PIMPRI CHINCHWAD MUNICIPAL CORPORATION, PUNE

NISARGKAVI BAHINABAI CHOUDHARY PRANISANGRAHALAY

SAMBHAJI NAGAR, CHINCHWAD, PUNE - 411019

MASTER PLAN 2015

(For Years 2015-2025)

May be approved
9.3.2016

CERTIFICATE

This is to certify that the Master Plan (2015-2025) for scientific and long term management of Nisargakavi Bahinabai Choudhary Pranisangrahalaya, Chinchwad, Pune has been prepared by PimpriChinchwad Municipal Corporation and Nisargakavi Bahinabai Choudhary Pranisangrahalaya, Chinchwad, Pune.

Dr. Satish Gore
Municipal Veterinary Officer &
Officer In-charge, PCMC Zoo.

Mr. Tanaji Shinde
Additional Commissioner
Pimpri Chinchwad Municipal Corporation

Master plan is approved subject to the condition that the responsibility of mobilizing the financial resources for implementation of the Master plan is sole responsibility of Pimpri Chinchwad Municipal Corporation, Pimpri, Pune.

Member Secretary
Central Zoo Authority
New Delhi.

Member Secretary
Central Zoo Authority
(Ministry of Environment & Forests)
Govt. of India, New Delhi

Dt. 02/06/2016

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Acknowledgement

I wish to propose my immense gratitude to all the senior officersandtechnical experts who have been involved in preparation of this zoo Masterplan for PimpriChinchwad Municipal Corporation. I am thankful to Mr. TanajiShinde, Additional Commissioner, the Chairman of the committee, Mrs. Mangalatai AshokKadam(Corporator, Ex. Mayor, PCMC), Mr. Sanjay Kamble(Executive Engineer),Mr. Suresh Salunkhe (Chief Garden Supdt.), Mr. Pankaj Jain (M/s Jain Associates), Mr. Deepak Sawant (Curator, Pune Snake Park) and Mr. NeelimkumarKhaire (Renowned Reptile expert &Ex. Director, Rajiv Gandhi Zoo, Pune).

My Special and sincere thanksare due to the HonorableCommissioner Shree. Rajiv Jadhav and also to Hon. Mayor, PCMC Mrs. ShakuntalaDharadefor continued encouragement and support in the process of masterplanning this PCMC zoo.

Dr. Satish Gore

Veterinary Officer& I/C Zoo

PREFACE

A visit to the zoo should be educational and even a bit inspiring. "A good zoo would leave you changed"...You'd leave the zoo not just with a better understanding of the complexity and interdependence of nature and the extraordinary diversity of natural forms, but also with a passion for finding ways to make the world more environmentally harmonious.

NisargkaviBahinabaiChoudharyPranisangrahalay (PCMC Zoo) Master Plan is not just a physical plan; it addresses the core of why this exists and sets its future direction. The physical lay-out of a Zoo provides a framework for its purpose, reflecting its aims, mission and functions. A central driver of the Zoo Master Plan is the Zoo's strategic direction. This Zoo has developed a clearer vision for its future.

PCMC Zoo has developed an all-of-Zoo operational plan reflecting work in all aspects of Zoo operations. At the strategic level, there has been agreement to concentrate on the Zoo's role in conservation and in delivering high level research and education programs. These will increase knowledge of bio-diversity and our animal collection and enable protection and re-introduction of threatened species. It will also allow us to show-case the best practice in environment management. This reflects the Zoo's commitment to excellence in species' management, care, research, education and in the administration and custodianship of the Zoo grounds.

Increasingly, and in line with developments nationally & globally throughout the World Zoo movement, this Zoo is not an 'old-style' zoo that is a recreational attraction that simply entertains. PCMC Zoo provides varied opportunities both recreational and educational for visitors. It is, however, a conservation, education and research organization. This is a conscious strategic direction. The expertise of Zoo staff, the conservation and environmental imperatives facing our world, and the position of PCMC Zoo as one of several important tourism sites in the city of Pimpri, Chinchwad, Bhosari and surrounding places, playing a lead role in conservation, research and learning institution. This does not mean that the Zoo will not operate in a commercial manner. Zoo's commercial activities have been developed to align and complement its strategic objectives. Using principles of environmental and business sustainability and show-casing its activities and expertise in research and breeding of threatened species, this zoo aims to develop as one of the world's best small zoos, leading the way in animal care, conservation work, community and school education programs, business practice and environmental management. The intent of this Plan is to confirm this direction clearly and to set a future and potential development path for this Zoo.

FOREWORD

We are pleased to bring out this document for better and scientific management of NisargkaviBahinabaiChoudharyPranisangrahalay. This zoo was started as a mini zoo with a handful collection of a few snakes and birds. In later years, a collection of exotic birds was added to the facility. Mammal section was also eventually evolved with confiscated and rescued animals. Then there had been a need to channelize the animal collection. Accordingly, we decided to prepare this long term Masterplan. Initially a team of experts was called upon to form a Masterplan committee. This committee has discussed the aims & objectives, current facilities and constraints, theme of the exhibits, conservation breeding of endangered species. This document is the final draft which considers all the inputs given by the committee members and other experts in various fields.

We are all set to move ahead with this Masterplan for further development and expansion of our zoo.

Tanaji Shinde

Additional Commissioner

CHAPTER I

INTRODUCTION

INTRODUCTION

PimpriChinchwad is the fastest growing cosmopolitan city in the State of Maharashtra with current population over 21 lakhs, approximately. Popularly known for its well established industrial set-up, the township has now become the residential and commercial hub with all amenities and infrastructure provided from Local Municipal Corporation. The city is birth place of great saints, freedom fighters and devotees that indicates the unique presentation of strength, unity and spiritualism. Chinchwad is birth place of famous saint MoryaGosavi and his shrine, which is one of the lord Ganesha'sshaktipeeth in Maharashtra State.

The sudden growth in population and emerging IT hub which has compelled to develop many other projects in respect to education, research, cultural and entertainment fields. Considering the need of time, the zoo in city which is working from 1989 is being modified to requirements of the modern era. A master layout plan for futuristic development submitted to Central Zoo Authority has been recently sanctioned. Accordingly, this Master Plan document is being drafted for conceptualization of this development.

The master plan of NisargakaviBahinabaiChoudharyPranisangrahalay, Chinchwad (PCMC Zoo) is to align the zoo's development towards the new and emerging roles of a zoo. This Master Plan is being overlaid on the existing infrastructure to optimise the disruption to existing facility and animals. The zoo endeavors to become a leader in the field of conservation education and awareness. An emphasis on the need for creating a scientifically managed ex-situ breeding facility of endangered reptiles and amphibians that can prevent rapid extermination of threatened species will be an integral part of this master plan.

The Master Plan focuses on prioritizing the needs of the zoo by developing a 'realistic' plan. This plan is dealt with a comprehensive approach for a twenty year provision that should be reviewed after ten years or more frequently if required. It encompasses the zoo's development, upgrading its facilities and infrastructure and building capacity to accomplish its role in era of ex-situ development.

The plan focuses attention on:

1. The needs of the animals and their health, well-being and supporting natural behavior patterns.
2. The needs of the management, including veterinary care, ex-situ breeding of endangered species and visitor safety.
3. The needs of visitors especially related to conservation education and awareness.

In terms of animal welfare the new exhibits will offer adequate sized enclosures with naturalistic habitat components and suitable environments. The enclosures will focus on the animal's health and wellbeing with as little disturbance from visitors as possible. The enclosures will not only provide for their food and

shelter but prevent undue psychological stresses which are frequently neglected in the lives of caged animals.

The overall layout of the zoo is designed so that management is made efficient in day to day activities such as cleaning, feeding, vandalism, health care and safety of animals. Separate movement pathways for keepers and visitors are an important consideration. The ability of zoo personnel to monitor, capture and restrain animals in need of veterinary care is a key aspect of zoo enclosure design. From the visitors perspective being able to see the animals especially in a simulated natural habitat is a key to an exciting and lively zoo experience.

HISTROY

The initial plan for creating a zoo within the PimpriChinchwad Municipal Corporation (PCMC) was mooted by the then Corporator Mr. Ashok Kadam. Since Mr. Kadam had likeness towards snakes and was also a regular visitor to the Snake Park at Katraj, Pune, he decided to create a similar facility in his electoral ward in PimpriChinchwad. An area of 7.05 acres was earmarked for this purpose and the zoo was formally inaugurated on 30th December 1989 and was opened to the visitors from January, 1990. Indian Herpetological Society was appointed as consulting organization and Mr. Anil Khaire was hired as the Director to take care of the Snake Park. However, as Dr. Navin Chandra Jain, then Commissioner of the Municipal Corporation was very much fond of birds, a few cages for birds were also erected at the time of opening the zoo to the public. Many exotic birds such as Pheasants, Duck, Parrots, love birds etc. were purchased from official dealers for exhibit purpose. In a due course of time, the zoo became a menagerie, having souvenir collection of exotic birds and different varieties of the animals including large carnivores like Panther and Sloth Bear, which were inducted into the zoo collection during 1996-1997.

As time passed, Maharashtra Industrial Development Corporation (MIDC) distributed residential plots to the people working in the industries and factories located in PimpriChinchwad area to build bungalows and apartments. The housing colonies came up around the zoo periphery, making the zoo an oasis of wild animal collection in the midst of concrete jungle.

The zoo is open to visitors from 10:30 a.m. to 6:00 p.m. It is extended during summer vacation from 10:30 am to 7.00 pm. The zoo remains closed for visitors on every Tuesday. An entry Fee of Rs.10/- is charged for Adults and Rs.5/- for Children below 12 years of age. During the year 20012-13, the zoo was visited by 1,99,800 adults and 74,763 children. During the year 2012 – 2013 the net earnings from revenue was Rs. 9,93,175/-.

Table 1: ANNUAL VISITORSHIP AT PCMC ZOO

Year	Adults	Children	Total
2007-2008	1,45,692	52,909	1,98,601
2008-2009	1,82,221	64,059	2,46,280
2009-2010	1,42,795	79,285	2,22,080
2010- 2011	1,67,856	66,489	2,34,345
2011-2012	1,76,005	69,489	2,45,494
2012-2013	1,99,800	74,763	2,74,563

OUR VISION

'Inspiring our community to create a better future for wildlife in India and across the world'

Given that as our vision, the two questions that drive the development of this document are:

- Where does PCMC Zoo need to improve to become one of the nation's best small zoo?
- How do we balance the many competing priorities to achieve long-term and sustainable high quality zoo activities for our visitors?

In order to address the above questions, the PimpriChinchwad Municipal Corporation took an earnest decision in July 2007 and constituted a master plan committee comprising of learned citizens of the city and persons of eminence under the chairmanship of the Additional Municipal Commissioner to deliberate on the various opportunities that exist for development of the PCMC zoo into one of the best managed small zoo in the country. This document has come out with a concept agreeable to the guidelines laid down by the Central Zoo Authority for the development of PCMC zoo in coming years. There has been substantial analysis of exhibit requirements, education, research focus and visitor service needs in order to identify what is required to be an even better zoo. The vision document sets out to be achievable and practical, recognizing the constraints in both the commercial and public sector environments as well as acknowledging our obligations to the community for quality services and responsible animal management.

OBJECTIVES

1. To educate the students and visitors about importance of wildlife and emphasize the need for conservation of nature and natural resources.
2. To rescue the snakes, birds and sometimes other animals that enter into human habitation and release them back in the wild.

3. To undertake breeding programs of endangered herpetofaunal species and release the offspring back into the declining population areas.
4. To organize guided tours for school children and provide necessary information lectures, demonstrations, slide shows and related printed material.
5. To disseminate the current information on Biodiversity amongst the general public.

STRATEGY

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APROACH

The PCMC Zoo is 25 km from Pune railway station, nearest railway station is Akurdi at 8km connected to Pune stations by local trains with good frequency. The park is also accessible from Chinchwad railway station at equal distance. It is 35 km. from the Pune Air Port. The park is well connected by bus to major localities in city. Nigdi is a one of the prime bus junctions connecting all the localities in city by is 5 km from the zoo. The park locality is well connected on Bhosari- Nigdi bus route having good bus frequency.

DEMOGRAPHY AND SURROUNDINGS

The PCMC zoo is only animal facility in emerging mega city of PimpriChinchwad. It caters to visitors from this city and surrounding sub-urban and rural areas. The captive population of this city is around 12 lakhs, with the daily floating population of around 1 lakh.

PCMC is a cluster of rapidly grown sub-urban areas of Pune due to speedy industrialization. The zoo is centrally located in city considering its distance from major developing centers. It is situated towards 4 km. East from Akurdi town, 5 km. Northeast from Chinchwad railway station, 7 km West from Bhosari and 6 km North of Pimpri.

POPULATION GROWTH TRENDS

In last 10 years, the population of PCMC is growing very fast. Population of PimpriChinchwad as per census 2011 is 1,729,320 souls of which 945,914(54.70%) are males and 783,406(45.30%) are females giving a sex ratio of 828 females per 1000 males. PimpriChinchwad has an average literacy rate of 87.19, higher than the national average of 74.04%. This increasingly growth rate of population is responsible for increasing the demands of residential land. Consequently population growth is one of the important factors in changing the urban land use of PCMC.

PHYSICAL FEATUERES

Topography

The original land allotted to park was slightly undulating with a slope towards north of the land. Over the period the land has been flattened in the process of traditional landscaping. The contour map has been attached in the Annexure C.

Rock and Soils

The area is underlain by different basaltic lava flows, belonging to Deccan Traps of Upper Cretaceous to Lower Eocene age. At times, these flows are inter-bedded with agglomerates and tuffs. Basaltic flows of Deccan Trap formation are mostly exposed in the area. However, at places they are covered by laterites, soils, marshy land and alluvium along the river courses. Generally, major part of the city is covered by black cotton soil called regur formed by weathering of trap rocks. Sandy soil and older alluvial deposits of the Indrayani and Pawna Rivers are also found in pockets along the banks of these rivers.

Climate

PimpriChinchwad is situated on the Deccan Plateau and is surrounded by hills. It rises 530 meters above the mean sea level, near the confluence of Mula and Mutha rivers. Moreover, the Pavna River traverses the city, with the Indrayani River cutting through it on the north-western outskirts.

Rainfall

The PCMC area has invigorating climate throughout the year, it is high altitude, moderate rainfall and a green cover. The monsoon arrives in city during mid-June and extends to mid-September. In this period, PCMC witnesses an average annual rainfall is 700-800 mm. The maximum relative humidity during the rainy season is 70-80%, and falls as low as 30% on summer afternoons.

Rainfall

Twin township of PimpriChinchwad has a hot semi-arid climate with average temperatures ranging between 20 to 28 °C. This region experiences three seasons: summer, monsoon and a winter. Typical summer months are from March to May, with maximum temperatures ranging from 30 to 38 °C. The warmest month is April; although summer doesn't end until May, the city often receives heavy thundershowers in May (Pre-monsoon rains). Even during the peak summer months, the nights are usually cool due to its high altitude.

The winter temperature is warm and pleasant with maximum temperature of 18 to 28 °C and minimum of about 8 to 12°C during month of December- January.

Prevailing Winds

Wind speed varies from 1 to 9km/ hr. the wind direction is frequently from the East. The wind is usually stake with only occasional gusts.

Table 2: CLIMATOLOGICAL TABLE

Month	Mean Temperature(°C)		Mean Total Rainfall (mm)	Mean Number of Rainy Days	Mean Number of days with		
	Daily Minimum	Daily Maximum			Hail	Thunder	Fog
Jan	11.4	30.3	0.0	0.0	0.0	0.1	0.2
Feb	12.7	32.8	0.5	0.1	0.0	0.1	0.0
Mar	16.5	36.0	5.3	0.6	0.1	1.6	0.0
Apr	20.7	38.1	16.6	1.1	0.2	4.1	0.0
May	22.5	37.2	40.6	2.8	0.3	6.1	0.0
Jun	22.9	32.1	116.1	7.5	0.0	4.0	0.0
Jul	22.0	28.3	187.2	12.8	0.0	0.7	0.0
Aug	21.4	27.5	122.3	10.6	0.0	0.9	0.0
Sep	20.7	29.3	120.1	7.4	0.0	5.3	0.3
Oct	18.8	31.8	77.9	4.6	0.0	4.0	1.7
Nov	14.7	30.5	30.2	2.0	0.0	1.4	0.6
Dec	12.0	29.6	4.8	0.4	0.0	0.3	0.7
Annual	18.0	32.0	721.7	49.9	0.6	28.6	3.5

Table 3: CLIMATE DATA FOR PUNE

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Record high °C (°F)	35.3 (95.5)	38.9 (102)	42.8 (109)	43.3 (109.9)	43.3 (109.9)	41.7 (107.1)	36.0 (96.8)	35.0 (95)	36.1 (97)	37.8 (100)	36.1 (97)	35.0 (95)	43.3 (109.9)
Average high °C (°F)	30.3 (86.5)	32.8 (91)	36.0 (96.8)	38.1 (100.6)	37.2 (99)	32.1 (89.8)	28.3 (82.9)	27.5 (81.5)	29.3 (84.7)	31.8 (89.2)	30.5 (86.9)	29.6 (85.3)	32.0 (89.6)
Daily mean °C (°F)	20.5 (68.9)	22.0 (71.6)	25.6 (78.1)	28.8 (83.8)	29.7 (85.5)	27.4 (81.3)	25.3 (77.5)	24.5 (76.1)	25.1 (77.2)	25.0 (77)	22.3 (72.1)	20.2 (68.4)	24.7 (76.46)
Average low °C (°F)	11.4 (52.5)	12.7 (54.9)	16.5 (61.7)	20.7 (69.3)	22.5 (72.5)	22.9 (73.2)	22.0 (71.6)	21.4 (70.5)	20.7 (69.3)	18.8 (65.8)	14.7 (58.5)	12.0 (53.6)	18.0 (64.4)
Record low °C (°F)	1.7 (35.1)	3.9 (39)	7.2 (45)	10.6 (51.1)	13.8 (56.8)	17.0 (62.6)	18.9 (66)	17.2 (63)	13.2 (55.8)	9.4 (48.9)	4.6 (40.3)	3.3 (37.9)	1.7 (35.1)
Precipitation mm (inches)	0 (0)	0.5 (0.02)	5.3 (0.209)	16.6 (0.654)	40.6 (1.598)	116.1 (4.571)	187.2 (7.37)	122.3 (4.815)	120.1 (4.728)	77.9 (3.067)	30.2 (1.189)	4.8 (0.189)	721.7 (28.413)
Avg. precipitation days	0.0	0.1	0.6	1.1	2.8	7.5	12.8	10.6	7.4	4.6	2.0	0.4	49.9
% humidity	56	46	36	36	48	70	79	82	78	64	58	58	59.3
Mean monthly sunshine hours	291.4	282.8	300.7	303.0	316.2	186.0	120.9	111.6	177.0	248.0	270.0	288.3	2,895.9

FLORA AND FAUNA

Being a green island in concrete surrounded city, PCMC zoo has become an island of rich biological wealth. Its Rich green surroundings attract a good number of birds all around the year. The park has been planted with more than 30 types of trees. Majority of the park area is open and has been maintained green through plantation and lawn creation. The main trees to be found growing naturally in the area were Subabhul (*Leucaenaleukocephala*), Babhul (*Acacia nilotica*), Khair (*Acacia catechu*), Sandalwood (*Santalum album*) and *Lantana camara* and Neem (*Azadirachtaindica*) are present in the park. There is however an abundance of exotic Subabhul (*Leucaenaleukocephala*),Siver Oak (*Casurina spp.*), Nilgiri (*Eucalyptus spp.*) and Glyricidia (*Gliricidiasepium*) trees which demands planned thinning and substitution with local indigenous species along with shrubs and climbers to restore the area to mimic the natural habitats.

The Gular (*Ficusracemosa*), Banian (*Ficusbenghalensis)* and Strangler Fig (*Ficusmicrocarpa*) attract a huge number of birds in their fruiting season. Bottle brush tree and variety of flowering plantations are main attractions of nectar feeding birds. Water around Monkey hill (Moated Enclosure of previously used to house Monkeys) attracts a good number of aquatic birds due to its undisturbed and inaccessible conditions. Good number of Crows and Mynas roost on trees in the park. The detailed checklist of birds seen in the park premises is annexure F.

Besides trees and feathered friends, the park is also home to numerous butterflies, insects and other smaller wild creatures.

POLLUTION SOURCES

There is no known source of water pollution in the zoo premises. The water quality reports are attached in the appendix-. The zoo is located and surrounded by residential areas. There are no known air polluting industries in surrounding area. The ample greenery in park premises is capable of addressing vehicular air pollution.

LEGAL STATUS

The entire land is owned by the PimpriChinchwad Municipal Corporation. The land is reserved for garden. A corner portion of the plot has been allotted to a school. There is provision for parking space within this land. The current layout of the zoo is at image 2.1 and **Appendix-A**to this document.

CHAPTER II

APPRAISAL OF THE PRESENT ARRANGEMENT AND CONSTRAINTS

INTRODUCTION

Appraisal of existing facility for developing new Master plan is the most important step in planning for a zoo. It is necessary to plan and design a proposed zoo considering existing infrastructure and resources. The detailed assessment of existing zoo is expected to encompass strengths of the management which will benefit in animal welfare. It also reveals shortfalls of existing facilities to avoid incompetence in future operations of the zoo.

NisargakaviBahinabaiChoudharyPranisangrahalay is currently categorised under small zoo by Central Zoo Authority. This zoo is spread in area of 7.05 acres and mainly known for its collection of Reptiles and birds. It houses 100 individuals of 18 reptile varieties and approximately 90 individuals of 12 bird species.

The existing facility was assessed for bird and reptile enclosures in zoos based on a variety of environments and furnishings within their enclosure: Ideally, wild animals can choose their exposure to sunlight, wind and rain. An animal exhibit should have shelters, perches, vegetation and water bodies to provide various microclimates. Depending on the animal's natural behaviors, the exhibit should also provide a variety of substrates and natural objects. The appropriateness of artificial objects depends on the theme and the intended message of the exhibit. Changing and exchanging objects and exhibit elements allows exploration in a confined space which is a fundamental animal behavior.

The enclosure barrier is the material used to prevent the captive birds from escaping and unwanted animals (including people) from entering. It is essential that the materials used are correct to provide an effective barrier that also does not pose a risk of injury to the birds (e.g. sharp edges, mesh wide enough for bird's head or wings to become trapped).

The existing zoo has gone through a series of alteration with respect to revolutionary changes in CZA policy and guidelines. The zoo was established in 1989 with small collection of snakes. Eventually few species of exotic birds were added in collection. The zoo received animals from rescues and/or exchange programs. Various cages were developed to accommodate these new inmates in the zoo as per requirements; making it an attraction for citizens.

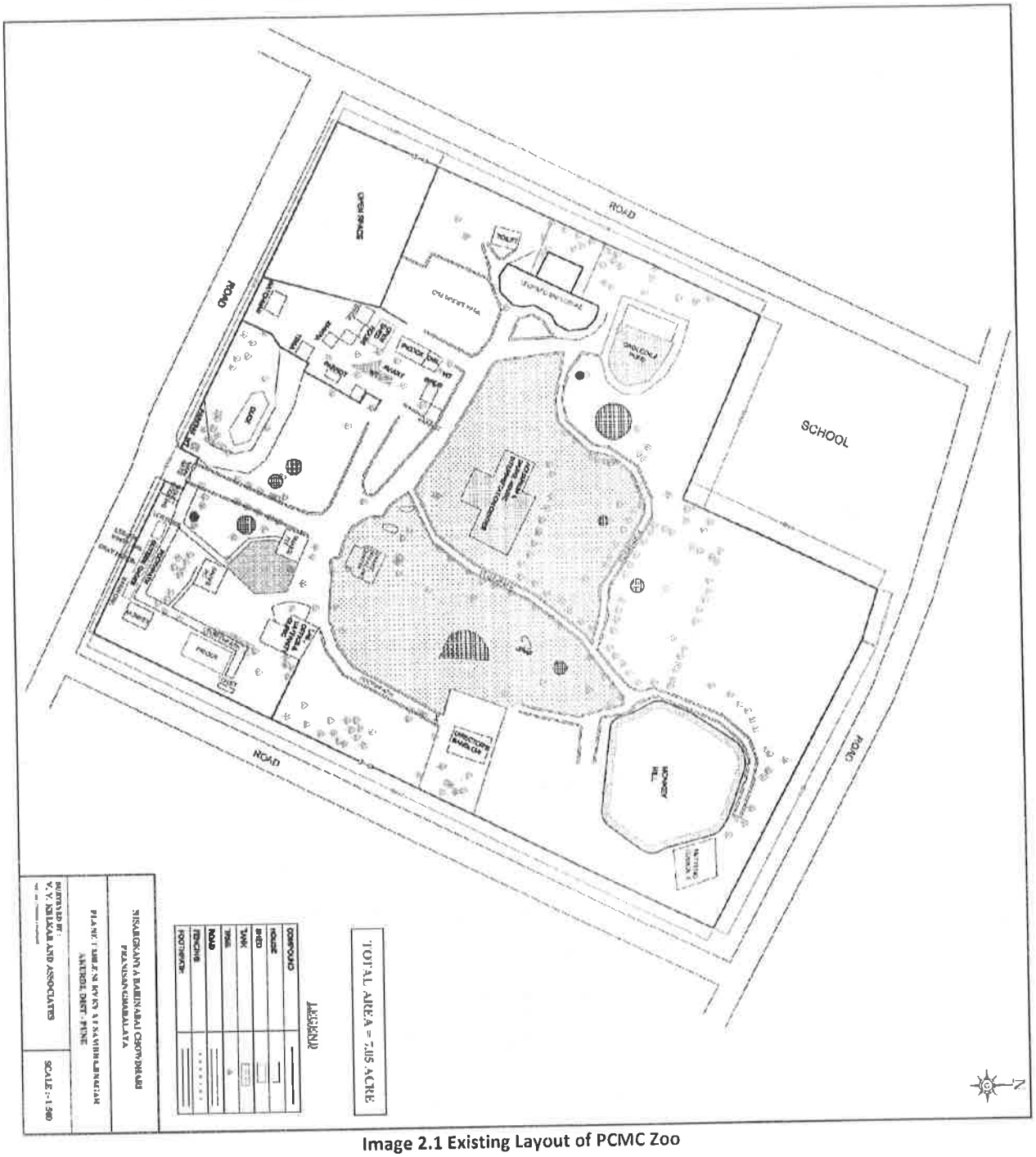


Image 2.1 Existing Layout of PCMC Zoo

This zoo was developed in 1990's in accordance with prevailing zoo concepts and in absence of Central Zoo Authority guidelines. Most of the cages and enclosures are concrete structures with look of a prison. This fashion of animal display has been outdated and might represent zoo in negative way. Hence it is proposed to upgrade this zoo with up to date principles of zoo management and redevelop it in accordance with latest Central Zoo Authority Guidelines. This assessment and appraisal of existing facility was undertaken on the basis of strength and weaknesses of existing facility, animal collection, available resources, administration, water availability and waste disposal.

The visits of NisargkaviBahinabaiChoudharyPranisangrahalay revealed following general issues in existing enclosures. These are broad observations.

ENCLOSURE AND ANIMAL COLLECTION

1. Aviary - Bird of Prey Section

As per the existing circulation plan, it would be the first section noticed by the visitors. This Section has 4 cages intended for the bird of prey. Pariah Kite, Barn Owl and Indian Eagle Owl are housed respectively, in this section. This set of 4 small enclosures is weld-mesh constructions of approximately 10 ft X 6 ft X 7ft in dimension. These cages are exposed to visitors from 3 sides with a solid brick masonry wall in the background. All these enclosures are fitted with accustomed perches. The plain background, finite and inadequate space for animals' movement and non-natural enrichment make them unfit in current CZA guidelines. Complete demolition of these enclosures is expected in proposed future development of the zoo.

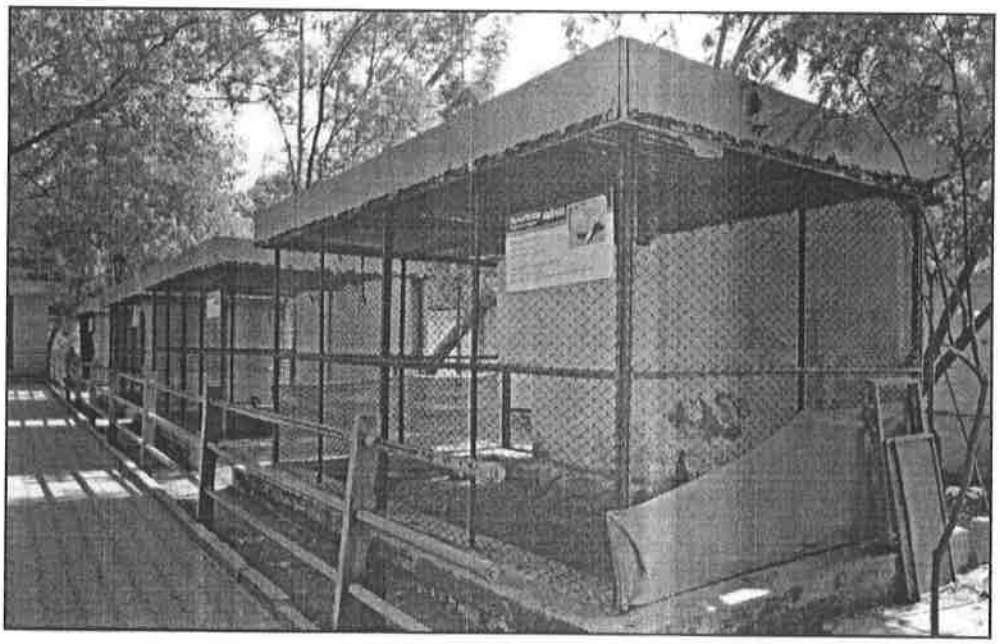


Image 2.1 Bird of Prey Section Aviary

2. Aviary – water birds

This section has 3 enclosures. The first enclosure of this section is concrete masonry with front viewing of vertical bars. This enclosure was built on short notice to house surprising admittance of a Sloth Bear. It is approximately 20ft X 15ft X 10ft in dimension with attached squeeze-cage facility. After abandonment of this unpaired mate, this enclosure was used for housing Rhesus monkeys.Recently, In accordance with the CZA approved theme of Reptile House and Aviary; all the mammals have been shifted to other zoos making this enclosure disused. This enclosure has concrete substratewith little scope for naturalistic enrichments. Hence, it is proposed to demolish this structure in proposed development.

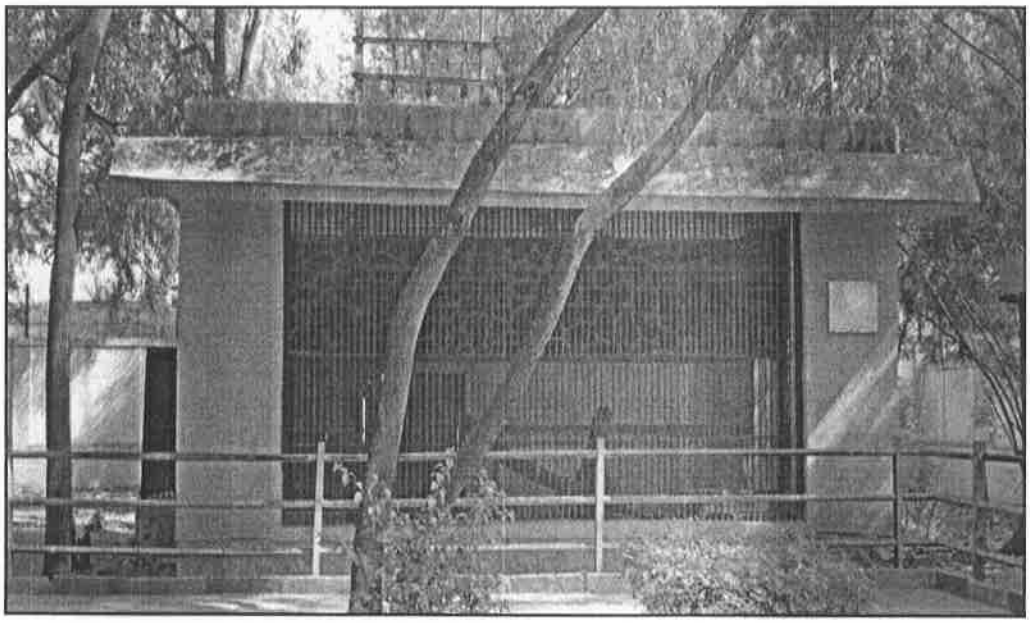


Image 2.2 Old Rhesus Macaque Enclosure

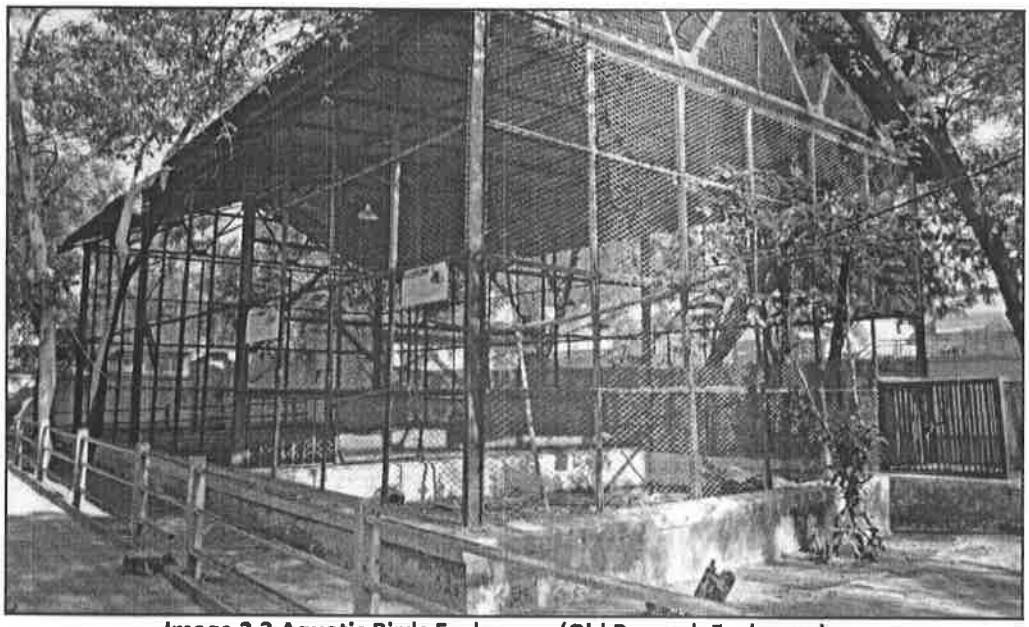


Image 2.3 Aquatic Birds Enclosures (Old Peacock Enclosure)

3. Snake Pits and Python Enclosure

The other two enclosures are being used as exhibit for Crocodile babies and water birds. These enclosures are wire-mesh cubicles of 20ft X 20ft X 25ft in size. These enclosures provide sufficient height for birds to take flight. Currently, water birds like Woolly-necked Storks, Black Ibis and Spot-billed Duck are housed together in one of the enclosures. The water body in the enclosure is inadequate for their biological needs. The size of enclosure is inappropriate and inadequate as per the recent guidelines by the CZA.

Like most zoos in India, this Park was also been displaying the snakes in pit enclosures. There were two snake pits for display of Venomous and Non-venomous snakes respectively. These pits were multispecies enclosures. In accordance with CZA's new policy, use of pits for display have been constrained. Accordingly, these pits have been reclaimed to seating shades. All the snakes from these pits have been temporarily displayed in wooden boxes kept at the Interpretation center. This is a temporary arrangement before the new reptile enclosures arefabricated.

There is a separate Python enclosure opposite to snake pits. This is a concrete masonry enclosure with glass viewing from the front side, spacious water body, heating and cooling arrangements and attractive enrichments making it a good display. It can be improvised with additional furnishings for species requirement.

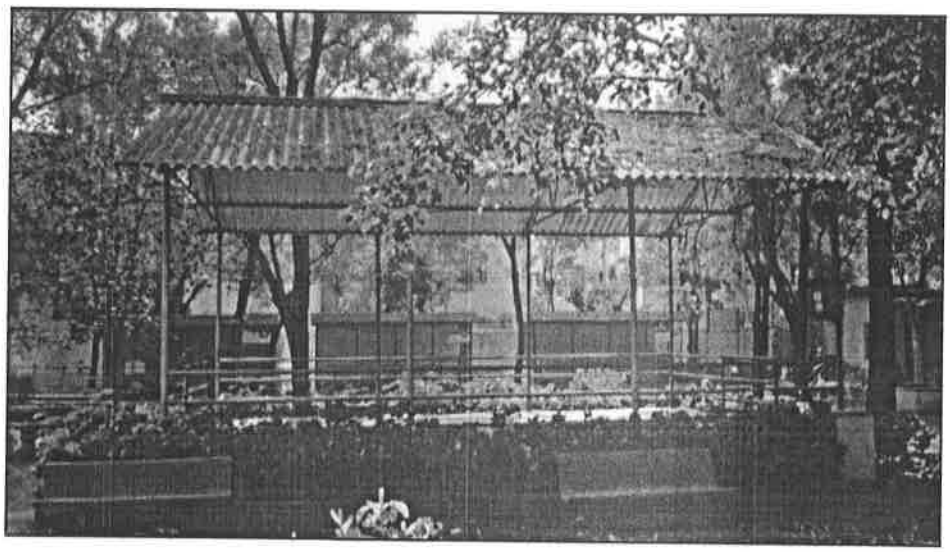


Image 2.4 Demolished Snake Pits

Image 2.5 Python Enclosure

4. Aviary - Parrots and Exotic Birds

This zone is a set of 8 enclosures in concrete masonry with weld mesh viewing and typical enrichments for bird housing. These enclosures are part of original construction from the time of park inception. Exotic birds like Budgerigar, Cockatiels and few local bird varieties are housed in here. This section includes native birds like Rose-ringed Parakeet, Alexandrine Parakeet, Shikra and Mottled Wood Owl. One enclosure from this section has been reserved for breeding pair of Peafowl. These enclosures are not enough to allow anything more than very short periods of fluttering or mere jumps; flights of a few seconds only. Some enclosures are too small to even encourage any flight at all. These enclosures do not provide adequate exercise and maintain fitness of birds unless they can fly for reasonable periods throughout the day.

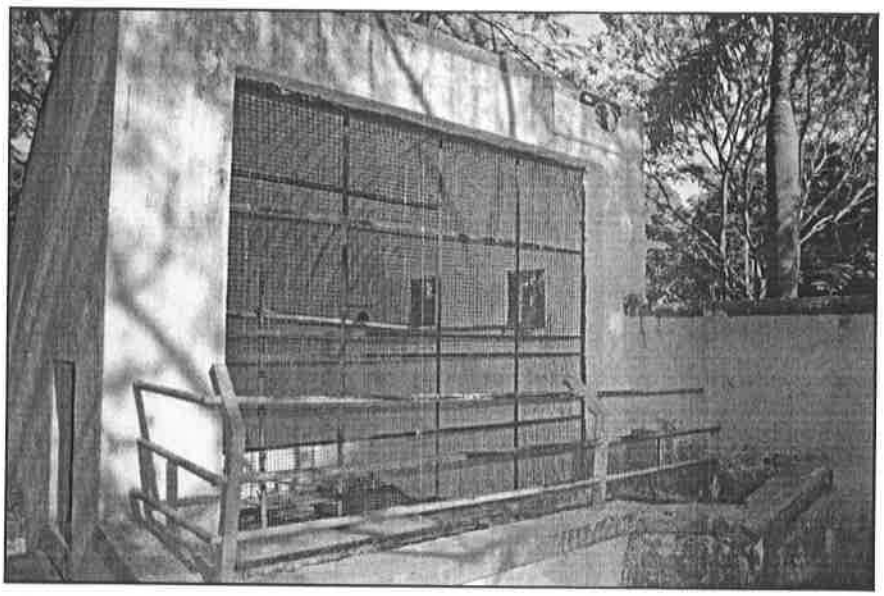


Image 2.6 A typical enclosure from old aviary

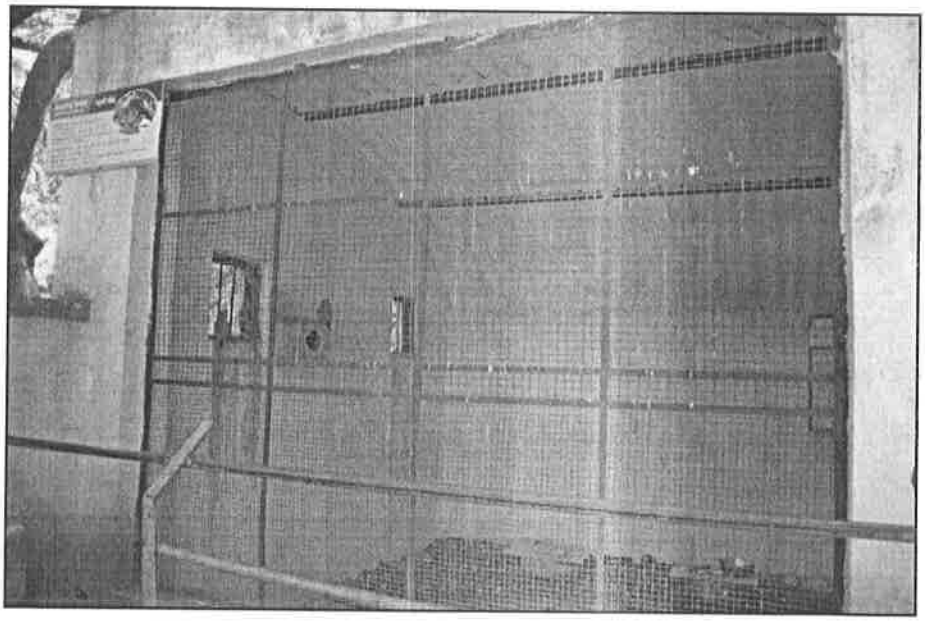


Image 2.7 Interiors of Bird Enclosure in Aviary Section

Many of the enclosures are poorly furnished, even lacking substrates and perches suitable for the species housed. Such conditions are highly stressful to birds. The animals should be provided with facilities which resemble their natural environments and capable of adapting to their wild behaviors.

Similarly, there are health and welfare issues associated with the type of covering used to clad the bird aviaries. The mesh used should ensure the birds within are confined safely so that risk of injuries to them are minimized. These enclosures are infested with various pests and rodents may enter in these cages to eat the occupants' food, harm them, or be harmed by them, or exchange diseases between occupants and wild birds and other animals.

This junction of enclosures has a small amphitheater for conducting awareness programs. Similarly, a water tank has been constructed as an additional water reserve for emergencies.

Considering all these problems, it was decided to demolish this section. A separate aviary for Birds of Prey has been proposed at new location.

5. Leopard and Crocodile Section

As name suggests, this section has 2 enclosures originally designed to house Leopard and Crocodiles. These chain-link mesh enclosures are suitably designed to house respective animals. The leopard enclosure is facilitated with isolation cells/ night shelter also used for feeding and treatments. Main display area is endowed with a water body and appropriate enrichments. In accordance with the current theme; leopards have already been shifted to Pune zoo.

Image 2.8 Old Leopard Enclosure converted into Peacock enclosure

In proposed redevelopment, this enclosure is proposed to be modified for housing Peafowls. Off-exhibit areas of this enclosure can be suitably modified for peafowl breeding program. Management has started using this enclosure for peafowl housing; however, the cage requires modification in the enrichments.

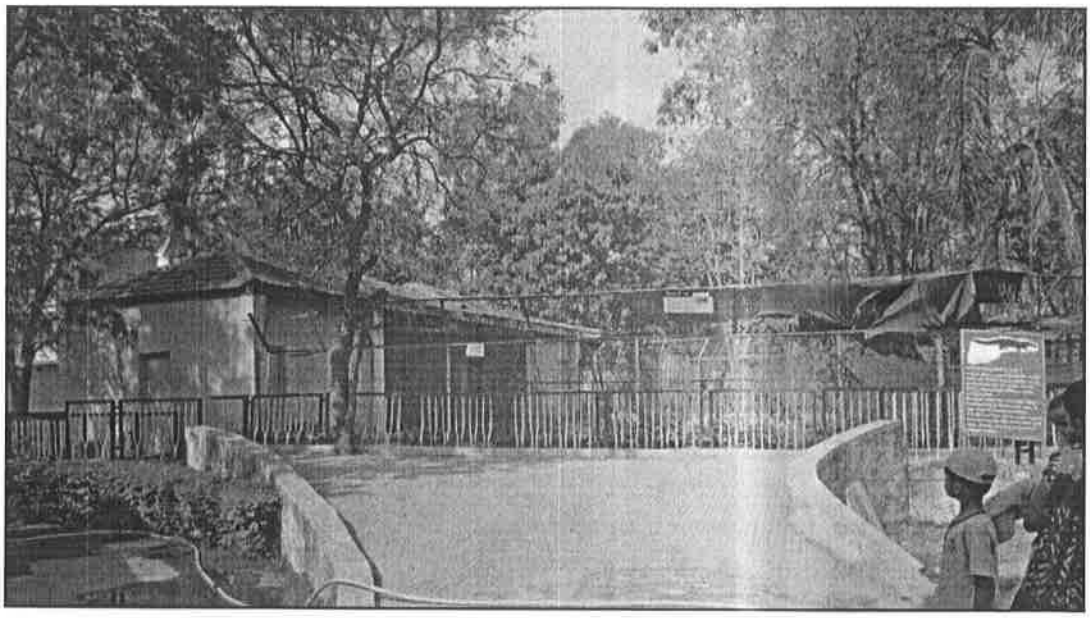


Image 2.9 Crocodile Enclosure

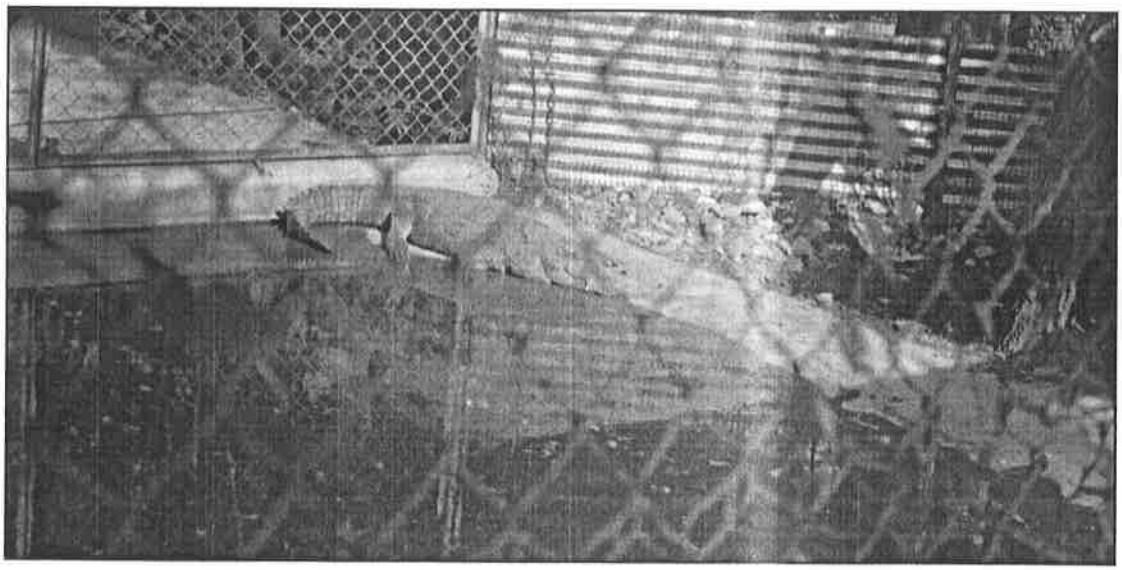


Image 2.10 Crocodile Enclosure interiors

The crocodile enclosure has got three compartments dividing a huge water body and off-exhibit holding areas. This shallow water body is cemented for better water holding.Although; this particular facility has been successfully breeding crocodiles for past few years in existing set-up, this enclosure does not comply with naturalistic enrichment criterion and pleasant visitor experience. It is proposed to relocate these crocodiles to a suitably modified enclosure in proposed development. A small enclosure has been constructed next to it for housing baby crocodiles.

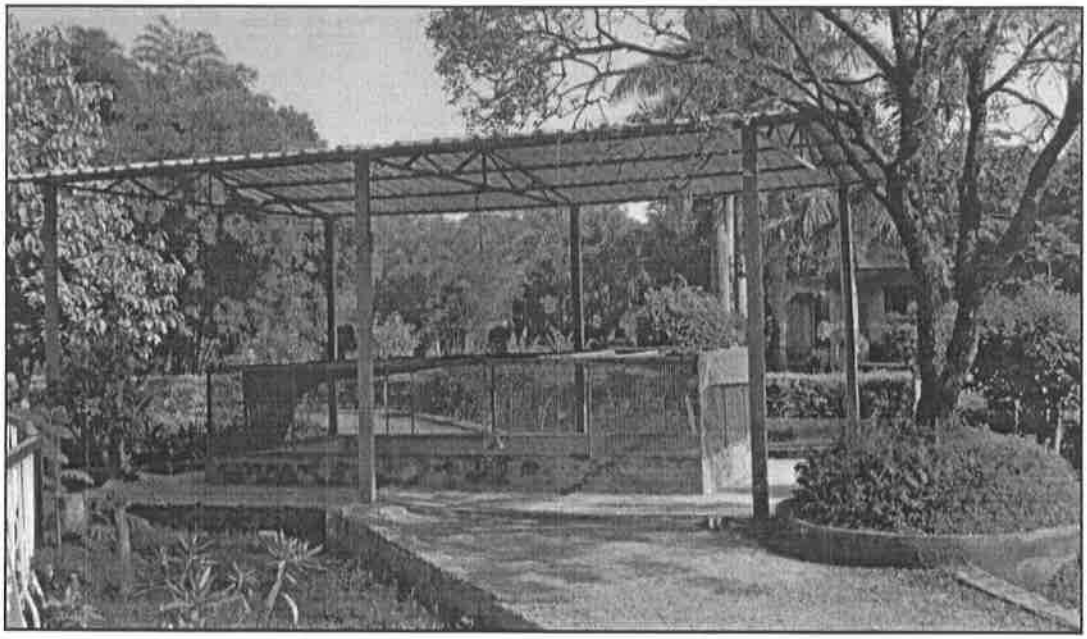


Image 2.11 Temporary Arrangements for Crocodile Babies

6. Monkey Hill

Monkey hill is a moated enclosure with naturalistic enrichments constructed to house Bonnet Macaques. Thisis a wet moat with average depth of three feet and width of 6 feet. This beautifully designed enclosure boasts a transplanted Peepal tree in its center. The enclosure is also supported with night shelters and trapping facility. Since, all mammals have already been relocated to other zoos; this enclosure has no holding at the moment. It is proposed to modify this enclosure for Crocodiles and Ghariyals in proposed development.

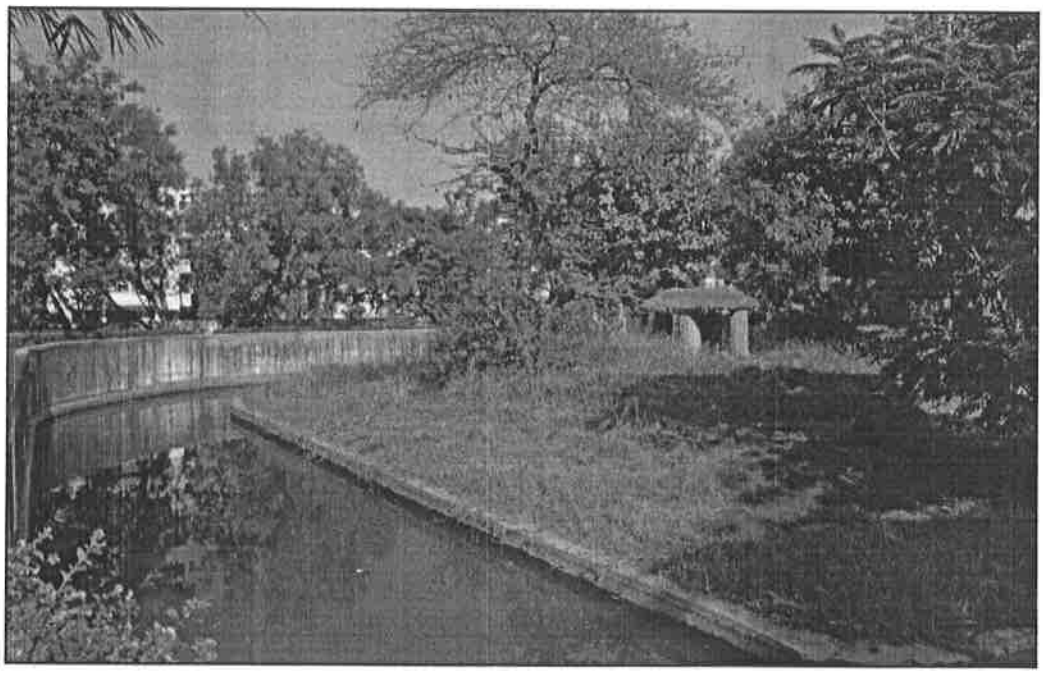


Image 2.12 Monkey Hill

Image 2.13 Monkey Hill approach

7. Interpretation Center / Snake Exhibition Hall

This building is situated in the central open space of park and includes of three halls. It was designed as an Interpretation Center where various posters were displayed. A part of this section also holds aquariums of ornamental fish. This building has adequate natural lighting and good ventilation. After demolition of Snake pits, it was decided to display snakes in wooden boxes and showcased here. However, the box sizes are not in accordance with CZA guidelines for reptile housing. Similarly, these boxes are devoid of any thermoregulation arrangements. Inadequate and inappropriate substrates in absence of thermal protection may resultinto increased mortality. Hence, this arrangement must be considered a temporary set up until proposed Western Ghats Section is constructed.

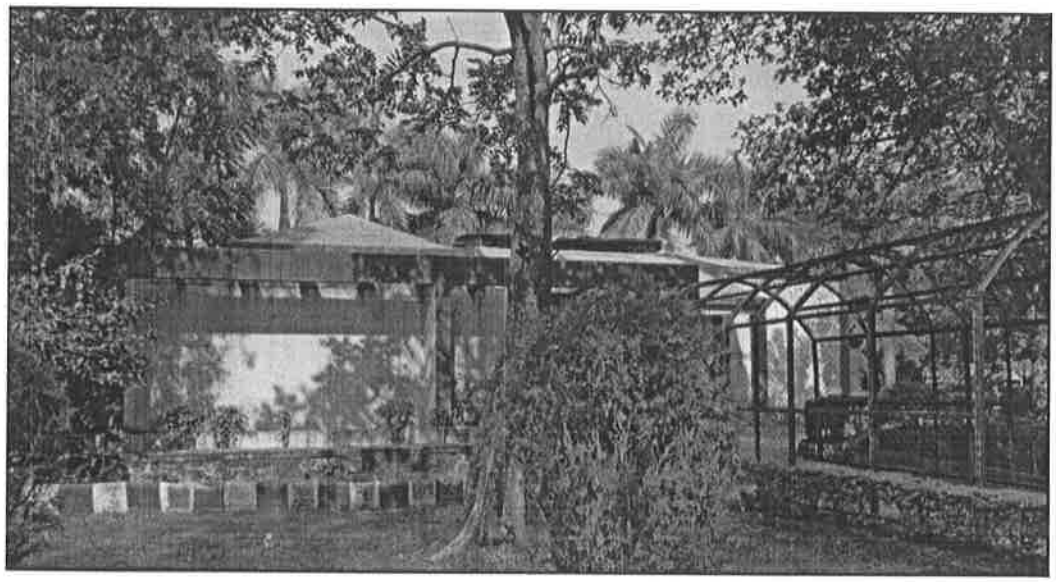


Image 2.14 Interpretation Center Building

These temporary Snake are not appropriate displays due to insufficient lighting inside the boxes and limitation for basking environment. For better sanitation, the substrates used in these

boxes demand major modification. Enclosure enrichment need to be addressed and requires strategic research to keep animals in good psychological health.

Considering the animal welfare, construction of Reptiles of Western Ghats has been given priority and it is proposed to construct in Phase- I of zoo development. It is decided the Interpretation center shall be retained and suitably modified for ultra-modern zoo education center. The zoo has been designated as tourist destination under PCMC tourism plan, this opportunity can be used to materialize appropriate educational infrastructure. It will beimprovised with better educational displays and Audio-visual facilities for better experience.

Image 2.15 Snake Box Exhibits in Interpretation center

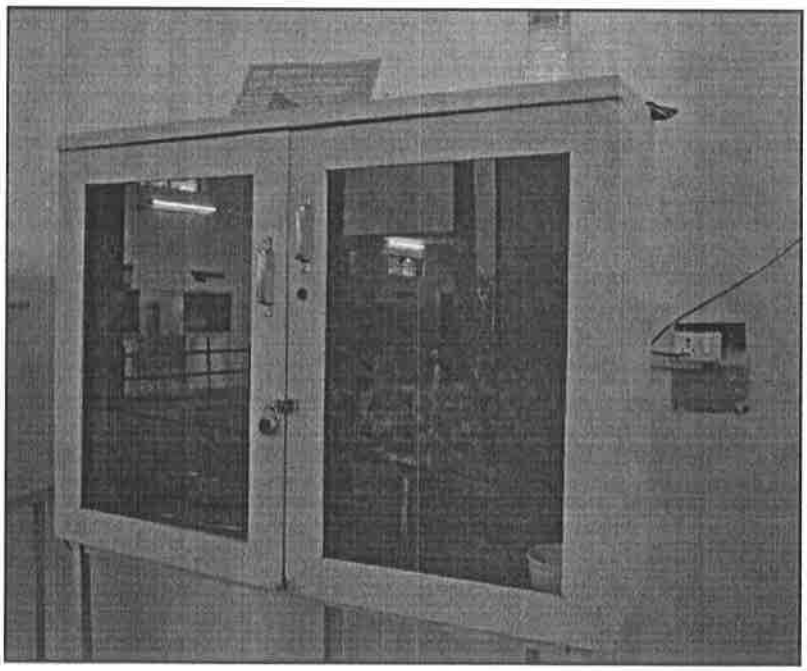


Image 2.16 Snake Box with deterring viewing and inadequate enrichments

8. Administrative Block

The building with Office, Kitchen, Incubation room and Veterinary section comes under administrative block. The Office is a single room inclusive of director cabin. It is attached with Incubation room where rescued snakes, their eggs and snakes under treatment are maintained. Incubation room is equipped with thermoregulation facilities. In existing administration only Director/Curator who was officer in-charge used this cabin and was considered enough at this stage. However, in proposed administrative planning more number of officer staff and establishments are expected in the new management. Hence, office space will need expansion in future expansion.

The Administrative Office of the Zoo Director and support staff needs to be well laid out. The office walls may be painted with for pictures of the animals, birds, etc. as this adds value to the zoo.

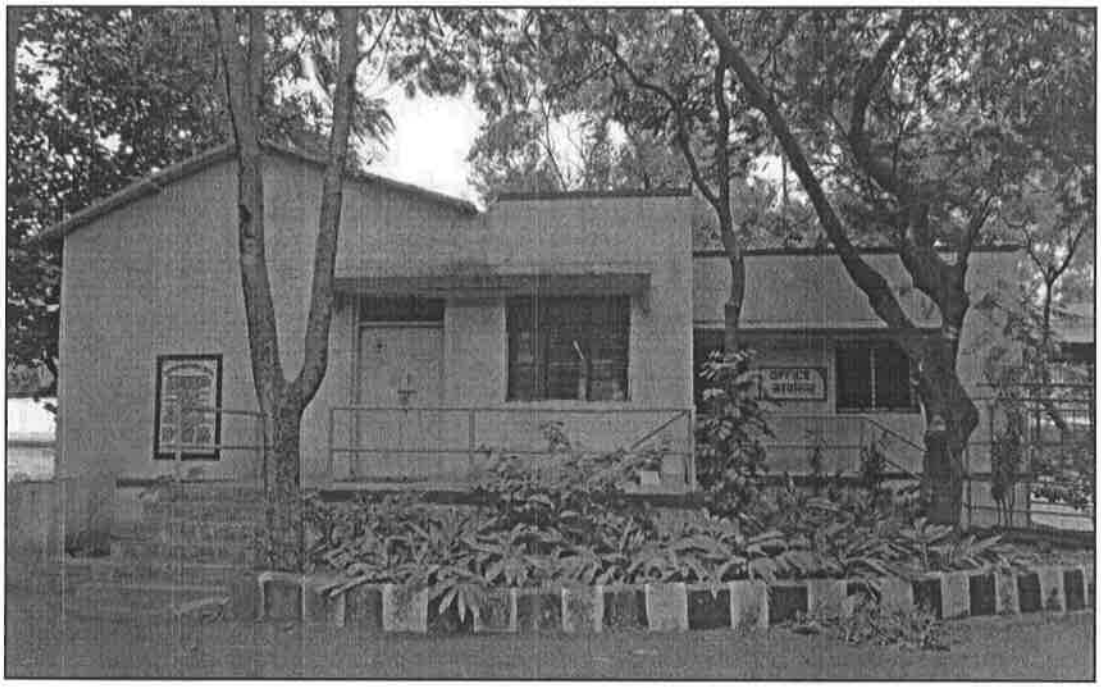


Image 2.17 Administrative Block

Kitchen is placed along the office in a separate room. Kitchen includesfood storage, refrigeration and essential kitchen essentials. The food storage and kitchen accessories demand upgrades in proposed development.

Veterinary section has been accommodated in adjacent hall comprising of basic surgical equipment, medicines and a few wooden boxes to hold reptiles under treatment. This room has an opening into quarantine section. Quarantine section comprises three cages of 6ft X 6ft X 8ft in size and an extra storage room for gardening equipment. This room is also being used as changing room for staff.

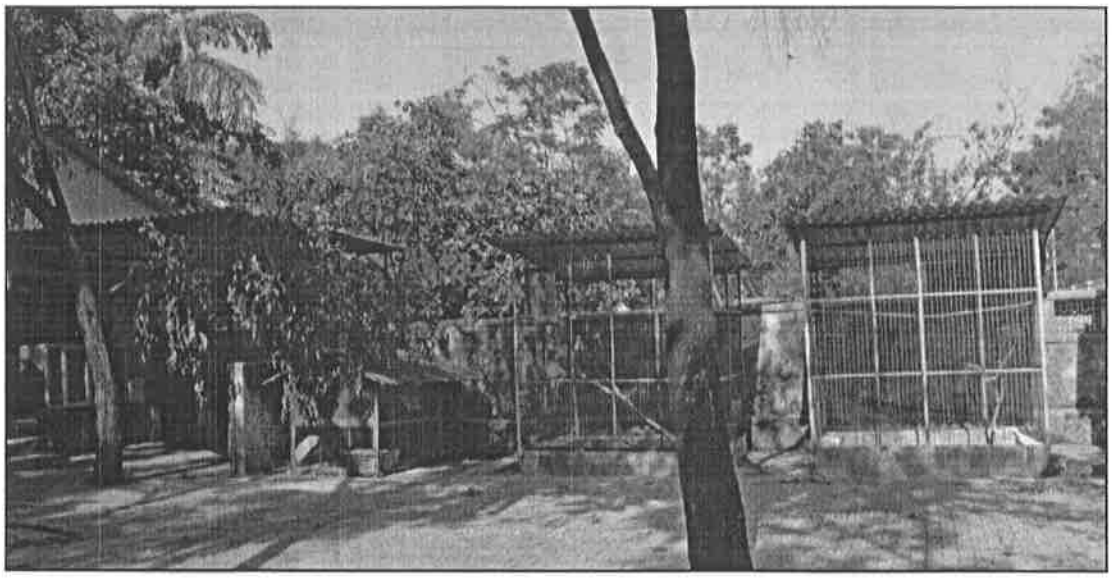


Image 2.18 Quarantine Ward

Quarantine is an off display facility and is being used to house injured and sick birds under treatment. Along with two other nearby cages is being utilized as rescue center for birds and small mammals.

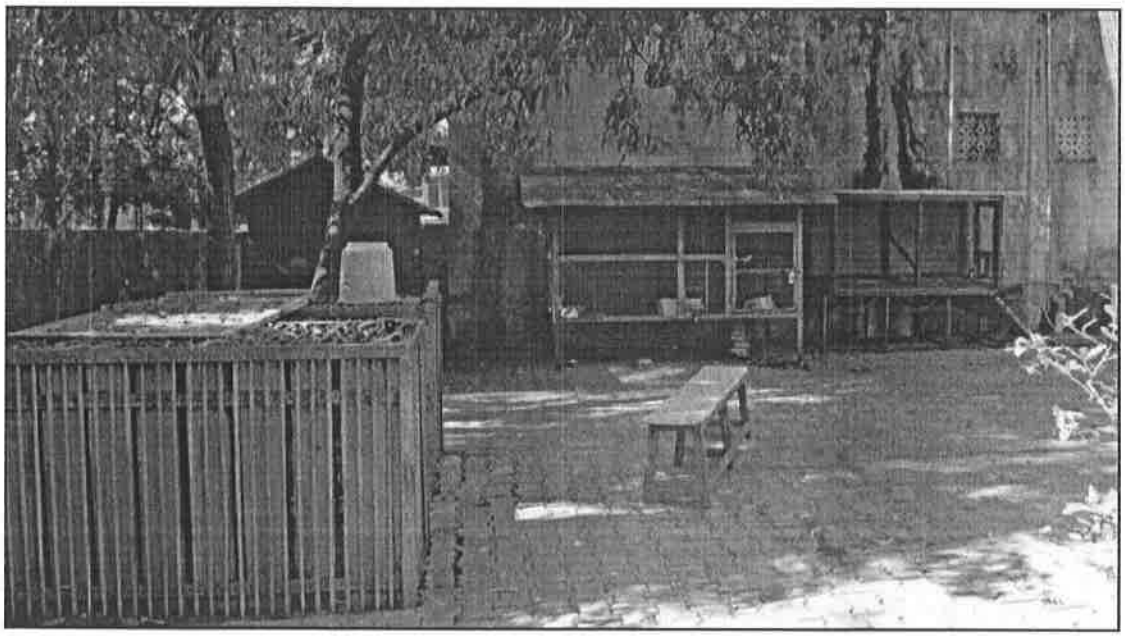


Image 2.19 Quarantine Ward

9. Ticket Counter and Entrance

This zoo is the only attraction for wildlife and nature lovers in the city. On weekends and holidays, zoo attracts masses and usually over-crowded. It is apreferred destinationof school and colleges educational trips. It was observed that, during peak season; the ticket counter and entrance is over pressurized. This problem needs to be addressed in proposed master plan.

Image 2.20 Main Entrance Gate

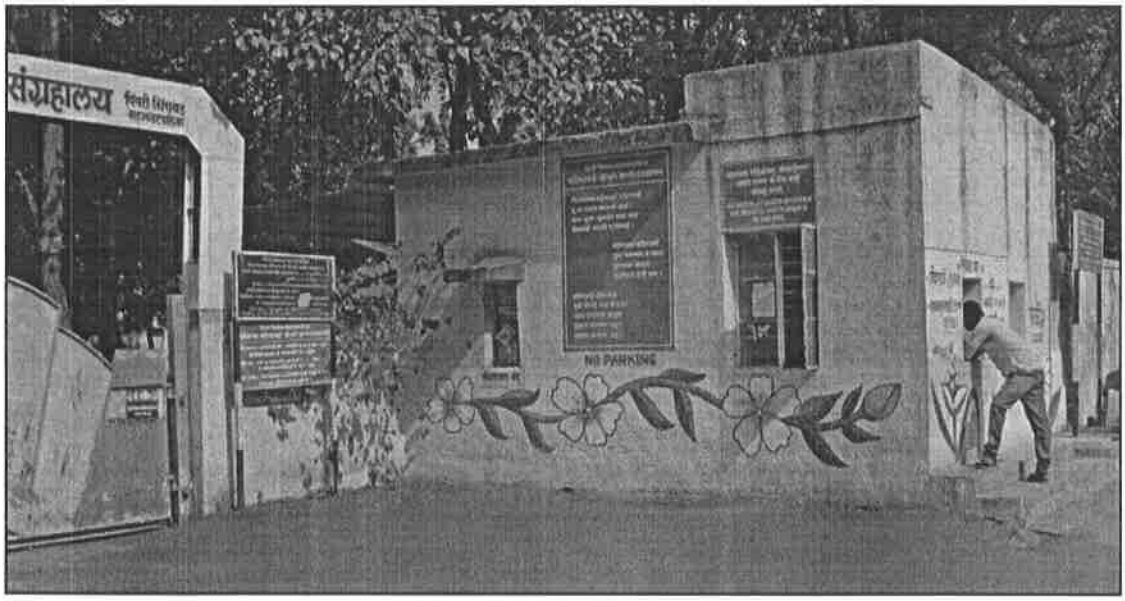


Image 2.21 Ticket Counter

10. General Zoo Administration

The zoo is managed by the Pimpri-Chinchwad Municipal Corporation through its Veterinary Department. It is assisted by a Zoo Advisory Board of selected experts which is chaired by the Municipal Commissioner.

11. Administrative Structure

According to existing structure, the zoo's CEO or Administrator is the Director under whom the executive functions are carried out on a day-to-day basis. The Director is assisted by a Curator, Veterinarian, Biologist cum Education officer, Animal keepers and Sweepers. Currently, The Director,

Curator and Veterinary officer are appointed on temporary basis for the period of six months. These contracts are extended periodically. It is proposed to have permanent staff on these posts.

Director cum Curator and Veterinarian posts are vacant. In absence of Director, the administrative work is being looked after by Municipal Veterinary Officer with the help of Biologist. The accounts and audit is maintained by Biologist with the help of a booking clerk. The present animal workers are appointed as laborers (major) on the Muster. Administration must initiate procedures to designate these workers as Zoo Keepers or consider appropriate recruitment procedures for these posts.Appointment of Assistant Zoo Keepers in proposed in existing administrative plans. The zoo administrative section has sufficient space and facilities.

The housekeeping, hygiene, healthcare services are at present adequate to meet all the zoo's requirements. However with the envisioned growth plan the PCMC will have to add to the current staffing pattern mentioned in respective Chapter. Special expertise will also be required once the ex-situ breeding center is established. The scientific staff of the zoo must get acquainted with basic knowledge of identification of Animals and Birds. They should be deputed for such trainings.

A review of the administrative functions of the zoo has revealed that:

i. The zoo has good record in terms of up-keep, health care of its animals and has been optimally planned for local climatic conditions for its collection.

ii. Records of birth and death are maintained.

iii. Financial provisions for zoo upkeep are adequately addressed;

iv. The theme for the zoo is well defined as per the available land area and is related to the Herpetofauna of Western Ghats.

v. Endangered species of Reptiles and Amphibians have been identified for ex-situ conservation.

The Administrative Offices of the Zoo Director and support staff is well laid out. The office section includes rooms for Director and Veterinary Officer. The Biologist cum education officer also shares the cabin with Director. Currently, Director post is vacant. Municipal Veterinary officer has been given the additional charge to look after zoo in addition to his responsibilities related to veterinary issues in the city.

Appointment of experienced full time Director and Veterinary officer at the Zoo in addition to supportive staff shall be an immediate priority for the zoo administration. Following posts will be filled on full time and permanent basis to develop proper scientific and technical efficiencyto provide housing, upkeep and healthcare to zoo animals as well as to conduct research and visitor education.

1. Director cum Curator
2. Zoo Veterinarian
3. Biologist cum Education Officer
4. Animal Keepers
5. Horticultural In-charge / Garden Supervisor
6. Accounting Officer / Clerk

12. Research

While the zoo is involved in several scientific projects at academic level, the PCMC has not provided funds or the infrastructure to undertake formal research work. In the recent past several research activities have been carried out:

1. Master planning of Zoo
2. Animal Activity Budgeting
3. Wildlife education and Awareness among Zoo visitors and its planning
4. An assessment of biodiversity

All these projects were undertaken as part of the Masters Dissertations or M. Phil Thesis of students from various colleges and institutions and have been actively supported and directed by the then Director of the Zoo. Veterinary, Architecture and Computer science students also take up zoo related issues for their dissertation work.

Zoo has a small Library maintained at Director Office. This Library has scope for expansion. It may be relocated in Interpretation Center after appointment of education Officer. A reading hall may be allocated with this library. Literature and books be made accessible to the zoo official as and when required.

The administration may also consider formation of a Zoo Members Club. They might be given access to library. This club can be an excellent outreach activity and have potential to attract and involve public in zoo activities, besides a source of revenue generation.

13. Conservation Breeding

The zoo has been actively involved in breeding various species of snakes and crocodiles. It has developed expertise in hatching reptile eggs. Captive breed snakes have been successfully released in the wild. This expertise must be considered in planning conservation breeding plan for the zoo.

Plans have been made to breed the endangered Fresh Water Turtles and amphibians of the Western Ghats. To initiate this conservation breeding program, the zoo seeks support and help of Central Zoo Authority and shall send a detailed proposal to the CZA.

14. Education and awareness

The zoo has well-structured Interpretation center in its premises. However, it is not being used at its potential due to inadequate infrastructure and in absence of relevant staff. Appointment of an Education Officer may initiate various educational programs with school students on regular.

The zoo has been conducting various awareness programs in wildlife week and World Environment Day. The administration may also consider other environment related events to be celebrated in the zoo.As education and awareness has not been given sufficient attention. The appointment of the trained and experienced Education Officer will increase the thrust on this aspect. The zoo plans to set up anultra-modern and interactive Interpretation Facility with focus on Herpetofauna and Birdlife with special emphasis on species displayed in the zoo.

15. Signage and Informative Displays

The interpretative value of the zoo is grossly inadequate. There is only 1 toilet each for ladies and gents in a corner of present facility. The current signage consist of descriptions of species on the enclosures and have not considered issues such as awareness generation, aesthetics, vandal proofing suitable to a modern zoo.

16. Staff housing

The staff housing consists of a Zoo Director's residence and an apartment type quarters for a supporting keeper. These quarters were inside the zoo campus and were not definitelyseparated from main zoo campus. This issue was addressed by removing all occupantsin these quarters. Currently, No housing is provided for the staff.

However, in absence of technical person certain emergency situations in the zoo remain unattended. During, night hours, only security personnel are present at the zoo. In case of animal escape or any similar emergency situation, delayed response is expected leading to unwanted accidents. The proposed layout has accommodated staff residences in a corner and separated it from main campus.

The management is also considering use of existing staff quarters to house a technical person by providing appropriate separation from main zoo campus until proposed facility comes into existence.

17. Security

The current security measures need to be upgraded. It is proposed to set up a CCTV facility and a public address system for better control of vandalism and emergency situations. Number of security guards also needs to be increased.

18. Disposal of solid waste and sewage

Solid waste and sewage disposal is well managedto some extent. All the vegetative waste material from the gardens is partially used for composting. All enclosure night houses and water body outlets are connected to the civil drainage lines. Left over bones and other contaminative food wastage are disposed outside the zoo premises. Garbage segregation is carried out; all paper and plastic waste is collected and disposed by the municipal authorities.

19. Visitor amenities

The gate is currently inconspicuous. The ticketing facilities are not adequate and will be modernized to give the entry point both a more functional aspect as well as a face lift. There is a felt need of the visitors to increase ticketing facilities during peak times.

In general visitor amenities have been created for a limited number of visitors. This includes toilets, resting sheds and drinking water outlets. However,considering the growing in visitorship; it will require up-gradation. There is no cafeteria or canteen is present in zoo or nearby. This can be set up above the Interpretation Center or near the main gate to meet needs of the growing visitor pressure.

Image 2.22 Well defined and spacious pathways for effective circulations

20. Resting facility for visitors

The toilet and resting facilities for visitors are inadequate. A new rest room has been proposed with separate entrance for ladies and gents.

21. Lawns and garden – landscape

The biggest advantage of this park is well established greenery and ample open spaces. All open spaces are covered under lawns and garden plantations. A small plot behind the Parrot aviary is being used as Children Park. All paths and roads are well designed and well maintained. The common pathway for visitors and service delivery is a major problem which has been addressed by giving separate service path in the proposed development.

Image 2.23 Lawns and Green spaces inside the zoo premises

22. Seating facility for visitors

The lawns and garden section has a natural look. The total number of benches is 12 and has a seating capacity of 3 visitors per bench. This is facility isinadequate. The lawns are well maintained. The tree cover is patchily thick and offers good shade for visitors.

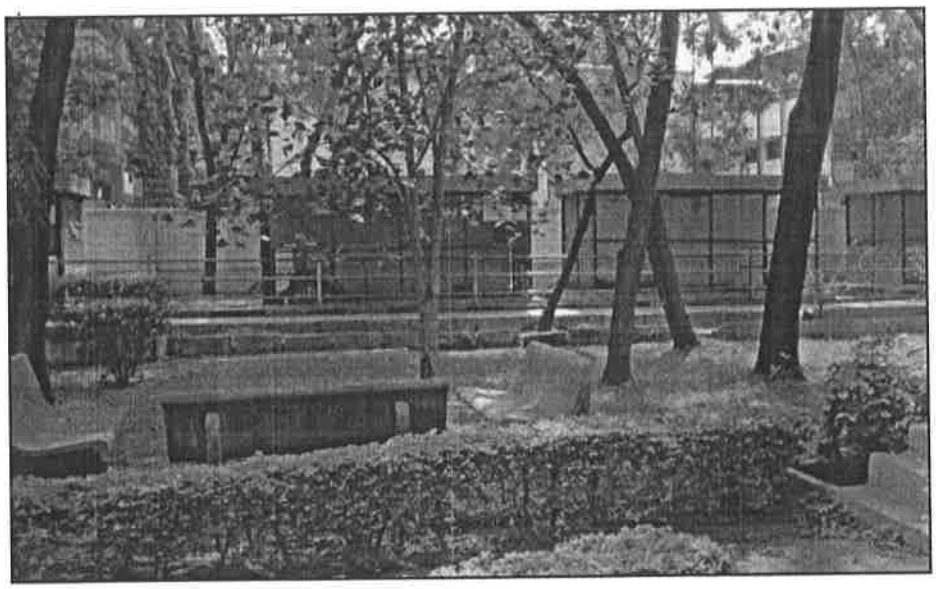


Image 2.24 Seating facilities

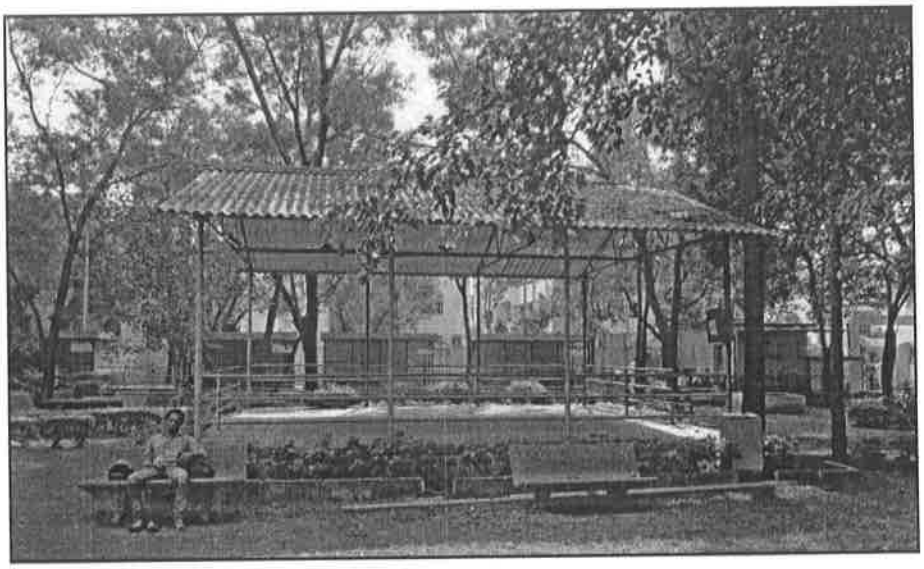


Image 2.25 Demolished Snake-pit is currently being used as dining shed by school trips and visitors

23. Parking – Cars / Two wheelers

Currently, no dedicated parking is provided for the park. People are using connecting roads for two-wheeler and four wheeler parking. During peak visitor seasons this leads to conflicts with neighboring societies. There is an urgent need to create the parking facilities.

The zoo should also consider parking for buses. A major portion of visitors comprise of school children who visit the park as part of school trip.

PART-II

CHAPTER-III

MISSION & VISION

MISSION & VISION

The purposes and audiences of zoos are very diverse, the period of a zoo's development is open-ended, funding and public support are changing and unpredictable, and the goals of zoos are long-term. These inherent complications require that zoos make and carry out appropriate decisions today to ensure success in the future.

A master plan creates a vision that is supported by policies, guidelines, and priorities. It guides the development and evolution of the zoo. The planning team is expected to envision the master plan that involves all aspects of the zoo's operation. A professional approach in design, planning, and facilitating a zoo, can bring experience and specialized knowledge of new trends and technology, as well as helps avoid costly mistakes.

Having a master plan in place supports the *coordinated growth* of the zoo's separate facilities and functions and helps avoid "ad-hoc" development of the zoo. If future decisions about the design and development of the zoo are all made with respect to the precedent and direction of the master plan, the future zoo will likely be a coherent, site-specific, unique institution that fulfills identified goals. With this preamble, this Master plan has following Mission and Vision for the Development of NisargkaviBahinabaiChoudharyPranisangrahalay.

Mission- To be an epitome center for conservation of endemic Herpetofauna and Avifauna found in the region.

Vision-2020: To make it the best small category zoo by theme-based development for exhibition and education to the visitors about the endemic reptiles of the Western Ghats.)

Theme:

The central message or theme of the zoo shall be meaningful, concrete, and communicable. The site, as a whole, should say something fundamental and important that can be clearly conveyed.

In master planning, the idea is to look at individual exhibits and facilities as the pieces that make up a complete story in the zoo experience. Each exhibit should relate to those adjacent to it as well as to the overriding message of the zoo.

The zoo's overriding theme can be to exhibit animals within the cultures of their countries of origin. Other themes could be emphasizing animal behavior, evolutionary relationships, taxonomy, human relationships with animals, or ecosystems. This theme in its planning can distinguish how a zoo can provide a unique experience, different from other zoos in the region.

NisargakaviBahinabaiChoudharyPranisangrahalay (PCMC Zoo) has been a small category zoo owing to its finite area of 7.5 acres. Recent CZA guidelines have clearly instructed area requirements for housing of

various collections. It has been a challenge to fit a theme that considers and geographical area, CZA guidelines and attractions for the visitors. All these factors have been aptly considered in deciding the theme as

'REPTILES OF WESTERN GHATS'

The overall layout of the park has been determined by this particular theme. The overall layout of exhibits is planned to enhance the educational experience for the visitor. In order for this to be effective, it is planned to be expressed through interpretive signage.

The overall approach in exhibit design is to capture attention and interest.

CHAPTER-IV

FUTURE PLANS

FUTURE OBJECTIVES, MISSION STATEMENT AND THEME OF THEPCMC ZOO

The PCMC, and the Zoo Advisory Board as well as visitors have a desire to create a state of the art zoo for PimpriChinchwad city in coming decades. The objectives and theme of the zoo provide the framework for the expansion and the guidelines for the enhancement of its infrastructure.

Future Mission Statement

To develop a state of the art zoo with a focus on contented animals; a comprehensive conservation education facility for visitors through a proactive interpretation approach; a dynamic research program and a new ex-situ conservation breeding facility.

The Future Mission

The enhance new mission expresses a sense of deep sensitivity to animal welfare, caring for animal rights, as well as using the zoo as an opportunity to educate the people of Pune and its surrounds on the needs of biodiversity conservation through both in-situ and ex-situ measures. The zoo will set up a new ex-situ breeding center and research facilities for animal behavior studies.

Future Objectives

1. Enhancement of the theme based animal collection
2. Creating a unique conservation education outreach program through a state of the art Interpretation Center
3. Developing an ex-situ conservation breeding and research center.

The thematic aspect of zoo design has been designated as reptile and amphibians of Western Ghat and Aquatic aviary. This would be only specialized reptile collection zoo in the country. This will be consciously maintained as a part of its future policy and for implementation of its proposed layout.

The mission statement strongly supports National and State level efforts to conserve species that are endangered in the region. The visitor awareness strategy will focus on demonstrating linkages between the species in the zoo to food chains, food web and ecosystems in the wild and attempt to reduce the impact of human activities in the degradation of ecosystems.

The zoo will collaborate with college biology and environment departments, and develop linkages with wildlife conservation research institutions for action oriented research. It will develop an innovative nature education program for school and college students.

Theme

The thematic framework for NisargkaviBahinabaiChoudharyPranisangrahalay is to develop its enclosures and layout through a theme based approach.

This will include the reptile species found in the Western Ghats, and peninsular India. The avian collection of the zoo will focus on aquatic ecosystem and its faunal diversity. A state of the art Interpretation Center with interactive displays and audiovisual exhibits will demonstrate local faunal diversity and wild animal behavior in relation to their habitat and, biology. One of the sections in interpretation center will have demonstrations on urban biodiversity and wildlife heritage of the city.

The Butterfly Park and insectariums will have a well-developed ecosystem matching zoogeographic biota and locale ecosystems. This section will have prioritized plantation plan with emphasize on butterfly host plants. An in-house nursery will be developed for these plants. All effort will be made to attract butterflies and other insects naturally by planting species of plants that are food sources of caterpillars of local butterflies and moths, and nectar producing flowers for the adult insects. Visitors will be able to walk and observe the local plants, birds and insects in the simulated wild habitat.

Thus the zoo will attempt to bring about a change in visitor perception of the zoo from its current picnic destination to one that provides a wealth of attractively displayed conservation education facilities.

COLLECTION PLAN

The proposed collection plan has been designed to meet present requirements of the zoo. It is based on the theme of Reptiles and Amphibians of the Western Ghats. The plan envisions alterations for the existing reptile section and developing a new aviary to enhance its collection. A review has shown that the zoo can augment its species as well as the number of individuals in several enclosures.

The collection plan is according to prescribed norms of the CZA.

However, the Collection Plan is based on providing visitors with a more comprehensive display of the theme. The collection follows an approach that considers evolutionary biology. It thus represent a greater diversity of species of the Western Ghats, the Deccan grasslands and the aquatic (river and lake) ecosystems of the region. The zoo plans to undertake breeding of local endangered species and exchange them with other zoos besides reintroduction in the wild.

The current species their number and sex ratio is attached in Annexure II. The proposedand surplus animal listhave been given in followingTables.

NisagakaviBahinabaiChoudharyPranisangrahalaya, Chinchwad, Pune

Table 4.1 REPTILE COLLECTION PLAN

Sr. No.	COMMON NAME	*SCIENTIFIC NAME*	Area in sq. m	Present Collection				Proposed Collection				Animals to be Acquired or Removed				Remark
				M	F	U	T	M	F	U	T	M	F	U	T	
1	Python Indian	*Python molurus*	*39*	1	1	0	2	2	2	0	4	1	1	0	2	To be Acquired by Exchange Program/ Rescue
2	Yellow Monitor	*Varanus salvater*	*31*	0	0	0	0	2	2	0	4	2	2	0	4	To be Acquired by Exchange Program
3	Ornamental Snake	*Chrysopelia ornata*	15.15	0	0	0	0	2	2	0	4	2	2	0	4	To be Acquired by Exchange Program
4	Bronze-back Tree Snake	*Dendrolephis tristis*	14.85	0	0	0	0	2	2	0	4	2	2	0	4	To be Acquired by Exchange Program
5	Monitor Lizard	*Varanus bengalensis*	*31.22*	0	0	0	0	2	2	0	4	2	2	0	4	To be Acquired by Exchange Program/ Rescue
6	Green Iguana	*Iguana iguana*	30.25	0	0	0	0	2	2	0	4	2	2	0	4	To be Acquired by Exchange Program/ Rescue
7	Checkered Keelback	*Xenochrophis piscator*	*31.17*	3	3	0	6	10	20	0	30	7	17	0	24	From Rescued Individual
8	Russell's Viper	*Daboia russelli*	*30.59*	2	2	0	4	5	5	0	10	3	3	0	6	From Rescued Individual
9	Indian Chameleon	*Chameleon zeylonicus*	*8.6*	0	0	0	0	3	3	0	6	3	3	0	6	From Rescued Individual
10	Sand Boa	*Gongylophis conicus*	*10.4*	2	2	0	4	2	2	0	4	0	0	0	0	
11	Earth Boa	*Eryx johnii*	*11*	2	2	0	4	2	2	0	4	0	0	0	0	
12	Whitaker's Boa	*Gongylophis whitekarii*	*11.2*	0	0	0	0	2	2	0	4	2	2	0	4	To be Acquired by Exchange Program/ Rescue
13	Wolf Snake	*Lycodon aulicus*	*10.35*	1	1	0	2	2	2	0	4	1	1	0	2	From Rescued Individual

14	Yellow Spotted Wolf Snake	*Lycodon flavomaculatus*	*8.05*	0	0	0	0	2	2	0	4	2	2	0	4	From Rescued Individual
15	Cobra Common	*Naja naja*	*37.72*	4	4	0	8	5	5	0	10	1	1	0	2	From Rescued Individual
16	Dhaman	*Ptyas mucosa*	*38.5*	3	4	0	7	5	5	0	10	2	1	0	3	From Rescued Individual
17	Banded Racer	*Argyrogena fasciolatusz*	*12*	1	1	0	2	3	3	0	6	2	2	0	4	From Rescued Individual
18	Grass Snake	*Macropisthodon plumbicolor*	*11.81*	2	2	0	4	3	3	0	6	1	1	0	2	From Rescued Individual
19	Trinket	*Coelognathus helena*	*12.15*	1	2	0	3	5	5	0	10	4	3	0	7	From Rescued Individual
20	Montane Trinket	*Coelognathus Helena monticollaris*	*11.65*	0	0	0	0	3	3	0	6	3	3	0	6	From Rescued Individual
21	Python Reticulated	*Python reticulatus*	*47.35*	0	0	0	0	2	2	0	4	2	2	0	4	To be Acquired by Exchange Program
22	Anaconda	*Eunectes murinus*	*47.9*	0	0	0	0	2	2	0	4	2	2	0	4	To be Acquired by Exchange Program
23	Royal Snake	*Spalerosophis atriceps*	*34.75*	0	0	0	0	2	2	0	4	2	2	0	4	To be Acquired by Exchange Program
24	Banded Krait	*Bungarus fasciatus*	*12.3*	0	0	0	0	2	2	0	4	2	2	0	4	To be Acquired by Exchange Program
25	Common Kukri Snake	*Oligodon arnensis*	*8.2*	0	0	0	0	2	2	0	4	2	2	0	4	From Rescued Individual
26	Cat Snake Common	*Boiga trigonata*	10.5	0	0	0	0	3	3	0	6	3	3	0	6	From Rescued Individual
27	Cat Snake Forsten's	*Boiga forsteni*	9.95	0	0	0	0	2	2	0	4	2	2	0	4	From Rescued Individual
28	Bamboo Pit Viper	*Trimerasurus graminius*	*10.15*	1	1	0	2	3	3	0	6	2	2	0	4	From Rescued Individual
29	Wall's Sind Krait	*Bungarus s. walli*	*10.35*	0	2	0	2	2	2	0	4	2	0	0	2	From Rescued Individual
30	Striped Keelback	*Amphiesma stolatum*	*10.25*	0	0	0	0	1	2	0	3	1	2	0	3	From Rescued Individual
31	Krait Common	*Bungarus ceruleus*	*10.3*	1	1	0	2	2	2	0	4	1	1	0	2	From Rescued Individual

32	Cobra Monocled	*Naja kauthia*	*10.25*	0	0	0	0	2	2	0	4	2	2	0	4	From Rescued Individual
33	Saw-scaled Viper	*Echis carinatus*	*10.15*	0	0	0	0	2	2	0	4	2	2	0	4	From Rescued Individual
34	Starred Tortoise	*Geochelone elegans*	Terrestrial Area 579.84 Waterbody Area 167.63 (Total - 747.63)	4	4	0	8	8	12	0	20	4	8	0	12	From Rescued Individual
35	Elongated Tortoise	*Indotestudo elongata*		0	0	0	0	2	4	0	6	2	4	0	6	To be Acquired by Exchange Program
36	Travancore Tortoise	*Indotestudo travancorica*		0	0	0	0	2	4	0	6	2	4	0	6	To be Acquired by Exchange Program
37	Red-eared turtle	*Trachemys scripta*		1	1	0	2	6	12	0	18	5	11	0	16	To be Acquired by Exchange Program
38	Spotted Terrapin	*Geoclamys hamiltonii*		0	0	0	0	4	8	0	12	4	8	0	12	To be Acquired by Exchange Program
39	Eastern Hill Terrapin	*Melanochelys tricarinata*		0	0	0	0	4	8	0	12	4	8	0	12	To be Acquired by Exchange Program
40	Indian Terrapin	*Melanochelys trijuga*		0	0	0	0	3	6	0	9	3	6	0	9	To be Acquired by Exchange Program
41	Deccan Flapshell Turtle	*Nilsonia leithii*	*Terrestrial Area 428.50 Waterbody Area 532.5 (Total - 961)*	0	0	0	0	2	4	0	6	2	4	0	6	To be Acquired by Exchange Program
42	Flapshell Turtle	*Lessymis punctata*		3	6	0	9	3	6	0	9	0	0	0	0	
43	Tent Terrapin	*Pangushura tecta*		0	0	0	0	6	12	0	18	6	12	0	18	To be Acquired by Exchange Program
44	Narrow-mouthed Softshell Turtle	*Chitra indica*		0	0	0	0	4	4	0	8	4	4	0	8	To be Acquired by Exchange Program
45	Indian Roofed Turtle	*Pangushura tenctoria*		0	0	0	0	6	12	0	18	6	12	0	18	To be Acquired by Exchange Program
46	Assam Roofed Turtle	*Pangshura sylhetensis*		0	0	0	0	5	5	0	10	5	5	0	10	To be Acquired by Exchange Program
47	Marsh Crocodile	*Gavialis gangeticus*		1	2	11	14	2	4	0	6	1	2	-11	-8	To be exchanged with other zoos
48	Gharial	*Nilssonia leithii*		0	0	0	0	2	4	0	6	2	4	0	6	To be Acquired by Exchange Program

Table 4.2: AVIAN COLLECTION PLAN

Sr. No.	COMMON NAME	SCIENTIFIC NAME	Area in sq. m	Present Collection				Proposed Collection				Animals to be Acquired or Removed				Reamark
				M	F	U	T	M	F	U	T	M	F	U	T	
1	Pelican	*Pelecanus onocrotalus*	1825	0	0	0	0	3	3	0	6	3	3	0	6	To be Acquired by Exchange Program
2	White Ibis	*Threskiornis melanocephalus*		0	0	0	0	3	3	0	6	3	3	0	6	To be Acquired by Exchange Program
3	Grey Heron	*Ardea cineraria*		0	0	0	0	2	2	0	4	2	2	0	4	To be Acquired by Exchange Program
4	Painted Stork	*Mycteria leucocephala*		0	0	0	0	3	3	0	6	3	3	0	6	To be Acquired by Exchange Program
5	Spoonbill	*Platalea leucorodia*		0	0	0	0	3	3	0	6	3	3	0	6	To be Acquired
6	Comb Duck	*Sarkidiornis melanotos*		0	0	0	0	5	5	0	10	5	5	0	10	From Rescued Individual
7	White-breasted Waterhen	*Amaurornis phoenicurus*		0	0	0	0	3	3	0	6	3	3	0	6	To be Acquired by Exchange Program
8	Dabchick	*Tachybaptus ruficollis*		0	0	0	0	5	5	0	10	5	5	0	10	To be Acquired by Exchange Program
9	Black-necked Stork	*Ephippiorhynchus asiaticus*		0	0	0	0	2	2	0	4	2	2	0	4	From Rescued Individual
10	Night Heron	*Nycticorax nicticorax*		0	0	0	0	5	5	0	10	5	5	0	10	From Rescued Individual
11	Large Egret	*Ardea alba*		0	0	0	0	2	2	0	4	2	2	0	4	From Rescued Individual
12	Common Teal	*Anas crecca*		0	0	0	0	5	5	0	10	5	5	0	10	To be Acquired by Exchange Program
13	Shoveller	*Anas clypeata*		0	0	0	0	5	5	0	10	5	5	0	10	To be Acquired by Exchange Program
14	Ruddy Shelduck	*Tadorna ferruginea*		0	0	0	0	5	5	0	10	5	5	0	10	To be Acquired by Exchange Program

Table 4.3 BUTTERFLY COLLECTION PLAN

	Common name	Scientific name
Papilionidae		
1	Common Bluebottle	*Graphium sarpedon* Linnaeus
2	Tailed Jay	*Graphium agamemnon* Linnaeus
3	Common Mormon	*Papilio polytes* Linnaeus
4	Lime Butterfly	*Papilio demoleus* Linnaeus
5	Common Rose	*Pachliopta aristolochiae* Fabricius
6	Crimson Rose	*Pachliopta hector* Linnaeus
Pieridae		
7	Three Spot Grass Yellow	*Eurema blanda* Boisduval
8	Small Grass Yellow	*Eurema brigitta* Cramer
9	Common Grass Yellow	*Euremahe cabe* Linnaeus
10	Spotless Grass Yellow	*Euremala eta* Boisduval
11	Common Emigrant	*Catopsilia pomona* Fabricius
12	Mottled Emigrant	*Catopsilia pyranthe* Linnaeus
13	White Orange Tip	*Ixias Marianne* Cramer
14	Common Gull	*Cepora nerissa* Fabricius
15	Common Jezebel	*Delias eucharis* Drury
16	Psyche	*Leptosia nina* Fabricius
17	Pioneer	*Belenoisa urota* Fabricicus
Nymphalidae		
18	Blue Tiger	*Tirumala limniace* Cramer
19	Striped Tiger	*Danaus genutia* Cramer
20	Plain Tiger	*Danaus chrysippus* Linnaeus
21	Glassy Tiger	*Parantica aglea* Stoll
22	Common Indian Crow	*Euploea core* Cramer
23	Common Nawab	*Polyura athamas* Drury
24	Black Rajah	*Charaxes Solon* Fabricius
25	Common Evening Brown	*Melanitis leda* Linnaeus
26	Common Three Ring	*Ypthima asterope* Klug
27	Common Five Ring	*Ypthima baldus* Fabricius
28	Tawny Coster	*Acraea violae* Fabricius
29	Common Leopard	*Phalanta phalantha* Drury
30	Chestnut Streaked Sailer	*Neptis jumbah* Moore
31	Angled Castor	*Ariadne Ariadne* Linnaeus
32	Common Castor	*Ariadne merione* Cramer
33	Painted Lady	*Vanessa cardui* Linnaeus
34	Blue Pansy	*Junonia orithiya* Linnaeus
35	Yellow Pansy	*Junonia hierta* Fabricius
36	Chocolate Pansy	*Junonia iphita* Cramer
37	Grey Pansy	*Junonia atlites* Linnaeus
38	Lemon Pansy	*Junonia lemonias* Linnaeus
39	Great Eggfly	*Hypolimnas bolina* Linnaeus
40	DanaidEggfly	*Hypolimnas misippus* Linnaeus

PROPOSED DEVELOPMENT

The proposed Master plan is planned and designed with utmost care for the animal welfare for the inmates. The zoo community considers animal welfare to be a matter of highest importance. The modern zoo management approach expects that animals must be accommodated under conditions which aim to satisfy the biological and conservation requirements of the individual species. In India, Central Zoo Authority set out guidelines as to how this should be achieved. Various ethical and scientific concerns that have been encompassed by various national international authorities are:

(1) Animals should lead natural lives through the development and use of their natural adaptations and capabilities,

(2) Animals should feel well by being free from prolonged and intense fear, pain, and other negative states, and by experiencing normal pleasures, and

(3) Animals should function well, in the sense of satisfactory health, growth and normal functioning of physiological and behavioral systems.'

The central concern of animal welfare is that animals should feel well and the best approach to ensuring this is to provide an environment that as fully as possible meets their immediate needs and those for their future welfare. Accommodating animals under conditions which aim to satisfy the biological and conservation requirements of the species to which they belong, including-

(i) Providing each animal with an environment well-adapted to meet the physical, psychological and social needs of the species to which it belongs; and

(ii) Providing a high standard of animal husbandry with a developed program of preventative and curative veterinary care and nutrition;

PLANNING FOR BIRD ENCLOSURE

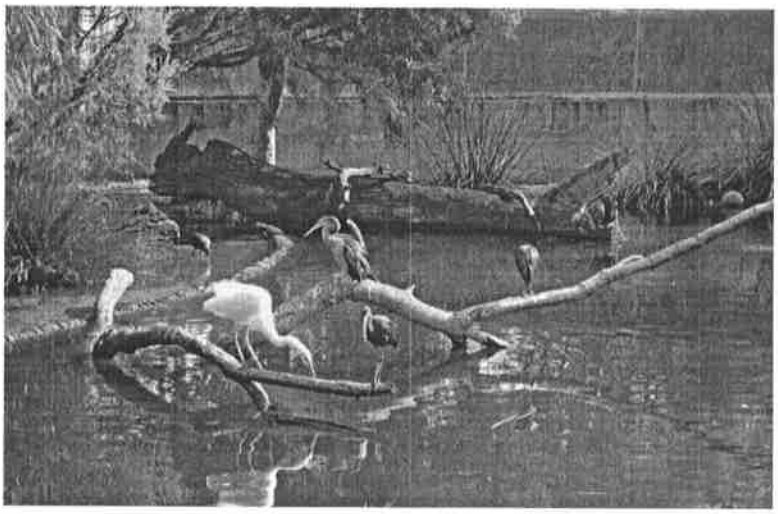
Birds in zoos may require a variety of environments and furnishings within their enclosure: shade from the heat; warmth from the cold; shelter; a variety of perches (thickness, height and placement within the enclosure); bathing and/or swimming facilities; substrates that can be kept clean but also encourage natural movements and behaviors such as foraging; areas to escape from disturbance by visitors or aggression from other birds.

The enclosure barrier is the material used to prevent the captive birds from escaping and unwanted animals (including people) from entering. It is essential that the materials used are correct to provide an effective barrier that also does not pose a risk of injury to the birds (e.g. sharp edges, mesh wide enough for bird's head or wings to become trapped).

It is not appropriate to provide different species of mammals with the same type of enclosure, similarly different species of birds require various types of enclosures and furnishings. Each enclosure is expected to be designed for a species-specific purpose.

To meet the welfare needs of an animal in captivity, the complexity of an enclosure needs to be combined with an appropriate size to ensure that natural behaviors can be expressed rather than restricted. Those behaviors required to limit stress, such as distancing and comforting behaviors, are seen to be particularly important

The type of housing (space, enrichments, food etc.) can influence the body mass and flying behavior of some birds, leading to obesity. Researchers have found that "despite 200 years of domestication, female budgerigars do not seem to be adapted to ad-libitum feeding and consume more food than the optimal amount", even outside of the breeding season (Gebhardt-Henrich&Steiger, 2006). Hence it is necessary to obtain optimum amounts of food quantities and appropriate enrichment for utmost comfort of animals.



FUTURE ACTION PLAN

The layout of PCMC Zoo has been developed for high standard of comfortable and amiable enclosures for its species which exceed the minimum requirements of the CZA. The size, habitat needs and seclusion required for its animals will continue to be given the highest level of attention in the coming years. The focus of the plan will enhance both ecological and behavioral enrichment. The zoo plans to create facilities to breed selected species as a self-sustaining population of genetically healthy animals of endangered herpeto-fauna. The zoo will initiate an endangered species breeding program in an off visitor section of the zoo with adequate space, health care and breeding facilities to create a viable population of the turtles and amphibians with a view to (in the long term) rehabilitate them in the wild if feasible. These breeding programs are in accordance with overall theme of the zoo.

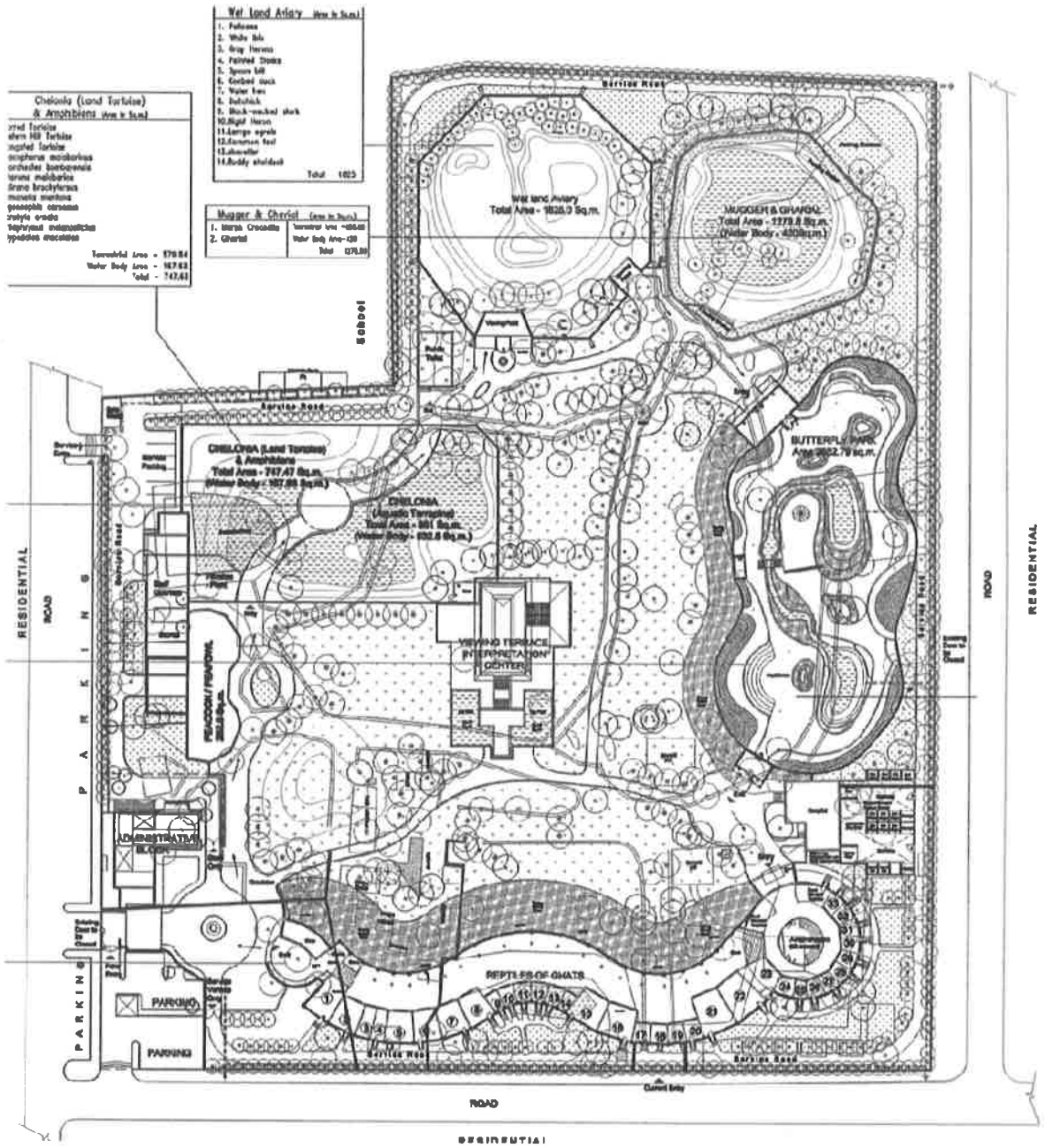
The health care facilities will be further enhanced and a facility for in-vitro fertilization for endangered species will be created in the long term. The zoo's enclosures enrichment is based on the ecosystems in which the animals live in the wild. They will be designed so that the animals have natural surrounds congenial to their specific behavior patterns and feeding resting and sleeping conditions.

The new enclosures will pay special attention to redistribute visitor pressures on the enclosures by creating sub loops in the circulation to safeguard the wellbeing of the animals. The size and shape of the enclosures will be designed to reduce noise and other nuisance from visitors so that human presence does not affect the animals' peace and wellbeing. Visitors will however have an unobstructed view of the animals from across the enclosures. A plantation program to enhance naturalness both within and outside the enclosures will be initiated using local species of trees and shrubs.

The zoo will continue to maintain the highest standards of hygiene, health and sanitation and provide the zoo staff with all the infrastructural needs to facilitate animal welfare. The zoo will evolve and develop a protocol management system. This plan shall document all contingencies and disaster management issues related to urban scenario of man-wildlife conflicts.

A comprehensive strategy that will enhance the zoo's thematic appeal has been evolved and the number of specimens to be housed decided upon giving due consideration to space and habitat needs of the collection. The plan will conform to all the requirements of the CZA. The collection plan envisages displaying a regional group of species. The plan takes into account the species seen in the wild in Peninsular India; especially Western Ghats with only a few species from other regions. The zoo also plans to involve a few attractive exotics. The zoo shall develop expertise and financial support to house all its animals in excellent health and in good breeding condition.

The Action Plan discussed with zoo management envisions additional species to be introduced once enclosures are designed and constructed within the existing open spaces as indicated in Annexure D. A completely redesigned and upgraded reptile section will be implemented. A major aquatic aviary for water birds with a natural environment and its aquatic habitat will be created. A semi-aquatic section will have mosaic of terrestrial and aquatic habitats for elusive chelonian (Tortoise and Terrapins) taxon. Existing Monkey hill shall be redeveloped as Crocodile enclosures. The zoo will begin acquiring the species mentioned in Collection plan (Annexure III).



Map 4.1 Detailed Layout Plan of Proposed Development

DESCRIPTION OF THE LAYOUT PLAN

The Description of the new layout plan is provided in the following sections:

1. Detailed features of the Layout Plan and Phase-wise Development Plan
2. Enclosure Development Plan
3. Visitor Circulation Plan.

1. Detailed Features of the Lay Out planned Phase-wise Development Plan

The new layout plan has major structural and functional changes including the park entrance. The functional design element is a major change to a dual separate pathway layout plan for visitors and service delivery systems. The park entrance has been changed from existing southern boundary to South-Western corner of the park. The administrative block is planned next to main Entrance. This two storied building encompasses ticket counter, accounts section, director and other officer cabins. The director accommodation is planned above the administrative block; however, its entrance has been separated from the zoo and provided access from western side along with other staff quarters. The staff quarters have been separated from main zoo campus through appropriate wall.

The layout plan suggests the locations of new enclosures as indicated in Map 4.1. The proposed sizes of these enclosures are provided in Table 4.1. The suggested sizes may be altered marginally while creating the final drawings.

The new layout stresses on the well designated visitor and service paths and specific walkway loops to permit better circulation and a smoother flow of visitors. The plan envisions an off visitor road wide enough for a truck, that will be made at the periphery of the zoo for service delivery systems, shifting animals for veterinary care and food delivery.

Within each of the sectors the external signage will be displayed on vandal proof material. These will explain the layout and the interrelationship of the species to the ecosystem of the animal in the concerned section.

The current location of the Interpretation Center is appropriate but will require major extensions to house all of the exhibits essential to provide a comprehensive nature education and enjoyable experience. Two halls in existing interpretation center will be developed on the zoo theme, i.e. One for Reptile and other for Avian Interpretation. An attractive shop for nature related artifacts and conservation literature will be developed within the Interpretation Center. These will be linked to visitor amenities such as toilets, cafeteria and seating places.

The layout plan has open areas designated for sit-outs and undercover seating. This will prevent picnickers from sitting all over the zoo and leaving garbage strewn around the environment which makes cleaning extremely difficult. Once these specific eating locations are specified the ability to clean up only these specified areas will become more efficient. The need for loop pathways will facilitate access to enclosures as well as reduce congestion on the existing route.

A major part of the layout is to separate a section of the zoo for important 'off-visitor' facilities which will remain inaccessible to visitors. This includes sections year marked for

(a) Ex-situ breeding facilities,

(b) Rescue Center or Hospital of quarantine area for animals

Annexure C is map showing the topography, the existing enclosures marked in black colour shall be retained; the proposed enclosures in blue and enclosures to be dismantled in are depicted in red. The enclosures to be modified are depicted in green.

Structures like office, veterinary hospital, staff quarters and store which are located in the off-visitor sector are included in the sanctioned layout plan.

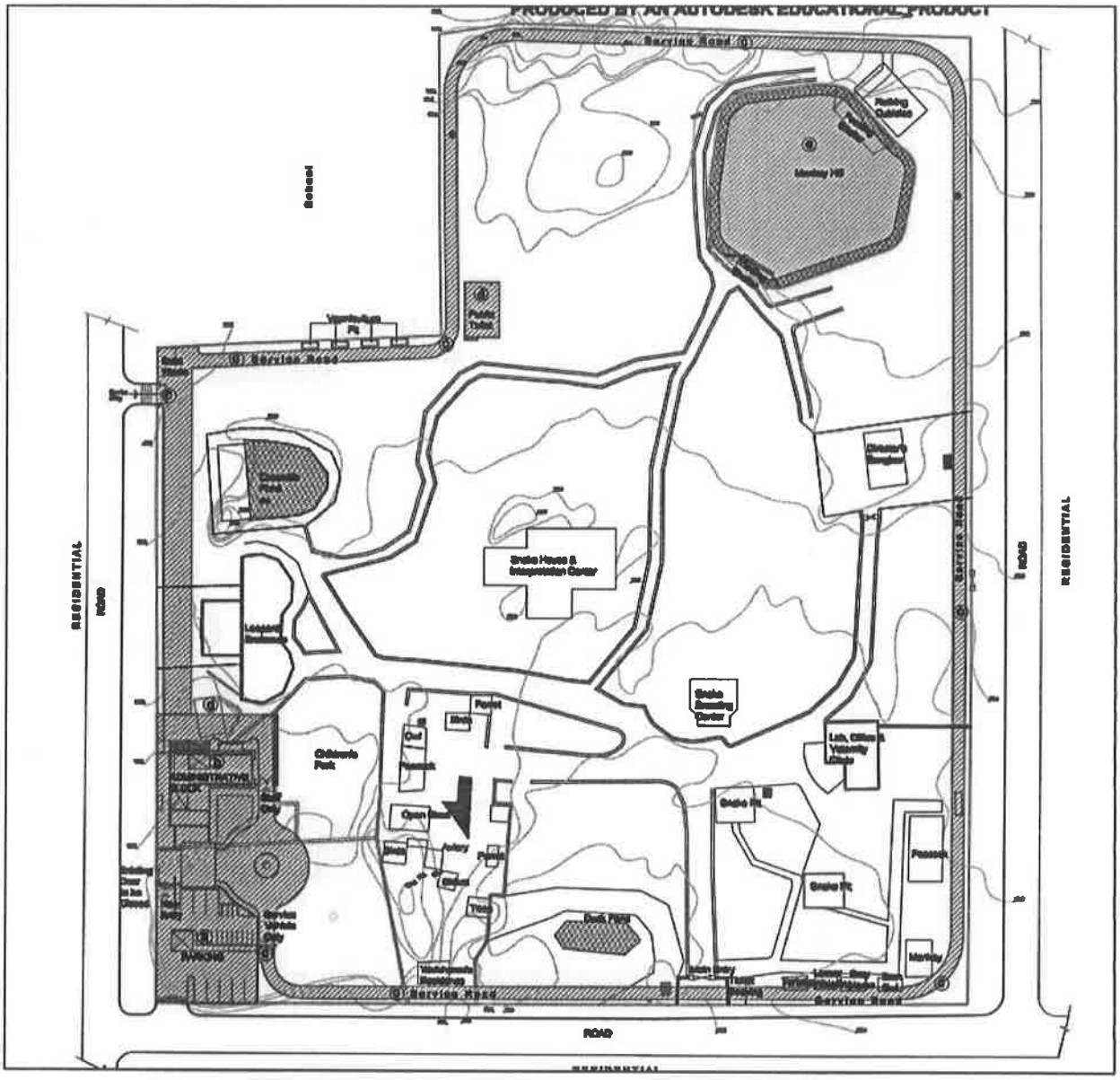
Sanctioned layout plan also depicts pathways (proposed and existing) main road (proposed and existing) and service roads (proposed and existing) as well as the visitor amenities like toilets, resting sheds, drinking water, cafeteria, gift shop, interpretation centers etc.Alterations in pathway design has been suggested and depicted in Map 2. The road that acts as the visitor circulation is well built and has a width of six meters. A circuit road in 2 meter width will be separately developed around the periphery for the services which is marked in blue.

Annexure B depicts the drainage line, water network and electrical network in the zoo.

Annexure C shows the different contours in the zoo premises while map 5 shows the location of the various enclosures as per the new theme.

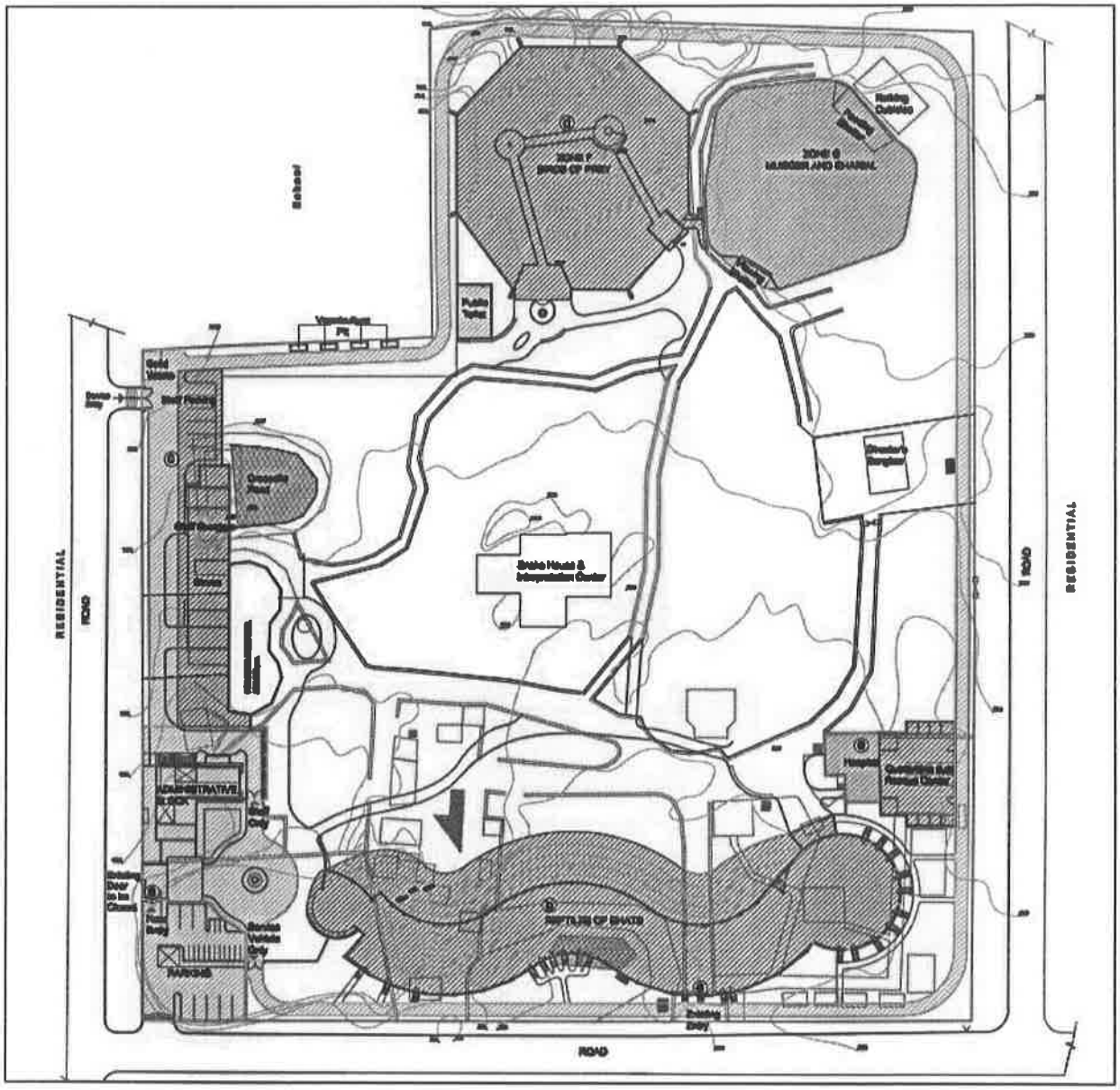
For development of new facility without affecting the existing zoo activities, following phase-wise developmental actions are suggested.

PHASE I



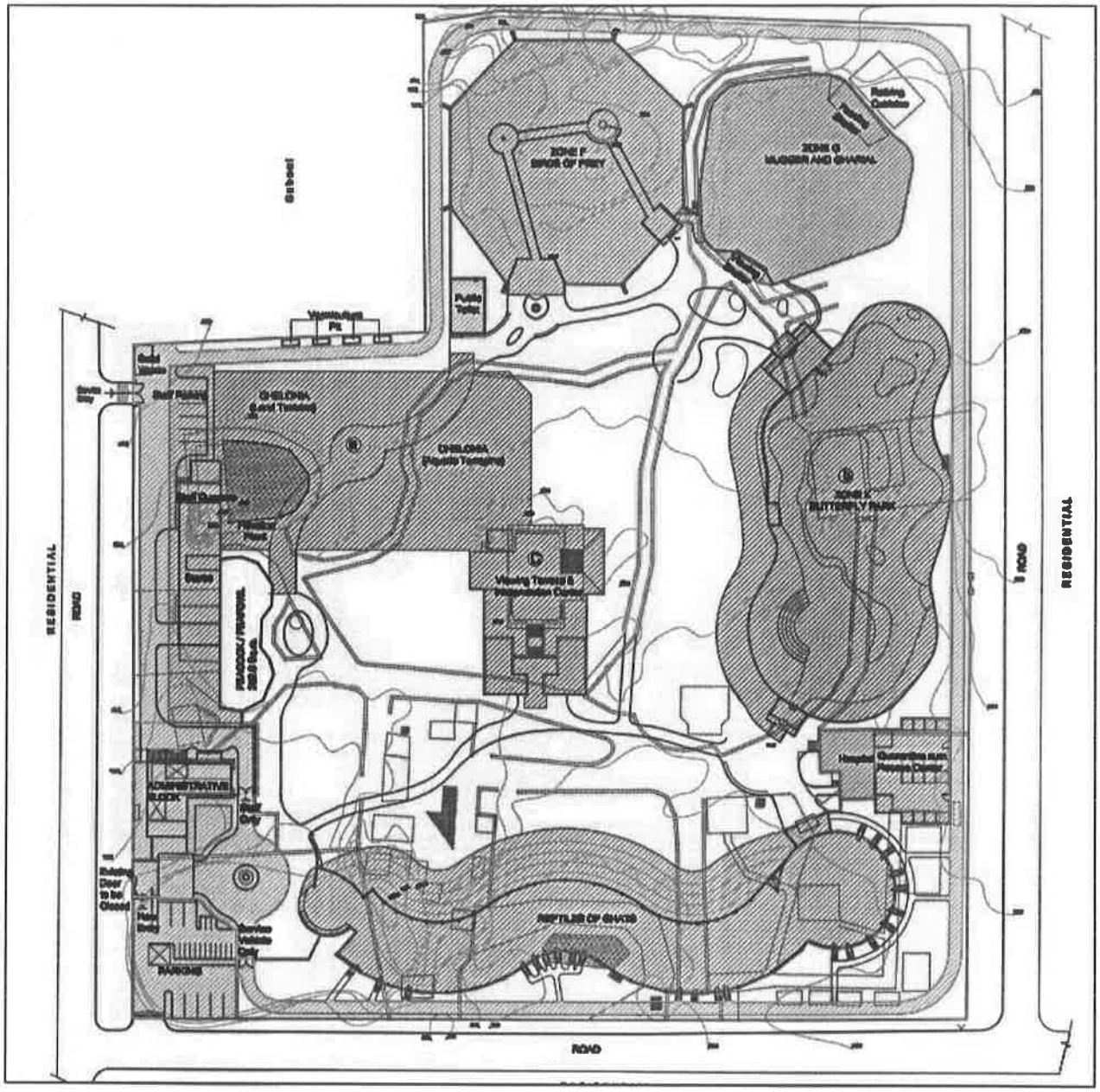
1. **Compound wall**
2. **Main Entrance, Parking lot and Administrative block**
3. **Toilet block**
4. **Service road along the peripheral wall.**

PHASE II



1. **Construction of Temporary Bird Enclosures and Demolition of Existing aviary**
2. **Construction of Reptiles of Ghat**
3. **Construction of Service area, storage area, kitchen and staff Quarters,**
4. **Redevelopment of Mugger and Gharial Enclosure**
5. **Developing of new pathways**
6. **Demolition of existing mugger enclosure**
7. **Aquatic Aviary**

PHASE III



1. Redeveloping internal circulation paths
2. Chelonia section and breeding center
3. Butterfly and Insectarium
4. Redevelopment of Interpretation Center

2. Enclosure Development Plan

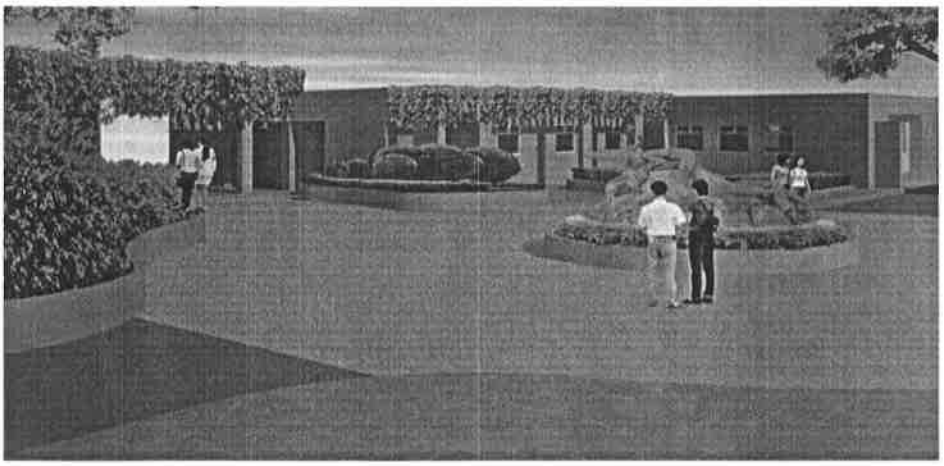
It is proposed to initiate the new development from main entrance. The current entrance shall be affected by construction of new reptile section. Therefore, it is proposed to undertake development of new entrance gate and administrative block in initial phase.

The Enclosure development plan will go hand in hand with other developments such as visitor circulation, reorganization of pathways, open spaces and visitor amenities, and the development of the ex-situ breeding facility and interpretation center.

1. **Main Entrance and Administrative Block**

   It is proposed to initiate the new development from main entrance. The current entrance shall be affected by construction of new reptile section. Therefore, it is proposed to undertake development of new entrance gate and administrative block in initial phase.

Proposed Entrance Gate



Entrance and Newly Proposed Administrative Block (Inside View)

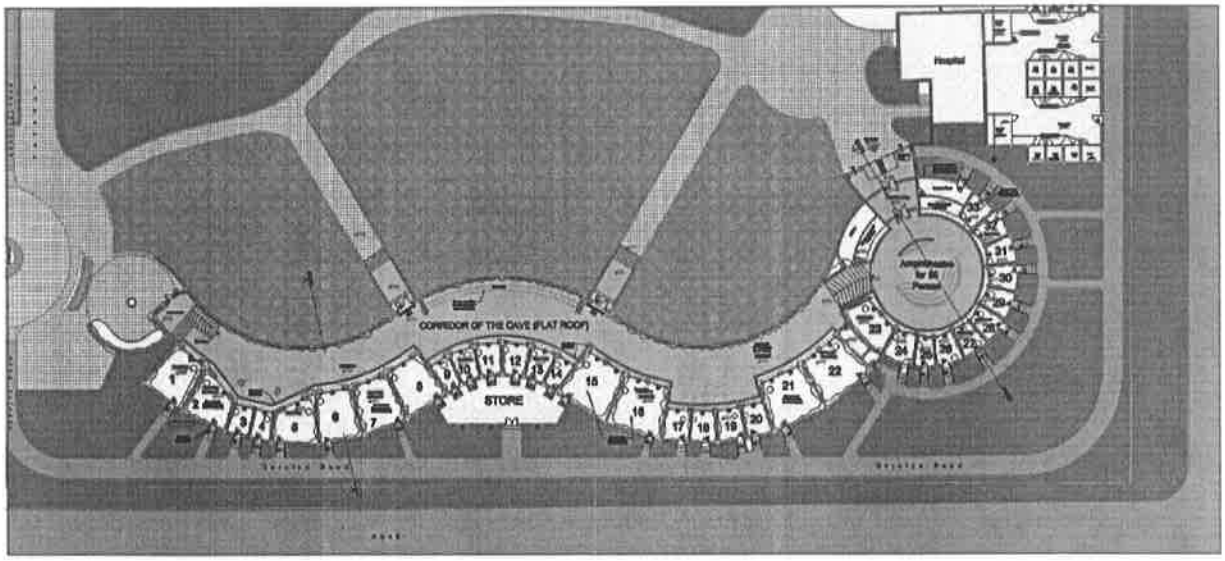
2. **Reptiles of Western Ghat**

The zoo has been famous for its reptile section which has lost its charm after its relocation, and closure of pits enclosures for snake display. Presently, all reptiles are housed in small wooden boxes within the Interpretation facility. The inappropriate enclosures and finite space for visitor movement make it inappropriate for long-term use. Possibilities of vandalism cannot be denied in this case. Therefore, it is proposed to undertake development of reptile section at earliest. The development of reptile section is expected to disturb the old entrance gate and therefore shall be undertaken only after construction of new entrance and administrative block.

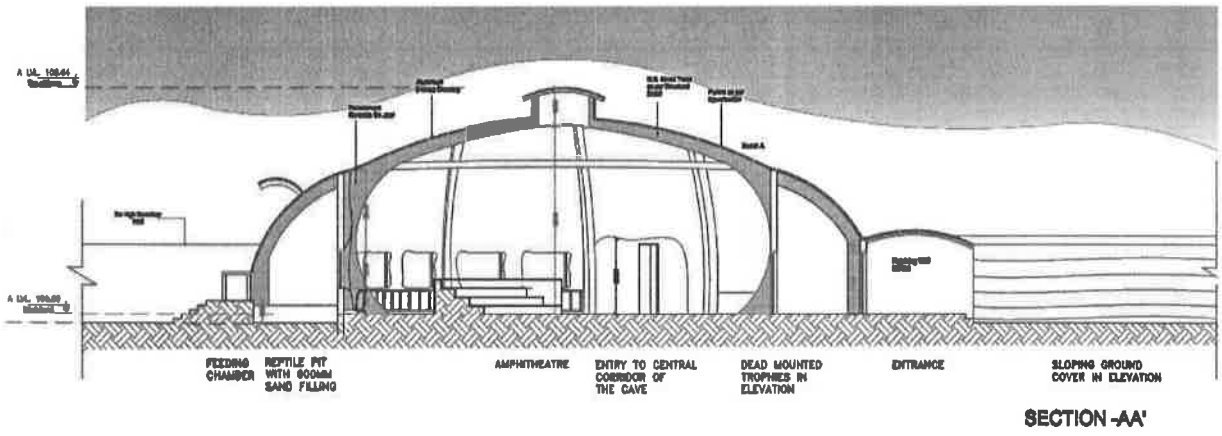
Similarly, it is necessary to consider the relocation of bird enclosures which will be affected by construction of new Reptile section. These metal enclosures may be temporarily relocated in area adjacent to existing Crocodile enclosure. This will reduce the disturbance in visitor circulation and proposed development can be undertaken without closing existing facilities.

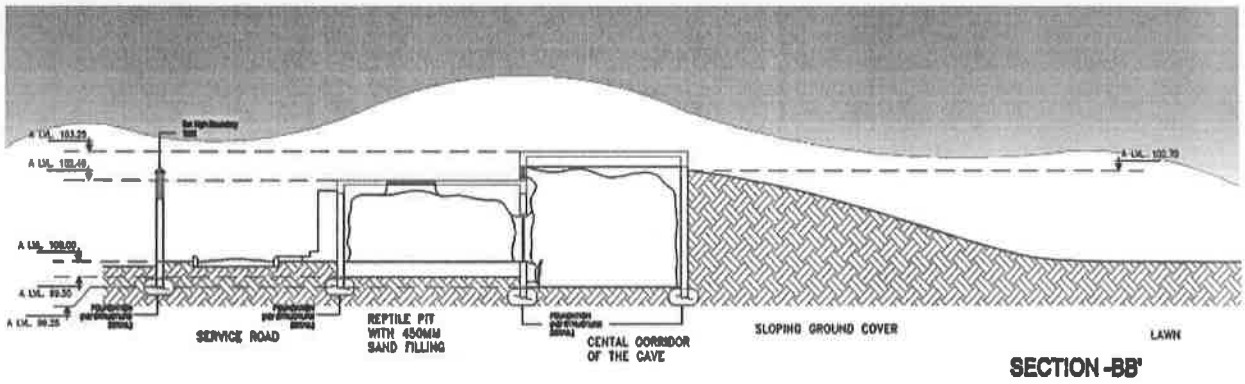
The new reptile section has in total 33 cells for snakes and other reptilians. The details of each subsection area, species and the numbers are given in table 4.1. The zoo collection plan envisions a minimum total of 193 individuals of 33 species.

This large collection will be displayed in enclosures of different sizes. These enclosures will be glass fronted and include the specific habitat requirements of each species. The exhibits will have brief write ups on the reptile's specific characteristics, identification features and habitat requirements. The current number of individuals as against the proposed collection plan is provided in table 4.1. The new plan of the reptile section is provided in Map 4.2. The reptiles will be mainly exhibited as per their habitat or scientific lines to enable easy management of the species.

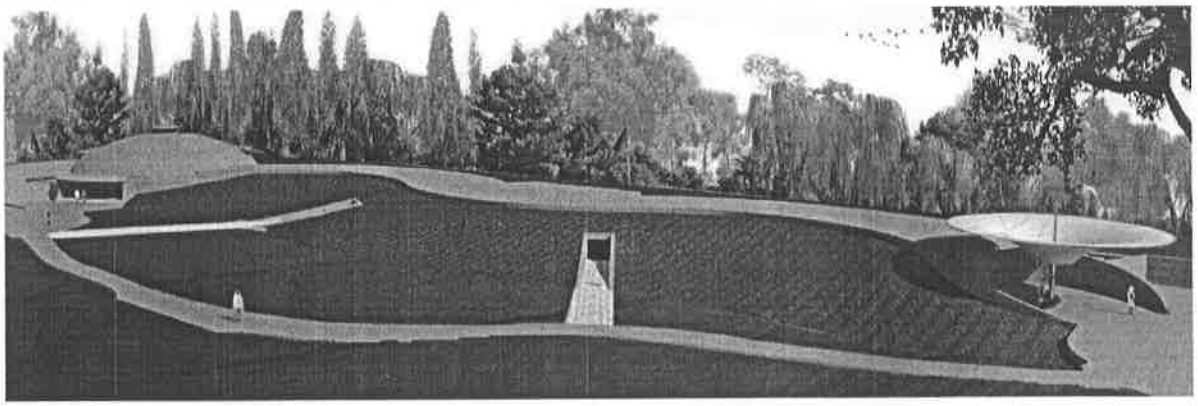


Map 4.2: Plan of Reptiles of Ghats Section





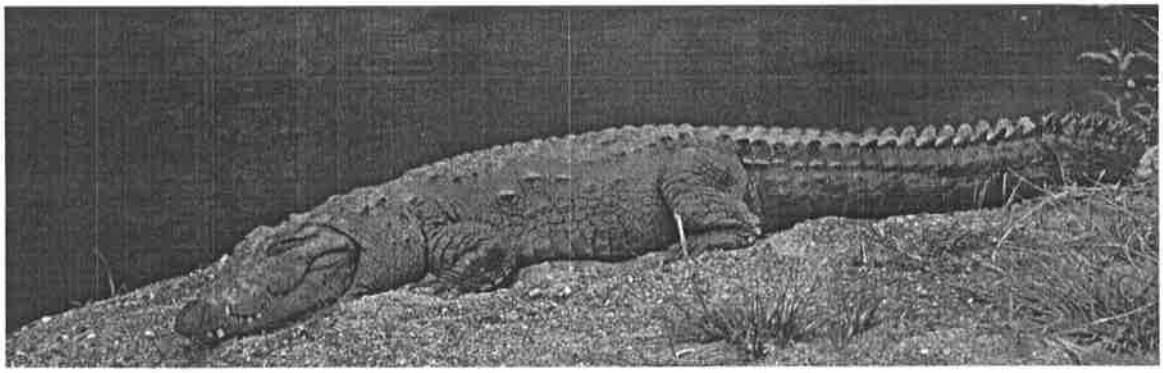
Section Designs of Reptiles of Ghats



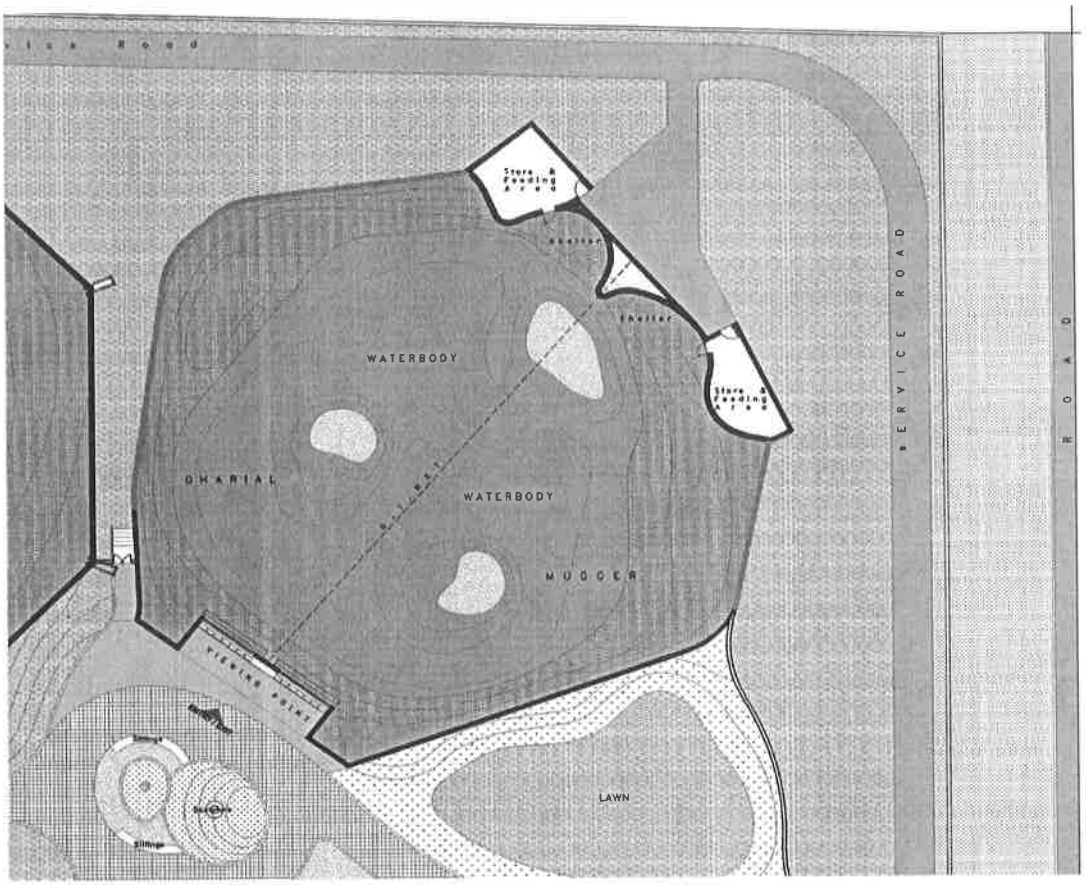
Aerial View of Reptiles of Ghats

3. **Crocodile Section**

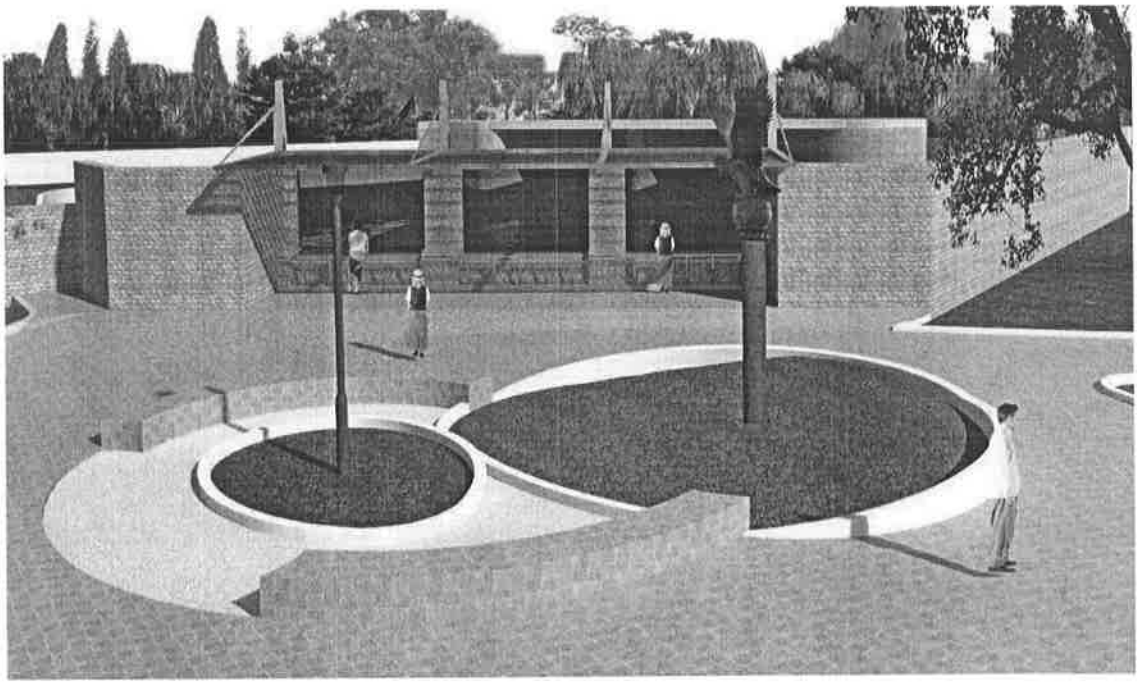
It is proposed to redevelop Monkey hill to accommodate Crocodiles and Gharials after suitable modifications. Crocodilians are semi-aquatic creatures. With their streamlined bodies and powerful tails, nearly all species are most at home in the water and this is where they will spend the majority of their time. However, they also require a land area to dry off and bask. Therefore the enclosure is designed to ensure space, both in terms of the amount of water and land. It also considers several factors, including how to divide it into land and water areas, heating both water and air, and how to best keep the water clean. The designs embark upon importance of reptile's thermoregulatory requirements. Appropriate provisions are made for natural basking within the enclosures.



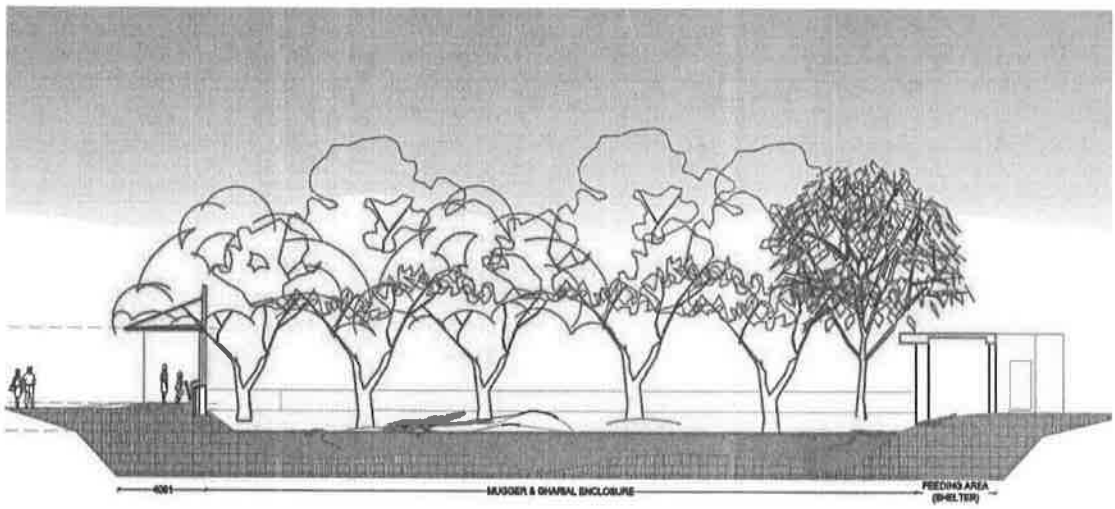
Marsh Crocodile



Map 4.3 PLAN OF MUGGER & GHARIAL ENCLOSURE



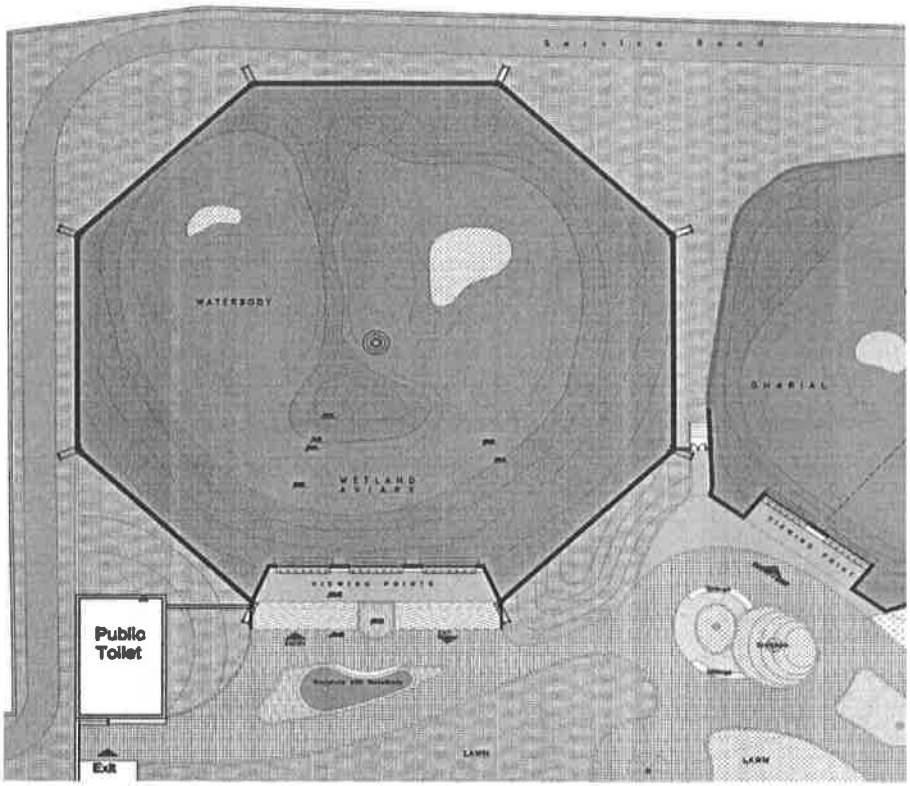
3D view of Muggar and Gharial Enclosure



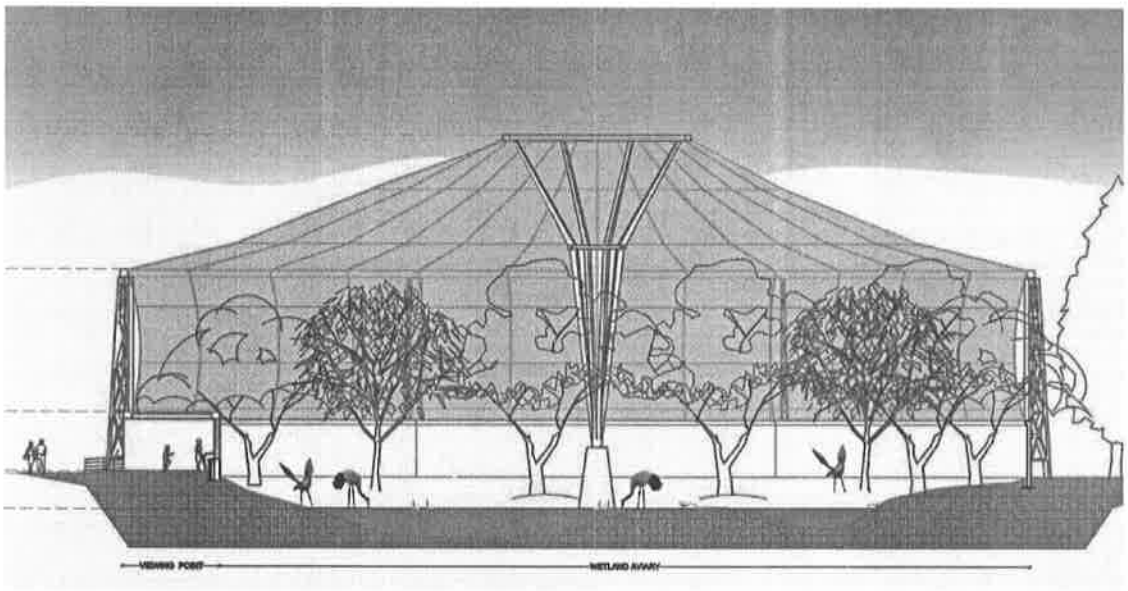
SECTION OF MUGGER & GHARIAL ENCLOSURE

4. **Avifauna Section (Wetland Aviary)**

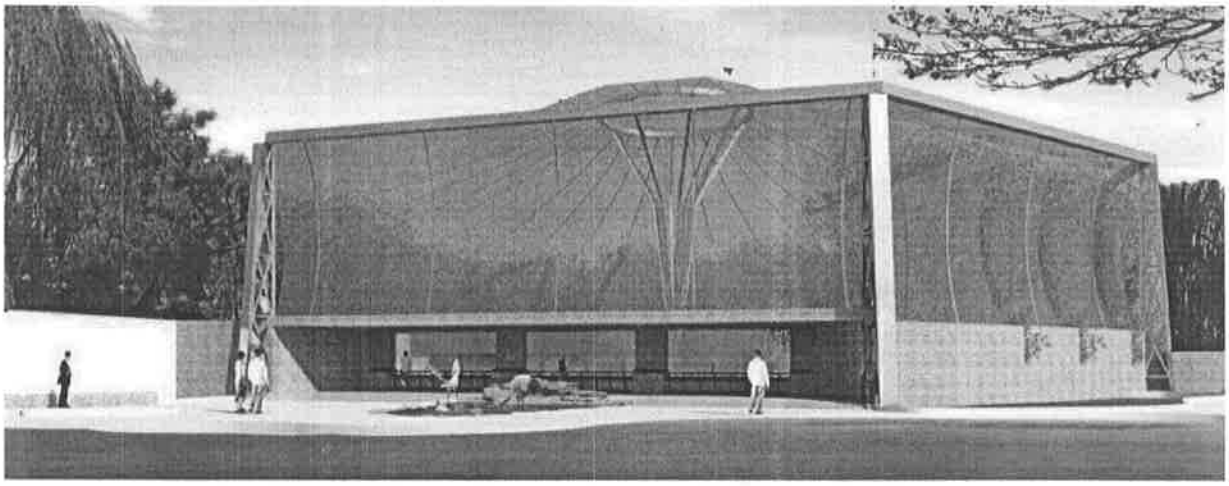
The zoo at present has very few birds on display. These birds are displayed in traditional concrete enclosures, where naturalistic enrichments are minimal. There is a great need to display interesting avifauna as this stimulates a general interest in bird watching, wildlife and conservation among visitors. To enhance this awareness the zoo has plans to create a large aviary for aquatic avifauna. The aquatic habitat in the aviary will house 14 species. All species will include approximately 102 individuals in together. As these species roost and breed by building nesting colonies over water, the enclosure will create optimal conditions for these species with an artificial lake. The plan envisions creation of a major aquatic inclusive of artificial lake with an area of 1825 sq. m. The area will include the existing trees overlooking the water's edge in which the birds will be encouraged to breed. As the pathway along the raised platform with glass viewing will keep for these birds to breed in a natural setting.



Map 4.4 Plan of Wetland Aviary



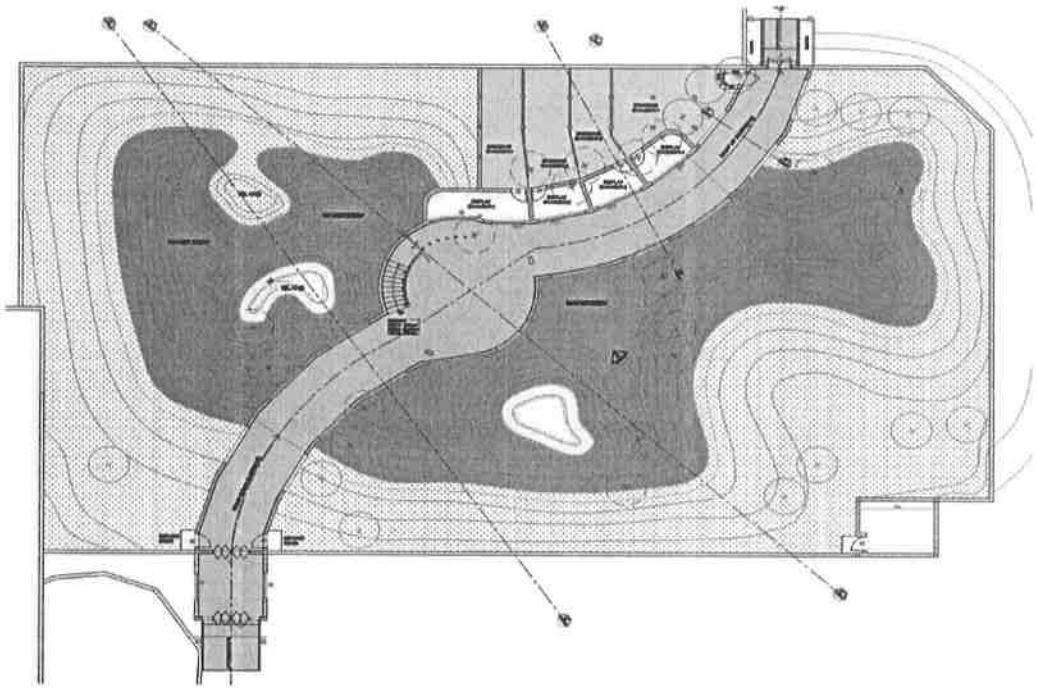
SECTION OF WETLAND AVIARY



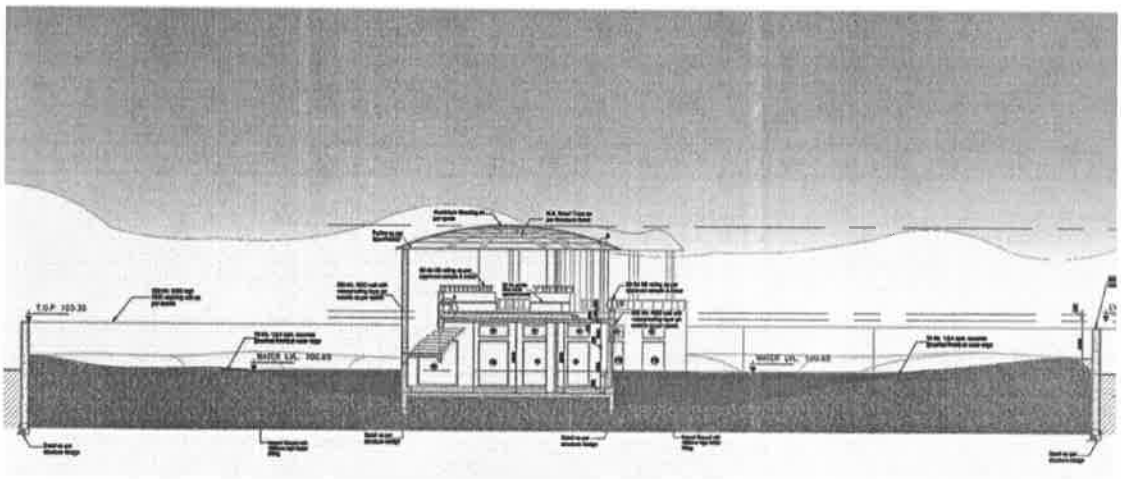
3D View of Wetland Aviary

5. **Chelonians and Amphibian Section**

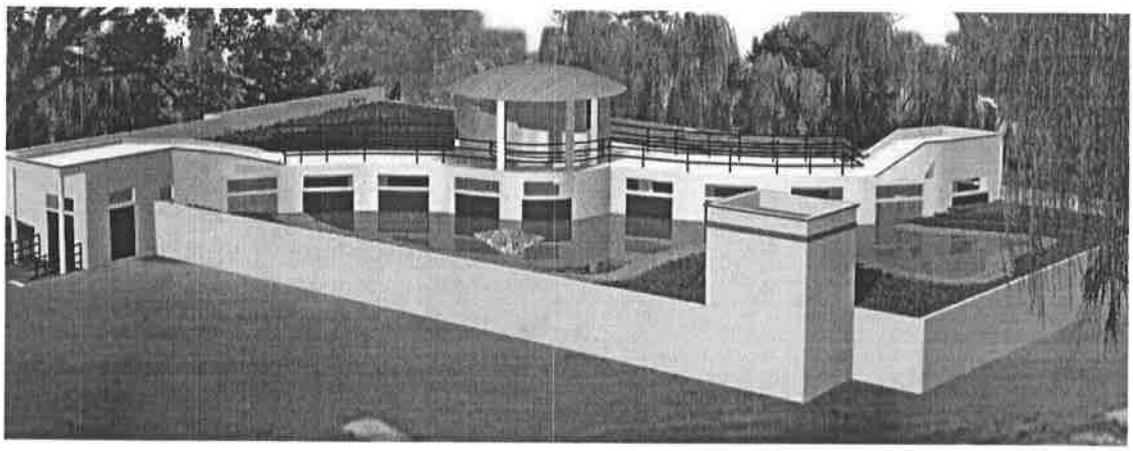
The zoo envisions becoming a specialized facility in Turtle and Amphibian breeding. As of now, there is no specialized breeding center for Chelonian breeding in country. The zoo has taken this opportunity to develop a state of the art enclosure with amphibian habitats. This will be a walk through enclosure, where visitors shall be able to see activity of turtles under water. The open air enclosure with ample land will be suitably modified to encourage turtles for breeding. List of proposed chelonians is given in collection plan. Chelonians have been traditionally worshiped and given sacred value in Hindu culture. However, development of dams and increased water pollution has caused significant decline in their population. This center will develop focused education and awareness programs for conservation of turtles in its remaining habitats. Similarly, the excess population of captive breed turtles shall be released in wild habitats. It is also proposed to develop an off display facility for breeding of endangered frogs and caecilians.



Map 4.5 PLAN OF CHELONIA Section

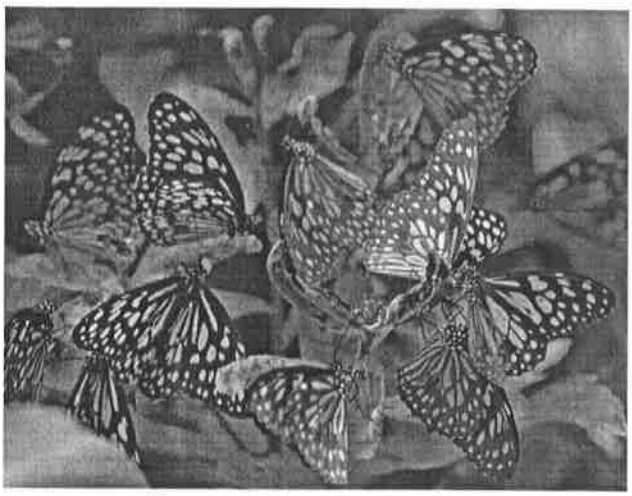


SECTION OF CHELONIA

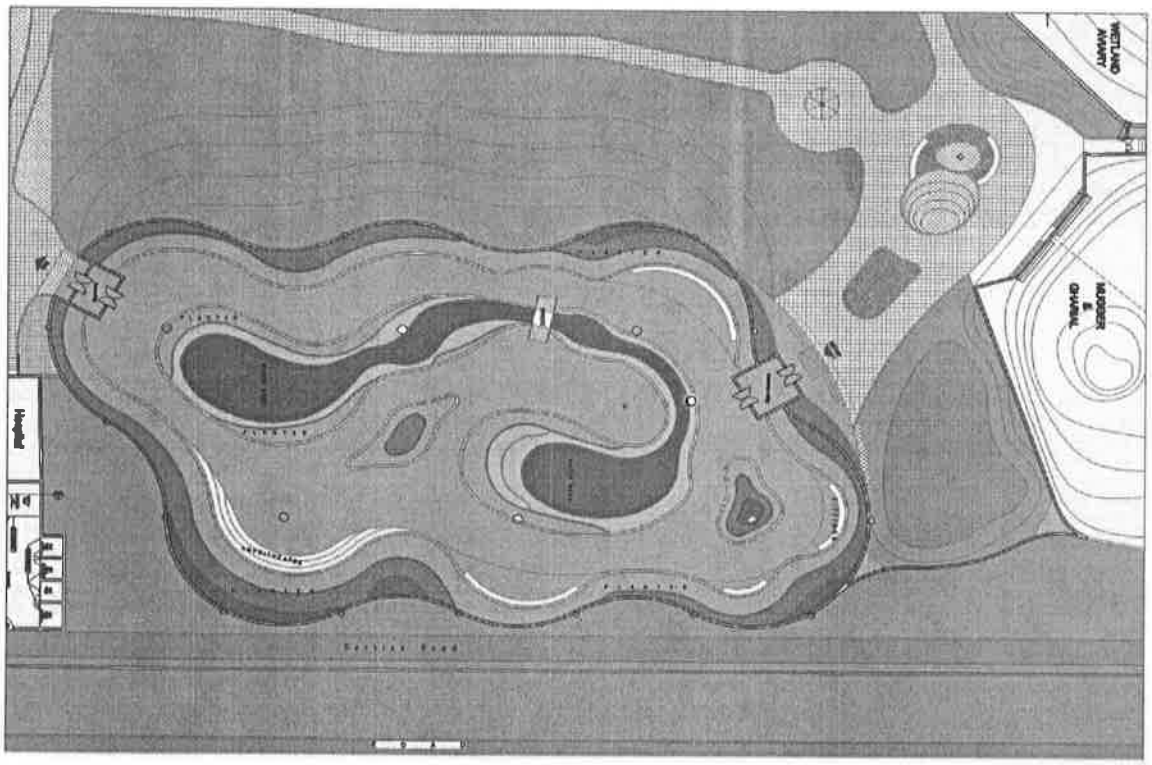


3D View of Chelonia

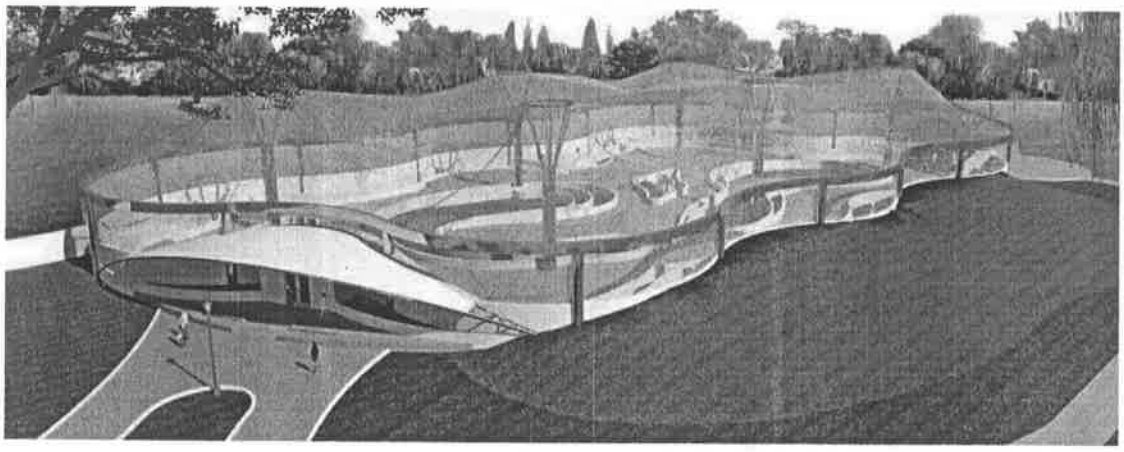
6. Butterfly Park and Insectariums



The zoo has planned to establish a uniqu e Butterfly Park and Insectarium. This area of the park will be planted with the host plant species of butterflies and intended insects as well as suitable nectar yielding plants. This natural habitat for butterflies will be netted to maintain butterfly population of 40 selected species (Table 4.3). However, considering the short and seasonal lifespan of butterflies and insects, it is proposed to develop ex-situ laboratory for early lifecycles of butterflies. This lab will also need to supply young and tender leaves of their host plants. Planning for continuous supply of host plants and nectar plants need to be planned separately. It is highly encouraged to promote Interpretation facilities including signage and murals and working models to demonstrate fragile life-system of these beautiful creatures. The plan of the park has been submitted in map 4.6.



Map 4.6 BUTTERFLY PARK



3D View of Butterfly Park

CONSERVATION BREEDING PLAN FOR ENDANGERED SPECIES

The proposed collection plan has been detailed in table 4.1. The collection plan emphasizes species of the Reptiles, Amphibians and Aquatic birds. The total numbers of species, proposed in the collection plan, are 48 reptiles, 14 birds and 5 amphibians and 40 species of butterflies amounting to a total of 102 individuals of birds and 357 individuals of Reptiles. Number of amphibians and butterflies are expected to fluctuate seasonally. It needs to be understand that, their highly seasonal lifestyle make them impossible maintain at a constant number throughout the year. The amphibians are proposed to be reared separately in an off display enclosure and shall include5-7 species.

The collection plan for the new Master Plan has been based on theme with the ambition of best reptile compilation in the country. The theme of zoo has been decided upon the available land space and amiable resources in present facility. A specialized faunal collection of small animals in finite number is preferred than a mixed collection of animals with non-viable numbers in pitiable facilities. It has also been planned to undertake a major breeding program. The collection plan also aim at conservation needs to accomplish vital functions of a modern zoo.

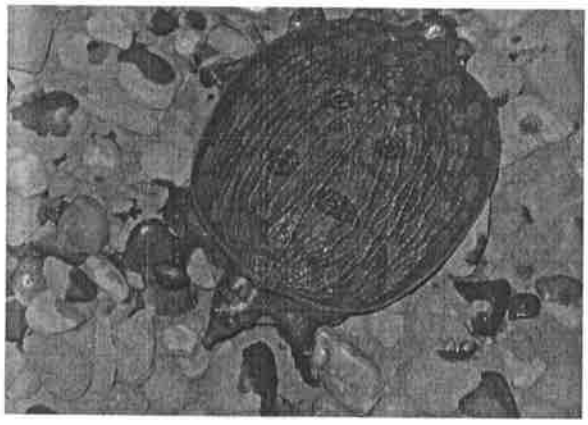
The endangered species in proposed ex-situ breeding facility have been selected based upon need of urgent captive breeding requirements of amphibian species increasingly threatened due to various reasons.

ENDANGERED TURTLE SPECIES UNDER PROPOSED BREEDING PROGRAM

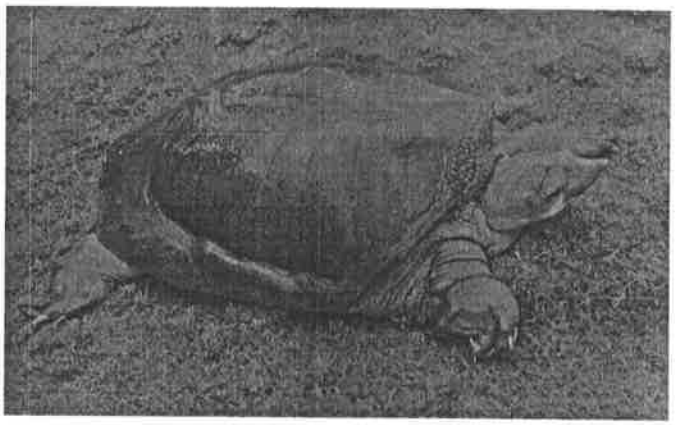
Turtles play an important role in aquatic ecosystem. They function as scavenger and help naturally clean water. Their population is declining due to habitat alterations through construction of dam, water pollution, and illegal poaching for meat trade. The PCMC zoo shall develop ultramodern facilities in captive breeding of endangered turtles. The facility will gradually be expanded for breeding of other endangered reptiles and amphibians as well. In first phase of Conservation breeding of Turtles following species are proposed.

1. **Deccan Softshell Turtle (*Nilsonialeithii*)**

   This freshwater Turtle is endemic to Peninsular India and was originally described by Gray 1872. The original type specimen was collected from Pawana River which flows through the city of Pimpri-Chinchwad. The current status of this species in river is uncertain. The species is categorised under critically endangered status (2013) due to rapid decline in its population. There is no known breeding colony of this species. The species is susceptible to water pollution and droughts. Currently, this species is not housed in any of the Indian zoos. The proposed breeding program is expected to establish a viable captive population in Indian Zoos. The excess population shall be rehabilitated in wild.



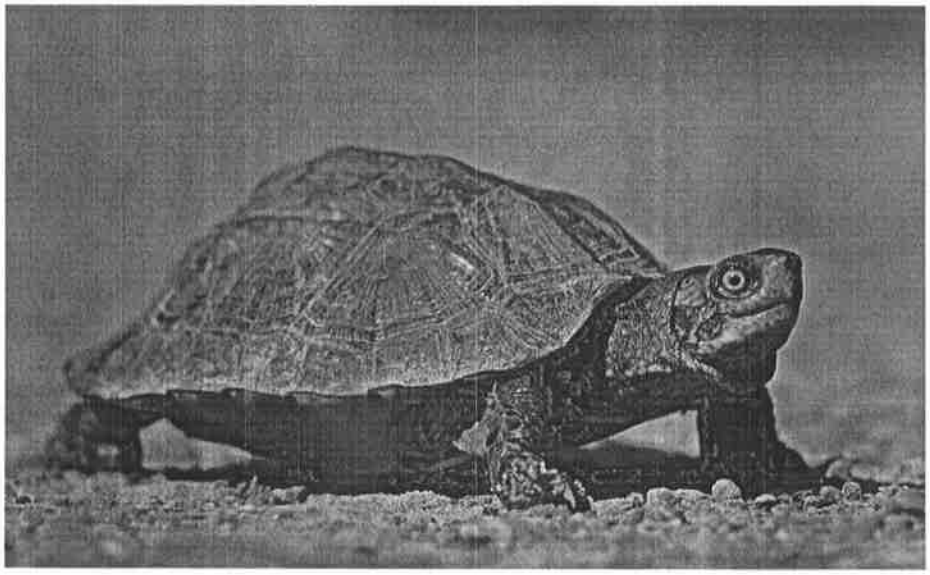
Deccan Softshell Turtle (Juvenile)



Deccan Softshell Turtle (Adult)

2. **Black Pond Terrapin (*Melanochelystrijuga*)**

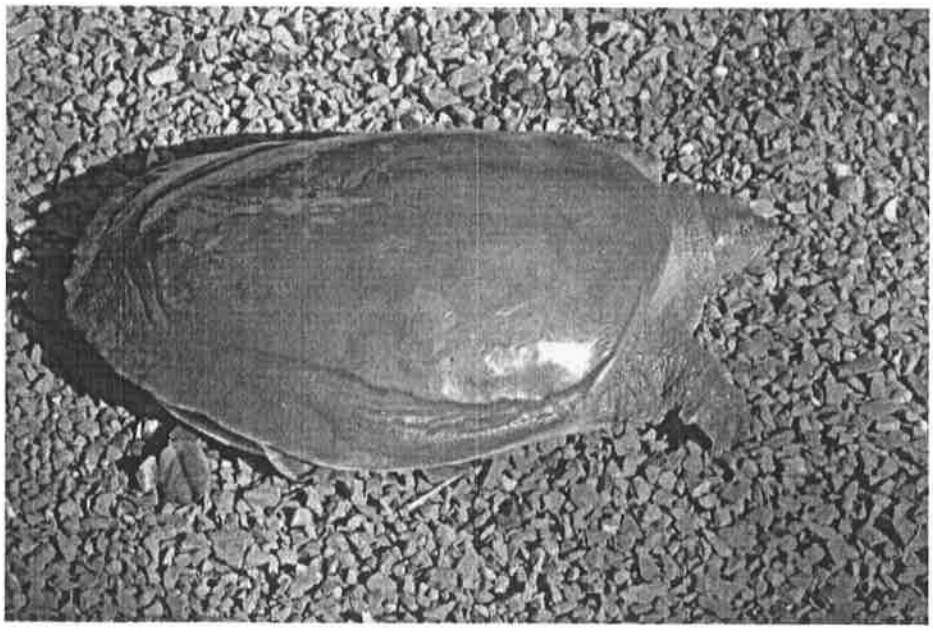
   Once known as a wide spread species, this turtle has declined in numbers due to its increased trade value. It is categorized under schedule-I of Wildlife (Protection) Act, 1972. This turtle is in urgent need of captive breeding to restore its natural population.



Black Pond Terrapin

3. **Flapshell Turtle (*Lessymispunctata*)**

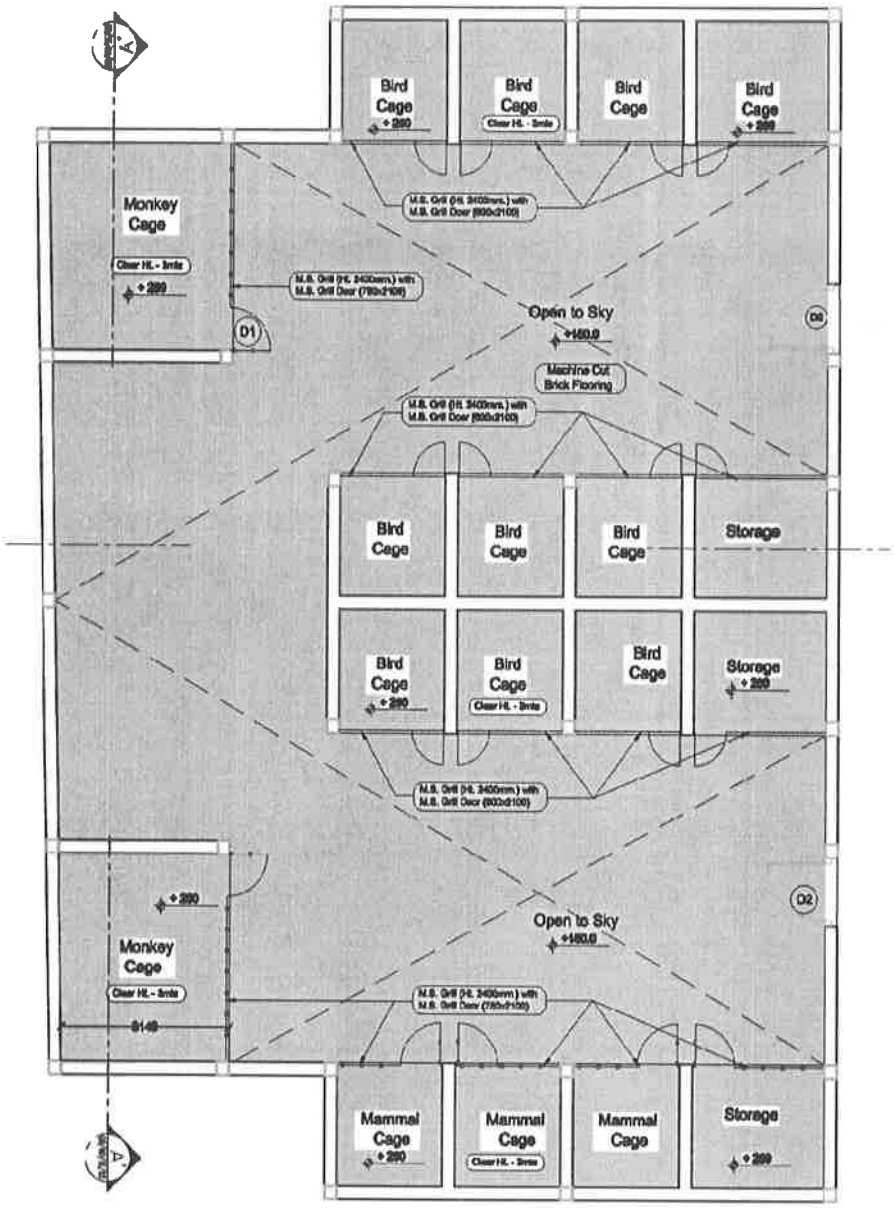
Flapshell Turtles are one of the most wide spread freshwater turtles in India. This species has been included in Schedule-I of Wildlife (Protection) Act, 1972 for its illegal trade for meat. This species is also vulnerable to global warming and change in habitat.



Flapshell Turtle

RESCUE CENTER / QUARANTINE

This has been strength of this zoo with a special focus on reptiles. As this is an important function of protecting animal rights it requires further support for training volunteers and infrastructure development. This activity of the zoo is to support zoo's existing outreach program. A small section has been allocated as Quarantine cum Rescue Center near old office building. This section will have off display enclosures for temporary housing of reptiles, birds and smaller mammals rescued in the city. For large mammals, the zoo can seek help from Katraj Rescue Center or Forest Department.



Map 4.7 PLAN OF QUARANTINE CUM RESCUE CENTER

CHAPTER V

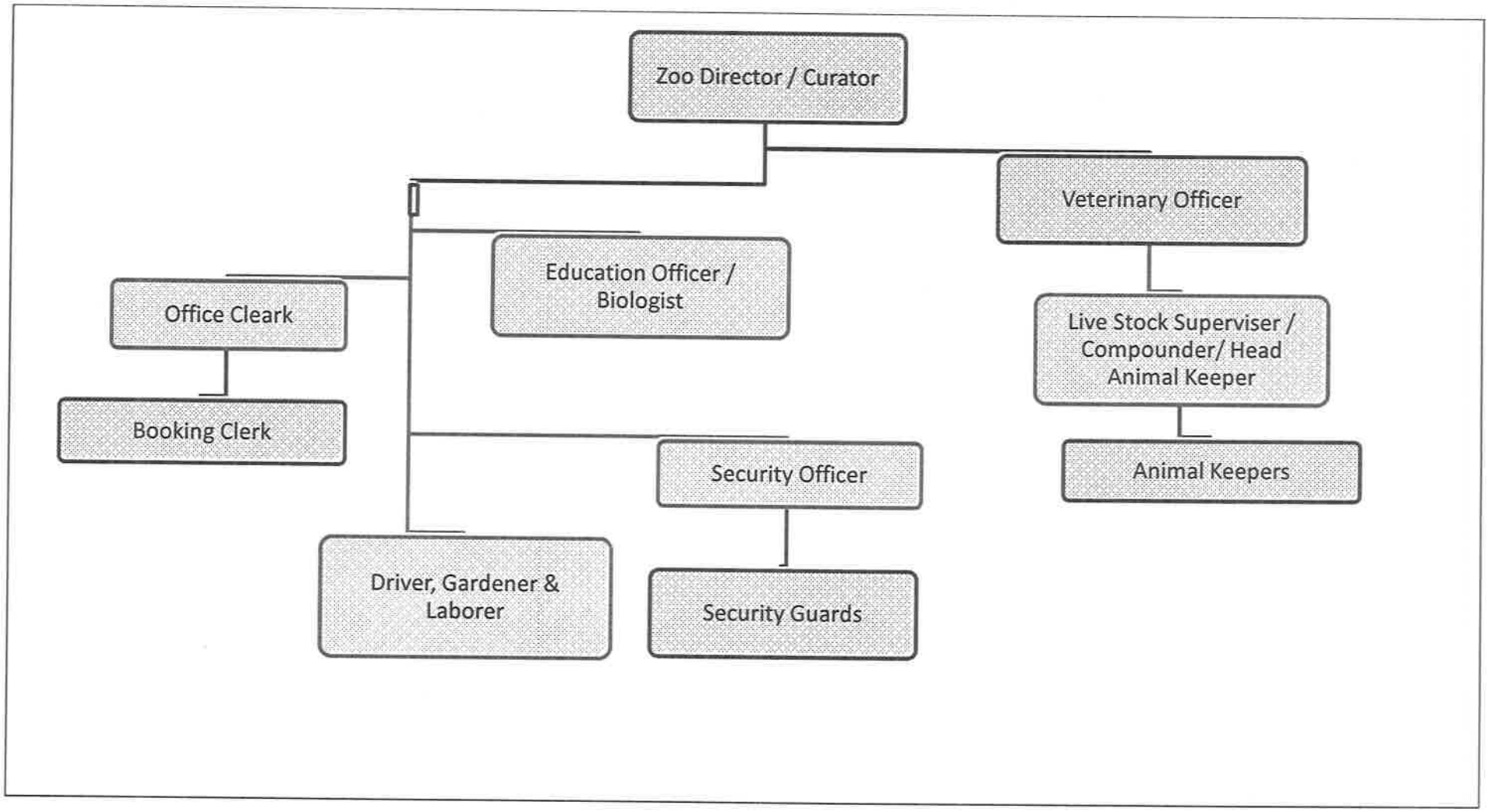
PERSONNEL PLANNING

Table 5.1: PERSONNEL PLANNING (STAFFING PATTERN: Current and Proposed)

Sr no.	Name of post	Pay-scale	Total Posts	Posts filled	Vacant Posts
1	Director/ Curator	9300-34800 GP- 5900	1	0	1
2	Biologist/Education Officer	9300-34800 (This scale is as per Pune Municipal Corporation.)	1	0	1
3	Veterinary Doctor	9300-34800 GP- 5400	1	0	1
4	Head Animal keeper / Live Stock Supervisor	5200-20200 GP_2400	1	0	1
	Animal Keeper	5200-20200 GP 2200	2	0	2
5	Asst. Animal keeper	5200-20200 GP 1900	6	(4)	2
6	Clerk	5200-20200 GP- 4300	1	0	1
7	Ticket counter attendant / (Booking Clerk)	5200-20200 GP- 2400	3	1	2
8	Garden supervisor	5200-20200 GP- 2400	1	0	1
9	Security Officer	Consolidated 12000	2	0	2
10	Security Guard	Consolidated 8000	16	3	13
11	Driver	5200-20200 GP 2400	1	1	0
12	Gardener / (Mali)	5200-20200 GP 1900	6	6	06

The zoo in past has been deputing its staff to training programs being organised and conducted by the CZA and will continue to do the same in future also. Apart from this the Zoo will also depute its staff for specialized training in other zoos of the country and abroad. It is planned that by 2020, all the staff in the zoo would have received advanced training in proper management, veterinary care and upkeep of the wild animals in zoos collection.

Administrative Hierarchy and Staffing Pattern



ROLES & RESPONSIBILITIES OF ZOO PERSONNEL

Director / Curator

Often working behind the scenes, an administrator oversees essential operations. They recruit and train volunteers, fundraise, manage finances and records, procure supplies, handle public relations and keep things going. Administrators are the unsung heroes of working of a zoo, ensuring that resources are available and zoo can continue to provide services.

Director of zoo will be responsible for overall activities & functioning of zoo. Director should assign duties & responsibilities to all the zoo personnel. The director is also responsible for upkeep & health care of animals, proper visitor management.

1. The director will be CEO of zoo &He / she shall work as the head of overall administrative & financial management as per guidelines from CZAI & Forest department.The director shall co-ordinate with governing body for sanction of financial assets & other activities of zoo.
2. The director will ensure financial assets for current financial year & prepare budget for next financial year.
3. To have disciplinary control over all the zoo staff besides designating roles & responsibilities of all officers & other staff. He shall supervise & guide to staff in animal & garden sections.
4. The director willco-ordinate other Indian zoos, foreign zoos, CZAI &forest department for exchange & reintroduction of wild animals as well as wildlife conservation activities.
5. He will be directly responsible for day to day activities of zoo. To ensure daily maintenance of zoo, animal food & other resources.
6. To ensure proper & safe storage of food. Ensure inventory quality of animal food & proper inventory of animal food.
7. To take action plan for proposed breeding activities.
8. Ensure proper visitor safety & proper security to zoo assets.He shall co-ordinate local police for law & order in zoo campus.

Veterinary Officer

The Veterinary officer will ensure proper health conditions of wild animals. The Veterinary officer will assign roles & duties of livestock supervisor and compounder on day to day basis. He is expected to visit animal enclosure to observe animal health conditions. The veterinary officer should ensure proper animal diet & water conditions.

1. The veterinary officer will prepare and maintain inventory of livestock.
2. The veterinary officer will carry out daily observation of animal health conditions.

3. To shift sick animals in zoo hospital & treated for disease. The proper pathological & medical examinations should be carried out for proper investigation.
4. The veterinary officer will maintain proper medical records, pathological reports, treatment cards, post mortem registers etc.
5. The veterinary officer will maintain inventory of medicines, vaccines & other consumables as well as veterinary surgical equipment.
6. The Veterinary officer will prepare disinfection schedule & ensure implementation of these tasks.
7. The Veterinary officer will carry out post-mortem of animals died in zoo for diagnosis of possible reason.
8. The Veterinary officer will be responsible for research & conversation in wildlife domain.

Education Officer / Biologist

1. To prepare zoo brochure, booklet & zoological information of animals exhibited in zoo.
2. Design various information boards to be exhibited at respective animal enclosure.To carry out audio-visual shows, exhibitions, competitions for public awareness.
3. Making arrangement for guided tour for visitors inside zoo.
4. Interacting with visitors directly & educating them not to tease animals.Addressing queries raised by visitors about wild animal in zoo.
5. Educating zoo staff for proper interaction with visitors without compromising zoo regulations.To carry out training programs, workshops & seminars for wildlife conservation.
6. Making observation of behavior& biology of animals & maintain proper record of it.
7. He will ensure proper upkeep of pregnant females, new born babies & newly acquired animals.Maintain animal history cards, stud book as per CZAI guidelines.
8. Enrichment of animal enclosures.

Head Animal Keeper / Livestock Supervisor

1. Collection of specimen during post mortem. Assisting veterinary officer for collecting animal specimen sample for laboratory findings.To assist veterinary doctor during treatment.
2. To maintain feeding inventory of animals.
3. To ensure timely cleaning and upkeep of animal housings.
4. To ensure timely repair of animal enclosure.To ensure perches, other enclosure furniture & enrichment for specific animal species.
5. To assist director in day to day activities.

Zoo Keepers

1. To maintain cleanness of animal enclosure.
2. To ensure timely feeding & watering of animal assigned to him.
3. Report his senior about any damage to enclosure such as broken chain link etc.
4. Report his seniors if any animal found sick. The animal should be immediately shifted to zoo hospital from exhibit area.

Security Officer

1. He will co-ordinate among watchmen & assign them duties.
2. He will be responsible for safety of zoo assets.
3. He will co-ordinate with Curator & Director for visitor as well as animal safety.
4. He will train zoo staff to face emergencies such as fire, flood & man made emergencies such as bomb explosion, etc.
5. He will maintain over control in zoo staff with CCTV camera, public address system & walkie-talkies.
6. He will ensure all fire alarm systems, fire extinguisher & other safety system are in proper working conditions.

Accountant / Office Clerk

1. To handle finance & accounts matter.To check cash book, cash register & review progress of cash flow against sanctioned amount.
2. To check & prepare bill of salaries, TA claims, Animal diet, material supplier bills.
3. To maintain zoo cash & security of other valuables.
4. To issue admission ticket to clerk & check the cash records.
5. To process tender for food items, medicines, stationary & civil work.Assisting director in day to day office work.
6. To maintain official correspondence.To record minutes of meetings & prepare draft.
7. Maintain office peripherals such as fax machine, printer, computer& EPABX system.

Ticket Clerk

1. To issue gate entry tickets, parking tickets & zoo information brochures.
2. To maintain account of sale of tickets & other zoo material.

Mali /Gardener

1. To maintain lawn & other plantation inside zoo.
2. To maintain plant nursery & tree collection inside zoo.
3. To clean waste left by visitors inside garden.
4. To maintain gardening material in proper condition.
5. To ensure proper management of dead & fallen wood material.
6. To maintain landscaping in zoo campus, maintain nursery & plants inside enclosures.
7. To maintain gardening material such as water pumps as well as consumables.

Driver

1. Operation of zoo vehicles & keep them always in operational condition.
2. Maintain vehicle log book.

Watchmen / Security Guards

1. To ensure security to animals, visitors & other zoo assets.
2. To regulate movement of public during rush in the zoo.

Labor / Sweepers

1. To maintain cleanliness of park other than enclosures.
2. Assisting keepers in renovating enclosures and occasional maintenance works.

ESSENTIAL & DESIRABLE QUALIFICATIONS FOR VARIOUS ZOO PERSONNEL

Mandatory criterion for Zoo personnel

1. Must provide a negative TB test and general health certificate on an annual basis.
2. Must be free of any infectious diseases transmittable to the non-human primates.

Curator / Director

1. Master's degree in Life Sciences (Zoology/Botany/Wildlife Sciences/ Forestry/ Environmental Sciences) with min 3 years of experience working in any zoo.
2. Able to speak, English, Hindi & regional language in which zoo is situated.
3. Captive animal management experience or qualifications (certificate, diploma, degree level)
4. Thorough understanding of wild animals health care;
5. Experience and/or knowledge in design and construction of facilities for captive wild animals with emphasis on structural integrity and safety aspects to workers and wild animals.

6. Project management skills and or experience.
7. Personnel supervision experience (not less than 10 people).
8. Proficiency in Microsoft Office processing (including Excel, Word, PowerPoint programs).
9. Experience in public speaking/presentations.
10. Ability to write field reports, operational manuals and review scientific Grant proposal writing and/or fundraising experience.
11. Human resource development (recruitment/performancereviews/training/manual development)

Education Officer

1. Minimum qualification Degree in B. Sc. (Zoology/ Environmental Sciences)
2. Able to speak in languages (English, Hindi & local Language)
3. Teaching certificate or Diploma in Education would be desirable.
4. Working knowledge of the principles of conservation education.
5. Experience in conducting educational talks to visitors.
6. Understanding of international and national laws pertaining to wildlife.
7. Ability to create graphic interpretations at the zoo or orphanage.
8. Ability to develop and implement education programs for school aged children and adults.

Animal Keeper

1. Minimum qualification to S.S.C. level or equivalent
2. Credits in Biology and official national language (English or regional language).
3. Able to speak in Official national language (Hindi).
4. Experience in conducting educational talks to visitors.
5. Must be physically fit and strong.
6. Training in captive wild animal management will be desirable.

CHAPTER VI

DISASTER PLANNING

DISASTER PLANNING

There are many points to be considered when developing a disaster plan for a zoo. The basic concept is to create an effective plan quickly and efficiently so that animals would be maintained in humane conditions during emergency conditions.

The first point to address is: Who should be in charge of the response efforts? The Guide for the Care and Use of Laboratory Animals (ILAR), indicates that a responsible veterinarian should be involved. Therefore, step one in the plan is simply designating this person. It is advisable creating a leadership team, as one person cannot perform all of the planning needed. It may be called as the **CIRT**, (Critical Incident Response Team). The team would involve every responsible person in the zoo, including computer personnel, office staff and supervisors. The main function of the team would be to organize, write, and direct the disaster response efforts. Other individuals will be as advisors (key contacts) who can provide technical expertise or information. Animal care staff will be included as responders to be directed by the leadership team.

Command Center

Once the team is in place, the next step will be to decide the location the leadership team will direct from in an emergency. We can call this location the Command Center or **CC**. It is important for the people who would be assisting the leadership team to know where this location is and what they can find there, aside from instructions. The **CC** will be centrally located and allow ready access to the area, or areas, of concern. The **CC** should be located close to where the response efforts will be focused. An area in the **CC** should be devoted to storing items that will be used by responding staff. Storing items (i.e., food, water, flashlights, extra batteries, first aid supplies) that responders will need allows distribution and monitoring by the leadership team. Staff can report to the **CC**, receive instructions and supplies from the leadership team, and then head out to resolve/gather information on the situation. Ideally, the **CC** should be immune from loss of function. In other words, have back-up power for **CC** area. Power loss is often the single factor that creates cascading disruptions in these situations. Without power there are issues of temperature, communication, light, water, and potentially, issues of access.

Designation of Key Contacts

Identify people who have, or can get, information that helps them. These 'Key Contacts' are individuals whose contact information should be updated and kept on file routinely. Multiple means of contacting these people should be gathered, as normal means may not be available. Discussions with these people during the planning stage will allow the leadership team to know which key contact will inform or update them about heating/cooling issues, security, or access to areas (if contaminated or dangerous for

people). These personnel will include municipal staff, public safety workers, local or state law enforcement, or local fire department. Access to areas can also be facilitated if these contacts know the leadership team's needs and, simply, who they are and how to contact them. Other key individuals to communicate with will be personnel with species or projects that require special consideration. These people will be able to keep the team abreast of safety precautions related to their work, or the leadership team will need to update them on what can or can't be done for their animals/projects. Review of this list is important, as is having a clear idea of information these individuals can provide or will need during an event. Regular review will also allow to include personnel changes so there are no surprises during an event.

Identify Who Will Respond

The building blocks of the plan are now in place. The plan, to this point, should identify who is in charge, where they will be, who can provide assistance, and helpful information.

Identify animal care personnel who will respond to the leadership team's request for assistance. As part of the risk assessment strategy, determine the minimum number of people that will be needed to health check animals, feed/water animals, change cages, etc. In creating this group of personnel, consider how long these people can reasonably perform the needed tasks. It is likely that two or more teams who can respond will be needed. In times of crisis, longer shifts could be required. Fatigue can set in quickly and overwhelm responders, hampering their efforts and potentially creating issues for the animals. Having fresh people is helpful! Therefore, multiple means of contact will be needed. Mobilizing respondents is best done by utilizing a phone tree. The leadership team would make calls to several "branches." The person they contact would then call the next person on the list, and so on, until all the respondents have been notified. If phone services cannot be used, discussing events and criteria for reporting would be essential in assuring that staff is available to help the leadership team.

GENERAL PREPARATIONS

It would seem the logical next step might be to develop plans for varying types of disasters, however preparing individual plans to respond to specific types is both time consuming and repetitive. Since most of what would be done is the same regardless of the actual event, general preparations are the most important aspect of the plan. Disasters have common issues which can be broken down into the following questions: Can staff get to the facility? Are buildings safe for staff to enter? Is there power? Is food/water available? How long can animals are maintained? In answering these questions, the team will find that they have prepared for the vast majority of issues caused by an event.

Can staff get to the facility?

If an event blocks or disrupts roads, then responders may not be able to get to the facility. Responders who are within walking distance become a key asset in these situations. Individuals with four-wheel drive vehicles can be identified to shuttle staff. Wind and water (i.e., tornados, hurricanes, floods, etc.) can easily cause roadblocks. In such cases, identifying alternate routes for staff is recommended. Police and Home Guard may limit access to certain areas, depending on the situation. They may also be able to provide detour information, or escort individuals to the area where they are needed. This is facilitated by having essential personnel equipped with emergency responder badges that identify them as authorized to access areas. Exploring and updating these options will help assure that staff can respond when needed.

Are buildings safe for staff to enter?

The answer to this question will come from contacts with the fire department, police, or forest officers. If it is not safe for personnel to enter, response efforts will be stopped short until it is. While we all care deeply for our animal charges, risking the life of staff is not advisable. While waiting, the leadership team should utilize their key contacts to gather as much information as possible, as related to conditions in the facility. Once buildings are deemed safe, response efforts can begin.

Do you have power?

Without power, animals may need to be moved and normal means of communication may not function. Developing priority lists becomes essential. Knowing which animal should be moved first, which are more valuable to researchers, which potentially compromise public health and safety, etc. are important pieces of the priority list puzzle. Having priority lists in place ahead of time allows personnel in the field the ability to make decisions and proceed. This is progressively more important if the event requires quick action and communication is not functioning. As long as phone lines are not knocked down, they

should be operational. Most people now have cell phones, having many advantages. Keeping these on hand for power outage situations can formulate phone conversations possible. Text messaging may be a more reliable means of sending messages during these situations. Planning ahead can be very useful for this situation, as the cell phone companies have programs to obtain priority service during these events. Communication with other institutions and local and state law enforcement agencies can provide information not previously known to the leadership team.

Are food and water available?

Most zoos keep extra supplies on hand as a matter of everyday practice. Knowing available food resources will allow the leadership team to plan maximum time frames in which food can be supplied to the animals. For events where the leadership team has some notice, extra supplies can be ordered to supplement and extend these time frames. In many instances, no notice will be given and what is on hand will need to be rationed appropriately. Having information on "priority animals" is helpful in deciding how to maximize supplies. Having a reliable water supply can be a trickier situation. Some institutions may be lucky enough to have their own water supply. Most of us will depend on municipal water supplies, which may not be functional or may become contaminated during an event. Many ideas exist for back-up supplies, such as: Water supply trucks, water storage barrels.

Presently 17 hr. potable fresh water supply is available on campus. Storage capacity of potable water is 23 thousand litters in different tanks situated at seven locations on campus. Present Monkey Hill is a wet moated enclosure with a capacity of holding 6 lakh litters of water which is recycled and utilized for watering the whole garden using a 5 BHP electric pump and a rain gun. This helps to create cool environment and maintain appropriate humidity required for the zoo inmates, especially reptiles. This large water storage is a permanent arrangement as an emergency management towards fire and implacable water shortage. Besides this there is a live bore-well just next to the Interpretation Centre which is being used for maintaining the fresh water ornamental fish and a baby crocodile. This also serves an emergency water source for the zoo.

How long can animals be maintained?

This question will be the most difficult to answer, as the event will influence this response. Provided the steps are in place to have staff respond, food and water are available to the animals, then the limits are based on human fatigue and supplies. If these run out prior to returning to normal function, then other options will need to be considered by the leadership team. Priority lists will again aid in this uncomfortable step. Euthanasia of animals, initially based on the priority lists, may become necessary if

conditions deteriorate to unacceptable levels. Preparing for this worst case scenario by having euthanasia supplies could prevent an already bad situation from becoming worse.

Once these issues have been addressed for zoo situations, practice is the last key step to take. This step is one that many institutions will skip, as they have the plan in place and people seem to know what to do. Most things rarely go right the first time. Having practice sessions creates familiarity for responding staff, comfort sure to come in handy during the chaos after an event. Suggestions from individuals not involved in the planning process can be insightful and useful in smoothing out processes and identifying flaws in pre-planning. Having a well-written and rehearsed plan won't guarantee success after an event, but such preparedness does increase the likelihood of getting through an emergency with minimal loss of resources or animal life, which is everyone's goal.

CHAPTER VII

CONTINGENCY PLAN

CONTINGENCY PLAN

1. Animal Rescued from the Wild

- Rescue calls are received from forest department, local government bodies, public, police and NGOs,
- Obtain the permission from the State Forest Department to rescue the animal.
- Identification of the animal.
- Planning the rescue operation depending upon the animal
    - Drugs for tranquilizing and tranquilizing equipment's.
    - Equipment for capture like Snares, Jab-sticks, Ropes, Nets, Net Guns, Gunny bags, etc.
    - Transport Vehicle
    - Personnel – Veterinarian, Keeper and Animal Supervisor.
- Police and Security for crowd and media management
- If the animal is tranquilized, insert microchip
- Animal Ambulance to transport the captured animal
- Transfer the animal to the veterinary care facility
- Identification of the nature of injury, if any. Medical treatment, if feasible.
- In case, animal may be shifted to Animal Rescue Center at Katraj.
- If the animal is healthy, it has to be released immediately with a release order from the Forest Department.

2. An incidence of animal escape

- The perimeter boundary, including access points, should be so designed, constructed and maintained to discourage escape and unauthorized entry.
- There should be a comprehensive system to minimize the risk of theft, malicious damage or release of animals by intruders entering the zoo after and during the visiting hours.
- In the likelihood of an animal escape, consider the possible or likely attempted route.
- Every effort must be made to recover the animal dead or alive.
- The zoo staff should be familiar with procedures to be adopted in case of an animal escape.
- Procedure should include reporting of the escape by the quickest possible means to the most senior member of the staff.
- What needs to be done in the event of an escape; including recapturing, protecting visitors, alerting the police and the licensing authority.

- Control of visitors, ushering into buildings, closing doors and windows, evacuating the zoo; the security of the perimeter boundary, involving the closure of all points of entry and exit from the zoo.
- Provision of fire-arms and darting equipment to tranquillize or (If Necessary), kill the escaped animal.
- A senior member of the zoo staff should be readily available at all times to take decisions regarding euthanasia of escaped animal.
- Zoo must consider the potential risks of releasing parasites, diseases or non-native plants and animals through effluent water and other routes. Waste water should be appropriately treated to ensure that this does not occur.
- Exits should be suitably located and should have a big signage. Each exit must be kept clear and be capable of being easily opened from inside to allow the release of visitors from the zoo. All such gates should be capable of being closed and secured to prevent the possible animal escape.
- The floor should not have loose soil or gravel because in rainy season, the loose soil may become slippery and visitor might slip and injure himself.

3. **Monkey and Dog Menace**

- Tranquilize and recapture, relocate along with forest department (for monkeys) and with the help of NGOs like SPCA, PAWS (for dogs)
- For capturing or restraining a monkey, appropriate permission should be acquired from the **Conservator of Forests,** Govt. of Maharashtra, by sending him proposal about why we want to capture that animal.
- The staff should have thorough knowledge of species to be handled. Including its reaction, ability to defend itself & appropriate physical & chemical restraint procedures.

Method for Catching Monkeys

- Using a Hook Net.
- Using big Nylon net.
- Tranquilizing.
- Using walk in traps.
- Using cage traps.

4. **Arrangement of Alternative Food Source in case of Strike or Natural Disaster**

   - Food reserves from deep freezer. The deep freezer will stock food for four days. A small food animal farm will also provide the required food for Carnivores Animals.

5. **Snake bite**

   - Do not panic. Remain calm. Remember that the person may have been bitten, but no venomisinjected.
   - Remove all jewelry from the bitten limb.
   - Call an ambulance to take the patient to a government hospital. If possible, carry the patient or assist him in such a way that movement is reduced. Ensure that the patient is lying down while waiting.
   - During transportation, it is necessary to restrict movement. Inactivity slows down the circulation of the venom through the body.
   - Wash and clean the wound.
   - Apply a tourniquet.

6. **Visitors getting injured / falling inside water bodies or enclosures**

   - First aid kit will be available at the entrance and in the office.
   - Always seek medical attention. Never apply ice, cut the bitten area or apply suction.
   - Never try to catch or kill the snake as it is dangerous and illegal to do so.

7. **Civil Disturbances**

   During Civil Disturbances, it is very important that arrangements may be made to send the zoo visitors and the staff safely to safer areas. As the zoo shall be visited, largely by women and children evacuating them to safe areas becomes more imminent as panic may result in further injuries if people attempt to evacuate in a disorganized manner.

Table 6.1: Equipment required for dealing with civil disturbances

Items	Essentially needed	Needed
Rubber boots	√	
Alarm systems	√	
Public address system	√	
Radio communications (walkie talkie)	√	
Protective gloves	√	
Helmet	√	
Measuring tape	√	
Shovels	√	
Pick axe	√	
Tranquilizing gun with drugs	√	
Welding machine with sufficient welding rods	√	
Ropes and nets	√	
Cages	√	
Construction and repair materials like Cement, iron rods, sand etc.	√	
Gas cutters		√
Earth moving equipment		√
Fire proof dress		√
Goggles	√	

8. Anti-Snake Venom

Anti-snake venom (ASV) vials- it is a polyvalent which is an antidote for most of the venomous snakes. ASV should be administered by an experienced physician only. ASV can cause hypersensitivity in the patient when injected, so it should be administered with caution. A person can need 5 to 30 vials depending on the severity of symptoms of toxicity. Pinak tablet, an Ayurvedic antivenin remedy recently developed has proven exceptional results in government hospitals in

Pune district. It can be administered sublingual as a preliminary treatment and as well as adjuvant to ASV treatment. The tablet can be ground into powder and kept under the tongue, with effective results within minutes that lasts for 6- 12 hours. The patient may require a dose of 1to10 tablets depending upon the severity of the bite. It can be taken immediately after any snake bite. It is recommended to keep PINAK tablets for any snake bite emergencies.

VISITOR'S SAFETY

1. **Photography**

   Visitors should be very careful while photographing. Extreme close-ups should be avoided.

2. **Building and Structure Safety**

   Buildings, structures and areas to which the public have access must be maintained in safe condition. The visiting public should not be allowed to enter any buildings or other areas of the zoo premises which could present a risk to their health and safety. Barriers should be erected to prevent visitors from entering prohibited areas.

3. **Contact with Animals**

   Inform visitors of the risks on feeding or touching animals by way of notices at admission gates and in contact areas, prominently displayed signs and pictures and supervision by employees.

4. **Maintenance and Renovation of Enclosures**

   Whenever building or renovating enclosures, are to be carried out or when existing parts of the facility are undergoing maintenance, hazards will be created, e. g. vehicle movement, plant and equipment stored and in use, materials and substances being used.

5. **Trips and falls**

   - Visitors' areas and pathways should be non-slip, surfaces, or be grassed.
   - Slopes should have steps, paths or hand railing.
   - Provide shallow gradients for pushchairs and disabled access.
   - Trees within areas where visitors are likely to be walking or sitting should be regularly inspected and felled so as to avoid injury by falling branches or becoming an aid to animal escape. Growth of thorny vegetation should be controlled to avoid injury to visitors.
   - Walkways that pass over an enclosure it should be designed, constructed and maintained to ensure that it is safe.
   - Barbed, razor wire or electrified fences should be beyond the reach of visitors.
   - Cordon off areas where repair, maintenance work is being carried out.
   - Clear all accumulated debris after maintenance work is complete.

6. First Aid

A first aid center should be equipped with a first aid kit. First aid should be administered by training medical attendant for minor injuries like cuts and abrasions. If the injury is severe, the patient should be taken to the nearest hospital.

In case of fainting

- Lift the patient and move the patient to a shady resting place.
- Onion or smelling salts to be administered.
- When the patient recovers, provide clean drinking water.

Visitors falling inside enclosures

- The visitors will be in a confined area that does not pose a risk.

Fighting amongst animals

- Keep tranquilizer weapon handy.
- Medicine kit to be kept ready with anesthetic agent.
- Separate the animals.
- Keep injured in isolation ward with squeeze cage.

Epidemics

- Keep track of epidemics in the area.
- Seal all zoo borders to outside animals / birds.
- Start preventive medication.
- Control disease symptoms with effective treatment.
- All staff should undertake all precautionary measures of personal hygiene.

Employees

- Employees entering infected areas wear uniforms or outerwear that are supplied and laundered through the employer. Do not permit employees to take uniforms or outerwear from the facility.
- Employees should wash hands when arriving at work and before handling uniforms.
- Employees working in infected areas should wear footwear that does not leave the workplace and it is cleaned and disinfected before entering or exiting
- Place informational signage at the entrance to as a site for bio-security precautions.
- Develop a protocol for proper footbath preparation, maintenance, and disposal.
- Develop an employee education program that includes general information on the importance of bio-security.

Collection Animals

- Clean and disinfect transport cages, feed trays, and any equipment used with animals after each use and, where possible, restrict use within a specific group of animals.
- Quarantine and test, as appropriate, any collections that escape and are recaptured.
- Ensure that all collection animals that die receive prompt and appropriate necropsy.
- Develop infection control procedures for transporting birds and mammals that die.

Animal Feed

- Consider excluding whole egg products from entering facility. If used, whole poultry eggs should be obtained through a reliable processing facility where they are cleaned, washed, and disinfected. Use disposable, one-way egg packaging material.
- Prohibit bulk feed or their conveyances from entering facilities. Instead use bagged feed from reliable suppliers.
- Ensure that enrichment items are disinfected before being given to birds.
- Review general bio-security measures at animal food storage and distribution facilities
- Exclude fresh poultry manure from entering the facility unless properly heat-treated or composted.

Wild animals and birds

- Develop or update protocols for handling sick and injured native animals and birds brought to a facility or found within a facility

Breakdown of power supply

- 5 kw generator backup
- 2kw inverter
- 1kw UPS

Summer Management

During the period of April to June there is intense summer heat. The heat stress to the animal is distinctly visible in the hot summer and the zoo manpower and resources shall be stretched to the maximum to provide succor and relief to the animals. The zoo staff shall be asked to mitigate the effect of summer heat by spraying water on the animals by using sprinklers, dowsing animals with water and provide shade and shelter and change in diet. The diet composition is changed during summer and more succulent fruits and vegetables, porridges, cereal and gruel are provided to the animals. The summer management shall be drawn up keeping the requirement of the species and every effort is made to take advance action to prevent any sickness to the animals.

Monsoon and Winter Management

The season makes the animals vulnerable to diseases and therefore prophylactic measures to control the disease are required. Moreover the physical environment around the animals is to be maintained for the welfare of the animal.

During monsoon and winter the following measures are initiated.

1. Provision of rain shelters in animal cells and kraals.
2. Bedding materials and loft to prevent chillness.
3. Periodical change of water in troughs and moats to prevent water borne diseases and providing warm water to certain animals
4. Allowing sunlight by opening up tree canopy in the animal enclosure to provide additional warmth to the animals
5. Vaccination against contagious diseases in and around the zoo.
6. Regular de-worming to prevent parasitic infections.
7. Separation of animals to avoid infighting during the breeding season.

CHAPTER VIII

CAPACITY BUILDING OF ZOO PERSONNEL

Capacity building of zoo personnel

Without motivated & trained staff, no zoo can provide appropriate care to the animals in its collection. Animal keepers are therefore proposed to depute every year for training programs organized by the Central Zoo Authority in various parts of the country.

Other than the keeper training, the zoo shall consider deputing its officers for training in other Indian zoos and zoos aboard. Regular in-house meetings and appraisal among the zoo staff upon the new developments taking place in different zoos in India and abroad. Team building exercise shall also be organized to develop cooperation among all zoo staff and officers.

CHAPTER IX

E-GOVERNANCE

E-GOVERNANCE

All the departments will be computerized along with LAN and internet access, to decentralized and reduce paperwork among the departments.

A website will be developed to provide information like timings, activities, education programs and updates regarding the different animals (wildlife week, animal birthday celebrations, adoption of animals and 'green events') to educate and inform especially the children about conservation.

The website can also be used as a portal to buy e-tickets, booking of tickets and information dissemination.As per the CZA all animals will be micro-chipped and daily records will be maintained according to ISIS software.With the help of the CZA and ISIS our zoo can have a strong database regarding the day to day activities, its health care information, an ability to keep a track of its animals during exchange program and breeding program.

Once the member of ISIS and ZIMS we can actively interact with zoo all around the world to upgrade our park. ISIS records are accepted and preferred by international regulatory bodies like CITES. Several regional associations seek ISIS membership for their members.ISIS software products which would be extremely useful for the park

1. **Animal Record Keeping Systems (ARKS)**

This Software is used for extensive animal record keeping. The software will be distributed once our membership is accepted. The software allows members to contribute their data to the vast ISIS database online.

ARKS is a Computer based application (which will only work in windows software) that produces numerous powerful reports based on member's own records and is multilingual.

2. **Medical animal recording system (MedARKS)**

The medical animal record keeping system software supports veterinary medical records keeping and collection management. The software is MS – DOS based software.

3. **Regional Animal Species Collection Plan (REGASP)**

The software id MS DOS based collection planning software, which is distributed to ISIS members upon request. The software has direct access to plans from other collections, which allows users to contact other organizations to arrange placement or acquisition of specimens in advance.

4. **Single Population Analysis and Record Keeping Systems (SPARKS)**

This software supports studbook management and species analysis and is MS-DOS based software.

5. **Zoological Information Management Systems (ZIMS)**

ZIMS is a unified global database on animal health and well- being the first such database directly into this web based global database. Any ISIS member can have secure entry In the database to search and retrieve information.

With the use of all the revalorized software we will have a state –of – the- art database management systems.

CHAPTER IX

BROAD BUDGET ANALYSIS

BUDGET ANALYSIS FOR IMPLEMENTING THE ZOO MASTERPLAN

1. Construction and Development

Theexpenditure on civil work like animal enclosures, pathways, signage, painting, fabrication, plumbing, electrical fittings is annually proposed to the concerned departments. Concerned engineers prepare the estimate proposal which is sanctioned by the Standing Committee and the tender is floated. The work order is then produced to the contractor and executed under the supervision of concerned PCMC officials.

Work proposed as per following:-

Table 7.1: Summary of Total

S No.	Subhead	Rs in Lakhs
1	Dismantling & Disposal	16.723
2	New Proposed Work – Building Related	309.05
3	New Proposed Work – Infrastructure Related	366.396
4	New Proposed Works – Wildlife Related	1754.43
	Total	**2446.60**
5	Add Contingencies @ 2%	48.93
	Grand Total	**2495.52**

Table 7.2 A Construction and development (Revise Preliminary Estimate)

Stage -II - Based on Thumb Rule

S No.		Item	Unit	Quantity	Rate (in Rs)	Amount (Rs in Lakh)	Remark
1		Dismantling & Disposal					
1.1		Footpath	Sq. M	1695.498	100.00	1.695	
1.2		Hard Core	Sq. M	1484.000	75.00	1.113	
1.3		Kerb Stone	R. m.	2658	5.00	0.133	
1.4		Wall 9" thick	Sq. M	567.316	60.00	0.340	
1.5		Enclosure					
	i	Iron Fenced *	Sq. M	178.41	-		
	i	Small Cages	Sq. M	285.5	300.00	0.857	
1.6		R.C.C Slab Structure	Sq. M	520.758	500.00	2.604	
1.7		Tree	Nos	119	500.00	0.595	
1.8		Hedge & Shrubs	Sq. M	720.017	150.00	1.080	
1.9		Retaining wall	Sq. M	300.29	65.00	0.195	
1.10		Railing					
	i	0.9 M high (322.880)*	Sq. M	388.8	-		
	i	0.6 M high(80.24 m)*	Sq. M	48.593	-		
1.11		Fencing*	Sq. M	292.821	-		
1.12		Light Fixture*	Nos.	15	-		
1.13		Drinking water	Nos	3	1000.00	0.030	
1.14		Snake well cover with shade	Sq. M	148.193	500.00	0.741	
1.15		Water body	Sq. M	190.92	500.00	0.955	
1.16		Earth Work	Cu. M	1332	100.00	1.332	
1.17		Play equipment	Nos	10	500.00	0.050	
1.18		Garden Furniture	Nos	21	200.00	0.042	
1.19		Gate*	Sq. M	14.105	-		
1.20		Dismantle of Interpretation Centre Roof Slab	Sq. M	169.800	150.00	0.255	
1.21		Existing Boundary Wall 1.8 m high.	cum	284.418	600.00	1.707	
1.22		Dismantle existing structure in Mugger enclosure	LS			3.0	
					Sub Total	**16.723**	
		*** Assuming Salvage value of items = Dismantling and disposal**					

S No.	Item	Unit	Quantity	Rate (in Rs)	Amount (Rs in Lacs)	Remark
2	**New proposed Works - Building Related**					
2.1	Public Facilities Near Aviary	Sq. M	75.670	17500.00	13.242	
2.2	Office	Sq. M	316.14	2500	79.04	
2.3	Ticket booth					
2.4	Library cum Conference room					
2.5	Main Entry Gateway & signage					
2.6	New RCC Slab & remolding of Interpretation Centre	Sq. M	169.800	20000.00	33.960	
2.7	Viewing Gallery (Chinese Style)	Sq. M	169.800	25000.00	42.450	
2.8	Food store & Kitchen	Sq. M	27.300	20000.00	5.460	
2.10	Stores	Sq. M	201.265	20000.00	40.250	
2.11	Animal cages in Quarantine	Sq. M	164.31	15000.00	24.650	
2.12	Renovation of Hospital	LS			70.000	
				Sub Total	**309.05**	

S No.		Item	Unit	Quantity	Rate (in Rs)	Amount (Rs in Lakhs)	Remark
3		New Proposed Works - Infrastructure Related					
3.1		Cement concrete road	Sq. M	2039.000	750.00	15.293	
3.2		Parking					
	i	Outside	Sq. M	409.100	1250.00	5.114	
	ii	Inside	Sq. M	90.600	1250.00	1.133	
3.3		Footpath	Sq. M	1316.500	750.00	9.874	
3.4		Bridge / Culvert					
	i	Moon Bridge	Sq. M	28.700	15000.00	4.305	
3.7		Vermiculture Pit	Sq. M	12.500	1500.00	0.188	
3.6		Horticulture Related					
	i	Lawn & Mounds	Sq. M	7308.000	750.00	54.810	
	ii	Tree	Nos	350.000	500.00	1.750	
	iii	Shrubs / Hedge	Nos	6500.000	75.00	4.875	
	iv	Ground covers / Creepers	Sq.M	565.000	300.00	1.695	
	v	Potted Foliage plants	Nos	500.000	250.00	1.250	
3.7		Boundary Wall					
	II	Wall & foundation	Sq. M	1987.167	1250.00	24.840	
	ii	Barbed wire fencing with Ms frame	Sq. M	404.170	450.00	1.819	
3.8		Compound Wall	Sq. M	215.023	950.00	2.043	
3.9		Gates					
	i	Main Gate Sliding		1 Nos.	L.S	2.500	
	ii	Service Entry Gate		1 Nos.	L.S	1.000	
	iii	Service Road Gate		2 Nos.	L.S	0.800	
3.10		Gazibo	Sq. M	16.500	14000.00	2.310	
3.11		Entry Sculpture	LS			5.000	
3.12		Signage					
	i	Specie (Enclosure) related	Nos	28.000	50000.00	14.000	
	ii	Directional	Nos	40.000	10000.00	4.000	
	iv	Interior	Nos	15.000	5000.00	0.750	
3.13		Storm Water Drainage	LS	15.000			
3.14		Paint Markings	LS	2.500			
3.15		External service connections	LS	15.000			
3.16		External Electrical Works (ceiling & controls)	LS			40.000	
3.17		Electrical Backup	LS			15.000	
3.18		Raw water Hydrant line	LS			7.500	
3.19		Underground water tank & pump	LS			9.000	
3.2		Waste Water Aeration	LS			15.000	

		Plant					
3.21		11 W LED / CFL Pole mounted	Nos	54.000	30000.00	16.200	
		Solar Garden Light					
3.22		Solar Inverter for office, Public Toilets, Cave, Ticketing, Viewing Den & Director's Residence	KWHR	12.000	80000.00	9.600	
3.23		Solar Water Heating system for Animal Kitchen, Office and Director's residence.	ltr / day	2500.000	250.00	6.250	
3.24		Garden Furniture	LS			10.000	
3.25		Water Filtration Plant	LS			30.000	
					Sub Total	**367.396**	

S No.		Item	Unit	Quantity	Rate (in Rs)	Amount (Rs in Lakhs)	Remark
4		**New Proposed Work - Wildlife Related**					
4.1		Wildlife Mural on external wall	LS			10.00	
4.3		Peacock / Peafowl Enclosure					
	i	Shelter	Sq. M	19.860	20000.00	3.97	
	ii	Display area development	Sq. M	253.266	2500.00	6.33	
	iv	Misc.	LS			2.000	
4.4		Chelonia Center					
	i	Earthwork for water body	cum	1800.000	350.00	6.30	
	ii	Work of Water body (Lining etc.)	Sq. M	828.412	700.00	5.80	
	iii	Entry area	Sq. M	13.202	25000.00	3.30	
	iv	Pathway	Sq. M	177.500	2000.00	3.55	
	v	Under water Viewing Gallery& Upper Deck	Sq. M	399.17	30000.00	119.75	
	vi	Compound Wall	Sq. M	276.444	950.00	2.626	
	vii	Retaining wall	Sq. M	7875.000	2000.00	157.50	
	viii	Island	LS			2.000	
	ix	CCTV	LS			2.500	
	x	Area Development	LS			7.500	
	xi	Missc	LS			1.500	
4.6		Wetland Aviary					
	i	Covering including supports	Sq. M	4234.00	5000.00	211.70	
	ii	Earthwork for Water Body	cum	1616.50	350.00	5.66	
	iii	Work for water body	Sq. M	983.365	700.00	6.88	

		(Lining etc.)					
	iv	Covered Walkway	Sq.m	66.77	30000.00	20.03	
	v	Retaining Wall	Sq. M	511.2	2000.00	10.22	
	vi	Water Fall	LS			10.00	
	vii	Pump Room	Sq. M	8.500	15000.00	1.275	
	viii	Island	LS			2.000	
	ix	Open area Development	LS			3.000	
	x	Service area	Sq. M	5.60	20000.00	1.120	
	xi	Misc.	L.S			2.500	
4.7		Mugger&Ghariyal					
	i	Earth work for Water body	cum	979.10	500.00	4.00	
	ii	Work of water body (Lining etc.)	Sq. M	430.78	700.000	3.01	
	iii	Visitor Pathways	Sq. M	66.78	25000	16.70	
	iv	Remodeling of existing building	Sq.m	65.60	15000	9.84	
	v	Open area development	L.S			5.000	
	Vi	Brick wall and existing retaining wall	Sq.m	120.13	1500	1.80	
	vii	Retaining wall	Sq.m	275	2000	5.500	
4.8		Insectariums & Butter Fly Park					
	i	Covering including supports	Sq. M	4532.000	5000.00	181.28	
	ii	Compound Wall	Sq. M	331.200	2000.00	6.62	
	iii	Planter Wall	Sq. M	731.340	1500.00	10.97	
	iv	Entry & Exit	Sq. M	108.000	25000.00	27.00	
	v	Sitting Platform	Sq. M	17.650	5000.00	0.883	

	vi	Breading Room	Sq. M	100.00	25000.00	25.00	
	vii	Open air Theater	Sq. M	15.166	10000.00	1.52	
	viii	Paved Area	Sq. M	979.000	2000.00	19.58	
	ix	Earth work for water body	cum	185.850	350.00	0.65	
	x	Work of water body (Lining etc.)	Sq. M	206.500	700.00	1.45	
	xi	Bridge	Sq. M	5.500	10000.00	0.55	
	xii	Hut	Sq. M	7.25	15000.00	1.09	
	xiii	Flowering Bed	Sq. M	1162.519	500.00	5.81	
	xiv	Misc.	L.S			5.00	
4.9		Reptiles Of Ghats					
	i	RCC Structure& Steel Str.	Sq. M	2444.300	20000.00	488.86	
	ii	Facia& Cladding		6017.000	3000.00	180.51	
	iii	Ventilation System	L.S			20.00	
	iv	Plumbing works	L.S			10.00	
	v	Internal Electrification & Lighting	L.S			20.00	
	vi	Missc works inside enclosure	L.S			10.00	
	Vii	HVAC				25.00	
	viii	CCTV	L.S			5.00	
					Sub Total	**1754.43**	

a) **Day to day maintenance**

As per the prevailing practice, according to the Bombay Municipal Provincial Act, 1949, the zoo director has been given a fixed permanent advance of Rs. 20,000/- (RupeesTwenty Thousand Only) He is entitled to use this money for the purchase of animal feed, medicines, vaccines, drugs, chemicals, fertilizers, utensils, stationary, hardware and other small equipment required for day to day maintenance of the zoo. The expenditure costing a large amount has to be spent after the sanction by the Municipal Commissioner and the Standing Committee of the PCMC. Annual Budget for this purpose is Rs. 10,00,000/- (Rupees TenLakh Only) for financial year 2015-16.

b) **Budget provisions**

The Zoo authorities are serious about finishing the Zoo development in time. Approximately Rs One crore has been spent in Phase - I of the Zoo development. The perimeter wall, underground drainage connections and service pathway/road construction is over by now. The Corporation has made Rs 7 crore and Rs 8 crore during the financial years 2016-17 and 2017-18 respectively. The corporation is committed to avail subsequent development requirements for project completion. Details of budget provision are provided in following page.

C) **Establishment**

All the Salaries made towards employees come under this category. The permanent staff has been given the salary as per the recommendations of the Sixth Pay Commission of the Government of India. The security staff has been outsourced on contractual basis and is being paid as per the agreement.

Table 7.3: PRESENT BUDGET OF THE ZOO AND EXPENDITURE STATEMENT

A. CIVIL BUDGET

Year	Budget provision in Rs.	Expenditure for Zoo
2013-14	50 lacks	20 lacks
2014-15	95 lacks	45 lacks
2015-16	One crore	-------
2016-17	7 crore	-------
2017-18	8 crore	-------

B. Veterinary Dept. Budget (RecurringExpenses)

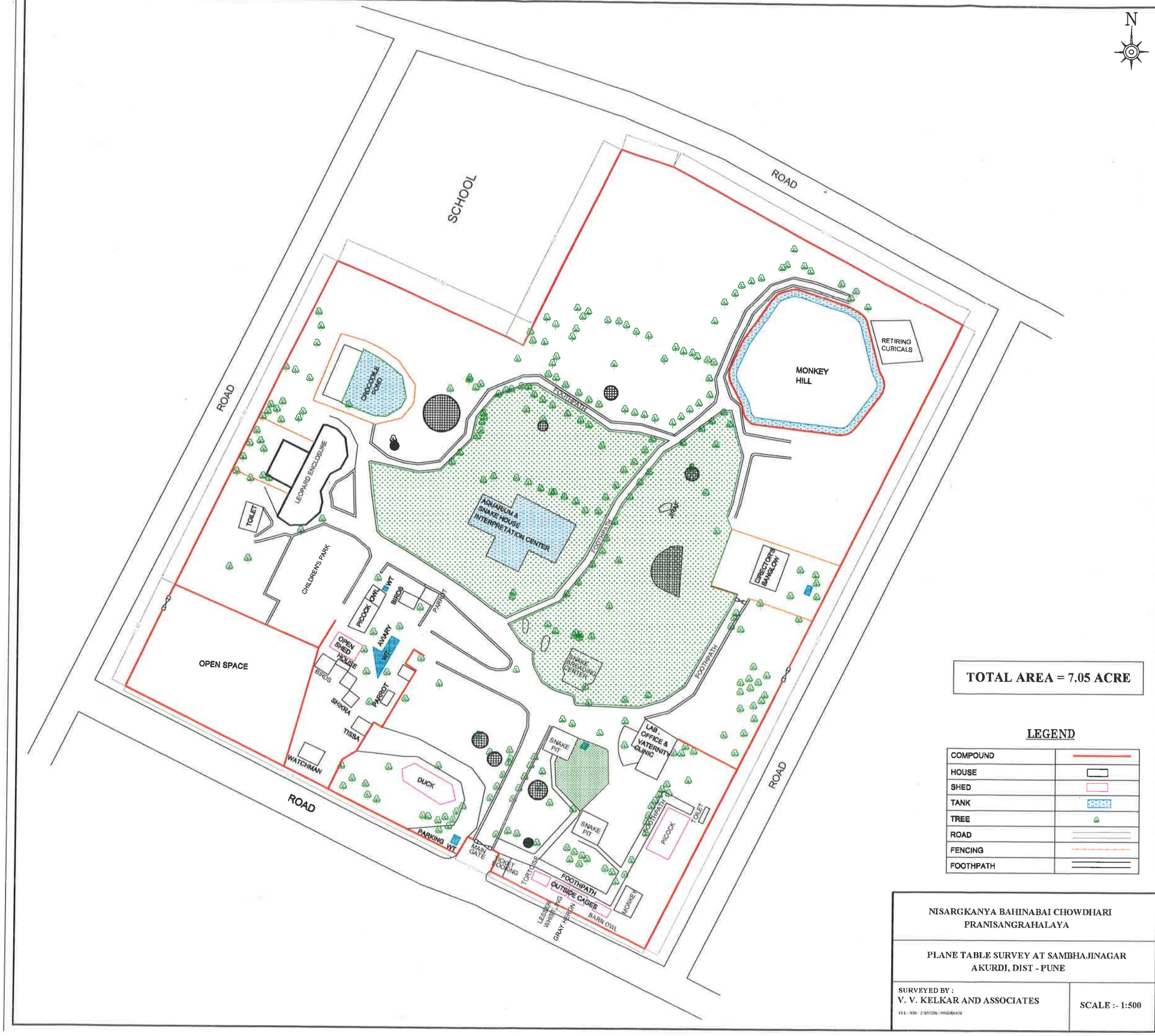
Year	Budget provision in Rs.	Expenditure
2011-12	6.5 lack	4,97,444 /-
2012-13	7.5 lack	4,01,771 /-
2013-14	8.0 lack	5,50,765 /-
2014-15	8.0 lack	6,37,045 /-
2015-16	10.0 lack	-----

- Annual Salary Expenditure for 10Person working at Zoo Rs 35,51,256 /-
- Total budgeted estimate for proposed Zoo Master Plan implementation in Rs Sixteen Crore.
- For current financial year (2015-16) budgetary provision is Rs One Crore.
- For next financial year (2016-17) budgetary provision is Rs 7 Crore.
- For next financial year (2017-18) budgetary provision is Rs 8 Crore.

ANNEXURES

Annexure A

Layout plan depicting the present setup



TOTAL AREA = 7.05 ACRE

LEGEND

COMPOUND	
HOUSE	
SHED	
TANK	
TREE	
ROAD	
FENCING	
FOOTHPATH	

NISARGKANYA BAHINABAI CHOWDHARI PRANISANGRAHALAYA

PLANE TABLE SURVEY AT SAMBHAJINAGAR AKURDI, DIST - PUNE

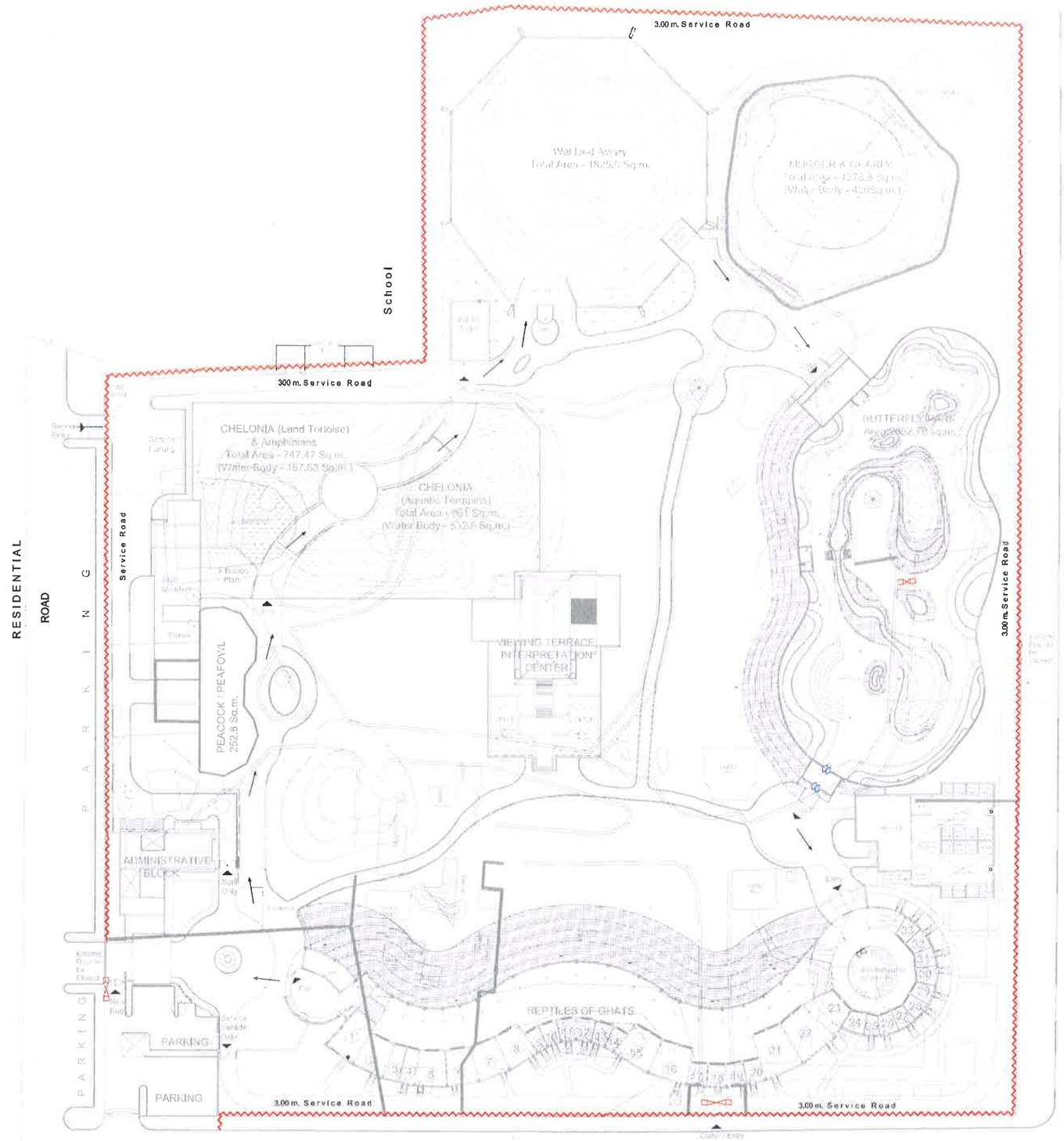
SURVEYED BY :
V. V. KELKAR AND ASSOCIATES

SCALE :- 1:500

Annexure B

Layout map indicating distribution of electricity line

EXISTING PLAN



Legend

Electrical Line	

NOTES:-

1. All dimensions are to be read not Measured
2. All Dimensions are in Millimeters and all levels are in meters
3. Contractor Shall Conform the Dimensions at Site before starting the Work
4. Any descripency found in the Drg. shall be brought to the notice of Architects.
5. All services drawings to be read in conjuction with relevant architectural drawings.
6. This drawing is based on survey plan provided by PCMC.
7. Grid size is 5000X5000mm

Project
Redevelopment of Nisargakanya Bahinabai Coudhary Pranisangrahalay , Pimpri , Pune (M.H.)

Client :
Pimpri Chinchwad Municipal Corporation

Drg. Title			Stage :
Layout of Electrical Line			
Dealt by Avinash	Drg. no. :	Scale :	
Ckd by Pankaj Jain	Dated 17-03-15	N	JAIN & ASSOCIATES

Annexure C

Layout map indicating the contour elevations

TOTAL AREA = 7.05 ACRE

LEGEND

COMPOUND	
HOUSE	
SHED	
TANK	
TREE	
ROAD	
FENCING	
FOOTHPATH	

NISARGKANYA BAHINABAI CHOWDHARI PRANISANGRAHALAYA

PLANE TABLE SURVEY & SPOT LEVELS AT SAMBHAJINAGAR AKURDI, DIST - PUNE

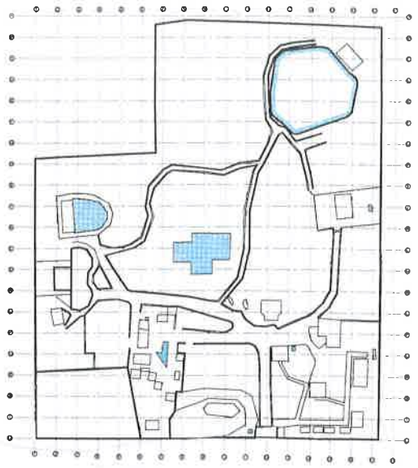
SURVEYED BY :
V. V. KELKAR AND ASSOCIATES

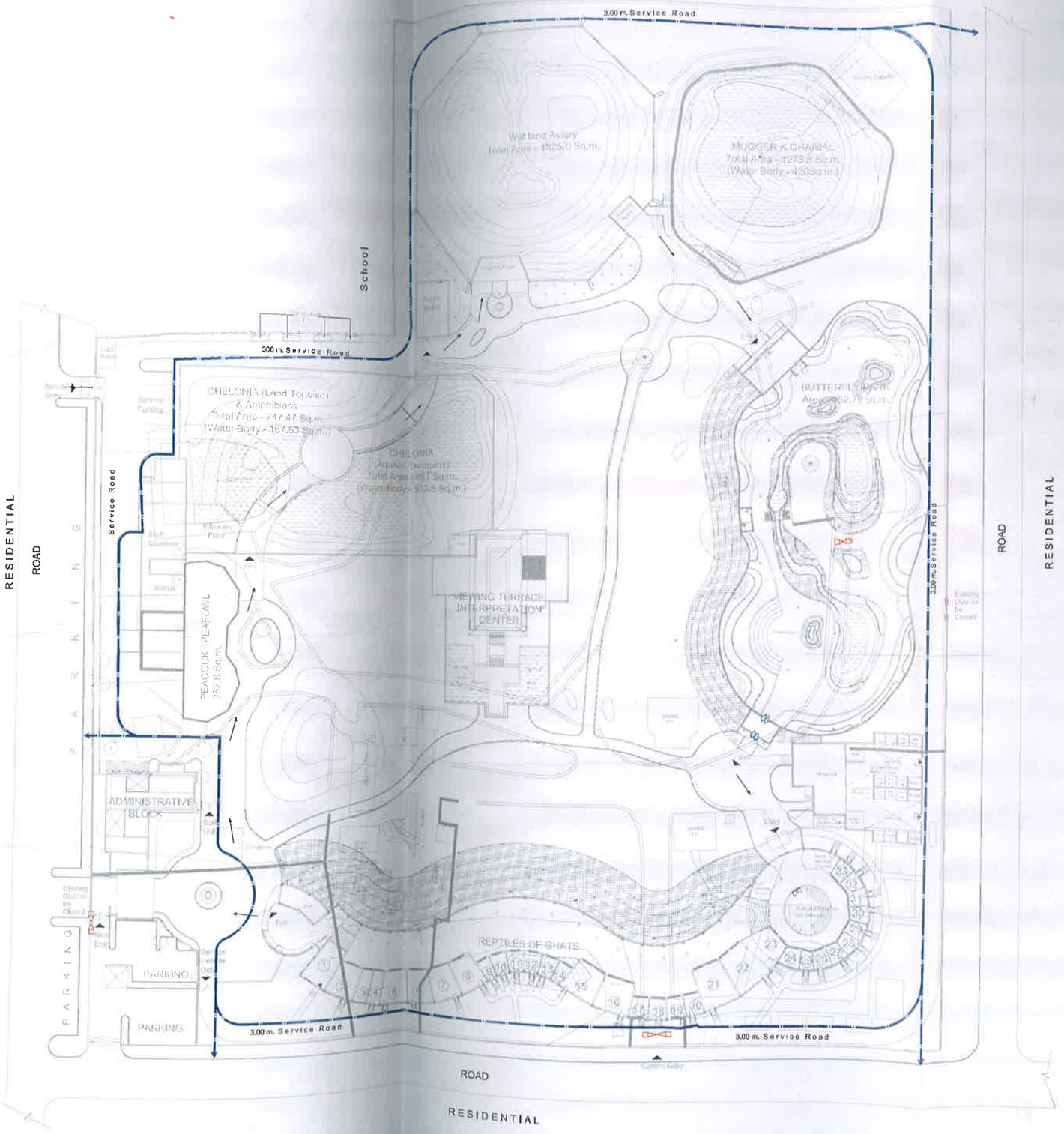
SCALE :- 1:500

Annexure D

Layout map indicating the storm water drainage

EXISTING PLAN





Legend

Drain Line	

NOTES:-

1. All dimensions are to be read not Measured
2. All Dimensions are in Millimeters and all levels are in meters
3. Contractor Shall Conform the Dimensions at Site before starting the Work
4. Any descripancy found in the Drg. shall be brought to the notice of Architects.
5. All services drawings to be read in conjuction with relevant architectural drawings.
6. This drawing is based on survey plan provided by PCMC.
7. Grid size is 5000X5000mm

Project
Redevelopment of Nisargakanya Bahinabai Coudhary Pranisangrahalay , Pimpri , Pune (M.H.)

Client :
Pimpri Chinchwad Municipal Corporation

Drg. Title			Stage
Layout of Drainage Line			
Deak by Avneesh	Drg. no. :	Scale :	
Ckd by Pankaj Jain	Dated 17-03-15	N	JAIN & ASSOCIATES

Annexure E

Existing animal collection plan/ Inventory

Other than Endangered Species

Sr. No.	Animal Name	Op.Stock on 01/10/2015				Births			Acquisitions			Disposals			Deaths			Cl. Stock on 31/12/2015			
		M	F	U	T	M	F	U	M	F	U	M	F	U	M	F	U	M	F	U	T
1	Budgerigar (*Melopsittacus*	16	11	10	**37**	0	0	0	0	0	0	0	0	0	0	0	0	16	11	10	**37**
2	Cockatiel *(Nimphicus*	11	8	2	**21**	0	0	0	0	0	0	0	0	0	0	0	0	11	8	2	**21**
3	Alexandrin Parakeet (*Psittacula*	4	1	0	**5**	0	0	0	0	0	1	0	0	0	0	0	0	4	1	1	**6**
4	Rose-ringed Parakeet (*Psittacula*	2	3	0	**5**	0	0	0	0	0	0	0	0	0	0	0	0	2	3	0	**5**
5	Plum-headed Parakeet (*Psitticula*	1	1	0	**2**	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	**2**
6	Mottled Wood Owl (*Strix*	1	0	1	**2**	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	**2**
7	Horned owl (*Bubo benghalensis*)	0	0	2	**2**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	**2**
8	Spot-billed Duck (*Anas*	0	1	0	**1**	0	0	0	1	0	0	0	0	0	0	0	0	1	1	0	**2**
9	Shikra *(Accipiter badius*)	0	0	2	**2**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	**2**
10	Barn Owl (*Tyto alba*)	3	1	1	**5**	0	0	0	0	0	0	0	0	0	0	0	0	3	1	1	**5**
11	Pariah Kite (*Milvus migrans*)	1	0	3	**4**	0	0	0	3	1	1	3	1	1	0	0	0	1	0	3	**4**
	Total	**39**	**26**	**21**	**86**	**0**	**0**	**0**	**4**	**1**	**2**	**3**	**1**	**1**	**0**	**0**	**0**	**40**	**26**	**22**	**88**

Sr. No.	Animal Name	Op.Stock on 01/10/2015				Births			Acquisitions			Disposals			Deaths			Cl. Stock on 31/12/2015			
		M	F	U	T	M	F	U	M	F	U	M	F	U	M	F	U	M	F	U	T
1	Trinket (*Coelognathus helena*	1	3	0	**4**	0	0	0	4	3	3	4	3	3	0	0	0	1	3	0	**4**
2	Sand Boa (*Eryx conicus*)	2	2	0	**4**	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	**4**
3	Earth Boa (*Eryx johnii*)	2	3	2	**7**	0	0	0	0	0	0	0	0	0	0	0	0	2	3	2	**7**
4	Banded Racer (*Argyrogena*	1	1	0	**2**	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	**2**
5	Wolf Snake (*Lycodon aulicus*)	1	1	0	**2**	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	**2**
6	Grass Snake (*Macropisthodon*	1	1	2	**4**	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	**4**
7	Starred Tortoise *(Geochelone*	3	4	1	**8**	0	0	0	0	0	0	0	0	0	0	0	0	3	4	1	**8**
8	Common Krait (*Bungarus*	3	3	0	**6**	0	0	0	2	1	2	2	1	2	0	0	0	3	3	0	**6**
9	Wall's Sind Krait (*Bungarus*	0	2	0	**2**	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	**2**
10	Bamboo Pit Viper (*Trimersurus*	0	0	2	**2**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	**2**
11	Red-eared Terrapin *(Trachemys*	2	0	2	**4**	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	**4**
	Total	**16**	**20**	**9**	**45**	**0**	**0**	**0**	**6**	**4**	**5**	**6**	**4**	**5**	**0**	**0**	**0**	**16**	**20**	**9**	**45**

Annexure F

Proposed collection plan

Annexure F Proposed collection plan

A. REPTILES

Sr. No.	COMMON NAME	*SCIENTIFIC NAME*	Area in sq. m	Present Collection				Proposed Collection				Animals to be Acquired or Removed				Remark
				M	F	U	T	M	F	U	T	M	F	U	T	
1	Python Indian	*Python molurus*	*39*	1	1	0	2	2	2	0	4	1	1	0	2	To be Acquired by Exchange Program/ Rescue
2	Yellow Monitor	*Varanus salvater*	*31*	0	0	0	0	2	2	0	4	2	2	0	4	To be Acquired by Exchange Program
3	Ornamental Snake	*Chrysopelia ornata*	15.15	0	0	0	0	2	2	0	4	2	2	0	4	To be Acquired by Exchange Program
4	Bronze-back Tree Snake	*Dendrolephis tristis*	14.85	0	0	0	0	2	2	0	4	2	2	0	4	To be Acquired by Exchange Program
5	Monitor Lizard	*Varanus bengalensis*	*31.22*	0	0	0	0	2	2	0	4	2	2	0	4	To be Acquired by Exchange Program/ Rescue
6	Green Iguana	*Iguana iguana*	30.25	0	0	0	0	2	2	0	4	2	2	0	4	To be Acquired by Exchange Program/ Rescue
7	Checkered Keelback	*Xenochrophis piscator*	*31.17*	3	3	0	6	10	20	0	30	7	17	0	24	From Rescued Individual
8	Russell's Viper	*Daboia russelli*	*30.59*	2	2	0	4	5	5	0	10	3	3	0	6	From Rescued Individual
9	Indian Chameleon	*Chameleon zeylonicus*	*8.6*	0	0	0	0	3	3	0	6	3	3	0	6	From Rescued Individual
10	Sand Boa	*Gongylophis conicus*	*10.4*	2	2	0	4	2	2	0	4	0	0	0	0	
11	Earth Boa	*Eryx johnii*	*11*	2	2	0	4	2	2	0	4	0	0	0	0	
12	Whitaker's Boa	*Gongylophis whitekarii*	*11.2*	0	0	0	0	2	2	0	4	2	2	0	4	To be Acquired by Exchange Program/ Rescue

13	Wolf Snake	*Lycodon aulicus*	*10.35*	1	1	0	2	2	2	0	4	1	1	0	2	From Rescued Individual
14	Yellow Spotted Wolf Snake	*Lycodon flavomaculatus*	*8.05*	0	0	0	0	2	2	0	4	2	2	0	4	From Rescued Individual
15	Cobra Common	*Naja naja*	*37.72*	4	4	0	8	5	5	0	10	1	1	0	2	From Rescued Individual
16	Dhaman	*Ptyas mucosa*	*38.5*	3	4	0	7	5	5	0	10	2	1	0	3	From Rescued Individual
17	Banded Racer	*Argyrogena fasciolatusz*	*12*	1	1	0	2	3	3	0	6	2	2	0	4	From Rescued Individual
18	Grass Snake	*Macropisthodon plumbicolor*	*11.81*	2	2	0	4	3	3	0	6	1	1	0	2	From Rescued Individual
19	Trinket	*Coelognathus helena*	*12.15*	1	2	0	3	5	5	0	10	4	3	0	7	From Rescued Individual
20	Montane Trinket	*Coelognathus Helena monticollaris*	*11.65*	0	0	0	0	3	3	0	6	3	3	0	6	From Rescued Individual
21	Python Reticulated	*Python reticulatus*	*47.35*	0	0	0	0	2	2	0	4	2	2	0	4	To be Acquired by Exchange Program
22	Anaconda	*Eunectes murinus*	*47.9*	0	0	0	0	2	2	0	4	2	2	0	4	To be Acquired by Exchange Program
23	Royal Snake	*Spalerosophis atriceps*	*34.75*	0	0	0	0	2	2	0	4	2	2	0	4	To be Acquired by Exchange Program
24	Banded Krait	*Bungarus fasciatus*	*12.3*	0	0	0	0	2	2	0	4	2	2	0	4	To be Acquired by Exchange Program
25	Common Kukri Snake	*Oligodon arnensis*	*8.2*	0	0	0	0	2	2	0	4	2	2	0	4	From Rescued Individual
26	Cat Snake Common	*Boiga trigonata*	10.5	0	0	0	0	3	3	0	6	3	3	0	6	From Rescued Individual
27	Cat Snake Forsten's	*Boiga forsteni*	9.95	0	0	0	0	2	2	0	4	2	2	0	4	From Rescued Individual
28	Bamboo Pit Viper	*Trimerasurus graminius*	*10.15*	1	1	0	2	3	3	0	6	2	2	0	4	From Rescued Individual
29	Wall's Sind Krait	*Bungarus s. walli*	*10.35*	0	2	0	2	2	2	0	4	2	0	0	2	From Rescued Individual
30	Striped Keelback	*Amphiesma stolatum*	*10.25*	0	0	0	0	1	2	0	3	1	2	0	3	From Rescued Individual
31	Krait Common	*Bungarus ceruleus*	*10.3*	1	1	0	2	2	2	0	4	1	1	0	2	From Rescued Individual

32	Cobra Monocled	*Naja kauthia*	*10.25*	0	0	0	0	2	2	0	4	2	2	0	4	From Rescued Individual
33	Saw-scaled Viper	*Echis carinatus*	*10.15*	0	0	0	0	2	2	0	4	2	2	0	4	From Rescued Individual
34	Starred Tortoise	*Geochelone elegans*	Terrestrial Area 579.84 Waterbody Area 167.63 (Total - 747.63)	4	4	0	8	8	12	0	20	4	8	0	12	From Rescued Individual
35	Elongated Tortoise	*Indotestudo elongata*		0	0	0	0	2	4	0	6	2	4	0	6	To be Acquired by Exchange Program
36	Travancore Tortoise	*Indotestudo travancorica*		0	0	0	0	2	4	0	6	2	4	0	6	To be Acquired by Exchange Program
37	Red-eared turtle	*Trachemys scripta*		1	1	0	2	6	12	0	18	5	11	0	16	To be Acquired by Exchange Program
38	Spotted Terrapin	*Geoclamys hamiltonii*		0	0	0	0	4	8	0	12	4	8	0	12	To be Acquired by Exchange Program
39	Eastern Hill Terrapin	*Melanochelys tricarinata*		0	0	0	0	4	8	0	12	4	8	0	12	To be Acquired by Exchange Program
40	Indian Terrapin	*Melanochelys trijuga*		0	0	0	0	3	6	0	9	3	6	0	9	To be Acquired by Exchange Program
41	Deccan Flapshell Turtle	*Nilsonia leithii*	*Terrestrial Area 428.50 Waterbody Area 532.5 (Total - 961)*	0	0	0	0	2	4	0	6	2	4	0	6	To be Acquired by Exchange Program
42	Flapshell Turtle	*Lessymis punctata*		3	6	0	9	3	6	0	9	0	0	0	0	
43	Tent Terrapin	*Pangushura tecta*		0	0	0	0	6	12	0	18	6	12	0	18	To be Acquired by Exchange Program
44	Narrow-mouthed Softshell Turtle	*Chitra indica*		0	0	0	0	4	4	0	8	4	4	0	8	To be Acquired by Exchange Program
45	Indian Roofed Turtle	*Pangushura tenctoria*		0	0	0	0	6	12	0	18	6	12	0	18	To be Acquired by Exchange Program
46	Assam Roofed Turtle	*Pangshura sylhetensis*		0	0	0	0	5	5	0	10	5	5	0	10	To be Acquired by Exchange Program
47	Marsh Crocodile	*Gavialis gangeticus*		1	2	11	14	2	4	0	6	1	2	-11	-8	To be exchanged with other zoos
48	Gharial	*Nilssonia leithii*		0	0	0	0	2	4	0	6	2	4	0	6	To be Acquired by Exchange Program

BIRDS

Sr. No.	COMMON NAME	SCIENTIFIC NAME	Area in sq. m	Present Collection				Proposed Collection				Animals to be Acquired or Removed				Reamark
				M	F	U	T	M	F	U	T	M	F	U	T	
1	Pelican	*Pelecanus onocrotalus*	1825	0	0	0	0	3	3	0	6	3	3	0	6	To be Acquired by Exchange Program
2	White Ibis	*Threskiornis melanocephalus*		0	0	0	0	3	3	0	6	3	3	0	6	To be Acquired by Exchange Program
3	Grey Heron	*Ardea cineraria*		0	0	0	0	2	2	0	4	2	2	0	4	To be Acquired by Exchange Program
4	Painted Stork	*Mycteria leucocephala*		0	0	0	0	3	3	0	6	3	3	0	6	To be Acquired by Exchange Program
5	Spoonbill	*Platalea leucorodia*		0	0	0	0	3	3	0	6	3	3	0	6	To be Acquired
6	Comb Duck	*Sarkidiornis melanotos*		0	0	0	0	5	5	0	10	5	5	0	10	From Rescued Individual
7	White-breasted Waterhen	*Amaurornis phoenicurus*		0	0	0	0	3	3	0	6	3	3	0	6	To be Acquired by Exchange Program
8	Dabchick	*Tachybaptus ruficollis*		0	0	0	0	5	5	0	10	5	5	0	10	To be Acquired by Exchange Program
9	Black-necked Stork	*Ephippiorhynchus asiaticus*		0	0	0	0	2	2	0	4	2	2	0	4	From Rescued Individual
10	Night Heron	*Nycticorax nicticorax*		0	0	0	0	5	5	0	10	5	5	0	10	From Rescued Individual
11	Large Egret	*Ardea alba*		0	0	0	0	2	2	0	4	2	2	0	4	From Rescued Individual
12	Common Teal	*Anas crecca*		0	0	0	0	5	5	0	10	5	5	0	10	To be Acquired by Exchange Program
13	Shoveller	*Anas clypeata*		0	0	0	0	5	5	0	10	5	5	0	10	To be Acquired by Exchange Program
14	Ruddy Shelduck	*Tadorna ferruginea*		0	0	0	0	5	5	0	10	5	5	0	10	To be Acquired by Exchange Program

BUTTERFLIES

	Common name	Scientific name
Papilionidae		
1	Common Bluebottle	*Graphium sarpedon* Linnaeus
2	Tailed Jay	*Graphium agamemnon* Linnaeus
3	Common Mormon	*Papilio polytes* Linnaeus
4	Lime Butterfly	*Papilio demoleus* Linnaeus
5	Common Rose	*Pachliopta aristolochiae* Fabricius
6	Crimson Rose	*Pachliopta hector* Linnaeus
Pieridae		
7	Three Spot Grass Yellow	*Eurema blanda* Boisduval
8	Small Grass Yellow	*Eurema brigitta* Cramer
9	Common Grass Yellow	*Euremahe cabe* Linnaeus
10	Spotless Grass Yellow	*Euremala eta* Boisduval
11	Common Emigrant	*Catopsilia pomona* Fabricius
12	Mottled Emigrant	*Catopsilia pyranthe* Linnaeus
13	White Orange Tip	*Ixias Marianne* Cramer
14	Common Gull	*Cepora nerissa* Fabricius
15	Common Jezebel	*Delias eucharis* Drury
16	Psyche	*Leptosia nina* Fabricius
17	Pioneer	*Belenoisa urota* Fabricicus
Nymphalidae		
18	Blue Tiger	*Tirumala limniace* Cramer
19	Striped Tiger	*Danaus genutia* Cramer
20	Plain Tiger	*Danaus chrysippus* Linnaeus
21	Glassy Tiger	*Parantica aglea* Stoll
22	Common Indian Crow	*Euploea core* Cramer
23	Common Nawab	*Polyura athamas* Drury
24	Black Rajah	*Charaxes Solon* Fabricius
25	Common Evening Brown	*Melanitis leda* Linnaeus
26	Common Three Ring	*Ypthima asterope* Klug
27	Common Five Ring	*Ypthima baldus* Fabricius
28	Tawny Coster	*Acraea violae* Fabricius
29	Common Leopard	*Phalanta phalantha* Drury
30	Chestnut Streaked Sailer	*Neptis jumbah* Moore
31	Angled Castor	*Ariadne Ariadne* Linnaeus
32	Common Castor	*Ariadne merione* Cramer
33	Painted Lady	*Vanessa cardui* Linnaeus
34	Blue Pansy	*Junonia orithiya* Linnaeus
35	Yellow Pansy	*Junonia hierta* Fabricius
36	Chocolate Pansy	*Junonia iphita* Cramer
37	Grey Pansy	*Junonia atlites* Linnaeus
38	Lemon Pansy	*Junonia lemonias* Linnaeus
39	Great Eggfly	*Hypolimnas bolina* Linnaeus
40	DanaidEggfly	*Hypolimnas misippus* Linnaeus

Annexure G

Existing Wildlife in Zoo Campus

(List of Plants &Birds)

List of Trees in PCMC Zoo Campus

Sr. No.	English Name	Marathi Name	*Scientific name*
1	Australian Acacia	Australian babul	*Acacia auriculiformis*
2		Subabul	*Leucaena leucocephala*
3	Acacia	Babul	*Acacia nilotica*
4	Indian lilac/ Neem	Neem	*Azadirachta indica*
5	Sisam	Sisam	*Dalbergia sisoo*
6	Soapnut	Ritha	*Sapindus laurifolia*
7	Spathodia	Pichkari	*Spathodia campanulata*
8		Bakul	*Mimusopse lengi*
9	Eucalyptus	Nilgiri	*Eucalyptus sp.*
10		Sonchapha	*Michelia champaca*
11		Kate Sawar	*Bombax ceiba*
12		Parijat	*Nyctanthes arbor-tristis*
13	Tikoma		*Tecoma stans*
14	Banyan	Vad	*Ficus benghalensis*
15	Verigated Baniyan	Verigated Vad	*Ficus benghalensis var.*
16	Curry leaf	Kadipatta	*Murraya koenigi*
17		Hivar	*Acacia leucophloea*
18		Pimpal	*Ficus religiosa*
19	Silver Oak	Suru	*Grevillea robusta*
20	Bottle Palm	Bottle Palm	*Roystonea regia*
21	Areka Palm	Supari	*Areca sp.*
22	Coconut	Naral	*Cocos nucifera*
23	Javan cassia	Gulabi cassia	*Cassia javanica*
24	Indian laburnum	Bahava	*Cassia fistula*
25		Kashid	*Cassia siamea*
26		Ashok	*Polyalthia longifolia*
27	Ficus benjamina	Pimparni	*Ficus benjamina*
28	Ficus nodula		*Ficus nuda*
29		Nandrukh	*Ficus microcarpa*
30		Rubber tree	*Ficus elastica*
31	Golden Bamboo	Pivla Bamboo	*Bambusa aurnatiana*
32	Green Bamboo	Kalak	*Bambusa vulgaris*
33	Coral tree	Pangara	*Erythrina indica*
34	Verigated Pangara		*Erythrina variegate*
35	Gulmohar	Gulmohor	*Delonix regia*
36	Rain Tree	VilayatiShirish	*Samanea saman*
37		Sankeshwar	*Caesalpinia pulcherrima*
38	Indian Cork	Buch	*Millingtonia hortensis*
39	Tabubia		*Tabebuia sp.*
40	Tabubia rosepholia		*Tabebuia rosea*
41	Casurina	Suru	*Casuarina equisetifolia*
42		Bhend	*Thespesia populnea*
43	Bottle Brush		*Callistemon lanceolatus*
44	Copper pod	Tambra-Shimbi	*Peltophorum ferrugineum*
45		Kanchan	*Bauhinia sp.*
46	Christmas Tree	Silver Oak	*Auraucaria sp.*
47	Putranjiva	Putrawanti	*Putranjiva roxburghii*
48	Sandalwood	Chandan	*Santalum album*

49	Sausage Tree		*Kigelia pinnata*
50		Khair	*Acacia catechu*
51	*Gliricidia*	Undirmar / Giripushpa	*Gliricidia sepium*
52	Jamun	Jambul	*Syzygium cuminii*
53	Singapore Cherry	Cherry	*Mutingia calabura*
54	Guava	Peru	*Psidium guajava*
55	Mango	Amba	*Mangifera indica*
56	Custard Apple	Sitafal	*Annona squamosal*
57		Badam	*Terminalia catappa*
58	Pomegranate	Dalimb	*Punica granatum*
60		Vilayati chinch	*Pithecelobium dulce*
61	Tamarind	Chinch	*Tamarindus indica*
62		Kavath	*Feroniaele phantum*
63	Papaya	Papai	*Carica papaya*
64		Bhokar	*Cordia myxa*

Bushes-

Sr. No.	English Name	Marathi Name	*Scientific name*
1	Lagistomia indica	Gulmehendi	*Lagerstroemia indica*
2	Dombia	Hazari mogra?	*Dombeya sp.*
3	China Rose	Jaswand	*Hibiscus sp.*
4		Kaner	*Nerium odorum*
5	Jasmanum	Mogra	*Jasminum sp.*
6		Tagar	*Tabernae montana sp.*
7	Cana	Kardal	*Canna sp,*
8	Pachystachys	Kombda	*Pachystachys*
9	Vinca	Sadafuli	*Vinca rosea*
10	Ixora		*Exoecaria bicolor*
11	Electric pentas		*Pentas sp.*
12	Golden exora		*Ixora sp.*
13	Croton		*Croton sp,*
14		Musanda	*Mussaenda frondosa*
15	Thuja	Morpankhi	*Thuja occidentalis*
16		Tulas	*Ocimum sanctum*
17	Rasolia		*Russelia sp.*
18	Cycus palm		*Cycas sp.*

Creepers:

Sr. No.	English Name	Marathi Name	Scientific Name
1		Mogara	*Jasminum sp.*
2	Ice-cream Creeper	Sankrantvel	
3		Wagh-nakhi	*Bignonia sp.*
4	Cup and saucer plant	Kup-bashi	*Holmski oldia*
5	Rangun creeper	Madhu-malati	*Quisqualis indica*

List of Birds Seen in PCMC Zoo Campus

No.	Vernacular Name (Marathi)	Common English Name	Scientific Name
1	Pankawala	Little Cormorant	*Phalacrocorax niger*
2	Rakhi Bagala	Grey Heron	*Ardea cinerea*
3	Bagala	Little Egret	*Egretta garzetta*
4	Gaay Bagala	Cattle Egret	*Bubulcus ibis*
5	Vanchak	Pond Heron	*Ardeola grayii*
6	Maral	Lesser Whistling Teal	*Dendrocygna javanica*
7	Chakrawak	Spotbill Duck	*Anas poeclorhincha*
8	Ghar	Pariah Kite	*Milvus migrans*
9	Shikra	Shikra	*accipiter badius*
10	Jambhali Pankombadi	Purple Moorhen	*Porphyrio porphyrio*
11	Chandava	Coot	*Fulica atra*
12	Pankombadi	Indian Moorhen	*Gallinula chloropus*
13	Titvi	Red-wattled Lapwing	*Vanellus indicus*
14	Tutari	Wood Sandpiper	*Tringa glareola*
15	Parva	Blue Rock Pigeon	*Columba livia*
16	Hola	Little Brown Dove	*Streptopelia senegalensis*
17	Popat	Rose-ringed Parakeet	*Psitticula krameri*
18	Kokila	Koel	*Eudynamys scolopacea*
19	Bharadwaj	Crow Phesant	*Centropus sinensis*
20	Gavhani Ghubad	Barn Owl	*Tyto alba*
21	Pingalya	Spotted Owlet	*Athene burma*
22	Pakoli	House swift	*Apus affinis*
23	Khandya	White-breasted kingfisher	*Halcyon smyrnensis*
24	Bandya	Small Blue kingfisher	*Alcedo atthis*
25	Veda Raghu	Green Bee-eater	*Merops orientalis*
26	Shingchocha	Grey Hornbill	*Tocus birostris*
27	Tambat	Coppersmith Barbet	*Megalaima haemacephala*
28	Pakoli	Dusky Crag Martin	*Hirunda concolor*
29	Bhingari	Red-rumped Swallow	*Hirundo rustica*
30	Tarvali Bhingari	Wire-tailed Swallow	*Hirundo smithii*
31	Haladya	Golden Oriole	*Oriolus oriolus*
32	Khatik	Rufous-backed Shrike	*Lanus schach*
33	Kotwal	Black Drongo	*dicrurus adsimilis*
34	Salunkhi	Common Myna	*acridotherus tristis*
35	Bhoradi	Brahmini Myna	*Sturnus pagodarum*
36	Kawla	House Crow	*Corvus splendens*
37	Domkawala	Jungle Crow	*Corvus macrorhynchos*
38	Chhota Nikhara	Small Minivet	*Pericrocotus erythropygius*
39	Subhag	Iora	*Aegithina tiphia*
40	Bulbul	Red-vented Bulbul	*Pynonotus cafer*
41	Shipai Bulbul	Red-whiskered Bulbul	*Pyconotus jocosus*

42	Satbhai	Large Grey Babbler	*Turdoides malcolmi*
43	Nachara	White-browed Fantail	*Rhipidura aureola*
44	Vatvatya	Ashy Prinia	*Prinia Socialis*
45	Vatvatya	Plain Warbler	*Plain subflava*
46	Shimpi	Tailor Bird	*Orthotomus sutorius*
47	Dayal	Magpie Robin	*Copsychus saularis*
48	Chirak	Indian Robin	*Saxicoloides fulicata*
49	Thirthira	Black Redstart	*Phaenicurus ochruros*
50	Fultochya	Tickel'ls Flowerpecker	*Dicaeum erythrorhynchos*
51	Gangara	Grey Tit	*Parus major*
52	Karada Dhobi	Grey Wagtail	*Motacilla cinerea*
53	Pandhara Dhobi	White Wagtail	*Motacilla alba*
54	Shinjir	Purple Sunbird	*Nectarinia asiatica*
55	Shinjir	Purple-rumped Sunbird	*Nectarinia zeylonica*
56	Chimani	House Sparrow	*Passer domesticus*
57	Chashmewala	White-eye	*Zosterops palpebrosa*
58	Sugaran	Baya Weaver Bird	*Ploceus phillippinus*
59	Munia	Spotted Munia	*Lonchura punctulata*
60	Chanderi Munia	Silver bill	*Lonchura malabarica*

Annexure H

Pollution status

(Water Testing Reports)

Annexure H **Pollution status (Water Testing Reports)**

Water Treatment Plant
Laboratory, Nigdi

PIMPRI CHINCHWAD MUNICIPAL CORPORATION

(W/S) DIVISION

Report Of Chemical Examination Of Water

NO-WS / LAB / 1970/ 20 15

DATE - 9 / 12 /20 15

NAME - पशु वैद्यकीय विभाग

DATE OF RECEIPT - 8 / 12 /20 15

ADDRESS - पिंपरी चिंचवड महानगरपालिका

DATE OF EXAMINATION - 9 / 12/20 15

No.	Tests	I. S Standard for Drinking Water	Results mg/lit	Results mg/lit	Conclusion
1	Turbidity	5 N.T.U max	2.71	2.24	
2	pH	6.5 to 8.5	7.51	7.77	
3	Total Hardness (AS CaCo3)	300 mg/lit max	84	88	
4	Chloride	250 mg/lit max	84	56	
5	Calcium	75 mg/lit max	20.84	22.44	

NOTE-SAMPLE NOT DRAWN BY THIS LABORATORY

COPY TO-

CHEMIST
WTP. Laboratory, Sec -23
Nigdi-411 044

Phone - 020-27654065

PIMPRI CHINCHWAD MUNICIPAL CORPORATION

(W/S) DIVISION

No-WS/Lab/ १७०/2015

Date - 11 / 12 / 15

REPORT OF BACTERIOLOGIAL EXAMINATION OF WATER

NAME - पशु वैद्यकीय विभाग PCMC DATE OF EXAMINATION - 10/12/2015

ADDRESS - पिंपरी - 18

NO.	WATER SAMPLE (PLACE)	RESIDUAL CHLORINE (PPM)	CONCLUSION MPN / 100ml		REMARK
			Coliforms	E. Coli	
1	Water sample - दही	Nil	0/100ml	–	Potable
2	Water sample - मशार	Nil	18+/100ml	–	Non-Potable
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

CHEMIST
WTP. Laboratory, Sec.-23
Nigdi-411044.

NOTE-SAMPLE NOT DRAWN BY THIS LABORATORY

R

Annexure I

Sanctioned, Proposed And Present Staffing Pattern

SANCTIONED, PROPOSED AND PRESENT STAFFING PATTERN

Sr. No.	Name of the posts for Zoo	Post sanctioned with PCMC	Number Sanctioned with PCMC	Proposed	Present
1	Director	Veterinary Officer	One post	Director / Veterinary Officer	Part time
2	Biologist / Education Officer	Asst. Garden superintendent	One post	Biologist / Education Officer	Part time
3	Livestock Supervisor	Livestock Supervisor	Livestock Supervisor		One post working part time
4	Animal Keeper	Animal Keeper	2 posts	Head Animal keeper	Nil Labors working at present
5	Asst. Animal keeper	Asst. Animal keeper	3 posts	Animal keeper	nil Labors working at present
6	Attendant	Attendant	One	Nil	One

Annexure I Proposed & Present Staffing Pattern

Sr no.	Name of post	Pay-scale	Total Posts	Posts filled	Vacant Posts
1	Director/ Curator	9300-34800 GP- 5900	1	0	1
2	Biologist/Education Officer	9300-34800	1	0	1
3	Veterinary Doctor	9300-34800 GP- 5400	1	0	1
4	Head Animal keeper / Live Stock Supervisor	5200-20200 GP_2400	1	0	1
	Animal Keeper	5200-20200 GP 2200	2	0	2
5	Asst. Animal keeper	5200-20200 GP 1900	6	(4)#	2
6	Clerk	5200-20200 GP- 4300	1	0	1
7	Ticket counter attendant / (Booking Clerk)	5200-20200 GP- 2400	3	1	2
8	Garden supervisor	5200-20200 GP- 2400	1	0	1
9	Security Officer	Consolidated 12000	2	0	2
10	Security Guard	Consolidated 8000	16	3	13
11	Driver	5200-20200 GP 2400	1	1	0
12	Gardener / (Mali)	5200-20200 GP 1900	6	6	06

- Currently, these are employed as 'Majur' on pay roll. Changing there job title as 'Asst. Animal Keeper' is under process.

Annexure J

PRESENT BUDGET OF THE ZOO AND EXPENDITURE STATEMENT

Annexure J

PRESENT BUDGET OF THE ZOO AND EXPENDITURE STATEMENT

A. CIVIL BUDGET

Year	Budget provision in Rs.	Expenditure for Zoo
2013-14	50 lacks	20 lacks
2014-15	95 lacks	45 lacks
2015-16	One crore	-------
2016-17	7 crore	-------
2017-18	8 crore	-------

B. Veterinary Dept. Budget (Recurring Expenses)

Year	Budget provision in Rs.	Expenditure
2011-12	6.5 lack	4,97,444 /-
2012-13	7.5 lack	4,01,771 /-
2013-14	8.0 lack	5,50,765 /-
2014-15	8.0 lack	6,37,045 /-
2015-16	10.0 lack	-----

- Annual Salary Expenditure for 10Person working at Zoo Rs 35,51,256 /-
- Total budgeted estimate for proposed Zoo Master Plan implementation in Rs Sixteen Crore.
- For current financial year (2015-16) budgetary provision is Rs One Crore.
- For next financial year (2016-17) budgetary provision is Rs 7 Crore.
- For next financial year (2017-18) budgetary provision is Rs 8 Crore.

Annexure K

Certificate of Land Possession

Annexure – K
Certificate of Land Possession

(B)

93

MAHARASHTRA INDUSTRIAL DEVELOPMENT CORPORATION.
(A Government of Maharashtra Undertaking)

POSSESSION RECEIPT

I Shri. A. D. GOSAVI, Surveyor on behalf of Maharashtra Industrial Development Corporation and Shri. S. P. GOLE, Surveyor on behalf of Pimpri-Chinchwad Municipal Corporation, Pimpri, Pune-18 this day respectively handed over and taken over the possession of open space in Pimpri Industrial Area as mentioned below. After actual measurement and demarcation of the open space on the site.

Sr. No. of Open Space	Name of the Block and description.	Area in Sq. mtrs.
2	'G' Block Open Space surrounded by road on all sides.	30802

Handed over by
Sd/-
Surveyor, MIDC. (A.D.Gosavi)

Taken over by
Sd/-
(S.P.Gole)
Surveyor, PCMC

Place : Chinchwad, Pune-19.

Date :- 20-10-1985.

TRUE COPY

Town Planner,
Pimpri Chinchwad Municipal
Corporation, Pimpri-18.

PK/-2619 TRUE COPY

Asstt. Director
of Town Planning
Pimpri Chinchwad Municipal Corporation
Pimpri - 411 018

Annexure L

Members of Zoo Adivisory Committee

Annexure M

Correspondence with CZA with regard to approval of Master (layout) Plan and Master Plan

GOVERNMENT OF INDIA
MINISTRY OF ENVIRONMENT, FOREST & CLIMATE CHANGE
Central Zoo Authority

Email

F. No. 19-127/93-CZA(Vol. III)(180)(NS)/127/2016 **Date: 22.01.2016**

To

The Additional Commissioner,
Pimpri Chinchwad Commissioner,.
Sambhaji Nagar,
Chinchwad- 411 019 (Maharashtra)

Sub:- Comments on Master Plan of Nisargakavi Bahinabai Choudhary Pranisangrahalay, Chinchwad, Pune - Reg.

Sir,

The Master Plan of the Nisargakavi Bahinabai Choudhary Pranisangrahalay, Chinchwad, Pune was scrutinized by the Members of the Expert Group on Zoo Designing of Central Zoo Authority. A copy of the observations submitted by the members are annexed with the letter.

Keeping in view of the above, you are requested to submit amended copies of Master Plan (4 copies) along with compliance report.

Yours faithfully

22/1/2016

(Inder Dhamija)
DIG(HQ)

Encl: as above

Copy to The Director, Nisargakavi Bahinabai Choudhary Pranisangrahalay, Chinchwad, Pune for favour of information.

B-1 Wing, 6th Floor, Paryavaran Bhawan, CGO Complex, Lodhi Road, New Delhi-110003
Tel.: 011-24367846, 24367847, 24367851, 24367852, Fax: 011-24367849
E-mail: cza@nic.in Website: http://www.cza.nic.in

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जहाँ है हरियाली।
वहाँ है खुशहाली।।

GOVERNMENT OF INDIA
MINISTRY OF ENVIRONMENT & FORESTS

Central Zoo Authority

F. No. 19-127/93-CZA(180)(Vol. II)(M)/5144 DATE: 24.06.2014

To

The Additional Commissioner
Pimpri Chinchwad Municipal Corporation,
Pimpri – 18 (Maharashtra).

Sub:- Master (layout) Plan of the Bahinabai Choudhary Prani Sangrahalaya, Pimpri.

Sir,

The revised Master (layout) Plan of the Bahinabai Choudhary Prani Sangrahalaya, Pimpri before the members of the Expert Group on Zoo Designing of the Central Zoo Authority in its Meeting held on 5th June, 2014. After detailed deliberation the Master (layout) Plan was recommended for approval subject to the following observations:-

i. Director's residence should not be inside the zoo.
ii. Snakes to be displayed at one side.
iii. Birds of prey may be replaced by other bird species (preferably small open water body with aquatic birds)
iv. Amphibians to be included in animal collection plan.
v. Zoo should have regular Curator and Veterinary Officer.

You are requested to submit amended copy of the Master (layout) Plan of the Bahinabai Choudhary Prani Sangrahalaya, Pimpri for its approval and signature of this Authority.

Yours faithfully,
sd/-
(B. S. Bonal)
Member Secretary

Copy for favour of information and necessary action to:-

1. The Commissioner, Pimpri Chinchwad Municipal Corporation, Pimpri.
2. The Director, Bahinabai Choudhary Prani Sangrahalaya, Pimpri.

24/6/2014
(Inder Dhamija)
DIG (Hqr.)

D/C
24/6/14

Bikaner House, Annexe VI, Shahjahan Road, New Delhi-110011
Phone : 011-23381585, 23073072, 23070375 (EPABX), Fax : +91-11-23386012
E-mail : cza@nic.in Website : http://www.cza.nic.in

GOVERNMENT OF INDIA
MINISTRY OF ENVIRONMENT & FORESTS
Central Zoo Authority

F. No. 19-127/93-CZA(180)(Vol. III)(M)/5560 **DATE: 13.08.2014**

To

The Additional Commissioner
Pimpri Chinchwad Municipal Corporation,
Pimpri – 18 (Maharashtra).

Sub:- Master (layout) Plan of the Nisargakavi Bahinabai Choudhary Prani Sangrahalaya, Pimpri, Pune.

Sir,

A copy of the approved Master (layout) Plan of the Nisargakavi Bahinabai Choudhary Prani Sangrahalaya, Pimpri, Pune duly authenticated by the Member Secretary on behalf of the Central Zoo Authority is enclosed herewith for your records.

You are hereby requested to ensure that all the developmental activities in the Nisargakavi Bahinabai Choudhary Prani Sangrahalaya, Pimpri, Pune must be in conformity with the Master (layout) Plan.

You are requested to submit the detailed Master Plan of the Nisargakavi Bahinabai Choudhary Prani Sangrahalaya, Pimpri, Pune in consonance with approved Master (layout) Plan at the earliest for approval for this end.

Yours faithfully,
Sd.-
(B. S. Bonal)
Member Secretary

Encl: Signed Master (layout) Plan

Copy for favour of information to:-

1. The Chief Wildlife Warden, Government of Maharashtra, Nagpur.
2. The Commissioner, Pimpri Chinchwad Municipal Corporation, Pimpri, Pune.
3. The Director/ Officer-in-charge, Nisargakavi Bahinabai Choudhary Prani Sangrahalaya, Pimpri, Pune.

13/8/2014
(Inder Dhamija)
DIG (HQ)

Bikaner House, Annexe VI, Shahjahan Road, New Delhi-110011
Phone : 011-23381585, 23073072, 23070375 (EPABX), Fax : +91-11-23386012
E-mail : cza@nic.in Website : http://www.cza.nic.in

By HAND
19

GOVERNMENT OF INDIA
MINISTRY OF ENVIRONMENT & FORESTS
Central Zoo Authority

F. No. 19-127/93-CZA(180)(Vol. III)(M)/5438 **DATE: 31.07.2014**

To

The Additional Commissioner
Pimpri Chinchwad Municipal Corporation,
Pimpri – 18 (Maharashtra).

Sub:- Master (layout) Plan of the Bahinabai Choudhary Prani Sangrahalaya, Pimpri, Pune.

Sir,

Submitted Master (layout) Plan of the Bahinabai Choudhary Prani Sangrahalaya, Pimpri, Pune was scrutinized by the Expert Group on Zoo Designing of the Central Zoo Authority held on 5th June, 2014 and recommended for approval. Accordingly, the Master (layout) Plan was placed before the 70th Meeting of the Technical Committee of the Central Zoo Authority held on 1st July, 2014 and approved the revised Master (layout) Plan of the Bahinabai Choudhary Prani Sangrahalaya, Pimpri, Pune .

In order to send you a copy of the duly signed and approved Master (layout) Plan of the Bahinabai Choudhary Prani Sangrahalaya, Pimpri, Pune, you are requested to submit the soft copy of the digitized Master (layout) Plan, showing contour details in any of the format i. e. AUTOCAD/ COREL DRAW/JPEG/TIFF/PDF files on a CD/DVD to this office, at the earliest.

Detailed Master Plan should be prepared accordingly as per the guidelines and Check-list of CZA and expeditious submission for approval.

Yours faithfully,
sd/-
(B. S. Bonal)
Member Secretary

Copy for favour of information to:-

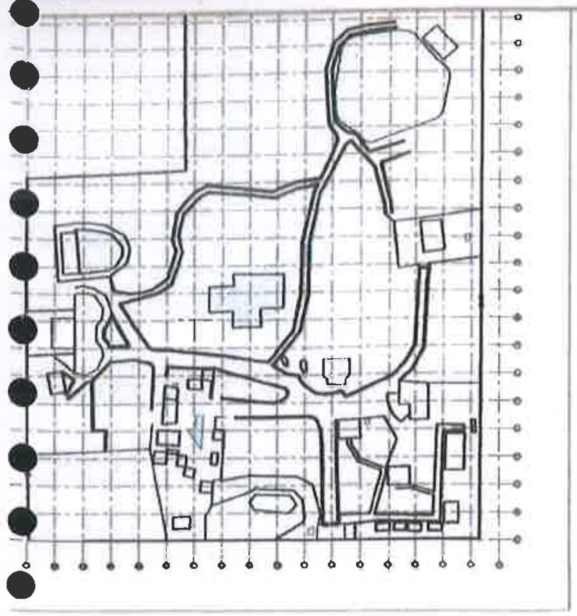
1. The Commissioner, Pimpri Chinchwad Municipal Corporation, Pimpri.
2. The Director/ Officer-in-charge, Bahinabai Choudhary Prani Sangrahalaya, Pimpri.

1/8/2014.
(Inder Dhamija)
DIG (HQ)

01/8/14

Annexure N I

Master Layout plan approved by Central Zoo Authority



Chelonia (Aquatic Terrapins) (Area In Sq.m.)

1. Indian Terrapin 2. Deccan Flapshell Turtle 3. Flapshell Turtle 4. Red-eared Turtle 5. Spotted Terrapin 6. Tent Terrapin 7. Chitra Indica 8. Assamese Roof Turtle 9. Pangshura Tenctoria	Terrestrial Area – 428.50 Water Body Area – 532.50 Total – 961

Butter Fly Park (Area 2652.8 Sq.m.)

Common Bluebottle	15. Common Jezebel	29. Common Leopard
Tailed Jay	16. Psyche	30. Chestnut Streaked Sailer
ommon Mormon	17. Pioneer	31. Angled Castor
Lime Butterfly	18. Blue Tiger	32. Common Castor
Common Rose	19. Striped Tiger	33. Painted Lady
imson Rose	20. Plain Tiger	34. Blue Pansy
Three Spot Grass Yellow	21. Glassy Tiger	35. Yellow Pansy
nall Grass Yellow	22. Common Indian Crow	36. Chocolate Pansy
Common Grass Yellow	23. Common Nawab	37. Grey Pansy
. Spotless Grass Yellow	24. Black Rajah	38. Lemon Pansy
ommon Emigrant	25. Common Evening Brown	39. Great Eggfly
. Mottled Emigrant	26. Common Three Ring	40. Danald Eggfly
. White Orange Tip	27. Common Five Ring	
ommon Gull	28. Tawny Coster	

Reptiles of Ghats (Area 2838.09 Sq.m.)

o.	Names	Area in Sq.m.	Ref.no.	Names	Area in Sq.m.
1	Indian Python	39.0	17.	Banded Racer	12.0
	Yellow Monitor	31.0	18.	Green Keelback	11.81
	Ornamental Snake	15.15	19.	Trinket	12.15
4.	Bronze-back Tree Snake	14.85	20.	Montane Trinket	11.65
5.	Monitor Lizard	31.22	21.	Reticulated Python	47.35
	Green Lguana	30.25	22.	Anaconda	47.90
7.	Checkered Keelback	31.17	23.	Snake Diadem/ Royal	34.75
8.	Russell,s Viper	30.59	24.	Banded Krait	12.30
9.	Indian Chameleon	8.60	25.	Kukri	8.20
	Sand Boa	10.40	26.	Common Cat Snake	10.50
1.	Earth Boa	11.0	27.	Forsten's Cat Snake	9.95
2.	Whitaker's Boa	11.20	28.	Bamboo Pit Viper	10.15
	Wolf Snake	10.35	29.	Wall's Sind Krait	10.35
	Yellow Spotted Wolf Snake	8.05	30.	Striped Keel back	10.25
	Common Cobra	37.72	31.	Common Krait	10.30
	Dhaman	38.50	32.	Monocellate Cobra	10.25
			33.	Sand Boa Red	10.15

Chelonia (Land Tortoise) & Amphibians (Area in Sq.m.)

1. Starred Tortoise
2. Eastern Hill Tortoise
3. Elongated Tortoise
4. Rhacophorus malabaricus
5. Raorchestes bombayensis
6. Hylarana malabarica
7. Indirana brachytarsus
8. Ramanella montana
9. Gegeneophis carnosus
10. Microhyla ornata
11. Duttaphrynus melanostictus
12. polypedates maculates

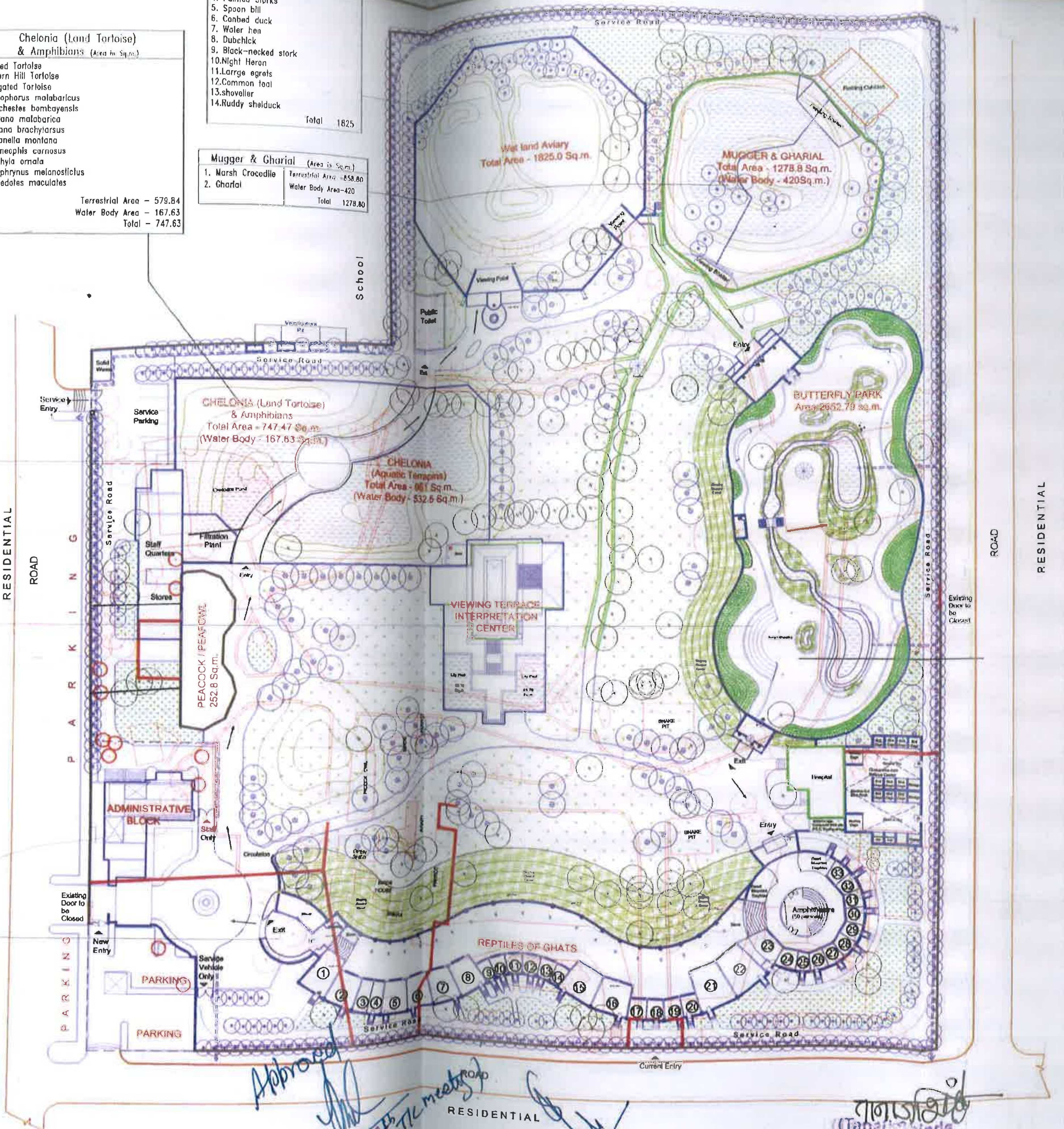
Terrestrial Area – 579.84
Water Body Area – 167.63
Total – 747.63

3. Gray Herons
4. Painted Storks
5. Spoon bill
6. Conbed duck
7. Water hen
8. Dubchick
9. Black-necked stork
10. Night Heron
11. Larrge egrets
12. Common teal
13. shoveller
14. Ruddy shelduck

Total 1825

Mugger & Gharial (Area in Sq.m.)

1. Marsh Crocodile 2. Gharial	Terrestrial Area -858.80 Water Body Area-420 Total 1278.80



Proposed Tree	Structures to be Demolished
Existing Water Body	Proposed New Structures
Proposed Water Body	Proposed New Contours
Shrubs	Movement Pattern
Proposed Sloping Ground Cover	Grass Lawn

Built up Area Calculation

S.No.	Activity	Remarks	Area (in Sq.m.)
A	Reptiles of Ghats	New Zone E	1951.75
B	Quarantine	New Zone E	251.98
C	Birds of Prey	New Zone F	299.70
D	Mugger and Gharial	New Zone G	32.69
E	Chelonia Display	New Zone H	207.69
	Filtration Plant	New Zone H	65.00
	Store	New Zone H	21.05
F	Interpretation Center	New Zone I	591.04
G	Peacock/Peafowl	Zone J	252.08
H	Butterfly Park	New Zone K	164.78
I	Public Toilet	New Zone L	70.95
J	Footpath		1628.81
K	Service Road	New Zone D	2031.41
L	Parking	New Zone A (For Visitors)	209.58
M	Administrative Block	New Zone B	325.04
N	Staff Quarters/ Stores	New Zone C1	267.68
		Total	8490.57

Area Statement

SNo.	Activity	Area (In Sqm.) G floor	F floor	Total	Remarks
1. Building Related					
1.1	Staff Quarter	-	198.67	198.67	New/ Zone-C
1.2	Public Facilities	83.60	-	83.60	New/ Zone-L
1.3	Office	234.59	-	234.59	New/ Zone-C
1.4	Ticket Booking	48.35	-	48.35	New/ Zone-B
1.5	Gateway	30.02	-	30.02	New/ Zone-B
1.6	Food Store & Kitchen	27.30	-	27.30	New/ Zone-C
1.7	Animal House	17.78	-	17.78	New/ Zone-C
1.8	Stores	282.32	-	282.32	New/ Zone-C
1.9	Viewing Gallery	-	168.16	168.16	New/ Zone-I (Above existing)
2. Infrastructure Related					
2.1	Parking	209.58	-	209.58	New/ Zone-A (For Visitors)
2.2	Moon Bridge	-	24.74	24.74	New/ Zone-I
2.3	Lily Pool	155.04	-	155.04	New/ Zone-I
2.4	Vermiculture Pit	12.60	-	12.60	New/ Zone-D
2.5	Lawn	4825.19	-	4267.19	Old / Zone-J
2.6	Footpath	1776.81	-	1776.81	New/ Zone-J
2.7	Service Road	2031.41	-	2031.41	New/ Zone-D
3. Wild life Related					
3.1	Peacock / peafowl			252.66	New/ Zone-J (Existing used as bonnet macaque)
3.2	Chelonia				New/ Zone-H
3.2.1	Aquatic Terrapins			961.0	
3.2.2	Land Tortoise & Amphibian			747.47	
3.3	Wet Land Aviary			1826.34	New/ Zone-F
3.4	Mugger and Gharial			1278.50	New/ Zone-G (Existing used as leopard)
3.5	Butterfly Park			2052.79	New/ Zone-K
3.7	Reptiles of Ghats			2838.09	New/ Zone-E
3.8	Qurantine			403.09	New/ Zone E

REVISIONS

S.NO	REVISION	DATE	DONE BY	CHECKED BY
1.	Complete Layout Plan	27-05-13	Gouri Sankar	Pankaj Jain
2.	Part Layout	28-04-14	Nitesh	Pankaj Jain
2.	Revised Layout	09-07-14	Nitesh	Pankaj Jain

THIS SET CONTAINS FOLLOWING DRWGS:

DRAWING TITLE	DRAWING NO.
1. PLAN	SP/WD/P/01

NOTES:-

1. All dimensions are to be read not Measured
2. All Dimensions are in Millimeters and all levels are in meters
3. Contractor Shall Conform the Dimensions at Site before starting the Work
4. Any descripency found in the Drg. shall be brought to the notice of Architects.
5. All services drawings to be read in conjuction with relevent architectural drawings.
6. This drawing is based on survey plan provided by PCMC.
7. Grid size is 5000X5000mm

Project :
Redevelopment of Nisargakanya Bahinabai Coudhary Pranisangrahalay , Pimpri , Pune (M.H.)

Client :
Pimpri Chinchwad Municipal Corporation

Drg. Title : MASTER PLAN (LAYOUT)			Stage : Statutory Approval
Draft by Nitesh	Drg. no. : SP/WD/P/01	Scale : 1:400	Architect & Landscape Architects Jain & Associates S - 13/21 DLF Phase - III Qutab Enclave, Gurgaon
Ckd by Pankaj Jain	Dated : 09-07-14	N	

For Jain & Ass

Approved

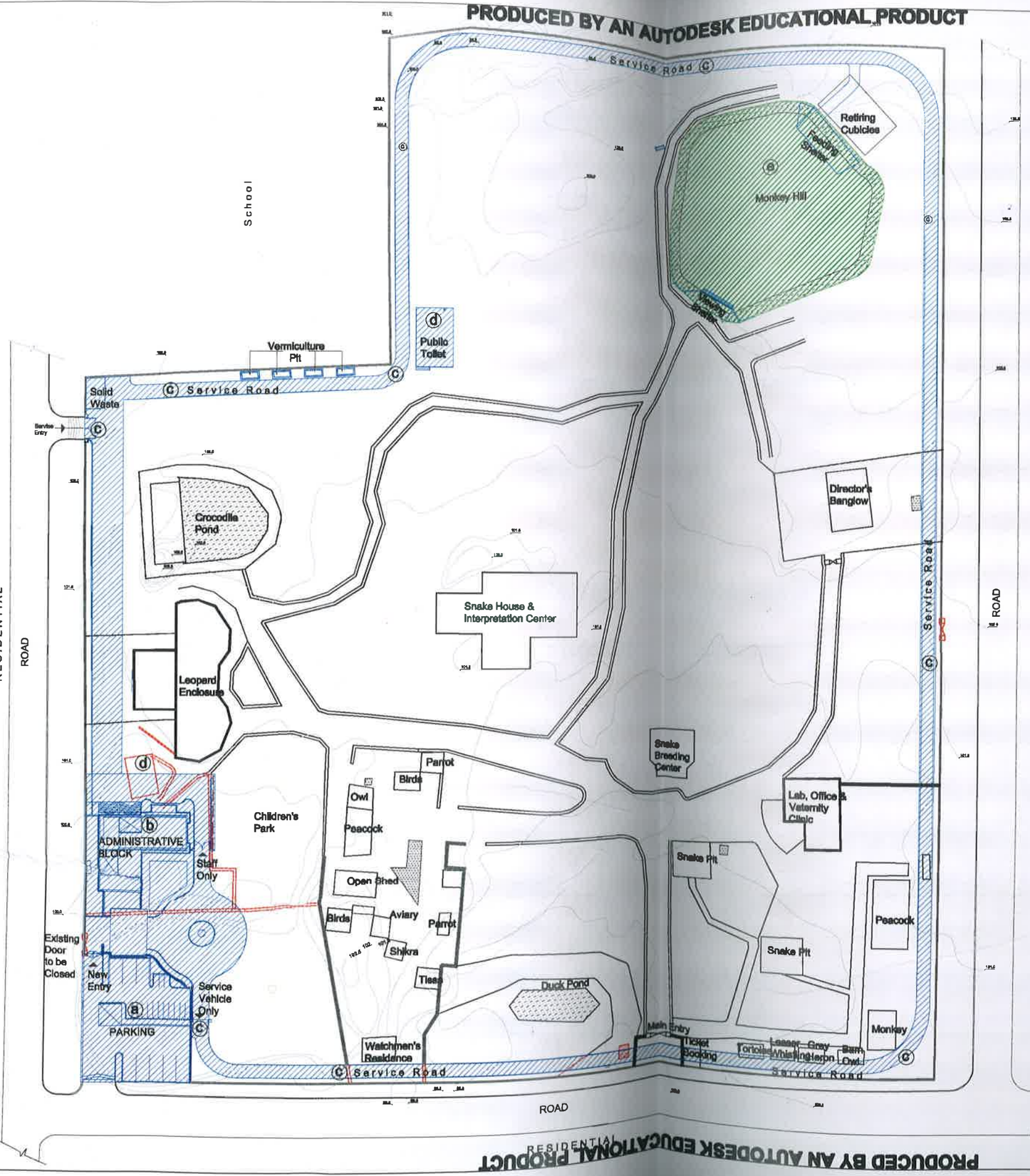
B.S. BONAL
Member Secretary
Central Zoo Authority
(Ministry of Environment & Forests)
Govt. of India, New Delhi

(Tanaji Shinde)
Additional Commissioner
Pimpri-Chinchwad Municipal Corporation

Annexure N - II

Master Layout plan

Proposed Development Phase - I



Summary of Activities of Phase I

Symbol	Constuction Related
ⓐ	Construction of public parking space and new entry to the zoo.
ⓑ	Construction of Administrative block and Director's residence.
ⓒ	Construction of Peripheral road and Service entry.
ⓓ	Demolition of existing Public Toilet block and construction of new Toilet block.
ⓔ	Remodelling of Monkey hill to accomodate crocodiles.

PHASE I

Legend

Existing Water Body		Existing Structures	
Proposed Water Body		Structures to be Modified	
Existing Contours		Structures to be Demolished	
		Proposed New Structures	

Project :

Redevelopment of Nisargakanya Bahinabai Coudhary Pranisangrahalay , Pimpri , Pune (M.H.)

Client :

Pimpri Chinchwad Municipal Corporation

Drg. Title : SITE PLAN (TO LOCATE DIFFERENT ZONE)		Stage : Tender Drawings
Dealt by Gouri Sankar	Drg. no. : SP/WD/P/01	Scale : 1:400
Ckd by Pankaj Jain	Dated : 27-06-13	N

Architect & Landscape Architects
Jain & Associates
S - 13/21 DLF Phase - III
Qutab Enclave, Gurgaon
Tele-Fax. 0124 - 4055318, 2362829
Advisor :
Mr.Bipul Chakrabarty.

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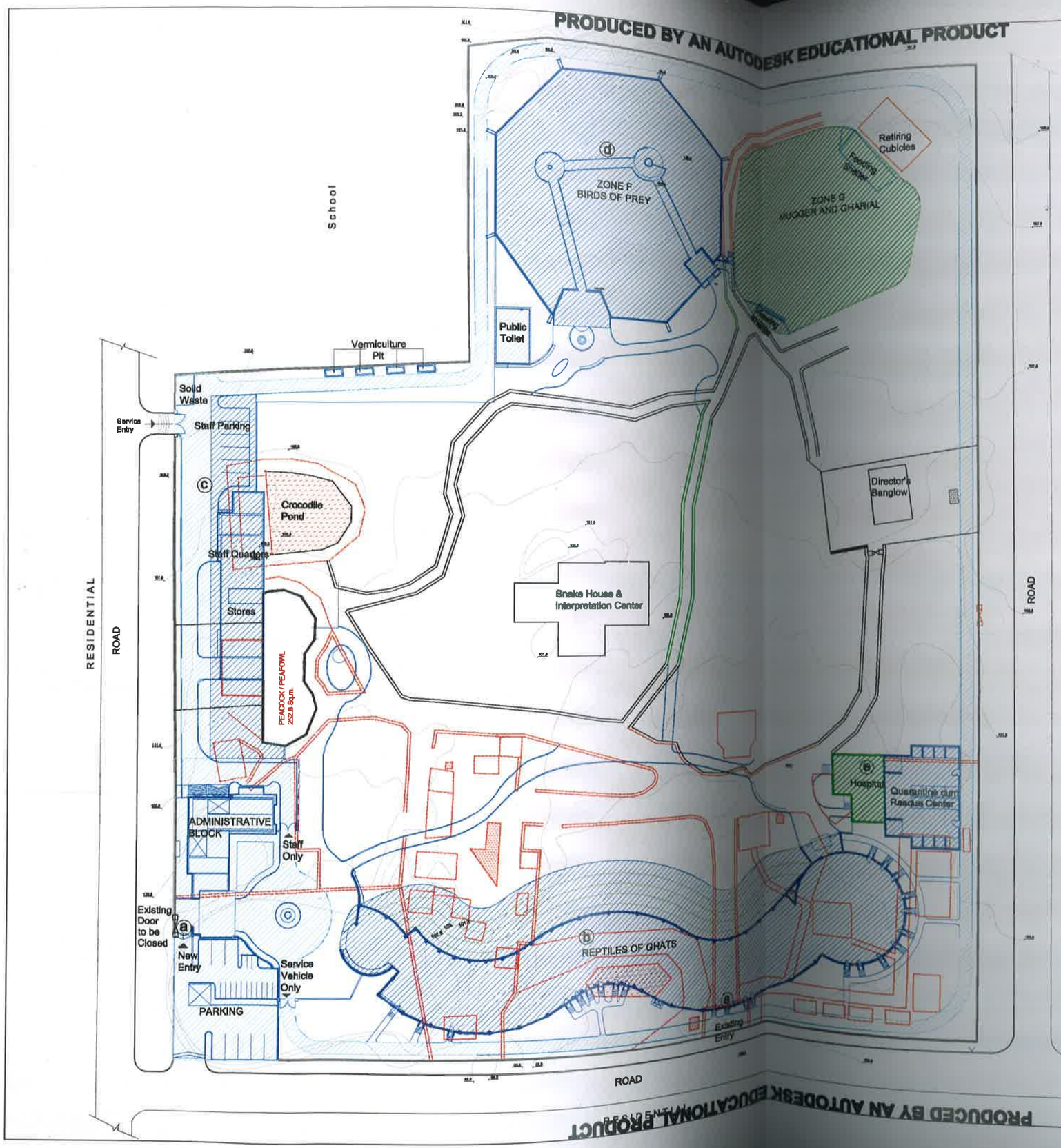
Annexure N III

Master Layout plan

Proposed Development Phase - II



Summary of Activities of Phase II

Symbol	Constuction Related
ⓐ	Opening of New Entry and Closing of existing Main Entry.
ⓑ	Construction of Reptiles of Ghats, dismantling the existing Bird House and Snake Pits.
ⓒ	Construction of Staff Quarters, Stores,Staff Parking, Solid Waste Disposal System, Vermiculture Pits, dismantling the existing Crocodile Pond.
ⓓ	Construction of Birds of Prey.
ⓔ	Modification and expansion of existing Vaternity Clinic into a Hospital and Quarantine & Rescue Center.

PHASE II

Legend

Existing Water Body		Existing Structures	
Proposed Water Body		Structures to be Modified	
Existing Contours		Structures to be Demolished	
Phase I		Proposed New Structures	

Project :

Redevelopment of Nisargakanya Bahinabai Coudhary Pranisangrahalay , Pimpri , Pune (M.H.)

Client :

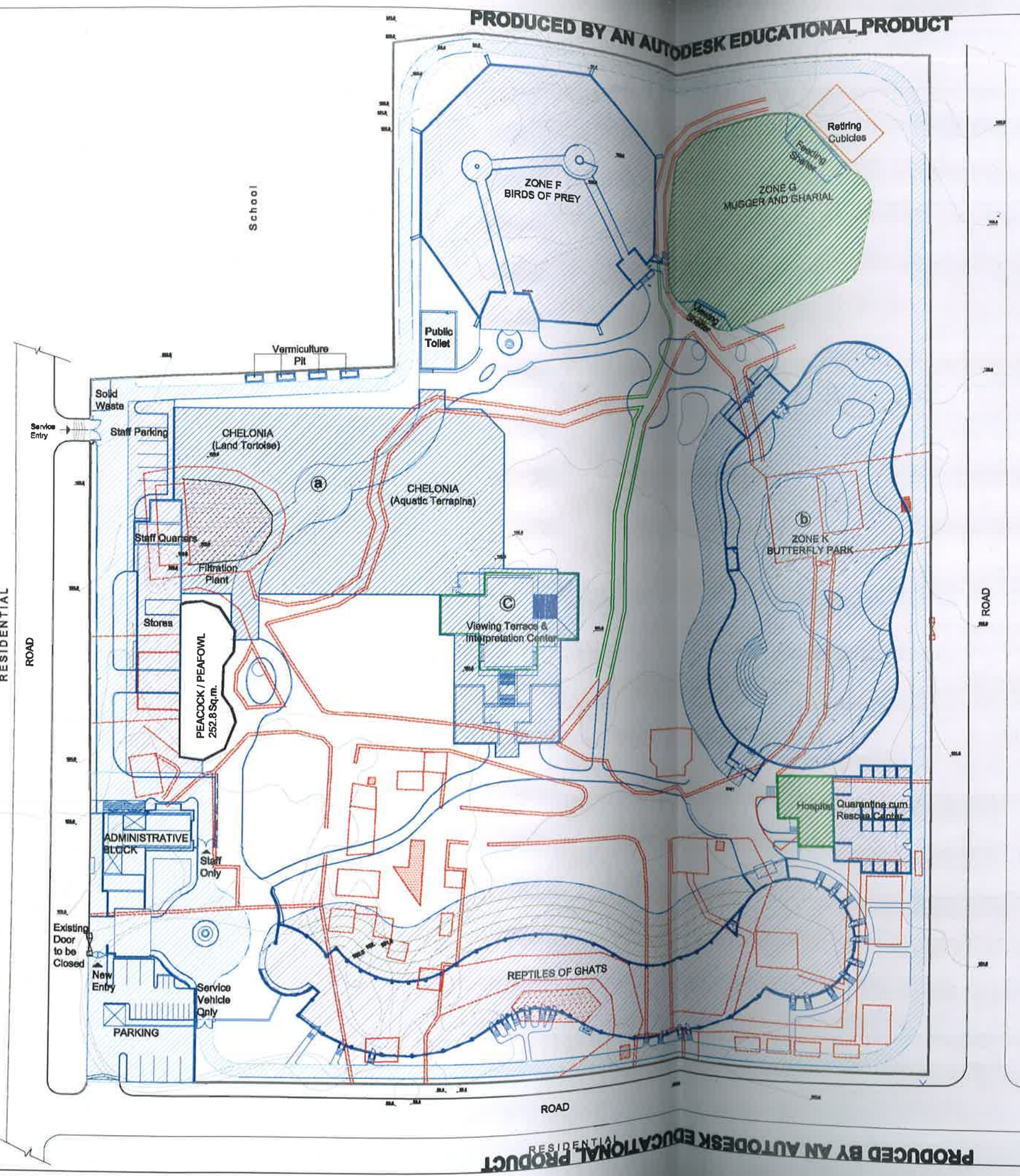
Pimpri Chinchwad Municipal Corporation

Drg. Title : SITE PLAN (TO LOCATE DIFFERENT ZONE)			Stage : Tender Drawings
Dealt by Gouri Sankar	Drg. no. : SP/WD/P/01	Scale : 1:400	Architect & Landscape Architects Jain & Associates S - 13/21 DLF Phase - III Qutab Enclave, Gurgaon Tele-Fax: 0124 - 4065318, 2362829
Ckd by Pankaj Jain	Dated : 27-06-13	N	Advisor : Mr.Bipul Chakrabarty.

Annexure N IV

Master Layout plan

Proposed Development Phase - III



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Summary of Activities of Phase III

Symbol	Constuction Related
ⓐ	Construction of Chelonia Enclosure.
ⓑ	Construction of Butterfly Park, dismantling the existing Director's Banglow.
ⓒ	Remodelling of existing Interpretation Center and construction of New Viewing Terrace and Lily pool.

PHASE III

Legend

Existing Water Body		Existing Structures	
Proposed Water Body		Structures to be Modified	
Existing Contours		Structures to be Demolished	
Phase I		Proposed New Structures	
Phase II			

Project :

Redevelopment of Nisargakanya Bahinabai Coudhary Pranisangrahalay , Pimpri , Pune (M.H.)

Client :

Pimpri Chinchwad Municipal Corporation

Drg. Title : SITE PLAN (TO LOCATE DIFFERENT ZONE)			Stage : Tender Drawings
Dealt by Gouri Sankar	Drg. no. : SP/WD/P/01	Scale : 1:400	Architect & Landscape Architects **Jain & Associates** S - 13/21 DLF Phase - III Qutab Enclave, Gurgaon Tele-Fax. 0124 - 4066316, 2352829
Ckd by Pankaj Jain	Dated : 27-06-13	N	Advisor : Mr.Bipul Chakrabarty.

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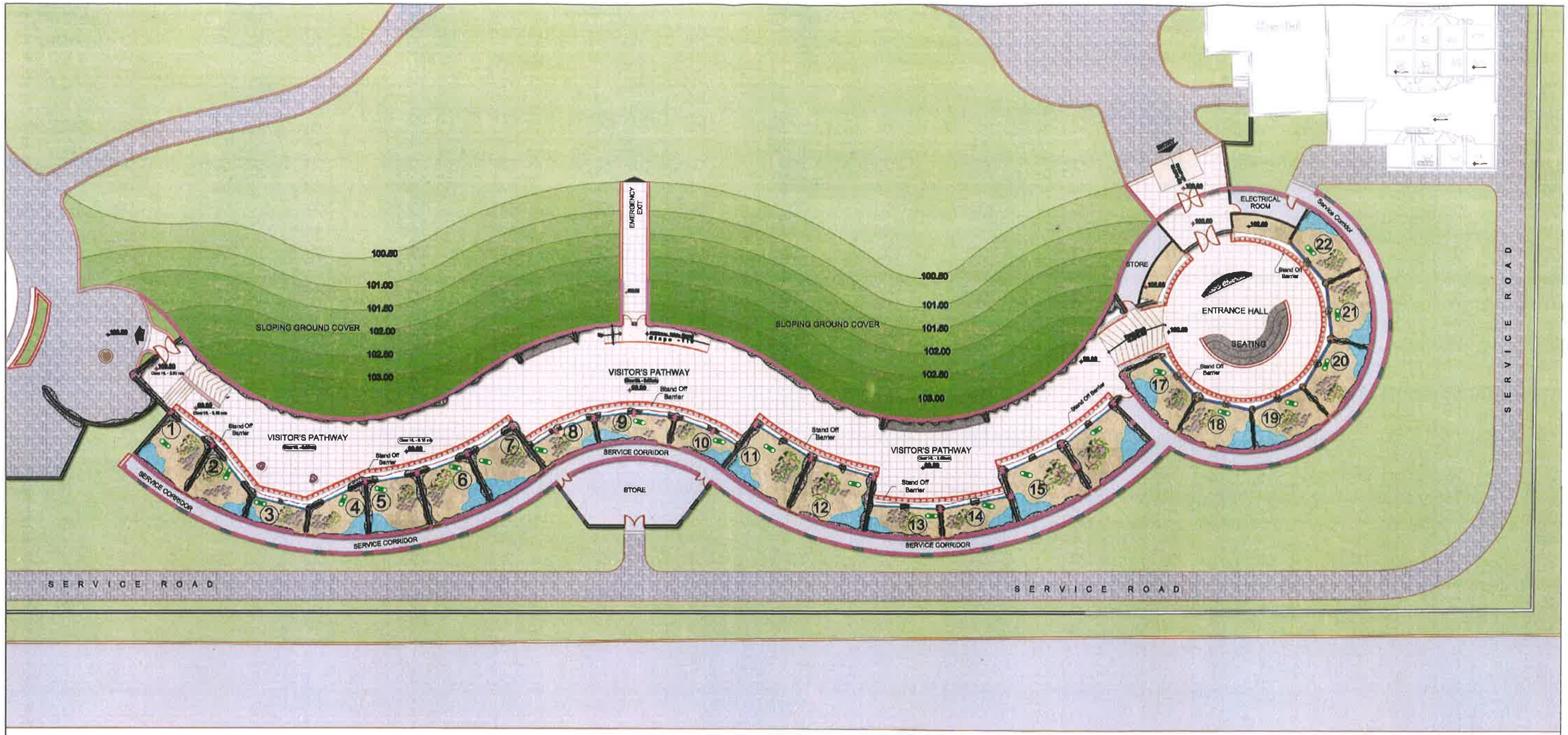
Annexure N - V

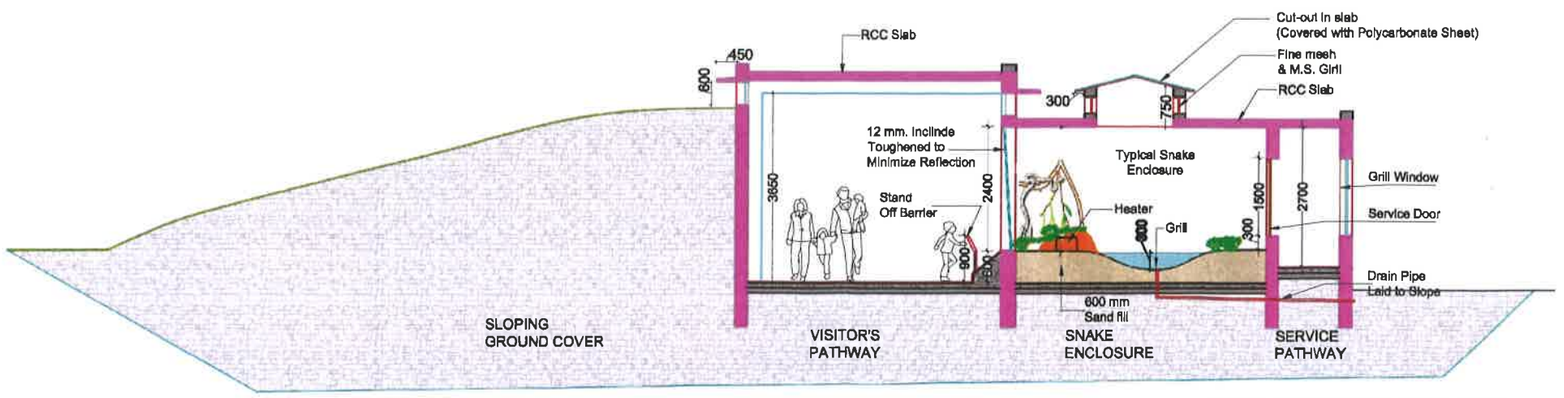
Enclosure Designs

Floor Plans and Section Designs

a. Reptiles of Ghats
b. Muggar and Ghariyal
c. Chelonia
d. Wetland Aviary



LAYOUT PLAN OF REPTILE OF GHATS



TYPICAL SECTION OF SNAKE ENCLOSURE

Boundary Wall

SERVICE ROAD

Filteration Plant

Existing Retaing Wall with New 900mm. High Brick Wall From Beach Level

OVER FLOW DRAIN

EXISTING BUILDING

Buffer Plantation area

GHARIAL ENCLOSURE
Area:643.0 Sq.m.

BASKING AREA
(Sandy Beach)
Area: 450.50 Sq.m.

WATER EDGE

Proposed Retaing Wall with 900mm. High From Beach Level

Existing Moat Line

Viewing Through Glass

WATERBODY
Area: 212.50 Sq.m.

MUGGER ENCLOSURE
Area:548.60 Sq.m.

BASKING AREA
(Sandy Beach)
Area: 369.20 Sq.m.

Existing Retaing Wall with New 900mm. High Brick Wall From Beach Level

Ramp Slope - 1:8

3.0m. wide VISITOR'S PATHWAY

WATERBODY
Area: 170.40 Sq.m.

WATER EDGE

ENTRY

PLANTER

Existing Boundary Of Enclosure

Sitting

Mound

Sitting

Ramp Slope - 1:8

EXIT

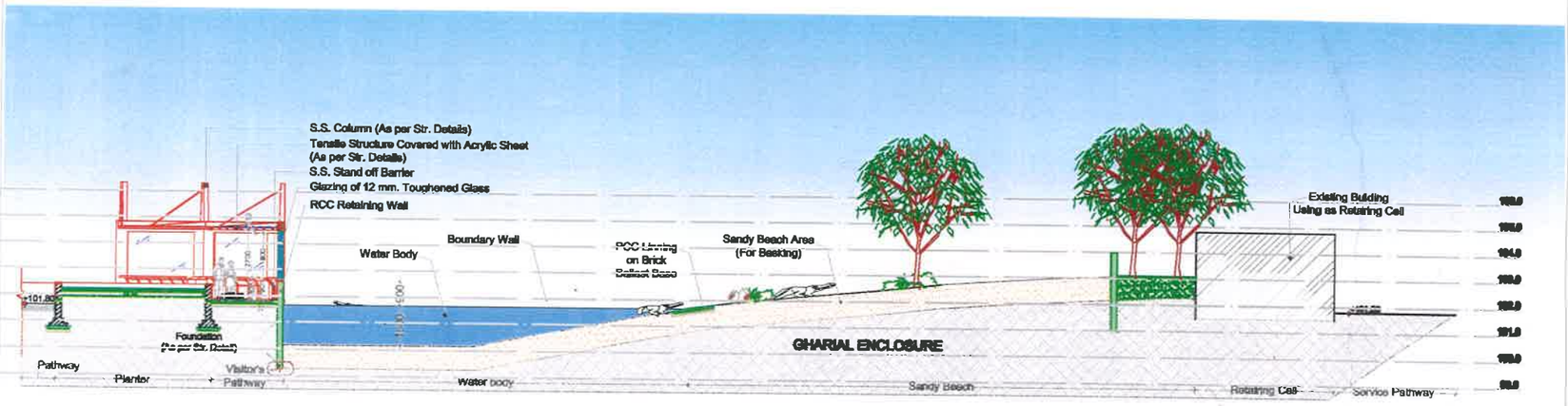
OVER FLOW DRAIN

Existing Moat Line

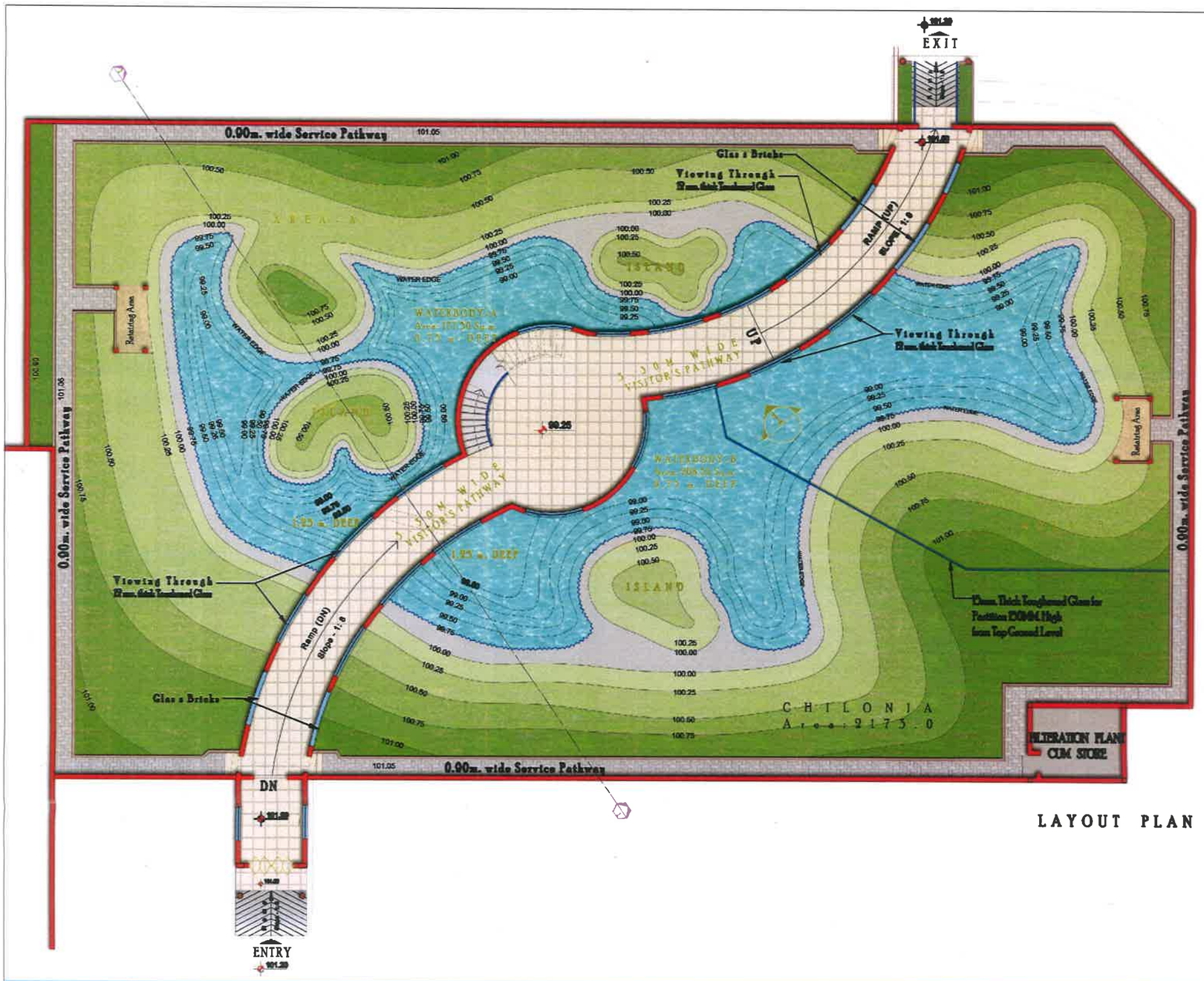
Viewing Through Glass

PATHWAY

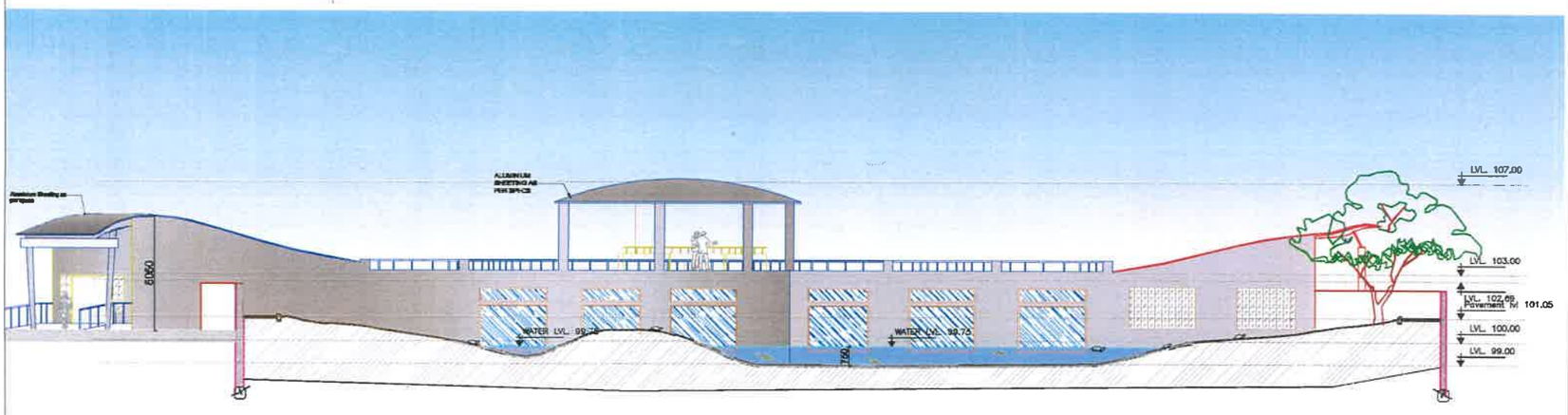
LAYOUT PLAN OF MUGGER & GHARIAL ENCLOSURE



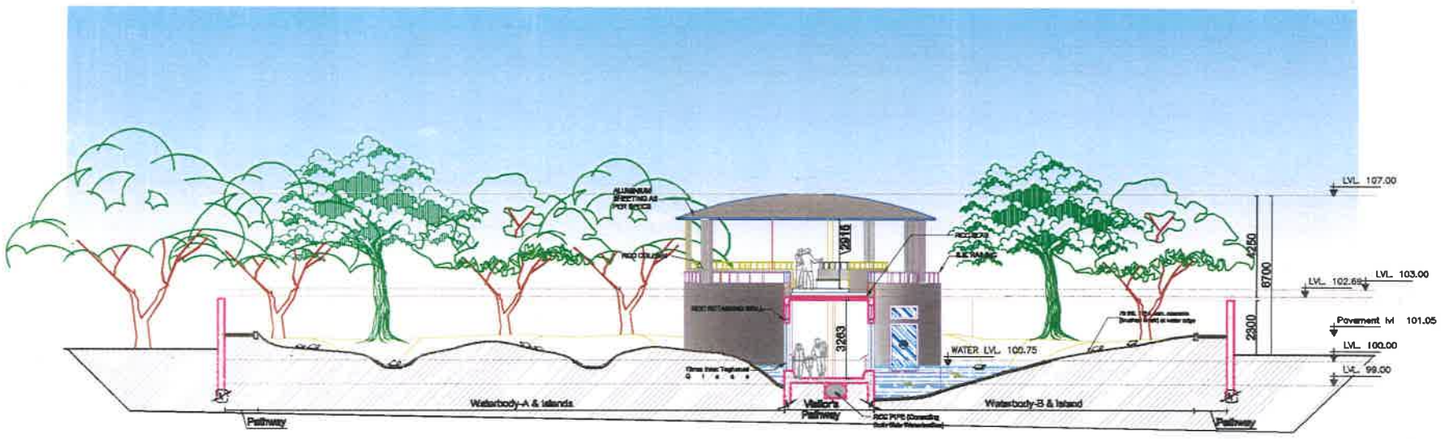
SECTION-AA' OF MUGGER & GHARIAL ENCLOSURE



LAYOUT PLAN

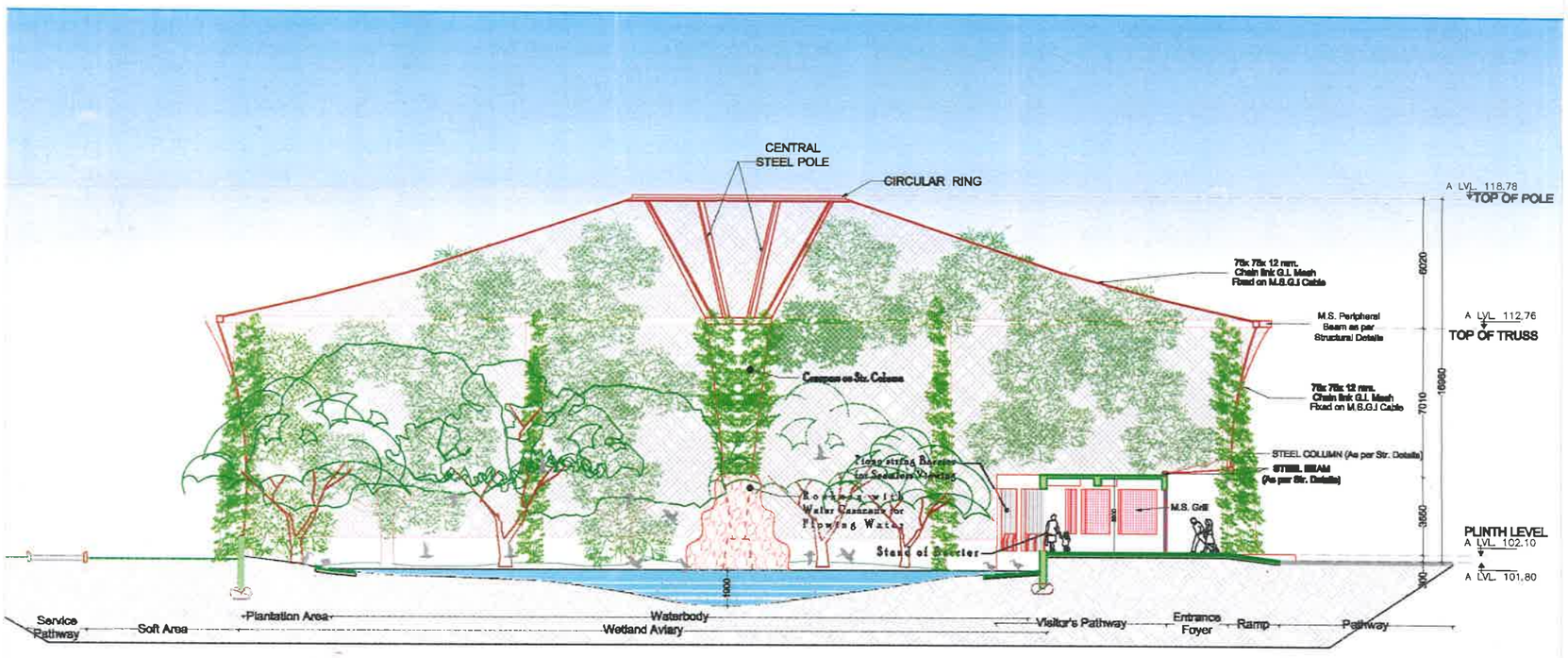


ELEVATION-1



SECTION-BB'

LAYOUT PLAN OF WETLAND AVIARY



SECTION AA' OF WETLAND AVIARY