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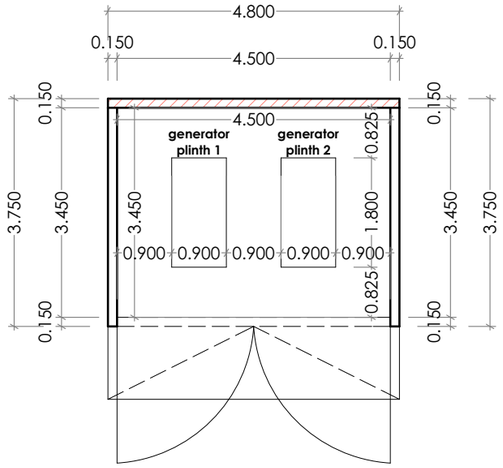
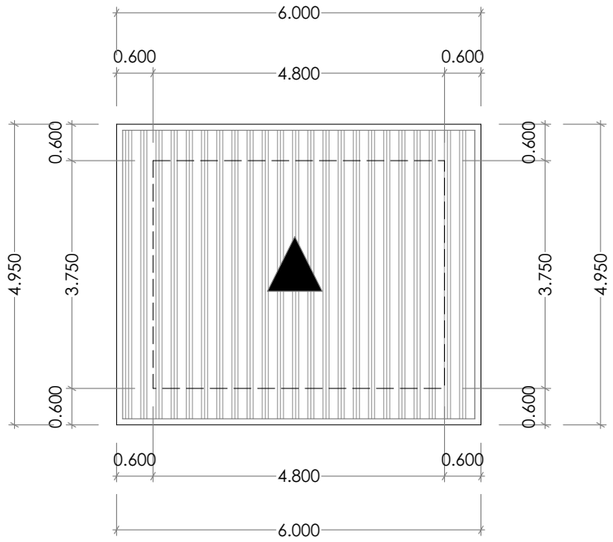


FLOOR PLAN



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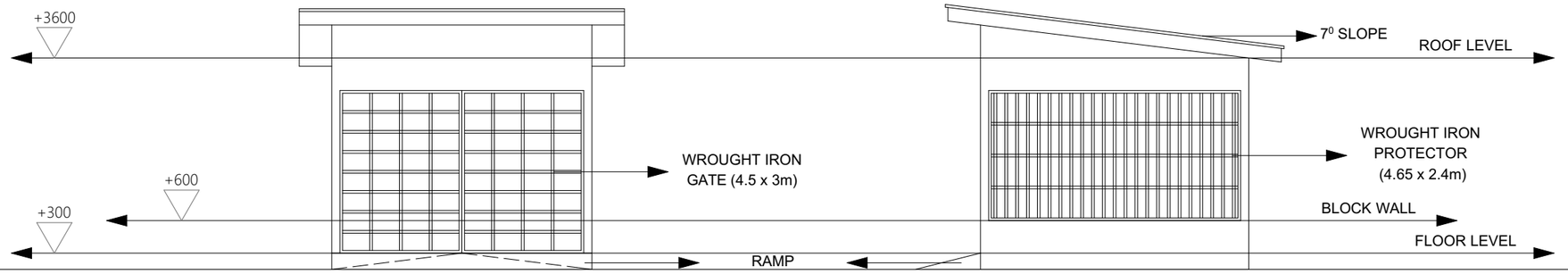
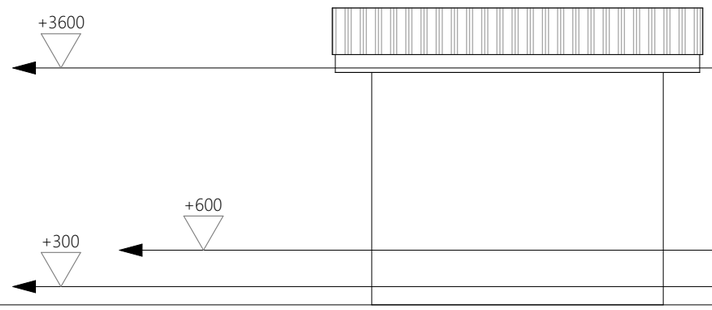
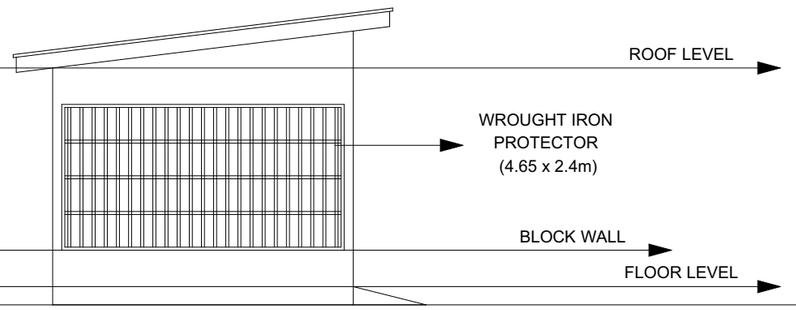


APPROACH ELEVATION

RIGHT ELEVATION



REAR ELEVATION



LEFT ELEVATION

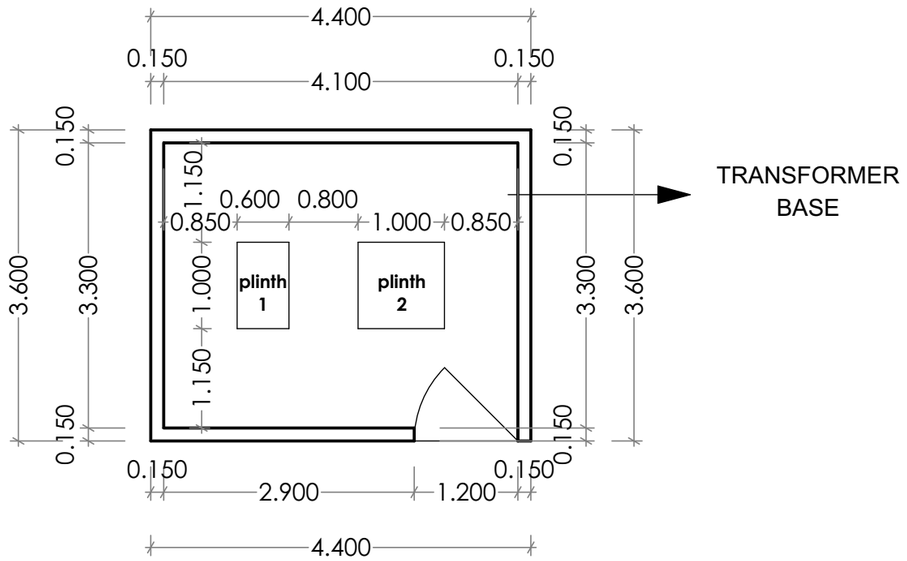
GENERATOR HOUSE DESIGN DETAILS

CLIENT:
UNIVERSITY OF PORT HARCOURT
CHOBA, PORT HARCOURT
RIVERS STATE

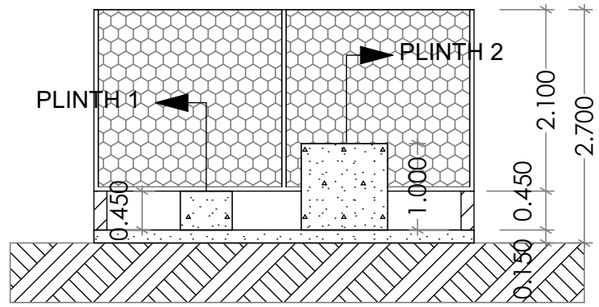
TITLE:
GENERATOR HOUSE
DESIGN DETAILS

PROJECT:
PROPOSED HEALTH AND TOXICOLOGY CENTRE
FOR
UNIVERSITY OF PORT HARCOURT
CHOBA, PORT HARCOURT
RIVERS STATE

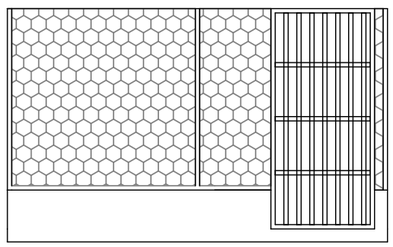
SCALE	N.T.S	DATE	JOB No.
DESIGNED	ARC. F.E.I.D	APR. 2023	
CAD TECH	ARC. F.E.I.D	APR. 2023	
CHECKED		APR. 2023	
APPROVED		APR. 2023	
DRAWING SIZE	SHEET No.	DRG. No.	
A3		REV.	



FLOOR PLAN



SECTION



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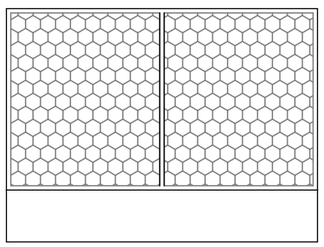
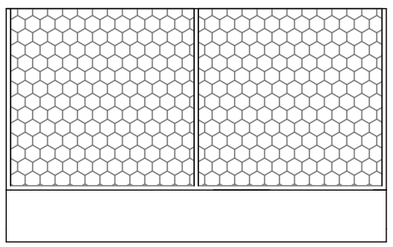


TYPICAL SIDE ELEVATION



REAR ELEVATION

TRANSFORMER DESIGN DETAILS

NOTES:

CLIENT:
UNIVERSITY OF PORT HARCOURT
CHOBA, PORT HARCOURT
RIVERS STATE

TITLE:
TRANSFORMER
DESIGN DETAILS

PROJECT:
PROPOSED HEALTH AND TOXICOLOGY CENTRE
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CHOBA, PORT HARCOURT
RIVERS STATE

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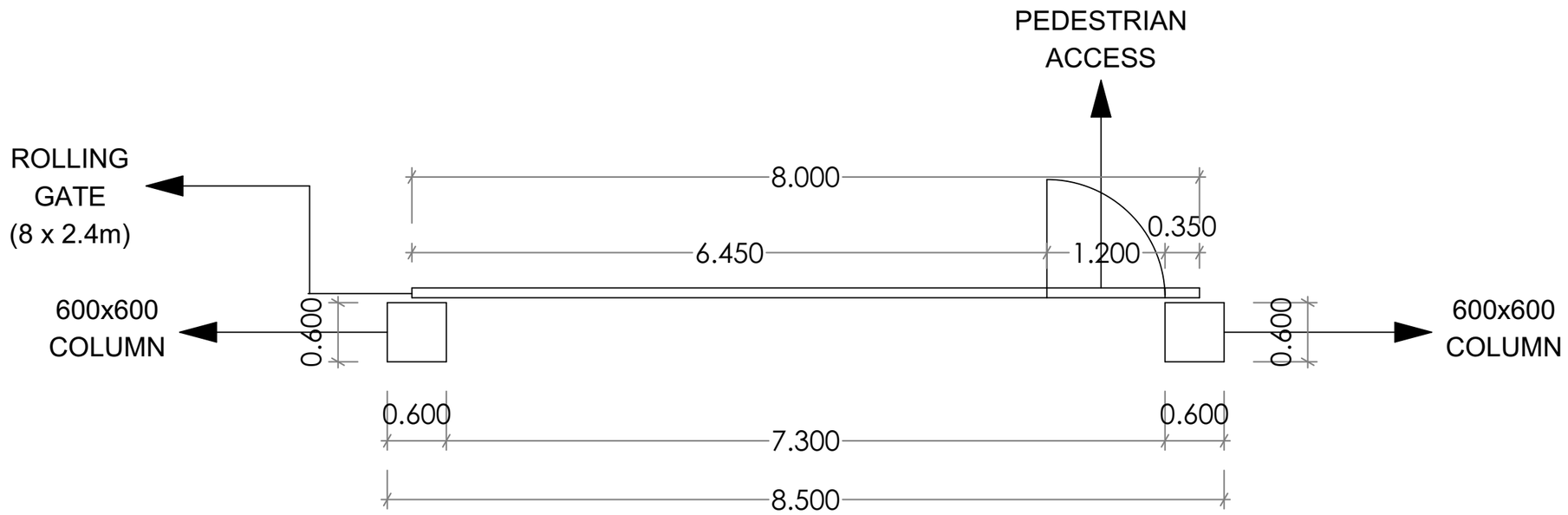
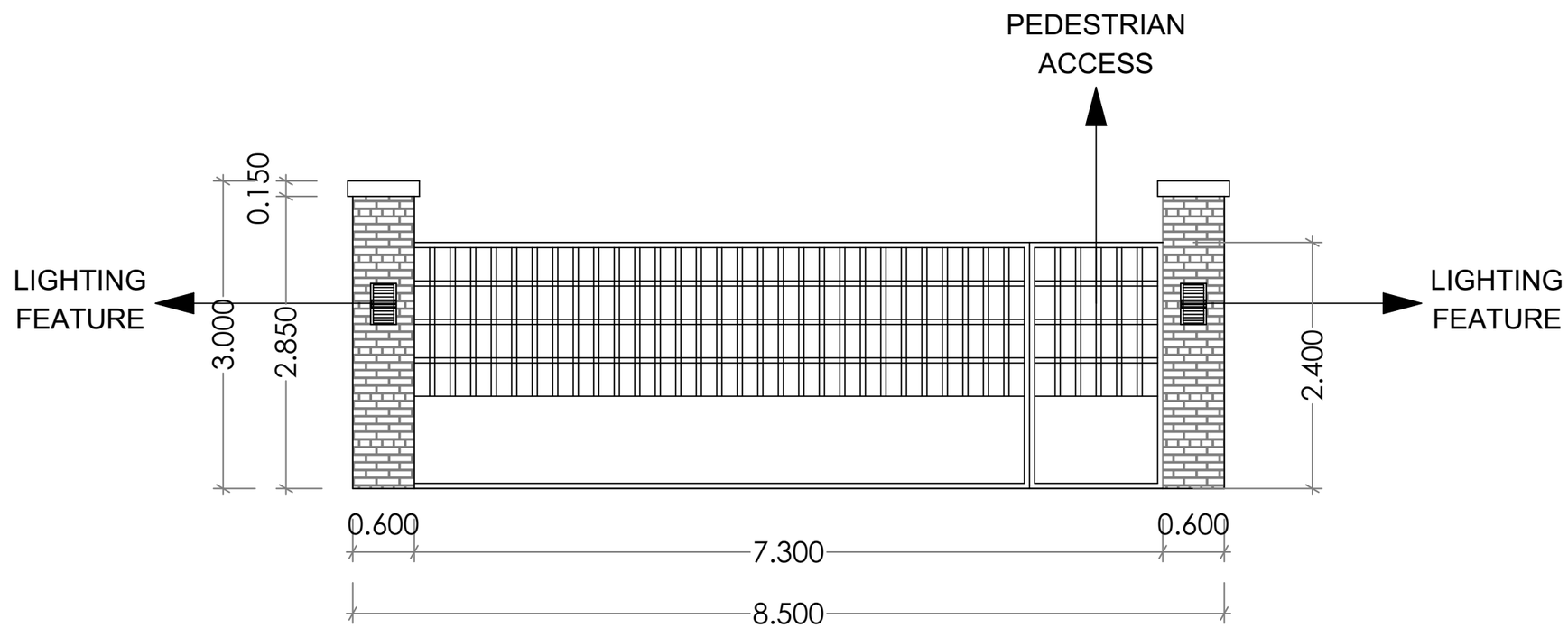
APPROVED		APR. 2023	
DRAWING SIZE	SHEET No.	DRG. No.	
A3		REV.	



FLOOR PLAN



ELEVATION

ROLLING GATE
DESIGN DETAILS

NOTES:

CLIENT:
UNIVERSITY OF PORT HARCOURT
CHOBA, PORT HARCOURT
RIVERS STATE

TITLE:
ROLLING GATE
DESIGN DETAILS

PROJECT:
PROPOSED HEALTH AND TOXICOLOGY CENTRE
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RIVERS STATE

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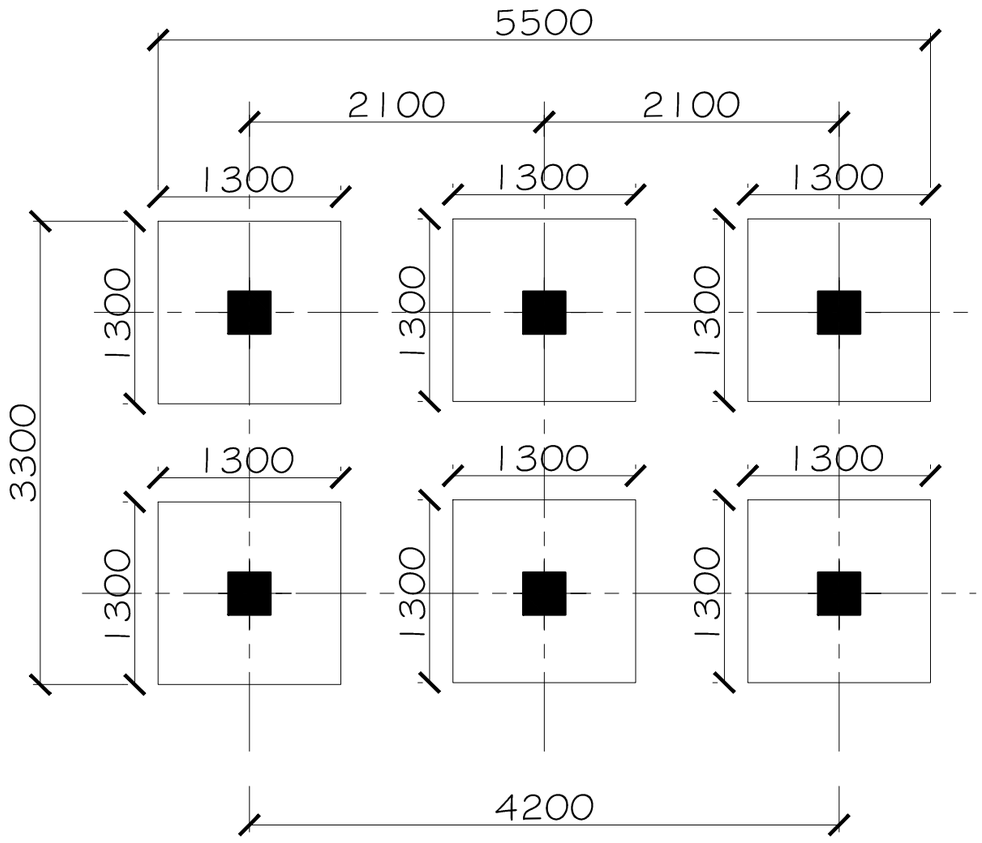
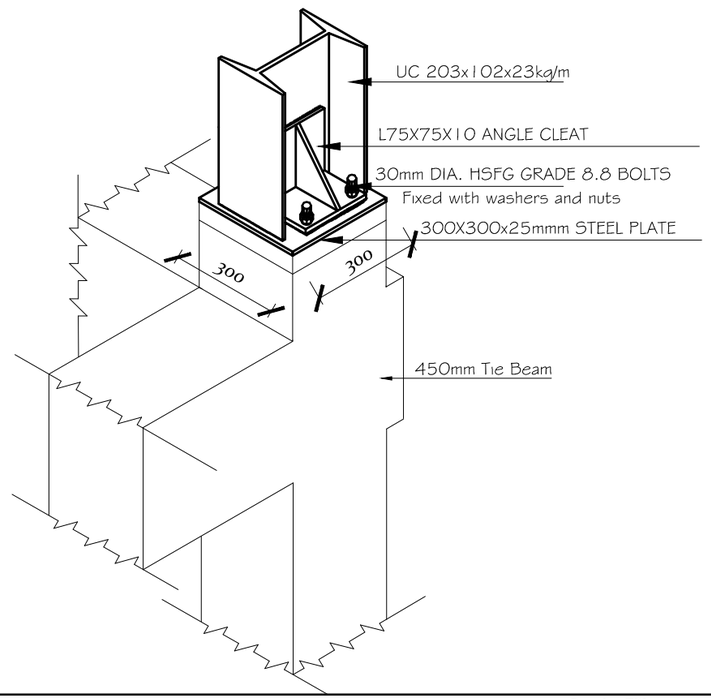
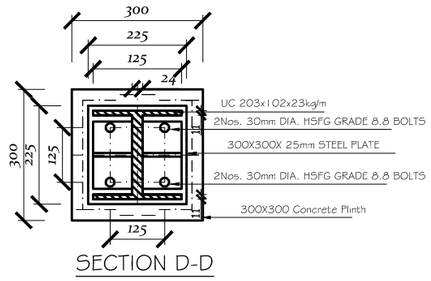
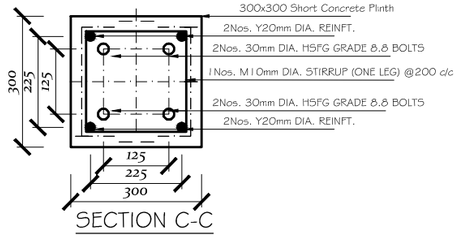
APPROVED		APR. 2023	
DRAWING SIZE	SHEET No.	DRG. No.	
A3		REV.	



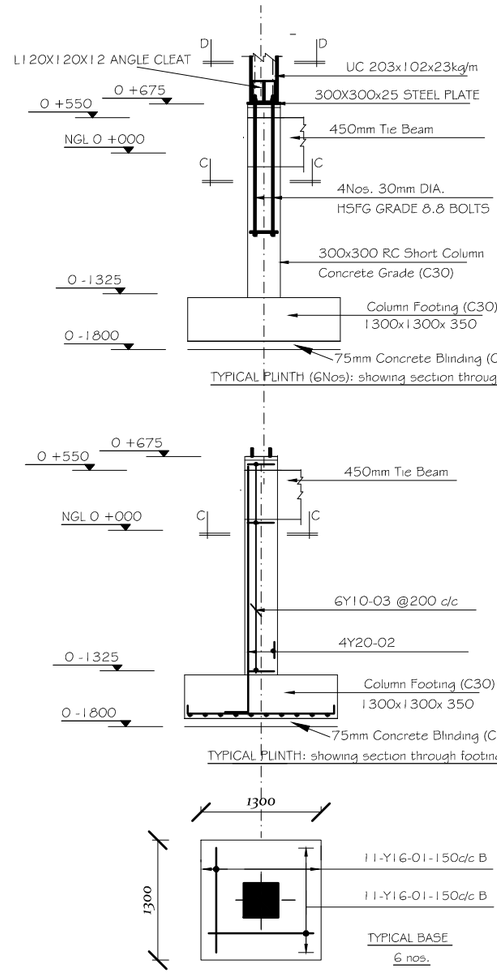




SECTION D-D

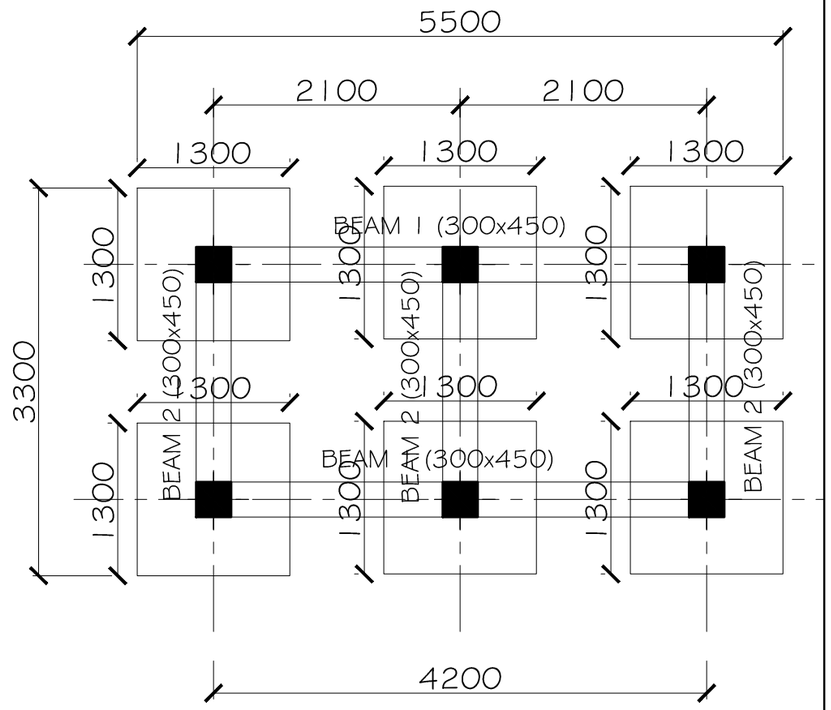


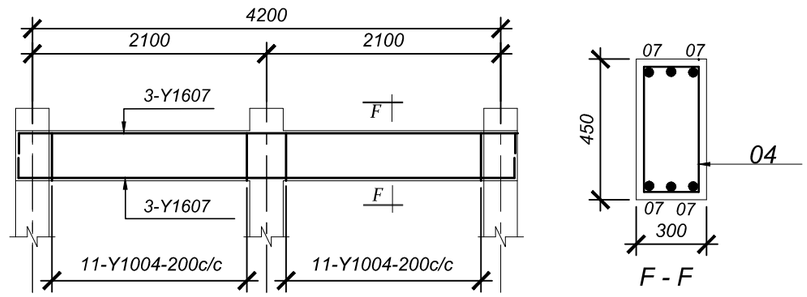
SECTION C-C



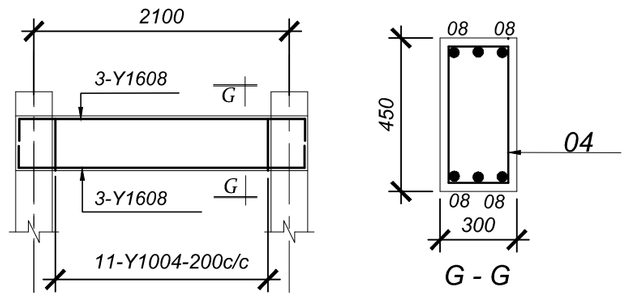
TYPICAL PLINTH (6Nos): showing section through footing

TYPICAL PLINTH: showing section through footing





BEAM 1 (300 X 450) 2 No. (GRADE C30)



BEAM 2 (300 X 450) 3 No. (GRADE C30)

Project:	*PROPOSED OVERHEAD WATER TANK FOR CENTER FOR PUBLIC HEALTH AND TOXICOLOGICAL RESEARCH CENTER, UNIVERSITY OF PORT HARCOURT, CHOBA , PORT HARCOURT FOR ENGR. NICHOLAS ABULE*
Drawing Title:	*WATER TANK FOUNDATION LAYOUT & SECTION DETAILS*

TAMMAR CONSORTIUM
No 58 El- Olam Street Off Udara Junction, Ebelu Ozodo, Ogbogoro, Port Harcurt, Rivers State.
E-Mail: princetg@yahoo.com, Phone: 08137146916, 08158430434

DESIGNED :	TAMUNODIEPRIYE P.G.
DRAWN :	TAMUNODIEPRIYE P.G.
CHECKED/APP.	ENGR. KENNETH E. U.
DATE:	AUG. 2023
DWG NO:	
DISCLAIMER :	*TAMMAR CONSORTIUM DOES NOT ACCEPT RESPONSIBILITY FOR ANY COMPONENT, ELEMENT OR CONSTRUCTION METHOD WHICH MAYBE INFERRED BUT NOT HEREIN STATED.*
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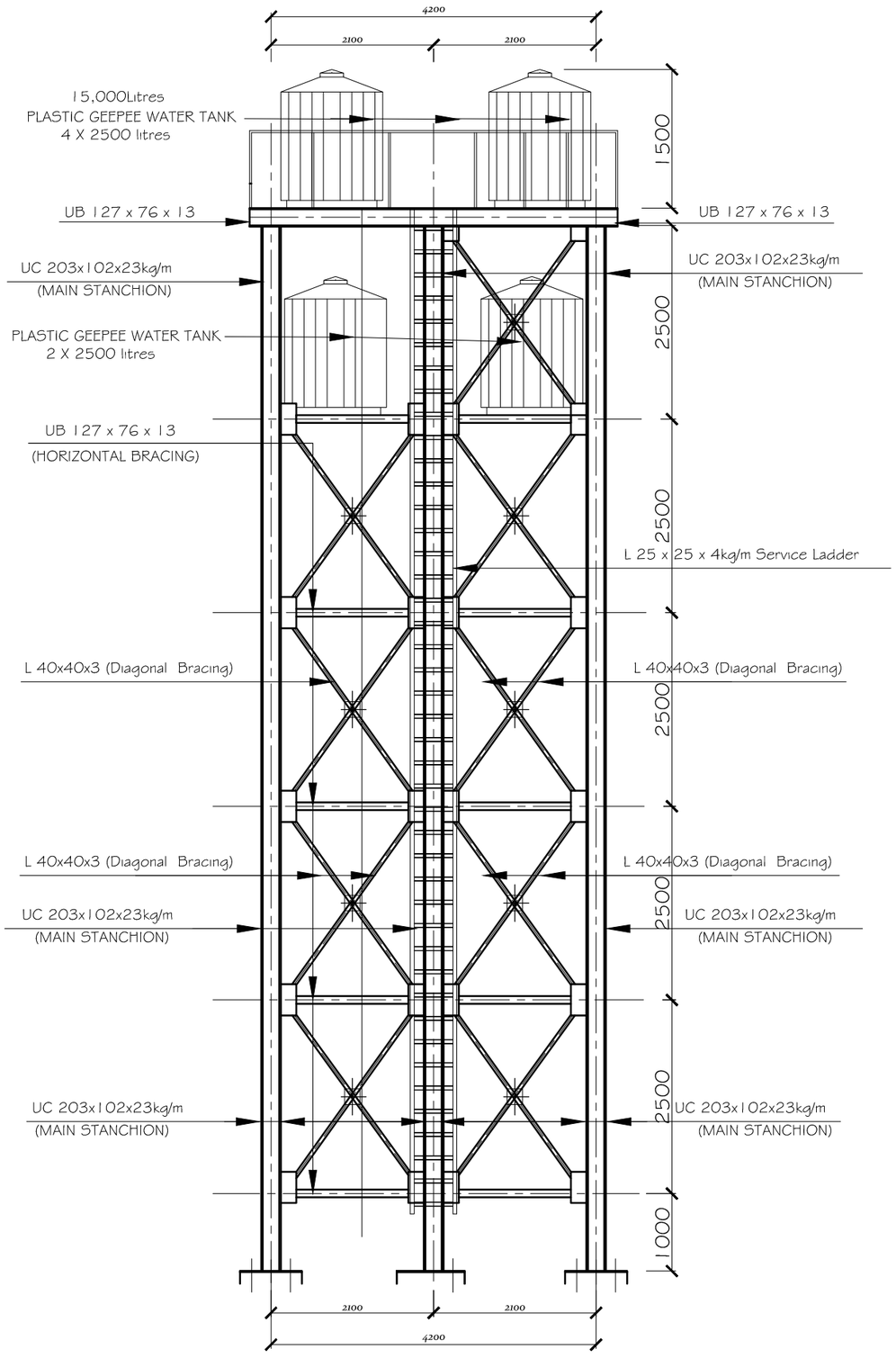
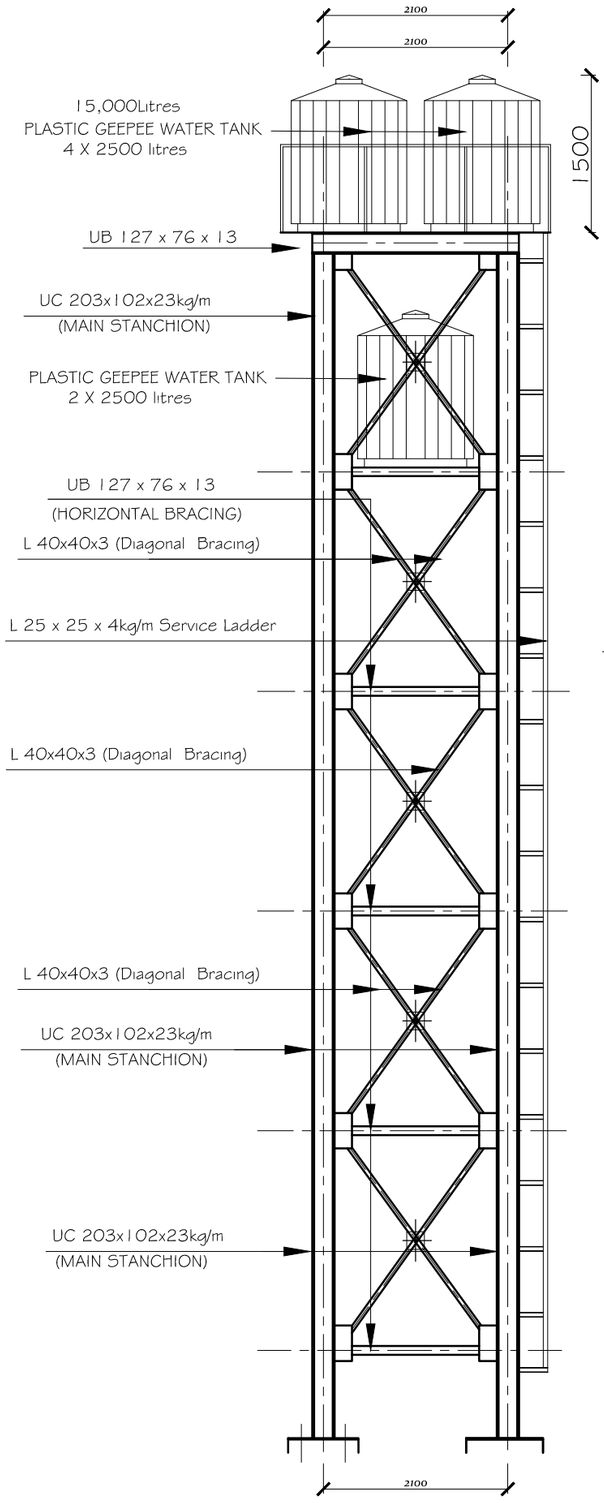
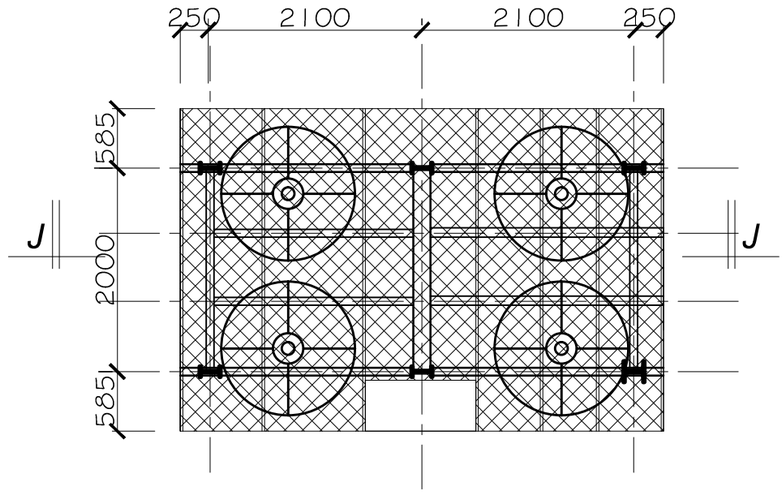
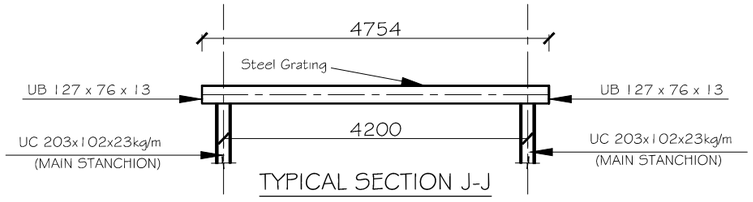
Sheet No:	SD/01







WATER TANK PLAN (from above)
WITH PLATIC GP WATER TANK



TYPICAL SECTION J-J

Project:	*PROPOSED OVERHEAD WATER TANK FOR CENTER FOR PUBLIC HEALTH AND TOXICOLOGICAL RESEARCH CENTER, UNIVERSITY OF PORT HARCOURT, CHOBA , PORT HARCOURT FOR ENGR. NICHOLAS ABULE*
Drawing Title:	*WATER TANK STAND ELEVATION & SECTION DETAILS*

TAMMAR CONSORTIUM
No 58 El- Olam Street Off Udara Junction, Ebelu Ozodo, Ogbogoro, Port Harcurt, Rivers State.
E-Mail: princetg@yahoo.com, Phone: 08137146916, 08158430434

DESIGNED :	TAMUNODIEPRIYE P.G.
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Sheet No: **SD/02**

structural drawings

SC
STARKSTRUC CONSULTS
195 NTA RD., MGBUOBA,
PORT HARCOURT.

(I) GENERAL

1. DESIGN, DETAILING AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE BRITISH STANDARDS.
2. ALL STRUCTURAL DRAWINGS SHALL BE READ IN CONJUNCTION WITH CONTRACT SPECIFICATIONS.
3. ALL DIMENSIONS SHALL BE VERIFIED BY THE CONTRACTOR BEFORE CONSTRUCTION.
4. DO NOT SCALE FROM DRAWINGS, USE WRITTEN DIMENSIONS ONLY.
5. ALL OPENINGS SHALL BE FORMED OR SLEEVED BEFORE PLACING CONCRETE. SEE ARCHITECTURAL, LANDSCAPING, CIVIL, MECHANICAL, ELECTRICAL AND TELECOMMUNICATION DRAWINGS FOR OPENINGS AND SLEEVES IN CONCRETE SLABS AND WALLS NOT SHOWN ON STRUCTURAL DRAWINGS AND FOR SIZES AND LOCATIONS OF OPENINGS NOT DIMENSIONED.
6. NO OPENINGS OR SLEEVES SHALL BE PLACED IN BEAMS EXCEPT WHEN INDICATED ON THE STRUCTURAL DRAWINGS.
7. PROVIDE ALL NECESSARY INSERTS, CLIPS, ANCHORS, TIES, REGLETS AND OTHER FASTENING DEVICES (AS REQUIRED) CAST INTO CONCRETE.
8. PROVIDE 15MM CHAMFER AT CORNERS OF ALL CONCRETE COLUMNS EXPOSED IN THE COMPLETED WORK, UNLESS OTHERWISE INDICATED OR NOTED ON THE ARCHITECTURAL DRAWINGS.
9. ALL DIMENSIONS ARE IN MILLIMETERS
10. FINISHES TO ALL EXPOSED FORMED SURFACES ARE CONSIDERED TO BE OF GREAT IMPORTANCE. THE CONTRACTOR SHALL DEMONSTRATE WORKMANSHIP BEFORE COMMENCEMENT OF WORK BY MEANS OF TESTS TO THE SATISFACTION OF THE OWNER OR THE CONSULTANT THAT EACH TYPE OF SPECIFIED FINISHES CAN BE CONSISTENTLY ACHIEVED
11. CONTRACTOR SHALL PREPARE SHOP DRAWINGS, BASED ON STRUCTURAL SYSTEM AND DETAILS SHOWN ON THE DRAWINGS, AND SUBMIT ALONG WITH ANY ADDITIONAL DESIGN CALCULATIONS TO THE ENGINEER FOR APPROVAL
12. PROVIDING STEEL DOWELS BY USING EPOXY IS FORBIDDEN UNLESS WRITTEN APPROVAL FROM THE ENGINEER.
13. DO NOT BACKFILL AGAINST CONCRETE WALLS UNTIL SUPPORTING SLABS AND OTHER SUPPORTING ELEMENTS, INCLUDING SLABS–ON–GRADE, ARE IN PLACE AND FULLY ANCHORED AND HAVE REACHED FULL DESIGN STRENGTH.
14. BACK FILLING IS TO BE IN SELECTED GRANULAR FILL IN MAXIMUM LAYERS OF 200MM THICK. EACH LAYER TO BE INUNDATED WITH WATER AND COMPACTED TO 98% MINIMUM COMPACTION RATIO

(II) SOIL

1. SOIL BEARING CAPACITY = 130KN/m2

(III) PILES – NOT REQUIRED

1. WORKING PLATFORM LEVEL = TBD.
2. ALL LEVELS ARE RELATED TO DM DATUM.
3. THE SYSTEM OF PILLING SHOULD BE CAST IN–SITU METHOD USING BENTONITE OR APPROVED ALTERNATIVE.
4. CLEAR COVER TO MAIN REINFORCING SHALL BE 75mm.
5. CONCRETE OF PILES SHOULD HAVE A MINIMUM CHARACTERISTIC STRENGTH OF 30 N/mm² & R.F.T. (Fy =460 N/mm²) AND CEMENT CONTENT SHOULD NOT BE LESS THAN 350Kg/m³.
6. SULPHATE RESISTANT CEMENT SHOULD BE USED FOR THE CONCRETE OF ALL SUBSTRUCTURE MEMBERS.
7. PILES SHOULD PENETRATE DENSE LAYER.
8. THE CUT–OFF LEVEL IS 75mm ABOVE THE UNDERSIDE OF THE PILE CAP.
9. THE LAP LENTH OF THE VERTICAL AND SPIRAL REINFORCEMENT IN PILES SHALL BE AT LEAST 50 DIA.
10. PILES SHALL BE CAST TO A LEVEL 200mm HIGHER THAN THE CUT–OFF LEVEL AND SHALL THEN BE TRIMMED BACK TO THE CUT–OFF LEVEL.
11. THE MAXIMUM PERMISSIBLE DEVIATION OF PILES IN ANY DIRECTION IN PLAN SHALL BE LESS THAN 75mm REGARDLESS OF THE DIAMETER OF THE PILE.
12. ALL PILE CO–ORDINATES ARE TO BE CHECKED BY AN INDEPENDENT SURVEYOR AND RESULTS ARE TO BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO DRILLING.

(IV) FOUNDATION & EARTHWORKS

1. NO BACKFILLING BEHIND RETAINING WALLS SHALL BE DONE BEFORE THE SURFACE BED AND SLAB HAVE BEEN CAST, OR AFTER WALLS HAVE BEEN SUSTAINED, OR AS DIRECTED BY ENGINEER.WHERE APPLICABLE, BACKFILLING SHALL BE DONE SIMULTANEOUSLY ON BOTH SIDES OF WALLS TO MINIMIZE THE RELATIVE HEIGHT DIFFERENCE IN SOIL LEVELS.
2. WHERE A STRUCTURAL REINFORCED CONCRETE SLAB TIES INTO A RETAINING WALL, BACKFILLING BEHIND THE WALL SHALL ONLY COMMENCE AFTER THE ABOVE MENTIONED ELEMENTS HAVE REACHED 14 DAYS STRENGTH.
3. BACKFILLING ON COLUMN BASES SHALL BE DONE WITH APPROVED MATERIAL IN ACCORDANCE WITH THE PROJECT SPECIFICATION AND DRAWING NOTES.
4. ALL FOOTINGS ARE PLACED SYMMETRICALLY BELOW COLUMNS AND BRICKWORK UNLESS OTHERWISE SHOWN.

(V) MORTAR JOINTS

1. LAY EXPOSED MASONRY UNITS WITH FLUSH JOINTS,MINIMUM OF 10mm WIDTH
2. TOOL JOINTS SMOOTH AND FREE OF PINHOLES.
3. MAKE VERTICAL AND HORIZONTAL JOINTS EQUAL AND OF UNIFORM THICKNESS.
4. TOOL WITH PRESSURE TO SQUEEZE MORTAR INTO JOINTS WITHOUT BUTTERING FACE OF UNIT.
5. FLUSH CUT JOINTS TO RECEIVE RESILIENT BASE AND WHICH WILL BE IN CONTACT WITH EARTH: TOOL SLIGHTLY TO CONSOLIDATE SURFACE.

(VI) CONCRETE

1. ALL CONCRETE WORKS SHALL BE AS PER LATEST EDITION OF BRITISH STANDARDS AND CONTRACT SPECIFICATIONS
2. MINIMUM 28 DAYS SHALL HAVE CUBE COMPRESSIVE STRENGTH OF THE CONCRETE CLASS AS FOLLOWS
   CONCRETE CLASS SHALL BE AS FOLLOWS:
   BLINDING C20
   COLUMNS.....C30
   FLOOR BEAMS.....C30
   FLOOR SLABS.....C30
   CONCRETE WALLS.....C30
   GROUND BEAMS.....C30
3. ALL AGGREGATES, CEMENT AND STEEL TO CONFORM WITH THE LATEST BRITISH STANDARDS,AGGREGATES TO HAVE MAXIMUM DRY SHRINKAGE OF 0.05%
4. MAXIMUM SIZE OF AGGREGATES SHALL BE 20mm. GENERAL,AND 10mm FOR P.C. UNITS,REINFORCED BLOCK WORK AND STEEL WORK CASING.
5. CONSTRUCTION JOINTS IN FLOORS SHALL BE LOCATED WITHIN THE MIDDLE THIRD OF SPANS OF SLABS, BEAMS, AND GIRDERS. JOINTS IN GIRDERS SHALL BE OFFSET A MINIMUM DISTANCE OF TWO TIMES THE WIDTH OF INTERSECTING BEAMS. LOCATE CONSTRUCTION / CONTRACTION JOINTS IN RETAINING WALLS AT MAXIMUM SPACING OF 15M. DO NOT PLACE VERTICAL CONSTRUCTION JOINTS IN SHEAR WALLS. HORIZONTAL CONSTRUCTION JOINTS IN WALLS SHALL BE LOCATED ONLY AS INDICATED. HORIZONTAL CONSTRUCTION JOINTS IN FOOTINGS, SLABS, JOISTS, BEAMS AND GIRDERS ARE NOT PERMITTED EXCEPT AS SPECIFICALLY INDICATED ON STRUCTURAL DRAWINGS.
6. SURFACE OF CONCRETE CONSTRUCTION JOINTS SHALL BE ROUGHENED, CLEANED AND LAITANCE REMOVED.
7. CONSTRUCTION JOINTS SHALL BE SO MADE AND LOCATED AS NOT TO IMPAIR THE STRENGTH OF THE STRUCTURE.
8. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS SHOWING PROPOSED CONSTRUCTION JOINTS LAYOUT LENGTHS AND LOCATIONS OF SPLICES OF REINFORCEMENT WHEREVER REQUIRED FOR APPROVAL BY THE ENGINEER BEFORE CONSTRUCTION.
9. IN ANY SECTION OF BUILDING GREATER THAN 50M IN LENGTH BETWEEN EXPANSION JOINTS OR EDGE OF BUILDING, PROVIDE CONSTRUCTION JOINTS FOR ALL ELEVATED BEAMS AND SLABS AT A MAXIMUM SPACING OF 50M IN THAT DIRECTION. CURE CONCRETE FOR A MINIMUM OF 96 HOURS BEFORE PLACING CONCRETE IN ADJACENT PANELS AT CONSTRUCTION JOINTS. IN ANY SECTION OF BUILDING EXCEEDING THIS LIMIT IN BOTH DIRECTIONS, PROVIDE CONSTRUCTION JOINTS AT A MAXIMUM SPACING OF 30M IN BOTH DIRECTIONS, AND PLACE CONCRETE IN AN ALTERNATING CHECK BOARD PATTERN WITH EACH INDIVIDUAL PANEL CURED A MINIMUM OF 96 HOURS BEFORE PLACING CONCRETE IN THE ADJACENT PANELS. EDGES OF BUILDING, FOR PURPOSES OF DEFINING CONSTRUCTION JOINT SPACING, SHALL NOT INCLUDE EDGES OF OPENINGS COMPLETELY ENCLOSED WITHIN OVERALL BUILDING SECTION.
10. ADDITIONAL BARS EQUAL TO 1/2 REINFORCING BARS AREA INTERRUPTED BY OPENING SHALL BE PROVIDED AT EACH SIDE OF OPENING, AT EACH FACE OF CONCRETE WALLS, AND AT TOP AND BOTTOM OF SOLID SLABS AND EXTEND EQUAL TO SPLICE LENGTH (600MM MIN.) BEYOND THE OPENING, MINIMUM OF 2 NUMBERS 16MM DIAMETER BARS AT EACH FACE OR AT TOP AND BOTTOM AT EACH SIDE SHALL BE USED UNLESS NOTED OTHERWISE. FOR OPENING LESS THAN 300x300MM OFFSET REINFORCEMENT TO CLEAR OPENING. ADDITIONAL DIAGONAL REINFORCEMENT SHALL BE PROVIDED AT THE CORNERS OF ALL OPENINGS.

(VII) CONCRETE COVER

CONCRETE COVER FOR REINFORCEMENT SHALL BE MEASURED FROM THE CONCRETE SURFACE TO THE OUTERMOST SURFACE OF THE STEEL i.e TO THE OUTER EDGE OF STIRRUPS, TIES OR SPIRALS ENCLOSING MAIN BARS & TO THE OUTERMOST LAYER OF BARS IF MORE THAN ONE LAYER IS USED WITHOUT STIRRUPS OR TIES . THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCEMENT UNLESS OTHERWISE NOTED.

50 YEARS

FOUNDATION.....50mm
GROUND BEAMS.....50mm
COLUMN – EXTERNAL.....35mm
COLUMN – INTERNAL.....35mm
BEAMS.....25mm
SLAB.....25mm
WALL – EXTERNAL.....20mm
WALL – INTERNAL.....20mm

(VIII) REINFORCING STEEL

1. ALL REINFORCEMENT SHALL BE DETAILED, FABRICATED, AND PLACED IN ACCORDANCE WITH BS 8666, BS 4449, BS 4482, BS 4483,BS 6744 AND CONTRACT SPECIFICATIONS.
2. THE CONTRACTOR SHALL INSPECT AND APPROVE THE FIXED REINFORCEMENT BEFORE THE ENGINEER IS NOTIFIED. ALL REINFORCEMENT SHALL BE INSPECTED AND APPROVED IN WRITING BY THE ENGINEER BEFORE CASTING OF CONCRETE MAY COMMENCE.
   MINIMUM TENSILE STRENGTH SHOULD NOT BE LESS THAN Fy=460N/mm²

THE FOLLOWING ABBREVIATIONS MAY BE APPLICABLE.

T = TOP	BT =FOUNDATION BASE
B = BOTTOM	CT =COLUMN
NF = NEAR FACE	UC = UNIVERSAL COLUMN
FF = FAR FACE	UB = UNIVERSAL BEAM
EF = EACH FACE	B =BEAM
	@ =SPACING CENTRE TO CENTRE
	SL =SLAB
	L =LENGTH OF BARS (WHEN APPLICABLE)
	TH =THICKNESS OF THE SLAB ST STIRRUP
	EJ =EXPANSION JOINT
	DJ =DRY JOINT EXCEPT IN FOUNDATIONS
	CJ =CONSTRUCTION JOINT

(IX) BLOCKWALL NOTES

1. HOLLOW CONCRETE BLOCKS FOR LOAD BEARING BLOCKWORK SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 7.0 N/mm²
2. SUB–STRUCTURE IS HOLLOW BLOCKS INFILLED WITH CONCRETE GRADE 20,IF NOT OTHERWISE DEFINED.
3. CONCRETE MASONRY UNITS SHALL BE LOADING BEARING TYPE HAVING A MINIMUM COMPRESSIVE STRENGTH OF 12N/MM²
4. LAY MASONRY PLUMB AND TRUE TO LINE,WITH COURSES LEVEL AND SPACED ACCURATELY.
5. LAY CONCRETE MASONRY UNITS (CMU) IN RUNNING BOND PATTERN.
6. INSTALLATION OF CONCRETE MASONRY SHALL BE COMPATIBLE WITH ALL APPLIED FINISHES SUCH AS PAINT. DO NOT SPONGE WALLLS WITHOUT PROPER CLEANING COMPATIBLE WITH FINISH.
7. SEE ARCHITECT'S DRAWINGS FOR THE EXTENT AND EXACT LOCATION OF MASONRY WALLS.
8. MAINTAIN MASONRY COURSES TO UNIFORM WIDTH.
9. KEEP HEAD JOINTS PLUMB AND STRAIGHT TO LINE.
10. CUT AND FIT UNSIZED CMU WITH MASONRY SAWS.
11. CMU WITH DAMAGED FACES AND CORNERS ARE UNACCEPTABLE.
12. SPREAD MORTAR SMOOTH WITHOUT FURROWING:BEVEL, BED JOINTS AWAY FROM CAVITIES: FILL HEAD AND BED JOINTS COMPLETELY.
13. LAY CORNERS AND REVEALS PLUMB AND TRUE: AVOID POUNDING CORNERS AND JAMBS TO FIT STRETCHER UNITS AFTER SET IN POSITION.
14. ADJUST CMU TO FINAL POSITION WHILE MORTAR IS SOFT AND PLASTIC. REMOVE CHIPPED UNITS: INSTALL REPLACEMENTS WITH FRESH MORTAR.
15. REMOVE CMU THAT ARE DISTURBED AFTER MORTAR HAS STIFFENED. REMOVE MORTAR AND RELAY WITH FRESH MORTAR.
16. CLEAN LOOSE MORTAR OFF MASONRY SURFACES WITH BURLAR CLOTH OR WETTED SPONGE IMMEDIATELY AS WORK PROGRESSES.

(X) WATER PROOFING

ALL CONCRETE WATERPROOFING AND DAMP PROOFING SHALL BE IN CONFORMANCE WITH TECHNICAL SPECIFICATIONS AND TO BE PROVIDED AS FOLLOWS :

1. PROVIDE MOISTURE BARRIERS UNDER SLAB ON GRADE
2. VERTICAL SURFACES OF INDIVIDUAL FOOTINGS, GRADE BEAMS AND COLUMNS BELOW GRADE SHALL BE APPLIED WITH LIQUID WATERPROOFING
3. INDIVIDUAL FOOTINGS/GRADE BEAMS SHALL HAVE LIQUID WATERPROOFING BETWEEN CONCRETE BLINDING AND BOTTOM OF FOOTINGS AND GRADE BEAMS .
4. DAMP PROOFING SHALL BE APPLIED TO 300mm ABOVE FINISH GRADE OR UP TO TOP OF GRADE BEAM WHICHEVER IS LESS. IT WILL ALSO EXTEND 150mm BELOW GRADE LEVEL AND OVERLAP WITH WATERPROOFING MATERIAL.
5. APPROVED WATERPROOFING SHALL BE APPLIED TO ALL OPEN AREAS – SUCH AS TERRACES, PATIOS AND ROOF SLABS.

(XI) STRUCTURAL STEEL–NOT REQUIRED

1. ALL STRUCTURAL STEEL SHALL COMPLY WITH GRADE 43C (275N/mm²)
2. STEEL SECTIONS TO CONFORM WITH B.S. 4848 PART 1, B.S.4848 PART 2 & 4
3. STEEL SECTIONS TO CONFORM WITH B.S. 4 PART 1, B.S.4848 PART 2 & 4. ONE OR MORE OF THE FOLLOWING: HIGH STRENGTH FRICTION GRIP BOLTS AND WASHERS–B.S.4395 PART 1
   FOUNDATION BOLTS TO BE GRADE 4.6 'BOLTS –B.S. 4190 WASHERS–B.S. 4320
4. A MINIMUM OF TWO BOLTS TO BE PROVIDED ON ALL BOLT CONNECTION UNLESS SHOWN OTHERWISE.
5. ALL WELDS SHALL BE CONTINUOUS FILLET WELDS INDICATED OTHERWISE THE MINIMUM SIZE OF WELD SHOULD NOT BE LESS THAN 6mm FOR THE STRUCTURAL CONNECTIONS AND SHALL COMPLY WITH B.S. 5135.
6. ALL STEELWORK TO BE GRIT BLASTED TO B.S. 4232 SECOND QUALITY PRIOR TO PAINTING.
7. STEELWORK EMBEDDED IN CONCRETE SHALL BE UNPAINTED AND DEGREASED.
8. PAINTED STEELWORK SHALL BE EPOXY HIGH BUILD SYSTEM TO B.S.5493 THE PAINT SPECIFICATION SHALL BE AS FOLLOWS:
   (A.) FOR MODERATE EXPOSURE / INTERNAL STEELWORKS WITH 5 YEAR MAINTENANCE PERIOD PRIMER ONE COAT ZINC HIGH PHOSPHATE 75 MIC. DFT FIRST UNDERCOAT ONE COAT EPOXY 90 MIC. DFT TOP COAT ONE COAT ALKYD GLOSS ENAMEL 35. MIC. DFT.
   (B.) FOR SEVERE EXPOSURE / INTERNALSTEELWORKS WITH 10 YEAR MAINTENANCE PERIOD PRIMER ONE COAT ZINC HIGH PHOSPHATE 80 MIC. DFT FIRST UNDERCOAT ONE COAT MICACEOUS IRON OXIDE 75 MIC. DFT SECOND UNDERCOAT ONE ENAMEL 35. MIC. DFT. COAT HIGH BUILD EPOXY 125 MIC. DFT TOP COAT ONE COAT ALKYD GLOSS ENAMEL 30. MIC. DFT.
9. OVERALL DIMENSION TO BE CHECKED ON SITE BY STEEL CONTRACTOR PRIOR TO MANUFACTURE AND ANY DISCREPANCIES TO BE REPORTED.
10. THE CONTRACTOR SHALL SUBMIT THE DESIGN AND DETAILS OF ALL THE STEEL CONNECTIONS TO THE ENGINEER FOR APPROVAL.
11. THE CONTRACTOR SHALL SUBMIT WORKSHOP FABRICATION DRAWINGS TO THE CONSULTANT FOR APPROVAL PRIOR TO FABRICATION.
12. HOLDING DOWN BOLTS ARE NOT TO BE GROUTED IN UNTIL WORK HAS BEEN PLUMBED AND LEVELLED. GROUTING IN OF HOLDING DOWN BOLTS IS TO BE COMPLETED BEFORE LOADS ARE ARE PLACED ON THE STEEL FRAME.
13. GROUT TO BE THE EXPANDING TYPE WITH A MINIMUM CRUSHING STRENGTH OF 20N/mm² AND MUST BE APPROVED BY THE ENGINEERS IN WRITING.
14. CONCRETE USED FOR CASING STEEL WORK TO BE GRADE 30 WITH A MAXIMUM AGGREGATE SIZE OF 10mm.
15. ALL STEELWORK FABRICATION AND WORKMANSHIP SHOULD COMPLY WITH THE CONTRACT SPECIFICATIONS.
16. THE FIRST BAY OF ERECTED STEELWORK IS TO BE LINED AND LEVELLED BEFORE ERECTION.
17. ANTI – SAG RODS ARE TO BE PROVIDED AS SHOWN ON DRGS. WHERE ANTI – SAG RODS ARE NOT SHOWN ON THE DRAWINGS. THEY ARE TO BE PLACED AT MID–SPAN OF PURLINS OR TO PURLIN MANUFACTURERS
18. ALL STEEL SURFACES IN CONTACT WITH ALUMINIUM SHEETING ARE TO BE GIVEN TWO COATS OF AN APPROVED BITUMINOUS PAINT BEFORE FIXING SHEETING
19. ALL BOLTS IN TENSION SHOULD BE PROVIDED WITH EITHER DOUBLE COILED SPRING WASHER OR LOCK NUTS.

GENERAL NOTES

1. THESE NOTES APPLY TO ALL STRUCTURAL DRAWINGS
2. THE DRAWING SHALL BE READ IN CONJUCTION WITH THE RELEVANT ARCHITECT'S DRAWINGS
3. REINFORCED CONCRETE Fcu=30N/mm2
4. R DENOTES ROUND MILD STEEL BARS FY=250N/m
   Y DENOTES HIGH YIELD BAR FY=410N/mm2
5. COVER TO REINFORCEMENT SHALL BE AS FOLLOWS
   - 50mm TO COLUMN–BASES
   - 30mm TO COLUMNS
   - 25mm TO SLABS
   - 30mm TO BEAMS

CLIENT

PROJECT/LOCATION

DRAWING TITLE

STRUCTURAL DRAWING

SHEET CONTENT

GENERAL NOTES

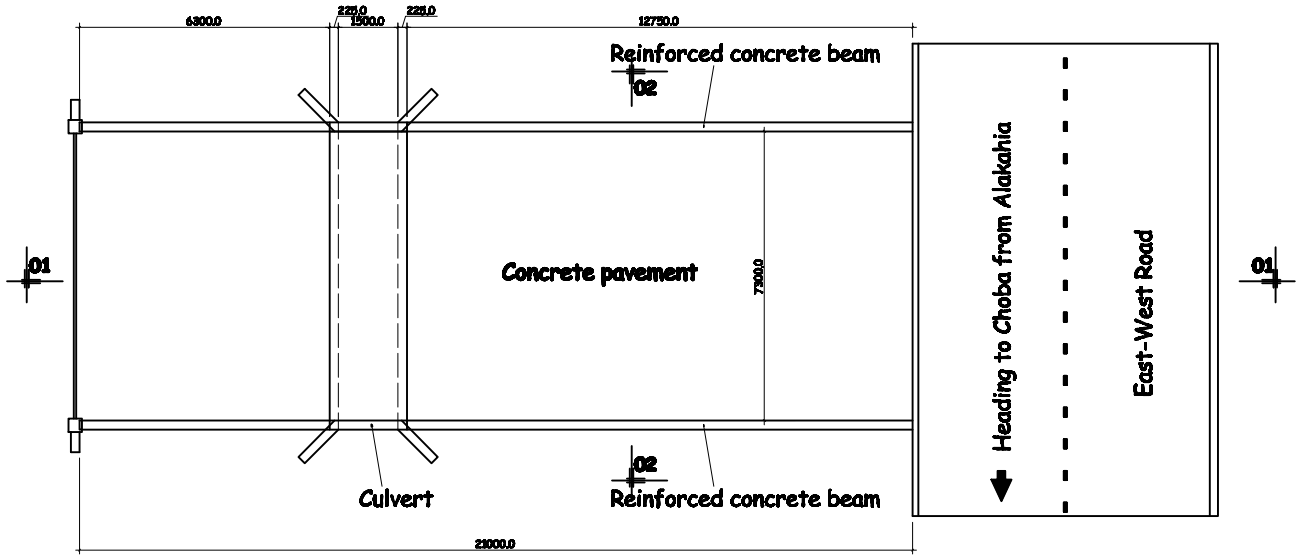
PROJECT CONSULTANT

STARKSTRUC CONSULTS
195 NTA RD., MGBUOBA,
PORT HARCOURT.

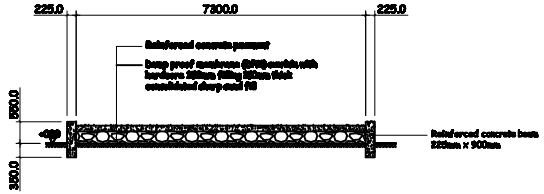
DESIGNED	ENGR. MABARI COLLINS
DRAWN	ENGR. MABARI COLLINS
CHECKED	ENGR. N.R.G. OGBAMGBA
SCALE	N.T.S.
DATE	MAR. 2023

SHEET NO:

S00



Section 01-01



Section 02-02

GENERAL NOTES

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2. THE DRAWING SHALL BE READ IN CONJUCTION WITH THE RELEVANT ARCHITECT'S DRAWINGS
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   - 30mm TO COLUMNS
   - 25mm TO SLABS
   - 30mm TO BEAMS

CLIENT

PROJECT/LOCATION

DRAWING TITLE

STRUCTURAL DRAWING

SHEET CONTENT

GENERAL ARRANGEMENT CONCRETE ROADWAY

PROJECT CONSULTANT

STARKSTRUC CONSULTS
195 NTA RD., MGBUOBA,
PORT HARCOURT.

DESIGNED	ENGR. MABARI COLLINS
DRAWN	ENGR. MABARI COLLINS
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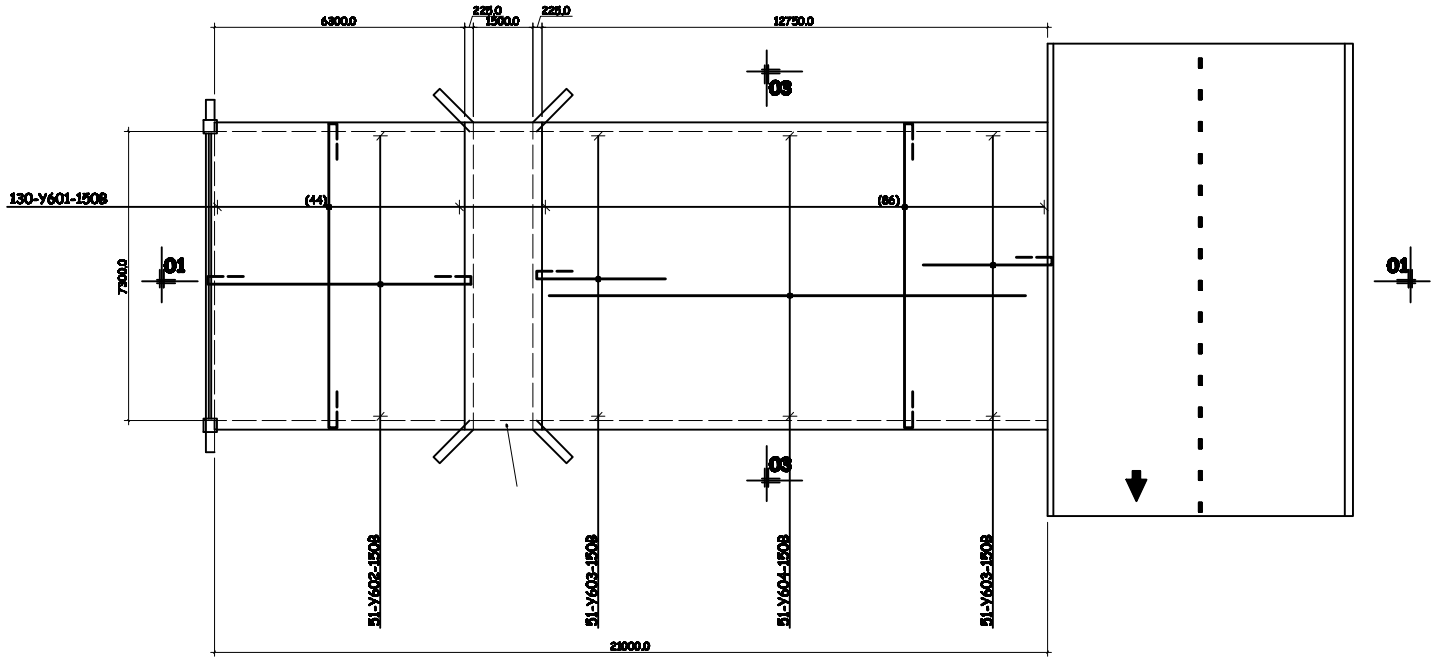
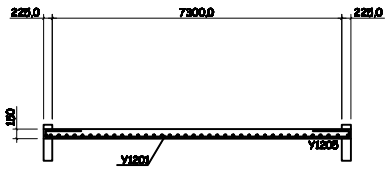
SCALE	1:125
DATE	MAR. 2023

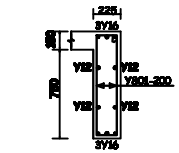
SHEET NO:

S01





Section 03-03



Typical section of ground beam 225mm x 900mm showing reinforcement placement

s/no	struc element	mark	bar	no. of element	no. in element	cut length(mm)	shape
1.	Concrete slab	01	Y6	1	130	9700	100 / 900 / 7700 / 900 / 100
		02	Y6	1	51	8700	100 / 900 / 6700 / 900 / 100
		03	Y6	1	102	4300	100 / 900 / 3300
		04	Y6	1	51	11500	STRAIGHT
							Total length of Y6= 2,729.8m
2.	ground beam	01	Y16	-	36	11500	STRAIGHT
		01	Y12	-	24	11500	STRAIGHT
		01	Y8	-	191	2160	75 / 150 / 75 / 840
							Total length of Y12= 276.0m
							Total length of Y16= 414.0m
							Total length of Y8= 412.6m

GENERAL NOTES

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4. R DENOTES ROUND MILD STEEL BARS FY=250N/m
   Y DENOTES HIGH YIELD BAR FY=410N/mm2
5. COVER TO REINFORCEMENT SHALL BE AS FOLLOWS
   - 50mm TO COLUMN-BASES
   - 30mm TO COLUMNS
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   - 30mm TO BEAMS

CLIENT

PROJECT/LOCATION

DRAWING TITLE

STRUCTURAL DRAWING

SHEET CONTENT

GENERAL ARRANGEMENT CONCRETE ROADWAY

PROJECT CONSULTANT

STARKSTRUC CONSULTS
195 NTA RD., MGBUOBA,
PORT HARCOURT.

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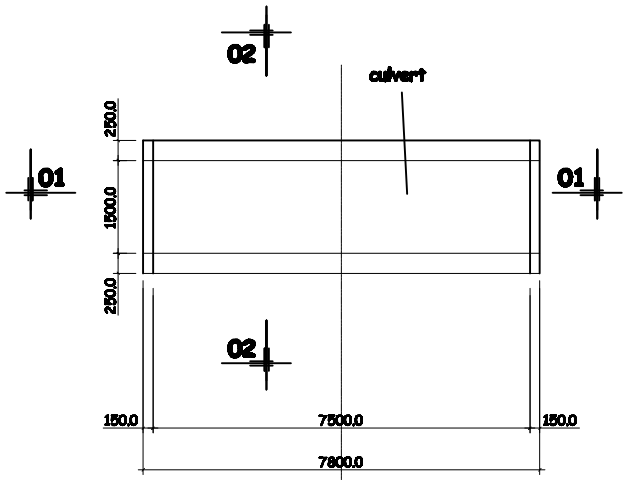
SCALE	1:125
DATE	MAR. 2023

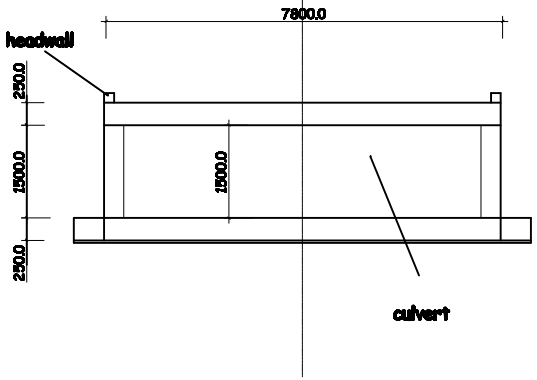
SHEET NO:

S02

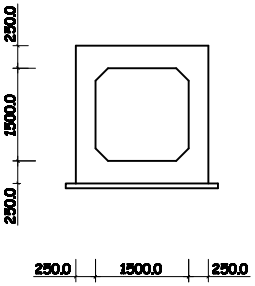


Plan of culvert

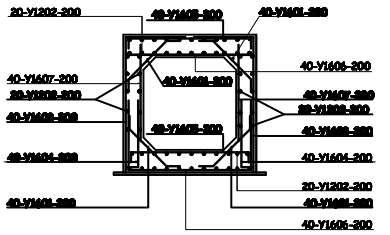
s/no		struc element	mark	bar	no. of element	no. in element	cut length(mm)	shape
4.	Culvert	culvert 1	01	Y16	1	160	1490	300, 950, 300
			02	Y12	1	80	7700	STRAIGHT
			03	Y16	1	80	2800	900, 1900
			04	Y16	1	80	1050	900, 150
			05	Y16	1	80	1970	100, 1770, 100
			06	Y16	1	80	2050	100, 1850, 100
			07	Y16	1	80	1500	STRAIGHT
							Total length of Y12= 616.0m	
							Total length of Y16= 988.0m	



section 01-01



section 02-02



Typical culvert section showing reinforcement placement

GENERAL NOTES

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CLIENT

PROJECT/LOCATION

DRAWING TITLE

STRUCTURAL DRAWING

SHEET CONTENT

CULVERT PLAN, SECTION & DETAILS

PROJECT CONSULTANT

STARKSTRUC CONSULTS
195 NTA RD., MGBUOBA,
PORT HARCOURT.

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SCALE	N.T.S.
DATE	MAR. 2023

SHEET NO:

S03