW SILENT TYPE 250KVA STANDBY POWERED GENERATING SET COMPLETE WITH ACCESSORIES

1. 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

2. ALTERNATOR	Frequency and Speed	60Hz/1800rpm
	Insulation System	Class H/4 POLES
	Rated Power Factor	0.8
	Voltage Regulation	±5%
	Full Load Current	333.3 Amperes @480V
	Excitation	SELF EXCITATION
	Stator Winding	2/3
	Exciter Voltage Regulator	Permanent Magnet Generator (PMG)

3. FUEL CONSUMPTION	100% Load	50 1/hr
	75% Load	38 1/hr
	50% Load	26 1/hr
	25% Load	15 1/hr

4. ELECTRICAL SYSTEM	Voltage	480-480 V
	Power Factor	0.8
	Phase	3
	Frequency	60Hz

5. SOUNDPROOF ENCLOSURE

6. 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.

6.1 STANDARD FUNCTION

- Engine Control
- Generator Monitoring
- Generator Protection
- Engine Monitoring
- Clear Text Display

6.2 SHUTDOWN FUNCTION

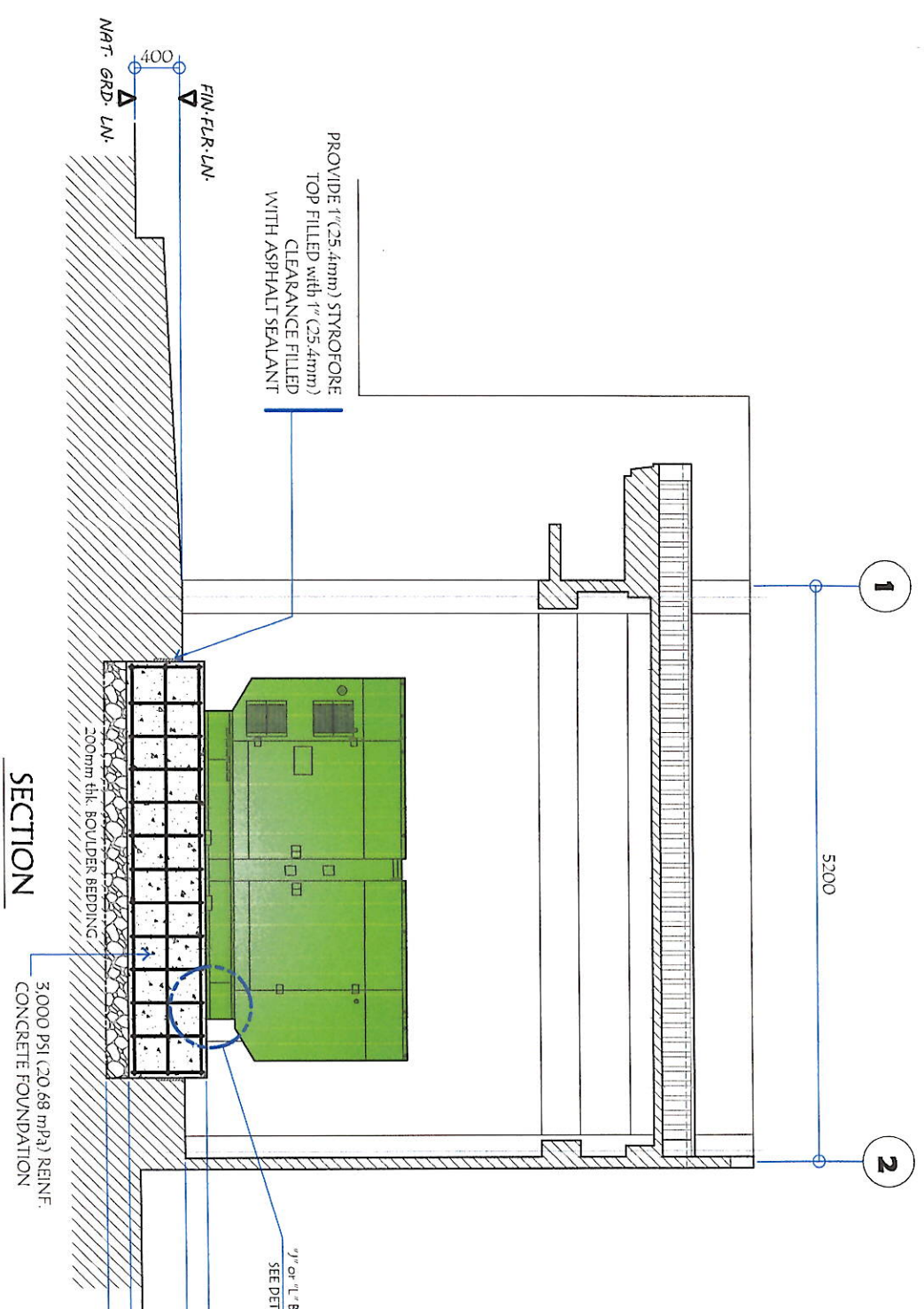
- Loss of speed signal
- Alternator Under/Over Voltage
- Alternator Under/Over Frequency
- Mains Under/Over Voltage
- Mains Under/Over Frequency
- Under/Over Speed
- Low Oil Pressure
- High Engine Temperature
- phase Sequence Electrical (Option)
- Earth Fault (Option)

6.3 WARNING FUNCTION

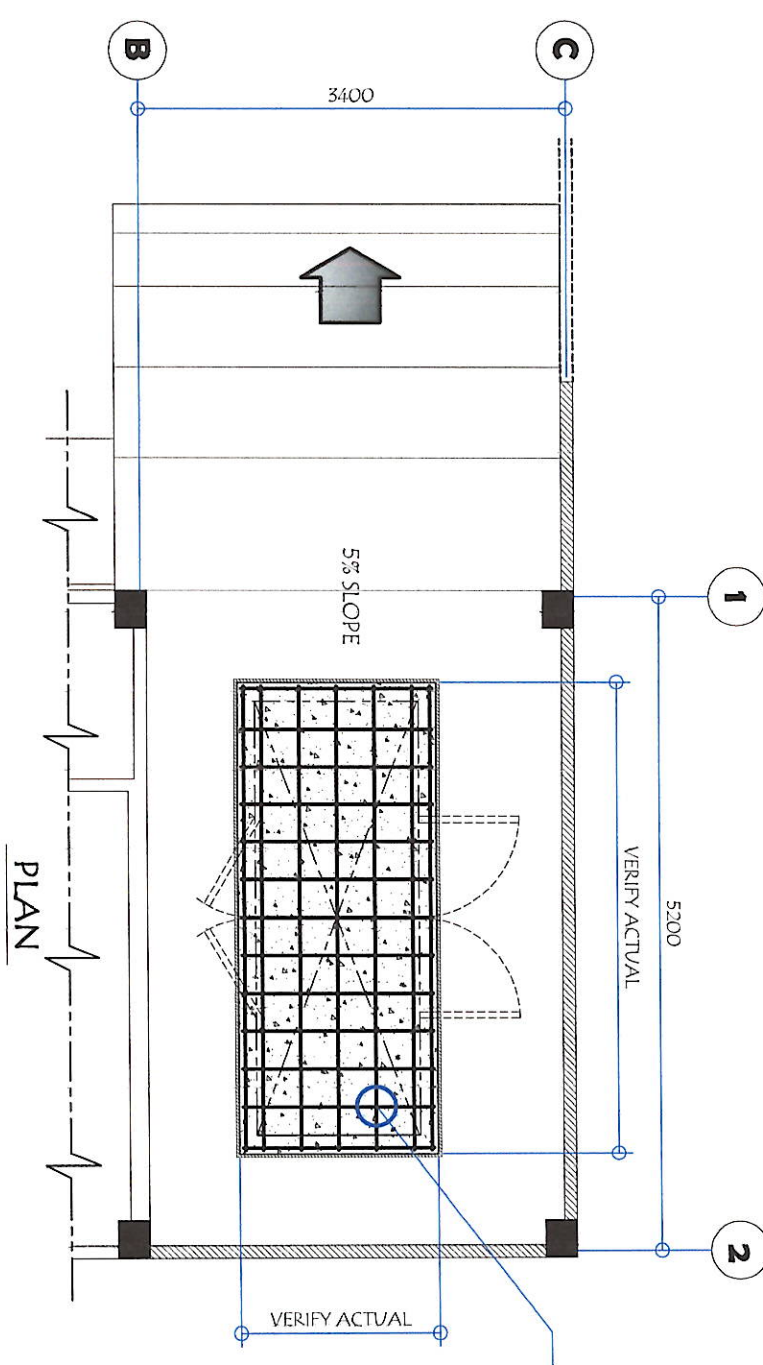
- Alternator Under/Over Voltage
- Alternator Under/Over Voltage
- Mains Under/Over Voltage
- Mains Under/Over Frequency
- Under/Over Speed
- Low Oil Pressure Pre-Alarm
- High Engine Temperature Pre-Alarm
- High/Low Battery Voltage
- Over-current
- Periodic Maintenance

7. GENERATING SET DIMENSION

L = 3.30M W = 1.07m H = 1.60m

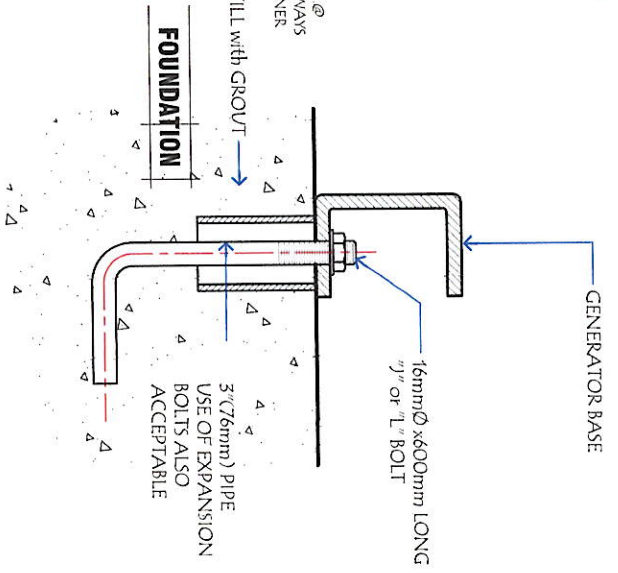


1. The foundation should extend at least 6 inches (150 mm) beyond the skid on all sides. This determines the length (L) and width (W) of the foundation.
2. The foundation should extend at least 6 inches (150 mm) above the floor to make service and maintenance of the generator set easier.
3. The foundation should be reinforced concrete with a 28-day compressive strength of at least 3000 psi (20.68 mPa).



01 TYPICAL VIBRATION ISOLATING FOUNDATION
SCALE: 1:60 M

02 DETAIL OF "J" or "L" BOLT ANCHORING (POWERHOUSE)
SCALE: NOT TO SCALE



GENERAL SANTOS CITY WATER DISTRICT
E. FERNANDEZ STREET, BRGY. LAGAO, GEN. SANTOS CITY
ENGINEERING & CONSULTING DEPARTMENT
PLANNING AND DESIGN DIVISION
TEL. NO.: (093) 552-3824

AR N. B. GELLANGARIN
PROFESSIONAL MECHANICAL ENGINEER
REG. NO. 3738
P.R. NO. 52936A

PROPOSED CONSTRUCTION OF PUMPHOUSE, GENSET SHED, & PERIMETER FENCE

PROJECT AND LOCATION

ENGR. M. CELIA N. DANDAN
O.C. / CHIEF IN-CHARGE, PDD

ENGR. ROGELIO A. BESANA, JR.
ACM, OFF. DESIGN & TECHNICAL SERVICES

ENGR. ARN. B. GELLANGARIN
GENERAL MANAGER A

AS SHOWN

DRAWN BY: RRA
DATE: Feb 2022

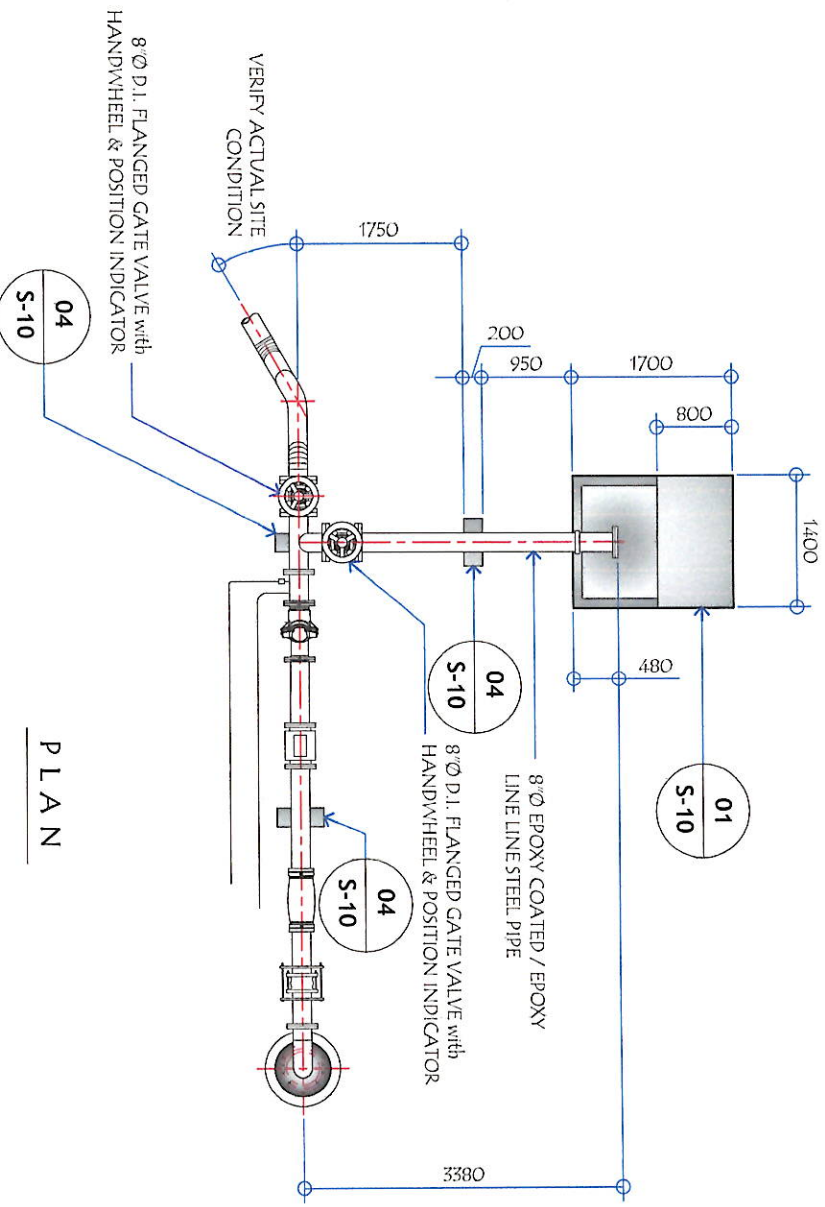
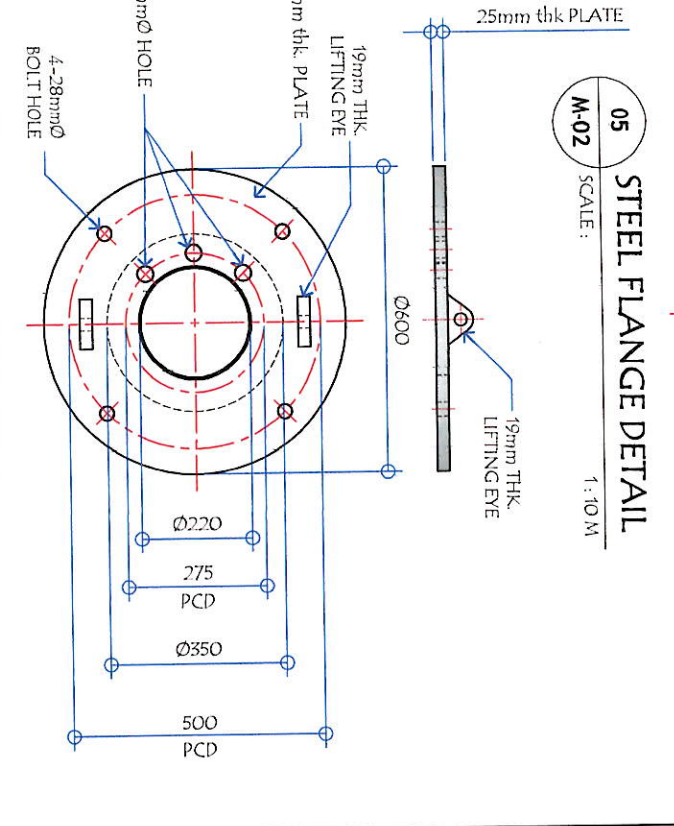
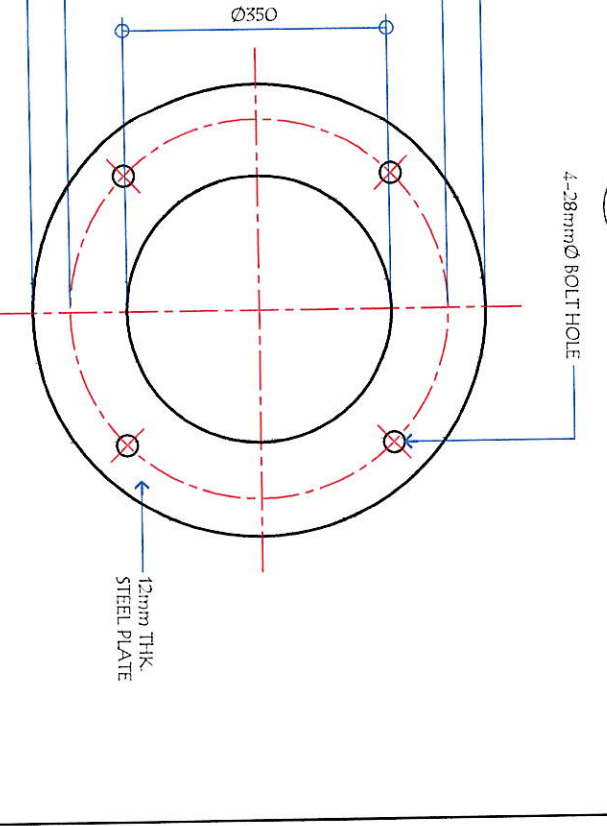
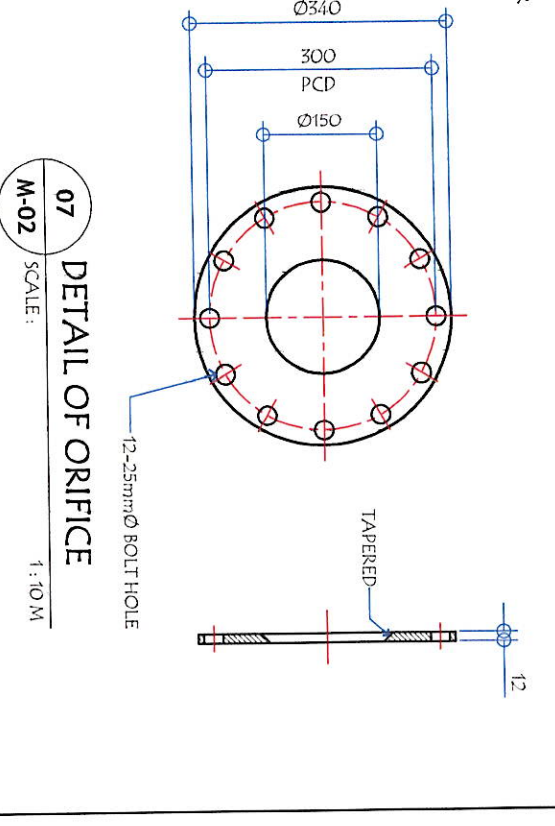
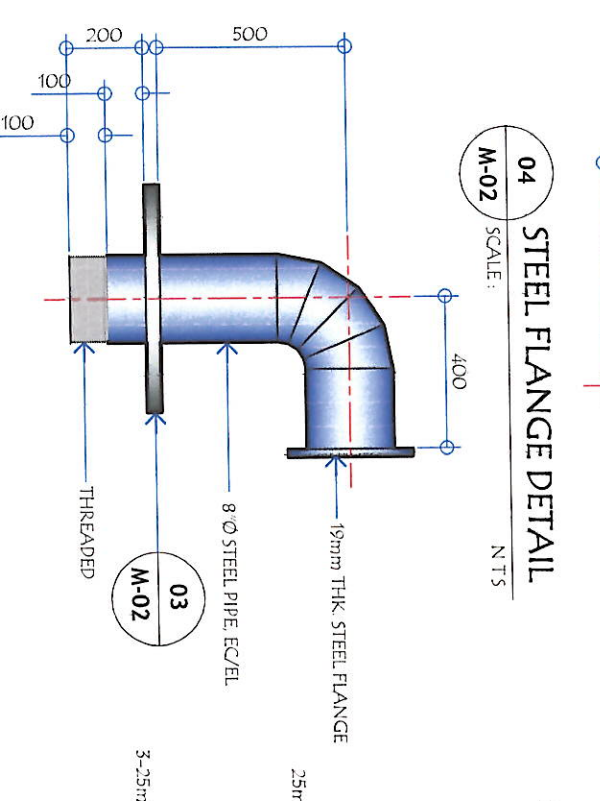
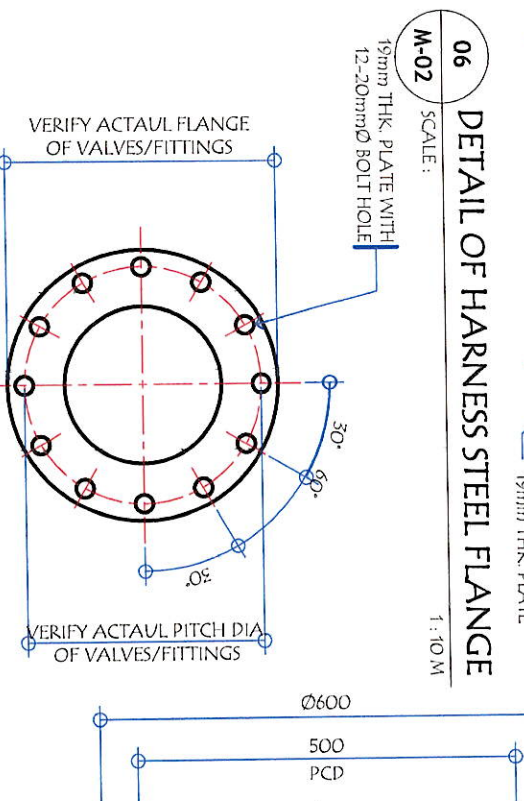
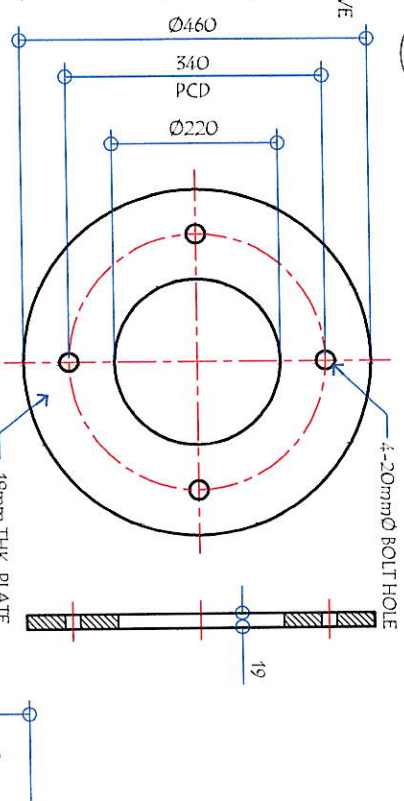
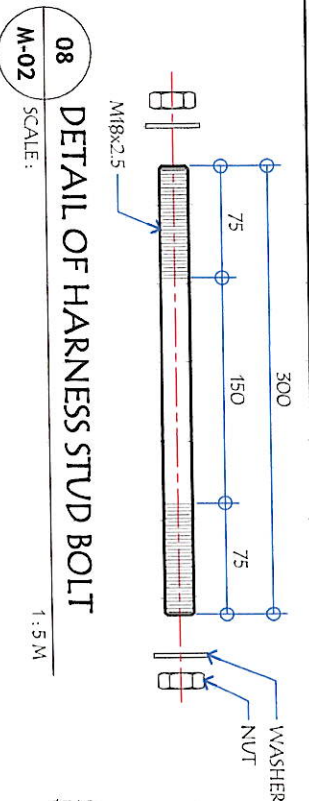
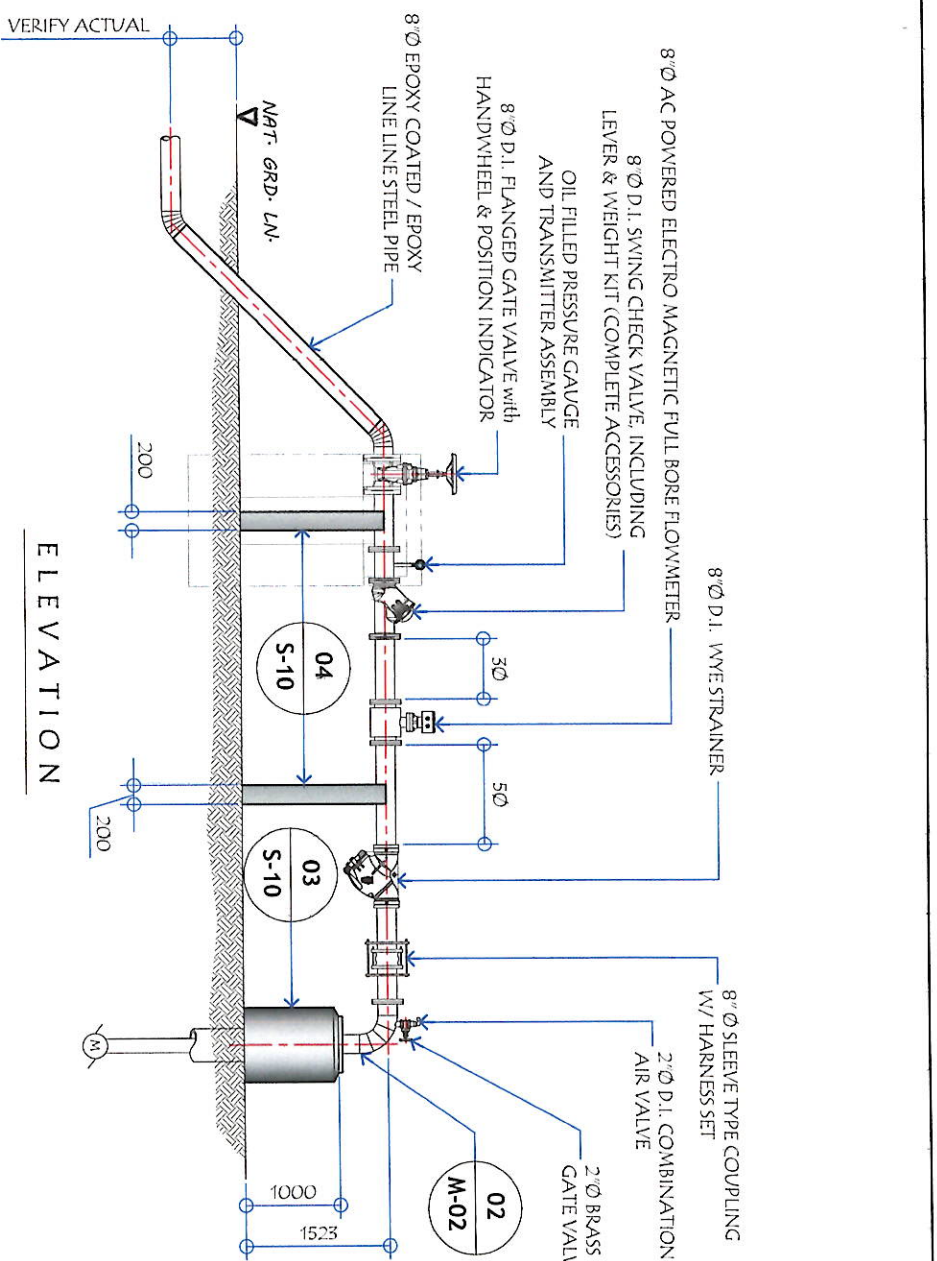
REV. NO.
18

CHECKED BY: ESA

DATE: Feb 2022

SHEET NO. M-01

SHEET NO. 23



GENERAL SANTOS CITY WATER DISTRICT
 E. FERNANDEZ STREET, BRGY. LAGAO, GEN. SANTOS CITY
 ENGINEERING & CONSTRUCTION DEPARTMENT
 PLANNING AND DESIGN DIVISION
 TEL. NO.: (083) 529-3824

ARN B. GELLANGARIN
 PROFESSIONAL MECHANICAL ENGINEER
 REG. NO. 3758
 TIN. NO. 128.365-602
 PIR. NO. 52936A
 DATE: 01/12/2022

PROJECT AND LOCATION
 PROPOSED CONSTRUCTION OF PUMPHOUSE, GENSET SHED, & PERIMETER FENCE
 LOCATION: ZONE 11-B, BRGY. FATIMA, GEN. SANTOS CITY

CHECKED: [Signature]
REVIEWED: [Signature]

APPROVED: [Signature]
 ENGR. ARN B. GELLANGARIN
 GENERAL MANAGER A

AS SHOWN

SHEET NO. M-02

GENERAL SANTOS CITY WATER DISTRICT
 E. FERNANDEZ STREET, BRGY. LAGAO, GEN. SANTOS CITY
 ENGINEERING & CONSTRUCTION DEPARTMENT
 PLANNING AND DESIGN DIVISION
 TEL. NO.: (083) 529-3824

ARN B. GELLANGARIN
 PROFESSIONAL MECHANICAL ENGINEER
 REG. NO. 3758
 TIN. NO. 128.365-602
 PIR. NO. 52936A
 DATE: 01/12/2022

PROJECT AND LOCATION
 PROPOSED CONSTRUCTION OF PUMPHOUSE, GENSET SHED, & PERIMETER FENCE
 LOCATION: ZONE 11-B, BRGY. FATIMA, GEN. SANTOS CITY

CHECKED: [Signature]
REVIEWED: [Signature]

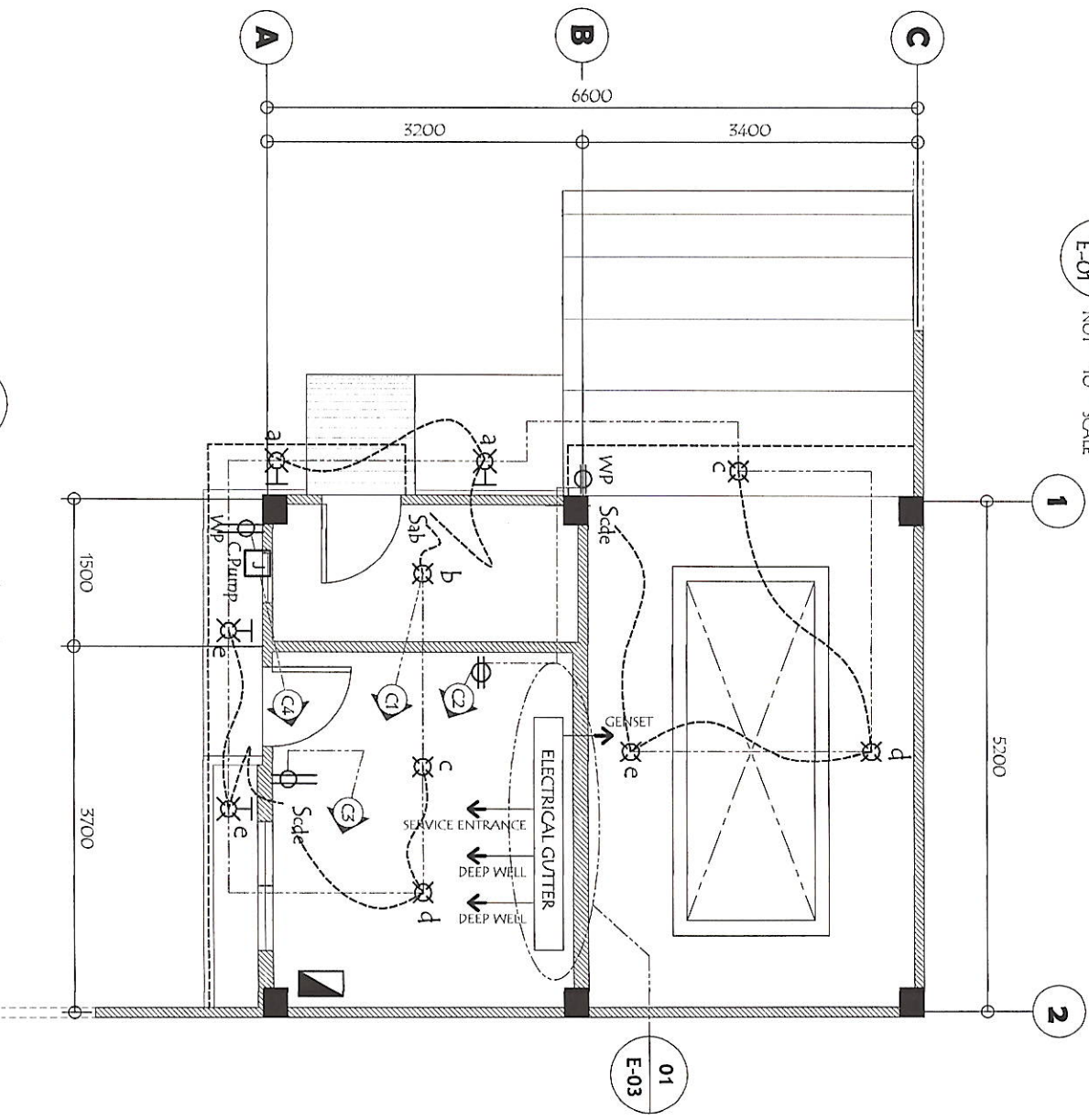
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 ENGR. ARN B. GELLANGARIN
 GENERAL MANAGER A

AS SHOWN

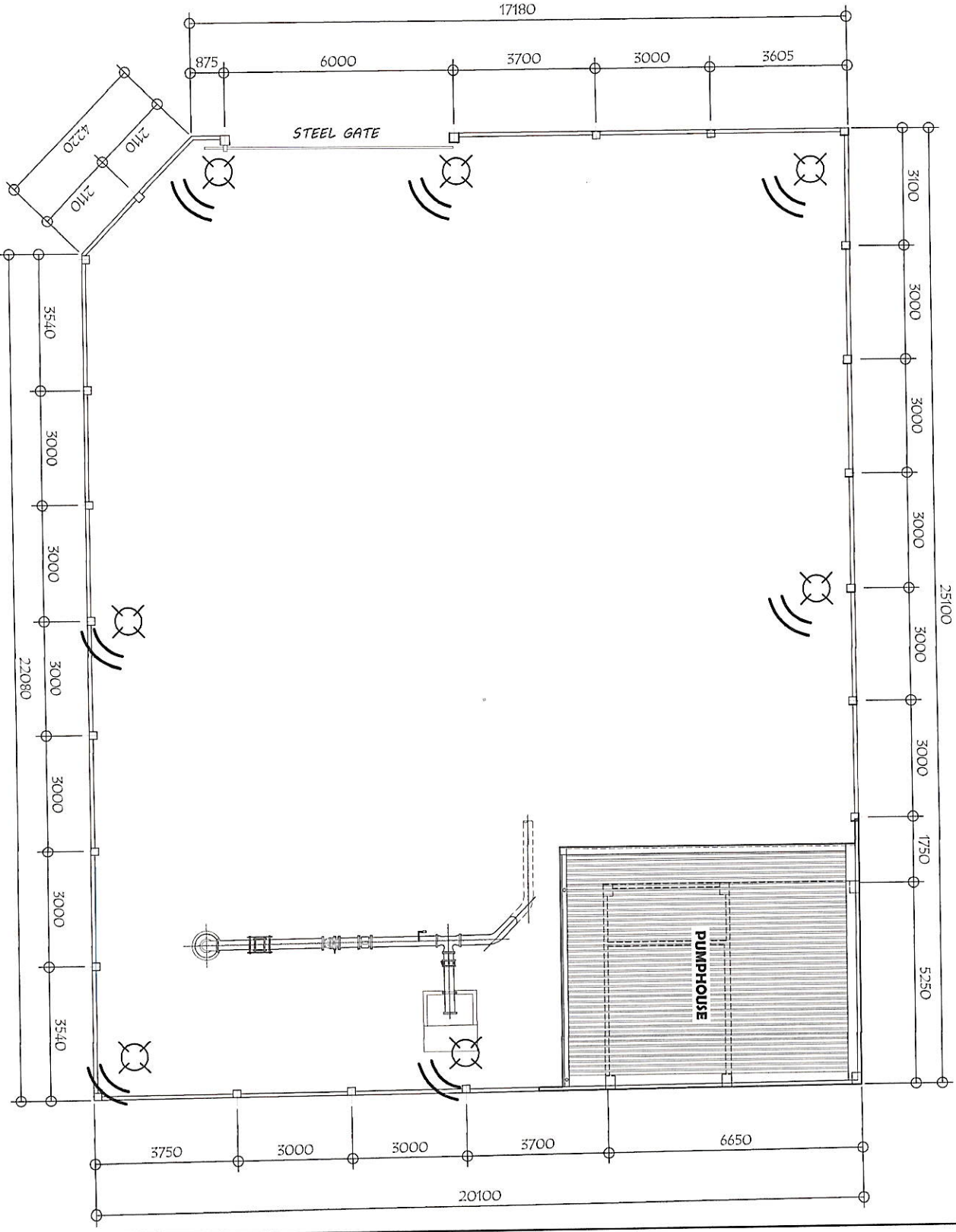
SHEET NO. M-02

19 **23**

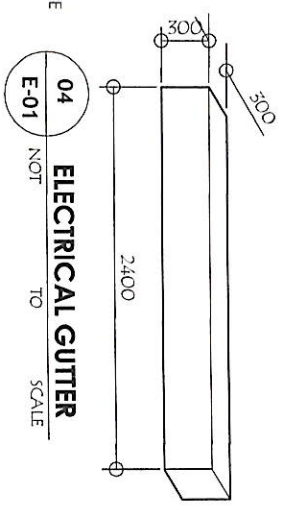
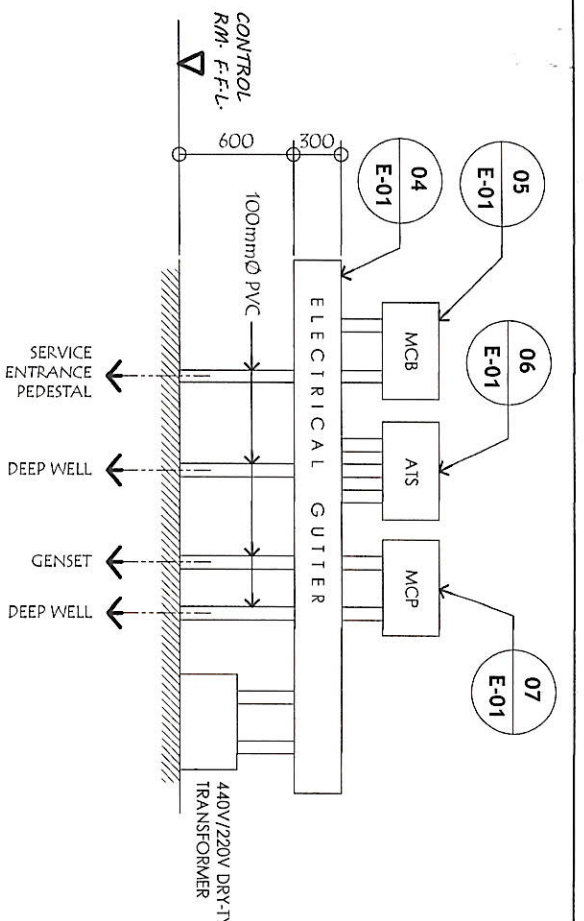
01 ELECTRICAL LAYOUT (PUMPHOUSE)
 SCALE: 1:70 M



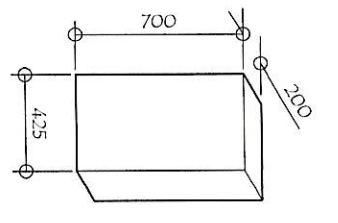
02 PERIMETER FENCE LIGHTING LAYOUT
 SCALE: 1:400 M



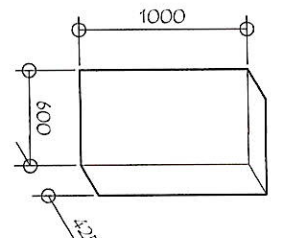
03 ELEVATION
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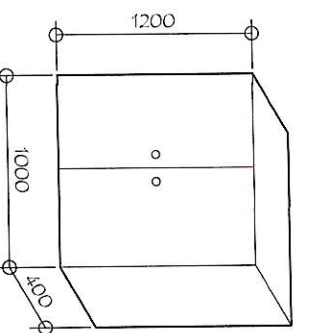
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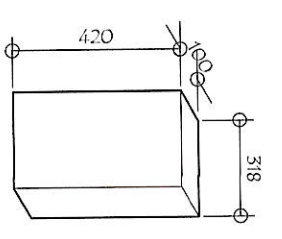
06 AIS
 NOT TO SCALE



07 MCP
 NOT TO SCALE



08 220V DISTRIBUTION PANEL
 NOT TO SCALE

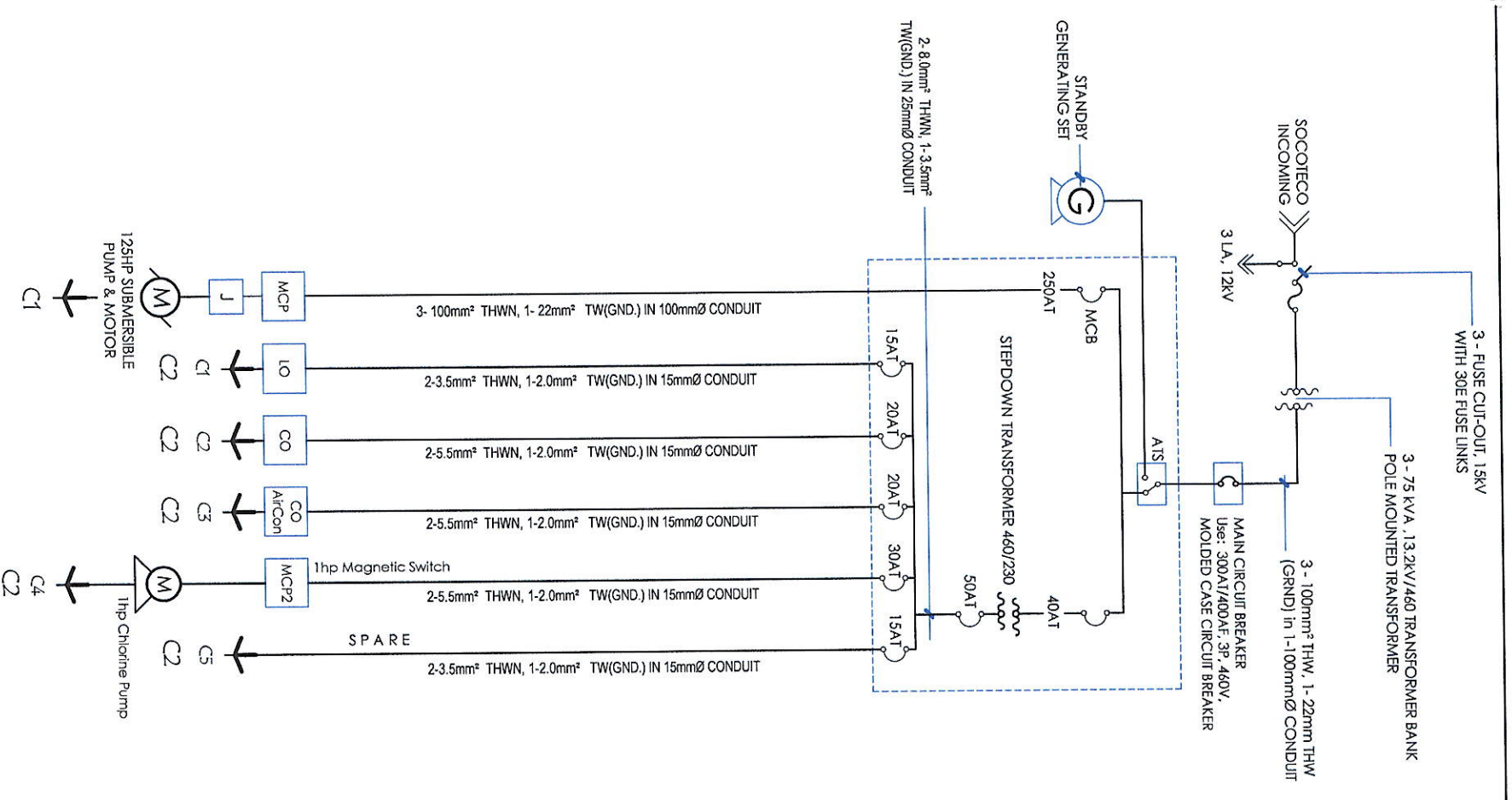


USE: 2mm Thick Pre-painted G.I. Plain Sheet

SCHEDULE OF LOADS:

CIRCUIT NO.	PARTICULARS	NO. OF OUTLET	WATTS	PHASE	VOLTS	AMPERE	CB RATING	WIRE SIZE AND CONDUIT	PANEL:
									LP
1	Lighting Outlet, LED Lamp	10	1,000	1	230	4.35	15 AT	2-3.5mm ² THWN, 1-2.0mm ² TW(GND.) IN 15mm \varnothing CONDUIT	TOP SURFACE
2	Convenience Outlet	2	1,000	1	230	4.35	20 AT	2-5.5mm ² THWN, 1-2.0mm ² TW(GND.) IN 15mm \varnothing CONDUIT	2
3	ACU, 1 hp Split Type/Magnetic Switch w/ Built-in 3-Prong Outlet	1	1,840	1	230	8.00	20 AT	2-5.5mm ² THWN, 1-2.0mm ² TW(GND.) IN 15mm \varnothing CONDUIT	
4	1 HP Chlorinator pump	1	1,840	1	230	8.11	30 AT	2-5.5mm ² THWN, 1-2.0mm ² TW(GND.) IN 15mm \varnothing CONDUIT	
5	SPARE	1	2,000	1	230	8.70	15 AT	2-3.5mm ² THWN, 1-2.0mm ² TW(GND.) IN 15mm \varnothing CONDUIT	
TOTAL			7,680						

COMPUTATION: @ 80% Demand Factor
 Demand load = $7,680 / 230 \times 0.8DF = 26.71 A$
 KVA = $33.4 \times 230 / 1000$
 KVA = 7.7
 USED: 10 KVA, 460V PRL/230V SECONDARY DRY TYPE STEP DOWN TRANSFORMER
 FEEDER: 2 - 14mm² THWN wire, 1 - 3.5mm² TW (GND) in 20mm \varnothing CONDUIT
 MAIN: 50AT, 100AF, 2P, 230V



DCT 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				250 AT	3-100mm ² THWN, IN 1-22mm ² TW(GND) IN 100mm \varnothing CONDUIT
2	LP 10 KVA Dry Type Xmer	1	6,611	1	460			14.57	40 AT	2-5.5mm ² THWN, IN 1-2.0mm ² TW(GND) IN 15mm \varnothing CONDUIT
TOTAL			112,611							

COMPUTATION FOR TRANSFORMER REQUIREMENT:
 $I = 1.25 \times 112,611 / (1.73 \times 460 \times 0.80PF) = 221 \text{ AMPS}$
 $KVA = (112,611)(1.25) / 0.80 = 175,954.687 / 1000 = 175.95$
 USE : 3 - 75 KVA, 13.2KV/460V TRANSFORMER BANK
 POLE MOUNTED TRANSFORMER

01 POWER SYSTEM SINGLE LINE DIAGRAM
 E-02 NOT TO SCALE

GENERAL SANTOS CITY WATER DISTRICT
 E. FERNANDEZ STREET, BRGY. LAGAO, GEN. SANTOS CITY
 ENGINEERING & CONSTRUCTION DEPARTMENT
 PLANNING AND DESIGN DIVISION
 TEL. NO.: (083) 592-3824

PROFESSIONAL ELECTRICAL ENGINEER
 REG. NO. _____ TIN. NO. _____
 DATE: _____

PROJECT AND LOCATION
 PROPOSED CONSTRUCTION OF PUMPHOUSE, GENSET SHED, & PERIMETER FENCE

CHECKED: _____
 ENGR. M.A. CELIA N. DANDAN
 OFFICER-IN-CHARGE, PDD

REVIEWED: _____
 ENGR. ROGELIO A. BESANA, JR.
 AGM, OPERATION & TECHNICAL SERVICES

APPROVED: _____
 ENGR. ARN B. GELLANGARIN
 GENERAL MANAGER A

SHEET CONTENTS
 AS SHOWN

CHECKED BY: ESA DATE: Feb. 2022

SHEET NO. **E-02**

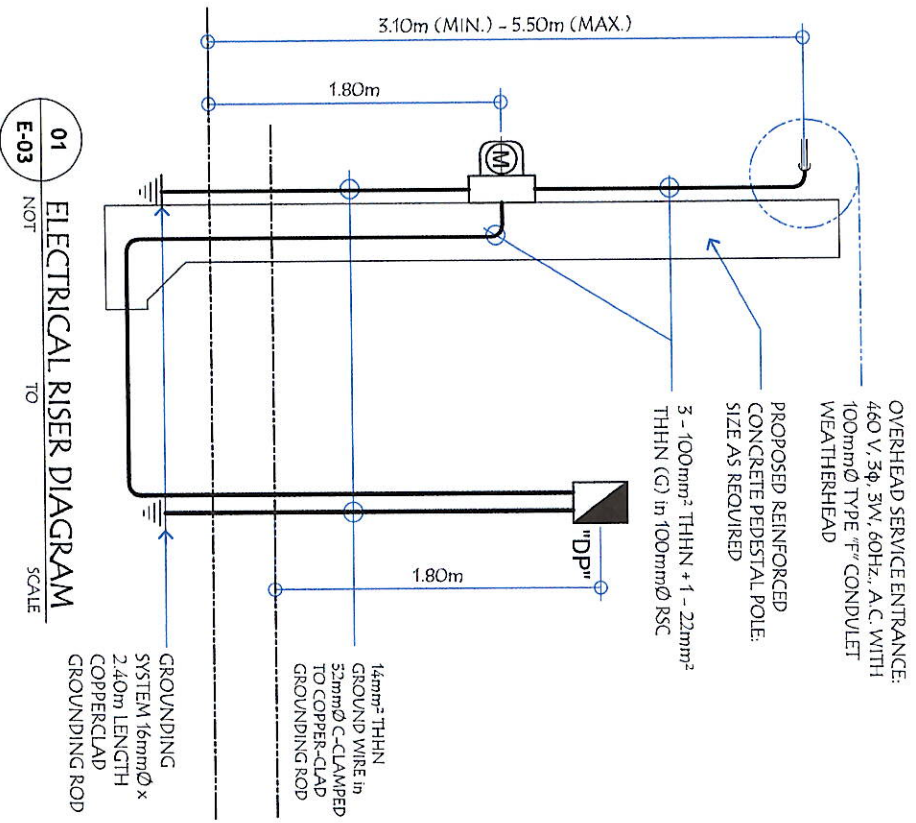
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GENERAL NOTES:

1. ALL ELECTRICAL WORKS SHALL BE DONE IN ACCORDANCE WITH THE PROVISION 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.
2. THE TYPE OF SERVICE POWER SUPPLY TO BE USED SHALL BE THREE-PHASE, 3-WIRE, 460V, 60 HERTZ, A.C
3. THE CONTRACTOR SHALL VERIFY AND ORIENT THE ACTUAL LOCATION OF SERVICE ENTRANCE FOR CONNECTION TO THE POWER COMPANY SERVICE POINT.
4. UNLESS OTHERWISE SPECIFIED, THE MINIMUM SIZES OF WIRE AND GALVANIZED RIGID STEEL CONDUIT TO BE USED SHALL BE 3.5mm² THHN AND 15mm NOMINAL DIAMETER, RESPECTIVELY. LIKEWISE ALL ELECTRICAL WIRES SHALL BE COLOR-CODED.
5. ALL LIGHTING CIRCUIT HOME RUNS AND CONVENIENCE OUTLETS SHALL BE WIRED WITH NOT LESS THAN 3.5 mm² IN SIZE.
6. 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.
7. 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.
8. ALL MATERIALS TO BE USED SHALL BE BRAND NEW AND OF THE APPROVED TYPE FOR LOCATION AND PURPOSE.
10. ALL WALL OUTLETS SHALL BE INSTALLED AT THE FOLLOWING HEIGHTS ABOVE THE FINISHED FLOOR LEVEL, UNLESS NOTED IN THE PLAN
 - a) WALL SWITCHES @ 1300mm
 - b) WALL CONVENIENCE OUTLETS @ 300 mm
11. 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 FROM TOP OF PANEL TO FINISH FLOOR LEVEL
KILOWATT HOUR METER	1,830mm FROM CENTER OF DEVICES TO FINISH GRADE LEVEL



01 ELECTRICAL RISER DIAGRAM
NOT TO SCALE
E-03

LEGEND:

	CEILING LIGHT OUTLET
	WALL LAMP OUTLET
	200W SOLAR STREET LIGHT OUTDOOR LED LIGHT OUTLET
	DUPLEX CONVENIENCE OUTLET, GROUNDING TYPE 10 AMP, 250 VOLT W/ MODERN PLATE COVER
	DUPLEX WEATHERPROOF CONVENIENCE OUTLET
	PANEL BOARD
	MOTOR CONTROL PANEL
	KILOWATT HOUR METER
	TWO GANG DEVICE SWITCH
	THREE GANG DEVICE SWITCH
	HOME RUN DIRECT TO PANEL BOARD
	RACEWAY CONDUIT CONCEALED IN CEILING
	CIRCUIT RUN
	SUBMERSIBLE PUMP MOTOR
	DOUBLE THROW
	JUNCTION
	GROUNDING SYSTEM
	ELECTRIC SERVICE ENTRANCE

<p>GENERAL SANTOS CITY WATER DISTRICT E. FERNANDEZ STREET, BRGY. LAGAO, GEN. SANTOS CITY ENGINEERING & CONSTRUCTION DEPARTMENT PLANNING AND DESIGN DIVISION TEL. NO.: (083) 552-3834</p>		<p>PROFESSIONAL ELECTRICAL ENGINEER</p> <p>REG. NO. _____ TIN. NO. _____ P.R. NO. _____ DATE: _____</p>		<p>PROJECT AND LOCATION</p> <p>PROPOSED CONSTRUCTION OF PUMPHOUSE, GENSET SHED, & PERIMETER FENCE</p> <p>LOCATION: ZONE 11-B, BRGY. FATIMA, GEN. SANTOS CITY</p>		<p>CHECKED:</p> <p>ENGR. MA. CELIA N. DANDAN OFF. CHARGE: P.D.</p>		<p>REVIEWED:</p> <p>ENGR. ROGELIO A. BESANA, JR. AGM, OPERATION & TECHNICAL SERVICES</p>		<p>APPROVED:</p> <p>ENGR. ARN B. GELLANGARIN GENERAL MANAGER A</p>		<p>SHEET CONTENTS</p> <p>AS SHOWN</p>		<p>SHEET NO.</p> <p>E-03</p>	
<p>DATE: Feb. 2022</p>												<p>23</p>	<p>23</p>		