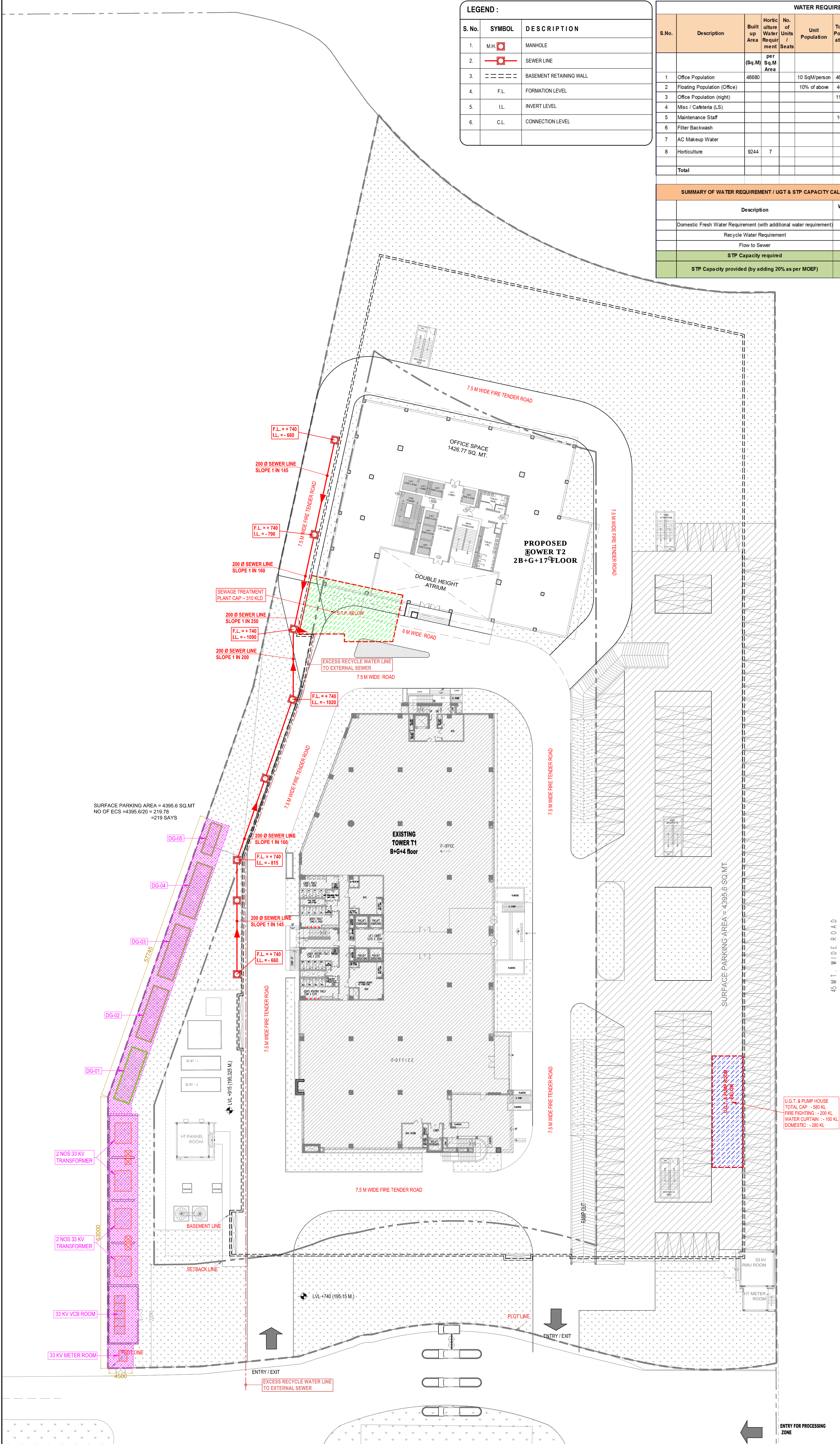


LEGEND :		
S. No.	SYMBOL	DESCRIPTION
1.	M.H.	MANHOLE
2.	SEWER LINE	SEWER LINE
3.	BASEMENT RETAINING WALL	BASEMENT RETAINING WALL
4.	F.L.	FORMATION LEVEL
5.	I.L.	INVERT LEVEL
6.	C.L.	CONNECTION LEVEL

WATER REQUIREMENT CALCULATIONS														
S.No.	Description	Built up Area	Horticulture Water Requirement	No. of Units / Seats	Unit Population	Total Population	Domestic Fresh Water Requirement (A)		Recycle Water Requirement (B)		Total Water Requirement (A+B)	Flow to Sewer		
		(Sq.M)	per Sq.M Area				LPCD	LPD	LPCD	LPD	LPD	Domestic 80%	Flushing 100%	LPD
1	Office Population	46680			10 SqM/person	4670	25	116750	20	93400	210150	93400	93400	186800
2	Floating Population (Office)				10% of above	467	5	2335	10	4670	7005	1868	4670	6538
3	Office Population (night)					1170	25	29250	20	23400	52650	23400	23400	48800
4	Misc / Cafeteria (LS)							5000			5000	4000	0	4000
5	Maintenance Staff					100	25	2500	20	2000	4500	2000	2000	4000
6	Filter Backwash							10000			10000		10000	10000
7	AC Makeup Water									180000	180000			
8	Horticulture	9244	7							64708	64708			
Total								1,65,835		3,68,178	5,34,013	1,24,668	1,33,470	2,58,138

SUMMARY OF WATER REQUIREMENT / UGT & STP CAPACITY CALCULATION	
Description	Water Requirement (KLD)
Domestic Fresh Water Requirement (with additional water requirement)	278
Recycle Water Requirement	368
Flow to Sewer	258
STP Capacity required	258
STP Capacity provided (by adding 20% as per MOEF)	310

DESIGN OF SEWER LINE	
Total Sewage Load (As per water load sheet)	= 2,58,138 Lit/day or 2.99 Lit/sec
By taking Peak Factor @ 3	
Peak Sewage Generated (3 times of Avg. Flow)	= 8.96 Lit/sec
Sewer Pipe Design	
Final Sewage Pipe Dia Selected	= 200 mm
Slope (1 in ...)	= 250
Sewer Design as per Manning Formula	
$V = \frac{3.986 \times 10^{-13} \times D^{103} \times S^{102}}{n}$	
$V = 0.78 \text{ m/sec}$	
D = Dia (mm)	= 200 mm
S = Slope	= 250
n = Manning Coefficient	= 0.011
V = Velocity (m/sec)	
Actual Pipe Capacity (Q) at 100% flow	$= \frac{100^2 \times V}{4} = 0.024500 \text{ m}^3/\text{sec} = 24.50 \text{ Lit/sec}$
Where:	
D = Dia (mm)	= 200 mm
V = Velocity (m/sec)	= 0.78
Pipe Capacity (Q) (at full flow)	m3/sec
Peak Sewage Generated (site peak discharge)	= 8.96 Lit/sec
Actual Pipe Capacity at 100% flow	= 24.50 Lit/sec
Site peak discharge is less than 50% of pipe capacity, hence 200 mm Pipe Dia is OK	



project

PROPOSED IT-1A, IT-SEZ, ON PLOT NO. TZ-6, GREATER NOIDA

title

LAYOUT PLAN

sub title

EXTERNAL SEWERAGE SYSTEM

drawing released for

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drwg. no.

IT-1A / 23B01 / ES-01

scale

1 : 375

date

21.07.2023

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