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DIGITALLY VERIFIED RECORD

CHAPTER-5

RECOMMENDATIONS

5.1 RECOMMENDATION FOR OPEN FOUNDATION SYSTEM: (2 BASEMENT + GROUND + 11 FLOORS)

- In case of raft foundation is adopted, the recommended allowable net safe bearing pressure is 600 kPa at 7.0m or beyond from the existing ground level.
- For the design of raft the recommended modulus of sub grade reaction of the bearing strata (k_s) is 100000 kN/m^3.
- The raft shall be checked/design for uplift pressure corresponding to groundwater level at the existing ground level.

5.2 RECOMMENDATION FOR EXCAVATION & GROUNDWATER LOWERING:

- For carrying out excavation either diaphragm wall or secant pile wall is a suitable system due to high ground water table.
- The design soil profile presets the requisite design data for the estimation of lateral earth pressures and the same hold good for the analysis and design of diaphragm wall or secant pile wall.
- For ground water lowering, since diaphragm wall or secant pile wall is recommended as shoring for ground water lowering a combination of dewatering bore-wells installed both inside and outside the diaphragm is suggested.

5.3 GENERAL RECOMMENDATIONS:

- The chloride content in ground water sample is within the permissible limit of 500mg/l as per IS 456 Table 1.0.
- Corresponding to the sulphate content in 2:1 Water-Soil extract and ground water use Table 4.0 of IS 456 Clause 2.0 for minimum cement content and maximum water cement ratio.
- Hence no special steel or cement is required for the construction of foundations.
- The present project site falls in seismic zone-III as per IS 1893-P-I and based on the liquefaction analysis the sub soil formation exists at site is non-liquefiable considering the zone-III seismic intensity.
- Excavated earth is suitable for backfilling purposes.

AUTHORISED SIGNATORY

GEO MARINE CONSULTANTS PVT. LTD. CHENNAI-41

Dr.C.VENKATA PRASAD
Registered Geotechnical Engineer (RGTE)
Registration No: GTE/19/03/003
Chennai Metropolitan Development Authority(CMDA)
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Email-drcvp@geomarineindia.com

DR. C. V. PRASAD
GEOMARINE CONSULTANTS PRIVATE LIMITED

On behalf of CMDA HRB Panel Committee the Geotechnical Investigation Report is generally reviewed.
14/9/22

Superintending Engineer, P.W.D.
Planning and Designs Circle (Buildings),
Chepauk, Chennai-600 005.

Annexure – IV [See rule 51(3)]

Form 1

Structural Design Basis Report

(1) This report to accompany the application for Building Developments

Part1	General Data		
S.No.	**Description**	**Information**	**Notes**
1	Site Address	Door No. Old No: 30 & New No: 47/C, Gandhi Mandapam Road, Kotturpuram, Chennai – 600 085 Comprised in T.S.No. 5/21, 6/31, & 6/63 of Block No.16 Adyar Village, Adyar – Guindy Taluk, Chennai District. Greater Chennai Corporation Zone: 13, Division: 172.	
2	Name of Owner	Sri Kausalya Constructions Ltd, Managing Director, Y Meera Reddy	
3	Name of Registered Developer along with the Registration Number	Sri Kausalya Constructions Ltd, RD/19/05/413	
4	Name of Registered Architect along with the Registration Number	A.Venkatakrishnan, B.Arch,. RA/GR.I/19/03/053	
5	Name of Registered Structural engineer along with the Registration Number	Dr. Alex Jacob SE/GR-I/19/02/001	
6	Use of the building	Office	
7	Number of stories above ground level (including story's to be added later, if any)	G + 12	
8	Number of basements below ground level	2	
9	Height of the Building	48m (FGL to top of Terrace)	
10	Type of structure • Load bearing walls • R.C.C. frame • R.C.C. frame and Shear Walls • Steel frame	RCC Framed structure with shear wall	
11	Soil data • Type of soil • Design safe bearing capacity	Weather Rock Given 60 T/m² at 7m depth Adopted 18 T/m²	IS:1893 C1.6.3.5.2 IS: 1904 IS: 1892 IS: 2131 IS: 2720

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REG No. SE/GR-I/19/02/001
REG No. RSE100392019

12	Dead loads (unit weight adopted) • Earth • Water • Brick masonry • Plain cement concrete • Reinforced cement concrete • Floor finish • Other fill materials	 20 kN/cum 10 kN/cum 20 kN/cum 24 kN/cum 25 kN/cum 20 kN/cum	IS: 875 Part 1
13	Imposed (live) loads Floor loads Roof loads	 5 kN/m² 5 kN/m²	IS: 875 Part 2
14	Cyclone/Wind • Speed	 50 m/s	IS: 875 Part 3
15	Seismic zone	III	IS: 1893 (2002)
16	Importance factor	1.2	IS:1893(2002) Table 6
17	Seismic zone factor (Z)	0.16 (Zone – III)	IS:1893 Table 2
18	Response reduction factor	4	IS:1893 Table 7
19	Fundamental natural period – approx.	1.3	IS:1893 C1.7.6
20	Design horizontal acceleration spectrum value	1.05	IS: 1893 C1.6.4.2
21	Expansion/Separation Joints	Nil	
22	Building is regular/irregular	Regular	IS 1893

- Enclose detailed drawings drawn to scale for each floor
- In case terrace garden is provided, indicate additional fill load and live load along with the detailed drawings drawn to scale

Part 2	**Reinforced concrete framed buildings**		
Sl. No.	**Description**	**Information**	**Note**
1	Type of building Regular frames Regular frames with Shear Walls Irregular frames Irregular frames with Shear Walls	Regular frames with Shear Walls	IS: 1893 C1 7.1
2	Number of basements	2	
3	Number of floors including ground floor	G + 12	
4	Horizontal floor system • Beams and slabs • Waffles • Ribbed floor • Flat slab with drops • Flat plate without drops	Beams and Slabs	

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5	Soil data Type of soil Recommended type of foundation • Independent footings • Raft • Piles Recommended bearing capacity of soil • Recommended type, length, diameter and load capacity of piles • Depth of water table	Weathered Rock Raft Given 60 T/m² at 7m depth Adopted 18 T/m² -	IS: 1498
6	Foundations Depth below ground level Type • Independent • Interconnected Raft • Piles	8 m Interconnected Raft	
7	System of interconnecting foundations • Plinth beams • Foundation beams	Foundation beams	IS: 1893 C1 7.12.1
8	Grades if concrete used in different parts of building	M-40 for columns M-35 for PT M-25 for all other R.C.C work	
9	Method of analysis used	Response Reduction Method	
10	Computer software used	STADD Pro CONNECT Edition	Version 22.11.00.156
11	Torsion included	Yes	IS: 1893 C1 7.9
12	Base shear a. Based on approximate fundamental period b. Based on dynamic analysis c. Ratio of a/b	1.3 1.1 1.2	IS: 1893 Cl. 7.5.3
13	Distribution of seismic force along the height of the building.	1.2	IS:1893 Cl.7.7
14	The Column of soft ground storey specially designed.	Yes	IS: 1893 Cl.7.10
15	Clear minimum cover provided in • Footing & Pile • Column • Beams • Slabs • Walls	50 mm 40 mm 25 mm 20 mm 20 mm	IS: 456 Cl. 26.4

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16	Ductile detailing of RC frame • Type of reinforcement used • Minimum dimension of beams • Minimum dimension of columns • Minimum percentage of reinforcement of beams at any cross section • Maximum percentage of reinforcement at any section of beam • Spacing of transverse reinforcement in 2-d length of beams near the ends • Ratio of capacity of beams in shear to capacity of beams in flexure • Maximum percentage of reinforcement in column • Confining stirrups near ends of columns and in beam-column joints Diameter Spacing • Ratio of shear capacity of columns to maximum seismic shear in the storey. • Reinforcement used for: ➢ Beam - Minimum - Maximum ➢ Column - Minimum - Maximum ➢ Slab - Minimum - Maximum ➢ Stirrups - Minimum - Maximum ➢ Ties - Minimum - Maximum	Fe 500 200 mm 200 mm 0.8% 4% 120 mm 1 4 8 mm 100 mm 1 16 mm 32 mm 20mm 32mm 8mm 12mm 8mm 12mm 8mm 10mm	IS: 456 Cl. 5.6 IS: 13920 Cl.6.1 IS: 13920 Cl.7.1.2 IS: 456 Cl.26.5.1(a) IS: 13920 Cl.6.2.1 IS: 456 Cl.26.5.1.1(b) IS: 13920 Cl.6.2.2 IS: 13920 Cl.6.3.5 IS: 456 Cl.26.5.3.1 IS: 13920 Cl. 7.4
17	Does the features require clearance by SDRP Example: High rise building/Prefab building/Building in hazard prone areas	-	

Idealization for Earthquake analysis

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REG No. SE/GR-I/19/02/001
REG No. RSE100392019

- In case of composite system of shear walls and rigid frames, give distribution of base shear in the two systems on the basis of analysis, and that used for design of each system
- Indicate the idealization of frames and shear walls adopted in the analysis with the help of sketches.
- Submit framing plans of each floor
- In case of basements, indicate the system used to contain earth pressures.

Recommendations of structural Engineer with respect to special requirement needed with respect to structural safety and stability to be taken note of by competent authority feature like incorporation of swimming pool, heavy load on roof, prefabricated structure or any other hazardous features should be included.

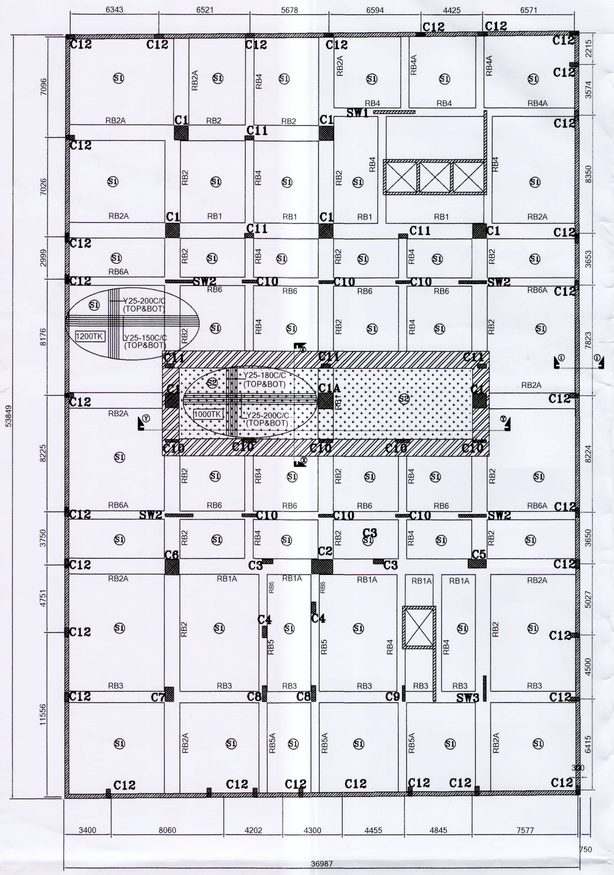
Structural Engineer Seal and Signature

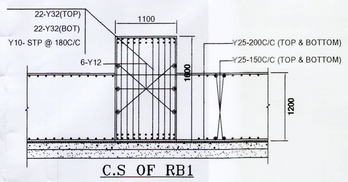
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REG No. SE/GR-I/19/02/001
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On behalf of CMDA HRB Panel Committee, the Structural Design calculations are generally reviewed.

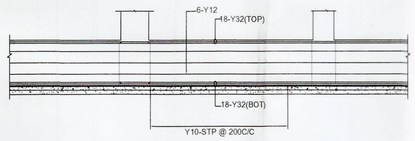
14/9/22

Superintending Engineer (I/C),
Planning and Design Circle (Buildings),
Chepauk, Chennai-600 005.

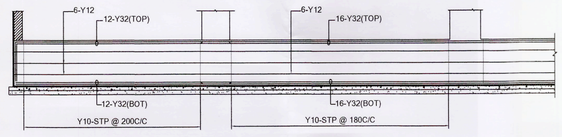




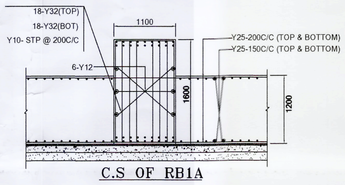
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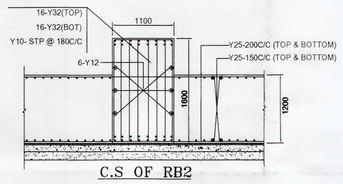
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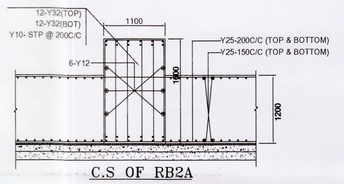
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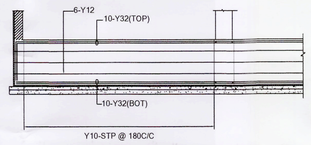
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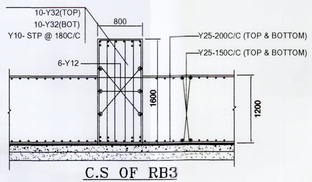
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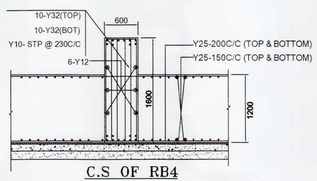
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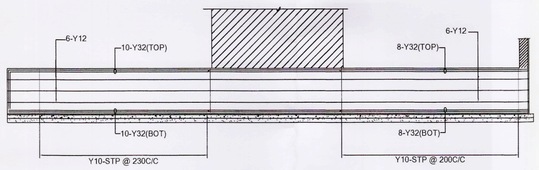
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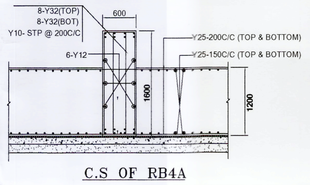
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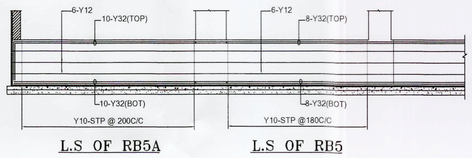
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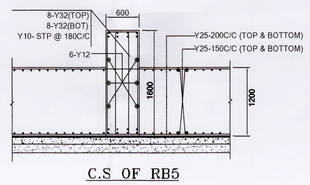
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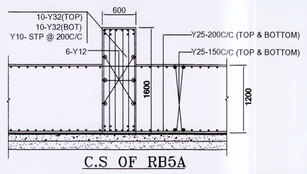
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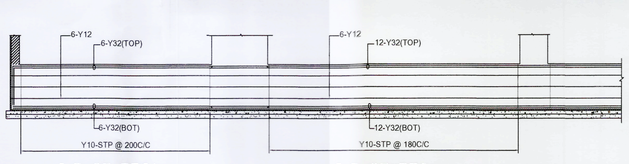
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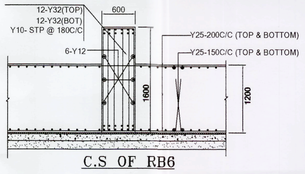
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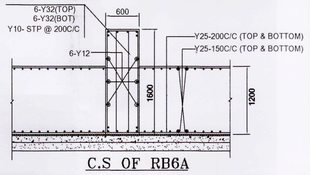
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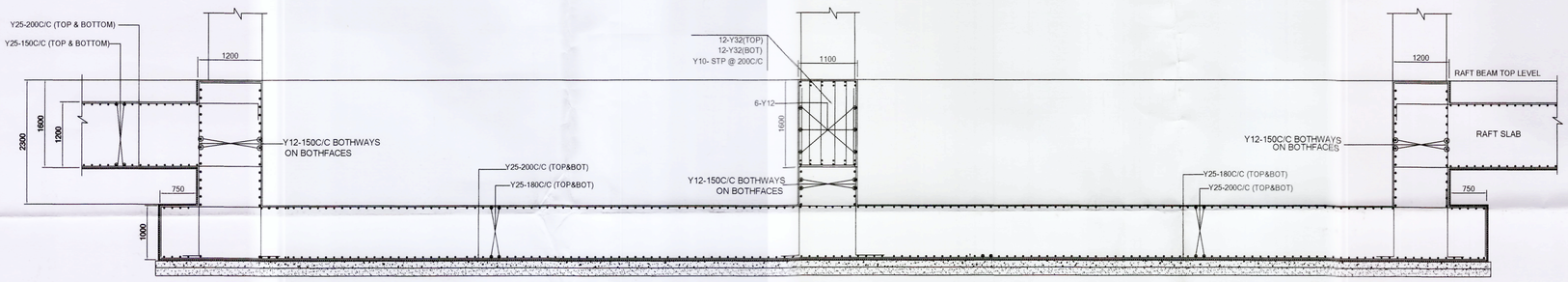
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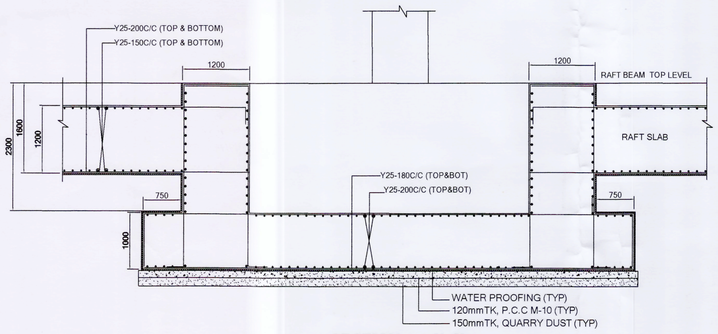
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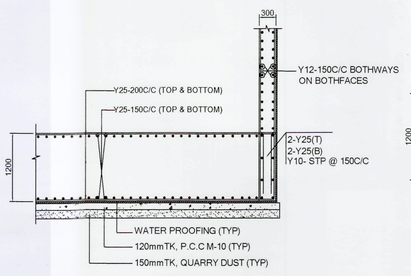
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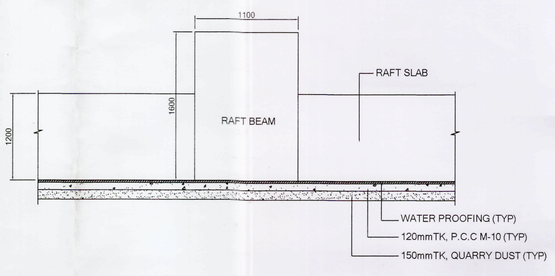
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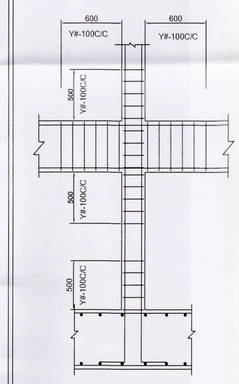
SECTION - 1 1



TYPICAL RAFT BEAM & SLAB SECTION

 # DENOTES

8# or 10# or 12#mm
WHICH EVER MAXIMUM DIA
OF THE STIRRUPS
BAR USED IN BEAM or COLUMN



TYPICAL SECTION FOR STIRRUPS DETAILS

SCHEDULE OF STRUCTURAL DETAILS:

NOTES — 2B+G+12

- REFER ARCH. DWG. FOR CENTRE LINE DIMENSIONS.
- CONCRETE MIX
  - (i) COLUMN & SHEAR WALL – M40
  - (ii) ALL OTHER R.C.C WORKS – M25
- ALL REINFORCEMENTS ARE OF Fe500 GRADE.
- LAP LENGTH SHALL BE 50 x DIA OF THE BAR
- CLEAR COVER TO MAIN REINF.
  - (i) COLUMN 40mm
  - (ii) RAFT BEAM 50mm
  - (iii) RAFT SLAB 50mm
  - (iv) R.C.C WALL 25mm

On behalf of CMDA HRB Panel Committee the Structural drawings are reviewed and found generally in order.
It is the responsibility of the Site/Structural Engineers concerned to scrutinize the details and implement at site as per detailed drawings and specifications.
14/9/22
Superintending Engineer
Planning and Designs Circle (Buildings),
Chepauk, Chennai-600 005.

R.No	Description of Revision	Date	Revised By

STRUCTURAL CONSULTANT

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BESANT NAGAR, CHENNAI - 600 090.
PH. NO. 044- 2491 09 45
email : alexjacobuc@gmail.com
web site: www.unitedconsultants.in

PRINCIPAL ARCHITECT :

OWNER

PROJECT TITLE

PROPOSED CONSTRUCTION OF HIGH RISE BUILDING (HRB) WITH 48.0 MTR HEIGHT (FGL TO TOP OF TERRACE) CONSISTING OF EXTENDED DOUBLE BASEMENT FLOOR + STILT FLOOR (PART) + GROUND FLOOR (PART) + 12 FLOORS OFFICE COMMERCIAL BUILDING AT OLD NO.30 &NEW NO. 47/ C GANDHI MANDAPAM ROAD & AMBADI ROAD, KOTTURPURAM , CHENNAI - 600 085 COMPRISED IN T.S NO. 5 / 21, 6/31 & 6/ 63 OF BLOCK NO. 16 ADYAR VILLAGE, GUINDY TALUK, CHENNAI DIST. GREATER CHENNAI CORPORATION ZONE: 13 & DIV: 172

DRAWING TITLE

RAFT FOUNDATION DETAIL

PROJECT NO	SHEET NO :
UC-1261-CORPORATION-SKCL-KOTTURPURAM	01/02

DSND	Dr.ALEX JACOB
DRN	MANIMEGALAI
DATE	25.08.22
SCALE	1 : 100

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REG No. SE/GR-I/19/02/001
REG No. RSE100392019

FILE NAME E:\MANIMEGALAI\UC - 1261 -CORPORATION-KOTTURPURAM - COULMN DETAIL

THE LANDLENS SUITE

Eight ways to know a piece of land before you pay for it.

This report covers one part of the picture. These cover the rest, drawn from the same government records, for any property in Tamil Nadu.

LandLens One
Ask anything about a property and get an answer grounded in live government records, with the sources shown.
/landlens/one

Verify My Land
Every record check run on one property and returned as a single report.
/landlens/verify-my-land

Legal Opinion
An advocate's written opinion on the title, built on the records we pull for it.
/landlens

One Map
Every layer on one map: the parcel, its boundary, zoning, water bodies and what sits around it.
/landlens/one/map

PriceMap
What land actually changed hands for around this plot, taken from the registered deeds.
/landlens/pricemap

Build Scope
What you are allowed to build here: floor space, height, coverage and setbacks.
/landlens/build-scope

Property Tracker
Watch a property and hear about it when something new is registered against it.
/landlens/property-tracker

Deal Room
Run the transaction in one place: documents, stamping, signatures and the parties.
/landlens/deal-room

FREE TOOLS · NO ACCOUNT NEEDED

Twenty-four checks you can run yourself, at no cost.

Records and verification

The registers themselves, read for you.

- Encumbrance Certificate
- Patta and Chitta
- Field Measurement Sketch
- EC Analyzer
- Bank charge check
- Court case search
- Seller background check
- Approval check by survey

Value and duty

What it is worth and what it costs to register.

- Guideline value by street
- Guideline value by survey
- Stamp duty and registration fees
- Capital gains
- Floor space index
- Area unit converter

Zoning and land use

What the plan says can happen on this land.

- Land use zone finder
- CMDA land use check
- Coastal regulation zone
- Master plan check
- Water bodies finder
- Airport height clearance

Registers and directories

Who holds it, and which office keeps the record.

- Find your registering office
- Temple property check
- Waqf property check
- RERA register

Every free tool
/tools

Services we run for you
/services

The LandLens suite
/landlens/one

Verified RealEstate™

Every claim in this document traces back to a government record.

- Legal opinions, due diligence and title verification
- Building plan, layout and sub-division approvals
- Completion and occupancy certificates, regularisation
- Escrow, negotiation and NRI property management
- Land survey, soil testing, architecture and construction

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