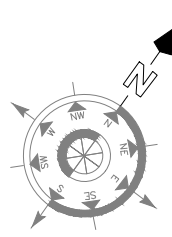


NORTH



EXISTING 45MT. WIDE ROAD

LEGEND :

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

DESIGN OF SEWER LINE (DEVELOPER'S UNIT)

Flow to Sewer			
Domestic 80%		=	1,40,360 Liters
Flushing 100%		=	75,800 Liters
Total Sewage Load		=	2,16,160 Lit/day
		or	2.50 Lit/sec

By taking Peak Factor	@ 3		
Peak Sewage Generated (3 times of Avg. Flow)		=	7.51 Lit/sec

Sewer Pipe Design

Final Sewage Pipe Dia Selected	=	200 mm
Slope (1 in ...)	=	200

Sewer Design as per Manning Formula

$$V = \frac{3.968 \times 10^{-3} \times D^{2/3} \times S^{1/2}}{n}$$

$$V = 0.87 \text{ m/sec}$$

D = Dia (mm) = 200 mm
 S = Slope = 200
 n = Manning Coefficient = 0.011
 V = Velocity (m/sec)

$$\text{Actual Pipe Capacity (Q) at 100\% flow} = \frac{V \times A}{4}$$

$$Q = 0.027391 \text{ m}^3/\text{sec}$$

$$Q = 27.39 \text{ Lit/sec}$$

Where -

D = Dia (mm) = 200 mm
 V = Velocity (m/sec) = 0.87
 Q = Pipe Capacity (at full flow) m³/sec

Peak Sewage Generated (site peak discharge)	=	7.51 Lit/sec
Actual Pipe Capacity at 100% flow	=	27.39 Lit/sec
Site peak discharge is less than 50% of pipe capacity, hence 200 mm Pipe Dia is OK		

DESIGN OF SEWER LINE (PMAY UNITS)

Flow to Sewer			
Domestic 80%		=	97,988 Liters
Flushing 100%		=	40,775 Liters
Total Sewage Load		=	1,38,763 Lit/day
		or	1.61 Lit/sec

By taking Peak Factor	@ 3		
Peak Sewage Generated (3 times of Avg. Flow)		=	4.82 Lit/sec

Sewer Pipe Design

Final Sewage Pipe Dia Selected	=	200 mm
Slope (1 in ...)	=	200

Sewer Design as per Manning Formula

$$V = \frac{3.968 \times 10^{-3} \times D^{2/3} \times S^{1/2}}{n}$$

$$V = 0.87 \text{ m/sec}$$

D = Dia (mm) = 200 mm
 S = Slope = 200
 n = Manning Coefficient = 0.011
 V = Velocity (m/sec)

$$\text{Actual Pipe Capacity (Q) at 100\% flow} = \frac{V \times A}{4}$$

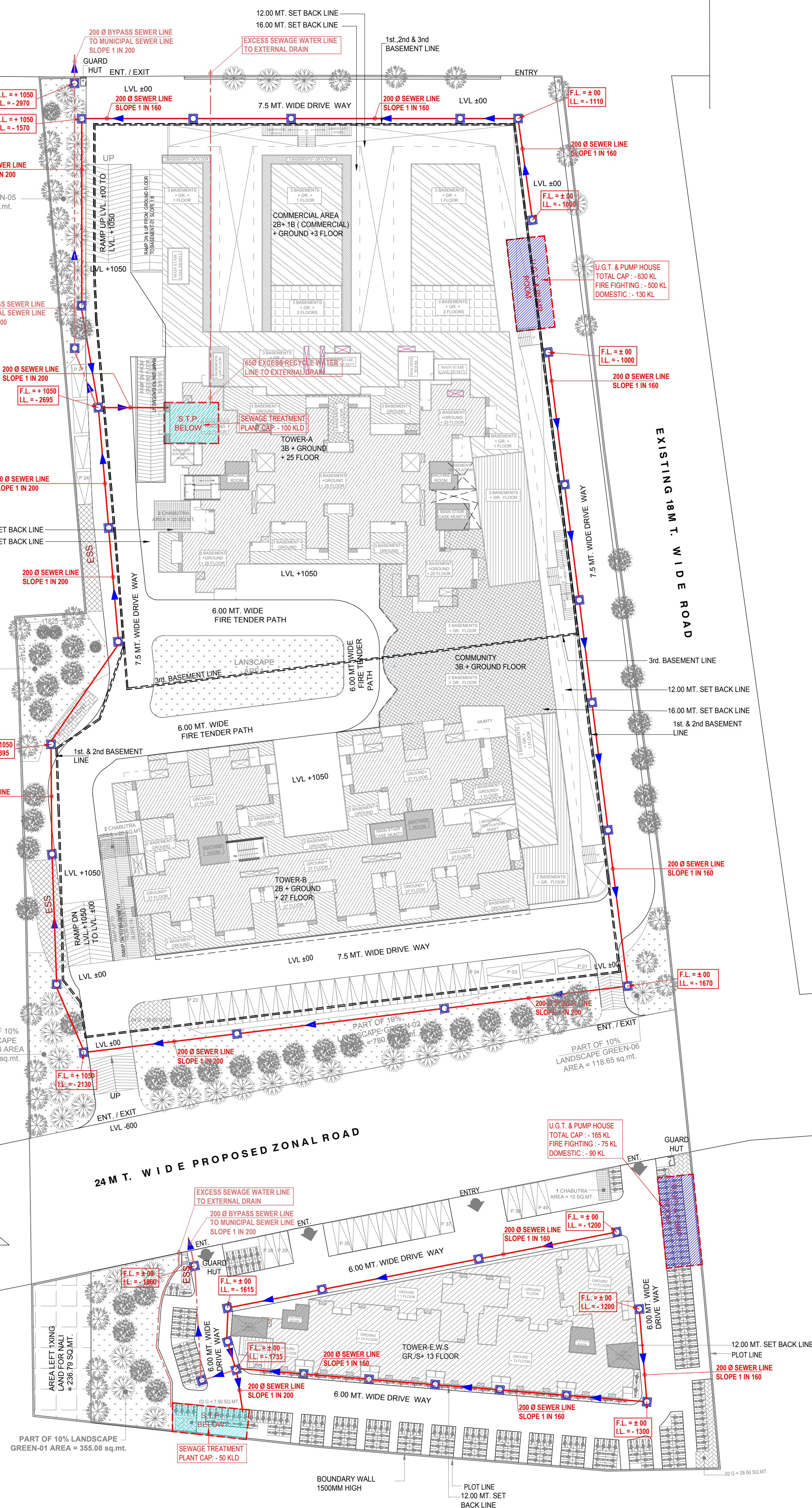
$$Q = 0.027391 \text{ m}^3/\text{sec}$$

$$Q = 27.39 \text{ Lit/sec}$$

Where -

D = Dia (mm) = 200 mm
 V = Velocity (m/sec) = 0.87
 Q = Pipe Capacity (at full flow) m³/sec

Peak Sewage Generated (site peak discharge)	=	4.82 Lit/sec
Actual Pipe Capacity at 100% flow	=	27.39 Lit/sec
Site peak discharge is less than 50% of pipe capacity, hence 200 mm Pipe Dia is OK		



project

"Fragrance" By Ajnara under PMAY
At Kharsa No.1239,1249,1250,1266, and 1267
Village- Noornagar, Rajnagar Ext., Nh-58,Ghaziabad

title

LAYOUT PLAN

subtitle

EXTERNAL SEWERAGE SYSTEM

drawing released for

- ☒ MUN. SUBMISSION
- ☐ APPROVAL
- ☐ ADVANCE COPY
- ☐ CONSTRUCTION

drg. no.

PMAY / 18B16 / ES - 01

scale

1 : 450

date

19.06.2019

drawn by

Prem Saini

designed by

Badri Vishal

checked by

Anand Havelia

architects

Space Designers International
B - 34, SECTOR-67, NOIDA
PH : +91 9711633717,18,19 & 20, Mob: 9811070399,981138231
e-mail : spacesdi@gmail.com, www.spacedi.com



services consultant

Consummate Engineering Services (P) Ltd.

Noida Office : B - 67, Sector - 67, Noida - 201 301
Lko. Office : R 006, Rohas Plumeria, Gonti Nagar, Lucknow
Tel : (0120) 2303500 (30 Lines)
e mail : mail@cespl.in, website : www.cespl.in

