

7.1.4.

Water conservation facilities available in the Institution: 1. Rain water harvesting 2. Borewell /Open well recharge 3. Construction of tanks and bunds 4. Waste water recycling 5. Maintenance of water bodies and distribution system in the campus

INDEX

Any other relevant information:

S. No.	Description	Pages
1	Facilities available in the Institution:	01 to 17
	1. Rain water harvesting	
	2. Borewell /Open well recharge	
	3. Construction of tanks and bunds	
	4. Waste water recycling	
	5. Maintenance of water bodies and distribution system	

7.1.4 WATER CONSERVATION FACILITIES AVAILABLE IN THE INSTITUTION

ADDITIONAL & OTHER RELAVANT INFORMATION



MVGR COLLEGE OF ENGINEERING (A)

(Accredited by NBA, Graded A by NAAC of UGC Approved by AICTE, New Delhi, and permanently affiliated to JNTU, Kakinada Listed U/S 2(F) &12(B) of the UGC Act 1956.)

VIZIANAGARAM – 535 005 (A.P.)

7.1.4 Water conservation facilities available in the Institution

1. Rain water harvesting
2. Borewell /Open well recharge
3. Construction of tanks and bunds
4. Waste water recycling
5. Maintenance of water bodies and distribution system in the campus

CAMPUS LAYOUT

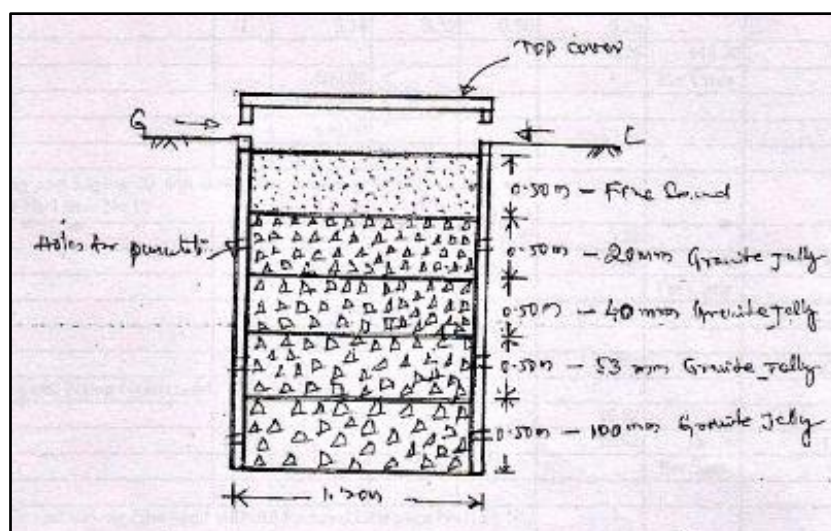


1. Rain Water Harvesting (RWH) pits developed

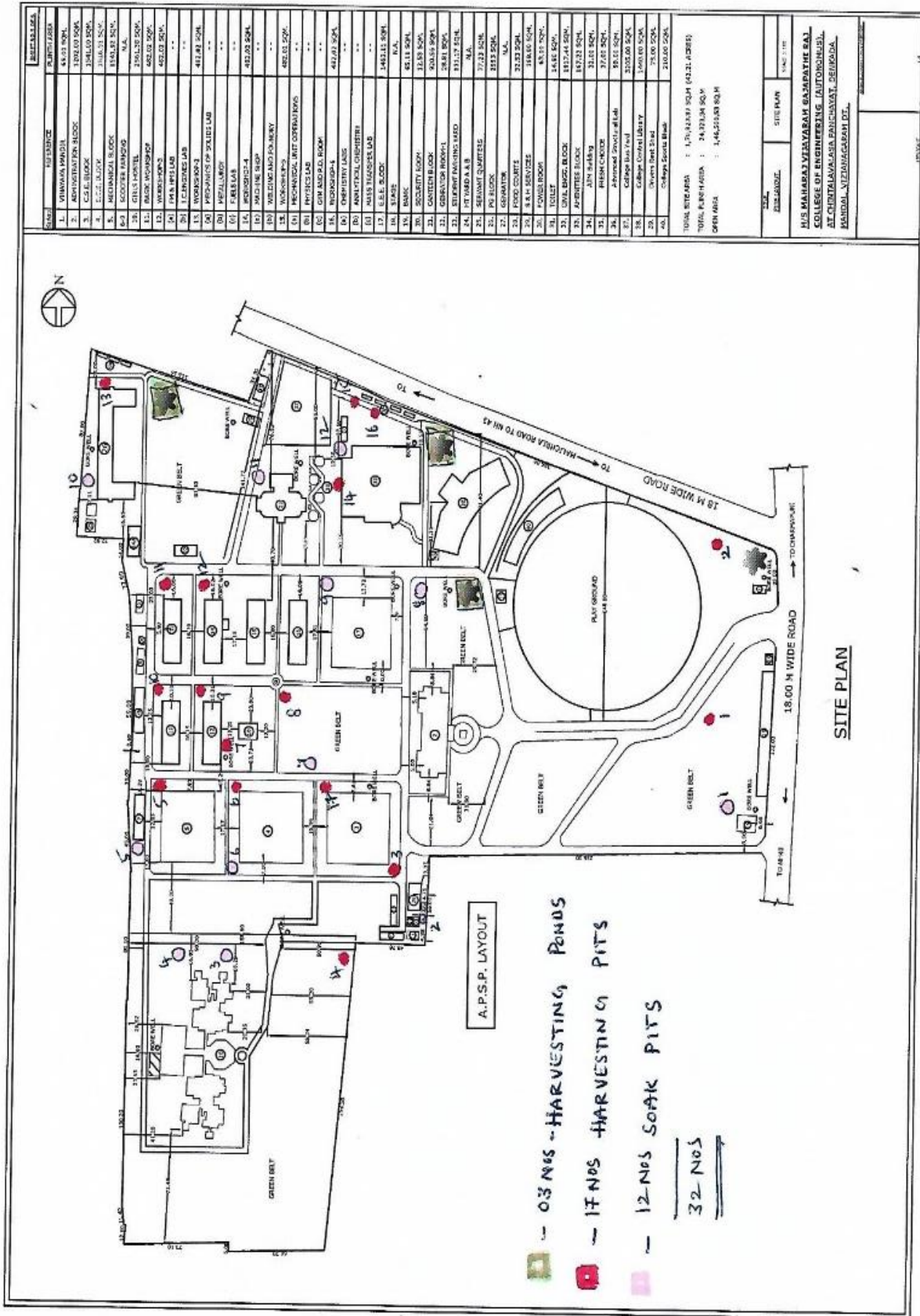
MVGR College of engineering (A) campus is located near Vijayaram Nagar, Chintalavalasa, Vizianagaram. Total area of the college campus is about nearly 1,70,824 Sq. mts., on that only area of 39,185 Sq. mts. (i.e., 33% on total area) was developed as academic zones and the balance area is about 1,31,639 Sq. mts. (i.e., 77% on total area) was earmarked for greenery. The college campus depends on ground water for all its needs and the daily need of water in the campus is around 1,35,000 liters (approx.). The rain water coming from roof tops and run off within the campus are collected in 17 numbers of harvesting pits of Diameter: 1.20 mts. and Depth: 2.50 mts. size each, are constructed at all feasible points in the campus to recharge the ground water. The construction cost of above mentioned 17 numbers of harvesting pits about Rs 1,19,000.

a) Structure of Rain water harvesting pit:

Construction of RWH pit with Diameter: 1.20 mts. and Depth: 2.50 mts. size each. In the available depth, 1st layer with 500mm thick 100mm Granite aggregate, 2nd layer with 500mm thick 53mm Granite aggregate, 3rd layer with 500mm thick 40mm Granite aggregate, 4th layer with 500mm thick 20mm Granite aggregate and 5th layer with Fine Sand as top layer.



Cross section of Rain water harvesting pit



Sl. No.	Room No.	Room Name	Area (sq. m)
1.	101	PLANT LAB	45.00 SQM.
2.	102	PLANT LAB	45.00 SQM.
3.	103	PLANT LAB	45.00 SQM.
4.	104	PLANT LAB	45.00 SQM.
5.	105	PLANT LAB	45.00 SQM.
6.	106	PLANT LAB	45.00 SQM.
7.	107	PLANT LAB	45.00 SQM.
8.	108	PLANT LAB	45.00 SQM.
9.	109	PLANT LAB	45.00 SQM.
10.	110	PLANT LAB	45.00 SQM.
11.	111	PLANT LAB	45.00 SQM.
12.	112	PLANT LAB	45.00 SQM.
13.	113	PLANT LAB	45.00 SQM.
14.	114	PLANT LAB	45.00 SQM.
15.	115	PLANT LAB	45.00 SQM.
16.	116	PLANT LAB	45.00 SQM.
17.	117	PLANT LAB	45.00 SQM.
18.	118	PLANT LAB	45.00 SQM.
19.	119	PLANT LAB	45.00 SQM.
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27.	127	PLANT LAB	45.00 SQM.
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92.	192	PLANT LAB	45.00 SQM.
93.	193	PLANT LAB	45.00 SQM.
94.	194	PLANT LAB	45.00 SQM.
95.	195	PLANT LAB	45.00 SQM.
96.	196	PLANT LAB	45.00 SQM.
97.	197	PLANT LAB	45.00 SQM.
98.	198	PLANT LAB	45.00 SQM.
99.	199	PLANT LAB	45.00 SQM.
100.	200	PLANT LAB	45.00 SQM.

Rain water harvesting pits location layout



Rain water harvesting pits



Rain water harvesting pits

b) Construction cost of one Rain water harvesting pit:

Estimation for Construction of Harvesting Pits								
MVGR College of Engineering (A)								
S.No	Description fo Item	Nos	Length (m)	Bredth (m)	Depth (m)	Qty (Cum)	Rate per unit	Amount (Rs)
	Harvesting pit Details, Diameter: 1.20 mtrs and Depth: 2.50 mtrs							
1	Earth work excavation of pit of 2.5 mtrs Depth	1	1.131		2.5	2.827	300.00	848.07
2	Supply and Laying of 100mm Granite aggregate	1	1.131		0.5	0.565	800.00	452.304
3	Supply and Laying of 53mm Granite aggregate	1	1.131		0.5	0.565	1000.00	565.38
4	Supply and Laying of 40mm Granite aggregate	1	1.131		0.5	0.565	1300.00	734.994
5	Supply and Laying of 20mm Granite aggregate	1	1.131		0.5	0.565	1700.00	961.146
6	Supply and Laying of Fine Sand as top layer	1	1.131		0.5	0.565	1200.00	678.456
7	Conveyance charge for materials	1	1.131		2.5	2.827	750.00	2120.175
8	Miscellaneous	-	-	-	-	-	-	639.00
							Total	7000
								(Each)

c) **Location of Rain water harvesting pits:**

Rain Water Harvesting Pits location Details		
MVGR College of Engineering (A)		
S.No	Location of pits	Nos
1	Admin Block S-W Corner, near to the student sit-out	1 Nos
2	Infront of Canarabank ATM	1 Nos
3	Rear side of open auditorium stage	2 Nos
4	N-W Corner of Workshop-2 (Infront of swami vivekananda statue)	1 Nos
5	Adjacent to Amenities bore point	1 Nos
6	South side of college canteen cool drink stall	1 Nos
7	Rear side of MBA Block	1 Nos
8	North side of MBA Block	1 Nos
9	North side of Civil block adjacent to the road	2 Nos
10	Adjacent to Basketball ground	1 Nos
11	N-W Corner of ECE block	1 Nos
12	North side of vinayaka temple	1 Nos
13	N-E Corner of Girls hostel	1 Nos
14	North side of Electrical work shop	1 Nos
15	S-W Corner of Mechanical Block	1 Nos
	Total	17 Nos

2. Borewell /Open well recharge

Total area of the college campus is about nearly 1,70,824 Sq. mts., on that only area of 39,185 Sq. mts. (i.e., 33% on total area) was developed as academic zones and the balance area is about 1,31,639 Sq. mts. (i.e., 77% on total area) was earmarked for greenery. The college campus depends on ground water for all its needs and the daily need of water in the campus is around 1,35,000 liters (approx.). To compensate the mentioned daily need we had

constructed 18 number of bore wells with different depths as per the sub soil water position and all are recharge regularly with 3 Nos of harvesting ponds and 29 Nos of harvesting and soak pits.

a) Location of Bore wells:

S.no	Name of the building	Bore well Depth
1	Admin Block	180 Feet
2	S & H Block	190 Feet
3	CSE Block	
4	ECE Block	195 Feet
5	EEE Block	
6	MECHANICAL Block	170 Feet
7	CIVIL Block	180 Feet
8	CANTEEN Block	200 Feet
9	MBA Block	190 Feet
10	AMENITIES Block	160 Feet
11	Canara BANK	170 Feet
12	TEMPLE SUMP	180 Feet
13	GIRLS HOSTEL (C-BLOCK)	195 Feet
14	GIRLS HOSTEL (A&B BLOCK)	190 Feet
15	Besides Drivers Shed	225 Feet
16	N-E Corner of EEE Block	295 Feet
17	Boys HOSTEL (A BLOCK)	195 Feet
18	Boys HOSTEL (B BLOCK)	195 Feet

3. Construction of tanks and bunds

As the water crisis continues to become severe, there is a dire need of reform in water management system and revival of traditional systems. As a part of revival to traditional wisdom, in this institute we built 3 Nos of ground tanks to collect and storage the rainwater for reuse on-site, rather than allowing it as run off.



Ground Harvesting Tanks



Ground Harvesting Tanks

4. Waste water recycling

a) Decentralized Waste Water Treatment System (DEWATS)

In this institute, separate hostels are constructed and these are accommodating around 700 boys and 300 girls. Almost 40,000 liters of water demand is for these hostels for smooth functioning. Total water demands is being meet extract from ground water through bore wells and these are recharged with ground tanks and harvesting pits. Total waste water produced from these hostels treated with centrally constructed decentralized waste water treatment plant. This decentralized waste water treatment plant with an installed capacity of 538.28 cubic meters is in the Boys and girls hostel premises and an amount of Rs 1.00 Crore is being spent to bring the system into functionality.

The waste water after treatment is proposed to be utilized effectively for gardening purpose. This will incidentally drastically reduce the usage of fresh water. Detailed drawings and approximate estimate of DEWATS system is attached for information.

a) Construction cost details for DEWATS

MVGR- DEWATS

BOQ-SUMMARY

Maharaj Vijayaram Gajapathiraj College of Engineering, Vizianagaram

**CIVIL WORKS OF MVGR- DEWATS & PLANTED GRAVEL FILTER AT
VIZIANAGARAM**

SUMMARY

Tender Document no : 1707-C-BOQ-007-V1-RO

Consultants:

Mar- 2018

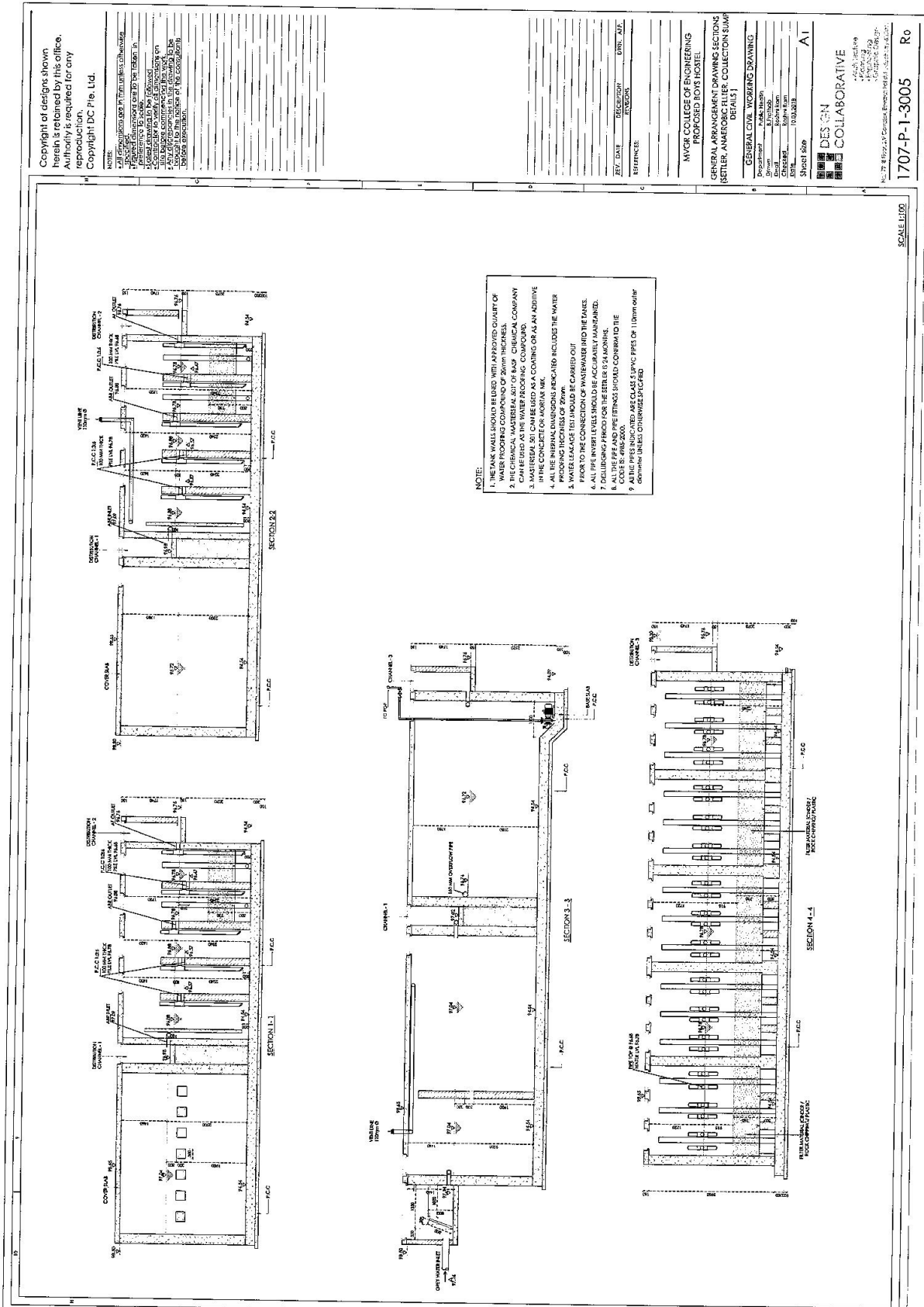
DESIGN COLLABORATIVE PVT. LTD

III Floor, SV Complex, 179, Eswaran koil street

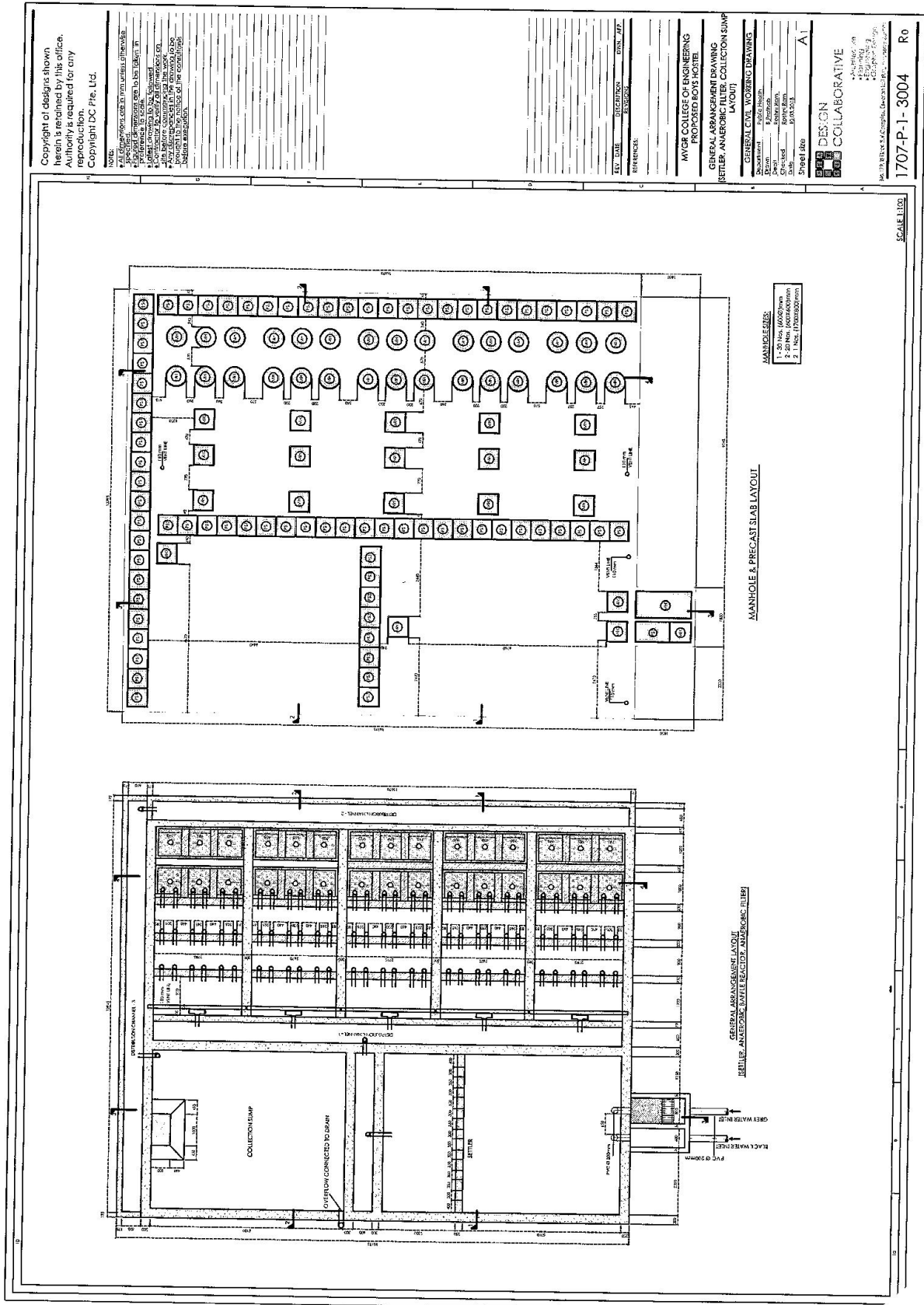
Pondicherry - 605001

SL.NO	DESCRIPTION	AMOUNT (Rs)
1	EARTHWORK EXCAVATION	6,06,798.00
2	CONCRETE WORK	3,00,666.00
3	REINFORCED CEMENT CONCRETE WORK	38,28,730.00
4	BRICKWORK	4,07,837.00
5	FLOORING WORK	2,65,905.00
6	FINISHING	4,86,499.00
7	MISCELLANEOUS ITEMS	8,51,966.00
	GRAND TOTAL	67,48,401.00

b) 2-D sectional drawing for DEWATS



c) 2-D Plan drawing for DEWATS



5. Maintenance of water bodies and distribution system in the campus

Total area of the college campus is about nearly 1,70,824 Sq. mts., on that only area of 39,185 Sq. mts. (i.e., 33% on total area) was developed as academic zones and the balance area is about 1,31,639 Sq. mts. (i.e., 77% on total area) was developed as earmarked for greenery. The college campus depends on ground water for all its needs and the daily need of water in the campus is around 1,35,000 liters (approx.). Total water demand is being meet with 18 number of bore wells with different depths as per the sub soil water position.

a) Location of Overhead tanks with capacities:

S.no	Name of the building	Overhead tanks capacity (Ltrs)	Bore Depth
1	Admin Block	10000	180 Feet
2	S & H Block	500 (Syntex)	190 Feet
3	CSE Block	15000	
4	ECE Block	2 X 20000	195 Feet
5	EEE Block	15000	
6	MECHANICAL (R.O 1000 Lit/Day)	30000	170 Feet
7	CIVIL (R.O 500 Lit/Day)	30000	180 Feet
8	CANTEEN Block	2 X 8000	200 Feet
9	MBA Block	500 (Syntex)	190 Feet
10	AMENITIES Block	5000 (Syntex)	160 Feet
11	Canara BANK	(5000 + 1000) (Syntex)	170 Feet
12	TEMPLE SUMP	75000 (UG Sump)	180 Feet
13	GIRLS HOSTEL (C-BLOCK) (R.O 250 Lit/Day)	20000	195 Feet
14	GIRLS HOSTEL (A&B BLOCK)	(4 X 5000) (Syntex)	190 Feet
15	Besides Drivers Shed	-	225 Feet
16	N-E Corner of EEE Block	-	295 Feet
17	Boys HOSTEL (A BLOCK)	25000	195 Feet
18	Boys HOSTEL (B BLOCK)	25000	195 Feet

The ground water is pumped into storage tanks located at different places in the campus. There are eighteen number of overhead storage tanks in the campus. The water is distributed through well laid pipe network. Drinking water after treating in RO plant is supplied through a separate set of distribution pipes and water for all other purpose is supplied through another set of distribution pipes. Entire distribution system is well supervised by civil and water works committee to ensure that there are no leakages and wastages of precious water through joints, valves et.,



In our institute (i.e., M V G R College of Engineering), we supply 20 liters of mineral water to every household in Chintalavalasa village which is very near to our college for Rs 2 under NTR Sujala Sravanthi scheme. We had a setup 500 liters capacity per hour R.O. water plant to meet the above requirement of minimum 300 habitations. The rejected water from R.O. was collected and utilized effectively for campus gardening purpose.