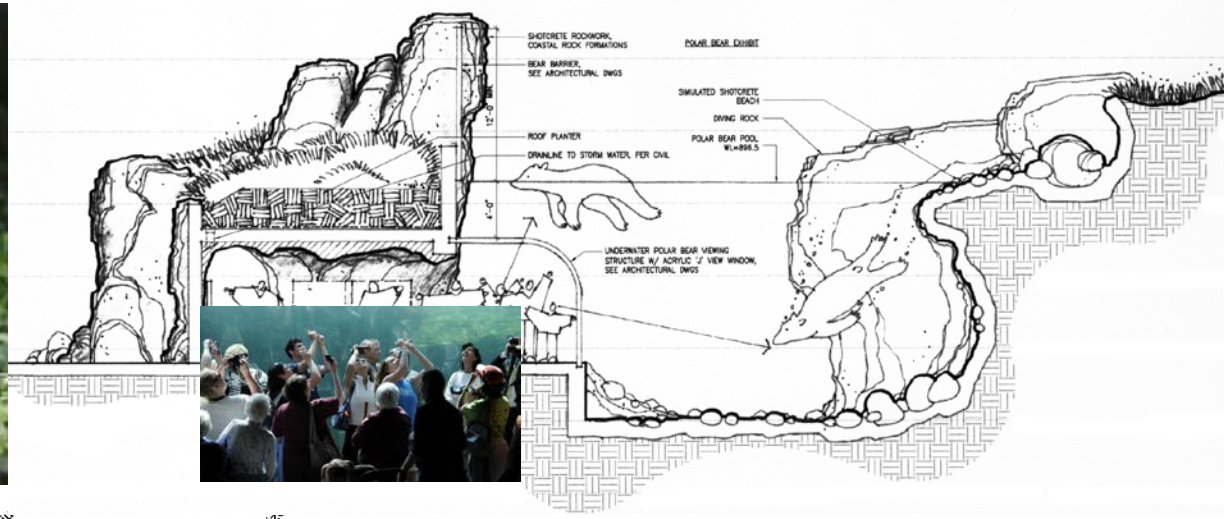
Designing Zoos for Survival of Species

CBSG Design process timeline



Current Institution Mission statement
Vision statement for the proposed timeline
Vision goals
Past and planned conservation projects
Trends - future role of zoos and aquari
What is the new meaning of the word 'z
Programming
Space allocation
Value Engineering

Writing a Statement of Work/Scope for a Masterplan process

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Trends and New Development in Zoos and Aquariums

Engagement and Public Participation

Masterplan Development
Graphics - concept level plans of future capital improvements, selection of species and composition of exhibit space, circulation and visitor studies; phasing and implementation, budget and revenue estimatite.

Masterplan Implementation

Ideas, comments, feedback

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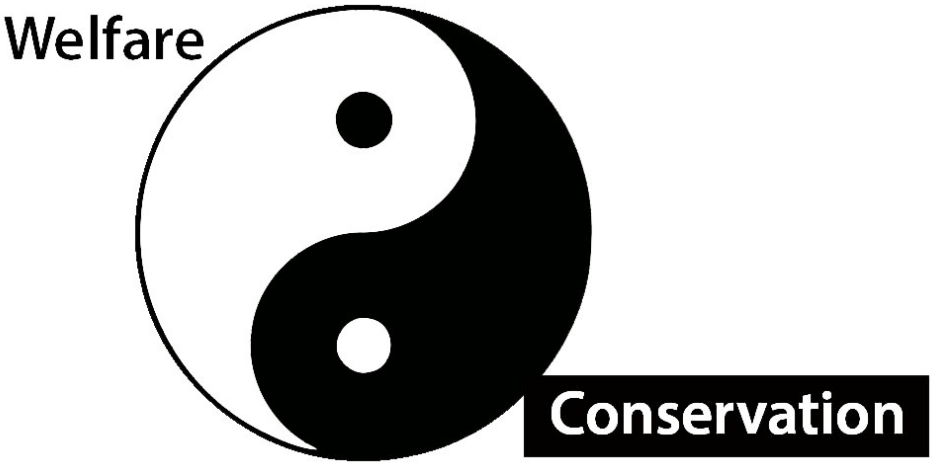
Zoo DeSign Inc

Conservation is our mission, animal welfare is our daily business

-Susan Hunt, Perth Zoo



Save the world and have fun

-greeting from your millennials

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The CBSG Working Group
Design Timeline, objectives

- To discuss the role of a zoo or aquarium's built environment in the survival of species

- To develop a design timeline – an online graphic interactive tool representing the phases of design process with points along the way - where informed decisions can make a difference
    - Define questions to ask
    - Link resources to find reputable answers (science, strategic documents of zoo community, case studies)

- The design timeline will be available as a CBSG online resource kit

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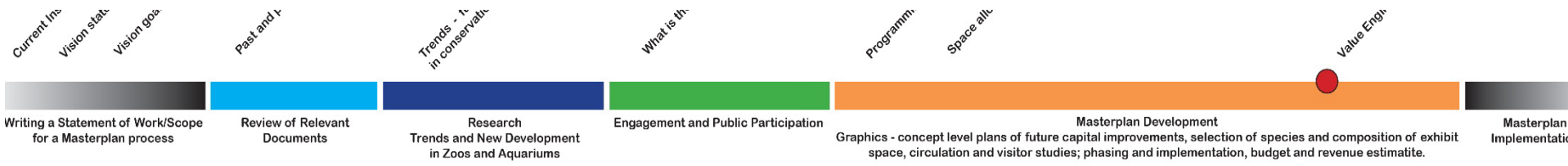
Zoo DeSign Inc

Zoo designers are partners in creating the future of zoos or aquarium

Client's request: *I would like to make sure that this exhibit does everything it can to contribute to successful conservation, and help the survival of species.*

Successful conservation (definition): all species thriving in healthy ecosystems



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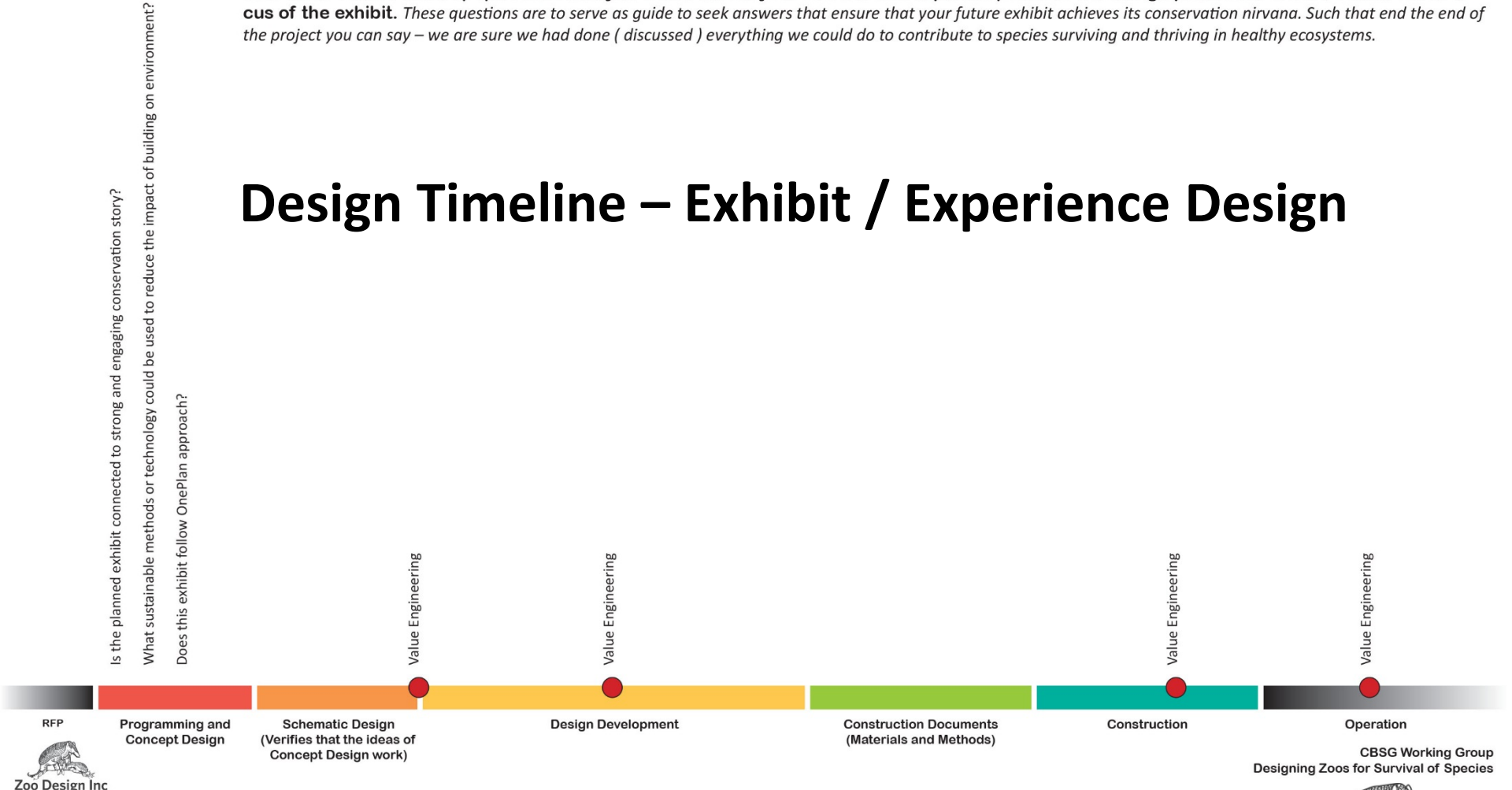
Zoo DeSign Inc

Client's request: I would like to make sure that this exhibit does everything it can to contribute to successful conservation, and help survival of species.'

Your task: Please mark up questions that you would advise your client to ask at pivotal points of the design process to ensure conservation focus of the exhibit. *These questions are to serve as guide to seek answers that ensure that your future exhibit achieves its conservation nirvana. Such that end the end of the project you can say – we are sure we had done (discussed) everything we could do to contribute to species surviving and thriving in healthy ecosystems.*

Design Timeline – Exhibit / Experience Design



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CBSG Working Group
Designing Zoos for Survival of Species

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Examples of questions – Exhibit / Experience Design

Does the exhibit follow the One Plan approach?

Is the planned exhibit connected to a strong and engaging conservation story?

What sustainable methods or technology could be used to reduce the impact of buildings on the environment?

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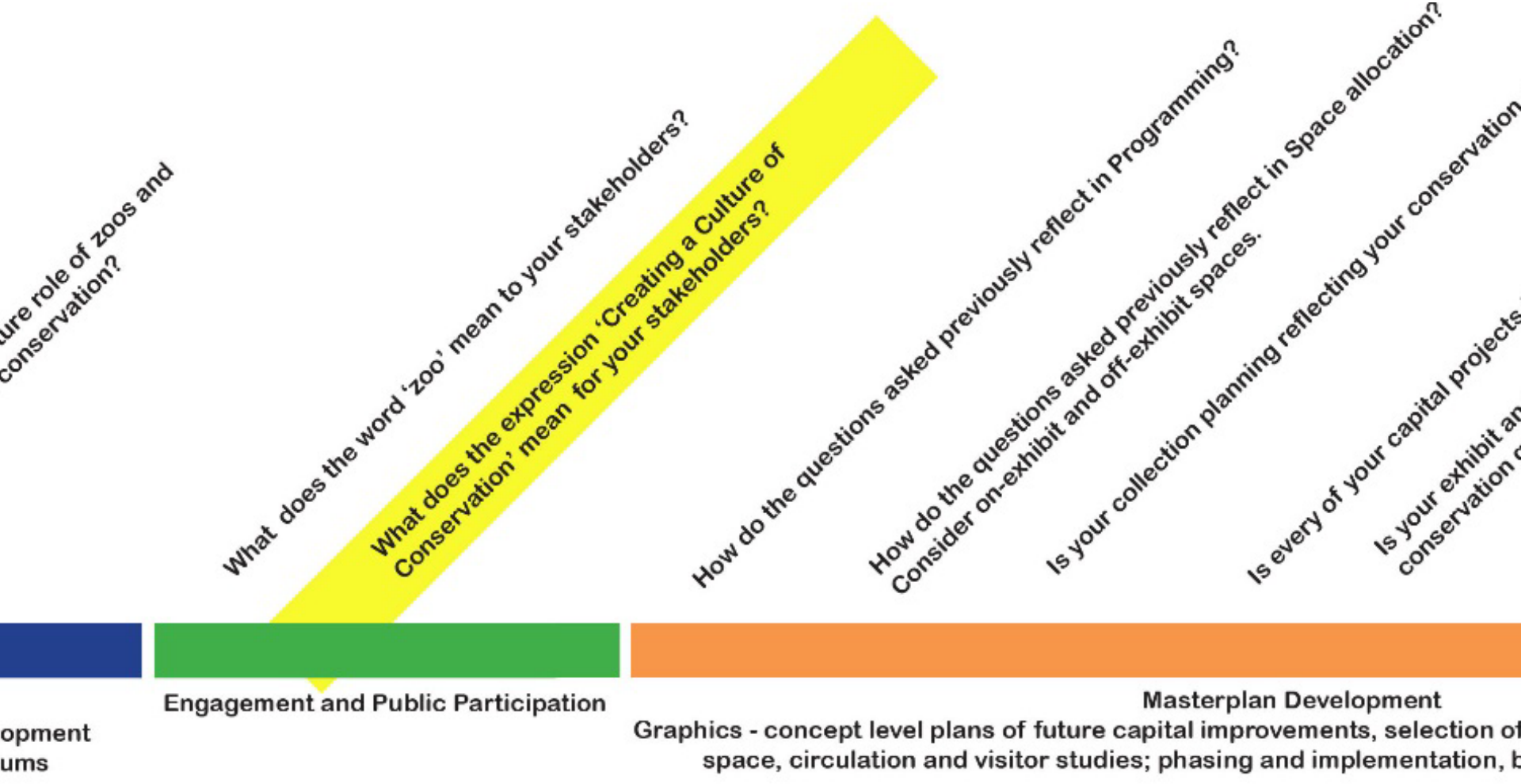
Design Process Timeline – How will it work



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Zoo DeSign Inc

Creating a Culture of Conservation

Vision: By helping to create a culture of conservation in our communities, zoos are a vital part of the process of generating the attitude that will be needed to save species and maintain healthy ecosystems.

Learn More

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Masterplan Implementati

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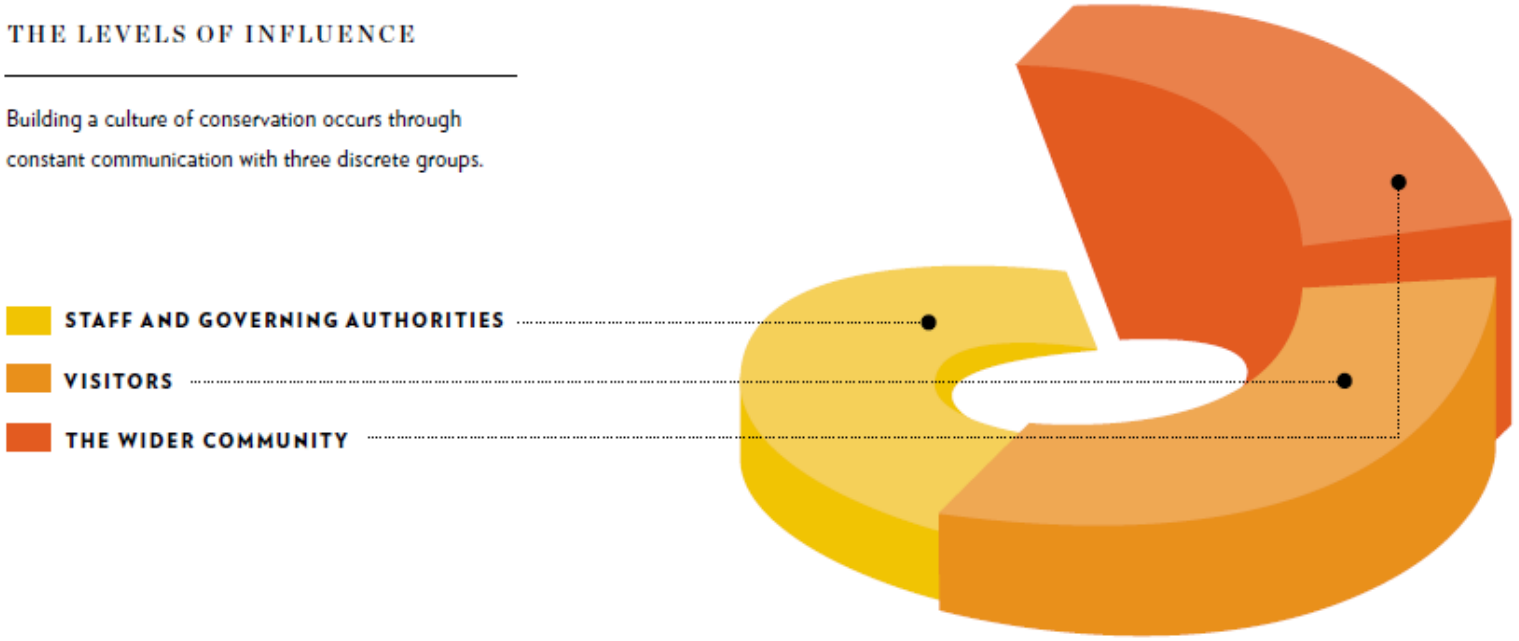
Culture of Conservation

… conservation of nature is really about **protecting and restoring natural resources** and people are a tool that can be used to deliver effective conservation.



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Zoo DeSign Inc

Culture of Conservation

…Conservation is Conversation

Talk conservation throughout the institution to facilitate the uptake of pro-environmental behaviors that reduce human impacts on wild populations.

Broadcast the conservation message and promote sustainability in the supply chain, including a commitment to creating green sustainable environments.

….

This conversation needs to start when engaging zoo stakeholders and the public in discussing the future of your zoo through the process of the masterplan

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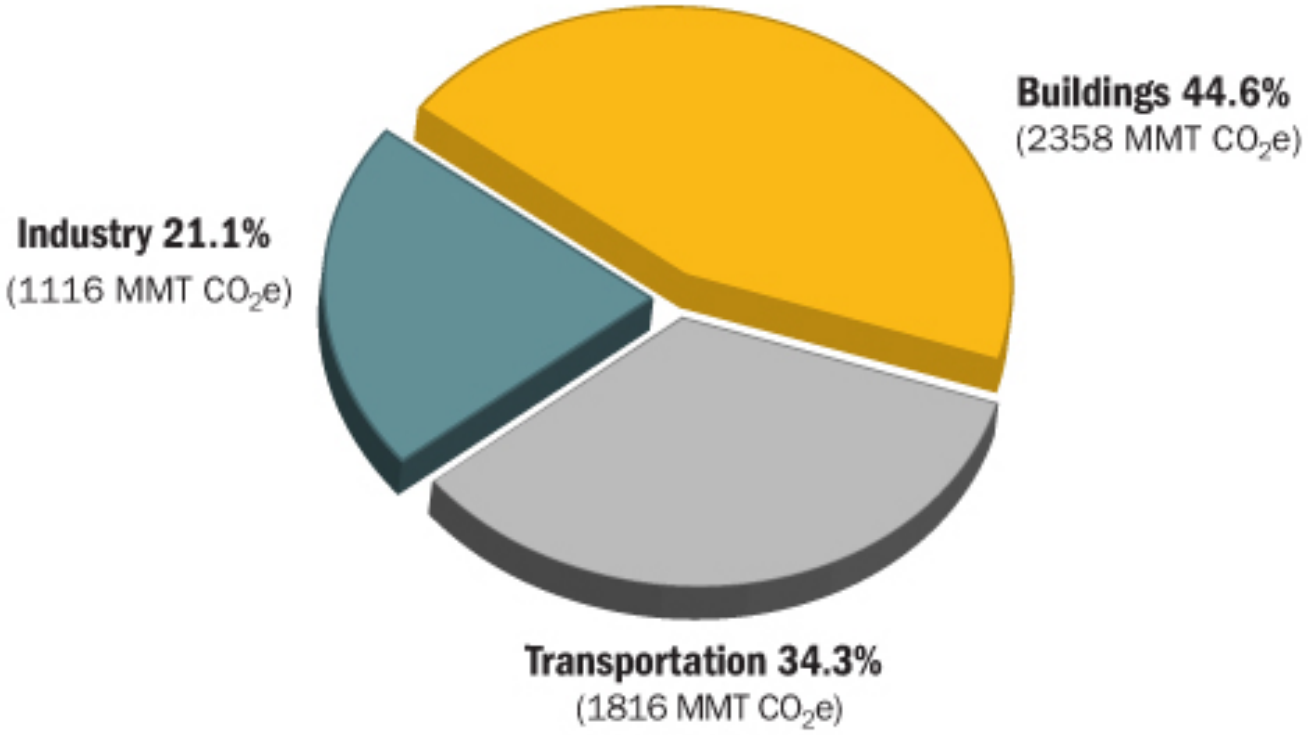
Culture of Conservation

…the building industry (construction and operation) consumes more energy than any other sector and is the largest contributors to climate change.



U.S. CO_2 Emissions by Sector

Writing a Statement of Work/Scope for a Masterplan process

position of exhibit
e estimatite.

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Culture of Conservation

…the building industry (construction and operation) consumes more energy than any other sector and is the largest contributors to climate change.

- using on-site renewable resources
- sustainable building technologies
- build for net zero energy consumption (goal of initiative **www.Architecture 2030.org** – Net zero building a standard by 2030)
- Innovative methods, such as building the habitat as a ‘Living Machine’, can reduce energy-intensive life-support systems
- maintaining species suited for the local climate can reduce the carbon footprint.

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Zoo DeSign Inc

Culture of Conservation

Actions must reflect values

CINCINNATI ZOO & BOTANICAL GARDEN, OH, USA
Cincinnati Zoo has installed a green roof on their Giraffe Barn as part of their institutional green initiative.

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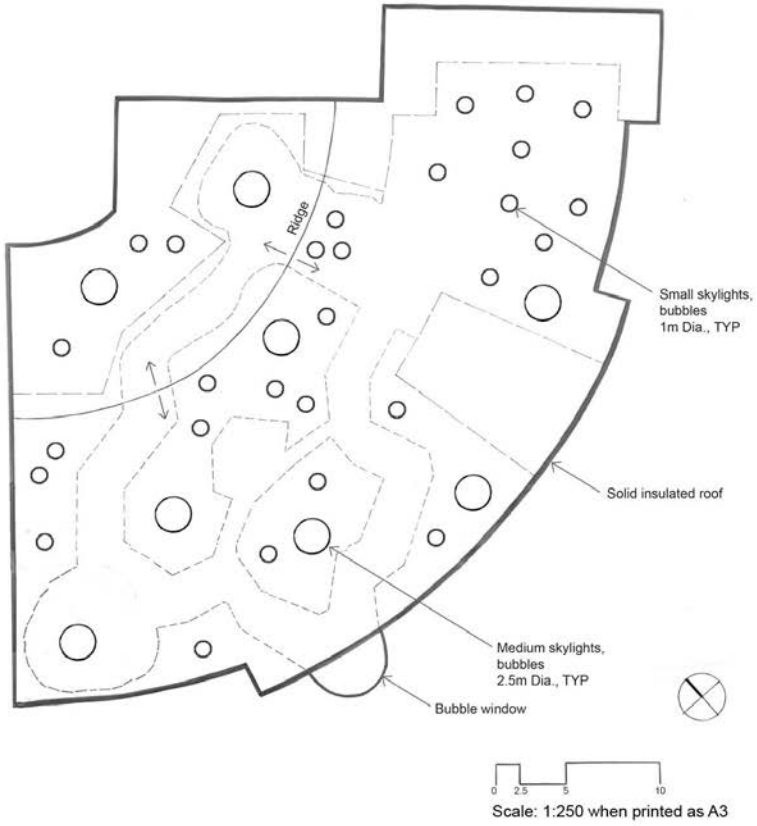
Culture of Conservation

Actions must reflect values

ZOO HELSINKI, FINLAND
Korkeasaari is rethinking how to build tropical houses. A typical greenhouse concept, glass walls and roof, is not energy efficient in the Nordic climate and does not provide sufficient light levels.



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ROOF PLAN – Rainforest light

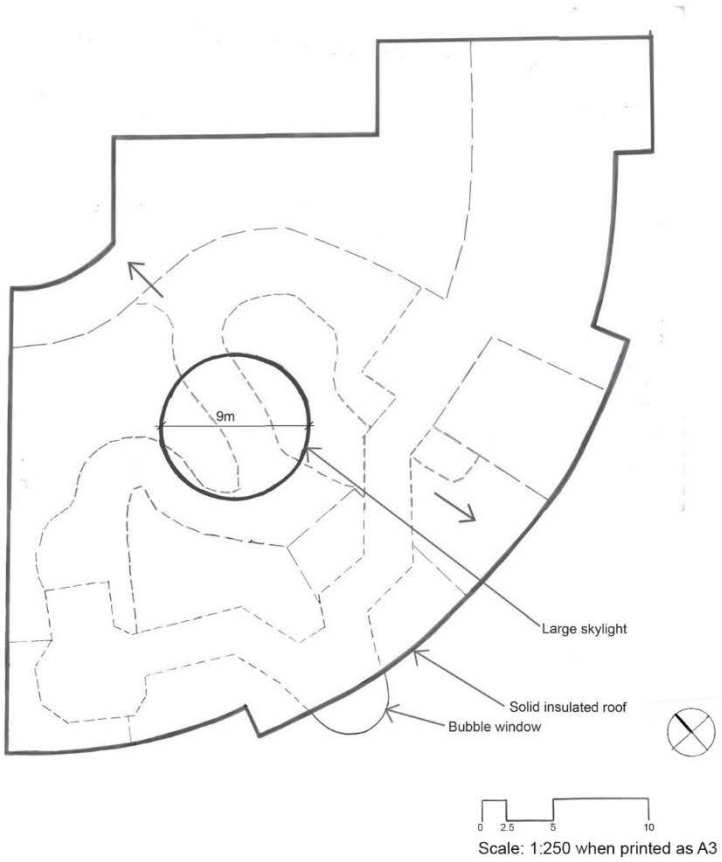
Zoo DeSign Inc

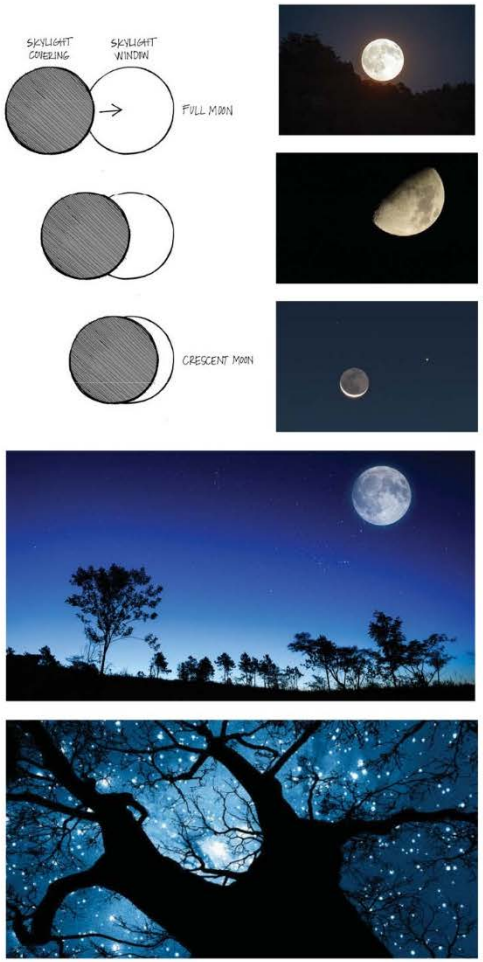
Culture of Conservation

Actions must reflect values

ZOO HELSINKI, FINLAND

We are working with environmental engineers to create a solution that creates a unique rainforest experience with controlled light levels and high energy efficiency.





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ROOF PLAN –Moon sky

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Culture of Conservation

….. Visitors must understand and believe that visiting a zoological facility helps to save animals in the wild. They should feel they should learn enough to feel inspired and motivated to become advocates for conservation.

WIPE FOR WILDLIFE

ZOOS VICTORIA, AUSTRALIA
Wipe for Wildlife - Trees are for forests not for bums.
A campaign to encourage people to use recycled toilet paper

Writing a Statement of
for a Masterplan

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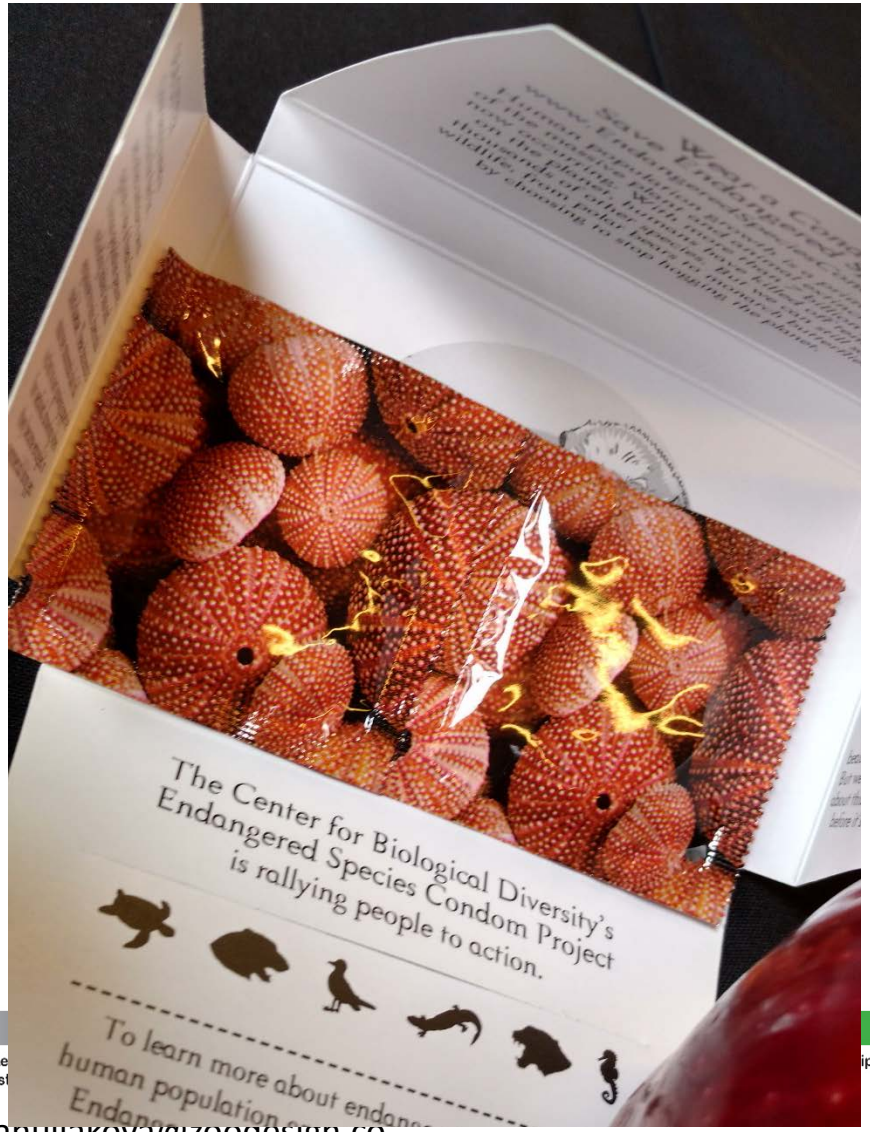
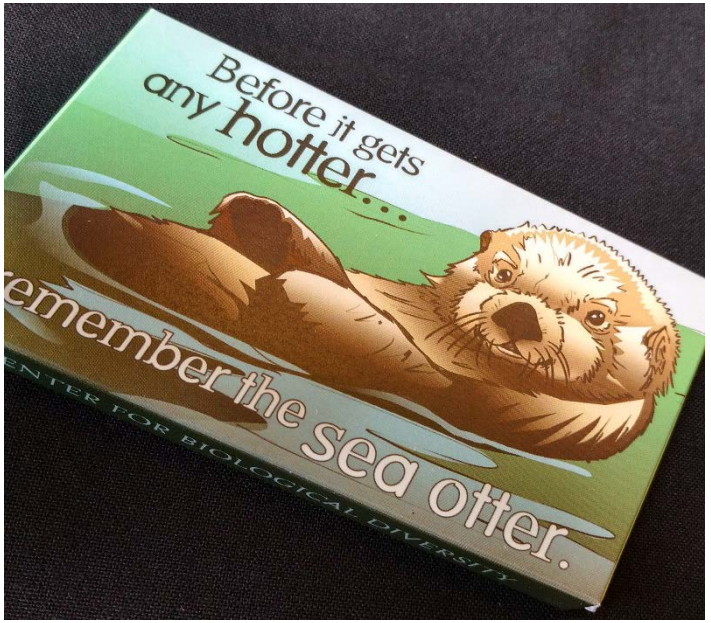
Culture of Conservation





ALBUQUERQUE ZOO, NEW MEXICO, USA **EndangeredSpeciesCondoms.com**
A campaign to encourage people to use condoms and procreate with caution to leave room for wildlife.

Masterplan Development
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space, circulation and visitor studies; phasing and implementation, budget

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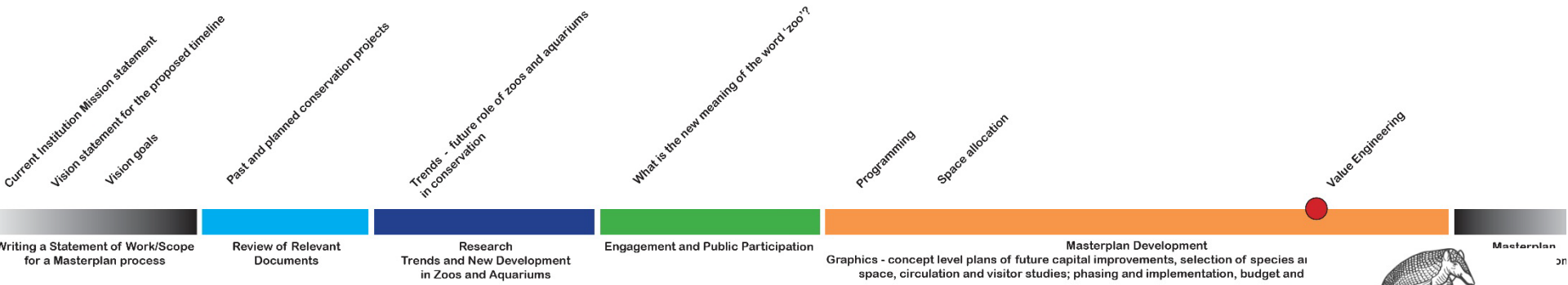
Design Timeline

Please mark up questions on the exhibit design timeline (or comment on the masterplan timeline) that are important to ask to achieve the future exhibit max conservation potential.

Any other comments are appreciated.



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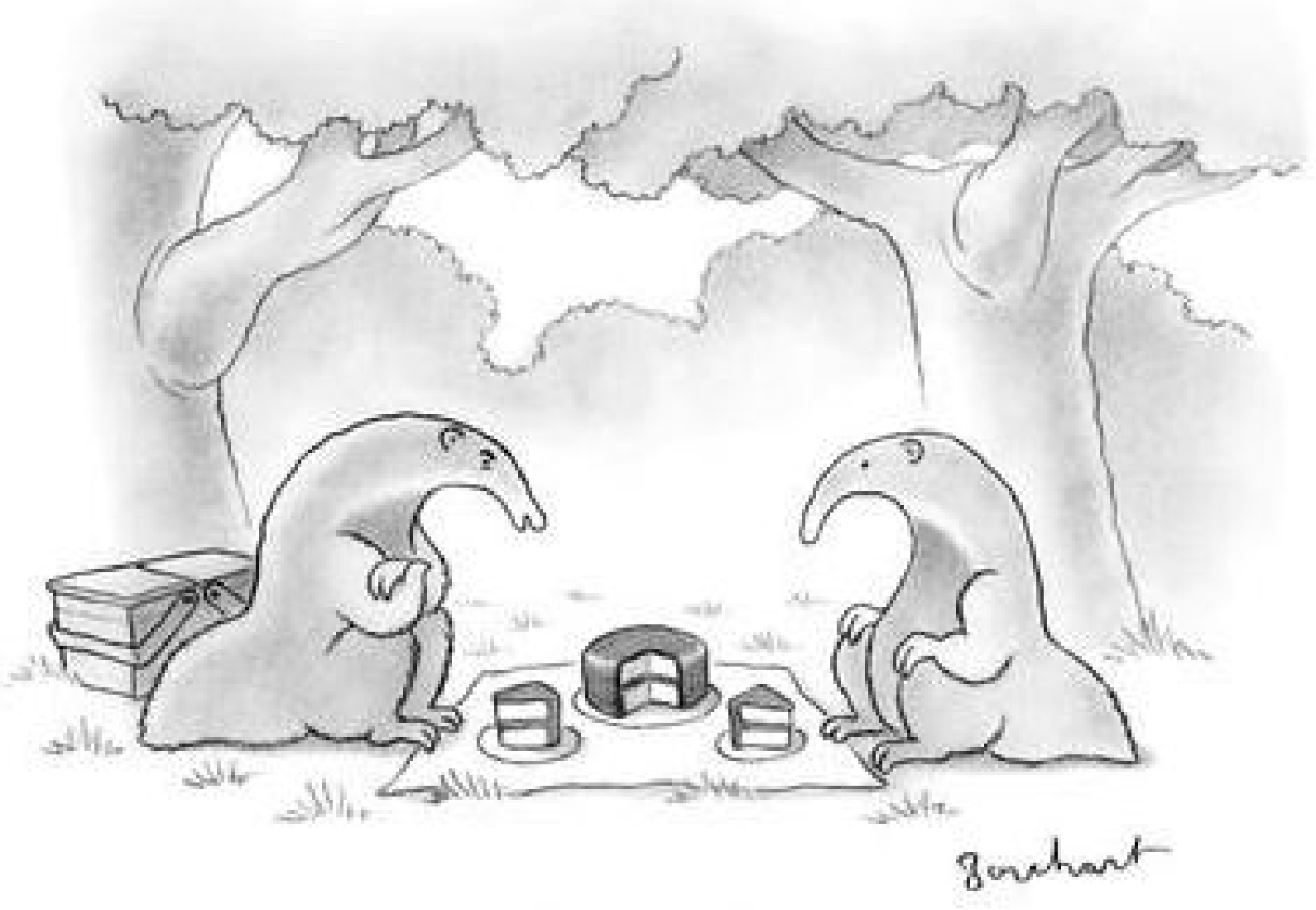

"Now we wait."

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Zoo DeSign Inc

Zoo designers as leaders in conservation

Conservation is increasingly becoming the priority of good zoos. It should become the priority of good zoo designers as well.

By being involved in conservation projects and initiatives, and knowledgeable in the art of ensuring conservation success of a zoo, we will also ensure our position as respected partners of zoos for the future.

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Zoo DeSign Inc

Zoo designers as leaders in conservation

We are not just decorators, we are the storytellers, we are the wizards of creating experience.

Experience changes lives, and behavioral psychologists agree that engagement and experience is the only way to change people's attitudes and secure a future for wildlife.

As humans, we protect what we love

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Zoo DeSign Inc

Writing a Statement for a Master

Masterplan Implementation

Go do good things and then talk about it

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Thank you

Zoo DeSign Inc

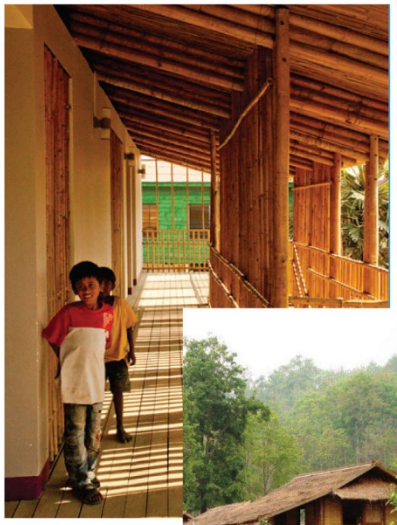
Zoo designers as leaders in conservation

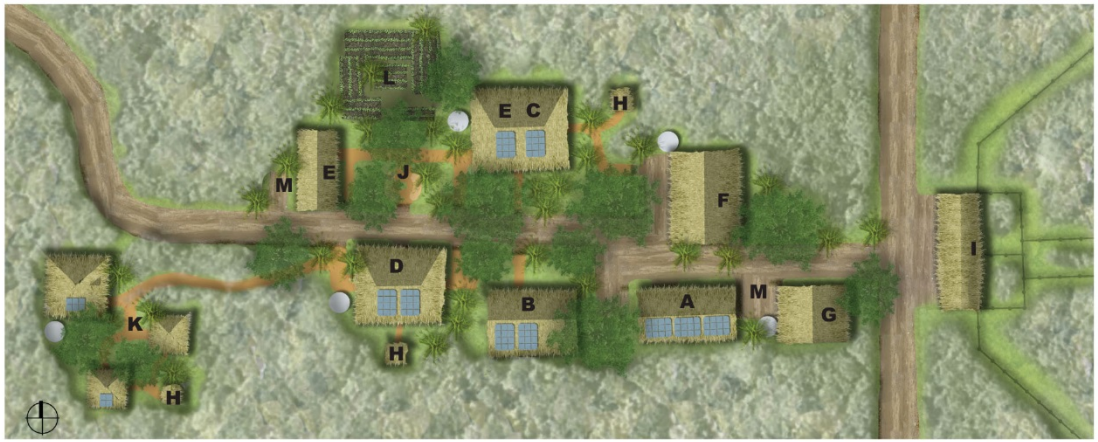
A - CENTRAL

LEGEND

A - ADMINISTRATIVE BUILDING
B - DIRECTOR HOUSE
C - VET HOUSE
D - STAFF HOUSE
E - GUEST HOUSE
F - VETERINARY FACILITIES
G - FOOD PREP
H - COMPOSTING TOILET
I - SAOLA HOLDING
J - COMMUNITY CENTRE
K - ECOLOGING
L - GARDEN
M - PARKING

SOLAR PANEL
CISTERN
ROAD
PATH





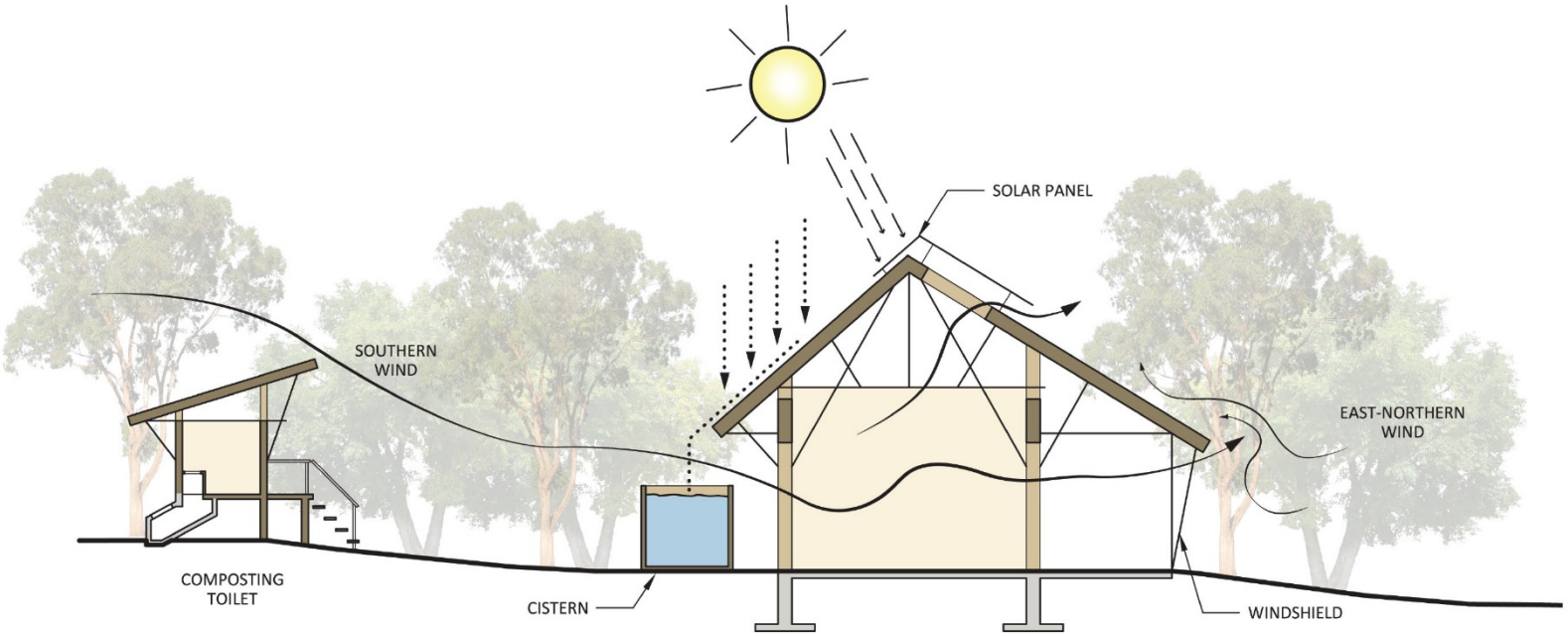
B - LINEAR

DRAFT 3
SEPTEMBER 2016

ALTERNATIVE SITE PLANS

The centre will have a large capacity-building role for Laos and Vietnamese national staff working and living at the centre

Zoo designers as leaders in conservation



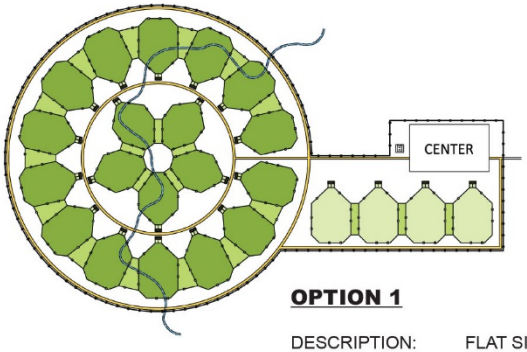



DRAFT 3
SEPTEMBER 2016

SUSTAINABLE BUILDING CONCEPTS

The centre should be built to strict environmental guidelines and with architecture sympathetic to the environment and local customs

Zoo designers as leaders in conservation



LEGEND

- HABITAT
- MIXING AREA
- QUARANTINE AREA
- HOLDING BUILDING
- ROAD
- STREAM
- HELIPAD

OPTION 1

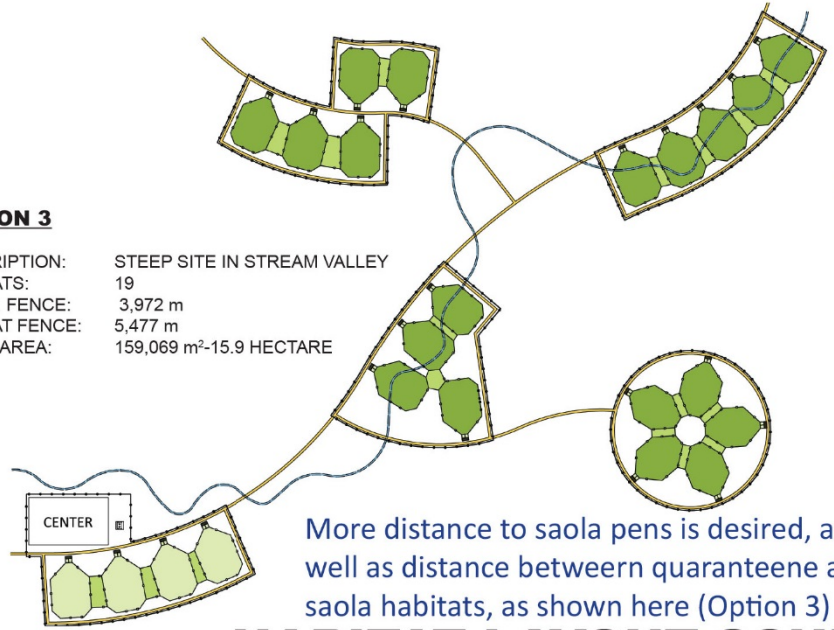
DESCRIPTION:	FLAT SITE WITH STREAM
HABITATS:	19
PERIM. FENCE:	1,833 m
HABITAT FENCE:	5,554 m
TOTAL AREA:	156,753 m²-15.6 hectare

OPTION 2

DESCRIPTION:	USING EXISTING ROADS
HABITATS:	20
PERIM. FENCE:	2,206 m
HABITAT FENCE:	6,276 m
TOTAL AREA:	256,509 m²-25.6 HECTARE

NOTES:

- ONE ANIMAL HABITAT IS APPROXIMATELY 3,200m²
- INITIALLY 20 TO 30 ANIMALS.
- SEE HAvvvvG SHEETS FOR DAY YARD AND HOLDING BUILDING DIMENSIONS.



OPTION 3

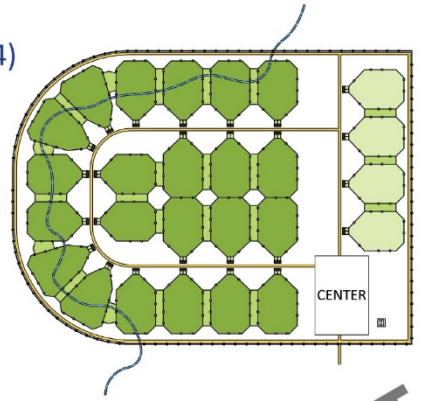
DESCRIPTION:	STEEP SITE IN STREAM VALLEY
HABITATS:	19
PERIM. FENCE:	3,972 m
HABITAT FENCE:	5,477 m
TOTAL AREA:	159,069 m²-15.9 HECTARE

More distance to saola pens is desired, as well as distance betweern quaranteene and saola habitats, as shown here (Option 3)

Prefered habitat scheme (Option 4)

0 50 100 200

SCALE
APROX. 1:800 PRINTED A3
APROX. 1:400 PRINTED A1



OPTION 4

DESCRIPTION:	FLAT SITE WITH STREAM
HABITATS:	22
PERIM. FENCE:	1,632 m
HABITAT FENCE:	6,421 m
TOTAL AREA:	179,664 m²-17.9 hectare

DRAFT 2
SEPTEMBER 2015

HABITAT LAYOUT SCHEMES

In an ideal world, we would need to be able to hold as many animals as we were able to acquire, around 20 to 30 initially

Zoo designers as leaders in conservation

PHASE 1

DIRECTOR'S HOUSE
ANIMAL SUPPORT BUILDING

2 HABITATS WITH HOLDING
1 QUARANTINE WITH HOLDING

PHASE 2

DORMITORY BUILDING

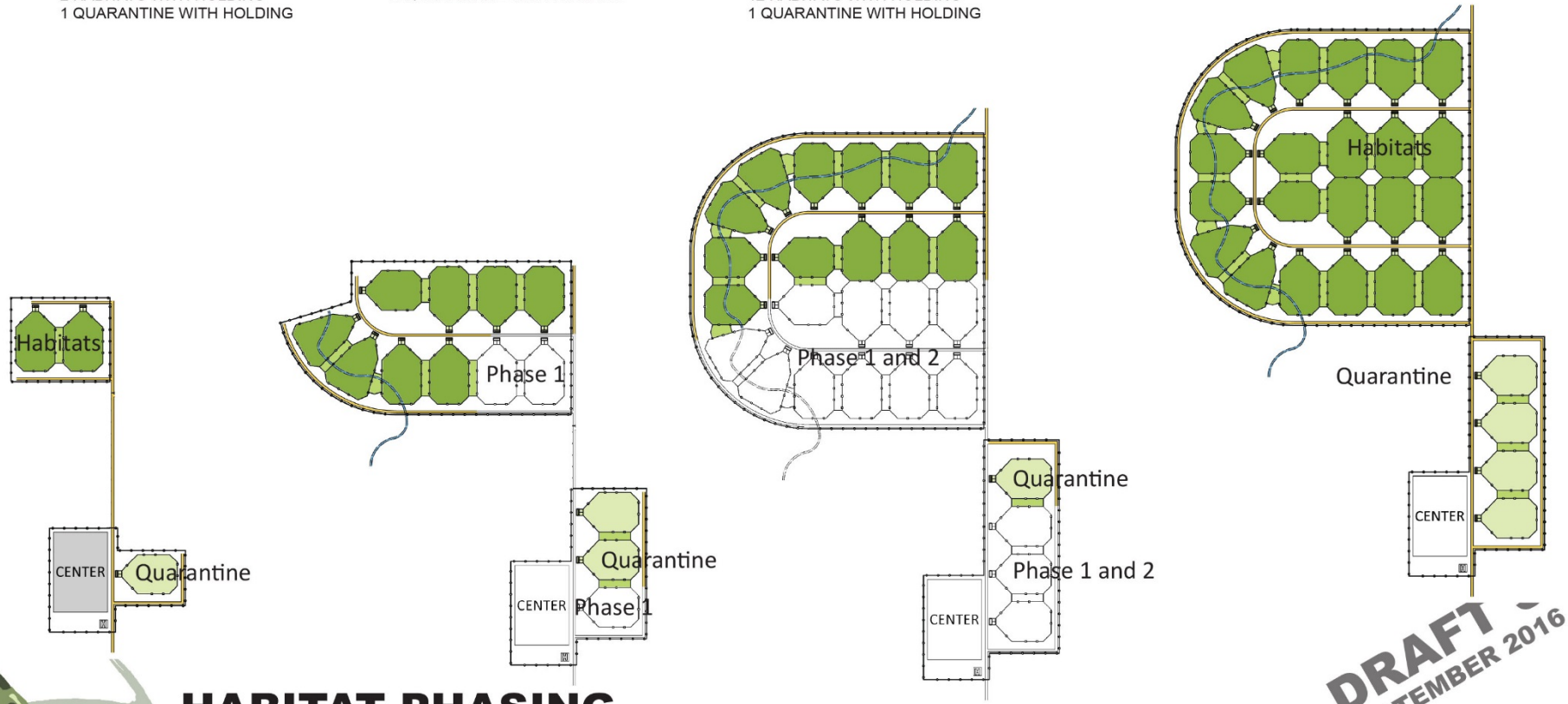
8 HABITATS WITH HOLDING
2 QUARANTINE WITH HOLDING

PHASE 3

DORMITORY BUILDING
ECO-TOURISM FACILITIES

12 HABITATS WITH HOLDING
1 QUARANTINE WITH HOLDING

COMPLETE BUILD-OUT



DRAFT - SEPTEMBER 2016

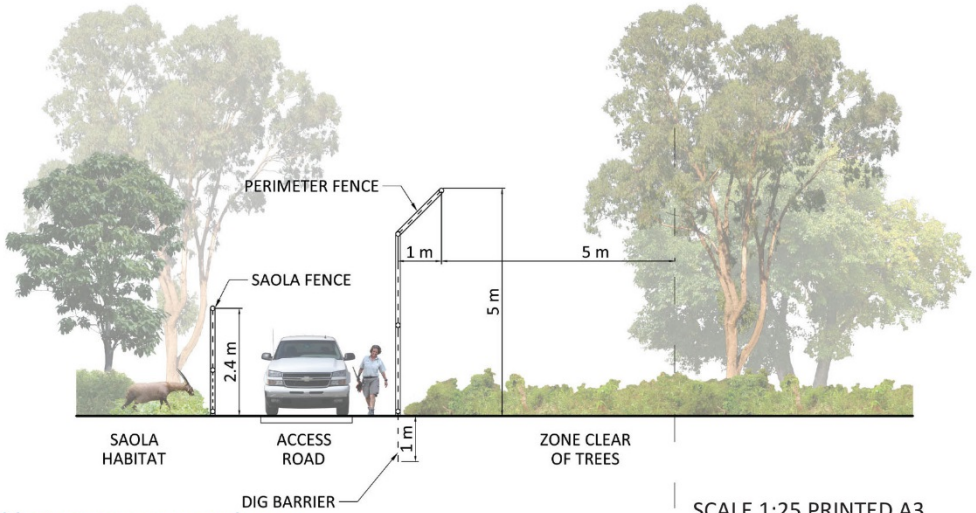
HABITAT PHASING

The centre should be built to strict environmental guidelines and with architecture sympathetic to the environment and local customs

Zoo designers as leaders in conservation

SAOLA FENCE

2.4m HIGH DEER FENCE WITH SMALLER SQUARES ON THE BOTTOM 1M TO STOP YOUNG SAOLA FROM PASSING THROUGH.

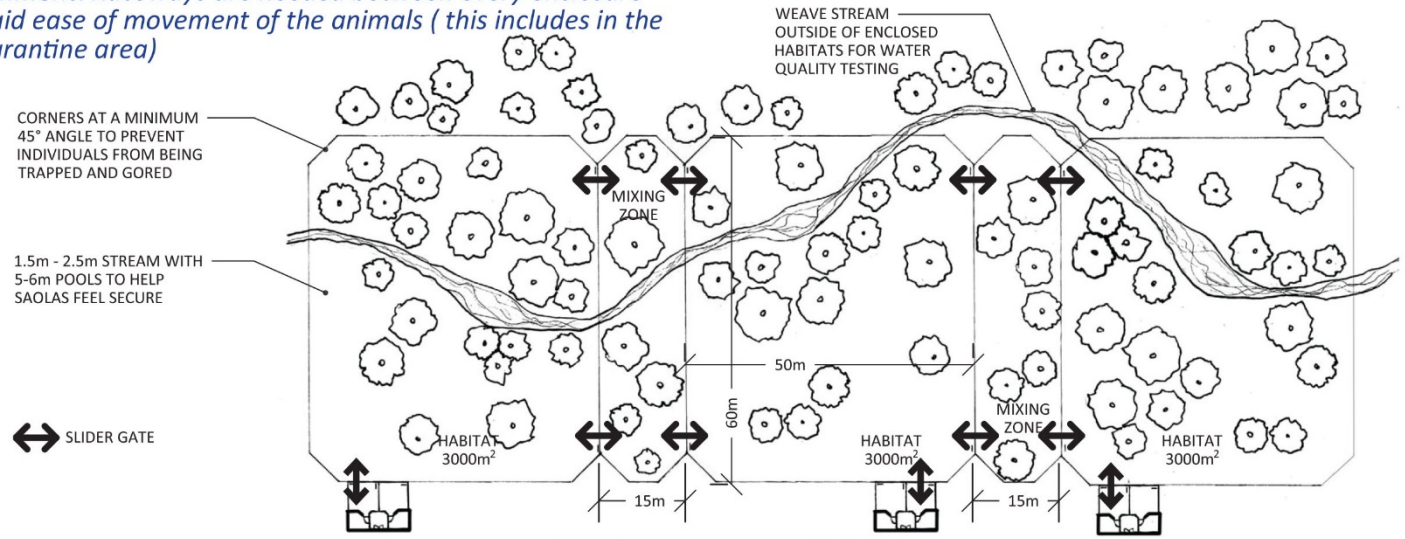


PERIMETER FENCE

5m HIGH CHAINLINK FENCE WITH A 1m OUTWARD FACING OVERHANG OF SECURITY WIRE (E.G. BARBED OR ELECTRIC) AT A 45 DEGREE ANGLE TO PREVENT LEOPARDS FROM ENTERING. THE BOTTOM OF THE FENCE HAS A 1m DIG BARRIER TO PREVENT DOGS AND OTHER CARNIVORES FROM ENTERING THE COMPLEX. KEEP CLEAR DEBRIS AND VEGETATION FROM BOTH SIDES OF THE FENCE FOR EASY MONITORING. ALSO KEEP TALL TREES 5m AWAY FROM FENCE TO PREVENT LEOPARDS FROM JUMPING OUT OF THE TREES OVER FENCE.

SCALE 1:25 PRINTED A3

Comment: *Raceways are needed between every enclosure to aid ease of movement of the animals (this includes in the quarantine area)*



- IF THERE IS NO NATURAL WATER SOURCE, ARTIFICIAL WATER CONTAINERS/PONDS WOULD NEED TO BE USED.
- OTHER WATER SUPPLY SYSTEMS COULD BE IN THE FORM OF A WASTER WATER TREATMENT SYSTEM TO RE-CYCLE AND RE-USE WATER. THE SYSTEM PURIFY BOTH IN A LOW MAINTENANCE, NATURAL BIOLOGICAL TREATMENT PROCESS AVOIDING DEPILATING AND/OR POLLUTING THE LOCAL WATER SUPPLY.
- LIGHTING IN EACH OF THE ANIMAL AREAS.
- SAOLA SHOULDN'T NEED HEAT.

Funnel shape habitats toward holding

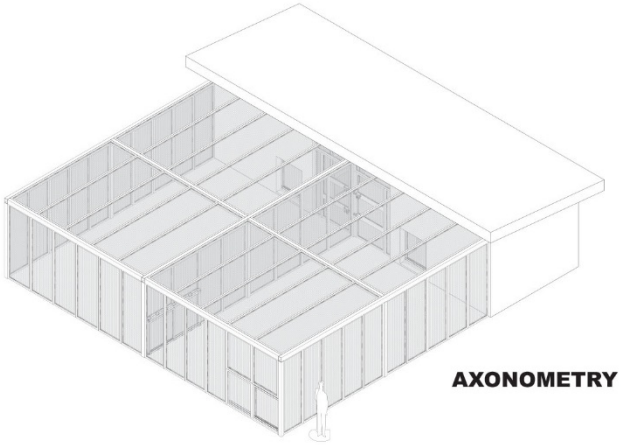
HABITAT

SCALE 1:100

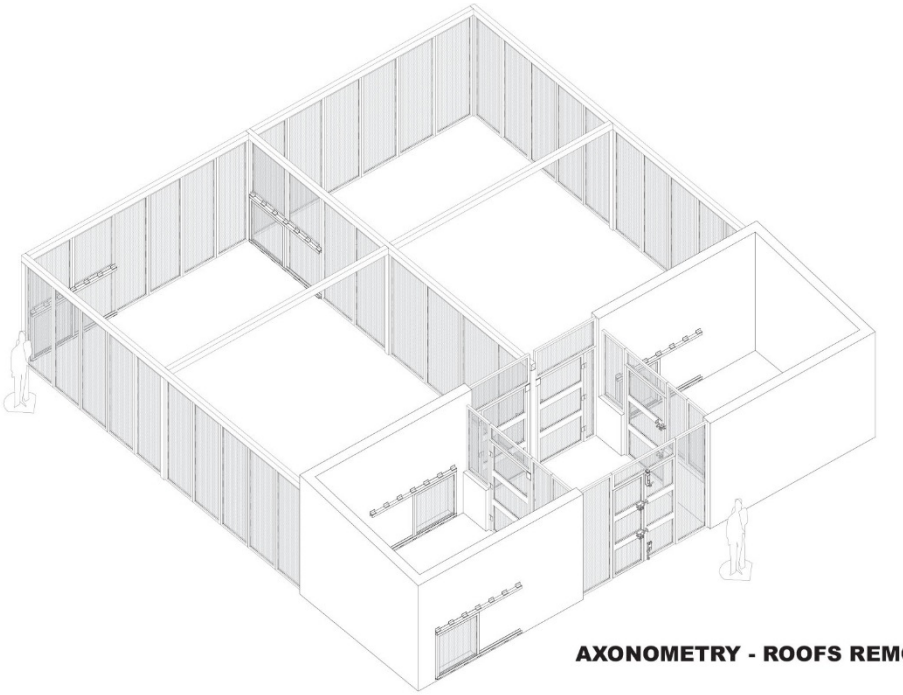
DRAFT 3 SEPTEMBER 2016

Give each individual saola access to a large enclosure that is adjacent to one or more buffer areas that connect to other enclosures

Zoo designers as leaders in conservation

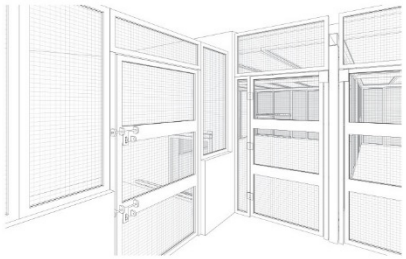


AXONOMETRY



AXONOMETRY - ROOFS REMOVED

VIEW FROM KEEPER'S ENTRY



VIEW FROM KEEPER'S VESTIBULE

VIEW FROM SAOLA HABITAT

COVERED YARD

DRAFT 3
SEPTEMBER 2016

HOLDING BUILDING 3D

Zoo designers as leaders in conservation

DESCRIPTION

- A TRANSITIONAL STRUCTURE FOR DISASTER RELIEF.
- FITS INTO A STANDARD SHIPPING CONTAINER AND CAN BE DELIVERED ON A FLATBED TRUCK.
- ERECTED IN 30-60 MINUTES WITHOUT TOOLS AND NO SKILLED LABOR NEEDED.
- CAN BE MOUNTED ONTO SEISMIC ISOLATORS OR WITH A SIMPLE FOUNDATION.
- CAN WITHSTAND CATEGORY 5 HURRICANE BY FOLDING IN THE SIDES AND ROOF.

ADVANTAGES

- MOVABLE
- QUICK CONSTRUCTION
- GOOD FOR REMOTE LOCATIONS
- CAN FIT TOGETHER TO CREATE LARGER SPACES

DISADVANTAGES

- THE HUSH2 IS DESIGNED TO BE A TRANSITIONAL STRUCTURE WITH A LIFESPAN OF 12-15 YEARS WITH A PHENOLIC COATED/MARINE PLY FINISH CAPABLE OF WITHSTANDING HUMITY AND TERMITES.
- RELOCATION OF HABITAT FENCING STILL REQUIRES SIGNIFICANT ENERGY AND TIME TO RELOCATING BUILDINGS.

ANIMAL CARE AND WELFARE CONCERNS

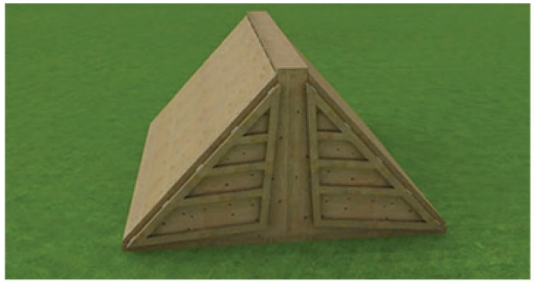
- BEDDING NEEDED WITH WOOD FLOOR, POSSIBLE HYGIENIC ISSUES OR ACCELERATED DETERIORATION
- OPPORTUNITIES FOR ANIMALS TO CHEW ON WOOD STRUCTURE
- NEED TO MESH IN WINDOWS
- NEED TO RELOCATE OR ADD DOORS
- ADD ANIMAL CARE FEATURES INSIDE
- Customization of the structure will add cost

DIMENSIONS

2.4 HEIGHT
4.3 WIDE
4.4 LENGTH
19 m2 OF USABLE SPACE

COST

2,600 USD

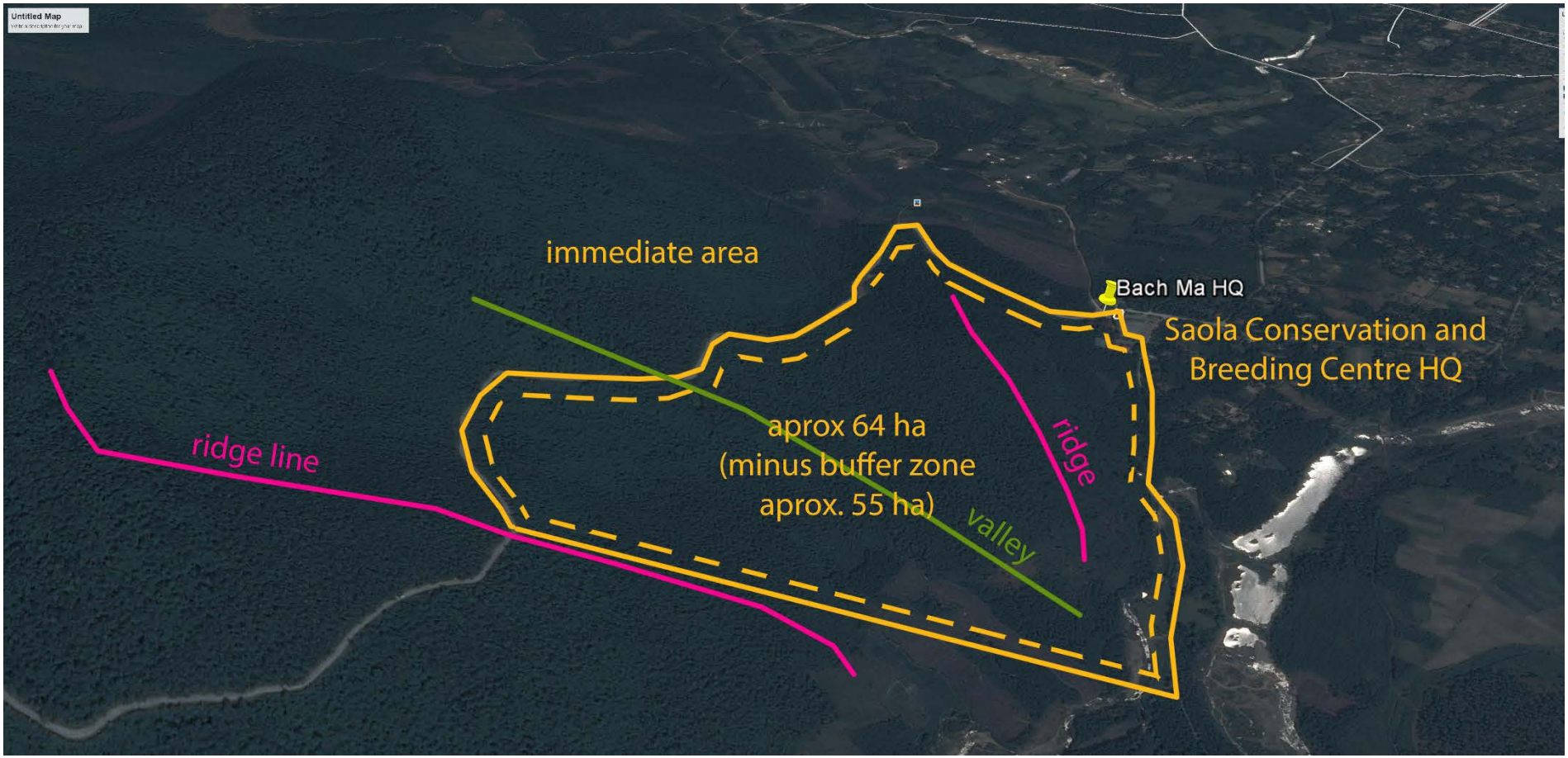


HUSH2

DRAFT 3
SEPTEMBER 2016

Zoo designers as leaders in conservation

Site for Saola breeding and conservation center, Vietnam



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