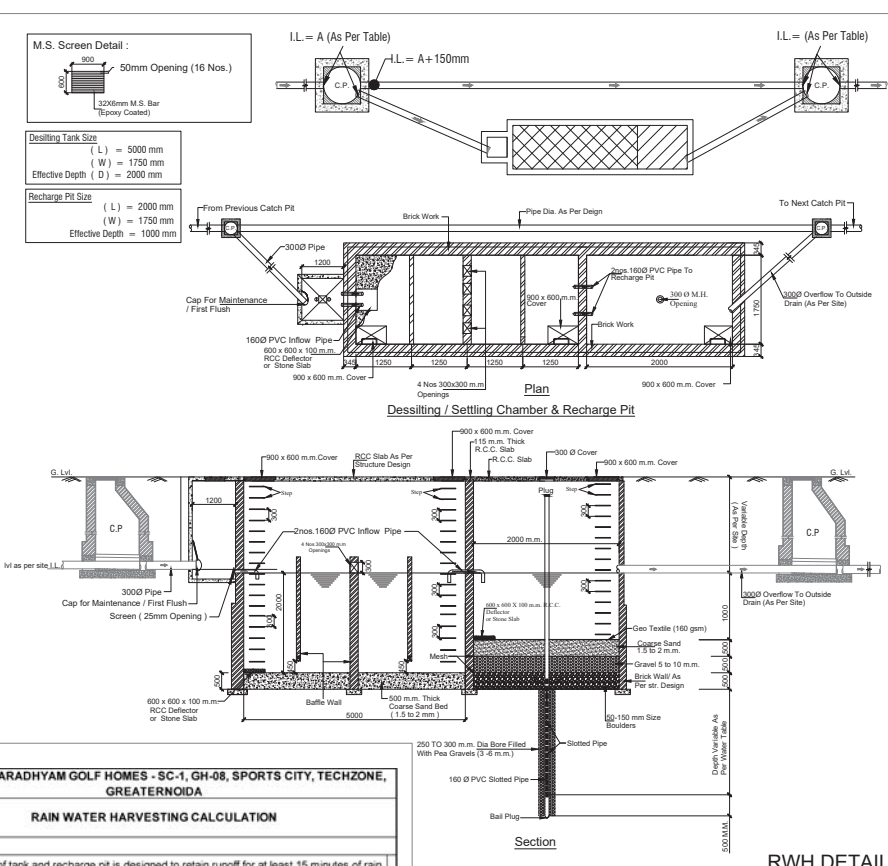
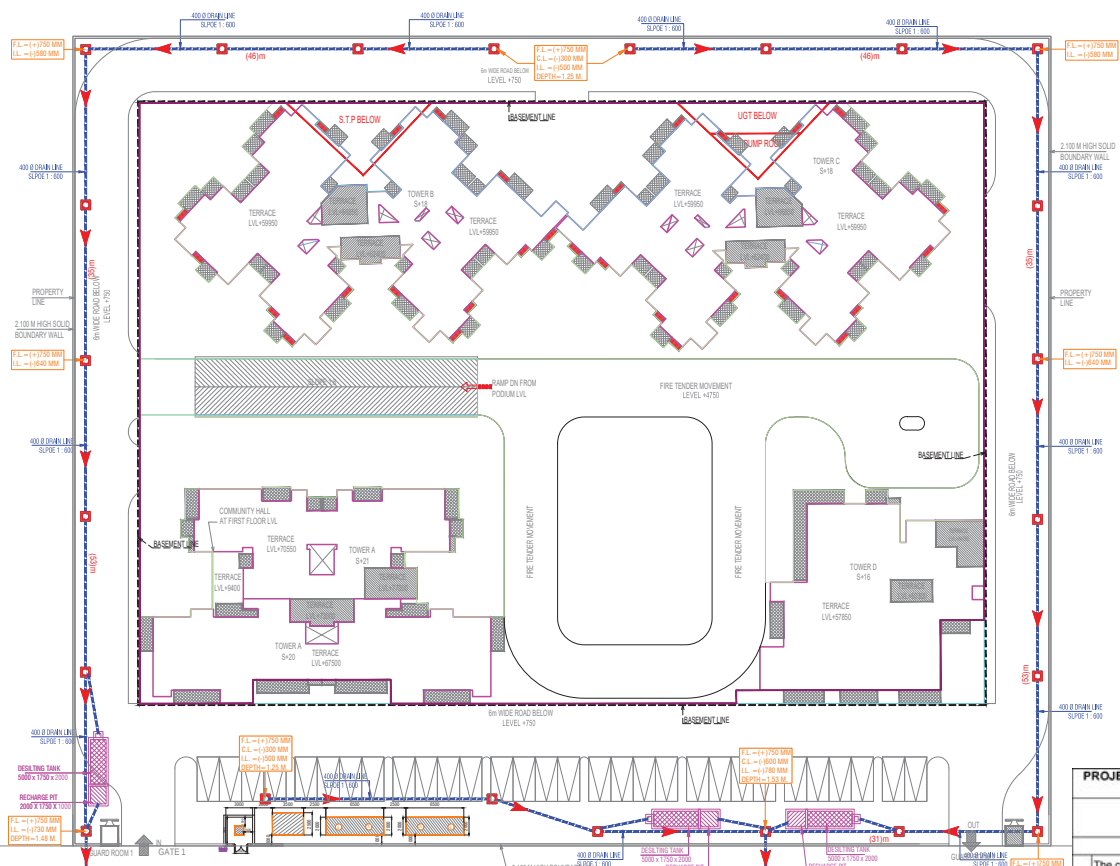




PROJECT : AARADHYAM GOLF HOMES -SC-1, GH-08, SPORTS CITY, TECHZONE, GREATERNOIDA			
DESIGN OF DRAIN LINE PHASE-2			
Rainfall intensity (i)	=	25	mm/hour
Coefficient of Runoff (C)	=	0.50	
Area of Drainage district	=	0.50	Hectare
Total Site Discharge	=	10°Cu M / Hour	
	=	17.36	Lit/sec
Drain Pipe Design			
Final Drain Pipe Dia Selected	=	400	mm
Slope (1 in ...)	=	600	
Drain Design as per Manning Formula			
$V = \frac{3.968 \times 10^{-14} \times D^{2.49} \times S^{0.54}}{n}$			
$V =$	0.80	m/sec	
$D =$ Dia (mm)	$=$	400	mm
$S =$ Slope	$=$	600	
$n =$ Manning Coefficient	$=$	0.011	
$V =$ Velocity (m/sec)			
Actual Pipe Capacity (Q) at 100% flow	$=$	100.42	Lit/sec
Where -			
$D =$ Dia (mm)	$=$	400	mm
$V =$ Velocity (m/sec)	$=$	0.80	
Pipe Capacity (at full flow)	$=$	100.42	Lit/sec
Total Site Discharge	=	17.36	Lit/sec
Actual Pipe Capacity at 100% flow	=	100.42	Lit/sec
Total Site discharge is less the pipe capacity, hence 400 mm Pipe Dia is OK			

PROJECT : AARADHYAM GOLF HOMES -SC-1, GH-08, SPORTS CITY, TECHZONE, GREATERNOIDA			
DESIGN OF DRAIN LINE PHASE-1			
Rainfall intensity (i)	=	25	mm/hour
Coefficient of Runoff (C)	=	0.50	
Area of Drainage district	=	0.50	Hectare
Total Site Discharge	=	10°Cu M / Hour	
	=	17.36	Lit/sec
Drain Pipe Design			
Final Drain Pipe Dia Selected	=	400	mm
Slope (1 in ...)	=	600	
Drain Design as per Manning Formula			
$V = \frac{3.968 \times 10^{-14} \times D^{2.49} \times S^{0.54}}{n}$			
$V =$	0.80	m/sec	
$D =$ Dia (mm)	$=$	400	mm
$S =$ Slope	$=$	600	
$n =$ Manning Coefficient	$=$	0.011	
$V =$ Velocity (m/sec)			
Actual Pipe Capacity (Q) at 100% flow	$=$	100.42	Lit/sec
Where -			
$D =$ Dia (mm)	$=$	400	mm
$V =$ Velocity (m/sec)	$=$	0.80	
Pipe Capacity (at full flow)	$=$	100.42	Lit/sec
Total Site Discharge	=	17.36	Lit/sec
Actual Pipe Capacity at 100% flow	=	100.42	Lit/sec
Total Site discharge is less the pipe capacity, hence 400 mm Pipe Dia is OK			

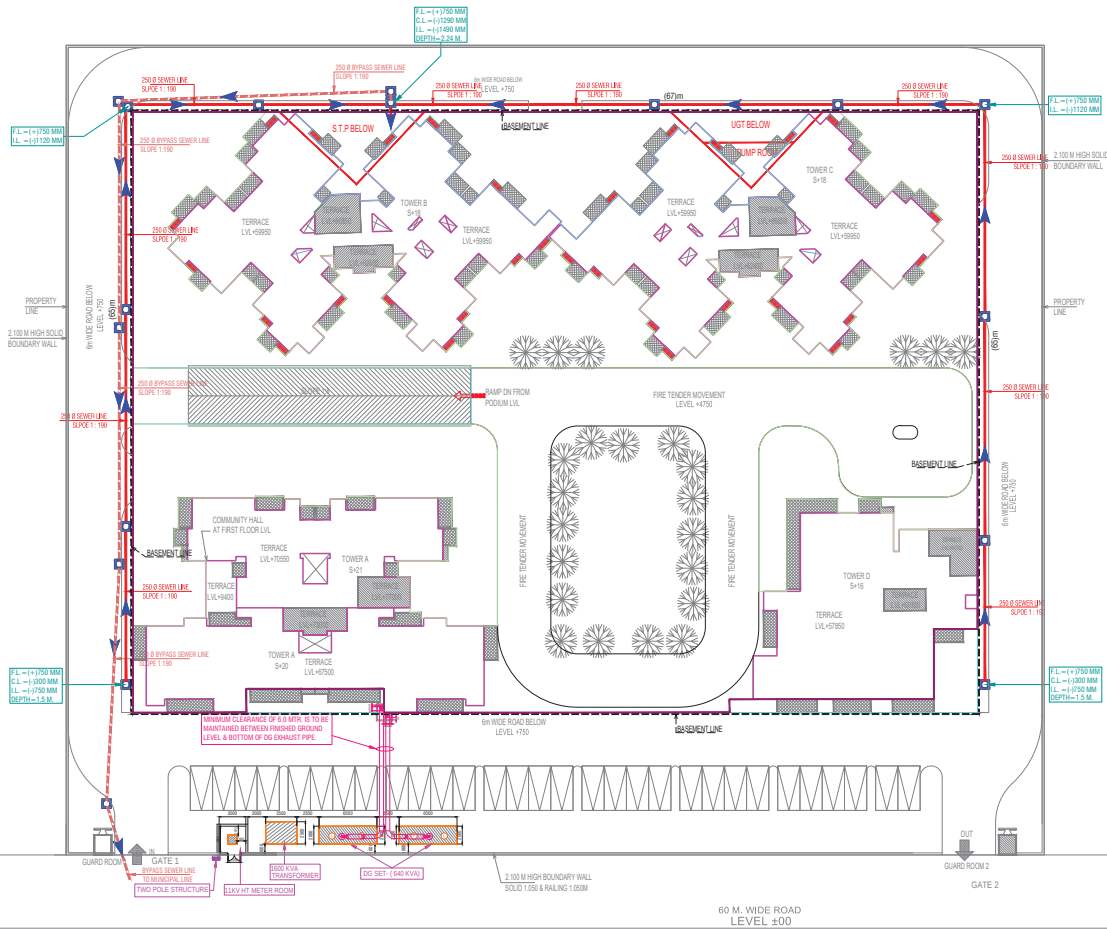
PROJECT : AARADHYAM GOLF HOMES -SC-1, GH-08, SPORTS CITY, TECHZONE, GREATERNOIDA			
RAIN WATER HARVESTING CALCULATION			
The capacity of tank and recharge pit is designed to retain runoff for at least 15 minutes of rain fall of the peak intensity.			
Peak Rainfall in one hour	=	about 90mm / hr	
Peak Rainfall in 15 minutes, R	=	90 / 4 mm	
Say	=	22.5 mm = 0.0225m	
Total Roof area, A	=	2475 sq.m.	
Average run off coefficient, C	=	0.85	
Hence total combined capacity of desilting tank and recharge pit required,	=	AvRx C	
	=	53	
Providing Desilting tank of size	=	5 x 1.75 x 2 m. effective depth	
Capacity of desilting tank of given size (Cu m.), a	=	17.5	
Providing Recharge pit of size	=	2 x 1.75 x 1 m. effective depth	
Capacity of recharge pit of given size (Cu m.), b	=	3.5	
Hence total combined capacity of one set of desilting tank and recharge pit, (Cu M)	=	a+b	
	=	21	
Therefore no. of desilting tank and recharge pit required	=	(AvRx C) / (a+b)	
	=	2.51 nos.	
Say,	=	3	
Hence, 3 sets of rechrge pit and desilting tank are required of following size :			
Desilting tank	=	5 x 1.75 x 2 m. effective depth	
Recharge pit	=	2 x 1.75 x 1 m. effective depth	



LEGEND :		
S. No.	SYMBOL	DESCRIPTION
1.	C.P.	CATCH PIT
2.	UNDER GROUND DRAIN	
3.	DESILTING TANK	
4.	RECHARGE PIT	
5.	BASEMENT LINE	
6.	F. L.	FORMATION LEVEL (FINISHED ROAD TOP LEVEL)
7.	I. L.	INVERT LEVEL
8.	C. L.	CONNECTION LEVEL

rev. no.	date	revision
project SPRING HOMES SC-1, GH-08, SPORTS CITY, TECHZONE, GREATERNOIDA		
title SITE PLAN		
subtittle EXTERNAL DRAINAGE SYSTEM		
drawing released for ☐ APPROVAL ☒ AUTHORITY SUBMISSION ☐ ADVANCE COPY ☐ CONSTRUCTION		
drp. no.	S.F./EX./S-02	drawn by Kulwant
scale	1:300	designed by R.R.
date		checked by Anand Havella
architects GIAN P. MATHUR AND ASSOCIATES (P) LTD. C-15, East Of Kailash, New Delhi-110051 40399595 / 40399512 E: gpm@anindia.in W: www.gpmindia.com		
services consultant Consummate Engineering Services (P) Ltd. Noida Office: B-47, Sector-47, Noida-201301 Tel: (0120) 293500 (30 Lines) Uda. Office: A-208, Noida Phase II, Noida-201306 Tel: (0120) 6514455 e mail: mail@cespl.in, website: www.cespl.in		

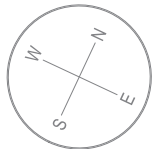
OTHERS PLOT



PROJECT : AARADHYAM GOLF HOMES -SC-1, GH-08, SPORTS CITY, TECHZONE, GREATERNOIDA			
DESIGN OF SEWER LINE			
Population			
Total No. of Apartments		=	367 Nos.
Total Permanent Population	@ 4.5	=	1,652 Persons
Club & Floating Population		=	250 Persons
Staff		=	80 Persons
Total Water Demand			
Apartments	@ 135 lpcd	=	2,22,953 Liters
Club & Floating	@ 15 lpcd	=	3,750 Liters
Staff	@ 45 lpcd	=	3,600 Liters
Total Water Demand			
= 2,30,303 Liters			
By taking Interception factor	@ 90%	=	2,07,272 Lit/day
Hence Total Sewage Load		or	2.40 Lit/sec
By taking Peak Factor	@ 3	=	7.20 Lit/sec
Peak Sewage Generated (3 times of Avg. Flow)		=	7.20 Lit/sec
Sewer Pipe Design			
Final Sewage Pipe Dia Selected		=	250 mm
Slope (1 in190)		=	190
Sewer Design as per Manning Formula			
$V = \frac{3.968 \times 10^{-3} \times D^{2/3} \times S^{1/2}}{n}$			
V = 1.04 m/sec			
D = Dia (mm)	=	250 mm	
S = Slope	=	190	
n = Manning Coefficient	=	0.011	
V = Velocity (m/sec)	=		
Actual Pipe Capacity (Q) at 100% flow			
$Q = \frac{\pi D^2 \times V}{4}$			
Q = 0.050954 m³/sec			
Q = 50.95 Lit/sec			
Where -			
D = Dia (mm)	=	250 mm	
V = Velocity (m/sec)	=	1.04	
Q = Pipe Capacity (at full flow)	=		
m³/sec			
Peak Sewage Generated (site peak discharge)	=	7.20 Lit/sec	
Actual Pipe Capacity at 100% flow	=	50.95 Lit/sec	
Site peak discharge is less than 50% of pipe capacity, hence 250 mm Pipe Dia is OK			

LEGEND :		
S. No.	SYMBOL	DESCRIPTION
1.	M.H.	MANHOLE
2.	SEWER LINE	SEWER LINE
3.	BYPASS SEWER LINE	BYPASS SEWER LINE
4.	BASEMENT LINE	BASEMENT LINE
5.	F.L.	FORMATION LEVEL (FINISHED ROAD TOP LEVEL)
6.	I.L.	INVERT LEVEL
7.	C.L.	CONNECTION LEVEL

GIAN P. MATHUR
ARCHITECT
B.Arch., M.C.A., A.I.A.
CA No 805769



R-00	31.07.2015	ADD SEWER INVERT LEVEL
rev. no.	date	revision

project
SPRING HOMES
SC-1, GH-08, SPORTS CITY, TECHZONE, GREATERNOIDA

title
SITE PLAN

sub-title
EXTERNAL SEWERAGE SYSTEM

drawing released for
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drw. no. S.F./EX./S-01 drawn by Kulkarni

scale 1:300 designed by R.R.

date checked by Anand Havella

architects
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