

Design Exchange Partnership w/ Leicester Outdoor Pursuits Centre

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Professor of Digital Culture

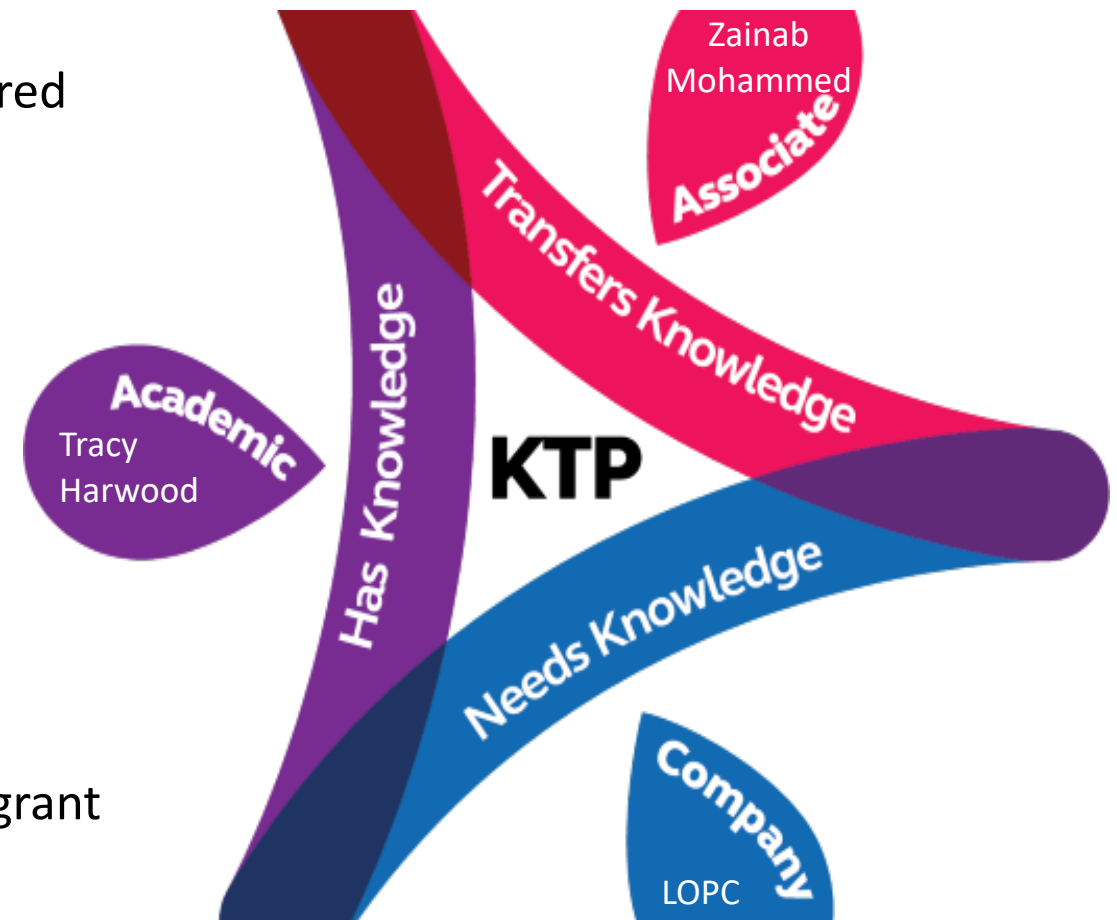
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About Design Exchange Partnerships

- Funding collaboration between AHRC, Knowledge Exchange Network and The Design Museum
- Focus on value of design in addressing human-centred problems
- Pilot scheme, 10 small projects <£20K
- Contribution from LOPC >>> in-kind <£3000
- Key theme 'Net Zero'
 - decarbonisation
 - environmental sustainability
 - climate mitigation
 - adaptation
 - circular economy
 - waste reduction
- 8 months max project duration
- Early career researcher (Associate) – first research grant + opportunity to develop research and work with company



About IOCT

- Interdisciplinary research: creativity in the digital age, urban living, life-long wellbeing and social value
- Focus on practice based research and advances in digital computing, information technologies, creative practice, science and engineering
- Public engagement portfolio
- Usability Lab



Zainab Mohammed

- Project launched 15 November 2021 >>> runs til 15 July 2022
- Part-time, appx 10 hours per week
- PhD Candidate (De Montfort University, School of Architecture), thesis: “Promoting the Relevance of Socio-Cultural Context in Sustainable Architecture”
- Specialising in sustainable design and multidisciplinary research
- Experience in 3D modelling, performance analysis (BREEAM), dwelling compliance

Project

Building the case to seek planning for a new self-sustaining development that provides

- purpose-built outdoor pursuit centre to replace existing facilities
- new facilities such as accommodation for athletes and visitors
- temporary office space for complementary organizations such as Environment Agency, Canals and Rivers Trust, Wildlife Trust
- physiotherapy and rehabilitation facilities for athletes including disabled athletes

The redeveloped site would

- become more sustainable in its use of materials for activities
- seek to grow its own source of e.g., timbers for climbing and adventure activities
- mitigate climate change through flood management provision which can be showcased as an example of best practice to other organisations.

LOPC Partnership

Scope –

- Knowledge exchange on the development of LOPC's site
- Exploring how LOPC may benefit from stakeholder evaluation of >>>
 - design concepts for new flood resilient buildings
 - layout of facilities for sustainable activities
 - how enhanced user group interactions (parking, briefing, playing, entertaining, concessions, refreshments) may be facilitated
 - how LOPC may realise its net zero/carbon negative goals to become a national training centre
 - build a knowledge exchange network through which partners may continue to support developments in future

LOPC Partnership

Commitment extends to –

- Delivering risk based, design-led and targeted interventions
- Sharing information, to make sure decisions are taken on the best available evidence, specifically relating to sustainability, user behaviour and design
- Providing appropriate resources to evaluate user group perspectives of the design-led concepts proposed
- Facilitating access to stakeholder user groups in order to gather appropriate data for the design-led project evaluation
- Building a collaborative approach to the partnership relationship to facilitate project delivery
- Maintaining effective three-way communication between the partners (LOPC, DMU and Associate) through regular team meetings



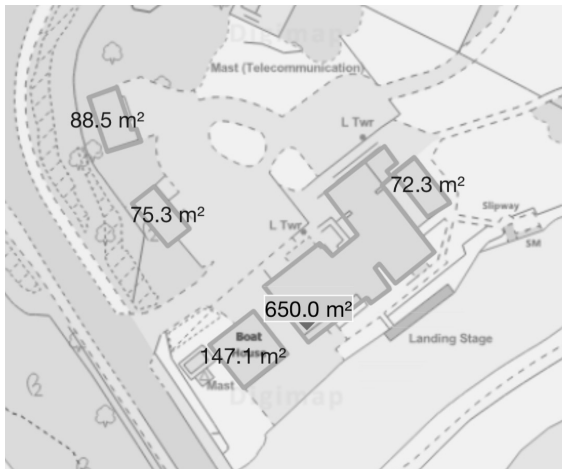
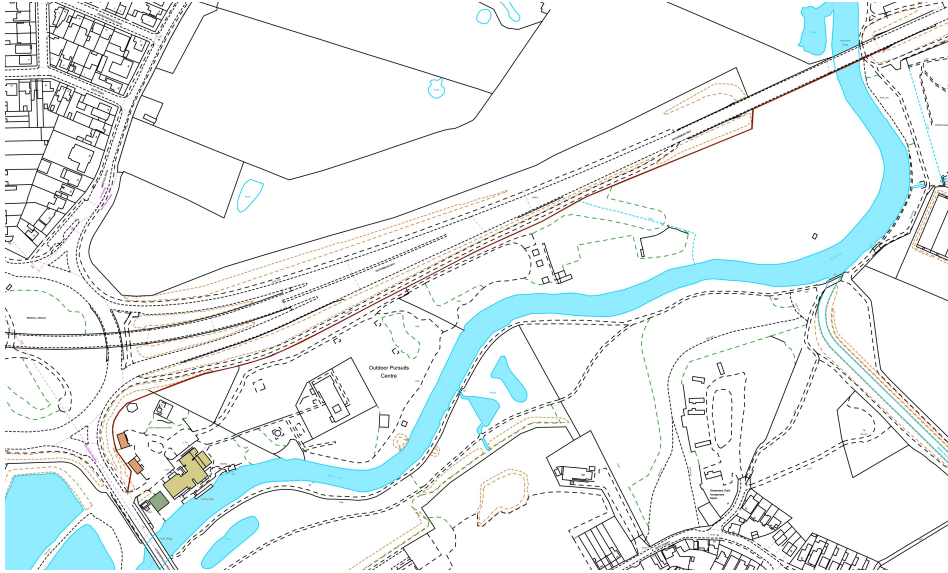
SITE

15 ACRE SITE LOCATED IN
LEICESTER CITY CENTRE ALONG
THE RIVER SOAR.

LOPC BECAME A LIMITED
COMPANY AND REGISTERED
CHARITY IN 1999
CURRENT PREMISES WERE BUILT
IN THE 1950'S AS A UNIQUELY
DESIGNED A-FRAME SWISS
CHALET-STYLE BUILDING.



SITE MAP & PICTURES



AREA ESTIMATION:

LOPC Main Building: 650 m²
Boat House: 147.1 m²
Storage 1: 75.3 m²
Storage 2: 88.5 m²

FLOOR AREA ON SITE: 1027 M2



LOPC – ACTIVITIES & PARTNERS



ORGANISATIONS:

Redhill Revolvers Field Pistol Club, Paddle Plus,
British Canoeing, Lansdowne Dog Training Club

ACTIVITIES:

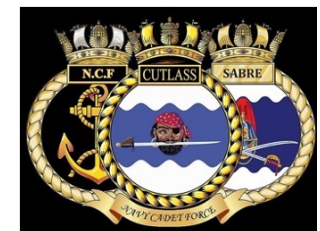
Club Scouts, High Ropes Obstacle Course,
Canoeing, Kayaking, Paddle Boarding, Archery,
Shooting, Climbing Skills, D.O.E

FACILITIES INCLUDE:

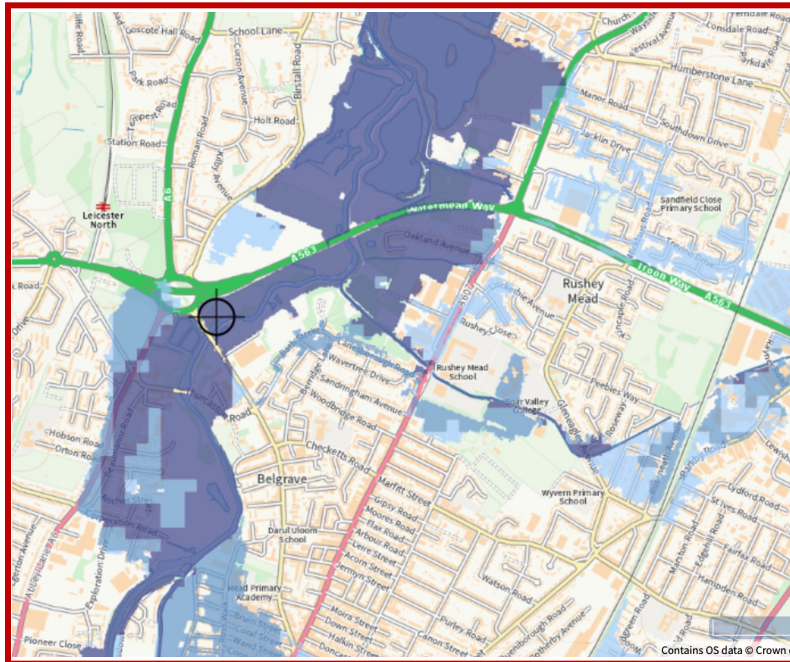
Land-based activities; Fencing, Orienteering,
Bushcraft, Trebuchet Building, Team Building
Water-Based Activities; Canoeing, Kayaking Bell
Boating, Raft Building.

This project aims to incorporate the sporting
and leisure heritage into new design concepts
that position it as a nationally leading centre by
integrating stakeholder evaluation into THE
design process..

Lansdowne
DOG TRAINING CLUB



SITE ANALYSIS – RISK ASSESSMENT 1 (LONG-TERM FLOOD RISK)



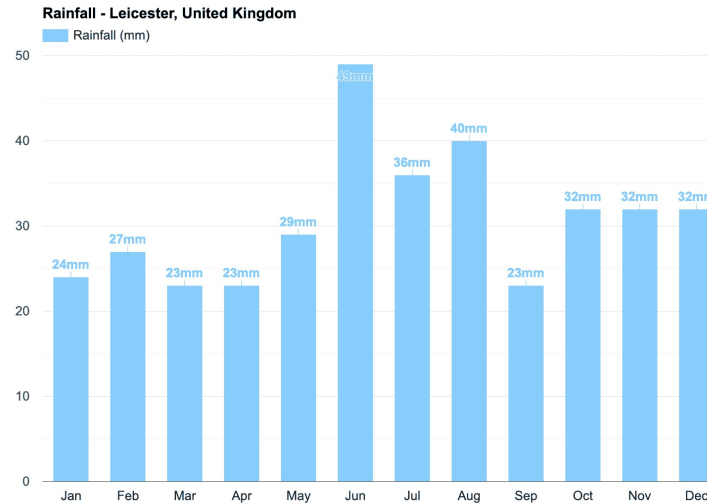
Extent of flooding from rivers or the sea

● High ● Medium ● Low ● Very low ⊕ Location you selected

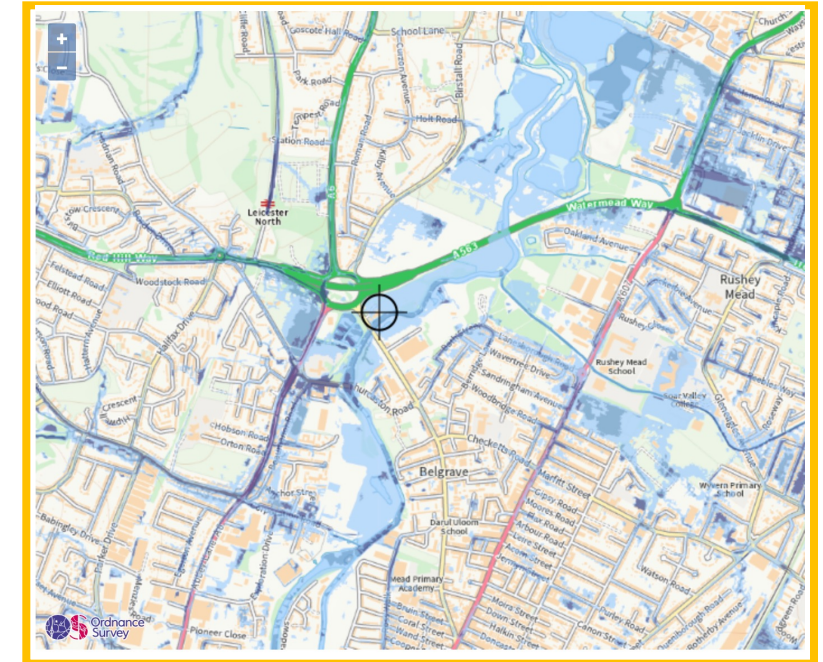
High Risk

‘Rivers and the sea’

The site is considered to be at High Risk due to it's proximity to a River or Sea . This means that each year this area has a chance of flooding of greater than 3.3%.



Average Precipitation and Rainfall Analysis in a year in Leicester, UK



Extent of flooding from surface water

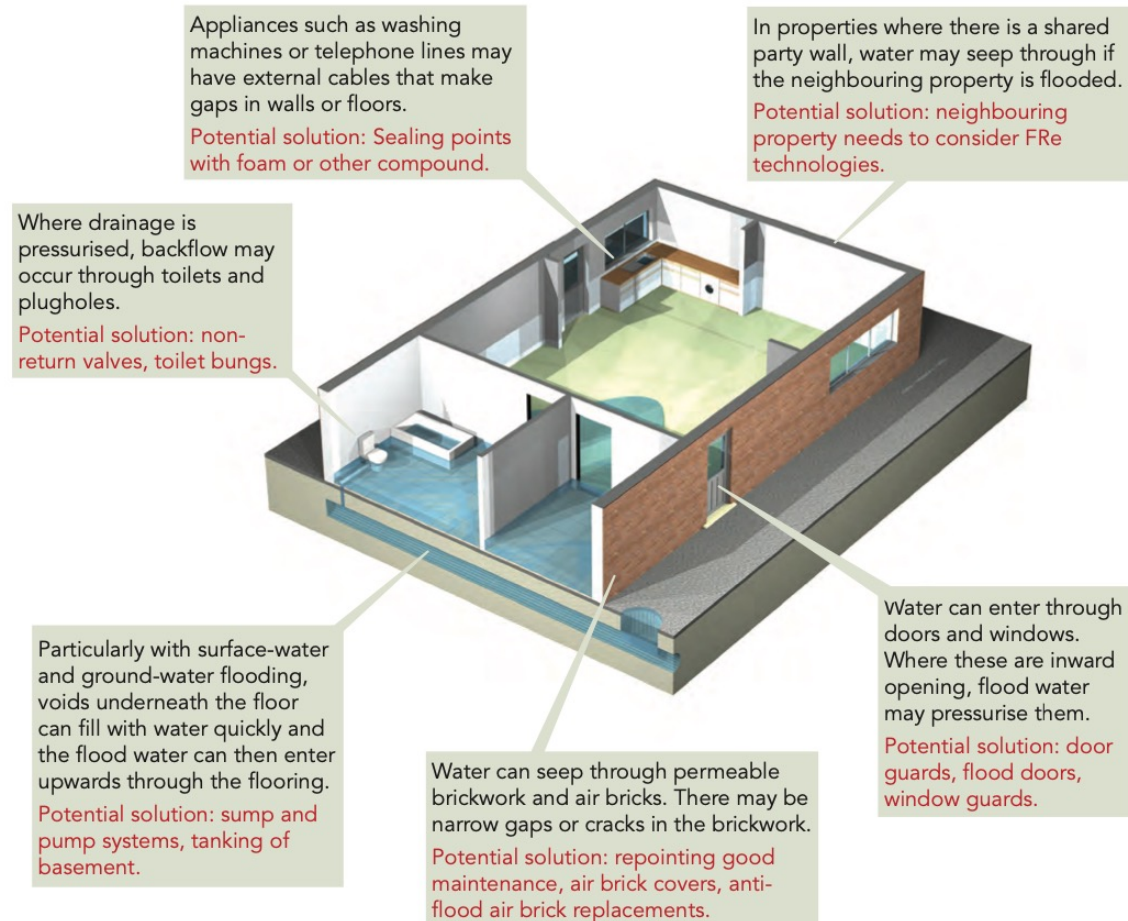
● High ● Medium ● Low ● Very low ⊕ Location you selected

Medium Risk

‘Surface Water’

The site is considered to be at Medium Risk from heavy rain cannot drain away. Although it is difficult to predict as it depends on rainfall volume and location. This type of flooding is more widespread in areas with harder surfaces like concrete.

FLOOD DAMAGE – RISK ASSESSMENT 1



FLOOD RESISTANCE

Prevent water from entering the house



Minimizing any resulting damage if it does

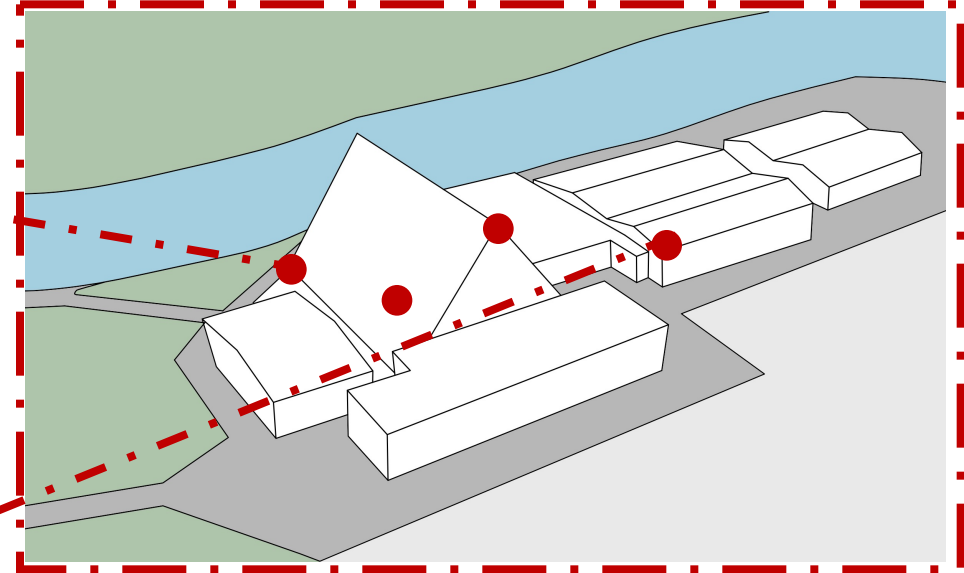
FLOOD RESILIENCE



WATER EXCLUSION & ENTRY STRATEGY

The use of flood resistance & resilience as a strategy to enhance the ability of the LOPC facilities to prevent damage and recover from damage, achieving net zero/carbon negative aims.

SITE ANALYSIS – RISK ASSESSMENT 2



A large amount of Asbestos containing material (ACM) - any material or object that, as part of its design or structure, contains one or more of the mineral silicates, is still present in the community in both workplaces and non-workplaces.

On Site:

Asbestos cement roofing (sheets and shingles)

External asbestos cement wall cladding, including 'brick look' cladding

Internal asbestos cement wall linings and ceiling linings.

ASBESTOS LIFE SPAN & REMOVAL – RISK ASSESSMENT 2

The Royal Institution of Chartered Surveyors state that the **life expectancy** of an asbestos based cement roof could be anything between **25-40 years**, depending on environmental factors. Some versions of asbestos shingles were designed to have long-lasting quality, lasting up to **30 - 50 years**.

- Roof and Walls nearing the end of their expected lives. This leads to deterioration, panels can become porous and be prone to leaks, making it **potentially hazardous**.



If asbestos is present and is likely to be disturbed by demolition or refurbishment work, **it must be removed**. In the case of demolition, it must be removed prior to work being undertaken.

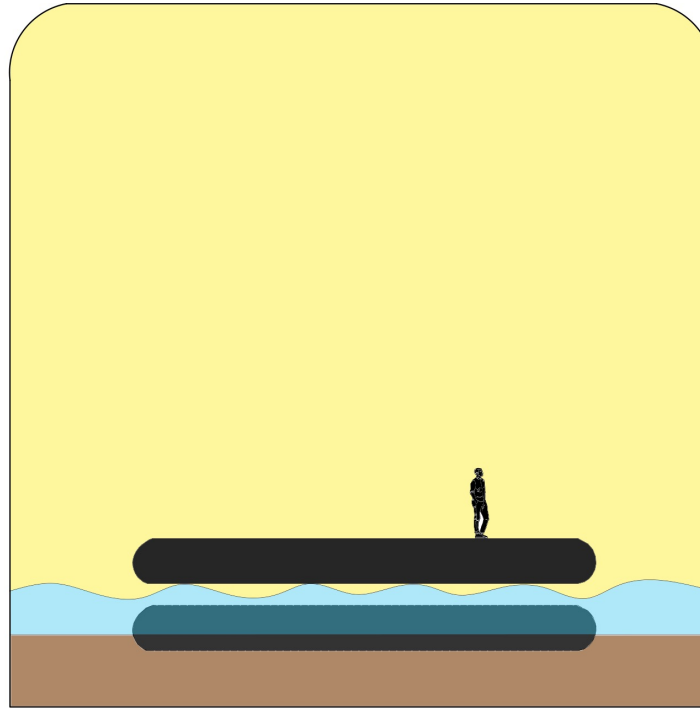
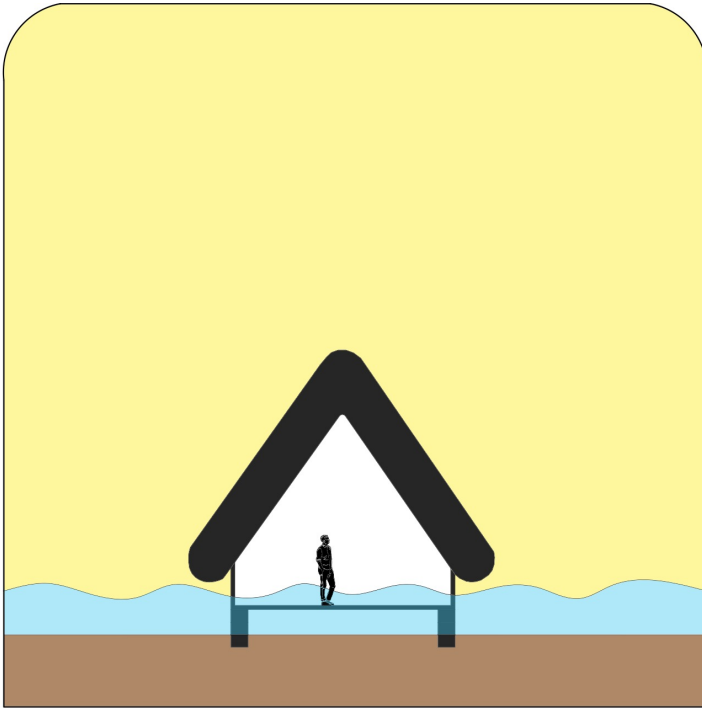
- Removal work must be performed by an asbestos removal licence holder and/or their employees, who are trained and instructed to safely perform the removal work.

REFURBISHING EXISTING
BUIDLING

VS

PROPOSING NEW RESILIENT
DESIGN

FLOOD RESILIENT DESIGN – CONCEPT 1



STRATEGY 1: FLOTATION DEVICE 'AMPHIBIOUS HOUSING'

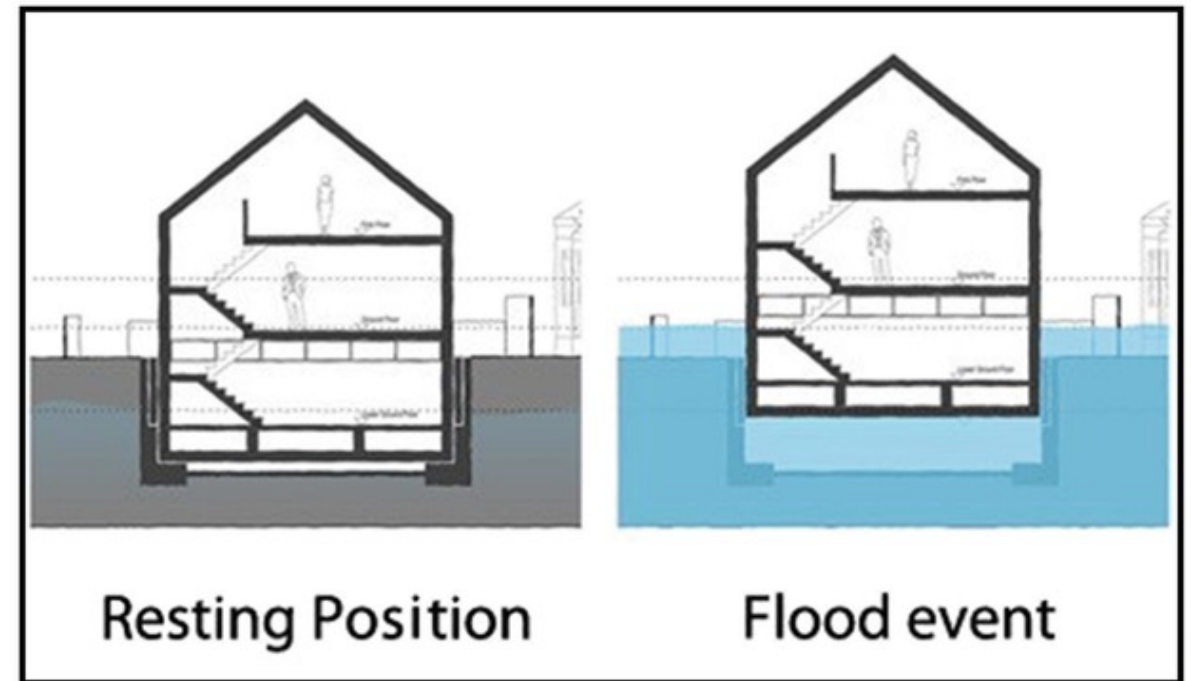
DESIGN PROPOSAL PRECEDENT 1 – FLOTATION DEVICE



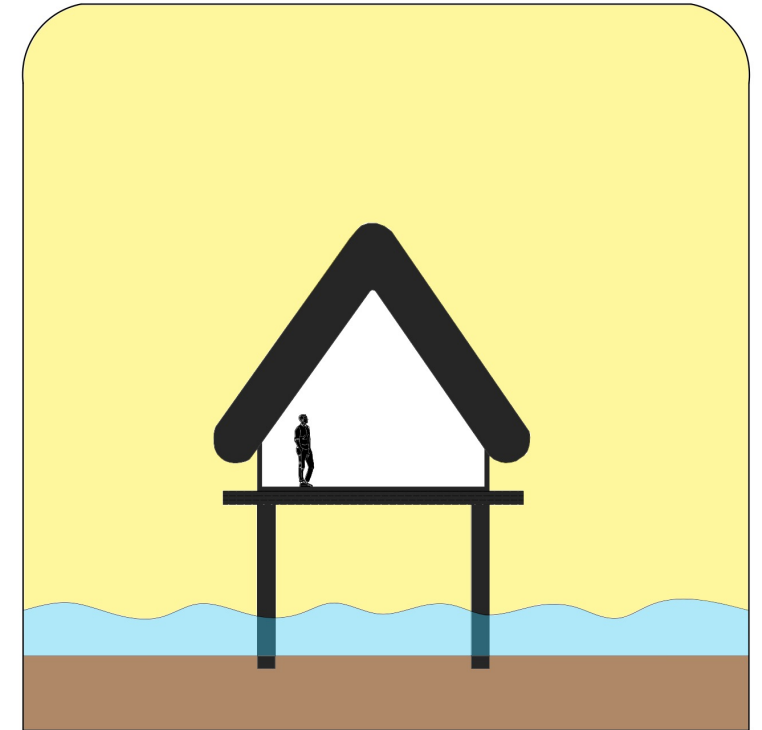
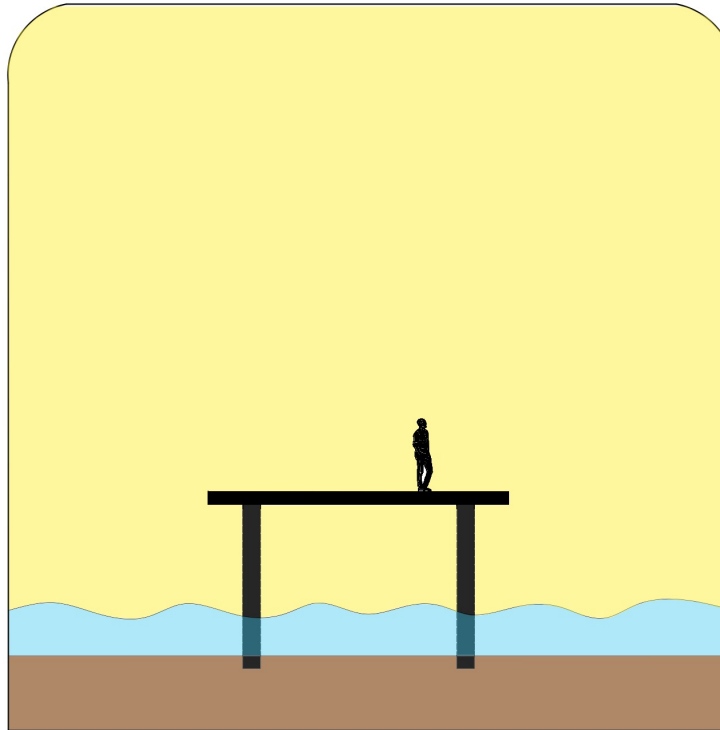
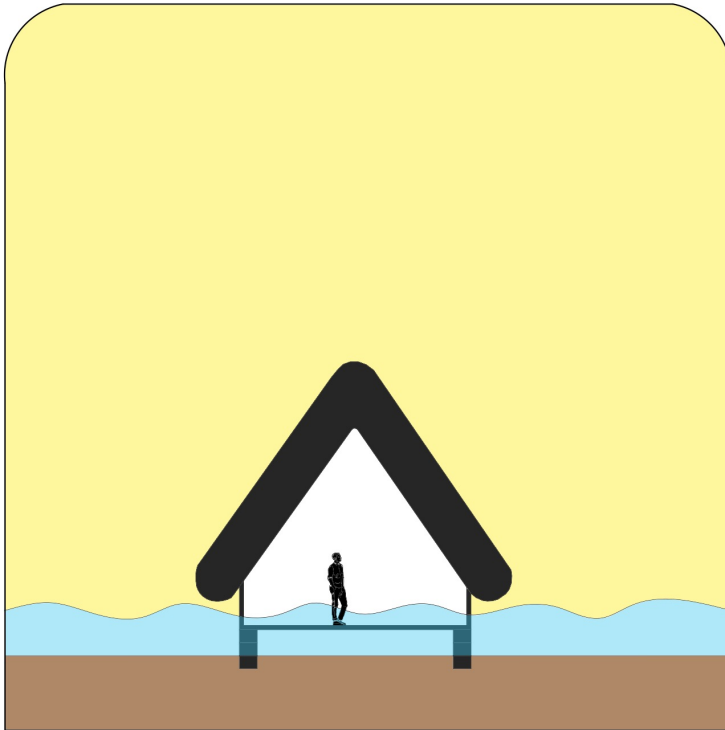
A lightweight timber-framed structure is fairly traditional in its form sits inside an excavated "wet dock" made from steel sheet piling with a mesh base to allow water to enter and escape naturally.

The building, which has a foundation of waterproofed concrete that wraps around the lower ground floor, acting like the hull of a ship.

"When a flood event occurs, the river will rise gently and within the base of the wet dock the water will then start to rise."



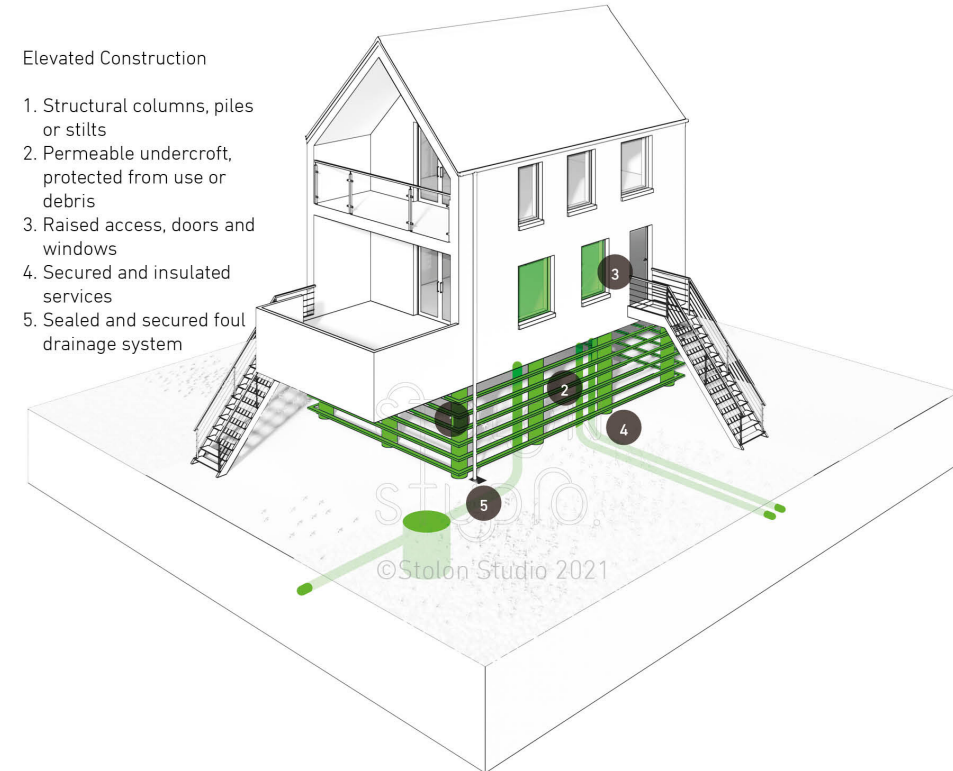
FLOOD RESILIENT DESIGN – CONCEPT 2



STRATEGY 2: RAISED BUILDING

Development of a sustainable design proposal considering the choice of tools, techniques and materials to minimise health & environmental impact, increase the lifespan/life-cycle of the building.

DESIGN PROPOSAL PRECEDENT 2 – RAISED BUILDING



An elevated building, with regards to flooding, is a building that is raised on columns (or stilts) so that the floor level is higher than the potential level of the flood water. This is a simple and logical yet effective way to protect a property from flooding, but it is reliant on accurate prediction of flood levels.

IDEAS RAISED

MORE SPACE
(OFFICES) TO
RENT OUT TO
ORG'S

FEEDBACK AND
INPUT FROM
ALL PARTIES
INVOLVED

PHYSIO-
THERAPY &
REHAB
FACILITIES
FOR
ATHLETES

SITE LIES ON A
FLOOD PLAIN
FLOOD RESILIENCE

AGRICULTURAL
DEVELOPMENT –
POTENTIAL
FARMING
SCHEME WITH
1/3 OF THE SITE

GENERATING
INCOME DURING
MONTHS WHEN
OUTDOOR
ACTIVITIES ARE
DIFFICULT

CREATING OLYMPIC
STANDARD FACILITIES +
ACCOMODATION

SOLAR POWER,
MATERIAL
HARVESTI, BIO-
MASS BOILER

PEDESTRAIN
ACCESS
FROM THE ROAD

POTENTIAL
ASBESTOS
PROBLEM

ENTERNTAINMENT
& REFERESHMENT

CREATIVE
SUSTAINABLE
DESIGN
SRATEGIES &
SCHEMES

PRIMARY LEVEL



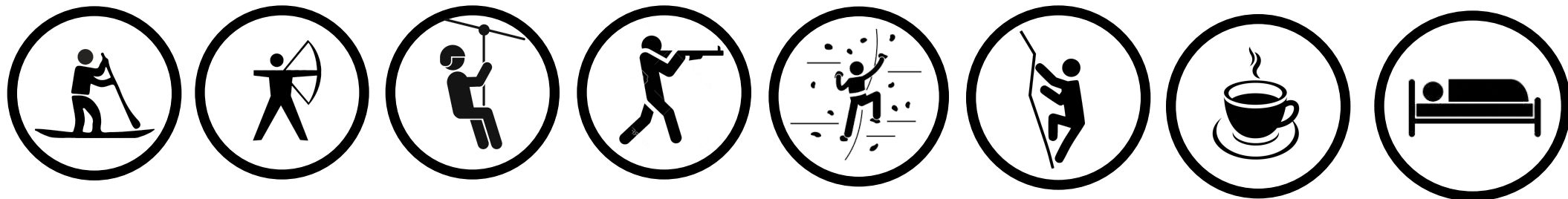
Primary Project aims: Propose Resilient Design Development Scheme, prioritising Net-Zero and sustainable strategies. Long-term sustainable development engaging; Environmental, Social & Economic aspects of LOPC & The Site

SECODNARY LEVEL



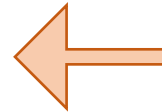
In keeping with the core beliefs of the LOPC, fostering an environment for community care, bonding, skill-learning & team-work

TERTIARY LEVEL

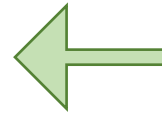


Promoting leisure activities, healthy curiosity, outdoor adventure, exploration, entertainment & refreshment

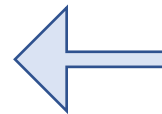
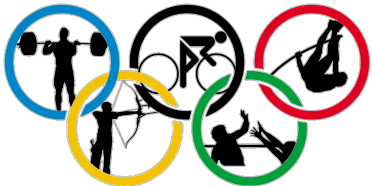
PARTNERS TO ENGAGE



Support from the local city council in receiving approval for projects and possible funding



More collaborative involvement with the care and maintenance of the River and LOPC River conservation projects



Creating Olympic standard training facilities with possible accommodation on site?



**Leicestershire
& Rutland
Wildlife Trust**

AGM TRUSTEE'S ROLE

- Which stakeholder groups to engage, their level of influence:

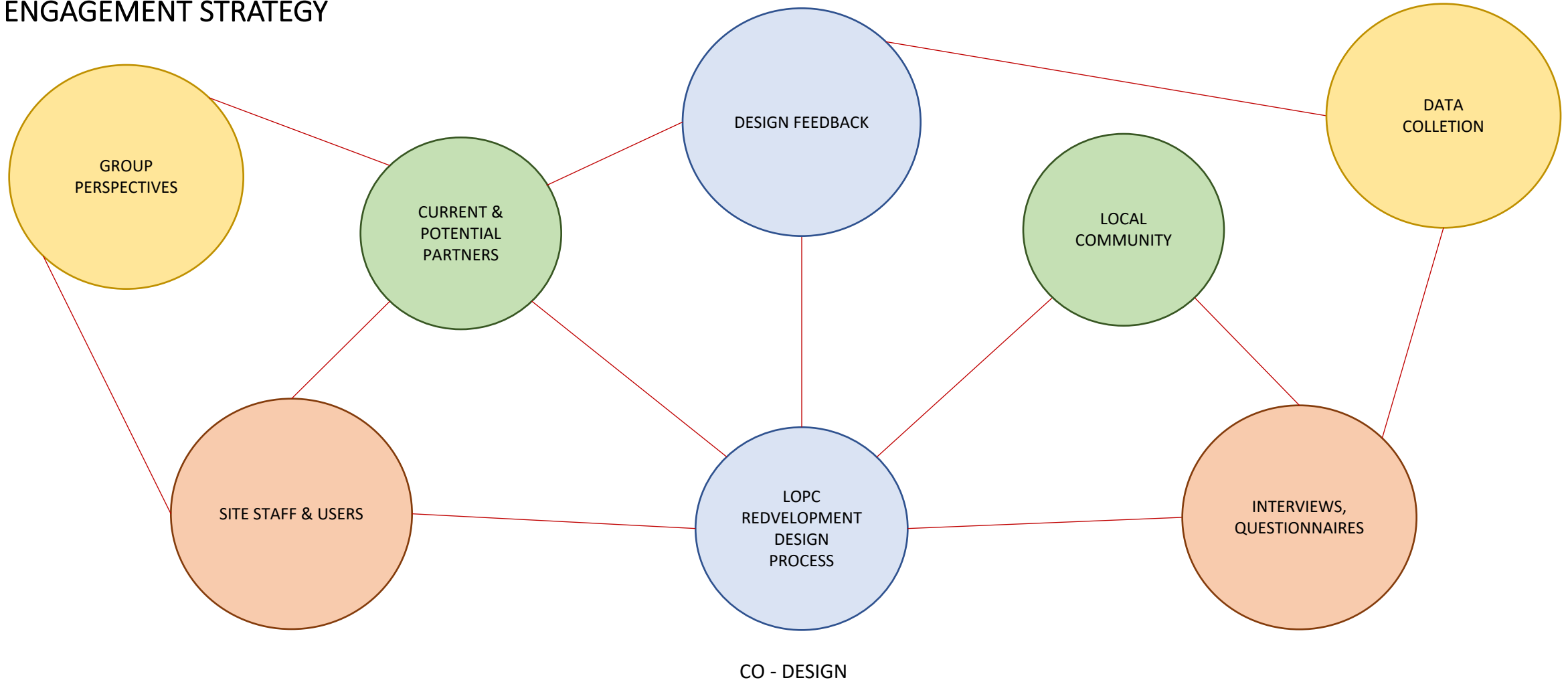
1. Customers and customer groups
2. Suppliers
3. Funders
4. Partners
5. Local communities
6. Regional / national training centre

- Facilitation Access to key individuals whose opinions may ultimately be helpful in supporting the development and growth of LOPC

- Building a collaborative approach to the partnership relation to facilitate project delivery

- LOPC Short Term vs Long Term Goals?

ENGAGEMENT STRATEGY



Gathering experiences, needs, wants & expert knowledge with the aim of informing the design process and creating holistic and sustainable design developments that benefit all parties involved. Ascertain the needs of all stakeholders via semi-structured interviews with Partners. Use their feedback from questionnaires and preliminary designs sketches to inform the design and project.

WORK PLAN

