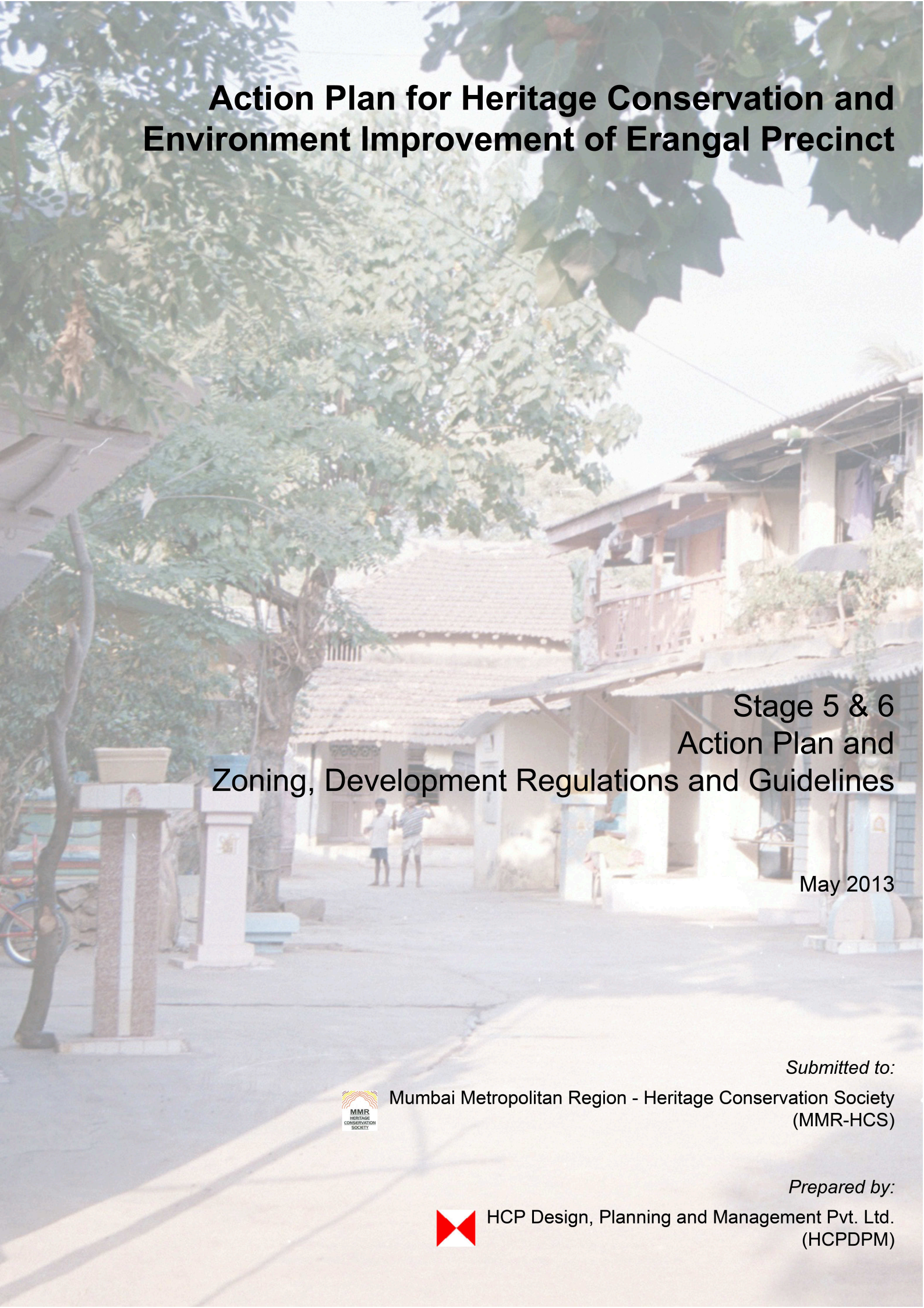
Action Plan for Heritage Conservation and Environment Improvement of Erangal Precinct



Stage 5 & 6
Action Plan and
Zoning, Development Regulations and Guidelines

May 2013

Submitted to:

Mumbai Metropolitan Region - Heritage Conservation Society (MMR-HCS)

Prepared by:

HCP Design, Planning and Management Pvt. Ltd. (HCPDPM)

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Stage 5
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MMRDA, Bandra Kurla Complex, Bandra (East), Mumbai 400 051

Prepared by

HCP Design, Planning and Management Pvt. Ltd.
Paritosh, Usmanpura, Ahmedabad- 380 013

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Mr. Chandra Thakur, Resident, Erangal Precinct
Mr. SatishThakur, Resident, Erangal Precinct
Mr. Naresh Mhatre, Resident, Erangal Precinct
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Mr. Jagdish Mhatre, Resident, Erangal Precinct
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Mr. Pravin Mhatre, Resident, Erangal Precinct
Mr. Jagnesh Mhatre, Resident, Erangal Precinct
Mr. Sunil Atmaram, Resident, Erangal Precinct
Mr. Chandrakant Tukaram, Resident, Erangal Precinct

PROJECT TEAM

Shirley Ballaney, Architect – Urban and Regional Planner
Bindu Nair, Urban and Regional Planner
Sonal Shah, Architect – Urban Planner
Rashmi Waghmare, Architect – Urban Planner
Harshad Raisoni, Architect – Urban Planner
Neha Jaiswal, Architect – Urban Planner
Amal Shukla, Architect – Urban Planner
Atul Patel, CAD Manager
Bharat Patel, CAD Operator.

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CRZ	Coastal Zone Regulations
CZMA	Coastal Zone Management Authority
CZMP	Coastal Zone Management Plan
DCR	Development Control Regulations
DP	Development Plan
HTL	High Tide Line
MMRHCS	Mumbai Metropolitan Region Heritage Conservation Society
MLALADS	Member of Legislative Assembly Local Area Development Scheme
MPLADS	Member of Parliament Local Area Development Scheme
NDZ	No Development Zone
SKBS	Saishav Kshatriya Bhandari Samaj

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1 Introduction

1.1 Background to the Project

Mumbai has about 189 gaothans today interspersed in its modern urban fabric. These gaothans are small enclaves engulfed or surrounded by a built fabric that is in total contrast in terms of the pattern, scale etc. These gaothans, which were once an indelible part of Mumbai's landscape, are now struggling to exist due to development pressures. The issues facing these settlements are – insufficient infrastructure, inappropriate development guidelines & regulations, crowding, incongruent redevelopments, destruction of the historic structures, changes in the economic base, which affects the physical fabric and high real estate development pressures.

The Mumbai Metropolitan Region Heritage Conservation Society (MMRHCS) has been set up to spearhead efforts in the area of heritage conservation. It has already undertaken the tasks of heritage listing for Greater Mumbai and has initiated the same task for the rest of MMR. MMR HCS is taking a step further by undertaking a pilot project to "Prepare an Action Plan for Conservation of Heritage Precincts in Mumbai Metropolitan Region". In the pilot project, the following five precincts are being taken up as separate tasks:

Table No 1: List of Precincts

No	Task No.	Name of the Precinct	Location
1	Task – I	Erangal Village Precinct	Mumbai-Western Suburbs
2	Task – II	Chembur Precinct (3 Sub Precincts) • Chembur Gaothan • Old Chembur • St. Anthony's Society	Mumbai-Eastern Suburbs
3	Task – III	Deulwadi Precinct	Uran (Navi Mumbai Notified Area)
4	Task – IV	Jama Masjid Road Precincts	Kalyan City
5	Task – V	Agashi Talav Precinct	Vasai-Virar Sub-Region

Among the five precincts taken up as a part of the pilot project, Task I - Preparation of Action Plan for Heritage Conservation and Environmental Improvement of Erangal Precinct was assigned to HCP Design and Project Management (HCPDPM).

The work for each task is being carried out in the following stages:
Stage 1: Review of Available Data and Inception Report
Stage 2: Detailed Condition Assessment
Stage 3: Evaluation of Significance
Stage 4: Identification of Issues
Stage 5: Preparation of Action Plan
Stage 6: Zoning, Development Regulations and Guidelines

Stages 1, 2, 3 and 4 are complete. The Action Plan is viewed as a comprehensive set of projects for the precinct. There are 19 proposals and interventions identified for Erangal comprising of capital investments, statutory provisions and institutional strengthening. Of the total 19 proposals, Proposal No. 2 deals with zoning and development regulations and guidelines to manage growth in the precinct and planning area around it. Hence, both Stage 5 and Stage 6 are presented as a comprehensive final report.

1.2 Objectives of Stage 5 and 6

The objectives of this stage include:

1. To articulate the vision, objectives and strategies for the precinct.
2. To identify projects and initiatives with inputs from the community.
3. To prepare block estimates for the projects and initiatives.
4. To prioritize and phase the projects and initiatives.
5. To identify financial and other resources to implement the projects and programmes.
6. To propose mechanisms for implementation.

1.3 Methodology and Scope of Work

The chart below shows the methodology for this stage followed by a statement of the major activities carried out.

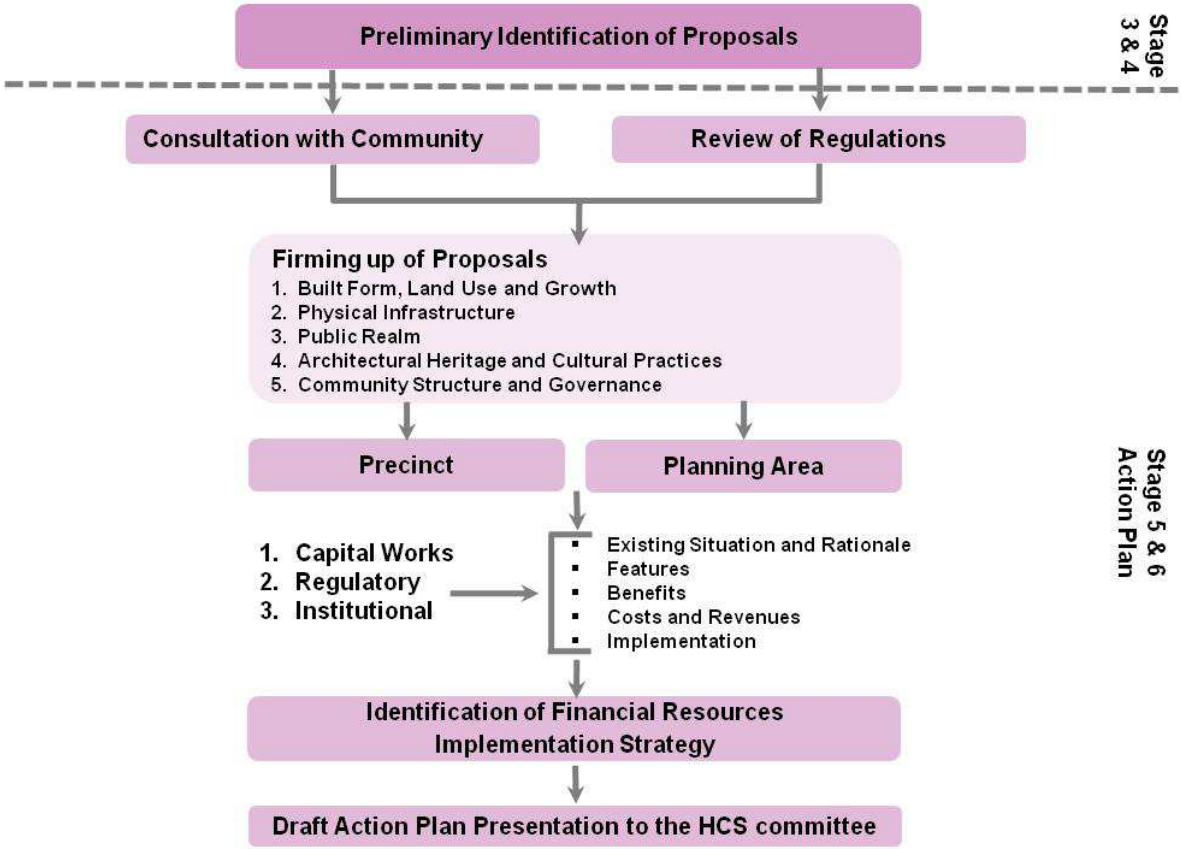


Figure 1: Methodology Chart

Activity 1 Articulate the vision, objectives, development strategies for the precinct and prepare a set of proposals and interventions

The development vision, objectives and strategies for conserving the heritage and improving the environment of the precinct are articulated and a final list of proposals and initiatives is prepared with inputs from the community. The proposals and initiatives are organized around 5 major areas of intervention:

1. Built form, land use and growth
2. Physical infrastructure
3. Public realm
4. Heritage and cultural practices and
5. Community structure and governance.

Activity 2 Consultation with the community on the preliminary proposals and initiatives

Meet with the community with the objectives and the tentative proposals to sound the feasibility, acceptance and priorities.

Activity 3 Undertake a review of the CRZ regulations and other relevant regulatory provisions that will impact the preparation of the physical plan for the precinct

The planning proposals particularly those to do with the regulation of activities are dependent on the prevalent regulatory provisions. In this context there are two sets of regulations that are relevant:

1. CRZ regulations
2. Zoning and DC regulations of Mumbai's development plan.

Activity 4 Detail out proposals and initiatives

Every proposal or initiative is schematically detailed out. For each proposal or initiative, there is brief description of the background and need for it, features, schematic costs / revenues (wherever possible), benefits and implementation.

Activity 5 Identify financial and other resources and an implementation strategy

The projects are phased based on community priority. An implementation mechanism is proposed along with identification of financial resources. This will also include the steps to be taken for the next year.

Activity 6 Prepare the Draft Action Plan and present to the MMR HCS Committee

The draft action plan is submitted to the MMT HCS for comments and feedback (this report).

1.4 Deliverables

The deliverable for this stage is a report on Stage 5 Action Plan and Stage 6 Zoning, Development Regulations and Guidelines.

2 Vision, Objectives, Strategies and Proposoals

Having identified the significance and issues of the precinct, the overall development vision, objectives and strategies for the precinct were developed, discussed with the community and subsequently improved.

2.1 Vision

- Erangal is an example of community driven conservation and environmental, improvement heritage precinct.
- Erangal has retained its significant architectural, historical and cultural heritage
- Erangal is a well-planned and managed precinct supported by adequate and efficient infrastructure, utilities and services.
- Erangal has grown in harmony with the existing character of its urban form and public realm.

2.2 Objectives

- To conserve the significant architectural, historical and cultural heritage of Erangal.
- To improve and upgrade the physical infrastructure within the precinct.
- To regulate growth within the precinct in harmony with the existing urban form.
- To retain and enhance the character of the public realm.
- To facilitate planned development around the precinct.
- To solicit the collaboration of the community in all of the above.

2.3 Strategies

- Leverage the architectural, historical and cultural assets in the precinct to showcase the historical significance and generate revenues.
- Identify an area around the precinct for planning and regulating development.
- Effect physical improvements of the public realm and build / refurbish the physical infrastructure in the precinct in an integrated manner.
- Propose place based regulations & guidelines to regulate & guide development within the precinct and in the area surrounding it.
- Delineate a role for organizations such as SKBS in the implementation of improvements in the precinct and the area around.
- Identify resources for effecting the improvements from within the precinct and its surroundings.

2.4 Approach to Framing Proposals and Interventions

Erangal gaothan represents a unique example of heritage precinct gaothan in the midst of a rapidly transforming and modernizing Mumbai in a sense that the physical fabric & the public realm have survived more or less in an intact manner. It gives a glimpse of the original coastal settlements of Mumbai wherein the community structure and cultural practices are retained.

However the precinct (gaothan) is on the throes of transformation owing to internal and external growth pressures. There has been addition of new structures, incongruent transformation of structures and deterioration of existing structures, public realm and the physical environment over a period of time.

While the process of transformation is inevitable, it can be guided and managed such that the physical fabric and public realm are preserved and enhanced, and the physical environment is upgraded & improved. This has the potential to not only improve the quality of life of its residents but showcasing Erangal as an example of well managed living heritage precinct in a modern city.

The approach to realizing the vision outlined and more crucially managing this process of transformation is clearly articulated as a set of actions or proposals and interventions. The diagram below depicts this and is followed by a brief explanation below:

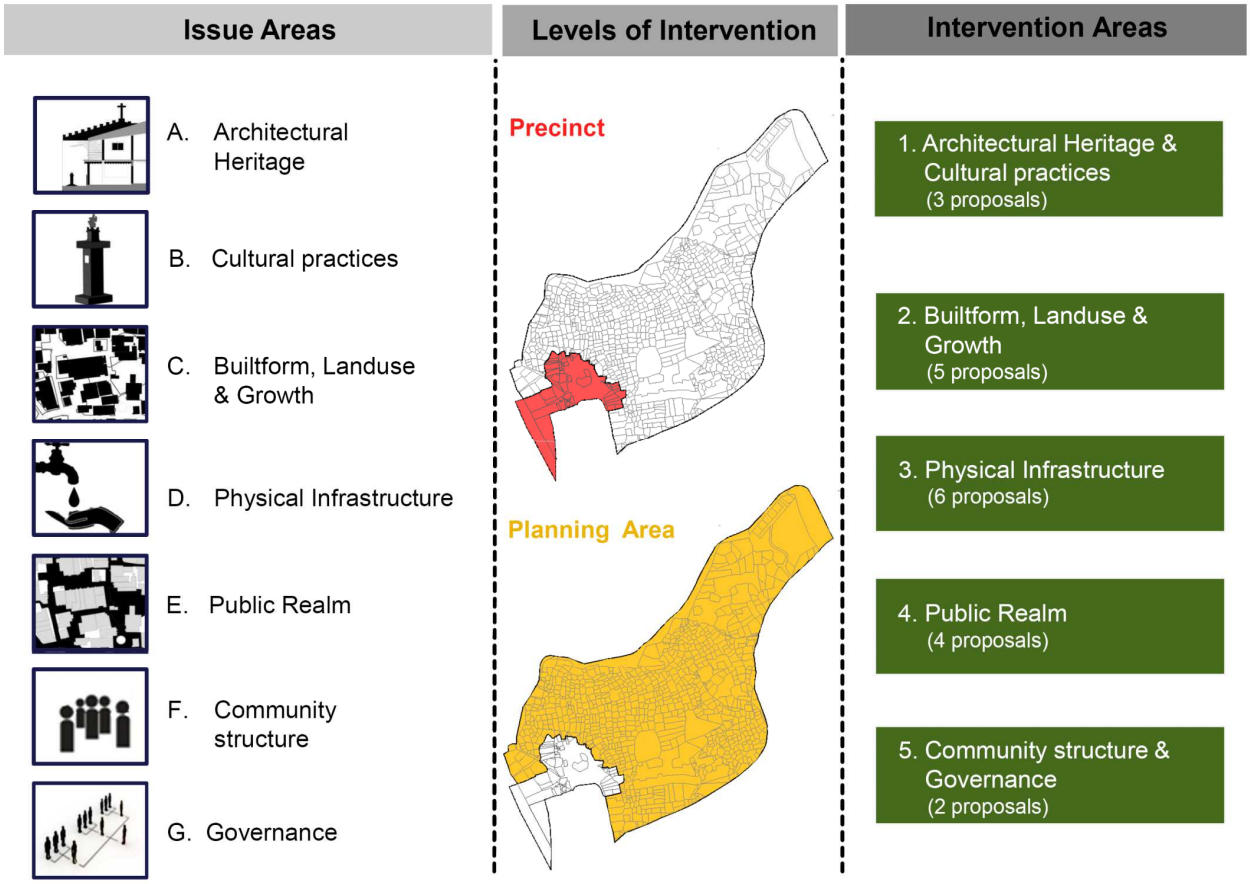


Figure 2: Approach to the Action Plan

Issue Areas
The key inferences from the condition assessment and the consultations were organized around six **'Issue Areas'**:

A Architectural heritage
B Cultural practices
C Built form, land use and growth
D Physical infrastructure
E Public realm
F Community structure

Levels of Intervention – Definition of Precinct and Planning Area
The process of transformation will have to be guided and managed both within the precinct (gaothan) as well as in the immediate area surrounding it. The heritage precinct (gaothan) cannot be looked at in isolation from its surroundings. It is obvious that the developments in the immediate surroundings will and are already impacting the precinct (gaothan). It is appropriate to take an integrated approach while framing the proposals and interventions in view of the following:

- The land parcels in the vicinity are being converted to non agricultural uses. It is important to ensure that the new developments at least immediately abutting the precinct are in harmony and in scale with the precinct / gaothan character and there is a gradual transformation to the new modern developments seen in the western suburbs.
- It is also critical to ensure that the nature of linkages that emanate from the precinct get connected with the DP network in an appropriate and sensitive manner meaning the DP network does not cut across the precinct / gaothan as it does in the presently proposed alignments in the DP.
- It is critical to ensure that the infrastructure is provided in an integrated manner within the precinct / gaothan and the surrounding areas, i.e., no separate or piecemeal networks are put in place which may be in conflict with each other.
- There are important features in the vicinity of the precinct / gaothan which are linked with it viz., the talav and the beaches of Erangal & Danapani, which are used by the residents and are perceived as part of it. These also should be taken into account while planning.

The action plan for heritage conservation and environment improvement is thus conceived as a set of proposals and interventions for the '**Precinct**' as well as some portion of the area immediately surrounding it which is defined as the '**Planning Area'**.

The immediate area or the 'P**lanning Area**' is defined on the basis of the following considerations:

- The DP road network proposals in the vicinity are reviewed and a network is proposed that connects the precinct / gaothan & the important features and responds to the natural and physical features in the area.
- Some area around the precinct / gaothan is designated as CRZ II in the DP Map and area outside is designated as CRZ III. In addition the Coastal Zone Management Plan (1997) delineates an area of 250 m around the gaothan as 'gaothan expansion area' which is regulated as per CRZ II.

Map 1 shows clearly shows the 'Precinct Area' and Planning Area' for which the proposals and interventions are articulated.

Intervention Areas
19 proposals / interventions are identified across 5 areas:

1. Built-form, Land use and Growth
2. Physical Infrastructure
3. Public Realm
4. Architectural Heritage and Cultural Practices
5. Community Structure and Governance

The projects and interventions are of various types:

- Statutory provisions: These will enable implementation and facilitation of the other proposals and initiatives that will be required for a wholistic environmental improvement and conservation of the precinct and planning area. These include modification of development plan proposals, incorporation of area plans, general development controls etc.
- Capital investments: These include investments in physical infrastructure, improvements, restoration projects and others that are important for the conservation of the precinct.
- Institutional: These create a framework for implementing the projects and management of the precinct and the planning area.

2.5 List of Proposals

1. Built-form, Land use and Growth

01 Prepare Detailed Area Plan for the Planning Area
02 Frame Zoning, Development Regulations & Guidelines to Conserve Heritage, Public Realm and to Regulate Growth in the Precinct and Planning Area
03 Incorporate Area Plan and in the Development Plan of MCGM
04 Inventory and Use of Government Lands in the Precinct and Planning Area and Lands Assets created by the Area Plan.

2. Physical Infrastructure

05 Design Schematic Water Supply Network in the Precinct
06 Design Schematic Sewage Network System in the Precinct
07 Improve Solid Waste Collection and Disposal in the Precinct
08 Design Schematic Water Supply Network for the Planning Area
09 Design Schematic Sewage Network System for the Planning Area
10 Locate Solid Waste Collection Points in the Planning Area

3. Public Realm

11 Develop Six Streets and Five Chowks/Open Spaces in the Precinct
12 Design Schematic Street Sections for the Planning Area
13 Develop the Talav in the Planning Area
14 Develop three Public Spaces along Danapani Beach

4. Heritage and Cultural Practices

15 Restore Ten Typical Structures
16 Design and Conduct Heritage Walk
17 Create Prototypes of Traditional Tulsi Planters for Replacement in the Precinct
18 Include the Bastion near Danapani beach and St. Bonaventure Church in the State's ASI list of Protected Monuments.

5. Community Structure and Governance

19 Implementation Strategy for the Action Plan

3 Community Consultation and Review of Regulations

The preliminary list of proposals was schematically detailed out and a meeting was held with the community in Erangal 17 April 2011 to get a sense of the overall direction and assess their willingness to participate in the implementation.

For the proposals pertaining to the built form and development guidelines, a review of the applicable regulation was crucial. There are three sets of regulatory provisions that needed a careful review for Erangal Precinct and Planning Area:

1 CRZ Regulations
2 DP Proposals and DC Regulations of Mumbai
3 CZMP for Maharashtra

This chapter summarizes the outcomes of the community consultation and the inferences from review of CRZ regulations, DP & DC regulations of Mumbai and the provisions in the CZMP.

3.1 Community Consultation

The meeting was held on 17 April 2011 in the Hiradevi temple premises by HCPDPM planning team and a representative of the MMRHCS was present (Annex 1 Minutes of the Meeting).

A presentation of all the studies and analysis done so far was made to the key leaders of the community, most of them constitute the Saishav Kshtariya Bhandari Samaj. The positive aspects of the settlement were emphasized such as the fairly well preserved character of the settlement, the presence of such a strong community network, well-preserved culture and social customs etc.

After the preliminaries, the proposals developed by the planning team were presented on large drawings and explained in detail to all the members. The idea that one should look at the developments in the surroundings as they would impact the precinct was introduced and the community strongly agreed with it. The community pointed out several examples on unauthorized and insensitive developments taking place in the vicinity.

In particular, the projects on improvements to physical infrastructure, development of the talav and maintaining the public realm were welcomed. On the other hand the issues created by the present CRZ regulation were pointed out. There was a strong need for being able to expand the houses (built space) to accommodate the increasing families, however the present regulation do not permit this. The outcome in most cases has been unauthorized expansions.

Finally, the issue of raising finances for all the envisioned developments was also debated. It was in this context and the need to plan the surroundings, the concept of achieving this by using the town planning scheme mechanism was explained. This idea sounded very new to them and will need further interactions to make it better understood. The community did express lack of finances but were willing to contribute in terms of effort and any support required to implement the projects. The committee agreed to play a strong role in getting the community to accept the plan and facilitate implementation.

Figure 3: Consultations with the Community

Figure 4: Consultations with the Community

3.2 Review of Regulatory Provisions

This sections overviews the regulations that would affect the Erangal Planning Precinct and Planning Area to give a sense of the overall regulatory regime. A much more detailed description follows in the next Section 3.3 that focuses on the applicable Regulatory Provisions in Erangal Precinct and Planning Area

Three sets of regulatory provisions are reviewed in this and the next Section:

A CRZ Regulations
B DP Sheets and Development Control Regulations, Mumbai DP
C Provisions in the CZMP for Maharashtra

A CRZ Regulations

A systematic understanding and interpretation of the CRZ regulations was undertaken. As a first step the current (latest) version of CRZ regulations dated 6 January 2011 was reviewed. To begin with, the regulation was formatted to facilitate easy reading; this is included in the report as Annex 2. As a next step, the definition of CRZ is interpreted over space and presented in the form of sketches and these are also presented in Annex 3. This was regarded as necessary to avoid interpretation issues as it is a regulation that mainly describes permitted activities in words. The prohibited activities and exceptions are presented in a simplified manner in Annex 4. Annex 5 presents the norms for regulation of permitted activities under the CRZ notification.

In the CRZ 2011 Regulations, there is a special provision for MCGM, which is presented in Annex 5 and described in detail in Section 3.3. There are 7 types of activities or developments that are permitted in CRZ I and CRZ II with a few conditions.

1. The first one is construction of roads, approach roads and missing link roads approved in the DP of Mumbai on stilts to ensure free flow of water and replenishment of mangroves in CRZ 1.
2. The second one is for development / redevelopment in general and the regulation clearly states that this shall be in accordance with the town and country planning regulations as they existed on the date of issue of the notification dated 19th February 1991 in CRZ II. This creates a peculiar situation – when the 1991 CRZ regulation was passed, the prevalent DCRs and DP was that of 1967 prepared under the provisions of the 1954 Bombay Town Planning Act. The 1991 DP and DCRs came into force about a month later on 25 March 1991.
3. The third permitted activity is the SRA schemes, where the CRZ regulation states that these will be built as per the FSI in the prevailing town and country planning prevailing on the date on which the SRA project is granted approval.
4. The fourth permitted activity is redevelopment of dilapidated, cessed and unsafe buildings where the CRZ regulation states that these will be reconstructed as per the FSI in prevailing town and country planning prevailing on the date on which the project is granted approval.
5. The fifth permitted activity is open spaces, parks, gardens in DP wherein a 15% of FSI is allowed for providing civic amenities.
6. The sixth permitted activity is reconstruction / construction of koliwadas / fishing settlements (as identified in the 1981 DP[1] or as per GOM records) in accordance with applicable town and country planning regulations.

[1] There are only two DPs for Mumbai – 1967 and 1991. Hence the reference to the 1981 seems to a typo graphic error in the CRZ 2011 regulation. Further there is no confirmation of such a list with MCGM.

7. The seventh permitted activity is reconstruction and repair works of dwellings of fisher communities and local communities in accordance with the applicable town and country planning regulations.

The first issue with these prescriptions is that, there is no clarity as to which regulations will apply. Except for the second activity where it becomes explicit that the 1967 DCRs would apply, for the next 5 permitted activities it appears that the FSI as permitted in the 1991 DCRs will be applicable and the rest of the development will be governed by the 1967 DCRs. In the last category where Erangal would fall, the 1991 DCRs can apply. To undertake development under the prescriptions of two sets of GDCRs can lead to conflict.

The second issue is that the 1967 DP and DCRs have no concept of development of coastal areas – the planning area mainly falls in residential zone and no development zones as discussed in Section 3.3.

The third issue is that there is nothing specified for MCGM in the CRZ III category, which means that the general provisions for all CRZ III will be applicable.

The fourth issue is that they though are marked on the DP sheets the clarity in the DCRs is missing, the entire CRZ regulation is appended to the DCRs and it is not clear how these will be implemented.

It is evident that there is no clarity on what precisely will be applicable and how can the development be regulated. It is perhaps because of this that hardly any development permissions have been issued in the area and most of the development falls under 'unauthorized' category. The next section 3.3 highlights this lack of clarity.

B DP Sheets and DC Regulations, Mumbai DP

The CRZ regulations refer to the local or the prevailing town planning regulations, which in this case are:

1 the DP sheets and DC regulations in the 1967 DP of Mumbai. The DP sheets indicate the zoning, proposed roads and reservation. The area is in this case show road proposals only 2 zones – residential (R 10) and no development zones / green zone, and indicate proposed road and reservations.

2 the DP sheets and DC regulations in the currently prevalent DP of 1991. The DP sheets show the plan proposals as CRZ I zone, CRZ II zone, no development zone and indicate the proposed roads and reservations.

The proposals in the DP sheets for Erangal precinct and planning area are reviewed in Section 3.3 to facilitate spatial comparison and the DCRs are reviewed below:

DCRs of 1967 DP, Mumbai:

Various clauses from the DCRs document pertaining to Erangal are culled out:

- Section 6: Boundaries of zone – In the suburbs and extended suburbs, the industrial, commercial and no development or green zones are clearly located and bounded and the remaining areas shall be deemed to be residential.
- Section 7: Uses permitted in residential zones (along with certain conditions) – residences, customary home occupations, clinics / dispensaries, professional offices (upto 200 sq ft), hotels / lodging houses, educational buildings, libraries/museums & aquariums, club houses, laboratories, parks, transportation amenities such as railway

stations, bus stations; broadcasting stations, race tracks, stadia; places for disposal of dead; police stations, telephone exchanges, government offices, sub stations, fire stations, sewage disposal, water installations; petrol pumps; cinema theatres; storage facilities for LPG cylinders and general agriculture & poultry.

- Section 9: Height provisions in residential zones – height not greater than one and a half times the sum of width of the street and the open space between the road and building.
- Section 10: Erangal falls in R 10 residential zone, which is suburbs and extended suburbs. The FSI in Erangal goathan and its immediate surroundings[2] is 1 and surrounding village area is 0.5.
- Section 11: Open space provision – minimum open space between the building and road shall be 15 feet in suburbs and extended suburbs and in gaothans for plots less than 500 sq yards in area this can be 5 feet. Further, in gaothans no construction shall be permitted within 17 feet from the centerline of the street. The rear and side open spaces would be sufficient if the width of the open space shall be at least 1/4 th the site and the % for ground coverage does not exceed 25% depending the FSI and least site dimension.
- Section 13: Commercial zones are indicated and uses permitted therein are given. In addition, shop lines are indicated and uses permitted along there are also indicated.
- Section 31: No development zones of green zones – uses permitted (along with certain conditions) – agriculture; gardens & poultry farms; forestry; golf links & club houses; parks; airport, radio stations & race tracks; film studios; cemeteries & crematoria; brick & tile manufacture; fish curing; stone crusher or quarrying; salt manufacture; sand / clay quarrying and fertilizer storage. All uses to be housed in temporary structures and at least 1000 ft from the plot line.

DCRs of 1991 DP, Mumbai:

There are two sections, which deal with the regulation of activities in the coastal areas – Section 59 and 60. The text below is an interpretation of the provisions in a simplified manner and there is no attempt to follow internal clauses by numbers.

Section 59: Coastal area Classification and Regulation of Development

1. Classification
   - For Development Control Regulation, the coastal area of Greater Mumbai is classified into two categories – Category – I and II (Annex 6 shows these on a map)

     Category – I

     This comprises of the coastal area from Versova beach starting from south of Malad Creek up to southern most point in the Island City in Colaba and thereafter stretching along the eastern coast up to northern boundary of the M Ward.

     It comprises of lands in these areas upto:

     (a) A depth of 200 m on the landward side from the high tide line
         Or
     (b) The first nearest existing or proposed development plan road on the landward side from the high tide line whichever is less

[2] The immediate surrounding is not clearly defined or delineated.

Category – II

This comprises of the rest of coastal area of Greater Mumbai that is – the areas of the villages of Madh, Erangal, Akse, Marve, Manori and Gorai and Malad and Marve Creeks in P and R Wards on the west coast and southern boundary of the N ward and N, S, and T wards including the creeks in these wards on the east coast.

It comprises of lands in these areas upto:

(a) Along the sea front upto a depth of 200 m from the high tide line
Or
(b) Upto the first nearest existing or proposed development plan road, whichever is less

2. Regulation of Development
   - With the exception construction of underground toilets and greening without construction, no development such as temporary constructions, stalls, advertizing signs or outdoor display structures is permitted on the beaches/coastal areas proper including the sandy, rocky craggy, marshy of foreshore portion in the coastal areas in categories I and II.
   - The permissible development in Category 2 are as follows[3]:
     (i) Purely residential use
     (ii) Cottage type hotels
     (iii) Restaurants and eating houses
     (iv) Swimming pools, club houses and allied activities
     (v) Operational construction by defense and port authorities requiring waterfront for their operations (excluding commercial, office & industrial building)
     (vi) Uses related to fishing activities, fish curing and open land fish farming or similar uses on the beach or foreshore are permitted upto 300 m from the village gaothan boundary and parallel to the HTL (excluding fish processing, fish canning, ice factories or cold storage units). However, the beach area proper for upto 50 m from the HTL towards the land ward side shall be kept free of such activities.
     (vii) Development related to water sports, jetties, boat storage, boat repairs and only fishing related workshops
   - The height bulk regulations are as follows:
     (i) Height of the structure not to exceed 6.75 m (22 ft). In case of a basement the height would be allowed to exceed by additional 1.83 m (6 ft) – 1.22 m (4 ft) as plinth and 0.65 m (2 ft) as space for ducts etc.
     (ii) Building / structure on the first plot abutting the beach/coastal area should be set back by at least 10 m from plot boundary on seaward side and development should be allowed starting from landward side of the plot boundary.
     (iii) The design and construction / reconstruction of building to merge with local architecture and landscape.
     (iv) No services of any kind need be provided by corporation.
     (v) Construction / reconstruction of dwelling units within the ambit of traditional rights and customary uses may be permitted in accordance with normal provisions of these regulations.

[3] The DCR document gives these for both the categories, however we have mentioned only for category 2 as it is relevant for Erangal.

3. New developments undertaken (both in Category I and II) by public authorities like the Maharashtra Housing and Area Development Authority or any such Authority specified by the State Government, shall be permitted according to the relevant regulation without height restrictions, provided that the building is set back at least 10 m from the plot boundary on the seaward side in the case of plots abutting the beach or coastal area.

Section 60: No Development Zone

In addition to the 200 m coastal zone, the DP identifies a 'No development zone (NDZ)'. This marked on the DP sheets (Annex 6).

- In the NDZ the MCGM will not provide any services.
- The permissible development in NDZ are as follows:
  - (i) Agriculture, horticulture and animal husbandry (not on commercial scale) limited to 10 head of cattle per acre along with necessary buildings, garages, pig sites, stables and storage buildings.
  - (ii) Gardens and poultry farms.
  - (iii) Forestry.
  - (iv) Golf club and links.
  - (v) Public parks, private parks, play fields, stadia, gymkhanas, swimming pools, gliding facilities, temporary camps for recreation of all types.
  - (vi) Amusement park in plot not less than 5 ha and other conditions with special permission of the Commissioner (other clauses, not quoted here).
  - (vii) Race tracks and shooting ranges.
  - (viii) Fish curing on open land/fish farming.
  - (ix) Salt manufacture from seawater.
  - (x) Public utility – electric sub stations, receiving stations, switch yards, over head line corridors, radio and television stations, receiving stations, main station for public gas distribution, sewage treatment and disposal works, water works along with residential quarters for essential staff for such works with special permission of Commissioner.
  - (xi) Cemeteries and crematoria and incidental structures.
  - (xii) Structure for watchmen's quarters not exceeding 20 sq m each.
  - (xiii) Residential development (in an area other than amusement park)
    - G + 1 storey not exceeding 9. 75 m in height.
    - For plots up to one hectare in area, FSI not to exceed 0.05
    - For plots more than one hectare, FSI 0.05 up to the first hectare and 0.25 for the rest (no sub division of plots permitted).
  - (xiv) Transits camps tenements required for implementation of slum rehabilitation scheme restricted to within 100 m from the periphery of NDZ towards the non NDZ / developed area.
  - (xv) Development of Information Technology establishment with residential development (other clauses, not quoted here).
  - (xvi) Development of cinema and TV film production (other clauses, not quoted here).

Section 61: Tourism Development Zones (TDZ)
Tourism Department in consultation with Government of Maharashtra declares certain sites as tourism development zones (TDZs). If these are situated in NDZ then they will be permitted to be developed with an FSI of 0.5. No additional FSI will be permitted beyond this.

C Provisions in the CZMP for Maharashtra

The CZMP is prepared for the entire state of Maharashtra. The provisions for the stretch from Madh to Manori in the CZMP are as follows:

- 500 m CRZ along the western coast from Madh to Manori is No Development Zone (NDZ) of Development Plan.
- This entire stretch classified as CRZ III except the existing Gaothans and residential areas.
- Goathans and residential areas within the NDZ and 250m distance around the gaothans and residential area classified as CRZ II to facilitate Gaothan expansion.

3.3 Applicable Regulatory Provisions in Erangal Precinct and Planning Area

Having reviewed the prevalent regulations in the overall, this section reviews specific provisions of each as applicable to the Erangal Precinct and Planning Area in detail. Wherever possible the above regulatory provisions are drawn up on the map of Erangal Precinct and Planning Area as interpreted from the text and supported by text. There is some repetition with the previous section but here the attempt is get specific to Erangal.

The following are described:

1 Provisions in the DP (1967) for Erangal Precinct and Planning Area (Map 2).
2 Provisions in the DCRs (1967) of MCGM.
3 Provisions in the DP (1991) Sheets for Erangal Precinct and Planning Area (Map 3).
4 Provisions in the 1991 DCRs of MCGM (Map 4).
5 Provisions in the DP Sheets and CZMP for Erangal Precinct and Planning Area (Map 5).

1 Provisions in the DP (1967) for the Erangal Precinct and Planning Area

Map 2 shows the zoning provisions for Erangal Precinct and Planning Area in the DP sheets. The map shows that the gaothan and the immediate surrounding area are under residential zone (R 10) and the remaining areas are under no development zone or green zone. There are proposed access roads earmarked – the Madh Marve road is proposed to be widened to 27.45 m and a network of 13.4 m wide access roads between the Madh Marve road the coast line. There are two reservations for schools and attached playgrounds.

2 Provisions in the DCRs (1967) of MCGM for Erangal Precinct and Planning Area.

The area falls under two use zones – residential (R10) and no development zone. Permissible developments and DCRs are described in Section 3.2 B.

3 Provisions in the DP (1991) for the Erangal Precinct and Planning Area

Maps 3 show the zoning provisions for Erangal Precinct and Planning Area in the DP sheets. The maps show areas under CRZ II, CRZ III, NDZ and proposed roads and reservations. The entire gaothan and surrounding area is under CRZ II (which in the DP of 1967 was R 10). The surrounding areas fall under CRZ I, CRZ II and CRZ III (which in the DP of 1967 were NDZ or green zone. The precinct is under CRZ 1, CRZ II and CRZ III. The planning area falls under CRZ II and CRZ III. There are also proposals to widen the Madh Marve road and provide new roads in the planning area. Both the proposals for roads and reservations are the same as the 1967 DP.

The DP sheets (amended post CRZ 1991 regulation) make it clear that the provisions of the CRZ II and CRZ III as specified in the CRZ 1991 regulation will apply. However the accompanying DCRS define 'coastal areas' in a different manner and specify permissible activities in these. Map No. 4 clearly shows this. The entire CRZ regulation is appended to the DCR document but is not clear how will it apply versus the text provisions in the DCR viz., how the development permissions will be issued in the area.

Assuming that the provisions in the CRZ 2011 regulations will apply, following developments are possible (relevant provisions are cited only, refer Annex 5, the same are highlighted):

General Provisions:

CRZ 1 – between LTL and HTL in non ecologically sensitive areas

- Construction of dispensaries, schools, public rain shelter, community toilets, bridges, roads, jetties, water supply, drainage, sewerage which are required for traditional inhabitants living within the biosphere reserves after obtaining approval from concerned CZMA.

CRZ II

- Buildings are permitted on the landward side of the existing road, or on the landward side of existing authorized structures.
- Buildings permitted on the landward side of existing and proposed roads or existing authorized structures shall be subject to existing local town and country planning regulations including the 'existing' norms of Floor Space Index or Floor Area Ratio
- Construction of buildings will not be permitted on landward side of any new roads which are constructed on the seaward side of an existing road.
- Reconstruction of authorized building permitted subject with the existing Floor Space Index or Floor Area Ratio norms and with no change in present use

CRZ III – NDZ upto 200 m from HTL

- Repairs or reconstruction of existing authorized structure not exceeding existing Floor Space Index, existing plinth area, existing density and for permissible activities under the notification including facilities essential for activities

- Construction / reconstruction of dwelling units of traditional coastal communities including fisher folk permitted between 100 and 200 m from HTL along seafront in accordance with a comprehensive plan prepared by SG in consultation with traditional coastal community, incorporating disaster management provision, sanitation recommended by SG CZMA to NCZMA for approval MoEF.
- Agriculture, horticulture, gardens, pasture, parks, play field, and forestry
- Construction of dispensaries, schools, public rain shelter, community toilets, bridges, roads, provision of facilities for water supply, drainage, sewerage, crematoria, cemeteries and electric sub-station required for local inhabitants if permitted by CZMA
- Facilities required for local fishing communities such as fish drying yards, auction halls, net mending yards, traditional boat building yards, ice plant, ice crushing units, fish curing facilities

CRZ III – NDZ from 200 m to 500 m from HTL

- Construction of hotels or beach resorts for tourists or visitors on vacant plot in designated area.
- Construction or reconstruction of traditional dwelling units. Building permission for construction or reconstruction subject to local town and country planning rules with overall height of construction not exceeding 9 m with two floors (ground + one floor)

Special Provisions for Mumbai:

- The development or redevelopment shall be in accordance with the norms laid down in the Town and Country Planning Regulations as they existed on the date of issue of the notification dated the 19th February, 1991.
- Koliwada, fishing settlement area as identified in the Development Plan of 1981[4] or relevant records of the Government of Maharashtra. To be mapped and declared as CRZ III[5] (CRZ II??) to assure construction and reconstruction of dwelling units within these settlements shall be undertaken in accordance with applicable as per local Town and Country Planning Regulations
- Fisher communities / local communities - reconstruction and repair works of the dwelling units of fisher communities and other local communities identified by the State Government, to be considered and granted permission by Competent Authorities on a priority basis, in accordance with the applicable Town and Country Planning Regulations

CRZ III

- Repairs or reconstruction of existing authorized structure not exceeding existing Floor Space Index, existing plinth area, existing density and for permissible activities under the notification including facilities essential for activities.
- Construction / reconstruction of dwelling units of traditional coastal communities including fisher folk permitted between 100 and 200 m from HTL along seafront in accordance with a comprehensive plan prepared by State Government in consultation with traditional coastal community, incorporating disaster management provisions, sanitation recommended by SG CZMA to NCZMA for approval MoEF.
- Agriculture, horticulture, gardens, pasture, parks, play field, and forestry.

[4] There are only two DPs for Mumbai – 1967 and 1991. Hence the reference to the 1981 seems to a typo graphic error in the CRZ 2011 regulation.
[5] This also seems to be an error. This should read as CRZ II.

- Construction of dispensaries, schools, public rain shelter, community toilets, bridges, roads, provision of facilities for water supply, drainage, sewerage, crematoria, cemeteries and electric sub-station required for local inhabitants if permitted by CZMA.
- Facilities required for local fishing communities such as fish drying yards, auction halls, net mending yards, traditional boat building yards, ice plant, ice crushing units, fish curing facilities.

4 Provisions in the 1991 DCRs of MCGM for Erangal Precinct and Planning Area.

Map 4 shows the demarcation of 'coastal areas' as described in the DCRs of MCGM for Erangal Precinct and Planning Area. As per this, a belt of about 200 m from the high tide line or up to the nearest existing or proposed road in the development plan, whichever is less is demarcated as coastal area. The entire gaothan is under NDZ. The precinct is under NDZ and coastal area. The planning area falls under NDZ and coastal area.

The permissible developments in coastal areas are as follows:

- Purely residential use
- Cottage type hotels
- Restaurants and eating houses
- Swimming pools, club houses and allied activities
- Operational construction by defense and port authorities requiring waterfront for their operations (excluding commercial, office & industrial building)
- Uses related to fishing activities, fish curing and open land fish farming or similar uses on the beach or foreshore are permitted upto 300 m from the village gaothan boundary and parallel to the HTL (excluding fish processing, fish canning, ice factories or cold storage units). However, the beach area proper for upto 50 m from the HTL towards the land ward side shall be kept free of such activities.
- Development related to water sports, jetties, boat storage, boat repairs and only fishing related workshops

The height bulk regulations are as follows:

- Height of the structure not to exceed 6.75 m (22 ft). In case of a basement the height would be allowed to exceed by additional 1.83 m (6 ft) – 1.22 m (4 ft) as plinth and 0.65 m (2 ft) as space for ducts etc.
- Building / structure on the first plot abutting the beach/coastal area should be set back by at least 10 m from plot boundary on seaward side and development should be allowed starting from landward side of the plot boundary.
- The design and construction / reconstruction of building to merge with local architecture and landscape.
- No services of any kind need be provided by corporation.
- Construction / reconstruction of dwelling units within the ambit of traditional rights and customary uses may be permitted in accordance with normal provisions of these regulations.

The rest of the area gets demarcated as NDZ.

The permissible development in NDZ are as follows:

- Agriculture, horticulture and animal husbandry (not on commercial scale) limited to 10 head of cattle per acre along with necessary buildings, garages, pig sites, stables and storage buildings.
- Gardens and poultry farms.
- Forestry.
- Golf club and links.
- Public parks, private parks, play fields, stadia, gymkhanas, swimming pools, gliding facilities, temporary camps for recreation of all types.
- Amusement park in plot not less than 5 ha and other conditions with special permission of the Commissioner (other clauses, not quoted here).
- Race tracks and shooting ranges.
- Fish curing on open land/fish farming.
- Salt manufacture from sea water.
- Public utility – electric sub stations, receiving stations, switch yards, over head line corridors, radio and television stations, receiving stations, main station for public gas distribution, sewage treatment and disposal works, water works along with residential quarters for essential staff for such works with special permission of Commissioner.
- Cemeteries and crematoria and incidental structures.
- Structure for watchmen's quarters not exceeding 20 sq m each.
- Residential development (in an area other than amusement park)
  - G + 1 storey not exceeding 9. 75 m in height.
  - For plots up to one hectare in area, FSI not to exceed 0.05
  - For plots more than one hectare, FSI 0.05 up to the first hectare and 0.25 for the rest (no sub division of plots permitted).
- Transits camps tenements required for implementation of slum rehabilitation scheme restricted to within 100 m from the periphery of NDZ towards the non NDZ / developed area.
- Development of Information Technology establishment with residential development (other clauses, not quoted here).
- Development of cinema and TV film production (other clauses, not quoted here).

This seems redundant once the CRZ provisions were marked on the DP, nonetheless are brought out as they continue as valid sections in the DCR document.

5 Provisions in the 1991 DP Sheets and CZMP for Erangal Precinct and Planning Area

Map 5 shows the zoning provisions for Erangal precinct and planning area and the areas under CRZ II and CRZ III. In addition the provisions of the CZMP are overlaid on the map. According to this, an area upto a distance of 250 m around the gaothan also falls under CRZ II. The gaothan and precinct both fall under CRZ II. Major portion of the planning area also falls under CRZ II with a bit in CRZ III. There are also proposals to widen the Madh Marve road and provide new roads in the planning area.

This document makes it clear that the provisions of the CRZ II and CRZ III as specified in the CRZ 2011 regulation will apply. The major shift is that a lot of area now falls under CRZ II.

According to this, the following developments are possible in the areas (relevant provisions are quoted):

CRZ II

General

- Buildings are permitted on the landward side of the existing road, or on the landward side of existing authorized structures.
- Buildings permitted on the landward side of existing and proposed roads or existing authorized structures shall be subject to existing local town and country planning regulations including the 'existing' norms of Floor Space Index or Floor Area Ratio
- Construction of buildings will not be permitted on landward side of any new roads which are constructed on the seaward side of an existing road.
- Reconstruction of authorized building permitted subject with the existing Floor Space Index or Floor Area Ratio norms and with no change in present use

Mumbai

- The development or redevelopment shall be in accordance with the norms laid down in the Town and Country Planning Regulations as they existed on the date of issue of the notification dated the 19th February, 1991.
- Koliwada, fishing settlement area as identified in the Development Plan of 1981 or relevant records of the Government of Maharashtra. To be mapped and declared as CRZ-III[6] (CRZII??)to assure construction and reconstruction of dwelling units within these settlements shall be undertaken in accordance with applicable as per local Town and Country Planning Regulations
- Fisher communities / local communities Reconstruction and repair works of the dwelling units of fisher communities and other local communities identified by the State Government, to be considered and granted permission by Competent Authorities on a priority basis, in accordance with the applicable Town and Country Planning Regulations

CRZ III

- Repairs or reconstruction of existing authorized structure not exceeding existing Floor Space Index, existing plinth area, existing density and for permissible activities under the notification including facilities essential for activities.
- Construction / reconstruction of dwelling units of traditional coastal communities including fisher folk permitted between 100 and 200 m from HTL along seafront in accordance with a comprehensive plan prepared by SG in consultation with traditional coastal community, incorporating disaster management provision, sanitation recommended by SG CZMA to NCZMA for approval MoEF.
- Agriculture, horticulture, gardens, pasture, parks, play field, and forestry.
- Construction of dispensaries, schools, public rain shelter, community toilets, bridges, roads, provision of facilities for water supply, drainage, sewerage, crematoria, cemeteries and electric sub-station required for local inhabitants if permitted by CZMA.
- Facilities required for local fishing communities such as fish drying yards, auction halls, net mending yards, traditional boat building yards, ice plant, ice crushing units, fish curing facilities.

[6] This also seems to be an error. This should read as CRZ II.

3.4 Final Applicable Regulations in Erangal Precint and Planning Area

It is not clear from Maps 2, 3, 4 and 5 which of the regulatory provisions are applicable in the Erangal precinct and planning area. This is because of the following:

- Some of the regulations are illustrated on space (maps) such as the DP sheets while some have to be interpreted over space (on maps) such as the CRZ, DCRs and CZMP based on the description.
- 1967 DCRs define 'residential' and 'green / no development zone' and this point in time there is no reference to coastal zones or areas.
- The 1991 DCRs define the term 'coastal area' and 'no development zone' which is not coterminous with the definition of CRZ as in the DP sheets and in the CRZ regulation. The 'coastal area' is an offset of about 200 m from the HTL on the land ward side and there is list of different permissible uses. Hence there is a confusion or an overlap as to the applicability of the regulations.
- There is no common maps available to interpret regulations that are described in text. The MCGM DCRs have a schematic map and in the DP sheets HTL is not continuous it is broken (not drawn) at some points on the east coast.

In order to establish this clarity over space, a series of maps is built.

To begin with Map 6 shows overlap of all regulatory provisions in Erangal precinct and planning area. Here we have an overlap of CRZ II with coastal areas as defined in the DCRs. The CRZ II as defined in CZMP overlaps with CRZ III and NDZ in DP sheets and NDZ and coastal areas in DCRs.

In Map 7 the overlaps are removed to show what can be the applicable regulations – most of the precinct and planning area fall under CRZ II and a small portion falls under CRZ III.

Map 8 shows very clearly, what will be applicable in the precinct and planning area – essentially CRZ II and CRZ III.

Map 9 the existing layout of the lands and roads is superimposed with proposed layout for the precinct and planning area. The proposed road network is consistent with the one proposed in the DP in the overall – there will be some realignment required but in general it stays within the grid defined in the DP sheets. There is one minor link that needs to be completed to the north west side. This partially is made on the alignment of an existing road and some portion of it will have to be approved.

Map 10 shows the final zones and road proposals in the Precinct and Planning Area with some rationalization of the CRZ II boundary.

This is further translated into proposed zoning in Proposal No. 2.

4 Action Plan – Proposals

The action plan is presented for both the Erangal precinct and planning area. There are 19 proposals / interventions organized across 5 areas:

1. Built form, Land use and Growth
2. Physical Infrastructure
3. Public Realm
4. Architectural Heritage and Cultural Practices
5. Community Structure and Governance

The proposals / interventions are prepared for both the precinct and the planning area and while a seamless connect between the two is ensured, they can also be implemented in a stand-alone manner. To give examples of this – the street network pattern of the precinct is linked with street network pattern of the planning area. The water supply system is designed separately for both, so that it can be built in a phased manner, the system for the precinct can be put in place earlier and later when the surrounding area is planned and its network is laid, the two can be connected.

4.1 Built form, Land Use and Growth

1 Prepare Detailed Area Plan for the Planning Area

Existing Situation and Rationale

The rational for delineating the Planning Area is presented in Section 2.4. The planning area surrounds the precinct on all three sides, leaving out the southern side. The planning area is about 34.15 ha, the precinct is about 3.89 ha and the total area is 38.04 ha. Map 1 shows the Planning Area and Precinct Area.

The planning area to the north extends up to the Danapani beach and includes all the agricultural lands between the precinct and the beach; to north west and west it extends up to the sea and includes the rocky out crops and the beach; to the east it is bounded by the Madh Marve road and includes all the agricultural lands in between and in the south it defined by the precinct boundary.

In the last few years, the settlement is observed to be growing outside the gaothan boundary into the surrounding agricultural lands. This growth is specifically seen along the road from Holi Maidan towards the Danapani Beach. As soon as the road moves out of the gaothan boundary, the width drastically reduces and is a "*kuttcha*" track with houses on both sides. The development outside the gaothan boundary is sporadic and haphazard without a planned road network and infrastructure. It includes goathan expansions and new developments such as farmhouses. Most of these developments would qualify as 'un authorized' as the entire area falls under CRZ and no development zones. There is a pressure for development but the CRZ provisions make it impossible to undertake any development and whatever development takes place is clearly without permissions.

Continuing from the previous strategy dealing with the development of such areas (gaothans in the coastal areas) in a special manner, it is proposed that the entire precinct and planning area is designated or earmarked as 'gaothan and gaothan expansion' zone in the DP of Mumbai[7].

In order to ensure appropriate planning of the precinct and the planning area around, it is proposed to prepare a detailed area plan for the same. The proposed mechanism is the 'land pooling / readjustment mechanism' as practiced in the town planning scheme prescribed in the MRTPA 1966. This is suggested, as it will enable the provision of second level road network and amenities without resorting to land acquisition for the same. It will also help consolidate the government lands along with some land appropriations at strategic locations to raise resources to implement the plan. At this point it may or may not be possible to implement the area plan as the legislative provisions in the MRTPA, 1966 need some amendments, however these are pending approval and it may be possible to use it in near future.

[7] For this the DP will have to be varied. In future other goathans which have heritage value also can be included under this zone after a brief study to determine the rational for delineating the planning area as was done in the case of Erangal.

Features

The detailed plan is prepared using the land pooling / readjustment mechanism similar to the town planning mechanism. It involved the following steps:

- Preparing the base map (Map 11)
  - The DP sheets are laid over the satellite image and corrected.
  - All the existing roads and structures are mapped from the satellite image.
  - The CTS numbers from the DP sheets are incorporated. There are some plots with no survey numbers, such plots are numbered as UK1, UK 2 etc (UK stands for unknown). There are some plots with no survey numbers and are out used as roads / natural drain paths, such plots are numbered as R1, R2 etc.
  - The key layers of the base map are: Erangal revenue village boundary, planning area boundary, precinct Boundary, survey plot boundaries, existing roads, city survey numbers and wells.
- Delineating the boundary of the planning area (Map 11)
  - The boundary of the planning area is in most cases co terminus with the survey plots. There are three exceptions – 1) along the Dana pani beach road where the proposed widened road becomes the boundary and results in inclusion of portions of survey number 1 which is quite large[8]; 2) along the road leading to Danapani from the Madh Marve road and 3) along the widened Madh Marve road, here the plots lost under the road widening are provided final plots within the planning area.
- Preparing the road network plan (Map 12)
  - A hierarchy of roads and streets is evolved and designed based on their functions as follows:
    - Primary – arterials that connect the area with the main city network. This is the Madh Marve road and its proposed width in the DP is considered which is 27.45. This is the only road that links the coastal settlements of Madh, Bhattigaon, Erangal, Akse, Marve etc. to the Mumbai mainland and Malad; and it is used for public transit (BEST buses).
    - Secondary – sub arterial or collector roads that connect the planning area with the arterial roads. This is the peripheral 12 m sub-arterial loop, which intersects Madh-Marve road at three points at approximate intervals of about 580 m. Since it brings people from outside to Danapani beach, talav, and other public spaces, it is designed to encourage pedestrian activity. Two road sections, one along the beach and one for other conditions are designed.
    - Tertiary – feeder roads that connect the planning area with the arterial and sub arterial roads. These roads break the planning area into large blocks. The main infrastructure lines would run along these. There are two road sections – 9 m and 7.5 m wide depending on the length of the block. These roads do not allow the passage of through traffic or fast traffic.
    - Neighbourhood – internal access roads that connect the feeder roads with smaller plot clusters. These roads basically divide the larger block into smaller blocks or clusters of plots with cul de sacs. There are two road sections – 4.5 m and 3 m wide. These are envisaged largely as pedestrian friendly with slow moving traffic and proposed to be paved to slow speeds.
  - The pattern of the street network does not follow a rigid grid but is left winding or curvilinear in response to the network pattern of the precinct. It emanates from the precinct and gradually becomes more regular as it moves away from the precinct. Even the block sizes get gradually bigger as one moves away from the precinct.

[8] Survey number 1 got split into 3 parts which are renumbered as 1/1, 1/2 and 1/3. 1/1 and 1/2 are included in the planning area.

The blocks closer to the precinct range from 50 to 70 m x 50 to 70 m and the blocks away from the precinct range from 70 to 80 m to 150 m approximately.

- The road area constitutes 20.73% (7.08 Ha) of the Area Plan, which is reasonable. It facilitates access, infrastructure provision and brings a significant portion of land into the public domain.
- Street sections are designed based on the above described, functional hierarchy and detailed out in Proposal 13.

- Reconstituting the plots (Map 13)
  - Each city survey plot is treated as an original plot and given the same number. It is then reconstituted – given a better shape and access – and in the process a portion of its area is appropriated. The new reconstituted plot is called a final plot and given final plot number.
  - At this point 25% of the area is appropriated from each original plot. This % may be changed when the actual land pooling / readjustment scheme is implemented.
  - The status of the original plots is as follows:

Table No. 2: Summary of Plots in the Planning Area

No.	Description	No. of plots	Area (sq m)	Area (ha.)
1	Private Plots	814	290368	29.04
2	Government Plots	9	22107	2.21
3	Unknown Plots	124	8790	0.88
4	Road Plots (with numbers)	3	17435	1.74
5	Road Plots (without numbers)	3	2839	0.28
TOTAL		953	341540	34.15

The status whether the plot is private or belongs to Government was obtained from Mahabhulekh website. There is a total of 953 plots of which 814 are under private ownership and 9 under Government ownership. There are many plots without a number, these are treated as a separate category 'UK' plots. Here it was not possible to trace these records in Mahabhulekh and hence not possible to determine whether these are private or government plots. Such plots are treated as private plots. There are 6 plots used as roads – 3 with a number and 3 without a number. The un-numbered plots are assigned numbers as R1, R2 and R3. The road plots are absorbed into the land appropriation for roads and amenities.

  - While reconstituting the plots:
    - the final plots are drawn up as close as possible to the original plots.
    - larger plots are located on larger roads and smaller plots on smaller roads.
    - all plots are given regular shapes and access.
  - The minimum plot area of a final plot is determined at 100 sq m. All final plots that work out to less than 100 sq m in area are combined and given a common final plots. While doing this it is ensured that nearby plots are grouped together and one FP is given. There 87 such instances - 323 plots are consolidated into 87 plots as indicated in Table No. 5.
  - A system of cul de sacs is created so that quiet residential clusters are created.
  - The appropriated land is used mainly for creating access roads, including the widening of the Madh Marve road and providing a few plots for locating utilities and infrastructure facilities. Some amount of land is appropriate abutting the talav to create a larger recreational space. Some amount of land is located along the

Danapani beach which may be utilized to raise resources to fund the improvements in the precinct and planning area.

- The government plots are consolidated into a few large plots and moved towards the beach as well as placed closed to the appropriations to create public spaces and amenities along the Danapani beach road. 25% deduction is done from Government parcels too. Sale of such land parcels is anticipated to finance infrastructure improvements within the precincts. The details are indicated in the table below:

Table No. 3: Status of Government Plots in the Planning Area

No.	CTS No.	Ownership	Area OP (sq m)	FP No.	Area FP (sq m)	Remarks
1	9	Government of Maharashtra	1974.93	688	1481.18	Located close to its original location. Proposed for a school facility.
2	72/1	Government of Maharashtra	8982.19	706	6737.96	Located close to its original location. Proposed for sale for residential development.
3	897	Government of Maharashtra	4544.98	Merged FP 524	3408.39	Shifted towards Danapani beach. Proposed for sale for resort development.
4	390	Government of Maharashtra	347.55	116	260.56	Located close to its original location. Proposed for parking for visitors and community.
5	1303	Government of Maharashtra	284.62	136	213.34	Located close to its original location. Proposed for amenity / utility for the Precinct and Planning Area
6	1304	Mahanagar Palika	168.66	47	126.57	Located close to its original location. Proposed for amenity / utility for the Precinct and Planning Area
7	730	Mahanagar Palika	355.24	9	265.67	Located close to its original location. Proposed for amenity / utility for the Precinct and Planning Area
8	1139	Government of Maharashtra	101.08	Merged FP 524	75.61	Shifted towards Danapani beach. Proposed for sale for resort development.
9	886	Government of Maharashtra	5347.53	722	5337.18	Talav Plot Surrounded by additional land appropriated to create a public space
Total			**22106.78**		**17906.46**	

- The 3 road plots are absorbed in the proposed road network and not allotted final plots.

- Four plots from within the precinct (852, 853, 1229 and 864) located around Hiradevi Temple are shifted to the Planning Area to create an open gathering space around the temple for religious and cultural activities.
- Two plots in the Planning Area (892 and 1152) are moved from their locations towards the beach edge, as the space is required to accommodate the STP for Precinct.

- Preparing the Schematic area statement
  - After reconstitution of plots the status of the land parcels is as follows:

Table No. 4 Summary Area Statement before and after the Plan

No.	Description	No. of plots	Area (sq m)	Area (ha.)	%
Original Plots					
1	Original Plots - Private Plots (814) - Government Plots (9) - Unknown Plots (124)	947	321266	32.13	94.25
2	Road plots – 1/1, 1/2 and 729	3	17435	1.74	5.10
2	Road plots without number – R1, R2 and R3	3	2839	0.28	0.82
	TOTAL	953	341540	34.15	100
Final Plots					
3	Final Plots - Private individual (622) - Private consolidated (321 to 87) - Government individual (7) - Government consolidated (2 to 1) - from Precinct individual (1) - from Precinct consolidated (3 to 1)	719	246303	24.63	72.12
4	Appropriated Plots (11)	11	24519	2.45	7.18
5	Road		70718	7.07	20.71
Total			**341540**	**34.15**	**100**

  - In the process of reconstitution, 947 OPs are consolidated into 719 FPs. This is because 318 small private plots have been consolidated into 86 plots, 2 government plots are consolidated into 1 and 3 plots from the Precinct are consolidated in to 1 as follows:

Table No. 5: Summary of Consolidated Plots in the Planning Area

No.	Original Plots Consolidated	Number of plots consolidated
1	723+728	2
2	726+727	2
3	743+743/1+UK29+725	4
4	750+760	2
5	754+751	2
6	752+431+429	3
7	717+UK1	2
8	423+425+UK34	3
9	414+UK7+UK8	3
10	399+400+401+402+403+404+409	7
11	UK6+417+420	3
12	447+UK4+419+448	4
13	426+439+UK3	3
14	398+458	2
15	449+451	2
16	455+454	2
17	705+706	2
18	702+704	2
19	768+761	2
20	1302+1300	2
21	700+699+698	3
22	456+457	2
23	460+UK10	2
24	464+465	2
25	696+697	2
26	690+689	2
27	462+UK11	2
28	UK96+UK97+UK98+UK91+UK92+UK95+UK84+UK87+ UK88+UK89+UK90+UK99+UK24+UK101+391	15
29	688+817+821+823+825+842+1276+UK31+UK13+UK14	10
30	473+482	2
31	UK15+UK16+384	3
32	485+486	2
33	681+682	2
34	840+843+824	3
35	837+838+844	3
36	849+850+856+862+870+2251+UK30	7
37	852+853+1229 (from the precinct)	3
38	847+858+875+878+879+880	6
39	678+UK35	2
40	488+UK12	2
41	489+490	2
42	370+377+379+383+492	5
43	380+491	2
44	495+496+499+673+UK17+UK23	6
45	805+882+UK18	3
46	1156+1159	2
47	1160+1166+1168+UK36+UK26+UK27+UK28+1172	8
48	UK19+UK20+UK21+UK22+UK32+UK33+UK57+UK58+ UK59+UK60+UK62+1176	12
49	UK81+1153+UK80	3
50	364+362+358+338+295+334+508+348+339	9
51	509+510+UK41+522+531	5
52	UK102+UK103+UK104+UK108+311+344+324+314+305+320	17

No.	Original Plots Consolidated	Number of plots consolidated
	+294+282+279+253+258+37+333	
53	UK43+946+UK51+UK52+UK53+UK54	6
54	UK65+UK63+952	3
55	929+UK50+UK44+UK45+940+941	6
56	914+915	2
57	637+UK85	2
58	538+540+UK93+UK94	4
59	UK109+UK123+301+316	4
60	556+559+UK100	3
61	568+UK86	2
62	904+902+UK46	3
63	934+935	2
64	936+937+938	3
65	959+960	2
66	UK66+965+966+963+979+962	6
67	969+970+971	3
68	UK73+UK74+UK75+585	4
69	31/3+32+303	3
70	UK47+UK48+UK49+UK77+928+973+925	7
71	974+975	2
72	990+991	2
73	619+UK76+UK82+UK83	4
74	248+UK119+UK120+UK121	4
75	UK70+609+UK71+UK72+234+UK111+UK112+UK113	8
76	45+52+53	3
77	2/1+56	2
78	62+UK114+UK115+UK116+UK117+UK118	6
79	65+66	2
80	11+12	2
81	13+UK122	2
82	2/27+2/28	2
83	UK2+UK5	2
84	450+453	2
85	UK55+UK64+UK67+UK68+UK69	5
86	UK78+UK79	2
87	UK105+UK110+UK107	3
88	897 + 1139 (government plots)	2
	TOTAL	323

- Detailed Area Statement

  A detailed area statement for all plots is given in Annex 7. It has the following columns:

  i. Column A - Serial number: This is a number given to the entry.
  ii. Column B - Original Plot (OP) Number: The City Survey number was taken as the OP number. There were many plots that did not have any number. In such cases the plots are numbered as UK1, UK2, UK3.....
  iii. Column C - Ownership: Each plot is assigned ownership as per categories of private, private unknown and government as obtained from mahabhulekh.
  iv. Column D - Original Plot (OP) Area in sq m: The area of the OP is taken from the Base Map
  v. Column E - Original Plot (FP) Area in sq m: The area of each OP from the property card is given. For the plots with no numbers, there is not information on the area and the cell is left blank.

vi. Column F - Final Plot (FP) Area in sq m: The Final Plot Area is taken as 75% of the OP Area as taken from the Base Map. This done because there is not data on about 124 plots that are classified as 'unknown' and there is quite a bit of discrepancy between the areas taken from the Base Map and the property card. In case of plots with structures sometimes it was not possible to appropriate 25% of the area and in such cases the FP has more than 75% of the OP area.

vii. Column G - Final Plot (FP) Number: The FP numbers were given after the plots were reconstituted. The plots were renumbered by blocks defined by roads. The plots for public spaces and sale were numbered last. Plots with an FP area of less than 100sqm, have been amalgamated into a single FP and given a single FP number.

viii. Column H - Allotted FP are in sq m: Indicates the actual FP area allotted - it may be a bit more or less depending on the deduction possible. The reasons are explained in the remarks.

ix. Column H - Remarks: It includes reasons for less or more deduction, status of consolidation of plots and any other matter pertaining to configuration of OPs and FPs.

- Appropriated Plots
  - In the reconstitution, 947 OPs are consolidated into 718 FPs. Approximately 2.45 Ha of land has been appropriated for public purpose, utilities and sale.
  - The appropriations were not provided or accommodated within individual blocks; but were consciously created in two major portions. The first portion was combined along the beach in order to create a public realm and valuable real estate property which can be sold to finance the infrastructure in the Area Plan and in the precinct. The second part was amalgamated around the Talav to the east of the precinct, so that it can function as a neighbourhood open space.
  - The details of the appropriated plots are as follows:
    Table No. 6 List and Proposed Uses of Appropriated Plots

Table No. 6: Details of Appropriated Plots in the Planning Area

No	Final Plot No	Area (sq m)	Proposed Use
1	721	2246.78	Sewage Treatment Plant
2	722/1	2402.15	Public Open Space - Surrounding the Talav
3	723	199.35	Plot for Sale - commercial development
4	724	458.60	Plot for parking for visitors and community.
5	725	890.09	Public Open Space
6	726	3671.92	Plot for sale for resort development
7	727	4900.10	Plot for sale for resort development
8	728	4830.10	Plot for sale for resort development
9	729	2591.29	Public Open Space (2009) / STP in part (582)
10	730	988.86	Public Open Space
11	731	1339.70	Plot for health facility
	Total	**24518.94**	

Table No. 7: Summary of Proposed Uses for Appropriated Plots

No.	Use Allocated	No. of Plots	Area (Ha)	Percentage (%)
1	Public Open Spaces	4 (722/1, 725, 729, 730)	0.63	1.85
2	Sewerage Treatment Plant	2 (721, 729/part)	0.28	0.82
3	Plots for Sale	4 (723,726,727,728)	1.36	3.98
4	Plot for Health Facility	1 (731)	0.13	0.38
5	Plot for Parking for Visitors and Community	1 (724)	0.05	0.15
	Total Plots	11	2.45	7.18

Benefits

- Better planning and regulation of development in the area
- All plots have access.
- Land for providing social and physical infrastructure is obtained without resorting to land acquisition.

Costs

- The basic work of preparing the detailed are plan is already done.
- The plan will need to be refined by planners within MCGM to take it further towards implementation. For this, technical support can be sought from the private sector to carry out accurate surveys, collection of records, prepare the various statutory documents for the TPS / land readjustment process and detailed design of infrastructure. However, it is not possible to work out the costs associated with this work.

Revenues

- The Detailed Area Plan generates land assets, which can be used to finance the Action Plan. The extent of revenues is estimated in Proposal 4.

Implementation

- The project can be attempted as a pilot land readjustment scheme at a smaller scale in Mumbai. The MRTPA, 1966 already has the provisions for this, although it cannot be implemented right away as a few amendments are required that are already underway and should make it possible to implement the plan.
- The proposed Cell for implementing plans for special areas within Planning Department of MCGM will implement the project.

2 Frame Zoning, Development Regulations & Guidelines to Conserve Heritage, Public Realm and to Regulate Growth in the Precinct and Planning Area

Existing Situation and Rationale

Section 3.3 reviewed the applicable regulatory provisions in Erangal Precinct and Planning Area. Section 3.4 determined the final applicable regulatory provisions.

It was not possible to conclude precisely what zones and DCRs would be applicable. Even if one did this it would not result in coherent development of the precinct and its environs. This is evident from the fact that it is impossible to issue development permissions given the considerable confusion that prevails on which rule or law to interpret.

Approach

The basic premise of this study has been that for preserving or conserving the heritage aspects of Erangal (and other coastal gaothans like it) it is important to only improve the environmental infrastructure but also look at the nature of development in the immediate surroundings that is likely to impact the precinct.

In view of this objective – using some provisions of the 1967 DCRs, some from the 1991 DCRs and some from the CRZ regulations does not seem logical or rationale and is certainly unfair to the land owners. The areas have not seen any legal development, there is a complete freeze on development and in a place like Mumbai where land is a scarce commodity, this seems incomprehensible. Also the presumption of CRZ areas having low intensity developments would mean their preservation can be challenged. Elsewhere in the world one can see some of the most intensive, well planned developments and high value properties along the coastlines of seas.

Nonetheless, in view of well planned development and growth of the Erangal it is suggested that the delineated Precinct and the Planning Area around it are designated as '**gaothan and gaothan expansion'** zone in the DP. In this zone some amount of low intensity development can permitted instead of a total ban on development.

- This will require to be included in the DP of Mumbai which is under revision.
- This will also require to be included in the CZMP of Maharashtra / Mumbai.
- The section on MCGM included in the CRZ 2011 will have to be amended radically to incorporate concerns of coastal gaothans in the similar manner in which special activities such as the new airport, SRA schemes etc are permitted
- All construction till date will have to be regularized using a regularization act and upon payment of fees / charges if required.

Features

- The Precinct is zoned as 'gaothan' zone and the Planning Area as 'gaothan expansion' zone. Map 14 shows the Proposed Zoning for Erangal Precinct and Planning Area.
- The final zoning, permissible activities and development controls in the Precinct and Planning Area are as follows:

Table No. 8: Proposed Zones, Permissible Activities and Development Regulations

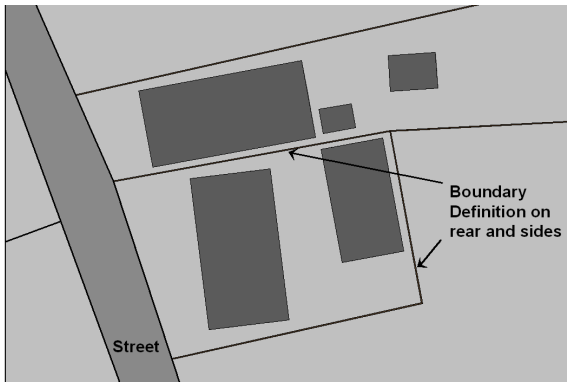
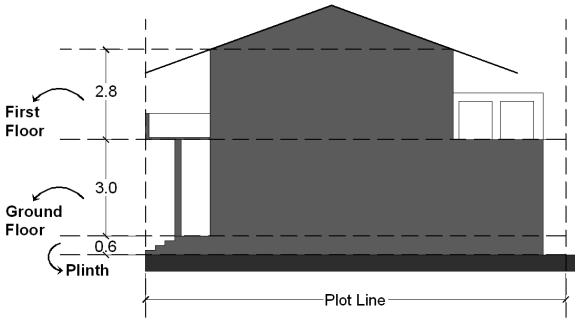
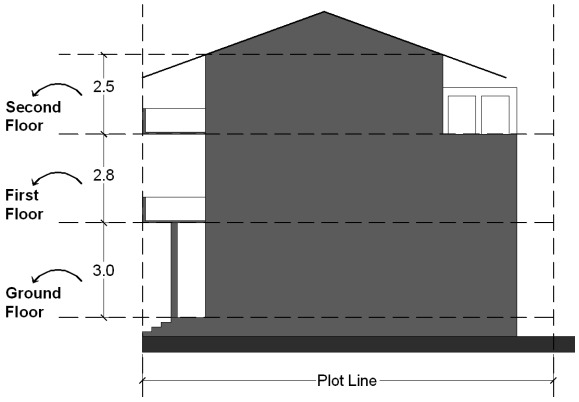
Zone	Permissible Activities	Development Regulations
Precinct / Gaothan	• Residential structures • Schools, dispensaries • Public toilets • Bus stand • Playgrounds, gardens, nurseries • Agriculture, horticulture, plantations • Electric sub-stations, solid waste collection points	• FSI = 1 for all uses permitted. All elements such as balconies and vernadahs will be free of FSI computation and cannot be enclosed. *(No exemptions permitted - IT, Low cost housing etc.)* • Minimum plot size = 40 sq m • No setbacks • Maximum height = G+2. • Maximum ground floor height = 3 m • Maximum first floor height = 2.8 plus sloping roof • Maximum second floor height = 2.5 m plus sloping roof • Maximum dwelling density = 35 per hectare. • Basements not permitted • Stilt construction not permitted
Planning Area / Gaothan Expansion	• Residential structures • Schools, dispensaries • Public toilets • Bus stand • Playgrounds, gardens, nurseries • Agriculture, horticulture, plantations • STP, water works, crematoria, cemeteries and electric sub-stations, solid waste collection points. • Facilities to support local economic activities - boat parking, fish drying yards, net mending, boat building yards, ice plants etc	• FSI = 0.5 for all uses permitted *(No exemptions permitted - IT, Low cost housing etc.)* • Minimum plot size = 100 sq m • Front setback as given in table below • Maximum height = G+1 • Maximum floor height = 3.5 m • Maximum dwelling density = 25 per hectare. • Basements permitted and free of FSI • Stilt construction not permitted

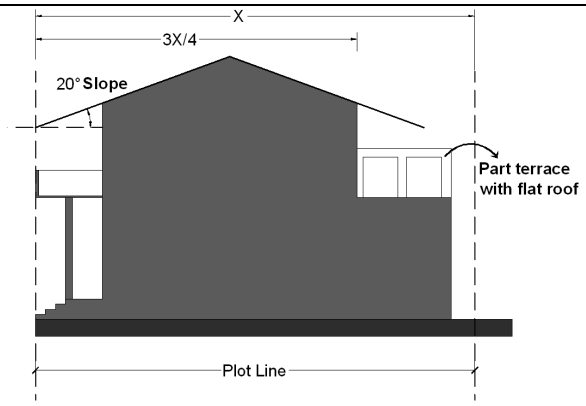
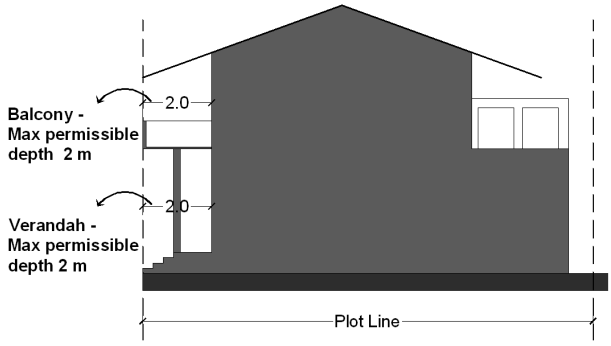
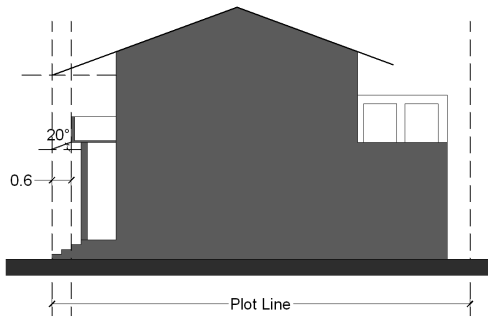
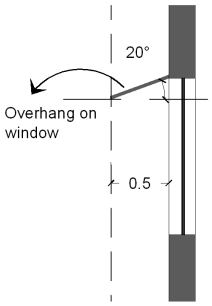
Table No. 9: Proposed Zones, Permissible Activities and Development Regulations

No.	Road Width (m)	Front Setback (m)
1	27.5	3
2	12	2
3	9	1.5
4	7.5	1.5
5	4.5	1.5
6	3	1.5

- The proposed development guidelines for the Precinct and Planning Area are as follows:

Table No. 10: Development Guidelines for the Precinct

No.	Guideline Parameters	Spatial Interpretation
1	**Boundary Definition** No boundary definition (either by a wall or fence) on front edge of the plot. Boundary definition on sides and rear may be provided.	
2	**Plinth Height** The maximum permissible plinth height is 0.6 m from the abutting street.	
3	**Floor Heights** The maximum permissible floor height of the ground floor is 3 m. The maximum permissible floor height of the first floor is 2.8 m. The maximum floor height of the second floor (if possible) is 2.5 m. The height of the sloping roof may be additional.	
4	**Roof Slope** All roofs must be sloping. The minimum required slope is 20º. Part terraces with flat roofs are permitted. The pitched roof must be applicable to minimum of 3/4th of the depth (X) of the structure.	

	The material of the sloping roof may be Mangalore tiles, country tiles, tin sheets or asbestos sheets. The colour of sloping roof must be of Mangalore tiles (red).	
5	**Verandah** The maximum permissible depth allowed is 2 m. It must be open on front side. It cannot be enclosed. It is free of FSI calculation.	
6	**Balcony** The maximum permissible depth allowed is 2 m. It must be open on at least 2 sides. It cannot be enclosed. It is free of FSI calculation.	
7	**Overhang on balconies** The maximum permissible depth of the overhang is 0.6 m. It must not cross the building/plot line. The minimum required slope is 20º.	
8	**Overhang on windows** The maximum permissible depth of the overhang is 0.5 m. The minimum required slope is 20º.	

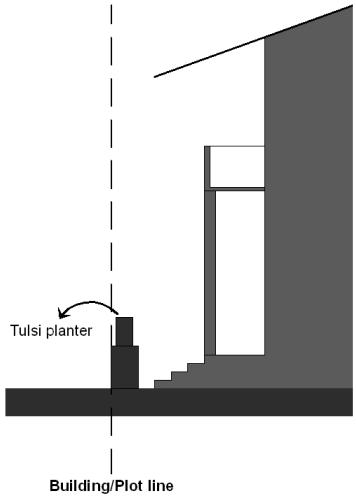
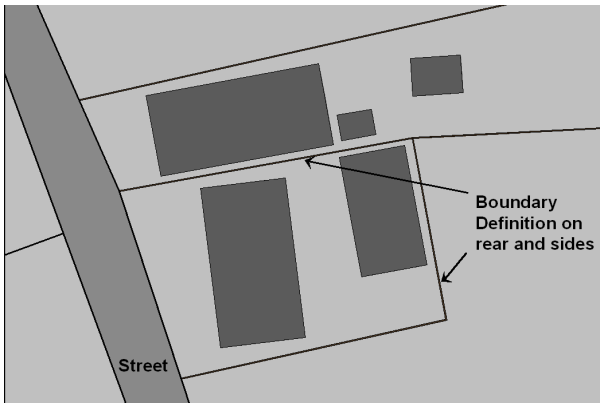
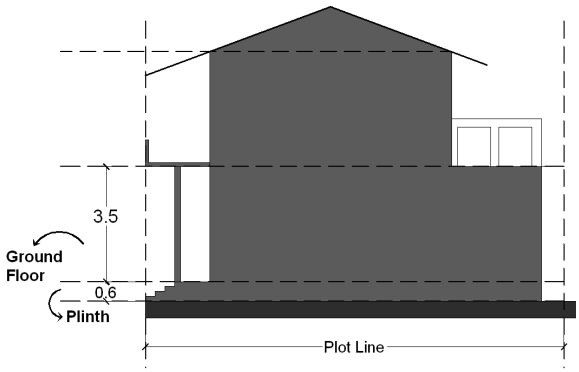
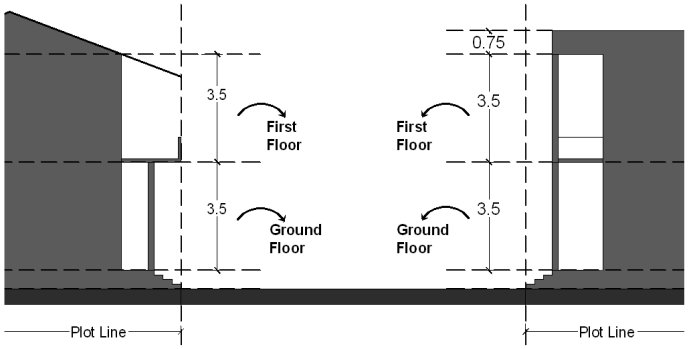
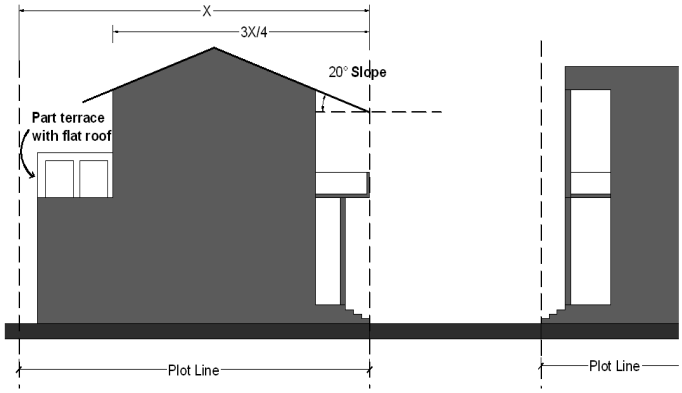
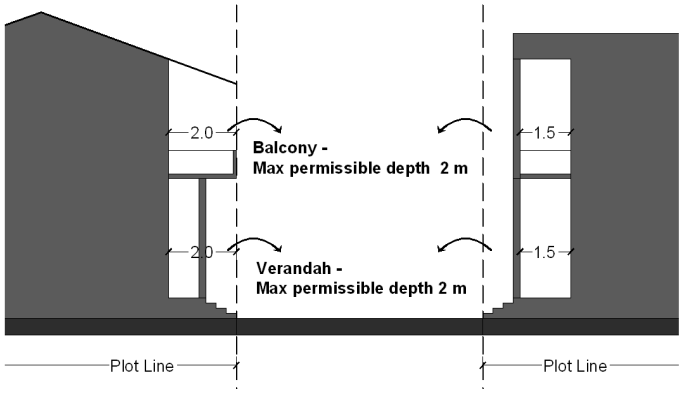
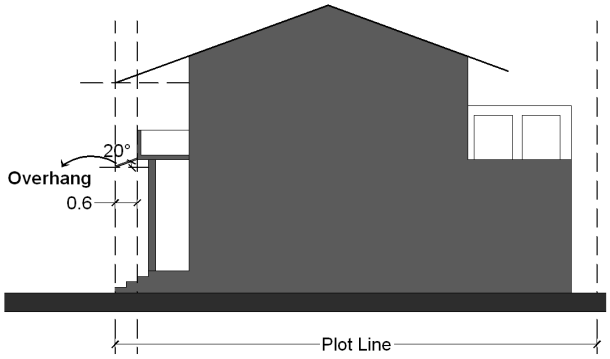
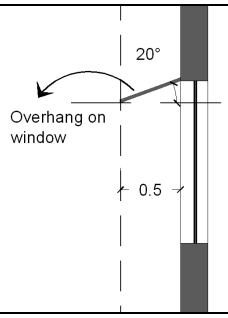
9	**Tulsi planters** To be provided within the building/plot line.	

Table No. 11: Development Guidelines for the Planning Area

No.	Guideline Parameters	Spatial Interpretation
1	**Boundary Definition** No boundary definition (either by a wall or fence) on front edge of the plot. Boundary definition on sides and rear must be provided.	
2	**Plinth Height** The maximum permissible plinth height is 0.6 m from the abutting street.	
3	**Floor Heights** A same floor height prevails for the buildings with sloping or flat roof. The maximum permissible floor height of the ground floor is 3.5 m. The maximum permissible floor height of the first floor 3.5 m. The height of the sloping roof may be additional. The height of the parapet (upto 0.75 m) may be additional.	

4	**Roof Slope** Sloping roofs are recommended, however not mandatory. The minimum required slope is 20º. Part terraces with flat roofs are permitted. The pitched roof must be applicable to minimum of 3/4th of the depth (X) of the structure. The material of the sloping roof may be Mangalore tiles, country tiles, tin sheets or asbestos sheets. The colour of sloping roof must be of Mangalore tiles (red).	
5	**Verandah** The maximum permissible depth allowed is 2 m. It must be open on front side. It cannot be enclosed. It is free of FSI calculation.	
6	**Balcony** The maximum permissible depth allowed is 2 m. It must be open on at least 2 sides. It cannot be enclosed. It is free of FSI calculation.	
7	**Overhang on balconies** The maximum permissible depth of the overhang is 0.6 m. It must not cross the building/plot line. The minimum required slope is 20º.	
8	**Overhang on windows**	

	The maximum permissible depth of the overhang is 0.5 m. The minimum required slope is 20º.	

Benefits

- Better planning and regulation of development in the area.
- New built form will be in conformity and continuity with the character of the Precinct.

Costs

- There are no direct costs associated with the project as it is regulatory intervention.

Revenues

- There will be some revenues while grant of development permissions and regularization of the construction that already exists. However these cannot be estimated at this juncture, and will not make a significant impact on the overall income that is required to finance some of the improvements.

Implementation

- The proposed Cell for implementing plans for special areas within Planning Department of MCGM will review the grant of permissions keeping in view the proposed regulations and guidelines.

3 Incorporate Area Plan in the Development Plan of MCGM

Existing Situation and Rationale

The development plan for a city lays down road network, zoning and reserves plots to locate public amenities and utilities. The proposals at this level are macro that keeps in view over all road network topology and the overall land use zoning. The local variations often get missed out. When a micro or a local plan gets prepared for an area, it captures the local conditions and issues. It would therefore be necessary to insert the local plan into the development plan in order to ensure that the proposals of the detailed plan are implemented as the local plan if left stand alone would not be backed by any legislation. For example, the detailed plan prepared for the planning area and the precinct cannot be implemented as it is proposed as it is an effort that is initiated by the MMR HCS and non-statutory. Hence, it is proposed that this be made a part of the development plan for MCGM including all the zoning proposals, development regulations and the design guidelines and the other projects identified as a part of this Action Plan.

Features

- The present zoning, permitted uses and the development guidelines that are proposed are not precisely aligned with the present regime of regulations and a case is being made for some changes.
- The DP will have to be varied / updated to include the proposed zoning along with development regulations and guidelines described in Proposal No. 2.
- All constructions till date will have to be regularized using a regularization act and upon payment of fees / charges if required.
- The section on MCGM included in the CRZ 2011 will have to be amended radically to incorporate concerns of coastal gaothans in the similar manner in which special activities such as the new airport, SRA schemes etc are permitted
- Changes will also have to be made in the CZMP of Maharashtra / Mumbai as CRZ at many instances permits developments if included in the CZMP.

Benefits

- Better planning and regulation of development in the area.
- Modifications of regulations such as CRZ and CZMP will likely reduce unauthorized developments

Costs

- There are no direct costs associated with the project as it is regulatory intervention.

Revenues

- There are no revenues associated with the project as it is regulatory intervention.

Implementation

- The proposed Cell for implementing plans for special areas within Planning Department of MCGM will have to ensure that proposals of Action Plan get incorporated in the proposed revised development plan of Mumbai.

4 Inventory and Use of Government Lands in the Precinct and Planning Area and Lands Assets created by the Area Plan.

Existing Situation and Rationale

The Action Plan for the Precinct and Planning Area anticipates capital investments for infrastructure and provision of amenities. Land will also be required to provide / accommodate some of the infrastructure and amenities. A ball park figure of 100 crores is estimated and sources of finance will have to be explored. An analysis of the existing sources clearly shows that it is not possible to raise such an amount. An important source of finance that can be explored is the public owned lands. To get an idea of how much land assets are owned by the Government, an inventory and a status assessment is required. Some of them may be under certain useful uses, some of them may be used for provision of certain amenities or meet the land required for some the projects prescribed in the Action Plan for the Precinct and Planning Area and some may be leveraged to raise resources to finance capital investments.

Approach

- To meet the land requirements and resource requirements envisioned in the Action Plan use of government lands is proposed.
- Based on the status assessment of the government owned lands and the plan requirements, uses are allocated to each parcel in such a way that they are most efficiently utilized.
- Priority is given to provide the required neighborhood public spaces, roads and utilities and allocate strategically located plots to raise resources to finance some of the capital investments.

Features

- Identification of the publicly owned lands within the precinct and planning area. These are defined as lands owned by the Government of Maharashtra, Municipal Corporation of Mumbai and the lands appropriated in the process of preparing the detailed Area Plan for the Planning Area.

1 Government Lands in the Precinct:

The table below gives the details and Map No. 15 shows the spatial location.

Table No. 12: Government Lands within the Precinct and their Usability

No.	CTS No.	Ownership	Area (sq m)	Status
1	1270	Government of Maharashtra	10.50	Plot. 50 % of the plot encroached by private structure of 1269 Very small, cannot be used. Can be sold to 1269, minor gains.
2	1319	Government of Maharashtra	26.09	Plot. 50 % of the plot encroached by private structure of 1321. Very small, cannot be used. Can be sold to 1321, minor gains.
3	1365	Government of Maharashtra	215.81	Plot. Entire plot is encroached by private parking shed. The plot can be vacated and appropriately used. Can be sold.
4	1364	Government of Maharashtra	31.86	Plot Open. Can be sold.

5	1352	Government of Maharashtra	191.28	Plot Open. Can be sold.
6	1355	Government of Maharashtra	16.16	Plot Partly encroached by private structure of 1363. Very small, cannot be used. Can be sold to 1269, minor gains.
7	1373	Government of Maharashtra	474.29	Street
8	1375	Mahanagar Palika	1846.64	Plot Plot under Municipal School.
9	733	Government of Maharashtra	2137.45	Plot Open space with a small temple and used for church parking and playground for the municipal school.
10	1376	Government of Maharashtra	3390.36	Plot This plot is under DP reservation for PG (play ground) Major part of the plot is vacant. A small part of the plot is encroached by plot owners of 1377, 1381, 1383, 1384 and 1385, their compound walls are extended. The open portion is used for mooring boats during monsoon. The encroachments will have to be removed and the uses on the plot can be better organized. Part of plot, approximately 1500 sq m can be utilized to provide amenities for tourists visiting Erangal beach. The remaining portion can be used as a school playground. All the boats can be moored in the open space in front of the church.
11	1351+ 1346	Government of Maharashtra	172	Street Plots is vacant, use for storage and various other activity of the private residences along it. Part of the plot (52 sq m) is used for the 12 m loop road leading to the Danapani beach. Part of the plot (27 sq m) is used to create a pedestrian access from the Precinct to the 12 m road. Remaining 93 sq can be sold the abutting plot owners for expansion.
12	1341	Government of Maharashtra	248.78	Street Plots is vacant, used as circulation / movement space between structures. The entire plot is proposed for developing the public realm - 41 sq m is used to expand Holi maidan and the remaining is towards expanding Holi maidan street.
13	1307	Government of Maharashtra	38.04	Plot A small part of the plot encroached by private structure of 1308. The plot can be vacated and sold.
14	1315	Government of Maharashtra	142.46	Plot Entire plot is encroached by a private structure. The plot can be vacated and sold or sold to the encroacher.
15	1305	Government of Maharashtra	120.75	Street Plots is vacant, use for storage and various other activity of the private residences along it. The entire plot is proposed for developing the public realm.
16	1258	Government of Maharashtra	107.87	Plot 50 % of the plot encroached by private structure of 1259. The plot can be vacated. The entire plot is proposed for developing the public realm. It is integrated with Holi Maidan redevelopment.
17	1340	Government of Maharashtra	111.62	Plot Open abutting Holi Maidan and used as circulation /

				movement space between structures. The entire plot is proposed for developing the public realm - expanding the Holi maidan.
18	1317	Government of Maharashtra	83.04	Plot Entire plot is encroached by private structure of 1318, 1315. The plot can be vacated or sold to 1318 and 1315.
19	1339	Government of Maharashtra	68.43	Plot Entire plot is encroached by private structure. The plot can be vacated or sold to the encroacher.
20	Streets and open spaces		6182.71	The entire area is proposed for developing the public realm.
	Total		**15616.14**	**About 40.28% of the Precinct Area**
	Total Precinct		**38947.00**	

Note: The highlighted rows indicate the plots

- The government land within the precinct constitutes about 40% (1.56Ha) of its total area (3.89Ha).
- This land is in the form of plots and streets / circulation spaces.
- Presently it is observed, that the streets and the open plots within the precinct are being encroached slowly by expanding the structure on to the streets or in the open spaces around the structures or encroaching by fencing and using it for storage or constructing toilets/bathrooms etc.
- Of the entire 15700 sq m about 995.67 sq is available for and raising resources.

2 Government Lands in the Planning Area:

The table below gives the details and Map No. 16 shows the spatial location. The government lands in the Planning Area are reconstituted with a deduction of 25%. Their locations also have marginally changed.

Table No. 13: Government Lands in the Planning Area

No.	CTS No.	Ownership	Area (sq m)	Area after reconstitution (sq m)	Status
1	9	Government of Maharashtra	1974.93	1481.18	Plot. Vacant, under tree cover. Allocated for a school facility.
2	72/1	Government of Maharashtra	8982.19	6737.96	Plot. Vacant, under tree cover. Proposed for sale for residential development.
3	897	Government of Maharashtra	4544.98	3408.39	Plot. Partly Vacant, Partly encroached by private structures and parking. Encroachments to be vacated. Proposed for sale for resort development.
4	390	Government of Maharashtra	347.55	260.56	Plot. Vacant, under tree cover. Proposed for parking for visitors and community
5	1303	Government of Maharashtra	284.62	213.34	Plot. Vacant. Proposed for amenity / utility for the Precinct and Planning Area.
6	1304	Mahanagar Palika	168.66	126.57	Plot. Vacant.

					Proposed for amenity / utility for the Precinct and Planning Area
7	730	Mahanagar Palika	355.24	265.67	Plot. Vacant. Proposed for amenity / utility for the Precinct and Planning Area
8	1139	Government of Maharashtra	101.08	75.61	Plot. Vacant. Proposed for sale for resort development.
9	886	Government of Maharashtra	5347.53	5337.18	Talav. Left as is.
	Total		**22106.78**	**17906.46**	**About 5.24% of the Precinct Area**
	Total Planning Area		**341540.31**		

- The government land within the planning area constitutes about 5.24% (1.79 ha) of its total area (34.15 ha).
- Most of the plots are vacant or under wild vegetation/plantation.
- All the 17900 sq m land can be used for accommodating amenities and leveraging for raising resources. About 10221.96 sq m is available for sale to raise resources.

3 Land Appropriations in the Planning Area

In addition some land parcels are created while preparing the detailed area Plan for the Planning Area. The table below gives the details and Map No. 16 shows their spatial location.

Table No. 14: List and Proposed Uses of Appropriated Plots

No	Final Plot No	Area (sq m)	Proposed Use
1	721	2246.78	Sewage Treatment Plant
2	722/1	2402.15	Public Open Space - Surrounding the Talav
3	723	199.35	Plot for Sale - commercial development
4	724	458.60	Plot for parking for visitors and community.
5	725	890.09	Public Open Space
6	726	3671.92	Plot for sale for resort development
7	727	4900.10	Plot for sale for resort development
8	728	4830.10	Plot for sale for resort development
9	729	2591.29	Public Open Space (2009) / STP in part (582)
10	730	988.86	Public Open Space
11	731	1339.70	Plot for health facility
	Total	**24518.94**	

- The appropriated plots within the planning area constitute about 7.18% (2.45 ha) of its total area (34.15 ha).
- Most of the plots are vacant or under wild vegetation/plantation.
- All the 24519 sq m land can be used for accommodating amenities and leveraging for raising resources. About 15587 sq m is available for sale to raise resources.

In summary the total land resources available are:

Table No. 15: Summary of Land Resources Available

No.	Location	No. of Plots	Area (sq m)
1	Precinct	11	996
2	Planning Area - Government plots	3	10,222
2	Planning - Appropriations	5	14,060
	TOTAL	**19**	**25,278**

- In the precinct, most of the land is being used to create public realm and amenities. Some of the occupied / encroached plots will be offered for sale to the occupiers at the predetermined rates.
- A tentative value was attached to this land based on the current land recknor values and assuming a conservative factor to arrive at a market value:

Table No. 16: Tentative Value of Land Assets

No.	Location	No. of Plots	Area (sq m)	Value (Rs crores)
1	Precinct (@Rs. 25200 / sq m; twice the land reckor value)	11	996	2.51
2	Planning Area - Government plots (@Rs. 37800 / sq m; thrice the land reckor value)	3	10,222	38.64
2	Planning - Appropriations (@Rs. 37800 / sq m; thrice the land reckor value)	5	14,060	53.14
	TOTAL	**19**	**25,278**	**94.29**

Benefits

- Burden of land required for providing amenities and utilities in the Precinct and Planning Area is reduced.
- A portion of the resources required to implement the Action Plan is made available.

Costs

- A preliminary listing and valuation of the Government lands is done, however if and when the Area Plan and some of the above mentioned projects are implemented, a more refined financial model will have to be developed and will involve a cost. However, it is not possible to estimate this at present.

Revenues

- Revenues from the sale / lease of land are to the extent of Rs. 95 crores.

Implementation

- The proposed Cell for implementing plans for special areas within Planning Department of MCGM will have to ensure that the development on the land parcels owned by the Government and the appropriations obtained from the Detailed Area Plan occurs in a well coordinated and planned manner.
- The finances of implementing the Detailed Area Plan will have to be ring fenced – either a separate account will have to be created to maintain the income and expenditure or will have to be accounted for separately in MCGM's budget.
- The use and sale / lease of the Government lands in the Precinct and Planning Area will have to be tied to the priorities of the Action Plan.

4.2 Physical Infrastructure

5 Design Schematic Water Supply Network in the Precinct (Map No. 17)

Existing Situation and Rationale

The precinct has access to municipal water supply. It gets water from a main municipal water line along Madh-Marve Road. From here there is a 4 inch main water line, which runs along Khale Gali. The water pipeline within the precinct is not at all planned and is randomly pulled from the main line by various secondary pipelines of varying diameters. This has resulted in low water pressure particularly towards the interior of the settlement. Moreover, the pipeline currently follows the storm and wastewater drain and is either above or below the drain creating conditions for contamination. The supply of water is said to be insufficient and most of the requirement for washing and cleaning is supplemented by the wells in the precinct.

Approach

As a part of the scope of this study a detailed water supply system cannot be designed, however a schematic water supply network is proposed for both the Precinct and the Planning Area. It is designed in a manner that both the systems can be built in a phased manner and later can be integrated. The system is designed as loop / grid system to address the water pressure problems. An added advantage also is that if required parts of the system can be closed for repairs without disrupting the water supply to other areas. The grid iron pattern proposed facilitates the grid network.

Features

- The Precinct is unlikely to see a very high growth as the space is limited. There are about 700 persons at present and at the maximum, the population cannot exceed three times as much. There is one school and some amount of water is estimated for this. In addition some additional demand is estimated for tourist population. The number can be refined as and when the set of projects goes for implementation. For the Planning area the water supply estimates are separately made in Proposal No. 8.

  Table No. 17: Water Supply Estimate for the Precinct.

	Land Use	Water requirement (MLD)
1	Residential	0.19
2	Institutional (Municipal School)	0.03
3	Tourists (drinking water and public toilets)	0.01
Sub-Total		0.23
Unaccounted for Water (UFW) @15%		0.03
Total		**0.26**

  Assumptions
  - Total residential population = 1400 person (present population of 700 times two)
  - LPCD = 135, residential water requirement = 0.19 MLD
  - Total school population = 750 (present one and a half times the present population of 500).
  - LPCD = 45, school water requirement = 0.03 MLD
  - Total tourist population = 200 (assuming that Erangal precinct attracts local visitors)
  - LPCD = 30, tourist water requirement = 0.01 MLD
- Map No. 17 shows the water supply network for both the Precinct and the Planning Area. It is assumed that there will be a water main along the Madh Marve Road.

There are 3intake points from this main for both the Precinct and the Planning Area via a 200 mm dia pipe. The 200 mm dia main divides the entire area in three zones and the secondary network of 150 mm dia and 100 mm dia pipes breaks out covering the entire area.

- The water supply network is integrated with street design - special channels / areas are designed to accommodate the water supply pipes. They are clearly separated from the sewerage pipes to avoid contamination.

Benefits

- Continuous and efficient supply of water to the community.

Costs

The table below gives the block cost estimates for the water supply network.

Table No. 18: Water Supply Distribution Network Cost in the Precinct

No.	Pipe Diameter (mm)	Length (m)	Rate (Rs / m)	Amount (Rs)
1	100	99	1,525	1,50,975
2	150	205	2,500	5,12,500
3	200	117	2,900	3,39,300
Total				**10,02,775**

Assumptions

- Only the distribution network is costed as it is assumed that water works, storage are outside the Precinct and Planning Area.
- All costs are schematic and a DPR will be required before implementation.

The capital investment will have to be made either from:

- Corporators' funds
- MCGM's internal resource for providing infrastructure.
- Eventually if the Detailed Area Plan gets implemented, resources will be raised in the form of betterment charges and land assets.

Revenues

- The revenues for O and M of the water supply created can be recovered by the way of user charges. The residents are willing to pay for service charges in lieu of services provided.

Implementation

- The proposed Cell for implementing plans for special areas within the Planning Department of MCGM will have to ensure coordination with the Engineering / Water Supply Department for implementation of the water supply system.

6 Design Schematic Sewage Network System in the Precinct (Map No. 18)

Existing Situation and Rationale

There is no sewage network in the precinct. Most of the households use soak pits, while others defecate on the beach or adjoining agricultural lands. Presently the precinct has a network of open and covered surface drains, which are used for disposal of wastewater and storm water. The covered parts of the drains have steel grated and cement concrete covers. The wastewater and storm water is disposed in open fields, which creates unhygienic conditions and pollutes the land. Irregular maintenance and cleaning generally leads to water logging and backflow of wastewater into the streets during the monsoons as the drain fills with sand.

Approach

As a part of the scope of this study a detailed sewerage system cannot be designed, however a schematic sewerage system is proposed for both the Precinct and the Planning Area. Given the peculiar location of Erangal it is not possible to connect it with the centralized sewage systems for MCGM. Hence decentralized sewerage systems with 2 small capacity treatment plants are proposed for the entire area covering both the Precinct and Planning Area.

Features

- The entire area is divided into two sewerage zones based on the slope of the area - zone 1 that slopes towards the talav and includes the Precinct and some surrounding areas and zone 2 that slopes towards the north / Danapani beach.
- Zone 1:
    - Includes the Precinct and some surrounding area.
    - The sewerage generated is considered as 80% of the water supply for the Precinct and portion of the surrounding area and is given in the table below:

Table No. 19: Sewerage Generated in the Precinct / Zone 1

No.	Area	Area (sq m)	Water Supply MLD	Sewerage MLD
1	Zone 1 (including Precinct and Surrounding Area	2,14,917	0.26 prec 0.552 resi 0.006 resort	
Total			**0.818**	**0.654**

Assumptions

- Zone 1 includes the Precinct. The water supply for this is 0.26 MLD including UFW. In addition there are FPs 507 FPs. Of these 69 consolidated plots comprising of 235 city survey numbers. This means that there are 507 + 166 (235-69) = 673 families or 3365. This is rounded off to 3560. The water supply for this is 0.552 MLD including UFW. Zone 2 has 1 resort plots having an area of 3672 sq m. This will result in a BUA of 1836 and 27 resident tourists. The resultant water supply for this is 0.006 MLD including UFW.

- The sewage will be taken for treatment to a plot opposite the talav - FP No. 721. Clean or treated water will be let into the talav. This will replenish the evaporation and seepage losses. Anaerobic treatment proposed.
- The sewerage network is integrated with street design - special channels / areas are designed to accommodate the water supply pipes. They are clearly separated from the sewerage pipes to avoid contamination.

Benefits

- Comprehensive and efficient sewerage system for the community.

Costs

The table below gives the block cost estimates for the sewerage network.

Table No. 20: Sewerage Network Cost in the Precinct / Zone 1

No.	Particulars		Unit	Rate	Quantity	Amount (Rs)
1	**Sewer Network**					
	a	100 mm Dia RCC Pipes	m	1,750	3,462	60,58,500
	b	150 mm Dia RCC Pipes	m	2,000	1,464	29,28,000
	c	200 mm Dia RCC Pipes	m	2,200	901	19,82,200
	d	300 mm Dia RCC Pipes	m	3,170	416	13,18,720
2	**Manholes**					
	a	Brick and RCC Manholes	Nos.	25,000	114	28,50,000
3	**Sewerage Treatment Plant and Rising Mains**					
	a	Cost of the anaerobic treatment plant @ Rs. 15000/CUM	CUM	15,000	654	98,10,000
Total						**2,49,47,420**

Assumptions

- Pipe Diameters are based on schematic design of the system at current. There are likely to modify when the detailed design is prepared.
- Cost estimates are based on SOR by Maharashtra Jivan Pradhikaran.
- One manhole is provided for every 55 m of sewer pipe length.
- The total sewerage generated is 0.654 MLD which is equal to 654 CUM.

The capital investment will have to be made either from:

- Corporators' funds
- MCGM's internal resources for providing infrastructure.
- Eventually if the Detailed Area Plan gets implemented, resources will be raised in the form of betterment charges and land assets.

Revenues

- The revenues for O and M of the sewerage system created can be recovered by the way of user charges. The residents are willing to pay for service charges in lieu of services provided.

Implementation

- The proposed Cell for implementing plans for special areas within the Planning Department of MCGM will have to ensure coordination with the Engineering / Sewerage Department for construction of sewerage network system.

7 Improve Solid Waste Collection and Disposal in the Precinct (Map No. 19)

Existing Situation and Rationale

The Precinct is kept clean by joint effort of the residents and the MCGM employees. Each household cleans the street in front of their house as the street functions as an extension of the house. Two MCGM employees, carry out door to door solid waste collection within the precinct on a daily basis. Solid waste picked up from each household is dumped into a large garbage container placed at the entrance of the Precinct. This container is cleared once in about 5 to 10 days. Irregular clearing of garbage and insufficient size of the container leads to overflow of the garbage. The overflowing garbage is further strewn by stray dogs and cows. In monsoons the area experiences flooding and the mess gets compounded.

MCGM has commenced a scheme to clean the Erangal beach, whereby two collectors clean the beach on a daily basis and the garbage is collected in a large garbage container placed on the beach itself. This container is also cleared along with the container at the entrance of the Precinct. The same problem occurs – over flowing garbage further strewn by stray dogs, which gets washed into the sea.

The garbage strewn around these large garbage bins right at the beginning of the precinct and on the beach is an unpleasant sight, causes pollution and health hazard.

Approach

The solid waste collection and disposal system is envisaged for both the Precinct and the Planning Area as a whole. The Precinct requires improvements to begin with, which can be done right away. The solid waste disposal system can be extended to the Planning Area as and when it develops.

Features

- On the basis the solid waste generated, location points for two garbage containers of a much larger size than the present one are identified in the Precinct and shown in Map No. 19. These are close to the present locations but slightly modified to enable efficient collection.
- Collection point 1 which is at the Erangal beach can be right away located in a portion plot no. 1376 which is a reservation for play ground for the Municipal School. A low height platform will have to be constructed on this the larger sized container can be placed. This will prevent the garbage to be disrupted by dogs and flowing into the sea.
- Collection point 2 which is at the entrance of the Precinct can continue to remain where it is and eventually when the Action Plan for the Precinct and the Planning Area is implemented, it can be shifted into plot 1379 as shown in Map No. 19. This plot at present is open and has an electric sub station by Reliance. The property card for this number was not available and hence it is not clear whether it is a public land parcel. However, a small portion can be easily carved out for this to locate the garbage collection point along with land required from this plot to build the 12 m access road.
- The frequency of the garbage pickup from the two collection points should be increased to twice a week based on the quantity of solid waste that is likely to get generated.
- The size of the container at both points is increased which will ensure that there will be spare capacity and will not result in over flow of garbage.

- To take care of the garbage over flow and the mess created by dogs a small platform can be built at the current location on which the container can be placed for the garbage from the Precinct. The platform will also reduce the mess created during monsoons.
- Both the locations of the garbage collection points are such that the collection vehicle can easily and efficiently access them from the Madh Marve Road.

Table No. 21: Quantity of Solid Waste Generated in the Precinct

No.	Category	Population	Solid waste generated per day (gms)	Total (gms)
1	Precinct	1,400	350	4,90,000
2	Tourists	200	100	20,000
Total in grams per day				5,10,000
Total in kilograms per day				**510**

Benefits

- Improvement in the collection frequency will improve cleanliness of the area.
- The area will be more attractive to the visitors to the area.

Costs

The following costs are considered

Table No. 21: Solid Waste Container Costs for the Precinct

No.	Item	Cost (Rs)
1	Two large sized solid waste containers 3 cu m containers @ Rs. 50000 / container	1,00,000
2	Two platforms 3 m length by 2.6 m width by 0.45 m height concrete platforms will require 3.51*2=7.02 cu m of concrete. (Rate of concrete = Rs. 5000 per cu m)	35,100
	Total	**1,35,100**

Assumptions

- A 3 cum container has the dimensions - 1.9m x 1.6 x 1 m and will hold 1500 kg of waste. This means that one container can hold 3 days waste and will have to be cleared every three days.

The capital investment will have to be made either from:

- Corporators' funds
- MCGM' internal resource for providing infrastructure.
- Eventually if the Detailed Area Plan gets implemented, resources will be raised in the form of betterment charges and land assets.

Revenues

- The charges for solid waste collection form a part of the taxes paid by the residents to MCGM.

Implementation

- The proposed Cell for implementing plans for special areas within the Planning Department of MCGM will have to ensure coordination with the Engineering / Solid Waste Department putting in place the containers and ensuring regular removal of garbage.

8 Design Water Supply Network for the Planning Area (Map No. 17)

Existing Situation and Rationale

At present there is no water supply to the area as it is mostly under agriculture and plantation and with very little resident population. Development is anticipated in the Planning Area and an Area Plan is prepared for it. However this is low intensity development as this is a coastal area and ecologically sensitive. Water supply provision will have to be made for the area.

Approach

As a part of the scope of this study a detailed water supply system cannot be designed, however a schematic water supply network is proposed for both the Precinct and the Planning Area. It is designed in a manner that both the systems can be built in a phased manner and later can be integrated. The system is designed as loop / grid system to address the water pressure problems. An added advantage also is that if required parts of the system can be closed for repairs without disrupting the water supply to other areas. The grid iron pattern proposed facilitates the grid network.

Features

- The planning area is not designed for an intensive growth. The objective is ensure planned growth around the precinct and a planned expansion which is of low intensity nature as the area is a coastal area. As there is not much resident population and conventional population projection methods cannot be used. Instead, the population is estimated based on the area on which the development is anticipated. There are about 711 Final Plots (for residential use) created in the Area Plan. Of this about 87 are consolidated plots consisting of 321 city survey plots. Assuming one family per plot there would be 711 families plus 234 (321-87) families accounting for consolidated plots. This is about 945 families.
- Assuming 945 families and an approximate household size of 5 persons, the total population would be around 4725. For the purpose on computing the water demand a population of 5000 is considered.

Table No. 22: Water Supply Estimate for the Planning Area.

	Land Use	Water requirement (MLD)
1	Residential plots	0.675
2	Resort Plots (5)	0.02
Sub-Total		0.695
Unaccounted for Water (UFW) @15%		0.104
Total		**0.80**

Assumptions

- Total residential population = 945 families x 5 = 4725 persons, rounded off to 5000 persons
- LPCD = 135, residential water requirement = 0.675 MLD
- Total 5 resort plots having an area of 18414 sq m. The FSI is 0.5, the available BUA is 9210 sq m. Assuming 70 sq m per tourist for a medium category resort, there would 132 resident tourists.
- LPCD = 150, resident tourist requirement = 0.02 MLD

- Map No. 17 shows the water supply network for both the Precinct and the Planning Area. It is assumed that there will be water main along the Madh Marve Road. There are 3 intake points from this main for both the Precinct and the Planning Area via a 200

mm dia pipe. The 200 mm dia main divides the entire area in three zones and the secondary network of 150 mm dia and 100 mm dia pipes breaks out covering the entire area.

- The water supply network is integrated with street design - special channels / areas are designed to accommodate the water supply pipes. They are clearly separated from the sewerage pipes to avoid contamination.

Benefits

- Continuous and efficient supply of water to the Planning Area.

Costs

The table below gives the block cost estimates for the water supply network.

Table No. 23: Water Supply Distribution Network Cost in the Planning Area.

No.	Pipe Diameter (mm)	Length (m)	Rate (Rs / m)	Amount (Rs)
1	100	2,421	1,525	36,92,025
2	150	2,638	2,500	65,95,000
3	200	2,108	2,900	61,13,200
Total				**1,64,00,225**

Assumptions

- Only the distribution network is costed as it is assumed that water works, storage are outside the Precinct and Planning Area.
- All costs are schematic and a DPR will be required before implementation.

The capital investment will have to be made either from:

- Corporators' funds
- MCGM's internal resource for providing infrastructure.
- Eventually if the Detailed Area Plan get implemented resources will be raised in the form of betterment charges and land assets.

Revenues

- The revenues for O and M of the water supply created can be recovered by the way of user charges. The residents would be willing to pay for service charges in lieu of services provided.

Implementation

- The proposed Cell for implementing plans for special areas within the Planning Department of MCGM will have to ensure coordination with the Engineering / Water Supply Department for implementation of the water supply system.

9 Design Schematic Sewage Network System for the Planning Area (Map No. 18)

Existing Situation and Rationale

At present, there is no sewerage system in the area as it is mostly under agriculture and plantation and with very little resident population. Development is anticipated in the Planning Area and an Area Plan is prepared for it. However this is low intensity development as this is a coastal area and ecologically sensitive. Along with water supply network, a sewerage network provision will have to be made for the area.

Approach

As a part of the scope of this study a detailed sewerage system cannot be designed, however a schematic sewerage system is proposed for both the Precinct and the Planning Area. Given the peculiar location of Erangal it is not possible to connect it with the centralized sewage systems for MCGM. Hence decentralized sewerage systems with small capacity treatment plants are proposed for the entire area covering both the Precinct and Planning Area

Features

- The entire area is divided into two sewerage zones based on the slope of the area - zone 1 that slopes towards the talav and includes the Precinct and some surrounding areas and zone 2 that slopes towards the north / Danapani beach.
- Zone 2:
    - Includes the remaining portion of the Planning Area.
    - The sewerage generated is considered as 80% of the water supply for the Precinct and portion of the surrounding area and is given in the table below:

Table No. 24: Sewerage Generated in the Planning Area / Zone 2

No.	Area	Area (sq m)	Water Supply MLD	Sewerage MLD
1	Zone 2 (Remaining Portion of Planning Area)	1,55,935	0.224 resi 0.018 resorts	
Total			**0.242**	**0.194**

Assumptions

- Zone 2 has 204 FPs. Of these 18 are consolidated plots comprising of 86 city survey numbers. This means that there are 204 + 68 (86-18) = 272 families or 1360 persons. This is rounded off to 1440 persons. The water supply for this is 0.224 MLD including UFW. Zone 2 has 4 resort plots having an area of 14742 sq m. This will result in a BUA of 7371 and 105 resident tourists. The resultant water supply for this is 0.018 MLD including UFW.

- The sewage will be taken for treatment to portion of FP 729. The total amount of land required for this is 582 sq m (calculated @ 3 sq per CUM of sewerage). The treated water will be let into the sea. Anaerobic treatment proposed.
- The sewerage network is integrated with street design - special channels / areas are designed to accommodate the water supply pipes. They are clearly separated from the sewerage pipes to avoid contamination.

Benefits

- Comprehensive and efficient sewerage system for the Planning Area.

Costs

The table below gives the block cost estimates for the sewerage network.

Table No. 25: Sewerage Network Cost in the Planning Area / Zone 2

No.	Particulars		Unit	Rate	Quantity	Amount (Rs)
1	**Sewer Network**					
	a	100 mm Diameter RCC Pipes	m	1,750	1,532	26,81,000
	b	150 mm Diameter RCC Pipes	m	2,000	902	18,04,000
	c	200 mm Diameter RCC Pipes	m	2,200	204	4,48,800
	d	300 mm Diameter RCC Pipes	m	3,170	226	7,16,420
2	**Manholes**					
	a	Brick and RCC Manholes	Nos.	25,000	52	13,00,000
3	**Sewerage Treatment Plant and Rising Mains**					
	a	Cost of the anaerobic treatment plant @ Rs. 15000/CUM	CUM	15,000	194	29,10,000
Total						**98,60,220**

Assumptions

- Pipe Diameters are based on schematic design of the system at current. There are likely to modify when the detailed design is prepared.
- Cost estimates are based on SOR by Maharashtra Jivan Pradhikaran.
- One manhole is provided for every 55 m of sewer pipe length.
- The total sewerage generated is 0.194 MLD which is equal to 194 CUM.

The capital investment will have to be made either from:

- Corporators' funds
- MCGM's internal resources for providing infrastructure.
- Eventually if the Detailed Area Plan gets implemented, resources will be raised in the form of betterment charges and land assets.

Revenues

- The revenues for O and M of the sewerage system created can be recovered by the way of user charges. The residents would be willing to pay for service charges in lieu of services provided.

Implementation

- The proposed Cell for implementing plans for special areas within the Planning Department of MCGM will have to ensure coordination with the Engineering / Sewerage Department for construction of sewerage network system.

10 Locate Solid Waste Collection Points in the Planning Area (Map No. 19)

Existing Situation and Rationale

The immediate surroundings of the Erangal precinct are presently undeveloped. Scattered development is observed as one move towards the Dana Pani Beach. There are small resorts, small vending shacks along the beach along the Dana Pani road. Other than these, there are bungalows, which are mostly used for film and TV serial shootings etc.

All these activities generate garbage. It is observed that all the garbage from the small shacks is dumped on to the beach / rocky outcrops or in the surrounding plots. The waste from the shooting sets is also dumped on to the rocky outcrops. The garbage generated by the scattered houses and the resorts/ small eating joints between the Madh Marve Road and the Dana Pani Beach is disposed off in the surrounding plots.

No cleaning or garbage pickup is currently done along the Dana Pani beach or in the Planning area. There are no larger containers put at any of the points where tourists frequent.

Approach

The solid waste collection and disposal system is envisaged for both the Precinct and the Planning Area as a whole. The Planning Area will require solid waste collection when it develops. With this in view future estimates of solid waste generation and possible locations of solid waste collection points are identified.

Features

- On the basis the solid waste generated, location points for four garbage containers are identified in the Planning and shown in Map No. 19.
- Collection point 3 is along the Erangal beach, is located in part of FP No. 724 which is allocated public parking.
- Collection point 4 is along the Erangal beach, is located in part of FP No. 729 which allocated for STP and garden.
- Collection point 5 is located in planting strip of the 27.45 m wide Madh Marve road near FP No. 714.
- Collection point 6 is located in the planting strip of the 27.45 m wide Madh Marve road near FP No. 579.
- Cleaning of the Danapani road and beach and Planning Area should be done twice a week.
- To take care of the garbage over flow and the mess created by dogs a small platform can be built at the current location on which the container can be placed for the garbage from the Precinct. The platform will also reduce the mess created during monsoons.
- The pickup of garbage can be done on same days when it is done for the Precinct.
- All four locations of the garbage collection points are such that the collection vehicle can easily and efficiently access them from the Danapani road and Madh Marve Road.

Table No. 26: Quantity of Solid Waste Generated in the Planning Area

No.	Category	Population	Solid waste generated per day (gms)	Total (gms)
1	Residents	5,000	350	17,50,000
2	Resort Tourists	132	250	33,000
Total in grams per day				17,83,000
Total in kilograms per day				**1,783**

Benefits

- Establishing a solid waste management system from the beginning will result in a clean and a livable area.
- The area will be more attractive to the visitors to the area.

Costs

The following costs are considered

Table No. 27: Solid Waste Container Costs for the Planning Area

No.	Item	Cost (Rs)
1	Four large sized solid waste containers 3 cu m containers @ Rs. 50000 / container	2,00,000
2	Four platforms 3 m length by 2.6 m width by 0.45 m height concrete platforms will require 3.51*4=14.04 cu m of concrete. (Rate of concrete = Rs. 5000 per cu m)	70,200
Total		**2,70,200**

Assumptions

- A 3 cum container has the dimensions - 1.9m x 1.6 x 1 m and will hold 1500 kg of waste. This means that one container can hold 3 days waste and will have to be cleared every three days.

The capital investment will have to be made either from:

- Corporators' funds
- MCGM's internal resources for providing infrastructure.
- Eventually if the Detailed Area Plan gets implemented, resources will be raised in the form of betterment charges and land assets.

Revenues

- The charges for solid waste collection form a part of the taxes paid by the residents to MCGM.

Implementation

- The proposed Cell for implementing plans for special areas within the Planning Department of MCGM will have to ensure coordination with the Engineering / Solid Waste Department putting in place the containers and ensuring regular removal of garbage.

4.3 Public Realm

11 Develop Six Streets and Five Chowks /Open Spaces in the Precinct

Existing Situation and Rationale

More than the individual structures being very distinctive, the collective public realm created by these and comprising of streets and open spaces is of significance. The structures were rebuilt over the same footprint after World War 2 and the organic built fabric / form has been retained resulting in a unique public realm – streets and open spaces. The streets are defined by the structures opening onto them. They are meandering and widen into open spaces / chowks which are actively used by the community for various purposes like putting *rangoli*, playing cricket, washing utensils, cutting vegetables, sitting, chatting etc. Critical elements of the public realm are the verandahs (transition spaces), tulsi planters, trees, seating and wells. The tulsi planters deserve a special mention – they are high, very typical to this community, built probably in the same locations and have undergone transformations in terms of materials.

The community uses these spaces actively – the streets virtually become extensions of houses, there no clear distinction between the 'public' and 'private' realm. The open squares are used during festivals and on special occasions of the community. Most importantly, the community makes an effort to maintain them – streets and squares are cleaned by them.

There are three issues facing the public realm:

- Encroachment
  The growth pressures in the precinct are resulting in encroachment of the public realm – people are extending into the streets and open spaces, which is resulting in a reduction of the public space.
- Accommodation of Physical Infrastructure
  The public realm is also used for accommodating the physical infrastructure. The infrastructure has been introduced in a piece meal manner over the years and is not well planned or integrated with the public realm. It is also not maintained well by the local authority. This is also deteriorating the quality of the public realm over the years.
- Current traffic movements
  There are several types of vehicular movements:
  - The local tourist traffic (mostly two wheelers) moves to dana pani beach from the Madh Marve road passes through the Khale gali as this is the only access. The other access from Dana pani beach road is only a pedestrian access as there is a huge level difference, the visitors park their vehicles at the upper level and walk down to the beach.
  - The fishing catch point is closer to Bhatti settlement. The access road from Bhatti does not allow a good vehicular access to the fish landing point for taking the catch out and transporting ice. Hence, medium to heavy vehicles come from the Madh Marve road, pass through Khale gali on to the Erangal beach and reach Bhatti.
  - Municipal vehicles collect solid waste from Erangal and Bhatti beach also using the Khale gali.
  - Festivals of Baravi and Smritidin bring in a lot of visitor traffic which chokes the Khale gali.

Over the years there have been no initiatives to enhance the character of the streets and open spaces. Further current regulations are structure-centric without any consideration of the how margins or setbacks are shaped, thereby creating residual open spaces.

Approach

The quality of the public realm can be greatly enhanced with few simple improvements

- firstly clearly defining it, integrating infrastructure, defining the traffic/ vehicular movement through an appropriate street hierarchy, segregating pedestrian and vehicular movement and adding a few elements.
- secondly by expanding it, by removing encroachments and adding some publicly owned land parcels to it.

Features

- The major public realm within the Precinct comprises of the streets and chowks. These are:

  A Streets

  1. Khale Gali
  2. Electra Street
  3. Holi Maidan Street
  4. Hira Devi Temple Street
  5. St. Bonaventure Street
  6. Tulsi Planter Street (East of Holi Maidan)

  B Open spaces / Chowks

  1. Badamwadi/Badami Chowk
  2. Holi Maidan
  3. St. Bonaventure Church Open Space
  4. Hira Devi Temple Open space
  5. Khale Gali Open space
- The 'public realm' was clearly delineated on the base map (Map No. 20). The boundary of the city survey plots were taken to define the edge. All the encroachments such as extended plinths, fences and construction are marked.
- Having delineated the 'public realm' the next step was to make it pedestrian friendly and reduce the through traffic flow especially through Khale gali. A new outer loop street is created (Refer Proposal No. 1 Detailed Area Plan) which will take the traffic from Madh Marve road directly to Dana pani beach.
- The rest of the delineated public realm is completely pesdestrianized. No through vehicular movement will be permitted. Common parking areas are created where people can park their two wheelers and auto rickshaws.
- The public realm is proposed to be defined / high lighted with the use of paving with patterns. The truck infrastructure lines are integrated in the street and open space design. The material used will slow the traffic speeds and some amount of organized parking is delineated to prevent haphazard parking of vehicles.

Table No. 28: Area Under Proposed Public Realm

No.	Public Realm	Area (sq m)
Streets		
1	Khale Gali	855
2	Electra Street	1,384
3	Holi Maidan Street	996
4	Hira Devi Temple Street	440
5	St. Bonaventure Street	428
6	Tulsi Planter Street (East of Holi Maidan)	958
Open Spaces and Chowks		0
1	Badamwadi/Badami Chowk	424
2	Holi Maidan	420
3	St. Bonaventure Church Open Space	1,983
4	Hira Devi Temple Open Space	610
5	Khale Gali Open Space	226
Total		**8,724**

A. Streets

1. Khale Gali

Khale Gali is the primary street of the precinct. This street runs roughly east west and witnesses significant vehicular traffic as it connects the settlement to Erangal beach, Municipal school and St. Bonaventure church. The street has tar finish and its width varies from 4 - 6m. The following is proposed:

- With the construction of the 12 m loop road, the through traffic will reduce and the street will become pedestrian friendly.
- The area of the street is approximately 855 sq m.
- The entire street will be paved with paver blocks.
- Street lights will be provided at an interval of 10 m.
- A dedicated service bay is accommodated in the street. The sewerage pipes, storm water drains and water supply pipes are provided in this. The manholes and storm water intake basins will be located along this. The bay is highlighted by a different coloured paver blocks.
- The street is not of uniform width and hence wherever it widens street furniture is provided to encourage interaction amongst residents and for the visitors to rest. Two such spaces are created as one enters the precinct.
- A parking space is also created for two wheelers and auto-rickshaws belonging to the community.

2. Electra Street

Electra street is one of the secondary streets in the precinct. This street runs north south from Khale Gali and leads to Danapani beach through the precinct. It witnesses vehicular traffic going to Danapani beach and the nearby farmhouses used for shooting. The service areas of the houses flank the street. As a result, a part of the street is used for water storage and washing utensils. The street has been encroached along St. Bonaventure Church and used for storage etc. A covered gutter runs along the street. The street has tar finish and its width varies from 3 - 4 m. The following is proposed:

- This street is to be widened into a 12m wide road.
- This street is part of the 12 m loop in the hierarchy of roads proposed for the Planning Area. About 416 m length of the street within the precinct will be widened.
- This will be developed as part of the Detailed Area Plan with the pedestrian crossing leading to Erangal Beach from Erangal Precinct. The street will be developed as described in Proposal No. 12, Secondary Road (12 m), Stretch away from the Beach.

3. Holi Maidan Street

Holi Maidan street is a secondary street in the precinct. This street runs north south from Khale Gali and leads to Danapani beach through the precinct. The street edge is marked by twigs, wire fencing and vegetation. The street is partly surfaced with cement concrete and partly paved with stone slabs. The following is proposed:

- Completely pedestrianized.
- The area of the street is approximately 996 sq m.
- The entire street will be paved with paver blocks.
- Street lights will be provided at an interval of 10 m.
- A dedicated service bay is accommodated in the street. The sewerage pipes, storm water drains and water supply pipes are provided in this. The man holes and storm water intake basins will be located along this. The bay is highlighted by a different coloured paver blocks.

4. Hira Devi Temple Street

Hiradevi Temple Street is a secondary road, which branches off from Khale Gali along the eastern edge of the settlement. The road edge is marked by twig, wire fencing and vegetation. Its width varies from 2 to 3 m. The street surface has a patchwork of stone paving and cement concrete and its width varies from 2 to 3 m. The following is proposed:

- Completely pedestrianized.
- The area of the street is approximately 440 sq m.
- The entire street will be paved with paver blocks.
- Street lights will be provided at an interval of 10 m.
- A dedicated service bay is accommodated in the street. The sewerage pipes, storm water drains and water supply pipes are provided in this. The man holes and storm water intake basins will be located along this. The bay is highlighted by a different coloured paver blocks.
- Opposite the Hiradevi Temple there is adequate space which is proposed for creating public toilets, seating area, vending spaces and some amount of visitor parking.

5. St. Bonaventure Street

St. Bonaventure street is in continuation with Khale Gali and leads to Erangal beach. The vehicular traffic is taken from Khale Gali to St. Bonaventure Church, Municipal school and to Erangal Beach. The street has tar finish and it's width varies from 3 to 4 m. The following is proposed:

- Some vehicular movement but predominantly pedestrian.
- This street is currently in continuation to Khali gali. As Electra Street has been proposed to be widened and made part of the 12m wide loop street, two distinct street emerge - Khale gali and St. Bonaventure Church street.
- The ROW will be 4.50m with a carriage way of 3 m and 1.5 m wide footpath.
- The entire street will be paved with paver blocks.
- Street lights will be provided at an interval of 10 m.
- Tree pits at 7.5 m interval on the edge along the church side are planned.

- A dedicated service bay below the foot path is accommodated in the street. The sewerage pipes, storm water drains and water supply pipes are provided in this. The manholes and storm water intake basins will be located along this. The bay is highlighted by a different coloured paver blocks.

6. Tulsi Planter Street (East of Holi Maidan)

This is the pedestrian street provided access to houses in the interior of the precinct. There is one section in between that has a series of tulsi planters outside houses and make the street very special and memorable.

- Completely pedestrianized.
- The area of the street is approximately 958 sq m.
- The entire street will be paved with paver blocks.
- Street lights will be provided at an interval of 10 m.
- A dedicated service bay is accommodated in portions of the street. The sewerage pipes, storm water drains and water supply pipes are provided in this. The manholes and storm water intake basins will be located along this. The bay is highlighted by a different coloured paver blocks.

B. Developing the Open Chowks

1. Badamwadi/Badami Chowk

Badamwadi/Badami Chowk is the first open space that welcomes a visitor into the Precinct. It derives its name from the Badam tree with a platform around, which is the central element of the space. Next to the tree is an open well that is still used to draw water. This is a socializing place for the residents in the precinct, and a space for children to play. It is approximately 12 m by 12 m wide space. Badamwadi is surrounded by G and G+1 storey residential structures with ground floor shops along Khale Gali. It is proposed to be developed in the following manner (Map No. 21).

- The chowk is extended by including the area towards north from the present area of 180 sq m to 424 sq m. In order to extend this space, a small structure is proposed to be removed towards the north side.
- Completely pedestrianized.
- The entire area will be paved with paver blocks with a different shade from the street.
- A dedicated service bay is accommodated in the chowk. The sewerage pipes, storm water drains and water supply pipes are provided in this. The manholes and storm water intake basins will be located along this. The bay is highlighted by a different coloured paver blocks.
- The platform around the badam tree will be refurbished.
- Seating areas are created within the main chowk and extended chowk.
- Some plantation is also proposed in the chowk.

2. Holi Maidan

Holi Maidan is the major open space of the Precinct used by the residents for various festive occasions such as holi, ganeshutsav, marriages etc and community gathering. At present, the maidan is paved in concrete. The maidan is approximately 18 m x 18 m wide. It is surrounded by G and G+1 residential structures. A part of the Maidan has been encroached and fenced off. It is proposed to be developed in the following manner (Map No. 22).

- All the encroachments by the surrounding plots will removed.

- The chowk is extended by including the area towards east from the present area of 267 sq m to 420 sq m. In order to extend this space, part of the government owned plot No. 1341 (about 41 sq m) is proposed to be used. In addition, the entire government owned plot No. 1340 with an area of 112 sq m is included.
- Completely pedestrianized.
- The entire area will be paved with paver blocks with a different shade from the street.
- A dedicated service bay is accommodated in the chowk. The sewerage pipes, storm water drains and water supply pipes are provided in this. The manholes and storm water intake basins will be located along this. The bay is highlighted by a different coloured paver blocks.
- Public toilets are proposed in the extended portion. About 6 toilets (3 male and 3 female) and two bathrooms are proposed and will be connected with the centralized sewerage system.

3. Open space in front of St. Bonaventure Church

This is the largest open space in the Precinct between the beach and St. Bonaventure Church, at the end of Khale Gali. The city survey number is 733 and the area is 2137 sq m and its approximate dimensions are 42 m x 48 m. There is a Mahadev Temple and a cross in the open space. A portion of the plot appears to be encroached - a sub plot is carved out and there is one residential structure having an area of 406 sq m. It was not accessible during the survey.

The open space is used for a variety of purposes:

- for parking vehicles going to Erangal beach and the farmhouses
- as a playground for children and during social functions and festivals
- selling of snacks and sweets to the children in the Municipal School
- as a playground by the Municipal School Children
- hosting of festivals / fairs by the Church - mass from 31st December to the second Sunday of January wherein a fair is organized and villagers put up stalls for selling food items, flowers etc., and Smriti Din (15 July)
- Parking of boats during monsoon months from June to August. The boats are owned by the fishermen from Bhattigaon and currently do not pay any charges for parking the boats here.

The open space is undeveloped, it is a patch of untreated ground. Multiple uses and activities occur in a laissez faire manner. It is proposed to develop this space in a manner that all activities can occur in an organized and efficient manner. It is proposed to developed the space in the following manner (Map No. 23):

- Removal of the encroachment on the plot and breaking the compound wall. This will add about 400 sq m of space.
- Part of the plot is used to expand the St Bonaventure Street and the net available open space will be 1983 sq m.
- Dedicated parking space for the four wheelers and two wheelers are provided towards north. This can be used for visitors and residents. Visitor parking can be charged.
- Foot path along the St Bonaventure Street.
- Hard (paving) and soft landscape (plantation) in the plaza / open space.
- Seating in the plaza.
- Platforms informal vending.
- A dedicated service bay is accommodated in the chowk. The sewerage pipes, storm water drains and water supply pipes are provided in this. The manholes and storm

water intake basins will be located along this. The bay is highlighted by a different coloured paver blocks.

4. Hiradevi Temple Open Space

There is open space all around the Hiradevi Temple:

- The space to the west quite is roughly a square of 16 m by 16 m and has two temporary structures which are used to store wood, construction materials etc. Both the structures are encroachments. The open space is partly paved with stone slabs.
- The space to the south of the Hiradevi Temple along the kutccha track leading to the talav is completely under wild vegetation at present. An open kutccha drain runs along this track carrying the sewerage from the settlement to the nearby open fields. This falls under two plots - 864 and 1229. Both the plots are privately owned.
- The space to the north is vacant. It falls under plot 852 which is privately owned.
- The space to the east is vacant. It falls under plot 853 which is privately owned.

The vacant space around the Hiradevi Temple can be consolidated to create a large open space and partly that can support a wide range of activities centered around the temple. It is proposed to develop the space in the following manner (Refer Map No. 24):

- Remove the two temporary structures.
- Relocate the four private plots in the Planning area as follows:

Table No. 29: Relocation of Private Plots to Expand Hiradevi Temple Open Space

No.	Plot No. in the Precinct	Area as per Base Map (sq m)	New Final Plots in the Planning Area
1	864	178	282
2	1,229	54	Combined 280/2
3	852	47	Combined 280/2
4	853	49	Combined 280/2

- Construct a plinth around the temple.
- Extend Hiradevi Street towards the talav.
- Create a paved chowk to the west.
- Construct 6 public toilets - 3 male and 3 female to cater to the visitors during special occasions.
- Provision of seating and informal vending areas.
- Provision of two wheeler and auto rickshaw parking spaces for visitors.
- A dedicated service bay is accommodated in the chowk. The sewerage pipes, storm water drains and water supply pipes are provided in this. The manholes and storm water intake basins will be located along this. The bay is highlighted by a different coloured paver blocks.

5. Khale Gali Open Space

This is an open space formed as a result of organic arrangement of the structures and the junction of Khale Gali and Holi Maidan street. This is the widest part of Khale Gali. It is proposed to be developed in the following manner (Map No. 25).

- The entire area will be paved with paver blocks with a different shade from the street.
- The extent of through vehicular movement will be reduced with the construction of the 12 m loop road.
- The entire area will be paved with paver blocks with a different shade from the street.
- A dedicated service bay is accommodated in the chowk. The sewerage pipes, storm water drains and water supply pipes are provided in this. The manholes and storm water intake basins will be located along this. The bay is highlighted by a different coloured paver blocks.
- Seating areas are created within the chowk.

Benefits

- Expanded and improved public realm will increase the comfort level of the residents and visitors. It will also increase the imageability of the Precinct.
- Well planned and integrated provision of infrastructure will considerably improve the public realm.

Costs

The following costs are considered

Table No. 30: Public Realm Development Costs

No.	Street Name	Area (sq m)	Paving Cost (Rs) @Rs. 700/ sq m	Street Light (Nos)	Street Light Cost (Rs) @40000 / Pole	Misc Costs – Lump sum: Street Furniture and demolition works (Rs)	Total
Streets							
1	Khale Gali	855	5,98,500	12	4,80,000	1,10,000	11,78,500
2	Electra Street	1,384	9,68,800	12	4,80,000	1,10,000	15,48,800
3	Holi Maidan Street	996	6,97,200	14	5,60,000	1,10,000	13,57,200
4	Hira Devi Temple Street	440	3,08,000	11	4,40,000	1,10,000	8,48,000
5	St. Bonaventure Street	428	2,99,600	9	3,60,000	1,10,000	7,59,600
6	Tulsi Planter Street	958	6,70,600	11	4,40,000	1,10,000	12,10,600
Open Spaces and Chowks							
1	Badamwadi Chowk	424	2,96,800	4	1,60,000	1,10,000	5,56,800
2	Holi Maidan	420	2,94,000	3	1,20,000	1,10,000	5,14,000
3	St. Bonaventure Church Open Space	1,983	13,88,100	1	40,000	1,10,000	15,28,100
4	Hira Devi Temple Open Space	610	4,27,000	3	1,20,000	1,10,000	6,47,000
5	Khale Gali Open Space	226	1,58,200	2	80,000	1,10,000	3,38,200
	TOTAL	**8,724**	**61,06,800**	**82**	**32,80,000**	**12,10,000**	**1,04,86,800**

The capital investment will have to be made either from:

- Corporators' funds
- MCGM's internal resources for providing infrastructure.
- Eventually if the Detailed Area Plan gets implemented, resources will be raised in the form of betterment charges and land assets.

Revenues

- There are no revenues expected from this project. However, some amount of advertisement rights can be created at strategic locations.

Implementation

- The proposed Cell for implementing plans for special areas within the Planning Department of MCGM will have to ensure coordination with the Engineering Department for construction of services and the public realm.

12 Design Schematic Street Sections for the Planning Area

Rationale

Erangal Precinct has significant public realm comprising of streets and the open spaces. In contrast the planning area is at present under agricultural use and sporadic haphazard development is observed along the Madh Marve road and Danapani beach road in the absence of road network at a area level. A new road network is proposed for the Planning Area in Proposal No.1 based on functional hierarchy (Map No. 12), to better facilitate the movement and create streets as public spaces. In this proposal, the detailed features for each of street hierarchy are given.

Approach

- Schematic streets sections are designed based on a functional hierarchy of the network. An attempt is made to impart character to each 'type' of street based on its function / role in the network.
- An attempt is made to make the streets pedestrian friendly and safe.
- Provision of infrastructure services is integrated with street design.
- Prototypical street sections for all widths are prepared consisting of pedestrian, cycle tracks, service bays, tree plantation, street furniture and street lighting.

Features

Each of the roads / streets will be developed in the following manner and Map No. 26 shows the schematic sections.

1 Primary / Arterial Road (27.45 m)

There is only one road in this category which is Madh Marve road. It is envisioned that this road will link the coastal settlements of Madh, Bhattigaon, Erangal, Akse, Marve etc. to the Mumbai mainland and Malad; and it will be used for public transit (BEST buses). This street is not an intensive urban street as it passes through a low intensity area which largely green and under no development or low development zones. It will be tree lined avenue with adequate green buffers to protect the adjoining areas from the vehicular noise and emissions.

The road will have the following:

- 27.45 m ROW
- 4 lanes with 2 lanes (3 and 3.25 m) on each side
- 0.65 m wide median with streetlights fixed at a distance of 25 m.
- 3.2 m wide bus stop, plantation and parking area on both the sides of the road (this will also accommodate location of a solid waste container at two locations)
- 2 m wide cycle track on both sides of the road
- 1.95 m wide footpath on both sides of the road
- A service bay below the footpath to accommodate the water supply and sewerage pipes.
-

2 Secondary / Sub Arterial or Collector Roads (12 m)

This road is a second level road. A peripheral 12m sub-arterial loop is designed, which intersects Madh-Marve road at three points at approximate intervals of about 580 m. Since it brings people from outside to Danapani beach, talav, and other public spaces, it is designed to encourage pedestrian activity. Two road sections

are envisaged, one for the stretch which passes along the beach and one for the remaining stretch of the 12m which are away from the beach.

2A Stretch along the Beach

A wider footpath is proposed along the beachfront so that it becomes public promenade and recreational space. The road will have the following:

- 12 m ROW
- 2 lanes with one lane (3.5 m) on each side
- 0.65 m wide median with streetlights fixed at a distance of 25 m.
- 2.85 m wide footpath on the beach side designed with vending areas, seating facing the beach, litter bins, tree pits and information signage
- 1.5 m wide footpath on the landward side of the road
- A service bay below the footpath to accommodate the water supply and sewerage pipes.

2B Stretch Away from the Beach

The section here is symmetrical on both sides and is configured as follows:

- 12 m ROW
- 2 lanes with one lane (3.5 m) on each side
- 0.65 m wide median with streetlights fixed at a distance of 25 m.
- 2.175 m wide footpath on both sides of the road with tree pits, litter bins and information signage.
- A service bay below the footpath to accommodate the water supply and sewerage pipes.

3 Tertiary / Feeder Roads (9 and 7.5 m)

These are the third level roads which connect the sub arterial loop with the area. and secondary/collector roads. These roads break the planning area into large blocks. The main infrastructure lines would run along these. There are two road sections – 9 m and 7.5 m wide depending on the length of the block. These roads do not allow the passage of through traffic or fast traffic.

3A Tertiary Road (9 m)

The section is symmetrical on both sides and is configured as follows:

- 9m ROW
- Single lane (5 m)
- 2 m wide footpath on both sides of the road with tree pits, litterbins and street lights at an interval of 15 m on alternate sides.
- A service bay below the footpath to accommodate the water supply and sewerage pipes.

3B Tertiary Road (7.5 m)

The section is symmetrical on both sides and is configured as follows:

- 7.5 m ROW
- Single lane (4.5 m)
- 1.5 m wide footpath on both sides of the road with litterbins and street lights at an interval of 15 m on alternate sides.
- A service bay below the footpath to accommodate the water supply and sewerage pipes.

4 Neighbourhood / Internal Access Roads (4.5 and 3 m)

These are the neighbourhood level plots which provide access to individual plots from the tertiary roads. These roads basically divide the larger block into smaller blocks or clusters of plots with cul de sacs. There are two road sections – 4.5 m and 3 m wide. These are envisaged largely as pedestrian friendly with slow moving traffic and proposed to be paved to slow speeds.

4A Internal Road (4.5 m)

The section is configured as follows:

- 4.5 m ROW
- Shared carriage way and pedestrian path which is paved
- Street lights at an interval of 15 m on alternate sides
- Trees at 10 m interval on both the sides but skipped when there is a street light pole

4B Cul de sacs (3 m)

The section is configured as follows:

- 3 m ROW
- Shared carriage way and pedestrian path which is paved
- Street lights at an interval of 15 m on alternate sides
- Trees at 10 m interval on both the sides but skipped when there is a street light pole.

Benefits

- Pedestrian friendly streets for both residents and tourists.
- Streamlined activities on streets.
- Efficient movement of vehicles and non motorized transport.

Costs

The following costs are considered

Table No. 31: Road Development Costs in Planning Area

No.	Road Width	Area (sq m)	Rate per sq m (Rs)	Amount (Rs)
1	Primary / Arterial Road (27.45 m)	16,080	0	0
2	Secondary / Sub Arterial or Collector Stretch along the Beach (12 m)	13,920	1,300	180,96,000
3	Secondary / Sub Arterial or Collector Stretch Away from the Beach (12 m)	9,646	1,250	120,57,500
4	Tertiary Road (9m)	14,924	950	141,77,800
5	Tertiary Road (7.5 m)	6,871	750	5153,250
6	Internal Road (4.5 m)	6,094	500	30,47,000
7	Cul de sacs (3 m)	8,368	400	33,47,200
Total		**75,903**		**5,58,78,750**

Assumptions:

- The cost of the 27.45 m arterial road is not considered as a part of the finances for the Planning Area as this a major DP level / city level road and will be financed by MCGM budgetary provisions. A part of the land required for the arterial road is obtained as a part of the land readjustment process.
- The costs of all roads per sq m are based on prevalent SOR for Maharashtra and Gujarat. They a block cost estimates and likely to refine based on detailed estimates.

The capital investment will have to be made either from:

- Corporators' funds
- MCGM's internal resources for providing infrastructure.
- Eventually if the Detailed Area Plan gets implemented, resources will be raised in the form of betterment charges and land assets.

Revenues

- There are no revenues expected from this project. However, some amount of advertisement rights can be created at strategic locations.

Implementation

- The proposed Cell for implementing plans for special areas within the Planning Department of MCGM will have to ensure coordination with the Engineering Department for construction of roads.

13 Develop the Talav in the Planning Area

Existing Situation and Rationale

This talav is located to the east, outside the precinct but within the planning area. It is presently accessed by a narrow track form the Precinct passing along the Hiradevi Temple. This is a natural water body and holds water throughout the year, which gets replenished during the monsoons. In the past this talav was used as disposal point for the waste water from the precinct. Disposal of the waste water has polluted the talav and the sludge formation and sedimentation has decreased the depth of the talav. Currently however the flow of wastewater is stopped and diverted to open fields.

Owing to the presence of the Ganesh temple, the talav has become important to the community. The community has expressed a keen interest in developing the talav and the surroundings as religious and public space for recreation. The talav being in the planning area, has the potential to be developed as an attractive recreational and public space for the visitors and the residents alike.

Features

A schematic design is prepared for the development of the talav. The key features of the design are:

- At present the area of the talav is about 5348 sq m. Using the land area readjustment in the Planning Area an area of about 2402 sq m is added abutting the talav plot and the new area of about 7750 sq m is defined by access roads.
- The east and southern end are encircled by the loop road which will provide access from the Planning Area.
- Access from the precinct to the talav area is ensured by extending the precinct street through the planning area. There are three such access points:
  - Entry 1 – On the east side of talav, near the Ganesh Temple. This entrance is to be used by visitors coming for recreation or religious purpose. Parking spaces are provided outside this gate for the visitors to park.
  - Entry 2 – On the west side of talav, road from the precinct. This entrance will be used by the community.
  - Entry 3 – On the west side of talav, road from Hira Devi temple. This entrance will be used by the community.
- The Talav and the space around it will accommodate the following activities:
  - A jogging/walking track.
  - Landscaped areas (both hard and soft) for seating, holding exhibition, celebrating festivals etc.
  - Amphitheatre for holding performances and cultural activities.
  - Space outside the temple for conducting religious activities like bhajans and rituals.
  - A pathway around the talav and the deck extended to the centre of the talav becomes the focal point of this open space.
- The edge of the talav area is envisioned with low walls along the periphery with plenty of trees and plants.
- The talav or the water body itself is defined with stone pitching, deepened and its surface area is marginally reduced so as to create open space around.
- Some amount of parking is provided along the loop road for visitors.
- The decentralized sewage treatment facility is located across the loop road in one of the common plots made available through land readjustment. The treated water from the

sewage facility will be let into the talav. This will keep the talav full of water throughout the year.

Benefits

- Will enhance the area around the talav.
- Will be a vibrant recreational space for the residents.
- An integrated network of pleasant, safe public place for cultural and social interaction
- Will be an attraction for the visitors.

Costs

The following costs are considered:

Table No. 32: Talav Development Costs in Planning Area

No	Details	Area (sq m)	Rate (Rs / sq m)	Cost (Rs)
1	Development of area under water body	3,190	1,500	4,785,000
2	Landscaping for the surrounding area	4,560	1,500	6,840,000
Total				**11,625,000**

Assumptions:

- The rate for development of the area under water body includes dredging, cleaning and providing stone pitching. It is a block cost arrived at using current rates for such tasks.
- The rate for landscaping the surrounding area includes plantation, earthwork, hard & soft landscaping, garden furniture and lighting. It is a block cost arrived at using current rates for such tasks.

The capital investment will have to be made either from:

- Corporators' funds
- MCGM's internal resources for providing infrastructure.
- Eventually if the Detailed Area Plan gets implemented, resources will be raised in the form of betterment charges and land assets.

Revenues

- Some amount of parking charges can be levied and if space is allocated to a vendor then a rent amount can be recovered, however the amounts expected from this are marginal and perhaps can only contribute towards maintenance.
- There will be no significant direct revenues from this initiative, but increased visitors to the area are likely to boost the local economy.

Implementation

- The proposed Cell for implementing plans for special area within the Planning Department of MCGM will have to ensure coordination with the Engineering / Gardens Department for development of the talav.

14 Develop Three Public Spaces / Parks along Danapani Beach

Existing Situation and Rationale

Danapani beach is most visited and popular destinations where people (mostly residents of Mumbai) come to enjoy the mesmerizing view of Arabian Sea. At present, there are no facilities for the visitors such as shaded seating areas, eating joints and public toilets. No efforts have thus far been made to develop any kind of amenities for tourists. It would help if there are some publicly owned land parcels available along the coast which may be developed to provide amenities. Using the land readjustment mechanism, the government land parcels and the appropriated land parcels are consolidated along the loop road that runs parallel to the Danapani beach. Off the 11 land parcels obtained in this manner along the coastline, it is proposed that 3 of these are developed as 'public open spaces' and are shown in Map No. 28. These will serve the needs of the resident community in the Planning Area and visitors to Danapani beach.

Features

- The details of the three plots are:

Table No. 33: Details of the 3 Public Spaces along Dana Pani Beach

No.	New Plot No.	Area (sq m)	Remarks
1	725	890	
2	729	2,009	The total area of this plot is 2591 sq m. Off this 582 is allocated for setting up a decentralized STP for part of the Planning Area.
3	730	989	
Total		**3,888**	

- All the three plots are located at the junction of the approach roads from the Planning Area and the coastal loop road.
- Each plot will be developed as an open space with:
  - soft and hard landscape - green plantation / lawns and paving in parts
  - garden furniture - seating areas, play areas for children
  - viewing areas
  - public toilets - 6 toilets in each, 3 male and 3 female
  - drinking water facilities
  - vending area to sell some food items
  - litter bins
  - signage

Benefits

- Will enhance the Danapani beach.
- Will be a vibrant recreational space for the residents and visitors.

Costs
The following costs are considered:

Table No. 34: Costs of Developing the 3 Public Spaces along Dana Pani Beach

No	Details	Area (sq m)	Rate (Rs / sq m)	Cost (Rs)
1	Landscaping	3,888	1,500	5,832,000
2	Public toilets 3 blocks @ 50 sq m of area per block	150	6,000	900,000
Total				**6,732,000**

Assumptions:
- The rate for landscaping the surrounding area includes plantation, earthwork, hard & soft landscaping, garden furniture and lighting. It is a block cost arrived at using current rates for such tasks.

The capital investment will have to be made either from:
- Corporators' funds
- MCGM's internal resources for providing infrastructure.
- Eventually if the Detailed Area Plan gets implemented, resources will be raised in the form of betterment charges and land assets.

Revenues
- Some amount of advertisement rights can be created and if some space is allocated to a vendor then a rent amount can be recovered, however the amounts expected from this are marginal and perhaps can only contribute towards maintenance.
- There will be no significant direct revenues from this initiative, but increased visitors to the area are likely to boost the local economy.

Implementation
- The proposed Cell for implementing plans for special areas within the Planning Department of MCGM will have to ensure coordination with the Engineering / Gardens Department for development of open spaces. Later it will have to negotiate agreements with the lessees of the proposed plots for resorts.
- The development and maintenance of the spaces can be handed over the proposed resorts in the Planning Area.

4.4 Heritage and Cultural Practices

15 Restore Ten Typical Structures

Existing Situation and Rationale

The history of Erangal settlement is much recent, it was completely evacuated and razed to the ground during the World War II (1939). After 7 years, the residents rebuilt the settlement on the same parcel of land. If the settlement structures had any architectural value or merit in terms of articulation and stylistic significance, it must have been lost. The built structures therefore do not have any particular or extraordinary architectural significance or merit in terms of articulation and stylistic importance. They were built in wood – robust construction systems comprised of wooden trusses, columns, rafters and S shaped brackets. A very distinctive roof type was used popularly referred to as the 'cowl' type by the community, which has steep slopes, simple truss system created with heavy wooden members supported by columns. There was a mezzanine in between which was used to store grain. The doors and windows were in wood. Walls were in stone using random rubble masonry with high plinths in most houses. The houses also followed typical plan types – linear single bay, linear double bay, square and a combination of linear and square. There was a verandah in front facing the street with living areas in middle and service areas at the rear. The treatment and articulation of the elements was simple.

However, the precinct has been continuously witnessing physical transformation. The survey of structures revealed that out of the total 119 structures only 2 have retained original characteristics in terms of architectural elements described above. These are structure No. 11 and 13 located along Khale Gali. These two structures are maintained by the owners of the property.

In addition, there are 7 structures which are representative of the original type but are in varying degrees of transformation and maintenance. These are 03, 35, 60, 76, 83, 86, 88 Most of this transformation is in terms of construction materials, finishes and fenestration types. In this process of transformation the original wooden elements, tiles etc have been replaced by modern materials such as steel, asbestos, tin, aluminum, tiles, cement concrete etc. In contrast to this it is interesting to note that the plan configuration has been retained in almost all residential structures in the Precinct except in 3, which are new structures.

Apart from the 9 residential structures, St. Bonaventure Church, built in 1575-99 is historically very significant but it is also transformed significantly. Only the original walls survive, the roof and interiors have been completely altered.

In summary, only 3 structures are important from an architectural heritage point of view – St. Bonaventure Church and 2 residential structures (11 and 13). Apart from these the 7 residential structures, though transformed have a potential of being restored and representing the housing typology of the precinct.

It is proposed to restore these 10 structures (the Church and 9 residential structures) as these would serve as prototypes / demonstration of the housing typologies and construction systems for the precinct for the new constructions or restorations of existing structures. Guidelines for the built form in the precinct are also based on these. These structures also become the key determinants of the heritage walk (Proposal No. 16). Map No. 29 shows the 10 structures - St Bonaventure Church and 9 residential structures.

Features

- The nature of restoration required is as follows:

No	Structure No	Renovations Required
1	3	• Closed structure • Replaster/ repaint plinth, external and internal walls • Polish door, window frames and shutters, wooden members • Polish flooring • Replace AC sheet roofs with Mangalore tile roof with wooden members *This particular structure is proposed to be converted into a cafe where the heritage walk will end.*
2	20 (Church)	• Clean the stone and repaint external and internal walls • Reinstall bell • Polish door, window frames and shutters, wooden members
3	35	• Occupied structure • Replaster/ repaint plinth, external and internal walls • Polish door, window frames and shutters, wooden members • Polish flooring • Replace AC sheet roofs with Mangalore tile roof with wooden members
4	60	• Occupied structure • Repaint plinth, external and internal walls • Polish/paint door, window frames and shutters, wooden members; replace rotten wooden members • Replace AC sheet roofs with Mangalore tile roof with wooden members; repair Mangalore tile roof • Fix new railing
5	76	• Occupied structure • Replaster/ repaint plinth, external and internal walls • Polish door, window frames and shutters, wooden members • Polish flooring • Repair Mangalore tile roof
6	83	• Occupied structure • Replaster/ repaint plinth, external and internal walls • Polish door, window frames and shutters, wooden members • Polish flooring • Repair Mangalore tile roof
7	86	• Occupied structure • Repaint external and internal walls • Polish door, window frames and shutters, wooden boards, rafters, posts • Polish floor tiles • Concealed electric cables • Build bathroom extension in conformity with the existing building - with brick walls, wooden openings – frames and shutters and Mangalore tile roof.
8	88	• Occupied structure

No	Structure No	Renovations Required
		• Replaster and repaint plinth, external and internal walls • Polish door, window frames and shutters, wooden members • Level plinth extension and finish with PCC and tiles similar to that in the verandah • Replace AC sheet roofs with Mangalore tile roof with wooden members
9	11	• Repaint external walls • Build extension (storage) in conformity with the existing building - with brick walls, wooden openings – frames and shutters and repair Mangalore tile roof.
10	13	• Repaint external and internal walls, railings • Renovate kitchen, toilets and bathrooms • Repaint/polish door, window frames and shutters, wooden members • Replace AC sheet roofs with Mangalore tiles; repair Mangalore tile roof

Benefits

- Will enhance the historical character of the Precinct and raise awareness about it within the residents and visitors.
- Will improve local tourism

Costs

- Very preliminary costs are estimated for each structure at this stage, however detailed estimates would have to be made prior to implementation.
- The following costs are considered:

Table No. 35: Costs of Restoring 10 Heritage Structures

No.	Building ID	Wall Treatment (Rs.)	Floor Treatment (Rs.)	Roof Treatment (Rs.)	Polishing (Wood) (Rs.)	Total (Rs.)
1	3	48,600	4,550	2,100	600	55,850
2	11	3,32,062	25,697	24,000	7,200	3,88,958
3	13	2,06,744	15,178	30,357	6,000	2,58,279
4	35	2,44,169	25,192	34,352	12,000	3,15,713
5	60	1,89,054	27,194	53,212	3,000	2,72,461
6	76	70,513	5,826	16,520	1,800	94,658
7	83	69,083	3,476	11,537	600	84,696
8	86	1,10,160	7,200	15,000	4,680	1,37,040
9	88	1,15,206	10,581	21,162	6,000	1,52,948
10	Church	54,28,017	1,10,000	3,30,000	60,000	59,28,017
Total		**68,13,607**	**2,34,894**	**5,38,240**	**1,01,880**	**76,88,620**

Assumptions:

- Wall treatment includes removal of old plaster, application of new plaster and applying paint / distemper. The cost all the items works out to Rs. 270 per sq m.
- Floor treatment includes polishing the existing floor. The cost all the items works out to Rs. 100 per sq m.
- Roof treatment includes installation and cost of mangalore tiles on the existing roof structure. The cost of this works out to Rs. 300 per sq m.
- Polishing includes polishing of wooden frames. The cost of this works out to Rs. 60 per running m.
- Schematic estimates of the quantities and costs for each of the item are given in Annex 8.

The capital investments will have to be made either from:

- Corporators' funds
- MCGM's internal resources or programs to fund heritage preservation / conservation.
- Eventually if the Detailed Area Plan gets implemented, resources will be raised in the form of betterment charges and land assets.

Revenues

- There will be no direct revenues from this initiative, but increased visitors to the area are likely to boost the local economy.

Implementation

- All the properties are privately owned. All owners of these particular structures will have to be made a part of the initiative. Here the SKBS will have to play a major role to bring them on board.
- Owners can be encouraged to finance the restorations by the way of incentives such as regularizing their structures, property tax breaks for a certain period etc.
- The labour component of the restoration (which is approximately 40 to 50%) can be managed by the residents themselves and SKBS will have to facilitate this.
- The owners of the property will have to maintain the structure after the renovation/improvements.
- The proposed Cell for implementing plans for special areas within the Planning Department of MCGM will have to work with SKBS to get the owners to agree for the restoring their premises. It will also have to source funds for this such as special grants for heritage restoration works etc.

16 Design and Conduct Heritage Walk

Existing Situation and Rationale

Erangal is a historic settlement – the St Bonaventure Church can be traced to the 16th century. Apart from this structure, the settlement does not have any other buildings that are of great 'architectural merit'. However, the entire urban fabric as a whole, merits significance – there is a distinctive historic urban form, scale, roof-scapes, elements and plan typology. This is retained to an extent even in the transformations that are taking place especially in the change of materials. The organic character of the public realm i.e. streets and open spaces, its use for multiple activities and the diffusion between the public and the private realm are unique. The community values the public realm and makes an effort to maintain the public realm. The Talav and Ganesh Temple to the east of the precinct have religious significance for the community. The precinct is home to the Kshatriya Bhandari community that till date follows its distinctive social practices and customs. The precinct is now a popular destination for local visitors owing the Dana pani beach and the Erangal beach. Further many people from the region / Mumbai visit Erangal at least two times in a year – on 15 July which is the birthday of St. Bonaventure and celebrated as 'Smiriti Din' and the annual Baravi Fair held on 31 December in the open space in front of the St. Bonaventure Church.

Erangal's character and fabric has survived to date largely due the peculiar location of the gaothan / precinct - it is not easily accessible, it falls under CRZ II and III, which impose restrictions on development, and most crucially the strongly knit homogenous community structure that has resulted in preservation of cultural practices, celebrations of important festivals and social occasions.

All of these make Erangal a unique example of living historic settlement and making a case of show casing it to the city at large. Two initiatives are proposed:

1 Heritage walk through the precinct
2 Special walks on Smriti Din festival celebration on 15 July and the days of the mass at St. Bonaventure from 31 December to second Sunday of January, which culminates in the Baravi festival on the beach.

Map No. 30 shows the proposed walk paths.

Features

- It is 656 m long and takes the visitor through several structures, some of which are specially restored (Proposal No. 15) and the vibrant open spaces of the Precinct.
- The route proposed is as follows:
    - The heritage walk commences at entry of the Precinct at structure no. 88.
    - The walk moves towards the north along the Hiradevi street and temple, passing through typical residential clusters leading towards structure no. 76 followed by structure no. 35 to the east.
    - From here walk heads towards south leading to Holi maidan. Here is a street that is continuously lined with various types of tulsi planters along structure numbers 48 to 53.
    - From this street the walk leads to the Badam wadi chowk that has a well with badam tree and is an important gathering spaces for the residents.
    - The walk then passes through Khale gali towards the Khale gali open space to structure no. 11 and 13. Structure no. 60 can be viewed from here. The walk

route crosses over the 12 loop road towards St. Bonaventure Church and Erangal beach. The walk then turns back in the east direction heading towards structure no. 86.
    - It ends at structure no. 03 that is transformed into a café or an eatery serving local snacks and beverages at Badam wadi chowk. This also houses a small photograph gallery and information kiosk.
- Some documentation and compilation of the history, social customs, economy and culture of the precinct and specifically on the restored structures will be required to prepare plaques, to be included in the brochure and prepare posters / cards for sale.
- The walk will be conducted once a week – on a Sunday in the morning.
- Special walks can be done in the evening on 15th July, Smriti Din, which is considered as the birthday of St. Bonaventure. Special walks two weeks preceding the days of the mass at St. Bonaventure from 31 December to second Sunday of January that culminates on the Baravi festival in the evenings. The Church is visited by a large number of pilgrims during this time.
- On the special walks, the entire route of the walk – buildings and open spaces can be lit up, decorated and special programs can be organized.

Benefits
- Will enhance the historical character of the Precinct and raise awareness about it.
- Will improve local tourism

Costs
Two costs are involved - printing of a walk brochure and setting up information plaques at various points in the walk.

Table No. 36: Heritage Walk and Plaque Costs

No	Details	Cost
1	Printing of Brochure (@ Rs. 15 / A4 page (both sides, colour), 1000 copies x Rs. 10 = 25000)	15,000
	Information plaques 1 A2 plaque at entry – 1x 386 = 386 sq in 11 A4 plaques at structures – 11 x 97 = 1067 sq in 2 A3 plaques at the beach and well at Badami chowk –2 x 193 = 386 sq in Total sq in = 1839 (@ Rs. 25 / sq inch =	45,975
Total		**60,975**

Revenues
- A nominal fee of say Rs. 25 to 30 can be charged per person for a guided walk, which can be collected by the SKBS and used to maintain the public spaces.
- Earnings from the café / eatery can also be used towards paying for restoration cost of the 8 structures.

Implementation
- The walks will be run and managed by the community volunteers/ SKBS.
- The café / eatery will be operated by the community / SKBS

17 Create Prototypes of Traditional Tulsi Planters for Replacement in the Precinct

Rationale

The community has several unique cultural practices and one of them is the *tulsi* planter. Every house has a *tulsi* planter in front referred to by the community as '*tulsi vrindavan'*. There are many interesting design variations but typically, there is a high column – 4 to 5 feet high – with a *tulsi* pot on the top or a small niche/recess built into the column for placing of lamp (*diya*). Every day in the morning the verandahs are washed, *tulsi* is watered, *rangolis* are made in traditional patterns like *swastikas*, *padchinahs* and flowers and *tulsi puja* is done in the morning & evening accompanied by lighting of lamps (*diyas*).

Over the years these t*ulsi* planters are being built with variety of new materials such as cement and brick with tile cladding, patterns of Om in concrete, plastic planter mounted on 4 feet PVC pipes etc. The residents have found indigenous ways to create the *Tulsi* planters, typical to this community/precinct. While some of these planters harmonize with the surrounding built form and are in sync with the traditional designs and shapes, some of them are quite jarring and appear out of context.

It is proposed that some of the traditional designs and motifs are created as prototypes and displayed at the point where the heritage walk ends and people are encouraged to build new ones along these lines.

Features

- Some of the typical and traditional tulsi planters are indicated in the attached figure / drawing (refer dwg number).
- Identify and document the original designs and material used to make these tulsi planters.
- Create few prototype designs keeping in mind the traditional designs and display them at key locations – end of heritage walk.
- Identify a local potters or masons from within the community who can create these designs.
- Miniature versions can be made for sale displayed at the café / sale outlet cum exhibition gallery. They can be also sold during the annual fair held on Erangal beach

Benefits

- Will enhance the historical character of the Precinct and raise awareness about it within the residents and visitors.
- Will improve local tourism

Costs

- There are no costs associated with this initiative – the masons / potters would be paid for the efforts by the residents/buyers.

Revenues

- Small prototypes can be sold and the sale proceeds can be collected by the SKBS and used to maintain the public realm / or as contributions towards infrastructure improvements.

Implementation

- SKBS shall take up this activity – create a group of masons or a potters who could work part time making the traditional tulsi planters for the residents and prepare small prototypes for sale.

18 Include the Bastion near Danapani Beach and St. Bonaventure Church in State's ASI List of Protected Monuments

Rationale

Erangal[9] is one of the oldest settlements located on the western coast of Mumbai. Its history can be traced since 1530's (Portuguese times) and has several references in the history of Mumbai. The village of Erangal was acquired by the Franciscans between 1554-57 as an investment for the upkeep of the school at Mt. Poinsur. They built a church, in honour of St. Bonaventure in 1599 for the people of the surrounding villages. "This date is certain" says Fr. Meeran (1971:205) "not withstanding the recent marble slab with year 1575 inscribed on it and inserted in the arch which separates the nave from the sanctuary". The Franciscans cared for this parish until the Maratha invasion in 1739, after which it passed into the care of the Vicars of Versova until around 1839 (Humbert, II: 36). This was the first church to be built on Madh island in the village of Erangal (Yarangal) some 2 kilometers from Our Lady of Sea, Madh at the northern end of the island. Fr. Humbert states (II: 65) that "with the building of the church of St. Antonio of Malavani (in 1835), St. Bonaventure of Arangal was abandoned and a small church was built at Aldeamar for Catholics of Madh island".

Till recently the church of St. Bonaventure was in ruins. In 1976, through the efforts of Peter Bombacha, Assistant at Madh, this ruined church, measuring 98 ft by 30 ft was repaired and brought into use. Each year on the Sunday after Epiphany, the feast of this church is celebrated and is attended by many. A statue of St. Bonaventure has been standing on the high altar for years in spite of wars and strong winds. At one time, Errangal may have had a large number of Catholic families but today there is only one.

The stone plaque on the door of the church has inscription in Marathi and English which states the following: "This imposing church was built in 1575. The regular Catholic activity was carried out over here till the time of the Maratha invasion in 1739. **The annual celebrations called Baravi were held at these abandoned ruins for generations.** In 1976 the parish priest of Madh Church got these dilapidated ruins repaired and renovated. Once again the Catholic activity was reintroduced by Rev Fr. Joseph, January 1987".

The history of Erangal settlement is much recent. The settlement was completely evacuated and razed to the ground during the World War II (1939). After 7 years, the residents rebuilt the settlement on the same parcel of land. One of the major landmarks of the settlement, St. Bonaventure endured the test of time and still remains.

It is said that there was a fort nearby where the present the helipad is located. A bastion and remnants of an old wall can be observed to the western side where the Danapani beach ends.

These two features – St. Bonaventure Church and the Bastion along with the wall – are important not only from the history of Erangal from Mumbai's history of growth and development. They are quite significant and must be included in the list of monuments to be preserved. Map No. 31 shows their location.

[9] In literature the village settlement is referred to as Erangal, Yarangal and Arangal.

Figure 5: View of the Bastion

Figure 6: View of the Bastion

Figure 7: St. Bonaventure Church

Features

- The two monuments structures – St. Bonaventure Church and the Bastion along with the wall remains to be listed under the Maharashtra Ancient Monuments and Archeological Sites and Remains Act, 1960.

Benefits

- Will enhance the historical character of the Precinct and raise awareness about it within the residents and visitors.
- Will improve local tourism

Costs

- There are no costs associated with this initiative, it is a regulatory intervention

Revenues

- There are no revenues associated with this initiative, it is a regulatory intervention.

Implementation

- The proposed Cell for implementing plans for special areas within the Planning Department of MCGM will forward the proposal to the State to declare these as protected monuments.

4.5 Community Structure and Governance

19 Implementation Strategy for the Action Plan

PART OF CHAPTER 5 IMPLEMENTATION, PHASING AND FINANCING OF ACTION PLAN.

5 Implementation, Phasing and Financing of the Action Plan

5.1 Approach to Implementation

The Action Plan comprises of 19 projects that are a mix of regulatory and capital improvement measures. The implementation is strongly linked the regulatory actions, unless these changes are made or action is taken, it will be difficult to implement the Action Plan. Nonetheless it is strongly proposed that the approach to development in CRZ areas needs to be reviewed keeping the overall CRZ objectives in view.

All regulatory changes would be the domain of MCGM. These are zoning changes in the DP of MCGM. A case is being made for creating low intensity development zones around historical precincts to gradually manage the process of transition to high intensity development. A change will also have to be made in the CRZ regulations to enable this sort of development - an objective of the CRZ is to ensure preservation of coastal areas and this is sought to be achieved by earmarking 'no development zones'. An outcome of this is unauthorized developments. In view of this, a case is of permitting low intensity development in a manner that ensures the preservation of the coastal areas. Both these changes to the approach of development can be managed by MCGM in the process of preparing the new / revised Development Plan for Mumbai.

5.2 Proposed Implementation Structure

It is proposed that within MCGM a special cell is created within the planning department that looks are the coastal settlements, plans prepared for special areas – other precincts. This can be called Cell for Implementation of Plans for Special Areas (CIPSA). The Action Plan for Erangal can be taken up as a pilot project. Staff in the cell to implement special plans will have

- To largely coordinate across departments within MCGM and other public agencies to get the Action Plan implemented
- To work with the community which is represented by members of the SKBS as the onus of some of the projects rests with them and they will have an important role to play in getting the community on board
- To seek technical assistance to carry out the detailed infrastructure designs, financial modeling etc.

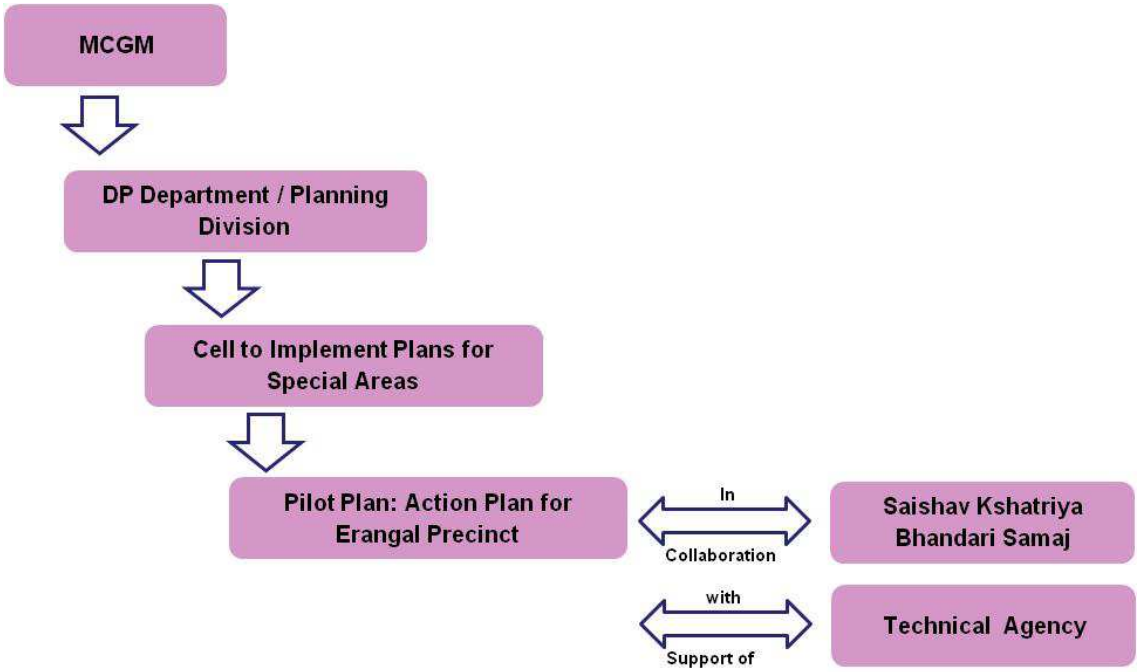


Figure 8: Implementation Structure

5.3 Projects by Type

All the 19 projects are categorized by type – capital, regulatory and institutional.

Table No. 37: List of Projects by Type

No	Projects	Type
1	**Built form, Land use and Growth**	
1	Prepare Detailed Area Plan for the Planning Area	Regulatory
2	Frame Zoning, Development Regulations & Guidelines to Conserve Heritage, Public Realm and to Regulate Growth in the Precinct and Planning Area	Regulatory
3	Incorporate Area Plan and in the Development Plan of MCGM	Regulatory
4	Inventory and Use of Government Lands in the Precinct and Planning Area and Lands Assets created by the Area Plan	Regulatory
2	**Physical Infrastructure**	
5	Design Schematic Water Supply Network in the Precinct	Detailed Study Capital Investment
6	Design Schematic Sewage Network System in the Precinct	Detailed Study Capital Investment
7	Improve Solid Waste Collection and Disposal in the Precinct	Capital Investment
8	Design Schematic Water Supply Network for the Planning Area	Detailed Study Capital Investment
9	Design Schematic Sewage Network System for the Planning Area	Detailed Study Capital Investment
10	Locate Solid Waste Collection Points in the Planning Area	Capital Investment
3	**Public Realm**	
11	Develop Six Streets and Five Chowks/Open Spaces in the Precinct	Capital Investment
12	Design Schematic Street Sections for the Planning Area	Detailed Study Capital Investment
13	Develop the Talav in the Planning Area	Detailed Study Capital Investment
14	Develop three Public Spaces along Danapani Beach	Detailed Study Capital Investment
4	**Architectural Heritage and Cultural Practices**	
15	Restore Ten Typical Structures	Detailed Study Capital Investment
16	Design and Conduct Heritage Walk	Detailed Study Capital Investment
17	Create Prototypes of Traditional Tulsi Planters for Replacement in the Precinct	Detailed Study Capital Investment
18	Include the Bastion near Danapani beach and St. Bonaventure Church in the State's ASI list of Protected Monuments.	Regulatory
5	**Community Structure and Governance**	
19	Implementation Strategy for the Action Plan	Institutional

5.4 Project Costs

Costs of all the projects are summarized.

Table No. 38: Total Cost of All Projects

No	Projects	Cost (in crores)
1	**Built form, Land use and Growth**	
1	Prepare Detailed Area Plan for the Planning Area	0.00
2	Frame Zoning, Development Regulations & Guidelines to Conserve Heritage, Public Realm and to Regulate Growth in the Precinct and Planning Area	0.00
3	Incorporate Area Plan and in the Development Plan of MCGM	0.00
4	Inventory and Use of Government Lands in the Precinct and Planning Area and Lands Assets created by the Area Plan	0.00
2	**Physical Infrastructure**	
5	Design Schematic Water Supply Network in the Precinct	0.10
6	Design Schematic Sewage Network System in the Precinct	2.49
7	Improve Solid Waste Collection and Disposal in the Precinct	0.01
8	Design Schematic Water Supply Network for the Planning Area	1.64
9	Design Schematic Sewage Network System for the Planning Area	0.99
10	Locate Solid Waste Collection Points in the Planning Area	0.03
3	**Public Realm**	
11	Develop Six Streets and Five Chowks/Open Spaces in the Precinct	1.05
12	Design Schematic Street Sections for the Planning Area	5.60
13	Develop the Talav in the Planning Area	1.16
14	Develop three Public Spaces along Danapani Beach	0.67
4	**Architectural Heritage and Cultural Practices**	
15	Restore Ten Typical Structures	0.77
16	Design and Conduct Heritage Walk	0.006
17	Create Prototypes of Traditional Tulsi Planters for Replacement in the Precinct	0.00
18	Include the Bastion near Danapani beach and St. Bonaventure Church in the State's ASI list of Protected Monuments.	0.00
5	**Community Structure and Governance**	
19	Implementation Strategy for the Action Plan	0.00
Sub Total		**14.52**
Add Contingencies @ 15%		**2.18**
Total		**16.70**

5.5 Phasing of Projects

Table No. 39: Phasing of Projects

No.	Project	Years					Total
		1	2	3	4	5	
1	**Built form, Land use and Growth**						
1	Prepare Detailed Area Plan for the Planning Area	0					**0.00**
2	Frame Zoning, Development Regulations & Guidelines to Conserve Heritage, Public Realm and to Regulate Growth in the Precinct and Planning Area	0					**0.00**
3	Incorporate Area Plan and in the Development Plan of MCGM	0					**0.00**
4	Inventory and Use of Government Lands in the Precinct and Planning Area and Lands Assets created by the Area Plan	0					**0.00**
2	**Physical Infrastructure**						
5	Design Schematic Water Supply Network in the Precinct	0.1					**0.10**
6	Design Schematic Sewage Network System in the Precinct	2.49					**2.49**
7	Improve Solid Waste Collection and Disposal in the Precinct	0.01					**0.01**
8	Design Schematic Water Supply Network for the Planning Area		0.82	0.82			**1.64**
9	Design Schematic Sewage Network System for the Planning Area		0.49	0.5			**0.99**
10	Locate Solid Waste Collection Points in the Planning Area	0.01		0.02			**0.03**
3	**Public Realm**						
11	Develop Six Streets and Five Chowks/Open Spaces in the Precinct	0.35	0.35	0.35			**1.05**
12	Design Schematic Street Sections for the Planning Area		1.40	1.40	1.40	1.40	**5.60**
13	Develop the Talav in the Planning Area			1.16			**1.16**
14	Develop three Public Spaces along Danapani Beach			0.22	0.22	0.23	**0.67**
4	**Architectural Heritage and Cultural Practices**						
15	Restore Ten Typical Structures	0.25	0.26	0.26			**0.77**
16	Design and Conduct Heritage Walk	0.006					**0.006**
17	Create Prototypes of Traditional Tulsi Planters for Replacement in the Precinct	0					**0.00**
18	Include the Bastion near Danapani beach and St. Bonaventure Church in the State's ASI list of Protected Monuments.	0	0				**0.00**
5	**Community Structure and Governance**						**0.00**
19	Implementation Strategy for the Action Plan						**0.00**
Sub Total		**3.22**	**3.32**	**4.73**	**1.62**	**1.63**	**14.52**
Add Contingencies @ 15%		**0.48**	**0.50**	**0.71**	**0.24**	**0.24**	**2.18**
Total		**3.70**	**3.82**	**5.44**	**1.86**	**1.87**	**16.70**

5.6 Financing of the Action Plan

The total costs of the Action Plan work out to Rs. 18.7 crores.

The capital investment will have to be made either from:

- Corporators' funds
- MCGM's internal resource for providing infrastructure.
- Accessing funds for special purposes such as heritage, protection of environmental assets etc, from specific programs for these.

Alternatively, the proposed mechanism to raise resources is to prepare a Detailed Area Plan using the land adjustment technique or the town planning scheme mechanism as envisioned in the MRTPA, 1966. This has the possibility of generating two types of resources:

1 Betterment Charges: These can be calculated in a manner to recover the one time capital costs in part or full. A very rough calculation done by dividing the total cost of the Action Plan by the area of the private final plots created works out to Rs. 730 per sq m of average betterment.
2 Land Assets: There are a few government lands and additional land assets are created through the Detailed Area Plan. An conservative valuation of these plots comes to about Rs. 95 crores which is more than adequate to pay for the costs of the Action Plan.

In this case, the finances for the Action Plan will have to be 'ring fenced' that is a separate fund or an account will have to be created to maintain the income and expenditure incurred.

Annexes

Annex 1: Minutes of the Meeting with Seshav Kshatriya Bhandari Samaj.
Annex 2: CRZ Regulation, 6 January 2011 (formatted).
Annex 3: Spatial Interpretation of CRZ, 2011.
Annex 4: Simplified List of Prohibited Activites and Exceptions.
Annex 5: Permitted Activities and their Regulation in CRZ Notification.
Annex 6: Coastal Areas of Mumbai, 1991 Mumbai DP.
Annex 7: Detailed Area Statement, Planning Area
Annex 8: Schematic Estimates and Cost of Restoration Works

Annex 1:
Minutes of the Meeting with Seshav Kshatriya Bhandari Samaj

Meeting with Seshav Kshatriya Bhandari Samaj in Errangal Village
VENUE: Hiradevi Temple, Errangal Village. **DATE:** 17 April 2011, **TIME:** 10.30 am to 01.00 pm

Attended By:

Mr. Dilip Mhatre	President, SKBS, Erangal Village
Mr. Pravin Mhatre	Vice President, Erangal Village (9819022853, 32047381)
Mr. Chetan Patil	Secretary, Erangal Village (9892109597)
Mr. Sunil Mhatre	Cashier, Erangal Village (9619778598, 9930228656)
Mr. Vijay Mhatre	Member, Erangal Village (9930228656)
Mr. Rajendra Thakur	Member, Erangal Village
Mr. Rupesh Patil	Member, Erangal Village
Mr. Sanjay Mhatre	Member, Erangal Village
Mr. Nitesh Mhatre	Member, Erangal Village
Ms. Shriya Bhatia	Environment Planner, MMREIS
Ms. Shirley Ballaney	Senior Principal Planner, HCPDPM
Ms. Bindu Nair	Principal Planner, HCPDPM

Key Issues Discussed

- The meeting was organized to update the committee members on the way the team had gone about the task of preparing the plan and present it to them for feedback.
- The base line surveys and studies of the precinct were presented to the committee. It was explained that the proposals were formulated keeping in view the on the baseline studies of the village done by the team and various suggestions received from the community.
- About 18 to 20 draft proposals formulated to address the concerns of the residents and at the same time improve the environmental conditions in the precinct were explained with large drawings.
- The committer felt that it was critical to improve the basic infrastructure services in the precinct, provide space for systematic expansion to the community and curb the haphazard developments around the precinct.
- The detailed area plan for the precinct and a larger area surrounding it, based on using the land readjustment mechanism was explained to the committee. Though a bit difficult to understand for the first time, the community agreed that the land readjustment mechanism would be able to address the issues of planned expansion of the community and planned development around the precinct.
- A major concern expressed was against the CRZ regulations, these regulations have completely restricted the expansion needs on the settlement – in most cases vertical expansion and change/redevelopment of the dwelling using newer building materials is the most logical form of expansion to accommodate increasing family members.
- The discussion also veered towards the implementation and financing the projects. It was explained to the committee that such a project could be taken on a pilot basis, however it would require a strong commitment towards implementation from the community – the committee would have to participate and take up certain activities. Some funds could be arranged (being a pilot), however the community would have to contribute towards a portion of the finances.
- The committee members appreciated the efforts of the planning team and felt that most of their concerns had been incorporated in the plan. The also agreed to take up the plan to the rest of the community and assured the team of their cooperation in future.

Annex 2:
CRZ Regulation, 6 January 2011 (formatted).

CRZ Notification 2011

(To be published in the Gazette of India, Extraordinary, Part-II, Section 3, Sub-section (ii) of dated the 6th January, 2011)
COASTAL REGULATION ZONE NOTIFICATION
MINISTRY OF ENVIRONMENT AND FORESTS
(Department of Environment, Forests and Wildlife)

S.O.19 (E) – WHEREAS a draft notification under sub-section (1) of section and clause (V) of subsection (2) of section 3 of the Environment (Protection) Act, 1986 was issued inviting objections and suggestions for the declaration of coastal stretches as Coastal Regulation Zone and imposing restrictions on industries, operations and processes in the CRZ was published vide S.O.No.2291 (E), dated 15th September, 2010.;

AND WHEREAS, copies of the said Gazette were made available to the public on 15th September, 2010.;

AND WHEREAS, the suggestions and objections received from the public have been considered by the Central Government.;

1 Now, therefore, in exercise of the powers conferred by sub-section (1) and clause (v) of sub-section (2) of section 3 of the Environment (Protection) Act, 1986 (29 of 1986), the Central Government, with a view to ensure livelihood security to the fisher communities and other local communities, living in the coastal areas, to conserve and protect coastal stretches, its unique environment and its marine area and to promote development through sustainable manner based on scientific principles taking into account the dangers of natural hazards in the coastal areas, sea level rise due to global warming, does hereby, declare the coastal stretches of the country and the water area upto its territorial water limit, excluding the islands of Andaman and Nicobar and Lakshadweep and the marine areas surrounding these islands upto its territorial limit, as Coastal Regulation Zone (hereinafter referred to as the CRZ) and restricts the setting up and expansion of any industry, operations or processes and manufacture or handling or storage or disposal of hazardous substances as specified in the Hazardous Substances (Handling, Management and Transboundary Movement) Rules, 2009 in the aforesaid CRZ.; and

In exercise of powers also conferred by clause (d) and sub rule (3) of rule 5 of Environment (Protection) Act, 1986 and in supersession of the notification of the Government of India in the Ministry of Environment and Forests, number S.O.114(E), dated the 19th February, 1991 except as respects things done or omitted to be done before such supercession, the Central Government hereby declares the following areas as CRZ and imposes with effect from the date of the notification the following restrictions on the setting up and expansion of industries, operations or processes and the like in the CRZ, –

(i) the land area from High Tide Line (hereinafter referred to as the HTL) to 500 mts on the landward side along the sea front.

(ii) CRZ shall apply to the land area between HTL to 100 mts or width of the creek whichever is less on the landward side along the tidal influenced water bodies that are connected to the sea and the distance upto which development along such tidal influenced water bodies is to be regulated shall be governed by the distance upto which the tidal effects are experienced which shall be determined based on salinity concentration of 5 parts per thousand (ppt) measured during the driest period of the year and distance up to which tidal effects are experienced shall be clearly identified and demarcated accordingly in the Coastal Zone Management Plans (hereinafter referred to as the CZMPs).

Explanation:

For the purposes of this sub-paragraph the expression tidal influenced water bodies means the water bodies influenced by tidal effects from sea, in the bays, estuaries, rivers, creeks, backwaters, lagoons, ponds connected to the sea or creeks and the like.

(iii) the land area falling between the hazard line and 500mts from HTL on the landward side, in case of seafront and between the hazard line and 100mts line in case of tidal influenced water body the word 'hazard line' denotes the line demarcated by Ministry of Environment and Forests (hereinafter referred to as the MoEF) through the Survey of India (hereinafter referred to as the SoI) taking into account tides, waves, sea level rise and shoreline changes.

(iv) land area between HTL and Low Tide Line (hereinafter referred to as the LTL) which will be termed as the intertidal zone.

(v) the water and the bed area between the LTL to the territorial water limit (12 Nm) in case of sea and the water and the bed area between LTL at the bank to the LTL on the opposite side of the bank, of tidal influenced water bodies.

2 For the purposes of this notification, the HTL means the line on the land upto which the highest water line reaches during the spring tide and shall be demarcated uniformly in all parts of the country by the demarcating authority(s) so authorized by the MoEF in accordance with the general guidelines issued at Annexure-I. HTL shall be demarcated within one year from the date of issue of this notification.

3 Prohibited activities within CRZ,- The following are declared as prohibited activities within the CRZ, –

(i) Setting up of new industries and expansion of existing industries except,-

(a) those directly related to waterfront or directly needing foreshore facilities;

Explanation:

The expression "foreshore facilities" means those activities permissible under this notification and they require waterfront for their operations such as ports and harbours, jetties, quays, wharves, erosion control measures, breakwaters, pipelines, lighthouses, navigational safety facilities, coastal police stations and the like.;

(b) projects of Department of Atomic Energy;

(c) facilities for generating power by non-conventional energy sources and setting up of desalination plants in the areas not classified as CRZ-I(i) based on an impact assessment study including social impacts.;

(d) development of green field Airport already permitted only at Navi Mumbai;

(e) Reconstruction, repair works of dwelling units of local communities including fishers in accordance with local town and country planning regulations.

(ii) manufacture or handling oil storage or disposal of hazardous substance as specified in the notification of Ministry of Environment and Forests, No. S.O.594 (E), dated the 28th July 1989, S.O.No.966(E), dated the 27th November, 1989 and GSR 1037 (E), dated the 5th December ,1989 except, –

(a) transfer of hazardous substances from ships to ports, terminals and refineries and vice versa;

(b) facilities for receipt and storage of petroleum products and liquefied natural gas as specified in Annexure –II appended to this notification and facilities for regasification of Liquefied Natural Gas (hereinafter referred to as the LNG) in the areas not classified as CRZ- I(i) subject to implementation of safety regulations including guidelines issued by the Oil Industry Safety Directorate in the Ministry of Petroleum and Natural Gas and guidelines issued by MoEF and subject to further terms and conditions for implementation of ameliorative and restorative measures in relation to environment as may be stipulated by in MoEF.

Provided that facilities for receipt and storage of fertilizers and raw materials required for manufacture of fertilizers like ammonia, phosphoric acid, sulphur, sulphuric acid, nitric acid and the like, shall be permitted within the said zone in the areas not classified as CRZ-I(i).

(iii)Setting up and expansion of fish processing units including warehousing except hatchery and natural fish drying in permitted areas:

(iv)Land reclamation, bunding or disturbing the natural course of seawater except those,-

(a) required for setting up, construction or modernisation or expansion of foreshore facilities like ports, harbours, jetties, wharves, quays, slipways, bridges, sealink, road on stilts, and such as meant for defence and security purpose and for other facilities that are essential for activities permissible under the notification;

(b) measures for control of erosion, based on scientific including Environmental Impact Assessment (hereinafter referred to as the EIA) studies

(c) Maintenance or clearing of waterways, channels and ports, based on EIA studies;

(d) Measures to prevent sand bars, installation of tidal regulators, laying of storm water drains or for structures for prevention of salinity ingress and freshwater recharge based on carried out by any agency to be specified by MoEF.

(v) Setting up and expansion of units or mechanism for disposal of wastes and effluents except facilities required for,-

(a) discharging treated effluents into the water course with approval under the Water (Prevention and Control of Pollution) Act, 1974 (6 of 1974);

(b) storm water drains and ancillary structures for pumping;

(c) treatment of waste and effluents arising from hotels, beach resorts and human settlements located in CRZ areas other than CRZ-I and disposal of treated wastes and effluents;

(vi) Discharge of untreated waste and effluents from industries, cities or towns and other human settlements. The concerned authorities shall implement schemes for phasing out existing discharge of this nature, if any, within a time period not exceeding two years from the date of issue of this notification.

(vii) Dumping of city or town wastes including construction debris, industrial solid wastes, fly ash for the purpose of land filling and the like and the concerned authority shall implement schemes for phasing out any existing practice, if any, shall be phased out within a period of one year from date of commencement of this notification.

Note:

The MoEF will issue a separate instruction to the State Governments and Union territory Administration in respect of preparation of Action Plans and their implementation as also monitoring including the time schedule thereof, in respect of paras (v), (vi) and (vii).

(viii) Port and harbour projects in high eroding stretches of the coast, except those projects classified as strategic and defence related in terms of EIA notification, 2006 identified by MoEF based on scientific studies and in consultation with the State Government or the union territory Administration.

(ix)Reclamation for commercial purposes such as shopping and housing complexes, hotels and entertainment activities.

(x) Mining of sand, rocks and other sub-strata materials except, –

(a) those rare minerals not available outside the CRZ area,

(b) exploration and exploitation of Oil and Natural Gas.

(xi)Drawl of groundwater and construction related thereto, within 200mts of HTL; except the following:-

(a) In the areas which are inhabited by the local communities and only for their use.

(b) In the area between 200mts-500mts zone the drawl o f groundwater shall be permitted only when done manually through ordinary wells for drinking, horticulture, agriculture and fisheries and where no other source of water is available.

Note:

Restrictions for such drawl may be imposed by the Authority designated by the State Government and Union territory Administration in the areas affected by sea water intrusion.

(xii) Construction activities in CRZ–I except those specified in para 8 of this notification.

(xiii) Dressing or altering the sand dunes, hills, natural features including landscape changes for beautification, recreation and other such purpose.

(xiv) Facilities required for patrolling and vigilance activities of marine/coastal police stations.

4 Regulation of permissible activities in CRZ area

4.1 The following activities shall be regulated except those prohibited in para 3 above,

(i)

(a) Clearance shall be given for any activity within the CRZ only if it requires waterfront and foreshore facilities;

(b) for those projects which are listed under this notification and also attract EIA notification, 2006 (S.O.1533 (E), dated the 14th September, 2006), for such projects clearance under EIA notification only shall be required subject to being recommended by the concerned State or Union territory Coastal Zone Management Authority (hereinafter referred to as the CZMA).

(c) Housing schemes in CRZ as specified in paragraph 8 of this notification;

(d) Construction involving more than 20,000 sq mts built-up area in CRZ-II shall be considered in accordance with EIA notification, 2006 and in case of projects less than 20,000sq mts built-up area shall be approved by the concerned State or Union territory Planning authorities in accordance with this notification after obtaining recommendations from the concerned CZMA and prior recommendations of the concern CZMA shall be essential for considering the grant of environmental clearance under EIA notification, 2006 or grant of approval by the relevant planning authority.

(e) MoEF may under a specific or general order specify projects which require prior public hearing of project affected people.

(f) construction and operation for ports and harbours, jetties, wharves, quays, slipways, ship construction yards, breakwaters, groynes, erosion control measures;

(ii) The following activities shall require clearance from MoEF, namely:-

(a) those activities not listed in the EIA notification, 2006.

(b) construction activities relating to projects of Department of Atomic Energy or Defence requirements for which foreshore facilities are essential such as, slipways, jetties, wharves, quays; except for classified operational component of defence projects. Residential buildings, office buildings, hospital complexes, workshops of strategic and defence projects in terms of EIA notification, 2006.;

(c) construction, operation of lighthouses;

(d) laying of pipelines, conveying systems, transmission line;

(e) exploration and extraction of oil and natural gas and all associated activities and facilities thereto;

(f) Foreshore requiring facilities for transport of raw materials, facilities for intake of cooling water and outfall for discharge of treated wastewater or cooling water from thermal power plants. MoEF may specify for category of projects such as at (f), (g) and (h) of para 4;

(g) Mining of rare minerals as listed by the Department of Atomic Energy;

(h) Facilities for generating power by non-conventional energy resources, desalination plants and weather radars;

(i) Demolition and reconstruction of

(i) buildings of archaeological and historical importance,

(ii) heritage buildings; and buildings under public use which means buildings such as for the purposes of worship, education, medical care and cultural activities;

4.2 Procedure for clearance of permissible activities.

All projects attracting this notification shall be considered for CRZ clearance as per the following procedure, namely:

(i) The project proponents shall apply with the following documents seeking prior clearance under CRZ notification to the concerned State or the Union territory Coastal Zone Management Authority,
   (a) Form – 1 (Annexure – IV of the notification);
   (b) Rapid EIA Report including marine and terrestrial component except for construction projects listed under 4.1 (c) and (d)
   (c) Comprehensive EIA with cumulative studies for projects in the stretches classified as low and medium eroding by MoEF based on scientific studies and in consultation with the State Governments and Union territory Administration;
   (d) Disaster Management Report, Risk Assessment Report and Management Plan;
   (e) CRZ map indicating HTL and LTL demarcated by one of the authorized agency (as indicated in para 2) i n 1:4000 scale;
   (f) Project layout superimposed on the above map indicated at (e) above;
   (g) The CRZ map normally covering 7 km radius around the project site.
   (h) The CRZ map indicating the CRZ – I, II, III and IV areas including other notified ecologically sensitive areas;
   (i) No Objection Certificate from the concerned State Pollution Control Boards or Union territory Pollution Control Committees for the projects involving discharge of effluents, solid wastes, sewage and the like.;

(ii) The concerned CZMA shall examine the above documents in accordance with the approved CZMP and in compliance with CRZ notification and make recommendations within a period of sixty days from date of receipt of complete application to
   (a) MoEF or State Environmental Impact Assessment Authority (hereinafter referred to as the SEIAA) as the case may be for the project attracting EIA notification, 2006;
   (b) MoEF for the projects not covered in the EIA notification, 2006 but attracting para 4(ii) of the CRZ notification;

(iii) MoEF or SEIAA shall consider such projects for clearance based on the recommendations of the concerned CZMA within a period of sixty days.

(iv) The clearance accorded to the projects under the CRZ notification shall be valid for the period of five years from the date of issue of the clearance for commencement of construction and operation.

(v) For Post clearance monitoring –
   (a) it shall be mandatory for the project proponent to submit half-yearly compliance reports in respect of the stipulated terms and conditions of the environmental clearance in hard and soft copies to the regulatory authority(s) concerned, on 1st June and 31st December of each calendar

year and all such compliance reports submitted by the project proponent shall be published in public domain and its copies shall be given to any person on application to the concerned CZMA.

(b) the compliance report shall also be displayed on the website of the concerned regulatory authority.

(vi) To maintain transparency in the working of the CZMAs it shall be the responsibility of the CZMA to create a dedicated website and post the agenda, minutes, decisions taken, clearance letters, violations, action taken on the violations and court matters including the Orders of the Hon'ble Court as also the approved CZMPs of the respective State Government or Union territory.

5. Preparation of Coastal Zone Management Plans.

(i) The MoEF may obtain the CZMPs prepared through the respective State Government or Union territory;

(ii) The CZMPs may be prepared by the Coastal State Government or Union territory by engaging reputed and experienced scientific institution(s) or the agencies including the National Centre for Sustainable Coastal Management (hereinafter referred to as the NCSCM) of MoEF and in consultation with the concerned stakeholders;

(iii) The hazard line shall be mapped by MoEF through SoI all along the coastline of the country and the hazard line shall be demarcated taking into account, tide, waves, sea level rise and shoreline changes;

(iv) For the purpose of depicting the flooding due to tides, waves and sea level rise in the next fifty and hundred years, the contour mapping of the coastline shall be carried out at 0.5m interval normally up to 7 km from HTL on the landward side, and the shoreline changes shall be demarcated based on historical data by comparing the previous satellite imageries with the recent satellite imageries;

(v) Mapping of the hazard line shall be carried out in 1:25,000 scale for macro level planning and 1:10,000 scale or cadastral scale for micro level mapping and the hazard line shall be taken into consideration while preparing the land use plan of the coastal areas;

(vi) The coastal States and Union Territory will prepare within a period of twenty four months from the date of issue this notification, draft CZMPs in 1:25,000 scale map identifying and classifying the CRZ areas within the respective territories in accordance with the guidelines given in Annexure-I of the notification, which involve public consultation;

(vii) The draft CZMPs shall be submitted by the State Government or Union territory to the concerned CZMA for appraisal, including appropriate consultations, and recommendations in accordance with the procedure(s) laid down in the Environment (Protection) Act, 1986;

(viii) The State Government or Union territory CZMA shall submit the draft CZMPs to MoEF alongwith its recommendations on the CZMP within a period of six

months after incorporating the suggestions and objections received from the stakeholders;

(ix) MoEF shall thereafter consider and approve the CZMPs within a period of four months from the date of receipt of the CZMPs complete in all respects;

(x) All developmental activities listed in this notification shall be regulated by the State Government, Union Territory Administration, the local authority or the concerned CZMA within the framework of such approved CZMPs as the case may be in accordance with provisions of this notification;

(xi) The CZMPs shall not normally be revised before a period of five years after which, the concerned State Government or the Union territory may consider undertaking revision of the maps following the above procedures;

(xii) The CZMPs already approved under CRZ notification, 1991 shall be valid for a period of twenty four months unless the aforesaid period is extended by MoEF by a specific notification subject to such terms and conditions as may be specified therein.

6. Enforcement of the CRZ, notification, 2011

(a) For the purpose of implementation and enforcement of the provisions this notification and compliance with conditions stipulated there under, the powers either original or delegated are available under Environment (Protection) Act, 1986 with the MoEF, State Government or the Union territory Administration NCZMA and SCZMAs ;

(b) The composition, tenure and mandate of NCZMA and State Government or the Union territory CZMAs have already been notified by MoEF in terms of Orders of Hon'ble Supreme Court in Writ Petition 664 of 1993;

(c) The State Government or the Union territory CZMAs shall primarily be responsible for enforcing and monitoring of this notification and to assist in this task, the State Government and the Union territory shall constitute District Level Committees under the Chairmanship of the District Magistrate concerned containing atleast three representatives of local traditional coastal communities including from fisherfolk;

(d) The dwelling units of the traditional coastal communities including fisher folk, tribals as were permissible under the provisions of the CRZ notification, 1991, but which have not obtained formal approval from concerned authorities under the aforesaid notification shall be considered by the respective Union territory CZMAs and the dwelling units shall be regularized subject to the following condition, namely-
    (i) these are not used for any commercial activity
    (ii) these are not sold or transferred to non-traditional coastal community.

7. Classification of the CRZ – For the purpose of conserving and protecting the coastal areas and marine waters, the CRZ area shall be classified as follows, namely:

(i) CRZ-I,

A. The areas that are ecologically sensitive and the geomorphological features which play a role in the maintaining the integrity of the coast,-

(a) Mangroves, in case mangrove area is more than 1000 sq mts, a buffer of 50meters along the mangroves shall be provided;
(b) Corals and coral reefs and associated biodiversity;
(c) Sand Dunes;
(d) Mudflats which are biologically active;
(e) National parks, marine parks, sanctuaries, reserve forests, wildlife habitats and other protected areas under the provisions of Wild Life (Protection) Act, 1972 (53 of 1972), the Forest (Conservation) Act, 1980 (69 of 1980) or Environment (Protection) Act, 1986 (29 of 1986); including Biosphere Reserves;
(f) Salt Marshes;
(g) Turtle nesting grounds;
(h) Horse shoe crabs habitats;
(i) Sea grass beds;
(j) Nesting grounds of birds;
(k) Areas or structures of archaeological importance and heritage sites.

B. The area between Low Tide Line and High Tide Line;

(ii) CRZ-II,

The areas that have been developed up to or close to the shoreline.

Explanation. – For the purposes of the expression "developed area" is referred to as that area within the existing municipal limits or in other existing legally designated urban areas which are substantially built-up and has been provided with drainage and approach roads and other infrastructural facilities, such as water supply and sewerage mains;

(iii) CRZ-III,
Areas that are relatively undisturbed and those do not belong to either CRZ-I or II which include coastal zone in the rural areas (developed and undeveloped) and also areas within municipal limits or in other legally designated urban areas, which are not substantially built up.

(iv) CRZ-IV,

A. the water area from the Low Tide Line to twelve nautical miles on the seaward side;

B. shall include the water area of the tidal influenced water body from the mouth of the water body at the sea up to the influence of tide which is measured as five parts per thousand during the driest season of the year.

(v) Areas requiring special consideration for the purpose of protecting the critical coastal environment and difficulties faced by local communities,-

A.
(i) CRZ area falling within municipal limits of Greater Mumbai;
(ii) the CRZ areas of Kerala including the backwaters and backwater islands;
(iii) CRZ areas of Goa.

B. Critically Vulnerable Coastal Areas (CVCA) such as Sunderbans region of West Bengal and other ecologically sensitive areas identified as under Environment (Protection) Act, 1986 and managed with the involvement of coastal communities including fisher folk.

8. Norms for regulation of activities permissible under this notification,-

(i) The development or construction activities in different categories of CRZ shall be regulated by the concerned CZMA in accordance with the following norms, namely:-

Note:-
The word existing use hereinafter in relation to existence of various features or existence of regularisation or norms shall mean existence of these features or regularisation or norms as on 19.2.1991 wherein CRZ notification, was notified.

I. CRZ-I,

(i) no new construction shall be permitted in CRZ-I
except,-

(a) projects relating to Department of Atomic Energy;
(b) pipelines, conveying systems including transmission lines;
(c) facilities that are essential for activities permissible under CRZ-I;
(d) installation of weather radar for monitoring of cyclones movement and prediction by Indian Meteorological Department;
(e) construction of trans harbour sea link and without affecting the tidal flow of water, between LTL and HTL.
(f) development of green field airport already approved at only Navi Mumbai;

(ii) Areas between LTL and HTL which are not ecologically sensitive, necessary safety measures will be incorporated while permitting the following, namely:-
(a) exploration and extraction of natural gas;
(b) construction of dispensaries, schools, public rain shelter, community toilets, bridges, roads, jetties, water supply, drainage, sewerage which are required for traditional inhabitants living within the biosphere reserves after obtaining approval from concerned CZMA.
(c) necessary safety measure shall be incorporated while permitting such developmental activities in the area falling in the hazard zone;
(d) salt harvesting by solar evaporation of seawater;
(e) desalination plants;
(f) storage of non-hazardous cargo such as edible oil, fertilizers and food grain within notified ports;

(g) construction of trans harbour sea links, roads on stilts or pillars without affecting the tidal flow of water.

II. CRZ-II,-

(i) buildings shall be permitted only on the landward side of the existing road, or on the landward side of existing authorized structures;
(ii) buildings permitted on the landward side of the existing and proposed roads or existing authorized structures shall be subject to the existing local town and country planning regulations including the 'existing' norms of Floor Space Index or Floor Area Ratio:
Provided that
no permission for construction of buildings shall be given on landward side of any new roads which are constructed on the seaward side of an existing road:
(iii) reconstruction of authorized building to be permitted subject with the existing Floor Space Index or Floor Area Ratio Norms and without change in present use;
(iv) facilities for receipt and storage of petroleum products and liquefied natural gas as
specified in Annexure-II appended to this notification and facilities for re-gasification of Liquefied Natural Gas subject to the conditions as mentioned in sub-paragraph (ii) of paragraph 3;
(v) desalination plants and associated facilities;
(vi) storage of non-hazardous cargo, such as edible oil, fertilizers and food grain in notified ports;
(vii) facilities for generating power by non-conventional power sources and associated facilities;

III. CRZ-III,-

A. Area upto 200mts from HTL on the landward side in case of seafront and 100mts along tidal influenced water bodies or width of the creek whichever is less is to be earmarked as "No Development Zone (NDZ)",-

(i) the NDZ shall not be applicable in such area falling within any notified port limits;

(ii) No construction shall be permitted within NDZ except for repairs or reconstruction of existing authorized structure not exceeding existing Floor Space Index, existing plinth area and existing density and for permissible activities under the notification including facilities essential for activities; Construction/reconstruction of dwelling units of traditional coastal communities including fisherfolk may be permitted between 100 and 200 metres from the HTL along the seafront in accordance with a comprehensive plan prepared by the State Government or the Union territory in consultation with the traditional coastal communities including fisher folk and incorporating the necessary disaster management provision, sanitation and recommended by the concerned State or the Union territory CZMA to NCZMA for approval by MoEF;

(iii)however, the following activities may be permitted in NDZ –

(a) agriculture, horticulture, gardens, pasture, parks, play field, and forestry;
(b) projects relating to Department of Atomic Energy;
(c) mining of rare minerals;
(d) salt manufacture from seawater;
(e) facilities for receipt and storage of petroleum products and liquefied natural gas as specified in Annexure-II;
(f) facilities for re-gasification of liquefied natural gas subject to conditions as mentioned in subparagraph (ii) of paragraph 3;
(g) facilities for generating power by non conventional energy sources;
(h) Foreshore facilities for desalination plants and associated facilities;
(i) weather radars;
(j) construction of dispensaries, schools, public rain shelter, community toilets, bridges, roads, provision of facilities for water supply, drainage, sewerage, crematoria, cemeteries and electric sub-station which are required for the local inhabitants may be permitted on a case to case basis by CZMA;
(k) construction of units or auxiliary thereto for domestic sewage, treatment and disposal with the prior approval of the concerned Pollution Control Board or Committee;
(l) facilities required for local fishing communities such as fish drying yards, auction halls, net mending yards, traditional boat building yards, ice plant, ice crushing units, fish curing facilities and the like;
(m) development of green field airport already permitted only at Navi Mumbai.

B. Area between 200mts to 500mts,-

The following activities shall be permissible in the above areas;

(i) development of vacant plot in designated areas for construction of hotels or beach resorts for tourists or visitors subject to the conditions as specified in the guidelines at Annexure-III ;
(ii) facilities for receipt and storage of petroleum products and liquefied natural gas as specified in Annexure-II;
(iii) facilities for re-gasification of liquefied natural gas subject to conditions as mentioned in sub-paragraph (ii) of paragraph 3;
(iv) storage of non-hazardous cargo such as, edible oil, fertilizers, food grain in notified ports;
(v) foreshore facilities for desalination plants and associated facilities;
(vi) facilities for generating power by non-conventional energy sources;
(vii) Construction or reconstruction of dwelling units so long it is within the ambit of traditional rights and customary uses such as existing fishing villages and goathans. Building permission for such construction or reconstruction will be subject to local town and country planning rules with overall height of construction not exceeding 9mts with two floors (ground + one floor);

(viii) Construction of public rain shelters, community toilets, water supply drainage, sewerage, roads and bridges by CZMA who may also permit construction of schools and dispensaries for local inhabitants of the area for those panchayats, the major part of which falls within CRZ if no other area is available for construction of such facilities;

(ix)reconstruction or alteration of existing authorized building subject to sub-paragraph (vii), (viii);

(x) development of green field airport already permitted only at Navi Mumbai.

IV. In CRZ-IV areas,-

The activities impugning on the sea and tidal influenced water bodies will be regulated except for traditional fishing and related activities undertaken by local communities as follows:

(a) No untreated sewage, effluents, ballast water, ship washes, fly ash or solid waste from all activities including from aquaculture operations shall be let off or dumped. A comprehensive plan for treatment of sewage generating from the coastal towns and cities shall be formulated within a period of one year in consultation with stakeholders including traditional coastal communities, traditional fisher folk and implemented;

(b) Pollution from oil and gas exploration and drilling, mining, boat house and shipping;

(c) There shall be no restriction on the traditional fishing and allied activities undertaken by local communities.

V. Areas requiring special consideration,-

1. CRZ areas falling within municipal limits of the Greater Mumbai.

(i) Developmental activities in the CRZ area of the Greater Mumbai because of the environmental issues, relating to degradation of mangroves, pollution of creeks and coastal waters, due to discharge of untreated effluents and disposal of solid waste, the need to provide decent housing to the poor section of society and lack of suitable alternatives in the inter connected islands of Greater Mumbai shall be regulated as follows, namely:-

A. Construction of roads - In CRZ – I areas indicated at sub-paragraph (i) of paragraph 7 of the notification the following activities only can be taken up:

(a) Construction of roads, approach roads and missing link roads approved in the Developmental Plan of Greater Mumbai on stilts ensuring that the free flow of tidal water is not affected, without any benefit of CRZ – II accruing on the landward side of such constructed roads or approach roads subject to the following conditions:

(i) All mangrove areas shall be mapped and notified as protected forest and necessary protection and conservation measures for the identified mangrove areas shall be initiated.

(ii) Five times the number of mangroves destroyed/cut during the construction process shall be replanted.

B. Solid waste disposal sites shall be identified outside the CRZ area and thereafter within two years the existing conventional solid waste sites shall be relocated outside the CRZ area.

(ii) Missing

(iii)In CRZ-II areas-

(a) The development or redevelopment shall continue to be undertaken in accordance with the norms laid down in the Town and Country Planning Regulations as they existed on the date of issue of the notification dated the 19th February, 1991, unless specified otherwise in this notification.

(b) SLUM REHABITATION SCHEMES,-

1. In the Greater Mumbai area there are large slum clusters with lakhs of families residing therein and the living conditions in these slums are deplorable and the civic agencies are not able to provide basic infrastructure such as drinking water, electricity, roads, drainage and the like because the slums come up in an unplanned and congested manner and the slums in the coastal area are at great risk in the event of cyclones, storm surges or tsunamis, in view of the difficulties in providing rescue, relief and evacuation.
2. To provide a safe and decent dwelling to the slum dwellers, the State Government may implement slum redevelopment schemes as identified as on the date of issue of this notification directly or through its parastatal agencies like Maharashtra Housing and Area Development Authority (MHADA), Shivshahi Punarvasan Prakalp Limited (SPPL), Mumbai Metropolitan Region Development Authority (MMRDA) and the like.

Provided that,-

(i) such redevelopment schemes shall be undertaken directly or through joint ventures or through public private partnerships or other similar models ensuring that the stake of the State Government or its parastatal entities shall be not less than 51%;

(ii) the Floor Space Index or Floor Area Ratio for such redevelopment schemes shall be in accordance with the Town and Country Planning Regulations prevailing as on the date on which the project is granted approval by the competent authority;

(iii)it shall be the duty of the project proponent undertaking the redevelopment through conditions (i) (2) above along with the State Government to ensure that all legally regularized tenants are provided houses in situ or as per norms laid down by the State Government in this regard.

(c) REDEVELOPMENT OF DILAPIDATED, CESSED AND UNSAFE BUILDINGS:

1. In the Greater Mumbai, there are, also a large number of old and dilapidated, cessed and unsafe buildings in the CRZ areas

and due to their age these structures are extremely vulnerable and disaster prone and therefore there is an urgent need for the redevelopment or reconstruction of these identified buildings.

2. These projects shall be taken up subject to the following conditions and safeguards:

(i) such redevelopment or reconstruction projects as identified on the date of issue of this notification shall be allowed to be taken up involving the owners of these buildings either above or with private developers in accordance with the prevailing Regulation, directly or through joint ventures or through other similar models.

(ii) the Floor Space Index or Floor Area Ratio for such redevelopment schemes shall be in accordance with the Town and Country Planning Regulations prevailing as on the date on which the project is granted approval by the competent authority.

(iii) suitable accommodation to the original tenants of the specified buildings shall be ensured during the course of redevelopment or reconstruction of the buildings by the project proponents, undertaking the redevelopment through condition 2(i) above.

(d) Notwithstanding anything contained in this notification, the developmental activities for slums and for dilapidated, cessed and unsafe buildings as specified at paras (b) and (c) above shall be carried out in an accountable and transparent manner by the project proponents mentioned therein which shall include the following pre-condition measures, wherever applicable;

1.

(i) applicability of the Right to Information Act, 2005 to all redevelopment or reconstruction projects granted clearance by the Competent Authorities;

(ii) MoEF shall issue an order constituting the CPIO and the first Appellate Authority of appropriate ranks in consultation with Government of Maharashtra;

(iii) details of the Slum Rehabilitation Scheme, including the complete proposal and the names of the eligible slum dwellers will be declared suo-moto as a requirement of Section 4 of compliance of the Right to Information Act, 2005 by the appropriate authority in the Government of Maharashtra in one month before approving it;

(iv) The implementing or executing agency at the State Government with regard to projects indicated at sub-item (b) and (c) of item (iii) of sub-paragraph V shall display on a large notice boards at the site and at the office of the implementing or executing agency the names of the eligible builders, total number of tenements being made,

names of eligible slum dwellers who are to be provided the dwelling units and the extra area available for free sale.

(v) Projects being developed under sub-items (b) and (c) of item (iii) of sub-paragraph V shall be given permission only if the project proponent agree to be covered under the Right to Information Act, 2005.

2. MoEF may appoint statutory auditors, who are empanelled by the Comptroller and auditor General (hereinafter referred to as the C&AG) to undertake performance and fiscal audit in respect of the projects relating to redevelopment of dilapidated, cessed and unsafe buildings and the projects relating to Slum Rehabilitation Scheme shall be audited by C&AG.

3. A High Level Oversight Committee may be set up by the Government of Maharashtra for periodic review of implementation of V(iii)(b) and (c) which shall include eminent representatives of various Stakeholders, like Architects, Urban Planner, Engineers, and Civil Society, besides the local urban bodies, the State Government and the Central Government.

4. The individual projects under V(iii)(b) and (c) shall be undertaken only after public consultation in which views of only the legally entitled slum dweller or the legally entitled tenent of the dilapidated or cessed buildings shall be obtained in accordance with the procedures laid down in EIA notification, 2006.

(e) In order to protect and preserve the 'green lung' of the Greater Mumbai area, all open spaces, parks, gardens, playgrounds indicated in development plans within CRZ-II shall be categorized as CRZ-III, that is, 'no development zone'.

(f) The Floor Space Index upto 15% shall be allowed only for construction of civic amenities, stadium and gymnasium meant for recreational or sports related activities and the residential or commercial use of such open spaces shall not be permissible.

(g) Koliwada namely, fishing settlement areas as identified in the Development Plan of 1981or relevant records of the Government of Maharashtra, shall be mapped and declared as CRZ-III so that any development, including construction and econstruction of dwelling units within these settlements shall be undertaken in accordance with applicable as per local Town and Country Planning Regulations.

(h) Reconstruction and repair works of the dwelling units, belonging to fisher communities and other local communities identified by the State Government, shall be considered and granted permission by the Competent Authorities on a priority basis, in accordance with the applicable Town and Country Planning Regulations.

2. CRZ for Kerala

In view of the unique coastal systems of backwater and backwater islands alongwith space limitation present in the coastal stretches of the State of Kerala, the following activities in CRZ shall be regulated as follows, namely:-

(i) all the islands in the backwaters of Kerala shall be covered under the CRZ notification;
(ii) the islands within the backwaters shall have 50mts width from the High Tide Line on the landward side as the CRZ area;
(iii) within 50mts from the HTL of these backwater islands existing dwelling units of local communities may be repaired or reconstructed however no new construction shall be permitted;
(iv) beyond 50mts from the HTL on the landward side of backwater islands, dwelling units of local communities may be constructed with the prior permission of the Gram panchayat;
(v) foreshore facilities such as fishing jetty, fish drying yards, net mending yard, fishing processing by traditional methods, boat building yards, ice plant, boat repairs and the like, may be taken up within 50mts width from HTL of these backwater islands.

3. CRZ of Goa

In view of the peculiar circumstances of the State Goa including past history and other developments, the specific activities shall be regulated and various measures shall be undertaken as follows:-

(i) the Government of Goa shall notify the fishing villages wherein all foreshore facilities required for fishing and fishery allied activities such as traditional fish processing yards, boat building or repair yards, net mending yards, ice plants, ice storage, auction hall, jetties may be permitted by Grama Panchayat in the CRZ area;
(ii) reconstruction, repair works of the structures of local communities including fishermen community shall be permissible in CRZ;
(iii) purely temporary and seasonal structures customarily put up between the months of September to May;
(iv) the eco sensitive low lying areas which are influenced by tidal action known as khazan lands shall be mapped;
(v) the mangroves along such as khazan land shall be protected and a management plan for the khazan land prepared and no developmental activities shall be permitted in the khazan land;
(vi) sand dunes, beach stretches along the bays and creeks shall be surveyed and mapped. No activity shall be permitted on such sand dune areas;
(vii) the beaches such as Mandrem, Morjim, Galgiba and Agonda has been designated as turtle nesting sites and protected under the Wildlife Protection Act, 1972 and these areas shall be surveyed and management plan prepared for protection of these turtle nesting sites;
(viii) no developmental activities shall be permitted in the turtle breeding areas referred to in sub-paragraph (vii).

4.

(a) Critical Vulnerable Coastal Areas (CVCA) which includes Sunderbans and other identified ecological sensitive areas which shall be managed with the involvement of the local coastal communities including the fisher folk;-

(b) the entire Sunderbans mangrove area and other identified ecologically important areas such as Gulf of Khambat and Gulf of Kutchchh in Gujarat, Malvan, Achra-Ratnagiri in Maharashtra, Karwar and Coondapur in Karnataka, Vembanad in Kerala, Gulf of Mannar in Tamil Nadu, Bhaitarkanika in Orissa, Coringa, East Godavari and Krishna in Andhra Pradesh shall be declared as Critical Vulnerable Coastal Areas (CVCA) through a process of consultation with local fisher and other communities inhabiting the area and depend on its resources for their livelihood with the objective of promoting conservation and sustainable use of coastal resources and habitats;

(c) the process of identifying planning, notifying and implementing CVCA shall be detailed in the guideline which will be developed and notified by MoEF in consultations with the stakeholders like the State Government, local coastal communities and fisher folk and the like inhabiting the area;

(d) the Integrated Management Plans (IMPs) prepared for such CVCA shall interalia keep in view the conservation and management of mangroves, needs of local communities such as, dispensaries, schools, public rain shelter, community toilets, bridges, roads, jetties, water supply, drainage, sewerage and the impact of sea level rise and other natural disasters and the IMPs will be prepared in line with the para 5 above for preparation of Coastal Zone Management Plans;

(e) till such time the IMPs are approved and notified, construction of dispensaries, schools, public rain shelters, community toilets, bridges, roads, jetties, water supply, drainage, sewerage which are required for traditional inhabitants shall be permitted on a case to case basis, by the CZMA with due regards to the views of coastal communities including fisherfolk.

[F.No.11-83/2005-IA-III]
J. M. MAUSKAR, Addl. Secy.

CRZ Annexure – I
Guidelines for Preparation of Coastal Zone Management Plans

I.

A. Demarcation of High Tide Line

1. Demarcation of High Tide Line (HTL) and Low Tide Line (LTL) shall be carried out by one of the agencies authorized by MoEF based on the recommendations of the National Centre for Sustainable Coastal Management (NCSCM).
2. Demarcation of the High Tide Line or LTL shall be made on the Coastal Zone Management (CZM) Maps of scale 1:25,000 prepared by the agencies identified by the MoEF.
3. Local level CZM Maps shall be prepared for use of officials of local bodies for determination of the CRZ.
4. The local level CZM Maps shall be prepared on a Cadastral scale in accordance with the CZM Maps approved by the Central Government.

B. Preparation of CZM Maps

5. Base Maps of 1:25,000 scale shall be acquired from the Survey of India (SOI) and wherever 1:25,000 maps are not available, 1:50,000 maps shall be enlarged to 1:25,000 for the purpose of base map preparation and these maps will be of the standard specification given below:

Unit	:	7.5 minutes X 7.5minutes
Numbering System	:	Survey of India Sheet Numbering
Horizontal Datum	:	Everest or WGS 84
Vertical Datum	:	Mean Sea Level (MSL)
Topography	:	Topography in the SOI maps will be updated using latest satellite imageries or aerial photographs

6. The High Water Level (HWL) and Low Water Level (LWL) marked on the Base maps will be transferred to the CZM maps.
7. Coastal geo-morphological signatures in the field or satellite imageries or aerial photographs will be used for appropriate adjustment, in the HWL or LWL for demarcating HTL or LTL in accordance with the CRZ notification.
8. The following geo-morphological features shall be considered while demarcating in HTL or LTL: Landward (monsoonal) berm crest in the case of sandy beaches Rocks, Headlands, Cliffs
9. Seawalls or revetments or embankments 9. 500 meter and 200 metre lines will be demarcated with respect of HTL.
10. HTL (as defined in the CRZ notification) and LTL shall also be demarcated in the CZM maps along the banks of tidal influenced inland water bodies with the help of the geo-morphological signatures or features.
11. Classification of different coastal zones shall be done as per the CRZ notification
12. Standard national or international colour codes shall be used to highlight sub-classification of data.

C. Local level CZM Maps

Local level CZM Maps are for the use of local bodies and other agencies to facilitate implementation of the Coastal Zone Management Plans

13. Cadastral (village) maps in 1:3960 or the nearest scale, shall be used as the base maps.
14. These maps are available with revenue Authorities and are prepared as per standard norms.
15. HTL (as defined in the CRZ notification) and LTL will be demarcated in the cadastral map based on detailed physical verification using coastal geo-morphological signatures or features in accordance with the CZM Maps approved by the Central Government.
16. 500metre and 200metre lines shall be demarcated with respect to the HTL thus marked.
17. HTL (as defined in the CRZ notification, 1991) and LTL will also be demarcated along the banks of tidal influenced inland water bodies with the help of geo-morphological signatures or features.
18. Classifications shall be transferred into local level CZM maps from the CZM Plans.
19. Symbols will be adopted from CZM Maps.
20. Color codes as given in CZM Maps shall be used.
21. Demarcation of cadastral maps will be done by local agencies approved by the Central Government. The local agencies shall work under the guidance of the concerned State Government or Union Territory Coastal Zone Management Authorities.

D. Hazard mapping:

II. Classification of CRZ areas

1. The CZM Maps shall be prepared in accordance with para 5 of the CRZ notification demarcating CRZ I, II, III, IV and V.
2. The CZM Maps shall clearly demarcate the land use plan of the area and list out the CRZ – I areas. All the CRZ – I areas listed under para 7 (I) A and B shall be clearly demarcated and colour codes given so that each of the CRZ –I areas can be clearly identified.
3. Buffer zone along mangrove areas of more than 1000 sq mts shall be stipulated with a different colour distinguishing from the mangrove area.
4. The buffer zone shall also be classified as CRZ – I area.
5. The hazard line to be drawn up by MoEF shall be superimposed on the CZM maps in 1:25,000 scales and also on the cadastral scale maps.
6. The CRZ – II areas shall be those areas which have been substantially built-up with a ratio of built up plots to that of total plots is more than 50%.
7. In the CRZ areas, the fishing villages, common properties of the fishermen communities, fishing jetties, ice plants, fish drying platforms or areas infrastructure facilities of fishing and local communities such as dispensaries, roads, schools, and the like, shall be indicated on the cadastral scale maps. States shall prepare detailed plans for long term housing needs of coastal fisher communities in view of expansion and other needs, provisions of basic services including sanitation, safe-ty, and disaster preparedness.
8. No developmental activities other than those listed above shall be permitted in the areas between the hazard line and 500mts or 100mts or width of the creek on the landward side. The dwelling unit of the local communities including that of

the fishers will not be relocated if the dwelling units are located on the seaward side of the hazard line. The State Government will provide necessary safeguards from natural disaster to such dwelling units of local communities.

9. The water areas of CRZ IV shall be demarcated and clearly demarcated if the water body is sea, lagoon, backwater, creek, bay, estuary and for such classification of the water bodies the terminology used by Naval Hydrographic Office shall be relied upon.
10. The fishing zones in the water bodies and the fish breeding areas shall be clearly marked.
11. The water area shall be demarcated indicating the pollution levels as per Central Pollution Control Board standards on water quality.
12. In the CRZ V areas the land use maps shall be superimposed on the Coastal Zone Management Plan and clearly demarcating the CRZ I, II, III, IV.
13. The existing authorized developments on the sea ward side shall be clearly demarcated.
14. The features like cyclone shelters, rain shelters, helipads and other infrastructure including road network may be clearly indicated on the CZM Maps for the purpose of rescue and relief operations during cyclones, storms, tsunami and the like.

III. CZMPs approved by MoEF in accordance with CRZ notification, 1991

1. While preparing the CZMPs under CRZ notification, 2011, the CZMPs that have been approved under the CRZ Notification, 1991 shall be compared. A justification shall be provided by the concerned CZMA in case the CZMPs prepared under CRZ notification, 2011 varies with respect to the approved CZMP prepared under CRZ notification, 1991.

IV. Public Views on the CZMP.

a) The draft CZMPs prepared shall be given wide publicity and suggestions and objections received in accordance with the Environment (Protection) Act, 1986. Public hearing on the draft CZMPs shall be held at district level by the concerned CZMAs.
b) Based on the suggestions and objections received the CZMPs shall be revised and approval of MoEF shall be obtained.
c) The approved CZMP shall be put up on the website of MoEF, concerned website of the State, Union Territory CZMA and hard copy made available in the panchayat office, District collector office and the like.

V. Revision of Coastal Zone Management Plans.

1. Whenever there is a doubt the concerned State or Union territory Coastal Zone Management Authority shall refer the matter to the National Centre for Sustainable Coastal Management who shall verify the CZMP based on latest satellite imagery and ground truthing.
2. The rectified map would be submitted to MoEF for its record.

CRZ Annexure – II
List of petroleum and chemical products permitted for storage in CRZ except CRZ – I (A)

(i) Crude oil;
(ii) Liquefied Petroleum Gas;
(iii) Motor spirit;
(iv) Kerosene;
(v) Aviation fuel;
(vi) High speed diesel;
(vii) Lubricating oil;
(viii) Butane;
(ix) Propane;
(x) Compressed Natural Gas;
(xi) Naphtha;
(xii) Furnace oil;
(xiii) Low Sulphur Heavy Stock;
(xiv) Liquefied Natural Gas;
(xv) Fertilizers and raw materials for manufacture of fertilizers.

CRZ Annexure – III
Guidelines for development of beach resorts or hotels in the designated areas of CRZ – III and CRZ – II for occupation of tourist or visitors with prior approval of the Ministry of Environment and Forests

I. Construction of beach resorts or hotels with prior approval of MoEF in designated areas of CRZ – II and III for occupation of tourist or visitors shall be subject to the following conditions, namely:

(a)The project proponent shall not undertake any construction within 200 mts in the landward side of High Tide Line and within the area between Low Tide Line and High Tide Line;

(b) The proposed constructions shall be beyond the hazard line or 200mts from the High Tide Line whichever is more;

(c)live fencing and barbed wire fencing with vegetative cover may be allowed around private properties subject to the condition that such fencing shall in no way hamper public access to the beach;

(d) no flattening of sand dunes shall be carried out;

(e)no permanent structures for sports facilities shall be permitted except construction of goal posts, net posts and lamp posts;

(f) Construction of basement may be allowed subject to the condition that no objection certification is obtained from the State Ground Water Authority to the effect that such construction will not adversely affect free flow of groundwater in that area;

(g) the State Ground Water Authority shall take into consideration the guidelines issued by Central Government before granting such no objection certificate;

(h) though no construction is allowed in the no development zone for the purposes of calculation of Floor Space Index, the area of entire plot including the portion which falls within the no development zone shall be taken into account;

(i) the total plot size shall not be less than 0.4 hectares and the total covered area on all floors shall not exceed 33 percent of the plot size i.e., the Floor Space Index shall not exceed 0.33 and the open area shall be suitably landscaped with appropriate vegetal cover;

(j) the construction shall be consistent with the surrounding landscape and local architectural style;

(k) the overall height of construction upto the highest ridge of the roof, shall not exceed 9 metres and the construction shall not be more than two floors (ground floor plus one upper floor);

(l) groundwater shall not be tapped within 200metre of the High Tide Line; within the 200metre 500metre zone it can be tapped only with the concurrence of the Central or State Ground Water Board;

(m) extraction of sand, leveling or digging of sandy stretches except for structural foundation of building, swimming pool shall not be permitted within 500metres of the High Tide Line;

(n) the quality of treated effluents, solid wastes, emissions and noise levels and the like, from the project area must conform to the standards laid down by the competent authorities including the Central or State Pollution Control Board and under the Environment (Protection) Act, 1986;

(o) necessary arrangements for the treatment of the effluents and solid wastes must be made and it must be ensured that the untreated effluents and solid wastes are not discharged into the water or on the beach; and no effluent or solid waste shall be discharged on the beach;

(p) to allow public access to the beach, atleast a gap of 20metres width shall be provided between any two hotels or beach resorts; and in no case shall gaps be less than 500metres apart; and

(q) if the project involves diversion of forestland for non-forest purposes, clearance as required under the Forest (Conservation) Act, 1980 shall be obtained and the requirements of other Central and State laws as applicable to the project shall be met with; and

(r) approval of the State or Union territory Tourism Department shall be obtained.

II. In ecologically sensitive areas (such as marine parks, mangroves, coral reefs, breeding and spawning grounds of fish, wildlife habitats and such other area as may be notified by the Central or State Government Union territories) construction of beach resorts or hotels shall not be permitted.

CRZ Annexure – IV
Form – I for seeking Clearance for Project attracting CRZ Notification

(I) Basic Information

Name of the Project:

Location or site alternatives under consideration:

Size of the project (in terms of total area):

CRZ classification of the area:

Expected cost of the project:

Contact Information:

(II) Activity

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

No.	Information/ Checklist confirmation	Yes/ No	Details thereof (with approximate quantities / rates wherever possible) with source of information data
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)		
1.2	Details of CRZ classification as per the approved Coastal Zone Management Plan?		
1.3	Whether located in CRZ-I area?		
1.4	The distance from the CRZ-I areas.		
1.5	Whether located within the hazard zone as mapped by Ministry of Environment and Forests/National Disaster Management Authority?		
1.6	Whether the area is prone to cyclone, tsunami, tidal surge, subduction, earthquake etc.?		
1.7	Whether the area is prone for saltwater ingress?		
1.8	Clearance of existing land, vegetation and buildings?		
1.9	Creation of new land uses?		
1.10	Pre-construction investigations e.g. bore hole, soil testing?		
1.11	Construction works?		
1.12	Demolition works?		
1.13	Temporary sites used for construction works or housing of construction workers?		
1.14	Above ground buildings, structures or earthworks including linear structures, cut and fill or excavations		
1.15	Underground works including mining or tunneling?		
1.16	Reclamation works?		
1.17	Dredging/reclamation/land filling/disposal of dredged material etc.?		
1.18	Offshore structures?		
1.19	Production and manufacturing processes?		

1.20	Facilities for storage of goods or materials?		
1.21	Facilities for treatment or disposal of solid waste or liquid effluents?		
1.22	Facilities for long term housing of operational workers?		
1.23	New road, rail or sea traffic during construction or operation?		
1.24	New road, rail, air waterborne or other transport infrastructure including new or altered routes and stations, ports, airports etc?		
1.25	Closure or diversion of existing transport routes or infrastructure leading to changes in traffic movements?		
1.26	New or diverted transmission lines or pipelines?		
1.27	Impoundment, damming, culverting, realignment or other changes to the hydrology of watercourses or aquifers?		
1.28	Stream and river crossings?		
1.29	Abstraction or transfers of water form ground or surface waters?		
1.30	Changes in water bodies or the land surface affecting drainage or run-off?		
1.31	Transport of personnel or materials for construction, operation or decommissioning?		
1.32	Long-term dismantling or decommissioning or restoration works?		
1.33	Ongoing activity during decommissioning which could have an impact on the environment?		
1.34	Influx of people to an area in either temporarily or permanently?		
1.35	Introduction of alien species?		
1.36	Loss of native species or genetic diversity?		
1.37	Any other actions?		

2. 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):

No	Information/ Checklist confirmation	Yes/ No	Details thereof (with approximate quantities / rates wherever possible) with siurce of information data
2.1	Land especially undeveloped or agricultural land (ha)		
2.2	Water (expected source & competing users) unit: KLD		
2.3	Minerals (MT)		
2.4	Construction material – stone, aggregates, sand/soil (expected source – MT)		
2.5	Forests and timber (source – MT)		
2.6	Energy including electricity and fuels (source, competing users) Unit: fuel (MT), energy (MW)		
2.7	Any other natural resources (use appropriate standard units)		

3. 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.

No	Information/ Checklist confirmation	Yes/ No	Details thereof (with approximate quantities / rates wherever possible) with siurce of information data
3.1	Use of substances or materials, which are hazardous (as per MSIHC rules) to human health or the environment (flora, fauna, and water supplies)		
3.2	Changes in occurrence of disease or affect disease vectors (e.g. insect or water borne diseases)		
3.3	Affect the welfare of people e.g. by changing living conditions?		
3.4	Vulnerable groups of people who could be affected by the project e.g. hospital patients, children, the elderly etc.,		
3.5	Any other causes, that would affect local communities, fisherfolk, their livelihood, dwelling units of traditional local communities etc		

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

No	Information / Checklist confirmation	Yes/ No	Details thereof (with approximate quantities / rates wherever possible) with siurce of information data
4.1	Spoil, overburden or mine wastes		
4.2	Municipal waste (domestic and or commercial wastes)		
4.3	Hazardous wastes (as per Hazardous Waste Management Rules)		
4.4	Other industrial process wastes		
4.5	Surplus product		
4.6	Sewage sludge or other sludge from effluent treatment		
4.7	Construction or demolition wastes		
4.8	Redundant machinery or equipment		
4.9	Contaminated soils or other materials		
4.10	Agricultural wastes		
4.11	Other solid wastes		

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

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		
5.2	Emissions from production processes		
5.3	Emissions from materials handling including storage or transport		
5.4	Emissions from construction activities including plant and equipment		
5.5	Dust or odour from handling of materials including		

	construction materials, sewage and waste		
5.6	Emissions from incineration of waste.		
5.7	Emissions from burning of waste in open air (e.g. slash materials, construction debris)		
5.8	Emissions from any other sources		

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

No	Information/ Checklist confirmation	Yes / No	Details thereof (with approximate quantities / rates wherever possible) with source of information data
6.1	From operation of equipment e.g. engines, ventilation plant, crushers		
6.2	From industrial or similar processes		
6.3	From construction or demolition		
6.4	From blasting or piling		
6.5	From construction or operational traffic		
6.6	From lighting or cooling systems		
6.7	From any other sources		

7. 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:

No	Information/ Checklist confirmation	Yes/ No	Details thereof (with approximate quantities / rates wherever possible) with siurce of information data
7.1	From handling, storage, use or spillage of hazardous materials		
7.2	From discharge of sewage or other effluents to water or the land (expected mode and place of discharge)		
7.3	By deposition of pollutants emitted to air into the land or into water		
7.4	From any other sources		
7.5	Is there a risk of long term build up of pollutants in the environment from these sources?		

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

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		
8.2	From any other causes		
8.3	Could the project be affected by natural disasters causing environmental damage (e.g., floods, earthquakes, landslides, cloudburst etc)?		

9. 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.

No	Information/ Checklist confirmation	Yes/ No	Details thereof (with approximate quantities / rates wherever possible) with siurce 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.: Supporting infrastructure (roads, power supply, waste or waste water treatment, etc.)		
9.2	Lead to after use of the site, which could have an impact on the environment.		
9.3	Set a precedent for later developments		
9.4	Have cumulative effects due to proximity to other existing or planned projects with similar effects		

(III) Environmental Sensitivity

No	Areas	Name/ Identity	Aerial distance (within 15 km.) Proposed project location boundary
1	Areas protected under international conventions, national or local legislation for their ecological, landscape, cultural or other related value		
2	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, over wintering, migration		
4	Inland, coastal, marine or underground waters		
5	State, National boundaries		
6	Routes or facilities used by the public for access to recreation or other tourist, pilgrim areas		
7	Defence installations		
8	Densely populated or built-up area		
9	Areas occupied by sensitive man-made land uses (hospitals, schools, places of worship, community facilities)		
10	Areas containing important, high quality or scarce resources (ground water resources, surface resources, forestry, agriculture, fisheries, tourism, minerals)		
11	Areas already subjected to pollution or environmental damage. (those where existing legal environmental standards are exceeded)		
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)		

Annex 3
Spatial Interpretation of CRZ, 2011

The sketches are based on interpretation of Para 1 and 7 of the CRZ 2011 Notification.

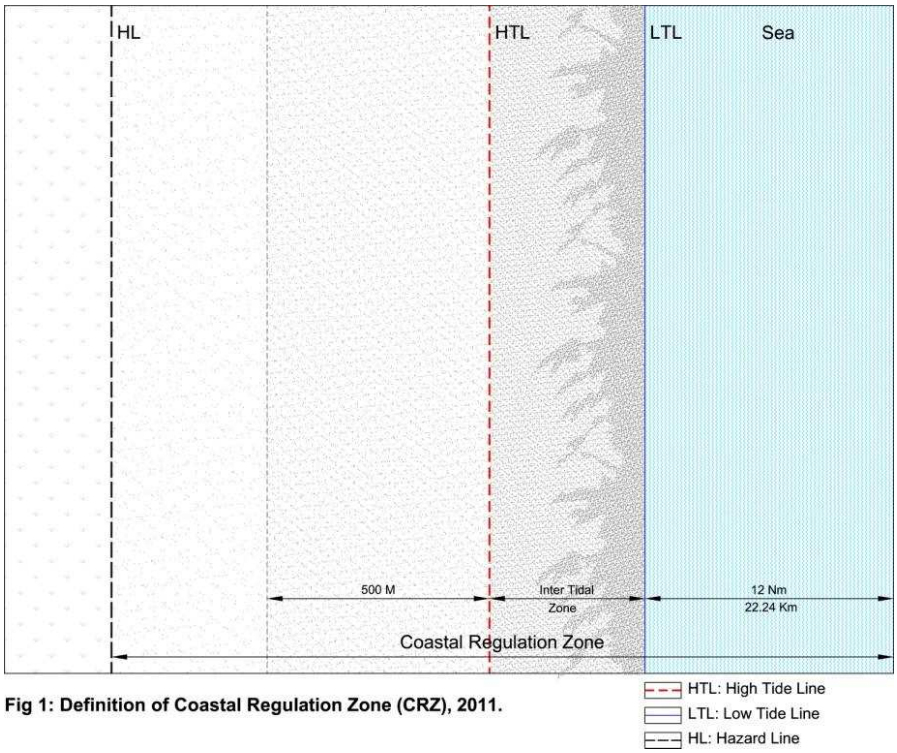


Fig 1: Definition of Coastal Regulation Zone (CRZ), 2011.

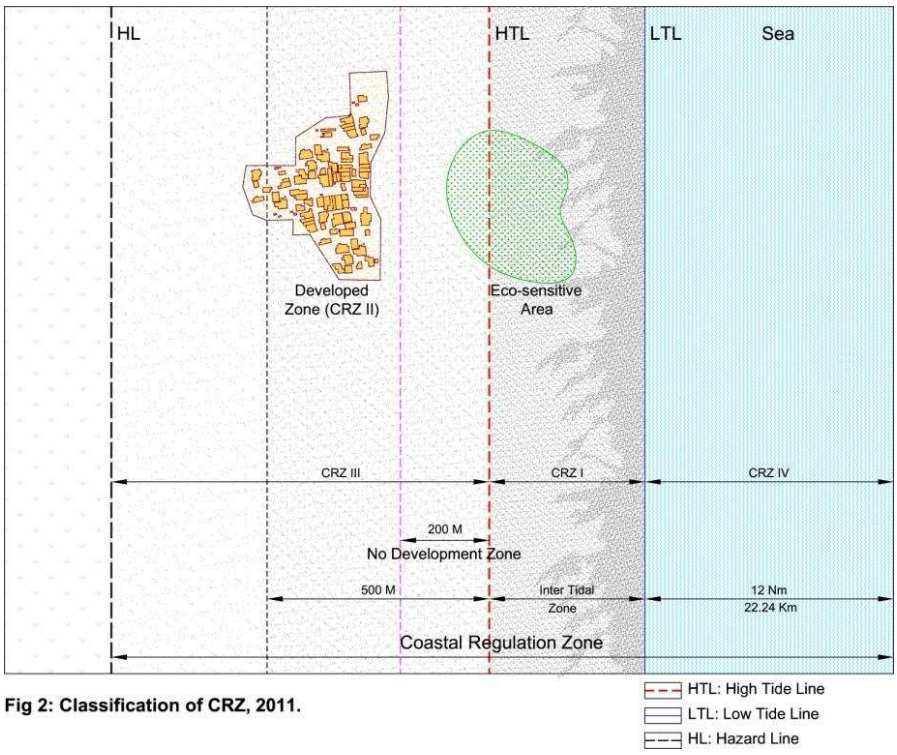


Fig 2: Classification of CRZ, 2011.

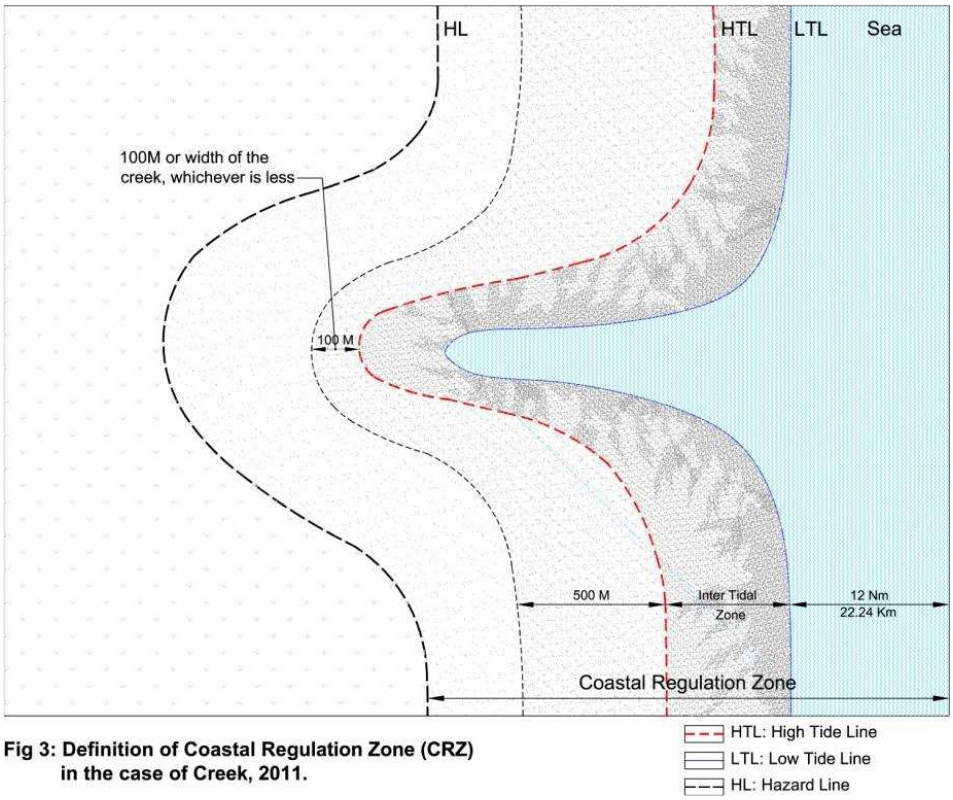


Fig 3: Definition of Coastal Regulation Zone (CRZ) in the case of Creek, 2011.

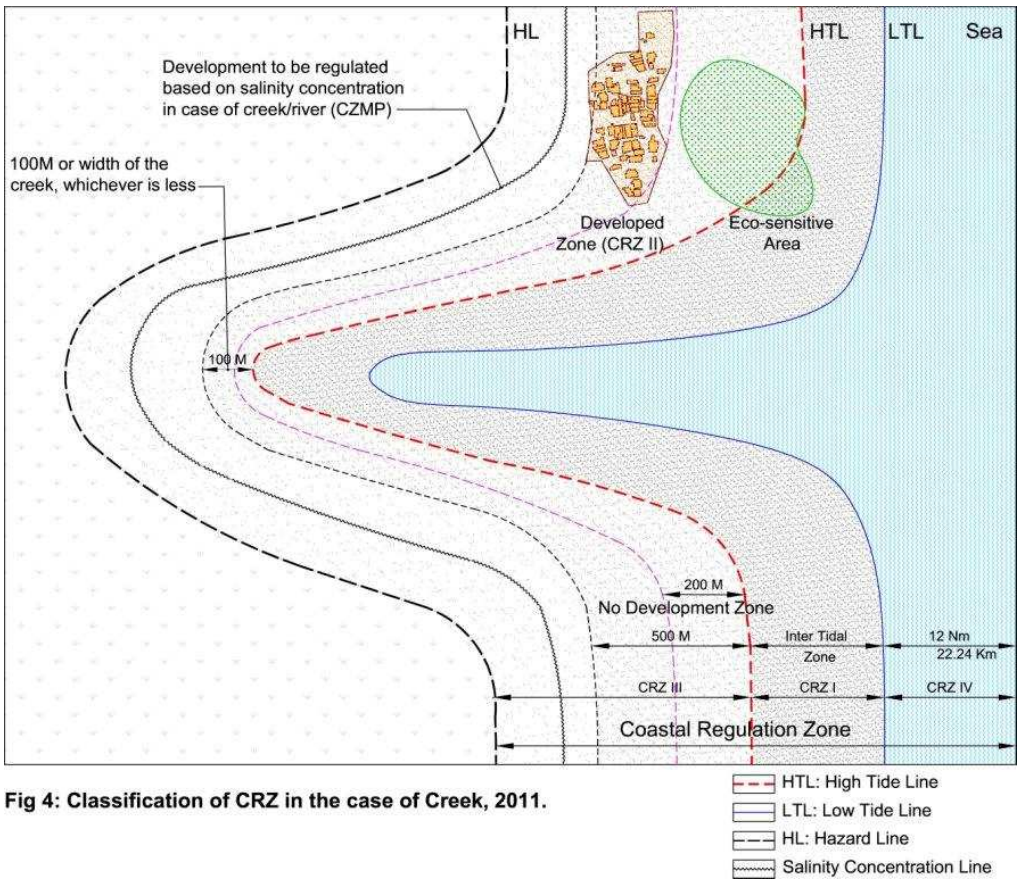


Fig 4: Classification of CRZ in the case of Creek, 2011.

Annex 4
Simplified List of Prohibited Activities and Exceptions in CRZ

The list is based on interpretation of Para 3 of the CRZ 2011 Notification.

No.	Prohibited Activities	Exceptions
i)	Setting up new industries and expanding existing industries	• Industries requiring waterfront or foreshore facility
		• Projects of Department of Atomic Energy
		• Generating power by non-conventional energy sources and desalination plants in areas other than CRZ-I
		• Green field Airport already permitted at Navi Mumbai
		• Reconstruction, repair work to dwelling units of local / fishing communities
ii)	Manufacture or handling oil storage or disposal of hazardous substance	• Transfer of hazardous substances from ships to ports, terminals and refineries
		• Facilities for receipt and storage of petroleum products, liquefied natural gas & fertilizers in areas other than CRZ-I
iii)	Setting up and expansion of fish processing units, warehousing	• Hatchery and natural fish drying areas in permitted areas
iv)	Land reclamation, bunding or disturbing the natural course of seawater	• Construction or modernization or expansion of foreshore facilities
		• Measures for control of erosion
		• Maintenance or clearing of waterways, channels and ports
		• Measures to prevent sand bars, installation of tidal regulators, laying of storm water drains or for structures for prevention of salinity ingress and freshwater recharge
v)	Setting up and expansion of units or mechanism for disposal of wastes and effluents	• Discharging approved treated effluents into water courses
		• Storm water drains and ancillary structures for pumping
		• Treatment of waste and effluents from hotels, beach resorts and settlements in CRZ areas other than CRZ-I and disposal of treated wastes and effluents
vi)	Discharge of untreated waste and effluents from industries, cities or towns and other human settlements	
vii)	Dumping of city or town wastes, construction debris, industrial solid wastes, fly ash for the purpose of land filling	
viii)	Port and harbor projects	
ix)	Reclamation for commercial purposes - shopping, housing complexes, hotels and entertainment activities	
x)	Mining of sand, rocks and other sub-strata materials	• Rare minerals not available outside CRZ area
		• Exploration & exploitation of oil & natural gas
xi)	Drawl of groundwater and construction related thereto, within 200mts of HTL	• Areas inhabited and used by the local communities & for their use only • Permitted only when done manually through ordinary wells within 200-500 m zone of drawl of ground water
xii)	Construction activities in CRZ–I	• Specified in para 8 of the notification that specifies the norms for regulation of permitted activities

xiii)	Dressing or altering the sand dunes, hills, natural features including landscape changes for beautification, recreation and other such purpose	
xiv)	Facilities required for patrolling and vigilance activities of marine/coastal police stations.	

The shaded box refers to Para 8, which is explained in the next Annex.

Annex 5
Permitted Activities and their Regulation in CRZ

The list is based on interpretation of Para 8 of the CRZ 2011 Notification.

CRZ – I **No new construction is permitted, however some activities are permitted in specific locations as indicated**	
Location	Permitted Activities and their Regulation
i) Between LTL and HTL	
	• Projects relating to Department of Atomic Energy
	• Pipelines, conveying systems including transmission lines
	• Facilities essential for activities permissible under CRZ-I
	• Installation of weather radar for monitoring of cyclones movement and prediction by Indian Meteorological Department
	• Construction of trans harbour sea link without affecting the tidal flow of water
	• Development of green field airport already approved at only Navi Mumbai
ii) Between LTL and HTL, not ecologically sensitive areas (as defined in Para 7 (i))	
	• Exploration and extraction of natural gas
	• Construction of dispensaries, schools, public rain shelter, community toilets, bridges, roads, jetties, water supply, drainage, sewerage which are required for traditional inhabitants living within the biosphere reserves after obtaining approval from concerned CZMA
	• Salt harvesting by solar evaporation of seawater
	• Desalination plants
	• Storage of non-hazardous cargo - edible oil, fertilizers and food grain
	• Construction of trans harbour sea links without affecting the tidal flow of water
CRZ - II	
	• Buildings permitted on the landward side of the existing road, or on the landward side of existing authorized structures
	• Buildings permitted on the landward side of existing and proposed roads or existing authorized structures shall be subject to existing local town and country planning regulations including the 'existing' norms of Floor Space Index or Floor Area Ratio • Construction of buildings will not be permitted on landward side of any new roads which are constructed on the seaward side of an existing road
	• Reconstruction of authorized building permitted subject with the existing Floor Space Index or Floor Area Ratio norms and with no change in present use
	• Facilities for receipt and storage of petroleum products and liquefied natural gas as specified in Annexure-II and facilities for regasification of Liquefied Natural Gas (as per condition mentioned in sub-paragraph (ii) of paragraph 3)

	• Desalination plants and associated facilities
	• Storage of non-hazardous cargo - edible oil, fertilizers and food grain in notified ports;
	• Facilities for generating power by non-conventional power sources and associated facilities
CRZ - III	
A. No Development Zone, area upto 200 m from HTL on the landward side in case of seafront and 100 m along tidal influenced water bodies or width of the creek whichever is less No new construction is permitted, however some activities are permitted in NDZ and are indicated *NDZ is not applicable whenever there is a notified port limit.*	
	• Repairs or reconstruction of existing authorized structure not exceeding existing Floor Space Index, existing plinth area, existing density and for permissible activities under the notification including facilities essential for activities • Construction / reconstruction of dwelling units of traditional coastal communities including fisher folk permitted between 100 and 200 m from HTL along seafront in accordance with a comprehensive plan prepared by SG in consultation with traditional coastal community, incorporating disaster management provision, sanitation recommended by SG CZMA to NCZMA for approval MoEF.
	• Agriculture, horticulture, gardens, pasture, parks, play field, and forestry
	• Projects relating to Department of Atomic Energy
	• Mining of rare minerals
	• Salt manufacture from seawater
	• Facilities for receipt and storage of petroleum products and liquefied natural gas as specified in Annexure-II
	• Facilities for re-gasification of liquefied natural gas (as per subparagraph (ii) of paragraph 3)
	• Facilities for generating power by non conventional energy sources
	• Foreshore facilities for desalination plants and associated facilities
	• Weather radars
	• Construction of dispensaries, schools, public rain shelter, community toilets, bridges, roads, provision of facilities for water supply, drainage, sewerage, crematoria, cemeteries and electric sub-station required for local inhabitants if permitted by CZMA
	• Facilities required for local fishing communities such as fish drying yards, auction halls, net mending yards, traditional boat building yards, ice plant, ice crushing units, fish curing facilities
	• Green field airport already permitted only at Navi Mumbai
B. Area between 200 m to 500 m	
	• Construction of hotels or beach resorts for tourists or visitors on vacant plot in designated area as per Annexure - III
	• Receipt and storage facilities for petroleum products and liquefied natural gas as per Annexure-II
	• Re-gasification of liquefied natural gas facilities

	subject to conditions as per sub-paragraph (ii) of paragraph 3;
	• Storage of non-hazardous cargo such as, edible oil, fertilizers, food grain in notified ports
	• Foreshore facilities for desalination plants and associated facilities
	• Facilities for generating power by non-conventional energy sources
	• Construction or reconstruction of traditional dwelling units. Building permission for construction or reconstruction subject to local town and country planning rules with overall height of construction not exceeding 9 m with two floors (ground + one floor)
	• Public rain shelters, community toilets, water supply drainage, sewerage, roads and bridges, schools and dispensaries
	• Reconstruction or alteration of existing authorised building as per sub-paragraph (vii), (viii)
	• Development of green field airport already permitted only at Navi Mumbai
CRZ IV	
No applicable, hence not reviewed.	
Areas requiring special consideration* CRZ areas falling within MCGM	
CRZ 1	a. Construction of roads, approach roads and missing link roads approved in the Developmental Plan of Greater Mumbai on stilts ensuring that the free flow of tidal water is not affected. With following conditions - (i) All mangrove areas to be mapped and notified as protected forest and necessary protection and conservation measures for the identified mangrove areas to be initiated. (ii) Five times the number of mangroves destroyed/cut during the construction process to be replanted.
	b. Solid waste disposal sites to be identified outside the CRZ area and thereafter within two years the existing conventional solid waste sites to be relocated outside the CRZ area.
CRZ II	a. The development or redevelopment shall be in accordance with the norms laid down in the Town and Country Planning Regulations as they existed on the date of issue of the notification dated 19th February, 1991.
	b. Slum Rehabilitation Scheme** Slums as on date of this notification can be improved by implementing SRA schemes via MHADA, SPPL, MMRDA provided: (i) Such redevelopment schemes to be undertaken directly or through joint ventures or through public private partnerships or other similar models ensuring that the stake of the State Government or its parastatal entities shall be not less than 51% (ii) FSI or FAR for such redevelopment schemes to be in accordance with the Town and Country Planning Regulations prevailing as on the date on

	which the project is granted approval by the competent authority (iii) All legally regularized tenants are provided houses in situ or as per norms laid down by the State Government
	c. Redevelopment of Dilapidated, Cessed and Unsafe Buildings** Redevelopment / reconstruction of very old and dilapidated, cessed and unsafe buildings in the CRZ areas which are extremely vulnerable and disaster prone as identified on the date of this notification can be taken up provided: (i) Owners are involved with private developers in accordance with the prevailing regulation, directly or through joint ventures or through other similar models (ii) FSI or FAR for such redevelopment schemes is in accordance with the Town and Country Planning Regulations prevailing as on the date on which the project is granted approval by the competent authority (iii) suitable accommodation is ensured during the course of redevelopment or reconstruction of the buildings by the project proponents.
	d. Open spaces, parks, gardens, playgrounds in DP • Such spaces within CRZ-II shall be categorized as CRZ-III, that is, 'no development zone to protect and preserve the 'green lung' of the city • FSI upto 15% to be allowed only for construction of civic amenities, stadium and gymnasium meant for recreational or sports related activities and the residential or commercial use of such open spaces is not permissible.
	e. Koliwada, fishing settlement area as identified in the Development Plan of 1981 or relevant records of the Government of Maharashtra To be mapped and declared as CRZ-III (CRZII??***) to assure construction and reconstruction of dwelling units within these settlements shall be undertaken in accordance with applicable as per local Town and Country Planning Regulations
	f. Fisher communities / local communities Reconstruction and repair works of the dwelling units of fisher communities and other local communities identified by the State Government, to be considered and granted permission by Competent Authorities on a priority basis, in accordance with the applicable Town and Country Planning Regulations

Notes

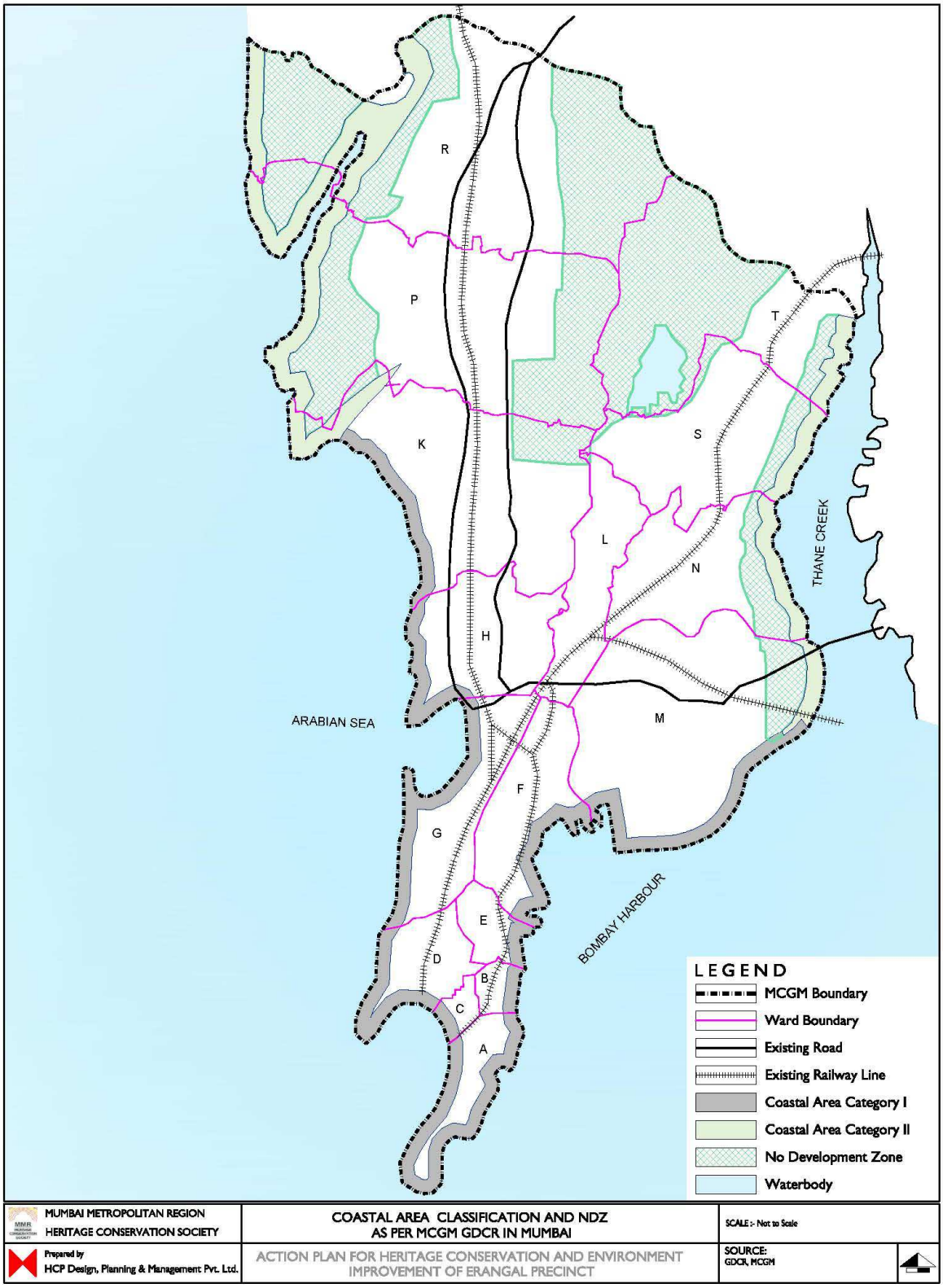
* Regulation of activities in the CRZ area with the Municipal Limits (MCGM) find a special mention owing to specific concerns – degradation of mangroves, pollution of creeks & coastal waters, need to provide housing to poor etc.

** There are several other precondition measures listed in addition to these, which are not mentioned are as they can be referred in the notification.

*** This should be CRZ II, seems to be a print error in the original notification.

All cells highlighted are provisions relevant in case of Erangal.

Annex 6
Coastal Areas of Mumbai, 1991 Mumbai DP



Annex 7: Detailed Area Statement, Planning Area

Sr. No.	OP No	Ownership	OP Area (sq m)	OP Area from PC (sq m)	Proposed FP Area based on 25 % Deductioin from OP Area (sq m)	FP No	Alloted FP Area (sq m)	Remarks
A	B	C	D	E	F = D * 0.75	G	H	I
1	732/6	Private (Tata)	1208	839	906	1	1099	Part area of FP 6 and 8 allocated.
2	732/7	Private (Tata)	553	420	415	2	415	
3	732/8	Private (Tata)	933	1344	700	3	978	Part area of FP 6 and 8 allocated.
4	732/3	Private	997	840	748	4	952	
5	732/1	Private (Gabrial India Ltd.)	1112	1095	834	5	835	
6	732/2	Private (Tata)	497	518	373	6	372	Area given in FP 1, 2 and 3
7	732/4	Private	832	843	624	7	624	
8	732/5	Private (Tata)	430	354	322	8	322	Area given in FP 1, 2 and 3
9	730	Government (MP)	355	254	266	9	266	
10	432	Private	863	864	647	10	392	OP No 432 subdivided into two FPs 10 and 67. Refer FP 67 below
11	744	Private	303	302	227	11	228	
12	725	Private	122	131	92	*12	182	Combined - OP = 743+743/1+UK29+725
13	UK29	Private (Unknown)	36		27	*12		Combined - OP = 743+743/1+UK29+725
14	743/1	Private	12	13	9	*12		Combined - OP = 743+743/1+UK29+725
15	743	Private	71	48	54	*12		Combined - OP = 743+743/1+UK29+725
16	726	Private	81	83	60	*13	154	Combined - OP = 727+726
17	727	Private	125	133	94	*13		Combined - OP = 727+726
18	728	Private	126	133	95	*14	177	Combined - OP = 723+728
19	723	Private	109	106	82	*14		Combined - OP = 723+728
20	722	Private	366	289	275	15	275	
21	720	Private	221	215	166	16	165	
22	719	Private	242	176	182	17	182	
23	718	Private	276	273	207	18	207	
24	UK1	Private (Unknown)	20		15	*19	104	Combined - OP = 717+UK1
25	717	Private	120	142	90	*19		Combined - OP = 717+UK1
26	716	Private	213	208	160	20	160	
27	715	Private	151	149	113	21	113	
28	712	Private	207	201	155	22	156	
29	714	Private	145	140	109	23	109	
30	724	Private	405	430	303	24	304	
31	762	Private	184	183	138	25	138	
32	753	Private	193	158	145	26	145	
33	429	Private	21	22	15	*27	119	Combined - OP = 752+431+429
34	752	Private	106	78	80	*27		Combined - OP = 752+431+429
35	431	Private	31	25	23	*27		Combined - OP = 752+431+429
36	749	Private	266	280	199	28	199	
37	721	Private	365	288	274	29	278	Less deduction to adjust block area
38	UK5	Private (Unknown)	79		59	*30	110	Combined - OP = UK2+UK5
39	UK2	Private (Unknown)	69		52	*30		Combined - OP = UK2+UK5
40	442	Private	214	185	160	31	160	
						32	393	Refer OP No 759 below. It is subdivided into two FPs 46 and 32
41	767	Private	169	170	127	33	126	
42	763	Private	331	328	248	34	249	

Sr. No.	OP No	Ownership	OP Area (sq m)	OP Area from PC (sq m)	Proposed FP Area based on 25 % Deductioin from OP Area (sq m)	FP No	Alloted FP Area (sq m)	Remarks
A	B	C	D	E	F = D * 0.75	G	H	I
43	764	Private	166	171	125	35	124	
44	760	Private	22	20	16	*36	104	Combined - OP = 750+760
45	750	Private	118	104	88	*36		Combined - OP = 750+760
46	711	Private	258	264	193	37	193	
47	710	Private	196	185	147	38	147	
48	709	Private	220	204	165	39	165	
49	761	Private	220	227	165	*40	527	Combined due to structure - OP = 768+761
50	768	Private	483	568	363	*40		Combined due to structure - OP = 768+761
51	713	Private	193	175	144	41	148	
52	751	Private	70	63	53	*42	149	Combined - OP = 754+751
53	754	Private	129	161	97	*42		Combined - OP = 754+751
54	755	Private	201	117	151	43	151	
55	756	Private	410	335	307	44	308	
56	748	Private	281	363	211	45	211	
57	759	Private	684	644	513	46	121	OP No 759 subdivided into two FPs 46 and 32. Also refer FP 32.
58	1304	Government (MP)	169	147	126	47	127	
59	430	Private	265	275	199	48	199	
60	434	Private	673	668	505	49	505	
61	428	Private	429	280	322	50	323	
62	424	Private	773	761	580	51	580	
63	UK34	Private (Unknown)	16		12	*52	127	Combined - OP = 423+425+UK34
64	425	Private	34	35	26	*52		Combined - OP = 423+425+UK34
65	423	Private	119	112	89	*52		Combined - OP = 423+425+UK34
66	416	Private	274	269	206	53	206	
67	UK8	Private (Unknown)	61		46	*54	142	Combined - OP = 414+UK7+UK8
68	UK7	Private (Unknown)	39		29	*54		Combined - OP = 414+UK7+UK8
69	414	Private	90	851	68	*54		Combined - OP = 414+UK7+UK8
70	407	Private	298	233	224	55	224	
71	405	Private	184	189	138	56	138	
72	409	Private	309	294	232	*57	2188	Combined due to structure - OP = 399+400+401+402+403+404+409
73	404	Private	865	851	649	*57		Combined due to structure - OP = 399+400+401+402+403+404+409
74	402	Private	649	646	487	*57		Combined due to structure - OP = 399+400+401+402+403+404+409
75	403	Private	264	254	198	*57		Combined due to structure - OP = 399+400+401+402+403+404+409
76	399	Private	227	220	170	*57		Combined due to structure - OP = 399+400+401+402+403+404+409
77	400	Private	258	253	193	*57		Combined due to structure - OP = 399+400+401+402+403+404+409
78	401	Private	339	320	254	*57		Combined due to structure - OP = 399+400+401+402+403+404+409
79	420	Private	124	156	93	*58	246	Combined - OP = UK6+417+420
80	UK6	Private (Unknown)	96		72	*58		Combined - OP = UK6+417+420
81	417	Private	107	103	80	*58		Combined - OP = UK6+417+420
82	411	Private	224	208	168	59	168	
83	445	Private	211	204	158	60	158	
84	408	Private	286	264	214	61	215	
85	440	Private	171	166	129	62	129	
86	435	Private	148		111	63	111	
87	433	Private	148	148	111	64	110	

Sr. No.	OP No	Ownership	OP Area (sq m)	OP Area from PC (sq m)	Proposed FP Area based on 25 % Deductioin from OP Area (sq m)	FP No	Alloted FP Area (sq m)	Remarks
A	B	C	D	E	F = D * 0.75	G	H	I
88	UK3	Private (Unknown)	46		34	*65	103	Combined - OP = 426+439+UK3
89	426	Private	83	84	62	*65		Combined - OP = 426+439+UK3
90	439	Private	8	7	6	*65		Combined - OP = 426+439+UK3
91	427	Private	293	289	220	66	220	
						67	257	OP No 432 subdivided into two FPs 10 and 67. Refer FP 10 above
92	707	Private	408	392	306	68	306	
93	438	Private	150	138	113	69	112	
94	437	Private	143	144	107	70	107	
95	448	Private	95	91	71	*71	208	Combined - OP = 447+UK4+419+448
96	419	Private	20	19	15	*71		Combined - OP = 447+UK4+419+448
97	UK4	Private (Unknown)	63		47	*71		Combined - OP = 447+UK4+419+448
98	447	Private	99	94	74	*71		Combined - OP = 447+UK4+419+448
99	412	Private	174	187	131	72	130	
100	410	Private	390	341	292	73	293	
101	UK124	Private (Unknown)	504		378	74	378	
102	444	Private	187	180	140	75	141	
103	413	Private	201	170	151	76	151	
104	397	Private	182	87	136	77	137	
105	UK9	Private (Unknown)	160		120	78	121	
106	449	Private	214	204	161	*79	309	Combined due to structure - OP = 449+451
107	451	Private	198	186	148	*79		Combined due to structure - OP = 449+451
108	452	Private	147	140	110	80	110	
109	458	Private	129	95	97	*81	185	Combined - OP = 398+458
110	398	Private	117	185	88	*81		Combined - OP = 398+458
111	443	Private	324	314	243	82	244	
112	708	Private	447	447	335	83	336	
113	470	Private	211	204	159	84	161	Less deduction to adjust block area
114	468	Private	500	497	375	85	379	
115	697	Private	88	100	66	*86	157	Combined - OP = 696+697
116	696	Private	121	171	91	*86		Combined - OP = 696+697
117	704	Private	480	476	360	*87	400	Combined - OP = 702+704
118	702	Private	52	71	39	*87		Combined - OP = 702+704
119	471	Private	136	111	102	88	101	
120	454	Private	51	51	38	*89	103	Combined - OP = 455+454
121	455	Private	86	86	65	*89		Combined - OP = 455+454
122	472	Private	384	366	288	90	289	
123	698	Private	27	25	21	*91	232	Combined - OP = 700+699+698
124	700	Private	201	226	151	*91		Combined - OP = 700+699+698
125	699	Private	80	89	60	*91		Combined - OP = 700+699+698
126	701	Private	368	383	276	92	279	Less deduction
127	706	Private	189	189	142	*93	231	Combined due to structure - OP = 705+706
128	705	Private	107	116	80	*93		Combined due to structure - OP = 705+706
129	453	Private	56	55	42	*94	356	Combined - OP = 450+453
130	450	Private	417	442	312	*94		Combined - OP = 450+453
131	459	Private	305	253	229	95	229	
132	461	Private	251	337	188	96	189	

Sr. No.	OP No	Ownership	OP Area (sq m)	OP Area from PC (sq m)	Proposed FP Area based on 25 % Deductioin from OP Area (sq m)	FP No	Alloted FP Area (sq m)	Remarks
A	B	C	D	E	F = D * 0.75	G	H	I
133	395	Private	211	139	159	97	159	
134	392	Private	673	689	505	98	505	
135	393	Private	320	303	240	99	322	Less deduction to adjust block area
136	394	Private	189	103	142	100	141	
137	475	Private	336	317	252	101	267	Less deduction to adjust block area
138	465	Private	250	230	188	*102	280	Combined OP = 464+465 Less deduction to adjust block area
139	464	Private	107	106	80	*102		Combined - OP = 464+465
140	457	Private	154	155	115	*103	192	Combined - OP = 456+457
141	456	Private	99	95	74	*103		Combined - OP = 456+457
142	466	Private	213	183	160	104	161	
143	467	Private	241	316	181	105	182	
144	UK10	Private (Unknown)	121		91	*106	167	Combined - OP = 460+UK10
145	460	Private	101	93	75	*106		Combined - OP = 460+UK10
146	UK11	Private (Unknown)	69		51	*107	164	Combined - OP = 462+UK11
147	462	Private	151	144	113	*107		Combined - OP = 462+UK11
148	477	Private	203	179	152	108	155	Less deduction to adjust block area
149	389	Private	447	439	335	109	335	
150	384	Private	791	767	594	*110	674	Combined - OP = UK15+UK16+384 Less deduction to adjust block area
151	UK16	Private (Unknown)	44		33	*110		Combined - OP = UK15+UK16+384
152	UK15	Private (Unknown)	63		47	*110		Combined - OP = UK15+UK16+384
153	387	Private	230	227	173	111	173	
154	388	Private	300	299	225	112	225	
155	481	Private	360	295	270	113	269	
156	480	Private	300	302	225	114	224	
157	478	Private	178	204	133	115	136	
158	390	Government (GOM)	348	335	261	116	261	
159	487	Private	386	298	290	117	289	
160	490	Private	99	112	74	*118	176	Combined - OP = 489+490
161	489	Private	130	122	98	*118		Combined - OP = 489+490
162	UK12	Private (Unknown)	73		55	*119	168	Combined - OP = 488+UK12
163	488	Private	141	140	106	*119		Combined - OP = 488+UK12
164	474	Private	432	429	324	120	324	
165	482	Private	161	140	121	*121	210	Combined - OP = 473+482
166	473	Private	119	126	89	*121		Combined - OP = 473+482
167	484	Private	279	124	209	122	210	
168	483	Private	198	185	148	123	150	
169	486	Private	113	122	85	*124	279	Combined - OP = 485+486 Less deduction to adjust block area
170	485	Private	250	186	187	*124		Combined - OP = 485+486
171	677	Private	219	217	164	125	164	
172	UK35	Private (Unknown)	26		19	*126	184	Combined - OP = 678+UK35
173	678	Private	212	238	159	*126		Combined - OP = 678+UK35
174	679	Private	214	215	161	127	160	
175	680	Private	257	252	193	128	192	

Sr. No.	OP No	Ownership	OP Area (sq m)	OP Area from PC (sq m)	Proposed FP Area based on 25 % Deductioin from OP Area (sq m)	FP No	Alloted FP Area (sq m)	Remarks
A	B	C	D	E	F = D * 0.75	G	H	I
176	682	Private	123	118	92	*129	172	Combined - OP = 681+682
177	681	Private	106	103	80	*129		Combined - OP = 681+682
178	683	Private	222	219	166	130	167	
179	684	Private	328	293	246	131	246	
180	1294	Private	181	374	136	132	136	
181	1298	Private	241	1326	181	133	181	
182	1300	Private	93	226	70	*134	100	Combined - OP = 1302+1300
183	1302	Private	40	70	30	*134		Combined - OP = 1302+1300
184	1293	Private	298	304	224	135	224	
185	1303	Government (GOM)	285	282	213	136	213	
186	770	Private	382	354	287	137	287	
187	771	Private	365	362	274	138	278	Less deduction to adjust block area
188	772	Private	520	486	390	139	389	
189	773	Private	368	230	276	140	275	
190	689	Private	108	102	81	*141	268	Combined - OP = 690+689 Less deduction to adjust block area
191	690	Private	112	110	84	*141		Combined - OP = 690+689 Less deduction to adjust block area
192	469	Private	231	215	173	142	173	
193	769	Private	146	347	110	143	110	
194	695	Private	211	195	159	144	168	
195	703	Private	314	305	236	145	237	Less deduction to adjust block area
196	694	Private	337	319	253	146	280	Less deduction to adjust block area
197	692	Private	221	779	166	147	167	
198	693	Private	207	173	155	148	155	
199	691	Private	213	269	160	149	157	
200	685	Private	180	152	135	150	152	Less deduction to adjust block area
201	686	Private	160	155	120	151	138	Less deduction to adjust block area
202	781	Private	353	347	264	152	282	Less deduction to adjust block area
203	782	Private	389	378	292	153	310	Less deduction to adjust block area
204	783	Private	174	173	130	154	148	Less deduction to adjust block area
205	839	Private	252	240	189	155	189	
206	812	Private	236	235	177	156	177	
207	780	Private	227	229	170	157	170	
208	779	Private	211	203	158	158	158	
209	778	Private	200	188	150	159	150	
210	777	Private	160	154	120	160	120	
211	687	Private	156	167	117	161	117	
212	776	Private	219	213	165	162	164	
213	814	Private	233	233	175	163	175	
214	774	Private	321	164	241	164	241	
215	813	Private	310	287	232	165	232	
216	816	Private	313	296	235	166	235	
217	815	Private	262	257	196	167	196	
218	775	Private	172	116	129	168	129	
219	819	Private	255	263	191	169	191	

Sr. No.	OP No	Ownership	OP Area (sq m)	OP Area from PC (sq m)	Proposed FP Area based on 25 % Deductioin from OP Area (sq m)	FP No	Alloted FP Area (sq m)	Remarks
A	B	C	D	E	F = D * 0.75	G	H	I
220	820	Private	229	220	171	170	171	
221	UK14	Private (Unknown)	48		36	*171	444	Combined - OP = 688+817+821+823+825+842+1276+UK31+UK13+UK14
222	688	Private	130	115	97	*171		Combined - OP = 688+817+821+823+825+842+1276+UK31+UK13+UK14
223	1275	Private (Unknown)	17		13	*171		Combined - OP = 688+817+821+823+825+842+1276+UK31+1275+UK14
224	1276	Private	38	17	28	*171		Combined - OP = 688+817+821+823+825+842+1276+UK31+UK13+UK14
225	817	Private	85	85	63	*171		Combined - OP = 688+817+821+823+825+842+1276+UK31+UK13+UK14
226	823	Private	99	94	74	*171		Combined - OP = 688+817+821+823+825+842+1276+UK31+UK13+UK14
227	842	Private	52	1559	39	*171		Combined - OP = 688+817+821+823+825+842+1276+UK31+UK13+UK14
228	821	Private	15	16	11	*171		Combined - OP = 688+817+821+823+825+842+1276+UK31+UK13+UK14
229	825	Private	97	94	73	*171		Combined - OP = 688+817+821+823+825+842+1276+UK31+UK13+UK14
230	UK31	Private (Unknown)	13		10	*171		Combined - OP = 688+817+821+823+825+842+1276+UK31+UK13+UK14
231	822	Private	420	401	315	172	315	
232	841	Private	180	247	135	173	135	
233	826	Private	299	284	225	174	225	
234	827	Private	150	155	112	175	112	
235	828	Private	324	313	243	176	243	
236	829	Private	186	192	140	177	140	
237	811	Private	351	336	263	178	263	
238	784	Private	218	228	163	179	163	
239	789	Private	184	166	138	180	138	
240	676	Private	964	836	723	181	723	
241	788	Private	221	298	166	182	166	Less deduction to adjust block area
242	500	Private	157	152	118	183	118	
243	UK23	Private (Unknown)	38		28	*184	416	Combined - OP = 495+496+499+673+UK17+UK23
244	499	Private	130	137	97	*184		Combined - OP = 495+496+499+673+UK17+UK23
245	495	Private	100	61	75	*184		Combined - OP = 495+496+499+673+UK17+UK23
246	496	Private	119	116	89	*184		Combined - OP = 495+496+499+673+UK17+UK23
247	UK17	Private (Unknown)	66		50	*184		Combined - OP = 495+496+499+673+UK17+UK23
248	673	Private	101	88	76	*184		Combined - OP = 495+496+499+673+UK17+UK23
249	494	Private	181	192	136	185	136	
250	493	Private	189	144	142	186	142	
251	381	Private	162	152	122	187	123	
252	378	Private	136	141	102	188	102	
253	491	Private	112	103	84	*189	137	Combined - OP = 380+491
254	380	Private	72	73	54	*189		Combined - OP = 380+491
255	492	Private	132	134	99	*190	468	Combined - OP = 370+377+379+383+492
256	370	Private	131	124	98	*190		Combined - OP = 370+377+379+383+492
257	383	Private	125	129	94	*190		Combined - OP = 370+377+379+383+492

Sr. No.	OP No	Ownership	OP Area (sq m)	OP Area from PC (sq m)	Proposed FP Area based on 25 % Deductioin from OP Area (sq m)	FP No	Alloted FP Area (sq m)	Remarks
A	B	C	D	E	F = D * 0.75	G	H	I
258	377	Private	108	99	81	*190		Combined - OP = 370+377+379+383+492
259	379	Private	127	123	95	*190		Combined - OP = 370+377+379+383+492
260	497	Private	245	243	184	191	184	
261	498	Private	150	155	112	192	112	
262	501	Private	141	134	105	193	105	
263	375	Private	542	532	406	194	187	OP No 375 subdivided into two FPs 194 and 200. Refer FP 200 below
264	374	Private	140	129	105	195	117	Less deduction to adjust block area
265	502	Private	185	190	139	196	184	Less deduction to adjust block area
266	367	Private	183	183	137	197	137	
267	376	Private	314	304	236	198	236	
268	503	Private	187	202	140	199	140	
						200	227	OP No 375 subdivided into two FPs 194 and 200. Refer FP 194 above
269	675	Private	205	202	154	201	154	
270	674	Private	203	201	153	202	153	
271	504	Private	283	280	212	203	212	
272	372	Private	259	249	194	204	194	
273	371	Private	303	296	227	205	227	
274	654	Private	367	359	275	206	275	
275	655	Private	198	175	148	207	148	
276	659	Private	166	159	124	208	124	
277	656	Private	244	228	183	209	184	
278	672	Private	182	169	136	210	136	
279	653	Private	486	477	365	211	365	
280	651	Private	208	195	156	212	156	
281	650	Private	575	576	431	213	431	
282	649	Private	344	341	258	214	259	
283	647	Private	454	443	340	215	340	
284	648	Private	196	189	147	216	147	
285	665	Private	263	260	197	217	197	
286	669	Private	242	236	182	218	198	Less deduction to adjust block area
287	668	Private	168	189	126	219	142	Less deduction to adjust block area
288	663	Private	198	205	148	220	164	
289	658	Private	350	364	262	221	276	Less deduction to adjust block area
290	657	Private	269	247	202	222	202	
291	886	Government (GOM)	5348	5053	5348	722	5337	It is an existing talav and is retained. Therefore the OP area after reduction in road is retained and no FP is allotted.
292	671	Private	445	433	334	223	334	
293	670	Private	388	393	291	224	291	
294	797	Private	284	291	213	225	213	
295	660	Private	154	148	115	226	115	
296	661	Private	247	243	185	227	186	
297	662	Private	275	369	206	228	206	
298	664	Private	430	431	322	229	322	
299	801	Private	301	308	226	230	226	
300	803	Private	213	202	160	231	160	
301	800	Private	408	390	306	232	306	

Sr. No.	OP No	Ownership	OP Area (sq m)	OP Area from PC (sq m)	Proposed FP Area based on 25 % Deductioin from OP Area (sq m)	FP No	Alloted FP Area (sq m)	Remarks
A	B	C	D	E	F = D * 0.75	G	H	I
302	666	Private	190	213	143	233	143	
303	667	Private	191	189	143	234	143	
304	790	Private	194	188	145	235	145	
305	791	Private	375	375	281	236	281	
306	796	Private	189	174	142	237	142	
307	798	Private	408	401	306	238	306	
308	799	Private	335	328	251	239	251	
309	808	Private	363	363	272	240	272	
310	807	Private	225	234	169	241	169	
311	809	Private	239	204	179	242	196	Less deduction to adjust block area
312	795	Private	263	256	197	243	217	Less deduction to adjust block area
313	794	Private	317	311	238	244	237	
314	792	Private	180	334	135	245	135	
315	787	Private	195	191	146	246	146	
316	793	Private	320	306	240	247	240	
317	786	Private	134	130	101	248	101	
318	810	Private	346	339	259	249	259	
319	2249	Private	172	147	129	250	129	
320	830	Private	202	201	152	251	152	
321	831	Private	142	140	106	252	106	
322	2250	Private	202	176	151	253	151	
323	834	Private	331	324	249	254	248	
324	835	Private	146	144	110	255	110	
325	832	Private	147	143	110	256	110	
326	833	Private	305	260	228	257	228	
327	UK18	Private (Unknown)	106		79	*258	243	Combined - OP = 805+882+UK18
328	805	Private	92	91	69	*258		Combined - OP = 805+882+UK18
329	882	Private	126	290	95	*258		Combined - OP = 805+882+UK18
330	802	Private	231	235	173	259	173	
331	804	Private	257	251	192	260	192	
332	881	Private	274	281.40	206	261	206	
333	883	Private	551	531	413	262	413	
334	836	Private	243	238	183	263	183	
335	844	Private	38	42	29	*264	127	Combined - OP = 837+838+844
336	837	Private	59	58	45	*264		Combined - OP = 837+838+844
337	838	Private	71	69	53	*264		Combined - OP = 837+838+844
338	876	Private	134	123	101	265	101	
339	877	Private	136	138	102	266	102	
340	824	Private	81	84	61	*267	165	Combined - OP = 840+843+824
341	840	Private	26	24	19	*267		Combined - OP = 840+843+824
342	843	Private	110	107	83	*267		Combined - OP = 840+843+824
343	845	Private	691	714	519	268	519	
344	846	Private	140	93	105	269	105	
345	880	Private	130	130	98	*270	424	Combined - OP = 847+858+875+878+879+880
346	875	Private	118	115	88	*270		Combined - OP = 847+858+875+878+879+880
347	847	Private	18	18	13	*270		Combined - OP = 847+858+875+878+879+880

Sr. No.	OP No	Ownership	OP Area (sq m)	OP Area from PC (sq m)	Proposed FP Area based on 25 % Deductioin from OP Area (sq m)	FP No	Alloted FP Area (sq m)	Remarks
A	B	C	D	E	F = D * 0.75	G	H	I
348	878	Private	70	71	52	*270		Combined - OP = 847+858+875+878+879+880
349	879	Private	106	89	79	*270		Combined - OP = 847+858+875+878+879+880
350	858	Private	125	124	93	*270		Combined - OP = 847+858+875+878+879+880
351	885	Private	439	416	329	271	329	
352	884	Private	269	277	202	272	202	
353	874	Private	144	132	108	273	108	
354	871	Private	179	175	134	274	134	
355	872	Private	157	92	118	275	118	
356	873	Private	134	96	101	276	101	
357	860	Private	241	216	181	277	181	
358	848	Private	591	579	443	278	443	
359	859	Private	147	101	110	279	110	
360	UK30	Private (Unknown)	19		15	*280/1	470	Combined - OP = 849+850+852+853+1229+856+862+870+2251+UK30
361	870	Private	131	127	98	*280/1		Combined - OP = 849+850+852+853+1229+856+862+870+2251+UK30
362	862	Private	118	115	89	*280/1		Combined - OP = 849+850+852+853+1229+856+862+870+2251+UK30
363	2251	Private	108	108	81	*280/1		Combined - OP = 849+850+852+853+1229+856+862+870+2251+UK30
364	850	Private	63	48	47	*280/1		Combined - OP = 849+850+852+853+1229+856+862+870+2251+UK30
365	852	Private			0	*280/2	150	Plot taken from the precinct Combined - OP = 852+853+1229
366	853	Private			0	*280/2		Plot taken from the precinct Combined - OP = 852+853+1229
367	1229	Private			0	*280/2		Plot taken from the precinct Combined - OP = 852+853+1229
368	849	Private	121	116	91	*280		Combined - OP = 849+850+852+853+1229+856+862+870+2251+UK30
369	856	Private	65	72	49	*280		Combined - OP = 849+850+852+853+1229+856+862+870+2251+UK30
370	857	Private	158	134	119	281	119	
371	864	Private			0	282	178	Plot taken from the precinct
372	855	Private	399	484	299	283	299	
373	863	Private	225	216	169	284	169	
374	869	Private	235	237	176	285	176	
375	865	Private	204	220	153	286	153	
376	861	Private	135	131	101	287	102	
377	868	Private	227	167	170	288	170	
378	866	Private	369	366	277	289	277	
379	867	Private	259	257	194	290	194	
380	1226	Private	160	154	120	291	120	
381	1155	Private	401	390	300	292	300	
382	1154	Private	158	129	119	293	119	
383	1159	Private	120	56	90	*294	144	Combined - OP = 1156+1159
384	1156	Private	73	70	55	*294		Combined - OP = 1156+1159
385	1158	Private	156	147	117	295	117	
386	1162	Private	381	358	286	296	286	
387	1163	Private	147	141	110	297	110	
388	1174	Private	154	154	116	298	116	
389	1164	Private	220	207	165	299	165	
390	1169	Private	151	236	113	300	125	Less deduction to adjust block area

Sr. No.	OP No	Ownership	OP Area (sq m)	OP Area from PC (sq m)	Proposed FP Area based on 25 % Deductioin from OP Area (sq m)	FP No	Alloted FP Area (sq m)	Remarks
A	B	C	D	E	F = D * 0.75	G	H	I
						301	246	OP No 1167 subdivided into two FPs 306 and 301. Refer FP 306 below
391	1161	Private	212	314	159	302	159	
392	1165	Private	182	176	137	303	137	
393	UK28	Private (Unknown)	60		45	*304	498	Combined - OP = 1160+1166+1168+UK36+UK26+UK27+1172+UK28
394	1160	Private	61	61	45	*304		Combined - OP = 1160+1166+1168+UK36+UK26+UK27+1172+UK28
395	1166	Private	116	109	87	*304		Combined - OP = 1160+1166+1168+UK36+UK26+UK27+1172+UK28
396	UK36	Private (Unknown)	58		44	*304		Combined - OP = 1160+1166+1168+UK36+UK26+UK27+1172+UK28
397	1168	Private	115	232	86	*304		Combined - OP = 1160+1166+1168+UK36+UK26+UK27+1172+UK28
398	1172	Private	75	59	57	*304		Combined - OP = 1160+1166+1168+UK36+UK26+UK27+1172+UK28
399	UK26	Private (Unknown)	95		71	*304		Combined - OP = 1160+1166+1168+UK36+UK26+UK27+1172+UK28
400	UK27	Private (Unknown)	84		63	*304		Combined - OP = 1160+1166+1168+UK36+UK26+UK27+1172+UK28
401	1218	Private	580	551	435	305	435	
402	1167	Private	1081	1081	810	306	640	OP No 1167 subdivided into two FPs 306 and 301. Refer FP 301 above
403	1197	Private	996	975	747	307	747	
404	1198	Private	1364	1330	1023	308	507	OP No 1198 subdivided into two FPs 308 and 313. Refer FP 313 below
405	1200	Private	918	910	689	309	689	
406	1176	Private	109		82	*310	696	Combined - OP = UK19+UK20+UK21+UK22+UK32+UK33+UK57+UK58+UK59+UK60+UK62+1176
407	UK19	Private (Unknown)	120		90	*310		Combined - OP = UK19+UK20+UK21+UK22+UK32+UK33+UK57+UK58+UK59+UK60+UK62+1176
408	UK20	Private (Unknown)	80		60	*310		Combined - OP = UK19+UK20+UK21+UK22+UK32+UK33+UK57+UK58+UK59+UK60+UK62+1176
409	UK21	Private (Unknown)	84		63	*310		Combined - OP = UK19+UK20+UK21+UK22+UK32+UK33+UK57+UK58+UK59+UK60+UK62+1176
410	UK22	Private (Unknown)	84		63	*310		Combined - OP = UK19+UK20+UK21+UK22+UK32+UK33+UK57+UK58+UK59+UK60+UK62+1176
411	UK 32	Private (Unknown)	59		44	*310		Combined - OP = UK19+UK20+UK21+UK22+UK32+UK33+UK57+UK58+UK59+UK60+UK62+1176
412	UK 33	Private (Unknown)	32		24	*310		Combined - OP = UK19+UK20+UK21+UK22+UK32+UK33+UK57+UK58+UK59+UK60+UK62+1176
413	UK57	Private (Unknown)	103		77	*310		Combined - OP = UK19+UK20+UK21+UK22+UK32+UK33+UK57+UK58+UK59+UK60+UK62+1176
414	UK58	Private (Unknown)	53		39	*310		Combined - OP = UK19+UK20+UK21+UK22+UK32+UK33+UK57+UK58+UK59+UK60+UK62+1176
415	UK59	Private (Unknown)	106		79	*310		Combined - OP = UK19+UK20+UK21+UK22+UK32+UK33+UK57+UK58+UK59+UK60+UK62+1176

Sr. No.	OP No	Ownership	OP Area (sq m)	OP Area from PC (sq m)	Proposed FP Area based on 25 % Deductioin from OP Area (sq m)	FP No	Alloted FP Area (sq m)	Remarks
A	B	C	D	E	F = D * 0.75	G	H	I
416	UK60	Private (Unknown)	73		55	*310		Combined - OP = UK19+UK20+UK21+UK22+UK32+UK33+UK57+UK58+UK59+UK60+UK62+1176
417	UK62	Private (Unknown)	27		20	*310		Combined - OP = UK19+UK20+UK21+UK22+UK32+UK33+UK57+UK58+UK59+UK60+UK62+1176
418	1201	Private	837	808	627	311	658	Less deduction to adjust block area
419	1199	Private	306	271	229	312	290	Less deduction to adjust block area
						313	608	OP No 1198 subdivided into two FPs 308 and 313. Refer FP 308 above
420	1195	Private	168	165	126	314	128	
421	1196	Private	170	165	128	315	128	
422	1194	Private	188	180	141	316	141	
423	1192	Private	182	168	136	317	136	
424	1175	Private	151	287	113	318	113	
425	1177	Private	142	152	106	319	142	Less deduction to adjust block area
426	1144	Private	342	320	257	320	298	Less deduction to adjust block area
427	1148	Private	308	290	231	321	272	Less deduction to adjust block area
428	1178	Private	375	368	281	322	281	
429	1180	Private	410	402	308	323	308	
430	1181	Private	375	340	282	324	282	
431	1193	Private	287	304	215	325	215	
432	1189	Private	234	208	175	326	190	Less deduction to adjust block area
433	1205	Private	310	302	232	327	232	
434	1187	Private	401	408	301	328	302	
435	1191	Private	554	549	416	329	416	
436	1185	Private	335	352	251	330	251	
437	1186	Private	188	193	141	331	141	
438	1122	Private	238	185	179	332	179	
439	1183	Private	172	191	129	333	129	
440	1146	Private	234	283	176	334	176	
441	1147	Private	249	230	187	335	190	
442	1151	Private	6693	6609	5020	336	4302	OP No 1151 subdivided into two FPs 336 and 430. Refer FP 430 below
443	1184	Private	732	695	549	337	549	
444	1124	Private	655	617	492	338	491	
445	1125	Private	368	328	276	339	276	
446	1126	Private	459	431	344	340	344	
447	1127	Private	251		188	341	188	
448	UK61	Private (Unknown)	168		126	342	126	
449	1128	Private	148		111	343	111	
450	UK56	Private (Unknown)	144		108	344	108	
451	1179	Private	265	255	199	345	198	
452	1142	Private	707	688	531	346	530	
453	1182	Private	763	735	573	347	573	
454	1145	Private	713	716	535	348	535	
455	1136	Private	1791		1343	349	1343	
456	1141	Private	1287	1284	965	350	965	

Sr. No.	OP No	Ownership	OP Area (sq m)	OP Area from PC (sq m)	Proposed FP Area based on 25 % Deductioin from OP Area (sq m)	FP No	Alloted FP Area (sq m)	Remarks
A	B	C	D	E	F = D * 0.75	G	H	I
457	1140	Private	1231		923	351	923	
458	952	Private	117		88	*352	164	Combined - OP = UK65+UK63+952
459	UK63	Private (Unknown)	10		7	*352		Combined - OP = UK65+UK63+952
460	UK65	Private (Unknown)	91		68	*352		Combined - OP = UK65+UK63+952
461	954	Private	328		246	353	246	
462	951	Private	158		119	354	119	
463	939	Private	601		450	355	450	
464	950	Private	429		322	356	322	
465	1143	Private	620	596	465	357	465	
466	1137	Private	762		571	358	571	
467	UK69	Private (Unknown)	74		55	*359	207	Combined - OP = UK55+UK64+UK67+UK68+UK69
468	UK67	Private (Unknown)	25		19	*359		Combined - OP = UK55+UK64+UK67+UK68+UK69
469	UK64	Private (Unknown)	30		22	*359		Combined - OP = UK55+UK64+UK67+UK68+UK69
470	UK68	Private (Unknown)	56		42	*359		Combined - OP = UK55+UK64+UK67+UK68+UK69
471	UK55	Private (Unknown)	91		68	*359		Combined - OP = UK55+UK64+UK67+UK68+UK69
472	957	Private	223		167	360	168	
473	960	Private	571		429	*361	587	Combined - OP = 959+960
474	959	Private	210		158	*361		Combined - OP = 959+960
475	955	Private	2029		1522	362	1524	
476	938	Private	212		159	*363	542	Less deduction to adjust block area Combined - OP = 936+937+938
477	936	Private	228		171	*363		Less deduction to adjust block area Combined - OP = 936+937+938
478	937	Private	177		133	*363		Less deduction to adjust block area Combined - OP = 936+937+938
479	967	Private	178		134	364	135	
480	984	Private	205		153	365	153	
481	2256	Private	159		119	366	118	
482	962	Private	601		451	*367	1123	Combined - OP = UK66+965+966+963+979+962
483	979	Private	220		165	*367		Combined - OP = UK66+965+966+963+979+962
484	963	Private	165		124	*367		Combined - OP = UK66+965+966+963+979+962
485	UK66	Private (Unknown)	16		12	*367		Combined - OP = UK66+965+966+963+979+962
486	966	Private	273		205	*367		Combined - OP = UK66+965+966+963+979+962
487	965	Private	226		169	*367		Combined - OP = UK66+965+966+963+979+962
488	981	Private	192		144	368	146	
489	983	Private	153		115	369	120	
490	977	Private	304		228	370	228	
491	UK54	Private (Unknown)	84		63	*371	314	Combined - OP = UK43+946+UK51+UK52+UK53+UK54
492	UK43	Private (Unknown)	94		70	*371		Combined - OP = UK43+946+UK51+UK52+UK53+UK54
493	946	Private	121		91	*371		Combined - OP = UK43+946+UK51+UK52+UK53+UK54
494	UK51	Private (Unknown)	26		19	*371		Combined - OP = UK43+946+UK51+UK52+UK53+UK54
495	UK52	Private (Unknown)	13		10	*371		Combined - OP = UK43+946+UK51+UK52+UK53+UK54
496	UK53	Private (Unknown)	81		61	*371		Combined - OP = UK43+946+UK51+UK52+UK53+UK54
497	982	Private	636		477	372	477	
498	986	Private	446		335	373	336	
499	996	Private	227		170	374	171	

Sr. No.	OP No	Ownership	OP Area (sq m)	OP Area from PC (sq m)	Proposed FP Area based on 25 % Deductioin from OP Area (sq m)	FP No	Alloted FP Area (sq m)	Remarks
A	B	C	D	E	F = D * 0.75	G	H	I
500	1000	Private	459		344	375	344	
501	1003	Private	316		237	376	238	
502	993	Private	325		243	377	243	
503	925	Private	121		91	*378	429	Combined - OP = UK47+UK48+UK49+UK77+928+973+925
504	UK49	Private (Unknown)	18		14	*378		Combined - OP = UK47+UK48+UK49+UK77+928+973+925
505	UK77	Private (Unknown)	68		51	*378		Combined - OP = UK47+UK48+UK49+UK77+928+973+925
506	973	Private	133		99	*378		Combined - OP = UK47+UK48+UK49+UK77+928+973+925
507	928	Private	129		97	*378		Combined - OP = UK47+UK48+UK49+UK77+928+973+925
508	UK47	Private (Unknown)	42		31	*378		Combined - OP = UK47+UK48+UK49+UK77+928+973+925
509	UK48	Private (Unknown)	62		46	*378		Combined - OP = UK47+UK48+UK49+UK77+928+973+925
510	998	Private	250		187	379	250	Less deduction to adjust block area
511	1001	Private	181		136	380	136	
512	987	Private	173		129	381	131	
513	1002	Private	156		117	382	117	
514	995	Private	166		125	383	125	
515	999	Private	154		115	384	115	
516	972	Private	135		101	385	101	
517	978	Private	195		147	386	171	Less deduction to adjust block area
518	976	Private	248		186	387	233	Less deduction to adjust block area
519	975	Private	108		81	*388	352	Combined - OP = 974+975
520	974	Private	363		272	*388		Combined - OP = 974+975
521	988	Private	140		105	389	106	
522	997	Private	209		157	390	143	
523	989	Private	155		117	391	116	
524	994	Private	152		114	392	115	
525	990	Private	180		135	*393	319	Less deduction to adjust block area Combined - OP = 990+991
526	991	Private	216		162	*393		Combined - OP = 990+991
527	926	Private	253		190	394	190	
528	630	Private	422		317	395	317	
529	924	Private	333		250	396	250	
530	927	Private	261		196	397	196	
531	921	Private	325		244	398	244	
532	899	Private	210		158	399	158	
533	918	Private	149		112	400	112	
534	919	Private	321		241	401	241	
535	941	Private	92		69	*402	327	Combined - OP = 929+UK50+UK44+UK45+940+941
536	940	Private	123		92	*402		Combined - OP = 929+UK50+UK44+UK45+940+941
537	UK50	Private (Unknown)	34		26	*402		Combined - OP = 929+UK50+UK44+UK45+940+941
538	929	Private	125		94	*402		Combined - OP = 929+UK50+UK44+UK45+940+941
539	UK44	Private (Unknown)	23		18	*402		Combined - OP = 929+UK50+UK44+UK45+940+941
540	UK45	Private (Unknown)	30		22	*402		Combined - OP = 929+UK50+UK44+UK45+940+941
541	971	Private	182		136	*403	481	Combined - OP = 969+970+971
542	970	Private	285		214	*403		Combined - OP = 969+970+971
543	969	Private	174		130	*403		Combined - OP = 969+970+971
544	935	Private	129		97	*404	237	Combined - OP = 934+935

Sr. No.	OP No	Ownership	OP Area (sq m)	OP Area from PC (sq m)	Proposed FP Area based on 25 % Deductioin from OP Area (sq m)	FP No	Alloted FP Area (sq m)	Remarks
A	B	C	D	E	F = D * 0.75	G	H	I
545	934	Private	187		140	*404		Combined - OP = 934+935
546	933	Private	225		169	405	169	
547	931	Private	205		154	406	154	
548	917	Private	196		147	407	147	
549	905	Private	138		103	408	103	
550	916	Private	169		127	409	126	
551	UK46	Private (Unknown)	48		36	*410	323	Less deduction to adjust block area Combined - OP = 904+902+UK46
552	902	Private	171		128	*410		Combined - OP = 904+902+UK46
553	904	Private	178		133	*410		Combined - OP = 904+902+UK46
554	907	Private	149		112	411	112	
555	906	Private	174		131	412	154	Less deduction to adjust block area
556	909	Private	1192		894	413	895	
557	898	Private	184		138	414	137	
558	915	Private	91		68	*415	166	Combined - OP = 914+915
559	914	Private	123		92	*415		Combined - OP = 914+915
560	913	Private	329		247	416	247	
561	910	Private	255		191	417	192	
562	943	Private	172		129	418	129	
563	912	Private	233		175	419	175	
564	2253	Private	135		101	420	101	
565	968	Private	203		152	421	152	
566	2255	Private	424		318	422	318	
567	2254	Private	559		419	423	419	
568	942	Private	1440		1080	424	1080	
569	1150	Private	3047	3460	2285	425	2285	
570	1149	Private	4496	4264	3372	426	3372	
571	895	Private	229	233	172	427	218	Less deduction to adjust block area
572	889	Private	441	430	331	428	333	
573	887	Private	375	408	281	429	281	
						430	718	OP No 1151 subdivided into two FPs 336 and 430. Refer FP 336 above
574	888	Private	347	323	260	431	260	
575	890	Private	536	540	402	432	401	
576	891	Private	975	988	731	433	731	
577	892	Private	1066	1022	799	434	799	
578	1152	Private	972	955	729	435	730	
579	894	Private	871	755	653	436	653	
580	644	Private	340	326	255	437	255	
581	643	Private	268	262	201	438	201	
582	645	Private	634	629	476	439	476	
583	UK25	Private (Unknown)	198		148	440	149	
584	517	Private	180		135	441	135	
585	520	Private	200		150	442	150	
586	UK42	Private (Unknown)	144		108	443	113	Less deduction to adjust block area
587	529	Private	234		176	444	177	
588	512	Private	238	144.6709	179	445	179	

Sr. No.	OP No	Ownership	OP Area (sq m)	OP Area from PC (sq m)	Proposed FP Area based on 25 % Deductioin from OP Area (sq m)	FP No	Alloted FP Area (sq m)	Remarks
A	B	C	D	E	F = D * 0.75	G	H	I
589	513	Private	141	142	106	446	117	Less deduction to adjust block area
590	531	Private	129		97	*447	442	Combined - OP = 509+510+UK41+522+531
591	509	Private	114		86	*447		Combined - OP = 509+510+UK41+522+531
592	510	Private	107		80	*447		Combined - OP = 509+510+UK41+522+531
593	522	Private	119		89	*447		Combined - OP = 509+510+UK41+522+531
594	UK41	Private (Unknown)	121		91	*447		Combined - OP = 509+510+UK41+522+531
595	646	Private	656	653	492	448	492	
596	515	Private	444	412	333	449	334	
597	641	Private	455	442	341	450	341	
598	567	Private	273		204	451	204	
599	563	Private	354		265	452	265	
600	534	Private	261		196	453	196	
601	537	Private	232		174	454	175	
602	516	Private	314	*301*	235	455	236	Less deduction to adjust block area
603	533	Private	317		238	456	237	
604	639	Private	295		221	457	222	
605	642	Private	425	403	319	458	319	
606	527	Private	733		550	459	550	
607	532	Private	573		430	460	431	
608	640	Private	211		159	461	159	
609	530	Private	147		110	462	110	
610	528	Private	177		133	463	133	
611	586	Private	240		180	464	181	Less deduction to adjust block area
612	896	Private	171	167	128	465	128	
613	635	Private	223		167	466	167	
614	636	Private	322		241	467	244	Less deduction to adjust block area
615	893	Private	925	1000	693	468	696	Less deduction to adjust block area
616	634	Private	329		247	469	265	
617	633	Private	374		281	470	292	Less deduction to adjust block area
618	UK85	Private (Unknown)	116		87	*471	153	Combined - OP = 637+UK85
619	637	Private	82		61	*471		Combined - OP = 637+UK85
620	571	Private	208		156	472	156	
621	555	Private	622		466	473	466	
622	572	Private	324		243	474	243	
623	573	Private	399		299	475	300	
624	632	Private	178		133	476	134	
625	631	Private	972		729	477	759	Less deduction to adjust block area
626	336	Private	260		195	478	194	
627	525	Private	241		181	479	180	
628	340	Private	327		245	480	244	
629	UK40	Private (Unknown)	228		171	481	170	
630	518	Private	289		217	482	216	
631	514	Private	284	283	213	483	213	
632	UK39	Private (Unknown)	346		259	484	259	
633	350	Private	488		366	485	367	
634	335	Private	243		182	486	183	

Sr. No.	OP No	Ownership	OP Area (sq m)	OP Area from PC (sq m)	Proposed FP Area based on 25 % Deductioin from OP Area (sq m)	FP No	Alloted FP Area (sq m)	Remarks
A	B	C	D	E	F = D * 0.75	G	H	I
635	526	Private	204		153	487	154	
636	341	Private	231		173	488	174	
637	331	Private	290		217	489	219	
638	363	Private	148	145	111	490	111	
639	652	Private	145		109	491	108	
640	2248	Private	139		104	492	104	
641	345	Private	140		105	493	105	
642	539	Private	173		130	494	130	
643	506	Private	189		142	495	142	
644	UK38	Private (Unknown)	175		131	496	131	
645	535	Private	156		117	497	117	
646	562	Private	155		116	498	117	
647	561	Private	144		108	499	108	
648	365	Private	195	182	146	500	184	Less deduction to adjust block area
649	366	Private	221	216	166	501	204	Less deduction to adjust block area
650	352	Private	1532	1430	1149	502	1154	
651	369	Private	198	200	149	503	148	
652	524	Private	224		168	504	168	
653	342	Private	226		170	505	170	
654	353	Private	724	691	543	506	545	
655	339	Private	117		87	*507	710	Combined - OP = 364+362+358+338+295+334+508+348+339
656	334	Private	109		82	*507		Combined - OP = 364+362+358+338+295+334+508+348+339
657	338	Private	124		93	*507		Combined - OP = 364+362+358+338+295+334+508+348+339
658	362	Private	113		85	*507		Combined - OP = 364+362+358+338+295+334+508+348+339
659	358	Private	96		72	*507		Combined - OP = 364+362+358+338+295+334+508+348+339
660	348	Private	105		79	*507		Combined - OP = 364+362+358+338+295+334+508+348+339
661	295	Private	69		51	*507		Combined - OP = 364+362+358+338+295+334+508+348+339
662	508	Private	125		94	*507		Combined - OP = 364+362+358+338+295+334+508+348+339
663	364	Private	93	85	70	*507		Combined - OP = 364+362+358+338+295+334+508+348+339
664	359	Private	276		207	508	207	
665	355	Private	272		204	509	205	
666	337	Private	343		258	510	257	
667	357	Private	345		259	511	259	
668	356	Private	360		270	512	268	
669	568	Private	138		103	*513	266	Less deduction to adjust block area
670	UK86	Private (Unknown)	105		79	*513		Less deduction to adjust block area
671	565	Private	193		145	514	146	
672	349	Private	618		463	515	467	
673	505	Private	419	405	314	516	315	
674	507	Private	259		194	517	194	
675	564	Private	171		128	518	129	
676	566	Private	165		124	519	124	
677	292	Private	468		351	520	351	
678	UK94	Private (Unknown)	39		30	*521	611	Combined - OP = UK94+UK93+540+538
679	UK93	Private (Unknown)	46		34	*521		Combined - OP = UK94+UK93+540+538
680	540	Private	264		198	*521		Combined - OP = UK94+UK93+540+538

Sr. No.	OP No	Ownership	OP Area (sq m)	OP Area from PC (sq m)	Proposed FP Area based on 25 % Deductioin from OP Area (sq m)	FP No	Alloted FP Area (sq m)	Remarks
A	B	C	D	E	F = D * 0.75	G	H	I
681	538	Private	466		349	*521		Combined - OP = UK94+UK93+540+538
682	UK100	Private (Unknown)	49		37	*522	505	Less deduction to adjust block area Combined - OP = UK100+559+556
683	559	Private	264		198	*522		Combined - OP = UK100+559+556
684	556	Private	324		243	*522		Combined - OP = UK100+559+556
685	391	Private	111	103	83	*523	526	Less deduction to adjust block area Combined - OP = UK96+UK97+UK98+UK91+UK92+UK95+UK84+UK87+ UK88+UK89+UK90+UK99+UK24+UK101+391
686	UK92	Private (Unknown)	19		15	*523		Combined - OP = UK96+UK97+UK98+UK91+UK92+UK95+UK84+UK87+UK88+UK89+UK90+UK99+UK24+UK101+391
687	UK24	Private (Unknown)	44		33	*523		Combined - OP = UK96+UK97+UK98+UK91+UK92+UK95+UK84+UK87+UK88+UK89+UK90+UK99+UK24+UK101+391
688	UK99	Private (Unknown)	9		7	*523		Combined - OP = UK96+UK97+UK98+UK91+UK92+UK95+UK84+UK87+UK88+UK89+UK90+UK99+UK24+UK101+391
689	UK98	Private (Unknown)	35		26	*523		Combined - OP = UK96+UK97+UK98+UK91+UK92+UK95+UK84+UK87+UK88+UK89+UK90+UK99+UK24+UK101+391
690	UK97	Private (Unknown)	75		56	*523		Combined - OP = UK96+UK97+UK98+UK91+UK92+UK95+UK84+UK87+UK88+UK89+UK90+UK99+UK24+UK101+391
691	UK96	Private (Unknown)	37		28	*523		Combined - OP = UK96+UK97+UK98+UK91+UK92+UK95+UK84+UK87+UK88+UK89+UK90+UK99+UK24+UK101+391
692	UK95	Private (Unknown)	51		39	*523		Combined - OP = UK96+UK97+UK98+UK91+UK92+UK95+UK84+UK87+UK88+UK89+UK90+UK99+UK24+UK101+391
693	UK87	Private (Unknown)	8		6	*523		Combined - OP = UK96+UK97+UK98+UK91+UK92+UK95+UK84+UK87+UK88+UK89+UK90+UK99+UK24+UK101+391
694	UK84	Private (Unknown)	71		53	*523		Combined - OP = UK96+UK97+UK98+UK91+UK92+UK95+UK84+UK87+UK88+UK89+UK90+UK99+UK24+UK101+391
695	UK90	Private (Unknown)	12		9	*523		Combined - OP = UK96+UK97+UK98+UK91+UK92+UK95+UK84+UK87+UK88+UK89+UK90+UK99+UK24+UK101+391
696	UK88	Private (Unknown)	16		12	*523		Combined - OP = UK96+UK97+UK98+UK91+UK92+UK95+UK84+UK87+UK88+UK89+UK90+UK99+UK24+UK101+391
697	UK89	Private (Unknown)	66		49	*523		Combined - OP = UK96+UK97+UK98+UK91+UK92+UK95+UK84+UK87+UK88+UK89+UK90+UK99+UK24+UK101+391

Sr. No.	OP No	Ownership	OP Area (sq m)	OP Area from PC (sq m)	Proposed FP Area based on 25 % Deductioin from OP Area (sq m)	FP No	Alloted FP Area (sq m)	Remarks
A	B	C	D	E	F = D * 0.75	G	H	I
698	UK91	Private (Unknown)	20		15	*523		Combined - OP = UK96+UK97+UK98+UK91+UK92+UK95+UK84+UK87+UK88+UK89+UK90+UK99+UK24+UK101+391
699	UK101	Private (Unknown)	60		45	*523		Less deduction to adjust block area Combined - OP = UK96+UK97+UK98+UK91+UK92+UK95+UK84+UK87+UK88+UK89+UK90+UK99+UK24+UK101+391
700	897	Government (GOM)	4545		3409	*524	3484	Combined - OP = 897+1139
701	293	Private	365		274	525	274	
702	309	Private	193		145	526	145	
703	321	Private	175		131	527	131	
704	302	Private	205		154	528	154	
705	766	Private	232		174	529	175	
706	281	Private	160		120	530	118	
707	UK106	Private (Unknown)	147		110	531	109	
708	581	Private	227		170	532	170	
709	UK37	Private (Unknown)	186		139	533	140	
710	536	Private	186		140	534	140	
711	1157	Private	152	158	114	535	114	
712	351	Private	1330	1305	997	536	998	
713	347	Private	794	921	596	537	595	
714	252	Private	452		339	538	338	
715	257	Private	442		332	539	333	
716	316	Private	108		81	*540	535	Less deduction to adjust block area Combined - OP = 316+UK109+UK123+301
717	UK109	Private (Unknown)	69		52	*540		Combined - OP = 316+UK109+UK123+301
718	UK123	Private (Unknown)	118		88	*540		Combined - OP = 316+UK109+UK123+301
719	301	Private	241		181	*540		Combined - OP = 316+UK109+UK123+301
720	303	Private	113		85	*541	2028	Less deduction to adjust block area Combined - OP = 31/3+32+303
						*541		Combined - OP = 31/3+32+303
721	32	Private	535		402	*541		Combined - OP = 31/3+32+303
722	254	Private	265		199	542	199	
723	255	Private	412		309	543	309	
724	299	Private	179		134	544	142	Less deduction to adjust block area
725	280	Private	170		127	545	135	Less deduction to adjust block area
726	250	Private	380		285	546	286	
727	298	Private	157		118	547	118	
728	327	Private	166		125	548	125	
729	313	Private	135		101	549	102	
730	300	Private	156		117	550	117	
731	329	Private	163		122	551	123	
732	256	Private	148		111	552	115	Less deduction to adjust block area
733	318	Private	147		110	553	111	
734	251	Private	144		108	554	108	
735	284	Private	146		110	555	110	
736	UK107	Private (Unknown)	30		22	*556	124	Combined - OP = UK105+UK110+UK107

Sr. No.	OP No	Ownership	OP Area (sq m)	OP Area from PC (sq m)	Proposed FP Area based on 25 % Deductioin from OP Area (sq m)	FP No	Alloted FP Area (sq m)	Remarks
A	B	C	D	E	F = D * 0.75	G	H	I
737	UK105	Private (Unknown)	67		50	*556		Combined - OP = UK105+UK110+UK107
738	UK110	Private (Unknown)	68		51	*556		Combined - OP = UK105+UK110+UK107
739	330	Private	327		245	557	245	
740	296	Private	291		218	558	218	
741	332	Private	316		237	559	237	
742	260	Private	290		217	560	218	
743	36	Private	166		125	561	125	
744	UK121	Private (Unknown)	36		27	*562	155	Combined - OP = 248+UK119+UK120+UK121
745	248	Private	133		100	*562		Combined - OP = 248+UK119+UK120+UK121
746	UK119	Private (Unknown)	25		18	*562		Combined - OP = 248+UK119+UK120+UK121
747	UK120	Private (Unknown)	13		9	*562		Combined - OP = 248+UK119+UK120+UK121
748	246	Private	195		146	563	146	
749	245	Private	681		511	564	510	
750	47	Private	276		207	565	207	
751	242	Private	317		238	566	238	
752	239	Private	565		424	567	424	
753	238	Private	553		415	568	415	
754	237	Private	670		502	569	502	
755	235	Private	182		136	570	136	
756	236	Private	181		136	571	136	
757	600	Private	182		136	572	136	
758	599	Private	185		138	573	139	
759	601	Private	626		470	574	470	
760	602	Private	247		185	575	185	
761	595	Private	166		124	576	126	
762	603	Private	355		267	577	267	
763	604	Private	452		339	578	339	
764	UK113	Private (Unknown)	71		53	*579	433	Combined - OP = UK70+609+UK71+UK72+234+UK111+UK112+UK113
765	UK111	Private (Unknown)	85		64	*579		Combined - OP = UK70+609+UK71+UK72+234+UK111+UK112+UK113
766	UK112	Private (Unknown)	83		62	*579		Combined - OP = UK70+609+UK71+UK72+234+UK111+UK112+UK113
767	UK70	Private (Unknown)	28		21	*579		Combined - OP = UK70+609+UK71+UK72+234+UK111+UK112+UK113
768	609	Private	84		63	*579		Combined - OP = UK70+609+UK71+UK72+234+UK111+UK112+UK113
769	UK71	Private (Unknown)	60		45	*579		Combined - OP = UK70+609+UK71+UK72+234+UK111+UK112+UK113
770	UK72	Private (Unknown)	38		29	*579		Combined - OP = UK70+609+UK71+UK72+234+UK111+UK112+UK113
771	234	Private	131		98	*579		Combined - OP = UK70+609+UK71+UK72+234+UK111+UK112+UK113
772	992	Private	205		154	580	154	
773	614	Private	244		183	581	183	
774	612	Private	158		118	582	117	
775	610	Private	285		213	583	214	
776	611	Private	204		153	584	153	
777	606	Private	151		114	585	114	
778	605	Private	168		126	586	126	
779	621	Private	230		172	587	172	
780	620	Private	360		270	588	270	
781	622	Private	260		195	589	195	
782	UK83	Private (Unknown)	30		22	*590	137	Combined - OP = 619+UK76+UK82+UK83

Sr. No.	OP No	Ownership	OP Area (sq m)	OP Area from PC (sq m)	Proposed FP Area based on 25 % Deductioin from OP Area (sq m)	FP No	Alloted FP Area (sq m)	Remarks
A	B	C	D	E	F = D * 0.75	G	H	I
783	UK76	Private (Unknown)	62		46	*590		Combined - OP = 619+UK76+UK82+UK83
784	619	Private	62		46	*590		Combined - OP = 619+UK76+UK82+UK83
785	UK82	Private (Unknown)	29		22	*590		Combined - OP = 619+UK76+UK82+UK83
786	594	Private	428		321	591	320	
787	593	Private	319		240	592	240	
788	591	Private	286		215	593	215	
789	585	Private	91		68	*594	116	Combined - OP = UK73+UK74+UK75+585
790	UK73	Private (Unknown)	24		18	*594		Combined - OP = UK73+UK74+UK75+585
791	UK74	Private (Unknown)	16		12	*594		Combined - OP = UK73+UK74+UK75+585
792	UK75	Private (Unknown)	24		18	*594		Combined - OP = UK73+UK74+UK75+585
793	592	Private	240		180	595	180	
794	584	Private	444		333	596	333	
795	583	Private	553		415	597	415	
796	590	Private	226		170	598	170	
797	626	Private	159		119	599	119	
798	625	Private	242		181	600	181	
799	923	Private	265		199	601	199	
800	627	Private	519		389	602	389	
801	587	Private	383		287	603	308	Less deduction to adjust block area
802	922	Private	311		233	604	233	
803	UK80	Private (Unknown)	78		58	*605	180	Combined - OP = UK81+1153+UK80
804	UK81	Private (Unknown)	13		9	*605		Combined - OP = UK81+1153+UK80
805	1153	Private	127	125	95	*605		Combined - OP = UK81+1153+UK80
806	574	Private	196		147	606	147	
807	UK79	Private (Unknown)	65		49	*607	105	Combined - OP = UK78+UK79
808	UK78	Private (Unknown)	72		54	*607		Combined - OP = UK78+UK79
809	554	Private	533		399	608	400	
810	553	Private	306		230	609	230	
811	546	Private	1540		1155	610	1155	
812	287	Private	217		163	611	163	
813	288	Private	214		160	612	160	
814	582	Private	1089		817	613	817	
815	286	Private	416		312	614	312	
816	271	Private	261		195	615	195	
817	549	Private	727		546	616	546	
818	268	Private	559		419	617	419	
819	579	Private	410		307	618	307	
820	548	Private	347		260	619	261	
821	577	Private	216		162	620	162	
822	580	Private	142		107	621	107	
823	597	Private	388		291	622	323	Less deduction to adjust block area
824	272	Private	544		408	623	408	
825	269	Private	295		221	624	221	
826	270	Private	173		130	625	129	
827	274	Private	246		185	626	185	
828	578	Private	589		442	627	442	

Sr. No.	OP No	Ownership	OP Area (sq m)	OP Area from PC (sq m)	Proposed FP Area based on 25 % Deductioin from OP Area (sq m)	FP No	Alloted FP Area (sq m)	Remarks
A	B	C	D	E	F = D * 0.75	G	H	I
829	261	Private	221		165	628	165	
830	2244	Private	149		112	629	112	
831	2246	Private	470		353	630	353	
832	278	Private	182		137	631	225	Less deduction to adjust block area
833	275	Private	225		169	632	169	
834	276	Private	244		183	633	183	
835	277	Private	168		126	634	126	
836	285	Private	184		138	635	138	
837	576	Private	2278		1708	636	1708	
838	273	Private	1421		1066	637	1067	
839	262	Private	576		432	638	432	
840	265	Private	273		204	639	204	
841	267	Private	290		218	640	218	
842	1325	Private	317		238	641	238	
843	244	Private	220		165	642	165	
844	263	Private	169		127	643	126	
845	264	Private	161		121	644	121	
846	247	Private	149		111	645	111	
847	249	Private	557		418	646	418	
848	26	Private	555		417	647	417	
849	14	Private	1396		1047	648	1047	
850	28	Private	291		219	649	218	
851	24	Private	355		267	650	265	
852	30	Private	360		270	651	270	
853	67	Private	1503		1127	652	1125	
854	64	Private	266		200	653	200	
855	21	Private	954		716	654	716	
856	61	Private	305		229	655	229	
857	UK118	Private (Unknown)	44		33	*656	185	Combined - OP = 62+UK114+UK115+UK116+UK117+UK118
858	62	Private	86		65	*656		Combined - OP = 62+UK114+UK115+UK116+UK117+UK118
859	UK114	Private (Unknown)	76		57	*656		Combined - OP = 62+UK114+UK115+UK116+UK117+UK118
860	UK115	Private (Unknown)	8		6	*656		Combined - OP = 62+UK114+UK115+UK116+UK117+UK118
861	UK116	Private (Unknown)	14		11	*656		Combined - OP = 62+UK114+UK115+UK116+UK117+UK118
862	UK117	Private (Unknown)	17		13	*656		Combined - OP = 62+UK114+UK115+UK116+UK117+UK118
863	27	Private	704		528	657	685	Less deduction to adjust block area
864	35	Private	1656		1242	658	1005	OP No 31 subdivided into two FPs 658 and 662. Refer FP 662 below
865	60	Private	878		659	659	659	
866	2/28	Private	1063		797	*660	1681	Less deduction to adjust block area Combined - OP = 2/27+2/28
867	2/27	Private	1171		878	*660		Combined - OP = 2/27+2/28
868	5	Private	266		199	661	199	
					0	662	236	OP No 31 subdivided into two FPs 658 and 662. Refer FP 658 above
869	4	Private	693		520	663	520	
870	29	Private	2242		1682	664	1682	
871	6	Private	569		427	665	427	
872	34	Private	536		402	666	402	

Sr. No.	OP No	Ownership	OP Area (sq m)	OP Area from PC (sq m)	Proposed FP Area based on 25 % Deductioin from OP Area (sq m)	FP No	Alloted FP Area (sq m)	Remarks
A	B	C	D	E	F = D * 0.75	G	H	I
873	22	Private	815		611	667	611	
874	18	Private	602		452	668	452	
875	59	Private	673		505	669	505	
876	66	Private	155		116	*670	351	Less deduction to adjust block area Combined - OP = 65+66
877	65	Private	317		238	*670		Combined - OP = 65+66
878	63	Private	568		426	671	429	
879	58	Private	1024		768	672	768	
880	53	Private	536		402	*673	1615	Combined - OP = 45+52+53
881	52	Private	1090		817	*673		Combined - OP = 45+52+53
882	45	Private	528		396	*673		Combined - OP = 45+52+53
883	17	Private	757		568	674	568	
884	44	Private	754		566	675	566	
885	42	Private	383		287	676	288	
886	25	Private	283		212	677	212	
						678	1193	
887	19	Private	551		413	679	413	
888	31	Private	5059		3794	680	1186	Less deduction to adjust block area
889	20	Private	5285		3964	681	3964	
890	15	Private	1289		966	682	1156	Less deduction to adjust block area
891	UK122	Private (Unknown)	465		348	*683	1193	Combined - OP = 13+UK122
892	13	Private	825		619	*683		Combined - OP = 13+UK122
893	333	Private	119		89	*684	1163	Combined - OP = UK102+UK103+UK104+UK108+311+344+324+314+305+320+294+282+279+253+258+37+333
894	UK102	Private (Unknown)	72		54	*684		Combined - OP = UK102+UK103+UK104+UK108+311+344+324+314+305+320+294+282+279+253+258+37+333
895	311	Private	115		87	*684		Combined - OP = UK102+UK103+UK104+UK108+311+344+324+314+305+320+294+282+279+253+258+37+333
896	344	Private	60		45	*684		Combined - OP = UK102+UK103+UK104+UK108+311+344+324+314+305+320+294+282+279+253+258+37+333
897	UK103	Private (Unknown)	73		55	*684		Combined - OP = UK102+UK103+UK104+UK108+311+344+324+314+305+320+294+282+279+253+258+37+333
898	UK104	Private (Unknown)	22		16	*684		Combined - OP = UK102+UK103+UK104+UK108+311+344+324+314+305+320+294+282+279+253+258+37+333
899	324	Private	86		64	*684		Combined - OP = UK102+UK103+UK104+UK108+311+344+324+314+305+320+294+282+279+253+258+37+333
900	314	Private	109		82	*684		Combined - OP = UK102+UK103+UK104+UK108+311+344+324+314+305+320+294+282+279+253+258+37+333

Sr. No.	OP No	Ownership	OP Area (sq m)	OP Area from PC (sq m)	Proposed FP Area based on 25 % Deductioin from OP Area (sq m)	FP No	Alloted FP Area (sq m)	Remarks
A	B	C	D	E	F = D * 0.75	G	H	I
901	UK108	Private (Unknown)	39		29	*684		Combined - OP = UK102+UK103+UK104+UK108+311+344+324+314+305+320+294+282+279+253+258+37+333
902	320	Private	128		96	*684		Combined - OP = UK102+UK103+UK104+UK108+311+344+324+314+305+320+294+282+279+253+258+37+333
903	305	Private	100		75	*684		Combined - OP = UK102+UK103+UK104+UK108+311+344+324+314+305+320+294+282+279+253+258+37+333
904	294	Private	87		65	*684		Combined - OP = UK102+UK103+UK104+UK108+311+344+324+314+305+320+294+282+279+253+258+37+333
905	282	Private	111		83	*684		Combined - OP = UK102+UK103+UK104+UK108+311+344+324+314+305+320+294+282+279+253+258+37+333
906	279	Private	118		89	*684		Combined - OP = UK102+UK103+UK104+UK108+311+344+324+314+305+320+294+282+279+253+258+37+333
907	253	Private	119		90	*684		Combined - OP = UK102+UK103+UK104+UK108+311+344+324+314+305+320+294+282+279+253+258+37+333
908	258	Private	122		91	*684		Combined - OP = UK102+UK103+UK104+UK108+311+344+324+314+305+320+294+282+279+253+258+37+333
909	37	Private	73		55	*684		Combined - OP = UK102+UK103+UK104+UK108+311+344+324+314+305+320+294+282+279+253+258+37+333
910	12	Private	736		552	*685	1672	Combined - OP = 11+12
911	11	Private	1166		874	*685		Combined - OP = 11+12
912	8	Private	681		511	686	511	
913	10	Private	681		511	687	598	Less deduction to adjust block area
914	9	Government (GOM)	1975		1481	688	1481	
915	322	Private	282		211	689	211	
916	297	Private	308		231	690	231	
917	2126	Private	872		654	691	654	
918	7	Private	1129		847	692	847	
919	306	Private	197		148	693	148	
920	312	Private	299		225	694	225	
921	323	Private	287		215	695	215	
922	308	Private	989		742	696	742	
923	310	Private	235		176	697	176	
924	283	Private	228		171	698	171	
925	343	Private	208		156	699	156	
926	57	Private	212		159	700	159	
927	43	Private	214		161	701	161	
928	33	Private	426		319	702	319	
929	41	Private	248		186	703	186	
930	16	Private	451		338	704	338	

Sr. No.	OP No	Ownership	OP Area (sq m)	OP Area from PC (sq m)	Proposed FP Area based on 25 % Deductioin from OP Area (sq m)	FP No	Alloted FP Area (sq m)	Remarks
A	B	C	D	E	F = D * 0.75	G	H	I
931	55	Private	480		360	705	360	
932	72/1	Government (GOM)	8982		6737	706	6738	
						707	5290	OP No 3 subdivided into two FPs 708 and 707. Refer FP 708 below
933	3	Private	11899		8924	708	3635	OP No 3 subdivided into two FPs 708 and 707. Refer FP 707 above
934	69	Private	1294		971	709	971	
935	2	Private	1200		900	710	900	
936	70	Private	478		359	711	359	
937	71	Private	223		167	712	167	
938	56	Private	99		74	*713	164	Combined - OP = 2/1+56
939	2/1	Private	120		90	*713		Combined - OP = 2/1+56
940	2/2	Private	473		355	714	355	
941	2/3	Private	276		207	715	207	
942	2/4	Private	462		347	716	347	
943	2/5	Private	458		343	717	343	
944	2/6	Private	452		339	718	339	
945	2/7	Private	438		329	719	329	
946	2/8	Private	445		334	720	334	
947	729	Road	588	587				It is an existing nalia and is absorbed into the proposed roads, therefore no FP allotted
948	R1	Road	97					It is an existing nalia and is absorbed into the proposed roads, therefore no FP allotted
949	1139	Government (GOM)	101		76	*524		Combined - OP = 897+1139
950	1/1	Road	16825					It is a government plot. A major portion is absorbed in the proposed road and the rest in appropriated land for sale and public spaces
951	R2	Road	1187					It is an existing nalia and is absrobed into the proposed roads, therefore no FP allotted
952	R3	Road	1555					It is an existing nalia and is absorbed into the proposed roads, therefore no FP allotted
953	1/2	Road	21					It is a very small plot and therefore is absorbed in the proposed road
		Total Plot Area*	**341539**		**240965**		**246303**	

Note

*Includes 4 plots (852, 1229, 853, 864) of 437.22 sqm from inside the precinct

Combined* indicates plots combined because their FP areas are less than 100sqm

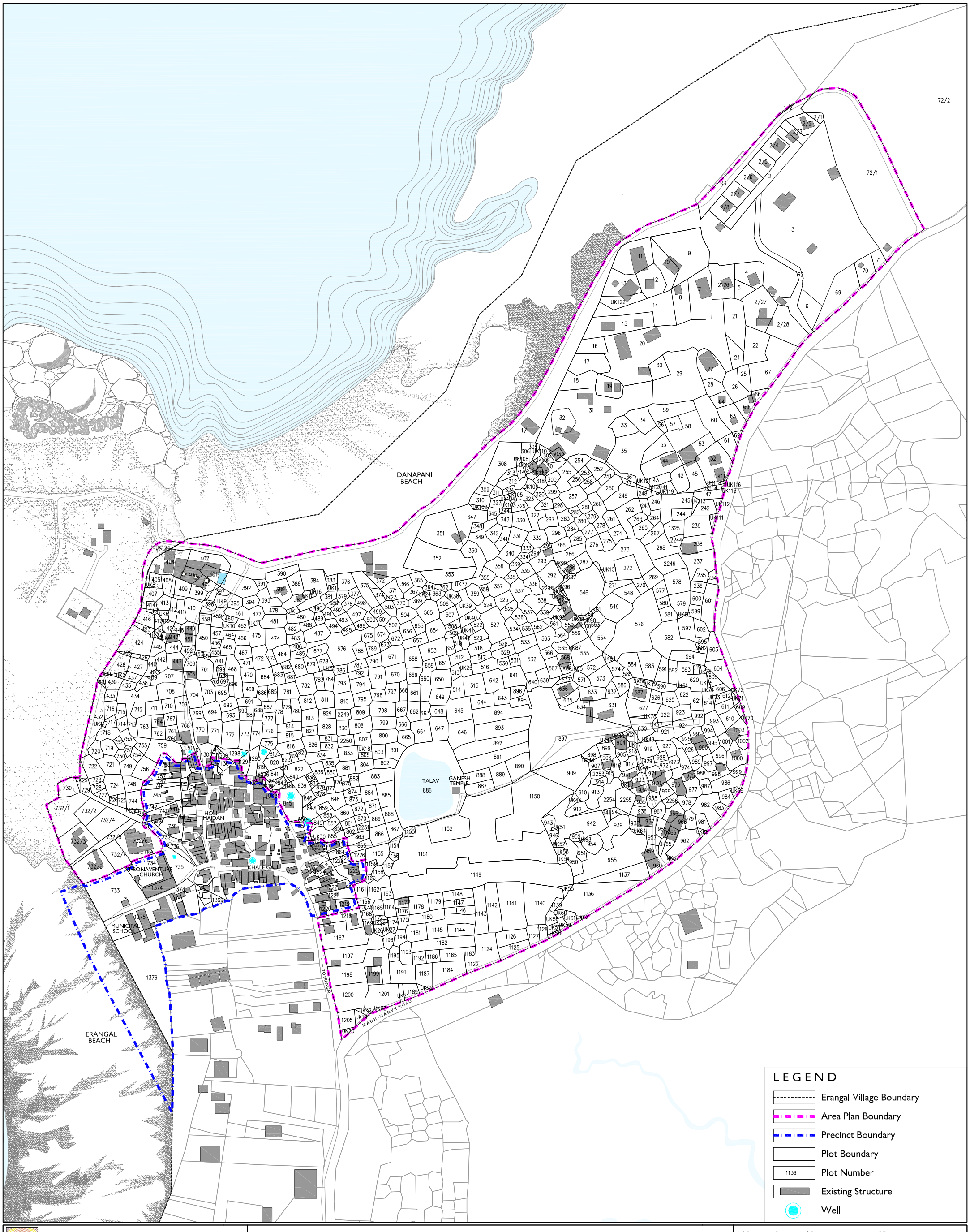
Annex 8: Schematic Estimates and Cost of Restoration Works

No	Building ID	QUANTITTY																UNIT COST							TOTAL COST				
		Walls							Floors					Roof			Polishing	Wall Treatment				Floor Treatment	Roof Treatment	Polishing	Wall Treatment	Floor Treatment	Roof Treatment	Polishing	Total
		Wall	L	H	A	Surface Area = Area x 2 (interior and exterior)	No. of floors	Total Surface Area	L	W	A	No. of floors	Total Surface Area	L	W	A	Wooden Members	Removal of Old Plaster	New Plaster	New Paint/ Distemper	Total								
			(m)	(m)	(sq m)	(sq m)		(sq m)	(m)	(m)	(sq m)		(sq m)	(m)	(m)	(sq m)	(m)	(sq m)	(sq m)	(sq m)	(sq m)	(sq m)	(sq m)	(m)					
1	3	1	6.5	3	19.5	39.0	1.5	58.5	6.5	3.5	23	2	46	2	3.5	7	10	40	150	80	270	100	300	60	48600	4550	2100	600	**55850**
		2	3.5	3	10.5	21.0	1.5	31.5																				
		3	6.5	3	19.5	39.0	1.5	58.5																				
		4	3.5	3	10.5	21.0	1.5	31.5																				
								180																				
2	86	1	4	3	12	24.0	2	48	9	4	36	2	72	10	5	50	78	40	150	80	270	100	300	60	110160	7200	15000	4680	**137040**
		2	4	3	12	24.0	2	48																				
		3	4	3	12	24.0	2	48																				
		4	4	3	12	24.0	2	48																				
		5	9	3	27	54.0	2	108																				
		6	9	3	27	54.0	2	108																				
								408																				
3	88	1	9	3	27	54.6	1.5	81.9			71	1.5	106			71	100	40	150	80	270	100	300	60	115206	10581	21162	6000	**152948**
		2	6	3	17	35.0	1.5	52.5																				
		3	7	3	21	41.1	1.5	61.6																				
		4	4	3	12	24.5	1.5	36.8																				
		5	8	3	23	45.2	1.5	67.7																				
		6	1	3	4	8.4	1.5	12.6																				
		7	4	3	13	26.8	1.5	40.3																				
		8	6	3	17	33.1	1.5	49.7																				
		9	3	3	8	15.8	1.5	23.6																				
								427																				
4	11	1	10	3	31	62.6	1.5	93.9			171	1.5	257			80	120	40	150	80	270	100	300	60	332062	25697	24000	7200	**388958**
		2	10	3	31	62.6	1.5	93.9																				
		3	13	3	40	79.0	1.5	118.5																				
		4	13	3	40	79.0	1.5	118.5																				
		5	3	3	10	19.6	1.5	29.4																				
		6	4	3	11	22.7	1.5	34.1																				
		7	4	3	11	22.7	1.5	34.1																				
		8	6	3	17	33.5	1.5	50.2																				
		9	2	3	6	12.9	1.5	19.4																				
		10	10	3	29	58.9	1.5	88.4																				
		11	5	3	16	32.1	1.5	48.2																				
		12	10	3	31	61.2	1.5	91.8																				
		13	8	3	25	49.7	1.5	74.5																				
		14	16	3	48	95.5	1.5	143.3																				
		15	8	3	25	49.7	1.5	74.5																				
		16	13	3	39	78.1	1.5	117.2																				
								1230																				
5	13	1	9	3	26	51.3	1.5	77.0			101	1.5	152			101	100	40	150	80	270	100	300	60	206744	15178	30357	6000	**258279**
		2	2	3	5	9.4	1.5	14.1																				
		3	8	3	23	45.1	1.5	67.7																				
		4	6	3	17	34.2	1.5	51.3																				
		5	2	3	5	9.4	1.5	14.2																				
		6	2	3	5	9.4	1.5	14.2																				
		7	9	3	27	54.9	1.5	82.3																				
		8	3	3	10	19.8	1.5	29.7																				
		9	4	3	11	22.4	1.5	33.6																				
		10	1	3	4	8.0	1.5	11.9																				
		11	2	3	7	14.7	1.5	22.1																				
		12	3	3	8	15.9	1.5	23.9																				
		13	3	3	8	15.3	1.5	23.0																				
		14	8	3	23	45.1	1.5	67.7																				
		15	2	3	7	14.7	1.5	22.1																				
		16	12	3	36	71.4	1.5	107.1																				
		17	5	3	16	31.4	1.5	47.0																				

No	Building ID	QUANTITTY																UNIT COST							TOTAL COST				
		Walls							Floors					Roof				Polishing	Wall Treatment				Floor Treatment	Roof Treatment	Polishing	Wall Treatment	Floor Treatment	Roof Treatment	Polishing	Total
		Wall	L	H	A	Surface Area = Area x 2 (interior and exterior)	No. of floors	Total Surface Area	L	W	A	No. of floors	Total Surface Area	L	W	A	Wooden Members	Removal of Old Plaster	New Plaster	New Paint/ Distemper	Total								
			(m)	(m)	(sq m)	(sq m)		(sq m)	(m)	(m)	(sq m)		(sq m)	(m)	(m)	(sq m)	(m)	(sq m)	(sq m)	(sq m)	(sq m)	(sq m)	(sq m)	(m)					
		18	2	3	7	14.0	1.5	21.0																					
		19	4	3	12	23.9	1.5	35.8																					
								766																					
6	60	1	10	3	29	57.4	2	114.8			136	2	272			177	50	40	150	80	270	100	300	60	189054	27194	53212	3000	**272461**
		2	3	3	8	16.6	2	33.2																					
		3	10	3	29	57.1	2	114.2																					
		4	3	3	9	18.0	2	36.1																					
		5	10	3	31	61.9	2	123.9																					
		6	14	3	42	84.9	2	169.7																					
		7	9	3	27	54.2	2	108.4																					
								700																					
7	83	1	16	3	48	95.2	1.2	114.2			35	1	35			38	10	40	150	80	270	100	300	60	69083	3476	11537	600	**84696**
		2	13	3	40	80.8	1.2	96.9																					
		3	3	3	9	18.7	1.2	22.4																					
		4	3	3	9	18.7	1.2	22.4																					
								256																					
8	76	1	9	3	28	55.5	1.2	66.6			49	1.2	58			55	30	40	150	80	270	100	300	60	70513	5826	16520	1800	**94658**
		2	10	3	31	62.9	1.2	75.4																					
		3	4	3	13	25.9	1.2	31.1																					
		4	4	3	12	24.2	1.2	29.0																					
		5	4	3	12	23.8	1.2	28.5																					
		6	4	3	13	25.4	1.2	30.5																					
								261																					
9	35	1	8	3	25	50.1	2.2	110.2			115	2.2	252			115	200	40	150	80	270	100	300	60	244169	25192	34352	12000	**315713**
		2	12	3	37	73.7	2.2	162.2																					
		3	3	3	10	19.7	2.2	43.4																					
		4	4	3	12	24.0	2.2	52.8																					
		5	9	3	28	56.5	2.2	124.4																					
		6	10	3	31	62.8	2.2	138.1																					
		7	10	3	31	61.6	2.2	135.5																					
		8	8	3	24	47.8	2.2	105.1																					
		9	2	3	7	14.8	2.2	32.6																					
								904																					
10	Chuch	1	35	3	106	212.0	3	635.9			1100	1	1100			1100	1000	40	150	80	270	100	300	60	5428017	110000	330000	60000	**5928017**
		2	21	4	84	168.2	3	504.5																					
		3	12	5	61	121.2	3	363.7																					
		4	27	6	160	320.2	3	960.5																					
		5	44	7	307	614.0	3	1842.1																					
		6	7	8	57	114.0	3	341.9																					
		7	8	9	71	141.4	3	424.1																					
		8	10	10	96	192.5	3	577.5																					
		9	10	11	106	211.8	3	635.3																					
		10	10	12	116	231.0	3	693.0																					
		11	36	13	474	948.1	3	2844.2																					
		12	34	14	483	966.0	3	2898.0																					
		13	12	15	185	369.1	3	1107.2																					
		14	10	16	152	304.0	3	912.0																					
		15	10	17	170	340.0	3	1020.0																					
		16	6	18	117	233.3	3	699.9																					
		17	4	19	80	161.0	3	482.9																					
		18	7	20	131	261.8	3	785.3																					
		19	4	21	88	176.4	3	529.2																					
		20	4	22	92	184.8	3	554.4																					
		21	5	23	108	215.1	3	645.3																					
		22	2	24	53	105.6	3	316.8																					
		23	2	25	55	110.0	3	330.0																					
								20104																					
	Total																												**7688620**

Notes

1. Due to irregular shapes and sizes of built structure, floor area could not be calculated in terms of length and width of the floor plate. Therefore area of the floor has been derived by considering it as a polygon, thus mentioned directly.
2. Due to irregular shapes and sizes of built structure, roof area could not be calculated in terms of length and width of the roof. Therefore area of the roof has been derived by considering it as a polygon, thus mentioned directly.



MUMBAI METROPOLITAN REGION
HERITAGE CONSERVATION SOCIETY

Prepared by
HCP Design, Planning & Management Pvt. Ltd.

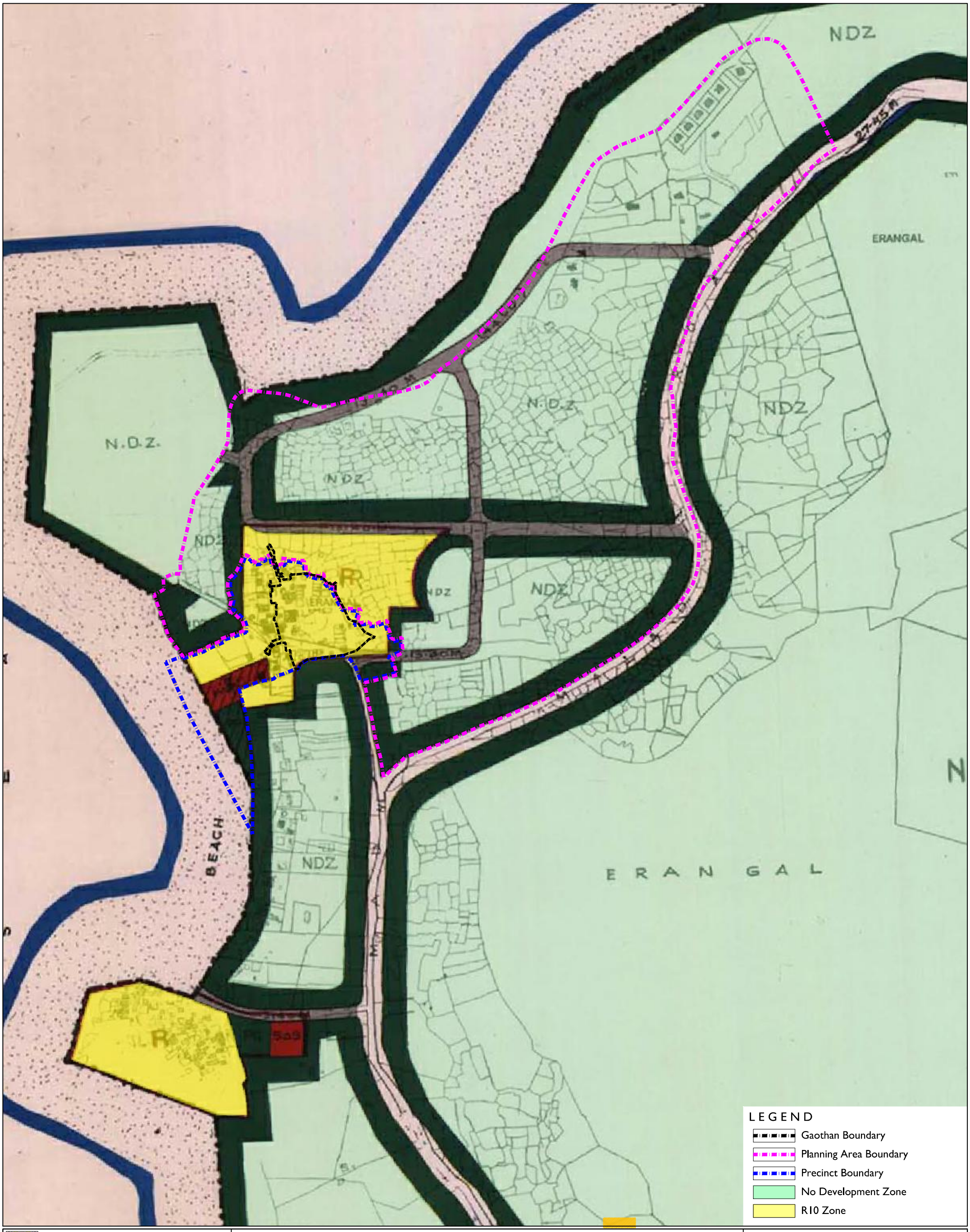
PRECINCT AND PLANNING AREA

ACTION PLAN FOR HERITAGE CONSERVATION AND ENVIRONMENT IMPROVEMENT OF ERANGAL PRECINCT

35m 0 35 105m
SCALE :- 1 : 3500

SOURCE :-
CTS Sheet
Field Survey by HCP DPM, June 2010

MAP NO. 01



MUMBAI METROPOLITAN REGION
HERITAGE CONSERVATION SOCIETY

PROVISIONS IN DEVELOPMENT PLAN (1967), MUMBAI FOR ERANGAL PRECINCT AND PLANNING AREA

45m 0 45 135m

SCALE :- 1 : 4,500

Prepared by
HCP Design, Planning & Management Pvt. Ltd.

ACTION PLAN FOR HERITAGE CONSERVATION AND ENVIRONMENT IMPROVEMENT OF ERANGAL PRECINCT

SOURCE:
DP Sheets, 1967

MAP NO.
02

CRZ - III

DP ROAD 13.40 M

DP ROAD 13.40 M

DP ROAD 13.40 M

CRZ - II

MAP 3137.04

PG 2694.69

EXISTING ROAD 27.45 M

86 PG 2495.14

218 SAS 2136.36

R - ZONE

NDZ

ERANGAL

H T L

LEGEND

- Gaothan Boundary
- Planning Area Boundary
- Precinct Boundary
- CRZ Line
- High Tide Line

MMR HERITAGE CONSERVATION SOCIETY

MUMBAI METROPOLITAN REGION
HERITAGE CONSERVATION SOCIETY

Prepared by
HCP Design, Planning & Management Pvt. Ltd.

PROVISIONS IN DEVELOPMENT PLAN (1991), MUMBAI FOR ERANGAL PRECINCT AND PLANNING AREA

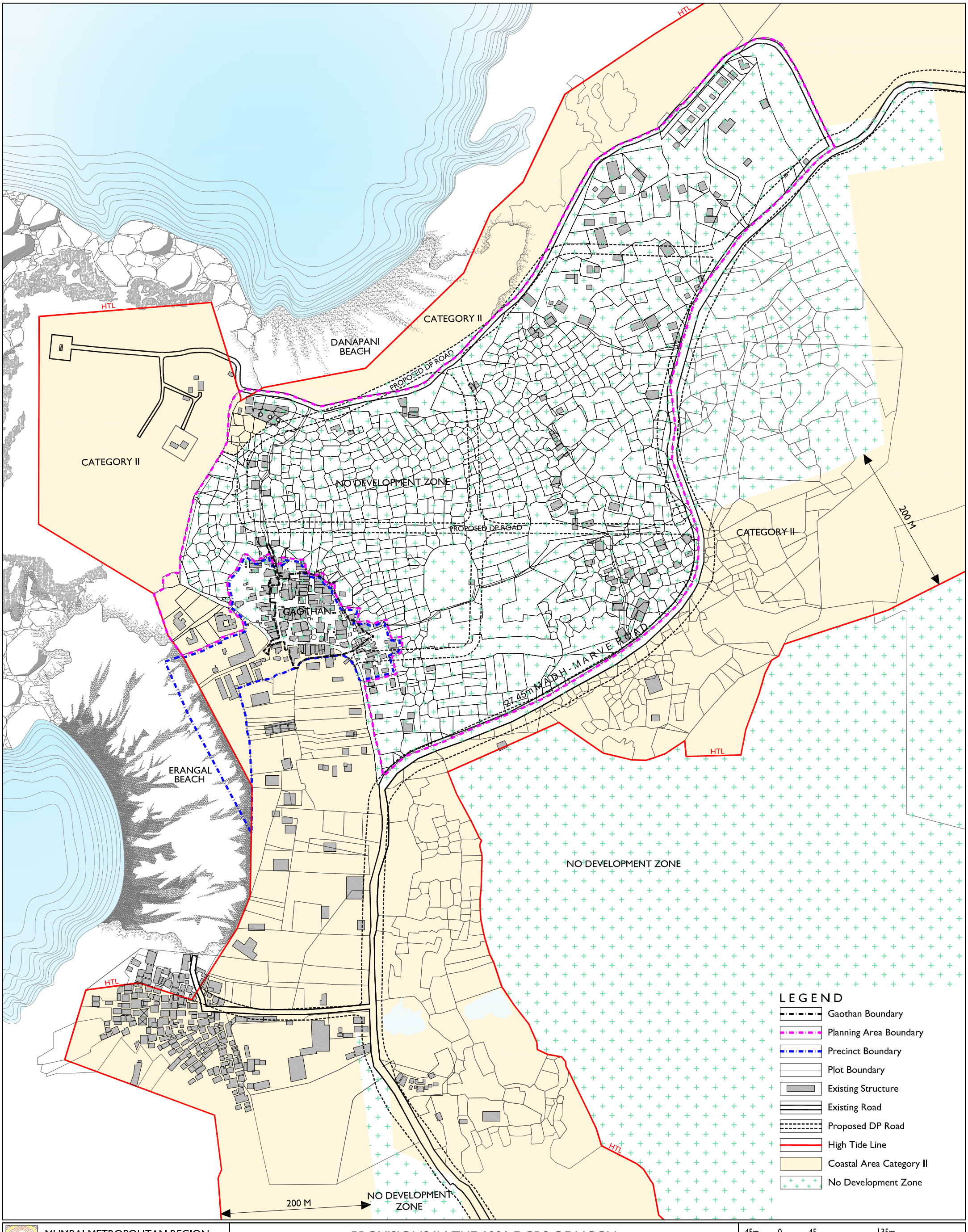
ACTION PLAN FOR HERITAGE CONSERVATION AND ENVIRONMENT IMPROVEMENT OF ERANGAL PRECINCT

45m 0 45 135m

SCALE :- 1 : 4,500

SOURCE:
DP Sheets, 1991

MAP NO.
03



MUMBAI METROPOLITAN REGION
HERITAGE CONSERVATION SOCIETY

PROVISIONS IN THE 1991 DCRS OF MCGM FOR ERANGAL PRECINCT AND PLANNING AREA

45m 0 45 135m

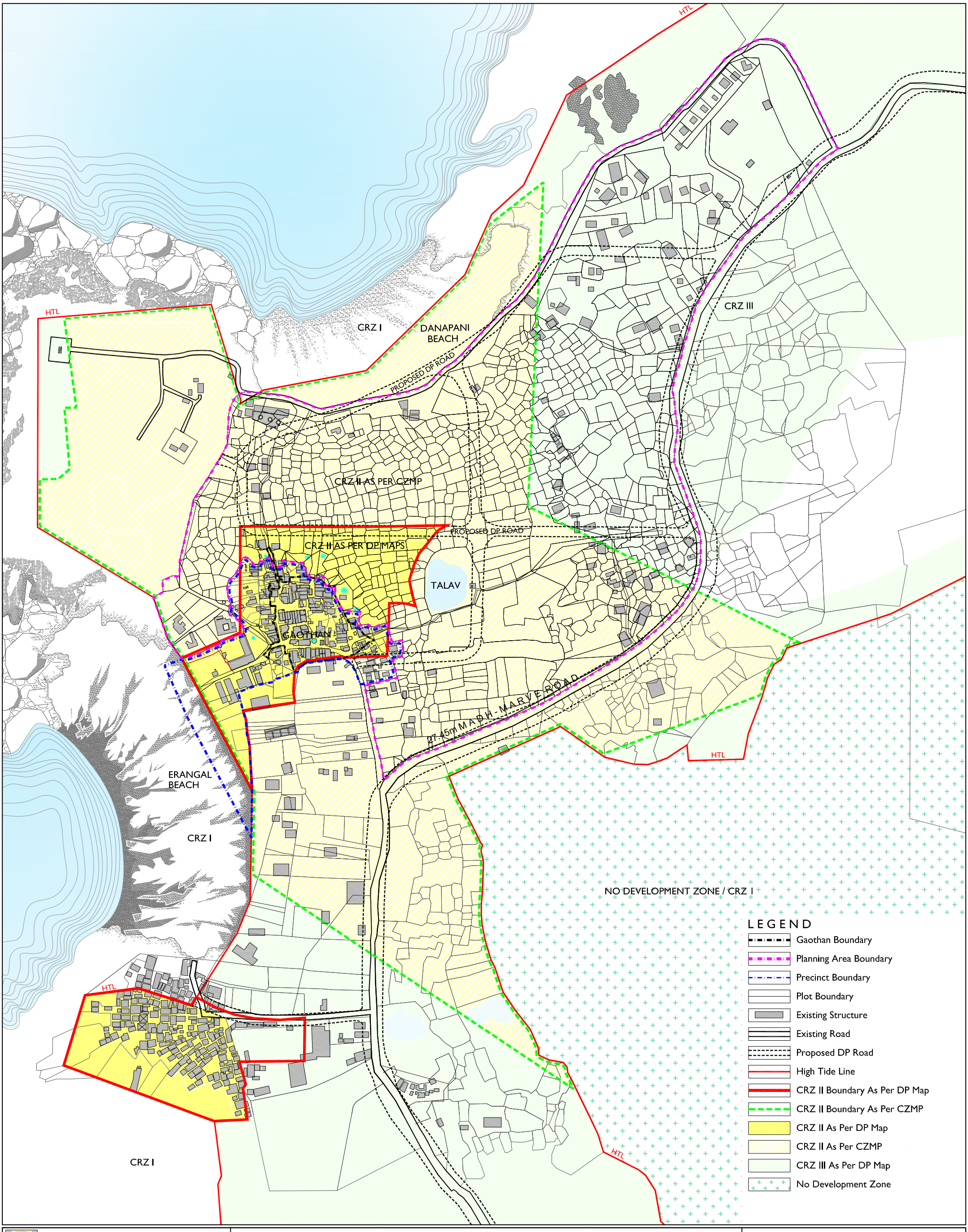
SCALE :- 1 : 4,500

Prepared by
HCP Design, Planning & Management Pvt. Ltd.

ACTION PLAN FOR HERITAGE CONSERVATION AND ENVIRONMENT IMPROVEMENT OF ERANGAL PRECINCT

SOURCE / NOTE:
Drawing based on Interpreting the DCR's

MAP NO. 04



MUMBAI METROPOLITAN REGION
HERITAGE CONSERVATION SOCIETY

Prepared by
HCP Design, Planning & Management Pvt. Ltd.

PROVISIONS IN THE DP SHEETS AND CZMP FOR ERANGAL PRECINCT AND PLANNING AREA

ACTION PLAN FOR HERITAGE CONSERVATION AND ENVIRONMENT IMPROVEMENT OF ERANGAL PRECINCT

45m 0 45 135m

SCALE :- 1 : 4,500

SOURCE:
DP Sheets, 1991
CZMP, Maharashtra

MAP NO. 05

HTL
DANAPANI BEACH
CATEGORY II
PROPOSED DP ROAD
NO DEVELOPMENT ZONE
CRZ II As Per CZMP
PROPOSED DP ROAD
GAOTHAN
27.45m WADH - MARVE ROAD
200 M
CATEGORY II
HTL
ERANGAL BEACH
NO DEVELOPMENT ZONE / CRZ I
HTL
HTL
200 M
NO DEVELOPMENT ZONE

LEGEND

- Gaothan Boundary
- Planning Area Boundary
- Precinct Boundary
- Plot Boundary
- Existing Structure
- Existing Road
- Proposed DP Road
- High Tide Line
- CRZ II Boundary As Per CZMP
- CRZ II Boundary As Per DP Map
- CRZ II As Per 1991 DP Map
- CRZ III As Per 1991 DP Map
- CRZ II As Per CZMP
- Coastal Area Category II
- No Development Zone

MUMBAI METROPOLITAN REGION
HERITAGE CONSERVATION SOCIETY

Prepared by
HCP Design, Planning & Management Pvt. Ltd.

OVERLAP OF ALL REGULATORY PROVISIONS FOR ERANGAL PRECINCT AND PLANNING AREA

ACTION PLAN FOR HERITAGE CONSERVATION AND ENVIRONMENT IMPROVEMENT OF ERANGAL PRECINCT

45m 0 45 135m

SCALE :- 1 : 4,500

SOURCE:
DP Sheets, 1991
CZMP, Maharashtra

MAP NO. 06

HTL
DANAPANI BEACH
PROPOSED DP ROAD
CRZ III As Per DP Maps
CRZ II As Per CZMP
NON CRZ AREA
PROPOSED DP ROAD
GAOTHAN
27.45m MADH - MARVE ROAD
HTL
ERANGAL BEACH
NO DEVELOPMENT ZONE / CRZ I
HTL
HTL
200 M
NO DEVELOPMENT ZONE

LEGEND

- Gaothan Boundary
- Planning Area Boundary
- Precinct Boundary
- Plot Boundary
- Existing Structure
- Existing Road
- Proposed DP Road
- High Tide Line
- CRZ II Boundary As Per DP Map
- CRZ II Boundary As Per CZMP
- CRZ II As Per 1991 DP Map
- CRZ III As Per 1991 DP Map
- CRZ II As Per CZMP
- Category II
- No Development Zone

MUMBAI METROPOLITAN REGION
HERITAGE CONSERVATION SOCIETY

Prepared by
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APPLICABLE REGULATORY PROVISIONS FOR ERANGAL PRECINCT AND PLANNING AREA

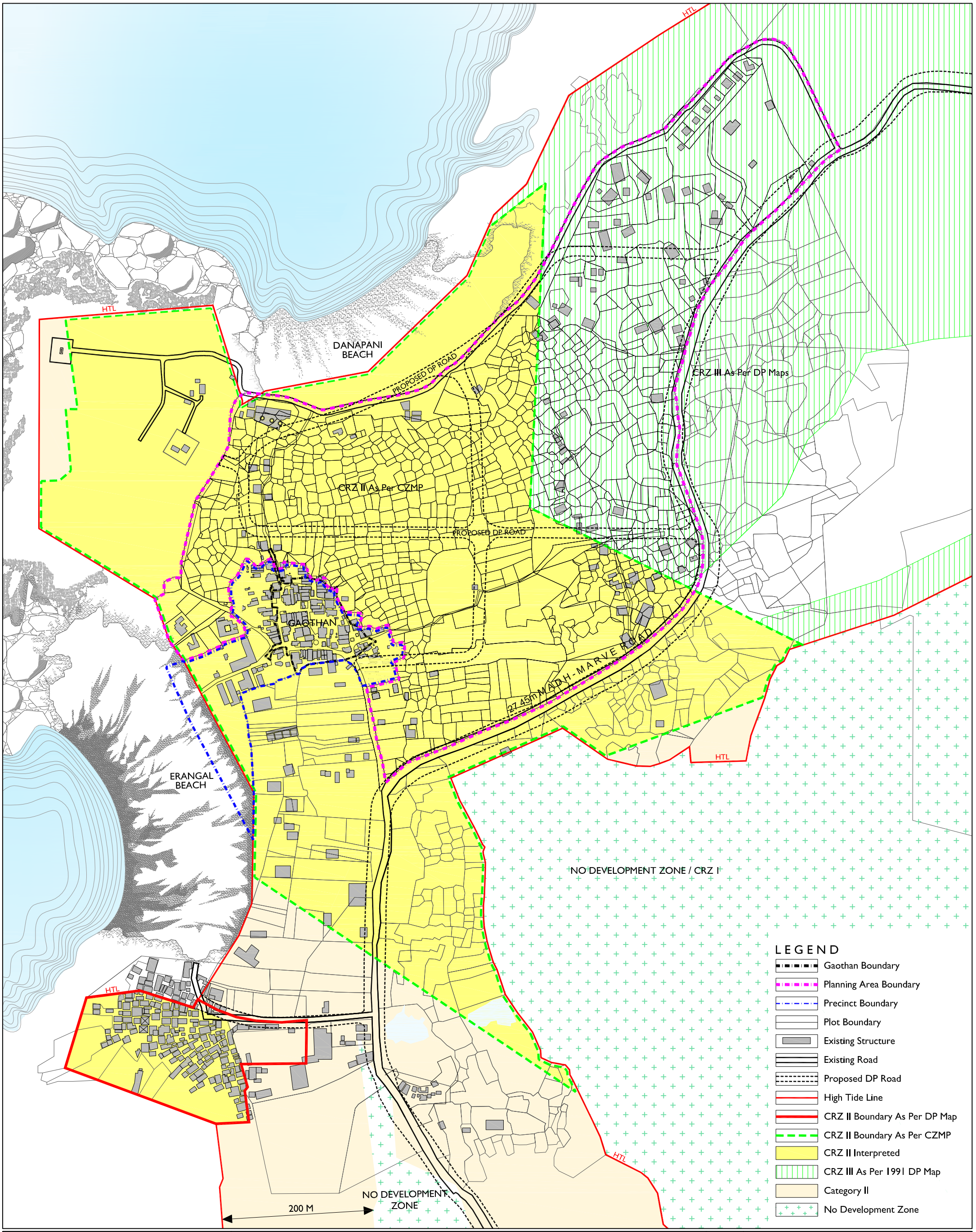
ACTION PLAN FOR HERITAGE CONSERVATION AND ENVIRONMENT IMPROVEMENT OF ERANGAL PRECINCT

45m 0 45 135m

SCALE :- 1 : 4,500

SOURCE:
DP Sheets, 1991
CZMP, Maharashtra

MAP NO. 07



MUMBAI METROPOLITAN REGION
HERITAGE CONSERVATION SOCIETY

Prepared by
HCP Design, Planning & Management Pvt. Ltd.

FINAL APPLICABLE REGULATORY PROVISIONS FOR ERANGAL PRECINCT AND PLANNING AREA

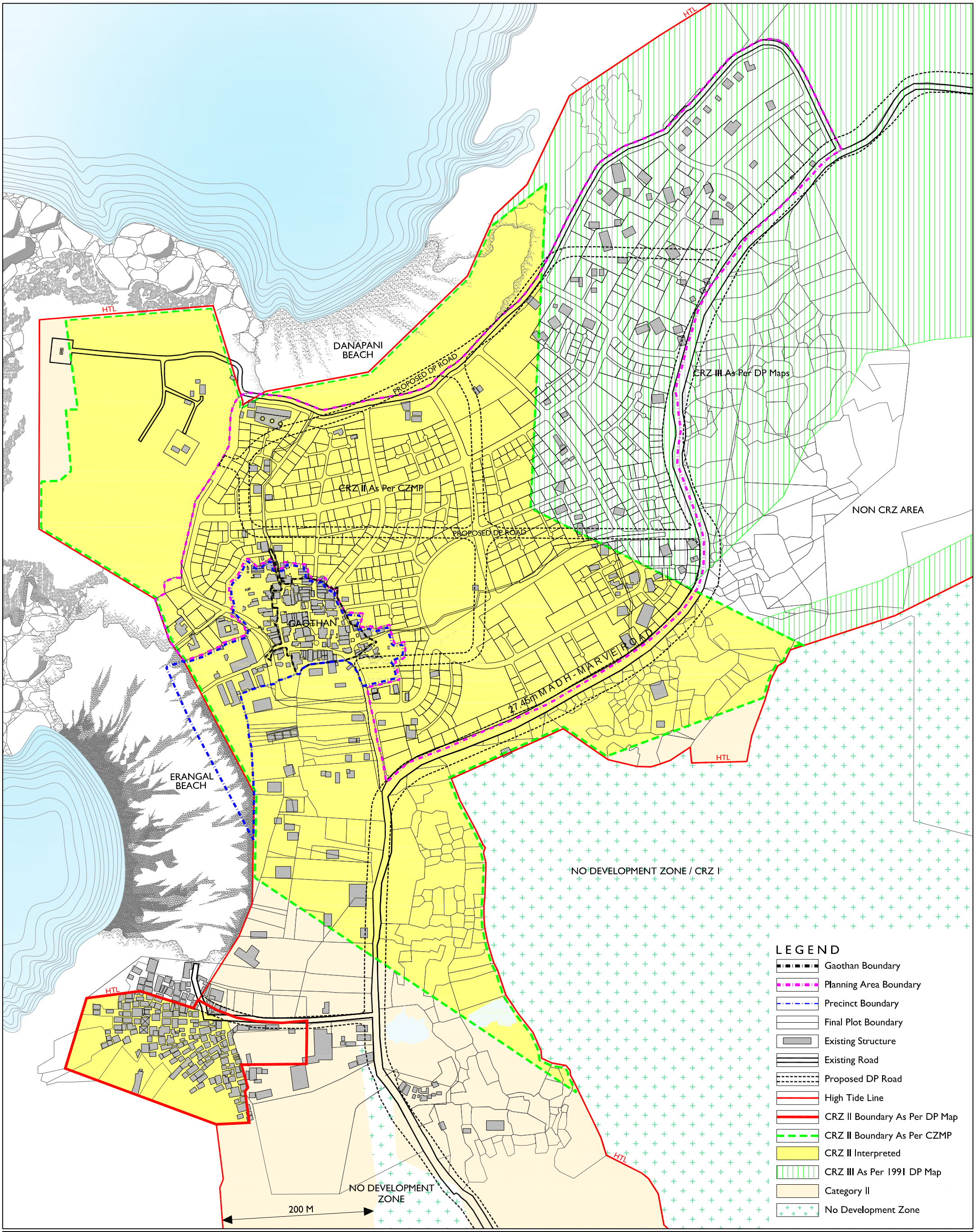
ACTION PLAN FOR HERITAGE CONSERVATION AND ENVIRONMENT IMPROVEMENT OF ERANGAL PRECINCT

45m 0 45 135m

SCALE :- 1 : 4,500

SOURCE / NOTE:
As Interpreated for this Action Plan

MAP NO. 08



MUMBAI METROPOLITAN REGION
HERITAGE CONSERVATION SOCIETY

Prepared by
HCP Design, Planning & Management Pvt. Ltd.

FINAL APPLICABLE REGULATORY PROVISIONS ON THE PROPOSALS

ACTION PLAN FOR HERITAGE CONSERVATION AND ENVIRONMENT IMPROVEMENT OF ERANGAL PRECINCT

45m 0 45 135m

SCALE :- 1 : 4,500

SOURCE:
DP Sheets, 1991
CZMP, Maharashtra

MAP NO. 09

HTL

DANAPANI BEACH

PROPOSED DP ROAD

CRZ III As Per DP Maps

CRZ II As Per CZMP

PROPOSED DP ROAD

GAOTHAN

27.45m MADH - MARVE ROAD

HTL

ERANGAL BEACH

NO DEVELOPMENT ZONE / CRZ I

HTL

HTL

200 M

NO DEVELOPMENT ZONE

LEGEND

- Gaothan Boundary
- Planning Area Boundary
- Precinct Boundary
- Final Plot Boundary
- Existing Road
- Existing Structure
- Proposed DP Road
- Proposed Planning Area Road
- High Tide Line
- CRZ II Boundary As Per CZMP
- CRZ II Rationalized
- CRZ III As Per 1991 DP Map
- Category II
- No Development Zone

MUMBAI METROPOLITAN REGION
HERITAGE CONSERVATION SOCIETY

Prepared by
HCP Design, Planning & Management Pvt. Ltd.

FINAL APPLICABLE REGULATORY PROVISIONS (RATIONALIZED) ON PROPOSALS

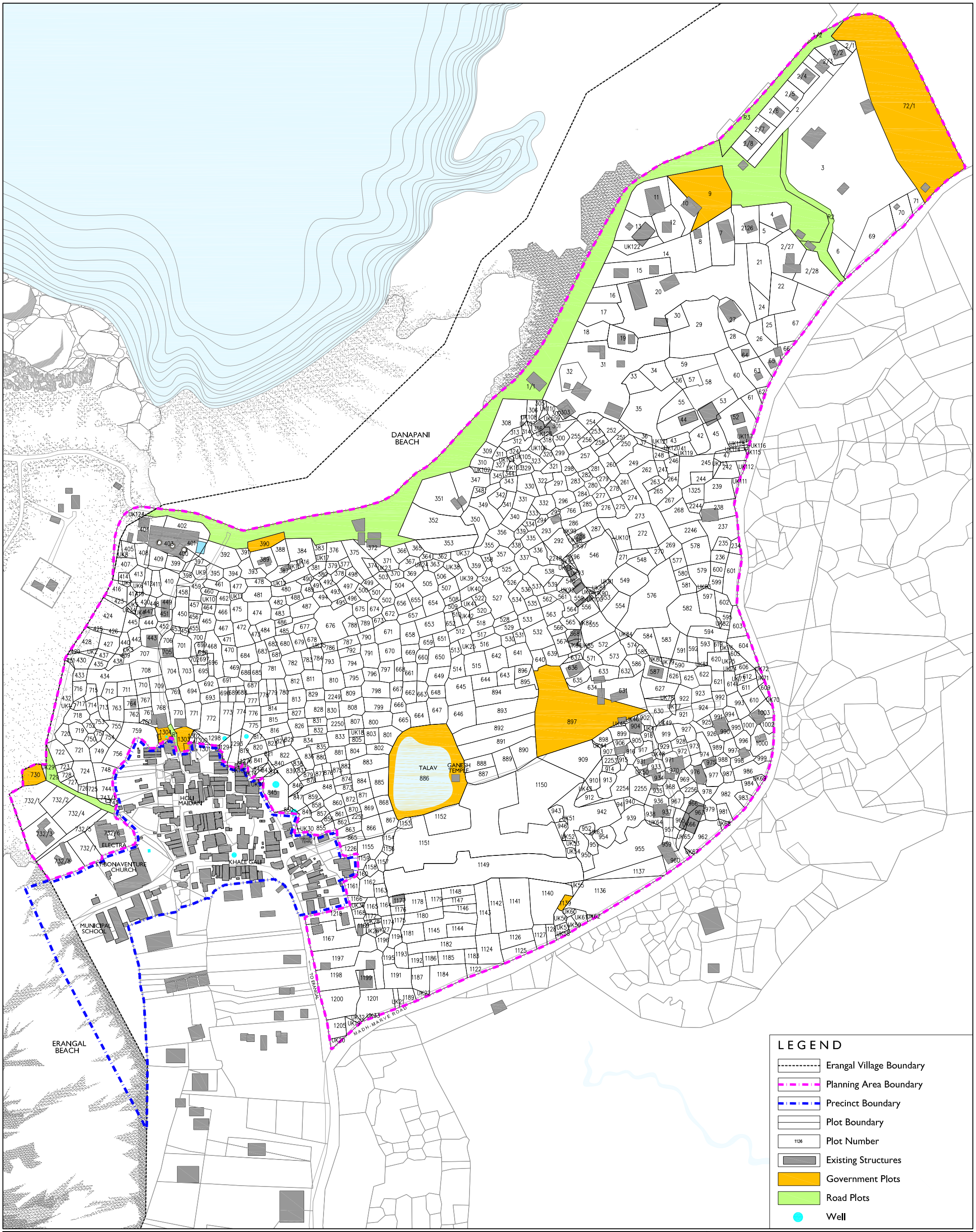
ACTION PLAN FOR HERITAGE CONSERVATION AND ENVIRONMENT IMPROVEMENT OF ERANGAL PRECINCT

45m 0 45 135m

SCALE :- 1 : 4,500

SOURCE:
DP Sheets, 1991
CZMP, Maharashtra

MAP NO. 10



MUMBAI METROPOLITAN REGION
HERITAGE CONSERVATION SOCIETY

BASE MAP OF PRECINCT AND PLANNING AREA

35m 0 35 105m

SCALE :- 1 : 3500

Prepared by
HCP Design, Planning & Management Pvt. Ltd.

ACTION PLAN FOR HERITAGE CONSERVATION AND ENVIRONMENT IMPROVEMENT OF ERANGAL PRECINCT

SOURCE :-
Field Survey by HCP DPM, June 2010

MAP NO. 11

DANAPANI BEACH

TALAV

ERANGAL BEACH

ELECTRA

TO ERANGAL

MADH MARVE ROAD

LEGEND

- Gaothan Boundary
- Planning Area Boundary
- Precinct Boundary
- Original Plot Boundary
- Existing Structures

Primary / Arterial Road
- 27.45 m Wide

Secondary / Collector Road
- 12 m Wide

Tertiary / Feeder Road
- 9 m Wide
- 7.5 m Wide

Neighbouehood Road
- 4.5 m Wide
- 3 m Wide
- Existing Bus Stop

MUMBAI METROPOLITAN REGION
HERITAGE CONSERVATION SOCIETY

PROPOSED ROAD NETWORK PLAN

35m 0 35 105m

SCALE :- 1 : 3500

Prepared by
HCP Design & Project Management Pvt. Ltd.

ACTION PLAN FOR HERITAGE CONSERVATION AND ENVIRONMENT IMPROVEMENT OF ERANGAL PRECINCT

MAP NO. 12

DANAPANI BEACH

ERANGAL BEACH

TALAV

GANESH TEMPLE

MADH-MARVE ROAD

TO ERANGAL

ELECTRA

Utility

LEGEND

- Gaothan Boundary
- Planning Area Boundary
- Precinct Boundary
- Final Plot Boundary
- Existing Structures
- Government Land
- Appropriated Land
- Proposed Roads
- Existing Bus Stop

MUMBAI METROPOLITAN REGION
HERITAGE CONSERVATION SOCIETY

Prepared by
HCP Design, Planning & Management Pvt. Ltd.

PROPOSED AREA PLAN

ACTION PLAN FOR HERITAGE CONSERVATION AND ENVIRONMENT IMPROVEMENT OF ERANGAL PRECINCT

35m 0 35 105m

SCALE :- 1 : 3500

MAP NO. 13

DANAPANI BEACH

TALAV GANESH TEMPLE

ELECTRA

ERANGAL BEACH

TO ERANGAL

MADH-MARVE ROAD

LEGEND

- Gaothan Boundary
- Planning Area Boundary
- Precinct Boundary
- Final Plot Boundary
- Existing Structures
- Precinct / Gaothan
- Planning Area / Gaothan Expansion
- Proposed Road

MUMBAI METROPOLITAN REGION
HERITAGE CONSERVATION SOCIETY

PROPOSED ZONING FOR ERANGAL PRECINCT AND PLANNING AREA

35m 0 35 105m

SCALE :- 1 : 3500

Prepared by
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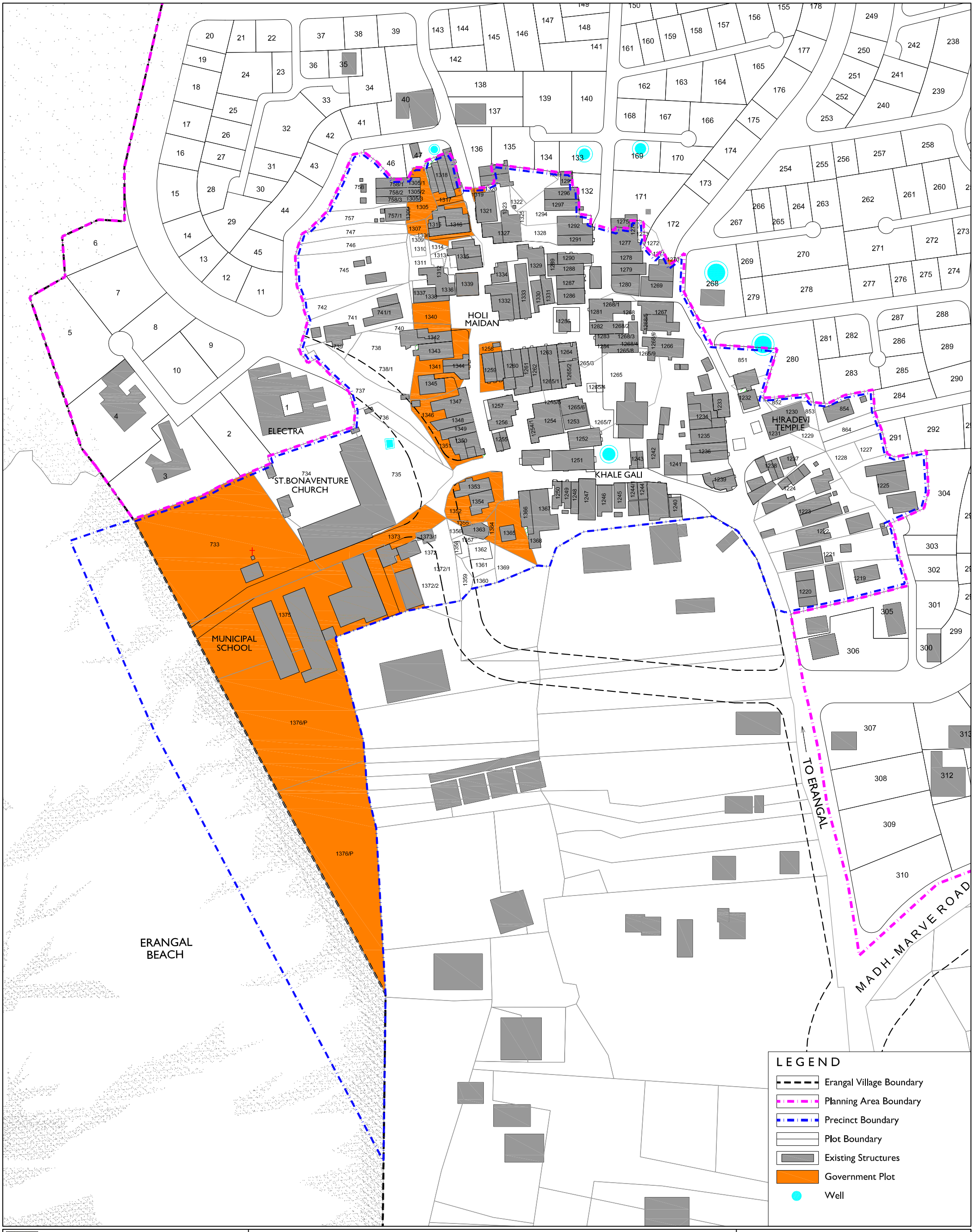
ACTION PLAN FOR HERITAGE CONSERVATION AND ENVIRONMENT IMPROVEMENT OF ERANGAL PRECINCT

SOURCE :-

MAP NO. 14



MUMBAI METROPOLITAN REGION
HERITAGE CONSERVATION SOCIETY

GOVERNMENT LANDS IN ERANGAL PRECINCT

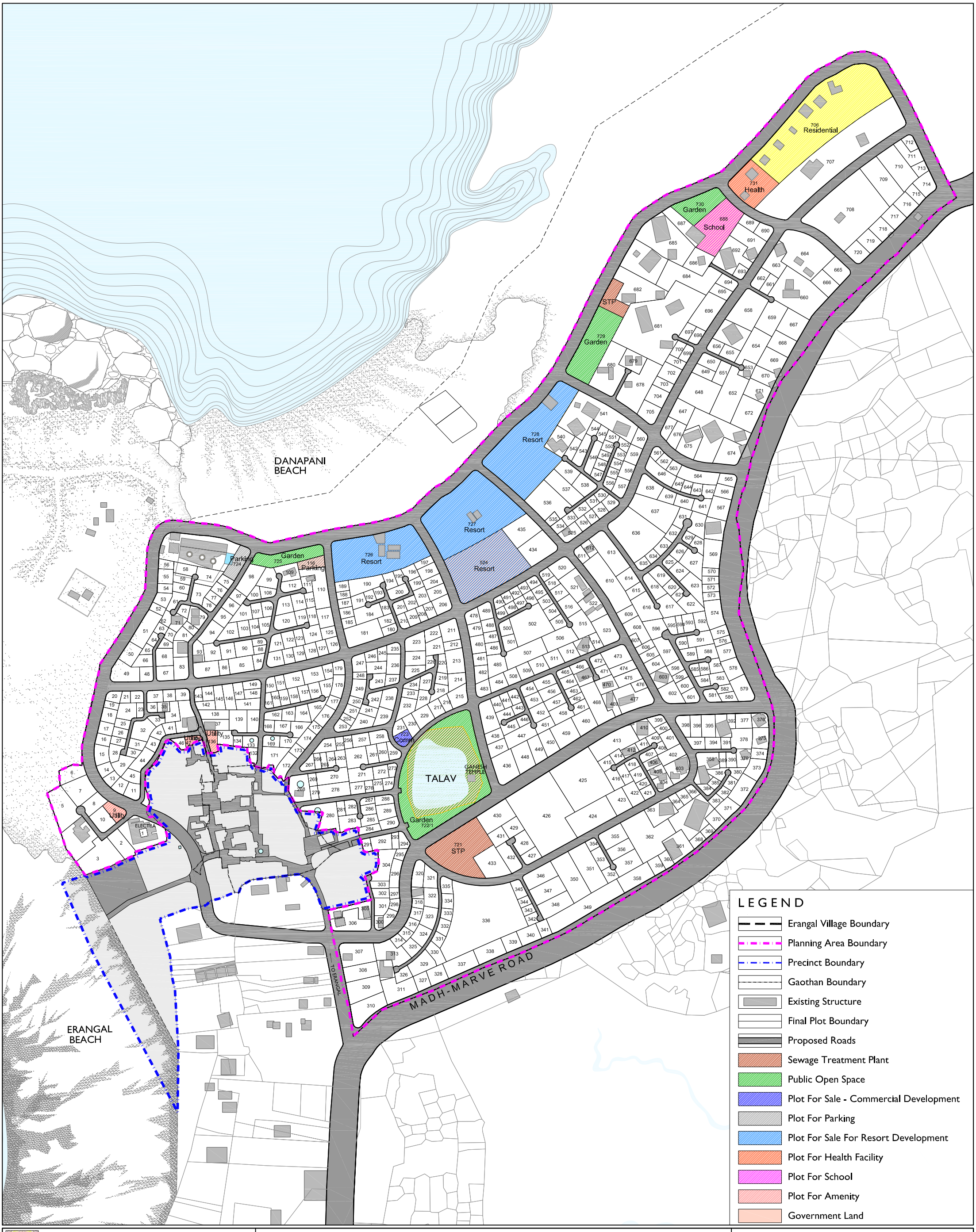
12.50m 0 12.50 37.50m
SCALE :- 1 : 1250

Prepared by
HCP Design, Planning & Management Pvt. Ltd.

ACTION PLAN FOR HERITAGE CONSERVATION AND ENVIRONMENT IMPROVEMENT OF ERANGAL PRECINCT

SOURCE :-
Field Survey by HCP DPM, June 2010

MAP NO. 15



MUMBAI METROPOLITAN REGION
HERITAGE CONSERVATION SOCIETY

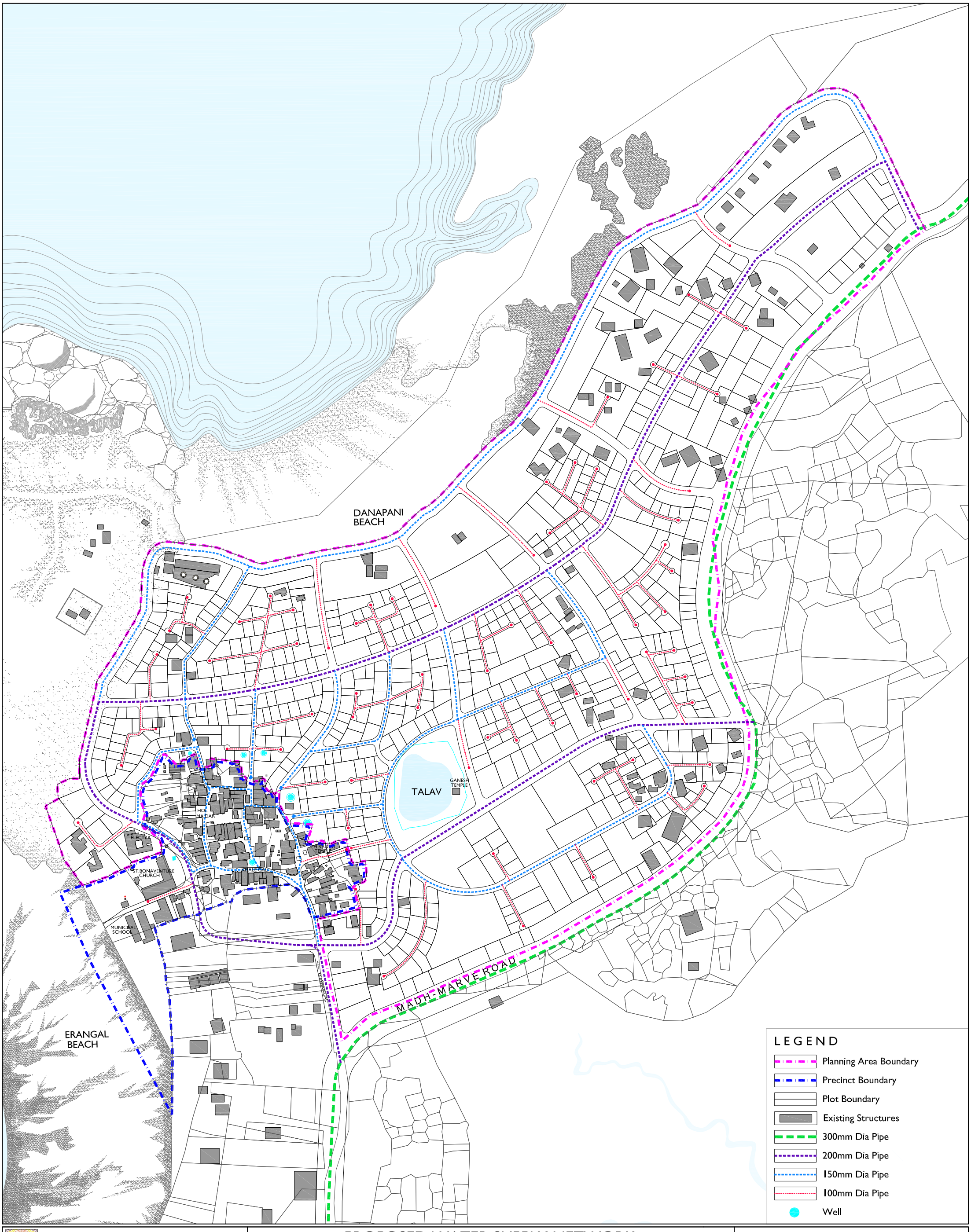
GOVERNMENT LANDS AND APPROPRIATIONS IN PLANNING AREA

35m 0 35 105m
SCALE :- 1 : 3500

Prepared by
HCP Design, Planning & Management Pvt. Ltd.

ACTION PLAN FOR HERITAGE CONSERVATION AND ENVIRONMENT IMPROVEMENT OF ERANGAL PRECINCT

MAP NO. 16



MUMBAI METROPOLITAN REGION
HERITAGE CONSERVATION SOCIETY

PROPOSED WATER SUPPLY NETWORK FOR PRECINCT AND PLANNING AREA

35m 0 35 105m
SCALE :- 1 : 3500

Prepared by
HCP Design, Planning & Management Pvt. Ltd.

ACTION PLAN FOR HERITAGE CONSERVATION AND ENVIRONMENT IMPROVEMENT OF ERANGAL PRECINCT

SOURCE :-
Field Survey by HCP DPM, June 2010

MAP NO. 17

DANAPANI BEACH

ZONE 2

ZONE 1

TALAV

GANESH TEMPLE

HOLI MAIDAN

ELECTRA

HANUMAN TEMPLE

ST.BONAVENTURE CHURCH

KHALASAIN

MUNICIPAL SCHOOL

TO BANGLI

MADH-MARVE ROAD

ERANGAL BEACH

LEGEND

- Erangal Village Boundary
- Planning Area Boundary
- Precinct Boundary
- Plot Boundary
- Existing Structures
- 300mm Dia Pipe
- 200mm Dia Pipe
- 150mm Dia Pipe
- 100mm Dia Pipe
- Sewage Treatment Plant
- Sewage Zone Boundary
- Sewage Zone I
  Precinct and Surrounding Area
- Sewage Zone II
  Remaining Planning Area
- Well

MUMBAI METROPOLITAN REGION
HERITAGE CONSERVATION SOCIETY

Prepared by
HCP Design, Planning & Management Pvt. Ltd.

PROPOSED SEWERAGE NETWORK FOR PRECINCT AND PLANNING AREA

ACTION PLAN FOR HERITAGE CONSERVATION AND ENVIRONMENT IMPROVEMENT OF ERANGAL PRECINCT

35m 0 35 105m

SCALE :- 1 : 3500

SOURCE :-
Field Survey by HCP DPM, June 2010

MAP NO. 18

DANAPANI BEACH

TALAV

GANESH TEMPLE

HOLI MAIDAN

ELECTRA

SHRI RAM TEMPLE

KHALE GALI

ST.BONAVENTURE CHURCH

MUNICIPAL SCHOOL

TO ERANGAL

MADH-MARVE ROAD

ERANGAL BEACH

1

2

3

4

5

6

LEGEND

- Erangal Village Boundary
- Planning Area Boundary
- Precinct Boundary
- Plot Boundary
- Existing Structures
- 1 Solid Waste Collection Points
- Well

MUMBAI METROPOLITAN REGION
HERITAGE CONSERVATION SOCIETY

Prepared by
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PROPOSED SOLID WASTE COLLECTION POINTS FOR PRECINCT AND PLANNING AREA

ACTION PLAN FOR HERITAGE CONSERVATION AND ENVIRONMENT IMPROVEMENT OF ERANGAL PRECINCT

35m 0 35 105m

SCALE :- 1 : 3500

SOURCE :-
Field Survey by HCP DPM, June 2010

MAP NO. 19

STREETS

1 Khale Gali Street
2 Electra Street
3 Holi Maidan Street
4 Hiradevi Temple Street
5 Bonaventure Street
6 Tulsi Planter Street

OPEN SPACES

1 Badamwadi
2 Holi Maidan
3 St. Bonaventure Church
4 Hiradevi Temple
5 On Khale Gali

HOLI MAIDAN
ELECTRA
ST.BONAVENTURE CHURCH
KHALE GALI
HIRADEVI TEMPLE
BONAVENTURE STREET
MUNICIPAL SCHOOL
TO ERANGAL

LEGEND

Planning Area Boundary
Precinct Boundary
Plot Boundary
Existing Structures
Streets
Open Spaces
Infrastructure Bay
Well

MUMBAI METROPOLITAN REGION
HERITAGE CONSERVATION SOCIETY

Prepared by
HCP Design, Planning & Management Pvt. Ltd.

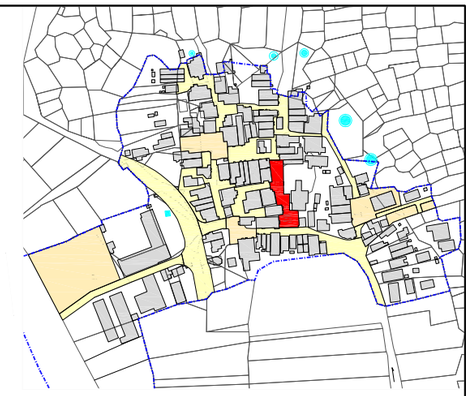
PROPOSED PUBLIC REALM IN THE PRECINCT

ACTION PLAN FOR HERITAGE CONSERVATION AND ENVIRONMENT
IMPROVEMENT OF ERANGAL PRECINCT

10m 0 10 30m
SCALE :- 1 : 1000

SOURCE :-
Field Survey by HCP DPM, June 2010

MAP NO. 20



WELL

CHABUTRA

WAY TO ERANGAL BEACH

KHALE GALI

WAY TO HIRADEVI TEMPLE

LEGEND

- Edge of Public Realm
- Paved Public Space
- Paved Streets
- Existing Structures
- Infrastructure Bay
- Street Light Pole
- Bench
- Well

MUMBAI METROPOLITAN REGION
HERITAGE CONSERVATION SOCIETY

PROPOSED BADAMWADI CHOWK

2.0m 0 2.0 6.0m
SCALE :- 1 : 200

Prepared by
HCP Design, Planning & Management Pvt. Ltd.

ACTION PLAN FOR HERITAGE CONSERVATION AND ENVIRONMENT
IMPROVEMENT OF ERANGAL PRECINCT

SOURCE :-
Field Survey by HCP DPM, June 2010

MAP NO.
21

MUMBAI METROPOLITAN REGION
HERITAGE CONSERVATION SOCIETY

PROPOSED HOLI MAIDAN

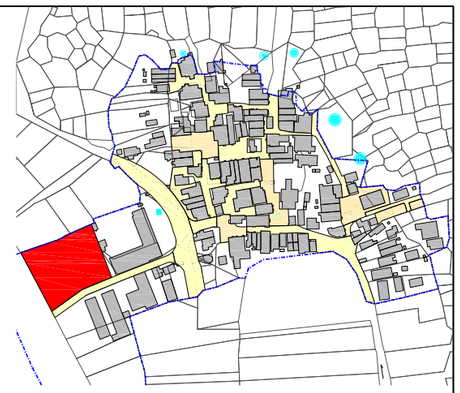
1.50m 0 1.50 4.50m
SCALE :- 1 : 150

Prepared by
HCP Design, Planning & Management Pvt. Ltd.

ACTION PLAN FOR HERITAGE CONSERVATION AND ENVIRONMENT
IMPROVEMENT OF ERANGAL PRECINCT

SOURCE :-
Field Survey by HCP DPM, June 2010

MAP NO.
22



PARKING

BOAT PARKING

HIGH MASK

TEMPLE

VEHICULAR ACCESS

ENTRANCE PORCH

ST. BONAVENTURE CHURCH

3 M WIDE CARRIAGE WAY

WAY TO SETTLEMENT

WAY TO ERANGAL BEACH

UP

PLINTH

LEGEND

- Edge of Public Realm
- Paved Public Space
- Paved Streets
- Existing Structures
- Infrastructure Bay
- Street Light Pole
- Plinth

MMR HERITAGE CONSERVATION SOCIETY

MUMBAI METROPOLITAN REGION
HERITAGE CONSERVATION SOCIETY

Prepared by
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PROPOSED BONAVENTURE CHURCH OPEN SPACE

ACTION PLAN FOR HERITAGE CONSERVATION AND ENVIRONMENT
IMPROVEMENT OF ERANGAL PRECINCT

2.0m 0 2.0 6.0m

SCALE :- 1 : 200

SOURCE :-
Field Survey by HCP DPM, June 2010

MAP NO.
23

MUMBAI METROPOLITAN REGION
HERITAGE CONSERVATION SOCIETY

PROPOSED HIRADEVI TEMPLE OPEN SPACE

1.75m 0 1.75 5.25m
SCALE :- 1 : 175

Prepared by
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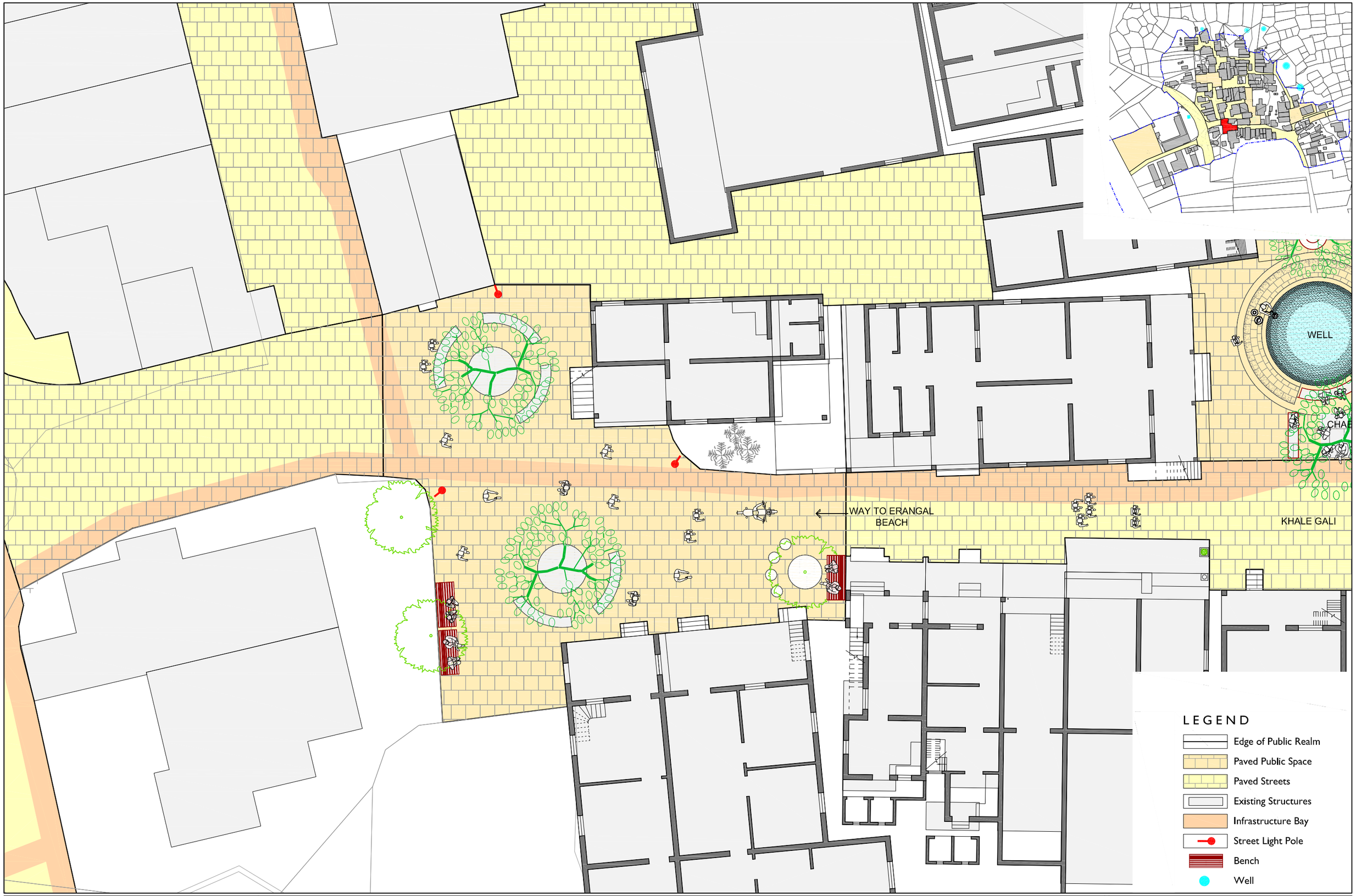
ACTION PLAN FOR HERITAGE CONSERVATION AND ENVIRONMENT
IMPROVEMENT OF ERANGAL PRECINCT

SOURCE :-
Field Survey by HCP DPM, June 2010

MAP NO.
24



MUMBAI METROPOLITAN REGION
HERITAGE CONSERVATION SOCIETY

PROPOSED KHALEGALI OPEN SPACE

1.5m 0 1.5 4.5m
SCALE :- 1 : 150

Prepared by
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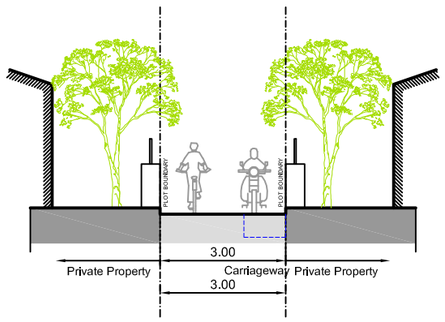
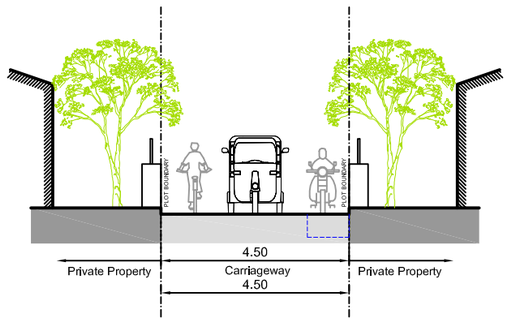
ACTION PLAN FOR HERITAGE CONSERVATION AND ENVIRONMENT
IMPROVEMENT OF ERANGAL PRECINCT

SOURCE :-
Field Survey by HCP DPM, June 2010

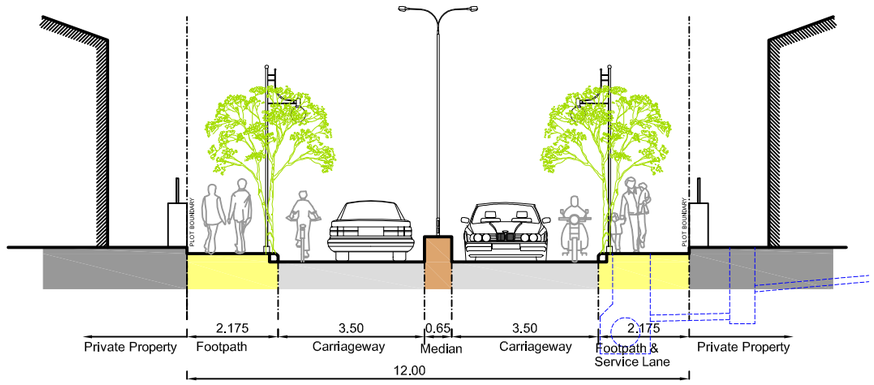
MAP NO.
25



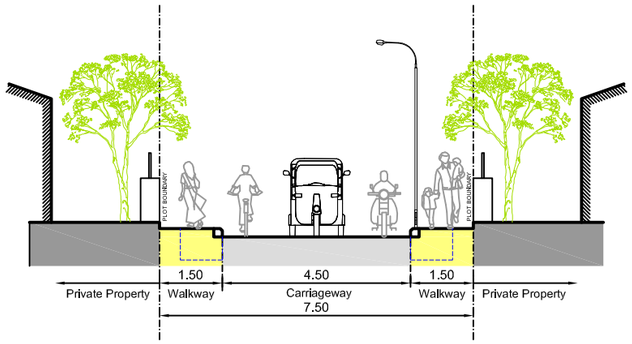
CROSS SECTION OF 3m WIDE ROAD



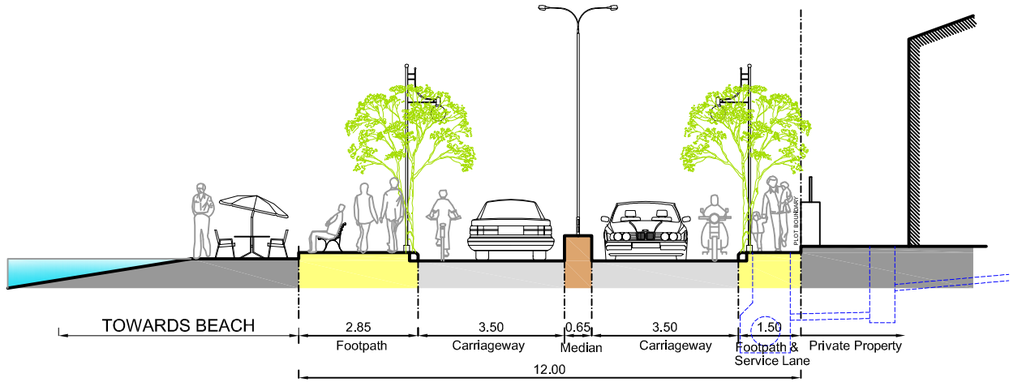
CROSS SECTION OF 4.5m WIDE ROAD



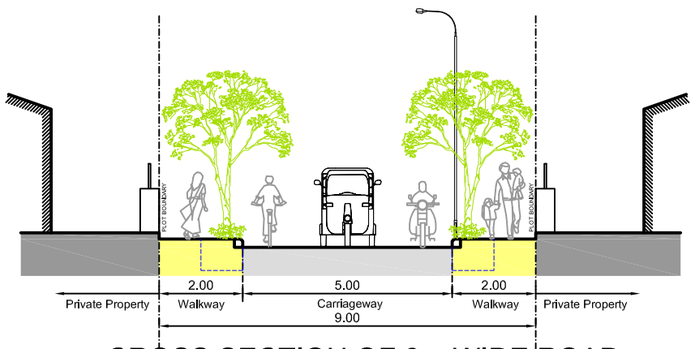
CROSS SECTION OF 12m WIDE ROAD AWAY FROM BEACH



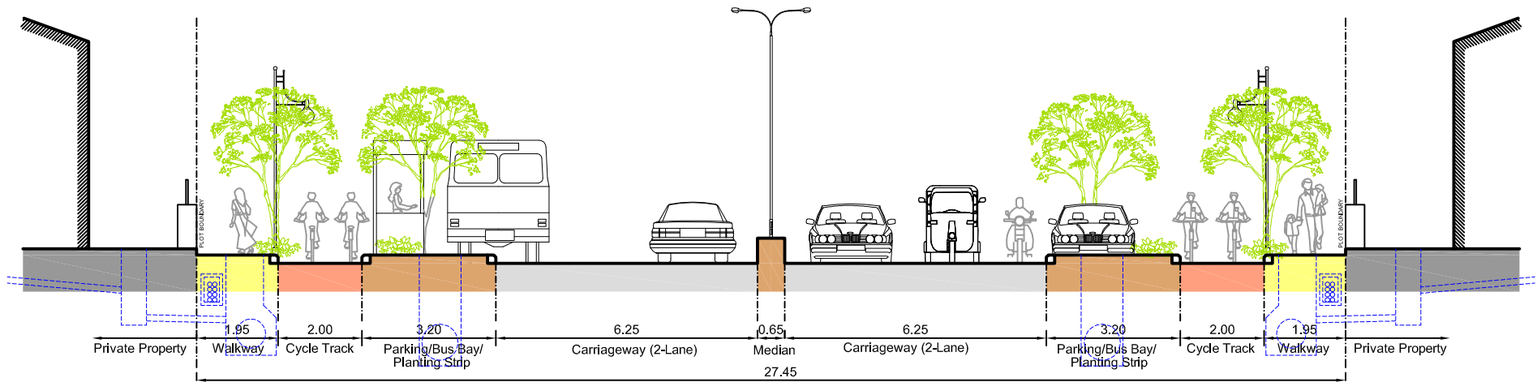
CROSS SECTION OF 7.5m WIDE ROAD



CROSS SECTION OF 12m WIDE ROAD BEACH SIDE



CROSS SECTION OF 9m WIDE ROAD



CROSS SECTION OF 27.45m WIDE ROAD

MUMBAI METROPOLITAN REGION
HERITAGE CONSERVATION SOCIETY

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SCHEMATIC STREET SECTIONS FOR PLANNING AREA

ACTION PLAN FOR HERITAGE CONSERVATION AND ENVIRONMENT
IMPROVEMENT OF ERANGAL PRECINCT

1.5m 0 1.5 4.5m
SCALE :- 1 : 150

SOURCE :-
Field Survey by HCP DPM, June 2010

MAP NO.
26

B

TO DANAPANI BEACH

9 M ROAD

SEWEAGE TREATMENT PLANT PROPOSED

4.5 M ROAD

OAT

TOILET

DECK

SHOP

TALAV

TEMPLE

A

A

GAZEBO

ENTRANCE

TOWARDS SETTLEMENT

SECURITY CABIN

TO MADH-MARVE ROAD

SITTING

GAZEBO

PERGOLA

ENTRANCE

12 M ROAD

BRIDGE

FOUNTAIN

SITTING UNDER TREE

GAZEBO

TOWARDS SETTLEMENT

B

SECTION AA

SECTION BB

MUMBAI METROPOLITAN REGION HERITAGE CONSERVATION SOCIETY	PROPOSED TALAV IN PLANNING AREA	5m 0 5 15m SCALE :- 1 : 500
Prepared by HCP Design, Planning & Management Pvt. Ltd.	ACTION PLAN FOR HERITAGE CONSERVATION AND ENVIRONMENT IMPROVEMENT OF ERANGAL PRECINCT	SOURCE :- Field Survey by HCP DPM, June 2010 MAP NO. 27

730 Garden

729 Garden

DANAPANI BEACH

725 Garden

TALAV

GANESH TEMPLE

ELECTRA

TO ERANGAL

MADH-MARVE ROAD

ERANGAL BEACH

LEGEND

- Erangal Village Boundary
- Planning Area Boundary
- Precinct Boundary
- Gaothan Boundary
- Existing Structures
- Final Plot Boundary
- Open Space
- Proposed Roads

MUMBAI METROPOLITAN REGION
HERITAGE CONSERVATION SOCIETY

Prepared by
HCP Design, Planning & Management Pvt. Ltd.

PUBLIC SPACES ALONG DANAPANI BEACH IN PLANNING AREA

ACTION PLAN FOR HERITAGE CONSERVATION AND ENVIRONMENT IMPROVEMENT OF ERANGAL PRECINCT

35m 0 35 105m

SCALE :- 1 : 3500

SOURCE :-

MAP NO. 28

03 Sitaram Narayan Mhatre
11 Pramod Mhatre
13 Kamlabai Mhatre
20 Bonaventure Church
35 Sangeeta Govind Thakur
60 Panderinath L Chaudhary
76 Naina Mhatre
83 Pandurang Valji Mhatre
86 Hanumant Padurang Patil
88 Shantaram Laxman Chaudhary










HOLI MAIDAN
BADAMWADI
HIRADEVI TEMPLE
KHALE GALI
ST.BONAVENTURE CHURCH
← WAY TO ERANGAL BEACH
TO ERANGAL
MUNICIPAL SCHOOL

LEGEND
- Precinct Boundary
- Edge of Public Realm
- Paved Public Space
- Paved Streets
- Existing Structures
- 03 Structure Number
- Well

MUMBAI METROPOLITAN REGION
HERITAGE CONSERVATION SOCIETY

RESTORED STRUCTURES IN THE PRECINCT

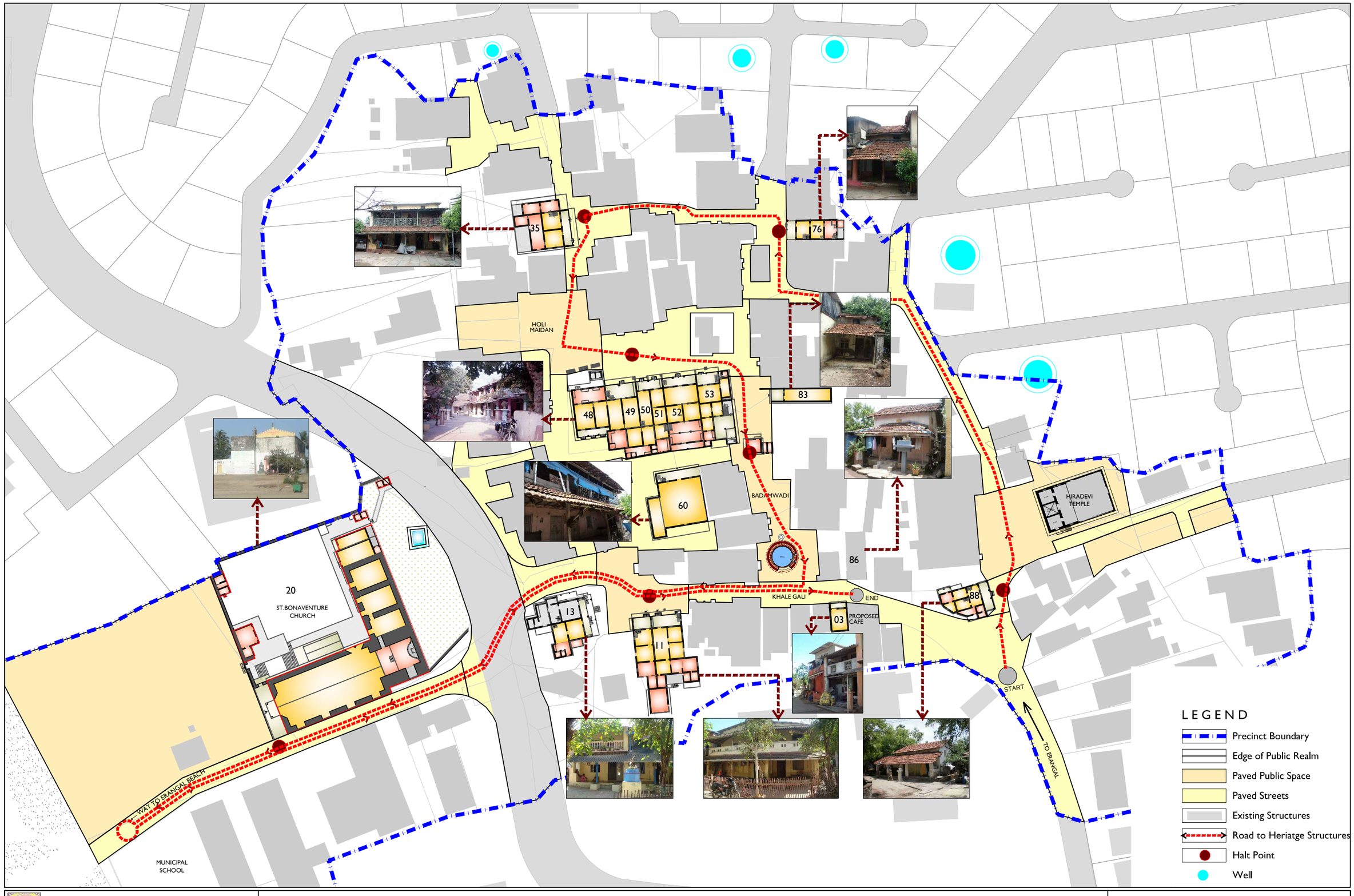
2.0m 0 2.0 6.0m
SCALE :- 1 : 200

Prepared by
HCP Design, Planning & Management Pvt. Ltd.

ACTION PLAN FOR HERITAGE CONSERVATION AND ENVIRONMENT
IMPROVEMENT OF ERANGAL PRECINCT

SOURCE :-
Field Survey by HCP DPM, June 2010

MAP NO. 29



MUMBAI METROPOLITAN REGION
HERITAGE CONSERVATION SOCIETY

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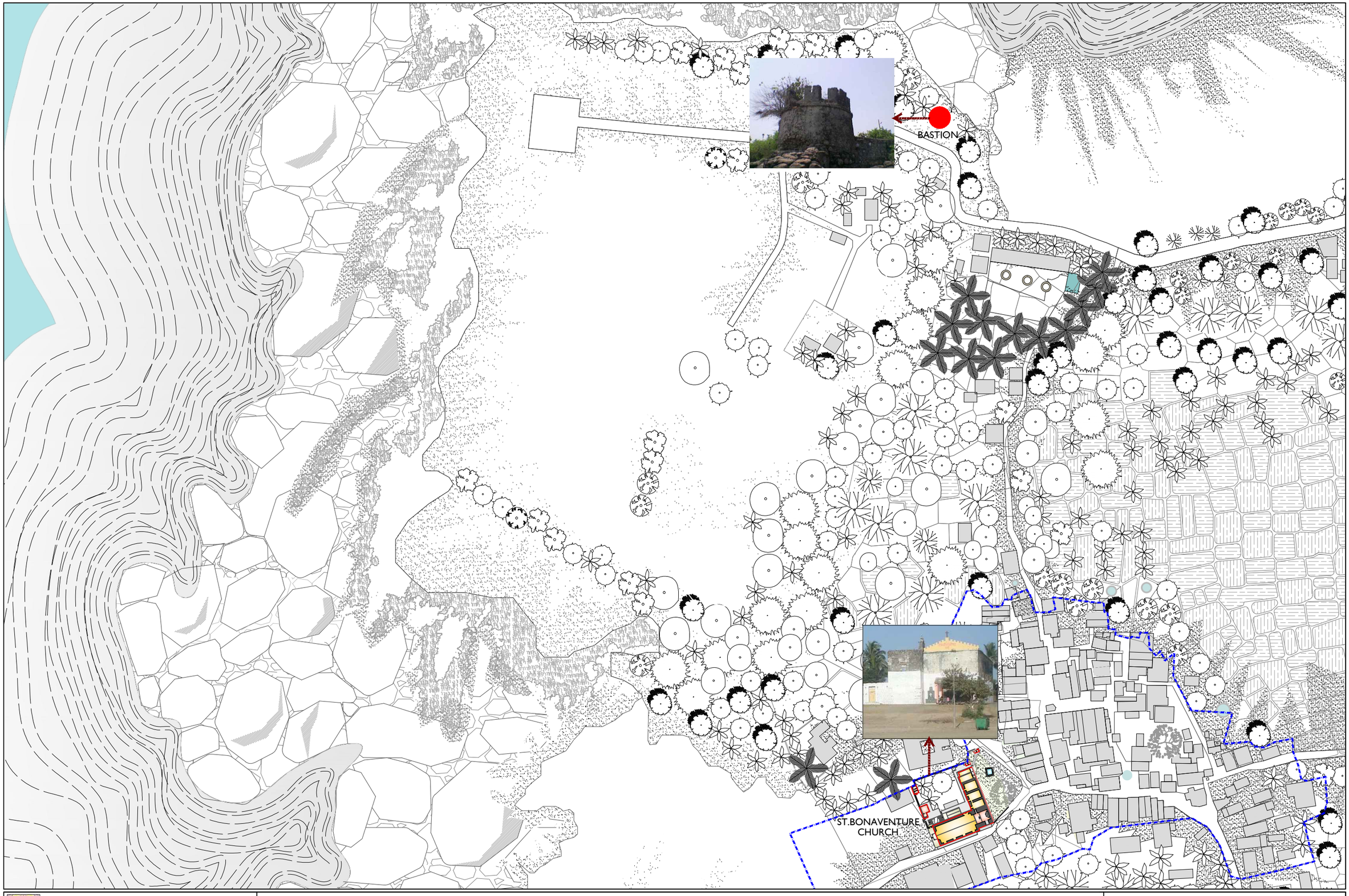
HERITAGE WALK IN THE PRECINCT

ACTION PLAN FOR HERITAGE CONSERVATION AND ENVIRONMENT
IMPROVEMENT OF ERANGAL PRECINCT

2.0m 0 2.0 6.0m
SCALE :- 1 : 200

SOURCE :-
Field Survey by HCP DPM, June 2010

MAP NO. 30



MUMBAI METROPOLITAN REGION
HERITAGE CONSERVATION SOCIETY

LOCATION OF BASTION AND ST. BONAVENTURE CHURCH

20m 0 20 60m

SCALE :- 1 : 2000

Prepared by
HCP Design, Planning & Management Pvt. Ltd.

ACTION PLAN FOR HERITAGE CONSERVATION AND ENVIRONMENT
IMPROVEMENT OF ERANGAL PRECINCT

SOURCE :-
Field Survey by HCP DPM, June 2010

MAP NO.
31

HCP Design, Planning and Management Pvt. Ltd
Paritosh, Usmanpura, Ahmedabad - 380013.
Telephone: (079) 27550875, Fax: (079) 27552924
www.hcp.co.in