



इंजीनियरिंग प्रोजेक्ट्स (इंडिया) लिमिटेड
संविदा प्रभाग

EPI/CO/CON/968/835

16th July 2024

Subject: Tender for “Civil and Structural Works Package” for the project “Supply, Installation, Commissioning & Testing of FGD system for 500 MW Unit No.6 of Ukai TPS with 03 years comprehensive O&M contract”.

Reference: NIT No. EPI/CO/CON/968/835 dated: 04.07.2024.

Corrigendum - 01

1. The following amendment of existing clauses is hereby issued.

Sl. No.	Clause No.	Existing	Amended
1.	ACC Clause No. 1.5.0 TIME SCHEDULE & PROGRESS	The clause No. '43.2' of General Conditions of Contract (GCC) of this Tender document shall be read as under: The contract period for completion of entire work under scope shall be 16 (Sixteen) months from the “COMMENCEMENT OF CONTRACT PERIOD” as specified. The contractor should complete total works including handing over within above specified period.	The clause No. '43.2' of General Conditions of Contract (GCC) of this Tender document shall be read as under: The contract period for completion of entire work under scope shall be 15 (Fifteen) months from the “COMMENCEMENT OF CONTRACT PERIOD” as specified. The contractor should complete total works including handing over within above specified period.
2.	BOQ Item No. 2 (a). Sl. No. 7 Description.	Beyond 3.00 M and up to 6.00 M	Extra over item nos. 1 above as applicable, for all types of excavated material (soil and rock), for additional lifts beyond the initial lift of 3M (included in items 1), including maintaining dry working conditions, for the following lifts: Beyond 3.00 M and up to 6.00 M

2. Several queries have been received from bidders for clarification for the tender, whose point wise reply has been compiled below for clarification-

Sl. No.	Queries	Reply
1.	The address to send the hard copy of EMD for the physical form for submission.	As per NIT clause No. 25 i.e. The Executive Director (Contract Division) Engineering Projects (India) Ltd. Core 3, SCOPE Complex, Lodhi Road New Delhi 110003 Tel No. – 011-2436 1666 Extn. 2313 E-mail- contracts@engineeringproject.com
2.	Handing over to whom, EPI or GSECL?	NIT condition prevails.
3.	Is any Special Permission required for running work on Sundays, Holidays and During Night?	The said work is under power plant premises and under security of CISF. It is advised to visit the site before quoting the tender.
4.	Is any Special Permission required for Entry and Exit for Material and Man Power?	Same as above.
5.	Is any space available for setting up of labor hutment and concrete batch mix plant near the site location available?	It is advised to visit the site before quoting the tender.
6.	No quantity is mentioned for Pre- Cast Cement Concrete item.	The quantities can be finalized during execution.
7.	Please provide details of the of the architectural and structural drawings of Electric Control Building.	Tender drawings are provided in this Corrigendum.
8.	Is the complete location available to execute work, or part-by-part work will be executed?	Complete location is available. Please visit the site before quoting the bid.
9.	The client provides water and electricity ; if the client gives water and electricity on a charge basis, how much of the charge is taken by the client?	Please refer ACC clause no. 1.21.
10.	We are assuming that in our civil and structural package there shall not be any O & M contract for 3 years – please clarify.	There is no scope of Operation and maintenance in this tender.
11.	Is any document need to be sent offline / physically?	NIT clause No 11 prevails. If EMD is being submitted in the form of BG / DD / Insurance Surety Bonds / FDR, then the same is to be submitted offline / physical form, as per NIT Clause no. 11. Else, no physical submission is required unless it is specifically required by EPI.
12.	If Batching plant is set up away from site, will the power also be given there too? (Apart from the working site).	The electric power will be made available at a single point within the battery limit inside the power plant area on chargeable basis.
13.	We need to have tentative drawing of all Structures	Tender drawings are provided in Vol-II of NIT / corrigendum. GFC drawings will be issued to successful bidder

Sl. No.	Queries	Reply
14.	Is this contract on Back-to-Back basis as far as payment is concerned? Please clarify.	Please refer ACC Clause No. 1.16.0 for PAYMENT TERMS.

3. The tender drawings including the drawings for Electrical Control Room are enclosed herewith.
4. Bidder may submit the documents or undertaking for Recognition of Prior Learning as mandated in the NIT Clause No. 5 f) as per the enclosed format.

**Executive Director
Contracts Division**

Engineering Projects (India) Limited

(A Government of India Enterprises)

Name of Project :- Tender for “Civil and Structural Works Package” for the project “Supply, Installation, Commissioning & Testing of FGD system for 500 MW Unit No. 6 of Ukai TPS with 03 years comprehensive O&M contract”.

Bill of Quantities for FGD Civil & Structural Work Package

NIT NO. :- EPI/CO/CON/968/835

Date: 04-07-2024

S.No	ITEM No.	DESCRIPTION	UNIT	QTY.	Rate Without GST	Amount
		EXCAVATION AND FILLING				
1	1	Excavation including stacking of excavated material (rock/ soil) required for backfilling away from the excavated pit upto a lead of 1.00 Km., backfilling with selected excavated material (for all lifts) by mechanical means in layers not exceeding 300 mm compact thickness (higher layer thickness upto 500 mm in case of compaction using special type of equipment, such as vibratory roller etc.) to minimum 85 % Standard Proctor Density at optimum moisture content in case of soil and / or to 85 % of original volume in case of boulders and filling the interstices with selected excavated materials, disposal of surplus excavated material at designated location identified by the Engineer upto a total lead of 5.00 Kms. (including dressing the top surface) and / or disposal of surplus excavated material by filling within the plant boundary and compacting the same by mechanical means in layers (not exceeding 300 mm thickness, higher layer thickness upto 500 mm in case of compaction using special type of equipment, such as vibratory roller etc.) to minimum 85% Standard Proctor Density at optimum moisture content in case of soil and / or to 85 % of original volume in case of boulders, clearing grass and vegetation, levelling, draining and pumping out surface water (i.e. water other than water below ground water table), lowering of ground water table to maintain dry working conditions till completion of all activities (such as concreting, curing, water proofing, filling / testing etc.), which require dry working conditions providing cofferdams, sheeting, shoring, strutting, bracing, trimming of excavated bottom, testing, with all labour, material, equipment, handling,				
2	1 (a)	In soil (All types)	Cu.M.	18,000.00	₹ 197.00	₹ 35,46,000.00
3	1(b)	In Rock				
4	1(b)(i)	In ordinary/ soft rock and weathered rock which can be excavated by means of crow bar, pick axe etc. but does not require chiselling, chemical grouting and blasting.	Cu.M.	4,500.00	₹ 432.00	₹ 19,44,000.00
5	1(b) (iii)	In hard rock (blasting Prohibited) by means of chiselling, wedging etc.	Cu.M.	1,000.00	₹ 785.00	₹ 7,85,000.00
6	1(c)	Extra over item no. 1(a) as applicable, for compacting the backfilled soil by mechanical means to minimum 90% Standard Proctor Density at optimum moisture content in case of soil.	Cu.M.	5,000.00	₹ 216.00	₹ 10,80,000.00
7	2(a)	Extra over item nos. 1 above as applicable, for all types of excavated material (soil and rock), for additional lifts beyond the initial lift of 3 M (included in items 1), including maintaining dry working conditions, for the following lifts: Beyond 3.00 M and upto 6.00 M	Cu.M.	4,500.00	₹ 79.00	₹ 3,55,500.00
8	2(b)	Beyond 6.00 M and up to 9.00 M	Cu.M.	750.00	₹ 118.00	₹ 88,500.00
9	3	Extra over item no. 1 above, for additional lead of every 1.00Km for stacking of excavated materials (soil/ rock) required for backfilling, away from the excavated pit beyond the initial lead of 1.00 Km.	Cu.M.	18,000.00	₹ 19.00	₹ 3,42,000.00
10	4	Filling using selected borrow materials brought from borrow areas arranged by the Contractor, in layers not exceeding 300 mm, (higher layer thickness upto 500 mm in case of compaction using special type of equipment, such as vibratory roller etc.), for all leads and all lifts, filling, watering and compacting each layer, dressing, with all labour, material, equipment, handling, transportation, etc., for all types of works at all levels, all complete, as per specifications, drawings and instructions of the Engineer, for following works and materials:				

S.No	ITEM No.	DESCRIPTION	UNIT	QTY.	Rate Without GST	Amount
11	4(a)	Medium grained sand and compacting to minimum of 80% Relative Density.	Cu.M.	1,500.00	₹ 1,336.00	₹ 20,04,000.00
12	4(b)	Non-expansive soil (other than black cotton soil) obtained from Borrow areas and compacting to minimum of 90% of Standard Proctor Density	Cu.M.	10.00	₹ 275.00	₹ 2,750.00
13	5	Filling using crushed hard stone of specified nominal size, brought from borrow areas arranged by the Contractor, in layers as specified below, for all leads and all lifts, filling, dressing, testing, with all labour, material, equipment, handling, transportation, etc., for all types of works at all levels, all complete, as per specifications, drawings and instructions of the Engineer:				
14	5(a)	63 mm to 45 mm graded hard stone aggregate as per IRC specification for road and bridge, watering and compacting each layer (not exceeding 200 mm in thickness) to minimum of 85 % of original volume of stone stack including filling the interstices of stone aggregates with material as mentioned below:				
15	5(a)(ii)	Locally available non-expansive soil	Cu.M.	500.00	₹ 1,113.00	₹ 5,56,500.00
16	6	Providing and laying nominal mix or design mix, Plain Cement Concrete as specified below, at all levels, for all kinds of works, such as mass concrete, lean concrete, bed blocks, mud-mat, grading, underbed, filling, screed concreting, paving, plinth protection, damp proof course, drains, gully chambers, trenches, etc., with all labour, material, equipment, handling, batching, transporting, pumping, including mix design, mixing (no stacking of material shall be done near the work area where concrete is being placed), conveying, placing and compacting, protecting and curing, testing, for all working conditions, etc., all complete, as per specifications, drawings and instructions of the Engineer.				
17	6(a)	M 7.5 (with graded aggregate of nominal size 40mm) nominal mix	Cu.M.	100.00	₹ 5,894.00	₹ 5,89,400.00
18	6(b)	M 10 (with graded aggregate of nominal size 40mm) nominal mix	Cu.M.	700.00	₹ 6,444.00	₹ 45,10,800.00
19	6(c)	M 20 (with graded aggregate of nominal size 12.5mm) design mix (screed concrete)	Cu.M.	50.00	₹ 6,630.00	₹ 3,31,500.00
20	6(d)	M 20 (with graded aggregate of nominal size 20mm) nominal mix	Cu.M.	2,846.00	₹ 6,679.00	₹ 1,90,08,434.00
21		CONCRETE				
22	7	Providing and laying design mix cement concrete , for Reinforced Cement Concrete works, as specified below, at all levels, for all kinds of works, with 20 mm nominal size graded stone aggregate (unless specified otherwise), with all labour, material, equipment, handling, batching, transporting, testing, pumping, including mix design, mixing, conveying, placing and compacting, protecting and curing, testing, cleaning and finishing, rendering to give a smooth and even surface, for all working conditions, preparation of scheme for concreting and getting it approved by the Engineer, etc., all complete, as per specifications, drawings and instructions of the Engineer.				
23	7(a)	For all works below ground level				
24	7(a) (i)	M 20	Cu.M.	50.00	₹ 6,679.00	₹ 3,33,950.00
25	7(a)(ii)	M 25	Cu.M.	8,500.00	₹ 7,505.00	₹ 6,37,92,500.00
26	7(a)(iii)	M 30 for Booster fan Foundation	Cu.M.	2,400.00	₹ 7,682.00	₹ 1,84,36,800.00
27	7(a) (iv)	M35	Cu.M.	50.00	₹ 7,740.00	₹ 3,87,000.00
28	7(b)	For all works above ground level				
29	7(b)(i)	M 25	Cu.M.	850.00	₹ 8,251.00	₹ 70,13,350.00
30	7(b)(ii)	M 30 for Booster fan Foundation	Cu.M.	250.00	₹ 8,448.00	₹ 21,12,000.00
31	8	Providing and mixing as cement concrete admixtures - super plasticizers (including super plasticizers cum retarder, super plasticizers cum water proofing and super plasticizers cum pumping aid for concrete), at all levels, for all kinds of works, including all labour, material, equipment, handling, transportation, testing, etc., all complete, as per specifications, drawings and instructions of the Engineer/ manufacturers.	Per Bag (50Kg) of Cement	900.00	₹ 35.00	₹ 31,500.00
32	9	DAMP PROOFING / PROTECTIVE LAYER				

S.No	ITEM No.	DESCRIPTION	UNIT	QTY.	Rate Without GST	Amount
33	9(a)	Providing Damp Proof Course of 50mm thickness with M20 concrete (10mm and down graded aggregate) with minimum two coats of hot bitumen of Industrial grade 85 / 25, conforming to IS: 702, mixed with 1% anti-stripping compound, on the plastered / unplastered concrete surface @ 1.70 Kg. / Sq. M. (for sum of all coats).	Sq. M.	250.00	₹ 353.00	₹ 88,250.00
34	10	REINFORCEMENT				
35	10 (a)	Providing and placing reinforcement , as specified below, in reinforced cement concrete and other allied works, at all levels, for all kinds of works (including reinforcement for machine foundations like Recirculation Pumps, FANs, etc.) with all labour, material, equipment, handling, transportation, cleaning, straightening, cutting, testing, including bending and placing, binding in position, concrete cover blocks, chairs and spacers, laps and anchorage, cover to reinforcement, preparation of bar bending schedules and getting it approved, all complete, as per specifications, drawings and instructions of the Engineer.				
36	10(a) (i)	For works below ground level				
37		High strength deformed TMT bars (Minimum elongations 14.5%)	M. T.	1,250.00	₹ 76,227.00	₹ 9,52,83,750.00
38	10(b)	For works above ground level				
39	10(b)(i)	High strength deformed TMT bars (Minimum elongations 14.5%)	M. T.	225.00	₹ 76,227.00	₹ 1,71,51,075.00
40	11	FORMWORK AND STAGING				
41		Providing and fixing plywood formwork with suitable overlay (film faced), for cast-in-situ, rein-forced cement concrete, to give an even and smooth surface to exposed faces of concrete, at all levels and for the works of beams, columns, Block out, pockets,slab foundations including machine foundations				
42	11(a)	For works below ground level	Sq.M.	12,500.00	₹ 311.00	₹ 38,87,500.00
43	11(b)	For works above ground level	Sq.M.	2,500.00	₹ 569.00	₹ 14,22,500.00
44		EMBEDDED PARTS (INCLUDING LAYING OF RAILS, ANCHOR FASTENERS AND ANCHOR STUDS)				
45	13(a)	MS pipes of all diameters	Quintal	2.00	₹ 7,859.00	₹ 15,718.00
46	13(b)	PVC conduits of all sizes	Quintal	8.00	₹ 7,859.00	₹ 62,872.00
47		GROUTING				
48	14	Providing and laying cement aggregate grout (stiff mix) for dry pack application for grouting of underside of base plates, where grout thickness is more than 40 mm, with cement concrete mix (1 : 1.25 : 2) by weight, blended with anti-shrinkage admixtures in required proportions, as specified by manufacturer / Engineer, including all labour, material, equipment, handling, transportation, surface preparation, mixing, placing, curing, testing, etc., all complete, as per specifications, drawings and instructions of the Engineer.	Cu. Dm.	1,500.00	₹ 47.00	₹ 70,500.00
49	14 (a)	Providing & grouting of pocket holes, pipe sleeves and under base plates of structural steel work/ machinery/ pipe supporting structures including roughening of surface, cleaning, ramming, curing, etc. all complete with Conbextra GP-2 or equivalent as per specification, drawing and direction of engineer- in-charge.(Cost of all material and cleaning of the pockets by compressed air shall be in the scope of the contractor).	Cu.M.	25.00	₹ 51,080.00	₹ 12,77,000.00
50		JOINTS IN CONCRETE				
51	15	Providing and installing bitumen impregnated fiber board joint filler, conforming to IS : 1838, at joints in concrete, at all levels, including all labour, material, equipment, handling, transportation, testing, cutting, nailing, etc., all complete, as per specifications, drawings and instructions of the Engineer.				
52	16(a)	12 mm thick	Sq.M.	25.00	₹ 452.00	₹ 11,300.00
53	16(a)(i)	25 mm thick	Sq.M.	75.00	₹ 982.00	₹ 73,650.00

S.No	ITEM No.	DESCRIPTION	UNIT	QTY.	Rate Without GST	Amount
54	15(b)	Providing and installing expanded polystyrene board non-self extinguishing type (Type-1) conforming to IS:4671, all round the concrete foundations including all labour, material, equipment, handling, transportation, testing, cutting, etc., all complete, as per specifications, drawings and instructions of the Engineer.				
55	15(b)(i)	100 mm thick with nominal density of 20 Kg./Cu.M. and nominal panel size of 1.0 M x 1.0M	Sq.M.	350.00	₹ 197.00	₹ 68,950.00
56	16	Providing following type of material for joints in concrete , at all levels, including all labour, material, equipment, handling, transportation, testing, cutting, bending, jointing, etc., all complete, as per specifications, drawings and instructions of the Engineer.				
57	16 (a)	For expansion joint, PVC water stops of minimum size 225 mm x 6 mm ribbed with central bulb.	R. M.	150.00	₹ 157.00	₹ 23,550.00
58	16(b)	For construction joints, cement slurry modified with acrylic polymer @ minimum 1.0 litre with every 3 kg. of cement and 1.0 liter of water and applying this slurry on the concrete surface @ 2.0kg./sqm.	Sq.M.	480.00	₹ 79.00	₹ 37,920.00
59	17	Providing and filling in position, sealing compound as specified below, including all labour, material, equipment, handling, transportation, testing, cleaning, mixing, heating, pouring / injecting sealing compound in gaps and joints, at all levels, application of primer, etc., all complete, as per specifications, drawings and instructions of the Engineer.				
60	17a)	Hot applied bitumen sealing compound, conforming to Grade A of IS : 1834	Kg.	160.00	₹ 157.00	₹ 25,120.00
61	18	DISMANTLING, CHIPPING AND MAKING AN OPENING IN RCC AND PCC				
62	18(a)	Dismantling concrete work (both PCC and RCC of all grades), for all types of structures, at all levels, including all labour, equipment, scaffolding, staging, stacking of serviceable material upto a lead of 500 m and disposal of unserviceable material upto a lead of 2 Km. beyond the plant boundary or as directed by the Engineer, cutting of reinforcement, propping, shoring, enclosures, including all labour, material, equipment, handling, transportation, etc., all complete, as per specifications, drawings and instructions of the Engineer.	Cu. M.	250.00	₹ 1,336.00	₹ 3,34,000.00
63	18(b)	Chipping of Cement Concrete work (both PCC and RCC), for all type of structures, at all levels, for making grooves, removing surface concrete etc., according to shapes, sizes and profiles as shown on the construction drawings, stacking of serviceable material upto a lead of 500 m, disposal of unserviceable material upto a lead of 2.00 Km. beyond the plant boundary or as directed by the Engineer, cutting of reinforcement, including all labour, equipment, scaffolding, staging, handling, transportation, propping and shoring, enclosures, etc., all complete, as per specifications, drawings and instructions of the Engineer.	Cu.DM.	20.00	₹ 79.00	₹ 1,580.00
64		PRECAST CEMENT CONCRETE		-	₹ -	₹ -
65	19	Providing and laying all types of pre-cast cement concrete units (plain or reinforced) of grade M-25, in all kinds of works, like trench / floor covers, drain covers, fins, coping, fascia, lintel, chajjas, wall panels, Precast fencing post, roof units, etc., at all levels, with graded stone chips (20 / 12.5 / 10 mm nominal size), including all labour, material, equipment, handling, transportation, formwork, batching, mixing, casting, compacting, curing, testing, rendering, exposed surface with cement sand mortar 1:3, handling, storing, trans-orting, for all leads and lifts, erection, setting in position with cement sand mortar 1:3, filling gaps between adjacent Pre-cast units with M-30 concrete or Cement Sand mortar 1:3, making of holes for bolts, / fixing/lifting, welding etc., all complete, as per specifications, drawings and instructions of the Engineer (reinforcement, steel embedments and inserts, if provided, shall be paid separately under relevant items).	Cu.M.	-	₹ 7,859.00	₹ -

S.No	ITEM No.	DESCRIPTION	UNIT	QTY.	Rate Without GST	Amount
66		STRUCTURAL STEEL				
67	20	Providing, fabrication, erection, installation and alignment of MS foundation bolt /bolt assembly in concrete, along with nuts, lock nuts, anchor plates, stiffener plates, protection to treaded portion, preparation of fabrication drawing and getting the same approved etc., up to and including 80 mm diameter and upto and including 3000 mm length, including all labour, material, equipment, handling, transportation, etc., all complete, as per specifications, drawings and instructions of the Engineer.	M. T.	12.50	₹ 1,17,877.00	₹ 14,73,462.50
68	21	Providing, fabrication, erection, alignment, welding, bolting in painting (r inorganic Zinc Silicate primer coat, intermediate coat(consisting of minimum 75 micron DFT epoxy based Titanium dioxide / Micaceous iron oxide (pigmented) including touch up painting for the damaged surfaces of intermediate paint.) and consisting of minimum 75 micron DFT Epoxy based colour pigmented finish Poly Amide cured paint and Final Finish coat with minimum 50 micron DFT Polyurethane colour pigmented finish paint, including final touch up painting for the damaged surfaces of Finish and Final Finish Paintfinishing coat) etc. of structural steel, mild steel, medium and high strength steel at all levels, involving rolled sections, (including rounds), pipes/ rectangular & circular hollow sections including bending to curvature, built-up sections fabricated out of plates and / or rolled sections (including pipes / hollow sections), plates, chequered plates, etc., in columns, beams, crane girders, roof trusses, roof girders, trestles, galleries, purlins, space frames, shear connectors, hangers, struts, monorail beams, stiffeners, wall beams, sheeting runners, brackets, stub columns, bracings, cleats, base plates, splice plates, chequered plate flooring, decking plates, floor plates, seal plates, diaphragms, steel frame grid over false ceiling, walkways, platforms, ladders, stairs, stringers, treads, landings, hand-rails, toe plates, rungs, insert plates, edge protection structures, embedments, lugs, posts, stays, gates, louvers, lacings, stiffeners, gusset plates, washers, etc., including design of connections and splicing, preparation and checking of fabrication drawings and getting the same				
69	21 (a)	For Mild Steel				
70	21(a)(i)	All structural components of roof trusses (including plan bracings) of all buildings, purlins of all buildings, Space frames, Pipe & cable galleries & trestles, Transfer Points, Conveyor galleries & supporting trestles.	M. T.	900.00	₹ 1,17,877.00	₹ 10,60,89,300.00
71	21(a)(ii)	Steel embedments, insert plates, edge protection angles, MS pipe sleeves including lugs and rung ladders.	M. T.	50.00	₹ 1,13,948.00	₹ 56,97,400.00
72	22	Providing, supplying, fabrication, transportation, erection and alignment including installation in position by bolting / welding / screwing of factory made electro-forged gratings fabricated using mild steel conforming to IS : 2062, at all levels, in floorings, platforms, drain covers trench covers, walk-ways, passages, staircase treads with edge binding strips and anti-skid nosing etc. with all fittings and fixtures, (clips, bolts, self drilling and tapping screws, nuts and lock washers) etc., self drilling and tapping screws, welding, edge preparation, including all labour, material, equipment, handling, trans-portion, preparation of fabrication drawings, etc., all complete, as per specifications, drawings and instructions of Engineer and with finishing as below:				
73	22 (a)	Electro forged grating units with finishing the surface with hot dipped galvanisation @ minimum 610 g/Sq.M. over blast /chemically cleaned steel surfaces to near white metal surface (Sa 2½).	M. T.	15.50	₹ 94,302.00	₹ 14,61,681.00
74	23	Providing and fixing in position at all level, permanent mild steel bolts (Property class 4.6 as per IS:1367 and Product grade 'C' as per IS:1367), nuts, washers, etc. upto and inclusive of 39 mm diameter and 300 mm long for structural steel works, including all labour, material, equipment, handling, transportation, testing, all complete, as per specifications, drawings and instructions of the Engineer.	Quintal	110.00	₹ 7,073.00	₹ 7,78,030.00
75		MASONRY AND ALLIED WORKS				

S.No	ITEM No.	DESCRIPTION	UNIT	QTY.	Rate Without GST	Amount
76	25	Providing and laying in position brick masonry (with or without RCC band / reinforcement), with bricks of minimum crushing strength of 75 Kg/cm ² , at all levels, for all kinds of works, for all thicknesses including all labour, material, equipment, handling, transportation, etc., in Cement Sand mortar of specified proportion, mixing mortar, laying bricks, raking out joints, scaffolding, staging, curing, including making holes /opening of size upto 0.1 Sq. M., etc., all complete, as per specifications, drawings and instruction of the Engineer. (RCC / Reinforcement /form work if provided any to be paid separately under relevant Items).				
77	25(a)	With fly ash bricks conforming to IS : 12894 or IS : 13757,	Cum	1,200.00	₹ 7,479.00	₹ 89,74,800.00
78	26	Providing cement sand plaster , as specified below in one or more layers, at all levels, for all types of masonry and / or concrete surfaces, (both interior and exterior) in all kinds of works (excluding grading under bed and lathe plaster) for skirting and dado, canopies, fins, fascia, ceiling, slab, beams, columns, lintel, canopies, projections, stairs, landings, including forming groove of uniform size from 12 mm x 12 mm upto 20 mm x 15 mm in plastered surface, as per approved pattern using wooden batton, all labour, material, equipment, handling, transportation, scaffolding, staging, surface preparation, handling, mixing, mortar, application, plastering, formation of drip course, on the ceiling of the exterior projected surface, finishing, curing, testing, etc., all complete, as per specifications, drawings and instructions of the Engineer.				
79	26(a)	18 mm thick, using 1:6 cement : sand mortar, (Base layer 12mm in CM1:6 and 6mm Finish layer CM1:6)	Sq.M.	1,200.00	₹ 313.00	₹ 3,75,600.00
80	26(b)	12 mm thick, using 1:6 cement :sand mortar, in single layers	Sq.M.	1,700.00	₹ 199.00	₹ 3,38,300.00
81		WALL / CEILING FINISHES				
82	27	Providing and applying of minimum three coats of finish paint with low VOC content conforming to GRIHA rating for reduction of VOC content of approved colour, shade and make, and a coat of compatible primer, for all types of plastered and / or exposed concrete surface, in all kinds of works, at all levels, all labour, material, equipment, handling, transportation, scaffolding, finishing, testing, etc., all complete, as per specifications, drawings, and instructions of the Engineer.				
83	27(a) (i)	Acrylic distemper.	Sq.M.	1,700.00	₹ 39.00	₹ 66,300.00
84	27(a) (ii)	Acrylic emulsion paint	Sq.M.	200.00	₹ 115.00	₹ 23,000.00
85		Premium Acrylic Smooth Exterior Paint:				
86	28	The paint should be applied in minimum 2 coats @1.43litre/10 sq.m over and including priming coat of exterior primer/ water proof cement paint, applied @ 2.20 kg/10 sq.m, on new plastered surfaces inclusive of all required tools, material, scaffolding and other painting accessories etc. The paint shall be applied as per the manufacturer's specifications and instructions and to the entire satisfaction of engineer-in-charge. The paint shall have excellent water resistant property.	Sq.M.	1,200.00	₹ 232.00	₹ 2,78,400.00
87	29	Extra over item no. 28 for crimping and curving	Sq.M.	5,000.00	₹ 79.00	₹ 3,95,000.00

S.No	ITEM No.	DESCRIPTION	UNIT	QTY.	Rate Without GST	Amount
88	30	Providing, fitting and fixing plain permanently colour coated sheets, for ridge and hips, flashing / rimming / closure for vertical / horizontal joints, capping etc., having steel with zinc coated to class 275 with bare metal thickness (i.e. excluding the thickness of coating and painting) of 0.6mm of grade G250 as per AS1397 / grade SS255 as per ASTM A653M/grade s250GD as per EN 10326 or steel with aluminium-zinc alloy coated to class AZ150 with bare metal thickness (i.e. excluding the thickness of coating and painting) of 0.5mm of grade G350 as per AS1397 / grade SS340 class 4 as per ASTM A792M / grade S350GD as per EN 10326 or steel with aluminiumzinc alloy coated to class AZ150 with bare metal thickness (i.e. excluding the thickness of coating and painting) of 0.4mm of grade G550 as per AS1397 / grade SS550 as per ASTM A792M / grade S550GD as per EN 10326 or alternatively aluminium feed material of minimum bare metal thickness of 0.70 mm of aluminium alloy of Series 31000 and above as per IS : 737 and IS : 1254, steel / aluminium both colour coated with total coating thickness of 35 microns (nominal) dry film thickness (DFT) comprising of Silicon Modified Polyester (SMP with silicon content of 30% to 50%) paint or Polyester paint, of 20 microns (nominal) SMP or polyester paint on one side (exposed face), over 5 micron (nominal) primer coat and 5 micron (nominal) SMP or Polyester paint over 5 micron (nominal) primer coat on other side (SMP and Polyester paint shall conform to Product type 4 of AS/NZS 2728), and of approved profile, sectional properties, (suitable for specified loading / deflection and purlins / runner spacing), colour and	Sq.M.	1,500.00	₹ 7,859.00	₹ 1,17,88,500.00
89		INSULATION				
90		EARTHING MAT				
91	31	Providing and installation of Earthing Mat (grounding system), using 40 mm diameter (nominal) mild steel bars, in form of grid, placed at a nominal depth of 1.0 metre from finished ground level, including preparation of working drawing, all labour, material, equipment, handling, transportation, ground electrode, risers, all excavation, back filling, disposal of surplus excavated material upto a lead of 2 Kms, bending, welding, laying, coating bitumen on welded areas of riser / pigtails, over two coats of red oxide primer, dressing, finishing, etc., all complete, as per specifications, drawings and instructions of the Engineer.	M. T.	5.00	₹ 62,868.00	₹ 3,14,340.00
92	32	Providing Earthing pit as per drawing with charcoal & salt, GI pipes, GI earth electrodes, GI wire, GI strips, brick chamber with covers including associated earthwork etc. all complete.	Each	20.00	₹ 1,572.00	₹ 31,440.00
93		BITUMASTIC LAYER FOR TANK FOUNDATION				
94	33	Providing and laying of 25 mm to 100mm thick Anti-corrosive bitumastic layer , using special grade bitumen and filler materials which can be either sand, crushed stone chips, quartz and mica chips and / or combination of these, dressing of base, heating and application of material, etc. below tank foundations, including all labour, material, equipment, handling, transportation, etc., all complete as per specifications, drawings and instructions of the Engineer.	Cu.M.	40.00	₹ 11,395.00	₹ 4,55,800.00
95	34	Providing 75 mm diameter weep holes in RCC/ Brick masonry drains including providing temporary sleeve, necessary materials for formation of opening including providing and pasting geo-textile of 200mm diameter (material tested as per IS: 13162), 150mm thick sand and 150mm thick stone aggregate of 0.25 Sq.M. area on backfilling face of drain, all complete as per drawing, specifications and instructions of the Engineer.	R.M.	150.00	₹ 314.00	₹ 47,100.00
96		CONCRETE ROADS:				
97	35	Supplying and laying 300mmx250mmx500mm deep precast concrete kerb stone of grade M-20 with 20 mm nominal size stone aggregate and of shape as per detailed drawing including fixing with cement mortar (1:2) in 13mm thick joints, finishing of joints with neat cement paste, making drainage opening where required etc all complete.	R.M.	300.00	₹ 785.00	₹ 2,35,500.00
98	36	Excavation	Cum	4,370.00	₹ 232.00	₹ 10,13,840.00
99	37	M30 pavement quality concrete	Cum	1,600.00	₹ 8,809.00	₹ 1,40,94,400.00

S.No	ITEM No.	DESCRIPTION	UNIT	QTY.	Rate Without GST	Amount
100	38	PCC M7.5	Cum	800.00	₹ 4,637.00	₹ 37,09,600.00
101	39	WMM	Cum	900.00	₹ 325.00	₹ 2,92,500.00
102	40	Supply and laying 200 mm dia R.C.C NP-3 type Hume pipe in raised shoulders as rain water drains as per detailed drawing including fixing with cement mortar (1:2) in 13mm thick joints, finishing of joints with neat cement paste etc all complete.	R.M.	170.00	₹ 708.00	₹ 1,20,360.00
103	41	Providing & laying dry lean cement concrete of grade M15 with 20 mm nominal size graded stone aggregate over a prepared sub grade including compaction, finishing, curing etc all complete. The road base shall be with minimum 150 mm thick dry lean concrete over granular sub base. Dry lean concrete shall be laid by a mechanical paver and compacted by vibratory rollers.	Cum	170.00	₹ 3,772.00	₹ 6,41,240.00
104	42	Providing and fixing separation Membrane of impermeable plastic sheeting of 125 microns thick laid flat without creases etc. all complete	Sq.M.	2,461.00	₹ 47.00	₹ 1,15,667.00
105	43	Providing and fixing in position MS dowel bar reinforcement including surface painted with bitumen and greasing, dowel end caps with cotton fills etc all complete as per specification, drawing and as directed by Engineer.	M. T.	8.00	₹ 47,150.00	₹ 3,77,200.00
106	44	Construction of Electrical Control Building (Plinth Area basis)	Sq.M.	2,455.00	₹ 25,964.00	₹ 6,37,41,620.00
		Basic Price Without GST=				₹ 47,00,17,099.50

DECLARATION FOR CERTIFIED SKILLED WORKFORCE

SUB: Tender for “Civil and Structural Works Package” for the project “Supply, Installation, Commissioning & Testing of FGD system for 500 MW Unit No.6 of Ukai TPS with 03 years comprehensive O&M contract”.

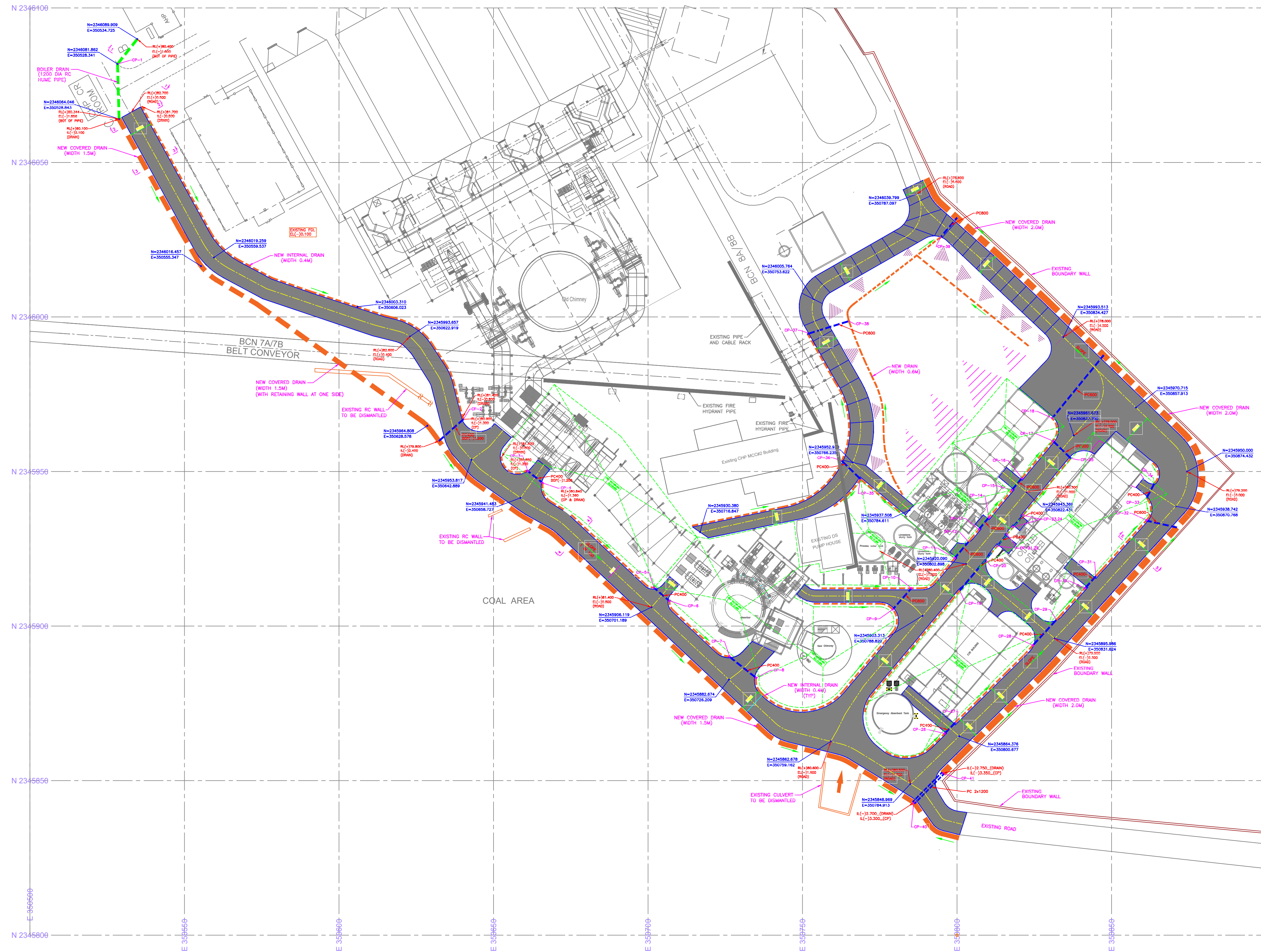
NIT No. : EPI/CO/CON/968/835 dated 04.07.2024.

We, certify that we shall submit documentary evidence of having formally certified skilled workforce within two months from the date of commencement of work under the project.

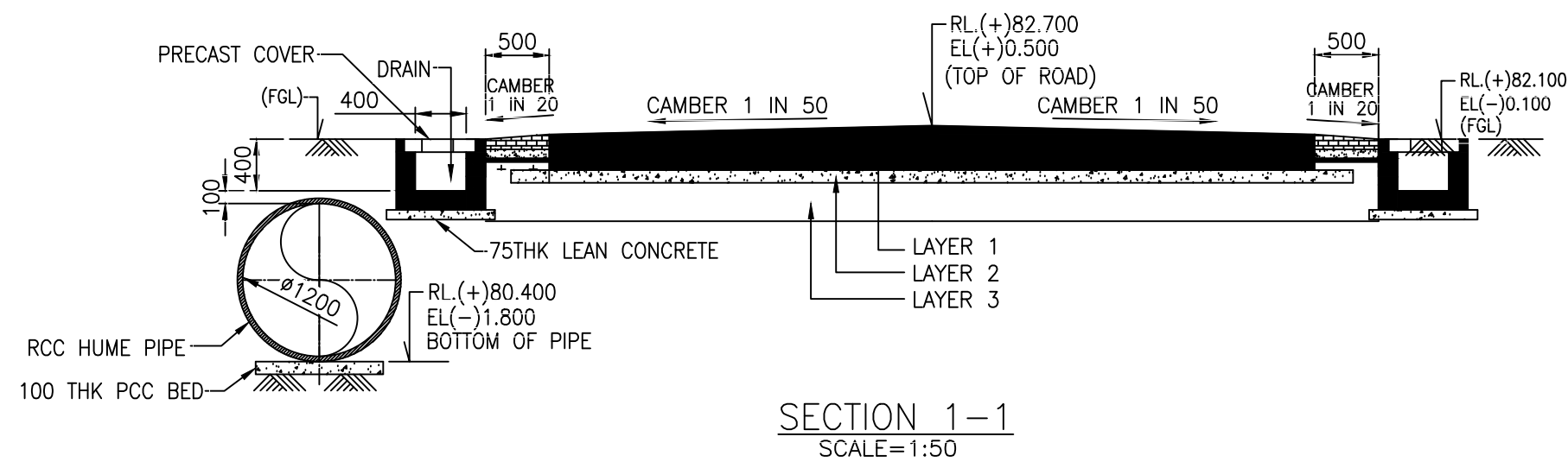
OR

We, undertake that all our workers would be skilled through Recognition of Prior Learning (RPL) within two months from the date of commencement of work under the project.

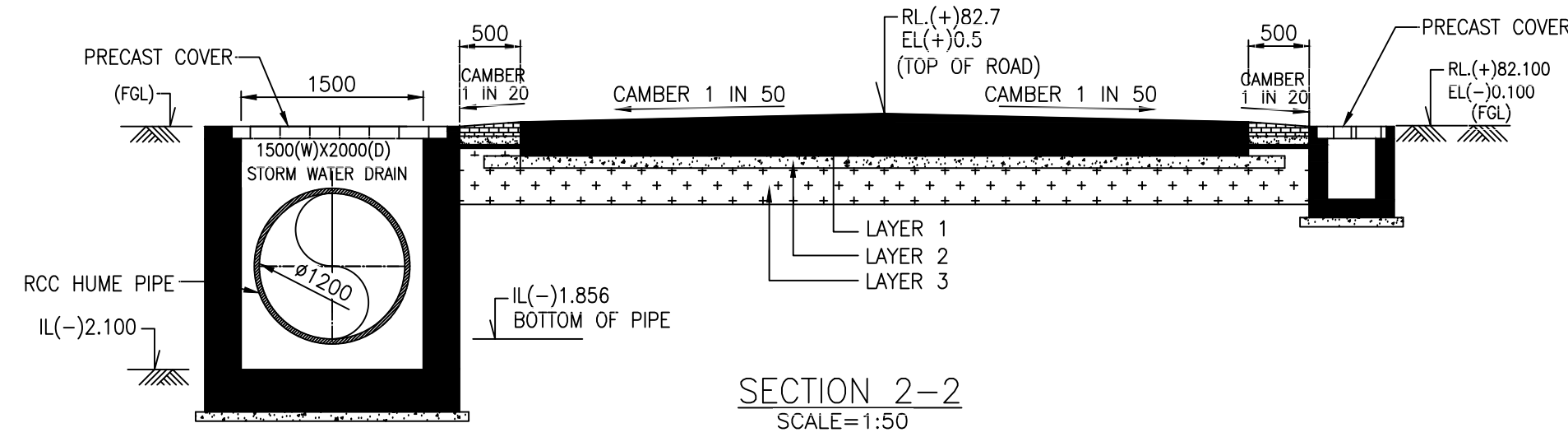
(Signature of the Tenderer)



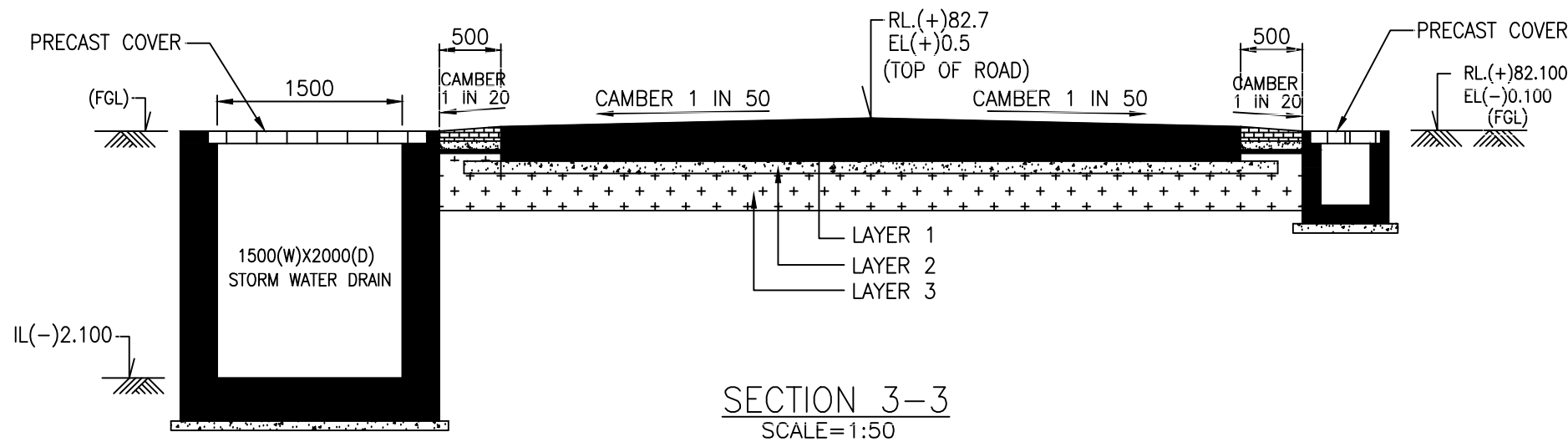
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SD	SK	DB		
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1:500	A0	1 of 1		



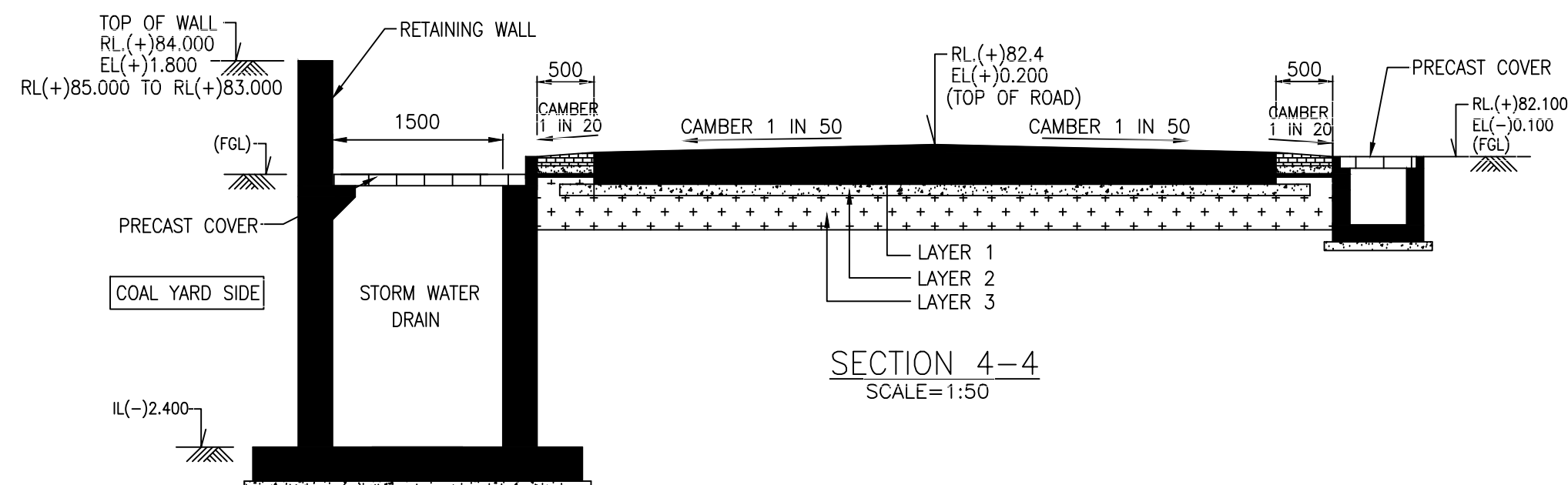
LAYER 1 --- 300 THK. CONCRETE SLAB
LAYER 2 --- 100 THK DRY LEAN CONCRETE M15 CONFORMING TO IRC:SP:49-1998
LAYER 3 --- WELL COMPACTED SUB GRADE - COMPACTED TO 95% OF THE STANDARD PROCTOR DENSITY AT OPTIMUM MOISTURE CONTENT



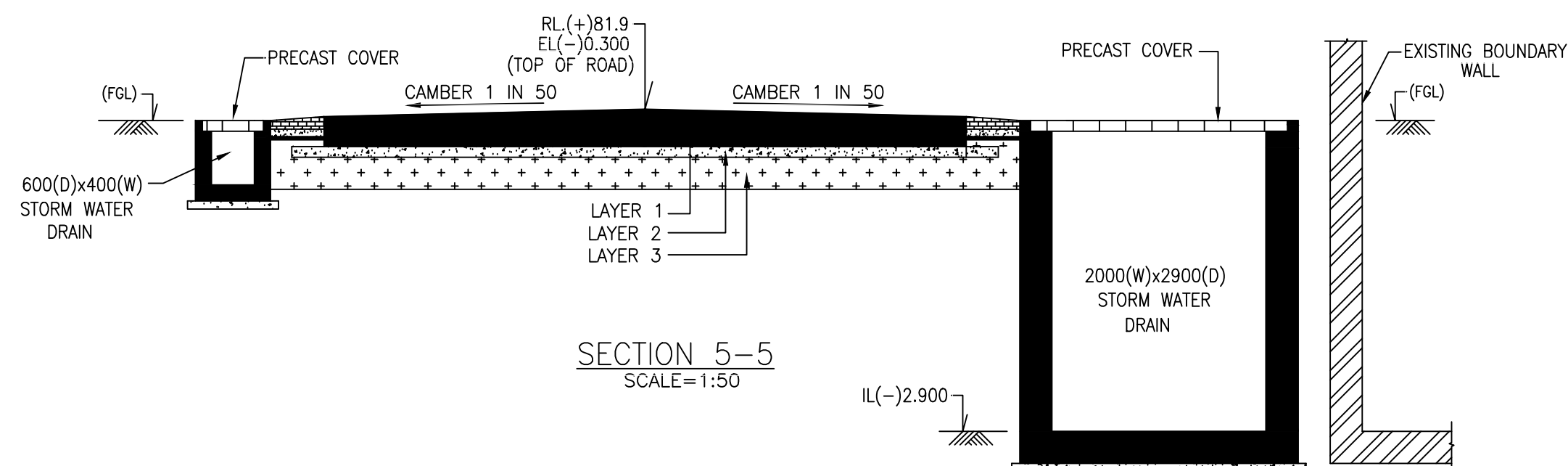
LAYER 1 --- 300 THK. CONCRETE SLAB
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LAYER 1 --- 300 THK. CONCRETE SLAB
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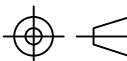


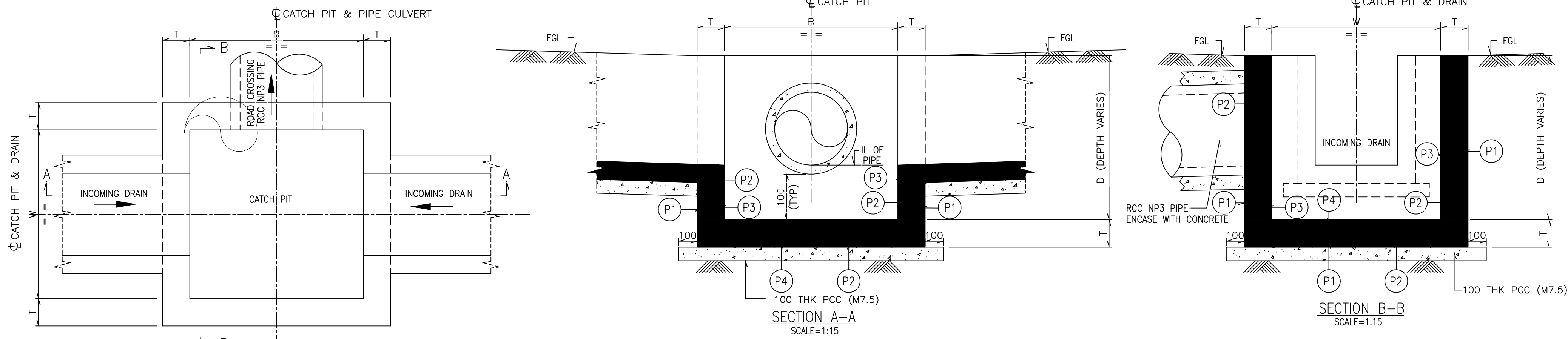
LAYER 1 --- 300 THK. CONCRETE SLAB
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LAYER 1 --- 300 THK. CONCRETE SLAB
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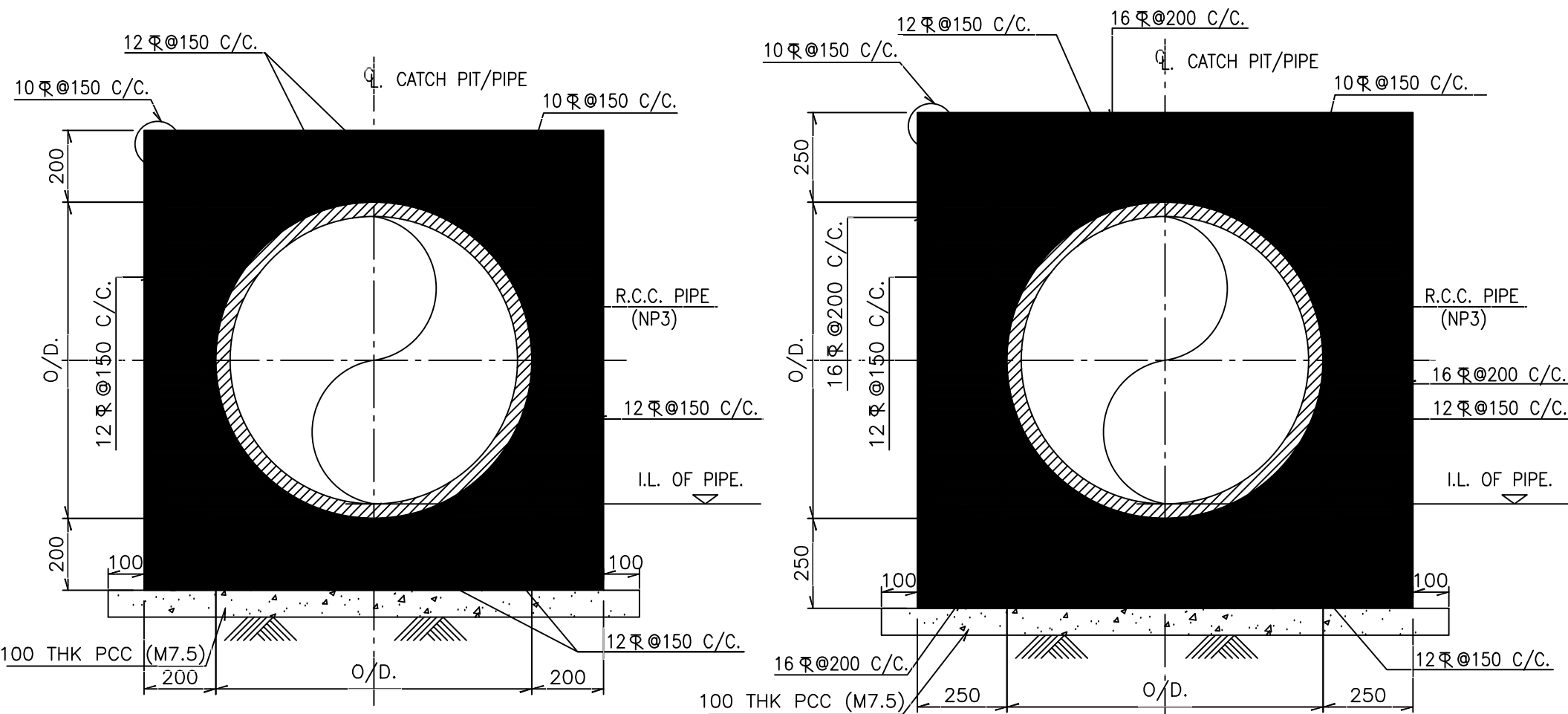
For Tender Purpose Only

01	30.05.2024	SD	SK	DB	Revised as per Customer Comment.
00	17.05.2024	SD	SK	DB	First Issue.
REV.	DATE	Prepared	Checked	Approved	Details of Revision
Owner		 Gujarat State Electricity Corporation Limited (GSECL)			
Consultants		 STEAG Energy Services			
Contractor		 Engineering Projects (India) Ltd. (EPI)			
QFGDM		 ASTIC Environmental Engineering Co.,LTD			
Consultant of EPC Contractor		 ERC Technology Pvt. Ltd.			
Project: Supply, installation, commissioning & testing of FGD system for 1X500 MW Unit No.6 of Ukai TPS with 03 years comprehensive O&M contract					
Drawing name:					Project No.:
CROSS SECTIONAL DETAILS OF ROAD & DRAIN					IA23001
Design:	Check:	App:	EPI Drawing No.:		
SD	SK	DB	EPI-C-DE-B01-RDD		
Scale:	Size:	Unit:	ASTIC Drawing No.:		REV. 0
1:50	A1	1 of 1	DD/ERC/016/P3/G/102/02		

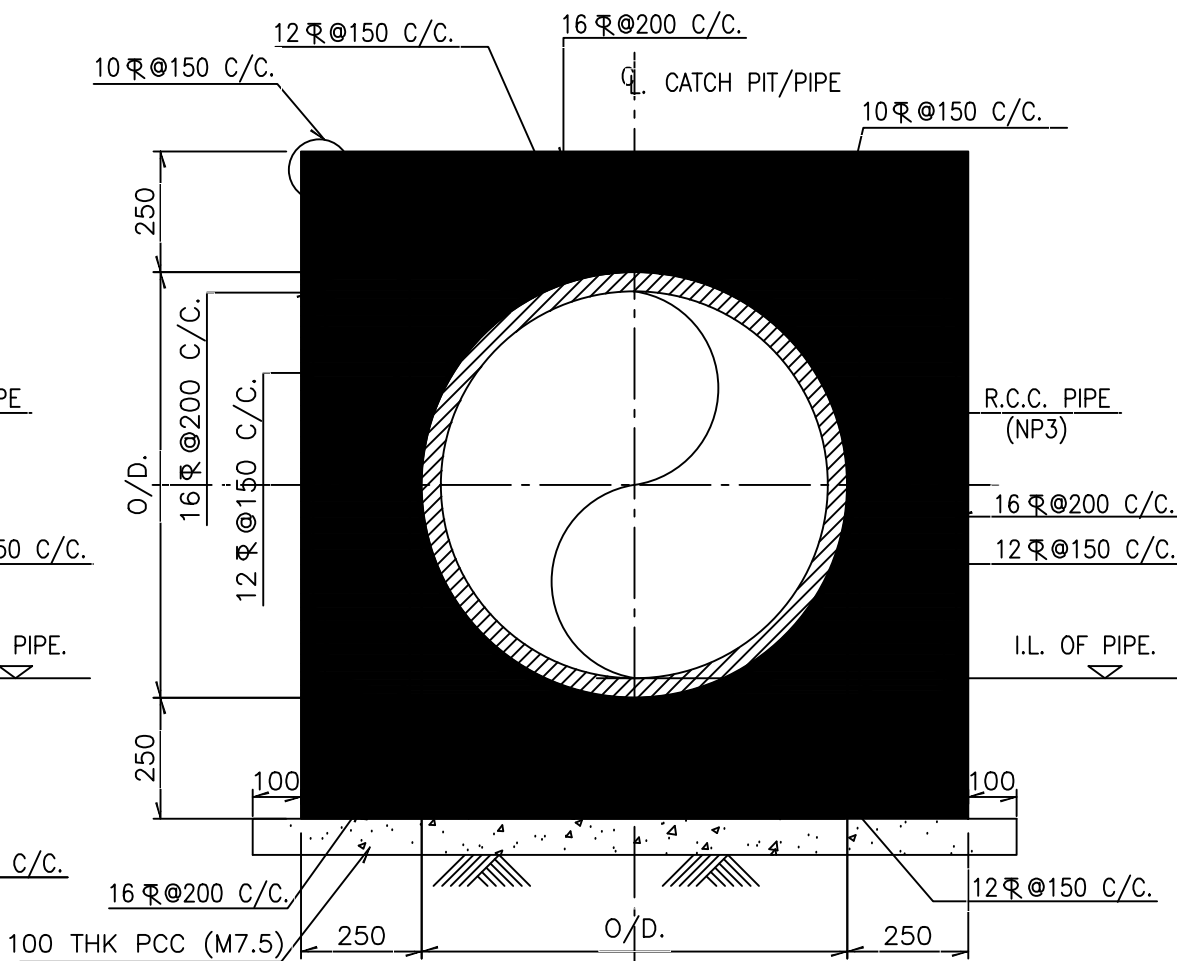


TYP. DETAIL OF OPENED CATCH PIT
SCALE=1:15

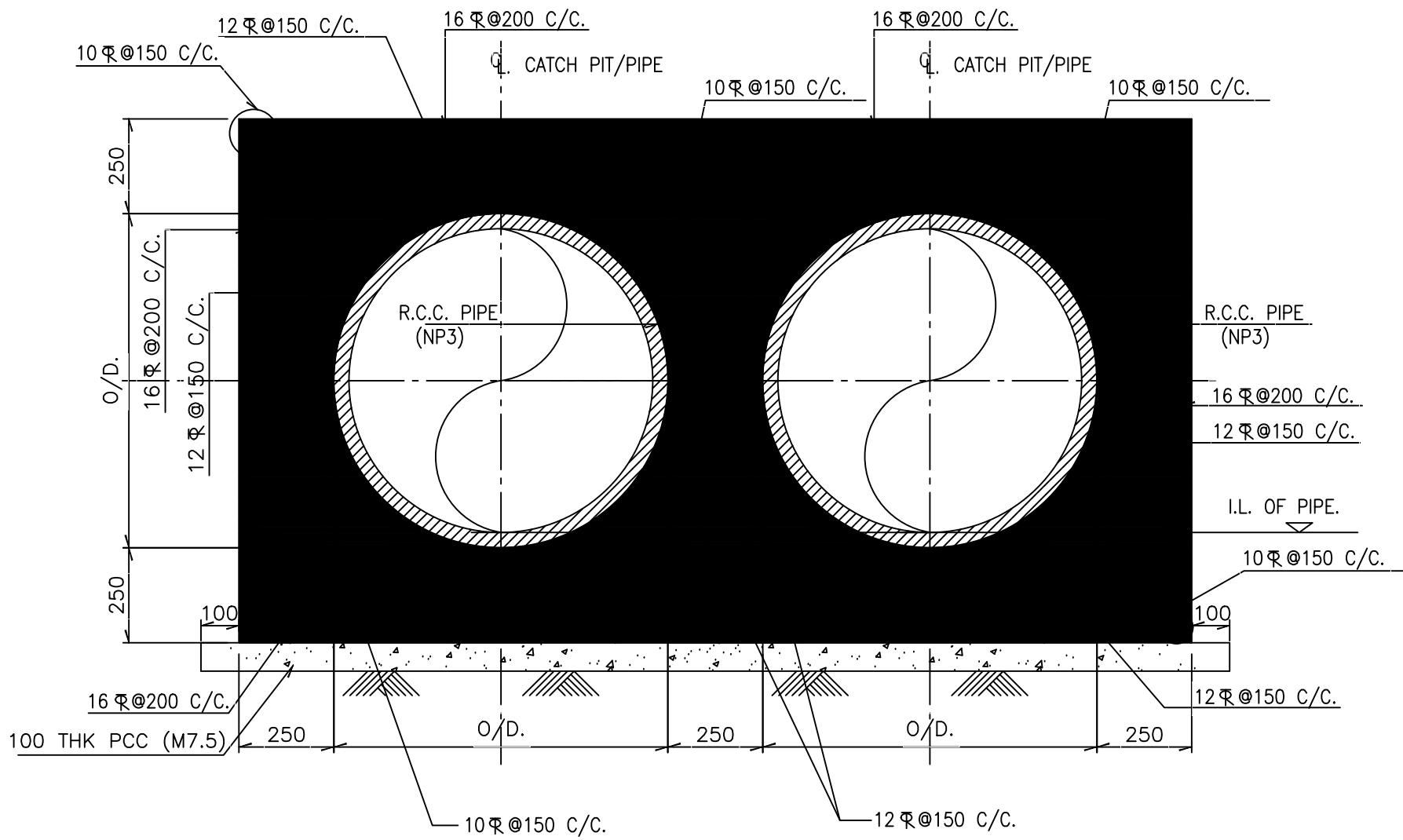
REINFORCEMENT DETAILS FOR CATCH PIT								
SL NO.	WIDTH OF CATCH PIT (MM)	WIDTH OF CATCH PIT (MM)	DEPTH OF CATCH PIT (MM)	THICKNESS OF SIDE WALLS & BOTTOM SLAB (MM)	REINFORCEMENT			
	B	W	D	T	P1	P2	P3	P4
1	1000	1000	UPTO 800	125	8 Φ 150 C/C	8 Φ 250 C/C	8 Φ 150 C/C	8 Φ 200 C/C
2	1000	1000	ABOVE 800 UPTO 1200	150	10 Φ 200 C/C	8 Φ 250 C/C	10 Φ 200 C/C	8 Φ 200 C/C
3	1000	1000	ABOVE 1200 UPTO 1500	175	10 Φ 150 C/C	8 Φ 250 C/C	10 Φ 150 C/C	8 Φ 150 C/C
4	1200	1200	ABOVE 800 UPTO 1500	200	12 Φ 150 C/C	8 Φ 250 C/C	12 Φ 150 C/C	8 Φ 150 C/C
5	1200	1200	ABOVE 1500 UPTO 1750	200	12 Φ 150 C/C	8 Φ 250 C/C	12 Φ 150 C/C	8 Φ 150 C/C



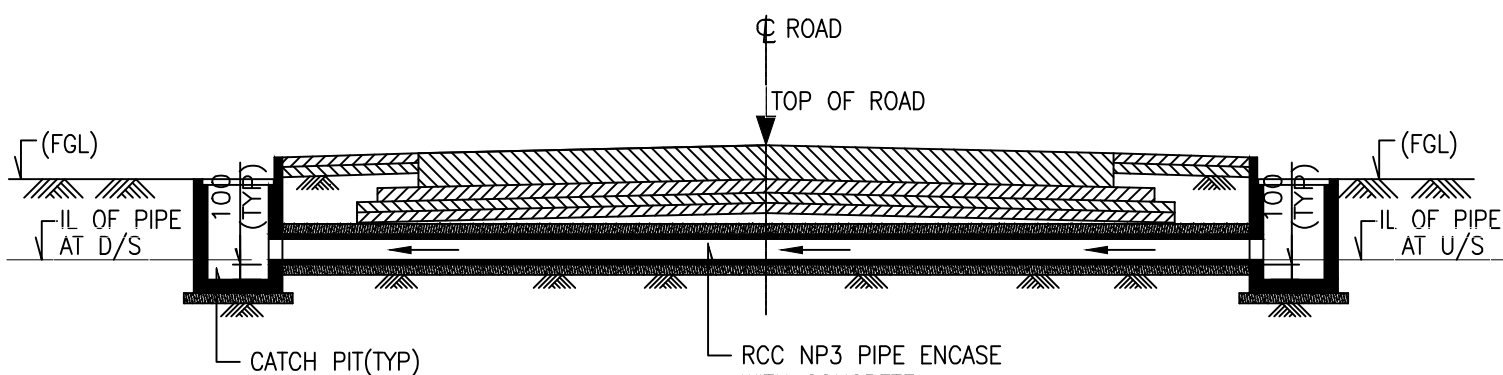
TYP. DETAIL OF PIPE ENCASING
UNDER ROAD/PAVEMENT
FOR 400 M.M. DIA. & 600 M.M. DIA. NP3 PIPE
SCALE=1:15



TYP. DETAIL OF PIPE ENCASING
UNDER ROAD/PAVEMENT
FOR 800/1200 M.M. DIA. NP3 PIPE
SCALE=1:15



TYP. DETAIL OF PIPE ENCASING
UNDER ROAD/PAVEMENT
FOR 2-1200 M.M. DIA. NP3 PIPE
SCALE=1:15



TYP. LONG. SECTIONAL DETAIL OF ROAD CROSSING
SCALE=1:15

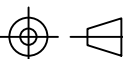
NOTES:

- ALL DIMENSIONS ARE IN MILLIMETRE AND LEVELS ARE IN METRE UNLESS NOTED OTHERWISE.
- UNLESS NOTED OTHERWISE ALL STRUCTURAL CONCRETE SHALL BE OF GRADE M25, AND THE LEAN CONCRETE SHALL BE OF GRADE M7.5.
- ALL REINF. SHALL BE TMT BARS OF GRADE Fe 500 CONFIRMING TO OTHER REQUIREMENTS OF IS : 1786-1985
- CLEAR COVER TO REINFORCEMENT SHALL BE AS FOLLOWS:-

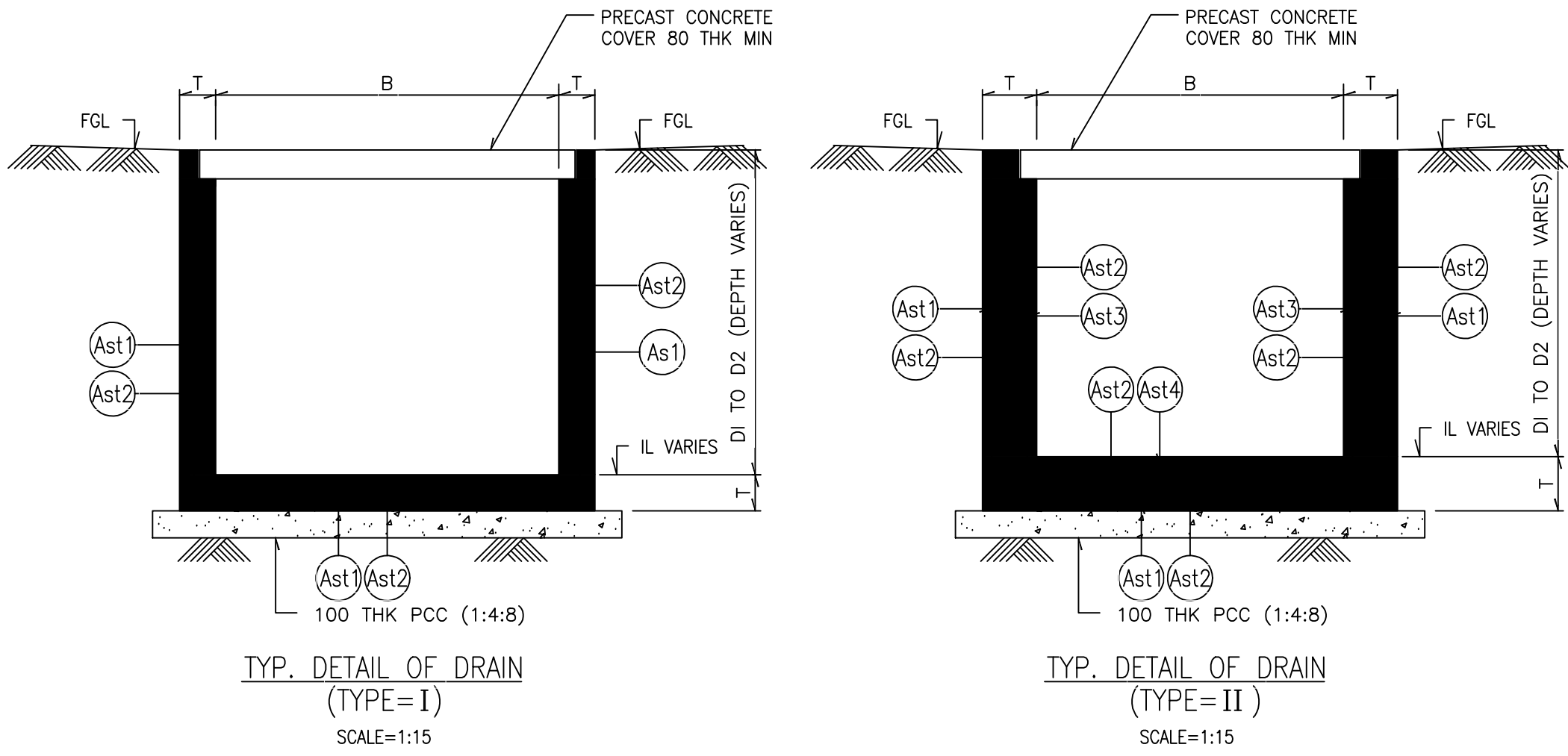
	TOP	BOTTOM	SIDES
BASE SLAB :-	40	40	40
SIDE WALLS :-	40	40	40
- LAP LENGTH & Ld SHALL BE 50 TIMES THE DIA OF BAR
- IN CASE OF ENCOUNTERANCE OF LOOSE SOIL BELOW FOUNDATION, THE LOOSE SOIL SHALL BE EXCAVATED TILL THE HARD STRATUM IS ACHIEVED AND THE EXCAVATED LOOSE SOIL PORTION SHALL BE REPLACED WITH FILL CONCRETE OF M10 GRADE.
- LAPS SHALL BE STAGGERED AND IN NO CASE MORE THAN 50% OF LAPS SHALL COME AT ANY SECTION.
- REINFORCEMENT DETAILS ARE SHOWN PRELIMINARY. THESE ARE TO BE FINALIZED AFTER APPROVAL OF LAYOUT & FGL. HENCE, NOT TO BE USED FOR CONSTRUCTION PURPOSE.

ENGG. REF. DWGS:

- AREA GRADING PLAN -----XXXXXXXXXXXXXXXXXXXXX
- PLANT DRAIN LAYOUT -----XXXXXXXXXXXXXXXXXXXXX
- CHART FOR STORM WATER DRAINS -----XXXXXXXXXXXXXXXXXXXXX

01	30.05.2024	SD	SK	DB	Revised as per Customer Comment.
00	17.05.2024	SD	SK	DB	
REV.	DATE	Prepared	Checked	Approved	Details of Revision
Owner		 Gujarat State Electricity Corporation Limited (GSECL)			
Consultants		 STEAG Energy Services			
Contractor		 Engineering Projects (India) Ltd. (EPIL)			
QFGDM		 ASTIC Environmental Engineering Co.,LTD			
Consultant of EPC Contractor		 ERC Technology Pvt. Ltd.			
Project: Supply, installation, commissioning & testing of FGD system for 1X500 MW Unit No.6 of Ukai TPS with 03 years comprehensive O&M contract					
Drawing name: TYPICAL CATCH PIT & PIPE CULVERT DETAIL					Project No: IA23001
Design:	Check:	App:	EPI Drawing No: EPI-C-DE-B01-RDD		
SD	SK	DB			
Scale:	Size:	Unit:	ASTIC Drawing No: DD/ERC/016/P3/G/102/04		REV. 0
1:1	A0	1 of 1			

For Tender Purpose Only



SL NO.	DRAIN MKD.	TYPE	WIDTH OF DRAIN (MM)	DEPTH OF DRAIN (MM)		THICKNESS OF SIDE WALLS & BOTTOM SLAB (MM)	REINFORCEMENT (YxTOR STEEL DIA – c/c SPACING IN MM)				REMARKS
				(START)	(END)		Ast1	Ast2	Ast3	Ast4	
				B	D1						
1	A1	I	450	300	475	100	Y8–250	Y8–250			CENTRAL REINF.
2	A2	I	450	300	475	100	Y8–250	Y8–250			
3	A3	I	500	475	700	100	Y8–250	Y8–250			
		II	500	700	775	125	Y8–250	Y8–250	Y8–250	Y8–250	
4	A4	I	550	300	700	100	Y8–250	Y8–250			CENTRAL REINF.
5	A5	II	600	700	825	125	Y8–250	Y8–250	Y8–250	Y8–250	
6	A6	II	650	825	1175	125	Y8–100	Y8–250	Y8–250	Y8–250	
7	A7	II	850	1175	1425	150	Y10–125	Y8–250	Y8–250	Y8–250	
8	A8	II	850	1525	1750	150	Y12–100	Y8–250	Y12–250	Y8–250	
9	B1	I	450	300	475	100	Y8–250	Y8–250			CENTRAL REINF.
10	B2	I	650	475	700	100	Y8–250	Y8–250			
11	B3	I	450	300	525	100	Y8–250	Y8–250			
12	B4	II	700	800	1000	125	Y8–175	Y8–250	Y8–250	Y8–250	
13	B5	I	450	300	500	100	Y8–250	Y8–250			CENTRAL REINF.
14	C1	I	450	250	400	100	Y8–250	Y8–250			
15	C2	I	575	400	700	100	Y8–250	Y8–250			
		II	575	700	800	125	Y8–250	Y8–250	Y8–250	Y8–250	
16	C3	II	575	800	1000	125	Y8–175	Y8–250	Y8–250	Y8–250	
17	C4	I	500	250	750	100	Y8–250	Y8–250			CENTRAL REINF.
18	C5	I	450	300	700	100	Y8–250	Y8–250			
19	C6	II	900	750	950	125	Y8–200	Y8–250	Y8–250	Y8–250	
20	C7	II	1000	1100	1600	150	Y12–150	Y8–250	Y10–250	Y8–250	
21	C8	II	1000	1700	1900	175	Y12–100	Y8–250	Y12–250	Y8–200	

LEGEND:
PCC – PLAIN CEMENT CONCRETE
IL – INVERT LEVEL

NOTES:

- ALL DIMENSIONS ARE IN MILLIMETRE AND LEVELS & COORDINATES ARE IN METRE UNLESS NOTED OTHERWISE.
- UNLESS NOTED OTHERWISE ALL STRUCTURAL CONCRETE SHALL BE OF GRADE M25, AND THE LEAN CONCRETE SHALL BE OF GRADE M7.5.
- ALL REBARS SHALL BE TMT BARS OF GRADE Fe 500 CONFIRMING TO OTHER REQUIREMENTS OF IS : 1786–1985
- CLEAR COVER TO REINFORCEMENT SHALL BE AS FOLLOWS:–

TOP BOTTOM SIDES

BASE SLAB :– 30 30 30

SIDE WALLS :– 30 30 30
- LAP LENGTH & Ld SHALL BE 50 TIMES THE DIA OF BAR
- IN CASE OF ENCOUNTERANCE OF LOOSE SOIL BELOW FOUNDATION, THE LOOSE SOIL SHALL BE EXCAVATED TILL THE HARD STRATUM IS ACHIEVED AND THE EXCAVATED LOOSE SOIL PORTION SHALL BE REPLACED WITH FILL CONCRETE OF M10 GRADE.
- LAPS SHALL BE STAGGERED AND IN NO CASE MORE THAN 50% OF LAPS SHALL COME AT ANY SECTION.
- REINFORCEMENT DETAILS ARE SHOWN PRELIMINARY. THESE ARE TO BE FINALIZED AFTER APPROVAL OF LAYOUT & FGL. HENCE, NOT TO BE USED FOR CONSTRUCTION PURPOSE.

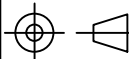
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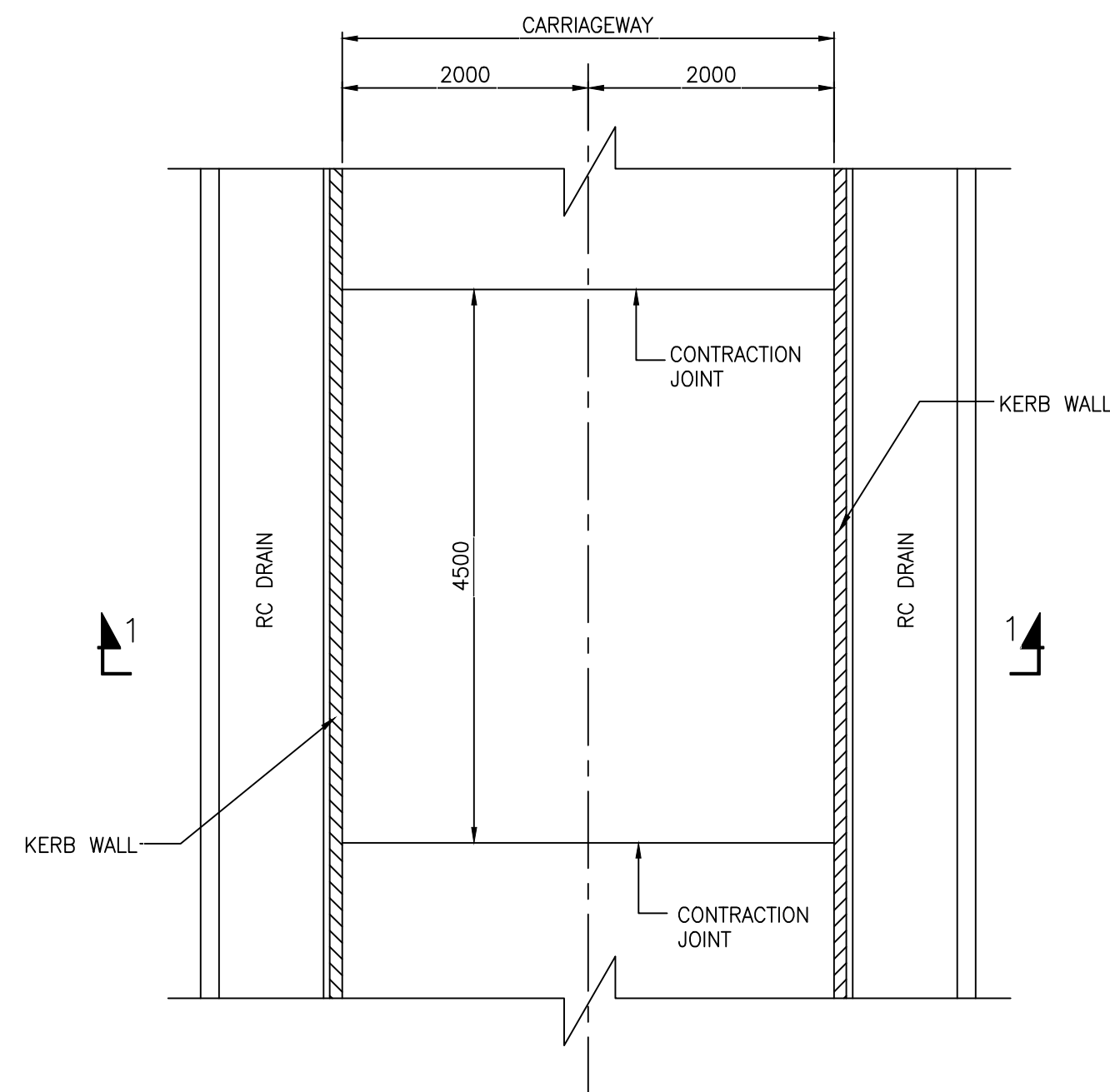
1. PLOT PLAN -----XXXXXXXXXXXXXXXXXX

CONST. DWG.

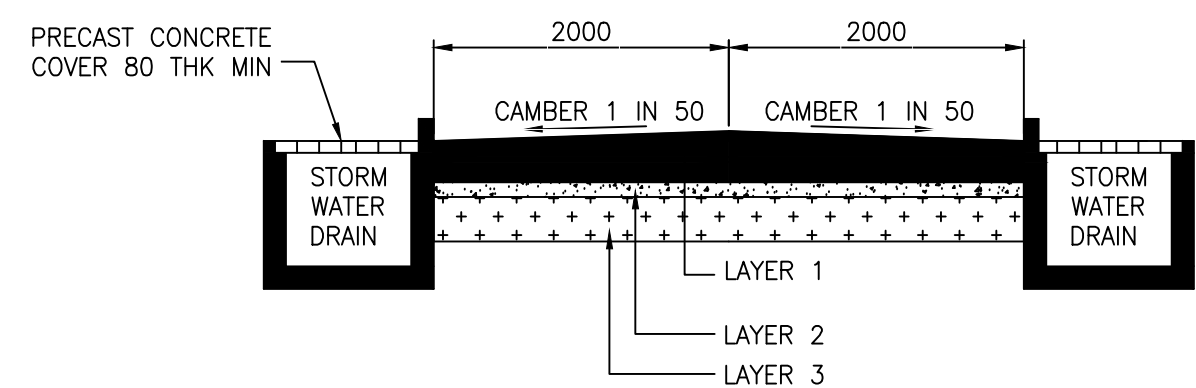
1. PLANT DRAIN LAYOUT-----XXXXXXXXXXXXXXXXXX

For Tender Purpose Only

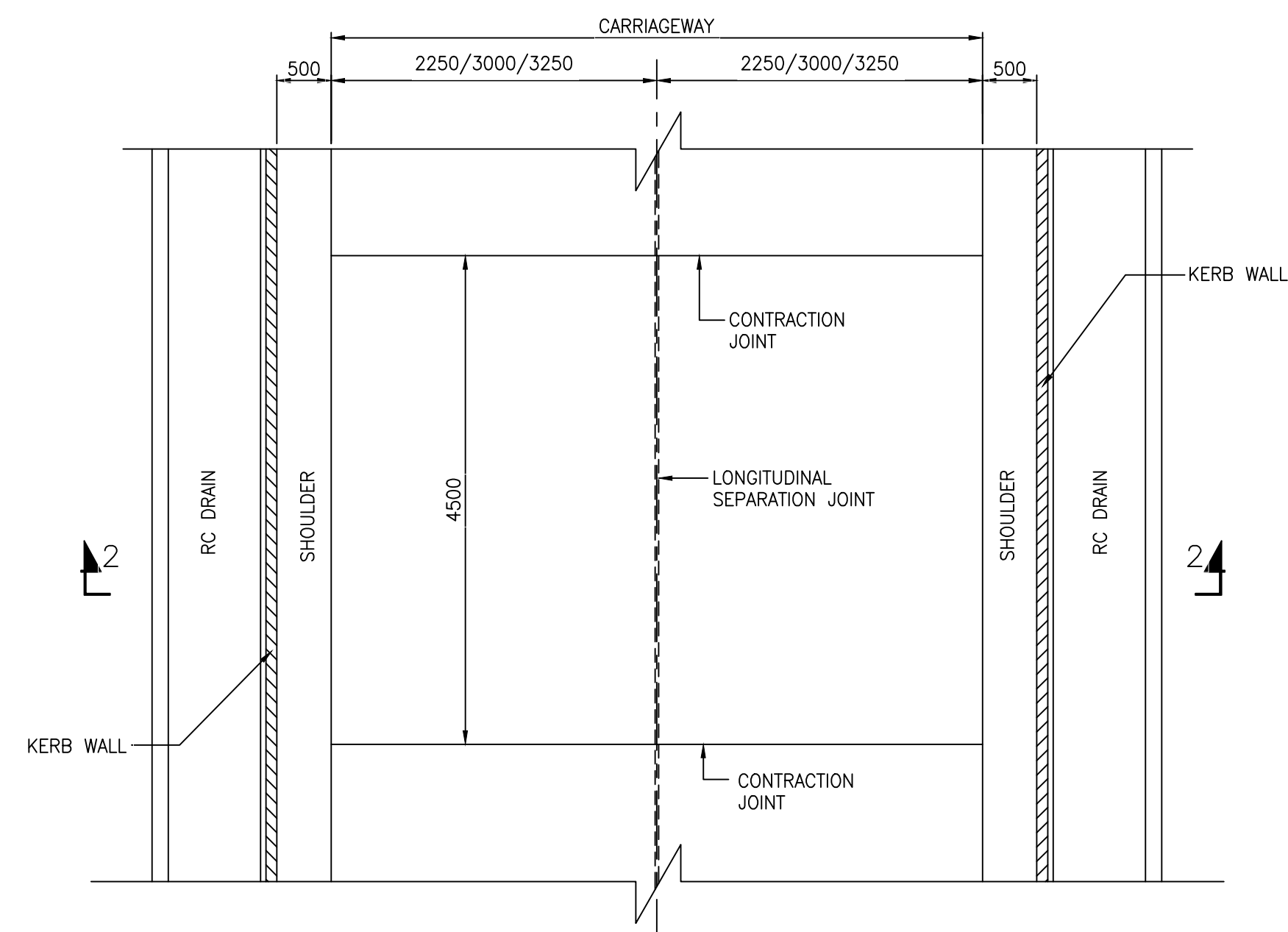
01	30.05.2024	SD	SK	DB	Revised as per Customer comment.
00	17.05.2024	SD	SK	DB	First Issue.
REV.	DATE	Prepared	Checked	Approved	Details of Revision
Owner		 Gujarat State Electricity Corporation Limited (GSECL)			
Consultants		 STEAG Energy Services			
Contractor		 Engineering Projects (India) Ltd. (EPIL)			
QFGDM		 ASTIC Environmental Engineering Co.,LTD			
Consultant of EPC Contractor		 ERC Technology Pvt. Ltd.			
Project: Supply, installation, commissioning & testing of FGD system for 1X500 MW Unit No.6 of Ukai TPS with 03 years comprehensive O&M contract					
Drawing name: TYPICAL DRAIN CROSS SECTION DETAIL					Project No: IA23001
Design: SD	Check: SK	App: DB	EPI Drawing No: EPI-C-DE-B01-RDD		
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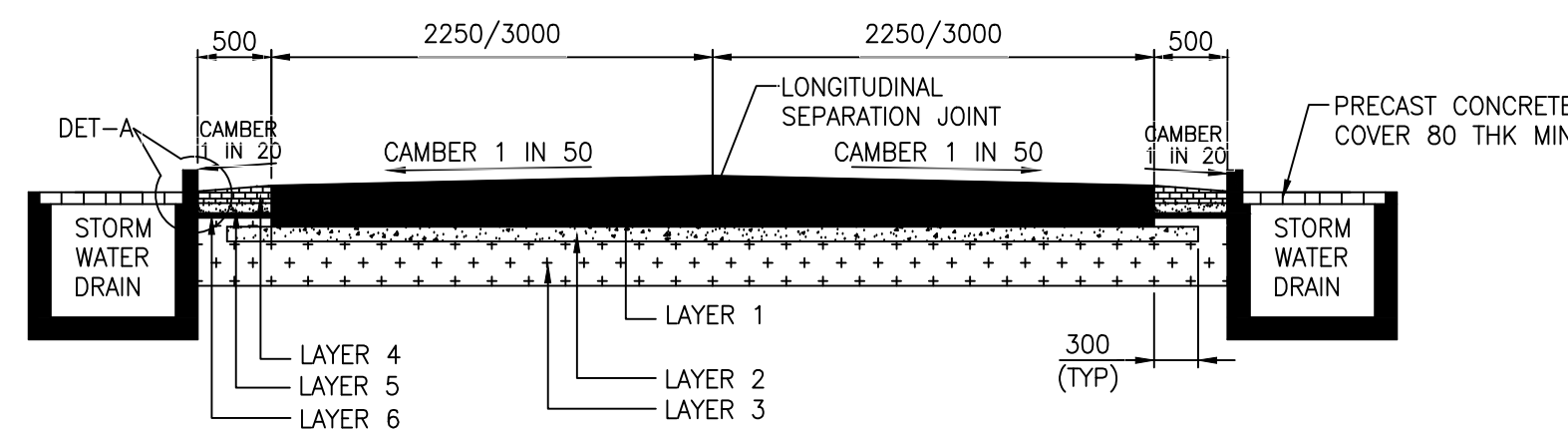
PLAN OF 4M WIDE CARRIAGEWAY
SCALE=1:50



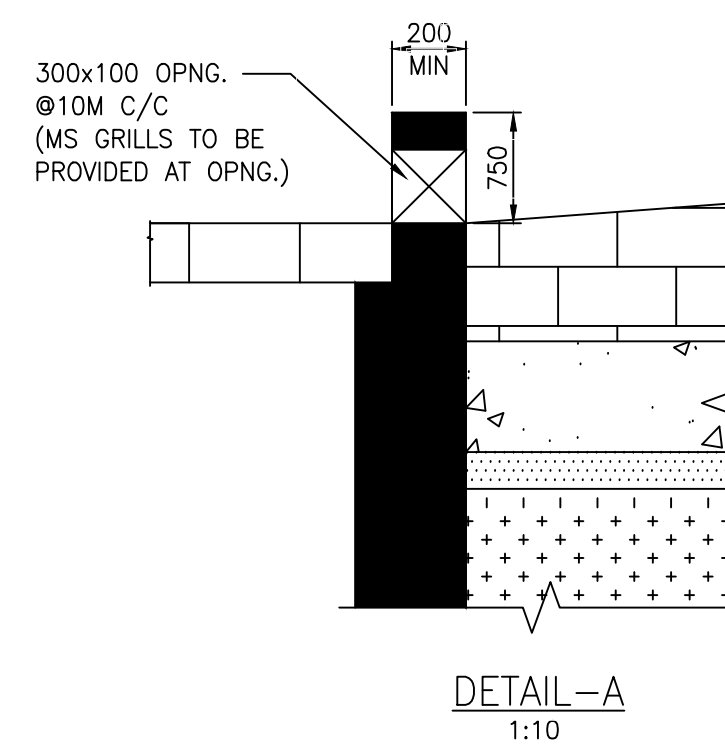
SECTION 1-1
SCALE=1:50



PLAN OF 4.5/6M WIDE CARRIAGEWAY
SCALE=1:50



SECTION 2-2
SCALE=1:50



DETAIL-A
1:10

LEGEND

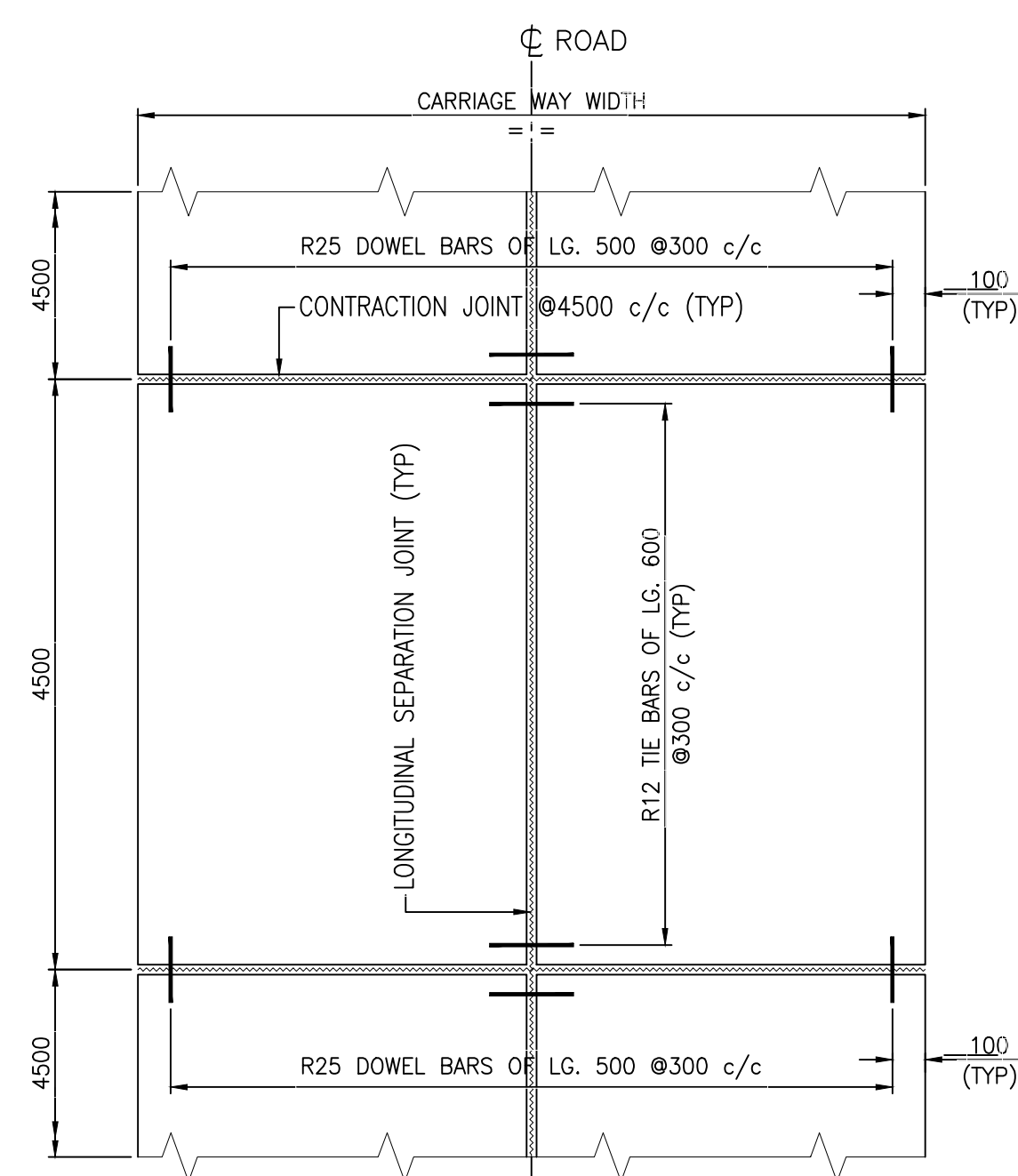
- LAYER 1 --- 300 THK. CONCRETE SLAB
LAYER 2 --- 100 THK DRY LEAN CONCRETE M15 CONFORMING TO IRC:SP:49-1998
LAYER 3 --- WELL COMPACTED SUB GRADE - COMPACTED TO A MINIMUM 95 % OF THE MAXIMUM DRY DENSITY (MODIFIED PROCTOR) AT OPTIMUM MOISTURE CONTENT WITHOUT DEVIATION OF MOISTURE CONTENT BY MORE THAN 2%
LAYER 4 --- 80MM THK PCC INTERLOCKING BLOCKS (MEDIUM DUTY)
LAYER 5 --- 75MM THK PCC M7.5
LAYER 6 --- 25MM THK SAND BEDDING.

NOTES

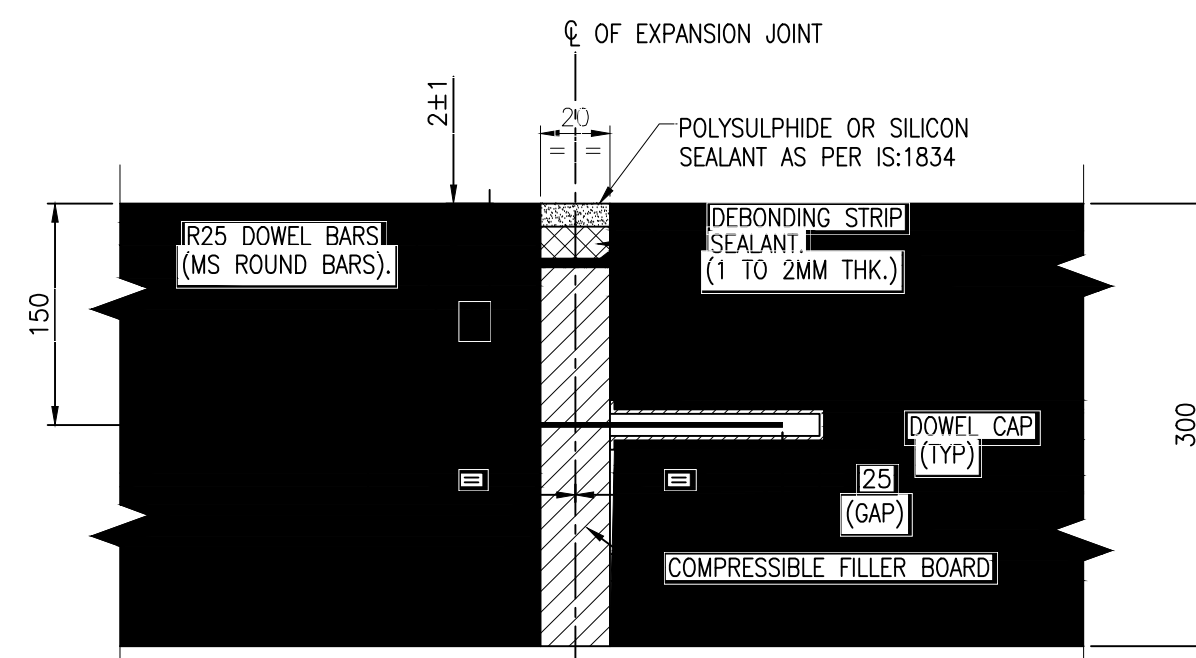
- ALL DIMENSIONS ARE IN MILLIMETERES & ELEVATIONS ARE IN METRES
- CEMENT SHALL BE ORDINARY PORTLAND CEMENT WITH FLY ASH. ORDINARY PORTLAND CEMENT SHALL CONFORM TO IS:8112 & IS:12269 & FLY ASH SHALL CONFORM TO IS:3812.
- GRADE OF CONCRETE SHALL BE M25 WITH 20MM DOWN GRADED AGGREGATES.
- REINFORCEMENT STEEL SHALL BE OF MILD STEEL BARS CONFORM TO IS:432 (PART-1).
- THE SEALING COMPOUND SHALL COMPLY WITH THE REQUIREMENTS OF IS:1834 - SPECIFICATION FOR HOT APPLIED SEALING COMPOUND FOR JOINTS IN CONCRETE.
- ALL WORK SHALL BE CARRIED OUT AS PER THE RELEVANT SPECIFICATIONS.
- CONCRETE PAVEMENT SHALL BE CAST ON WBM AT FINAL STAGE OF WORK AFTER REPAIRING THE WBM SURFACE WHEREVER REQD.
- MAXIMUM GRADE OF ROAD WILL BE 5%.
- MINIMUM CROSS SLOPE WILL BE 2 %.
- MINIMUM CEMENT CONTENT SHALL BE 360 KG/M3
- MAXIMUM SPACING BETWEEN EXPANSION JOINT SHALL BE 30 M.
- MAXIMUM SPACING BETWEEN CONTRACTION JOINT SHALL BE 4.5M.
- LONGITUDINAL SEPARATION JOINT SHALL BE PLACED AT CENTER FOR 6.0 M WIDE ROADS.

CONST REF DWG

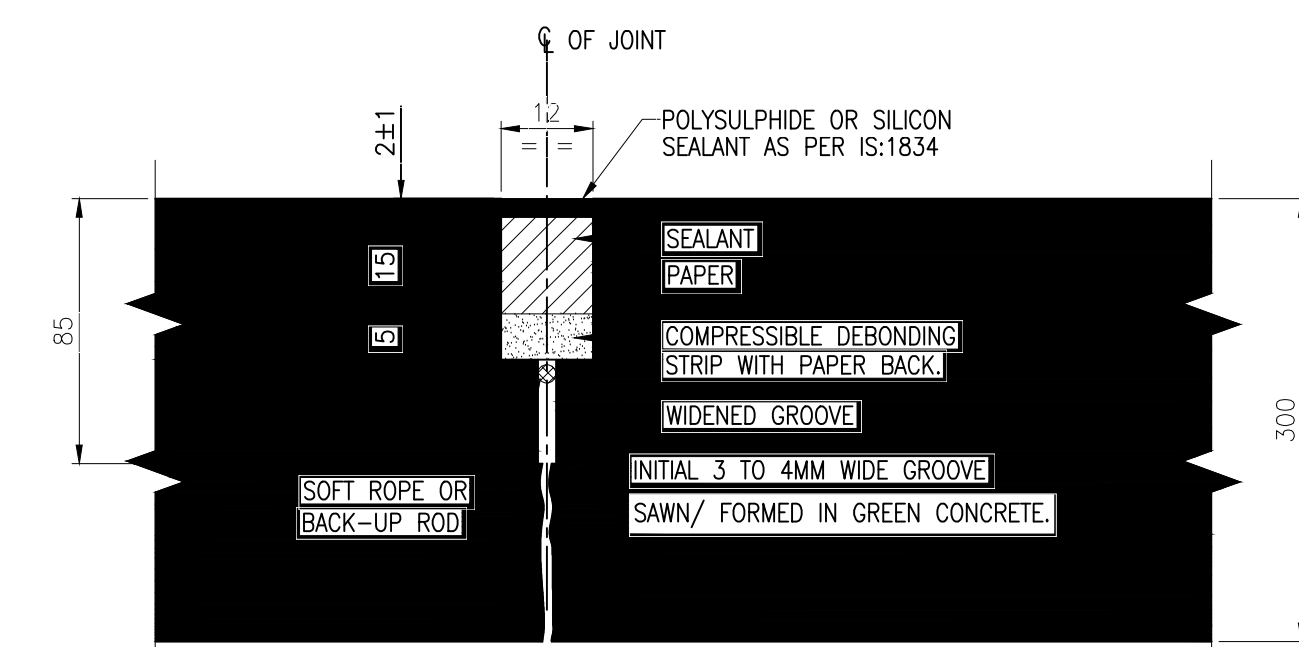
- PLOT PLAN ----- XXXXXXXXXXXXXXXXXXXXXXX
- GENERAL NOTES ----- XXXX
- GENERAL MASONRY & RC WORKS STD. DETAILS----- XXXX
- PLANT ROADS & DRAINS LAYOUT----- XXXX



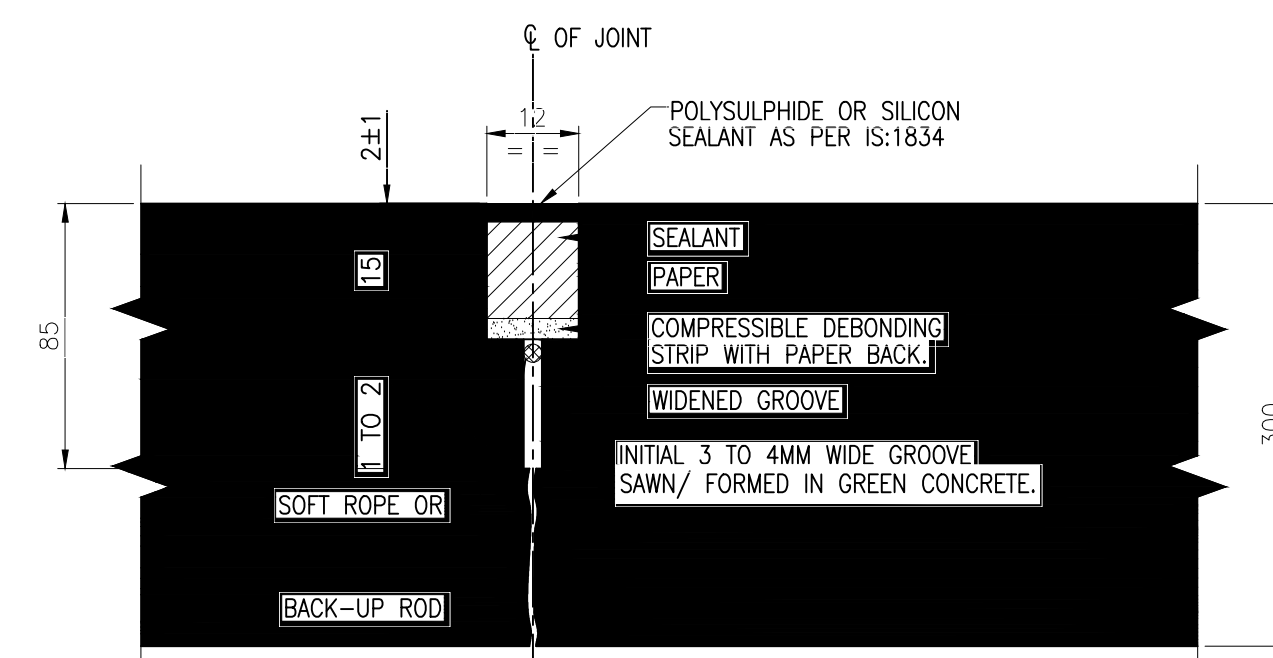
TYP PLAN OF CONCRETE ROAD
SCALE=1:50



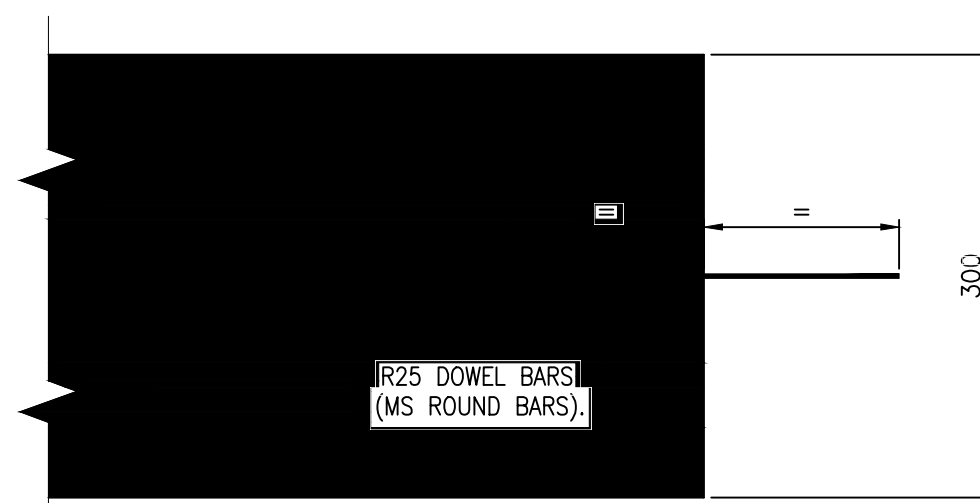
TYP DETAIL OF EXPANSION JOINT
SCALE=NTS



TYP DETAIL OF CONSTRUCTION & CONTRACTION JOINT
SCALE=NTS



TYP DETAIL OF LONGITUDINAL SEPARATION JOINT
SCALE=NTS



TYP DOWEL POSITION IN ROAD SLAB
(SCALE=NTS)

REV.	DATE	Prepared	Checked	Approved	Details of Revision
01	30.05.2024	SD	SK	DB	Revised as per Customer comment.
00	17.05.2024	SD	SK	DB	First Issue.
REV.	DATE	Prepared	Checked	Approved	Details of Revision
Owner		Gujarat State Electricity Corporation Limited (GSECL)			
Consultants		STEAG Energy Services			
Contractor		Engineering Projects (India) Ltd. (EPIL)			
QFGDM		ASTIC Environmental Engineering Co.,LTD			
Consultant of EPC Contractor		ERC Technology Pvt. Ltd.			

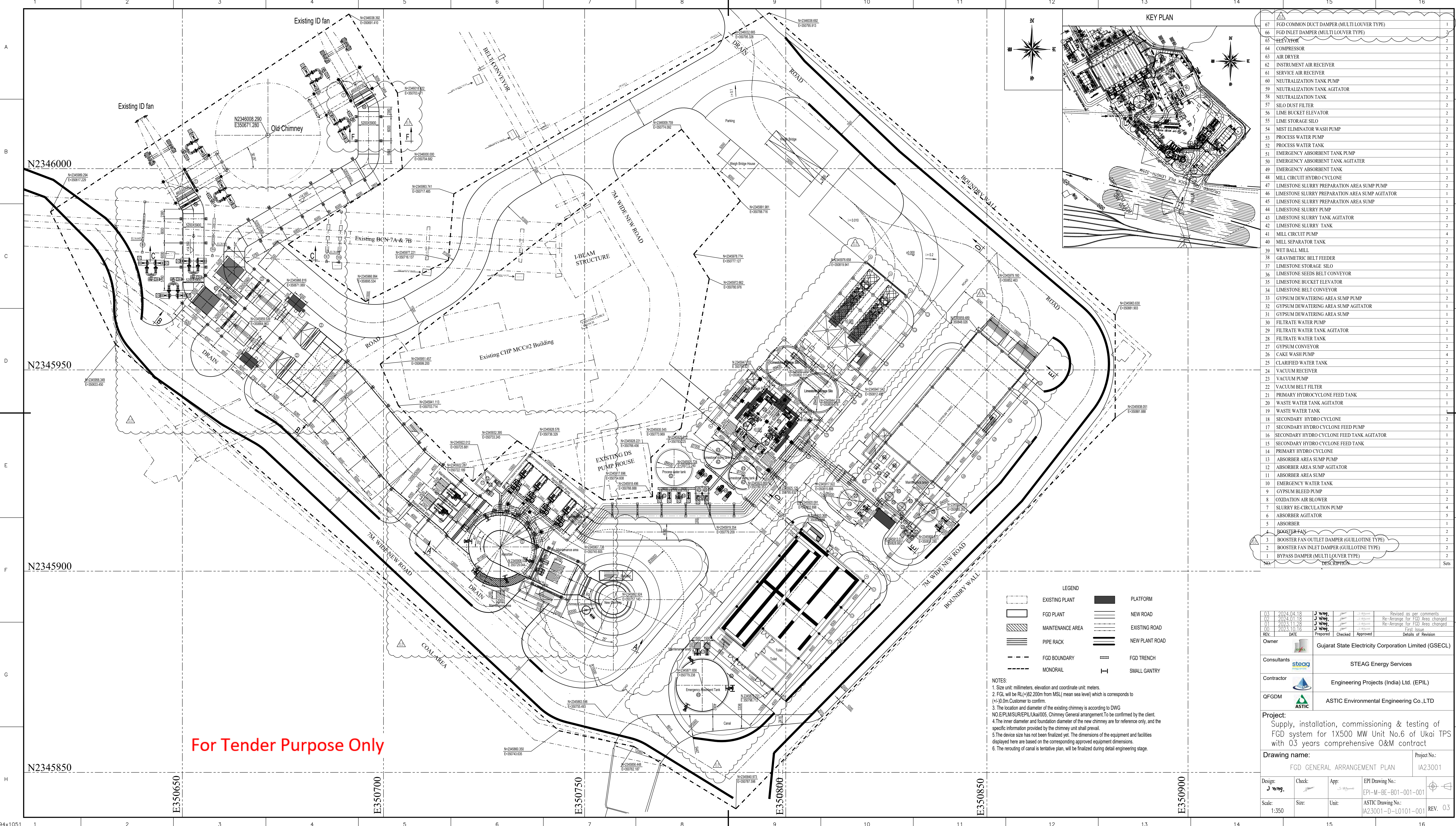
Project:
Supply, installation, commissioning & testing of FGD system for 1X500 MW Unit No.6 of Ukai TPS with 03 years comprehensive O&M contract

Drawing name:
TYPICAL ROAD CROSS SECTION DETAIL

Project No.:
IA23001

Design:	Check:	App:	EPI Drawing No.:	
SD	SK	DB	EPI-C-DE-801-RDD	
Scale:	Size:	Unit:	ASTIC Drawing No.:	REV. 0
1:5	A1	1 of 1	DD/ERC/016/P3/G/102/03	

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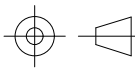


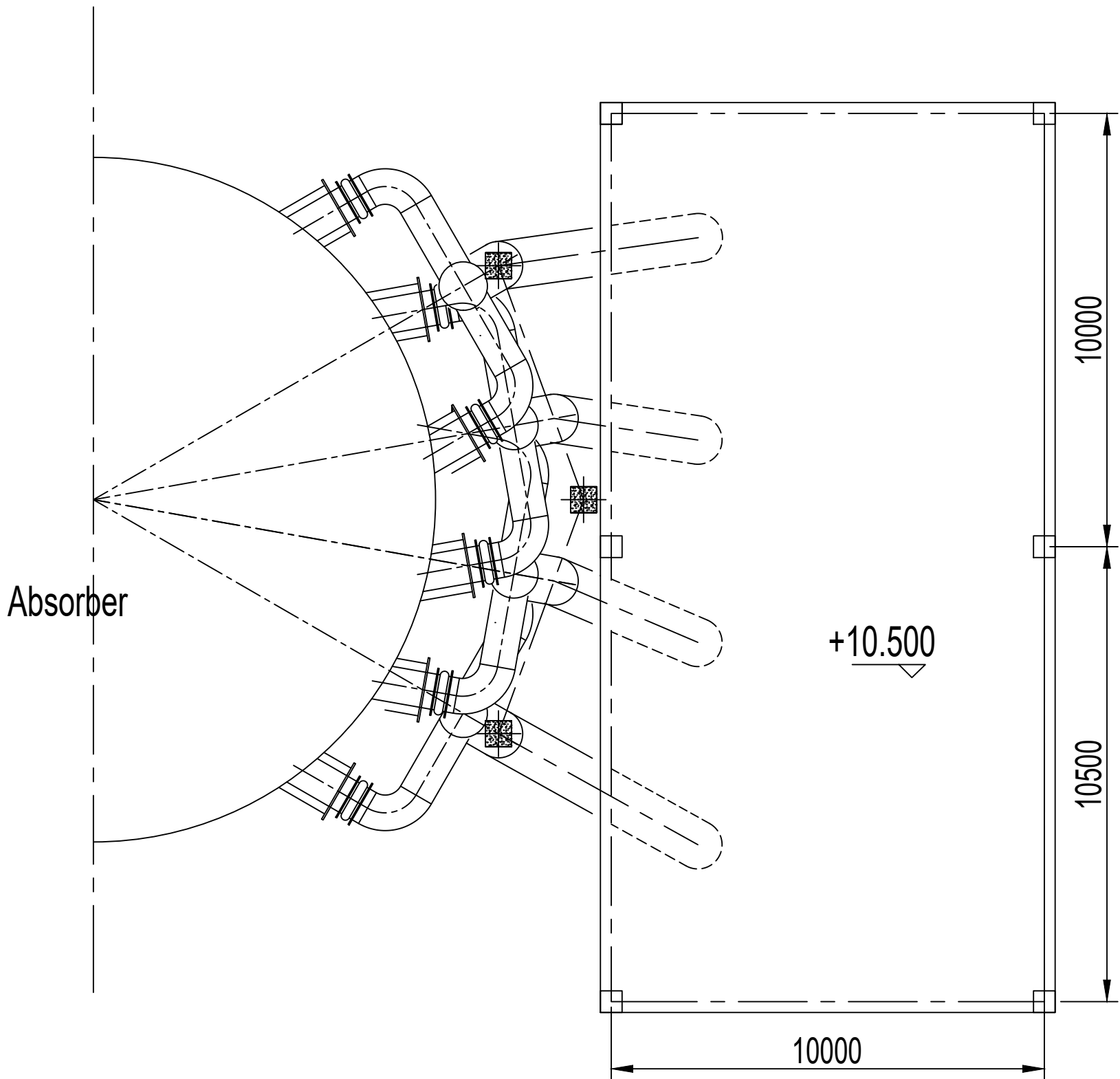
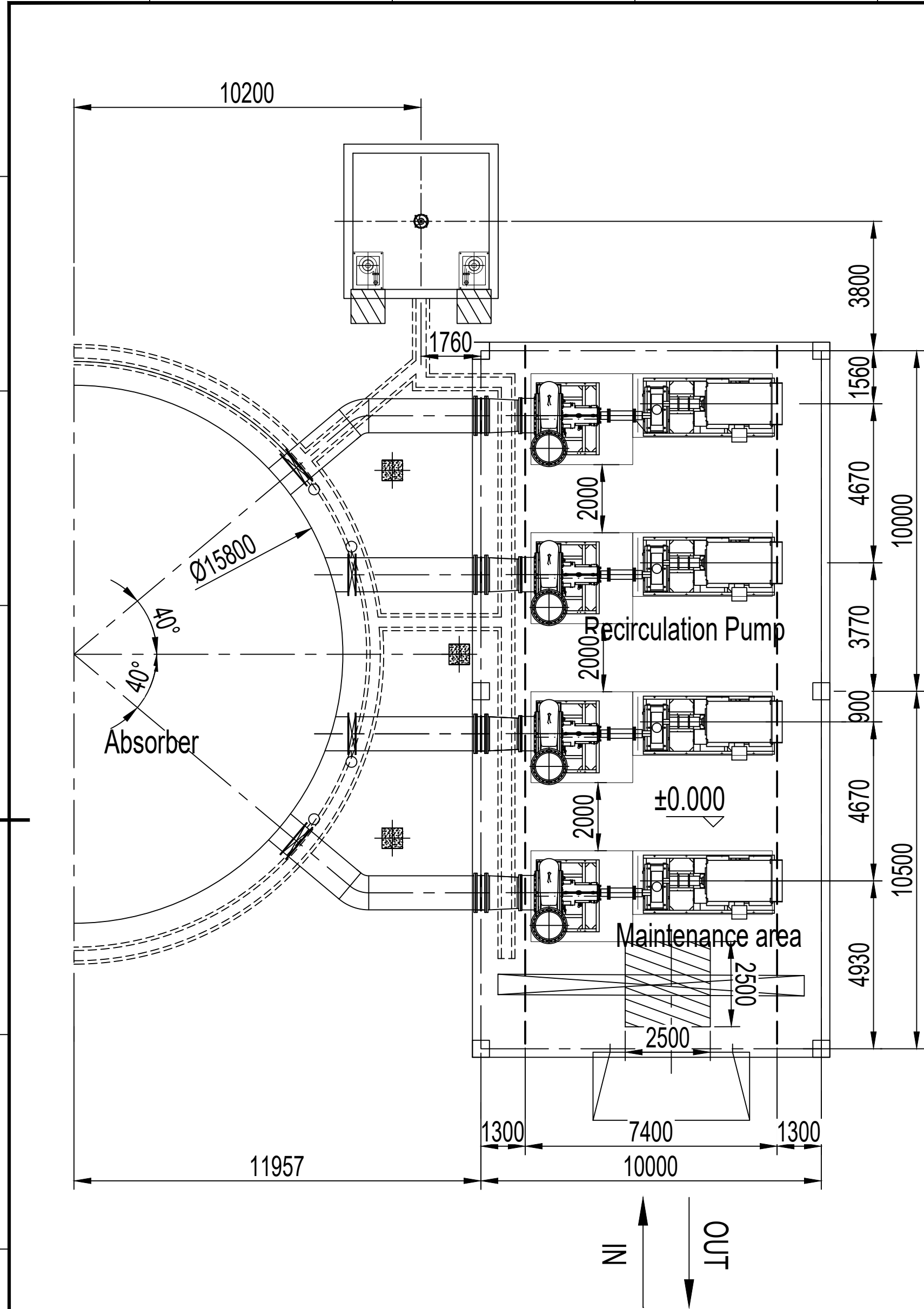
No.	DESCRIPTION	Sets
67	FGD COMMON DUCT DAMPER (MULTI LOUVER TYPE)	1
66	FGD INLET DAMPER (MULTI LOUVER TYPE)	2
65	ELEVATOR	2
64	COMPRESSOR	2
63	AIR DRYER	2
62	INSTRUMENT AIR RECEIVER	1
61	SERVICE AIR RECEIVER	1
60	NEUTRALIZATION TANK PUMP	2
59	NEUTRALIZATION TANK AGITATOR	2
58	NEUTRALIZATION TANK	2
57	SILCO DUST FILTER	2
56	LIME BUCKET ELEVATOR	2
55	LIME STORAGE SILO	2
54	MIST ELIMINATOR WASH PUMP	2
53	PROCESS WATER PUMP	2
52	PROCESS WATER TANK	2
51	EMERGENCY ABSORBENT TANK PUMP	2
50	EMERGENCY ABSORBENT TANK AGITATOR	1
49	EMERGENCY ABSORBENT TANK	1
48	MILL CIRCUIT HYDRO CYCLONE	2
47	LIMESTONE SLURRY PREPARATION AREA SUMP PUMP	2
46	LIMESTONE SLURRY PREPARATION AREA SUMP AGITATOR	1
45	LIMESTONE SLURRY PREPARATION AREA SUMP	1
44	LIMESTONE SLURRY PUMP	2
43	LIMESTONE SLURRY TANK AGITATOR	2
42	LIMESTONE SLURRY TANK	2
41	MILL CIRCUIT PUMP	4
40	MILL SEPARATOR TANK	2
39	WET BALL MILL	2
38	GRAVIMETRIC BELT FEEDER	2
37	LIMESTONE STORAGE SILO	2
36	LIMESTONE SEEDS BELT CONVEYOR	2
35	LIMESTONE BUCKET ELEVATOR	2
34	LIMESTONE BELT CONVEYOR	1
33	GYP SUM DEWATERING AREA SUMP PUMP	2
32	GYP SUM DEWATERING AREA SUMP AGITATOR	1
31	GYP SUM DEWATERING AREA SUMP	1
30	FILTRATE WATER PUMP	2
29	FILTRATE WATER TANK AGITATOR	1
28	FILTRATE WATER TANK	1
27	GYP SUM CONVEYOR	2
26	CAKE WASH PUMP	4
25	CLARIFIED WATER TANK	2
24	VACUUM RECEIVER	2
23	VACUUM PUMP	2
22	VACUUM BELT FILTER	2
21	PRIMARY HYDROCYCLONE FEED TANK	1
20	WASTE WATER TANK AGITATOR	1
19	WASTE WATER TANK	1
18	SECONDARY HYDRO CYCLONE	2
17	SECONDARY HYDRO CYCLONE FEED PUMP	2
16	SECONDARY HYDRO CYCLONE FEED TANK AGITATOR	1
15	SECONDARY HYDRO CYCLONE FEED TANK	1
14	PRIMARY HYDRO CYCLONE	2
13	ABSORBER AREA SUMP PUMP	2
12	ABSORBER AREA SUMP AGITATOR	1
11	ABSORBER AREA SUMP	1
10	EMERGENCY WATER TANK	1
9	GYP SUM BLEED PUMP	2
8	OXIDATION AIR BLOWER	2
7	SLURRY RE-CIRCULATION PUMP	4
6	ABSORBER AGITATOR	5
5	ABSORBER	1
4	BOOSTER FAN	2
3	BOOSTER FAN OUTLET DAMPER (GUILLotine TYPE)	2
2	BOOSTER FAN INLET DAMPER (GUILLotine TYPE)	2
1	BYPASS DAMPER (MULTI LOUVER TYPE)	2

LEGEND	
	EXISTING PLANT
	FGD PLANT
	MAINTENANCE AREA
	PIPE RACK
	FGD BOUNDARY
	MONORAIL
	PLATFORM
	NEW ROAD
	EXISTING ROAD
	NEW PLANT ROAD
	FGD TRENCH
	SMALL GANTRY

NOTES:
1. Size unit: millimeters, elevation and coordinate unit: meters.
2. FGL will be RL(+82.200m from MSL (mean sea level) which is corresponds to (+)10.0m. Customer to confirm.
3. The location and diameter of the existing chimney is according to DWG NO. EPLM/SUR/EPL/UKAI/005, Chimney General arrangement. To be confirmed by the client.
4. The inner diameter and foundation diameter of the new chimney are for reference only, and the specific information provided by the chimney unit shall prevail.
5. The device size has not been finalized yet. The dimensions of the equipment and facilities displayed here are based on the corresponding approved equipment dimensions.
6. The rerouting of canal is tentative plan, will be finalized during detail engineering stage.

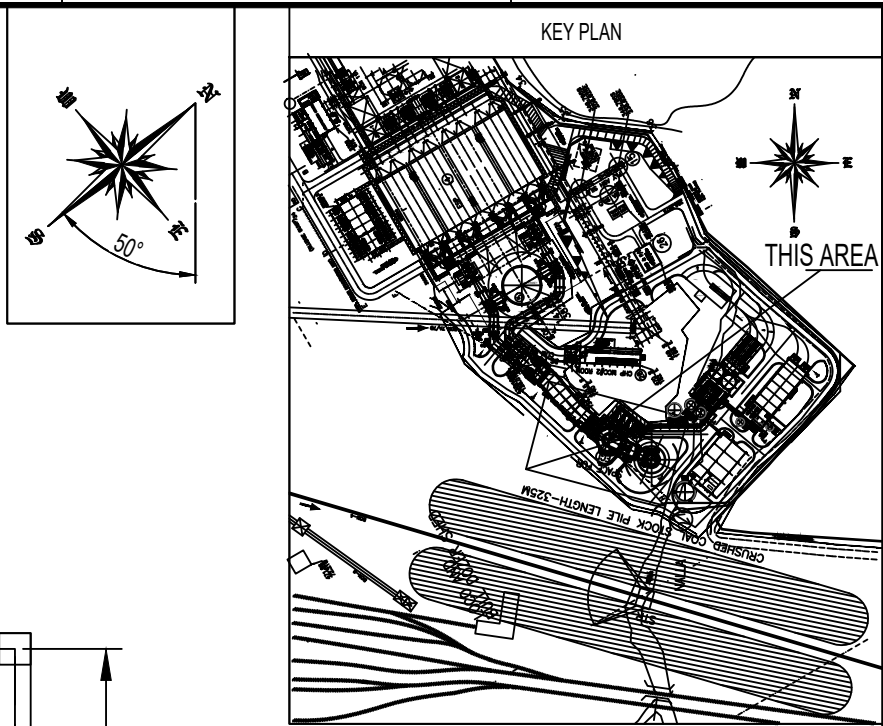
For Tender Purpose Only

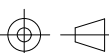
03	2024.04.18	J. Wang	Revised as per comments		
02	2024.01.18	J. Wang	Re-Arrange for FGD Area changed		
01	2023.11.28	J. Wang	Re-Arrange for FGD Area changed		
00	2023.10.16	J. Wang	First Issue		
REV.	DATE	Prepared	Checked	Approved	Details of Revision
Owner		 Gujarat State Electricity Corporation Limited (GSECL)			
Consultants		 STEAG Energy Services			
Contractor		 Engineering Projects (India) Ltd. (EPI)			
QFGDM		 ASTIC Environmental Engineering Co.,LTD			
Project: Supply, installation, commissioning & testing of FGD system for 1X500 MW Unit No.6 of Ukai TPS with 03 years comprehensive O&M contract					
Drawing name: FGD GENERAL ARRANGEMENT PLAN					Project No.: IA23001
Design: J. Wang.	Check: 	App: 	EPI Drawing No.: EPI-M-BE-B01-001-001		
Scale: 1:350	Size:	Unit:	ASTIC Drawing No.: IA23001-D-L0101-001		REV. 03

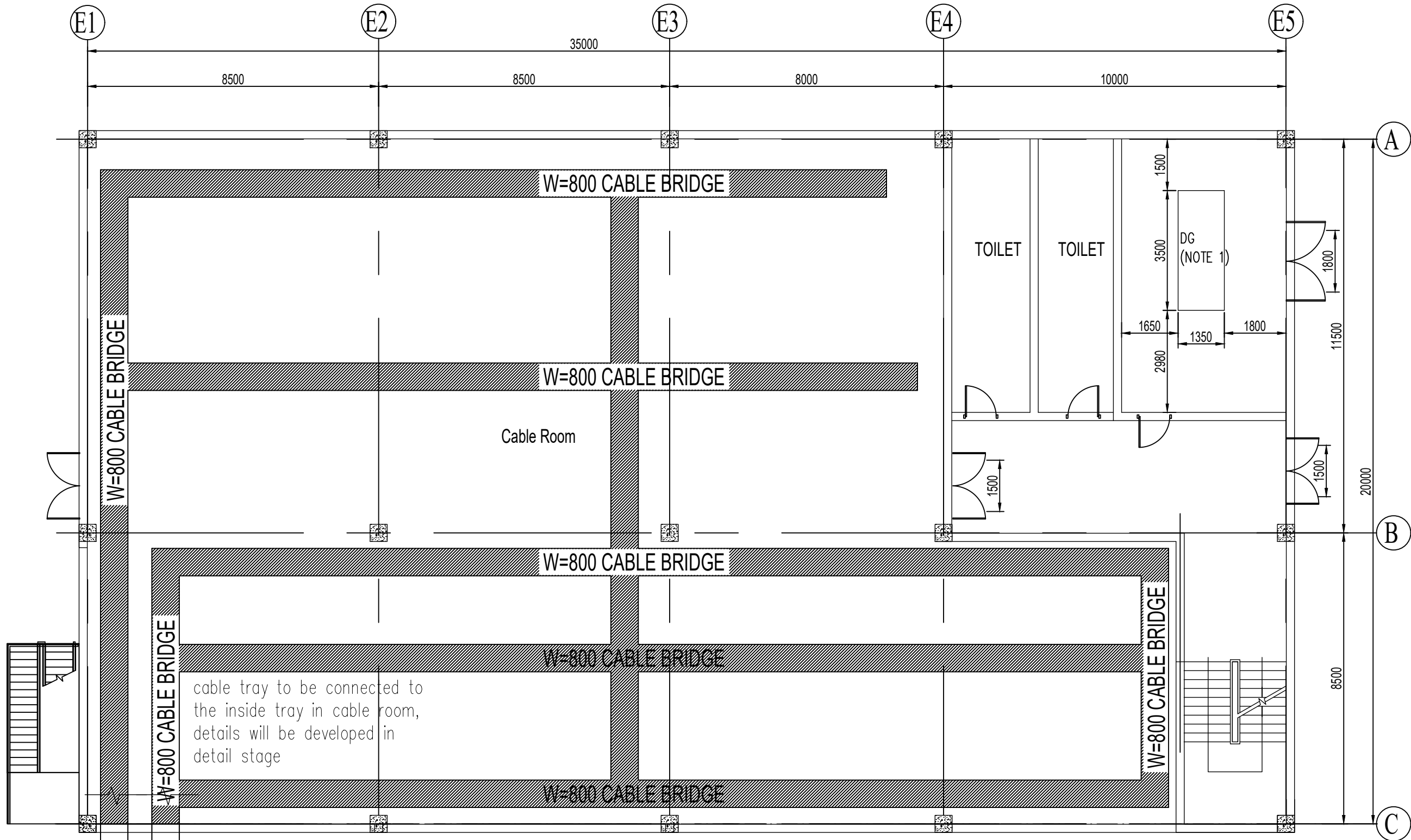


NOTE:
1.THE DIMENSIONS AND INTERFACES OF THE ABSORBER CIRCULATING PUMP AND OTHER EQUIPMENT SHOWN IN THE DIAGRAM ARE PROVISIONAL, AND THE FINAL EQUIPMENT ORDERING INFORMATION SHALL PREVAIL.

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00 REV.	2024.04.08 DATE	J. Wang Prepared	<i>S. Wang</i> Checked	<i>S. Wang</i> Approved	First Issue Details of Revision
Owner 		Gujarat State Electricity Corporation Limited (GSECL)			
Consultants 		STEAG Energy Services			
Contractor 		Engineering Projects (India) Ltd. (EPIL)			
QFGDM 		ASTIC Environmental Engineering Co.,LTD			
Project: Supply, installation, commissioning & testing of FGD system for 1X500 MW Unit No.6 of Ukai TPS with 03 years comprehensive O&M contract					
Drawing name: RECYCLE PUMP BUILDING 0.00 m/10.50m PLAN					Project No.: IA23001
Design: J. Wang	Check: <i>S. Wang</i>	App: <i>S. Wang</i>	EPI Drawing No.: EPI-M-BE-B01-001-014		
Scale: 1:120	Size:	Unit:	ASTIC Drawing No.: IA23001-D-L0101-014		
					REV. 00



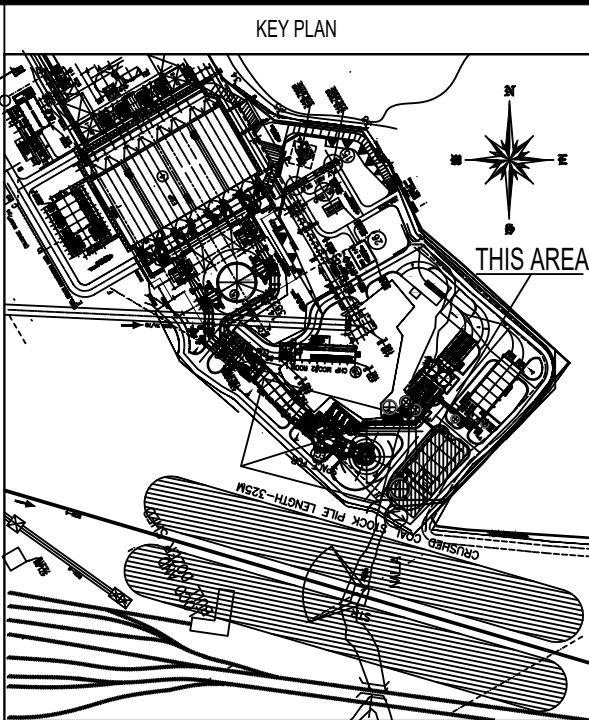
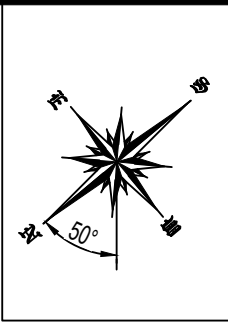
cable tray to be connected to the exterior ones laid on pipe rack, details will be developed in detail stage

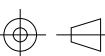
+0.000m PLAN

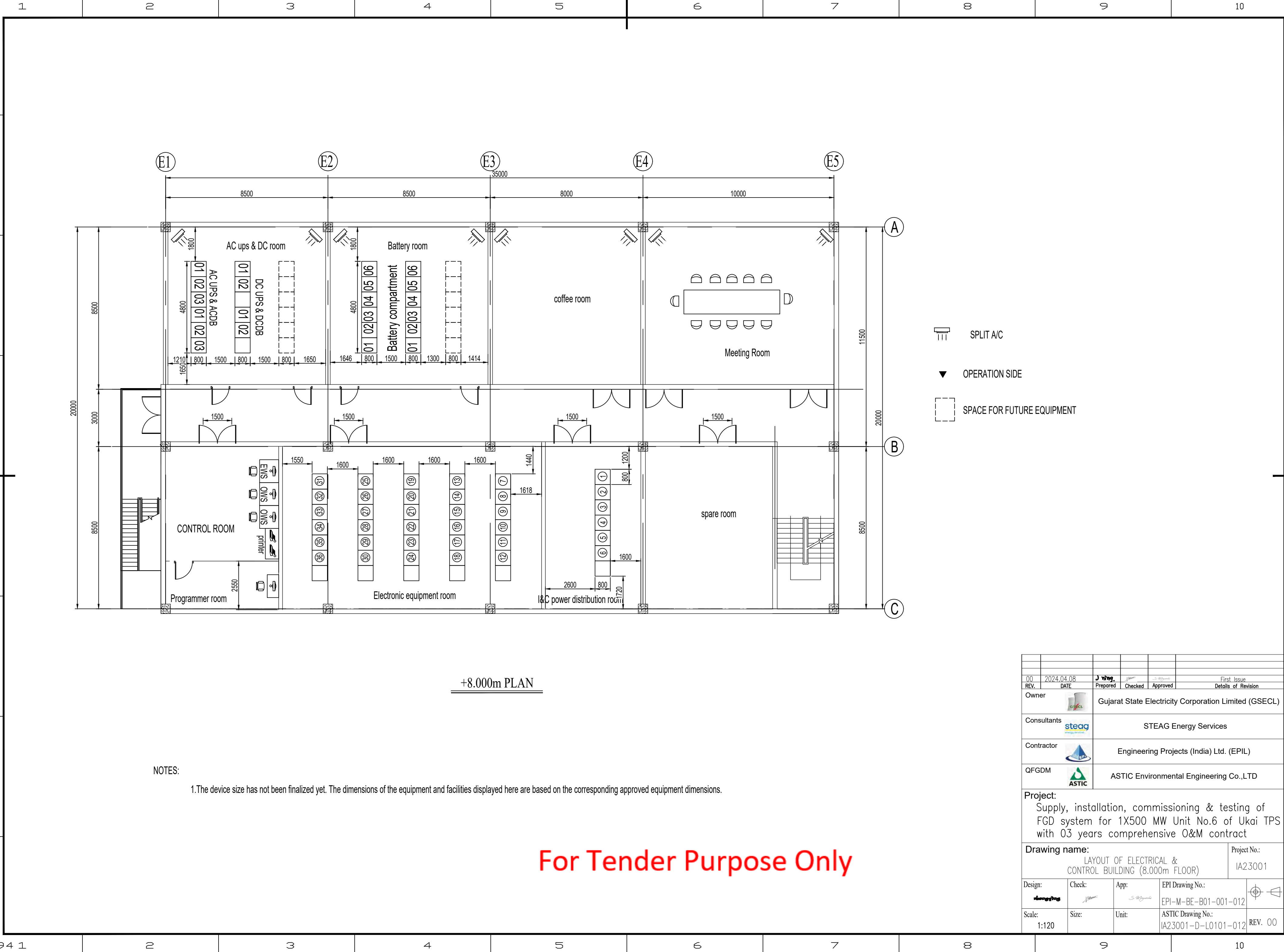
NOTES:

1. As client's spec defined, the DG set shall be installed indoor and housed in a separate building, hence this drawing is only considered as an option until client's approved for such, otherwise project shall take the location for accomodating on plot plan foot print, this DG room is reference for the building sizing when design .

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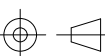


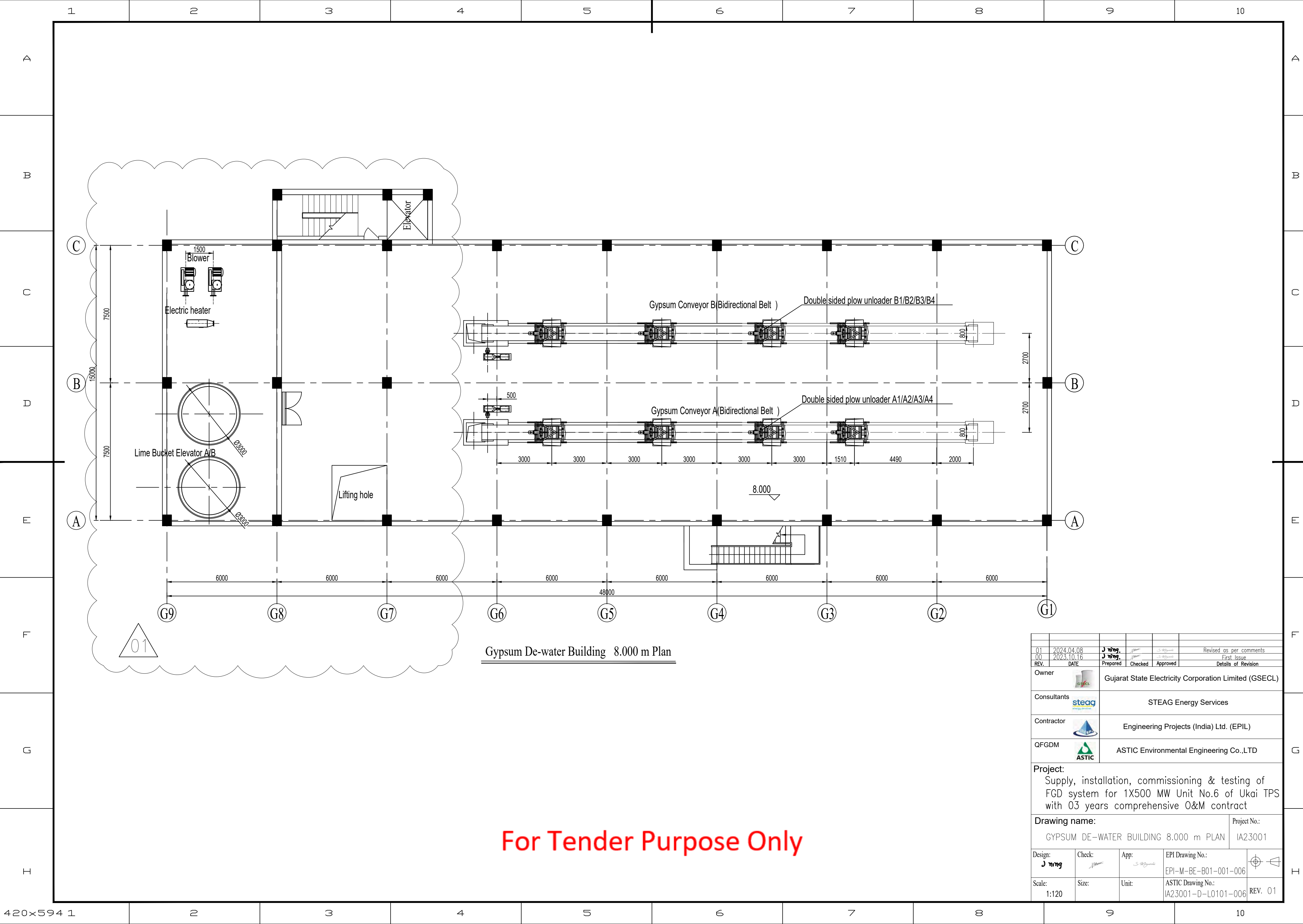
00	2024.04.08				First Issue
REV.	DATE	Prepared	Checked	Approved	Details of Revision
Owner		 Gujarat State Electricity Corporation Limited (GSECL)			
Consultants		 STEAG Energy Services			
Contractor		 Engineering Projects (India) Ltd. (EPIL)			
QFGDM		 ASTIC Environmental Engineering Co.,LTD			
Project: Supply, installation, commissioning & testing of FGD system for 1X500 MW Unit No.6 of Ukai TPS with 03 years comprehensive O&M contract					
Drawing name: LAYOUT OF ELECTRICAL & CONTROL BUILDING (0.000m FLOOR)					Project No.: IA23001
Design: 	Check: 	App: 	EPI Drawing No.: EPI-M-BE-B01-001-010		
Scale: 1:120	Size:	Unit:	ASTIC Drawing No.: IA23001-D-L0101-010		
					REV. 00



NOTES:
1.The device size has not been finalized yet. The dimensions of the equipment and facilities displayed here are based on the corresponding approved equipment dimensions.

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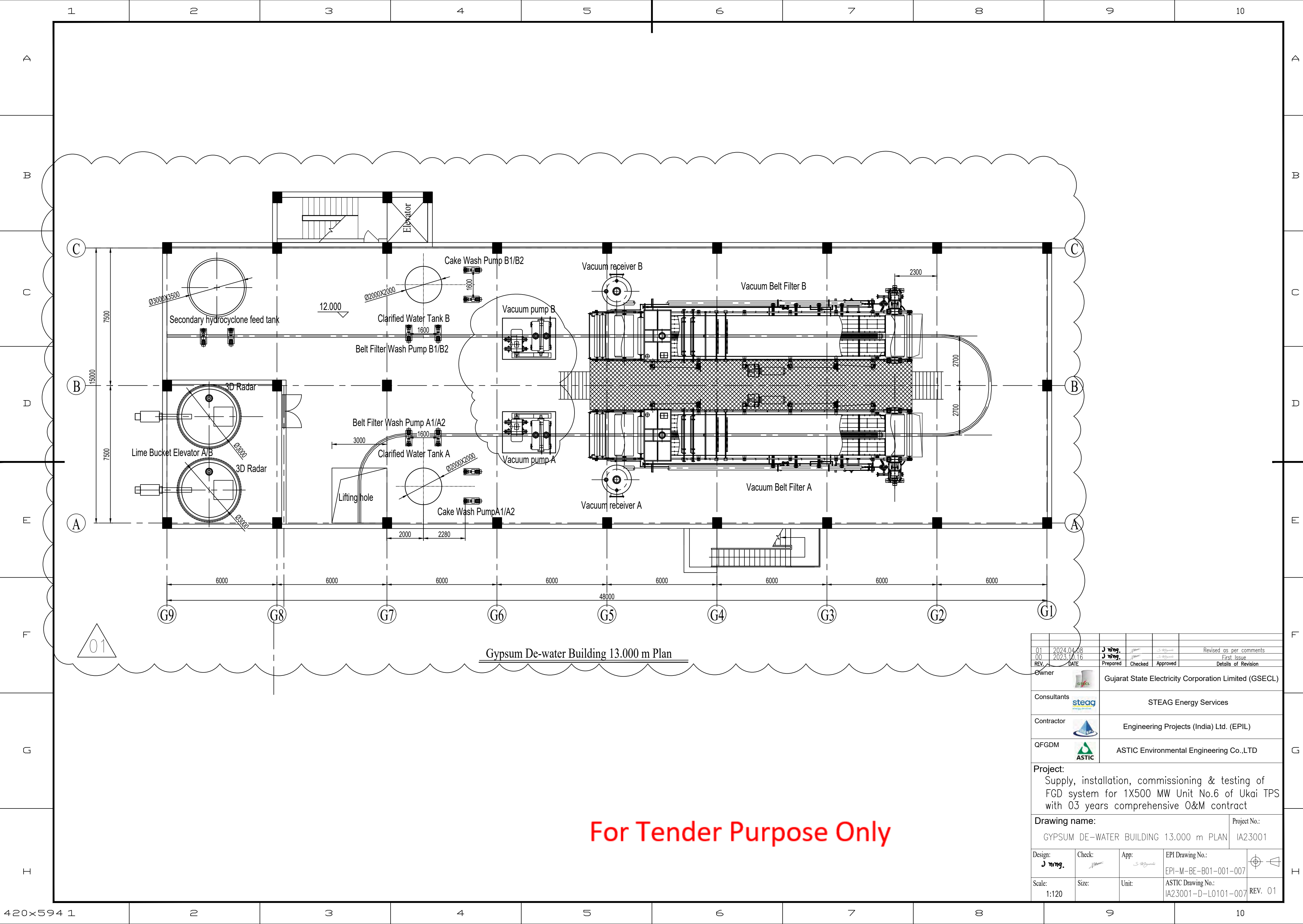
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REV.	DATE	Prepared	Checked	Approved	Details of Revision
Owner	Gujarat State Electricity Corporation Limited (GSECL)				
Consultants	STEAG Energy Services				
Contractor	Engineering Projects (India) Ltd. (EPIL)				
QFGDM	ASTIC Environmental Engineering Co.,LTD				
Project: Supply, installation, commissioning & testing of FGD system for 1X500 MW Unit No.6 of Ukai TPS with 03 years comprehensive O&M contract					
Drawing name: LAYOUT OF ELECTRICAL & CONTROL BUILDING (8.00m FLOOR)					Project No.: IA23001
Design: 	Check: 	App: 	EPI Drawing No.: EPI-M-BE-B01-001-012		
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			REV. 00		



Gypsum De-water Building 8.000 m Plan

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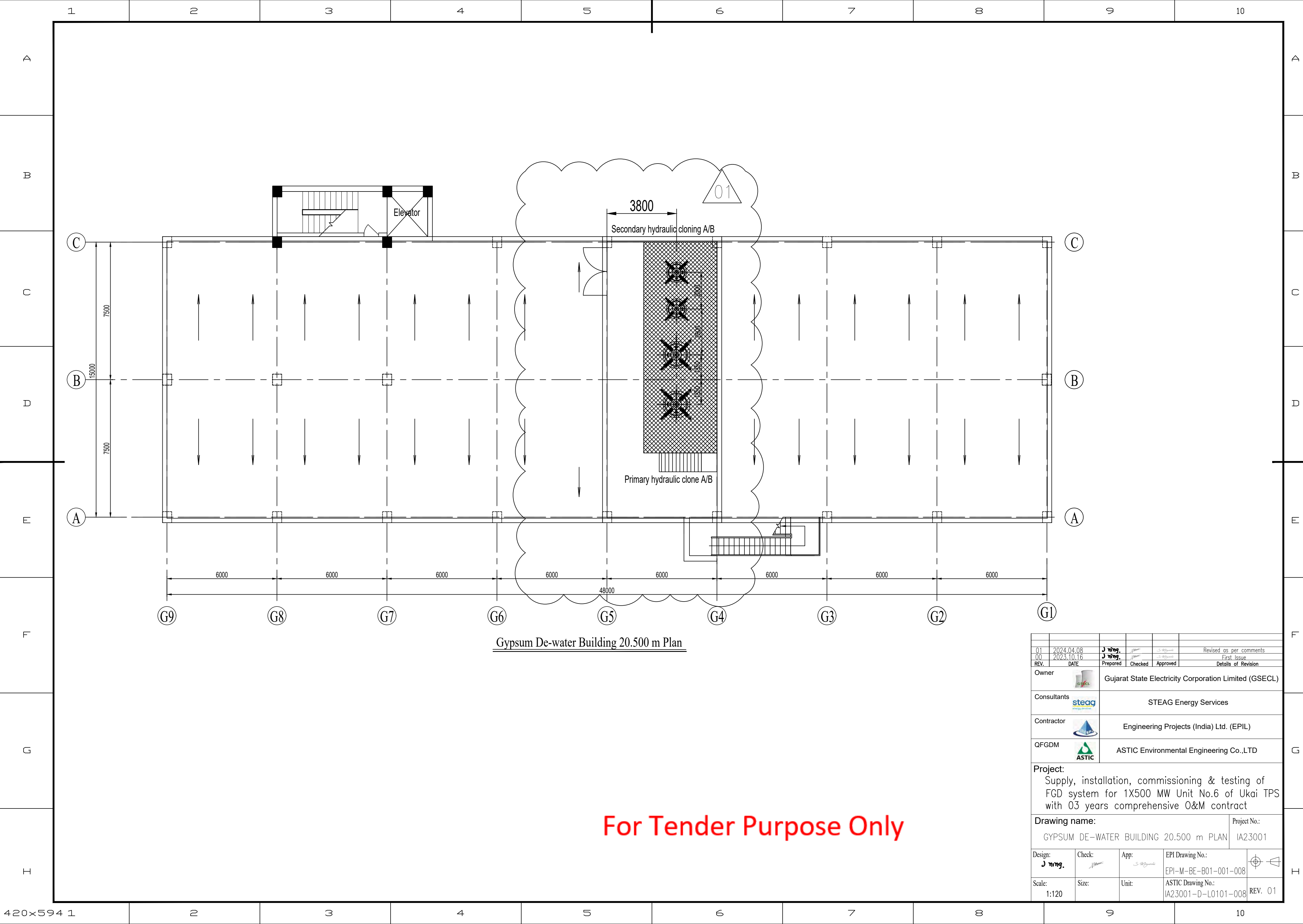
01	2024.04.08	J. Wang			Revised as per comments
00	2023.10.16	J. Wang			First Issue
REV.	DATE	Prepared	Checked	Approved	Details of Revision
Owner		Gujarat State Electricity Corporation Limited (GSECL)			
Consultants		STEAG Energy Services			
Contractor		Engineering Projects (India) Ltd. (EPIL)			
QFGDM		ASTIC Environmental Engineering Co.,LTD			
Project: Supply, installation, commissioning & testing of FGD system for 1X500 MW Unit No.6 of Ukai TPS with 03 years comprehensive O&M contract					
Drawing name: GYPSUM DE-WATER BUILDING 8.000 m PLAN					Project No.: IA23001
Design: J. Wang	Check: S. Wang	App: S. Wang	EPI Drawing No.: EPI-M-BE-B01-001-006		
Scale: 1:120	Size:	Unit:	ASTIC Drawing No.: IA23001-D-L0101-006		
					REV. 01



Gypsum De-water Building 13.000 m Plan

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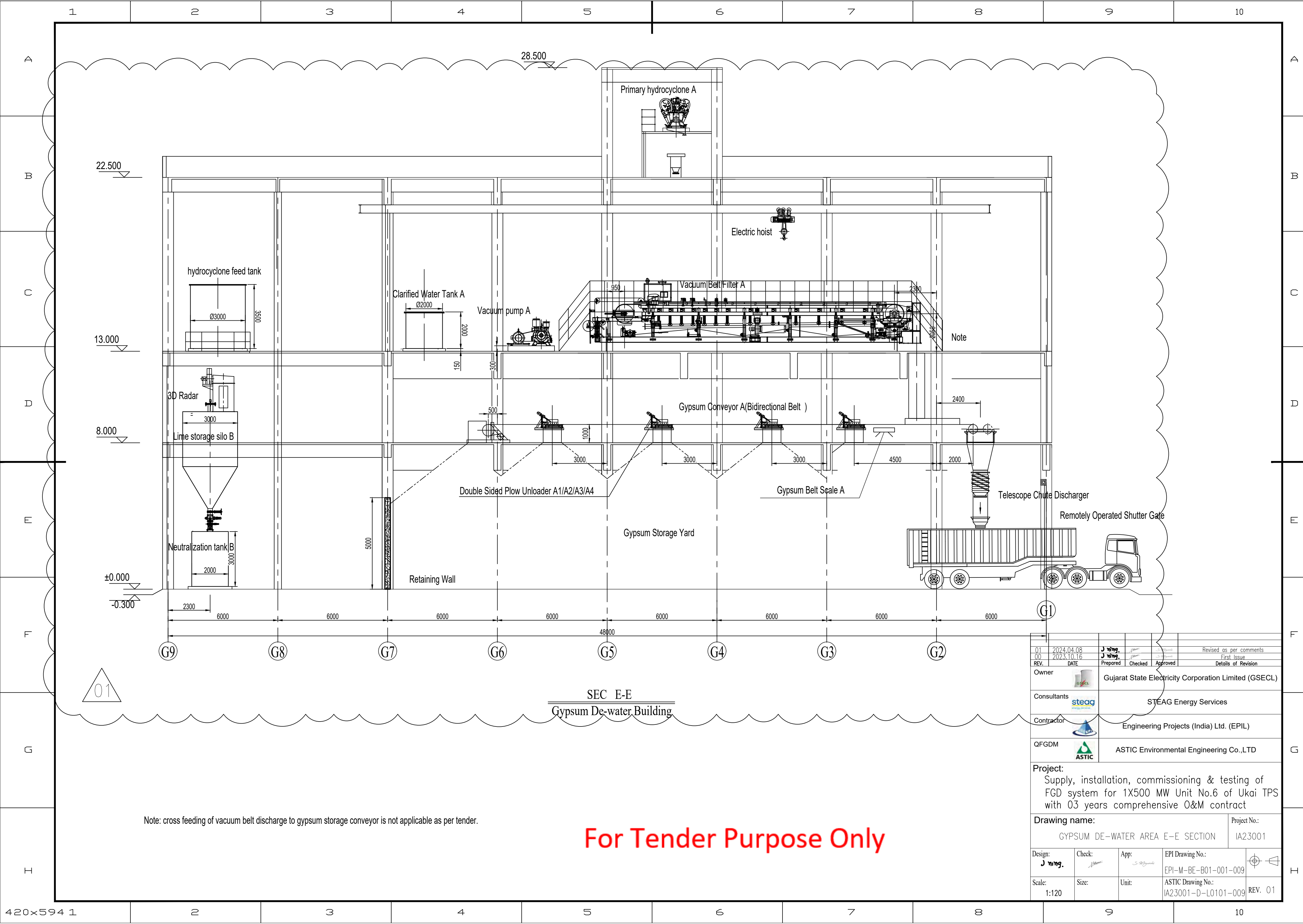
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00	2023.10.16	J. Wang			First Issue
REV.	DATE	Prepared	Checked	Approved	Details of Revision
Owner	Gujarat State Electricity Corporation Limited (GSECL)				
Consultants	STEAG Energy Services				
Contractor	Engineering Projects (India) Ltd. (EPIL)				
QFGDM	ASTIC Environmental Engineering Co.,LTD				
Project: Supply, installation, commissioning & testing of FGD system for 1X500 MW Unit No.6 of Ukai TPS with 03 years comprehensive O&M contract					
Drawing name: GYPSUM DE-WATER BUILDING 13.000 m PLAN					Project No.: IA23001
Design: J. Wang	Check: <i>[Signature]</i>	App: <i>[Signature]</i>	EPI Drawing No.: EPI-M-BE-B01-001-007		
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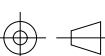
Gypsum De-water Building 20.500 m Plan

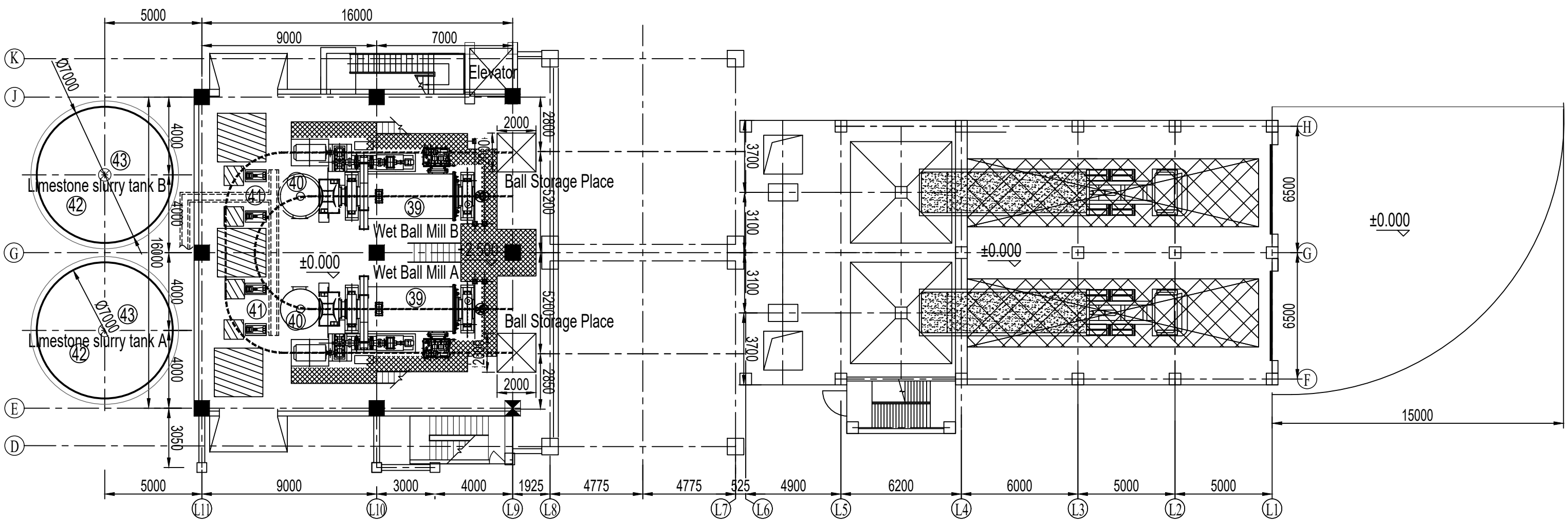
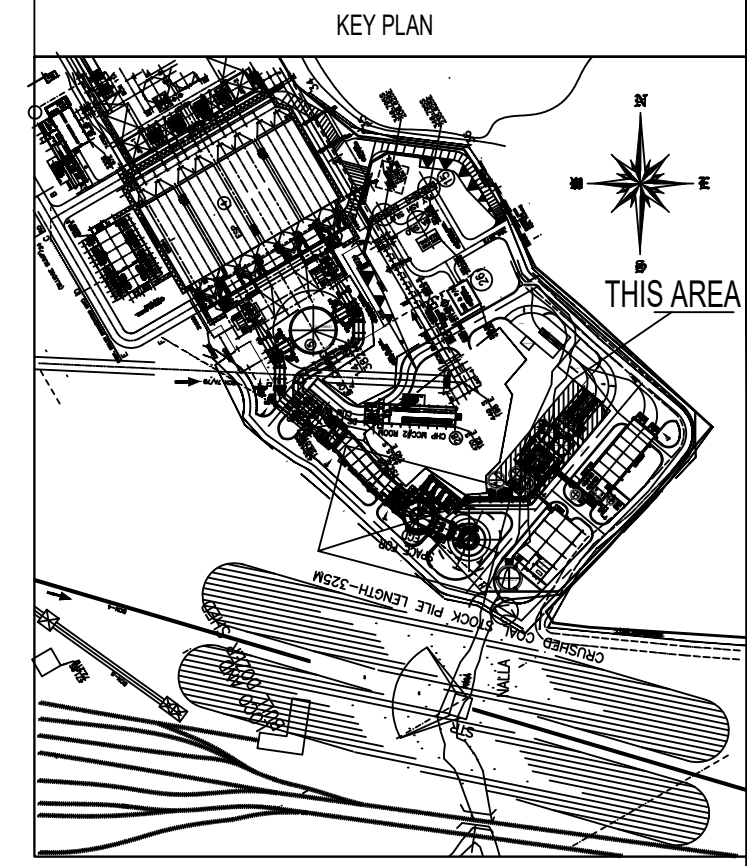
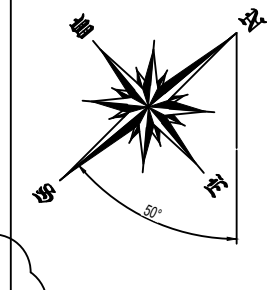
For Tender Purpose Only

01	2024.04.08	J mng.				Revised as per comments
00	2023.10.16	J mng.				First Issue
REV.	DATE	Prepared	Checked	Approved		Details of Revision
Owner		 Gujarat State Electricity Corporation Limited (GSECL)				
Consultants		 STEAG Energy Services				
Contractor		 Engineering Projects (India) Ltd. (EPIL)				
QFGDM		 ASTIC Environmental Engineering Co.,LTD				
Project: Supply, installation, commissioning & testing of FGD system for 1X500 MW Unit No.6 of Ukai TPS with 03 years comprehensive O&M contract						
Drawing name: GYPSUM DE-WATER BUILDING 20.500 m PLAN					Project No.: IA23001	
Design: J mng.	Check: 	App: 	EPI Drawing No.: EPI-M-BE-B01-001-008			
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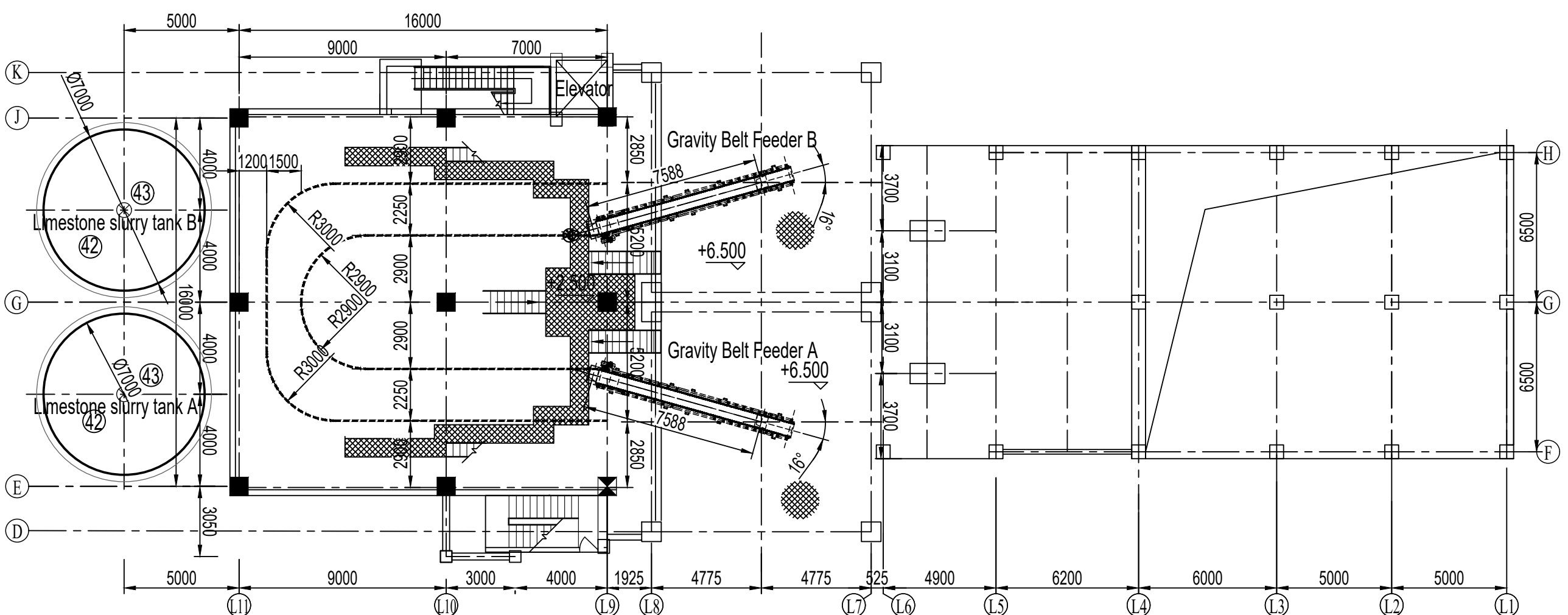


For Tender Purpose Only

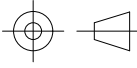
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00	2023.10.16	J mng.				First Issue
REV.	DATE	Prepared	Checked	Approved	Details of Revision	
Owner		Gujarat State Electricity Corporation Limited (GSECL)				
Consultants		STEAG Energy Services				
Contractor		Engineering Projects (India) Ltd. (EPIL)				
QFGDM		ASTIC Environmental Engineering Co.,LTD				
Project: Supply, installation, commissioning & testing of FGD system for 1X500 MW Unit No.6 of Ukai TPS with 03 years comprehensive O&M contract						
Drawing name: GYPSUM DE-WATER AREA E-E SECTION					Project No.: IA23001	
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Limestone Preparation Room 0.00 M Plan

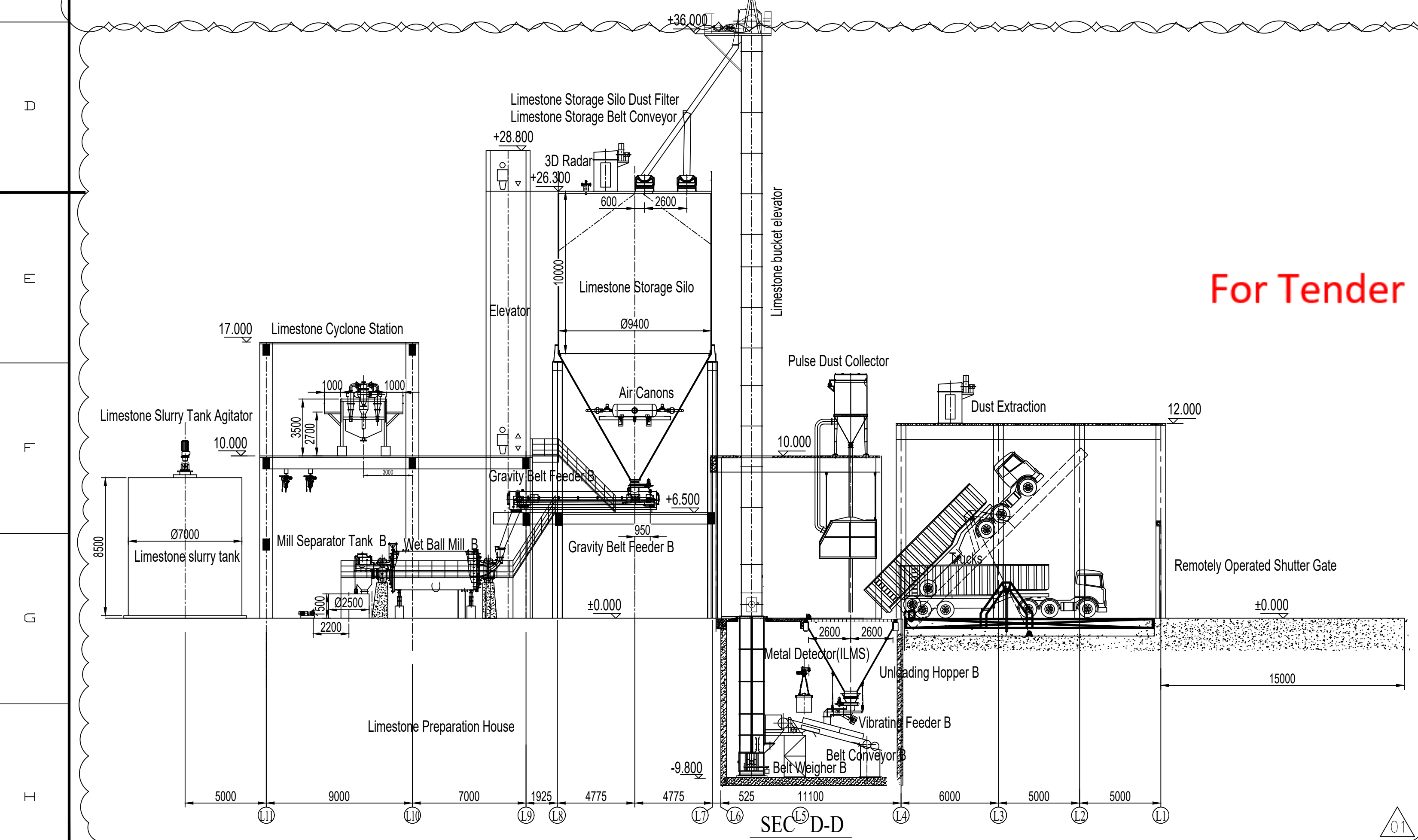
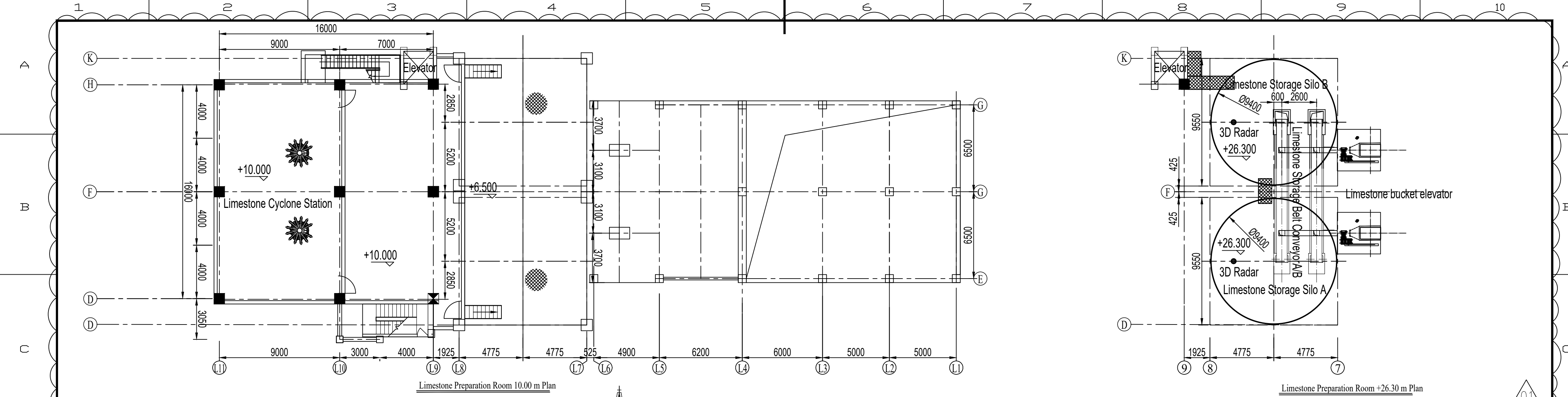


Limestone Preparation Room 6.50 m Plan

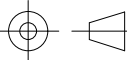
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00	2023.10.16	J.ning.			First Issue
REV.	DATE	Prepared	Checked	Approved	Details of Revision
Owner		 Gujarat State Electricity Corporation Limited (GSECL)			
Consultants		 STEAG Energy Services			
Contractor		 Engineering Projects (India) Ltd. (EPIL)			
QFGDM		 ASTIC Environmental Engineering Co.,LTD			
Project: Supply, installation, commissioning & testing of FGD system for 1X500 MW Unit No.6 of Ukai TPS with 03 years comprehensive O&M contract					
Drawing name: LIMESTONE PREPARATION ROOM 0.00/6.50m PLAN					Project No.: IA23001
Design: J.ning.	Check: 	App: 	EPI Drawing No.: EPI-M-BE-B01-001-003		
Scale: 1:200	Size:	Unit:	ASTIC Drawing No.: IA23001-D-L0101-003		
					REV. 01

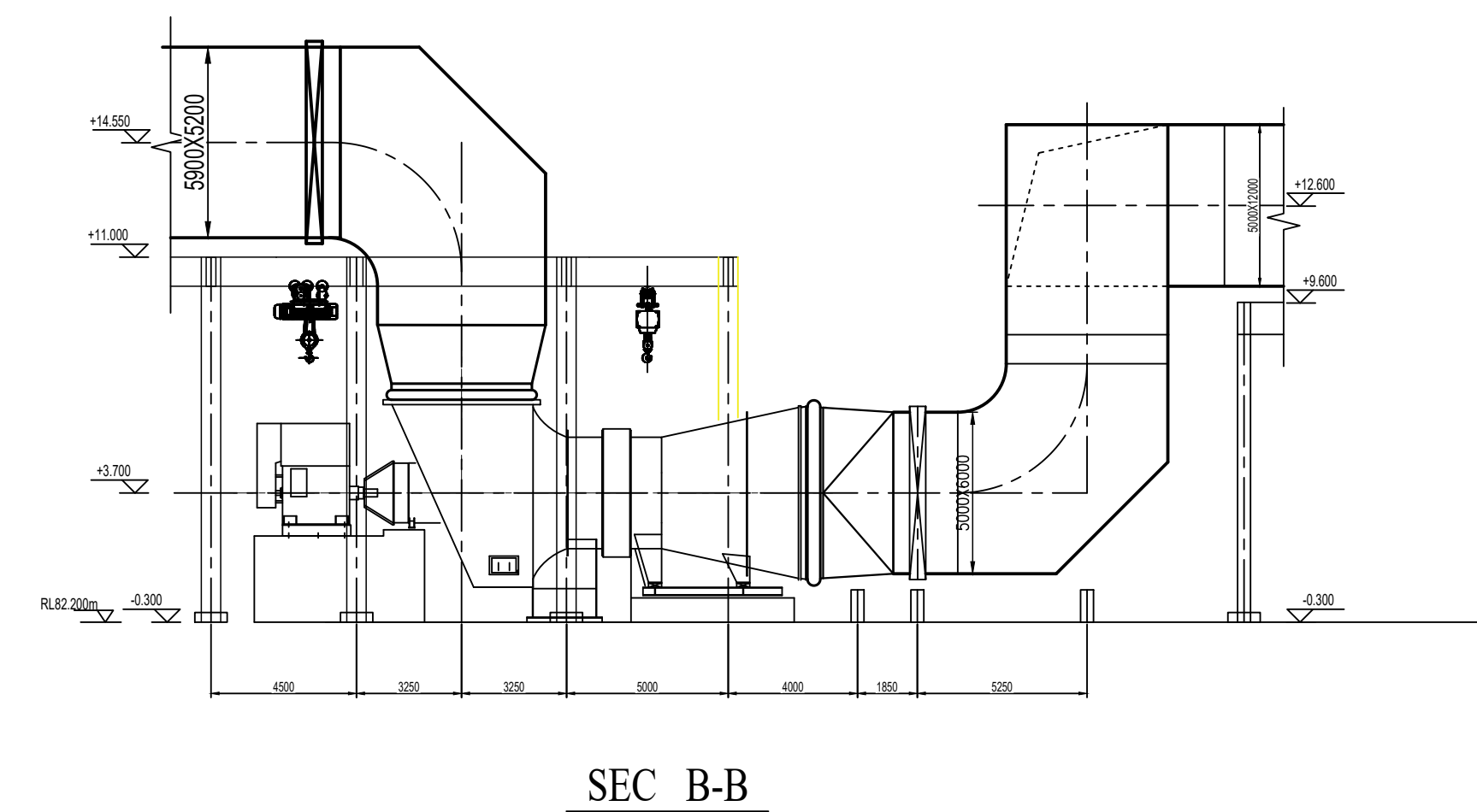
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01	2024.04.18	J nimg.		S. M. M. M.	Revised as per comments
00	2023.10.16	J nimg.		S. M. M. M.	First Issue
REV.	DATE	Prepared	Checked	Approved	Details of Revision
Owner					
		Gujarat State Electricity Corporation Limited (GSECL)			
Consultants					
		STEAG Energy Services			
Contractor					
		Engineering Projects (India) Ltd. (EPIL)			
QFGDM					
		ASTIC Environmental Engineering Co.,LTD			
Project:					
Supply, installation, commissioning & testing of FGD system for 1X500 MW Unit No.6 of Ukai TPS with 03 years comprehensive O&M contract					
Drawing name:					Project No.:
LIMESTONE PREPARATION ROOM 10.00/26.30m PLAN					IA23001
LIMESTONE PREPARATION AREA D-D SECTION					
Design:	Check:	App:	EPI Drawing No.:		
J nimg.			EPI-M-BE-B01-001-004		
Scale:	Size:	Unit:	ASTIC Drawing No.:		REV. 01
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