

**BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI
O. A. No. 404 OF 2025**

IN THE MATTER OF:

RAM KISHORE YADAV

...APPLICANT

VERSUS

MINISTRY OF ENVIRONMENT,
FORESTS & CLIMATE CHANGE & ORS.

...RESPONDENTS

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FILED BY:

[Signature]
D/8495/2018

**[KARANJAWALA & CO.]
ADVOCATES FOR RESPONDENT NO. 6
FIRST FLOOR, 212, ROUSE AVENUE,
DEEN DAYAL UPADHYAY MARG,
NEW DELHI-110002**

EMAIL: service@karanjawala.in;
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PLACE: NEW DELHI

DATE: 19.12.2025


HARYANA STATE POLLUTION CONTROL BOARD
HSPCB Gurgaon North Vikas Sadan, 1st Floor, Near DC Court,
Gurgaon Ph.0124-2332775 Email:-
hspcbrogrn@gmail.com
Website: www.hrocmms.nic.in E-Mail - hspcbho@gmail.com
Telephone No.: 0172-2577870-73

No. HSPCB/Consent/ : 329962322GUNOCTE27715935
Dated:09/09/2022
To.

**M/s : Proposed Group Housing Buildings in Zone 10 DLF 5 Gurugram
2nd Floor, Gateway Tower, Cyber city Gurugram
GURGAON
122002**

Sub. : Grant of consent to Establish to M/s Proposed Group Housing Buildings in Zone 10 DLF 5 Gurugram

Please refer to your application no. 27715935 received on dated 2022-08-23 in regional office Gurgaon North.

With reference to your above application for consent to establish, M/s Proposed Group Housing Buildings in Zone 10 DLF 5 Gurugram is hereby granted consent as per following specification/Terms and conditions.

Consent Under	AIR/WATER
Period of consent	09/09/2022 - 16/08/2032
Industry Type	Building and Construction projects having waste water generation more than 100 KLD in respective of their built-up area
Category	RED
Investment(In Lakh)	107600.0
Total Land Area (Sq. meter)	30653.3
Total Builtup Area (Sq. meter)	233377.9
Quantity of effluent	
1. Trade	0.0 KL/Day
2. Domestic	294.0 KL/Day
Number of outlets	1.0
Mode of discharge	
1. Domestic	STP
2. Trade	
Permissible Domestic Effluent Parameters	
1. BOD	10 mg/l
2. COD	50 mg/l
3. TSS	20 mg/l

4. Total Nitrogen	10 mg/l
5. Total Phosphorus	1 mg/l
6. Faecal Coliform (MPN/100 ml)	Less than 100
7. pH	5.5-9.0
Permissible Trade Effluent Parameters	
1. NA	mg/l
Number of stacks	9
Height of stack	
1. Stack to DG set 1000 KVA	6 Meter
2. Stack to DG set 1000 KVA	6 Meter
3. Stack to DG set 1000 KVA	6 Meter
4. Stack to DG set 1000 KVA	6 Meter
5. Stack to DG set 1000 KVA	6 Meter
6. Stack to DG set 1000 KVA	6 Meter
7. Stack to DG set 1000 KVA	6 Meter
8. Stack to DG set 625 KVA	6 Meter
9. Stack to DG set 625 KVA	6 Meter
Permissible Emission parameters	
1. NA	
Capacity of boiler	
1. NA	Ton/hr
Type of Furnace	
1. NA	
Type of Fuel	
1. Diesel	6.4 KL/day

Regional Officer, Gurgaon North
Haryana State Pollution Control Board.

Terms and conditions

1. The industry has declared that the quantity of effluent shall be 294 KL/Day i.e 0KL/Day for Trade Effluent, 0 KL/Day for Cooling, 294 KL/Day for Domestic and the same should not exceed .
2. The above 'Consent to Establish' is valid for 60 months from the date of its issue to be extended for another one year at the discretion of the Board or till the time the unit starts its trial production whichever is earlier. The unit will have to set up the plant and obtain consent during this period.

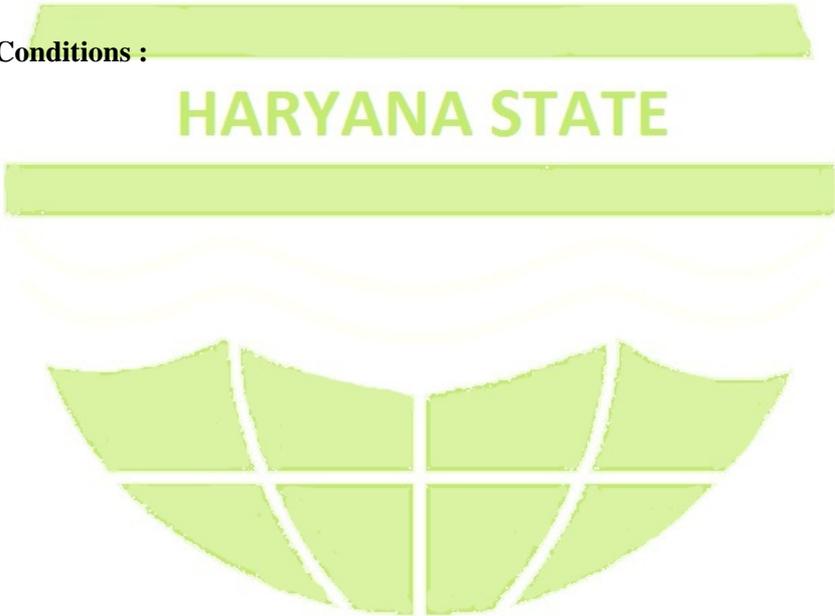
3. The officer/official of the Board shall have the right to access and inspection of the industry in connection with the various processes and the treatment facilities being provided simultaneously with the construction of building/machinery. The effluent should conform the effluent standards as applicable
4. That necessary arrangement shall be made by the industry for the control of Air Pollution before commissioning the plant. The emitted pollutants will meet the emission and other standards as laid/will be prescribed by the Board from time to time.
5. The applicant will obtain consent under section 25/26 of the Water (Prevention & Control of Pollution) Act, 1974 and under section 21/22 of the Air (Prevention & Control of Pollution) Act, 1981 as amended to-date-even before starting trial production
6. The above Consent to Establish is further subject to the conditions that the unit complies with all the laws/rules/decisions and competent directions of the Board/Government and its functionaries in all respects before commissioning of the operation and during its actual working strictly.
7. No in-process or post-process objectionable emission or the effluent will be allowed, if the scheme furnished by the unit turns out to be defective in any actual experience
8. The Electricity Department will give only temporary connection and permanent connection to the unit will be given after verifying the consent granted by the Board, both under Water Act and Air Act.
9. Unit will raise the stack height of DG Set/Boiler as per Board's norms.
10. Unit will maintain proper logbook of Water meter/sub meter before/after commissioning.
11. That in the case of an industry or any other process the activity is located in an area approved and that in case the activity is sited in an residential or institutional or commercial or agricultural area, the necessary permission for siting such industry and process in an residential or institutional or commercial or agricultural area or controlled area under Town and Country Planning laws CLU or Municipal laws has to be obtained from the competent Authority in law permitting this deviation and be submitted in original with the request for consent to operate.
12. That there is no discharge directly or indirectly from the unit or the process into any interstate river or Yamuna River or River Ghaggar.
13. That the industry or the unit concerned is not sited within any prohibited distances according to the Environmental Laws and Rules, Notification, Orders and Policies of Central Pollution control Board and Haryana State Pollution Control Board.
14. That of the unit is discharging its sewage or trade effluent into the public sewer meant to receive trade effluent from industries etc. then the permission of the Competent Authority owing and operating such public sewer giving permission letter to his unit shall be submitted at time of consent to operate.
15. That if at any time, there is adverse report from any adjoining neighbor or any other aggrieved party or Municipal Committee or Zila Parishad or any other public body against the unit's pollution; the Consent to Establish so granted shall be revoked.
16. That all the financial dues required under the rules and policies of the Board have been deposited in full by the unit for this Consent to Establish.
17. In case of change of name from previous Consent to Establish granted, fresh Consent to Establish fee shall be levied.
18. Industry should adopt water conservation measures to ensure minimum consumption of water in their Process. Ground water based proposals of new industries should get clearance from Central Ground Water Authority for scientific development of previous resource.

19. That the unit will take all other clearances from concerned agencies, whenever required.
20. That the unit will not change its process without the prior permission of the Board.
21. That the Consent to Establish so granted will be invalid, if the unit falls in Aravali Area or non conforming area.
22. That the unit will comply with the Hazardous Waste Management Rules and will also make the non-leachate pit for storage of Hazardous waste and will undertake not to dispose off the same except for pit in their own premises or with the authorized disposal authority.
23. That the unit will submit an undertaking that it will comply with all the specific and general conditions as imposed in the above Consent to Establish within 30 days failing which Consent to Establish will be revoked.
24. That unit will obtain EIA from MoEF, if required at any stage.
25. In case of unit does not comply with the above conditions within the stipulated period, Consent to Establish will be revoked.
26. That unit will obtain consent to operate from the board before the start of product activity.

Specific Conditions

Other Conditions :

HARYANA STATE



1. The project proponent will obtain all necessary clearances from all concerned departments. 2. Project proponent will not change the quantity of domestic effluent/trade effluent/air emission without prior permission of the Board. Project Proponent will obtain prior CTO before starting of production and apply for CTO/ CTE Extension at least 90 days before expiry date of this CTE. 3. Project Proponent will install STP/ETP/ACPM along with the main project. 4. Project Proponent will install adequate acoustic enclosures/chambers on their DG SETS with proper stack height as per prescribed norms to meet the prescribed standards under EP Rules. 5. Project Proponent will comply with the provisions of Water Act, 1974, Air Act, 1981, Solid Waste Management Rules, 2016, Hazardous & Other Waste Management Rules, 2016, Plastic Waste Management Rules, 2016, E-Waste Management Rules, 2016, Battery Managements Rules, C&D Waste Management Rules, 2016& amendments and other applicable environmental legislation. 6. Project Proponent will use only treated effluent supplied from Sewage treatment plant during construction phase of the project 7. That this CTE will not provide any relaxation /benefit from any other Act/Rules/Regulations applicable to the project/land in question. 8. Project Proponent will not discharge any type Treated or untreated effluent outside the premises of the project. 9. Project Proponent will not use in their DG set as a fuel i.e. pet coke, furnace oil and LSHS etc. 10. Stack emission level should be stringent than the existing standards in terms of the identified critical pollutants. 11. Effective fugitive emission control measures should be imposed in the process, transportation, parking etc. 12. Encourage use of cleaner fuels (pet coke / furnace oil /LSHS may be avoided). 13. Best available technology may be used. For example usage of EAF/SAF/IF in place of Cupola Furnace, Usage of Supercritical technology in place of sub – critical technology. 14. Increase of green belt cover by 40% of the total land area beyond the permissible requirement of 33%, wherever feasible. 15. Stipulation of greenbelt outside the project premises such as avenue plantation, plantation in vacant areas, social forestry etc. 16. Assessment of carrying capacity of transportation load on the roads inside the industrial premises. If the roads required to be widened, shall be prescribed as a condition. 17. Project Proponent will not discharge any type of effluent inside & outside of the premises of the project and reuse/recycle of treated waste water be ensured. 18. Continuous monitoring of emission and effluent quality / quantity to be installed & will connect the same with server of CPCB and HSPCB. 19. A detailed water harvesting plan may be submitted by the project proponent. 20. Project Proponent will achieve zero discharge and install latest technology of STP/ETP and reuse/recycle of treated effluent. 21. In case, domestic waste water generation is more than 10 KLD, the industry may install STP. 22. Dumping of waste (fly ash, slag, red mud etc.) may be permitted only at designated locations approved by SPCBs/PCCs. 23. More stringent norms for management of hazardous waste. The waste generated should be preferably utilized in co-processing. 24. Monitoring of compliance of EC conditions may be submitted with third party audit every year. 25. Project Proponent will dispose off their waste/spent oil of DG sets only to authorize recyclers by the HSPCB. 26. The % of the CER may be least 1.5 times the slabs given in the OM dated 01.05.2018 for SPA and 2 times for CPA in case of Environmental Clearance. 27. Project proponent will comply all the directions of CPCB in this regard and will comply all the orders issued by any court in this regard. 28. Project Proponent will submit an affidavit regarding compliance of above said conditions within 30 days. 29. The above Consent to Establish is further subject to the conditions that the unit complies with all the laws/rules/decisions and competent directions of the Board/Government and its functionaries in all respects before commissioning of the operation and during its actual working strictly. 30. Unit will deploy anti –smog guns at site to comply with the above said directions & keep proper record of operation of the same and submit action taken report to this office within 03 days positively, failing which action shall be initiated as per applicable Acts/ Rules /Notifications. 31. Project proponent will comply with all the conditions mentioned in Environmental Clearance granted vide letter dated 17.08.2022 and submit the compliance of the same within 90 days to this office. 32. CTE so granted is on the basis of detail submitted by the unit in online application, CTE granted will be without prejudice to any violation made by unit in past & will be deemed revoked & further action will be taken as per law if any violation is observed at any stage. 33. The Project Proponent/unit will not claim any benefits on the basis of this CTE in respect of past violation committed by them 34. Unit will not do any construction work in their project without obtaining valid renewed license from DTCP and CTE will be become null and void if unit fails to renew DTCP license. 35. This CTE is only valid for the area for which unit has obtained License /CLU issued by DTCP and Aravali clearance report from Deputy Commissioner, Gurugram. 36. At any stage, if any violation observed of any above conditions at any time, this CTE stands cancelled /revoked & further action will be taken as per Law/Acts/Notifications/Policies/Rules.

*Regional Officer, Gurgaon North
Haryana State Pollution Control Board.*

//TRUE COPY//



प्रभागीय वन अधिकारी द्वारा स्पष्टीकरण पत्र
Clarification letter by
Concerned Divisional Forest Officer
हरियाणा सरकार / Government of Haryana



हरियाणा भू-परिक्षण अधिनियम, 1900 (1900 का पंजाब का अधिनियम II) अथवा वन अथवा प्रतिबंधित भूमि से संबंध में निराक्षेप प्रमाण पत्र।
NOC in respect of Haryana Land and Preservation Act, 1900 (Punjab Act, II of 1900) or Forest or Restricted lands.

नाम Name	अलोक कुमार Alok Kumar
संगठन का नाम Organisation Name	Dlf Limited
वर्तमान पता Current Address	Gateway Tower, 2nd Floor, Dlf City Phase Iii
भूमि स्थान Land Location	WAZIRABAD, Gurgaon, Wazirabad
भूमि मापन Land Measurements	16.975 (Acre)
आयत नम्बर / मुरबा नम्बर Rectangle No./ Murba No.	Not Applicable, Applicable Khasra Nos : 2037/4 Min (0-2-6), 2038/6 Min(0 -1- 8), 2043/3min (0- 0- 14), 2044/3min (0- 0- 16), 2044/4min (0- 8- 6), 2045/1min (0- 1- 16), 2045/2min (0- 12- 9), 2046/1/1(1- 12- 19), 2046/1/2(1- 2- 14), 2046/2(1- 6- 7), 2047/1(1- 19- 3), 2047/2(1- 11- 17), 2048(3- 7- 0), 2049(4- 4- 0), 2050/1(1- 7- 10), 2050/2min (1- 2- 8), 2051min (1- 18- 8), 2052/1min (0- 2- 0), 2052/2min(0- 1- 3), 2056/2min(6- 0- 0) Total Area : 16.975 Acers;

Reference No. (SRN):- XUUN8F-HHUW

जारी करने की तिथि / Date of Issuance: 18-03-2024

जारी करने का स्थान / Place of Issuance: Gurgaon

जारी करने वाला प्राधिकरण / Issuing Authority: Divisional Forest Officer



This is a Digitally Signed Certificate and does not require physical signature. The authenticity of this certificate can be verified from the verification link mentioned below:

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प्रभागीय वन अधिकारी द्वारा स्पष्टीकरण पत्र
Clarification letter by
Concerned Divisional Forest Officer
हरियाणा सरकार / Government of Haryana



हरियाणा भू-परिक्षण अधिनियम, 1900 (1900 का पंजाब का अधिनियम II) अथवा वन अथवा प्रतिबंधित भूमि से संबंध में निराक्षेप प्रमाण पत्र।
NOC in respect of Haryana Land and Preservation Act, 1900 (Punjab Act, II of 1900) or Forest or Restricted lands.

किला नम्बर Killa Number	Not Applicable, Applicable Khasra Nos : 2037/4 Min (0-2-6), 2038/6 Min(0 -1- 8), 2043/3min (0- 0- 14), 2044/3min (0- 0- 16), 2044/4min (0- 8- 6), 2045/1min (0- 1- 16), 2045/2min (0- 12- 9), 2046/1/1(1- 12- 19), 2046/1/2(1- 2- 14), 2046/2(1- 6- 7), 2047/1(1- 19- 3), 2047/2(1- 11- 17), 2048(3- 7- 0), 2049(4- 4- 0), 2050/1(1- 7- 10), 2050/2min (1- 2- 8), 2051min (1- 18- 8), 2052/1min (0- 2- 0), 2052/2min(0- 1- 3), 2056/2min(6- 0- 0) Total Area : 16.975 Acers
प्रयोजन Purpose	Building Construction



जारी करने की तिथि / Date of Issuance: 18-03-2024

जारी करने का स्थान / Place of Issuance: Gurgaon

जारी करने वाला प्राधिकरण / Issuing Authority: Divisional Forest Officer

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प्रभागीय वन अधिकारी द्वारा स्पष्टीकरण पत्र
Clarification letter by
Concerned Divisional Forest Officer
हरियाणा सरकार / Government of Haryana



हरियाणा भू-परिक्षण अधिनियम, 1900 (1900 का पंजाब का अधिनियम II) अथवा वन अथवा प्रतिबंधित भूमि से संबंध में निराक्षेप प्रमाण पत्र।
NOC in respect of Haryana Land and Preservation Act, 1900 (Punjab Act, II of 1900) or Forest or Restricted lands.
Applicant Alok Kumar located at village /city WAZIRABAD district Gurgaon
made a proposal to use this land for Building Construction. It is made clear that:

- a) As per records available above said land is not part of notified Reserved Forest, Protected Forest under Indian Forest Act, 1927 or any area closed under section 4 of Punjab Land Preservation Act, 1900.
- b) It is clarified that by the Notification No. S.O.8/PA 2/1900/S. 4/2013 dated 4th January, 2013, all Revenue Estate of Gurgaon is notified u/s 4 of PLPA 1900 and S.O.81/PA.2/1900/S.3/2012 u/s 3 of PLPA 1900. The area is however not recorded as forest in the Government record but felling of any tree is strictly prohibited without the permission of Divisional Forest Officer, Gurgaon.
- c) If approach is required from Protected Forest by the user agency, the clearance/ regularization under Forest Conservation Act 1980 will be required. Without prior clearance from Forest Department, the use of Forest land for approach road is strictly prohibited. M/s Dlf Limited whose land is located at village/city, WAZIRABAD District Gurgaon must obtain clearance as applicable under Forest Conservation Act 1980.
- d) As per the records available with the Forest Department, Gurgaon the area does not fall in areas where plantations were raised by the Forest Department under Aravalli project.
- e) All other statutory clearances mandated under the Environment Protection Act. 1986, as per the notification of Ministry of Environment and Forests, Government of India, dated 07-05-1992 or any other Act/ order shall be obtained as applicable by the project proponents from the concerned authorities.
- f) The project proponent will not violate any Judicial Order/ direction issued by the Hon'ble Supreme Court/ High Courts.
- g) It is clarified that the Hon'ble Supreme Court has issued various judgments dated 07.05.2002, 29.10.2002, 16.12.2002, 18.03.2004, 14.05.2008 etc. pertaining to Aravalli region in Haryana, which should be complied with.
- h) It shall be the responsibility of user agency/ applicant to get necessary clearances/ permissions under various Acts and Rules applicable if any, from the respective authorities/ Department.
- i) This certificate is not applicable in case of Environment Department notification dated 10.03.2016 for Screening Plant, and notification dated 11.05.2016 for Stone Crusher. Investor/Applicant has to take clearance from Environment Department in case of Screening Plant and Stone Crusher .

It is subject to the following conditions:

1. Clarification Is Hereby Issued Subject To The Conditions Mentioned Above.



Date: 18-03-2024
Place: Gurgaon

Rajeev Tejyan,
(Divisional Forest Officer)

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प्रेषक,

उपायुक्त, गुरुग्राम।

सेवा में,

M/s DLF Limited.,
DLF Gateway Tower, R Block,
DLF City Phase-III, Gurugram.

क्रमांक

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दिनांक

15/4/2024

विषय:-

Clarification Regarding Applicability of Aravalli NOC for Land/Khasra (Total area 16.975 acres) falling within the project site of "LUXS" in DLF 5 Sector 54, Village Wazirabad, Gurugram, Haryana.

उपरोक्त विषय के संदर्भ में।

विषयाधीन मामले में उक्त के सम्बन्ध में तहसीलदार, वजीराबाद व उप वन संरक्षक, गुरुग्राम से रिपोर्ट प्राप्त की गई जो निम्न प्रकार है:-

तहसीलदार, वजीराबाद ने अपने कार्यालय के पत्र क्रमांक 264/रीडर दिनांक 28.02.2024 के द्वारा रिपोर्ट इस कार्यालय में प्रेषित की है जिसमें लिखा है कि रिपोर्ट पटवारी हल्का अनुसार वर्णित खसरा नम्बर गांव वजीराबाद तहसील वजीराबाद के अवलोकन उपरान्त पटवारी से बिन्दुवार रिपोर्ट जो मांगी गई है। वह बिन्दुवार इस प्रकार से है:-

1. प्रार्थना पत्र में वर्णित खसरा नम्बर दिनांक 07.05.1992 के नोटिफिकेशन अनुसार अरावली क्षेत्र में नहीं है।
2. उपरोक्त वर्णित खसरा नम्बर दिनांक 07.05.1992 के नोटिफिकेशन से पूर्व व उसके पश्चात मिसल हकीयत/चकबन्दी तक कभी भी अराजी भूमि/मुतनाजा की किरम गैर मुमकिन पहाड, गैरी मुमकिन राडा, गैर मुमकिन बीहड, बंजड बीहड व रुन्द्र किसम नहीं रही है।
3. प्रार्थना पत्र में वर्णित नम्बर खसरा दिनांक 07.05.1992 के नोटिफिकेशन से पूर्व मगदा व नोटिफिकेशन के बाद गैर मुमकिन कॉलोनी दर्ज है। किरम दर्ज है।
4. प्रार्थना पत्र में वर्णित नम्बर खसरा अराजी मुतनाजा मिसल हकीयत/चकबन्दी ताहाल कभी भी शामलात देह/पंचायत देह/नगर पालिका/नगर निगम की मलकियत नं0 खसरा 2056/2मिन(6-0) को छोडकर नहीं रही है केवल 2056/2मिन(6-0) चकबन्दी/मिसल हकीयत से जमाबन्दी साल 19681-82 तक सिविल पंचायत देह में रही है बाद में बरूवे इन्तकाल नं0 3394 मन्जूरशुदा से 2056/2 की मलकियत कम्पनी में इन्तकाल वा हुकम श्रीमान उपायुक्त महोदय गुरुग्राम के आदेशों से मन्जूरशुदा से कम्पनी में चली गई है।
5. अराजी भूमि मुतनाजा प्रार्थना पत्र में वर्णित नम्बरान खसरा के बारे जमाबन्दी के खाना कैफियत के किसी भी न्यायालय के केस होना दर्ज नहीं है।
6. प्रार्थना पत्र में वर्णित नं0 खसरा अराजी मुतनाजा एस.ई.जेड. व स्पेशल इकोनोमिक जोन में नहीं आता है।
7. प्रार्थना पत्र में वर्णित खसरा नं0 पर धारा 4 व 6 व अवार्ड आदि का हवाला जमाबन्दी साल 2021-22 के खाना कैफियत में कोई इन्द्राज दर्ज नहीं है।
8. प्रार्थना पत्र में वर्णित खसरा नं0 2037/4 मिन(0-8-6), 2045/2मिन(0-12-09), 2046/1/1(1-12-19), 2046/1/2(1-2-14), 2050/1(1-7-10), 2050/2मिन(1-02-08), 2051 मिन(1-18-8), 2052/1 मिन(0-2-0), 2052/2 मिन(0-1-3) की मलकियत जमाबन्दी साल 2021-2022 की खेवट नं0 745 खाता नं0 779 व बदर नं0 29 मन्जूरशुदा से मैसर्स डी0एल0एफ0 लिमिटेड के नाम पर है तथा नं0 खसरा 2056/2मिन(6-0) की मलकियत बदर नं0 21 मन्जूरशुदा व जमाबन्दी साल 2011-2012 की खेवट नं0 903 व बदर के अनुसार जमाबन्दी साल 2021-2022 में बदर से नई खेवट तहरीर हुई। इस प्रकार बदर नं0 21 से मलकियत नं0 खसरा 2056/2 मिन की मलकियत डी0एल0एफ0 लिमिटेड के नाम दर्ज है व नं0 खसरा नं0 2045/1 मिन(0-1-16) के मलकियत खेवट नं0 750 खाता नं0 786 जमाबन्दी साल 2021 से 2022 के अनुसार डी0एल0एफ0 लिमिटेड

2/3 भाग व डी0एल0एफ0 हॉम डिवलैपर्स लि0 1/6 भाग व डी0एल0एफ0 लिमिटेड 1/6 भाग दर्ज है।

उप वन संरक्षक, गुरुग्राम ने अपने कार्यालय के पत्र क्रमांक 2441-G दिनांक 29.03.2024 के द्वारा अवगत कराया है कि उनके कार्यालय द्वारा दिनांक 18.03.2024 (M/s DLF Ltd.) को गांव वजीराबाद, जिला गुरुग्राम के 16.675 एकड़ क्षेत्र की फॉरेस्ट क्लेसिफिकेशन ऑनलाईन जारी की जा चुकी है। जिसकी छाया प्रति इस कार्यालय में प्रेषित की है जिसमें लिखा है कि Applicant Mr. Alok Kumar, M/s DLF Limited., having Rectange No./Murba No./Killa No. 2037/4 Min (0-2-6), 2038/6 Min(0-1-8), 2043/3Min(0-0-14), 2044/3 Min(0-0-16), 2044/4 Min(0-8-6), 2045/1 Min (0-1-16), 2045/2 Min(0-12-9), 2046/1/1(1-12-19), 2046/1/2(1-2-14), 2046/2(1-6-7), 2047/1(1-19-3), 2047/2(1-11-17), 2048(3-7-0), 2049(4-4-0), 2050/1(1-7-10), 2050/2 Min(1-2-8), 2051 Min(1-18-8), 2052/1 Min(0-2-0), 2052/2 Min(0-1-3), 2056/2 Min(6-0-0) Land Measurements 16.975 (Acre) Land Location Village Wazirabad, District Gurugram made a proposal to use this land for Building Construction. It is made clear that:-

- A) As per records available above said land is not part of notified Reserved Forest, protected Forest under Indian Forest Act, 1927 or any area closed under section 4 of Punjab Land Preservation Act 1900.
- B) It is clarified that by the Notification No. S.O 8/P.A 2/1900/S. 4/2013 dated 04-01-13 all Revenue Estate of Gurugram is notified u/s 4 of PLPA 1900 and S.O 81/PA.2/1900/S.3/2012 u/s 3 of PLPA 1900. The area is however not recorded as Forest in the Government record but felling of any tree is strictly prohibited without the permission of Divisional Forest officer, Gurugram.
- C) If approach is required from Protected Forest by the user agency, the clearance/ regularization under Forest Conservation Act 1980 will be required. Without prior clearance from Forest Department, the use of Forest land for approach road is strictly prohibited. **M/s DLF Limited.**, whose land is located at **Village/City Wazirabad, District Gurugram** must obtain clearance as applicable under Forest Conservation Act. 1980.
- D) As per the records available with the Forest Department Gurugram the area does not fall in areas where plantations were raised by the Forest Department under Aravali project.
- E) All other statutory clearances mandated under the Environment protection Act. 1986, as per the notification of Ministry of Environment and Forest, Government of India dated 07-05-1992 or any other Act/Order shall be obtained as applicable by the project proponents from the concerned authorities.
- F) The project proponent will not violate any Judicial Order/Direction issued by the Hon'ble Supreme Court/High Courts.
- G) It is clarified that the Hon'ble Supreme Court has issued various judgments dated 07-05-2002, 29-10-2002, 16-12-2002, 18-03-2004, 14-05-2008 etc. pertaining to Aravali region in Haryana, which should be complied with.
- H) It shall be the responsibility of user agency/applicant to get necessary clearances/ permissions under various Acts and Rules applicable if any, from the respective authorities/department.
- I) This certificate is not applicable in case of Environment Department notification dated 10.03.2016 for Screening Plant, and notification dated 11.05.2016 for Stone Crusher. Investor/Applicant has to take clearance from Environment Department in case of Screening Plant and Stone Crusher.

It is subject to the following conditions:

1. Clarification is Hereby Issued Subject To The Conditions Mentioned Above.

अतः तहसीलदार, वजीराबाद व उप वन संरक्षक, गुरुग्राम की रिपोर्ट में वर्णित शर्तों अनुसार आपको Village Wazirabad, Sector 54, Tehsil Wazirabad, District Gurugram की उक्त भूमि की Aravalli Clearance/Non Forest Land रिपोर्ट इस शर्त पर भी जारी की जाती है कि प्रार्थी/कम्पनी को दी गई एन0ओ0सी में यदि किसी नम्बरों पर हरियाणा सरकार के किसी भी विभाग द्वारा किसी प्रकार की भूमि अर्जन कार्यवाही धारा 4, 6 व अवाई आदि राजस्व रिकार्ड अनुसार पाया गया तो सम्बन्धित नम्बरों की अरावली एन0ओ0सी0 स्वतः रद्द समझी जावेगी जिसके लिए प्रार्थी/कम्पनी स्वयं जिम्मेदार होगी।

कृत: उपायुक्त गुरुग्राम।

प्रेषक,

उपायुक्त, गुरुग्राम।

सेवा में

M/s DLF Limited,
Gateway Tower(2nd Floor),
DLF City, Phase III, Gurugram.

क्रमांक 47

/एम0बी0

दिनांक

6/5/22

विषय:-

Report of Tehsildar Gurugram through the office of DC that the land of the project does not fall under MoEF Aravalli Notification S.O 319(E) dated 7th May 1992: NOC Forest and Aravalli Certificate for project site of "Proposed Group Housing Buildings in part of DLF 5, Zone 10, Village Wazirabad, Gurugram, Haryana.

उपरोक्त विषय के संदर्भ में।

विषयाधीन मामले में उक्त के सम्बन्ध में तहसीलदार, वजीराबाद व उप वन संरक्षक, गुरुग्राम से रिपोर्ट प्राप्त की गई जो निम्न प्रकार है:-

तहसीलदार, वजीरबाद ने अपने कार्यालय के पत्र क्रमांक 161/रीडर दिनांक 19.04.2022 के द्वारा रिपोर्ट इस कार्यालय में प्रेषित की है जिसमें लिखा है कि पटवारी हल्का से रिपोर्ट प्राप्त की गई। रिपोर्ट अनुसार मांगी गई सूचना मौजा वजीराबाद, तहसील वजीराबाद जिला गुरुग्राम के खसरा न0 2046/1/1(1-12-19), 2046/1/2(1-2-14), 2046/2(1-6-7), 2047/1(1-19-3), 2047/2(1-11-17), 2048(3-7-0), 2049(4-4-0), 2050/1(1-7-10), 2050/2(2-13-18), किता 9 रकबा 19 बीघा 5 बिस्वा 8 बिस्वांसी का राजस्व रिकार्ड का अवलोकन किया गया। अवलोकन उपरान्त मांगी गई रिपोर्ट बिन्दूवार निम्न प्रकार है:-

1. उपरोक्त अराजी दिनांक 07.05.1992 के नोटिफिकेशन के राजस्व रिकार्ड अनुसार जमाबन्दी की खाना कैफियत में अरावली क्षेत्र का कोई इन्द्राज दर्ज नहीं है।
2. उपरोक्त अराजी भूमि दिनांक 07.05.1992 के नोटिफिकेशन से पूर्व व उसके पश्चात उपरोक्त अराजी की किस्म गैर मुमकिन पहाड, गैर मुमकिन राडा, गैर मुमकिन बीहड, बंजड या रुद्र का इन्द्राज जमाबन्दी की खाना कैफियत में दर्ज नहीं रही है।
3. उपरोक्त अराजी भूमि की किस्म दिनांक 07.05.1992 के नोटिफिकेशन से पूर्व मगदा व हाल किस्म गैर मुमकिन है।
4. उपरोक्त अराजी मिसल हकीयत ता हाल कभी भी शामलात देह, पंचायत देह, नगर पालिका, नगर निगम की मलकियत नहीं रही है।
5. अराजी मुतनाजा का किसी भी न्यायालय में किसी कोर्ट केस बारे कोई हवाला/जमाबन्दी के खाना कैफियत में दर्ज नहीं है।
6. उपरोक्त अराजी का SEZ(Special Economical Zone) बारे कोई इन्द्राज जमाबन्दी की खाना कैफियत में दर्ज नहीं है।
7. उपरोक्त अराजी पर धारा 4, 6 व अवार्ड बारे कोई हवाला जमाबन्दी की खाना कैफियत में दर्ज नहीं है।

उप वन संरक्षक, गुरुग्राम ने अपने कार्यालय के पत्र क्रमांक 243-जी0 दिनांक 25.04.2022 के द्वारा अवगत कराया है कि उनके कार्यालय द्वारा ऑनलाईन दिनांक 01.04.2022 (M/s DLF Limited) को गांव वजीराबाद, जिला गुरुग्राम के 12.043 एकड एरिया की फोरेस्ट क्लेरिफिकेशन आनलाईन जारी की जा चुकी है जिसकी छाया प्रति इस कार्यालय में प्रेषित की है जिसमें लिखा है कि Applicant M/s DLF Limited, Land Measuring 12.043(Acre) having Khasra No. 2046/1/1(1-12-19), 2046/1/2(1-2-14), 2046/2(1-6-7), 2047/1(1-19-3), 2047/2(1-11-17), 2048(3-7-0), 2049(4-4-0), 2050/1(1-7-10), 2050/2(2-13-18), Land located at village Wazirabad District Gurugram made a proposal to use this land for Building Construction. It is made clear that:-

- A) As per records available above said land is not part of notified Reserved Forest, protected Forest under Indian Forest Act, 1927 or any area closed under section 4 of Punjab Land Preservation Act 1900.
- B) It is clarified that by the Notification No. S.O 8/P.A 2/1900/S. 4/2013 dated 04-01-13 all Revenue Estate of Gurgaon is notified u/s 4 of PLPA 1900 and S.O 81/PA.2/1900/S.3/2012 u/s 3 of PLPA 1900. The area is however not recorded as Forest in the Government record but felling of any tree is strictly prohibited without the permission of Divisional Forest officer, Gurgaon.
- C) If approach is required from Protected forest by the user agency, the clearance/regularization under Forest Conservation Act 1980 will be required. Without prior clearance from Forest Department, the use of Forest land for approach road is strictly prohibited. M/s DLF Limited whose land is located at Village/City Wazirabad District Gurgaon must obtain clearance as applicable under Forest Conservation Act. 1980.
- D) As per the records available with the Forest Department Gurgaon the area does not fall in areas where plantations were raised by the Forest Department under Aravali project.
- E) All other statutory clearances mandated under the Environment protection Act. 1986, as per the notification of Ministry of Environment and Forest, Government of India dated 07-05-1992 or any other Act/Order shall be obtained as applicable by the project proponents from the concerned authorities.
- F) The project proponent will not violate any Judicial Order/Direction issued by the Hon'ble Supreme Court/High Courts.
- G) It is clarified that the Hon'ble Supreme Court has issued various judgments dated 07-05-2002, 29-10-2002, 16-12-2002, 18-03-2004, 14-05-2008 etc. pertaining to Aravali region in Haryana, which should be complied with.
- H) It shall be the responsibility of user agency/applicant to get necessary clearances/ permissions under various Acts and Rules applicable if any, from the respective authorities/department.
- I) This certificate is not applicable in case of Environment Department notification dated 10.03.2016 for Screening Plant, and notification dated 11.05.2016 for Stone Crusher. Investor/Applicant has to take clearance from Environment Department in case of Screening Plant and Stone Crusher.

It is subject to the following conditions:

1. Clarification Is Hereby Issued Subject To The Conditions Mentioned Above and Proposed Site Falls Within 5 Km of Delhi Boundary Hence Necessary Permission May Be Obtained From Competent Authority As Per Supreme Court Various Judgements Regarding Aravali Region In Haryana.

अतः तहसीलदार, वजीराबाद व उप वन संरक्षक, गुरुग्राम की रिपोर्ट अनुसार आपको Village Wazirabad, District Gurugram की उक्त वर्णित भूमि की Aravalli Clearance/Non Forest Land रिपोर्ट इस शर्त पर जारी की जानी उचित होगी कि प्रार्थी कम्पनी को दी गई एन0ओ0सी में यदि किसी नम्बरो पर हरियाणा सरकार के किसी भी विभाग द्वारा किसी प्रकार की भूमि अर्जन कार्यवाही धारा 4, 6 व अवार्ड आदि राजस्व रिकार्ड अनुसार पाया गया तो सम्बन्धित नम्बरो की अरावली एन0ओ0सी0 स्वतः रद्द समझी जावेगी जिसके लिए प्रार्थी कम्पनी स्वयं जिम्मेवार होगी। इसके अतिरिक्त प्रार्थी वर्णित भूमि पर कोई भी परियोजना शुरू करने से पूर्व उप वन संरक्षक, गुरुग्राम की रिपोर्ट में दर्शाई गई शर्त अनुसार Competent Authority से अनुमति लेकर इस कार्यालय को अवगत करवाना सुनिश्चित करे क्योंकि Proposed Site Falls Within 5 Km Of Delhi Boundary Hence Necessary Permission Need To Be Obtained From Competent Authority As per Supreme Court Various Judgments Regarding Aravali Region In Haryana. अन्यथा सम्बन्धित किला नम्बरान की अरावली एन0ओ0सी0 स्वतः रद्द समझी जावेगी।


कृते: उपायुक्त, गुरुग्राम।



ANNEXURE-R5

EIA/EMP Report

**ENVIRONMENTAL IMPACT ASSESSMENT
AND ENVIRONMENTAL MANAGEMENT PLAN****FOR****Expansion cum Modification of Group Housing Buildings
(16.975 Acres)****AT****IN ZONE 10, DLF 5, SECTOR-54, GURUGRAM
HARYANA****APPLICANT: M/S DLF LIMITED****Regd. Office DLF Shopping Mall, 3rd Floor, Arjun Marg,
DLF City, Phase-1, Gurugram -122002****Schedule- 8(b), Category - 'B'****TOR File no.- SEAC/HR/2024/067 dated 12.03.2024****Baseline Monitoring Period-1st December 2023 TO 29th February, 2024****Project Cost- Rs. 7,583 Crores****Total Built-up area - 6,56,418.356 Sq.m.****NABL****MONITORING DONE
BY
M/S VARDAN
ENVIROLAB
(NABL ACCREDITION
TC- 6299 valid upto
27.08.2024)****ENVIRONMENT CONSULTANT****Vardan EnviroNet****Plot No 82-A, Sec-5, IMT Manesar,
Gurgaon-122051, Haryana
E-Mail: projects@vardan.co.in
Contact: 0124-4343750,
(+91)-9810355569****Document No.: 2023_VC_215_Final EIA**

CERTIFIED

**QCI/NABET
ACCREDITION
NUMBER****NABET/EIA/2326/RA
0284 valid upto
04.05.2026**

For DLF LIMITED

Authorised Signatory

DLF LimitedDLF Gateway Tower, R Block, DLF City,
Phase III, Gurugram-122 002, Haryana
Tel.: (+91-124) 4396000**DLFA**
BUILDING INDIA

Dated: 19 March 2024

To,
The Member Secretary,
State Level Expert Appraisal Committee, (SEAC)
Bays No.: -55-58, Paryatan Bhawan
3rd Floor, Sector-2, Panchkula, Haryana

Subject: Submission of Final EIA/EMP report for Proposed Expansion cum Modification of Group Housing Buildings in Zone 10, DLF 5, at Sector-54 Gurugram, Haryana being developed by M/s DLF Ltd.

Reference: File No: SEAC/HR/2024/067 & ToR Identification No. TO24B3812HR5769356N dated 12.03.2024

Dear Sir,

This is in reference to the subject mentioned above; we would bring into your notice that the application for above said project was submitted to SEAC, Haryana and the ToR was granted on 12.03.2024. The EIA Study was conducted, and EIA report was prepared based on the approved ToR. We are hereby submitting the final EIA/EMP report after incorporating the ToR points for obtaining Environmental Clearance from SEIAA, Haryana.

The documents being submitted online & hard copies are enclosed:

- The Final EIA/EMP report (Hard & Soft both)

Therefore, in view of the above, we hereby request you to kindly process our case for issuance of Environmental Clearance to the project.

Thanking you

Yours faithfully,

For M/s DLF Ltd.

For DLF LIMITED

(Authorized Signatory)

SEIAA-HARYANA

Check-list for obtaining Environment Clearance (Under Category 8 (a) & 8(b) in Building & Construction Projects

S. No.	Check List	Yes	NO	Not Applicable
1.	Scrutiny Fee as per Notification DE&CC/3050 dated 14th October, issued by the Haryana Government No.2021.	Demand Draft submission receipt is attached as <i>Annexure no.1</i> at Page no. 206-207.		
2.	Form-1	Form-1 is incorporated from Page no. 1 to 19 in Volume-I.		
3.	Form-1A	Form 1A is incorporated from Page no. 20 to 61 in Volume-I.		
4.	Conceptual Plan/Brief description of the project	Conceptual Plan is incorporated from Page no. 62 to 87 in Volume-I.		
5.	EIA Report	EIA Report is incorporated from Page no. 1 to 461.		
6.	EMP Report	EMP Report attached at Page no. 192-196.		
7.	Project Details: a) Location of project in the Sector Plan/Master Plan b) Plan showing surrounding features within 500 meter/5 km/	a) Master Plan of Gurugram is attached as <i>Annexure no.2</i> at Page no. 208. b) Topo map of 500 m buffer map of project site is attached as <i>Annexure no. 3</i> at Page no. 209 & 10 km		

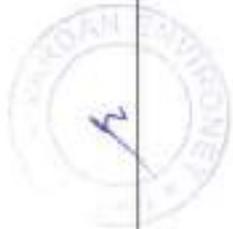
Authorized Signatory

FOR DLF LIMITED



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	<p>10 km radius or as Notified by Govt. (w.r.t Sensitive Zone/ Wildlife/ Wetland/ Restricted Controlled Area or Any other such Establishments)</p> <p>c) Status of the construction/Site in brief with photos</p> <p>d) Location of STP/ETP on plan</p> <p>e) Location of RWII structure on plan</p>	<p>Eco Area/</p> <p>buffer map is attached as <i>Annexure no.4 at Page no. 210.</i></p> <p>c) Site Photographs is attached as <i>Annexure no.5 at Page no. 211.</i></p> <p>d) Location of common STP of DLF Phase 5 on layout plan is attached as <i>Annexure no. 6 at Page no. 212</i></p> <p>e) Location of RWII pits on layout plan is attached as <i>Annexure no. 7 at Page no. 213.</i></p>		
8.	Structure Stability (design) Certificate	Structure Stability (design) Certificate is attached as <i>Annexure no.8 at Page no. 214-215.</i>		
9.	TOD Compliance (License)			Not Applicable
10.	<p>Land Details:</p> <p>a) Ownership or Rented or Leased or any other mode</p> <p>b) Valid License/ Allotment letter/ CLU Approval</p>	<p>a) Ownership of land</p> <p>b) Copy of Valid License along with its renewals is attached as <i>Annexure no. 9 at Page no. 216-257.</i></p>		
11.	Lay out Plan/Building Plan	Site layout Plan is attached		



FOR DLF LIMITED

Authorised Signatory

		as <i>Annexure no. 10</i> at <i>Page no. 258.</i>		
12.	Zoning Plan	Zoning Plan is attached as <i>Annexure no. 11</i> at <i>Page no. 259.</i>		
13.	Green Belt Development Plan	Landscape Plan is attached as <i>Annexure no.12</i> at <i>Page no. 260.</i>		
14.	Traffic Circulation Plan/ Traffic Study	Traffic study is given in EIA/EMP report at <i>Page no. 145-146 (Volume-II)</i> & Traffic Circulation Plan is attached as <i>Annexure no. 13</i> at <i>Page no. 261.</i>		
15.	Parking Plan	Parking Plan on basements is attached as <i>Annexure no. 14</i> at <i>Page no. 262-265.</i>		
16.	Safety Plan (Fire & Electrical etc.)	Electrical Safety measures is attached as <i>Annexure no. 15</i> at <i>Page no. 266-269.</i> Fire SOP is attached as <i>Annexure no. 16</i> at <i>Page no. 270.</i>		
17.	Rainfall latest data	Rainfall latest data is attached as <i>Annexure no. 17</i> at <i>Page no. 271.</i>		
18.	NOC from AAI regarding height clearance	NOC from AAI regarding height clearance is attached as <i>Annexure no. 18</i> at <i>Page no. 272-277</i>		
19.	NOC Aravali Clearance	Aravalli NOC is attached as		



		<i>Annexure no. 19 at Page no. 278-279.</i>		
20	NOC from Forest Department regarding: a) Eco Sensitive Zone b) Wildlife c) Wetland d) Restricted Area e) Controlled Area or any other such Establishments. f) National Board for Wildlife (NBWL)	Forest NOC is attached as <i>Annexure- 20 at page no.- 280-282</i>		
21.	Air Simulation Plan and Remediation for higher value of G.I.C at particular loadings	AQ report is attached as <i>Annexure no. 21 at Page no.283-289</i>		
22.	Analysis Report from accredited lab along with Permissible limits (i) Soil (ii) Water (iii) Air (iv) Noise	Test report is attached as <i>Annexure no. 22 at Page no. 290-366.</i>		
23.	Water Management Plan (Construction & Operational Stage) a) Fresh Water b) Underground c) Treated Water d) Any other source	Detail of water management plan has been given in Conceptual plan at Page no.68-74		
24.	Discharged Water Management Plan after treatment in (i) STP (a) Sewerage (b) Zero Liquid Discharge (c) Horticulture/Landscaping/Irrigation (d) Any other mode (ii) ETP (a) Sewerage	Detail of Discharged water management plan has been given in Conceptual plan at Page no. 75		Not applicable

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	(b) Zero Liquid Discharge (c) Horticulture/Landscaping/Irrigation (d) Any other mode			
25.	Power Mobilization Plan.	Power assurance is attached as Annexure-23 at page no.- 367.		
26.	Waste Management Plan (Bio-Medical Waste/ E-Waste/ Plastic Waste/ Hazardous Waste/ Solid Waste Management etc.)	Detail of Waste management plan has been given in Conceptual plan at Page no. 79-85.		
27.	Copy of Board Resolution	Board resolution is attached as Annexure no. 24 at page no. 368-369.		
28.	Details of Consultant (a) Authority Letter for engaging Consultant by Project Proponent (b) Proof of NABET Approved Accreditation Certificate of authorized Consultant	a) Authorization for Consultant is attached as Annexure no. 25 at Page no. 370. b) NABET Certificate is attached as Annexure no. 26 at Page no. 371.		

Additional documents

S. No.	Document Name	Page No.	Annexure No.
29.	Water Assurance from GMDA (Fresh)	372	27
30.	STP treated water assurance from H&VP	373	28
31.	Affidavit cum undertaking regarding no litigation	374-375	29
32.	Common STP of DLF Phase-5 feasibility report	376-387	30
33.	Soil Investigation report	388-445	31
34.	Earlier EC letter	446-457	32

36.	Total Project cost duly CA certified	458-459	33
37.	Request letter for Certified compliance report of earlier EC from RO, MOEP & CC, Chandigarh	460-461	34

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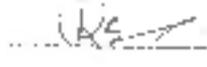
REVIEW AND REVISION HISTORY

History of revisions of the present report:

Table I: History of the Revisions

S. No.	Rev.	Date	Modifications	Remarks
1.	Rev.00 Final	March ,2024	EIA /EMP Report	Report has been prepared by team Vardan and all comments of reviewers have been incorporated in the EIA/EMP Report.

Table II: Record of Review

Rev. No.	Date	Description	Reviewer	Approval
Rev.00 Final	March , 2024	EIA/EMP Report	Mr. Aman Sharma	Mr. R.S. Yadav
		The EIA EMP report has been prepared by Mr. Aman Sharma (EIA coordinator) and assisted by Sonu Sharma and other team members.		

This Report has been prepared by Vardan EnviroNet on behalf of and for the use of DLF Ltd, with due consideration and skill as per our general terms and conditions of business and terms of agreement with DLF Ltd.



DISCLAIMER

Vardan EnviroNet has taken all reasonable precautions in the preparation of this report as per its auditable quality plan. Vardan EnviroNet also believes that the facts presented in the report are accurate as on the date it was written. However, it is impossible to dismiss absolutely, the possibility of errors or omissions. Vardan EnviroNet therefore specifically disclaims any liability resulting from the use or application of the information contained in this report. The information is not intended to serve as legal advice related to the individual situation.



M/ Vardan EnviroNet

For DLF LIMITED

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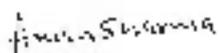
Declaration by Experts contributing in report preparation of Proposed Expansion cum Modification of Group Housing Buildings in Zone 10, DLF 5, at Sector-54 Gurugram, Haryana being developed by M/s DLF Ltd.

Declaration by Experts contributing:

I, hereby, certify that I was part of the EIA team in the following capacity that developed the above EIA.

EIA Co-ordinator:

Name : Mr. Aman Sharma

Signature & Date : 

Period of involvement: December, 2023 to till date

Contact information : Plot no.-82 A, Sector-5, IMT Manesar, Gurugram, Haryana

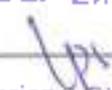
Contact no: 9810355569

Email: projects@vardan.co.in

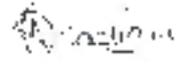
Functional Area Experts (FAEs):

S. No.	Functional Areas	Name of the Expert/s	Involvement	Signature & Date
1.	AP	Mr Bhupendra Singh	<p>Period:- December 2023 to February 2024</p> <p>a) Identifying the sources of emissions and mitigation measures.</p> <p>b) Site-specific micro meteorology monitoring.</p> <p>c) Ambient Air Quality (AAQ) monitoring Impact predictions and mitigations.</p> <p>d) Impact Identification.</p>	
2.	WP	Mr. Shubham Tyagi	<p>Period:- December 2023 to February 2024</p> <p>a) Selection of sampling locations.</p> <p>b) Ground water quality</p>	

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			<p>monitoring and assessment, impacts on water environment and mitigations.</p> <p>c) Identification, characterization of effluent and treatments thereof.</p> <p>d) Water balance and conservation measures.</p>	
3.	SHW	Ms. Kavita Zog	<p>Period:- December 2023 to February 2024</p> <p>a) Identification of haz, solid w.g. and their disposal and mitigation measure.</p> <p>b) Recycling and disposal.</p>	<i>K. Zog</i>
4.	SE	Ms. Shilpa Mishra	<p>Period:- December 2023 to February 2024</p> <p>a) Determination of demographic profile including socio economy & livelihood.</p> <p>b) Assessing the changes in socio economic pattern.</p>	<i>Shilpa</i>
5.	ER	Mr. Sunil Prashad Mr Aman Sagar (FAA)	<p>Period:- December 2023 to February 2024</p> <p>a) Biological environment status in respect of terrestrial fauna and aquatic eco system.</p> <p>b) Impact on ecological environment.</p>	<i>Amman Sagar</i>
6.	HG/Geo	Mr. Prashant Kumar Yadav	<p>Period:- December 2023 to February 2024</p> <p>a) Ground water resource assessment.</p> <p>b) Impact on ground water potential and mitigation measures for avoiding ground water contamination.</p>	<i>Prashant</i>
7.	AQ	Surhhi Makwana	<p>Period:- December 2023 to February 2024</p> <p>a) Processing of site specific micro-meteorological data.</p> <p>b) Collection and use of data for modelling.</p> <p>c) Air dispersion modelling for prediction of GLCS due to</p>	<i>Shmakwan</i>

			PM10, SO2 and NOx.	
8.	NV	Mr. KM Khare Mr Aman Sagar (FAA)	Period:- December 2023 to February 2024 a) Analysis of ambient noise quality data. b) Impact due to plant noise and abatement measures.	 Aman Sagar
9.	LU	Mr. Ankit Singh	Period:- December 2023 to February 2024 a) Analysis of data related to land use pattern. b) Land use map development. c) Impact on land environment in respect to land form change.	
10.	RH	Milind Prahakar Joshi Mr Bhupendra Singh (TMD)	Period December 2023 to February 2024 a) Identification of hazardous prone areas. b) Environment risk evaluation. c) On-site and Off-site emergency planning.	 
11.	SC	Mr. Dushyant Parashar	Period:- December 2023 to February 2024 a) Monitoring, analysis and characterization of soil. b) Assessment of impact on soil quality and mitigation measure.	

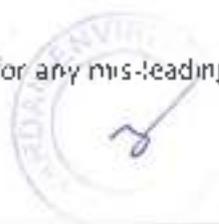
Declaration by the Head of the accredited consultant organization/ authorized person.

I, Aman Sharma, hereby, confirm that the above mentioned experts prepared the EIA report of Proposed Expansion cum Modification of Group Housing Buildings in Zone 10, DLF 5, at Sector-54 Gurugram, Haryana being developed by M/s DLF Ltd

I certify that this report has been prepared by 'Vardan Environet' with all reasonable skill, care and diligence within the terms of the contract with the client, incorporating our General Terms and Conditions of Business and taking account of the resources devoted to it by agreement with the client.

I also confirm that I shall be fully accountable for any mis-leading information mentioned in this statement.

For DLF LIMITED





Signature

Name: Aman Sharma

Designation: Managing Partner

Name of the EIA Consultant Organization: Vardan Environet

NABET Certificate No. & Issue Date: NABET/EIA/2326/RA 0284 dated 01.05.2023

For DLF LIMITED

Authorized Sign:

v

Proposed Expansion and Modification of Group Housing Buildings in Zone 10, DLF 5
At Sector-54, Gurugram, Haryana
Being developed by M/s DLF Limited

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For DLF LIMITED

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For DLF LIMITED

M/s Vardan EnviroNet, Plot No. 82A, Sec.-5, IMT Manesar, Gurugram

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Signature of _____

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ABBREVIATIONS

AAQM	Ambient Air Quality Monitoring
APCD	Air Pollution Control Devices
Cm	Centimeter
CPCB	Central Pollution Control Board
dB	Decibel
DG	Diesel Generator
E	East
ECC	Emergency Control Centre
EIA	Environmental Impact Assessment
EMC	Environmental Management Cell
EMP	Environmental Management Plan
ENE	East of North-East
EPA	Environmental Protection Agencies
ESE	East of South East
FCC	False Colour Composite
GIS	Geographical information system
GLC	Ground level concentration
GPS	Global Positioning System
IMD	Indian Meteorological Department
IRS	Indian Remote Sensing Satellite
ISO	International Organization of Standardization
ISS	Indian Standard Specification
KLD	Kilo litre Per Day
Km	Kilometer
KVA	Kilo Volt Ampere
KW	Kilo Watt
m	Meter
M bgl	Meter Below Ground Level
mg	Milligram
MoEF&CC	Ministry of Environment, Forest and Climate Change
mRL	Mean Reference Level
N	North
NE	North-East
NH	National Highway
NNE	North of North-East
NNW	North of North-West
NO ₂	Nitrogen Dioxides
NTU	Nephelo Turbidity Unit
NW	North-West
OHSAS	Occupational Health & Safety Assessment
PPE	Personal Protective Equipment

**Proposed Expansion cum Modification of Group Housing Buildings in Zone 10, DLF 5
At Sector-54, Gurugram, Haryana
Being developed by M/s DLF Limited**

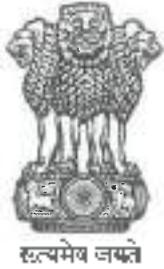
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ABBREVIATIONS	
PPM	Part Per Million
Pvt	Private
QC	Quality Council
QCI	Quality Council of India
QRA	Quantitative Risk Assessment
RSPM	Respirable Suspended Particulate Matter
SE	South- East
SEIAA	State Level Environmental Assessment Authority
SO ₂	Sulphur-Di-Oxide
SOI	Survey of India
SSE	South of South-East
SSW	South of South-West
STP	Sewage Treatment plant
TAC	Traffic Advisory Committee
TDS	Total Dissolve Solid
TOR	Terms of Reference
µg/m ³	Micro gram per meter cube
VOC	Volatile organic matter
w.e.f.	With Effective From
w.r.t.	With Reference To
ZLD	Zero Liquid Discharge
GMDA	Gurugram Metropolitan Development Authority
IRC	India Road Congress
HISVP	Haryana Shahr Vikash Pradhikaran

For DLF LIMITED

Authorised Signatory





File No.: SEAC/HR/2024/067
 Government of India
 Ministry of Environment, Forest and Climate Change
 (Issued by the State Level Expert Appraisal Committee(SEAC),
 HARYANA)



Dated 12/03/2024



To,

DLF LIMITED, DLF Utilities Ltd., DLF Building & Services Pvt. Ltd., Sh. Rajender Singh S/o Sh. Kude Ram,
 DLF Shopping Mall, 3rd Floor, Arjun Marg, DLF City, Phase-I, Gurugram, Haryana, GURUGRAM,
 HARYANA, 122002
 dlh1dcrest2@gmail.com

Subject: Standard Terms of Reference (ToR) to the proposed Expansion cum Modification of Group Housing Buildings in Zone 10, DLF 5, at Sector-54 Gurugram, Haryana.

Sir/Madam,

This is in reference to your application submitted to SEAC vide proposal number SIA/HR/INFRA2/465199/2024 dated 06/03/2024 for grant of Terms of Reference (ToR) to the project under the provision of the EIA Notification 2006-and as amended thereof.

2. The particulars of the proposal are as below :

(i) ToR Identification No.	TO24B3812HR5769356N
(ii) File No.	SEAC/HR/2024/067
(iii) Clearance Type	Fresh ToR
(iv) Category	B1
(v) Project/Activity Included Schedule No. & Part	B(b) Townships/ Area Development Projects / Rehabilitation Centres
(vi) Name of Project	Proposed Expansion cum Modification of Group Housing Buildings in Zone 10, DLF 5, at Sector-54 Gurugram, Haryana
(vii) Name of Company/Organization	DLF LIMITED
(ix) Location of Project (District, State)	GURUGRAM, HARYANA
(x) Issuing Authority	SEAC
(xi) Applicability of General Conditions	NO

3. The SEAC has examined the proposal in accordance with the Environment Impact Assessment (EIA) Notification, 2006 & further amendments thereto and after detailed examination hereby decided to grant Standard Terms of

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2



Reference to the instant proposal of M/s. **DLF LIMITED** under the provisions of the aforementioned Notification.

4. The brief about products and by products as submitted by the Project proponent in Form-I (Part A, B) and Standard Terms of Reference are annexed to this letter as Annexure II)
5. The Ministry reserves the right to stipulate additional TORs, if found necessary.
6. The Standard Terms of Reference (ToR) to the aforementioned project is under provisions of EIA Notification, 2006 and as amended thereof. It does not tantamount to approvals-consent/permissions etc required to be obtained under any other Act/Rule/regulation. The Project Proponent is under obligation to obtain approvals/ clearances under any other Acts/ Regulations or Statutes, as applicable, to the project.
7. The granted letter, all the documents submitted as a part of application viz. Form-I Part A and Part B are available on PARIVESH portal which can be accessed by scanning the QR Code above.

Copy To

dlf@crest2@gmail.com
 projects@vardan.co.in
 scy.scachr@gmail.com

Annexure I

Standard Terms of Reference for conducting Environment Impact Assessment Study for Townships/ Area Development Projects / Rehabilitation Centres and information to be included in EIA/EMP report

1. Project Details

Sr. No.	Terms of Reference
1.1	Need and benefits of the project.
1.2	Submit data for built-up area for each building, the use and occupancy classification in line with NBC 2016 also to be indicated [for differential functional requirements].
1.3	The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out.

2. Land Environment

Sr. No.	Terms of Reference
2.1	Examine details of land use as per Master Plan and land use around 10 km radius of the project site. Analysis should be made based on latest satellite imagery for land use with raw images. Check on flood plain of any river.

3. Land acquisition and R&R

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Sr. No.	Terms of Reference
3.1	Submit details of environmentally sensitive places, land acquisition status, rehabilitation of communities/villages and present status of such activities.

4. Environmental Monitoring and Management

Sr. No.	Terms of Reference
4.1	Examine baseline environmental quality along with projected incremental load due to the project.
4.2	Environmental data to be considered in relation to the project development would be (a) land, (b) groundwater, (c) surface water, (d) air, (e) bio-diversity, (f) noise and vibrations, (g) socio economic and health
4.3	Submit Roles and responsibility of the developer etc for compliance of environmental regulations under the provisions of EP Act.
4.4	Examine separately the details for construction and operation phases both for Environmental Management Plan and Environmental Monitoring Plan with cost and parameters.
4.5	Possible carbon footprint contribution from each activities and mitigation measures proposed shall be included as part of Environment Management Plan.

5. Drainage

Sr. No.	Terms of Reference
5.1	Submit a copy of the contour plan with slopes, drainage pattern of the site and surrounding area. Any obstruction of the same by the project.

6. Forest

Sr. No.	Terms of Reference
6.1	Submit the details of the trees to be felled for the project, if any.
6.2	Submit the present land use and permission required for any conversion such as forest, agriculture etc.

7. Water Environment

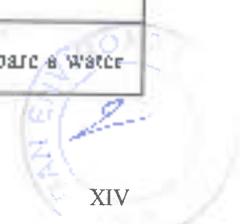
Sr. No.	Terms of Reference
7.1	Ground water classification as per the Central Ground Water Authority.

8. Water Management

Sr. No.	Terms of Reference
8.1	Examine the details of Source of water, water requirement, use of treated waste water and prepare a water

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Sr. No.	Terms of Reference
	balance chart.
8.2	Rain water harvesting proposals should be made with due safeguards for ground water quality.
8.3	Maximize recycling of water and utilization of rain water. Examine details
8.4	Examine soil characteristics and depth of ground water table for rainwater harvesting
8.5	Permission from CGWA for abstraction of groundwater, if any, including dewatering during basement excavation.

9. Waste Management

Sr. No.	Terms of Reference
9.1	Examine details of solid waste generation treatment and its disposal.
9.2	Construction & Demolition Waste Management Plan shall be prepared as part of EMP providing details of demolition activities involved along with quantification and disposal mechanism.

10. Energy Requirements

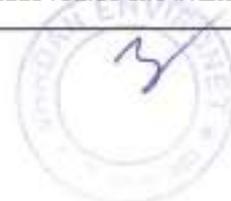
Sr. No.	Terms of Reference
10.1	A certificate of adequacy of available power from the agency supplying power to the project along with the load allowed for the project.
10.2	Examine and submit details of use of solar energy and alternative source of energy to reduce the fossil energy consumption. Energy conservation and energy efficiency.
10.3	DG sets are likely to be used during construction and operational phase of the project. Emissions from DG sets must be taken into consideration while estimating the impacts on air environment.

11. Road and Traffic

Sr. No.	Terms of Reference
11.1	Examine road/rail connectivity to the project site and impact on the traffic due to the proposed project. Present and future traffic and transport facilities for the region should be analysed with measures for preventing traffic congestion and providing faster trouble free system to reach different destinations in the city.
11.2	A detailed traffic and transportation study should be made for existing and projected passenger and cargo traffic.
11.3	Examine the details of transport of materials for construction which should include source and availability.

12. Disaster Management Plan

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Sr. No.	Terms of Reference
12.1	Submit details of a comprehensive Disaster Management Plan including emergency evacuation during natural and man-made disaster. This should cover details of vulnerabilities due to natural and manmade hazards (earthquake, flooding, cyclone, landslides, fire etc.) and details of disaster mitigation efforts for buildings and infrastructure through structural sufficiency and Fire and Life Safety compliance in line with National Building Code NBC, 2016.

13. Court Cases

Sr. No.	Terms of Reference
13.1	Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.

14. Miscellaneous

Sr. No.	Terms of Reference
14.1	Any further clarification on carrying out the above studies including anticipated impacts due to the project and mitigative measure, project proponent can refer to the model ToR available on Ministry website http://moef.nic.in/Manual/Townships .

Additional Terms of Reference

N/A

Annexure 2

Details of Products & By-products

Name of the product /By-product	Product / By-product	Existing	Proposed	Total	Unit	Mode of Transport / Transmission	Remarks (eg. CAS number)
Not applicable. This is 8 (b) "Townships and Area Development Projects" as per MoEF notification 14/9/2006 & its Subsequent Amendments.	Product	213377.998	423040.358	636418.356	builtup area in square meters	NOT applicable	This is development of group housing project



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Proposed Expansion cum Modification of Group Housing Buildings in Zone 10, DLF 5
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S. No.	TOR Point	Reply	Citation
1.	PROJECT DETAILS:		
1.1	Need and benefits of the project.	<p>Benefit of the project:</p> <p>➤ The project will generate jobs that related to un-skilled, semi-skilled as well skilled labour category. Supervisory positions will also open up for which local candidates will be considered based on merit.</p>	Chapter-8 at Page no-189-190 in Volume-II.
1.2	Submit data for built-up area for each building, the use and occupancy classification in line with NBC 2016 also to be indicated [for differential functional requirement]	<p>Details of area statement of the Project site is given in EIA report chapter-2.</p> <p>The total population of the project will be 4,281 Person. During construction phase, 1000-2000 numbers of labour will be engaged. The detailed population breakup is given EIA report chapter-2.</p>	<p>Chapter-2 Table No-2.2 at page no-17 in Volume-I)</p> <p>Chapter-2 Table No-2.3 at page no-18 in Volume-II</p>
1.3	The cost of the Project (capital cost and recurring cost) as well as the cost toward implementation of EMP should be clearly spelt out.	<p>Total Project cost after expansion of project will be approx. Rs. 7,583 Cr.</p> <p>Details for construction and operation phases both for Environmental Management Plan is given in EIA report.</p> <p>Environmental Monitoring Plan with cost and parameters are discussed in EIA report.</p>	<p>Chapter-10 at Page no. 192-196 in Volume-II.</p> <p>Chapter-6 Table no-6.1 & 6.2 at page no-158 in Volume-II.</p>



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Proposed Expansion cum Modification of Group Housing Buildings in Zone 10, DLF 5
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2.	LAND ENVIRONMENT:		
2.1	Examine details of land use as per Master Plan and land use around 10 km radius of the project site. Analysis should be made based on latest satellite imagery for land use with raw images. Check on flood plain of any river.	<p>The land falls under the residential zone as per the Gurugram- Manesar Urban Complex Master Plan 2031.</p> <p>Copy of Gurugram- Manesar Urban Complex Master Plan 2031 is attached as Annexure in EIA report.</p> <p>EIA/EMP study has been carried out in an area covering a circle of radius of 10 km with project area as the center. Land use map is given in the EIA report.</p> <p>Hence, no major river flowing within 10km radius of project site, availability of any flood plan is negligible.</p>	<p>Annexure-2 at Page no-208 in Volume-III.</p> <p>Chapter-3 Table no. 3.1 and Fig no-3.1 at Page no-37-38 in Volume-II (EIA report).</p>
3.	LAND ACQUISITION AND R&R:		
3.1	Submit details of environmentally sensitive places, land acquisition status, rehabilitation of communities / villages and present status of such activities.	<p>Environmentally sensitive places are given in Form-I in Volume-I of EIA report.</p> <p>The project had received License from the Directorate of Town & Country Planning, Haryana with 15 Licenses for 16.975 Acre (License No. 38, 39, 40, 52, 53, 57 of 1996 dated 16.04.1996 which is valid up to 15.04.2024, License No. 117, 121, 129, 131 of 1995 dated 29.12.1995 which is valid up to 28.12.2024 and License No. 02, 04, 06 of 2002 dated 25.10.2002 which is valid up to 24.10.2024 from the Directorate of Town & Country Planning, Haryana is attached as Annexure in EIA report.</p> <p>There is no rehabilitation of communities / villages in the project.</p>	<p>Form-I, at Page no-18-19 in Volume-I.</p> <p>Annexure-9 at Page no-216-257 in Volume-III.</p>

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4. ENVIRONMENTAL MONITORING AND MANAGEMENT:			
4.1	Examine baseline environmental quality along with projected incremental load due to the project.	<p>Summary of baseline data has been given in Chapter-3.</p> <p>And the analysis report of laboratory is enclosed in Annexure in the EIA report.</p> <p>The incremental value of emission of pollutant due to activity has been analyzed and mentioned in EIA Report.</p>	<p>Chapter-3 Table no-3.3 to 3.16 and Fig no-3.3 to 3.13 at Page no- 41 to 74 in Volume-II (EIA report).</p> <p>Annexure-22 at Page no- 290-366 in Volume-III.</p> <p>Chapter 4. Table-4.3 at Page no. 126 and Fig - 4.1 to 4.5 at Page no- 128-132 in Volume-II (EIA report).</p>
4.2	Environmental data to be considered in relation to the project development would be (a) Land, (b) Ground water, (c) Surface Water, (d) Air, (e) Bio-Diversity, (f) Noise And Vibrations, (g) Socio Economic and Health.	The following points have been covered under the EIA/EEMP report.	Chapter-3 at Page no- 75 to 118 in Volume- II (EIA report)
4.3	Submit Roles and responsibility of the developer etc. for compliance of environmental regulations under the provisions of EP Act,	The Environmental Monitoring Cell will be constituted for maintaining environmental regulations under the provision of EP Act. After grant of EC, we will submit proper half yearly compliance report with all details and deliberations.	

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4.4	Examine separately the details for construction and operation phases both for Environmental Management Plan and Environmental Monitoring Plan with cost and parameters.	Details for construction and Operation phases both for Environmental Management Plan is given in EIA report. Environmental Monitoring Plan with cost and parameters are discussed in EIA report.	Chapter-10 at Page no. 192-196 in Volume-II. Chapter-6 Table no-6.1 & 6.2 at page no-158 in Volume-II.
4.5	Possible carbon footprint contribution from each activities and mitigation measures proposed shall be included as part of Environment Management Plan.	The main source of emission in the project is DG sets, power load and vehicular movement. So, carbon footprint of DG set, power load and vehicular movement needs to be calculated. But as in case of DG sets, the fuel HSD will be used and these will run for a very short period of time. Further polluted load has calculated, the results are well within the limits. Therefore, impact of DG sets will be negligible. In case of power load, carbon footprints are mostly calculated at thermal power stations. However, solar panel of 110 KWp and solar lights will be installed for energy conservation. In case of vehicular movement, the impact will be minimal as separate entry and exit gates will be provided. Water sprinkling will be done thrice in summer seasons and twice in winter and monsoon season.	
5. DRAINAGE:			
5.1	Submit a copy of the contour plan with slopes, drainage pattern of the site and surrounding area. Any obstruction of the same by the project.	Contour Plan & Drainage pattern of the site and surrounding area is discussed in EIA/EEMP report.	Chapter-3 Fig. 3.14 & 3.15 Page No-75 & 77 in volume II respectively.
6. FOREST:			
6.1	Submit the details of the trees to be felled for the project, if any.	There are some trees present at site. In case cutting is required then we will take prior permission from	

Proposed Expansion cum Modification of Group Housing Buildings in Zone 10, DLF 5
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		concerned department to cut the trees,	
6.2	Submit the present land use and permission required for any conversion such as forest, agriculture etc.	As per Gurugram- Manesar Urban Complex Master Plan 2031, land Use of the site is Residential and the land will be developed into Group Housing colony. There is no forest land involved in project. Forest NOC regarding same is attached as Annexure in EIA report.	Annexure-26 at page no. 280-282 in Volume-III
7.	WATER ENVIRONMENT:		
7.1	Ground water classification as per the Central Ground Water Authority.	There will be no extraction of Ground Water at project site. The classification of groundwater is over-exploited region as per Central Ground Water Authority (CGWA) / HWRA (Haryana Water Resources Authority) at project site.	
8.	WATER MANAGEMENT:		
8.1	Examine the details of Source of water, water requirement, use of treated waste water and prepare a water balance chart.	The water will be supplied through GMDA/HSVP. Total water requirement for the project will be approximately 616 KLD, out of which 344 KLD will be fresh water requirement and 272 KLD will be treated water requirement which will be used for flushing (87 KLD), Cooling tower (103 KLD) and horticulture (82 KLD) purposes. Water balance diagram and calculation of water is given in EIA report. Water assurance from GMDA is attached as Annexure in EIA report.	Chapter-2, Fig No- 2.5, 2.6, & 2.7, at Page no- 20, 22 & 24 respectively and Table no-2.4 to 2.6 at Page no-19, 21 & 23 respectively in Volume-II. Annexure-27 at page no. 372 in Volume-III,

Author: JPS
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Vardas Environet, Gurgaon

Proposed Expansion cum Modification of Group Housing Buildings In Zone 10, DLF 5
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8.2	Rain water harvesting proposals should be made with due safeguards for ground water quality.	<p>Taking 15 minutes retention time, total volume of storm water $(260.94 \times 0.25 = 1065.24 \text{ m}^3)$</p> <p>Taking the effective Length, breadth and depth of a Recharge pit 7 m, 2 m and 4.5 m respectively,</p> <p>Volume of one Recharge pit = $L \times W \times D = 7 \times 2 \times 4.5 = 63.180 \text{ m}^3$</p> <p>Hence No. of pits required = $1065.24 / 63 = 16.91$. Say 17 Pits.</p> <p>Total 17 nos. of Rain Water Harvesting pits are being proposed for artificial rain water recharge within the project premises.</p>	Chapter-4 Table no-4.4 at page no-136 in Volume-II.
8.3	Maximize recycling of water and utilization of rain water. Examine details.	<p>Dual plumbing system will be provided for reuse of recycled water in flushing Cooling tower and horticulture.</p> <p>272KLD treated water will be used for flushing (87 KLD), DG Cooling (103 KLD) and horticulture (82 KLD) purposes.</p>	
8.4	Examine soil characteristics and depth of ground water table for rainwater harvesting.	<p>During the baseline study 8 soil samples are collected and their physicochemical analysis data are given in the EIA report.</p> <p>Soil found at site and surrounding study area has Sandy Loam texture and is brownish color</p>	Chapter-3 Table no-3.3 at Page no-41 to 46 in Volume-II.
8.5	Permission from CGWA for abstraction of	There will be no extraction of Ground Water at project	

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	groundwater, if any, including dewatering during basement excavation.	site. The water will be supplied through GMDA. Water assurance from GMDA is attached as Annexure in EIA report	Annexure-27 at page no. 372 in Volume-III.
9.	WASTE MANAGEMENT:		
9.1	Examine details of solid waste generation treatment and its disposal.	Total 1.880 kg/day of solid waste is generated during operation phase which will be treated in Organic waste composter. 1 nos. of Organic waste converter of total capacity 850 Kg/day will be proposed. Details are discussed in EIA report.	Chapter-7 Table No-7.7 at page no-184 in Volume-II
9.2	Construction & Demolition Waste Management Plan shall be prepared as part of EMP providing details of demolition activities involved along with quantification and disposal mechanism.	Construction & Demolition Waste of project site will be disposed as per Construction & Demolition Waste Management Rules, 2016.	
10.	ENERGY REQUIREMENTS:		
10.1	A certificate of adequacy of available power from the agency supplying power to the project along with the load allowed for the project	The power supply shall be supplied by Dakshin Haryana Bijli Vitran Nigam (DHBVN). The required power load for project will be approx. 11,090 KW. Power assurance from DHBVN regarding same is attached as Annexure in EIA report.	Annexure-23 at page no. 367 in Volume-III
10.2	Examine and submit details of use of solar energy and alternative source of energy to reduce the fossil energy consumption, Energy conservation and energy efficiency.	We will provide the solar panel capacity of 110 KWp at project site. Details of use of solar energy and alternative source of	Chapter-5 Paragraph-5.2 at Page no-149 to 153 in Volume-II.

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Proposed Expansion cum Modification of Group Housing Buildings in Zone 10, DLF 5
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		energy given in the EIA report.	
10.3	DG sets are likely to be used during construction and operational phase of the project. Emissions from DG sets must be taken into consideration while estimating the impacts on air environment.	For Residential Colony, the emission from DG sets, are given in the EIA/EMP report. There is provision of total 08 Nos. of DG sets of total capacity of 16,000 KVA (8x2,000 KVA) will be operated during power failure	Chapter-4 Paragraph 4.3.3.1 at Page no. - 123 in Volume-II
11.	ROAD AND TRAFFIC:		
11.1	Examine road / rail connectivity to the project site and impact on the traffic due to the proposed project. Present and future traffic and transport facilities for the region should be analyzed with measures for preventing traffic congestion and providing faster trouble free system to reach different destinations in the city.	Detailed Traffic study was carried out during baseline monitoring and The LOS value from the project change i.e. the LOS value for NH-248A, SH-15A and MDR-137 will remain same as 'Excellent' and LOS value for NH-48 and NH-148A will remain same as 'Very Good' So the additional load on the carrying capacity of the concern roads is not likely to have major affect. Detail of Traffic study is given in EIA report.	Chapter-3 Point no-3.11 at Page no-115 to 118 in Volume-II
11.2	A detailed traffic and transportation study should be made for existing and projected passenger and cargo traffic.	The LOS value from the Project change i.e LOS value for NH-248A, SH-15A and MDR-137 will remain same as 'Excellent' and LOS value for NH-48 and NH-148A will remain same as 'Very Good'. So the additional load on the carrying capacity of the concern roads is not likely to have major affect.	Chapter-4 Point no-4.9 at Page no-145 to 146 in Volume-II
11.3	Examine the details of transport of materials for construction which should include source and availability.	Construction materials will be source from the nearby market and transported at the project site via trucks/trolley/tractors.	
12.	DISASTER MANAGEMENT PLAN:		
12.1	Submit details of a comprehensive Disaster Management Plan including emergency evacuation during natural and man-made disaster. This should cover details of vulnerabilities due to natural and manmade	Disaster Management Plan including emergency evacuation during natural and man-made disaster is given in EIA report.	Chapter-7 Paragraph 7.3 at Page no-173-174 in Volume-II

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	hazards (earthquake, flooding, cyclone, landslides, fire etc.) and details of disaster mitigation efforts for buildings and infrastructure through structural sufficiency and Fire and Life Safety compliance in line with National Building Code NBC, 2016.		
13.	COURT CASES:		
13.1	Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.	There is no litigation pending against our project. Affidavit cum undertaking regarding the same is attached as Annexure in EIA report	Annexure-29 at page no.374-375 in EIA Vol-III
14.	MISCELLANEOUS:		
14.1	Any further clarification on carrying out the above studies including anticipated impacts due to the project and mitigative measure, project proponent can refer to the model ToR available on Ministry website "http://moef.nic.in/Manual/Townships"	No additional impacts are anticipated from project.	



For DLF LIMITED
 Digitally Signed



Vardan EnviroNet, Gurugram

VOLUME-I

Proposed Expansion cum Modification of Group Housing Buildings in Zone 10, DLF 5
At Sector-54, Gurugram, Haryana
Being developed by M/s DLF Limited

Form-I

(I) BASIC INFORMATION

S. No.	Items	Details
1	Name of the Project	Proposed Expansion cum Modification of Group Housing Buildings in Zone 10, DLF 5, at Sector-54 Gurugram, Haryana being developed by M/s DLF Ltd.
2	Serial No. in schedule	8 (b) "Townships and Area Development Projects" as per MoEF notification 14/9/2006 & its Subsequent Amendments.
3	Proposed capacity/area/length/tonnage to be handled/command area/lease area/number of wells to be drilled	Existing Plot Area = 30,653.317 m ² / 7.574 Acres Expansion area=38,040.533 m ² / 9.401 Acres Total Plot Area = 68,693.850 m² / 16.975 Acres (which is part of Phase-V Group Housing Scheme of 476.6015 Acres). Existing Built Up Area = 2,33,377.998 m ² Expansion Built Up Area = 4,23,040.358 m ² Total Built Up Area = 6,56,418.356 m² Existing Ground Coverage 6,369.381 m ² Expansion Ground Coverage: 39,958.360 m ² Total Ground Coverage: 46,327.741 m²
4	New/Expansion/Modernization	Expansion Cum Modification
5	Existing capacity/area etc.	We have obtained earlier EC from SEIAA, Haryana through file no. SEIAA/HR/2022/181 & EC Identification No. EC22B039HR11216 for total 2, 33,377.998 m ² built-up area on 30,653.317 m ² (7.574 Acre) plot area.
6	Category of project	B1
7	Does it attract the general condition? If Yes, please specify	No
8	Does it attract the specific condition? If Yes, please specify	No
9	i) Location of unit ii) Khasra No. iii) Village	Sector-54, Gurugram, Haryana Latitude; 28°26'44.55"N Longitude; 77°06'48.93"E Khasra No. 2037/4,2038/6,2043/3,2044/3,2044/4,2045/1,2045/2,2046/1/1,2046/1/2,2046/2,2047/1,2047/2,2048,2049,2050/1,2050/2,2051,2052/1,2052/2,2056/2.

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Proposed Expansion cum Modification of Group Housing Buildings in Zone 10, DLF 5
At Sector-54, Gurugram, Haryana
Being developed by M/s DLF Limited

Form-I

	iv) Tehsil v) District vi) State	Wazirabad Gurugram Gurugram Haryana
10	Nearest Railway station/Airport along with distance in Kms	✓ Gurugram railway station - 11 Km. towards NW direction ✓ Indira Gandhi International Airport - -10.3 Km, towards N direction
11	Nearest town, City, Distr. Head Quarter along with distance in Kms.	➤ Wazirabad - -Adjacent from the project side ➤ Chakkarpur - -3.7 Km towards NW direction ➤ Belranpur - -4.2 Km towards South direction
12	Village Panchayat, Zila Parishad, Municipal Corporation, Local body (Complete postal addresses with telephone nos. to be given)	Municipal Corporation of Gurugram, C-1, India Technology Park, Sector 34, Gurugram, Haryana-122001 1800 180 1817
13	Name of Applicant	M/s DLF Ltd.
14	Regd. Address	At DLF Shopping Mall, 3rd Floor, Arjun Marg, DLF City, Phase-I, Gurugram-122002 Haryana
15	Address for correspondence(1). Name Designation Address Pin Code E-mail Telephone Fax No.	At DLF Shopping Mall, 3rd Floor, Arjun Marg, DLF City, Phase-I, Gurugram-122002 Haryana Mr. Lok Pal Singh Sr. Vice President At DLF Shopping Mall, 3rd Floor, Arjun Marg, DLF City, Phase-I, Gurugram-122002 Haryana 122002 Singh-lokpal@dlf.co - 91-124-4769000 +91-124-4769250
	Address of correspondence(2)	Environment Consultant Vardan Environet Plot No. 82A, Sec.-5, IMT Manesar, Gurugram-122051(Haryana) Phone: 0124-4222130, 9810355569 Email: projects@vardan.co.in
16	Detail of alternative site, if any. Location of these sites should be shown on a topo-sheet.	This is expansion cum modification of Group Housing Buildings in Zone 10, DLF 5, at Sector-54 Gurugram, Haryana being developed by M/s DLF Ltd for which

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Proposed Expansion cum Modification of Group Housing Buildings in Zone 10, DLF 5
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Form-I

		license has already been awarded by Director of Town and Country Planning and Zoning plan is also approved. Hence, Not applicable in this case.
17	Interlinked Project	There is no any interlinked project.
18	Whether separate application for interlinked project has been submitted	Not Applicable. In view of item No. 17 above
19	If, Yes Date of Submission	Not Applicable. In view of item No. 17 above
20	If no, reason	Not Applicable. In view of item No. 17 above
21	Whether proposal involves approval/clearance under: if yes, details of same and status to given a) Forest (conservation) Act 1980? b) Wild life protection Act 1972? c) CRZ notification 1991?	No forest land is involved in the project site. Forest NOC has been annexed. No. The unit does not fall in any notified Wild life protection area. No. The unit does not fall in any Notified coastal regulation zone.
22	Whether there is any Govt. order/policy relevant/relating site?	No
23	Forest land involved (hectares)	No Forest land is involved in the project.
24	Whether there is any litigation pending against the project and / or land in which is project is proposed to be setup: a) Name of court b) Case No. c) Orders/directions of Court, if any and its relevance with the proposed project.	There is no litigation pending against the project and land. Therefore, Information required against point a, b & c is not applicable.

(II) ACTIVITY:

Construction, operation or decommissioning of the Project involving actions, which will cause physical changes in the locality (topography, land use, changes in water bodies, etc)

S. No.	Information/Checklist Confirmation	Yes/ No	Details thereof (with approximate quantities/ rates, wherever possible) with source of information data
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Proposed Expansion cum Modification of Group Housing Buildings in Zone 10, DLF 5
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Form-I

1.1	Permanent or temporary change in land use, land cover or topography including increase in intensity of land use (with respect to local land use plan)	No	The land falls under the residential zone as per the Gurgaon- Manesar Master Plan 2031. The project had received License from the Directorate of Town & Country Planning, Haryana with 13 Licenses for 16.975 Acre (License No. 38, 39, 40, 52, 53, 57 of 1996 dated 16.04.1996 which is valid up to 15.04.2024, License No. 117, 121, 129, 131 of 1995 dated 29.12.1995 which is valid up to 28.12.2024 and License No. 02, 04, 06 of 2002 dated 25.10.2002 which is valid up to 24.10.2024 Hence, no change in land use will taking place.
1.2	Clearance of existing land, vegetation and building?	Yes	This is a proposed expansion cum modification of Group Housing Buildings project. There are some trees present at site. We will take prior permission from concerned department to the trees at site.
1.3	Creation of new land uses?	No	The site has been licensed for the development of Group Housing Buildings & the same will be developed at this site. So, no creation of new land use is anticipated.
1.4	Pre-construction investigations e.g. house, soil testing?	Yes	Soil investigation was carried out and the results were found satisfactory
1.5	Construction works?	Yes	The construction activities will be confined within the project premises; there will be no physical change outside the project boundary.
1.6	Demolition works?	No	Project site is subjected to construction is Vacant Land. Hence, no demolition work is required.
1.7	Temporary sites used for construction works or Housing of construction workers?	No	All the construction activity including stocking of raw materials will be confined within the project site only. No temporary shelters for labour are proposed. Local labours from nearby area will be hired. Sanitation facilities will be developed at site.
1.8	Above ground building, structures or Earthworks including linear structures, cut and fill or excavations	Yes	The building of the project will be erected above the ground as per the floors of Group Housing Buildings project.

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1.9	Underground work including mining or tunneling?	No	No underground work including mining/ tunneling is required.
1.10	Reclamation works?	No	No reclamation work is required.
1.11	Dredging?	No	No dredging is required.
1.12	Offshore structures?	No	No offshore structure is required.
1.13	Production and manufacturing processes?	No	No production/manufacturing process is involved as the project is a construction of proposed expansion cum modification of Group Housing Buildings Project.
1.14	Facilities for storage of goods or materials?	Yes	Raw material will be stored at site in a covered area. Cement will be separately stored under cover in bales. Sand will be stacked neatly under tarpaulin cover. Bricks and steel will be laid in open.
1.15	Facilities for treatment or disposal of solid waste or liquid effluents?	Yes	<p>Solid Waste: The solid waste generated from the project will be in the form of.</p> <p>Domestic Waste: During construction solid waste will be minimal & clean regularly. During operation, approximately 1,880 Kg/day domestic solid waste is estimated to be generated from the project activity; this will be collected from designated locations and segregated into inorganic and organic wastes. The inorganic non-biodegradable wastes will be sold to authorize vendors for recycling and the biodegradable wastes will be treated in OWC within the project according to SWM (Solid Waste Management) Rules, 2016.</p> <p>Hazardous Waste: No hazardous waste will be produced from project activities except some spent oil (Category 5.1) generated from D.G. sets; which will be sold to recyclers authorized by Haryana State Pollution Control Board.</p> <p>Liquid effluents: During construction phase, sewage will be treated in modular STP.</p>

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			The wastewater in operation phase will be treated up to tertiary level in DLF-5 common Sewage Treatment Plant of total capacity of 15 MLD (9 MLD based on SBR technology & 6 MLD based on MBR technology) and the treated sewage will be reused for flushing, cooling tower and horticulture. Dewatered/dried sludge generated from the STP plant will be used as manure for green belt development.
1.16	Facilities for long term housing of operational workers?	No	Local labors will be hired from nearby areas during construction phase. So, there will be no need to create permanent facilities for long-term housing of operational workers.
1.17	New road, rail or sea traffic during construction of operation?	No	The site has good connectivity to SH-13 and NH-48. Only internal roads, paths will be developed for vehicular movements for transportation of construction material during construction phase whereas internal tracks and paths will be developed for traffic circulation (to avoid any congestion) during operational phase.
1.18	New road, rail, air waterborne or other transport infrastructure including new or altered routes and stations, ports, airport etc?	No	The site is well connected through the road network. The nearest highway is SH-13 which is ~7.6 Km away from project site towards West direction and NH-48 which is ~5.5 Km away from project site towards NW Direction.
1.19	Closure or diversion of existing transport routes or infrastructure leading to changes in traffic movements?	No	No diversion or closure of existing traffic routes is required.
1.20	New or diverted transmission lines or pipelines?	No	There will not be any new/diverted transmission line or pipeline around the project.
1.21	Impoundment, damming, culverting, realignment or other changes to the hydrology of watercourses or aquifers?	No	No impoundment, damming, culverting, realignment or other changes to the hydrology of surface watercourses is proposed.

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1.22	Stream crossings?	No	There is no stream running across the site.
1.23	Abstraction or transfers of water from ground or surface waters?	No	Total water requirement of project will be 616 KLD, which include 334 KLD for fresh water requirement, and about 272 KLD treated water shall be reused for the various purposes like horticulture, Cooling tower and flushing. The source shall be HSP/GDMA. Wastewater generated will be 296 KLD which will be treated in DLF-5 common Sewage Treatment Plant of total capacity of 15 MLD (9 MLD based on SBR technology & 6 MLD based on MBR technology) nearby the project premises. During construction phase, water demand will be fulfilled from nearby own STP.
1.24	Changes in water bodies or the land surface affecting drainage or run-off?	No	Runoff will increase due to increased paved surface. However, increased runoff will be managed by well-designed rainwater harvesting system and storm water management plan.
1.25	Transport of personnel or materials for construction, operation or decommissioning?	Yes	Transport of personnel/material during construction and operation phase are envisaged. Adequate parking space within the project site for loading and unloading of materials will be provided. Adequate internal parking space will be provided during operational phase of the project to the occupants of the premises as well as additional parking will be provided for the visitors.
1.26	Long-term dismantling or decommissioning or restoration works?	No	No Long term dismantling or decommissioning or restoration work will be involved
1.27	Ongoing activity during decommissioning which could have an impact on the environment?	No	No decommissioning activity is involved, Hence, No impact on the environment by the project is supposed.
1.28	Influx of people to an area in either temporarily or permanently?	Yes	100 Local laborers from nearby area will be employed during the construction phase. In the operation phase, there will be an influx of

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			4,283 persons in the form of residents & visitors. No alien species will be involved.
1.29	Introduction of alien species?	No	The landscaping will be carried out with mainly local species with a few ornamental varieties of flora that are well suited to the local conditions.
1.30	Loss of native species or genetic diversity?	No	There will be no significant impact on the native species or genetic diversity
1.31	Any other Aspects	No	Not Applicable

Use of Natural resources for construction or operation of the Project (such as land, water, materials or energy, especially any resources which are non-renewable or in short supply):

S. No.	Information/Checklist confirmation	Yes/No	Details thereof (with approximate quantities/ rates, wherever possible) with source of information data
2.1	Land especially undeveloped or agricultural land (ha)	No	Land has been used for residential purpose under Master Plan of Gurgaon-Manesar Urban Complex-2031. Hence, Group Housing Buildings project will be constructed on the land of the project site.
2.2	Water (expected source & competing users) unit: KLD	Yes	Total water requirement for the project will be 616 KLD, which include 344 KLD for fresh water requirement, 272 KLD treated water requirement for the horticulture, cooling tower and flushing etc. During construction phase, water demand will be fulfilled from nearby own STP.
2.3	Minerals (MT)	Yes	Minerals such as sand and aggregates will be required during the construction phase.
2.4	Construction material – stone, aggregates, and/soil (expected source – MT)	Yes	All materials for construction will be arranged through selected suppliers.
2.5	Forests and timber (source – MT)	Yes	All material forests and timber will be provided by selected suppliers. However, steel frames etc. shall be used to minimize the use of timber.
2.6	Energy including electricity and fuels	Yes	The expected power demand of 11,090 KW

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	(source, competing users) Unit: fuel (MJ), energy (MW)		will be supplied by DHBVN. Power backup for the project will be through 8 nos. of DG sets having total capacity 16,000 KVA (8x2,000 KVA)
2.7	Any other natural resources (use appropriate standard units)	No	No other natural resource will be involved in the project except the mentioned above.

Use, storage, transport, handling or production of substances or materials, which could be harmful to human health or the environment or raise concerns about actual or perceived risks to human health.

S. No.	Information/Checklist confirmation	Yes/No	Details thereof (with approximate quantities/ rates, wherever possible) with source of information data
3.1	Use of substance or materials, which are hazardous (as per MSIHCR rules) to human health or the environment (flora, fauna and water supplies)	No	This is group housing buildings project, Hence, No storage of hazardous chemicals (as per MSIHCR Rules) will be done except HSD. HSD is required to run standby D.G. sets, for which the stored quantity of diesel will be below the threshold limit specified in the MSIHCR rules. Necessary permission will be obtained from the Departments if required as per norms.
3.2	Changes in occurrence of disease or affect disease vectors (e.g. insect or water borne diseases)	No	Suitable drainage and waste management measures (with frequent spray of insecticides etc.) will be adopted in both the construction and operational phase such that there will be no stagnation of water or accumulation of waste. This will effectively restrict the reproduction and growth of disease vectors.
3.3	Affect the welfare of people e.g. by changing living conditions?	Yes	Socio-economic standard of people will improve due to increased employment opportunities provided by this project. This will lead to better quality of life and will also set a standard for future developments in the area.
3.4	Vulnerable groups of people who could be affected by the project e.g. hospital patients, children, the	No	Impacts of this type are not expected.

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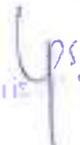
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	elderly etc		
3.5	Any other causes	No	No other causes are involved except the mentioned above.

Production of solid wastes during construction or operation or decommissioning (MT/month)

S. No	Information/Checklist confirmation	Yes/No	Details thereof (with approximate quantities/ rates, wherever possible) with source of information data
4.1	Spoil, overburden or mine wastes	Yes	Excavation will be out for foundation and construction of 4 level basements. Part of the excavated soil will be used in backfilling and development of building premises and the excess earth will be disposed by the contractor to the site designated by local authority as per C&D Waste Rules, 2016.
4.2	Municipal waste (domestic and commercial wastes)	Yes	The total municipal solid waste to be generated is approximately 1,880 Kg/day. The inorganic non-biodegradable wastes will be sold to authorized vendors for recycling and the biodegradable wastes will be treated in OWC within the project according to Solid Waste Management Rules, 2016.
4.3	Hazardous wastes (as per Hazardous Waste Management Rules)	Yes	Approx. 250 liter/year Spent oil from DG sets will be generated. It will be stored in HDPE drums in isolated covered facility. This spent oil will be sold to vendors authorized by HSPCB / MoEF & CC for the treatment of same. Suitable care will be taken so that spills/leaks of spent oil from storage could be avoided.
4.4	Other industrial process wastes	No	Not applicable as this is proposed expansion cum modification of group housing buildings project.
4.5	Surplus product	No	Not applicable as this is proposed expansion cum modification of group housing buildings project.

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4.6	Sewage sludge or other sludge from effluent treatment	Yes	Approx. 22.26 kg/day sludge generated from the STP plant it will be dried and later will be used as manure for green belt development.
4.7	Construction or demolition wastes	Yes	The construction waste will consist of excess earth and construction debris along with cement bags, steel in bits and pieces, insulating and packaging materials etc. Recyclable waste construction materials will be sold to authorized recyclers. Excavated soil will be stored separately & will be reused for backfilling, leveling purposes & top soil will be stored to be used for landscaping at later stages. Unusable and excess construction debris will be disposed at designated places in tune with the local norms
4.8	Redundant machinery or equipment	No	Not applicable
4.9	Contaminated soils or other materials	No	Contaminated soils or other materials will not be generated.
4.10	Agricultural wastes	Yes	Approx. 0.68 kg/day agricultural waste will be generated.
4.11	Other solid wastes	No	Not applicable as this is proposed expansion cum modification of group housing buildings project.

Release for pollutants or any hazardous, toxic or noxious substances to air (Kg/hr.)

S. No.	Information/Checklist confirmation	Yes/No	Details thereof (with approximate quantities/ rates, wherever possible) with source of information data
5.1	Emissions from combustion of fossil fuels from stationary or mobile sources	Yes	The project does not envisage any major air pollution sources except operation of DG sets during power failure and vehicular traffic. The emission from stationary sources (DG sets) has been predicated. The DG sets will be the only source of air emission used during the operation phase in case of power failure. The DG stacks of adequate height (as per CPCB norms) will

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			be provided to disperse the pollutant generated from D.G. sets. The pollution generated from the vehicular movement will be checked by maintenance & regular checkup of vehicles. Local native plants will be used in tree plantation all around the project site and road side to reduce the impact of pollution.
5.2	Emissions from production processes	No	No production process is involved as it is Group Housing buildings project. Hence, there will be no such emissions.
5.3	Emissions from materials handling including storage or transport	Yes	Small quantities of fugitive emissions are envisaged during transport and handling of construction materials. Such emissions will be temporary and controlled by the use of sprinkling and other viable techniques like covering of loose material.
5.4	Emissions from construction activities including plant and equipment	Yes	This will be restricted to the construction phase and the construction site only.
5.5	Dust or odors from handling of materials including construction materials, sewage and waste	Yes	Dust is anticipated during loading and unloading of construction material and excavation of upper earth surface and other construction activities. These will however be temporary in nature, which will be controlled by providing water sprinklers. Tarpaulin cover will be provided on stored loose materials to reduce the dust emission.
5.6	Emissions from incineration of wastes	No	Not applicable. There will not be any incineration of waste as this is expansion cum modification of Group Housing buildings project.
5.7	Emissions from burning of waste in open air (e.g. slash materials, construction debris)	No	Open burning of biomass/other material will be prohibited on site.
5.8	Emissions from any other sources	No	Not Applicable

Generation of Noise and Vibration, and Emissions of Light and Heat:

S.No.	Information/Checklist	Yes/No	Details thereof (with approximate
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	confirmation		quantities/ rates, wherever possible) with source of information data
6.1	From operation of equipment e.g. engines, ventilation plant, crushers	Yes	The machinery to be used for construction will be of high standard and will adhere to international standard. These standards itself take care of noise control/vibration control and air emission control. Hence, insignificant impacts due to construction machinery are envisaged. Apart from this, the construction activities will be restricted to day time only. Source of noise in the operational phase will be from DG sets (which will be used in operation only during power failure) and pumps & motors. All the machinery will be of highest standard of reputed make and will comply with standard. DG sets will be used during power failure only and will generate noise level below 75 dB (A) from 1 meter distance.
6.2	From industrial or similar processes	No	No industrial processes will be carried out in the project except due to running of various construction equipments/machinery & D.G. Sets during renovation & expansion phase of the projects. Proper maintenance of machineries will reduce the generation of noise and vibration. All the workers will be equipped with PPE's during construction phase and D.G. sets will be installed in acoustic enclosures with proper padding system to reduce vibration impact.
6.3	From construction or demolishing	Yes	Due to various construction activities, there will be short-term noise impacts in the immediate vicinity of the project site. The construction activities will include the following noise generating activities: <ul style="list-style-type: none"> • Concreting, mixing & operation of DG sets. • Construction plant and heavy vehicle

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			movement.
6.4	From blasting or piling	No	No blasting or mechanized piling will be done.
6.5	From construction or operational traffic	Yes	Some noise will be generated from vehicular movement in the construction and operational phase but that will be mitigated with green belt development.
6.6	From lighting or cooling systems	No	No significant noise impact will result from lighting or cooling systems.
6.7	From any other sources	No	There will be no other sources for noise & vibration generation except the mentioned above.

Risks of contamination of land or water from releases of pollutants into the ground or into sewers, surface waters, groundwater, coastal waters or the sea:

S. No	Information/Checklist confirmation	Yes/No	Details thereof (with approximate quantities/ rates, wherever possible) with source of information data
7.1	From handling, storage, use or spillage of hazardous materials	No	The used oil from DG sets will be carefully stored in HDPE drums and periodically sold to authorized recyclers. All precautions will be taken to avoid spillage from storage as per Hazardous And Other Wastes (Management & Trans boundary Movement) Amendment Rules, 2023.
7.2	From discharge of sewage or other effluents to water or the land (expected mode and place of discharge)	No	There will be no discharge of untreated sewage on land or into water bodies. Adequate treatment of sewage will be carried treated in DLF-5 common Sewage Treatment Plant of total capacity of 15 MLD (9 MLD based on SBR technology & 6 MLD based on MBR technology) nearby the project premises. Total wastewater generated=296 KL/D 272 KL/D recycled water from STP will be reused for flushing, cooling tower and horticulture.

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			Flushing: 87 KLD Horticulture: 82 KLD Cooling Tower: 103 Treated water will be re-used for flushing cooling tower and horticulture.	Total 272 KLD Treated water shall be reused
7.3	By deposition of pollutants emitted to air into the land or into water	No	The DG Sets will be provided with stacks of adequate height. Hence dispersion will be achieved and avoid deposition of pollutants in significant concentrations at any single location.	
7.4	From any other sources	No	No other sources are involved except the mentioned above.	
7.5	Is there a risk of long term buildup of pollutants in the environment from these sources?	No	There will be no such risk in the coming future.	

Risk of accidents during construction or operation of the Project, which could affect human health or the environment

S. No.	Information/Checklist confirmation	Yes/No	Details thereof (with approximate quantities / rates, wherever possible) with source of information data
8.1	From explosions, spillages, fires etc. from storage, handling, use or production of hazardous substances	No	<p>This is a Group Housing buildings project and does not involve major hazardous construction activity. Hence chances of explosions, spillages, fires etc. are minimal.</p> <p>During construction, suitable personal protective equipment will be provided to all construction workers as required under the health & safety norms. Awareness & Training about safety norms will be provided to all the supervisor and construction workers involved in construction activities.</p> <p>To deal with any fire related accident, firefighting facility of single handed hydrant valve, long hose reel, and portable</p>

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			fire extinguisher shall be provided.
8.2	From any other causes	No	No other causes are involved except the mentioned above.
8.3	Could the project be affected by natural disasters causing environmental damage (e.g. floods, earthquakes, landslides, cloudburst etc)?	No	The project falls under seismic active Zone IV according to the Indian Standard Seismic Zoning Map. Suitable seismic coefficient will be adopted in horizontal and vertical direction respectively, while designing the structure. There is no possibility of flood as per records available on the project site.

Factors which should be considered (such as consequential development) which could lead to environmental effects or the potential for cumulative impacts with other existing or planned activities in the locality

S. No.	Information/Checklist Confirmation	Yes/No	Details thereof (with approximate quantities/ rates, wherever possible) with source of information data
9.1	Lead to development of supporting facilities, ancillary development or development stimulated by the project which could have impact on the environment e.g. <ul style="list-style-type: none"> • Supporting infrastructure (roads, power supply, water or wastewater treatment, etc.) • housing development • extractive industries • supply industries • other 	Yes	The project is for residential use, it may lead to development of supporting services and infrastructure in and around the area
		Yes	The project will have positive impact on the ancillary infrastructure like road, markets, public health, amenities, conveyance facilities etc.
		No	The project is development of for the Group Housing buildings Project.
		No	Not applicable
		No	Not applicable
9.2	Lead to after-use of the site, which	No	Not Anticipated

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	could have an impact on the environment		
9.3	Set a precedent for later developments	No	Not applicable
9.4	Have cumulative effects due to proximity to other existing or planned projects with similar effects	No	Not Applicable

(III) ENVIRONMENTAL SENSITIVITY

S.No.	Information/Checklist confirmation	Name/Identity	Aerial distance (within 15km.) Proposed project location boundary
1.	Areas protected under international conventions, national or local legislation for their ecological, landscape, cultural or other related value.	❖ Sultanpur National Park ❖ Asola Bhatti Wildlife Sanctuary	❖ 21 Km towards WNW direction ❖ 5 Km towards E direction
2.	Areas which are important or sensitive for ecological reasons – Wetlands, watercourses or other water bodies, coastal zone, biospheres, mountains & forests	No	There are no areas which are important or sensitive for ecological reasons Wetlands, watercourses or other water bodies, coastal zone, biospheres, mountains & forests
3.	Areas used by protected, important or sensitive species of flora or fauna for breeding, nesting, foraging, resting, overwintering, migration	❖ Sultanpur National Park ❖ Asola Bhatti Wildlife Sanctuary	❖ 21 Km towards WNW direction ❖ 5 Km towards E direction
4.	Inland, coastal, marine or underground waters	No Any	Not Applicable
5.	State, National boundaries	Delhi-Haryana State boundary	~ 1 Km towards E direction
6.	Routes or facilities used by the public for access to recreation or other tourist, pilgrim areas.	• SH-13 • NH-48	• ~7.6 Km, towards West • ~5.5 Km, towards NW

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7.	Defense installations	Not Applicable	Not Applicable
8	Densely populated or built-up area	<ul style="list-style-type: none"> ➤ Wazirabad - ~Adjacent from the project side ➤ Chakkarpur - ~3.7 Km towards NW direction ➤ Behrampur - ~4.2 Km towards South direction 	
9.	Areas occupied by sensitive manmade land uses (hospitals, schools, places of worship, community facilities)	Schools/Hospitals/ Police Stations <ul style="list-style-type: none"> ➤ R.B.P. School - ~3.7 Km towards NW direction ➤ Agarsen School - ~7.2 km towards WSW direction Hospitals <ul style="list-style-type: none"> a) Narayan Hospital - ~4.1 Km towards N direction ➤ ➤ Sanvit Hospital - ~7.6 Km towards W direction 	
10.	Areas containing important, high quality or scarce resources (ground water resources, surface resources, forestry, agriculture, fisheries, tourism, minerals)	Not Applicable	Ground-water resources in the study area are depleting at very fast rate and are declared as scarce resources.
11.	Areas already subjected to pollution or environmental damage. (Those where existing legal environmental standards are exceeded)	No	There are no areas which are subjected to pollution or environmental damage. All parameters of Air, Water and Noise etc. will be maintained within permissible limit specified by SPCB/CPCB with proper mitigation measures.
12.	Areas susceptible to natural hazard which could cause the project to present environmental problems (earthquakes, subsidence, landslides, erosion, flooding or extreme or adverse climatic conditions)	None	The site falls under the zone IV as per the Seismic Zone Map of India. There are no possibilities of project site getting as per records available.

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*Proposed expansion cum modification of Group Housing Buildings
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Being developed by M/s DLF Ltd.*

FORM-I

"I hereby give undertaking that the data and information given in the application and enclosures are true to the best of my knowledge and belief and I am aware that if any part of the data and information submitted is found to be false or misleading at any stage, the project will be rejected and clearance given, if any to the project will be at our risk and cost.

Date:

Place:

For DLF Limited

Signature of the applicant

With Name and Full Address
(Project PropONENT/ Authorised Signatory)

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FORM IA

CHECK LIST OF ENVIRONMENTAL IMPACTS

(Project proponents are required to provide full information and wherever necessary attach explanatory notes with the Form and submit along with proposed Environmental Management Plan & Monitoring Programmed).

SECTION I- LAND ENVIRONMENT:

(Attach panoramic view of the project site and the vicinity)

1.1 Will the existing land use get significantly altered from the project that is consistent with the surroundings? (Land use must conform to the approved Master Plan/Development Plan of the area. Change of land use, if any and the statutory approval from the competent authority are submitted). Attach Maps of (i) site location, (ii) surrounding features of the site (within 500 meters) and (iii) the site (indicating levels & contours) to appropriate scales. If not available attach only conceptual plans.

➤ No

The project site is vacant land. It is anticipated that the construction activities of the project will not have an adverse effect on the land use activities in the project area. The land falls under the residential zone as per the development plan of Gurugram-Manesar Plan 2031. The development of green belt and other landscaping will enhance the visual aesthetics of the area.

Total plot area of Phase-V Group Housing is 476.6015 Acres (19, 28,738.00 m²) out of which 16.975 Acres/68,693.850 m² (Existing-30,653.317 m²/7.574 Acre) are to be developed for this particular Group Housing Buildings Project.

We have obtained earlier EC from SEIAA, Haryana through file no. SEIAA/HR/2022/181 & EC Identification No. EC22B039HR111216 for total 2, 33,377,998 m² built-up area on 30,653.317 m² /7.574 Acre) plot area.

The various land use, FAR and ground coverage permitted as per zoning plan vis-à-vis achieved & proposed is given Table No.-A

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FORM IA

Table No.A: Proposed & Achieved Ground Coverage and FAR of DLF City Phase-V Group Housing Scheme for 476.6015

Acres.

S. No	Type of Land Use	Ground Coverage (in sqm)				FAR (in sqm)			
		Permissible	Achieved	Proposed	Balance	Permissible	Achieved	Proposed	Balance
1	Group Housing	4,46,114.5	1,62,185.247	39,958.360	2,43,875.893	31,22,140.73	21,19,553.911	2,93,254.289	7,09,332.53
2	Shopping/Commercial	31,338.6	30,480.7	--	857.9	1,88,050.2	1,86,368.2	--	1,683.5
3	Cultural, Recreational & Amusement Activities	4,821.8	4,030.6	--	791.2	28,930.7	5,422.7	--	23,508.0

CONNECTIVITY

The project site is located at Sector-54, Gurugram, Haryana which is easily approachable through SH-13 which is -7.6 Km away from the project site towards West direction and NH-48 which is -5.5 Km away from the project site towards NW direction and nearest railway station is Gurgaon Railway Station at a distance of -11 Km from project site in NW direction. Nearest airport is Indira Gandhi International Airport at a distance of -10.3 Km from the project site in North direction.

The Co-ordinates of the project site are as follows:

Latitude- 28°26'44.55"N

Longitude- 77°06'48.93"E



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1.2 List out all the major project requirements in terms of the land area, built up area, water consumption, power requirement, connectivity, community facilities, parking needs etc.

➤ LAND REQUIREMENT

Table 1: Area Statement

S. No.	Particular	As Per Earlier EC	Expansion cum modification	Total Area (S.qm)
1	Total Site Area	30,653.317	38,040.533	68,693.850
2	Proposed Ground Coverage	6,369.381	39,958.360	46,327.741
3	Total Proposed FAR	1,43,937.510	2,93,254.289	4,37,191.799
4	Total Proposed NoN FAR	89,440.488	1,29,786.069	2,19,226.557
5	Total Proposed Built - up Area (FAR + NoN FAR)	2,33,377.998	4,23,040.358	6,56,418.356
6	Proposed Green Area (@20% of total plot area)	9,195.905	4,554.005	13,750.000

FAR-Floor Area Ratio

* Ground Coverage: Out of 46,327.741 m², only 13,262 m² is at ground level and 33,065.741 m² balance is at lower ground level.

Salient Features

S. No.	Particular	As Per Earlier EC/Application	Expansion cum modification	Total
1	Total Population	4,508	-225	4,283
2	Total Water Requirement (KLD)	391	225	616
3	Total Fresh Water Requirement (KLD)	255	89	344
4	Treated/recycled water	136	136	272
5	Total Wastewater Generated (KLD)	294	2	296
6	Capacity of STP (MLD)	DLF-5 Common STP of 15 MLD	--	DLF-5 Common STP of 15 MLD
7	Total Solid Waste Generation, Kg/day	2,069	-180	1,880
8	Biodegradable Waste (kg/day)	--	--	752
9	OWC Capacity (kg/day)	1,500	-650	850

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10	Total Power Requirement & Source KW(DHBN)	5,874	5,216	11,090
11	No. of DG Set	9 DG sets of total capacity 8,250 KVA (7×1,000 KVA + 2×625 KVA).	7,750	8 DG sets of total capacity 16,000 KVA (8×2,000 KVA)
12	Solar Capacity (KW)	--	--	111
13	Nos. of RWH Pits	8	9	17
14	Proposed Parking (ECS)	1,615	995	2,610
15	Total no. of towers	4	3	7
16	No. of Community buildings	1	--	1
17	Max.No. of Floors for residential	B4 – B3 + B2 – B1 + S + 33F	-2F	B4 + B3 + B2 + B1 + UGF – 31F
18	Max.No. of Floors for club house/community building	--	--	1.GF+MF+UGF
19	Total No. of basements	4	--	4
21	Main Dwelling Unit	529	-88	432
22	Service Personnel Room	50	382	432
23	Total Project Cost in Crore	1,076	6,517	7,583

1.3 What are the likely impacts of the activity on the existing facilities adjacent to the site? (Such as open spaces, community facilities, details of the existing land use and disturbance to the local ecology).

The project being a well planned activity will result in organized open spaces and green areas. About 13,750,000 m² i.e. 20% of the total plot area is earmarked for landscaping. The project will have an overall positive impact on the existing land use and will not cause any disturbance to the local ecology.

1.4 Will there be any significant land disturbance resulting in erosion, subsidence & instability? (Detail of soil type slope analysis, vulnerability to subsidence, seismicity etc may be given).

There shall be no land disturbance resulting in erosion, subsidence and instability as it is a flat land. The site falls under the Zone IV as per the seismic zone map of India and indicating moderate

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damage risk zone. The project will be earthquake resistant taking into account the latest provisions of Indian Standards Codes. The soil type is sandy loam at the project site.

1.5 Will the proposal involve alteration of natural drainage system? (Give details on a contour map showing the natural drainage near the project site).

The project does not intersect any natural drainage route. No perennial or non-perennial drainage system is found to exist in the project area or being obstructed by the project. The surroundings comprise an urbanized stretch. Well planned storm water drainage has been designed to take care of internal storm water drainage. Thus, no impact on the natural drainage system is anticipated.

1.6 What are the quantities of earthwork involved in the construction activity-cutting, filling, reclamation etc. (Give details of the quantities of earthwork involved, transport of fill materials from outside the site etc?)

The only excavation work involved in the project is for establishing of pillars & for basements. The filling works will be done by the excavated material and no extra material will be used. All the topsoil excavated from construction activities shall be stored separately and used in greenbelt development within the project site. Hence, the need for movement of soil to and from the site is not anticipated.

1.7 Give details regarding water supply, waste handling etc. during the construction period.

- ❖ During construction phase, water demand will be fulfilled by STP treated water from nearby own STP.
- ❖ Waste handling during the construction phase shall be done by the site contractor whose responsibility lies with collection and storage of construction and demolition waste generated on the site. All construction wastes generated during construction will be used within the site itself for filling the floors, roads, aggregate for mortar etc. to the extent feasible. Remaining will be sent to the agency for proper disposal.

1.8 Will the low lying areas & wetlands get altered? (Provide details of how low lying and wetlands are getting modified from the activity).

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No. The site area is a flat land and the surroundings are characterized by an urbanized stretch. No low lying areas or wetlands are found in the vicinity of the project site.

1.9 Whether construction debris & waste during construction cause health hazard? (Give quantities of various types of wastes generated during construction including the construction labor and the means of disposal).

No significant health hazard is associated with the proposed construction.

- ❖ During construction period, source of fugitive dust generation will be material handling and vehicular movement. Impact due to fugitive dust emission is negligible as water sprinklers will be used to suppress fugitive dust emission as and when generate. However, the impacts will be confined to laborers/workers particularly with regard to occupational exposure. Proper Personal Protective Equipments will be provided to the workers working in the potential areas (e.g. masks, ear plugs etc.).
- ❖ Careful design, planning and good site management would minimize waste of materials such as concrete, mortars and cement grouts. Construction wastes will be segregated as much as possible at site itself to increase the feasibility of recycling concrete and masonry as filling material and steel pieces as saleable scrap. Litter disposal and collection points will be established around the work sites. Empty packaging materials, drums, glass, tin, paper, plastic, pet bottles, wood, thermocol and other packaging materials, etc will be disposed through recyclers. The construction spoils will be temporarily stored at designated dumpsite located inside the site premises. Later on these wastes will be used for land filling / leveling work within the site premises. An estimate of the average composition of waste generated from the onsite construction activities given in Table 2.

Table-2: Waste Composition - During Construction Phase

S. No.	Constituents	Percentage Composition (%)
1	Soil, Sand and Gravel	35.80
2	Brick and Masonry	35.76
3	Concrete	23.24
5	Bitumen	2.10
6	Wood	2.10
7	Other	1.00
	Total	100.00

Source: TIFAC Report "Utilization of Waste from Construction Industry," 2001

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SECTION-2 WATER REQUIREMENT

2.1 Give the total quantity of water requirement for the proposed project with the breakup of requirement for various uses, how will the water requirement met? State the sources & quantities and furnish a water balance statement.

Total water requirement for the said project will be 616 KLD, out of which 344 KLD is fresh water requirement and 272 KLD is treated water requirement which will be used for flushing, cooling tower and horticulture.

Table 3: Total Water Requirement within the project

Total Water Requirement = 616 KLD	
For Domestic Purpose	344 KLD
For Flushing	87 KLD
For Gardening / Horticulture	82 KLD
Cooling Tower	103
TOTAL	616 KLD

Total 296 KLD of wastewater would be generated from the project which will be treated in DLF-5 common Sewage Treatment Plant of total capacity of 15 MLD (9 MLD based on SBR technology & 6 MLD based on MBR technology) nearby the project premises. The DLF-5 common Sewage Treatment Plant of total capacity of 15 MLD (9 MLD based on SBR technology & 6 MLD based on MBR technology) nearby the project premises will be constructed for the treatment of wastewater during operational phase. 272 KLD treated water from common STP of DLF Phase-5 will be reused for flushing, cooling tower and horticulture within our site.

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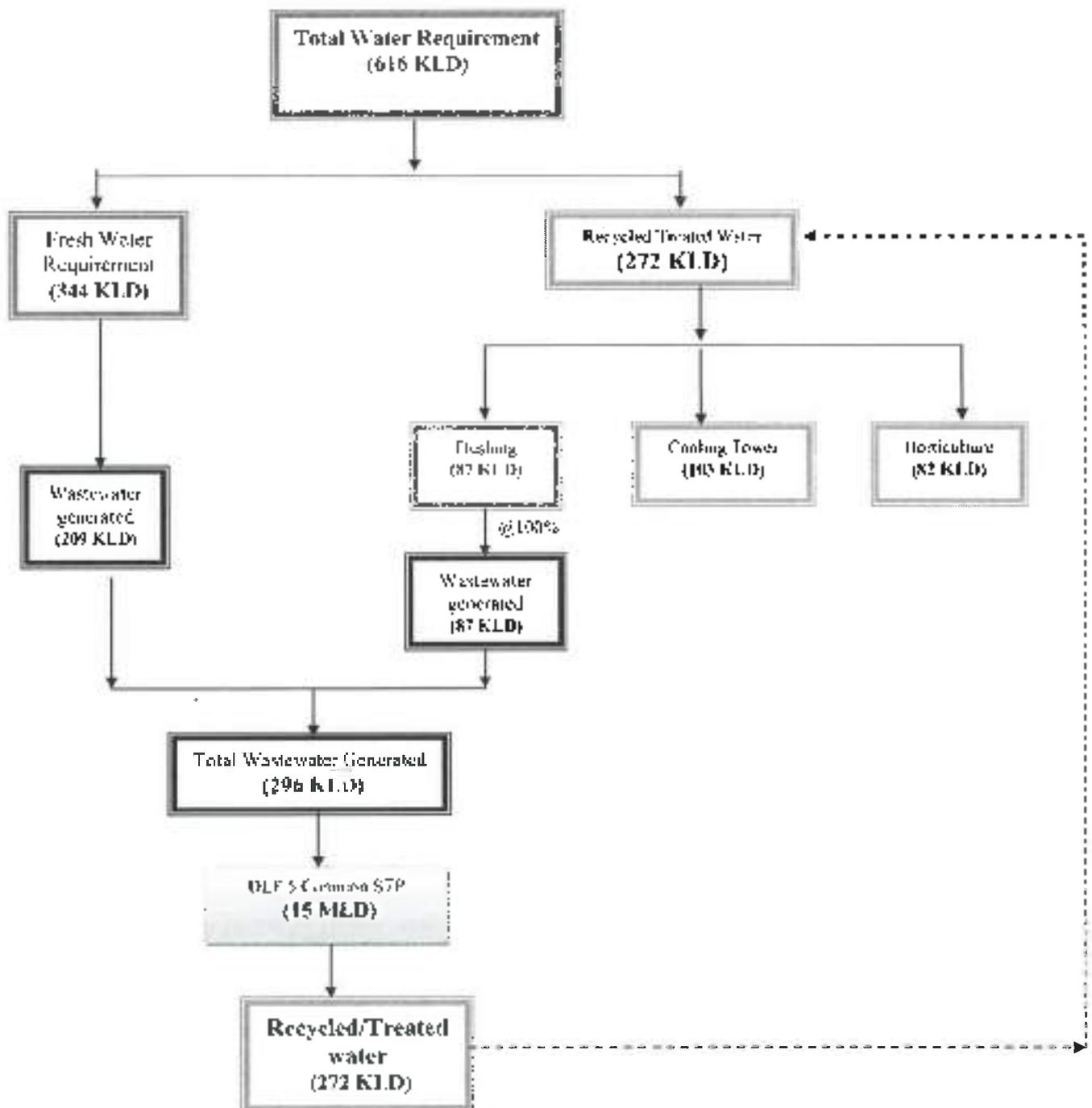


Figure 2: Water Balance Diagram during Summer Season

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2.2 What is the capacity (dependable flow or yield) of proposed sources of water?

Water requirement will be fulfilled by HSVP/GMDA.

2.3 What is the quality of water required, in case, the supply is not from a municipal source? (Provide physical, chemical, Biological characteristics with class of water quality).

Not Applicable as the water requirement will be fulfilled from HSVP/GMDA.

2.4 How much of water requirement can be met from the recycling of treated wastewater? (Give the details of quantities, sources and usage)

The water requirement for flushing, landscaping, will be met through treated water from DLF-5 common Sewage Treatment Plant of total capacity of 15 MLD (9 MLD based on SBR technology & 6 MLD based on MBR technology) nearby the project premises. The DLF-5 common Sewage Treatment Plant of total capacity of 15 MLD (9 MLD based on SBR technology & 6 MLD based on MBR technology) nearby project premises will be constructed for the treatment of wastewater during operational phase. 272 KLD treated water from common STP of DLF Phase-5 will be reused for flushing cooling tower and horticulture within our site.

Table-4: Details of Treated/Recycled Water from STP

Details	Water (KLD)
Water requirement for fresh water	344 KLD
Wastewater generated from fresh water	209 KLD
Water requirement for Flushing Purpose	87 KLD
Wastewater generated from Flushing (@ 100% of flushing requirement)	87 KLD
Total wastewater generated	296 KLD
Use of Recycled Water (272 KLD will be reused for flushing, Cooling tower and horticulture)	1. Flushing : 87 KLD 2. Cooling Tower: 103 KLD 3. Horticulture :82 KLD

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2.5 Will there be diversion of water from other users? (Please assess the impacts of the project on other existing uses and quantities of consumption).

No, there will be no diversion of water from other users.

2.6 What is the incremental pollution load from wastewater generated from the activity? (Give details of the quantities and composition of wastewater generated from the activity).

Approximately 296 KLD of wastewater during operational phase will be generated from the project. This wastewater generated will be treated in DLF-5 common Sewage Treatment Plant of total capacity of 15 MLD (9 MLD based on SBR technology & 6 MLD based on MBR technology) nearby the project premises. The DLF-5 common Sewage Treatment Plant of total capacity of 15 MLD (9 MLD based on SBR technology & 6 MLD based on MBR technology) nearby the project premises will be constructed for the treatment of wastewater during operational phase. Dual plumbing system will be provided for reuse of recycled water in flushing, cooling tower landscaping. Hence, no incremental pollution load is been expected from wastewater generated from the activity.

Table-5: Composition of Wastewater Generation

Before Treatment Final discharge characteristics

a) pH	:	6.5 to 8.5
b) Colour	:	Mild
c) T.S.S. (mg/l)	:	150-300 mg/l
d) BOD (mg/l)	:	200-350 mg/l
e) COD (mg/l)	:	500-600 mg/l

After Treatment Final discharge characteristics

(a) pH	:	6.5 to 8.5
(b) Oil & Grease	:	<2 mg/l
(c) B.O.D.	:	<10 mg/l
(d) C.O.D.	:	<15 mg/l
(e) Total Suspended Solids	:	<10 mg/l

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2.7 Give details of the water requirements met from water harvesting? Furnish details of the facilities created.

Rainwater harvesting is proposed as a water conservation tool. Total 17 nos. rain water harvesting pits will be provided for the storm water drainage within the project premises at selected locations, which will catch the maximum run-off from the area. It is self-sufficient to avoid any collection/stagnation and flooding of water.

- 1) Since the existing topography is congenial to surface disposal, a network of storm water pipe drains is planned adjacent to roads. All building roof water will be brought down through rain water pipes.
- 2) Proposed storm water system consists of pipe drain, catch basins and seepage pits at regular intervals for rain water harvesting and ground water recharging
- 3) For basement parking, the rainwater from ramps will be collected in the basement storm water storage tank. This water will be pumped out to the nearest external storm water drain.
- 4) Peak Hourly rainfall of 90 mm/hr shall be considered for designing the storm water drainage system. Rain water harvesting has been catered to and designed as per the guidelines of CGWA. The bottom of the recharge structure will be kept 5 m above this level. At the bottom of the recharge well, a filter media is provided to avoid choking of the recharge bore. Design specifications of the rain water harvesting plan are as follows.
 - ❖ Catchments/roofs would be accessible for regular cleaning.
 - ❖ The roof will have smooth, hard and dense surface which is less likely to be damaged allowing release of material into the water. Roof painting has been avoided since most paints contain toxic substances and may peel off.
 - ❖ All gutter ends will be fitted with a wire mesh screen and a first flush device would be installed. Most of the debris carried by the water from the rooftop like leaves, plastic bags and paper pieces will get arrested by the mesh at the terrace outlet and to prevent contamination by ensuring that the runoff from the first 10-20 minutes of rainfall is flushed off.
 - ❖ No sewage or wastewater would be admitted into the system.
 - ❖ No wastewater from areas likely to have oil, grease, or other pollutants has been connected to the system.

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2.8 What would be the impact of the land use changes occurring due to the project on the runoff characteristics (quantitative as well as qualitative) of the area in the post construction phase on a long term basis? Would it aggravate the problems of flooding or water logging in any way?

The project will include paved areas and thus the runoff from the plot is expected to increase due to reduced infiltration. However, the increased runoff will not cause flooding or water logging as a well designed storm water drainage will be provided. The runoff will finally be collected into rainwater harvesting pits for groundwater recharging. The quality of the runoff is expected to improve due to paved areas.

2.9 What are the impacts of the proposal on the ground water? (will there be tapping of ground water; give the details of ground water table, recharging capacity and approvals obtained from competent authority, if any)

Water demand will be fulfilled from HSVP/GMDA. No adverse impact is expected on this account as extensive rainwater harvesting will be implemented across the project site. To reduce the freshwater demand and hence the groundwater stress, treated wastewater will be used for landscaping cooling tower and flushing.

2.10 What precautions/ measures have been to check the surface run-off, as well as uncontrolled flow of water into any water body?

The following management measures are suggested to protect the water quality are:

- ❖ Avoid excavation during monsoon season.
- ❖ Care would be taken to avoid soil erosion.
- ❖ Community toilets shall be constructed on the site during construction phase and the wastewater will be channelized to the septic tank in order to prevent wastewater from entering the water bodies.
- ❖ Any area with loose debris/soil within the site shall be fully planted by local plant species.

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- ❖ To prevent surface and ground water contamination by oil/grease, leak proof containers would be used for storage and transportation of oil/grease. The floors of oil/grease handling area would be kept effectively impervious.
- ❖ Collection and settling in the storm water, prohibition of equipment wash downs, and prevention of soil loss and toxic release from the construction site will be adhered to minimize water pollution.

2.11 How is the storm water from within the site managed? (State the provisions made to avoid flooding of the area, details of the drainage facilities provided along with a site layout indication contour levels).

Most of the storm water produced on site will be harvested for ground water recharge. Thus proper management of this resource is must to ensure that it is free of contamination. A detailed Storm Water Management Plan will be developed which will consider the sources of storm water. The plan will incorporate best management practices which will include the following:

- ❖ Regular inspection and cleaning of storm drains.
- ❖ Installation of clarifiers or Oil/Water separators/traps system of adequate capacity around parking areas and garages as per requirement.
- ❖ Avoid application of pesticides and herbicides before wet season.
- ❖ Conducting routine inspections to ensure cleanliness.
- ❖ Preparation of spill response plans, particularly for fuel and oil storage areas.
- ❖ Provision of silt traps in storm water drains.
- ❖ Good housekeeping in the above areas.

2.12 Will the deployment of construction laborers particularly in the peak period lead to unsanitary conditions around the project site (Justify with proper explanation).

No, mostly local laborers will be employed during the construction phase and thus negligible quantities of wastes will be generated. Mobile toilets will be provided and the wastewater generated will be treated in modular STP

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2.13 What on-site facilities are provided for the collection, treatment & safe disposal of sewage? (Give details of the quantities of wastewater generation, treatment capacities with technology & facilities for recycling and disposal).

- ❖ It is expected that the project will generate approximately 296 KLD of wastewater from the operational phase of the project.
- ❖ This wastewater generated will be treated in DLF-5 common Sewage Treatment Plant of total capacity of 15 MLD (9 MLD based on SBR technology & 6 MLD based on MBR technology) nearby the project premises. The DLF-5 common Sewage Treatment Plant of total capacity of 15 MLD (9 MLD based on SBR technology & 6 MLD based on MBR technology) nearby the project premises will be constructed for the treatment of wastewater during operational phase within the premises. 272 KLD of recycled treated water from DLF-5 Common STP will be used in flushing, horticulture and cooling tower.

2.14 Give details of dual plumbing system if treated waste used for flushing of toilets or any other use.

Total water requirement for the project will be approximately 616 KLD out of which 344 KLD is fresh water requirement and 272 KLD of recycled treated water from DLF-5 Common STP will be used in flushing, cooling tower and horticulture

During operation phase dual plumbing system will be used, approximately 296 KLD of wastewater from project which will be treated in DLF-5 common Sewage Treatment Plant of total capacity of 15 MLD (9 MLD based on SBR technology & 6 MLD based on MBR technology) nearby the project premises. The DLF-5 common Sewage Treatment Plant of total capacity of 15 MLD (9 MLD based on SBR technology & 6 MLD based on MBR technology) nearby the project premises treatment of Waste water generated from project site. Treated water obtained from STP shall be utilized for the purpose of flushing (87 KLD), horticulture (82 KLD) and in cooling tower (103 KLD).



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SECTION-3: VEGETATION

3.1 Is there any threat of the project to the biodiversity? (Give a description of the local ecosystem with its unique features, if any).

No ecologically sensitive area falls within the project site. Hence, no ecological/biological threat has been anticipated.

3.2 Will the construction involve extensive clearing or modification of vegetation? (Provide a detailed account of the trees & vegetation affected by the project)

The project does not support any significant vegetation. It is to develop a multilayered peripheral greenbelt of native plant species to enhance the aesthetic value of the region and also provide an excellent habitat for various faunal groups.

3.3 What are the measures to be taken to minimize the likely impacts on important site – features (Give details of proposal for tree plantation, landscaping creation of water bodies etc along with a layout plan to an appropriate scale?)

Green belt will be developed along the periphery of the project premises along with the internal parks and lawns. 13,750,000 m² i.e. 20% of total plot area will be developed as green belt and organized green spaces. The plantation matrix adopted for the green belt development includes pit of 0.3 m x 0.3 m size with a spacing of 2 m x 2 m. In addition, earth filling and manure may also be required for the proper nutritional balance and nourishment of the sapling. Multi-layered plantation comprising of medium height trees (7 m to 10 m) and shrubs (5 m height) are for the green belt. In addition creepers will be planted along the boundary wall to enhance its insulation capacity.

SECTION 4: FAUNA

4.1 Is there likely to be any displacement of fauna both terrestrial and aquatic or creation of barriers for their movement? Provide the details.

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No. The existing land use around the site is urban and does not provide a habitat for wild species. The multilayered peripheral greenbelt will provide an excellent habitat for the native fauna.

4.2 Any direct or indirect impacts on the avifauna of the area? Provide details.

The project will not have any direct or indirect impacts on the avifauna of the area. However, planting of trees in the greenbelt will be an attraction to the local bird population.

4.3 Prescribe measures such as corridors, fish ladders etc. to mitigate adverse impacts on fauna.

No direct or indirect impact on fauna is envisaged.

SECTION 5: AIR ENVIRONMENT

5.1 Will the project increase atmospheric concentration of gases & result in heat islands? (Give details of background air quality levels with predicted values based on dispersion models taking into account the increased traffic generation as a result of the construction).

The project will not increase heat Island effect significantly, as it does not involve any significant change in the land use pattern. The effect will be negligible due to reduction in hard area and more plantations to shade of hard area along roads and parking lots. Ambient air monitoring was carried out at the project site during the environmental assessment.

During the construction phase, cars, scooter/motorcycle will be owned by the workers and staff of residential project. Vehicular emissions will be the major source of air pollution in addition to DG set. Quantum and dispersion of pollutants from vehicular emission will depend upon the following:

- Volume of traffic on the roads
- Meteorological conditions
- Emission sources

From vehicular emissions, PM, NO₂ and CO is pollutants of primary concern. The dispersion of vehicular emission would be confined within 100 m from the road and concentration will decrease with increase in distance from road. It is anticipated that the contribution of vehicular emission in

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ambient air quality will be marginal but well within the stipulated National Ambient Air Quality Standards. Dispersion will be faster at higher wind speed.

As per the study of dispersion model, the incremental G.I.C shows that there is no any major increment in the pollution load.

Mitigation Measures: The project will develop a green belt inside the premises of the project site and along the internal road, which will work as a barrier for the movement of pollutants and help in pollution control.

5.2 What are the impacts on generation of dust, smoke, odorous fumes or other hazardous gases? Give details in relation to all the meteorological parameters.

During operational phase of the project, there will be increase in atmospheric concentration of gases and particulate matter due to running of DG sets. Total 08 Nos. of DG sets of total capacity of 16,000 KVA (8x2,000 KVA) will be operated during power failure. This will cause emissions of PM, SO₂, NO₂ and CO. However, the D.G. sets will be run only during power failure and low sulphur diesel (LSD) will be used. Adequate stack height of D.G. sets will be provided as per the stipulated guidelines of Central Pollution Control Board (CPCB) to facilitate natural dispersion of exhaust gases.

Sources of Air pollution During Construction Phase:

- Increase in level of dust and other air pollutants due to building construction and other related Activities
- Emissions from vehicles carrying the construction materials
- Emissions from DG sets
- Open burning of solid wastes can cause air pollution

Mitigation Measures:

- Use of water for dust suppression and polymeric dust suppression system (wherever possible).
- Use of covering sheets shall be done for trucks carrying construction material to prevent air borne dust.
- All material storages shall be adequately covered to avoid dust / particulate emissions.
- Use of CPCB approved DG sets.
- Proper maintenance of DG sets.

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- Adequate parking provision and proper traffic movement for smooth traffic flow.
- Vehicles having valid pollution under control certificate shall be allowed to ply on site.
- Open burning of solid waste shall be prohibited.
- Regular health checkup of the workers.
- Use of the standard personal protective equipment like masks, goggles etc.

Sources of Air pollution During Operational phase:

- The gaseous emissions from vehicles.
- Emissions from DG sets.

Mitigation Measures:

- DG sets with acoustic enclosures is to be installed and stacks height to be kept as per Central Pollution Control Board (CPCB) norms to allow effective dispersion of pollutants.
- Periodic monitoring of SPM and SO₂ concentration and thereby schedule and implement proper maintenance of DG sets
- Plantation of trees of various varieties shall be planted on ground.

5.3 Will the proposal create shortage of parking space for vehicles? Furnish details of the present level of transport infrastructure and measures for improvement including the traffic management at the entry and exit to the project site.

The project is located in well-developed urbanized area. The project will have separate entry and exit with 9 m wide road for the vehicles to avoid any congestion at entry and exit points and within the project provided parking is 2,610 ECS. Adequate provision will be kept for car's vehicles parking at site. There shall also be adequate provision for visitors parking so as not to disturb the traffic and allow smooth movement at the site.

5.4 Provide details of the movement patterns with internal roads, bicycle tracks, pedestrian pathways, footpaths etc, with areas under each category.

Internal roads of adequate width, footpaths/pedestrian pathways have been well planned for the project. The detailed traffic movement patterns are mentioned in Traffic and Circulation plan. The total road and paved areas area within the project site is 41,682 m².

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5.5 Will there be significant increase in traffic noise & vibrations? Give details of the sources and the measures for mitigation of the above.

No significant impact of noise has been anticipated within and outside of the project site due to provision of wide roads for smooth flow of traffic and greenbelt along the roads. Noise, due to the traffic, within site, will result in a marginal increase in the noise levels because noise control measures shall be provided in vehicles & DG sets as mentioned below, which will cause slight increase in noise level.

During Construction Phase:

Anticipated Impacts-

- Noise due to construction activities.
- Impact due to transportation activities.
- Nuisance to nearby areas due to noise polluting work at night.
- Noise generation due to DG sets.

Mitigation Measures-

- During construction activities the noise monitoring will be done to ascertain the noise levels are within limits.
- All precautions for noise abatement shall be taken during the construction activities.
- It is recommended that Contractors to use well maintained & relatively newer equipment to mitigate noise generation in initial stages when excavation and earth removal is carried out.
- During high noise construction activity there will be provision of ear plugs for construction labour and staff
- No noise polluting work in night shifts.
- Provision of barricades along the periphery of the site.
- Acoustic enclosure for DG sets.

During Operation Phase

Anticipated Impacts-

- Impact of Noise due to vehicular Traffic.

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At Sector-54, Gurugram, Haryana

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- Noise generation due to DG sets.

Mitigation Measures-

- Provision of proper parking arrangement, traffic management plan for smooth flow of a vehicles helps to abate noise pollution due to vehicular traffic.
- Plantation of trees of various varieties shall be planted on ground that shall act as natural noise buffer.
- Acoustic enclosure for DG sets.

5.6 What will be the impact of D.G. sets and other equipment on noise levels and vibration in ambient air quality around the project site? Provide details.

During operational phase of the project, vehicular movement and operation of DG sets will be the major sources of noise pollution. But both these activities- DG set and vehicular movement will not have any significant impact on the people residing in the area. Since DG set will not be operational continuously and moreover it will be placed away from populated area and will be enclosed with suitable enclosures.

Hence, no or minimal impact will be anticipated due to DG set and vehicular emission. It is envisaged that the movement of the motor vehicles will be restricted to designated carriageways only.

D.G Sets will be operated only in case of power failures during construction and operational phase. The Pollutants like PM, SO₂ that may arise from emissions from D.G. sets will be discharged through vent of proper height. D.G. sets will be installed within built acoustic enclosures to reduce the noise of D.G. sets while in construction or operation. Plantation of trees would act as noise barrier and will reduce noise level.

Impacts on Air Quality due to DG Sets

- Impacts on ambient air during operation phase would be due to emissions from the stacks attached to backup DG sets only during grid power failure.

Mitigation Measures for Impacts of DG Sets on Ambient Air Quality

- Backup DG sets will comply with the applicable emission norms.



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- Adequate stack height for DGi sets will be provided as per norms.
- Back up DGi sets will be used only during power failure.
- Monitoring of emissions from DG sets and ambient air quality will be carried out as per norms.

SECTION-6: AESTHETICS

6.1 Will the construction in any way result in the obstruction of a view, scenic amenity or landscapes? Are these considerations taken into account by the proponents?

The site lies in an urbanized settlement and is well planned. Thus, no obstruction of view or scenic beauty or landscape is anticipated. Furthermore, the construction will be planned in such a way that the organized open spaces and landscaped areas will render the plot aesthetically appealing.

6.2 Will there be any adverse impacts from new constructions on the existing structures? What are the considerations taken into account?

No impacts anticipated.

6.3 Whether there are any local considerations of urban form & urban design influencing the design criteria? They may be explicitly spelt out.

The project will strictly follow the Building Regulation Norms of NBC, H/SVP/GMDA building by-laws and norms of Town and Country Planning on Ground Coverage, FAR, Height, Setbacks, Fire Safety Requirements, Structural Design and other parameters will be strictly adhered to.

6.4 Are there any anthropological or archaeological sites or artifacts nearby? State if any other significant features in the vicinity of the site have been considered?

No anthropological or archaeological sites or artifacts are found near the site area.

SECTION-7: SOCIO-ECONOMIC ASPECTS

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7.1 Will the proposal result in any changes to the demographic structure of local population? Provide the details.

The project is situated in the residential zone and hence there will be no change in demographic structure.

Construction phase: Since local laborers will be engaged during construction phase, alteration to the existing demographic profile of the area is not anticipated.

Operation phase: The changing demography in the area is another impact that needs attention. The project will mainly lead to spatial redistribution of local population and hence no considerable influx of population is envisaged owing to the project.

7.2 Give details of the existing social infrastructure around the project.

The area around the project is surrounded by local land area and project site is located in the development area under Gurugram Manesar Master Plan 2031. However all sorts of social infrastructure like transportation facilities, water supply & sanitation facilities, communication facilities, educational institutes, hospital, markets, banks, cultural amenities etc. already exist in Gurugram

7.3 Will the project cause adverse effects on local communities, disturbance to sacred sites or other cultural values? What are the safeguards?

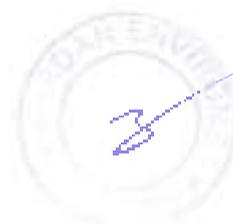
Construction phase: There is no religious site or archaeological monuments of historical significance in or near the project site. Hence, no adverse impact in this regard is anticipated. Rather, this phase will generate jobs that relate to unskilled, semi skilled as well as skilled labor category. Few supervisory positions will also open up, for which local candidates will be considered based on merit.

Operation phase: The project will provide state-of-the-art facility in the area, thereby improving the quality of life. A residential project of such scale will also boost the local economy.

SECTION-8: BUILDING MATERIALS

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8.1 May involve the use of building materials with high embodied energy. Are the construction materials produced with energy efficient processes? (Give details of energy conservation measures in the selection of building materials and their energy efficiency)

While selecting the building materials appropriate weight-age will be given to select materials with low embodied energy. The aim is to replace at least a part of high energy intensive materials with low energy intensive materials and utilize regionally available materials. Products which use recycled materials like glass, crushed stone, and other waste which are resource efficient finishes such as finished concrete flooring, ceiling tiles, and ceramic tiles are useful. The advantages of using products with recycled content: Few examples are use of Fly ash based products e.g. AAC Block, PPC Cement, use of fly ash in RCC and Plaster. Materials with high recycle content e.g. steel, tiles, aluminum, pavers shall be selected.

Reuse and recycling

Reuse of building materials commonly saves about 95% of embodied energy that would otherwise be wasted. However, some materials such as bricks and roof tiles may be damaged when reused.

Savings from recycling of materials for reprocessing varies considerably, with savings up to 95% for aluminum but only 20% for glass. Also, some reprocessing may use more energy, particularly if long transport distances are involved.

Life cycle assessment

Life cycle assessment (LCA) examines the total environmental impact of a material or product through every step of its life — from obtaining raw materials (e.g. through mining or logging) all the way through manufacture, transport to a store, and using it in the home, to disposal or recycling.

LCA can consider a range of environmental impacts such as resource depletion, energy and water use, greenhouse emissions, waste generation and so on.

LCA can be applied to a whole product (a house or unit) or to an individual element or process included in that product. An internationally agreed standard (ISO 14040:2006, Environmental management — life cycle assessment — principles and framework) defines standard LCA methodologies and protocols.

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8.2 Transport and handling of materials during construction may results in pollution, noise and public nuisance. What measures are taken to minimize the impacts?

Mitigation Measures for Air Pollution during Construction Stage:

- Construction materials will be suitably covered with tarpaulin cover etc during transportation
- Water sprinkling shall be done on haul roads where dust generation is anticipated.
- Raw material storage and handling yard will be enclosed from all sides.
- To minimize the occupational health hazard, proper personal protective gears i.e. mask shall be provided to the workers working in the dust prone areas.

Mitigation Measures for Noise Pollution during Construction Stage:

- Administrative as well as engineering control of noise will be implemented.
- Isolation of noise generation sources and temporal differentiation of noise generating activities will ensure minimum noise at receiver's end.
- To prevent any occupational hazard, earmuff / earplug shall be given to the workers working around construction plant & machinery emitting high noise levels.
- Use of such plant or machinery shall not be allowed during night time. Careful planning of machinery operation and scheduling of operations shall be done to minimise such impact.

8.3 Are recycled materials used in roads and structures? State the extent of savings achieved?

Yes, for road construction fly-ash will be utilized. Recycled materials will be bought from outside sources and will be used as fillers in base and sub-base of the carriageway, footpaths pavements or pedestrian way, as needed. The project will use materials with recycled content such that the total recycled content constitutes at least 10% of the total cost of the materials used in the roads & structure

8.4 Give detail of the methods of collection, segregation & disposal of the garbage generated during the operation phases of the project.



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The solid waste of the project will be segregated into biodegradable waste and non-biodegradable. Biodegradable waste and non biodegradable waste will be collected in separate bins. Biodegradable waste will be treated in the project premises by organic waste converter. The recyclable wastes will be sent off to the government authorized recyclers. Proper guidelines for segregation, collection and storage will be prepared as per Solid Wastes Management Rules, 2016.

SECTION-9: ENERGY CONSERVATION

9.1 Give details of the power requirements, source and supply, backup source etc. What is the energy consumption assumed per square foot of built-up area? How have you tried to minimize energy consumption?

The power requirement, sources, and backup power requirement are given in the Table below:

Power Requirement, Sources and Backup Plan

Power Requirement	11.090 KW
Sources of Power	Dakshin Haryana Bijli Vitran Nigam (DHBVN)
Backup power supply arrangement	08 no. of DG sets having total capacity of 16,000 KVA (8x2,000 KVA) will be used in case of power failure only.
Assumed Power Consumption	1.569 watt/sq.ft

Energy conservation will be one of the focuses during the project planning and operation stages. The conservation efforts would consist of the following.

Energy Saving Practices

- Automatic Control of Power factors through APFC Relay controlled capacitor Panel.
- Use of solar energy for internal lighting
- Purchase of energy efficient appliances, motors & pumps.

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- Use of Energy Efficient lighting i.e. LED, 9/18W and T-5 fixtures. T5- 21/28W fluorescent lights will be used in basement parking instead of conventional 40W tube lights to save a lot of energy as compared with 40W TL.
- Constant monitoring of energy consumption and defining targets for energy conservation

Architectural design

- Maximize the use of natural lighting through design
- Passive solar cooling utilizing building shading through overhangs.
- Glazed areas on the façade are limited to 40% of the total façade area which will be provided with single glazed units.
- Over deck insulation on roof meeting thermal conductivity as defined under ECBC along with the reflective surface on roof top with High Solar Reflectance Index.

Urban Heat Island Impact

In order to reduce impact of urban Heat Island and improving the microclimate at site, following measures are being undertaken

- Reduced surface parking
- Light colored paving materials for hard paved areas at pedestrian level
- Grass lawn with shrubs in the center of the Project
- Provision of Trees to shade open surface areas

Behavioral change on consumption

- Promoting awareness on energy conservation
- Training staff & occupants on methods of energy conservation and to be vigilant to such opportunities.

9.2 What type and capacity of power backup do you plan to provide?

Air cooled DCG set will be used. Backup power units will be provided by 08 Nos. of DCG sets of total capacity of 16,000 KVA (8x2000 KVA) the DCG sets will be operated only during power failure.

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9.3 What are the characteristics of the glass you plan to use? Provide specifications of its characteristics related to both short wave and long wave radiation?

Glass plays a unique and important role in building design and the environment. It affects design, appearance, thermal performance and occupant comfort. The selection of the right glass is a crucial component of the design process.

India being a tropical country, we need to be careful while selecting a glass. Selection of glass has become more complex since a variety of glasses are available to choose from, ranging from performance to aesthetics.

Key factors which play an important role in designing the building envelope with glass are as follows.

- Solar Factor (SF) / Solar Heat Gain Co-efficient (SHGC)- <0.60
- U-Value- $<2.8 \text{ W/m}^2\text{K}$
- Relative Heat Gain (RHG)
- Visual Comfort

Solar Factor (SF) /Solar Heat Gain Co-efficient (SHGC)

A combination of the directly transmitted solar and radiant energy and the proportion of the absorbed solar energy that enters into the building are interior.

U-Factor (U-Value)

This is the measurement of air-to-air thermal conductance or insulation between indoors and outdoors through the glass.

Relative Heat Gain (RHG)

RHG is calculated as follow - (Solar heat gain factor (ASHRAE) 630° W/m^2 X shading coefficient of the glass) + (Temperature Difference x U value)

- Heat gain due to Solar Factor contributes to 80% of RHG value
- Heat gain due to U-value contributes to 20% of RHG value

As we have proposed for low U-value and low SF/SHGC value, thus RHG value will remain low.

Visual Comfort

Visual Light Transmission

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It is defined as the percentage of light transmitted through the glass. It does not determine the color of the glass.

We will use glass that should provide for optimum daylight inside as per the outside condition. Excessive daylight creates glare and makes the occupant uncomfortable.

9.4 What passive solar architectural features are being used in the building? Illustrate the applications made in the project.

Passive solar technique:-

Building design and envelope has been optimized through selection of appropriate wall and roof construction and through adoption of solar passive measures after studying the sun path analysis to design shading devices.

- Proximately N/S orientation, opening in favorable wind direction
- Optimizing building envelope & window design to reduce cooling load (selection of energy efficient low U value materials for envelope is application of high reflecting white china mosaic tiles to terrace).
- Day light integrated to reduce artificial lighting demand

Adopting low energy passive cooling strategies:

Landscaping to alter micro climate for better condition-peripheral plantation and avenue plantation is provided to shed the hard areas & reduce heat island effect, reduction of noise & air pollution.

9.5 Does the layout of street & building maximize the potential for solar energy devices? Have you considered the use of street lighting, emergency lighting and solar hot water systems for use in the building complex? Substantiate with details.

Layout of buildings has been done as per the sun path analysis so that the design cuts off direct radiations of critical hours which are specific to the orientation.

Solar energy will be harnessed to meet various energy requirements of the project such as:

- Use of solar energy for internal lighting.
- We will be installing 110 KWp Solar PV which will reduce energy drawn from grid.

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9.6 Is the shading effectively used to reduce cooling/heating loads? What principles have been used to maximize the shading of walls on the East and the West and the Roof? How much energy saving has been effected?

Plantation in and around the Group housing buildings project would also be act as shield which will reduce the cooling load. Passive solar architecture measures have been adopted to provide shades to windows and roof which would effectively reduce heating of building envelope. Sunshades & Buffer space designed on external façade will protect external façade from heat gain & reduce heat gain/energy consumption.

Providing corridors all around the building to reduce the direct sunlight on glass.

9.7 Do the structures use energy-efficient space conditioning, lightening and mechanical systems? Provide technical details. Provide details of the transformers and motor efficiencies, lightening intensity and air conditioning load assumption? Are you using CFC and HCFC free chillers? Provide specifications.

Suitable energy optimization will be adopted during the calculation of energy load of project. The space heating load will be minimized using solar structure and suitable buildings envelop material. Uses of incandescent lamp and halogen lamps have been avoided and energy efficient LED shall be used for all common area.

The diesel generator sets shall be automatically controlled to optimize their usage based on the actual load requirements at any time. Space conditioning will be provided as per national Building Code - 8; lighting intensity will be done as per the National Building Code Guidelines.

9.8 What are the likely effects of the building activity in altering the micro-climates? Provide a self assessment on likely impacts of the construction on creation of heat island & inversion effects?

Heat emissions from the construction may be from the following sources:

- Heat absorbed from the paved and concrete structures

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- Heat generated from equipment/appliances
- Heat increase due to population increase in the Group Housing Project.

However, the heat generated will not be significant and will be dissipated in the greens and open areas provided within the project area.

9.9 What are the thermal characteristics of the building envelope? (a) Roof (b) external walls and (c) fenestration? Give details of the material used and the U value or the R values of the individual components.

The roof tops of the buildings will be planned with purling-bricks for water proofing and thermal insulation. Roof tops will also have partly landscaped area/gardens.

External wall-external opening will have regular door windows with slightly tinted glass. Regular walls have some cladding/fixture paints.

9.10 What precautions & safety measures are against fire hazards? Furnish details of emergency plans.

Fire fighting measures shall be adopted as per the guidelines of NBC. External yard hydrants installed around all buildings in the complex and galvanized steel fire hose boxes/cabinet (weather proof). All external yard hydrants shall be at one meter height from finished ground level as per NBC at a distance of 45 m along the road. External fire hydrants shall be located such that no portion of any building is more than 45 m from a hydrant and the external hydrants are not vulnerable to mechanical or vehicular damage.

Fire hydrant system will be provided within the buildings, fire escape staircases and refuge areas will be provided and the building structures will be planned as per NBC.

9.11 If you are using glass as wall materials, provide details and specifications including emissivity and thermal characteristics.

The project being a residential project i.e. group housing buildings project will not involve use of glass as wall material. All fenestration with U-factors, SHGC, or visible light transmittance determined, certified and labeled in accordance with ISO 15099 shall be adopted.

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9.12 What is the rate of air infiltration in to the building? Provide details of how you are mitigating the effects of infiltration.

This is not centrally air conditioned building project, Group housing buildings project which rely more on natural ventilation. However during extreme weather (Summer/Winter) it is essential to have control on air filtration. With use of modern building Materials & Technology it is possible to make air tight construction and control air infiltration rate. Application of sealants/weather-strips proposed shall take care of this aspect. Air infiltration rate is controlled within the limit prescribed in ECBC norms.

9.13 To what extent the non-conventional energy technologies are utilized in the overall energy consumption? Provide details of the renewable energy technologies used.

Solar energy will be variedly used as:

- Use of solar energy for internal lighting.
- We will be installing 110 KWp Solar PV which will reduce energy drawn from grid.

Green area is provided along with tree plantation which will result in natural air cooling and will reduce the load on conventional energy sources.

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SECTION-10: ENVIRONMENT MANAGEMENT PLAN

10.1 The Environment Management Plan (EMP) would consist of all mitigation measures for each component of the environment due to the activities increased during the construction, operation and the entire life cycle to minimize adverse environmental impacts resulting from the activities of the project. It would also delineate the environmental monitoring plan for compliance of various environmental regulations. It will state the steps to be taken in case of emergency such as accidents at the sites including fire.

A detailed environmental management plan is presented in Table-6, 7 & 8 to mitigate all the identified environmental impacts that are found to be significant.

Table-6: Environmental Management Plan – Construction Phase

S. No	Environmental Impacts	Mitigation Measures	Implementing Agency	Monitoring Agency
(i)	Air pollution due to emissions from construction machinery and movement of vehicles.	<p>a) Vehicles transporting construction materials prone to fugitive dust emissions should be covered.</p> <p>b) Trucks carrying sand should be provided with tarpaulin sheets to cover the bed and sides of the trucks.</p> <p>c) Idling of delivery trucks or other equipment should not be permitted during loading and unloading.</p> <p>d) All construction vehicles should comply with air emission standards and be maintained properly.</p> <p>e) Development of alternative access routes to the site by passing</p>	Building Contractor	Project proponent

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		the Residential areas to avoid air pollution		
(ii)	Air pollution, noise and safety hazard due to movement of construction vehicles through internal roads of project premises.	<p>a) Improvement of road surface to standards adequate to withstand movement of heavy construction vehicles</p> <p>b) Installing appropriate signage and deploying flagmen during peak traffic period to regulate the movement of traffic</p>	Building Contractor	Project proponent
(iii)	Noise pollution due to operation of construction machinery at the site.	<p>a) Construction contracts should specify that the construction equipment should meet the noise and air emission levels as per EPA Rules, 1986.</p> <p>b) Generator sets should be provided with noise shields around them.</p> <p>c) Vehicles used for transportation of construction material should be well maintained.</p> <p>d) The workers operating high noise machinery or operating near it should be provided with ear plugs</p> <p>e) The high noise generating stationary machinery should be located at the southern or central portion of the site.</p>	Building Contractor	Project proponent
(iv)	Impact on community water resources (quality).	<p>a) All wastewater discharges from construction site will be received in septic tanks, adequate capacity and soak pits.</p> <p>b) Oil handling and storage area will be surfaced and provided with catch pit to intercept any accidental spillages</p>	Building Contractor	Project proponent

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(v)	Sanitation and healthcare at workers camp	<p>a) The contractor shall install adequate lavatories, soak pits and baths at the construction camp to cater to the requirements of the workers.</p> <p>b) The construction camp should be located on the south-west corner of the site.</p> <p>c) The contractor shall build septic tanks with adequate capacity at the workers colony and at construction yard.</p> <p>d) All organic waste generated at construction yard and worker camp should be composted in compost trench.</p> <p>e) Quarterly health check-ups of construction workers should be organized at workers colony.</p> <p>f) Adequate provision of water supply and fuel for cooking should be made at workers colony.</p>	Building Contractor	Project proponent
(vii)	Improvement of Access Roads to the site	<p>a) Improvement and widening of the existing access roads.</p> <p>b) Establishing road connection</p> <p>c) Relocation of the encroachments in temporary shelters if the approach road along the boundary of the project site connecting the road is used for transportation of construction materials to the site.</p>	Building Contractor	Project proponent
(viii)	Impact on Micro Climate	<p>a) On-site planting of shading trees</p> <p>b) Planting of numbers of trees, of species suitable to the semi arid climatic condition and alluvial soil of the project site along the</p>	Building Contractor	Project proponent

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	roads and on the designated open spaces to ensure the improvement of micro-climatic condition of the project site.		
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Table-7: Environmental Management Plan - Operational Phase

S. No	Environmental Impacts	Mitigation Measures	Organizational / Monitoring Arrangements	Training Requirements	Implementing Arrangements
(i)	Unsanitary conditions in the rehabilitation site due to inadequate management of solid waste	1. Provision for door-to-door collection of waste from towers and arrangement for its regular removal from the site	Formation of society by involving community voluntary groups and creation of a corpus funds that could be utilized for the solid waste management in the project site.	1. Training and awareness programs with the community members. 2. Training for the segregation of waste	Staffs would monitor the solid waste collection and will be responsible for the disposal of the waste. Day to day functioning of waste collection and management of fund would be the responsibility of the society
(ii)	Maintenance of adequate quality of life standard in the resettlement site	1. Provision of rainwater infiltration through shallow wells at the site to augment ground water resources	Association between the community group, society and project proponent for the maintenance and operation of the system	Training and awareness program with the community members for the proper maintenance of the facility	Staff through the community group

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	2 Provision for regular potable water supply to meet the drinking water needs of the staff	project proponent forming a task force with the Local Municipal Corporation to monitor the consistency in supply of potable water	Awareness program with the resident's population for the conservation of potable water	-
	3 Provision for adequate maintenance of assets to ensure their smooth functioning	Association between the community group, society and project proponent for the maintenance and operation of the system.	Training for the community groups on the maintenance needs.	Society with the Community group
	4. Development and maintenance of green-belt and green areas to overcome micro-climatic impacts	project proponent in association with the community monitoring group	Training to the community group on plant maintenance	Society with the community group



Table- 8: Summary of Potential Impacts and Remedial Measures

S. No.	Environmental components	Potential Impacts	Potential Source of Impact	Controls Through EMP & Design	Impact Evaluation	Remedial Measures	
1.	Ground Water Quality	Ground Water Contamination	Construction Phase	• No surface wastewater generated from temporary labor tents.	No significant impact as majority of labors would be locally deployed		
			Operation Phase	Discharge from the project	• Proponent will provide the STP to treat the discharge of Group Housing buildings project.	No negative impact on ground water quality envisaged. Not significant.	
2.	Ground Water Quantity	Ground Water Depletion	Construction Phase	Use of treated water from nearby own STP for construction activity.	• No abstraction & thereby use of ground water during construction & STP treated water from nearby own STP shall be sourced.	No significant impact on ground water quantity envisaged.	
			Operation Phase	The source of water during operation	• Rain water harvesting shall be done to recharge the ground.	No significant impact on surface/ground water	In an unlikely event of non-availability of water supply, water

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			phase is HSVP/GMDA Supply.	<ul style="list-style-type: none"> Black and Grey water recycling and reuse such that fresh water will be less Percolation well to be introduced in landscape plan. Awareness Campaign to reduce the water consumption 	quantity envisaged.	will be brought using tankers.
3.	Surface Water Quality	Surface water contamination	<u>Construction Phase</u> Surface runoff from site during construction activity.	<ul style="list-style-type: none"> Silt traps and other measures such as additional on site diversion ditches will be constructed to control surface run-off during site development 	No off-site impact envisaged as no surface water receiving body is present in the core zone.	
			<u>Operation Phase</u> Treatment of domestic wastewater in STP proposed on site.	<ul style="list-style-type: none"> Domestic water will be treated in STP. 	No off-site impact envisaged	Excess treated water will be either used for irrigation purposes outside the project site after proper

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						treatment or disposed off in the sewer. CPCB standards for usage of treated wastewater will be followed.
4.	Air Quality	Dust Emissions	<p><u>Construction Phase</u></p> <p>All heavy construction activities.</p> <p>Storage of construction material at site.</p> <p>Site excavation.</p>	<p>• Suitable control measures will be adopted for mitigating the PM_{2.5} & PM₁₀ level in the air as per air pollution control plan.</p>	<p>Not significant because dust generation will be temporary and will settle fast due to dust suppression techniques.</p>	<p>During construction phase the labours will be provided masks. Water sprinklers will be used for suppression of dust during construction phase.</p>
		<p>Emissions of PM_{2.5} & PM₁₀, SO₂, NO₂ and CO</p>	<p><u>Construction Phase</u></p> <p>Operation of construction equipment and vehicles during site development.</p> <p>Running D.G. set</p>	<p>• Rapid on-site construction and improved maintenance of equipment</p>	<p>Not significant.</p>	<p>Regular monitoring of emissions and control measures will be taken to reduce the emission levels.</p>

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			(back up)			
			<p><u>Operation Phase</u></p> <p>Power generation by (DG Set during power failure</p> <p>Emission from vehicular traffic in use</p>	<ul style="list-style-type: none"> • Use of low sulphur diesel if available • Providing Footpath and pedestrian ways within the site to suppress the dust • Green belt will be developed with specific species to help to reduce PM_{10} & $PM_{2.5}$ level • Proper maintenance of equipment • Stack height of DG sets will be provided sufficiently high as per CPCB standards. 	<p>Not significant</p> <p>DG set would be used as power back-up (approx 6 hours)</p> <p>No significant increase in ambient air quality level is expected from the project's activities.</p> <p>There are no sensitive receptors located within the vicinity of site.</p>	<p>Stack height of DG set above the tallest building as per CPCB standards</p>
5.	Noise Environment		<p><u>Construction Phase</u></p> <p>Noise from construction</p>	<p>Construction activity will be limited to day time hours only</p> <p>Provision of noise shields near the heavy</p>	<p>Minimal or no impact is envisaged</p>	<p>Use of Personal Protective Equipment (PPE) like earmuffs and earplugs during</p>

Proposed Expansion and Modification of Group Housing Buildings in Zone 10, DLF 5
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FORM IA

			activities Noise from heavy machineries, DG sets, etc	construction operations and acoustic enclosures for DG set.		construction activities.
			<u>Operation Phase</u> Noise from vehicular movement Noise from DG set operation	<ul style="list-style-type: none"> Green Belt Development Development of silence zones to check the traffic movement Use of equipment fitted with silencers DG set rooms will be equipped with acoustic enclosures 	No significant impact due to suitable width of Greenbelt.	
6.	Land Environment	Soil contamination	<u>Construction Phase</u> Disposal of construction debris	Construction debris will be collected and suitably used on site as per the solid waste management plan for construction phase	No significant impact. Impact will be local, as waste generated will be reused for filling of	



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FORM 1A

			<p><u>Operation Phase</u></p> <p>Generation of municipal solid waste Used oil generated from D.G. set</p>	<ul style="list-style-type: none"> The solid waste generated will be managed as per Solid Waste Management Rules, 2016. Collection, segregation, treatment and disposal will be done as per Solid Waste Management Rules, 2016 by the authorized agency Used oil generated will be sold to authorized recyclers 	<p>low lying areas etc.</p> <p>Since biodegradable waste will be treated at site & other solid waste will be handled by the authorized agency, waste dumping will not be allowed. Hence, No significant impact is expected.</p> <p>Negligible impact.</p>	
7.	Biological Environment (Flora and Fauna)	Displacement of Flora and Fauna on site	<p><u>Construction Phase</u></p> <p>Site Development during construction</p>	<ul style="list-style-type: none"> Important species of trees, if any, will be identified and marked and will be merged with landscape 	<p>The site has vegetation at site,</p>	

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Proposed Expansion and Modification of Group Housing Buildings in Zone 10, DLF 5
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				plan		
			<u>Operation Phase</u> Increase in green covered area	<ul style="list-style-type: none"> Suitable green belts will be developed as per landscaping plan in and around the site using local flora 	Beneficial impact.	
8.	Socio-Economic Environment	Population displacement and loss of income	<u>Construction Phase</u> Construction activities leading to relocation	Group Housing Building project as per the Gurugram- Manesar urban complex- 2031 Master Plan.	No negative impact.	
			<u>Operation Phase</u> Site operation	<ul style="list-style-type: none"> Project will provide employment opportunities to the local people in terms of labor during construction and service personnel (guards, securities, gardeners etc) during 	Beneficial impact	

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Proposed Expansion cum Modification of Group Housing Buildings in Zone 10, DLF 5
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 Being developed by M/s DLF Limited

FORM IA

				operations <ul style="list-style-type: none"> • Providing quality-integrated infrastructure. 		
9.	Traffic Pattern	Increase of vehicular traffic	<u>Construction Phase</u> Heavy Vehicular movement during construction	<ul style="list-style-type: none"> • Heavy Vehicular movement will be restricted to daytime only and adequate parking facility will be provided 	No negative impact	
			<u>Operation Phase</u> Traffic due to residents and visitors once the project is operational	<ul style="list-style-type: none"> • Vehicular movement will be regulated inside the project with adequate roads and parking lots in the Project. 	No major significant impact as green belt will be developed which will help in minimizing the impact on environment.	

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Proposed Expansion cum Modification of Group Housing Buildings in Zone 10, DLF 5
At Sector-54, Gurugram, Haryana
Being developed by M/s DLF Limited

CONCEPTUAL PLAN

INTRODUCTION

The project is Expansion cum Modification of Group Housing Buildings in Zone 10, DLF 5, at Sector-54 Gurugram, Haryana being developed by M/s DLF Ltd. The project had received License from the Directorate of Town & Country Planning, Haryana with 13 Licenses for 16.975 Acre (License No. 38, 39, 40, 52, 53, 57 of 1996 dated 16.04.1996 which is valid up to 15.04.2024, License No. 117, 121, 129, 131 of 1995 dated 29.12.1995 which is valid up to 28.12.2024 and License No. 02, 04, 06 of 2002 dated 25.10.2002 which is valid up to 24.10.2024. The zoning plan is obtained from DTCP dated 20.11.2020 for 476.6015 Acres for group housing colony in DLF 5, Gurugram Haryana.

Total plot area of Phase-V Group Housing is 476.6015 Acres (19, 28,738.00 m²) out of which 16.975 Acres/68,693 850 m² (Existing-30,653.317m²/7.574 Acre) are to be developed for this particular Group Housing Buildings Project

We have obtained earlier EC from SEIAA, Haryana through file no. SEIAA/HR/2022/181 & EC Identification No. EC22B0391R111216 for total 2, 33,377.998 m² built-up area on 30,653.317 m² (7.574 Acre) plot area.

The various land use, FAR and ground coverage permitted as per zoning plan vis-à-vis achieved & proposed is given **Table No.-A**



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Proposed Expansion cum Modification of Group Housing Buildings in Zone 10, DLF 5
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CONCEPTUAL PLAN

Table No.A: Proposed & Achieved Ground Coverage and FAR of DLF City Phase-V Group Housing Scheme for 476.6015 Acres.

S. No	Type of Land Use	Ground Coverage (in sqm)				FAR (in sqm)			
		Permissible	Achieved	Proposed	Balance	Permissible	Achieved	Proposed	Balance
1	Group Housing	4,46,019.5	1,62,185.247	39,958.366	2,43,875.891	31,22,140.73	21,49,551.911	2,93,254.289	7,09,332.53
2	Shopping Commercial	31,338.6	30,480.7	..	857.9	1,88,050.2	1,86,768.3	..	1,283.5
3	Cultural, Recreational & Amusement Activities	4,821.8	4,030.6	..	791.2	28,930.7	5,422.7	..	23,508.0

Now the company is proposing expansion cum modification in the project with revised built-up area 6,56,418.356 m² and 16.975 Acres
,68,693.850 m² plot area.

SITE LOCATION AND SURROUNDINGS:

The project site is located in Zone 10, DLF-5, Sector-54, Gurugram, Haryana which is easily approachable through SH-13 which is -7.6 Km away from the project site towards West direction and NH-48 which is -5.5 Km away from the project site towards NW direction and nearest railway station is Gurugram Railway Station at a distance of -11 Km from project site in NW direction. Nearest airport is Indra Gandhi International Airport at a distance of -10.3 Km from the project site in North direction.

The Co-ordinates of the project site are as follows:

Latitude- 28°26'44.55"N
Longitude-77°06'48.93"E



Proposed Expansion cum Modification of Group Housing Buildings in Zone 10, DLF 5
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CONCEPTUAL PLAN

PROJECT SITE SURROUNDING INFRASTRUCTURE

Nearest Road -

- a) SH-13 - ~7.6 Km towards West direction
- b) NH-48 - ~5.5 Km towards NW direction

Nearest Railway station- Gurugram Railway Station - ~11 km towards NW direction

Nearest Airport- Indira Gandhi International Airport - ~10.3 km towards N direction

Nearest Village-

- a) Wazirabad - ~Adjacent from the project side
- b) Chakkarpur - ~3.7 Km towards NW direction
- c) Behrampur - ~4.2 Km towards South direction

Nearest School-

- a) R.B.P School - ~3.7 Km towards NW direction
- b) Agarsen School - ~7.2 km towards WSW direction

Nearest Hospital-

- d) Narayan Hospital - ~4.1 Km towards N direction
- e) Sanvit Hospital - ~7.6 Km towards W direction

Nearest Temple-

- f) Hanuman Temple - ~7.7 Km towards West
- g) Shiromani Naam Dev Temple - ~7.9 Km towards NNW direction

CONTAINING THE DETAILS OF AREA AND DEVELOPMENT

Table 1: Area Statement

S. No.	Particular	As Per Earlier EC	Expansion cum modification	Total Area (Sqm)
1	Total Site Area	30,653.317	38,040.533	68,693.850
2	Proposed Ground Coverage	6,369.381	39,958.360	46,327.741
3	Total Proposed FAR	1,43,937.510	2,93,254.289	4,37,191.799
4	Total Proposed NoN FAR	89,440.488	1,29,786.069	2,19,226.557
5	Total Proposed Built - up Area (FAR + NoN FAR)	2,33,377.998	4,23,040.358	6,56,418.356
6	Proposed Green Area (@:20% of total plot area)	9,195.995	4,554.005	13,750.000



Proposed Expansion cum Modification of Group Housing Buildings in Zone 10, DLF 5
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CONCEPTUAL PLAN

*FAR–Floor Area Ratio

Note: Ground Coverage: Out of 46,327.741 m², only 13,262 m² is at ground level and 33,065.741 m² balance is at lower ground level.

Salient Features

S. No.	Particular	As Per Earlier EC/Application	Expansion cum modification	Total
1	Total Population	4,508	-225	4,283
2	Total Water Requirement (KLD)	391	225	616
3	Total Fresh Water Requirement (KLD)	255	89	344
4	Treated/recycled water	136	136	272
5	Total Wastewater Generated (KLD)	294	2	296
6	Capacity of STP (MLD)	DLF-5 Common STP of 15 MLD	--	DLF-5 Common STP of 15 MLD
7	Total Solid Waste Generation, Kg/day	2,069	-189	1,880
8	Biodegradable Waste (kg/day)	--	--	752
9	OWC Capacity (kg/day)	1,500	-650	850
10	Total Power Requirement & Source KW(DHBN)	5,874	5,216	11,090
11	No. of DG Set	9 DG sets of total capacity 8,250 KVA (7×1,000 KVA + 2×625 KVA).	7,750	8 DG sets of total capacity 16,000 KVA (8×2,000 KVA)
12	Solar Capacity (KW)	--	--	111
13	No. of RWH Pits	8	9	17
14	Proposed Parking (ECS)	1,615	995	2,610
15	Total no. of towers	4	3	7
16	No. of Community buildings	1	--	1
17	Max.No. of Floors for residential	B4 + B5 + B2 + B1 + S + 35F	-2F	B4 + B3 + B2 + B1 + UGF + 31F
18	Max.No. of Floors for club house-community building	--	--	UGF+MF+UGF + F
19	Total No. of basements	4	--	4
21	Main Dwelling Unit	520	-88	432
22	Service Personnel Room	50	382	432

Proposed Expansion cum Modification of Group Housing Buildings in Zone 10, DLF 5

At Sector-54, Gurugram, Haryana

Being developed by M/s DLF Limited

CONCEPTUAL PLAN

23	Total Project Cost in Crore	1,076	6,507	7,583
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The total population after expansion cum modification of project will be 4,283 persons. The detailed population breakup is given below in the following Table – 2.1.

Table 2.1: Population Details

S. No.	Occupancy Type	PPU	Unit / Area (S.qm)	Total Population
1	Main Dwelling Units	@5 Persons / Unit	432	2,160
2	Services Personnel Room	@2 Persons / Unit	432	864
3	Maintenance staff	Lumpsum		43
4	Club House/community building	Lumpsum		1,000
5	Visitors	10 % of Residential Population		216
Total				4,283



The water will be supplied through HSVP/GMDA. Total water requirement after expansion cum modification of the project will be approximately 616 KLD, out of which 344 KLD is fresh water requirement and 272 is treated water requirement which will be used for flushing, horticulture and cooling tower. The total water requirement of project is given below in Table-3.



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Proposed Expansion and Modification of Group Housing Buildings in Zone II, DLF 5
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CONCEPTUAL PLAN

Table-3(a): Calculations for Water Demand (Summer season)

S. No.	Occupancy Type	Total Population / Area	Rate of Water Demand (lpcd)	Water Requirement (KLD)			Total Waste Water Generated (KLD)
				Domestic	Flushing	Total	
1	Main Dwelling Units	2160	86	140.40	45.36	185.76	171.72
2	Service Personnel Rooms	864	86	56.16	18.14	74.30	68.69
3	Maintenance Staff	43	45	1.08	0.86	1.94	1.83
4	Visitors	216	15	1.08	2.16	3.24	3.13
5	Clubhouse/community building	1000	45	25.00	20.00	45.00	42.50
6	Filter Backwash		lumpsum	10.00		10.00	8.50
7	Swimming pool makeup		lumpsum	27.51		27.51	
8	Cooling tower makeup for chillers		lumpsum		102.90	102.90	
9	Horticulture	13750	6 L./Sq.m		82.50	82.50	
10	Water feature pool makeup		lumpsum	82.50		82.50	
Total				343.73	271.92	615.65	296.37
Say				344	272	616	296



Proposed Expansion cum Modification of Group Housing Buildings in Zone 10, DLF 5
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CONCEPTUAL PLAN

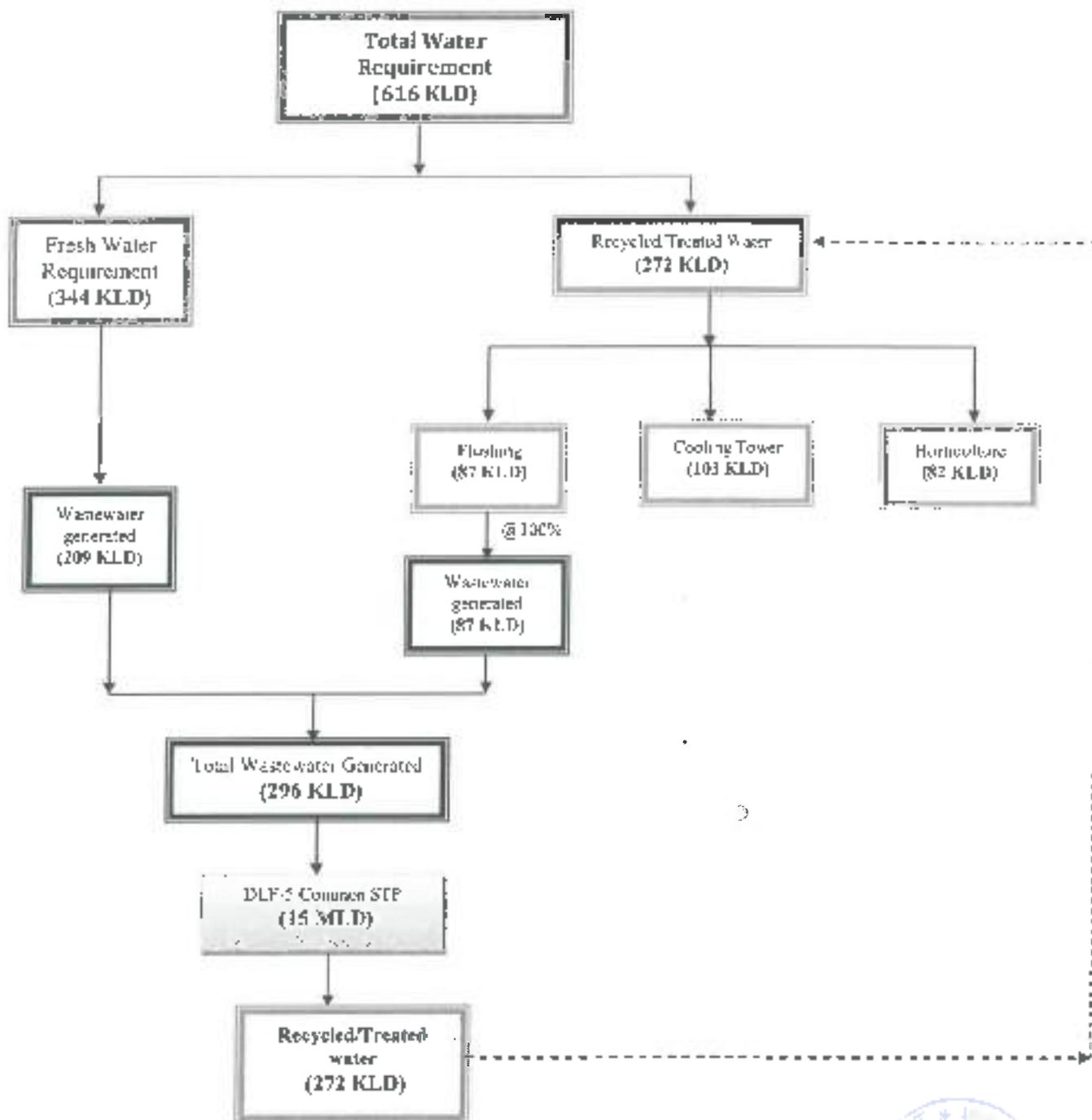


Figure 2(a): Water Balance Diagram during Summer Season



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Proposed Expansion and Modification of Group Housing Buildings in Zone 10, DLF 5
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CONCEPTUAL PLAN

Table-3(b): Calculations for Water Demand (Winter season)

S. No.	Occupancy Type	Total Population / Area	Rate of Water Demand (lpcd)	Water Requirement (KLD)			Total Waste Water Generated (KLD)
				Domestic	Flushing	Total	
1	Main Dwelling Units	2160	86	140.40	45.36	185.76	171.72
2	Service Personnel Room	864	86	56.16	18.14	74.30	68.69
3	Maintenance Staff	43	45	1.08	0.86	1.94	1.83
4	Visitors	216	15	1.08	2.16	3.24	3.13
5	Clubhouse/community building	1000	45	25.00	20.00	45.00	42.50
6	Filter Backwash		lumpsum	10.00		10.00	8.50
7	Swimming pool makeup		lumpsum	27.51		27.51	
8	Cooling tower makeup for chillers		lumpsum		102.90	102.90	
9	Horticulture	13750	3 L/Sq.m		41.25	41.25	
10	Water feature pool makeup		lumpsum	82.50		82.50	
Total				343.73	230.67	574.40	296.37
Say				344	231	575	296



Proposed Expansion and Modification of Group Housing Buildings in Zone 1D, DLF 5
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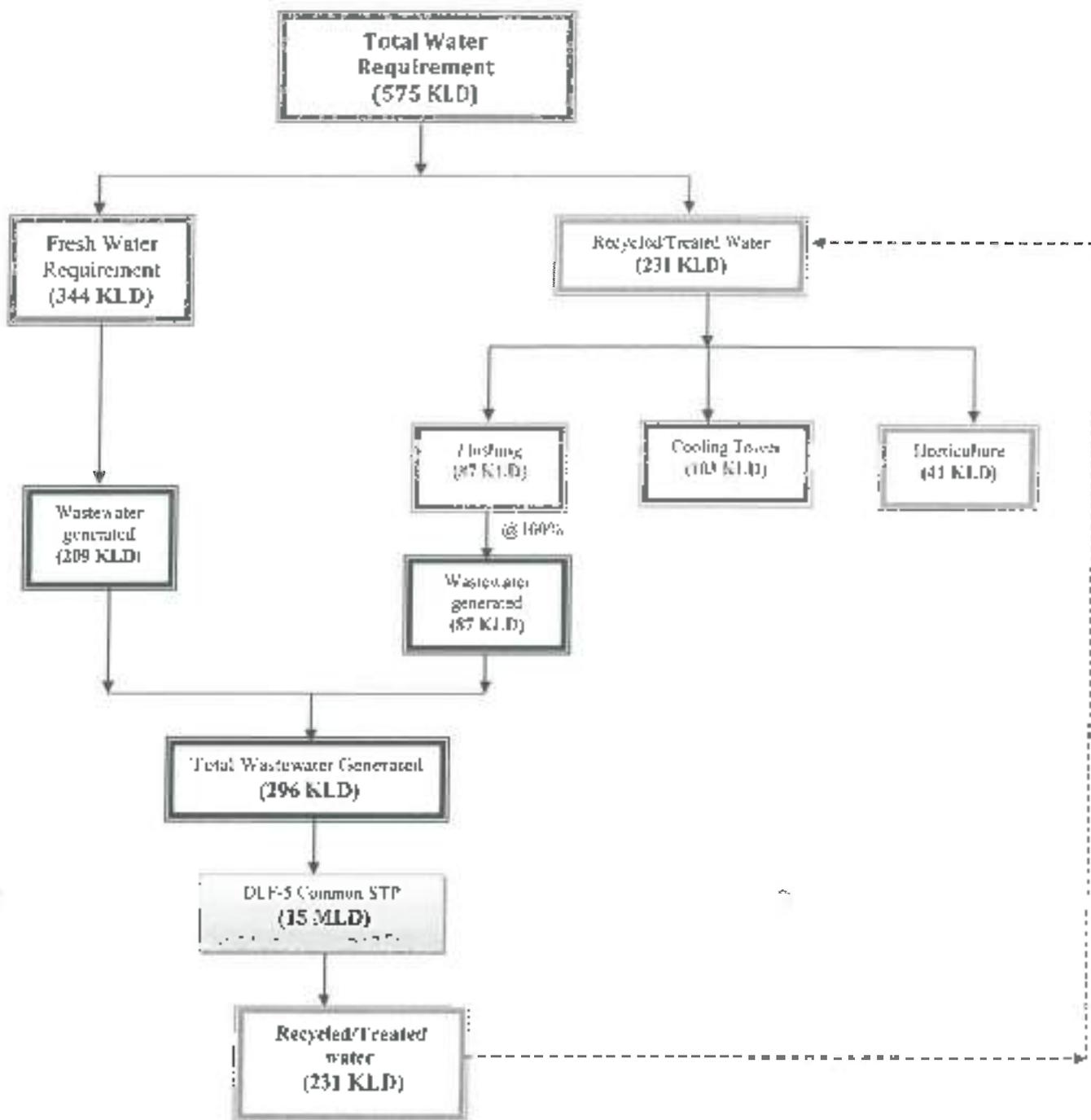


Figure 2(b): Water Balance Diagram during Water Season



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Proposed Expansion cum Modification of Group Housing Buildings in Zone 10, DLF 5
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CONCEPTUAL PLAN

Table-3(c): Calculations for Water Demand (Monsoon season)

S. No.	Occupancy Type	Total Population / Area	Rate of Water Demand (lpcd)	Water Requirement (KL/D)			Total Waste Water Generated (KL/D)
				Domestic	Flushing	Total	
1	Main Dwelling Units	2160	86	140.40	45.36	185.76	171.72
2	Service Personnel Room	864	86	56.16	18.14	74.30	68.69
3	Maintenance Staff	43	45	1.08	0.86	1.94	1.83
4	Visitors	216	15	1.08	2.16	3.24	3.13
5	Clubhouse/community building	1000	45	25.00	20.00	45.00	42.50
6	Filter Backwash		lumpsum	10.00		10.00	8.50
7	Swimming pool makeup		lumpsum	27.51		27.51	
8	Cooling tower makeup for chillers		lumpsum		102.90	102.90	
9	Horticulture	13750	1 L /Sq.m		13.75	13.75	
10	Water feature pool makeup		lumpsum	82.50		82.50	
Total				343.73	203.17	546.90	296.37
Say				344	203	547	296



Proposed Expansion cum Modification of Group Housing Buildings in Zone 10, DLF 5
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CONCEPTUAL PLAN

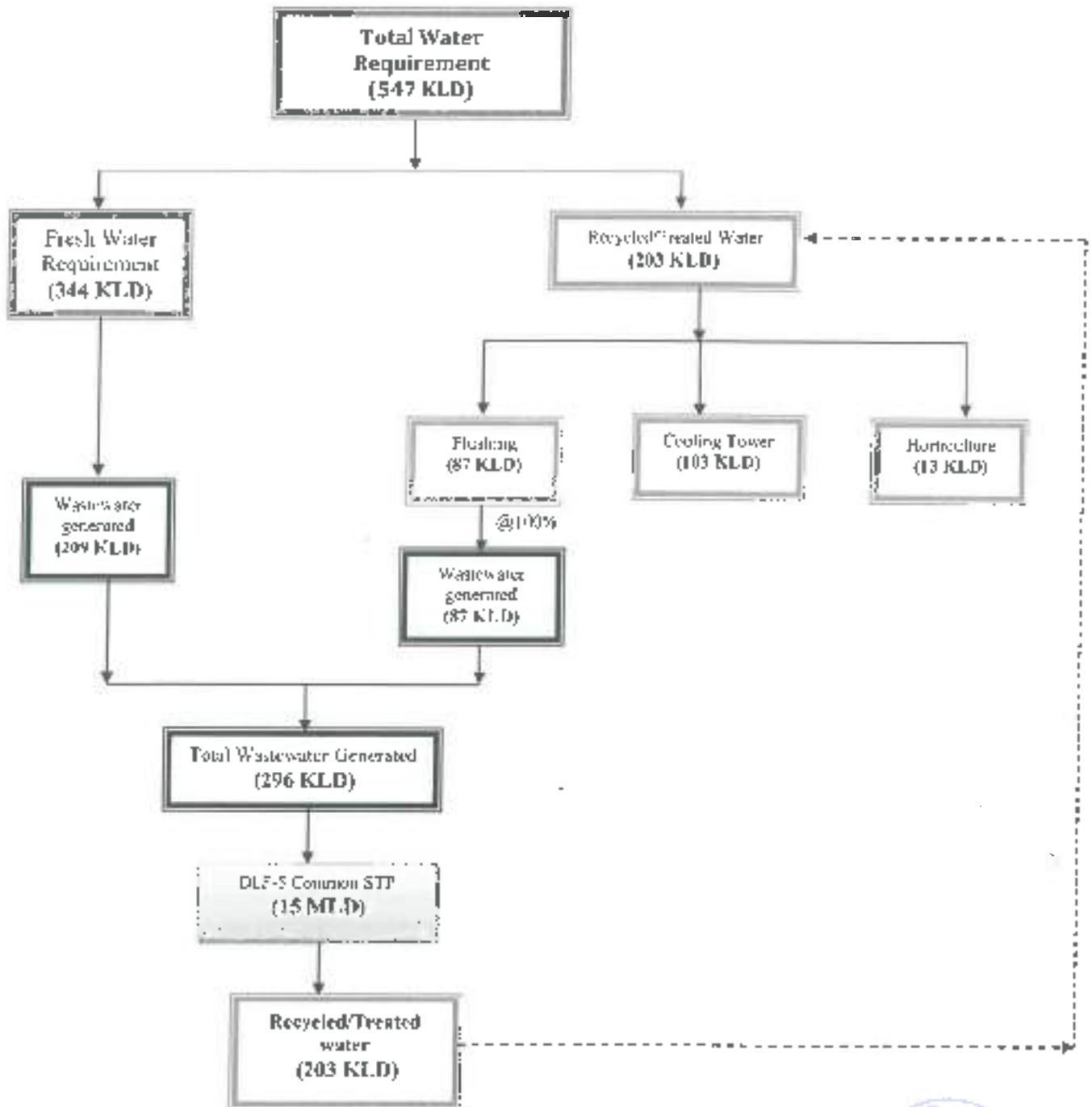


Figure 2(c): Water Balance Diagram during Monsoon Season



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Proposed Expansion cum Modification of Group Housing Buildings in Zone 10, DLF 5
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CONCEPTUAL PLAN

Wastewater Generation & Treatment:

The wastewater will be treated in DLF-5 common Sewage Treatment Plant of total capacity of 15 MLD (9 MLD based on SBR technology & 6 MLD based on MBR technology) nearby the project premises. 272 KLD treated water from common STP of DLF Phase-5 will be reused for flushing, horticulture and cooling towers within our site.

Table-4: Calculation of Wastewater Generation

Details	Water (KLD)
Water requirement for fresh water	344 KLD
Wastewater generated from fresh water	209 KLD
Water requirement for Flushing Purpose	87 KLD
Wastewater generated from Flushing (@ 100% of flushing requirement)	87 KLD
Total wastewater generated	296 KLD
Use of Recycled Water (272 KLD will be reused for flushing, Cooling tower and horticulture)	1. Flushing : 87 KLD 2. Cooling Tower: 103 KLD 3. Horticulture :82 KLD

SEWAGE TREATMENT TECHNOLOGY

- Existing common STP of capacity 15 MLD is having sufficient capacity in addition to the existing projects to treat the wastewater generated from the expansion cum modification of Group Housing Buildings in Zone 10, DLF 5, Sector-54, Gurugram, Haryana. STP feasibility report is attached as Annexure in ToR application.

RAIN WATER HARVESTING

The storm water disposal system for the premises shall be self-sufficient to avoid any collection/stagnation and flooding of water. The amount of storm water run-off depends upon many factors such as intensity and duration of precipitation, characteristics of the tributary area and the time required for such flow to reach the drains. The drains shall be located near the carriage way along either side of the roads. Taking the advantage of road camber, the rainfall run off from roads shall flow towards the drains. Storm water from various plots/shall be connected to adjacent drain by a pipe through catch basins. Therefore, it has been calculated to provide 17

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Proposed Expansion cum Modification of Group Housing Buildings in Zone 10, DLF 5
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nos. rainwater harvesting pits at selected locations, which will catch the maximum run-off from the area.

- 1) Since the existing topography is congenial to surface disposal, a network of storm water pipe drains is planned adjacent to roads. All building roof water will be brought down through rain water pipes.
- 2) Proposed storm water system consists of pipe drain, catch basins and seepage pits at regular intervals for rain water harvesting and ground water recharging.
- 3) For basement parking, the rainwater from ramps will be collected in the basement storm water storage tank. This water will be pumped out to the nearest external storm water drain.
- 4) Peak Hourly rainfall of 90 mm/hr. shall be considered for designing the storm water drainage system. Rain water harvesting has been catered to and designed as per the guideline of CGWA. At the bottom of the recharge well, a filter media is provided to avoid choking of the recharge bore. Design specifications of the rain water harvesting plan are as follows:
 - Catchments/roofs would be accessible for regular cleaning
 - The roof will have smooth, hard and dense surface which is less likely to be damaged allowing release of material into the water. Roof painting has been avoided since most paints contain toxic substances and may peel off.
 - All gutter ends will be fitted with a wire mesh screen and a first flush device would be installed. Most of the debris carried by the water from the rooftop like leaves, plastic bags and paper pieces will get arrested by the mesh at the terrace outlet and to prevent contamination by ensuring that the runoff from the first 10-20 minutes of rainfall is flushed off.
 - No sewage or wastewater would be admitted into the system.
 - No wastewater from areas likely to have oil, grease, or other pollutants has been connected to the system.

Table- 5: Rainwater Harvesting Calculation

S: No.	Type of Surface	Catchment's Area (m ²) [A]	Runoff Coefficient [C]	Rainfall Intensity m/hr [I]	Discharge (Run Off) [Q=CIA] m ³ /hr
1.	Rooftop Area	13,262	0.9	0.09	1074.22
2.	Green Area	13,750	0.15	0.09	185.63
3.	Road & Paved Area	41,682	0.8	0.09	3001.09
	Total	68,693.85			4260.94

Taking 15 minutes retention time, total volume of storm water $4260.94 \times 0.25 = 1065.24 \text{ m}^3$
Taking the effective Length, breadth and depth of a Recharge pit 7 m, 2 m and 4.5 m respectively.



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CONCEPTUAL PLAN

Volume of one Recharge pit = $L \times W \times D = 7 \times 2 \times 4.5 = 63.00 \text{ m}^3$

Hence No. of pits required = $1065.24 / 63 = 16.91$, Say 17 Pits

Total 17 nos. of Rain Water Harvesting pits are being proposed for artificial rain water recharge within the project premises

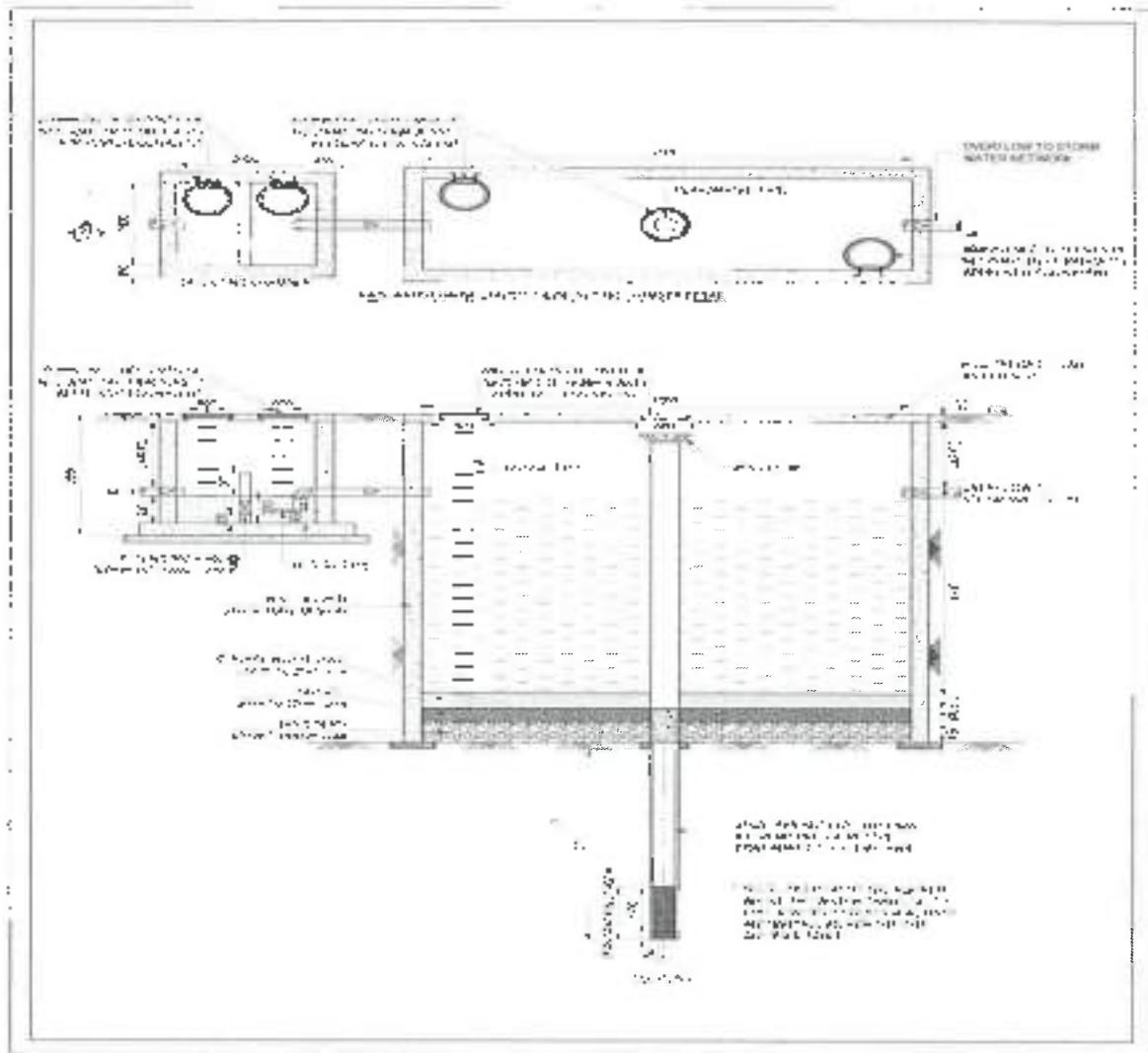


Figure-3-Diagram of RWH Pit



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CONCEPTUAL PLAN

Maintenance Plan for RWII Pit:

Table No 6: RWII pit maintenance plan

Routine Maintenance Tasks	Frequency
Remove leaves and debris from gutters and downspouts	On interval of 04 month
Remove any algae growth	On interval of 04 month
Inspect and clean prescreening devices and first flush diverters	Quarterly
Inspect and clean storage tank lids	Annually
Inspect for and repair any clogging	Annually
Inspect and repair mosquito screens	Annually
Inspect pit and remove sediment build up	Annually
Clear overhanging vegetation and trees over roof	On every six months
Check integrity of backflow preventer	Annually
Inspect structural integrity of tank, pump, pipe, and electrical system and repair any damage	On every six months
Replace damaged or defective system components	As needed

VEHICLE PARKING FACILITIES

Adequate provision will be made for car/vehicle parking at the proposed project site. There shall also be adequate parking provisions for visitors so as not to disturb the traffic and allow smooth movement at the site.

Provided Parking- 2,610 ECS.

S. No.	Parking details	No. of ECS
1.	Basement-1	591
2.	Basement-2	673
3.	Basement-3	673
4.	Basement-4	673
	Total	2610

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CONCEPTUAL PLAN

POWER REQUIREMENT

The power supply shall be supplied by Dakshin Haryana Bijli Vitran Nigam (DHBVN). The required power load after expansion of project will be approx. 11,000 KW.

Details of D.G Sets:

Total 08 Nos. of DG sets of total capacity of 16,000 KVA (8x2,000 KVA) will be operated during power failure. The DG sets will be air cooled and equipped with acoustic enclosure to minimize noise generation and adequate stack height for proper dispersion.

SOLID WASTE GENERATION

Solid waste would be generated both during the construction as well as during the operation phase. The solid waste expected to be generated during the construction phase will comprise of excavated materials, used bags, AAC Blocks, concrete, MS rods, tiles, wood etc. The following steps are proposed to be followed for the management of solid waste:

- Construction yards are proposed for storage of construction materials.
- The excavated material such as soil and stones will be stacked for reuse during later stages of construction.
- Excavated top soil will be stored in temporary constructed soil bank and will be reused for landscaping of the project.
- Remaining soil shall be utilized for refilling / road work / rising of site level at locations/ selling to outside agency for construction of roads etc.



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CONCEPTUAL PLAN

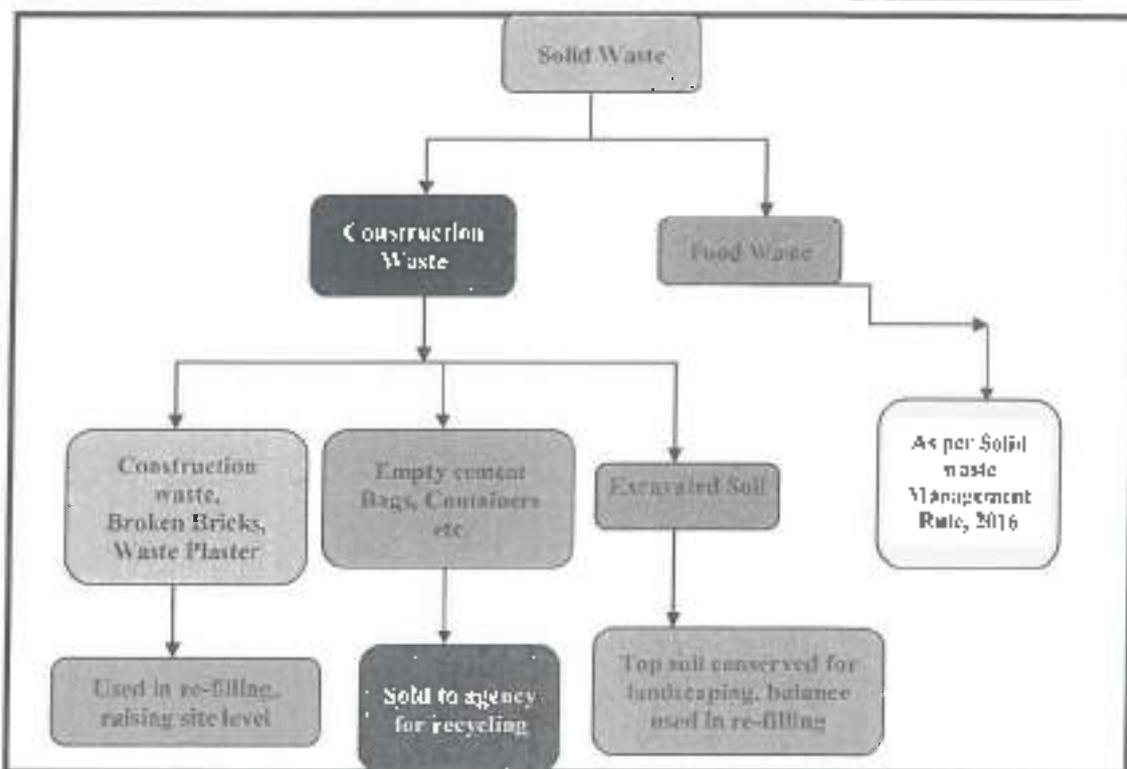


Figure-4: Solid Waste Management Scheme during Construction Phase

During the operation phase, the solid waste generated from project will be generating approx. 1,880 kg/day. Detailed calculation is shown in Table: 7.

Table- 7: Solid Waste Generation during Operation Phase

S. No.	Unit Type	Population	Rate(Kg/Cap/Day)	Total Waste Generated (Kg/Day)
1	Main Dwelling Units	2160	0.50	1080.00
2	Services Personnel Room	864	0.50	432.00
3	Maintenance Staff	43	0.30	12.90
3	Visitors	216	0.15	32.40
4	Club House/community building	1000	0.30	300.00
5	Horticulture	3.39	0.20 Kg/Acre	0.68
6	Sludge	296	7.51 % of wastewater	22.26
Total				1,880

(Source: For Waste Collection, Chapter 3, Table 3.6, Page no. 49, Central Public Health & Environment Engineering Organization, Ministry of Urban Development, (Government of India, May 2000))



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Being developed by M/s DLF Limited

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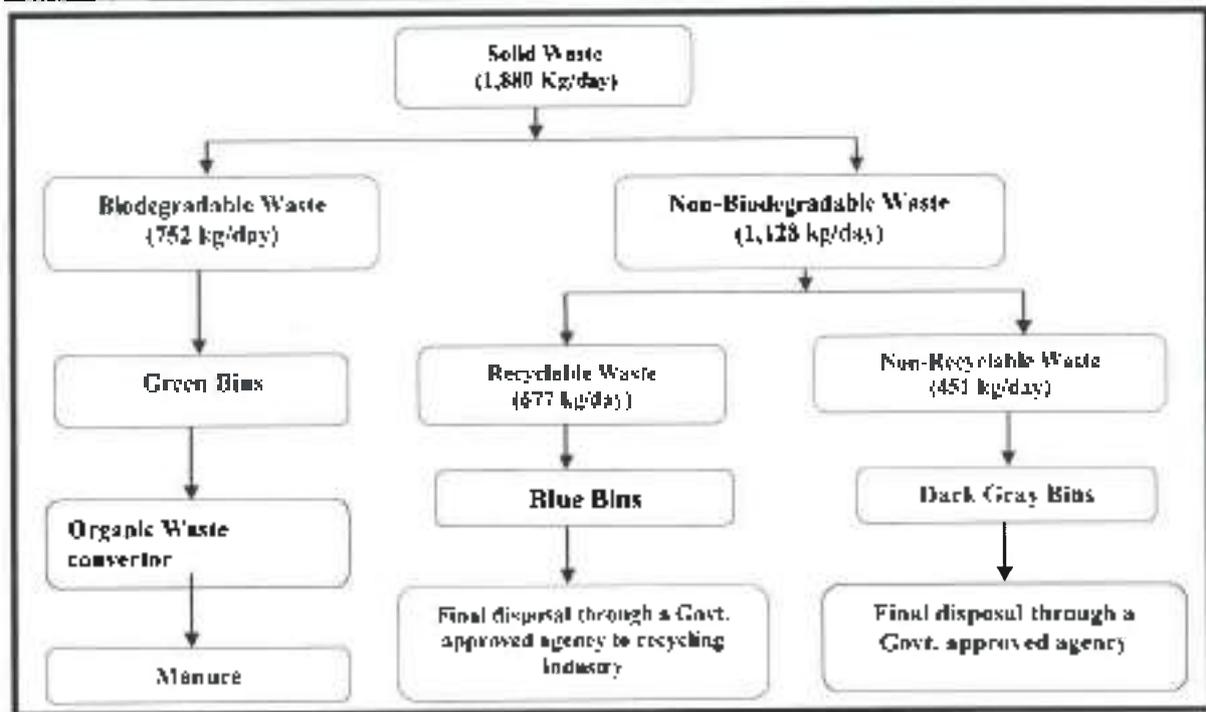


Figure 5: Solid Waste Management Scheme during Operation Phase

Note: We will abide by Plastic Waste Management (Amendment) Rules, 2023 and E-waste Management (Amendment) Second Amendment Rules, 2023.

Following arrangements will be made at the site in accordance to Solid Wastes Management Rules, 2016

1 Collection and Segregation of waste

1. A door to door collection system will be provided for collection of domestic waste in colored bins from Dwelling units, club/community building etc.
2. Adequate number of colored bins (Green and Blue bins for bio-degradable and non-biodegradable respectively) is proposed to be provided.
3. Litter bin will also be provided in open areas like parks etc.

2 Treatment of waste

Bio-Degradable wastes

4. Bio-degradable waste will be treated in Organic Waste Converter and the compost will be used as manure.
5. STP sludge is proposed to be used for horticulture as manure.



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6. Horticultural Waste is proposed to be composted and will be used for gardening purposes.

Recyclable wastes

1. Grass Recycling - The cropped grass will be spread on the green area. It will act as manure after decomposition.
2. Recyclable wastes like paper, plastic etc. will be sold off to recyclers.
3. Hazardous wastes such as waste oil will be sold off to authorized recyclers.
4. Buy back arrangement will be made for batteries.

3 Disposal

The Municipal Solid Waste Management will be conducted as per the guidelines of Solid Waste Management Rules, 2016. The inert non-recyclable wastes will be disposed through government approved agency for land filling. A solid waste management scheme is depicted in the above figure for Project.

Organic waste management by automatic composting machine

- This is highly compact solution for organic and biodegradable/wet waste.
- Decentralized waste management solution aesthetically designed just take less than a single car park space for a 250 kg unit capable to treat wet waste generated.
- It reduces labor cost because of safe handling system, as no pathogens generated due to operations in high temperature thereby reducing health risks significantly.
- Very fast Waste to manure processing duration i.e. 1-3 days in comparison of traditional composting methods
- No transport cost as machine can operate at on site without any multi-step process by just provide input, plug and start operation
- Designed to keep rodents at bay so cleanest technology with negligible odour.
- Life span 25-30 years and AMC to ensure 24x7 days of uninterrupted operation
- Microbes present within incubator feed on the organic matter and convert in to compost.
- Moisture content and temperature automatically regulated using sensors at the bottom of the tank whenever organic waste is added.
- Fully aerobic digestion is facilitated by the periodic and intermittent rotation of the mixing blades (no crushing/grinding) to maximize microbe activation.
- The final decomposition is done by specialized thermophilic microbes which thrive in high temperature and high acidic or salty atmospheres.
- The final product in the form of compost can be used as manure in to landscape area management.



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- The wet waste reduced in volume by 90 % and 100 kg waste converted in to 10-15 kg compost which can be removed in 10-15 days and expenditure to process per kg of waste is less than 01 INR
- The output compost from OWC can be mixed with soil in the ratio of 1:10 before using as manure.
- Care to be taken to only moisten the waste and not make it dripping wet.
- Clear the compost once it reaches the red level because excess compost might spoil the machine by entering the motor assembly
- A buffer of 3-6 days on composting of pure garden waste necessarily to be taken due to dirtiness of such waste in comparison of other food waste.

Technical Specification

Operation	Fully Automatic
Output	Organic Manure
Installation Requirements	Almost Plug and Play. Vent to be connected outdoors or storm water lines. No need of water inlet. Water may be required, only to clean the machine externals and any piled waste.
Control Systems	PLC Based
Composting Tank	SS
Housing	M.S with Powder coating or SS panels as a variant
Input / Output	Door for waste input Separate door for getting out compost
Heater	Insulated oil heating chamber or Heating pads as a variant
Other Features	<ul style="list-style-type: none"> • Provided with waste overload function • Indicators for Power mode, heater & power saving mode • Stainless steel (SS304) shaft & mixing blades • Safety feature: Internal mixing blades automatically stop when hopper door is opened (in auto mode) • Can be run in auto mode or manual mode • Internal shaft turns and sends out compost, when the compost door is opened
Doors	Separate door for waste input & separate door for compost removal
Preferred Location for installation	Can be a garden, area adjacent to garden, car park, preferably with a connection to the drainage
Life of the Machine	Expected around 25 years
Required Capacity	Ideally should be 20 % higher capacity of OWC to be selected as per estimated volume of wet/organic waste.
Proposed Capacity	20% more than OWC Organic Waste = 752 Kg Final OWC = 752 + 75 (20% of 752) = 827 Kg i.e. Total 1 nos. of Organic waste converter of capacity 850 Kg/day (1×850 Kg/day)

I. Organic Waste



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Organic waste, includes kitchen waste and garden waste generated from the dwelling units, will be treated by Organic waste compost machine on site. The compost is then used for landscaping on the site. The OWC machine will be placed at a designated area.

2. Type of Waste to be Treated

- Kitchen waste will be collected from units and lobbies of the towers. This waste will be stored in garbage room which is located at the basement of the towers and further send to organic waste converter for treatment.
- Landscape waste is bio-degradable waste and will be composted in Organic waste converter. After post occupancy, horticulturist will collect garden waste and store in basement area, where organic waste converter is located. The treated organic waste will be used on site as manure for the landscape at the site.

3. Organic Waste Treatment System

OWC (Organic Waste Converter) is an easy to use Decentralized Waste Management System to turn large amounts of organic waste such as kitchen waste, garden waste, food processing waste etc. into compost. The system is designed to eliminate odour and also to remove the problem of irritants such as flies and rats.

The OWC is a bio-mechanical Composting System which consists of the OWC machine, Curing System and a number of optional accessories for specific waste challenges. The machine takes organic waste and Bioculum as input and to create manure starter. In just one week of curing the processed waste is transformed into manure that can be used on site in gardens or agriculture.

4. Process Description of Organic Waste Converter

4.1 Organic waste collection

The organic waste from the kitchens in general contains food waste from the pre-cooking operation and post cooking remnant or excess food. Waste from garden containing pruning's and small branches of the trees up to 2 cm diameter and/or bones, will be passed through the Shredder before it is placed into the container of the OWC.

4.2 Organic Waste Treatment

Organic waste fed into OWC is mixed, aerated & fluidized and crushed for 5 minutes. Then container of the OWC is opened and observations are noted. If the crushed material has more moisture content which can be seen by visual observation, then absorbing media is added into the container up to 20% of the weight of the waste depending on the moisture content in the waste. The odour control powder "Bioculum" is added at the dosage rate of 1 gm. of Bioculum/kg of waste. Then the lid of the container is closed and again the OWC is

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operated for 5 minutes. After the completion of 5 minutes, the system will give audio-visual indication by a beep-beep sound and indication of light. The lid is then opened and the processed material is observed. If it is turned to granular free flowing material, then lid is closed and the system is restarted. The bottom valve is opened for draining of the material. The raw compost is collected in the trolley/crates placed underneath of OWC System.

4.3 Curing of Raw Compost

For maturing and curing the raw compost, the material from the trolley is shifted in the crates which have perforation for aeration and then crates are placed in the curing system. Depending on the waste generation capacity, number of curing systems has to be proposed. Single Curing System has 100 kg/day capacity whereas Double Curing System has 200 kg/day capacity. After 10 days curing period, the compost from the tray can be used for application to the plants or any other mode of usage of manure in the agriculture.



Figure-6: Curing of raw compost in perforated crates

GREEN AREA

Total green area measures 13,750.00 m² i.e. 20% of the plot area which will be area under tree plantation along the periphery of the project, in the lawns and along the roads. Evergreen tall and ornamental trees and ornamental shrubs have been proposed to be planted inside the premises. Lawns will also be developed by the management.

ENVIRONMENTAL MANAGEMENT SYSTEM AND MONITORING PLAN

For the effective and consistent functioning of the complex, an Environmental Management System (EMS) would be established at the site. The EMS would include the following:

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- An Environmental Management Cell
- Environmental Monitoring.
- Personnel Training.
- Regular Environmental audits and Correction measures.
- Documentation standards operation procedures Environmental Management Plan and other records.

ENVIRONMENTAL MANAGEMENT CELL

Apart from having an Environmental Management Plan, it is also to have a permanent organizational set up charged with the task of ensuring its effective implementation of mitigation measures and to conduct environmental monitoring.

Hierarchical Structure of Environmental Management Cell:

Normal activities of the EMP cell would be supervised by a dedicated person who will report to the site manager/coordinator of the Group Housing. The hierarchical structure of suggested Environmental Management Cell is given in following Figure-9.

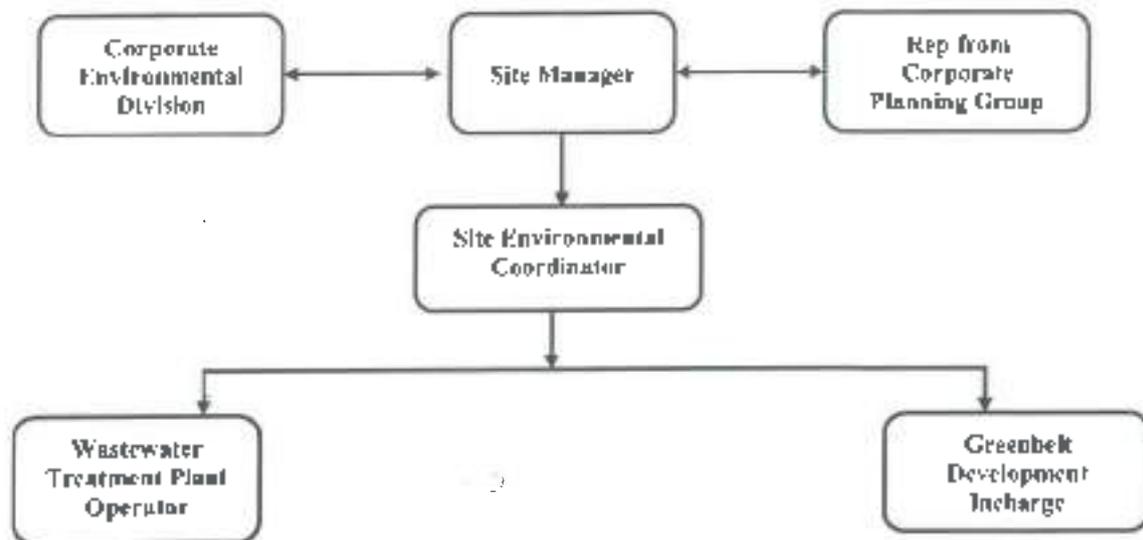


Figure 7: Environment Management Cell Structure

ENVIRONMENTAL MONITORING

The purpose of environmental monitoring is to evaluate the effectiveness of implementation of Environmental Management Plan (EMP) by periodic monitoring. The important

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environmental parameters within the impact area are selected so that any adverse effects are detected and time action can be taken. The project proponent will monitor ambient air Quality, Ground Water Quality and Quantity, and Soil Quality in accordance with an approved monitoring schedule.

Table- 8: Suggested Monitoring Program for Group Housing Buildings Project

Monitoring	Frequency of Monitoring
<u>Air & Stack:</u> • Ambient Air Quality at appropriate location for PM_{10} , $PM_{2.5}$, SO_2 , NO_2 , HC • Stack emission for point sources PM, SO_2 , NO_2 , HC & CO	• Six monthly • Six monthly
<u>Water & Wastewater:</u> • Water Quality Monitoring for relevant parameters of IS 10500 • Wastewater Quality (Treated & Untreated) for pH, TSS, Oil & Grease, • Wastewater quality pH, TSS, oil & Grease, BOD, COD, MLSS, TKN & Phosphate.	• Six Monthly • Daily till stabilization of STP, • Weekly till one month then annually
<u>Noise:</u> - Day & Night level Noise Monitoring	• Six Monthly
<u>Soil</u> • Soil Monitoring, Qualitative and quantitative testing/analysis to check the soil fertility, porosity, texture, water holding capacity etc.	• Six Monthly

Awareness and Training: Training and human resource development is an important link to achieve sustainable operation of the facility and environment management. For successful functioning of the project, relevant EMP would be communicated to:

Staff and Contractors: Staff must be made aware of the importance of waste segregation and disposal, water and energy conservation. The awareness can be provided by periodic Integrated Society meetings. They would be informed of their duties.

Environmental Audits and Corrective Action Plans: To assess whether the implemented EMP is adequate, periodic environmental audits will be conducted by the project proponent's Environmental division. These audits will be followed by Correction Action Plan (CAP) to correct various issues identified during the audits.



VOLUME-II



INTRODUCTION

1.0 PREAMBLE

The purpose of EIA study is to assess the beneficial and adverse impacts of the project on the existing environmental parameters, so that suitable control measures could be taken to reduce the impacts. Thus the EIA report is a summarized presentation of base line information of air, water, soil, noise, flora, fauna, socio-economic study and the prevailing environmental scenario of the project activity and the likely impacts due to project, so as to decide the suitable mitigation measures for implementation to maintain healthy working environment and contain pollution within permissible limits.

1.1 GENERAL INFORMATION ON PROJECT

The project is Expansion cum Modification of Group Housing Buildings in Zone 10, DLF 5, at Sector-54 Gurugram, Haryana being developed by M/s DLF Ltd. The project had received License from the Directorate of Town & Country Planning, Haryana with 13 Licenses for 16.975 Acre (License No. 38, 39, 40, 52, 53, 57 of 1996 dated 16.04.1996 which is valid up to 15.04.2024, License No. 117, 121, 129, 131 of 1995 dated 29.12.1995 which is valid up to 28.12.2024 and License No. 02, 04, 06 of 2002 dated 25.10.2002 which is valid up to 24.10.2024. The zoning plan is obtained from DTCP dated 20.11.2020 for 476.6015 Acres for group housing colony in DLF 5, Gurugram Haryana.

Total plot area of Phase-V Group Housing is 476.6015 Acres (19, 28,738.00 m²) out of which 16.975 Acres, 68,693.850 m² (Existing-30,653.317 m²/7.574 Acre) are to be developed for this particular Group Housing Buildings Project.

We have obtained earlier EC from SEIAA, Haryana through file no. SEIAA/HR/2022/181 & EC Identification No. EC22B039HR111216 for total 2, 33,377.998 m² built-up area on 30,653.317 m² /7.574 Acre) plot area.

Thus, EIA study has been done for this project to get Environmental Clearance from SEIAA, Haryana. The project site has been earmarked for the residential land use according to Gurugram-Manesar Urban Complex-2031-AD.

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1.2 ENVIRONMENTAL CLEARANCE PROCESS

As per EIA notification 2006, all building construction and area development projects covering an area of 50 Ha and/or built up area more than 1,50,000 sq.mt are designated as B (b) projects and are required to obtain prior environmental clearance from respective Environmental Impact Assessment Authority (EIAA). The application for environmental clearance shall comprise submission of Form I, Form 1A, Conceptual Plan, approved Term of Reference (TOR) and Environmental Impact Assessment Report to the authorities.

1.3 TERMS OF REFERENCE (TOR)

Standard Terms of Reference (ToR) have been issued by SEAC, Haryana through file No: SEAC/HR/2024/067 & ToR Identification No. TO24B3812HR5769356N dated 12.03.2024 for the project on the basis of application submitted along with Form-I and supplementary Form - IA. The EIA/EMP report has been prepared considering the point of ToR.

1.4 VALIDITY OF ENVIRONMENTAL CLEARANCE

The period of environmental clearance which will be granted shall be ten years from the date of issuance as per the latest amended notification vide [F. No. IA3-22/10/2022-JA.II] dated 12/04/2022.

1.5 POST ENVIRONMENTAL CLEARANCE MONITORING

The Project management shall submit half-yearly compliance report in respect of the stipulated prior environmental clearance terms and conditions on 1st June and 1st December of each calendar year as per point 10(i) in the notification published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii) by Ministry of Environment, Forest and Climate Change. All such compliance reports submitted by the project management shall be public documents.

1.6 TRANSFERABILITY OF ENVIRONMENTAL CLEARANCE

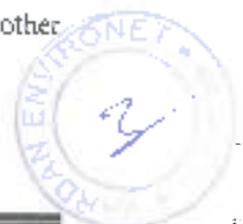
A prior environmental clearance granted for a specific project or activity to an applicant may be transferred during its validity to another legal person entitled to undertake the project or activity on application by the transfer or the transferee with a written "no objection" by the transferor to and by the regulatory authority concerned, on the same terms and conditions under which the prior environmental clearance was initially granted, and for the same validity period

1.7 GENERIC STRUCTURE OF ENVIRONMENTAL IMPACT ASSESSMENT

In terms of EIA notification, the generic structure of EIA should be as per the MoEF dated 14th September 2006 (Appendix III). Hence, this EIA Report is structured accordingly.

Various chapters of the EIA Report are as follows:

- **Chapter 1- Introduction:** This chapter contains the general information on the project.
- **Chapter 2- Project Description:** This chapter contains detailed description of the project, such as the type of the project, need of the project, project location, land availability, utilities and infrastructure facilities such as roads and other requirement.
- **Chapter 3- Description of the Environment:** This chapter covers baseline data in the project area.
- **Chapter 4- Anticipated Environmental Impacts & Mitigation Measures.** Anticipated positive and negative impacts as a result of the construction and operation of the project are covered as a part of this section. The section attempts to forecast the future environmental conditions of the project area that might be expected to occur as a result of the construction and operation of the project.
- **Chapter 5- Analysis of Alternatives (Technology and site):** This chapter includes the options, details of the alternatives of materials that are to be used in building construction and energy conservation methods to be adopted.
- **Chapter 6- Environmental Monitoring Program:** This chapter covers the technical aspects of monitoring the effectiveness of mitigation measures (including measurement methodologies, data analysis, reporting schedules, emergency procedures, detailed budget and procurement schedules) both during the construction and operational phase and also includes details of the post monitoring scheme. This chapter also gives technical aspects of monitoring the effectiveness of mitigation measures.
- **Chapter 7- Additional Studies:** This chapter covers the details of the additional studies required, which are necessary for specific issues applicable to the project.
- **Chapter 8- Project Benefits:** This chapter covers the benefits accruing to the locality, neighborhood. It also brings out details of benefits by way of improvement in the physical infrastructure, social infrastructure, employment potential and other tangible benefits.



- **Chapter 9- Environmental Cost Benefit Analysis:** This chapter covers the environmental cost benefit analysis, if recommended at the scoping stage.
- **Chapter 10- Environmental Management Plan:** This chapter covers comprehensively present the Environment Management Plan (EMP), which includes the administrative and technical setup, summary matrix of EMP, the cost involved to implement the EMP, both during the construction and operational phase.
- **Chapter 11- Summary & Conclusion:** The overall justification for implementation of the project and explain how the adverse effects have been mitigated.
- **Chapter 12- Disclosure of Consultants engaged:** This chapter includes the name of the consultant engaged with their brief resume and nature of consultancy rendered.

1.8 IDENTIFICATION OF PROJECT AND PROJECT PROPONENT

1.8.0 Identification of Project

This project is located in Zone 10, DLF-5, at Sector-54 Gurugram, Haryana. The GPS Coordinates of the project site are as follows:-

POINT	LATITUDE	LONGITUDE
1	28° 26' 52.885" N	77° 6' 46.971" E
2	28° 26' 50.420" N	77° 6' 53.250" E
3	28° 26' 50.173" N	77° 6' 55.211" E
4	28° 26' 48.720" N	77° 6' 55.225" E
5	28° 26' 48.683" N	77° 6' 53.881" E
6	28° 26' 46.869" N	77° 6' 52.424" E
7	28° 26' 42.633" N	77° 6' 52.766" E
8	28° 26' 40.695" N	77° 6' 51.099" E
9	28° 26' 41.978" N	77° 6' 46.492" E
10	28° 26' 44.419" N	77° 6' 46.681" E
11	28° 26' 45.457" N	77° 6' 44.248" E
12	28° 26' 51.662" N	77° 6' 45.158" E

1.8.1 Project Proponent

The project proponent is M/s DLF Limited and mainly involved in promoting the real estate developers, promoters, infrastructure developers & financiers. The company is having its office at Gurugram, Haryana.



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Vardan EnviroNet, Gurgaon

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FINAL EIA/EMP REPORT: CHAPTER 1

Address:

Mr. Lok Pal Singh

Sr. Vice President

At DLF Shopping Mall, 3rd Floor, Arjun Marg, DLF City, Phase-1, Gurugram-122002
Haryana.

1.9 BRIEF DESCRIPTION OF PROJECT

M/s DLF Limited is proposing construction of Proposed Expansion cum Modification of Group Housing Buildings in Zone 10, DLF 5, at Sector-54 Gurugram, Haryana. Total plot area of Phase-V Group Housing is 476.6015 Acres (19, 28,738.00 m²) out of which 16.975Acres/68,693.850 m² (Existing-30,653.317m²/7.574 Acre) are to be developed for this particular Group Housing Buildings Project. Details are mentioned in Table- 1.1 below:

Table-1.1: Summary of Project

S. No.	Particular	As Per Earlier EC	Expansion cum modification	Total Area (S.qm)
1	Total Site Area	30,653.317	38,040.533	68,693.850
2	Proposed Ground Coverage	6,369.384	39,958.360	46,327.744
3	Total Proposed FAR	1,43,937.510	2,93,254.289	4,37,191.799
4	Total Proposed NoN FAR	89,440.488	1,29,786.069	2,19,226.557
5	Total Proposed Built - up Area (FAR + NoN FAR)	2,33,377.998	4,23,040.358	6,56,418.356
6	Proposed Green Area (@20% of total plot area)	9,195.995	4,554.005	13,750.000

*FAR = Floor Area Ratio

Note: Ground Coverage: Out of 46,327.741 m², only 13,262 m² is at ground level and 33,065.741 m² balance is at lower ground level.



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FINAL EIA/EMP REPORT: CHAPTER 1

Salient Features

S. No.	Particular	As Per Earlier EC/Application	Expansion cum modification	Total
1	Total Population	4,508	-225	4,283
2	Total Water Requirement (KLD)	391	225	616
3	Total Fresh Water Requirement (KLD)	255	89	344
4	Treated/recycled water	136	136	272
5	Total Wastewater Generated (KLD)	294	2	296
6	Capacity of STP (MLD)	DLF-5 Common STP of 15 MLD	--	DLF-5 Common STP of 15 MLD
7	Total Solid Waste Generation. Kg/day	2,069	-189	1,880
8	Biodegradable Waste (kg/day)	--	--	752
9	OWC Capacity (kg/day)	1,500	-650	850
10	Total Power Requirement & Source KW(DHBN)	5,874	5,216	11,090
11	No. of DG Set	9 DG sets of total capacity 8,250 KVA (7×1,000 KVA : 2×625 KVA).	7,750	8 DG sets of total capacity 16,000 KVA (8×2,000 KVA)
12	Solar Capacity (KW)	--	--	111
13	No. of RWH Pits	8	9	17
14	Proposed Parking (ECS)	1,615	995	2,610
15	Total no. of towers	4	3	7
16	No. of Community buildings	1	--	1
17	Max.No. of Floors for residential	B4 + B3 + B2 + B1 + S + 33F	-2F	B4 - B3 + B2 + B1 + UGF + 31F
18	Max.No. of Floors for club house/community building	--	--	LGF+MF+UGF
19	Total No. of basements	4	--	4
21	Main Dwelling Unit	520	-88	432
22	Service Personnel Room	50	382	432
23	Total Project Cost in Crore	1,076	6,507	7,583

1.10 CENTRE/STATE/LOCAL REGULATIONS & STANDARDS APPLICABLE TO THE PROJECT

In 1972, UN Conference on Human Development at Stockholm influenced the need for a well-developed legal mechanism to conserve resources, protect the environment and ensure the health and well-being of the global population. Over the years, the government of India has framed several policies and promulgated numbers of Acts, Rules and Notification aimed at management and protection of the environment. The environment legislation aimed to

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FINAL EIA/EMP REPORT: CHAPTER 1

ensure the development process meets the overall objective of promoting sustainable development. Following legislation is applicable to the projects:

Table 1.2: Summary of Environmental Legislation, Policy and Guidelines as Applicable On Project

Legislation	Areas / Activities Covered	Applicability
Water (Prevention and Control of Pollution) Act, 1974 with Rules.	<ul style="list-style-type: none"> Protection of Water Quality Discharge of sewage Obtaining Consent to Establish for establishing and Consent to Operate for activities causing water pollution from SPCB and for the discharge of effluents 	Applicable, involves generation of sewage
Air (Prevention and Control of Pollution) Act, 1981 with Rules.	<ul style="list-style-type: none"> Protection of Air Quality Consent to Establish (NOC) for establishing and Consent to Operate (CTO) for activities causing air pollution from SPCB Compliance to National Ambient Air Quality Standard 	Applicable, involves emissions of flue gases due to operation of DG sets
Environment (Protection) Act, 1986 with Rules.	<ul style="list-style-type: none"> Overall Environment Protection Compliance to environmental (Air, Water, Noise) Standards issued under EPR 	Applicable.
The Motor Vehicles (Amendment) Act, 2019 with Rules.	<ul style="list-style-type: none"> Lay down restriction for vehicles not having Pollution Under Control Certificate (PUGC) or proper labeling to enter premises 	Applicable
Manufacture, Storage and Import of Hazardous Chemicals Rules, 2000 (as amended)	<ul style="list-style-type: none"> Notifying regulatory authority (in this case, the State Factories Inspectorate) of storage of hazardous substances like HSD Follow guidelines on such storage, 	Applicable, storage of some quantity (below threshold limit as mentioned in schedule 2 & 3)

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FINAL EIA/EMP REPORT: CHAPTER I

Legislation	Areas / Activities Covered	Applicability
	maintain updated MSDS, submit annual Safety Report to authority <ul style="list-style-type: none"> • Prepare Onsite Emergency Plan 	of HSD for operating Dg sets
Noise Pollution (Regulation and Control) Rules, 2000	<ul style="list-style-type: none"> • Compliance with Ambient Noise and emission Standards in accordance to use classification for the area 	Applicable, involves generation of noise due to operation of DG sets & pumps and vehicular movement
EIA Notification, 2006 and amendments	<ul style="list-style-type: none"> • Prepare EIA / EMP report • Obtain Environmental Clearance from MoEF/SEIAA 	Applicable and covered under Activity 8 (h), Category (B) Built-up area of project is more than 50 ha and less than 150 ha are classified.
Wildlife Protection Act, MoEF 1972, amended 2022	<ul style="list-style-type: none"> • Lays down rules and regulations pertaining to Wildlife Sanctuaries, National Parks. • Obtain NBWL Clearance if site is within 10 km radius of WLS/NP/Protected Areas 	Not applicable, no eco-sensitive zone protected area is within 10 km radius from the project boundary.
Construction & Demolition Waste Management Rules, 2016	<ul style="list-style-type: none"> • Procedure of collection, segregation of concrete, soil and others • Procedure of storage of construction and demolition waste generated 	Applicable
E-Waste (Management) Rules, 2023	<ul style="list-style-type: none"> • Procedure of collection, storage and transportation of E-waste. • E-waste generated from the plotted 	Applicable

For DLF LIMITED

Vardan EnviroNet, Gurgaon

Authorised Signer

Proposed Expansion cum Modification of Group Housing Buildings in Zone 10, DLF 5
At Sector-54, Gurugram, Haryana
Being developed by M/s DLF Limited

FINAL EIA/EMP REPORT: CHAPTER 1

Legislation	Areas / Activities Covered	Applicability
	Colony which will be given to vendors.	
Hazardous and Other Wastes (Management and Transboundary Movement) amendment Rules, 2023	<ul style="list-style-type: none"> Obtaining Authorization from SPCB for handling and storing of hazardous waste like waste oil and lubricants Following guidelines for handling and storing of such hazardous waste Management (Collection, Handling, Intermediate Storage) of domestic waste from residences 	Applicable, generation of small quantity of used oil from DG sets Applicable, involves generation of municipal solid waste
Plastic Waste Management Rules, 2016	<ul style="list-style-type: none"> Procedure of segregation, collection, storage, transportation, processing and disposal of plastic waste Plastic waste will be generated from households which will be given to vendors. 	Applicable
Haryana Building Bye Laws	<ul style="list-style-type: none"> Obtain permits and sanction for land Development of project in accordance with Land-use and Master plans 	Applicable
State Groundwater Regulation	<ul style="list-style-type: none"> Conform to restriction for drawing of groundwater Arrange for recharge through Rainwater Harvesting Schemes (as applicable) 	Applicable, if ground water is utilized

1.11 LITIGATION

No any litigation and/or any directions or orders passed by any Court of Law/any Statutory Authority is pending against the project. Affidavit cum undertaking regarding the same is attached as Annexure in EIA report.



For DLF LIMITED

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PROJECT DESCRIPTION**2.1 GENERAL**

The project is Expansion cum Modification of Group Housing Buildings in Zone 10, DLF 5, at Sector-54 Gurugram, Haryana being developed by M/s DLF Ltd. The project had received License from the Directorate of Town & Country Planning, Haryana with 13 Licenses for 16.975 Acre (License No. 38, 39, 40, 52, 53, 57 of 1996 dated 16.04.1996 which is valid up to 15.04.2024, License No. 117, 121, 129, 131 of 1995 dated 29.12.1995 which is valid up to 28.12.2024 and License No. 02, 04, 06 of 2002 dated 25.10.2002 which is valid up to 24.10.2024. The zoning plan is obtained from DTCP dated 20.11.2020 for 476.6015 Acres for group housing colony in DLF 5, Gurugram Haryana.

Total plot area of Phase-V Group Housing is 476.6015 Acres (19,28,738.00 m²) out of which 16.975 Acres/68,693.850 m² (Existing-30,653.317m²/7.574 Acre) are to be developed for this particular Group Housing Buildings Project.

We have obtained earlier EC from SEIAA, Haryana through file no. SEIAA/IR/2022/181 & EC Identification No. EC22B039HR111216 for total 2,33,377.998 m² built-up area on 30,653.317 m² (7.574 Acre) plot area

Now the company is proposing expansion cum modification in the project with revised built-up area 6,56,418.356 m² and 16.975 Acres /68,693.850 m² plot area.

As per the EIA notification 2006 and its subsequent amendments, the project falls in Schedule 8(b), Category B1, Townships & Area Development Projects, the project requires EC from SEIAA, Haryana. The project was granted standard TOR through file no. SEAC/HR/2024/067 & ToR Identification No. TO24B3812HR5769356N dated 12.03.2024 for preparation of EIA/EMP report. This EIA/EMP is prepared incorporating TOR points and submitted to SEAC, Haryana for obtaining Environmental Clearance.



2.2 TYPE OF THE PROJECT

The total Built-up area after expansion cum modification of project is 6,56,418.356 m² .. As per the EIA notification 2006 and its subsequent amendments, the project falls in Schedule 8(b), Category B1, Townships & Area Development Projects. the project requires EC from SUIAA, Haryana.

2.3 NEED OF THE PROJECT

Providing affordable houses to hundreds of thousands of people is a herculean task, especially when a large percentage of population of India comes under middle- and lower-income groups. Government of India has targeted that by 2023 every family will have a Pucca House with all modern amenities. Hon'ble Prime Minister has launched a programme to achieve housing for all by 2023. The plotted colony not only caters to the need of investment but offers ample facilities to take care of safety, comfort and re-creation. Based on the above facts, the need and justification of the Project is evident.

2.4 LOCATION OF PROJECT (MAPS SHOWING GENERAL LOCATION, SPECIFIC LOCATIONS, PROJECT BOUNDARY AND PROJECT SITE LAYOUT)

The project site is located in Zone 10, DLF-5, Sector-54, Gurugram, Haryana which is easily approachable through SH-13 which is ~7.6 Km away from the project site towards West direction and NH-48 which is ~5.5 Km away from the project site towards NW direction and nearest railway station is Gurugram Railway Station at a distance of ~11 Km from project site in NW direction. Nearest airport is Indira Gandhi International Airport at a distance of ~10.3 Km from the project site in North direction.



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9	OWC Capacity (kg/day)	1,500	-650	850
10	Total Power Requirement & Source KW(DHBN)	5,874	5,216	11,090
11	No. of DG Set	9 DG sets of total capacity 8,250 KVA (7×1,000 KVA + 2×625 KVA).	7,750	8 DG sets of total capacity 16,000 KVA (8×2,000 KVA)
12	Solar Capacity (KW)	--	--	111
13	No. of RWH Pits	8	9	17
14	Proposed Parking (FCS)	1,615	995	2,610
15	Total no. of towers	4	3	7
16	No. of Community buildings	1	--	1
17	Max.No. of Floors for residential	B4 + B3 + B2 + B1 + S + 33F	-2F	B4 + B3 + B2 - B1 + UGF + 31F
18	Max.No. of Floors for club house/community building	--	--	LGF+MF+UGF
19	Total No. of basements	4	--	4
21	Main Dwelling Unit	520	-88	432
22	Service Personnel Room	50	382	432
23	Total Project Cost in Crore	1,076	6,507	7,583

(Source: Conceptual Plan)

2.6 POPULATION DENSITY:

The total population after expansion cum modification of project will be 4,283 persons. The detailed population breakup is given below in the following Table – 2.3.

Table 2.3: Details of Population Break up

S. No.	Occupancy Type	PPU	Unit / Area (Sqm)	Total Population
1	Main Dwelling Units	@5 Persons / Unit	432	2,160
2	Services Personnel Room	@2 Persons / Unit	432	864
3	Maintenance staff	Lumpsum		43
4	Club House/community building	Lumpsum		1,000
5	Visitors	10 % of Residential Population		216

Proposed Expansion cum Modification of Group Housing Buildings in Zone 10, DLF 5
At Sector-54, Gurgaon, Haryana
Being developed by M/s DLF Limited

FINAL EIA/EMP REPORT-CHAPTER-2

	Total		4,283
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(Source: Conceptual Plan)

2.7 WATER REQUIREMENT

The water will be supplied through HSVP/CMDA. Total water requirement for the project will be approximately **616 KLD**, out of which **344 KLD** is fresh water requirement and **272 KLD** is treated water requirement which will be used for flushing (87 KLD), Cooling Tower (103 KLD) and horticulture (82 KLD). The calculation of daily water requirement for Operational phase in summer season is given in **Table 2.4**. Water balance of summer season is given in figure 2.5. The calculation of daily water requirement for Operational phase in winter season is given in **Table 2.5**. Water balance of winter season is given in figures 2.6. The calculation of daily water requirement for Operational phase in monsoon season is given in **Table 2.6**. Water balance of monsoon season is given in figures 2.7

Table 2.4: Calculation for Daily Water Demand (Summer Season)

S. No.	Occupancy Type	Total Population / Area	Rate of Water Demand (lpcd)	Water Requirement (KLD)			Total Waste Water Generated (KLD)
				Domestic	Flushing	Total	
1	Main Dwelling Units	2160	86	140.40	45.36	185.76	171.72
2	Service Personnel Room	864	86	56.16	18.14	74.30	68.69
3	Maintenance Staff	43	45	1.08	0.86	1.94	1.83
4	Visitors	216	15	1.08	2.16	3.24	3.13
5	Clubhouse/community building	1000	45	25.00	20.00	45.00	42.50
6	Filter Backwash		lumpsum	10.00		10.00	8.50
7	Swimming pool makeup		lumpsum	27.51		27.51	
8	Cooling tower makeup for chillers		lumpsum		102.90	102.90	
9	Horticulture	13750	6 L /Sq.m		82.50	82.50	
10	Water feature pool makeup		lumpsum	82.50		82.50	
Total				343.73	271.92	615.65	296.37
Say				344	272	616	296

(Source: Conceptual Plan)

For DLF LIMITED

N. Nandan EnviroNet, Gurgaon
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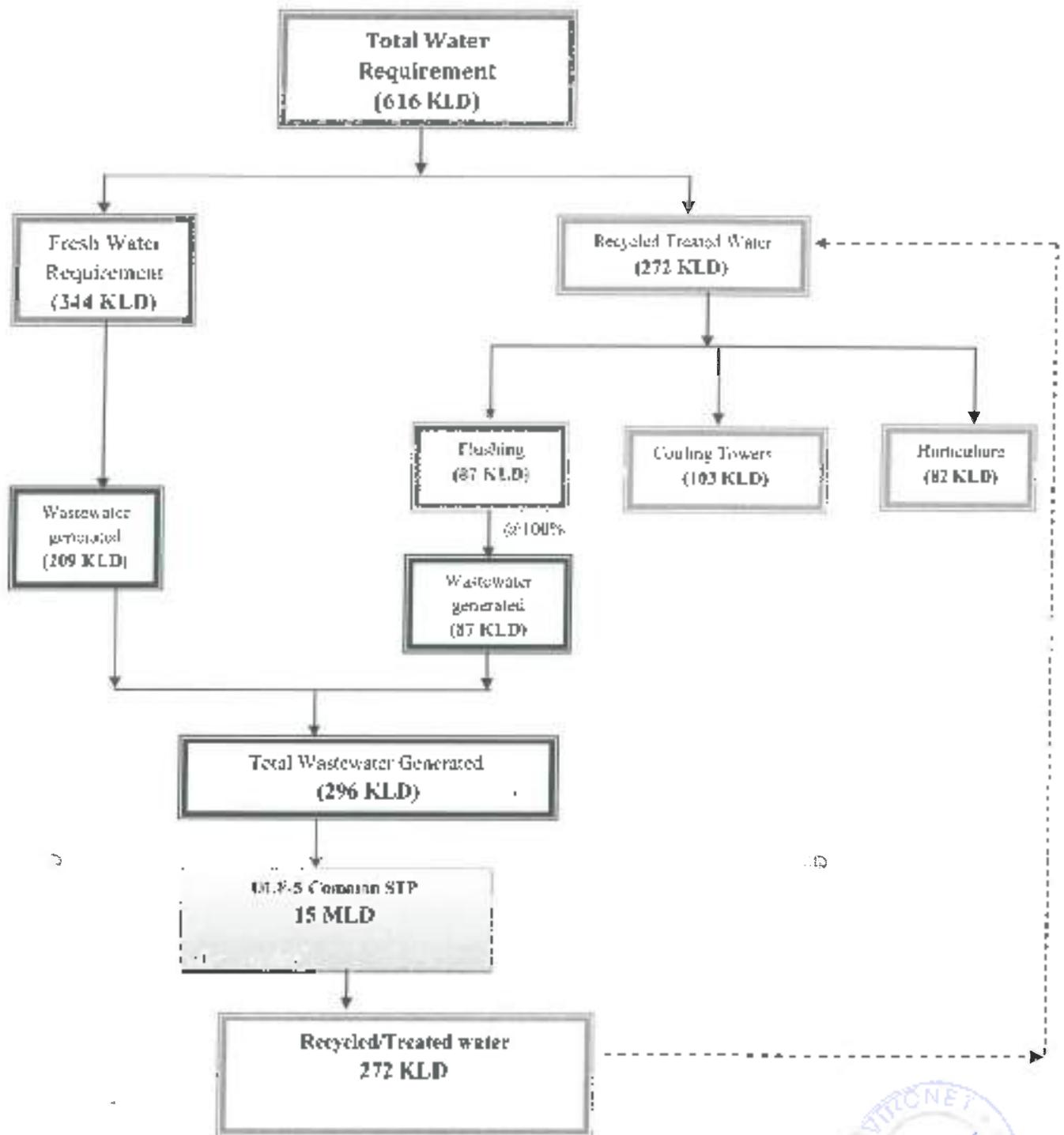


Figure 2.5: Water Balance Diagram during Summer Season



Table 2.5: Calculations for Daily Water Demand (Winter Season)

S. No.	Occupancy Type	Total Population / Area	Rate of Water Demand (lpcd)	Water Requirement (KLD)			Total Waste Water Generated (KLD)
				Domestic	Flushing	Total	
1	Main Dwelling Units	2160	86	140.40	45.36	185.76	171.72
2	Service Personnel Room	864	86	56.16	18.14	74.30	68.69
3	Maintenance Staff	43	45	1.08	0.86	1.94	1.83
4	Visitors	216	15	1.08	2.16	3.24	3.13
5	Clubhouse/community building	1000	45	25.00	20.00	45.00	42.50
6	Filter Backwash		lumpsum	10.00		10.00	8.50
7	Swimming pool makeup		lumpsum	27.51		27.51	
8	Cooling tower makeup for chillers		lumpsum		102.90	102.90	
9	Horticulture	13750	3 L/Sq.m		41.25	41.25	
10	Water feature pool makeup		lumpsum	82.50		82.50	
Total				343.73	230.67	574.40	296.37
Say				344	231	575	296

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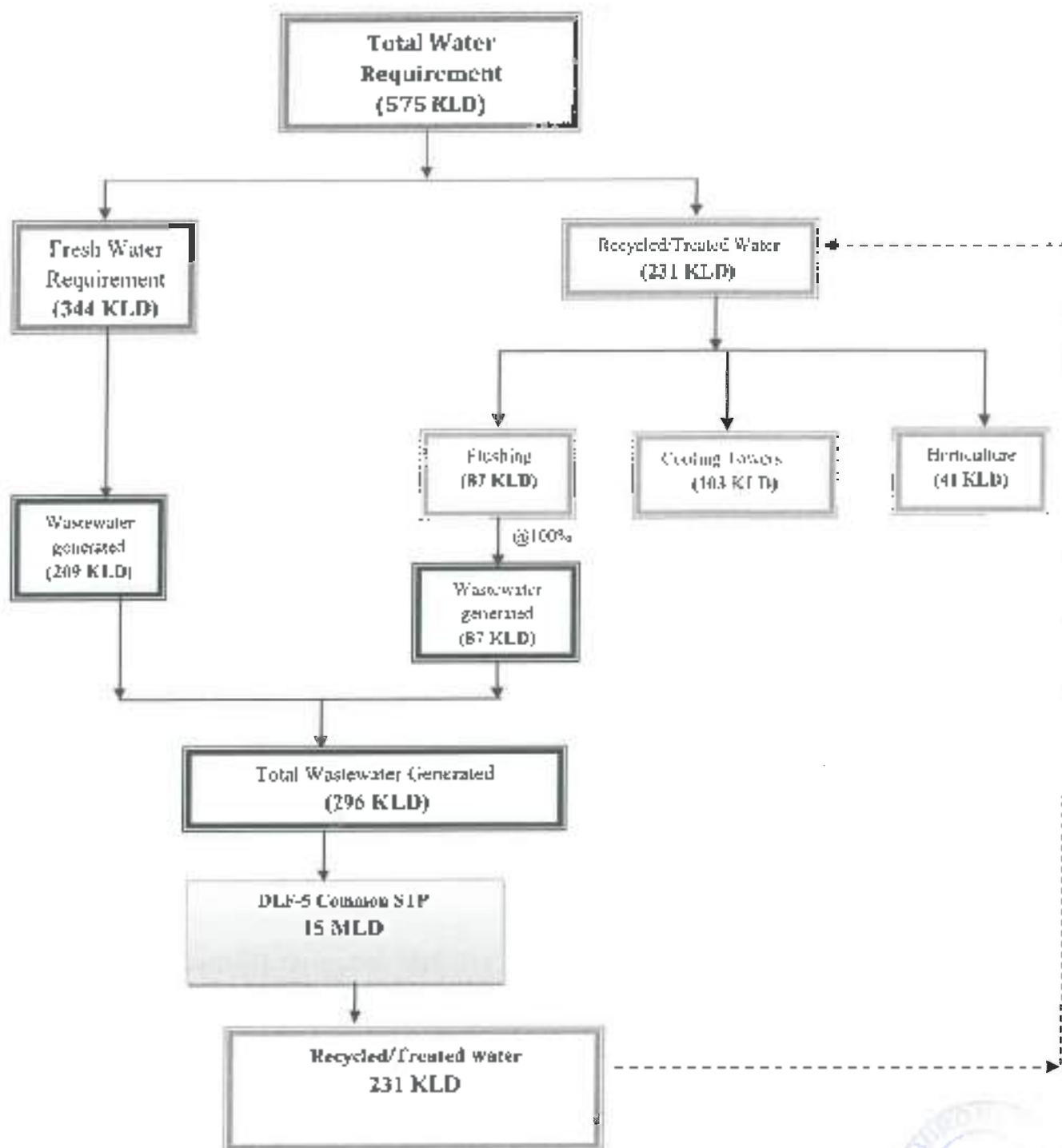


Figure 2.6: Water Balance Diagram during Winter Season

Table-2.6: Calculations for Water Demand (Monsoon Season)

S. No.	Occupancy Type	Total Population / Area	Rate of Water Demand (lpcd)	Water Requirement (KLD)			Total Waste Water Generated (KLD)
				Domestic	Flushing	Total	
1	Main Dwelling Units	2160	86	140.40	45.36	185.76	171.72
2	Service Personnel Room	864	86	56.16	18.14	74.30	68.69
3	Maintenance Staff	43	45	1.08	0.86	1.94	1.83
4	Visitors	216	15	1.08	2.16	3.24	3.13
5	Clubhouse/community building	1000	45	25.00	20.00	45.00	42.50
6	Filter Backwash		lumpsum	10.00		10.00	8.50
7	Swimming pool makeup		lumpsum	27.51		27.51	
8	Cooling tower makeup for chillers		lumpsum		102.90	102.90	
9	Horticulture	13750	1 L./Sq m		13.75	13.75	
10	Water feature pool makeup		lumpsum	82.50		82.50	
Total				343.73	203.17	546.90	296.37
Say				344	203	547	296

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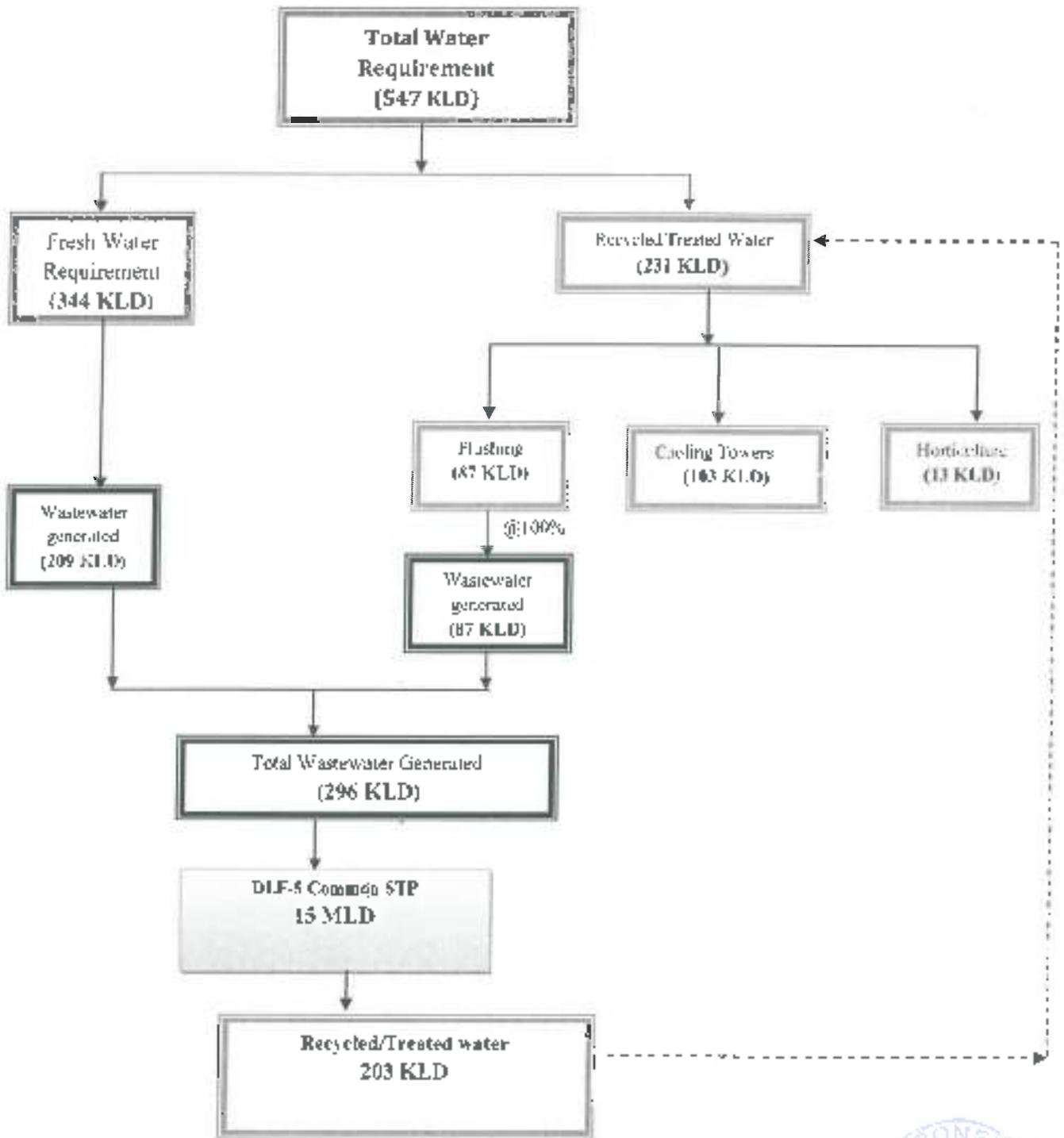



Figure 2.7: Water Balance Diagram during Monsoon Season



2.8 WASTEWATER GENERATION & TREATMENT

The wastewater will be treated in DLF-5 common Sewage Treatment Plant of total capacity of 15 MLD (9 MLD based on SBR technology & 6 MLD based on MBR technology) nearby the project premises. 272 KLD treated water from common STP of DLF Phase-5 will be reused for flushing, horticulture and cooling towers within our site.

Table- 2.7: Wastewater Generation Calculation

Details	Water (KLD)
Water requirement for fresh water	344 KLD
Wastewater generated from fresh water	209 KLD
Water requirement for Flushing Purpose	87 KLD
Wastewater generated from Flushing (@ 100% of flushing requirement)	87 KLD
Total wastewater generated	296 KLD
Use of Recycled Water (272 KLD will be reused for flushing, Cooling tower and horticulture)	1. Flushing : 87 KLD 2. Cooling Tower: 103 KLD 3. Horticulture :82 KLD

(Source: Conceptual Plan)

SEWAGE TREATMENT TECHNOLOGY

Existing common STP of capacity 15 MLD (9 MLD based on SBR technology & 6 MLD based on MBR technology) is having sufficient capacity in addition to the existing projects to treat the wastewater generated from the expansion cum modification of Group Housing Buildings in Zone 10, DLF 5, Sector-54, Gurugram, Haryana.

STP feasibility report is attached as Annexure in EIA/EMP report.

2.8 POWER REQUIREMENT

The power supply shall be supplied by Dakshin Haryana Bijli Vitran Nigam (DHVN). The required power load after expansion of project will be approx. 11,090 KW.

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2.8.1 Details of D.G Sets:

Total 08 Nos. of DG sets of total capacity of 16,000 KVA (8x2,000 KVA) will be operated during power failure. The DG sets will be air cooled and equipped with acoustic enclosure to minimize noise generation and adequate stack height for proper dispersion.

2.8.2 Energy conservation

For energy conservation, solar lights and solar panel will be provided. We will be installing 110 KWp Solar PV which will reduce energy drawn from grid.

2.9 SOLID WASTE GENERATION & DISPOSAL

Solid waste would be generated both during the construction as well as during the operation phase. The solid waste expected to be generated during the construction phase will comprise of excavated materials, used bags, AAC Blocks, concrete, MS rods, tiles, wood etc. The following steps are proposed to be followed for the management of solid waste:

- Construction yards are proposed for storage of construction materials.
- The excavated material such as soil and stones will be stacked for reuse during later stages of construction.
- Excavated top soil will be stored in temporary constructed soil bank and will be reused for landscaping of the project.
- Remaining soil shall be utilized for refilling / road work / rising of site level at locations/ selling to outside agency for construction of roads etc.

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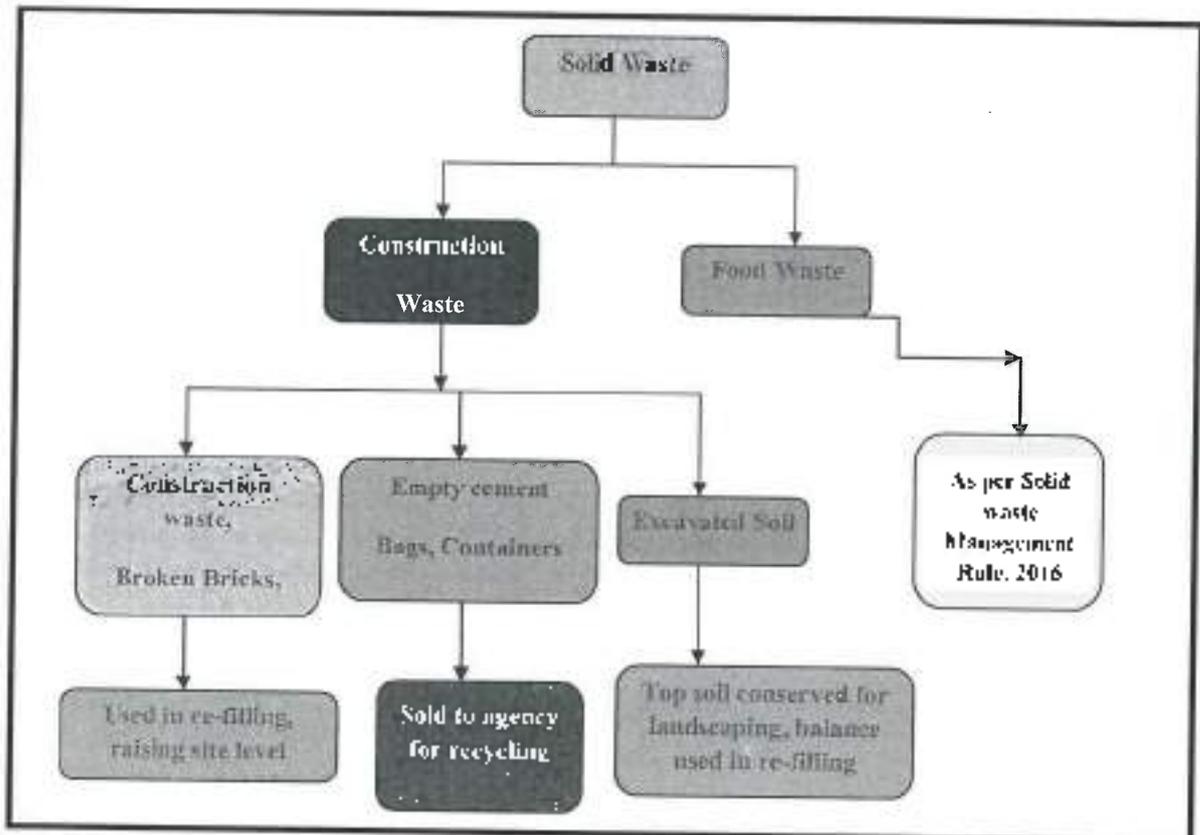


Figure-2.9: Solid Waste Management Scheme during Construction Phase

During the operation phase, the solid waste generated from the project will be approx. 1,880 kg/day. Detailed calculation is shown in Table: 2.8.

Table- 2.8: Solid Waste Generation

S. No.	Unit Type	Population	Rate(Kg/Cap./Day)	Total Waste Generated (Kg/Day)
1	Main Dwelling Units	2160	0.50	1080.00
2	Services Personnel Room	864	0.50	432.00
3	Maintenance Staff	43	0.30	12.90
3	Visitors	216	0.15	32.40
4	Club House/community building	1000	0.30	300.00
5	Horticulture	3.39	0.20 Kg/Acre	0.68
6	Sludge	296	7.51 % of wastewater	22.26
Total				1,880

(Source: For Waste Collection, Chapter 3, Table 3.6, Page no. 49, Central Public Health & Environment Engineering Organization, Ministry of Urban Development, (Government of India, May 2000))

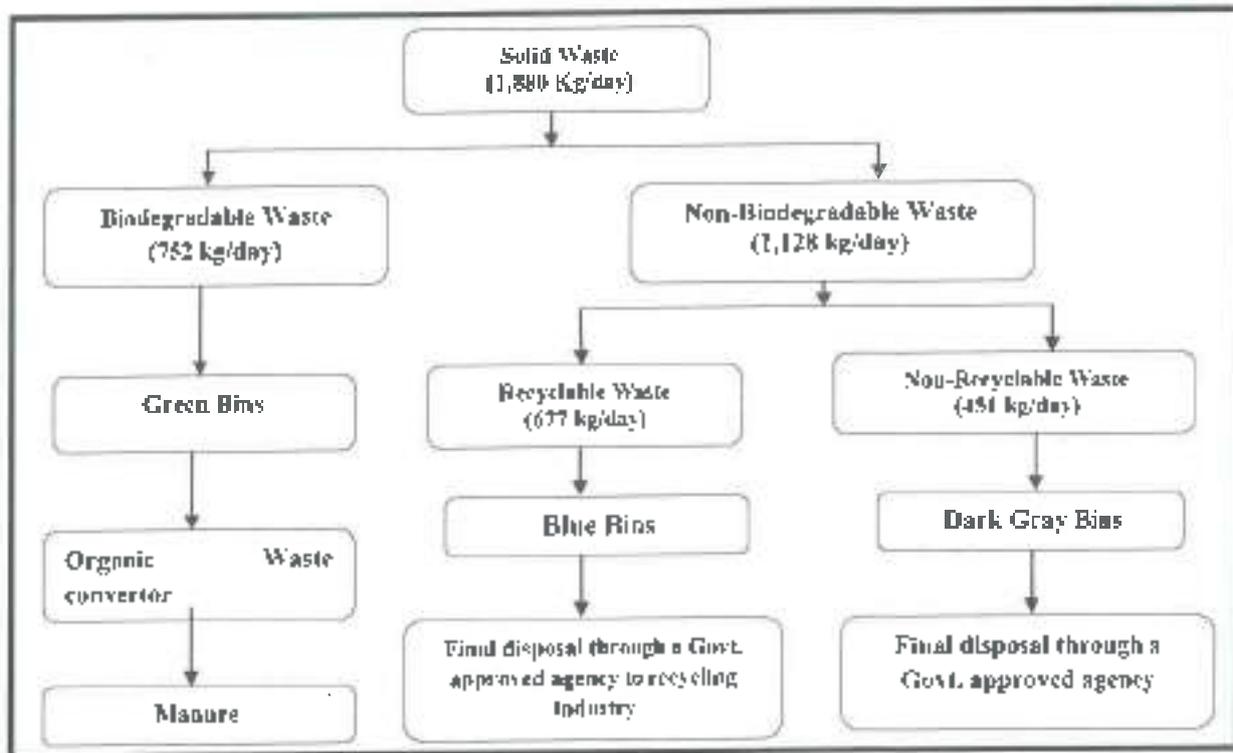


Figure 2.10: Solid Waste Management Scheme during Operation Phase

Note: We will abide by Plastic waste Management (Amendment) rules, 2023 and E-waste management (Amendment) Second Amendment rules, 2023

Following arrangements will be made at the site in accordance to Solid Wastes Management Rules, 2016.

1 Collection and Segregation of waste

1. A door to door collection system will be provided for collection of domestic waste in colored bins from dwelling units, others area etc.
2. Adequate number of colored bins (Green and Blue bins for bio-degradable and non-bio-degradable respectively) are proposed to be provided.
3. Litter bin will also be provided in open areas like parks etc.

2 Treatment of waste

Bio-Degradable wastes

1. Bio-degradable waste will be treated in Organic Waste Converter and the compost will be used as manure.

2. STP sludge is proposed to be used for horticulture as manure.
3. Horticultural Waste is proposed to be composted and will be used for gardening purposes.

Recyclable wastes

1. Grass Recycling – The cropped grass will be spread on the green area. It will act as manure after decomposition.
2. Recyclable wastes like paper, plastic etc. will be sold off to recyclers.
3. Hazardous wastes such as waste oil will be sold off to authorized recyclers.
4. Buy back arrangement will be made for batteries.

3 Disposal

The Municipal Solid Waste Management will be conducted as per the guidelines of Solid Waste Management Rules, 2016. The inert non-recyclable wastes will be disposed through government approved agency for land filling. A solid waste management scheme is depicted in the above figure for the project.

Organic waste management by automatic composting machine

- This is highly compact solution for organic and biodegradable/wet waste.
- Decentralized waste management solution aesthetically designed just take less than a single car park space for a 250 kg unit capable to treat wet waste generated.
- It reduces labor cost because of safe handling system, as no pathogens generated due to operations in high temperature thereby reducing health risks significantly.
- Very fast Waste to manure processing duration i.e. 1-3 days in comparison of traditional composting methods
- No transport cost as machine can operate at on site without any multi-step process by just provide input, plug and start operation
- Designed to keep rodents at bay so cleanest technology with negligible odour.
- Life span 25-30 years and AMC to ensure 24X7 days of uninterrupted operation
- Microbes present within incubator feed on the organic matter and convert it to compost.
- Moisture content and temperature automatically regulated using sensors at the bottom of the tank whenever organic waste is added.
- Fully aerobic digestion is facilitated by the periodic and intermittent rotation of the mixing blades (no crushing/grinding) to maximize microbe activation
- The final decomposition is done by specialized thermophilic microbes which thrive in high temperature and high acidic or salty atmospheres.
- The final product in the form of compost can be used as manure in to landscape area management.
- The wet waste reduced in volume by 90 % and 100 kg waste converted into 10-15 kg compost which can be removed in 10-15 days and expenditure to process per kg of waste is less than 01 INR
- The output compost from OWC can be mixed with soil in the ratio of 1:10 before using as manure

- Care to be taken to only moisten the waste and not make it dripping wet.
- Clear the compost once it reaches the red level because excess compost might spoil the machine by entering the motor assembly.
- A buffer of 3-6 days on composting of pure garden waste necessarily to be taken due to direness of such waste in comparison of other food waste.

Technical Specification

Operation	Fully Automatic
Output	Organic Manure
Installation Requirements	Almost Plug and Play Vent to be connected outdoors or storm water lines. No need of water inlet. Water may be required, only to clean the machine externals and any piled waste.
Control Systems	PLC Based
Composting Tank	SS
Housing	M.S with Powder coating or SS panels as a variant
Input / Output	Door for waste input Separate door for getting out compost
Heater	Insulated oil heating chamber or Heating pads as a variant
Other Features	<ul style="list-style-type: none"> • Provided with waste overload function • Indicators for Power mode, heater & power saving mode • Stainless steel (SS304) shaft & mixing blades • Safety feature. Internal mixing blades automatically stop when hopper door is opened (in auto mode) • Can be run in auto mode or manual mode • Internal shaft turns and sends out compost, when the compost door is opened
Doors	Separate door for waste input & separate door for compost removal
Preferred Location for installation	Can be a garden, area adjacent to garden, car park, preferably with a connection to the drainage
Life of the Machine	Expected around 25 years
Required Capacity	Ideally should be 20 % higher capacity of OWC to be selected as per estimated volume of wet/organic waste.
Proposed Capacity	20% more than OWC Organic Waste ~ 752 Kg Final OWC = 752 + 75 (20% of 752) = 827 Kg i.e. Total 1 nos. of Organic waste converter of capacity 850 Kg/day (1/850 Kg/day)



1. Organic Waste

Organic waste, includes kitchen waste and garden waste generated from the dwelling units, will be treated by Organic waste compost machine on site. The compost is then used for landscaping on the site. The OWC machine will be placed at a designated area.

2. Type of Waste to be treated

- Kitchen waste will be collected from dwelling units. This waste will be stored in garbage room which is located at the basement of the towers and further send to organic waste converter for treatment.
- Landscape waste is bio-degradable waste and will be composted in Organic waste converter. After post occupancy, horticulturist will collect garden waste and store in basement area, where organic waste converter is located. The treated organic waste will be used on site as manure for the landscape at the site.

3. Organic Waste Treatment System

OWC (Organic Waste Converter) is an easy to use Decentralized Waste Management System to turn large amounts of organic waste such as kitchen waste, garden waste, food processing waste etc. into compost. The system is designed to eliminate odour and also to remove the problem of irritants such as flies and rats.

The OWC is a bio-mechanical Composting System which consists of the OWC machine, Curing System and a number of optional accessories for specific waste challenges. The machine takes organic waste and Bioculum as input and to create manure starter. In just one week of curing the processed waste is transformed into manure that can be used on site in gardens or agriculture.

4. Process Description of Organic Waste Converter

4.1 Organic waste collection

The organic waste from the kitchens in general contains food waste from the pre-cooking operation and post cooking remnant or excess food. Waste from garden containing pruning's and small branches of the trees up to 2 cm diameter and/or bones, will be passed through the Shredder before it is placed into the container of the OWC

4.2 Organic Waste Treatment

Organic waste fed into OWC is mixed, aerated & fluidized and crushed for 5 minutes. Then container of the OWC is opened and observations are noted. If the crushed material has more moisture content which can be seen by visual observation, then absorbing media is added into the container up to 20% of the weight of the waste depending on the moisture content in the waste. The odour control powder "Bioculum" is added at the dosage rate of 1 gm of Bioculum/kg of waste. Then the lid of the container is closed and again the OWC is operated

for 5 minutes. After the completion of 5 minutes, the system will give audio-video indication by a beep-beep sound and indication of light. The lid is then opened and the processed material is observed. If it is turned to granular free flowing material, then lid is closed and the system is restarted. The bottom valve is opened for draining of the material. The raw compost is collected in the trolley/crates placed underneath of OWC System.

4.3 Curing of Raw Compost

For maturing and curing the raw compost, the material from the trolley is shifted in the crates which have perforation for aeration and then crates are placed in the curing system. Depending on the waste generation capacity, number of curing systems has to be proposed. Single Curing System has 100 kg/day capacity whereas Double Curing System has 200 kg/day capacity. After 10 days curing period, the compost from the tray can be used for application to the plants or any other mode of usage of manure in the agriculture.



Figure-2.11: Curing of raw compost in perforated crates

2.10 GREEN AREA

Total green area measures 13,750.00 m² i.e. 20% of total plot area which will be area under tree plantation along the periphery of the project, in the lawns and along the roads. Evergreen tall and ornamental trees and ornamental shrubs have been proposed to be planted inside the premises. Lawns will also be developed by the management.

2.11 PARKING REQUIREMENT

Adequate provision will be made for car/vehicle parking at the project site. There shall also be adequate parking provisions for visitors so as not to disturb the traffic and allow smooth movement at the site.

Provided Parking- 2,610 ECS.

S. No.	Parking details	No. of ECS
1.	Basement-1	591
2.	Basement-2	673
3.	Basement-3	673
4.	Basement-4	673
	Total	2610

2.12 TECHNOLOGY AND PROCESS DESCRIPTION

The project proponent proposes to develop a group housing colony. Only construction activity is involved in the project.

Construction will be done in such a way that the building will be environment friendly.

2.12.1 TYPE OF BUILDING MATERIAL

List of building materials will use at site:

- | | |
|---------------------------------------|---|
| 1. Course sand | 2. Fine sand |
| 3. Stone aggregate | 4. Stone for masonry work |
| 5. Cement | 6. Reinforcement steel |
| 7. Pipe scaffolding (cup lock system) | 8. Bricks |
| 9. CLC fly ash blocks | 10. Crazy (white marble) in grey cement |
| 11. P.V.C. conduit | 12. MDS, MCBs |
| 13. PVC overhead water tanks | 14. 2 1/2" thick red color paver tiles |
| 15. PPR (ISI marked) | 16. PVC waste water lines |
| 17. S.W. sewer line up to main sewer | 18. PVC rain water down take |
| 19. Stainless steel sink in kitchen | 20. Joinery hardware- ISI marked |



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At Sector-54, Gurugram, Haryana
Being developed by M/s DLF Limited

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2.12.2 MATERIALS USED FOR CONSTRUCTION WITH THEIR U & R VALUES

S. No	Building Material Proposed with U & R Values	'R' Values (in Sq m. Deg C/ Watts)	'U' Values (in Watts/ Sq m. Deg C)
1.	WALL Brick wall (230 mm thick), both side thick sand cement plaster (12-18mm) with insulation	1.284	0.688
2.	ROOF 200 mm RCC slab with mud phuska & clay tiles with 75 mm insulation	1.038	0.81

Source: Energy Conservation Building Code; 2007

2.13 EXISTING INFRASTRUCTURE

Many of the schools, hospitals and temples are already exist at site. Detail of some of them is as follows:

S. No.	Particulars	Distance	Direction
Nearest Road			
1.	NH-48	5.5 Km	W
2.	SH-13	7.6 Km	NW
Nearest Railway station			
1.	Gurugram Railway Station	11 Km	NW
Nearest Airport			
1	Indiaa Gandhi International airport	10.3 Km	N
Hospitals			
1.	Narayan Hospital	4.1 Km	N
2.	Sanvit Hospital	7.6 Km	W
Temples			
1.	Hanuman Temple	7.7 Km	W
2.	Shikamani Naam Dev Temple	7.9 Km	NNW
School/ College			
1.	R.B.P School	3.7 Km.	NW
2.	Agarsen School	7.2 Km.	WSW

DESCRIPTION OF THE ENVIRONMENT

3.1 GENERAL

The baseline environmental status forms the basis for evaluation of anticipated impacts due development on the existing conditions. This can be broadly grouped into physical, biological, social and economic environment. Physical environment includes air, meteorology, noise, water, soil, land, biological environment includes aquatic and terrestrial flora & fauna while social environment includes demographic details, civic infrastructure, public services, surrounding monuments, commercial facilities, employment levels, sources and levels of income, economic base of the area, land values, land ownership, etc. Baseline conditions at and around the project are described in following sections:

3.1.1 STUDY AREA

Project site is located in Zone 10, DLF-5, Sector-54, Gurugram, Haryana. The GPS Co-ordinates of the project site ranges from 28° 26' 40.695" N & 77° 6' 44.248" E to 28° 26' 52.885" N & 77° 6' 55.225" E. Study area considered for EIA study is divided into core zone and buffer zone. Project site is considered as core zone and 10 km zone is huffer zone. Baseline monitoring study period is December-2023 to February 2024. Baseline study includes collection of primary and secondary data. Primary data on ambient air quality, soil quality and water quality and noise level were collected from site. Secondary data collected from various departments like Indian Meteorological Department (IMD), Central Ground Water Board, Geological Survey of India, State Ground Water Department, State Pollution Control Board, Census of India and Local Forest Department, Non -Governmental Agencies etc.

3.2 LAND ENVIRONMENT

LAND USE PATTERN

(A) DATA USED

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Indian Remote Sensing satellite IRS-P6, LISS III, multi-spectral digital data has been used for the preparation of land use/ land cover map of present study. Survey of India reference map on 1:50,000 scales have been used for the preparation of base map and geometric correction of satellite data. Ground truth has been carried out to validate the interpretation accuracy and reliability of remotely sensed data, by enabling verification of the interpreted details and by supplementing with the information, which cannot be obtained directly on satellite imagery.

(B) METHODOLOGY

The methodology used for the study consists of following components.

(i) Base Map Preparation

Base map was prepared using Survey of India reference map on 1:50,000 scale. Interpreted thematic details were transferred on the base map. Besides, other supporting data like project reports and statistical data published by various Government departments have also been used.

(ii) Ground Truth Data Collection

Ground data on geo-environmental components of the study area was collected for verification of information about the different features on the study areas, which are responsible for the occurrence of specific spectral reflectance behavioural patterns. During the ground truth detailed information on agricultural practices, wastelands, mining, industrial area etc. were collected along with other land features.

(iii) Interpretation of Remote Sensing Data

A hybrid technique has been used i.e. visual interpretation and digital processing for identification of different land use /land cover classes based on the image characteristics like tone, size, shape, pattern, texture, location and association etc. An image interpretation keys were developed based on such image characteristics, which enable interpretation of satellite images for land use/land cover features. Further, the land use / land cover and other baseline



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layers was put in GIS database for integration, analysis, statistics generation and final out in the form of land use land cover map.

(C) RESULTS

In the present study, both digital image processing and using visual interpretation technique were used to generate output of Land use / Land cover map of study area on 1: 50,000 scale.

Land Use Pattern of around 10 km radius from the project site is depicted as figure no. 3.1 and Table No. 3.1 and False colour composite (FCC) is depicted as figure no.3.2.

Table 3.1: Land Use Pattern

S. No.	Land Use / Land Cover	Area (Ha)	% Area
1.	Agriculture Land	2,105	6.39
2.	Bare Land	2,625	7.97
3.	Built-up	16,418	51.34
4.	Industry	298	0.90
5.	Forest	97	0.30
6.	Open scrub	10,854	32.94
7.	Water body	54	0.16
Total		32,951	100.0

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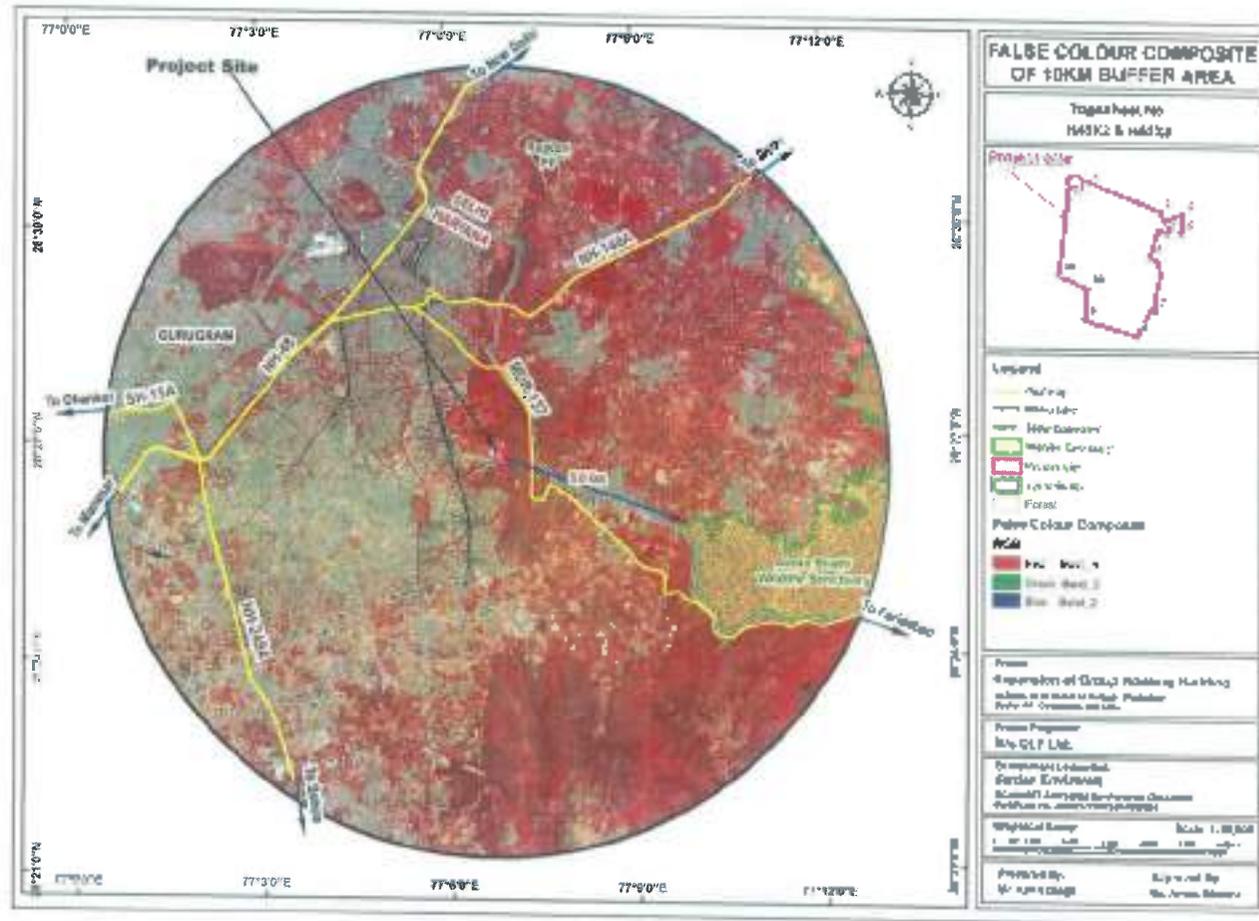


Figure 3.2: False Colour Composite within 10 km buffer radius of project site

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3.3 SOIL ENVIRONMENT

The type of soil is an important factor for the growth of plants and crops in any area. The soil system has various criteria to classify the soils of a region such as geology, humidity, rainfall pattern, soil texture, soil salinity etc. The district are classified as tropical and brown soils, existing in the north western extreme, northern and north eastern parts of the district and water logged and salt affected soils in the southern parts of the district. The soils are medium textured loamy sand is the average texture in Gurugram and Sohna blocks. In Pataudi and Sohna blocks the organic content of soils is lowest, just up to 0.20 per cent (very low category). In the rest of the district, organic contents are 0.2 to 0.40 percent and falls in low category. Soil quality study has been carried out at the site and in the study area of 10-km radius around the project site during December 2023 to February 2024, to understand the physicochemical nature of the soil. Soil found at site and surrounding study area has Sandy Loam texture and is yellowish brown in color. Soil sampling was carried out at 8 selected locations including project site.

The frequency and methodology of soil quality sampling process is given in **Table-3.2**. The soil quality sampling monitoring locations are given in **Table-3.3**. The soil analysis results and discussion is given in **Table-3.4**, and map showing the location of soil monitoring stations is depicted as **Figure-3.3**.

Table-3.2: Frequency and Methodology for Soil Sampling & Monitoring

Particulars	Details
Frequency	One sample from each station— once during the Study Period
Methodology	Soil Sample has been collected as per the CPCB standard and according to analysis has been done.

3.3.1 METHODOLOGY

The soil samples were collected in the month of December- 2023 to February-2024 from 8 locations as mentioned in **Table- 3.3** and **Figure 3.3**. At each of these locations 8 sub-locations were identified randomly from where soil was collected from 30 cm below the surface. The samples were filled in polythene bags, labeled in the field with number and site name and sent to laboratory for analysis.

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Table- 3.3: Soil Sampling Locations

Sl. No.	Location	Distance	Direction	Latitude	Longitude
S1	Project Site	-	-	28° 26' 44.653" N	77° 6' 49.741" E
S2	Near Village Haiderpur	1.14	SSW	28° 26' 11.903" N	77° 6' 28.736" E
S3	Near Village Wazirabad	2.53	W	28° 26' 35.665" N	77° 5' 19.071" E
S4	Near DLF Phase 5	1.97	NNW	28° 27' 44.666" N	77° 6' 25.493" E
S5	Near Village Behranpur	4.97	SSW	28° 24' 7.618" N	77° 6' 3.080" E
S6	Near Gwalpahari	5.16	SE	28° 25' 27.269" N	77° 9' 38.614" E
S7	Near Village Junapur	5.4	NE	28° 27' 33.843" N	77° 9' 40.856" E
S8	Asola Wildlife Sanctuary	9.41	ENE	28° 27' 33.306" N	77° 12' 32.656" E

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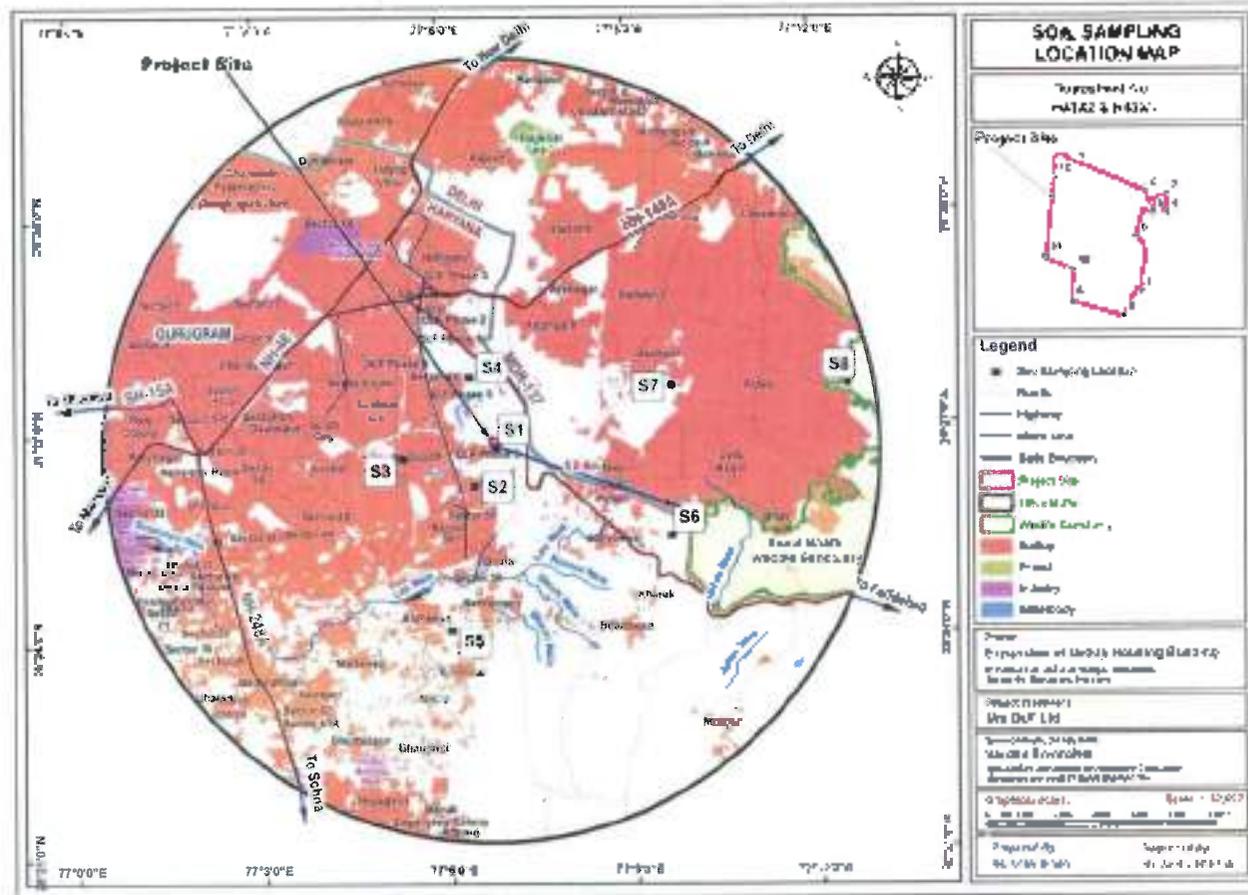


Figure- 3.3: Digitized map showing Soil Monitoring Location

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Table- 3.4 Soil Sample Analysis Results

S. No.	Parameters	Test-Method	Unit	S1	S2	S3	S4	S5	S6	S7	S8
1	pH(at 25°C)	IS : 2720 (P-26,RA2011)	--	7.30	7.38	7.36	7.43	7.16	7.51	7.54	7.56
2	Conductivity	IS:14767-2000 Reaffirmed 2016	mS/cm	0.252	0.246	0.216	0.228	0.314	0.243	0.248	0.252
3	Soil Texture	IS : 2720 (P-4,RA1995)	%	Sand - 48	Sand - 52	Sand- 46	Sand - 49	Sand- 45	Sand - 45	Sand - 40	Sand - 35
				Silt - 31	Silt - 29	Silt - 36	Silt - 35	Silt - 36	Silt - 38	Silt - 40	Silt - 40
				Clay - 21	Clay - 19	Clay - 18	Clay - 16	Clay - 19	Clay - 17	Clay - 20	Clay - 25
4	Color	USDA Method, 1968	--	Brownish	Yellowish Brown	Brownish	Yellowish Brown	Brownish	Yellowish Brown	Yellowish Brown	Yellowish Brown
5	Water holding capacity	USDA Method, 1968	%	33.47	31.20	36.82	34.98	33.85	37.06	39.40	38.65
6	Bulk density	USDA Method, 1968	gm/cc	1.40	1.53	1.35	1.34	1.46	1.28	1.20	1.24
7	Chloride as Cl	USDA Method, 1968	mg/100g	17.85	13.66	23.04	13.74	17.74	15.82	16.47	16.98
8	Calcium as Ca	USDA	mg/100g	24.65	22.12	30.48	28.11	29.12	27.96	38.74	29.40

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S. No.	Parameters	Test-Method	Unit	S1	S2	S3	S4	S5	S6	S7	S8
		Method. 1968	g								
9	Sodium as Na	USDA Method. 1968	mg/kg	35.90	140.0	148.0	97.2	34.78	39.42	140.30	127.0
10	Potassium as K	USDA Method. 1968	kg/hect.	117.51	111.06	87.2	110.7	122.10	144.11	145.21	144.33
11	Organic Matter	IS:2720 (P-22, RA2009)	%	0.34	0.27	0.39	0.31	0.34	0.41	0.42	0.44
12	Magnesium as Mg	USDA Method. 1968	mg/100 g	5.81	3.98	9.82	8.11	12.92	10.82	10.77	11.11
13	Available Nitrogen as N	IS:14684, RA2006	kg/hect.	180.5	115.30	148.26	151.2	170.5	152.14	153.25	157.40
14	Available Phosphorus	USDA Method. 1968	kg/hect.	22.6	10.48	19.18	16.11	18.5	26.11	25.95	24.87
15	Zinc (as Zn)	USEPA 3050B	mg/kg	8.96	3.07	11.49	7.08	1.50	14.66	13.78	13.67
16	Manganese (as Mn)	USEPA 3050B	mg/kg	31.30	22.34	43.35	36.35	2.40	52.35	50.25	49.47
17	Lead (as Pb)	USEPA 3050H	mg/kg	5.66	9.86	3.66	4.66	0.64	2.05	2.10	2.10
18	Cadmium (as Cd)	USEPA	mg/kg	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ (LOQ)	BLQ

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S. No.	Parameters	Test-Method	Unit	S1	S2	S3	S4	S5	S6	S7	S8
)	3050B		(LOQ - 0.5)	- (0.5)	(LOQ - 0.5)					
19	Chromium (as Cr)	USEPA 3050B	mg/kg	1.98	1.62	1.02	1.12	0.56	1.88	1.80	1.69
20	Copper (as Cu)	USEPA 3050B	mg/kg	2.72	2.04	3.11	2.86	1.34	4.66	4.58	4.48

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3.3.2 SOIL ANALYSIS RESULTS AND DISCUSSIONS

The soil is in neutral range. The concentration of various physicochemical parameters indicates moderate productivity levels. In the study area, variations in the pH of the soil were found to be 7.16 to 7.56. Conductivity was observed in the range of 0.22 to 0.34 mS/cm. The bulk density of the soils was found in the range of 1.28 to 1.72-gm/cm³. Water Holding Capacity of soil in the study area was observed as 31.20 to 39.40 %. The organic matter of soil varied from 0.27 to 0.44 % thereby implying that soils are low in organic matter contents. Available nitrogen content in the surface soils ranges between 115.30 to 180.50 kg/ha thereby indicates that soils are low in available nitrogen content. Available phosphorus content ranged between 10.48 to 26.11 kg/ha thereby indicating that soils are having medium in available phosphorus. Available potassium content in these soils ranges between 87.20 to 145.21 kg/ha thereby is indicating that the soils are with medium levels of available potassium content.

3.4 AIR ENVIRONMENT

This section documents the baseline scenario of the air environment in the study area and discusses both air resources and quality. Air quality assessment is one of the essential components of EIA study. Such assessment helps in evaluating the existing health of air and suggesting appropriate mitigation measures to minimize the potential impact from development projects. The water quality at site and other locations within a radius of 10 km was monitored during the study period.

Assessment of baseline ambient air quality status in the project area and its surrounding area is the essential aspect of the environment impact assessment studies. The metrological parameters such as temp, rainfall, humidity, wind direction, wind speed etc. control the dispersion and transport of air pollutants during different seasons. The post project air quality status will be predicated based on existing ambient air quality status in the project area. Meteorological data at project site during the study period is also an essential requirement for interpretation of baseline air quality status.



3.4.1 CLIMATIC CONDITIONS

Gurugram has a dry, semi-arid climate. The mean minimum and maximum temperature range from 2 °C to 44 °C during January (winter) and May–June (summer) respectively. The summer temperature can go up to 44 °C from April to July. Winter is from November to February and the temperature can fall to 2 °C in December and January.

Table 3.5: Onsite Meteorological Data
(December- 2023 to February-2024)

Month	Temperature		Average Humidity %	Average Velocity (Km/hr.)
	Max °C	Min °C		
December, 2023	24	19	29	5.8
January, 2024	22	11	36	5.5
February, 2024	25	13	31	8.1

(December- 2023 to February-2024)

3.4.2 MICRO-METEOROLOGICAL DATA

3.4.2.1 Temperature

The mean minimum and maximum temperature range from 11 °C to 25 °C during study period. Maximum temperature was found in February and Minimum temperature was found in January.

3.4.2.2 Relative Humidity

The monthly average relative humidity recorded onsite during the said monitoring period varied between (29-36%).

3.4.2.3 Atmospheric Pressure

The overall minimum and maximum atmospheric pressures recorded on-site during the said monitoring period were 1015.7 m bar and 1016.8 m bar respectively. Such values compare well with the past IMD data.

3.4.2.4 Rainfall



The Average annual rainfall in Gurgaon district is about 70 mm recorded in 3 rainy days in a year. The south west monsoon sets in the last week of June and withdraws towards the end of September and contributes about 85% of the annual rainfall. July and August are the wettest months. 15% of the annual rainfall occurs during the non-monsoon months in the wake of thunder storms and western disturbances. The average rainfall data of last 5 years is given as:

Table 3.6: Average rainfall data of last 5 years

Month/ Year	2019	2020	2021	2022	2023
January	27.24	23.23	31.53	93.88	21.63
February	15.89	1.34	1.76	17.68	0.0
March	7.35	65.01	4.21	0.00	62.71
April	10.65	9.65	2.19	0.18	10.41
May	23.53	26.42	119.58	52.43	69.01
June	5.81	49.08	25.43	37.55	37.2
July	153.67	64.1	347.9	211.89	184.4
August	135.5	285.61	144.02	82.1	189
September	42.64	22.78	249.28	233.22	97.4
October	18.69	0.00	57.78	112.89	20.3
November	1.58	1.84	0.00	0.00	3.6
December	21.58	0.14	4.77	0.00	4
Total Rainfall	464.13mm	549.2mm	988.45mm	841.82mm	699.66 mm

(Source: Indian Water Resource and Information System <https://indiawris.gov.in/wris/#rainfall>)

3.4.2.5 Wind Speed and Direction

During the said monitoring period, the monthly mean wind speed measured on-site varied between 5.8 km/hr to 8.1 km/hr for the monitoring period of December 2023 to February-2024. The secondary data of JMD station Gurgaon was taken to plot the Wind rose diagram of the study area to justify or select the monitoring station within the study area. The wind rose diagram for this period is shown in the Figure. 3.4. The overall mean wind speed during the period was 6.4 Km/hr. The most predominant wind direction was North West (NW) followed by SE direction as per Wind rose.



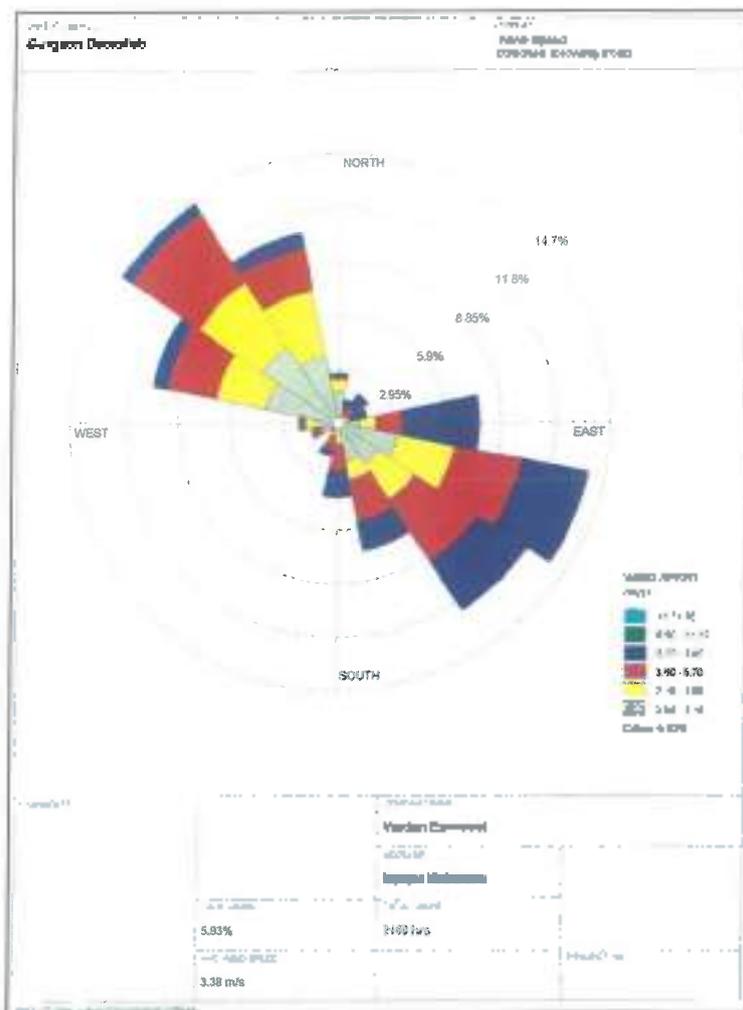


Figure 3.4: Wind Rose Diagram based on data recorded during the Study Period

Air Pollutants upon discharge to atmosphere pass through a number of mechanisms, which include diffusion and transportation leading to dispersion. These mechanisms are governed by the local atmospheric conditions. All these result in the necessity to collect the meteorological parameters like ambient temperature, wind speed, wind direction, and other weather conditions (relative humidity, atmospheric pressure etc.), which will be ultimately used for the prediction of the ground level concentrations of the air pollutants through mathematical modeling.



3.4.3 AMBIENT AIR QUALITY

The baseline air quality study was done to assess the existing air quality of the area. This will also be useful for assessing the conformity to standards of the ambient air quality during the operation after the project.

3.4.3.1 AMBIENT AIR MONITORING

(A) Selection of Sampling Locations:

Ambient air monitoring was carried out on monthly basis in the surrounding areas of the project site to assess the ambient air quality. To know the ambient air quality of the study area, air quality survey has been conducted at 8 locations over a period of winter- season i.e. December 2023 to February 2024. Major air pollutants viz, Particulate Matter (PM_{10}), $PM_{2.5}$, Sulphur Dioxide (SO_2), Nitrogen Dioxide (NO_2), Carbon Monoxide (CO) represents the basic air pollutants in the region for Ambient Air Quality Monitoring (AAQM). The ambient air quality monitoring stations is given in Table- 3.7 and depicted as Figure- 3.5.

Table 3.7: Ambient Air Quality Monitoring Locations

Code	Location	Distance	Direction	Latitude	Longitude
A1	Project Site	-	-	28° 26' 44.653" N	77° 6' 49.741" E
A2	Near DLF Phase 5	0.9	NNW	28° 27' 19.768" N	77° 6' 32.119" E
A3	Near Sector 55	1.7	SSW	28° 25' 48.185" N	77° 6' 37.272" E
A4	Near Village Wazirabad	2.7	SW	28° 26' 9.991" N	77° 5' 11.877" E
A5	Near Village Mandi	2.9	ESE	28° 26' 19.732" N	77° 8' 38.054" E
A6	Near Village Junapur	4.0	NE	28° 27' 55.532" N	77° 9' 5.903" E
A7	Near DLF Phase I	3.3	NNW	28° 28' 24.083" N	77° 5' 43.262" E
A8	Village Bandhwari	5.8	SE	28° 24' 10.530" N	77° 8' 59.606" E



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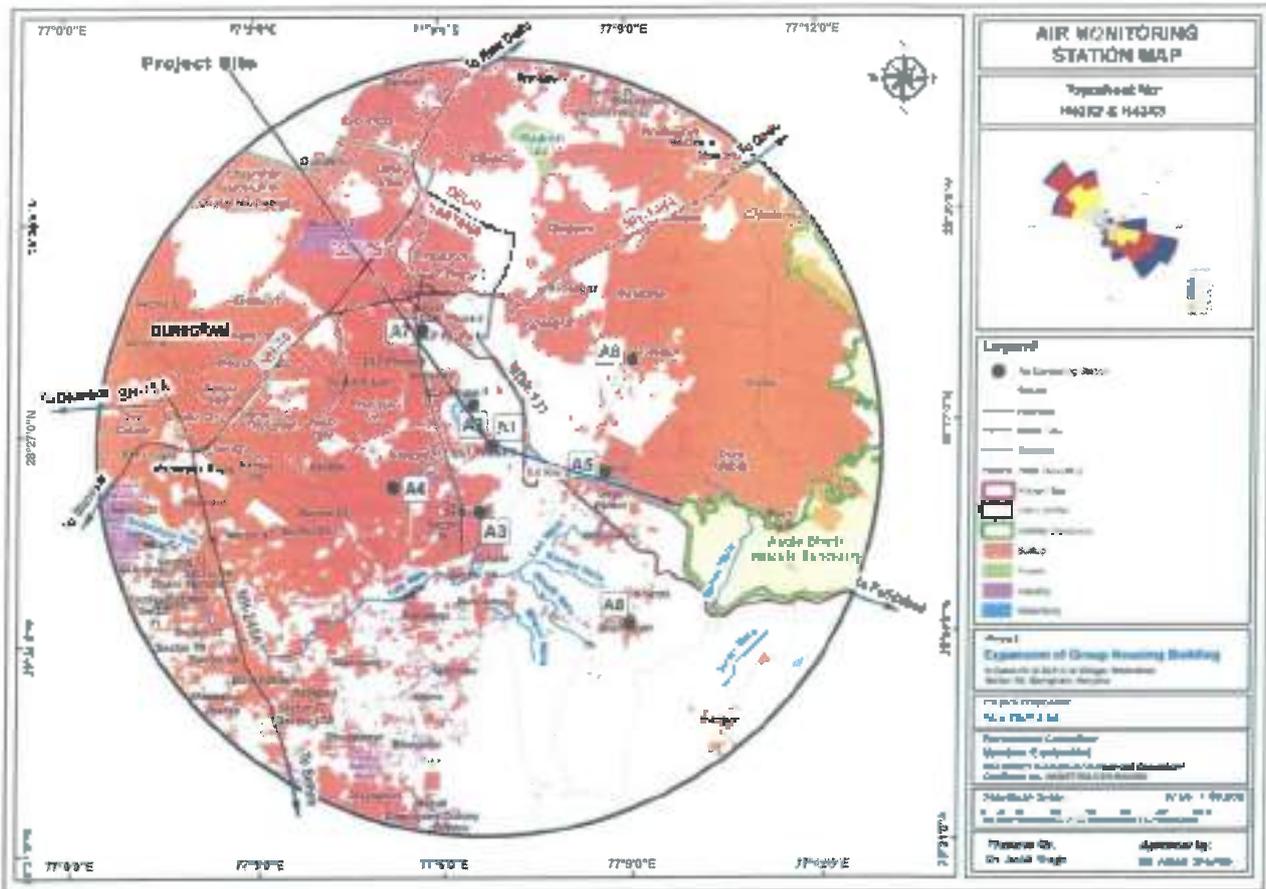


Figure 3.5: Digitized map showing Air Monitoring Location

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(D) Parameters, Frequency and Monitoring Methodology

Ambient Air quality monitoring was conducted in respect of the following parameters:

- Particulate Matter (PM₁₀)
- Particulate Matter (PM_{2.5})
- Sulphur Dioxide (SO₂)
- Nitrogen Dioxide (NO₂)
- Carbon Monoxide (CO)

Ambient air quality monitoring was conducted over 3 months i.e., from December 2023 to February 2024 at a frequency of twice a week at each station adopting a 24-hours schedule. The sampling equipment was placed at a height of 3 to 3.5 meters above ground level at each monitoring station, thus negating the effects of wind blow ground dust. The equipment was placed at open space free from trees and vegetation which otherwise act as a sink of pollutants resulting in lower levels in monitoring results. At locations close to internal roads, the equipment was placed at least 10 m away from such roads to avoid influence of traffic exhaust emissions.

Table-3.8: Methodology for Ambient Air Quality Monitoring

Parameter	Measurement Methods
PM ₁₀	Gravimetric
PM _{2.5}	Gravimetric
SO ₂	Colorimetric (I.P.A modified West and Gaeke Method)
NO ₂	Colorimetric (Arsenite modified Jacobs and Hochheiser Method)
CO	Gas Chromatography

(C) Monitoring Results

Monitoring station-wise minimum and statistical analysis (minimum, maximum, arithmetic mean) for measured levels of PM₁₀, PM_{2.5}, SO₂, NO₂ and CO in study area for the monitoring period are shown parameter wise in Table-3.9.

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Table-3.9: Results of Ambient Air Quality Analysis of Period December 2023 to February 2024)

Locations	Parameters	PM ₁₀	PM _{2.5}	NO ₂	SO ₂	CO
Project Site (A1)	Minimum	118.50	70.00	29.50	9.00	0.41
	Maximum	144.90	77.40	36.40	15.20	0.98
	Average	137.57	73.75	33.22	12.05	0.62
	98 % tile	144.15	77.40	36.40	15.00	0.97
	Limit	100.00	60.00	80.00	80.00	4.00
Near DLF Phase 5 (A2)	Minimum	126.70	62.20	23.20	0.81	0.32
	Maximum	134.80	69.00	29.80	10.80	1.16
	Average	130.85	65.21	26.35	8.64	0.67
	98 % tile	134.65	68.55	29.70	10.75	1.14
Near Sector 55 (A3)	Minimum	120.10	58.10	20.10	4.80	0.61
	Maximum	130.60	65.80	26.90	9.60	0.92
	Average	125.52	61.95	23.05	7.73	0.76
	98 % tile	130.50	65.75	26.85	9.55	0.91
Near Village Wazirabad (A4)	Minimum	126.70	62.30	23.50	7.10	0.84
	Maximum	134.80	69.00	29.80	10.80	1.20
	Average	130.80	65.40	26.54	8.89	1.01
	98 % tile	134.65	68.55	29.70	10.75	1.19
Near Village Mandi (A5)	Minimum	133.90	67.20	28.30	9.80	1.20
	Maximum	142.70	76.50	33.90	13.90	1.49
	Average	137.60	71.58	31.03	11.82	1.35
	98 % tile	142.15	76.20	33.85	13.80	1.48
Near Village Junapur (A6)	Minimum	124.60	60.10	22.30	6.20	0.71
	Maximum	133.00	68.00	27.90	10.00	1.08
	Average	128.24	63.92	24.83	8.17	0.89
	98 % tile	132.40	67.95	27.60	9.95	1.07
Near DLF Phase 1 (A7)	Minimum	117.50	54.90	18.40	5.00	0.52
	Maximum	125.00	63.00	24.70	8.90	0.89
	Average	121.52	58.80	21.72	7.05	0.68
	98 % tile	124.40	62.85	24.65	8.65	0.87
Village Bandhwari (A8)	Minimum	133.30	67.20	28.30	10.30	1.11
	Maximum	140.40	75.30	33.90	13.90	1.49
	Average	136.80	71.09	30.72	12.13	1.35
	98 % tile	140.30	75.25	33.85	13.80	1.49

(i) Particulate Matter (PM_{2.5})

The 24-hourly maximum and minimum PM_{2.5} level varied station-wise is 77.40 $\mu\text{g}/\text{m}^3$ to 54.90 $\mu\text{g}/\text{m}^3$ for the monitoring period 1st December 2023 to 29th February 2024. Overall in all cases in the study area the 24-hourly average values of PM_{2.5} observed, which indicates that the PM_{2.5} concentration at maximum value are exceeding by NAAQ standard at all monitoring locations. This is because of heavy traffic on NH-48 & NH-248A which is the nearest highway.

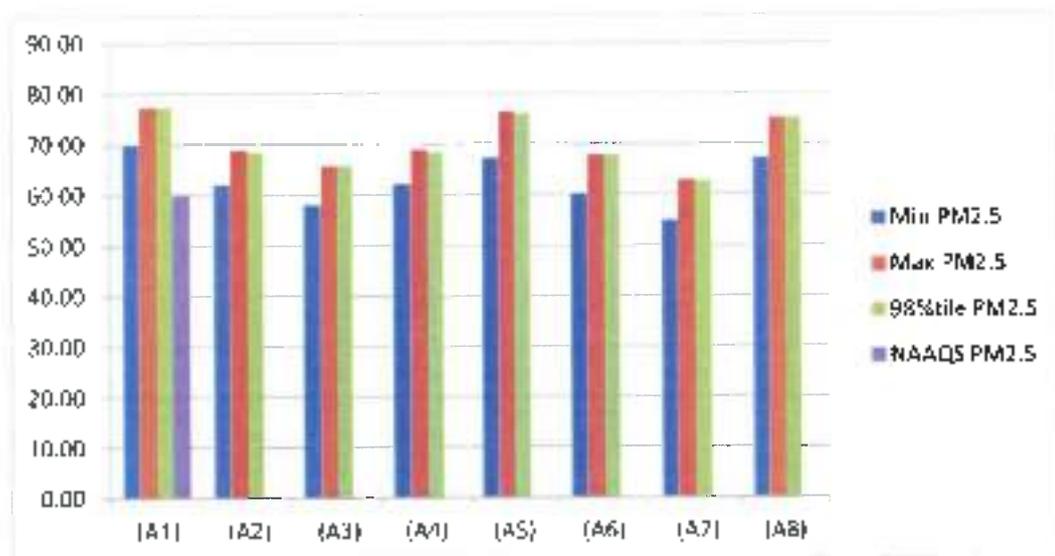


Figure 3.6: Graph showing concentration of PM_{2.5} $\mu\text{g}/\text{m}^3$

(ii) **Particulate Matter (PM₁₀)**

The 24-hourly maximum and minimum PM₁₀ level varied station-wise is 144.90 $\mu\text{g}/\text{m}^3$ to 117.50 $\mu\text{g}/\text{m}^3$ for the monitoring period 1st December 2023 to 29th February 2024. Overall in all cases in the study area the 24-hourly average values of PM₁₀ observed, which indicates that the PM₁₀ concentration at maximum value are exceeding by NAAQ standard at all monitoring locations. This is because of heavy traffic on National Highway-48 & National Highway-248A which is the nearest highway.



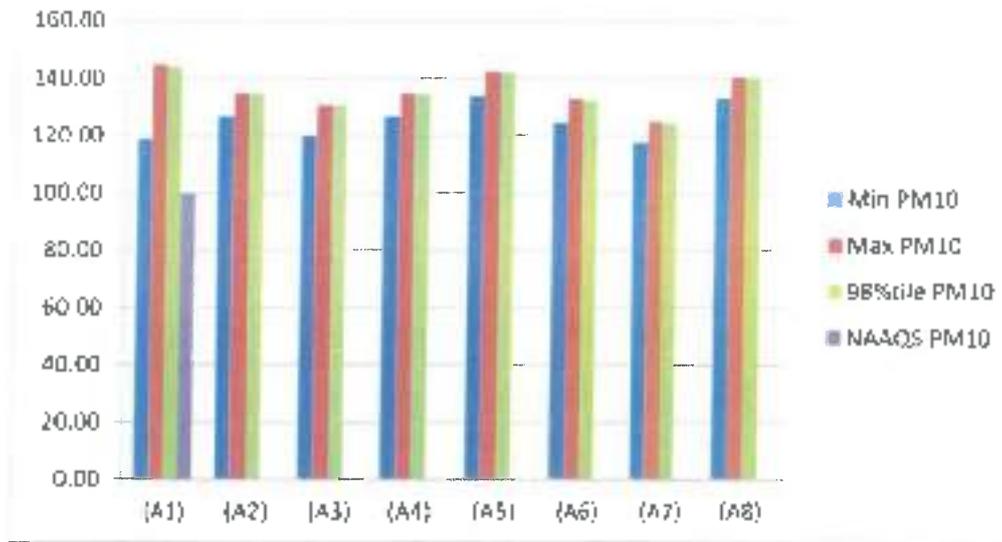


Figure-3.7: Graph showing concentration of PM₁₀ µg/m³

(ii) Sulphur Dioxide (SO₂)

The 24-hourly maximum and minimum SO₂ level varied station-wise is 15.20 µg/m³ to 4.80 µg/m³ for the monitoring period 1st December 2023 to 29th February 2024. Overall, in all cases in the study area the 24-hourly average values of SO₂ observed were below the limit of 80 µg/m³ for Residential, Rural and Other areas as stipulated in the National Ambient Air Quality Standards.

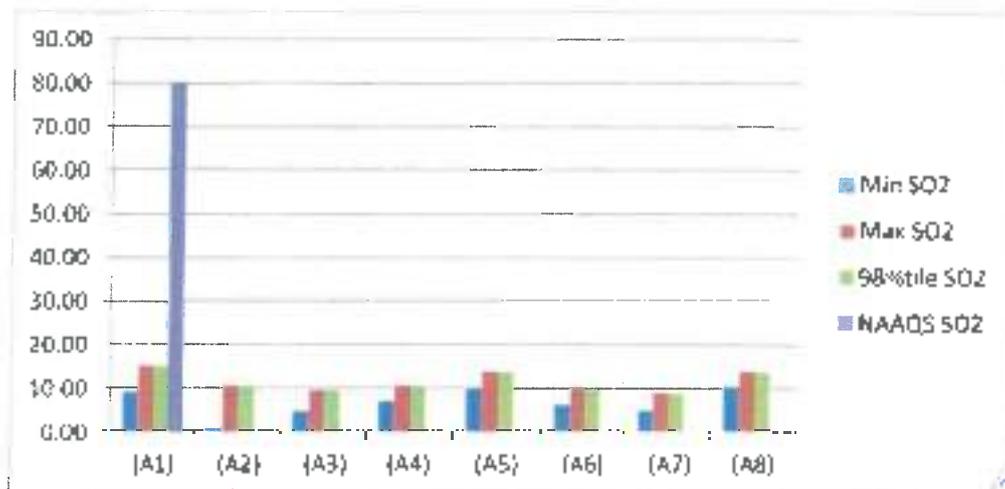


Figure-3.8: Graph showing concentration of SO₂ µg/m³



(iv) Nitrogen Dioxide (NO₂)

The 24-hourly maximum and minimum NO₂ level varied station-wise is 36.40 µg/m³ to 18.40 µg/m³ for the monitoring period 1st December 2023 to 29th February 2024. Overall in all cases in the study area the 24-hourly average values of NO₂ observed were below the limit of 80 µg/m³ for Residential, Rural and Other areas as stipulated in the National Ambient Air Quality Standards.

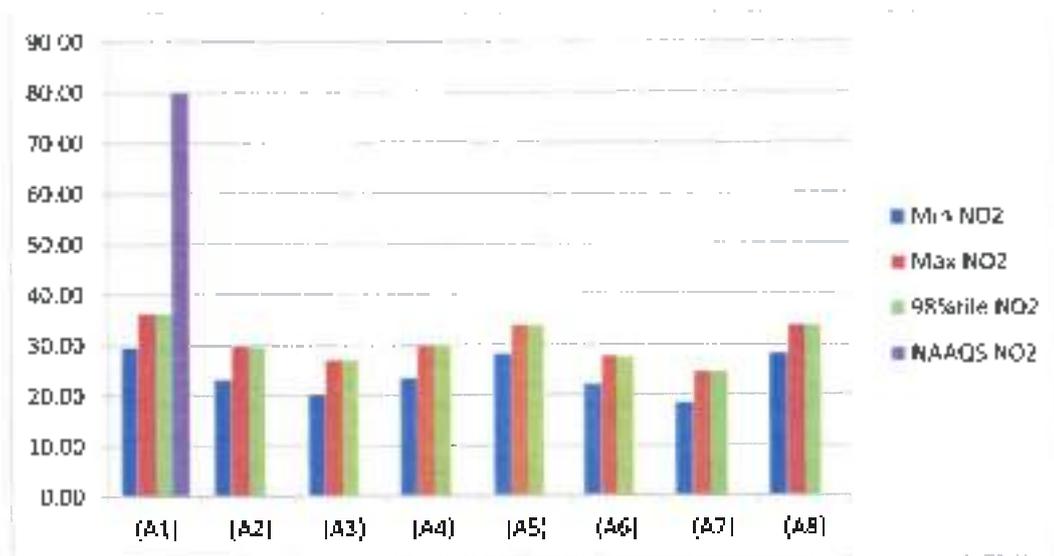


Figure-3.9: Graph showing concentration of NO₂ µg/m³

(v) Carbon Monoxide (CO)

The 1-hourly maximum and minimum CO level varied station-wise is 1.49 mg/m³ to 0.32 mg/m³ for the monitoring period 1st December 2023 to 29th February 2024. Overall in all cases of the study area, the 8 hourly average values of CO observed were below the limit of 4 mg/m³ for Residential, Rural and Other areas as stipulated in the National Ambient Air Quality Standards.



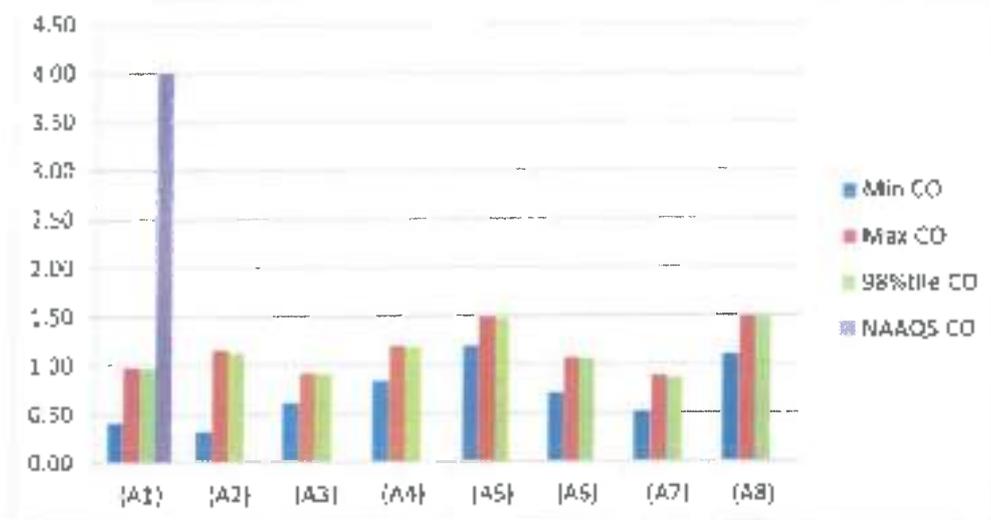


Figure-3.10: Graph showing concentration of CO µg/m³

3.5 WATER ENVIRONMENT

Water quality assessment is one of the essential components of EIA study. Such assessment helps in evaluating the existing health of water body and suggesting appropriate mitigation measures to minimize the potential impact from development projects.

3.5.1 GROUND WATER QUALITY

Water quality of groundwater has been studied in order to assess proposed water-uses in construction, drinking, cooling and horticulture purpose. The water quality was monitored at 8 locations within 10 km of the project. List of Ground water sampling location is given in Table-3.10 and depicted in Figure- 3.11. All Ground water samples are analyzed as per IS-10500:2012. The results of the ground water samples analyzed are given in Table-3.11.

Table-3.10: Ground Water Sampling Location

Code	Location	Distance	Direction	Latitude	Longitude
GW1	Dlf Phase 5	0.8	W	28° 26' 46.056" N	77° 6' 19.653" E
GW2	Village Wazirabad	2.61	WSW	28° 26' 13.681" N	77° 5' 19.406" E
GW3	Near Dlf Phase 5	3.16	NNW	28° 27' 36.572" N	77° 6' 21.091" E
GW4	Near Arjungarh	2.05	NNE	28° 27' 39.176" N	77° 7' 31.215" E

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GW5	Near Gwalpahari	2.66	ESE	28° 26' 10.386" N	77° 8' 40.129" E
GW6	Sector 55	1.81	S	28° 25' 18.619" N	77° 6' 40.962" E
GW7	Village Qadirpur	6.05	SSW	28° 23' 37.968" N	77° 6' 7.698" E
GW8	Village Bandhwari	5.86	SE	28° 24' 4.818" N	77° 9' 0.561" E



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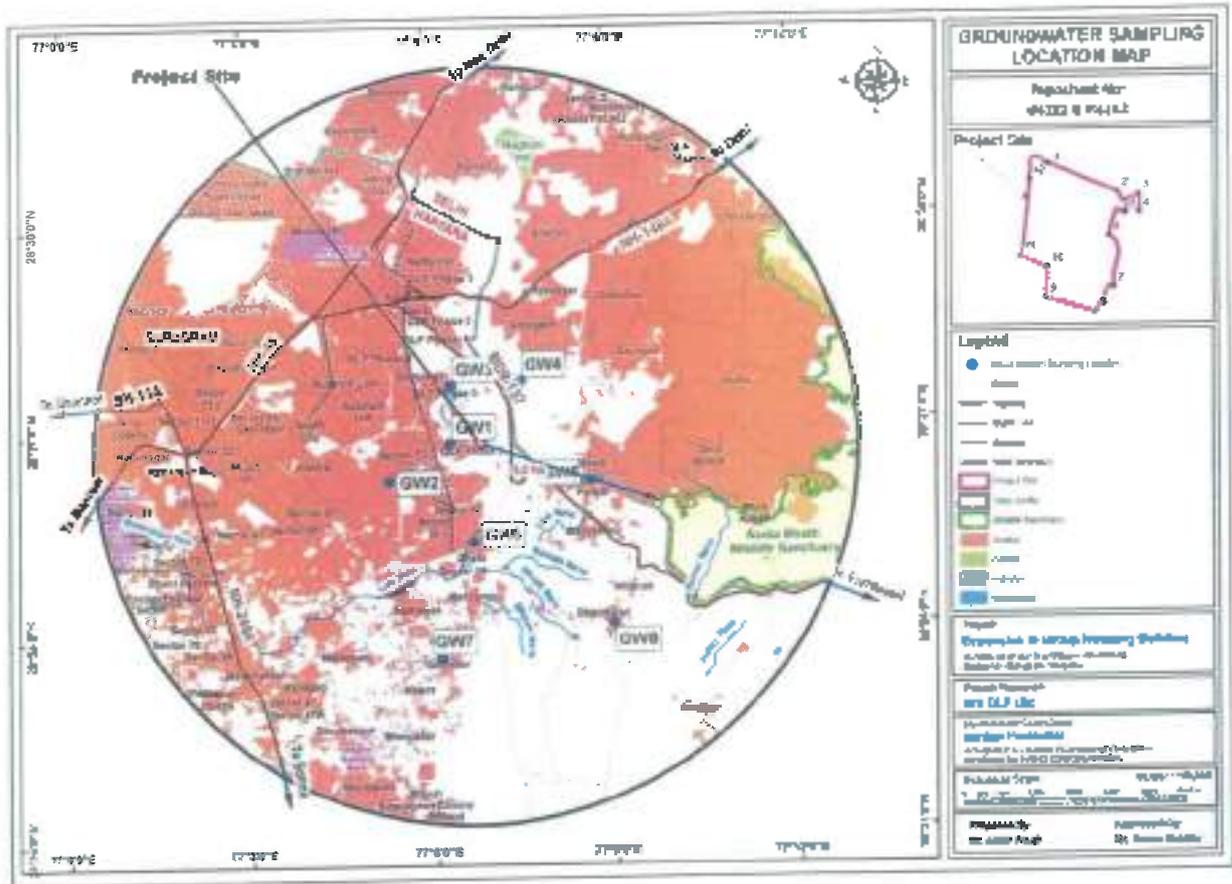


Figure 3.11: Ground Water Sample Collection Locations



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Table-3.11: Ground Water Analysis Result

S. No.	Parameter	Test-Method	Unit	Result							
				GW1	GW2	GW3	GW4	GW5	GW6	GW7	GW8
1	pH (at 25°C)	IS3025 (P-11)	--	7.70	7.62	7.36	7.72	7.78	7.64	7.85	7.69
2	Colour	IS3025 (P-4)	Hazen	*BLQ (**LOQ 1.0)							
3	Turbidity	IS3025 (P-10)	NTU	*BLQ (**LOQ 1.0)							
4	Odour	IS3025 (P-5)	--	Agreeable							
5	Taste	IS3025 (P-8)	--	Agreeable							
6	Total Hardness as CaCO ₃	IS3025 (P-21)	mg/l	272.04	291.98	258.84	288.11	281.00	252.09	270.32	289.12
7	Calcium as Ca	IS3025 (P-40)	mg/l	48.10	57.76	43.39	46.84	56.42	58.73	48.59	51.76
8	Alkalinity as CaCO ₃	IS3025 (P-23)	mg/l	186.15	179.42	192.9	188.40	174.98	179.20	164.90	186.15
9	Chloride as Cl	IS 3025 (P-32)	mg/l	90.52	123.64	81.43	116.14	112.65	118.28	136.74	90.21

S. No.	Parameter	Test-Method	Unit	Result								
				GW1	GW2	GW3	GW4	GW5	GW6	GW7	GW8	
10	Cyanide as CN	IS 3025 (P-27)	mg/l	*BLQ (**LOQ 0.02)								
11	Magnesium as Mg	APIA . 3500 Mg B	mg/l	36.94	35.93	36.59	41.61	34.08	25.65	38.42	37.66	
12	Total Dissolved Solids	IS3025 (P-16)	mg/l	414.00	458.00	384.00	444.00	434.00	426.00	448.00	420.00	
13	Sulphate as SO4	IS3025 (P-24)	mg/l	54.98	51.77	41.08	59.10	54.90	45.82	56.82	54.98	
14	Fluoride as F	APIA . 4500- FD	mg/l	0.22	0.25	0.24	0.26	0.25	0.25	0.30	0.27	
15	Nitrate as NO3	IS3025 (P-34), Chromotropic method	mg/l	16.24	20.58	10.46	14.28	16.82	16.80	24.06	16.24	
16	Iron as Fe	VLL/STP/ICP/ W-01, Issue date.-01. 01/11/21	mg/l	0.16	0.13	0.14	0.16	0.12	0.18	0.18	0.14	
17	Aluminum as Al	VLL/STP/ICP/ W-01, Issue date.-01. 01/11/21	mg/l	*BLQ (**LOQ 0.005)								
18	Boron	VLL/STP/ICP/ W-01, Issue date.-01. 01/11/21	mg/l	*BLQ (**LOQ 0.01)								

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S. No.	Parameter	Test-Method	Unit	Result							
				GW1	GW2	GW3	GW4	GW5	GW6	GW7	GW8
19	Total Chromium as Cr	VEL/STP/ICP/W-01, Issue date-01.01/11/21	mg/l	*BLQ (**LOQ 0.002)							
20	Conductivity	IS3025 (P-14)	µS/cm	636	708	590	683	669	655	688	646
21	Phenolic Compounds	IS3025 (P-43)	mg/l	*BLQ (**LOQ 0.0005)							
22	#Mineral Oil	IS 3025 (P-39)	mg/l	*BLQ (**LOQ 0.1)							
23	#Anionic Detergents as MBAS	IS3025 (P-68)	mg/l	*BLQ (**LOQ 0.05)							
24	Zinc as Zn	VEL/STP/ICP/W-01, Issue date-01.01/11/21	mg/l	0.74	0.79	0.46	1.15	1.05	0.83	1.54	0.90
25	Copper as Cu	VEL/STP/ICP/W-01, Issue date-01.01/11/21	mg/l	0.10	0.05	0.11	0.16	0.11	0.10	0.16	0.11
26	Manganese as Mn	VEL/STP/ICP/W-01, Issue date-01.01/11/21	mg/l	*BLQ (**LOQ 0.01)							

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S. No.	Parameter	Test-Method	Unit	Result								
				GW1	GW2	GW3	GW4	GW5	GW6	GW7	GW8	
27	Cadmium as Cd	VEL/STP/ICP/W-01, Issue date.-01, 01/11/21	mg/l	*BLQ (**LOQ 0.002)								
28	Lead as Pb	VEL/STP/ICP/W-01, Issue date.-01, 01/11/21	mg/l	*BLQ (**LOQ 0.002)								
29	Selenium as Se	VEL/STP/ICP/W-01, Issue date.-01, 01/11/21	mg/l	*BLQ (**LOQ 0.001)								
30	Arsenic as As	VEL/STP/ICP/W-01, Issue date.-01, 01/11/21	mg/l	*BLQ (**LOQ 0.005)								
31	Mercury as Hg	VEL/STP/ICP/W-01, Issue date.-01, 01/11/21	mg/l	*BLQ (**LOQ 0.0005)								
32	Total Coliform	APHA 23 ^d Edition, 9221 B	MPN/100ml	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8
33	E. Coli	APHA 23 ^d Edition, 9221 B	MPN/100ml	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8

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3.5.2 SURFACE WATER QUALITY:

Table-3.12: Surface Water Sampling Location

Code	Location	Distance	Direction	Latitude	Longitude
SW1	Pond Near DLF Phase 5	1.4	WSW	28° 26' 26.819" N	77° 5' 55.851" E
SW2	Pond Near Mandi Village	2.17	LNE	28° 27' 6.080" N	77° 8' 4.730" E
SW3	Pond Near Sukhrali Village	5.82	NW	28° 28' 32.180" N	77° 5' 48.710" E
SW4	Pond Near Ghitorni Village	6.07	NNE	28° 29' 39.707" N	77° 8' 24.514" E
SW5	Pond Near Dera Mandi Village	6.54	ESE	28° 26' 6.600" N	77° 30' 45.710" E
SW6	Pond Near Bhaundsi Village	7.8	SSW	28° 22' 41.048" N	77° 5' 31.767" E
SW7	Pond Near Nurpur Jharsa Village	9.87	SW	28° 21' 14.040" N	77° 2' 18.720" E



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Table-3.13: Surface Water Analysis Result of Period

S. No	Parameter	Test-Method	Unit	Result						
				SW1	SW2	SW3	SW4	SW5	SW6	SW7
1	pH (at 25°C)	IS3025 (P-11)	--	7.55	7.69	7.56	7.61	7.48	7.53	7.58
2	Colour	IS3025 (P-4)	Hazen	13.0	18.0	21.0	14.0	15.0	17.0	14.0
3	Turbidity	IS3025 (P-10)	NTU	86.00	63.00	80.00	82.00	61.00	52.00	63.00
4	Odour	IS3025 (P-5)	--	Agreeable						
5	Total Hardness as CaCO ₃	IS3025 (P-21)	mg/l	718.04	727.06	826.90	803.06	710.86	750.61	738.90
6	Calcium as Ca	IS3025 (P-30)	mg/l	148.06	129.10	130.48	140.11	142.00	134.04	134.59
7	Alkalinity as CaCO ₃	IS3025 (P-23)	mg/l	535.27	616.48	676.11	658.25	614.95	603.86	615.51
8	Chloride as Cl	IS 3025 (P-32)	mg/l	231.86	284.11	360.62	352.07	304.48	296.11	406.26
9	Residual free Chlorine	IS 3025 (P-26)	mg/l	*BLEQ**1.00 0.151						
10	Cyanide as CN	IS 3025 (P-27)	mg/l	*BLEQ**1.00 0.021						
11	Magnesium as Mg	APHA - 3500 Mg B Calculation method	mg/l	94.86	98.18	121.28	116.91	88.34	95.01	95.52
12	Total Dissolved Solids	IS3025 (P-16)	mg/l	1036.00	1300.0	1428.00	1300.00	1234.00	1012.00	1200.00
13	Total Suspended	IS 3025 (P-17)	mg/l	92.00	64.00	73.00	90.00	61.00	64.00	63.00

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S. No	Parameter	Test-Method	Unit	Result						
				SW1	SW2	SW3	SW4	SW5	SW6	SW7
	solids									
14	Dissolved Oxygen	IS 3025 (P-38)	mg/l	6.4	6.1	6.0	5.2	6.3	6.2	6.1
15	Sulphate as SO4	IS3025 (P-24)	mg/l	64.87	80.15	89.07	81.50	80.67	82.90	82.90
16	Fluoride as F	APHA . 4500-F B & D	mg/l	0.47	0.23	0.46	0.35	0.40	0.54	0.47
17	BOD (3 Days at 270C)	IS 3025, P-44	mg/l	10.00	16.00	18.00	18.00	15.00	10.00	17.00
18	COD	APHA. 5220 B. Open Reflux Method	mg/l	52.00	75.00	45.00	54.00	54.00	54.00	56.00
19	Conductivity at 25°C	IS3025 (P-14)	mS/cm	1.682	1.81	2.10	2.08	1.82	1.84	1.84
20	Nitrate as NO3	IS3025 (P-34)	mg/l	31.49	34.80	24.48	24.80	16.07	17.10	16.90
21	Sodium as Na	IS3025 (P-43)	mg/l	107.00	160.00	210.00	187.00	184.00	174.00	189.00
22	Potassium as K	IS3025 (P-45)	mg/l	31.86	49.12	43.00	30.00	17.11	18.09	18.72
23	Iron as Fe	VEL/STP/ICP/W-01. Issue date.-01.01/11/21	mg/l	1.85	2.75	2.10	1.32	0.94	1.25	0.95
24	Aluminium as Al	VEL/STP/ICP/W-01. Issue date.-01.01/11/21	mg/l	*BE (0.100) (0.005)						
25	Boron	VEL/STP/ICP/W-	mg/l	0.34	0.31	0.84	0.52	0.40	0.34	0.42

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S. No	Parameter	Test-Method	Unit	Result							
				SW1	SW2	SW3	SW4	SW5	SW6	SW7	
		01. Issue date: -01. 01/11/21									
26	Chromium as Cr	VEL/STP/ICP/W-01, Issue date: -01. 01/11/21	mg/l	*BLQ**L0Q 0.0021							
27	Phenolic Compounds	IS3025 (P-43)	mg/l	*BLQ**L0Q 0.0005							
28	#Mineral Oil	IS 3025 (P-19)	mg/l	*BLQ**L0Q 0.1							
29	#Anionic Detergents as MBAS	VEL/STP/ICP/W-01, Issue date: -01. 01/11/21	mg/l	*BLQ**L0Q 0.05							
30	Zinc as Zn	VEL/STP/ICP/W-01, Issue date: -01. 01/11/21	mg/l	1.45	0.82	2.48	2.49	2.35	1.72	2.38	
31	Copper as Cu	VEL/STP/ICP/W-01, Issue date: -01. 01/11/21	mg/l	0.23	0.25	0.43	0.33	0.22	0.17	0.28	
32	Manganese as Mn	VEL/STP/ICP/W-01, Issue date: -01. 01/11/21	mg/l	*BLQ**L0Q 0.01							
33	Cadmium as Cd	VEL/STP/ICP/W-01, Issue date: -01. 01/11/21	mg/l	*BLQ**L0Q 0.0021							
34	Total Coliform	APHA 23 rd edition, 9221 B	MPN/100ml	1200	1600	1500	1300	1700	1400	1200	
35	Fecal Coliform	APHA 23 rd edition, 9221 F	MPN/100ml	900	800	900	700	800	900	800	

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Note: - *BLQ-Below Limit of Quantification, **LOQ- Limit of Quantification
#These parameter are not covered in our NABL scope.

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3.5.3 INTERPRETATION

- The pH value of drinking water is an important index of acidity or alkalinity. pH value of ground water and surface water sample vary from 7.36 to 7.85 & 7.48 to 7.75 respectively which is well within the specified standard of 6.5 to 8.5. The pH of the ground water is slightly alkaline in nature.
- Electrical Conductivity levels were observed in ground water and surface water samples are in the range of 590.00 to 708.00 $\mu\text{S}/\text{cm}$ & 1.68 to 2.10 mS/cm respectively. Total dissolved solids ranges from 384.00 to 458.00 mg/l in ground water and 1012.00 to 1428.00 mg/l in surface water which is found within the permissible limit.
- The total hardness is an important parameter of water quality. The hardness values in ground water of the study area ranges between 252.09 to 291.98 mg/l and in surface water ranges between 710.86 to 826.90 mg/l which is well within the permissible limit. The calcium and magnesium values in ground water of the study area are well within the specified desirable limit of Indian drinking water standard.
- The chloride values in ground water of the study area ranges between 81.43 to 136.74 mg/l and Surface water of the study area ranges between 231.86 to 360.62 mg/l which is well within the desirable limit.
- No biological and metallic contamination has been found in any of the ground water sample of the study area. Whereas all the almost surface water bodies having the sewage contamination are not safe to use.

Overall the parameters in water samples were well within the desirable limit of Indian Standard IS: 10500-2012. At project site the TDS is within the desirable limit but total hardness is found slightly above the desired limit of Indian Standard IS: 10500-2012 but well within the permissible limit of Indian Standard IS: 10500-2012. No metallic and bacterial contamination was found in the ground water samples. Overall ground water quality of the study area good and found within the drinking water standard.



3.6 NOISE ENVIRONMENT

Any unpleasant sound is classified as noise pollution. Sound possesses three definite properties: intensity, frequency and duration. Intensity is the loudness of a sound or the pressure which exerts through the ear. It is measured in decibels dB (A). In assessing noise, an empirical measure called 'dBA' indicates damage to hearing. The higher the dB (A) number, the greater is the risk of damage to hearing.

Loud noise may adversely affect people in many ways. For example noise may impede with sleep, speech, communication and can cause annoyance and other physiological problems. Occupational noise exposure, is also the most common cause of Noise-Induced Hearing Loss (NIHL). threatens the hearing of individuals exposed to noise pollution for longer periods of time, at a less intense level. For example, repeated exposure to noise pollution at a construction site can cause NIHL to the construction workers, an effect that cannot be reversed.

Major sources of noise pollution during the construction and operational phases of the site will be from construction equipment and diesel generator sets respectively.

3.6.1 AMBIENT NOISE QUALITY

Noise attributed to roads depends on factors such as traffic intensity, the type and condition of the vehicles plying on the road, acceleration/deceleration/gear changes by the vehicles depending on the level of congestion and smoothness of road surface (IRC: 104-1988). High noise levels are a concern for sensitive receptors, i.e., hospitals, educational institutions, etc.

The Central Pollution Control Board has specified ambient noise levels for different land uses for day and night times and is given in Table 3.14. Importance was given to the timing of exposure and areas designated as sensitive.

Table- 3.14: National Ambient Noise Level Standards

Area Code	Category	Limits in Decibels (dB A)	
		Day Time	Night Time
A	Industrial	75	70
B	Commercial	65	55
C	Residential	55	45

**BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI
O. A. No. 404 OF 2025**

IN THE MATTER OF:

RAM KISHORE YADAV

...APPLICANT

VERSUS

MINISTRY OF ENVIRONMENT,
FORESTS & CLIMATE CHANGE & ORS.

...RESPONDENTS

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9.	<u>ANNEXURE-R5</u> A copy of the Environmental Impact Assessment (EIA) Report submitted vide Letter dated 19.03.2024.	794 – 992

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**[KARANJAWALA & CO.]
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PLACE: NEW DELHI

DATE: 19.12.2025

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Area Code	Category	Limits in Decibels (dB A)	
D	Silence	50	40

Source: Central Pollution Control Board, New Delhi

Note: Daytime: 6:00 AM to 10:00 P.M., Night-time: 10 PM to 6 AM;

Noise monitoring study is carried out at 8 locations within study area including project site. All land use is considered while preparation of monitoring plans. List of the Noise level monitoring stations is given below in Table 3.15.

Table-3.15: Noise Monitoring Stations

Code	Location	Distance	Direction	Latitude	Longitude
N1	Project Site	-	-	28° 26' 44.653" N	77° 6' 49.741" E
N2	Near DLF Phase 5	0.9	NNW	28° 27' 19.768" N	77° 6' 32.119" E
N3	Near Sector 55	1.7	SSW	28° 25' 48.085" N	77° 6' 37.272" E
N4	Near Village Wazirabad	2.7	SW	28° 26' 9.991" N	77° 5' 11.877" E
N5	Near Village Mandi	2.9	ESE	28° 26' 19.732" N	77° 8' 38.054" E
N6	Near Village Junapur	4.0	NE	28° 27' 55.532" N	77° 9' 5.903" E
N7	Near DLF Phase I	3.3	NNW	28° 28' 24.083" N	77° 5' 43.262" E
N8	Village Bandhwari	5.8	SE	28° 24' 10.530" N	77° 8' 59.606" E



Table-3.16: Noise Monitoring Results

Code	Location	Day Time Leq dB(A)	Night Time Leq dB(A)	National Standard Day Time Leq dB(A)	National Standard Night Time Leq dB(A)
N1	Project Site	55.02	41.20	55.0	45.0
N2	Near DLF Phase 5	52.02	42.20	55.0	45.0
N3	Near Sector 55	52.97	42.11	55.0	45.0
N4	Near Village Wazirabad	46.96	39.98	55.0	45.0
N5	Near Village Mandi	50.43	40.86	55.0	45.0
N6	Near Village Junapur	52.02	42.89	50.0	40.0
N7	Near DLF Phase I	50.19	42.75	50.0	40.0
N8	Village Bandhwari	48.26	38.51	55.0	45.0

3.7 PHYSIOGRAPHY

Gurugram district is situated on South eastern part of Haryana state has an area of 1258 km². In the North, it is bordered by the Union Territory of Delhi, in the east by Faridabad, in the North West by Jhajjar and Rewari districts of Haryana and in the west by the Alwar district of Rajasthan state and south by the Mewat district of Haryana state. Administratively, the district is divided in to four Blocks, namely, Gurugram, Pataudi, Farrukhanagar, Sohna, and one sub – divisions. Gurugram. Gurugram town is the headquarter of the district.

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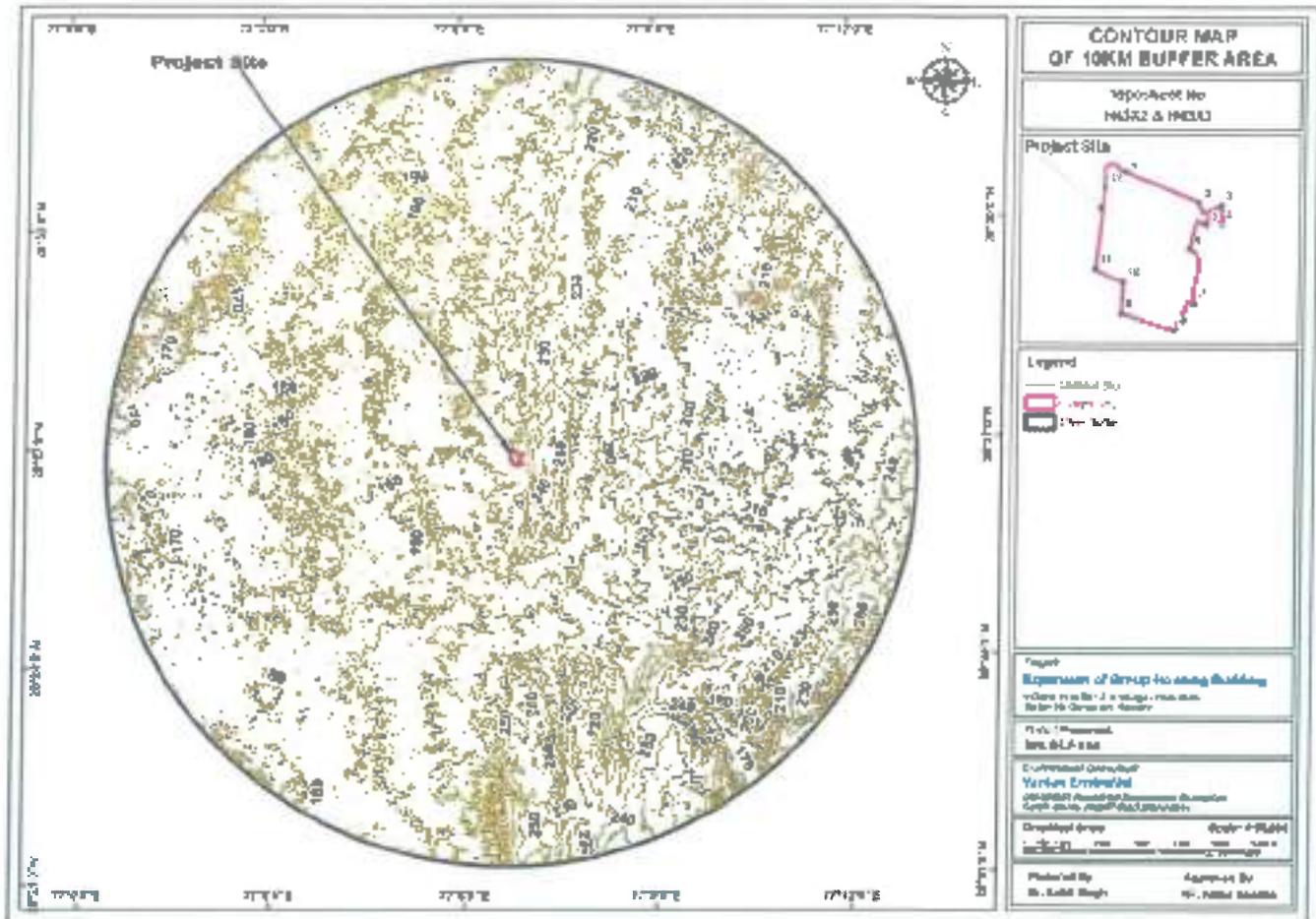


Figure 3.14: Contour map of 10km buffer area



3.8 Drainage pattern

The drainage of the district is typical of the arid and semi-arid areas. It comprises of large depressions and streams. The drainage is peculiarly complex owing to most of the streams tending to converge towards inland depressions instead of flowing into Yamuna. The important depressions in the level of the district in this region are Khalipur, Chandaini, Sangel-ujina, Kotla, Dahar, Jheels and Najalgarh Lake. Sahibi and Indrani are two important seasonal streams of the district. Shows drainage pattern of district Gurugram, Haryana.

Li-nala, Konsat Nala, Dhutti Nala, Bhavri Nala, Rohar Nala and Johar Nala flowing in 10km buffer area.

For DLF LIMITED

YPS

Coordinator



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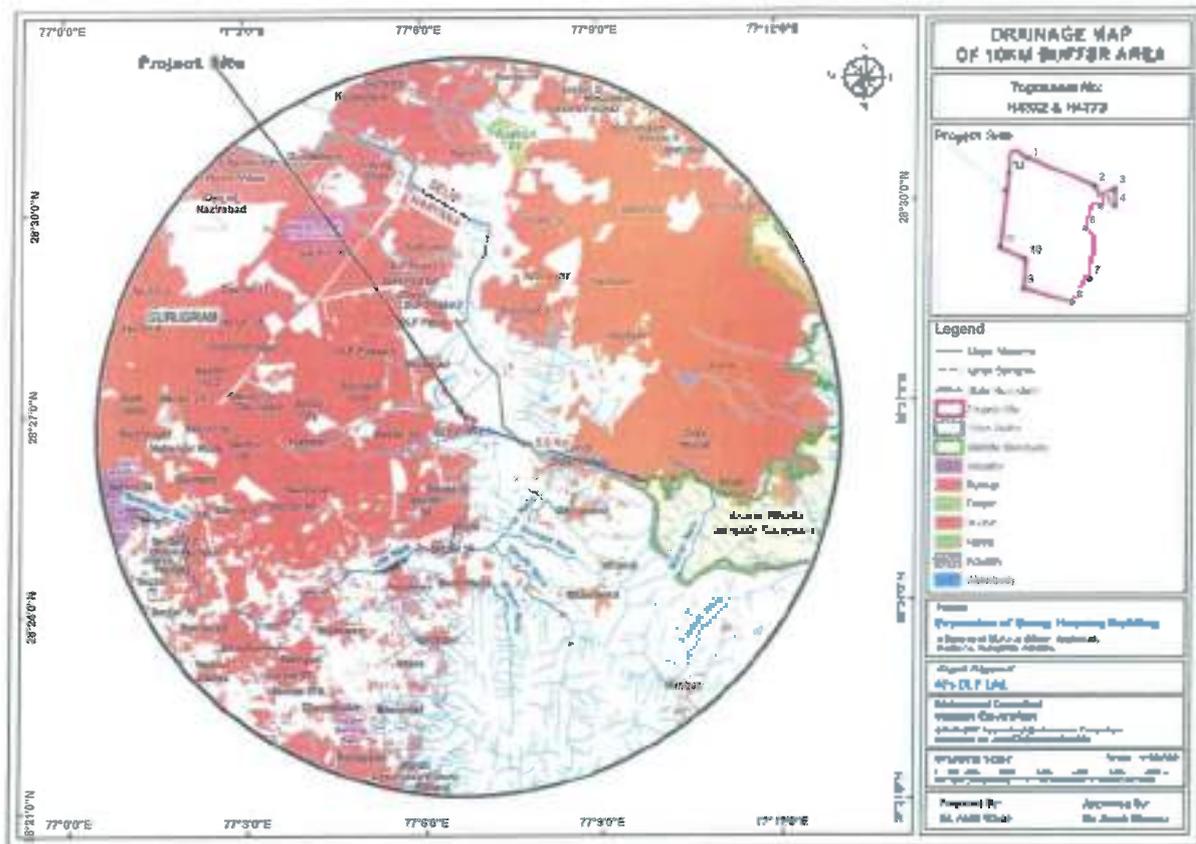


Figure 3.15: Drainage Pattern of 10km Buffer area



3.9 GEOLOGY

The area is conspicuously flat topography; however, in the north-eastern part small isolated hillocks of precambrian rocks are exposed, the alluvial plain is formed by the Sahibi river which is tributary of river Yamuna. Soils of the Gurgaon district are classified as tropical and brown soils, existing in the north western extreme, northern and north eastern parts of the district and water logged and salt affected soils in the southern parts of the district. The soils are medium textured loamy sand is the average texture in Gurgaon and Sohna blocks. In Pataudi and Sohna blocks the organic content of soils is lowest, just up to 0.20 per cent (very low category). In the rest of the district, organic contents are 0.2 to 0.40 percent and falls in low category.

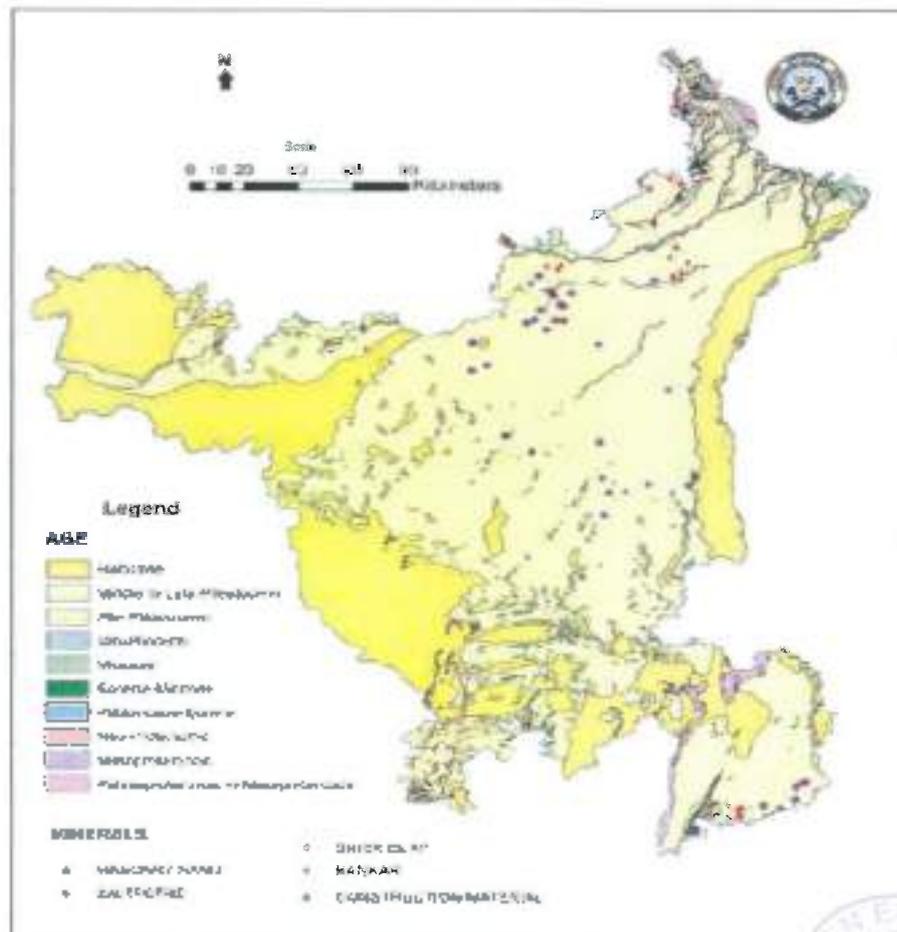


Figure 3.16: Geological and Mineral Map of Haryana

(Source: Geological Survey of India)

For DLF LIMITED

Author's Signature

Vandana Environmental, Gurugram

3.10 BIOLOGICAL ENVIRONMENT

The study of biological environment is one of the key aspects of the Environmental Impact Assessment (EIA), in view of the need for the conservation of Environmental quality and biodiversity of a particular geographical area. Ecological systems show complex interrelationships such as dependence, mutualism and competition between Biotic and Abiotic components. Biotic components include all living organisms-plants and animals; these organisms not only interact between or within themselves but also with the Abiotic components viz. Physical, Chemical and Environmental components.

Generally, biological communities are good indicators of climatic and ecological factors. Studies on biological aspects of ecosystems are important in EIA for safety of natural flora and fauna. Information on the impact of environmental stress on the community structure serves as an inexpensive and efficient early warning system to check the damage to a particular ecosystem. The biological environment includes terrestrial and aquatic ecosystems.

The animal and plant communities exist in their natural habitats in a well-organized manner. Their natural settings can be disturbed by any externally induced anthropological activities or by naturally induced calamities or disasters. Therefore, once this setting is disturbed, it becomes practically impossible or takes a longer time to come to its original state. Plants and animals are more susceptible to environmental stress. The sensitivity of animal and plant species to the changes occurring in their existing ecosystem can, therefore, be used for monitoring Environmental Impact Assessment studies of any project.

Objectives of Biological Study:-

The main objectives of biological study of present project were:

- To collect the baseline data for the study along with a description of the existing terrestrial and aquatic biodiversity.
- To assess the scheduled species in the proposed site (rare, endangered, critically endangered, endemic and vulnerable).
- To identify the locations and features of ecological significance.
- To identify the Impacts of the proposed project on biodiversity during the construction and operation phases.
- To formulate measures that will mitigate adverse impacts on biodiversity.

Study Area:-

The project is Expansion cum Modification of Group Housing Buildings in Zone 10, DLF 5, at Sector-54 Gurgaon, Haryana being developed by M/s DLF Ltd. The project had received License from the Directorate of Town & Country Planning, Haryana with 13 Licenses for 16.975 Acre (License No. 38, 39, 40, 52, 53, 57 of 1996 dated 16.04.1996 which is valid up

to 15.04.2024, License No. 117, 121, 129, 131 of 1995 dated 29.12.1995 which is valid up to 28.12.2024 and License No. 02, 04, 06 of 2002 dated 25.10.2002 which is valid up to 24.10.2024. The zoning plan is obtained from DTCP dated 20.11.2020 for 476.6015 Acres for group housing colony in DLF-5, Gurugram Haryana.

Total plot area of Phase-V Group Housing is 476.6015 Acres (19, 28,738,00 m²) out of which 16.975 Acres/68,693,850 m² (Existing-30,653,317m²/7.574 Acre) are to be developed for this particular Group Housing Buildings Project.

We have obtained earlier EC from SEIAA, Haryana through file no. SEIAA/HR/2022/181 & EC Identification No. EC22B0391ER111216 for total 2, 33,377,998 m² built-up area on 30,653,317 m² (7.574 Acre) plot area.

The project site is located in Zone 10, DLF-5, Sector-54, Gurugram, Haryana which is easily approachable through SH-13 which is ~7.6 Km away from the project site towards West direction and NH-48 which is ~5.5 Km away from the project site towards NW direction and nearest railway station is Gurugram Railway Station at a distance of ~11 Km from project site in NW direction. Nearest airport is Indira Gandhi International Airport at a distance of ~10.3 Km from the project site in North direction.

The Project site is present in urban area and is densely populated. Asola Bhatti Wildlife Sanctuary is present at a distance of 5.0 Km from the project site. Rajkori PF is located at a distance of 6.8 km from the project site.

Methodology:-

Under present baseline study, information on floral and faunal species has been gathered by conducting various scientific surveys in the field (primary studies) and by reviewing published literature (secondary surveys) related to project area. Primary surveys have been conducted within the core zone and buffer zone (10 km radial distance) from project site (Fig 1.1) at Sector-54 Gurugram, Haryana in accordance with the guidelines issued by the Ministry of Environment, Forest and Climate Change, CPCB and HSPCB.

Floristic

Objectives of the present baseline floristic study are as follows:

- To inventories plant diversity in the study area
- To assess the plant community composition along with RFT species in the study area
- To assess the impacts of project activities on the plant community, if any

The present study areas comprise the proposed mining site (core zone) and a 10 km radius from the project site as per the ToR. The plant diversity has been surveyed using a reconnaissance survey followed by vegetation sampling all along the core (project site) and

buffer zone (10 km radius from the project site). Various sampling locations were selected for carrying out vegetation sampling. In addition, an inventory of various floristic elements was also prepared by walking different transects around these sampling sites. In order to understand the composition of the vegetation, most of the plant species were identified in the field itself whereas the species that could not be identified a herbarium specimen was collected along with their photographs for identification later with the help of available published literature and floras of the region. Data obtained from various secondary sources, govt. Department data and published literature were also included in this study.

Forests and Forest Types

Located in Northern India, Haryana has a geographic area of 44,212 km². The state is divided into two natural zones, the Shiwaliks & Aravalli hills, and the Indo-Gangetic plains. The Yamuna and Ghaggar rivers are the lifelines of the state. It is an intensively cultivated state having more than 80% area under agriculture. The extent of natural forests in Haryana is not only one of the lowest in the country but also the lowest in terms of the productivity of the forest. As per the Champion & Seth Classification of Forest Types (1968), the forests in Haryana belong to three Forest Type Groups i.e. Tropical Dry Deciduous Forest, Tropical Thorn Forest, and Subtropical Pine Forests which are divided into 10 Forest Types. Northern Dry-mixed Deciduous Forest (29.53 %), Ravine Thorn Forest (14.72 %), Desert Dune Scrub (5.85 %), Desert Thorn Forest (4.94 %), and *Anogeissus pendula* Forest (5.56 %) are the major forest types present in the state. A total of 3.63 % of forest cover is recorded from the state out of its geographical area. The major forest-forming species reported from the Haryana State are *Eucalyptus Sp.*, *Dalbergia sissoo*, *Acacia catechu*, and *Acacia torilis*. The total forest cover of Haryana is 1603.48 Km², which is 3.63 % of the total state's geographical area.

The present project falls in the Gurugram district, no prominent bio-diverse natural habitats are present in the district. The natural vegetation of the district is found to be largely influenced by the terrain with elements like physiography, slope, geology, and soil. A total of 113.71 Km² forest cover is recorded in the district which is about 9.04 % of its total geographical area. Most of the forest present in the district is concentrated in the Aravalli hills.

On the basis of Classification of Forest Types of India, by Champion and Seth (1964), forest type found in the Gurugram district are:

1. Northern Dry Mixed Deciduous Forest (5B/C2)

This type occurs on the upper dry slopes of Shiwaliks & Aravalli hills and their extensions. The upper canopy is usually light, open and irregular. The trees have relatively short bole and poor form and a height rarely over 10 meters. Major species of this forest type are *Cassia fistula*, *Diospyros tomentosa*, *Acacia catechu*, *Anogeissus latifolia*, *Bombax vieha*,

Albizia lebbek, *Albizia procera*, *Acacia nilotica*, *Acacia mangium*, *Bauhinia variegata*, *Syzygium cumini*, *Mangifera indica*, *Ehretia laevis*, *Phoenix sylvestris*, *Morus alba*, *Morus caradita*, *Terminalia tomentosa*, *Boswellia serrata*, *Aegle marmelos*, *Bauhinia racemosa*, *Bauhinia purpurea*, *Fexthrina suberosa*, *Ficus glomerata*, *Grewia elastica*, *Mollotus philippensis* and *Shorea robusta*.

2. Dry Deciduous Scrub (S/DSI)

The crop is open with less tree cover. *Diospyros tomentosa*, *Acacia leucophloea*, *Hanea monosperma*, *Premna barbata*, *Cassia fistula*, *Anogeissus latifolia*, and *Lumnea grandis* are the major forest-forming species in these forests.

Terrestrial Ecology:-

The natural flora and fauna of the land habitats constitute a terrestrial ecosystem. The study of terrestrial ecosystems is important as a part of monitoring environmental changes. Due to rapid industrialization, currently, the ecological status of an area changed dramatically. Thus, impact evaluation of any developmental activities is highly essential with a view to formulation of a mitigatory plan layout.

Floral Survey:-

The natural vegetation of this area is good with most of the vegetation concentrated on the Aravali hills patch, and few degraded patches of evergreen scrub or thorny forests, but overall floral diversity is fairly high. The major components of natural forest are Dhak of Palas (*Hanea monosperma*), Kikar (*Acacia catechu*), Babul (*Acacia nilotica*) and Date palm (*Phoenix sylvestris*).

During present field survey, a large number of plant species were recorded in different habitats. They are listed in Table-3.17. There is no rare and endangered plant species in the present study area.

Table 3.17: Floral Checklist of the Study Area

Sr. No.	Botanical Name	Common Name	Family
TREES			
1	<i>Mangifera indica</i>	Aam	Anacardiaceae
2	<i>Phoenix sylvestris</i>	khajur	Arecaceae
3	<i>Bambusa culba</i>	Semal	Bombacaceae
4	<i>Cordia dichotoma</i>	Gandi	Boraginaceae
5	<i>Ehretia laevis</i>	Chamror	Boraginaceae
6	<i>Cassia fistula</i>	Baran, Amaltas	Caesalpinaceae
7	<i>Terminalia pendulata</i>	Dhua	Combretaceae
8	<i>Terminalia latifolia</i>	Dhak, Dhawda	Combretaceae

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Sr. No.	Botanical Name	Common Name	Family
9	<i>Terminalia arjuna</i>	Kahu	Combretaceae
10	<i>Terminalia bellirica</i>	Bahera	Combretaceae
11	<i>Terminalia tomentosa</i>	Sadal	Combretaceae
12	<i>Diospyros tumentosa</i>	Kinnu	Ebenaceae
13	<i>Phyllanthus emblica</i>	Awala, Amla	Euphorbiaceae
14	<i>Albizia lebbek</i>	Seerash	Fabaceae
15	<i>Bauhinia racemosa</i>	Astara	Fabaceae
16	<i>Bauhinia variegata</i>	Kachnar	Fabaceae
17	<i>Bauhinia purpuria</i>	Kachnar	Fabaceae
18	<i>Butea monasperma</i>	Palash, Chola	Fabaceae
19	<i>Leucaena leucocephala</i>	Subabul	Fabaceae
20	<i>Pongamia pinnata</i>	Karanj/Papdi	Fabaceae
21	<i>Dalbergia sissoo</i>	Shisham	Fabaceae
22	<i>Azadirachta indica</i>	Neem	Meliaceae
23	<i>Salvadora persica</i>	Arak	Salvadoraceae
24	<i>Acacia catechu</i>	Kher, kihar	Mimosaceae
25	<i>Acacia leucophloea</i>	Khejda	Mimosaceae
26	<i>Acacia nilotica</i>	Babul	Mimosaceae
27	<i>Acacia senegal</i>	Kher, Gum acacia	Mimosaceae
28	<i>Albizia procera</i>	Castar	Mimosaceae
29	<i>Ficus benghalensis</i>	Margad	Moraceae
30	<i>Ficus religiosa</i>	Pipal	Moraceae
31	<i>Morus alba</i>	Tut	Moraceae
32	<i>Morus indica</i>	Mulberry	Moraceae
33	<i>Eucalyptus camaldulensis</i>	Nilgiri	Myrtaceae
34	<i>Syzygium cumini</i>	Jamun	Myrtaceae
35	<i>Aegle marmelos</i>	Bel, Belpatra	Rutaceae
SHRUBS			
1	<i>Calotropis gigantea</i>	Aak	Apocynaceae
2	<i>Carissa opaca</i>	Kacura	Apocynaceae
3	<i>Carissa spinarum</i>	Karonda	Apocynaceae
4	<i>Agave sp.</i>	-	Asparagaceae
5	<i>Jatropha curcas</i>	Rantanjot	Euphorbiaceae
6	<i>Ziziphus mauritiana</i>	Ber	Rhamnaceae
7	<i>Ziziphus xylopyrus</i>	Ghatabor	Rhamnaceae
8	<i>Murraya koenigii</i>	Kari patta	Rutaceae
9	<i>Lantana camara</i>	Lantana	Verbenaceae
HERBS			
1	<i>Gynmema sylvestre</i>	Girmala	Asclepiadaceae

Sr. No.	Botanical Name	Common Name	Family
2	<i>Poatherium hysterophorus</i>	Congress grass	Asteraceae
3	<i>Tridax procumbens</i>	Ghamra	Asteraceae
4	<i>Cyanotis sp</i>	Gadagpurra	Commelinaceae
5	<i>Xanthium strumarium</i>	Chota Dhatura	Compositae
6	<i>Euphorbia hirta</i>	Dudhghas	Euphorbiaceae
7	<i>Afrosa pudica</i>	Chhainuipaudha	Fabaceae
8	<i>Cassia tora</i>	Chirota	Fabaceae
9	<i>Ocimum basilicum</i>	Van Tulsi	Lamiaceae
10	<i>Sida rhombifolia</i>	Atibala	Malvaceae
11	<i>Sida cordifolia</i>	Bala	Malvaceae
12	<i>Sida acuta corpiifolia</i>	Mamas	Malvaceae
13	<i>Boerhavia diffusa</i>	Punarnava	Nyctaginaceae
14	<i>Cynodon dactylon</i>	Dhub	Poaceae
15	<i>Saccharum spontaneum</i>	Kuans	Poaceae
16	<i>Dichanthium annulatum</i>	Seenkha	Poaceae
17	<i>Rubia cordifolia</i>	Majith	Rubiaceae
18	<i>Datura metel</i>	Kaladhatura	Solanaceae
19	<i>Tribulus terrestris</i>	Gokhru	Zygophyllaceae
CLIMBERS			
1	<i>Cuscuta reflexa</i>	Amarbel	Convolvulaceae
2	<i>Tinospora cordifolia</i>	Gudbel, Geloy	Menispermaceae
3	<i>Vitis latifolia</i>	Panibel	Menispermaceae
4	<i>Acacia pennata</i>	Biswal	Mimosaceae
5	<i>Smilax macrophylla</i>	Ramdatur	Smilacaceae

Plantation areas and their vegetation:

Most of the region in the Gurugram district is an urbanized area; the trees planted are mostly along the road, and canal banks, a few around the fields, in city areas as avenue plantations, in and around the residential areas, recreational areas, etc.

Mass strip plantations along the railway line, road, canal bank, drain bank, and also even in degraded notified forest land were recorded in the primary study. Shisham, Kikar, and Eucalyptus were found most suitable species for such types of plantations. Social forestry plantations in the study area were dominated by species like Kikar, Eucalyptus, Khair, Shisham, Teak, Neem, Pipal and Gulmohar. The list of major plant species used for plantation is given in below Table:3.18



Table 3.18: Major Plant Species Used For Social Forestry in Gurugram, Haryana

Sr. No.	Common Name	Botanical Name	Family
1	Jungle Saru	<i>Casuarina equisetifolia</i>	Casuarinaceae
2	Bahora	<i>Terminalia bellirica</i>	Combretaceae
3	Arjun	<i>Terminalia arjuna</i>	Combretaceae
4	Babul	<i>Acacia nilotica</i>	Fabaceae
5	Khair	<i>Senegalia senegal</i>	Fabaceae
6	Gulmohar	<i>Delonix regia</i>	Fabaceae
7	Subabul	<i>Leuceneu leucocephala</i>	Fabaceae
8	Shisham	<i>Dalbergia sissoo</i>	Fabaceae
9	Kassod	<i>Cassia siamea</i>	Fabaceae
10	Kachnar	<i>Bauhinia variegata</i>	Fabaceae
11	Khejri	<i>Prosopis juliflora</i>	Fabaceae
12	Inli	<i>Tamarindus indica</i>	Fabaceae
13	Teak/Sagwan	<i>Tectona grandis</i>	Lamiaceae
14	Asan	<i>Terminalia tomentosa</i>	Lauraceae
15	Neem	<i>Azadirachta indica</i>	Meliaceae
16	Bakain	<i>Melia azedarach</i>	Meliaceae
17	Bargad	<i>Ficus benghalensis</i>	Moraceae
18	Pipal	<i>Ficus religiosa</i>	Moraceae
19	Safeda	<i>Eucalyptus camaldulensis</i>	Myrtaceae
20	Jamun	<i>Syzygium cumini</i>	Myrtaceae
21	Amrood	<i>Psidium guajava</i>	Myrtaceae
22	Papri	<i>Holoptelea integrifolia</i>	Ulmaceae

Agricultural crops:

The major crops present in the study area are Barley, Millet, Wheat, Oat, Bajra, Mustard, Pulses and gram.

Endemic/Endangered Flora:

No endangered and endemic flora was recorded from the core and buffer zone of the project area.

Location of National Park/Sanctuaries:

Asola Bhatti Wildlife Sanctuary is located at a distance of 5 Km from the project site and thus falls within the 10 km radius of the project site. Rajkoti PF is located at a distance of 6.8 km from the project site.

Faunal Diversity:

To prepare a detailed report on the status of wildlife biodiversity within the 10 km radial area to assess the impacts due to the project activity and evolve suitable mitigation measures to protect and conserve wildlife biodiversity following components were studied:

- Surveys for diversity and distribution of various faunal species (Mammals, Birds, Herpetofauna, etc.)
- Rare & Endangered species/ Schedule of Fauna

Sampling methods used

Generally a linear transect of 1.0 km each was chosen for sampling at each site. Each transect was trekked for 1.5 hr. for the sampling of faunal diversity through following methods for different categories

Butterfly: 'Pollard Walk' method was employed and all the species recorded on daily-basis. Voucher specimens of the species that could not be identified in the field were collected using a butterfly net besides photographing them.

Avifauna: 'Point Sampling' along the fixed transect (Foot trails) was carried out. All the species of birds were observed through a binocular and identified with the help of field guidebook and photographs.

Mammals and Reptiles: Open width transects were used for the direct sighting of the mammals and these transects were visited in morning and evening hours. In addition, information on recent sightings/records of mammals by the villagers/locals was also collected. Foot marks, faeces and other marks/sign created by them were also recorded. In case of reptiles mainly lizards were sampled by direct count on open width transects. The list of fauna recorded during the survey is given in the Table 3.19 to 3.22

Table 3.19: Checklist of Mammals recorded in study area

Sr.No	Common Name	Scientific Name	WPA A 2022	IUCN
1	Blackbuck*	<i>Antelope cervicapra</i>	Sch-I	LC
2	Nilgai	<i>Baselaphus tragocamelus</i>	Sch-II	LC
3	Jungle Cat*	<i>Felis chaus</i>	Sch-I	LC
4	Northern Palm Squirrel	<i>Fuxambulus pennanti</i>	Sch-II	LC
5	Small Indian Mongoose*	<i>Herpestes auropunctatus</i>	Sch-I	LC
6	Striped Hyena*	<i>Hyacna hyacna</i>	Sch-I	LC
7	Indian Parcupine*	<i>Hyrrix indica</i>	Sch-I	LC
8	Indian Hare	<i>Lepus nigricollis</i>	Sch-II	LC

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Sr.No	Common Name	Scientific Name	WPAA 2022	IUCN
9	Rhesus Macaque	<i>Macaca mulatta</i>	NL	LC
10	Indian pangolin*	<i>Manis crassicaudata</i>	Sch-I	EN
11	Indian Field Mouse	<i>Mus booduga</i>	NL	LC
12	Northern Plains Grey Langur	<i>Semnopithecus entellus</i>	Sch-II	LC
13	Asian House Shrew	<i>Suncus murinus</i>	NL	LC
14	Indian Wild Boar	<i>Sus scrofa</i>	Sch-II	LC
15	Indian Grey Mongoose*	<i>Urva Edwardsii</i>	Sch-I	LC
16	Small Indian Civet*	<i>Viverricula indica</i>	Sch-I	LC

[LC] - LEAST CONCERN, [NL] - NOT LISTED, [EN] - ENDANGERED* Recorded in Asola bhatti WLS

Table 3.20: List of Birds recorded in study area

Sr. No	Common Name	Scientific Name	WPAA 2022	IUCN
1	Shikra*	<i>Accipiter badius</i>	Sch-I	LC
2	Common Kingfisher	<i>Alcedo atthis</i>	Sch-II	LC
3	Pied Kingfisher	<i>Ceryle rudis</i>	Sch-II	LC
4	White-throated Kingfisher	<i>Halcyon smyrnensis</i>	Sch-II	LC
5	Grey Heron	<i>Ardea cinerea</i>	Sch-II	LC
6	Purple Heron	<i>Ardea purpurea</i>	Sch-II	LC
7	Indian Pond-Heron	<i>Ardeola grayii</i>	Sch-II	LC
8	Cattle Egret	<i>Bubulcus ibis</i>	Sch-II	LC
9	Little Egret	<i>Egretta garzetta</i>	Sch-II	LC
10	Black-Crowned Night Heron	<i>Nycticorax nycticorax</i>	Sch-II	LC
11	Hoopoe	<i>Upupa epops</i>	Sch-II	LC
12	Red-wattled Lapwing	<i>Vanellus indicus</i>	Sch-II	LC
13	Little Ringed Plover	<i>Charadrius dubius</i>	Sch-II	LC
14	Asian Woolly-necked Stork	<i>Ciconia episcopus</i>	Sch-II	VU
15	Black-necked Stork	<i>Ephippiorhynchus asiaticus</i>	Sch-II	NT
16	Painted Stork	<i>Mycteria leucocephala</i>	Sch-II	NT
17	House Crow	<i>Corvus splendens</i>	NL	LC
18	White Wagtail	<i>Motacilla alba</i>	Sch-II	LC
19	Western Yellow Wagtail	<i>Motacilla flava</i>	Sch-II	LC
20	House Sparrow	<i>Passer domesticus</i>	Sch-II	LC
21	Oriental Darter	<i>Anhinga melanogaster</i>	Sch-II	NT
22	Black Francolin	<i>Francolinus francolinus</i>	Sch-II	LC
23	Indian Peafowl*	<i>Pavo cristatus</i>	Sch-I	LC

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Sr. No	Common Name	Scientific Name	WPA 2022	IUCN
24	White-breasted Waterhen	<i>Amurornis phoeniceus</i>	Sch-II	LC
25	Red-naped Ibis	<i>Pseudibis papillosa</i>	Sch-II	LC
26	Black-headed Ibis	<i>Threskiornis melanocephalus</i>	Sch-II	NL
27	Common Myna	<i>Acridotheres tristis</i>	Sch-II	LC
28	Bank Myna	<i>Acridotheres garruloides</i>	Sch-II	LC
29	Brahminy Starling	<i>Sturnia pagodarum</i>	Sch-II	LC
30	Rosy Starling	<i>Pastor roseus</i>	Sch-II	LC
31	Grey Francolin	<i>Oryzornis pondichianus</i>	Sch-II	LC
32	Common Quail	<i>Coturnix coturnix</i>	Sch-II	LC
33	Large Grey Babbler	<i>Argya malcolmi</i>	Sch-II	LC

[NT] = NEAR THREATENED, [VU] = VULNERABLE, [LC] = LEAST CONCERN, [NL] = NOT LISTED,* Recorded in Asola Bhatti WLS

Table 3.21 List of Herpetofauna recorded in study area

Sr.No	Common Name	Scientific Name	WPA 2022	IUCN
Amphibians				
1	Asian Common Toad	<i>Duttaphrynus melanostictus</i>	NL	LC
2	Marbled Toad	<i>Duttaphrynus stomaticus</i>	NL	LC
3	Indian Skittering Frog	<i>Euphlyctis cyanophlyctis</i>	Sch-II	LC
4	Indian Rice frog	<i>Fejervarya limncharis</i>	NL	LC
5	Indian Bull Frog	<i>Hoplobatrachus tigerinus</i>	Sch-II	LC
Reptiles				
1	Garden Lizard	<i>Calotes versicolor</i>	NL	LC
2	Spotted Brooks Gecko	<i>Hemidactylus brookii</i>	NL	LC
3	Slender Worm Snake	<i>Indotyphlops porrectus</i>	Sch-II	LC
4	Indian Wolf Snake	<i>Lycodon aulicus</i>	Sch-II	LC
5	Snake-eye Lacerta	<i>Ophisops jerdonii</i>	NL	LC
6	Common Snake skink	<i>Riopa punctata</i>	NL	NL

[LC] = LEAST CONCERN, [NL] = NOT LISTED

Table 3.22: List of Butterflies recorded in study area

Sr No.	Family/Species	Scientific Name	Relative abundance
LYCAENIDAE			
1	bright babul blue	<i>Amanus abaldis</i>	Uncommon
2	small Cupid	<i>Chilades parrhasius</i>	Common
3	Zebra Blue	<i>Leptotes plinius</i>	Uncommon
NYMPHALIDAE			

Sr No.	Family/Species	Scientific Name	Relative abundance
4	Common Castor	<i>Artibe merione</i>	Uncommon
5	Plain tiger	<i>Danaus chrysippus</i>	Common
6	Great Eggfly	<i>Hypolimnas bolina</i>	Common
7	Danaid Eggfly	<i>Hypolimnas misippus</i>	Common
8	Peacock Pansy	<i>Junonia almana</i>	Common
9	Blue Pansy	<i>Junonia orithya</i>	Uncommon
10	Common Leopard	<i>Phalanta phalanta</i>	Fairly Common
11	Lemon Pansy	<i>Precis lemanias</i>	Common
PAPILIONIDAE			
12	Common Jay	<i>Graphium doson</i>	Common
13	Line Butterfly	<i>Papilio demoleus</i>	Common
PTERIDAE			
14	Pioneer	<i>Belenois orota</i>	Uncommon
15	Common Emigrant	<i>Castopsilia crocale</i>	Common
16	Common Grass Yellow	<i>Eurema hecabe</i>	Very Common

Endangered/Protected Species:

As per the Wildlife Protection Amendment Act, 2022: **Eight Mammals and Two Bird species** belonging to the Sch-I category is recorded and are found inside Asola Bhatti WLS. No fauna belonging to the Sch-I category is present in the buffer zone and outside of Asola Bhatti WLS.

Aquatic Ecology:

There is several small water bodies present in the buffer zone of the project (drains, minors, distributaries, and ponds). Aquatic biotic communities like Phytoplanktons and Zooplanktons were not in a strong position in the study area, therefore these communities have not been studied during the present study. Only Macrophytes and Fish fauna were studied in these water bodies. The water bodies present in the study area are listed below:

Table 3.23: Prominent water bodies present in the study area

Major Water bodies	Distance (km) from project site	Direction from project site
Li Nala	2.6	SE
Bhawaro Nala	4.8	S
Dhulanti Nala	5.7	SE
Sharpur Nala	6.5	ENE
Jauhar Nala	8.5	SE

Macrophytes:

For studies on Macrophytes, marsh areas, canals and drains, water bodies of different sizes were surveyed within a radius of about 10 km from the proposed site. Following Macrophytes were recorded under the present primary study given in Table 3.24

Table 3.24: Macrophytes Diversity from Study Area

Sr. No.	Common Name	Scientific Name	Growth Form
1	Dwarf Water Clover	<i>Marsilea minuta</i>	Amphibious
2	Mosquito Fern	<i>Azola pinnata</i>	Floating
3	Indian Quillwort	<i>Isaetes panchananai</i>	Amphibious
4	Fared Watermoss	<i>Selaginia auriculata</i>	Floating
5	Horsetail	<i>Equisetum ramosissimum</i>	Amphibious
6	Common duckweed	<i>Lemna minor</i>	Floating

Fish & Fisheries:

The Pisciculture activities were restricted only to the distributaries, canals and village ponds. The culture fisheries were common practices in confined water bodies over the years. Transported fish seeds are supplied by State Fisheries Department to the villagers and commercial entrepreneurs for Pisciculture in confined water bodies. The major carps like Rohu (*Labeo rohita*), Catla (*Catla catla*), and Siraha (*Labeo gonius*) were found primarily cultured.

Table 3.25: Fish fauna found in the Study Area

Sr. No.	Common Name	Scientific Name
1	Bam	<i>Mustacembelus armatus</i>
2	Katla	<i>Catla catla</i>
3	Bata	<i>Labeo bata</i>
4	Siraha	<i>Labeo gonius</i>
5	Rohu	<i>Labeo rohita</i>
6	Spotfin Swamp Barb	<i>Puntius sophore</i>
7	Mosquito Fish	<i>Gambusia affinis</i>
8	Dwarf Snakehead	<i>Channa gachua</i>



Anticipated Impacts on Biological Environment:-

- Asola Dhatti Wildlife Sanctuary is located at a distance of 5 Km from the project site and thus falls within the 10 km radius of the project site. Rajkori PF is located at a distance of 6.8 km from the project site.
- There will be no loss of forest land and habitats of flora and fauna due to the construction of the project as the project site is situated in urban region and is a designated land use zone for residential purpose. Also, the project site is free of nesting and roosting habitat of wild animals.
- Dust and noise during the construction phase may result in restricted growth, less regeneration and degradation of sensitive vegetation as deposition of dust on plants may reduce the photosynthesis process.
- Noise generated by the machinery deployed in construction might reduce the abundance of sensitive species like butterflies and birds to some extent. However, these impacts are temporary and will be recovered strongly after the completion of the construction phase and establishment of the greenbelt.
- Biodiversity observed near the project site is common and found in the buffer area more vigorously, therefore, there is less chance of loss of any hiotic species due to the present project.

Mitigation Measures to be used for conserving biodiversity:-

- Water sprinkling on unpaved roads to reduce the deposition of dust on plants and to reduce the impact of fugitive dust emission during construction and operation phases.
- The peripheral green belt will be developed using native plant species. The green belt will be developed at the site with the help of experts and an additional plantation will be done as suggested in Development Action Plan (DAP).
- Provision of proper sound barriers surrounding the construction site can help reduce the sounds thus causing fewer disturbances to the local fauna.
- Restriction of construction activities to project site only.
- Additional plantation or progressive plantation in nearby area will done while considering the following points:-
- Selection of the plant species will be done on the basis of their adaptability to the existing geographical conditions and the vegetation composition of the forest type of the region earlier found or currently observed. The plants exhibiting the following desirable characteristics will be selected for any plantation activity.

- a) The species which will be fast growing and providing optimum penetrability.
- b) The species with wind-firm and deep-rooted
- c) The species which will form a dense canopy.
- d) The species of indigenous nature will be used.
- e) Species tolerance to air pollutants like SO₂ and NO₂ were preferred.
- f) Trees with high foliage density, leaves with larger leaf area.
- g) Ability to withstand conditions like inundation and drought.
- h) Soil improving plants (Nitrogen fixing rapidly decomposable leaf litter).
- i) Attractive appearance with good flowering and fruit bearing.
- j) Plant species that attract birds and insects.
- k) Species with sustainable green cover with minimal maintenance.

3.16 Socio-Economic Environment

Any developmental activity exerts a direct impact on the socio-economic environment of the region. Usually, the beneficial impacts such as better job opportunities, improved education, communication, energy, housing, health, transportation facilities etc. outweighs the adverse impacts, if any.

The study of socio-economic component of environment is incorporating various facets, viz. demographic structure, availability of basic amenities such as housing, education, health and medical services, occupation, water supply, sanitation, communication and power supply, prevailing diseases in the region as well as features such as places of tourist attraction and monuments of archaeological importance. The study of these parameters helps in identifying predicting and evaluating the likely impacts due to project activity in the surrounding region.

The Baseline Status

The proposed project is Expansion cum Modification of Group Housing Buildings in Zone 10, DLF 5, at Sector-54 Gurgaon, Haryana being developed by M/s DLF Ltd. The project had received License from the Directorate of Town & Country Planning, Haryana with 13 Licenses for 16.975 Acres.

The latest available data has been compiled to generate the existing socio-economic scenario of the study area. Information on socio-economic profile was collected from the Census of India 2011, Haryana and South Delhi including the population details of the region.

Village

The basic unit for rural areas is the revenue village which has definite surveyed boundaries. The revenue village may comprise of one or more hamlets but the entire village is treated as one unit for presentation of data.

Study Area

The study area was defined as an area within 10 km radius around the project site which includes total 40 areas both urban wards and villages that are from Gurugram and Sohna tehsil of Gurugram District of Haryana state and Vasant Vihar Tehsil of South west Delhi and Haus Khas tehsil of South Delhi.

The Socio-Economic Status of the study areas is mentioned below and the villages surveyed are enlisted in Table 3.26.

Demographic Structure

Demographic structure of the study area was estimated for the selected parameters as households, population, sex ratio, scheduled caste, scheduled tribes, literacy from Census of India 2011. The summarized demographic structure of the study area is presented in Table 3.27, while the details of the parameters of demographic structure village wise within the 10 km radius are shown in ANNEXURE

DEMOGRAPHIC PROFILE OF THE STUDY AREA

Household and Population

Total number of households in the study area is about 174399 and Total population of about 755762 with male population about 421146 (55.72%) and female population is 334616(44.27%) with the average family size i.e persons per family is about 4.3 in the study area.

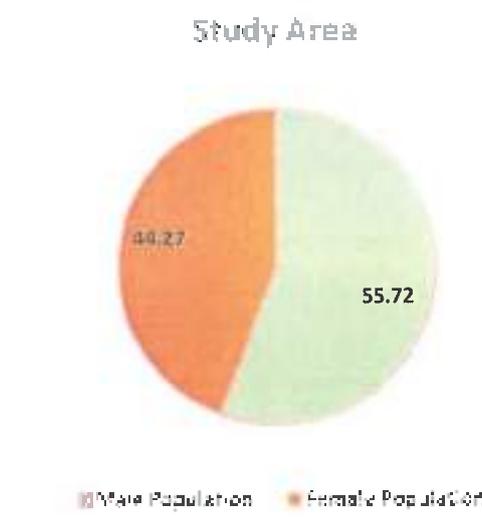


Fig.3.17 Representing the Percentage of Male and Female Population in the Study Area

Population 0-6 Years Age group

Out of the total population, the population of children within the age of 0-6 age-group in study area is about 97186 (12.85%).

Sex Ratio & Child Sex Ratio

Sex ratio (No. of females per 1000 males) is 794 in study area which indicates that females are less in number than their male counterpart in rural and urban area and Child Sex ratio is 857 in study area i.e. no. of female child per 1000 male child.

The graphical presentation of the distribution of population is given in fig below.

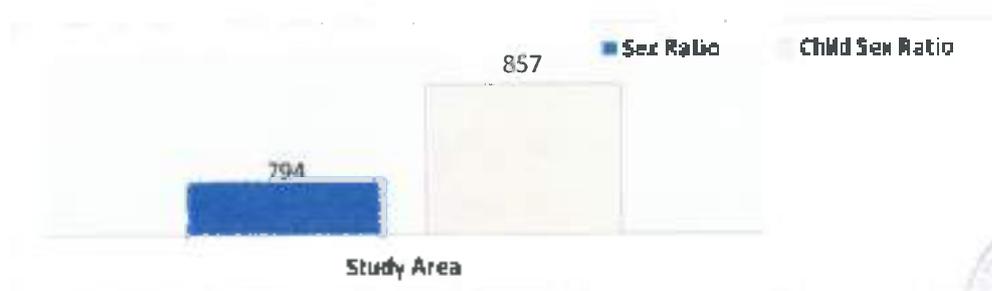


Fig.3.18 Showing the Sex Ratio and Child Sex Ratio Population in the Study Area

Scheduled Caste and Scheduled Tribe Population

Scheduled caste population in study area is about 81945 i.e 10.84% while Scheduled Tribes population is nil in the region.

Literacy Rate in the Study Area

Out of the total population 566752 i.e 74.99% literates are in the study area. Male populations are more literates 334397 (59.00%) than female literates are low about 232355 (40.99%) in the study area.

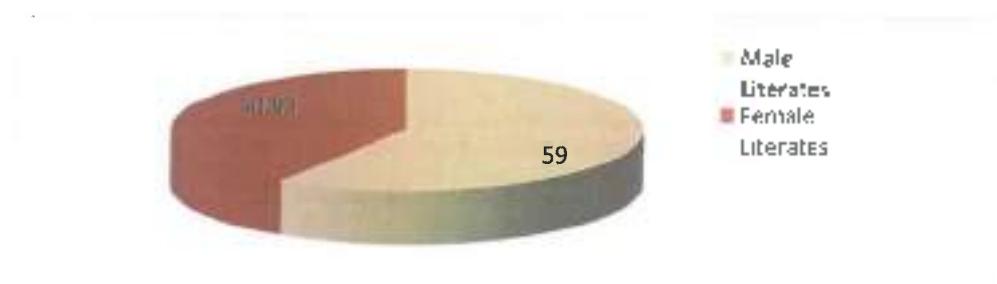


Fig.3.19 Representing the Percentage of Male and Female Literacy in the Study Area

Occupational Pattern/ Economic Resource Base

'Work' has been defined as participation in any economically productive activity. Such participation may be physical or mental. Persons on leave and under training are also treated as workers. However, rent receivers and pensioners are not treated as workers.

Occupational pattern of the villages and urban area within 10 km is given in table 3.28 & 3.29. Occupational pattern of any region mainly depends upon its economically active group i.e. the working populations involved in different economically productive activities. The total workers further categorized as main worker, marginal and the non-working population.

The workers coming under the main and marginal workers category are cultivators, agricultural labors and those engaged in live stock, forestry, fishing, hunting, and plantations, orchards and allied activities, mining and quarrying, manufacturing, processing, servicing and repairs in household industry, construction trade and commerce, transport, storage & communication, and other services

Different types of workers in total worker population may be classified as –

A. Main Workers

Main workers are those who have worked for a major part of the year (i.e. at least six months or 183 days). Main activity of a person who was engaged in more than one activity was reckoned in terms of time disposition. Out of the total population 272739 (36.08%) in study area. Main workers are further classified into 4 categories viz., cultivators, agricultural laborers and household workers and other main workers.

Cultivators

For purposes of the Census a person is classified as cultivator if he or she is engaged in cultivation on land owned or held from government or held from private persons or for payment in money, kind or share. The person who is engaged either as employer, single worker or family worker in cultivation of land is recognized as a cultivator. Cultivation involves ploughing, sowing, harvesting and production of cereals and millet crops such as wheat, paddy, jawar, bajra, ragi, etc., and other crops such as sugarcane, tobacco, ground-nuts, tapioca, etc., and pulses, raw jute and kindred fiber crop, cotton, cinchona and other medicinal plants, fruit growing, vegetable growing or keeping orchards or groves, etc. Cultivation does not include the following plantation crops—tea, coffee, rubber, coconut and betel-nuts (areca).

In the study area the cultivator population in study area is about 3874(1.42%).

Agricultural Laborers

Persons working on land owned by others for wages or share in the yield have been treated as agricultural laborers. Out of the total main worker category the agricultural laborers population in study area in rural area is 4043(1.48%).

Laborers in Household Industry

The laborers engaged in household activity are quite low in all the study area. Among the total main worker only 8167(2.99%) workers from rural area are engaged in Household activity.

Other Workers

All main workers i.e. those who have been engaged in some economic activity during the last one year and who are neither cultivators nor agricultural laborers or household industry workers are classified as other main workers. The type of workers that come under this

category includes factory workers, plantation workers, those in trade, commerce, business, transport, construction, political or social works, all government servants, municipal employees, teachers, priests, entertainers, artists etc. The other worker category can be seen higher in study area in rural area which is about 256655 (94.10%) of study area.

B. Marginal Workers

Marginal workers are those who have worked any time in the year for less than six months or 183 days but have not worked for a major part of the year. The population of marginal workers within the study area comprises of only about 17460 (2.31%).

C. Non-Workers

Non-Workers are those who have not worked any time at all in the year. Non-workers constitute householders, students, dependents, retired persons etc.

The economy of the study area is primarily based on agriculture. The agriculture sector has thus absorbed a major portion of the working force.

The categories of main workers, marginal workers & non workers are complementary to each other. Therefore, in areas where the proportion of main workers & marginal workers are high, the proportion of non workers would be naturally low. At present main workers category outweighs the marginal and non workers in the study area.

The proportion of female main worker population is high as compared to their male worker counterpart because in general rural areas offer more opportunities for men & women to work in agriculture & animal husbandry etc. In view of the labor-intensive nature of agricultural economy, a large number of women are required to participate in work especially during the peak seasons of agricultural operations like sowing & harvesting which are to be carried out in a short span of time covering large areas in each village. The non-worker population in rural area is observed to be about 465563 (61.60%) of the study area.

It is observed that maximum population in study area are engaged in other activity while maximum non-worker can be seen in the study areas as the employment opportunities are less in the rural areas.



Fig.3.20 Representing the Occupational Structure of the Study Area

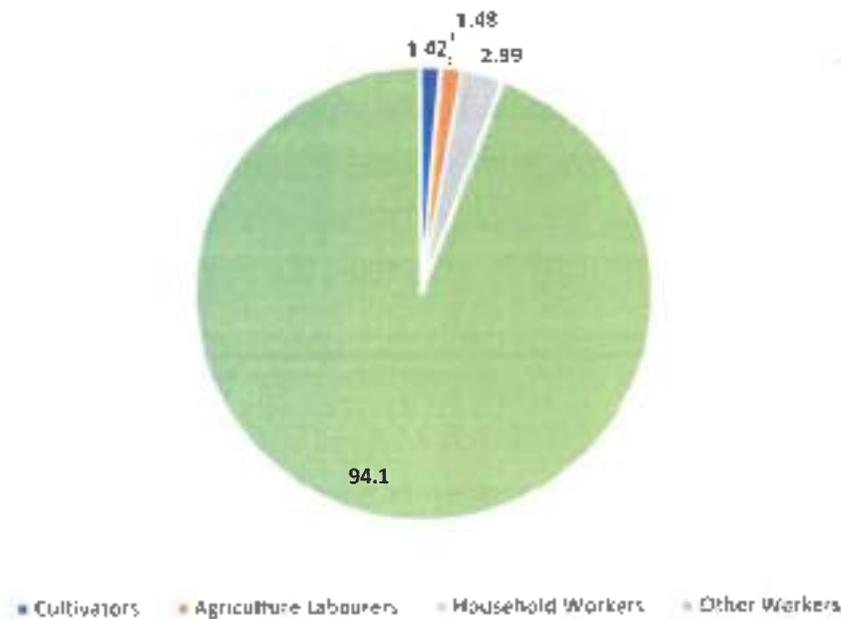


Fig. 3.21 Category of Main Workers in the Study Area

Infrastructure Resource Base



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The details of infrastructure resources base of the study area with reference to education, medical facility, water supply, post and telegraph, transportation, communication facility, power supply, existence of nearest town etc. The details of infrastructure facility within the 10 kms radius of the project site is given below:

INFRASTRUCTURE FACILITY NEAR THE PROJECT SITE

Particulars	Villages
Educational Facility	Govt. Model Sanskriti Primary School
	Suncity School Gurgaon
	Government Girls School Saraswati Kunj II, Wazirabad
	Government Model Sanskriti Senior Secondary School, Sushant Lok Phase I, Sector 43
	Government Senior Secondary School Chakkarpur, Sector 28
	Government Primary School DLF Phase IV, Sector 43
	Govt. Sr Sec. School, Bandhwari, Haryana
	Government Senior Secondary School Boys Civil hospital Ward 3, Gurugram
	Government School Samaspur
	Government High School, Mehrauli Sector-5
	Girls govt. School, Sukrali Sector-15
	Government school Tijara sector 57
	Govt. Sr Sec. School, Bandhwari, Haryana
	Government Middle School Gurgaon Tigra
	Govt School, Block G, Wazirabad, Sector 52

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	Sarvodaya Bal Vidyalaya, Fatehpur Beri
	Priyadarshini Sarvodaya Kanya Vidyalaya - Fatehpur Beri
Medical Facility Near Project Site	Sanar International Hospital
	Government hospital, Fatehpur Beri
	Upto Chanderlok - Government Hospital
	Pwo Apartments, Sector 43, Gurugram
	Government Hospital, Wazirabad
	Shri Ram Memorial Hospital, DLF City Phase III, Sector 24, Gurugram
	Civil hospital, Mehrauli-Gurgaon Rd
	CGHS Wellness Centre, Sector 5, Gurugram
	Government Hospital, Kadajpur Rd. Badshahpur
Railway Station	Gurugram Railway Station

Cultural and Aesthetic Attributes

As such no culturally and aesthetically important places are located within the 10 km of the study area.

Health Status

Health of the people is not only a desirable goal, but it is also an essential investment in human resources. As per the National Health Policy (1983), Primary Health Care has been accepted as main instrument for achieving this goal of development and strengthening rural health infrastructure through a three-tier system, viz., Primary Health Center (PHCs), Primary Health Subcentres (PHS) and Community Health Centers have been established to provide health care facility not only to the resident population of the concerned villages but also to the neighboring villages.

Primary Health Centers - PHC is the first contact point between village community and the Medical Officer. The PHCs were envisaged to provide an integrated curative and preventive health care to the rural population with emphasis on preventive and promotive aspects of health care.

Primary Health Sub-Centers - Sub-Centers are assigned tasks relating to interpersonal communication in order to bring about behavioral change and provide services in relation to maternal and child health, family welfare, nutrition, immunization, diarrhea control and control of communicable diseases programmes.

Community Health Centre - Community Health Centre (CHCs) are being established and maintained by the State Government under MNP/BMS programme. As per minimum norms, a CHC is required to be manned by four medical specialists i.e. Surgeon, Physician, Gynecologist and Pediatrician supported by 21 paramedical and other staff.

Lack of building, shortage of manpower and inadequate provision of drug supplies are hampering the operation of these units. The standards to be met according to National Rural Health Care System are given below:

Population	Medical Facility & Infrastructure	Personnel
3000-5000	1 Sub centre (Contact Unit of PHC and Community)	1 Health Worker (Female)/ Auxiliary Nurse Midwives & 1 Health Worker (Male)
20,000-30,000	1 PHC (Unit of 6 Sub-Centers)- 6 beds	Medical officers & 14 Paramedical Staff
80,000-1,20,000	Community Health Centre (Referral Unit-4 PHCs)- 30 Bedded Hospital	Medical superintendent

Source: National Rural Health Care System in India (2005-12)

As per the District Statistical Abstract 2018-19 the number of medical Centres in Gurugram District is given in Table below:

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District	Hospitals	CHC	PHC	Dispensaries	Primary Health Sub-centre	Total
Gurugram	- 5	- 3	- 15	- 3	- 76	102

*CHC -Community Health Centre

PHC- Primary Health Centre

It is attributed from the data that different health problems are reported which could be attributed to improper sanitation, lack of health awareness among the people and lack of health-related infrastructure facilities.

Socio-economic Survey

In order to assess and evaluate likely impacts arising out of any development projects on socio-economic environment, it is necessary to gauge the apprehensions of the people in the study areas.

II. Methodology applied for selection of sample & data collection

The methodology which is applied for primary source of data collection i.e. gathering data through field survey for socio-economic environment is depicted below:

A Sampling Method

A judgmental and purposive sampling method was used for choosing respondents of various sections of the society i.e. Sarpanch, adult males and females, teachers, medical practitioners, businessmen, agriculture laborers, unemployed group etc. Judgmental and purposive sampling method includes the right cases from the total population that helps to fulfill the purpose of research needs.

B Data Collection Method

For the process of data collection through primary source certain methods are used among that are:

Field Survey and Observations

Field survey and observations is made at each sampling village and the socioeconomic status of that region is studied. Visits are made at hospitals, primary health centers and sub-centers to know the health status of the region. Various governmental organizations such as statistical department, department of census operations are visited to collect the population details of that region.

Interview Method

Structured interview method is used to collect data regarding the awareness and opinion from the samples selected of the various socio-economic sections of the community. Structured interviews involve the use of a set of predetermined questions that includes fixed and alternative questions. The questionnaire mainly highlights the parameters such as income, employment and working conditions, housing, food, water supply, sanitation, health, energy, transportation and communication, education, environment and pollution to assess the standard of living of that particular region and general awareness, opinion and expectation of the respondents about the proposed project. Interview method helps to collect more correct and accurate information as the interviewer is present during the field survey.

Socio-economic survey was conducted in the villages within the study areas located in all directions with reference to the project site. 8 areas were surveyed from study area.

The respondents were asked for their awareness ' opinion about the proposed project which is an important aspect of socio-economic environment, viz. job opportunities, education, health care, housing, transportation facility and economic status.

The salient observations recorded during socio economic survey in the study areas are depicted below:

- As the location of the project site is within the urban area maximum workers in rural and the urban area are engaged in other activity which may include service and business in private sector.
- Most of the villages have Primary School (PS), Middle School (MS) and Secondary school while very few have senior secondary schools. Further education villagers go to Gurugram.

- The main source of drinking water supply is through Hand Pump and Tap water facility is available in very few villages. But majority of respondents expressed unsatisfactory opinion regarding the availability of drinking water facility.
- Two wheelers, auto rickshaws & bus facility are the main mode of transportation used by natives in the study area. Metro station is at quite near and accessible from the project site.
- Power supply is available in mostly all the sampling villages. Street lights are also available in all villages. Power supply is available for 20-22 hours a day for domestic purpose.
- The total population after expansion cum modification of project will be 4,283 persons. The detailed population breakup is given below in the following

Population Details

S. No.	Occupancy Type	PPU	Unit / Area (S.qm)	Total Population
1	Main Dwelling Units	@5 Persons / Unit	432	2,160
2	Services Personnel Room	@2 Persons / Unit	432	864
3	Maintenance staff	Lumpsum		43
4	Club House/community building	Lumpsum		1,000
5	Visitors	10% of Residential Population		216
	Total			4,283



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Table 3.26 List of the Villages For Field Survey of Socio-Economic Environment

Sr. No.	Villages
1.	Gurgaon (M Corp.) WARD NO.-0025
2.	Daultabad (OG) WARD NO.-0034
3.	Naya Behraun Pur (OG) WARD NO.-0036
4.	Nurpur Jharsa(165)
5.	Bandhwari(79)
6.	Sambhalka (CT)
7.	Fateh Pur Beri (CT)
8.	Gadai Pur



Table 3.27 Summarized Demographic Structure Of The Study Area

Sr.No	Parameter	Study Area
1.	No. of Villages & Urban Area	40
2.	Households	174399
3.	Household Ratio	4.3
4.	Total Population	755762
5.	Male Population (%)	421146(55.72%)
6.	Female Population (%)	334616(44.27%)
7.	Population (0-6 Years %)	97186(12.85%)
8.	Sex Ratio	794
9.	Child Sex Ratio	857
10.	Scheduled Caste %	81945(10.84%)
11.	Literates %	566752(74.99%)
12.	Male Literates	334397(59.00%)
13.	Female Literates	232355(40.99%)
14.	Main Workers %	272739(36.08%)
	• Cultivators (%)	3874(1.42%)
	• Agricultural Labourers (%)	4043(1.48%)
	• Household Labourers (%)	8167(2.99%)
	• Other Workers (%)	256655(94.10%)
15.	Marginal Workers %	17460(2.31%)
16.	Non-Workers %	465563(61.60%)

Source: Census of India 2011, Haryana & Delhi



IMPACT ON SOCIO-ECONOMIC ENVIRONMENT

Critically analysing the existing environmental status of the socio-economic profile and visualizing the scenario with the project, the impacts of the project would be varied and will generate both positive and negative impacts of the proposed project in the region are stated below.

Positive Impacts

- There will be growth in indirect jobs and business opportunities to the local and surrounding people such as contractors, transporters, and raw material suppliers etc. due to the proposed development in the area. Local laborers from nearby area are being employed during the construction phase
- The total population after expansion cum modification of project will be 4,283 persons which shall include 2160 population of main dwelling units, services personnel room will include 864 maintenance staff of 43, club house and community building will include 1000 population and 216 visitors.
- Demands of community services and commercial development also create additional employment for the poor strata of society by way of security guard, driver, maid/servant, sweeper, gardener etc.
- Health facility will also be improved with the development of the project.
- Commercials as well as daily need shops will increase in the study areas as there will be inflow of population due to the project
- Improvement in safety, security, banking and fire-fighting facility
- The project envisages bringing various other communities to the area and thereby enabling rapid enhancement of an urban environment
- The sanitation and the aesthetic environment of the village would also improve with the coming of the project.

Negative Impacts

- Due to the proposed project activity, influx of population may increase during the construction phase. This may lead to strain on infrastructure facilities in the area as well as increase in population at local level. However, this impact is only for the short duration and temporary in nature

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- Vehicular traffic and construction activities may create noise pollution
- Proposed development may have a significant impact on the community's ability to accommodate new residents and adapt to changes in the social environment for existing surrounding residents

Mitigations Measures

- Project proponent should take appropriate steps to keep environment clean and healthy during construction phase
- Provision of adequate drinking water, toilet and bathing facilities should be made available on project site
- Water shall be sprinkle/spread to suppress dust during construction phase to control air pollution and thereby avoid adverse health impact
- Proper living condition with appropriate facilities for residential labours should be provided
- Proper Training and awareness programme should be carried out so that the workers understand the importance of wearing the personal protective equipments.
- The colony management collectively will need a pool of watchmen, gardeners, sweepers, plumbers, fitters, STP operators, lift operators and solid waste collectors. Preference should be given to local people for all this.

M/s DLF LIMITED

Authorized Signatory



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Table 3.28 Demographic Structure Of The Study Area (Rural)

Sr.No.	Villages	Households	Total Population	Male Population	Female Population	Population 0-6 Years	Scheduled Caste	Literates
Haryana State								
Gurugram District								
Gurugram Tehsil								
1.	Gurgaon (M Corp.) WARD NO.-0025	5421	20398	11011	9387	2165	761	16530
2.	Gurgaon (M Corp.) WARD NO.-0026	5924	21746	13352	8394	3123	1455	13490
3.	Gurgaon (M Corp.) WARD NO.-0027	3921	14895	8134	6761	1246	165	12603
4.	Gurgaon (M Corp.) WARD NO.-0028	5650	23106	12467	10639	2418	1664	18461
5.	Gurgaon (M Corp.) WARD NO.-0029	5747	23114	14089	9025	2962	3085	17150
6.	Gurgaon (M Corp.) WARD NO.-0030	6733	28036	15507	12429	3082	1611	22765
7.	Gurgaon (M Corp.) WARD NO.-0031	7085	32348	17641	14707	4731	2481	23847
8.	Gurgaon (M Corp.) WARD NO.-0032	7348	31584	16584	15000	3950	2236	24968
9.	Gurgaon (M Corp.) WARD NO.-0033	8329	39699	21438	18261	5664	5781	29488
10.	Daulatabad (OG) WARD NO.-0034 (Rural) MDDS CODE:645584)	1054	5913	3113	2800	773	1054	4395
11.	Ghara (OG) WARD NO.-0035 (Rural) MDDS CODE:645585)	349	2128	1112	1016	354	144	1440

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12.	Naya Behram Pur (OG) WARD NO.-0036 (Rural MIDDS CODE-645586)	229	1509	755	724	235	0	1028
13.	Gurgaon (M Corp.) WARD NO.-0003	10001	45861	24262	21599	6106	8263	34873
14.	Gurgaon (M Corp.) WARD NO.-0004	9595	43754	22696	21058	4839	2858	35469
15.	Gurgaon (M Corp.) WARD NO.-0006	7709	35958	19252	16706	4691	2907	26634
16.	Gurgaon (M Corp.) WARD NO.-0017	3809	13586	7288	6298	1756	215	10778
17.	Nurpur Jharsa(165)	227	1133	595	538	143	84	851
18.	Dhumsapur(86)	124	661	353	311	106	54	475
Total		89255	385432	209779	175653	48377	34818	295215
Sohna Tehsil								
19.	Qual Pahari(77) Part	369	2257	1180	1077	377	316	1499
20.	Dalola(78)	165	1121	602	519	193	0	721
21.	Bandhwari(79)	634	4104	2216	1888	643	799	2612
22.	Ujhawas(83) Part	329	2284	1232	1052	399	334	1535
23.	Kadarpur(84)	1019	6372	3378	2994	1110	1104	3894
Total		2516	16138	8608	7530	2722	2553	10261
Vasant Vihar								
24.	NDMC (Part) WARD NO.-0008	6584	26715	15458	11257	2244	2348	22361
25.	NDMC (Part) WARD NO.-0009	6863	30124	16063	14061	2635	4533	24764
26.	Malik Du Kohi alias Rang Puri (CT) WARD NO.-0144	5412	23726	12961	10765	3400	3447	17946
27.	DMC (U) (Part) WARD NO.-	8921	34761	17939	16822	3528	1417	27396

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	0172							
28.	Ghitorni (CT) WARD NO.- 0174	2928	14393	8302	6591	2112	1603	11056
29.	Rajokri (CT)	4430	19148	10640	8508	2691	3869	13898
30.	Sambhalika (CT)	3912	17076	9639	7437	2614	2565	11980
31.	Kapas Hera (CT)	21370	74073	50123	23950	9642	6503	54435
Total		60420	240516	141125	99391	28866	26285	183036
South Delhi District								
Hauz Khas Tehsil								
32.	Aya Nagar (CT)	6757	33123	17916	15207	4767	3637	25201
33.	Jona Pur (CT)	2028	10635	5847	4788	1647	2583	7088
34.	Fateh Pur Beri (CT)	1581	8861	4780	4081	1253	935	6310
35.	Dera Mandi (CT)	3156	16725	8998	7727	2621	3832	11063
36.	Bhati (CT)	3727	18864	10114	8750	3182	2301	10231
37.	Asola (CT)	2502	13275	7160	6115	1954	3012	9411
38.	Gadai Pur	661	3027	1659	1368	324	880	2167
39.	Satberi	1218	6076	3448	2628	879	954	4241
40.	Shahni Pur	578	3090	1712	1378	564	135	1728
Total		22208	113676	61634	52042	17221	18289	77440
Grand Total		174399	755762	421146	334616	97186	81945	566752

*Source: Primary Census Abstract 2011, Haryana & Delhi



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Table 3.29 Occupational Structure Of The Study Area (Urban)

Sr.No.	Villages	Total Main Workers	Main Workers				Marginal Workers	Non-Workers
			Cultivators	Agricultural Laborers	Household Laborers	Other Workers		
Haryana State								
Gurgaon District								
Gurgaon Tehsil								
1.	Gurgaon (M Corp.) WARD NO.-0025	8384	25	45	264	8050	315	11699
2.	Gurgaon (M Corp.) WARD NO.-0026	9698	35	151	183	9329	1161	10887
3.	Gurgaon (M Corp.) WARD NO.-0027	6909	8	11	312	6578	276	7710
4.	Gurgaon (M Corp.) WARD NO.-0028	9403	38	59	308	8998	350	13353
5.	Gurgaon (M Corp.) WARD NO.-0029	9135	62	90	229	8754	622	13357
6.	Gurgaon (M Corp.) WARD NO.-0030	11641	22	28	298	11293	287	16108
7.	Gurgaon (M Corp.) WARD NO.-0031	10303	76	100	442	9685	466	21579
8.	Gurgaon (M Corp.) WARD NO.-0032	11381	37	80	630	10634	332	19871
9.	Gurgaon (M Corp.) WARD NO.-0033	11768	52	349	499	10868	1213	26718
10.	Daultahad (OG) WARD NO.-0034 (Rural MDDS CODE:645584)	1427	266	272	18	871	33	4453
11.	Ghata (OG) WARD NO.-0035 (Rural MDDS)	453	205	5	35	208	126	1549

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	CODE:645585)							
12.	Naya Belram Pur (OG) WARD NO.-0036 (Rural MDDS CODE:645586)	349	66	83	10	190	20	1140
13.	Gurgaon (M Corp.) WARD NO.-0003	14681	106	108	456	14011	587	30593
14.	Gurgaon (M Corp.) WARD NO.-0004	14504	20	92	736	13656	593	28657
15.	Gurgaon (M Corp.) WARD NO.-0006	11796	45	112	636	11003	360	23802
16.	Gurgaon (M Corp.) WARD NO.-0017	6054	22	34	151	5837	531	7001
17.	Nurpur Jhansaj(165)	401	62	7	56	276	23	709
18.	Dhumaspur(86)	158	51	16	13	78	8	498
Total		138445	1208	1642	5276	130319	7303	239684
Sohna Tehsil								
19.	Gual Pahari(77) Part	412	50	12	4	346	193	1652
20.	Balok(78)	239	186	17	0	26	0	882
21.	Bandhwari(79)	576	387	33	13	443	191	3037
22.	Ullawas(83) Part	619	254	5	18	342	109	1556
23.	Kadarpur(84)	1655	1014	197	97	347	1589	3128
Total		3801	1891	264	132	1514	2082	10255
Delhi								
South West Delhi District								
Vasant Vihar Tehsil								
24.	NDMC (Part) WARD NO.-0008	10992	10	61	350	10571	588	15135
25.	NDMC (Part) WARD NO.-0009	11610	34	67	139	11370	542	17972
26.	Malik Pur Kothi alias Rang Pur (CT) WARD	7365	6	32	159	7171	282	16076

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	NO.-0144							
27.	DMC (U) (Pur) WARD NO.- 0172	13602	29	91	492	12990	1037	20122
28.	Ghitorni (CT) WARD NO.- 0174	4595	65	132	128	4270	374	9024
29.	Rajokri (CT)	5795	180	165	162	5285	727	12626
30.	Sambhalta (CT)	5539	18	56	96	5339	285	11252
31.	Kapas Hera (CT)	38331	34	128	326	37843	1786	33956
Total		97832	376	762	1852	94842	5621	137063
South District								
Hauz Khas Tehsil								
32.	Aya Nagar (CT)	10073	30	49	234	9760	443	22607
33.	Jona Pur (CT)	3140	63	416	54	2607	172	7323
34.	Fateh Pur Beri (CT)	2377	66	69	96	2146	190	6294
35.	Dera Mandi (CT)	4073	65	162	59	3787	325	12327
36.	Bhati (CT)	5292	40	167	100	4985	726	12846
37.	Asola (CT)	3800	65	327	235	3173	278	9197
38.	Cidai Pur	1202	30	156	65	951	96	1729
39.	Sanberi	1908	35	22	46	1805	175	3993
40.	Shahar Pur	796	5	7	18	766	49	2245
Total		32661	399	1375	907	29980	2454	78561
Grand Total		272739	3874	4043	8167	256655	17460	465563

Source: Primary Census Abstract 2011, Haryana & Delhi

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3.11 Traffic Study

Traffic study measurements were performed at NH-48, NH-248 A, SH-15A, NH-148A and MDR-137 to assess impact on local transport infrastructure due to this expansion of project.

Table-3.30: Transportation Distribution within project site

Name of National/state Highway and MDR	Direction		Traffic Distribution
	Up	Down	%
NH-48	Delhi	Jaipur	35
NH-248 A	Gurugram	Sohna	20
NH-148A	Gurugram	Delhi	20
SH-15A	Gurugram	Farakhnagar	15
MDR-137	Gurugram	Faridabad	10

Traffic data collected continuously for 24 hours by visual observation and counting of vehicles under three categories, viz, heavy motor vehicles, light motor vehicles and two/three wheelers. As traffic densities on the roads are high, two skilled persons were deployed simultaneously at each station during each shift- one person on each of the two directions for counting the traffic. At the end of each hour, fresh counting and recording was undertaken. Total numbers of vehicles per hour under the three categories were determined.



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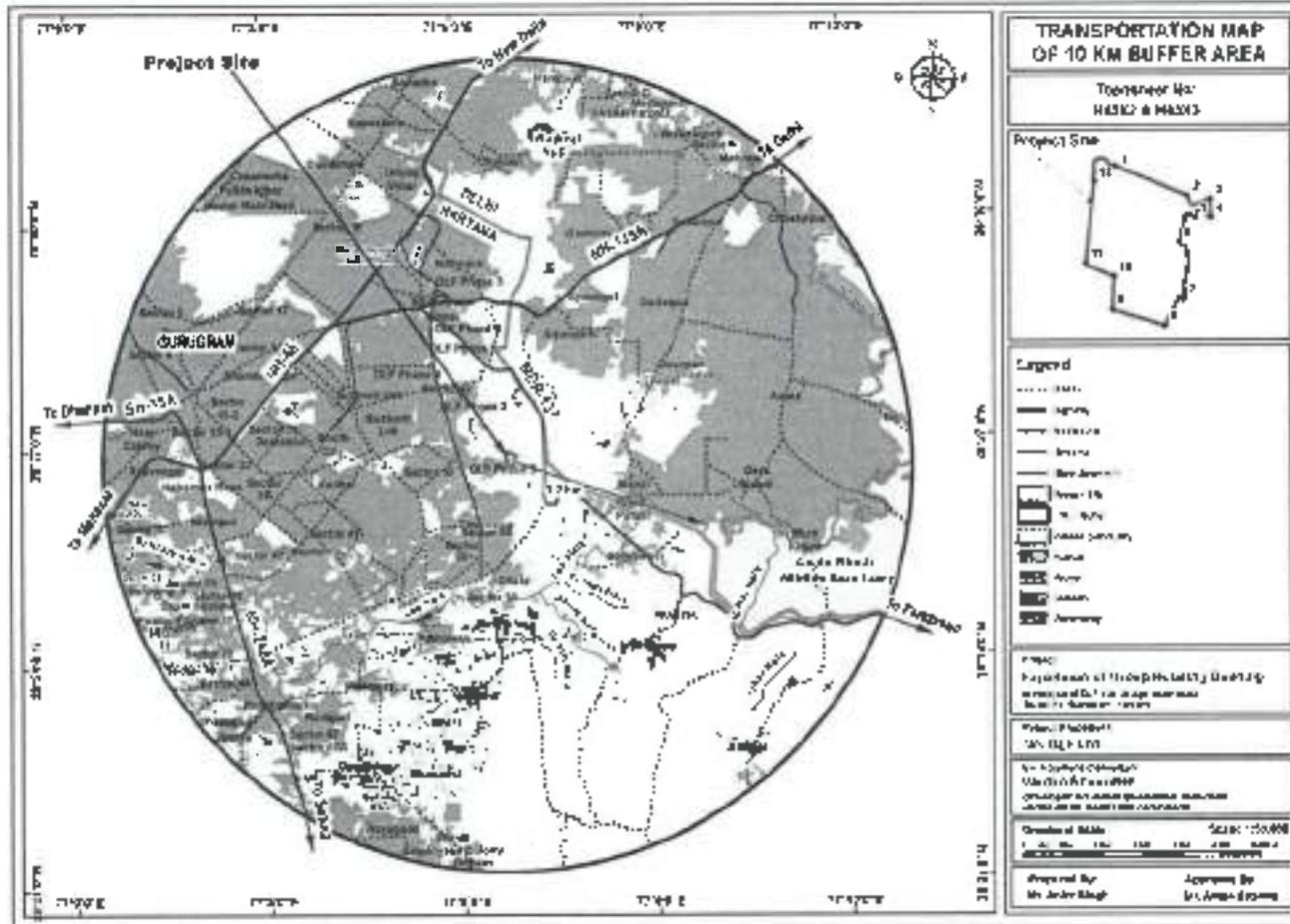


Fig: 3.22. Transport Map of Project site

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Table-3.31: No. of Vehicles per Day

S.No.	Vehicles Distribution	Number of Vehicles Distribution/ Day					(PCU Factor)	Total Number of Vehicle in PCU/Day					Total Number of Vehicle (PCU)/Hour				
		MDR-137	NH-148 A	NH-248A	NH-48	SH-15A		MDR-137	NH-148 A	NH-248A	NH-48	SH-15A	MDR-137	NH-148 A	NH-248A	NH-48	SH-15A
		1	Cars	6000	7200	7100		9000	6500	1	6000	7200	7100	9000	6500	250	300.00
2	Buses	730	1220	1005	1450	980	3.7	2701	4514	3718.5	5365	3626	112.5417	188.08	154.94	223.54	151.08
3	Trucks	220	430	380	6500	250	3.7	814	1591	1406	24050	925	33.91667	66.29	58.58	1002.08	38.54
4	Two Wheelers	3400	4410	4120	6500	40100	0.75	2550	3307.5	3090	4875	3000	106.25	137.81	128.75	203.13	125.00
5	Three Wheelers	1200	1950	1520	3000	1340	2	2400	3900	3040	6000	2680	100	162.50	126.67	250.00	111.67
	Total	11550	15210	14125	26450	13070			20512.5	18354.5	49290	16731	602.7083	854.7	764.8	2053.8	697.1

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Table-3.32: Existing Traffic Scenario and LOS

Road	V (Volume in PCU/hr.)	C (Capacity in PCU/hr.)	Existing V/C Ratio	LOS
NH-48	2054	5400	0.380	B
NH-248 A	765	5400	0.142	A
NH-148 A	855	3600	0.237	B
SH-15A	697	3600	0.194	A
MDR-137	603	3600	0.167	A

Note: The existing level is "Excellent" for NH-248A, SH-15A and MDR-137 and "Very Good" for NH-48 & NH-148A

Table-3.33: Standard LOS values

V/C	LOS	Performance
0.0-0.2	A	Excellent
0.2-0.4	B	Very Good
0.4-0.6	C	Good/ Average/ Fair
0.6-0.8	D	Poor
0.8-1.0	E	Very Poor

*According to IRC percentage composition of vehicle type in traffic stream is considered 10 % and above for the analysis of traffic load study due to the proposed project.

ANTICIPATED ENVIRONMENTAL IMPACTS & MITIGATION MEASURES

4.1 INTRODUCTION

The potential receptors of environmental and social impacts in project development are mostly the ambient air quality, ambient noise level, soil, water and solid waste management. Following section summarizes the potential impacts on the physical, natural and socio-economic impacts triggered by the project activities. The extent of impacts depends primarily on the environmental management practices that would be adopted during the facility operation. The various environmental and social parameters have been investigated to identify the impacts that are likely to occur during the development, construction and operation periods of this project.

The residential colony project will be developed and constructed gradually in the time span of 5 to 7 years. In development phase, basic infrastructure facilities like internal roads, rainwater harvesting tank, storm water drainage, street lighting etc. will be developed.

For proper evaluation and assessment of the environmental impacts due to development and construction and functional phase of project, understanding to the various activities associated with the project is essential. Various activities related to the project would be different, in terms of nature during the development, construction and functional phase.

The impact identification and prediction process aims to:

- Identify potential source or cause of impact throughout the life of project.
- Characterize the potential impacts affecting a target or receptor (physical, human and socio-economic).
- Assess the potential of changing the likely-hood of impact through Environmental Management Plan (EMP).

Prediction of the impacts due to the development, construction and functional activities encompass the development process to be undertaken during construction and functional phases. For each category of environmental receptor (such as, ambient air quality, water quality, soils, land, etc.) the potential impacts of activities during development, construction and functional phases and magnitude of the impacts have been assessed and discussed in detail in following sub sections. In each case, cognizance has been taken to mitigation measures inherited in the development, construction and functional phase. The baseline status

of the environment at the site and the surrounding study area has been quantified and presented in chapter-3.

4.2 ANTICIPATED IMPACTS ON LAND ENVIRONMENT AND ITS MITIGATION MEASURES

4.2.1 LAND USE AND AESTHETICS

Development on the project site includes development of green area at various levels which would enhance the overall aesthetics of the area. Thus, positive impact is anticipated on the land use pattern and aesthetics of the area.

4.2.2 TOPOGRAPHY AND GEOLOGY

The activity during the construction phase would involve excavation work and leveling of site. Since the site is a plain land, the topography as well as geology is not anticipated to change due to project. No additional stresses will be imposed by the project on these parameters and hence no significant impacts are expected.

4.2.3 SOIL

(A) IMPACTS DURING CONSTRUCTION PHASE OF THE PROJECT

Impact on soil owing to the project construction activity includes soil erosion, compaction, physical and chemical desegregations and pollution of soil. Erosion of soil may occur on account of removal of vegetation and large-scale excavation activity for construction.

Use of heavy machinery and storage of material compact the soil. Compaction of soil as well as mixing of construction material with soil would also lead to reduced infiltration of water, decrease in permeability and increased runoff. Both physical and chemical desegregations of soil would occur during the construction phase. Physical desegregations would occur due to excavation of different layers of soil and subsequent mixing of different layers and would lead to disruption of soil structure. Chemical desegregations and pollution of soil would be on account of spillage of oil from vehicles used for transportation of construction material and from the building material used for construction purposes.

MITIGATION MEASURES:

- The top soil will be stripped from excavation areas (approx. 15 cm) and stockpiled for later reuse in landscaping in covered sheds. It is estimated that topsoil will be preserved at site for use in landscaping.

- Remaining soil should be stored separately from top soil and shall be used for filling the site. Site is below the adjacent road level. Thus most of the soil will be used for filling purpose
- Site should be cleaned on daily basis. Debris and raw material which may pollute the soil should be stored on the paved surfaces.
- HSD should be stored on paved surface and drains should be provided around such surfaces so as to drain out the spillage.
- Paints, solvents, wood preservatives, pesticides, adhesives and sealants shall be stored in sealed containers, labelled, and disposed of as required by the Hazardous and Other Wastes (Management and Trans-boundary Movement) Amendment Rules, 2023.
- Dustbins should be provided at the site and labour hutment area for collection of the waste. Municipal waste from labour camp either should be composted in pit at site or should be disposed off through authorized vendor.

(B) IMPACTS DURING OPERATION PHASE OF THE PROJECT

Soil can be contaminated by leaching of waste water into the soil, dumping of municipal solid waste in open land and due to spillage of used oil from Diesel Generator Set. Soil erosion may also occur during the rainy season.

MITIGATION MEASURES:

- Carefully designed landscaped areas and plantation will be maintained during the operation phase of the project.
- All solid and other wastes from the project will be properly collected, stored and disposed. An integrated solid waste management plan will be developed.
- Wastewater will be treated, disinfected and reused for various activities like flushing, horticulture and cooling etc.
- Storm water will be used to recharge the aquifer after filtration of silt and sand and also be utilized for project water requirements.
- The entire site area will be well paved and thus there will be no leaching of any substances in case of spills.

4.3 ANTICIPATED IMPACTS ON AIR ENVIRONMENT AND ITS MITIGATION MEASURES

4.3.1 IMPACTS DURING CONSTRUCTION PHASE OF THE PROJECT

The Construction phase would have the following types of impacts on the air environment:

- i. Fugitive Dust Emission
- ii. Gaseous Emission

Sources of Fugitive Dust Emission is due to movement of vehicle and land preparation activities, loading and un-loading of construction materials. The building material carrying vehicles as well as the construction machinery generate emissions and pollute the environment. Dust includes brick and silica dust, wood dust from joinery and other woodworking and from earthmoving and other vehicle movements within the site. Construction machineries pose a special threat to air quality. Source of Gaseous emission during construction phase would be DG sets.

MITIGATION MEASURES:

Dust Suppression: The most cost-effective dust suppressant applied to mitigate airborne dust is water, because of its efficiency as well as ready availability. Water can be applied using handheld sprays and automatic sprinkler systems (Anti-smog gun) depending on the location. Thus, Fugitive dust will be controlled by sprinkling of water at the site. While, for control of gaseous emission from the DG sets, wet scrubber will be installed. Apart from this air During the installation of heights of DG Sets the conditions specified in The Environment Protection Act, 1986 third amendment rules 2002, vide GSR 489 (E), dated 9th July, 2002 at serial no. 96 shall be complied with.

Emission Control from Construction Equipment's: Construction equipment and heavy transport vehicles shall meet emission standards like Bharat Stage -III/Stage-IV requirements for vehicles. The operation and maintenance of all vehicles, equipment's deployed on site by different contractors would be regulated and effectively monitored. The Pollution under Control (PUC) certification will be ensured for proper O&M of vehicles.

Improved Maintenance: The other measures to reduce the air pollution on site are:

- o On-Road- Inspection should be done for black smoke generating machinery.
- o Promotion of use of cleaner fuel would be done.
- o Vehicles having pollution under control certificate would be allowed to ply.
- o Use of covering sheet to prevent dust dispersion at buildings and infrastructure sites, which are being constructed.

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- Use of covering sheets should be done for trucks to prevent dust dispersion from the trucks, implemented by district offices.
- Reducing the speed of a vehicle to 20 kmph can reduce emissions by a large extent.
- Speed bumps would commonly be used to ensure speed reduction.

Material Storage: Care would be taken to keep all material storages adequately covered and contained so that they are not exposed to situations where winds on site could lead to dust / particulate emissions. Fabrics and plastics for covering piles of soils and debris is an effective means to reduce fugitive dust.

4.3.2 IMPACTS DURING OPERATION PHASE OF THE PROJECT

The Operation phase would have the following types of impacts on the air environment:

- i. Smoke from DG sets
- ii. Smoke from Resident's vehicles

Diesel Generator sets will be the major source of air pollution as the emission of SO₂, NO₂ and Hydrocarbons will be done. DG sets will run during power failure as power back-up. Smoke from resident's vehicles may be the source of air pollution during the operation phase of the project.

MITIGATION MEASURES:

- Height of DG sets stack will be maintained as per the guidelines prescribed by CPCB to disperse the air pollutants in the air.
- The Pollution under Control (PUC) certification will be ensured for the vehicles coming in the project premises at regular basis.

4.3.3 AIR EMISSIONS AND DISPERSION MODELING:

Air quality modeling is carried out for two main sources of air pollution from residential colony. These include emissions from DG Sets and vehicles. The modeling for DG Set emissions is carried out in ISCST3 model; whereas, CALINE4 model is used for modeling vehicular emissions. The details of modeling are presented in following sections

4.3.3.1 Emission from DG Sets

DG Sets will be used fulfilling emergency power requirements. The various DG Set parameters used for modeling gaseous emission are presented in Table below.4.1.

Table 4.1: Parameters used for modeling gaseous emission

Stack Attached to	Capacity KVA	Fuel Used	PM10 g/s	SO2 g/s	NOx g/s	CO g/s	PM2.5
8 -DG Set	2000	HSD	0.006444	0.161111	0.292004	0.063585	0.002578

4.3.3.2 Emissions from Vehicles

The other sources likely to be affecting the pollutant concentrations in project area would be emission from vehicles during operation phase. Carbon Monoxide is the major pollutant in vehicular emissions. The various parameters used for modeling CO emission from vehicles are presented in Table below.

4.3.3.3 Meteorological Data

The meteorology of the project area plays very important role in dispersion of pollutants and buildup of pollution within the atmosphere. In the present study, one season (December-2023 to February 2024) meteorological data has been used for modeling emission from loading activity in ISCST3 model. The meteorological conditions used for modeling emission due to transportation in CALINE4 model is presented in Table below.4.2.

Table 4.2: Meteorological Data used for Modeling in CALINE4

Wind Speed (m/s)	Wind Direction (°)	Atmospheric Stability Class	Wind Direction Standard Deviation (°)	Ambient Temperature (°C)	Mixing Height (m)
1	Calculated by Model	D	10	20	500

4.3.3.4 Results

The ISCST3 model (Lakes Environmental AERMOD View) was setup to predict the incremental ground level concentration (GLC) of PM₁₀, PM_{2.5}, NO₂, SO₂ and CO generated due to operation DG Sets. Point sources were setup to resemble DG Sets. Receptors were fixed at baseline monitoring stations as well as in uniform polar grid up to 10 km radius from project. The model was run for **Worst-Case Scenario** i.e. 24-hour operation of DG sets. Similarly, Line Source was used to predict the incremental GLC of CO due to vehicular emissions in **Worst-Case Scenario**, in which worst-case wind angle is calculated by the model.

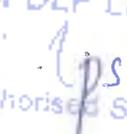
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The predicted maximum incremental GLC of PM_{10} , $PM_{2.5}$, NO_2 , SO_2 and CO were found as $0.00909 \mu\text{g}/\text{m}^3$, $0.00568 \mu\text{g}/\text{m}^3$, $0.02842 \mu\text{g}/\text{m}^3$, $0.02273 \mu\text{g}/\text{m}^3$ and $0.000035 \mu\text{g}/\text{m}^3$ respectively at project site. The predicted incremental GLC and predicted cumulative GLC at baseline air quality monitoring locations are presented in Table 4.3.

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Table 4.3 – Predicted GLC at Ambient Air Quality Monitoring Stations

Location	Village	Max Baseline Concentrations					Predicted GLC – AERMOD					Cumulative GLC				
		PM10	PM2.5	Nox	SO2	CO	PM10	PM2.5	Nox	SO2	CO	PM10	PM2.5	Nox	SO2	CO
		($\mu\text{g}/\text{m}^3$)	($\mu\text{g}/\text{m}^3$)	($\mu\text{g}/\text{m}^3$)	($\mu\text{g}/\text{m}^3$)	(mg/m^3)	($\mu\text{g}/\text{m}^3$)	($\mu\text{g}/\text{m}^3$)	($\mu\text{g}/\text{m}^3$)	($\mu\text{g}/\text{m}^3$)	(mg/m^3)	($\mu\text{g}/\text{m}^3$)	($\mu\text{g}/\text{m}^3$)	($\mu\text{g}/\text{m}^3$)	($\mu\text{g}/\text{m}^3$)	(mg/m^3)
A1	Procol site	144.90	77.40	36.40	15.20	0.98	0.00900	0.00568	0.02812	0.02273	0.000034	134.90899	77.10568	36.41842	15.22273	0.9800035
A2	Near DLF Phase 5	134.80	69.00	29.80	10.80	1.16	0.00897	0.00561	0.02804	0.02244	0.000003	134.80897	69.00561	29.82804	10.82244	1.160003
A3	near Sec 55	130.60	65.80	26.90	9.60	0.92	0.00211	0.00132	0.00659	0.00528	0.000008	130.60211	65.80132	26.90659	9.60528	0.9200008
A4	Near Village Wazirabad	134.80	69.00	29.80	10.80	1.20	0.00987	0.00655	0.02873	0.02219	0.0000003	134.80987	69.00655	29.80253	10.80219	1.2000003
A5	Near Village mandi	142.70	76.50	33.90	13.90	1.49	0.00457	0.00285	0.01427	0.01141	0.0000017	142.70457	76.50285	33.91427	13.91141	1.4900017
A6	Near Village Junapur	133.00	68.00	27.90	10.00	1.08	0.002	0.00125	0.00624	0.00499	0.0000007	133.002	68.00125	27.90624	10.00499	1.0800007
A7	Near DLF Phase I	125.00	63.00	24.70	8.90	0.89	0.005	0.00186	0.00938	0.00751	0.0000011	125.005	63.00186	24.70938	8.90751	0.8900011
A8	Village Banohari	140.40	75.30	33.90	13.90	1.49	0.00173	0.00108	0.00541	0.00433	0.0000006	140.40173	75.30108	33.90541	13.90433	1.4900006

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Interpretation of Results

- The baseline concentrations for PM_{10} and $PM_{2.5}$ are already exceeding the prescribed NAAQ standards. The incremental concentration of PM_{10} and $PM_{2.5}$ in worst-case scenario at all 8 ambient air quality locations are nominal.
- The baseline concentrations for NO_2 and SO_2 are within the prescribed NAAQ standards. The incremental concentration for NO_2 and SO_2 in worst-case scenario at all 8 ambient air quality locations nominal and the cumulative concentrations will meet the prescribed standards in operation phase of the project.

4.3.3.5 Conclusion

- From the results of ISCST3 model, it is concluded that the maximum cumulative concentrations of PM_{10} and $PM_{2.5}$ will not meet the prescribed standards; whereas the maximum cumulative concentrations of NO_2 and SO_2 due to project is expected to be comply with the prescribed NAAQ standards.
- The modeling results are based on emergency scenario in which 24-hour operation DG Sets is modeled in summer season. It is expected that during other seasons and under normal operating conditions, the concentration values will be much lower than the results obtained in modeling. Hence, it can be safely concluded that the project would not have any significant impact on air quality in the project region.
- The impact due to vehicular emission in project would be negligible.

4.3.3.6 Mitigation Measures

The following mitigation measure are proposed in order to prevent any planned / unplanned accidental impacts on air quality –

- DG Set shall be purchased from manufacturer complying with CPCB / MoEF & CC guidelines.
- The emissions from the stacks shall be monitored regularly for concentration of PM_{10} and $PM_{2.5}$, SO_2 and NO_2 . Sampling port shall be provided in the stacks according to CPCB guidelines.
- BS-IV or higher quality diesel shall be used for operating DG Sets.
- Greenbelt development has been done within the project area.



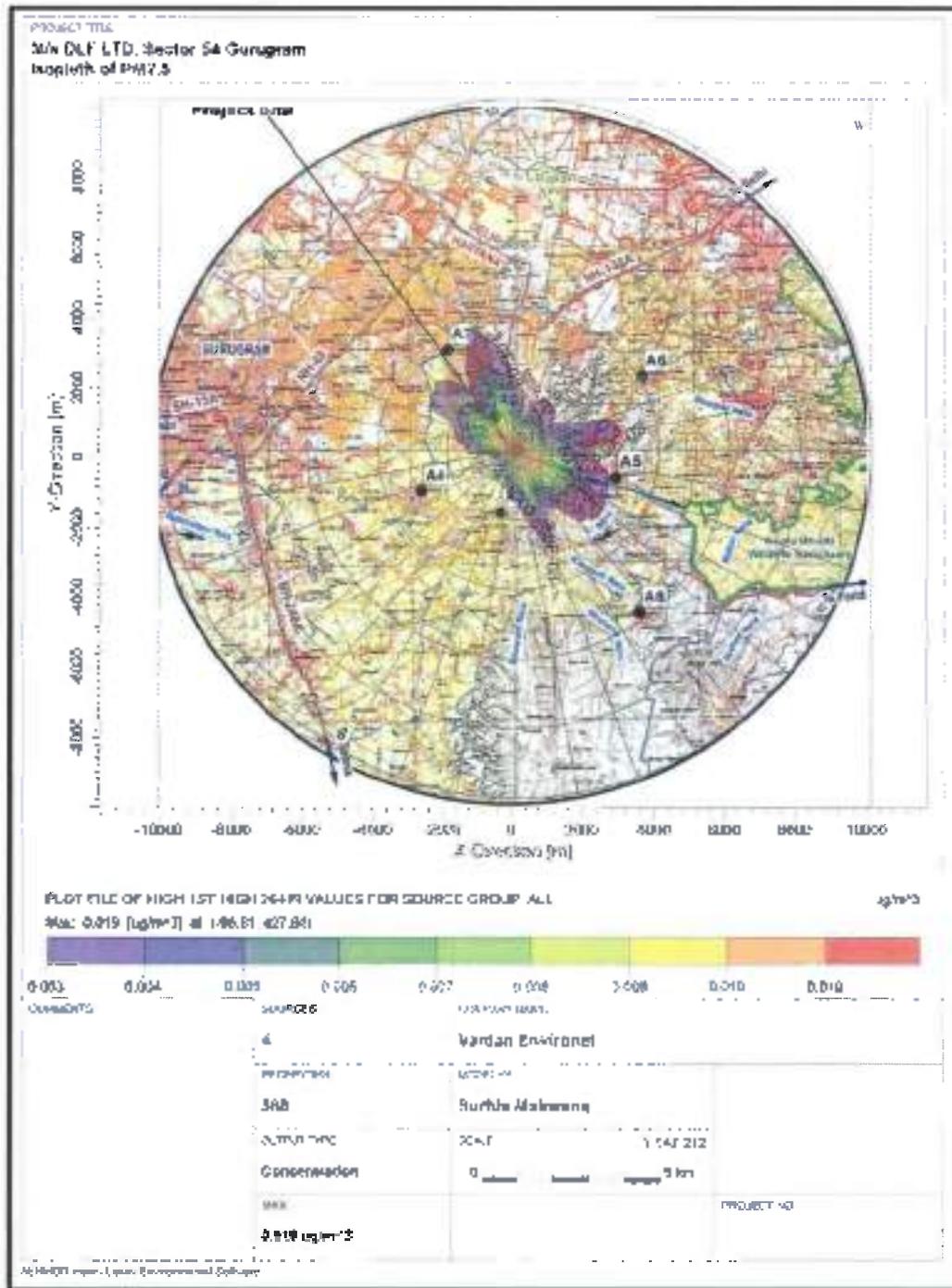


Fig 4.1: GLC map of PM_{2.5}

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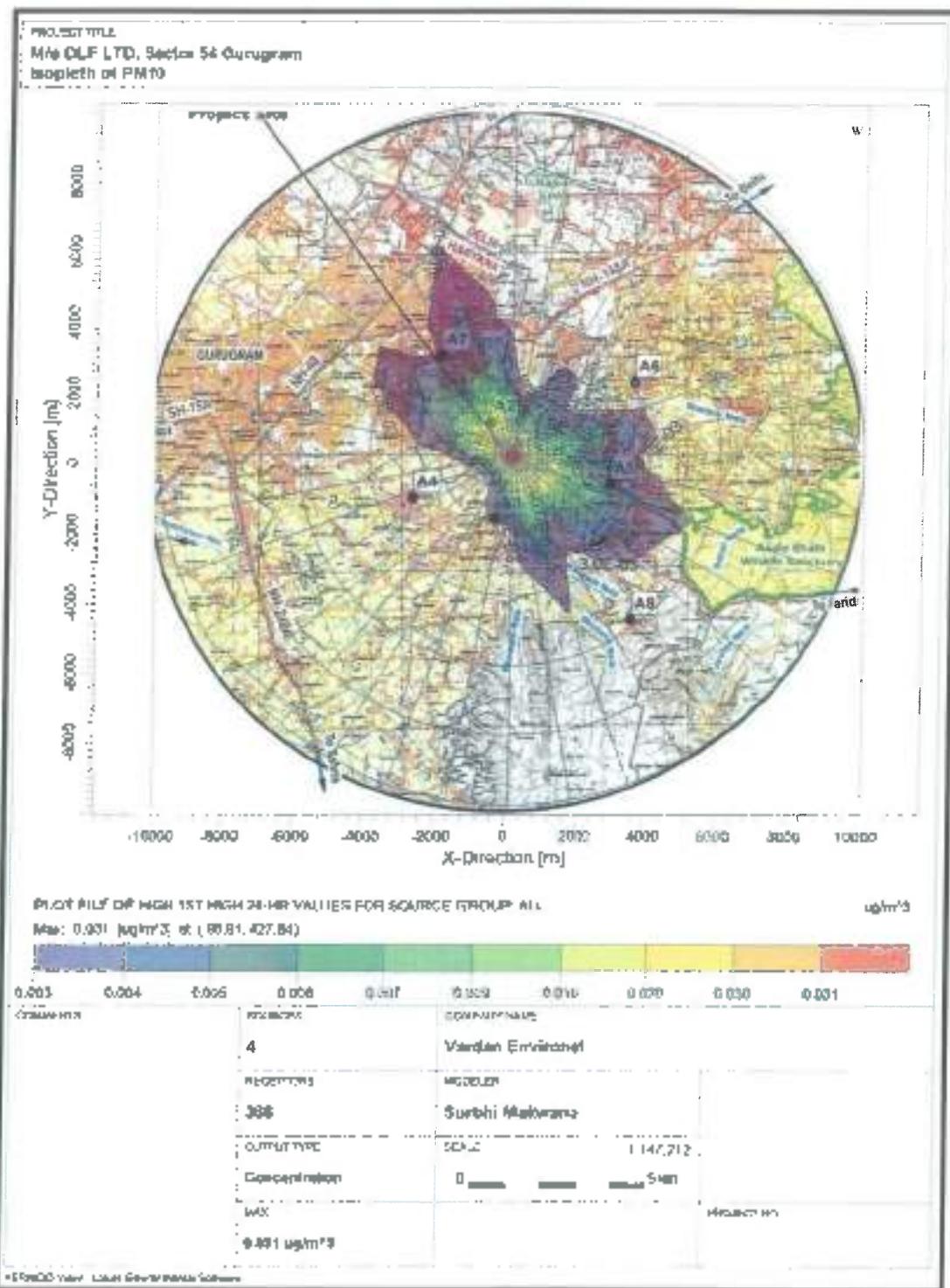


Fig 4.2: GLC map of PM₁₀



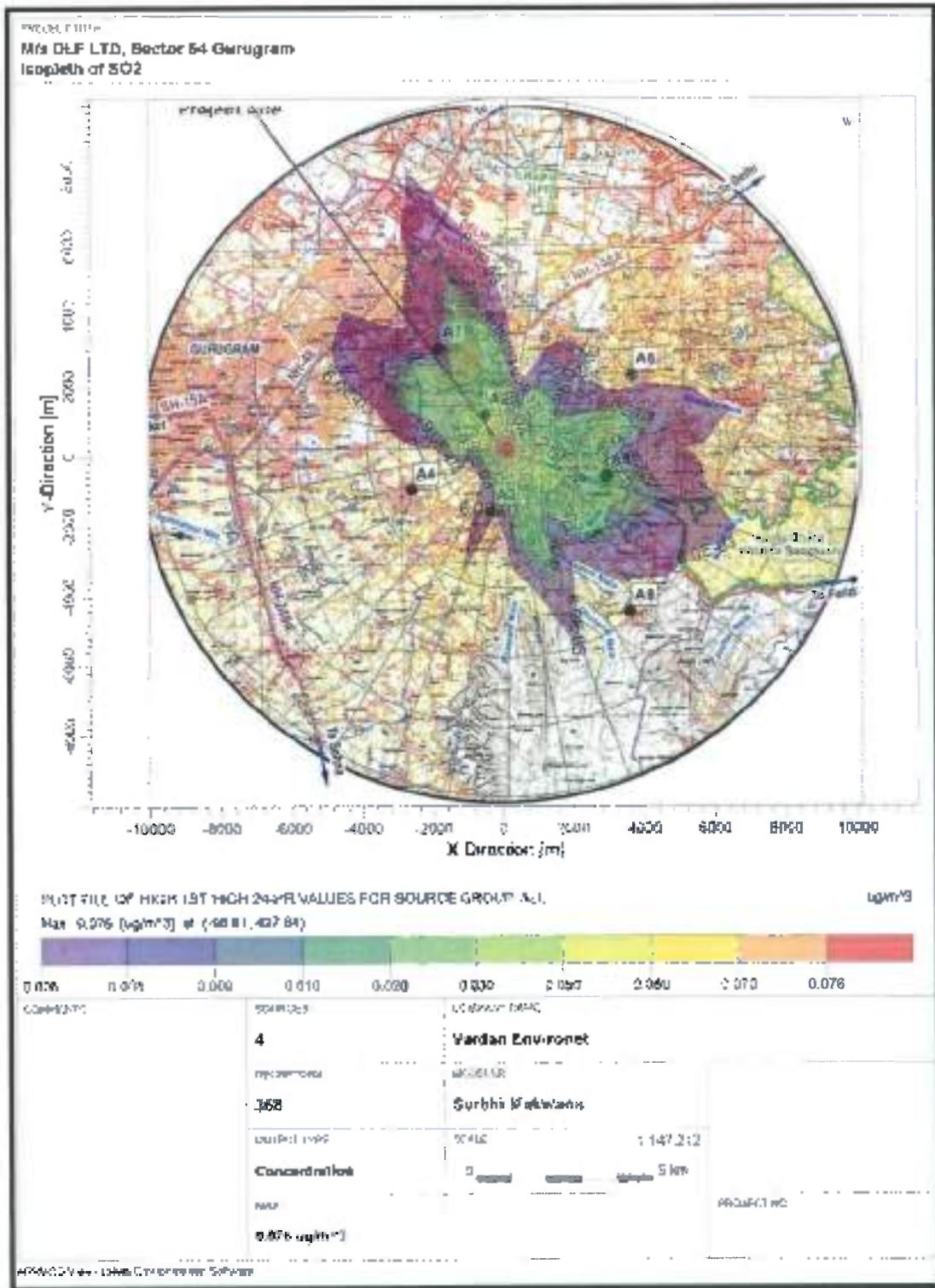


Fig 4.3: GLC map of SO₂

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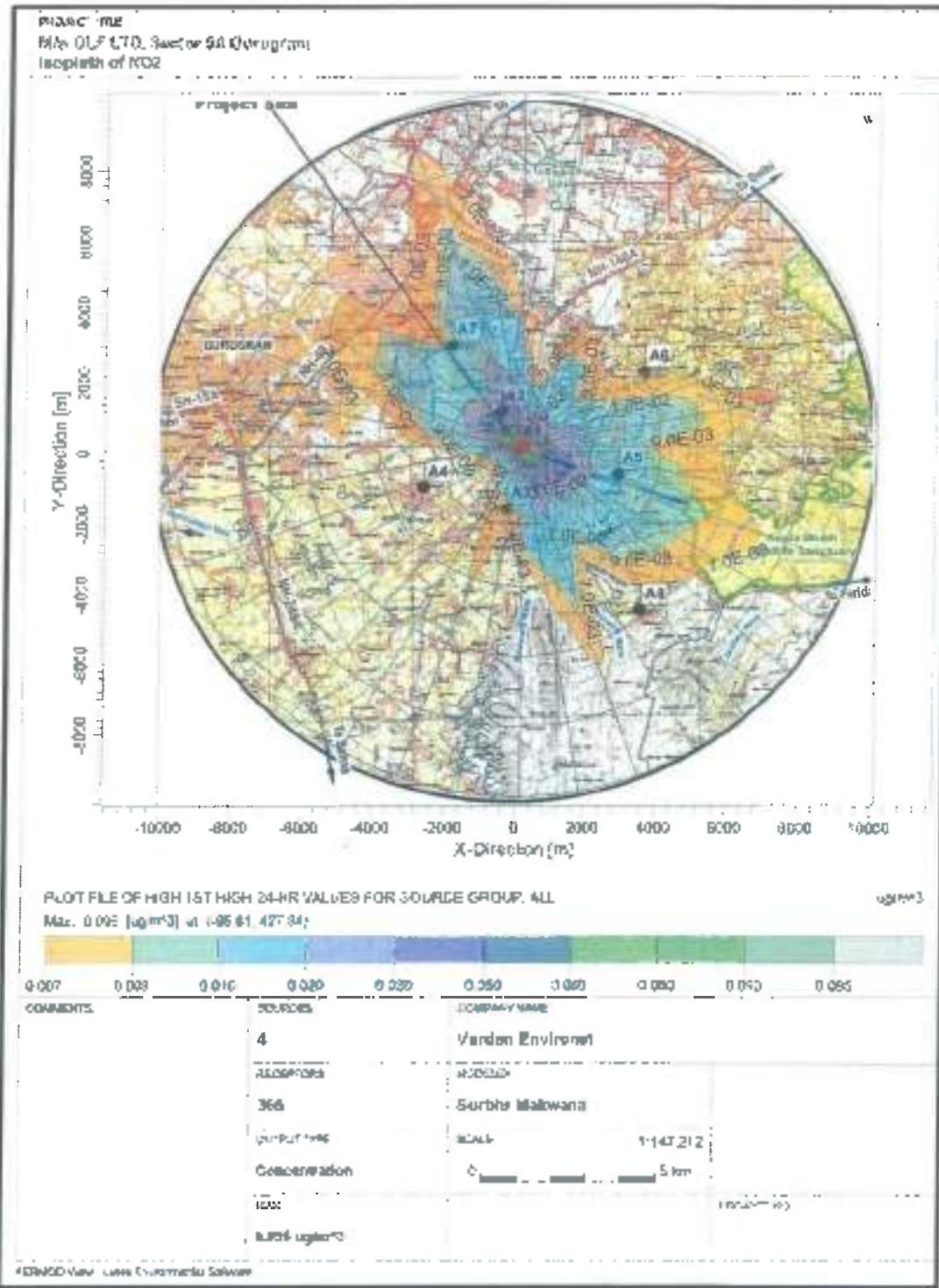


Fig 4.4: GLC map of NO₂



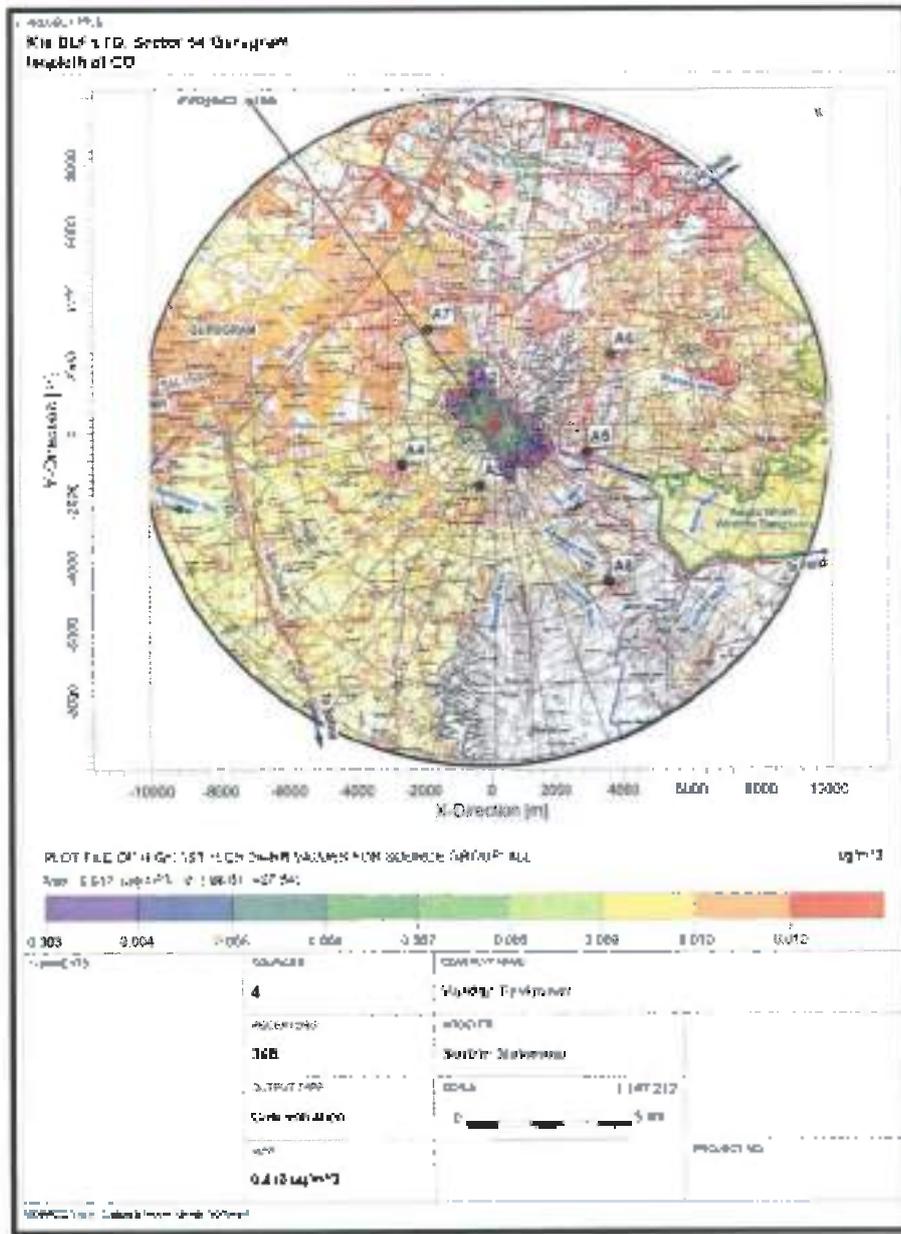


Fig 4.5: CLC map of CO

4.4 ANTICIPATED IMPACTS ON NOISE ENVIRONMENT AND ITS MITIGATION MEASURES

4.4.1 IMPACTS DURING CONSTRUCTION PHASE OF THE PROJECT

Construction equipment's, transportation activities, operation of DG sets and work on construction site at night are the main source of noise pollution during the construction phase of the project.

MITIGATION MEASURES:

Provision of Noise Barrier: All around the construction activity area on the site periphery, about 3 meter high barrier (temporary) shall restrict the noise impact from the ground level construction activity by about 10 dB(A).

Proper Maintenance of Construction Equipment/Vehicles: Proper operation and maintenance of heavy equipment as well as transport vehicles shall also ensure lower noise emissions.

Restriction of Time for Construction Work: The heavy construction and transport activities shall be restricted to daytime operation when the background noise levels are high so that impacts like sleep disturbance during the night time are avoided.

Occupational & Passive Protection: Personal protective equipment's (PPEs) like Ear plugs, ear muffs, etc. will be provided to the workers who are handling high noise equipment or stone cutting operations shall protect them from high noise exposure.

4.4.2 IMPACTS DURING OPERATION PHASE OF THE PROJECT

During operational phase, the following sources of noise pollution are expected:

- Diesel generator operations,
- Increase in transport noise from within the site from nearby roads.

MITIGATION MEASURES:

Provision of Enclosures for DG Sets: As regards DG sets, these shall be provided with acoustic enclosures ensuring maximum outside noise level of 70-75 dB (A) at 1.0 m distance. Even if all DG sets are housed separately, the total resultant maximum sound pressure level of the DG sets operating together would not be more than 75 dB (A) by the addition of sound intensities, based on equation used for calculating cumulative noise.

$$L_{eq,T} = 10 \log \left\{ \frac{1}{n} \sum_{i=1}^n 10^{L_i/10} \right\}$$

Where, L_i = levels observed at an equally spaced sources during interval T.

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It is pertinent to mention here that DG sets will be used as power back up units and it is anticipated that they shall operate only during power failure. However, as they will be acoustically enclosed, no impacts are expected on the outside community.

Provision of Adequate Structural Foundation to Minimize Vibration: The DG sets foundation will be made up of heavy weight inertia concrete block. The generator will be mounted on Cushy Foot mounting and the concrete block will be isolated from the adjoining floor. Thus no vibration impacts are expected from the DG sets.

Control of Noise from Road Traffic: Trees with heavy foliage planted on both sides of carriage way help slightly muffle the noise provided; the foliage extends for a considerable distance of 30 m or above.

Green Belt Development: Vegetation buffers can minimize the level of increase in Noise level of the area. Greenbelt shall be developed comprising of trees as per the guidelines.

4.5 ANTICIPATED IMPACTS ON WATER ENVIRONMENT AND ITS MITIGATION MEASURES

4.5.1 IMPACTS DURING CONSTRUCTION PHASE

During Construction Phase, the impact on water environment is in two ways:

- Use of water
- Discharge of wastewater

Construction activities for the project can have non-significant impact on the water environment. Potential impacts on the surface and ground water quality have been discussed as under:

Wastewater from Site Development and Construction Activity: Wastewater generation during site development and construction like from the construction areas, stockpiles of construction materials and wastes, etc. mainly containing high suspended solids.

Wastewater Generation from Site Workshop: The repair and maintenance of construction equipment's, transport vehicles, DG Sets, and washing of vehicles on-site may also generate

wastewater containing oil and grease (though only in minimal quantities as normally these activities are not undertaken on-site).

Toilets and Washing area: Domestic wastewater is generated from the temporary toilets, washing areas, drinking water points, etc. constructed for the construction workers and other staff on-site.

MITIGATION MEASURES:

Substantial quantities of water would be used in the construction activities to meet the domestic requirement of construction personnel. Stagnant pools of water may promote breeding of mosquitoes and generally create in sanitary conditions. However, suitable drainage network would be made to ensure proper drainage of wastewater from the construction sites, so that such water do not form stagnant pools nor aggravate soil erosion. With regard to water quality, wastewater from construction activities would mostly contain suspended impurities.

Under good construction practices, construction wastewater shall be collected in construction pits and reused in construction activities e.g. wastewater from stone cutting, cleaning, curing, etc. Thus, no significant impacts are expected on water quality in the project area due to generation of this wastewater.

The impact of the surface runoff (from the stockpiles, construction areas, etc.) is not expected to be significant except during the rainy season. To mitigate any impacts, garland drains and soak pits (for collection and reduction in the runoff) would be constructed around the stockpiles of materials and wastes (till they are used/ moved off-site). It would be ensured that construction materials and wastes stockpiles are moved on a periodic basis to prevent any stockpiles.

Regarding the construction workers, employment preference would be given to local construction workers of the nearby areas. Thus, no major settlements i.e. any labour camps/colonies, etc. would be established on-site. Temporary offices would be constructed at the site for the office staffs only and hence there would be minimal domestic wastewater generation, which would be treated through conventional treatment methods like soak-pit etc.

4.5.2 IMPACTS DURING OPERATION PHASE

Wastewater Generation from Domestic Activities: Wastewater would be generated as sewage from the domestic activities of the residents. A large number of pollutants occur in

waste water, which includes suspended and dissolved solids consisting of inorganic and organic matter, nutrients, oil and grease and pathogenic micro-organisms.

During the operation phase of the project, wastewater generation from domestic use and storm water during rainy season will have the main impact on water environment.

MITIGATION MEASURES:

Scheme for Ground Water Recharge: Ground water will be recharge within the project premises by adopting the rain water harvesting pits. Rainwater harvesting is the activity of direct collection for optimum utilization of the rain water. Rain water collected can be stored for direct use or can be re-charged into the ground water. The main aim of this technique is to minimize flow of rain water through drain/mallah to the river without any use.

Rainwater would be diverted from the rooftop, paved and green area to rain water harvesting tank in the project. The process of rain water harvesting in the project area would consist of diverting the rainwater into the de-silting pit to remove silts/inorganic impurities. The outflow of the de-silting tank will be taken into the harvesting pit.

Table-4.4: Rainwater Harvesting Calculation

S.No.	Type of Surface	Catchment's Area (m ²) [A]	Runoff Coefficient [C]	Rainfall Intensity m/hr [I]	Discharge (Run Off) [Q=CIA] m ³ /hr
1.	Rooftop Area	13,262	0.9	0.09	1074.22
2.	Green Area	13,750	0.15	0.09	185.63
3.	Road & Paved Area	41,687	0.8	0.09	3001.09
	Total	68,693.85			4260.94

Taking 15 minutes retention time, total volume of storm water $4260.94 \times 0.25 = 1065.24 \text{ m}^3$

Taking the effective Length, breadth and depth of a Recharge pit 7 m, 2 m and 4.5 m respectively.

Volume of one Recharge pit = $L \times W \times D = 7 \times 2 \times 4.5 = 63.00 \text{ m}^3$

Hence No. of pits required = $1065.24 / 63 = 16.91$, Say 17 Pits.

Total 17 nos. of Rain Water Harvesting pits are being proposed for artificial rain water recharge within the project premises.

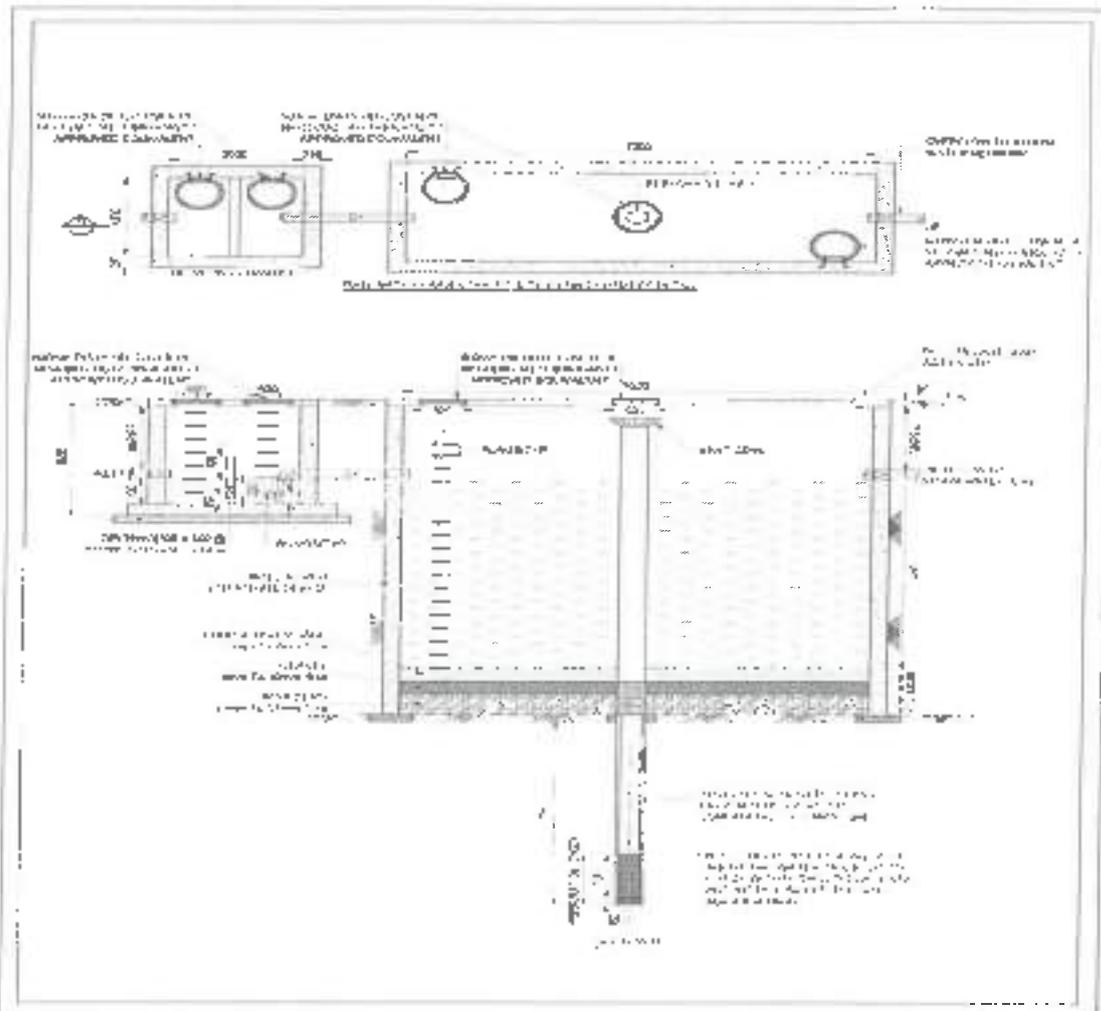


Figure: 4.6. Rain Water Harvesting Pit Design

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Maintenance Plan for RWH Pit:

Table.4.5 : RWH pit maintenance plan

Routine Maintenance Tasks	Frequency
Remove leaves and debris from gutters and downspouts	On interval of 04 month
Remove any algae growth	On interval of 04 month
Inspect and clean prescreening devices and first flush diverters	Quarterly
Inspect and clean storage tank lids	Annually
Inspect for and repair any clogging	Annually
Inspect and repair mosquito screens	Annually
Inspect pit and remove sediment build up	Annually
Clear overhanging vegetation and trees over roof	On every six months
Check integrity of backflow preventer	Annually
Inspect structural integrity of tank, pump, pipe, and electrical system and repair any damage	On every six months
Replace damaged or defective system components	As needed

4.6 ANTICIPATED IMPACTS ON BIOLOGICAL ENVIRONMENT AND ITS MITIGATION MEASURES

There would not be any impact on the Biological Environment from the project during construction and operation phase.

4.7 ANTICIPATED IMPACTS ON SOCIO-ECONOMIC ENVIRONMENT AND ITS MITIGATION MEASURES

4.7.1 IMPACTS DURING CONSTRUCTION PHASE

Possibility of direct and indirect employment opportunity would be increased due to development of the project. Local labour from nearby areas will be preferred for construction work. Hence, development of the project has positive impacts on the surroundings of the project site.

4.7.2 IMPACTS DURING OPERATION PHASE

Critically analysing the existing environmental status of the socio-economic profile and visualizing the scenario with the project, the impacts of the project would be varied and will generate both positive and negative impacts of the project in the region are stated below.

Positive Impacts

- The project does not involve any displacement of inhabitants and so issues like resettlement and rehabilitation does not figure in the study
- There was a growth in indirect jobs and business opportunities to the local and surrounding people such as contractors, transporters and raw material suppliers etc. due to the development in the area
- Demands of community services and commercial development also create additional employment for the poor strata of society by way of security guard, driver, maid/servant, sweeper, gardener etc.
- Educational facility, approach and internal road network, commercials as well as daily need shops are the major areas to experience positive impact due to the township project
- Improvement in safety, security, banking and fire-fighting facility
- Health facility will also be improved with the development of the project
- The project envisages bringing various other communities to the area and thereby enabling rapid enhancement of an urban environment.
- The sanitation and the aesthetic environment of the village would also improve with the coming of the project.

Negative Impacts

- Due to the project activity, influx of population may increase during the construction phase. This may lead to strain on infrastructure facilities in the area as well as increase in population at local level. However, this impact is only for the short duration and temporary in nature
- During construction phase, increase level of dust and other air pollutants may lead to respiratory diseases
- Vehicular traffic and construction activities may create noise pollution

- Development may have a significant impact on the community's ability to accommodate new residents and adapt to changes in the social environment for existing surrounding residents
- The post project occupants from areas outside the region could introduce a potential effect on the local culture and habits.

TABLE-4.6: QUALITATIVE EFFECTS ON SOCIO-ECONOMIC ENVIRONMENT

Parameter	Local	Regional	Direct	Indirect	Reversible	Irreversible
Employment	+	•	+	+	•	+
Income	+	•	+	+	•	+
Transport	+	+	+	+	•	+
Education	+	•	+	•	•	+
Medical facilities	+	•	+	•	•	+
Communication	+	+	+	•	•	+
Sanitation	+	•	-	•	•	-
Housing	+	•	+	•	•	+
Health	-	•	-	•	+	•
Recreation	+	+	•	+	•	+
Agriculture	•	•	•	•	•	•
Cost of living	+	•	+	+	•	+
Business	+	+	+	•	•	+
Per Capita Income	+	+	+	•	•	+
Pollution	-	•	-	•	•	•

+ : Positive

- : Negative

• : Insignificant

Mitigations Measures

- Project proponent should take appropriate steps to keep environment clean and healthy during construction phase
- Provision of adequate drinking water, toilet and bathing facilities should be made available on project site
- Water shall be sprinkle/sprayed to suppress dust during construction phase to control air pollution and thereby avoid adverse health impact

- Proper living condition with appropriate facilities for residential labours should be provided
- Proper Training and awareness programme should be carried out so that the workers understand the importance of wearing the personal protective equipment's.
- The colony management collectively will need a pool of watchmen, gardeners, sweepers, plumbers, fitters, STP operators, lift operators and solid waste collectors. Preference should be given to local people for all this.

4.8 SOLID WASTE AND ENVIRONMENT

4.8.1 IMPACTS DURING CONSTRUCTION PHASE

The site is a barren land therefore there would not be any demolition activity on the site. The average quantity of waste generated during construction phase at the project site would be inert waste, mainly comprising of clay, sand, gravel, brick, concrete, concrete block, asphalt, pipes, conduits, steel waste etc.

MITIGATION MEASURES:

A major portion of the waste (particularly the wasted construction material) would be used at the project site for internal leveling, internal road construction etc. if found feasible. Waste management plan would be prepared suggesting maximizing the reuse of recyclable wastes, safe disposal of non-reusable wastes from the site to reduce the impact to insignificant levels. Disposal of excess earth that is unearthed due to the construction activity would be properly undertaken. Waste recycling plans would be developed for construction work, prior to beginning construction activity. Handling of waste material requires special precautions such as personal protective equipment and special procedures to prevent the injury. Proponent could operate safe methods for waste collection, storage, and disposal operations in a manner to protect the health and safety of personnel, minimize environmental impact and promote material recovery and recycling.

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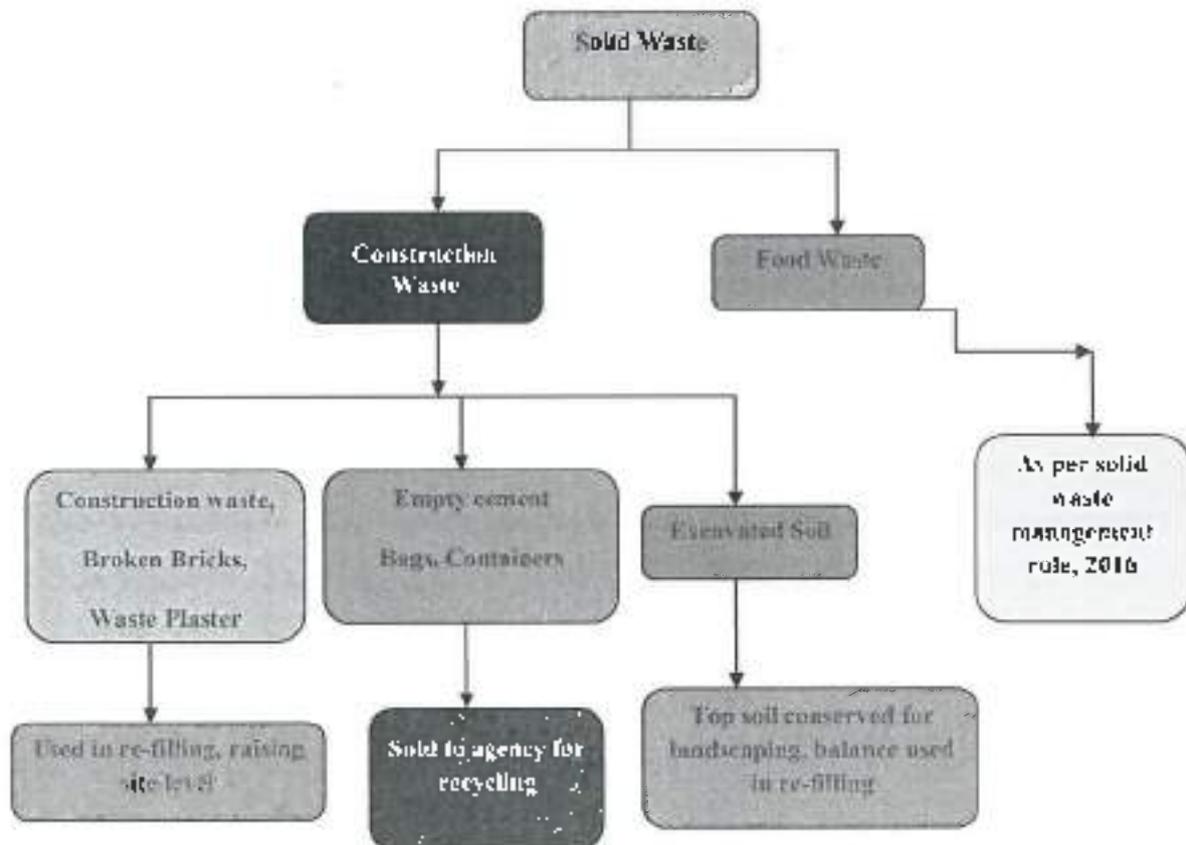


Figure- 4.7: Solid Waste Management Scheme during Construction Phase

5 IMPACTS DURING OPERATION PHASE

Municipal Solid Waste: The domestic solid waste will be generated from the project pertain two categories, Bio-degradable and Non-biodegradable.

E-Waste: Discarded batteries, television, computer, radio etc. will be generated in the form of e-waste from the project

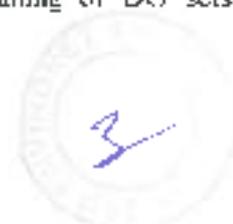
Hazardous Waste: The project is expected to generate the following categories of hazardous wastes:

- Used Oil (Category 5.1, as per Schedule-I of the Rules) - from DG sets
- Oil Contaminated Wastes (Category 5.2, Schedule-I) - from cleaning of DG sets, maintenance operations, etc.

MITIGATION MEASURES:

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Municipal Solid Waste: Following arrangements will be made at the site in accordance to Municipal Solid Wastes (Management and Handling) Rules, 2016.

1 Collection and Segregation of waste

1. Door to door collection system will be provided for collection of domestic waste in colored bins.
2. Separate colored bins will be provided for dry recyclables and bio-degradable waste.
3. Adequate number of colored bins (Green and Blue bins for bio-degradable and non-biodegradable respectively) is proposed to be provided.
4. Litter bin will also be provided in open areas like parks etc.

2 Treatment of waste

Bio-Degradable wastes

1. Bio-degradable waste will be treated in Organic Waste Converter and the compost used as manure.
2. STP sludge is proposed to be used for horticulture as manure.
3. Horticultural Waste is proposed to be composted and will be used for gardening purposes.

Recyclable wastes

1. Grass Recycling – The cropped grass will be spread on the green area. It will act as manure after decomposition.
2. Recyclable wastes like paper, plastic etc. will be sold off to recyclers.
3. Hazardous wastes such as waste oil will be sold off to authorized recyclers. Buy back arrangement will be made for batteries.

3 Disposal

The Municipal Solid Waste Management will be conducted as per the guidelines of Solid waste management rules, 2016. The inert non-recyclable wastes will be disposed through government approved agency for land filling. A solid waste management scheme is depicted in the following figure for project during operation phase.

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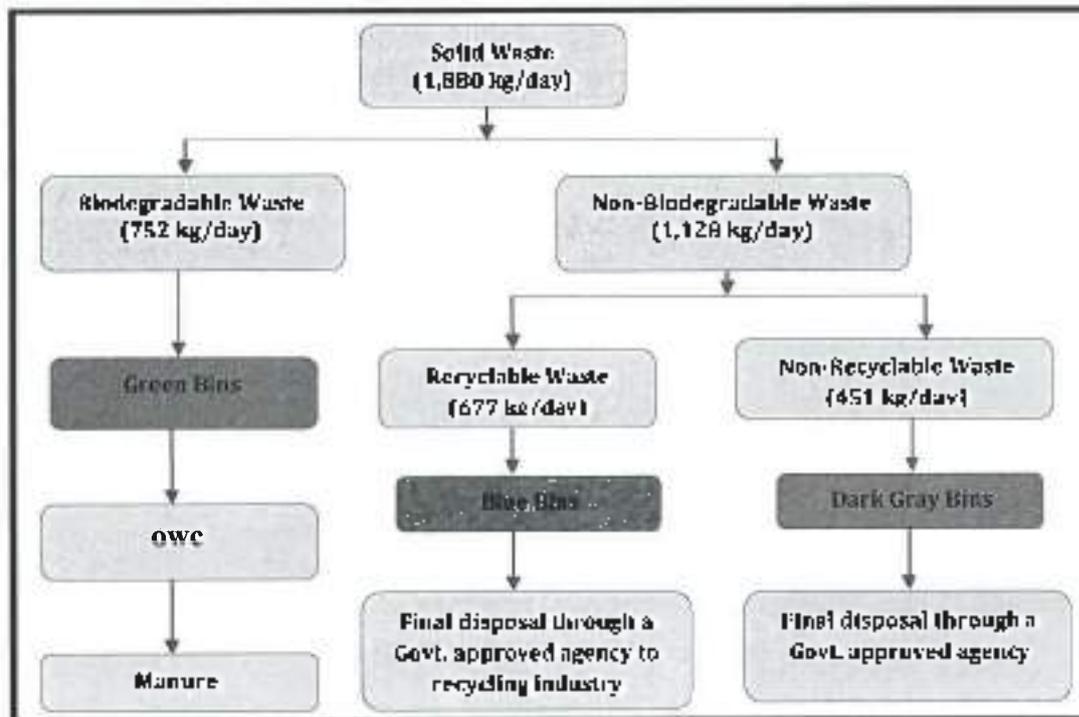


Figure- 4.8: Solid Waste Management Scheme during Operation Phase

E-Waste: The E-waste disposal would be done with the help of Authorized local Vendor. At the site proper segregation and storage of the waste would be done. The disposal plan would be developed to follow the environmental norms set by the regulatory body as SPCB/CPCB/MOEF and/or any other relevant authorities. Overall it would be ensured that all waste fractions are appropriately recycled/ disposed of through authorized recyclers/ re-refiners/ contractors. Records would be kept regarding amount and characteristics of all types of wastes.

Hazardous Waste: Hazardous wastes would be stored in secured places with adequate secondary containment and labelling (in Form-8) as per Hazardous and other Wastes (Management and Transboundary Movement) Amendment, Rules 2023.

Appropriate records of hazardous wastes generation and disposal (in Form-3, Form-4, Form-9, Form-13 etc.) shall be maintained as per the requirements of MoEF's Rule.

The used oil and oil-contaminated wastes shall be disposed of through authorized recyclers/re-refiners. Any other hazardous wastes, generated on-site, shall be sold only to authorized contractors.

Proposed Expansion cum Modification of Group Housing Buildings in Zone 10, DLF 5
At Sector-54, Gurugram, Haryana
Being developed by M/s DLF Limited

FINAL EIA / EMP REPORT: CHAPTER 4

4.9 TRAFFIC IMPACT ANALYSIS

During Construction Phase

Table 4.7: No. of Vehicles per Day (Construction Phase)

S.No.	Mode of Transportation	No. of Vehicles Used/Day	PCU Factor	PCU/Day	PCU/hr
1	Tankers	5	5	25	2.5
2	Trucks	4	3.7	14.8	1.48
4	Car	10	1	10	1
5	Two-Wheelers	20	0.75	15	1.5
6	Three-wheelers	15	2	30	3
	Total	50		94.8	9.48

* Construction activity time period has been taken as 10 hr. /day and on that basis above PCU/hr. calculated

Table 4.8: Modified Traffic Scenario and LOS (Construction Phase)

Road	Increased PCU's- State/National highway	Increased Volume (V)	Capacity (C)	Modified V/C Ratio	LOS
NH-48	35% of 9.48 = 3.31	2054+3.31 = 2057.31	5400	0.381	B
NH-248 A	20% of 9.48 = 1.89	765+1.89 = 766.89	5100	0.142	A
NH-148A	20% of 9.48 = 1.89	855+1.89 = 856.89	3600	0.238	B
SH 15A	15% of 9.48 = 1.42	697+1.42 = 698.42	3600	0.194	A
MDR-137	10% of 9.48 = 0.94	603+0.94 = 603.94	3600	0.168	A

During Operation Phase

Table 4.9: No. of Vehicles per Day (Operation Phase)

S.No.	Mode of Transportation	No. of trips/Day	PCU Factor	PCU/Day	PCU/hr
1	Car	2650	1	2650	110.42
2	Two-Wheelers	300	0.75	225	9.38
3	Three-wheelers	50	2	100	4.17
	Total	3000		2975	123.96

*Probable maximum 10% traffic will be move at hourly basis on existing road (NH-48, NH-248A & SH-15A).

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Table 4.10: Modified Traffic Scenario and LOS (Operation Phase)

Road	Increased PCU's- State/National highway	Increased Volume (V)	Capacity (C)	Modified V/C Ratio	LOS
NH-48	35% of 123.96 = 43.38	2054+43.38 = 2097.38	5400	0.388	B
NH-248 A	20% of 123.96 = 24.79	765+24.79 = 789.79	5400	0.146	A
NH-148A	20% of 123.96 = 24.79	855+24.79 = 879.79	3600	0.244	B
SH-15A	15% of 123.96 = 18.59	697+18.59 = 715.59	3600	0.199	A
MDR-137	10% of 123.96 = 12.39	603+12.39 = 615.39	3600	0.171	A

CONCLUSION

During Existing Scenario

Not much impact on local transport during construction phase, as 50 vehicles will be required for transport of construction materials and other transportation activities. The LOS value from the project change i.e. LOS value for NH-248A, SH-15A and MDR-137 will remain same as 'Excellent' and LOS value for NH-48 and NH-148A will remain same as 'Very Good'. So the additional load on the carrying capacity of the concern roads is not likely to have major affect.

During Construction and Operation phase

The V/C ratio is found out to be 0.142 on NH-248A, 0.194 on SH-15A, 0.167 on MDR-137, 0.380 on NH-48 and 0.237 on NH-148A. The project will result in a modified V/C ratio during construction phase to be 0.142 on NH-248A, 0.194 on SH-15A, 0.168 on MDR-137, 0.381 on NH-48 and 0.238 on NH-148A and during operation to be 0.146 on NH-248A, 0.199 on SH-15A, 0.171 on MDR-137, 0.388 on NH-48 and 0.249 on NH-148A. Thus the additional load on the carrying capacity of the concern roads is not likely to have any significant adverse effect.

4.10 IMPACT MATRIX

Various activities from the proposed scheme are likely to have some impacts on the environmental constituents during its construction as well as functional phase. The impact assessment matrix is given in Table 4.11 reveals the impact associated with each activity of the project on various environmental parameters during construction and function phase respectively before any mitigation measures are implanted.

Proposed Expansion cum Modification of Group Housing Buildings in Zone 10, DLF 5

At Sector-54, Gurugram, Haryana

Being developed by M/s DLF Limited

FINAL EIA / EMP REPORT: CHAPTER 4

Table 4.11: Impact Matrix

Environmental Parameters	Nature of Potential Impacts during Construction and Operational							
	Local	Regional	Short Term	Long Term	Reversible	Irreversible	Adverse	Beneficiaries
Topography	√							
Drainage	√							
Soil	√							
Water Resources	√	√	√		√		√	
Water Quality	√			√				
Land Use	√			√		√		√
Air Quality	√	√		√	√		√	
Noise	√	√			√		√	
Flora	√					√		√
Fauna	√					√		√
Employment	√	√		√		√		√
Aesthetic	√	√		√		√		√



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ANALYSIS OF ALTERNATE (TECHNOLOGIES & SITES)

5.1 TRANSPORTATION

Transport is an activity which affects humans and the natural environment to a very great extent. It is nevertheless vital for both the development of society as a whole as well as for the mobility of the individual.

5.1.1 ANTICIPATED IMPACTS

The project site is located in the developing area of the Gurugram where road network and infrastructure facilities already exist. The project area is well connected to network of roads. The distance and direction of nearest highway, railway station and airport are given below:

Table 5.1: Connectivity to project site

S. NO.	DETAIL	DISTANCE
1.	NH-48	5.5 Km
2.	Gurugram Railway station	11 Km
3.	Indira Gandhi International Airport	10.3 Km

It will be ensure that the vehicles used for building construction material must have Pollution under Check (PUC) certificate and are in good condition during the construction phase of the project. The vehicles will be temporarily parked inside the project premises for loading and unloading activities of building material. No public place will be used for parking of vehicles.

5.1.2 PARKING FACILITIES DURING OPERATION PHASE

Adequate provision will be made for resident's parking at the project site. There shall also be provision of 6 M wide internal roads not to disturb the traffic and allow smooth movement at the site

5.1.3 TRAFFIC CIRCULATION PLAN

The project will have access through the existing Sector road connecting the NH-48. Internal roads of adequate width and separate entries and exits will be provided for smooth and one-way movement of traffic. Traffic circulation, entry and exits are shown in the enclosed traffic layout plan including surface parking & traffic circulation plan. The increase in traffic due to the project is marginal compared to the existing high volume of traffic in the area and

therefore the impact will be marginal). Adequate traffic management measures have been proposed to manage the traffic within and outside the site.

5.1.4 VEHICLE EMISSION CONTROLS AND ALTERNATIVES

During the construction phase of the project, it will be ensure that vehicles must be "PVC" certified and properly maintained to reduce the emission.

Adequate footpaths and pedestrian ways would be provided at the site to encourage non-polluting methods of transportation.

5.2 BUILDING MATERIAL AND TECHNOLOGIES

The choice of building material plays an important role in terms of energy efficiency of the building. The manufacture of building materials should also be assessed to ensure the use of environment friendly and recycled/ recyclable construction materials. The U-values of the roof, external wall and glazing of the building will meet the requirements as specified in the Energy Conservation Building Code (ECBC), applicable for group housing buildings is given in the Table 5.1 below:

Table- 5.2: Thermal Characteristics of the Building Envelope

S. No.	Building Material Proposed with U & R Values	'R' Values (in Sq m. Deg C/ Watts)	'U' Values (In Watts/ Sq m. Deg C)
1.	WALL ACC block wall (230 mm thick), both side thick sand cement plaster (12-18mm) with insulation	1.284	0.688
2.	ROOF 150 mm RCC slab with cement erced 10, polyurethane foam 20mm, concrete 20mm & clay tiles	1.038	0.81

5.2.1 WALL

Conventionally, sun burnt clay bricks are cemented in the construction of walls. The strength of these construction materials cannot be compromised which will otherwise pose a threat to the life and property of the occupants. However, presently, materials with similar properties like ACC blocks are easily available that are made of waste products, thereby reducing the waste burden and conserving natural resources.

Though most of the construction materials to be used are conventional, energy-efficient building materials, if available locally, will be used as specified in the Energy Conservation

Building Code. The major materials required for construction of the project will be steel, cement, bricks, metal, flooring tiles/stones, sanitary and hardware items, electrical fittings, water, etc.

Following low-energy/ recycled material based finishes/products will be used in the exteriors (paving etc.) and interiors (flooring, doors/ windows, frames, interior wood finishes, panelling, false ceiling etc.), which use low-energy materials and products and industrial waste/ recycled products and minimize the use of wood as a natural resource.

- Use of ready mix concrete containing fly ash or PPC which contains fly ash.
- Use of PPC (which contains minimum 15% of fly ash) in mortar and plaster.
- Use of PPC or fly ash based paving blocks/ tiles and pre-cast elements
- Composite wood products such as hardboards, block-boards, plywood etc. made from recycled wood scrap & dusts.
- Fibrous gypsum plaster boards made from industrial wastes.
- Finished concrete flooring, ceiling tiles, and ceramic tiles etc. which are made from low embodied energy products & recycled materials or from resource efficient finishes.

5.2.2 ROOF

The conventional material used for roofing is RCC, as it is suitable for longer spans. The constituents of RCC, i.e. cement, sand, aggregate and steel are energy intensive materials and high embodied energy content.

Alternately, it is proposed to use lightweight synthetic aggregates such as fly ash based aggregates, which is suitable for manufacture of brick, blocks, and is good substitute for clinker and natural aggregates. When pre-cast/aerated cellular concrete walling blocks and roofing slabs are used in multi-storied structures, they reduce the weight, resulting in a more economical design. They have high rating to fire resistance and provide better insulation and thus improved energy efficiency. These are manufactured by the aerated cellular concrete manufacturing process.

5.2.3 SUPER STRUCTURE

Structural frame of building comprises of footing, columns, beams and lintels, over which the envelope of building is supported. A variety of metals are used in buildings, but the major

building material used structurally is steel. Steel has a high-embodied energy and recyclable content, as well as scrap value. Aluminum forms the second most common material used for roofing sheets, window frames, and cladding systems, which has the highest recyclable content. Hence, bulk of the metal needs for the building shall be met by steel and aluminum.

The choice of cement will be

- Use of fly ash and/or blast furnace slag concrete-The amount of cement used in concrete can be reduced by replacing a portion of the cement with coal fly ash (waste material from coal burning power plants) and/or GGBF (ground granulated blast furnace) slag in conventional mixes
- Recycled aggregates Recycled aggregates include crushed concrete, brick or other masonry waste can also be used in conventional mixes.
- Lightweight concrete.

5.2.4 INTERNAL ROADS AND OPEN AREAS

Roads and open areas consist of compound walls, grills, roads, sidewalks, parking lots, drains, curbs, landscaped areas, street furniture, tree covers, and flowerbeds.

In line with environment friendly design it is proposed to provide:

- Permeable (porous) paving will be provided wherever feasible to control surface water run-off by allowing storm water to infiltrate the soil and return to the ground water. The traffic areas will however continue to be impervious.
- Use of suitable material fencing, grills, tree covers and benches and even in internal road lights and green landscaped areas.

5.2.5 TECHNOLOGIES

The area under study falls in Zone-IV, according to the Indian Standard Seismic Zoning Map. Suitable design will be made and modern technology will be adopted while strengthening the structure to mitigate the seismic impacts. All applicable guidelines will also be followed in this regard to ensure safety of the building and its residents. The project will use updated technology in the plant, machineries, equipment's both during construction and operation of the project.

5.2.6 EQUIPMENT AND MACHINERIES

All the machinery will be of highest standard of reputed make and will comply with national/international standards that take care of air and noise pollution control/ vibration

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control. Therefore, no significant impact due to operation of machinery is anticipated. The DG set will be of enclosed type to comply with the noise level standard and will be provided with suitable stack height as per norm during construction.

During construction, personal protective equipment (PPE) will be provided to all construction workers by the contractors as required under the health & safety norms. Training and awareness about the safety norms will be provided to all involved in construction activities.

At operation stage, DG room will be provided with acoustic lining / treatment to insure 25 dB (A) insertion loss as per the regulations. Adequate exhaust mufflers will be provided as per norms to limit the noise. Monitoring of emissions from DG sets and ambient air quality will be carried out as per norms.

Adequate fire protection facilities will be installed including fire detectors, fire alarm and firefighting system to guard the building against fires. All fire protection facilities are designed as per the latest National Building Code. The approvals in this regard will be obtained prior to installation of the fire protection equipment's.

5.2.7 RESOURCE CONSERVATION THROUGH ENVIRONMENT FRIENDLY TECHNOLOGY

To reduce the ecological footprint of the development, use of recycled material for construction and conserving natural resources is of primary importance. In this light, the use of recyclable building materials has been proposed for various building materials. It is also proposed to reuse building components, minimization of construction wastes etc.

The project is also committed towards conservation of water. This includes use of treated wastewater, rainwater harvesting, provision of low water flow fixtures and raising awareness on means of water conservation. The need for water conservation in the face of impending water crisis cannot be overemphasized. The project will follow a three pronged management for water resource viz: water resource development, minimize use of water and recycle wastewater generated within the site. Dual plumbing will be provided to reduce the freshwater demand of the project. The wastewater from site will be treated in the existing STP and recycled for toilet flushing and landscaping / greenery.

The water demand is proposed to be brought down by the use of water efficient fixtures, implement best management practices for water in both group housing and horticultural activities. An important means for achieving this is spreading awareness to the occupants for generating water conservation awareness. Various types of sensor based technologies along with low flow devices will be used for urinals, taps in wash basins.

In order to conserve the water resources from surface run off a detailed storm water drainage system is designed to collect the storm water / rainwater and rainwater harvesting pits is proposed to recharge the groundwater. The rainwater collected from the rooftop and other paved areas within the project area will be conveyed into the rainwater harvesting system consisting of Desilting-cum-filter chamber, Oil & grease separator. The solid waste generated from the project will be segregated at source into biodegradable and non-biodegradable components and collected in separate bins. Both biodegradable and non-biodegradable waste will be sold to authorized vendors for recycling of non-biodegradable wastes and disposal of biodegradable waste. Dewatered/ dried sludge from STP will be used as manure in horticulture.

5.3 ENERGY CONSERVATION

To achieve conservation of energy, appropriate design of a building is of paramount importance. Accordingly, it is proposed to incorporate the guidelines of Eco-Niwas Samhita 2018 for the infrastructure of proposed construction of group housing colony.

The concept of passive solar design emphasizes architectural design approaches that minimize building energy consumption by integrating conventional energy-efficient devices, such mechanical and electrical pumps, fans, lighting fixtures, and other equipment, with passive design elements, such as building siting, an efficient envelope, appropriate amounts of fenestration, increased day lighting design, and thermal mass. The basic idea of passive solar design is to allow daylight, heat, and airflow into a building only when beneficial.

Efforts will be taken for energy conservation using passive solar architecture wherever it is possible. Passive solar design refers to use/ prevent the sun's energy for the heating and cooling of living spaces. Projections etc. will be provided for shading of summer sunlight to reduce the heat influx into the building and thus reduce the air conditioning loads. Shading options wherever available will be used for energy saving. The energy efficient features for the project are as given below:

- Maximum utilization of natural light
- CFL & T-5 lighting fixtures in common areas and True life fluorescent lamps in basements.
- Use of solar lights in street and landscaping.
- Energy efficient motors and pumps.
- Appropriate design to reduce heat gain and loss.
- Roof-top thermal insulation.



- Glazing Glass to reduce the U value as far as possible.
- External glazing will be below 60% of the total vertical surface as per ECBC.

5.3.1 USE OF RENEWABLE ENERGY

The electrical supply is largely dependent on thermal power plants that are largely responsible for consumption of natural resources. It is of paramount importance to shift focus on other renewable sources of energy to achieve sustainable development in the energy sector. Taking full cognizance of the availability of natural sunlight and technology, the project proposes the use of solar energy to reduce the power demand of the project. Solar energy will be used to meet various energy requirements of the project such as.

- Solar street lights and solar landscape lights.
- Solar panel of 110 KWp will be installed.

5.3.2 OTHER ENERGY SAVING MEASURES

1. CFC Free Equipment. A.O units with CFC Free environment friendly refrigerant shall be installed to protect ozone layer.
2. Building envelope shall be designed to reduce heat intake from outside. Wall, Roof & Glass U value shall be as per the ECBC guide lines to save energy.
3. Lighting power densities shall be 20% less than the IGBC base line to save energy compared to base building.
4. Energy metering shall be provided at any four of the below mentioned load for continuous monitoring and enhance the performance of the building. This will add one credit point in IGBC Certification.
 - Air conditioning
 - Internal lighting
 - External lighting
 - Grey water pumping
 - Landscape water pumping
5. Captive Power Generation: DG set shall be ISI Rated and certified by Central Pollution Control Board (CPCB) for emission and noise compliance. (One credit point in IGBC Certification)
6. Energy saving measures in other appliances & equipment.



7. Level controllers in overhead water tank shall be provided to avoid overflow of water and waste of energy.
8. All pumps shall be ISI rated and shall be of minimum 60% efficiency
9. LED lamps shall be provided in all display text sign boards to save energy.
10. Provision of 20% Solar PV panel with LED Street lighting for the external area with 50% based on conventional LED Street lighting would result in possible savings.
11. Provision of LED lightings over T5 Fluorescent lightings will result in 20% -30% monthly Energy Savings.
12. Using induced jet fans system with secondary mechanical fans for car park mechanical ventilation which would optimize the ceiling space and the overall floor to floor ceiling height for other M&E Services. Ceiling space would appear less congested & very much neater without massive network of ventilation ducts.
13. Use of regenerating motors for lifts would result in 5% to 10% in energy saving

5.4 EFFECTIVE CONTROLS AND MANAGEMENT SYSTEMS

It is proposed to establish a Management System that will comprise modern equipment's as well as an efficient team of maintenance staff. Each tower as well as common area will be provided with fire alarm as well as water sprinklers. All essential services such as lifts and water supply will be provided with power back up. A security system for the entire group housing Colony will be provided comprising intercom facility, closed circuit camera to the entrance. The resident's vehicles will be provided with identification stickers while visitors' vehicles will be monitored through security guards at the entrances.

The project further proposes tree plantations and landscaping development. The plants not only serve various direct environmental facilities, but also have indirect positive environmental impacts such as reduction in overall energy use in buildings.



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ENVIRONMENTAL MONITORING PROGRAM

6.1 INTRODUCTION

The purpose of the monitoring program is to ensure that the specified mitigate measures defined in the EMP are complied with and leads to the desired benefits for the target area and its population. To ensure the effective implementation of the EMP and gauge the efficiency of the mitigation measures, monitoring shall be undertaken both during the construction and operation period of the project.

6.2 PERFORMANCE INDICATORS (PIS)

The physiochemical components are of particular significance to the project to compare with the surrounding environment on pre-project and post-project development. The parameters are as listed below:

- Air quality
- Water quality
- Noise levels
- Solid waste Management

Of these, the following are selected as the Performance Indicators (Pis) and shall be monitored, since these are well known and comparative data series exist:

- Air quality
- Noise levels
- Water quality
- Flora

To ensure the effective implementation of the mitigation measures and environmental management during construction and operation phase of project, it is essential that an effective Environmental Monitoring Plan be designed and followed as given in Table 6.1 & 6.2.

(A) AMBIENT AIR QUALITY (AAQ) MONITORING

Ambient air quality parameters recommended for monitoring with regard to constructional activities are PM, CO, SO₂, and NO₂. Monitoring shall be carried out twice a week for three month in each season during construction phase in accordance to the National Ambient Air

Quantity Standards. The locations with the pollution parameters to be monitored are detailed out in the Environmental Monitoring Plan (Table-6.1).

(B) WATER QUALITY MONITORING

The physical and chemical parameters recommended for analysis of water quality relevant to project will be as mentioned in IS 10500: 2012. The location, duration and the pollution parameters to be monitored and the responsible institutional arrangements are given in the Environmental Monitoring Plan.

(C) GREEN AREA DEVELOPMENT

The green area development will be monitored during the construction and operation phase. The main indicator will be survival rate of grasses and plants.

(D) SOIL QUALITY

Soil quality will be monitored and compared with the Baseline soil quality generated before the start of construction.

(E) NOISE MONITORING

The measurements of noise levels will be carried out at all designated locations in accordance to the ambient Noise Standards formulated by MoEFCC as given. Noise level will be monitored on twenty-four hourly bases. Noise should be recorded at "A" weighted frequency using a slow time response mode of the measuring instrument. The measurement location, duration and the noise pollution parameters to be monitored are detailed in the Environmental Monitoring Plan (Table-6.1).

An environmental monitoring program is important as it provides useful information and helps to:

- Verify the predictions on environmental impacts presented in this study,
- Assist in detecting the development of any unwanted environmental situation, and thus, provides opportunities for adopting appropriate control measures, and
- Evaluate the performance and effectiveness of mitigation measures proposed in the EMP and suggest improvements in management plan, if required,
- Satisfy the legal and statutory obligations.

The monitoring plan during construction phase and operational phase including number, location of monitoring stations, frequency of sampling and parameters to be covered is summarized in Table-6.1 and Table-6.2. The monitoring will be the responsibility of EMC. The monitoring program during operational phase will be done under the supervision of the Site Engineer at the project site. Monitoring will be carried out by recognized laboratories.

Table-6.1: Environmental Monitoring Plan for Construction Phase

Source	Monitoring Location	Parameters to be Monitored	Monitoring Frequency
Ambient Air Quality	At 1 location at boundary of the project site	PM ₁₀ , PM _{2.5} , SO ₂ , NO ₂ and CO	Twice a year or as per conditions of EC
Ambient Noise	At 1 location at boundary of the project site.	Day & Night equivalent noise level	Twice a year or as per conditions of EC
Groundwater	At 1 location nearest to the Project site	As per standards	Twice a year or as per conditions of EC
Soil	At 1 location outside the Project site	As per standards	Twice a year or as per conditions of EC

Table-6.2: Environmental Monitoring Plan for Operation Phase

Source	Monitoring Location	Parameters to be Monitored	Monitoring Frequency
DG emissions	DG stacks	TPM, SO ₂ , NO ₂ and CO	Twice a year or as per conditions of EC or as per requirement of SPCB
DG set noise	At 4.5 m distance from DG enclosure/ DG room	Noise level	Twice a year or as per conditions of EC or as per requirement of SPCB
Sewage Treatment Plant	Inlet and Outlet of STP	pH, BOD, Suspended Solid, Oil & Grease	Twice a year or as per conditions of EC or as per requirement of SPCB
Ambient Air Quality	At 2 locations (one inside the project site and one at boundary of the project site along predominant wind direction)	PM ₁₀ , PM _{2.5} , SO ₂ , NO ₂ and CO	Twice a year or as per conditions of EC or as per requirement of SPCB
Ambient Noise	At 2 locations (one inside the project site and one at boundary of the project site nearest to residential area)	Day and night equivalent noise level	Twice a year or as per conditions of EC or as per requirement of SPCB

6.3 DATA MANAGEMENT

The monitoring shall be carried out through MoEF/ NABL approved laboratory. All results shall be maintained at the project site and submitted to the SPCB as per the reporting requirements in the Environmental Clearance.

6.4 REPORTING SCHEDULES

The monitoring during construction and operation phase will be carried out as per the monitoring program mentioned in the EMP. The monitoring program during operation phase will be under the supervision of the Building Manager/ Site Engineer at the project site. Monitoring will be get carried out by recognized laboratories. The results of the analysis shall be intimated to the project head. Any anomaly in test results shall be verified into and proper corrective actions shall be undertaken.

6.5 ENVIRONMENT MANAGEMENT CELL

The composition of the Environment Management Cell and responsibilities of its various members are given in Table-6.3:

Table-6.3: Environment Management Cell

S. No.	Level & Person	Proposed Responsibility
1.	Corporate Level Environment Department	<ul style="list-style-type: none"> • Environmental policy and directions. • Overall responsibility for environment management and decision making for all environmental issues. • Ensuring legal compliance and interaction with regulatory agencies.
2.	Project Level (Construction) Site in-charge	<ul style="list-style-type: none"> • Environmental management & pollution control during construction phase. • Installation of pollution control facilities and implementation of the conditions of Environmental Clearance and Consent to Establish. • Environmental monitoring during construction stage. • Secondary responsibility for ensuring legal compliance during construction phase.
3.	Project Level (Operation) Building Manager	<ul style="list-style-type: none"> • Environmental management and operation & maintenance of pollution control facilities during operation phase • Environmental monitoring during operation phase • Secondary responsibility for environment management and decision making for all environmental issues

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		<ul style="list-style-type: none"> Secondary responsibility for ensuring legal compliance and interaction with regulatory agencies during operation stage
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A complaint register shall also be maintained to note any complaints from the staff and visitors of the Group Housing Colony or any other stakeholder. Corrective actions taken against the complaints shall also be noted



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7.1 INTRODUCTION

This chapter broadly looks at various aspects related to disaster management and natural resource conservation.

7.2 RISK ASSESSMENT AND DISASTER MANAGEMENT PLAN

Group Housing colony encompasses the lives of large number of people. It also involves installation of various structures and machineries that meet the comfort and needs of its population but may also pose serious threat to the occupants in case of an accident. It is thus considered necessary to carry out a risk assessment and disaster management plan for the project.

7.2.1 Risk Assessment

Real estate sector is associated with several hazards that pose impacts on employees & surrounding area necessitating adequate implementation of Safety and health measures. Risk Assessment tool enables to enhance preparedness action to be taken well in advance

7.2.2 Hazard Identification (HAZID):

Group Housing Colony encompasses the lives of a large number of people. It also involves installation of various structures and machineries that meet the comfort and needs of its population but may also pose serious threat to the occupants in case of an accident. It is thus considered necessary to carry out a risk assessment and disaster management plan for the project.

Major Risks involved in Construction of Group Housing Project are following:

1. Fall Hazard due to work at height
2. Hazard due to confined space work
3. Occupational Health Hazards
4. Failure of Heavy Machinery during Operation phase.
5. Slip
6. Trip
7. Fire
8. Electrical Hazards
9. Natural Hazards

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10. Site/slope failure in Excavation work

7.2.3 Mitigation measures for Identified Hazards:

Table 7.1 Identified Hazards and their Mitigation Measure

HAZARDS ASSOCIATED WITH ACTIVITIES CONTROL/MITIGATION MEASURES	
(During Construction & Operation)	
Manual Handling	
<ul style="list-style-type: none"> - Strains and sprains due to incorrect lifting - Too heavy loads - Twisting - bending - Repetitive movement - Body vibration. 	<ul style="list-style-type: none"> - Exercise/warm up - Get help when needed - Control loads - Rest breaks/no exhaustion - No rapid movement /twisting/ bending / repetitive movement - Good housekeeping.
Falls - Slips – Trips	
<ul style="list-style-type: none"> - Falls on same level - Falls to surfaces below - Poor housekeeping - Slippery surfaces - Uneven surfaces - Poor access to work areas - Climbing on and off plant - Unloading materials into excavations 	<ul style="list-style-type: none"> - Good Housekeeping - Tidy workplace - Guardrails, Handholds, Harnesses, Hole cover. - Hoarding, no slippery floors/trip hazards - Clear/ safe access to work areas - Egress from work areas - Dust/water controlled - PPE.
Wind	
<ul style="list-style-type: none"> - Falling objects. 	
Fire	
<ul style="list-style-type: none"> - Flammable liquids/Gases like LPG, - Diesel Storage area and combustible building materials - Poor housekeeping - Grinding sparks - Open flames, absence of Fire hydrant network. 	<ul style="list-style-type: none"> - Combustible/flammable materials properly stored/used - Good housekeeping - Fire extinguishers made available & Fire hydrant Network with reserve Fire water (As per NFPA Code) - Emergency Plan in case of Fire or collapse of structure.
Absence Of Personal Protective	
<ul style="list-style-type: none"> Equipment - Lack of adequate footwear - Head protection - Hearing/eye protection 	<ul style="list-style-type: none"> - Head/face - Footwear - Hearing/eye - Skin

<ul style="list-style-type: none"> - Respiratory protection - Gloves - Goggles. 	<ul style="list-style-type: none"> - Respiratory protection provided - Training - Maintenance
Defective or wrong Hand Tools	
<ul style="list-style-type: none"> - Wrong tool - Defective tool - Struck by flying debris - Caught in or on - Missing guards 	<ul style="list-style-type: none"> - Right tool for the job - Proper use of tools - Good condition/ maintenance guards - Isolation/ proper demarcation of work space - Eye/face protection - Flying debris controlled
Electricity	
<ul style="list-style-type: none"> - Electrocutation - Overhead/underground services - Any leads damaged or poorly insulated - Temporary repairs - No testing and tagging - Circuits overloaded - Non-use of protective devices. 	<ul style="list-style-type: none"> - Leads good condition and earthed - No temporary repairs - No exposed wires - Good insulation - No overloading - Use of protective devices - Testing and tagging - No overhead/ underground services
Scaffolding	
<ul style="list-style-type: none"> - Poor foundation - Lack of ladder access insufficient planking - Lack of guardrails and toe boards - Insufficient ties or other means - All scaffolds incorrectly braced or stabilized to prevent overturning. 	<ul style="list-style-type: none"> - All scaffolds correctly braced and stabilized - 3:1 height to base ratio - Firm foundation, plumb and level - Ladder access provided and used - Proper platform (3 planks/675 mm) - Planks secured - Guardrails and toe boards - 900mm to 11,00mm high, within 200mm of Working face, mid-rail.
Ladders	
<ul style="list-style-type: none"> - Carrying loads - Not secured against dislodgement - Defective ladders - Not sufficient length - Wrong positions - Incorrectly placed (angles, in access ways, vehicle movements). 	<ul style="list-style-type: none"> - Secured against movement or footed - Ladders in good condition - Regularly inspected - Extend 1m above platform - 4:1 angle - Out of access ways, vehicle

	<ul style="list-style-type: none"> movements - Not carrying loads - 3 points of contact - No higher than 3rd step down - Use for access only, not working platforms
Excavations	
<ul style="list-style-type: none"> - Trench collapse - Material falling in undetected - Underground services - Falls - Hazardous atmosphere struck by traffic and mobile plant. 	<ul style="list-style-type: none"> - Soil stability known - No water accumulation - Existing services known - Material 600mm from edge - Clear of suspended loads - Hardhats/PPE - Ladders - Public protection - Atmospheric testing - Traffic controls - Emergency Plan.
Gas Cutting and Welding	
<ul style="list-style-type: none"> - Fire - Welding flash, burns, fumes, electrocution in wet conditions - Flashback in oxygen set, leaking cylinders, acetylene cylinders lying down - Poorly maintained leads. 	<ul style="list-style-type: none"> - Welding flash and burns controlled with PPE and shields - Fumes controlled with ventilation and PPE (in good condition and properly positioned), Gas cylinders be kept upright & secured position (properly tied) - Combustible materials to be kept at secured place to avoid fire & Fire Extinguishers to be kept in fire prone area with training to people for its use.
Noise	
<ul style="list-style-type: none"> - Unknown noise levels - Known noise levels over 85 decibels 	<ul style="list-style-type: none"> - Levels below 85 decibels - Proper protection.
Falling Material	
<ul style="list-style-type: none"> - Fall during carrying/lifting materials - Dislodged tools and materials from overhead work areas. 	<ul style="list-style-type: none"> - Materials to be secured - Kept away from edge - Toe boards - Use of hard hats.
Craneage & Lifts	
<ul style="list-style-type: none"> - Display of carrying capacity i.e. 	<ul style="list-style-type: none"> - Periodic testing by competent

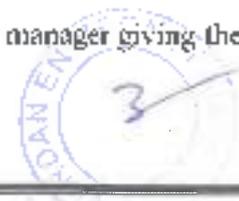
<p>load (No. Of person), incorrectly slung, defective lifting equipment, unsecured loads, craning in close proximity to building people and plant</p> <ul style="list-style-type: none"> - Falls - Falling materials. 	<p>authority</p> <ul style="list-style-type: none"> - Correctly slung/secured loads, lifting equipment good condition - Use of proper hand signals - Falls while unloading controlled.
<p>Visitors Presence at site</p>	
<ul style="list-style-type: none"> - Falls - Struck by dropped materials - Road accidents - Insufficient hoarding or fencing - Pedestrian access past site - Mechanical plant movement on and off site. 	<ul style="list-style-type: none"> - Sufficient hoarding - Fencing and barricades - Safe pedestrian access past site traffic management for loading and delivery - Construction separated from occupied areas of projects.

7.2.4. Mitigation Measure for LPG Leakage

1. The affected area should be evacuated and cordoned off immediately
2. Initiate an Emergency Response Team for LPG leakage.
3. Shut down the main valves in the gas bank.
4. Ensure that only concerned personnel are present in the affected area and all other personnel and visitors are moved to the nearest assembly points
5. Rescue trapped personnel, also check if any personnel are unconscious in the area and immediately move them outside and provide first aid. Ambulance should be summoned to take injured personnel to the nearest hospital.
6. Personnel in the nearby buildings to close all doors and windows to prevent entry of the leaked gas.
7. Source of leakage to be traced and isolated from all the other areas. Additionally if required use pedestal fans to bring down the gas concentration.
8. In case of a fire follow the instructions in case of fire.

7.2.5. Mitigation Measure in case of Fire

1. Required response during in the event of a fire should be described in signs located in the lobby.
2. On sighting a fire, it should be immediately informed to the environment manager giving the exact location and type of fire in detail.
3. Initiate the Emergency Response Team for fires.



4. If the fire is small, engage in extinguishing the fire using the nearest fire extinguisher.
5. Guide the Emergency Response Team staff to the emergency assembly point.
6. The Emergency Response Team should immediately inform the nearest dispensary and security force. If required a fire tender should be summoned.
7. The response team should immediately move to the point of fire and take all necessary steps to stop the fire. If the fire is not controllable and spreads then the manager in charge should inform the district authorities and call for external help.
8. The Emergency Response Team will provide immediate relief to the injured residents at the scene of incident. Any injured persons should be evacuated on priority to the dispensary or one of the nearest hospitals based on their condition.

Instructions for occupants

1. Get out of buildings as quickly and as safely as possible.
2. Use the stairs to escape. When evacuating, stay low to the ground.
3. If possible, cover mouth with a cloth to avoid inhaling smoke and gases.
4. Close doors in each room after escaping to delay the spread of the fire.
5. If in a room with a closed door.
6. If smoke is pouring in around the bottom of the door or if it feels hot, keep the door closed.
7. Open a window to escape or for fresh air while awaiting rescue.
8. If there is no smoke at the bottom or top and the door is not hot, then open the door slowly.
9. If there is too much smoke or fire in the hall, slam the door shut.
10. Stay out of damaged buildings.
11. Check that all wiring and utilities are safe.

7.2.6 Recommendation for Fire Fighting Facilities

All the fire extinguisher system will be controlled by the Security Department. Safety department will consist of qualified safety manager, safety officer and supporting staff.

- ✓ Portable fire extinguishers
- ✓ Fire Buckets
- ✓ Fire Hydrants-Hose Reels
- ✓ Smoke detectors
- ✓ Wet Risers,
- ✓ Automatic Sprinkler system



✓ Alarm System

Table no: 7.2 General recommendations for Fire Fighting Facilities

S. No.	Name of site	Type of Extinguisher
1	Cable galleries	CO ₂ Type
2	High voltage panel	CO ₂ & Foam type, Dry chemical powder
3	Control rooms	CO ₂ & Foam type, Dry chemical powder
4	MCC rooms	CO ₂ & Foam type, Dry chemical powder
5	Pump Houses	CO ₂ & Foam type, Dry chemical powder
6	Guest houses and offices	Dry chemical powder, foam type
7	Godowns, Lubrication rooms,	Foam type

Personal Protective Equipment (PPE) used during Construction Phase

Personal Protective equipment's kept onsite are made readily available to plant personnel.

Table 7.3 shows the lists of recommended Personal Protective equipment's (PPE) onsite.

Table 7.3: Summary of Recommended Personal Protective Equipment According to Hazard

	Workplace Hazards	Suggested PPE
Eye and face protection	Flying particles, molten metal, gases or vapors, light radiation	Safety glasses with side-shields, protective shades, etc.
Head protection	Falling objects, inadequate height clearance, and overhead power cords	Plastic helmets for top and side impact protection
Hearing protection	Noise	Hearing protectors (ear plugs or ear muffs)
Foot protection	Falling or rolling objects, points objects. Corrosive or hot liquids	Safety shoes and boots for protection against moving and falling objects, liquids and chemicals
Hand protection	Hazardous materials, cuts or lacerations, vibrations, extreme temperatures	Gloves made of rubber or synthetic material (Neoprene), leather, steel, insulation materials, etc.
Respiratory protection	Dust, fogs, fumes, mists, gases, smokes, vapors	Facemasks with appropriate filters for dust removal and air purification (chemical, mists, vapors and gases).

	Workplace Hazards	Suggested PPE
		Single or multi-gas personal monitors, if available
	Oxygen deficiency	Portable or supplied air (fixed lines) Onsite rescue equipment
Body leg protection	Extreme temperatures, hazardous materials, biological agents, cutting and laceration	Insulating clothing, body suits, aprons etc. of appropriate materials
Work at Height	Fall/ slip/ Trip Hazard	Safety Harness, Safety Belt, safety shoes, Jackets, Lanyards, Slings

7.2.7 Natural Hazards In Gurgaon District

The district has been traditionally vulnerable to different disasters on account of its unique geo-climatic condition. The following are the hazards that have a probability of occurrence in Gurgaon district, based on the history of their occurrence and geo-climatic condition

1. Earthquake
2. Industrial/chemical Accident
3. Fire
4. Road/ Rail Accidents
5. Hadstorms, Thunderstorm, Dust
6. storm & Fog
7. Wind storm

Earthquake

Earthquakes may cause a number of phenomena, including ground motion, surface faulting, ground failure, and liquefaction. An earthquake's magnitude reflects an earthquake's strength. Damage to buildings generally begins to occur at magnitude six, while an earthquake above magnitude seven may be a major disaster if it occurs near a populated area. Above a map prepared by Bureau of Material and Technology Promotion Council and printed in Vulnerability Atlas -2nd Edition indicates that Gurgaon district falls in seismic zone IV which, is considered to be facing highest danger of earthquakes in India after the Zone-V. This makes the area liable to MSK intensity of—VIII.

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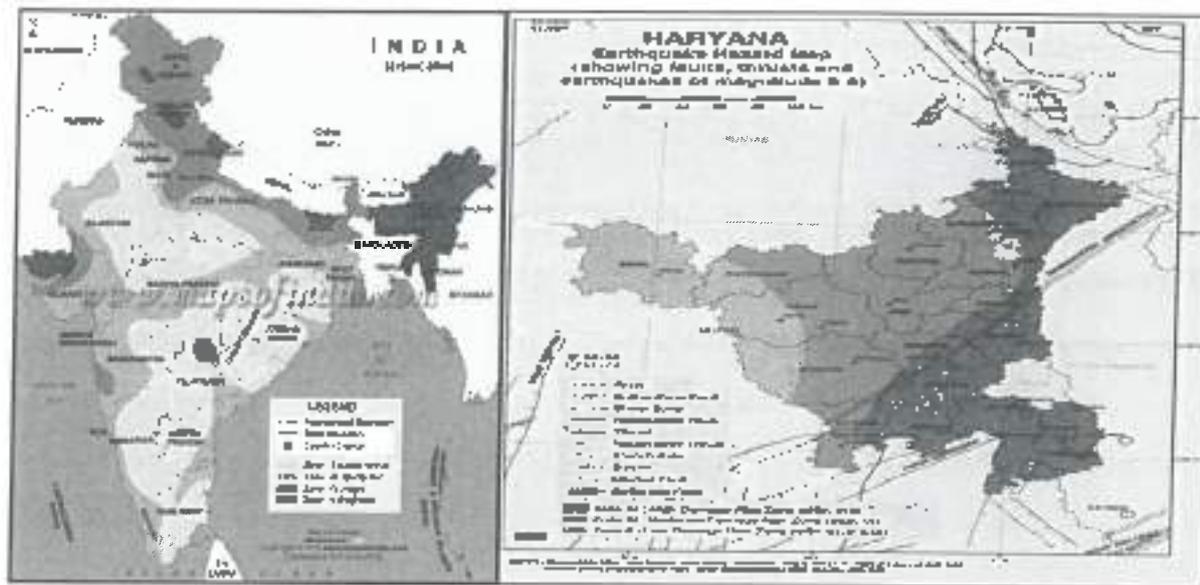


Figure No: 7.1. Earth Quake Zonation Map

Emergency recovery plan has been considered by the emergency management team as per the situation and site conditions as follows in Table No 7.4. Earthquakes usually give no warning at all. Consider following in Pre & Post Disaster Phases

Before the earthquake:

- ✓ Always keep the following in a designated place: bottled drinking water, nonperishable food, and first-aid kit, torch-light and battery-operated radio with extra batteries.
- ✓ Teach family members how to turn off electricity, gas, etc.
- ✓ Identify places in the house that can provide cover during an earthquake.
- ✓ It may be easier to make long distance calls during an earthquake.
- ✓ Identify an out-of town relative or friend as your family's emergency contact. If the family members get separated after the earthquake and are not able to contact each other, they should contact the designated relative/friend. The address and phone number of the contact person/relative should be with all the family members.
- ✓ Safeguard your house
- ✓ Consider retrofitting your house with earthquake-safety measures. Reinforcing the foundation and frame could make your house quake resistant. You may consult a reputable contractor and follow building codes.
- ✓ Kutch buildings can also be retrofitted and strengthened.

During quake:

- ✓ Earthquakes give no warning at all. Sometimes, a loud rumbling sound might signal
- ✓ Its arrival a few seconds ahead of time. Those few seconds could give you a chance



- ✓ To move to a safer location. Here are some tips for keeping safe during a quake
- ✓ Take cover. Go under a table or other sturdy furniture: kneel, sit, or stay close to the
- ✓ Floor. Hold on to furniture legs for balance. Be prepared to move if your cover moves
- ✓ If no sturdy cover is nearby, kneel or sit close to the floor next to a structurally sound
- ✓ Interior wall. Place your hands on the floor for balance.
- ✓ Do not stand in doorways. Violent motion could cause doors to slam and cause serious injuries. You may also be hit by flying objects.
- ✓ Move away from windows, mirrors, bookcases and other unsecured heavy objects
- ✓ If you are in bed, stay there and cover yourself with pillows and blankets
- ✓ Do not run outside if you are inside. Never use the lift
- ✓ If you are living in a kutchia house, the best thing to do is to move to an open area
- ✓ Where there are no trees, electric or telephone wires.

If outdoors:

- ✓ Move into the open, away from buildings, streetlights, and utility wires. Once in the open, stay there until the shaking stops.
- ✓ If your home is badly damaged, you will have to leave. Collect water, food, medicine, other essential items and important documents before leaving.
- ✓ Avoid places where there are loose electrical wires and do not touch metal objects that are in touch with the loose wires.
- ✓ Do not re-enter damaged buildings and stay away from badly damaged structures.

If in a moving vehicle:

- ✓ Move to a clear area away from buildings, trees, overpasses, or utility wires, stop, and stay in the vehicle. Once the shaking has stopped proceed with caution.
- ✓ Avoid bridges or ramps that might have been damaged by the quake.

After the quake:

- ✓ Here are a few things to keep in mind after an earthquake. The caution you display in
- ✓ The aftermath can be essential for your personal safety.
- ✓ Wear shoes/chappals to protect your feet from debris
- ✓ After the first tremor, be prepared for aftershocks. Though less intense, aftershocks
- ✓ Cause additional damages and may bring down weakened structures. Aftershocks
- ✓ Can occur in the first hours, days, weeks, or even months after the quake.
- ✓ Check for fire hazards and use torchlight's instead of candles or lanterns.

- ✓ If the building you live in is in a good shape after the earthquake, stay inside and listen for radio advises. If you are not certain about the damage to your building, evacuate carefully. Do not touch downed power line
- ✓ Help injured or trapped persons. Give first aid where appropriate. Do not move seriously injured persons unless they are in immediate danger of further injury. In such cases, call for help.
- ✓ Remember to help your neighbors who may require special assistance-infants, the elderly, and people with disabilities.
- ✓ Listen to a battery-operated radio for the latest emergency information.
- ✓ Stay out of damaged buildings
- ✓ Return home only when authorities say it is safe. Clean up spilled medicines, bleaches or gasoline or other flammable liquids immediately. Leave the area if you smell gas or fumes from other chemicals. Open closet and cupboard doors cautiously.
- ✓ If you smell gas or hear hissing noise, open windows and quickly leave the building.
- ✓ Turn off the switch on the top of the gas cylinder
- ✓ Look for electrical system damages - if you see sparks, broken wires, or if you smell burning of amber, turn off electricity at the main fuse box. If you have to step in water to get to the fuse box, call an electrician first for advice.
- ✓ Check for sewage and water lines damage. If you suspect sewage lines are damaged, avoid using the toilets. If water pipes are damaged, avoid using water from the tap.
- ✓ Use the telephone only for emergency calls
- ✓ In case family members are separated from one another during an earthquake (a real possibility during the day when adults are at work and children are at school), develop a plan for reuniting after the disaster. Ask an out of state / district relative or friend to serve as the "family contact". Make sure everyone in the family knows the name, address, and phone number(s) of the contact person (s).

Table 7.4: Emergency Preparedness for Earthquake

Step	Activity	Action By
Preparedness	<ul style="list-style-type: none"> • Constitute Emergency Response Team • Identify FCC, if the identified ones are damaged • Control centers to be equipped with <ul style="list-style-type: none"> ❖ Alarming ❖ Communication facilities 	Plant Key Person

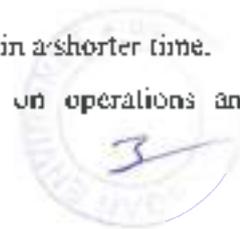
	<ul style="list-style-type: none"> ❖ Emergency vehicles/ equipment ❖ List of emergency contacts & suppliers ❖ Medical facilities 	
Action during effective period	<ul style="list-style-type: none"> • Do not panic. Raise alarm • Avoid standing near to windows, external walls • Stand near the columns or duck under sturdy furniture. • Assemble at emergency assembly point as there may be aftershocks 	(individual(s))
Action after effective Period (Establish Emergency Control Center. Site Main Controller to direct all activities)	<ul style="list-style-type: none"> • Assess situation and initiate shut down of plants (if required) • Initiate search & rescue (if required) • Evacuation of people. • Recovery/ Rehabilitation Work • Medical care for the injured. • Supply of food and drinking water. • Temporary shelters like tents, metal sheds etc. • Repairing lines of communication and information. • Restoring transport routes • Take head count • Activate emergency plan as situation demands • Assess damage 	Main Controller, Incident Controller, Site Incident Controller, Coordinators – Fire & Security, Safety, Material and Medical

Storm

The contingency actions during storm shall be based on the weather forecasts obtained from meteorological stations and the local meteorological department. Some of the important actions to be carried out are as follows:

Prior to Storm

- ✓ Communication with the local meteorological department
- ✓ Maintain distances from storm in order to execute preparatory actions in a shorter time.
- ✓ Considering the consequences about the emergency might have on operations and personnel.



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- ✓ Review all operations carefully to ensure that systems in jeopardy are taken care of or shut down.
- ✓ Ensure the readiness of first aiders, emergency vehicles, medical Centre, medicines etc.
- ✓ Metallic sheets, loose materials, empty drums and other light objects shall be properly secured.
- ✓ Flush the drainage systems.

During Storm

- ✓ Remain calm.
- ✓ Avoid going outdoors.
- ✓ Do not seal the office completely as the suction created by the difference in atmospheric pressure inside and outside can rip open a window or door by breaking window glass panes.

After the Storm

- ✓ Do not touch electric lines.
- ✓ Stay away from the disaster area.
- ✓ Take special precautions in driving vehicles since the under-pavement could cave in due to the weight of automobile.

Extreme temperatures in District

Hailstorms, Thunderstorm, Dust storm & Fog April to June is the period with the highest incidence of thunderstorms and dust storms. Violet squalls (Andhis) often accompany such storms. Some of the thunderstorms do not give any appreciable rain, but others often accompanied with heavy rain and occasional hail. Thunderstorms also occur in the winter months in association with passing western disturbances. Fogs sometimes dense occur in the cold season.

7.3 DISASTER MANAGEMENT PLAN

7.3.1 INTRODUCTION TO THE TERM "DISASTER"

The term "Disaster" refer to extensive damage of property and serious disruption both inside, outside the work system and its surrounding that can be natural or human interfered. Emergency may be caused by a number of different factors, e.g. plant failure it will normally manifest itself

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in three basic forms viz fire, explosion or toxic release and requires the assistance of emergency control services to handle mass devastation effectively.

7.3.2 NEED OF DISASTER MANAGEMENT

The aim of Disaster management plan is concerned with preventing accidents through following guidelines of good design practice, operation, maintenance and inspection, by which it is possible to reduce the risk of an accident. Since it is known to all it is not possible to eliminate entire risk since, absolute safety is not achievable.

After Assessing and quantifying the possible scenarios, consequence analysis approach to emergency preparedness and emergency planning delineates Disaster Management Plan for both on-site and off-site. These plans are needed to be implemented in the event of a disaster.

7.3.3 Emergency planning and Response procedure

The Emergency Response Plan is plan for dealing with emergencies are implemented immediately whenever there is a fire, explosion, or release of a hazardous substance that threatens human health or the environment. The emergency response plan is reviewed and immediately amended whenever:

- ✓ The plan fails in an emergency
- ✓ The list of emergency contacts change
- ✓ The list of emergency equipment changes

The facility changes in its design, construction, operation, maintenance, or other circumstances in a way that increases the potential for fire, explosions, or release of a hazardous substance.

7.3.4 Incident Response Plan

It is the Frame work of addressing the emergency situation arises due to failure scenario.

- ✓ Incident Response Plan(IRP) and Emergency Preparedness Plan
- ✓ Incident Response Team (IRT)
- ✓ Emergency Response Team (ERT)
- ✓ Crisis Management Team (CMT)

7.3.5 Onsite Disaster Management Plan



Disaster management plan are prepared with an aim of taking precautionary step to control the hazard propagation, avert disaster, take action after the disaster which limits the damage to the minimum and follow the on-site emergency planning.

7.4 Onsite Emergency Plans

The onsite emergency is an unpleasant situation that causes extensive damage to plant personnel and surrounding area and its environment due to in operation, maintenance, design and human error. Onsite plan will be applied in case of new Project activity. Following point are taken into consideration.

- ✓ To identify, assess, foresee and work out various kinds of possible hazards, their places, potential and damaging capacity and area in case of above happenings.
- ✓ Review, revise, redesign, replace or reconstruct the process, plant, vessels and control measures if so assessed.
- ✓ Measures to protect persons and property of Construction machinery in case of all kinds of accidents, emergencies and disasters
- ✓ To inform people and surroundings about emergency if it is likely to adversely affect them

7.5 Off-Site Emergency Planning

The off-site emergency plan is an integral part of any hazard control system. It is based on those accidents identified by the works management, which could affect people and the environment outside the works. Thus, the off-site plan follows logically from the analysis that took place to provide the basis for the on-site plan and the two plans therefore complement each other. The roles of the various parties that may be involved in the implementation of an off-site plan are described below. The responsibility for the off-site plan will be likely to rest either with the works management or with the local authority. Either way, the plan must identify an emergency coordinating officer who would take overall command of the off-site activities. Consideration of evacuation may include the following factors:

- ✓ In the case of a major fire but without explosion risk (e.g. an oil storage tank), only houses close to the fire are likely to need evacuation
- ✓ If fire is escalating very fast it is necessary to evacuate people nearby as soon as possible

In acute emergency people are advised to stay indoors and shield themselves from the fire.

7.5.1 Organization

Organizational details of command structure, warning systems, implementation procedures, emergency control centres include name and appointments of incident controller, site main controller, their deputies and other key personnel involved during emergency.

7.5.2 Communications

Identification of personnel involved, communication centre, call signs, network, list of telephone numbers.

7.5.3 Special Emergency Equipment

Details of availability and location of heavy lifting gear, specified fire-fighting equipment, fireboats etc.

7.5.4 Voluntary Organizations

Details of Voluntary organizations, telephone numbers nearby of hospitals, Emergency helpline, resources etc. are to be available with chief authorities.

7.6 Non-governmental Organizations (NGO)

NGO's could provide a valuable source of expertise and information to support emergency response efforts. Members of NGOs could assist response personnel by performing specified tasks, as planned during the emergency planning process.

- ✓ Evacuation of personnel from the affected area
- ✓ Arrangements at rallying posts and parking yards
- ✓ Rehabilitation of evacuated persons

7.6.1 Chemical information

Details of the hazardous substances (MSDS information) and a summary of the risks associated with them will be made available at respective site.

7.6.2 Meteorological Information

There is to be arrangements for obtaining details of weather conditions prevailing at before the time of accident and weather forecasts updates.

7.6.3 Humanitarian Arrangements

Transport, evacuation centres, emergency feeding, treatment of injured, first aid, ambulances, temporary mortuaries.

7.6.4 Public Information

- ✓ Dealing with the media-press office
- ✓ Informing relatives, etc.

7.6.5 Assessment

- ✓ Collecting information on the causes of the emergency
- ✓ Reviewing the efficiency and effectiveness of all aspects of the emergency plan.

7.6.6 Role of local authority

Local Authorities like Panchayat, Sabha, Samity, municipalities can help in combating emergency situation after assessing the impact scenario in rescue phase.

7.6.7 Role of police

The police are to assist in controlling of the accident site, organizing evacuation and removing of any seriously injured people to hospitals.

- ✓ Co-ordination with the transport authorities, civil defence and home guards
- ✓ Co-ordination with army, navy, air force and state fire services
- ✓ Arrange for post mortem of dead bodies
- ✓ Establish communication centre with easy contact with ECC

7.6.8 Role of Fire Brigade

The fire brigade shall be organized to put out fires and provide assistance as required during emergency.

7.6.9 Media

- ✓ The media is to have ready and continuous access to designated officials with relevant information, as well as to other sources in order to provide essential and accurate information to public throughout the emergency and to avoid commotion and confusion

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- ✓ Efforts are made to check the clarity and reliability of information as it becomes available, and before it is communicated to public
- ✓ Public health authorities are consulted when issuing statements to the media concerning health aspects of chemical accidents
- ✓ Members of the media are to facilitate response efforts by providing means for informing the public with credible information about accidents involving hazardous substances

7.6.10 Role of health care authorities

- ✓ Hospitals and doctors shall be ready to treat all type of injuries to casualties during emergency.
- ✓ Co-ordinate the activities of Primary Health Centres and Municipal Dispensaries to ensure required quantities of drugs and equipment's
- ✓ Securing assistance of medical and paramedical personnel from nearby hospitals/institutions
- ✓ Temporary mortuary and identification of dead bodies

7.6.11 Emergency Contact No of Statutory Bodies/ District/Local Bodies

Table 7.5 Emergency contact No. of DCs, Gurgaon, Haryana

S. No	District	Office /fax No	Residence	Mobile
1	Gurgaon	0124-2325500 FAX-2320508	2303333	9999810000

Table 7.6: Details of SSP/SP's of Gurgaon District Haryana

S. No	Name District	Mobile	Office No	Residential No	Fax No
1	SP, Gurgaon.	9999981802	2222166 2223292	2223025 2573659	

7.7 Occupational Health and Safety during Construction Phase

7.7.1 The Occupational Health Surveillance Program:

A team of qualified doctors and nurses will visit periodically for health checkup of all the workers, team and its record will be maintained properly.

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7.7.2 Impact on Human Health

This project will have an impact on the human health due to sand/bajri, increased dust, creation of breeding grounds for disease vectors, population influx which might introduce new diseases in the area, and inadequate sanitation facilities may result in severe health impact. Following measures can be taken to eradicate impact of the project

7.7.3 Implementation of Occupational Health and Safety Measures

Occupational Health & Safety measures result in improving the conditions under which workers are employed and work. It improves not only their physical efficiency, but also provides protection to their life and limb. Management will consider the following safety measures:

- Safety clauses in contract order
- Dedicated safety team
- Inspection and maintenance of equipment's and accessories
- Pre placement and periodic health check up
- Removal of unsafe conditions and prevention of unsafe acts
- Detailed analysis of each and every incident
- To provide standard PPEs and ensure its uses for mining safety
- Periodic inspection by internal and external safety experts
- Celebrations of various safety events for awareness
- Medical facilities & first aid boxes will be established in the mine premises.
- Pits, Sumps, openings in floor etc. which may be a source of danger, will be either securely covered or securely fenced. Securely fencing a pit means covering or fencing it in such a way that it ceases to be a source of danger.
- Health Awareness Programs and camps will be organized
- The mine workers will be provided all necessary PPE, especially dust masks for their safe guard from dust, Ear Plugs/Ear Muffs for noise, boots etc. and measures for other hazards.
- Under initial vocational training, the workers will be given training related to all safety and health aspects.

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7.8 CONCLUSION

Development Activity for the construction of group housing colony does involve hazardous scenario with risk of worker and Employees during Construction phase. Appropriate safety measure to carry out work safely will be implemented. Administrative and Supervisory control will be implemented. Management procedures like Permit to work, Mock drills, Training & Skill development etc. will be taken care off.

7.9 NATURAL RESOURCES CONSERVATION

The project will lead to utilization of various natural resources. As an environmentally responsible corporate, the developers endeavor to conserve these resources by good management, treatment, recycling, reuse with the help of new technology for minimization of wastages and effective usage of resources.

7.9.1 CONSERVATION OF WATER

The project will use treated water from nearby own STP during construction phase and HSVP/GMDA supply during operation phase of the project. Following means are proposed to be adopted for conservation of this life sustaining resource:

The water will be supplied by HSVP/GMDA for the project

Minimum Use of Water

- To further minimize the use of available freshwater, various low flow fixtures may be provided such as Low flow flushing systems, sensor based fixtures, waterless urinals, and tap aerators. Awareness will also be spread amongst the residents on the following lines:
 - Timely detection and repair of all leakages;
 - Turning off tap while brushing teeth;
 - Turning off faucets while soaping and rinsing clothes;
 - Using automatic washing machine only when it is fully loaded;
 - Watering of lawn or garden during the coolest part of the day (early morning or late evening, hours when temperature and wind speed are lowest. This reduces losses due to evaporation.
 - Planting of native and/or drought tolerant grasses, ground covers, shrubs and trees. Once fully grown, they need not to be watered frequently.
 - Avoiding over watering of lawns. Good rains eliminate the need for watering for more than a week.

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- o Setting sprinklers to water the lawn or garden only, not the street or sidewalk;
- o Avoiding installation or use of ornamental water features unless they recycle the water and avoiding running them during drought or hot weather;
- o Installation of high-pressure, low-volume nozzles on spray washers;
- o Replacement of high-volume hoses with high-pressure, low-volume cleaning systems
- o Equipping spring loaded shutoff nozzles on hoses;
- o Installation of float-controlled valve on the make-up line, closing filling line during operation, provision of surge tanks for each system avoid overflow;
- o Washing vehicles less often, or using commercial car wash that recycles water,

Rainwater Harvesting

The increased hard surface of group housing colony increases the rainwater/storm water runoff as compared to the otherwise barren land. It is proposed to harvest this rainwater run-off that will recharge the groundwater resource while reducing the burden of storm water management of the area and eventually natural water bodies. Apart from the open spaces, it is proposed to harvest the roof top rainwater. The storm water will be treated through an oil and grease trap and allowed to flow through layers of sand and gravel for filtration prior to reaching the water table, to avoid any possibility of groundwater contamination.

The following management measures are suggested to protect the water quality during construction phase:

- o Avoid excavation during monsoon season.
- o Care would be taken to avoid soil erosion.
- o Community toilets shall be constructed on the site during construction phase and the wastewater will be channelized to the septic tank in order to prevent wastewater from entering the water bodies to prevent surface and ground water contamination by oil/grease, leak proof containers would be used for storage and transportation of oil/grease. The floors of oil/grease handling area would be kept effectively impervious.
- o Collection and setting of storm water, prohibition of equipment wash downs, and prevention of soil loss and toxic release from the construction site will be adhered to minimize water pollution.
- o Most of the storm water produced on site will be harvested for ground water recharge. Thus proper management of this resource is a must to ensure that it is free of contamination. A detailed Storm Water Management Plan will be developed which will consider the sources of storm water. The plan will incorporate best management practices which will include the following:

- o Regular inspection and cleaning of storm drains.
- o Installation of clarifiers or oil/ water separators system of adequate capacity around parking areas and garages as per requirement.
- o Cover waste storage areas.
- o Avoid application of pesticides and herbicides before wet season.
- o Conducting routine inspections to ensure cleanliness.
- o Preparation of spill response plans, particularly for fuel and oil storage areas.
- o Provision of silt traps in rain water harvesting system.
- o Good housekeeping in the above areas.

7.9.2 ENERGY CONSERVATION

Efforts will be taken for energy conservation using passive solar architecture wherever it is possible. Passive solar design refers to use/ prevent the sun's energy for heating and cooling of living spaces. Projections etc. will be provided for shading of summer sunlight to reduce the heat influx into the building and thus reduce the air conditioning loads. The principles of energy conservation will also be embedded in the buildings through use of energy efficient fixtures, maximum availability of natural light, ventilation and use of solar energy for Street lighting.

Energy Efficient Features: The energy efficiency features of the project are:

- Maximum utilization of natural light
- CFL & T-5 lighting fixtures in the common areas and True lite fluorescent lamps in basements
- Use of solar lights in street and landscaping
- Energy efficient motors and pumps
- Appropriate design to reduce heat gain and loss
- Roof-top thermal insulation
- Glazing Glass to reduce the U value as far as possible.

7.10 SOLID WASTE

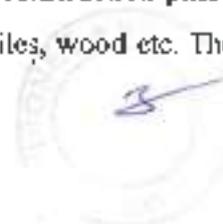
Solid waste shall be generated both during construction and operation phase.

Construction Phase – The solid waste expected to be generated during the construction phase will comprise of excavated materials, used bags, bricks, concrete, MS rods, tiles, wood etc. The following steps are proposed to be followed for the management solid waste.

- Construction yards are proposed for storage of construction materials.

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- The excavated material such as soil and stones will be stacked for reuse during later stages of construction
- ♦ Excavated top soil will be stored in temporary constructed soil bank and will be reused for landscaping of the colony.

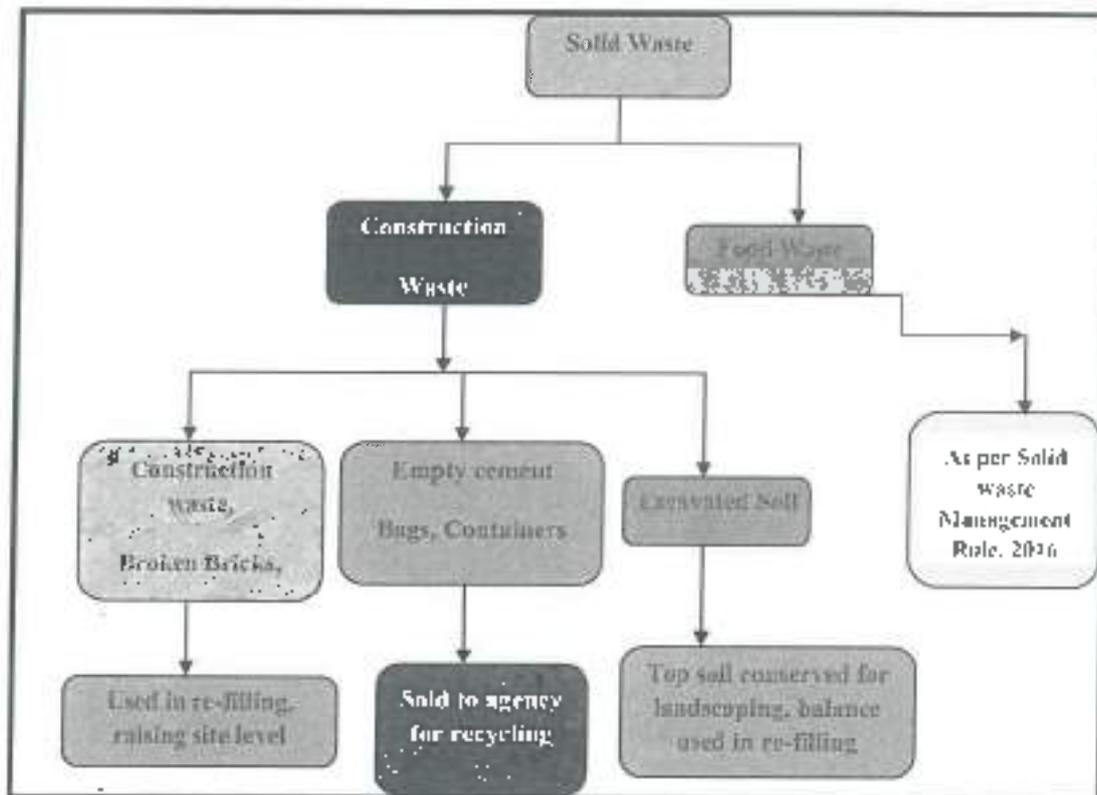


Figure-7.2: Solid Waste Management Scheme during Construction Phase

During the operation phase, waste will generate from Main Dwelling unit, Visitors. The solid waste generated from the project shall be mainly domestic waste and estimated quantity of the waste shall be approx. 1,880 kg per day (i.e. 0.5 kg per capita per day for residents population, (ii) 0.15 kg per capita per day for the visitor population, (iii) 0.3 kg per capita per day for the maintenance & security staff). Following arrangements will be made at the site in accordance to Solid Wastes Management Rules, 2016 and disposed through Govt. approved vendor in accordance with Solid Wastes Management Rules, 2016.

Proposed Expansion cum Modification of Group Housing Buildings in Zone 10, 1013 5

At Sector-54, Gurgaon, Haryana

Being developed by M/s BLF Limited

FINAL EIA/EMP REPORT: CHAPTER 7

Table 7.7: Calculation of Solid Waste Generation

S. No.	Unit Type	Population	Rate(Kg/Cap/Day)	Total Waste Generated (Kg/Day)
1	Main Dwelling Units	2164	0.50	1080.00
2	Services Personnel Room	864	0.50	432.00
3	Maintenance Staff	43	0.30	12.90
3	Visitors	216	0.15	32.40
4	Club House/community building	1000	0.30	300.00
5	Horticulture	3.39	0.20 Kg/Acre	0.68
6	Sludge	296	7.51 % of wastewater	22.26
Total				1,880

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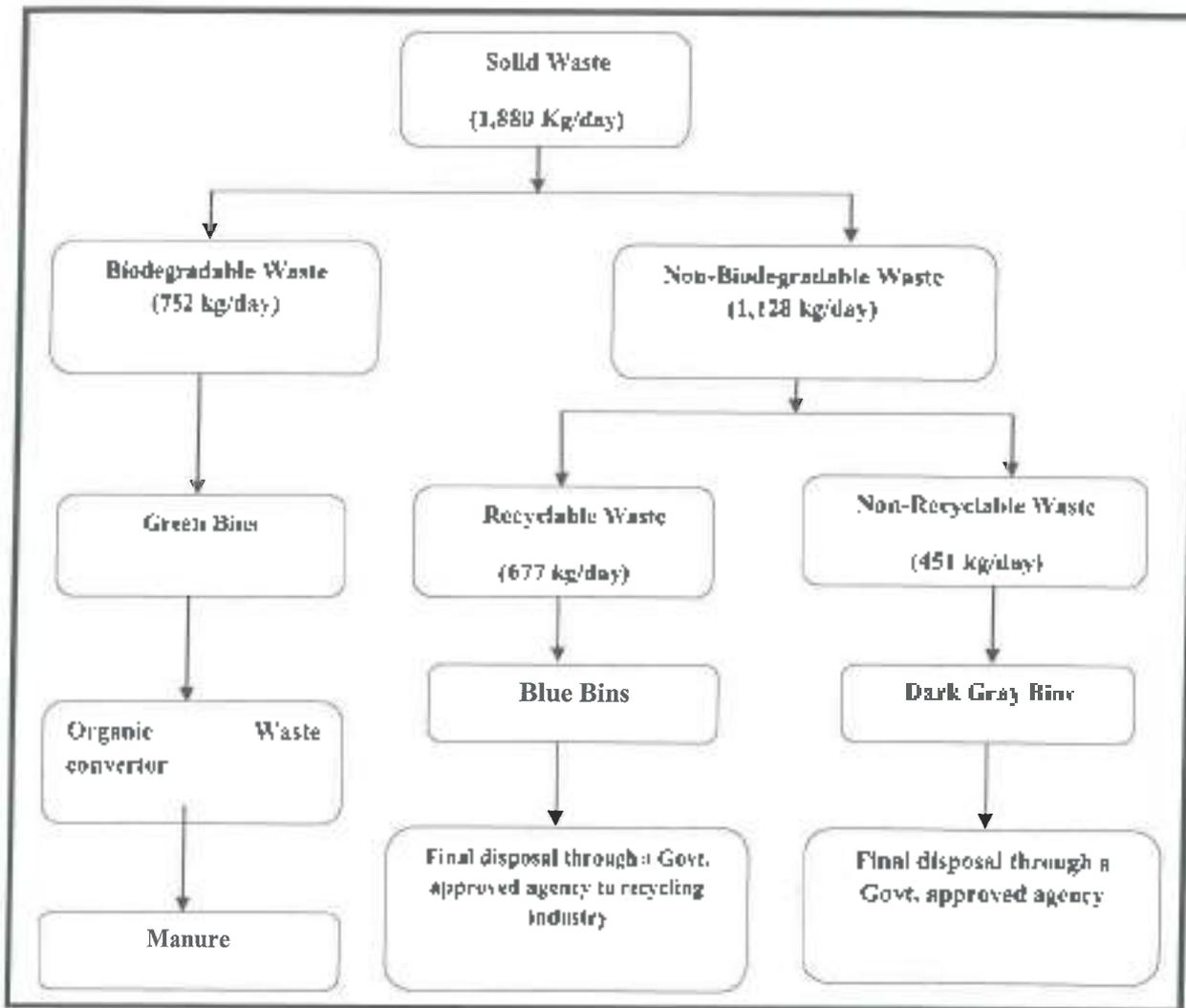


Figure 7.3: Solid Waste Management Scheme during Operation Phase

Note: We will be abide by Plastic waste Management (Amendment) rules, 2023 and E-waste management (Amendment) Second Amendment rules, 2023

Organic waste Management by automatic composting machine:

- This is highly compact solution for organic and biodegradable/wet waste.
- Decentralized waste management solution aesthetically designed just take less than a single car park space for a 250 kg unit capable to treat wet waste generated.
- It reduces labor cost because of safe handling system, as no pathogens generated due to operations in high temperature thereby reducing health risks significantly.
- Very fast Waste to manure processing duration i.e. 1-3 days in comparison of traditional composting methods

- No transport cost as machine can operate at on site without any multi-step process by just provide input, plug and start operation
- Designed to keep rodents at bay so cleanest technology with negligible odor.
- Life span 25-30 years and AMC to ensure 24X7 days of uninterrupted operation
- Microbes present within incubator feed on the organic matter and convert in to compost.
- Moisture content and temperature automatically regulated using sensors at the bottom of the tank whenever organic waste is added.
- Fully aerobic digestion is facilitated by the periodic and intermittent rotation of the mixing blades (no crushing/grinding) to maximize microbe activation.
- The final decomposition is done by specialized thermophilic microbes which thrive in high temperature and high acidic or salty atmospheres.
- The final product in the form of compost can be used as manure in to landscape area management.
- The wet waste reduced in volume by 90 % and 100 kg waste converted in to 10-15 kg compost which can be removed in 10-15 days and expenditure to process per kg of waste is less than 01 INR.
- The output compost from OWC can be mixed with soil in the ratio of 1:10 before using as manure.
- Care to be taken to only moisten the waste and not make it dripping wet.
- Clear the compost once it reaches the red level because excess compost might spoil the machine by entering the motor assembly.
- A buffer of 3-6 days on composting of pure garden waste necessarily to be taken due to dirtiness of such waste in comparison of other food waste.

Technical Specification

Operation	Fully Automatic
Output	Organic Manure
Installation Requirements	Almost Plug and Play. Vent to be connected outdoors or storm water lines. No need of water inlet. Water may be required, only to clean the machine externals and any piled waste.
Control Systems	PLC Based
Composting Tank	SS
Housing	M.S with Powder coating or SS panels as a variant
Input / Output	Door for waste input Separate door for getting out compost
Heater	Insulated oil heating chamber or Heating pads as a variant



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Other Features	<ul style="list-style-type: none"> • Provided with waste overload function • Indicators for Power mode, heater & power saving mode • Stainless steel (SS304) shaft & mixing blades • Safety feature: Internal mixing blades automatically stop when hopper door is opened (in auto mode) • Can be run in auto mode or manual mode • Internal shaft turns and sends out compost, when the compost door is opened
Doors	Separate door for waste input & separate door for compost removal
Preferred Location for installation	Can be a garden, area adjacent to garden, car park, preferably with a connection to the drainage
Life of the Machine	Expected around 25 years
Required Capacity	Ideally should be 20 % higher capacity of OWC to be selected as per estimated volume of wet/organic waste.
Proposed Capacity	20% more than OWC Organic Waste - 752 Kg Final OWC = 752 + 75 (20% of 752) -- 827 Kg i.e. Total 1 nos of Organic waste converter of capacity 850 Kg/day (1 > 850 Kg/day)

Following arrangements will be made at the site in accordance to Solid Waste Management Rules, 2016,

Collection and Segregation of Waste

1. A door to door collection system will be provided for collection of domestic waste in colored bins from household units.
2. Separate colored bins will be provided for dry recyclables and bio-degradable waste.
3. For institutional waste collection, adequate number of colored bins (Green and Blue bins for bio-degradable and non-bio-degradable respectively) is proposed to be provided.
4. Litter bin will also be provided in open areas like parks etc

7.10.1 Treatment of waste

Bio-Degradable wastes

1. Bio-degradable waste shall be disposed-off as per Solid Waste Management Rules, 2016

Recyclable wastes

1. Grass Recycling – The cropped grass will be spread on the green area. It will act as manure after decomposition.
2. Recyclable wastes like paper, plastic etc. will be sold off to recyclables.



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3. Hazardous wastes such as waste oil will be sold off to authorized recyclers. Buy back arrangement will be made for batteries

7.10.2 Disposal

The Municipal Solid Waste Management will be collected as per the guidelines of Solid Wastes Management Rules, 2016. The inert non-recyclable wastes will be disposed through government approved agency for land filling.



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PROJECT BENEFITS

8.1 GENERAL

M/s DLF Limited is proposing development of Expansion cum Modification of Group Housing Buildings in Zone 10, DLF 5, at Sector-54 Gurugram, Haryana. The project had received License from the Directorate of Town & Country Planning, Haryana with 13 Licenses for 16.975 Acre (License No. 38, 39, 40, 52, 53, 57 of 1996 dated 16.04.1996 which is valid up to 15.04.2024, License No. 117, 121, 129, 131 of 1995 dated 29.12.1995 which is valid up to 28.12.2024 and License No. 02, 04, 06 of 2002 dated 25.10.2002 which is valid up to 24.10.2024. The zoning plan is obtained from DTCP dated 20.11.2020 for 476.6015 Acres for group housing colony in DLF 5, Gurugram Haryana.

Total plot area of Phase-V Group Housing is 476.6015 Acres (19, 28,738.00 m²) out of which 16.975 Acres (68,693.850 m²) (Existing-30,653.317 m²/7.574 Acre) are to be developed for this particular Group Housing Buildings Project.

We have obtained earlier EC from SEIAA, Haryana through file no. SEIAA/HR/2022/181 & EC Identification No. EC22B039HR11216 for total 2. 33,377.998 m² built-up area on 30,653.317 m² (7.574 Acre) plot area.

Now the company is proposing expansion cum modification in the project with revised built-up area 6,56,418.356 m² and 16.975 Acres (68,693.850 m²) plot area.

The project site is located in Zone 10, DLF-5, Sector-54, Gurugram, Haryana which is easily approachable through SH-13 which is ~7.6 Km away from the project site towards West direction and NH-48 which is ~5.5 Km away from the project site towards NW direction and nearest railway station is Gurugram Railway Station at a distance of ~11 Km from project site in NW direction. Nearest airport is Indira Gandhi International Airport at a distance of ~10.3 Km from the project site in North direction.

There are many educational institutions and colleges in nearby area and around the project site. The salient features of the project will include:

- Rain Water Harvesting

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- Emergency Alarm System
- Solid waste management
- DG power back

8.2 PHYSICAL INFRASTRUCTURE

The Construction of group housing Colony will help in meeting the growing residential need for people; it also provides state-of-the-art apartments and modern terms of comfort and safety of its residential units. Care will be taken to provide the occupants and visitors with necessary facilities as power, water supply, parking spaces, and landscaping, wide internal roads that are safe and secure.

8.3 SOCIAL INFRASTRUCTURE

The Construction of group housing Colony of this scale sets in an overall development of the region, maintenance of existing roads, power supply and water supply, since a large Construction generally brings the focus of the development authorities in the locality.

8.4 ECONOMIC BENEFITS

The project will have positive impact on the local economy in a convenient way. The construction phase of the project will engage a large number of construction workers, whether skilled, semi-skilled or unskilled. The workers will also be ensured welfare facilities such as drinking water, sheds for resting, medical facilities.

In meeting the day-to-day and recreational demands of the residents of the site, the region is also likely to develop a number of shopping and amusement facilities, thereby, further stimulating the local economy.



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ENVIRONMENTAL COST BENEFIT ANALYSIS

9.0 General

As per EIA Notification dated 14th September, 2006, the chapter on the "Environment cost benefit analysis" is applicable only if the same is recommended at the scoping stage

As per ToR points issued by SEAC, Haryana through file no: SEAC/HR/2024/067 & ToR Identification No. TO24B3812HR5769356.N dated 12.03.2024



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ENVIRONMENTAL MANAGEMENT PLAN

10.1 STRUCTURE OF EMP

Environmental Management Plan (EMP) is the key to ensure a safe and clean environment. The desired results from the environmental mitigation measures proposed in the project may not be obtained without a management plan to assure its proper implementation & function. The EMP envisages the plans for the proper implementation of mitigation measures to reduce the adverse impacts arising out of the project activities. EMP has been prepared addressing the issues like:

- Pollution control / mitigation measures for abatement of the undesirable impacts caused during the construction and operation stage
- Institutional set up identified/recommended for implementation of the EMP
- Post project environmental monitoring program to be undertaken
- Expenditures for environmental protection measures and budget for EMP

10.2 ENERGY CONSERVATION PLAN

Project involves energy consumption for various purposes. Measures are proposed to minimize the energy requirement and are listed below.

- Orientation of building is such that it allows natural lighting and ventilation
- Overhangs, pergolas and facade are provided to control the direct sun heat
- Over-deck insulation will be provided to provide insulation to the building
- Provision of false ceilings
- Usage of AAC blocks in building construction
- Painting wall with white color heat reflecting paint
- Vertical plantation will be carried out
- Usage of fly ash bricks, hollow bricks and fly ash mix cement for construction purpose. Usage of excavated soil and construction debris within the project site as filling material
- Usage of locally available construction material.
- Provision of solar water heater.

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- Lighting in common area will LED based. Solar lights will be provided in ratio of 1:3.
- Common lights will be shut down to 50% after 10:00pm when traffic movement is drastically reduced.
- All internal lighting shall be BEE star rated. All internal lighting will be CFL or T5 lamps based.
- Direction signage, based on LED shall be powered by solar.

10.3 ENVIRONMENT MANAGEMENT PLAN

An EMP consists of a set of mitigation, monitoring and institutional measures applicable to design, construction and operation (Post construction) stages. The major components of EMP are:

- Implementation of mitigation measures for mitigation of potentially adverse impacts
- Monitoring during project implementation and operation
- Integration of EMP with project planning and implementation framework
- Implementation schedule

The EMP has been designed considering regulatory and other requirements to ensure minimal disturbance to the baseline environmental conditions in the project area. EMP for both construction and operation phase of the project is defined with respect to activities which may have an impact on the environment and society. The mitigation measures, as proposed in Chapter 4, will be implemented under the overall supervision of project proponent. Additional best practices and management plan for various concern areas are defined in the Sections below

10.4 GREEN BELT MANAGEMENT PLAN

Total green area measures 13,750.00 m² i.e. 20% of total plot area will be area under landscaping. Evergreen, native species will preferably be planted at the project site. Native species are adapted to natural conditions and also requires less aftercare and maintenance. Trees with large & round canopy will be planted. Plantation will act as noise buffer and will provide surface for dust settlement

Selection of Plant Species for Green Belt Development

Selection of plant species for the development depends on various factors such as climate, elevation and soil. The plants would exhibit the following desirable characteristics in order to be selected for plantation.

- Species should be fast growing and providing optimum penetrability with minimal maintenance. Perennial, evergreen & fast growing trees
- Species should be wind-firm and deep rooted
- Indigenous and locally available species will be planted
- Trees with high foliage density, leaves with larger leaf area and hairy on both the surfaces. Round, thick & spreading canopy is preferred for peripheral green belt and oblong canopy for road side plantation
- Ability to withstand conditions like inundation and drought
- Soil improving plants (Nitrogen fixing rapidly decomposable leaf litter)
- Bird and insect attracting tree species
- Tolerant to climatic conditions of the area and with less water requirement & after care will preferable be planted. Species tolerance to air pollutants like SO₂ and NO₂ should be preferred
- Plantation trees with ornamental foliage & shrubs with fragrant flowers will enhance scenic beauty of the area. Attractive appearance with good flowering and fruit bearing
- Plantation should be such that it maintains ecological & hydrological balance of the region.

After Care and Monitoring

Plants grown will be monitored for first three years. Nutrients will be supplemented and the juveniles provided protection. Following measures will be taken:

- Adequate nutrient supply will be maintained by providing manure timely
- Absence of water stress
- Construction of the protection wall all around to protect from animals and outsiders from damage

Regular inspection of the site will be kept. Record keeping of number of saplings planted and surviving will be kept. Regular pruning of road side trees will be done as per requirement. Weeding will be carried out along with regular manuring & watering.

10.5 ENVIRONMENTAL MANAGEMENT BUDGET

The budget provisions have been kept in the project cost towards the environmental protection, control & mitigation measures and implementation of the EMP, both during the construction and operation phase. Proposed EMP Budget is given in Table No.10.1.

Table No.10.1: Proposed EMP Budget

During Construction Phase			During Operational Phase		
Description	Capital Cost	Recurring Cost	Description	Capital Cost	Recurring Cost
	(In Lakhs)	(In Lakhs for 5 Year)		(in Lakhs)	(In Lakhs for 10 Year)
Sanitation and Wastewater Management (Modular STP)	5	27	Waste Water Management (Sewage Treatment Plant)	5	400
Garbage & Debris disposal	2	27	Solid Waste Management (Dust bins & OWC)	20	150
Green Belt Development	-	15	Green Belt Development	150	600
Air, Noise, Soil, Water Monitoring	3	37	Monitoring for Air, Water, Noise & Soil	0	14
Rainwater harvesting system	-	-	Rainwater harvesting system	240	40
Dust Mitigation Measures including site barricading, water sprinkling and anti-smog gun)	565	110	DG Sets including stack height and acoustics	1389	280
Medical cum First Aid facility	3	75	Energy Saving	132	50

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(providing medical room & Doctor)			(Solar Panel system)		
Storm Water Management (temporary drains and sedimentation basin)	5	1	Maintenance of nearby pond of village	0	25
Total	583	291	Total	1936	1279
G. Total	4,089				



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SUMMARY AND CONCLUSION

11.1 INTRODUCTION

DLF Limited is proposing development of Expansion cum Modification of Group Housing Buildings in Zone 10, DLF 5, at Sector-54 Gurugram, Haryana being developed by M/s DLF Ltd. The project had received License from the Directorate of Town & Country Planning, Haryana with 13 Licenses for 16.975 Acre (License No. 38, 39, 40, 52, 53, 57 of 1996 dated 16.04.1996 which is valid up to 15.04.2024, License No. 117, 121, 129, 131 of 1995 dated 29.12.1995 which is valid up to 28.12.2024 and License No. 02, 04, 06 of 2002 dated 25.10.2002 which is valid up to 24.10.2024. The zoning plan is obtained from DTCP dated 20.11.2020 for 476.6015 Acres for group housing colony in DLF 5, Gurugram Haryana.

Total plot area of Phase-V Group Housing is 476.6015 Acres (19, 28,738.00 m²) out of which 16.975 Acres/68,693.850 m² (Existing-30.653 317m²/7.574 Acre) are to be developed for this particular Group Housing Buildings Project.

We have obtained earlier EC from SEIAA, Haryana through file no. SEIAA/HR/2022/181 & EC Identification No. EC22B039HR111216 for total 2, 33,377,998 m² built-up area on 30,653.317 m² (7.574 Acre) plot area.

Now the company is proposing expansion cum modification in the project with revised built-up area 6,56,418,356 m² and 16.975 Acres /68,693.850 m² plot area.

Further, we have not carried out any construction activities till now at the project. As per EIA notification 2006, all building construction and area development projects covering an area of 50 Ha and/or built up area more than 1, 50, 000 sq.m are designated as 8 (b) projects and are required to obtain prior environmental clearance from respective Environmental Impact Assessment Authority (EIAA). The application for environmental clearance shall comprise submission of Form1, Form 1A, Conceptual Plan, approved Term of Reference (TOR) and Environmental Impact Assessment Report to the authorities.

Standard Terms of Reference (ToR) have been issued by SEAC, Haryana through file No: SEAC/HR/2024/067 & ToR Identification No. TO24B3812(HR5769356N dated 12.03.2024 on the basis of application submitted along with Form-I and supplementary Form - IA. The EIA/EMP report has been prepared considering the point of TOR.

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11.2 PROJECT DESCRIPTION

This project is located in Zone 10, DLF-5, Sector-54, Gurugram, Haryana. The GPS Coordinates of the project site are as follows:-

POINT	LATITUDE	LONGITUDE
1	28° 26' 52.885" N	77° 6' 46.971" E
2	28° 26' 50.420" N	77° 6' 53.250" E
3	28° 26' 50.173" N	77° 6' 55.211" E
4	28° 26' 48.720" N	77° 6' 55.225" E
5	28° 26' 48.683" N	77° 6' 53.881" E
6	28° 26' 46.869" N	77° 6' 52.424" E
7	28° 26' 42.633" N	77° 6' 52.766" E
8	28° 26' 40.695" N	77° 6' 51.099" E
9	28° 26' 41.978" N	77° 6' 46.492" E
10	28° 26' 44.419" N	77° 6' 46.681" E
11	28° 26' 45.457" N	77° 6' 44.248" E
12	28° 26' 51.662" N	77° 6' 45.158" E

The site is easily approachable through SH-13 which is - 7.6 Km away from the project site towards West direction and NH-48 which is -5.5 Km away from the project site towards NW direction and nearest railway station is Gurugram Railway Station at a distance of - 11 Km from project site in NW direction. Nearest airport is Indira Gandhi International Airport at a distance of -10.3 Km from the project site in North direction.

11.2.1 SALIENT FEATURES OF THE PROJECT

Salient features of the project are given in table below:

Table-11.1: Salient features of the Proposed Project

S. No.	Particular	As Per Earlier EC	Expansion cum modification	Total Area (S.qm)
1	Total Site Area	30,653.317	38,040.533	68,693.850
2	Proposed Ground Coverage	6,369.381	39,958.360	46,327.741
3	Total Proposed FAR	1,43,937.510	2,93,254.289	4,37,191.799
4	Total Proposed NoN FAR	89,440.488	1,29,786.069	2,19,226.557
5	Total Proposed Built - up Area (FAR + NoN FAR)	2,33,377.998	4,23,040.358	6,56,418.356

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6	Proposed Green Area ((@20% of total plot area)	9,195.995	4,554.005	13,750.000
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*FAR = Floor Area Ratio

Note: Ground Coverage: Out of 46,327.741 m², only 13,262 m² is at ground level and 33,065.741 m² balance is at lower ground level.

Salient Features

S. No.	Particular	As Per Earlier EC/Application	Expansion cum modification	Total
1	Total Population	4,508	-225	4,283
2	Total Water Requirement (KLD)	391	225	616
3	Total Fresh Water Requirement (KLD)	255	89	344
4	Treated/recycled water	136	136	272
5	Total Wastewater Generated (KLD)	294	2	296
6	Capacity of STP (MLD)	DLF-5 Common STP of 15 MLD	--	DLF-5 Common STP of 15 MLD
7	Total Solid Waste Generation. Kg/day	2,069	-189	1,880
8	Biodegradable Waste (kg/day)	--	--	752
9	OWC Capacity (kg/day)	1,500	-650	850
10	Total Power Requirement & Source KW(DHBN)	5,874	5,216	11,090
11	No. of DG Set	9 DG sets of total capacity 8,250 KVA (7×1,000 KVA + 2×625 KVA)	7,750	8 DG sets of total capacity 16,000 KVA (8×2,000 KVA)
12	Solar Capacity (KW)	--	--	111
13	No. of RWH Pits	8	9	17
14	Proposed Parking (ECS)	1,615	995	2,610
15	Total no. of towers	4	3	7
16	No. of Community buildings	1	--	1
17	Max.No. of Floors for residential	B4 + B3 + B2 - B1 + S + 33F	-2F	B4 + B3 - B2 + B1 + UGF + 31F
18	Max.No. of Floors for club house/community building	--	--	LGF-MF-UG F
19	Total No. of basements	4	--	4

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21	Main Dwelling Unit	520	-88	432
22	Service Personnel Room	50	382	432
23	Total Project Cost in Crore	1,076	6,507	7,583

The baseline environmental status was assessed based on primary and secondary data collected either through in-site field observation or obtained from agencies such as Irrigation Department, India Meteorological Department (IMD), Central Ground Water Board, Geological Survey of India, State Ground Water Department, State Pollution Control Board, Census of India and Local Forest Department, Non-Governmental Agencies. The baseline status established from analysis of secondary and primary data and predicted impacts are discussed below. The mitigation measures are also provided along with.

11.3 LAND ENVIRONMENT

- The land use pattern of the study area is mainly water bodies, agriculture, residential, barren land, grass land and open scrub. The site falls under Gurugram master plan-2031. When awarded to the project proponent, the land was a barren land.
- The project will be developed as per the provisions of the Gurugram master plan, 2031. The construction phase of any construction project poses the threat of soil contamination and soil erosion, mainly during the construction phase. The estimated solid waste generation during operation phase is 1.886 kg/day.
- During Construction phase, excavation related work will be avoided during the monsoons and site clearing will be carried out for specific areas being developed. All wastes from site will be regularly removed and disposed/sold. An efficient solid waste management is proposed comprising door-to-door waste collection, segregation of solid waste management facility within the site, and their disposal. Solid waste will be disposed by sale of recyclable wastes to vendors.

11.4 WATER ENVIRONMENT

The water requirement during construction phase will be met by treated water from own STP. A combination of efficient water management to reduce water consumption, reuse of treated wastewater to reduce freshwater demand and rainwater harvesting to replenish groundwater is proposed to have a positive bearing on the water environment of the region. Total wastewater generation will be 296 KLD, which will be treated Common STP of DLF 5 capacity of 15 MLD by the proponent.

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11.5 AIR ENVIRONMENT

During construction phase, the major concern of air pollutant are $PM_{2.5}$, PM_{10} as impacts of other emissions such as SO_2 & NO_2 will not be significant because the nature of sources is such that the emissions are distributed spatially as well as temporal. Monitored average $PM_{2.5}$, PM_{10} level exceeded NAAQS at all the eight locations. The levels of $PM_{2.5}$, PM_{10} , NO_2 , SO_2 and CO at all eight locations were within the standards prescribed by NAAQS. Thus dust emissions from construction activities shall require comprehensive mitigation measures and best construction practices.

- Adequate stack heights will be proposed for DG sets above the ground to provide for sufficient dispersion of pollutants. Water sprinklers will be used to suppress dust during construction. During the operation phase, green belt and green area development is proposed to restrict and absorb air pollutants.

11.6 NOISE ENVIRONMENT

Noise levels were observed at eight locations within the study area. Level of background noise monitored at all locations was within the prescribed CPCB limits (55 dB (A) and 45 dB (A) for daytime and night time respectively)

The noise emitted from heavy duty construction equipment's during construction period being high shall require occupational preventive measures and temporary noise barriers for noise attenuation. The construction period being about Four to Five year (approx.) duration, will require significant mitigation measures such as restricted loud noise activities to daytime, provision of PPEs and acoustic enclosures for DG set

In the operation phase, noise pollution will be checked through acoustic enclosures of DG sets and green belt plantation.

11.7 BIOLOGICAL ENVIRONMENT

There are some trees present at project site. In case cutting is required then we will take prior permission from concerned department to cut the trees. Additionally, there will be avenue plantations, peripheral plantation and shrub plantation will be done. The landscaping will include native species that will reduce pollution and improve aesthetics and micro-climate of the region. Total green area measures 13,750.00 m^2 . Tree species like Aam, Neem, Jamun,

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Ashok, Champa, Amlatas, Ficus, Gulmohar have been proposed to be planted inside the premises. Parks will also be developed by the management.

11.8 SOCIO-ECONOMIC ENVIRONMENT

The project will generate employment opportunities for both skilled and unskilled workers in the vicinity, which will produce multiple effects on the life and economy of the local people and the infrastructure will be improved of nearby area from the project. Thus, the project is beneficial from socio-economic point of view.

11.9 ENERGY EFFICIENCY

Various provision are made to reduce the energy efficiency of the building, such as use of solar energy, provision of low energy fixtures, design features to maximize sunlight and use of materials to improve energy efficiency.

11.10 OTHERS

Resource Conservation: A concerted effort is made towards resource conservation by way of using recycled building materials, reduced water consumption and improving energy efficiency of the building.

Indoor Air Quality: Special attention will be given to maintaining indoor air quality through use of low VOC paints, provision of adequate ventilation, proper storage of chemical and cleaning materials

Safety: A network of manned security gates, security men, closed circuit TV and intercom facilities are proposed to ensure safety of the occupant. The buildings will also be provided with adequate fire tenders, fire alarms and water sprinklers.

11.11 ENVIRONMENTAL MANAGEMENT PLAN

➤ Adequate environmental management measures will be incorporated during the entire planning, construction and operating stages of the project to minimize any adverse environmental impact and assure sustainable development of the area.

➤ For the effective and consistent functioning of the campus, an Environmental Management System (EMS) will be established at the site including an Environmental Management cell for implementation of the EMP and monitoring plan, training and awareness, audits and maintenance of records.

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Vandana Environet, Gurgaon

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- The total estimated cost of the project after expansion is Rs. 7,583 Crores.
- Based on the environmental assessment, the associated potential adverse environmental impacts can be mitigated to an acceptable level by adequate implementation of the measures as stated in the EIA and the EMP. Some of the benefits from the project are:
- Use of solar energy for street lighting.
 - Use of AAC blocks (containing approx. 33% fly ash).
 - Use of steel manufactured from recycled content.
 - Provide permeable paving to control surface water runoff.
 - Rainwater harvesting.
 - Meet all requirements for buildings in moderate earthquake prone areas.
 - Provision of fire alarms and water sprinklers.
 - Provision of welfare schemes to workers.
 - Extending educational and healthcare facilities to the local people.
 - Commitment to engaging local people and businessmen for maintenance and repair work.
- Hence, it may be concluded that the project will have significant positive economic and social impact on the local community apart from meeting the housing needs of the occupants, without bearing any significant adverse environmental impact.



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DISCLOSURE OF CONSULTANT

Vardan EnviroNet "NABET approved EIA Consultant" having its registered office at Plot No 82A, Sec.-5, IMT Manesar, Gurugram-122051(Haryana), is an organization of Senior State and Central Government retired Officers from various departments like Pollution Control Board, Mines & Geology Department, Town & Country Planning Department and various Research Institutes who have decades of experience in the field of environment, planning, sustainability, pollution control, mining, industries and research. The team also comprises of young, dynamic and progress driven Environment Engineers, Civil Engineers, IT Specialists, Field Engineers, Chemists, Microbiologists, Geologists, GIS experts and EHS auditors.

Vardan EnviroNet is established by experienced environmental and related experts and provides specialized services in the field of Environment and pollution control for all types of Industries like Mining, Distilleries, Sugar Industry, Highways, Railways, transport terminals, mass rapid transport systems. Building and large construction projects including shopping malls, multiplexes, commercial complexes, housing estates, hospitals, institutions, Townships and Area development projects and other related fields.

Our transparent and professional approach, commitment to excellent quality and service, timely deliveries have contributed to create a name in the field of environment. Our operations are spread in five different states in North India Region viz Haryana, Punjab, Rajasthan, Uttar Pradesh, and Himachal Pradesh.

Vardan EnviroNet has its own Environmental Laboratory named "Vardan EnviroLab" at plot no. 82A, Sec. 5, IMT Manesar, Gurgaon (Haryana) approved by National Accreditation Board for Testing and Calibration Laboratories, Govt. of India (NABL). This OHSAS 45001:2018 Certified and NABL approved Environmental Laboratory provides Analytical Laboratory Services of various elements and environmental parameters.

Core Business Services: -

We offer a diverse range of services in the field of environment like: -

1. Environment Impact Assessment.
2. Environment Clearance from Ministry of Environment and Forests, SEIAA/ SEAC.
3. Environmental Compliances of MoEF/Pollution Control Board and other Government/Non-Government agencies.
4. Environment monitoring, sampling and testing ambient air, water, soil, stack emission, noise through in-house NABL accredited environment laboratory.

Proposed Expansion and Modification of Group Housing Buildings in Zone 10, DLF 5
 At Sector-54, Gurugram, Haryana
 Being developed by M/s DLF Limited

FINAL EIA/EMP REPORT: CHAPTER 12

5. Mine Exploration, Preparation of Pre-Feasibility/ Feasibility Reports for mineral deposits, Reserve and resource estimation, assessment of life of mine. Preparation of Mine Plan, Scheme of Mining, Progressive Mine Closure Plan, Final Mine Plan.
6. Remote Sensing, GIS based mapping, Satellite mapping and Land use preparation.
7. Legal advisory services for all environment related issues.
8. Environment Health & Safety audits.
9. Clearance from National Board of Wild Life.
10. Eco-Sensitive Zone clearances.
11. Consent to Establish/Operate from SPCB.
12. Forest Clearance and Diversion of Forest Land from Forest Department.
13. Airport Authority of India clearances.

Accreditations and Certifications:

Vardan EnviroNet
<i>Address: Plot No. 82A, Sec.-5, IMT Manesar, Gurugram-122051 (Haryana)</i>
<ul style="list-style-type: none"> • NABET Accredited EIA Consultants Organization from Quality Council of India (QCI) (Certificate from NABET for accreditation has been enclosed as Annexure) • ISO 9001 Certified

Vardan EnviroLab
<i>Address: Plot No. 82A, Sec.-5, IMT Manesar, Gurugram-122051 (Haryana)</i>
<ul style="list-style-type: none"> • National Accreditation Board for Testing and Calibration Laboratories (NABL) as per ISO/IEC 17025:2017 • Rajasthan & Haryana Pollution Control Board approved • OHSAS 45001:2018 Certified • ISO 14001:2015 certified • ISO 9001:2015 certified

Eminent Clients of Vardan
Indian Oil, HPCL, NTPC, NHPC, DMRC, GAIL, SAIL, NHAL, ACPPI, RITES, MPPGCL, Indian Railways, JK Lakshmi Cement Ltd., L&T, Tata, Adani, Hero, Honda, HCL, Panasonic, Jaypee group, DLF, Godrej, Haldiram's, Unitech, JBM, Trident hotels, Lanco, Mangalam cement, JW Marriot, Eros group and many others.



VOLUME-III

For DLF LIMITED

Authorized Signatory

ANNEXURES

for DLF LIMITED

Authorised Signatory

DLF Limited

DLF Gateway Tower, R Block, DLF City,
Phase III, Gurugram-122 002, Haryana
Tel.: (+91-124) 4396000

ANNEXURE-1

DLF
BUILDING INDIA

Date: 5 March 2024

To,
The Member Secretary,
State Environment Impact Assessment Authority,
Bays No.-55-58, Paryatan Bhawan,
1st Floor, Sector-2, Panchkula Haryana

Sub: Demand Draft for the Scrutiny fees for Application for Terms of Reference (ToR) for the Proposed Expansion cum Modification of Group Housing Buildings in Zone 10, DLF 5, at Sector-54 Gurugram, Haryana being developed by M/s DLF Ltd.

Ref: Haryana Government Gazette Notification dated 14.10.2021.

Dear Sir,

In regard to the above-mentioned subject and reference, we are submitting the Demand draft of the scrutiny for Application for Terms of Reference (ToR) for the Proposed Expansion cum Modification of Group Housing Buildings in Zone 10, DLF 5, at Sector-54 Gurugram, Haryana. The estimate cost of our project is more than 100 Cr. Hence, we are submitting Demand draft of Rs. 2 lakh (Rupees Two Lakhs Only). **Demand Draft (original) dated 30.01.2024 vide DD No. 523013 is enclosed as Annexure.**

We request you to kindly process our application for issuance of Terms of Reference (ToR) for our above-mentioned project at the earliest.

Thanking you.

M/s DLF Ltd.

For DLF LIMITED

[Signature]
Authorized Signatory
(Authorized Signatory)



ANNEXURE-I

UTILITY FORMS PVT LTD / CTS-2610 / 15/2003



(43) PANCHREWELA BARRIYANA

523013

DATE

3 0 0 7 0 2 4
D D M M Y Y Y Y

ON DEMAND PAYMENT ASSESSMENT AUTHORITY, HARYANA
***THE MEMBER SECRETARY, STATE ENVIRONMENT
TWO LAKH ONLY

DD No.

OR ORDER

RUPEES

₹ 2,00,000.00

Purchaser Name: DLF LIMITED-CONSTRUCTION DIVISION
TL/2/6 Not Above 2,00,000.00

0177DDCENPAY
ICICI BANK LIMITED

Issuing Branch

Authorised Signatory

Authorised Signatory
K.S. HARYANA

523013 0002290001 000177 15

GURUGRAM - MANESAR
URBAN COMPLEX - 2031 AD

1121

LEGEND

ROADS

- Metropolitan Road
- Major Road
- Minor Road
- Waterway
- Drainage
- Proposed Road
- Proposed Waterway
- Proposed Drainage

LAND USE

- Residential (R)
- Commercial (C)
- Industrial (I)
- Public Use (P)
- Green Space (G)
- Water Body (W)
- Proposed Residential (R)
- Proposed Commercial (C)
- Proposed Industrial (I)
- Proposed Public Use (P)
- Proposed Green Space (G)
- Proposed Water Body (W)

UTILITIES

- High Voltage Power Line
- Low Voltage Power Line
- Water Main
- Sewer Main
- Gas Main
- Proposed High Voltage Power Line
- Proposed Low Voltage Power Line
- Proposed Water Main
- Proposed Sewer Main
- Proposed Gas Main

BOUNDARIES

- Metropolitan Boundary
- Local Body Boundary
- Proposed Metropolitan Boundary
- Proposed Local Body Boundary

OTHER

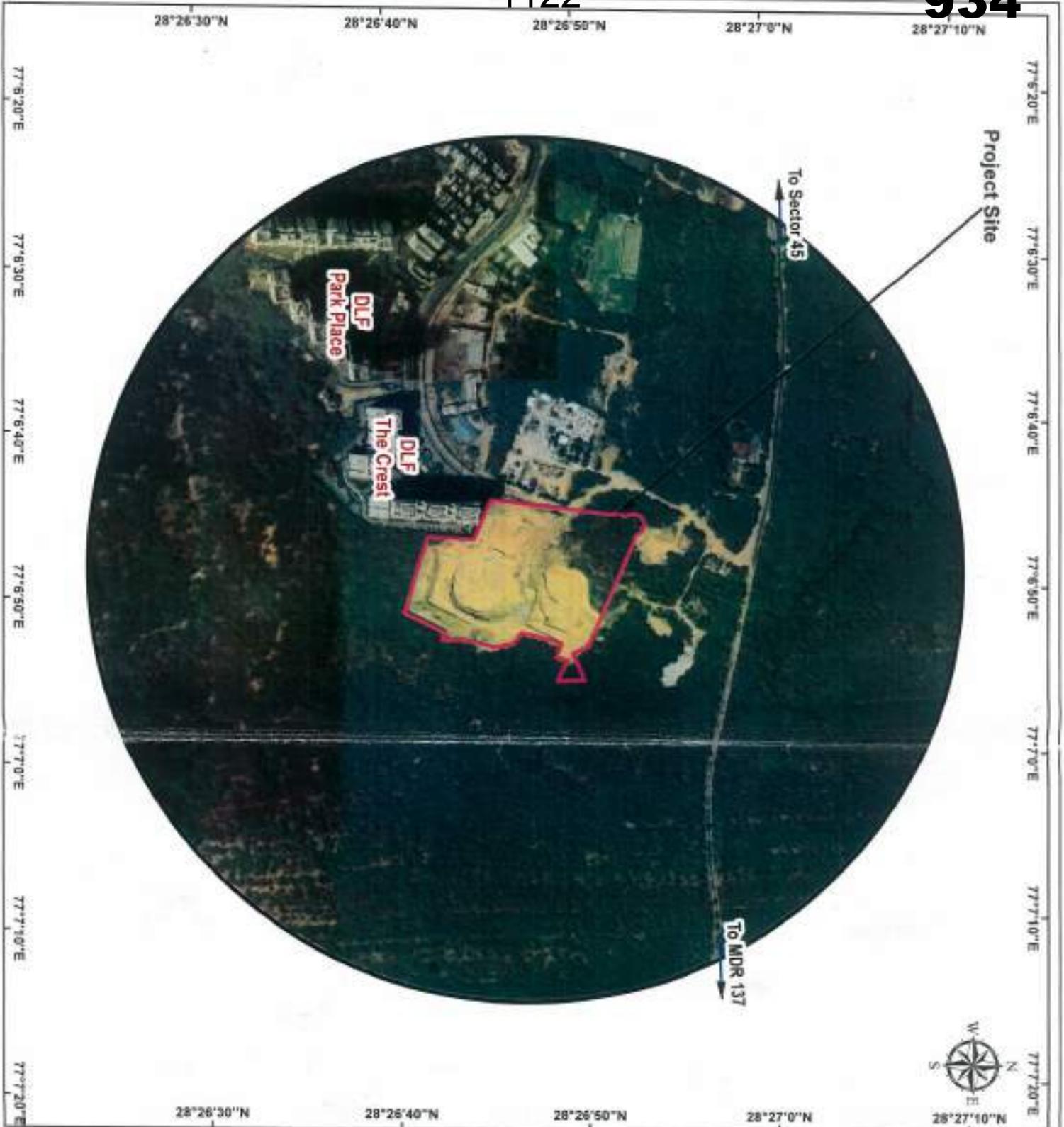
- Proposed Landmark
- Proposed Structure
- Proposed Facility
- Proposed Landmark
- Proposed Structure
- Proposed Facility



ANNEXURE-2

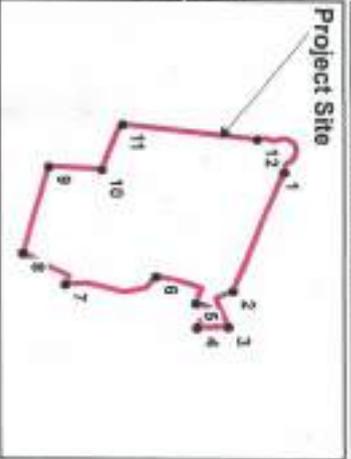
Expansion of Group Housing Building
in Zone-10 of DLF-5 at Village- Wazirabad,
Sector-54, Gurugram, Haryana
by M/s DLF Ltd. etc.

Prepared by
M/s DLF Limited
Manesar Engineering



ANNEXURE-3
**GOOGLE EARTH IMAGERY
 OF 500M BUFFER AREA**

Toposheet No:
 H43X2 & H43X3



Legend

- Project Site
- 500m Buffer



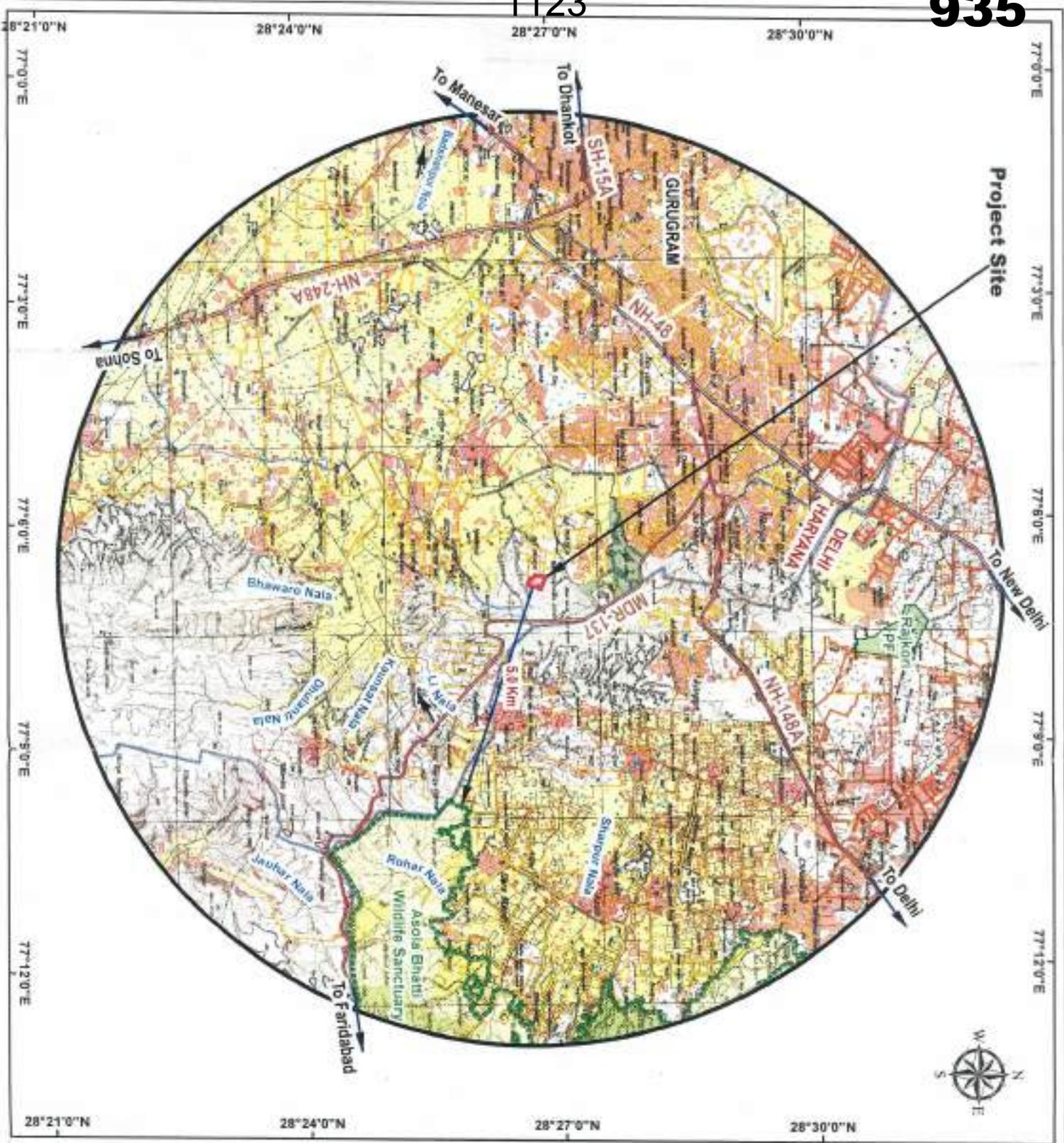
Project:
 Expansion of Group Housing Building
 in Zone-10 of DL-5 at Village - Noida/16,
 Sector-24, Gurgaon, Haryana

Project Preparation:
 M/s DLF Ltd.

Environment Consultant:
 Yarden EnviroNet
 OCT-MAAF7 Accredited Environment Consultant
 Certificate No. MAE27504/028/2016/0294

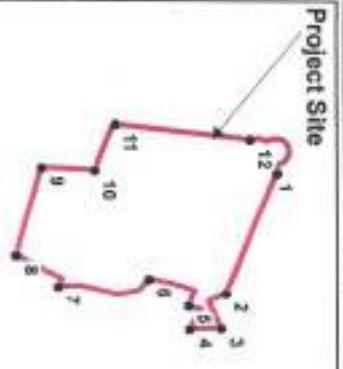


Prepared By: Mr. Ankit Singh
Approved By: Mr. Anshu Sharma



**TOPOGRAPHICAL MAP OF
10KM BUFFER AREA**

Toposheet No:
H43X2 & H43X3



Legend

- Project Site
- 1km Buffer
- Wildlife Sanctuary
- Settlements
- Streams
- Roads
- Forest
- Waterbody
- Vegetation
- Contours
- Locations
- Railway
- Power Line

Project:
Expansion of Group Housing Building

In Zone -10 of D.L.A. at village -Waurasat,
Sector-04, Gurgaon, Haryana

Project Preparer:
Ms DLF Ltd.

Environment Consultant:
Vardaan Environet
OCI-MADR Accredited Environment Consultant
Certificate No. MADR/7154/2006/0445994

Graphical Scale: Scale: 1:50,000
0 100 200 300 400 500 600 m

Prepared By: Mr. Ankit Singh
Approved By: Mr. Anand Sharma



Handwritten signature/initials: *lps*

SITE PHOTOGRAPHS



For Clr. NATURED
Sd/-
Sd/-



ANNEXURE-8

FORM BR-V (A2)
[See code 2.1 (1) (viii)]

Annexure-B

Certificate of conformity to rules and structural safety for all buildings except as stated in Form BR-VIA1)

Certificate to be submitted along with the building application in Form BR-1 duly signed by the Architect and Empanelled Structural Engineer, Empanelled Proof Consultant and Empanelled Geo-Technical Engineer, if applicable.

Details of the building for which the certificate is issued

Plot No. Proposed Group Housing,
Lax-5 DLF sector-54 Gurgaon/122002,
Name of the owner: DLF Ltd.
Complete address of the owner: DLF Shopping mall, 3rd floor,
Arjun Marg, DLF City phase-1
Gurgaon/122002 Haryana India

A. Building Plans:

- i. Name of Architect: Neha Bhagra
- ii. Council of Architecture Registration No. CA/2007/39612, valid upto 31-12-2028
- iii. Complete Address: Plot No.428, Sector-37C, Near GAV International School, Gurgaon/122002
- iv. E-Mail: nneha1989@yahoo.com
- v. Mobile no: 8860131417

B. Structural Design

- (a) Empanelled Structural Engineer:
 - i. Name: Nayan Kumar Trivedi
 - ii. Qualifications: Master of Technology - Structure
 - iii. Department TPR No.: 638A - 2023
 - iv. Complete Address: LERA, The Ruby, North Wing, 79 Scorpail Bapat Marg, Bandra West, Mumbai-400013
 - v. E-Mail: nayan.trivedi@lera.com
 - vi. Mobile no: 9769836003

- (b) Empanelled Proof Consultant, if applicable:
 - i. Name: Misan Ibrahim
 - ii. Qualifications: B.E. Civil Engineering, M.Sc. Civil Engineering
 - iii. Department TPR No.: 627 A
 - iv. Complete Address: Thornton Tomasetti (India) LLP One international center, T2, 10th floor of no.1001A, Scorpail Bapat Marg, Elphinstone (W), Mumbai-400013
 - v. E-Mail: misanm@ThorntonTomasetti.com
 - vi. Mobile no.: 9769805147

- (c) Empanelled Geo-technical Engineer, if applicable:
 - i. Name : Suchit Ganate
 - ii. Qualifications: Ph.D., M.E. Civil-Geotechnical Engineering
 - iii. Department TPR No.: 691 A
 - iv. Complete Address: Acup India Pvt. Ltd, Jet Prime Building, Surver road, Andheri (E), Mumbai-400099
 - v. E-Mail: suchit.ganate@acup.com
 - vi. Mobile no.: 8766886269

Certificate

It is hereby certified that the plans submitted in Form BR-1 the building detailed above, are in accordance with the Code and the approved zoning plan of the plot. The structure has been designed in accordance with the provisions of the National Building Code and the relevant Bureau of Indian Standard Codes (with their amendments) including Bureau of Indian Standard Codes for structures resistant to earthquakes and other natural hazards. The local soil conditions, its load bearing capacity and the underground water table etc. have been kept in view while designing the same.

Signature of Owner
(No. of the signatories are restricted)
Maha Gov
DLF Limited

Signature of Architect
Neha Bhagra
CA/2007/39612

Signature of Structural Engineer
Nayan Kumar Trivedi
LERA CONSULTING STRUCTURAL ENGINEERS (INDIA) PRIVATE LIMITED

Signature of Proof Consultant
Misan Ibrahim
Thornton Tomasetti (India) LLP

The structural design has been checked and has been found to be in order. The design is in accordance with the provisions of the National Building Code and the relevant Bureau of Indian Standard Codes (with their amendments) including Bureau of Indian Standard Codes for structures resistant to earthquakes and other natural hazards. The local soil conditions, its load bearing capacity and the underground water table etc. have been kept in view while designing the same.

Dated: _____

Signature of Empanelled Proof Consultant
zhong xian Mob. No. & E-mail
Maha No. 93000147
E-mail: misanm@ThorntonTomasetti.com

Signature of Structural Engineer
Nayan Kumar Trivedi
LERA CONSULTING STRUCTURAL ENGINEERS (INDIA) PRIVATE LIMITED

For DLF LIMITED

Authorized Signatory

The structural design of the buildings above 70 m height has been checked and has been found to be in order. The design is in accordance with the provisions of the National Building Code and the relevant Bureau of Indian Standard Codes (with latest amendments) including Bureau of Indian Standard Codes for structures resistant to earthquakes and other natural hazards. The local soil conditions, its load bearing capacity and the underground water table etc. have been kept in view while designing the same.

Dated _____

Signature of Project Civil Geo-Technical Engineer
along with Mob. No. & E-mail
Mob. No. 8768852169
Email: sachin.purohit@mp.com



Directorate of Town & Country Planning, Haryana

Yojna Bhawan, Plot No. 3, Block-A, Sector 18-A, Madya Marg, Chandigarh,
web site: tcpharyana.gov.in

Phone: 0172-2549149; E-mail: tcpharyana7@gmail.com

Regd.
To

DLF Ltd., DLF Utilities Ltd.,
DLF Building & Service Pvt. Ltd.,

DLF Centre, Sarood Marg,
New Delhi.

Memo No. LC/LC-50/Asstt.(RK)/2020/ 6436

Dated: 11-03-2020

Subject: Renewal of license no 110-133 of 1995 dated 29.12.1995, 134-146 of 1995 dated 30.12.1995, 8-18 of 2000 dated 08.03.2000, 1-6 of 2002 dated 25.01.2002, 40-41 of 2004 dated 31.03.2004 and 120 of 2011 dated 29.12.2011 having an area measuring 468.24 acres (384.65 + 14.40 + 44.55 + 10.31 + 0.93 + 13.40) out of total land measuring 542.6765 acres of Residential Plotted Colony/Group Housing Colony, Sector 42, 43, 53, 54, DLF City Phase-V, Gurugram Manesar Urban Complex. - DLF Ltd.

Reference: Your application dated 13.12.2019 on the subject cited above.

1. License No. no 110-133 of 1995 dated 29.12.1995, 134-146 of 1995 dated 30.12.1995, 8-18 of 2000 dated 08.03.2000, 1-6 of 2002 dated 25.01.2002, 40-41 of 2004 dated 31.03.2004 and 120 of 2011 dated 29.12.2011 having an area measuring 468.24 acres (384.65 + 14.40 + 44.55 + 10.31 + 0.93 + 13.40) out of total land measuring 542.6765 acres of Residential Plotted Colony/Group Housing Colony, Sector 42, 43, 53, 54, DLF City Phase-V, Gurugram Manesar Urban Complex is hereby renewed for a period of five years upto the date of mentioned in the table given as under on the same terms and conditions mentioned therein:-

License No.	Date	Area	Renewed upto
✓ 110-133 of 1995	29.12.1995	384.65	28.12.2024
134-146 of 1995	30.12.1995	14.40	29.12.2024
8-18 of 2000	08.03.2000	44.55	07.03.2025
✓ 1-6 of 2002	25.01.2002	10.31	24.01.2025
40-41 of 2004	31.03.2004	0.93	30.03.2025
120 of 2011	29.12.2011	13.40	28.12.2024

2. It is further clarified that this renewal will not tantamount to certification of your satisfactory performance entitling you for renewal of license of further period.
3. The construction of community building will be completed as per provisions of section 3(3)(a)(iv) of Act of 8 of 1975.
4. The delay in allotment of EWS flats/plots, shall be got compounded in accordance with the provisions of Departmental policy dated 16.08.2013.
5. That you shall transfer the land falling in the sector road 24 m road free of cost to the Govt.

For DLF LIMITED

Authorized Signatory



6. That you shall convey the 'Ultimate Power Load Requirement' of the project to the concerned power utility, with a copy to this office, within validity of license to enable provision of site in licensed land for Transformers/Switching Stations/Electric Sub Stations as per the norms prescribed by the power utility in the zoning plan of the project.
7. That the amendment in Rule 13 in respect of charging of renewal fees is under consideration, for which the draft notification was notified on 20.08.2019. Therefore, increased renewal fees shall be adjusted in accordance with the final notification or as decided by the Department from excess fee deposited by you.
8. That you shall abide by the decision taken in the complaints received from Sh. Haresh Thakur i.e. complainant by the Department.

The renewal of license will be void-ab-initio, if any of the conditions mentioned above are not complied with.

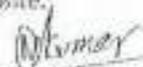

(R. Makrand Pandurang, IAS)
Director General,
Town & Country Planning
Haryana Chandigarh

Endst no: LC-50/Asstt.(RK)/2020/

Dated:

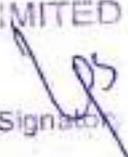
A copy is forwarded to following for information and further necessary action:-

1. Chief Administrator, HSVP, Panchkula.
2. Chief Engineer, HSVP, Panchkula.
3. Chief Account officer of this Directorate.
4. Senior Town Planner, Gurugram.
5. District Town Planner, Gurugram.
6. Project Manager (IT) of this Department for updation on website.


(Narender Kumar)
District Town Planner (HQ)
For: Director General, Town & Country Planning
Haryana, Chandigarh



For DLF LIMITED

Authorised Signatory 

Directorate Of Town & Country Planning, Haryana

SCO 71-75, 2nd Floor, Sector 17C, Chandigarh Phone:0172-2549349;
Website:tcpharyana.gov.in, email:tcphry@gmail.com

To

DLF Ltd., DLF Utilities Ltd.
DLF Building & Services Pvt. Ltd.
Sh. Rajender Singh S/o Sh. Kade Ram,
DLF Centre, Sansad Marg,
New Delhi-110001

Memo No:- LC-50-Asstt(RK)/2019/ 18313 Dated:- 02-08-2019

Subject Renewal of License No. 38-53 of 1996 dated 16.04.1996, 54-59 of 1996 dated 30.04.1996, 3 of 2003 dated 30.04.2003, 6 of 2003 dated 02.05.2003 and 200 of 2007 dated 16.07.2007 for setting up of residential plotted/group housing colony on the land measuring 74.438 acres (25.977+44.215+1.146+1.767+ 1.333), Sector 42, 43, 53, 54, DLF City Phase -V, Gurugram Manesar Urban Complex - DLF Ltd.

Please refer to your application dated 03.05.2019 on the matter as subject cited above.

1. License No. 38-53 of 1996 dated 16.04.1996, 54-59 of 1996 dated 30.04.1996, 3 of 2003 dated 30.04.2003, 6 of 2003 dated 02.05.2003 and 200 of 2007 dated 16.07.2007 granted for setting up of residential plotted/group housing colony namely DLF City, Phase-V, Sector 42, 43, 53, 54, DLF City Phase -V, Gurugram Manesar Urban Complex over an additional area measuring 74.438 acres (25.98+44.215+1.146+1.767+ 1.333) is hereby renewed for a period of two years i.e. upto the date mentioned in the table given as under on the terms and conditions therein:-

License No.	Date	Area (in acres)	License valid upto	Renewed upto
38-53 of 1996	16.04.1996	25.977	15.04.2019	15.04.2021
54-59 of 1996	30.04.1996	44.215	29.04.2019	29.04.2021
3 of 2003	30.04.2003	1.146	29.04.2019	29.04.2021
6 of 2003	02.05.2003	1.767	01.05.2019	01.05.2021
200 of 2007	16.07.2007	1.333	15.07.2019	15.07.2021

2. The renewal of above said licenses will not tantamount to certification of your satisfactory performance entitling you for renewal of licenses of further period and you will get the licenses renewed upto the period till the final completion of colony is granted.
3. The construction of community buildings will be completed as per provisions of section 3(3)(a)(iv) of Act 8 of 1975.

For DLF LIMITED

Authorized Signatory



4. The delay in allotment of EWS flats/plots, shall be got compounded in accordance with the provisions of Departmental policy dated 16.08.2013.
5. That you shall transfer the land falling in the sector/24 in road free of cost to the Govt.
6. That you shall get approve the ultimate power load within validity of the license.
7. That you shall get the license renewed till the final completion of the colony is granted.



(K. Makrand Pandurang, IAS)
Director,
Town & Country Planning,
Haryana, Chandigarh.

Endst No:LC-50-Asstt.(RK)/2019/

Dated:-

A copy is forwarded to following for information and further necessary action:-

1. Chief Administrator, HSVP, Panchkula.
2. Chief Engineer, HSVP, Panchkula.
3. Chief Accounts officer of this Directorate.
4. Senior Town Planner, Gurugram.
5. Website Administrator with request to update the status on website.
6. District Town planner, Gurugram.



(Navinder Kumar)
District Town Planner (HQ)
For :Director, Town & Country Planning,
Haryana, Chandigarh.



For DLF LIMITED

Authorized Signatory

Directorate of Town & Country Planning, Haryana
Nagar Yojana Bhawan, Plot No. 3, Block-A, Sector 18A, Madhya Marg Chandigarh;
Phone:0172-2549349; <http://tcpharyana.gov.in>

ADDENDUM TO THE RENEWAL ORDER

Your application dated 16.11.2020 regarding Renewal of license No. 38-53 of 1996 dated 16.04.1996, 54-59 of 1996 dated 30.04.1996, 3 of 2003 dated 30.04.2003, 6 of 2003 dated 02.05.2003 and 200 of 2007 dated 16.07.2007 for setting up of residential plotted/group housing colony on the land measuring 74.438 acres (25.977+44.215+1.146+1.767+ 1.333), Sector 42, 43, 53, 54, DLF City Phase -V, Gurugram was examined and licenses were renewed for a period of two years. However, as per notification dated 03.11.2020, the license was required to be renewed for five years that have become due during the period 31.01.2019 to 27.04.2020.

Accordingly, following amendments in the renewal order dated 02.08.2019 have been made:-

The year "2021" in the table shall be read as "2024" in the renewal order issued vide memo no. 18313 dated 02.08.2019. The validity of license is as under:-

License No.	Date	Area (in acres)	License valid upto	Renewed upto
38-53 of 1996	16.04.1996	25.977	15.04.2019	15.04.2024
54-59 of 1996	30.04.1996	44.215	29.04.2019	29.04.2024
03 of 2003	30.04.2003	1.146	29.04.2019	29.04.2024
06 of 2003	02.05.2003	1.767	01.05.2019	01.05.2024
200 of 2007	16.07.2007	1.333	15.07.2019	15.07.2024

All other condition of renewal will remain the same as mentioned in memo dated 02.08.2019.


(K. Makrand Pandurang, IAS)
Director,
Town & Country Planning
Haryana Chandigarh

Endst No:LC-50-JE(5)/2021/ 13496

Dated:- 11-06-2021

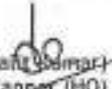
A copy is forwarded to following for information and further necessary action:-

1. DLF Ltd., DLF Utilities Ltd., DLF Building & Services Pvt. Ltd. Sh. Rajender Singh S/o Sh. Kade Ram, DLF Centre, Sansad Marg, New Delhi-110001.
2. Chief Administrator, HSVP, Panchkula.
3. Chief Engineer, HSVP, Panchkula.
4. Chief Accounts officer of this Directorate.
5. Senior Town Planner, Gurugram.
6. District Town planner, Gurugram.
7. Website Administrator with request to update the status on website.

For DLF LIMITED

Authorised Signatory




(Lang Singh)
District Town Planner (HQ)
For :Director, Town & Country Planning,
Haryana, Chandigarh.

Directorate of Town & Country Planning, Haryana
Nagar Yojana Bhawan, Plot No. 3, Block-A, Sector 18A, Madhya Marg Chandigarh;
Phone:0172-2549349; <http://tcp.haryana.gov.in>

ORDERS

Whereas, License No. 38-53 of 1996 dated 16.04.1996, 54-59 of 1996 dated 30.04.1996, 3 of 2003 dated 30.04.2003, 6 of 2003 dated 02.05.2003 and 200 of 2007 dated 16.07.2007 were granted to DLF Ltd., DLF Utilities Ltd., DLF Building & Services Pvt. Ltd., Sh. Rajender Singh S/o Sh. Kade Ram, DLF Centre, Sansad Marg, New Delhi-110001 under the provisions of Haryana Development and Regulation of Urban Areas Act, 1975. As per terms and conditions of the licenses and of the agreement executed on LC-IV, the colonizer is required to comply with the provisions of the Haryana Development and Regulation of Urban Areas Act, 1975 and its Rules, 1976.

And, whereas, for delay in compliance of the provisions of Rule 28 of the Haryana Development and Regulation of Urban Areas Rules, 1976 upto 31.03.2020. As per the rates finalized by the Govt. the composition fee has worked out as Rs. 6,000/-. The said amount has been adjusted from already excess amount of Rs. 1,58,57,421/- in license renewal fee.

Accordingly, in exercise of power conferred under Section-13(1) of the Haryana Development and Regulation of Urban Areas Act, 1975, I hereby order to compound the offence committed due to delay in compliance of above said Rules upto 31.03.2020.


(K. Makrand Pandurang, IAS)
Director,
Town & Country Planning,
Haryana, Chandigarh

Endst. No. LC-50-JE(SJ)/2021/ 13504

Dated: 11-06-2024

A copy is forwarded to following for information and necessary action:-

1. Chief Accounts Officer, O/o Director Town and Country Planning Haryana Chandigarh with a request to adjust the excess amount.
2. DLF Ltd., DLF Utilities Ltd., DLF Building & Services Pvt. Ltd., Sh. Rajender Singh S/o Sh. Kade Ram, DLF Centre, Sansad Marg, New Delhi-110001.




(Lata Kumar)
District Town Planner (HQ)
For: Director, Town and Country Planning,
Haryana, Chandigarh

For DLF LIMITED

Authorised Signatory

FORM LC - V
 (See Rule 12)
 HARYANA GOVERNMENT
 TOWN AND COUNTRY PLANNING DEPARTMENT

Licence No. 121 of 1975.

1. This licence has been granted under the Haryana Development and Regulation of Urban Areas Act, 1975 and the Rules made thereunder to M/s Pracheen Krishi Udyog Ltd., DLF Centre Sansad Marg New Delhi, for setting up of a group housing colony at village Wazirabad District Gurgaon.
2. The particulars of land wherein the aforesaid colony is to be set up are given in the schedule annexed hereto and duly signed by the Director, Town and Country Planning, Haryana.
3. The licence is granted subject to the conditions:-
 - a) That the group housing colony is laid out to conform to the approved layout plan and development works are executed according to the designs and specifications shown in the approved plan.
 - b) That the conditions of the agreements already executed are duly fulfilled and the provisions of Haryana Development and Regulation of Urban Areas Act, 1975 and Rules made thereunder are duly complied with.
 - c) That the demarcation plan of the colony area is submitted before starting the development works in the colony for approval of the zoning plan.
 - d) The EDC rates are under review and are likely to be finalised shortly. The difference in rates shall be payable alongwith 18% interest per annum from the date of grant of licence. The coloniser shall also submit further 25% bank guarantee of additional amount of EDC.
 - e) The density of population shall not exceed 150 PPA and ground coverage shall be limited to 25% in the Group Housing area. Special care to maintain the green character of the area and accordingly sufficient provisions for greenary, trees and open green spaces shall be made.
 - f) The Commercial area shall not exceed 6.5 % of the net planned area of the group housing area. Besides this, an additional area of 1% of the net planned Group Housing area shall be allowed for cultural, recreational and amusement activities, which do not have a predominantly commercial

DTCP (HR)

For DLF LIMITED

Authorised Signatory



content like cultural centre, art museum, ice skating rink and other such items to be decided by the Director, Town and Country Planning, Haryana Commercial area in the plotted area shall be governed by the existing provisions in this regard.

- g) One of the 18 meters wide internal road would be connected to the 30 meters wide proposed road along the foot-hills in Sector 42 and 26 A.
- h) Policy decisions taken by the Govt. regarding provision of Fire Protection measures in the buildings shall be aided by.
4. That the portion of Sector/Master plan road which shall form part of the licenced area, shall be transferred free of cost to the Government in accordance with Section 3(i) (a) (iii) of the Haryana Development and Regulation of Urban Areas Act, 1975.
5. The licence for the Group Housing Area is valid upto 28.12.1992 and for plotted area upto 28.12.1992.

Dated: 30.12.1993

(R. S. GUJRAL)
Director,
Town and Country Planning,
Haryana, Chandigarh.

Endst. No. SDP-95/ 1,751

Dated: 30.12.93

A copy alongwith a copy of schedule of land is forwarded to the following for information and necessary action:-

1. ✓ M/s Pracheen Krishi Udyog Ltd. DLF Centre Sansad Marg New Delhi, alongwith a copy of agreement.
2. Chief Administrator, HUDA, Panchkula;
3. Addl. Director, Urban Estates, Haryana Panchkula;
4. Chief Engineer, HUDA, Manimajra;
5. Superintending Engineer, HUDA, Gurgaon alongwith copy of agreement.
6. Land Acquisition Officer, Gurgaon;
7. Senior Town Planner, Gurgaon;
8. Senior Town Planner (Enforcement), Panchkula;
9. District Town Planner, Gurgaon, and
10. Accounts Officer, O/O D.T.C.P. Haryana, Chandigarh alongwith copy of agreement.



District Town Planner (Hq) M,
for Director, Town and Country Planning,
Haryana, Chandigarh

For DLF LIMITED

Authorised Signatory

To be read with Memo No 129 of 1995

DETAILS OF LAND OF M/S PEACHEEN KRISHI UDYOG LIMITED

LAND AT VILLAGE	KHASRA NOS.	AREA	
		BIGHA-BISWA-BISWANSI	
WAZIRABAD	2003/1	6	0
	2026/1	0	15
	2085	3	16
	2088	1	0
	2090	1	01
	2092	0	10
	2094	1	07
	2095	1	01
	2098	0	11
	2100	2	04
	2087	1	14
		<hr/>	
		13	06
	1/75 share	0	1 - 10
	✓2047/2	1	11 - 17
	✓2046/2	1	06 - 07
	✓2048	3	07 - 00
	✓2049	4	04 - 00
	2013	0	17 - 00
	2014	1	01 - 00
	2015	1	11 - 00
	2016	1	19 - 00
	2020	0	17 - 00
	2021	1	0 - 0
	2019/1	1	03 - 10
	2022/1/1	2	09 - 00
	2059/1/1	0	9 - 2
	2059/1/3	1	0 - 9
	2059/2	0	2 - 2
	2105/2	0	4 - 17
	114/1	0	2

Total Area of the Company
Khasra Nos. 114/1 to 114/10
Area = 114/1 to 114/10

D/CP (R)



11
DIRECTOR
Town & Country Planning
New W. Chandigarh

For DLF LIMITED

Authorised Signatory

LIC. No. 129 of 1995

2

334/2	1-6
335	1-9
336	1-12
337	2-3
342	0-9
343/1	0-9
344/2	0-19
	<hr/>
	8-7

600/3343 share

1 - 10 - 00

Total :

31 - 13 - 14

or say :

19.803 Acres

Total Area Purchased by
Share Demand & other
Associate Companies


DIRECTOR
Town & Country Planning
H. 100, Chandigarh



For DLF LIMITED
Authorised Signatory

FORM LC - V
 (See Rule 12)
 HARYANA GOVERNMENT
 TOWN AND COUNTRY PLANNING DEPARTMENT

Licence No. 131 of 1995. ✓

1. This licence has been granted under the Haryana Development and Regulation of Urban Areas Act, 1975 and the Rules made thereunder to M/s Vikalpa Agro Industries (P) Ltd., DLF Centre Sansad Marg New Delhi, for setting up of a group housing colony at village Wazirabad District Gurgaon.
2. The particulars of land wherein the aforesaid colony is to be set up are given in the schedule annexed hereto and duly signed by the Director, Town and Country Planning, Haryana.
3. The licence is granted subject to the conditions:-
 - a) That the group housing ^{plotted} colony is laid out to conform to the approved layout plan and development works are executed according to the designs and specifications shown in the approved plan.
 - b) That the conditions of the agreements already executed are duly fulfilled and the provisions of Haryana Development and Regulation of Urban Areas Act, 1975 and Rules made thereunder are duly complied with.
 - c) That the demarcation plan of the colony area is submitted before starting the development works in the colony for approval of the zoning plan.
 - d) The EDC rates are under review and are likely to be finalised shortly. The difference in rates shall be payable alongwith 18% interest per annum from the date of grant of licence. The coloniser shall also submit further 25% bank guarantee of additional amount of EDC.
 - e) The density of population shall not exceed 250 PPA and ground coverage shall be limited to 25% in the Group Housing area. Special care to maintain the green character of the area and accordingly sufficient provisions for greenary, trees and open green spaces shall be made.
 - f) The Commercial area shall not exceed 6.5 % of the net planned area of the group housing area. Besides this, an additional area of 1% of the net planned Group Housing area shall be allowed for cultural, recreational and amusement activities, which do not have a predominantly commercial

DTCP (HR)

For DLF LIMITED

Authorised S. *lps*



content like cultural centre, art museum, ice skating rink and other such items to be decided by the Director, Town and Country Planning, Haryana Commercial area in the plotted area shall be governed by the existing provisions in this regard.

- g) One of the 18 meters wide internal road would be connected to the 30 meters wide proposed road along the foot-hills in Sector 42 and 26 A.
- h) Policy decisions taken by the Govt. regarding provision of Fire Protection measures in the buildings shall be abided by.
4. That the portion of Sector/Master plan road which shall form part of the licenced area, shall be transferred free of cost to the Government in accordance with Section 3(3) (a) (iii) of the Haryana Development and Regulation of Urban Areas Act, 1975.
5. The licence for the Group Housing Area is valid upto 26-12-2000 and for plotted area upto 26-12-1997

Dated 29-12-1995

(R.S. GUJRAL)
Director,
Town and Country Planning,
Haryana, Chandigarh.

Endst. No. 5DP-95/ 15821

Dated: 20-12-95

A copy alongwith a copy of schedule of land is forwarded to the following for information and necessary action:-

2. M/s Vikalpa Agro Industries (P) Ltd, DLF Centre Sansad Marg New Delhi, alongwith a copy of agreement.
2. Chief Administrator, HUDA, Panchkula;
3. Addl. Director, Urban Estates, Haryana Panchkula;
4. Chief Engineer, HUDA, Manimajra;
5. Superintending Engineer, HUDA, Gurgaon alongwith copy of agreement.
6. Land Acquisition Officer, Gurgaon;
7. Senior Town Planner, Gurgaon;
8. Senior Town Planner (Enforcement), Panchkula;
9. District Town Planner, Gurgaon; and
10. Accounts Officer, O/O D.T.C.P. Haryana, Chandigarh alongwith copy of agreement.

District Town Planner (Hq) M,
for Director, Town and Country Planning,
Haryana, Chandigarh

DLF LIMITED
Authorised Signatory

To be read with Licence No 131 of 1985

DETAILS OF LAND OF M/S VIKALPA AGRO INDUSTRIES PVT LTD

LAND AT VILLAGE KHASRA NOS. AREA
BIGHA-BISWA-BISWANSI

WAZIRABAD

✓ 2051 ✓		3 - 16 - 00
✓ 2052/1 ✓		0 - 09 - 00
2102	2-18	
2103	2-3	
✓ 2052/2 ✓	3-3	
✓ 2053/1 ✓	0-7 ✓	
	<u>8-11</u>	
1/5 share		1 - 14 - 00
2032/4 ✓		0 - 04 - 00
2033/2 ✓		0 - 13 - 16
2035/3 ✓		0 - 17 - 10
✓ 2044/4 ✓		1 - 05 - 11
2043/6 ✓		0 - 03 - 06
✓ 2046/1 ✓		1 - 13 - 00
✓ 2047/1 ✓		1 - 19 - 03
✓ 2037/4 ✓		0 - 12 - 10
2038/6 ✓		1 - 05 - 10
✓ 2050/2 ✓		2 - 13 - 18
273 ✓		1 - 10 - 00

Total : 18 - 17 - 04
or say : 11.787 Acres

Total Area: 11.787 Acres
Share: 100%

[Signature]
DTR
Town: ...
Haryan, Ludhiana St.

For DLF LIMITED

[Signature]
Authorized Signatory



FORM LC - V
(See Rule 12)
HARYANA GOVERNMENT
TOWN AND COUNTRY PLANNING DEPARTMENT

Licence No 117 of 1995

1. This licence has been granted under the Haryana Development and Regulation of Urban Areas Act, 1975 and the Rules made thereunder to M/s Dreamland Agro Industries Ltd., DLF Centre, Sansad Marg New Delhi, for setting up of a group housing colony at village Wasirabad District Gurgaon.
2. The particulars of land wherein the aforesaid colony is to be set up are given in the schedule annexed hereto and duly signed by the Director, Town and Country Planning, Haryana.
3. The licence is granted subject to the conditions -
 - a) That the group housing colony is laid out to conform to the approved layout plan, and development works are executed according to the designs and specifications shown in the approved plan.
 - b) That the conditions of the agreements already executed are duly fulfilled and the provisions of Haryana Development and Regulation of Urban Areas Act, 1975 and Rules made thereunder are duly complied with.
 - c) That the demarcation plan of the colony area is submitted before starting the development works in the colony for approval of the zoning plan.
 - d) The EDC rates are under review and are likely to be finalised shortly. The difference in rates shall be payable alongwith 18% interest per annum from the date of grant of licence. The coloniser shall also submit further 25% bank guarantee of additional amount of EDC.
 - e) The density of population shall not exceed 250 PPA and ground coverage shall be limited to 25% in the Group Housing area. Special care to maintain the green character of the area and accordingly sufficient provisions for greenery trees and open green spaces shall be made.
 - f) The Commercial area shall not exceed 5% of the net planned area of the group housing area. Besides this, an additional area of 1% of the net planned Group Housing area shall be allowed for cultural, recreational and community activities, which do not have a predominantly commercial

DTCP (HR)



For **DLF LIMITED**
Authorised Signatory

contest like cultural centre, art museum, ice skating rink and other such items to be decided by the Director, Town and Country Planning, Haryana Commercial area in the plotted area shall be governed by the existing provisions in this regard.

- g) One of the 18 meters wide internal road would be connected to the 30 meters wide proposed road along the foot-hills in Sector 42 and 26 A.
- h) Policy decisions taken by the Govt. regarding provision of Fire Protection measures in the buildings shall be abided by.
4. That the portion of Sector/Master plan road which shall form part of the licenced area, shall be transferred free of cost to the Government in accordance with Section 3(3) (a) (iii) of the Haryana Development and Regulation of Urban Areas Act, 1975.
5. The licence for the Group Housing Area is valid upto 28-12-2000 and for plotted area upto 28-12-1997.

Dated 29-12-95

(R.S. GUJRAL)
Director,
Town and Country Planning,
Haryana, Chandigarh

Endst. No. SDP-95/ 15691

Dated: 2-12-95

A copy alongwith a copy of schedule of land is forwarded to the following for information and necessary action:-

1. N/o Dreamland Agro Industries Limited DLF Centre Sansad Marg New Delhi, alongwith a copy of agreement
2. Chief Administrator, HUDA, Panchkula,
3. Addl. Director, Urban Estates, Haryana Panchkula,
4. Chief Engineer, HUDA, Manimajra,
5. Superintending Engineer, HUDA, Gurgaon alongwith copy of agreement.
6. Land Acquisition Officer, Gurgaon;
7. Senior Town Planner, Gurgaon;
8. Senior Town Planner (Enforcement), Panchkula,
9. District Town Planner, Gurgaon; and
10. Accounts Officer, O/O D.T.C.P. Haryana, Chandigarh, alongwith copy of agreement.

Distt. Town Planner,
for Director, Town and Country Planning,
Haryana, Chandigarh

For DLF LIMITED

Authorised Signatory



To be read with Licence No 117 of 1945

DETAILS OF LAND OF M/S DREAMLAND AGRO INDUSTRIES LTD

LAND AT VILLAGE	KHASRA NOS.	AREA		
		BIGHA	BISWA	BISMANSI
WAZIRABAD	2319	0	05	00
	2320	0	02	00
	2329	1	06	00
	2348/1	1	14	00
	275/2	1	11	00
	2339	0	10	00
	2343	0	11	00
	305	0	14	00
	306	2	19	00
	373	2	17	00
	374	1	01	00
	2007/2	1	11	05
	2006/1	1	14	00
	2009/1	2	16	00
	1992/1	0	08	09
	2102	2-18		
	2103	2-03		
	2052/2	3-03		
	2053/1	0-07		
		<u>8-11</u>		
	1/5 share		1	14
	2093	1-05		
	2096	2-19		
	2097	1-03		
	2099 min	1-02-10		
		<u>6-05-10</u>		
	297/2517 share		0	14
	303/1	9-8		
1/6 share		1	11	
2334 min		0	14	
2026/1		0	15	
2058/2		0	08	
2060/1		1	11	

For DLF LIMITED
 [Signature]
 Authorised Signatory



11
 TCP (HC)

Lic No. 177 of 1995

2

2009/2	
2050/2	
2059/1/4	
334/2	1-6
335	1-9
336	1-12
337	2-3
342	0-9
343/1	0-9
344/2	0-19

0 - 18' - 00
 0 - 11' - 10
 1 - 09 - 09

823/3343 share

~~270/1~~

Total :
or say :

2 - 01 - 03
 0 - 17' - 05

 32 - 08 - 10
 20.265 Acres

Total Area Purchased by DLF
Share Owned by DLF
Account No. 10/10


 DIRECTOR
 Town & Country Planning
 Haryana, Chandigarh 51

For DLF LIMITED

Authorized Signatory

Ups



TO BE READ WITH LICENCE NO 117 of 61

REVISED DETAILS OF LAND OF M/S DREAMLAND AGRO INDUSTRIES LTD.,
(NOW AMALGAMATED INTO M/S NILGIRI CULTIVATIONS (P) LTD.)

Village	Khasra No.	Area			
		B	B	B	
Wazirabad	2319 ✓	0	8	0	
	2320 ✓	0	9	0	
	2329 ✓	1	6	8	
	2349/1 ✓	1	14	0	
	275/2 ✓	1	11	0	
	2335 ✓	0	19	0	
	2348 ✓	0	11	0	
	105 ✓	0	14	0	
	106 ✓	2	19	0	
	373 ✓	2	17	0	
	374 ✓	1	1	0	
	2007/2 ✓	1	11	5	
	2005/1 ✓	1	14	0	
	2009/1 ✓	2	18	0	
	1992/1 ✓	0	8	0	
	2102 ✓	2-18-0			
	2103 ✓	2-3-0			
	2052/2 ✓	3-3-0			
	2053/1 ✓	0-7-0			
		9-11-0			
	1/6 share		1	14	8
	2093 ✓	1-5-0			
	2096 ✓	2-15-0			
	2097 ✓	1-3-0			
	2099 min ✓	1-2-18			
	6-5-18				
297/2517 share		0	14	17	
303/1 min ✓	8-18-0				
1/6 share			4	7	
2366 ✓	2-5-0				
40/920 share		0	2	0	
7134 min ✓		0	14	8	
2026/1 ✓		0	17	0	
2058/2 ✓		0	8	0	
2060/1 ✓		0	12	10	

Contd 2

JLF LIMITED
Authorized Signatory

3

DTCP (G) B
11

non-forest land

Village	Khata No.	Area		
		B	B	B
Wanrahad	2009/2 ✓	0	10	0
	2058/2 ✓	0	11	10
	2058/17a ✓	1	0	0
	334/2 ✓		1-5-0	
	335 ✓		1-9-0	
	336 ✓		1-12-0	
	337 ✓		3-3-0	
	342 ✓		0-9-0	
	343/1 ✓		0-9-0	
	344/2 ✓		0-19-0	
			0-3-0	
	023/3943 khata	2	1	3
	271/1 ✓	0	17	5
Total		32	8	10

Or Slav 20.265 Acres

[Signature]
 Director
 Town and Country Planning,
 Haryana, Chandigarh
[Signature]

For OIL F LIMITED

Authorised Secretary

[Signature]



For DLF LIMITED

Authorised Signatory

[Handwritten signature]

Stamp No.



FORM LC - V
 (See Rule 12)
 HARYANA GOVERNMENT
 TOWN AND COUNTRY PLANNING DEPARTMENT

Licence No. 124 of 1985

1. This licence has been granted under the Haryana Development and Regulation of Urban Areas Act, 1975 and the Rules made thereunder to M/s Suvidha Agro Products Ltd., DLF Centre Sansad Marg New Delhi, for setting up of a group housing ^{plotted} colony at village Wasirabad and Chakkarpur, District Gurgaon.
2. The particulars of land wherein the aforesaid colony is to be set up are given in the schedule annexed hereto and duly signed by the Director, Town and Country Planning, Haryana.
3. The licence is granted subject to the conditions:-
 - a. That the group housing ^{plotted} colony is laid out to conform to the approved layout plan and development works are executed according to the designs and specifications shown in the approved plan.
 - b. That the conditions of the agreements already executed are duly fulfilled and the provisions of Haryana Development and Regulation of Urban Areas Act, 1975 and Rules made thereunder are duly complied with.
 - c. That the demarcation plan of the colony area is submitted before starting the development works in the colony for approval of the zoning plan.
 - d. The EDC rates are under review and are likely to be finalised shortly. The difference in rates shall be payable alongwith 18% interest per annum from the date of grant of licence. The coloniser shall also submit further 25% bank guarantee of additional amount of EDC.
 - e. The density of population shall not exceed 250 PPA and ground coverage shall be limited to 25% in the Group Housing Area. Special care to maintain the green character of the area and accordingly sufficient provisions for greenary, trees and open green spaces shall be made.
 - f. The Commercial area shall not exceed 5% of the net planned area of the group housing area. Besides this, an additional area of 1% of the net planned Group Housing area shall be allowed for cultural, recreational and amusement activities which do not have a predominantly commercial

DTCP (HR.)

For DLF LIMITED

Authorised Signatory



content like cultural centre, art museum, ice skating rink and other such items to be decided by the Director, Town and Country Planning, Haryana Commercial area in the plotted area shall be governed by the existing provisions in this regard.

- g) One of the 18 meters wide internal road would be connected to the 30 meters wide proposed road along the foot-hills in Sector 42 and 26 A.
- h) Policy decisions taken by the Govt. regarding provision of Fire Protection measures in the buildings shall be abided by
- 4 That the portion of sector 42 and road which shall form part of the licensed area, shall be transferred free of cost to the Government in accordance with Section 3(a) (ii) of the Haryana Development and Regulation of Urban Areas Act, 1975.
- 5 The licence for the Group Housing Area is valid upto 2-2-12-2000 and for plotted area upto 29.12.1997

Dated 29-12-1995

(R.S. GUJRAL)
Director,
Town and Country Planning,
Haryana, Chandigarh.

Endst. No. SDP-95/ 7273

Dated: 29-12-95

A copy alongwith a copy of schedule of land is forwarded to the following for information and necessary action:-

- 1 M/s Suvidha Agro Products Limited DLF Centre Sansad Marg New Delhi, alongwith a copy of agreement.
- 2 Chief Administrator, HUDA, Panchkula;
- 3 Addl Director, Urban Estates, Haryana Panchkula;
- 4 Chief Engineer, HUDA, Manimajra;
- 5 Superintending Engineer, HUDA, Gurgaon alongwith copy of agreement.
- 6 Land Acquisition Officer, Gurgaon;
- 7 Senior Town Planner, Gurgaon;
- 8 Senior Town Planner (Enforcement), Panchkula
- 9 District Town Planner, Gurgaon, and
- 10 Accounts Officer, G/O D T C.I. Haryana Chandigarh, alongwith copy of agreement.

District Town Planner (Hq) M
for Director, Town and Country Planning
Haryana, Chandigarh

For DLF LIMITED
Authorized Signatory



To be read with Licence No 121
of 1995

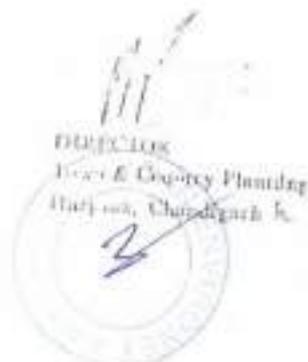
DETAILS OF LAND OF M/S SUVIDHA AGRO PRODUCTS LIMITED

LAND AT VILLAGE	KHASRA NOS.	AREA BIGHA-BISWA-BISWANSI	
WAZIRABAD	2102	2-18	
	2103	2-03	
	2052/2	3-03	
	2053/1	0-07	
		R 11	
	3/5 share		4 - 02 - 12
	2093	1-05	
	2096	2-15	
	2097	1-03	
	2099/1	1-2-18	
		6-5-18	
	2221/2518 share		5 - 11 - 00
	2085	3-16	
	2088	1-00	
	2090	1-1	
	2092	0-10	
	2094	1-07	
	2095	1-03	
	2098	0-11	
	2100	2-04	
	2087	1-14	
		11-6	
	74/75 share		11 - 02 - 10
2086		3 18 - 00	
2083		2 - 12 - 00	
2053/2/2		2 - 11 - 16	
2054/2		1 15 - 19	
2055/1		0 - 12 - 08	
2082		2 - 11 - 00	
2091		1 - 19 - 00	
2101		1 - 08 - 00	
2084		2 00 - 00	

For DLF LIMITED

Authorized Signatory

Total Area ...
Share ...
Approved ...



2

CTC No 121 of 1995

CHAKKARPUR

561/1 2-7-8
11/12 share

0 - 16 - 5

562 2-8
1/4 share

0 - 12 - 0

567 min 1-4
1/8 share

0 - 8 - 0

Total

47 - 0 - 10

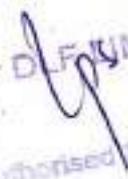
or say :

23.39 Acres


DIRECTOR
Urban & Country Planning
Chandigarh

Total Area Proposed Release
23.39 Acres



For DLF LIMITED

Authorised Signatory

For DLF LIMITED

Authorised Signatory



Stamp No.



FORM LC-V
(See Rule 12)
HARYANA GOVERNMENT
TOWN AND COUNTRY PLANNING DEPARTMENT

✓
Licence No. 52 of 1996.

1. This licence has been granted under the Haryana Development & Regulation of Urban Areas Act, 1975 & the Rules made thereunder to M/s. Swaraj Land & Housing Co. Ltd., DLF Centre Saroad Marg, New Delhi for setting up of a group housing colony at village Wazirabad, District Gurgaon.
2. The particulars of land where in the aforesaid colony is to be set up are given in the Schedule annexed hereto and duly signed by the Director, Town and Country Planning, Haryana.
3. The licence is granted subject to the conditions :-
 - a) That the group housing/plotted colony is laid out to conform to the approved layout plan and development works are executed according to the designs and specifications shown in the approved plan.
 - b) That the conditions of the agreements already executed are duly fulfilled and the provisions of Haryana Development and Regulation of Urban Areas Act, 1975 and Rules made thereunder are duly complied with.
 - c) That the demarcation plan of the colony area is submitted before starting the development works in the colony and for approval of the zoning plan.
 - d) The density of population shall not exceed 250 PPA and ground coverage shall be limited to 25% in the Group Housing area. Special care to maintain the green character of the area and accordingly sufficient provisions for greenery, trees and open green spaces shall be made.
 - e) The Commercial area shall not exceed 6.5% of the net plan area of the group housing area. Besides this, an additional area of 1% of the net planned Group Housing area shall be allowed for cultural, recreational and amusement activities, which do not have a predominantly commercial content like cultural centre, art museum, ice skating rink and other such items to be decided by the Director, Town and Country Planning, Haryana. Commercial area in the plotted area shall be governed by the existing provisions in this regard.
 - f) One of the 18 meters wide internal road would be connected to the 30 meters wide proposed road along the foot-hills in Sector 42 and 26 A.
 - g) Policy decisions taken by the Govt. regarding provision of Fire Protection measures in the multi storied buildings shall be abided by.
 - h) The alignment/reservation along the creek/culvert channel shall be maintained as per requirements of Irrigation/Drainage Deptt. Haryana and as approved by Director, Town and Country Planning, Haryana.
 - i) Adequate access to all unlicensed pockets situated within the licensed colony shall be provided in the detailed layout plan of the group housing area.
 - j) The layout plan will be got approved of the entire area as one scheme within a period of six months from the date of last approval i.e. 29.12.95.
 - k) Community buildings in this area will be constructed within three years from the date of grant of licence.
4. That the portion of Sector/master plan road which shall form part of the licensed area, shall be transferred free of cost to the Government in accordance with Section 3(3) (a) (iii) of the Haryana Development and Regulation of Urban Areas Act, 1975.
5. This licence for the Group Housing Area is valid upto 15.4.2001.

Dated Chandigarh
the 15.4.96

(R.S. GUJRAL)
DIRECTOR, Town & Country Planning,
Haryana, Chandigarh.

Encl. No DDP 96 5671

Dated: 17-4-96

A copy along with a copy of schedule of land is forwarded to the following for information and necessary action :-

1. M/s. Swaraj Land & Housing Co. Ltd., DLF Centre Saroad Marg, New Delhi, along with a copy of agreement.
2. Chief Administrator, HUDA, Panchkula;
3. Asstt. Director, Urban Estates, Haryana, Panchkula;
4. Chief Engineer, HUDA, Mahindra;
5. Superintending Engineer, HUDA, Gurgaon along with copy of agreement;
6. Land Acquisition Officer, Gurgaon;
7. Senior Town Planner, Gurgaon;
8. Senior Town Planner (Colonisation), Panchkula;
9. District Town Planner, Gurgaon; and
10. Accounts Officer, O.D.P.C.P. Haryana, Chandigarh along with copy of agreement.



(Signature)
for DIRECTOR, Town & Country Planning,
Haryana, Chandigarh.

52/1996

DETAILS OF LAND OF M/S SUNRISE LAND & HOUSING CO LTD

<u>Land at village</u>	<u>Kh. No.</u>	<u>Bigha-Biswa-Biwana</u>		
Nazirabad	2038/1	0	6	10
	2041/1	1	7	0
	2039/3 Min	0	3	0
	2040	1	2	0
	Total	2	18	10
	2/3 Share	1	19	0
	2042/2	2	8	3
	2043/1	0	6	18
	✓ 2043/3	0	4	18
	2044/1	0	0	19
	2045/1	0	6	0
	Total	3	6	18
	1/3 Share	1	2	6
	2036/2	0	6	2
	2037/3	0	18	18
2038/5	1	08	15	
2035/1	0	18	10	
2042/4	0	2	16	
2043/5	0	4	19	
Total	4	0	0	
1/3rd Share	1	6	13	
2037/1	0	2	12	
2038/3	0	3	2	
2042/3	0	1	16	
2043/4	0	1	6	
✓ 2044/3	0	1	10	
Total	0	10	6	
1/3 Share	0	3	9	
✓ 2046/1/2	1	2	14	
2045/2	1	4	0	
2043/2	0	17	13	
Total	3	4	07	
1/3 Share	1	1	9	
Total	5	12	17	
Or Say :		3.526 Acres		



Total Area Purchased Related
Share Demand No. 0106
Assessment Committee No.

18/11/96
DIRECTOR
M/S SUNRISE LAND & HOUSING CO. LTD

For M/S LIMITED
Authorized Signatory

FORM LC-V
(See Rule 12)
HARYANA GOVERNMENT
TOWN AND COUNTRY PLANNING DEPARTMENT

License No. 38 of 1996

1. This licence has been granted under the Haryana Development & Regulation of Urban Areas Act, 1975 & the Rules made thereunder to M/s. D.L.F. Universal Ltd., DLF Centre Sansad Marg, New Delhi for setting up of a group housing colony at village Wazirabad, District Gurgaon.
 2. The particulars of land wherein the aforesaid colony, is to be set up are given in the Schedule annexed hereto and duly signed by the Director, Town and Country Planning, Haryana.
 3. The licence is granted subject to the conditions :-
 - a) That the group housing/plotted colony is laid out to conform to the approved layout plan and development works are executed according to the designs and specifications shown in the approved plan.
 - b) That the conditions of the agreements already executed are duly fulfilled and the provisions of Haryana Development and Regulation of Urban Areas Act, 1975 and Rules made thereunder are duly complied with.
 - c) That the demarcation plan of the colony area is submitted before starting the development works in the colony and for approval of the zoning plan.
 - d) The density of population shall not exceed 250 PPA and ground coverage shall be limited to 25% in the Group Housing area. Special care to maintain the green character of the area and accordingly sufficient provisions for greenery, trees and open green spaces shall be made.
 - e) The Commercial area shall not exceed 6.5% of the net planned area of the group housing area. Besides this, an additional area of 1% of the net planned Group Housing area shall be allowed for cultural, recreational and amusement activities, which do not have a predominantly commercial content like cultural centre, art museum, ice skating rink and other such items to be decided by the Director, Town and Country Planning, Haryana. Commercial area in the plotted area shall be governed by the existing provisions in this regard.
 - f) One of the 18 m. or wide internal road would be connected to the 30 meters wide proposed road along the foot-hills in Sector 42 and 26 A.
 - g) Policy decisions taken by the Govt. regarding provision of Fire Protection measures in the multi-storied buildings shall be abided by.
 - h) The alignment/reservation along the creeks/canals shall be maintained as per requirements of Irrigation/Drainage Deptt. Haryana and as approved by Director, Town and Country Planning, Haryana.
 - i) Allotment access to all unenclosed pockets situated within the licensed colony shall be provided in the detailed layout plan of the group housing area.
 - j) The layout plan will be got approved of the entire area as one scheme within a period of six months from the date of last approved i.e. 29.12.95.
 - k) Community buildings in the area will be constructed within three years from the date of grant of licence.
 4. That the portion of Sector/master plan road which shall form part of the licensed area, shall be transferred free of cost to the Government in accordance with Section 2(3) (i) (iii) of the Haryana Development and Regulation of Urban Areas Act, 1975.
- This licence for the Group Housing Area is valid upto 15-4-2001.

Dated Chandigarh
the 18-4-96.

Encls. No. SUP-96/ 5571

Dated: 17.4.96

A copy alongwith a copy of schedule of land is forwarded to the following for information and necessary action :-

1. M/s. D.L.F. Universal Ltd., DLF Centre Sansad Marg, New Delhi, alongwith a copy of agreement.
2. Chief Administrator, HUDA, Panchkula;
3. Asstt. Director, Urban Estates, Haryana, Panchkula;
4. Chief Engineer, HUDA, Manimajra;
5. Superintending Engineer, HUDA, Gurgaon alongwith copy of agreement
6. Land Acquisition Officer, Gurgaon;
7. Senior Town Planner, Gurgaon;
8. Senior Town Planner (Enhancement), Panchkula;
9. District Town Planner, Gurgaon; and
10. Accounts Officer, C/O D.L.F. Haryana, Chandigarh alongwith copy of agreement.

(H.S. GUJRAL)
DIRECTOR, Town & Country Planning,
Haryana, Chandigarh.



For DLF LIMITED

Authorised Signatory

Senior Town Planner (H.O.),
Asstt. Director, Town & Country Planning,
Haryana, Chandigarh.

DETAILS OF LAND OF M/S DLF UNIVERSAL LTD

Law at village	Khasra Nos.	Bigha-Biswa-Biwansi		
Wazirabad ✓	2042/2	2	8	3
	2043/1	0	6	18
	2043/3	0	4	18
	2044/1	0	0	19
	2045/1	0	6	0
	Total	3	6	18
	1/2 Share	1	13	9
	2046/1/2	1	2	14
	2045/2	1	4	0
	2043/2	0	17	13
Total	3	4	7	
1/3 Share	1	1	9	
2037/1	0	2	12	
2038/3	0	3	2	
2042/2	0	1	16	
2043/4	0	1	6	
2044/3	0	1	10	
Total	0	10	6	
1/6 Share	0	1	14	
		2	16	12

Or Say : 1.768 Acres

Yield Area Purchased by DLF
Share No. ...

[Signature]
DIRECTOR
H. No. ...



[Signature]
For DLF LIMITED
Authorised Signatory

FORM LC-V
(Ser Rule 12)
HARYANA GOVERNMENT
TOWN AND COUNTRY PLANNING DEPARTMENT

✓
Licence No. 47 of 1995.

1. This licence has been granted under the Haryana Development & Regulation of Urban Areas Act, 1975 & the Rules made thereunder by M/s DLF General Finance Ltd., DLF Centre Sarafai Marg, New Delhi for setting up of a group housing colony in village Wazirabad, District Gurgaon.
2. The particulars of land relating to the aforesaid colony is to be set up are given in the Schedule annexed hereto and duly signed by the Director, Town and Country Planning, Haryana.
3. The licence is granted subject to the conditions:-
 - a) That the group housing plotted colony is laid out in conformity to the approved layout plan and development works are executed according to the design and specifications shown in the approved plan.
 - b) That the conditions of the agreements already executed are duly fulfilled and the provisions of Haryana Development and Regulation of Urban Areas Act, 1975 and Rules made thereunder are duly complied with.
 - c) That the site plan of the colony area is submitted before starting the development works in the colony and for approval of the zoning plan.
 - d) The density of population shall not exceed 250 PPA and ground coverage shall be limited to 25% in the Group Housing area. Special care to maintain the green character of the area and accordingly sufficient provision for greenery, trees and open green spaces shall be made.
 - e) The Common recreational area not exceed 5% of the net planned area of the group housing area. Besides this, an additional area of 1% of the net planned Group Housing area shall be allowed for cultural, recreational and amusement activities, which do not have a predominantly commercial content like cultural centre, art museum, ice skating rink and other such items to be decided by the Director, Town and Country Planning, Haryana. Commercial area in the planned area shall be governed by the existing provisions in this regard.
 - f) One of the 18 meters wide internal road would be constructed to the 20 meters wide proposed road along the foot hills in Section 42 and 20 A.
 - g) Policy decisions taken by the Govt. regarding provision of Fire Protection measures in the multi storied buildings shall be followed by.
 - h) The alignment of sewerage along the street/corridor channel shall be maintained as per requirements of Irrigation/Drainage Deptt. Haryana and as approved by Director, Town and Country Planning, Haryana.
 - i) Adequate access to all individual plots situated within the licensed colony shall be provided in the detailed layout plan of the group housing area.
 - j) The layout plan will be got approval of the centre town as one scheme within a period of six months from the date of last approval i.e. 28.12.95.
 - k) Community buildings in this area will be constructed within three years from the date of grant of licence.

That the portion of Survey No. 344 and 345 shall form part of the licensed area, shall be transferred (out of site) to the Government in accordance with Section 3C(1)(ii) of the Haryana Development and Regulation of Urban Areas Act, 1975.

1. This licence for the Group Housing Area is valid upto 15.4.2001.

District Chandigarh
No. 18-4-96

(R.S. GUPTA)
DIRECTOR, Town & Country Planning,
Haryana, Chandigarh.

1/201, No. 50P/95 3351
Date: 17.4.96

A copy of complete copy of schedule of land is forwarded to the following for information and necessary action:-

1. M/s. DLF General Finance Ltd., DLF Centre Sarafai Marg, New Delhi, along with copy of agreement.
2. Chief Administrator, HUDA, Panchkula.
3. Addl. Director, Urban Estates, Haryana, Panchkula.
4. Chief Engineer, HUDA, Mohindra.
5. Superintending Engineer, HUDA, Gurgaon along with copy of agreement.
6. Land Acquisition Officer, Gurgaon.
7. Senior Town Planner, Gurgaon.
8. Senior Town Planner (Infrastructure), Panchkula.
9. District Town Planner, Gurgaon; and
10. Accounts Officer, PWD D.T.C.P. Haryana, Chandigarh along with copy of agreement.


Director, Town & Country Planning (H) M,
for DIRECTOR, Town & Country Planning,
Haryana, Chandigarh.

FOR DLF LIMITED
Authorised Signatory




To be read with Volume No 44/86.

DETAILS OF LAND OF M/S DLF GENERAL PUNJAB LTD

Land at village	Khasra Nos.	Higher-Simra-Bimwani		
Mazrahad	2036/2	0	6	2
	2037/3	0	18	18
	2038/5	1	8	15
	2039/1	6	18	20
	2042/4	0	2	16
	2043/5	0	4	19
	Total	4	0	0
	1/3 Share	1	6	13
	2037/1	0	2	12
	2038/3	0	3	2
2042/3	0	1	16	
2043/4	0	1	6	
2044/3	0	1	10	
Total	0	10	6	
1/6 Share	0	1	14	
Total	1	8	7	
Or Say :		0.885 Acres		

Total Area Purchased by the State Direct by the Punjab Government is 11.115 Acres


 DIRECTOR
 Town & Country Planning
 Haryana, Chandigarh &




 For DLF LIMITED
 Authorised Signatory

FORM LG-V
(See Rule 12)

HARYANA GOVERNMENT
TOWN AND COUNTRY PLANNING DEPARTMENT

✓
Licence No. 57 of 1996

1. This licence has been granted under the Haryana Development & Regulation of Urban Areas Act, 1975 & the Rules made thereunder to M/s Vishwan Agro Farms Ltd., DLF Centre, Sector 28, Mayapuri, New Delhi for setting up of Group Housing colony at village Wazirabad District Gurgaon.
2. The particulars of land wherein the aforesaid colony is to be set up are given in the Schedule annexed hereto and duly signed by the Director, Town and Country Planning, Haryana.
3. The licence is granted subject to the conditions:-
 - a) That the Group Housing/Plotted colony is laid out to conform to the approved layout plan and development works are executed according to the designs and specifications shown in the approved plan.
 - b) That the conditions of the agreements already executed are duly fulfilled and the provisions of Haryana Development and Regulation of Urban Areas Act, 1975 and Rules made thereunder are duly complied with.
 - c) That the demarcation plans of the colony area is submitted before starting the development works in the colony and for approval of the zoning plan.
 - d) The density of population shall not exceed 250 PPA and ground coverage shall be limited to 25% in the Group Housing area. Special care to maintain the green character of the area and accordingly sufficient provisions for greenery, trees and open green spaces shall be made.
 - e) The Commercial area shall not exceed 0.5% of the net planned area of the group housing area. Besides this, an additional area of 1% of the net planned Group Housing area shall be allowed for cultural, recreation and amusement activities, which do not have a predominantly commercial content like cultural centre, art museum, ice skating rink and other such items to be decided by the Director, Town and Country Planning, Haryana. Commercial area in the plotted area shall be governed by the existing provisions in this regard.
 - f) One of the 18 meters wide internal road would be connected to the 30 meters wide proposed road along the footfalls in Sector 42 and 26A.
 - g) Policy decisions taken by the Govt. regarding provision of Fire Protection measures in the multi storied buildings shall be abided by.
 - h) The alignment/reservation along the creeks/canals/channel shall be maintained as per requirements of Irrigation/Drainage Deptt. Haryana and as approved by Director, Town and Country Planning, Haryana.
 - i) Adequate access to all unenclosed pockets situated within the licensed colony shall be provided in the detailed layout plan of the group housing area.
 - j) The layout plan of the entire area as one scheme within a period of six months from the date of final approval i.e. 20.12.95.
 - k) Community buildings in this area will be constructed as per instructions contained in DTCP endorsement No. 5105/94/11524-11537 dated 25.10.94.
4. That the portion of Section/master plan road which shall form part of the licensed area shall be transferred free of cost to the Government in accordance with Section 3(3) (a) (iii) of the Haryana Development and Regulation of Urban Areas Act, 1975.
5. This licence is valid upto 29-11-2001

Dated Chandigarh
the 30-4-96

(R.S. GUJRAL)
DIRECTOR, Town & Country Planning
Haryana Chandigarh

Enclt No. SDP-96/ 6361

Dated: 30-4-96

A copy alongwith a copy of schedule of land is forwarded to the following for information and necessary action.

1. ✓ M/s Vishwan Agro Farms Ltd., DLF Centre Sector 28, Mayapuri, New Delhi, alongwith copy of agreement.
2. Chief Administrator, HUDA, Panchkula.
3. Addl. Director, Urban Estates, Haryana, Panchkula.
4. Chief Engineer, HUDA, Maximntr.
5. Superintending Engineer, HUDA, Gurgaon alongwith copy of agreement.
6. Land Acquisition Officer, Gurgaon.
7. Senior Town Planner, Gurgaon.
8. Senior Town Planner (Enforcement), Panchkula.
9. District Town Planner, Gurgaon, and
10. Accounts Officer, G.O. D.T.C.P. Haryana, Chandigarh alongwith copy of agreement.



District Town Planner (Hq) M
for DIRECTOR, Town & Country Planning
Haryana, Chandigarh.

DLF LIMITED

Authorized Signatory
4ps

In witness whereof...

Details of land of M/s Vishram Agro Farms Ltd

<u>Land at village</u>	<u>Khasra Nos.</u>	<u>Area</u>		
		<u>Bigha-Biswas-Biswansi</u>		
Wazirabad	✓ 2056/2	12	04	03

or say : 7.629 Acres

[Signature]
Director

Total area...
...
...



For DLF LIMITED

Authorised Signatory

FORM LC-V
(See Rule 12)
HARYANA GOVERNMENT
TOWN AND COUNTRY PLANNING DEPARTMENT

License No. 53 of 1996

1. This license has been granted under the Haryana Development & Regulation of Urban Areas Act, 1975 & the Rules made thereunder to M/s. Moonlight Builders & Promoters Ltd., DLF Centre Sector 28, New Delhi for setting up of a group housing colony at village Wazirabad, District Gurgaon.
2. The particulars of land wherein the aforesaid colony is to be set up are given in the Schedule annexed hereto and duly signed by the Director, Town and Country Planning, Haryana.
3. The license is granted subject to the conditions :-
 - (a) That the group housing/plotted colony is laid out to conform to the approved layout plan and development works are executed according to the design and specifications shown in the approved plan.
 - (b) That the conditions of the agreements already executed are duly fulfilled and the provisions of Haryana Development and Regulation of Urban Areas Act, 1975 and Rules made thereunder are duly complied with.
 - (c) That the demarcation plan of the colony area is submitted before starting the development works in the colony and for approval of the zoning plan.
 - (d) The density of population shall not exceed 250 PPA and ground coverage shall be limited to 25% in the Group Housing area. Special care to maintain the green character of the area and accordingly sufficient provisions for greenery, trees and open green spaces shall be made.
 - (e) The Commercial area shall not exceed 6.5% of the net planned area of the group housing area. Besides this, an additional area of 1% of the net planned Group Housing area shall be allowed for cultural, recreational and amusements activities, which do not have a predominantly commercial nature like cultural center, art museum, ice skating rink and other such houses to be decided by the Director, Town and Country Planning, Haryana. Commercial area in the plotted area shall be governed by the existing provisions in this regard.
 - (f) One of the 18 meters wide internal road would be connected to the 30 meters wide proposed road along the front side in Sector 42 and 26 A.
 - (g) Policy decisions taken by the Govt. regarding provision of Fire Protection measures in the multi-storied buildings shall be added by.
 - (h) The alignment/reservation along the creek/drainage channel shall be established as per requirements of Irrigation/Drainage Deptt. Haryana and as approved by Director, Town and Country Planning, Haryana.
 - (i) Adequate access to all utility and services situated within the licensed colony shall be provided in the detailed layout plan of the group housing area.
 - (j) The layout plan will be got approved of the entire area as one scheme within a period of six months from the date of last approval i.e. 29.12.95.
 - (k) Community buildings in this area will be constructed within three years from the date of grant of license.
4. That the portion of Section/arterial plan road which shall form part of the licensed area, shall be maintained free of cost to the Government in accordance with Section 3(3) (a) (ii) of the Haryana Development and Regulation of Urban Areas Act, 1975. This license for the Group Housing Area is valid upto 15.4.2001.

Date Closed/Issued
15-4-96

(H.S. GURAL)
DIRECTOR, Town & Country Planning,
Haryana, Chandigarh.

Date Received 5/6/97

Date 17-6-96

A copy of the layout plan of the colony of land is forwarded to the following for information and necessary action:-

1. M/s. Moonlight Builders & Promoters Ltd., DLF Centre Sector 28, New Delhi, along with a copy of agreement.
2. Chief Administrator, HUDA, Panchkula.
3. Sd/- District, Delhi District, Haryana, Panchkula.
4. Chief Engineer, HUDA, Mandi Bahaud.
5. Superintending Engineer, MUDA, Gurgaon along with copy of agreement.
6. Land Acquisition Officer, Gurgaon.
7. Sd/- Town Planner, Gurgaon.
8. Sd/- Town Planner (Development), Panchkula.
9. Sd/- Town Planner, Gurgaon, add.
10. Acquisition Officer, DTD D.C.P. Haryana, Chandigarh along with copy of agreement.

M/s. MOONLIGHT BUILDERS & PROMOTERS LTD.
Lps
Authorized Signatory

Director, Town & Country Planning,
for DIRECTOR, Town & Country Planning,
Haryana, Chandigarh.



To be read with Licence No. 53/96

DETAILS OF LAND OF M/S MOONLIGHT BUILDERS & DEVELOPERS LTD *Promoters*

LAND AT VILLAGE	KHASRA NOS.	BIGH-BISWAS-BISWANSI		
Wazirabad	2038/2	0	8	8
	2041/2	1	13	0
	2042/1	1	6	5
	1/3 Share	3	7	13
		1	2	11
	2046/1/2	1	2	14
	2045/2	1	4	0
	2043/2	0	17	13
	1/3 Share	3	4	7
		1	1	9
Total		2	4	0
Or Say :		1.375 Acres		

Plot 1 has been released
to the Govt of Punjab
for the purpose of
the Punjab & Chandernagore St.

[Signature]
El.



For DLF LIMITED
[Signature]
Authorised Signator

FORM LC-V
(See Rule 12)
HARYANA GOVERNMENT
TOWN AND COUNTRY PLANNING DEPARTMENT

Letter No. 39 of 1996.

1. This licence has been granted under the Haryana Development & Regulation of Urban Areas Act, 1975 & the Rules made thereunder to M/s. DLF Land & Finance Ltd., DLF Centre Sector 28, New Delhi for setting up of a group housing colony in village Wazirabad, District Gurgaon.
2. The portions of land wherein the aforesaid colony is to be set up are given in the Schedule annexed hereto and duly signed by the Director, Town and Country Planning, Haryana.
3. The licence is granted subject to the conditions:-
 - (a) That the group housing/plotted colony is laid out to conform to the approved layout plan and development works are executed according to the designs and specifications shown in the approved plan.
 - (b) That the conditions of the agreements already executed are duly fulfilled and the provisions of Haryana Development and Regulation of Urban Areas Act, 1975 and Rules made thereunder are duly complied with.
 - (c) That the demarcation plan of the colony area is submitted before starting the development works in the colony and for approval of the zoning plan.
 - (d) The density of population shall not exceed 250 PPA and ground coverage shall be limited to 25% in the Group Housing area. Special care to maintain the green character of the area and accordingly sufficient provision for parking, trees and open green spaces shall be made.
 - (e) The Commercial area shall not exceed 0.5% of the net planned area of the group housing area. Besides this, an additional area of 1% of the net planned Group Housing area shall be allowed for cultural, recreational and amusement activities, which do not have a predominantly commercial nature like cultural centre, art museum, ice skating rink and other such to be decided by the Director, Town and Country Planning, Haryana. Commercial area in the plotted area shall be governed by the existing provisions in this regard.
 - (f) One of the 18 meters wide internal road would be connected to the 30 meters wide proposed road along the foot hills in Sector 42 and 26 A.
 - (g) Policy decisions taken by the Govt. regarding provision of Fire Protection measures in the multi storied buildings shall be complied to.
 - (h) The alignment/operation along the creek/channel shall be maintained as per requirements of Irrigation/Drainage Deptt. Haryana and as approved by Director, Town and Country Planning, Haryana.
 - (i) Adequate access to all unincorporated pockets situated within the licensed colony shall be provided in the detailed layout plan of the group housing area.
 - (j) The layout plan will be got approved of the entire area in one scheme within a period of six months from the date of last approval i.e. 29.12.95.
 - (k) Community buildings in this area will be constructed within three years from the date of grant of licence.
4. That the portion of Sector/master plan area which shall form part of the licensed area, shall be transferred free of cost to the Government in accordance with Section 3(3) (a) of the Haryana Development and Regulation of Urban Areas Act, 1975.
5. This licence for the Group Housing Area is valid upto 15-4-2001.

David Chandigarh
No. 144/96

Letter No. DCP/96 5341

Date: 17-4-96

A copy along with a copy of schedule of land is forwarded to the following for information and necessary action:-

1. M/s. DLF Land & Finance Ltd., DLF Centre Sector 28, New Delhi, along with a copy of agreement.
2. Chief Administrator, HUDA, Panchkula.
3. Addl. Director, Urban Estates, Haryana, Panchkula.
4. Chief Engineer, HUDA, Manisotraj.
5. Superintending Engineer, HUDA, Gurgaon along with copy of agreement.
6. Land Acquisition Officer, Gurgaon.
7. Senior Town Planner, Gurgaon.
8. Senior Town Planner (Enforcement), Panchkula.
9. District Town Planner, Gurgaon, and
10. District Officer, G.O. D. T. P. Haryana, Chandigarh along with copy of agreement.

(R. S. GUJRAL)
DIRECTOR, Town & Country Planning,
Haryana, Chandigarh.



District Town Planner (Hq. M.)
for DIRECTOR, Town & Country Planning,
Haryana, Chandigarh.

For DLF LIMITED
Yps
Authorised Signatory

To be read with Utterance No. 99/96. ¹⁴

DETAILS OF LAND OF M/S DELHI LAND & FINANCE LTD

VILLAGE	KHASRA NOS.	BIGH-BISWA-BISWAMI			
		BIGH	BISWA	BISWAMI	
Haziabad	2036/1	1	19	18	
	2037/2	1	4	0	
	2038/4	0	2	15	
	Total		3	6	13
	1/3 Share		1	2	4
	2036/2	0	6	2	
	2037/3	0	18	18	
	2038/5	1	8	15	
	2035/1	0	18	10	
	2042/4	0	2	18	
	2043/3	0	4	19	
	Total		4	0	0
	1/3 Share		1	6	18
	2038/2	0	8	8	
	2041/2	1	13	0	
2042/1	1	6	5		
2/3 Share		3	7	13	
2/3 Share		2	5	2	
2042/2	2	8	3		
2043/1	0	6	18		
2043/3	0	4	18		
2044/1	0	0	19		
2045/1	0	6	0		
Total		3	6	18	
1/6 Share		0	11	3	
2037/1	0	2	12		
2038/3	0	3	3		
2042/3	0	1	18		
2043/4	0	1	6		
2044/3	0	1	10		
1/3 Share		0	10	6	
1/3 Share		0	3	8	
Total		5	6	11	
of say :		3,392 Acres			

Total Area: 3392 Acres
 Share: 1/3, 1/6, 2/3, 1/2
 Additional Conditions: Nil



[Handwritten Signature]
 Director
 Department of Environment & Forests
 Government of India

For DELHI LAND & FINANCE LTD

Authorised Signatory

FORM LC-V
(See Rule 12)
HARYANA GOVERNMENT
TOWN AND COUNTRY PLANNING DEPARTMENT

License No. 2 of 2002

1. This licence has been granted under the Haryana Development & Regulation of Urban Areas Act, 1975 & the Rules made thereunder to Ms. Anand Cultivation Limited, DLF Centre, Sarhad Marg, New Delhi, for setting up of a Group Housing/Plotted colony at village Wairatad, District Gurgaon.
2. The particulars of land wherein the aforesaid colony is to be set up are given in the Schedule annexed hereto and duly signed by the Director, Town & Country Planning, Haryana.
3. The licence is granted subject to the conditions:
 - a) That the group housing/plotted colony is laid out to conform to the approved layout plan and development works are executed according to the designs and specifications shown in the approved plan.
 - b) That the conditions of the agreement already executed are duly fulfilled and the provisions of Haryana Development & Regulation of Urban Areas Act, 1975 & the Rules made thereunder are duly complied with.
 - c) That the demarcation plan of the colony area is submitted before starting the development works in the colony and for approval of the zoning plan.
 - d) The density of population shall not exceed 250 PPA and ground coverage shall be limited to 25% in the Group Housing area. Special care to maintain the green character of the area and accordingly efficient provisions for greenery, trees and open green spaces shall be made.
 - e) The Commercial area shall not exceed 0.5% of the net planned area of the group housing area. Besides that, an additional area of 1% of the net planned Group Housing area shall be allowed for cultural, recreational and amusement activities, which do not have a predominantly commercial character like cultural centre, art museum, ice skating rink and other such items to be decided by the Director, Town & Country Planning, Haryana. Commercial area in the plotted area shall be governed by the existing provisions in the regard.
 - f) The 18 meters wide road coming from the Group Housing pocket shall be extended upto the boundary of additional licensed area as shown in the layout plan to improve the circulation.
 - g) Policy decisions taken by the Govt. regarding provision of Fire Protection measures in the multi-storied buildings shall be strictly followed.
 - h) The drainage/interceptor along the cross/corner channel shall be maintained as per requirements of Highways/Drainage Deptt. Haryana and as approved by Director, Town & Country Planning, Haryana.
 - i) Adequate access to all unlicensed pockets situated within the licensed colony shall be provided in the detailed layout plan of the group housing area.
 - j) The layout plan will be got approved of the Group Housing scheme alongwith the Service Plans/Estimates within a period of sixty days from the date of grant of licence.
 - k) Community buildings in this area will be constructed within three years from the date of grant of licence.
4. That the portion of Sector Master Plan road which shall form part of the licensed area, shall be transferred free of cost to the Government in accordance with Section 3(3)(a)(ii) of the Haryana Development & Regulation of Urban Areas Act, 1975.
5. This licence is valid upto: 24-1-2004

Dated Chandigarh
the 25-1-2002

(J.C. Wadhwa)
DIRECTOR, Town & Country Planning
Haryana, Chandigarh

Encl. No. SDP(II)-2002 1885 Dated: 30-1-02

A copy alongwith a copy of schedule of land is forwarded to the following for information and necessary action:-

1. Ms. Anand Cultivation Limited, DLF Centre, Sarhad Marg, New Delhi-110001.
2. Chief Administrative Officer, HUDA, Panchkula.
3. Addl. Director, Urban Estate, Haryana, Panchkula.
4. Chief Engineer, HUDA, Panchkula.
5. Superintending Engineer, HUDA, Gurgaon alongwith copy of agreement.
6. Land Acquisition Officer, Gurgaon.
7. Senior Town Planner, Gurgaon.
8. Senior Town Planner (Enforcement), Panchkula.
9. District Town Planner, Gurgaon and
10. Accounts Officer, DWD DCP, Haryana, Chandigarh alongwith copy of agreement.



[Handwritten Signature]
Director of Town & Country Planning,
Haryana, Chandigarh

For DLF LIMITED
[Handwritten Signature]
Authorised Signatory

(2)

To be read with Licence No. 2 of 2001.

**DETAILS OF LAND OF M/S. ARAVALI CULTIVATIONS LIMITED
AT VILLAGE WAZIRABAD, DISTT GURGAON**

Land at village	Khassra Nos.	Area B-B-B	Share	Area Taken B-B-B
Wazirabad	2455/1	2-12-12	21/36 share	1-18-17
	2456	0-14-0		
		3-8-12		
	343/1	1-8-0	2/3 share	0-18-15
	2315/3	0-0-08	—	0-1-04
	2316/3	0-0-16		
		0-1-08	1/3 share	0-1-08
	2315/4	0-2-16		
	2316/4	0-4-04		
	2007/2	3-0-16	1/3 share	1-0-09
2050/1	1-7-10			
	4-8-05			
1983	2-4-0	1/5 share	0-17-4	
2008	2-1-0			
2008/2	0-1-0			
	4-6-0			
Total :				5-0-15
Or say :				3.336 acres

Total Area Portion on Release
Share Given to the
Applicant Companies

Town and Country Planning
Haryana, Chandigarh.
Ch. Ar. Kar.



For DLF LIMITED
Authorised Signatory

FORM LC-V
(See Rule 12)
HARYANA GOVERNMENT
TOWN AND COUNTRY PLANNING DEPARTMENT

Licence No. 4 H/201

This licence has been granted under the Haryana Development & Regulation of Urban Areas Act, 1975 & the Rules made thereunder to M/s. Mahesh Krishna Dhyog Limited, DLF Centre, Sanzad Marg, New Delhi, for setting up of a Group Housing/Plotted colony in Village Wazirabad, District Gurgaon.

The particulars of said urban area, of which is to be set up are given in the Schedule annexed hereto and duly signed by the Director, Town & Country Planning, Haryana.

The licence is granted subject to the conditions

- a) That the group housing/plotted colony is laid out to conform to the approved layout plan and development works are executed according to the designs and specifications shown in the approved plan.
- b) That the conditions of the agreement already executed are duly fulfilled and the provisions of Haryana Development & Regulation of Urban Areas Act, 1975 & the Rules made thereunder are duly complied with.
- c) That the demarcation plan of the colony area is submitted before starting the development works in the colony and for approval of the zoning plan.
- d) The density of population shall not exceed 250 PPA and ground coverage shall be limited to 25% in the Group Housing area. Special care to maintain the green character of the area and accordingly sufficient provisions for greenery, trees and open green spaces shall be made.
- e) The Commercial area shall not exceed 0.5% of the net planned area of the group housing area. Besides this, an additional area of 1% of the net planned Group Housing area shall be allowed for cultural, recreational and amusement activities, which do not have a predominantly commercial content like cultural centre, art museum etc. skating rink and other such items to be decided by the Director, Town & Country Planning, Haryana. Commercial area in the plotted area shall be governed by the existing provisions in this regard.
- f) The 15 meters wide road coming from the Group Housing pocket shall be extended upto the boundary of additional licenced area as shown in the layout plan to improve the circulation.
- g) Policy decisions taken by the Govt. regarding provision of Fire Protection measures in the multi-storied buildings shall be abided by.
- h) The alignment/reservation along the creek/canier channel shall be maintained as per requirements of Irrigation/Drainage Deptt. Haryana and as approved by Director, Town & Country Planning, Haryana.
- i) Adequate access to all unlicenced pockets situated within the licenced colony shall be provided in the detailed layout plan of the group housing area.
- j) The layout plan will be got approved of the Group Housing scheme alongwith the Survey Plans/Statements within a period of sixty days from the date of grant of licence.
- k) Community buildings in this area will be constructed within three years from the date of grant of licence.

That the portion of Sector/Master Plan road which shall form part of the licenced area, shall be transferred free of cost to the Government in accordance with Section 3(3)(a)(ii) of the Haryana Development & Regulation of Urban Areas Act 1975.

This licence is valid upto 24-1-2004

Given in Chandigarh
the 25-1-2002

(Signature)
IN C MADHWA
DIRECTOR, Town & Country Planning
Haryana, Chandigarh

Case No. SDP/11/2001 1906

Date: 20-1-02

A copy alongwith a copy of Schedule of Land is forwarded to the following for information and necessary action

- 1. Mr. Mahesh Krishna Dhyog Limited, DLF Centre, Sanzad Marg, New Delhi 110017
- 2. Chief Architect, HUDA, Panipat
- 3. Add. Director, Urban Comm. Haryana, Panipat
- 4. Chief Engineer, HUDA, Panipat
- 5. Superintending Engineer, HUDA, District of Jhansi (for copy of Agreement)
- 6. Land Acquisition Officer, HUDA
- 7. Senior Town Planner, District
- 8. Senior Town Planner, District
- 9. District Town Planner, Haryana
- 10. Director, HUDA, Chandigarh



For DLF LIMITED

(Signature)
Authorised Signatory

To be read with Licence No. 4 of 2001.

DETAILS OF LAND OF M/S PRACHEEN KRISHI UDYOG LIMITED
AT VILLAGE WAZIRABAD, DISTT GURGAON

Land at village	Khasra Nos.	Area B-B-B	Share	Area Taken B-B-B		
Wazirabad	2455/1 2456	2-12-12 0-14-0 3-6-12	5/36 share	0-9-05 ✓		
	2315/4 2316/4	0-1-08 0-2-16 0-4-04			1/3 share	0-1-08 ✓
	2007/2 2050/1	3-0-15 1-7-10 4-8-05			1/3 share	1-9-08 ✓
	1993 2008 2006/2	2-4-0 2-1-0 0-1-0 4-6-0			1/5 share	0-17-4 ✓
			Total :	2-17-5		
			Or say :	1.789 acres ✓		

1. List of Area...
2. ...
3. ...

Handwritten signature
Name: *Chaitan Ram*

For DLF LIMITED
Signature
Authorised Signatory

FORM LC-V
(See Rule 12)
HARYANA GOVERNMENT
TOWN AND COUNTRY PLANNING DEPARTMENT

Licence No: 6 of 2002

This licence has been granted under the Haryana Development & Regulation of Urban Areas Act, 1975 & the Rules made thereunder to M/s. Madhur Cultivators Limited, DLF Centre, Sansad Marg, New Delhi, for setting up of a Group Housing/Plotted colony at village Wazirabad, District Gurgaon

The particulars of land wherein the aforesaid colony is to be set up are given in the Schedule annexed hereto and duly signed by the Director, Town & Country Planning, Haryana

The licence is granted subject to the conditions

- a) That the group housing/plotted colony is laid out to conform to the approved layout plan and development works are executed according to the designs and specifications shown in the approved plan
- b) That the conditions of the agreement already executed are duly fulfilled and the provisions of Haryana Development & Regulation of Urban Areas Act, 1975 & the Rules made thereunder are duly complied with
- c) That the demarcation plan of the colony area is submitted before starting the development works in the colony and for approval of the zoning plan
- d) The density of population shall not exceed 250 PPA and ground coverage shall be limited to 25% in the Group Housing area. Special care to maintain the green character of the area and accordingly sufficient provisions for greenery, trees and open green spaces shall be made
- e) The Commercial area shall not exceed 6.5% of the net planned area of the group housing area. Besides this, an additional area of 1% of the net planned Group Housing area shall be allowed for cultural, recreational and amusement activities, which do not have a predominantly commercial content like cultural centre, art museum, ice skating rink and other such items to be decided by the Director, Town & Country Planning, Haryana. Commercial area in the plotted area shall be governed by the existing provisions in this regard
- f) The 10 meters wide road coming from the Group Housing pocket shall be extended upto the boundary of additional licensed area as shown in the layout plan, to improve the circulation
- g) Policy decisions taken by the Govt. regarding provision of Fire Protection measures in the multi-storied buildings shall be abided by
- h) The alignment/observation along the creek/canalar channel shall be maintained as per requirements of Irrigation/Drainage Deptt. Haryana and as approved by Director, Town & Country Planning, Haryana
- i) Adequate access to all unlicensed pockets situated within the licensed colony shall be provided in the detailed layout plan of the group housing area
- j) The layout plan will be got approved of the Group Housing scheme alongwith the Service Plans/Estimates within a period of sixty days from the date of grant of licence
- k) Community buildings in this area will be constructed within three years from the date of grant of licence

That the portion of Section/Plot Plan road which shall form part of the licensed area, shall be transferred free of cost to the Government in accordance with Section 3(3)(ii) of the Haryana Development & Regulation of Urban Areas Act, 1975.

The licence is valid upto 24-1-2004

For DLF LIMITED

Authorised Signatory

(M.C. WADHWA)

DIRECTOR, Town & Country Planning
Haryana Chandigarh

Dated Chandigarh
on 25-1-2002

Order no 50P(III)-2001/ 1946

Dated 20-1-02

A copy alongwith a copy of schedule of land is forwarded to the following for information and necessary action

- 1. M/s. Madhur Cultivators Limited DLF Centre, Sansad Marg, New Delhi-110001
- 2. Chief Administrator, HUDA, Panchkula
- 3. Asst. Director, Urban Estate, Haryana, Panchkula
- 4. Chief Engineer, HUDA, Panchkula
- 5. Superintending Engineer, HUDA, Gurgaon alongwith copy of agreement
- 6. Land Acquisition Officer, Gurgaon
- 7. Senior Town Planner, Gurgaon
- 8. Senior Town Planner (Urban Estate) Panchkula
- 9. Senior Town Planner, Gurgaon and
- 10. Asstt. Director (RD Deptt.) Haryana Chandigarh alongwith copy of agreement



6)

To be read with Licence No. 6 of 2002

DETAILS OF LAND OF M/S MADHUR CULTIVATIONS LIMITED
AT VILLAGE WAZIRABAD, DISTT GURGAON

Land at village	Khasra Nos.	Area B-B-B	Share	Area Taken B-B-B
Wazirabad	2455/1 2456	2-12-12 <u>0-14-0</u> 6-12	5/36 share	0-9-05
	2315/4 2316/4	0-1-08 <u>0-2-16</u> 0-4-04	1/3 share	0-1-08
	343/1	1-8-0	4/15 share	0-7-09
	2007/2 2050/1	3-0-15 <u>1-7-10</u> 4-8-05	1/3 share	1-9-09
	1993 2008 2006/2	2-4-0 2-1-0 <u>0-1-0</u> 4-6-0	1/5 share	0-17-4
	Total:			3-4-14
	Or say			2.022 acres

For the Madhura Cultivations Limited
Gurgaon, Haryana

T. Prasad,
Town and Country Planning,
Haryana, Chandigarh
CANTONMENT

0-4-11
0-1-11
0-6-0

For DLF LIMITED
Lps
Authorised Signatory



NOTES:
 1. ALL WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITIONS OF THE BRITISH STANDARDS INSTITUTION (BSI) STANDARDS.
 2. ALL WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITIONS OF THE BRITISH STANDARDS INSTITUTION (BSI) STANDARDS.
 3. ALL WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITIONS OF THE BRITISH STANDARDS INSTITUTION (BSI) STANDARDS.
 4. ALL WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITIONS OF THE BRITISH STANDARDS INSTITUTION (BSI) STANDARDS.



PROJECT:
 THE DEVELOPMENT OF A RESIDENTIAL AND COMMERCIAL DEVELOPMENT IN THE CITY OF LONDON, KNOWN AS THE CITY OF LONDON DEVELOPMENT, BEING DEVELOPED BY DLF LIMITED.

DLF LIMITED
 INCORPORATED IN THE UNITED KINGDOM
 25 ABchurch Lane, London, EC4A 3DF
 Tel: 020 7493 1111
 Fax: 020 7493 1112
 www.dlf.co.uk

DATE:	15/05/2011
SCALE:	1:1000
PROJECT NO.:	1176
CLIENT:	DLF LIMITED
DESIGNER:	DLF LIMITED
APPROVED BY:	[Signature]
DATE:	15/05/2011



DLF LIMITED
 15/05/2011

