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DESIGN CRITERIA

STRUCTURAL ANALYSIS AND DESIGN OF THE STRUCTURE WAS CARRIED OUT BASED ON THE PROVISIONS OF THE FOLLOWING STRUCTURAL CODES AND STANDARDS.

- NATIONAL STRUCTURAL CODE OF THE PHILIPPINES (NSCP 2015)
- REQUIREMENTS FOR STRUCTURAL CONCRETE (ACI 318-14)
- CODE REQUIREMENTS FOR ENVIRONMENTAL ENGINEERING CONCRETE STRUCTURES (ACI 350-20)
- SEISMIC DESIGN OF LIQUID-CONTAINING CONCRETE STRUCTURES (ACI 350.3-20)
- SPECIFICATION FOR STRUCTURAL STEEL (AISC 360-16)
- MINIMUM DESIGN LOADS FOR BUILDINGS (ASCE 7-16)
- AMERICAN SOCIETY ON TESTING AND MATERIALS (ASTM)
- AMERICAN WELDING SOCIETY (AWS D1.1-2015)

| PARTITION LOADS | | |
|-----------------|------------------|------|
| MATERIAL | DEAD | LIVE |
| 100 mm CHB WALL | 1.80 kN/m HEIGHT | - |
| 150 mm CHB WALL | 2.65 kN/m HEIGHT | - |
| 200 mm CHB WALL | 3.30 kN/m HEIGHT | - |

SEISMIC LOAD PARAMETERS ARE BASED ON ASCE 7-16. SEISMIC PARAMETERS ARE DETERMINED USING PHILIPPINE EARTHQUAKE MODEL.

| SEISMIC LOAD PARAMETERS | |
|------------------------------------|------------|
| PARAMETER | VALUE |
| SEISMIC FORCE RESISTING SYSTEM | FIXED BASE |
| 0.2 s SPECTRAL ACCELERATION (Ss) | 2.10 g |
| 1.0 s SPECTRAL ACCELERATION (S1) | 0.80 g |
| LONG PERIOD TRANSITION PERIOD (TL) | 8.00 s |
| SITE COEFFICIENT (Fa) | 1.00 |
| SITE COEFFICIENT (Fv) | 1.70 |
| IMPORTANCE FACTOR (I) | 1.50 |
| RESPONSE MODIFICATION FACTOR (Ri) | 2.00 |
| RESPONSE MODIFICATION FACTOR (Rc) | 1.00 |

WIND LOAD PARAMETERS ARE BASED ON NSCP 2015. BASIC WIND SPEED IS BASED ON PAGASA REGIONAL SEVERE WIND HAZARD MAP.

| WIND LOAD PARAMETERS | |
|-----------------------------|-----------|
| PARAMETER | VALUE |
| BASIC WIND SPEED (V) | 260 km/hr |
| RISK CATEGORY | ESSENTIAL |
| PROBABILISTIC RETURN PERIOD | 500 YEARS |
| EXPOSURE CATEGORY | B |
| GUST FACTOR (G) | 0.85 |
| ENCLOSURE CLASSIFICATION | ENCLOSED |

PROTECTION

- STARTER BARS AND OTHER STEEL BARS WHICH ARE EXPOSED TO THE ENVIRONMENT DUE TO DELAY IN CONCRETING OPERATION OR STAGED CONSTRUCTION THAT MY CAUSE CORROSION OF BARS SHALL BE COATED WITH GROUT TO PROTECT THEM AGAINST CORROSION PRIOR TO CASTING OF THE IN-SITU ELEMENT, DRIED CEMENT GROUT SHALL BE REMOVED BY VIGOROUS WIRE BRUSHING.
- CORROSION PROTECTION SHALL BE AS PER SPECIFICATION FOR DETAILS OF PAINT TREATMENT. ALL STEEL WORK SHALL BE PAINTED UNLESS NOTED OTHERWISE ON THE DRAWINGS. GALVANIZING, IF SPECIFIED, SHALL BE HOT-DIP GALVANIZED. AVERAGE ZINC COATING THICKNESS SHALL BE NO LESS THAN 85 µm. THOROUGH WASHING OF STEELWORK WITH AN APPROVED ETCHING SOLUTION SHALL PRECEDE THE APPLICATION OF SURFACE COATINGS
- FOR WATER-RETAINING TANKS: USE CEMENTITIOUS CRYSTALLINE OR BITUMINOUS MEMBRANE FOR WATERPROOFING

GENERAL NOTES

- GENERAL NOTES SHALL APPLY TO ALL DRAWINGS IN THIS SET OF PLANS UNLESS NOTED OTHERWISE.
- ALL UNITS IN MILLIMETERS UNLESS NOTED OTHERWISE.
- CONTRACTOR SHALL VERIFY LOCATION OF PIPES SLEEVES, CONDUITS AND OTHER ELEMENTS TO BE EMBEDDED IN CONCRETE BEFORE WORK IS STARTED.
- DRAWINGS SHOULD NOT BE SCALED.
- LEFT-TO-RIGHT READING ORIENTATION OF GIRDER OR BEAM LABEL SHALL DETERMINE THE LEFT AND RIGHT END OF THE TAGGED GIRDER OR BEAM.

FOUNDATION NOTES

- SOIL CAPACITY IS BASED ON THE RECOMMENDATION OF GEOTECHNICAL REPORT WHERE ALLOWABLE SOIL BEARING CAPACITY IS 140 kPa. GROUNDWATER TABLE NOTED TO NOT REACH THE EFFECTIVE EMBEDMENT DEPTH. NO LIQUEFIABLE STRATUM NOTED.
- ALL FOOTINGS SHALL REST ON 75 mm LEAN CONCRETE PRIOR TO 150 mm GRAVEL BEDDING.
- NO FOOTING SHALL REST ON FILL.
- FILL LAYER SHALL BE COMPACTED AT EVERY 200 mm LAYER TO ACHIEVE AT LEAST 95% MAXIMUM DRY DENSITY, VERIFIED THROUGH FIELD DENSITY TEST.
- CONSTRUCTION TO CEASE IMMEDIATELY IF ACTUAL SOIL CONDITION DIFFERS FROM ASSUMPTIONS IN FOUNDATION NOTES. IN SUCH CASE, CLIENT, ARCHITECT AND ENGINEER-ON-RECORD SHALL BE NOTIFIED, AND GEOTECHNICAL INVESTIGATION SHALL BE CONDUCTED MANDATORILY.

CONCRETE NOTES

- WORK SHALL CONFORM TO REQUIREMENTS OF ACI 301-16 "SPECIFICATIONS FOR STRUCTURAL CONCRETE".
- SPECIFICATION OF CONCRETE SHALL BE AS FOLLOWS.

| SPECIFICATION OF CONCRETE (TANKS) | | |
|---|---------------------|----------------|
| MEMBER | 28-DAY STRENGTH | AGGREGATE SIZE |
| BASE SLAB | 27.5 MPa (4000 psi) | <25 mm (1") |
| GRADE SLAB | 17 MPa (2500 psi) | <25 mm (1") |
| COLUMN | 27.5 MPa (4000 psi) | <20 mm (3/4") |
| BEAM | 27.5 MPa (4000 psi) | <20 mm (3/4") |
| SUSPENDED SLAB | 27.5 MPa (4000 psi) | <20 mm (3/4") |
| WALLS | 27.5 MPa (4000 psi) | <20 mm (3/4") |
| SPECIFICATION OF CONCRETE (BLOWER ROOM AND BUND WALL) | | |
| MEMBER | 28-DAY STRENGTH | AGGREGATE SIZE |
| FOOTING | 20.7 MPa (3000 psi) | <25 mm (1") |
| GRADE SLAB | 17 MPa (2500 psi) | <25 mm (1") |
| COLUMN | 20.7 MPa (3000 psi) | <20 mm (3/4") |
| BEAM | 20.7 MPa (3000 psi) | <20 mm (3/4") |

REINFORCING STEEL NOTES

- MATERIAL SHALL CONFORM TO REQUIREMENTS OF ASTM A706 "STANDARD SPECIFICATION FOR DEFORMED AND PLAIN LOW-ALLOY STEEL BARS FOR CONCRETE REINFORCEMENT" OR ASTM A615 "STANDARD SPECIFICATION FOR DEFORMED AND PLAIN CARBON-STEEL BARS FOR CONCRETE REINFORCEMENT".
- SPECIFICATION OF REINFORCING STEEL SHALL BE AS FOLLOWS.

| SPECIFICATION OF REINFORCING STEEL | |
|------------------------------------|-----------------------|
| BAR DIAMETER | YIELD STRENGTH |
| Ø10 AND LARGER (TANK) | 420 MPa (60 ksi) A706 |
| Ø12 AND LARGER (BLOWER) | 420 MPa (60 ksi) A615 |
| Ø10 AND SMALLER (BLOWER) | 275 MPa (40 ksi) A615 |

| MINIMUM CONCRETE COVER OF REINFORCING STEEL | |
|---|----------------|
| MEMBER | CONCRETE COVER |
| BASE MAT | 75 mm (3") |
| COLUMN, GIRDER, BEAM & SLAB | 40 mm (1 1/2") |
| GRADE SLAB AND WALLS | 50 mm (2") |

- REINFORCING STEEL SHALL BE FREE FROM RUST, SOIL OR OTHER MATERIALS THAT MAY IMPAIR BOND WITH CONCRETE.
- WELDING OF REINFORCING STEEL SHALL NOT BE PERMITTED.

HOLLOW BLOCK NOTES

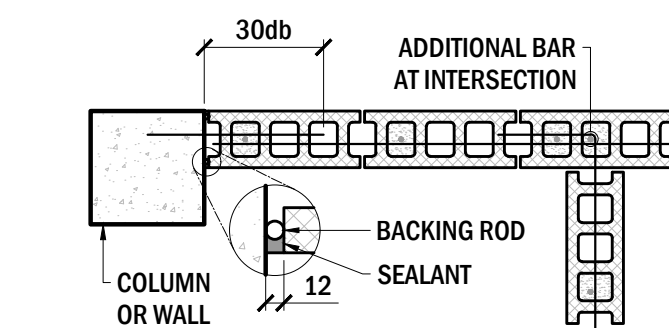
- MATERIAL SHALL CONFORM TO REQUIREMENTS OF ASTM C129 "STANDARD SPECIFICATION FOR NONLOADBEARING CONCRETE MASONRY UNITS".
- SPECIFICATION OF NONLOADBEARING CONCRETE HOLLOW BLOCK SHALL BE AS FOLLOWS.

| SPECIFICATION OF NONLOADBEARING CHB | | |
|-------------------------------------|--|----------------------|
| WEIGHT | MINIMUM DENSITY | COMPRESSIVE STRENGTH |
| NORMAL | 2000 kg/m ³ (125 lb/ft ³) | 4.14 MPa (600 psi) |

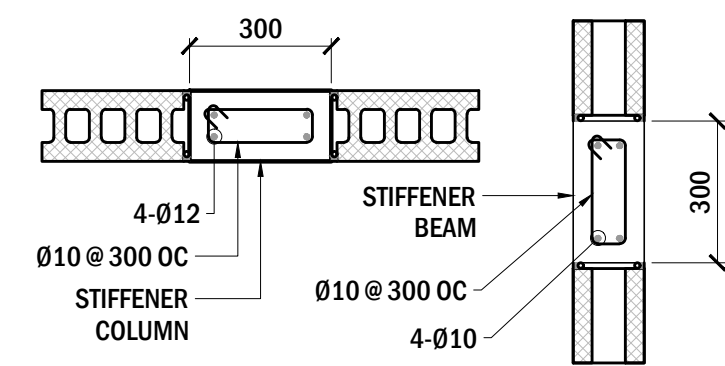
- NONLOADBEARING CHB SHALL BE REINFORCED AS FOLLOWS.

| NONLOADBEARING CHB REINFORCEMENT | | |
|----------------------------------|-----------------|-----------------|
| THICKNESS | VERTICAL | HORIZONTAL |
| 100 mm (4") | Ø10 @ 400 mm OC | Ø10 @ 600 mm OC |
| 150 mm (6") | Ø10 @ 400 mm OC | Ø10 @ 600 mm OC |
| 200 mm (8") | Ø12 @ 400 mm OC | Ø10 @ 600 mm OC |

- ALL CELLS WITH REINFORCEMENT SHALL BE FULLY GROUTED.
- DOWELS SHALL BE EMBEDDED AT LEAST 150 mm IN COLUMNS, WALLS, OR BEAMS, AND LAPPED TO CHB REINFORCEMENT AT LEAST 30 TIMES THE BAR DIAMETER. DOWELS SHALL MATCH DIAMETER AND SPACING OF CHB REINFORCEMENT.

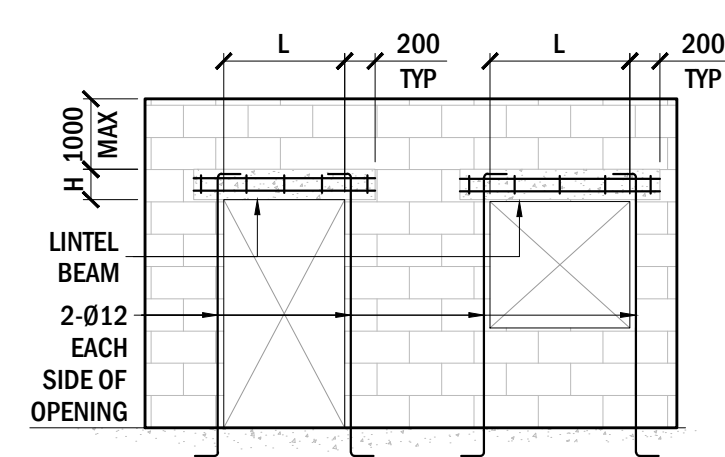


- NONLOADBEARING CHB SHALL BE PROVIDED WITH STIFFENER BEAMS AT EVERY 3000 mm HEIGHT, AND STIFFENER COLUMNS AT EVERY 4000 mm WIDTH.



- NONLOADBEARING CHB WALL OPENINGS SUPPORTING NO MORE THAN 1000 mm HIGH CHB WALL SHALL BE REINFORCED AS FOLLOWS UNLESS NOTED OTHERWISE.

| LINTEL BEAM DETAILS OF NONLOADBEARING CHB OPENINGS | | | | | |
|--|------------|----------|-------------|--------------|--|
| CLEAR SPAN (L) | HEIGHT (H) | TOP BARS | BOTTOM BARS | STIRRUPS | |
| <1000 mm | 1 CHB | 2-Ø10 | 2-Ø10 | Ø10 @ 200 mm | |
| 1000-1399 mm | 1 CHB | 2-Ø12 | 2-Ø12 | Ø10 @ 200 mm | |
| 1400-1699 mm | 2 CHB | 2-Ø12 | 2-Ø12 | Ø10 @ 200 mm | |
| 1700-2000 mm | 2 CHB | 2-Ø16 | 2-Ø16 | Ø10 @ 200 mm | |



DEVELOPMENT LENGTH

- REINFORCEMENT WITH STRAIGHT EMBEDMENT SHALL BE DEVELOPED AS FOLLOWS.

| BAR | DEVELOPMENT LENGTH (Ld) OF STRAIGHT BARS | | | |
|-----|--|-------------------|-------------------|-------------------|
| | CONCRETE COMPRESSIVE STRENGTH (fc') | | | |
| | 17 MPa (2500 psi) | 21 MPa (3000 psi) | 27 MPa (4000 psi) | 34 MPa (5000 psi) |
| Ø10 | 420 mm | 380 mm | 330 mm | --- |
| Ø12 | 500 mm | 460 mm | 390 mm | --- |
| Ø16 | 1000 mm | 910 mm | 800 mm | --- |
| Ø20 | --- | --- | 990 mm | --- |
| Ø25 | --- | --- | 1530 mm | --- |
| Ø28 | --- | --- | 1720 mm | --- |
| Ø32 | --- | --- | 1960 mm | --- |

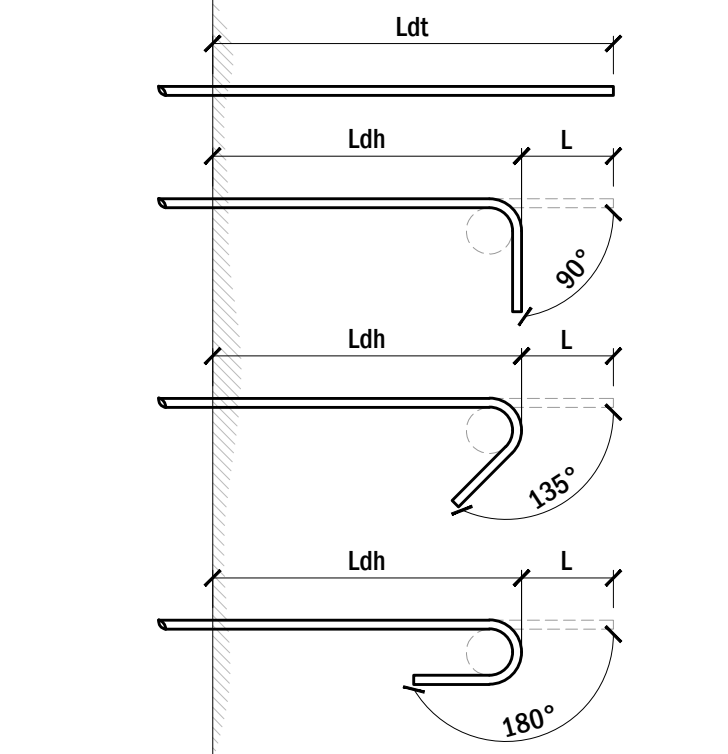
- REINFORCEMENT WITH HOOKED EMBEDMENT SHALL BE DEVELOPED AS FOLLOWS.

| BAR | DEVELOPMENT LENGTH (Ldh) OF HOOKED BARS | | | |
|-----|---|-------------------|-------------------|-------------------|
| | CONCRETE COMPRESSIVE STRENGTH (fc') | | | |
| | 17 MPa (2500 psi) | 21 MPa (3000 psi) | 27 MPa (4000 psi) | 34 MPa (5000 psi) |
| Ø10 | 160 mm | 150 mm | 150 mm | --- |
| Ø12 | 200 mm | 180 mm | 160 mm | --- |
| Ø16 | 240 mm | 210 mm | 310 mm | --- |
| Ø20 | --- | --- | 390 mm | --- |
| Ø25 | --- | --- | 480 mm | --- |
| Ø28 | --- | --- | 540 mm | --- |
| Ø32 | --- | --- | 620 mm | --- |

STIRRUPS AND TIES

- STIRRUPS AND TIES SHALL BE PROVIDED WITH 135° SEISMIC HOOK UNLESS NOTED OR SHOWN OTHERWISE.
- HOOK EXTENSION (Lext) SHALL BE AS FOLLOWS.

| BAR | EXTENSION (Lext) OF HOOKS | | | | |
|-----|---------------------------|-------|-------------------|-------|-------|
| | MAIN BARS | | STIRRUPS AND TIES | | |
| | 90° | 180° | 90° | 135° | 180° |
| Ø10 | 120 mm | 65 mm | 75 mm | 75 mm | 65 mm |
| Ø12 | 150 mm | 65 mm | 75 mm | 75 mm | 65 mm |
| Ø16 | 200 mm | 65 mm | --- | --- | --- |
| Ø20 | --- | --- | --- | --- | --- |
| Ø25 | --- | --- | --- | --- | --- |
| Ø28 | --- | --- | --- | --- | --- |
| Ø32 | --- | --- | --- | --- | --- |



COLUMN LAP SPICE

- STAGGER SPLICES AT LEAST 600 mm APART.

| BAR | LAP SPICE (Lst) OF COLUMNS | | | |
|-----|-------------------------------------|-------------|-------------------|-------------|
| | CONCRETE COMPRESSIVE STRENGTH (fc') | | | |
| | 21 MPa (3000 psi) | | 27 MPa (4000 psi) | |
| | HOOP TIED | SPIRAL TIED | HOOP TIED | SPIRAL TIED |
| Ø10 | 390 mm | --- | 380 mm | --- |
| Ø12 | 400 mm | --- | 390 mm | --- |
| Ø16 | 790 mm | --- | 780 mm | --- |
| Ø20 | --- | --- | --- | --- |
| Ø25 | --- | --- | --- | --- |
| Ø28 | --- | --- | --- | --- |
| Ø32 | --- | --- | --- | --- |

BEAM & SLAB LAP SPICE

- GIRDER AND BEAM LAP SPICE SHALL BE CLASS A IF <50% OF REBARS ARE SPLICED, AND CLASS B IF OTHERWISE.
- SLAB LAP SPLICES SHALL BE CLASS B REGARDLESS OF THE PERCENTAGE OF REBARS SPLICED IN A SECTION.
- A RUN OF REBAR MAY ONLY BE SPLICED ONCE ALONG THE LENGTH OF A GIRDER, BEAM OR SLAB.

| BAR | LAP CLASS | LAP SPICE (Lst) OF GIRDERS, BEAMS AND SLABS | | | |
|-----|-----------|---|-------------|-------------------|-------------|
| | | CONCRETE COMPRESSIVE STRENGTH (fc') | | | |
| | | 17 MPa (2500 psi) | | 27 MPa (4000 psi) | |
| | | TOP | SIDE/BOTTOM | TOP | SIDE/BOTTOM |
| Ø10 | A | 420 mm | 330 mm | 380 mm | 300 mm |
| | B | 550 mm | 420 mm | 490 mm | 390 mm |
| Ø12 | A | 500 mm | 390 mm | 460 mm | 350 mm |
| | B | 650 mm | 500 mm | 590 mm | 460 mm |
| Ø16 | A | 1000 mm | 770 mm | 910 mm | 700 mm |
| | B | 1300 mm | 1000 mm | 1180 mm | 910 mm |
| Ø20 | A | --- | --- | --- | --- |
| Ø20 | B | --- | --- | --- | --- |
| Ø25 | A | --- | --- | --- | --- |
| Ø25 | B | --- | --- | --- | --- |
| Ø28 | A | --- | --- | --- | --- |
| Ø28 | B | --- | --- | --- | --- |
| Ø32 | A | --- | --- | --- | --- |
| Ø32 | B | --- | --- | --- | --- |

CONCRETE WALL LAP SPICE

- STAGGER SPLICES AT LEAST 600 mm APART.

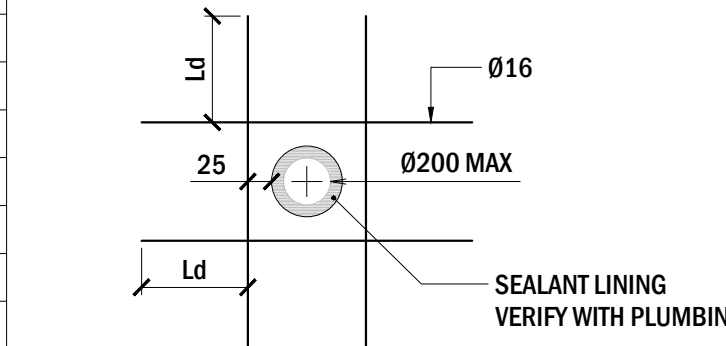
| BAR | LAP SPICE (Lst) OF REINFORCED CONCRETE WALLS | | | |
|-----|--|------------|-------------------|------------|
| | CONCRETE COMPRESSIVE STRENGTH (fc') | | | |
| | 17 MPa (2500 psi) | | 27 MPa (4000 psi) | |
| | VERTICAL | HORIZONTAL | VERTICAL | HORIZONTAL |
| Ø10 | --- | --- | 380 mm | 490 mm |
| Ø12 | --- | --- | 460 mm | 590 mm |
| Ø16 | --- | --- | 910 mm | 1180 mm |
| Ø20 | --- | --- | --- | --- |
| Ø25 | --- | --- | --- | --- |
| Ø28 | --- | --- | --- | --- |
| Ø32 | --- | --- | --- | --- |

STRUCTURAL STEEL NOTES

- WORK SHALL CONFORM TO REQUIREMENTS OF AISC 303-16 "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES".
- SPECIFICATION OF STRUCTURAL STEEL SHALL BE AS FOLLOWS.

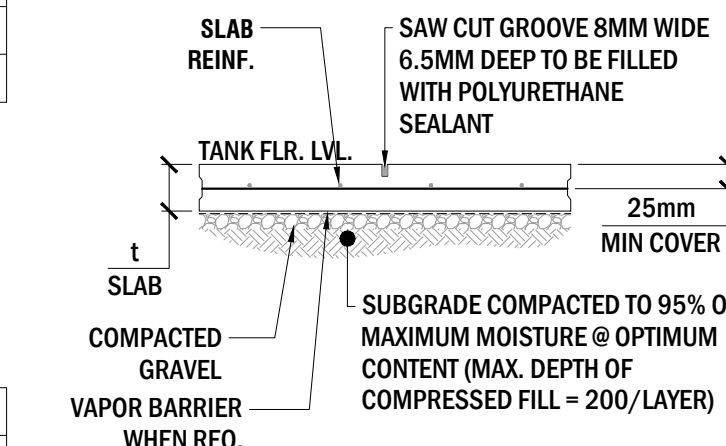
| SPECIFICATION OF STRUCTURAL STEEL | |
|-----------------------------------|----------------|
| MEMBER | SPECIFICATION |
| STEEL PLATE, SHAPES AND PURLINS | ASTM A36 |
| ANCHOR BOLTS | ASTM F3125 |
| WELDS | AWS D1.1 E70XX |

- SPLICES AND CONNECTIONS SHALL BE CAPABLE OF RESISTING 125% OF THE CAPACITY OF MEMBERS BEING JOINED.
- ALL SURFACES OF STRUCTURAL STEEL SHALL BE APPLIED WITH A COAT OF ZINC CHROMATE PRIMER PAINT.
- THE CONTRACTOR SHALL CHECK AND VERIFY ALL THE DIMENSIONS, SLOPES OR ANGLES AND DETAILS IN STRUCTURAL DRAWINGS WITH ARCHITECTURAL DRAWINGS. DISCREPANCIES (IF ANY) SHALL BE BROUGHT TO THE ENGINEER NOTICE BEFORE FABRICATING THE STEELWORKS.
- STRUCTURAL STEEL SHALL BE HOT-DIPPED GALVANIZED.
- CAMBER ROOF BEAMS, TRUSSES, PORTALS AND OTHER HORIZONTAL STEEL WORKS BY 5 mm FOR EVERY 2000 mm OF SPAN UNLESS OTHERWISE NOTED.
- UNLESS OTHERWISE NOTED, WELDS SHALL BE 6 mm CONTINUOUS FILLET LAID DOWN WITH APPROVED COVERED ELECTRODE. BOLTS TO BE 20 mm DIAMETER IN 2 mm CLEARANCE HOLES, GUSSET PLATES TO BE 10 mm THICK.
- THE CONTRACTOR SHALL NOTE THAT ALL SERVICES, CELLINGS, FIXTURES, MAINTENANCE CATWALKS, ETC. SHALL BE SUSPENDED FROM MAIN BEAMS AND TRUSSES, AND NOT FROM SLABS OR PURLINS, UNLESS OTHERWISE APPROVED BY THE ENGINEER.



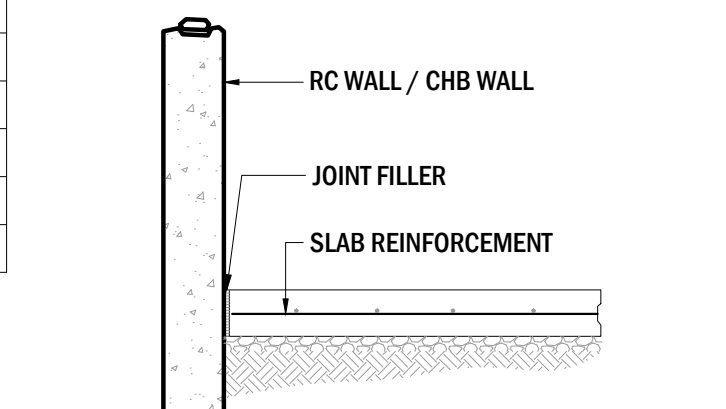
BLOCKOUT TRIMMER

SCALE NTS



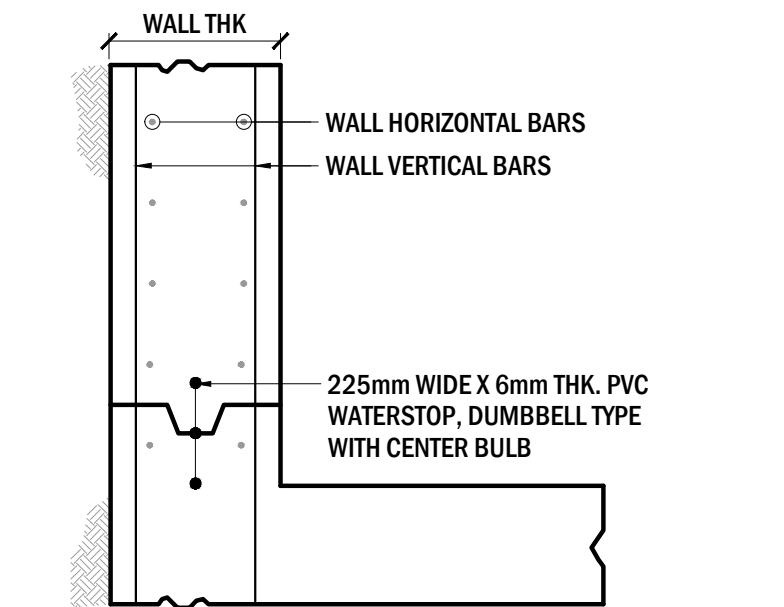
CONTRACTION JOINT

SCALE NTS



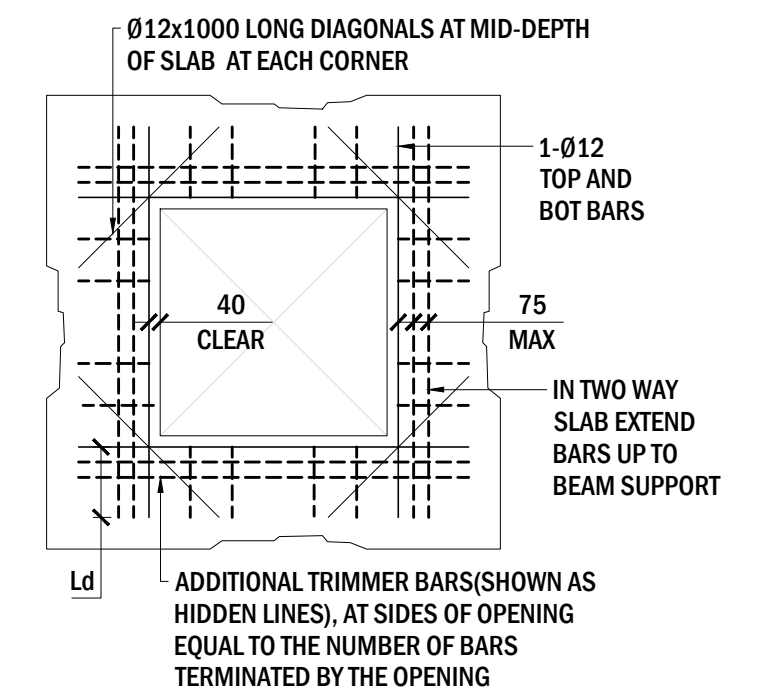
EXPANSION JOINT

SCALE NTS



R.W. CONSTRUCTION JOINT

SCALE NTS



- OMIT TRIMMER BARS WHERE OPENING IS FRAMED BY BEAMS.
- PROVIDE THESE ADDITIONAL BARS FOR ALL OPENINGS PLUS BARS (SHOWN AS DOTTED LINES) PARALLEL TO SIDE OF OPENING EQUAL TO THE NUMBER OF INTERRUPTED BARS BY THE OPENING. SEE ARCHITECTURAL & MECHANICAL PLANS FOR SLAB OPENING LOCATION.

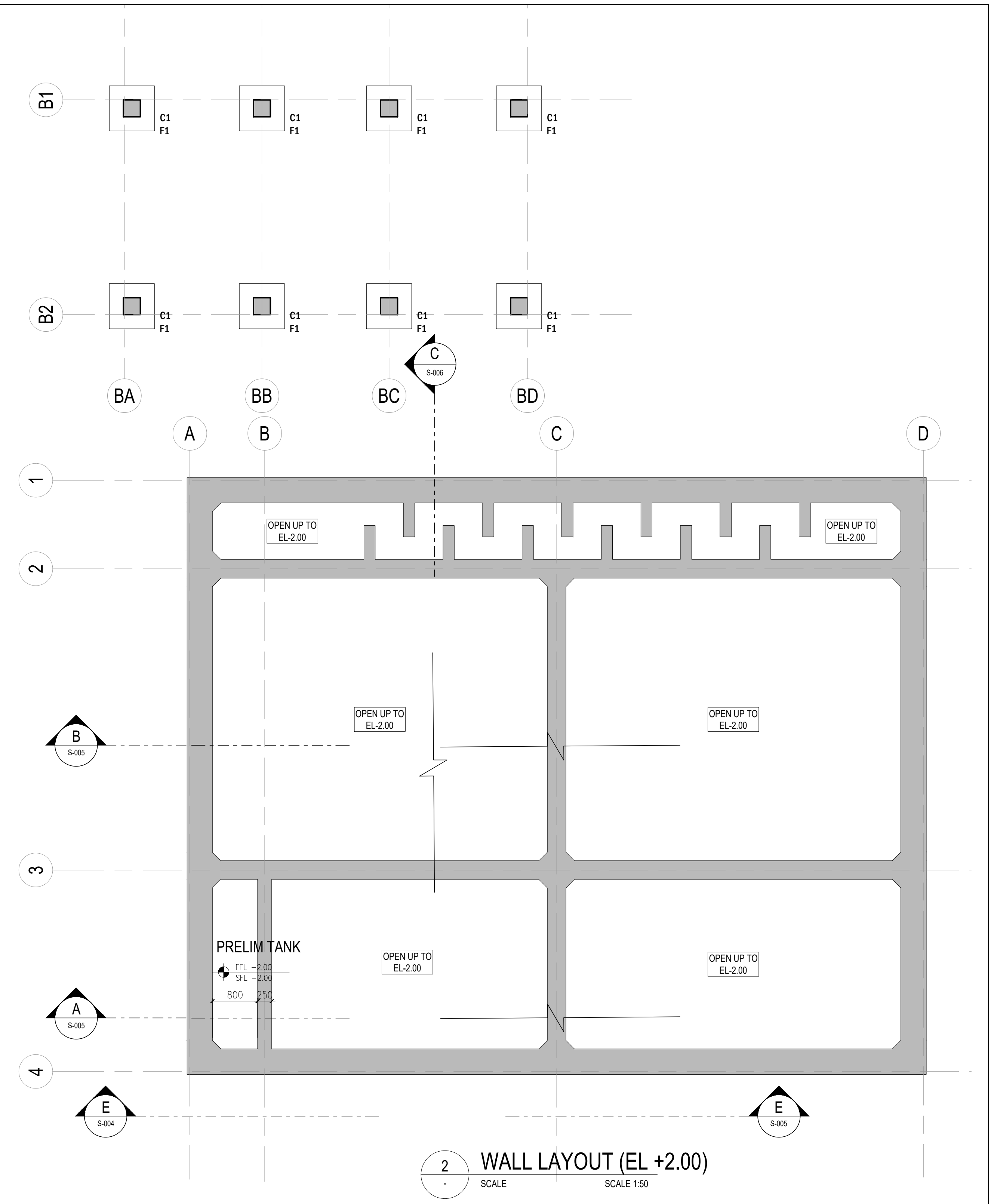
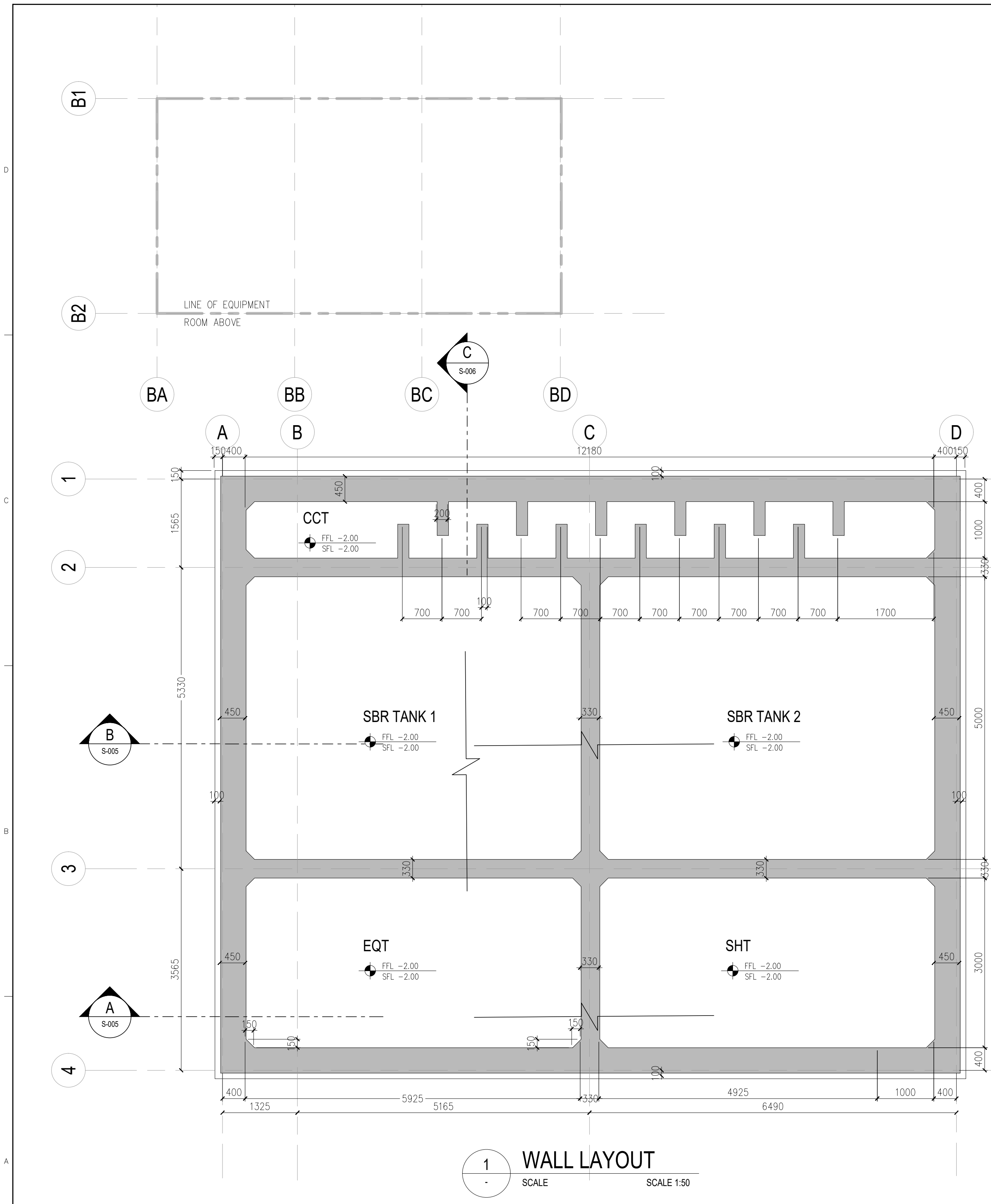
SLAB OPENING DETAIL

SCALE NTS

ANTHROSERV
 UNIT 307, ECG BUILDING, GENERAL AVENUE
 TANDANG SORA, QUEZON CITY 1116 MM
 SERVICES OFFERED:
 PLANT DESIGN
 PLUMBING WORKS
 STRUCTURAL DESIGN
 ENGINEERING DESIGN AND REVIEW
 EQUIPMENT AND MATERIAL SELECTION
 ELECTRICAL DESIGN & CALCULATIONS

DESIGN ENGINEER: _____
 PROJECT: _____
 CLIENT: _____
 REVISIONS: _____
 CONTRACT NO.: WW-22-JHMC-05-05 STAGE: DETAILED DESIGN
 SHEET CONTENTS: _____
 CONSTRUCTION NOTES _____
 SCALE _____ DATE _____

PROJECT: JHMC WASTE WATER TREATMENT PLANT
 ADDRESS: MINDORO
 CLIENT'S NAME _____



UNIT 307, ECG BUILDING, GENERAL AVENUE
TANDANG SORA, QUEZON CITY 1116 MM

SERVICES OFFERED:
PLANT DESIGN
PLUMBING WORKS
STRUCTURAL DESIGN
ENGINEERING DESIGN AND REVIEW
EQUIPMENT AND MATERIAL SELECTION
ELECTRICAL DESIGN & CALCULATIONS

DESIGN ENGINEER:

ENGINEER'S NAME

| | | | |
|---------------|---|---------------|---|
| PTR NO.: | - | PRC NO.: | - |
| DATE ISSUED: | - | DATE EXPIRY: | - |
| PLACE ISSUED: | - | PLACE ISSUED: | - |

PROJECT:

JHMC WASTE WATER TREATMENT PLANT

ADDRESS:
MINDORO

CLIENT:

CLIENT'S NAME

REVISIONS:

| NO. | DESCRIPTION | DATE |
|-----|----------------|------|
| 0 | ORIGINAL ISSUE | - |
| 1.1 | | - |
| 1.2 | | - |
| 1 | | - |

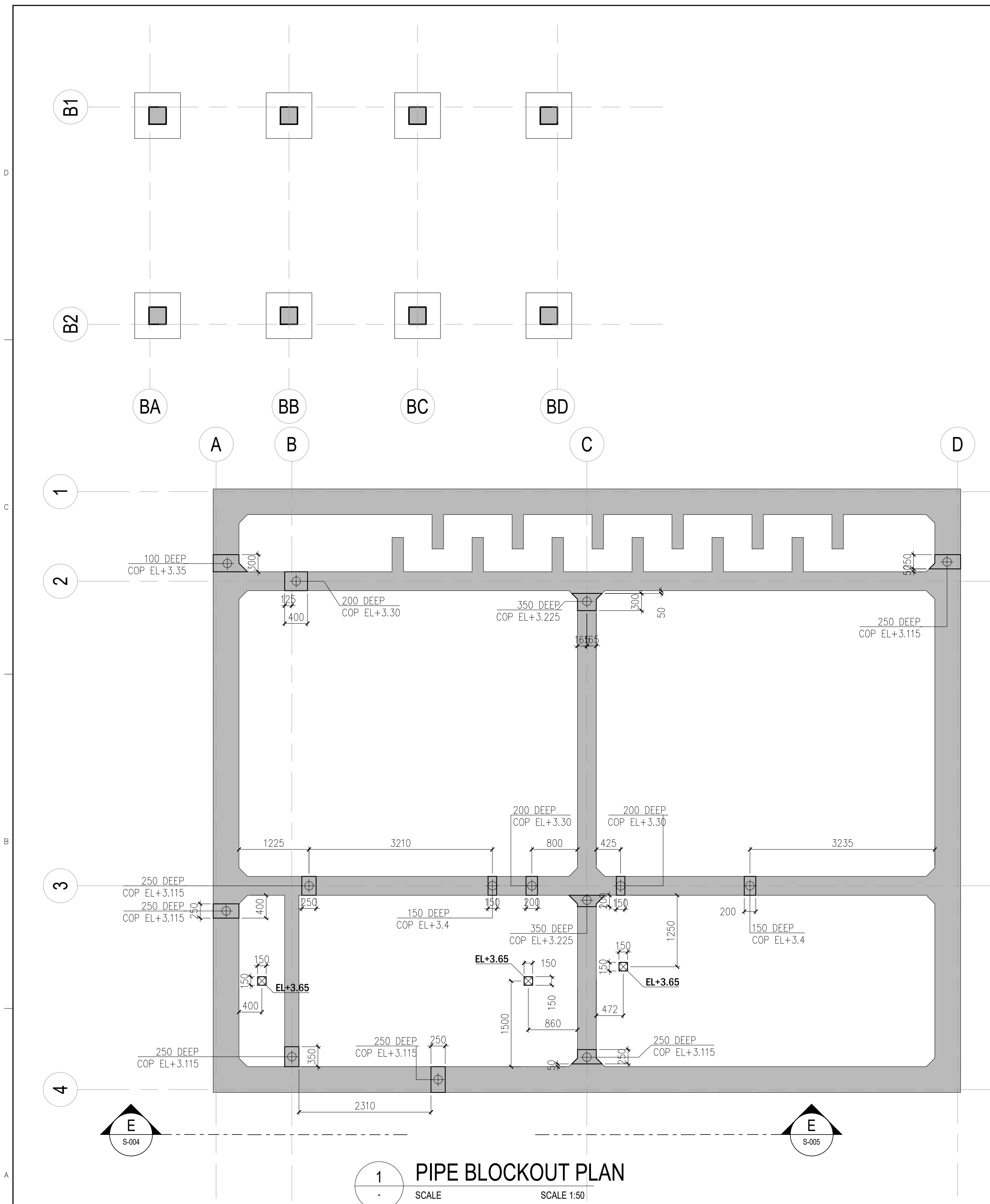
CONTRACT NO.: WW-22-JHMC-DC-05 **STAGE:** DETAILED DESIGN

SHEET CONTENTS:

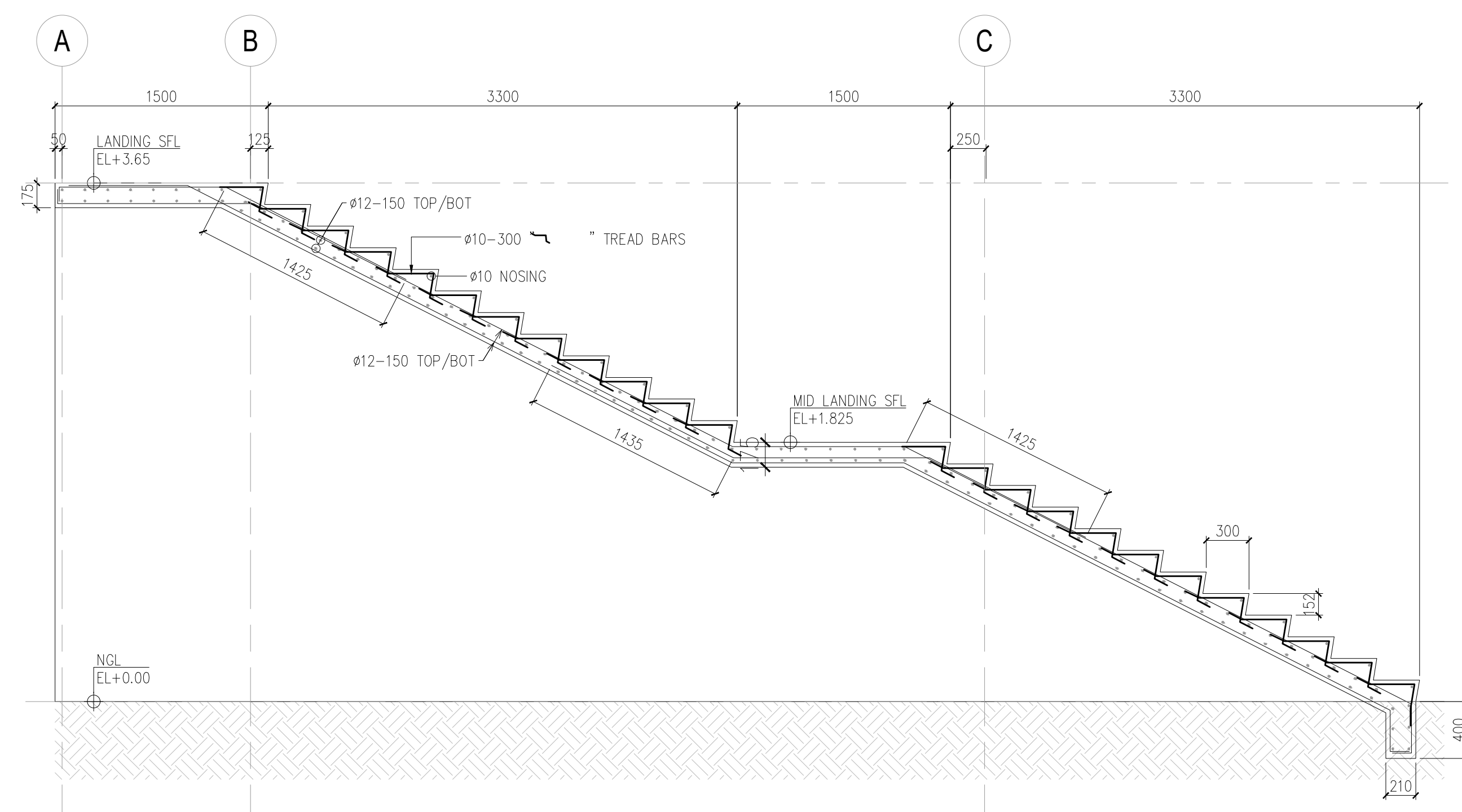
| | |
|-------------|-----------|
| TANK LAYOUT | SHEET NO. |
| SCALE | DATE |

STRUCTURAL
02 10

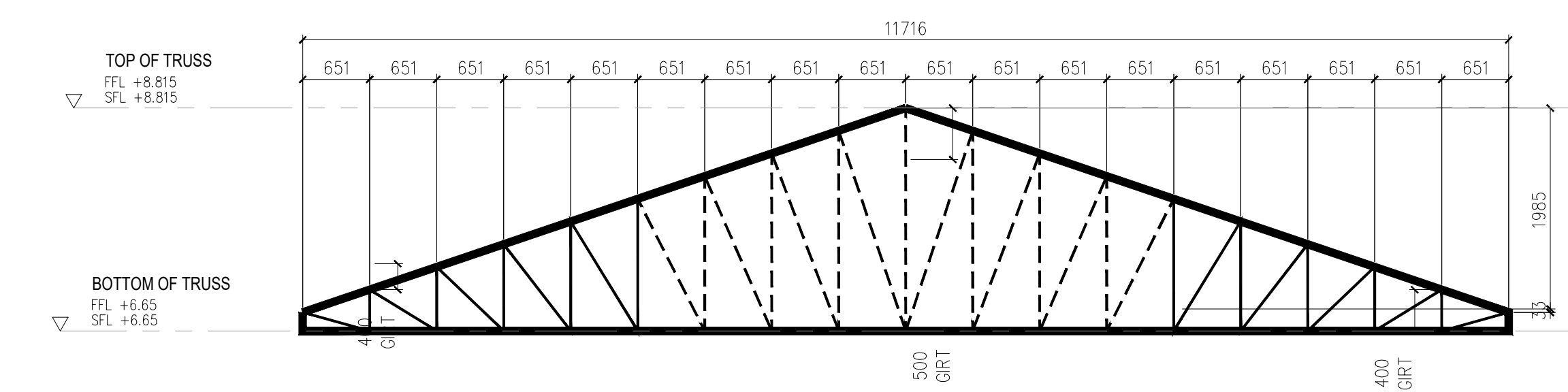
DRAWINGS AND SPECIFICATIONS DULY SIGNED ARE INTELLECTUAL PROPERTIES AND DOCUMENTS OF ANTHROSERV. WHETHER THE OBJECT FOR WHICH THEY ARE MADE IS EXECUTED OR NOT, NO PART OF THIS DRAWING SHALL BE COPIED OR REPRODUCED (EITHER IN PART OR IN WHOLE) UNLESS OTHERWISE WITH THE CONSENT & APPROVAL OF THE UNDERSIGNED DESIGNER.



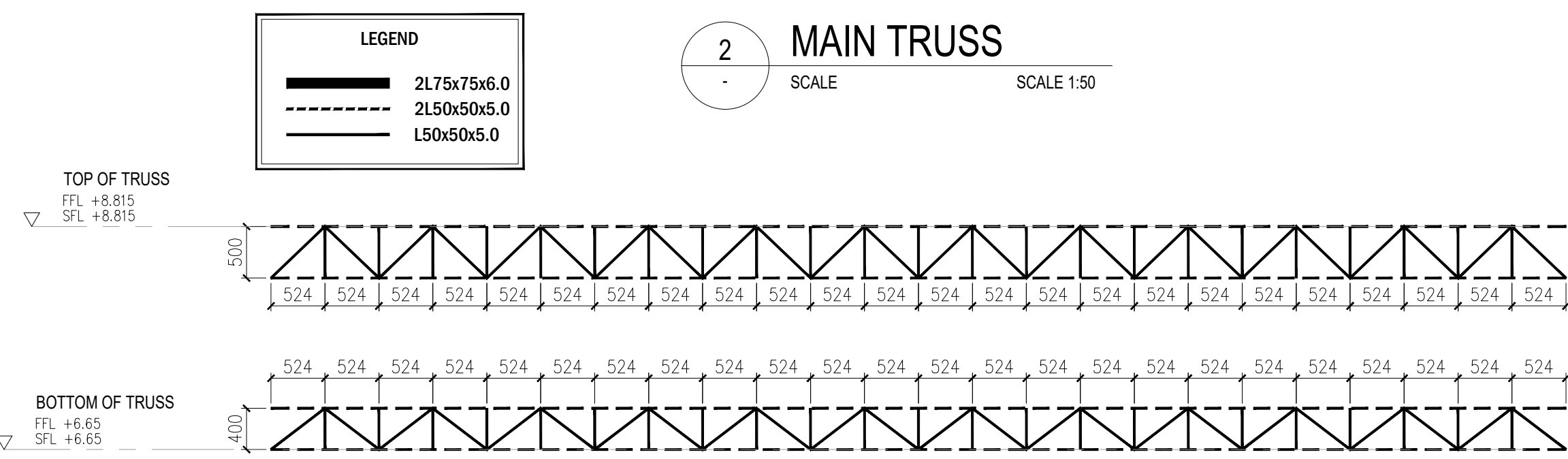
1 PIPE BLOCKOUT PLAN
SCALE 1:50



E STAIR DETAILS
SCALE 1:30



2 MAIN TRUSS
SCALE 1:50



3 GIRT TRUSS
SCALE 1:50

LEGEND

| | |
|--|-------------|
| | 2L75x75x6.0 |
| | 2L50x50x5.0 |
| | L50x50x5.0 |

UNIT 307, ECG BUILDING, GENERAL AVENUE
TANDANG SORA, QUEZON CITY 1116 MM

SERVICES OFFERED:
PLANT DESIGN
PLUMBING WORKS
STRUCTURAL DESIGN
ENGINEERING DESIGN AND REVIEW
EQUIPMENT AND MATERIAL SELECTION
ELECTRICAL DESIGN & CALCULATIONS

DESIGN ENGINEER:

ENGINEER'S NAME _____

| | | | |
|---------------|---|---------------|---|
| PTR NO.: | - | PRC NO.: | - |
| DATE ISSUED: | - | DATE EXPIRY: | - |
| PLACE ISSUED: | - | PLACE ISSUED: | - |

PROJECT:

JHMC WASTE WATER TREATMENT PLANT

ADDRESS:
MINDORO

CLIENT:

CLIENT'S NAME _____

REVISIONS:

| NO. | DESCRIPTION | DATE |
|-----|----------------|------|
| 0 | ORIGINAL ISSUE | - |
| 1.1 | | - |
| 1.2 | | - |
| 1 | | - |

CONTRACT NO.: WW-22-JHMC-DC-05

STAGE: DETAILED DESIGN

SHEET CONTENTS:

PIPE BLOCKOUT DETAILS
ROOF DETAILS

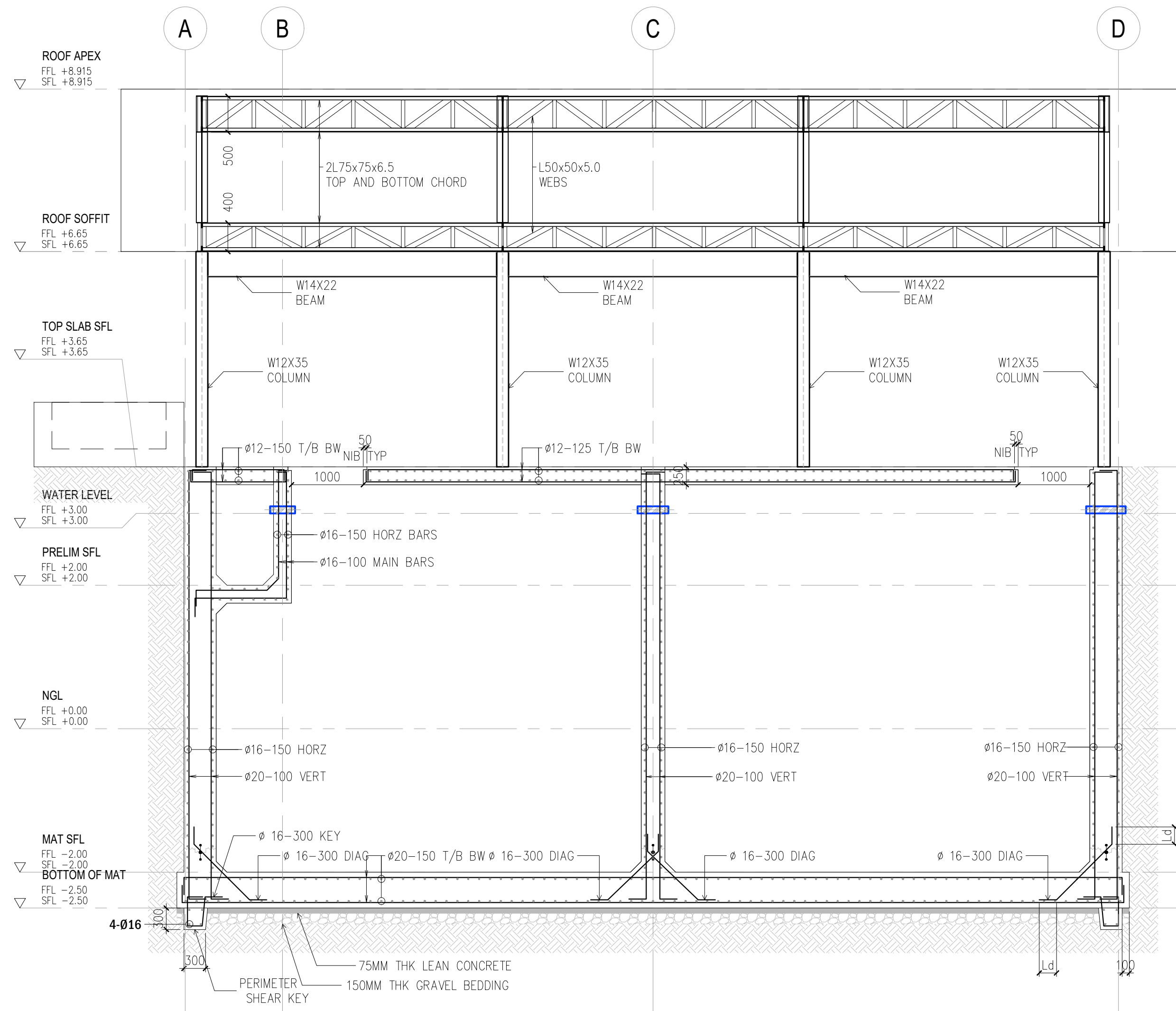
SCALE _____ DATE _____

SHEET NO.

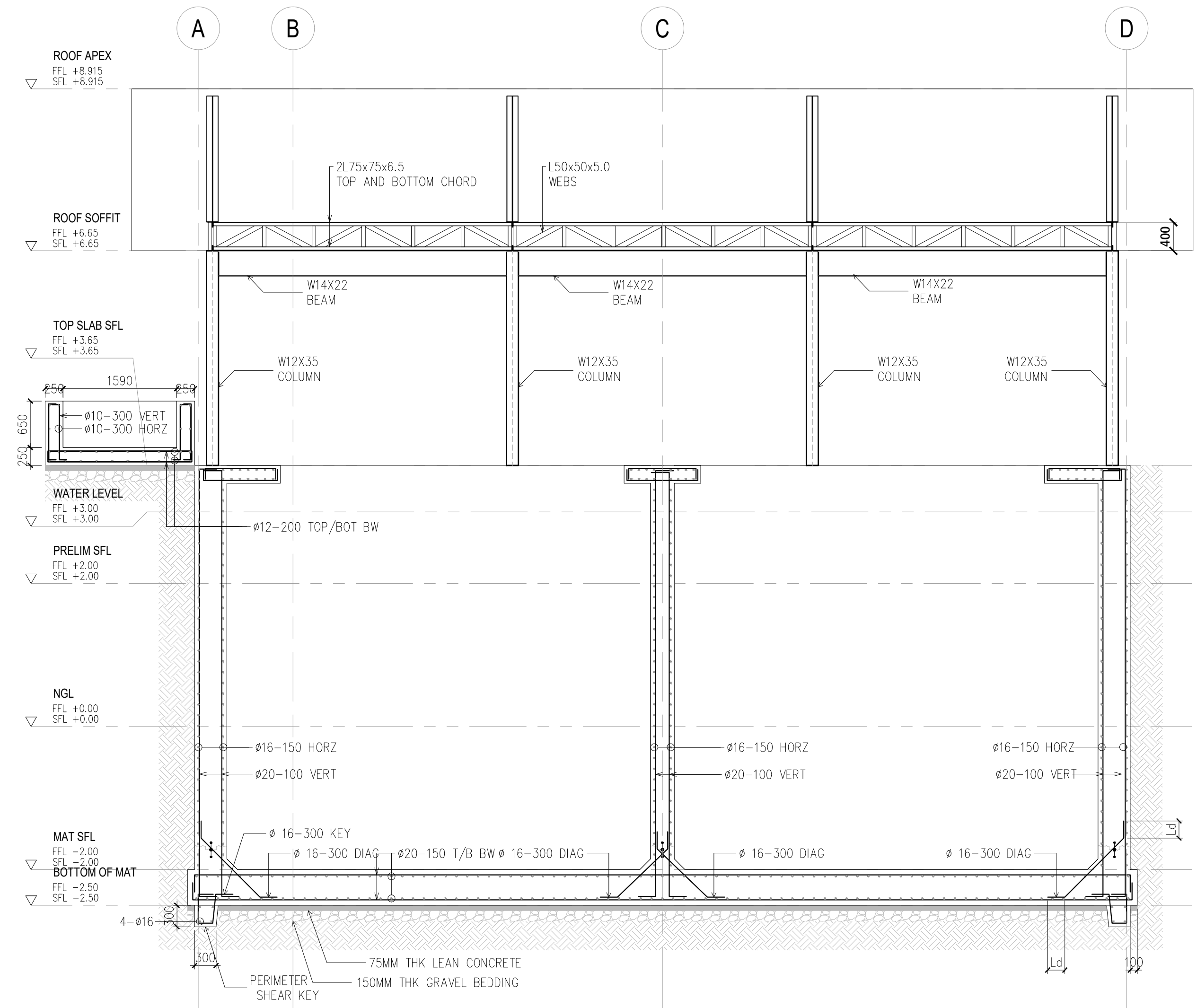
STRUCTURAL

04 10

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A TANK SECTION
SCALE SCALE 1:50



B TANK SECTION
SCALE SCALE 1:50



UNIT 307, ECG BUILDING, GENERAL AVENUE
TANDANG SORA, QUEZON CITY 1116 MM
SERVICES OFFERED:
PLANT DESIGN
PLUMBING WORKS
STRUCTURAL DESIGN
ENGINEERING DESIGN AND REVIEW
EQUIPMENT AND MATERIAL SELECTION
ELECTRICAL DESIGN & CALCULATIONS

| | | | |
|------------------|---|----------------------------------|---|
| DESIGN ENGINEER: | | PROJECT: | |
| ENGINEER'S NAME | | JHMC WASTE WATER TREATMENT PLANT | |
| PTR NO.: | - | PRC NO.: | - |
| DATE ISSUED: | - | DATE EXPIRY: | - |
| PLACE ISSUED: | - | PLACE ISSUED: | - |

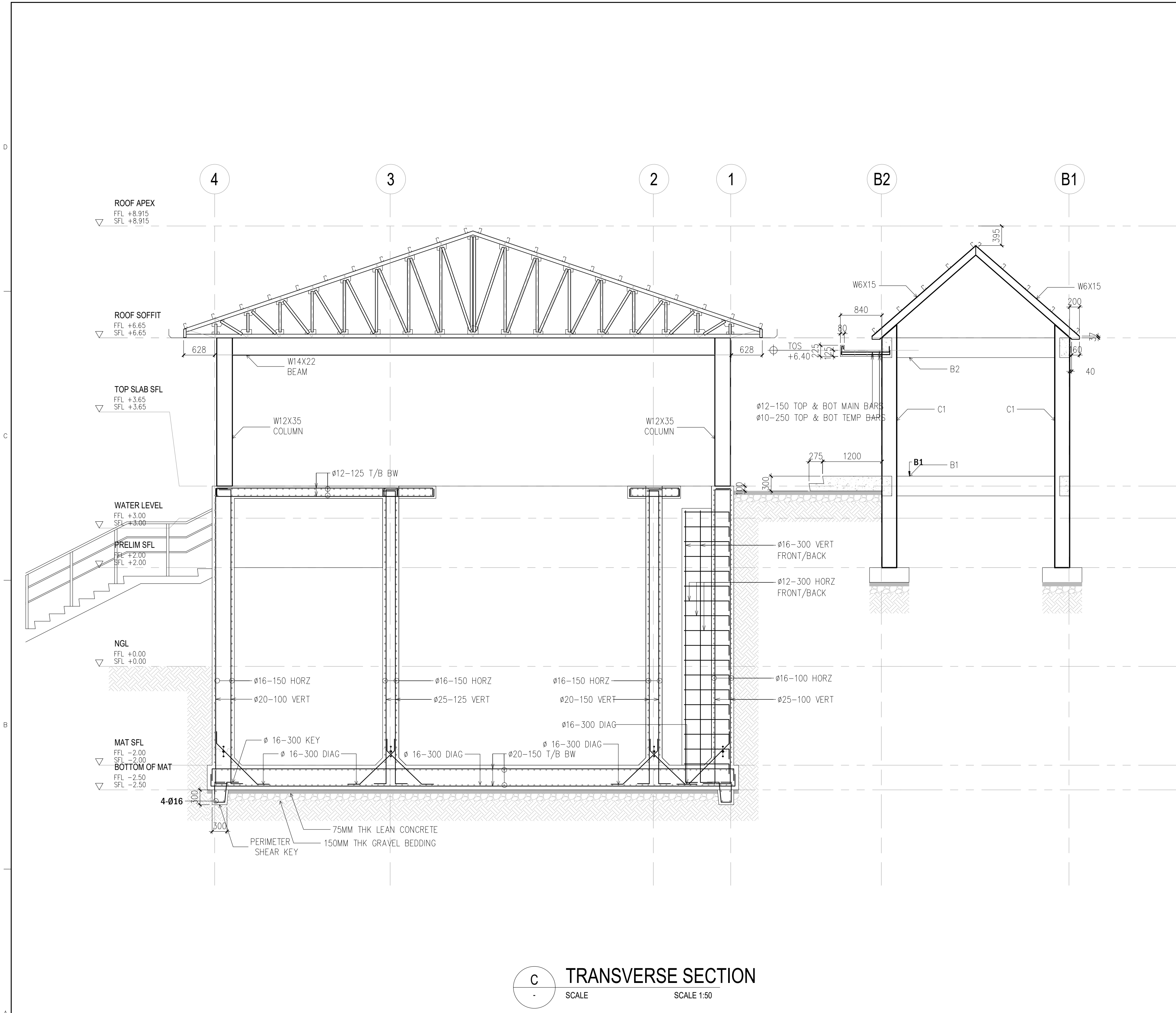
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|----------|---------------|
| ADDRESS: | MINDORO |
| CLIENT: | CLIENT'S NAME |

| REVISIONS: | |
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| NO. | DESCRIPTION |
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| 1.1 | |
| 1.2 | |
| 1 | |

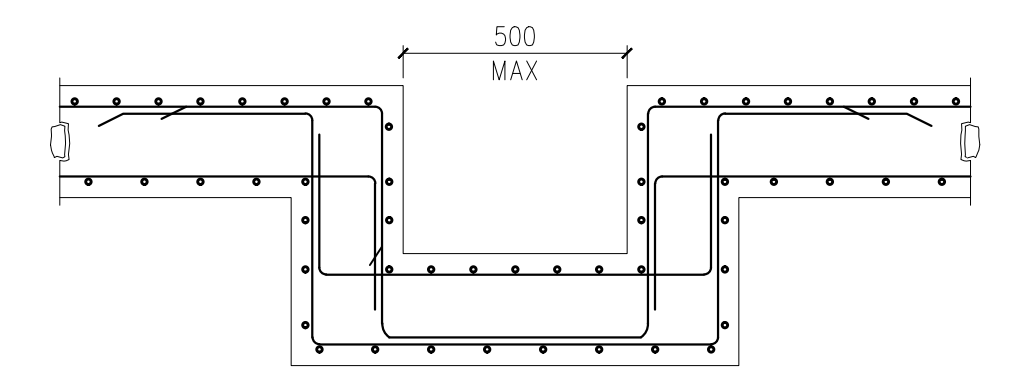
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| CONTRACT NO.: | WW-22-JHMC-DC-05 | STAGE: | DETAILED DESIGN |
| SHEET CONTENTS: | | SHEET NO. | |
| TANK SECTION | | STRUCTURAL | |
| SCALE | - | DATE | |

| | | | |
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| CONTRACT NO.: | WW-22-JHMC-DC-05 | STAGE: | DETAILED DESIGN |
| SHEET CONTENTS: | | SHEET NO. | |
| TANK SECTION | | STRUCTURAL | |
| SCALE | - | DATE | |

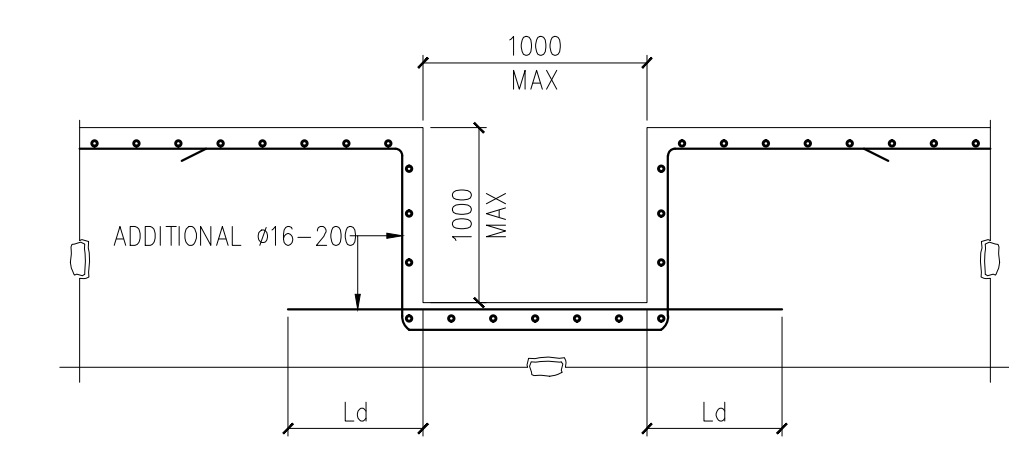
DRAWINGS AND SPECIFICATIONS DULY SIGNED ARE INTELLECTUAL PROPERTIES AND DOCUMENTS OF ANTHROSERV. WHETHER THE OBJECT FOR WHICH THEY ARE MADE IS EXECUTED OR NOT, NO PART OF THIS DRAWING SHALL BE COPIED OR REPRODUCED (EITHER IN PART OR IN WHOLE) UNLESS OTHERWISE WITH THE CONSENT & APPROVAL OF THE UNDERSIGNED DESIGNER.



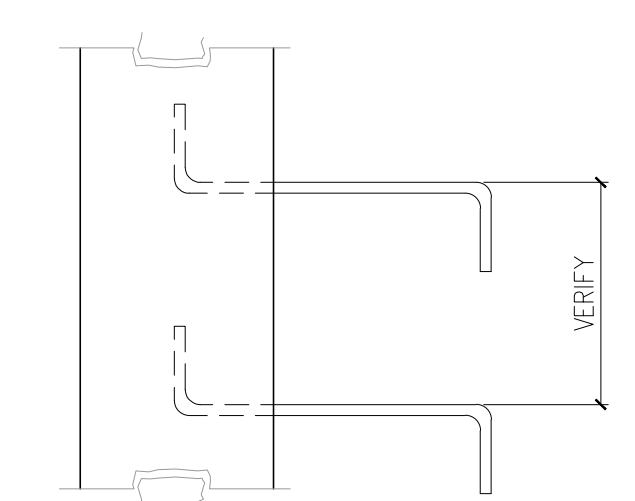
C TRANSVERSE SECTION
SCALE SCALE 1:50



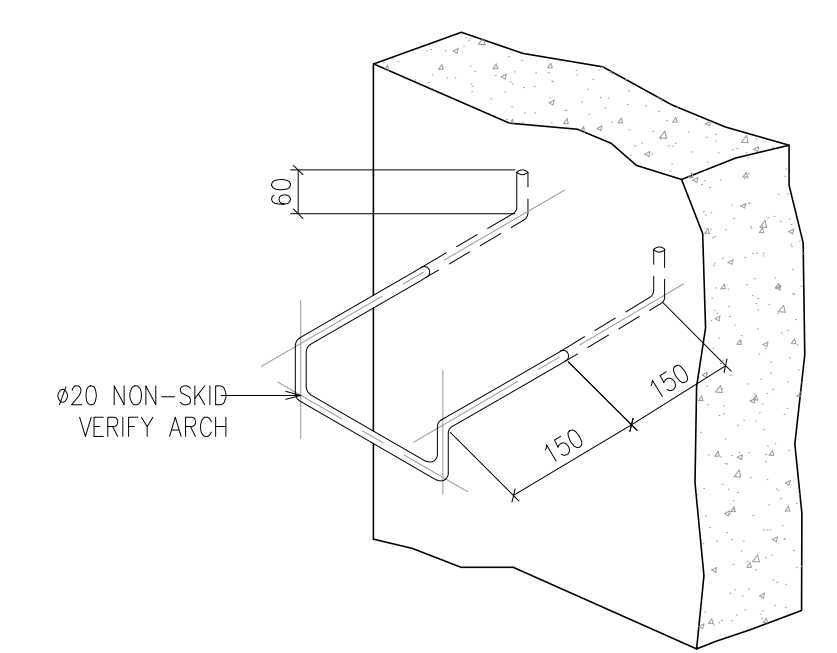
1 TYPICAL TRENCH DETAIL
SCALE NTS



2 TYPICAL SUMP DETAIL
SCALE NTS



SECTION



3 LADDER RUNG DETAIL
SCALE NTS

ANTHROSERV
UNIT 307, ECG BUILDING, GENERAL AVENUE
TANDANG SORA, QUEZON CITY 1116 MM
SERVICES OFFERED:
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ELECTRICAL DESIGN & CALCULATIONS

| | | | |
|------------------|---|---------------|---|
| DESIGN ENGINEER: | | | |
| ENGINEER'S NAME | | | |
| PTR NO.: | - | PRC NO.: | - |
| DATE ISSUED: | - | DATE EXPIRY: | - |
| PLACE ISSUED: | - | PLACE ISSUED: | - |

| | |
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| PROJECT: | JHMC WASTE WATER TREATMENT PLANT |
| ADDRESS: | MINDORO |

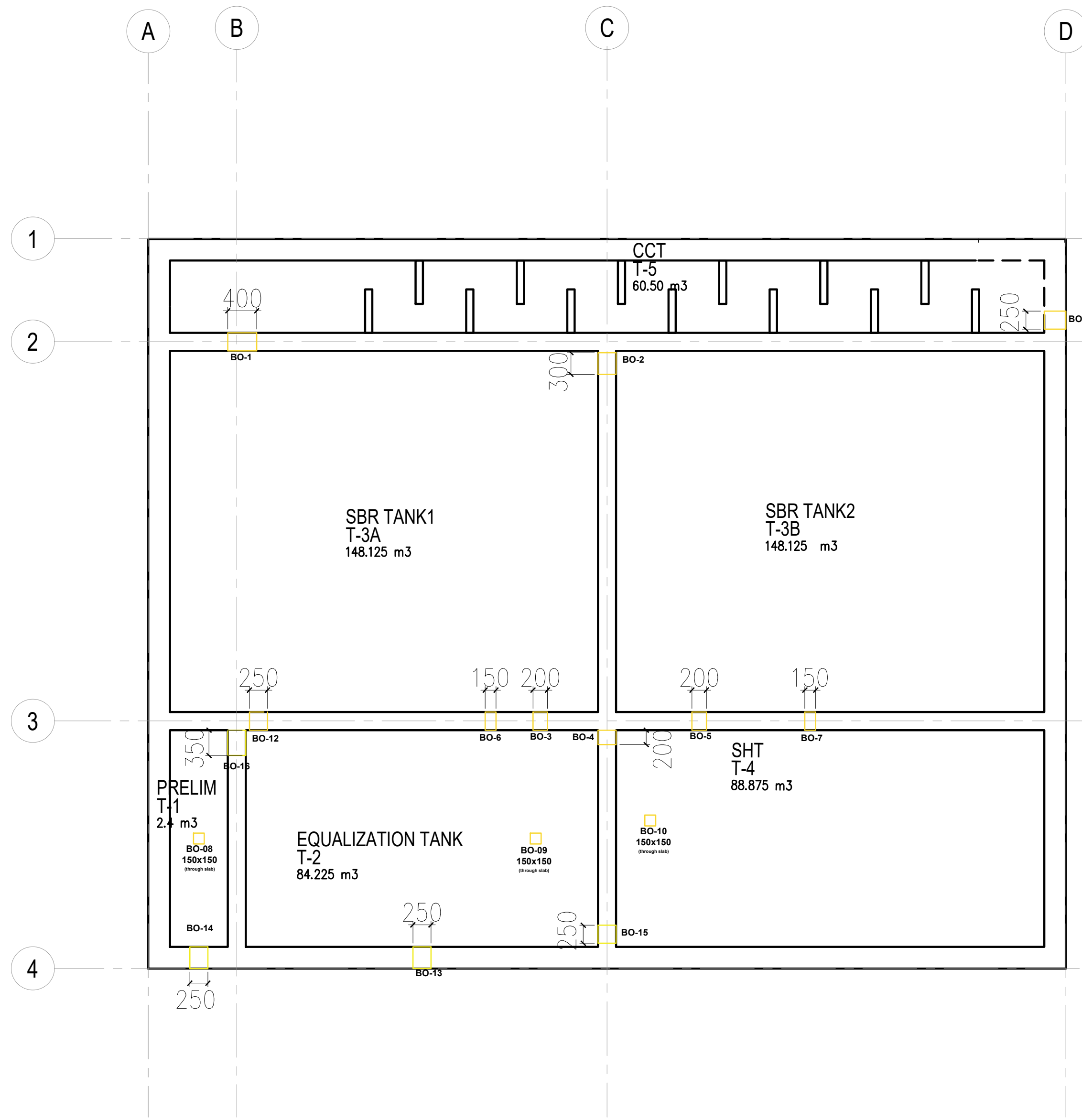
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| CLIENT: | CLIENT'S NAME |
|---------|---------------|

| REVISIONS: | | |
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| 1.2 | | - |
| 1 | | - |

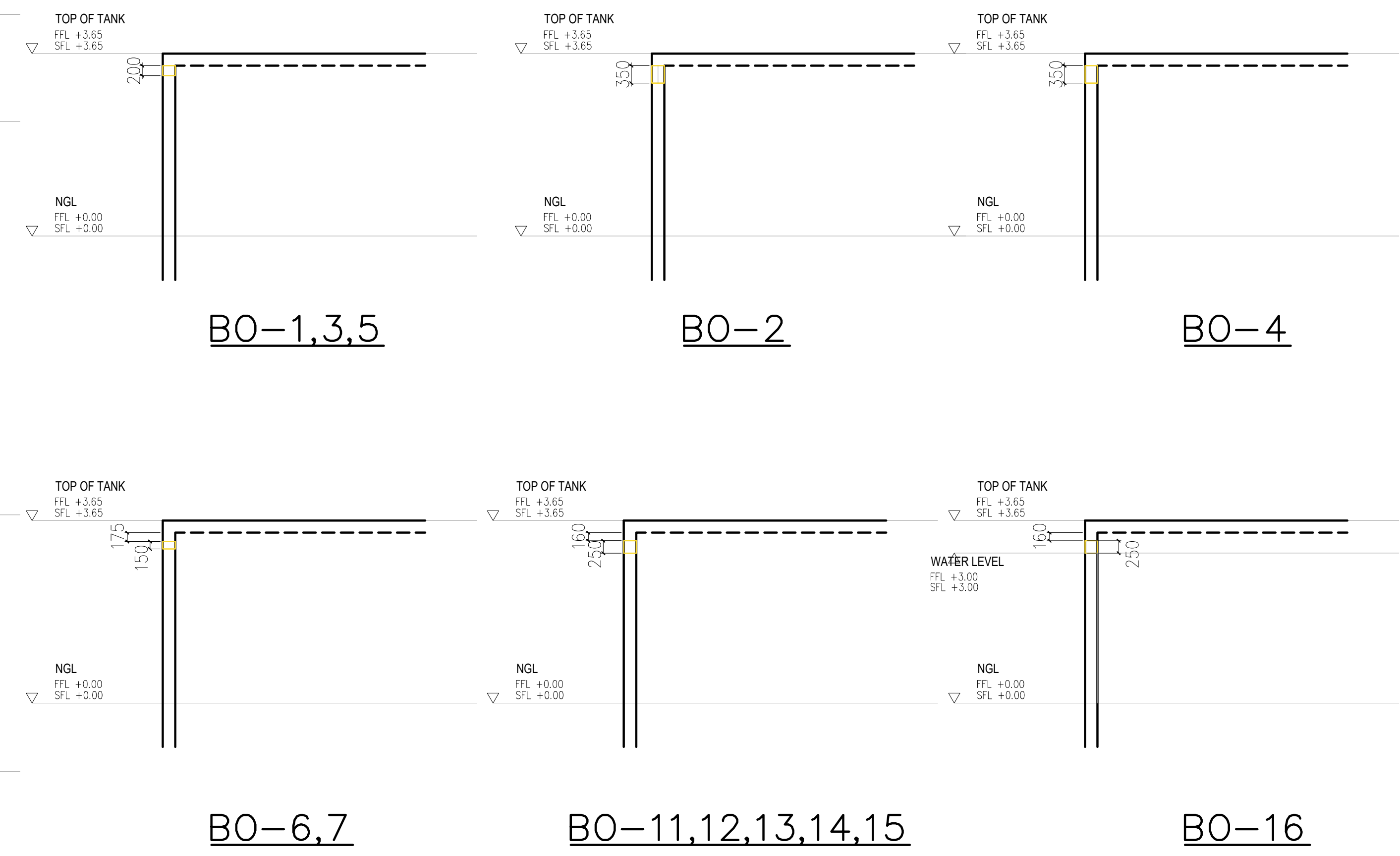
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| SHEET CONTENTS: | | SHEET NO. | |
| TANK SECTION | | STRUCTURAL | |
| SCALE | | DATE | |

06 10


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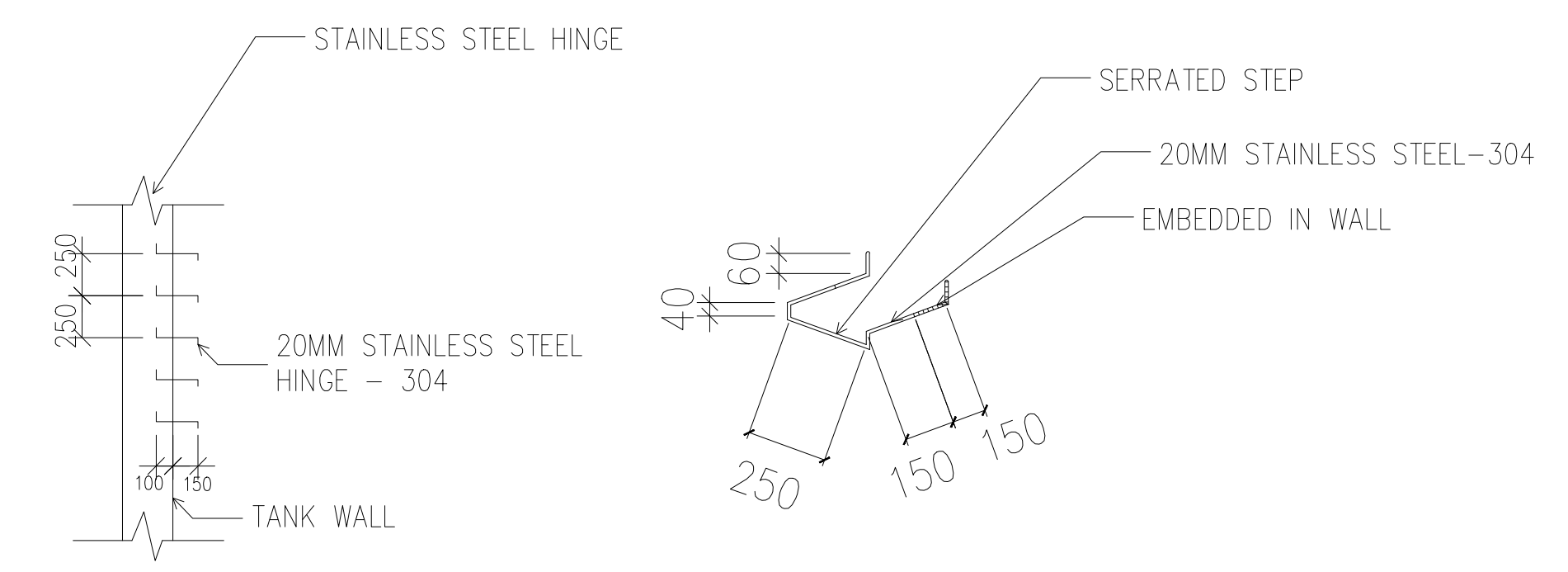
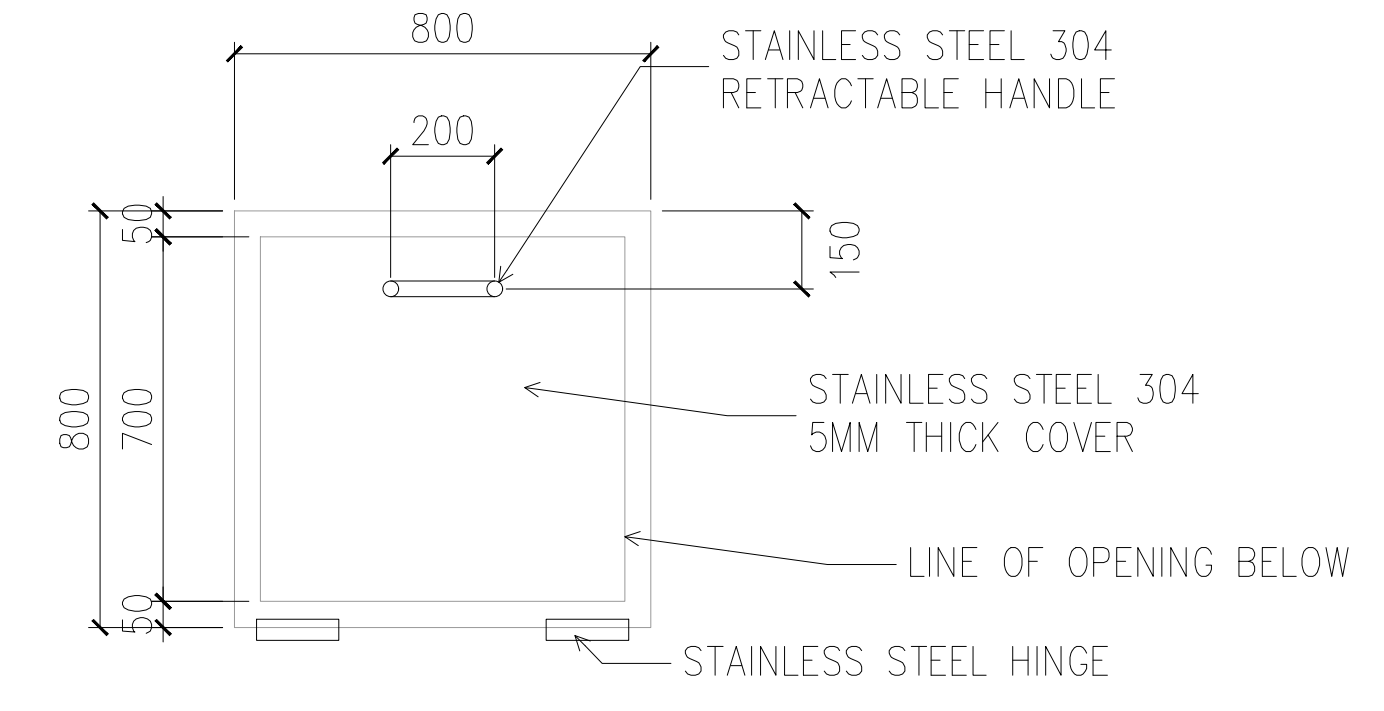
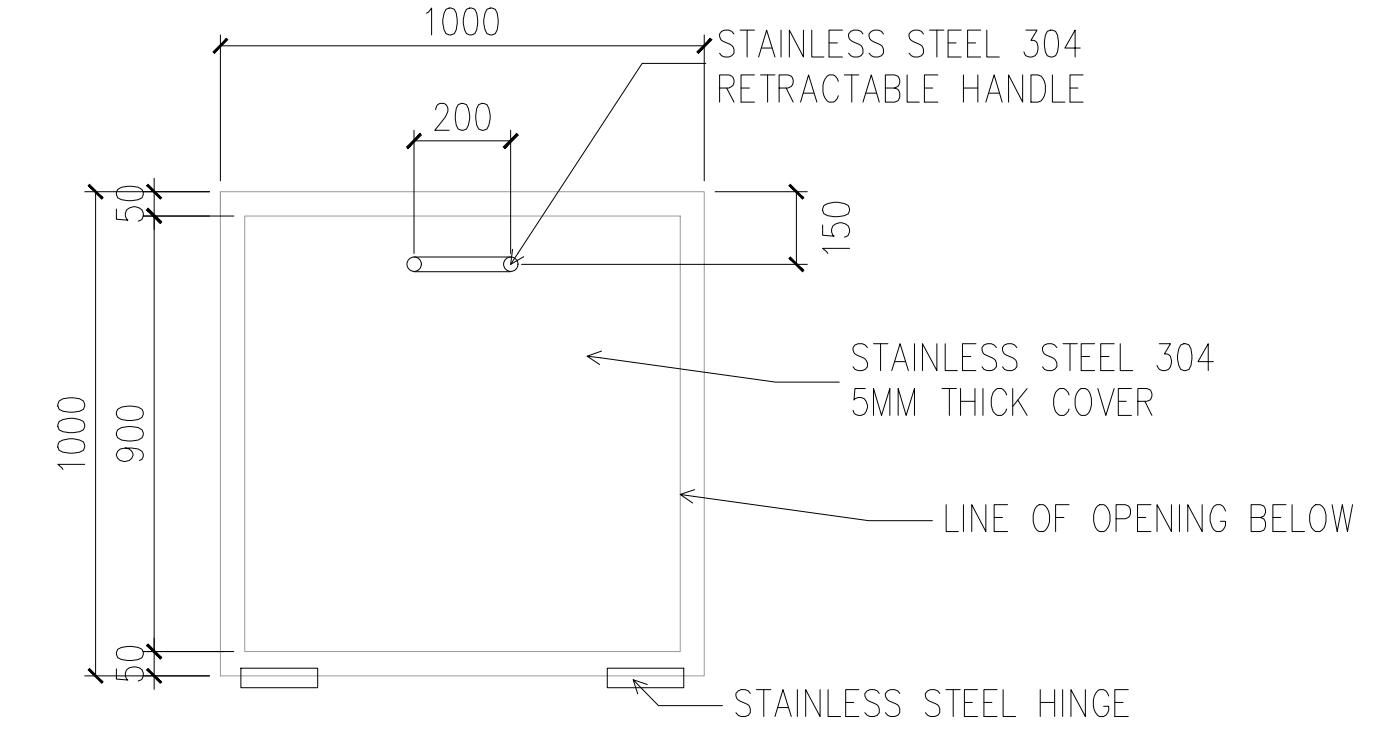
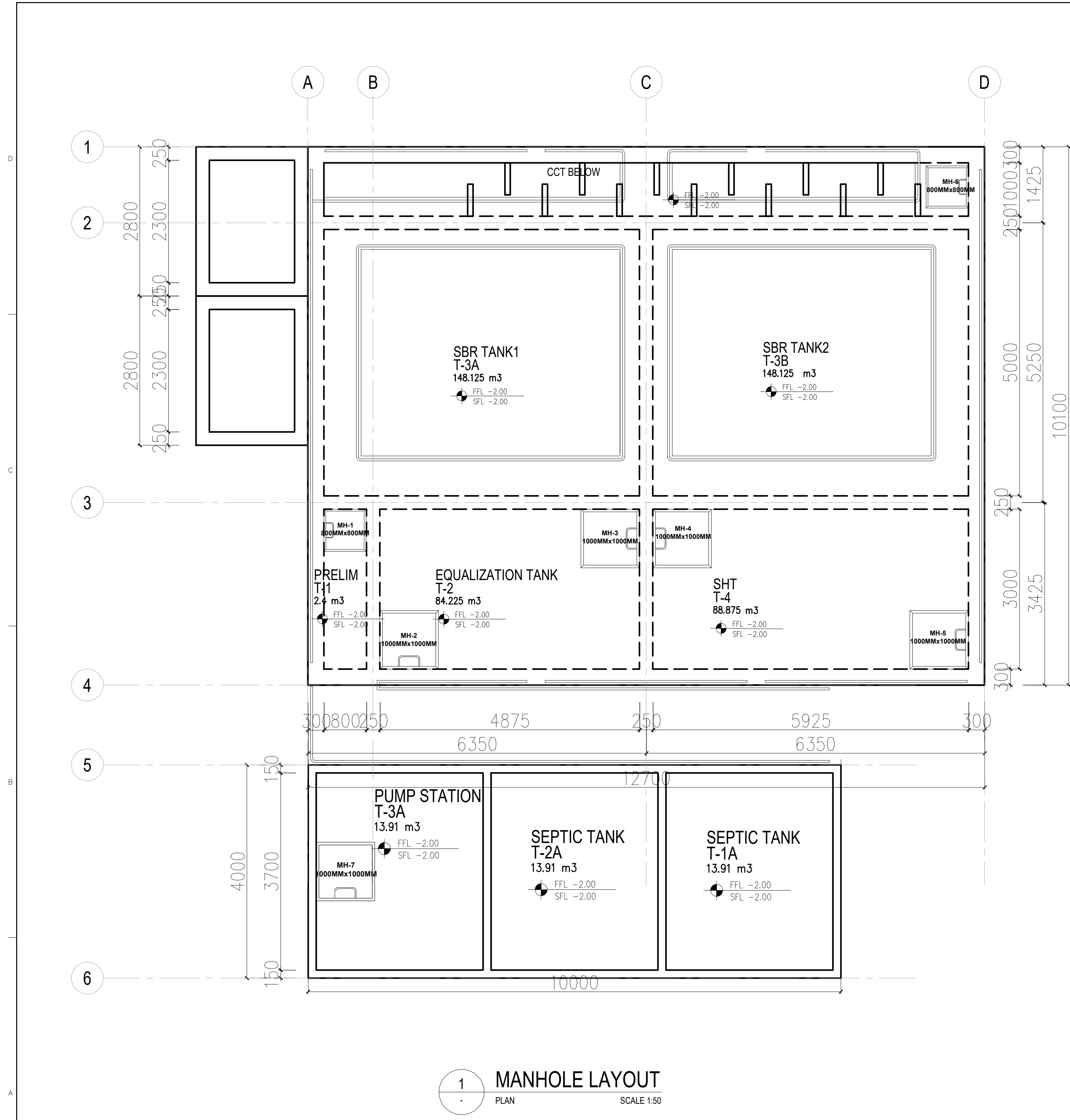
1 BLOCKOUT LAYOUT
PLAN SCALE 1:50



2 BLOCKOUT DETAILS
PLAN SCALE 1:75

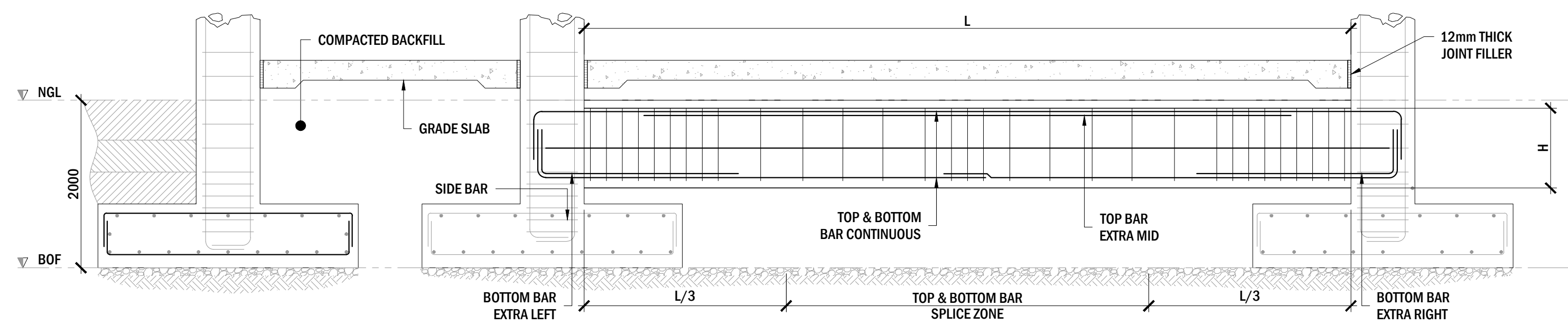
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|  <p>UNIT 307, ECG BUILDING, GENERAL AVENUE TANDANG SORA, QUEZON CITY 1116 MM</p> <p>SERVICES OFFERED: PLANT DESIGN PLUMBING WORKS STRUCTURAL DESIGN ENGINEERING DESIGN AND REVIEW EQUIPMENT AND MATERIAL SELECTION ELECTRICAL DESIGN & CALCULATIONS</p> | DESIGN ENGINEER: | | PROJECT: | | CLIENT: | | REVISIONS: | | CONTRACT NO.: WW-22-JHMC-DC-05 | | STAGE: DETAILED DESIGN | | |
| | ENGINEER'S NAME | | | | JHMC WASTE WATER TREATMENT PLANT | | | | NO. DESCRIPTION DATE | | SHEET CONTENTS: | | SHEET NO. STRUCTURAL 07 10 |
| | PTR NO.: | | PRC NO.: | | ADDRESS: | | 0 ORIGINAL ISSUE | | BLOCKOUT LAYOUT | | BLOCKOUT DETAILS | | |
| | DATE ISSUED: | | DATE EXPIRY: | | MINDORO | | 1 | | SCALE | | DATE | | |
| | PLACE ISSUED: | | PLACE ISSUED: | | CLIENT'S NAME | | | | | | | | |

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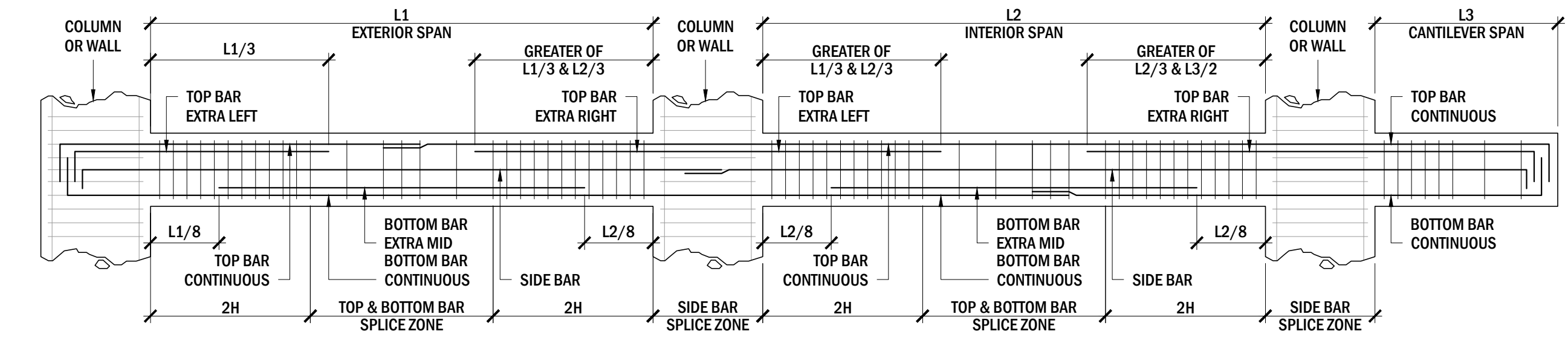


| <p>UNIT 307, ECG BUILDING, GENERAL AVENUE TANDANG SORA, QUEZON CITY 1116 MM</p> <p>SERVICES OFFERED: PLANT DESIGN PLUMBING WORKS STRUCTURAL DESIGN ENGINEERING DESIGN AND REVIEW EQUIPMENT AND MATERIAL SELECTION ELECTRICAL DESIGN & CALCULATIONS</p> | DESIGN ENGINEER: | PROJECT: | CLIENT: | REVISIONS: | CONTRACT NO.: | STAGE: | DETAILED DESIGN | | | | | | | | | | | | | | | |
|--|------------------|----------------------------------|----------|------------|--|--------|--|------|---------------|----------------|---------------|-----|------------------|---------------|-----|--|--|---|-----------|---|------------------|--|
| | ENGINEER'S NAME | JHMC WASTE WATER TREATMENT PLANT | | | <table border="1"> <thead> <tr> <th>NO.</th> <th>DESCRIPTION</th> <th>DATE</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>ORIGINAL ISSUE</td> <td>-</td> </tr> <tr> <td>1.1</td> <td></td> <td>-</td> </tr> <tr> <td>1.2</td> <td></td> <td>-</td> </tr> <tr> <td>1</td> <td></td> <td>-</td> </tr> </tbody> </table> | NO. | DESCRIPTION | DATE | 0 | ORIGINAL ISSUE | - | 1.1 | | - | 1.2 | | - | 1 | | - | WW-22-JHMC-DC-05 | |
| NO. | DESCRIPTION | DATE | | | | | | | | | | | | | | | | | | | | |
| 0 | ORIGINAL ISSUE | - | | | | | | | | | | | | | | | | | | | | |
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| PTR NO.: | - | PRC NO.: | - | | | | | | | | | | | | | | | | | | | |
| DATE ISSUED: | - | DATE EXPIRY: | - | | | | | | | | | | | | | | | | | | | |
| PLACE ISSUED: | - | PLACE ISSUED: | - | | | | | | | | | | | | | | | | | | | |
| | | | | | SCALE | DATE | <table border="1"> <tr> <td>08</td> <td>10</td> </tr> </table> | 08 | 10 | | | | | | | | | | | | | |
| 08 | 10 | | | | | | | | | | | | | | | | | | | | | |

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1 FOOTING DETAILS
SCALE NTS

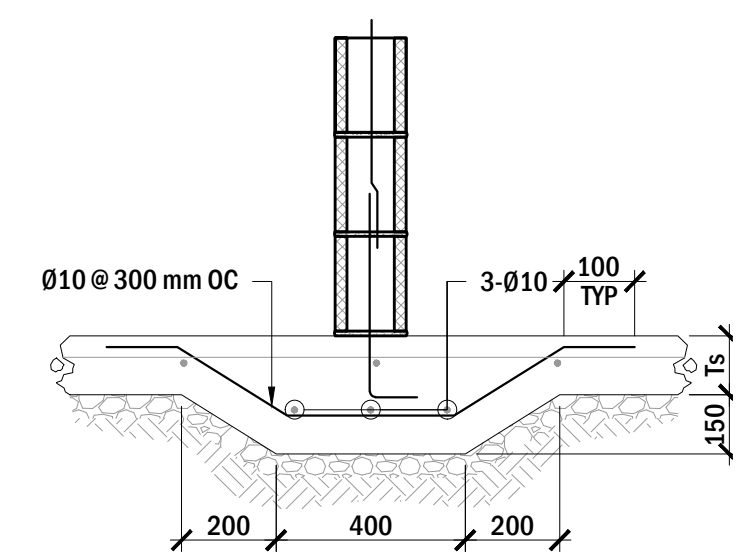


2 FOOTING BAR DETAILS
SCALE NTS

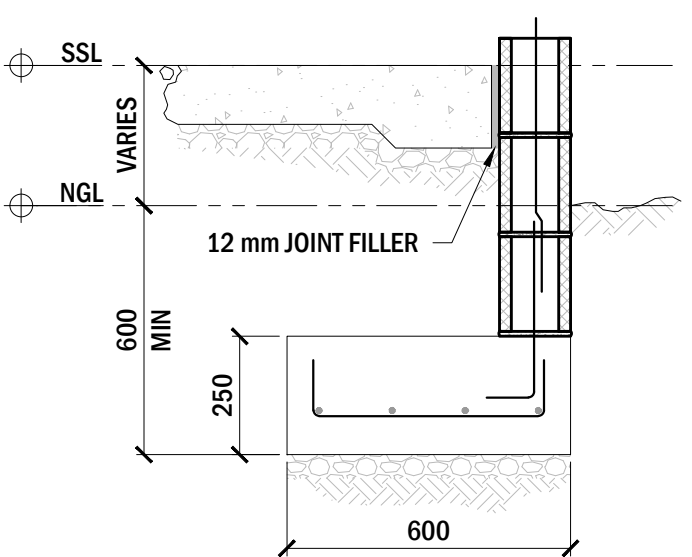
| MARK | DIMENSIONS | | | | BARS PARALLEL TO WIDTH | | | BARS PARALLEL TO LENGTH | | |
|------|------------|--------|-----------|----------|------------------------|-------------|-------|-------------------------|-------------|-------|
| | WIDTH | LENGTH | THICKNESS | DEPTH | TOP BARS | BOTTOM BARS | | TOP BARS | BOTTOM BARS | |
| | | | | | | MAIN | EXTRA | | MAIN | EXTRA |
| F1 | 800 | 800 | 300 | NGL-2.0m | - | 3-Ø16 | - | - | 3-Ø16 | - |

| MARK | DIMENSIONS | | LONGITUDINAL BARS | | | | WEB BARS | | STIRRUPS | | | REMARKS | | |
|------|------------|-------|-------------------|-------|----------|-----------|----------|---------|----------|------|--------|---------|--------|-----|
| | WIDTH | DEPTH | TOP | | BOTTOM | | Ø | NO. | Ø | LEGS | END(S) | | REST | |
| | mm | mm | mm | CONT. | EX. LEFT | EX. RIGHT | CONT. | EX. MID | mm | E.F. | mm | | mm | |
| B1 | 200 | 400 | 16 | 3 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | [2] | 100 OC | 200 |
| B2 | 250 | 400 | 16 | 3 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | [2] | 100 OC | 200 |
| B3 | 250 | 400 | 16 | 3 | 0 | 0 | 3 | 0 | 12 | 2 | 10 | [2] | 100 OC | 200 |

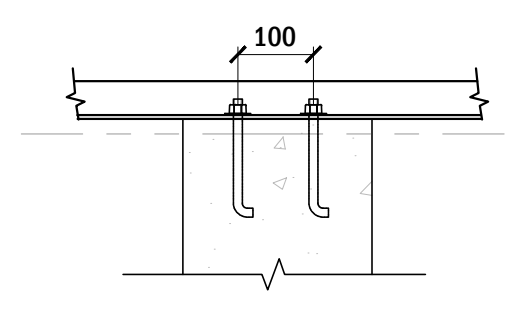
3 TABLE OF REINFORCEMENT
SCALE NTS



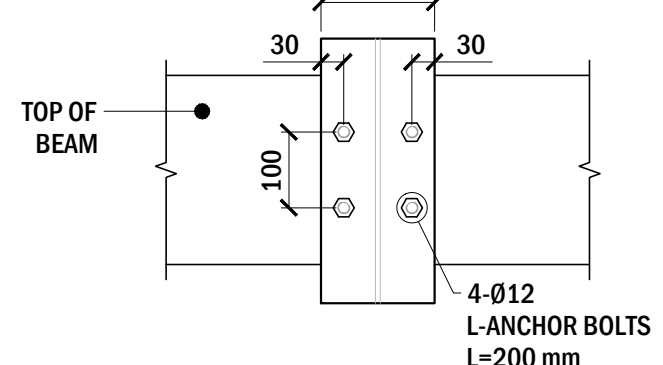
4 WALL FOOTING DET.
SCALE NTS



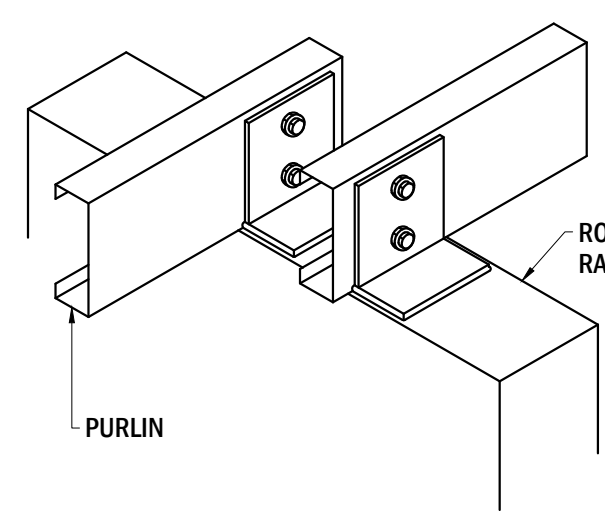
5 WALL FOOTING DET.
SCALE NTS



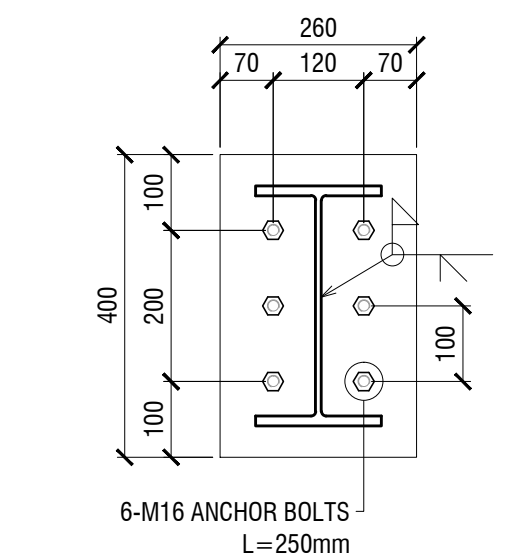
6 RAFTER TO CONC. BEAM
SCALE NTS



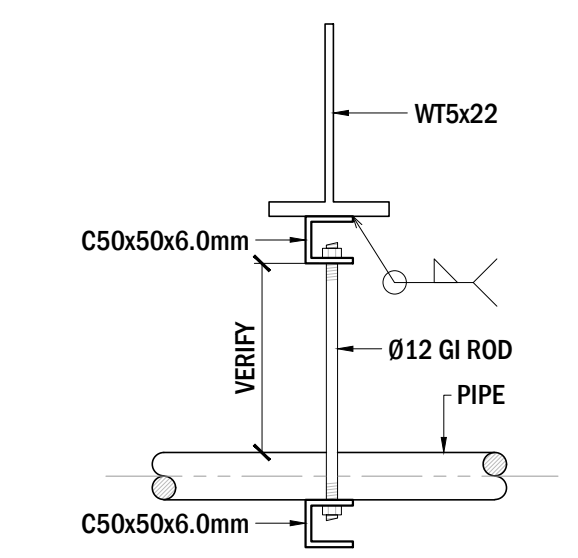
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SCALE NTS



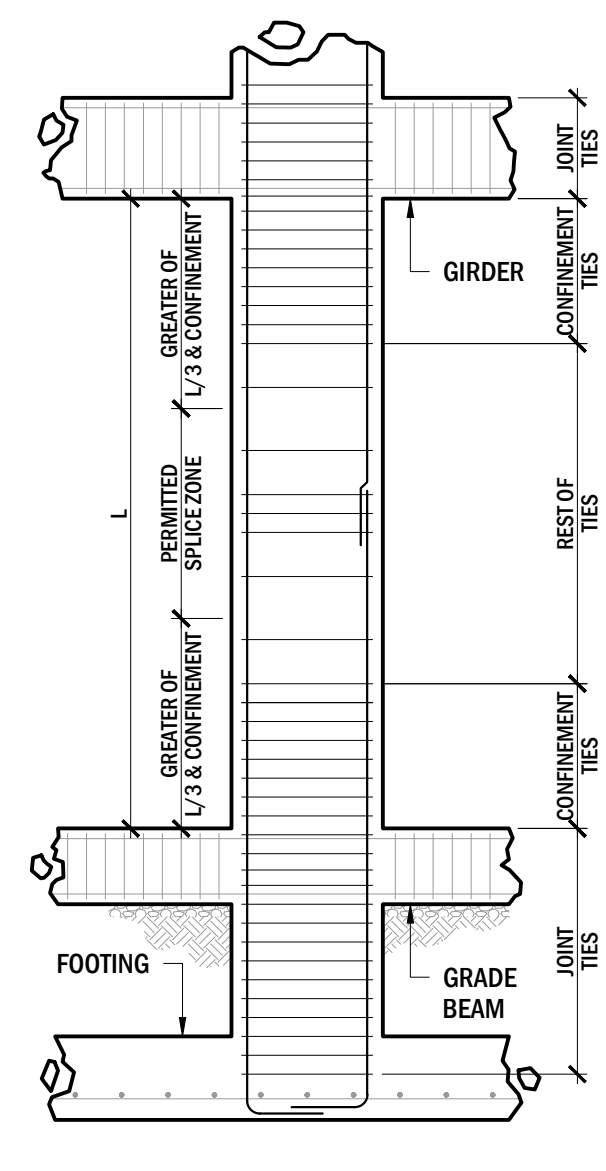
11 RAFTER TO CONC. BEAM
SCALE NTS



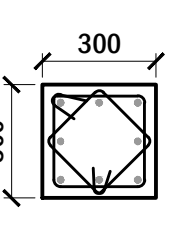
15 BASE PLATE DETAIL
SCALE NTS



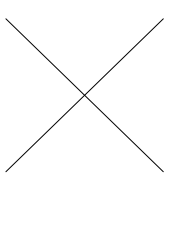
16 PIPE HANGER
SCALE NTS



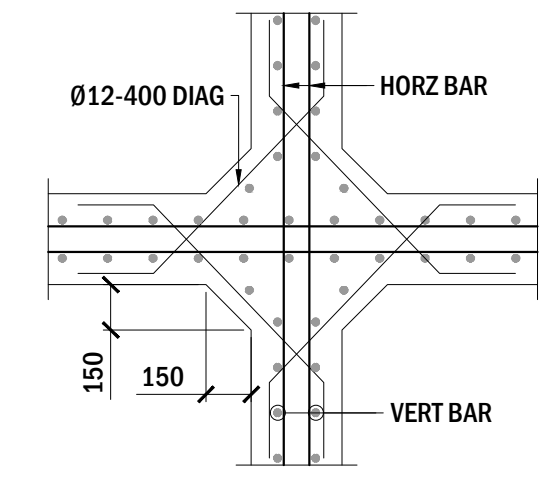
9 COLUMN DETAILS
SCALE NTS



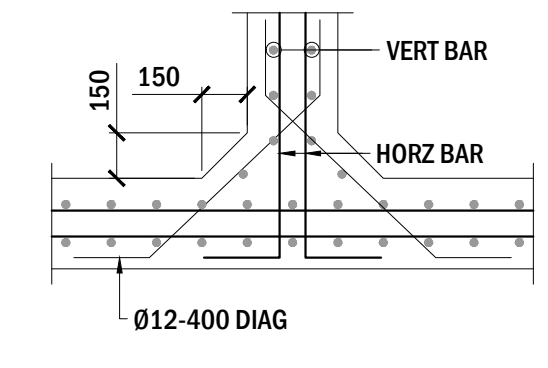
C1
DIMENSIONS: 300x300
VERTICAL BARS: 8-Ø16
CONFINEMENT TIES: Ø10 @ 100 mm
JOINT TIES: Ø10 @ 100 mm
REST OF TIES: Ø10 @ 150 mm



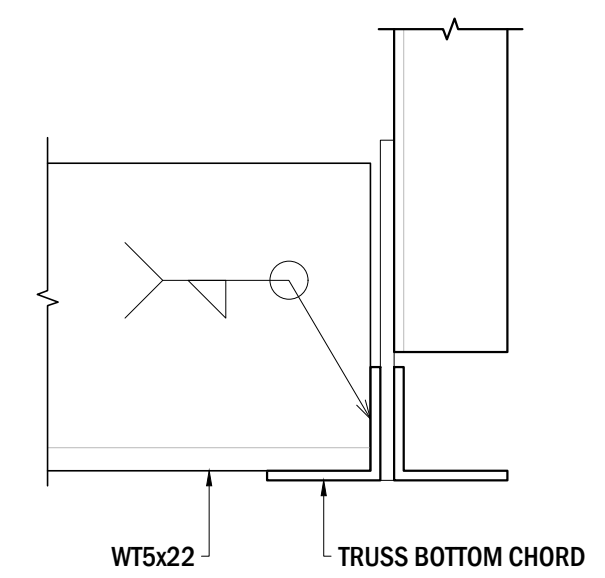
C2
DIMENSIONS: N/A
VERTICAL BARS: N/A
CONFINEMENT TIES: N/A
JOINT TIES: N/A
REST OF TIES: N/A



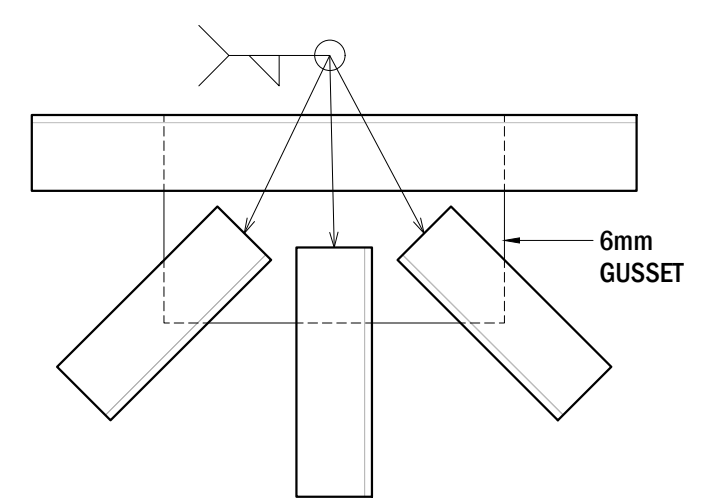
12 WALL INTERSECTION PLAN
SCALE NTS



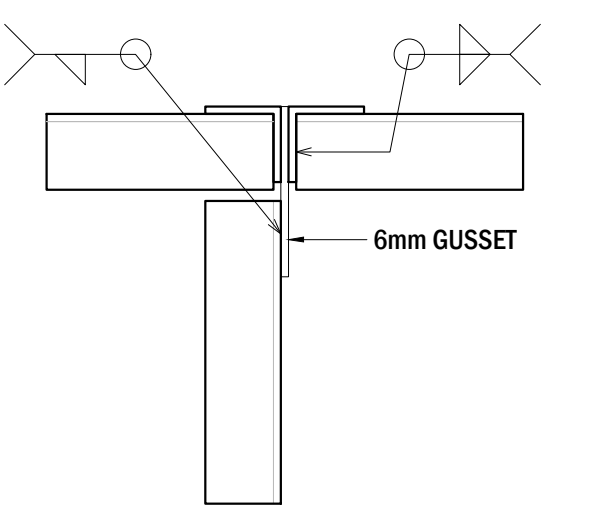
13 WALL INTERSECTION PLAN
SCALE NTS



14 HANGER TRUSS
SCALE NTS



14 TRUSS CONNECTION
SCALE NTS



15 TRUSS CONNECTION
SCALE NTS

UNIT 307, ECG BUILDING, GENERAL AVENUE
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DESIGN ENGINEER: _____
ENGINEER'S NAME: _____

| | | | |
|---------------|---|---------------|---|
| PTR NO.: | - | PRC NO.: | - |
| DATE ISSUED: | - | DATE EXPIRY: | - |
| PLACE ISSUED: | - | PLACE ISSUED: | - |

PROJECT: JHMC WASTE WATER TREATMENT PLANT
ADDRESS: MINDORO

CLIENT: _____
CLIENT'S NAME

| NO. | DESCRIPTION | DATE |
|-----|----------------|------|
| 0 | ORIGINAL ISSUE | - |
| 1.1 | - | - |
| 1.2 | - | - |
| 1 | - | - |

CONTRACT NO.: WW-22-JHMC-DC-05 STAGE: DETAILED DESIGN

SHEET CONTENTS:
STRUCTURAL SCHEDULES

SCALE: _____ DATE: _____

SHEET NO. 09 10

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