

Design of Shaft type supporting structure for 60KL capacity OHBR						
Staging height		30 m				
Location of tank						
DATA :	Location of tank		Plain Ground			
Basic Wind speed	44 m/s		65 KM away from sea			
Net SBCof the Soil assumed			15 t/m ²			
Depth of foundation up to top of raft			df	2.00 m		
TANK DETAILS						
			total net water volume			
Capacity of tank			v	60 kl	64 KL	
Height of staging			hs	30.00 m		
Dia of staging/ Shaft			ds	6.00 m	compression	
Dia of tank			td	10.00 m		
Top slab / Dome	tst	0.125	h	1.45 m	R2=9.35	
Top ring beam	trd	0.300	trb	0.350		
Side wall ht incl. middle RB	swh	0.000	swt	0.000		
Middle ring beam	mrd	0.000	mrh	0.000		
Dia of central opening	copt	0.15	copdi	1.5		
Inclined slab	Ist	0.250	ish	2.000	2.828	64
Bottom ring beam	brd	0.450	brb	0.450		
Bottom Dome	bst	0.250	bdh	0.900	R1=	5.45 m
Wind constants	ki	1.000	kii10	1.050		
	kii15	1.090	kii20	1.120		
	kii30	1.150	kiii	1.000		
Basic wind speed	158.4 Km/h		vb	44 m/sec		
Shaft details						
Grade of concrete			g	30 n/mm ²	WS	
Grade of steel medium ass	Fe415	equivalent fy		343 n/mm ²	← 190	n/mm ²
Thick ness of shaft	>=0.2m	Safe	ts	0.2 m		
opening width			wp	1 m		
Dia of vertical steel bars proposed			di	10 mm		
Spacing of vertical reinforcement on both the fac			sp	200 mm	209	
Dia of circumferencial steel bars proposed			cdi	10 mm		
Spacing provided horizontally on both the faces			sph	200 mm	200	
Height of shaft above raft	hs-brd-0.15+df		sh	31.4 m		
Stress in the shell	compression			2.28 kg/cm ²		
Nature of stress				Comp		
Tensile stress due to ring moment		safe		0.83 Kg/cm ²	21.00	
No Comparision of eri and er needed						
	er	0.306	eri	scv Governs		
			alpa	168.00		
Maximum compressive stress in shaft		safe		22.83 Kg/cm ²	114.0	
Area of vertical steel required				5.00 cm ²		
spacing required				300 mm		
Area of circumferencial steel required				4.80 cm ²		
spacing required				200 mm		

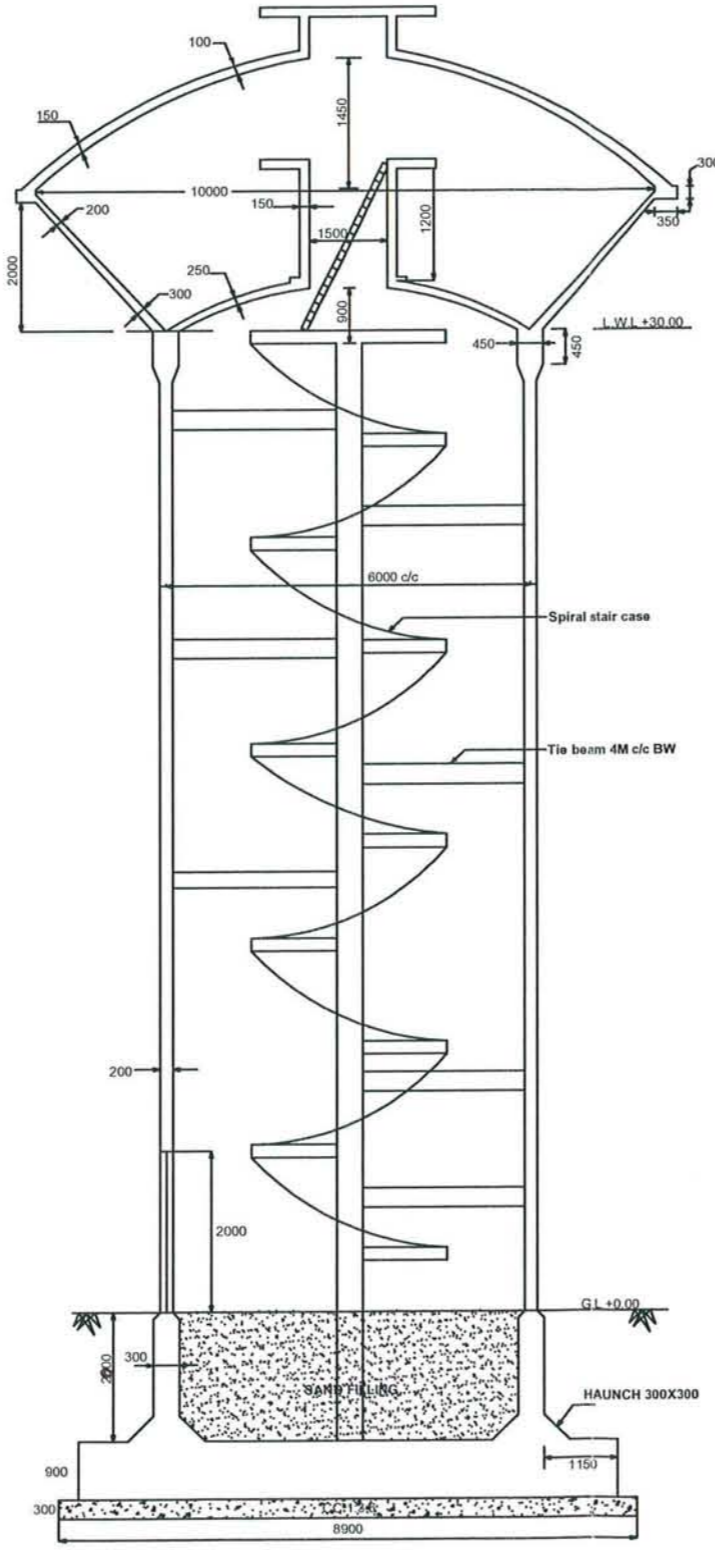
Ring beam(thickend shaft) on Raft						
Width of ring beam @ bottom of shaft		rb	0.30	m		
Depth of ring beam @ bottom of shaft		rd	2.00	m		
Dia of vertical bars		rsdi	10	mm		
Spacing of bars		rbsi	200	mm	209	
Dia of circumferencial bars		rsdii	10	mm		
Spacing of bars		rbsii	200	mm	209	
Design of raft						
Raft slab projection=	1	Safe	Safe	dia cc		
CC layer below the raft	thickness	0.3	projection	0.30	8.9	8.84
Dia of raft provided	< 9.3 m	Safe	d	8.30	m	8.24
Overall depth of raft		Safe	dr	0.90	m	0.59
Dia of bottom bars			db	20	mm	
Spacing of bottom bars arranged as mesh			space	150	mm	165
Dia of top bars			dbi	12	mm	
Spacing of top bars arranged as mesh			spacei	150	mm	188
Effective depth provided (de)			de	0.83	m	
Radial Moments						
Radial distance from centr	0.00	1.50	3.00	3.58	4.15	m
Radial moments	M	-7.94	2.53	25.98	7.85	0.00
Area of steel in cm2		6.0	2.0	19.0	6.0	0.0
	Moment in tm	Ast in cm2	Spacing in mm			
Maximum negative moment	-7.94	6.0	188	mm		
Maximum positive moment	25.98	19.0	165	mm		
Minimum area of steel	mas	10.80	cm2			
Circumferencial Moments						
Radial Distance from centr	0.00	1.50	3.00	3.58	4.15	m
Circumferencial moment	M	-7.94	-7.44	-6.67	1.86	0.93
Area of steel in cm2		6	5.5	5	1.5	1
	Moment in tm	Ast in cm2	Spacing in mm			
Maximum negative moment	-7.94	6.0	188	mm		
Maximum positive moment	1.86	1.5	291	mm		


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60KL OHBR-BPT



All dimensions are in 'mm'
 Concrete mix V.R.C.C M30
 Steel Fe-415
 Reinforcement details shall be as per IS-SP34

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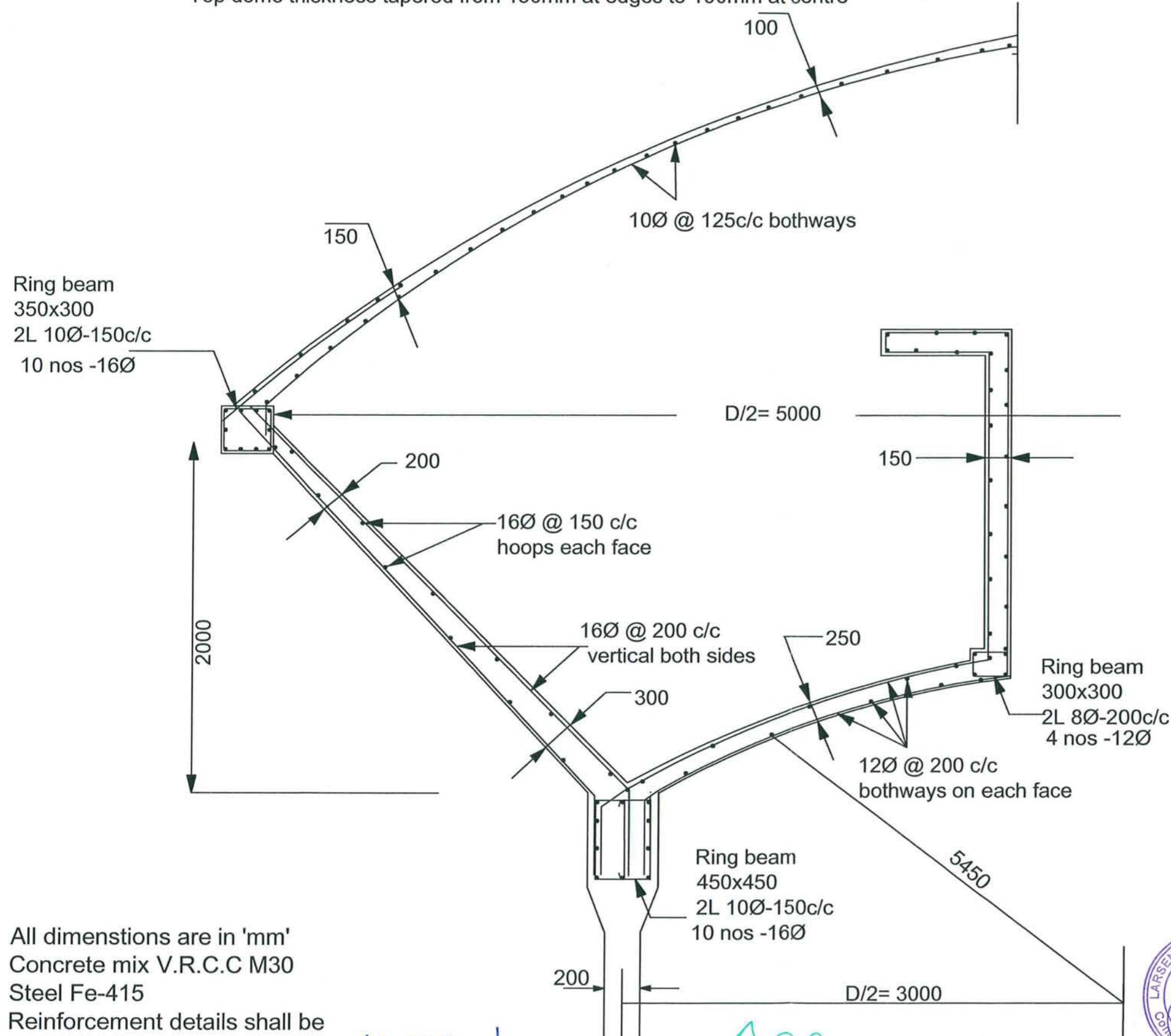


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CIVIL & STRUCTURAL		
MECHANICAL		
ELECTRICAL		
INSTRUMENTATION		

A FOR INFORMATION					
REV. NO.	DESCRIPTION	DESIGNED	DRAWN	CHECKED	APPROVED
REVISIONS					
L&T Construction Water, Smart World & Communication.					
CLIENT:	RURAL WATER SUPPLY AND SANITATION DEPARTMENT, TELANGANA.	CONSULTANT			
PROJECT:	PROVIDING DRINKING WATER TO HABITATIONS IN KOMARAMBHEEM ASIFABAD SEGMENT IN ADILABAD DISTRICT				
SUPPLIER/CONTRACTOR:	L&T Construction Water & Effluent Treatment SBG				
JOB No	LE150883	TITLE	SCALE		
NAME	SIGN	DATE	UTNOOR MANDAL - CHINNUGUDA BPT (OHBR) - 60KL		
			PROJECTION		
DRAWING No		LE150883-W-W-S-RW-DC-1711	SIZE	REV.	
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SECTION ELEVATION OF DOME 60KL OHBR-BPT

Top dome thickness tapered from 150mm at edges to 100mm at centre



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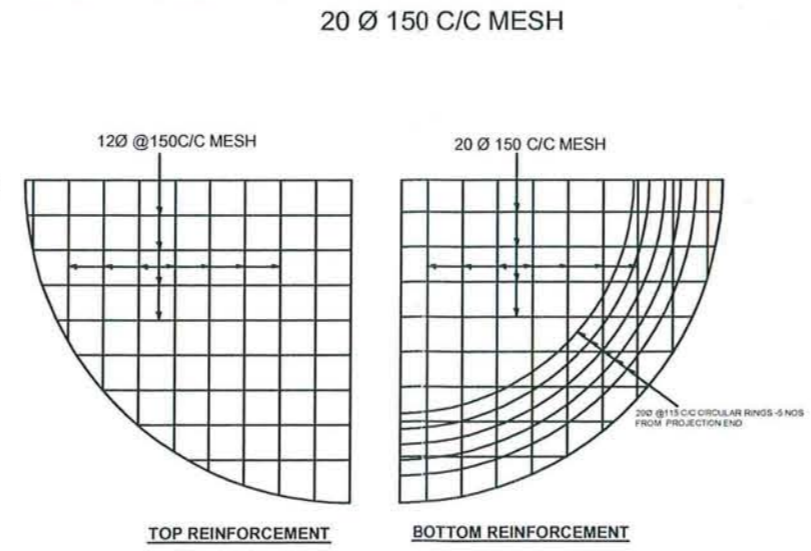
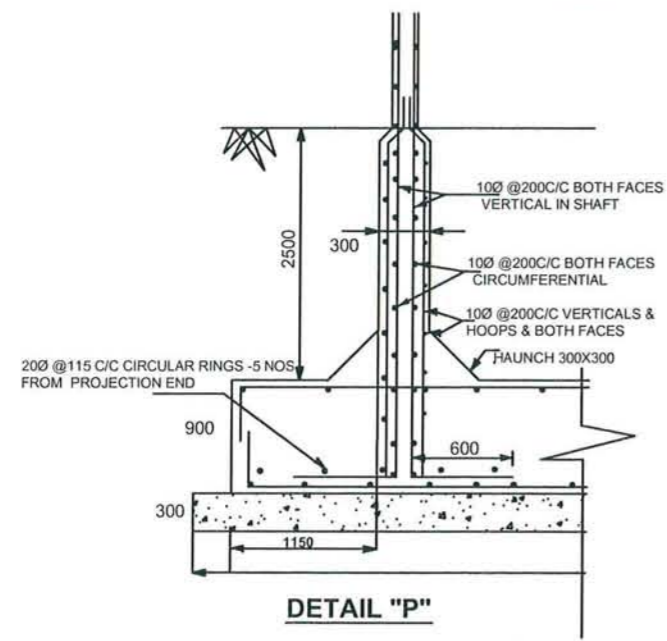
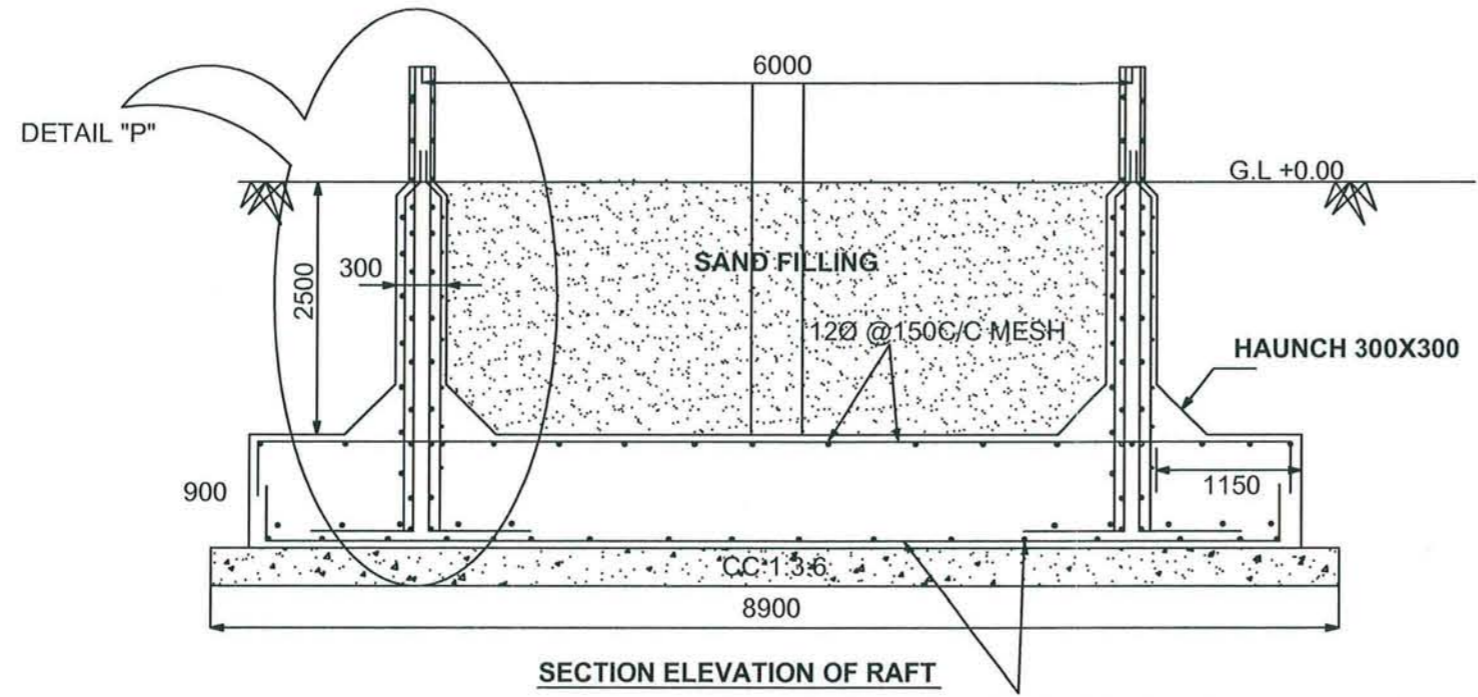
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60KL OHBR-BPT

SECTION ELEVATION OF RAFT



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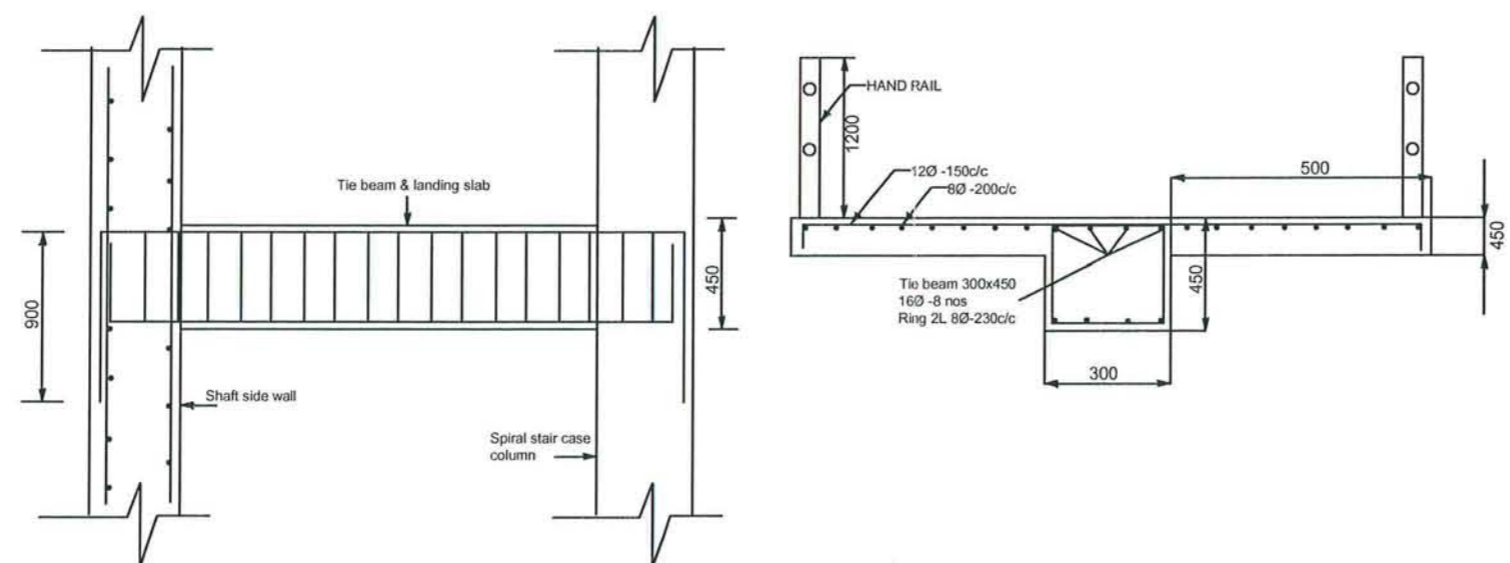
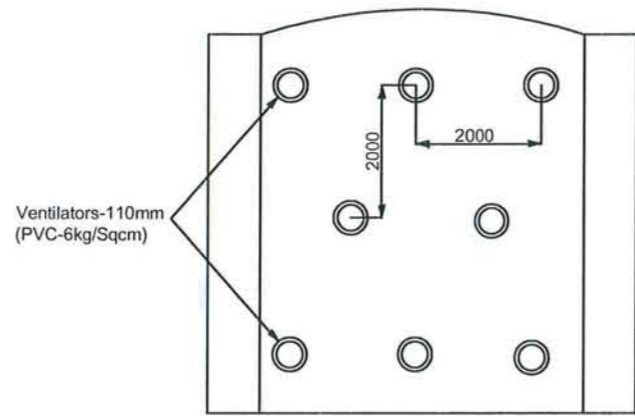
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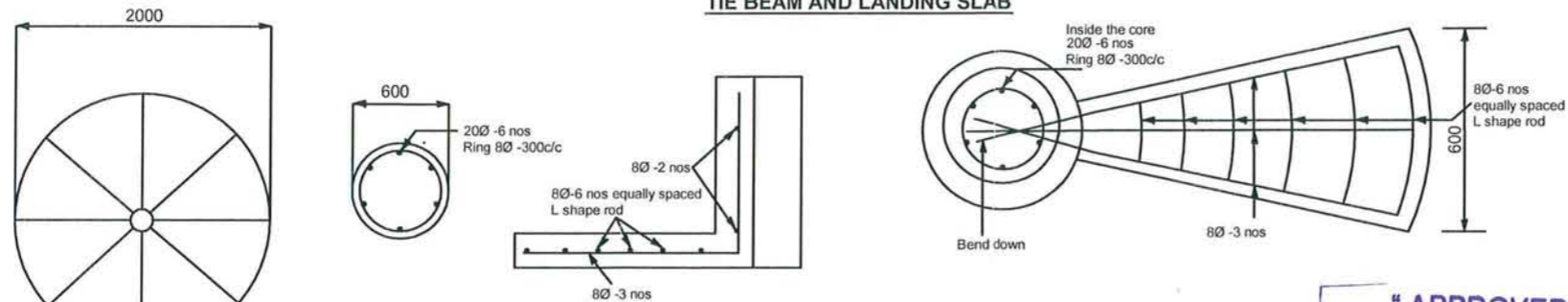
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60KL OHBR-BPT

SPIRAL STAIR CASE DETAILS





TIE BEAM AND LANDING SLAB



STEP SECTION DETAILS

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