

Extreme
Habitat
Challenge

ARCTIC

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Img_1: Introduction to Extreme Habitat Challenge 2019.

Introduction

Extreme Habitat Challenge 2020 is pleased to invite architects, designers, engineers, student fraternity, and visualizers from around the globe to take part in its second edition of **Arctic Habitat Challenge**. The Extreme Habitat Challenge (EHC) is one of the world's most coveted competitions for habitat design. It recognizes exceptional ideas that redefine habitat design through the implementation of innovative ideas, techniques, construction, visual, programmatic and futuristic organizations through architecture as a tool.

EHC embarks itself of technological and engineering innovations which are about to go big, and sets architecture free to innovate more in these uncharted directions. It is a one of its kind platform that promotes the relationship between the **habitat + technology + planet**. It aims to create environments that defies the adverse conditions through design and makes it habitable. In its outlook, EHC endorses teams that are multidisciplinary by thought but are aligned to the fact that humans have to grow more, yet responsibly towards the planet.



img_2: Dystopian future of our cities, which have outgrown its capacity- A concept

Premise

As our cities grow, there are severe impacts visible to the quality of life due to **overpopulation - poverty - traffic - pollution** etc. Not just these places but everywhere in the world climate is becoming harsh. Weather changes are becoming more rampant. We need resilient buildings. A limitless growth of population ultimately contradicts the motive of moving to the city, where people instead of experiencing a better quality of life face the contrary throughout. With a non-stop growth of human species, we will eventually see more of these circumstances and vulnerabilities unavoidably in the long run.

Cities cannot be overhauled overnight. But our cities changed, with the advent of **industrial revolution** and technological development. They changed when we devised a faster mode of construction and when we developed the internet. Technology being the **fastest agent of change today**, has almost displaced the need of living in a city - including repercussions like **social isolation** between people of today.

A new layer of evolution has begun, which brings in technology to resolve the man made disasters. Faster transportation techniques and **connectivity + collaboration**, has made it possible to look beyond boundaries of cities. We take this opportunity to build a more responsible class of habitats which can be small but can be definitely inspiring for our next change of cities to come.



Img_3: Hyperloop passing through extreme habitats - A concept

Challenge

The **Arctic Bridge** is currently used as only seasonal sea route, which if developed could serve as a major trade route between Canada and Russia. Due to global warming, the rapidly melting glaciers are giving way to new shorter routes across the Arctic. Climate changes at such scale can herald a new era of cargo shipping around the top of the world. An inevitable future of the planet is paving way for an economically potential idea. The **Second Edition of Extreme Habitat Challenge** competition chooses two major cities (Vancouver, Canada x Moscow, Russia), connected via the fastest mode of land bound transit of the future - Hyperloop that embodies the arctic bridge route to open avenues for trade across the arctic ocean.

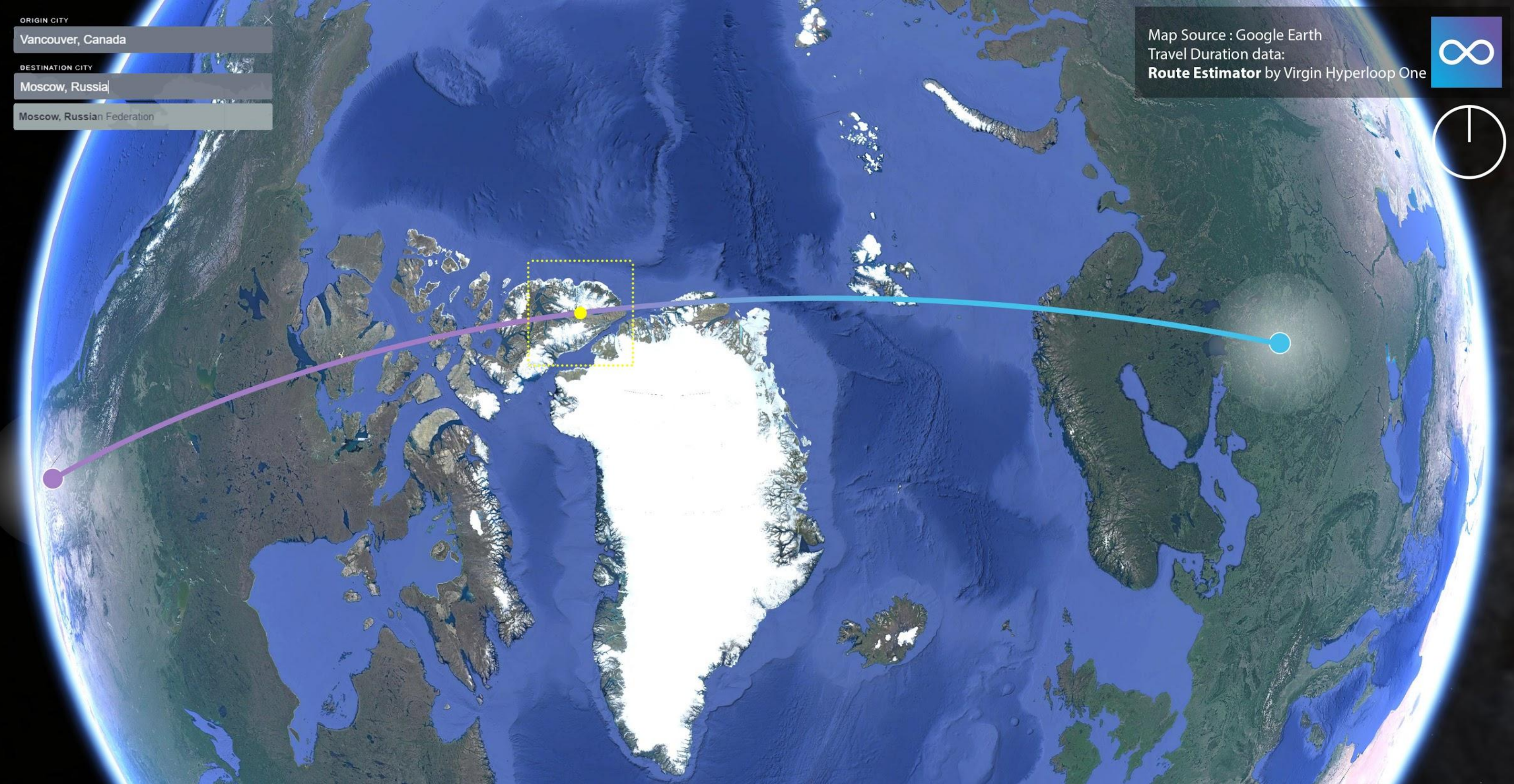
Vision : Extreme Habitat Challenge pushes to explore habitat concepts that are responsible, yet brave to grow human civilization in synchronous with **nature + technology + planet**.

ORIGIN CITY
Vancouver, Canada

DESTINATION CITY
Moscow, Russia

Moscow, Russian Federation

Map Source : Google Earth
Travel Duration data:
Route Estimator by Virgin Hyperloop One



Img_4: Conceptual route of Hyperloop from Vancouver to Moscow

The Route

The route with a distance of over 8200 km, is claimed by **Virgin Hyperloop One** to be covered in less than **10 hours**, with minimal emissions and time savings. We choose this route as a test case for Extreme Habitat Challenge 2020, which passes through **Ellesmere Island** as the selected extreme environment.



img_5: A view of Ellesmere Island Glaciers - by Darthmouth Strauslabs

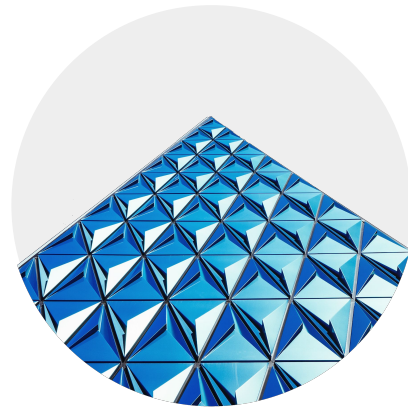
Brief

Design a concept habitat of **1,000** people within area of **800 m x 800 m**, which is able to develop itself to accommodate a population of in future **1,000,000** as desired by the population moving in to the place. The challenge invites ideas that push the boundaries of design using innovative habitat working models, materials, technology, close to zero land costs, a nomadic yet rooted lifestyle. When humans enter extreme habitat they not only respect nature or the forces of nature but they enter with responsibility.

This design exercise can be considered similar to colonizing a new earth with technology of today taking into account the atrocities of extreme cold habitat and conditions required for a feasible living. The first 1,000 people prototype habitat will house all the three elements of human life in it - **Live, Work** and **Play**.

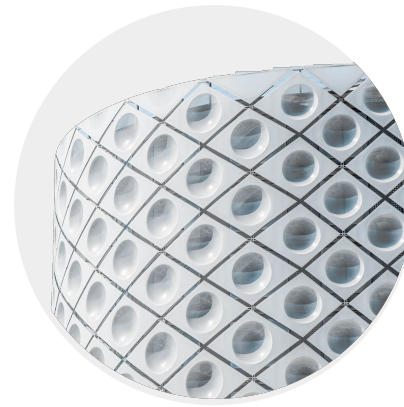
This site peculiarly with a very **less human population density** is the test bench for designing a new habitat will inspire how life should be in similar environments while balancing itself harmoniously between forces of nature.

Objectives



Form + Structure

Exploring forms and structure based design strategies to combat harsh climate.



Operation/Sustainability

Conceptually designing how the habitat will function and use of sustainable technologies..



Material

Finding innovative material configuration that can combat harsh weather.



Incremental

Conceiving the future development of the habitat in coming decades.

The following objectives can be a point of beginning to conceive this design. Participants can assume their own contexts and users before initiating their design process.

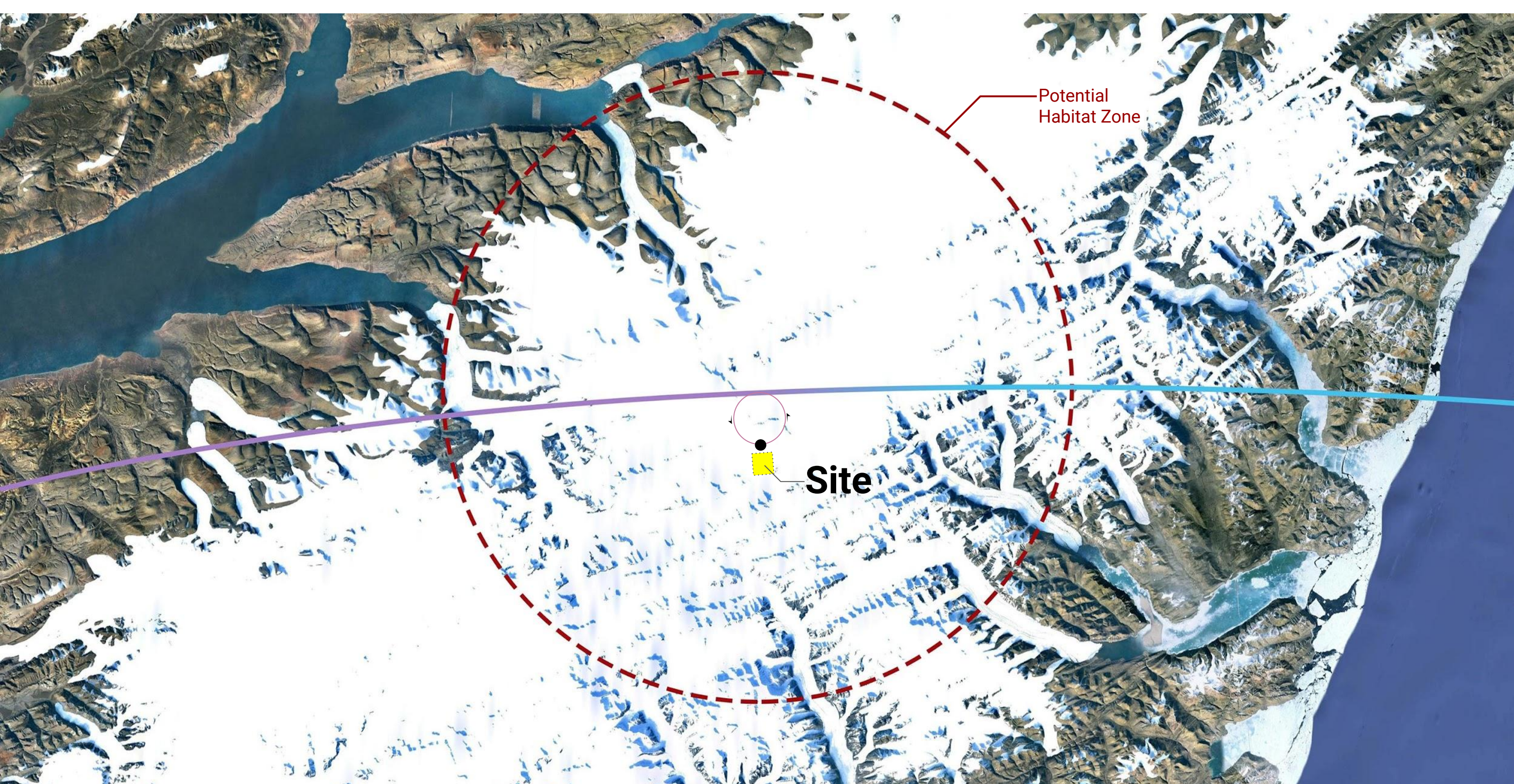


[img 6](#): Map showing a probable region for Hyperloop Station of the Arctic Route.

Location - Ellesmere Islands

The Hyperloop Station for this route is expected to be built in **Ellesmere Island** located at approximate center between the two cities, which is speculated to house a very sparse population in the future. The region in red depicts a potential habitat zone for this challenge, where this prototype micro-ecosystem can find its place. Participants have to place the site boundary inside the red circle region on a preferred location not exceeding more than **800m X 800m**. The programme can be schematically derived from functions like housing, workplaces, or commercial districts, public and private areas, community farms etc. based on the objectives.

Location: Ellesmere Island
Countries in region: Northern Canada, Greenland

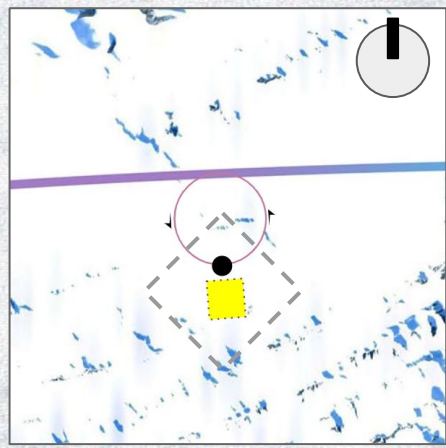


Img 7: Map showing Potential Habitat Zone , with Hyperloop station and site.

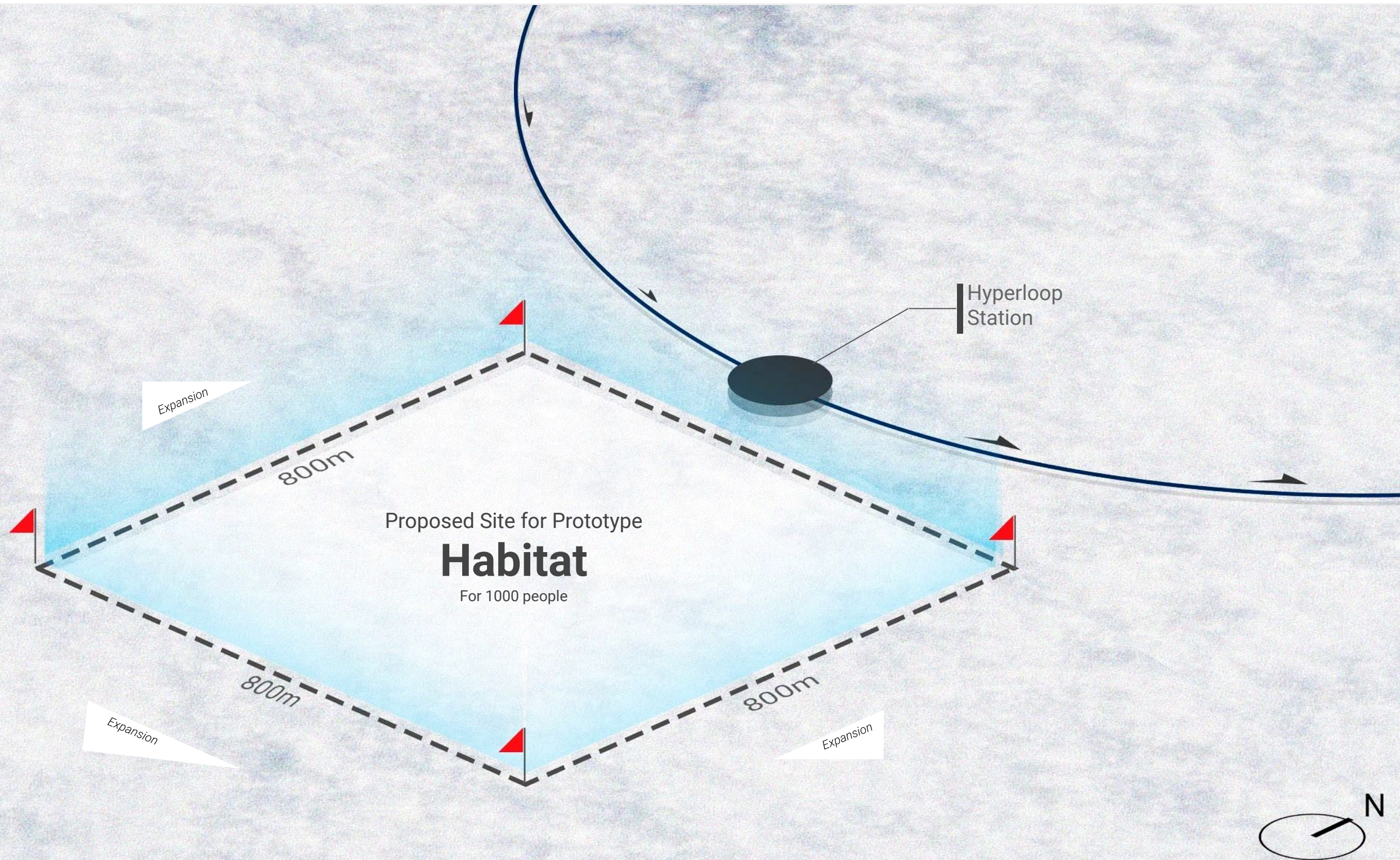
Potential Habitat Zone

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Key Plan



Img 8: Proposed site area for Prototype habitat.

Site Plan

This is an illustrative image of the site boundaries and its placement with respect to the Hyperloop station. The prototype habitat site of **800m X 800m**, will hold the primary population of 1000 people after which the development is intended to happen incrementally. The expansion plan vision is limited to a population of about 1,000,000 (figure for quantitative assumptions), to ensure habitat does not grow beyond safe limits and impact the ecosystem unknowingly. This expansion plan can be illustratively explained conceptually in future planning of the habitat.

You can assume data like demography/user group etc. wherever necessary while solving this problem.

Location: Ellesmere Island
Countries in region: Northern Canada, Greenland

Submission

You have to deliver an architectural outcome on the following site, based on the given outlines.

- A maximum of 4 sheets. – [**2362px x 3544px**] or [**400mm x 600mm in 150 dpi**] in portrait digital format (JPEG).
- Each image should be less than **15MB**
- You can find the preset PSD, AI and INDD template files in the 'additional resources folder'.

This additional resources folder contains: FAQ Questions.

Minimum requisites in the sheets are 3 sheets/boards + Cover image containing:

- Site plan (Compulsory)
- Key conceptual sections x 1 (Minimum)
- 3D views x 4
- Cover image/Thumbnail of size 2000 x 1000 px or larger in aspect ratio 2:1.
- Floor plans, images, sketches (if any) can be added to support the entry in the form of additional images.
- Answer 6 FAQ questions in the discussion section as given on the 'additional resources folder'.

-
- + Use exploded views to discuss multi levelled conceptual models better.
 - + Ensure that the final sheets which are submitted do not include your name or any other mark of identification.
 - + Mention sheet number on corner of every sheet.
 - + This is a design ideas challenge only. There is no built commission/realization is associated with the problem.
 - + Plagiarism of any idea / form / design / image will be disqualified with a notice.

Registration page here: <http://competitions.uni.xyz/extreme-habitat-challenge-2020-arctic>

Submission Deadline: December 09, 2019

Submission closes this day.

Public Voting begins: December 18, 2019

Submitted entries are open for voting.

Public Voting ends: January 08, 2020

Voting ends on this date.

Result Announcement: January 18, 2020

Result day!

Rewards



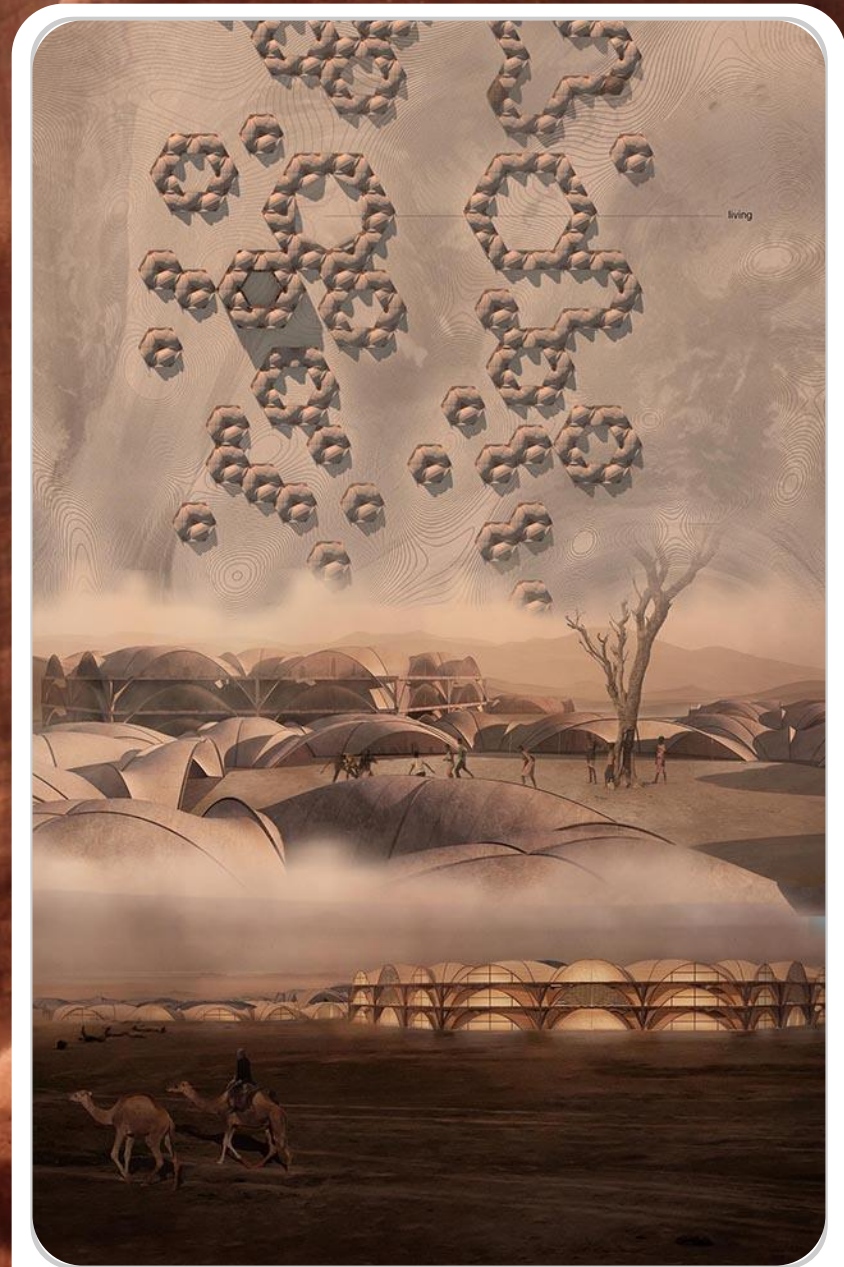
Grants of up to a total of **15,000\$** can be won on this challenge. Learn more about the full conditions on the competition page [here](#).



Honorable Mention
Sandcrete City
[Terry Thackrey](#)



Winner
Weaving Water
[Shuchuan Yang](#), [Jiani Li](#), & [Jiayan Shao](#)



Honorable Mention
The Nomadic Nest of Sahara
[Jiang Peiwei](#)



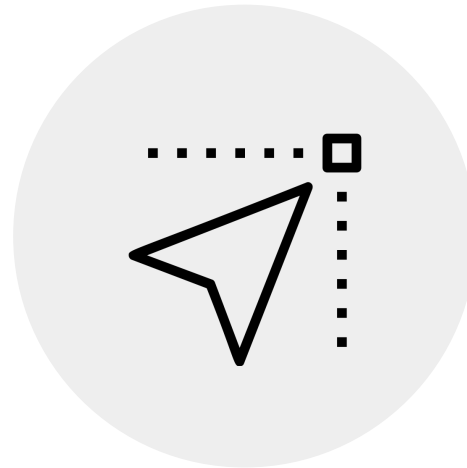
SAHARA

Winning entries of Sahara Edition

These are the best of the previous edition of **Extreme Habitat Challenge - Sahara**. These entries are one of the most outstanding submissions that brought exceptional merit in terms of their idea, visualization and architectural strategies. Discover the last edition's brief [here](#) and the winning entries.

Judging Criteria

The entries will be judged by an international jury of the competition on the following criteria:



Presentation

The fundamental to a good entry is a good presentation.



Concept/Idea

Quality of thought and intent in pre-design phase.



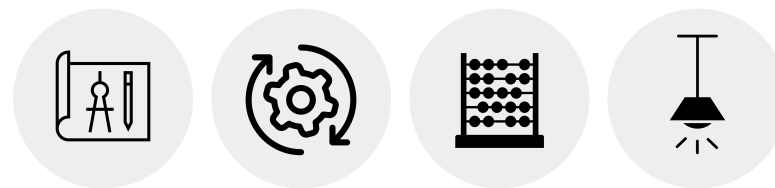
Form

Form / Shape level strategies that shape architecture.



Design Output

The final architectural outcome of the solution.



The judging panel can also add other criteria based on their internal discussions - which will be in line with the problem statement. Eg. Design Strategy, Sustainability, Material Usage etc. Participants are advised to fulfil above given criteria first in their design.

(Ad) Competitions.uni.xyz

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And challenge the world while doing it.

Uni hosts a series of design challenges with topics that expand your portfolio in very unique ways. The subjects come from a wide range of ideas that are multi-disciplinary and span to various professional levels. These competitions are organized and open for all disciplines. Click here to discover about these.



FAQ

Q: Does the design scope includes designing a hyperloop station too? Can we do that on our will?

A: The design problem only includes the habitat design. Even a block massing of hyperloop station will suffice for indication.

Q: Can we choose the site outside the region across the red circle which depicts the potential habitat zone?

A: No. The site selected has to be inside the red marked region.

Q: What is the population I should design this habitat for?

A: Habitat module should only be for a population for 1000. The next goal should be scalably increase (1,000 > 10,000 > 100,000 > 1,000,000) the same/similar module to a population cap of 1,000,000.

Q: What kind of ideas required for this challenge?

A: This is an open ideas design challenge. Instead of too practical, the challenge invites logical solutions which make use of technological resources of today + tomorrow and innovate freely beyond limiting factors.

Q: Can I make use of speculative technologies (3D printing, Dropship Supply, Robotic construction, etc.) in my proposal?

A: Yes. You can.

Q: How do I gather terrain data of my site selected + geographic/climatic details of Arctic without going there?

A: The terrain data can be easily extracted via google earth pro if required
(<https://www.google.com/earth/download/gep/agree.html>) using the following guide:
<https://support.google.com/earth/answer/148134?hl=en>.

Q: Do I need to learn about the functionality of Hyperloop to participate in this competition?

A: A basic research will definitely help. However the habitat is the primary focus of this competition instead of mediums to reach the habitat.

Q: Can submit a previously made habitat project for this competition?

A: You can. Until the competition conditions are met, you can submit the project.

Q: What are the byelaws for the site?

A: There are no bye laws but they will be framed by climate and your planning for the site. This does not mean that you have to propose regulations, but this will reflect in the future expansion plans (if any) are there.

About

Extreme Habitat Challenge



Extreme Habitat Challenge (EHC) serves as a unit block for **UNI** in the field of **resilient habitat design**. It intends to break the fusion of traditional design barriers and methodologies by making it a platform for experimentation. **EHC** aims at creating ecosystems that are benchmarks how cities could be or should be in future. With a faster transit and a more connected world the need to stay rooted at one location will go away and futures will be more mobile. However this power should not be exploited at the cost of the planet.

EHC finds its place in its vision of a more sustainable and responsible future. It is a research initiative dedicated to provide opportunities for designers from all domains to explore ideas that go beyond the boundaries of architectural discipline and enrich our built environment; thereby opening up possibilities for promotion of architectural thought in extreme conditions.

Queries: support@uni.xyz

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Towards a new breed of **responsible habitats.**

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